APPENDIX D-4
GROUNDWATER SEEPAGE MEMO
RE: REPLY TO REQUEST FOR INFORMATION
Ground Water Affecting New Construction In
Southwestern Part of Serramonte Center
Daly City, California

Dear Mr. Lam:

Pursuant to your request, this letter has been prepared as a reply to an August 2, 2016 email request for information from Michael Van Lonkhuysen, with the City of Daly City, inspired by issues occurring, or have occurred, with ground water intrusion into excavations associated with new building construction in the southwestern part of Serramonte Shopping Center (see attached Google Earth image). Review of topographic and historic aerial photography in the project file indicates the southwestern part of the shopping center, developed in the 1960’s, occupies a former gullied lowland on the southwest flank of a large landslide reclaimed for development of the parking lot; and thereby represents a considerably different hydrologic environment in comparison to the hillside landscape characterizing the site.

As noted in the geotechnical report groundwater was encountered at depths which varied considerably across the site. In addition, it is recognized from site mapping surface runoff is contributed not only from direct rainfall infiltration on the site, but also from uncontrolled drainage on the adjacent property above the site. Ultimately, the project will develop a comprehensive drainage plan to account for these conditions. Specifics will largely depend on the final excavation and excavation support system as well as the final basement excavation depths. But, in general, engineered sub-surface and surface water collection and discharge facilities integral to project design should reduce the current to an acceptable level as a result of:

1. Proposed cut slopes would be benched and constructed with concrete-lined surface ditches, perhaps coupled with a subdrain to collect and convey water in solid piping to the storm drain system.

2. Similarly, Engineered drainage measures to capture in strategically located basins and redirect in solid pipes runoff during rainfall from...
building roofs and hardscape surfaces (pavements, sidewalks, etc.)
to the storm drain system. We expect this measure will effect a
considerable reduction of available water that otherwise would
infiltrate the surface soils to recharge near-surface seepage
downhill of the site.

3. Both temporary and permanent retained excavations would have
engineered backdrainage systems to intercept redirect ground
water in solid pipes to the storm drain system.

While the basement design is currently in the planning, it is conceivable retaining
wall backdrainage, and anticipate slab underdrainage will require collection in a
sump structure for pumping to the storm drain system. The final design depth of
basements will ultimately dictate the ground water control scheme. Alternatively,
depending on the depths of excavation and foundation system, basement
retaining walls and floors could be designed as a “water tight” system to resist
lateral and uplift from water pressure, thereby effectively leaving the current
ground water regime unchanged.

The boring data indicates ground occurs approximately 40 feet below the current
ground surface along the proposed building alignment. But, it to important to
acknowledge that prediction of location and flow volume is extremely complex in
this geologic environment, and estimation of the same will be approximate. It is
influenced by seasonal variations due to rainfall, subtle changes in composition
of the soil/rock profile (e.g., silt and clay vs. sand and gravel), and extent,
intensity and orientation of discontinuities (e.g., fractures, faults, bedding) often
controlling ground water movement.

We anticipate the final civil plans will be developed to serve the site’s drainage
needs; and if warranted, it may be necessary to enlist the services of a specialty
dewatering contractor.
We trust that this provides you with the information you require at this time. Please contact our office if you have any questions or require additional information.

Very truly yours,

Earth Investigations Consultants, Inc.

Joel E. Baldwin, II
Engineering Geologist 1132

JEB:DWB:jb:gi
Distribution: efile to addressee and Albert Costa, AIA
Attachment: Google Earth Image (4/5/16)