

Palo Alto 154
ALTERNATIVE POLE AND VAULT ANALYSIS REPORT

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Executive Summary – Palo Alto 154

POLE SELECTION

6 poles were evaluated to provide small cell service for this node and only 1 is viable to meet service objectives.

VAULT FEASIBILITY

Primary Pole – This location was evaluated for the placement of a vault and found to be infeasible. Multiple existing 4" underground sewer lateral lines run across the public right-of-way, precluding a vault. An existing driveway also impedes placement of a vault as it would block resident access. Per the Arborist Report, placement of a vault at this pole location would necessitate removal of large, established street trees.

PROPOSAL

Primary pole is proposed with the previously approved ARB selected camouflage design. Equipment consists of 3 radios attached vertically to the pole with an antenna mounted on a bayonet extension atop the existing CPAU wood utility pole. The ARB selected custom shroud design for Palo Alto conceals and streamlines the appearance of the equipment with the existing pole and has been reduced in length by 18".

All equipment will be painted a shade of brown to blend with existing poles. Noise producing components are not proposed in this project.

Photo Simulations of Proposed

PRIMARY POLE

Version Date: October 8, 2018

Photosimulation of the view looking south from across Barron Avenue.

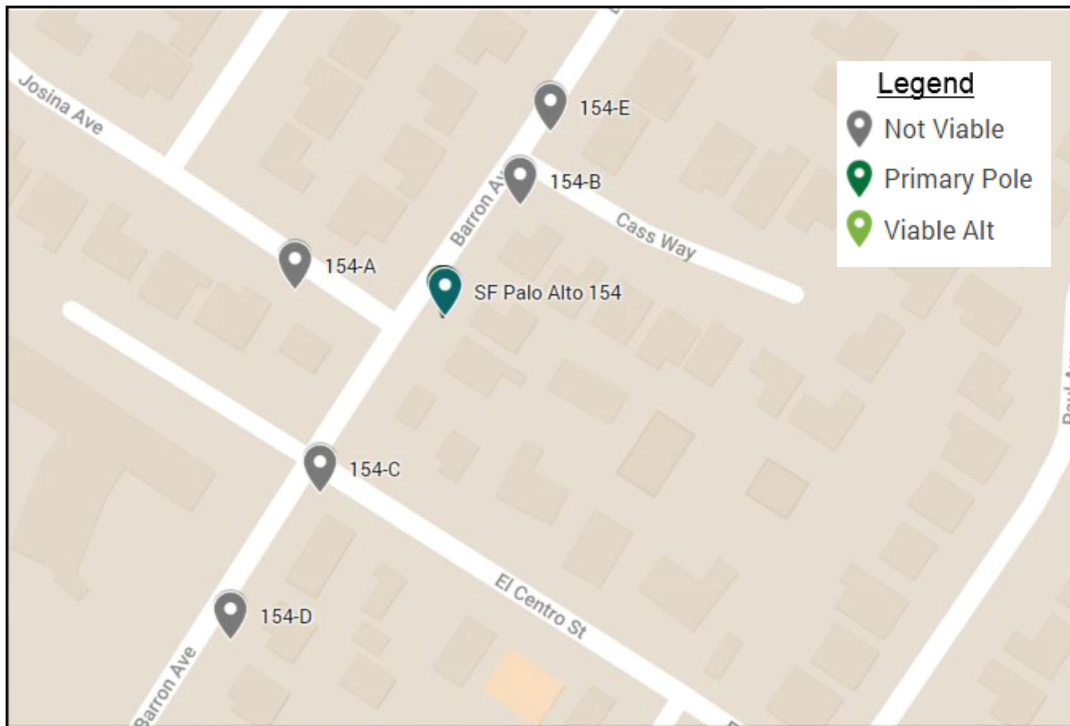


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Palo Alto 154 Alternative Site Analysis

There was only one viable pole to propose that would meet the engineering objectives.

There are no viable alternates.



Alternate ID	Viable Alternate Candidate	Structure Type	Latitude	Longitude	Pole #	Fallout Reason or Viable	Viability Note
154	Primary Pole	Wood Utility Pole	37.413408	-122.135642	0238	Primary Pole	Primary Pole
154-A	Not Viable	Wood Utility Pole	37.413474	-122.136134	0239	CPAU Engineering	CPAU comments dated 06/27/18 state: "Transformer on pole 239 cannot be moved."
154-B	Not Viable	Wood Utility Pole	37.413694	-122.135396	2344	CPAU Engineering	CPAU comments dated 06/27/18 state: "Pole not preferred by CPAU."
154-C	Not Viable	Wood Utility Pole	37.412954	-122.136053	0253	CPAU Engineering	CPAU comments dated 06/27/18 state: "Pole is not preferred by CPAU."
154-D	Not Viable	Wood Utility Pole	37.412568	-122.136343	0256	VZW RF Engineering	Pole does not meet COA #35 and cannot be moved due to pole being located between two driveways.
154-E	Not Viable	Wood Utility Pole	37.413987	-122.135295	0233	CPAU Engineering	CPAU comments dated 06/27/18 state: "Transformer on pole 233 cannot be moved."

Alternate Poles

154-A: NOT VIABLE



154-B: NOT VIABLE



154-C: NOT VIABLE



154-D: NOT VIABLE



154-E: NOT VIABLE



Vault Feasibility Report – Primary Pole

40-Foot Vault Search Area – Left Side (Part 1 of 2):



The following conditions prohibit the placement of an underground vault along Barron Ave:

- Vault cannot be placed in front of a 27' wide private driveway, as it would block resident access (above photo – 1).
- Excavation for a vault must maintain a 5' setback from the selected utility pole per CPAU, to maintain the structural integrity of the pole (above photo – 4).
- Existing utilities (See Supporting Visuals for city underground utility map):
 - A 4" sewer line runs laterally across the Public RIGHT-OF-WAY to the adjacent residence (above photo – 2).

The following conditions interfere with the placement of an underground vault along Barron Ave:

- Existing utilities (See Supporting Visuals for city underground utility map):
 - A 1" water line runs laterally across the Public Right-of-Way to the adjacent residence, which could be relocated (Above photo – 3)

40-Foot Vault Search Area – Right Side (Part 2 of 2):



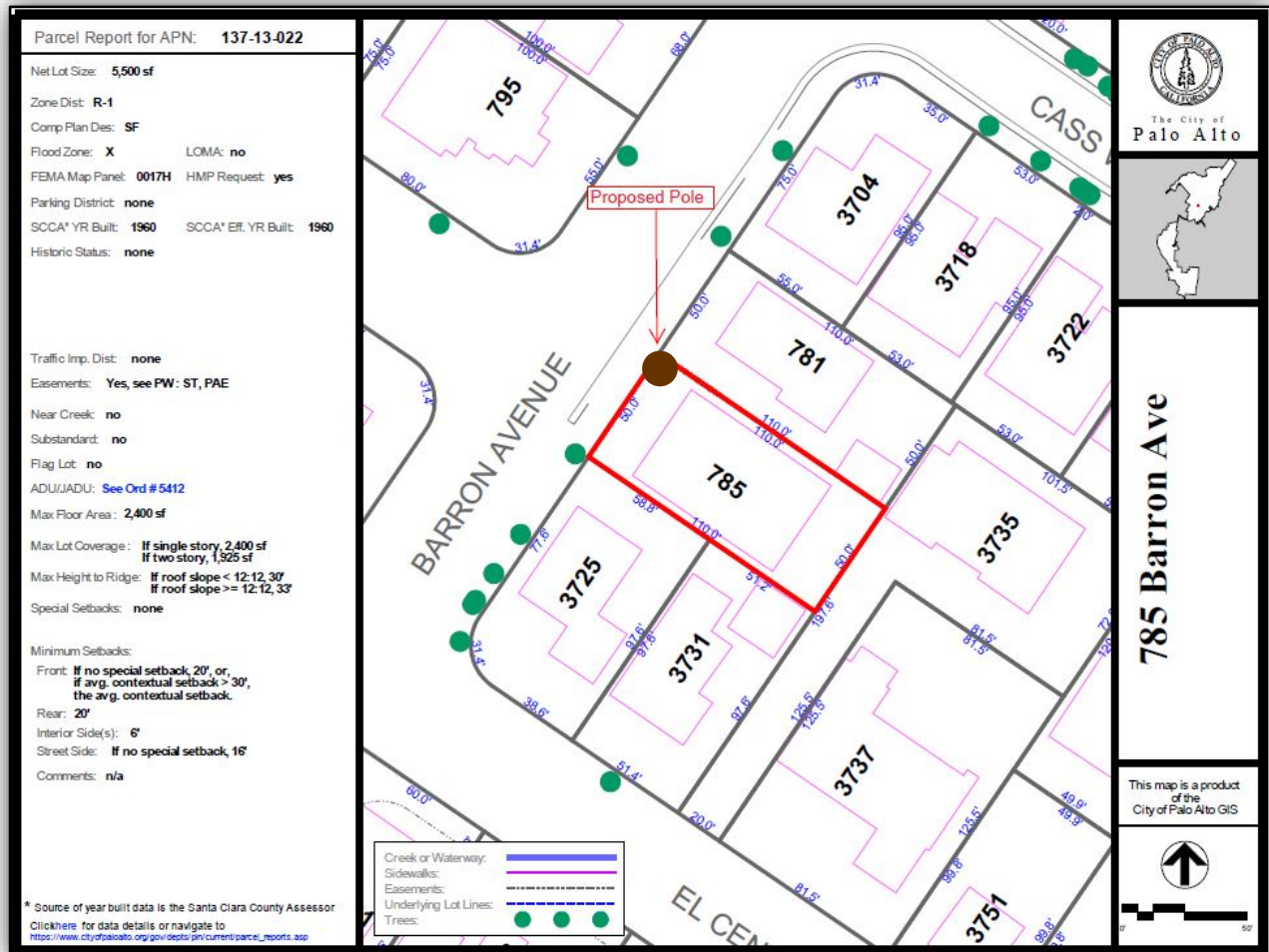
The following conditions prohibit the placement of an underground vault along Barron Ave:

- Vault cannot be placed in front of a private driveway, as it would block resident access (above photo – 1).
- Excavation for a vault must maintain a 5' setback from the selected utility pole per CPAU, to maintain the structural integrity of the pole (above photo – 4).
- Existing utilities (See Supporting Visuals for city underground utility map):
 - A 4" sewer line runs laterally across the Public RIGHT-OF-WAY to the adjacent residence (above photo – 2).

The following conditions interfere with the placement of an underground vault along Barron Ave:

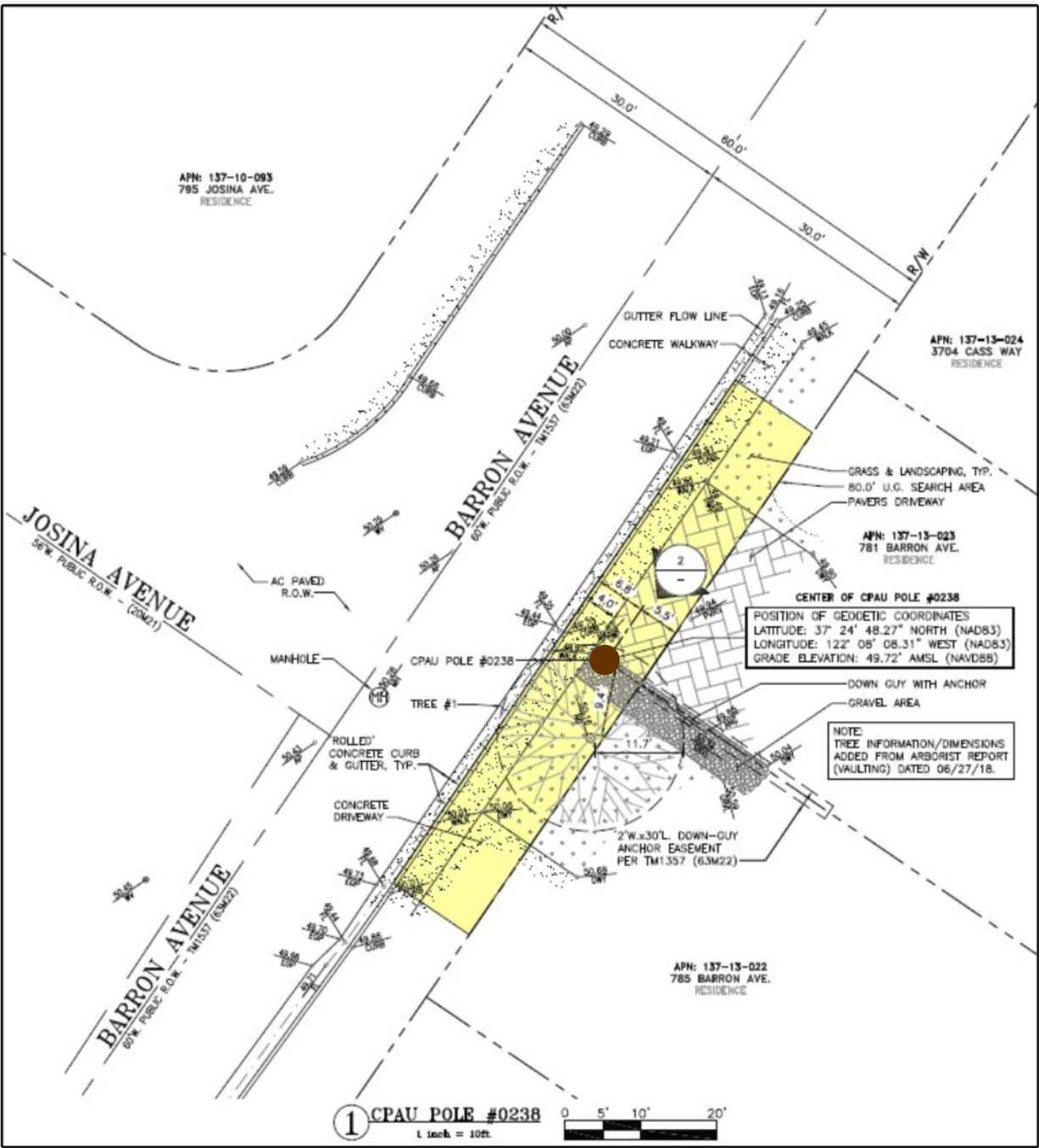
- Excavation within the dripline of trees for a vault would necessitate the removal of (1) one existing street tree, a Walnut tree, which has a DBH of 14" and a Tree Protection Zone of 11'-8" (see Arborist Report and Survey for details and above photo – 3).
- Existing utilities (See Supporting Visuals for city underground utility map):
 - A 1" water line runs laterally across the Public RIGHT-OF-WAY to the adjacent residence, which could be relocated (Above photo – 5)
 - A 1" gas line runs laterally across the Public RIGHT-OF-WAY to the adjacent residence, which could be relocated (Above photo – 6)

Parcel Report: Right-of-Way near 785 Barron Ave



Survey of Vault Search Area – 80-foot Right-of-Way along Barron Ave

Vaults must be located within the public Right-of-Way and cannot encroach on either the street or private property. This leaves only a narrow strip within 40’ of either side of the pole proposed for attachment. The highlighted area depicts the search area within the public right of way for the primary pole.



Vault Arborist Report



6/27/2018

Mary Diesch
Vinculums Services, LLC
10 Pasteur, Suite 100
Irvine, CA 92618
Re: Tree Protection Measures at SF PALO ALTO 154 (785 Barron Ave.)

Dear Mary,

The search area for a vault excavation location at this address is shown on the plans provided to me, included below. The vault excavation area described to me (not shown) will be about 16x10 feet, excavated to a depth of eight feet, one inch. There will also be a trench for conduits to connect the power pole and vault, likely 3 feet deep and 12 inches wide (not shown). I visually estimated distances between trees and project features onsite.

One tree is present, as shown in the Tree Table, below. This tree is regulated, and its trunk lies within the search area.

A vault could be placed either northeast or southwest of the tree without encroaching into the tree's dripline. However, private driveways preclude vault placement in either location. There may be enough space to place a vault southwest of the pole without impacting the driveway if tree #1 is removed; however, the distance between the pole and the vault may be insufficient.

The pole-mounted version of the project would cause no tree impacts. No amenity trees were recommended for the pole-mounted version of the project. No feasible green screen opportunities exist.

Tree #	Palo Alto Tree ID ¹	Species	Common Name	DBH ² (in.)	Palo Alto DBH (in.)	Dripline ³ (ft. and in.)	Regulated Status
1	-	Juglans sp.	Walnut	14 (est.)	-	11'8"	Street Tree

¹ Taken from Palo Alto Trees GIS, publicly available online

² Diameter at breast height, a standard arboricultural measurement. Breast height is defined as 54 inches above grade.

³ Defined in the Palo Alto Tree Technical Manual as ten times the tree's DBH. Work within a tree's dripline may negatively impact it

Tree map (not to scale; red indicates potential vault locations)

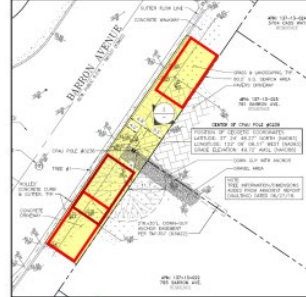


Image of tree #1



Supporting Visuals

Existing utilities, such as a 4" sewer line runs laterally across the Public Right-of-Way to the adjacent residence, (2) two 1" water lines run laterally across the Public Right-of-Way to the adjacent residences, and a 1" gas line runs laterally across the Public Right-of-Way to the adjacent residence. Each of these utilities are located within the Public Right-of-Way and are circled in red. Lateral utilities that could be relocated are also circled in red.

