CGS Comments on Hollywood Center Project DEIR .pdf

California
Department of Conservation
California Geological Survey

Gavin Newsom, Governor
David Shabazian, Director

July 16, 2020

Mindy Nguyen
City of Los Angeles, Department of City Planning
221 North Figueroa Street, Suite 1350
Los Angeles, CA 90012

SUBJECT: Comments on the April 16, 2020 Draft Environmental Impact Report for proposed "Hollywood Center" project. State Clearinghouse Number SCH 2018051002.

Dear Ms. Nguyen:

The Department of Conservation's California Geological Survey (CGS) received the April 16, 2020 Notice of Completion and Availability of Draft Environmental Impact Report (DEIR) for the "Hollywood Center" development project, located near Yucca Street, Argyle Avenue, Ivar Avenue, and Vine Street, in the Hollywood Community Plan area of Los Angeles, CA 90028. This letter conveys comments from CGS regarding geologic and seismic conditions affecting the site, including new information not addressed in the DEIR.

Under state law, including the Alquist-Priolo Earthquake Fault Zoning Map Act[1], the Seismic Hazards Mapping Act[2], and Public Resources Code section 2201, CGS provides technical information regarding earthquake faults and other hazards to local governments. This includes publishing detailed earthquake fault maps and other hazard maps and continually reviewing new seismic-hazard data to inform local decision-making. CGS apprises local governments of new seismic information since those maps were published if it is aware that a local government is considering approval of action impacted by this new information.

Due to emerging scientific information near the project site, and the project's height, construction materials, and proximity to active faults and densely populated urban areas, on September 24, 2018, CGS submitted comments in response to the notice of preparation of the DEIR. Our comments on the notice of preparation provided information on the 2014 CGS Fault Evaluation Report 253[3] and the related Earthquake

[1] Pub. Resources Code §§ 2621-2630
[2] Pub. Resources Code §§ 2690-2699.6.
[3] https://gmw.conservation.ca.gov/shp/EZRIM/Reports/FER/253/

Zones of Required Investigation Map (Hollywood Quadrangle), dated November 6, 2014[4], (the 2014 Hollywood Fault Map); faulting and ground-shaking hazard information developed in 2015, after the 2014 Hollywood Fault Map; and older information that provided general geologic context such as rock formation and soil profiles not directly related to faulting.

After CGS commented on the NOP, and after the DEIR was published, the United States Geological Survey (USGS) on May 8, 2020, issued a new, peer-reviewed analysis of the Hollywood Fault zone in the immediate area of this proposal.[5] The 2020 USGS analysis analyzed multiple seismic datasets and models, all of which consistently infer near-surface fault traces of the Hollywood Fault in the same locations. Importantly, the combined data indicate that more than one near-surface fault trace of the Hollywood Fault crosses the proposed project site. Based on the project's proximity to these fault traces, as well as the proposed development's height, construction materials, and location in a densely populated area, CGS staff determined that this new information is important to convey through comment on this DEIR. CGS summarizes findings from these new studies below and assesses how the USGS study, and other studies conducted after the 2014 Hollywood Fault Map, affect the consideration of seismic risk of the proposed development.

1. **Fault traces depicted in CGS's 2014 Hollywood Fault Map do not appear in Appendix G-1's figures of the project site** where locations of their subsurface investigations are presented. Therefore, we attach a figure showing both the location of traces as shown on the 2014 Hollywood Fault Map and the areas of investigation reported in Appendix G-1 (**Figure 1**). (DEIR Appendix G-2 shows the location of the fault trace at a lower level of resolution.) We note below that Figure 1 reflects new information indicating the active fault, which was not cleared by either the 2014 trench or the other investigative techniques reflected in Appendix G-1.

2. **The 2020 USGS study, and other studies that post-date CGS's 2014 Hollywood Fault Map, strongly suggest an active strand of the fault crosses the project site.** CGS considered the 2020 USGS study in light of other studies conducted after the 2014 Hollywood Fault Map. These studies are listed at the end of this letter and, for your convenience, are also available on CGS' FTP server (**FTP Link**). These studies, conducted east of the project site, postdate the studies included as Appendix G-1 to the DEIR, and are therefore new information of importance to public safety. These studies strongly support the presence of an active southern fault strand entering the eastern Hollywood Center property in the vicinity of the alley at Argyle, south of the

[4] https://gmw.conservation.ca.gov/SHP/EZRIM/Maps/HOLLYWOOD_EZRIM.pdf

[5] Catchings, et al., 2020, 2018 U.S. Geological Survey–California Geological Survey fault-imaging surveys across the Hollywood and Santa Monica Faults, Los Angeles County, California: U.S. Geological Survey Open-File Report 2020–1049, 42 p., https://doi.org/10.3133/ofr20201049

fault trench excavated in 2014 as described in Appendix G. Based on these studies, CGS expects to revise the Hollywood Earthquake Fault Zone Map within the next two years by extending the southern strand of the Hollywood Fault further east from where it is currently mapped.

In light of the 2020 USGS study and others referred to above regarding the seismic fault near the proposed development, CGS has assessed whether geotechnical analysis performed as part of the DEIR effectively addresses risks identified within this new information. CGS finds the following limitations in geotechnical analysis of the site given this new information:

3. **The fault trench excavated in 2014 did not clear the entire site of active faults.** Based upon review of the information presented in Appendix G-1 of the DEIR, the GDC trench on the east property did not completely expose the base of the Holocene-age geologic section across the north-south extent of the site and therefore cannot be considered to exclude the presence of an active fault at or near where it is depicted in CGS's 2014 Hollywood Fault Map, or in the more recent studies mentioned above.

4. **Other fault investigation techniques used on the site are not definitive in clearing the site of active faults.** Based on review of the information presented in Appendix G-1 of the DEIR, the fault studies prepared for the proposed Hollywood Center Project, both east and west properties, primarily rely upon subsurface investigations conducted by Cone Penetration Testing (CPT) and small-diameter boreholes. While these types of investigations can provide beneficial information, they are subject to ambiguous interpretations, particularly regarding the activity of faulting because geologists cannot clearly see which stratigraphic horizons are cut by a fault. A third-party review of the geologic studies conducted for the Hollywood Center Project (see Earth Consultants International, Project No. 3425, June 3, 2015; **FTP Link**), which was not included in Appendix G-1 of the DEIR, acknowledges the limitations of the project CPT and borehole subsurface investigations, including unresolvable errors in the re-survey efforts of these data locations. The third-party review also presents multiple possible interpretations of the locations and activity of the faults under the site (ECI, 2015, Plate 4), including an interpretation showing the distinct possibility that the southern strand of the Hollywood Fault is active beneath the project site (ECI, 2015, Plate 4, Interpretation A). CGS understands the project proponents report the project site is underlain by older stratigraphy, capped by Holocene age deposits (<11,700 years old). In their interpretation of boreholes and CPT's, they have postulated the faulting they have identified does not extend into the Holocene units. CGS' interpretation of the CPT and borehole data finds the fault can be drawn to extend into the Holocene units, such as Scenario A in the ECI report. These differing interpretations of fault activity along the southern strand are because only

indirect data from the CPT's and boreholes are available. CGS recognizes these uncertainties can only be resolved by fault trenching, which allows direct observations of subsurface geologic relationships and the ability to sample geologic materials for chronologic dating (see Section 5.4 of CGS Special Publication 42; https://www.conservation.ca.gov/cgs/Documents/SP_042.pdf)

5. **Fault investigations are incompatible with construction excavation.** Appendix G-1 of the DEIR indicates that conditional approval of the geologic report was granted in July 2015. The main condition stipulated by the conditional approval is that the project engineering geologist observe basement excavations during site construction and inform the City's Grading Division if evidence of active faulting is observed. As noted in CGS Special Publication 42 (see pages 32-33), fault trench investigations require detailed, time-intensive analyses of vertical sections of geologic materials. If fault investigations are not completed prior to final project design and approval, these practices may be compromised by typically efficient construction practices.

In conclusion, further assessment of the southern strand of the Hollywood Fault, following, for example, best practices outlined in CGS Special Publication 42 as discussed above, is important to adequately understand seismic risks of the proposed development in light of recently available information.

Please let us know if you have any questions regarding these comments. CGS is available for consultation with the City on evaluating fault activity and other seismic hazard issues.

Sincerely,

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Attachments:

Figures 1 and 2

CGS Comments on the scope and content on the NOP for the Environmental Impact Report for the "Hollywood Center" project, September 24, 2018.

References cited (**FTP Link**):

- Catchings, R.D., Hernandez, J., Goldman, M.R., Chan, J.H., Sickler, R.R., Olson, B., and Criley, C.J., 2020, 2018 U.S. Geological Survey–California Geological Survey fault-imaging surveys across the Hollywood and Santa Monica Faults, Los Angeles County, California: U.S. Geological Survey Open-File Report 2020–1049, 42 p., https://doi.org/10.3133/ofr20201049.
- City of Los Angeles Department of Building and Safety, Grading Division, 2015, Geology Report Correction Letter, Log # 88174, Soils/Geology File – 2 AP, Tract 2058, lot 26, 6044 Carlos Avenue., reference report LA-1230, dated April 28, 2015 by Group Delta.
- Earth Consultants International, Response to Request from the City of Los Angeles Reviewer, East and West Millennium Sites, Project No. 3425, Dated June 3, 2015.
- Group Delta, 2015, Fault Activity Investigation, Proposed Apartment Development, 6044 Carlos Avenue, Hollywood Area, City of Los Angeles, CA, GDC Project No. LA-1230, dated April 28, 2015.
- Ninyo & Moore Geotechnical and Environmental Sciences Consultants, 2015, Fault Rupture Hazard Evaluation, Hollywood Courthouse, 5925 Hollywood Boulevard, Los Angeles, CA, Project No. 402132006, draft report dated February 24, 2015.
- Ninyo & Moore Geotechnical and Environmental Sciences Consultants, 2015, Supplemental Fault Rupture Hazard Evaluation, Hollywood Courthouse, 5925 Hollywood Boulevard, Los Angeles, CA, Project No. 402132007, draft report dated June 15, 2015.

Figure 1. Air photo image of the Hollywood area of Los Angeles with annotation by CGS. Red dashed lines are surface traces of active faults from the CGS Hollywood Fault Evaluation Report, 2014. Green dots represent locations where the Hollywood Fault has been located based on 2018 geophysical studies by the USGS. Orange rectangle inside the Hollywood Courthouse represents the location of the zone of faulting from a CPT and boring transect from Ninyo & Moore reports. Orange rectangle inside the Apartment project represents a zone of faulting from both CPT and core boring study by Group Delta. Blue line represents the steeply inclined Hollywood fault where it was encountered in Group Delta CPT and borings at depth.

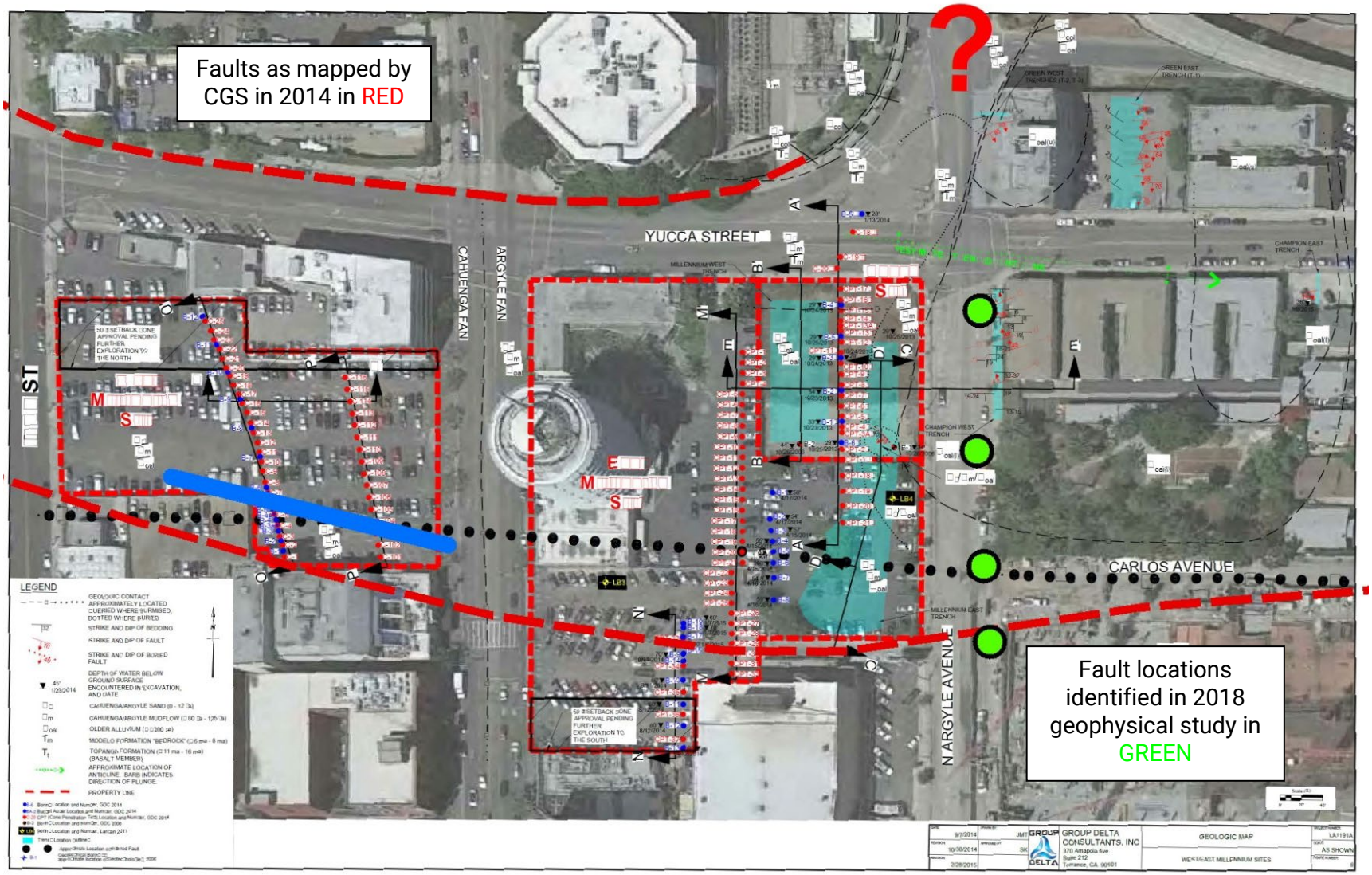

Figure 2. Google Earth image of the project location. Figure from Group Delta Fault Study Reports, as included in DEIR package with annotations by CGS. Turquoise shapes identify outline of approximate trench excavations at the ground surface. Trenches were excavated in vertical benches from the ground surface to selected depth. Excavation did not expose pre-Holocene materials across the entire length of the trench due to depth of excavation and benching style. Red and blue dots show core boring and Cone Penetration Test (CPT) locations across the site. Black dotted line is Group Delta's inferred fault trace, located at depth. Red long dashed lines are surface locations of active fault traces from CGS FER 253. Green dots represent locations where the Hollywood Fault has been located based on recent geophysical studies by the USGS. Blue line represents the steeply inclined Hollywood fault where it was encountered in Group Delta borings at depth.

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September 24, 2018

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SUBJECT: Comments on the scope and content on the NOP for the Environmental Impact Report for the "Hollywood Center" project.

Dear Ms. Nuño-O'Donnell:

The California Geological Survey (CGS) has received the Notice of Preparation for the draft Environmental Impact Report (EIR) for the "Hollywood Center" development project in the vicinity of Vine Street, Yucca Street, Ivar Avenue, and Argyle Avenue in the Hollywood Community Plan Area of Los Angeles, CA, 90028. This letter conveys suggestions and recommendations from the California Geological Survey concerning geologic and soils issues related to the planning area.

The California Geological Survey recommends the EIR address the following items and issues within the planning area:

1) Regional and Site Specific Geology
The EIR should include a discussion of the geologic and structural history of the area and a description of the rock types in the region and across the project site. At a minimum, the following geologic maps should be reviewed:
Dibblee Jr., T.W., 1991, Geologic map of the Hollywood and Burbank (south ½) Quadrangles, Los Angeles County, California: Dibblee Geological Foundation, Map DF-30, 1:24,000 scale.

Campbell, R.H., Wills, C.J., Irvine, P.J., and Swanson, B.J., 2014, Preliminary geologic map of the Los Angeles 30' x 60' Quadrangle, California, Version 2.1. California Geological Survey, available at: http://www.conservation.ca.gov/cgs/Pages/Maps-Data/preliminary_geologic_maps.aspx

Yerkes, R.F., 1997, Preliminary geologic map of the Hollywood 7.5' quadrangle, southern California: U.S. Geological Survey, Open-File Report OF-97-255, scale 1:24,000.

2) Geologic Hazards
Numerous potential geologic hazards exist within the Hollywood Center Project planning area. Each of the hazards listed below should be addressed in the EIR.
a. Earthquake Fault Zones

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CGS has completed seismic hazard zone mapping for the Hollywood 7.5-minute quadrangle and the Hollywood Center Project planning area is within a defined Alquist-Priolo Earthquake Fault Zone. Digital versions of this zone map (PDF and Shapefiles) and associated reports can be downloaded from the CGS Information Warehouse, here: http://maps.conservation.ca.gov/cgs/informationwarehouse/ or accessed as web interactive maps, here: https://spatialservices.conservation.ca.gov/arcgis/rest/services/CGS_Earthquake_Hazard_Zones.

These zones can also be viewed with a parcel base map on CGS's interactive Earthquake Hazards Zone Application, here: https://maps.conservation.ca.gov/cgs/EQZApp/app/

b. *Faulting Hazards* – Numerous earthquake faults are mapped within and nearby the Hollywood Center Project planning area. The Hollywood Fault, and its associated splays, are the closest faults to the project area and the entire project lies within an Alquist-Priolo Earthquake Fault Zone for this fault. In addition, at least one trace of the Hollywood Fault is believed to cross the southern part of the planning area, between Hollywood Blvd and Yucca Street, and is considered active. Because the Hollywood Center Project lies within the regulatory Earthquake Fault Zone, site-specific fault investigations are required before the City of Los Angeles can issue permits and, if an active fault trace is found, appropriate fault setbacks must be determined.

At a minimum, the EIR should identify where active traces of the Hollywood fault pass through the planning area and discuss any surface rupture hazards they pose to the project. The most recent understanding of the location of the Hollywood fault is shown on the CGS interactive Data Viewer, here: https://maps.conservation.ca.gov/cgs/#datalist. From the Layer List, select "Seismic Hazards Program: Alquist-Priolo Fault Traces." Please note that these fault traces have been prepared at a regional scale (1:24,000) for the purpose of delineating the hazard zones. They should not replace site-specific geologic fault studies.

We also recommend that the following CGS Fault Evaluation Report for the Hollywood Fault in the Hollywood 7.5-Minute Quadrangle be reviewed in the EIR: http://gmw.conservation.ca.gov/SHP/EZRIM/Reports/FER/253/FER_253_Report_20140214.pdf

c. *Ground Shaking Hazards* – The Hollywood Center Project planning area is located near many active faults capable of producing severe ground shaking during an earthquake. The EIR should include a discussion on nearby active faults and the likelihood of the planning area to experience strong ground shaking from an earthquake during the life of the project. The earthquake shaking potential for various regions in California can be viewed on the CGS interactive Data Viewer, here: https://maps.conservation.ca.gov/cgs/#datalist. From the Layer List, select "MS48: Earthquake Shaking Potential for

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California (revised 2016)." This map can also be downloaded as PDF, here: ftp://ftp.conservation.ca.gov/pub/dmg/pubs/ms/048/MS_048_revised_2016.pdf

In addition, the USGS Earthquake Hazards Program provides many tools and resources, here: https://earthquake.usgs.gov/hazards/

Please let me know if you have any questions or concerns with the comments in this letter.

Sincerely,

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