



Geotechnical Engineering  
Coastal Engineering  
Maritime Engineering

Project No. 2945  
August 10, 2020  
**Revised:** August 13, 2020

**PSOMAS**  
3111 Camino Del Rio North, Suite 702  
San Diego, California 92108

Attention: Mr. Javier Saunders

**ADDENDUM**  
**GEOTECHNICAL INVESTIGATION**  
**SEWER LINE REPLACEMENT**  
**TECOLOTE CANYON TRUNK SEWER**  
**SAN DIEGO, CALIFORNIA**

Gentlemen:

In accordance with your request, TerraCosta Consulting Group, Inc. is pleased to provide this addendum to our Geotechnical Investigation report dated February 7, 2019.

As we understand, subsequent to submittal of our February 7, 2019, report, the City of San Diego requested additional input and comment concerning the following two items:

1. “The project’s geotechnical consultant should comment regarding the limits of construction that may impact environmental resources on the site.”
2. “The project’s geotechnical consultant should provide a conclusion regarding if the proposed development will destabilize or result in settlement of adjacent property or the public right of way.”

In response to the City’s request, we provide the following discussions and conclusions.

**DISCUSSIONS AND CONCLUSIONS**

***Potential Impacts of Construction on Environmental Resources***

From a geotechnical perspective, impacts associated with limits of construction on environmental resources pertain to the possible disturbance of an environmental resource. Therefore, the limits of construction should not extend into any environmental resources.

In addition, the limits of construction adjacent to environmental resources need to be such that protect the resource, which can be attained by further limiting the nearness of the activity, and by maintaining the stability of the area containing the resource due to construction activities near the resource.

That said, it is our opinion that based on our review of the project plans, the identified limits of work shown on the plans should be sufficient for the geotechnical elements of the work, such as excavations for trenches and grading. However, we are also of the opinion that the contractor should make their own assessment pertaining to the limits of work and should submit plans for their operations demonstrating how environmental resources are to be protected.

### ***Potential Impacts to Adjacent Properties and Public Right-of-Ways***

The Tecolote Canyon Trunk Sewer Improvements project consists of replacing and remediating portions of the sewer main. These improvements consist of the rehabilitation and replacement of portions of the trunk sewer. In those segments that are to be replaced, the new construction will be performed by either cut-and-cover or trenchless construction methods. We understand that cut-and-cover will be utilized in areas that will not impact environmentally sensitive areas. Where there exist impacts to the environment, or in areas where cut-and-cover is not feasible, we understand that trenchless methods will be used.

In the areas of cut-and-cover, construction will be within City easements or public right-of-ways and, as such, are limited in their distance to adjacent properties. Settlements associated with cut-and-cover methods are anticipated to consist of possible long-term settlement of trench backfill areas and in areas near trench excavations that would be impacted by ground settlements resulting from trench excavations. Shoring is anticipated to be used to maintain trench stability, as well as to limit ground settlement adjacent to the excavations. The zones of potential influence of settlement are generally limited to a horizontal distance equal to twice the depth of the excavation, as well as the width of the excavation itself. Shoring designs are intended to limit ground settlement and to protect adjacent properties.

As for trenchless methods, the destabilization of adjacent properties and public right-of-ways is generally contained within a projected cone of disturbance from the top of the



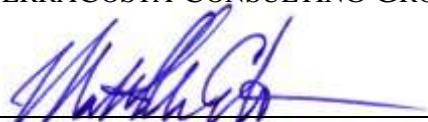
proposed sewer to the ground surface. This propagation tends to expand over a distance equal to twice the depth on either side of the centerline of the sewer. Assuming no collapse of the tunneled sewer excavation, the magnitudes of ground settlements are greatest over the centerline of the sewer and are related to the difference in excavated volume compared to the volume of the sewer pipe. As such, the type and method of construction, along with soils being excavated, will dictate the amount of ground settlement. As for the destabilization of adjacent properties and the public-right-of-ways, the stability of the tunneled excavation will have direct bearing on the potential for destabilization of ground. As such, the tunneling operation will need to be designed to preclude the collapse of the tunnel and to mitigate soil loss during excavation.

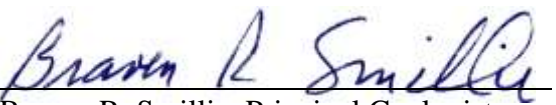
Given the above discussion, it is our opinion that, if the contractor's operations are properly planned to limit impacts to adjacent properties, the result can be limited or negligible destabilization and ground settlement. However, because construction workmanship on any given project can vary greatly, and because there is always the possibility that unknown or anticipated subsurface soil conditions may be encountered along the project alignment, we believe it is imperative that continuous geotechnical construction monitoring be a key element in limiting construction-induced ground movements on this project.

## CLOSURE

We appreciate the opportunity to be of service and trust this information meets your needs. If you have any questions, please give us a call.

Very truly yours,  
TERRACOSTA CONSULTING GROUP, INC.

  
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