

CITY OF MALIBU

PALISADES/FRANKLIN FIRE-REBUILD GEOTECHNICAL GUIDELINES

INTRODUCTION

The City of Malibu has updated the Fire Rebuild Geotechnical Guidelines to clarify report requirements for geotechnical professionals assisting owners in safely and expeditiously rebuilding their fire-damaged properties. Note that the term *Geotechnical* in this document encompasses the fields of engineering geology and geotechnical engineering.

The intent of these Guidelines is to clarify the City's policy and code requirements applicable to geotechnical reports for Palisades/Franklin Fire Rebuild projects. Current submittals for Fire Rebuild projects must meet (2023) Los Angeles County Building Code (LACBC) requirements.

An important element of Fire Rebuild projects is that there is often directly-applicable geotechnical data available for project sites in the form of the original project geotechnical reports. Geotechnical consultants are encouraged to utilize existing data where they find it reliable and appropriate. It is important to note that in some areas, potential geologic hazards may not have been identified during the original site development. Furthermore, standards of professional practice have evolved over time and current submittals must meet current code requirements.

NOTE: This is an informational document only. It does not replace or supersede regulations, codes, or policies adopted by the City of Malibu.

Applicable Building Code Standards: All geotechnical report requirements are governed by the Malibu Municipal Code, and LACBC Sections 110, 111 and §1803. Specific attention is called to code sections 1803.5.11 and 1803.5.12. These sections require complete geotechnical evaluations for all sites within Seismic Design Categories C - F and D – F, respectively. All sites within the City of Malibu Palisades/Franklin Fire Burn area fall within these Seismic Design Categories and consequently, all projects must meet these code requirements for geotechnical reports. The Community Development Department has prepared a LACBC-based Malibu Fire Rebuild Geotechnical Review Checklist summarizing the applicable code standards. The checklist is utilized by geotechnical review staff during geotechnical reviews, and consultants are encouraged to utilize the checklist in preparing their technical report submittals.

Online Public Record Database: The City maintains a [public records database](#) of geologic and geotechnical reports, accessible by APN/Parcel No. and by street address. Use the "Search Type" dropdown and select *ESD – Geology Files* to access public records of existing geotechnical reports for project sites and adjoining properties. Review and use of existing information is encouraged.

REFERENCE LINKS:

1. Malibu Fire-Rebuild Geotechnical Review Checklist (2023 LACBC), rev. 7/16/26
2. [Los Angeles County Building Code \(LACBC\)](#)
3. [LA County Administrative Manual Guidance S002.0- Setbacks from Descending Slopes](#)
4. [LA County Administrative Manual Guidance S001.0- Alternate Slope Setbacks from Ascending and Descending Slopes](#)
5. [LACBC CBC Amendments §1807.2 – Timber Retaining Walls](#)

Report Types:

- **Category 1: *Limited Geotechnical Report* (“Limited Report”):** For fire rebuild projects supported on shallow foundations where existing geotechnical information is sufficient to characterize geologic hazards and to support project recommendations as required by 2023 LACBC §1803.6, a *Limited Report* is acceptable. Limited Reports shall include a geotechnical site reconnaissance and may include additional exploration and testing where warranted. Where adjacent information is being utilized, the project geotechnical consultant must provide a discussion substantiating the use existing information without new exploration, and recommendations to address changed conditions should they be discovered during construction.
- **Category 2: *Comprehensive Geotechnical Report* (“Comprehensive Report”):** For Fire Rebuild projects on deep foundations or where existing information is insufficient to characterize all geologic hazards and to support all 2023 LACBC §1803.6-required project recommendations, a Comprehensive Report is required.
- **Category 3: *Geologic Hazard Assessment for Temporary Housing*:** This report is a limited geologic hazard assessment for temporary housing only that is NOT constructed on permanent foundations.. New habitable structures constructed on permanent foundations (whether pre-fabricated or not) require a Comprehensive report.
- **Category 4: *Supporting Geologic Report for Onsite Wastewater Treatment Systems* (“Supporting Geologic Report”):** This report is required when a new onsite wastewater treatment system is to be constructed. It may be combined with a Comprehensive report.

The Project Geotechnical Consultants are encouraged to consult with the City’s Fire Rebuild Geotechnical Reviewers and the Building & Safety Structural Reviewers prior to preparing geotechnical reports.

Limited Report versus Comprehensive Report

- Only those projects that are single family residences AND have been assigned the *Planning Verification – Palisades Fire* classification (PVPF, also called *in-kind* or *like-for-like* replacement with or without the additional 10%) by the Planning Department are eligible for a Limited Report.
- All other Planning classifications require the preparation of a Comprehensive Report. Multi-family residential structures that are three (3) units or fewer or structures otherwise designated as such by the Malibu Municipal Code (MMC). Fire Rebuild projects for commercial structures, multi-family residential structures more than 3 units, and properties located on the beach (coastline) require a Comprehensive Report.

GEOLOGIC HAZARDS IN MALIBU FIRE REBUILD AREAS

The following sections provide a general overview of selected geologic hazards in the Palisades/Franklin Fire burn area. Consultants may utilize this information in the preparation of reports.

Big Rock Mesa Landslide Hazard: Geotechnical reports for projects located within the Big Rock Mesa Landslide area, including properties outside of the landslide limits but whose sole vehicular access is through the landslide area, are required to describe the potential hazards of the Big Rock Mesa Landslide. A generalized description of the Big Rock Mesa landslide and related hazards follows. Geotechnical consultants should describe relevant hazards in their reports, as applicable.

The State of California - [California Landslide Inventory map](#) lists the Big Rock Mesa landslide as a historically-active rock slide and presents the *interpretation confidence* as “100% confident it is a landslide”.

Beginning in the early 20th century, Big Rock Mesa was used for agriculture and cattle ranching and eventually supported the Ocean Mutual Water Co. operating 10 water wells. The tentative tract map was approved in the early 1960s and development of 216 homes on the landslide area continued through the 1970s, all of which are on septic systems. The development brought in city water supply and the long active water wells were abandoned. About 20 years after significant development began with the introduction of hundreds of septic systems and the abandonment of the water wells, rising groundwater levels initiated reactivation of the dormant landslide. Creep movement began the late 1970s and movement accelerated in 1983 following wet rainfall years in 1978, 1980, and one of the wettest years on record in 1983. Major litigation ensued, one of the outcomes of which was the Bing Yen & Associates (BYA) report of 1992 which investigated the geometry, stability and groundwater conditions in the landslide and recommended on-going dewatering as mitigation to stabilize the slide.

Subsequent to the BYA and other reports on the landslide, a landslide assessment district was established by Los Angeles County and continues to be administered by the City of Malibu. The BYA report (1992) and annual Assessment District reports are available at the [Big Rock Mesa Landslide Maintenance District No. 98-1](#) webpage.

The dewatering program initiated in 1983 and continuing today has significantly lowered groundwater levels within the slide mass from 1983 highs and increased the stability of the landslide. BYA (1992) determined the landslide to have an approximate factor of safety ranging from 1.2 to 1.25 at the time of the report. Based upon recent measurements reported in the Annual Assessment District reports, groundwater levels are currently comparable to groundwater levels reported by BYA in 1992 and therefore the stability of the landslide mass is believed to be about the same with a factor of safety for slope stability in the range of 1.2 to 1.25. These factors of safety do not meet the Los Angeles County or City of Malibu requirements for a minimum factor of safety of 1.5 and therefore, LACBC §110.2.3.6 applies for Fire Rebuild properties.

Risks to homeowners include the possibility of renewed landslide movement in response to elevated groundwater levels within the slide area. Factors that can contribute to elevated groundwater levels include: (a) intense and/or prolonged rainfall events, especially multiple wet years in succession, similar to what occurred leading up to 1983, (b) failure to adequately fund and maintain the landslide dewatering systems, also similar to what occurred leading up to 1983, (c) increases in water or wastewater discharges within the landslide area from excessive household water usage, over-irrigation of landscaping, or unpermitted increases in plumbing fixtures including ADUs, (d) pipe leaks in either irrigation, household, distribution, or transmission water pipes. Additional risk is related to potential landslide movement triggered by strong, earthquake-induced seismic shaking.

Landslide movement due to elevated groundwater levels would most likely initiate slowly and gradually, as occurred in 1983. Widespread distress in the form of slab or wall cracks, sticking doors or windows could occur. Less likely, but not considered impossible, is the risk of a catastrophic

landslide failure, either from strong ground shaking or significantly elevated groundwater levels, or both. Such a failure could cause widespread or local destruction of homes.

There is nothing an individual homeowner can do to significantly improve the stability of the Big Rock Mesa Landslide. Still, it is essential that all homeowners do their part by limiting household water use; use low-flow water fixtures; use drought-tolerant landscaping with controlled drip irrigation; and maintain rain gutters and area drains that collect and direct surface runoff to storm-drain systems.

Local Slope / Landslide Hazards: Numerous smaller landslides are mapped along the southern bluff of Big Rock Mesa, as mapped and discussed in sources including the [1992 BYA report](#), the 1996 BYA Love Slide report, and the [California Landslide Inventory map](#). Stability of local slopes should be evaluated where proposed construction may be affected by slope instability.

Differential Thickness of Poorly Compacted Fills: There are local areas of deep and variable thickness fill located on many cut/fill building sites. Potential for differential fill thickness and quality of existing artificial fill should be evaluated. Local cut and fill slopes that may affect the site should be shown on the site geotechnical map and cross sections and described. Local slope stability may be required in conformance with LACBC §1803.5.10 and 1803.5.11.

Groundwater: Recent groundwater data is presented in the [Big Rock Mesa Landslide Assessment District Report](#) dated February 25, 2025, by Yeh & Associates. Geotechnical reports should provide a description of recent assessment-district groundwater data, relative to the relevant project location including distance from data points and interpretations of anticipated depth to groundwater at the project site.

Fault Rupture Hazard and the Malibu Coast Fault

The Malibu Coast Fault is a major seismotectonic feature which generally follows the southern range front of the Santa Monica Mountains from Arroyo Sequit Canyon near Leo Carrillo Beach eastward through Malibu to Las Flores Canyon where it trends offshore into northeastern Santa Monica Bay.

The Malibu Coast fault is considered active by the California Geological Survey (CGS), and a segment of it is zoned as an active Earthquake Fault Zone by the CGS between about Escondido Canyon on the west and Solstice Canyon on the east. This zone was established where there is sufficient evidence that the fault is active and well-defined to justify establishment of a State-mapped fault zone. The lack of zonation along other segments of the fault does not imply that the fault is inactive, merely that there is currently insufficient evidence to establish an Earthquake Fault Zone. The USGS has recorded several dozen earthquakes between 3.0 and 5.3 magnitude over the past 100 years, which can reasonably be ascribed to the Malibu Coast Fault. Furthermore, many investigators consider it feasible for the Malibu Coast Fault to rupture synchronously with the nearby Santa Monica and Hollywood Faults, creating a larger potential earthquake risk.

Where feasible, the City of Malibu has required fault trenching studies for new developments located within 500 feet of any of the mapped traces of the Malibu Coast Fault; however, the City has accepted execution of an *Assumption of Risk and Release agreement* for Fire Rebuild properties where applicable.

A description of the location of a project site relative to regional southern California faults, and specifically the Malibu Coast Fault, should be discussed in geotechnical reports along with a general description of the Malibu Coast fault and the associated geologic hazards.

PROPERTIES WITH UNMITIGATED GEOLOGIC HAZARDS REQUIRE AN ASSUMPTION OF RISK AND RELEASE.

Owners of properties with unmitigated geologic or geotechnical hazards that may impact the property may be eligible and/or required to sign and record an *Assumption of Risk and Release* (ARR). Typically, this will apply to properties with hazards that:

- originate offsite (and thus are typically beyond the ability of the property owner to correct)
- cannot be avoided (e.g., parcels entirely within large landslides) or
- cannot be fully mitigated.

LACBC §110.2.3.6 addresses replacement of structures destroyed by causes other than “*landslide, settlement or slippage*”, i.e. fire rebuilds. For such properties with unmitigated geologic hazards, such as the Big Rock Mesa landslide, or close proximity to the Malibu Coast fault, the LACBC requires that property owners, “(3) *Record in the office of the Department of Registrar-Recorder a statement by the owner acknowledging that the owner is aware that the records of the Building Official indicate that the property is potentially subject to a hazard from landslide, settlement, or slippage*”, and “(4) *Record in the office of the Department of Registrar-Recorder an agreement relieving the County (City) and all officers and employees thereof of any liability for any damage or loss which may result from issuance of such a permit. This agreement shall provide that it is binding on all successors in interest of the owner and shall continue in effect until the Building Official records in the office of the Department of Registrar-Recorder a statement that the Building Official has determined that such hazard from landslide, settlement, or slippage no longer exists.*”

Offsite Hazards

Owners of properties with known geologic or geotechnical hazards that may impact the property but occur offsite (and thus are beyond the ability of the property owner to correct) must sign and record an *Assumption of Risk and Release* (ARR) unless the proposed project can be constructed to eliminate the hazard or the proposed structure can be relocated outside of the area of impact of the hazard (avoidance). More information about the ARR requirement is provided at the end of these Guidelines. If the known hazard cannot be eliminated and an ARR is to be executed by the property owner, a key element of the required geotechnical report is for the risks and potential consequences associated with the hazard to be clearly identified by the Project Geotechnical Consultant, so that the property owner is informed of the risks that they are assuming.

Relocation of Building Envelope to Avoid Hazards

If possible, the existing (pre-fire) residential foundation envelope for a PVPF project should be relocated farther from a known and mapped geologic and geotechnical hazard, as allowed by the Planning Department under the rebuild ordinance.

REPORT CATEGORY 1 – “Limited Geotechnical Report”**LIMITED GEOTECHNICAL ENGINEERING REPORT
 (“LIMITED REPORT”)****(Applicable only for Single Family Residence, PV, shallow foundations)**

The preparation of a *Limited Geotechnical Engineering Report* (“Limited Report”) is a report where the Project Geotechnical Consultants, having reviewed the existing geotechnical information for a site, are of the professional opinion that they may rely solely on existing geologic and geotechnical data to provide code required recommendations for eligible fire rebuild projects. Only those projects that have been assigned the PVPF classification (*in-kind* or *like-for-like* replacement with or without the additional 10%) by the Planning Department are eligible for a Limited Report.

Limited Report refers to a report where the consultant can support the required findings and design recommendations using existing geotechnical information alone or supplemented by limited focused exploration (such as verification of depth of existing footings or confirmation testing of soils to support shallow foundations. Generally speaking, projects that are suitable for a Limited Report have had previous investigation on the property, and the pre-fire structure was not adversely affected by an identified geologic hazard.

These reports are subject to satisfying the Geotechnical requirements of the Foundation Feasibility Report. A Limited Report may solely rely on historical and current information (e.g., regarding a landslide), evaluation of geotechnical hazards, and making the findings required in the applicable subsection of §110, or the findings required in §111 of the LACBC, whichever applies.

The Limited Report does not waive the requirements of the Building Code with respect to required written findings

A Limited Report may need to be expanded to a Comprehensive Report in order to provide recommendations for elimination or avoidance of a geologic or geotechnical hazard. These specific measures must eliminate the potential for either catastrophic movement or other life-threatening conditions. Note that an ARR will not be allowed for projects where the hazard to the property is catastrophic or life-threatening. In the event a property owner elects to eliminate or avoid the hazard as recommended by their Project Geotechnical Consultant, and the hazard is eliminated or avoided prior to occupancy, an ARR will not be required.

CONTENTS OF LIMITED GEOTECHNICAL REPORTS

Limited Geotechnical Reports must provide appropriate and sufficient site-specific data and analysis to address all of the proposed project elements in accordance with the current California Building Code, County of Los Angeles Building Code, Malibu Municipal Code, or any other relevant regulations.

- A replacement foundation design or foundation addition design requires a geotechnical investigation to determine soils values such as shear strength, allowable bearing pressure, expansivity, etc. This investigation does not necessarily require a deep boring — rather, only to the depth of influence for

the proposed foundations. It is, however, essential to the design of the replacement or new foundation.

- For a Limited Geotechnical Report, existing geologic and geotechnical data may be supplemented with localized subsurface exploration to verify site conditions and provide additional recommendations, as determined by the Project Geotechnical Consultant.
- If the existing geologic and geotechnical data are not sufficient to fully characterize the property or cannot be supplemented with site-specific exploration to fully characterize the property, or if extensive subsurface exploration is needed to supplement existing information, then a Comprehensive Report is required.

Cases where a Limited Geotechnical Report MAY NOT be acceptable: In the event the proposed project includes any of the following cases, a Comprehensive Report will be required:

1. New foundations outside of the existing (pre-fire) footprint (this may be acceptable for flat sites in certain cases).
2. New foundations within the existing (pre-fire) footprint where the proposed bearing material is determined to be unacceptable for foundation support (i.e., uncertified fill or landslide debris; this may be acceptable for flat sites in certain cases).
3. Underpinning of existing (pre-fire) foundations (this may be acceptable for flat sites in certain cases).
4. Existing uncertified fill for foundation support, unless the fill has been fully evaluated by the Project Geotechnical Consultants and recommendations have been provided to remove, replace, penetrate through into acceptable bearing material, or avoid the fill.

Cases where a Limited Geotechnical Report IS NOT acceptable: In the event the proposed project includes any of the following cases, a Comprehensive Report will be required:

1. Significant grading, topographic changes, or structural improvements such as new retaining walls that did not previously exist, will be made to the property, particularly to eliminate or mitigate a geologic or geotechnical hazard.
2. Any work that significantly affects the geologic and geotechnical stability of the property.
3. If geotechnical analysis determines that a slope on the property (local slope) is not grossly or seismically stable or may otherwise adversely impact habitable structures on or off site.
4. If geotechnical analysis determines that the property is subject to liquefaction.
5. All beachfront properties.

**REPORT CATEGORY 2
COMPREHENSIVE GEOTECHNICAL ENGINEERING REPORT
("COMPREHENSIVE REPORT")**

A *Comprehensive Engineering Geology and Geotechnical Engineering Report* ("Comprehensive Report") is required for all fire-damaged properties that are not eligible for a Limited Report. A Comprehensive Report should conform to the requirements of the 2023 LACBC and these Fire Rebuild Guidelines.

Fire Rebuild projects for commercial structures, multi-family residential structures (of 3 or more units), and properties located on the beach (beachfront or coastline properties) require a Comprehensive Report. Similarly, projects that are assigned a Coastal Development Permit (CDP) or an Administrative Plan Review (APR) by the Planning Department will require a Comprehensive Report.

Projects that fall under certain sections of the building code will mandatorily require signing and recordation of an Assumption of Risk and Release (ARR). If the proposed project is otherwise eligible for an *Assumption of Risk and Release* (ARR), but the owner does not wish to sign and record an ARR, then a Comprehensive Report will be required that provides recommendations to eliminate or avoid any geologic or geotechnical hazards affecting the property in conformance with the Malibu Municipal Code, which includes complying with the provisions of LACBC §111.

Properties that require a Comprehensive Report may also require a Supporting Geologic Report for a new onsite wastewater treatment system (OWTS; Report Category 4 below), unless the property will be serviced by an existing municipal sewer or the existing (pre-fire) OWTS passes an OWTS Fire Damage Assessment that has been reviewed and accepted by the Environmental Health Division.

If existing (pre-fire) foundations, retaining walls, or shoreline protection devices are intended to be re-used in the fire rebuild project, then a favorable Structural Foundation Feasibility Report must be submitted and accepted by the Building Official (refer to the Forms & Handouts Page of the Malibu Rebuilds website: <https://maliburebuilds.org/forms-and-handouts/>). If a favorable determination cannot be made for the structures intended for re-use, then a Comprehensive Report will be required to provide geotechnical recommendations to repair or reconstruct those structures or construct replacement structures elsewhere onsite.

**REPORT CATEGORY 3
GEOLOGIC HAZARD ASSESSMENT FOR TEMPORARY HOUSING**

Limited Geologic Hazard Assessments are required for temporary housing as defined under recent amendments to [Malibu Municipal Code §17.40.040](#) Section A18 (a-k) Residential Development Standards. The siting of temporary housing shall be supported by a limited geotechnical report prepared by appropriately licensed professionals which evaluates the location of the proposed temporary housing with respect to geologic and flood hazards that the specific location(s) may be exposed to during the proposed four (4) year use of the location. These reports shall be signed by both a certified engineering geologist and either a registered civil engineer practicing soils engineering or a registered geotechnical engineer.

The Project Geotechnical Consultants are encouraged to review the information in the following resources to prepare the Hazard Assessment:

USGS Postfire debris-flow hazards:

<https://www.usgs.gov/programs/landslide-hazards/science/postfire-debris-flow-hazards>

CGS Watershed Emergency Response Team Assessments:

<https://www.conservation.ca.gov/cgs/bwg/recent>

A finding is required that the specific location of the temporary housing is safe for its intended use for the duration of use. The report must be submitted to the City for review by the ESD Geology Department and accepted by the Building Official.

If the temporary housing is supported on anything OTHER than wheels or a trailer which can be readily moved, it shall comply with requirements for foundations as noted in Chapter 16, 18 and Appendix G – Floodproof Construction of the current Los Angeles County Building Code.

REPORT CATEGORY 4
SUPPORTING GEOLOGIC REPORT FOR ONSITE WASTEWATER TREATMENT SYSTEMS
("SUPPORTING GEOLOGIC REPORT")

A *Supporting Geologic Report for Onsite Wastewater Treatment Systems* ("Supporting Geologic Report") should conform to the requirements of Section 5.8 of the 2013 Geotechnical Guidelines. A Supporting Geologic Report will be required when a new OWTS is proposed or when an existing OWTS is proposed to be significantly repaired or modified.

The Supporting Geology report should include:

1. The current static and highest anticipated groundwater levels under the subject site.
2. A finding that the OWTS has the required clearance from the groundwater levels.
3. Interpretations of the geologic structure, including discontinuities such as fractures, faults, clay seams, and joint systems (for bedrock sites) or variations in sandy, clayey, and silty soils across the site (for terrace or alluvial sites).
4. A discussion of the anticipated path of effluent, the potential for mounding or daylighting of effluent, and any geologic changes across the site that may impact the movement of effluent.
5. Geologic cross sections that clearly depict the existing and/or proposed OWTS, the existing and proposed grades, the anticipated paths of effluent, current and highest anticipated groundwater levels, required setbacks, and recommended capping depths, as appropriate.
6. Surficial, static, and pseudo-static slope stability analyses that include the highest anticipated groundwater levels and that consider the proposed grades across the property. Saturated zones from effluent disposal must be evaluated as part of the analyses.
7. Complete findings in accordance with LACBC §111, or in the case of properties located on historically active, dormant, or ancient landslides, complete findings in accordance with LACBC §110.2.3.6.

Note that, for areas within known geologic and geotechnical hazards, such as within Landslide Assessment Districts or historically active, dormant or ancient landslides, the Project Geotechnical Consultant must demonstrate that the new OWTS, replacement landscaping, and any other potential points of onsite discharge will not result in a greater amount of groundwater infiltration than occurred under the pre-fire condition, per LACBC §110.2.3.6. Emphasis will be on evaluating those affected properties for evapotranspiration (ET) systems prior to acceptance by the Building Official of conventional systems. Consult the County ESD or Environmental Health Division for more information.

The Project Geotechnical Consultants are encouraged to contact the ESD Geology Department and/or the County Environmental Health Division and review the Geotechnical Guidelines to ensure the Supporting Geology Report contains conclusions and recommendations that sufficiently address the proposed OWTS.

ADDITIONAL GUIDANCE AND FREQUENTLY ASKED QUESTIONS

WHAT SHOULD A REPORT INCLUDE? (Category 1 and 2)

BOTH Limited AND Comprehensive Reports should include, at a minimum:

1. Research of City files (OnBase) for the subject property and those properties within 300 feet of the subject property; the Project Geotechnical Consultants should contact the ESD Geology Staff for additional information that may be relevant to the subject property but not readily available.
2. A discussion on how the existing geologic and geotechnical data obtained from the referenced reports are representative of conditions on the subject property and are appropriate for use and inclusion in the Limited Report.
3. A review of published and available maps and reports for geologic and geotechnical hazards that may impact the subject property.
4. A site observation and description of the geologic conditions observed, including any evidence of earth movement (slope instability, creep, settlement, foundation distress, etc.).
5. A thorough description of the onsite earth materials, groundwater conditions, and surface drainage conditions.
6. A discussion regarding the historical performance of the subject property from a geologic and geotechnical perspective. Aerial photograph review is recommended.
7. A discussion regarding the geologic stability of the site (both surficial and gross stability).
8. A discussion on the property's susceptibility to rockfall, dry raveling, debris flows, mudflows, and flooding resulting from the recent fires.
9. For sites mapped within an active landslide that is within a Landslide Assessment District (LAD), a review of the most recent LAD geology reports and a discussion of historic and future anticipated earth movements. The Limited Report should include geotechnical recommendations to address future ground movement and enhance the stability of the site.
10. For sites with known geologic or geotechnical hazards, a regional hazard map at a suitable scale showing the location of the affected property in relation to the identified hazard.
11. A geologic and/or geotechnical map at a suitable scale depicting the locations of all exploration performed at the site (past or present). The geologic and/or geotechnical map shall use as its base a topographic survey prepared by a licensed professional surveyor and depicting the existing (post-fire) site conditions. Both the pre-fire and proposed residence footprints, and location of the Onsite Wastewater Treatment System (OWTS), should be clearly depicted on the map.
12. Geologic and/or geotechnical cross sections that depict the existing surface and subsurface conditions (including earth materials and groundwater), the proposed project, and geotechnical recommendations for the proposed project. All existing and proposed grades and proposed foundations should be shown on the cross sections.
13. A discussion of all potential geologic and geotechnical hazards as required by the Geotechnical Guidelines, including, but not limited to earthquake-induced landsliding, liquefaction and lateral

spread, surface fault rupture, rockfall, tsunami and/or seiche, hydroconsolidation and/or subsidence, seismic settlement, expansive soils, and slope stability. If the property is not impacted by a known hazard and/or is not mapped within a zone of required investigation for a hazard, a statement clearing the property of the hazard should be provided.

14. Geotechnical recommendations for foundations, retaining walls, slabs, pools, and other proposed structures, as appropriate. Include recommendations for lateral loads of deepened foundations, as appropriate.
15. Geotechnical recommendations for grading and shoring, as appropriate.
16. Geotechnical recommendations to eliminate, mitigate, or avoid geotechnical hazards, including, but not limited to, liquefaction, lateral spread, seismic consolidation, hydroconsolidation, creep, slope instability including debris flows, and expansive soils.
17. For bluff sites: A qualitative assessment of bluff edge setback based on the height, gradient, geology, and drainage; the post-fire residential foundation envelope should be relocated farther from the bluff edge if allowed by the Planning Department.
18. Reports must be stamped and signed by the California-licensed Project Geotechnical Consultants.

IMPORTANCE OF CODE REVIEW

The majority of the foundation requirements are code driven on both beachfront and non-beachfront parcels, as well as geotechnical requirements for re-use of existing foundations. The **Malibu Fire Rebuild Geotechnical Review Checklist** is a guide to the California Building Code, Los Angeles County Code and Malibu Municipal Code Sections that are required to be addressed, and how they affect geotechnical design. This table is a reference for Project Design Teams and should be used as a guide for which code sections the teams should read and understand as it relates to Fire rebuilds.

REQUIRED FINDINGS IN GEOTECHNICAL REPORTS

Fire Rebuild properties require one of two types of Findings under County of Los Angeles Building Code adopted by the City. Either LACBC §111 OR LACBC §110 applies. Any property where findings CANNOT be made in accordance with LACBC §111 will require findings in accordance with LACBC §110 and an Assumption of Risk and Release will be required to be executed.

When is LACBC §111 Applicable? In general, the subject property and the proposed building area must be found to not be subject to geotechnical hazards, including landslide, settlement, or slippage, through appropriate geotechnical data and analysis. This is not always possible when rebuilding in existing geotechnical hazard areas; but in areas demonstrated to be free from geotechnical hazards, the submitted report(s) must include complete findings required by LACBC §111, as adopted by the MMC.

- Hazard avoided: Geotechnical hazard areas that are identified on the property but are located away from the proposed building area (and thus do not affect it) must be designated as Geological Hazard Areas on the plans, and in some cases may need to be designated as Building Restriction Areas.
- Hazard Avoided: If the proposed building area is found to be subject to geotechnical hazards, but the hazard(s) will be avoided (such as through relocation of the building envelope as described above), the submitted report must comply with the provisions of LACBC §111, including the required findings therein, and demonstrate that the site is safe for the intended use (reference: LACBC §110.2.3.2).

- Hazard Eliminated or Mitigated: If the proposed building area is found to be subject to geotechnical hazards, but the hazard(s) will be eliminated through geotechnical design and mitigation measures, the submitted report must comply with the provisions of LACBC §111, including required findings therein (reference: LACBC §110.2.3.1).

When is LACBC §110 applicable? §§Replacement of structures located on a historically active, dormant, or ancient landslide that are subject to hazard from landslide, settlement, slumping, or slippage that cannot be eliminated or avoided will be subject to the provisions of LACBC §110.2.3.6. The report must include a qualitative or conditional finding that the proposed work complies with LACBC §110.2.1 and shall provide recommendations to enhance site stability.

WHAT IS AN ASSUMPTION OF RISK AND RELEASE (ARR)

An *Assumption of Risk and Release* is an acknowledgment and disclosure of hazards document that is required when Geologic Hazards cannot be fully mitigated or avoided. The document is completed by the property owner(s) and recorded against the property title by the Los Angeles County Recorder and references the report or reports prepared by licensed geologic and geotechnical professionals that:

1. Characterize the known and potential geologic and geotechnical hazards affecting a property (both onsite and offsite),
— AND —
2. Characterize the risks to the property from those geologic and geotechnical hazards if the hazards cannot be eliminated or avoided but the habitable structures are found to be safe for the intended use.

An ARR requires that the property owner be informed by the Project Geotechnical Consultants of the risks to the property from a geologic or geotechnical hazard and accept that those hazards will continue to exist without intervention.

An ARR may be required for additions constructed within areas impacted by known geologic or geotechnical hazards. In the event the Project Geotechnical Consultants demonstrate that the proposed addition will not be affected by the geologic or geotechnical hazards, an ARR will not be required.

WHEN IS AN ASSUMPTION OF RISK AND RELEASE REQUIRED FOR FIRE REBUILDS?

An Assumption of Risk and Release is required in accordance with the LACBC §110 for all Planning Verification affected by Geologic Hazards. Generally, for the Palisades/Franklin Fire, the applicable code section is LACBC §110.2.3.6 and applies properties within:

- existing mapped known hazards (such as landslides) or
- mapped potential hazard areas, and that have NOT been fully mitigated OR demonstrated to not affect the habitable structures.

WHAT IF AN ASSUMPTION OF RISK AND RELEASE HAS BEEN PREVIOUSLY RECORDED?

A new Assumption of Risk and Release is required to address the new project and current property condition.

SUGGESTED LANGUAGE FOR USE IN REPORTS

To assist geotechnical professionals with streamlining reports and providing acceptable code-conforming finding statements, the City reviewers have compiled suggested language based on review of fire rebuild geotechnical reports to date. Refer to Attachment 7.

SITE CHARACTERIZATION FOR FOUNDATION DESIGN

All Fire rebuilds must conform to the current applicable building code and standard of practice for geotechnical engineering design and construction. In a practical sense, this means that although a house may have existed on a building pad or site previously, past performance is not a guarantee of future performance for many reasons. For example, as observed and documented on Big Rock Mesa by many geotechnical consultants, houses on relatively “flat lots” as well as at the edge of slopes on both shallow and deep foundations, have exhibited foundation distress and/or tilt of slab on grade and raised floors of up to 5 to 7 inches in some cases. This may be due to older construction methods that did not ensure adequate performance of built structures and were subsequently updated (including minimum presumptive bearing capacity’s), change in site conditions to landslide movement, man-made disturbance from demolition and debris removal operations, observed variability in quality of fill placed as part of old tract grading in the early 1960’s, and observed significant differential fill depths across a building site.

If existing geotechnical information exists on a site, it should be used as a guide to investigate and verify the suitability of proposed bearing material to provide uniform support of new foundations designed to current codes. Specific to Big Rock Mesa, Geotechnical Consultants should note that the 1964 AMCO Compaction report specified that the bearing capacity was 1000 psf, less than current code minimum of 1500 psf.

- On lots that are relatively flat and propose shallow foundations, foundation bearing material should be characterized a minimum depth of at least twice the foundation width below the bottom of the foundation (based on well-established engineering design principles). This includes characterizing the expansion potential of the bearing material.
- On any lot with existing fill, wherever structures are proposed, the fill should be re-certified to full depth or removed and recompacted to establish firm uniform foundation support. New engineered fill cannot be certified over old fill that is uncertified, or whose relative compaction is unknown or below current building code.
- On lots with deep or variable fill (such as those identified in the AMCO 1964 report), where deep foundations may be required, the full depth of foundation conditions should be verified through existing data or exploration, below the depth of unsuitable materials a minimum depth into proposed

bearing material considered acceptable by the project geotechnical engineer, based on foundation loading conditions.

For lots at the edge of or on slopes steeper than 4:1, all structures must meet building code required setbacks from descending slopes, and slope stability may be required. The subsurface should be characterized to the depth of required foundation and/or setback requirements which ever is deeper. This may be done using geologic mapping, existing subsurface information, or new subsurface information or a combination of the three. For example, if subsurface exploration exists on an adjacent lot, it may be possible through regional geologic map information and site-specific geologic mapping to establish the adjacent conditions represent the subject site

USE OF CODE-BASED PRESUMPTIVE VALUES IN DESIGN

In certain cases, a site may not have appropriate and sufficient site-specific data from which to prepare a Limited Report. A qualified, licensed Geologist or Engineer with experience of such sites may utilize presumptive load-bearing values provided in Chapter 18 of the California Building Code and must be adequately supported by observation or adjacent data. Please refer to CBC Section on use of presumptive values for the appropriate application (deep vs. shallow foundations) and note the exceptions where presumptive values may NOT be used. In the case of use of presumptive values, the Project Geotechnical Consultants must verify the bearing material during construction operations and provide recommendations to address any unanticipated conditions encountered; **steps to address unanticipated conditions must be shown or included as notes on the civil and structural plans.** Revisions to approved design and construction plans may not be implemented during construction without the review and approval of the City.

WHEN IS SLOPE STABILITY ANALYSIS REQUIRED?

Most of the hillsides within Palisades and Franklin Fire Burn Areas within Malibu City Limits are within a state mapped Potential Seismically Induced Landslide Hazard Zone. This is true of all of Big Rock Mesa, due to the presence of the existing landslide. However, not all lots on Big Rock Mesa will require slope stability analyses. For parcels that are on large landslides that encompass multiple properties (such as Big Rock Mesa, Calle del Barco and Eagle Pass landslides), local stability is required to be analyzed if the local slope topography, location of the parcel, or project scope, indicates. Stability analysis of the larger underlying landslide is not required.

While mitigation may not be required for replacement structures being built in the same location, the site must be found to be safe for its intended use and proposed construction may not increase the risk for habitable structures relative to the pre-fire structure or adversely affect adjacent properties.

Gross and surficial slope stability must be addressed for fire rebuilds projects with slopes 20 feet or higher with a gradient of 2:1H:V or steeper. Seismic slope stability analyses should utilize a seismic coefficient of 0.2 and FOS of 1.1. Slope stability analysis using quantitative methods (as opposed to a qualitative evaluation of slope stability) is required in the following situations:

- For temporary stability of excavations;
- When there is an adverse geologic condition (such as out of slope bedding, or a previous slope failure) on a slope that could affect the foundation;
- Where a state-mapped seismic hazard zone extends with the footprint of the proposed foundation;
- When the project alters an existing slope condition on the parcel;

- When alternative setbacks are proposed that do not meet standard building code minimums in accordance with CBC Section 1807.2;
- When the geotechnical consultant observes a condition on the property that indicates slope stability may be an issue.

Examples of when slope stability analysis is likely required:

- Basement or excavations adjacent to property lines or existing structures
- Replacing an existing retaining wall located supporting a slope that requires permits.
- Structures that do not meet minimum required setbacks.
- Structures located at the edge of slopes where a mapped hazard zone affects the building location.
- A cut-fill building pad with a descending slope where the fill depth is unknown and/or not documented.

Examples of when slope stability is likely NOT required:

- An existing slope is 20 or less in height and where structure meets required minimum code setbacks.
- Where the foundation is located greater than 2H (H being slope height) from the edge of slope.

WHEN ARE FAULT RUPTURE HAZARD STUDIES REQUIRED?

Fault rupture hazard studies may be required for structures within 500 feet of a mapped fault as shown Fault Evaluation Report 229 - Malibu Coast Fault, referred to as FER 229 or within a CGS-mapped Alquist-Priolo Fault Zone.

Exception: Single-Family Residences that are rebuilt like for like plus 10% within substantially the same footprint of the pre-fire structure do not require a fault rupture investigation regardless of their location relative to mapped fault traces within FER 229. A qualitative statement regarding potential fault rupture hazard is required if the structure is within 200 feet of a mapped fault. Refer to Suggested Language Guidance.

Fault rupture hazard investigations may be required when:

- A Single-Family Residence or Habitable structure is located with 200 feet of a mapped fault trace as depicted within Fault Evaluation Report 229 - Malibu Coast Fault, referred to as FER 229, AND the location of the structure is moved or reconfigured such that the risk of exposure to fault rupture hazard is increased.
- The structure is a Multi-family or commercial building, based on review of State Hazard Maps and review of FER 229.

EVALUATION OF LOCATION OF ADDITIONS OR RECONFIGURATION

Additional habitable square footage for a PV project, including proposed square footage for new accessory dwelling units (ADUs), shall not be built closer to a known geologic or geotechnical hazard than the closest extent of the pre-fire structural foundation envelope. The intent is to not increase the structure's exposure to the hazard beyond that which existed prior to the fire. This shall apply to all properties with these hazards:

1. Active fault splays mapped within 500 feet of the pre-fire residence foundation envelope as described on CGS Seismic Hazard Zone maps, faults mapped by Treiman (FER-229, 1994), or faults mapped by other consultants.

2. Active landslides mapped by the USGS, CGS, Landslide Assessment Districts, or other consultants.
3. Debris flows based upon susceptibility maps prepared by the USGS.
4. Restricted Use Areas and Geologic Hazard Areas as presented on Assessor Parcel Maps or as mapped by other consultants.

Note that additions for PVPF projects cannot encroach into the setback area or designated future(s) area of an onsite wastewater treatment system (OWTS).

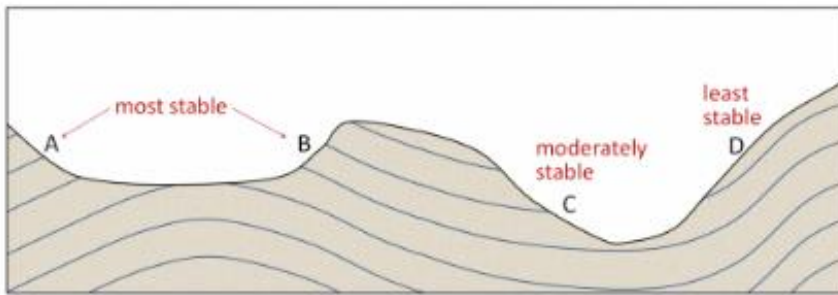


Figure 15.3 Relative stability of slopes as a function of the orientation of weaknesses (in this case bedding planes) relative to the slope orientations. [SE]

Figure 1. Relative Stability. Source: Physical Geology. <https://courses.lumenlearning.com/suny-purchase-physicalgeology/chapter/15-1-factors-that-control-slope-stability/>

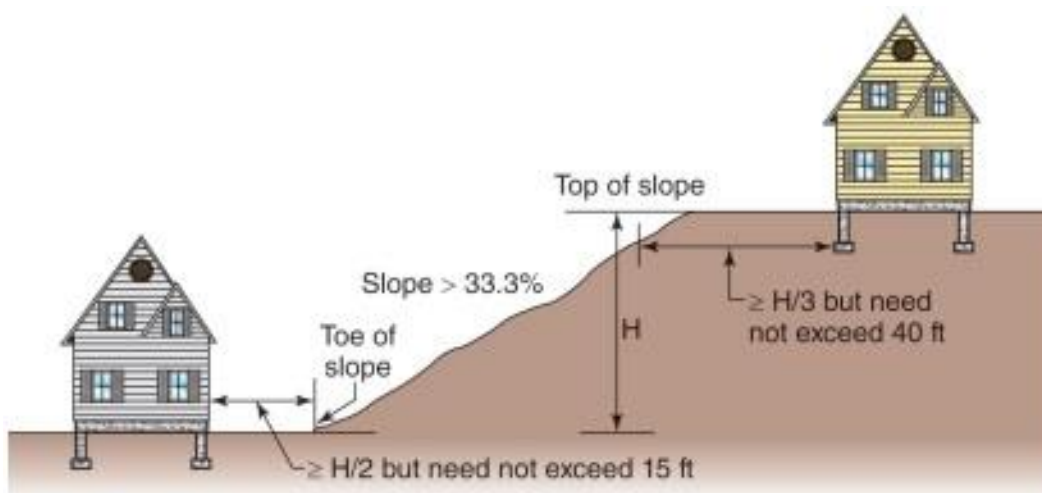


Figure 2. Slope Setback Illustrated.

<https://codes.iccsafe.org/content/MNIFGMNRC2020P1/chapter-3-site-preparation>

DEFINITIONS AND CLARIFICATIONS

DEFINITIONS

For these guidelines, the following definitions have been adopted:

- **Elimination** of a geologic or geotechnical hazard entails complete removal or repair of the hazard such that it no longer poses a threat to the property and the proposed project, and the provisions of LACBC Section 111 can be met.
- **Avoidance** entails relocating the proposed project outside of the area of impact of the hazard, where it will be “safe for the intended use” in compliance with §110.2.3.2 of the LACBC (an ARR is required).
- **Mitigation** of the hazard entails modifying or controlling the hazard to a level that the proposed project will not be subject to geotechnical hazards including landslide, settlement or slippage, and the provisions of LACBC §111 can be met.
- **Building Restriction Area** – per Los Angeles County GMED definition. Applies to single-family residences where there are areas susceptible to instabilities that are not mitigated by the proposed work and that will not affect the proposed development. See GMED Manual for Preparation of Geotechnical Reports dated February 5, 2025, §1.8.3. A Building Restriction Area is used for single lot development. Restricted Use Area is applicable to subdivisions.

<https://dpw.lacounty.gov/gmed/permits/docs/manual.pdf>

CLARIFICATION - Governors Executive Orders

The guidelines are intended to address the Governor’s Executive Orders (as applicable to adopted Building Codes) to allow affected property owners to quickly rebuild their fire-damaged structures. While the Executive Orders do not directly impact soils reports, the Executive Order regarding construction of ADUs may be limited by LACBC §110.