File No. 200800 **Committee Item No.** _____
Board Item No. 32

COMMITTEE/BOARD OF SUPERVISORS

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Prepared by: Lisa Lew **Date:** August 7, 2020
Prepared by: _____ **Date:** _____

From: Kathy Angus <kathyangus@comcast.net>
Sent: Friday, April 24, 2020 3:13 PM
To: BOS Legislation, (BOS)
Cc: Gibson, Lisa (CPC); Ronen, Hillary; Beinart, Amy (BOS)
Subject: Email 1 of 2: Appeal of Revised Final Mitigated Negative Declaration for 3516 & 3526 Folsom Street
Attachments: Appeal of RFMND for 3516 & 3526 Folsom St..docx; 3516-26 Folsom Street_Revised FMND_032520 (1).pdf; SF Board of Supervisors M17-152.pdf

EMAIL ONE OF TWO
All attachments could not be included in one document

TO: Clerk of the Board of Supervisors,
Please accept this Appeal of the Revised Final Mitigated Negative Declaration for 3516 and 3526 Folsom Street, submitted on 3/25/2020
We have done our best to respond to serious defects in the RFMND under the constraints of COVID 19. It has been impossible to communicate effectively when collaborating with experts and a large group of neighbors under the Shelter in Place mandate.
Though I have sent several inquiries, I can't figure out how to submit the check (a copy is attached), but will do so when I receive instructions. Since it the Appeal is submitted by a long-standing neighborhood organization, it is always returned uncashed. I will put it in the mail to your office today.
Because of our current constraints, additional information will be submitted prior to the hearing.
Respectfully,
Kathy Angus, Co-Chair, Bernal Heights South Slope Organization
99 Banks Street, San Francisco, CA 94110
kathyangus@comcast.net
415-640-4568

--
Kathy Angus

Bernal Heights South Slope Organization
99 Banks Street, San Francisco, CA 94110
Kathy Angus, Co-Chair
kathyangus@comcast.net 415-640-4568

April 24, 2020

President Norman Yee
% Angela Calvillo, Clerk of the Board
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place
City Hall, Room 244
San Francisco, CA 94102

RE: Appeal of CEQA Revised Final Mitigated Negative Declaration
Planning Case No. 2013.1383ENV
BOS Motion No. M17-152
Building Permit Application Nos. 2013.12.16.4318 and 2013.12.16.4322
3516 and 3526 Folsom Street

SUBMITTED ON-LINE DUE TO COVID-19 PROTOCOLS

Dear President Yee and Honorable Members of the Board of Supervisors,

This letter is written on behalf of neighbors of the proposed project at 3516 and 3526 Folsom Street (BPA Nos. 2013.12.16.4318 & 2013.12.16.4322, the "Project"). The appellant, Bernal Heights South Slope Organization, opposes the above captioned project *inter alia*, on the grounds that the Project's Revised Final Mitigated Negative Declaration ("RFMND," Exhibit A) violates the California Environmental Quality Act ("CEQA").

Pursuant to San Francisco Administrative Code Section 31.16, Appellants hereby appeal the Revised Final Mitigated Negative Declaration published March 25, 2020 in response to the Board of Supervisors' Motion No. M17-152 dated 9/26/17. Prior to the 7/17/2017 appeal of the MND, the MND issued on 4/26/2017[1] was appealed to the Planning Commission on May 16, 2017, and the Amended MND was issued on June 8, appealed again, and heard by the Planning Commission on June 15. It was then appealed to the BOS on 7/17/2017, and heard by the BOS at a meeting on 9/12/2017, after which Motion #M17-152 was adopted on 9/26/2017. Evidence submitted in writing during and prior to the public comment period for the PMND and MND is included as part of this appeal. This endeavor has been supported by the SF Sierra Club, the Bernal Heights Democratic Club, the Bernal Heights Neighborhood Center, Bernal Heights neighborhood associations, and hundreds of San Francisco residents.

[1] Erroneously dated April 19, 2017

SUMMARY

If approved, this project will create hazards that can lead to a leak and subsequent explosion from a 26" PG&E gas transmission pipeline and result in injuries or deaths within the blast radius.

1. The City has rescinded or revoked three different prior Environmental determinations for deficiencies, yet those same oversights and errors are evident in the current RFMND.

2. No independent vibration analysis by a qualified professional was conducted, only the review of the vibration report submitted by the Project Sponsor, violating the Planning Department's "Agreement to Protocols to Insure Objectivity in Environmental Review Documents." Highly qualified geotechnical engineers and pipeline experts have submitted stamped reports on behalf of the Appellants that give evidence of a significantly more dangerous situation than that presented by the Project Sponsor.

3. In light of the inherent danger of excavation on or near this pipeline, inadequate attention has been given to the singular uniqueness of the project location on a 40% slope. There is no evidence the street will be allowed or accepted by the City or how that construction or lack of construction will impact the required mitigation measures.

4. The Emergency Response and Evacuation Plan fails to meet BOS motion's site-specific requirements and introduces additional risks to public safety.

5. No accountability or supervisory roles have been defined as requested in the motion, though there are extensive and sensitive mitigation measures required, including those where one small error can cause a major disaster.

BACKGROUND

Over the past few years, the Planning Department took the unprecedented step of twice rescinding the Categorical Exemptions prior to the Board's hearings on the appeals, and the Board of Supervisors moved for additional mitigation measures in their motion M17-152. While we appreciate the Board of Supervisors recognizing the need for rigorous mitigation measures and emergency plans to address the potential for a catastrophic pipeline accident by revoking the MND, the RFMND issued by the Environmental Review Officer March 25 is still inadequate and legally erroneous.

This is a highly unusual situation, with a private development proposed for a uniquely dangerous location immediately adjacent to a major PG&E 26" diameter natural gas transmission pipeline[2], which is not covered by asphalt, on an extremely steep slope of

[2] Storesund, Rune, 12/1/2016, Independent Project Review, Figures 1-3.

40.3%[3]. This major pipeline is located below a mapped landslide area[4], immediately below the primary access road for the construction[5], immediately adjacent to significant proposed new utility work (e.g., gas service, water supply, sewer) which will require removal of existing pipeline soil cover[6], and immediately adjacent to significant proposed bedrock excavation (depths on the order of 6 to 10 feet per the submitted architectural elevations), which is also immediately below a large parcel designated as a DPW Slope Protection parcel[7].

According to Rune Storesund, D.Eng., P.E., Geotechnical Engineer, Executive Director of UC Berkeley Center for Catastrophic Risk Management: "Construction-related stressing, as well as accidental 3rd party damage, has the potential to degrade the integrity of the PG&E natural gas transmission line, exposing the surrounding neighbors to increased risk of death and injury from the potential of construction-induced puncture or degradation of pipeline integrity."[8]

The feasibility of this project as a whole is questionable as described in this RFMND appeal and in the 7/17/2017 MND appeal.

The RFMND was published two and a half years after requested by the Board of Supervisors, two weeks into the COVID-19 stay-at-home orders. Because of this, and because of the highly technical nature of the project, appellants were severely limited in the amount of research, expert analysis, and community outreach our team could do in order to submit the appeal in 30 days. In addition to the specific items listed in this appeal, other issues may come to light after the appeal is filed. Neighbors involved in this project are sheltered at home, many without necessary technology to meet on-line or on-site to discuss the appeal.

This appeal is primarily responding to the issues addressed in the motion sent to the Environmental Review Officer by the BOS outlining the deficiencies in the Revised Final Mitigated Negative Declaration (RFMND), though other issues remain inadequately mitigated as well. While the RFMND contains a more thorough description of the PG&E safety and vibration monitoring requirements, there are several items in the Board Resolution that have been omitted or inadequately addressed in relation to the Emergency Response and Evacuation Plan, Vibration Management Plan (VMP), and oversight of the implementation of the VMP. This appeal also incorporates all elements of the MND Appeal 7/17/2017 and documents subsequently filed prior to the hearing.

The following documents are attached:

1. A copy of the BOS Motion #M17-152

[3] Karp, Lawrence B., 9/12/2017, Unacceptable Extension, Folsom Street, Protracted in 1861, Structure on 40.3% Gradient Slope Upon Large Gas Line in Landslide Area, Bernal Heights, San Francisco, Environmental Impact Report Required, Section II and Attachment A.

[4] Ibid, Section VIII and Attachments F, G and H.

[5] Storesund, op. cit., Figures 4-5.

[6] Ibid, Figures 6-7.

[7] Karp, op.cit., Section XI and Attachment J.

[8] Storesund, op. cit., p. 1

2. A copy of the RFMND
3. The Application to Request a Board of Supervisors Appeal Fee Waiver
4. A check in the amount of $640 payable to the San Francisco Planning Department
5. Additional supporting documentation, including reports submitted for the 7/17/2017 appeal.

A copy of this letter of appeal will be concurrently submitted to the Environmental Review Officer.

PROJECT DESCRIPTION

On its face, the Project looks innocuous enough: the construction of two single-family homes and extension of Folsom Street and utilities to service them. However, the street extension requires extensive excavation over a 26" PG&E Gas Transmission Line on a radically steep slope. PG&E itself acknowledges this pipeline as "a critical piece of infrastructure" and cautions, "it is imperative that this construction project and all proposed construction work associated with it, not impair the integrity of the gas line." (Undated memo from PG&E Gas Transmission Pipeline Engineer Jon Freedman to "Whom it may concern" and submitted by Project Sponsor.)

The Project site is the only High Consequence Area[9] in San Francisco where a 26-inch PG&E Gas Transmission Pipeline is unprotected by asphalt for 125 feet -- buried in "variable topography" terrain. It runs up a sharply pitched hillside in a residential area before it re-enters paved street-cover on Bernal Heights Boulevard.[10]

UC Berkeley Professor Emeritus Robert Bea -- a pipeline safety expert with UC Berkeley's Center for Catastrophic Management, who testified in PG&E's San Bruno trial -- states the concern surrounding this particular Bernal Heights location of an aging transmission pipeline, "is identical to the list of concerns that summarized causation of the San Bruno Line 132 gas pipeline disaster." To wit, in 1989 the San Francisco Department of Public Works replied to an inquiry about this open space area, stating, "It was too dangerous to ever develop."

Additionally, the Project site's proposed street is located at a blind intersection that serves as the only viable access point for emergency vehicles to reach 28 homes in the neighborhood. The proposed dead-end street is too steep for emergency vehicles to climb, it is too narrow for them to turn around (possibly tipping over if their center of gravity is too high for the 40.3% slope), and its intersection will cause trucks to 'bottom out' and become stuck – blocking access to the neighborhood.

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[9] According to the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration, "Pipeline safety regulations use the concept of "High Consequence Areas" (HCAs), to identify specific locales and areas where a release could have the most significant adverse consequences. Once identified, operators are required to devote additional focus, efforts, and analysis in HCAs to ensure the integrity of pipelines. "

[10] Pavement protects gas transmission pipelines from accidental rupture and is especially important in urban areas where accidental rupture would be catastrophic. The gas transmission line is unprotected by asphalt at the Project Site.

Yet again, the Planning Department and the Project Sponsor are side-stepping their responsibility to properly review the substantial public safety issues involved in this project. There is no hierarchy for supervision and accountability by the City. The VMP and Emergency Management Plans are woefully inadequate and disputed by experts. Several issues inherent in the project as a whole have not been addressed, and no independent site-specific independent review was rigorously conducted.

For this reason, we are asking for a complete and independent Environmental Impact Report (EIR) that is verified by qualified Geotech and Gas Pipeline experts, and for which the City accepts responsibility.

DEFICIENT MITIGATION PLAN

Deficient Vibration Management Plan does not mitigate risk of high-consequence accident.

The RFMND violates CEQA, inter alia, by failing to reduce the risk of a catastrophic PG&E gas transmission pipeline accident to a level that is "clearly insignificant" and thus continues to have a "significant effect."

Under CEQA Guidelines Section 15070, a mitigated negative declaration is only appropriate where *"There is a substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment."* (Emphasis added.)

> *[A]doption of a mitigated negative declaration is proper only where the conditions imposed on the project reduce its adverse environmental impacts to a level of insignificance. (§21064.5; Guidelines, § 15064, subd. (±)(2).) By statutory definition, a mitigated negative declaration is one in which (I) the proposed conditions "avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment." (§21064.5, emphasis added.)*
> Architectural Heritage Ass'n v. County of Monterey (2004) 122 Cal.App.4th 1095, 1118-19)

In this case, evidence exists to the contrary. There is substantial evidence of at least three critical defects in the previous MND, which caused the BOS to rescind it. These have not been corrected in the new RFMD and are addressed individually as outlined in Motion M17-152 and described below.

> *MOVED, that this Board of Supervisors directs the Planning Department to provide additional information and analysis regarding whether the proposed project construction would result in vibration impacts on PG&E Pipeline No. 109 that could create a risk to public safety; and, be it*
>
> *FURTHER MOVED, In conducting any such additional environmental analysis, the Planning Department shall enlist an independent qualified*

expert to use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area and prepare a Vibration Management Plan for the project prior to the issuance of the revised environmental review document;

Excerpt from BOS Motion # M17-152

Pursuant to the above motion, the Planning Department enlisted David M. Buehler, P.E., Institute of Noise Control Engineering Board Certification, as an independent expert. He states that he reviewed the Vibration Management Plan prepared by Illingworth & Rodkin for technical accuracy and reviewed a summary document prepared by the City[11]. He did not independently prepare a plan, as specified by the motion.

Neither did Buehler or Illingworth & Rodkin consider or even reference site-specific factors that make this site unique. The following examples from Storesund and Karp are two such factors.

"For example," according to Rune Storesund, "the pipeline is situated on an incline with a 90-degree bend at the top of the hill. Most conventional pipelines are horizontal in utility trenches on much flatter ground. Ground vibrations will have a different extensional effect on an inclined pipe than a horizontal pipe. The only reliable method to ascertain the impact of these simplifications and generalizations is to calculate pipeline integrity model bias (comparison of predicted value vs actual value). No model bias value for this site was presented."[12]

In addition, Lawrence B. Karp, Architect, Civil and Geotechnical Engineer, points out that "tons of concrete for the street, and its foundations required by the steep slope, . . . will generate vibrations from exercising the street by [a minimum of] 12 daily [vehicle] trips according to the [Planning Department]." Further, he notes the failure to properly classify the potential environmental problem as significant by "not recognizing the real problem of low cycle fatigue of the pipeline's weld metal at the longitudinal weld lines from constant vibrations in service transmitted to L-109 by the intended sub grade supported concrete structure"[13] for the Folsom Street roadbed.

With respect to the project's Vibration Management Plan, the geotechnical and pipeline expertise of Rune Storesund and Lawrence Karp is particularly relevant. They have signed and stamped their work per B&P Code §6735. By contrast, Paul R. Donovan, the author of the Vibration Management Plan, and David M. Buehler, the reviewer of the Plan, are acoustical engineers and have not stamped their work. Although Dr. Donovan has a broad background in acoustics, his particular areas of expertise include tire noise, sound intensity methods, aeroacoustics and wind tunnel testing, and structure-borne sound analysis.[14]

According to R.M. Thornely-Taylor of Rupert Taylor Ltd. Noise and Vibration Consultants, "Vibration is often grouped with noise and regarded as a kindred topic. . . . By comparison,

[11] Buehler, David, P.E. INCE Bd. Cert., October 17, 2019, Review of Vibration Management Plan Prepared for 3516-3526 Folsom Residential Construction.

[12] Rune Storesund, 6/5/2017, Independent Project Review

[13] Karp, op.cit., Section III

[14] From the website of Illingworth & Rodkin, Inc.: https://iandrinc.com/

though, noise is simple. It always occurs in air, and except in special circumstances . . . the characteristic impedance of air is more or less always the same.

"Vibration, by contrast, occurs in media ranging from rock or solid concrete, through water and soil to lightweight panels. It can propagate as a compression wave, a shear wave, a variety of surface waves, bending waves, torsional waves, either separately or together. It can propagate in two different media at the same time . . . Transmission of vibration, and reception at the point of interest is beset with complexities and uncertainties.

"To minimize the uncertainties, much more detailed prediction and modelling methods are required than is the case with airborne noise, and complex assessment methods are required."[15]

This difference in perspective between a geotechnical vs. acoustical engineer may explain the omission from the Vibration Management Plan analysis of the above two pipeline factors identified by Storesund and Karp.

Significant inaccuracies with material effect on decision-making

- The Folsom Street slope gradient is 40.3%, not 28% or 33%. [16] A street so steep requires structural piers, which means the closest pier would extend into the 24" clearance zone. Clearly, drilling for piers in such close proximity to the pipeline will not be allowed.

- Inaccurate RFMND Table 5[17] -- minimum distance between the perimeters of the building foundation and the pipeline should be 11 feet at most, not 13. According to the Vibration Management Plan, the pipeline is located approximately 13 feet from the nearest outside perimeter of the residential structures to be built. [18] This is incorrect. According to the cross-section drawings for 3516 and 3526 Folsom Street, the nearest outside perimeters are 11'4-¼" and 11'9-½", respectively. Allowing for additional excavation to accommodate forms for the foundations along the front perimeter of the buildings, work in this area will be within the 10-foot zone that requires a PG&E Inspector to be on Standby.

- Inaccurate RFMND Table 5[19] reference to minimum distance for trenching near the pipeline.

- Inaccurate RFMND Table 5[20] -- minimum distance for small bulldozer should be 2 feet, not 1 foot. According to PG&E letter dated 3/30/2017, "Any grading or digging within 2 feet of a gas pipeline must be dug by hand." Tolerance Zones are areas around underground utilities and pipelines where excavation with mechanized equipment is prohibited by state law. In California, the Tolerance Zone is 24 inches. [CA Government

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[15] Thornely-Taylor, R.M., "Ground Vibration Prediction and Assessment," http://ruperttaylor.com/Ground%20Vibration%20Prediction%20and%20Assessment.pdf

[16] Karp, op. cit., Section II and Attachment A.

[17] RFMND, Table 5: PPV Estimates and Damage Potential of Project Construction Equipment.

[18] Illingworth and Rodkin, Inc., Construction Vibration Evaluation for 3516 and 3526 Folsom Street, March 24, 2017.

[19] Ibid.

[20] Ibid.

Code 4216, 4216.1 through 4216.4 and 4216.18] The Vibration Management Plan (VMP) states: "As the existing soil is removed, the small bulldozer (or the Takeuchi TB175 configured with a blade and no excavator) could be operating at a distance of 1 foot from the gas line." There is no explanation as to why this exception would be allowed.

- Incompatible elevations. The configuration and elevations of the street, including the layout of utility crossovers cannot coexist.

> *Based on the most recent elevations provided in the revised site survey dated 12/19/2017, according to Steven Viani, one of the two consulting pipeline engineers from EDT, "the topo survey conducted on 6/20/13 (3500 Topo), with a drawing date of 12/19/17, . . . shows . . . the pipe is very close to the bottom of the improvements/roadway cut. According to the topo drawing, the pipe elevation for Lot 13, (3516 Folsom) is 291.91 (say 292 feet). The pipe elevation at Lot 15 (vacant) is 275.36 feet, 47.42 feet away. This means the gas line rises at a rate of 0.35 feet per foot of run. At the center of Lot 14 (3526 Folsom), approximately midway between the pipe elevations, the calculated pipe elevation is 284.65 feet.*
>
> *"The pipe elevation for Lot 13 (3516 Folsom) shows it to be 291.91 feet, say 292. ft. From Site road section 3516, the garage slab elevation is 295 feet. When measured and accounting for the road improvements, the distance to the top of the pipe to the top of improvements is 5 feet. Even with a layer of base, the area of disturbance is above the 2-foot zone around the pipe.*
>
> *"The pipe elevation for Lot 14 (3526 Folsom) is calculated to be 284.65 feet. From Site road section 3526, the garage slab elevation is 287 feet. When measured and accounting for the slope and road improvements, which are about 2.5 feet lower, or 284.50, the distance to the top of the pipe to the top of improvements is 0.15 feet into the pipe. The 26-inch gas line will need to be relocated.*
>
> *"This needs to be field verified, potholed on Lot 14, and it will affect the sewer line to 3526 as well."*

- Incorrect table of wheel weight limits in undated memo from Jon E. Freedman, PG&E Gas Transmission Engineer, is for gas transmission pipeline 132, not 109

- Incorrect evacuation zone radius. Too small. (See the section of this letter that addresses the Emergency Response and Evacuation Plan.)

<u>Significant omissions from Vibration Management Plan</u>

- Lack of engineered plans for the street extension.

• Integrity of the pipeline elbow at Bernal Heights Boulevard is still in question. Although PG&E removed the large tree that was above the pipeline between the project site and the pipeline elbow beneath Bernal Heights Blvd., the effect of the tree's roots on the pipeline has not been directly examined. According to PG&E's own studies, 90% of trees within 5 feet of a pipeline affect the pipeline coating.

• Layout and elevations for utilities crossing the pipeline have not been included or are not resolved, but should be part of mitigation regulations in the RFMND.

• No analysis of the potential impact of vibrations from equipment, such as a bulldozer, if it were to fall over on the steep hillside, whether or not it is in use. Such an incident occurred only two blocks away on the unpaved section of Banks Street between Chapman Street and Powhattan Avenue during the construction of infrastructure improvements under 1989 Proposition B. (No one was injured, but the bulldozer did smash a neighbor's car.)

• No analysis of the process for moving soil excavated from the east side of the pipeline to the conveyor belt on the west side of the pipeline, which would include vibration impacts and how to monitor the weight limitations of soil loads crossing the unprotected pipeline.

• No analysis of post-construction in-service vibrations from, and load limitations of, vehicles that will cross over the pipeline whether or not they are properly using the driveways. As a narrow dead-end street with a familiar name, it is to be expected that there will be vehicular incursions into the unprotected space above the pipeline, especially by commercial vehicles with wide turning radii.

• No post-construction process in place to monitor activity directly above the pipeline which lies unprotected between the proposed sidewalk and street (i.e., within the 10-ft. zone PG&E requires to be monitored during construction).

No supervision or accountability for the project is included in the RFMND.

> "*FURTHER MOVED, That the Vibration Management Plan shall specify what types of construction equipment be used at the project and any limitations on the use or storage of such equipment in the project vicinity, the specific roles of the Planning Department, Department of Building Inspection PG&E and any other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan, and any appropriate protocols that must be employed during project construction…"*
>
> *Excerpt from BOS Motion # M17-152*

The supervision and accountability by City Agencies have not been addressed in the RFMND. The roles of The Department of Building Inspection, PUC, Board of Supervisors, DPW, Fire Department, and Department of Emergency Management are not specified. Liability in the event of an error or lapse in supervision could cause catastrophic results, but thus far there is no indication where the buck stops on this project. PG&E has a woeful reputation for safety precautions, requiring even more vigorous oversight by the City. The role of the PUC is completely omitted, supervision and accountability by DPW

and Planning are not addressed, and nowhere is liability in case of an accident or error defined.

Emergency Response and Evacuation Plan contains incorrect information, which increases the risk of death and injury

> "...That a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation..."
>
> *Excerpt from BOS Motion # M17-152*

The proposed Emergency Response and Evacuation Plan violates CEQA by not mitigating significant public safety impacts but also adding to them. It reveals a lack of understanding regarding the dangers posed by a gas accident in this area.

The plan is not site-specific - in violation of the BOS Motion. The evacuation route consists of arrows - drawn by the Project Sponsor - on a downloaded Google map to be posted around the neighborhood. **The arrows show incorrect evacuation routes** that contradict protocols of the Pipeline Association for Public Awareness's (PAPA) *Pipeline Emergency Response Guidelines*. These protocols specifically pertain to how gas leaks behave in hilly areas and windy conditions.

According to PAPA guidelines, during a major gas leak on a hill, it is critical not to evacuate downhill - gas migrates and collects downhill; and, not to evacuate downwind - gas travels with the wind. None of this is taken into account by this plan. Arrows point in erroneous directions while safe gathering areas are incorrectly located downhill and downwind from the project area. (Chart of Pipeline Association for Public Awareness's "Leak, Hazard, and Emergency Response" attached, hereto.)

This plan offers **no outreach communication plan to residents within the evacuation zone specific to gas leaks**. PAPA's *Pipeline Emergency Response Guidelines* point out gas leak accidents list definite actions that need to occur immediately after a leak is detected: do not turn on a car ignition; do not shut off your gas stoves; do not switch on lights or hang up phones, etc. - all critical information for safe emergency evacuation. No such communications are proposed by this plan.

The plan includes a dangerously long 3-hour PG&E response time to a suspected leak. PG&E itself approved this delay, which highlights its well-publicized unreliable approach to public safety. According to a 2/20/19 SF Chronicle article, *"PG&E's Response Time To Past Gas Fires Too Slow, Investigators Say"* - a follow-up on the two-hour delayed response to the Richmond District gas explosion last year - PG&E's problematic response times to gas pipeline accidents have been investigated by both the National Transportation Safety Board (NTSB) and the California Public Utilities Commission.

Three hours is a wholly inadequate response time regarding a 26" gas transmission line in a High Consequence Area. Federal investigations of pipeline accidents cite delayed action by the pipeline operator as a common problem of pipeline accidents. According to The Pipeline and Hazardous Materials Safety Administration, *Guidelines for Communicating*

Emergency Response Information for Natural Gas and Hazardous Liquids Pipelines, **"The timely ability to identify a pipeline emergency is the most important step in the incident management process."**

The plan's 300-foot radius of evacuation area map is incorrect. If drawn correctly more residents would be in the evacuation zone - as well as more park visitors. The recommended minimum evacuation distance is 547' for a gas pipeline with a 100 psig for a 24" diameter pipeline, according to PAPA's, *"Recommended Minimum Evacuation for Natural Gas Pipe Line Leaks and Ruptures."*

PG&E Pipeline No. 109 is bigger - 26" in diameter - and its psig is anywhere from 150 psig (according to PG&E today) to 375 psig (according to NTSB, the psig in effect at the time of the San Bruno blast). (PAPA's *"Recommended Minimum Evacuation for Natural Gas Pipe Line Leaks and Ruptures" attached, hereto.)*

The PAPA evacuation chart underscores the importance of site-specific considerations with this footnote: *"The model does not take into account wind or other factors that may greatly influence specific conditions."* An evacuation radius circle also does not take into account the flow of gas in a hilly area. Gas will travel downhill - so the evacuation area should be drawn to accommodate both wind and hillside factors.

Bernal Park visitors are left out of evacuation plans - although a substantial part of the evacuation area is in the park, including three heavily used trails. There are no defined safe areas for park visitors. (See attached Evacuation zone diagram.)

There is no plan to identify elderly residents or residents with mobility issues if an evacuation were to occur. Bernal Heights has a number of senior residents in this area, some with severe mobility issues. This plan overlooks an easily available FEMA *Community Preparedness Handbook* recommendation: people with disabilities register with the local emergency management department so they won't get overlooked in case of an evacuation.

It is hard to imagine why the Fire Department would sign off on such a poor plan. The plan lacks expert input. It is riddled with errors. There was no involvement of the SF Department of Emergency Management (DEM) - even though this is the agency with significant public safety interest in high-risk activities impacting the community. According to the Project Sponsor, he did not consult the DEM.

It is a concern that the Planning Department and the Project Sponsor have relied on the sign-off of this plan by a fire department official who has been singled out in a court hearing and news report for his inadequate and cursory investigation of a fire.

Mike Patt, the fire official who approved the Emergency Response and Evacuation Plan, was criticized in court documents for his insufficient investigation of a large Mission Street fire in 2015 that resulted in a death and multiple injuries, including a firefighter. According to a May 17, 2018 KTVU News report, in a post-fire inspection, Mr. Patt spent only a half hour inspecting the scene. He did not investigate reports of blocked fire exits, did not determine if a fire alarm had gone off, and simply took a name and phone number off the alarm.

The news report cites court records describing Mr. Patt's inspection as "inadequate." His superficial investigation was criticized as by the Enforcement Supervisor for the Contractors' State Licensing Board, the agency that issues fire alarm licenses to inspectors.

This plan was approved despite its serious deficiencies. It calls into question why. The danger of gas pipeline accidents during construction is not unknown to the Fire Department. The Richmond District gas explosion last year, which destroyed neighboring buildings and the Hong Kong Lounge II, was caused by a construction worker puncturing a 4" gas line during excavation work.

At a hearing called by Supervisor Ronen in December, 2017 re: the cause of the gas pipeline explosion on Mission Street in Bernal Heights in December, 2017, SF Fire Captain Rex Hale made a point of saying gas leaks are not uncommon with construction." (SF Examiner, "SF Supervisors Criticize PG&E Response to Bernal Heights Gas Explosion" 12/8/2017).

The list of deficiencies of this plan violates the motion passed by the BOS. It fails to provide "a site-specific" Emergency Response and Evacuation Plan and does not "ensure adequate access for emergency response and the ability for a safe and timely evacuation..." It creates more public safety issues than it solves.

The unmitigated public safety impacts of this project are magnified with this RFMND. This Emergency Response and Evacuation Plan displays a disturbing ignorance of gas leak safety protocols and site-specific conditions. It suggests a reluctance on the part of the Planning Department and the Project Sponsor to take the BOS motion seriously.

<u>For these reasons and the range of significant impacts raised in this plan, we ask the Board to require a complete Environmental Impact Report.</u>

CONCLUSION

Each of the MNDs submitted on this project have been incomplete and inaccurate. Rigorous analysis and oversight are seriously deficient and erroneous. As stated above, the Final Revised Mitigated Declaration fails to consider the substantial evidence demonstrating significant, and potentially catastrophic, unmitigated environmental impacts regulated by CEQA.

To insure the public's safety is fully protected from the risks of this project, we strongly urge that a more rigorous evaluation of the entire project be conducted through a full Environment Impact Report.

Respectfully submitted by,

Kathleen Angus, Co-chair
On behalf of the Bernal Heights South Slope Organization

Cc: Lisa Gibson, Environmental Officer

Refer to documents for
BOS 9/12/2017 Hearing - Appeal of Mitigated Negative Declaration - Proposed Project at 3516 and 3526 Folsom Street:
https://sfgov.legistar.com/LegislationDetail.aspx?ID=3112108&GUID=92A77E18-D666-4014-949C-84CCA25A088F

Attachments:

1. A copy of the BOS Motion #M17-152
2. A copy of the RFMND dated 3/25/2020
3. The Application to Request a Board of Supervisors Appeal Fee Waiver
4. A copy of a check in the amount of $640 payable to the San Francisco Planning Department (no direction given on how to submit the check, which will likely be sent back uncashed.)
5. PAPA Leak Hazard and Emergency Response
6. PAPA Recommended Minimum Evacuation Distances for Natural Gas Pipeline Leaks and Ruptures
7. Evacuation Zone Comparison Map

To insure the public's safety is fully protected from the risks of this project, we strongly urge that a more rigorous evaluation of the entire project be conducted through a full Environment Impact Report.

Respectfully submitted by,

Kathleen Angus, Co-chair
On behalf of the Bernal Heights South Slope Organization

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Refer to documents for
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5. PAPA Leak Hazard and Emergency Response
6. PAPA Recommended Minimum Evacuation Distances for Natural Gas Pipeline Leaks and Ruptures
7. Evacuation Zone Comparison Map

FILE NO. 171022 AMENDED IN BOARD 9/26/2017 MOTION NO. M17-152

[Adopting Findings Reversing the Final Mitigated Negative Declaration - 3516 and 3526 Folsom Street]

Motion adopting findings reversing the approval by the Planning Commission of a final mitigated negative declaration under the California Environmental Quality Act for a proposed project at 3516 and 3526 Folsom Street.

WHEREAS, The Planning Commission approved a final mitigated negative declaration under the California Environmental Quality Act ("CEQA"), the CEQA Guidelines, and Administrative Code, Chapter 31 for a proposed project located at 3516 and 3526 Folsom Street ("Project"); and

WHEREAS, The proposed Project involves the construction of two single-family residences on two vacant lots along the west side of the unimproved portion of Folsom Street, the construction of the connecting segment of Folsom Street to provide vehicle and pedestrian access to the Project site, and the construction of a stairway between Folsom Street and Bernal Heights Boulevard; and

WHEREAS, Each single-family home would be 27 feet tall, two stories over-garage with two off-street vehicle parking spaces accessed from a twelve-foot-wide garage door; and

WHEREAS, The Planning Department published a Preliminary Mitigated Negative Declaration ("PMND") for the proposed Project on April 26, 2017; and

WHEREAS, On May 16, 2017, Kathy Angus, for the Bernal Heights South Slope Organization filed an appeal of the Planning Department's decision to issue the PMND; and

WHEREAS, On June 15, 2017, the Planning Commission held a publically-noticed hearing on the PMND, denied the appeal, and finalized the PMND ("FMND") by Motion No. 19945; and

WHEREAS, On June 15, 2017, the Planning Commission declined to take discretionary review of the proposed project, and approved the Project as proposed; and

WHEREAS, On July 17, 2017, Ryan Patterson of Zacks, Freeman and Patterson, on behalf of Bernal Heights South Slope Organization, Bernal Safe & Livable, Neighbors Against the Upper Folsom Street Extension, Gail Newman and Ann Lockett ("Appellants") filed a letter appealing the FMND; and

WHEREAS, The Planning Department's Environmental Review Officer, by memorandum to the Clerk of the Board dated July 24, 2017, determined that the appeal was timely; and

WHEREAS, On September 12, 2017, this Board held a duly noticed public hearing to consider the appeal of the FMND filed by Appellants and, following the public hearing, conditionally reversed the Planning Commission's approval of the FMND subject to the adoption of written findings in support of such determination, and requested additional information and analysis be provided; and

WHEREAS, In reviewing the appeal of the FMND, this Board reviewed and considered the FMND, the appeal letter and supporting documents, the responses to concerns document that the Planning Department prepared, the other written records before the Board of Supervisors and all of the public testimony made in support of and opposed to the FMND appeal; and

WHEREAS, The Board finds that the letters and public comment presented in support of and against the appeal, including comment letters presented to the Board on September 11 and 12, 2017, raise important questions regarding how project construction activities could create vibration impacts on PG&E Pipeline No. 109; and

WHEREAS, In light of this new information, the Board has requested that the Planning Department undertake further analysis with respect to the specific issue of the potential vibration impacts of project construction on PG&E Pipeline 109; and

WHEREAS, This Board considered these issues, heard testimony, and shared concerns that further information and analysis was required regarding whether the proposed project would cause construction impacts to PG&E Pipeline No. 109; and

WHEREAS, The written record and oral testimony in support of and opposed to the appeal and deliberation of the oral and written testimony at the public hearing before the Board of Supervisors by all parties and the public in support of and opposed to the appeal of the FMND is in the Clerk of the Board of Supervisors File No. 170851 and is incorporated in this motion as though set forth in its entirety; now, therefore, be it

MOVED, That this Board of Supervisors directs the Planning Department to provide additional information and analysis regarding whether the proposed project construction would result in vibration impacts on PG&E Pipeline No. 109 that could create a risk to public safety; and, be it

FURTHER MOVED, In conducting any such additional environmental analysis, the Planning Department shall enlist an independent qualified expert to use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area and prepare a Vibration Management Plan for the project prior to the issuance of the revised environmental review document; and, be it

FURTHER MOVED, That the Vibration Management Plan shall specify what types of construction equipment may be used at the project and any limitations on the use or storage of such equipment in the project vicinity, the specific roles of the Planning Department, Department of Building Inspection, PG&E and any other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan, and any appropriate safety

protocols that must be employed during project construction, including communications between the contractors and PG&E, to reduce the risk of damage to the pipeline; and, be it

FURTHER MOVED, That a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation; and, be it

FURTHER MOVED, That the Vibration Management Plan shall be reviewed and approved by the Planning Department and PG&E, and the Emergency Response and Evacuation Plan shall be reviewed and approved by the Fire Department, Planning Department, and PG&E, prior to issuance of the revised environmental review document; and, be it

FURTHER MOVED, That the Planning Department shall incorporate any recommendations of the approved Vibration Management Plan into the mitigation included in the revised environmental review document; and, be it

FURTHER MOVED, As to all other issues, the Board finds the FMND conforms to the requirements of CEQA and is adequate, accurate, and objective, the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required.

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City and County of San Francisco
Tails
Motion: M17-152

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

File Number: 171022 **Date Passed:** September 26, 2017

Motion adopting findings reversing the approval by the Planning Commission of a final mitigated negative declaration under the California Environmental Quality Act for a proposed project at 3516 and 3526 Folsom Street.

September 26, 2017 Board of Supervisors - AMENDED, AN AMENDMENT OF THE WHOLE BEARING SAME TITLE

Ayes: 10 - Breed, Cohen, Farrell, Fewer, Kim, Peskin, Ronen, Sheehy, Tang and Yee
Excused: 1 - Safai

September 26, 2017 Board of Supervisors - APPROVED AS AMENDED

Ayes: 10 - Breed, Cohen, Farrell, Fewer, Kim, Peskin, Ronen, Sheehy, Tang and Yee
Excused: 1 - Safai

File No. 171022

I hereby certify that the foregoing Motion was APPROVED AS AMENDED on 9/26/2017 by the Board of Supervisors of the City and County of San Francisco.

Angela Calvillo
Clerk of the Board

SAN FRANCISCO
PLANNING DEPARTMENT

Revised Final Mitigated Negative Declaration

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

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Information:
415.558.6377

Date of Issuance:	March 25, 2020 (Amendments to the June 15, 2017 Final Mitigated Negative Declaration/Initial Study are shown as deletions in ~~strikethrough~~ and additions in double underline)
Project Title:	3516 and 3526 Folsom Street
Zoning:	RH-1 (Residential—House, One Family) Use District 40-X Height and Bulk District Bernal Heights Special Use District
Block/Lot:	5626/013 and 5626/014
Lot Size:	1,750 square feet (each lot)
Project Sponsor:	Fabien Lannoye, Bluorange Designs 415-626-8868 Fabien@bluorange.com
Staff Contact:	Josh Pollak – (415) 575-8766 Josh.pollak@sfgov.org

INTRODUCTION

This Revised Final Mitigated Negative Declaration (Revised FMND), including the attached Initial Study, is prepared in response to a motion adopted by the Board of Supervisors (Board) reversing the Planning Commission's June 15, 2017 approval of an FMND for the proposed project at 3516 and 3526 Folsom Street. The motion (No. M17-152, Legislative File Number 171022), adopted by the Board on September 12, 2017, directs that the Planning Department undertake further analysis with respect to the specific issue of the potential vibration impacts of project construction on Pacific Gas & Electric (PG&E) Pipeline 109. The Board's motion contains specific findings regarding the analysis to be undertaken by the Planning Department and revisions required to the FMND. The Planning Department has conducted the required analysis and revised the FMND accordingly. Amendments to the June 15, 2017 Final Mitigated Negative Declaration are shown as deletions in ~~strikethrough~~ and additions in double underline, for ease of reference.

The project description remains the same as in the June 15, 2017 FMND, other than the addition of an Emergency Response and Evacuation Plan, as directed by the Board, and minor changes to the proposed project. These minor updates to the proposed project include removing a parking space in each home and a corresponding increase in habitable area, and other corrections and additions to the Revised FMND. These updates were made to provide corrections and to capture the changes to the project itself, as noted in the document.

Pursuant to Guidelines of the State Secretary for Resources, Section 15073.5 (Recirculation of a Negative Declaration Prior to Adoption), because the new information that has been added to this Revised FMND is limited to project revisions that are not new avoidable significant effects, and

additions to mitigation measure M-NO-3, which is equal to or more effective than the mitigation measure proposed in the June 15, 2017 FMND, no recirculation of the Revised FMND is required.

The Board's motion requires the department to provide specific additional environmental analysis in the FMND, and states that "[a]s to all other issues, the Board finds the FMND conforms to the requirements of CEQA and is adequate, accurate and objective." The motion also states, with respect to the appeal, that "the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required."

Pursuant to Section 31.16(d)(5)(A) of the San Francisco Administrative Code, in the event an organization or individual wishes to appeal the Revised MND, such appeal shall be made directly to the Board of Supervisors within 30 days of publication of this document. Further, any such appeals shall be limited to the portions of this Revised MND that are additions to, or deletions from, the version previously certified on June 15, 2017.

PROJECT DESCRIPTION

The project site is located on the block bounded by Bernal Heights Boulevard to the north, Gates Street to the west, Powhattan Avenue to the south and Folsom Street to the east. The project site is located along the west side of an approximately 145-foot-long unimproved segment of Folsom Street, north of Chapman Street, that ends at the Bernal Heights Community Garden. This unimproved right-of-way is known as a "paper street." Undeveloped land along this unimproved segment of Folsom Street has been subdivided into six lots, three on each side of Folsom Street. PG&E Natural Gas Transmission Pipeline 109 (PG&E Pipeline 109) runs along Folsom Street adjacent to the project site. The project site is at a slope of approximately ~~28~~33%.

The proposed project involves the construction of two single-family residences on two of the vacant lots along the west side of the unimproved portion of Folsom Street, the construction of the connecting segment of Folsom Street to provide vehicle and pedestrian access to the project site, and the construction of a stairway between Folsom Street and Bernal Heights Boulevard. The Folsom Street extension and stairway would be subject to approval by San Francisco Public Works (Public Works). Each single-family home would be 27 feet tall, two stories over-garage with ~~two~~ one off-street vehicle parking spaces accessed from a twelve-foot-wide garage door.

The 3516 Folsom Street building would be approximately 2,551 ~~2,230~~ square feet of gross living space in size with a side yard along its north property line. The 3526 Folsom Street building would be approximately 2,384 ~~2,210~~ square feet of gross living space in size with a side yard along its south property line. The proposed buildings would include roof decks and a full fire protection sprinkler system. The proposed buildings would be supported by a shallow building foundation using a mat slab with spread footings.

The proposed Folsom Street extension improvements would include an approximately 20-foot-wide road with an approximately 10-foot-wide sidewalk on the west side of the street, adjacent to the proposed residences. The proposed sidewalk would be stepped, would incorporate landscaping that would perform storm water retention, and would provide public access to Bernal Heights Boulevard/Bernal Heights Park. The stairway would run to the northwest of Folsom Street, within Public Works property, and at least 15 feet downhill from an existing stand of hummingbird sage, a locally sensitive plant species, along Bernal Heights Boulevard. The proposed project would not

create direct vehicular access to Bernal Heights Boulevard as the Folsom Street extension would terminate south of the Bernal Heights Community Garden. Construction of the street extension would require the removal of the existing vegetation within the public right-of-way on the "paper street." An existing driveway utilized by both the 3574 Folsom Street and 3577 Folsom Street buildings would also be removed; however, the extension would provide access to the two existing residences.

The proposed project would include the installation of new street trees (subject to approval from PG&E) and street lighting on the west side of the street. No on-street parking would be provided along the Folsom Street extension. In addition to providing utilities for the proposed residences, the project sponsor would install utilities for the four vacant lots located on the "paper street" segment of Folsom Street (one on the west side and three on the east side). No residences are proposed at this time on those lots; the proposed connections would be provided to minimize disruption in the case of future development. Construction would continue for approximately 12 months and would require excavation of up to approximately 10 feet below the existing ground surface.

The proposed project also includes an Emergency Response and Evacuation Plan to ensure adequate access for emergency response and the ability for a safe and timely evacuation of the project vicinity in the event of an emergency. The plan includes steps to be taken pre-construction as well as during any excavation near PG&E Natural Gas Pipeline 109.

FINDING

This project could not have a significant effect on the environment. This finding is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15064 (Determining Significant Effect), 15065 (Mandatory Findings of Significance), and 15070 (Decision to prepare a Negative Declaration), and the following reasons as documented in the Initial Evaluation (Initial Study) for the project, which is attached. Mitigation measures are included in this project to avoid potentially significant effects. See pages ~~118-120~~ 124-130.

In the independent judgment of the Planning Department, there is no substantial evidence that the project could have a significant effect on the environment.

3/25/2020
Date

Lisa Gibson
Environmental Review Officer

INITIAL STUDY TABLE OF CONTENTS

3516-3526 Folsom Street

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ACRONYMS AND ABBREVIATIONS

BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
bgs	below grade surface
CalEEMod	California Emissions Estimator Model
Caltrans	Californian Department of Transportation
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO_2e	carbon dioxide equivalents
CRHR	California Register of Historical Resources
dB	Decibel
dBA	decibel (A-weighted)
DBI	Department of Building Inspection
DEHP	bis (2-ethylhexyl) phthalate
DPH	Department of Public Health
DPM	diesel particulate matter
ERO	Environmental Review Officer
ESA	Environmental Site Assessment
GHG	greenhouse gas
gsf	gross square feet
HRE	Historic Resources Evaluation
HVAC	heating, ventilation and air conditioning
in/sec	inches per second
L_{eq}	equivalent continuous sound level
Muni	San Francisco Municipal Railway
Mw	moment magnitude
NO_x	oxides of nitrogen
NO_2	nitrogen dioxide
PAR	Preliminary Archeological Review
PCBs	polychlorinated biphenyls
PM	particulate matter
$PM_{2.5}$	PM composed of particulates that are 10 microns in diameter or less
PM_{10}	PM composed of particulates that are 2.5 microns in diameter or less
ppm	parts per million
PPV	peak particle velocity
RWQCB	Bay Area Regional Water Quality Control Board
SB	Senate Bill
sq. ft.	square feet
SFCTA	San Francisco County Transportation Authority
SFFD	San Francisco Fire Department
SFMTA	San Francisco Municipal Transportation Agency
SFO	San Francisco International Airport
SFPD	San Francisco Police Department

SFPL	San Francisco Public Library
SFPUC	San Francisco Public Utilities Commission
SFPW	San Francisco Public Works
SFUSD	San Francisco Unified School District
SO_2	sulfur dioxide
TDM	Transportation Demand Management
VMT	vehicle miles traveled
WSA	Water Supply Assessment

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Initial Study
3516-3626 Folsom Street Project
Planning Department Case No. 2013.1383ENV

The proposed 3516-3526 Folsom Street Project (project) would result in the development of two residential units on two 1,750 square-foot parcels (Assessor's Block 5626, Lots 013 and 014) located at 3516-3526 Folsom Street, the improvement of a "paper street" section of Folsom Street, and a new stairway between the project site and Bernal Heights Boulevard in the Bernal Heights neighborhood in the City of San Francisco (City). The two buildings would ~~each~~ be approximately ~~2,230~~ 2,551 and 2,384 gross square feet (gsf) in size, and each would include a ~~two~~ one-car garage. The proposed buildings would not exceed 30 feet in height. A complete description of the proposed project, a detailed description of the proposed project's regional and local context, planning process and background, as well as a discussion of requested project approvals is included below.

INTRODUCTION

This Initial Study is prepared in response to a motion adopted by the Board of Supervisors (Board) reversing the Planning Commission's June 15, 2017 approval of a Final Mitigated Negative Declaration (FMND) for the proposed project at 3516 and 3526 Folsom Street. The motion (No. M17-152, Legislative File Number 171022), adopted by the Board on September 12, 2017, directs that the Planning Department undertake further analysis with respect to the specific issue of the potential vibration impacts of project construction on Pacific Gas & Electric (PG&E) Pipeline 109. The Board's motion contains specific findings regarding the analysis to be undertaken by the Planning Department and revisions required to the FMND. The Planning Department has conducted the required analysis and revised the FMND accordingly. Amendments to the June 15, 2017, Final Mitigated Negative Declaration are shown in this Initial Study, which is attached to the Revised FMND, as deletions in strikethrough and additions in double underline, for ease of reference. The Initial Study and Revised FMND are hereinafter collectively referred to as the "Revised FMND." The project description remains the same as in the June 15, 2017 FMND, other than the addition of an Emergency Response and Evacuation Plan, as directed by the Board, and other minor changes, which include removing a parking space in each home and a corresponding increase in habitable area.

Preliminary Mitigated Negative Declaration Issuance and Appeal

The Planning Department published a Preliminary MND (PMND) for the proposed project on April 26, 2017. On May 16, 2017, Kathy Angus, on behalf of the Bernal Heights South Slope Organization, appealed the PMND to the Planning Commission. On June 15, 2017, the Planning Commission denied the appeal and finalized the PMND as the FMND by Motion No. 19945. The Environmental Review Officer signed the FMND on July 11, 2017.

Final Mitigated Negative Declaration Issuance and Appeal

On July 17, 2017, Zacks, Freeman and Patterson, on behalf of the Bernal Heights South Slope Organization, Bernal Safe & Livable, Neighbors Against the Upper Folsom Street Extension, Gail Newman, and Ann Lockett, appealed the FMND to the Board. At its meeting on September 12, 2017, the Board conditionally reversed the Planning Commission's approval of the FMND subject to the adoption of written findings in support of such determination, and requested additional information and analysis be provided.

Board Findings on Reversed FMND

On September 26, 2017, the Board adopted Motion No. M17-152 (Legislative File Number 171022), adopting findings reversing the FMND. The motion specifies the following regarding the environmental review of the proposed project:

- "…That this Board of Supervisors directs the Planning Department to provide additional information and analysis regarding whether the proposed project construction would result in vibration impacts on PG&E Pipeline No. 109 that could create a risk to public safety;
- "…In conducting any such additional environmental analysis, the Planning Department shall enlist an independent qualified expert to use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area and prepare a Vibration Management Plan for the project prior to the issuance of the revised environmental review document;

- "…That the Vibration Management Plan shall specify what types of construction equipment may be used at the project and any limitations on the use or storage of such equipment in the project vicinity, the specific roles of the Planning Department, Department of Building Inspection, PG&E and any other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan, and any appropriate safety protocols that must be employed during project construction, including communications between the contractors and PG&E, to reduce the risk of damage to the pipeline;
- "…That a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation;
- "…That the Vibration Management Plan shall be reviewed and approved by the Planning Department and PG&E, and the Emergency Response and Evacuation Plan shall be reviewed and approved by the Fire Department, Planning Department, and PG&E, prior to issuance of the revised environmental review document;
- "…That the Planning Department shall incorporate any recommendations of the approved Vibration Management Plan into the mitigation included in the revised environmental review document;
- "…As to all other issues, the Board finds the FMND conforms to the requirements of CEQA and is adequate, accurate, and objective, the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required."

The following is an explanation of how and where in the Revised FMND and/or the project record the Planning Department has responded to each of the Board's findings cited above.

- *"…That this Board of Supervisors directs the Planning Department to provide additional information and analysis regarding whether the proposed project construction would result in vibration impacts on PG&E Pipeline No. 109 that could create a risk to public safety..."*

This revised FMND includes a Vibration Monitoring and Management Plan[1] and additional information regarding whether the project would result in vibration impacts to the pipeline. All recommendations from the Vibration Monitoring and Management Plan have been incorporated into Mitigation Measure M-NO-3, Vibration Monitoring. In addition, an independent review of the Vibration Monitoring and Management Plan was prepared,[2] the results of which are discussed below under the Noise and Vibration section.

- *"…In conducting any such additional environmental analysis, the Planning Department shall enlist an independent qualified expert to use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area and prepare a Vibration Management Plan for the project prior to the issuance of the revised environmental review document..."*

The Planning Department directed the project sponsor to collect additional information about the location, depth, and condition of the pipeline, which was done in consultation with PG&E staff.[3] This information is part of the project's record and was used to prepare a Vibration Monitoring and Management Plan for the proposed project. As stated above in the prior bullet point, an independent qualified expert reviewed the Vibration Monitoring and Management Plan in addition to on-site review of the location, depth, and conditions of the pipeline.[4]

- *"…That the Vibration Management Plan shall specify what types of construction equipment may be used at the project and any limitations on the use or storage of such equipment in the project vicinity, the specific roles of the Planning Department, Department of Building Inspection, PG&E and any*

[1] Unless otherwise noted, project-specific studies prepared for the project are available for public review as part of case file no. 2013.1383ENV on the San Francisco Property Information Map, which can be accessed at https://sfplanninggis.org/PIM/. Individual files can be viewed by clicking on the Planning Applications link, clicking the "More Details" link under the project's environmental case number (2013.1383ENV) and then clicking on the "Related Documents" link.

[2] Buehler, David, P.E. INCE Bd. Cert., October 17, 2019, Review of Vibration Management Plan Prepared for 3516-3526 Folsom Residential Construction.

[3] See "Location, Depth and Condition of Pipeline No. 109" in the project case file.

[4] Buehler, David, P.E. INCE Bd. Cert., October 17, 2019, Review of Vibration Management Plan Prepared for 3516-3526 Folsom Residential Construction.

other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan, and any appropriate safety protocols that must be employed during project construction, including communications between the contractors and PG&E, to reduce the risk of damage to the pipeline…"

The Vibration Monitoring and Management Plan[5] specifies the vibration levels of construction equipment that would be used at the project site and sets a maximum level of construction vibration. If construction vibration from equipment used exceeds 2.0 in/sec, all construction work would stop. The plan also describes how the equipment will be stored at the site, and states the specific roles of the Planning Department, Department of Building Inspection, and PG&E, and includes monitoring and enforcement recommendations, as well as appropriate safety protocols that must be employed during project construction.

- *"…That a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation…"*

The Planning Department directed preparation of a site-specific Emergency Response and Evacuation Plan, which is included as part of the Project Description, below.

- *"…That the Vibration Management Plan shall be reviewed and approved by the Planning Department and PG&E, and the Emergency Response and Evacuation Plan shall be reviewed and approved by the Fire Department, Planning Department, and PG&E, prior to issuance of the revised environmental review document…"*

[5] See "Vibration Monitoring and Management Plan" in the project case file.

The Vibration Monitoring and Management Plan was reviewed and approved by the Planning Department and PG&E.[6] The Emergency Response and Evacuation Plan was reviewed and approved by the San Francisco Fire Department, the Planning Department and PG&E.[7]

- *"…That the Planning Department shall incorporate any recommendations of the approved Vibration Management Plan into the mitigation included in the revised environmental review document…"*

This document includes all recommendations listed in the approved Vibration Monitoring and Management Plan as part of Mitigation Measure M-NO-3 described below.

Pursuant to Section 31.16(d)(5)(A) of the San Francisco Administrative Code, in the event an organization or individual wishes to appeal the revised negative declaration, such appeal shall be made directly to the Board of Supervisors within 30 days of publication of this Revised MND. Further, any appeals shall be limited to the portions of this Revised MND that are additions to, or deletions from, the version previously certified on June 15, 2017. Amendments to the June 15, 2017, Final MND are shown as deletions in ~~strikethrough~~ and additions in double underline, for ease of reference. The proposed project includes minor updates, which include removing a parking space in each home and a corresponding increase in habitable area, which are detailed below in the Project Description.

A. PROJECT SITE

The approximately 6,500 square-foot project site (two lots at 1,750 sf (25 feet by 70 feet) each and an approximately 2,000 sf street improvement) is located in the Bernal Heights neighborhood and is located within a block bounded by Bernal Heights Boulevard to the north, Gates Street to the west, Powhattan Avenue to the south and Folsom Street to the east. The site is located on the west side of an approximately 145 foot long unimproved segment of Folsom Street, north of Chapman Street, that ends at the Bernal Heights Community Garden. This unimproved right-of-way is known as a "paper

[6] See March 17, 2020 approval letter from Planning Department.

[7] Letter from PG&E Gas Transmission Pipeline Services—Integrity Management, November 13, 2018. Letter from San Francisco Fire Department to Dan Sider, Fabian Lannoye, January 10, 2019.

street." Undeveloped land along this unimproved segment of Folsom Street has been subdivided into six lots, three on each side of Folsom Street. There are two existing residences on this unimproved segment of Folsom Street (3574 and 3577 Folsom Street) that are accessible via private driveways running from Chapman Street. **Figure 1** shows the location of the project site and **Figure 2** provides an aerial view of the site. **Figure 3** illustrates the project site.

The project site is currently vacant and has not been previously developed. There are bushes and other small plants on the project site. The project site is at a slope of approximately ~~28~~33% and slopes downward from north to south. PG&E Natural Gas Pipeline 109 runs through the project site, along the western edge of the "paper street" section of Folsom Street, approximately four to six feet below ground surface.[8]

B. PROPOSED PROJECT

The project sponsor proposes the construction of two single-family residences on two of the vacant lots along the west side of the unimproved portion of Folsom Street, the construction of the connecting segment of Folsom Street to provide vehicle and pedestrian access to the project site and the construction of a stairway to provide pedestrian access from the improved section of Folsom Street to Bernal Heights Boulevard that would run to the northwest of Folsom Street, within Public Works property, and at least 15 feet downhill from an existing stand of hummingbird sage, a locally sensitive plant species. Both single-family homes would be 27 feet tall, two-story-over-garage buildings and would each include ~~two~~ one off-street vehicle parking spaces accessed from a twelve-foot-wide garage door. Vehicle access would be provided by a 10-foot wide curb cut on Folsom Street.

The existing, unimproved project site is represented in **Figure 3**. Plans for the proposed project are depicted in **Figures 4 through 12**.[9]

[8] A "paper street" is a street or road that appears on maps but does not exist in reality. Paper streets generally occur when city planners or subdivision developers lay out and dedicate streets that are never built.

[9] Figures 4 through 11 have been updated to reflect the changes to the project description noted in this section. A car parking space has been removed from both garages and replace with bicycle parking, which created more gross square footage of living space. The building envelopes remain the same.

The proposed project includes modifications to address concerns expressed by the Board of Supervisors regarding vibration resulting from construction activity as well as minor updates to the proposed project detailed below. These modifications include an Emergency Response and Evacuation Plan, as described below.

Project Building Characteristics

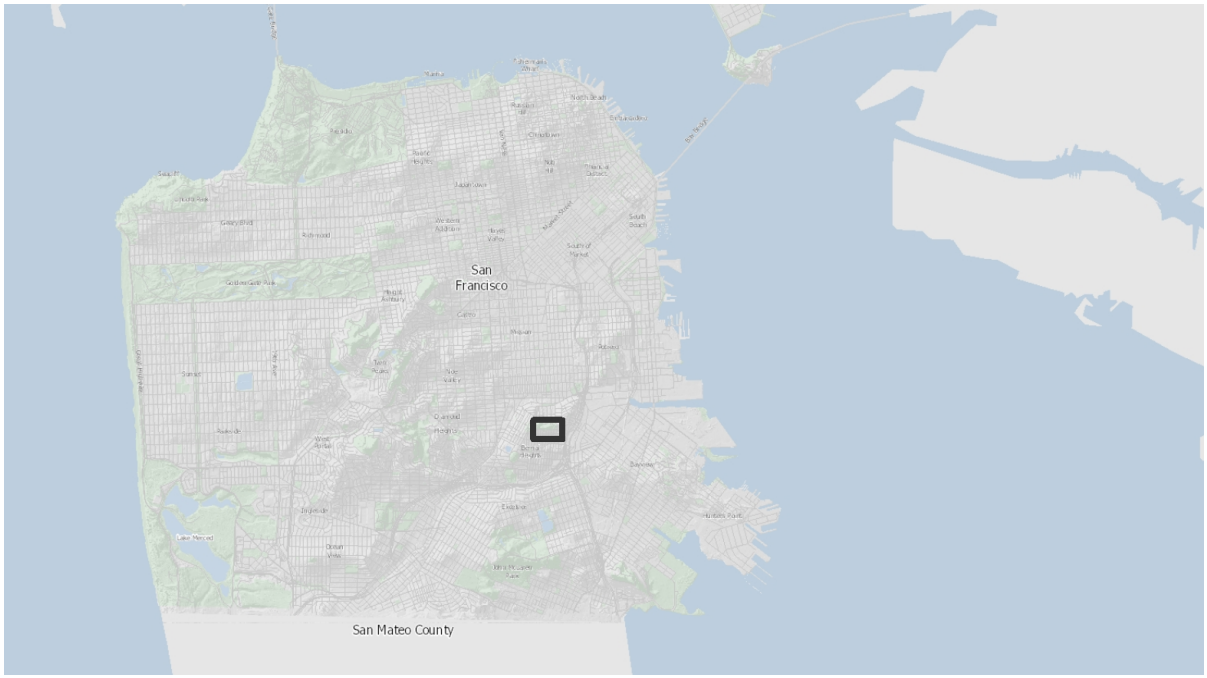
The proposed project would result in the construction of two immediately adjacent single-family homes, each with three levels of living area (a garage and recreation room with two levels above). The buildings would be approximately ~~2,230~~ 2,551 and 2,384 gsf.

Each building would be set back between approximately three and three-and-a-half feet from the street front property line at grade ~~and stepped back up to 10 feet from the building façade at the second level~~. Each building would be set back approximately 24-and-a-half feet from the rear property line.

Access and Parking

Pedestrian and vehicle access to the proposed project would be provided via Folsom Street, and pedestrian access to the project site would be provided by a stairway connecting Folsom Street and Bernal Heights Boulevard, which would be improved consistent with a Street Improvement Permit that would be issued by San Francisco Public Works (Public Works). Resident access to each unit would be provided from within the basement ~~ground~~ level garage and through a front door along Folsom Street. A total of ~~four~~ two parking spaces (one for each unit) would be provided on site. New curb cuts for each proposed garage access driveway would be 12 feet in width.

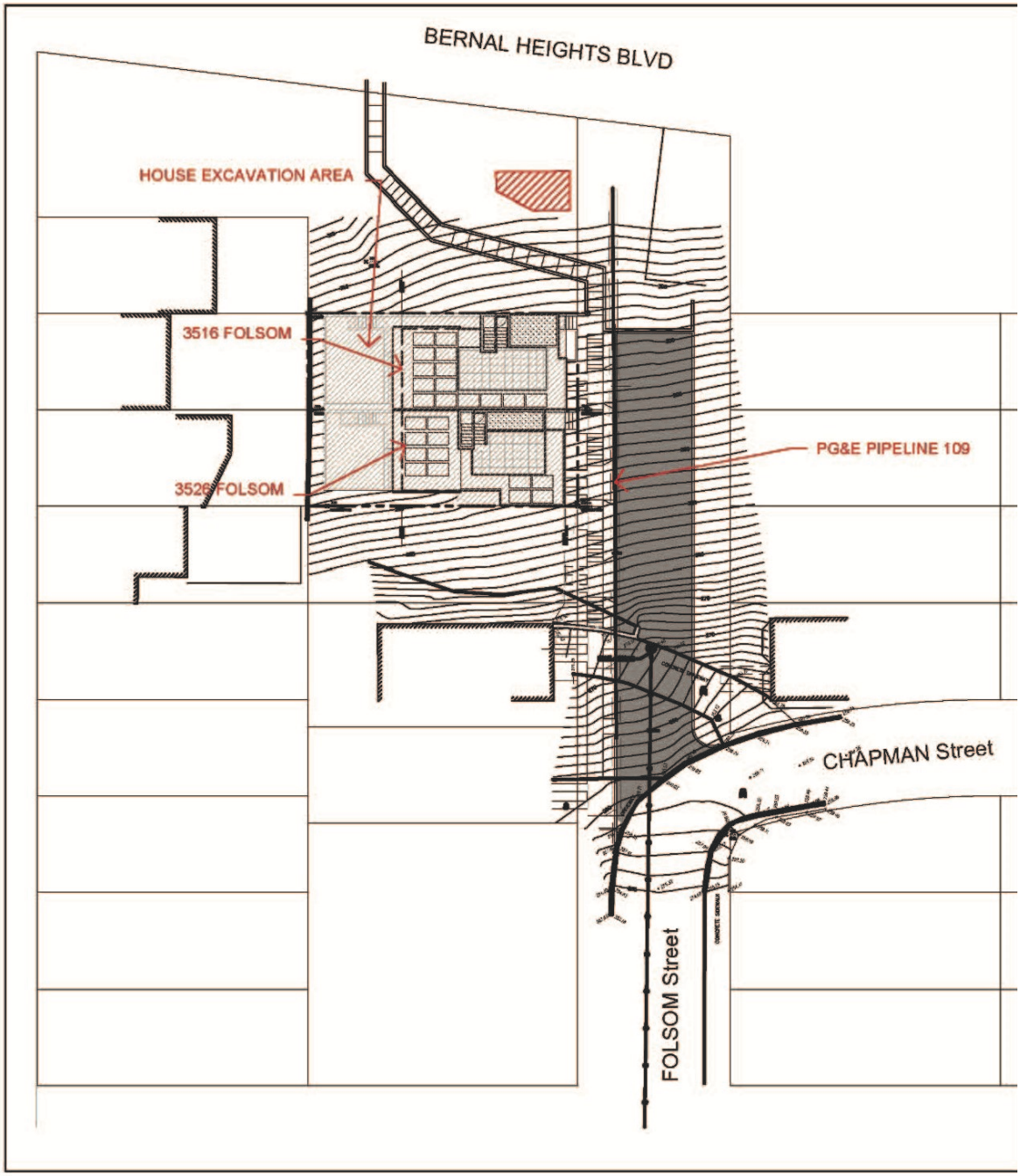
Figure 1: Project Location and Regional Vicinity Map



Source: San Francisco Planning Department

Figure 2: Existing Site Conditions

Figure 3: Project Site[10]



[10] See Figure 12 below as well, which shows the pipeline in greater detail. See also "Location, Depth and Condition of Pipeline No. 109" in the project case file

Figure 4: 3526 Folsom Street: Garage and First Floor Plans

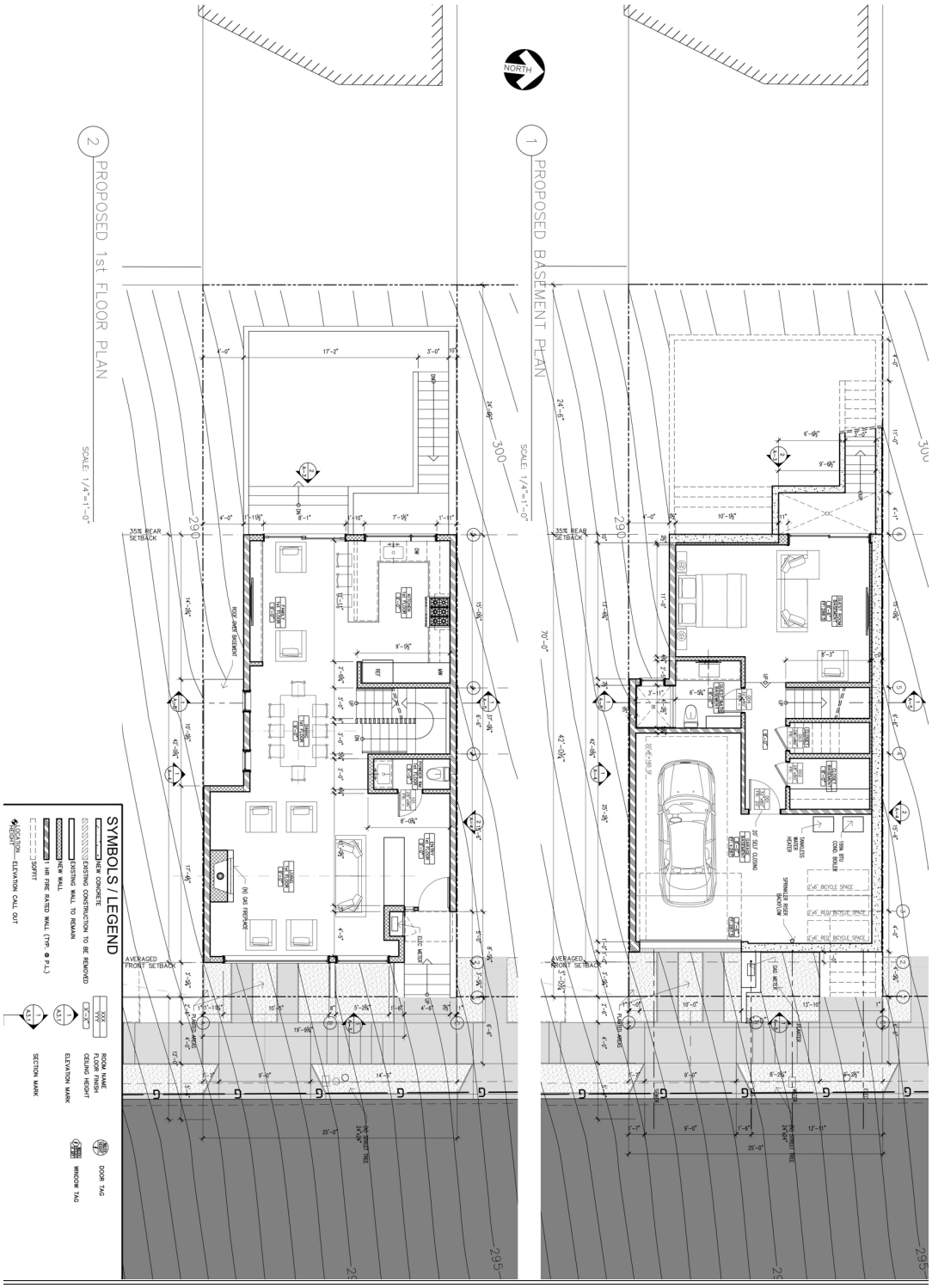


Figure 5: 3526 Folsom Street: Second Floor and Roof Plans

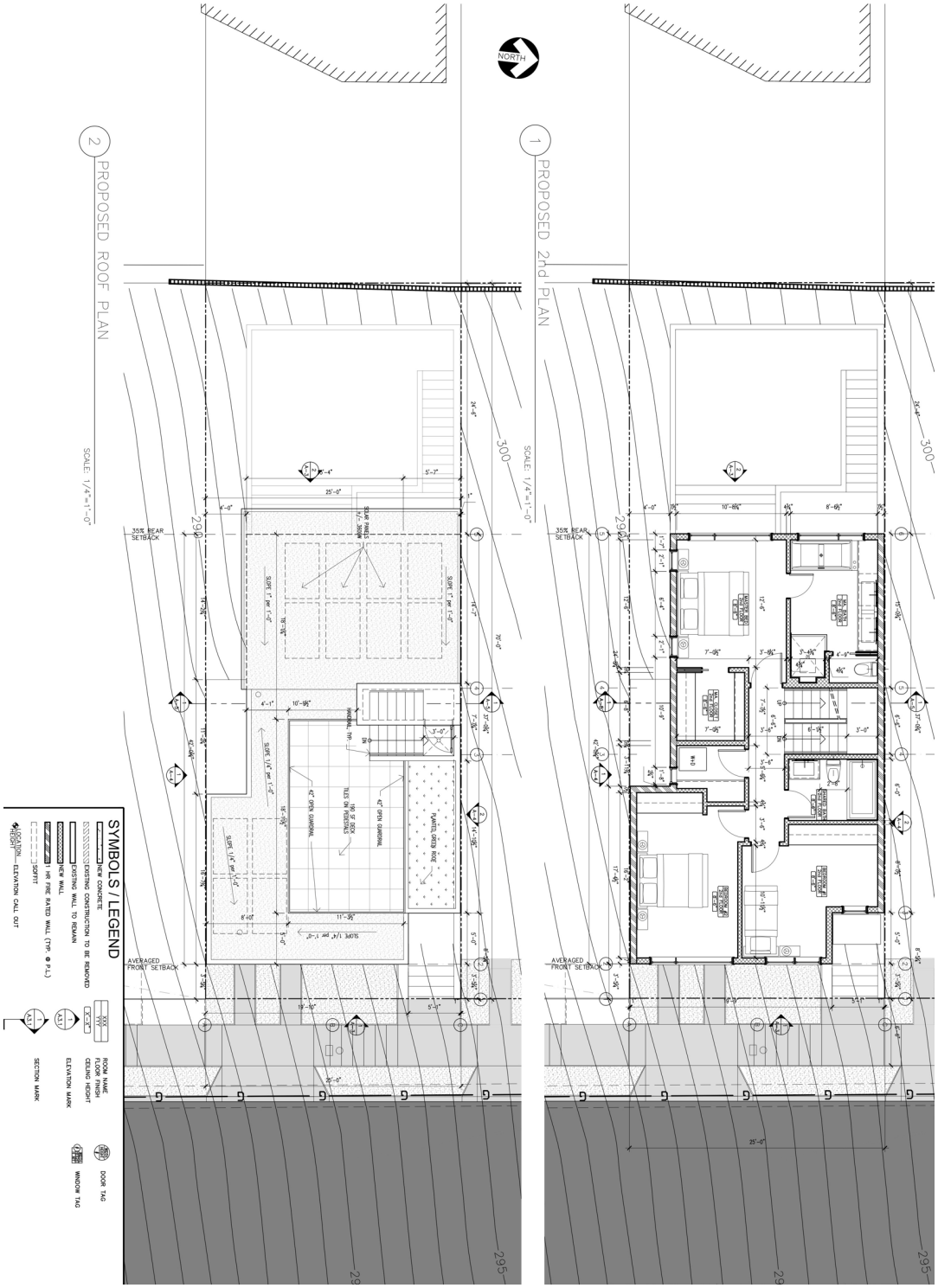


Figure 6: 3526 Folsom Street: North and South Elevations

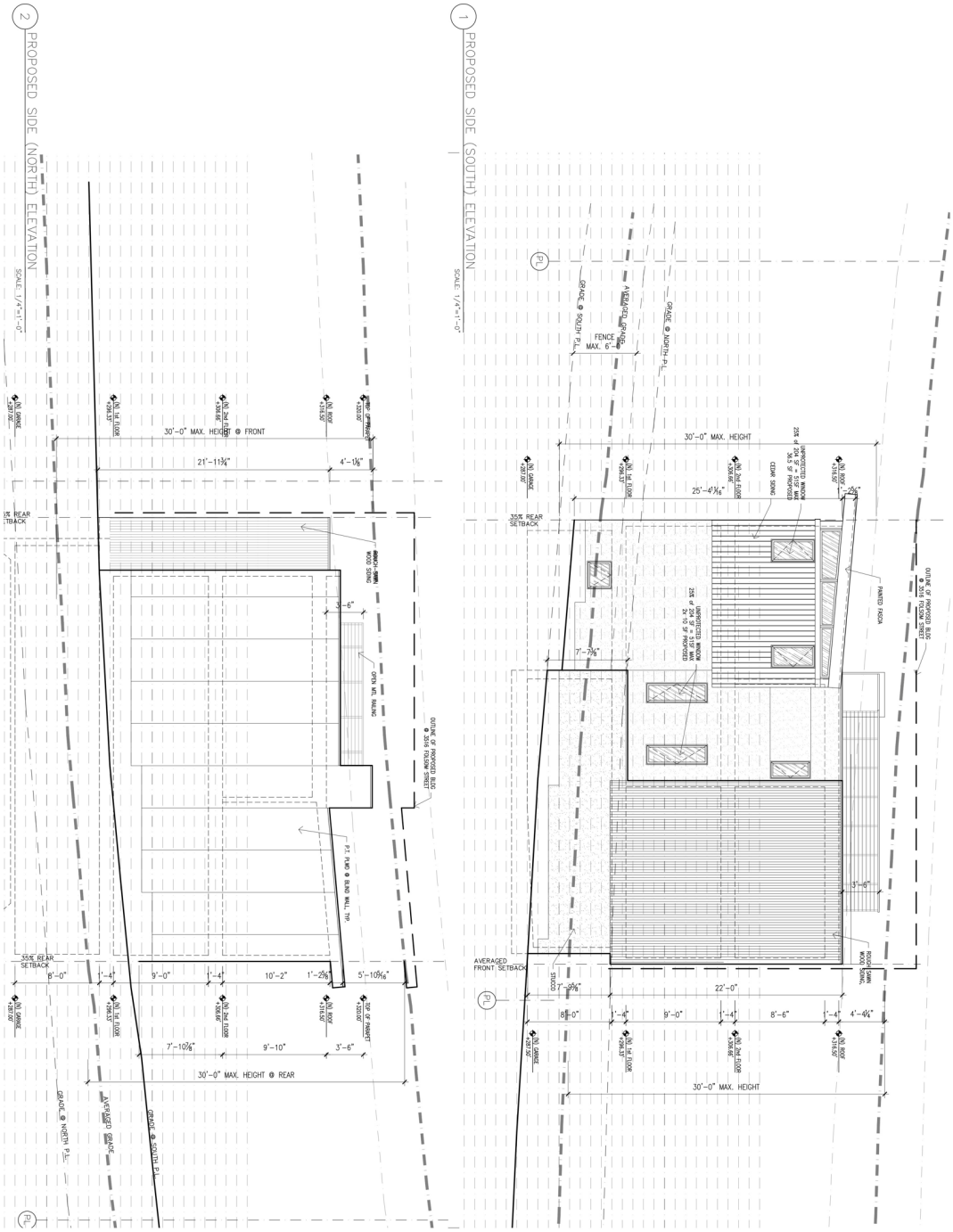


Figure 7: 3526 Folsom Street: East and West Elevations

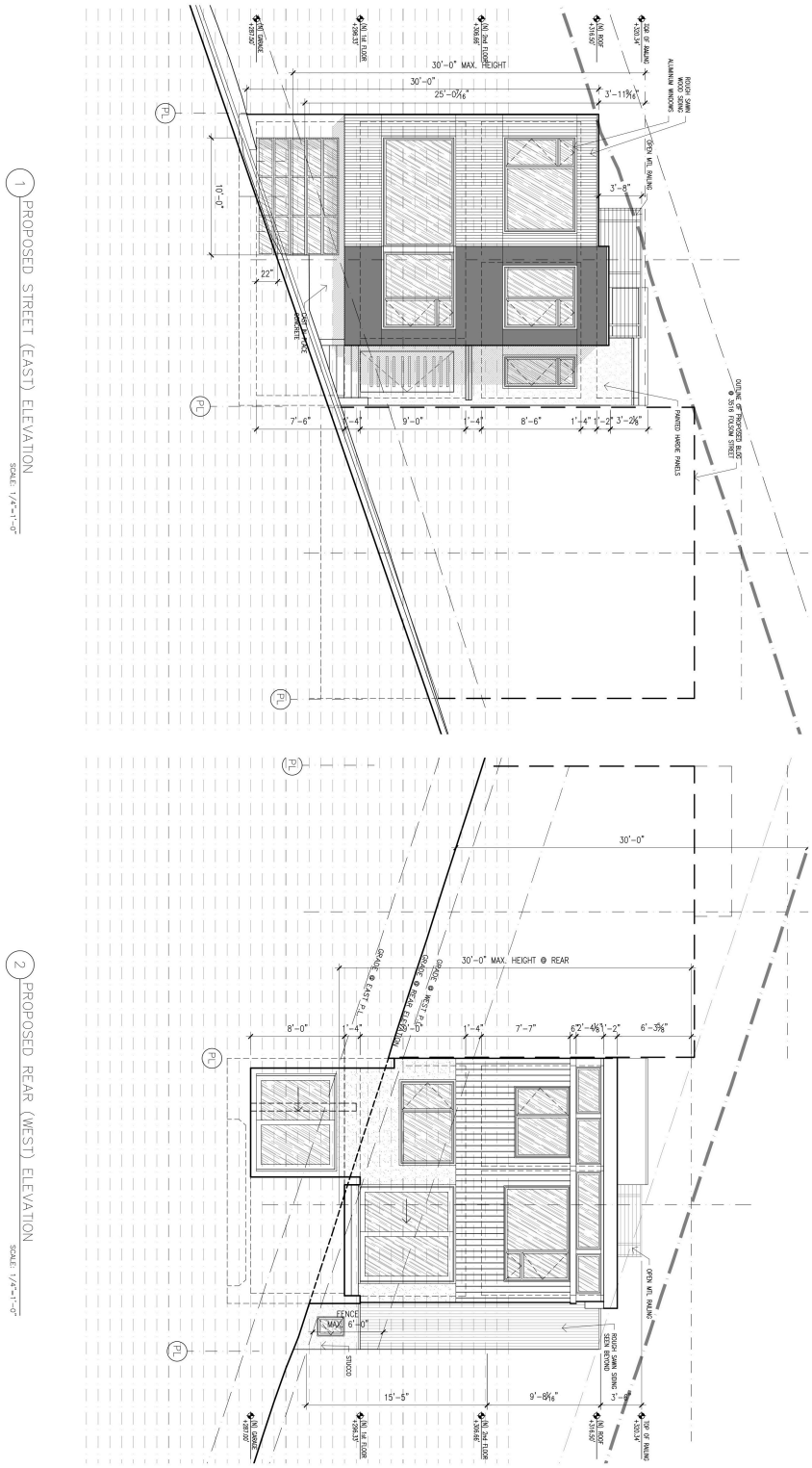


Figure 8: 3516 Folsom Street: Garage and First Floor Plans

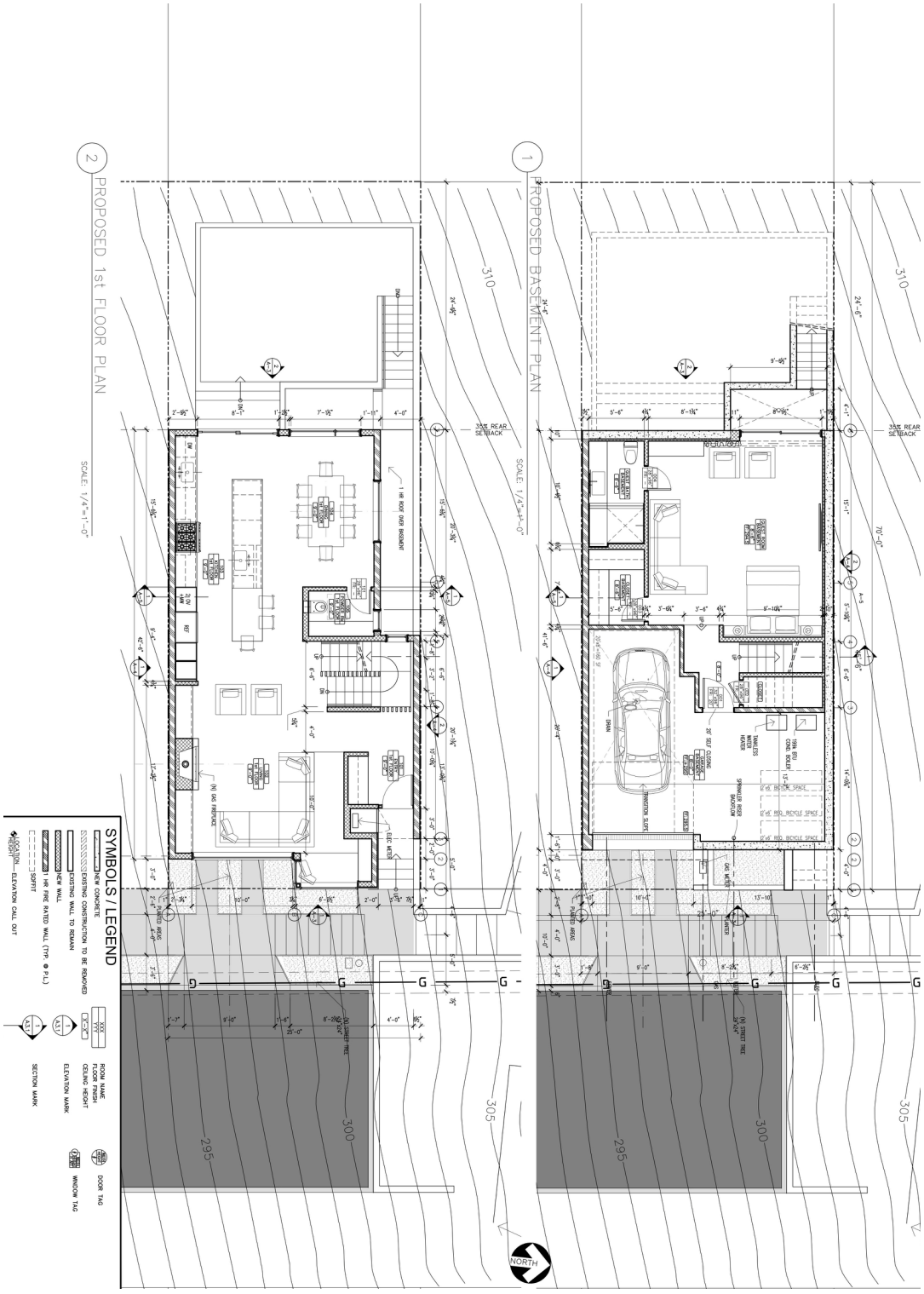


Figure 9: 3516 Folsom Street: Second Floor and Roof Plans

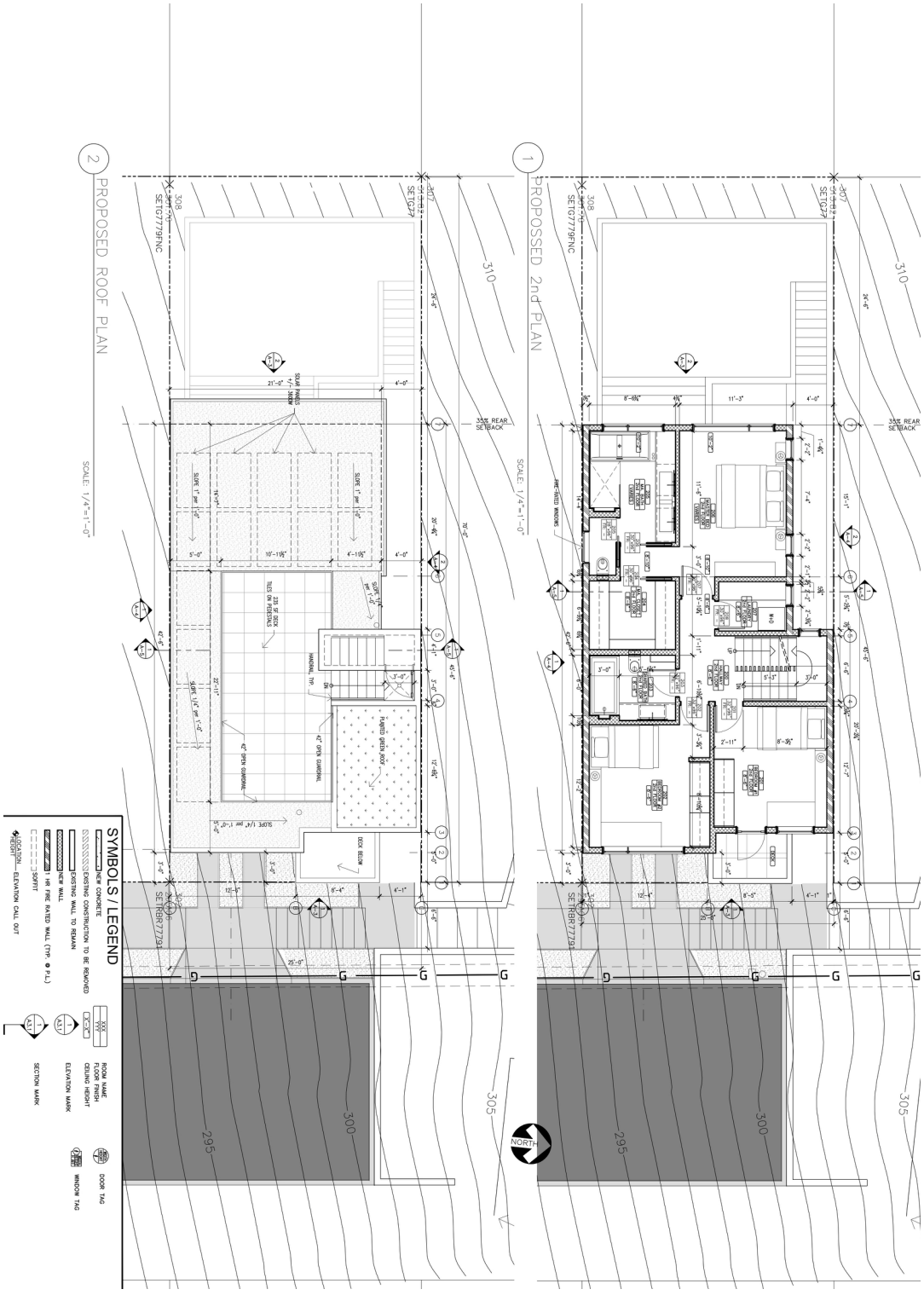


Figure 10: 3516 Folsom Street: North and South Elevations

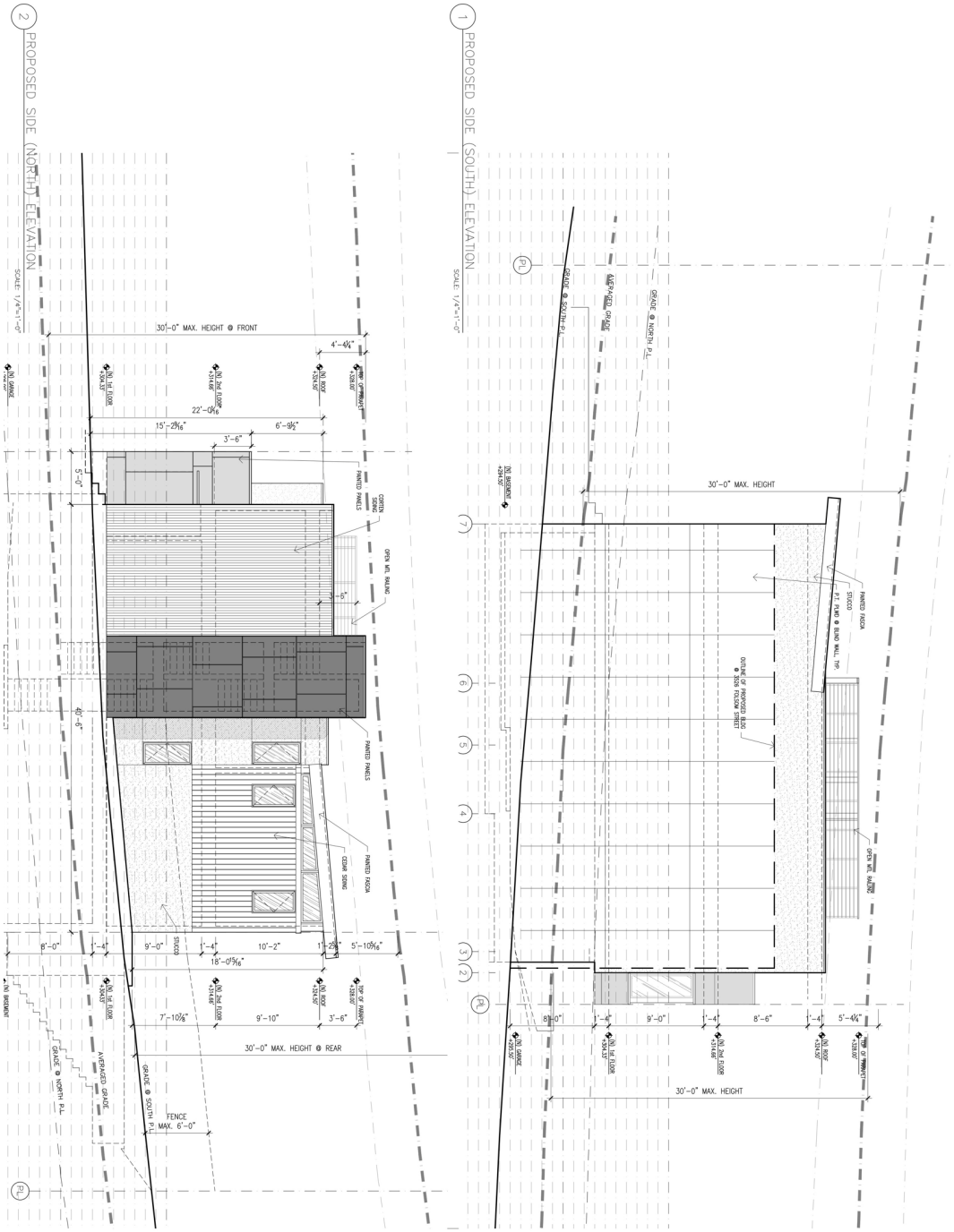


Figure 11: 3516 Folsom Street: East and West Elevations

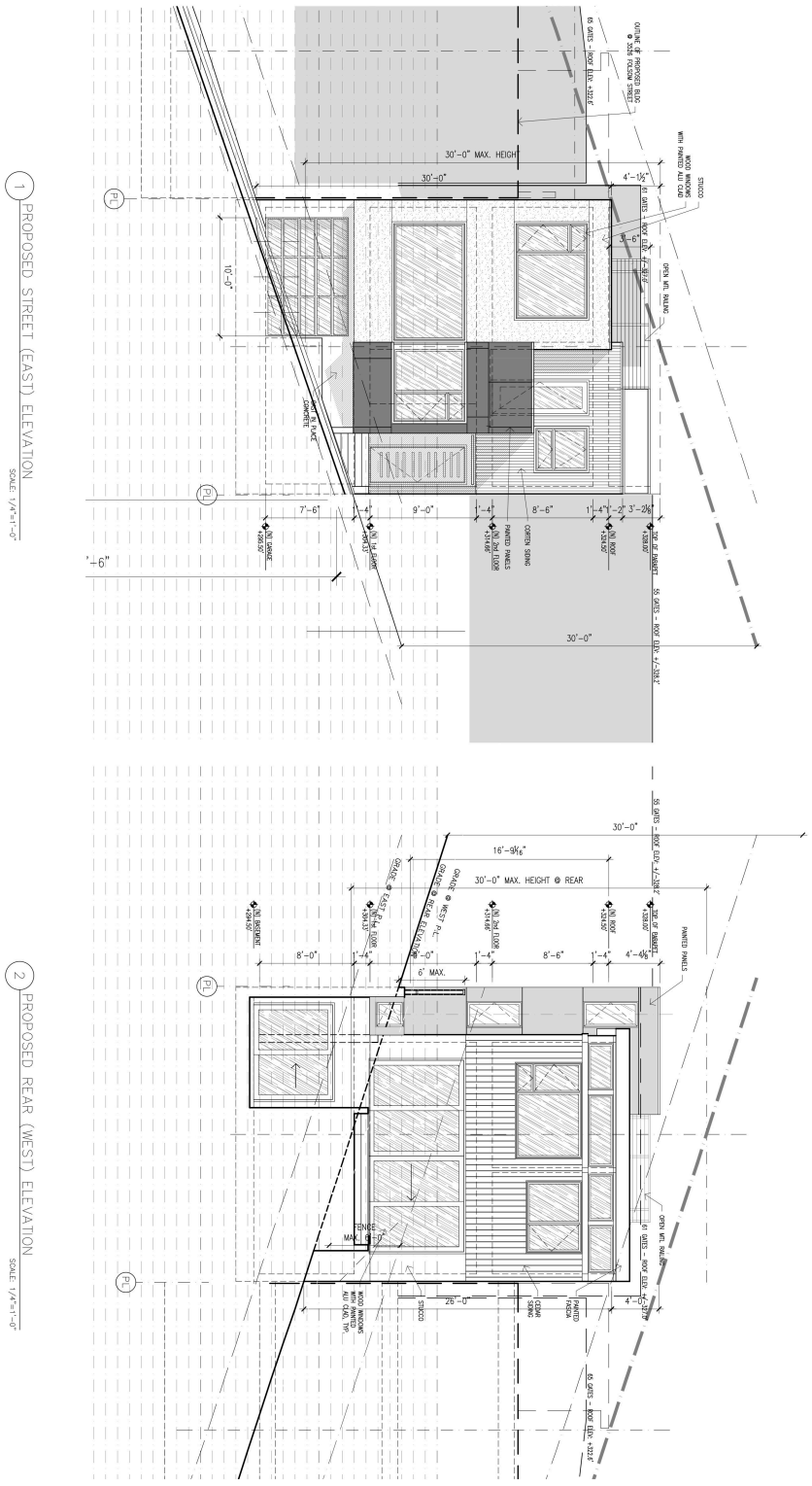
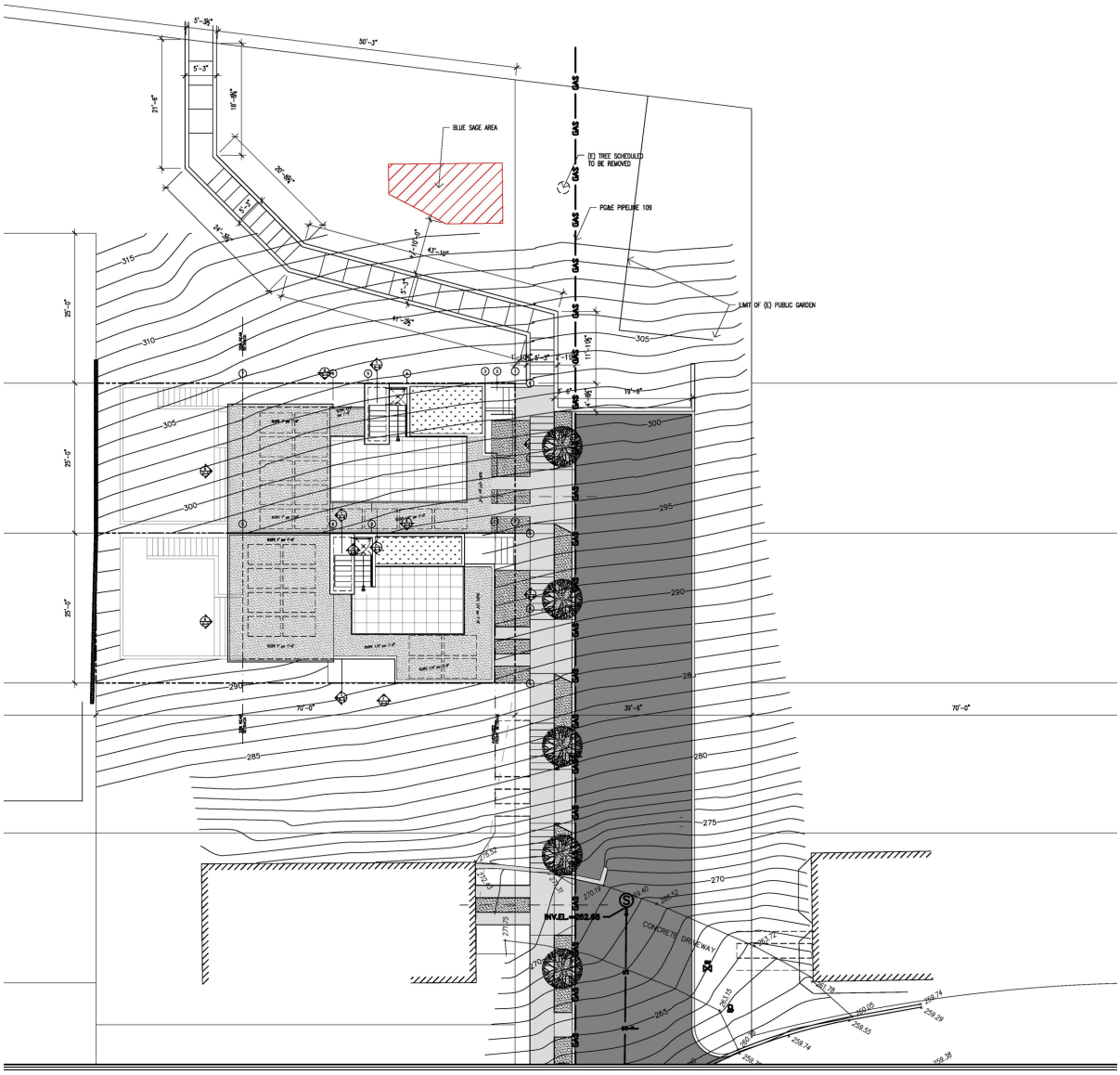


Figure 12: Proposed Street Improvement and Stairway Alignment



Demolition and Construction

Construction activities at the project site would begin with clearing the site. A total of approximately 650 cubic yards of soil would be excavated from the site to accommodate new foundations and utility connections. Excavated materials would be delivered to 20 cubic yard capacity haul trucks located on Bernal Heights Boulevard by conveyor belt. The excavation of 3516 Folsom Street would include approximately 30 truck trips and the excavation of 3526 Folsom Street would include approximately 25 truck trips. Construction of the proposed project is anticipated to occur over a 12 month period. The concrete required for each foundation slab would require four cement truck trips for each residence (eight, total) plus another four trips per residence for the concrete retaining walls for each residence (eight, total). Concrete trucks and concrete pumps would operate from Bernal Heights Boulevard, and all materials deliveries would occur from Bernal Heights Boulevard. The proposed project would connect to water, sewer, electrical, natural gas, and telecommunications connections that would be brought to the project site by the improvement of the "paper street" section of Folsom Street. The proposed project would include approximately two weeks of excavation, eight weeks of foundation work, and ten weeks for framing. The construction of the two houses would take approximately twelve months. Trucks would access the project site to and from the 101 freeway via Cesar Chavez Street, to Folsom Street and Bernal Heights Boulevard.

The improvement of the "paper street" segment of Folsom Street would be performed under a separate Street Improvement Permit issued by the Department of Public Works. This improvement would include the removal of plants and topsoil along the current right-of-way and the creation of a paved roadway and the construction of a stairway between Folsom Street and Bernal Heights Boulevard. The proposed road improvement would require 92 cubic yards of material to be removed from the project site, which would result in approximately seven haul truck trips. Concrete imported onto the project site for the road improvement would require about ten truck trips. Road work would be conducted from the intersection of Folsom Street and Chapman Street.

Emergency Response and Evacuation Plan

Pursuant to the FMND appeal findings adopted by the Board of Supervisors on September 26, 2017 in motion M17-152 (Legislative File Number 171022) regarding the potential effects of construction-related vibration on the integrity of PG&E Pipeline 109, the proposed project also includes an

Emergency Response and Evacuation Plan to ensure adequate access for emergency response and the ability for a safe and timely evacuation of the project vicinity in the event of an emergency. The Emergency Response and Evacuation Plan includes steps to be taken pre-construction as well as during any excavation near PG&E Natural Gas Pipeline 109. Natural Gas Pipeline 109 is located approximately 12 feet from the nearest outside perimeter of the proposed homes, and is buried under approximately four to six feet of earth (refer to Figure 12). The provisions of the Emergency Response and Evacuation Plan are summarized below.

Pre-Construction: Before the commencement of any construction, the project sponsor would:

- Provide two working days' notice to PG&E, Elpinike Pappous, Pipeline Engineer (or authorized agent), 925-872-1027, prior to commencing any construction.
- Schedule 811 (a utility location service) to mark all utilities in work area.
- Fence the area within 10 feet of the pipeline at each site and clearly post notices indicating that no work can be done in defined area without presence of PG&E standby engineer.
- Install protection fence around any area containing hummingbird sage.
- Install vibration monitoring equipment and test with PG&E present.
- Set up pre-construction meeting with Public Works (DPW) and the Department of Building Inspection (DBI).
- Post notice of emergency evacuation routes and identify one or more off-site assembly areas where residents and workers can gather in event of an emergency.
- Post emergency route signs within 300 feet from project site, 48-hours prior to commencing work.
- Post communication system at project site, which includes contact information for the owner, contractor, and PG&E.

During Construction within 10 feet of PG&E Pipeline 109: At any time construction would occur within 10 feet of PG&E Natural Gas Pipeline 109:

- The project sponsor would ensure that a PG&E inspector be on standby during all excavation and Folsom Street extension work within 10 feet of Pipeline. The PG&E standby inspector

would manage the vibration monitoring equipment and ensure that vibration levels remain below 2 inches per second (2 in/s).

- If vibration levels exceed 2 inches per second (in/s), the PG&E inspector would ensure that all construction activity ceases and call the PG&E pipeline engineer responsible for the SF area (Elpinike Pappous, 925-872-1027, or authorized agent).
- For any gas-related emergencies, such as leaks, the contractor would call Gas Control at 1-800-811-4111 (if the PG&E Inspector would be present, the inspector would call Gas Control). Gas Control would then communicate with the San Francisco Fire Department (SFFD) and the San Francisco Police Department (SFPD), as well as other first responders.
- PG&E leak survey personnel would be deployed to survey the pipeline in the immediate vicinity of the vibration to verify that damage had not occurred. Response time would be a maximum of 3 hours and the survey would be completed within the same business day. Work can only resume with PG&E authorization.

During Construction Beyond 10 feet of PG&E Pipeline 109: Anytime construction would occur beyond 10 feet of PG&E Natural Gas Pipeline 109:

- The on-site Project Manager would manage the vibration monitoring equipment and ensure that vibration levels remain below 2 in/s.
- If the vibration monitoring equipment indicates vibration levels are above 2 in/s, the Project Manager would stop all work immediately.
- The Project Manager or their agent would contact the PG&E pipeline engineer responsible for the San Francisco area (Elpinike Pappous [or authorized agent], 925-872-1027).
- If a gas leak is detected, the project manager (or the PG&E pipeline engineer, if present) would call Gas Control at 1-800-811-4111. Gas Control would communicate with SFFD and SFPD as well as other first responders. In addition, PG&E leak survey personnel would be deployed to survey the pipeline in the immediate vicinity of the vibration. Response time would be a maximum of 3 hours and the survey would be completed within the same business day.
- In the event of any work stoppage, work would only resume when PG&E informs the project sponsor.

At all times, the project sponsor would:

- Ensure that trained personnel, knowledgeable about emergency procedures, be on-site during all project work.
- Comply with all CalOSHA regulations regarding shoring and excavation.
- Comply with all City and County of San Francisco regulations regarding shoring and excavation.
- Remove all combustible scrap and debris at regular intervals during the course of construction.
- Prohibit smoking on the jobsite and in the vicinity of operations including the posting of "No Smoking or Open Flame" signs.
- Keep the storage site free of the accumulation of unnecessary combustible materials.
- Ensure that all materials are stored, handled, and piled with due regard to their fire characteristics.
- Ensure that noncompatible materials, which may create a fire hazard, be segregated by a barrier having a fire resistance of at least 1 hour
- Ensure that material would be piled to minimize the spread of fire internally and to permit convenient access for firefighting.

The Emergency Response and Evacuation Plan also details required evacuation routes from the vicinity of the project site (Figure 13). The Emergency Response and Evacuation Plan has been reviewed and approved by the Planning Department,[11] PG&E and the San Francisco Fire Department.[12] After the Evacuation Plan was approved by both PG&E and the Fire Department, the project sponsor moved one safe gathering area located on Bernal Heights Blvd east of Nevada Street to Powhattan and Nevada streets in order to provide an easier-to-access gathering area. Planning Department staff followed up with PG&E and San Francisco Fire Department staff who approved the plan and received no concerns from either with moving the safe gathering area.

A Vibration Monitoring and Management Plan prepared for the proposed project by a qualified expert provides the source of the 2 in/s vibration level that is specified in the Emergency Response

[11] See March 17, 2020 approval letter from Planning Department.

[12] Letter from PG&E Gas Transmission Pipeline Services—Integrity Management, November 13, 2018. Letter from San Francisco Fire Department to Dan Sider, Fabian Lannoye, January 10, 2019.

and Evacuation Plan. The Vibration Monitoring and Management Plan was reviewed and approved by PG&E and the Planning Department. The plan was also evaluated by an independent, third-party qualified expert.[13] As discussed in the Noise and Vibration section below on page 55, recommendations from the Vibration Monitoring and Management Plan are included in **Mitigation Measure M-NO-3, Vibration Management**.

C. PROJECT APPROVALS

The project is located in the RH-1 (Residential House, Single-Family) residential zoning district and within the 40-X height and bulk district and within the Bernal Heights Special Use District which reflects the special characteristics and hillside topography of an area of the City that has a collection of mostly older buildings situated on lots generally smaller than the lot patterns in other low-density areas of the City. The proposed project would require the following City, State, and regional approvals. These approvals may be considered in conjunction with the required environmental review, but will not be granted until the required environmental review has been completed:

- Approval of building permits by the Department of Building Inspection (DBI);
- Street Improvement Permit from Department of Public Works for improvement of Folsom Street.

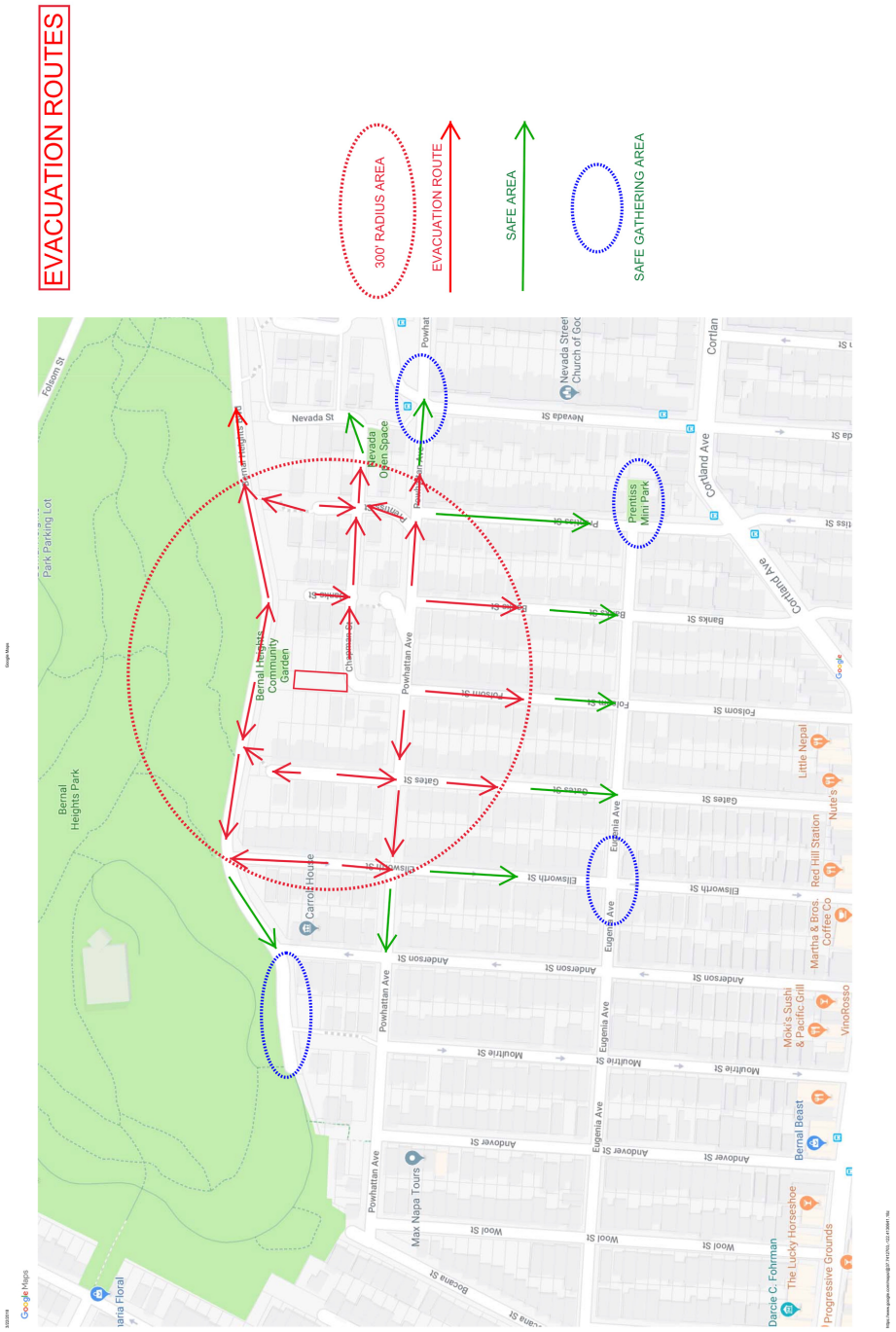
Pursuant to Section 31.16(d)(5)(A) of the San Francisco Administrative Code, in the event an organization or individual wishes to appeal the revised negative declaration, such appeal shall be made directly to the Board of Supervisors within 30 days of publication of this Revised FMND. Further, any appeals shall be limited to the portions of this Revised FMND that are additions to, or deletions from, the version previously certified on June 15, 2017.

~~The approval of the building permits by the Department of Building Inspection constitutes the Approval Action for the proposed project, pursuant to Section 31.04(h)(3) of the San Francisco Administrative Code. The Approval Action date establishes the start of the 30-day appeal period for~~

[13] Buehler, David, P.E. INCE Bd. Cert., October 17, 2019, Review of Vibration Management Plan Prepared for 3516-3526 Folsom Residential Construction.

~~the California Environmental Quality Act determination pursuant to Section 31.16(d) of the San Francisco Administrative Code~~

Figure 13. Emergency Response and Evacuation Routes[14]



[14] After the Evacuation Plan was approved by both PG&E and the Fire Department, the project sponsor moved one safe gathering area located on Bernal Heights Blvd east of Nevada Street to Powhattan and Nevada streets in order to provide an easier-to-access gathering area. Planning Department staff followed up with PG&E and San Francisco Fire Department staff who approved the plan and received no concerns from either with moving the safe gathering area.

D. PROJECT SETTING

As previously noted, the project site occupies two parcels located on the west side of an unimproved section of Folsom Street in the Bernal Heights neighborhood of San Francisco. Existing uses within the same block consist of unimproved open space, two other primarily two- to three-story single-family residential homes and the Bernal Heights Community Garden. Two-to-three-story residential uses border the site to the south and west, and unimproved lots border the site to the north and east. A two-story residential building borders the site to the south. **Figure 2** illustrates the surrounding residential and open space land uses within the vicinity of the site.

No MUNI bus or light rail lines border the proposed project site. The project site is within ¼ mile of MUNI bus line 24-Divisidero and 67-Bernal Heights. The nearest BART station is 24th Street Mission, which is approximately ¾ mile from the project site. There are no bike routes within 250 feet of the project site.

E. CUMULATIVE SETTING

Past, present and reasonably foreseeable cumulative development projects within ¼-mile radius of the project site include three residential additions and renovations as well as new construction, including a new single family home at 495 Chapman Street, a vertical addition to a home at 100 Gates Street, a demolition of an existing home and construction of a new home at 49 Nevada Street, and a subdivision with new construction at 40 Bernal Heights Blvd. These cumulative projects are the subject of individual Environmental Evaluation Applications on file with the Planning Department, where applicable.[15] There are no active planning applications for any adjacent properties or for the other four lots on this unimproved section of Folsom Street.

[15] 100 Gates Street (Case #2016-011777ENV), 49 Nevada Street (Case #2013-0223ENV), 40 Bernal Heights Blvd (Case #2014-002982ENV).

F. COMPATIBILITY WITH ZONING AND PLANS

	Applicable	*Not Applicable*
Discuss any variances, special authorizations, or changes proposed to the Planning Code or Zoning Map, if applicable.	☐	☒
Discuss any conflicts with any adopted plans and goals of the City or Region, if applicable.	☐	☒
Discuss any approvals and/or permits from City departments other than the Planning Department or the Department of Building Inspection, or from Regional, State, or Federal Agencies.	☒	☐

San Francisco Planning Code and Zoning Maps

The San Francisco Planning Code (Planning Code) incorporates by reference the City's Zoning Maps, governs permitted uses, densities, and the configuration of buildings within San Francisco. Permits to construct new buildings (or to alter and demolish existing ones) may not be issued unless: 1) the proposed project conforms to the Planning Code; 2) allowable exceptions are granted pursuant to provisions of the Planning Code; or 3) legislative amendments to the Planning Code are included as part of the proposed project.

The project site is located in the RH-1 District. As stated in Planning Code Section 209.1, the RH-1 District allows up to one dwelling unit per lot and up to one unit per 3,000 square feet of lot area with conditional use approval. Under the Bernal Heights Special Use District (as specified in Planning Code Section 242), buildings on lots which have a depth of 70 feet or less shall have a rear yard depth equal to 35 percent of the total depth of the lot. The proposed project would result in the development of two residential units with two buildings on two existing 1,750 square-foot lots, each with a rear yard with a depth that is 35% of the total depth of the lot. Within the RH-1 District, the proposed residential uses are principally permitted.

The project site is located within a 40-X Height and Bulk District, which permits a maximum building height of 40 feet, and the Bernal Heights Special Use District, which does not permit any dwelling unit to exceed a height of 30 feet. The proposed project buildings would be less than 30 feet in height. Bernal Heights Special Use District bulk controls reduce the size of a building's floorplates as the building increases in height. Therefore, the proposed structures would comply with existing height and bulk controls.

~~According to Planning Code Section 242, two off-street parking spaces are required for a dwelling unit with a usable floor area of between 1,201 square feet (-sf) and 2,250-sf, as is the case with each unit of the proposed project. Thus, the proposed four off-street parking spaces (two per building) would comply with Planning Code Section 242.~~[16] Planning Code Section 155.2 requires new residential buildings to provide one secured (Class 1) bicycle parking space per each dwelling unit. As the proposed project would provide three Class 1 bicycle parking spaces in each garage (for a total of ~~four~~ six spaces), the project would comply with the Planning Code's bicycle parking requirements.

Plans and Policies

San Francisco General Plan

The San Francisco General Plan (General Plan) establishes objectives and policies to guide land use decisions related to physical development in the City. It is comprised of ten elements, each of which addresses a particular topic that applies citywide: Air Quality; Arts; Commerce and Industry; Community Facilities; Community Safety; Environmental Protection; Housing; Recreation and Open Space; Transportation; and Urban Design.

Two General Plan elements that are particularly applicable to planning considerations associated with the proposed project are the Housing and Urban Design elements. These elements are discussed in more detail below. Other elements of the General Plan that are applicable to technical aspects of the proposed project include Air Quality, Community Safety, Recreation and Open Space, and Transportation. The proposed project's potential to conflict with the individual policies contained in these more technical elements is discussed in the appropriate topical sections of this Initial Study.

Objectives of the General Plan's Urban Design Element that are applicable to the proposed project include emphasizing the characteristic pattern which gives the City and its neighborhoods an image, a sense of purpose, and a means of orientation and conserving resources which provide a sense of nature, continuity with the past, and freedom from overcrowding.

[16] Planning Code Section 242 no longer requires two off-street car parking spaces.

The Housing Element Update was originally adopted by the Planning Commission on March 2011 and certified by the California Department of Housing and Community Development in July 2011.[17] The key objective of the Housing Element is to promote the development of new housing in San Francisco and the retention of existing housing in a way that is protective of neighborhood identity, sustainable, and is served by adequate community infrastructure. A particular focus of the Housing Element is on the creation and retention of affordable housing, which reflects intense demand for such housing, a growing economy (which itself puts increasing pressure on the existing housing stock), and a constrained supply of land (necessitating infill development and increased density). In general, the Housing Element supports projects that increase the City's housing supply (both market-rate and affordable housing), especially in areas that are close to the City's job centers and are well-served by transit. The proposed project, which is a residential project consisting of two dwelling units, would not obviously conflict with any objectives or policies in the Housing Element.

The proposed project would not obviously or substantially conflict with any goals, policies, or objectives of the General Plan. A conflict between a proposed project and a General Plan policy does not, in itself, indicate a significant effect on the environment within the context of the California Environmental Quality Act (CEQA). Any physical environmental impacts that could result from such conflicts are analyzed in this Initial Study. In general, potential conflicts with the General Plan are considered by the decisions-makers (typically the Planning Commission) independently of the environmental review process. Thus, in addition to considering inconsistencies that affect environmental issues, the Planning Commission considers other potential inconsistencies with the General Plan independently of the environmental review process, as part of the decision to approve or disapprove a proposed project. Any potential conflict not identified in this environmental document would be considered in that context and would not alter the physical environmental effects of the proposed project that are analyzed in this Initial Study.

[17] Pursuant to a court order, the 2011 certification was set aside and a partially Revised Environmental Impact Report (Revised EIR) for the 2004 and 2009 Housing Element was later certified by the Planning Commission on April 24, 2014. No changes were made to the objectives or policies contained within the Housing Element as a result of this action.

The Accountable Planning Initiative

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added Section 101.1 to the Planning Code to establish eight Priority Policies. These policies are: 1) preservation and enhancement of neighborhood-serving retail uses; 2) protection of neighborhood character; 3) preservation and enhancement of affordable housing; 4) discouragement of commuter automobiles; 5) protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; 6) maximization of earthquake preparedness; 7) landmark and historic building preservation; and 8) protection of open space. The Priority Policies, which provide general policies and objectives to guide certain land use decisions, contain certain policies that relate to physical environmental issues. Where appropriate these issues are discussed in the topical sections of this Initial Study.

Prior to issuing a permit for any project which requires an Initial Study under CEQA; prior to issuing a permit for any demolition, conversion, or change of use; and prior to taking any action which requires a finding of inconsistency with the General Plan, the City is required to find that the proposed project or legislation would be consistent with the Priority Policies. As noted above, the physical environmental effects of the project as they may relate to the Priority Policies are addressed in the analyses in this Initial Study. The information contained in this Initial Study will be referenced as appropriate in the Planning Department's comprehensive project analysis and findings regarding the consistency of the proposed project with the Priority Policies.

Other Local Plans and Policies

In addition to the *General Plan*, the *Planning Code* and Zoning Maps, and the Accountable Planning Initiative, other local plans and policies that are relevant to the proposed project are discussed below.

- The *San Francisco Sustainability Plan* is a blueprint for achieving long-term environmental sustainability by addressing specific environmental issues including, but not limited to, air quality, climate change, energy, ozone depletion, and transportation. The goal of the *San Francisco Sustainability Plan* is to enable the people of San Francisco to meet their present needs without sacrificing the ability of future generations to meet their own needs.
- The *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Emissions* is a local action plan that examines the causes of global climate change and the human activities that contribute to

global warming, provides projections of climate change impacts on California and San Francisco based on recent scientific reports, presents estimates of San Francisco's baseline greenhouse gas emissions inventory and reduction targets, and describes recommended actions for reducing the City's greenhouse gas emissions. The 2013 Climate Action Strategy is an update to this plan.

- The *Transit First Policy* (City Charter, Section 8A.115) is a set of principles that underscore the City's commitment to prioritizing travel by transit, bicycle, and on foot over travel by private automobile. These principles are embodied in the objectives and policies of the Transportation Element of the *General Plan*. All City boards, commissions, and departments are required by law to implement Transit First principles in conducting the City's affairs.
- The *San Francisco Bicycle Plan* is a citywide bicycle transportation plan that identifies short-term, long-term, and other minor improvements to San Francisco's bicycle route network. The overall goal of the *San Francisco Bicycle Plan* is to make bicycling an integral part of daily life in San Francisco.
- The *San Francisco Better Streets Plan* consists of illustrative typologies, standards, and guidelines for the design of San Francisco's pedestrian environment, with the central focus of enhancing the livability of the City's streets.
- *Transportation Sustainability Fee Ordinance* requires that development projects that filed environmental review applications prior to July 21, 2015, but have not yet received approval, pay 50 percent of the applicable Transportation Sustainability Fee (TSF). TSF funds may be used to improve transit services and pedestrian and bicycle facilities.

The proposed project has been reviewed in the context of these local plans and policies and would not obviously or substantially conflict with them. Staff reports and approval motions prepared for the decision-makers would include a comprehensive project analysis and findings regarding the consistency of the proposed project with applicable local plans and policies.

Regional Plans and Policies

There are several regional planning agencies whose environmental, land use, and transportation plans and policies consider the growth and development of the nine-county San Francisco Bay Area. Some of these plans and policies are advisory, and some include specific goals and provisions that must be considered when evaluating a project under CEQA. The regional plans and policies that are relevant to the proposed project are discussed below.

- The principal regional planning documents and the agencies that guide planning in the nine-county Bay Area include *Plan Bay Area*, the region's first Sustainable Communities Strategy, developed in accordance with Senate Bill 375 and adopted jointly by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) on July 18, 2013. *Plan Bay Area* is a long-range land use and transportation plan that covers the period from 2010 to 2040. *Plan Bay Area* calls for concentrating housing and job growth around transit corridors, particularly within areas identified by local jurisdictions as Priority Development Areas. In addition, *Plan Bay Area* specifies strategies and investments for maintaining, managing, and improving the region's multi-modal transportation network and proposes transportation projects and programs to be implemented with reasonably anticipated revenue. *Plan Bay Area* will be updated every four years;
- *Plan Bay Area* includes the population and employment forecasts from ABAG's Projections 2013, which is an advisory policy document used to assist in the development of local and regional plans and policy documents, and MTC's 2040 *Regional Transportation Plan*, which is a policy document that outlines transportation projects for highway, transit, rail, and related uses through 2040 for the nine Bay Area counties;
- The *Regional Housing Needs Plan* for the San Francisco Bay Area: 2014–2022 reflects projected future population growth in the Bay Area region as determined by ABAG and addresses housing needs across income levels for each jurisdiction in California. All of the Bay Area's 101 cities and nine counties are given a share of the Bay Area's total regional housing need. The Bay Area's regional housing need is allocated to each jurisdiction by the California Department of Housing and Community Development (HCD) and finalized though negotiations with ABAG;
- The Bay Area Air Quality Management District (BAAQMD)'s *2010 Clean Air Plan* updates the Bay Area 2005 Ozone Strategy, in accordance with the requirements of the California Clean Air Act (CCAA), to implement feasible measures to reduce ozone and provide a control strategy to reduce ozone, particulate matter (PM), air toxics, and greenhouse gas emissions throughout the region; and
- The San Francisco Regional Water Quality Control Board's *Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)* is a master water quality control planning document. It designates

beneficial uses and water quality objectives for waters of the state, including surface waters and groundwater, and includes implementation programs to achieve water quality objectives.

The proposed project has been reviewed against these regional plans and policies. Due to the relatively small size and infill nature of the proposed project, there would be no anticipated conflicts with regional plans. Therefore, the proposed project would not obviously or substantially conflict with regional plans or policies.

Other Related Policies

The proposed project includes work in proximity to Pacific Gas & Electric (PG&E) gas Pipeline 109 and is therefore subject to PG&E's rules and regulations regarding work near their facilities.[18] In a letter to the San Francisco Planning Department, PG&E outlined the requirements that would apply to the proposed project.[19] These requirements include the physical presence of a PG&E inspector whenever work within 10 feet of the pipeline is performed; grading and digging standards; the placement of pipeline markers during demolition and construction; standards for construction machinery and loading near and on top of underground pipelines; and limitations on placing landscaping, structures or fencing within certain distances from the pipeline.

Subsequent to the proposed project receiving entitlements from the City of San Francisco, the proposed project would be submitted to PG&E for their review to ensure the safety and integrity of their pipeline. Compliance with PG&E's regulations, and additional requirements found necessary subsequent to project approval, would be a requirement of the proposed project.

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[18] On January 29, 2019, PG&E filed voluntary petitions under Chapter 11 of the U.S. Bankruptcy Code. According to PG&E, the company remains committed to providing safe natural gas and electric service to customers as it prepares to initiate voluntary reorganization proceedings under Chapter 11. See "PG&E Remains Committed to Providing Safe Natural Gas and Electric Service to Customers as it Prepares to Initiate Voluntary Reorganization Cases Under Chapter 11," accessed on December 6, 2019 at: https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20190114_pge_remains_committed_to_providing_safe_natural_gas_and_electric_service_to_customers_as_it_prepares_to_initiate_voluntary_reorganization_cases_under_chapter_11.

[19] John Dolcini, Pipeline Engineer-Gas Transmission, Pacific Gas and Electric Company, *Letter Re: 3516/3526 Folsom Street*, March 30, 2017.

G. SUMMARY OF ENVIRONMENTAL EFFECTS

Environmental effects are discussed with mitigation measures, where appropriate, in **Section H, Evaluation of Environmental Effects,** of this Initial Study. All mitigation measures identified are listed in **Section I, Mitigation Measures and Improvement Measures**, have been agreed to by the project sponsor, and will be incorporated into the proposed project. For items designated "Not Applicable" or "No Impact," the conclusions regarding potential significant environmental effects are based upon field observations, staff and consultant experience and expertise on similar projects, and/or standard reference materials available within the San Francisco Planning Department, such as the California Natural Diversity Database and maps published by the California Department of Fish and Wildlife, the California Division of Mines and Geology Mineral Resource Zone designations, and the California Department of Conservation's Farmland Mapping and Monitoring Program. For each checklist item, the evaluation has considered both individual and cumulative impacts of the proposed project.

H. EVALUATION OF ENVIRONMENTAL EFFECTS

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
1. LAND USE AND LAND USE PLANNING— Would the project:					
a) Physically divide an established community?	☐	☐	☒	☐	☐
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐	☐

Impact LU-1: The proposed project would not physically divide an established community. ***(Less-Than-Significant Impact)***

The division of an established community would typically involve the construction of a barrier to neighborhood access (such as a new freeway segment) or the removal of a means of access (such as a

bridge or roadway). The proposed project would result in the construction of two two-story, up to 30-foot-tall buildings with a total of two dwelling units and street improvements, including a pedestrian connection between Bernal Heights Boulevard and Folsom Street. The proposed project would be incorporated into the existing street configuration. The proposed project includes the improvement of a currently unimproved "paper street" segment of Folsom Street, which would improve connectivity between Bernal Heights Park to the north and the existing residential neighborhood south of the project site. The proposed project would not construct a physical barrier to neighborhood access or remove an existing means of access, such as a bridge or roadway which would create an impediment to the passage of persons or vehicles. The existing access driveway for two existing buildings adjacent to the project site would be replaced by the proposed extension of Folsom Street. As such, the proposed project would not physically divide an established community.

The established community surrounding the project site includes primarily residential uses. The proposed project would introduce new residential uses within an existing residential area and would not alter the land use pattern of the immediate area. The proposed project would not introduce any new land uses, such as industrial uses, that would either create potential conflicts through incompatible uses or result in disruptions to the community's established land use patterns.

For these reasons, the proposed project would not physically divide an established community. This impact would be less than significant and no mitigation measures would be required.

Impact LU-2: The proposed project would not conflict with any applicable land use plans, policies or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. *(Less-Than-Significant Impact)*

Land use impacts are also considered to be significant if the proposed project would conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Environmental plans and policies are those, like the Bay Area Air Quality Management District's 2017~~0~~ Clean Air Plan, which directly address environmental issues and/or contain targets or standards that must be met in order to preserve or improve characteristics of the City's physical environment.

The General Plan contains objectives and policies that guide land use decisions, as well as some objectives and policies that relate to physical environmental issues. As identified in **Section F, Compatibility with Zoning and Plans** (page 29), the proposed project does not conflict with any existing General Plan objectives or policies. Therefore, this impact would be less than significant and no mitigation measures would be required.

Impact C-LU-1: The proposed project would not make a considerable contribution to any significant cumulative land use impacts. ***(Less-Than-Significant Impact)***

The project as proposed is for the construction of two single-family residences on two vacant lots located on the "paper street" segment of Folsom Street as well as utility extensions and street improvements that would serve the two homes and four undeveloped lots along this segment of Folsom Street. The four adjacent lots are all under different ownership than the project lots and no Environmental Evaluation applications are on file with the Planning Department for development of those lots. Any future development proposals on the adjacent lots would require further environmental review and City approval.

Since the 3516 and 3526 Folsom Street project is the first proposed development on the "paper street" segment of Folsom Street, the project sponsor would be required to construct pedestrian and vehicular access to this segment of Folsom Street. The project sponsor has also agreed to construct utilities to service the remaining four undeveloped lots so as to avoid any need to excavate the improved section of Folsom Street in the event homes are proposed for the four remaining vacant lots in the future.

Pursuant to CEQA, cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other physical environmental impacts. The proposed project would construct two single-family homes, improve a segment of Folsom Street, and provide utilities for the two proposed homes and four adjacent lots. While there are no Environmental Evaluation applications on file with the Planning Department for the four adjacent lots, the improvements proposed by the project would facilitate future development of those lots. Any subsequent development would be required to comply with the same regulations as the proposed project including, but not limited to, compliance with the San Francisco Building and Fire

Codes, Slope Protection Act, PG&E regulations for work in proximity to their pipeline, the SFPUC's Stormwater Management Ordinance and Construction Site Runoff Ordinance, the Migratory Bird Treaty Act (MBTA) and Department of Fish and Wildlife (DFW) regulations protecting nesting birds and the Bernal Heights East Slope Design Guidelines. These regulations would ensure that development of the adjacent lots would not result in significant environmental effects.

The proposed project and cumulative projects would be consistent with the envisioned land uses for this area, and no other potential conflicts with policies adopted for the purpose of mitigating an environmental effect have been identified. Thus, the proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a considerable cumulative land use impact.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
2. POPULATION AND HOUSING— Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐	☐
b) Displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing?	☐	☐	☒	☐	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐	☐

Impact PH-1: The proposed project would not directly or indirectly induce substantial population growth in San Francisco. ***(Less-Than-Significant Impact)***

In general, a project would be considered growth-inducing if its implementation would result in a substantial population increase and/or new development that might not occur if the project were not approved and implemented. The addition of the two new residential units would increase the

residential population on the site by approximately five persons,[20] resulting in a direct increase in population on the project site and contributing to anticipated population growth in both the neighborhood and citywide context.

However, the addition of five residents represents an incremental increase in the population of the area and would not result in a substantial increase to the population of the larger neighborhood or citywide. The 2010 U.S. Census indicates that the population in the project vicinity (Census Tract 252) is approximately 5,369 persons.[21] The proposed project would increase the population near the project site by approximately 0.1 percent. The proposed project could indirectly induce additional population growth in the project area because the proposed improvement of the "paper street" section of Folsom Street could enable additional development of four additional houses in the currently undeveloped area. However the addition of four units, with approximately 10 residents, would not be considered substantial population growth. The project would also not generate new employment on the site which could in turn indirectly increase the demand for housing elsewhere. Therefore, the proposed project would not directly or indirectly induce substantial population growth in San Francisco. This impact would be less than significant and no mitigation measures are necessary.

Impact PH-2: The proposed project would not displace substantial numbers of existing housing units or people and would not create demand for additional housing elsewhere. ***(Less-Than-Significant Impact)***

The project site is currently undeveloped, and there are no existing housing units on the project site. Therefore, implementation of the proposed project would not displace existing housing units or residents. The proposed project would result in the development of two new residential units and would not include uses that could generate demand for additional housing citywide, such as

[20] The project site is located in Census Tract 252, which is generally bounded by Cesar Chavez Street to the north, Cortland Ave to the south, Nebraska and Alabama Streets to the east, and Elsie Street to the west. The population calculation is based on Census 2010 data, which estimates 2.52 people per household in Census Tract 252. It should be noted that this census tract has somewhat larger households than the citywide average of 2.26 persons per household.

[21] The population estimate is based on data from the 2010 Census for Census Tract 252.

commercial space. Therefore, this impact would be less than significant and no mitigation measures are necessary.

Impact C-PH-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to population and housing. ***(Less-Than-Significant Impact)***

The proposed project includes the improvement of the "paper street" segment of Folsom Street which could induce the development of the four remaining lots adjacent to the project site.[22] Four more single-family homes could increase the area population by an additional ten residents, or a 0.2 percent increase in the population of the census tract. As described under Impact PH-1, the proposed project's individual contribution to population and employment growth would not be considerable and represents a minimal percentage of overall population increase within the neighborhood and Citywide. The population of San Francisco is projected to increase by approximately 280,490 persons for a total of 1,085,725 persons by 2040.[23] The residential population introduced as a result of the proposed project would constitute less than one percent of projected city-wide growth. Thus, this population increase would be accommodated within the planned growth for San Francisco. Furthermore, these additional residential units would provide more opportunities for housing, which is a Citywide need. Additionally, the proposed project, in combination with other past, present, and reasonably foreseeable future projects, would not result in the displacement of substantial numbers of housing units as the majority of the approved and proposed projects would include development of housing or unimproved parcels or the expansion of existing residential properties.

For these reasons, the proposed project in combination with other past, present, and reasonably foreseeable future projects would not result in a cumulatively considerable impact related to population and housing.

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[22] Assumes the City of San Francisco average of 2.52 persons per household.

[23] ABAG, *Plan Bay Area*, p. 40. Available online at http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/Plan_Bay_Area.pdf, accessed January 25, 2017.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
3. CULTURAL RESOURCES— Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco *Planning Code*?	☐	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐	☐
d) Cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code §21074?	☐	☐	☒	☐	☐

Impact CP-1: Implementation of the proposed project would not cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco *Planning Code*. *(Less-Than-Significant Impact)*

As discussed on page ~~1~~6 of **Section A, Project Site**, the project site is currently vacant, undeveloped land, and does not include any historic resources. Neither the project site nor the immediately surrounding neighborhood is within a historic district designated under federal, state or local regulations. Therefore, the proposed project would result in a Less-Than-Significant Impact on historical resources.

Impact CP-2: The proposed project would not result in a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. *(Less-Than-Significant Impact)*

This section discusses archaeological resources, both as historical resources according to Section 15064.5 as well as unique archaeological resources as defined in Section 21083.2(g).

The potential for encountering archaeological resources is determined by several relevant factors including archaeological sensitivity criteria and models, local geology, site history, and the extent of a potential projects soils disturbance/modification, as well as any documented information on known

archaeological resources in the area. A Planning Department archaeologist completed a preliminary archeological review (PAR) for the proposed project.[24] The PAR determined that there is a no potential to adversely affect archaeological resources. There are no documented or recorded archaeological sites in the immediate vicinity of the proposed project. Therefore, the proposed project construction would have a Less-Than-Significant Impact on prehistoric or historical archaeological resources.

Impact CP-3: Construction activities for the proposed project would not result in the disturbance of human remains, including those interred outside of formal cemeteries, should such remains exist beneath the project site. ***(Less-Than-Significant Impact)***

There are no known human remains, including those interred outside of formal cemeteries, located in the immediate vicinity of the site. It is considered highly unlikely that human remains would be encountered at the project site during excavation and grading for the proposed project. Therefore, this impact is considered less than significant.

Impact CP-4: Construction activities for the proposed project would not result in the disturbance of tribal resources, should such resources exist beneath the project site. ***(Less-Than-Significant Impact)***

CEQA Section 21074.2 requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, State, or local register of historical resources. Based on discussions with Native American tribal representatives, in San Francisco, prehistoric archeological resources are presumed to be potential tribal cultural resources. A tribal cultural resource is adversely affected when a project causes a substantial adverse change in the resource's significance.

[24] Randall Dean, Archeologist, San Francisco Planning Department, Preliminary Archeological Review, 3516-26 Folsom Street, September 23, 2013.

Pursuant to CEQA Section 21080.3.1(d), within 14 days of a determination that an application for a project is complete or a decision by a public agency to undertake a project, the Lead Agency is required to contact the Native American tribes that are culturally or traditionally affiliated with the geographic area in which the project is located. Notified tribes have 30 days to request consultation with the Lead Agency to discuss potential impacts on tribal cultural resources and measures for addressing those impacts. On March 29, 2017, the Planning Department contacted Native American individuals and organizations for the San Francisco area, providing a description of the project and requesting comments on the identification, presence and significance of tribal cultural resources in the project vicinity.

No Native American tribal representatives have contacted the Planning Department to request consultation as of the publication of this Initial Study. Department staff has determined that the proposed project would not be expected to affect legally-significant archeological resources, including prehistoric archeological resources. Therefore, the proposed project would have a Less-Than-Significant Impact on previously unknown tribal cultural resources.

Impact C-CP-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity would not result in cumulative impacts to historic architectural resources. *(Less-Than-Significant Impact)*

The proposed project would have Less-Than-Significant Impacts on historical resources, and there are no proposed projects within the vicinity of the project that would result in historical resources impacts, so the proposed project could not result in a cumulatively considerable contribution to cumulative historic resource impacts.

Impact C-CP-2: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity would not result in a substantial adverse change in the significance of previously undiscovered archaeological resources, human remains, including those interred outside of formal cemeteries; and tribal resources should such resources exist on or beneath the project site. *(Less-Than-Significant Impact)*

Archeological resources and tribal cultural resources are non-renewable and finite, and all adverse effects to subsurface archeological resources and tribal cultural resources have the potential to erode a dwindling cultural/scientific resource base. Past, present, and reasonably foreseeable future

development projects within San Francisco and the Bay Area region would include construction activities that could disturb archaeological resources and tribal cultural resources and could contribute to cumulative impacts related to the loss of significant historical, scientific, and cultural information about California, Bay Area, and San Francisco history and prehistory including the historic and prehistory of Native American peoples. Similar to the proposed project, development projects within San Francisco would be subject to the City's standard archeological and human remains mitigation measures, thereby reducing the potential for cumulative archeological-related and tribal-cultural-resource-related impacts.

As discussed above, the proposed project would have Less-Than-Significant Impacts on archeological resources, and therefore the proposed project could not contribute to cumulative impacts and would not be cumulatively considerable. Therefore, this impact would be less than significant with mitigation.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
4. TRANSPORTATION AND CIRCULATION— Would the project:					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	☐	☐	☐	☐	☒

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	☐	☐	☒	☐	☐
e) Result in inadequate emergency access?	☐	☐	☒	☐	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐	☐

The proposed project would not result in a change in air traffic patterns, and would therefore not cause substantial air traffic safety risks. Therefore, topic 4c is not applicable to the project.

Setting

The proposed project includes two single-family homes along the west side of a "paper street" section of Folsom Street in the Bernal Heights neighborhood. The immediate vicinity of the project site is made up of two- to-three story residential properties and is exclusively residential, save for the Bernal Heights Community Garden and Bernal Heights Park, both to the north of the project site. The project site is not adjacent to any MUNI transit lines. The project site is within ¼ mile of MUNI bus line 24-Divisidero and 67-Bernal Heights. The nearest BART station is 24th Street Mission, which is approximately ¾ mile from the project site. There are no bike routes within 250 feet of the project site. The proposed project will include the improvement of the paper street and the addition of a sidewalk and stairs to create a pedestrian connection between Bernal Heights Boulevard and Folsom Street and the immediate neighborhood to the south.

Background on Vehicle Miles Traveled (VMT) in San Francisco and Bay Area

In January 2016, OPR published for public review and comment a Revised Proposal on Updates to CEQA Guidelines on Evaluating Transportation Impacts in CEQA[25] (proposed transportation impact guidelines) recommending that transportation impacts for projects be measured using a VMT metric. VMT measures the amount and distance that a project might cause people to drive,

[25] This document is available online at: https://www.opr.ca.gov/s_sb743.php.

accounting for the number of passengers within a vehicle. OPR's proposed transportation impact guidelines provides substantial evidence that VMT is an appropriate standard to use in analyzing transportation impacts to protect environmental quality and a better indicator of greenhouse gas, air quality, and energy impacts than automobile delay. Acknowledging this, San Francisco Planning Commission Resolution 19579, adopted on March 3, 2016:

- Found that automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, shall no longer be considered a significant impact on the environment pursuant to CEQA, because it does not measure environmental impacts and therefore it does not protect environmental quality.
- Directed the Environmental Review Officer to remove automobile delay as a factor in determining significant impacts pursuant to CEQA for all guidelines, criteria, and list of exemptions, and to update the Transportation Impact Analysis Guidelines for Environmental Review and Categorical Exemptions from CEQA to reflect this change.
- Directed the Environmental Planning Division and Environmental Review Officer to replace automobile delay with VMT criteria which promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses; and consistent with proposed and forthcoming changes to CEQA Guidelines by OPR.

Planning Commission Resolution 19579 became effective immediately for all projects that have not received a CEQA determination and all projects that have previously received CEQA determinations, but require additional environmental analysis.

Many factors affect travel behavior. These factors include density, diversity of land uses, design of the transportation network, access to regional destinations, distance to high-quality transit, development scale, demographics, and transportation demand management. Typically, low-density development at great distance from other land uses, located in areas with poor access to non-private vehicular modes of travel, generate more automobile travel compared to development located in urban areas, where a higher density, mix of land uses, and travel options other than private vehicles are available.

Given these travel behavior factors, San Francisco has a lower vehicle miles traveled (VMT) ratio than the nine-county San Francisco Bay Area region. In addition, some areas of the City have lower VMT ratios than other areas of the City. These areas of the City can be expressed geographically through transportation analysis zones (TAZs). TAZs are used in transportation planning models for transportation analysis and other planning purposes. The zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas like the Hunters Point Shipyard.

The San Francisco County Transportation Authority (Transportation Authority) uses the San Francisco Chained Activity Model Process (SF-CHAMP) to estimate VMT by private automobiles and taxis for different land use types. Travel behavior in SF-CHAMP is calibrated based on observed behavior from the California Household Travel Survey 2010-2012, Census data regarding automobile ownership rates and county-to-county worker flows, and observed vehicle counts and transit boardings. SF-CHAMP uses a synthetic population, which is a set of individual actors that represents the Bay Area's actual population, who make simulated travel decisions for a complete day. The Transportation Authority uses tour-based analysis for office and residential uses, which examines the entire chain of trips over the course of a day, not just trips to and from the project. For retail uses, the Transportation Authority uses trip-based analysis, which counts VMT from individual trips to and from the project (as opposed to an entire chain of trips). A trip-based approach, as opposed to a tour-based approach, is necessary for retail projects because a tour is likely to consist of trips stopping in multiple locations, and the summarizing of tour VMT to each location would over-estimate VMT.[26,27]

Impact TR-1: The proposed project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets,

[26] To state another way: a tour-based assessment of VMT at a retail site would consider the VMT for all trips in the tour, for any tour with a stop at the retail site. If a single tour stops at two retail locations, for example, a coffee shop on the way to work and a restaurant on the way back home, then both retail locations would be allotted the total tour VMT. A trip-based approach allows us to apportion all retail-related VMT to retail sites without double-counting.

[27] San Francisco Planning Department, Executive Summary: Resolution Modifying Transportation Impact Analysis, Appendix F, Attachment A, March 3, 2016.

highways and freeways, pedestrian and bicycle paths, and mass transit. (*Less-Than-Significant Impact)*

VMT Analysis

Land use projects may cause substantial additional VMT. The following identifies thresholds of significance and screening criteria used to determine if a residential land use project would result in significant impacts under the VMT metric. For residential projects, a project would generate substantial additional VMT if it exceeds the regional household VMT per capita minus 15 percent.[28] As documented in the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* ("proposed transportation impact guidelines"), a 15 percent threshold below existing development is "both reasonably ambitious and generally achievable."[29] OPR's proposed transportation impact guidelines provides screening criteria to identify types, characteristics, or locations of land use projects that would not exceed these VMT thresholds of significance. OPR recommends that if a project or land use proposed as part of the project meets any of the below screening criteria, then VMT impacts are presumed to be less than significant for that land use and a detailed VMT analysis is not required. These screening criteria and how they are applied in San Francisco are described below:

- Map-Based Screening for Residential, Office, and Retail Projects. OPR recommends mapping areas that exhibit where VMT is less than the applicable threshold for that land use. Accordingly, the Transportation Authority has developed maps depicting existing VMT levels in San Francisco for residential, office, and retail land uses based on the SF-CHAMP 2012 base-year model run. The Planning Department uses these maps and associated data to determine whether a proposed project is located in an area of the City that is below the VMT threshold.
- Small Projects – OPR recommends that lead agencies may generally assume that a project would not have significant VMT impacts if the project would either: (1) generate fewer trips than the level

[28] OPR's proposed transportation impact guidelines state a project would cause substantial additional VMT if it exceeds both the existing City household VMT per capita minus 15 percent and existing regional household VMT per capita minus 15 percent. In San Francisco, the City's average VMT per capita is lower (8.4) than the regional average (17.2). Therefore, the City average is irrelevant for the purposes of the analysis.

[29] Governor's Office of Planning and Research, *Revised Proposal on Updates to CEQA Guidelines on Evaluating Transportation Impacts in CEQA,* January 20, 2016, p. III:20. This document is available online at: https://www.opr.ca.gov/s_sb743.php.

required for studying consistency with the applicable congestion management program or (2) where the applicable congestion management program does not provide such a level, fewer than 100 vehicle trips per day. The Transportation Authority's 2015 San Francisco Congestion Management Program does not include a trip threshold for studying consistency. Therefore, the Planning Department uses the 100 vehicle trip per day screening criterion as a level generally where projects would not generate a substantial increase in VMT.

- Proximity to Transit Stations. OPR recommends that residential, retail, and office projects, as well projects that are a mix of these uses, proposed within ½ mile of an existing major transit stop (as defined by CEQA Section 21064.3) or an existing stop along a high quality transit corridor (as defined by CEQA Section 21155) would not result in a substantial increase in VMT. However, this presumption would not apply if the project would: (1) have a floor area ratio[30] of less than 0.75; (2) include more parking for use by residents, customers, or employees of the project than required or allowed, without a conditional use; or (3) is inconsistent with the applicable Sustainable Communities Strategy.[31]

The existing average daily VMT per capita for the transportation analysis zone the project site is located in, TAZ 432, is below the existing regional average daily VMT. For residential uses in TAZ 432, the average daily VMT per capita is 10.2, which is about 41 percent below the existing regional average daily VMT per capita of 17.2.

Thus, as described above, the project site is located within an area of the City where the existing VMT is more than 15 percent below the regional VMT, and the proposed project land uses would not generate substantial additional VMT.[32]

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[30] Floor area ratio means the ratio of gross building area of the development, excluding structured parking areas, proposed for the project divided by the net lot area.

[31] A project is considered to be inconsistent with the Sustainable Communities Strategy if development is located outside of areas contemplated for development in the Sustainable Communities Strategy.

[32] The Map-Based Screening for Residential, Office, and Retail Projects was applied to the proposed project. The project site is located within TAZ 432, which is within an area of the City where the existing VMT is more than 15 percent below the regional VMT thresholds, as documented in Executive Summary Resolution Modifying Transportation Impact Analysis, Attachment F (Methodologies, Significance Criteria. Thresholds of Significance, and Screening

Trip Generation

The proposed project would result in the construction of two new single-family residences. Trip generation rates from the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 9th Edition, were used to estimate the daily and peak-hour trip generation for the proposed project. Table 1 below summarizes the trip generation for the proposed project.

Table 1: Project Trip Generation

Land Use	Units	Daily Person Trips	PM Peak Hour
Residential—Single Family	2	20	2

Notes: Rates per ITE *Trip Generation Manual, 9th Edition*; Land Use Code (230) Residential Condominium/Townhouse

Source: San Francisco Planning Department, Trip Generation Table for 3516-3526 Folsom Street, 2017.

As shown in Table 1 above, the proposed project is expected to generate approximately 20 daily vehicle trips, with 2 trips occurring during the PM peak hour.

Construction

Construction of the proposed project would be expected to take approximately 12 months. During this period, temporary and intermittent transportation impacts would result from truck movements to and from the project site during excavation and construction activities associated with the proposed buildings. Construction activities would generate construction worker trips to and from the project site and a temporary demand for parking and public transit. However, the additional trips would not exceed the capacity of local or regional transit service. Due to the temporary nature of the construction activities, the construction related impacts on transportation and circulation would be less than significant.

Criteria for Vehicle Miles Traveled and Induced Automobile Travel Impacts), Appendix A (SFCTA Memo), March 3, 2016. Available online at http://commissions.sfplanning.org/cpcpackets/Align-CPC%20exec%20summary_20160303_Final.pdf. Accessed March 21, 2016.

Due to the limited addition of project-related traffic (2 PM peak hour trips), the proposed project is not anticipated to result in a conflict with any established plans or policies. In addition, as discussed above, the proposed project would meet the VMT Map screening criteria. Implementation of the proposed project would result in Less Than Significant construction-related transportation impacts. Therefore, the proposed project would not conflict with any plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system or congestion management program. This impact would be less than significant and no mitigation measures would be required.

Impact TR-2: The proposed project would not result in substantially increased hazards due to particular design features (e.g., sharp curves or dangerous intersections) or incompatible uses. ***(Less-Than-Significant Impact)***

The proposed project would include the construction of two two-story buildings with a total of two residential units, which is considered a compatible use with the surrounding area. Access to the project site would be provided by the improvement of a "paper street" section of Folsom Street. The proposed project would not result in roadway design changes that would include sharp curves or other roadway design elements that would create dangerous conditions, and the improved street section would not be a through street; that is, the improved section would not be used by the general public but would typically be limited to the residents of the proposed project. The improved section would not include any on-street parking facilities. The proposed design of the street must be reviewed and approved by San Francisco Public Works (Public Works) and found consistent with the City's Subdivision Regulations. The proposed project would result in a Less-Than-Significant Impact related to hazards associated with a design feature and no mitigation is required.

Impact TR-3: The proposed project would not result in inadequate emergency access. ***(Less-Than-Significant Impact)***

Emergency access to the project site would remain mostly unchanged from existing conditions. The Project Sponsor has consulted the San Francisco Fire Department (SFFD) regarding emergency access.[33] While the width and grade of the proposed street improvement preclude SFFD apparatus from

[33] Sponsor meeting with SFFD Assistant Fire Marshall Rich Hill, April 29, 2016.

traversing the proposed street, the proposed project conforms to Fire Code Section 503.1.1, which requires all portions of the exterior walls of the first story of any constructed building to be within 150 feet of an approved fire apparatus access road. Both Folsom Street and Bernal Heights Boulevard are accessible to SFFD apparatus and are within 150 feet of all portions of the exterior walls of the first floor of both proposed homes. Furthermore, Fire Code Section 503.1.1 allows a Fire Code Official to offer an exception to the 150 foot requirement if subject buildings are equipped with an approved automatic sprinkler system. While the Project Sponsor is not requesting an exception to Fire Code Section 503.1.1, the proposed homes would include automatic sprinkler systems. As the proposed houses are within 150 feet of approved fire access roads and include automatic sprinkler systems, the proposed project conforms with the Fire Code. Therefore, the proposed project would not result in inadequate emergency access and the impacts would be less than significant.

Impact TR-4: The proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, or cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity or alternative travel modes. ***(Less-Than-Significant Impact)***

Implementation of the proposed project would add two residential units to the project site, increasing the residential population on the site by approximately five persons.[34] The proposed project would not substantially increase the population in the project vicinity and would result in a minimal number of transit trips, pedestrian, and bicycle trips. The proposed project would include street improvements which would increase pedestrian access and pedestrian network connectivity between Bernal Heights Boulevard and the improved section of Folsom Street and the neighborhood to the south. Thus, the proposed project would not substantially effect the utilization of local and regional transit service, pedestrian facilities, or bicycle facilities. Therefore the proposed project would not result in changes to the City's transportation and circulation system that could conflict with adopted policies, plans, or programs regarding transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities, or cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity or

[34] The population estimate is based on Census 2010 data, which estimates 2.52 per household in Census Tract 252.

alternative travel modes. Therefore, this impact would be less than significant and no mitigation measures would be required.

Impact C-TR-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in substantial cumulative transportation impacts. ***(Less-Than-Significant Impact)***

VMT, by its very nature, is largely a cumulative impact. The VMT associated with past, present, and future projects contributes to physical secondary environmental impacts. It is likely that no single project by itself would be sufficient in size to prevent the region or state from meeting its VMT reduction goals. Instead, a project's individual VMT contributes to cumulative VMT impacts. The VMT and induced automobile travel project-level thresholds are based on levels at which new projects are not anticipated to conflict with state and regional long-term greenhouse gas emission reduction targets and statewide VMT per capita reduction targets set in 2020. For residential uses in TAZ 432, the average daily VMT per capita in 2040 is estimated to be 8.9, which is about 45 percent below the estimated 2040 regional average daily VMT per capita of 16.1. Therefore, because the estimated average daily VMT for TAZ 432 would be more than 15 percent below the estimated regional average daily VMT, the proposed project would not be considered to result in a cumulatively considerable contribution to VMT impacts.

Based on the foregoing, in combination with past, present, and reasonably foreseeable future projects, the proposed project would not contribute considerably to any substantial cumulative increase in VMT, impacts to the effectiveness of the circulation system, impacts related to design features or incompatible uses, inadequate emergency access, or conflicts with alternative modes of transportation. Therefore, this impact would be less than significant and no mitigation measures would be required.

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
5.	**NOISE and Vibration—Would the project:**					
a)	Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐	☐
b)	Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐	☐
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
d)	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
e)	For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☐	☒
f)	For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☐	☒
g)	Be substantially affected by existing noise levels?	☐	☐	☐	☐	☒

The project site is not within an airport land use plan area or in the vicinity of a private airstrip. Therefore, topics 5e and 5f are not applicable and will not be further discussed.

Fundamentals of Environmental Noise and Groundborne Vibration

A project will normally have a significant effect on the environment related to noise if it would substantially increase the ambient noise levels for adjoining areas or conflict with the adopted environmental plans and policies of the community in which it is located. Noise impacts can be described in three categories. The first is audible impacts that increase noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 decibels (dB) or greater since this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, is the change in the noise level between 1.0 and 3.0 dB. This range of

noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise level of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered when analyzing the effects of project-generated noise.

Operational Noise and Vibration

The primary existing noise sources contributing to ambient noise in the project area are traffic associated with Bernal Heights Boulevard and surrounding residential streets and other noise from motor vehicles, the interaction between the tires and the road, and vehicle exhaust systems. Existing ambient noise levels at the project site range from 55 to 60 dBA.[35] Residential land uses are not considered sources of vibration and observation indicates that there are no major sources of vibrations at the project site.

Construction Noise and Vibration

The operation of heavy construction equipment, particularly pile-driving equipment and other impact devices (e.g., pavement breakers), creates seismic waves that radiate along the surface of the ground and downward. These surface waves can be felt as ground vibration. Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The most frequently used method to describe vibration impacts is peak particle velocity (PPV). PPV is defined as the maximum instantaneous peak of the vibration signal in inches per second (in/sec).[36]

Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. This attenuation is a complex function of how energy is imparted

[35] City and County of San Francisco, *General Plan, Environmental Protection Element, Map 1 (Background Noise Levels, 2009),* 2009. This document is available for review at: http://generalplan.sfplanning.org/images/I6.environmental/ENV_Map1_Background_Noise%20Levels.pdf.

[36] Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, May 2006, pp. 8-1 to 8-3, Table 8-1. Available online at https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf. Accessed February 7, 2017.

into the ground as well as the soil or rock conditions through which the vibration is traveling. Variations in geology can result in different vibration levels, with denser soils generally resulting in more rapid attenuation over a given distance. The effects of groundborne vibration on buildings include movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. The rumbling sound caused by the vibration of room surfaces is called groundborne noise, which can occur as a result of the low-frequency components from a specific steady source of vibration, such as a rail line. Receptors sensitive to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment. Fragile buildings and underground facilities, in particular those that are considered historic, are included because groundborne vibration can result in structural damage. In extreme cases, high levels of vibration can damage fragile buildings or interfere with sensitive equipment. With the exception of long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. People may tolerate infrequent, short duration vibration levels, but human annoyance to vibration becomes more pronounced if the vibration is continuous or occurs frequently. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. Annoyance generally occurs in reaction to newly introduced sources of noise that interrupt ongoing activities. Community annoyance is a summary measure of the general adverse reaction of people to noise that causes speech interference, sleep disturbance, or interference with the desire for a tranquil environment.[37] People react to the duration of noise events, judging longer events to be more annoying than shorter ones, and transportation noise is usually a primary cause of community dissatisfaction. Construction noise or vibration also often generates complaints, especially during lengthy periods of heavy construction, when nighttime construction is undertaken to avoid disrupting workday activity, or when the adjacent community has no clear understanding of the extent or duration of the construction.[38]

[37] Ibid, pp. 2-13 to 2-17
[38] Ibid. p. 12-1.

The City does not have regulations that define acceptable levels of vibration. Therefore, this document references a Federal Transit Administration (FTA) publication concerning noise and vibration impact assessment from transit activities[39] and other relevant sources.

Noise Compatibility

San Francisco addresses noise in the General Plan's Environmental Protection Element.[40] This element includes a Transportation Noise section that provides general guidance for reducing transportation noise through "sound land use planning and transportation planning." It also states: "in a fully developed city, such as San Francisco, where land use and circulation patterns are by and large fixed, the ability to reduce the noise impact through a proper relationship of land use and transportation facility location is limited."[41] The General Plan focuses on the effect of noise on the community due to ground transportation noise sources and establishes the "Land Use Compatibility Chart for Community Noise" for determining when noise reduction requirements for new development should be analyzed, such as providing sound insulation for affected properties. The land use compatibility standards for community noise determine the maximum acceptable noise environment for each newly developed land use, and are shown in Table 2. Although Table 2 presents a range of noise levels that are considered compatible or incompatible with various land uses, the maximum "satisfactory" noise level is 60 dBA L_{dn} for residential and hotel uses; 65 dBA L_{dn} for schools, classrooms, libraries, churches and hospitals; 70 dBA L_{dn} for playgrounds, parks, offices, retail commercial uses, and noise-sensitive manufacturing/communication uses; and 77 dBA L_{dn} for other commercial uses such as wholesale, certain retail, industrial/manufacturing, transportation, communications, and utilities uses. If these uses are proposed to be located in areas with noise levels that exceed these guidelines, a detailed analysis of noise reduction requirements will typically be necessary prior to final building review and approval.

[39] Ibid.

[40] City and County of San Francisco, *City of San Francisco General Plan*, December 2, 2004. This document is available for review at www.sf-planning.org/ftp/general_plan/index.htm.

[41] Ibid.

Overall, the General Plan recognizes that transportation noise remains a problem and provides guidance to manage incompatible transportation noise levels through various transportation noise-related policies. The City's background noise levels map identifies the project site to be exposed to traffic noise levels between 50 and 60 dBA L_{dn}.[42] According to the City's General Plan, new development should incorporate noise insulation features if the noise levels exceed the sound level guidelines shown in the land use compatibility chart.

Noise Regulations

The San Francisco Noise Ordinance (Noise Ordinance) regulates both construction noise and stationary-source noise within the City, including noise from transportation, construction, mechanical equipment, entertainment, and human or animal behavior. Found in Article 29, "Regulation of Noise," of the San Francisco Police Code, the Noise Ordinance addresses noise from construction equipment, nighttime construction work, and noise from stationary mechanical equipment and waste processing activities.[43] The following regulations are applicable to the proposed project.

Section 2907, Construction Equipment, and Section 2908, Construction Work at Night

Section 2907(a) requires that construction work be conducted in the following manner: (1) noise levels of construction equipment, other than impact tools, must not exceed 80 dBA at a distance of 100 feet from the source (the equipment generating the noise); (2) impact tools must have intake and exhaust mufflers that are approved by the Director of San Francisco Public Works or the Director of the DBI to best accomplish maximum noise reduction; and (3) if the noise from the construction work would exceed the ambient noise levels at the site property line by 5 dBA, the work must not be conducted between 8:00 p.m. and 7:00 a.m. unless the Director of Public Works authorizes a special permit for conducting the work during that period.

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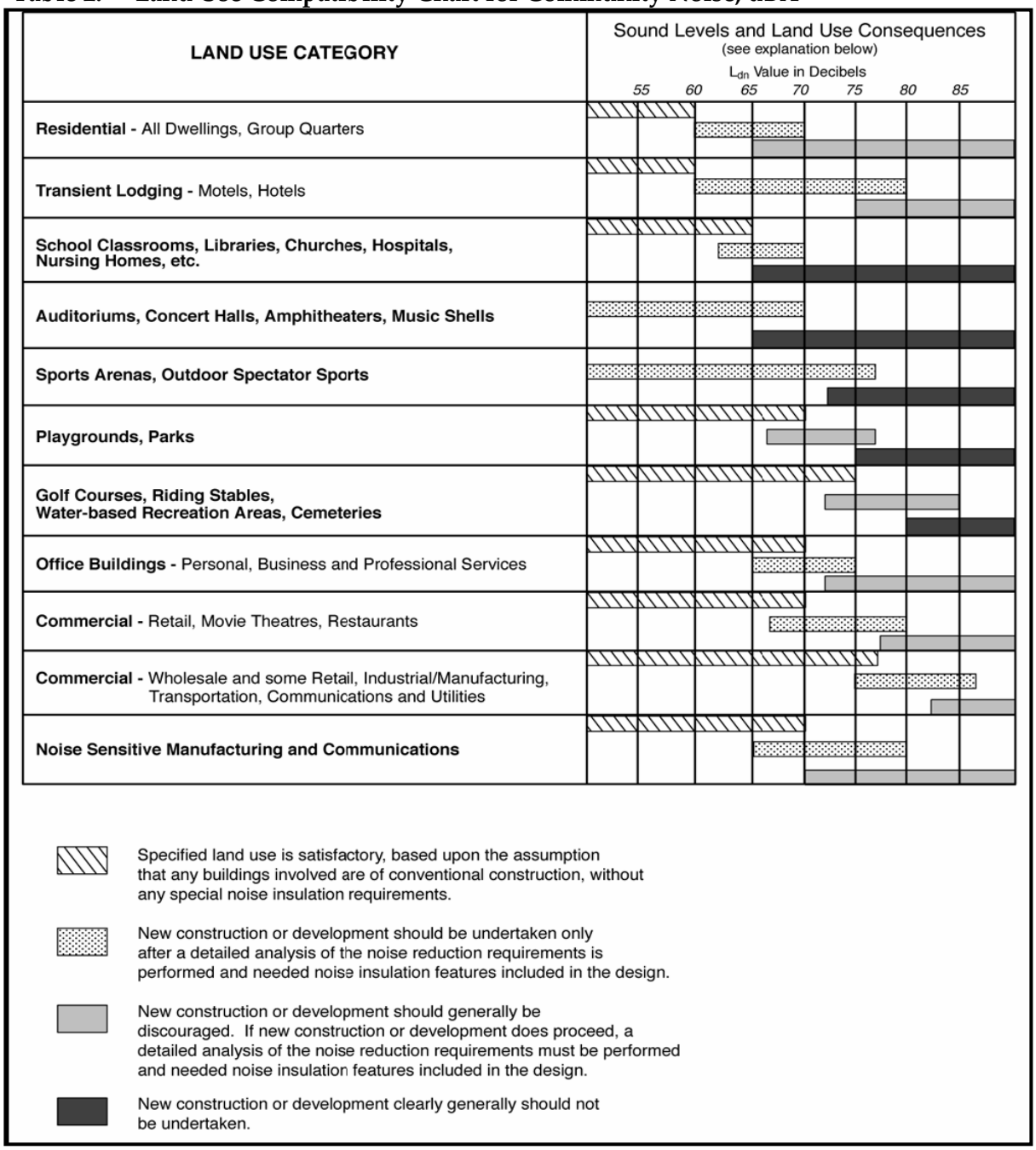
[42] City and County of San Francisco, *General Plan, Environmental Protection Element, Map 1 (Background Noise Levels, 2009),* 2009. This document is available for review at: http://generalplan.sfplanning.org/images/I6.environmental/ENV_Map1_Background_Noise%20Levels.pdf.

[43] City and County of San Francisco, *Article 29 of the San Francisco Police Code, Regulation of Noise*, 2012. This document is available for review at: www.amlegal.com/nxt/gateway.dll/California/police/article29regulationofnoise?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca. Accessed April 17, 2017.

Table 2: Land Use Compatibility Chart for Community Noise, dBA



Source: City and County of San Francisco, City of San Francisco General Plan, December 2, 2004. This document is available for review at: www.sf-planning.org/ftp/general_plan/index.htm.

Section 2909, Noise Limits

This section of the Noise Ordinance regulates noise from mechanical equipment and other similar sources. This includes all equipment, such as electrical equipment (transformers, emergency

generators) as well as mechanical equipment that is installed on commercial/industrial and residential properties. Mechanical equipment operating on residential property must not produce a noise level more than 5 dBA above the ambient noise level at the property boundary. Section 2909 also states in subsection (d) that no fixed (permanent) noise source (as defined by the Noise Ordinance) may cause the noise level inside any sleeping or living room in a dwelling unit on residential property to exceed 45 dBA between 10:00 p.m. and 7:00 a.m. or 55 dBA between 7:00 a.m. and 10:00 p.m. when windows are open, except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

Existing Sensitive Receptors

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project site occupies parcels located on the west side of an unimproved section of Folsom Street. Existing uses within the same block consist primarily of two- to three-story medium-density residential uses.

Impact NO-1: The proposed project would not result in exposure of persons to, or generation of, noise levels in excess of standards established in San Francisco's Noise Ordinance, nor would the proposed project result in a substantial permanent increase in ambient noise levels above levels existing without the project. ***(Less-Than-Significant Impact)***

For the purpose of this analysis, operation of the proposed project would result in a significant noise impact if:

1. Implementation of the proposed project would increase ambient noise levels from traffic-generated sources by greater than 3 (dBA)[44] *and* the resulting noise level is greater than the "satisfactory" standards for adjacent land uses cited in Table 2. Land Use Compatibility Chart, below, or
2. Where the existing or existing plus project noise levels are within "satisfactory" standards for adjacent land uses (again, according to Table 2) if implementation of the proposed project

[44] A-weighted decibels, abbreviated dBA, are an expression of the relative loudness of sounds in air as perceived by the human ear. In the A-weighted system, the decibel values of sounds at low frequencies are reduced, compared with unweighted decibels, in which no correction is made for audio frequency.

would result in project-related traffic noise increases above ambient noise levels by more than 5 dBA.

Additionally, the proposed project would result in a significant operational noise impact if noise from the project exceeds the standards in Section 2909 (a) and (d) of the San Francisco Noise Ordinance (Noise Ordinance), discussed above.

As discussed above in **Section H.4, Transportation and Circulation,** the increase in traffic associated with the proposed project would be minimal. An estimated two PM peak-hour vehicle trips would be generated by the project. As such, project-related increases in traffic noise levels are also anticipated to be minimal along Folsom Street and would not be perceptible by the human ear. Therefore, project-related traffic noise on off-site land uses would be less than significant, and no mitigation would be required.

In addition to generating imperceptible traffic-related noise, the proposed project is also anticipated to result in less than significant noise levels associated with operation of mechanical systems. The proposed project would include two residential units, which are not typically associated with high levels of operational noise. In addition, the proposed project's mechanical equipment would be required to comply with the San Francisco Noise Ordinance restricting equipment operating on residential property from generating noise greater than 5 dBA above the ambient noise level at the property boundary and ensuring that the mechanical equipment does not exceed 55 dBA during daytime hours, and 45 dBA during nighttime hours inside nearby residential uses. Therefore, project-related operational noise impacts would be less than significant, and no mitigation would be required.

Impact NO-2: Project demolition and construction would result in a temporary and periodic increase in ambient noise levels in the project vicinity above existing conditions. (*Less-Than-Significant Impact)*

In terms of construction impacts, construction activities are temporary and intermittent. Therefore, for purposes of this analysis, the proposed project would result in significant construction-related impacts if the proposed project's construction noise levels would result in a substantial temporary or periodic increase in ambient noise levels. Construction noise is evaluated for its potential to exceed

the requirements in Section 2907, Construction Equipment, and Section 2908, Construction Work at Night of the Noise Ordinance, and considering other qualitative factors such as duration and frequency of noise events in excess of Noise Ordinance standards.

Short-term noise impacts would occur during demolition, grading and site preparation activities. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would cease once construction of the project is completed.

The proposed project would require construction for approximately 12 months. Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transport of construction equipment and materials to the project site, which would incrementally increase noise levels on roads leading to the site. The excavation of 3516 Folsom Street would include approximately 30 truck trips and the excavation of 3526 Folsom Street would include approximately 25 truck trips. Construction of the proposed project is anticipated to occur over a 12 month period. The concrete required for each foundation slab would require four cement truck trips for each residence (eight, total) plus another four trips per residence for the concrete retaining walls (eight, total). Trucks would access the project site to and from the 101 freeway via Cesar Chavez Street, to Folsom Street and Bernal Heights Boulevard. The improvement of the "paper street" segment of Folsom Street would be performed under a separate Street Improvement Permit issued by the Department of Public Works and the proposed road improvement would require 92 cubic yards of material to be removed from the project site, which would result in approximately seven haul truck trips. Concrete imported onto the project site would require about ten truck trips. Road work would be conducted from the intersection of Folsom Street and Chapman Street.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the project sites. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment,

similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 3, below, lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. The Noise Ordinance limits construction equipment to 80 dBA at 100 feet. Noise attenuates by approximately 6 dBA to 7.5 dBA per doubling of distance.[45] Therefore, noise levels in Table 3 were adjusted by 6 dBA to generate noise levels of typical construction equipment at 100 feet. As shown in Table 3, there would be a relatively high single-event noise exposure potential at a maximum level of 82 dBA for haul trucks passing at 100 feet. Haul trucks would access the project site to and from the 101 freeway via Cesar Chavez Street, to Folsom Street and Bernal Heights Boulevard. The location nearest the project site on Bernal Heights Boulevard (where Bernal Heights Boulevard meets the Folsom Street right of way, near the Bernal Heights Community Garden) is approximately 115 feet away, and downhill, from the nearest sensitive receptor, with other nearby receptors located 125 feet, 140 feet, and 145 feet away and downhill from Bernal Heights Boulevard.

Typical maximum noise levels for construction equipment range from 76 to 80 dBA at 100 feet. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

[45] The 1.5-dBA variation in attenuation rate (6 dBA vs. 7.5 dBA) can result from ground-absorption effects, which occur as sound travels over soft surfaces such as soft earth or vegetation (7.5 dBA attenuation rate) versus hard ground such as pavement or very hard-packed earth (6 dBA rate) (U.S. Housing and Urban Development, The Noise Guidebook, 1985, p. 24. Available online at https://www.hudexchange.info/onecpd/assets/File/Noise-Guidebook-Chapter-4.pdf. Accessed April 24, 2017.

Table 3: Project Construction Equipment Maximum Noise Levels, L_{max}			
Type of Equipment	**Range of Maximum Sound Levels (dBA at 50 feet)**	**Suggested Maximum Sound Levels for Analysis (dBA at 50 feet)**	**Maximum Sound Levels (dBA) at 100 feet**
Jackhammers	75 to 85	82	76
Pneumatic Tools	78 to 88	85	79
Haul Trucks	83 to 94	88	82
Hydraulic Backhoe	81 to 90	86	80
Hydraulic Excavators	81 to 90	86	80
Air Compressors	76 to 89	86	80
Trucks	81 to 87	86	80
Source: Bolt, Beranek & Newman, 1987. *Noise Control for Buildings and Manufacturing Plants*.			

Sensitive receptors are located immediately adjacent to the proposed project at 55 Gates Street, 61 Gates Street, 65 Gates Street, and 3574 Folsom Street. During the construction period for the proposed project of approximately twelve months, occupants of the nearby properties could be disturbed by construction noise. Times may occur when noise could interfere with indoor activities in nearby residences and other businesses near the project site.

As shown in Table 3, above, construction equipment would comply with the limits in the Noise Ordinance and would not exceed 80 dBA at 100 feet, with the exception of haul trucks. In the case of haul trucks, the noise impact would be less than significant, as the analysis above is based on the maximum value in the range of maximum sound level and estimated noise presented in Table 3 is at a distance 15 feet closer to the nearest actual sensitive receptor to the proposed project. Additionally, the Federal Highway Administration, in a more recent publication than that used above, estimates dump trucks to generate noise at a level closer to 70 dBA at 100 feet, a noise level 24 dBA less than the estimate utilized in the above analysis.[46] Therefore, haul trucks used during construction of the project are anticipated to meet the noise levels in the Noise Ordinance. The increase in noise in the project area during project construction would not be considered a significant impact of the proposed project because the construction noise would be temporary, intermittent, and restricted in occurrence

[46] US Department of Transportation, Federal Highway Administration, *Construction Noise Handbook*, Table 9.1, July 2011.

and level, as the contractor would be required to comply with the Noise Ordinance. Therefore, given the above, construction noise would be less than significant.

Impact NO-3: The proposed project could result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels. ***(Less-Than-Significant Impact with Mitigation Incorporated)***

Project operation associated with residential uses would not generate substantial groundborne noise and vibration. Construction of the proposed project would involve site preparation and other construction activities. It would include the use of construction equipment that could result in groundborne vibration affecting properties adjacent to the project site or to PG&E Pipeline 109. No pile driving, blasting, or substantial levels of excavation or grading activities are proposed.

Given the proposed project's proximity to PG&E Pipeline 109, a construction vibration analysis was performed for the proposed project to assess any potential adverse impact on the Pipeline from vibration due to construction-related equipment and work.[47] The report evaluated vibratory impacts related to excavation of the site for the purpose of developing a proper foundation for the buildings, digging trenches for utilities to the residences, and the extension of Folsom Street for access to the residences.

The analysis assumed work on the proposed project would include:

- For the foundations, the excavation and the installation of a 12-inch to 18-inch thick concrete slab, with a potential of drilling holes for piers. If needed, compaction of the site would be done by hand, and there is potential of hand operated jack hammering being required.
- For the utility trenches, excavation would be done at distances no closer than 5 feet from Pipeline 109. For the street extension, top soil up to as much as 12 inches will be removed, and a cement concrete road surface with a thickness of 8 to 10 inches would be installed.
- For both the foundations and the street extension, the soils from the sites would be transported out by a conveyor belt to Bernal Heights Boulevard.

[47] Illingworth and Rodkin, Inc., *Construction Vibration Evaluation for 3516 and 3526 Folsom Street*, March 24, 2017.

In order to estimate the vibration level at the Pipeline, the analysis utilized the following equation:

$$PPV_{equip}=PPV_{ref}(25/D)^{n}$$

PPV_{equip}: the Peak Particle Velocity (PPV) at 25 feet measured in inches/sec
PPV_{ref}: the PPV at the distance being measured
D: the distance being measured
n: a value determined by soil conditions, ranging from 1.5 to 1[48]

The PPV_{equip} values for the equipment to be used for the proposed were collected from three sources: the Federal Transit Authority (FTA), the New Hampshire Department of Transportation, and from a study of vibration from construction activities for a project at the Haleakala National Park in Hawaii. The PPVs for each pieces of equipment proposed to be used during project construction activities are summarized in the following table:

Table 4: Peak Particle Velocities (PPVs) of Project Construction Equipment

	Source of Data		
Equipment (project phase)	**FTA**	**New Hampshire DOT**	**Haleakala Project**
Excavator (foundation and utility trenches)		0.04 PPV	0.18 PPV
Jackhammer, if needed (foundation)	0.04 PPV		
Small Bulldozer (grading)	0.003 PPV		
Caisson drilling, if needed (piers)	0.09 PPV		

For the purposes of analysis, the higher (more conservative) value of 0.18 was used for the examining the impacts of the excavator. For the n-value in the equation above, the California Department of Transportation (Caltrans) recommends a value of 1.1 for "very stiff" and "firm" soils which, according to the August 2013 soils report, characterize the top 3 to 4 feet of the project site, which is

[48] *Ibid.*

also underlain with chert bedrock.[49] Caltrans suggests an *n*-value of 1.0 for "hard, competent rock: bedrock, exposed hard rock," which characterizes the chert bedrock located beneath the soils on the project site.[50] Utilizing the equation above, a lower *n*-value is associated with a lower PPV level—that is, harder rock reduces vibration more quickly than looser rock or soils. For the purposes of the analysis, however, to obtain a conservative (worst-case) result, an *n*-value of 1.5, the maximum value, was used.

To determine the potential for an adverse impact to the PG&E Pipeline 109, the analysis compared the highest estimated PPV for each piece of equipment at its nearest proximity to the pipe during project work. The criteria for damage to a pipeline due to vibration cover a wide-range of PPV, as documented by Caltrans.[51] For example, a PPV value of 25 in/sec associated with an "explosive near [a] buried pipe" resulted in no damage, as did PPV values for "explosive[s] near [a] buried pipe" of 50-150 PPV. The analysis prepared for the proposed project utilized a conservative 12 inches/second, a value based on the West Roxbury Lateral Project in Massachusetts, as the criteria for potential damage to the pipe.[52]

The calculated maximum PPVs for each type of equipment proposed to be used during project construction activities are summarized below in Table 5.

[49] H. Allen Gruen, *Report Geotechnical Investigation Planned Residence at 3516 Folsom Street, San Francisco, California*, August 3, 2013.

[50] Illingswoth & Rodkin Inc, Memo: *Ground Characteristics and Effect on Predicted Vibration*, April 14, 2017.

[51] California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, September 2013, page 76.

[52] The analysis notes that buried pipes can withstand higher PPV because they are constrained and do not amplify ground motion, like freestanding structures, like historic buildings, do. According to the Caltrans report cited in the analysis, PPV values as high as 150 have been shown to not harm underground pipes.

Table 5: PPV Estimates and Damage Potential of Project Construction Equipment			
Equipment (project phase)	**Closest Proximity to Pipe**	**Highest Estimated PPV (inches/second)**	**Damage criteria PPV at the Pipeline (inches/second)**
Excavator (foundation)	13 feet	0.48	12
Jackhammer (foundation)	13 feet	0.11	12
Drilling (piers)	12 feet	0.24	12
Small bulldozer (road construction)	1 foot	0.38	12
Excavator (utility trenches)	5 feet	2.01	12

Although the vibration assessment for the proposed project is based on damage criteria of 12 in/sec, PG&E has evaluated the proposed project and, through its regulatory authority for work in proximity to its pipeline, has set a PPV standard of 2 in/sec for this section of Pipeline 109.[53] It is noted that this standard is highly conservative in that it is a factor of 10 lower (more stringent) than the already conservative damage criteria used in the vibration assessment.

As discussed above, on page 22, the proposed project would be required to comply with PG&E regulations for construction work within 10 feet of a pipeline. These requirements include the physical presence of a PG&E inspector whenever work within 10 feet of a pipeline is performed; grading and digging standards; the placement of pipeline markers during demolition and construction; standards for construction machinery and loading near and on top of underground pipelines; and limitations on placing landscaping, structures or fencing within certain distances from the pipeline. These practices, as required by law, are in place to ensure construction activities do not substantially affect underground services, including natural gas pipelines. Furthermore, the proposed project, including street improvements, would be subject to the same PG&E plan approvals and oversite as other excavation and street improvements in San Francisco.

[53] PG&E Gas Transmission Pipeline Services—Integrity Management, 3516/26 Folsom Street, March 30, 2017.

In accordance with CEQA, the Planning Department does not require mitigation measures for impacts that would be less than significant through compliance with applicable regulatory requirements. Further, the vibration analysis for the project indicates that the proposed project would not exceed PG&E's highly conservative 2 in/sec PPV value (which is measured as a value rounded to a whole number). However, in an abundance of caution for the purposes of this project's environmental evaluation, this Initial Study finds that project construction would have a significant vibration impact to Pipeline 109. Implementation of Mitigation Measure M-NO-3: Vibration Management would reduce this impact of the proposed project to a less-than-significant level.

At its meeting of September 12, 2017, the Board of Supervisors adopted Motion No. M17-152, which stated the following regarding the environmental review of the proposed project:

- "…That this Board of Supervisors directs the Planning Department to provide additional information and analysis regarding whether the proposed project construction would result in vibration impacts on PG&E Pipeline No. 109 that could create a risk to public safety;
- "…In conducting any such additional environmental analysis, the Planning Department shall enlist an independent qualified expert to use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area and prepare a Vibration Management Plan for the project prior to the issuance of the revised environmental review document;
- "…That the Vibration Management Plan shall specify what types of construction equipment may be used at the project and any limitations on the use or storage of such equipment in the project vicinity, the specific roles of the Planning Department, Department of Building Inspection, PG&E and any other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan, and any appropriate safety protocols that must be employed during project construction, including communications between the contractors and PG&E, to reduce the risk of damage to the pipeline;
- "…That a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation;
- "…That the Vibration Management Plan shall be reviewed and approved by the Planning Department and PG&E, and the Emergency Response and Evacuation Plan shall be reviewed

and approved by the Fire Department, Planning Department, and PG&E, prior to issuance of the revised environmental review document;

- "…That the Planning Department shall incorporate any recommendations of the approved Vibration Management Plan into the mitigation included in the revised environmental review document;
- "…As to all other issues, the Board finds the FMND conforms to the requirements of CEQA and is adequate, accurate, and objective, the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required."

An Emergency Response and Evacuation Plan was prepared for the proposed project, was reviewed and approved by the San Francisco Fire Department, the Planning Department and PG&E, and is included as part of the project description, above.[54]

A Vibration Management Plan was prepared for the proposed project and was reviewed and approved by PG&E and the Planning Department.[55] Recommendations from the Vibration Management Plan are included in **Mitigation Measure M-NO-3, Vibration Management**, below.

An independent review of the Vibration Management Plan was also conducted by a third-party qualified expert.[56] The engineering review focused on the technical accuracy of the Vibration Management Plan, and reviewed comments raised by prior appellants relevant to the engineering review of the Plan. The Plan was found in the independent review to be technically accurate and consistent with common engineering practice. The review found that, while there is inherent uncertainty associated with vibration analysis, the Plan authors prudently chose to make conservative assumptions in developing equipment vibration source levels from standard references

[54] Letter from San Francisco Fire Department to Dan Sider, Fabian Lannoye, January 10, 2019. See Footnote above related to Fire Department and Planning Department approval.

[55] Letter from PG&E Gas Transmission Pipeline Services—Integrity Management, November 13, 2018; see March 17, 2020 approval letter from Planning Department.

[56] Buehler, David, P.E. INCE Bd. Cert., October 17, 2019, Review of Vibration Management Plan Prepared for 3516-3526 Folsom Residential Construction.

and in calculating vibration levels at various distances. The review also found that the Plan provides a detailed approach to monitoring and limiting vibration on the project site and includes a factor of safety of 6.0 relative to the buried pipeline criterion. Specifically, a vibration level of 12 in/sec PPV was found to be a reasonable vibration criterion for a buried pipeline, but under the Vibration Monitoring and Management Plan, work would be stopped if vibration reaches 2 in/sec PPV, which is a factor of safety of 6 (i.e., 2 in/sec PPV multiplied by 6 results in a vibration level of 12 in/sec PPV).

Implementation of Mitigation Measures M-NO-3 would ensure that PPV values remain at or below PG&E's 2 in/sec PPV value. With implementation of M-NO-3, below, there would be no possibility of a significant vibration effect on PG&E's Pipeline 109.

Mitigation Measure M-NO-3, Vibration Management ~~Plan~~:

The project sponsor shall implement all recommendations included in the Vibration Monitoring Plan approved by PG&E on November 13, 2018 and the Planning Department on March 17, 2020. These recommendations include the following.

The project sponsor shall monitor vibration levels continuously during construction. Prior to construction activities, the monitoring equipment shall be installed and checked for proper operation and connectivity to the internet by the project sponsor and by PG&E. After the installation is verified, pre-construction vibration levels will be monitored for a week, if the schedule allows. The project sponsor shall install two geophones (devices used for detecting vibration through rocks, soil or ice) approximately 6 inches away from Pipeline 109, to the depth of the pipeline, positioned to the west side of the pipeline toward the construction site. The project sponsor shall maintain these monitoring locations throughout the construction activities of concern: building foundation excavation, utility trenching, and the street extension. The output of these geophones shall be transmitted to two battery powered vibration loggers (Instantel MiniMate Plus seismographs or equivalent). The project sponsor shall house this equipment in two 30x16x12 inch metal containers which will be secured appropriately on the site and placed at a distance such as not to interfere with construction activities. The Peak Particle Velocity (PPV) will be logged in 10-second intervals for comparison to the 2.0 in/sec limit.

The project sponsor shall install warning lights on the equipment boxes, programmed to illuminate if the level reaches 2.0 in/sec. Additionally, the project sponsor shall connect each project seismograph to a wireless data modem which shall send an alert to pre-determined cell phones or email addresses in case the vibration limit is reached. These alerts shall go to Illingworth & Rodkin, Inc. (I&R) personnel assigned to the project, the on-site construction manager or other persons authorized to halt construction activities, and any other personnel authorized by the project manager. Using this system, the monitoring will be typically unattended.

A project team technician shall check the vibration monitoring equipment on a weekly basis, and equipment battery replacement and other maintenance shall be completed at this time. All project seismographs shall be programmed to complete a daily self-check of the geophone response during non-construction hours. The levels collected for the week shall be reviewed by I&R personnel to determine if levels are approaching the threshold.

If the level of construction vibration reaches 2.0 in/sec, construction shall be halted. The construction manager (or designee) shall attempt to identify the construction activity responsible. If necessary, I&R personnel will assist in this identification on-site.

~~The Project Sponsor shall retain the services of a qualified structural engineer to develop, and the Project Sponsor shall adopt, a vibration management and continuous monitoring plan to cover any construction equipment operations performed within 20 feet of PG&E Pipeline 109. The vibration management and monitoring plan shall be submitted to PG&E and Planning Department staff for review and approval prior to issuance of any construction permits. The vibration management plan shall include:~~

- ~~**Vibration Monitoring**: Continuous vibration monitoring throughout the duration of the major structural project activities to ensure that vibration levels do not exceed the established standard.~~

Maximum PPV Vibration Levels: Maximum PPV vibration levels for any equipment shall be less than 2 inches per second (in/sec). Should maximum PPV vibration levels exceed 2 in/sec, all construction work shall stop, and PG&E shall be notified to oversee further work.

Work Beyond 10 Feet of Pipeline 109: Whenever construction would occur on-site beyond 10 feet of Pipeline 109, the on-site Project Manager shall manage the vibration monitoring equipment. If the vibration monitoring equipment indicates vibration levels above 2 in/second, the Project Manager shall stop all construction activity. The Project Manager or their agent would then contract the PG&E pipeline engineer responsible for the San Francisco area (at the time of publication of this ~~P~~MND, Elpinike Pappous). If a gas leak is detected, the project manager (or the PG&E pipeline engineer, if present) would call Gas Control at 1-800-811-4111. Gas Control would communicate with SFFD and SFPD as well as other first responders. In addition, PG&E leak survey personnel would be deployed to survey the pipeline in the immediate vicinity of the vibration. Response time would be a maximum of 3 hours and the survey would be completed within the same business day. In the event of any work stoppage, work would only resume when PG&E informs the project sponsor.

Standby Inspection for Work Within 10 Feet of Pipeline 109: A PG&E Gas Transmission Standby Inspector must be present during any demolition or construction activity within 10 feet of the gas pipeline(s). This includes all grading, trenching, gas line depth verifications (potholes), asphalt or concrete demolition/removal, removal of trees, signs, light poles, etc. This inspection would be coordinated through the Underground Service Alert (USA) service at **811 or 1-800-227-2600**. A minimum notice of 48 hours is required. If vibration levels exceed 2 inches per second, the PG&E inspector would ensure that all construction activity ceases and call the PG&E pipeline engineer responsible for the SF area (Elpinike Pappous, 925-872-1027, or authorized agent).

For any gas-related emergencies, such as leaks, the contractor would call Gas Control at 1-800-811-4111 (if the PG&E Inspector is present, the inspector would call Gas Control). Gas Control would then communicate with the San Francisco Fire Department (SFFD) and the San Francisco Police Department (SFPD), as well as other first responders. PG&E leak survey personnel would be deployed to survey the pipeline in the immediate vicinity of the vibration to verify that damage had not occurred. Response time would be a maximum of 3 hours and the survey would be completed within the same business day. Work can only resume with PG&E authorization.

Grading/Excavation: Any excavations, including grading work, above or around Pipeline 109 must be performed with a PG&E inspector present. This includes all laterals, subgrades, and gas line depth verifications (potholes). Work in the vicinity of Pipeline 109 must be completed consistent with PG&E Work Procedure TD-4412P-05 "Excavation Procedures for Damage Prevention." Any plans to expose and support Pipeline 109 across an open excavation must be approved by PG&E Pipeline Engineering in writing prior to performing the work. Any grading or digging within two (2) feet of Pipeline 109 shall be dug by hand. Water jetting to assist vacuum excavating must be limited to 125 pounds per square inch gage (psig).

Pipeline Markers: Prior to the commencement of project activity, pipeline markers must be placed along the pipeline route. With written PG&E approval, any existing markers can be temporarily relocated to accommodate construction work, but must be reinstalled once construction is complete.

Fencing: No parallel fencing is allowed within 10 feet of Pipeline 109 and any perpendicular fencing shall require 14 foot access gates to be secured with PG&E corporation locks.

Structures: Permanent structures must be located a minimum distance of 10 feet from the edge of Pipeline 109. A total width of 45 feet shall be maintained for pipeline maintenance. No storage of construction or demolition materials is permitted within this 45 foot zone.

Construction Loading: To operate or store any construction equipment within 10 feet of Pipeline 109 that exceeds the half-axle wheel load (half axle weight is the gross weight upon any one wheel, or wheels, supporting one end of an axle) in the table below, approval from a PG&E gas transmission pipeline engineer is required. Pipeline 109 may need to be potholed by hand in to confirm the depth of the existing cover. These weight limits also depend on the support provided by the Pipeline's internal gas pressure. If PG&E's operating conditions require the Pipeline to be depressurized, maximum wheel loads over the pipeline will need to be further limited. For compaction within two feet of Pipeline 109, walk-behind compaction equipment shall be required. Crane and backhoe outriggers shall be set at least 10 feet from the centerline of Pipeline 109. Maximum PPV vibration levels for any equipment shall be less than 2 in/sec.

Depth of Cover to Top of Pipe (ft.)	Maximum Half-Axle Wheel Loading (lbs)
2	4,580
3	6,843
4	7,775
5	7,318

At all times, the project sponsor shall:

- Ensure that trained personnel, knowledgeable about emergency procedures, be on-site during all project work.
- Comply with all CalOSHA regulations regarding shoring and excavation.
- Comply with all City and County of San Francisco regulations regarding shoring and excavation.
- Remove all combustible scrap and debris at regular intervals during the course of construction.
- Prohibit smoking on the jobsite and in the vicinity of operations including the posting of "No Smoking or Open Flame" signs.
- Keep the storage site free of the accumulation of unnecessary combustible materials.
- Ensure that all materials are stored, handled, and piled with due regard to their fire characteristics.
- Ensure that noncompatible materials, which may create a fire hazard, be segregated by a barrier having a fire resistance of at least 1 hour.
- Ensure that material would be piled to minimize the spread of fire internally and to permit convenient access for firefighting.

With implementation of **Mitigation Measure M-NO-3** significant vibration impacts to PG&E's Pipeline 109 would be reduced to a less-than-significant level.

Impact NO-4: The proposed project would not be substantially affected by existing noise levels. ***(Not Applicable)***

This impact is only to be analyzed if the proposed project would exacerbate the existing noise environment. Impact NO-1 concluded the proposed project would not result in a significant noise impact. Therefore, this impact need not be analyzed. Impacts NO-2 and No-3 address construction related noise and vibration impacts, which would not affect the proposed project as the project site would not be occupied until completion of construction activities. However, the following is provided for informational purposes.

Roadway noise is the predominant source of noise in the project vicinity. The City's background noise levels map identifies the project site to be exposed to traffic noise levels between 55 and 60 dBA L_{dn}.[57] The City's land use compatibility chart shows that "satisfactory" sound levels for residential land uses are 60 dBA L_{dn} for outdoor environments. For indoor environments, the noise level inside any sleeping or living room in a dwelling unit on residential property should not exceed 45 dBA between 10:00 p.m. and 7:00 a.m. or 55 dBA between 7:00 a.m. and 10:00 p.m.

According to the City's General Plan, new development should incorporate noise insulation features if the noise levels exceed the sound level guidelines shown in the land use compatibility chart. The proposed project would be required to comply with the California Noise Insulation Standards in Title 24. The Title 24 acoustical requirement for residential structures is incorporated into Section 1207 of the San Francisco Building Code and requires these structures be designed to prevent the intrusion of exterior noise so that the noise level with windows closed, attributable to exterior sources, shall not exceed 45 dBA in any habitable room. With use of standard construction materials and compliance to the Title 24 standards, the proposed project would feasibly attain acceptable interior noise levels.

Impact C-NO-1: The proposed project in combination with past, present, and reasonably foreseeable future projects would not create a significant cumulative noise or vibration impact. *(Less-Than-Significant Impact)*

[57] City and County of San Francisco, *General Plan, Environmental Protection Element, Map 1 (Background Noise Levels, 2009),* 2009. This document is available for review at: http://generalplan.sfplanning.org/images/I6.environmental/ENV_Map1_Background_Noise%20Levels.pdf.

Construction

Construction of the proposed project, such as excavation, grading, or demolition and construction of other buildings in the area, would occur on a temporary and intermittent basis. In general, compliance with Noise Ordinance requirements would maintain the noise impact from project construction at a Less Than Significant level. Project construction-related noise would not substantially increase ambient noise levels at locations greater than a few hundred feet from the project site. There are no future projects identified within the immediate vicinity of the site that would have the potential to result in cumulative construction noise or vibration impacts.

Operations

The proposed project would include new fixed noise sources that would produce operational noise on the project site, as well as new mobile sources. The project-related contribution of two PM peak-hour vehicle trips would represent a small fraction of existing traffic volumes and would be imperceptible. In addition, any new residents that would result from implementation of the cumulative development in the project vicinity would generate a similarly low amount of new PM peak-hour trips. Furthermore, the proposed project and future projects in the vicinity primarily consist of residential uses, which are uses that do not typically generate substantial sources of operational noise, and would be subject to the Noise Ordinance's requirements for residential noise limits.

Given this, the proposed project, in combination with past, present, and reasonably foreseeable future projects would not result in considerable contribution to a permanent increase in noise or vibration in the project area. This impact would be less than significant and no mitigation measure is required.

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
6.	**AIR QUALITY— Would the project:**					
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐	☐
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐	☐
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, State, or regional ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐	☐
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐	☐

The San Francisco Bay Area Air Basin (SFBAAB) encompasses San Francisco, Alameda, Contra Costa, San Mateo, and Napa Counties, and includes parts of Solano and Sonoma Counties. Although air quality in the air basin has generally improved over the last several decades, elevated levels of ozone, carbon monoxide, and particulate matter have been observed. The federal Clean Air Act and California Clean Air Act contain ambient air standards and related air quality reporting systems to be used by regional regulatory agencies in developing air pollution control measures. The Bay Area Air Quality Management District (BAAQMD) is the primary responsible regulatory agency in the Bay Area for planning, implementing, and enforcing the federal and State ambient air quality standards for criteria pollutants. Criteria air pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter ($PM_{2.5}$ and PM_{10}), and lead.

In most of the Bay Area, transportation-related sources account for a majority of air pollutant emissions. Therefore, a major focus of the BAAQMD is on reducing vehicle trips associated with new development. Localized air quality issues include CO hotspots associated with traffic.

Health Vulnerable Locations

San Francisco adopted Article 38 of the San Francisco Health Code in 2008, requiring an Air Quality Assessment for new residential projects of 10 or more units located in proximity to high-traffic roadways, as mapped by the Department of Public Health (DPH), to determine whether residents would be exposed to unhealthful levels of $PM_{2.5}$. The air quality assessment evaluates the concentration of $PM_{2.5}$ from local roadway traffic that may impact a proposed residential development site. If the DPH air quality assessment indicates that the annual average concentration of $PM_{2.5}$ at the site would be greater than 0.2 $\mu g/m^3$, Health Code Section 3807 requires development on the site to be designed or relocated to avoid exposure greater than 0.2 $\mu g/m^3$, or a ventilation system to be installed that would be capable of removing 80 percent of ambient $PM_{2.5}$ from habitable areas of the residential units. The proposed project consists of four residential units and, according to the City's Air Pollutant Exposure Zone Map, the proposed project is not within the air pollutant exposure zone.[58]

Impact AQ-1: Implementation of the proposed project would not conflict with or obstruct implementation of the local applicable air quality plan. *(Less-Than-Significant Impact)*

The applicable air quality plan is the BAAQMD's 2017~~0~~ Clean Air Plan, which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines a control strategy to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project does the following: 1) supports the goals of the Clean Air Plan; 2) includes applicable control measures from the Clean Air Plan; and 3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

The 2017 Clean Air Plan include~~s~~ measures and programs to reduce emissions of fine particulates and toxic air contaminants. In addition, the Regional Climate Protection Strategy is included in the 2017

[58] City and County of San Francisco. *Air Pollutant Exposure Zone Map*. April 10, 2014. This document is available for review at: www.sfdph.org/dph/files/EHSdocs/AirQuality/AirPollutantExposureZoneMap.pdf.

Clean Air Plan, which identifies rules, control measures, and strategies that the BAAQMD can pursue to reduce greenhouse gases throughout the Bay Area.

The proposed project would not conflict with any of the control measures identified in the plan or designed to bring the region into attainment. Additionally, the proposed project would not substantially increase the population, vehicle trips, or vehicle miles traveled. The proposed project would not hinder the region from attaining the goals outlined in the Clean Air Plan. Therefore, the proposed project would not hinder or disrupt implementation of any control measures from the Clean Air Plan.

Additionally, as indicated in the analysis that follows, below, the proposed project would result in Less Than Significant operational and construction-period emissions.

Impact AQ-2: Implementation of the proposed project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. *(Less-Than-Significant Impact)*

The proposed project would generate air emissions during project construction and operation. Long-term operational emissions are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin. Short-term construction emissions would occur in association with construction activities, including demolition, excavation, and vehicle/equipment use.

Operational Air Quality Emissions

Long-term air emission impacts are those associated with area sources and mobile sources related to the proposed project. In addition to the short-term construction emissions, the project would also generate long-term air emissions, such as those associated with changes in permanent use of the project site. These long-term emissions are primarily mobile source emissions that would result from vehicle trips associated with the proposed project. Area sources, such as natural gas heaters, landscape equipment, and use of consumer products, would also result in pollutant emissions.

The BAAQMD has developed screening criteria to provide lead agencies with a conservative indication of whether the proposed project would result in potentially significant air quality impacts. If all of the screening criteria are met by a proposed project, then the lead agency would not need to perform a detailed air quality assessment of the proposed project's emissions. These screening levels are generally representative of new development without any form of mitigation measures taken into consideration. In addition, the screening criteria do not account for project design features, attributes, or local development requirements that could also result in lower emissions.

For single family land uses, the BAAQMD screening size for operational criteria pollutants is 325 dwelling units. Since the proposed project would only include two dwelling units, based on the BAAQMD's screening criteria, operation of the proposed project would result in a Less-Than-Significant Impact to air quality from criteria air pollutant and precursor emissions and no mitigation measures would be required.

Localized CO Impacts

The BAAQMD has also established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD CEQA Guidelines, a proposed project would result in a less-than significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed project would not conflict with the San Francisco County Transportation Authority San Francisco Transportation Plan (SFTP) for designated roads or highways, a regional transportation plan, or other agency plans. The project site is not located in an area where vertical or horizontal mixing of air is substantially limited. In addition, the proposed project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour and would not result in localized CO concentrations that exceed State or federal standards. This impact would be less than significant and no mitigation measures would be required.

Construction Emissions

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and toxic air contaminants (TACs) such as diesel exhaust particulate matter.

As discussed above, the BAAQMD has developed screening criteria to provide lead agencies with a conservative indication of whether the proposed project would result in potentially significant air quality impacts. If all of the screening criteria are met by a proposed project, then the lead agency would not need to perform a detailed air quality assessment of the proposed project's emissions. For single family residential land uses, the BAAQMD screening size for construction criteria pollutants is 114 dwelling units. Since the proposed project would only include two dwelling units, based on the BAAQMD's screening criteria, construction of the proposed project would result in a Less-Than-Significant Impact to air quality from criteria air pollutant and precursor emissions and no mitigation measures would be required.

Impact AQ-3: Implementation of the proposed project would not result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal, State, or regional ambient air quality standard. ***(Less-Than-Significant Impact)***

CEQA defines a cumulative impact as two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts. According to the BAAQMD, air pollution is largely a cumulative impact and no single project is sufficient in size to itself result in nonattainment of ambient air quality standards. In developing the thresholds of

significance for air pollutants used in the analysis above, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The BAAQMD CEQA Air Quality Guidelines indicate that if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. If daily average or annual emissions of operational-related criteria air pollutants exceed any applicable threshold established by the BAAQMD, the proposed project would result in a cumulatively significant impact.

As discussed above, implementation of the proposed project would generate Less Than Significant criteria air pollutant and precursor emissions. Therefore, the project would not make a cumulatively considerable contribution to regional air quality impacts. No mitigation measures would be required.

Impact AQ-4: Implementation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. ***(Less-Than-Significant Impact)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks. As noted above, the project site is not located within an Air Pollutant Exposure Zone.

Excessive Cancer Risk

According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient $PM_{2.5}$ increase greater than 0.3 $\mu g/m^3$. A significant cumulative impact would occur if the project in combination with other projects located within a 1,000-foot radius of the project sites would expose sensitive receptors to TACs resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the hazard index (chronic), or an

ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ on an annual average basis. Impacts from substantial pollutant concentrations are discussed below. As discussed below, this impact would be less than significant.

The project site is located in a residential neighborhood, and the closest sensitive receptors are residential uses located immediately adjacent to the proposed project. Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, project construction emissions would be below the BAAQMD's significance thresholds and once the project is constructed, the project would not be a source of substantial emissions. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction or operation, and potential impacts would be considered less than significant.

Based on the foregoing, the proposed project would not expose sensitive receptors substantial pollutant contributions. Therefore, this impact would be less than significant, and no mitigation measures would be required.

Impact AQ-5: Implementation of the proposed project would not create objectionable odors affecting a substantial number of people. ***(Less-Than-Significant Impact)***

During project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and limited to the construction period. The proposed project would not include any activities or operations that would generate objectionable odors and once operational, the project would not be a source of odors. Therefore, the proposed project would not create objectionable odors affecting a substantial number of people, and no mitigation is required.

Impact C-AQ-1: The proposed project, in combination with past, present, and reasonably foreseeable future development in the project area would not contribute to a cumulative air quality impact. ***(Less-Than-Significant Impact)***

As discussed above, regional air pollution is by its very nature largely a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality on a

cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts. The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, because the proposed project's construction and operational emissions would not exceed the project-level thresholds for criteria air pollutants, the proposed project would not result in a cumulatively considerable contribution to regional air quality impacts. This impact would be less than significant and no mitigation measures would be required.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
7. GREENHOUSE GAS EMISSIONS— Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

Greenhouse gas (GHG) emissions and global climate change represent cumulative impacts. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects have contributed and will continue to contribute to global climate change and its associated environmental impacts.

The Bay Area Air Quality Management District (BAAQMD) has prepared guidelines and methodologies for analyzing GHGs. These guidelines are consistent with CEQA Guidelines Sections 15064.4 and 15183.5 which address the analysis and determination of significant impacts from a proposed project's GHG emissions. CEQA Guidelines Section 15064.4 allows lead agencies to rely on a qualitative analysis to describe GHG emissions resulting from a project. CEQA Guidelines Section

15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of GHGs and describes the required contents of such a plan. Accordingly, San Francisco has prepared *Strategies to Address Greenhouse Gas Emissions*[59] which presents a comprehensive assessment of policies, programs, and ordinances that collectively represent San Francisco's qualified GHG reduction strategy in compliance with the CEQA guidelines. These GHG reduction actions have resulted in a 23.3 percent reduction in GHG emissions in 2012 compared to 1990 levels,[60] exceeding the year 2020 reduction goals outlined in the BAAQMD's *Bay Area 2010 Clean Air Plan,* Executive Order (EO) S-3-05, and Assembly Bill (AB) 32 (also known as the Global Warming Solutions Act).[61] Given that the City' has met the State and region's 2020 GHG reduction targets and San Francisco's GHG reduction goals are consistent with, or more aggressive than, the long-term goals established under EO S-3-05[62], EO B-30-15,[63,64] and Senate Bill (SB) 32 [65,66] the City's GHG reduction goals are

[59] San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco,* 2010. This document is available online at: http://www.sf-planning.org/index.aspx?page=2627.

[60] ICF International, *Technical Review of the 2012 Community-wide GHG Inventory for the City and County of San Francisco,* January 21, 2015. Available at http://sfenvironment.org/sites/default/files/fliers/files/icf_verificationmemo_2012sfecommunityinventory_2015-01-21.pdf, accessed March 16, 2015.

[61] Executive Order S-3-05, Assembly Bill 32, and the *Bay Area 2010 Clean Air Plan* set a target of reducing GHG emissions to below 1990 levels by year 2020.

[62] Office of the Governor, Executive Order S-3-05, June 1, 2005. Available at http://www.pcl.org/projects/2008symposium/proceedings/Coatsworth12.pdf, accessed March 16, 2016. Executive Order S-3-05 sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalents ($MTCO_2E$)); by 2020, reduce emissions to 1990 levels (approximately 427 million $MTCO_2E$); and by 2050 reduce emissions to 80 percent below 1990 levels (approximately 85 million $MTCO_2E$). Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

[63] Office of the Governor, *Executive Order B-30-15,* April 29, 2015. Available at https://www.gov.ca.gov/news.php?id=18938, accessed March 3, 2016. Executive Order B-30-15, issued on April 29, 2015, sets forth a target of reducing GHG emissions to 40 percent below 1990 levels by 2030 (estimated at 2.9 million $MTCO_2E$).

[64] San Francisco's GHG reduction goals are codified in Section 902 of the Environment Code and include: (i) by 2008, determine City GHG emissions for year 1990; (ii) by 2017, reduce GHG emissions by 25 percent below 1990 levels; (iii) by 2025, reduce GHG emissions by 40 percent below 1990 levels; and by 2050, reduce GHG emissions by 80 percent below 1990 levels.

[65] Senate Bill 32 amends California Health and Safety Code Division 25.5 (also known as the California Global Warming Solutions Act of 2006) by adding Section 38566, which directs that statewide greenhouse gas emissions to be reduced by 40 percent below 1990 levels by 2030.

[66] Senate Bill 32 was paired with Assembly Bill 197, which would modify the structure of the State Air Resources Board; institute requirements for the disclosure of greenhouse gas emissions criteria pollutants, and toxic air contaminants; and establish requirements for the review and adoption of rules, regulations, and measures for the reduction of greenhouse gas emissions.

consistent with EO S-3-05, EO B-30-15, AB 32, SB 32 and the *Bay Area 2010 Clean Air Plan*. Therefore, proposed projects that are consistent with the City's GHG reduction strategy would be consistent with the aforementioned GHG reduction goals, would not conflict with these plans or result in significant GHG emissions, and would therefore not exceed San Francisco's applicable GHG threshold of significance.

The following analysis of the proposed project's impact on climate change focuses on the project's contribution to cumulatively significant GHG emissions. Because no individual project could emit GHGs at a level that could result in a significant impact on the global climate, this analysis is in a cumulative context, and this section does not include an individual project-specific impact statement.

Impact C-GG-1: The proposed project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (*Less-Than-Significant Impact*)

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases. Direct operational emissions include GHG emissions from new vehicle trips and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers; energy required to pump, treat, and convey water; and emissions associated with waste removal, disposal, and landfill operations.

The proposed project would increase the intensity of use of the site by constructing two residential units on a currently vacant site. Therefore, the proposed project would contribute to annual long-term increases in GHGs as a result of increased vehicle trips (mobile sources) and residential operations that result in an increase in energy use, water use, wastewater treatment, and solid waste disposal. Construction activities would also result in temporary increases in GHG emissions.
The proposed project would be subject to regulations adopted to reduce GHG emissions as identified in the GHG reduction strategy. As discussed below, compliance with the applicable regulations would reduce the project's GHG emissions related to transportation, energy use, waste disposal, wood burning, and use of refrigerants.

Compliance with the City's bicycle parking requirements would reduce the proposed project's transportation-related emissions. These regulations reduce GHG emissions from single-occupancy vehicles by promoting the use of alternative transportation modes with zero or lower GHG emissions on a per capita basis.

The proposed project would be required to comply with the energy efficiency requirements of the City's Green Building Code which would promote energy and water efficiency, thereby reducing the proposed project's energy-related GHG emissions.[67]
The proposed project's waste-related emissions would be reduced through compliance with the City's Recycling and Compositing Ordinance, and Construction and Demolition Debris Recovery Ordinance. These regulations reduce the amount of materials sent to a landfill, reducing GHGs emitted by landfill operations. These regulations also promote reuse of materials, conserving their embodied energy[68] and reducing the energy required to produce new materials.

Compliance with the City's Street Tree Planting requirements would serve to increase carbon sequestration. Other regulations, the Wood Burning Fireplace Ordinance would reduce emissions of GHGs and black carbon, respectively. Regulations requiring low-emitting finishes would reduce volatile organic compounds (VOCs).[69] Thus, the proposed project was determined to be consistent with San Francisco's GHG reduction strategy.[70]

The project sponsor is required to comply with these regulations, which have proven effective as San Francisco's GHG emissions have measurably decreased when compared to 1990 emissions levels, demonstrating that the City has met and exceeded EO S-3-05, AB 32, and the *Bay Area 2010 Clean Air Plan* GHG reduction goals for the year 2020. Other existing regulations, such as those implemented

[67] Compliance with water conservation measures reduce the energy (and GHG emissions) required to convey, pump and treat water required for the project.

[68] Embodied energy is the total energy required for the extraction, processing, manufacture and delivery of building materials to the building site.

[69] While not a GHG, VOCs are precursor pollutants that form ground level ozone. Increased ground level ozone is an anticipated effect of future global warming that would result in added health effects locally. Reducing VOC emissions would reduce the anticipated local effects of global warming.

[70] San Francisco Planning Department, *Greenhouse Gas Analysis: Compliance Checklist for 3516-26 Folsom Street*, February 16, 2017

through AB 32, will continue to reduce a proposed project's contribution to climate change. In addition, San Francisco's local GHG reduction targets are consistent with the long-term GHG reduction goals of EO S-3-05, EO B-30-15, AB 32, SB 32 and the *Bay Area 2010 Clean Air Plan.* Therefore, because the proposed projects is consistent with the City's GHG reduction strategy, it is also consistent with the GHG reduction goals of EO S-3-05, EO B-30-15, AB 32, SB 32 and the *Bay Area 2010 Clean Air Plan*, would not conflict with these plans, and would therefore not exceed San Francisco's applicable GHG threshold of significance. As such, the proposed project would result in a Less-Than-Significant Impact with respect to GHG emissions. No mitigation measures are necessary.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
8. WIND AND SHADOW— Would the project:					
a) Alter wind in a manner that substantially affects public areas?	☐	☐	☒	☐	☐
b) Create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas?	☐	☐	☒	☐	☐

Impact WS-1: The proposed project would not alter wind in a manner that substantially affects public areas within the vicinity of the project area. ***(Less-Than-Significant Impact)***

A proposed project's wind impacts are directly related to its height, orientation, design, location and surrounding development context. Based on wind analyses for other development projects in San Francisco, a building that does not exceed 80 feet generally has little potential to cause substantial changes to ground-level wind conditions. The proposed project would construct two 30-foot-tall buildings that would be about the same height as existing adjacent and nearby buildings. The proposed project would also be oriented towards Folsom Street in a similar manner as buildings surrounding the project site. As such, the proposed project would not alter wind in a manner that substantially affects public areas. This impact would be less than significant, and no mitigation measures would be required.

Impact WS-2: The proposed project would not create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas. ***(Less-Than-Significant Impact)***

In 1984, San Francisco voters approved an initiative known as "Proposition K, The Sunlight Ordinance," which was codified as Planning Code Section 295 in 1985. Planning Code Section 295 generally prohibits new structures above 40 feet in height that would cast additional shadows on open space that is under the jurisdiction of the San Francisco Recreation and Park Commission between one hour after sunrise and one hour before sunset, at any time of the year, unless that shadow would not result in a significant adverse effect on the use of the open space. Public open spaces that are not under the jurisdiction of the Recreation and Park Commission as well as private open spaces are not subject to Planning Code Section 295.

Implementation of the proposed project would result in the construction of two 30-foot-tall buildings (including parapets and roof deck railings), which would be similar in size to existing surrounding buildings. The project site is located to the southwest of the Bernal Heights Community Garden. Therefore, a shadow analysis was prepared by the Project Sponsor/Architect. The shadow analysis provides simulations that show that the proposed project would cast new shadow on the Bernal Heights Community Garden, but that shadow would be limited to only certain periods in the winter and summer and the new shadow would only fall on a portion of the southwestern corner of the community garden mainly in the evening after 5:30 pm. In most cases throughout the year, the shadow cast by the proposed project either does not fall on the community garden or is contained within shadow already cast by existing structures on Gates Street.

While the proposed project would cast new shadow on the community garden, it is not expected to substantially affect the use or enjoyment of the Bernal Heights Community Garden such that a significant environmental effect would occur. For these reasons, the proposed project would not create new shadow in a manner that substantially affects outdoor recreation facilities and other public areas. This impact would be less than significant, and no mitigation measures would be required.

Impact C-WS-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative wind or shadow impacts. ***(Less-Than-Significant Impact)***

As discussed above, buildings shorter than 80 feet have little potential to cause substantial changes to ground-level wind conditions. Given that the height limit in the project vicinity is 30 feet, none of the

nearby cumulative development projects would be tall enough to alter wind in a manner that substantially affects public areas. The proposed project would not shadow any nearby parks or open spaces such that a significant environmental effect would occur. Therefore, the proposed project would not contribute to any potential cumulative shadow impact on parks and open spaces. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative wind or shadow impact.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
9. RECREATION— Would the project:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☒	☐	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐	☐
c) Physically degrade existing recreational resources?	☐	☐	☒	☐	☐

Impact RE-1: The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. ***(Less-Than-Significant Impact Impact)***

The neighborhood parks or other recreational facilities closest to the project site are the Bernal Heights Community Garden (60 feet northeast of the project site) and Bernal Heights Park (120 feet north. The proposed project would increase the population of the project site by about five residents. This residential population growth would increase the demand for recreational facilities. The project residents may use parks, open spaces, and other recreational facilities in the project vicinity. The Bernal Heights Community Garden has a controlled membership and may not be available for use by residents of the proposed project. The additional use of these recreational facilities is expected to be modest based on the size of the projected population increase and would not result in the substantial physical deterioration of recreational facilities. Therefore this impact would be less than significant and no mitigation measures would be required.

Impact RE-2: The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. ***(Less-Than-Significant Impact)***

The project site is within walking distance to parks, open spaces, or other recreational facilities, as discussed above. It is anticipated that these existing recreational facilities would be able to accommodate the increase in demand for recreational resources generated by the project residents. For these reasons, the construction of new or the expansion of existing recreational facilities, both of which might have an adverse physical effect on the environment, would not be required. This impact would be less than significant and no mitigation measures would be required.

Impact RE-3: The proposed project would not physically degrade existing recreational resources. ***(Less-Than-Significant Impact)***

The proposed project would not result in the physical alteration or degradation of any recreational resources in the project vicinity or the City as a whole. Project-related construction activities would occur within the boundaries of the project site, which does not include any existing recreational resources. This impact would be less than significant and no mitigation measures would be required.

Impact C-RE-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact on recreational facilities or open space resources. ***(Less-Than-Significant Impact)***

Cumulative development in the project vicinity would result in a minor intensification of land uses and a cumulative increase in the demand for recreational facilities and resources. The City has accounted for such growth as part of the Recreation and Open Space Element of the General Plan. In addition, San Francisco voters passed two bond measures, in 2008 and 2012, to fund the acquisition, planning, and renovation of the City's network of recreational resources. As discussed above, there are open spaces and other recreational facilities within less than 1/4 mile of the project site. It is expected that these existing recreational facilities would be able to accommodate the increase in demand for recreational resources generated by the proposed project and nearby cumulative development projects. For these reasons, the proposed project would not combine with past, present,

and reasonably foreseeable future project in the project vicinity to create a significant cumulative impact on recreational facilities or resources. This impact would be less than significant and no mitigation measures would be required.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
10. UTILITIES AND SERVICE SYSTEMS— Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐	☐
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐	☐
d) Have sufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements?	☐	☐	☒	☐	☐
e) Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐	☐
g) Comply with federal, State, and local statutes and regulations related to solid waste?	☐	☐	☒	☐	☐

The project site is within an urban area that is served by utility service systems, including water, wastewater and stormwater collection and treatment, and solid waste collection and disposal. The proposed project would add new daytime and nighttime population to the site that would increase the demand for utilities and service systems on the site, but not in excess of amounts expected and provided for in the project area.

Impact UT-1: Implementation of the proposed project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, would not exceed the capacity of the wastewater treatment provider that would serve the project, and would not require the construction of new or expansion of existing wastewater treatment or stormwater drainage facilities. ***(Less-Than-Significant Impact)***

Project-related wastewater and stormwater would flow to the City's combined stormwater/sewer system and would be treated to standards contained in the City's National Pollutant Discharge Elimination System (NPDES) Permit for the Southeast Water Pollution Control Plant prior to discharge into San Francisco Bay. The NPDES standards are set and regulated by the San Francisco Bay Area Regional Water Quality Control Board (RWQCB). Therefore, the proposed project would not conflict with RWQCB requirements related to wastewater discharge.

For the reasons specified above, the proposed project would not generate wastewater or stormwater discharges that have the potential to degrade water quality or contaminate a public water supply. Additionally, the proposed project is required to comply with the Stormwater Management Ordinance, which requires the project to maintain or reduce the existing volume and rate of stormwater runoff at the site by retaining runoff onsite, promoting stormwater reuse, and limiting site discharges before entering the combined sewer collection system.

The proposed project would also be required to comply with requirements of the Construction Site Runoff Ordinance, which regulates the discharge of sediment or other pollutants from construction sites and prevents erosion and sedimentation due to construction activities. Furthermore, before the street improvement permit can be finalized, SFPUC must review and approve the proposed plans. Therefore, the proposed project would not have significant environmental impacts related to water quality.

For the reasons discussed above, the proposed project would incrementally increase demand for and use of these services, but not in excess of amounts expected and provided for in this area. The proposed project would not exceed any applicable wastewater treatment requirements or otherwise conflict with RWQCB requirements, and the minor population increase associated with the proposed project would not exceed the capacity of the existing wastewater treatment provider or substantially

increase the demand for wastewater treatment or stormwater drainage facilities requiring the construction of new facilities or expansion of existing facilities. This impact would be less than significant and no mitigation measures are required.

Impact UT-2: The proposed project would not require expansion or construction of new water supply or treatment facilities. ***(Less-Than-Significant Impact)***

The proposed project would add two residential units to the project site, which would increase the demand for water on the site compared to existing conditions, but not in excess of amounts expected and provided for in the project area. Although the proposed project would incrementally increase the demand for water in San Francisco, the estimated increase in demand could be accommodated within anticipated water use and supply for the City.[71] The proposed project would also be designed to incorporate water-conserving measures, such as low-flush toilets and urinals, as required by the San Francisco Green Building Ordinance. The project site is not located within a designated recycled water use area, as defined in the Recycled Water Ordinance 390-91 and 393-94; thus, the project is not required to install a recycled water system. Since the proposed project's water demand could be accommodated by the existing and planned supply anticipated under the San Francisco Public Utilities Commission's (SFPUC's) 2010 Urban Water Management Plan (UWMP), as updated by the SFPUC's 2013 Water Availability Study, the proposed project would result in less-than-significant impacts related to water services and no mitigation measures would be required.

Impact UT-3: The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. ***(Less-Than-Significant Impact)***

In September 2015, the City entered into a landfill disposal agreement with Recology, Inc. for disposal of all solid waste collected in San Francisco at the Recology Hay Road Landfill in Solano County for nine years or until 3.4 million tons have been disposed whichever occurs first. The City would have an option to renew the agreement for a period of six years or until an additional 1.6

[71] San Francisco Public Utilities Commission, *2010 Urban Water Management Plan*, June 2011. This document is available for review at: www.sfwater.org/Modules/ShowDocument.aspx?documentID=1055.

million tons have been disposed, whichever occurs first.[72] The Recology Hay Road Landfill is permitted to accept up to 2,400 tons per day of solid waste, at that maximum rate the landfill would have capacity to accommodate solid waste until approximately 2034. At present, the landfill receives an average of approximately 1,850 tons per day from all sources, with approximately 1,200 tons per day from San Francisco; at this rate landfill closure would occur in 2041. The City's contract with the Recology Hay Road Landfill is set to terminate in 2031 or when 5 million tons have been disposed, whichever occurs first. At that point, the City will either further extend the Recology Hay Road Landfill contract or find and entitle another landfill site. The proposed project, which would include construction waste and operational waste associated with the residential use, would generate a minimal amount of solid waste to be deposited at the landfill. Therefore, the proposed project would be served by landfills with sufficient permitted capacity to accommodate its solid waste disposal needs. This impact would be less than significant and no mitigation measures would be required.

Impact UT-4: Construction and operation of the proposed project would comply with all applicable statutes and regulations related to solid waste. ***(Less-Than-Significant Impact)***

The California Integrated Waste Management Act of 1989 (AB 939) requires municipalities to adopt an Integrated Waste Management Plan (IWMP) to establish objectives, policies, and programs relative to waste disposal, management, source reduction, and recycling. Reports filed by the San Francisco Department of the Environment showed the City generated approximately 870,000 tons of waste material in 2000. By 2010, that figure decreased to approximately 455,000 tons. Waste diverted from landfills is defined as recycled or composted.[73] San Francisco has a goal of 75 percent landfill diversion by 2010 and 100 percent by 2020. As of 2012 (the most recent year reported), 80 percent of

[72] San Francisco Planning Department, *Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County Final Negative Declaration*, Planning Department Case No. 2014.0653, May 21, 2015. Available online at: sfmea.sfplanning.org/2014.0653E_Revised_FND.pdf.

[73] CalRecycle, Jurisdiction Diversion/Disposal Rate Detail. Available online at: www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=OriginJurisdictionIDs%3d438%26ReportYear%3d2013%26ReportName%3dReportEDRSJurisDisposalByFacility.

San Francisco's solid waste was being diverted from landfills, indicating that San Francisco met the 2010 diversion target.[74]

In September 2015, the City approved an Agreement with Recology, Inc., for the transport and disposal of the City's municipal solid waste at the Recology Hay Road Landfill in Solano County. The City began disposing its municipal solid waste at Recology Hay Road Landfill in January, 2016, and that practice is anticipated to continue for approximately nine years, with an option to renew the Agreement thereafter for an additional six years. San Francisco had a goal of 75% solid waste diversion by 2010, which it exceeded at 80% diversion, and has a goal of 100% solid waste diversion or "zero waste" to landfill or incineration by 2020. San Francisco Ordinance No. 27-06 requires mixed construction and demolition debris be transported by a Registered Transporter and taken to a Registered Facility that must recover for reuse or recycling and divert from landfill at least 65% of all received construction and demolition debris. The San Francisco Green Building Code also requires certain projects to submit a Recovery Plan to the Department of the Environment demonstrating recovery or diversion of at least 75% of all demolition debris. San Francisco's Mandatory Recycling and Composting Ordinance No. 100-09 requires all properties and everyone in the city to separate their recyclables, compostables, and landfill trash.

Therefore, given the above, the construction and operation of the project would result in a Less-Than-Significant Impact regarding compliance with all applicable statutes and regulations related to solid waste and no mitigation measures would be required.

Impact C-UT-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to utilities or service systems. ***(Less-Than-Significant Impact)***

Cumulative development in the project site vicinity would incrementally increase demand on citywide utilities and service systems, but not beyond levels anticipated and planned for by public

[74] San Francisco Department of the Environment, Zero Waste Program, "San Francisco Sets North American Record for Recycling and Composting with 80 Percent Diversion Rate." Available online at www.sfenvironment.org/news/press-release/mayor-lee-announces-san-francisco-reaches-80-percent-landfill-waste-diversion-leads-all-cities-in-north-america.

service providers. The SFPUC has accounted for such growth in its water demand and wastewater service projections, and the City has implemented various programs to divert 80 percent of its solid waste from landfills. Nearby cumulative development projects would be subject to the same water conservation, wastewater discharge, recycling and composting, and construction demolition and debris ordinances applicable to the proposed project. Compliance with these ordinances would reduce the effects of nearby cumulative development projects to Less Than Significant levels. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on utilities and service systems.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
11. PUBLIC SERVICES—Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services?	☐	☐	☒	☐	☐

The proposed project's impacts on parks and recreation are discussed under **Section H.9, Recreation**. Impacts to other public services are discussed below.

Impact PS-1: The proposed project would not result in a substantial adverse physical impact associated with the provision of police services. ***(Less-Than-Significant Impact)***

The project site currently receives police services from the San Francisco Police Department (SFPD). The proposed project would result in the addition of two residential units on the currently unoccupied project site and is unlikely to result in an increase in demand for police service calls in the project area. Police protection is provided by the Ingleside Police Station located at 1 Sgt John V Young Lane, approximately 2.5 miles east of the project site. The Ingleside Station would be able to provide the necessary police services and crime prevention in the area. Meeting the service demand

associated with two residential units at the project site would not require the construction of new police facilities that could cause significant environmental impact. As such, the impact would be less than significant, and no mitigation measures would be required.

Impact PS-2: The proposed project would not result in a substantial adverse physical impact associated with the provision of fire services. ***(Less-Than-Significant Impact)***

The project site receives fire protection services from the San Francisco Fire Department (SFFD). Fire stations located nearby include Station 32, at 194 Park Street approximately 0.8 miles southwest of the project site; and Station 9 at 2245 Jerrold Avenue approximately 1.5 miles from the project. The proposed project would result in the addition of two residential units on the currently unoccupied project site and is unlikely to result in an increase in demand for fire service calls in the project area. Moreover, the proposed project would be required to comply with all applicable building and fire code requirements, which identify specific fire protection systems, including, but not limited to, the provision of State-mandated smoke alarms, fire alarm and sprinkler systems, fire extinguishers, fire-rated walls, the required number and location of egress with appropriate distance separation, and emergency response notification systems. Compliance with all applicable building and fire codes, would further reduce the demand for Fire Department service and oversight.

Given that the prosed project would not result in a fire service demand beyond the projected growth for the area or the city, the proposed project would not result in the need for new fire protection facilities, and would have no adverse impact on the physical environment related to the construction of new or physically altered fire protection facilities. This impact would be less than significant and no mitigation measures would be required.

Impact PS-3: The proposed project would not result in a substantial adverse physical impact associated with the provision of school services. ***(Less-Than-Significant Impact)***

The San Francisco Unified School District (SFUSD) provides public primary and secondary education in the City and County of San Francisco. Junipero Serra Elementary School at 625 Holly Park Circle Street is approximately 0.7 mile southwest of the project site. Willie L Brown Jr Middle School at 2055 Silver Avenue is located approximately 1.5 miles southeast of the site. The nearest high school to the

project site is Thurgood Marshall High School at 45 Conkling Street, approximately 1.4 miles southeast of the project site.

Based on a student generation rate employed by SFUSD of 0.203 students per dwelling unit, the two residential units that would be built as part of the proposed project could generate approximately one K-12 student. Similar to other City-wide developments, the proposed project would be assessed $2.42 per gross square foot of residential space as a school impact fee. The estimated one additional new student would not require the construction or expansion of school facilities. It is anticipated that the new student could be accommodated by existing schools under the jurisdiction of the SFUSD since the SFUSD is currently not experiencing high growth rates, and public school facilities throughout the City and County of San Francisco are generally underutilized. The SFUSD is not planning to construct new schools near the project site.

Given that SFUSD has adequate facilities to accommodate growth, the new student generated by the proposed project would not substantially increase demand for school facilities in San Francisco and would not result in a significant impact. In addition, as with all new development, the project sponsor would be required to pay one-time school impact fees under Government Code Section 65995(b)(3), as stated above, which could be used by SFUSD for costs associated with providing facilities for new students.

In addition, The Leroy F. Greene School Facilities Act of 1998, or Senate Bill 50 (SB 50), restricts the ability of local agencies, such as the City of San Francisco, to deny land use approvals on the basis that public school facilities are inadequate. SB 50 establishes the base amount of allowable developer fees for school facilities at $2.24 per square foot of residential construction and $0.21 per square foot of commercial construction as of 2006. These fees are intended to address local school facility needs resulting from new development. Public school districts may, however, impose higher fees provided they meet the conditions outlined in the act.

Based on the foregoing, the proposed project would not result in a substantially increased demand for school facilities, and would not require new or expanded school facilities. Therefore, this impact would be less than significant and no mitigation measures would be required.

Impact PS-4: The proposed project would not result in a substantial adverse physical impact associated with the provision of other public services, such as libraries. ***(Less-Than-Significant Impact)***

Implementation of the proposed project would add approximately five residents to the project site which would increase the demand for other public services such as libraries. This increase in demand would not be substantial given the overall demand for library services on a citywide basis. The San Francisco Public Library (SFPL) operates 29 branches throughout the City and it is anticipated that the Bernal Heights Branch Library, which is located 0.4 miles south of the project site, would be able to accommodate the minor increase in demand for library services generated by the proposed project. For these reasons, the proposed project would not require the construction of new or alteration of existing governmental facilities. This impact would be less than significant and no mitigation measures would be required.

Impact PS-5: The proposed project, in combination with past, present, and reasonably foreseeable projects, would not result in a cumulative impact on public services. ***(Less-Than-Significant Impact)***

Cumulative development in the project vicinity would result in a minor intensification of land uses and a cumulative increase in the demand for fire protection, police protection, school services, and other public services. The Fire Department, the Police Department, the SFUSD, SFPL, and other City agencies have accounted for such growth in providing public services to the residents of San Francisco. Nearby cumulative development projects would be subject to many of the same development impact fees applicable to the proposed project. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on public services. This impact would be less than significant and no mitigation measures would be required.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
12. BIOLOGICAL RESOURCES— Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☐	☒

The project site is located within a built environment and does not contain riparian habitat or other sensitive natural communities as defined by the California Department of Fish and Wildlife and the United States Fish and Wildlife Service; therefore, Topic 12.b is not applicable to the proposed project. In addition, the project area does not contain wetlands as defined by Section 404 of the Clean Water Act; therefore, Topic 12.c is also not applicable. Finally, there are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, of other approved local, State, or regional habitat conservation plans applicable to the project site. Therefore, implementation of the proposed project could not conflict with the provisions of any such plan and Topic 12.f is not applicable to the proposed project.

Impact BI-1: The proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species, riparian habitat or sensitive natural communities, and would not interfere substantially with any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. *(Less-Than-Significant Impact)*

The project site is an undeveloped lot in a built urban environment and does not include any candidate, sensitive, or special-status species, any riparian habitat, or other sensitive natural community identified in regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service, nor would it interfere substantially with any native resident or migratory species, or species movement or migratory corridors.

A sensitive plant species, hummingbird sage (*Salvia spathacea*) is present on the northern portion of Public Works' property adjacent to the project site, to the north, along Bernal Heights Boulevard. The proposed stairway between Folsom Street and Bernal Heights Boulevard would be located at least 15 feet downhill from where the plants are located and would not run through or otherwise disturb the existing hummingbird sage. The Emergency Response and Evacuation Plan also requires that a protective fence would be installed around areas on the project site with hummingbird sage. The proposed alignment would both avoid the sensitive species during construction and direct pedestrians along a route that would avoid contact with the plants.

Migrating birds do pass through San Francisco. Nesting birds, their nests, and eggs are fully protected by *California Fish and Game Code* (Sections 3503, 3503.5) and the federal Migratory Bird Treaty Act (MBTA). Although the proposed project would be subject to the MBTA, the site does not contain habitat supporting migratory birds.

San Francisco is within the Pacific Flyway, a major north-south route of travel for migratory birds along the western portion of the Americas. Planning Code Section 139, Standards for Bird-Safe Buildings, establishes building design standards to reduce avian mortality rates associated with bird strikes. This ordinance focuses on location-specific hazards and building feature-related hazards. Location-specific hazards apply to buildings in, or within 300 feet of and having a direct line of sight to, an Urban Bird Refuge, which is defined as an open space "two acres and larger dominated by

vegetation, including vegetated landscaping, forest, meadows, grassland, or wetlands, or open water." Although the project site is within 300 feet of an Urban Bird Refuge, Bernal Heights Park, Planning Code Section 139 exempts projects that are less than 45 feet in height and have an exposed façade comprised of less than 50% glass, such as the proposed project, from the requirement to implement birdsafe design standards. Even though the Planning Code deems structures such as the proposed project too small to require birdsafe design, the likelihood of even occasional bird strikes to the proposed project having a substantial adverse impact on candidate, sensitive, or special-status bird species is very low.

Given the above, implementation of the proposed project would not modify any natural habitat and this impact would be Less Than Significant.

Impact BI-2: The proposed project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. ***(No Impact)***

The City's Urban Forestry Ordinance, *Public Works Code* Sections 801 et. seq., requires a permit from San Francisco Public Works to remove any protected trees. There are no existing trees or other vegetation on the project site that would be removed as part of the proposed project, and as previously discussed, the proposed project includes one street tree per unit, and the subsequent street improvement would include the planting of additional street trees, upon approval by Public Works. The proposed project would not conflict with any local policies or ordinances that protect biological resources, and no impact would occur. Also, as mentioned above, a sensitive plant species, hummingbird sage (*Salvia spathacea*) is present on the northern portion of Public Works property adjacent to the north of the project site, along Bernal Heights Boulevard. The proposed stairway between Folsom Street and Bernal Heights Boulevard would be located at least 15 feet downhill from where the plants are located, and would not run through or otherwise disturb the existing hummingbird sage.

Impact C-BI-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to biological resources. ***(Less-Than-Significant Impact)***

Cumulative development in the project vicinity would result in the construction of multi-story buildings that can injure or kill birds in the event of a collision and would result in the removal of existing street trees or other vegetation. Moreover, while there is a sensitive plant species on a property adjacent to the project site, the property is publically-owned and the proposed project's stairway alignment would be downhill from the plant and would direct future pedestrian traffic around it. No other candidate, sensitive or special-status species, any riparian habitat, or other sensitive natural community in the project vicinity. For these reasons, the proposed project would not combine with past, present, and reasonably foreseeable future projects in the project vicinity to create a significant cumulative impact on biological resources. This impact would be less than significant and no mitigation measures would be required.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
13. GEOLOGY AND SOILS— Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☒	☐	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	☐
iv) Landslides?	☐	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	☐	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☐	☒
f) Change substantially the topography or any unique geologic or physical features of the site?	☐	☐	☒	☐	☐
g) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐	☐

The project site would be connected to the City's existing sewer system and would not require use of septic systems. Therefore, Topic 13.e would not be applicable to the project site.

The analysis in this section is based, in part, on the Geotechnical Investigations prepared for the proposed project.[75] The project site is underlain by three to four feet of soil overlying chert bedrock. The soil is characterized as very stiff, lean clay at one boring location, and very stiff, silty clayey sand overlying sandy lean clay at another boring location. Groundwater was not encountered at the maximum boring depth of five feet. The proposed project includes a maximum depth of excavation of ten feet for installation of the spread footing foundations for the proposed residences.

Impact GE-1: The proposed project would not result in exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic groundshaking, liquefaction, lateral spreading, or landslides. ***(Less-Than-Significant Impact)***

The project site is not located within an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act and no known or potentially active fault exists on the site.[76] No active faults have been mapped on the project site by the United States Geological Survey (USGS) or the California Geological Survey (CGS).[77] In a seismically active area, such as the San Francisco Bay Area, the possibility exists for future faulting in areas where no faults previously existed. However, since faults with known surface rupture have been mapped in California, and no evidence of active faulting on the site has been found, the potential for impacts to the proposed project due to fault rupture are less than significant.

However, although the project site is not located within a seismic hazard zone, it may be subject to ground shaking in the event of an earthquake on regional fault lines like the entire San Francisco Bay Area would.[78] The site is located approximately six miles northeast of the San Andreas Fault. The

[75] H. Allen Gruen, Geotechnical Engineer, Geotechnical Investigation, Planned Development at 3516 Folsom Street, San Francisco, California, August 3, 2013. H. Allen Gruen, Geotechnical Engineer, Geotechnical Investigation, Planned Development at 3526 Folsom Street, San Francisco, California, August 3, 2013.

[76] California Department of Conservation, California Geological Survey, Alquist-Priolo Fault Zones in Electronic Format, 2010. This document is available for review at www.quake.ca.gov/gmaps/ap/ap_maps.htm

[77] U.S. Geological Survey and California Geological Survey, Quaternary Fault and Fold Database for the United States, 2010. This document is available for review at www.earthquake.usgs.gov/hazards/qfaults .

[78] California Division of Mines and Geology, State of California Seismic Hazard Zones, City and County of San Francisco Official Map, November 17, 2000. This document is available for review at gmw.consrv.ca.gov/ shmp/download/pdf/ozn_sf.pdf.

2007 Working Group on California Earthquake Probabilities estimates that there is a 63 percent chance that a magnitude 6.7 or greater earthquake will occur in the San Francisco Bay Area within 30 years. The Association of Bay Area Governments (ABAG) has classified the Modified Mercalli Intensity Shaking Severity Level of ground shaking in the project vicinity due to an earthquake on the North Golden Gate segment of the San Andreas Fault System as "VIII-Very Strong."[79] Therefore, it is likely that the site would experience periodic minor or major earthquakes associated with a regional fault, resulting in strong to very strong ground shaking.

Ground shaking associated with an earthquake on one of the regional faults around the project site may result in ground failure, such as that associated with soil liquefaction, lateral spreading, and differential compaction. The project site does not lie within a liquefaction potential zone as mapped by the California Division of Mines and Geology, and borings at the site indicate that the liquefaction potential at the site is low. Because the project site's liquefaction potential is low, lateral spreading would be unlikely to occur. Risks associated with liquefaction and differential compaction would be reduced with implementation of standard building engineering and design measures.

As shown on the official State of California Seismic Hazards Zone Map for San Francisco prepared under the Seismic Hazards Mapping Act of 1990,[80] the project site is not located within an area subject to landslides (see Map 5 of the Community Safety Element). Therefore, the proposed project would result in Less Than Significant landslide-related impacts.

Given the above, the proposed project would not result in exposure of people or structures to potential substantial adverse effects, nor would it aggravate existing seismic hazards, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic groundshaking, liquefaction, lateral spreading, or landslides. This impact would be less than significant and no mitigation measures would be required.

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[79] Association of Bay Area Governments, Earthquake Shaking Hazard Map, San Francisco Scenario, North Golden Gate Segment of the San Andreas Fault System, 2003. This document is available for review at resilience.abag.ca.gov/earthquakes and at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Case File No. 2015-011274ENV.

[80] The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This Act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones.

Impact GE-2: The proposed project would not result in substantial loss of topsoil or erosion. *(Less-Than-Significant Impact)*

The proposed project is currently underdeveloped, and is covered with pervious surf top soil. Although excavation would occur as part of the proposed project, compliance with the City's Construction Site Water Pollution Prevention Program[81] would require the project sponsor to prepare and implement an erosion and sediment-control plan subject to review by the City. Compliance with this regulation would reduce and control site runoff during construction activities and reduce the potential for erosion to a Less Than Significant level. No mitigation measures would be required and the effect is Less Than Significant.

Impact GE-3: The proposed project would not be located on a geologic unit that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. *(Less-Than-Significant Impact)*

The project site and vicinity do not include any hills or cut slopes that could cause or be subject to a landslide. Temporary slopes would be necessary during site excavations. If excavations undermine or remove support from the existing and adjacent structures, it may be necessary to underpin those structures. The final design of the foundation system would be included in a design-level geotechnical investigation that is based on site-specific data in accordance with building code requirements. According to the Geotechnical Investigation, soils at the site are capable of supporting a conventional spread footing foundation in accordance with industry standards and building code requirements. Drilled piers may also be utilized to support the foundation or for shoring and underpinning. Excavation activities would require the use of shoring and underpinning in accordance with the recommendations of the geotechnical report and *San Francisco Building Code* requirements. Groundwater is not anticipated to be encountered during excavation and grading activities.

[81] San Francisco Municipal Code (Public Works Code) Part II. Chapter 10. Article 4.1. 40 GF Section 403.

Adherence to San Francisco Building Code requirements would ensure that the project applicant include analysis and avoidance of any potential impacts related to unstable soils as part of the design-level geotechnical investigation prepared for the proposed project; therefore, any potential impacts related to unstable soils would be less than significant and no mitigation measures would be required.

Impact GE-4: The proposed project could be located on expansive soil, as defined in the California Building Code, but would not create substantial risk to life or property. ***(Less-Than-Significant Impact)***

Expansive soils expand and contract in response to changes in soil moisture, most notably when near surface soils vacillate between a saturated, low-moisture, and a saturated, high-moisture content condition. The presence of expansive soils is typically determined based on site specific data. As noted above, the site is underlain by firm to very stiff, sandy lean clay as well as firm to hard, lean clay with varying amounts of sand. Expansive soils may be encountered at the site; the San Francisco Building Code includes a requirement that the project applicant include analysis of the potential for soil expansion as part of the design-level geotechnical investigation prepared for the proposed project. Compliance with existing building code requirements (which the design-level geotechnical report would be required to comply with), would ensure that any potential impacts related to expansive soils would be less than significant. No mitigation measures would be required and the effects of the proposed project would be Less Than Significant.

Impact GE-5: The proposed project would not substantially change the topography of the site or any unique geologic or physical features of the site. ***(Less-Than-Significant Impact)***

The project site is located on a steep slope of approximately ~~28~~ 33 percent. Although minor excavations would be required to support the building foundation, the proposed project would follow the recommendations in the geotechnical report and have Less-Than-Significant Impacts with respect to alterations to topographical features. The hillside would remain intact and the proposed project would be required to follow the City's stormwater management requirements for the new construction and the roadway extension to provide adequate drainage to the site. The proposed project would not include any work that would significantly alter the grade of the hillside or the

character of the project site as part of a hillside residential area Structures in the immediate vicinity of the proposed project are similarly built into the hillside. This impact would be less than significant and no mitigation measures would be required.

Impact GE-6: The proposed project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. *(Less-Than-Significant Impact)*

Paleontological resources include fossilized remains or traces of animals, plants, and invertebrates, including their imprints, from a previous geological period. Collecting localities and the geologic formations containing those localities are also considered paleontological resources as they represent a limited, non-renewable resource and once destroyed, cannot be replaced.

The project site is underlain by fill and sandy to clayey soils on top of chert bedrock. The likelihood of discovery of paleontological resources or unique geological features as a result of the proposed project is low. Therefore, there would be a Less-Than-Significant Impact and no mitigation measures would be required.

Impact C-GE-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would not result in a cumulative impact related to geology and soils. *(Less-Than-Significant Impact)*

The proposed project would result in Less-Than-Significant Impacts related to topographical features and risk of injury or death involving landslides. Impacts related to rupture of an earthquake fault, seismic ground shaking or ground failure, unstable soil, or the loss of top soil would be less than significant. Impacts to paleontological resources and geologic features would also be less than significant. Geology and soils impacts are generally site-specific and localized and do not have cumulative effects with other projects. These impacts are specific to the project and would not combine with similar impacts associated with past, present, and reasonably foreseeable future projects in the site vicinity. These impacts would be less than significant and no mitigation measures would be required.

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
14.	**HYDROLOGY AND WATER QUALITY— Would the project:**					
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion of siltation on- or off-site?	☐	☐	☒	☐	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☒	☐	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	☐	☐	☐	☐	☒
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☐	☒
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☐	☒
j)	Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☐	☒

The project is located well inland from both the San Francisco Bay and the Pacific Ocean, and is not subject to seiche or potential inundation in the event of a levee or dam failure or tsunami occurring

along the San Francisco coast (Maps Five, Six and Seven of the Community Safety Element of the General Plan). [82] In addition, the developed area of the project site would not be subject to mudflow. Therefore, Topic 14.j does not apply. The project site is also not located within a 100-year flood hazard area designated on the City's interim floodplain map, and would not place housing or structures within a 100-year flood hazard area that would impede or redirect flood flows.[83] Therefore, Topics 14.g, 14.h, and 14.i are also not applicable.

Impact HY-1: The proposed project would not violate water quality standards or otherwise substantially degrade water quality. ***(Less-Than-Significant Impact)***

Wastewater and stormwater flows generated on the project site flow into the City's combined sewer system and into the Southeast Water Pollution Control Plant, where they are treated prior to discharge into San Francisco Bay. Treatment is undertaken consistent with the effluent discharge standards established by the plant's National Pollutant Discharge Elimination System (NPDES) permit. In accordance with the permit, discharges of treated wastewater and stormwater into San Francisco Bay meet the requirements of the Clean Water Act, Combined Sewer Overflow Control Policy, and associated State requirements in the Water Quality and Control Plan for the San Francisco Bay Basin and do not violate water quality standards.

The construction and operation of two single-family homes, built consistent with the Planning Code and Building Code, in a residential area would not be expected result in wastewater or stormwater flows that would degrade water quality nor violate water quality standards. This impact would be less than significant and no mitigation measures would be required.

Impact HY-2: The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. ***(Less-Than-Significant Impact)***

[82] San Francisco, City and County of, *San Francisco General Plan, Community Safety Element*, April 2007. This document is available for review at the Planning Department in Case File No. 2011.0409E.

[83] FEMA Preliminary Flood Insurance Rate Map, 2016. Available online at: sfgsa.org/sites/default/files/Document/SF_NE.pdf.

The proposed project includes the construction of two single family homes and street improvements to serve those homes. The proposed project does not include any elements that would tap into, or remove, existing ground water. The two residential units would be constructed consistent with the Building Code and any subsequent street improvement would be required to include design elements to minimize impervious surfaces and to not interfere with groundwater recharge. Existing city regulations would ensure that the project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. This impact would be less than significant and no mitigation measures would be required.

Impact HY-3: The proposed project would not result in altered drainage patterns that would cause substantial erosion or flooding. ***(Less-Than-Significant Impact)***

The project site is currently an unimproved hillside and stormwater flows are currently uncontrolled. The proposed project would include drainage elements that would control stormwater runoff and direct it into the City's combined stormwater/sewer system. The proposed project would be required to comply with SFPUC's Stormwater Management Requirements and Design Guidelines, which include meeting specific performance measures for impervious surfaces and stormwater run-off rate, the approval of a Preliminary Stormwater Control Plan before receiving a Site or Building Permit, and the approval of a Final Stormwater Control Plan before receiving the Certificate of Final Completion.[84] Therefore, the proposed project would not be expected to result in substantial erosion or flooding associated with changes in drainage patterns. This impact would be less than significant and no mitigation measures would be required.

Impact HY-4: The proposed project would not contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. ***(Less-Than-Significant Impact)***

[84] San Francisco Public Utilities Commission, *How Do I Comply with the Stormwater Management Requirements*, http://sfwater.org/index.aspx?page=1006. Accessed: May 25, 2017.

During operation of the proposed project, all wastewater and stormwater runoff from the project site would be treated at the Southeast Water Pollution Control Plant. Treatment would be provided pursuant to the effluent discharge standards contained in the City's NPDES permit for the plant. During construction and operation, the proposed project would be required to comply with all local wastewater discharge and water quality requirements, which would ensure that all stormwater generated by the proposed project is managed on-site such that the project would not contribute additional volumes of polluted runoff to the City's stormwater infrastructure. Therefore, the proposed project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. As such, this impact would be less than significant, and no mitigation measures would be required.

Impact C-HY-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would result in Less Than Significant cumulative impacts to hydrology and water quality. ***(Less-Than-Significant Impact)***

As stated above, the proposed project would result in no impacts or Less-Than-Significant Impacts related to water quality, groundwater levels, alteration of drainage patterns, capacity of drainage infrastructure, 100-year flood zones, failure of dams or levees, and/or seiche, tsunami, and/or mudflow hazards. The proposed project would adhere to the same water quality and drainage control requirements that apply to all land use development projects in San Francisco. Since all development projects would be required to follow the same drainage, dewatering and water quality regulations, peak stormwater drainage rates and volumes for the design storm would gradually decrease over time with the implementation of new, conforming development projects. Thus, no substantial adverse cumulative effects with respect to drainage patterns, water quality, stormwater runoff, or stormwater capacity of the combined sewer system would occur.

Further, San Francisco's limited use of groundwater would preclude any significant adverse cumulative effects to groundwater levels, and the proposed project would not contribute to any cumulative effects with respect to groundwater. In general, hazards related to 100-year flood zones, failure of dams or levees, and/or seiche, tsunami, and/or mudflows are extremely unusual and are not considered to be substantive impacts in San Francisco such that any cumulative significant impacts would be anticipated, particularly in the interior areas of the city where the project site is located.

Given that cumulative impacts are not anticipated since all development projects would be required to follow the same drainage, dewatering and water quality regulations as the proposed project, the proposed project would not contribute to any such cumulative effects. Thus, cumulative hydrology and water quality impacts would be less than significant and no mitigation measures would be required.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
15. HAZARDS AND HAZARDOUS MATERIALS—Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐	☐
h) Expose people or structures to a significant risk of loss, injury or death involving fires?	☐	☐	☒	☐	☐

The project site is not located within an airport land use plan area or in the vicinity of a private airstrip. Therefore, Questions 15.e and 15.f are not applicable.

As discussed above under Impact NO-3, construction of the proposed project would result in ground vibration that could potentially affect the integrity of PG&E's gas Pipeline 109. The discussion above describes those impacts and sets forth vibration-related mitigation measures to reduce those potential impacts to less than significant.

Impact HZ-1: The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. ***(Less-Than-Significant Impact)***

Construction activities would require the use of limited quantities of hazardous materials such as fuels, oils solvents, paints, and other common construction materials. The City would require the project sponsor and its contractor to implement Best Management Practices (BMPs) as part of their construction activities, including hazardous materials management measures, which would reduce the hazards associated with short-term construction-related transport, and use and disposal of hazardous materials to Less Than Significant levels.

The proposed project's residential uses would involve the use of relatively small quantities of hazardous materials such as cleaners and disinfectants for routine purposes. These products are labeled to inform users of potential risks and to instruct them in appropriate handling procedures. Most of these materials are consumed through use, resulting in relatively little waste. For these reasons, the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. This impact would be less than significant and no mitigation measures would be required.

Impact HZ-2: The proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable conditions involving the release of hazardous materials into the environment. ***(Less-Than-Significant Impact)***

The project site is not currently located in a Maher Area, meaning that it is not known or suspected to contain contaminated soils and/or groundwater.[85] Based on mandatory compliance with existing regulatory requirements, the proposed project would not result in a significant hazard to the public or environment from contaminated soil and/or groundwater, asbestos, or lead-based paint, and the proposed project would result in a Less-Than-Significant Impact with respect to these hazards and no mitigation would be required.

Impact HZ-3: The proposed project would not result in hazardous emissions or in the handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 of a mile of an existing school. *(Less-Than-Significant Impact)*

There are no schools within a quarter-mile of the project site. As such, the proposed project would have a Less-Than-Significant Impact related to hazardous emissions or the handling of hazardous materials within a quarter mile of a school and this impact would be less than significant.

Impact HZ-3: The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and the proposed project would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. *(Less-Than-Significant Impact)*

The project site is not included on a list of hazardous materials sites compiled by the California Department of Toxic Substance Control pursuant to Government Code Section 65962.5 and, as previously discussed, the project site is not located in a Maher Area. As such, the proposed project is not included on a list of hazardous materials sites and the proposed project would not result in the accidental release of hazardous materials into the environment. This impact would be less than significant and no mitigation measures would be required.

[85] San Francisco Planning Department, Expanded Maher Map Area, March 2015. This document is available for review at: www.sf-planning.org/ftp/files/publications_reports/library_of_cartography/Maher%20Map.pdf.

Impact HZ-4: The proposed project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan and would not expose people or structures to a significant risk of loss, injury, or death involving fires. *(Less-Than-Significant Impact)*

The proposed project would develop residential uses on an existing "paper street' segment of Folsom Street and would not alter the existing street grid. The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The City requires that existing and new buildings meet fire safety standards through compliance with the applicable provisions of the Building Code and Fire Code. Therefore, the proposed project's compliance with Building Code and Fire Code requirements would result in a Less-Than-Significant Impact related to the exposure of persons or structures to fire risks.

Impact C-HZ-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would result in Less Than Significant cumulative impacts related to hazards and hazardous materials. *(Less-Than-Significant Impact)*

Hazards-related impacts are generally site-specific and typically do not combine with impacts from other planned and foreseeable projects to result in significant cumulative impacts. New developments in the vicinity of the project site would be subject to similar regulatory requirements and mitigation measures as the proposed project. Therefore, large, unexpected releases of hazardous materials of the type that would contribute to significant cumulative impacts are not expected. Compliance with existing regulations pertaining to the treatment and management of hazardous materials would ensure that the proposed project would not make a significant cumulative contribution to the release of hazardous materials. Therefore, cumulative hazards impacts would be less than significant and no mitigation would be required.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
16. MINERAL AND ENERGY RESOURCES— Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☐	☒
c) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	☐	☐	☒	☐	☐

All land in the City of San Francisco, including the project site, is designated by the CGS as Mineral Resource Zone Four (MRZ-4) under the Surface Mining and Reclamation Act of 1975. The MRZ-4 designation indicates that adequate information does not exist to assign the area to any other MRZ; thus, the area is not designated to have significant mineral deposits. The area surrounding the project site has previously been developed, and future evaluations of the presence of minerals at this site would therefore not be affected by the proposed project. Further, the development and operation of the proposed project would not have an impact on any off-site operational mineral resource recovery sites. Therefore, Topics 16.a and 16.b are not applicable to the proposed project.

Impact ME-1: The proposed project would not encourage activities which would result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner. ***(Less-Than-Significant Impact)***

Development of new residential uses as part of the proposed project would not result in the consumption of large amounts of fuel, water, or energy. As two new buildings in San Francisco, the proposed project is required to conform to energy conservation standards specified by the San Francisco Building Code, including the San Francisco Green Building Ordinance. The measures required by the San Francisco Green Building Ordinance are intended to reduce greenhouse gas emissions associated with new construction and rehabilitation activities, increase energy efficiency, reduce water use, and realize other environmental gains. Compliance with the San Francisco Green Building Ordinance would reduce the use of energy and water by the proposed project.

Based on the above information, the proposed project would not result in the consumption of large amounts of fuel, water, or energy. This impact would be less than significant and no mitigation measures would be required.

Impact C-ME-1: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would result in Less Than Significant cumulative impacts to minerals and energy. ***(Less-Than-Significant Impact)***

As described above, no known mineral resources exist at the project site, and therefore the proposed project would not contribute to any cumulative impacts related to mineral resources. Compliance with current State and local standards regarding energy consumption and conservation, including Title 24 of the California Code of Regulations and the San Francisco Green Building Ordinance, would ensure that the project would not in and of itself require a major expansion of power facilities. Therefore, the energy demand associated with the proposed project would result in a Less Than Significant physical environmental effect. The proposed project would not contribute to cumulatively considerable impacts related to energy and natural resources. Overall, the proposed project would not result in cumulatively considerable impacts related to mineral and energy resources. This impact would be less than significant and no mitigation measures would be required.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less-Than-Significant Impact*	*No Impact*	*Not Applicable*
17. AGRICULTURE AND FOREST RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **—Would the project:**					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐	☒

c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined by Public Resources Code Section 4526)?	☐	☐	☐	☐	☒
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	☒
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use?	☐	☐	☐	☐	☒

The project site is located within an urbanized area of San Francisco. No land in San Francisco County has been designated by the California Department of Conservation's Farmland Mapping and Monitoring Program as agricultural land. The project site does not contain agricultural uses and is not zoned for such uses. As such, the proposed project would not require the conversion of any land designated as prime farmland, unique farmland, or Farmland of Statewide Importance to non-agricultural use. The proposed project would not conflict with any existing agricultural zoning or Williamson Act contracts and the California Department of Conservation designates the project site as "Urban and Built-Up Land." No land in San Francisco is designated as forest land or timberland by the State Public Resource Code. Therefore, the proposed project would not conflict with zoning for forest land, cause a loss of forest land, or convert forest land to a different use. For these reasons, Topics 17.a, 17.b, 17.c, 17.d, and 17.e are not applicable to the proposed project.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact	Not Applicable
18. MANDATORY FINDINGS OF SIGNIFICANCE—Would the project:					
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐	☐
b) Have impacts that would be individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐	☐

a) As discussed, the proposed project is anticipated to have Less-Than-Significant Impacts or Less-Than-Significant Impacts with mitigation incorporated on the environmental topics identified in this Initial Study.

b) The proposed project in combination with past, present and foreseeable projects as described in Section E, would not result in cumulative impacts to land use, population and housing, cultural resources, transportation and circulation, noise and vibration, air quality, wind and shadow, GHG emissions, recreation, utilities and service systems, public services, biological resources, geology and soils, hydrology and water quality, hazards and hazardous materials, mineral and energy resources, and agricultural and forest resources.

c) The proposed project with mitigation incorporated, as discussed above, would not result in significant adverse impacts on human beings, either directly or indirectly.

I. MITIGATION MEASURES

The following mitigation measure has been identified to reduce potentially significant environmental impacts resulting from the proposed project to Less Than Significant levels.

Mitigation Measure M-NO-3, Vibration Management ~~Plan~~:

The project sponsor shall implement all recommendations included in the Vibration Monitoring Plan approved by PG&E on November 13, 2018 and the Planning Department on March 17, 2020. These recommendations include the following.

The project sponsor shall monitor vibration levels continuously during construction. Prior to construction activities, the monitoring equipment shall be installed and checked for proper operation and connectivity to the internet by the project sponsor and by PG&E. After the installation is verified, pre-construction vibration levels will be monitored for a week, if the schedule allows. The project sponsor shall install two geophones (devices used for detecting vibration through rocks, soil or ice) approximately 6 inches away from Pipeline 109, to the depth of the pipeline, positioned to the west side of the pipeline toward the construction site. The project sponsor shall maintain these monitoring locations throughout the construction activities of concern: building foundation excavation, utility trenching, and the street extension. The output of these geophones shall be transmitted to two battery powered vibration loggers (Instantel MiniMate Plus seismographs or equivalent). The project sponsor shall house this equipment in two 30x16x12 inch metal containers which will be secured appropriately on the site and placed at a distance such as not to interfere with construction activities. The Peak Particle Velocity (PPV) will be logged in 10-second intervals for comparison to the 2.0 in/sec limit.

The project sponsor shall install warning lights on the equipment boxes, programmed to illuminate if the level reaches 2.0 in/sec. Additionally, the project sponsor shall connect each project seismograph to a wireless data modem which shall send an alert to pre-determined cell phones or email addresses in case the vibration limit is reached. These alerts shall go to Illingworth & Rodkin, Inc. (I&R) personnel assigned to the project, the on-site construction manager or other persons authorized to halt construction activities, and any other personnel authorized by the project manager. Using this system, the monitoring will be typically unattended.

A project team technician shall check the vibration monitoring equipment on a weekly basis, and equipment battery replacement and other maintenance shall be completed at this time. All project seismographs shall be programmed to complete a daily self-check of the geophone response

during non-construction hours. The levels collected for the week shall be reviewed by I&R personnel to determine if levels are approaching the threshold.

If the level of construction vibration reaches 2.0 in/sec, construction shall be halted. The construction manager (or designee) shall attempt to identify the construction activity responsible. If necessary, I&R personnel will assist in this identification on-site.

~~The Project Sponsor shall retain the services of a qualified structural engineer to develop, and the Project Sponsor shall adopt, a vibration management and continuous monitoring plan to cover any construction equipment operations performed within 20 feet of PG&E Pipeline 109. The vibration management and monitoring plan shall be submitted to PG&E and Planning Department staff for review and approval prior to issuance of any construction permits. The vibration management plan shall include:~~

- ~~**Vibration Monitoring**: Continuous vibration monitoring throughout the duration of the major structural project activities to ensure that vibration levels do not exceed the established standard.~~

Maximum PPV Vibration Levels: Maximum PPV vibration levels for any equipment shall be less than 2 inches per second (in/sec). Should maximum PPV vibration levels exceed 2 in/sec, all construction work shall stop, and PG&E shall be notified to oversee further work.

Work Beyond 10 Feet of Pipeline 109: Whenever construction would occur on-site beyond 10 feet of Pipeline 109, the on-site Project Manager shall manage the vibration monitoring equipment. If the vibration monitoring equipment indicates vibration levels above 2 in/second, the Project Manager shall stop all construction activity. The Project Manager or their agent would then contract the PG&E pipeline engineer responsible for the San Francisco area (at the time of publication of this PMND, Elpinike Pappous). If a gas leak is detected, the project manager (or the PG&E pipeline engineer, if present) would call Gas Control at 1-800-811-4111. Gas Control would communicate with SFFD and SFPD as well as other first responders. In addition, PG&E leak survey personnel would be deployed to survey the pipeline in the immediate vicinity of the vibration. Response time would be a maximum of 3 hours and the survey would be completed within the same business day. In the event of any work stoppage, work would only resume when PG&E informs the project sponsor.

Standby Inspection for Work Within 10 Feet of Pipeline 109: A PG&E Gas Transmission Standby Inspector must be present during any demolition or construction activity within 10 feet of the gas pipeline(s). This includes all grading, trenching, gas line depth verifications (potholes), asphalt or concrete demolition/removal, removal of trees, signs, light poles, etc. This inspection would be coordinated through the Underground Service Alert (USA) service at **811 or 1-800-227-2600**. A minimum notice of 48 hours is required. If vibration levels exceed 2 inches per second, the PG&E inspector would ensure that all construction activity ceases and call the PG&E pipeline engineer responsible for the SF area (Elpinike Pappous, 925-872-1027, or authorized agent).

For any gas-related emergencies, such as leaks, the contractor would call Gas Control at 1-800-811-4111 (if the PG&E Inspector is present, the inspector would call Gas Control). Gas Control would then communicate with the San Francisco Fire Department (SFFD) and the San Francisco Police Department (SFPD), as well as other first responders. PG&E leak survey personnel would be deployed to survey the pipeline in the immediate vicinity of the vibration to verify that damage had not occurred. Response time would be a maximum of 3 hours and the survey would be completed within the same business day. Work can only resume with PG&E authorization.

Grading/Excavation: Any excavations, including grading work, above or around Pipeline 109 must be performed with a PG&E inspector present. This includes all laterals, subgrades, and gas line depth verifications (potholes). Work in the vicinity of Pipeline 109 must be completed consistent with PG&E Work Procedure TD-4412P-05 "Excavation Procedures for Damage Prevention." Any plans to expose and support Pipeline 109 across an open excavation must be approved by PG&E Pipeline Engineering in writing prior to performing the work. Any grading or digging within two (2) feet of Pipeline 109 shall be dug by hand. Water jetting to assist vacuum excavating must be limited to 125 pounds per square inch gage (psig).

Pipeline Markers: Prior to the commencement of project activity, pipeline markers must be placed along the pipeline route. With written PG&E approval, any existing markers can be temporarily relocated to accommodate construction work, but must be reinstalled once construction is complete.

Fencing: No parallel fencing is allowed within 10 feet of Pipeline 109 and any perpendicular fencing shall require 14 foot access gates to be secured with PG&E corporation locks.

Structures: Permanent structures must be located a minimum distance of 10 feet from the edge of Pipeline 109. A total width of 45 feet shall be maintained for pipeline maintenance. No storage of construction or demolition materials is permitted within this 45 foot zone.

Construction Loading: To operate or store any construction equipment within 10 feet of Pipeline 109 that exceeds the half-axle wheel load (half axle weight is the gross weight upon any one wheel, or wheels, supporting one end of an axle) in the table below, approval from a PG&E gas transmission pipeline engineer is required. Pipeline 109 may need to be potholed by hand in to confirm the depth of the existing cover. These weight limits also depend on the support provided by the Pipeline's internal gas pressure. If PG&E's operating conditions require the Pipeline to be depressurized, maximum wheel loads over the pipeline will need to be further limited. For compaction within two feet of Pipeline 109, walk-behind compaction equipment shall be required. Crane and backhoe outriggers shall be set at least 10 feet from the centerline of Pipeline 109. Maximum PPV vibration levels for any equipment shall be less than 2 in/sec.

Depth of Cover to Top of Pipe (ft.)	Maximum Half-Axle Wheel Loading (lbs)
2	4,580
3	6,843
4	7,775
5	7,318

<u>At all times, the project sponsor shall:</u>

- <u>Ensure that trained personnel, knowledgeable about emergency procedures, be on-site during all project work.</u>
- <u>Comply with all CalOSHA regulations regarding shoring and excavation.</u>

- Comply with all City and County of San Francisco regulations regarding shoring and excavation.
- Remove all combustible scrap and debris at regular intervals during the course of construction.
- Prohibit smoking on the jobsite and in the vicinity of operations including the posting of "No Smoking or Open Flame" signs.
- Keep the storage site free of the accumulation of unnecessary combustible materials.
- Ensure that all materials are stored, handled, and piled with due regard to their fire characteristics.
- Ensure that noncompatible materials, which may create a fire hazard, be segregated by a barrier having a fire resistance of at least 1 hour.
- Ensure that material would be piled to minimize the spread of fire internally and to permit convenient access for firefighting.

J. PUBLIC NOTICE AND COMMENT

~~This Mitigated Negative Declaration has been prepared by the Planning Department pursuant to the Department's rescinding of a July 8, 2016 Categorical Exemption determination to allow for further analysis of potential environmental impacts. The Categorical Exemption was rescinded prior to a scheduled CEQA appeal hearing before the Board of Supervisors in December 2016. The Appellants included individual neighbors and nearby neighborhood organizations, and supporters of the appeal included dozens of individuals, the Sierra Club, and the Bernal Heights Democratic Club. The proposed project was also the subject of Discretionary Review requests by nine individuals and two neighborhood organizations, with the support of neighbors and organizations similar to those supporting the CEQA appeal.~~

~~In the course of both the Discretionary Review process and the appeal filed on the July 2016 Categorical Exemption, public comments included concerns about the appropriateness of a Categorical Exemption for the proposed project due to the unique nature of the project site; concerns about cumulative impacts of the development of the remaining lots; concerns about the integrity and safety of PG&E Pipeline 109; emergency access; traffic; and public vistas.~~

~~As a result of these public comments, the Planning Department decided to rescind the Categorical Exemption and issue a Mitigated Negative Declaration for the proposed project to ensure that potential environmental impacts to these and other resource areas are properly analyzed, and mitigations instituted, if appropriate.~~

Notice of the availability of this Revised FMND has been sent to all who commented on the June 15, 2017 MND. Consistent with San Francisco Board of Supervisors motion M17-152 (Legislative File Number 171022), passed at their meeting of September 26, 2017, comments on this Revised FMND shall be limited to those sections of this Revised FMND that were amended pursuant to the Board's direction, which are shown as deletions in ~~strikethrough~~ and additions in double underline, for ease of reference.

K. DETERMINATION

On the basis of this Initial Study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

3/25/2020

DATE

Lisa Gibson

Lisa Gibson
Environmental Review Officer
for
Rich Hillis ~~John Rahaim~~
Director of Planning

L. INITIAL STUDY PREPARERS

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PROJECT SPONSOR

Bluorange Designs
Project Sponsor: Fabien Lannoye

Leak, Hazard, and Emergency Response

	Natural Gas	Petroleum Gas	Petroleum Liquids	Anhydrous Ammonia	Carbon Dioxide	Ethanol	Hydrogen Gas	Sour Gas (H2S)	Sour Crude Oil (H2S)	Liquids & Natural Gas
INDICATIONS OF A LEAK										
See - liquid pooling on the ground			X			X			X	X
See - a white vapor cloud that may look like smoke		X		X	X					
See - fire coming out of or on top of the ground	X	X					X	X		X
See - dirt blowing from a hole in the ground	X	X		X	X		X	X		X
See - a sheen on the surface of water		X	X						X	X
See - an area of frozen ground in the summer	X	X		X	X		X	X		X
See - an unusual area of melted snow in the winter	X	X			X		X	X		X
See - an area of dead vegetation	X	X	X	X	X	X	X	X	X	X
See - bubbling in pools of water	X	X		X	X		X	X		X
Hear - a loud roaring sound like a jet engine	X	X		X	X		X	X		X
Hear - a hissing or whistling noise	X	X		X	X		X	X		X
Smell - an odor like rotten eggs or a burnt match	(1)	(1)						X	X	(1)
Smell - an odor like petroleum liquids or gasoline		X	X			X			X	X
Smell - an irritating and pungent odor				X				X	X	
HAZARDS OF A RELEASE										
Highly flammable and easily ignited by heat or sparks	X	X	X			X	X	X	X	X
Will displace oxygen and can cause asphyxiation	X	X		X	X		X	X		X
Vapors are heavier than air and will collect in low areas		X	X	X	X	X		X	X	X
Contact with skin may cause burns, injury or frostbite		X	X	X	X	X	X	X		X
Initial odor may be irritating and deaden the sense of smell								X	X	
Toxic and may be fatal if inhaled or absorbed through skin				X				X	X	
Vapors are extremely irritating and corrosive				X				X	X	
Fire may produce irritating and/or toxic gases	X	X	X	X		X	X	X	X	X
Runoff may cause pollution			X	X		X			X	X
Vapors may form an explosive mixture with air	X	X	X			X	X	X	X	X
Vapors may cause dizziness or asphyxiation without warning	(1)	(1)			X		X	X	X	(1)
Is lighter than air and can migrate underground and into enclosed spaces	X						X			X
EMERGENCY RESPONSE										
Avoid any action that may create a spark	X	X	X			X	X	X	X	X
Do NOT start vehicles, switch lights or hang up phones	X	X	X			X	X	X	X	X
Evacuate the area on foot in an upwind and/or uphill direction	X	X	X	X	X	X	X	X	X	X
Alert others to evacuate the area and keep people away	X	X	X	X	X	X	X	X	X	X
From a safe location, call 911 to report the emergency	X	X	X	X	X	X	X	X	X	X
Call the pipeline operator and report the event	X	X	X	X	X	X	X	X	X	X
Wait for emergency responders to arrive	X	X	X	X	X	X	X	X	X	X
Do NOT attempt to operate any pipeline valves	X	X	X	X	X	X	X	X	X	X
Take shelter inside a building and close all windows				(2)	(2)			(2)	(2)	

(1) The majority of these products are naturally odorless and only certain pipeline systems may be odorized
(2) Sheltering in place is an alternative to evacuation when the products are toxic or the risk of fire is very low

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12-19-19

Appendix C

Recommended Minimum Evacuation Distances For Natural Gas Pipeline Leaks and Ruptures

(Not applicable for Butane, Propane, or other Hazardous Liquids)

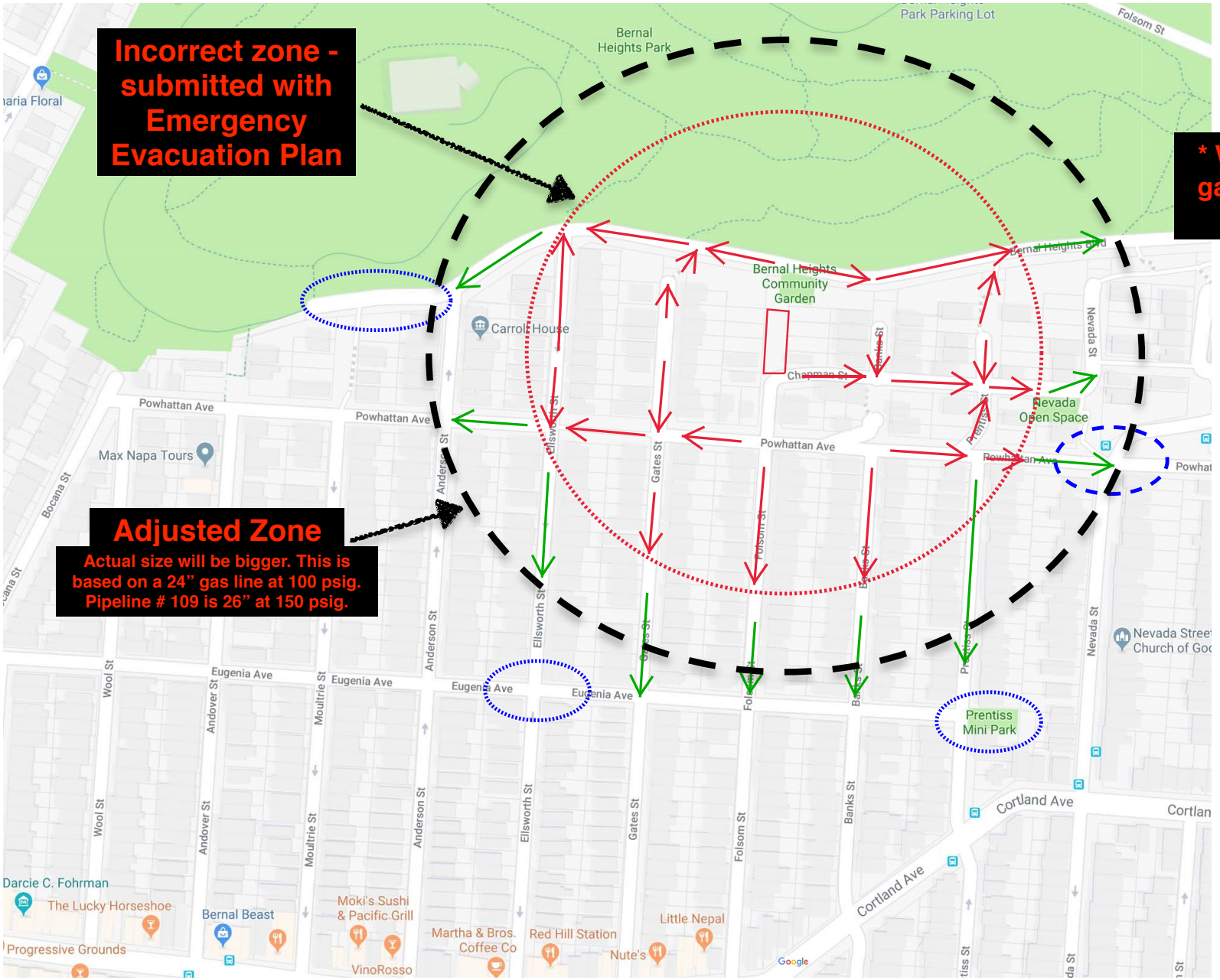
Pipeline Size (Inches)

Pressure (psig)	4	6	8	10	12	16	20	22	24	30	36	42
100	91	137	182	228	274	365	456	502	547	684	821	958
200	129	193	258	322	387	516	645	709	774	967	1161	1354
300	158	237	316	395	474	632	790	869	948	1185	1422	1659
400	182	274	365	456	547	730	912	1003	1094	1368	1642	1915
500	204	306	408	510	612	816	1020	1122	1224	1529	1835	2141
600	223	335	447	558	670	894	1117	1229	1340	1675	2011	2346
700	241	362	483	603	724	965	1206	1327	1448	1810	2172	2534
800	258	387	516	645	774	1032	1290	1419	1548	1935	2322	2709
900	274	410	547	684	821	1094	1368	1505	1642	2052	2462	2873
1000	288	433	577	721	865	1154	1442	1586	1730	2163	2596	3028
1100	302	454	605	756	907	1210	1512	1664	1815	2269	2722	3176
1200	316	474	632	790	948	1264	1580	1738	1896	2369	2843	3317
1300	329	493	658	822	986	1315	1644	1809	1973	2466	2959	3453
1400	341	512	682	853	1024	1365	1706	1877	2047	2559	3071	3583
1500	353	530	706	883	1060	1413	1766	1943	2119	2649	3179	3709
1600	365	547	730	912	1094	1459	1824	2006	2189	2736	3283	3830
1700	376	564	752	940	1128	1504	1880	2068	2256	2820	3384	3948
1800	387	580	774	967	1161	1548	1935	2128	2322	2902	3482	4063
1900	398	596	795	994	1193	1590	1988	2186	2385	2981	3578	4174
2000	408	612	816	1020	1224	1631	2039	2243	2447	3059	3671	4283
2100	418	627	836	1045	1254	1672	2090	2299	2508	3134	3761	4388
2200	428	642	856	1069	1283	1711	2139	2353	2567	3208	3850	4492

Table 1 – Evacuation Distance in Feet

The applicable leak or rupture condition is that of a sustained trench fire fueled by non-toxic natural gas escaping from two full bore pipe ends. Blast overpressure is not addressed. The distances shown in Table 1 are intended to provide protection from burn injury and correspond to a thermal heat flux exposure level of 450 Btu/hr ft2. This is the accepted limit of heat exposure for unprotected outdoor areas where people congregate; as established by the US Department of Housing & Urban Development Code 24CFR51, Subpart C, Siting of HUD Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature. The formula used to calculate distance was taken from the Gas Research Institute Report GRI-00/0189, A Model for Sizing High Consequence Areas Associated with Natural Gas Pipelines, 2001, prepared by C-FER Technologies. The formula is: square root of pressure x nominal pipe size x 2.28. That model does not take into account wind or other factors which may greatly influence specific conditions. Users are advised that the distances shown in Table 1 are considered to be "general information" only and are not intended to replace a site specific risk analysis. The Pipeline Association for Public Awareness makes no warranty with respect to the usefulness of this information and assumes no liability for any and all damages resulting from its use. Anyone using this information does so at their own risk.

Incorrect size of Evacuation Zone *



EVACUATION ROUTES

* Wind and down hill flow of gas will impact the shape of this evacuation map.

300' RADIUS AREA

EVACUATION ROUTE

SAFE AREA

SAFE GATHERING AREA

April 24, 2020

To: Clerk, SF Board of Supervisors

From: Kathy Angus
Bernal Heights So. Slope
Organization
415-690-4568 / kathyangus@comcast.net

Re: Appeal Letter for Revised
Final ~~Mitigated~~ Neg. Dec.
for
3516 & 3526 Folsom St.
Persuant to BOS M17-152

Enclosed please find a check for $1640 for the above appeal. I am also enclosing a copy of the Appeal for Fee Waiver.

All related materials & the Appeal itself were sent via email earlier today.

Contact me if you have any questions.

Bernal Heights So. Slope
Organization

Kathy Angus
[redacted]

SAN FRANCISCO CA 940
24 APR 2020 PM 5 L

Clerk, Board of Supervisors
1 Dr. Carlton B. Goodlett Place,
San Francisco, CA Room 244
94102

94102-468999

Revised Final Neg Dec Appeal

LAWRENCE J. NELSON
KATHLEEN R. ANGUS
[redacted]

11-4288-1210

7875

Date 4/24/2020

Pay To The Order Of S F Planning Dept $ 640.00

Six hundred forty ——— Dollars

Security Features Included. Details on Back.

WELLS FARGO BANK, N.A.
CALIFORNIA
WELLSFARGO.COM

For B.H. South Slope Org.
3516 & 3526 Folsom

MP

[redacted]

San Francisco Planning

BOARD OF SUPERVISORS APPEAL FEE WAIVER
FOR NEIGHBORHOOD ORGANIZATIONS

APPLICATION

Appellant's Information

Name: Kathy Angus, Co-chair

Address: St., San Francisco

Email Address: kathyangus@comcast.net

Telephone:

Neighborhood Group Organization Information

Name of Organization: Bernal Heights South Slope Organization

Address: St., San Francisco, CA

Email Address: kathyangus@comcast.net

Telephone:

Property Information

Project Address: 3516 and 3526 Folsom Street

Project Application (PRJ) Record No: 2013.12.16.4318 & 4322 Building Permit No:

Date of Decision (if any): 3/25/2020

Required Criteria for Granting Waiver

All must be satisfied; please attach supporting materials.

REQUIRED CRITERIA	YES	NO
The appellant is a member of the stated neighborhood organization and is authorized to file the appeal on behalf of the organization. Authorization may take the form of a letter signed by the President or other officer of the organization.	✓	
The appellant is appealing on behalf of an organization that is registered with the Planning Department and that appears on the Department's current list of neighborhood organizations.	✓	
The appellant is appealing on behalf of an organization that has been in existence at least 24 months prior to the submittal of the fee waiver request. Existence may be established by evidence including that relating to the organization's activities at that time such as meeting minutes, resolutions, publications and rosters.	✓	
The appellant is appealing on behalf of a neighborhood organization that is affected by the project and that is the subject of the appeal.	✓	

For Department Use Only

Application received by Planning Department:

By: _____ Date: _____

Submission Checklist:

☐ APPELLANT AUTHORIZATION ☐ CURRENT ORGANIZATION REGISTRATION ☐ MINIMUM ORGANIZATION AGE

☐ PROJECT IMPACT ON ORGANIZATION

☐ **WAIVER APPROVED** ☐ **WAIVER DENIED**

From:	BOS Legislation, (BOS)
To:	"Kathy Angus"; "clee@lubinolson.com"; "fabien@bluorange.com"; "jfogarty@sonic.net"; "colson@lubinolson.com"
Cc:	PEARSON, ANNE (CAT); STACY, KATE (CAT); JENSEN, KRISTEN (CAT); RUIZ-ESQUIDE, ANDREA (CAT); Hillis, Rich (CPC); Teague, Corey (CPC); Sanchez, Scott (CPC); Gibson, Lisa (CPC); Jain, Devyani (CPC); Navarrete, Joy (CPC); Lewis, Don (CPC); Varat, Adam (CPC); Sider, Dan (CPC); Starr, Aaron (CPC); Rodgers, AnMarie (CPC); Ionin, Jonas (CPC); Pollak, Josh (CPC); Rosenberg, Julie (BOA); Sullivan, Katy (BOA); Longaway, Alec (BOA); BOS-Supervisors; BOS-Legislative Aides; Calvillo, Angela (BOS); Somera, Alisa (BOS); Mchugh, Eileen (BOS); BOS Legislation, (BOS)
Subject:	APPELLANT SUPPLEMENTAL LETTER: Appeal of CEQA Revised Final Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street - Appeal Hearing August 11, 2020
Date:	Thursday, August 6, 2020 1:12:24 PM
Attachments:	image001.png

Greetings,

The Office of the Clerk of the Board has received the following supplemental appeal letter from Steven Viani representing on behalf of appellant Kathleen Angus and the Bernal Heights South Slope Organization, for the appeal of the CEQA Revised Final Mitigated Negative Declaration for the proposed 3516 and 3526 Folsom Street project.

Appellant Supplement Letter - August 6, 2020

I invite you to review the entire matter on our Legislative Research Center by following the links below:

Board of Supervisors File No. 200800

Best regards,

Lisa Lew
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T 415-554-7718 | F 415-554-5163
lisa.lew@sfgov.org | www.sfbos.org

(VIRTUAL APPOINTMENTS) To schedule a "virtual" meeting with me (on Microsoft Teams), please ask and I can answer your questions in real time.
Due to the current COVID-19 health emergency and the Shelter in Place Order, the Office of the Clerk of the Board is working remotely while providing complete access to the legislative process and our services.

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The Legislative Research Center provides 24-hour access to Board of Supervisors legislation, and archived matters since August 1998.

SP VIANI P.E.
2014 Equestrian Way
Pilot Hill, CA 95664
Phone: 916-952-8503
spviani@aol.com

SP VIANI P.E.

August 6, 2020

President Norman Yee
% Angela Calvillo, Clerk of the Board
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place
City Hall, Room 244
San Francisco, CA 94102

RE: Appeal of CEQA Revised Final Mitigated Negative Declaration

Planning Case No. 2013.1383ENV

BOS Motion No. M17-152

Building Permit Application Nos. 2013.12.16.4318 and 2013.12.16.4322
3516 and 3526 Folsom Street

President Yee:

I have been retained on behalf of the Appellant, Ms. Kathy Angus, Bernal Heights South Slope Organization, to provide some key concerns with the Revised Final Mitigated Negative Declaration Appeal (RFMNDA) response from Planning dated August 3, 2020. While others have concerns about a variety of key statements, my concerns are the potential negative impacts to the L109 PG&E 26 inch gas transmission pipeline, associated with evaluation of the location and elevation information and vibration associated with the specific construction equipment that will be used to construct the required improvements. These items are interrelated, but will be presented separately. All of the documents referenced were obtained from the administrative file and will not be attached to this document.

Concern 1: Evaluation of Gas Transmission Pipeline Location and Elevation Information

The location of the pipeline has been provided in relation to the property boundaries of 3516 and 3526 Folsom St. as depicted in the Westover Surveying drawing dated 12/19/17. The gas transmission pipeline was potholed and exposed in two locations, and this drawing provides a schematic representation of the pipeline with relation to the assumed location on the drawing depicting the eastern property boundary line for 3516 &

3526 Folsom St. The gas transmission pipeline was reported to be 9.5 feet east of the property line.

Drawing C1.0 dated August 2016, contained in the October 4, 2016 Discretionary Review prepared by the San Francisco Planning department depicts cross sections through various locations on Folsom St., but notably at 3516 and 3526 Folsom St, the location of the proposed buildings. Neither of the two cross-sections at the proposed building sites shows the location of the gas transmission pipeline. Moreover, without accurately established locations of the depth and location of the gas transmission pipeline on C1.0 subsequent construction approaches and their environmental impacts cannot be determined to be safe.

Drawing C1.0 has contains a centerline profile of Folsom St., including the gas transmission pipeline. Based on the drawing, it appears to depict the gas transmission pipeline in the center of the 39.5 foot wide easement for the roadway. However, in reality, the main does not run down the center line of Folsom St., rather it appears to be offset to the west of the centerline approximately 10 feet. As the road way slopes, the amount of soil cover over the gas transmission pipeline to accommodate the aggregate base, concrete roadway and asphalt concrete wearing surface will be temporarily reduced during construction. This will have the short term effect of reducing the distance between the gas transmission pipeline and the mechanical sources of construction vibrations. Moreover, the amount of base and pavement for Folsom Street, is on the order of 20 inches and thus during construction, the vibration source will be 20 inches closer than calculated.

The above concerns and issues require an in-depth evaluation of the gas transmission pipeline's location based on real location data to insure the location issues are adequately assessed to address safety concerns. In order to meet safety concerns, it would be necessary to establish the gas transmission pipeline's accurate location and depth prior to construction of Folsom St. improvements before the project is approved.

Concern 2: Evaluation of Vibration Equipment Analyzed

In the October 17, 2019 ICF report titled "*Review of Vibration Management Plan prepared for 3516-3526 Folsom Residential Construction"*, developed by Mr. David M. Buehler. Mr. Buehler reviewed the …"document entitled 3516 and 3526 Folsom Street and Folsom Street Extension Construction Vibration Management Plan prepared by Illingworth & Rodkin for technical accuracy."

The Illingworth document evaluated 4 major sources of construction vibration, they consist of:

- excavation equipment (for utility trenches)
- drilling equipment (for piers)
- hand operated jack hammer (for foundation work)
- grading equipment (for removal of topsoil)

Mr. Buehler believed the …" the assessment of the potential vibration impact to the PG&E pipeline to be technically accurate and consistent with common practice." His belief was based primarily on the authors (Illingwood & Rodkin) using conservative assumptions. However, Mr. Buehler did not perform an independent review to establish if the equipment selected was proper and appropriate for the work being performed. While the list of potential sources of vibration provided above are accurate, they are an incomplete list as there are other significant vibration that provide more vibration, such as those associated with excavation and compaction for Folsom St and the associated concrete flatwork.

The City of San Francisco has developed specifications for the street and concrete flatwork that would apply to this work which are contained in Part 2- *STREETS AND HIGHWAYS, SECTION 200 PREPARATION AND COMPACTION OF SUBGRADE* standard specifications. Some of the relevant work elements and equipment are presented below applicable to both street and flatwork construction:

1. Placement of 6 inches of aggregate base after excavation and compaction using a 3-wheeled steel tire roller weighing at least 12 tons that apply at least 325 lbs. per linear inch of rear tire width.
2. Subsequent passes to produce compaction would require oscillating equipment similar to the above that is at least 4 feet wide.
3. The next course would consist of placement of at least 6 inches of concrete base using a mechanically vibrating screed.
4. Additional asphalt layers up to 8 inches total will be required and compacted with equipment similar to that described in item 1 above.

The equipment associated with street compaction and construction was not included or analyzed in the initial Illingwood & Rodkin document or the subsequent ICF review and represents a serious source of vibration that was ignored in the analyses. Moreover, the amount of base and pavement for Folsom Street, is on the order of 20 inches thick, requires at least 20 inches of excavation, which adds further risk of impacting the gas transmission pipeline and decreases the distance between the pipeline and the construction equipment but increases the vibration because vibration intensity increases the closer the equipment gets. Given the concerns about the location of the gas transmission pipeline and proximity to Folsom Street construction, the vibration issue was not properly evaluated and poses a serious safety risk.

Conclusion

It is my considered engineering opinion, based on 43 years of experience, some of which was in San Francisco working on the Clean Water Program, that serious equipment vibration concerns were not properly addressed in this Negative Declaration process. These issues should be identified, located and carefully evaluated in a follow up process prior to approval of the permit.

If you need further information, please call me at 916-952-8503.

Sincerely,

Steven P. Viani P.E.
Civil Engineer C30965 exp. 3/31/22

From:	BOS Legislation, (BOS)
To:	"Kathy Angus"; "clee@lubinolson.com"; "fabien@bluorange.com"; "jfogarty@sonic.net"; "colson@lubinolson.com"
Cc:	PEARSON, ANNE (CAT); STACY, KATE (CAT); JENSEN, KRISTEN (CAT); RUIZ-ESQUIDE, ANDREA (CAT); Hillis, Rich (CPC); Teague, Corey (CPC); Sanchez, Scott (CPC); Gibson, Lisa (CPC); Jain, Devyani (CPC); Navarrete, Joy (CPC); Lewis, Don (CPC); Varat, Adam (CPC); Sider, Dan (CPC); Starr, Aaron (CPC); Rodgers, AnMarie (CPC); Ionin, Jonas (CPC); Pollak, Josh (CPC); Rosenberg, Julie (BOA); Sullivan, Katy (BOA); Longaway, Alec (BOA); BOS-Supervisors; BOS-Legislative Aides; Calvillo, Angela (BOS); Somera, Alisa (BOS); Mchugh, Eileen (BOS); BOS Legislation, (BOS)
Subject:	PLANNING DEPARTMENT RESPONSE: Appeal of CEQA Revised Final Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street - Appeal Hearing August 11, 2020
Date:	Monday, August 3, 2020 3:08:46 PM
Attachments:	image001.png

Greetings,

The Office of the Clerk of the Board has received the following appeal response from the Planning Department, for the appeal of the CEQA Revised Final Mitigated Negative Declaration for the proposed 3516 and 3526 Folsom Street project.

Planning Department Response – August 3, 2020

I invite you to review the entire matter on our Legislative Research Center by following the links below:

Board of Supervisors File No. 200800

Best regards,
Jocelyn Wong
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T: 415.554.7702 | F: 415.554.5163
jocelyn.wong@sfgov.org | www.sfbos.org

(VIRTUAL APPOINTMENTS) To schedule a "virtual" meeting with me (on Microsoft Teams), please ask and I can answer your questions in real time.

Due to the current COVID-19 health emergency and the Shelter in Place Order, the Office of the Clerk of the Board is working remotely while providing complete access to the legislative process and our services

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public documents that members of the public may inspect or copy.

San Francisco Planning

1650 MISSION STREET, SUITE 400
SAN FRANCISCO, CA 94103
SFPLANNING.ORG / 415.575.9010

Revised Final Mitigated Negative Declaration Appeal

3516-3526 Folsom Street

DATE:	August 3, 2020
TO:	Angela Calvillo, Clerk of the Board of Supervisors
FROM:	Lisa Gibson, Environmental Review Officer – lisa.gibson@sfgov.org Joy Navarrete, Principal Planner – joy.navarrete@sfgov.org Josh Pollak, Senior Planner – josh.pollak@sfgov.org
RE:	Planning Case No. 2013.1383ENV – Appeal of the Revised Final Mitigated Negative Declaration for 3516-3526 Folsom Street Project
HEARING DATE:	August 11, 2020
ATTACHMENT:	A – Board of Supervisors adopted Motion No. M17-152

PROJECT SPONSOR: Fabien Lannoye, Bluorange Designs, 415-626-8868
APPELLANT: Kathy Angus, Bernal Heights South Slope Organization

INTRODUCTION:

This memorandum and the attached documents are a response to the letter of appeal to the board of supervisors (the board) regarding the issuance of a revised final mitigated negative declaration (RFMND) under the California Environmental Quality Act (CEQA) for 3516-3526 Folsom Street (the proposed project). On June 15, 2017, the planning department (department) issued the final mitigated negative declaration (FMND) for the proposed project. On July 17, 2017, Ryan Patterson of Zacks, Freeman and Patterson, on behalf of Bernal Heights South Slope Organization, Bernal Safe & Livable, Neighbors Against the Upper Folsom Street Extension, Gail Newman and Ann Lockett filed a letter appealing the final mitigated negative declaration, which was heard by the board on September 12, 2017. The board adopted Motion No. M17-152 on September 12, 2017, which directed the department to undertake further analysis with respect to the specific issue of the potential vibration impacts of project construction (see Attachment A). On March 25, 2020, the department issued the RFMND to respond to the board's motion. On April 24, 2020, Kathy Angus, on behalf of the Bernal Heights South Slope Organization (appellant), filed an appeal of the RFMND. The RFMND was provided to the clerk of the board on March 25, 2020.

Pursuant to Section 31.16(d)(5)(A) of the San Francisco Administrative Code, the board's subsequent review of a revised negative declaration shall be limited to the portions of the document that are revised. In other words, only the portions of the RFMND that are additions to, or deletions from, the version

previously certified on June 15, 2017 can be grounds for an appeal. These revisions are in ~~strikethrough~~ for deletions and double underline for additions.

The decision before the board is whether to uphold the RFMND as meeting the requirements of Motion No. M17-152 or to return the project to the department for additional analysis to meet the requirements of Motion No. M17-152.

SITE DESCRIPTION AND EXISTING USE

The project site consists of two vacant lots located on the west side of the unimproved ("paper street") segment of Folsom Street between Chapman Street and Bernal Heights Boulevard in the Bernal Heights neighborhood. The project site does not have vehicular or pedestrian access, as the portion of Folsom Street providing access to the project site is unimproved. The project lots are both 25-feet-wide and 70-feet-deep and total 1,750 square feet in size. The project site has an approximately 33 percent slope to the north. To the south of the project site is a vacant lot and a two-story, single-family residence at 3574 Folsom Street (constructed in 1925). To the east of the project site are four vacant lots and a two-story, single-family residence at 3577 Folsom Street that also fronts on Chapman Street (constructed in 1925). There is a concrete driveway that leads from Chapman Street to the 3574 Folsom Street and 3577 Folsom Street residences. To the north of the project site is the Bernal Heights Community Garden, and Bernal Heights Park is located farther to the north across Bernal Heights Boulevard. Residential structures in the project vicinity are primarily two to three stories and are either single-family or two-family dwellings. The surrounding parcels are zoned either RH-1 (Residential, Single-Family) (to the south of the project site) or P (Public) (to the north of the project site). There is a Pacific Gas and Electric (PG&E) gas transmission pipeline (PG&E Pipeline 109) beneath Folsom Street that extends from Bernal Heights Boulevard to Alemany Boulevard.

PROJECT DESCRIPTION

The proposed project involves the construction of two single-family residences on two of the vacant lots along the west side of the unimproved portion of Folsom Street, the construction of the connecting segment of Folsom Street to provide vehicle and pedestrian access to the project site, and the construction of a stairway between Folsom Street and Bernal Heights Boulevard. The Folsom Street extension and stairway would be subject to approval by San Francisco Public Works (Public Works). Each single-family home would be 27 feet tall, two stories over-garage with one off-street vehicle parking spaces accessed from a twelve-foot-wide garage door.

The 3516 Folsom Street building would be approximately 2,551 square feet of gross living space in size with a side yard along its north property line. The 3526 Folsom Street building would be approximately 2,384 square feet of gross living space in size with a side yard along its south property line. The proposed buildings would include roof decks and a full fire protection sprinkler system. The proposed buildings would be supported by a shallow building foundation using a mat slab with spread footings.

BACKGROUND

On September 25, 2013, Fabien Lannoye of Bluorange Designs (project sponsor) filed an application with the department for CEQA determination for the project described above.

On July 8, 2016, the department determined the project was categorically exempt under CEQA Class 3 New Construction and Conversion of Small Structures (CEQA Guidelines Section 15303(a)), and that no further environmental review was required.

On October 13, 2016, the planning commission reviewed discretionary review requests (building permit application nos. 2013.12.16.4318 and 2013.12.16.4322) at the planning commission hearing. The planning commission approved the proposed project by not taking discretionary review and approving the project as proposed and in accordance with Chapter 31 of the San Francisco Administrative Code.

On November 14, 2016, Ryan Patterson, on behalf of Bernal Heights South Slope Organization, Bernal Safe & Livable, Neighbors Against the Upper Folsom Street Extension, Gail Newman and Marilyn Waterman (appellants) filed an appeal of the Categorical Exemption determination. The appeal letter was dated November 14, 2016 and filed with the Clerk of the Board on the same day. The appeal letter contained attached letters in support of the appeal from the Sierra Club San Francisco Group and the Bernal Heights Democratic Club, as well as copies of petitions from residents in support of the Discretionary Review Application noted above.

On November 18, 2016, the department determined that the appeal of the CEQA determination was timely filed and advised the Clerk of the Board to schedule the CEQA appeal hearing in compliance with Section 31.16(b)(4) of the San Francisco Administrative Code. Subsequently, on December 5, 2016, the department rescinded the Categorical Exemption determination so that further environmental analysis could be prepared.

On April 26, 2017, the department issued a preliminary mitigated negative declaration (PMND) for the proposed project at 3516-3526 Folsom Street. An appeal was filed by Kathy Angus on behalf of the Bernal Heights South Slope Organization on May 16, 2017. On June 15, 2017, the Planning Commission affirmed the PMND on appeal.

On June 15, 2017, the department issued the FMND. On July 17, 2017, Ryan Patterson of Zacks, Freeman and Patterson, on behalf of Bernal Heights South Slope Organization, Bernal Safe & Livable, Neighbors Against the Upper Folsom Street Extension, Gail Newman and Ann Lockett filed a letter appealing the FMND, which was heard by the board on September 12, 2017.

The Board of Supervisors adopted Motion No. M17-152 (herein after "board motion") on September 12, 2017, which directed the department to undertake further analysis with respect to the specific issue of potential vibration impacts from project construction. The concern articulated in the board motion is that construction of the two homes and associated improvements adjacent to and over PG&E Pipeline 109 could create a risk to public safety, specifically, that ground-borne vibrations reach a certain level, they may compromise the integrity of the pipeline.

As detailed on pages 1 through 6 of the RFMND, in response to the direction of the board motion, the RFMND includes:

- additional information about the location, depth, and condition of the pipeline. The pipeline was daylighted and inspected at the project site on December 2017 with a permit from Public Works to demonstrate it is in good condition;
- a Vibration Monitoring and Management Plan, which was reviewed and approved by the planning department and PG&E; and
- a site-specific Emergency Response and Evacuation Plan, which was reviewed and approved by the planning department, San Francisco Fire Department, and PG&E.

The RFMND incorporates all recommendations from both plans as a mitigation measure.

The Vibration Monitoring and Management Plan uses safety-protective assumptions to establish a vibration threshold of 2 inches per second (in/sec)[1] to prevent impacts to the pipeline during construction. The vibration threshold is safety-protective because it includes a factor of safety of 6. The plan establishes that vibration levels of 12 in/sec could cause damage to the buried pipeline. Since 12 in/sec is the criteria that could cause damage to the pipeline, and the threshold used by the project is 2 in/sec, the factor of safety is 6 (i.e., 2 in/sec multiplied by 6 results in a vibration level of 12 in/sec).

A highly qualified independent engineer reviewed and confirmed the plan was technically accurate, consistent with common engineering practice, and included a factor of safety of 6. Critically, no substantial evidence[2] has been presented by the appellants that demonstrates that the vibration threshold that would be used during project construction is not appropriate and does not include safety-protective assumptions.

During construction of the proposed project, vibration monitors would be buried to the depth of the pipeline, approximately 6 inches away from the pipeline itself. The Vibration Management Plan and Emergency Response and Evacuation Plan establish that if vibration levels exceed the threshold of 2 in/sec, warning lights and an alert would be transmitted, and construction would immediately stop, which would prevent impacts to the integrity of the pipeline.

On March 25, 2020, the department issued the RFMND, which includes the items described above, to respond to the board motion.

On April 25, 2020, Kathy Angus, on behalf of the Bernal Heights South Slope Organization filed an appeal of the RFMND. On July 27, 2020, the department determined that the appeal of the CEQA determination was timely filed and advised the Clerk of the Board to schedule the CEQA appeal hearing in compliance with Section 31.16(b)(4) of the San Francisco Administrative Code.

As described on page i of the RFMND, the board motion found that, with the exception of the additional analysis requested, "[a]s to all other issues, the Board finds the FMND conforms to the requirements of CEQA and is adequate, accurate and objective." The motion also states, with respect to the prior FMND appeal, that "the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required."

As stated above under "Introduction," pursuant to Section 31.16(d)(5)(A) of the San Francisco Administrative Code, grounds for an appeal of the RFMND shall be limited to the portions of the document that are additions to, or deletions from, the version previously certified on June 15, 2017. These portions of the document are in ~~strikethrough~~ for deletions and <u>double underline</u> for additions.

[1] Inches per second peak particle velocity, or PPV. This is a measure of maximum ground movement as an indicator of damage potential.

[2] In determining the significance of environmental effects caused by a project, CEQA State Guidelines Section 15064(f) states that the decision as to whether a project may have one or more significant effects shall be based on substantial evidence in the record of the lead agency. CEQA State Guidelines 15064(f)(5) offers the following guidance: "Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."

PLANNING DEPARTMENT RESPONSES

The concerns raised in the appeal letter are addressed in the responses below.

Concern 1: The appellant claims that the steep slope of the project site, which should be listed as 40 percent, and the project site's location adjacent to a buried PG&E Pipeline 109, are an unusual and potentially dangerous situation, which was not adequately considered in environmental review in the RFMND.

Response 1: The RFMND appropriately considers the slope of the project site and vicinity, which was accurately calculated for purposes of environmental review. The Vibration Management Plan and Emergency Evacuation and Response Plan were designed specifically for the project site, including the slope and location with respect to the pipeline. An independent review of the Vibration Management Plan by a qualified expert determined that the plan was technically accurate, consistent with common engineering practice, and based on conservative assumptions. The RFMND incorporates all recommendations from the plans as a mitigation measure, which would reduce any potential impacts associated with the slope of the project site and the pipeline to a less-than-significant level.

The RFMND describes the slope of the project site as 33 percent on pages ii, 7, and 111, and shows the slope graphically on pages 11, 12, 13, 16, 17 and 20. Generally, the slope of a project site may be calculated from multiple directions, providing different values. The 33 percent slope is an approximation of the slope closest to the eastern edge of the project site, which parallels the slope of the underground PG&E Pipeline 109 and also parallels the proposed extension of Folsom Street.

Figure 1, below, shows how the approximately 33 percent slope of the project site was determined. The project site, which includes the two lots at 3516 and 3526 Folsom Street, has an elevation of approximately 303 feet at the northeastern corner. The elevation at the southeastern corner is approximately 286.5 feet. The width of the project site is 50 feet. Slope is calculated as the ratio of vertical change over horizontal change. As such, 303 feet minus 286.5 feet is 16.5 feet difference in elevation (vertical change), which, when divided by the 50-foot width of the project site (horizontal change) is 0.33, or 33 percent.

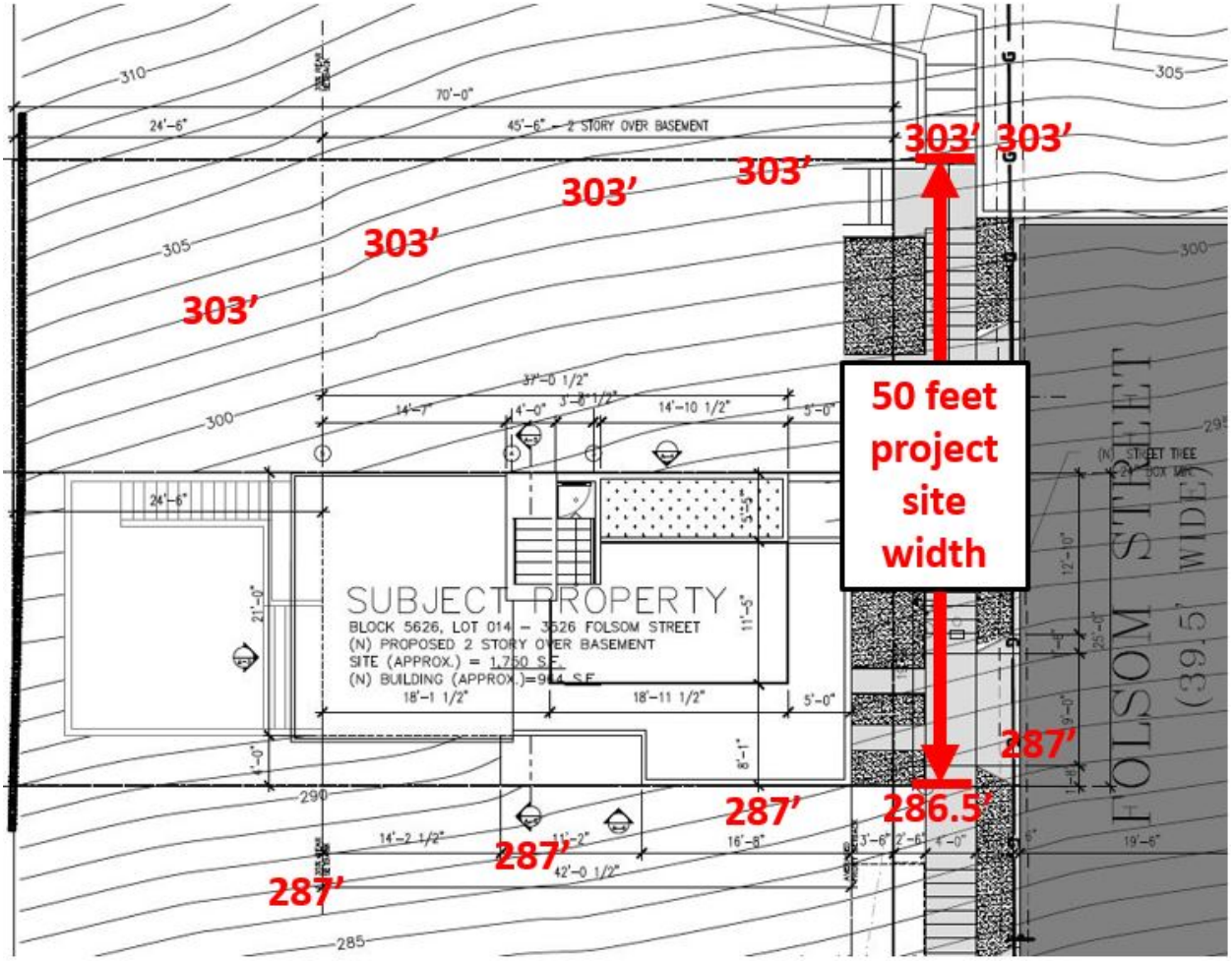

Figure 1: Existing Project Site Slope

Figure 2, below, shows the slope of Folsom Street north of Powhattan Avenue with the extension of Folsom Street, which would be approximately 27 percent.

Figure 2: Slope of Folsom Street North of Powhattan Avenue with Project Implementation

By contrast, the appellant cites a slope of 40 percent, taken from a September 2017 letter by Lawrence Karp, which was measured beyond the boundaries of the project site, taken at an angle that gives the greatest slope, and does not parallel the slope of the pipeline or the street extension. As such, that value is an overestimate and not representative of the slope of the project site.

It should be noted that, throughout PG&E's gas transmission pipeline network, there are multiple locations in San Francisco where gas pipelines travel through areas with relatively steep streets, highlighting that the proposed project's location is not an unusual situation. *Figure 3 below*, shows the PG&E pipeline distribution network (obtained from PG&E), the project site, and slopes that are over 25 percent obtained from the planning department ArcMap, including areas such as the project site, which would be on a street with a slope of 27 percent. These areas with gas transmission pipelines on steep slopes include many other parcels in Bernal Heights, as well as numerous parcels throughout neighborhoods including Excelsior, Visitacion Valley, Bayview, and Potrero Hill. Numerous pipeline elbows (locations where the pipeline turns at a 90-degree angle) are found throughout the mapped area, demonstrating that the pipeline elbows occur frequently. The map demonstrates that this project site being on a street with a steep slope near a pipeline is not unusual.

In addition, the project site would be required to comply with the requirements of the Slope Protection Act, as noted on page 39 of the RFMND. The Slope Protection Act was passed by the Board of Supervisors in 2008 and required construction of new buildings or structures and certain other construction work on properties subject to the Slope Protection Act undergo additional review for structural integrity and effect on slope stability. The legislation was amended and renamed the Slope & Seismic Hazard Zone Protection Act in 2018. The amended Slope & Seismic Hazard Zone Protection Act applies to all property within San Francisco that exceeds an average slope of 4H:1V (25%) or falls within certain mapped areas of the City.

The Vibration Management Plan and Emergency Evacuation and Response Plan included in the RFMND and discussed further below were designed specifically for the project site, including the slope and location with respect to the pipeline. In addition to text describing the project site, both plans include graphics that illustrate that they were specifically designed for the proposed project. An independent review of the Vibration Management Plan[3] determined that the plan was technically accurate, consistent with common engineering practice, and based on conservative assumptions. The RFMND found that the proposed project could result in a significant impact with regard to vibration due to construction-related equipment and work. The RFMND, on pages 72-76, incorporates all recommendations from the plans as Mitigation Measure M-NO-3, Vibration Management, which would reduce any potential impacts associated with the slope of the project site and the pipeline to a less-than-significant level.

In conclusion, the appellant has not provided any substantial evidence of a fair argument that the RFMND failed to properly consider the project site's slope and location with respect to the pipeline. Further, the appellant has not provided substantial evidence that the identified mitigation measure would not adequately reduce the project's significant impact to a less-than-significant level. The RFMND accurately

[3] Buehler, David, P.E. INCE Bd. Cert., October 17, 2019, Review of Vibration Management Plan Prepared for 3516-3526 Folsom Residential Construction.

and adequately considers the project site's slope and location with respect to the pipeline, which occurs in multiple areas throughout San Francisco.

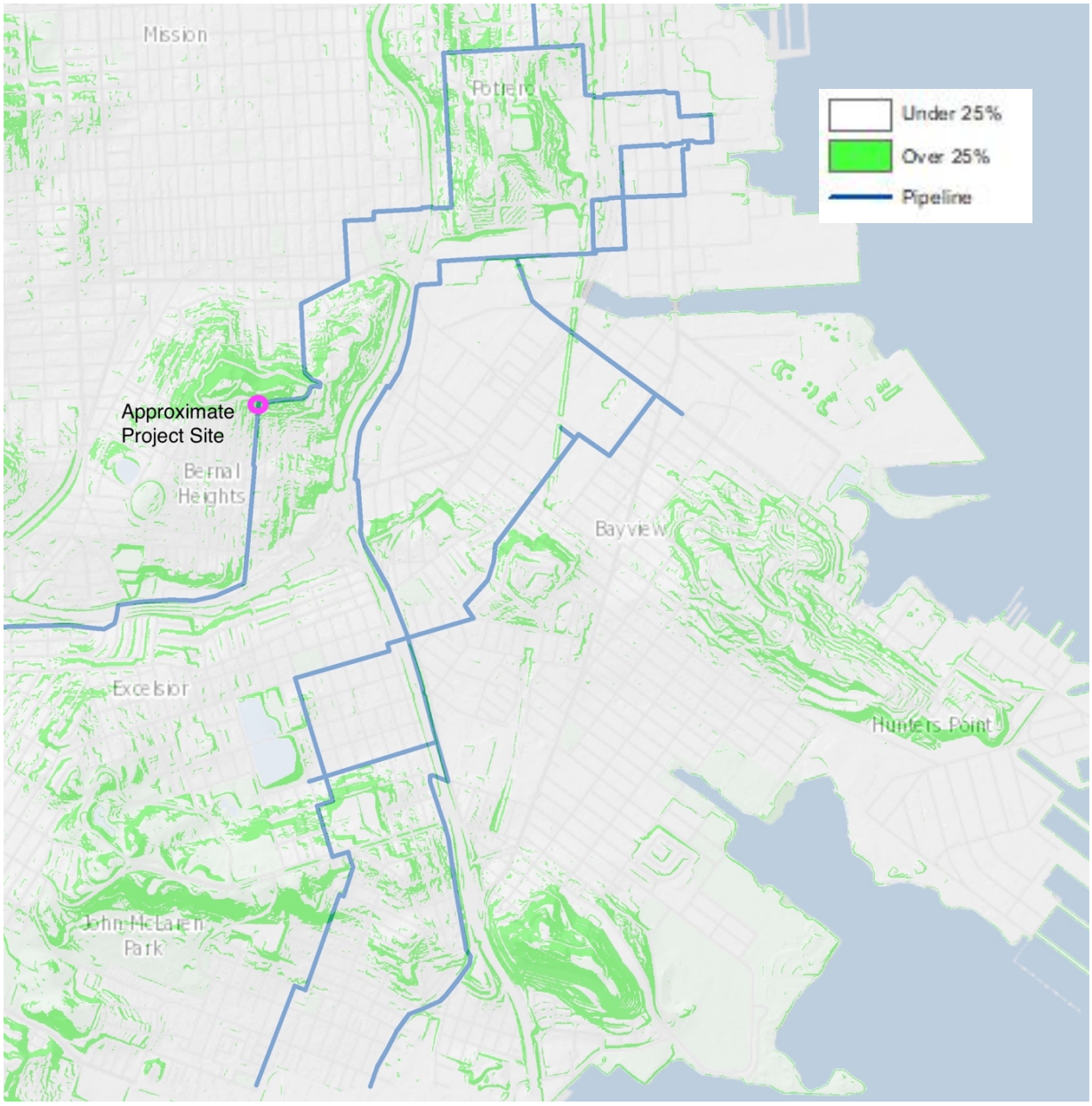

Figure 3: PG&E Distribution Pipeline and Greater Than 25 Percent Slope

Concern 2: The appellant asserts that the RFMND includes numerical inaccuracies, including inaccuracies in Table 5 (which lists estimates of peak particle velocity and damage potential of project construction equipment), inaccuracies in elevations related to the pipeline that would require the pipeline to be relocated, and a reference to the incorrect gas pipeline in a table listing wheel weight limits in a memo from PG&E, which the appellant claims affects the adequacy of the RFMND.

Response 2: The concerns regarding Table 5 of the RFMND have previously been raised and rejected by the board. As such, they cannot now be reconsidered.

A majority of the issues raised by the appellant have previously been raised and rejected by the board. As such, they cannot now be reconsidered. As stated above, pursuant to Section 31.16(d)(5)(A) of the San Francisco Administrative Code, grounds for an appeal of the RFMND are limited to the portions of the document that are additions to, or deletions from, the version previously certified. No changes were made to Table 5 of the RFMND from the version that was previously certified, and no changes were required to be made to Table 5. The appellant has not provided any substantial evidence that the values in Table 5 would be required to be updated in order to satisfy the board motion; therefore, that concern will not be addressed further.

With respect to concerns about the elevations, Response 1 above documents the approximate slope of the project site. No relocation of the gas line is proposed as part of the project. The location and condition of PG&E Pipeline 109 was confirmed in a document "Location, Depth and Condition of Pipeline No. 109," which is in the project record.

The memo from PG&E staff sent March 6, 2018[4] describes PG&E's comprehensive inspection and monitoring program used to ensure the safety of the natural gas transmission pipeline system. The memo contains PG&E's general safety requirements for work within pipeline easements. The table that refers to line 132 rather than 109 is not an error, since it is a list of general requirements, as stated on pages 1 and 3 of the memo ("general PG&E safety requirements," and "general safety precautions"). The appellant has not provided any evidence that purported numerical inaccuracies would affect the analysis or conclusions in the RFMND, or the adequacy of the mitigation measures included in the RFMND.

Concern 3: The appellant asserts that Vibration Management is inadequate because it does not include specified content. The appellant also claims that the professionals who prepared/reviewed the vibration analyses in the RFMND were not independent, may not be the best qualified to prepare/review vibration analyses, and did not consider site-specific factors in preparing/reviewing the vibration analysis.

Response 3: The Vibration Monitoring and Management Plan included in the RFMND satisfies the requirements of the board motion.

[4] Memo from PG&E Gas Transmission Pipeline Services—Integrity Management, November 13, 2018.

The board motion states that the Vibration Management Plan shall specify:

- what types of construction equipment may be used at the project and any limitations on the use or storage of such equipment in the project vicinity;
- the specific roles of the planning department, Department of Building Inspection, PG&E and any other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan; and
- any appropriate safety protocols that must be employed during project construction, including communications between the contractors and PG&E, to reduce the risk of damage to the pipeline;

Pages 3 through 6 of the RFMND described how the Vibration Management Plan meets these requirements.

None of the purported outstanding elements of the Vibration Management Plan listed by the appellant are required items pursuant to the board motion. There is no requirement to include engineered plans as part of the RFMND. Full engineered plans for proposed projects are required by the Department of Building Inspection after the planning process is completed (including environmental review). Neither the integrity of the pipeline elbow, the location of utilities crossing the pipeline, nor construction equipment falling over are discussed in the board motion. The board motion only addresses impacts from project construction, not project operation; therefore, no monitoring after construction needs to occur. Therefore, these concerns are not grounds for an appeal and do not need to be addressed further by the planning department.

As the lead agency for public and private projects in San Francisco undergoing environmental review, the planning department regularly relies upon consultants to prepare CEQA documents, including technical reports. The department identifies consultants that the department deems well-qualified and selects consultants to provide services in support of the department's role as a lead agency. The City requires project sponsors to pay the fees of consultants. The use of consultants is critical to the department's ability to conduct CEQA review in an efficient and effective manner. Pursuant to state and local requirements, the department reviews and analyzes consultant-prepared materials to ensure that they reflect the independent judgment of the department. The department developed a list of specific of protocols in order to provide formal department practices aimed at eliminating the potential for bias on the part of consultants, and ensuring the environmental reports consider all relevant analyses and findings. The protocols include a written agreement for the project sponsor and consultant(s) to be implemented when requested by the planning department environmental coordinator.[5]

For the RFMND, including the items added in response to the board motion, the department fulfilled its obligation as an objective lead agency in preparing the RFMND. The department reviewed and approved the scope of work for the qualified professionals who prepared the vibration analyses for the RFMND and reviewed and approved the analysis and documents themselves.

In May 2019, the department met with the appellants, the project sponsor and board staff. At the direction of board staff, in order to address concerns raised at the meeting, the department directed that an

[5] Lisa Gibson, Environmental Review Office, *Memo: Protocols to Ensure Objectivity in Consultant-Prepared Materials*, February 11, 2019.

independent review of the Vibration Management Plan be prepared by a qualified engineer. The department reviewed and approved a scope of work for the independent review of the Vibration Management Plan by a qualified engineer.[6] The independent review of the Vibration Management Plan was reviewed and approved by the department. The independent reviewer and the project sponsor signed an agreement to implement the protocols to ensure objectivity in environmental review documents, which is part of the project record.[7] The independent review of the Vibration Management Plan determined that the plan was technically accurate, consistent with common engineering practice, and based on conservative assumptions. Response 1 describes in detail how the analysis in the RFMND is site specific.

In summary, the Vibration Management Plan meets all of the requirements specified by the board. Not only was it prepared by an independent consultant under direction of the department, but the plan additionally underwent independent review supervised by the department, which reaffirmed the technical validity of the plan and responded to the appellant's expressed concerns.

Concern 4: The Emergency Response and Evacuation Plan included as part of the RFMND is inadequate in meeting the requirements of the board motion because it is not site specific, it doesn't offer adequate communication to residents, it doesn't address visitors to Bernal Park, does not ensure adequate access for emergency response, doesn't respond to *Pipeline Association for Public Awareness Pipeline Emergency Response Guidelines*, and offers an inadequate 3-hour response time in case of pipeline leaks.

Response 4: The Emergency Response and Evacuation Plan included as part of the RFMND meets the requirements of the board motion.

The board motion states that:

- "…a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation; and
- …the Emergency Response and Evacuation Plan shall be reviewed and approved by the Fire Department, Planning Department, and PG&E, prior to issuance of the revised environmental review document. "

The Emergency Response and Evacuation Plan is site specific. The plan shows the project site, with evacuation routes leading to four separate safe gathering areas. The plan describes the actions that would

[6] Among numerous other qualifications, the independent reviewer was one of the primary authors of Caltrans' 2013 *Transportation and Construction Vibration Guidance Manual*, considered an authoritative source on construction vibration analysis, and referenced in hundreds of CEQA documents on construction vibration.

[7] See: "*Agreement to Protocols to Ensure Objectivity in Environmental Review Documents: 3516-3526 Folsom Street*." This document and the others referenced for the project are available for public review as part of case file no. 2013.1383ENV on the San Francisco Property Information Map, which can be accessed at https://sfplanninggis.org/PIM/. Individual files can be viewed by clicking on the Planning Applications link, clicking the "More Details" link under the project's environmental case number (2013.1383ENV) and then clicking on the "Related Documents" link.

occur during project construction, which includes pre-construction, during construction within 10 feet of PG&E Pipeline 109, and during construction beyond 10 feet of PG&E Pipeline 109. During construction within 10 feet of the pipeline, if vibration levels exceed the 2 in/sec threshold, construction would immediately stop, and the PG&E Pipeline Engineer would be contacted. If a leak were to occur, the project manager would contact PG&E's Gas Control hotline, which would communicate with the Fire Department and other first responders as needed. The plan ensures adequate access for emergency response through the requirements outlined in the plan, which include posting emergency route sites within 300 feet of the project site and identifying areas where residents and workers can gather in event of an emergency. As stated in on page 120 of the RFMND, the proposed project would not impair access for emergency response. As stated on page 6 of the RFMND, the Emergency Response and Evacuation Plan was approved by the Fire Department, PG&E, and the planning department. As such, the plan meets the requirements of the board motion.

Bernal Park does not contain residents, and there is no specific requirement to address Bernal Park in the board's motion. The board motion contains no direction regarding pipeline awareness guidelines, which were prepared by a nonprofit corporation, not a regulatory agency, and contain no binding requirements. As such, these items are not required to be addressed in the RFMND and are not discussed further.

With respect to response time, the Emergency Evacuation Plan requires a PG&E Inspector to be on standby during all work within 10 feet of the pipeline. If the vibration levels exceed 2 in/sec, all construction activities would cease, and the PG&E Pipeline Engineer would be contacted. If a gas leak were detected, then Gas Control would be contacted, which would provide an immediate response from first responders, not a 3-hour response time as inaccurately stated by the appellants. To verify that damage has not occurred, PG&E would deploy Leak Survey personnel to survey the pipeline in the immediate vicinity of the vibration within 2-3 hours, following PG&E regulations. The RFMND cannot require a specific response time to leaks by PG&E, as PG&E's regulations are approved by and subject to the authority of the California Public Utilities Commission.

In summary, the Emergency Evacuation Response Plan meets the requirements of the board motion because it ensures adequate access for emergency response and the ability for a safe and timely evacuation, and was approved by the Fire Department, planning department, and PG&E.

Concern 5: Other professionals disagree with the conclusions cited in the RFMND based on documents prepared in 2017, which the appellant claims provides evidence the proposed project may harm public safety due to risk of accidental rupture of PG&E Pipeline 109 during construction and operation of the proposed project.

Response 5: The professional concerns cited have previously been raised and rejected by the board. As such, they cannot now be reconsidered.

The appellant references a number of documents prepared by various professionals in 2017 related to the project. The board motion describes that all written and oral testimony in support of and opposed to the appeal were considered in developing the requirements of the motion. No novel evidence has been

presented by professionals on behalf of the appellant addressing the RFMND and associated materials. As the board already reviewed the information and unsubstantiated opinion provided by these professionals in 2017, and no new material has been provided by professionals addressing the information in the RFMND, the appellant has provided no substantial evidence to support the need for further analysis with regard to the RFMND.

Concern 6: The RFMND does not specify responsibility, accountability, or supervision by city and other agencies, such as the Department of Building Inspection, the San Francisco Public Utility Commission, Board of Supervisors, Department of Public Works, San Francisco Fire Department, and the Department of Emergency Management. The appellant claims that the lack of the accountability compounds the risk of accidental impacts to PG&E Pipeline 109.

Response 6: The RFMND includes specific agency roles as directed by the board motion for the following agencies: PG&E, the planning department, the San Francisco Fire Department, Department of Building Inspection, and the Department of Public Works. The motion does not provide any direction with respect to, nor were any changes made referring to following agencies: San Francisco Public Utility Commission, Board of Supervisors, and Department of Emergency Management. Therefore, these concerns are not grounds for an appeal.

As stated in the RFMND, the Vibration Management Plan was reviewed and approved by PG&E and the planning department; the Emergency Response and Evacuation Plan was reviewed and approved by the San Francisco Fire Department, planning department, and PG&E. Both of those plans directly lay out the roles of each of the agencies for implementation, including the Department of Building Inspection and Department of Public Works, at specific times during the project construction, which includes pre-construction, during construction within 10 feet of PG&E Pipeline 109, and during construction beyond 10 feet of PG&E Pipeline 109. The RFMND states the responsibilities of the project sponsor and PG&E should the vibration levels exceed the conservative threshold of 2 in/sec or should gas-related emergencies occur. The analysis of the physical environmental impacts of any other scenario beyond those described in the RFMND would be speculative. Pursuant to CEQA Guidelines 15145, if a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.

The RFMND was prepared according to the requirements of CEQA, which requires lead agencies to disclose and mitigate impacts to the greatest extent feasible, which the department has done in the RFMND and through the preparation and approvals of the Vibration Management Plan and the Emergency Response and Evacuation Plan. CEQA does not require the lead agency to assign legal liability in speculative scenarios. As such, there is no requirement to include this information in the RFMND, and there is no need to address the topic further.

Concern 7: The appellant asserts that an environmental impact report (EIR) should be prepared for the project due to the concerns articulated above.

Response 7: The appellant fails to meet the legal burden to provide substantial evidence to demonstrate that RFMND does not satisfy the requirements of the board motion. In addition, as established by the board motion, the record does not include substantial evidence that the project may have a significant effect on the environment that would warrant preparation of an EIR.

The RFMND was prepared to respond to the items in the board motion, which required the department to provide specific additional environmental analysis in the RFMND. The department has responded to the requirements of the board motion as detailed in the RFMND and this document. The board motion states that "[a]s to all other issues, the Board finds the FMND conforms to the requirements of CEQA and is adequate, accurate and objective." The board motion also states, with respect to the appeal, that "the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required." The board motion is clear that there is no substantial evidence in the record that supports that further analysis is required to remedy any significant effects on the environment and the appellant has cited to no such evidence in this appeal. Therefore, an EIR should not be prepared for this project.

CONCLUSION

For all of the reasons provided in this appeal response, department staff respectfully recommends that the board uphold the planning department's adoption of the RFMND and deny the appeal. Most of the appellant's concerns have been previously raised, considered, and rejected by the board. In all other cases, the appellant fails to provide substantial evidence supporting a fair argument that the RFMND has not satisfied the requirements of the board motion. In addition, as established by the board motion, the record does not include substantial evidence that the project may have a significant effect on the environment that would warrant preparation of an EIR.

ATTACHMENT A

FILE NO. 171022 AMENDED IN BOARD 9/26/2017 MOTION NO. M17-152

[Adopting Findings Reversing the Final Mitigated Negative Declaration - 3516 and 3526 Folsom Street]

Motion adopting findings reversing the approval by the Planning Commission of a final mitigated negative declaration under the California Environmental Quality Act for a proposed project at 3516 and 3526 Folsom Street.

WHEREAS, The Planning Commission approved a final mitigated negative declaration under the California Environmental Quality Act ("CEQA"), the CEQA Guidelines, and Administrative Code, Chapter 31 for a proposed project located at 3516 and 3526 Folsom Street ("Project"); and

WHEREAS, The proposed Project involves the construction of two single-family residences on two vacant lots along the west side of the unimproved portion of Folsom Street, the construction of the connecting segment of Folsom Street to provide vehicle and pedestrian access to the Project site, and the construction of a stairway between Folsom Street and Bernal Heights Boulevard; and

WHEREAS, Each single-family home would be 27 feet tall, two stories over-garage with two off-street vehicle parking spaces accessed from a twelve-foot-wide garage door; and

WHEREAS, The Planning Department published a Preliminary Mitigated Negative Declaration ("PMND") for the proposed Project on April 26, 2017; and

WHEREAS, On May 16, 2017, Kathy Angus, for the Bernal Heights South Slope Organization filed an appeal of the Planning Department's decision to issue the PMND; and

WHEREAS, On June 15, 2017, the Planning Commission held a publically-noticed hearing on the PMND, denied the appeal, and finalized the PMND ("FMND") by Motion No. 19945; and

WHEREAS, On June 15, 2017, the Planning Commission declined to take discretionary review of the proposed project, and approved the Project as proposed; and

WHEREAS, On July 17, 2017, Ryan Patterson of Zacks, Freeman and Patterson, on behalf of Bernal Heights South Slope Organization, Bernal Safe & Livable, Neighbors Against the Upper Folsom Street Extension, Gail Newman and Ann Lockett ("Appellants") filed a letter appealing the FMND; and

WHEREAS, The Planning Department's Environmental Review Officer, by memorandum to the Clerk of the Board dated July 24, 2017, determined that the appeal was timely; and

WHEREAS, On September 12, 2017, this Board held a duly noticed public hearing to consider the appeal of the FMND filed by Appellants and, following the public hearing, conditionally reversed the Planning Commission's approval of the FMND subject to the adoption of written findings in support of such determination, and requested additional information and analysis be provided; and

WHEREAS, In reviewing the appeal of the FMND, this Board reviewed and considered the FMND, the appeal letter and supporting documents, the responses to concerns document that the Planning Department prepared, the other written records before the Board of Supervisors and all of the public testimony made in support of and opposed to the FMND appeal; and

WHEREAS, The Board finds that the letters and public comment presented in support of and against the appeal, including comment letters presented to the Board on September 11 and 12, 2017, raise important questions regarding how project construction activities could create vibration impacts on PG&E Pipeline No. 109; and

WHEREAS, In light of this new information, the Board has requested that the Planning Department undertake further analysis with respect to the specific issue of the potential vibration impacts of project construction on PG&E Pipeline 109; and

WHEREAS, This Board considered these issues, heard testimony, and shared concerns that further information and analysis was required regarding whether the proposed project would cause construction impacts to PG&E Pipeline No. 109; and

WHEREAS, The written record and oral testimony in support of and opposed to the appeal and deliberation of the oral and written testimony at the public hearing before the Board of Supervisors by all parties and the public in support of and opposed to the appeal of the FMND is in the Clerk of the Board of Supervisors File No. 170851 and is incorporated in this motion as though set forth in its entirety; now, therefore, be it

MOVED, That this Board of Supervisors directs the Planning Department to provide additional information and analysis regarding whether the proposed project construction would result in vibration impacts on PG&E Pipeline No. 109 that could create a risk to public safety; and, be it

FURTHER MOVED, In conducting any such additional environmental analysis, the Planning Department shall enlist an independent qualified expert to use all appropriate methods to determine the location, depth and condition of Pipeline No. 109 in the project area and prepare a Vibration Management Plan for the project prior to the issuance of the revised environmental review document; and, be it

FURTHER MOVED, That the Vibration Management Plan shall specify what types of construction equipment may be used at the project and any limitations on the use or storage of such equipment in the project vicinity, the specific roles of the Planning Department, Department of Building Inspection, PG&E and any other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan, and any appropriate safety

protocols that must be employed during project construction, including communications between the contractors and PG&E, to reduce the risk of damage to the pipeline; and, be it

FURTHER MOVED, That a site-specific Emergency Response and Evacuation Plan be prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation; and, be it

FURTHER MOVED, That the Vibration Management Plan shall be reviewed and approved by the Planning Department and PG&E, and the Emergency Response and Evacuation Plan shall be reviewed and approved by the Fire Department, Planning Department, and PG&E, prior to issuance of the revised environmental review document; and, be it

FURTHER MOVED, That the Planning Department shall incorporate any recommendations of the approved Vibration Management Plan into the mitigation included in the revised environmental review document; and, be it

FURTHER MOVED, As to all other issues, the Board finds the FMND conforms to the requirements of CEQA and is adequate, accurate, and objective, the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required.

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City and County of San Francisco
Tails
Motion: M17-152

City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

File Number: 171022 **Date Passed:** September 26, 2017

Motion adopting findings reversing the approval by the Planning Commission of a final mitigated negative declaration under the California Environmental Quality Act for a proposed project at 3516 and 3526 Folsom Street.

September 26, 2017 Board of Supervisors - AMENDED, AN AMENDMENT OF THE WHOLE BEARING SAME TITLE

Ayes: 10 - Breed, Cohen, Farrell, Fewer, Kim, Peskin, Ronen, Sheehy, Tang and Yee
Excused: 1 - Safai

September 26, 2017 Board of Supervisors - APPROVED AS AMENDED

Ayes: 10 - Breed, Cohen, Farrell, Fewer, Kim, Peskin, Ronen, Sheehy, Tang and Yee
Excused: 1 - Safai

File No. 171022

I hereby certify that the foregoing Motion was APPROVED AS AMENDED on 9/26/2017 by the Board of Supervisors of the City and County of San Francisco.

Angela Calvillo
Clerk of the Board

From:	BOS Legislation, (BOS)
To:	"Kathy Angus"; ryan@zfplaw.com; "clee@lubinolson.com"; "fabien@bluorange.com"; "jfogarty@sonic.net"; "colson@lubinolson.com"
Cc:	PEARSON, ANNE (CAT); STACY, KATE (CAT); JENSEN, KRISTEN (CAT); RUIZ-ESQUIDE, ANDREA (CAT); Hillis, Rich (CPC); Teague, Corey (CPC); Sanchez, Scott (CPC); Gibson, Lisa (CPC); Jain, Devyani (CPC); Navarrete, Joy (CPC); Lewis, Don (CPC); Varat, Adam (CPC); Sider, Dan (CPC); Starr, Aaron (CPC); Rodgers, AnMarie (CPC); Ionin, Jonas (CPC); Pollak, Josh (CPC); Rosenberg, Julie (BOA); Sullivan, Katy (BOA); Longaway, Alec (BOA); BOS-Supervisors; BOS-Legislative Aides; Calvillo, Angela (BOS); Somera, Alisa (BOS); Mchugh, Eileen (BOS); BOS Legislation, (BOS)
Subject:	APELLANT SUPPLEMENTAL LETTER: Appeal of CEQA Revised Final Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street - Appeal Hearing August 11, 2020
Date:	Monday, August 3, 2020 8:36:35 AM
Attachments:	image001.png

Good morning,

The Office of the Clerk of the Board has received the following appeal response from the Appellant, Kathy Angus, behalf of the Bernal Heights South Slope Organization, for the appeal of the CEQA Revised Final Mitigated Negative Declaration for the proposed 3516 and 3526 Folsom Street project.

Appellant Supplemental Letter - July 31, 2020

I invite you to review the entire matter on our Legislative Research Center by following the links below:

Board of Supervisors File No. 200800

Best regards,
Jocelyn Wong
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T: 415.554.7702 | F: 415.554.5163
jocelyn.wong@sfgov.org | www.sfbos.org

(VIRTUAL APPOINTMENTS) To schedule a "virtual" meeting with me (on Microsoft Teams), please ask and I can answer your questions in real time.

Due to the current COVID-19 health emergency and the Shelter in Place Order, the Office of the Clerk of the Board is working remotely while providing complete access to the legislative process and our services

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The Legislative Research Center provides 24-hour access to Board of Supervisors legislation, and archived matters since August 1998.

a member of the public elects to submit to the Board and its committees—may appear on the Board of Supervisors' website or in other public documents that members of the public may inspect or copy.

From:	Kathy Angus
To:	BOS Legislation, (BOS); Beinart, Amy (BOS); Gibson, Lisa (CPC); Ronen, Hillary
Cc:	Barbara Underberg; Marilyn Waterman; Herbert Felsenfeld
Subject:	Fwd: Email 1 of 3 BOS File No. 200800, 3516 and 3526 Folsom Street
Date:	Friday, July 31, 2020 3:14:45 PM
Attachments:	Rune Storesund 2016-12-01 Pipeline Review.pdf Rune Storesund 2016-12-11 Pipeline Impact.docx Rune Storesund 2017-06-05 PipelineReview.docx Rune Storesund 2017-06-14 Pipeline Review.pdf EDT 2017-09-11 Appellant Supplemental Ltr.pdf Email Viani 20190530.pdf Email Viani 20190708.pdf

Re: Appeal of CEQA Revised Mitigated Negative Declaration for 3516 and 3526 Folsom Street dated 4/24/2020

As appellants of this case, we would like to insure that all of the documents submitted by the following professionals with directly relevant expertise and credentials in geotechnical engineering and experience with safety of PG&E gas transmission pipelines are included.

Rune Storesund, D.Eng., P.E., G.E., Executive Director of UC Berkeley Center for Catastrophic Risk Management
Lawrence B. Karp, Architect. Civil and Geotechnical Engineer
Robert Bea, Professor Emeritus of Civil and Environmental Engineering, UC Berkeley Center for Catastrophic Risk Management
Engineering Design and Testing Corp., Forensic Engineers, Kenneth R. Ridings, P.E. and Steven P. Viani, P.E.

In fact, Consulting Engineers Karp, Storesund and Bea were so alarmed by the safety implications that they all agreed to provide their services pro bono.

With respect to the project's Vibration Management Plan, the consultants' geotechnical and pipeline expertise is particularly relevant:

"Vibration is often grouped with noise and regarded as a kindred topic. Noise, after all, begins as vibration, and vibration is as much a part of acoustics as is noise.
"By comparison, though, noise is simple. It always occurs in air, and except in special circumstances . . . the characteristic impedance of air is more or less always the same. . . . Airborne sound almost always propagates as a compression wave, and the speed of sound is about the same at all frequencies. . . .
"Vibration, by contrast, occurs in media ranging from rock or solid concrete, through water and soil to lightweight panels. It can propagate as a compression wave, a shear wave, a variety of surface waves, bending waves, torsional waves, either separately or together." [From Rupert Taylor Ltd., Noise and Vibration Consultants, website: ruperttaylor.com.]

In contrast to the analysis by engineers specifically experienced in underground vibrations, particularly as they affect the gas transmission line, the expertise of both the author, Paul Donovan, and the reviewer, David Buehler, of the Vibration Management Plan is limited to noise vibration.

David Buehler is Board Certified in noise control engineering (P.E. INCE Bd. Cert.), and according to Illingworth & Rodkin, Inc., Paul R. Donovan, Sc.D.: "Although Dr. Donovan has a broad background in acoustics, his particular areas of expertise include tire noise, sound intensity methods, aeroacoustics and

wind tunnel testing, and structure-borne sound analysis." [From the website of Illingworth & Rodkin, Inc.]

In light of this, we are concerned that the assessments from our consultants have not all been adequately addressed by the Revised Final Mitigated Negative Declaration, so we are attaching them here to be sure they are easily available to supervisors and planners.

The following documents and websites were referenced in and/or used as source material for the CEQA RFMND appeal letter dated 4/24/2020. Most of these documents have been previously submitted in the course of this environmental review process. As indicated below, they are either attached or, due to size, are being sent attached to a separate email.

1. Bea, Robert, Professor Emeritus of Civil and Environmental Engineering, UC Berkeley Center for Catastrophic Risk Management, 6/29/2016, signed letter of support and power point.
[Referenced on page 4.] (due to document size, to be emailed separately in Email 3 of 3)

2. Storesund, Rune, D.Eng., P.E., G.E., Executive Director of UC Berkeley Center for Catastrophic Risk Management, 12/1/2016, Independent Project Review.
[Referenced in footnotes 2, 5, 6 and 8.] (attached)

3. Storesund, Rune, D.Eng., P.E., G.E., 12/11/2016, Impact to PG&E Transmission Line 109. (attached)

4. Storesund, Rune, D.Eng., P.E., G.E., 6/5/2017, Independent Project Review.
[Referenced in footnote 12.] (attached)

5. Storesund, Rune, D.Eng., P.E., G.E., 6/14/2017, Review of Proposed Pipeline Impacts. (attached)

6. Karp, Lawrence B., Architect. Civil and Geotechnical Engineer, 9/12/2017, Unacceptable Extension, Folsom Street, Protracted in 1861, Structure on 40.3% Gradient Slope Upon Large Gas Line in Landslide Area, Bernal Heights, San Francisco, Environmental Impact Report Required.
[Referenced in footnotes 3, 4, 7, 13 and 16.] (due to document size, to be emailed separately in Email 2 of 3)

7. Lawrence Karp, 9/12/2017, Testimony at the Board of Supervisors Hearing (pdf page 33 of BOS File 170851, Attachment 11, "Post Pkt Material").

8. Ridings, Kenneth R., P.E. and Viani, Steven P., P.E., (EDT) Engineering Design and Testing Corp., 9/11/2017, Independent Evaluation of the San Francisco Planning Department Mitigated Negative Declaration, submitted as Exhibit O by Zacks, Freedman & Patterson. (attached)

9. Viani, Steven P., P.E., Forensic Engineer, Emails dated 5/30/19 and 7/8/19.
[Referenced on page 8.] (attached)

10. Website of U.S. Department of Transportation, Pipeline and Hazardous Materials Administration: https://www.phmsa.dot.gov/

11. Website of U.S. Department of Transportation, Pipeline and Hazardous Materials Administration, Pipelines and Informed Planning
Alliance: https://primis.phmsa.dot.gov/comm/pipa/LandUsePlanning.htm

12. Thornely-Taylor, R.M., “Ground Vibration Prediction and Assessment,” http://ruperttaylor.com/Ground%20Vibration%20Prediction%20and%20Assessment.pdf
[Referenced in footnote 15.]

13.. Buehler, David, P.E. INCE Bd. Cert., October 17, 2019, Review of Vibration Management Plan Prepared for 3516-3526 Folsom Residential Construction.
[Referenced in footnote 11.]

14. Website of Illingworth & Rodkin, Inc.: https://iandrinc.com/our_team/paul-r-donavan-sc-d-principal/
[Referenced in footnote 14.]

15. Illingworth and Rodkin, Inc., Construction Vibration Evaluation for 3516 and 3526 Folsom Street, March 24, 2017.
[Referenced in footnotes 18-20.]

Thank you for your consideration of these issues.

Kathy Angus
Bernal Heights South Slope Organization

--
Kathy Angus

From:	Kathy Angus
To:	BOS Legislation, (BOS); Beinart, Amy (BOS); Ronen, Hillary; Gibson, Lisa (CPC)
Cc:	Barbara Underberg; Herbert Felsenfeld; Marilyn Waterman
Subject:	Email 2 of 3, BOS File No. 200800, 3516 and 3526 Folsom Street
Date:	Friday, July 31, 2020 3:19:28 PM
Attachments:	Lawrence Karp 2017-09-12 EIR Required.pdf

Re: Appeal of CEQA Revised Mitigated Negative Declaration for 3516 and 3526 Folsom Street dated 4/24/2020

Due to the (relatively) large size of the attached document (and that seven documents were already attached to Email 1), the following document is being emailed separately:

6. Karp, Lawrence B., Architect. Civil and Geotechnical Engineer, 9/12/2017, Unacceptable Extension, Folsom Street, Protracted in 1861, Structure on 40.3% Gradient Slope Upon Large Gas Line in Landslide Area, Bernal Heights, San Francisco, Environmental Impact Report Required.
[Referenced in footnotes 3, 4, 7, 13 and 16.] (due to document size, emailed separately in Email 2 of 3)

If you have trouble receiving any of these documents, please let me know.
Thank you.
Kathy Angus
Bernal Heights South Slope Organization

--
Kathy Angus

From:	Kathy Angus
To:	BOS Legislation, (BOS); Beinart, Amy (BOS); Ronen, Hillary; Gibson, Lisa (CPC)
Cc:	Barbara Underberg; Marilyn Waterman; Herbert Felsenfeld
Subject:	Email 3 of 3, BOS File No. 200800, 3516 and 3526 Folsom Street
Date:	Friday, July 31, 2020 3:20:40 PM
Attachments:	Robert Bea 2016-06-29 signed support letter & power point.pdf

Re: Appeal of CEQA Revised Mitigated Negative Declaration for 3516 and 3526 Folsom Street dated 4/24/2020

Due to the (relatively) large size of the attached document (and that seven documents were already attached to Email 1), the following document is being emailed separately:

1. Bea, Robert, Professor Emeritus of Civil and Environmental Engineering, UC Berkeley Center for Catastrophic Risk Management, 6/29/2016, signed letter of support and power point.
[Referenced on page 4.] (due to document size, to be emailed separately in Email 3 of 3)

If you have trouble receiving any of these documents, please let me know.
Thank you.
Kathy Angus
Bernal Heights South Slope Organization

--
Kathy Angus

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO

SANTA BARBARA • SANTA CRUZ

TELEPHONE: (925) 631-1587

E-MAIL: bea@ce berkeley edu

CENTER FOR CATASTROPHIC RISK MANAGEMENT
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING
BERKELEY, CALIFORNIA 94720-1710

June 29, 2016

Re: Inquiry about Gas Transmission Pipeline 109 from concerned SF residents
Proposed Project at 3516-3526 Folsom Street, San Francisco, CA

Dear Neighbors of Gas Transmission Pipeline 109:

Given the background information you have provided, yes, you should be concerned. There are several points in your summary that provide good basis for your concerns:

1) Old (1980's) PG&E gas transmission pipeline installed in area with highly variable topography,
2) Lack of records on the construction, operation, and maintenance of the pipeline,
3) No definitive guidelines to determine if the pipeline is 'safe' and reliable',
4) Apparent confusion about responsibilities (government, industrial-commercial) for the pipeline safety, reliability, and integrity.

This list is identical to the list of concerns that summarized causation of the San Bruno Line 132 gas pipeline disaster.

The fundamental 'challenge' associated with communicating your concern is tied to the word 'safe'. Unfortunately, it has been very rare that I have encountered organizations that have a good understanding of what that word means, and less of an understanding of how to demonstrate that a given system is 'safe enough.'

During my investigation of the San Bruno disaster, I did not find a single document (including trial deposition transcripts) that clearly indicated PG&E or the California PUC had a clear understanding of the word 'safe': "*freedom from undue exposure to injury and harm*." Further, it was clear they did not have a clear understanding of the First Minimal Principle of Civil Law: "*It is lawful to impose risks on people if and only if it is reasonable to assume that they have sufficient knowledge to understand the risks and have consented to accept those risks*."

Much of this situation is founded in 'ignorance'. It is very rare for me to work with engineers or managers who have an accurate understanding of what the word 'safe' means - and no clue about how to determine if a system is either safe or unsafe. The vast majority of governmental regulatory agencies are even worse off.

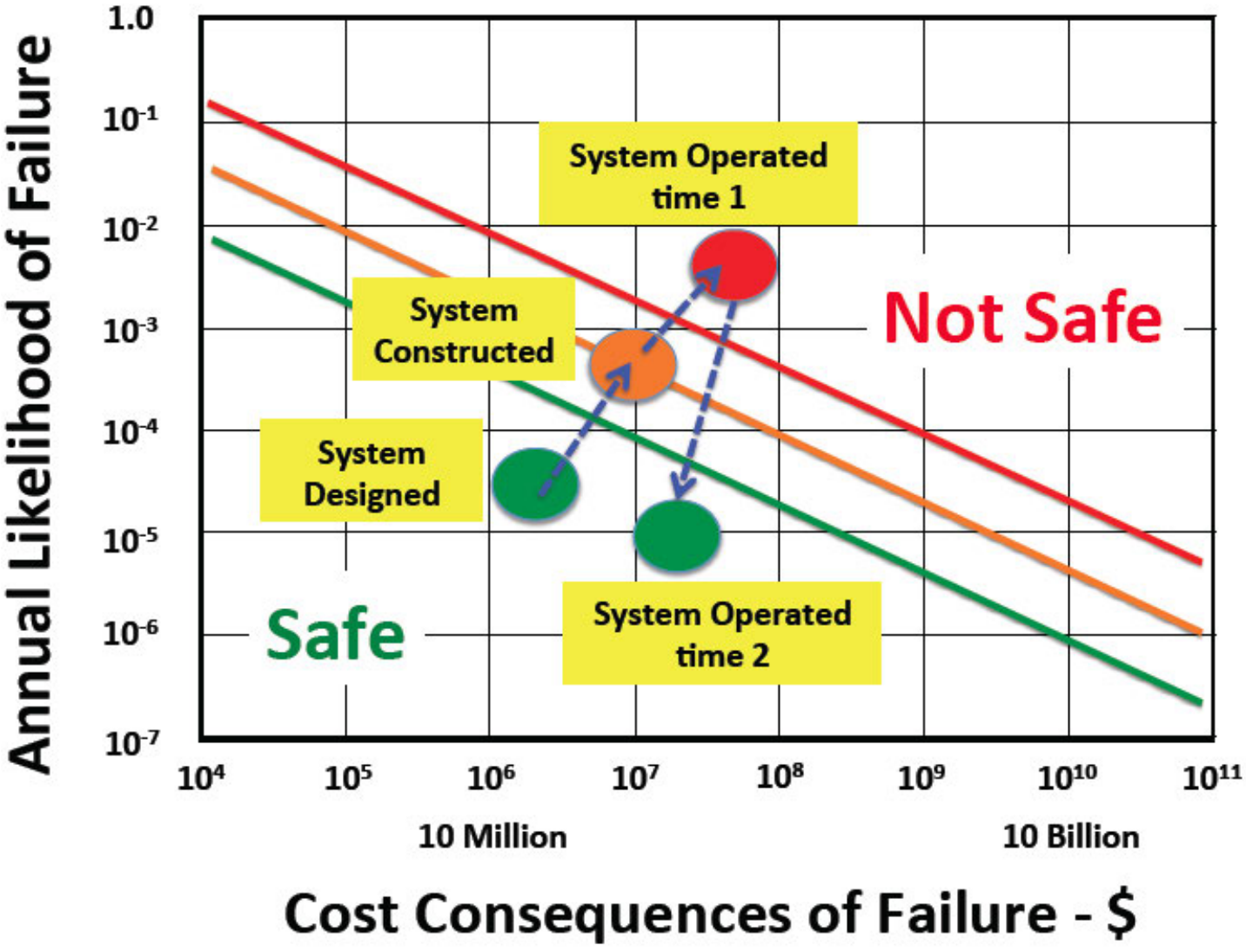
I have attached a graph that helps me explain the important concepts associated with determining if a system is either safe or unsafe. The vertical scale is the annual likelihood of failure. The horizontal scale is the consequences associated with a failure. The diagonal lines separate the graph into two quadrants: Safe and Not Safe. If the potential consequences can be very high, then the probability of failure must be very low. Uncommon common sense.

On the graph, I show a system that was designed for a particular 'risk' (combination of likelihood and consequences of failure). When it was constructed, the risk increased due to construction 'malfunctions' - like bad welding. When the system was put into service, the risk increased further - perhaps due to poor corrosion protection and due to the area around the pipeline being populated with homes, businesses, schools and other

things that increase the potential consequences of a major failure. Once it is determined that the system that was originally designed to be safe is no longer safe, then it is necessary to do things that will allow the system to be safely operated—reduce the likelihood of failure (e.g. repair the corrosion) and reduce the consequences of failure (e.g. install pressure control shut off sensors and equipment that can detect a loss of gas and rapidly shut down the system)—or replace the segment of the pipeline that no longer meets safety-reliability requirements.

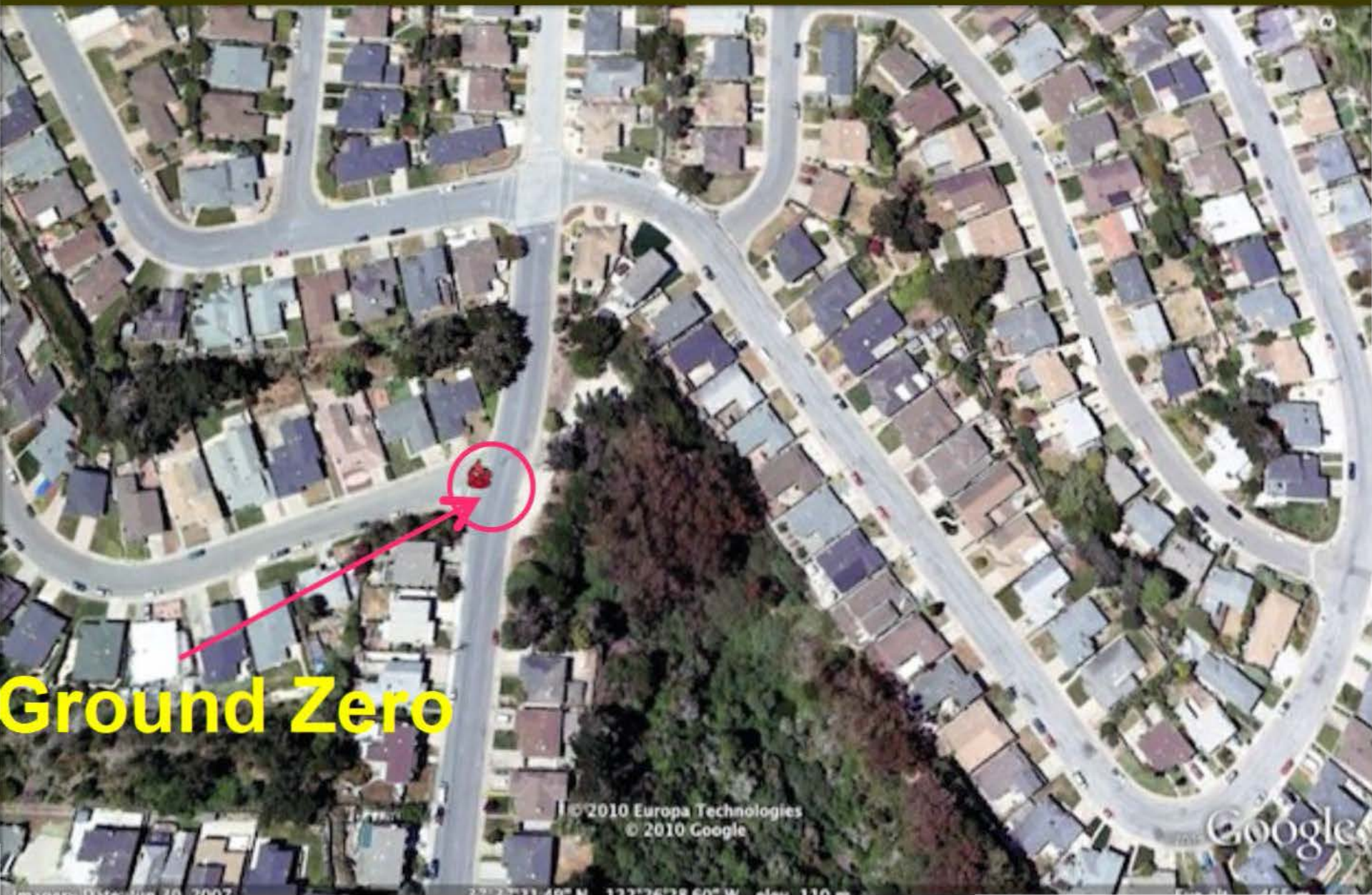
After I completed my investigation of the San Bruno disaster, I prepared a series of 'graphics' that summarized my findings. A copy of the file is attached. I hope it will help you understand how to better communicate your valid concerns regarding this development.

Robert Bea
Professor Emeritus
Center for Catastrophic Risk Management
University of California at Berkeley
email: bea@ce.berkeley.edu



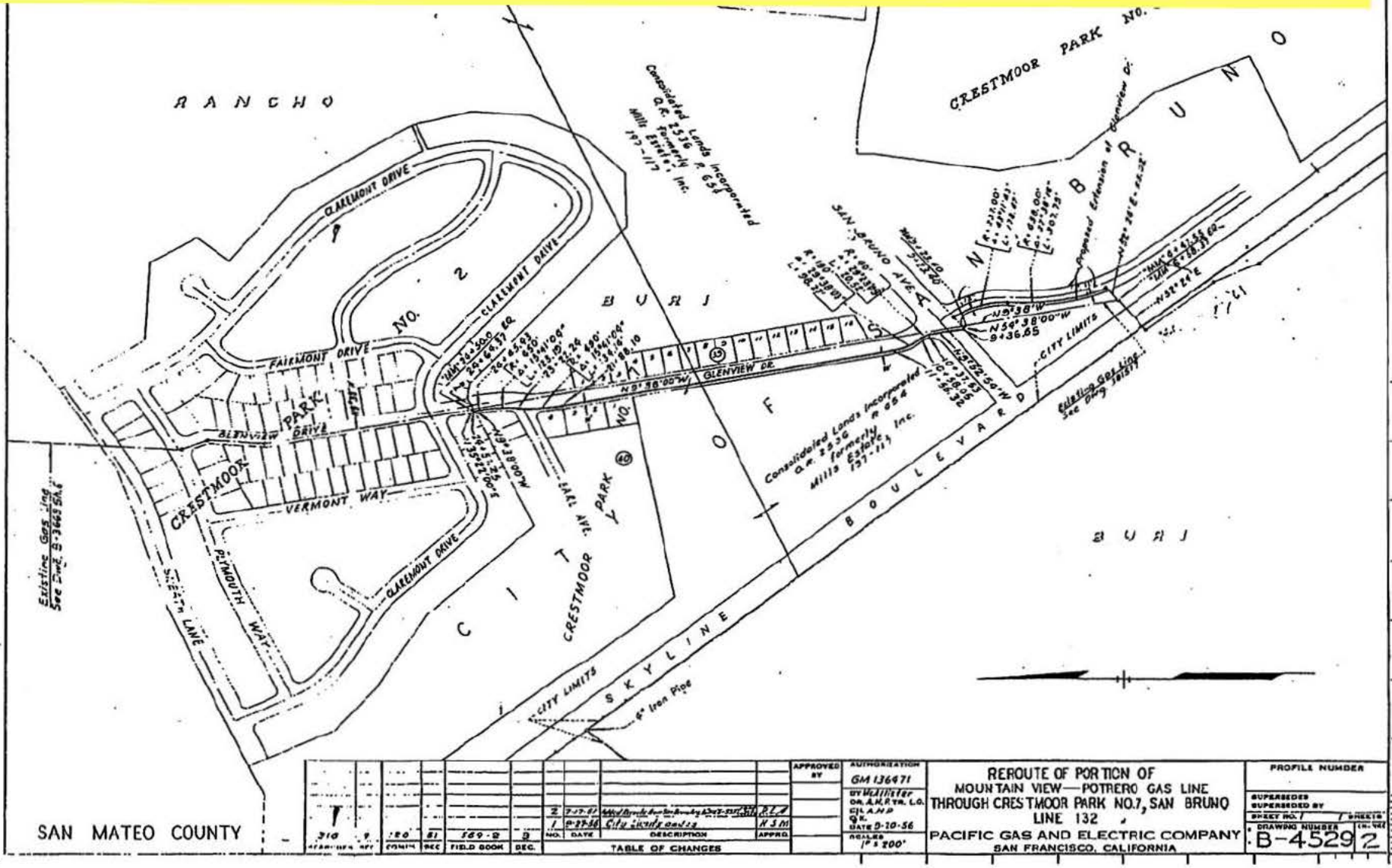
The PG&E San Bruno Disaster 'Root Causes' Analysis Summary

Crestmoor High Consequence Area



Installing Segment 180 in 1956

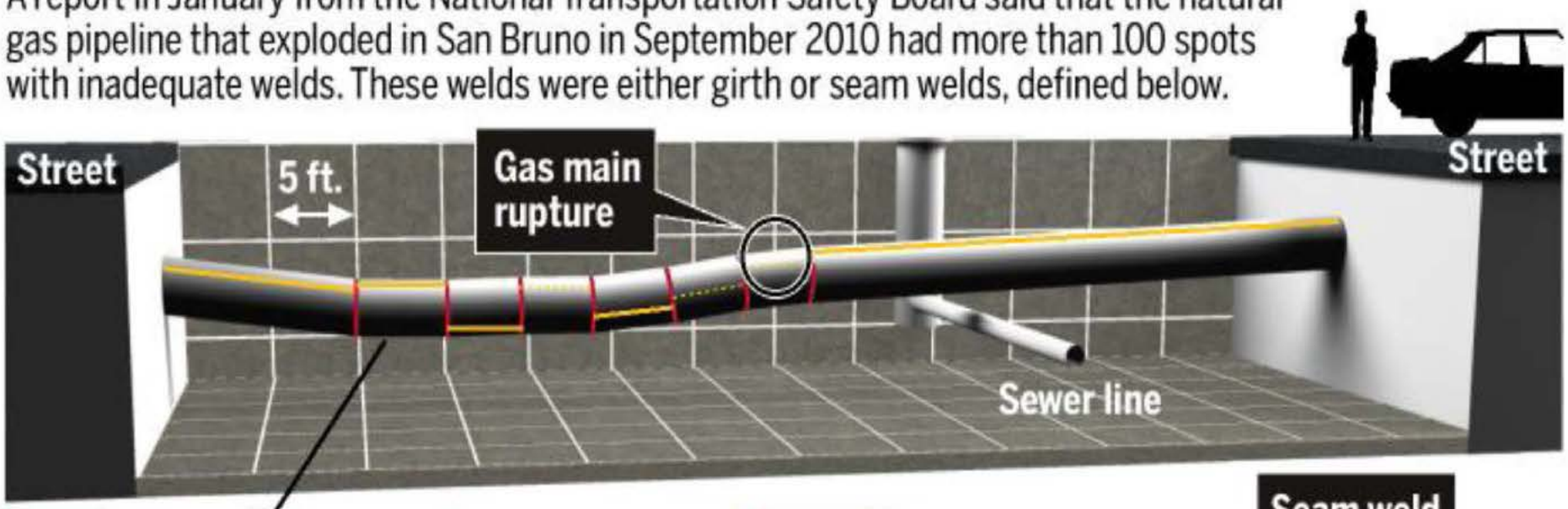
PG&E plans sent to field for 1956 relocation – details not provided for ravine profile



PG&E did not provide the construction 'details' to accommodate the change in vertical direction at the bottom of the 'ravine'

Gas pipeline construction

A report in January from the National Transportation Safety Board said that the natural gas pipeline that exploded in San Bruno in September 2010 had more than 100 spots with inadequate welds. These welds were either girth or seam welds, defined below.



Girth welds

Within the 44-foot section of the damaged pipeline were six smaller pieces, known as "pups," all welded end-to-end at the girth on-site in 1956.

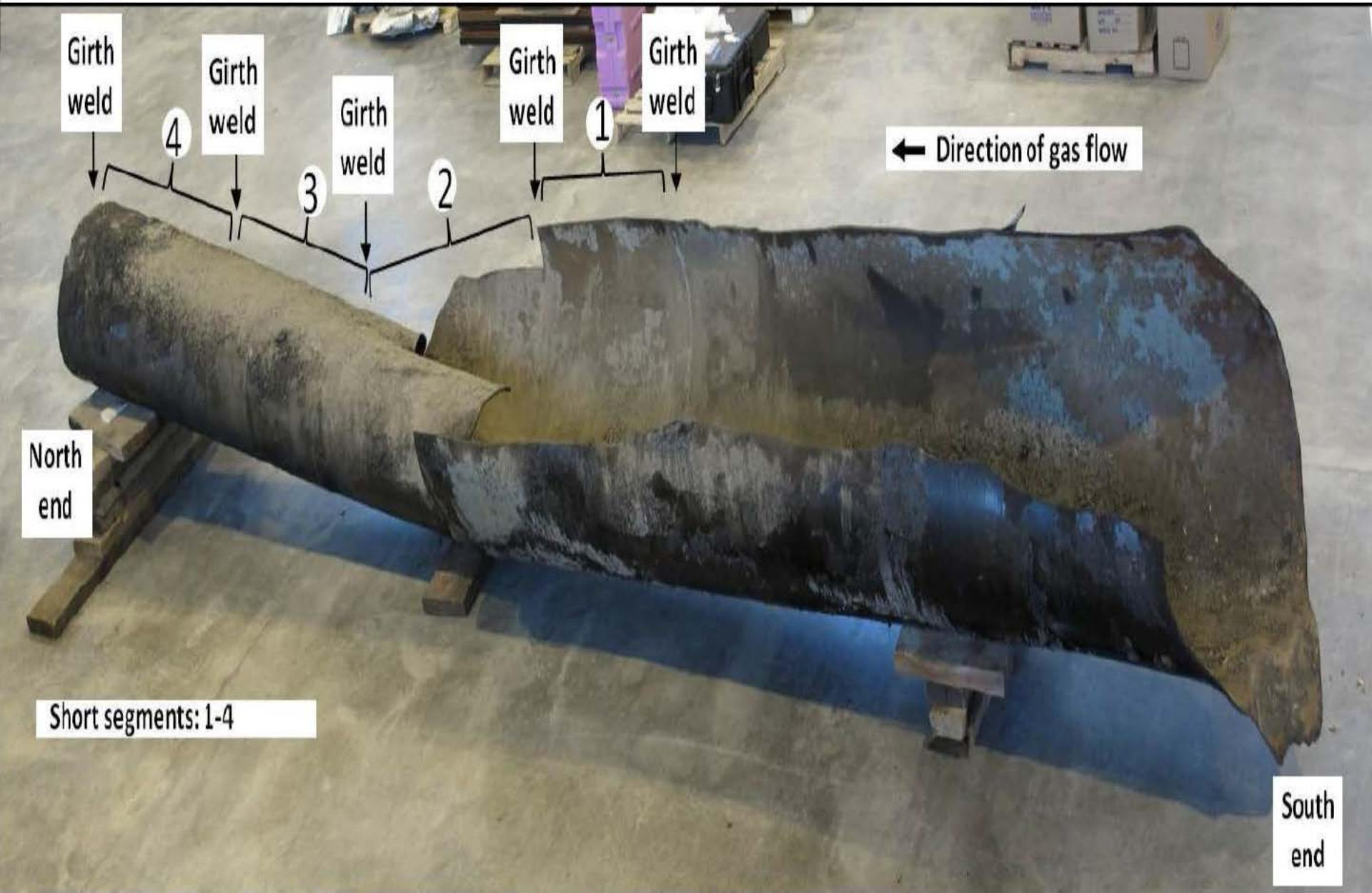
Seam welds

Done at a factory, pipes were made by rolling steel sheets and welding them at the seam. Investigators found numerous welds only penetrated halfway through the steel when they should have gone all the way.

Source: National Transportation Safety Board

PAI/MERCURY NEWS

PG&E installed a 'litter of pups' to accommodate the change in vertical direction at the bottom of the 'ravine'



Longitudinal welds inside pipe missing

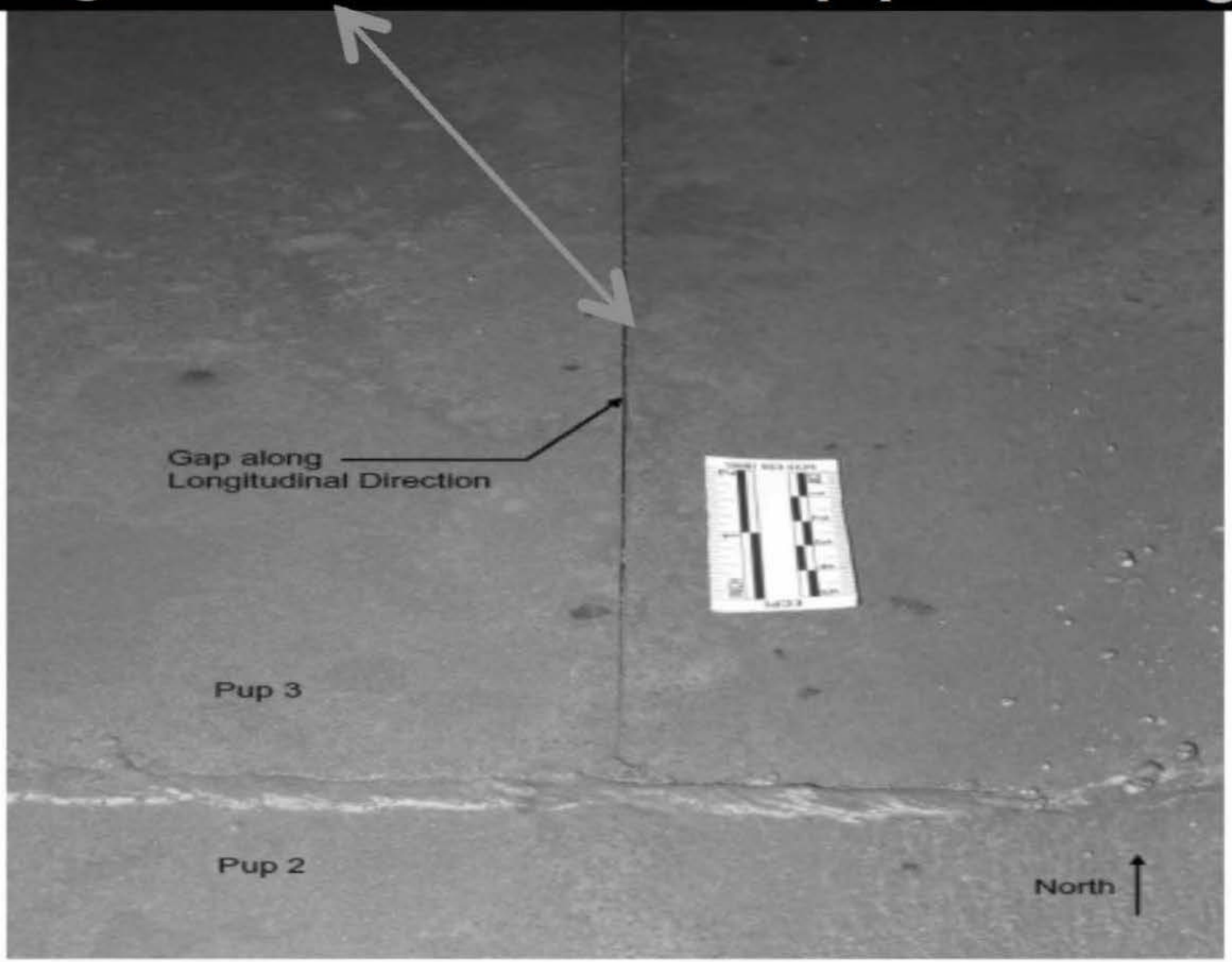


Figure 9: Inside wall of pup 3 showing a longitudinal gap that extended the length of the pup.

Welded from outside and ground flush

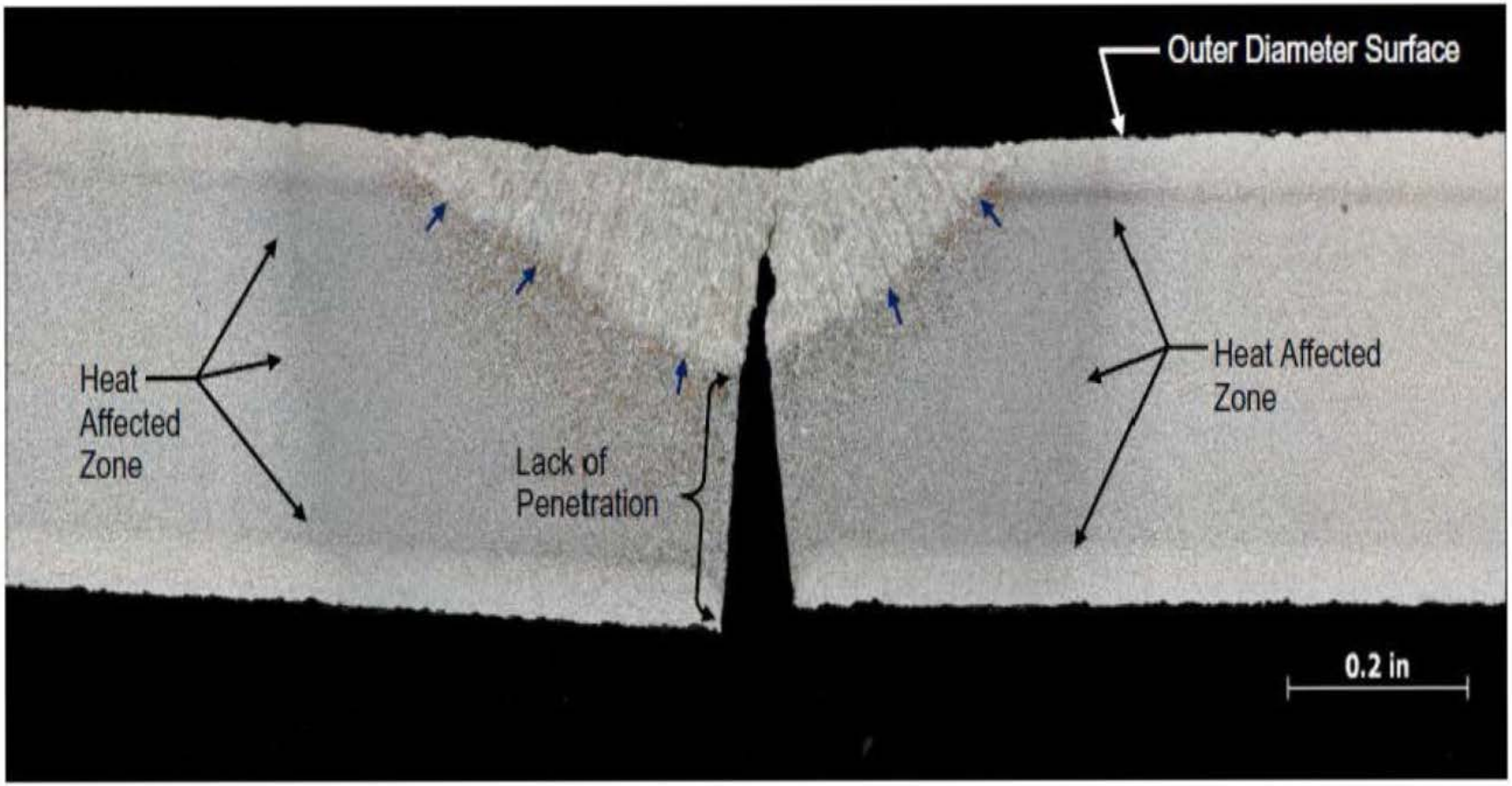


Figure 48: Etched metallographic cross section of the longitudinal seam in pup 3 taken 10 inch north of girth weld C3. The microstructure of the weld was consistent with a fusion welding process along the outer diameter surface of the seam. Blue arrows – weld pool boundary along outer diameter surface seam.

Weld flaws propagated by pressure fluctuations & 'spiking'

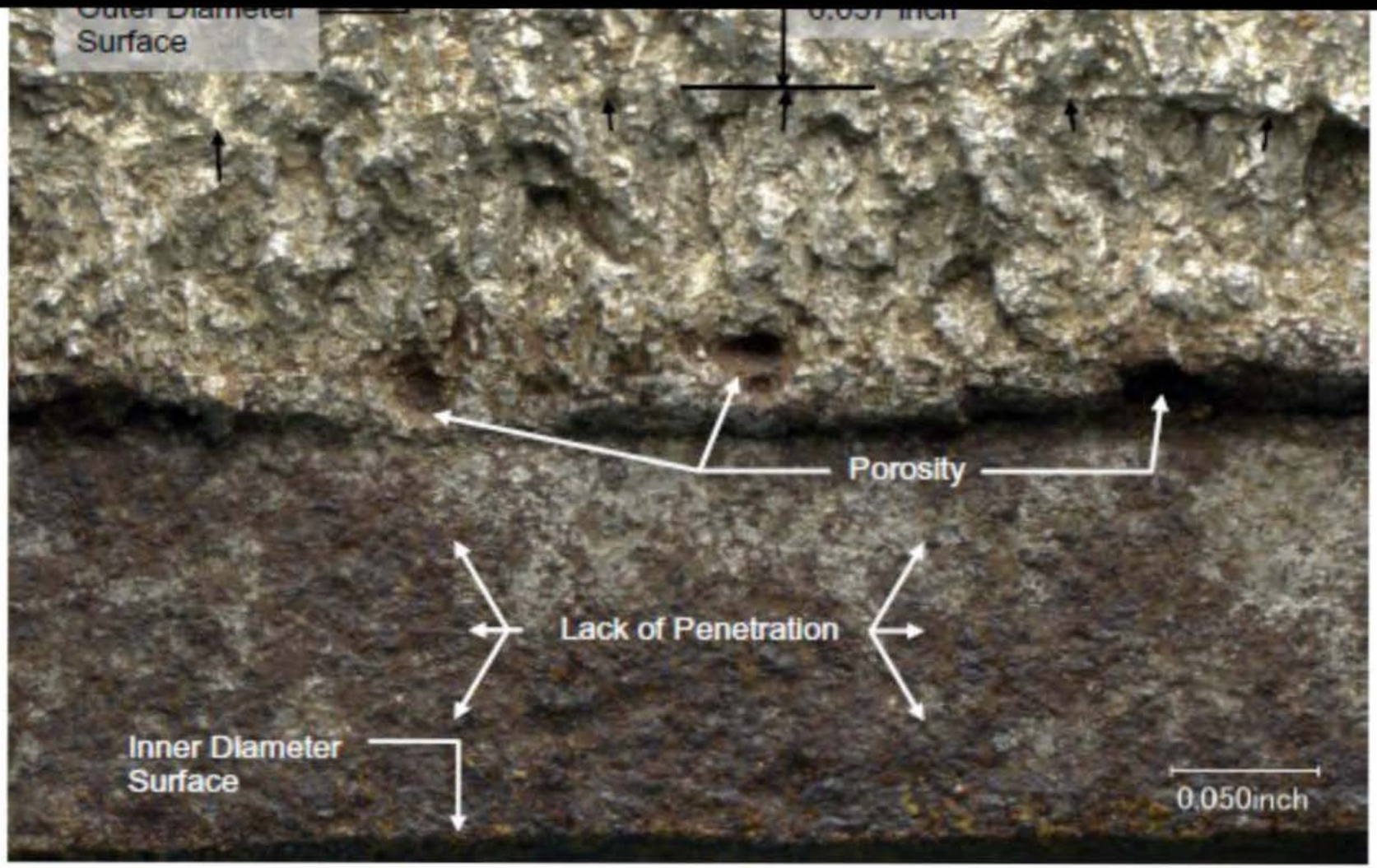


Figure 35: Micrograph of the initiation site in pup 1 at the 21.4 inch mark, the deepest point of the crack arrest mark. The profile of the arrest mark is indicated by the black arrows.

PG&E Milpitas control room operator:

“We’re Screwed!”

The history of Line 132 Segment 180

'A Tyranny of Incremental Disastrous Decisions'

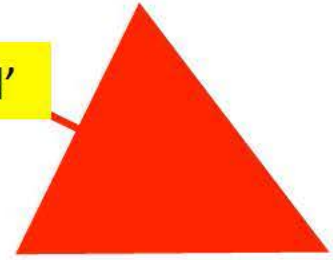
1956 construction 'work arounds' to relocate Line 132 and install Segment 180

1968 start intentional pressure 'Spiking' to maintain MAOP

1978 no action taken to hydrostatically test Line 132

1985 no action taken to replace Line 132 as part of the GPRP

1987 no action taken to uncover pipeline to determine what was 'in the ground'



The history of Line 132 Segment 180

'A Tyranny of Incremental Disastrous Decisions'

1988 no action taken to determine cause of leak in Line 132

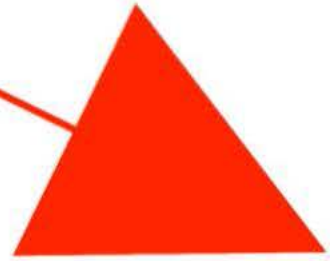
1996 no actions taken to install RCVs or ASVs to reduce effects of rupture

1998 no actions taken to validate information contained in pipeline GIS

2000 replaced GPRP with Risk Management Program to reduce costs

2003 repeat intentional pressure 'Spiking' to maintain MAOP

2004 integrity survey discloses 13 leaks with 'unknown' causes



Line 132 Bunker Hill longitudinal weld leak

The history of Line 132 Segment 180

'A Tyranny of Incremental Disastrous Decisions'

2008 no actions taken to determine 'unknown' causes of 26 leaks in Line 132

2008 repeat intentional pressure 'Spiking' to maintain MAOP

2008 no inspection of Segment 180 uncovered for sewer replacement

2009 Enterprise Risk Management report recognizes pipeline explosion risks

2010 audit of PG&E's Integrity Management Program discloses dilution through exception process and insufficient allocation of resources

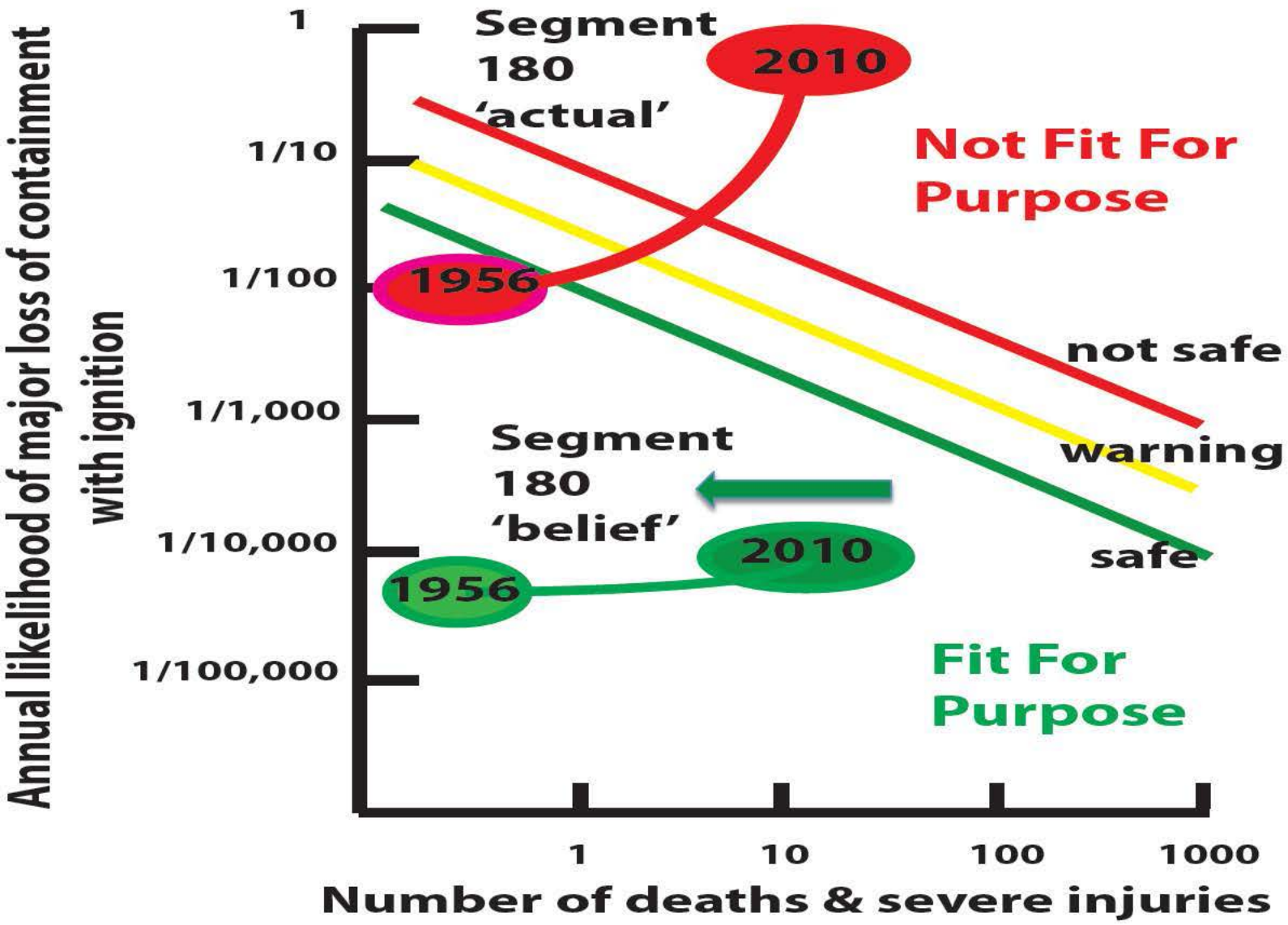
The history of Line 132 Segment 180

'A Tyranny of Incremental Disastrous Decisions'

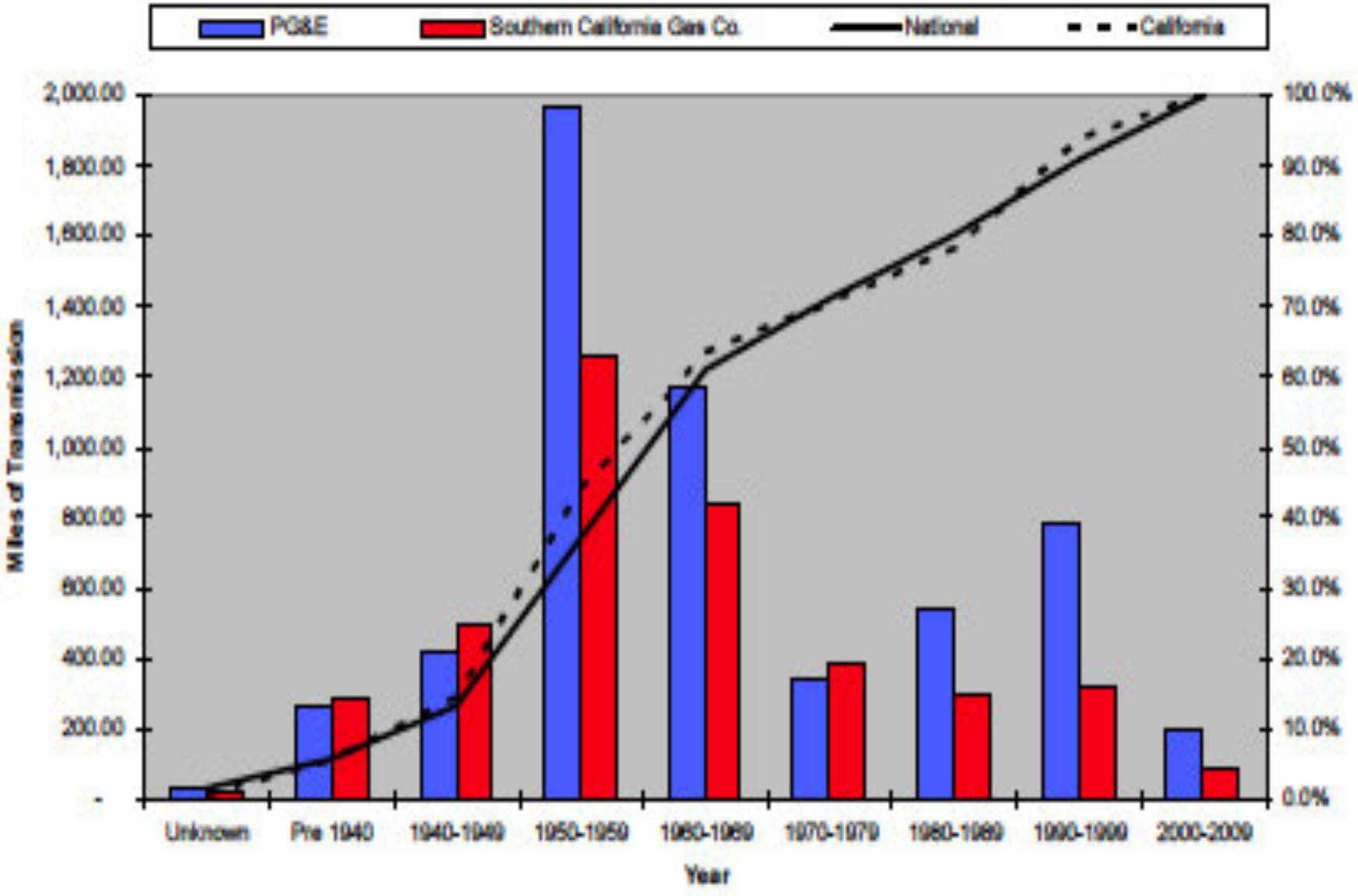
2010 additional manufacturing defect discovered in Line 132 girth weld

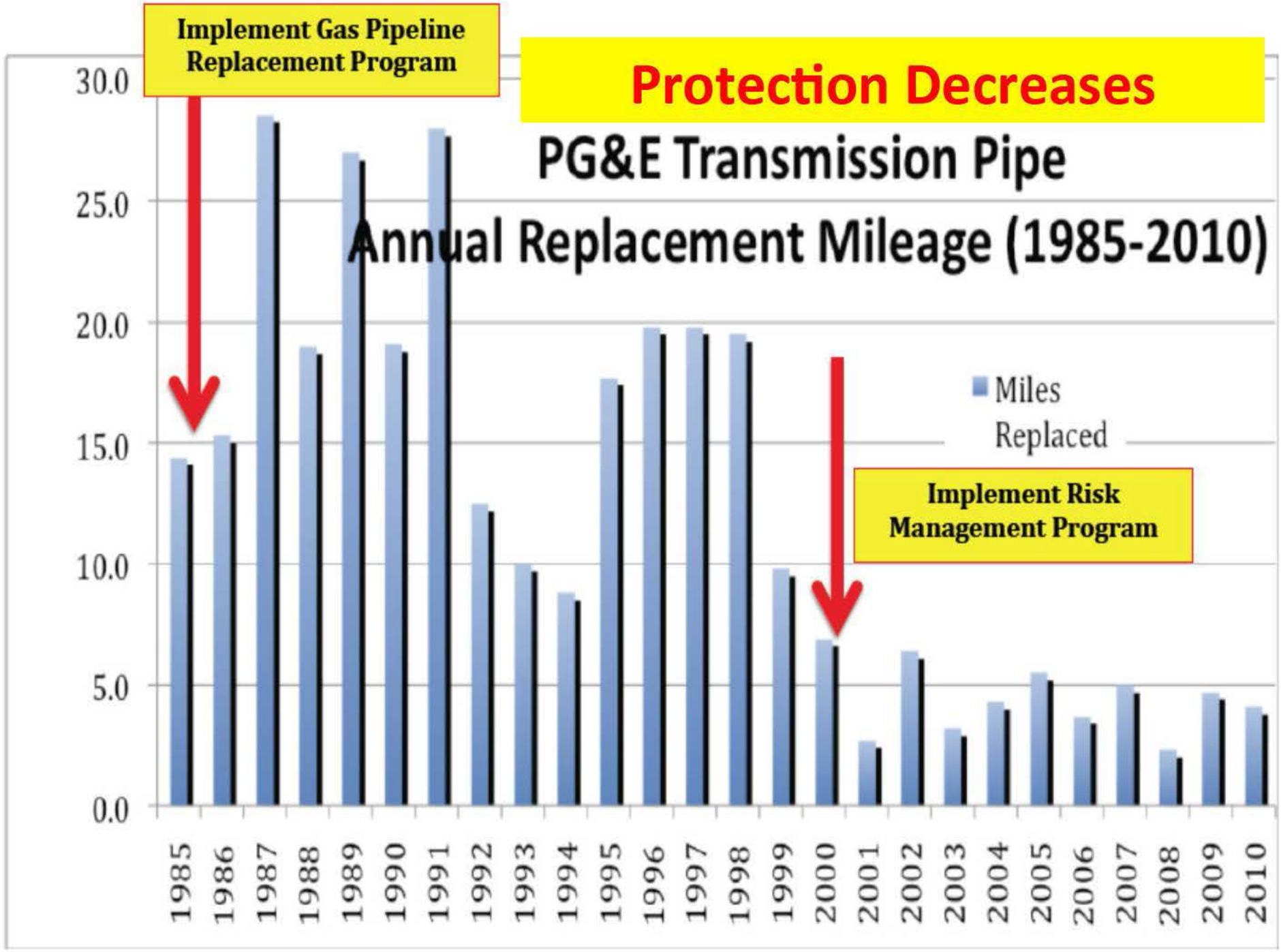
2010 September 9 at 6:11 PM Line 132 Segment 180 ruptures with catastrophic effects

PG&E Segment 180 Integrity Mis-management



Production Increases




Implement Gas Pipeline Replacement Program
Protection Decreases
PG&E Transmission Pipe
Annual Replacement Mileage (1985-2010)
Miles Replaced
Implement Risk Management Program
30.0
25.0
20.0
15.0
10.0
5.0
0.0
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2010

"I saw a company that lost its way"

(New PG&E CEO Tony Early)

June 9, 2012

PG&E

SS AT PGE.COM

Line 132 Segment 180 was MANAGED TO FAILURE by PG&E

Storesund Consulting
154 Lawson Road, Kensington, CA 94707
510-225-5389 (cell) email: rune@storesundconsulting.com

December 1, 2016

SF Board of Supervisors
San Francisco City Hall
1 Dr Carlton B Goodlett Pl #244
San Francisco, CA 94102

Subject: Independent Project Review
3516 & 3526 Folsom Street
San Francisco, California

Dear President Breed and Honorable Members of the Board of Supervisors,

This letter is in response to a request for an independent assessment of the proposed 3516 & 3526 Folsom Street development. My qualifications are presented in the attached resume. I am a practicing Geotechnical Engineer (CA License Number 2855), I provide gas pipeline risk reviews for the State of California Department of Education, and have participated in forensic engineering projects over the last 10 years with damage claims in excess of $2 billion and more than 8,000 hour of direct forensic analyses. My most recent engagement was a geotechnical forensic evaluation of the March 2014 Oso Landslide in Washington State, which resulted in the tragic loss of 43 individuals. In addition to private consulting, I am the Executive Director of the Center for Catastrophic Risk Management at UC Berkeley.

This geotechnical review is the requested independent assessment and is based on documents included in the Discretionary Review, Full Analysis by San Francisco Planning Department (dated October 4, 2016) as well as a set of geotechnical reports prepared by Mr. H. Allen Gruen (dated August 3, 2013).

The proposed projects are located immediately adjacent to a major PG&E transmission natural gas pipeline (Figure 1, Figure 2, Figure 3). This major pipeline is located immediately below the primary access road for the construction (Figure 4, Figure 5), immediately adjacent to significant proposed new utility work (e.g. gas service, water supply, sewer) as well as removal of existing pipeline soil cover (Figure 6, Figure 7), and immediately adjacent to significant proposed bedrock excavation (depths on the order of 6 to 10 feet per the submitted architectural elevations (such as sheet A-3), as seen in .

Construction-related stressing, as well as accidental 3rd party damage, has the potential to degrade the integrity of the PG&E natural gas transmission line, exposing the surrounding neighbors to increased risk of death and injury from the potential of construction-induced puncture or degradation of pipeline integrity.

Unlike lots further west and further east (Gates Street, Banks Street) that are not immediately adjacent to a transmission line, these specific parcels are unique in their proximity to a significant hazard.

Major items of concern include at this particular project site:

- Geotechnical borings do not extend to the proposed depth of excavation, providing information on competence of bedrock and anticipated level of effort to excavate;
- No explicit discussion about induced ground vibrations during rock excavation and associated potential degradation of the PG&E transmission line integrity;
- No explicit discussion about negative impacts of construction traffic to the PG&E transmission line integrity; and
- Significant construction operations immediately adjacent to the active PG&E transmission pipeline.

Extreme care and caution should be exercised at this site, including careful review of the proposed construction activities. At a minimum, a thorough constructability review and consequence analysis should be performed to assess the safety implications associated with working in such close proximity to an active natural gas transmission line. An appropriate (peer-reviewed) active monitoring program to verify no undue harm is being done to the transmission pipeline during construction should be designed and implemented.

Given the uncertainties of actual pipe integrity, strong consideration should be given to replacing the segment of pipeline to ensure maximum integrity and minimal exposure of residents to undue injury or death as a result of the anticipated heavy excavation and ground disturbance activities.

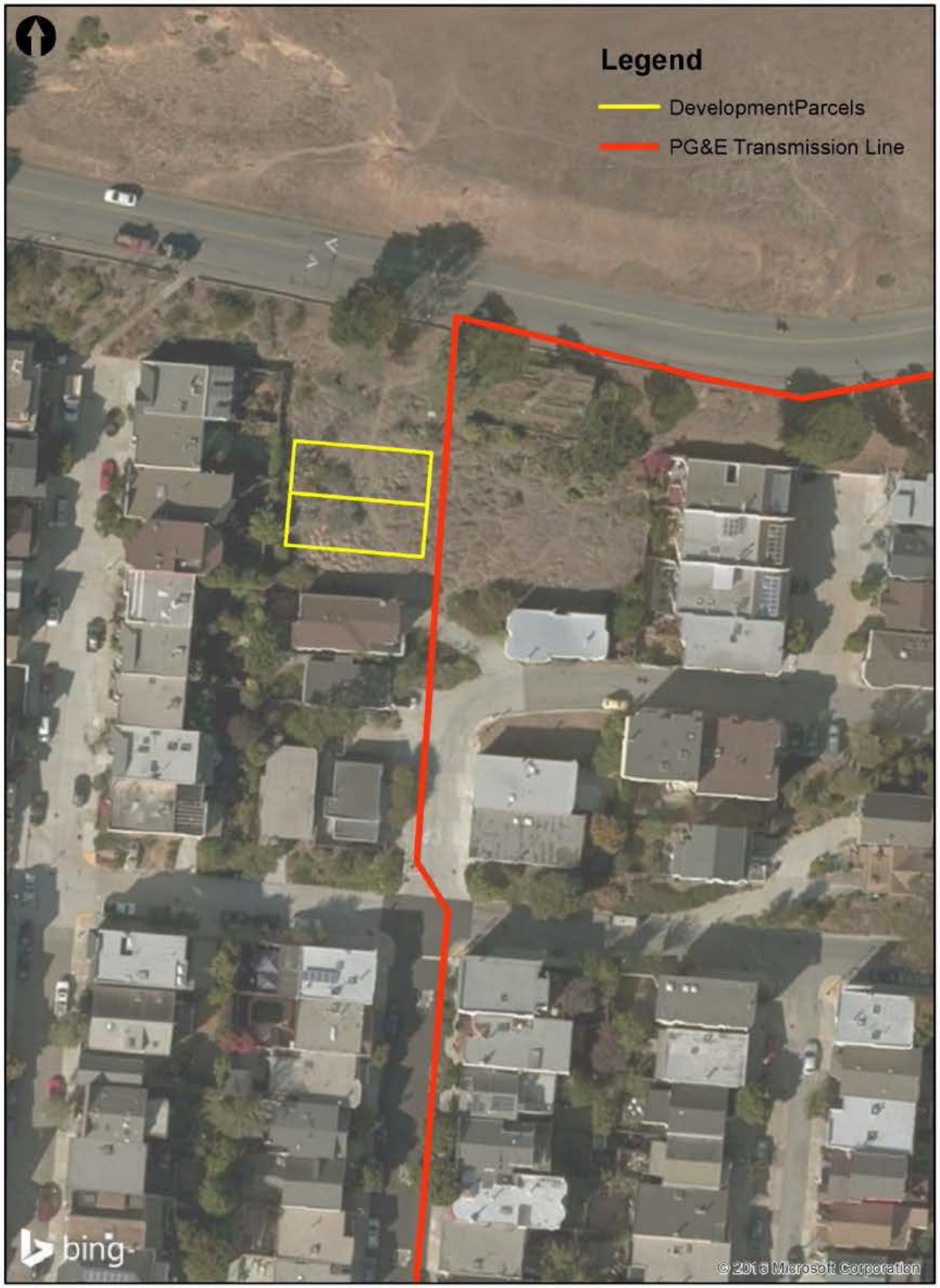


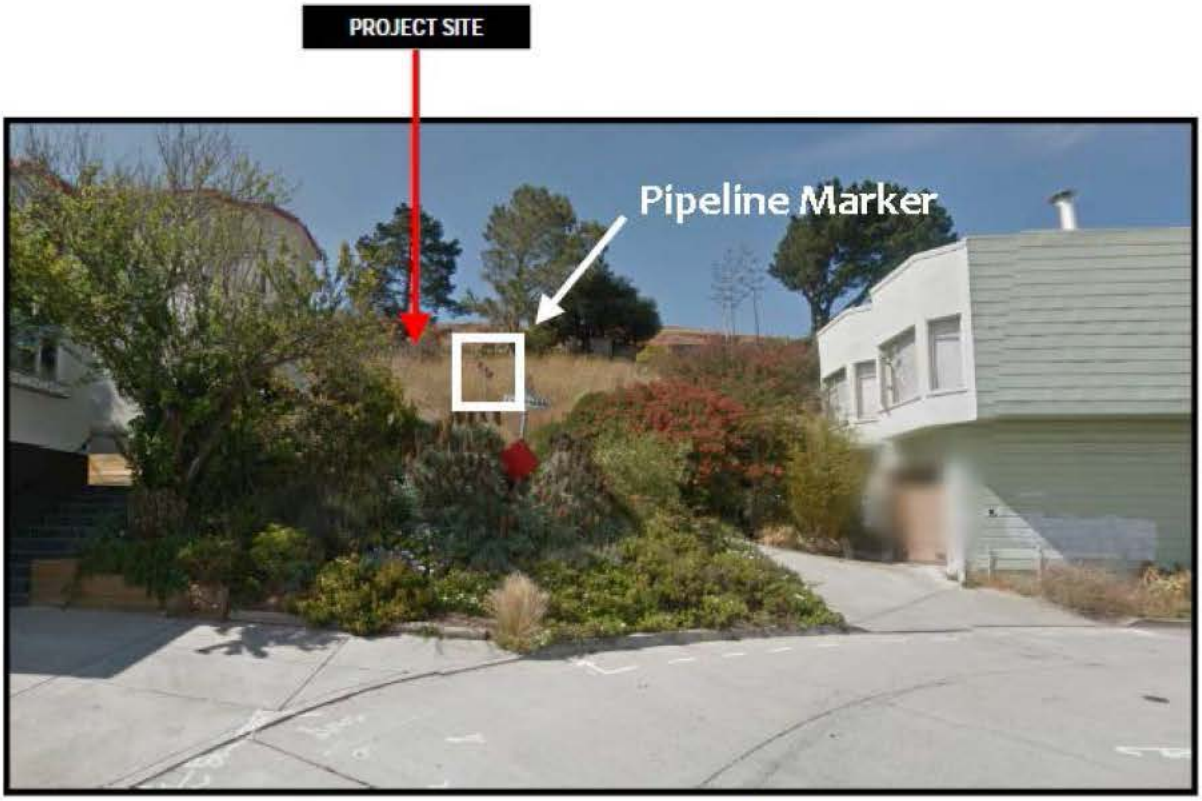
Figure 1: Overview of parcels with proposed development. Note that the PG&E transmission line is directly under the primary access.

Site Photo

View from Bernal Heights Boulevard, near intersection with Folsom Street
(Source: Google Maps, July 2015; Accessed March 23, 2016)

Figure 2: Pipeline marker at Bernal Heights Boulevard.

Site Photo



View of Folsom Street (looking up to Project Site)
(Source: Google Maps, July 2015; Accessed March 18, 2016)

Figure 3: Pipeline marker at corner of Folsom & Chapman.

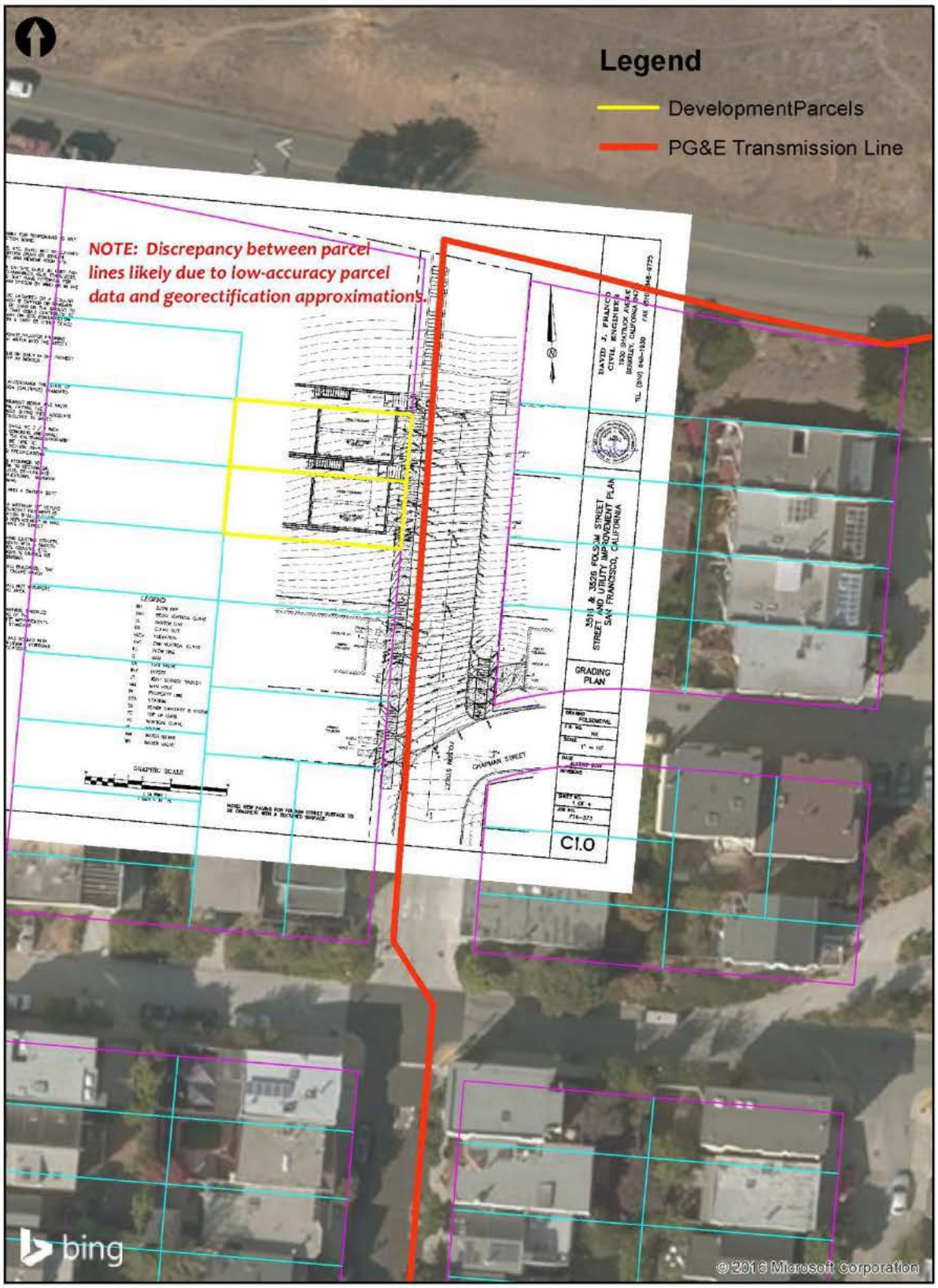


Figure 4: PG&E transmission line relative to proposed site plan.

CAMERA 5: View from Chapman Street at Folsom Street looking North-West

Figure 5: Approximate PG&E transmission gas line alignment relative to proposed structures.

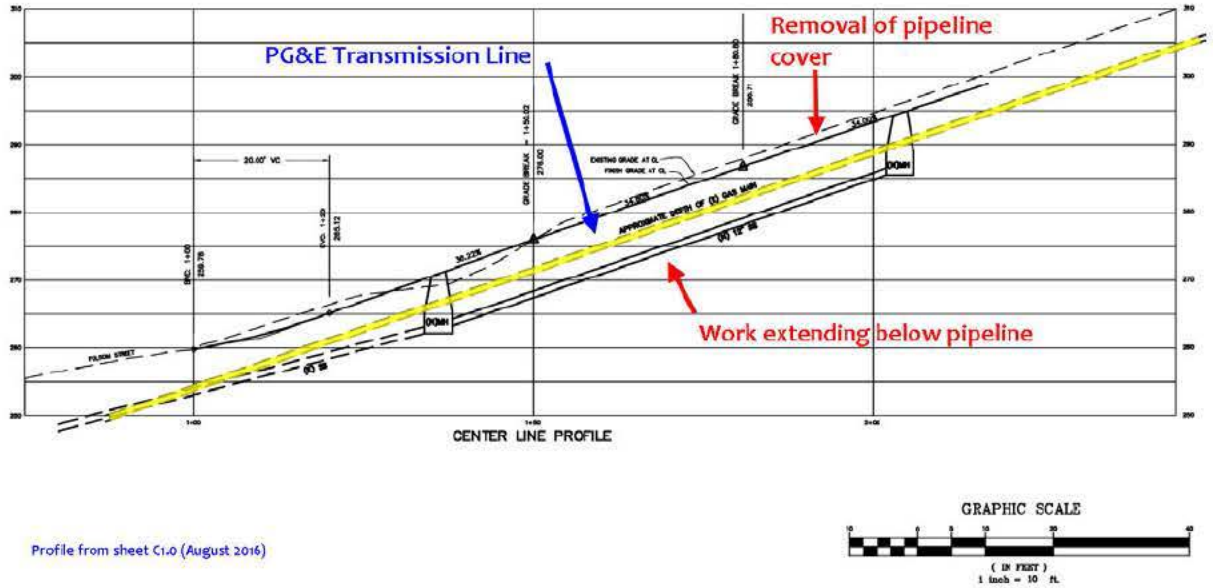


Figure 6: Plans call for removal of pipeline cover as well as construction work <u>below</u> the existing pipeline.

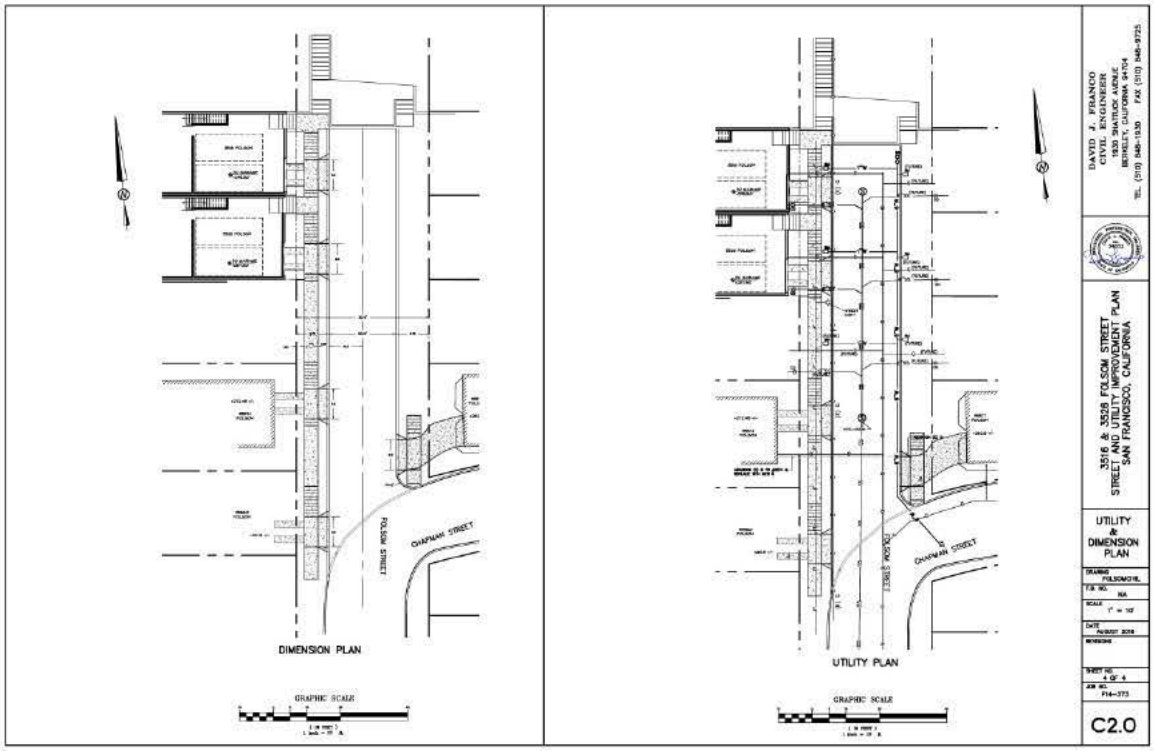


Figure 7: Proposed utilities <u>immediately adjacent</u> to the PG&E transmission line.

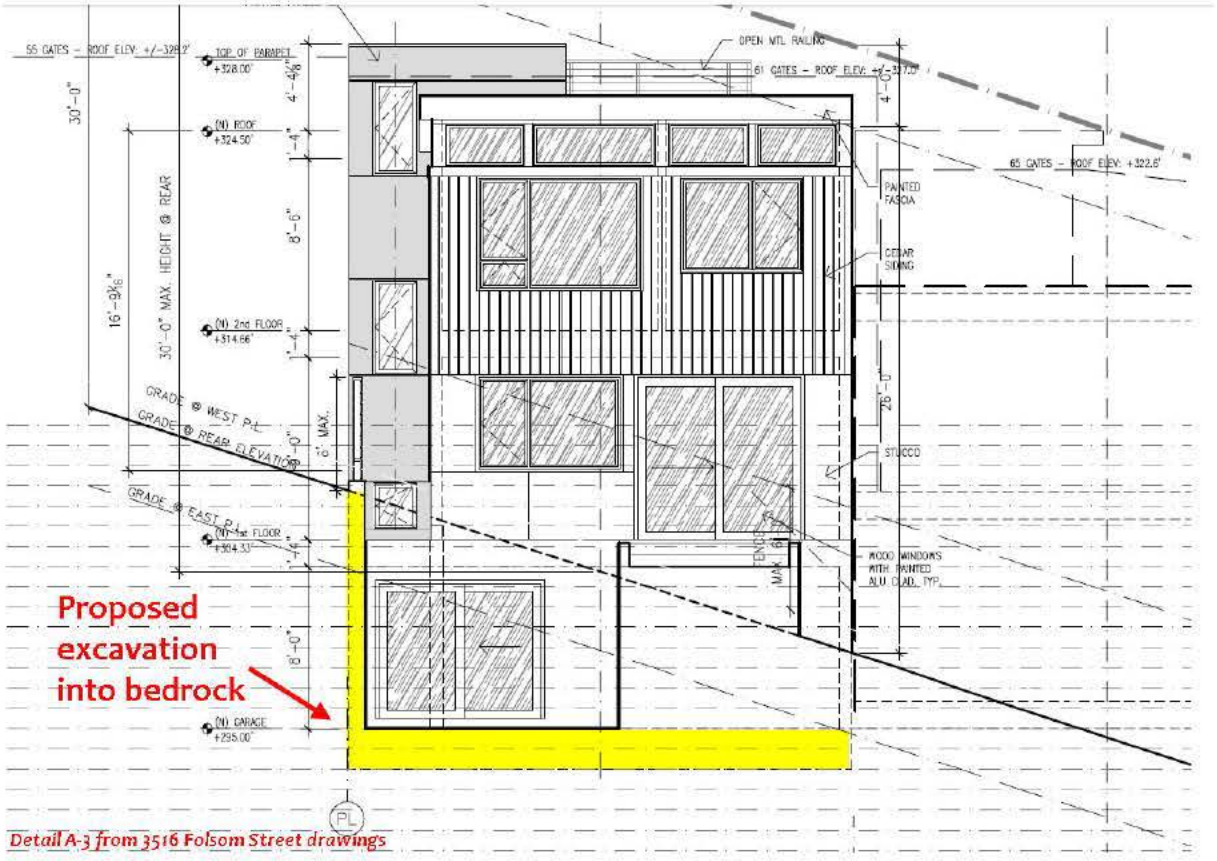


Figure 8: Significant cuts into bedrock resulting in ground vibrations.

No payments for services have been received and no future promises of compensation have been offered.

I reserve the right to update my independent review based on new information.

Please contact me with any questions or comments by phone at (510) 225-5389 or via email at rune@storesundconsulting.com.

Sincerely,

STORESUND CONSULTING

Rune Storesund, D.Eng., P.E., G.E.
Consulting Engineer

UC Berkeley Center for Catastrophic Risk Management
Executive Director

Attachment **Dr. Rune Storesund Resume**

EDUCATION:

D. Eng Civil Engineering, University of California, Berkeley, 2004-2009
(*Dissertation: Life-Cycle Reliability-Based River Restoration*)
Management of Technology Certificate Program, HAAS, UC Berkeley, 2007
M.S. Civil Engineering, University of California, Berkeley, 2002 (Geotechnical Engineering)
B.S. Civil Engineering, University of California, Berkeley, 2000
B.A. Anthropology, University of California, Santa Cruz, 2000

QUALIFICATIONS:

- California, Civil Engineer, RCE 64473
- California, Geotechnical Engineer, GE 2855
- Louisiana, Civil Engineer, RCE 35034
- Hawaii, Civil Engineer PE-15439
- Washington, Civil Engineer PE 52924
- California Safety Assessment Program Disaster Service Worker
- NAUI Scuba Diver Openwater I (1994)
- Offshore Survival Certification

EXPERIENCE:

Dr. Storesund has 16 years of planning, design, engineering, and construction experience and has worked on a variety of projects throughout California, the United States, and internationally. Dr. Storesund provides consulting services in all aspects of civil, geotechnical, water resources, ecological, restoration, and sustainability engineering projects. His expertise is on the application of reliability and risk-based approaches to engineering projects (with a specialization in environmental restoration and flood control projects) in order to effectively manage project uncertainties. Dr. Storesund has participated in all aspects of engineering projects; from preliminary reviews to detailed analyses to construction observations and post-project monitoring. He provides expert forensic engineering services for geotechnical and civil infrastructure systems. In addition to traditional engineering services, he provides consultations on field instrumentation and monitoring programs as well as Terrestrial LiDAR field survey services. His doctoral research was on life-cycle, reliability-based river restoration.

Dr. Storesund is the Executive Director of UC Berkeley's Center for Catastrophic Risk Management (risk.berkeley.edu). The Center for Catastrophic Risk Management (CCRM) is a group of academic researchers and practitioners who recognize the need for interdisciplinary solutions to avoid and mitigate tragic events. This group of internationally recognized experts in the fields of engineering, social science, medicine, public health, public policy, and law was formed following the tragic consequences of Hurricane Katrina to formulate ways for researchers and experts to share their lifesaving knowledge and experience with industry and government. CCRM's international membership provides experience across cultures and industries that demonstrate widespread susceptibility to pervasive threats and the inadequacy of popular, checklist-based remedies that are unlikely to serve in the face of truly challenging problems.

Dr. Storesund serves as an on-call expert Geotechnical Engineer to the State of California's Department of Consumer Affairs for their annual examination.

PROJECTS: Projects Dr. Storesund has worked on are listed below:

Environmental Restoration

Louisiana Coastal Protection and Restoration (LACPR): Working with Environmental Defense, Dr. Storesund provided consultation services on proposed coastal restoration efforts in Louisiana, submitted by the United States Army Corps of Engineers (USACE). Dr. Storesund developed planning and design evaluation metrics by which to evaluate the adequacy of the proposed restoration alternatives. Additionally, Dr. Storesund is perfored a technical review of the risk-based design prepared by the USACE.

Yosemite Slough Restoration: Dr. Storesund served as a project engineer, providing geotechnical recommendations during design. Project specifications were developed for this restoration project in San Francisco, California. The USACE SPECSINTACT program was used to develop the specifications.

Hamilton Wetland Restoration Project Shaping Contract, Novato, California: Dr. Storesund served as the geotechnical engineer of record for this earthwork project to shape dredge spoils into habitat features. Four areas (North Seasonal Wetland, Wildlife Corridor, Tidal Panne, and South Seasonal Wetland), each having different habitat requirements, were configured as part of the restoration project. A special low-permeability bottom was developed to minimize water infiltration and maximize salt retention in the seasonal tidal areas (habitat feature).

Redwood Creek, Napa County, California: Dr. Storesund provided topographic as-built and photographic documentation for this in-stream habitat enhancement project. Boulder features were added to provide channel roughness and resting pools for migrating fish.

Upper Napa River Restoration Project, Napa County, California: Dr. Storesund served as the lead engineer providing civil, geotechnical, environmental, hydrological engineering and topographic mapping services for a four-mile stretch of the Napa River south of Calistoga, California. The project was sponsored by the California Land Stewardship Institute.

Sulphur Creek Monitoring, Hayward, California: Dr. Storesund is conducting annual geomorphic monitoring (for a total of 10 years) of this completed restoration project in Hayward, California. The project included slope stabilization and installation of habitat features (rock boulders). The monitoring includes surveys (cross-sectional, thalweg) and photo monitoring.

Kirby Canyon Landfill Mitigation, Santa Clara County, California: Dr. Storesund provided geotechnical engineering recommendations for this dam removal and creek restoration project. The site is located in a very steep canyon, with high gradients. In addition, the dam had been overtopped during previous storms, resulting in very deeply incised ravines forming (which needed to be backfilled).

Waldo Point Wetland Restoration, Marin County, California: This project is a wetland restoration project. Dr. Storesund provided topographic survey and piezometer monitoring services to establish connectivity parameters between San Francisco Bay and the proposed wetland mitigation site.

Huichica Creek Fish Passage: A fish-friendly culvert was designed as part of Caltran's Highway 36 widening project in Sonoma County, California. Dr. Storesund developed the conceptual and final designs, project specifications, and project cost estimate.

Great Valley Grasslands, Merced County, California: Dr. Storesund served as the project manager and project engineer for this floodplain reconnection project at the Great Valley Grasslands State Park. His evaluations consisted of a site reconnaissance, erosion/scour susceptibility screening, and hydraulic analysis of inundation through a series of existing culverts.

Pond 1 Restoration, Mountain View, California: Storesund Consulting performed a topographic survey of existing conditions to develop a base map for grading to alter onsite flood discharge to minimize inundation times (and prevent die-off of vegetation due to temporary storm water retainage). We developed grading plans, specifications, performed construction staking and performed an as-built survey using Terrestrial LiDAR methods.

ECCC Souzal, Antioch, California: Storesund Consulting performed a high-resolution RTK GPS survey of this wildlife area in order to generate a detailed topo to evaluate micro-watersheds for vernal pool development.

Hess Creek Restoration, Clayton, California: Storesund Consulting performed a high-resolution RTK GPS survey of this incised creek stretch to be restored. The survey results were integrated with available aerial LiDAR topography. We also provided geotechnical recommendations for the restoration plans.

Rancho San Vicente, New Almaden, California: Storesund Consulting provided geotechnical recommendations for this restoration project which involved the removal/stabilization of 16,000 CY of earthen fill dumped into a ravine on County Park Land. The recommendations involved environmental contamination, grading operations, temporary haul roads, slope stability, and earthwork.

Port of Richmond, Operable Unit 2: Dr. Storesund provided geotechnical design on this environmental remediation and restoration project within the Port of Richmond. The mitigation consisted of a subaqueous cap (comprised of Bay Mud) in the inlet, installation of rip-rap along the shoreline revetment zone, and installation of a concrete facing and asphalt concrete cap to isolate in place sediments.

Port of Oakland, Operable Unit 2: Dr. Storesund provided geotechnical design support services to Land Marine Geotechnics on this reclamation and restoration project within the Port of Oakland. Dredged spoils were used to abandon a deep-draft U.S. Navy pier at the Port of Oakland.

Storm Water Pollution Prevention Plans

Oakley Civic Center Frontage Improvements, State Route 4, Oakley, California: A SWPPP was prepared for this widening project in Oakley. The existing Main Street in the project limits has two westbound lanes and one lane eastbound. The project added pavement, roadway entries/exits, curb, gutter and sidewalks on the south side of Main Street, as well as street lights along both sides of Main Street.

Brentwood Boulevard Widening and Reconstruction From Woodfield Lane to Central Boulevard, Brentwood, California: A SWPPP was prepared for this project which widens the current Brentwood Boulevard (State Route 4) between Woodfield Lane and Central Boulevard from the existing geometry of a three-lane with two way left turn lanes to a four-lane roadway with a raised landscape median and turn pockets at intersections. Project demolition included removal of curb and gutter, sidewalk sections, damaged pavement sections, and removal of select trees.

Mainstreet Roadway Improvement Plans for Subdivision 8916, Oakley, California: A SWPPP was prepared for this roadway improvement project in Oakley, California. The project added pavement curb & gutter and sidewalk to the west side of the existing roadway in order to facilitate future addition of a second eastbound lane.

Sand Creek Road Intersection Improvement Project, Brentwood, California: A SWPPP was prepared for this project which expands an existing intersection and widens the roadway. The project added pavement, curb & gutter, and sidewalks.

Sausalito Yacht Harbor, Sausalito, California: Dr. Storesund developed a design for treatment of storm water runoff in the large parking lot adjacent to the Sausalito Yacht Harbor as part of a bulkhead wall replacement project. The design involved the installation of a permeable rock infiltration zone under a walkway area. This infiltration area was designed to treat storm water runoff before it enters Richardson Bay.

Flood Control

California Rural Levee Repair Criteria Committee: This advisory committee was charged with developing rural levee repair and improvement criteria to be applied for planned or emergency work. The group worked in conjunction with DWR, interested stakeholders, and USACE. Dr. Storesund provided engineering (seismic, geotechnical marine, ecological, water resources) and risk-based decision making input to this group. This committee was active between 2012 and 2014.

USACE West Sacramento Flood Control Project, West Sacramento, California: Dr. Storesund served as a field engineer responsible for field construction quality control program, which consisted of sand cone density testing, nuclear gauge density testing, associated geotechnical laboratory testing, and issuing a final services during construction report.

Warm Springs Dam Control Structure Study, Sonoma County, California: Dr. Storesund served as the project manager and project engineer for this crack evaluation study for the San Francisco US Army Corps of Engineers. The study was performed in conjunction with PB. The vertical control structure for Warm Springs Dam suffered from water infiltration due to cracking of the concrete control structure. A LiDAR imaging and visual observation mapping was conducted of the cracks. Repair recommendations and cost estimate were provided to the US Army Corps of Engineers.

Las Gallinas Coastal Inundation Study, Marin County, California: Dr. Storesund served as a project engineer for this study (for the San Francisco US Army Corps of Engineers) that evaluated overtopping conditions during storm events for an existing flood protection system. Dr. Storesund developed a GIS terrain and inundation maps based on overtopping analyses.

Upper Penitencia Creek, Subsurface Geotechnical Exploration, Santa Clara County, California: Dr. Storesund served as the project engineer for this United States Corps of Engineers project which consists of on-land, subsurface geotechnical exploration along a portion of Upper Penitencia Creek. The requested services include drilling, sampling, field classification, laboratory testing, and Unified Soil Classification System (USCS) for soil borings at select locations along the creek alignment. The purpose of the soil borings was to provide subsurface data for the preliminary design of flood control structures, such as levees, floodwalls, culverts, and weirs along Upper Penitencia Creek. Dr. Storesund coordinated and managed Fugro's field operation exploration program that consisted of 22 soil test borings. Following the field exploration, Dr. Storesund managed the QA/QC review of all field and laboratory data. Dr. Storesund also managed the data report preparation.

Geotechnical Study Northern Borrow Area, Bulge And Pacheco Pond Levees, Hamilton Wetlands Restoration Area, Novato, California: Dr. Storesund served as the project engineer for this project which consisted of a geotechnical study for the Bulge and Pacheco Levees located in the Hamilton Wetlands Restoration Area. The project site is situated at the former Hamilton Army Air Field in Novato, California. The purpose of the geotechnical field exploration and laboratory testing program was to obtain information on subsurface conditions in the Northern Borrow Area in order to estimate the amount and nature of potential borrow material. The scope of services performed included:

- Conducting a field exploration program consisting of 18 test pits to determine the subsurface profile in the Northern Borrow Area;
- Conducting a laboratory testing program to obtain soil properties of the samples collected during our field exploration; and
- Preparing this geotechnical report presenting the results of our geotechnical field exploration, laboratory testing program, and a discussion of the exploration results.
- Specified development / review

USACE San Lorenzo Flood Control, Santa Cruz, California: Dr. Storesund served as a field engineer responsible for field density testing, performing associated geotechnical laboratory testing, and issuing a final services during construction report for this levee project in Santa Cruz.

USACE Napa River Flood Protection, Napa, California: Dr. Storesund served as a field engineer responsible for field density testing, performing associated geotechnical laboratory testing, and issuing a final services during construction report for this levee project in Napa.

Codornices Creek Restoration Project, Between Fifth and Eighth Streets, Albany and Berkeley, California: Dr. Storesund served as the project engineer for this geotechnical study. The purpose of this project is to restore the existing Codornices Creek, located between the City of Albany and the City of Berkeley, to a more natural setting using bioengineering and biotechnical methods. Dr. Storesund was responsible for the geotechnical field exploration and laboratory-testing program. The scope of our services included: Compiling and reviewing available geotechnical and geologic data; conducting a field exploration and laboratory-testing program; evaluation of slope stability and erosion susceptibility; development of embankment fill recommendations and general construction considerations; and preparing a final geotechnical report that included the results of our geotechnical field exploration and laboratory testing program, discussion of geotechnical issues, and geotechnical recommendations

Water Storage Reservoirs

Napa, Sonoma, and Lake Counties, California: Provided engineering design recommendations and construction observations services for water storage reservoirs for various agricultural clients. Reservoirs are off-stream, agricultural purpose reservoirs or are on-stream reservoirs with embankment heights less than 25 feet and store less than 50 acre-feet. Thus, the reservoirs are not within the jurisdiction of the California Department of Dam Safety (DSOD). Projects include construction of earth embankments and placement of either low permeability compacted soil liners or installation of geosynthetic liner systems.

- **Brooks Reservoir, Napa County, California:** 2.5 acre-foot, off-stream water storage reservoir formed by constructing three earthen embankments and lined with a geosynthetic liner.
- **Platt Reservoir, Sonoma County, California:** An off-stream reservoir formed by constructing a compacted earthen embankment with on-site soils. The reservoir was lined with a geosynthetic liner. The project included installation of an underdrain system to preclude the "floating" of the synthetic liner if the reservoir is drained during periods of high groundwater as well as a cut slope drain to intercept hillside groundwater flows. Dr. Storesund was also responsible for issuing a final services during construction report for the project.

- **Mondavi Dutra Dairy Reservoir, Napa County, California:** Dr. Storesund served as a field engineer responsible for embankment keyway inspections, field density testing, and concrete placement quality control during the enlargement of this reservoir in Napa County. Dr. Storesund was also responsible for issuing a final geotechnical services during construction report for the project.
- **Amber Knolls Reservoir, Lake County, California:** Dr. Storesund served as a field engineer responsible for embankment keyway inspections, field density testing, and concrete placement quality control during the construction of this reservoir in Lake County. Dr. Storesund was also responsible for issuing a final geotechnical services during construction report for the project.
- **Red Hills Reservoir, Lake County, California:** Dr. Storesund served as a field engineer responsible for embankment keyway inspections, field density testing, and concrete placement quality control during the construction of this reservoir in Lake County. Dr. Storesund was also responsible for issuing a final geotechnical services during construction report for the project.
- **Chimney Rock Vineyard, Napa County, California:** Dr. Storesund served as a field engineer responsible for embankment keyway inspections and field density testing during the construction of this reservoir in Napa County.
- **Hershey Vineyard Reservoir, Sonoma County, California:** Dr. Storesund served as a staff engineer responsible for generating design recommentions and issuing of a final geotechnical design report for this reservoir project in Sonoma County.
- **BV Reservoir No. 10 Rehabilitiation, St. Helena, California:** Dr. Storesund served as a field engineer responsible for the execution of the field investigation program and issuance of a final geotechnical design report for this reservoir rehabilitation project in St. Helena.

Off-Stream Storage Projects (Sonoma and Santa Clara Counties, California): Dr. Storesund worked in close conjunction with the Center for Ecosystem Management and Restoration (CEMAR) and Trout Unlimited (TU) on a number of off-stream water storage reservoir projects, designed to help landowners manage water resources in a manner that balances water use with habitat and minimum required in-stream flows for listed coho salmon and steelhead trout. These projects include:

- **Grape Creek Streamflow Stewardship Project, Healdsburg, California:** Dr. Storesund served as the project manager and project engineer for this off-stream reservoir storage project, providing all aspects of engineering planning (permit assistance, conceptual layouts), design (site geotechnical exploration and survey, analyses, development of plans, specifications, and estimates), and construction oversight during construction. The Grape Creek Streamflow Stewardship Project (GCSSP) is a cooperative project designed to help landowners manage water resources in a manner that balances water use with habitat and minimum required in-stream flows for listed coho salmon and steelhead trout. An existing flashboard dam and containment berm was replaced with a new reservoir adjacent to the creek to allow passage of river flows while providing the farmer with an agricultural water supply.
- **Little Arthur Creek Streamflow Stewardship, Healdsburg, California:** Dr. Storesund served as the project manager and project engineer for this off-stream reservoir storage project, providing all aspects of engineering planning (permit assistance, conceptual layouts), design (site geotechnical exploration and survey, analyses, development of plans, specifications, and estimates), and construction oversight during construction. The Little Arthur Creek Streamflow Stewardship Project (LACSSP) is a cooperative project designed to help landowners develop water supply security in a manner that improves in stream flows and habitat for listed steelhead trout.
- **Pescadero Creek Streamflow Stewardship, Healdsburg, California:** Dr. Storesund served as the project manager and project engineer for this off-stream reservoir storage project, providing all aspects of engineering planning (permit assistance, conceptual layouts), design (site geotechnical exploration and survey, analyses, development of plans, specifications, and estimates), and construction oversight during construction. The Pescadero Creek Streamflow Stewardship Project is a cooperative project designed to help landowners develop water supply security in a manner that improves in stream flows and habitat.

Whitethorn Elementary School Auxiliary Water Storage System, Whitethorn, California: Dr. Storesund served as the principal engineer on this conservation project performed in collaboration with Trout Unlimited and Sanctuary Forest. The project entailed installation of sixteen 5,000 gallon water tanks so that the school could divert water during wet months. Dr. Storesund performed the permitting, planning, engineering, construction bid documentation, and review services.

Residential

MLK Plaza Homes, Oakland, California: Dr. Storesund provided field density testing services for this low income housing project in Oakland. The project consisted of constructing thirteen new two-story residential structures at the site as well as associated improvements.

Standard Pacific Homes' Dublin Ranch, Dublin, California: Dr. Storesund served as a field engineer for this residential development in Dublin, observing mass grading operations, performed field density tests on housing pads, roadways, utility trenches, special inspections on rebar placement, concrete placement, post-tensioning, and performed related geotechnical laboratory testing. Dr. Storesund was also responsible for inspection and evaluation of erosion control systems in place during mass grading operations.

Palomares Hills, San Anselmo, California: Dr. Storesund served as a field engineer providing construction observations and field density testing during construction of retaining walls for this residential development.

Lund Ranch Creek, Pleasanton, California: Dr. Storesund provided construction observation services during a creek restoration project located within the Lund Ranch Creek residential development in Pleasanton. The restoration project involved bank erosion mitigation through placement of rock rip rap.

University Avenue Housing, Berkeley, California: Dr. Storesund served as a field and project engineer for this multi-unit residential housing project. An existing Salvation Army structure and parking lot were demolished and replaced with the new housing structure. Dr. Storesund performed the field exploration, engineering analyses, foundation recommendations, and prepared the final geotechnical design report.

The Estates at Happy Valley, Sun City, Arizona: Dr. Storesund served as a field engineer responsible for the execution of a field investigation program, which involved hollow stem auger drilling and geotechnical sampling for this mass grading residential development project in Sun City.

Educational

Children's Hospital Oakland Upgrade, Oakland, California: Dr. Storesund served as a staff engineering providing pipeline thrust block design recommendations for this facility upgrade project in Oakland.

Bessie Carmichael School, San Francisco, California: Dr. Storesund served as a staff engineer providing drilled pier design recommendations for this new school situated between the existing Saint Michael Ukrainian Orthodox Church and the Vineyard Christian Fellowship Church in San Francisco. It is three-story structure with a total footprint area of approximately 24,000 square feet. The facility features a single-story gymnasium and multi-purpose room with an elevated roof, a central courtyard area, and an asphalt-paved playground adjacent to the school building.

Blue Oaks School, Napa, California: Dr. Storesund served as a field engineer for this school renovation project in Napa. The field services consisted of field density testing on pavement subgrades and base rock.

Vista College Facility, Berkeley, California: Dr. Storesund served as a field engineer responsible for logging test pits to identify the foundations for existing structures surrounding the project site. The facility upgrade consisted of a new six to eight-story building for Vista College on the south side of Center Street, between Shattuck Avenue and Milvia Street in Berkeley. Excavations on the order of 15 to 20 feet were required to construct the basement level. The new foundations consisted of 36-inch diameter drilled piers with lengths from 50 to 70 feet.

New Alameda Elementary School, Alameda, California: Dr. Storesund served field as a field engineer responsible for the execution of the field exploration for this project. The new school will consist of classroom buildings and multi-use buildings. The scope of work for this investigation included a site reconnaissance by a State of California Certified Engineering Geologist, subsurface exploration utilizing both exploratory borings and Cone Penetration Testing, laboratory testing, engineering analyses of the field and laboratory data, and preparation of this report. The data obtained and the analyses performed were for the purpose of providing design and construction criteria for site earthwork, building foundations, slab-on-grade floors, retaining walls and pavements.

Ocean Branch Library, San Francisco, California: Dr. Storesund served as a staff engineer responsible for generating foundation recommendations for this new library structure in San Francisco.

Commercial

Clear Channel Outdoor, Oakland, California: Dr. Storesund served as a staff engineer responsible for providing drilled pier design recommendations for this outdoor billboard structure. The proposed billboard structure was supported by four 24-inch diameter, 3/8-inch thick hollow steel pipe columns.

JB Radiator Complex, Sacramento, California: Dr. Storesund provided geotechnical recommendations for foundation grading for a new storage tank at a site with expansive soils.

Linde Processing Facility, Richmond, California: Dr. Storesund performed a field exploration program (CPT) to characterize onsite soil conditions and provided foundation design recommendations for new infrastructure developments at the property.

Moraga Country Club Landslide Mitigation, Moraga, California: Dr. Storesund served as a field engineer for three landslide mitigation projects at the Moraga Country Club. Dr. Storesund provided field density testing services and general construction observations. He was responsible for summarizing the field data and issuing a construction report.

Moss Landing Powerplant, Moss Landing, California: Dr. Storesund served as a field engineer for this power plant upgrade project in Moss Landing. Dr. Storesund provided construction observations auger cast pile installation for the main generating structure and piezometer monitoring during the construction and dewatering of the water cooling intake structure.

Coliseum Lexus Dealership, Oakland, California: Dr. Storesund served as a staff engineer responsible for generating foundation design recommendations and issuing the final geotechnical report for this dealership in Oakland.

Infiniti of Oakland Dealership, Oakland, California: Dr. Storesund served as a field engineer responsible for the implementation and execution of the field investigation program for this project which consisted of advancing three cone penetration tests (CPTs). In addition, he was also responsible for generating foundation design recommendations and issuing a final geotechnical design report.

Sho*Ka*Wah Casino Bridge, Hopland, California: Dr. Storesund served as a field engineer for this bridge and parking lot and suspension bridge project in Hopland. Dr. Storesund provided concrete sampling, keyway inspection, and field density testing services during construction.

Anthropologie – Berkeley, Berkeley, California: Dr. Storesund served as a field engineer responsible for executing the field exploration program for this structural upgrade project in Berkeley. Dr. Storesund was also responsible for the issuing of a final geotechnical design report

2150 Shattuck, Berkeley, California: Dr. Storesund served as a field engineer for this seismic retrofit project in Berkeley. Dr. Storesund was responsible for the monitoring of micropile installation and load testing. He was also responsible for quality control of the injected micropile grout.

Bayer Building 55, Berkeley, California: Dr. Storesund served as a field engineer responsible for field density testing services during construction for this new commercial facility in Berkeley.

Chino Bandito, Chandler, Arizona: Dr. Storesund served as a field engineer responsible for the execution of the field investigation program, which involved hollow stem auger drilling and geotechnical sampling for this 11,500 square foot commercial development project in Chandler.

150 Powell Street, San Francisco, California: Dr. Storesund served as the project manager and project engineer for this structural renovation project near Union Square. The historic building required the façade structure to be saved and incorporated into the new structure. Dr. Storesund developed and implemented an exploration program that involved test pits to expose and evaluate the condition of spread footings. Foundation design services were also provided for temporary construction features (tieback walls, support frame for façade) and permanent features (foundations) as well as support and observation services during construction.

390 Fremont Street, San Francisco, California: Dr. Storesund provided geotechnical engineering support to a property owner adjacent to a high-rise construction project that involved installation of a shoring system, excavation to a depth of 70 ft, excavation of soil and bedrock, and development and evaluation of a monitoring program during the excavation activities.

Waterfront and Offshore Facilities

California Tsunami Hazard Policy Committee: The California Tsunami Policy Working Group (CTPWG) is a voluntary advisory body operating under the California Natural Resources Agency (CNRA), Department of Conservation, and is composed of experts in earthquakes, tsunamis, flooding, structural and coastal engineering and natural hazard policy from government, industry, and non-profit natural hazard risk-reduction organizations. The working group serves a dual purpose as an advisor to State programs addressing tsunami hazards and as a consumer of insights from the SAFRR Tsunami Scenario project, raising awareness and facilitating transfer of policy concepts to other coastal states in the nation. CTPWG's role is to identify, evaluate and make recommendations to resolve issues that are preventing full and effective implementation of tsunami hazard mitigation and risk reduction throughout California's coastal communities. Dr. Storesund provided engineering (seismic, geotechnical marine, ecological, water resources) and risk-based decision making input to this group. This committee was active between 2011 and 2013.

Emeryville Shoreline Protection Project, Emeryville, California: Dr. Storesund was a project engineer overseeing the construction of this shoreline improvement project. Site grades were raised 2-4 feet above existing grade and an enlarged shoreline breakwater slope was constructed.

Alcatraz Hydrodynamic Evaluation, City and County of San Francisco, California: Dr. Storesund was the project manager and project engineer for this coastal hazard screening evaluation at Alcatraz. The purpose of the screening was to inform long-range planning activities, accounting for shoreline erosion and sea level rise. The recommendations were provided to the National Park Service, in association with Kleinfelder.

Emeryville Marina Breakwater, Emeryville, California: Dr. Storesund was a project engineer responsible for the planning and execution of a field exploration and geotechnical laboratory testing program for this breakwater and pier project in Emeryville. Dr. Storesund also completed the geotechnical design recommendations and issued the design report.

Nelson's Marine Shoreline Stabilization, Alameda, California: Dr. Storesund served as the project manager and project engineer for this shoreline stabilization and remediation project at an abandoned boat yard within the Oakland Estuary. The project required an alternatives analysis (approach and cost estimate), decision matrix, development of remediation plans, specifications, and estimates. Field efforts included site surveys (RTK GPS) and geotechnical exploration.

Seadrift Shoreline Study, Stinson Beach, California: Dr. Storesund served as a project engineer and performed a site characterization study (based on historical topographic maps and aerial photographs), conducted hydrodynamic characterization, and aided with the design of the extension of an existing sheet pile bulkhead system along Bolinas Lagoon.

Loch Lomond Breakwater Improvement Project, San Rafael, California: Dr. Storesund was the project manager and a project engineer for the improvement of an existing 1,500 foot long rip rap breakwater structure. He performed a hydrodynamic evaluation during the planning phase to establish design criteria, managed the project (preparation of project plans, specifications, and estimates), and provided civil and geotechnical engineering expertise.

Harbor Point Shoreline Stabilization Project, Tiburon, California: Dr. Storesund served as a project engineer and performed a site characterization study (based on historical topographic maps and aerial photographs), conducted hydrodynamic characterization, and aided with the design of a shoreline stabilization solution.

Martin Luther King Jr. Drive Shoreline Study, Bay farm Island, California: Dr. Storesund served as the project manager and project engineer for this Bay Trail feasibility study for the East Bay Regional Park District (teamed with Creegan D'Angelo Engineers). Dr. Storesund prepared a screening-level coastal engineering guidance document and technical review of alternative plan elements.

Richmond Marina Breakwater Improvements, Richmond, California: Dr. Storesund served as a support staff engineer for this breakwater improvement project in Richmond. The project entailed wave and tide surveys, wind pattern evaluations, and preliminary foundation recommendations to upgrade an existing breakwater structure.

Third Street Boat Ramp, Lakeport, California: Dr. Storesund was a staff engineer responsible for organizing and performing the geotechnical exploration for this public boat ramp improvement project in Lakeport.

Dow Chemical Wharf, Pittsburg, California: Dr. Storesund was the project manager and a project engineer for the evaluation of an existing wharf to evaluate its ability to accommodate larger supply ships. After the initial review, Dr. Storesund was responsible for the development of alternatives, preparation of project permits, design of a new mooring system (including specifications and cost estimate), and construction observations and load testing.

Alviso Marina County Park, Alviso, California: Dr. Storesund served as a field engineer responsible for the implementation of Fugro's geotechnical exploration for the Alviso Marina County Park, Phase 1 Master Plan Implementation Project in Alviso. The geotechnical exploration consisted of two test borings, two Cone Penetration Tests (CPTs). Fugro evaluated the geotechnical conditions for the design and construction of the new parking area, a planted mound area (which includes the placement and compaction of up to 5 feet of engineered fill), and a 24-inch high by 18-inch wide flood control wall.

Brooklyn Basin Dredging Study, Oakland, California: Dr. Storesund served as the project manager for this maintenance dredging study commissioned by the San Francisco US Army Corps of Engineers to URS Corporation.

Pipelines and Water tanks

NCFCWCD South Segment Sewer Replacement, Napa, California: Dr. Storesund served as a field engineer, observing construction of a 54-inch to 66-inch diameter sanitary sewer line in Napa. The project, separated into two segments, realigned and replaced approximately 4,500 lineal feet of mainline sewer outside the river flood plain as part of the Napa River Project. Construction observations pertained to pressure grouting ground improvement, pipeline subgrade inspections, pipe bedding and backfill observations, trench backfill density testing, AC pavement density testing, concrete sampling, pipe segment seal testing, and observations of lightweight concrete backfill of old sewer line.

PG&E Line 131 Pigging Project, Alameda County, California: Dr. Storesund served as field engineer, coordinating and conducting geotechnical exploratory test pits for a new PG&E maintenance access facility to service two 18-inch, high-pressure, gas mains. Site improvements included an enlarged access road and maintenance pad, rock cut slopes, and minor pipeline realignment.

Newby Island Gas Transmission Pipeline, Milpitas, California: Dr. Storesund served as a field engineer providing construction observations on trench backfill operations on a landfill methane gas recovery pipeline installed at the base of an existing Santa Clara County Flood Control Levee. Trench backfill consisted of lightweight concrete slurry, designed to isolate the installed pipeline and protect the structural integrity of the existing levee system.

South Transmission System Project Tanks, Sonoma County, California: Dr. Storesund served as a field engineer during the geotechnical exploration of this project. Seven water tank sites were evaluated during the field operations. Geotechnical explorations included seismic refraction studies, vertical soil borings, and geologic reconnaissance mapping.

Girard Vineyard, 50k Gallon Water Tank, Napa County, California: Dr. Storesund served as a field engineer during the geotechnical exploration of this project. Two tank sites were evaluated during the field operations by excavating test pits. Site-specific foundation design recommendations were generated.

Granada Sanitary District CIP, San Mateo County, California: Dr. Storesund organized and performed the field exploration for this project which consisted of "jack and bore" operations under Highway 1 in Granada. Engineering foundation design recommendations were generated for temporary shoring required during the construction process.

Earthquake Fault Explorations

North Livermore Properties, Livermore, California: Dr. Storesund served as a support field engineer for the project geologist on this fault rupture hazard study in Livermore. Tasks included geologic mapping, study of stereo-paired aerial photographs, and an extensive fault trenching investigation. Dr. Storesund was responsible for the setup of the fault trench shoring and dewatering pumping system design. Dr. Storesund also assisted the project geologist in field logging the excavated fault trench.

Centex Homes' Farber Property, Livermore, California: Dr. Storesund served as a field engineer, assisting the project geologist, for a fault rupture hazard study for a proposed residential development located within the Alquist-Priolo Special Studies Zone for the Greenville Fault. The investigation included excavation and detailed logging of two trenches, totaling over 800 feet in length.

Alameda County Sherriff's Facility Landslide Assessment, Hayward, California: Dr. Storesund served as a field engineer providing assistance during the fault trenching phase of the field investigation. The project involves demolishing the existing Animal Control Facility and constructing a new 160,000 square foot building that will include facilities for the Sheriff and Coroner and a parking garage for about 500 cars. The proposed building will be a multi-level structure, and the garage will extend one or two levels below grade. The structure will be a critical facility and must remain operational following an earthquake. Other improvements will include driveways, a visitor's parking lot, underground utilities and landscaping. Preliminary schematics suggest that the facility will occupy the entire 4-acre site. The project included evaluating potential landslide and surface fault rupture hazards at the site.

Osgood Road Fault Trench, Fremont, California: Dr. Storesund served as the project manager responsible for the organization and implementation of backfill operations on a fault rupture hazard study for a proposed new PG&E gas main alignment in Fremont within a BART right-of-way zone. A total of three trenches (totaling approximately 350 linear feet and 12 feet deep) were excavated and backfilled according to BART specifications.

Dumbarton Quarry and Associates, Hayward, California: Dr. Storesund served as a support field engineer for the project geologist on this fault rupture hazard study project at the La Vista Quarry in Hayward. Tasks included geologic mapping, study of stereo-paired aerial photographs, and an extensive fault trenching investigation. Dr. Storesund was responsible for the setup of the fault trench shoring and dewatering pumping system design. Dr. Storesund also assisted the project geologist in field logging the excavated fault trench

LBL-50X AP Fault Study, Berkeley, California: Dr. Storesund acted as a field engineer for the fault location study for a proposed 6-story building to be constructed on a steep hillside within the State designated Fault Rupture Hazard Zone for the active Hayward Fault. The steep, vegetated slope made excavation of continuous trenches difficult and numerous trenches had to be excavated to provide appropriate coverage. No evidence of active or potentially active faulting was encountered in the trenches.

Transportation

Caltrans I-238 Widening Project, Alameda County, California: Dr. Storesund served as both a field engineer responsible for the coordination and implementation of the field investigation program and a staff engineer performing design calculations and analyses. The I-238 project includes the widening of the freeways and related replacement or improvement of existing connectors, overcrossings, and railroad underpasses. Existing embankments are to be widened which requires installation of concrete and MSE retaining wall. Field investigations performed for the project included an extensive subsurface exploration program utilizing continuous flight solid and hollow stem augers, rotary wash borings and Cone Penetration Test (CPTs) soundings. In addition, available subsurface data from previous investigations was reviewed as were published geologic and soil survey data. The field exploration program was complemented with geotechnical laboratory testing. Following completion of the field investigation and laboratory testing, analyses were performed to evaluate geotechnical engineering aspects of project, particularly settlement and liquefaction hazard studies.

Caltrans I-880/Mission Boulevard Widening Project, Alameda County, California: Dr. Storesund served as a support staff engineer for the I880/Mission Boulevard Widening Project. The project involved over 100 test borings, geotechnical laboratory analyses, engineering foundation design recommendations, flexible pavement design, and seismic design criteria for five roadway bridges and one railroad bridge. Other improvements included: a cut and cover tunnel box, box culverts, retaining walls, and ancillary structures.

Caltrans Guadalupe Highway 87 Renovation, San Jose, California: Dr. Storesund served as a field engineer providing AC pavement density testing Quality Control services during the construction phase of this project. The project included widening of the existing Highway 87, construction of a new overpass over Highway 101, and other retaining walls and street improvements.

Port of Oakland's Oakland Airport Expansion, Oakland, California: Dr. Storesund served as a field engineer for this roadway widening and expansion project, providing construction observations and testing services for, utility trench backfill compaction testing, roadway subgrade and base rock density testing, AC pavement testing, and concrete sampling. The project consisted of the construction of new roadway over and underpasses, roadway widening, and utility upgrades.

Petaluma Transit Mall, Petaluma, California: Dr. Storesund was the project engineer for this streetscape project in Petaluma who was responsible for the organization and execution of the field exploration program as well as generating design recommendations. The proposed streetscape improvements included sidewalks, PCC and AC pavements, information kiosks, and lighting standards.

Reid-Hillview Airport, San Jose, California: Dr. Storesund was the field engineer for this runway rehabilitation project. Dr. Storesund was responsible for quality control observations related to pavement section construction.

Nut Tree Airport, Fairfield, California: Dr. Storesund was a field engineer for this runway rehabilitation and expansion project in Fairfield. Dr. Storesund was responsible observations during new runway grading operations, pavement section construction, and provided support during asphalt content laboratory analyses.

First Street Bridge Replacement Project, Napa, California:
Dr. Storesund served as the project engineer for this project which involved the First Street Bridge Replacement Project located in Napa, California. Dr. Storesund coordinated and managed Fugro's field operation exploration program, performed the field exploration, analyzed the collected data, and provided a preliminary geotechnical design report.

Independent Technical Reviews (ITR)

Pier 36/Brannan Street Wharf Demolition, City and County of San Francisco, California: Dr. Storesund served as the project manager and project engineer for this technical review (on behalf of the San Francisco District US Army Corps of Engineers), which consisted of a geotechnical evaluation of submitted calculations and plans. The project entails the demolition of an existing wharf to make room for the construction of a new public open space wharf and associated boating facilities.

Hamilton Wetland Restoration Levee Raising Project, Novato, California: Dr. Storesund served as a project engineer for this technical review (on behalf of the San Francisco District US Army Corps of Engineers), which consisted of a geotechnical evaluation of submitted calculations, plans, and specifications. The project entails the raising of existing flood protection levees to account for settlements (experienced and anticipated) to the levees.

Marysville Unified School District Pipeline Review, Marysville, California: Dr. Storesund, as part of CCRM, performed a review of a natural gas pipeline risk assessment (per California Department of Education protocols) for the Marysville Unified School District.

Twin Rivers Unified School District Pipeline Review, Sacramento, California: Dr. Storesund, as part of CCRM, performed a review of a natural gas field risk assessment (per California Department of Education protocols) for the Twin Rivers Unified School District.

Milford Township School District Pipeline Review, Milford, Pennsylvania: Dr. Storesund, as part of CCRM, performed a review of a natural gas field risk assessment for the Milford Township School District on the citing of a new school.

Princeville, North Carolina Flood Risk Management Feasibility Study Integrated Feasibility Report and Environmental Assessment: Dr. Stroresund served as an expert reviewer for this USACE IEPR for the proposed Princeville flood protection improvement project. The tentatively selected plan (TSP) included measures to extend the existing levee and raise U.S. Highway 258 and Shiloh Farm Road north of the Town of Princeville to create a barrier to circumvention of the existing levee, as well as ramping residential, farm, and commercial driveways and subdivision streets to meet the new elevation. The TSP also includes non-structural measures consisting of an updated flood warning and evacuation plan, continued floodplain management and updating of local building and zoning codes, a flood risk management education and communication plan for both the community and local schools, and flood warning measures, all of which were ultimately deemed essential to an adequate flood risk management strategy for the Town of Princeville. The estimated cost of the TSP is $21,096.00 million.

Risk Assessments

Multiple Lines of Defense, Coastal Louisiana: Dr. Storesund worked in conjunction with the Lake Pontchartrain Basin Foundation to conduct an initial qualitative risk assessment of the hurricane flood protection system in the greater New Orleans area. The assessments follow the Quality Management Assessment System (QMAS) protocols. The assessment provides the basis for initial definition of the system, stakeholders, and identifies primary Factors of Concern. This assessment is the pre-cursor to detailed quantitative risk assessments.

Tsunami Risk-Based Design Committee, Northern California: Dr. Storesund is the Chair of this committee, sponsored by the ASCE San Francisco Section. The aim of the Working Group is to accomplish the following: (1) Formulate a group of appropriate stakeholders (local, county, state, federal levels); (2) Conduct a summary of 'best practices' and available resources (perhaps through a series of workshops) (a) Risk standards (b) Hazard studies (reports, maps, etc) (c) Design standards; (3) Develop Policy Statement (goals based on best practices and available info); and (4) Develop Guidelines for Risk-Based Tsunami Design Criteria in Coastal California.

PG&E Risk Management Framework Assessment: Dr. Storesund served as the project manager on an assessment committee to provide insights on their risk management framework. The insights included: (a) is the right RMF being used for the stated goals?; (b) are all significant RMR relationships being captured?; (c) strategies for visualizing and mapping risk; (d) identifying the 'right' risks and prioritizing; and (e) RMF resilience and maturity. Potential actionable outputs include: (1) reference practices (organizational examples); (2) listing of RMF activities to expand and advance; (3) listing RMF activities to modify/reconfigure; and (4) RMF performance metrics (i.e. targeted monitoring and review, leading/lagging indicators).

Forensic Evaluations

Bayer Communications Building, Berkeley, California: Dr. Storesund served as the field engineer to survey and evaluate settlements in the Bayer Communications Building, which was the 'nerve center' for all communication operations at the facility. Site surveys consisted of floor level surveys, review of historical soil exploration programs, and review of nearby construction activities. The study found that excavation operations associated with the upgrade of a sewer line immediately adjacent to the structure led to lateral stress relaxation and vertical displacement of the footings.

Bell Carter Foods Distressed Structure, Lafayette, California: Dr. Storesund organized and performed the foundation exploration which involved drilling soil test borings within the structure using portable hydraulic drilling equipment. The purpose of the project was to identify the foundation instability mechanism and provide mitigation strategies.

Mississippi River Gulf Outlet Wave-Induced Erosion, St. Bernard Parish, Louisiana: Dr. Storesund provided state of the art engineering analyses examining the contribution of damage to the Mississippi River Gulf Outlet levees as a result of wave action from Hurricane Katrina in 2005. The evaluations required the development of a validated method to assess the plausible range of erosion susceptibilities due to wave impact and run-up. These evaluations were published in the ASCE Journal of Waterway, Port, Coastal and Ocean Engineering.

Investigation of the Greater New Orleans Area Flood Defense System Failure, New Orleans, Louisiana: Dr. Storesund was a consultant for the National Science Foundation sponsored investigation of the failure of the New Orleans Flood Defense System. He aided in the initial field reconnaissance to survey system damage and contributed to the technical analyses evaluating system failure mechanisms. He aided in the use of state of the art methods for erosion sampling and testing as well as LiDAR remote sensing survey methods on the Mississippi River Gulf Outlet levees. Copies of the findings from the evaluation can be accessed at: www.ce.berkeley.edu/~new_orleans.

Upper Jones Tract Levee Failure, San Joaquin County, California: Dr. Storesund provided engineering evaluations associated with the June 2004 breach of the Upper Jones Tract Levee in conjunction with Dr. J. David Rogers. The evaluations included bathymetric surveys, RTK GPS surveys, development of digital terrain models using bathymetry and Aerial LiDAR data, hydraulic modeling, and levee failure analyses (seepage, slope stability). Dr. Storesund was responsible for: project management, planning, and tracking; geotechnical engineering evaluation and analyses; hydrodynamic evaluations; general engineering evaluations; standard of care evaluations; technical data evaluation; computer graphics/animations; digital cartography; scientific and technical writing. Dr. Storesund provided deposition and trial testimony.

East Bank Industrial Area (Lower 9th Ward), New Orleans, Louisiana: Dr. Storesund provided engineering support services to Dr. Robert Bea and Dr J. David Rogers for a field exploration program that included geoprobes, CPTs, and pump testing of the onsite "swamp/marsh" material in order to back calculate the permeability of this deposit. The work was performed in close coordination with all experts (plaintiffs and defense). Dr. Storesund served as the project manager for his $1.3 million project (completed in 3 months). Dr. Storesund was responsible for: project management, planning, and tracking; geotechnical engineering evaluation and analyses; hydrodynamic evaluations; general engineering evaluations; standard of care evaluations; technical data evaluation; computer graphics/animations; digital cartography; scientific and technical writing.

PNG Landslide, Papua New Guinea: Storesund Consulting worked in conjunction with Prof. J. David Rogers, Prof. Calvin Alexander, and Mr. Eldon Gath to assess the causal mechanism(s) of a landslide in Papua New Guinea. Available data was reviewed and a field reconnaissance trip to the failure site was performed in summer of 2012. Dr. Storesund provided geotechnical and liar data interpretation services.

LiDAR Surveys

Sunol Dam Removal, Alameda County, California: In 2006, the San Francisco Public Utilities Commission removed Sunil dam to improve fish passage, restore a self-sustaining population of steelhead to the Alameda Creek watershed, and reduce or eliminate an existing public safety hazard. The dam contained an estimated 37,000 yd^3 of impounded sediment. To create a baseline for future monitoring of impounded sediment transport, a combination of Aerial Liar, Terrestrial LiDAR, and conventional survey data was compiled and synthesized to generate a three dimensional model of the study area. High resolution characterization of the impounded sediments was accomplished using Terrestrial LiDAR, with an approximate point spacing of centimeters.

Pit Dam 3 Mapping, Burney, California: Storesund Consulting provided a Terrestrial LiDAR scan of select areas at the PGE Pit Dam 3 facility to aid in the evaluation of a fault system at the site. A high-accuracy point cloud was rendered of the fault are, allowing field geologists to geolocate fault features with high accuracy. Additionally, fault trenches were scanned and rectified orthoimages were rendered to aid in mapping fault trace features.

Quadrus Hill, Menlo Park, California: Storesund Consulting performed Terrestrial LiDAR scanning services for this office complex in a landscaped boulder area where high-precision mapping of boulder features was required to correctly situate a new deck.

Intarcia, Fremont, California: Dr. Storesund provided Terrestrial LiDAR scanning services for this project to map existing structural conditions as well as mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling and routing of new utilities (using 'clash detection').

1245 Market, San Francisco, California: Dr. Storesund provided Terrestrial LiDAR scanning services for this project to map existing structural conditions as well as mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling and routing of new utilities (using 'clash detection').

Veterans Administration Facility, Mather, California: Dr. Storesund provided Terrestrial LiDAR scanning services for this project to map existing structural conditions as well as mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling and routing of new utilities (using 'clash detection').

Yosemite Slough Wetland Erosion Study, San Francisco, California: Storesund Consulting performed annual erosion/deposition monitoring using Terrestrial LiDAR for the wetland restoration project. Hydrodynamic modeling was performed estimating erosion/deposition. This monitoring program provided a high resolution digital terrain model by which to measure erosion/deposition across the restoration area (3 acres).

Causby Mine Survey, Stanislaus County, California: Dr. Storesund served as the project manager and project engineer for this LiDAR mapping project of an abandoned mine tunnel for the U.S. Forest Service. Mapping consisted of the entrance and exit (for construction access) as well as the interior of the tunnel (for volume estimates and layout purposes). State of the Art LiDAR processing software was used to model the interior of the tunnel in 3D.

Tocaloma Backwater Project, Marin County, California: Dr. Storesund provided RTK GPS and Terrestrial LiDAR surveys for this backwater restoration project for the County of Marin. The work was provided for Balance Hydrologics (who performed the design). Aerial LiDAR was merged with the Terrestrial LiDAR to create a full 3D terrain model of the restoration area.

Arroyo de la Laguna, Alameda County, California: Arroyo de la Laguna is part of the stream system that includes the Dublin, Pleasanton, Livermore, as well as upland portions of northern Santa Clara County. Watershed hydrology and channel function have been historically impacted by urbanization (including drainage and flood control), roads, railroads, gravel mining, and the construction of Del Valle Reservoir, resulting in channel incision on the order of six meters. Severe stream bank erosion was identified on the outer bends of an "S" curve of the Arroyo de la Laguna Creek. Terrestrial LiDAR was used to generate cost-effective, high-accuracy mapping of as-built conditions of newly completed stream and river restoration projects, thereby establishing a baseline by which future monitor efforts can evaluate overall project performance through time.

Salt Pond A21, Alameda County, California: Dr. Storesund performed Terrestrial LiDAR survey for researchers at the University of California at Berkeley on this 160-acre wetland restoration project in Fremont, California. The surveys were used to monitor sediment accretion, scour, and erosion progression within this recently breached salt pond.

Tennessee Hollow, San Francisco, California: A storm drain creek daylighting project was completed at the San Francisco Presidio. LiDAR surveys were used to establish baseline topography following completion of construction in January of 2006. Subsequent surveys were performed to evaluate vegetation growth rates and growth zones. The baseline survey is anticipated to serve as an overall baseline by which future channel stability can be evaluated.

AMR, Roseville, California: Storesund Consulting provided high-resolution RTK GPS topographic survey and Terrestrial LiDAR surveys of vernal pools to provide a baseline micro-topographic terrain model which became the design 'template' for restoration of 150 acre vernal pool site.

Cache Creek, Woodland, California: Terrestrial LiDAR surveys were conducted at two specific locations where the creek channel shifted into the creek bank, causing the formation of a tall vertical bank. The terrestrial LiDAR surveys were conducted to map the conditions of the vertical bank. Additionally, aerial LiDAR surveys were also performed at this site and future studies will compare and contrast the resolution and accuracy between these two methods at this site.

Goodwin Creek, Oxford, Mississippi: The Goodwin Creek watershed is organized and instrumented for conducting extensive research on upstream erosion, stream erosion and sedimentation, and watershed hydrology. Land use and management practices that influence the rate and amount of sediment delivered to streams from the uplands range from timbered areas to row crops. About 13 percent of the watershed total area is under cultivation and the rest in idle pasture and forest land. Terrestrial LiDAR surveys were performed at one location in an attempt to evaluate the feasibility of utilizing LiDAR to measure and quantify sediment transport and vertical bank retreat rates.

Coldwater Creek, Mississippi: Coldwater Creek is part of a United States Department of Agriculture National Sedimentation Laboratory research watersheds. The quantity and quality of aquatic habitats along the lowland floodplain rivers in agricultural landscapes are in steep decline as a result of nonpoint source pollution. Terrestrial LiDAR surveys were performed at the site of an ephemeral gully in order to ascertain the feasibility of mapping these features with LiDAR to develop 3D surfaces by which more detailed analyses can be performed (including erosion rates) as opposed to the traditional cross-sectional survey method, which may not fully capture the behavior of the site.

Tolay Lake, Petaluma, California: This collaborative effort between the Sonoma County Parks and Recreation, Ducks Unlimited, and United States Geological Survey, will restore a seasonal lake on Tolay Creek in Sonoma County. Existing agricultural fields will be converted to a county park and will serve as a duck reserve in the fall and winter. Terrestrial LiDAR surveys were preformed to develop a detailed topographic map of the project site. Over 200 acres were surveyed in two days.

Ben Mar, Benicia, California: Dr. Storesund performed Terrestrial LiDAR survey for the United States Geological Survey on this 25-acre wetland restoration project in Benicia, California as part of a Caltrans mitigation project. The surveys were used to monitor sediment accretion within the completed restoration area.

Tilden Step Pool, Berkeley, California: Storesund Consulting worked in conjunction with Dr. Anne Chin (University of Colorado, Boulder) by mapping as-built conditions of a step pool sequence in Tilden Park. Change analyses will be performed over three storm events to ascertain step pool stability.

Colorado Wildfire Step Pool Evaluation, Colorado: Storesund Consulting worked in conjunction with Dr. Anne Chin (University of Colorado, Boulder) by analyzing terrestrial LiDAR scans of study areas before and after storm events to ascertain step pool stability.

Verona Bridge Creek Restoration, Pleasanton, California: Storesund Consulting performed a Terrestrial LiDAR survey of this in-stream habitat enhancement and slope stability restoration project in Pleasanton. The project was designed by the National Resource Conservation District.

Tubb, Vallejo, California: Dr. Storesund performed Terrestrial LiDAR survey for the United States Geological Survey on this 60-acre wetland restoration project in Sonoma County, California. The surveys were used to monitor sediment accretion within the completed restoration area.

Rodeo Creek, Hercules, California: LiDAR scanning services were performed on the newly acquired Rodeo Creek East Bay Regional Park property in Rodeo, California. Rodeo Creek was incised 20-30 feet below the floodplain and heavily vegetated, making it difficult to perform conventional topographic surveys. As a result of the LiDAR surveys, a 3D surface, topography, and cross-sections over a 1,000 foot stretch of creek was cost-effectively mapped.

Winfield Pin Oaks Levee Investigation, Winfield, Missouri: The Winfield Pin Oak levee is maintained by the Cap Au Gris Drainage and Levee District. The levee system (Figure 23) is estimated to prevent flooding of the protected area (493 hectares) up to a 14-year return period flood event on the Mississippi River. This site was overtopped for an extended period of time and breached as a result of overtopping-induced erosion. Terrestrial LiDAR surveys (georeferenced using RTK GPS) were performed in October 2008 for subsequent forensic analyses.

Norton Woods Levee Investigation, Elsberry, Missouri: The Elsberry levee at Norton Woods is maintained by the Elsberry Drainage District. This breach was the result of either a through-seepage induced or overtopping-induced (low crest elevation) failure. High water marks observed in the field indicate that the floodwaters did not exceed the general levee crest elevation. Terrestrial LiDAR surveys (georeferenced using RTK GPS) were performed in October 2008 for subsequent forensic analyses.

Kickapoo Levee Investigation, Elsberry, Missouri: The Elsberry levee at Kickapoo is maintained by the Elsberry Drainage District. This breach was reported by local residents to have been the result of through-seepage in the roadway base course that traversed the levee crest. The extents of levee erosion were generally limited to the pre-breach roadway alignment. Terrestrial LiDAR surveys (georeferenced using RTK GPS) were performed in October 2008 for subsequent forensic analyses.

San Francisco Pier 9, San Francisco, California: Storesund Consulting provided Terrestrial LiDAR scanning services for this renovation project to enable a 3D check against existing as-built documentation and facilitate BIM modeling. The new facility is a 3D printing center for Autodesk.

AT&T Facility MEP Scanning, California: Storesund Consulting provided Terrestrial LiDAR scanning services for this expansion project to map existing mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling as well as routing of a new fuel supply pipeline (using 'clash detection').

UCSF Helen Diller Center, San Francisco, California: Storesund Consulting provided Terrestrial LiDAR scanning services for this project to map existing structural conditions as well as mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling and routing of new utilities (using 'clash detection').

Novartis, Burlingame, California: Storesund Consulting provided Terrestrial LiDAR scanning services for this project to map existing structural conditions as well as mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling and routing of new utilities (using 'clash detection').

San Antonio Station, Mountain View, California: Storesund Consulting provided Terrestrial LiDAR scanning services for this project to map existing structural conditions as well as mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling and routing of new utilities (using 'clash detection').

Veterans War Memorial Building, San Francisco, California: Storesund Consulting provided Terrestrial LiDAR scanning services for this project to map existing structural conditions as well as mechanical, electrical, and plumbing (MEP) facilities to facilitate BIM modeling and routing of new utilities (using 'clash detection').

HWY 84 Interchange, Redwood City, California: Storesund Consulting performed a Terrestrial LiDAR scan of the HWY 84/HWY101 interchange in Redwood City to facilitate an improvement program.

Bryants Creek Levee Investigation, Elsberry, Missouri: The Elsberry levee at Kickapoo is maintained by the Elsberry Drainage District. This breach (Figure 52) occurred at the location of a duck pond that was reported to have been installed immediately adjacent to the levee system in order to attract ducks for the duck club located at the site. Terrestrial LiDAR surveys (georeferenced using RTK GPS) were performed in October 2008 for subsequent forensic analyses.

Indian Graves Levee Investigation, Quincy, Illinois: The Indian Graves Levee system is maintained by the Indian Graves Drainage District. The estimated protection level for the levee system is a 50-year return period flood and the protected area encompasses over 2,800 hectares. The sand with clay core levee system is situated immediately East of the Mississippi River. There were three breaches, two under seepage induced and one overtopping induced breach. Terrestrial LiDAR surveys (georeferenced using RTK GPS) were performed in October 2008 for subsequent forensic analyses.

Two Rivers Levee Investigation, Oakdale, Iowa: The Two Rivers Levee system is maintained by the Iowa Flint Creek Levee District No. 16. The estimated protection level for the levee system is a 100-year return period flood and the protected area encompasses approximately 7,100 hectares. The levee system is situated immediately South of the Iowa River, and west of the Mississippi River. Terrestrial LiDAR surveys (georeferenced using RTK GPS) were performed in October 2008 for subsequent forensic analyses.

Emeryville Shoreline Protection Project, Emeryville California: Terrestrial LiDAR was used to measure the volume of boulder rip-rap placed for this shoreline protection project. Due to the high void ratio and irregularity of the boulders, the very high point density of the Terrestrial LiDAR survey provided a more accurate modeling of rip-rap volume than traditional survey methods.

Dutra San Rafael Rock Quarry, San Rafael, California: The Dutra San Rafael quarry is one of the most active quarries in the Bay Area. LiDAR was used to image the physical configuration of the quarry, to create a 3D baseline survey. Subsequent LiDAR surveys will be compared against the initial baseline survey to determine material quantities as well as overall slope stability within the quarry.

Dutra Richmond Quarry, Richmond, California, California: LiDAR surveys were used to monitor a reclamation slope at the inactive Dutra Richmond Quarry. Due to the location of the slope and the geologic contacts, monitoring was required to demonstrate that no active movements are occurring and that the slope is stable. An initial baseline survey was performed in August, 2006 and subsequent surveys will be compared to the initial baseline to determine activity level.

Lower Santa Ynez, Santa Barbara County, California: The Lower Santa Ynez Bank Stabilization project was a collaborative effort with the California Conservation Corps and California Department of Fish and Game to utilize biotechnical methods to stabilize a 1,000-foot length of stream bank, adjacent to agricultural lands. Terrestrial LiDAR surveys were conducted to develop pre-project topography, as-built topography, erosion and scour quantities and estimated rates, and a coarse vegetation monitoring study.

Emery Point, Emeryville, California: Baseline Terrestrial LiDAR surveys were performed to monitor wave-induced erosion on Point Emery in Emeryville, California, which has experienced significant scour in the last 5 years. This man-made peninsula is a popular location with windsurfers and SF Bay Trail users. It is estimated that the location will be completely eroded in the next 25 years without mitigation.

Fremont Landing, Yolo County, California: The Fremont Landing project site is located along the south bank of the Sacramento River from RM 78.8 to 80.4 in one of the most hydraulically-complex portions of the river. At least five (5) major tributaries or distributaries are located within 2 miles of the site and all influence the hydrodynamics of the site. Terrestrial LiDAR surveys were performed to aid PWA develop a 2D hydrodynamic model of the project site and surrounding tributaries/distributaries. The model was used to allow examination of design issues related to fish stranding, rearing habitat, and flood conveyance.

Hamilton Wetland Restoration, Novato, California: This is a United States Army Corps of Engineers and California Coastal Commission joint project to convert over 500 acres of a decommissioned army airfield to a wetland restoration area using dredged spoil material. The area will consist of seasonal and tidal wetlands. Terrestrial LiDAR is being used to monitor fill placement and obtain volume quantities.

Mississippi River Gulf Outlet, New Orleans, Louisiana: LiDAR surveys were conducted of the southeastern completed levee segment. This survey was to serve as a baseline from which future LiDAR surveys can be conducted and analyses and evaluations of wind-induced wave impacts can be studies.

East Sand Slough Restoration, Red Bluff, California: Dr. Storesund provided terrestrial LiDAR mapping of this channel restoration project on the Sacramento River in Red Bluff, California. The LiDAR survey was integrated with existing bathymetry data. Habitat mapping using the collected LiDAR data was also conducted in general conformance with the California Rapid Assessment Method (CRAM) for Wetlands.

CZ-1 Site, Fresno County, California: Dr. Storesund provided terrestrial LiDAR mapping of this tree-root excavation and measurement study by Dr. Peter Hartsough (UC Davis) as part of his climate change research. The mapping of the tree roots provided Dr. Hartsough the ability to establish high-resolution digital root system baselines for future comparisons.

Research Projects

RESIN: Contemporary infrastructure, the systems necessary to provide sustainable services within the nation's power, transportation, waste management, water, and telecommunication sectors, has become very *complex*; that is adaptive, interdependent, unpredictable, nonlinear, and dynamic. This research seeks to discover new fundamental methods to assess and manage the resilience and sustainability of such complex systems (termed 3ICIS). These methods will facilitate the characterization of both resilience and sustainability by addressing multi-infrastructure, multi-physics, multi-scale (spatial, temporal), and multi-resource phenomena that impact the likelihood of these systems failing to achieve acceptable resilience and sustainability, as well as the associated consequences. The setting selected to develop these methods is the California Sacramento Delta focusing primarily on the following four critical infrastructure services, as well as interfaces with other critical infrastructure sectors as necessary:

- Water Supply – Includes water supply system for agriculture, commercial/industry, government, and the public. Issues of importance include supply, conveyance, and quality (*note: wastewater is part of this, but not addressed here*);
- Flood Protection – Includes the structural elements (levees, floodwalls, flood gates, dams, diversion channels, storm drain systems) as well as the natural rivers corridors, subsidence, settlement & consolidation, and hydrologic hazards (rain storms, snow melt) that inundate low lying areas and floodplains;
- Power Supply – Elements of the electrical power grid that supply electricity to agricultural, commercial/industrial, government and the public; and
- Ecosystem – Physical and biological components of the environment. Physical attributes include habitat areas, soil substrates, water supply and quality. Biological considerations include flora and fauna.

The California Sacramento Delta 3ICIS is a very complex highly interactive 'legacy' system embedded in similarly complex natural environmental and social - political systems. It is of critical importance directly for the population and environment of the State of California and indirectly for the rest of the United States.

The goals of this research project are to develop the following Quality Management Assessment System Process (QMAS):

1. System Definition and Conceptualization
2. Domain Expert / Key Informant Assessment Team Identification and Formation
3. Identification of the key vulnerabilities or chokepoints (aka Factors of Concern)
4. Failure Scenario Development
5. Detailed Qualitative and Quantitative Risk Assessment and Management that accounts for 3ICIS spatial variability, temporal variability (historical, current, future), and non-linearity (SYRAS++)

This research will answer the following fundamental questions:

1. What are the major drivers that threaten Resilience & Sustainability (current, future)?
2. What is the current Resilience & Sustainability state of the 3ICIS?
3. What future Resiliency & Sustainability states are expected given the status quo persists?
4. What are the potential consequences/impacts associated with future Resiliency & Sustainability states given the status quo persists?
5. What adaptation and mitigation strategies can be employed to create an "acceptable" Resilient & Sustainable 3ICIS?

2008 Midwest Levee Failure Investigation: Dr. Storesund was the lead researcher for this National Science Foundation sponsored collaborative research investigation between UC Berkeley, Texas A&M University, and the Missouri University of Science and Technology. The research was an immediate effort to collect sensitive and time-dependent perishable data will comprehensively characterize select levee failure locations to provide essential levee characterization and performance data for use in subsequent numerical analyses. The levee characterization consisted of:

1. An initial field reconnaissance to visit known breach sites along the Mississippi River between St. Louis, MO and Davenport, IA to document (via photographs) site conditions, collect eyewitness accounts, and develop a list for detailed site-specific analyses;

2. Conducting high-detail laser imaging survey (Terrestrial LiDAR) of breach and erosion/scour features in the levees. These surveys will be used to validate future numerical simulations that predict the final scour/erosion profile for specified overtopping conditions;

3. Characterization of the vegetative/grass cover on the earthen levee side slopes to determine erosion-resistance provided. This levee characteristic is frequently omitted from field characterization studies, yet is very important in the performance of the levee during overtopping conditions;

4. Characterization of the levee soil materials, including the United States Soil Classification (USCS) soil types, plasticity (Atterberg Limits), grain size distribution (sieve sizes), in-situ density, maximum dry density, Erosion Function Apparatus (EFA) erodibility characterization and jet erosion testing; and

5. Documentation of the river stage at the location of the levee failure based on eyewitness accounts as well as available USGS Stream Gage Data. This data is essential to correctly evaluate overtopping depths and durations and associated water velocities on the 'protected side' of the flood protection levee.

The sites investigated include: Brevator (Missouri); Winfield (MO); Cap au Gris (MO); Kings Lake (MO); Norton Woods (MO); Kickapoo (MO); Bryants Creek (MO); Indian Graves (IL); Two Rivers (IA).

National River Restoration Science Synthesis: The National River Restoration Science Synthesis (NRRSS) was a nation-wide effort to characterize the practice of river restoration. It consisted of three phases: synthesis of national and state restoration databases, phone surveys with select river restoration practitioners, and detailed river restoration post-project appraisals within California. Dr. Storesund was active, under the direction of Dr. G. M. Kondolf, and participated in the completion of 40 post project appraisals (PPA) of California river restoration projects. The PPA evaluations consisted of watershed delineations, hydraulic and hydrology characteristics determinations, review of planning and design approaches, review of permit applications, field surveys and performance assessments, and engineering documentation of post-construction performance.

Projects evaluated:

Ackerman Creek Restoration Project	Alameda Creek (Niles Dam Removal)
Alameda Creek (Sunol Dam Removal)	Alamo Creek (Main Branch)
Alamo Creek (East Branch) Project	Arroyo de la Laguna Bank Stabilization
Arroyo Mocho	Arroyo Viejo Creek Restoration
Baxter Creek (Booker T. Anderson)	Baxter Creek (Gateway)
Baxter Creek (Pointsett Park)	Bear Creek Restoration Project
Blackberry Creek (Thousand Oaks)	Brandy Creek (A-Frame Dam Removal)
Carmel River at deDampierre	Carmel River at Schulte Road
Castro Valley Creek Restoration	Cerrito Creek (El Cerrito Plaza)
Chorro Flats Enhancement Project	Clarks Creek
Clear Creek (McCormic Dam Removal)	Cold Creek
Crocker Creek Dam Removal	Cuneo Creek Restoration
Green Valley Creek	Lower Guadalupe River Reach B
Lower Ritchie Creek Dam Removal	Lower Silver Creek Reach I
Martin Canyon Creek	Miller Creek
Redwood Creek	Sausal Creek Restoration Project
Strawberry Creek	Tassajara Creek
Tennessee Hollow (Thompson Reach)	Uvas Creek Restoration
Village Creek (UC Berkeley)	Wildcat Creek at Alvarado Park
Wildcat Creek Flood Control Channel	Wilder Creek Restoration Project

More information on the NRRSS study and these specific PPA evaluations can

PROFESSIONAL AFFILIATIONS:

ASCE Leadership and Management Committee
Chair 2010 - 2012
Corresponding Member 2003 – 2009
ASCE San Francisco Section
Past President 2012-2013
President 2011-2012
President Elect 2010-2011
Vice President 2009 - 2010
American Society of Civil Engineers: San Francisco Section YMF President 2003-2004
ASCE San Francisco Section Water Resources Group
Director 2009 -2011
ASCE San Francisco Section Geotechnical Society Steering Committee
ASCE San Francisco Section Infrastructure Report Card Committee
ASCE GEO-Institute
National Academy of Forensic Engineers
National Society of Professional Engineers
California Society of Professional Engineers
UC Berkeley Geotechnical Engineering Society
UC Berkeley Engineering Alumni Society

AWARDS:

Eagle Scout, Troop 27, Eureka, California (1992)

Outstanding YMF Civil Engineer (2004) San Francisco Section ASCE

Outstanding YMF Civil Engineer in the Private Sector (2008) Western Regional Younger Member Council, ASCE

Outstanding ASCE Younger Member Forum Officer, ASCE Region 9 (2009)

President's Award, San Francisco Section ASCE (2012)

H.J. Brunnier Award, San Francisco Section ASCE (2013)

ASCE Edmund Friedman Young Engineer Award for Professional Achievement (2013)

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December 11, 2016

SF Board of Supervisors
San Francisco City Hall
1 Dr Carlton B Goodlett Pl #244
San Francisco, CA 94102

Subject: Impact to PG&E Transmission Line 109
3516 & 3526 Folsom Street
San Francisco, California

Dear President Breed and Honorable Members of the Board of Supervisors,

This letter is in response to a request for an independent assessment of potential damage to the PG&E Transmission Line 109 associated with construction activities of the proposed 3516 & 3526 Folsom Street development. I am a practicing Geotechnical Engineer (CA License Number 2855), I provide gas pipeline risk reviews for the State of California Department of Education, and have participated in forensic engineering projects over the last 10 years with damage claims in excess of $2 billion and more than 8,000 hour of direct forensic analyses. My most recent engagement was a geotechnical forensic evaluation of the March 2014 Oso Landslide in Washington State, which resulted in the tragic loss of 43 individuals. In addition to private consulting, I am the Executive Director of the Center for Catastrophic Risk Management at UC Berkeley.

This geotechnical review is the requested independent assessment and is based on documents included in the Discretionary Review, Full Analysis by San Francisco Planning Department (dated October 4, 2016) as well as a set of geotechnical reports prepared by Mr. H. Allen Gruen (dated August 3, 2013). I also reviewed the "Categorical Exemption Appeal" (3516-3526 Folsom Street), prepared by the San Francisco Planning Department (dated December 5, 2016) and "Appeal of CEQA Categorical Exemption Determination," prepared by Mr. Charles Olson (dated December 2, 2106).

I previously prepared a letter dated December 1, 2016 that presented my initial review of the proposed project, with respect to potential construction impacts to the PG&E Transmission Line.

Based on the facts associated with the proposed development, it is my expert opinion that a reasonable possibility of a significant effect exists with respect to degradation of the Transmission Line integrity as a result of the required rock excavation to achieve the delineated site grades shown in the project plans.

Fact 1: The proposed developments anticipate excavations on the order of 8-10 feet below grade. (see sheet A-3 from 3516 Folsom Street drawings).

Fact 2: Geotechnical soil borings performed at the site show the presence of chert bedrock at a depth of 3 to 5 feet below grade. See geotechnical reports prepared by Mr. H. Allen Gruen (dated August 3, 2013).

Fact 2: The geotechnical soil borings encountered 'refusal' at a depth of 3 to 5 feet. The borings were not advanced to the target depth of the proposed excavation. Typical geotechnical field exploration programs advance borings past the anticipated depth of structure foundations. This demonstrates that the ground conditions are hard bedrock and not softer soil subsurface conditions.

From 3516 Folsom Geotechnical Report (page 6):

"Bedrock was encountered in our borings at a depth of about 3 to 4 feet below the ground surface. We anticipate that excavations in the upper portion of bedrock at the site can be conducted with conventional equipment, although localized ripping may be required. Excavations extending deeper into the bedrock may require extra effort, such as heavy ripping, hoe-rams, or jack-hammering. We anticipated that the bedrock will become harder and more massive with increasing depth."

Fact 3: Bedrock excavations require heavy excavation equipment or rock blasting. These bedrock excavation techniques result in higher peak ground velocities than conventional soil excavation. Higher peak ground velocities result in increased fatigue on pipelines. Increased fatigue degrades pipeline integrity and results in premature failure of pipelines.

Fact 4: Stress concentrations occur at pipeline elbows. Elbows are located on PG&E Transmission Line 109 as the pipeline goes from a north-south alignment up Folsom Street, to an east-west alignment along Bernal Heights Boulevard. This pipeline bend is immediately adjacent to the proposed construction activity and is susceptible to fatigue-induced failure. (See Figure 1 on page 4 of the San Francisco Planning Department's Certificate of Determination, Exemption from Environmental Review, dated July 8, 2016).

Fact 5: PG&E has not 'cleared' the proposed rock excavation work associated with the development. PG&E is the only organization in a position to analyze the additional fatigue expected to be exerted on the pipeline from the bedrock excavation activity and certify that no appreciable degradation will occur. This pipeline has the potential to catastrophically fail and result in deaths within the blast radius of the pipeline.

To date, PG&E has only said the proposed construction activity would "present no particular issues with respect to patrolling and maintaining the pipeline." (Source: last paragraph, page 4, San Francisco Planning Department's Certificate of Determination, Exemption from Environmental Review, dated July 8, 2016). Being able to patrol a pipeline is very different from monitoring the integrity and time to failure of a major transmission pipeline.

PG&E has stated that "PG&E patrols its gas transmission pipeline at least quarterly to look for indicators of missing pipeline markers, construction activity and other factors that may threaten the pipeline. Line 109 through the neighborhood was last patrolled in May 2014 and everything was found to be normal." (source: Austin Sharp Q&A, Question 8).

Note that this does not address pipeline integrity and additional fatigue to the pipeline as a result of the proposed excavation in bedrock to construct these projects.

Further, PG&E notes that there are three integrity assessments. An in-line inspection allows for identification of metal loss or geometric abnormalities. Direct excavation allows for visual

observation of the pipeline. Pressure testing allows for confirmation that the pipeline can sustain prescribed pressure levels. While PG&E has performed evaluations to ascertain corrosion, this is not representative of the full integrity of the pipeline.

Thus, the unusual circumstance warranting more thorough environmental review is the proposed excavation into bedrock, resulting in enhanced ground velocities resulting in additional fatigue on the PG&E transmission line, which has the possibility to fail catastrophically. The actual integrity of Line 109 has not been characterized by PG&E, nor has the useful serviceable life been established. Based on this setting and the associated uncertainties with respect to actual pipeline integrity, it is my expert opinion that a reasonable possibility of a significant effect exists.

No payments for services have been received and no future promises of compensation have been offered.

I reserve the right to update my independent review based on new information.

Please contact me with any questions or comments by phone at (510) 225-5389 or via email at rune@storesundconsulting.com.

Sincerely,

STORESUND CONSULTING

Rune Storesund, D.Eng., P.E., G.E.
Consulting Engineer

UC Berkeley Center for Catastrophic Risk Management
Executive Director

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June 5, 2017

SF Board of Supervisors
San Francisco City Hall
1 Dr Carlton B Goodlett Pl #244
San Francisco, CA 94102

Subject: Independent Project Review
3516 & 3526 Folsom Street
San Francisco, California

Dear President Breed and Honorable Members of the Board of Supervisors,

This letter is in response to additional evaluations performed with regards to potential construction-induced degradation of the integrity and safety of PG&E's natural gas Line 109. I reviewed a memorandum prepared by Illingworth & Rodkin, Inc. (dated March 24, 2017), a letter prepared by Illingworth & Rodkin, Inc. (dated April 14, 2017), and a letter prepared by Mr. John Dolcini of Pacific Gas and Electric Company dated March 30, 2017.

In previous letters, I noted that construction-related stressing, as well as accidental 3rd party damage, has the potential to degrade the integrity of the PG&E natural gas transmission line, exposing the surrounding neighbors to increased risk of death and injury from the potential of construction-induced puncture or degradation of pipeline integrity.

As noted earlier, unlike lots further west and further east (Gates Street, Banks Street) that are not immediately adjacent to a transmission line, these specific parcels are unique in their proximity to a significant hazard. As a result of the increased risk exposure, this site should receive more scrutiny.

I raised the concern about impact to pipeline integrity. While a discussion was presented by Illingworth & Rodkin, Inc. about anticipated Peak Particle Velocities (PPVs), there was no explicit analysis of actual impact to the pipeline integrity. Illingworth & Rodkin, Inc. infer in their analyses that typical PPV thresholds apply to Line 109. However, there are a number of site-specific factors that make this site unique that do not appear to have been accounted for in the analyses. For example, the pipeline is situated on an incline with a 90-degree bend at the top of the hill. Most conventional pipelines are horizontal in utility trenches on much flatter ground. Ground vibrations will have a different extensional effect on an inclined pipe than a horizontal pipe. The only reliable method to ascertain the impact of these simplifications and generalizations is to calculate pipeline integrity model bias (comparison of predicted value vs actual value). No model bias value for this site was presented.

Mr. Dolcini's letter actually illustrates that PG&E's requirement of a minimum of 36 inches of soil cover is very likely violated at this location, with a PG&E-estimated 24 inches of soil cover. This 'discovery' would only have occurred through our strong suggestion that PG&E certify the integrity of the pipeline. It would not be surprising if a site-specific assessment will find additional

deviations to be discovered that reveal a lower actual pipeline integrity vs an assumed pipeline integrity.

PG&E is the only organization in a position to analyze the additional fatigue expected to be exerted on the pipeline from the bedrock excavation activity and certify that no appreciable degradation will occur. This pipeline has the potential to catastrophically fail and result in deaths within the blast radius of the pipeline. To date, no such certification has been provided by PG&E.

Based on the facts and new analyses associated with the proposed development, it is my expert opinion that a reasonable possibility of a significant effect still exists with respect to degradation of the Transmission Line integrity as a result of the required rock excavation to achieve the delineated site grades shown in the project plans.

Given the uncertainties of actual pipe integrity, strong consideration should be given to replacing the segment of pipeline to ensure maximum integrity and minimal exposure of residents to undue injury or death as a result of the anticipated heavy excavation and ground disturbance activities.

My qualifications are presented in the attached resume. I am a practicing Geotechnical Engineer (CA License Number 2855), I provide gas pipeline risk reviews for the State of California Department of Education, and have participated in forensic engineering projects over the last 10 years with damage claims in excess of $2 billion and more than 8,000 hour of direct forensic analyses. My most recent engagement was a geotechnical forensic evaluation of the March 2014 Oso Landslide in Washington State, which resulted in the tragic loss of 43 individuals. In addition to private consulting, I am the Executive Director of the Center for Catastrophic Risk Management at UC Berkeley.

No payments for services have been received and no future promises of compensation have been offered.

I reserve the right to update my independent review based on new information.

Please contact me with any questions or comments by phone at (510) 225-5389 or via email at rune@storesundconsulting.com.

Sincerely,

STORESUND CONSULTING

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Consulting Engineer

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June 14, 2017

SF Board of Supervisors
San Francisco City Hall
1 Dr Carlton B Goodlett Pl #244
San Francisco, CA 94102

Subject: Review of Proposed Pipeline Impacts
3516 & 3526 Folsom Street
San Francisco, California

Dear President Breed and Honorable Members of the Board of Supervisors,

I have reviewed the analyses upon which the proposed mitigation options[1] relative to PG&E's natural gas Line 109 (the "Transmission Line") have been generated. In my opinion, the analyses are inadequate, incomplete, and fall short of a rigorous evaluation of pipeline integrity and assurance of public safety given the potential harm as a result of rupture and ignition of natural gas from this transmission pipeline. As a result, a reasonable possibility of a significant effect still exists with respect to degradation of the Transmission Line integrity and the adequacy and feasibility of the proposed mitigation actions are very much in question.

While an assessment of a potential suite of ground velocities has been completed, no direct assessment of pipeline integrity impacts have been evaluated. The analyses presented associated with this negative declaration are indirect. The current analysis infers that peak particle velocities (PPV) below a certain threshold will not degrade pipeline integrity. Inference is not equivalent to a data-driven validated relationship by PG&E that explicitly establishes a direct correlation between peak particle velocity and degradation of pipeline integrity.

The American Society of Mechanical Engineers (ASME) has a standard (ASME B31.8S) that presents guidance on evaluation of gas pipeline integrity[2]. A multitude of factors that impact pipeline integrity are presented in this document. These factors include: pipe wall thickness, diameter, seam type and joint factor, year of installation, bending method, joining method and process of inspection, depth of cover, field coating methods, soil backfill, cathodic protection, coating type, nominal maximum and minimum operating pressures, leak/failure history, pipe wall temperature, OD/ID corrosion monitoring, pressure fluctuations, encroachments, vandalism, and external forces. It is unclear that all of these factors are fully accounted for in the PPV-Integrity relationship proposed by PG&E.

Further, ASME B31.8S recommends that validation of any assessment process is vital. "Validation of risk analysis results is one of the most important steps in any assessment process. This shall be done to assure that the methods used have produced results that are usable and are consistent with the operator's and industry's experience... A risk validation and process shall be identified and documented in the integrity and management program. Risk result validations can be

[1] San Francisco Planning Department, Mitigated Negative Declaration (April 19, 2017; amended June 8, 2017)
[2] ASME B31.8S-2004 "Managing System Integrity of Gas Pipelines"

successfully performed by conducting inspections, examinations, and evaluations at locations that are indicated as either high risk or low risk to determine if methods are correctly characterizing the risks." No such validation has been provided or referenced.

Based on the facts and new analyses associated with the proposed development, it is my expert opinion that a reasonable possibility of a significant effect still exists with respect to degradation of the Transmission Line integrity.

Given the uncertainties of actual pipe integrity, strong consideration should be given to replacing the segment of pipeline to ensure maximum integrity and minimal exposure of residents to potential undue injury or death as a result of the anticipated heavy excavation and ground disturbance activities.

No payments for services have been received and no future promises of compensation have been offered.

I reserve the right to update my independent review based on new information.

Please contact me with any questions or comments by phone at (510) 225-5389 or via email at rune@storesundconsulting.com.

Sincerely,

STORESUND CONSULTING

Rune Storesund, D.Eng., P.E., G.E.
Consulting Engineer

UC Berkeley Center for Catastrophic Risk Management
Executive Director

UNACCEPTABLE EXTENSION
FOLSOM STREET, PROTRACTED IN 1861
STRUCTURE ON 40.3% GRADIENT SLOPE
UPON LARGE GAS LINE IN LANDSLIDE AREA
BERNAL HEIGHTS, SAN FRANCISCO
ENVIRONMENTAL IMPACT REPORT REQUIRED

LAWRENCE B. KARP *CONSULTING ENGINEER*

UNACCEPTABLE EXTENSION
FOLSOM STREET, PROTRACTED IN 1861
STRUCTURE ON 40.3% GRADIENT SLOPE
UPON LARGE GAS LINE IN LANDSLIDE AREA
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ENVIRONMENTAL IMPACT REPORT REQUIRED

LAWRENCE B. KARP *CONSULTING ENGINEER*

LAWRENCE B. KARP
CONSULTING GEOTECHNICAL ENGINEER

FOUNDATIONS, WALLS, PILES
UNDERPINNING, TIEBACKS
DEEP RETAINED EXCAVATIONS
SHORING & BULKHEADS
EARTHWORK & SLOPES
CAISSONS, COFFERDAMS
COASTAL & MARINE STRUCTURES

SOIL MECHANICS, GEOLOGY
GROUNDWATER HYDROLOGY
CONCRETE TECHNOLOGY

September 12, 2017

London Breed, President
C&CSF Board of Supervisors
City Hall, Room 244
San Francisco, CA 94102

Subject: Unacceptable Extension of 1861 Protracted Folsom Street, Bernal Heights Structure on 40.3% Gradient Slope Upon Large Gas Pipeline in Landslide Area
Environmental Impact Report Required

Dear President Breed and Members of the Board:

This report presents facts and a summary evaluation of them and results of field observations and civil engineering with review of documents that have been submitted to the Board pro and con for appeal of the Planning Department's (SFPD) proposed Mitigated Negative Declaration of Environmental Impact (MND) of 6/8/17. As this document is essentially the same as SFPD's CatEx Determination on 7/8/16 deciding to grant a CEQA Categorical Exemption (14 Cal Code Regs §15315) to the sponsor of the subject project, this report incorporates discussion and evidence of the same deficiencies and potential environmental impact that appeared in the CatEx Determination which cannot be remedied by the proposed meager mitigation.

I. Introduction

SFPD's defense of the community's appeal of the CatEx Determination was scrapped by SFPD on 1/24/17, minutes before the most recent rescheduled hearing. As with the CatEx Determination, there has been virtually no relevant and competent technical analysis, engineering, or environmental data submitted for the proposed installation of a permanent concrete structure that will be exercised producing daily vibrations to service six (6) building sites on top of and over an aging major gas pipeline (26 inch diameter) to create a street on a slope with a gradient of 40.3%, contrary to the SFPD's determination, unsubstantiated, at page 1 paragraph 1, of a 28% slope gradient and repeated, again unsubstantiated, at page 1 paragraph 1 of the MND. Very recently, without explanation, SFPD changed the slope to 32%. (SFPD 2017*b*) which is still incorrect. With good reason, this segment of Folsom Street, paper since 1861, has never been developed.

The project area, which includes the pipeline, is also below a mapped landslide area which existence has been denied by the Planning Department even though the map they publish as a guide for CatEx Determinations shows landsliding in Bernal Heights. A field trip by staff could not have missed the steep failing slope along Bernal Heights Boulevard directly above the project site, which project includes excavation, grading, and construction of a concrete roadway 145 feet long by 25 feet wide by 10 inches thick over the 26 year old longitudinally welded steel gas pipeline where the Planning Department has never required the developer to provide geotechnical data for existing bedding under and backfill around the pipe.

This report is based on evidence contained in the records of San Francisco's City Planning Department that has been either ignored, misinterpreted, or misunderstood. The record, considered in its entirety, contains substantial evidence to support a fair argument that the project may have a significant effect on the environment that has not been avoided or will be mitigated to a less than significant level by project modifications or proposed mitigation measures.

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II. The Westover Survey Has Gradient for a Developed Folsom Street Extension at 40+%

The 6/20/13 Westover survey is not on the list of references in any of the Gruen reports. Gruen's 6/28/13 logs show no elevations but instead in the box for that information a note "*ground surface" appears rather than any topographical identification, with site plan of the lots and streets shown as being level. Gruen's house report (Attachment E) is backdated to few days before 8/15/13 when SFDBI first officially published the minimum requirements for geotechnical reports (revised in 2015 and 2017). In any event, SFPD's "Determination of Categorical Exemption", on 7/8/16, which replaced an earlier Determination that was rescinded, was fatally flawed because of SFPD's failure to recognize (and properly consider) the actual steepness of the project's slope (40+% not 28%), failure to recognize (and properly consider) that absolutely no relevant geotechnical engineering information was secured for the project, and failure to recognize (and properly consider) the environmental consequences associated with the geotechnic mapping pertinent to the project site, and the street section described in the MND (SFPD 2017*a*, last Bullet, pg 56).

Coupled with the failure to secure a proper investigation of the project site, instead of causing the developer to address well known site specific data and maps produced by both the State and City/County agencies, such as California's 2001 "Seismic Mapping Act - Zones of Areas of Potential Liquefaction and Earthquake-Induced Landslides map of San Francisco (which shows the project site is located on a very steep slope below active landsliding) and San Francisco's 2008 Slope Protection Act which includes URS/Blume's map "Landslide Locations-San Francisco Seismic Safety Investigation-Geologic Evaluation"; "Figure 4", which although old, is a wall poster at the SFDBI, showing the project site in the middle of the instabilities mapped for Bernal Heights (end of Attachment F). Regardless of the dickering this year about what is supposed to be or what will be in any current slope protection map that may or may not be required to be followed, to a practicing geotechnical engineer all information must be considered so these maps are valuable as they will lead to further investigation. For those that argue that there is no official SPA in effect at this instant so no consideration of slope protection is necessary, SFDBI engineers and design professionals who work in San Francisco are aware that posted on the wall at the 2nd floor Plan Review Station of SFDBI as information for everyone are color enlargements of both the 1974 URS/Blume and the 2008 Seismic Hazard maps and they are both noted in the C&CSF "Geotechnical Report Requirements (beginning of Attachment F).

III. There is No Mitigation Possible for a 40+% Gradient Slope

SFPD adopted developer's distracting argument that house building can be mitigated to lessen transient vibrations from excavations for the houses, a minor problem compared to tons of concrete for the street, and its foundations required by the steep slope, which will generate vibrations from exercising the street by 12 daily trips according to SFPD (minimum). First, SFPD lacks the civil engineering expertise to determine that slope, normal to contour lines shown on the topographical map that was produced by the developer's land surveyor (Daniel Westover, LS 7779), is 40.3% (**Attachment A**). Second, in not recognizing the real problem of low cycle fatigue of the pipeline's weld metal at the longitudinal weld lines from constant vibrations in service transmitted to L-109 by the intended subgrade supported concrete structure (which is not allowed by PG&E), SFPD failed in their Initial Study to properly classify the potential environmental problem as significant as that determination would have led to an EIR which is what SFPD strives to avoid.

IV. Concrete Structure is Prohibited by PG&E & Street Cannot Meet SFDPW Standards

Conveniently, the developer has not submitted engineered plans to PG&E for approval and SFPD's MND conflicts with the plans (Franco 2016). The MND states "*For the street extension, top soil up to as much as 12 inches will be removed, and a cement concrete road surface with a thickness of 8 to 10 inches would be installed.*" (SFPD 2017*a*, bullet at bottom of page 56.) Grading and soil removal described in the MND would erase the "existing" cover over the pipeline thereby triggering the minimum three foot pipeline cover requirement which cannot be accomplished with existing L-109.

As the pipeline has been described by the following text: "*Current records ... depth of cover could be as shallow as 24 inches*" (PG&E 2017, Item 2), pipeline replacement would be required. There is no way to reduce the natural slope gradient without retaining walls crossing the pipeline. The gradient requires, for the street specified by City Planning to be 10 inches thick, a reinforced concrete section with foundations or keyways in Franciscan rock placed under the concrete upon the existing pipeline, which would mean hard transmission of daily vibrations to the pipeline caused by vehicles. Not discussed herein are the civil engineering plans (Franco 2016) as they specify asphalt pavement over aggregate base and show a retaining wall interfering with the pipeline. Structure over L-109 in the MND (even for the false gradient published by City Planning) is prohibited under PG&E regulations (PG&E 2017, Item 6).

The MND's emphasis is for "two residential building permit applications" dismissing the rest of the project, but a garage/off-street parking places is required for each residence. This requirement can only be satisfied by vehicular access to garages at each of the two houses (and the additional four houses if the street is approved by the Board of Supervisors by denying the appeal). The hook is that if the project is approved at this stage SFDPW will have a difficult task refusing to permit the project and it is unknown if PG&E will waive their rule about no structure within 10 feet of their pipeline as well as the total elimination of effective (but vital) inspections of leaks, corrosion, and cathodic protection by the installation of 227 tons of concrete not including foundations. Rightfully, after the 2010 San Bruno disaster, PG&E must require an EIR before waiving safety requirements.

In 1981 PG&E placed their L-109 pipeline in their right-of-way in very steep paper street protracted in 1861 because it was never expected to be an actual street as SFDPW has always disallowed this segment of Folsom Street. Nor should it be approved or accepted now by SFDPW (Order 183447, 3/24/15) as City streets are limited to 17% gradient, fire truck access is limited to 14% gradients, and dead end street widths need to be increased to 60 feet (**Attachment B**).

However, the developer, for this project, is attempting an end run around both SFDPW and PG&E by emphasizing the residences are all that matter at this time which kicks whatever PG&E and SFDPW require down the road, which is grossly improper under all of CEQA: "*All phases must be considered.*" (14 Cal Code Regs §15126). SFPD failed to submit and require for written comments from SFDPW and PG&E. This matter is environmentally sensitive to the community so unverified discussions by telephone or e-mail about intentions that only concern "*grading work*" (PG&E 2017, paragraph 1 line 1) which are not otherwise supported by approved engineering plans and specifications relevant to the MND, for the intended structures to be placed upon the pipeline, are insufficient to facilitate project approval by the Board of Supervisors. Review for compliance with PG&E Utility Standard TD-44905 "Gas Pipeline Rights-of-Way Management" would be a minimum requirement for the utility which would have to include characterizing the bedding and backfill for volume change by densification when loaded, exercised by the street, and shaking of concrete during an earthquake, and subdrainage. An EIR is necessary to properly investigate the project's environmental effects and inform the public.

V. PG&E Has Not Evaluated and Approved the Project

CEQA requires "Mitigation measures must be fully enforceable through permit conditions, agreements or other legal binding instruments (14 CCR §15126.4). In order for vehicles to access the two car garages for each house shown on the architectural plans for the buildings (SFPD 2016*b*) the vehicles would have to cross the near surface 26 inch diameter L-109 is planned to be covered with a 227 ton concrete structure not including foundations. Although the City Planning states that PG&E "has evaluated the proposed project" (SFPD 2017c) that is not true. Snippets of hearsay from the developer and purported telephone conversations by persons at the Planning Department about a single subject, vibrations due to house building, do not in any way constitute a proper evaluation of significant environmental effects for the full project which is required by Initial Study.

A list of questions were posed and answers were provided on 5/28/14 by PG&E employee Austin Sharp; however he declined to locate the pipeline and did not know its depth, and noted that regular inspections for leaks and levels of cathodic protection are regularly performed. He was not informed about the project's street construction which would eliminate the inspections he said must regularly occur. But there is no evidence that Mr. Sharp or anyone at PG&E he had consulted with knew about the steepness of the slope or anything about the project because with his e-mail he provided the questioner with a proprietary image "L109_Folsom_Street.pdf" (not in the record) as well as answers that all show a lack of significant knowledge about the project (**Attachment C**). The proprietary aerial image depicts the path of the pipeline but shows the project site (by boxing addresses 3516 and 3526 Folsom Street) far to the east and outside the path of the pipeline instead of west and over the pipeline which is the actual location of the project. The image is noted to be a PG&E's to be operated only by PG&E personnel. What this means is that neither Mr. Sharp nor apparently anyone else at PG&E knew the simple facts, steepness and location of the project and with that there is no record of site visits or review of documents which preclude proper "evaluation".

Genuine evaluation of the project would include engineering by PG&E's licensed professionals that would occur in a full investigation of the entire project including the concrete street and foundations for the concrete to be placed on a 40+% grade directly over the pipeline by PG&E, how welds and leaks and corrosion can be monitored, and how vibrations from in-service exercising of the street will affect the 26 year old pipeline. The research and investigation must culminate in a dated and signed report for the public to review and comment. Asking PG&E for such evaluation has been carefully avoided by the project sponsor and the agency, who have both to date supplied only innuendo.

VI. Vibrations: Minor Transient in MND, Major in Service for Project

Taking direction from the developer, who hired an acoustical and air quality company (not licensed architects or engineers) appropriate for remodel of a symphony hall, to opine in what have been purported to be engineering reports called "Memos", they concluded that excavations for building the residences will not produce significant vibrations that will affect the 26 inch diameter, 26 year old, welded steel gas pipeline (Illingworth & Rodkin 2017*a,b*). In California, engineering documents must be stamped and signed by licensed professional engineers (B&P Code §6735.1).

The reports use irrelevant data from New Hampshire and Hawaii to estimate the propagation of peak particle velocity (PPV) from assumed house building construction in the Franciscan formation of San Francisco and then made mathematical calculations to impress the City's Planning Department. To fit theoretical mathematical equations, the writers make compound assumptions about geotechnic conditions that have no basis in fact and simultaneously ignored the street construction specified by City Planning along with certain activity over the coming years. These types of postulations, which are prepared to make a case which the preparers are hired to make and serve no useful purpose, are known to qualified engineers as "junk science".

The Illingsworth & Rodkin memos reported an "*evaluation...of the potential for vibration levels from the residential building construction project at 3516 and 3526 Folsom Street of effecting a buried P&E gas line...*". There is nothing about the massive concrete street construction and constant use of the street for the project that will be upon L-109 which cannot be accessed for inspections and repairs. The memos concern transient motions for building houses, not vibrations generated by in service vibrations constantly generated by 12+ trips per day for vehicles to and from the ultimate 6 houses, which do not include delivery trucks. Due to difficult access from the street to the garages vehicles have to be parked in tandem, which requires for use of a vehicle that is blocked by another one, one has to be driven into the street to allow the other exit or enter. That means at least 50% more transits over the new street.

There is no indication the depth of the pipeline at any point (which PG&E's estimates is less than 24 inches which would be reduced to less than 14 inches clearance between the top of the pipe and the bottom of the concrete street after 10 inches of soil removal and concrete construction noted in the MND). There are no reasons given why the "potholing" PG&E has suggested to locate the pipe has not been performed by Gruen which could have been done if the bedding and backfill to the pipe had been evaluated, a minimum requirement to evaluate the street phase of the project. There is no acknowledgment that the only construction PG&E has written about for the project is "grading work" with no review by PG&E of engineering plans and no written approval for the project. There is no mention that the referenced "soils" report shows a level project site and the fact that the characteristics of the bedding and backfill for the pipeline, which have failed before (**Attachment D**), are deliberately unknown. There is no understanding demonstrated by City Planning that the planned 227 tons of concrete used to build the street on a 40+% gradient cannot stand alone by friction so the concrete mass must have buttressing and anchoring foundations for the street or it will slide. And what will the construction vibrations from excavating into rock for the foundations for the street have on the pipeline even before the street is put into service? And of course how can the pipeline be inspected under the concrete for cracks and leaks, and level of cathodic protection?

VII. City Planning Accepted Obviously Superficial and Defective "Soils Reports"

SFPD failed, apparently because of undue influence or ignorance, to request and secure the most fundamental technical information necessary to properly assess the geotechnical aspects of the project. Where a proper report of geotechnical engineering investigation would absolutely be required for any excavation and grading project where there will be excavations ("up to 10 feet") into a very steep slope (for obvious reasons, since 1861 no street was actually constructed) below identified landslides, SFPD first turned to an extra shoddy boilerplate "soils report" produced in duplicate by Gruen on 8/3/13 and then unbelievably gave credence to an 11/29/16 "update" where Gruen's surrogage misstated the houses as being on one lot, and then being confident in stating nothing was done concerning the [street portion] of the project ("No other project details are known at this time"). Then, more paper, incomplete and substandard, was generated (group **Attachment E**).

These "reports", written for the the proposed houses (duplicates), showed miserable site plans for non-existent level lots in a level project area, and they contain absolutely no information about the project site which has to include, as there are garages shown on the plans, the proposed extension of Folsom Street including the near-surface pipeline, intended grading, and street construction which requires foundations. The proposed improvement of Folsom Street that was before SFPD has clear potential environmental impact, which would have been obvious to qualified design professionals.

Subsequent to the original report(s) for both new houses, which do not meet minimum standards for such reports, someone using the engineer's stamp (apparently to avoid liability for the stamp holder) produced more worthless documents. On 11/29/16 the developer submitted a "Geotechnical Report Update" for the houses (3516 and 3526 Folsom Street), reports that were improperly written with several short paragraphs, and signed by a Gruen surrogate (in violation of B&P Code §6735.1). The first stated the letter presented "*....an update of my geotechnical investigation for the proposed residence [sic] at 3516 and 3526 Folsom Street ....*" and under a paragraph titled "**Proposed Project**", "*It is my understanding that the project will consist of the design and construction of a new residence* [sic] *on an undeveloped lot* [sic]. *No other project details are known at this time.*"

The City adheres to constantly revised but strict geotechnical report requirements (e.g **Attachment F**) which were ignored (the 2015 version referenced the 1974 URS/Blume map per the Slope Protection Act (SPA), C&CSF 2008); the early 2017 version references the local 2000 Seismic Hazard Zones map.

Whether or not there is an exact SPA technically in effect exactly at this time is immaterial; the intent and data exists and it is important to consider by all geotechnical engineers. In SFPD's CatEx Determination and the MND, Gruen's papers were referenced without regard to the fact that nothing serious about the project was in them but should have been because the City's report requirements stress slope and grading information (as do all versions of the SPA). Nevertheless SFPD stated in their determination and MND that the project site was investigated when it was not. It is incomprehensible why SFPD took the Gruen papers without question. First, two new houses on two level lots, and second, two houses on one lot in the update, are not legitimate geotechnical documents pertaining to the grading of a slope having 40+% gradient over and on top of a large diameter gas pipeline in a landslide area. However, in the "update" it was admitted engineering about the project was unknown, which effectively voided the CatEx. For the purpose of CEQA (here the MND) the reports are superficial and defective.

In SFPD's CatEx Determination, nobody licensed as a design professional, gave as references for the Dermination (that there was "no possibility" of environmental impact) the superficial "reports" for houses that do not approach minimum ASCE Standards for site investigations (ASCE 1976) and SFDBI's report requirements which are primarily directed to excavations and grading of slopes and foundations in slopes, and they do not meet standards set forth in the California building codes as adopted tri-annually by C&CSF.

The Gruen house reports do not comply with recognized practice and standard-of-care and competence regulations required for California engineers contained in the Business & Professions Code, and misrepresentation prohibitions for California engineers contained in the California Code of Regulations for development in steep difficult areas let alone those that have large underground natural gas pipelines. Gruen and his surrogates know very little about the project that is the subject of the present appeal. SFPD's reliance in their MND on poor writings by Gruen for two identical houses only vaguely related to the project where vehicular access via an improved Folsom Street is intended by the developer (and also expressed by other lot owners than the project applicant who intend to rely on the project completion to access and develop their lots) reveals that the "Environmental Review Officer" is not qualified in civil and geotechnical engineering.

On 1/24/17, on the day the CatEx appeal hearing was to be heard (cancelled a few minutes before it was about to begin for good reason: "*A categorical exemption cannot be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.)*" [i.e. the gradient and pipeline], 14 Cal Code Regs §15300c. Gruen's surrogate produced another document stamped but not signed by Gruen referring to Gruen in the third person. Here the surrogate (no initials this time) criticized Dr. Rune Storesund, geotechnical engineer and Executive Director of the University of California Berkeley's Center for Catastrophic Risk Management who, aside from that position also happens to provide private consulting for the State of California Department of Education, a truly qualified expert and acting *pro bono* to the community, no less. Gruen's surrogate, in responding to the Storesund reports (Storesund 2016*a,b*) where Storesund questioned the missing geotechnical information concerning the pipeline in the Gruen reports, stated that the information was available for the residences or was "*beyond the scope of our work for the residential development*" and other disclaimers. Gruen's loan of his professional engineering stamp to an unlicensed person is a serious violation of Business &Professions Code §6735.1, and allowing his stamp to aid and abet the Rules of Professional Conduct for engineers (Cal Code Regs §475(c)) is also a cause for discipline by the Board.

Lastly, after SFPD issued their amended MND on 6/8/17, on 7/6/17 Gruen produced a report purportedly about his geotechnical investigation for "planned Street and Utility Improvements" at the project site. The report is yet another incompetent document which City Planning did not question although there was no information asserted that could corroborate their standard denial of there not being any potential significant impact for the project.

On 1/24/17 Gruen's surrogate wrote the portion of the project site that was outside of the houses ("beyond the scope of our work for the residential development") but now, using that excuse again but stating he performed in accordance with his agreement with his assignment by the developer, he still provides no information what his assignment was actually about and he fails completely to confirm what City Planning had written that there will be no potential environmental impact from the project. This is because there will be significant potential environmental impact to the community from the project.

Gruen's 7/6/17 report is merely a reiteration of boiler plate paragraphs immaterial to the issues of the 40+% slope inclination and the near surface gas pipeline under pressure that runs down the middle of the undeveloped, for 156 years, paper Folsom Street, where construction is intended. These are apparently "details" as the report again, as was done on 11/29/16 by a surrogate, states "*No other project details are known at this time.*" The site plan again shows a level project site, the report does not address the extreme steepness of the site, and there is nothing about L-109's depth and ground characteristics such as density and grain size for P-109's bedding or backfill. There are no recommendations for design and construction of the concrete street and its necessary foundations for the 227 tons of concrete proposed to sit on the 40+% grade such as values to be used for friction between the concrete street and the ground, groundwater and subdrainage, and the effect on the pipeline from excavating into the hillside for foundations and long term in-service vibrations transmitted from the concrete street to subgrade from the many daily trips up and down the hillside that City Planning has written about (SFPD 2017*a*) as well as shaking during earthquakes.

VIII. Geotechnic Maps Show Project in a Very Steep Area Subject to Landsliding

As the activity is in a "uniquely sensitive environment" evidenced in this case by the State of California's "Seismic Hazard Zones" map of C&CSF (**Attachment G**) which is now used as the City's standard reference and based in part on that study, no less, is SFPD's own published "CatEx Determination Layers" map showing "Seismic Hazard Zone: Landslide" and "Slopes Over 20%" (**Attachment H**) which clearly apply to the subject project regardless of SFPD's denial in their CatEx determination which ignored mapping even though it is as precise as exists anywhere; the large diameter gas pipeline buried in the steep hillside of protracted Folsom Street where backfill has failed in the past (Attachment D), potential damage covered by expert reports ignored by SFPD that will be excavated and graded; the extreme steepness (Attachment A) of the hillside below an active landslide (40.3% gradient, not the 28% basis that is incorrectly stated (without substantiation) in both SFPD's documents (page 1, paragraph 1). Of all the mapped areas of San Francisco, the most prolific are the maps adopted that regard hazards of activity in areas of steep slopes and landsliding that goes with those steep slopes (e.g. Attachments F, G, H).

The exemption for an activity specifically does not apply if the activity may have an impact on an environmental resource of "*hazardous or critical concern where designated by, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.*" 14 Cal Code Regs §15300.2(a). Full environmental review is necessary as CEQA does not allow (Practice Under CEQA §5.57A) an agency to rely on mitigation measures to conclude any project is categorically exempt so what SFPD has done to get around that regulation is to contrive a pathetically inadequate MND.

Locations below landslides are especially meaningful for geotechnical engineers (but not for SFPD) where the landsliding is above steep slopes that are proposed for excavation and grading. Engineers, but in this case planners, recognize the very real potential loss of lateral and subjacent support for land above, and accompanying change in groundwater regime, as being critical. The geotechnical maps are as precise as can exist under mapping standards in California for such engineering in lieu of an environmental review, which is the point of CEQA particularly applicable for the subject project.

IX. The 1861 Protracted Map Without Consideration of Topography Created "Junk Lots"

156 years ago the Bernal Heights area was protracted (on paper, without regard to topography) into 1783 small lots clustered around fictitious street names or extensions of existing streets. With the Subdivision Map Act, enacted by emergency legislation, the state outlawed subdivision by protraction. The paper subdivision, titled "Gift Map 3" (**Attachment I**), included Butler Street now known as Folsom Street. To illustrate the map's actual (never intended) use, the protraction showed 20 lots on the west side of Folsom (Butler) from "Powhatan" northward to "California Street" which indicated paper Folsom Street was to run up over and down the cliffs in Bernal Heights Park!

As the area developed, protracted lots were combined or abandoned leaving only 3 lots developed on the west side of Folsom north of Powhattan up to the end of developed Folsom Street where it turns into Chapman Street. Many of the individual protracted lots were ever built upon with houses nor were they ever intended to be, individually they were often judged near worthless. For instance, years after the assessors map was created, Lots 11 and 12 sold for $4,000 each to the City and Lot 13 (now known as 3516 Folsom, vacant) sold for $4.83. The proposed project, the development of Folsom, is north of the intersection with Chapman.

X. CEQA Prohibits "Piecemeal" Projects Resulting in Cumulative Effects

SFPD's Determination circumvents cumulative and compound evidence of requirements for an environmental review for this project, and presentation of the project (and handling by SFPD) which is obviously a CEQA prohibited "piecemeal" approach, 14 Cal Code §15303(a), to a project that will shortly service six steep hillside lots (admittedly, the record shows that other lot owners have indicated they will develop lots if Folsom Street is constructed) which, after the State's Subdivision Map Act and the SFDPW Subdivision Regulations, could not have been created. SFPD has no qualified staff to opine on the engineering aspects of the project (there are no licensed engineers or even other licensed design professionals such as architects and land surveyors on staff). Licensure, not a fancy in-house title to supplement wages, is evidence of qualification under California's Business & Professions Code.

XI. City Planning Failed to Recognize SFDPW's Need to Protect City's Slope

The lots immediately between the project site (Folsom paper Street) and Bernal Heights Boulevard, which is also directly below the landsliding shown on SFPD's CatEx (and other) maps, are shown in relative detail on the "Property Information Map" issued to the public as property information. For the Gift Map 3 lots combined over the end of Folsom Street, the annotated maps (**Attachment J**) show that all the lots above the project site (not the private lots to the east) are under "SFDPW jurisdiction" and they are noted as having "Slope Protection".

From a civil/geotechnical engineering, and community standpoint, it is imperative that the project is subjected to full environmental review (EIR) to properly inform the public below and lateral to the proposed project concerning the significant potential environmental impacts of the project.

XII. Planning Department Publishes the Map "CatEx Determination Layers"

Furthermore, and demonstrative of their questionable motives which bears repeating, SFPD has amazingly ignored their own detailed map which they generated and titled "CatEx Determination Layers, Printed May 17, 2015 [by] San Francisco Planning Department" (Attachment H). City Planning's own map shows two "Layers" that are allocated to "Seismic Hazard Zones" and "Slopes Over 20%" with the project site located on both steepness and hazard layers (the gradient of the site is 40+% which is <u>double</u> the map's threshold) and the slope's earthquake hazard is mapped directly overhead of the project site.

Incredibly, the SFPD reviewers failed to review their own map which they even made into a poster as noted on the map (and other maps that show "sensitive environment" were also not reviewed or if they were in some degree they were not understood). Even if they did not recognize the environmental hazards associated with excavating below an active landslide or chose to treat the hazards, without technical support, as being insignificant, City Planning's CatEx Determination, now replaced with a Mitigated Negative Declaraton to avoid environmental review is tantamount to making CEQA a nullity.

XIII. Planning Department's Initial Study for MND is Grossly Defective

The finding in City Planning's proposed Mitigated Negative Declaration "The project could not have a significant effect on the environment" (SFPD 2017*a*, (page ii)" is not based on substantial evidence and there is substantial evidence to the contrary in the record. And, the statement "In the independent judgment of the Planning Department, there is no substantial evidence that the project could have a significant effect on the environment", signed by someone for Lisa Gibson on 7/11/17, only means that the Planning Department does not have qualified persons on staff and has not performed a proper Initial Study.

In the Planning Department's "Summary of Environmental Effects" and "Evaluation of Environmental Effects", the following are false answers in the proposed Mitigated Negative Declaration:

Impact 1b (page 25)	Conflicts with PG&E and SFDPW regulations[1] (IV, V above). Box should have been checked for "Potentially Significant Impact"
Impact 4e (page 35)	Creates dead end on 40+% substandard width street w/o turn-around (IV above). Box should have been checked for "Potentially Significant Impact".
Impact 5b (page 44)	Vibrations affecting loading of pipeline[2] (I, III, VI, V above). Box should have been checked for "Potentially Significant Impact".
Impact 13a.ii (page 94)	Seismic shaking of concrete street/fdns will affect pipeline (IV, VII, VIII above) Box should have been checked for "Potentially Significant Impact".
Impact 13a.iv (page 94)	Project is in the vicinity of a landslide area (I, II, VI, VIII, XI, XII above). Box should have been checked for "Potentially Significant Impact".
Impact 13c (page 94)	Project is in the vicinity of off-site landsliding[3] (I, II, VI, VII, VIII, XI, XII above). Box should have been checked for "Potentially Significant Impact".

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[1]True: "The proposed project includes the improvement of a currently unimproved 'paper' street segment of Folsom Street" (MND, page 25).

[2]Vibrations from excavating into the hillside for foundations for a concrete street on 40+% grade, loading on pipeline from concrete, and vibrations in service of street from automobile and truck trips will affect large diameter gas pipeline.

[3]False: "The project site and vicinity do not include any hills or cut slopes that could cause or be subject to a landslide." (MND, page 97).

Impact 15a (page 104)	Alteration of ground regime around large gas pipeline (I, II, III, IV, VII above). Box should have been checked for "Potentially Significant Impact".
Impact 15b (page 104)	Concrete structure will block leak/corrosion detection (I, III, IV, V, VI, VII above). Box should have been checked for "Potentially Significant Impact".
Impact 15h (page 104)	Conceal detection of corrosion/leaks may result in fires (I, III, IV, V, VI, VII above). Box should have been checked for "Potentially Significant Impact".
Impact 16c (page 104)	Conceal detection of corrosion/leaks may result in waste (I, III, IV, V, VI, VII above).. Box should have been checked for "Potentially Significant Impact".
Impact 18b (page 112)	Impacts 1b⇒16c have cumulative potential significant impacts on the environment. Mandatory: Box should have been checked for "Potentially Significant Impact".
Impact 18c (page 112)	Impacts 1b⇒16c have cumulative potential significant impacts on the environment. Mandatory: Box should have been checked for "Potentially Significant Impact".

XIV. Summary

In my professional opinion, earned by over 50 years involvement in geotechnical (soil and foundation) engineering in San Francisco, if the subject project is implemented without a proper and complete environmental review, which only an independent EIR under CEQA can provide, there is a potential for significant environmental impact to result from the project which is cumulative.

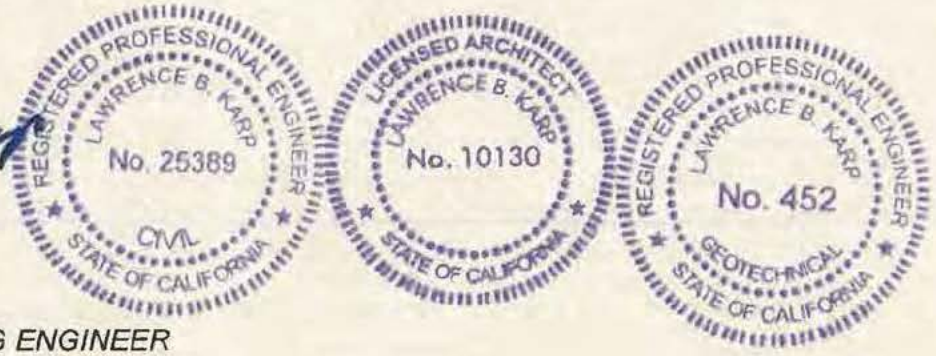
The potential exists not only during construction of house foundations which City Planning has taken the liberty to emphasize while ignoring the street construction phase of the project, but the cumulative impacts of constructing the street and the impacts of the street in service due over a near surface large diameter natural gas pipeline as well as the contribution of additional development of more buildings and use of a concrete structure and its foundations over the pipeline facilitated by the project which in turn is will be block inspections of leaks, weld fatigue, corrosion, and inspection and replacement of anodes for the cathodic protection, and is also likely to impair lateral and subjacent support in the landslide area in and above where the project is situated.

XV. Conclusion

My credentials include an earned doctorate and other degrees as well as a post-doctoral certificate in earthquake engineering from the University of California, Berkeley. As a public service, I have provided this report as assistance to the Bernal Heights neighborhood without fees or any other compensation. I will be present at the appeal hearing to answer any questions from Board Members.

Yours truly,

Lawrence B. Karp



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City & County of San Francisco, Planning Department (SFPD), December 5, 2016*c*; "Categorical Exemption Appeal, 3516-3526 Folsom Street", 14 pages.

City & County of San Francisco, Planning Department (SFPD), April 19, 2017, Amended June 8, 2017*a*; "Mitigated Negative Declaration", [For only two building sites, not access to them and four other building sites from the street therefore incomplete for the actual project: *"The project site the Block bounded by Bernal Heights Boulevard to the north, Gates Street to the west, Powhattan Avenue ot the south and Folsom Street to the east. The project site is located along the west side of an approximately 145-foot-long unimproved segment of Folsom Street, north of Chapman Street, that ends at the Bernal Heights Community Garden*".]

City & County of San Francisco, Planning Department (SFPD), September 5, 2017*b*; "Mitigated Negative Declaration Appeal", 18 pages.

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Gruen, H. Allen dba Earth Mechanics Consulting Engineers - Geotechnical Engineering, November 29, 2016; "Geotechnical Report Update, Proposed Residence [sic] at 3516 & 3526 Folsom Street, San Francisco, California" letter prepared for Mr. James Fogarty - Blue Orange Designs, 2 pages. ["*It is my understanding that the project will consist of the design and construction of a new residence on an undeveloped lot* [sic]. *No other project details are known at this time.*"; document stamped but NOT signed by H. Allen Gruen per B&P Code §6735.1].

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Storesund Consulting, December 11, 2016*b*; "Impact to PG&E Transmission Line 109, 3516 & 3526 Folsom Street, San Francisco, California", report prepared for the SF Board of Supervisors, 3 pages,

U. S. Geological Survey, 1956 (Photorevised 1980); "San Francisco South Quadrangle California, 7.5 Minute Series (Topographic)", map, Scale 1:24,000 (1" = 2,000'), 1 sheet.

List of Attachments

A. Westover Surveying topographical survey map (contours annotated) & Thomas Bros map

B. DPW street steepness limit 17%, fire truck access limit 14%, 60 foot width for dead end street

C. PG&E e-mail 5/28/14 of proprietary image of different project with answers to questions

D. Photos of PG&E gas pipeline backfill restoration after failure in paper Folsom Street

E. Gruen and surrogate reports and letters 8/3/13, 11/29/16, 1/24/17, 4/14/17, 7/6/17.

F. C&CSF Geotechnical Report Requirements w/referenced landslide map

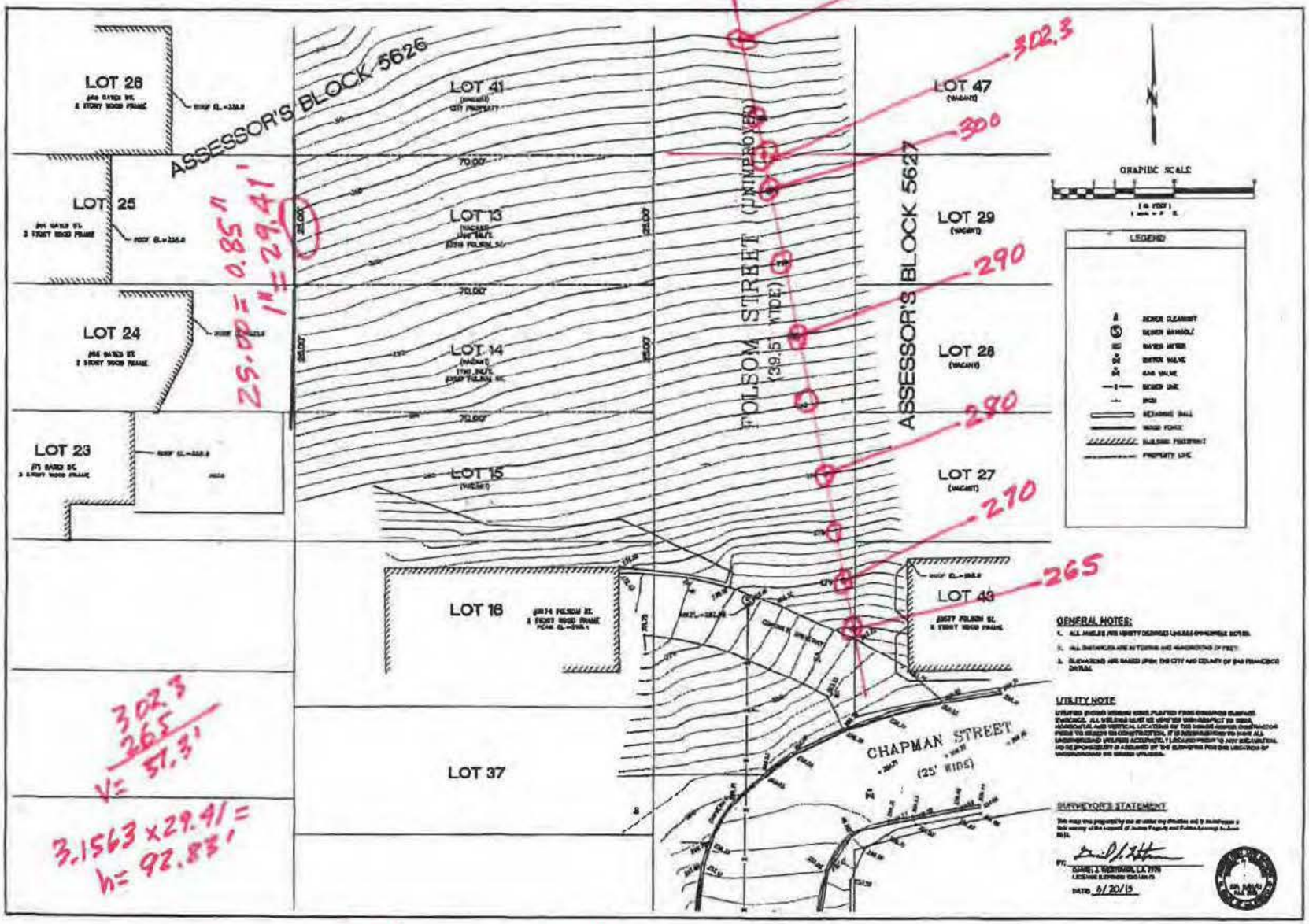
G. California Seismic Hazard Map for C&CSF, annotated enlargement of site, SP117 cover

H. City Planning's CatEx Layer Map & enlargements of site with legend

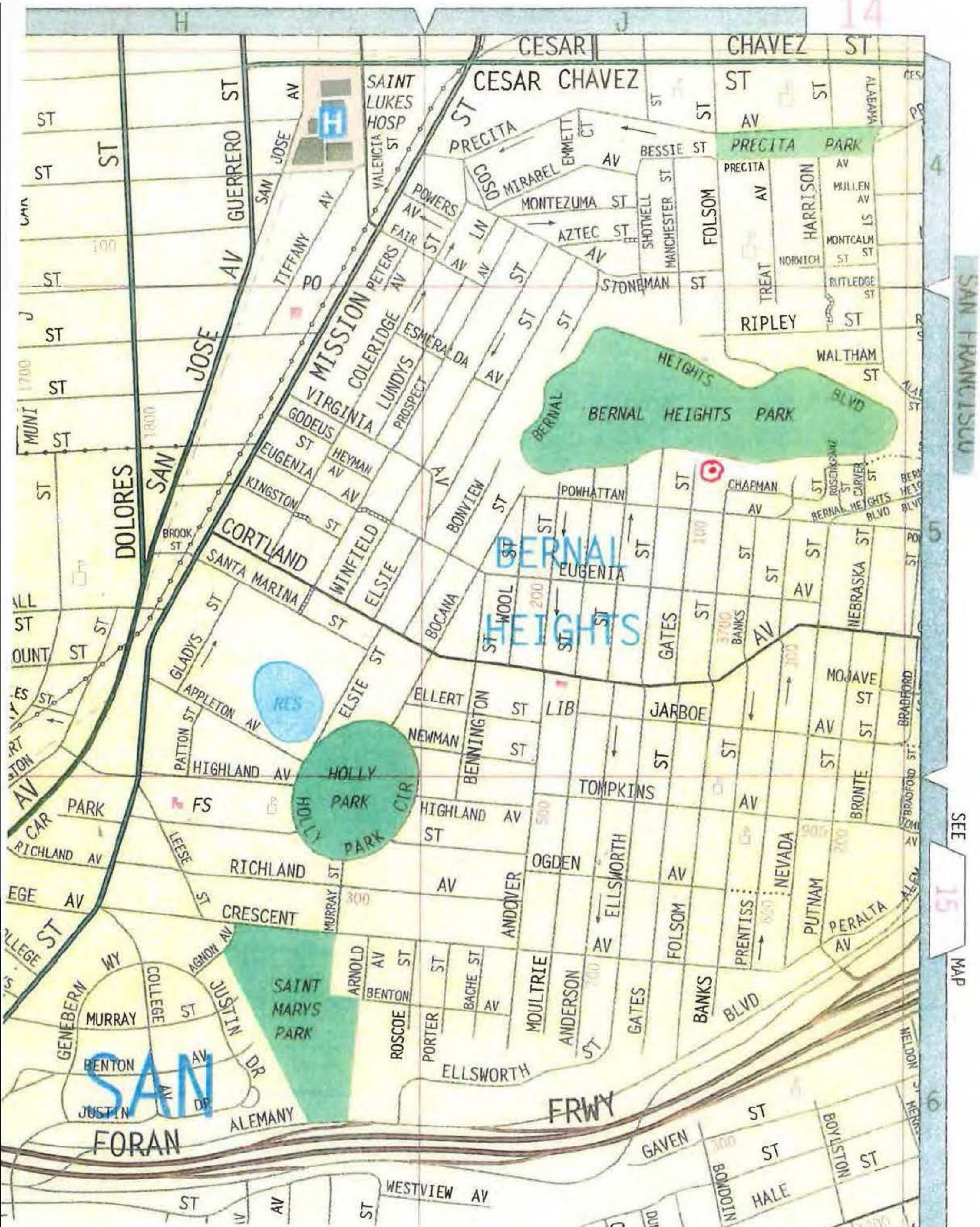
I. 1841 Gift Map 3, C&CSF assessors map of Block 5626, annotated & sale records for 3 lots

J. Aerial image & DPW slope protection maps, paper Folsom St. south of Bernal Heights Blvd

ATTACHMENT A



310
302.3
300
290
290
270
265
25.00 = 0.85"
1" = 29.41'
302.3
265
V= 51.3'
3.1563 x 29.41 =
h= 92.83'
37.3 / 92.83 = 40.3%
tan⁻¹ 0.4026 = 22°


H
J
CESAR CHAVEZ ST
SAINT LUKES HOSP
PRECITA PARK
BERNAL HEIGHTS PARK
BERNAL HEIGHTS BLVD
BERNAL HEIGHTS
MISSION ST
SAN JOSE AV
DOLORES ST
GUERRERO ST
VALENCIA ST
PRECITA AV
MIRABEL AV
EMMETT CT
BESSIE ST
FOLSOM ST
HARRISON ST
ALABAMA
MONTEZUMA ST
AZTEC ST
SHOTWELL
MANCHESTER ST
STONEMAN ST
RIPLEY ST
WALTHAM ST
TREAT AV
NORWICH ST
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MULLEN AV
RUTLEDGE ST
TIFFANY AV
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POWERS AV
FAIR AV
PETERS AV
COLERIDGE ST
ESMERALDA AV
LUNDYS LN
PROSPECT AV
VIRGINIA AV
GODEUS ST
HEYMAN AV
EUGENIA AV
KINGSTON ST
WINFIELD ST
ELSIE ST
BONVIEW ST
CORTLAND AV
SANTA MARINA ST
BROOK ST
POWHATTAN AV
CHAPMAN ST
CARVER ST
ROSENKRANZ ST
WOOL ST
GATES ST
BANKS ST
NEBRASKA ST
MOJAVE ST
BOCANA ST
GLADYS ST
APPLETON AV
RES
ELLERT ST
NEWMAN ST
BENNINGTON ST
LIB
JARBOE AV
PATTON ST
HIGHLAND AV
HOLLY PARK CIR
TOMPKINS AV
BRONTE ST
BRADFORD ST
FS
CAR PARK
RICHLAND AV
LEESE ST
OGDEN AV
ELLSWORTH ST
NEVADA ST
PUTNAM ST
PERALTA AV
MURRAY ST
CRESCENT AV
ANDOVER ST
PRENTISS ST
AGNON AV
SAINT MARYS PARK
ARNOLD AV
BENTON AV
ROSCOE ST
PORTER ST
BACHE ST
MOULTRIE ST
ANDERSON ST
BANKS
BLVD
GENEBERN WY
COLLEGE AV
JUSTIN DR
MURRAY ST
BENTON AV
JUSTIN DR
SAN
ALEMANY
FORAN
ELLSWORTH
FRWY
GAVEN ST
BOWDOIN
BOYLSTON ST
HALE ST
WESTVIEW AV
WELDON
MUNI
4
5
6
SAN FRANCISCO
SEE 15 MAP

ATTACHMENT B

SUBDIVISION REGULATIONS

2015

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF SAN FRANCISCO

Adopted by Department of Public Works Order No. 183447

Approved March 24, 2015

Mohammed Nuru, Director of Public Works

Fuad Sweiss, City Engineer

Bruce Storrs, City and County Surveyor

C. STREET GUIDELINES

1. Alignment

All streets shall, as far as practicable, align with existing streets. The Subdivider shall justify any deviations based on written environmental and design objectives.

2. Intersecting Streets

Intersecting streets shall meet at right angles or as nearly so as practicable.

3. Naming

Streets of a proposed subdivision which are in alignment with existing streets shall bear the names of the existing streets. The Department of Public Works shall approve names for all new streets.

4. Street Grades

DPW shall not approve street grades in excess of 17% except as an exception and under unusual conditions.

Streets having grades in excess of 14% shall require separate consultation with the Fire Department prior to use for fire access purposes.

No gutter grade shall be less than 0.5%. The Subdivider shall provide concrete on any pavement grade less than 1.0%.

The Subdivider shall connect all changes in street grades, the algebraic sum of which exceeds 1.5%, with vertical curves of DPW-approved length sufficient to provide safe stopping sight distances and good riding quality. All changes in street grades shall have an absolute value of the algebraic difference in grades which does not exceed fifteen percent (15%), regardless of any vertical curves.

The Director with the consent of the SFFD may approve of any design modification to this standard on a case-by-case basis.

5. Surface Drainage

a. Subdivider shall grade streets to provide a continuous downhill path.

b. At low end cul-de-sacs and sumps, in addition to sewer drainage facilities, Subdivider shall provide surface drainage channels in dedicated easements as relief of overflow to prevent flooding of adjoining property.

c. Subdivider shall design street and drainage channel cross-sections to provide a transport channel for overland or surface flow in excess of the 5-years storm capacity of the sewer system. The channel capacity shall be the difference between the sewer capacity and the quantity of runoff generated by a 100-year storm as defined by the NOAA National Weather Service or by City-furnished data, applied over the tributary area involved.

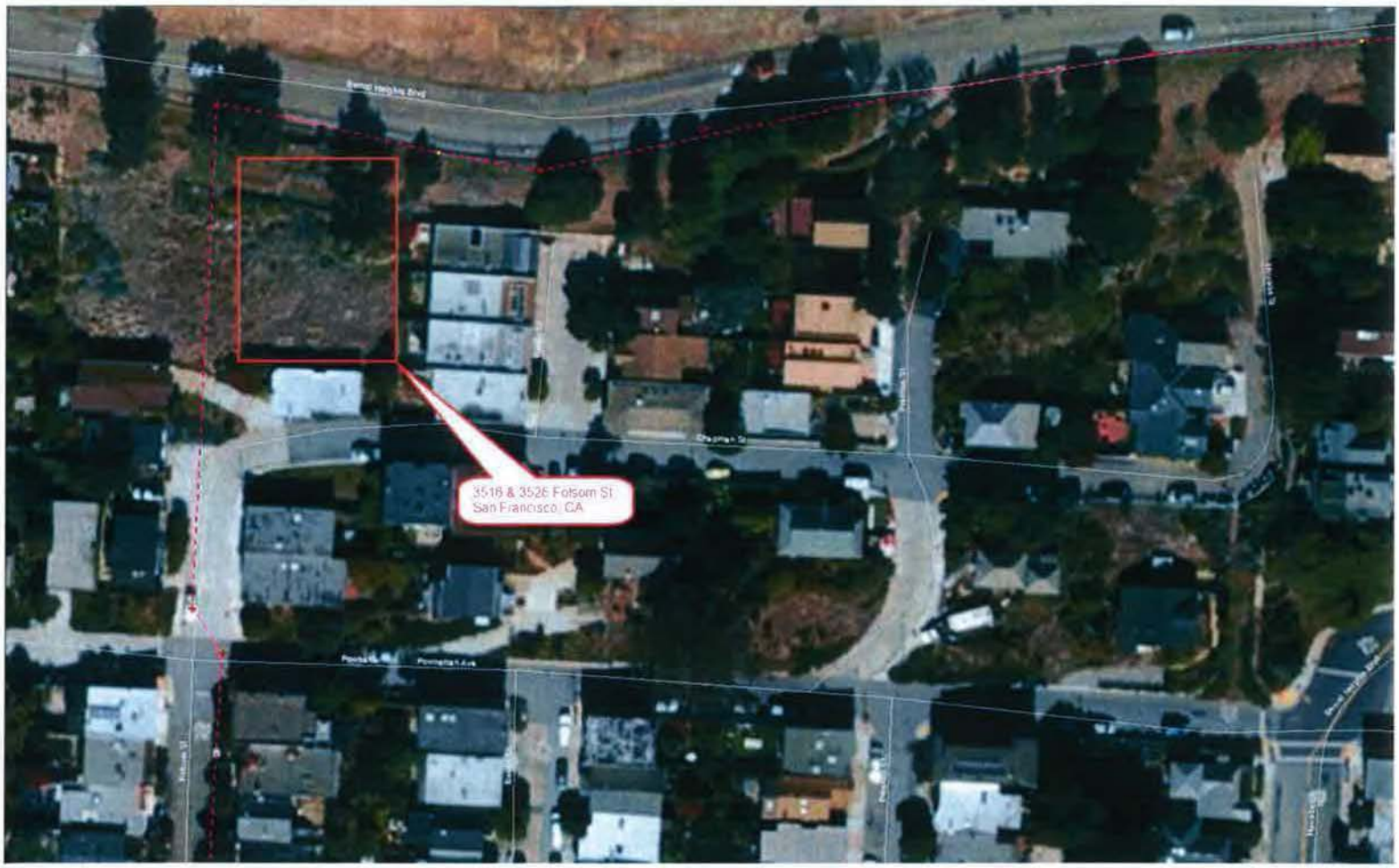
d. Subdivider shall round street curb intersections by a curve generally having a radius equivalent to the width of the sidewalk and the design shall be in accordance with the Better Streets Plan. While allowing vehicle movements for emergency vehicles, the Subdivider shall use the smallest possible radius.

D. PRIVATE STREETS

Private streets shall have a minimum right-of-way width of 40 feet for through streets. Dead-end private streets shall have a minimum right-of-way width of 60 feet. The Subdivider shall consult with the Fire Department and Department of Building Inspection for all designs that might result in less than the minimum width.

E. BLOCKS

ATTACHMENT C



Pipeline Location is Not Exact
Call 811 before you dig

PG&E Pipeline Information
Facilities to be operated by PG&E personnel only

Subject: Fw: Fwd: Development on Upper Folsom Street Follow-Up Request
From: barbara underberg <bjunderberg@yahoo.com>
Date: Sun, 10 Sep 2017 18:23:03 +0000 (UTC)
To: "L. B. Karp" <lbk@lbkarp.com>

----- Forwarded Message -----
From: Herb Felsenfeld <herbfelsenfeld@gmail.com>
To: Deborah Gerson <dgerson646@gmail.com>; "bjunderberg@yahoo.com" <bjunderberg@yahoo.com>
Cc: Gail Newman <g-newman@comcast.net>
Sent: Saturday, September 9, 2017 5:31 PM
Subject: Fwd: Development on Upper Folsom Street Follow-Up Request

Barbara - I believe this is the e-mail you wanted.
Deborah - Thank You!!
Herb

---------- Forwarded message ---------
From: Deborah Gerson <dgerson646@gmail.com>
Date: Sat, Sep 9, 2017 at 5:06 PM
Subject: Fwd: Development on Upper Folsom Street Follow-Up Request
To: Herb Felsenfeld <herbfelsenfeld@gmail.com>

Here's the message from Austin Sharp that you wanted.
The date is 5/28/2014
---------- Forwarded message ----------
From: **Sharp, Austin** <AWSd@pge.com>
Date: Wed, May 28, 2014 at 4:57 PM
Subject: RE: Development on Upper Folsom Street Follow-Up Request
To: Herbert Felsenfeld <herbfelsenfeld@gmail.com>
Cc: Deborah Gerson <dgerson646@gmail.com>, "Fabien Lannoye (fabien@bluorange.com)" <fabien@bluorange.com>

Hi Deborah, Herb, and Fabien,

Please see below for the response to the questions that Deborah submitted to me. Herb, I will have the additional questions sometime next week. I will also be attending your design review board meeting tonight, so if you have any PG&E related questions I will be available to answer them. Look forward to seeing you there.

Background: Lot 13 and Lot 14, Block 5626; 3516 Folsom St.; 3526 Folsom St. Concerned neighbors require explicit information about Pipeline 109. Thus we are sending the following request for information to the developer and to you as a representative of PG&E. As the owner of the above listed lots, in the vicinity of Pipeline #109 in Bernal Heights, we, concerned neighbors, are asking you to provide the following information:

QUESTION(S) 1: Where exactly is pipeline 109?; identify the longitude and latitude coordinates.
RESPONSE(S) 1: Please see attachment "*L109_Folsom_Street.pdf*" for the location of Line 109 near 3516 and 3526 Folsom Street, San Francisco. PG&E does not provide latitude and longitude of natural

gas pipelines to outside parties (other than its regulators) for security reasons. To have PG&E identify the location of the gas lines in your street, please call USA, the Underground Service Alert, at 811.

QUESTION(S) 2: How deeply is #109 buried?
RESPONSE(S) 2: Gas transmission pipelines are typically installed with 36 to 48 inches of cover. However, the depth may vary as cover over the lines may increase or decrease over time due to land leveling and construction. Without digging and exposing the line, it is not possible to determine the exact depth.

QUESTION(S) 3: What is Pipeline #109 composed of?
RESPONSE(S) 3: Line 109 is a steel pipeline. In your neighborhood, this pipeline has a maximum allowable operating pressure (MAOP) of 150 pounds per square inch gage (psig), which is 19.8% of the pipe's specified minimum yield strength (SMYS). This provides a considerable margin of safety, since it would take a pressure of at least 750 psig to cause the steel in the pipe to begin to deform.

QUESTION(S) 4: How old is Pipeline #109?
RESPONSE(S) 4: Line 109 in this area was installed in 1981 and was strength tested at the time of installation.

QUESTION(S) 5: How big in diameter is Pipeline #109? What is the composition of the pipeline?
RESPONSE(S) 5: Line 109 in your vicinity is a 26-inch diameter steel pipeline.

QUESTION(S) 6: How/with what are the pipe seams welded?
RESPONSE(S) 6: Line 109 near 3516 and 3526 Folsom Street is constructed of API 5L-Grade B steel pipe, and has a double submerged arc weld along the longitudinal seam.

QUESTION(S) 7: How much gas runs through Pipeline #109?
RESPONSE(S) 7: Line 109 has a variable flow rate that is dependent on system operations and San Francisco area gas customer consumption. As points of reference, however, Line 109 observed flow rates of 1.55 – 2.375 million standard cubic feet per hour (MMSCFH) through the flow meter at Sullivan Avenue in Daly City on May 27, 2014.

QUESTION(S) 8: When were the last 3 inspections? Would you produce the documentation for these inspections.
RESPONSE(S) 8: PG&E has a comprehensive inspection and monitoring program to ensure the safety of its natural gas transmission pipeline system. PG&E regularly conducts patrols, leak surveys, and cathodic protection (corrosion protection) system inspections for its natural gas pipelines. Any issues identified as a threat to public safety are addressed immediately. PG&E also performs integrity assessments of certain gas transmission pipelines in urban and suburban areas.

Patrols: PG&E patrols its gas transmission pipelines at least quarterly to look for indications of missing pipeline markers, construction activity and other factors that may threaten the pipeline. Line 109 through the neighborhood was last patrolled in May 2014 and everything was found to be normal.

Leak Surveys: PG&E conducts leak surveys at least annually of its natural gas transmission pipelines. Leak surveys are generally conducted by a leak surveyor walking above the pipeline with leak detection instruments. Line 109 was last leak surveyed in April 2014 and no leaks were found.

Cathodic Protection System Inspections: PG&E utilizes an active cathodic protection (CP) system on its gas transmission and steel distribution pipelines to protect them against corrosion. PG&E inspects its CP systems every two months to ensure they are operating correctly. The CP systems on Line 109 in your area were last inspected in May 2014 and were found to be operating correctly.

Integrity Assessments: There are three federally-approved methods to complete a transmission pipeline integrity management baseline assessment: In-Line Inspections (ILI), External Corrosion Direct Assessment (ECDA) and Pressure Testing. An In-Line Inspection involves a tool (commonly known as a "pig") being inserted into the pipeline to identify any areas of concern such as potential metal loss

(corrosion) or geometric abnormalities (dents) in the pipeline. An ECDA involves an indirect, above-ground electrical survey to detect coating defects and the level of cathodic protection. Excavations are performed to do a direct examination of the pipe in areas of concern as required by federal regulations. Pressure testing is a strength test normally conducted using water, which is also referred to as a hydrostatic test.

PG&E performed an ECDA on Line 109 in this area in 2009 and no issues were found. PG&E plans to perform the next ECDA on L-109 in this area in 2015. PG&E also performed an ICDA (Internal Corrosion Direct Assessment) on L-109 near 3516 and 3526 Folsom Street in 2012, and no issues were found.

Unfortunately, PG&E cannot provide the documentation from these inspections because they contain confidential information that PG&E only provides to its regulators.

QUESTION(S) 9: Is this pipeline equivalent in type to the exploded pipeline in San Bruno?
RESPONSE(S) 9: Line 109 near 3516 and 3526 Folsom Street is not equivalent to the pipe in San Bruno that failed. The pipeline in San Bruno that failed was PG&E natural gas transmission pipeline L-132, which had a diameter of 30 inches, was installed in 1956, and had an MAOP of 400 psig. As described in the responses above, L-109 in your area is a 26-inch diameter pipeline, was installed in 1981, and operates at an MAOP of 150 psig.

Thanks,

Austin

Austin Sharp I Expert Customer Impact Specialist
Pacific Gas and Electric Company
Phone: 650.598.7321
Cell: 650.730.4168
Email: awsd@pge.com

From: Herbert Felsenfeld [mailto:herbfelsenfeld@gmail.com]
Sent: Thursday, May 22, 2014 6:00 PM
To: Sharp, Austin
Cc: Deborah Gerson
Subject: Re: Development on Upper Folsom Street Follow-Up Request

I look forward to hearing from you, Austin by COB 05/28 with answers to Dr. Deborah Gerson's questions, and, I similarly look forward to hearing from with answers to my additional questions by COB 06/04.

Thank you kindly for your attention to our requests, as well for your timely and informative reply.

Sincerely,
Herb

On Thu, May 22, 2014 at 4:37 PM, Sharp, Austin <AWSd@pge.com> wrote:
Hi Herb,

I expect the responses for the questions sent over by Deborah mid next week, and then the additional responses from your questions in the letter most likely the week after. Please let me know if you have any questions. Thanks,

Austin

Austin Sharp I Expert Customer Impact Specialist
Pacific Gas and Electric Company
Phone: 650.598.7321
Cell: 650.730.4168
Email: awsd@pge.com

From: Herbert Felsenfeld [mailto:herbfelsenfeld@gmail.com]
Sent: Saturday, May 17, 2014 3:26 PM
To: Sharp, Austin
Subject: Development on Upper Folsom Street Follow-Up Request

May 17, 2014

Thank you for talking with me on Friday, May 16, 2014, Mr. Sharp. Attached is a copy of a letter that will also be sent by US Mail. Hard copies will also be sent to Mr. Nick Bruno and Mr. Nick Stavropoulos.
Thank you for your response to the questions within one weeks time.

Yours truly,
Herb Felsenfeld

PG&E is committed to protecting our customers' privacy.
To learn more, please visit http://www.pge.com/about/company/privacy/customer/

L109_Folsom_Street.pdf	**Content-Type:** application/pdf **Content-Encoding:** base64

ATTACHMENT D


PG&E


229 ZWC


case


W20
case


W20
680E

ATTACHMENT E

REPORT
GEOTECHNICAL INVESTIGATION
Planned Residence At
3516 Folsom Street
San Francisco, California

Prepared for:

Mr. Fabien Lannoye
Bluorange Designs
241 Amber Drive
San Francisco, CA 94131

Prepared by:

H. Allen Gruen
Geotechnical Engineer
360 Grand Avenue, # 262
Oakland, California 94610
(510) 839-0765

Project Number: 13-4060

H. Allen Gruen, C.E., G.E.
Registered Geotechnical Engineer No. 2147

August 3, 2013

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TABLE OF CONTENTS, CONTINUED

INTRODUCTION

Purpose

A geotechnical investigation has been completed for the proposed residence at 3516 Folsom Street in San Francisco, California. The purposes of this study have been to gather information on the nature, distribution, and characteristics of the earth materials at the site, assess geologic hazards, and to provide geotechnical design criteria for the planned improvements.

Scope

The scope of our services was outlined in our Proposal and Professional Service Agreement dated June 16, 2013. Our investigation included a reconnaissance of the site and surrounding vicinity; sampling and logging two test borings to practical refusal at a maximum depth of 5 feet below the ground surface; laboratory testing conducted on selected samples of the earth materials recovered from the borings; a review of published geotechnical and geologic data pertinent to the project area; geotechnical interpretation and engineering analyses; and preparation of this report.

This report contains the results of our investigation, including findings regarding site, soil, geologic, and groundwater conditions; conclusions pertaining to geotechnical considerations such as weak soils, settlement, and construction considerations; conclusions regarding exposure to geologic hazards, including faulting, ground shaking, liquefaction, lateral spreading, and slope stability; and geotechnical recommendations for design of the proposed project including site preparation and grading, foundations, retaining walls, slabs on grade, and geotechnical drainage.

Pertinent exhibits appear in Appendix A. The locations of the test borings are depicted relative to site features on Plate 1, Boring Location Map. The logs of the test borings are displayed on Plates 2 and 3. Explanations of the symbols and other codes used on the logs are presented on Plate 4, Soil Classification Chart and Key to Test Data. Bedrock is described in accordance with the engineering geology rock terms presented on Plate 5.

References consulted during the course of this investigation are listed in Appendix B. Details regarding the field exploration program appear in Appendix C.

Proposed Development

It is our understanding that the project will consist of the design and construction of a new residence on an undeveloped lot. No other project details are known at this time.

FINDINGS

Site Description

As shown on the Boring Location Map, Plate 1, the project site is located northwest of the intersection of Folsom and Chapman Streets in San Francisco, California. The topography in the vicinity of the site slopes downward toward the south at an average inclination of about 3-½:1 (horizontal:vertical). At the time of our investigation, the subject site was undeveloped.

Geologic Conditions

The site is within the Coast Ranges Geomorphic Province, which includes the San Francisco Bay and the northwest-trending mountains that parallel the coast of California. Tectonic forces resulting in extensive folding and faulting of the area formed these features. The oldest rocks in the area include sedimentary, volcanic, and metamorphic rocks of the Franciscan Complex. This unit is Jurassic to Cretaceous in age and forms the basement rocks in the region.

Locally, the site is in the San Francisco South Quadrangle (1995). A published geologic map of the area (Bonilla, 1998) shows the area southwest of the site is underlain by colluvial deposits (slope debris and ravine fill) consisting of stony silty to sandy clay and the area northeast of the site is underlain by chert bedrock.

Earth Materials

Our borings at the subject site encountered about 3 to 4 feet of soil overlying chert bedrock. Boring 1 encountered about 4 feet of very stiff, lean clay with varying amounts of sand overlying the chert bedrock. Boring 2 penetrated about 2 feet of very stiff, silty clayey sand overlying hard, sandy lean clay that was underlain at a depth of about 3 feet by chert bedrock. Detailed descriptions of the materials encountered as well as test results are shown on the Boring Logs, Plates 2 and 3.

Groundwater

Free groundwater was not encountered in our borings to the maximum depth explored of 5 feet. It is our opinion that the free groundwater table will be below the planned site excavations. We anticipate that the depth to the free water table will vary with time and that zones of seepage may be encountered near the ground surface following rain or irrigation upslope of the subject site.

CONCLUSIONS

General

On the basis of our site reconnaissance and data review, we conclude that the site is suitable for support of the proposed improvements. The primary geotechnical concerns are founding improvements in competent earth materials and seismic shaking and related effects during earthquakes. These items are addressed below.

Foundation Support

It is our opinion that the planned improvements may be supported on a conventional spread footing foundation bearing in competent earth materials. If the spread footings would cover a substantial portion of the building area, a mat foundation may be used as an alternative to reduce forming and steel bending costs. The Structural Engineer may also choose to use drilled piers to support improvements, or for shoring and underpinning, if required. Detailed foundation design criteria are presented later in this report.

We estimate that improvements supported on foundations designed and constructed in accordance with our recommendations will experience post-construction total settlements from static loading of less than 1 inch with differential settlements of less than ½ inch over a 50-foot span.

Geologic Hazards

Faulting

The property does not lie within an Alquist-Priolo Earthquake Fault Zone as defined by the California Division of Mines and Geology. The closest mapped active fault in the vicinity of the site is the San Andreas Fault, located about 6 miles southwest of the site (CDMG, 1998). No active faults are shown crossing the site on reviewed published maps, nor did we observe evidence of active faulting during our investigation. Therefore we conclude that the potential risk for damage to improvements at the site due to surface rupture from faults to be low.

Earthquake Shaking

Earthquake shaking results from the sudden release of seismic energy during displacement along a fault. During an earthquake, the intensity of ground shaking at a particular location will depend on a number of factors including the earthquake magnitude, the distance to the zone of energy release, and local geologic conditions. We expect that the site will be exposed to strong earthquake shaking during the life of the improvements. The recommendations contained in the applicable Building Code should be followed for reducing potential damage to the improvements from earthquake shaking.

Liquefaction

Liquefaction results in a loss of shear strength and potential volume reduction in saturated granular soils below the groundwater level from earthquake shaking. The occurrence of this phenomenon is dependent on many factors, including the intensity and duration of ground shaking, soil density and particle size distribution, and position of the groundwater table (Seed and Idriss, 1982). The site does not lie within a liquefaction potential zone as mapped by the California Division of Mines and Geology for the City and County of San Francisco (CDMG, 2000). In addition, the earth materials encountered on our borings have a low potential for liquefaction. Therefore, it is our opinion that there is a low potential for damage to the planned improvements from liquefaction.

Lateral Spreading

Lateral spreading or lurching is generally caused by liquefaction of marginally stable soils underlying gentle slopes. In these cases, the surficial soils move toward an unsupported face, such as an incised channel, river, or body of water. Because the site has a low potential for liquefaction, we judge that there is a low risk for damage of the improvements from seismically-induced lateral spreading.

Densification

Densification can occur in clean, loose granular soils during earthquake shaking, resulting in seismic settlement and differential compaction. It is our opinion that earth materials subject to seismic densification do not exist beneath the site in sufficient thickness to adversely impact the planned improvements.

Landsliding

The geologic maps of the site vicinity reviewed for this study did not show landslides at the subject site. In addition, a map prepared by the California Division of Mines and Geology for the City and County of San Francisco (CDMG, 2000) does not indicate that the subject site lies within an area of potential earthquake-induced landsliding. During our site reconnaissance, we did not observe evidence of active slope instability at the site. Therefore, it is our opinion that the potential for damage to the improvements from slope instability at the site is low provided the recommendations presented in this report are incorporated into the design and construction of the project.

RECOMMENDATIONS

Site Preparation and Grading

General

The thickness of soil blanketing the site and the depth to bedrock can vary across the site. Design criteria are provided for foundations and retaining walls in soil and rock. Soil design criteria may be assumed within 4 feet of the current ground surface and rock design criteria may be assumed more than 4 feet below the current ground surface. However, if during construction, soil is observed more than 4 feet below the ground surface at foundation levels, the foundations will need to be deepened to bear in rock, or the foundations will need to be redesigned using the soil values. Likewise, if more than 2 feet of soil than what was anticipated from the borings is being retaining by subsurface walls, the portions of walls supporting the additional soil will need to be designed using the lateral earth pressures for soil conditions.

We assume that the planned improvements will be constructed at or below existing site grades. If site grades are raised by filling more than about 1 foot, we should be retained to calculate the impact of filling on slope stability, site settlements, and foundations.

Clearing

Areas to be graded should be cleared of debris, deleterious materials, and vegetation, and then stripped of the upper soils containing root growth and organic matter. We anticipate that the required depth of stripping will generally be less than 2 inches. Deeper stripping may be required to remove localized concentrations of organic matter, such as tree roots. The cleared materials should be removed from the site; strippings may be stockpiled for reuse as topsoil in landscaping areas or should be hauled off site.

Excavations

Bedrock was encountered in our borings at a depth of about 3 to 4 feet below the ground surface. We anticipate that excavations in the upper portions of bedrock at the site can be conducted with conventional equipment, although localized ripping may be required. Excavations extending deeper into the bedrock may require extra effort, such as heavy ripping, hoe-rams, or jack-hammering. We anticipate that the bedrock will become harder and more massive with increasing depth.

Overexcavation

Loose, porous soils and topsoil, if encountered, should be overexcavated in areas designated for placement of future engineered fill or support of improvements. Difficulty in achieving the recommended minimum degree of compaction described below should be used as a field criterion by the geotechnical engineer to identify areas of weak soils that should be removed and replaced as engineered fill. The depth and extent of excavation should be approved in the field by the geotechnical engineer prior to placement of fill or improvements.

Subgrade Preparation

Exposed soils designated to receive engineered fill should be cut to form a level bench, scarified to a minimum depth of 6 inches, brought to at least optimum moisture content, and compacted to at least 90 percent relative compaction, in accordance with ASTM test designation D 1557.

Material for Fill

It is anticipated that the on-site soil will be suitable for reuse as fill provided that lumps greater than 6 inches in largest dimension and perishable materials are removed, and that the fill materials are approved by the geotechnical engineer prior to use.

Fill materials brought onto the site should be free of vegetative mater and deleterious debris, and should be primarily granular. The geotechnical engineer should approve fill material prior to trucking it to the site.

Compaction of Fill

Fill should be placed in level lifts not exceeding 8 inches in loose thickness. Each lift should be brought to at least the optimum moisture content and compacted to at least 90 percent relative compaction, in accordance with ASTM test designation D 1557.

Underpinning

During excavations adjacent to existing structures or footings, care should be taken to adequately support the existing structures. When excavating below the level of foundations supporting existing structures, some form of underpinning may be required where excavations extend below an imaginary plane sloping at 1:1 downward and outward from the edge of the existing footings. All temporary underpinning design and construction are the responsibility of the contractor. Earth Mechanics is available to provide consultation regarding underpinning adjacent improvements.

Temporary Slopes

Temporary slopes will be necessary during the planned site excavations. In order to safely develop the site, temporary slopes will need to be laid back in conformance with OSHA standards at safe inclinations, or temporary shoring will have to be installed. All temporary slopes and shoring design are the responsibility of the contractor. Earth Mechanics is available to provide consultation regarding stability and support of temporary slopes during construction. The contractor may choose to excavate test pits to evaluate site earth materials and the need for temporary shoring.

Finished Slopes

In general, finished cut and fill slopes in soil should be constructed at an inclination not exceeding 2:1 (horizontal:vertical). Routine maintenance of slopes should be anticipated. The tops of cut slopes should be rounded and compacted to reduce the risk of erosion. Fill and cut slopes should be planted with vegetation to resist erosion, or protected from erosion by other measures, upon completion of grading. Surface water runoff should be intercepted and diverted away from the tops and toes of cut and fill slopes by using berms or ditches.

Seismic Design

The following seismic design parameters apply:

Site Class C
$S_s = 1.520$, $S_1 = 0.693$
$Fa = 1.0$, $Fv = 1.3$
$SM_s = 1.520$, $SM_1 = 0.901$
$SD_s = 1.013$, $SD_1 = 0.601$

Foundations

General

The thickness of soil blanketing the site and the depth to bedrock can vary across the site. Design criteria are provided for foundations in soil and rock. Soil design criteria may be assumed within 4 feet of the current ground surface and rock design criteria may be assumed more than 4 feet below the current ground surface. However, if during construction, soil is observed more than 4 feet below the ground surface at foundation levels, the foundations will need to be deepened to bear in rock, or the foundations will need to be redesigned using the soil values.

It is our opinion that the planned improvements may be supported on a conventional spread footing foundation bearing in competent earth materials. If the spread footings would cover a substantial portion of the building area, a mat foundation may be used as an alternative to reduce forming and steel bending costs. The Structural Engineer may also choose to use drilled piers to support improvements, or for shoring and underpinning, if required. Design criteria for each foundation type are presented below.

Spread Footings

Spread footings should extend at least 24 inches below lowest adjacent exterior grade, or 18 inches below lowest adjacent interior grade, whichever is lower. If soft or unstable soil areas are encountered at the bottom of the footings, localized deepening of the footing excavation will be necessary. Footing depths may be reduced if competent bedrock is exposed in footing excavations. Footings should be stepped to produce level tops and bottoms and should be deepened as necessary to provide at least 7 feet of horizontal clearance between the portions of footings designed to impose passive pressures and the face of the nearest slope or retaining wall.

Spread footings bottomed in soil can be designed to impose dead plus code live load bearing pressures and total design load bearing pressures of 2,000 and 3,000 psf, respectively. If foundations are bottomed in bedrock, the footings may be designed for maximum allowable rock contact pressures of 3,500 pounds per square foot (psf) for dead plus sustained live loads, and 5,000 psf for total loads, including wind or seismic forces.

There should be no isolated footing pads. We recommend that all new footings be interconnected and the foundation system should have upslope-downslope elements spaced no more than 20 feet apart. Resistance to lateral pressures can be obtained from passive earth pressures against the face of the footing and soil friction along the base of footings. A passive pressure equivalent to that obtained using a fluid weight of 250 pounds per cubic foot (pcf) and a friction factor of 0.3 may be used to resist lateral forces and sliding in soil. In bedrock, a uniform pressure of 3000 psf and a friction factor of 0.4 times the net vertical dead load may be used for design to resist lateral forces and sliding. These values include a safety factor of 1.5 and may be used in combination without reduction. Passive pressures should be disregarded in areas with less than 7 feet of horizontal soil confinement and for the uppermost 1-foot of foundation depth unless confined by concrete slabs or pavements.

Drilled Piers

Drilled, cast-in-place, reinforced concrete piers should be at least 14 inches in diameter and extend at least 10 feet below grade, or to practical drilling refusal in bedrock. Piers should be designed for a maximum allowable skin friction of 500 psf for combined dead plus sustained live loads in soil. In bedrock, piers should be designed for a maximum allowable skin friction of 1,000 psf for combined dead plus sustained live loads. The above values may be increased by one-third for total loads, including the effect of seismic or wind forces. The weight of the foundation concrete extending below grade may be disregarded. We recommend that all piers be interconnected with grade or tie beams and the foundation system should have upslope-downslope elements spaced no more than 20 feet apart.

Resistance to lateral displacement of individual piers will be generated primarily by passive earth pressures acting on the pier. Passive pressures in soil should be assumed equivalent to those generated by a fluid weighing 250 pcf acting on 2 pier diameters. In bedrock, a passive pressure equivalent to that generated by a uniform pressure of 3000 psf acting on 1.5 pier diameters may be used. Passive pressures should be neglected within 12 inches of the ground surface in areas not confined by slabs or pavements and in areas with less than 7 feet of horizontal confinement. Piers designed to resist lateral loads from retaining walls will reach their maximum lateral load carrying capacity at a depth of 8 times the pier diameter. A practical limit on the pier depth of twice the height of the retaining wall can be used, if less than 8 times the pier diameter.

Where groundwater is encountered during pier shaft drilling, it should be removed by pumping, or the concrete must be placed by the tremie method. If the pier shafts will not stand open, temporary casing may be necessary to support the sides of the pier shafts until concrete is placed. Concrete should not be allowed to free fall more than 5 feet to avoid segregation of the aggregate.

Mat Foundation

A mat foundation may be used to support the planned improvements. The mat can be designed for an average allowable bearing pressure in soil over the entire mat of 2,000 psf for combined dead plus sustained live loads, and 3,000 psf for total loads including wind or seismic forces. The weight of the mat extending below current site grade may be neglected in computing bearing loads. Localized increases in bearing pressures of up to 4,000 psf may be utilized. If the mat is bottomed in bedrock, the mat may be designed for maximum allowable rock contact pressures of 3,500 pounds per square foot (psf) for dead plus sustained live loads, and 5,000 psf for total loads, including wind or seismic forces, with localized increases up to 8,000 psf. For elastic design, a modulus of subgrade reaction for soil of 50 kips per cubic foot and for rock of 200 kips per cubic foot may be used.

Resistance to lateral pressures can be obtained from passive earth pressures against the face of the mat and soil friction along the base of the mat foundation. We recommend that an allowable passive equivalent fluid pressure in soil of 250 pcf and a friction factor of 0.3 times the net vertical dead load be used for design. In bedrock, a uniform pressure of 3000 psf and a friction factor of 0.4 times the net vertical dead load may be used for design to resist lateral forces and sliding. Passive pressures should be disregarded in areas with less than 7 feet of horizontal soil confinement and for the uppermost 1-foot of foundation depth unless confined by concrete slabs or pavements.

Retaining Walls

The thickness of soil blanketing the site and the depth to bedrock can vary across the site. Design criteria are provided for retaining walls in soil and rock. Soil design criteria may be assumed within 4 feet of the current ground surface and rock design criteria may be assumed more than 4 feet below the current ground surface. However, if more than 2 feet of soil than what was anticipated from the borings is being retaining by subsurface walls, the portions of walls supporting the additional soil will need to be designed using the lateral earth pressures for soil conditions.

Retaining walls should be fully backdrained. The backdrains should consist of at least a 3-inch-diameter, rigid perforated pipe, or equivalent such as a "high profile drain", surrounded by a drainage blanket. The pipe should be sloped to drain by gravity to appropriate outlets. Accessible subdrain cleanouts should be provided and maintained on a routine basis. The drainage blanket should consist of clean, free-draining crushed rock or gravel, wrapped in a filter fabric such as Mirafi 140N. The aggregate drainage blanket should be at least 1 foot in width and extend to within 1 foot of the surface. The uppermost 1-foot should be backfilled with compacted native soil to exclude surface water. Alternatively, the drainage blanket could consist of Caltrans Class 2 "Permeable Material" or a prefabricated drainage structure such as Mirafi Miradrain. The backdrain should extend down at least 8 inches below lowest adjacent grade.

Vertical retaining walls that are free to rotate at the top should be designed to resist active lateral soil pressures equivalent to those exerted by a fluid weighing 40 pcf where the backslope is level, and 60 pcf for backfill at a 2:1 (horizontal:vertical) slope. In areas where bedrock is exposed and backfill is placed behind the wall, the structural engineer may use active lateral earth pressures equivalent to those exerted by a fluid weighing 30 pcf where the backslope is level, and 45 pcf for backfill at a 2:1 (horizontal:vertical) slope. If the retaining wall is constructed directly against the bedrock with no backfill, the structural engineer may use active lateral earth pressures equivalent to those exerted by a fluid weighing 20 pcf where the backslope is level, and 26 pcf for backfill at a 2:1 (horizontal:vertical) slope. For intermediate slopes, interpolate between these values. We should be consulted to calculate lateral pressures on retaining walls that are tied-back or braced.

In addition to lateral earth pressures, retaining walls must be designed to resist horizontal pressures that may be generated by surcharge foundation loads applied at or near the ground surface. If a footing surcharge is located above a retaining wall within a horizontal distance of 0.4H, where H is the height of soil retained by the wall, then a horizontal lateral resultant force equal to 0.55 Q_L should be applied to the retaining wall at a height above the base of the wall equal to 0.6H. Q_L equals the equivalent resultant footing line load. This footing surcharge load applies equally to walls that are fixed or free to rotate. As an example, a retaining wall supporting 10 feet of soil has a footing 2 feet away from the top of the wall carrying a line load of 1,000 pounds per lineal foot. This footing is within 0.4H=4 feet of the retaining wall. The resultant horizontal force on the retaining wall from the footing surcharge load would be 0.55x1,000=550 pounds acting 0.6H=6 feet above the base of the retaining wall.

In addition to lateral earth pressures and adjacent footing loads, retaining walls must be designed to resist horizontal pressures that may be generated by surcharge loads applied at or near the ground surface. Where an imaginary 1:1 (H:V) plane projected downward from the outermost edge of a surcharge load intersects a retaining wall, that portion of the wall below the intersection should be designed for an additional horizontal thrust from a uniform pressure equivalent to one-third the maximum anticipated surcharge pressure in soil and one-fourth the maximum anticipated surcharge pressure in rock. In some cases, this value yields a conservative estimate of the actual lateral pressure imposed. We should be contacted if a more precise estimate of lateral loading on the retaining wall from surcharge pressures is desired.

Rigid retaining walls constrained against such movement could be subjected to "at-rest" lateral earth pressures equivalent to those exerted by the fluid pressures listed above plus a uniform load of 6•H pounds per square foot in soil and of 4•H pounds per square foot in rock, where H is the height of the backfill above footing level. Where an imaginary 1:1 (H:V) plane projected downward from the outermost edge of a surcharge load intersects a lower retaining wall, that portion of the constrained wall below the intersection should be designed for an additional horizontal thrust from a uniform pressure equivalent to one-half the maximum anticipated surcharge pressure in soil and one-third the maximum anticipated surcharge pressure in rock. In some cases, this value yields a conservative estimate of the actual lateral pressure imposed. We should be contacted if a more precise estimate of lateral loading on the retaining wall from surcharge pressures is desired.

A seismic pressure increment equivalent to a rectangular pressure distribution of 5H in psf may be used, where H is the height of the soil retained in feet.

Wall backfill should consist of soil that is spread in level lifts not exceeding 8 inches in thickness. Each lift should be brought to at least optimum moisture content and compacted to not less than 90 percent relative compaction, per ASTM test designation D 1557. Retaining walls may yield slightly during backfilling. Therefore, walls should be properly braced during the backfilling operations.

Where migration of moisture through retaining walls would be detrimental or undesirable, retaining walls should be waterproofed as specified by the project architect or structural engineer.

Retaining walls should be supported on footings designed in accordance with the recommendations presented above. A minimum factor of safety of 1.5 against overturning and sliding should be used in the design of retaining walls.

Slab-on-Grade Floors

The subgrade soil in slab and flatwork areas should be proof rolled to provide a firm, non-yielding surface. If moisture penetration through the slab would be objectionable, slabs should be underlain by a capillary moisture break consisting of at least 4 inches of clean, free-draining crushed rock or gravel graded such that 100 percent will pass the 1-inch sieve and none will pass the No. 4 sieve. Further protection against slab moisture penetration can be provided by means of a moisture vapor barrier membrane, placed between the drain rock and the slab. The membrane may be covered with 2 inches of damp, clean sand to protect it during construction.

Additional protection against moisture seepage into subsurface levels may be provided by installing a slab underdrain system. If selected, the slab underdrain system would consist of trenches, which are at least 12 inches deep and 6 inches wide, spaced no further than 10 feet apart beneath the floor slab. The bottoms of the trenches should slope to drain to a low-point by gravity. A 3-inch diameter, rigid perforated pipe should be placed near the bottom of the trench which is fully encapsulated in drain rock. The drainrock should be fully encapsulated in an approved filter fabric. The perforated pipes should be tied to closed conduits which outlet at appropriate discharge points.

Site Drainage

Positive drainage should be provided away from the improvements. Roof downspouts should discharge into closed conduits that drain into the site storm drain system. Surface drainage facilities (roof downspouts and drainage inlets) should be maintained entirely separate from subsurface drains (retaining wall backdrains and underslab drains). Drains should be checked periodically, and cleaned and maintained as necessary to provide unimpeded flow.

Supplemental Services

Earth Mechanics recommend that we be retained to review the project plans and specifications to determine if they are consistent with our recommendations. In addition, we should be retained to observe geotechnical construction, particularly site excavations, placement of retaining wall backdrains, fill compaction, and excavation of foundations, as well as to perform appropriate field observations and laboratory tests.

If, during construction, subsurface conditions different from those described in this report are observed, or appear to be present beneath excavations, we should be advised at once so that these conditions may be reviewed and our recommendations reconsidered. The recommendations made in this report are contingent upon our notification and review of the changed conditions.

If more than 18 months have elapsed between the submission of this report and the start of work at the site, or if conditions have changed because of natural causes or construction operations at or adjacent to the site, the recommendations of this report may no longer be valid or appropriate. In such case, we recommend that we review this report to determine the applicability of the conclusions and recommendations considering the time elapsed or changed conditions. The recommendations made in this report are contingent upon such a review.

These services are performed on an as-requested basis and are in addition to this geotechnical investigation. We cannot accept responsibility for conditions, situations or stages of construction that we are not notified to observe.

LIMITATIONS

This report has been prepared for the exclusive use of Bluorange Designs and their consultants for the proposed project described in this report.

Our services consist of professional opinions and conclusions developed in accordance with generally accepted geotechnical engineering principles and practices. We provide no other warranty, either expressed or implied. Our conclusions and recommendations are based on the information provided us regarding the proposed construction, the results of our field exploration and laboratory testing programs, and professional judgment. Verification of our conclusions and recommendations is subject to our review of the project plans and specifications, and our observation of construction.

The test boring logs represent subsurface conditions at the locations and on the date indicated. It is not warranted that they are representative of such conditions elsewhere or at other times. Site conditions and cultural features described in the text of this report are those existing at the time of our field exploration, conducted on June 28, 2013, and may not necessarily be the same or comparable at other times.

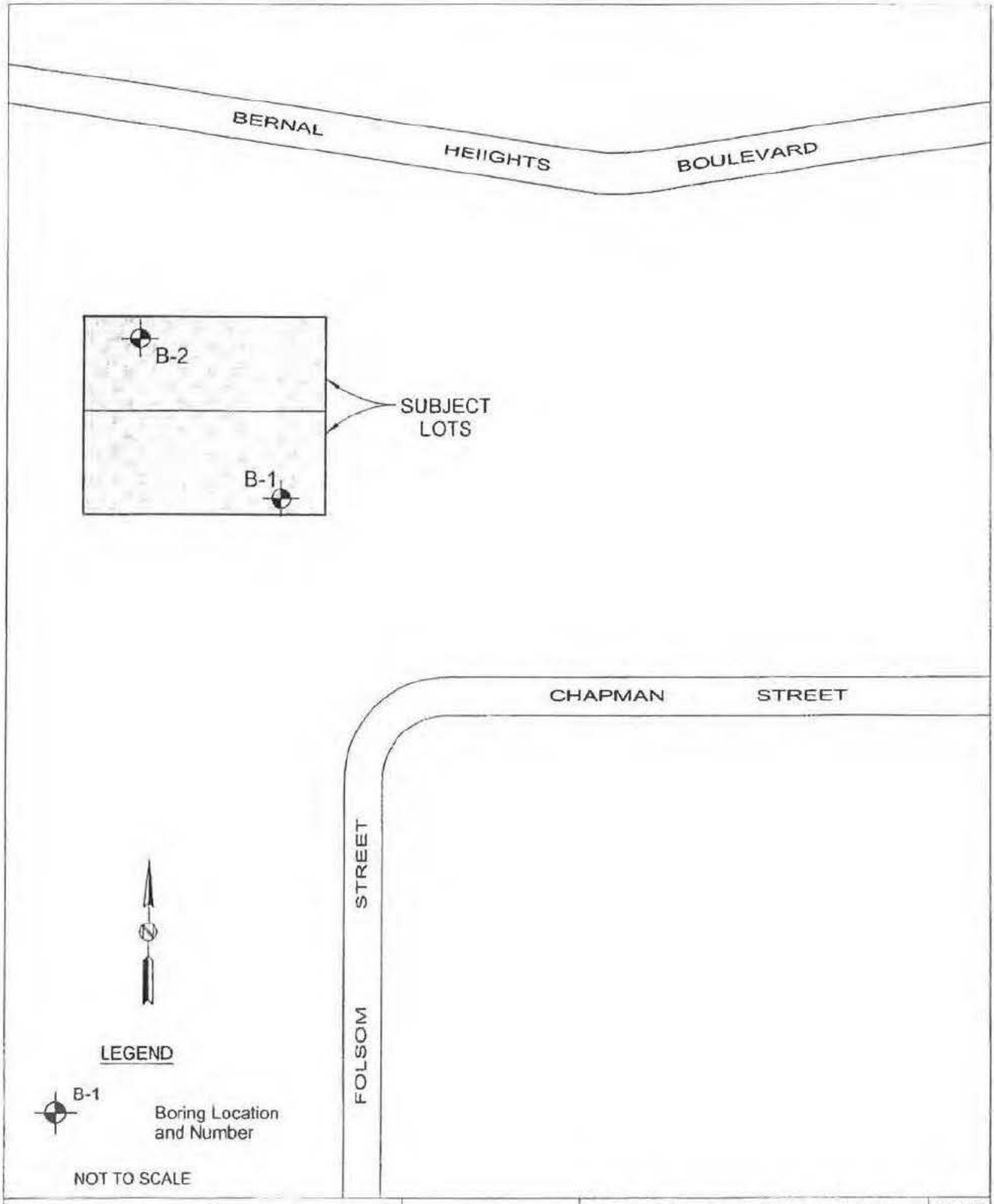
The locations of the test borings were established in the field by reference to existing features and should be considered approximate only.

The scope of our services did not include an environmental assessment or an investigation of the presence or absence of hazardous, toxic, or corrosive materials in the soil, surface water, groundwater or air, on or below, or around the site, nor did it include an evaluation or investigation of the presence or absence of wetlands.

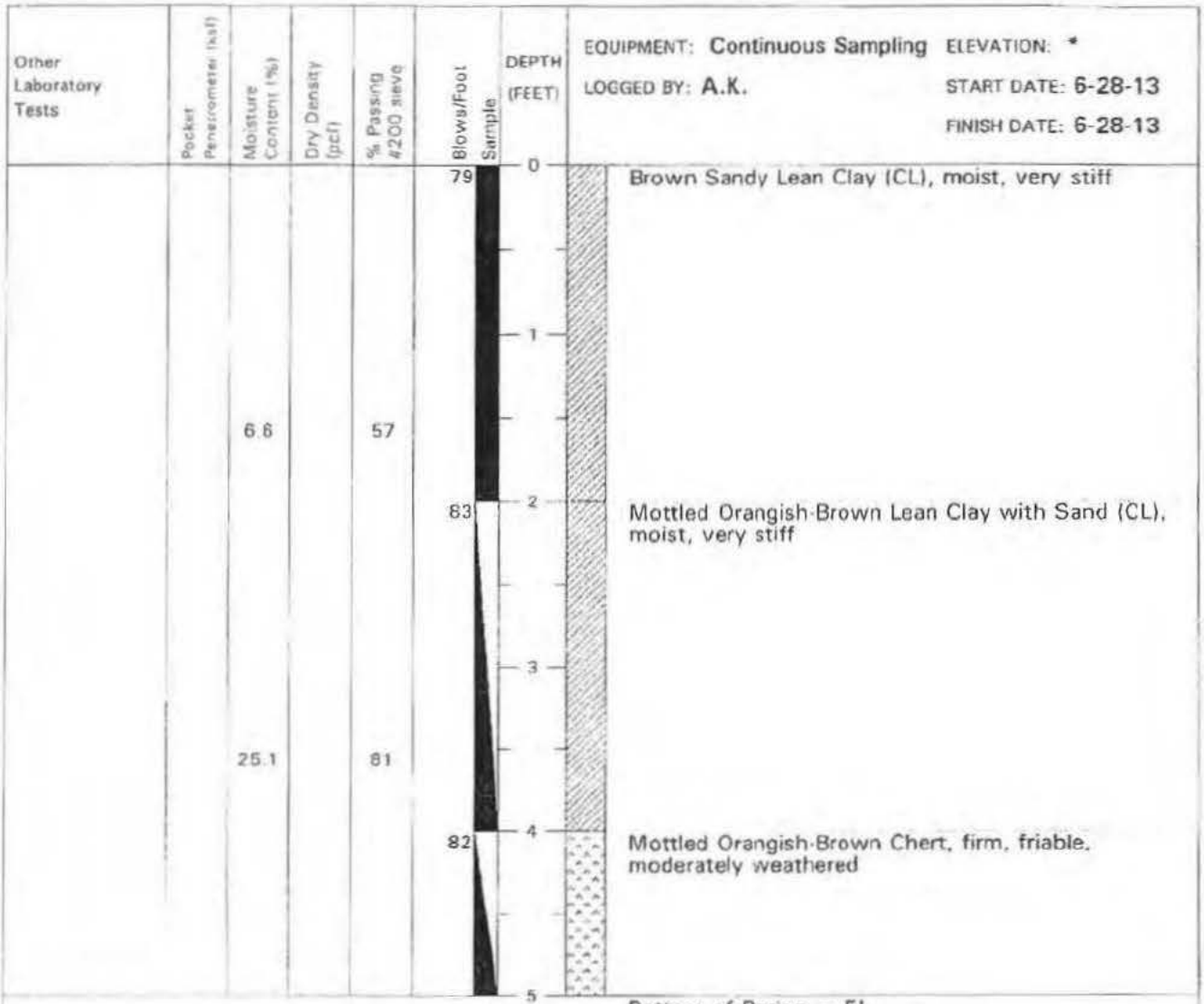
APPENDIX A

List of Plates

Plate 1	-	Boring Location Map
Plates 2 and 3	-	Logs of Borings 1 and 2
Plate 4	-	Soil Classification Chart and Key to Test Data
Plate 5	-	Engineering Geology Rock Terms



Earth Mechanics Consulting Engineers	Job. No: 13-4060 Appr: Drwn: LPDD Date: 7/1/13	BORING LOCATION MAP 3516 & 3526 Folsom Street San Francisco, California	PLATE 1



* Existing ground surface

Earth Mechanics
Consulting Engineers

Job No: 13-4060
Appr:
Drwn: IPOD
Date: JUL 2013

LOG OF BORING 1

3516 & 3526 Folsom Street

San Francisco, California

PLATE 2

EQUIPMENT: Continuous Sampling ELEVATION: *

LOGGED BY: A.K. START DATE: 6-28-13

FINISH DATE: 6-28-13

Other Laboratory Tests	Pocket Penetrometer (ksf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200 sieve	Blows/Foot	Sample	DEPTH (FEET)	
					58		0	Brown Silty Clayey Sand (CL-ML), moist, very stiff, with roots
		18.3		73			1	
					86		2	Light Mottled Brown Sandy Lean Clay (CL), moist, hard
		20.9		63				
		2.7		27	50/6"		3	Reddish-Brown Chert, firm, friable, moderately weathered

Bottom of Boring = 3.5'
No Free Water Encountered

* Existing ground surface

Earth Mechanics
Consulting Engineers

Job No: 13-4060
Appr:
Drwn: LPDD
Date: JUL 2013

LOG OF BORING 2

3516 & 3526 Folsom Street

San Francisco, California

PLATE 3

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS More than Half > #200 sieve	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POOORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS More than Half < #200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

			Shear Strength, psf / Confining Pressure, psf	
Consol	Consolidation	Tx	2630 (240)	Unconsolidated Undrained Triaxial
LL	Liquid Limit (in %)	Tx sat	2100 (575)	Unconsolidated Undrained Triaxial, saturated prior to test
PL	Plastic Limit (in %)	DS	3740 (960)	Unconsolidated Undrained Direct Shear
PI	Plasticity Index	TV	1320	Torvane Shear
Gs	Specific Gravity	UC	4200	Unconfined Compression
SA	Sieve Analysis	LVS	500	Laboratory Vane Shear
■	Undisturbed Sample (2.5-inch ID)	FS	Free Swell	
◪	2-inch-ID Sample	EI	Expansion Index	
◧	Standard Penetration Test	Perm	Permeability	
⊠	Bulk Sample	SE	Sand Equivalent	

KEY TO TEST DATA

Earth Mechanics
Consulting Engineers

Job No: 13.4060
Appr:
Drwn: LPDD
Date: JUL 2013

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA
3516 & 3526 Folsom Street
San Francisco, California

PLATE 4

ROCK SYMBOLS

 SHALE OR CLAYSTONE

 SILTSTONE

 SANDSTONE

 CONGLOMERATE

 CHERT

 PYROCLASTIC

 VOLCANIC

 PLUTONIC

 SERPENTINITE

 METAMORPHIC ROCKS

 DIATOMITE

 SHEARED ROCKS

LAYERING

MASSIVE	Greater than 6 feet
THICKLY BEDDED	2 to 6 feet
MEDIUM BEDDED	8 to 24 inches
THINNLY BEDDED	2-1/2 to 8 inches
VERY THINNLY BEDDED	3/4 to 2-1/2 inches
CLOSELY LAMINATED	1/4 to 3/4 inches
VERY CLOSELY LAMINATED	Less than 1/4 inch

JOINT, FRACTURE, OR SHEAR SPACING

VERY WIDELY SPACED	Greater than 6 feet
WIDELY SPACED	2 to 6 feet
MODERATELY SPACED	8 to 24 inches
CLOSELY SPACED	2-1/2 to 8 inches
VERY CLOSELY SPACED	3/4 to 2-1/2 inches
EXTREMELY CLOSELY SPACED	Less than 3/4 inch

HARDNESS

SOFT - Pliable; can be dug by hand

FIRM - Can be gouged deeply or carved with a pocket knife

MODERATELY HARD - Can be readily scrached by a knife blade; scratch leaves heavy trace of dust and is readily visable after the powder has been blown away

HARD - Can be scratched with difficulty; scratch produces little powder and is often faintly visable

VERY HARD - Cannot be scratched with pocket knife; leaves a metallic streak

STRENGTH

PLASTIC - Capable of being molded by hand

FRIABLE - Crumbles by rubbing with fingers

WEAK - An unfractured specimen of such material will crumble under light hammer blows

MODERATELY STRONG - Specimen will withstand a few heavy hammer blows before breaking

STRONG - Specimem will withstand a few heavy ringing hammer blows and usually yields large fragments

VERY STRONG - Rock will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

DEGREE OF WEATHERING

HIGHLY WEATHERED - Abundant fractures coated with oxides, carbonates, sulphates, mud, etc., thourough discoloration, rock disintegration, mineral decomposition

MODERATELY WEATHERED - Some fracture coating, moderate or localized discoloration, little to no effect on cementation, slight mineral decomposition

SLIGHTLY WEATHERED - A few stained fractures, slight discoloration, little or no effect on cementation, no mineral decomposition

FRESH - Unaffected by weathering agents, no appreciable change with depth

APPENDIX B

List of References

1. Bonilla, M. G., 1998, *Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco Bay Area, California*, United States Geological Survey Open-File Report OF-98-354, Scale 1:24,000.

2. California Department of Conservation, Division of Mines and Geology, 1998, *Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.*

3. CDMG, 2000, State of California Seismic Hazards Zones, City and County of San Francisco, California Division of Mines and Geology.

4. Seed, H. B., and Idriss, E., 1982, *Ground Motion and Soil Liquefaction During Earthquakes*, Earthquake Engineering Research Institute Monograph.

5. United States Geological Survey, 1993, San Francisco South Quadrangle, 7.5 Minute Series, Scale 1:24,000.

APPENDIX C

Field Exploration

Our field exploration consisted of a geologic reconnaissance and subsurface exploration by means of two test borings logged by our Engineer on June 28, 2013. The test borings were drilled with a hand carried, portable drill rig utilizing continuous flight, 4-inch-diameter augers. The borings were drilled at the approximate locations shown on Plate 1.

The logs of the test borings are displayed on Plates 2 and 3. Representative undisturbed samples of the earth materials were obtained from the test borings at selected depth intervals with a 1.4-inch inside diameter, split-barrel Standard Penetration Test (SPT) sampler, a 2-inch inside diameter, split-barrel sampler, and a 2.5-inch inside diameter, modified California sampler.

Penetration resistance blow counts were obtained by dropping a 70-pound hammer through a 30-inch free fall. The sampler was driven 24 inches or less and the number of blows was recorded for each 6 inches of penetration. The blows per foot recorded on the Boring Logs represent the accumulated number of blows that were required to drive the sampler the last 12 inches or fraction thereof.

The soil classifications are shown on the Boring Logs and referenced on Plate 4. Bedrock is described in accordance with the engineering geology rock terms presented on Plate 5.

Laboratory Testing

Natural water contents and percentages of gravel, sand, and fines were determined on selected soil samples recovered from the test borings. The data are recorded at the appropriate sample depths on the Boring Logs.

APPENDIX D

Distribution

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Fabien@novadesignsbuilds.com
Fabien@bluorange.com

(4 wet signed and stamped originals)

EARTH MECHANICS CONSULTING ENGINEERS

Geotechnical Engineering

360 Grand Avenue • Suite 262
Oakland, CA 94610
Phone (510) 839-0765
Fax (510) 839-0716

November 29, 2016
Project Number: 13-4060

Mr. James Fogarty
Bluorange Designs
241 Amber Drive
San Francisco, CA 94131

Subject: Geotechnical Report Update
Proposed Residence at
3516 & 3526 Folsom Street
San Francisco, California

Dear Mr. Fogarty:

This letter presents an update of my geotechnical investigation report for the proposed residence at 3516 and 3526 Folsom Street in San Francisco, California. H. Allen Gruen, Geotechnical Engineer performed a geotechnical investigation for the project and presented results in the report dated August 3, 2013.

Proposed Project

It is my understanding that the project will consist of the design and construction of a new residence on an undeveloped lot. No other project details are known at this time.

Report Update

It is my opinion that, the findings, conclusions, and recommendations presented in our geotechnical investigation report dated August 3, 2013, are still valid and applicable for the proposed development.

I appreciate the opportunity to be of continued service to you on this project. If you have any questions, please call me at (510) 839-0765.

Sincerely,

H. Allen Gruen

H. Allen Gruen, C.E., G.E.
Geotechnical Engineer

Mr. James Fogarty
Bluorange Designs
241 Amber Drive
San Francisco. CA 94131

H. ALLEN GRUEN

Geotechnical Engineer

360 Grand Avenue, # 262
Oakland, CA 94610
Phone (510) 839-0765
H.Allen.Gruen@gmail.com

January 24, 2017
Project Number: 13-4060c

Bluorange Designs
241 Amber Drive
San Francisco, CA 94131

Subject: Geotechnical Responses to Project Review Letter
3516 and 3526 Folsom Street
San Francisco, California

Dear Ladies and Gentlemen:

This letter presents my geotechnical responses to the project review letter by Storesund Consulting, dated December 1, 2016, for the proposed residences at 3516 and 3526 Folsom Street in San Francisco, California. H. Allen Gruen, Geotechnical Engineer performed a geotechnical investigation for the project and presented results in the report dated August 3, 2013.

- The reviewer notes that geotechnical borings do not extend to the proposed depth of excavations (about 6 feet deep). Our borings encountered chert bedrock at depths about 2 to 4 feet. Practical drilling refusal was encountered at the maximum depth explored of 5 feet. We anticipate that bedrock will extend for a significant depth below the subject site.

- Estimating induced ground vibrations caused by rock excavations causing potential degradation of the transmission line integrity was beyond our scope of work for the residential development.

- Determining negative impacts of construction traffic to the transmission line integrity was beyond our scope of work for the residential development.

- The construction operations for the subject residential development adjacent to the transmission pipeline are not expected to have a significant detrimental impact to the transmission pipeline.

I appreciate the opportunity to be of continued service to you on this project. If you have any questions, please call me at (510) 839-0765.

Sincerely,

H. Allen Gruen, C.E., G.E.
Geotechnical Engineer

H. ALLEN GRUEN

Geotechnical Engineer

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Phone (510) 839-0765
H.Allen.Gruen@gmail.com

April 14, 2017
Project Number: 13-4060d

Bluorange Designs
241 Amber Drive
San Francisco, CA 94131

Subject: Geotechnical Consultation
3516 and 3526 Folsom Street
San Francisco, California

Dear Ladies and Gentlemen:

This letter presents my geotechnical consultation for the proposed residences at 3516 and 3526 Folsom Street in San Francisco, California. H. Allen Gruen, Geotechnical Engineer performed a geotechnical investigation for the project and presented results in the report dated August 3, 2013.

- The house foundations will require about 298 cubic yards of excavation for 3516 Folsom and 253 cubic yards for 3526 Folsom. I would estimate about 50 cubic yards of top soil, with the rest being chert. The deepest excavation (15'-0" maximum at rear of proposed foundation) will happen in chert.

- The chert bedrock at the subject site is firm and friable (with the definitions provided on Plate 5 of the geotechnical report.)

I appreciate the opportunity to be of continued service to you on this project. If you have any questions, please call me at (510) 839-0765.

Sincerely,

H. Allen Gruen, C.E., G.E.
Geotechnical Engineer

REPORT
GEOTECHNICAL INVESTIGATION
Planned Street and Utility Improvements At
3516 and 3526 Folsom Street
San Francisco, California

Prepared for:

Mr. Fabien Lannoye
241 Amber Drive
San Francisco, CA 94131

Prepared by:

H. Allen Gruen
Geotechnical Engineer
360 Grand Avenue, # 262
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(510) 839-0765

Project Number: 17-4702

H. Allen Gruen, C.E., G.E.
Registered Geotechnical Engineer No. 2147

July 6, 2017

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INTRODUCTION

Purpose

A geotechnical investigation has been completed for the proposed street and utility improvements at 3516 and 3526 Folsom Street in San Francisco, California. The purposes of this study have been to gather information on the nature, distribution, and characteristics of the earth materials at the site, assess geologic hazards, and to provide geotechnical design criteria for the planned improvements.

Scope

The scope of my services was outlined in the Proposal and Professional Service Agreement dated April 6, 2017. My investigation included a reconnaissance of the site and surrounding vicinity; sampling and logging one test boring to practical refusal at a depth of 6-½ feet below the ground surface; laboratory testing conducted on selected samples of the earth materials recovered from the boring; a review of published geotechnical and geologic data pertinent to the project area; geotechnical interpretation and engineering analyses; and preparation of this report.

This report contains the results of my investigation, including findings regarding site, soil, geologic, and groundwater conditions; conclusions pertaining to geotechnical considerations such as weak soils, settlement, and construction considerations; conclusions regarding exposure to geologic hazards, including faulting, ground shaking, liquefaction, lateral spreading, and slope stability; and geotechnical recommendations for design of the proposed project including site preparation and grading, foundations, retaining walls, slabs on grade, and geotechnical drainage.

Pertinent exhibits appear in Appendix A. The location of the test boring is depicted relative to site features on Plate 1, Boring Location Map. The log of the test boring is displayed on Plate 2. Explanations of the symbols and other codes used on the log is presented on Plate 3, Soil Classification Chart and Key to Test Data.

References consulted during the course of this investigation are listed in Appendix B. Details regarding the field exploration program appear in Appendix C.

Proposed Street and Utility Improvements

It is my understanding that the project will consist of the design and construction of an extension of Folsom Street and associated utilities. I have reviewed the civil plans, dated August 2016, by David J. Franco Civil Engineer. No other project details are known at this time.

FINDINGS

Site Description

As shown on the Boring Location Map, Plate 1, the project site is located north of the intersection of Folsom and Chapman Streets in San Francisco, California. The topography in the vicinity of the site slopes downward toward the south at an average inclination of about 3-½:1 (horizontal:vertical). At the time of my investigation, the subject site was undeveloped.

Geologic Conditions

The site is within the Coast Ranges Geomorphic Province, which includes the San Francisco Bay and the northwest-trending mountains that parallel the coast of California. Tectonic forces resulting in extensive folding and faulting of the area formed these features. The oldest rocks in the area include sedimentary, volcanic, and metamorphic rocks of the Franciscan Complex. This unit is Jurassic to Cretaceous in age and forms the basement rocks in the region.

Locally, the site is in the San Francisco South Quadrangle (1993). A published geologic map of the area (Bonilla, 1998) shows the area southwest of the site is underlain by colluvial deposits (slope debris and ravine fill) consisting of stony silty to sandy clay and the area northeast of the site is underlain by chert bedrock.

Earth Materials

My boring at the subject site encountered sandy lean clay with gravel from the ground surface to practical refusal at a depth of 6-½ feet. The clay was firm near the ground surface and became stiff to hard with increasing depth. Detailed descriptions of the materials encountered as well as test results are shown on the Boring Log, Plate 2.

Groundwater

Free groundwater was not encountered in my boring to the maximum depth explored of 6-½ feet. It is my opinion that the free groundwater table will be below the planned site excavations. I anticipate that the depth to the free water table will vary with time and that zones of seepage may be encountered near the ground surface following rain or irrigation upslope of the subject site.

CONCLUSIONS

General

On the basis of my site reconnaissance and data review, I conclude that the site is suitable for support of the proposed improvements. The primary geotechnical concerns are founding improvements in competent earth materials and seismic shaking and related effects during earthquakes. These items are addressed below.

Foundation Support

It is my opinion that the planned improvements may be supported on a conventional spread footing foundation bearing in competent earth materials. If the spread footings would cover a substantial portion of the building area, a mat foundation may be used as an alternative to reduce forming and steel bending costs. The Structural Engineer may also choose to use drilled piers to support improvements, or for shoring and underpinning, if required. Detailed foundation design criteria are presented later in this report.

I estimate that improvements supported on foundations designed and constructed in accordance with my recommendations will experience post-construction total settlements from static loading of less than 1 inch with differential settlements of less than ½ inch over a 50-foot span.

Geologic Hazards

Faulting

The property does not lie within an Alquist-Priolo Earthquake Fault Zone as defined by the California Division of Mines and Geology. The closest mapped active fault in the vicinity of the site is the San Andreas Fault, located about 6 miles southwest of the site (CDMG, 1998). No active faults are shown crossing the site on reviewed published maps, nor did I observe evidence of active faulting during my investigation. Therefore I conclude that the potential risk for damage to improvements at the site due to surface rupture from faults to be low.

Earthquake Shaking

Earthquake shaking results from the sudden release of seismic energy during displacement along a fault. During an earthquake, the intensity of ground shaking at a particular location will depend on a number of factors including the earthquake magnitude, the distance to the zone of energy release, and local geologic conditions. I expect that the site will be exposed to strong earthquake shaking during the life of the improvements. The recommendations contained in the applicable Building Code should be followed for reducing potential damage to the improvements from earthquake shaking.

Liquefaction

Liquefaction results in a loss of shear strength and potential volume reduction in saturated granular soils below the groundwater level from earthquake shaking. The occurrence of this phenomenon is dependent on many factors, including the intensity and duration of ground shaking, soil density and particle size distribution, and position of the groundwater table (Seed and Idriss, 1982). The site does not lie within a liquefaction potential zone as mapped by the California Division of Mines and Geology for the City and County of San Francisco (CDMG, 2000). In addition, the earth materials encountered in my boring have a low potential for liquefaction. Therefore, it is my opinion that there is a low potential for damage to the planned improvements from liquefaction.

Lateral Spreading

Lateral spreading or lurching is generally caused by liquefaction of marginally stable soils underlying gentle slopes. In these cases, the surficial soils move toward an unsupported face, such as an incised channel, river, or body of water. Because the site has a low potential for liquefaction, I judge that there is a low risk for damage of the improvements from seismically-induced lateral spreading.

Densification

Densification can occur in clean, loose granular soils during earthquake shaking, resulting in seismic settlement and differential compaction. It is my opinion that earth materials subject to seismic densification do not exist beneath the site in sufficient thickness to adversely impact the planned improvements.

Landsliding

The site is mapped within an area of potential landslide hazard by URS/John A. Blume & Associates (1974). Qualifying projects may be subject to the Slope Protection Act (San Francisco Building Code 106A.4.1.4). The San Francisco Building Code (106A.4.1.4.3) states construction work that is subject to these requirements includes the construction of new buildings or structures having over 1000 square feet of new projected roof area and horizontal or vertical additions having over 1000 square feet of new projected roof area. In addition, these requirements apply to the following activity or activities, if, in the opinion of the Director, the proposed work may have a substantial impact on the slope stability of any property: shoring, underpinning, excavation or retaining wall work; grading, including excavation or fill, of over 50 cubic yards of earth materials; or any other construction activity.

The geologic map of the site vicinity reviewed for this study (Bonilla, 1998) did not show landslides at the subject site. In addition, a map prepared by the California Division of Mines and Geology for the City and County of San Francisco (CDMG, 2000) indicates that the subject site does not lie within an area of potential earthquake-induced landsliding. During his site reconnaissance, my field engineer did not observe evidence of active slope instability at the subject site. Therefore, it is my opinion that the potential for damage to the improvements from slope instability at the site is low provided the recommendations presented in this report are incorporated into the design and construction of the project.

RECOMMENDATIONS

Site Preparation and Grading

General

I drilled boring adjacent to the proposed road extension which encountered bedrock at depths of about 3 to 4 feet. The thickness of soil blanketing the subject site and the depth to bedrock can vary across the site. Design criteria are provided for foundations and retaining walls in soil and rock. Soil design criteria may be assumed within 4 feet of the current ground surface and rock design criteria may be assumed more than 4 feet below the current ground surface. However, if during construction, soil is observed more than 4 feet below the ground surface at foundation levels, the foundations will need to be deepened to bear in rock, or the foundations will need to be redesigned using the soil values. Likewise, if more than 2 feet of soil than what was anticipated from the boring is being retaining by subsurface walls, the portions of walls supporting the additional soil will need to be designed using the lateral earth pressures for soil conditions.

I assume that the planned improvements will be constructed at or below existing site grades. If site grades are raised by filling more than about 1 foot, I should be retained to calculate the impact of filling on slope stability, site settlements, and foundations.

Clearing

Areas to be graded should be cleared of debris, deleterious materials, and vegetation, and then stripped of the upper soils containing root growth and organic matter. I anticipate that the required depth of stripping will generally be less than 2 inches. Deeper stripping may be required to remove localized concentrations of organic matter, such as tree roots. The cleared materials should be removed from the site; strippings may be stockpiled for reuse as topsoil in landscaping areas or should be hauled off site.

Excavations

Bedrock was encountered in boring drilled adjacent to the subject site at depths of about 3 to 4 feet below the ground surface. I anticipate that excavations in the upper portions of bedrock at the site can be conducted with conventional equipment, although localized ripping may be required. Excavations extending deeper into the bedrock may require extra effort, such as heavy ripping, hoe-rams, or jack-hammering. I anticipate that the bedrock will become harder and more massive with increasing depth.

Overexcavation

Loose, porous soils and topsoil, if encountered, should be overexcavated in areas designated for placement of future engineered fill or support of improvements. Difficulty in achieving the recommended minimum degree of compaction described below should be used as a field criterion by the geotechnical engineer to identify areas of weak soils that should be removed and replaced as engineered fill. The depth and extent of excavation should be approved in the field by the geotechnical engineer prior to placement of fill or improvements.

Subgrade Preparation

Exposed soils designated to receive engineered fill should be cut to form a level bench, scarified to a minimum depth of 6 inches, brought to at least optimum moisture content, and compacted to at least 90 percent relative compaction, in accordance with ASTM test designation D 1557.

Material for Fill

It is anticipated that the on-site soil will be suitable for reuse as fill provided that lumps greater than 6 inches in largest dimension and perishable materials are removed, and that the fill materials are approved by the geotechnical engineer prior to use.

Fill materials brought onto the site should be free of vegetative mater and deleterious debris, and should be primarily granular. The geotechnical engineer should approve fill material prior to trucking it to the site.

Compaction of Fill

Fill should be placed in level lifts not exceeding 8 inches in loose thickness. Each lift should be brought to at least the optimum moisture content and compacted to at least 90 percent relative compaction, in accordance with ASTM test designation D 1557.

Underpinning

During excavations adjacent to existing structures or footings, care should be taken to adequately support the existing structures. When excavating below the level of foundations supporting existing structures, some form of underpinning may be required where excavations extend below an imaginary plane sloping at 1:1 downward and outward from the edge of the existing footings. All temporary underpinning design and construction are the responsibility of the contractor. Earth Mechanics is available to provide consultation regarding underpinning adjacent improvements.

Temporary Slopes

Temporary slopes will be necessary during the planned site excavations. In order to safely develop the site, temporary slopes will need to be laid back in conformance with OSHA standards at safe inclinations, or temporary shoring will have to be installed. All temporary slopes and shoring design are the responsibility of the contractor. Earth Mechanics is available to provide consultation regarding stability and support of temporary slopes during construction. The contractor may choose to excavate test pits to evaluate site earth materials and the need for temporary shoring.

Finished Slopes

In general, finished cut and fill slopes in soil should be constructed at an inclination not exceeding 2:1 (horizontal:vertical). Routine maintenance of slopes should be anticipated. The tops of cut slopes should be rounded and compacted to reduce the risk of erosion. Fill and cut slopes should be planted with vegetation to resist erosion, or protected from erosion by other measures, upon completion of grading. Surface water runoff should be intercepted and diverted away from the tops and toes of cut and fill slopes by using berms or ditches.

Seismic Design

The following seismic design parameters apply:

Site Class C
$S_s = 1.520$, $S_1 = 0.693$
$Fa = 1.0$, $Fv = 1.3$
$SM_s = 1.520$, $SM_1 = 0.901$
$SD_s = 1.013$, $SD_1 = 0.601$

Foundations

General

The thickness of soil blanketing the site and the depth to bedrock can vary across the site. Design criteria are provided for foundations in soil and rock. Soil design criteria may be assumed within 4 feet of the current ground surface and rock design criteria may be assumed more than 4 feet below the current ground surface. However, if during construction, soil is observed more than 4 feet below the ground surface at foundation levels, the foundations will need to be deepened to bear in rock, or the foundations will need to be redesigned using the soil values.

It is my opinion that the planned improvements may be supported on a conventional spread footing foundation bearing in competent earth materials. If the spread footings would cover a substantial portion of the building area, a mat foundation may be used as an alternative to reduce forming and steel bending costs. The Structural Engineer may also choose to use drilled piers to support improvements, or for shoring and underpinning, if required. Design criteria for each foundation type are presented below.

Spread Footings

Spread footings should extend at least 24 inches below lowest adjacent exterior grade, or 18 inches below lowest adjacent interior grade, whichever is lower. If soft or unstable soil areas are encountered at the bottom of the footings, localized deepening of the footing excavation will be necessary. Footing depths may be reduced if competent bedrock is exposed in footing excavations. Footings should be stepped to produce level tops and bottoms and should be deepened as necessary to provide at least 7 feet of horizontal clearance between the portions of footings designed to impose passive pressures and the face of the nearest slope or retaining wall.

Spread footings bottomed in soil can be designed to impose dead plus code live load bearing pressures and total design load bearing pressures of 2,000 and 3,000 psf, respectively. If foundations are bottomed in bedrock, the footings may be designed for maximum allowable rock contact pressures of 3,500 pounds per square foot (psf) for dead plus sustained live loads, and 5,000 psf for total loads, including wind or seismic forces.

There should be no isolated footing pads. I recommend that all new footings be interconnected and the foundation system should have upslope-downslope elements spaced no more than 20 feet apart. Resistance to lateral pressures can be obtained from passive earth pressures against the face of the footing and soil friction along the base of footings. A passive pressure equivalent to that obtained using a fluid weight of 250 pounds per cubic foot (pcf) and a friction factor of 0.3 may be used to resist lateral forces and sliding in soil. In bedrock, a uniform pressure of 3000 psf and a friction factor of 0.4 times the net vertical dead load may be used for design to resist lateral forces and sliding. These values include a safety factor of 1.5 and may be used in combination without reduction. Passive pressures should be disregarded in areas with less than 7 feet of horizontal soil confinement and for the uppermost 1-foot of foundation depth unless confined by concrete slabs or pavements.

Drilled Piers

Drilled, cast-in-place, reinforced concrete piers should be at least 14 inches in diameter and extend at least 10 feet below grade, or to practical drilling refusal in bedrock. Piers should be designed for a maximum allowable skin friction of 500 psf for combined dead plus sustained live loads in soil. In bedrock, piers should be designed for a maximum allowable skin friction of 1,000 psf for combined dead plus sustained live loads. The above values may be increased by one-third for total loads, including the effect of seismic or wind forces. The weight of the foundation concrete extending below grade may be disregarded. I recommend that all piers be interconnected with grade or tie beams and the foundation system should have upslope-downslope elements spaced no more than 20 feet apart.

Resistance to lateral displacement of individual piers will be generated primarily by passive earth pressures acting on the pier. Passive pressures in soil should be assumed equivalent to those generated by a fluid weighing 250 pcf acting on 2 pier diameters. In bedrock, a passive pressure equivalent to that generated by a uniform pressure of 3000 psf acting on 1.5 pier diameters may be used. Passive pressures should be neglected within 12 inches of the ground surface in areas not confined by slabs or pavements and in areas with less than 7 feet of horizontal confinement. Piers designed to resist lateral loads from retaining walls will reach their maximum lateral load carrying capacity at a depth of 8 times the pier diameter. A practical limit on the pier depth of twice the height of the retaining wall can be used, if less than 8 times the pier diameter.

Where groundwater is encountered during pier shaft drilling, it should be removed by pumping, or the concrete must be placed by the tremie method. If the pier shafts will not stand open, temporary casing may be necessary to support the sides of the pier shafts until concrete is placed. Concrete should not be allowed to free fall more than 5 feet to avoid segregation of the aggregate.

Mat Foundation

A mat foundation may be used to support the planned improvements. The mat can be designed for an average allowable bearing pressure in soil over the entire mat of 2,000 psf for combined dead plus sustained live loads, and 3,000 psf for total loads including wind or seismic forces. The weight of the mat extending below current site grade may be neglected in computing bearing loads. Localized increases in bearing pressures of up to 4,000 psf may be utilized. If the mat is bottomed in bedrock, the mat may be designed for maximum allowable rock contact pressures of 3,500 pounds per square foot (psf) for dead plus sustained live loads, and 5,000 psf for total loads, including wind or seismic forces, with localized increases up to 8,000 psf. For elastic design, a modulus of subgrade reaction for soil of 50 kips per cubic foot and for rock of 200 kips per cubic foot may be used.

Resistance to lateral pressures can be obtained from passive earth pressures against the face of the mat and soil friction along the base of the mat foundation. I recommend that an allowable passive equivalent fluid pressure in soil of 250 pcf and a friction factor of 0.3 times the net vertical dead load be used for design. In bedrock, a uniform pressure of 3000 psf and a friction factor of 0.4 times the net vertical dead load may be used for design to resist lateral forces and sliding. Passive pressures should be disregarded in areas with less than 7 feet of horizontal soil confinement and for the uppermost 1-foot of foundation depth unless confined by concrete slabs or pavements.

Retaining Walls

The thickness of soil blanketing the site and the depth to bedrock can vary across the site. Design criteria are provided for retaining walls in soil and rock. Soil design criteria may be assumed within 4 feet of the current ground surface and rock design criteria may be assumed more than 4 feet below the current ground surface. However, if more than 2 feet of soil than what was anticipated from the boring is being retaining by subsurface walls, the portions of walls supporting the additional soil will need to be designed using the lateral earth pressures for soil conditions.

Retaining walls should be fully backdrained. The backdrains should consist of at least a 3-inch-diameter, rigid perforated pipe, or equivalent such as a "high profile drain", surrounded by a drainage blanket. The pipe should be sloped to drain by gravity to appropriate outlets. Accessible subdrain cleanouts should be provided and maintained on a routine basis. The drainage blanket should consist of clean, free-draining crushed rock or gravel, wrapped in a filter fabric such as Mirafi 140N. The aggregate drainage blanket should be at least 1 foot in width and extend to within 1 foot of the surface. The uppermost 1-foot should be backfilled with compacted native soil to exclude surface water. Alternatively, the drainage blanket could consist of Caltrans Class 2 "Permeable Material" or a prefabricated drainage structure such as Mirafi Miradrain. The backdrain should extend down at least 8 inches below lowest adjacent grade.

Vertical retaining walls that are free to rotate at the top should be designed to resist active lateral soil pressures equivalent to those exerted by a fluid weighing 40 pcf where the backslope is level, and 60 pcf for backfill at a 2:1 (horizontal:vertical) slope. In areas where bedrock is exposed and backfill is placed behind the wall, the structural engineer may use active lateral earth pressures equivalent to those exerted by a fluid weighing 30 pcf where the backslope is level, and 45 pcf for backfill at a 2:1 (horizontal:vertical) slope. If the retaining wall is constructed directly against the bedrock with no backfill, the structural engineer may use active lateral earth pressures equivalent to those exerted by a fluid weighing 20 pcf where the backslope is level, and 26 pcf for backfill at a 2:1 (horizontal:vertical) slope. For intermediate slopes, interpolate between these values. I should be consulted to calculate lateral pressures on retaining walls that are tied-back or braced.

In addition to lateral earth pressures, retaining walls must be designed to resist horizontal pressures that may be generated by surcharge foundation loads applied at or near the ground surface. If a footing surcharge is located above a retaining wall within a horizontal distance of 0.4H, where H is the height of soil retained by the wall, then a horizontal lateral resultant force equal to 0.55 Q_L should be applied to the retaining wall at a height above the base of the wall equal to 0.6H. Q_L equals the equivalent resultant footing line load. This footing surcharge load applies equally to walls that are fixed or free to rotate. As an example, a retaining wall supporting 10 feet of soil has a footing 2 feet away from the top of the wall carrying a line load of 1,000 pounds per lineal foot. This footing is within 0.4H=4 feet of the retaining wall. The resultant horizontal force on the retaining wall from the footing surcharge load would be 0.55x1,000=550 pounds acting 0.6H=6 feet above the base of the retaining wall.

In addition to lateral earth pressures and adjacent footing loads, retaining walls must be designed to resist horizontal pressures that may be generated by surcharge loads applied at or near the ground surface. Where an imaginary 1:1 (H:V) plane projected downward from the outermost edge of a surcharge load intersects a retaining wall, that portion of the wall below the intersection should be designed for an additional horizontal thrust from a uniform pressure equivalent to one-third the maximum anticipated surcharge pressure in soil and one-fourth the maximum anticipated surcharge pressure in rock. In some cases, this value yields a conservative estimate of the actual lateral pressure imposed. I should be contacted if a more precise estimate of lateral loading on the retaining wall from surcharge pressures is desired.

Rigid retaining walls constrained against such movement could be subjected to "at-rest" lateral earth pressures equivalent to those exerted by the fluid pressures listed above plus a uniform load of 6•H pounds per square foot in soil and of 4•H pounds per square foot in rock, where H is the height of the backfill above footing level. Where an imaginary 1:1 (H:V) plane projected downward from the outermost edge of a surcharge load intersects a lower retaining wall, that portion of the constrained wall below the intersection should be designed for an additional horizontal thrust from a uniform pressure equivalent to one-half the maximum anticipated surcharge pressure in soil and one-third the maximum anticipated surcharge pressure in rock. In some cases, this value yields a conservative estimate of the actual lateral pressure imposed. I should be contacted if a more precise estimate of lateral loading on the retaining wall from surcharge pressures is desired.

A seismic pressure increment equivalent to a rectangular pressure distribution of 5H in psf may be used, where H is the height of the soil retained in feet.

Wall backfill should consist of soil that is spread in level lifts not exceeding 8 inches in thickness. Each lift should be brought to at least optimum moisture content and compacted to not less than 90 percent relative compaction, per ASTM test designation D 1557. Retaining walls may yield slightly during backfilling. Therefore, walls should be properly braced during the backfilling operations.

Where migration of moisture through retaining walls would be detrimental or undesirable, retaining walls should be waterproofed as specified by the project architect or structural engineer.

Retaining walls should be supported on footings designed in accordance with the recommendations presented above. A minimum factor of safety of 1.5 against overturning and sliding should be used in the design of retaining walls.

Slab-on-Grade Floors

The subgrade soil in slab and flatwork areas should be proof rolled to provide a firm, non-yielding surface. If moisture penetration through the slab would be objectionable, slabs should be underlain by a capillary moisture break consisting of at least 4 inches of clean, free-draining crushed rock or gravel graded such that 100 percent will pass the 1-inch sieve and none will pass the No. 4 sieve. Further protection against slab moisture penetration can be provided by means of a moisture vapor barrier membrane, placed between the drain rock and the slab. The membrane may be covered with 2 inches of damp, clean sand to protect it during construction.

Additional protection against moisture seepage into subsurface levels may be provided by installing a slab underdrain system. If selected, the slab underdrain system would consist of trenches, which are at least 12 inches deep and 6 inches wide, spaced no further than 10 feet apart beneath the floor slab. The bottoms of the trenches should slope to drain to a low-point by gravity. A 3-inch diameter, rigid perforated pipe should be placed near the bottom of the trench which is fully encapsulated in drain rock. The drainrock should be fully encapsulated in an approved filter fabric. The perforated pipes should be tied to closed conduits which outlet at appropriate discharge points.

Site Drainage

Positive drainage should be provided away from the improvements. Roof downspouts should discharge into closed conduits that drain into the site storm drain system. Surface drainage facilities (roof downspouts and drainage inlets) should be maintained entirely separate from subsurface drains (retaining wall backdrains and underslab drains). Drains should be checked periodically, and cleaned and maintained as necessary to provide unimpeded flow.

Supplemental Services

Earth Mechanics recommend that I be retained to review the project plans and specifications to determine if they are consistent with my recommendations. In addition, I should be retained to observe geotechnical construction, particularly site excavations, placement of retaining wall backdrains, fill compaction, and excavation of foundations, as well as to perform appropriate field observations and laboratory tests.

If, during construction, subsurface conditions different from those described in this report are observed, or appear to be present beneath excavations, I should be advised at once so that these conditions may be reviewed and my recommendations reconsidered. The recommendations made in this report are contingent upon my notification and review of the changed conditions.

If more than 18 months have elapsed between the submission of this report and the start of work at the site, or if conditions have changed because of natural causes or construction operations at or adjacent to the site, the recommendations of this report may no longer be valid or appropriate. In such case, I recommend that I review this report to determine the applicability of the conclusions and recommendations considering the time elapsed or changed conditions. The recommendations made in this report are contingent upon such a review.

These services are performed on an as-requested basis and are in addition to this geotechnical investigation. I cannot accept responsibility for conditions, situations or stages of construction that I are not notified to observe.

LIMITATIONS

This report has been prepared for the exclusive use of Fabien Lannoye and James Fogarty and their consultants for the proposed project described in this report.

My services consist of professional opinions and conclusions developed in accordance with generally accepted geotechnical engineering principles and practices. I provide no other warranty, either expressed or implied. My conclusions and recommendations are based on the information provided us regarding the proposed construction, the results of my field exploration and laboratory testing programs, and professional judgment. Verification of my conclusions and recommendations is subject to my review of the project plans and specifications, and my observation of construction.

The test boring log represents subsurface conditions at the location and on the date indicated. It is not warranted that it is representative of such conditions elsewhere or at other times. Site conditions and cultural features described in the text of this report are those existing at the time of my field exploration, conducted on May 10, 2017, and may not necessarily be the same or comparable at other times.

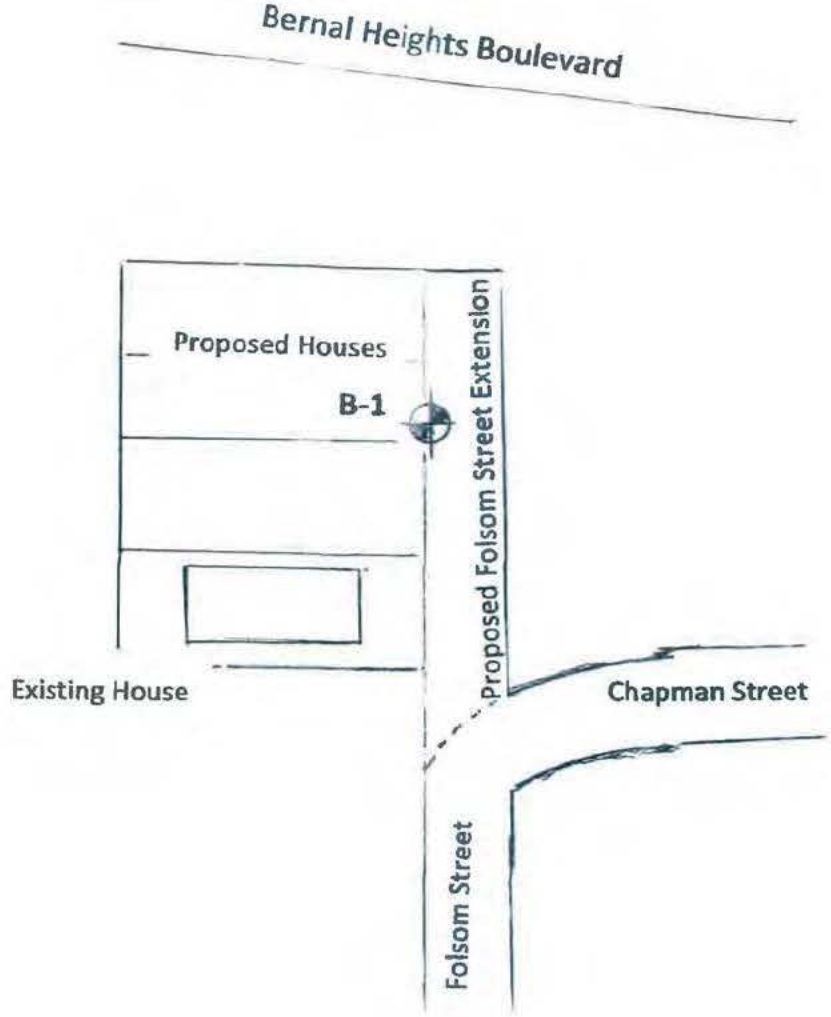
The location of the test boring was established in the field by reference to existing features and should be considered approximate only.

The scope of my services did not include an environmental assessment or an investigation of the presence or absence of hazardous, toxic, or corrosive materials in the soil, surface water, groundwater or air, on or below, or around the site, nor did it include an evaluation or investigation of the presence or absence of wetlands.

APPENDIX A

List of Plates

Plate 1	-	Boring Location Map
Plates 2	-	Log of Boring 1
Plate 3	-	Soil Classification Chart and Key to Test Data



LEGEND

B-1 Boring Location and Number

NOT TO SCALE

H. Allen Gruen Geotechnical Engineer	Job. No: 17-4702 Appr: Drwn: LPDD Date:	BORING LOCATION MAP 3516 and 3526 Folsom Street San Francisco, California	PLATE 1

Location of Boring:

Project: 3516 FOLSOM ST | Boring No.: 1 | Total Depth: 6.5

Job No.: 17-4702 | Logged By: KS

Proj. Mgr.: AG | Date: 5-10-17

Drilling Contractor: ACCESS

Hammer Wt.: 140 | Drop: 30

Water Depth (ft.):

Time:

Date:

Backfilled, Time: Date: By:

Surface Elev.: Datum:

Conditions:

Sample Depth	Sampler Type	Blows/Foot	Inches Driven	Inches Recovered	Sample Condition	Pocket Penetrometer Shear Strength (KSF)	Moisture Content (%)	Dry Density (PSF)	% Passing #200 Sieve	Depth in Feet	Graphic Log
	SPT	6								1	
										2	
	SPT	12								3	
										4	
	3"	50								5	
										6	
	SPT	92								7	
										8	
										9	
										10	
										11	
										12	
										13	
										14	
										15	
										16	
										17	
										18	
										19	
										20	

Brown Sandy LEAN CLAY (CL) with gravel, Firm, moist

- Stiff

- Hard

Refusal @ 6.5'

No Free Water Encountered

H. Allen Gruen
Geotechnical Engineer

Job No: 17-4702 | Appr: | Drwn: LPDD | Date: 5-10-17

LOG OF BORING 1

3516 and 3526 Folsom Street

San Francisco, California

PLATE 2

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS More than Half > #200 sieve	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL SAND CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POOORLY GRADED SAND SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND CLAY MIXTURES
FINE GRAINED SOILS More than Half < #200 sieve	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

			Shear Strength, psf / Confining Pressure, psf	
Consol	Consolidation	Tx	2630 (240)	Unconsolidated Undrained Triaxial
LL	Liquid Limit (in %)	Tx sat	2100 (575)	Unconsolidated Undrained Triaxial, saturated prior to test
PL	Plastic Limit (in %)	DS	3740 (960)	Unconsolidated Undrained Direct Shear
PI	Plasticity Index	TV	1320	Torvane Shear
Gs	Specific Gravity	UC	4200	Unconfined Compression
SA	Sieve Analysis	LVS	500	Laboratory Vane Shear
■	Undisturbed Sample (2.5-inch ID)	FS	Free Swell	
◪	2-inch-ID Sample	EI	Expansion Index	
◩	Standard Penetration Test	Perm	Permeability	
⊠	Bulk Sample	SE	Sand Equivalent	

KEY TO TEST DATA

H. Allen Gruen
Geotechnical Engineer

Appr:
Drwn: LPDD
Date:

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA

3516 and 3526 Folsom Street
San Francisco, California

PLATE 3

APPENDIX B

List of References

1. Bonilla, M. G., 1998, *Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco Bay Area, California*, United States Geological Survey Open-File Report OF-98-354, Scale 1:24,000.

2. California Department of Conservation, Division of Mines and Geology, 1998, *Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada.*

3. CDMG, 2000, State of California Seismic Hazards Zones, City and County of San Francisco, California Division of Mines and Geology.

4. Seed, H. B., and Idriss, E., 1982, *Ground Motion and Soil Liquefaction During Earthquakes*, Earthquake Engineering Research Institute Monograph.

5. United States Geological Survey, 1993, San Francisco South Quadrangle, 7.5 Minute Series, Scale 1:24,000.

APPENDIX C

Field Exploration

My field exploration consisted of a geologic reconnaissance and subsurface exploration by means of one test boring that was logged by my Engineer on May 10, 2017. The test boring was drilled with a hand carried, portable drill rig utilizing continuous flight, 4-inch-diameter augers. The boring was drilled at the approximate location shown on Plate 1.

The log of the test boring is displayed on Plate 2. Representative undisturbed samples of the earth materials were obtained from the test boring at selected depth intervals with a 1.4-inch inside diameter, split-barrel Standard Penetration Test (SPT) sampler, a 2-inch inside diameter, split-barrel sampler, and a 2.5-inch inside diameter, modified California sampler.

Penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The sampler was driven 24 inches or less and the number of blows was recorded for each 6 inches of penetration. The blows per foot recorded on the Boring Log represent the accumulated number of blows that were required to drive the sampler the last 12 inches or fraction thereof.

The soil classifications are shown on the Boring Log and referenced on Plate 3.

Laboratory Testing

Natural water contents and percentages of gravel, sand, and fines were determined on selected soil samples recovered from the test boring. The data are recorded at the appropriate sample depths on the Boring Log.

APPENDIX D

Distribution

Mr. Fabien Lannoye (4 wet signed and stamped originals)

241 Amber Drive
San Francisco, CA 94131
jfogarty@sonic.net
Fabien@bluorange.com

6734.2. Practice of mechanical engineering

Any person practices mechanical engineering when he professes to be a mechanical engineer or is in responsible charge of mechanical engineering work.

6735. Preparation, signing, and sealing of civil engineering documents

(a) All civil (including structural and geotechnical) engineering plans, calculations, specifications, and reports (hereinafter referred to as "documents") shall be prepared by, or under the responsible charge of, a licensed civil engineer and shall include his or her name and license number. Interim documents shall include a notation as to the intended purpose of the document, such as "preliminary," "not for construction," "for plan check only," or "for review only." All civil engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final civil engineering calculations and reports shall bear the signature and seal or stamp of the licensee, and the date of signing and sealing or stamping. If civil engineering plans are required to be signed and sealed or stamped and have multiple sheets, the signature, seal or stamp, and date of signing and sealing or stamping, shall appear on each sheet of the plans. If civil engineering specifications, calculations, and reports are required to be signed and sealed or stamped and have multiple pages, the signature, seal or stamp, and date of signing and sealing or stamping shall appear at a minimum on the title sheet, cover sheet, or signature sheet.

(b) Notwithstanding subdivision (a), a licensed civil engineer who signs civil engineering documents shall not be responsible for damage caused by subsequent changes to or uses of those documents, if the subsequent changes or uses, including changes or uses made by state or local governmental agencies, are not authorized or approved by the licensed civil engineer who originally signed the documents, provided that the engineering service rendered by the civil engineer who signed the documents was not also a proximate cause of the damage.

6735.1. Construction supervision; legal duty

The signing of civil engineering plans, specifications, reports, or documents which relate to the design of fixed works shall not impose a legal duty or responsibility upon the person signing the plans, specifications, reports, or documents to supervise the construction of engineering structures or the construction of the fixed works which are the subject of the plans, specifications, reports, or documents. However, nothing in this section shall preclude a civil engineer and a client from entering into a contractual agreement which includes a mutually acceptable arrangement for the provision of construction supervision services. Nothing contained in this subdivision shall modify the liability of a civil engineer who undertakes, contractually or otherwise, the provision of construction supervision services for rendering those services.

6735.3. Signing and sealing of electrical engineering documents

(a) All electrical engineering plans, specifications, calculations, and reports (hereinafter referred to as "documents") prepared by, or under the responsible charge of, a licensed electrical engineer shall include his or her name and license number. Interim documents shall include a notation as to the intended purpose of the document, such as "preliminary," "not for construction," "for plan check only," or "for review only." All electrical engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature

ATTACHMENT F

City and County of San Francisco
Department of Building Inspection

Edwin M. Lee, Mayor
Tom C. Hui, S.E., C.B.O., Director

INFORMATION SHEET

NO. S-05

DATE : May 20, 2015

CATEGORY : Structural

SUBJECT : **Geotechnical Report Requirements**

PURPOSE : The purpose of this Information Sheet is to establish the permit work scope which will require the submittal of a geotechnical report.

REFERENCE : San Francisco Building Code (SFBC)
State of California Department of Conservation Division of Mines and Geology (CDMG) Seismic Hazard Zones Map for San Francisco, released November 17, 2000. [Note: Map is posted near 1660 Mission St. 2nd Floor Counter. "Liquefaction zones" are colored "Green," or Seismic Hazard Zones Map Indices listing property street addresses and/or blocks and lots which are in the potential landslide and liquefaction zones (see Attachments 1&2)]
Figure 4 of the San Francisco Seismic Safety Investigation report prepared by URS/John A. Blume & Associates, Engineers, June 1974. (Note: Map is posted near 1660 Mission St. 2nd Floor Counter. "Landslide Hazard Areas" are colored "Red")

DISCUSSION :

(A) Permit requiring geotechnical report

The following permit application submittal will require a geotechnical report:

1. New Building (with the exception of one-story storage or utility occupancy, including storage shed and garage)
2. Horizontal Additions if the footprint area increases more than 50% of the existing square footage
3. Horizontal and Vertical Additions increase more than 1000 square feet of projected roof area within the Landslide Hazard Areas (see Reference) per SFBC Section 106A.4.1.4.3 and per SFBC Section 106A.4.1.4.4.

[See SECTION (C) page 3]

Technical Services Division
1660 Mission Street – San Francisco CA 94103
Office (415) 558-6205 – FAX (415) 558-6401 – www.sfdbi.org

4. Any of the following grading (per SFBC Section J104.3):
   a) Cut section is greater than 10 feet in vertical height.
   b) Cut slope is steeper than 2 horizontal to 1 vertical.
   c) The tops of cut banks are separated from any structure or major improvement by a distance, measured horizontally, less than the height of the bank.
   d) More than 5000 cubic yards are involved in grading.
   e) Grading performed at a site located within Earthquake Fault Zones, Seismic Hazard Zones, Landslide Zones (see Attachment 1), or Liquefaction Zones (see Attachment 2) as shown in the most recently published maps from California Geological Survey.

5. Slope of fill is steeper than two units horizontal to one unit vertical (50 percent slope) specified per SFBC Section J107.6, or deviate from the stipulated provisions in SFBC Section J107 Fills.

6. Any footings on/or adjacent to slopes steeper than one unit vertical in three units horizontal without clearances as indicated per SFBC Section 1808.7 and Figure 1808.7.1.

7. The design soil lateral loads are less than the minimum design requirements specified in Section 1610 Soil Lateral Loads.

8. The design load bearing value used exceeds values stipulated for Class 4 or 5 soil materials in SFBC Table 1806.2 Presumptive Load-Bearing Values.

9. Special foundation including but not limited to piles, piers, base isolation and any design not covered by code, excluding piers supporting a fence, sign or isolated post.

10. As required per Building Code:
    a) Expansive soil per SFBC Section 1803.5.3.
    b) Drainage system as an alternative to the requirements per SFBC Section J109 Drainage and Terracing.
    c) Water Table per SFBC Section 1803.5.4 to determine whether the existing ground-water table is above or within 5 feet below the elevation of the lowest floor level where such floor is located below the finished ground level adjacent to the foundation, unless waterproofing is provided in accordance with SFBC Section 1805.
    d) Ground improvement, including soil mix grouting and chemical soil grouting.
    e) Where shallow foundations will bear on controlled low-strength material (CLSM), a geotechnical investigation shall be conducted per SFBC Section 1803.5.9 Controlled low-strength material.
    f) Where geological investigation is deemed necessary per SFBC Section 1803 Geotechnical Investigations.

11. Permit scope subject to mandatory structural advisory review under SFBC Section 106A.4.1.2 Edgehill Slope Protection Area, Section 106A.4.1.3 Northwest Mt. Sutro Slope Protection Area.

12. All structures utilizing Modal Response Spectrum Analysis in accordance with ASCE 7-10 Section 12.9 Modal Response Spectrum Analysis.

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1660 Mission Street – San Francisco CA 94103
Office (415) 558-6205 – FAX (415) 558-6401 – www.sfdbi.org

(B) Submittal requirements for geotechnical report (if required)

GEOTECHNICAL:

1. Provide original letter wet signed by geotechnical consultant, who is a licensed civil or geotechnical engineer, stating that they have reviewed and approved final structural plans.
   {Note: In addition to the licensed geotechnical or civil engineer, a licensed geologist is also required for properties subject to the Slope Protection Act [See SECTION (C) BELOW]}.

2. Provide two (2) sets of original geotechnical reports and one (1) CD-ROM:
   SOILS REPORTS: Effective November 1, 2011, DBI will no longer accept soils reports solely in "hard" copy format. Two (2) "hard" copies and one (1) copy on a CD-ROM in Adobe 'PDF' format are required. After DBI review, one "hard" copy will be returned to the applicant with a 'Received' stamp. DBI will retain its copy, and the CD-ROM will be sent to the State Department of Conservation, as required by state law.

3. Geotechnical report shall be in accordance with SFBC Section 1803.2 through Section 1803.6 and Section J104.3.

4. Civil engineers experienced in geotechnical engineering are authorized to practice geotechnical engineering. This includes preparing or reviewing soils reports.

(C) Projects subject to the Slope Protection Act (SFBC Section 106A.4.1.4)

Scope. Properties are subject to these requirements where any portion of the property lies within the areas of "Earthquake-Induced Landslide" in the Seismic Hazard Zone Map, released by California Department of Conservation, Division of Mines and Geology, dated November 17, 2000 (see Attachment 1), or amendments thereto; or within the "Landslide Hazard Areas" mapped as "Landslide Locations" in Figure 4 of the San Francisco Seismic Safety Investigation report prepared by URS/John A. Blume & Associates, Engineers, June 1974; or any successor map thereto. (see Reference)

Sites that are deemed stable by the geologist and where the geologist has mapped the site underlain by bedrock at depth shallower than the proposed depth of excavation are not required to be explored to depths specified in Section 1803.5.6.

Proposed construction work that is subject to these requirements includes the construction of new buildings or structures having over 1000 square feet of new projected roof area, and horizontal or vertical additions having over 1000 square feet projected roof area of newly constructed addition. In addition, these requirements shall apply to the following activity or activities, if determined by the plan reviewer that the proposed work may have a substantial impact on the slope stability of any property, such as: shoring, underpinning, excavation or retaining wall work; grading, including excavation or fill, of over fifty (50) cubic yards of earth materials; or any other construction activity. Such determination by plan reviewer shall be verified by supervisor or manager.

If required as above, permit applications submitted to the Department of Building Inspection for construction shall include report(s) prepared and signed by both a licensed geologist and a licensed geotechnical or civil engineer identifying areas of potential slope instability, defining potential risks of development due to geological and geotechnical factors, and drawing conclusions and making recommendations regarding the proposed development. These reports shall undergo design review by a licensed geotechnical or civil engineer. Such design review shall verify that appropriate geological and geotechnical issues have been considered and that appropriate slope instability mitigation strategies, including drainage plans if required, have been proposed.

Technical Services Division
1660 Mission Street – San Francisco CA 94103
Office (415) 558-6205 – FAX (415) 558-6401 – www.sfdbi.org

Procedure to request for Structural Advisory Committee (SAC). After reviewing all submitted information pursuant to Section 106A.4.1.4.4, the plan reviewer may request that the permit application be subject to review by a Structural Advisory Committee (SAC), as defined by Building Code Section 105A.6. Such request will be reviewed by Supervisor or Manager and needs to be approved by Deputy Director.

Site Permit Processing. For projects that may be subject to the Slope Protection Act, plan reviewer should request design professional to stipulate on plan the acknowledgement that: Addendum plan review may determine the project is subjecting to compliance with the Slope Protection Act that requires submittal of Geological and Geotechnical report(s) per SFBC Section 106A.4.1.4.4. Two (2) hard copies and one (1) CD_ROM of the report(s) shall be submitted to DBI upon request, prior to issuance of the structural or foundation addenda.

Tom C. Hui 5/20/15

Tom C. Hui, S.E., C.B.O. Date
Director
Department of Building Inspection

Attachments: Seismic Hazard Zones Map Indices

1. Addresses in LANDSLIDE ZONES
   www.sfdbi.org/IS_S05_Addresses_Landslide_Zones_Attachment01
2. Addresses in LIQUEFACTION ZONES
   www.sfdbi.org/IS_S05_Addresses_Liquefaction_Zones_Attachment02

This Information Sheet is subject to modification at any time. For the most current version, visit our website at http://www.sfdbi.org

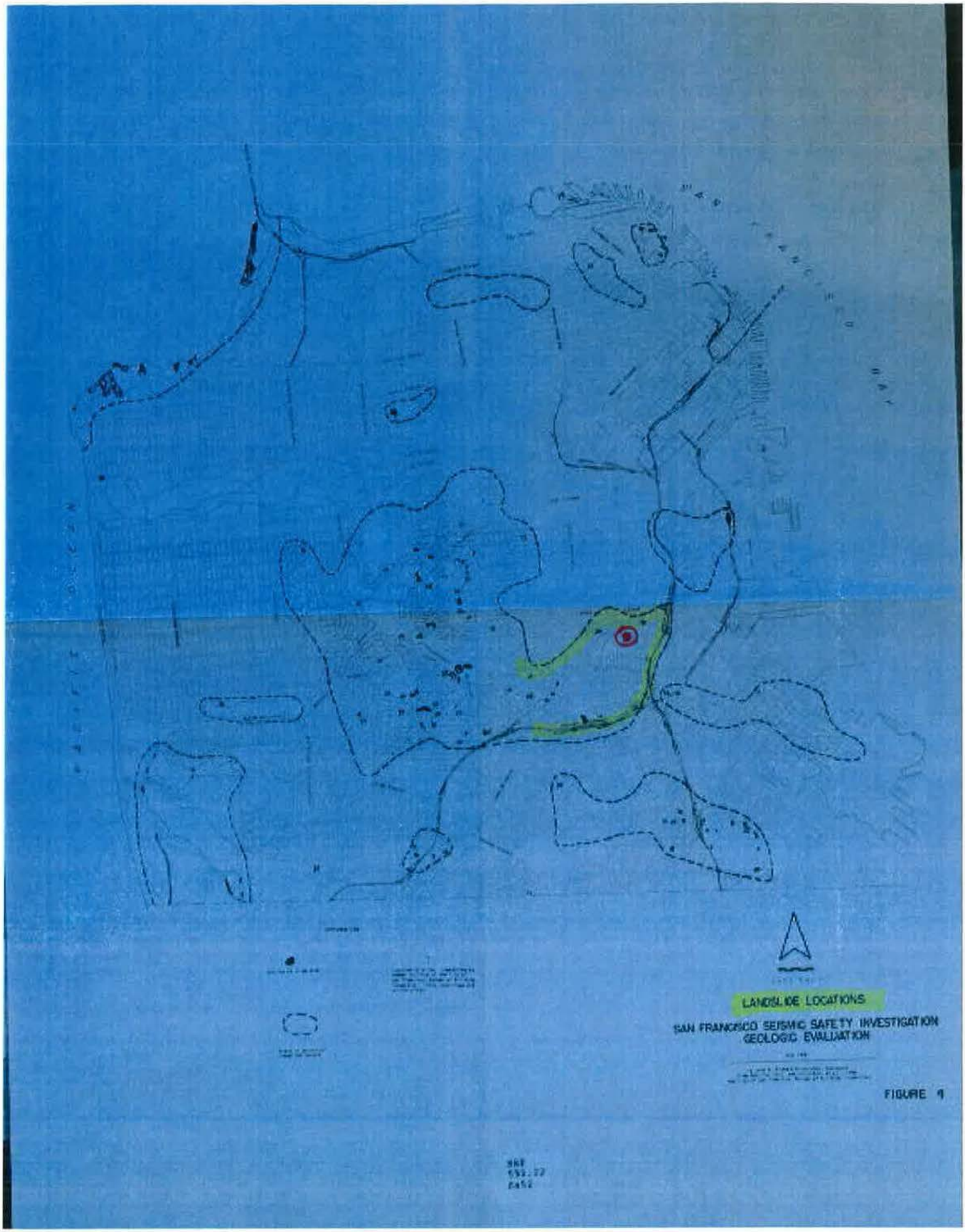
Technical Services Division
1660 Mission Street – San Francisco CA 94103
Office (415) 558-6205 – FAX (415) 558-6401 – www.sfdbi.org

San Francisco
Seismic Safety Investigation

June 1974

prepared for
The Department of City Planning
City of San Francisco

URS John A. Blume & Associates, Engineers
San Francisco
A Member of URS Corporation



LANDSLIDE LOCATIONS

SAN FRANCISCO SEISMIC SAFETY INVESTIGATION
GEOLOGIC EVALUATION

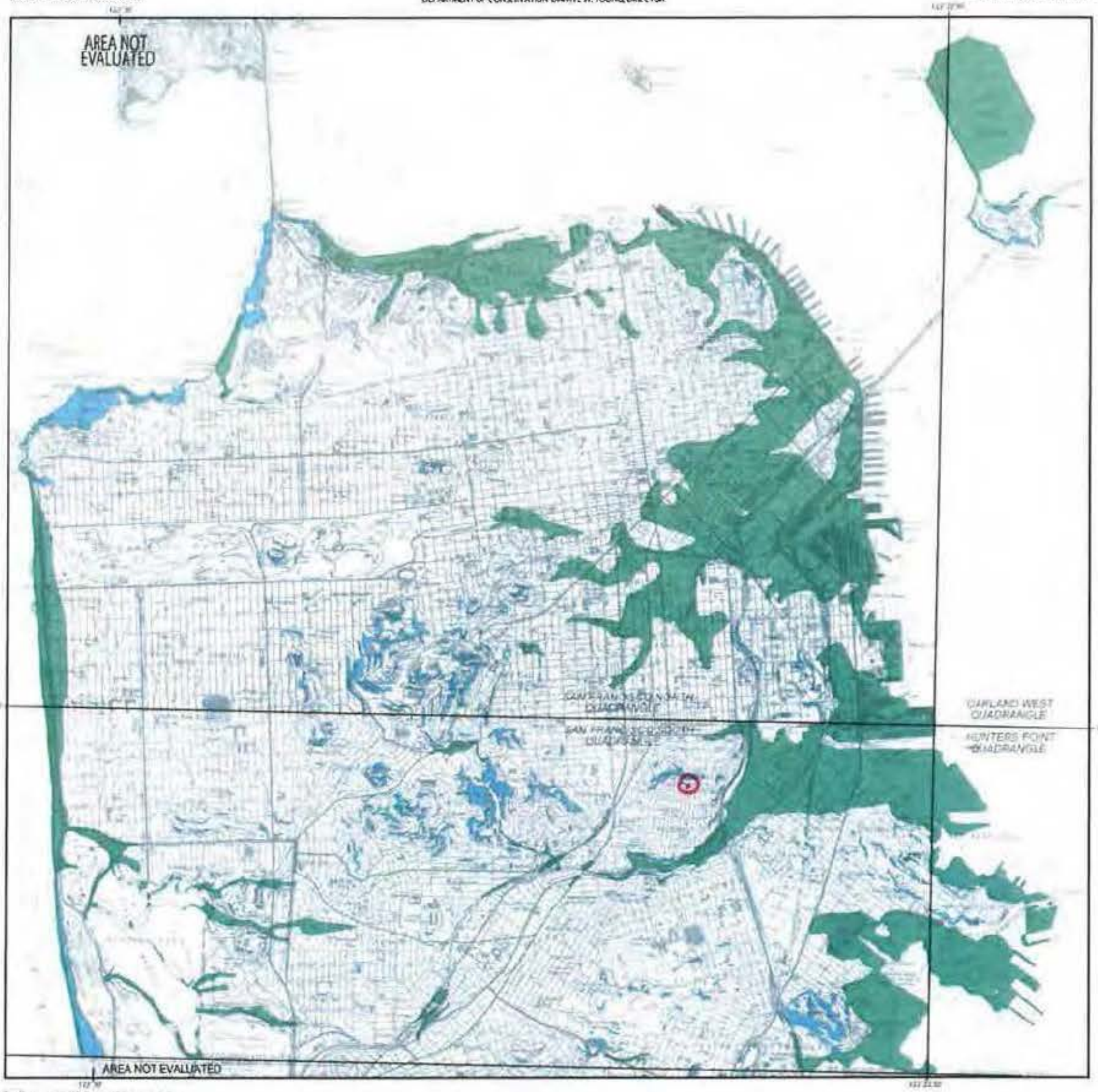
FIGURE 9

ATTACHMENT G

DIVISION OF MINES AND GEOLOGY
JAMES F. DAVIS, STATE GEOLOGIST

STATE OF CALIFORNIA-GRAY DAVIS, GOVERNOR
THE RESOURCES AGENCY-MARY D. NICHOLS, SECRETARY
DEPARTMENT OF CONSERVATION-DARRYL W. YOUNG, DIRECTOR

SEISMIC HAZARD ZONES
City and County of San Francisco



PURPOSE OF MAP

IMPORTANT - PLEASE NOTE

STATE OF CALIFORNIA
SEISMIC HAZARD ZONES

CITY AND COUNTY OF SAN FRANCISCO

OFFICIAL MAP

Released: November 17, 2000

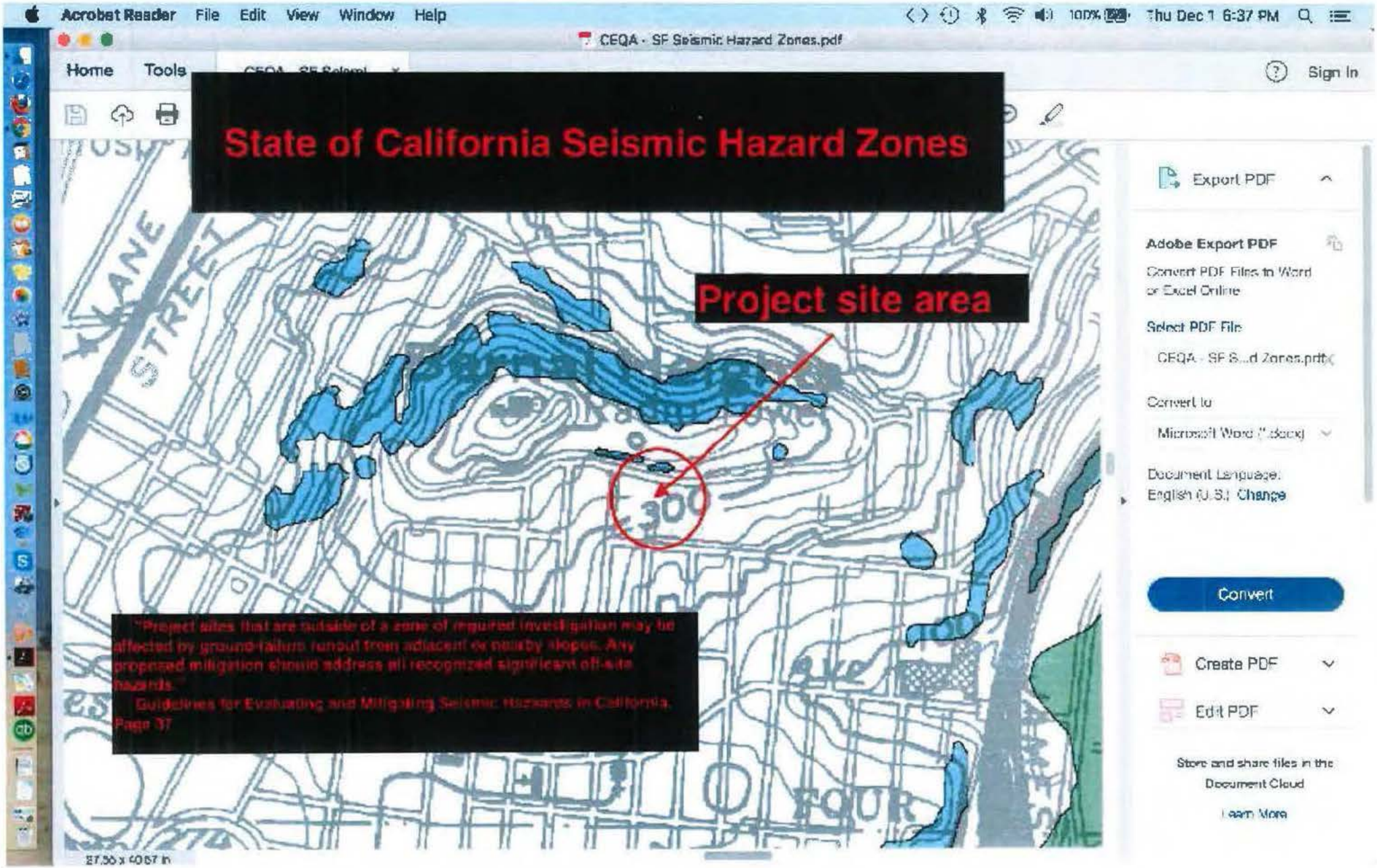
STATE GEOLOGIST

MAP EXPLANATION
Zones of Required Investigation:

Liquefaction

Earthquake-Induced Landslides

DATA AND METHODOLOGY USED TO DEVELOP
THIS MAP ARE PRESENTED IN THE FOLLOWING: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Thu Dec 1 6:37 PM
CEQA - SF Seismic Hazard Zones.pdf
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State of California Seismic Hazard Zones
Project site area
"Project sites that are outside of a zone of required investigation may be affected by ground failure runout from adjacent or nearby slopes. Any proposed mitigation should address all recognized significant off-site hazards."
Guidelines for Evaluating and Mitigating Seismic Hazards in California, Page 37
Export PDF
Adobe Export PDF
Convert PDF Files to Word or Excel Online
Select PDF File
Convert to
Document Language:
English (U.S.) Change
Convert
Create PDF
Edit PDF
Store and share files in the Document Cloud
Learn More
27.36 x 40.67 in

SPECIAL PUBLICATION 117

GUIDELINES FOR EVALUATING AND MITIGATING SEISMIC HAZARDS IN CALIFORNIA

Adopted March 13, 1997 by the State Mining and Geology Board in Accordance with the Seismic Hazards Mapping Act of 1990

Copies of these Guidelines, California's Seismic Hazards Mapping Act, and other related information are available on the World Wide Web at
Copies also are available for purchase from the Public Information Offices of the California Geological Survey.

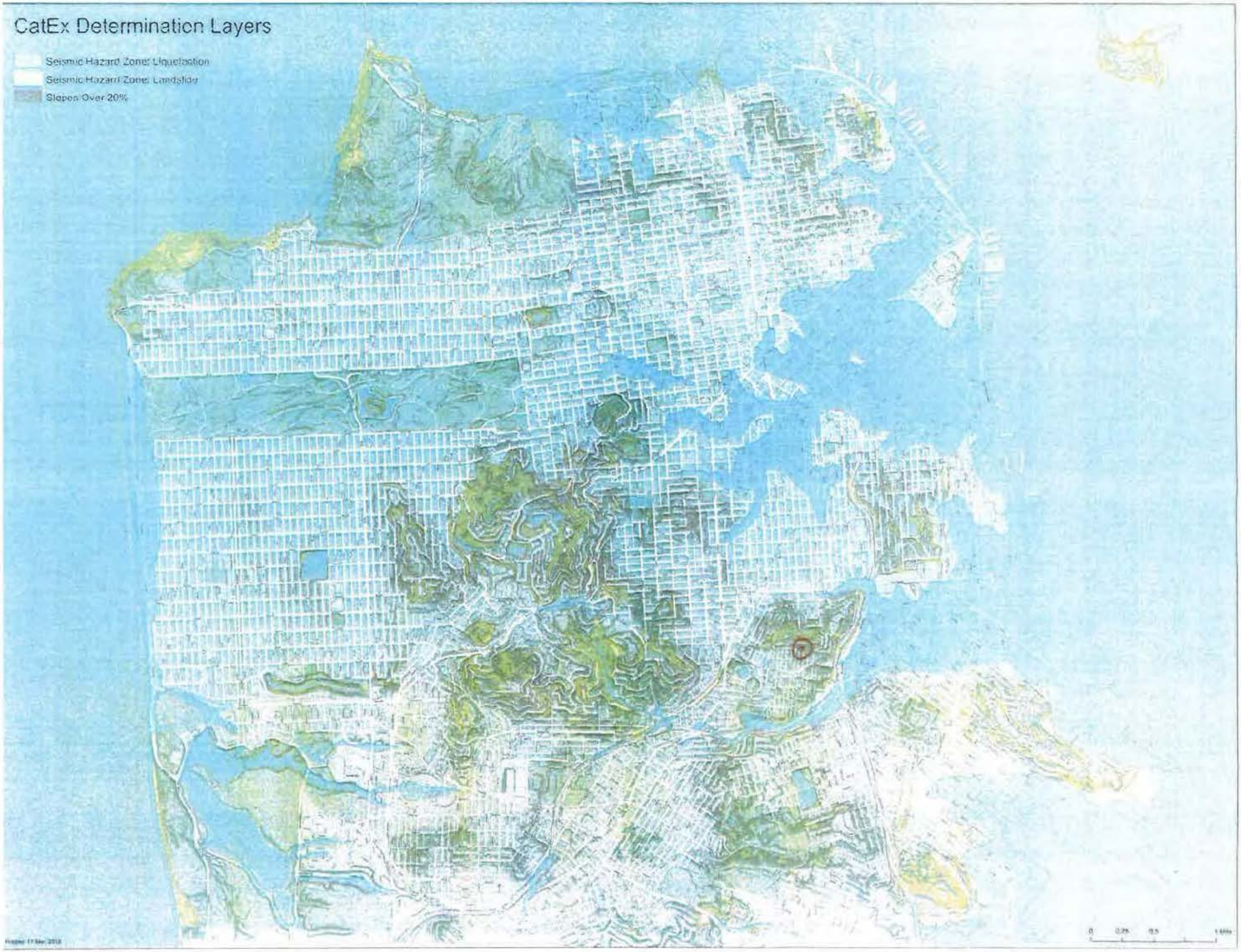
CALIFORNIA GEOLOGICAL SURVEY'S PUBLIC INFORMATION OFFICES:

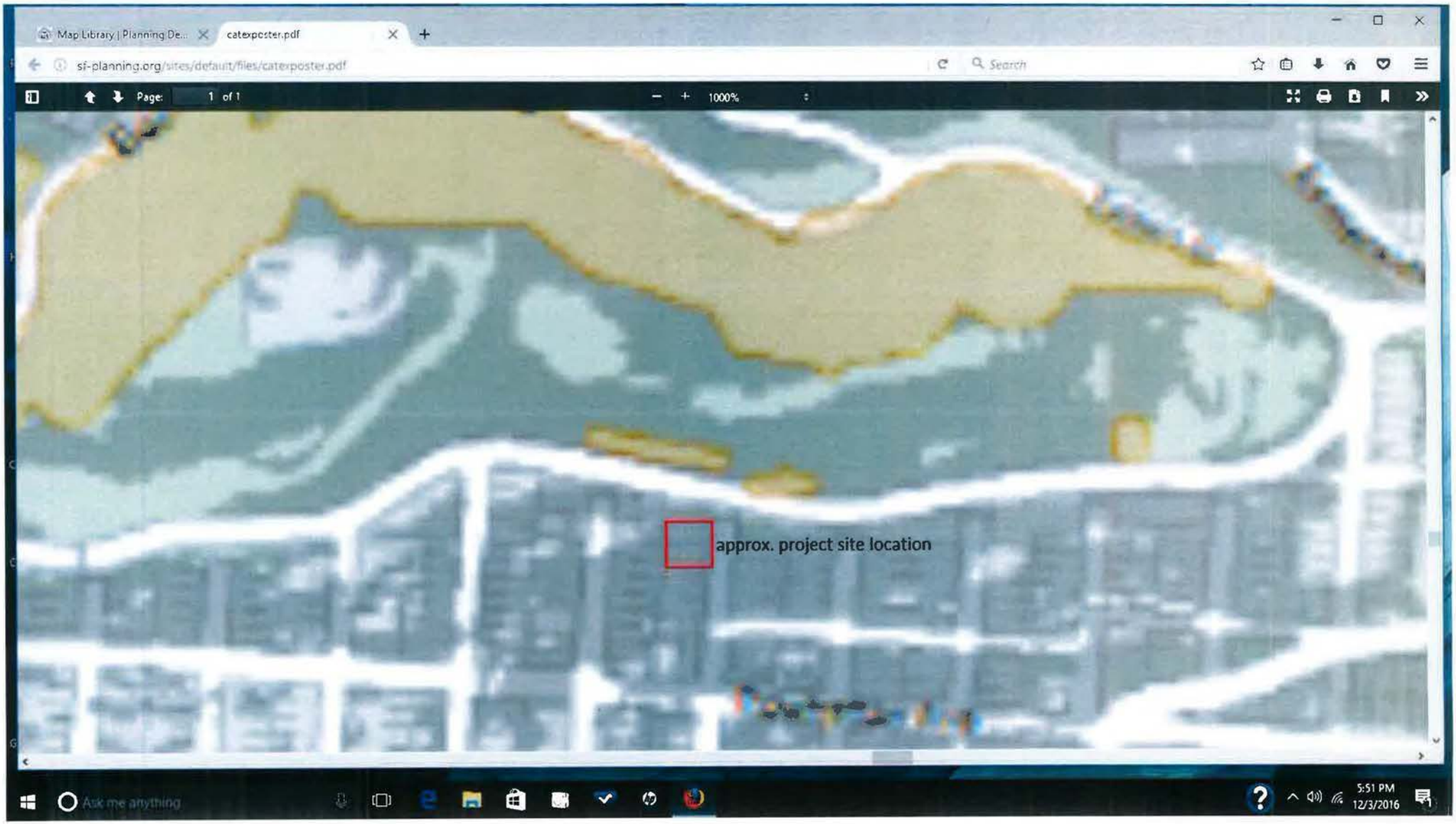
Southern California Regional Office
655 South Hope Street, Suite 700
Los Angeles, CA 90017-3231
(213) 239-0878

Publications and Information Office
801 K Street, MS 14-33
Sacramento, CA 95814-3532
(916) 445-5716

Bay Area Regional Office
185 Berry Street, Suite 210
San Francisco, CA 94107-1728
(415) 904-7707

ATTACHMENT H


CatEx Determination Layers
Seismic Hazard Zone: Liquefaction
Seismic Hazard Zone: Landslide
Slopes Over 20%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Search
Page: 1 of 1
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approx. project site location
Ask me anything
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12/3/2016

CatEx Determination Layers

Seismic Hazard Zone: Liquefaction

Seismic Hazard Zone: Landslide

Slopes Over 20%

ATTACHMENT I

GIFT MAP No. 3

Having deeded a portion of the lands as numbered on this map entitled "Gift Map No. 3" being the original map from which the deeds were drawn, in their several subdivisions as therein laid down and designated numbered from 1 to 1183 inclusive. We hereby record the same as a perpetual reference and for a more perfect location of the property as actually sold by us.

H. E. Brown
John F. Cobb, by his attorney in fact H.R. Cobb

A true copy of the original recorded at request of H. E. Brown, December 31st, 1861, at 3 o'clock P.M.
T. Young, County Recorder

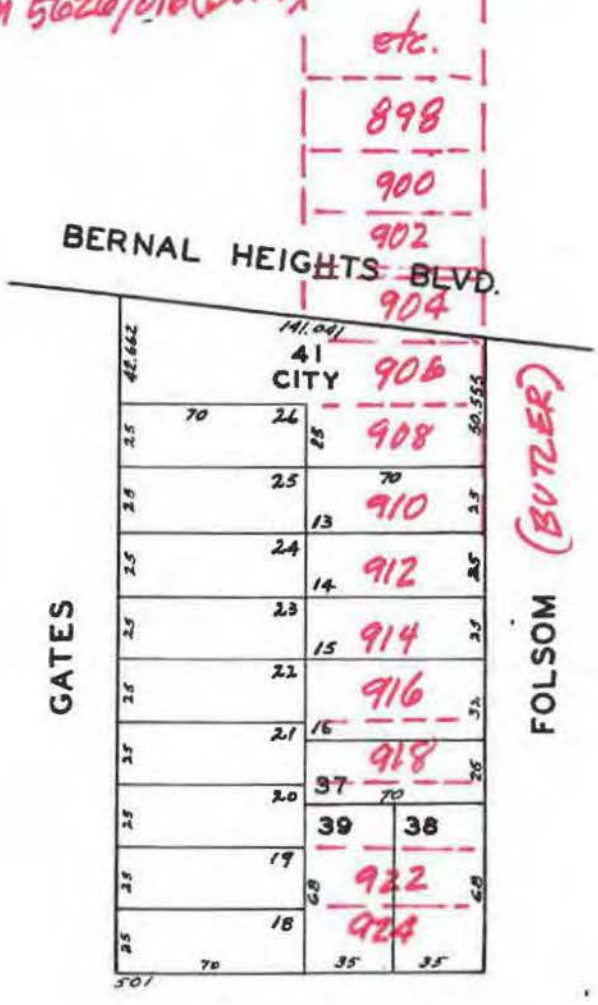
5626

GIFT MAP NO 3
LOTS 886-924

REVISED '62
" '66
" '69
" '70

N
W E
S

910 → 3516 Folsom 5626/013 V.
912 → 3526 Folsom 5626/014 V.
914 → 3550 Folsom 5626/015 V.
916 → 357A Folsom 5626/016 (BUILT)



Z 7397

DEED No. 169

Conveyance of Real Estate

SOLD FOR NONPAYMENT OF STATE AND COUNTY TAXES FOR THE YEAR 19 29

SALE No. 2565, VOL. 34, PAGE 59, SUB. ______, BILL No. 760

THIS INDENTURE, Made the 2nd day of July A.D. 19 35 between EDWARD F. BRYANT, Tax Collector of the City and County of San Francisco, State of California, first party, and the State of California, second party, witnesseth:

THAT WHEREAS, The real property hereinafter described was duly assessed for taxation in the year A.D. 19 29, to NELLIE V. HALL

and was thereafter on the 23rd day of June A.D. 19 30, duly sold to the State of California by EDWARD F. BRYANT, Tax Collector of said City and County of San Francisco, for nonpayment of delinquent taxes which had been legally levied in said year A.D. 19 29 for the year 19 29, and were a lien on said real property, the total amount for which the same was sold being FOUR AND 85/100 Dollars;

AND WHEREAS, The period of five years has elapsed since said sale and no person has redeemed the said property;

NOW THEREFORE, The said first party in consideration of the premises, and in pursuance of the statute in such case made and provided, does hereby grant to the said second party that certain real property in the City and County of San Francisco, State of California, more particularly described as follows, to wit:

The lot of land numbered 13 in Block Numbered 5626 as delineated and designated in Assessor's Map Book filed in the office of the City and County Recorder on October 22, 1929.

IN WITNESS WHEREOF, Said first party has hereunto set his hand the day and year first above written.

EDWARD F. BRYANT
Tax Collector of the City and County of San Francisco.

Witness:

T. J. STCOTTE

STATE OF CALIFORNIA
CITY AND COUNTY OF SAN FRANCISCO, } ss.

On this 15th day of August, in the year one thousand nine hundred thirty-five before me, H. I. MULCREVY, County Clerk and ex officio Clerk of the Superior Court of the City and County of San Francisco, State of California, personally appeared the within named Edward F. Bryant, known to me to be the Tax Collector of said City and County of San Francisco, whose name is subscribed to the within instrument, and personally known to me to be the person who executed the within instrument and subscribed his name thereto as Tax Collector, and he duly acknowledged to me that he executed the same as such Tax Collector.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official Seal at my office in the City and County of San Francisco, the day and year in this Certificate first above written.

(Seal)

H. I. MULCREVY,
County Clerk and ex officio Clerk of the Superior Court

Filed for record at the request of EDWARD F. BRYANT, *Tax Collector,* Aug. 19 *A.D. 19* 35, *at* 30 *min. past* 8 *o'clock,* A. *M., and recorded in Vol.* 2756 *of* Official Records *page* 345

Edward Gorman
Recorder County Recorder

By ______ Deputy Recorder

Compared--Book NTLSH Compared--Document Kinroc

PRINTED BY CAPUBLIC S. F. 1111

J. S. HAUKE

TO

CITY AND COUNTY OF S. F.

RESOLUTION NO.34125 (New Series)

RESOLVED, that the offers of sale made by the following named persons to sell to the City and County of San Francisco, the following described land required for the opening of Bernal Heights Boulevard, for the sums set forth opposite their names, be accepted:

J. S. HAUKE, all of Lots 11 and 12, in Block 5626, as per the Assessor's Block Books of the City and County of San Francisco, $2,800.00.

AND the City Attorney is hereby authorized to examine the titles to said property, and if the same is found satisfactory, to accept on behalf of the City, deeds conveying said property to the City, free and clear of all encumbrances and to record said deeds, together with a copy of this resolution in the office of the Recorder of the City and County of San Francisco, State of California.

ADOPTED--Board of Supervisors, San Francisco, March 16, 1931.

AYES: Supervisors Andriano, Canepa, Colman, Gallagher, Gerrity, Havenner, Hayden, Miles, Peyser, Shannon, Spaulding, Stanton, Suhr.

ABSENT: Supervisors Breyer, McGovern, McSheehy, Power, Roncovieri.

J. S. DUNNIGAN, Clerk.

APPROVED, San Francisco, March, 18, 1931.

ANGELO J. ROSSI, Mayor.

THIS INDENTURE, made this 27" day of March, One Thousand Nine Hundred Thirty-one, by and between JOSEPH S. HAUKE (also known as J. S. Hauke), a widower, of the City and County of San Francisco, State of California, the party of the first part, and the CITY AND COUNTY OF SAN FRANCISCO, a municipal corporation, the party of the second part,

WITNESSETH: That the said party of the first part, in consideration of the sum of TWO THOUSAND EIGHT HUNDRED AND 00/100 DOLLARS ($2,800.00), lawful money of the United States of America, to him in hand paid by the said party of the second part, the receipt whereof is hereby acknowledged, does by these presents, grant, bargain and sell unto the said party of the second part, and to its successors and assigns forever, all that certain lot, piece or parcel of land situate in the City and County of San Francisco, State of California, and more particularly described as follows, to-wit:

LOTS 906 and 908, according to Map entitled "Gift Map No. 3", filed in the office of the Recorder of the City and County of San Francisco, State of California, December 31, 1851, and recorded in Map Book "2 A and B", at page 16.

TOGETHER with the tenements, hereditaments and appurtenances thereunto belonging or appertaining, and the reversion and reversions, remainder and remainders, rents, issues and profits thereof.

TO HAVE AND TO HOLD the said premises, together with the appurtenances, unto the said party of the second part, and to its successors and assigns forever.

IN WITNESS WHEREOF, the said party of the first part has hereunto set his hand the day and year first hereinabove written.

J. S. HAUKE

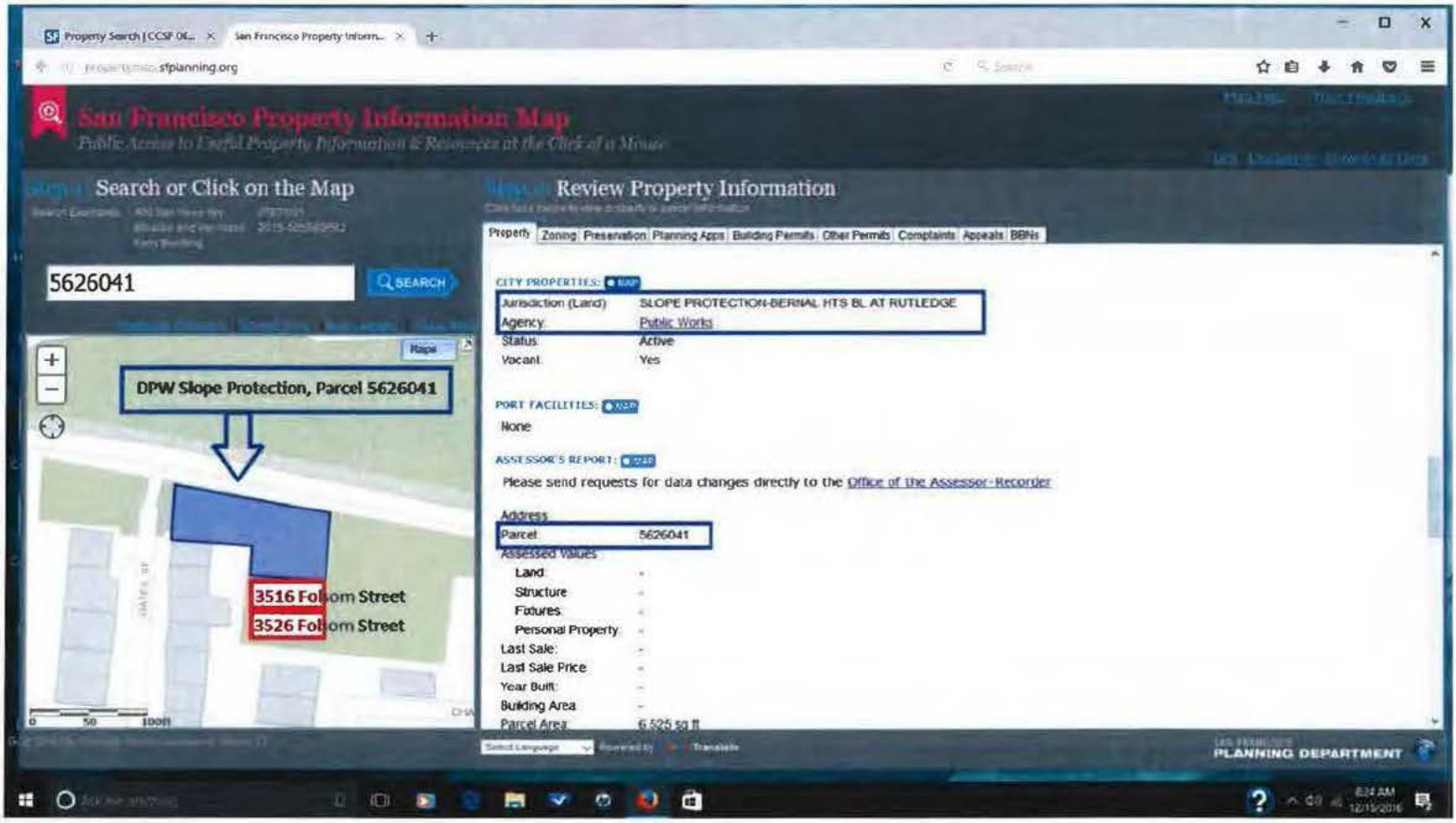
JOSEPH S. HAUKE

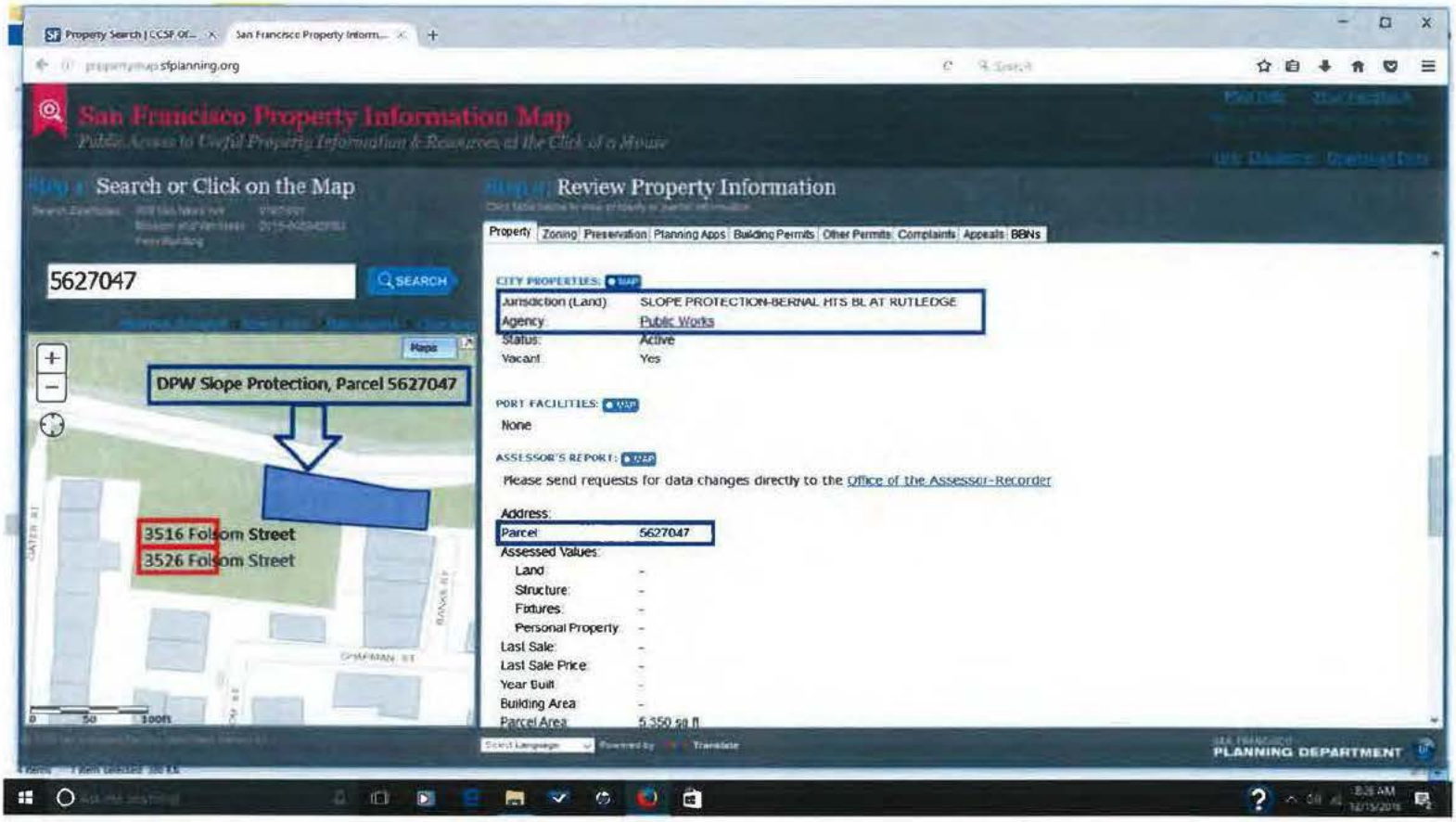
State of California,
City and County of San Francisco } ss.

ON the 27th day of March, in the year one thousand nine hundred and thirty-one, (1931) before me, Charles B. O'Connor, a Notary Public, in and for the said City and County,

ATTACHMENT J

3574 Folsom St


Property Search | CCSF GI...
San Francisco Property Inform...
sfplanning.org
San Francisco Property Information Map
Public Access to Useful Property Information & Resources at the Click of a Mouse
Search or Click on the Map
5626041
SEARCH
Maps
DPW Slope Protection, Parcel 5626041
3516 Folsom Street
3526 Folsom Street
Review Property Information
Property
Zoning
Preservation
Planning Apps
Building Permits
Other Permits
Complaints
Appeals
BBNs
CITY PROPERTIES:
Jurisdiction (Land) SLOPE PROTECTION-BERNAL HTS BL AT RUTLEDGE
Agency: Public Works
Status: Active
Vacant: Yes
PORT FACILITIES:
None
ASSESSOR'S REPORT:
Please send requests for data changes directly to the Office of the Assessor-Recorder
Address
Parcel: 5626041
Assessed Values
Land:
Structure:
Fixtures:
Personal Property:
Last Sale:
Last Sale Price:
Year Built:
Building Area:
Parcel Area: 6,525 sq ft
PLANNING DEPARTMENT


Property Search | CCSF Of...
San Francisco Property Inform...
propertymap.sfplanning.org
San Francisco Property Information Map
Public Access to Useful Property Information & Resources at the Click of a Mouse
Search or Click on the Map
5627047
SEARCH
Maps
DPW Slope Protection, Parcel 5627047
3516 Folsom Street
3526 Folsom Street
Review Property Information
Property
Zoning
Preservation
Planning Apps
Building Permits
Other Permits
Complaints
Appeals
BBNs
CITY PROPERTIES:
Jurisdiction (Land) SLOPE PROTECTION-BERNAL HTS BL AT RUTLEDGE
Agency Public Works
Status Active
Vacant Yes
PORT FACILITIES:
None
ASSESSOR'S REPORT:
Please send requests for data changes directly to the Office of the Assessor-Recorder
Address:
Parcel 5627047
Assessed Values:
Land -
Structure -
Fixtures -
Personal Property -
Last Sale -
Last Sale Price -
Year Built -
Building Area -
Parcel Area 5,350 sq ft
PLANNING DEPARTMENT

ZACKS, FREEDMAN & PATTERSON
A PROFESSIONAL CORPORATION

235 Montgomery Street, Suite 400
San Francisco, California 94104
Telephone (415) 956-8100
Facsimile (415) 288-9755
www.zfplaw.com

September 11, 2017

VIA HAND DELIVERY AND EMAIL

President London Breed
c/o Angela Calvillo, Clerk of the Board
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place
City Hall, Room 244
San Francisco, CA 94102

Re: Appeal of CEQA Mitigated Negative Declaration
Planning Case No. 2013.1383ENV
Building Permit Application Nos. 2013.12.16.4318 and 2013.12.16.4322
3516 and 3526 Folsom Street ("Project Site")

Dear President Breed and Honorable Members of the Board of Supervisors:

Please find the following document enclosed:

Exhibit

O. Independent Evaluation of the San Francisco Planning Department Mitigated Negative Declaration, prepared by Engineering Design & Testing Corp. (Kenneth Ridings, P.E. and Steve Viani, P.E.), Sept. 11, 2017

The reviewing engineers conclude:

> As a result of these deficiencies in the MND, a significant possibility of a catastrophic release of natural gas from L109 during construction of the Project still exists. . . . **Based on our review and analysis, it is our expert opinion that there still exists a high risk that has not been mitigated based on our review of the MND. It is our opinion the failure to mitigate the risks are significant and a potential for damage and explosion of PG&E's gas transmission pipeline L109 still exists.** (Report, pp. 4, 10.)

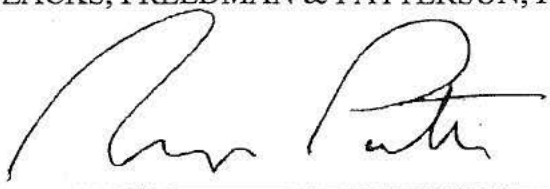
Without question, this report constitutes substantial evidence requiring the preparation of an

environmental impact report (EIR). A mitigated negative declaration cannot be adopted unless "there is **no substantial evidence** in light of the whole record before the public agency that the project, as revised, **may** have a significant effect on the environment." (Pub. Resources Code, § 21064.5 (emphasis added).)

"If the administrative record before the agency contains substantial evidence that the project may have a significant effect on the environment, **it cannot adopt a negative declaration**; it must go to on the third stage of the CEQA process: preparation and certification of an EIR." (Gentry v. City of Murrieta (1995) 36 Cal.App.4th 1359, 1372, as modified on denial of reh'g (Aug. 17, 1995) (emphasis added), citing Pub. Resources Code §§ 21100, 21151; Guidelines, §§ 15002, subd. (k)(3), 15063, subd. (b)(1), 15064, subds. (a)(1), (g)(1), 15362.))

Very truly yours,

ZACKS, FREEDMAN & PATTERSON, PC



Ryan J. Patterson
Attorneys for Herb Felsenfeld and Gail Newman

EXHIBIT O

ENGINEERING DESIGN & TESTING Corp.
ENGINEERS / CONSULTANTS / LABORATORIES

OAKLAND DISTRICT OFFICE:
POST OFFICE BOX 5126
CONCORD, CA 94524

(925) 674-8010
FACSIMILE TRANSMISSION:
(925) 674-8424

September 11, 2017

SF Board of Superviors
San Francisco City Hall
1 Dr, Carlton B Goodlett Pl. #244
San Francisco, CA 94102

REFERENCE: 3516 and 3526 Folsom Street, San Francisco, CA
SF Planning Department Case No. 2013.1383ENV
ED&T File Number: OAK2319-61292

Dear President Breed and Honorable Members of the Board of Supervisors,

This letter is in response to a request for Engineering Design & Testing (ED&T) to conduct an independent evaluation of the San Francisco Planning Department Mitigated Negative Declaration (MND) for the 3516 & 3526 Folsom Street project (Project) as it pertains to Pacific Gas & Electric Company's (PG&E) natural gas transmission pipeline L109. Mr. Steven Viani, P.E. and Mr. Kenneth Ridings, P.E. reviewed the following documents in the evaluation, which are sufficient to analyze the Project's MND:

- The MND with a focus on Impact NO-3 and referenced footnote documents, Figures 1-12 and Mitigation Measures
- MND Appeal dated September 5, 2017
- Spectra Energy Partners - Algonquin Incremental Market Project – Analysis of the West Roxbury Crushed Stone Operations on Construction and Operation of the West Roxbury Lateral dated March 31, 2014
- Letter from Lubin Olson to President London Breed dated September 1, 2017 regarding Appeal of MND
- Reported email from Austin Sharp with PG&E (date understood to be mid-2014) to Debra Gerson and Herb Felsenfeld (nearby neighbors to the project) and Fabien Lannoye (Bluorange Designs) contained as Appendix A in letter from Lubin Olson to President London Breed dated September 1, 2017
- 49 Code of Federal Regulations Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards

- ASME B31.8S-2016 Managing System Integrity of Gas Pipelines
- U.S. Department of Transportation - Pipeline and Hazardous Materials Administration – Reportable Incident Data
- Foot note 3: John Dolcini, Pipeline Engineer-Gas Transmission, Pacific Gas and Electric Company, Letter Re: 3516/3526 Folsom Street, March 30, 2017
- Foot note 20: Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, May 2006, pp. 8-1 to 8-3, Table 8-1.
- Foot note 30: US Department of Transportation, Federal Highway Administration, Construction Noise Handbook, Table 9.1, July 2011.
- Foot note 31: Illingworth and Rodkin, Inc., Construction Vibration Evaluation for 3516 and 3526 Folsom Street, March 24, 2017.
- Illingsworth & Rodkin Inc., Memo: Ground Characteristics and Effect on Predicted Vibration, April 14, 2017.
- California Department of Transportation, Transportation and Construction Vibration Guidance Manual, September 2013.
- PG&E Gas Transmission Pipeline Services—Integrity Management, 3516/26 Folsom Street, March 30, 2017.
- H. Allen Gruen, Geotechnical Engineer, Geotechnical Investigation, Planned Development at 3516 Folsom Street, San Francisco, California, August 3, 2013. H. Allen Gruen, Geotechnical Engineer, Geotechnical Investigation, Planned Development at 3526 Folsom Street, San Francisco, California, August 3, 2013.
- Geotechnical Report Update, Proposed Residence at 3516 & 3526 Folsom Street San Francisco, California by H. Allen Gruen,11/29/16
- Geotechnical Responses to Project Review Letter, Proposed Residence at 3516 & 3526 Folsom Street San Francisco, California by H. Allen Gruen, 1/24/17
- Review of Proposed Pipeline Impacts 3516 & 3526 Folsom Street, San Francisco, California, Storesund Consulting, June 14, 2017
- Mitigated Negative Declaration Appeal, 3516 & 3526 Folsom Street September 5, 2017, San Francisco Planning Department
- David J. Franco PE, 3516 & 3526 Folsom Street Grading Plan, 9/21/16
- Planned Street and Utility Improvements at 3516 & 3526 Folsom Street San Francisco, California by H. Allen Gruen, 7/6/17

Please note that the preceding is based on information available at the time of this writing. It is conceivable that additional information may be forthcoming which bears on stated observations and opinions. The right is reserved, therefore, to review and modify all observations and opinions at any future point in time should, in fact, additional information become available.

Mr. Ridings is a licensed Professional Mechanical Engineer in California and other states. I worked in the "gas department" at PG&E for 25 years beginning in 1979 and have worked at ED&T since 2005.

While at PG&E, I worked in field operations (gas distribution and transmission) for 9 years and in corporate staff support departments for 16 years. While in field operations I supervised multi-disciplined work groups responsible for the engineering, design, operations and maintenance of 2700 miles of distribution and transmission pipelines, including locating and marking underground pipes, investigated gas incidents and damage caused by third party dig-ins and reviewed street construction plans for conflicts with gas facilities.

While in corporate staff support at PG&E, I investigated the cause of and emergency response to gas distribution and transmission incidents; interpreted regulatory code requirements; developed certain engineering, construction, and operations and maintenance standards for gas distribution facilities; oversaw the development and implementation of certain construction, engineering, operations and maintenance standards, procedures for gas distribution piping systems including the locating and marking of underground pipes; and oversaw staff that provided training and technical support to field operations.

Currently at ED&T I conduct engineering investigations to determine the cause of damage to or from fuel gas piping systems and facilities; infrastructure utilities and piping systems; HVAC and refrigeration systems; fire suppression systems; cranes/heavy equipment, machinery and equipment.

Mr. Viani has over 40 years professional experience planning, designing and constructing, civil, environmental and geotechnical projects. I am a registered civil engineer in California and two other states. In addition, I am a licensed engineering (A) and building (B) contractor with a hazardous waste removal endorsement. Throughout my career, I have been involved with the CEQA process for a variety of projects including wastewater treatment, environmental remediation and environmental protection. During my tenure with ED&T, I have been involved with numerous related assignments involving the identification and assessment of vibration from construction equipment and blast related vibration damage.

The above qualifies us to evaluate the MND as it pertains to PG&E's gas transmission pipeline L109.

Please note that the preceding is based on information available at the time of this writing. It is conceivable that additional information may be forthcoming which bears on stated observations and opinions. The right is reserved, therefore, to review and modify all observations and opinions at any future point in time should, in fact, additional information become available.

Our Curriculum Vitaes are attached.

Based on our review of the Project and the aforementioned documents, ED&T's findings and expert opinions of the MND are:

1. The Construction Vibration Evaluation (Vibration Evaluation) performed by Illingworth and Rodkin, Inc. on behalf of Bluorange is not complete and does not accurately determine what vibration level is safe for L109.
2. The Vibration Evaluation does not adequately address the types of equipment that may be used and the vibration levels imparted on L109 by said equipment.
3. Impact NO-3 was not adequately analyzed and mitigated.
4. The height of soil (cover) on top of L109 in the Project area has not been determined. The cover must be determined prior to issuance of a mitigated negative declaration because the following steps cannot be taken without this information:
    a. Determination of whether the pipeline risk will increase, decrease or remain the same following construction of the project.
    b. Determination of whether the soil cover over the pipe is too shallow and what mitigation measures need to be imposed.
    c. Determination of safe designs and specifications for the Project to ensure that the Project remains stable, rather than being significantly changed during construction as a result of observed physical conditions of L109 and depth of cover.
5. That a PG&E inspector, or an independent, qualified third party inspector, be present for the entire project.
6. That every project employee be trained in PG&E's requirements and restrictions for working in the vicinity gas transmission pipelines and requirements that are specific to the Project.

As a result of these deficiencies in the MND, a significant possibility of a catastrophic release of natural gas from L109 during construction of the Project still exists.

Opinion 1: The Vibration Evaluation for the proposed project references a Caltrans report where a Peak Particle Velocity (PPV) value of 25 inches/second (ips)

associated with explosives near buried pipe resulted in no damage to the pipe, as did values for explosives near buried pipe of 50-150 ips. PPV is the speed of a particle in a medium as it transmits a wave. It is a measurement of vibration. These vibrations can cause damage to any structure.

The MND states that the Vibration Evaluation utilized a "conservative" 12 ips, a value that was in the Spectra Energy report, as the criterion for potential damage to L109. The Spectra project involved determining the impacts of blasting at a rock quarry on a proposed natural gas transmission pipeline in Massachusetts.

Problems with the Vibration Evaluation and MND include:

- The vibrations were from explosives, not continuously vibrating equipment. It is understood that explosives are not planned for this project. Continuous vibrations impart cyclical loads on the pipe. The Caltrans documents suggest that acceptable PPV values for continuous vibrations are half of acceptable values for surface blasting.

- In the Caltrans report referenced in the Vibration Evaluation where no damage was observed when blasting vibration levels were at certain levels, there is no description as to the type of damage that was not observed or how it was determined that there was no damage. Was the pipe dug up and examined to see whether the pipe had bent? Was the determination of no damage made because no leaks were observed? Steel pipe can be damaged, compromising its strength, without immediately detectable leakage. No correlation is shown between the types of damages that were not observed in the referenced reports on the one hand, and the type of damage to L109 that may expected with elevated vibration levels on the other hand. Because a comparison of what constitutes damage was not made, the Caltrans report data is not a valid reference.

- The operating conditions, commodity and pipe specifications were not listed in the Caltrans report. L109 at the Project location is a 26-inch diameter steel pipe with a maximum operating pressure (MAOP) of 150 psig and at MAOP is at a 19.8% of the pipe's specified minimum yield strength. A higher stressed pipe will become damaged at a lower value PPV than a lower stressed

pipe. There was no mention of operating stress levels of the pipes in the Caltrans report. Because a correlation between the operating stress levels in the Caltrans report pipes and L109 was not made, the Caltrans report data again is not a valid reference.

- The Spectra project involved surface explosions, different operating stress levels in the pipe than L109, and because the Spectra project involved the installation of new pipe, the physical condition of the pipe was known. Although PG&E may have inspection documents that show the physical condition of portions of L109 in the Project and adjoining area, this information was not used in the Vibration Evaluation. This section of L109 was installed in 1981 and the slope of the hill is steep. The slope in the project area is reported to be 28%. The slope of the hill from the north end of the project to Bernal Heights Road visually appears to be even steeper. Slippage of the pipe, localized corrosion, or impact damage may have taken place since 1981 and increased the stress levels in the pipe. It cannot be assumed that what was acceptable to the pipe in the Spectra project is acceptable for L109. As with the Caltrans reports, a correlation was not made between stress levels in the pipe. Further, the Spectra project involved installation of new pipe in what appears to be a nearly horizontal street. The Vibration Evaluation did not take into consideration the physical condition of L109 or bending stresses that may exist with the changes in grade.

  The Spectra analysis is inapplicable to the Project, and it is an inadequate basis for designing Project mitigation measures that will reduce Project impacts to a level of insignificance.

- The 2014 email from PG&E states that there are three federally-approved methods to complete a transmission pipeline integrity management baseline assessment:
  - In-Line Inspections (ILI) – An ILI involves a tool (commonly known as a "pig") being inserted into the pipeline to identify any areas of concern such as a potential metal loss (corrosion) or geometric abnormalities (dents) in the pipeline.

- External Corrosion Direct Assessment (ECDA) – Involves an indirect, above-ground electrical survey to detect coating defects and the level of cathodic protection. Excavations are performed to do a direct examination of the pipe in areas of concern as required by federal regulations.
- Pressure Testing (PT) – PT is a strength test normally conducted using water, which is also referred to as a hydrostatic test.

PG&E performed an ECDA of L190 in this area in 2009 and another one was scheduled in 2015. No issues were found in 2009.

Based on the above, the Vibration Evaluation is not complete nor is it representative of this project and is not appropriate to use as a basis for determining safe levels of vibration to L109.

Since the Vibration Evaluation is not complete or representative, it cannot be used as a reference or comparison to validate PG&E's maximum vibration level of 2 ips. PG&E did not provide a basis for their PPV value of 2 ips and it does not appear that they were they asked to provide one. As a result, there is no basis for any of the maximum vibration levels in the Vibration Evaluation and MND.

Opinion 2: The Vibration Evaluation does not include types of equipment for some construction scenarios that are likely to occur such as excavation of the Chert bedrock, shoring and compaction of the street.

For example, compaction of the street above L109. PG&E's March 30, 2017 letter to the San Francisco Planning Department states that the depth of cover over L109 could be as shallow as 24 inches. Per the Grading Plan prepared by David Franco dated 9/21/16 indicates that roadway excavation is estimated to be 12-inches. Placement and compaction of subgrade and/or base rock will require the use of compaction equipment. For example, using the Vibration Evaluation value of 0.21 ips at 25 feet for a vibratory compactor from the Illingsworth March 24, 2017 report titled "Construction Vibration Evaluation for 3516 and 3526 Folsom Street", with the compactor 3.3 feet away from the pipe, the PPV at the pipe is calculated to be 4.3 ips. With the compactor 1 foot above the pipe, the PPV is calculated to be 26.26 ips. This PPV level is significantly higher than the 2.0 ips that PG&E has said is

acceptable. Although the basis for PG&E's level has not been made known, it is reasonable to believe that significantly higher levels, such as 26.26 ips will damage L109, which may result in a catastrophic release of natural gas from L109.

Opinion 3: Based on Opinions 1 and 2, Impact NO-3 has not been adequately analyzed and mitigated.

Opinion 4: PG&E requires a minimum of 3 feet of soil cover over gas lines and a maximum of 7 feet. PG&E stated that the soil cover over L109 may be as low as 24-inches. PG&E did not address what corrective action is needed if the cover is less than required nor did they mention the risk impact if the cover is less than required.

Depth of cover may be a component of PG&E's Gas Transmission Pipeline Integrity Management program, a federal regulatory requirement of natural gas transmission system owners and operators such as PG&E. A less than required cover may impact the risk of that segment and mitigation measures may need to be taken. Mitigation measures are not included in the MND regarding the pipeline cover.

The impacts of less than required cover was not analyzed in the MND nor were mitigation measured addressed.

Any grading or excavation within 2 feet of L109 must be done by hand. Potholing and exposing the top portion of the pipe is required to determine which sections above the pipe can be graded or trenched by equipment. Potholing will expose the top portion of the pipe.

Grade cuts for street construction above L109 is 12-inches according to the Franco Grading Plan dated 9/2/16. Grade cuts of 12-inches would leave 12-inches above the pipeline where existing cover is 24-inches. Because of vibration and/or wheel loading restrictions, the equipment mentioned in the MND may not be safe to be used in shallow sections.

The design prepared for the extension of Folsom St. shown in the Grading Plan requires use of a full sized roller for compaction and the required level of aggregate base compaction is 95%, in 6 inch lifts. Compaction to 95% requires an increased number of passes over the more typical compaction level of 95% Modified Proctor testing. As noted

above in Opinion 2, the PPV of a vibratory compactor 1 foot above the pipe is calculated to be 26.26 ips, which exceeds the maximum threshold of 2.0 set by PG&E.

Hand digging over L109 is required for all new utility crossings (water, sewer, electric, gas, communications) so there may be more locations where L109 will be potholed.

Exposing the pipeline before detailed design or construction begins also provides visual information regarding the physical condition of the pipe which can be used in performing the vibration analysis and PG&E's risk assessment of this section.

Given that:

- Some potholing and exposing L109 is required, and
- the information gained from potholing will yield information used in determining safe vibration levels, and
- the information from potholing will limit the types of construction equipment and activity in the vicinity of L109, and
- mitigation measures may be needed to correct less than required cover over L109,

exploratory potholing of L109 should have been completed prior to issuance of the MND.

Opinion 5: From January 2010 through September 8, 2017, excavation damage was the leading cause of unintended gas releases from transmission pipelines in California. PG&E is not under contract with the Project's general and sub-contractors/developer. Nor are the Project's general and sub-contractors/developer under contract with PG&E. There are many PG&E requirements/restrictions of the contractor when working within 10 feet of the pipeline, which is an approximate 3 feet from the front wall of the planned residences. Having an on-site inspector at all times would facilitate scheduling changes by the contractor and eliminate lack of communications and reduce the risk of damage to L109, but this was not required as a Mitigation Measure.

Opinion 6: Every Project employee should be trained in PG&E's requirements and restrictions for working in the vicinity of gas transmission pipelines. Given the significant risks posed by the Project, this should have been required as a Mitigation Measure.

Please note that the preceding is based on information available at the time of this writing. It is conceivable that additional information may be forthcoming which bears on stated observations and opinions. The right is reserved, therefore, to review and modify all observations and opinions at any future point in time should, in fact, additional information become available.

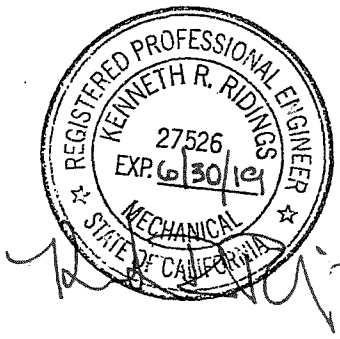
Based on our review and analysis, it is our expert opinion that there still exists a high risk that has not been mitigated based on our review of the MND. It is our opinion the failure to mitigate the risks are significant and a potential for damage and explosion of PG&E's gas transmission pipeline L109 still exists.

Regards,

Kenneth R. Ridings, P.E.

Steven P. Viani, P.E.

Attachments



ENGINEER: MECHANICAL
PROCESS
UTILITIES

KENNETH R. RIDINGS, P.E.
Engineering Manager
Engineering Design and Testing Corp.
Post Office Box 5126
Concord, California 94524
(925) 674-8014
kenridings@edtengineers.com

EDUCATION

August, 1979 — Bachelor of Science, Mechanical Engineering, University of Utah, Salt Lake City, Utah

PROFESSIONAL EXPERIENCE:

2005 to present — **Engineering Design and Testing Corp., Oakland, California**
Assistant Vice President, District Engineering Manager and Consulting Engineer - Investigation of incidents involving natural gas piping systems and facilities; moisture intrusion and damage in residential and commercial buildings and industrial facilities; infrastructure utilities and piping systems; HVAC and refrigeration systems; fire suppression systems; cranes/heavy equipment, machinery and equipment. Services provided include failure analysis and causation identification, scope of damage evaluations, estimate repair/replacement costs, claims analysis, standards and codes interpretation, fire origin and cause, and construction monitoring and timeline scheduling.

1998 - 2004 — **Pacific Gas & Electric Company, San Francisco, California**
Manager – Conducted investigations of major gas incidents. Responsible for development and implementation of construction, engineering, operations and maintenance standards, procedures for gas distribution piping systems. Prepared expert testimony and testified in California Courts on behalf of PG&E's gas distribution capital and expense investments for the 1999 regulatory funding proceedings.

1993 – 1998 — **Pacific Gas & Electric Company, San Francisco, California**
Senior Distribution Engineer – Investigated cause and emergency response of gas distribution and transmission incidents. Interpreted regulatory code requirements. Developed engineering, construction, and operations and maintenance standards for pipe rehabilitation, valves, fittings, pressure control facilities and substructure enclosures. Investigated system operations, material, equipment, and facility failures.

1989 – 1993; 1984 – 1988 — **Pacific Gas & Electric Company, Fresno, California**
Division Engineer – Supervised multi-disciplined work groups responsible for the engineering, design, operations and maintenance of transmission and

distribution systems, including cathodic protection. Investigated gas incidents including fires and explosions and damage caused by third party dig-ins.

1988 – 1989 **Pacific Gas & Electric Company, Fresno, California**
Transmission and Regulation Supervisor – Supervised technical workgroup responsible for operations and maintenance on 2700 miles of pipeline and 165 pressure control stations. Scheduled work, prepared and directed system sequence of operations changes, and diagnosed system operations.

1984 **Pacific Gas & Electric Company, Antioch, California**
Area Engineer - Responsible for cathodic protection, facility records management, design and cost estimate preparation, engineering of gas transmission pipelines and associated facilities.

1979 – 1984 **Pacific Gas & Electric Company, Walnut Creek, California**
Engineer - Designed and engineered gas transmission pipe line, metering, and compressor station facilities. Specified water treatment and heat exchanger operations and maintenance at compressor stations. Performed pipe loading and stress analysis, and hydraulic capacity and system planning analysis.

1978-1979 **Northwest Pipe Line Company, Salt Lake City, Utah**
Engineering Intern – Facility engineering, perform cathodic protection analysis and prepare recommendations.

PROFESSIONAL ORGANIZATIONS:

ASM International (ASM)
American Society of Mechanical Engineers (ASME)
California Conference of Arson Investigators (CCAI)
East Bay Claims Association – Vice President 2012-13
National Association of Fire Investigators (NAFI)
National Fire Protection Association (NFPA)
National Society of Professional Engineers (NSPE)
National Association of Subrogation Professionals (NASP)

PROFESSIONAL REGISTRATIONS:

Registered Professional Engineer – Arizona (#44546)
Registered Professional Engineer – California (#M27526)
Registered Professional Engineer – Idaho (#14379)
Registered Professional Engineer – Hawaii (#14923)
Registered Professional Engineer – Montana (#19897)
Registered Professional Engineer – Nevada (#021117)
Registered Professional Engineer – Oregon (#78334PE)
Registered Professional Engineer – Utah (#180944-2202)
Registered Professional Engineer – Washington (#42731)
National Council of Examiners for Engineering and Surveying (#28431)

CONTINUING EDUCATION:

2010 Fire Pump Seminar
National Fire Protection Association
Reno, Nevada

2007 Investigation of Gas & Electric Appliance Fires
Western Michigan University
Kalamazoo, Michigan

2006 Fire and Explosion Investigation
National Association of Fire Investigators
Sarasota, Florida

2006 Mechanical and Electrical Estimating
RS Means
Las Vegas, Nevada

EXPERIENCE – ENGINEERING INVESTIGATIONS (partial listing)

Natural Gas Pipeline and Facilities

Damage to Pipelines Caused by Third Party Dig-Ins – Multiple Locations, California
Examine damaged pipe and site location, review utility locate and mark records, review "call before you dig" records, review third party records, and determine cause of dig-in. Evaluate scope of damage, emergency response and repair activities. Review utility repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Compressor Station Fire – Gillette, Wyoming
Examine station and equipment, review operating records and other documents and determine cause of fire.

Gas Explosions and Fires – Multiple Locations, California
Investigate and determine whether natural gas fueled explosions and fires were caused by natural gas utility facilities and/or operations.

Underwater River Crossings – Calgary, Canada
Examine three separate pipeline crossings underneath flooded rivers, review inspection records, conduct underwater survey, and determine scope of damage of pipelines. Evaluate the repair/replacement scope of work and estimated costs.

Overpressurization of Low Pressure Distribution System – Alameda, California
Lead investigation and determine cause of overpressurization of a low pressure system and evaluate gas utility emergency response. Examine pressure control station equipment and maintenance records, system operation records, emergency response sequence of events.

Pressure Regulator Stations – Multiple Locations, California
Determine cause of pressure regulator valve failures at multiple regulator stations and metering facilities.

Commercial and Residential (Single and Multi-Story)

Moisture/Water Intrusion – Multiple Locations
Investigation of 200+ incidents involving water supply, irrigation, HVAC, waste, drainage, and fire sprinkler system piping and associated fittings, connector hoses, and equipment; water heaters and boilers; restroom and kitchen faucets and appliances; washing machines.

Heat and Smoke Damaged Generator Ductwork – Mesa, Arizona

Review of drawings, fire damage reports, repair costs, business interruption estimates and other documents to determine scope of damage. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Leaking Chiller Tubes at Medical Center – Bakersfield, California

Examine chiller system and evaporator, review manufacturer drawings and equipment specifications, review operating records. Determine cause and scope of damage. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Dry Cleaning Equipment – Chandler, Arizona

Examine equipment, review equipment specifications, service records and other documents, determine cause of leaks in equipment steam chamber.

Collapsed Car Lift – San Francisco, California

Examine steel member framed, hydraulic powered car lift, review manufacturer specifications, drawings and other documents, determine cause of collapse.

Hail Damaged Roof Top HVAC Condensers – Scottsdale, Arizona

Examine condensers, identify impact damage caused by hail and determine reparability. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Leaking Hydraulic Elevator Casing – Multiple Locations

Examine elevator equipment, service records and other documents and determine cause of leak.

Water Damage to Elevator Components (multiple) – Multiple Locations

Examine elevator system components, identify water contacted components, and determine scope of damage, if any, to water contacted components. Evaluate repair cost proposals as to appropriateness of repair and associated costs.

Construction

Crane Tipover – San Ramon, California

Examine crane and highway construction site, review crane specifications, operator log and other documents and determine cause of tipover. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Mechanical Lift Tipover – Groveland, California

Examine lift and residence construction site, review lift specifications and determine cause of tipover.

Crawler Crane Tipover – West Olive, Michigan

Examine crane at generation plant, determine scope of damage from tipover and cost to repair. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Leaking Toilets in Condominiums Building – San Jose, California

Examine toilet installations, review manufacturer specifications and instructions, review test reports and determine cause of leaks.

Leaking Water Supply Valves in Multi-Unit Residential Buildings – Walnut Creek, California

Examine valves and installation, review manufacturer specifications and literature, determine cause of fractures in valve bodies.

Fire Investigations

Equipment and Appliances – Multiple Locations

Investigation of fires involving furnaces, water heaters, cooking and other appliances.

Industrial

Moisture/Water Intrusion – Multiple Locations

Investigation of incidents involving water supply, HVAC, boilers and water heater equipment, piping, and associated fittings.

Imploded Milk Storage Tank – Hanford, California

Examine tank, tank service and dairy operating records, manufacturer drawings and specifications and determine cause of implosion.

Imploded Fermentation Tank – Ukiah, California

Examine tank and process equipment at brewery, review operating records, drawings, sequence of operations, manufacturer specifications and other documents and determine cause of implosion. Review repair and pricing documents as to appropriateness of repairs and reasonableness of costs.

Imploded Storage Tank at Ethanol Plant – Cambridge, Nebraska

Examine plant and tank, review operating records and system design, coordinate testing of valve, and determine cause of collapse.

Single-Axis Solar Panel Tracker System Detachment – McCarran, Nevada
Examine tracker system and panels, review operating records and design documents, review snowfall and other weather records, and determine cause of detachment.

Ammonia Release at Cold Storage Facility – Phoenix, Arizona
Examine refrigeration equipment, review manufacturer specifications, review maintenance records, test components, and determine cause of ammonia release.

Utilities Service Interruption – Harahan, Louisiana
Review documents and determine duration and cause of service interruptions to a cold storage facility

Shiploader Tipover– Vancouver, Washington
Examine shiploader and bearing assembly, review design drawings and operating records, review video of incident, supervise other discipline engineers, and determine cause of tipover.

Damaged Retort MIG Thermometer – Corning, California
Examine retort, thermometer, and process equipment at olive processing facility, review operating records, FDA requirements, sequence of operations, manufacturer specifications and other documents and determine cause of damage to thermometer.

Logging Vehicle Fire Suppression System – Burns Lake, British Columbia, Canada
Examine fire damaged logging vehicle and fire suppression system, review multiple documents and determine why suppression system did not discharge.

Controlled Atmosphere Room at Cold Storage Facility – Multiple Locations, Washington
Examine facility Atmosphere Control System and refrigeration system, review test reports and facility records, and with a fruit harvest specialist, determine if damage to stored fruit was the result of a malfunction in the systems.

Chiller Coil Tube Leaks at Cold Storage Facility – Reedley, California
Examine facility and chiller tubes, review facility operations, review test reports and other documents and determine cause of leaks.

Fire Damaged Distillation Column at Ethanol Plant - Clinton, Iowa
Examine plant and column and review plant drawings and records. Determine scope of damage, cost of repairs and work schedule to facilitate repairs.

Digester Overpressure, Water Treatment Plant – Delano, California
Examine digester and associated equipment, review facility drawings, operating records and determine cause of overpressure.

Damaged PVC Piping System Containing CO2 Gas – Corning, California

Examine Carbon dioxide vaporizer and overhead PVC piping system in olive processing facility, review drawings, service records, weather records, operating and other documents and determine cause of damage.

Water Well Contamination – Live Oak, California

Examine well, review well inspection videos, water quality reports and other documents, and determine cause of contamination.

Water Well Collapse (2) – Corcoran, California

Examine well head and inspection videos, review drilling logs well test records and other operating documents and determine cause of collapse. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Water Pumping Plant – Walnut Creek, California

Examine plant, review manufacturer specifications, design drawings and other documents, and determine cause of coupling detachment. Supervise other engineering disciplines to evaluate scope of water damage to building components, and electrical and mechanical equipment. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Water Treatment Plant – Livermore, California

Examine damaged clarifier equipment, review construction, maintenance and test records, and determine cause of damage. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Whirlybird Type Crane Tipover – Seattle, Washington

Examine crane, determine scope of damage, conduct research on used crane prices, and determine value of damage.

Fire Damaged Conveyor, Recycling Power Generation Plant – Oroville, California

Examine conveyor and associated electrical and mechanical equipment. Review construction drawings, operating records, repair cost estimates and other documents. Engage other engineering disciplines to determine scope of damage and reparability. Review repair documents as to appropriateness of repairs and reasonableness of costs.

Ammonia Refrigeration System – Coalinga, California

Examine refrigeration system, review facility and system drawings, service records and other documents and determine cause of ammonia release.

Corroded At-Grade Water Storage Tank – San Luis Obispo, California

Examine tank and attached piping, review cathodic protection system installation and service records, review other records, test insulation points, and determine cause. Determine scope of damage. Review repair documents as to appropriateness of repairs and reasonableness of costs. Monitor repair schedule.

Leaking At-Grade Gasoline Storage Tank – Las Vegas, Nevada

Examine tank, associated equipment, and tank farm cathodic protections system. Review tank and cathodic protection system drawings, operating records, manufacturer instructions, test records and other documents. Determine cause of leaks.

Marine

Ship Container Fire – Pacific Ocean

Examine ship containers and contents at Port of Seattle, review ship drawings and records, review manufacturer specification of container contents, and determine cause of fire.

Water Damaged Motors – Fairfield, California

Examine motors and packaging, review transport records and historical weather records, conduct laboratory tests, and determine if source of moisture was during transit or after motors were off-loaded from truck.

Pontoon Boat Lift Separation – Discovery Bay, California

Examine lift and documents and determine cause of separation.

Other

Hiker Fall – Muir Woods, California

Review documents, examine fall location, and determine if the involved trail had been maintained in accordance with regulatory requirements and to determine if the conditions of the incident location were dangerous and hazardous.

Roller Blader Fall – Ixtapa, Mexico

Conduct elevation survey and coefficient-of-friction tests on concrete trail.

Mobile Paper Shredder Truck – Fresno, California

Examine truck and paper shredder, review design drawings and determine cause of mechanical damage to shredder.

LEGAL CONSULTATION – PEER REVIEW (partial list)

Natural Gas Explosion – Seattle, Washington

Review gas utility maintenance and emergency response records, review Washington State regulatory requirements, review regulatory agency reports, review expert and testing agency reports and other documents and provide opinion as to the cause of the explosion.

Natural Gas Explosion – Sublette, Kansas

Review gas utility maintenance standards, maintenance and operating records, Kansas State regulatory requirements and other documents. Provide opinion as to cause of explosion.

Moisture Intrusion – Multiple

Review manufacturer, engineering, and investigation reports regarding separated piping system components. Provide opinions as to cause of separated components.

Steven P. Viani, P.E
spviani@aol.com
(916-952-8503)

Education and Specialized Training

BS Civil Engineering, California State University, Sacramento
Graduate courses in Geotechnical Engineering
Continuing education classes in claims avoidance, negotiations and project management
OSHA 40 hour training
USACOE Construction Quality Management Certification

Professional Registrations

Registered Civil Engineer in California, Arizona and Washington
Licensed A, B & Haz. Contractor (RMO Alvia Services Inc)

Employment History

State Water Resources Control Board (2-year assignment with Army Corps of Engineers)-Associate Engineer	(1977-1982)
Kellogg Corporation-Senior Engineer	(1982-1983)
Department of Health Services-Senior Engineer	(1984-1987)
Roy F. Weston, Inc.-Project Director	(1987-1990)
Canonie Environmental Services, Inc.-Western Regional Manager	(1990-1994)
Geo Con Inc.-Western Regional Manager	(1994-1998)
Layne-Christensen Co.-Western Regional Manager	(1998-1999)
BCN Company-Vice President of Operations	(1999-2001)
Donald B. Murphy Contractors Inc.-Regional Manager	(2001-2003)
Private Consulting/Alvia Services Inc	(2003-Present)

Representative Experience

Over the past 40 years, has held senior level positions in construction, consulting and governmental entities. Have managed, directed or performed projects ranging from $3000 Phase 1 Preliminary Site Assessments to $20 Million site remediations, including many large and significant environmental and geotechnical construction projects as a direct hire contractor. Have 25 plus years experience in managing business units and design departments with total P+L responsibility and staff management up to 35 people. Have worked nationwide and internationally in Asia and Europe.

Legal, Claims and Defect Oriented Experience

- Developed a remediation plan for the removal of construction debris in Malibu, CA. Project involved the determination of quantity, permitting, construction oversight and closure parcel containing illegally disposed debris. Los Angeles County and Coastal Commission involvement.
- Provided expert review of shoring/scaffolding failure at mid-rise residential/commercial building in San Francisco that was overloaded.
- Provided expert services for water damage and intrusion for single family housing, multi-family housing and businesses involving stucco, windows, roofs, siding from wind-driven rain, expansive soils and mechanical damage.
- Provide expert services for a fatal accident involving improperly secured construction equipment on a construction site in Northern California.

- Provided expert services, including accident reconstruction of a major fall injury case involving truck loading at an active wastewater treatment facility in the San Francisco area.
- Provided expert witness services for issues related to a subsiding rock retaining wall causing damage to an adjacent dwelling in San Francisco, CA.
- Provided inspection/evaluation of 50+ residential and commercial damaged by a refinery explosion in Utah.
- Provided expert engineering review of construction defects and standard of care associated with sewer lines, water lines, moisture intrusion, land movement, drainage systems, land development, soils testing, residential construction and other civil engineering defects.
- Provided expert witness services for cost and schedule claim by County of Monterey against CM and Prime Contractor involving asbestos containing materials and affected by mold.
- Provide expert witness service for pile driving operations affecting defectively designed and constructed stucco clad public library in LA area.
- Provided expert witness services and court testimony for construction defect case involving expansive soils, construction impacts and water damage to a house foundation in Irvine, CA.
- Provided expert services for construction dispute involving an environmental remediation groundwater collection and storage system constructed at a large refinery facility in New Jersey.
- Provided expert witness services for accident involving multi-party commercial construction site in Auburn, CA involving rolling scaffolding.
- Reviewed remedial measures for condo building in Sacramento affected by water intrusion through roofs, walls and walkways that resulted in mold.
- Provided expert witness testimony for contractual dispute involving adequacy of geotechnical report, differing site conditions and cost to repair for sewer line in Las Vegas, NV.
- Provided expert witness services for issues related to a subsiding rock retaining wall causing damage to an adjacent dwelling in San Francisco, CA.
- Provide expert services to insurance group for major excavation support failure in San Francisco to determine cause and cost to repair caused by differing soil conditions.
- Provide contract review and claims support for steel water reservoir project in Honouliuli, HI affected by delays, changes and differing site soil conditions.
- Provided contract review and cost to complete for a 900 unit military family housing project in Honolulu, HI. Project encountered with numerous changes that required renegotiation of unit prices, payment for acceleration and additional time related overhead.
- Successfully negotiated a $ 6 million termination for convenience claim for a Superfund site. Developed an estimate of contractor costs and negotiated a fair and reasonable settlement while representing a state government entity. Project required negotiation of an acceleration claim for previous contractor, expert testimony at various court proceedings and presentations to media.
- Prepared and negotiated a changed site conditions, acceleration, directed change, constructive change and defective and deficient contract document change order with the US Army Corps of Engineers for a slurry wall project.
- Developed and negotiated large change orders for quantity increases and changes for design/build environmental remediation projects.
- Developed claim document for high rise hotel in downtown Los Angeles involving directed changes, constructive changes, defective and deficient contract documents, acceleration and significant contractual issues.

Construction Oriented Experience

- Oversaw construction of large wastewater treatment plants, pump stations, earth-pressure balance and open road header tunnels and box sewers for Federal Government construction program in San Francisco. 12 foot diameter tunnel was 1 mile open face cut using road header and steel sets and wood lagging prior to permanent liner. Tunnel was constructed using Earth-pressure balance method with steel liner plate prior to permanent concrete liner was then cast.

- Designed and constructed micropile foundation system for elevated transit structure for BART.
- Designed and constructed a micropile supported foundation for Hotel Berry in Sacramento, CA.
- Constructed Administration, Switchyard and Electrical Control steel framed buildings consisting of about 50,000 square feet for a combined–cycle gas fired power plant.
- Designed/built a pre-engineered steel framed maintenance building for major northern California public utility at a wind energy facility.
- Designed and constructed a micropile foundation for a community college administration building in Alameda, CA.
- Designed and built a micropile project for a new state building in Sacramento.
- Designed and constructed micropile foundation system for elevated transit structure for BART.
- Designed and constructed a micropile supported foundation for Hotel Berry in Sacramento, CA.
- Designed and built a micropile slope stabilization project for the emergency support of a sewer main sliding into a creek in Thousand Oaks.
- Constructed slope stabilization for a hydro-electric powerhouse in the Sierra Nevada Mountains involving rock anchors, soil nails, drains and shotcrete.
- Constructed projects using ground anchors, tiebacks, compaction grouting, chemical grouting, jet grouting, soil mixing, shotcrete, micropiles, driven piles and sheet piles, often under design/build contracts.
- Constructed soil nail, soldier pile and wood lagged excavation support projects for building excavations and soil removal projects.
- Constructed numerous slurry wall projects for seepage control using soil-bentonite, soil-cement-bentonite, soil-cement-bentonite-fly ash and soil-attapulgite for groundwater control on civil and environmental projects. Size of barrier walls ranged from 100,000 sf to 350,000 sf.
- Constructed ADA upgrade and remodel for US Coast Guard Pacific Strike Force Facility in Novato.
- Investigated, designed and oversaw abatement of asbestos affected state buildings after Loma Prieta earthquake in 1989.
- Managed lead abatement, asbestos abatement, structural repairs and painting for 1400 military housing units at Beale Air Force base.
- Designed and managed asbestos abatement activities for 500,000 square feet of office space for TRW buildings in El Segundo.
- Performed ground improvement projects involving dynamic compaction and vibro compaction/vibro-replacement.

Consulting Oriented Experience

- On contract to provide soils investigation and consulting services to pool contractors in N. Calif.
- Provide consulting and design services for residential and commercial structures affected by fire, wind, structural design deficiencies, impacts, earthquakes and other factors.
- Planning and conceptual design for construction of a multi-waste stream processing center for an industrial waste recycling center in San Diego County, CA.
- Developed geotechnical reports for new housing, including stick-built and manufactured housing throughout California.
- Evaluation of AST's and treatment ponds at oil collection facility in Santa Maria, CA.
- Performed forensic investigations for wastewater treatment plants, schools, commercial buildings and houses for water intrusion damage, expansive soils, presence of mold and construction defects.
- Designed and oversaw abatement of numerous asbestos abatement projects in California.
- Planned and permitted high tech chemical storage and fabrication facilities internationally.
- Developed large scale Phase 1 property transfer program for major renovation of prime San Francisco real estate.

- Performed numerous Phase 1 Preliminary Site Assessments, Remedial Investigations, Feasibility Studies and Corrective Measures Studies using a variety of technologies.
- Assistant author on document concerning repairs and lining UST's.

Remediation and Environmental Experience

- Expert services related to evaluation and removal of UST and AST systems on California.
- Developed a Remedial Investigation /Feasibility Study for the Purity Oil Sales Superfund site in Malaga, CA. Site was former oil processor that had filled onsite ponds and AST's with construction debris containing oil, PCB, lead and asbestos that impacted soil, surface water and groundwater. RI/FS included on-site and off-site investigation, surface water sampling, development of remedial objectives and interim remedial measures.
- Developed a Remedial Investigation/Feasibility Study/Remedial Design for the removal of PCB's and PAH's from a site in Norwalk, CA. Documents were submitted to LAFD and City of Norwalk for approval prior to initiating cleanup. Clean closure granted.
- As part of a construction claim on a 4-story parking structure at San Francisco International Airport, evaluated an earthwork claim concerning the presence of hazardous waste, rock, trash and unsuitable materials and their effect on the project schedule. Further analysis of environmental requirements on illegal filling of wetlands in San Francisco Bay.
- Completed the remediation of the Capri Pumping Services site in East Los Angeles, CA. Site was contaminated with lead, copper, cadmium, solvents and petroleum hydrocarbons. Remediation of this State Superfund site included preparation of a health risk assessment for lead exposure to the surrounding community.
- Oversaw the remediation of the Jibboom Superfund Site in Sacramento, CA. Site was a former scrap yard that had impacted the area with lead, PCB, and hydrocarbons. Extensive air monitoring of the perimeter was performed to limit migration of contaminants. Later designed remediation of inside surfaces at remaining building involving PCB, lead and asbestos.
- Site manager for the McColl Superfund site in Fullerton, CA. Involvement included site sampling of surface and subsurface runoff, construction of site facilities and management of remedial contractors.
- Project manager for the Kyocera facility in Sorrento Valley, CA. Project involved leaking UST solvent tank that impacted groundwater and adjacent wetlands and ponds. Project included on-site and off-site investigation, development of remedial alternatives, permitting and monitoring.
- Remediated a PCP impacted groundwater plume using funnel-gate technology at a wood treating facility. Project involved innovative concept using activated carbon in a passive treatment system.
- Designed and remediated 2500 CY TCA impacted soil inside an existing manufacturing structure in Southern California.
- Designed, permitted and remediated 70,000 CY of TPH impacted soil removal for the closure of the Lockheed C plant in Burbank, California. Clean closure granted.
- Oversaw the design and construction of a groundwater treatment facility for pesticide contaminated soils in Fresno, California as well as excavation of 10,000 CY of pesticide impacted soils.
- Remediated a TCE/TCA impacted groundwater plume using a Deep Soil Mix (DSM) wall that was 65 feet deep and had a surface area of 50,000 SF at an active rail yard.
- Remediated soil impacted with solvents using vapor extraction at the Xerox site in Santa Ana. California. Project included permitting, monitoring and maintenance.
- Constructed a gasoline extraction trench using biopolymer slurry and an HDPE membrane at the port of Los Angeles.
- Developed environmental analysis for portion of former Superfund site that would be removed from Superfund designation to assess impacts on new owners of that piece of property.

Re: 3516 and 3526 Folsom Re: - files attached -Thank you for this afternoon's meeting

From: spviani@aol.com

To: bjunderberg@yahoo.com

Date: Thursday, May 30, 2019, 07:51 AM PDT

Barbara
Wanted to get back to you after I reviewed the information. First, no changes to our conversation memo.
I focused on the topo survey conducted on 6/20/13 (3500 Topo), with a drawing date of 12/19/17. The survey occurred well before the BOS hearing in Sept. 2017 and we were never provided this information. However, upon clo er e amination, it how the ituation we mentioned, mainly the pipe i very clo e to bottom of the improvements/roadway cut.
According to the topo drawing, the pipe elevation for Lot 13, (3516 Folsom) is 291.91 (say 292 feet). The pipe elevation at Lot 15 (vacant) is 275.36 feet, 47.42 feet away. This means the gas line rises at a rate of 0.35 feet per foot of run At the center of Lot 14 (3526 Fol om), appro imately midway between the pipe elevation , the calculated pipe elevation is 284.65 feet.
The pipe elevation for Lot 13 (3516 Folsom) shows it to be 291.91 feet, say 292. ft. From Site road section 3516, the garage slab elevation is 295 feet. When measured and accounting for the road improvements, the distance to the top of the pipe to the top of improvement i 5 feet Even with a layer of ba e, the area of di turbance i above the 2 foot zone around the pipe.
The pipe elevation for Lot 14 (3526 Folsom) is calculated to be 284.65 feet. From Site road section 3526, the garage slab elevation is 287 feet. When measured and accounting for the slope and road improvements, which are about 2.5 feet lower, or 284 50, the di tance to the top of the pipe to the top of improvement i 0 15 feet into the pipe The 26 inch gas line will need to be relocated.
This needs to be field verified, potholed on Lot 14, and it will affect the sewer line to 3526 as well.
Let me know if you need anything else.
Thank
Steven P. Viani P.E.
2014 Equestrian Way
Pilot Hill, CA 95664
916 952 8503 (P)
CSLB No. 945198
www.alviaservicesinc.com
In a message dated 5/24/2019 12:54:39 PM Pacific Standard Time, bjunderberg@yahoo.com writes:

> Hi Steve --
>
> Attached are the files we forwarded to the meeting participants. The first doc is Marilyn's response to the emergency plan The econd doc reflect my under tanding of the conver tion I had with you on Monday (Marilyn added my name and Wednesday's meeting date at the end). Please let me know if I misrepresented your thoughts. It is not too late to fix it.
>
> A mentioned, I have additional note from thi meeting to write up and di tribute I will definitely include you in my list.
>
> Thanks for your help and interest.
>
> Barbara Underberg

Re: 3516 and 3526 Folsom Street, Vibration Mgt., and Emergency Response & Evac. Plans

From: spviani@aol.com

To: bjunderberg@yahoo.com

Date: Monday, July 8, 2019, 06:33 AM PDT

Barbara:
Nice summary and backup. Did you receive my invoice? I would like to get paid for this work as agreed.
Thanks

Steven P. Viani P.E.
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In a message dated 7/5/2019 4:08:51 PM Pacific Standard Time, bjunderberg@yahoo.com writes:

> As neighbors we are concerned about the safety risks that the proposed development brings in general, and especially with regard to the proposed Folsom Street extension and impacts on PG&E gas transmission Line 109. We sought analysis and assessments from the following professionals with relevant expertise, specifically in the areas of geotechnical engineering and experience with PG&E gas transmission pipelines:
>
> Rune Storesund, D.Eng., P.E., G.E., Executive Director of UC Berkeley Center for Catastrophic Risk Management
> Lawrence B. Karp, Architect. Civil and Geotechnical Engineer
> Robert Bea, Professor Emeritus of Civil and Environmental Engineering, UC Berkeley Center for Catastrophic Risk Management
> Engineering Design and Testing Corp., Forensic Engineers, Kenneth R. Ridings, P.E. and Steven P. Viani, P.E.
>
> In fact, Consulting Engineers Karp, Storesund and Bea were so alarmed by the safety implications that they all agreed to provide their services pro bono.
>
> With respect to the project's Vibration Management Plan, the consultants' geotechnical and pipeline expertise is particularly relevant:
>
> "Vibration is often grouped with noise and regarded as a kindred topic. Noise, after all, begins as vibration, and vibration is as much a part of acoustics as is noise.
> "By comparison, though, noise is simple. It always occurs in air, and except in special circumstances . . . the characteristic impedance of air is more or less always the same. . . . Airborne sound almost always propagates as a compression wave, and the speed of sound is about the same at all frequencies. . . .
> "Vibration, by contrast, occurs in media ranging from rock or solid concrete, through water and soil to lightweight panels. It can propagate as a compression wave, a shear wave, a variety of surface waves, bending waves, torsional waves, either separately or together." [From Rupert Taylor Ltd., Noise and Vibration Consultants, website: ruperttaylor.com.]
>
> By contrast, the expertise of the author of the Vibration Management Plan is limited to noise:
>
> Illingworth & Rodkin, Inc., Paul R. Donovan, Sc.D.: "Although Dr. Donovan has a broad background in acoustics, his particular areas of expertise include tire noise, sound intensity methods,

aeroacoustics and wind tunnel testing, and structure-borne sound analysis." [From the website of Illingworth & Rodkin, Inc.]

So, we are concerned that the assessments from our consultants have not all been adequately addressed. For your convenience, listed below by consultant are the documents they have previously submitted in the course of this environmental review process:

1. Robert Bea, 6/29/2016, signed letter of support and power point (due to document size, to be emailed separately)
2. Rune Storesund, 12/1/2016, Independent Project Review (attached)
3. Rune Storesund, 12/11/2016, Impact to PG&E Transmission Line 109 (attached)
4. Rune Storesund, 6/5/2016, Independent Project Review (attached)
5. Rune Storesund, 6/14/2016, Review of Proposed Pipeline Impacts (attached)
6. Lawrence Karp, 9/12/2017, Unacceptable Extension, Folsom Street, Protracted in 1861, Structure on 40.3% Gradient Slope Upon Large Gas Line in Landslide Area, Bernal Heights, San Francisco, Environmental Impact Report Required (due to document size, to be emailed separately)
7. Lawrence Karp, 9/12/2017, Testimony at the Board of Supervisors Hearing (pdf page 33 of BOS File 170851, Attachment 11, "Post Pkt Material")
8. (EDT) Engineering Design and Testing Corp., 9/11/2017, Independent Evaluation of the San Francisco Planning Department Mitigated Negative Declaration, submitted as Exhibit O by Zacks, Freedman & Patterson (attached)

Generally, the following lists the main types of problems we are seeing in this process, with some overlap:

1. Disagreement with conclusions

2. Not enough information for complete analysis
For example, the condition of the portion of the pipeline affected by the project is incomplete. As an example, although PG&E removed the large tree that was above the pipeline between the project site and the pipeline elbow beneath Bernal Heights Blvd., the effect of the tree's roots on the pipeline has not been directly examined. According to PG&E's own studies, 90% of trees within 5 feet of a pipeline affect the pipeline coating.

3. Incomplete plans
For example, the configuration and elevations of the street, including the layout of utility crossovers are not resolved. The resolution of these issues could result in dramatic changes. In light of the most recent elevations provided in the revised site survey dated 12/19/2017, Steve Viani, one of the two consultants from EDT, writes:

"I focused on the topo survey conducted on 6/20/13 (3500 Topo), with a drawing date of 12/19/17. The survey occurred well before the BOS hearing in Sept. 2017 and we were never provided this information. However, upon closer examination, it shows the situation we mentioned, mainly the pipe is very close to bottom of the improvements/roadway cut.
"According to the topo drawing, the pipe elevation for Lot 13, (3516 Folsom) is 291.91 (say 292 feet). The pipe elevation at Lot 15 (vacant) is 275.36 feet, 47.42 feet away. This means the gas line rises at a rate of 0.35 feet per foot of run. At the center of Lot 14 (3526 Folsom), approximately midway between the pipe elevations, the calculated pipe elevation is 284.65 feet.

"The pipe elevation for Lot 13 (3516 Folsom) shows it to be 291.91 feet, say 292. ft. From Site road section 3516, the garage slab elevation is 295 feet. When measured and accounting for the road improvements, the distance to the top of the pipe to the top of improvements is 5 feet. Even with a layer of base, the area of disturbance is above the 2 foot zone around the pipe.

"The pipe elevation for Lot 14 (3526 Folsom) is calculated to be 284.65 feet. From Site road section 3526, the garage slab elevation is 287 feet. When measured and accounting for the slope and road improvements, which are about 2.5 feet lower, or 284.50, the distance to the top of the pipe to the top of improvements is 0.15 feet into the pipe. The 26 inch gas line will need to be relocated.

"This needs to be field verified, potholed on Lot 14, and it will affect the sewer line to 3526 as well."

4. Lack of rigor in PG&E and SFFD evaluation and approval of project plans.
For example, PG&E and SFFD approved the Evacuation Plan that assigns a designated assembly point to a location that is (1) above the pipeline, (2) down wind from the prevailing westerly winds, and (3) in the roadway likely to be used to access the project site in a emergency.
For example, PG&E approved the project plan that shows permanent structures (i.e., stairs) within 10 feet of the pipeline contradicting PG&E's own standards.

Other Notes Regarding the Vibration Management Plan:

- Tolerance Zones are areas around underground utilities and pipelines where excavation with mechanized equipment is prohibited by state law. In California, the Tolerance Zone is 24 inches. [CA Government Code 4216, 4216.1 through 4216.4 and 4216.18] The Vibration Management Plan (VMP) states: "As the existing soil is removed, the small bulldozer (or the Takeuchi TB175 configured with a blade and no excavator) could be operating at a distance of 1 foot from the gas line." [See pdf page 10.] There is no explanation as to why this exception would be allowed.

- As previous analyses have pointed out, pipeline vibrations concentrate at the elbow located at the intersection of Folsom Street and Bernal Heights Blvd. No process is in place to monitor the elbow, including potential damage to it in the event the Vibration Monitoring Equipment alarm is activated.

- There is no mention of drilling for piers for the structure of the Folsom Street extension. As currently configured, such piers would be adjacent to the pipeline and within the 24" clearance zone. Clearly, drilling for piers in such close proximity to the pipeline would likely exceed the proposed permitted ppv values of the Vibration Management Plan.

- There is no analysis of the potential impact of vibrations from equipment, such as a bulldozer, if it were to fall over on the steep hillside, whether or not it is in use. Such an incident occurred only two blocks away on the unpaved section of Banks Street between Chapman Street and Powhattan Avenue during the construction of infrastructure improvements under 1989 Proposition B. (No one was injured, but the bulldozer did smash a neighbor's car.)

- There is no analysis of the process for moving soil excavated from the east side of the pipeline to the conveyor belt on the west side of the pipeline, which would include vibration impacts and how to monitor the weight limitations of soil loads crossing the unprotected pipeline.

- Post-construction, there is no analysis of in-service vibrations from and load limitations of vehicles that will cross over the pipeline whether or not they are properly using the driveways. As a narrow dead-end street with a familiar name, it is to be expected that there will be vehicular incursions into the unprotected space above the pipeline, especially by commercial vehicles with wide turning radii.

- Post-construction, there is no process in place to monitor activity directly above the pipeline which lies unprotected between the proposed sidewalk and street (i.e., within the 10-ft. zone PG&E requires to be monitored during construction).

Notes Regarding the Emergency Response and Evacuation Plan:

- There is no explanation for the 300-foot radius on the Evacuation Route map. If 300' is the intended evacuation zone, it is wholly inadequate. For example, at only 100 psig for a 24" diameter pipeline, the recommended minimum evacuation distance is 547' according to Pipeline Association for Public Awareness. Pipeline No. 109 is 26" in diameter and its psig is anywhere from 150 psig (according to PG&E today) to 375 psig (according to NTSB, the psig in effect at the time of the San Bruno blast). [Pipeline Association for Public Awareness, Recommended Minimum Evacuation Distances for Natural Gas Pipeline Leaks and Ruptures: pipelineawareness.org/media/1117/evacuation-distances-for-natural-gas.pdf]

- The Emergency Response and Evacuation Plan does not comport with the Emergency Planning and Community Right-to-Know Act (EPCRA) and is not adequately site-specific. Deficiencies not addressed in the Evacuation Plan include, but are not limited to the following:
- A clear chain of command.
- Specific evacuation procedures.
- A way to account for all persons after an evacuation.
- How the plan would be activated.
- Who would activate the plan.
- Where evacuation routes will be posted.

None of the above lists are intended to be exhaustive and some items have been mentioned before.

Thank you for your consideration of these issues.

Barbara Underberg
Bernal Heights South Slope Organization

invoice1.pdf
124.2kB

From:	Wong, Jocelyn (BOS)
To:	"Kathy Angus"; ryan@zfplaw.com; "clee@lubinolson.com"; "fabien@bluorange.com"; "jfogarty@sonic.net"; "colson@lubinolson.com"
Cc:	PEARSON, ANNE (CAT); STACY, KATE (CAT); JENSEN, KRISTEN (CAT); RUIZ-ESQUIDE, ANDREA (CAT); Hillis, Rich (CPC); Teague, Corey (CPC); Sanchez, Scott (CPC); Gibson, Lisa (CPC); Jain, Devyani (CPC); Navarrete, Joy (CPC); Lewis, Don (CPC); Varat, Adam (CPC); Sider, Dan (CPC); Starr, Aaron (CPC); Rodgers, AnMarie (CPC); Ionin, Jonas (CPC); Pollak, Josh (CPC); Rosenberg, Julie (BOA); Sullivan, Katy (BOA); Longaway, Alec (BOA); BOS-Supervisors; BOS-Legislative Aides; Calvillo, Angela (BOS); Somera, Alisa (BOS); Mchugh, Eileen (BOS); BOS Legislation, (BOS)
Subject:	PROJECT SPONSOR RESPONSE: Appeal of CEQA Revised Final Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street - Appeal Hearing August 11, 2020
Date:	Friday, July 31, 2020 10:34:25 AM
Attachments:	image001.png

Greetings,

The Office of the Clerk of the Board has received the following appeal response from Charles Olson, on behalf of the Project Sponsors, for the appeal of the CEQA Revised Final Mitigated Negative Declaration for the proposed 3516 and 3526 Folsom Street project.

Project Sponsor Response - July 31, 2020

I invite you to review the entire matter on our Legislative Research Center by following the links below:

Board of Supervisors File No. 200800

Best regards,
Jocelyn Wong
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T: 415.554.7702 | F: 415.554.5163
jocelyn.wong@sfgov.org | www.sfbos.org

(VIRTUAL APPOINTMENTS) To schedule a "virtual" meeting with me (on Microsoft Teams), please ask and I can answer your questions in real time.

Due to the current COVID-19 health emergency and the Shelter in Place Order, the Office of the Clerk of the Board is working remotely while providing complete access to the legislative process and our services


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The Legislative Research Center provides 24-hour access to Board of Supervisors legislation, and archived matters since August 1998.

a member of the public elects to submit to the Board and its committees—may appear on the Board of Supervisors' website or in other public documents that members of the public may inspect or copy.

From:	Lee, Carolyn
To:	Board of Supervisors, (BOS); BOS Legislation, (BOS); Yee, Norman (BOS)
Cc:	Olson, Charles; "fabien@bluorange.com"; James Fog arty; Navarrete, Joy (CPC); Pollak, Josh (CPC); Gibson, Lisa (CPC)
Subject:	3516-3526 Folsom - Project Sponsor Response to Appeal of RFMND
Date:	Friday, July 31, 2020 10:08:38 AM
Attachments:	3516-3526 Folsom - Project Sponsor Respon(1135895.2).pdf

President Yee and Clerk of the Board,

Attached please find the Project Sponsor's response to the appeal of the Revised Final Mitigated Negative Declaration for the project located at 3516-3526 Folsom Street.

Thank you,
Carolyn

Carolyn J. Lee | **LUBIN OLSON**
Lubin Olson & Niewiadomski LLP | The Transamerica Pyramid | 600 Montgomery Street, 14th Floor | San Francisco, CA 94111
Phone: (415) 981-0550 | Facsimile: (415) 981-4343 | www.lubinolson.com | Email: clee@lubinolson.com

LUBIN | OLSON
LUBIN OLSON & NIEWIADOMSKI LLP
THE TRANSAMERICA PYRAMID
600 MONTGOMERY STREET, 14TH FLOOR SAN FRANCISCO, CALIFORNIA 94111
TEL 415 981 0550 FAX 415 981 4343 WEB lubinolson.com

July 31, 2020

CHARLES R. OLSON
Direct Dial: (415) 955-5020
Email: colson@lubinolson.com

VIA ELECTRONIC MAIL

President Norman Yee
c/o Angelo Calvillo, Clerk of the Board
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place
City Hall, Room 244
San Francisco, CA 94102

Re: **Response to Appeal of CEQA Revised Final Mitigated Negative Declaration Issued on March 25, 2020 ("RFMND")**
Planning Case No. 2013.1383ENV
Building Permit Application Nos. 2013.12.16.4318 and 2013.12.16.4322
3516-3526 Folsom Street ("Project Site")

Dear President Yee and Honorable Members of the Board of Supervisors:

This firm represents two couples, Fabien Lannoye and Anna Limkin, and James and Patricia Fogarty (collectively, the "Project Sponsors"), who are the owners respectively of two vacant lots zoned for residential use located at 3516 and 3526 Folsom Street, upon which they propose to build two single-family homes and construct the adjacent "paper street" segment of Folsom Street to provide vehicular and pedestrian access to the site (the "Project").

The Project Sponsors applied for building permits almost seven years ago, and the Project has undergone numerous rounds of environmental review, multiple appeals to the Planning Commission and Board of Supervisors, and multiple drafts and re-drafts of environmental documents, evacuation plans, and vibration management and monitoring plans. The Project Sponsor's efforts to comply with the California Environmental Quality Act ("CEQA") and obtain building permits on lots already zoned for residential use are documented in extensive detail in the section titled "Background" in the Planning Department's memorandum to this Board. Although the Project Sponsors have been working in good faith to assuage any lingering concerns by the Project's neighbors regarding construction of the Project and its location near PG&E Pipeline 109, Bernal Heights South Slope Organization ("Appellants") have still brought a meritless, overly broad, and repetitive appeal of the RFMND despite the clear guidance and direction stated in Board of Supervisor's Motion No. M17-152, passed on September 26, 2017 (the "Motion"), which indicated that the only issues that remain for consideration are the Vibration Monitoring and Management Plan and the site-specific Emergency Response and Evacuation Plan.

Indeed, Appellants conveniently fail to mention that Motion No. M17-152 explicitly states, "[A]s to all other issues, the Board finds the [Final Mitigated Negative Declaration] conforms to the requirements of CEQA and is adequate, accurate, and objective, the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required." As such, most of Appellants' arguments and "evidence" (the bulk of which are pure speculation and unfounded opinions not constituting substantial evidence under CEQA) have already been reviewed, and rejected, by the Board of Supervisors, and cannot now be reconsidered. (*See* San Francisco Administrative Code Section 31.16(d)(5)(A) ("In the event an organization or individual wishes to appeal the revised negative declaration, such appeal shall be made directly to the Board of Supervisors within 30 days of publication of the revised negative declaration and shall comply with the procedures set forth in this Section 31.16. *The Board's subsequent review, if any, shall be limited to the portions of the negative declaration that the Planning Department has revised.*") (emphasis added).)

I. Issues Raised by Appellants Are Outside the Scope of the Motion and the San Francisco Administrative Code or Fail for Lack of Substantial Evidence.

A majority of the issues raised by Appellants cannot now be reconsidered by the Board of Supervisors as they have previously been raised and rejected. First, Appellants cite the Project Site's steep slope and its proximate location to PG&E Pipeline 109 as being an unusual and potentially dangerous situation. Appellants continuously refer to inaccurate information from a September 2017 letter by Lawrence Karp suggesting that the slope of the site is 40%, but the RFMND accurately describes both the slope of the site as being 33% and the Project's location with respect to the pipeline. As stated in response to multiple prior appeals, the presence of a PG&E transmission line in a residential neighborhood is not an unusual circumstance in San Francisco, and this argument must be dismissed. Second, Appellants state that the RFMND's Table 5 includes numerical inaccuracies relating to peak particle velocity and damage potential of project construction equipment. No changes have been made to Table 5 of the RFMND from the version that was previously found by this Board "to conform to the requirements of CEQA", and thus Appellants cannot appeal this portion of the RFMND pursuant to the Motion and Section 31.16(d)(5)(A) of the San Francisco Administrative Code. Third, Appellants continuously refer to prior opinions prepared by professionals in 2017 that the presence of the PG&E Pipeline 109 will result in substantial public harm due to accidental rupture during construction of the Project. Again, this concern has previously been raised and rejected by this Board. Fourth, the RFMND clearly articulates the responsible agency roles of PG&E, the San Francisco Planning Department, the San Francisco Fire Department, the Department of Building Inspection, and the Department of Public Works, consistent with the Motion. Finally, the Motion states, with respect to the prior appeal, that "the record does not include substantial evidence to support a fair argument that the project may have a significant effect on the environment, and no further analysis is required."

As before, Appellants fail to carry their burden under CEQA to demonstrate that there is substantial evidence supporting a "fair argument" that the Project may have a significant, adverse, unmitigated effect on the environment, which would thus require the preparation of an EIR. (*See* Public Resources Code Section 21064.5; *see also Quail Botanical Gardens Foundation, Inc. v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1601-02 ("[I]f substantial evidence in the record

supports a 'fair argument' significant impacts or effects may occur, an EIR is required and a negative declaration cannot be certified.").) "Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence." (*See* CEQA Guidelines Section 15384(a) (defining "substantial evidence").) CEQA Guidelines Section 15384(b) further states, "Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." (CEQA Guidelines Section 15384(b).) Here, Appellants merely rehash unsubstantiated opinion previously provided to this Board in 2017, and have provided no substantial evidence to support the need for any additional environmental review with respect to the Vibration Monitoring and Management Plan, the Emergency Response and Evacuation Plan, or the RFMND.

II. The Vibration Monitoring and Management Plan Included as Part of the RFMND Meets the Motion's Requirements.

Appellants' recently raised issues relating to the Vibration Monitoring and Management Plan include requesting engineered plans for the extension of Folsom Street to the Project Site, concerns about the integrity of the pipeline elbow at Bernal Heights Boulevard, and monitoring after construction of the Project, amongst others. None of these concerns are required elements of the Motion, which states that the plan "specify what types of construction equipment may be used at the [P]roject and any limitations on the use or storage of such equipment in the project vicinity, the specific roles of the Planning Department, Department of Building Inspection, PG&E and any other necessary party in monitoring and enforcing the recommendations of the Vibration Monitoring Plan, and any appropriate safety protocols that must be employed during project construction, including communications between the contractors and PG&E, to reduce the risk of damage to the pipeline." Indeed, the Vibration Monitoring and Management Plan was prepared specifically to meet the Motion's requirements, which is explained on pages 3 through 6 of the RFMND. The plan specifies the vibration levels of construction equipment to be used at the project site, setting a maximum level of construction vibration and protocols should the vibration from equipment used exceed 2.0 in/sec. The plan also includes information on how construction equipment would be stored at the Project Site; delineates clear roles and responsibilities for the Planning Department, Department of Building inspection, and PG&E; and provides safety protocols and communication information between PG&E and the Project's contractors in the event of an emergency.

Furthermore, the Planning Department oversaw an independent review of the Vibration Monitoring and Management Plan by a highly qualified engineer in direct response to concerns raised by Appellants at a meeting conducted in May 2019 with Appellants, the Project Sponsor, the Planning Department, and Supervisor Ronen's staff. The Planning Department selected and retained the services of an independent peer reviewer according to strict protocols in order to ensure objectivity in the preparation of the environmental review documents, which is part of the Project's administrative record. The independent peer reviewer determined that the Vibration Monitoring and Management Plan was technically accurate, consistent with common engineering practice, and based on conservative assumptions. As such, not only was the Vibration Monitoring and Management Plan prepared by an independent consultant under direction of the Planning

Department, it additionally underwent independent peer review supervised by the Planning Department and in response to Appellants' expressed concerns to reaffirm the technical validity of the plan.

III. The Emergency Response and Evacuation Plan Included as Part of the RFMND Meets the Motion's Requirements.

Appellants attempt to raise new issues that the Emergency Response and Evacuation Plan is inadequate despite good faith attempts by the Project Sponsors and the Planning Department to meet with the Appellants and address all lingering concerns. The Emergency Response and Evacuation Plan is site-specific and meets the Motion's requirements that it be "prepared to ensure adequate access for emergency response and the ability for a safe and timely evacuation." The Emergency Response and Evacuation Plan was reviewed and approved by the San Francisco Fire Department, the Planning Department and PG&E. The plan ensures adequate access for emergency response, which details evacuation routes and the posting of emergency routes within 300 feet of the Project Site and identifying areas where residents and workers on the Project can gather in event of an emergency. The plan also provides clear timelines of construction activities and safety initiatives prior to construction, during construction within 10 feet of PG&E Pipeline 109, and during construction outside the marked 10 feet area of PG&E Pipeline 109.

Appellants also continuously ignore the fact that Mitigation Measure M-NO-3 provides that any demolition or construction work done within 10 feet of the PG&E pipeline must be done with on-site PG&E supervision. If the vibration levels in the vicinity of the PG&E pipeline exceed 2 in/sec, then all construction will stop, and the PG&E pipeline engineer will be contacted. Gas Control will be contacted as soon as any gas leak is detected, which would provide immediate responses from first responders. PG&E would then deploy Leak Survey personnel to survey the pipeline in the immediate vicinity of the vibration in accordance with PG&E regulations. The Emergency Response and Evacuation Plan more than provides for adequate access for emergency response and the ability for a safe and timely evacuation.

* * * * *

The Project Sponsors urge the Board of Supervisors to follow San Francisco Administrative Code Section 31.16(d)(5)(A) and the Planning Department staff's recommendation and reject Appellants' appeal as outside the purview of subsequent review and a rehash of issues previously raised, considered, and rejected by the Planning Department, the Planning Commission, and the Board of Supervisors. As Appellants have utterly failed to meet their legal burden to provide substantial evidence to demonstrate that revisions to the Project described in the RFMND would cause a significant environmental impact, the Project Sponsors respectfully request that the Board of Supervisors uphold the Planning Department's adoption of the RFMND.

It is far past time to allow the Project Sponsors to build two modest homes in a City and region in the midst of a housing crisis. Thank you for your attention.

Very truly yours,

Charles R. Olson

CRO/CJL

cc: Fabien Lannoye and Anna Limkin
James Fogarty and Patricia Fogarty
Josh Pollak, Planning Department, Senior Environmental Planner
Joy Navarrete, Planning Department, Principal Environmental Planner
Lisa Gibson, Planning Department, Director of Environmental Planning
Carolyn J. Lee, Esq., Lubin Olson & Niewiadomski LLP

From:	BOS Legislation, (BOS)
To:	"Kathy Angus"; ryan@zfplaw.com; "clee@lubinolson.com"; "fabien@bluorange.com"; "jfogarty@sonic.net"; "colson@lubinolson.com"
Cc:	PEARSON, ANNE (CAT); STACY, KATE (CAT); JENSEN, KRISTEN (CAT); Hillis, Rich (CPC); Teague, Corey (CPC); Sanchez, Scott (CPC); Gibson, Lisa (CPC); Jain, Devyani (CPC); Navarrete, Joy (CPC); Lewis, Don (CPC); Varat, Adam (CPC); Sider, Dan (CPC); Starr, Aaron (CPC); Rodgers, AnMarie (CPC); Ionin, Jonas (CPC); Pollak, Josh (CPC); Rosenberg, Julie (BOA); Sullivan, Katy (BOA); Longaway, Alec (BOA); BOS-Supervisors; BOS-Legislative Aides; Calvillo, Angela (BOS); Somera, Alisa (BOS); Mchugh, Eileen (BOS); BOS Legislation, (BOS)
Subject:	HEARING NOTICE - Appeal of CEQA Revised Final Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street - Appeal Hearing August 11, 2020
Date:	Tuesday, July 28, 2020 11:24:29 AM
Attachments:	image001.png

Greetings,

The Office of the Clerk of the Board has scheduled a remote hearing for Special Order before the Board of Supervisors on **Tuesday, August 11, 2020, at 3:00 p.m.**, to hear the appeal of the CEQA Revised Final Mitigated Negative Declaration for the proposed 3516 and 3526 Folsom Street project.

Please find linked below the letter of appeal filed against the proposed 3516 and 3526 Folsom Street project, as well as a direct link to the Planning Department's Timeliness for appeal, and an information letter from the Clerk of the Board.

CEQA Appeal Letter - April 24, 2020
Planning Department Memo - July 27, 2020
Clerk of the Board Letter - July 27, 2020

Please find the following link to the hearing notice for these matters.

Public Hearing Notice - July 28, 2020

I invite you to review the entire matter on our Legislative Research Center by following the links below:

Board of Supervisors File No. 200800

Best regards,

Lisa Lew
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T 415-554-7718 | F 415-554-5163
lisa.lew@sfgov.org | www.sfbos.org

(VIRTUAL APPOINTMENTS) To schedule a "virtual" meeting with me (on Microsoft Teams), please ask and I can answer your questions in real time.
Due to the current COVID-19 health emergency and the Shelter in Place Order, the Office of the Clerk of the Board is working remotely while providing complete access to the legislative process and our services.


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Disclosures: *Personal information that is provided in communications to the Board of Supervisors is subject to disclosure under the California Public Records Act and the San Francisco Sunshine Ordinance. Personal information provided will not be redacted. Members of the public are not required to provide personal identifying information when they communicate with the Board of Supervisors and its committees. All written or oral communications that members of the public submit to the Clerk's Office regarding pending legislation or hearings will be made available to all members of the public for inspection and copying. The Clerk's Office does not redact any information from these submissions. This means that personal information—including names, phone numbers, addresses and similar information that a member of the public elects to submit to the Board and its committees—may appear on the Board of Supervisors' website or in other public documents that members of the public may inspect or copy.*

BOARD of SUPERVISORS

City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102-4689
Tel. No. 554-5184
Fax No. 554-5163
TDD/TTY No. 554-5227

NOTICE OF PUBLIC HEARING

BOARD OF SUPERVISORS OF THE CITY AND COUNTY OF SAN FRANCISCO
Sent via Email and/or U.S. Postal Service

NOTICE IS HEREBY GIVEN THAT the Board of Supervisors of the City and County of San Francisco will hold a remote public hearing to consider the following appeal and said public hearing will be held as follows, at which time all interested parties may attend and be heard:

Date: **Tuesday, August 11, 2020**

Time: **3:00 p.m.**

Location: **REMOTE MEETING VIA VIDEOCONFERENCE**
Watch: www.sfgovtv.org
SF Cable Channel 26 once the meeting starts, the telephone number and Meeting ID will be displayed on the screen.
Public Comment Call-In: https://sfbos.org/remote-meeting-call

Subject: **File No. 200800.** Hearing of persons interested in or objecting to the approval of a Revised Final Mitigated Negative Declaration under the California Environmental Quality Act for the 3516 and 3526 Folsom Street Project, identified in Planning Case No. 2013.1383ENV, and issued by the Planning Department on March 25, 2020. (District 9) (Appellant: by Kathleen Angus, on behalf of the Bernal Heights South Slope Organization) (Filed April 24, 2020)

On March 17, 2020, the Board of Supervisors authorized their Board and Committee meetings to convene remotely and allow for remote public comment due to the Coronavirus - 19 pandemic. Therefore, Board of Supervisors meetings that are held through videoconferencing will allow remote public comment. Visit the SFGovTV website (www.sfgovtv.org) to stream the live meetings or watch them on demand.

DATED ~ MAILED ~ EMAILED ~ POSTED: July 28, 2020

PUBLIC COMMENT CALL-IN
WATCH: SF Cable Channel 26, once the meeting starts, and the telephone number and Meeting ID will be displayed on the screen; or
VISIT: https://sfbos.org/remote-meeting-call

Please visit the Board's website (https://sfbos.org/city-board-response-covid-19) regularly to be updated on the City's response to COVID-19 and how the legislative process may be impacted.

In accordance with Administrative Code, Section 67.7-1, persons who are unable to attend the hearing on this matter may submit written comments prior to the time the hearing begins. These comments will be made as part of the official public record in this matter and shall be brought to the attention of the Board of Supervisors. Written comments should be addressed to Angela Calvillo, Clerk of the Board, City Hall, 1 Dr. Carlton B. Goodlett Place, Room 244, San Francisco, CA, 94102 or sent via email (board.of.supervisors@sfgov.org). Information relating to this matter is available in the Office of the Clerk of the Board or the Board of Supervisors' Legislative Research Center (https://sfbos.org/legislative-research-center-lrc). Agenda information relating to this matter will be available for public review on Friday, August 7, 2020.

For any questions about this hearing, please contact one of the Legislative Clerks:

Lisa Lew (lisa.lew@sfgov.org ~ (415) 554-7718)
Jocelyn Wong (jocelyn.wong@sfgov.org ~ (415) 554-7702)

Please Note: *The Department is open for business, but employees are working from home. Please allow 48 hours for us to return your call or email.*

Angela Calvillo
Clerk of the Board of Supervisors
City and County of San Francisco

DATED ~ MAILED ~ EMAILED ~ POSTED: July 28, 2020

BOARD of SUPERVISORS

City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco 94102-4689
Tel. No. 554-5184
Fax No. 554-5163
TDD/TTY No. 554-5227

July 27, 2020

Kathy Angus
Bernal Heights South Slope Organization
99 Banks Street
San Francisco, CA 94110

Subject: File No. 200800- Appeal of CEQA Revised Final Mitigated Negative Declaration - 3516 and 3526 Folsom Street Project

Dear Ms. Angus:

The Office of the Clerk of the Board is in receipt of a memorandum dated July 27, 2020, from the Planning Department regarding their determination on the timely filing of appeal of the CEQA Revised Mitigated Negative Declaration for the proposed project at 3516 and 3526 Folsom Street.

The Planning Department has determined that the appeal was filed in a timely manner (copy attached).

Pursuant to Administrative Code, Section 31.16, a remote hearing date has been scheduled for **Tuesday, August 11, 2020, at 3:00 p.m.**, at the Board of Supervisors meeting.

The Planning Department has provided a list of interested parties with mailing and email contact information to individuals and organizations who will be receiving a copy of the public hearing notice. If you have additional names and addresses of interested parties to be notified of the hearing, and if there is supporting documentation you wish to include for the hearing, please email an electronic copy by Thursday, August 6, 2020, at noon to bos.legislation@sfgov.org. Any materials received after this date, will still be distributed to all parties and be included as part of the official file.

If you have any questions, please feel free to contact Legislative Clerks Lisa Lew at (415) 554-7718, Jocelyn Wong at (415) 554-7702, or Brent Jalipa at (415) 554 7712.

Very truly yours,

Angela Calvillo
Clerk of the Board of Supervisors
City and County of San Francisco

c: Anne Pearson, Deputy City Attorney
Kate Stacy, Deputy City Attorney
Kristen Jensen, Deputy City Attorney
Corey Teague, Zoning Administrator, Planning Department
Scott Sanchez, Acting Deputy Zoning Administrator, Planning Department
Lisa Gibson, Environmental Review Officer, Planning Department
Devyani Jain, Deputy Environmental Review Officer, Planning Department
Joy Navarette, Environmental Planning, Planning Department
Don Lewis, Environmental Planning, Planning Department
Adam Varat, Acting Director of Citywide Planning, Planning Department
Dan Sider, Director of Executive Programs, Planning Department
Aaron Starr, Manager of Legislative Affairs, Planning Department
AnMarie Rodgers, Legislative Affairs, Planning Department
Jonas Ionin, Planning Commission Secretary, Planning Department
Matthew Dito, Staff Contact, Planning Department
Julie Rosenberg, Executive Director, Board of Appeals
Katy Sullivan, Legal Assistant, Board of Appeals
Alec Longaway, Legal Process Clerk, Board of Appeals

BOARD of SUPERVISORS

City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco 94102-4689
Tel. No. 554-5184
Fax No. 554-5163
TDD/TTY No. 554-5227

PROOF OF MAILING

Legislative File No. 200800

Description of Items: Hearing - Appeal of Determination of Exemption From Environmental Review - Appeal of CEQA Revised Final Mitigated Negative Declaration - 3516 and 3526 Folsom Street - 11 Notices Mailed

I, Jocelyn Wong , an employee of the City and County of San Francisco, mailed the above described document(s) by depositing the sealed items with the United States Postal Service (USPS) with the postage fully prepaid as follows:

Date: July 28, 2020

Time: 3:30 p.m.

USPS Location: Repro Pick-up Box in the Clerk of the Board's Office (Rm 244)

Mailbox/Mailslot Pick-Up Times (if applicable): N/A

Signature: 

Instructions: Upon completion, original must be filed in the above referenced file.

From:	BOS Legislation, (BOS)
To:	Ko, Yvonne (CPC); Yeung, Tony (CPC)
Cc:	BOS-Operations; BOS Legislation, (BOS)
Subject:	CHECK PICKUP: Appeal of CEQA Revised Final Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street - Appeal Hearing August 11, 2020
Date:	Tuesday, July 28, 2020 2:32:04 PM
Attachments:	image001.png 200800 Fee Waiver.pdf

Hi Yvonne,

The check for appeal filing fee for the CEQA Revised Final Mitigated Negative Declaration appeal of the proposed project at 3516 and 3526 Folsom Street is ready to be picked up here in the Clerk's Office. Please coordinate with our BOS-Operations team copied here to set up a date and time for pickup. Please be advised a fee waiver was filed for this appeal as attached.

Operations,
This check should be in the pick-up drawer in an envelope marked "Planning Department". Kindly have Planning sign the attached appeal check pickup form, and confirm by scanning back the signed form.

Thank you all.

Lisa Lew
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T 415-554-7718 | F 415-554-5163
lisa.lew@sfgov.org | www.sfbos.org

From: BOS Legislation, (BOS) <bos.legislation@sfgov.org>
Sent: Tuesday, July 28, 2020 11:24 AM
To: 'Kathy Angus' <kathyangus@comcast.net>; ryan@zfplaw.com; 'clee@lubinolson.com' <clee@lubinolson.com>; 'fabien@bluorange.com' <fabien@bluorange.com>; 'jfogarty@sonic.net'

<jfogarty@sonic.net>; 'colson@lubinolson.com' <colson@lubinolson.com>
Cc: PEARSON, ANNE (CAT) <Anne.Pearson@sfcityatty.org>; STACY, KATE (CAT) <Kate.Stacy@sfcityatty.org>; JENSEN, KRISTEN (CAT) <Kristen.Jensen@sfcityatty.org>; Hillis, Rich (CPC) <rich.hillis@sfgov.org>; Teague, Corey (CPC) <corey.teague@sfgov.org>; Sanchez, Scott (CPC) <scott.sanchez@sfgov.org>; Gibson, Lisa (CPC) <lisa.gibson@sfgov.org>; Jain, Devyani (CPC) <devyani.jain@sfgov.org>; Navarrete, Joy (CPC) <joy.navarrete@sfgov.org>; Lewis, Don (CPC) <don.lewis@sfgov.org>; Varat, Adam (CPC) <adam.varat@sfgov.org>; Sider, Dan (CPC) <dan.sider@sfgov.org>; Starr, Aaron (CPC) <aaron.starr@sfgov.org>; Rodgers, AnMarie (CPC) <anmarie.rodgers@sfgov.org>; Ionin, Jonas (CPC) <jonas.ionin@sfgov.org>; Pollak, Josh (CPC) <josh.pollak@sfgov.org>; Rosenberg, Julie (BOA) <julie.rosenberg@sfgov.org>; Sullivan, Katy (BOA) <katy.sullivan@sfgov.org>; Longaway, Alec (BOA) <alec.longaway@sfgov.org>; BOS-Supervisors <bos-supervisors@sfgov.org>; BOS-Legislative Aides <bos-legislative_aides@sfgov.org>; Calvillo, Angela (BOS) <angela.calvillo@sfgov.org>; Somera, Alisa (BOS) <alisa.somera@sfgov.org>; Mchugh, Eileen (BOS) <eileen.e.mchugh@sfgov.org>; BOS Legislation, (BOS) <bos.legislation@sfgov.org>
Subject: HEARING NOTICE - Appeal of CEQA Revised Final Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street - Appeal Hearing August 11, 2020

Greetings,

The Office of the Clerk of the Board has scheduled a remote hearing for Special Order before the Board of Supervisors on **Tuesday, August 11, 2020, at 3:00 p.m**., to hear the appeal of the CEQA Revised Final Mitigated Negative Declaration for the proposed 3516 and 3526 Folsom Street project.

Please find linked below the letter of appeal filed against the proposed 3516 and 3526 Folsom Street project, as well as a direct link to the Planning Department's Timeliness for appeal, and an information letter from the Clerk of the Board.

CEQA Appeal Letter - April 24, 2020
Planning Department Memo - July 27, 2020
Clerk of the Board Letter - July 27, 2020

Please find the following link to the hearing notice for these matters.

Public Hearing Notice - July 28, 2020

I invite you to review the entire matter on our Legislative Research Center by following the links below:

Board of Supervisors File No. 200800

Best regards,

Lisa Lew
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102

T 415-554-7718 | F 415-554-5163
lisa.lew@sfgov.org | www.sfbos.org

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Due to the current COVID-19 health emergency and the Shelter in Place Order, the Office of the Clerk of the Board is working remotely while providing complete access to the legislative process and our services.

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City Hall
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco 94102-4689
Tel. No. 554-5184
Fax No. 554-5163
TDD/TTY No. 554-5227

July 28, 2020

File Nos. 200804
Planning Case No. 2018-007883ENV

Received from the Board of Supervisors Clerk's Office one check, in the amount of Six Hundred Forty Dollars ($640), representing the filing fee paid by Kathleen Angus for the appeal of the Revised Final Mitigated Negative Declaration under CEQA for the proposed 3516 and 3526 Folsom Street project:

Planning Department
By:

Tony Yeung
Print Name

7/30/20
Signature and Date

San Francisco Planning

1650 MISSION STREET, SUITE 400
SAN FRANCISCO, CA 94103
SFPLANNING.ORG / 415.575.9010

Final Mitigated Negative Declaration Appeal Timeliness Determination

DATE: **July 27, 2020**

TO: **Angela Calvillo, Clerk of the Board of Supervisors**

FROM: **Lisa Gibson, Environmental Review Officer**

RE: **Appeal Timeliness Determination – 3516-3526 Folsom Street Revised Final Mitigated Negative Declaration; Planning Department Case No. 2013.1383ENV**

On Friday, April 24, 2020, Kathy Angus (Appellant), filed an appeal with the Office of the Clerk of the Board of Supervisors of the Revised Final Mitigated Negative Declaration (RFMND) for the proposed project at 3516-3526 Folsom Street. As explained below, the appeal is timely.

Date of Publication of RFMND	30 Days after Publication of RFMND	Appeal Deadline (Must Be Day Clerk of Board's Office Is Open)	Date of Appeal Filing	Timely?
March 25, 2020	Friday, April 24, 2020	Friday, April 24, 2020	Friday, April 24, 2020	Yes

Publication of Revised FMND: On March 25, 2020, the Planning Department issued the RFMND.

Appeal Deadline: San Francisco Administrative Code Chapter 31, Section 31.16(d)(5)(A) provides that, in the event an organization or individual wishes to appeal a RFMND, such appeal shall be made directly to the Board of Supervisors within 30 days of publication of the RFMND. The publication of the RFMND occurred on Wednesday, March 25, 2020 and the 30th day after the publication is Friday, April 24, 2020 (appeal deadline).

Appeal Filing and Timeliness: The Appellant filed the appeal of the RFMND on Friday, April 24, 2020, on the day of the appeal deadline on Friday, April 24, 2020. Therefore, the appeal is timely.

From:	BOS Legislation, (BOS)
To:	Hillis, Rich (CPC)
Cc:	PEARSON, ANNE (CAT); STACY, KATE (CAT); JENSEN, KRISTEN (CAT); Teague, Corey (CPC); Sanchez, Scott (CPC); Gibson, Lisa (CPC); Jain, Devyani (CPC); Navarrete, Joy (CPC); Lewis, Don (CPC); Varat, Adam (CPC); Sider, Dan (CPC); Starr, Aaron (CPC); Rodgers, AnMarie (CPC); Ionin, Jonas (CPC); Pollak, Josh (CPC); Rosenberg, Julie (BOA); Sullivan, Katy (BOA); Longaway, Alec (BOA); BOS-Supervisors; BOS-Legislative Aides; Calvillo, Angela (BOS); Somera, Alisa (BOS); Mchugh, Eileen (BOS); BOS Legislation, (BOS)
Subject:	Appeal of CEQA Mitigated Negative Declaration - Proposed Project - 3516 and 3526 Folsom Street
Date:	Friday, July 24, 2020 5:43:44 PM
Attachments:	Appeal Ltr 042420.pdf image001.png COB Ltr 072420.pdf

Dear Director Hillis,

The Office of the Clerk of the Board is in receipt of an appeal of the CEQA Mitigated Negative Declaration for the proposed project at 3516 and 3526 Folsom Street. The appeal was filed by Kathleen Angus, on behalf of the Bernal Heights South Slope Organization.

Please find the attached letter of appeal and timely filing determination request letter from the Clerk of the Board. Kindly review for timely filing determination. It would be greatly appreciated if we could receive the determination as soon as possible. If the appeal is timely, we are looking to send out public hearing notices by July 28, 2020. Thank you.

Regards,

Jocelyn Wong
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T: 415.554.7702 | F: 415.554.5163
jocelyn.wong@sfgov.org | www.sfbos.org

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July 24, 2020

To: Rich Hillis
Planning Director

From: Angela Calvillo
Clerk of the Board of Supervisors

Subject: Appeal of California Environmental Quality Act (CEQA) Issuance of Revised Final Mitigated Negative Declaration - 3516 and 3526 Folsom Street Project

An appeal of the CEQA Revised Final Mitigated Negative Declaration for the proposed 3516 and 3526 Folsom Street project, was filed with the Office of the Clerk of the Board on April 24, 2020, by Kathleen Angus, on behalf of the Bernal Heights South Slope Organization.

Pursuant to Administrative Code, Chapter 31.16, I am forwarding this appeal, with attached documents, to the Planning Department to determine if the appeal has been filed in a timely manner. The Planning Department's determination should be made within three (3) working days of receipt of this request.

If you have any questions, please feel free to contact Legislative Clerks Lisa Lew at (415) 554-7718, Jocelyn Wong at (415) 554-7702, or Brent Jalipa at (415) 554-7712.

c: Anne Pearson, Deputy City Attorney
Kate Stacy, Deputy City Attorney
Kristen Jensen, Deputy City Attorney
Corey Teague, Zoning Administrator, Planning Department
Scott Sanchez, Acting Deputy Zoning Administrator, Planning Department
Lisa Gibson, Environmental Review Officer, Planning Department
Devyani Jain, Deputy Environmental Review Officer, Planning Department
Joy Navarette, Environmental Planning, Planning Department
Don Lewis, Environmental Planning, Planning Department
Adam Varat, Acting Director of Citywide Planning, Planning Department
Dan Sider, Director of Executive Programs, Planning Department
Aaron Starr, Manager of Legislative Affairs, Planning Department
AnMarie Rodgers, Legislative Affairs, Planning Department
Jonas Ionin, Planning Commission Secretary, Planning Department
Josh Pollak, Staff Contact, Planning Department
Julie Rosenberg, Executive Director, Board of Appeals
Katy Sullivan, Legal Assistant, Board of Appeals
Alec Longaway, Legal Process Clerk, Board of Appeals

From:	BOS Legislation, (BOS)
To:	Kathy Angus; BOS Legislation, (BOS); Ronen, Hillary; Gibson, Lisa (CPC); Beinart, Amy (BOS)
Cc:	Marilyn Waterman; Barbara Underberg
Subject:	RE: PLEASE RESPOND: Appeal for 3516 and 3526 Folsom Street Revised Final Mitigated Negative Declaration
Date:	Thursday, May 7, 2020 8:38:36 AM

Good morning Ms. Angus,

I am writing to confirm receipt of the appeal for CEQA Revised Final Negative Declaration for the proposed project at 3516 and 3526 Folsom Street, received on April 24, 2020.

In an emergency order dated March 11, 2020, Mayor London N. Breed suspended all local deadlines imposed on policy bodies to the extent that the policy body cannot meet and comply with the deadline due to the public health emergency. Because the Board of Supervisors cannot currently meet to hold hearings on appeals in a way that ensures access by all interested parties, local deadlines for scheduling and acting on such appeals have been suspended by the mayoral order. Upon expiration of the health emergency order, our office will provide appellants with updates regarding the statuses of their appeals.

Additionally, we wanted to make you aware that emails that you have sent to bos.legislation@sfgov.org from your Comcast account through another email address (Comcast through Gmail) is causing your messages to go through our junk box. Email security thinks it is spam email because it assumes your Comcast mailbox is being spoofed to send emails under a different account.

Please do not hesitate to contact us if there are any questions. Thank you.

Best regards,
Jocelyn Wong
San Francisco Board of Supervisors
1 Dr. Carlton B. Goodlett Place, Room 244
San Francisco, CA 94102
T: 415.554.7702 | F: 415.554.5163
jocelyn.wong@sfgov.org | www.sfbos.org

From: Kathy Angus <kathyangus@comcast.net>
Sent: Wednesday, May 6, 2020 10:00 AM
To: BOS Legislation, (BOS) <bos.legislation@sfgov.org>; Ronen, Hillary <hillary.ronen@sfgov.org>; Gibson, Lisa (CPC) <lisa.gibson@sfgov.org>; Beinart, Amy (BOS) <amy.beinart@sfgov.org>
Cc: Marilyn Waterman <yaviene@yahoo.com>; Barbara Underberg <bjunderberg@yahoo.com>
Subject: PLEASE RESPOND: Appeal for 3516 and 3526 Folsom Street Revised Final Mitigated Negative Declaration

Dear Board of Supervisors,
On Friday, April 24, I emailed an appeal (in 2 emails) for the RFMND recently issued for the 3516 and 3526 Folsom Street proposed construction over and near a PG&E Gas Transmission Line. I sent the check the same day.

We have not yet received any confirmation of receipt of the Appeal from any office or individual, and we are concerned it has not been registered.

Please send a confirmation that the Appeal has been received and legally registered. We know the dates for hearings are still on hold, but we need to know that the document is in your hands and will be acted on when a procedure has been established for hearing this appeal.

Thank you for your hard work during the pandemic. I know you are handling many emergencies and new procedures, but we appreciate your immediate attention to this request.

Stay healthy,

Kathy Angus, Co-Chair
Bernal Heights South Slope Organization
(415) 640-4568

--
Kathy Angus

Print Form

Introduction Form

By a Member of the Board of Supervisors or Mayor

Time stamp
or meeting date

I hereby submit the following item for introduction (select only one):

- ☐ 1. For reference to Committee. (An Ordinance, Resolution, Motion or Charter Amendment).
- ☐ 2. Request for next printed agenda Without Reference to Committee.
- ☑ 3. Request for hearing on a subject matter at Committee.
- ☐ 4. Request for letter beginning :"Supervisor _____ inquiries"
- ☐ 5. City Attorney Request.
- ☐ 6. Call File No. _____ from Committee.
- ☐ 7. Budget Analyst request (attached written motion).
- ☐ 8. Substitute Legislation File No. _____
- ☐ 9. Reactivate File No. _____
- ☐ 10. Topic submitted for Mayoral Appearance before the BOS on _____

Please check the appropriate boxes. The proposed legislation should be forwarded to the following:

☐ Small Business Commission ☐ Youth Commission ☐ Ethics Commission

☐ Planning Commission ☐ Building Inspection Commission

Note: For the Imperative Agenda (a resolution not on the printed agenda), use the Imperative Form.

Sponsor(s):

Clerk of the Board

Subject:

Hearing - Appeal of Revised Final Mitigated Negative Declaration - Proposed 3516 and 3526 Folsom Street Project

The text is listed:

Hearing of persons interested in or objecting to the approval of a Revised Final Mitigated Negative Declaration under the California Environmental Quality Act for the 3516 and 3526 Folsom Street Project, identified in Planning Case No. 2013.1383ENV, and issued by the Planning Department on March 25, 2020. (District 9) (Appellant: by Kathleen Angus, on behalf of the Bernal Heights South Slope Organization) (Filed April 24, 2020)

Signature of Sponsoring Supervisor: _____

For Clerk's Use Only