February 8, 2018

Charlene Yarnell
Principal
PJHM Architects, Inc.
647 Camino De Los Mares, #201
San Clemente, CA 92673-2807

Subject: Proposal to Prepare Pipeline Safety Hazard Assessment for Tracy Hills Elementary School

Dear Ms. Yarnell:

Thank you for the opportunity to submit this proposal to prepare a Pipeline Safety Hazard Assessment (PSHA) for the Tracy Hills Elementary School. This proposal outlines our understanding of the project, our scope of work and fee estimate.

Understanding of the Project

Jefferson School District is proposing develop a new elementary school located within the Tracy Hills Specific Plan area. The proposed school site is located north of Interstate 580, west of Corral Hollow Road and immediately south of the California Aqueduct. The site consists of one 14.0-acre parcel, and one 3.5-acre parcel, which is indicated as an interim school site. The Aqueduct is 100 feet northeast of the site. The 16-inch diameter Conoco Phillips 66 Pipeline LLC pipeline is approximately 700 feet from the southern edge of the site and the 20-inch diameter Shell Oil Company pipeline is approximately 2,250 feet from the southern edge of the site.

There are many relevant environmental studies concern this school site and surrounding area. Most important are the pipeline safety study prepared in 2007 and the most recent Specific Plan and EIR, as approved by the City of Tracy. These include the following:

- Wilson Geosciences, Inc., 2013. *Liquid Petroleum Pipeline Risk and California Aqueduct Flood Risk for the Proposed Tracy Hills School Site, Jefferson School District, City of Tracy, San Joaquin County, California, Summary Report: Analysis of 2007 California Department of Education Protocol Parameters*
- City of Tracy. 2016. *Tracy Hills Specific Plan*
- City of Tracy. 2016. *Tracy Hills Specific Plan Final Subsequent Environmental Impact Report*

Scope of Work

The scope of work for the PSHA includes the characterization of all hazardous liquid pipelines and high-volume water pipelines or aqueducts located within a 1,500-foot radius of the school site, and the determination of actual or potential endangerment to the health and safety of persons who may attend and/or work at the school. Pipeline information included in the 2013 Wilson Geosciences, Inc. pipeline risk study will be verified and updated. A Stage 2 analysis will be conducted for the 16-inch Conoco Phillips 66 pipeline, as per the CDE protocol (2007). There is no other high pressure natural gas or hazardous liquid pipelines within 1,500 feet of the site.

In addition to the California Aqueduct, local water purveyors will be contacted to determine if there are any large-volume water pipelines within 1,500 feet of the school site. All large-volume (≥12-inches in diameter) water pipelines within the 1,500-foot radius will be evaluated to determine the potential for flooding at the school site.

The analysis will consist of the following tasks:

Determine Pipeline Characteristics. The following companies will be contacted to confirm the previously obtained information regarding the pipelines is still valid:

» Conoco Phillips 66 – map and operating characteristics of the petroleum pipeline
» California Department of Water Resources (CDWR) – map and operating characteristics for California Aqueduct
» Local water purveyor - operating pressure, flow rate, and pipeline maps for water pipelines

Determine Land Use and Local Terrain Data. Adjacent land uses, terrain, structures, street grade, storm drains, and utility easements will be identified, with emphasis on the following:

» Structural features, such as retaining walls, buildings, open storm drains, etc. that could block a jet flame or channel liquid flow
» Topography and elevation profiles to determine flow directions for water pipelines
» Potential combustion sources, both stationary and mobile, between the pipeline and the school site, such as motor vehicles, residential home water heaters, commercial/industrial facilities with external combustion sources (i.e., boilers).

Conduct Consequence Analysis. Given a release from the petroleum pipeline, the following hazards are considered:

» Pool fire
» Flammable vapor cloud
» Unconfined vapor cloud explosion (UVCE), which results in a blast overpressure wave.

The discharge rates and durations for both pipeline ruptures and leaks will be determined. Two types of release scenarios will be assumed: 1) a complete line break along the pipeline route that would occur 20% of the time, and 2) a leak through a one-inch hole that would occur 80% of the time. The distance at which no adverse impact is expected to occur to human health will be determined, which is defined as follows:

» Distance to direct contact with a pool fire
» Distance to a radiant heat level of 5,000 BTU/hr-ft2)
» Distance to a flammable vapor cloud's lower flammability limit (LFL)
» Distance to a 2.5 psig overpressure level for the UVCE.

Estimate Potential Risk. Based on the results, the probability of a hazard footprint reaching the school will be calculated, as well as the fatality risk to students or staff attending the school. If the calculated fatality risk is less than one in a million (i.e., 1 x 10-6), the risk is not considered significant and no further risk analysis is required. If the calculated risk is greater than one in a million, potential mitigation measures will be evaluated. In addition, population risk estimates will be calculated, as per the latest CDE protocol.

Estimate Potential Flooding. The potential for flooding associated with releases from the large diameter water pipeline will be evaluated in accordance with CDE guidelines. Although no specific criteria have been established by CDE as a threshold of significance for flooding at a school site, a water depth of 12 inches or greater is a trigger that warrants further evaluation.

The results of modeling efforts will be documented in a draft report that is signed and stamped by a California Registered Engineer.

Proposed Schedule

Once authorization to proceed is obtained, it typically takes three to four weeks to complete the draft reports. We will work to expedite the process, but it is dependent on receiving information from the pipeline agencies in a timely manner. After receiving comments on the draft report from the Jefferson School District, it will take approximately one week to prepare a final report incorporating any changes or comments.

Cost Estimate

Table 1 presents our cost estimate to prepare the Pipeline Safety Hazard Assessment based on our understanding of the project and the CDE's study protocol.

Task 1 – Pipeline Safety Hazard Assessment

TASK ELEMENT	UNIT	UNIT COST	NO. UNITS	COST
BURDENED LABOR COST				
Principal Engineer	Hour	$230	6	$1,380
Senior Engineer	Hour	$165	22	$3,630
Project Scientist	Hour	$105	4	$420
Graphic Artist I	Hour	$90	2	$180
Clerical	Hour	$75	1	$75
LABOR COST SUBTOTAL				$5,685
OTHER DIRECT COSTS				
Office Expenses				$50
OTHER DIRECT COSTS SUBTOTAL				$50
TOTAL ESTIMATED BUDGET				$5,735

PlaceWorks – 2017 Standard Fee Schedule

STAFF LEVEL	HOURLY BILL RATE
Principal	$210-$325
Associate Principal	$190-$225
Senior Associate/Senior Scientist	$160-$200
Associate/Scientist	$120-$170
Project Planner/Project Scientist	$95-$125
Planner/Assistant Scientist	$85-$100
Graphics Specialist	$65-$135
Clerical/Word Processing	$45-$160
Intern	$65-$85

Subconsultants are billed at cost plus 10%.
Mileage reimbursement rate is the standard IRS-approved rate.

Acknowledgment

This proposal shall remain valid for a period of 90 days from the time of submittal. The attached Service Authorization, which includes our General Terms of Consulting Agreement, is a part of this proposal. If the contents of this Proposal and Agreement are satisfactory, please indicate your approval by signing the Service Authorization and sending it to our Corporate office. As Principal, I am authorized to bind PlaceWorks and the project team to the contents of this proposal.

We look forward to working with you to bring about the successful completion of this project. If you have any questions regarding the contents of this proposal, please feel free to contact the undersigned.

Respectfully submitted,

PLACEWORKS

Dwayne Mears, AICP
Principal

Steve Bush, PE
Senior Engineer