

APPENDIX C

Methane Investigation

January 8, 2019
Job # J3662

To: Sheppard Mullin
333 South Hope Street, 43rd Floor,
Los Angeles, CA – 90071-1422

Attn: Mr. Cody T. Sargent

Tel: 213-620-1780
Direct: 213-617-4246
Email: csargeant@sheppardmullin.com

Subj: Site Methane Investigation Report for a new mixed residential hotel
building to be built with 3 levels of subterranean parking, at:

1220-1246 S. Hope St. & 427-435 W. Pico Bl., Los Angeles, CA – 90015



METHANE
SPECIALISTS

621 Via Alondra
Suite 610
Camarillo, California 93012

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methanespecialists.com

Methane Specialists is pleased to submit this report with the results of our subsurface methane investigation for the project mentioned above. The purpose of the investigation was to measure subsurface soil gas concentrations and pressures of methane at the subject site to determine site-specific methane mitigation requirements prescribed by the City of Los Angeles Department of Building and Safety (Division 71 of the Los Angeles Building Code). This investigation was conducted in accordance with our proposal dated November 15, 2018.

Project Information

The Project Site is on an approximately 56,325 square-foot parcel (1.29 acre), in the City of Los Angeles. This Project proposes the construction of a new mixed residential hotel building to be built with 3 levels of subterranean parking. Refusal was met in boring down to a minimum of approximately 21 feet, below surface grade (bsg), at all three deep probesets (DP-1, DP-2 and DP-3). Similarly, actual ground water was not met while drilling down to below a depth of at least 21 feet, bsg, at all three deep probesets. A geotechnical report was not provided to us before the writing of this report. However, nearby projects report the historical groundwater to be greater than 100 feet, bsg, in this vicinity. Therefore, the historical groundwater level is taken to be approximately greater than 100 feet, bsg. This would be approximately greater than 60 feet, below where an impermeable membrane could be required to be installed under the lowest floor slab, at approximately 40 (zero) feet, bsg.

The site is within an area which the City of Los Angeles designates as a Methane Zone (Source: ZIMAS Parcel Profile Report (enclosed)).

City of Los Angeles Methane Requirements

Requirements for control of methane intrusion in the City of Los Angeles are specified in Division 71 of Article 1, Chapter IX of the Los Angeles Municipal Code (“Division 71”). Since the project is within the Methane Zone, the Los Angeles Department of Building and Safety (LADBS) has the authority to withhold permits for construction unless detailed plans for adequate protection against methane intrusion are submitted, if testing leads to methane mitigation being required.

The level of methane protection required depends upon the “design methane concentration,” which is defined in Division 71 as “the highest concentration of methane gas found during site testing.” Site testing is required to determine the design concentration, unless the developer accepts the most stringent methane mitigation requirements (“Level V”). If site testing is performed (e.g., to document that a lower level of mitigation is justified), then it must follow a protocol published by the Department of Building and Safety, “Site Testing Standards for Methane” (P/BC 2002-101, November 30, 2004).

P/BC 2002-101 prescribes a three-step process for methane evaluation:

- (1) Scheduling site testing either before or 30 days after any site grading;
- (2) Conducting shallow soil gas tests (not less than 4 feet, bsg); and
- (3) Installing and using multiple-depth gas probe sets where the highest concentrations of soil gases are expected to be found

For the first step, site testing was scheduled for January 7, and 8, 2019. Methane Specialists also notified Underground Service Alert of Southern California to mark the site for underground utilities, and the utilities were subsequently marked and cleared.

For the second step, P/BC 2002-101 requires one shallow sampling location for every 10,000 square feet, or portion thereof, of site area, with a minimum of two shallow soil gas probe locations. Since the parcel area is approximately 56,325 square feet, six (6) shallow sampling locations were required.

The third step in the City’s methane evaluation process is to collect a minimum of two samples at multiple depths, and at least one multiple-depth probeset per every 20,000 square feet, or portion thereof. Thus, the minimum of three (3) multiple-depth deep gas probe sets were also required.

Shallow Soil Gas Probe Testing

City Guidelines require that one shallow-depth probe be installed for every 10,000 square feet of site area where the highest concentration of soil gas is most likely to be found, with a minimum of two shallow gas probes, regardless of the total area of the site. Since the total square footage of the parcel is approximately 56,325 square feet, Methane Specialists installed the required minimum of six (6) shallow methane probes at a depth of 4 feet bsg (see Probe Location Map).

The six shallow gas probes (SP-1 through SP-3) were drilled and installed, starting on January 7, 2019. Methane Specialists used a direct-push drill rig to hydraulically drive a 1.50-inch rod into the ground to a depth of approximately 4 feet, bsg. A ¼” polyethylene probe was then inserted into the boreholes. Approximately six inches of sand was placed in the boreholes, above and below the probe, to provide a sampling area. Bentonite was then added to the top of each of the boreholes. A hydrated bentonite plug was then placed above the bentonite, in each borehole, to form a seal. Methane Specialists recorded all the readings. (see attached Probe Detail)

Shallow probe site testing was conducted on January 7, and 8, 2019.

Multiple-Depth Gas Probe Set Testing

City Guidelines also require that one multiple-depth deep probe set be installed for every 20,000 square feet of site area where the highest concentration of soil gas is most likely to be found, with a minimum of two multiple-depth deep gas probe sets, regardless of the total area of the site. Since the total area of the site is approximately 56,325 square feet, Methane Specialists drilled and installed the required three (3) multiple-depth deep probesets (DP-1, through DP-3), also starting on January 7, 2019.

The multiple-depth deep probes were also installed using direct-push drilling equipment in the same manner as were the shallow gas probes. The deep probes were installed as triple-well clusters, down to greater than 21 feet, bsg, for each DP-1, DP-2 and DP-3. Refusal was met at least 21 feet, bsg, of DP-1, DP-2 and DP-3. The ground water level was not encountered down to a depth greater than approximately 21 feet, bsg, at each deep probeset. In all cases, at each probe depth, approximately twelve inches of sand was placed in the borehole around each of the probes. Each sand layer, of each probe, was separated by a layer of bentonite, between the sampling elevations. A hydrated, bentonite, plug was then placed onto the top of each borehole to form a seal.

Multiple-depth probe site testing was similarly conducted on January 7, and 8, 2019.

Sampling and Analysis

For field data sampling and analysis, Methane Specialists measured these probes for methane with a RKI Eagle portable, gas-sampling meter. The lower limit for reporting methane levels with the RKI Eagle is 500 ppmv (parts per million by volume).

The RKI Eagle was calibrated against standard calibrant samples by trained Methane Specialists staff members.

The probe pressures were all measured with a Dwyer Magnehelic Differential Pressure Gauge with a minimum scale division of 0.1 inch of water (H₂O).

Results of Shallow Gas Probe and Multiple-Depth Gas Probe Analysis

The attached Form 1 shows the results of the analysis of both the shallow, and the multiple, depth deep probe sets.

Recommendations

In summary, for this project located in the Methane Zone, no detectable reading of methane was recorded while testing at this site. However, as per Table 1A (enclosed), this project falls under Design Level II, with less than 2 inches of water-column gas-pressure. In accordance with said Methane Code Table 1A, this project requires only a passive methane mitigation system.

Disclaimer

All discussion in this report is based on information provided by the client, as well as data and conditions, as they existed at the time and date of testing at the site. Should any detail, or condition, change from that original information, then, re-consideration of the conclusions in this report could become justified. Methane Specialists cannot be held accountable for the consequences of relevant information which was not previously provided. Nor can Methane Specialists be held accountable for the consequences of changes in the project scope, or of project site conditions.

This report has been prepared for the sole use of the client, exclusively, for the completion of the subject project, alone. No other application, or interpretation, of this report is to be granted, or implied, or otherwise made, without first obtaining direct, written permission, exclusively from Methane Specialists.

Respectfully,
Methane Specialists



Kirby N. Arriola, P.E. (C-31416)

INDEX OF ENCLOSURES

PARCEL PROFILE REPORT

METHANE PROBE LOCATION MAP

TYPICAL METHANE PROBE SET DETAIL

FORM 1, PART 2 – TEST DATA

TABLE 1 – MITIGATION REQUIREMENTS

FORM 1, PART 1 – CERTIFIED RESULTS



City of Los Angeles Department of City Planning

11/14/2018 PARCEL PROFILE REPORT

PROPERTY ADDRESSES

1220 S HOPE ST

ZIP CODES

90015

RECENT ACTIVITY

ZA-2018-2293-MCUP-CUX-DD-SPR

CASE NUMBERS

CPC-2017-432-CPU-CA

CPC-2010-213-CA

CPC-2008-4502-GPA

CPC-2008-4502-GPA

CPC-2005-361-CA

CPC-2005-1124-CA

CPC-2005-1122-CA

CPC-1994-225-CPU-ZC

CPC-1986-606-GPC

CPC-17168

ORD-164307-SA3030

ORD-137036

ORD-135901

ORD-129944

ORD-128690

ZA-2018-2293-MCUP-CUX-ZV-DD-SPR

VTT-82183

ENV-2018-2294-EIR

ENV-2017-433-EIR

ENV-2013-3392-CE

ENV-2010-214-ND

ENV-2008-4505-ND

ENV-2008-4505-ND

ENV-2005-362-CE

ENV-2005-1125-CE

ENV-2005-1123-CE

ENV-1998-107-MND

Address/Legal Information

PIN Number	126A207 108
Lot/Parcel Area (Calculated)	9,355.3 (sq ft)
Thomas Brothers Grid	PAGE 634 - GRID D5
Assessor Parcel No. (APN)	5139022003
Tract	TR 17683
Map Reference	M B 429-47/48
Block	None
Lot	3
Arb (Lot Cut Reference)	None
Map Sheet	126A207

Jurisdictional Information

Community Plan Area	Central City
Area Planning Commission	Central
Neighborhood Council	Downtown Los Angeles
Council District	CD 14 - José Huizar
Census Tract #	2079.00
LADBS District Office	Los Angeles Metro

Planning and Zoning Information

Special Notes	None
Zoning	[Q]R5-4D-O
Zoning Information (ZI)	ZI-2385 Greater Downtown Housing Incentive Area ZI-2452 Transit Priority Area in the City of Los Angeles ZI-2374 LOS ANGELES STATE ENTERPRISE ZONE
General Plan Land Use	High Density Residential
General Plan Note(s)	Yes
Hillside Area (Zoning Code)	No
Specific Plan Area	None
Subarea	None
Special Land Use / Zoning	None
Design Review Board	No
Historic Preservation Review	No
Historic Preservation Overlay Zone	None
Other Historic Designations	None
Other Historic Survey Information	None
Mills Act Contract	None
CDO: Community Design Overlay	None
CPIO: Community Plan Imp. Overlay	None
Subarea	None
CUGU: Clean Up-Green Up	None
NSO: Neighborhood Stabilization Overlay	No
POD: Pedestrian Oriented Districts	None
RFA: Residential Floor Area District	None
SN: Sign District	No
Streetscape	No
Adaptive Reuse Incentive Area	Adaptive Reuse Incentive Areas
Affordable Housing Linkage Fee	

Residential Market Area	Medium-High
Non-Residential Market Area	High
Transit Oriented Communities (TOC)	Tier 4
CRA - Community Redevelopment Agency	City Center Redevelopment Project
Central City Parking	Yes
Downtown Parking	Yes
Building Line	None
500 Ft School Zone	No
500 Ft Park Zone	No

Assessor Information

Assessor Parcel No. (APN)	5139022003
APN Area (Co. Public Works)*	0.215 (ac)
Use Code	3100 - Industrial - Light Manufacturing - One Story
Assessed Land Val.	\$6,055,128
Assessed Improvement Val.	\$31,212
Last Owner Change	12/30/2016
Last Sale Amount	\$20,500,205
Tax Rate Area	13264
Deed Ref No. (City Clerk)	1668306
	1437283
	1172718

Building 1

Year Built	1918
Building Class	C5A
Number of Units	0
Number of Bedrooms	0
Number of Bathrooms	0
Building Square Footage	9,300.0 (sq ft)
Building 2	No data for building 2
Building 3	No data for building 3
Building 4	No data for building 4
Building 5	No data for building 5

Additional Information

Airport Hazard	None
Coastal Zone	None
Farmland	Area Not Mapped
Urban Agriculture Incentive Zone	YES
Very High Fire Hazard Severity Zone	No
Fire District No. 1	Yes
Flood Zone	None
Watercourse	No
Hazardous Waste / Border Zone Properties	No
Methane Hazard Site	Methane Zone
High Wind Velocity Areas	No
Special Grading Area (BOE Basic Grid Map A-13372)	No
Oil Wells	None

Seismic Hazards

Active Fault Near-Source Zone	
Nearest Fault (Distance in km)	Within Fault Zone
Nearest Fault (Name)	Puente Hills Blind Thrust
Region	Los Angeles Blind Thrusts
Fault Type	B
Slip Rate (mm/year)	0.70000000
Slip Geometry	Reverse

Slip Type	Moderately / Poorly Constrained
Down Dip Width (km)	19.00000000
Rupture Top	5.00000000
Rupture Bottom	13.00000000
Dip Angle (degrees)	25.00000000
Maximum Magnitude	7.10000000
Alquist-Priolo Fault Zone	No
Landslide	No
Liquefaction	No
Preliminary Fault Rupture Study Area	No
Tsunami Inundation Zone	No

Economic Development Areas

Business Improvement District	GREATER SOUTH PARK
Opportunity Zone	No
Promise Zone	South Los Angeles Transit Empowerment Zone
Renewal Community	Los Angeles
Revitalization Zone	Central City
State Enterprise Zone	LOS ANGELES STATE ENTERPRISE ZONE
Targeted Neighborhood Initiative	None

Housing

Direct all Inquiries to	Housing+Community Investment Department
Telephone	(866) 557-7368
Website	http://hcidia.lacity.org
Rent Stabilization Ordinance (RSO)	No
Ellis Act Property	No

Public Safety

Police Information	
Bureau	Central
Division / Station	Central
Reporting District	182
Fire Information	
Bureau	Central
Batallion	1
District / Fire Station	10
Red Flag Restricted Parking	No

SEARCH NO

2016051702003001-23
 2016051702003002-23

880323-88
 20020919
 2014121602010001-23

REVISED
 720120401
 751226

TRA
 13264

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 1044-22

5139 22 SHEET

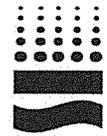
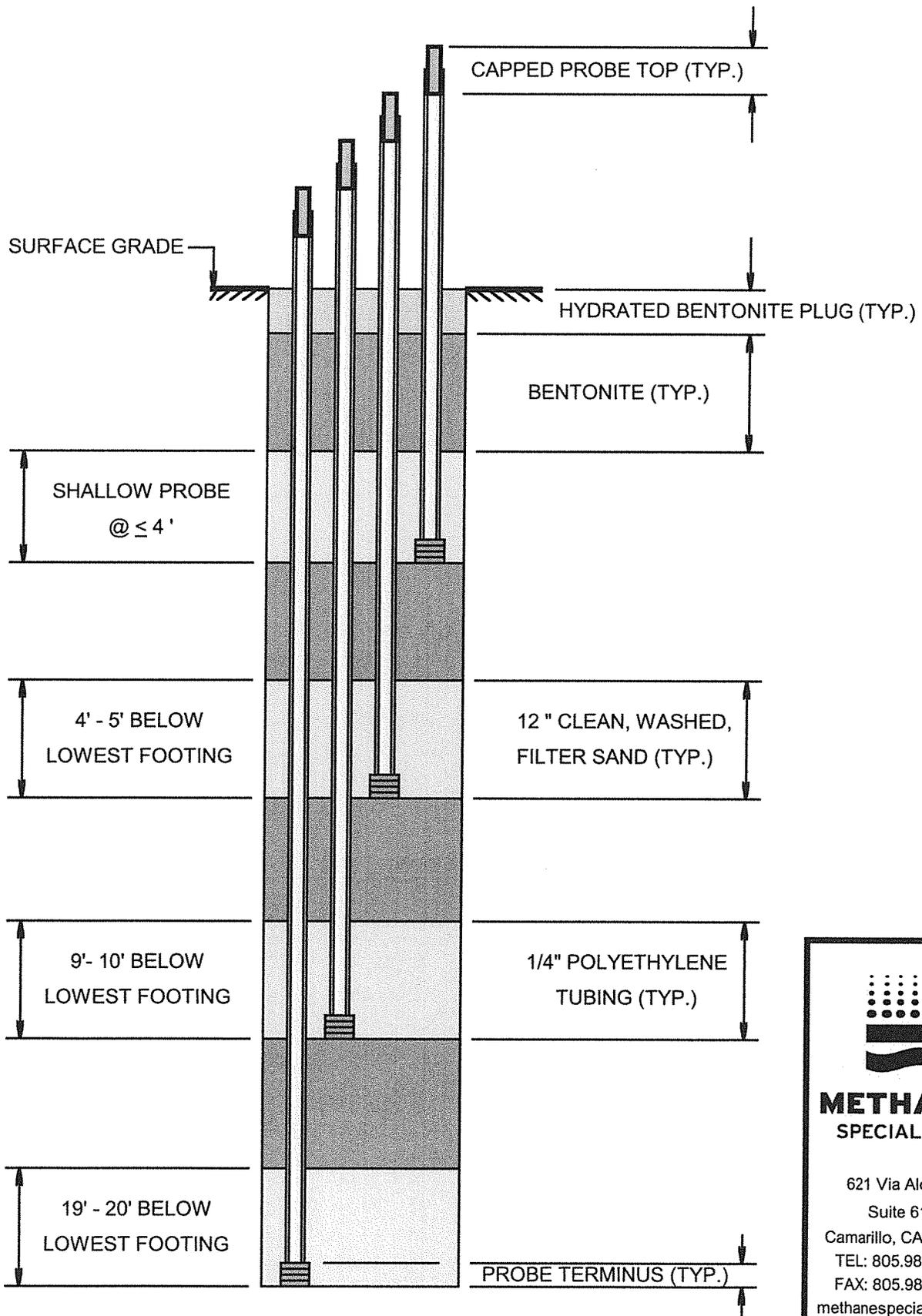
J3662: 1220-1246 S. HOPE STREET & 427-435 W. PICO BLVD., LOS ANGELES, CA - 90015



2017



MAPPING AND GIS
 SERVICES
 SCALE 1" = 80'



**METHANE
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TEMPORARY MULTI-STAGE GAS MONITORING PROBES FOR METHANE

FORM 1 (CONTINUED) - CERTIFICATE OF COMPLIANCE FOR METHANE TEST DATA

P/BC 2002-101

Part 2: Test Data - Shallow Soil Gas Test and Gas Probe Test

Site Address: 1220-1246 S. Hope St. & 427-433 W. Pico Blvd., Los Angeles, CA - 90015 Job # 3662

Description of Gas Analysis Instrument(s):

Instrument Name and Model: RKI Eagle Instrument Accuracy: 500 ppm/v.

City of Los Angeles Testing License #: 10202 Page 1 of 1

Date	Time	Probe Set #	Stabilized CH4 Concentration (ppm/v)	Pressure (inches of water-column)	Probe Depth (feet)	Descriptions / Comments: <i>no perched water was met</i> <i>- Refusal was met as noted below</i> <i>- Groundwater was not met as noted below</i>
01/07/2019	02:20	SP-1	< 500	< 0.1	4	
"	02:15	DP-1	< 500	< 0.1	5	
"	02:10	DP-1	< 500	< 0.1	10	
"	02:05	DP-1	< 500	< 0.1	21	<i>(Refusal was met, and groundwater level was not met)</i>
"	02:45	SP-2	< 500	< 0.1	4	
"	02:40	DP-2	< 500	< 0.1	5	
"	02:35	DP-2	< 500	< 0.1	10	
"	02:30	DP-2	< 500	< 0.1	26	<i>(Refusal was met, and groundwater level was not met)</i>
"	03:05	SP-3	< 500	< 0.1	4	
"	03:00	DP-3	< 500	< 0.1	5	
"	02:55	DP-3	< 500	< 0.1	10	
"	02:50	DP-3	< 500	< 0.1	24	<i>(Refusal was met, and groundwater level was not met)</i>
"	02:45	SP-4	< 500	< 0.1	4	
"	02:45	SP-5	< 500	< 0.1	4	
"	02:45	SP-6	< 500	< 0.1	4	
01/08/2019	5:15	SP-1	< 500	< 0.1	4	
"	5:10	SP-1	< 500	< 0.1	5	
"	5:05	DP-1	< 500	< 0.1	10	
"	5:00	DP-1	< 500	< 0.1	21	<i><= Maximum Stabilized CH4 Reading</i>
"	5:35	SP-2	< 500	< 0.1	4	
"	5:30	DP-2	< 500	< 0.1	5	
"	5:25	DP-2	< 500	< 0.1	10	
"	5:20	DP-2	< 500	< 0.1	26	
"	5:55	SP-3	< 500	< 0.1	4	
"	5:50	DP-3	< 500	< 0.1	5	
"	5:45	DP-3	< 500	< 0.1	10	
"	5:40	DP-3	< 500	< 0.1	24	
"	6:00	SP-4	< 500	< 0.1	4	
"	6:05	SP-5	< 500	< 0.1	4	
"	6:10	SP-6	< 500	< 0.1	4	

INSTRUMENTATION CALIBRATION RECORD:

WATER ENCOUNTERED: (Y) (N) DEPTH: (see above)

DATE: 01/07/2019 TIME: 7:30 A.M. INIT: RC REFUSAL: (Y) (N) DEPTH: (see above)

DATE: _____ TIME: _____ INIT: _____ COMMENTS: "< 500 ppmv" <=> "Non-Detect" <=> "ND"

DATE: _____ TIME: _____ INIT: _____ TESTER: Ramon Camacho

TABLE 1A - MITIGATION REQUIREMENTS FOR METHANE ZONE

SITE DESIGN LEVEL		LEVEL I		LEVEL II		LEVEL III		LEVEL IV		LEVEL V	
DESIGN METHANE CONCENTRATION (ppm/v)		0 - 100		101 - 1,000		1,001 - 5,000		5,001 - 12,500		>12,500	
DESIGN METHANE PRESSURE (inches of water column)		≤2"	>2"	≤2"		>2"		≤2"	>2"	ALL PRESSURES	
PASSIVE SYSTEM	DE-WATERING SYSTEM *		X*	X*	X*		X*	X*	X*	X*	
	SUB-SLAB VENT SYSTEM	PERFORATED HORIZONTAL PIPES	X	X	X		X	X	X	X	X
		GRAVEL BLANKET UNDER MEMBRANE	2"	2"	2"		3"	2"	3"	2"	4"
		GRAVEL THICKNESS SURROUNDING PIPES	2"	2"	2"		3"	2"	3"	2"	4"
		VENT RISERS +	X+	X+	X+		X+	X+	X+	X+	X+
	IMPERVIOUS MEMBRANE		X	X	X		X	X	X	X	X
ACTIVE SYSTEM	SUB-SLAB VENT SYSTEM	MECHANICAL EXTRACTION SYSTEM +								X+	
	LOWEST OCCUPIED SPACE SYSTEM	GAS DETECTION SYSTEM					X	X	X	X	X
		MECHANICAL VENTILATION SYSTEM			X		X	X	X	X	X
		ALARM SYSTEM			X		X	X	X	X	X
	CONTROL PANEL			X		X	X	X	X	X	X
MISC. SYSTEM	TRENCH DAM		X	X	X		X	X	X	X	
	CONDUIT OR CABLE SEAL FITTINGS		X	X	X		X	X	X	X	
	ADDITIONAL VENT RISERS +										X+

- X** ⇒ Required, as per the Methane Code of the City of Los Angeles.
- *** ⇒ De-Watering not required when the maximum historical high groundwater table elevation, or projected post-construction groundwater level, is more than twelve inches below the bottom of the perforated horizontal pipes.
- +** ⇒ Vent risers maximum spacing shall be less than, or equal to, 100 Linear Feet, measured between vent risers.

FORM 1 - CERTIFICATE OF COMPLIANCE FOR METHANE TEST DATA

P/BC 2002-101

Part 1: Certification Sheet

Site Address: 1220-1246 S. Hope St. & 427-435 W. Pico Blvd., Los Angeles, CA - 90015 Job No. 3662
 Legal Description: Tract: 17683 Lot(s): 3 through 7 Block: (un-numbered)
 Building Use: new "mixed residential hotel building" to be built with "3 levels of subterranean parking"

Name of Architect, Engineer, or Geologist: Kirby N. Arriola, P.E.	Architect's, Engineer's or Geologist's Stamp 
Mailing Address: Methane Specialists 621 Via Alondra, # 610 Camarillo, CA - 93012	
Telephone: (805) 987-5356	
Name of Testing Laboratory: Methane Specialists	
City Test Lab License #: 10202	
Telephone: (805) 987-5356	

I hereby certify that I have tested the above site for the purposes of methane mitigation and that all procedures were conducted by a City of Los Angeles licensed testing agency in conformity with the requirements of the LADBS Information Bulletin P/BC 2002-101. Where the inspection and testing of all or part of the work above is delegated, full responsibility shall be assumed by the architect, engineer or geologist whose signature is affixed hereon.

Signed: *Kirby N. Arriola* Date: 8 Jan 2019

Required Data: lowest Floor level is ~40' below surface grade (bsg) > 60' above est. **Hist. Ground Water >100', bsg**

- * Project is in the (**Methane Zone**) or (~~Methane Buffer Zone~~). (lowest depth drilled is > 21' bsg)
- * Depth of Groundwater observed during testing: > 21' below the Impervious Membrane (at > 21' below surface)
- * Depth of Historical High Ground Water Table Elevation*: > 60' below the Impervious Membrane (at > 40' bsg)
- * Design Methane Concentration**: < 500 parts per million in volume (ppm/v). (i.e.: < 1% LEL)
- * Design Methane Pressure Value***: < 2.0 inches of water column.
- * Site Design Level: (Level I, Level II, Level III, Level IV, Level V) with < 2.0 inches of water column

Dewatering:

- * Dewatering (is) (**is not**) required for methane mitigation per Section 91.7104.3.7. (subject to **Final Geotech Report**)
- * Pump discharge rate not provided cubic feet per minute per reference geology or soil report:

dated: _____

Additional Investigation:

- * Additional Investigation (was) (**was not**) conducted. (**by Methane Specialists**)

Latest Grading on Site:

- * Date of last grading on site (was) (**was not**) more than 30 days before Site Testing.

Notes:

- * Historical High Ground Water Table Elevation shall mean the highest recorded elevation of ground water based on historical records and field investigations as determined by the engineer for the methane mitigation system.
- ** Design Methane Concentration shall mean the highest recorded measured methane concentration from either Shallow Soil Gas Test or any Probe Set on the site.
- *** Design Methane Pressure shall mean the highest total pressure measured for any Gas Probe Set on the site.