

# Exhibit K

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**Hydrogeologic Consulting & Water Resource Management**  
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November 2, 2024  
Updated February 13, 2026<sup>1</sup>

City Ventures  
c/o: Pamela Nieting, PE - Vice President of Development  
444 Spear Street, Suite 200  
San Francisco, CA 94105

## **TECHNICAL MEMORANDUM:**

### **Val Verde Development – Water Demand & Supply Analysis**

#### **Executive Summary:**

Bierman Hydrogeologic (BHgl) has prepared this Technical Memorandum at the request of City Ventures which has provided information on interior and exterior water demand for the Project. BHgl has evaluated this water demand data against previous pumping test data (completed by BHgl in 2009 & 2016) on each of the Project Wells (Traver and Gamboa Well) including a comparison of each well's historical water use (per Monterey Peninsula Water Management District (MPWMD) data) to that of the project water demand.

In summary, the main and back-up supply (Traver and Gamboa Well respectively) are more than adequate to supply water to this Project without any cumulative significant adverse impacts to other well users or Sensitive Environmental Receptors (SERs)<sup>2,3</sup>.

#### **Water Demand:**

City Ventures supplied BHgl with the number / type & size of each of the proposed 74-residential units along with exterior landscaping size per their landscape architect. The data provided to BHgl was then compiled and is presented on Table 1 - Conceptual Water Demand.

BHgl Conceptual water demand uses a 7% system loss (per MCEHB<sup>4</sup>) along with a 7% treatment loss [per Pacific Advanced Civil Engineering Inc (PACE)<sup>5</sup>] Technical Memorandum regarding this project.

Based on the above information/data provided:

- The interior annual average water demand after system and treatment losses was calculated to be 13.35 afy<sup>6</sup>.
- The exterior annual average water demand after system losses was calculated to be 2.36 afy<sup>7</sup>. No treatment losses for exterior use.
- Project total Average Annual Water Demand was calculated to be 15.22 afy.

The Dry Season Demand (DSD) was calculated to be 18.10 afy whereas the Maximum Day Demand (MDD) was calculated to be 34.25 afy equivalent to a pumping rate of 21.23 gpm (pumping 24/7) or, 42.47 gpm in equivalent 12hr cycles.

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1: This Technical Memorandum was updated to include 2025 MPWMD historical water use for the subject wells – MPWMD Data attached.

2: SERs are any one of the following areas or locations: (1) the Carmel Valley Alluvial Aquifer as delineated by the State Water Resources Control Board (SWRCB) in Order 95-10 as modified by Order 98-04; (2) the five tributaries: Tularcitos, Hitchcock Canyon, Garzas, Robinson Canyon and Potrero Creeks; (3) Seaside Groundwater Basin; (4) Pacific Ocean or (5) other locations as designated by Resolution of the MPWMD Board of Directors.

3: Based on BHgl Reports and numerous Technical Memorandums from 2009 to 2018.

4: A 7% System Loss is based on data from Canada Woods and Monterra Ranch Mutual Water Systems, Monterey County, 2008 to present.

5: A 7% Treatment Loss is based on PACE Inc Technical Memorandum dated September 24, 2024. *A more detailed analysis of the treatment method and components including treatment loss calculations is needed.*

6: City Ventures supplied the Fixture Unit Count analysis for type / size / number of residential units – attached.

7: 2.36 afy is equivalent to 113,500 sq.ft of non-turf on drip irrigation and accounts for Revisions in 2010 follow State Model Water Efficient Landscape Ordinance and is adopted by MPWMD in Rule 24-A-5a & 5b, December 2010. Revisions include the addition of Outdoor Water Use Factor of 0.01 af/yr.

**Water Supply:**

Based on pumping tests completed by BHgl in 2009 (Gamboa Replacement Well) and 2016 (Travers Replacement Well) each of the wells Post-Recovery Pumping Rate (as detailed on Table 4- attached<sup>8</sup>) shows that each well has a source capacity greater than the projects Maximum Day Demand of 21.23 gpm (pumping 24/7) or 42.47 gpm (pumping in equivalent 12hr cycles). Specifically, both wells exceed the Projects MDD rates.

- The Gamboa Well has a post-recovery pumping rate of 150.48 gpm.
- The Travers Well has a post-recovery pumping rate of 145.59 gpm.

**Historical Water Supply:**

Based on MPWMD Historical Water Production Data from 1993 to 2025 (attached) shows that the combination of the site’s wells (whether coming from the “Traves”, “Gamboa” or “Church” well) have a 10-year historical record of 34.79 afy which is far greater than the Project Average Annual Water Demand calculated to be 15.22 afy.

**Water Storage, Treatment, Conveyance & Distribution Components:**

BHgl was not requested to provide information on this topic.

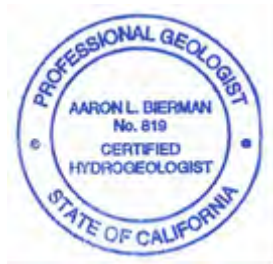
**Conclusions:**

In conclusion, the main and back-up supply (Traver and Gamboa Well respectively) are more than adequate to supply water to this Project without any cumulative significant adverse impacts to other well users or Sensitive Environmental Receptors (SERs)<sup>9,10</sup>.

Respectfully submitted,



Aaron Bierman  
Ca. Hydrogeologist #819



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8: Table 4 is Referenced from 2016 BHgl Report on the Travers Replacement Well.

9: SERs are any one of the following areas or locations: (1) the Carmel Valley Alluvial Aquifer as delineated by the State Water Resources Control Board (SWRCB) in Order 95-10 as modified by Order 98-04; (2) the five tributaries; Tularcitos, Hitchcock Canyon, Garzas, Robinson Canyon and Potrero Creeks; (3) Seaside Groundwater Basin; (4) Pacific Ocean or (5) other locations as designated by Resolution of the MPWMD Board of Directors.

10: based on BHgl Reports and Technical Memorandums from 2009 to 2018.

**Table 1  
Conceptual Water Demand**

WATER DEMAND VARIABLES	WATER YEAR												ANNUAL TOTALS
	October	November	December	January	February	March	April	May	June	July	August	September	
Monthly Demand Factor <sup>1</sup>	8.98%	7.16%	6.42%	6.38%	5.74%	6.75%	7.70%	9.21%	9.99%	10.75%	10.96%	9.96%	100%
Combined Monthly and Annual Demand (Acre-Feet) <sup>2</sup>	1.199	0.956	0.857	0.852	0.766	0.901	1.028	1.230	1.334	1.435	1.463	1.330	<b>13.350</b>
Annual Day Demand (in GPD) <sup>3</sup>	12601.29	13021.33	12601.29	12601.29	13951.43	12601.29	13021.33	12601.29	13021.33	12601.29	12601.29	13021.33	
Annual Day Demand (in GPM) <sup>4</sup>	8.75	9.04	8.75	8.75	9.69	8.75	9.04	8.75	9.04	8.75	8.75	9.04	

Average Annual Demand <sup>5</sup> :	<b>8.26 gpm</b>	(pumping 24/7)	equal to	13.350	af/year	or	<b>16.53 gpm</b>	(pumping on 12 hour cycles)
Average Annual Demand after System & Treatment Loss <sup>6</sup> :	<b>9.44 gpm</b>	(pumping 24/7)	equal to	<b>15.22</b>	af/year	or	<b>18.88 gpm</b>	(pumping on 12 hour cycles)
Dry Season Demand <sup>8</sup> :	<b>11.22 gpm</b>	(pumping 24/7)	equal to	18.10	af/year	or	<b>22.45 gpm</b>	(pumping on 12 hour cycles)
Maximum Day Demand <sup>9</sup> :	<b>18.60 gpm</b>	(pumping 24/7)	equal to	30.00	af/year	or	<b>37.19 gpm</b>	(pumping on 12 hour cycles)
Maximum Day Demand after System & Treatment Loss <sup>6</sup> :	<b>21.23 gpm</b>	(pumping 24/7)	equal to	34.25	af/year	or	<b>42.47 gpm</b>	(pumping on 12 hour cycles)
Peak Hourly Demand <sup>10</sup> :	<b>31.85 gpm</b>	or	<b>1673.64 gph</b>					

**NOTES:**

<sup>1</sup>: Monthly Demand Factor obtained from compilation of data from California-American Water Company monthly production reports from 1992-2003 (Monterey Peninsula Water Management District, October 2, 2003).

<sup>2</sup>: Monthly Demand calculated by dividing Total Use (indoor + outdoor use) by Monthly Demand Factor.

---Indoor Water Demand calculated to be 10.99 afy for 74 units each with different bdrm/bthrm configurations and fixture units (per City Ventures 2024.11.1 Water Use Projections Spreadsheet)

---Exterior Water Demand - Exterior Total Water Use calculated to be 2.36 afy for 113,500sq.ft of non-turf on drip (per Landscape Architect values from City Ventures email dated - 11/1/24). Exterior water use is not treated.

<sup>3</sup>: Monthly Demand converted to Day Demand in gallons per day (gpd). Conversion factors: 325,851 gallons per acre-foot; # day per month (Jan-31; Feb-28; Mrch-31; Apl-30; May-31; June-30; July-31; Aug-31; Sep-30; Oct-31; Nov-30; Dec-31)

<sup>4</sup>: Day Demand (in gpm) calculated by dividing Day Demand (in gpd) by 1440 minutes (1440 minutes per day).

<sup>5</sup>: Average Annual Day Demand (gpm) calculated by dividing sum of Day Demands (in gpm) by 12.

<sup>6</sup>: For MCEHB, a 7% System Loss is used<sup>11</sup>. For MPWMD a 5% System Loss is used<sup>11</sup>. For conservative purposes for this report, the greater percentage value (7%) is used.

<sup>7</sup>: Treatment Loss depends on water quality. Pacific Advanced Civil Engineering Inc. (PACE) has indicated a 7% treatment loss is accounted for to remove iron and manganese (Reference for type and method of treatment is needed from PACE.)

<sup>8</sup>: Dry Season Demand (May through October) represents highest six month demand period with approximately 59.85% of annual demand during this period<sup>1</sup>.

<sup>9</sup>: Maximum Day Demand obtained by multiplying the Average Day Demand by Average Day Peaking Factor. Peaking Factors vary from agency to agency.

---State and MCHD use a Peaking Factor of 2.25. (State of CA Code of Regulations, Title 22, Division 4, Chapter 16, Article 2, Section 64554 New and Existing Source Capacity, March, 2008).

---MPWMD uses a Peaking Factor of 1.5. (MPWMD; Procedures for Preparation of Well Source and Pumping Impact Assessments, September, 2005, Revised May, 2006).

<sup>10</sup>: Peak Hourly Demand determined by calculating the average hourly flow during maximum day demand and multiplying by a peaking factor of 1.5 (State of California Code of Regulations, Title 22, Division 4, Chapter 16, Article 2, Section 64554, March, 2008).

<sup>11</sup>: A 7% System Loss is accounted for Based on data from Canada Woods and Monterra Ranch Mutual Water Systems, Monterey County, 2008 to present.

**Table 4  
Well Pumping Rates, Credited Source Capacity and Calculated Well Yield**

Well Identification	Field Parameters <sup>1</sup>			Technical Calculations <sup>2</sup>							
	Saturated Thickness <sup>3</sup> (ft)	Available Drawdown <sup>4</sup> (ft)	8-hour Specific Capacity <sup>5</sup> (gpm/ft)	Ratio of Late Time to Early Time Transmissivity <sup>6</sup> (unitless)	Adjusted 24-hour Specific Capacity <sup>7</sup> (gpm/ft)	Pre-Recovery Pumping Rate <sup>8</sup> (gpm)	Pre-Recovery Calculated Well Yield <sup>9</sup> (gpm)	Percent Well Recovery <sup>10</sup> (%)	Amount Reduction in Pumping Rate or Calculated Well Yield due to poor recovery <sup>11</sup> (%)	Post-Recovery Pumping Rate <sup>12</sup> (gpm)	Post-Recovery Calculated Well Yield <sup>13</sup> (gpm)
Travers Replacement Well (APN: 015-021-015)	159.38	59.38	71.01	NA	NA	156.92	4216.57	87.78%	7.22%	145.59	3912.13
Travers Well (APN: 015-021-015)	107.58'	53.79'	22.36	NA	NA	149.80	1202.74	100.00%	0.00%	149.80	1202.74
Gamboa Replacement Well (APN: 015-021-020)	138.63	58.63'	73.76	NA	NA	150.48	4324.54	100.00%	0.00%	150.48	4324.54

**Footnotes:**

- <sup>1</sup>: Calculated by Bierman Hydrogeologic from DWR Well Completion Report.
- <sup>2</sup>: Technical Calculations follow MPWMD guidelines entitled "Procedures for Preparation of Well Source and Pumping Impact Assessments", September 2005, Revised, May, 2006 and/or MCEHB guidelines "Source Capacity Test Procedures", revised May, August, 2011
- <sup>3</sup>: Saturated thickness: Difference between depth to static water level to bottom of perforations.
- <sup>4</sup>: Available Drawdown: the lesser of; 1/2 of the saturated thickness of the well or the distance between top of perforated interval and static water level. For this analysis it was SWL to Perfs.
- <sup>5</sup>: 8-Hour Specific Capacity: Gallons per minute per foot of drawdown at 8 hours.
- <sup>6</sup>: Ratio of late to early time transmissivity not calculated as there was no negative boundary condition and significant apparent difference in late to early time transmissivity.
- <sup>7</sup>: Adjusted 8-Hour Specific Capacity: If warranted, the product of the ratio of late to early time transmissivity (unitless) and 8-hour Specific Capacity.
- <sup>8</sup>: Pre-Recovery Pumping Rate: The 8-hr average pumping rate was used for the test, as the lowest sustained pumping rate was only for 20-minutes between 1035 am to 1055 am.
- <sup>9</sup>: Pre-Recovery Calculated Well Yield: The product of the adjusted 8-hour specific capacity (if warranted) and available drawdown.
- <sup>10</sup>: Percent Well Recovery: Percent well recovery after one time the pumping period.
- <sup>11</sup>: Amount Reduction in Pumping Rate or Calculated Well Yield:  
Difference between percent recovery and 95% or, 2-feet of original static level which ever is more stringent. For this test, the "95% recovery" was the more stringent recovery.
- <sup>12</sup>: Post-Recovery Pumping Rate: The difference (if applicable) between the Pre-Recovery Pumping Rate and Amount Reduction in Pumping Rate.
- <sup>13</sup>: Post-Recovery Calculated Well Yield: The difference (if applicable) between the Pre-Recovery Calculated Well Yield and Amount Reduction in Calculated Well Yield. IT should also be noted that The well borehole and aquifer losses, well casing size, pump size and discharge pipe size are all factors that will influence the maximum sustainable pumping rate for a well. These factors may limit achieving the "calculated well yield" value

**Notes:**

ft = Feet  
gpm / ft= Gallons per minute per foot  
gpm = Gallons per minute  
% = Percent  
NA = not applicable

Carmel 1

**SFR**

Plan 1  
2790 - 3490 Sq Ft  
4 Bed & Den, 2.5 Bath

Plan 2  
3,425 Sq Ft  
5 Bed & Office, 3.5 Bath

Plan 3  
3,560 Sq Ft  
5 Bed & Office, 3 Bath

Plan 4  
3,930 Sq Ft  
5 Bed & Office, 3 Bath

Water Use Projection Program

Category	Plan 1	Plan 2	Plan 3	Plan 4
1/2 Bath	1.8	1.8	1.8	1.8
Bath	3.8	3.8	3.8	3.8
M Bath	4.8	4.8	4.8	4.8
Kitchen	2	2	2	2
Washer	2	2	2	2
Landscape		0	0	0
Rule 20 Units		14.4	18.2	16.4
TOTAL ACRE FEET		0.144	0.182	0.164

No. of Units

Plan	Acres	Units	Total
Plan 1	0.144	18	2.592
Plan 2	0.182	12	2.184
Plan 3	0.164	12	1.968
Plan 4	0.164	17	2.788
<b>TOTAL</b>		<b>59</b>	<b>9.532</b> Acre Ft

**TH**

Plan 1  
1,000 (BMR LOW)  
2-3 Bed, 1.5 Bath

Plan 2  
1,200 (BMR LOW)  
2-3 Bed, 1.5 Bath

Water Use Projection Program

Category	Plan 1	Plan 2
1/2 Bath	1.8	1.8
Bath	3.8	3.8
M Bath	0	0
Kitchen	2	2
Washer	2	2
Landscape	0.09	0.09
Rule 20 Units		9.69
TOTAL ACRE FEET		0.0969

No. of Units

Plan	Acres	Units	Total
Plan 1	0.0969	7	0.6783
Plan 2	0.0969	8	0.7752
<b>TOTAL</b>		<b>15</b>	<b>1.4535</b> Acre Ft

**TOTAL 74**

Note:

- Toilet .08 Gal
- Community Park & Val Verde Landscape outstanding
- Landscape .09 taken from Sonora

12.856 : Consumptive Use Allowed Acre  
10.9855 Projected Consumptive Use

TABLE 1: RESIDENTIAL FIXTURE UNIT COUNT VALUES

Water Fixture Description	Fixture Unit Value
1 Washbasin (lavatory sink), each	1
2 Two Washbasins in the Master Bathroom	1
3 Toilet, Ultra Low Flush (1.6 gallons per flush)	1.8
4 Toilet, High Efficiency (HET) (1.5 gallons maximum)	1.3
5 Toilet, Ultra High Efficiency (UHET) (0.8 gallon maximum)	0.8
6 Urinal, (Pint (0.125 gallon maximum)	0.1
7 Urinal, Zero Water Consumption	0
8 Bathtub, (may be Large with Showerhead above) & Separate Shower in the Master Bathroom	3
9 Bathtub, Large (may have Showerhead above)	3
10 Bathtub, Standard (may have Showerhead above) or Shower Stall (one Showerhead)	2
11 Shower, each additional fixture (including additional Showerheads, Body Spray Nozzles, etc.)	2
12 Shower System, Rain Bars, or Custom Shower (varies according to specifications)	2
13 Kitchen Sink (including optional adjacent Dishwasher) <sup>1</sup>	2
14 Kitchen Sink with adjacent High Efficiency Dishwasher (3.5 gallons maximum per cycle)	1.5
15 Dishwasher, each additional (including optional adjacent sink)	2
16 Dishwasher, High Efficiency, each additional (including optional adjacent sink) [3.5 gallons maximum per cycle]	1.5
17 Laundry Sink/Utility Sink (debit/Capacity Fee applies to only one Laundry/Utility Sink per Residential Site)	2
18 Clothes Washer	2
19 Clothes Washer, Common Laundry Room (per Dwelling Unit with access to the CLR)	2
20 Clothes Washer, High Efficiency (HEW) (Water Factor of +3 or less)	1
21 Bidet	2
22 Bar Sink	1
23 Entertainment Sink	1
24 Vegetable Sink	1
25 Swimming Pool (each 100 square-feet of pool surface area)	1
26 For all new Connections -- Refer to Rule 24-A-5, Exterior Residential Water Demand Calculations.	

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**Monterey Peninsula Water Management District**  
**HISTORICAL WATER PRODUCTION DATA**  
**APN 015-021-004 -- Former Carmel Presbyterian Church Well**  
**APN 015-021-015 -- 1993 Cypress Greens and 2012 Rio Road LLC Wells**  
**APN 015-021-020 -- 2008 Rio Road LLC and Old Harms/Gamboa Wells**  
**Reporting Year 1993 through Water Year 2025**  
**(All values in Acre-Feet)**

Year	No Permit #	12-11990	08-11428	93-0289	96-173	Sum	10-Year Prior Average	Rainfall at SC Dam (in.)
	1954 Harms (destroyed Gamboa well)	2012 Rio Road LLC (replacement Travers well)	2008 Rio Road LLC (replacement Gamboa well)	Old Cypress Greens (Travers well)	Carmel Presbyterian "Church" well			
	ID# 100248	ID# 100880	ID# 100970	ID# 101248	ID# 100873			
RY 1993	2.89	NA	NA	0.00		2.89		30.78
RY 1994	2.89	NA	NA	10.70		13.59		15.57
RY 1995	1.10	NA	NA	8.91		10.01		36.29
RY 1996	1.10	NA	NA	7.20		8.30		22.40
RY 1997	1.10	NA	NA	5.15		6.25		21.67
RY 1998	1.10	NA	NA	11.50		12.60		46.29
RY 1999	1.10	NA	NA	11.08		12.18		17.41
RY 2000	1.10	NA	NA	11.56		12.66		20.37
RY 2001	1.10	NA	NA	14.62		15.72		20.99
WY 2002	1.10	NA	NA	9.72		10.82		15.56
WY 2003	1.10	NA	NA	11.49		12.59		24.29
WY 2004	1.10	NA	NA	9.08		10.18	<b>11.13</b>	18.16
WY 2005	1.10	NA	NA	0.37		1.47		29.95
WY 2006	1.10	NA	NA	0.00		1.10		28.03
WY 2007	1.10	NA	NA	0.00		1.10		11.81
WY 2008	0.00	NA	0.01	0.59		0.60	<b>7.84</b>	19.61
WY 2009	0.00	NA	0.26	0.74	0.00	1.00		18.14
WY 2010	NA	NA	0.67	6.00	0.00	6.67		27.46
WY 2011	NA	NA	0.29	8.61	0.00	8.90		24.73
WY 2012	NA	0.00	0.29	10.51	0.00	10.80		13.94
WY 2013	NA	0.00	7.42	10.78	0.00	18.20		14.60
WY 2014	NA	0.00	4.67	10.89	0.00	15.56	<b>6.54</b>	10.61
WY 2015	NA	0.00	7.74	10.05	7.46	25.25	<b>8.92</b>	16.04
WY 2016	NA	1.75	11.38	6.54	6.44	26.11	<b>11.42</b>	22.25
WY 2017	NA	0.00	0.24	4.53	6.82	11.59	<b>12.47</b>	32.22
WY 2018	NA	0.00	2.24	13.95	11.41	27.60	<b>15.17</b>	13.52
WY 2019	NA	0.00	2.53	15.02	12.74	30.29	<b>18.10</b>	30.91
WY 2020	NA	0.00	2.16	20.50	19.98	42.64	<b>21.69</b>	17.57
WY 2021	NA	0.00	0.24	7.37	7.50	15.11	<b>22.32</b>	10.86
WY 2022	NA	0.00	0.38	9.01	6.91	16.30	<b>22.87</b>	13.23
WY 2023	NA	0.00	0.69	21.68	23.26	45.63	<b>25.61</b>	35.28
WY 2024	NA	0.00	0.00	3.55	57.83	61.38	<b>30.19</b>	24.25
WY 2025	NA	0.00	2.97	0.00	68.30	71.27	<b>34.79</b>	16.89

**NOTES:**

- 1 Reporting Years (RY) begin July 1 and end June 30.
- 2 Water Years (WY) begin October 1 and end September 30.
- 3 1954 Harms well reported by Land Use Method; it was destroyed and replaced by 2008 well. There is no drillers log or County permit number associated with this well. Staff inspected the property and estimated Annual Production to be 1.10 acre-feet.
- 4 Well Permit WSAL 93-0289 issued December 1993; meter installed March 3 or 4, 1994. This well was issued a permit as Cypress Greens Agricultural Water Distribution System.
- 5 During the 3-month period between the end of Reporting Year 2001 and Water Year 2002, 5.39 acre-feet were produced by the Cypress Greens well.
- 6 The meter on the Cypress Greens well was replaced in WY 2008. Unsure if production shown for WY 2008 occurred in WY 2008 or WY 2009.
- 7 Well Permit 08-11428- issued September 2008; meter inspected February 2009. Well was worked on in 2013.
- 8 Well on APN 015-021-004, completed for Carmel Presbyterian Church under County Permit 96-173, was acquired by Rio Road LLC in 2017. A new meter was installed in June 2015.
- 9 The District does not have any physical or electronic reports on file for the 2024 Water Year for the 2008 Rio Road LLC, for the 2012 Rio Road LLC well (confirmed inactive), or the 1954 Harms well (confirmed inactive)
- 10 Skylar Wolfe and Jon Lear did a field visit on 8/1/2025 to APN 015-021-020 and found that the meter for the 2008 Carmel Rio Road LLC well was reading differently than what was reported via mail. They followed up via email with Mr. Brian Clark on 8/13/2025 but did not receive any insight.

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