



City of Palo Alto

City Council Staff Report

(ID # 11411)

Report Type: Action Items

Meeting Date: 8/10/2020

Summary Title: 2353 Webster Street: Appeal of Director's Decision on Individual Review Application

Title: PUBLIC HEARING / QUASI-JUDICIAL. 2353 Webster Street [18PLN-00339]: Appeal of Director's Approval of an Individual Review Application to Demolish an Existing One-story 1,593 sf Home and Construct a Two-story Home (Approx. 2,935 sf) With a Basement and an Attached Garage. Zoning District: Single-family Residential (R-1)

From: City Manager

Lead Department: Planning and Development Services

Recommendation

Staff recommends City Council uphold the Planning and Development Services Director's approval of the Individual Review (IR) application (File No. 18PLN-00339). The project is a new two-story home within the Old Palo Alto neighborhood.

Executive Summary

This request is an appeal of the Planning and Development Services Director's (Director) approval of a Single-Family Individual Review (IR) application for a new two-story home. Three Council members voted to remove this item from the Consent Calendar on May 18, 2020 to hold a formal public hearing.

Appellants Jack Morton and Mary Ellen White are the owners of 2343 Webster Street, a single-story home abutting the subject property. As required by the Palo Alto Municipal Code, staff mailed all decision and hearing notices regarding the project to the immediate neighbors, including the appellant. The appellant is concerned about the Valley oak tree in the proposed home's rear yard, and how it will be affected by construction including potential dewatering to construct the basement.

Staff is equally committed to protecting the tree to the highest degree feasible. Tree protection is achievable through the implementation of standard project conditions of approval, adopted City regulations, and project-specific conditions of approval.

Background

Individual Review applications are reviewed and approved through the Low-Density Residential Review Process set forth in Palo Alto Municipal Code (PAMC) 18.77.075. The first decision is a staff-level, tentative 'Director's decision'; this tentative decision is subject to a hearing request process. Any adjacent property owner or occupant may request a Director's Hearing within 14 days of the tentative decision. If requested, the Director then sets and conducts a noticed public hearing on the project, receives testimony, and makes a decision that becomes final 14 days thereafter. A Director's Hearing was requested for this project and was held on February 27, 2020, after which the Director reapproved the project with additional tree protection measures.

Following this approval, and within the 14-day appeal period, owners or occupants of abutting properties may appeal the decision to Council. Appeals are placed on the Council consent calendar for final action. An appeal was received on March 31, 2020. The project was then placed on the Council's May 18, 2020 consent agenda. Council removed the item from the consent calendar and which time staff scheduled this August 3, 2020 public hearing. As part of this hearing, the Council shall adopt findings and act on the application. The decision of the Council is final. Further background information is available in the Council staff report from the May 18th Council Meeting, <https://bit.ly/2353WebsterCCReport>.

May 18, 2020 Public Comment

Two residents shared public comments during the consent calendar hearing for this project on May 18, 2020:

- (1) Mr. Keith Bennett provided both written and oral comments. He is concerned the current project Conditions of Approval do not adequately protect the specimen oak tree with regards to basement construction, particularly dewatering.
- (2) The appellant Mr. Jack Morton expressed concern that potential damage to the tree would dramatically impact his quality of life.

Discussion

The project meets all five of the City's Individual Review (IR) guidelines. The project complies with the Public Works regulations for dewatering. The project also complies with Urban Forestry regulations for protecting the mature Valley Oak tree. Findings for the project's compliance with IR guidelines are available in the administrative record and were provided as Attachment F in the May 18, 2020 staff report. The findings include analysis provided by the City's consulting architect, dated October 3, 2019. The document also includes recommended

conditions of approval, which were incorporated as Conditions of Approval #5e and #13a. The project is required to meet all standards for dewatering, in accordance with the Conditions of Approval.

Following the Director's Hearing, the Director added conditions to further clarify how to protect the Valley Oak tree. These conditions are provided as Condition of Approval #1, Special Conditions (Attachment B).

In total, the project has met the findings for approval, and the project approval is enhanced with the Director's special conditions to ensure protection of the Valley Oak tree. Therefore, staff recommends upholding the Director's decision to approve the project.

Overall Tree Health

The tree in question is a Valley Oak (*Quercus lobata*) tree with a mature canopy radius of 38 feet. The project arborist, Davey Resource Group, deems the tree to be in fair condition. The tree is approximately 4.5 feet from the existing house, which is to be demolished. The proposed house will be at least 34-feet, 4-inches away from the base of the trunk.

The Tree Protection Zone (TPZ) for this tree is a 60-foot radius measured from the trunk, which amounts to approximately 50% of the buildable area. Excavation for the new home is proposed within the outer portion of the TPZ, 30-40 feet from the trunk and beyond. Proposed demolition and construction would potentially impact 17% of the TPZ. Impacts to more than 25% of the root system may be defined as "removal" of the tree, though each situation has both site and tree specific factors to consider. It is important to note that with the existing house foundation currently sitting within the dripline of the tree, therefore, fewer tree roots are likely to be found in this area.

A number of tree protection measures were adopted in the Director's approval letter following the Director's Hearing. In particular:

- The project shall follow all standard tree protection conditions and Urban Forestry regulations including PAMC 8.10;
- Staff will hold a pre-construction meeting to discuss the construction phase conditions with those who will be onsite during construction (Condition #2);
- The 14 feet of the existing foundation nearest the tree shall not be removed, to prevent disturbance of any underlying roots;
- Demolition of the remaining foundation shall be accomplished by air spade and/or hand tools only, and be performed under the supervision of a Certified Arborist;
- Recommendations from the final Arborist Report (submitted at Building Permit application) shall be included as additional conditions of approval;
- Tree protection fencing shall be installed prior to demolition, where feasible, and placed

no closer than 40 feet from the trunk of the Valley Oak;

- The applicant's consulting arborist is to make daily visits during demolition to the site and prepare a daily memo attesting to the contractor's compliance with the arborist's report and related Urban Forestry conditions of approval (Conditions #27-40);
- During demolition and construction, all pervious area within the TPZ shall be covered with 12 inches of woodchips and a layer of plywood, to the satisfaction of the Urban Forester (Conditions #28b and 28c);
- The location for the dewatering monitoring well required in Condition #43 shall be determined by the Director of Public Works prior to building permit approval, to ensure the goals of the monitoring well are balanced with the need to protect the Valley Oak.

It is important to state that if the applicant were to propose to remove the Valley Oak tree, the application would be processed administratively, by the Urban Forestry Team, in accordance with Municipal Code. PAMC 8.10.050(d)(2) states: Removal is permitted as part of project approval under Chapter 18.76 (Permits and Approvals) of this Code, because retention of the tree would result in reduction of the otherwise-permissible buildable area by more than 25%. In such a case, the approval shall be conditioned upon tree replacement in accordance with the standards in the *Tree Technical Manual*.

The buildable area is defined as the portion of the lot which is not within the required setbacks. Since the TPZ of the Valley Oak is a 60-foot radius, it takes up more than half of the lot, and approximately 50% of the buildable area. To build the house fully outside the TPZ would reduce the building area by more than twenty-five percent. However, the City also has policies to ensure "no net loss of canopy" which would require any such removal to include a combination of replacement trees and potentially in-lieu payment to achieve this goal.

Dewatering

One of the neighbor's main concerns is that the dewatering aspect of the project has not been sufficiently analyzed. In a typical IR project, dewatering review is conducted at the time of Building Permit application, not Planning Entitlement. A hydrogeological study is provided as a part of the building permit application materials. This provides detailed information of the expected need for dewatering, including the volume of water potentially to be pumped, and potential impact to surrounding trees and buildings. It is possible the basement project will require no dewatering, but this will not be determined until the applicant provides the full hydrogeological study. Furthermore, staff is confident the existing regulations for dewatering sufficiently protect the oak tree.

There are a few ways the basement could be constructed, which have different potential impacts. Regardless of the basement construction method, the current Conditions of Approval already require a certified arborist to supervise all excavation.

- The basement could be shored with secant walls. In this method, I-beams are driven into the ground and concrete is poured to shore and isolate the excavation area. Dewatering is limited to the basement footprint within the secant walls, however construction of the secant walls may unexpectedly cut tree roots.
- The basement could be shored with I-beams and wood lagging. I-beams are driven into the ground and wood is installed between the beams every few feet as excavation commences. Because the lagging is not watertight like a secant wall, it is not recommended in high water table areas, as dewatering may extend a few feet beyond the basement footprint. In this method, I-beams may still cut minor tree roots, but less than secant walls.
- The basement does not use shoring. The basement is allowed to be excavated using a 1:1 cutback to prevent caving, with vertical excavation allowed for the lowest five feet. No beams are driven, so it is more likely tree roots will be visible during construction and the on-site Arborist can be more aware of any damage to the roots. However, this requires an area approximately five feet wider than the proposed basement footprint to be excavated. The area to be dewatered would be comparable to other methods, because dewatering is only expected to occur within the last few feet of excavation, and not within the cutback.

Based on the three options, staff recommends the applicant use I-beam and wood lagging shoring. This method would use fewer drill holes compared to a secant wall, while also limiting excavation outside of the basement footprint. During excavation, there is also the ability to be more conscious of tree roots within the TPZ. As noted below, the City Council may decide to impose this additional condition on the project, if approved.

In all cases, the Public Works Department provides strict monitoring requirements for dewatering, per PAMC 16.28.155. These requirements have been significantly strengthened over recent years (2016-2018) in response to residents' concerns. Open pit dewatering is not allowed, and groundwater pumped is required to be reused for on-site and/or local irrigation to the extent possible. A groundwater monitoring well is required on site, and groundwater level reports are required daily for the first two weeks, and weekly thereafter. All dewatering is limited to a maximum 12-week period within Palo Alto's dry season, April to October. If the initial daily report results are greater than anticipated, a revised Dewatering Hydrogeological Study is required. Additional requirements for the hydrogeological study, pre-construction analysis, and regulations and monitoring during construction are available in Attachment D.

The dewatering requirements are applied to all basement projects in the City, which require dewatering. It is typically not a discretionary process. For example, a new one-story house with basement requires only a building permit, and the proposal to build a basement could not be appealed to Council by neighbors.

Lastly, it is important to consider the particular tree species. A Valley oak is a drought-tolerant tree. Its roots are generally within 4 feet of the surface, significantly higher than the average groundwater depth of 9-12 feet. The tree likely depends on seasonal rain and surface irrigation for water rather than groundwater. Too much water may in fact damage an oak. Therefore, dewatering is unlikely to impact the water sources of the tree.

Alternative to Staff Recommendation

The Council is to adopt findings and act on the project, per PAMC 18.75.075(g)(2). Alternatives to the staff recommendation include:

- Require additional conditions of approval or modifications to the proposed project design or scope;
- Deny the project; or
- Continue the item to a future hearing.

While staff believes there are sufficient tree protection conditions placed on this project to help protect the mature Valley Oak tree, Council may still wish to apply additional conditions, which could include the following:

- Additional oversight by City Staff. Additional inspections by the City's Urban Forestry Team could be required during demolition, excavation, and/or construction. (Please note the applicant's project Arborist will be highly involved and is currently required to be onsite and provide daily monitoring reports during the demolition phase.) This condition will add further expense to the applicant to recover staff time spent on this additional oversight work.
- Require vertical I-beam and wood lagging for shoring. This method of shoring used during basement excavation would be preferred over alternative shoring methods, to limit potential impacts to the tree roots and from dewatering.

Policy Implications

The Director's decision to approve the application is consistent with staff's implementation of the Individual Review Guidelines, the Tree Technical Manual, and the City's dewatering regulations, and with the policies and intent of the Individual Review Process.

This is the third appeal of an Individual Review project since 2015. It is, however, the first appeal during the five-year time period of a home that is not within an Eichler neighborhood. Also, notably absent from the appeal are privacy concerns, which are typically an appeal topic associated with IR applications.

Environmental Review

This project is exempt from the provision of the California Environmental Quality Act (CEQA) per Section 15303(a) (New Construction of Small Structures) of the CEQA Guidelines.

Attachments:

Attachment A: Location Map(PDF)

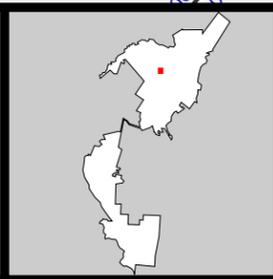
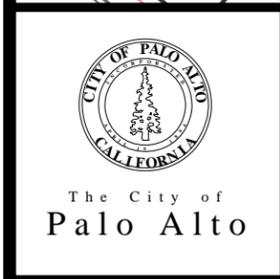
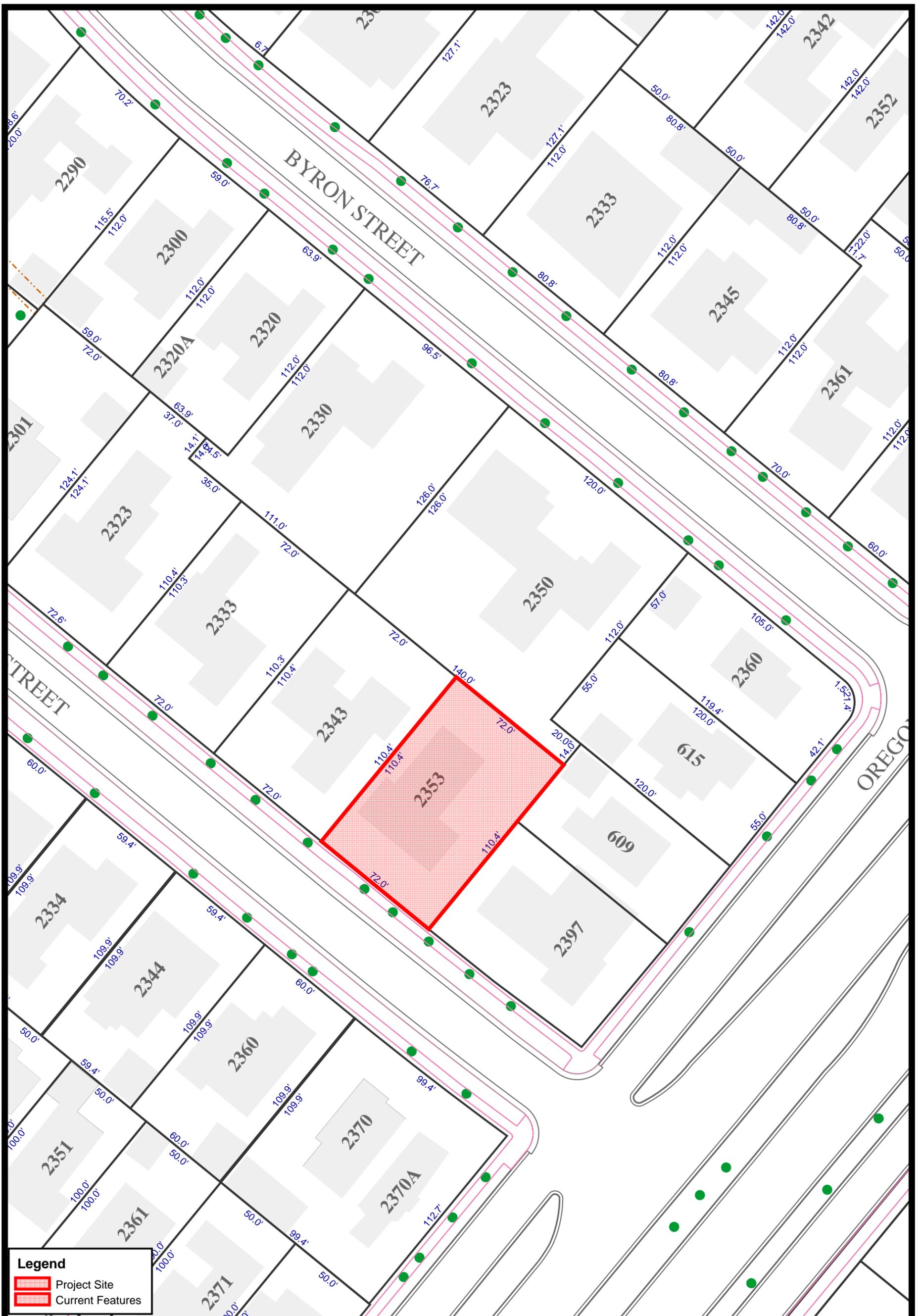
Attachment B: Director's Decision Letter signed March 16, 2020 (PDF)

Attachment C: Appeal Letter received March 31, 2020 (PDF)

Attachment D: 2020 Regulations for Dewatering during Construction of Below Ground Structures (PDF)

Attachment E: September 2019 Arborist Report and Tree Sheets (PDF)

Attachment F: Project Plans (DOCX)



Attachment A:
Location Map
2353 Webster Street

This map is a product of the City of Palo Alto GIS



PLANNING & DEVELOPMENT SERVICES

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March 16, 2020

Yali Zhou
2353 Webster St.
Palo Alto, CA 94301

Gordana Pavlović
602 Hawthorne Avenue
Palo Alto, CA 94301
Email: design@gordana.net

SUBJECT: 2353 Webster Street - Individual Review Application 18PLN-00339

On December 5, 2019, the Director of Planning and Community Environment conditionally approved Single Family Individual Review application 18PLN-00339 for a new two-story residence with a basement at 2353 Webster St. This approval was granted pursuant to the Palo Alto Municipal Code (PAMC) Sections 18.12.110 and 18.77.075. The conditionally approved project plan set received November 20, 2019, meets the *Palo Alto Single Family Individual Review Guidelines*, and complies with the R-1 zone district regulations and other applicable City regulations for development as conditioned.

Prior to the approval becoming effective, a timely request for Director's Hearing was received and a Director's Hearing was held on February 27, 2020. On March 16, 2020, the Director of Planning and Community Environment upheld the conditionally approved project.

PROJECT DESCRIPTION

The proposal is a request by Gordana Pavlović for Single Family Individual Review to allow demolition of an existing single story residence and construction of a new two-story single-family residence with a basement and an attached one-car garage in the R-1 zoning district, as shown on the plans received on November 20, 2019.

DIRECTOR'S HEARING

The hearing was requested by Jack Morton and Mary Ellen White. Their concerns included the size of the home, protection for the 300-year old Oak tree, and dewatering during basement construction.

DECISION AND FINDINGS

The Director of Planning and Community Environment finds that the project (as submitted on November 20, 2019 and as conditioned here) is in compliance with both the Municipal Code and the Individual Review Design Guidelines.

The Director finds:

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- The project has been reviewed and found to be in compliance with the Palo Alto Municipal Code and IR Guidelines 1-5.
- This property contains a 300-year-old specimen valley oak that requires specific and carefully prescribed tree protection measures during construction.
- Potential impacts of dewatering are sufficiently reduced and monitored through Public Works standard conditions of approval and policies for dewatering.

This approval will become effective 14 calendar days from the postmark date of this letter, unless an appeal is filed, as provided by Chapter 18.77.075 of the PAMC. An appeal may be filed by written request with the City Clerk before the date the Director's decision becomes final. The written request shall be accompanied by a fee, as set forth in the municipal fee schedule. Only an applicant, or the owner or tenant of an *adjacent property* may appeal. If you need assistance reviewing the plans, you may visit the City's Development Center at 285 Hamilton Avenue.

A copy of this letter shall accompany all future requests for City permits relating to this approval. This approval expires in 24 months from the effective date.

Should you have any questions regarding this approval, please feel free to contact Emily Foley, AICP at emily.foley@cityofpaloalto.org.

Sincerely,

DocuSigned by:

293CF322E1294F6...

Jonathan Lait, AICP
Director of Planning and Development Services

Attachment A – Findings for Approval

cc: Jack Morton, 2343 Webster St, Palo Alto, CA 94301, jack@mortoncpa.com
Mary Ellen 2343 Webster St, Palo Alto, CA 94301, mycek@earthlink.net
Sandra Browman, 2397 Webster St, Palo Alto, CA 94301 sandra.browman@yahoo.com
Keith Bennett, kbennett@luxsci.net
Neighbor notification list

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Attachment A
INDIVIDUAL REVIEW CONDITIONS OF APPROVAL
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The approval is subject to compliance with the following conditions. The property owner is solely responsible for the conditions of approval being met. Planning staff recommends the property owner discuss the conditions of approval with the contractor, designer, etc. and contact Planning staff with any questions.

PLANNING DIVISION

1. SPECIAL CONDITIONS. Based on the significance of the 300 year old specimen Valley Oak tree (*Quercus lobata*), the following special conditions apply:
 - a. The 14 feet of the existing foundation nearest the tree shall be abandoned (left in place - remain as existing).
 - b. Demolition of the remaining existing foundation shall use air spade and/or hand tools only and be performed under the supervision of a Certified Arborist.
 - c. The final Arborist Report shall be reviewed and approved by the City's Urban Forester and printed on the building permit plans; all recommendations from the Arborist Report shall be followed.
 - d. The tree protection fencing shall be installed prior to demolition, where feasible. Following demolition, the remainder of the tree protection fencing shall be installed per approved plans and no closer than 40 feet from the specimen Valley Oak.
 - e. During demolition, the applicant's consulting arborist shall make daily visits to the site and prepare a daily memo attesting to the contractor's compliance with the arborists report and related Urban Forestry conditions of approval (Condition Numbers 27-40)
 - f. During demolition and construction, all pervious area within the TPZ shall be covered with 12 inches of woodchips and a layer of plywood, to the satisfaction of Urban Forestry (Condition Numbers 28b and 28c)
 - g. The location for the dewatering monitoring well required in Condition Number 43 shall be determined by the Director of Public Works prior to building permit approval to ensure the goals of the monitoring well are balanced with the need to protect the specimen Valley Oak.

2. PRECONSTRUCTION MEETING. A preconstruction meeting shall occur at the time of building permit issuance. The contractor, homeowner, contracted project arborist, as well as the project planner, urban forester, building official and supervising building inspector shall be present at this meeting to discuss construction-phase conditions of approval, particularly arborist supervision of demolition of the existing structure.

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3. **CONFORMANCE WITH PLANS.** Construction and development shall conform to the approved plans entitled, "Yali Residence, 2353 Webster Street, Palo Alto, California," stamped as received by the City on November 20, 2019 on file with the Planning Department, 250 Hamilton Avenue, Palo Alto, California except as modified by these conditions of approval.
4. **BUILDING PERMIT.** Apply for a building permit and meet any and all conditions of the Planning, Fire, Public Works, and Building Departments.
5. **BUILDING PERMIT PLAN SET.** A copy of this cover letter and conditions of approval shall be printed on the second page of the plans submitted for building permit. Project plans submitted for Building permits shall incorporate the following changes:
 - a. Gravel is not allowed within the first 10 feet of the property.
 - b. The roof overhang at the front entry counts towards the Lot Coverage. Please show this on the FAR diagram and cover sheet data table.
 - c. The T sheets shall be updated with the arborist report dated September 2019 which was submitted separately from the Plan Set and received November 20, 2019
 - d. Tree protection fencing shall be shown on Site Plan, matching the Arborist Report
 - e. A row of tall shrubs and/or at least two trees along the left side lot line starting from near the rear corner of the house and extending to the rear lot setback line. The trees and/or tall shrubs should be evergreen and form a relatively continuous screen with plants that can grow to at 20 feet tall under normal conditions. This shall be shown on the Site Plan.
 - f. Provide the correct GB-1 sheet, signed by the applicant or owner
6. **PROJECT MODIFICATIONS:** All modifications to the approved project shall be submitted for review and approval prior to construction. If during the Building Permit review and construction phase, the project is modified by the applicant, it is the responsibility of the applicant to contact the Planning Division/project planner directly to obtain approval of the project modification. It is the applicant's responsibility to highlight any proposed changes to the project and to bring it to the project planner's attention.
7. **OBSCURED/TRANSLUCENT GLAZING.** All obscure glazing, as shown on the plan set, shall be permanent in nature and shall remain for the life of the structure. Obscure glazing is either decorative glazing that does not allow views through placed into the window frame or acid etched or similar permanent alteration of the glass. Films or like additions to clear glass are not permitted where obscure glazing is shown. Obscure glazing shall not be altered in the future and shall be replaced with like materials if damaged. If operable, these windows shall open towards the public right-of-way.
8. **REQUIRED PARKING:** All single family homes shall be provided with a minimum of one covered parking space (10 foot by 20 foot interior dimensions) and one uncovered parking space (8.5 feet by 17.5 feet).

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9. **UTILITY LOCATIONS:** In no case shall utilities be placed in a location that requires equipment and/or bollards to encroach into a required parking space. In no case shall a pipeline be placed within 10 feet of a proposed tree and/or tree designated to remain.
10. **NOISE PRODUCING EQUIPMENT:** All noise producing equipment shall be located outside of required setbacks, except they may project 6 feet into the required street side setbacks. In accordance with Section 9.10.030, No person shall produce, suffer or allow to be produced by any machine, animal or device, or any combination of same, on residential property, a noise level more than six dB above the local ambient at any point outside of the property plane.
11. **DAYLIGHT PLANE:** The daylight plane must clear the point where the wall plane intersects the top of the roof material.
12. **IMPERVIOUS SURFACE:** A minimum of 60 % of the required front yard shall have a permeable surface that permits water absorption directly into the soil (Section 18.12.040 (h)). The building permit plan set shall include a diagram demonstrating compliance.
13. **REQUIRED IR LANDSCAPING/TREES.** The following landscaping is required to ensure the project's conformance with the City's IR Guidelines and therefore must remain for the life of the structure. Required new screening trees and shrubs shall be a minimum size of 24 inch box and measure at least eight (8) feet tall.
 - a. A row of shrubs or a minimum of two large trees as described in Condition #3e.
 - b. Existing oak tree in rear yard
14. **PROJECT ARBORIST.** The property owner shall hire a certified arborist to ensure the project conforms to all Planning and Urban Forestry conditions related to landscaping/trees.
15. **TREE PROTECTION FENCING.** Tree protection fencing shall be required for the front street tree and the rear yard oak tree.
16. **FENCES.** Fences and walls shall comply with the applicable provisions of Chapter 16.24, Fences, of the Palo Alto Municipal Code (PAMC). Heights of all new and existing fencing must be shown on the Building Permit plans.
 - a. Where the existing fence is located off the subject property and/or where the existing fence is failing, a new Code compliant fence shall be constructed.
17. **LIGHT WELLS.** Railings around light wells shall be screened from street view. Screening may consist of plant material or fencing.

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18. BASEMENT WALLS: Basement retaining walls shall not extend beyond the exterior wall plane of the first floor of the house, excluding lightwells, below grade patios and approved extensions, to the satisfaction of the Director of Planning.
19. BASEMENT CONSTRUCTION WALLS: Any walls, temporary or otherwise, installed to facilitate construction of a basement shall be removed or constructed in such a way as to not significantly restrict the growth of required landscaping, to the satisfaction of the Director of Planning.
20. DECONSTRUCTION SURVEY: A Deconstruction Survey is required for demolition permit applications submitted on or after January 1, 2017. This survey submittal shall include a list of materials that are salvageable from the project as well as the values of such materials. At this time, the City's only approved vendor for this service is The ReUse People. Contact them to schedule this FREE service by phone (888)588-9490 or e-mail info@thereusepeople.org. More information can be found at www.TheReusePeople.org. If you have further questions, please contact Scott McKay at scott.mckay@cityofpaloalto.org.
21. PLANNING FINAL INSPECTION. A Planning Division Final inspection will be required to determine substantial compliance with the approved plans prior to the scheduling of a Building Division final. Any revisions during the building process must be approved by Planning, including but not limited to; materials, fenestration and hard surface locations. Contact your Project Planner at the number below to schedule this inspection.
22. PERMIT EXPIRATION. The project approval shall be valid for a period of **two years** from the original date of approval. Application for a one year extension of this entitlement may be made prior to expiration, by emailing the Current Planning Support Staff (Alicia Spotwood - Alicia.Spotwood@CityofPaloAlto.org). If a timely extension is not received, or the project has already received an extension and the applicant still wishes to pursue this project, they must first file for a new Planning application and pay the associated fees. This new application will be reviewed for conformance with the regulations in place at that time.
23. INDEMNITY: To the extent permitted by law, the Applicant shall indemnify and hold harmless the City, its City Council, its officers, employees and agents (the "indemnified parties") from and against any claim, action, or proceeding brought by a third party against the indemnified parties and the applicant to attack, set aside or void, any permit or approval authorized hereby for the Project, including (without limitation) reimbursing the City for its actual attorneys' fees and costs incurred in defense of the litigation. The City may, in its sole discretion, elect to defend any such action with attorneys of its own choice.

GREEN BUILDING & ENERGY REACH CODE REQUIREMENTS:

NOTICE FOR PERMIT APPLICATIONS SUBMITTED ON OR AFTER 1/1/20: Please be advised that the Palo Alto City Council has approved Energy Ordinance 5485 and Green Building Ordinance 5481 for all new permit applications. The Green Building Ordinance has an effective date of January 1st, 2020 and the Energy Reach Code Ordinance has an effective date

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of April 1, 2020. To review the upcoming changes, visit the [Development Services webpage](#). On the left-hand side under "EXPLORE", hover over "Green Building" and select "Compliance." You may also email Green Building at GreenBuilding@cityofpaloalto.org for specific questions about your project.

24. GREEN BUILDING CONDITIONS OF APPROVAL

- a) The project is a new construction residential building of any size** and therefore must meet the California Green Building Code mandatory requirements outlined in Chapter 4, (with local amendments) plus Tier 2 minimum pre-requisites and electives outlined in Appendix A4* (with local amendments). The project must hire a Green Building Special Inspector for a pre-permit third-party design review and a third-party green building inspection process. The project must select a Green Building Special Inspector from the City's list of approved inspectors. PAMC 16.14.080 (Ord. 5481 § 1, 2019)
 - (1) *Note: Projects subject to Tier 1 or Tier 2 shall not be required to fulfill any requirements outlined in Appendix A4.2 Energy Efficiency. All energy efficiency measures are found in the 2019 California Energy Code and the Palo Alto Energy Reach Code PAMC 16.17 & 16.18 as described in the Energy Reach Code section of this letter.
 - (2) **Accessory Dwelling Unit (Detached) Exception:
 - (a) Free standing detached Accessory Dwelling Units of new construction shall meet the following:
 - (i) California Green Building Standards Code Mandatory plus Tier 2 prerequisite requirements.
 - (ii) No Planning and Design electives.
 - (iii) Two (2) Water Efficiency and Conservation electives.
 - (iv) Two (2) Material Conservation and Resource Efficiency electives.
 - (v) One (1) Environmental Quality elective.
- b) The project is a residential construction project of any size with a given valuation of \$25,000 or more and therefore must meet the enhanced construction waste reduction at Tier 2 (80% construction waste reduction). PAMC 16.14.260 (Ord. 5481 § 1 (part), 2019)
- c) The project is a new detached single-family, dwelling and therefore shall comply with the following requirements for electric vehicle supply equipment (EVSE):
 - (a) In general. The property owner shall provide Conduit Only, EVSE-Ready Outlet, or EVSE Installed for each residence. The property owner shall provide as minimum a panel capable to accommodate a dedicated branch circuit and service capacity to install at least a 208/240V, 50 amperes grounded AC outlet (Level 2 EVSE). The raceway shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box, enclosure, or receptacle. The raceway shall be installed so that minimal removal of materials is necessary to complete the final installation. The raceway shall have capacity to accommodate a 100-ampere circuit.
 - (b) Design. The proposed location of a charging station may be internal or external to the dwelling, and shall be in close proximity to an on-site parking space. The

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proposed design must comply with all applicable design guidelines, setbacks and other code requirements. PAMC 16.14.420 (Ord. 5481 §1, 2019)

25. LOCAL ENERGY REACH CODE CONDITIONS OF APPROVAL – Effective 4/1/20

- a) The project includes new residential construction of any size and is submitted for building permit on or after April 1, 2020 and therefore triggers the Local Energy Efficiency Reach Code. All new residential construction projects of any size submitted after January 1, 2020 until March 31, 2020 shall comply with statewide mandatory energy standards as outlined in the 2019 California Energy Code, Title 24, Part 6.
 - i) Single-Family Residential Options:
 - (1) New single-family residential construction projects shall be designed to be all-electric.
 - (2) The installation of fireplaces, space-conditioning equipment, water heating system, clothes drying and cooking appliances shall be electric and not fueled by natural gas.
 - (a) An All-Electric Building complies with the performance standard if both the Total Energy Design Rating and the Energy Efficiency Design Rating for the Proposed Building are no greater than the corresponding Energy Design Ratings for the Standard Design Building.
 - (b) The Energy Budget for newly constructed buildings is expressed in terms of the Energy Design Rating, which is based on TDV energy. The Energy Design Rating (EDR) has two components, the Energy Efficiency Design Rating, and the Solar Electric Generation and Demand Flexibility Design Rating. The Solar Electric Generation and Demand Flexibility Design Rating shall be subtracted from the Energy Efficiency Design Rating to determine the Total Energy Design Rating. The Proposed Building shall separately comply with the Energy Efficiency Design Rating and the Total Energy Design Rating.
 - (i) Compliance demonstration requirements for performance standards: Certificate of Compliance. The Certificate of Compliance is prepared and signed by a Certified Energy Analyst and the Total Energy Design Rating of the Proposed Design shall be no greater than the Standard Design Building. (Ord. 5485 §1, 2019)
- b) Mandatory Photovoltaic (PV) Requirements:
 - i) All new low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output equal to or greater than the dwelling's annual electrical usage. (CEC §150.1, 2019)

26. Additional Green Building and Energy Reach Code information, ordinances and applications can be found at http://www.cityofpaloalto.org/gov/depts/ds/green_building/default.asp. If you have any questions

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regarding Green Building requirements please call the Green Building Consultant at (650) 329-2179 or send an email to GreenBuilding@CityofPaloAlto.org.

PUBLIC WORKS URBAN FORESTRY CONDITIONS – Catherine Mondkar catherine.mondkar@cityofpaloalto.org

27. SPECIAL CONDITIONS. The Applicant shall strictly adhere to the recommendations for tree preservation, pneumatic/hand evacuation, and to all tree protection measures as outlined in the 9/22/19 Davey Resources Group arborist report, or as updated thereafter. Additional tree protection protocol shall be followed as specified by Palo Alto Urban Forestry in the following items below.
- a) The first fourteen feet (14') of the existing concrete slab closest to tree #5 (72" DBH Valley Oak, *Quercus lobata*) shall be left in place, abandoned, and therefore shall not demolished. Regarding the remaining portion of the concrete slab to be demolished within the TPZ, the construction procedures as described in Condition 27 below are to be employed for the demolition of the remaining twenty-six feet (26') of existing concrete slab within the TPZ.
28. SPECIAL TREE PROTECTION MEASURES. The Contractor shall under the supervision of an ISA certified Arborist furnish the following tree protection materials on site prior to commencing demolition of the specified portion of the existing home foundation.
- a) No heavy equipment or vehicles of any sort are to be used within the tree protection zone (TPZ= DBHx10/12= 60' TPZ). Hand tools and pneumatic air spades only are to be used within the TPZ for the purpose of demolition. No loading of equipment, materials or objects of any sort may be stored within the TPZ.
 - b) 12" inches of wood chips topped with sheets of plywood shall be furnished within all pervious areas of the tree protection zone within the scope of work prior to beginning demolition.
 - c) As pervious areas within the TPZ are gradually exposed, 12" inches of wood chips topped with sheets of plywood shall be furnished within the remaining areas of the TPZ .
 - d) Only hand and pneumatic excavation are to be used during deconstruction of the existing foundation.
 - e) As demolition progresses and pervious areas are surfaced, any roots exposed to the air for greater than one (1) hour are to be wrapped in burlap to maintain moisture and covered in original soil where possible.
 - f) Following hand and pneumatic demolition of the specified portion on the existing foundation, type I tree protection fencing (as specified on the T-1 sheet) shall be installed to the extent of the TPZ as per plan drawings and maintained for the duration of the project.
29. TREE PROTECTION INSPECTIONS. In addition to standard tree protection fencing inspections, at the time of pneumatic demolition around tree #5, City Staff will perform a tree protection inspection to ensure that hand excavation and tree protection measures are being met as outlined in the above-mentioned conditions of approval. Following demolition of the specified portion of the foundation, another tree protection inspection by City staff will take place to ensure that the required fencing is in place.

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30. ARBORIST CONSTRUCTION SUPERVISION. For the duration of hand demolition within the TPZ, the project Arborist shall make a daily visit on site to ensure that tree protection measures, materials and best practices are being employed by the contractor and on-site foreman overseeing the work.
31. TREE APPRAISAL. Prior to the issuance of a grading or building permit, the applicant shall prepare and secure a tree appraisal for tree #5 (72" DBH Valley Oak, *Quercus lobata*). The appraisal of the condition and replacement value of tree #5 shall recognize the location of the tree in the proposed development. The appraisal may be part of the Tree Survey Report or listed separately. For the purposes of tree appraisal, the monetary market or replacement value shall be determined using the most recent version of the "Guide for Plant Appraisal", in conjunction with the Species and Classification Guide for Northern California. The appraisal shall be performed at the applicant's expense, and the appraiser shall be subject to the Director's approval. See PAMC 8.10.020(k)(2), 8.10.110 (b)(2), and sections 6.25 and 6.40 of the Palo Alto Tree Technical Manual.
32. TREE APPRAISAL DURATION. The tree appraisal duration period shall be five years from the date of final occupancy. A tree shall be considered dead when the main leader has died back, 25% of the crown is dead or if major trunk or root damage is evident. A new tree or trees of equal or greater appraised value shall be planted in the same area by the property owner. Landscape area and irrigation shall be readapted to provide optimum growing conditions for the replacement tree(s). The replacement tree(s) that are planted shall be subject to a new two-year establishment and monitoring program. The project sponsor shall provide an annual tree evaluation report as originally required.
33. TREE PROTECTION COMPLIANCE. The owner and contractor shall implement all protection and inspection schedule measures, design recommendations and construction scheduling as stated in the TPR & Sheet T-1, and is subject to code compliance action pursuant to PAMC 8.10.080. The required protective fencing shall remain in place until final landscaping and inspection of the project. Project arborist approval must be obtained and documented in the monthly activity report sent to the City. The mandatory Contractor and Arborist Monthly Tree Activity Report shall be sent monthly to the City (pwps@cityofpaloalto.org) beginning with the initial verification approval, using the template in the Tree Technical Manual, Addendum 11.
34. PLAN CHANGES. Revisions and/or changes to plans before or during construction shall be reviewed and responded to by the (a) project site arborist, or (b) landscape architect with written letter of acceptance before submitting the revision to the Building Department for review by Planning, PW or Urban Forestry.
35. TREE DAMAGE. Tree Damage, Injury Mitigation and Inspections apply to Contractor. Reporting, injury mitigation measures and arborist inspection schedule (1-5) apply pursuant to TTM, Section 2.20-2.30. Contractor shall be responsible for the repair or replacement of any publicly owned or protected trees that are damaged during the course of construction, pursuant to Title 8 of the Palo Alto Municipal Code, and city Tree Technical Manual, Section 2.25.

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36. GENERAL. The following general tree preservation measures apply to all trees to be retained: No storage of material, topsoil, vehicles or equipment shall be permitted within the tree enclosure area. The ground under and around the tree canopy area shall not be altered. Trees to be retained shall be irrigated, aerated and maintained as necessary to ensure survival.
37. BUILDING PERMIT SUBMITTAL- PROJECT ARBORIST CERTIFICATION LETTER. Prior to submittal for staff review, attach a Project Arborist Certification Letter that he/she has; (a) reviewed the entire building permit plan set submittal and, (b) affirm that ongoing Contractor/Project Arborist site monitoring inspections and reporting have been arranged with the contractor or owner (see Sheet T-1) and, (c) understands that design revisions (site or plan changes) within a TPZ will be routed to Project Arborist/Contractor for review prior to approval from City.
38. TREE PROTECTION VERIFICATION. Prior to any site work verification from the contractor that the required protective fencing is in place shall be submitted to the Urban Forestry Section. The fencing shall contain required warning sign and remain in place until final inspection of the project.
39. EXCAVATION RESTRICTIONS APPLY (TTM, Sec. 2.20 C & D). Any approved grading, digging or trenching beneath a tree canopy shall be performed using 'air-spade' method as a preference, with manual hand shovel as a backup. For utility trenching, including sewer line, roots exposed with diameter of 1.5 inches and greater shall remain intact and not be damaged. If directional boring method is used to tunnel beneath roots, then Table 2-1, Trenching and Tunneling Distance, shall be printed on the final plans to be implemented by Contractor.
40. PLAN SET REQUIREMENTS. The final Plans submitted for building permit shall include the following information and notes on relevant plan sheets:
 - a) SHEET T-1, BUILDING PERMIT. The building permit plan set will include the City's full-sized, Sheet T-1 ([Tree Protection-it's Part of the Plan!](#)), available on the Development Center website at <http://www.cityofpaloalto.org/civicax/filebank/documents/31783>. The Applicant shall **complete and sign the Tree Disclosure Statement** and recognize the Project Arborist Tree Activity Inspection Schedule. Monthly reporting to Urban Forestry/Contractor is mandatory. (Insp. #1: applies to all projects; with tree preservation report: Insp. #1-7 applies)
 - b) The Tree Preservation Report (TPR). All sheets of the Applicant's TPR approved by the City for full implementation by Contractor, shall be printed on numbered Sheet T-1 (T-2, T-3, etc) and added to the sheet index.
 - c) Plans to show protective tree fencing. The Plan Set (esp. site, demolition, grading & drainage, foundation, irrigation, tree disposition, utility sheets, etc.) must delineate/show the correct configuration of Type I, Type II or Type III fencing around each Regulated Tree, using a bold dashed line enclosing the Tree Protection Zone (Standard Dwg. #605, Sheet T-1; City Tree Technical Manual, Section 6.35-Site Plans); **or by using the Project Arborist's unique diagram for each Tree Protection Zone enclosure.**

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PUBLIC WORKS ENGINEERING CONDITIONS – Ajay Kumar ajay.kumar@cityofpaloalto.org

The following shall be addressed prior to issuance of a Building Permit, Excavation and Grading Permit, Certificate of Compliance, Street Work Permit and/or Encroachment Permit.

41. DEMOLITION PLAN: Place the following note adjacent to an affected tree on the Site Plan and Demolition Plan: “Excavation activities associated with the proposed scope of work shall occur no closer than 10-feet from the existing street tree, or as approved by the Urban Forestry Division contact 650-496-5953. Any changes shall be approved by the same”.
42. GRADING PERMIT: Separate Excavation and Grading Permit will be required for grading activities on private property that fill, excavate, store or dispose of 100 cubic yards or more based on PAMC Section 16.28.060. Applicant shall prepare and submit an excavation and grading permit to Public Works separately from the building permit set. The permit application and instructions are available at the Development Center and on our website.
http://www.cityofpaloalto.org/gov/depts/pwd/forms_and_permits.asp
43. GRADING & DRAINAGE PLAN: The plan set must include a grading & drainage plan prepared by a licensed professional that includes existing and proposed spot elevations, earthwork volumes, finished floor elevations, area drain and bubbler locations, drainage flow arrows to demonstrate proper drainage of the site. Adjacent grades must slope away from the house a minimum of 2% or 5% for 10-feet per 2013 CBC section 1804.3. Downspouts and splashblocks should be shown on this plan, as well as any site drainage features such as swales, area drains, bubblers, etc. Grading that increases drainage onto, or blocks existing drainage from neighboring properties, will not be allowed. Public Works generally does not allow rainwater to be collected and discharged into the street gutter, but encourages the developer to keep rainwater onsite as much as feasible by directing runoff to landscaped and other pervious areas of the site. See the Grading & Drainage Plan Guidelines for New Single Family Residences on the City’s website.
<http://www.cityofpaloalto.org/civicax/filebank/documents/2717>
44. BASEMENT DRAINAGE: Due to high groundwater throughout much of the City and Public Works prohibiting the pumping and discharging of groundwater, perforated pipe drainage systems at the exterior of the basement walls or under the slab are not allowed for this site. A drainage system is, however, required for all exterior basement-level spaces, such as lightwells, patios or stairwells. This system consists of a sump, a sump pump, a backflow preventer, and a closed pipe from the pump to a dissipation device onsite at least 10-feet from the property line and 3-feet from side and rear property lines, such as a bubbler box in a landscaped area, so that water can percolate into the soil and/or sheet flow across the site. Include these dimensions on the plan. The device must not allow stagnant water that could become mosquito habitat. Additionally, the plans must show that exterior basement-level spaces are at least 7-3/4” below any adjacent windowsills or doorsills to minimize the potential for flooding the basement. Public Works recommends a waterproofing consultant be retained to design and inspect the vapor barrier and waterproofing systems for the basement.

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45. **BASEMENT SHORING:** Shoring Plans prepared by a licensed professional are required for the Basement Excavation and shall be submitted with the Grading and Excavation Permit. Shoring for the basement excavation, including tiebacks, must not extend onto adjacent private property or into the City right-of-way without having first obtained written permission from the private property owners and/or an encroachment permit from Public Works.
46. The site drainage system that collects runoff from downspouts and landscape area shall be a separated from the pump system that discharges runoff from light wells. Plot and clearly label the two separate systems and including the separate outfalls for each system.
47. **UTILITIES:** Note that all above ground utilities, such as transformer, backflow preventer, gas meters, etc., shall be located within project site but accessible from the street. Any new or relocated utilities will correspond with approved locations from City Utilities Department.
48. **GEOTECHNICAL REPORT:** Shall clearly identify the highest projected groundwater level to be encountered in the area of the proposed basement in the future will be _____ feet below existing grade. Provide the following note on the Final Grading Plans. "In my professional judgement, the highest projected groundwater level to be encountered in the area of the proposed basement in the future will be _____ feet below existing grade. As a result, the proposed drainage system for the basement retaining wall will not encounter and pump groundwater during the life of this wall."
49. **DEWATERING:** Excavation may require dewatering during construction. Public Works only allows groundwater drawdown well dewatering. Open pit groundwater dewatering is not allowed. Dewatering is only allowed from April through October due to inadequate capacity in our storm drain system. The geotechnical report for this site must list the highest anticipated groundwater level. We recommend that a piezometer be installed in the soil boring. The contractor shall determine the depth to groundwater immediately prior to excavation by using a piezometer or by drilling and exploratory hole. Based on the determined groundwater depth and season the contractor may be required to dewater the site or stop all grading and excavation work. In addition Public Works may require that all groundwater be tested for contaminants prior to initial discharge and at intervals during dewatering. If testing is required, the contractor must retain an independent testing firm to test the discharge water for contaminants Public Works specifies and submit the results to Public Works.

Public Works reviews and approves dewatering plans as part of a Grading Permit and Dewatering Permit. The applicant can include a dewatering plan in the building permit plan set in order to obtain approval of the plan during the building permit review, but the contractor will still be required to obtain a Grading Permit prior to dewatering. Alternatively, the applicant must include the above dewatering requirements in a note on the site plan. Public Works has dewatering guidelines available at the Development Center and on our website.

https://www.cityofpaloalto.org/gov/depts/pwd/forms_and_permits/default.asp

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50. WATER FILLING STATION: applicant shall install a water station for the non-potable reuse of the dewatering water. This water station shall be constructed within private property, next to the right-of-way, (typically, behind the sidewalk). The station shall be accessible 24 hours a day for the filling of water carrying vehicles (i.e. street sweepers, etc.). The water station may also be used for onsite dust control. Before a discharge permit can be issued, the water supply station shall be installed, ready for operational and inspected by Public Works. The groundwater will also need to be tested for contaminants and chemical properties for the non-potable use. The discharge permit cannot be issued until the test results are received. Additional information regarding the station will be made available on the City's website under Public Works.
51. WORK IN THE RIGHT-OF-WAY: The plans must clearly indicate any work that is proposed in the public right-of-way, such as sidewalk replacement, driveway approach, or utility laterals. The plans must include notes that the work must be done per City standards and that the contractor performing this work must first obtain a Street Work Permit from Public Works at the Development Center. If a new driveway is in a different location than the existing driveway, then the sidewalk associated with the new driveway must be replaced with a thickened (6" thick instead of the standard 4" thick) section. Additionally, curb cuts and driveway approaches for abandoned driveways must be replaced with new curb, gutter and planter strip.
52. Provide the following note on the Site Plan and adjacent to the work within the Public road right-of-way. "Any construction within the city's public road right-of-way shall have an approved Permit for Construction in the Public Street prior to commencement of this work. THE PERFORMANCE OF THIS WORK IS NOT AUTHORIZED BY THE BUILDING PERMIT ISSUANCE BUT SHOWN ON THE BUILDING PERMIT FOR INFORMATION ONLY."
53. Provide the following note on the Site Plan and Grading and Drainage Plan: "Contractor shall not stage, store, or stockpile any material or equipment within the public road right-of-way." Construction phasing shall be coordinate to keep materials and equipment onsite.
54. SIDEWALK, CURB & GUTTER: As part of this project, the applicant shall replace those portions of the existing sidewalks, curbs, gutters or driveway approaches in the public right-of-way along the frontage(s) of the property. Contact Public Works' inspector at 650-496-6929 to arrange a site visit so that the inspector can discuss the extent of replacement work along the public road. The site plan submitted with the building permit plan set must show the extent of the replacement work. The plan must note that any work in the right-of-way must be done per Public Works' standards by a licensed contractor who must first obtain a Street Work Permit from Public Works at the Development Center. Provide site direction sheet obtained from PW inspector in plan set.
55. Any existing driveway to be abandoned shall be replaced with standard curb & gutter. This work must be included within a Permit for Construction in the Public Street from the Public Works

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Department. A note of this requirement shall be placed on the plans adjacent to the area on the Site Plan.

56. IMPERVIOUS SURFACE AREA: The project will be creating or replacing 500 square feet or more of impervious surface. Accordingly, the applicant shall provide calculations of the existing and proposed impervious surface areas with the building permit application. The Impervious Area Worksheet for Land Developments form and instructions are available at the Development Center or on our website.
57. PUBLIC WORKS STANDARDS CONDITIONS: The City's full-sized "Standard Conditions" sheet must be included in the plan set. Copies are available from Public Works on our website:
<http://www.cityofpaloalto.org/civicax/filebank/blobdload.aspx?t=67175.06&BlobID=66261>
58. STORM WATER POLLUTION PREVENTION: The City's full-sized "Pollution Prevention - It's Part of the Plan" sheet must be included in the plan set. Copies are available from Public Works on our website
<http://www.cityofpaloalto.org/civicax/filebank/documents/2732>
59. This project triggers the California Regional Water Quality Control Board's revised provision C.3 for storm water regulations (incorporated into the Palo Alto Municipal Code, Section 16.11) that apply to residential land development projects that create or replace between 2,500 and 10,000 square feet of impervious surface area. The applicant must implement one or more of the following site design measures on the grading and drainage plan:
- Direct roof runoff into cisterns or rain barrels for reuse.
 - Direct roof runoff onto vegetated areas.
 - Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
 - Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
 - Construct sidewalks, walkways, and/or patios with permeable surfaces.
 - Construct driveways, and/or uncovered parking lots with permeable surfaces
60. Provide the following as a note on the Site Plan: "The contractor may be required to submit a logistics plan to the Public Works Department prior to commencing work that addresses all impacts to the City's right-of-way, including, but not limited to: pedestrian control, traffic control, truck routes, material deliveries, contractor's parking, concrete pours, crane lifts, work hours, noise control, dust control, storm water pollution prevention, contractor's contact, noticing of affected surrounding properties, and schedule of work. The requirement to submit a logistics plan will be dependent on the number of applications Public Works Engineering receives within close proximity to help mitigate and control the impact to the public-right-of-way. If necessary, Public Works may require a Logistics Plan during construction."

End Project Conditions

March 25, 2020

Emily Foley, AICP
Associate Planner
City of Palo Alto
Planning & Development Services

CITY OF PALO ALTO, CA
CITY CLERK'S OFFICE

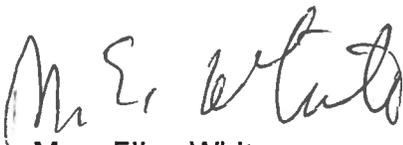
20 MAR 31 PM 1:32

EMILY: Please take this reply email as confirmation that we would like to appeal the decision of the Director to grant demolition of the current no-basement Stedman home at 2353 Webster St. and approval of construction of a 3-level replacement, with a below ground level structure which itself is larger than the current one-story residence it replaces.

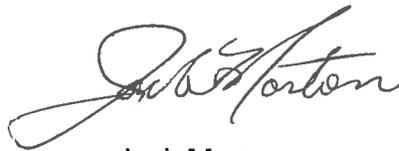
Our concern is that construction and the continuance of such a large underground structure will spell the death knell for the 350yr old Oak tree.

In view of the City's close-down in response to the coronavirus, I was not sure, how to submit the request for appeal of the Director's decision and the requisite fee. I appreciate your follow up.

I am assuming that the fee would normally be submitted to the Office of the City Clerk with a verbal/written request to appeal the Director's decision but not also with the requirement that the full presentation of the Appeal accompany that formal request.



Mary Ellen White
2343 Webster St.
Palo Alto, Ca 94301



Jack Morton
2343 Webster St.
Palo Alto, Ca 94301

On 2020-03-25 15:10, Foley, Emily wrote:

> Hi Jack,

>

> This email is in response to our phone call. As I said on the phone,
> we will be honoring the two-week period in the Director's Hearing to
> appeal the decision. Please let me know if you would like to appeal,
> though we do not yet have an established process to accept the appeal.
> The fee of \$595 will be due to the City Clerk as soon as a process is
> established.

>

> Please let me know your response and if you have any questions.

>

> Thank you,

>

> Emily

>

> Emily Foley | AICP | Associate Planner | Planning & Development

> Services

>

> 250 HAMILTON AVE. 5TH FLOOR, PALO ALTO CA 94301

>

> PHONE: (650) 617 - 3125



Regulations for Groundwater Dewatering during Construction of Below Ground Structures

A How-to Guide to Meeting City of Palo Alto Dewatering Requirements

I. BACKGROUND

In recent years, concerns that temporary construction-related groundwater dewatering may be wasting water, potentially damaging structures, trees and vegetation, and depleting or altering the flow of groundwater, have arisen. In response, the City of Palo Alto (City) established new requirements in February 2016 designed to minimize and standardize the process of pumping and discharge of groundwater from dewatering of below ground structures (e.g., basement or parking garage) during construction.

After the results of new groundwater dewatering regulations from the 2016 and 2017 Construction Seasons, the City Council approved several enhancements to the dewatering policy that were codified in the Palo Alto Municipal Code and went into effect in May 2017, and again in December 2017 (Attachment 1). The 2017 changes included improving Fill Station performance, monitoring actual groundwater elevation changes during assessing impacts on nearby structures, clarifying reporting requirements, and a Hydrogeological Study (Study). This guide provides further explanation regarding the most recent code changes (which became effective on February 21, 2018) and is intended to assist project applicants in meeting code requirements.

II. GENERAL GROUNDWATER DEWATERING REQUIREMENTS

Note that this document is in reference to *temporary groundwater dewatering during construction of below ground structures*. This document does not contain information regarding dewatering of *existing* below ground structures in the City of Palo Alto. Temporary construction-related groundwater dewatering (dewatering) may be conducted using 1) groundwater exclusionary techniques (e.g., secant or cut-off walls), or 2) controlled groundwater pumping, also known as drawdown well dewatering. The City's Public Works Department (Public Works) does not allow open pit dewatering of groundwater during construction; however, it may be allowed, if water quality limits are met, for removal of rainwater if it has accumulated at the bottom of an excavation site. If rainwater dewatering is required, the project manager/applicant must contact the City's Watershed Protection Group at (650) 329-2122 before discharging to the City's storm drain system.

Attachment 2 provides applicants a basic flow chart to understand the City's compliance process regarding the two types of allowed construction dewatering. To assist the City in determining whether dewatering will likely be required in the construction of below ground structures, the project applicant must submit a Geotechnical Report, also known as a soils report, (separate from the Hydrogeological Study described below) prior to the Building Permit application. In addition, if the deepest excavation will be within five feet of the anticipated groundwater level stated in the Geotechnical Report, the contractor must determine the depth to groundwater immediately prior to submittal of the [Excavation and Grading Permit](#). It is recommended that the boring hole for this depth measurement be protected and maintained and used as the monitoring well for the dewatering operations.

As discussed later in this document, all dewatering sites are required to install a monitoring well onsite at the farthest feasible point from the underground structure. Placing this boring correctly and protecting it may avoid future work.

If groundwater is found to be within two feet of the deepest excavation, a drawdown well dewatering system or cutoff wall must be installed. Regardless of this testing, if groundwater is actually encountered during construction (and the applicant does not have a dewatering permit), the contractor must immediately stop all work and must meet all of the following requirements prior to resuming work.

The City's dewatering season is April 1 through October 31 due to the capacity of the City's storm drain system. Dewatering to the sanitary sewer system is prohibited, exceptions may be allowed only under special circumstances and with a discharge permit obtained through Public Works' Watershed Protection Group. During the dewatering season, sites will be allowed to dewater for a 12-week time period, including a two-week start-up period. The two-week start-up period is intended to provide adequate time for the contractor to meet the City's dewatering requirements as well as City staff to inspect and monitor the dewatering start-up operation. At the end of the two-week start-up period, compliance with all performance standards and water quality standards, the hydrogeological study data, shall be demonstrated in order to continue dewatering.

Residential sites are expected to complete dewatering within the allotted time period. Dewatering beyond 12 weeks is allowed only under special circumstances and if approved by the City Engineer. The City will consider allowing groundwater discharges to occur (to the storm drain system) from November 1 to March 31 if the applicant can provide sufficient evidence that the receiving storm drain line and water body has sufficient capacity to accommodate a 10-year, 6-hour storm event in addition to the dewatering discharge (a pipe capacity calculation).

Where dewatering is required, applicants shall conduct dewatering in full compliance with the provisions of Chapter [16.28](#) (Excavation, Grading and Fills) as well as Chapter [9.10](#) (Noise) of the [City's Municipal Code](#), the regulations in this guide, and other permit conditions established by City staff. Due to the complexity of dewatering projects, City staff may impose and enforce additional requirements when or after a permit is issued in order to ensure public safety, ensure the condition of its infrastructure, or to protect the water quality of downstream water bodies. During the period of construction and dewatering discharge, project applicants/permittees are expected to promptly implement actions identified and required by City staff, including, but not limited to, notices of non-compliance and directives requiring immediate cessation of discharge. Administrative penalties may be put into effect for sites not in compliance with any of the City requirements, and will accrue if the applicant does not comply as requested by the City. A cessation order may be issued for reasons including, but not limited to: capacity issues in the storm drain or sanitary sewer systems; storm drain or sanitary sewer system failures; excess flow entering the Palo Alto Regional Water Quality Control Plant, including exceptional storm events; emergency or routine maintenance of City infrastructure; protection of the environment, public health, safety and welfare; and failure to follow the terms/conditions/requirements of any permit.

NOTE: All information contained in the dewatering permit application, dewatering permit, supporting documents, and the associated street work permit will be made available to the public upon request.

III. GROUNDWATER EXCLUSIONARY TECHNIQUE REQUIREMENTS

If the rate of groundwater discharge is greater than thirty gallons per minute for residential sites, groundwater exclusionary techniques cannot be used, and the requirements of Subsections IV (below) shall be followed.

When groundwater exclusionary techniques are utilized, applicants must submit to the City a Dewatering Permit – Groundwater Exclusionary Technique packet with a Grading and Excavation Permit application (after Planning entitlement is approved). The Grading and Excavation Permit for a project will not be issued until all required submittals related to dewatering have been submitted, reviewed and approved by Public Works Engineering staff. The (Exclusionary Techniques) Dewatering Packet (Attachment 3) shall include the following: 1) Exclusionary Technique Permit form, 2) Exclusionary Technique plan, and 3) Inspection Checklist. Groundwater exclusionary techniques shall be conducted in compliance with the following:

- A. The rate of discharge of groundwater shall be limited to thirty gpm or less for residential dewatering projects.
- B. The Dewatering Plan shall be followed at all times and shall consist of a plan view of the project site and include all required features of the dewatering operation such as but not limited to: metered settling tank and it's safely accessible location onsite, monitoring well at the farthest feasible onsite point from the excavation, location and size of percolation pits, pump location/s, associated piping, and stabilized construction entrance.
- C. Groundwater Use Plan shall illustrate how the groundwater will be used to the maximum extent practicable and without discharge to the storm drain system. When feasible, the primary focus of discharge shall be to percolate the discharge onto the construction property, usually into percolation pits. A secondary method of discharge should be to percolate the groundwater onto adjacent neighbor properties upon their permission (this should be handled between the project applicant and the property owners without facilitation or further approval from the City). Finally, the groundwater may be trucked offsite and, in coordination with the City's Urban Forestry and/or Parks and Recreation staff, distributed throughout the City to locations that can use the water.
- D. The applicant shall install a groundwater monitoring well at the site. It shall be located at the farthest feasible onsite point from the underground structure. Initial groundwater level results must be included in the dewatering plan (same data point as the one required prior to grading and excavation permit application).
- E. Project status reporting: During the construction period of the underground structure, the applicant must submit periodic groundwater level reports and have the data available per request. At minimum, monitoring well data shall be collected daily for the first two weeks beginning with the start of the excavation

activity and weekly thereafter. A final report shall be submitted two weeks after pumping of residual water ceases. All status reports should be submitted to Public Works Engineering (PWE) staff at the Development Center, email to the PWE staff person reviewing the project is preferred. Questions should be directed to pwecips@CityofPaloAlto.org. **NOTE: Administrative Penalties may be imposed upon failure to follow the required reporting frequency.**

IV. CONTROLLED GROUNDWATER PUMPING (WITHOUT A SECANT OR CUT-OFF WALL) REQUIREMENTS

When controlled groundwater pumping techniques are utilized, applicants must submit to the City a Dewatering Permit – Controlled Groundwater Pumping Packet with the Excavation and Grading Permit and Street Work Permit applications (after Planning entitlement is approved). The Excavation and Grading permit for a project will not be issued until all required submittals have been received, reviewed, and approved by PWE staff. A Dewatering Permit must be obtained before any discharge from the site occurs. Note that for residential projects, the Excavation and Grading Permit is only issued concurrently with the Building Permit.

While discharging to the storm drain system, **construction work** on the underground structure **shall be continuous and occur daily** (in accordance with approved work hours). The contractor shall make progress towards completion of the underground structure without delay and following the detailed construction schedule provided in the Excavation and Grading Permit and/or the Dewatering Permit packet.

In addition to what is required for exclusionary techniques (aside from the cut-off wall itself and the 30 gpm limitation), a Hydrogeological Study and an in-depth Groundwater Use Plan must also be submitted. Refer to the Controlled Groundwater Pumping Dewatering Permit Packet in Attachment 4 for more information. The following provides additional details regarding the City’s controlled groundwater pumping requirements:

HYDROGEOLOGICAL STUDY REQUIREMENTS HAVE CHANGED:

Public Works will no longer accept the use of “single layer models” to analyze subsurface soil condition of a particular parcel or project site where an underground structure is proposed and where dewatering is required. A “single layer model” is defined as any calculation, computer program or other method, which models the composition and/or properties of subsurface soils as a single, homogeneous layer of material. Site specific tests shall be performed to generate data in order to model the subsurface soil properties and produce a more accurate, site-specific, model. Additional information is detailed below.

As with exclusionary techniques, the applicant shall install a groundwater monitoring well on the construction site at the farthest feasible point from the underground structure. Initial groundwater level results must be included in the Hydrogeological Study. During the construction period of the underground structure, the applicant must submit frequent groundwater level reports and have the data available per request. At minimum, monitoring well data shall be conducted daily for the first two weeks of the 12-week period and weekly

thereafter. At the end of the two week start-up period, or thereafter, if drawdown results are greater than anticipated, the applicant shall submit a revised Dewatering Hydrogeological Study and any revised conclusions on impacts of the groundwater drawdown.

- A. Dewatering Hydrogeological Study - The purpose of this Study is to determine the initial, pre-construction groundwater levels as well as the impacts of groundwater pumping on the site and surrounding area. The Study should include the radius of influence (i.e. extent of cone of depression) from each dewatering well (if more than one is installed on-site) **as a function of time**, based on local soil and groundwater conditions. The Hydrogeological Study shall demonstrate that the dewatering plan has been designed to the maximum extent practicable to minimize the volume of water pumped during the dewatering operation, the flow rate, and the duration of the pumping. The Study shall be stamped by a California licensed Hydrogeologist or California licensed Geotechnical Engineer and submitted to the City as part of the Dewatering Packet. The Study should also include the following items:
- i. A *minimum* of 4 borings or other subsurface tests (Cone Penetrometer Tests, CPTs, are preferred) shall be performed across the project site/excavation area by a California licensed Geotechnical Engineer in order to develop a multilayer model of the subsurface soil conditions and properties. The tests should be performed to a depth of no less than 30 feet below existing grade (for residential projects). The test data shall be used to create a multi-layer model of subsurface conditions; **single-layer models which model site conditions as a homogenous layer will not be accepted.**
 1. The data shall be used to design a dewatering plan based on the subsurface conditions/strata which results in the minimization of pumped water to the maximum extent practicable.
 2. Well depth shall be specified based upon the subsurface conditions.
 3. The pump depth within the dewatering well shall be specified based on the subsurface conditions and required drawdown.
 - ii. A description and cross section(s) of the cone(s) of depression of any on-site monitoring well(s) as well as any nearby dewatering sites within a 400-foot radius of the property that may interact with or be influenced by the dewatering activity at the site. The location of the monitoring well(s) and nearby sites should also be shown on a map.
 - iii. Anticipated drawdown curve and pumping flow rate. A description and cross section(s) of the cones of depression of the dewatering wells shall be calculated and graphed. The predicted drawdown level (depth to groundwater) at the onsite monitoring well shall be shown **as a function of time**; accurately graphed cross sections with data points or tabular data format shall be provided. The anticipated pumping flow rate shall be calculated for the dewatering system as well as the total volume due to be pumped for the 12 week dewatering period and daily totals.

1. **NOTE: The depth of each dewatering well pump will be verified in the field once installed and prior to any dewatering operations.**

- iv. Using extrapolated data from the drawdown curves, determine the pumping rates needed to achieve the following drawdown performance: Prior to pouring a basement slab, groundwater may be pumped no deeper than three feet below the depth of the slab, measured at the center. After the slab is poured, groundwater may be pumped no deeper than one foot below the center. These values can be extrapolated using the (verified) drawdown curves and the on-site monitoring well data points.

B. Groundwater Use Plan (Plan) shall demonstrate how the pumped groundwater will be used to the maximum extent practicable. Two required components of this plan are the 1) groundwater flow meter and sediment settling tank system and 2) the Fill Station. Both components must be inspected and approved by City staff before obtaining a Controlled Groundwater Pumping Dewatering Permit. Inspections and approvals are documented via the Inspection Checklist (Attachment 4), which **must** be signed by a Public Works Inspector prior to issuing the Grading Permit, Dewatering Permit, Street Work permit, and associated Building Permit; no Dewatering Permit will be issued without a Public Works Inspector–signed Checklist. At a minimum, the Plan should include the items below; however, the applicant should be creative in their plan to use the pumped groundwater and shall adhere to the Plan throughout the dewatering period:

- i. Groundwater flow meter and sediment settling tank system:
 - 1. Provide an accurate, **non-mechanical** flow meter with a data logger in good working condition at the inlet of the tank. The flow meter shall be positioned in a location which is safely accessible by City inspectors on a regular basis. Both flow rate and total flow measurements shall be easily readable and **set to gallons**. Before any water is pumped, the initial flow meter reading shall be checked and verified by the Watershed Protection Inspector (WP Inspector) as part of the initial dewatering Inspection Checklist approval process. The WP Inspector will collect meter readings on a daily basis during the two-week start-up period and weekly thereafter; the contractor is required to also monitor and record the meter readings using the same frequency.
 - a. The area surrounding the tank should be kept clear at all times, with a **safe pathway** to the meter and tank.
 - b. The edge of the tank should not be at the edge of the excavation area, as it may lead to unsafe conditions.
 - c. **The contractor shall contact PW Inspection prior to changing or replacing any meter.**
 - d. The point of outlet on the settling tank cannot be at the bottom of the settling tank.
 - e. The settling tank must have a discharge valve which can be locked in a closed position. PW or WP Inspectors will

lock the discharge valve to ensure that the erroneous discharge does not occur and that the City is notified and aware of exactly when discharge begins. Further sections below explain this process in greater detail.

2. Design the tank system so that the storage tank is always at minimum one-half full during the entire dewatering period to facilitate water truck usage.
 3. Prior to the start-up period and as part of the Inspection Checklist process, once the tank is at least half-full and before any discharge of groundwater occurs, contact Watershed Protection at (650) 329-2122 for an initial inspection and for water quality testing. For non-(contaminated) plume areas, basic measurements will generally include pH, conductivity and turbidity.
 4. After the WP Inspector collects water quality samples and provides a clearance that the sample is within acceptable limits, the contractor will contact the WP Inspector to temporarily unlock the tank discharge valve to allow the tank to be drained to the property while waiting to obtain the Dewatering Permit Packet from Public Works Engineering. Consult the WP Inspector for assistance. Provide a screen or other covering over the tank for mosquito management. City staff may require the use of Bacillus thuringiensis israelensis (Bti), a naturally occurring soil bacterium that effectively kills mosquito larvae, if necessary.
- ii. A Fill Station shall be constructed to provide the City and nearby residents and business owners the opportunity to use the pumped groundwater and to minimize the amount discharged to the storm drain system. The Fill Station should include two methods for water distribution: a truck-filling outlet for water truck distribution to sites in the City and a fill-up outlet, or hose bibbs, for neighboring properties. Detailed information about the fill station and its components is listed below. When the Fill Station is ready, contact Public Works Engineering Inspection staff (PWE Inspector) at (650) 496-6929 for an inspection of both the Fill Station and settling tank system and contact Building Inspection staff at (650) 444-6173 for an Electrical Safety Check. (Inspectors must check off these items on the Inspection Checklist.) The following is required for the Fill Station:
1. Location and set-up:
 - Locate the Fill Station outside the site construction fence to allow 24-hour access. The construction site should be locked outside of normal construction hours.
 - A lock is not required at the Fill Station, but if the applicant deems it necessary, a combination lock should be used with the combination of 2, 4, 6, 8 (or other easily

remembered combination and shared with City Inspectors).

- Truck fill outlet: provide a 2.5-inch hydrant fitting hose connection with a 50-foot traffic-rated hose.
 - Neighboring properties fill outlet: provide at least two 100-foot (minimum) hoses arranged on reels and connected to standard hose bibs. Hose bibs shall produce a minimum of 10gpm at the end of each 100 foot hose simultaneously. The applicant shall allow adjacent properties to use hoses connected to the fill station(s). Hoses shall be placed in a manner that is safe to the public and does not cause damage to neighboring or City property. Hoses shall not cross the street. The City may modify these requirements as circumstances require.
 - As with the tank system, the fill station shall include accurate and safely accessible, **non-mechanical** flow meters with data loggers in good working condition at the outlet point of the Fill Station to log water reuse. Both flow rate and total flow measurements shall be easily readable and **set to gallons**. The initial flow meter reading should be noted before any water is pumped. Flow meter reading shall be checked and verified by the PWE or WP Inspector as part of the initial dewatering approval process, Inspection Checklist. The WP Inspector will collect Fill Station meter readings on a daily basis during the two-week start-up period and weekly thereafter; the contractor is required to also monitor and record the meter readings using the same frequency.
 - Supply log sheets and a pen for truck drivers to log the truck company, date, and amount of each fill-up.
 - The temporary power source needed for the Fill Station should be placed inside the construction site (and NOT in the Fill Station), if possible. If needed, a switch with an in-use cover to power on the Fill Station pump may be placed inside the fill station cabinet. An additional switch with an in-use cover for the truck-fill hose pump should be provided. Both switches should be clearly labeled.
 - Provide easy-to-read signage for the Fill Station (including "Do not Drink") and directions explaining how to use it.
 - For the hose bibs, provide signage that reads "No Hoses Crossing Street, Sidewalk, or Private Properties."
2. The applicant must demonstrate maximum 10-minute fill time for a ~2700 gallon water truck as part of the Inspection Checklist signoff.
 3. Prior to the commencement of dewatering activities, the applicant shall notify occupants of neighboring properties of the temporary availability of water. Contact Public Works Engineering

staff (650 329-2496, Option 8) for copies of door hangers to be used for notification. Door hangers not collected/received by the residents must be removed after 24 hours.

- iii. Irrigation of sites: The applicant is responsible for having the pumped groundwater delivered to nearby sites as directed by the City. The applicant shall contract with or otherwise provide water truck service; the water truck operator/company shall contact the City's Urban Forestry staff should be contacted by the truck service company at (650) 496-5986 to determine the location of sites to be irrigated. During the first six weeks of dewatering activities (not including the two-week start-up period), water should be trucked one full day (8 hours) per week from the project site to the irrigation sites. This shall increase to five days per week (8 hours per day) during the remaining 4 weeks of the dewatering period.
- iv. On-site Use of Groundwater: Pumped groundwater should be used on the construction site as needed and whenever possible. This includes controlled infiltration, irrigation of existing landscaping, dust suppression and other construction needs.

C. A Pre-construction Building Condition Survey and Report of structures located on adjacent parcels prepared by a licensed surveyor and meeting City standards must be submitted, reviewed, and approved prior to obtaining a dewatering permit. The survey must be prepared by a California licensed surveyor whereas the photographic and narrative report may be prepared by the applicant. Both documents shall be submitted at the same time as one report. The applicant is responsible for obtaining permission from neighboring property owners to enter their property to take survey points of the building interior. If permission is not granted, City staff should be notified; however, interior survey points are not required in order to obtain a Dewatering Permit. The survey shall include a photographic and narrative report on the external condition of each structure as well as surveyed and marked elevations of adjacent parcels, with particular attention to the condition of concrete foundations, structural connections, brickwork, plasterwork and other architectural finishes that are susceptible to cracking. The report shall assess the likelihood that the proposed dewatering would cause effects (including but not limited to settlement or movement) on off-site private or public structures or infrastructure, including the right-of-way, easements, and utilities within public utility easements, and the health or viability of vegetation or trees. To the extent that the report concludes that off-site effects are reasonably likely to occur, the applicant shall identify avoidance measures to be implemented that will minimize the type and severity of those effects and shall develop a monitoring plan to assess any actual effects on vegetation, trees, structures and infrastructure.

D. A pipe capacity calculation is required. This calculation shall show that the storm drain inlet to which the dewatering water is proposed to be discharged to can accommodate the anticipated dewatering discharge in addition to a 10-year, 6 hour storm event. PW Engineering can assist in providing the appropriate storm

drain staff for assistance. **NOTE: If the pipe capacity analysis determines that the storm drain discharge point cannot accommodate the dewatering flow in addition to the 10 year, 6 hour, storm event, a Dewatering permit CANNOT be issued the day-of or after the date which is 12 weeks prior to October 31st. In other words, dewatering cannot begin within 12 weeks of October 31st.**

- E. A detailed construction schedule must be included in the dewatering permit application packet. This schedule shall detail construction phases such as, but not limited to:
- a. Equipment mobilization
 - b. Shoring installation
 - c. Dewatering plan setup
 - d. Excavation activity
 - e. Dewatering start
 - f. Finished excavation
 - g. Basement construction – base rock, rebar, forms, plumbing, concrete, waterproofing, etc.
 - h. Backfill
 - i. Dewatering end

The construction schedule shall list the duration of each step in days/weeks and total the number of weeks between Dewatering start and Dewatering end.

- F. A Dewatering Regulation Acknowledgement Statement must be signed by the property owner/s and licensed contractor and shall accompany the dewatering application.
- G. **Contractor is required to begin shoring installation and excavation once the Excavation and Grading permit is issued and PRIOR to any dewatering operations. In order to minimize the volume of groundwater discharged to the storm drain and to maximize the 12 week allowable dewatering period, the dewatering system may ONLY be turned on once the excavation has encountered water or reached a depth within 2 feet of where groundwater is located based on the current monitoring well measurement at that time. The contractor is required to contact PW Inspection or WP Inspection prior to dewatering operation startup to unlock the settling tank discharge valve. Once the discharge valve is unlocked, the contractor must IMMEDIATELY obtain the dewatering permit from PW staff at the Development Center. If the dewatering permit is not immediately obtained on the same day the discharge valve is unlocked, PW will revoke the Excavation and Grading permit and daily administrative penalties may apply.**
- H. **STARTUP of dewatering operations is limited to Monday through Thursday ONLY.**

Dewatering may NOT start Friday through Sunday.

- I. **Upon dewatering shutdown, the settling tank meter shall remain in place until City staff have recorded the final meter reading; PW or WP inspection should be contacted to record the meter reading.**

- J. Verify the anticipated drawdown curve with a pump test performed on monitoring well(s) installed on the project site. Though the City is not currently requiring a particular type of pump test, the type used should be authorized and approved by a California licensed Hydrogeologist or CA licensed Geotechnical Engineer. Using the pump test and any other relevant data, the report shall state the anticipated pumping flow rate as well as the total amount of water due to be pumped for the 12 week dewatering period; daily pumped totals shall also be included. Following the two-week start-up period, the dewatering, pumping rates and maximum amount of water pumped on a daily basis shall be limited to the values calculated in the verification study.

- F. Project status reporting: During the construction period of the underground structure, the applicant must submit periodic reports and have the data available per request. Report contents and submittal frequency requirements are listed below. All status reports should be submitted via email to the Public Works Engineering staff who has been working on your project and who issued the Excavation and Grading permit. Questions should be directed to pwecips@CityofPaloAlto.org.
 - 1) Monitoring well levels: At minimum, monitoring well data shall be collected daily for the first two weeks (start-up period) of the 12-week period and weekly thereafter. Status reports should be submitted weekly during start-up period and monthly thereafter. A final report shall be submitted two weeks after pumping ceases.

 - 2) Flow meter readings: At minimum, flow meter data shall be collected daily for the first two weeks (start-up period) of the 12-week period and weekly thereafter. Status reports should be submitted weekly during start-up period and monthly thereafter. A final report shall be submitted two weeks after pumping ceases.

 - 3) Survey data (see subsection IV.C. above): Once dewatering commences, survey data should be collected and reported weekly during the two-week start-up period and monthly thereafter. Note that the information will be made available to the public upon request.

- G. The Contractor and/or Applicant is required to **contact PW Inspection** to obtain the final meter readings once groundwater discharge has finished and **prior to dismantling any dewatering system components.**

V. ADDITIONAL REQUIREMENTS FOR TEMPORARY CONSTRUCTION-RELATED GROUNDWATER DEWATERING IN GROUNDWATER (CONTAMINATED) PLUME AREAS

Certain areas in the City have contaminated groundwater plumes due to previous land use. To determine if a site is in or nearby one of these areas, refer to the Attachment 5 figure. Dewatering sites in these areas must be carefully managed to ensure pumped groundwater does not enter the City's storm drain system nor that it is used by members of the public without being treated. Therefore, Fill Stations are not required at these sites. However, the same flow meter/data logger requirements described in Section IV (B.i.) shall still be followed in order to account for the amount of groundwater pumped from the site.

Construction of below ground structures in these areas triggers treatment requirements (in addition to sediment settlement) before discharging to the City's storm drain system in order to protect the water quality of downstream creeks and the SF Bay. Because of site complexities, specific requirements may vary site by site. Therefore, for any site in or within 500 feet of the edge of a plume, contact the City's Watershed Protection Group at (650) 329-2122 for guidance and requirements on sampling, treatment and disposal of temporary construction-related groundwater. Sampling groundwater for contaminants prior to initial discharge will be required, and potentially at intervals during dewatering. For all required sampling, the contractor must retain an independent testing firm to collect and process samples. Finally, the applicant should contact the Regional Water Quality Control Board (Water Board) to ensure additional state agency requirements are met. Note that compliance with the City does not imply compliance with the Water Board.



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330-673-5685
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6005 Capistrano Suite A
Atascadero, CA 93422
Direct: 720-667-9236
barry.duncil@davey.com

September 22nd, 2019

Gordana Pavlovic
Gordana Design Studio, LLC
602 Hawthorne Ave.
Palo Alto, CA 94301
650.483.4622

RE: Arborist Report and Tree Protection Plan for Potential Development Impacts at
2353 Webster St. in Palo Alto, California

Dear Ms. Pavlovic,

Thank you for contracting with Davey Resource Group regarding the above project. In support of your objectives, Davey Resource Group (DRG) is pleased to provide you with the attached report for the planned construction.

A DRG International Society of Arboriculture (ISA) Certified Arborist conducted the site inspection of the trees that may be impacted by construction located at the above location in Palo Alto, California on February 3rd, as well as July 31st, 2019. The trees were assessed for location, size, current condition and overall health, as well as identifying critical and structural root zones to assist with tree protection plans. The attached report can be used to make informed decisions about demolition and construction planning, and long-term care of the trees.

The survey determined the following:

- Twenty-one (21) trees within the potential impacts of the project scope were evaluated.
- Fourteen (14) species were identified with the most significant four (4) species listed as: valley oak (*Quercus lobata*), coast redwood (*Sequoia sempervirens*), ash (*Fraxinus spp.*) and southern magnolia (*Magnolia grandiflora*)
- Tree condition ratings ranged from 52% (Fair) to 75% (Good).
- It was determined that eighteen (18) trees will require some form of tree protection measures due to proposed site improvements.
- Two (2) trees are recommended for removal due to proposed site improvements.
- One (1) large valley oak will require extensive monitoring and specific procedures during demolition and construction

Please feel free to contact me if you would like more information or have any questions.

Sincerely,

Emily Spillett

Davey Resource Group
Certified Arborist #WE-6702A

ARBORIST REPORT AND TREE PROTECTION PLAN

2353 Webster St.
Palo Alto, California
August 2019
Revised September 2019



Arborist Report & Tree Protection Plan for
2353 Webster St.
Palo Alto, California

Prepared for

Gordana Pavlovic
Gordana Design Studio, LLC
602 Hawthorne Ave.
Palo Alto, CA 94301

August 2019
Revised September 2019

Prepared by

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Notice of Disclaimer

Inventory data provided by Davey Resource Group is based on visual recording at the time of inspection. Visual records do not include testing or analysis and do not include aerial or subterranean inspection. Davey Resource Group is not responsible for discovery or identification of hidden or otherwise non-observable risks. Records may not remain accurate after inspection due to variable deterioration of inventoried material and site disturbance. Davey Resource Group provides no warranty with respect to the fitness of the urban forest for any use or purpose whatsoever or for future outcomes of the inventoried trees.

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Summary

In August 2017, Davey Resource Group (DRG) was contracted by Gordana Pavlovic to explore the possibility of having a new home on the site, address concerns about the impacts the project might have on the trees in proximity and define an area on the lot where the new construction would be possible at 2353 Webster St. in Palo Alto, CA, and what the condition of the trees are in before any design or construction began. In February 2019, DRG was again contracted by Ms. Pavlovic with a revised design as requested by the Planning department, to update the tree assessment and develop a tree protection plan for the existing trees. The revised design shifted the proposed building further away from a large oak to further protect this tree during and after construction. In the meantime, Jason Shirar, Arborist from S.P. McClenahan Co has been retained by Gordana to care and maintain the trees on the property.

An International Society of Arboriculture (ISA) Certified Arborist (#WE-9234A) from DRG conducted the evaluation of twenty-one (21) trees that may be impacted by development on February 3rd, 2018. After receiving comments from the City of Palo Alto, DRG sent another arborist to the site to collect additional information about the trees and neighboring trees. The initial assessment did not note a neighboring Deodar Cedar and as there was some concern expressed by comment from a neighbor, on September 22, 2019, the neighboring Deodar Cedar was added to the assessment. The trees were assessed by their location, size, current condition, and overall health. The current site survey was used to plot the critical root zones (CRZ) of the trees to help guide construction options to reduce potential impacts on the trees.

Tree condition was primarily fair (6 trees), while fourteen (14) trees were in good condition. It was determined that two (2) of the trees are recommended for removal due to site improvements, and fifteen (15) trees are recommended for varying degrees of tree protection measures as described in this report as well as the Tree Protection Plan. Tree #5 is a large oak that will require monitoring, specific demolition practices, and fencing during and after demolition to best determine the retention potential of this tree. Typical tree protection fence will include Type I and Type II as found in the Palo Alto Tree Technical Manual.

Introduction

Background

Yali Zhou is planning construction at 2353 Webster St. in Palo Alto, CA. In 2017, DRG was contracted to address concerns about the impacts the project might have on the trees in proximity to development and what the condition of the trees are in before any construction began. Gordana Pavlovic requested that DRG provide feedback regarding a proposed residential design at 2353 Webster St., and how that design may be changed or updated to reflect less impact to a large oak specimen. In 2019, Ms. Pavlovic had designed a new building plan in response to DRG's recommendations to create a larger Tree Protection Zone for the specimen tree. In February 2019, DRG was again contracted to assess the existing trees and provide Tree Protection Plans for the new proposed residence at 2353 Webster. It was requested on behalf of the homeowners that DRG provide an arborist report on the health of the trees, and to identify what tree protection measures may be needed before final plans are submitted to Palo Alto for approval of the new project.

Assignment

DRG was contracted to conduct a site evaluation of twenty-one (21) existing trees within the limits of the project scope at 2353 Webster St. in Palo Alto, CA and recommend any necessary tree protection measures for the identified trees. The survey included a visual assessment of the trees' condition, observations of the site conditions and estimating the current critical root zones to assist with upcoming construction planning.

Limits of Assignment

Many factors can limit specific and accurate data when performing evaluations of trees, their conditions, and potential for failure or response to site disturbances. No soil or tissue testing was performed. All observations were made from the ground and no soil excavation to expose roots was performed. The most recent development plans were available to assist in determining potential construction impacts, but these did not include detailed demolition plans. The determinations and recommendations presented here are based on current data and conditions that existed at the time of the evaluation and cannot be a predictor of the ultimate outcome for the evaluated trees in the future.

Purpose and Use of Report

The purpose of this report is to provide a summary of the evaluations of the trees located at 2353 Webster St., including an assessment of the current condition and health, as well as providing a tree protection plan for all evaluated trees that may be impacted by construction plans. The findings in this report can be used to make informed decisions on design planning and be used to guide long-term care of the trees. This report and detailed tree protection plan can also be submitted to Palo Alto for permitting purposes. Should the development plans be revised, this report and plan must also be revised to remain valid.

Observations

Methods

Only a visual inspection was used to develop the findings, conclusions, and recommendations found in this report. Data collection included measuring the diameter of significant trees at approximately 54 inches above grade (DBH), height estimation, canopy radius estimation, a visual assessment of tree condition, structure, and health, and a photographic record. Numerical values were assigned to grade the attributes of the roots, trunk, branches, and foliage, including structure and health, and to obtain an overall condition rating. No physical inspection of the upper canopy, sounding, root crown excavation, resistance drilling, or other technologies were used in the evaluation of the trees.

Site Observations

The surveyed site is a residence on a relatively flat location in Palo Alto, CA. Most of the grounds are landscaped.

Tree Observations

Twenty-one (21) trees were evaluated as part of this report. Four (4) important species were identified: valley oak (*Quercus lobata*), coast redwood (*Sequoia sempervirens*), ash (*Fraxinus* spp.) and southern magnolia (*Magnolia grandiflora*). Visual assessments determined tree condition ratings ranged from 52-58% (Fair, 6 trees) to 75% (Good, 14 trees). Tree diameters ranged from 8 to 72 inches. Finally, tree heights were estimated to be approximately 14 to 60 feet. Tree photographs are available upon request and a complete Tree Inventory and Condition Assessment can be found in Appendix A.

Analysis and Discussion

The surveyed trees are of a mixed size (age) class. Seven (7) trees are on the property under construction, while ten (10) trees are on adjacent property and four (4) are street trees. Lower tree condition ratings were based on trunk structure or damage, visible decay, minor dieback, poor structure, or observed stress.

Tree #5 is an older tree that be considered mature and is located very close to the existing house. It is likely that many of the tree roots grow along the house and at the base of the of the existing footers, and this should be noted for the demolition phase.

The diameters of the surveyed trees were used to illustrate the potential critical root zone (CRZ) of each tree. The CRZ is the area of soil around a tree where the minimum amount of roots considered critical to the health of the tree are located. The CRZ was calculated by multiplying the DBH by 0.83 feet (10 inches). For instance, tree #1 has a DBH of 12 inches and a calculated CRZ of 10 feet (12 x 0.83). This distance may extend beyond the tree canopy dripline and is normally considered the tree protection zone (TPZ). Tree protection fencing is normally installed to protect the CRZ, but at a minimum should be installed at the dripline.

Like the CRZ, the structural root zone (SRZ) was also calculated using a commonly accepted method established by Dr. Kim Coder in *Construction Damage Assessments: Trees and Sites*.¹ In this method, the root plate size (i.e. pedestal roots, zone of rapid taper area, and roots under compression) and limit of disruption based upon tree DBH is considered as a minimum distance that any disruption should occur during construction. Significant risk of catastrophic tree failure exists if structural roots within this given radius are destroyed or severely damaged. The SRZ is the area minimal or no disturbance should occur without arborist supervision. Both the CRZ and SRZ for the surveyed trees are illustrated in Appendix C.

Conclusion and Recommendations

Tree #5 will require extensive planning, additional budget and thorough communication with supervising arborist and the contractor. As the structural root zone may be impacted during demolition, it is critical that all demolition techniques minimize impacts in this area. Currently, the CRZ for this tree is estimated at approximately 11,000 square feet. Based on the proposed demolition that will occur, we estimate that 1850 square feet (17% percent) of this CRZ will be removed. Minor impact to the remaining CRZ area is anticipated from proposed demolition, restoration and utility connections. **It is recommended that existing structure demolition is completed by hand from within the building footprint. No Equipment outside the footprint and an arborist should approve the equipment inside the footprint. All demolition and restoration work within the CRZs of retained trees shall be completed by hand and under arborist supervision. Existing soil moisture should be mimicked throughout demolition and construction.** Subsequent protection measures should be considered through all stages of demolition and construction. This may include: tree growth regulator (tree #5); root protection matting and 4-6" inches of mulch; installing trunk wrap; using hand tools and light machinery when working in the Tree Protection Zone; watering, wetting and covering roots that may be exposed to sunlight and dry conditions; potentially leaving some parts of the foundation and existing footings in place as to minimally disturb existing roots. Additionally, all fill soils around tree #5 shall mimic existing native soils and shall not be over-compacted, as determined by a soil specialist.

To facilitate the demolition of the existing building foundation, the tree protection should be temporarily moved to the outside of the demolition area once the Arborist has arrived onsite to document any tree impacts. Root protection matting and mulch may be necessary to minimize soil compaction and impacts to the existing roots within the Tree Protection Zone, as determined by the supervising arborist. When demolition is complete, soil should be immediately backfilled and incorporated with the native soils using pneumatic air tools, and finally the area should be mulched. Then the tree protection fence should be replaced and remain throughout the duration of construction.

All work performed in the TPZ of the trees to be retained should be supervised by a Certified Arborist. Temporary root protection is recommended by using a 4-6" layer of mulch. In addition, the proposed electric

¹ Dr. Kim D. Coder, University of Georgia July 1996

utility connection through the TPZ must be excavated by air tools or by hand, or be directional bored, to avoid unnecessary root damage. The utility work will require arborist oversight.

Tree protection measures should be in place before any site work occurs, including:

- Installation of 6' min high tree protection fencing
- Mulching according to the tree protection plans
- Posting signage on the tree protection fencing
- Pre-work meetings and site visits with the design team
- Ensuring that contractor and subcontractors know when arborist supervision is required

This helps to ensure that everyone is on-board towards the same goal- retaining and preserving the twenty-one (21) trees while maintaining a safe residential setting.

Following construction, the trees should be monitored monthly by a Certified Arborist to ensure the condition and structure of the tree do not decline over time or become hazardous. If a change in state is observed, the Arborist should recommend mitigation measures, which may include, but are not limited to, increased monitoring, pruning, general plant health care, or removal.

Appendix A – Tree Photograph Summary

Additional photos upon request



Image 1. Trees #1-3 along Webster St.



Image 2. Tree #5 behind house



Image 3. Tree #5



Image 4. Tree #5

Appendix B – Tree Inventory and Condition Assessment

Attached

Appendix C - Tree Protection Plan Drawing

Attached

TREE PROTECTION ACTION KEY (TPAK)

Tree #	DBH (Diameter at 4.5 feet above ground)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	Approx Canopy Radius (FT)	Approx Tree Height (FT)	Number of Stems	SCRS CRZ (Critical Root Zone Status in Feet)	Priority (1-4)	Removal By	Root Fines	Tree Protection Fence	Match	Soil Care	Soil Restoration/Replacement	Tree Growth Regulator	Watering	Temp Root Protection Mats (Covers/Blankets)	Overlight/Monitoring	Additional Notes	Condition Notes
1	12	Magnolia, southern	Magnolia grandiflora	50 Fair	NO	NO	10	20	1	7.0	10	2	X	X								Full Crown, Small DW (1-2), Connected Soils. Included Bank/Weak Union, Stressed	
2	16	Magnolia, southern	Magnolia grandiflora	50 Fair	NO	NO	15	30	1	8.0	15	2	X	X								Full Crown, Small DW (1-2), Root Damage/Decay. Included Bank/Weak Union, Stressed DW (1-2), Mechanical Damage	
3	12	Magnolia, southern	Magnolia grandiflora	50 Fair	NO	NO	12	20	1	7.0	10	3	X	X								Full Crown, Small DW (1-2), Root Damage/Decay. Included Bank/Weak Union, Stressed DW (1-2), Mechanical Damage	
4	18	Magnolia, southern	Magnolia grandiflora	75 Good	NO	NO	25	25	1	8.0	15	2	X	X								Full Crown, Small DW (1-2), Included Bank/Weak Union, Stressed, Hardware, Mechanical Damage	
5	72 oak, whitey	Quercus lobata	Quercus lobata	50 Fair	NO	NO	38	60	1	14.0	60	1	X	X								Full Crown, Small DW (1-2), Included Bank/Weak Union, Stressed, Hardware, Mechanical Damage	
6	8 Platanoche, Chinese	Platanus chinensis	Platanus chinensis	75 Good	NO	NO	10	14	1	5.0	7	2	X	X								Full Crown, Overhead Utility	
7	8 Coast Redwood	Sequoia sempervirens	Sequoia sempervirens	75 Good	NO	NO	18	15	1	5.0	6	2	X	X								Full Crown, Overhead Utility	
8	7 Orange, sweet	Citrus sinensis	Citrus sinensis	75 Good	NO	NO	6	25	1	4.0	6	2	X	X								Full Crown, Overhead Utility	
9	16 Caneaster	Cotoneaster frigidus	Cotoneaster frigidus	50 Fair	NO	NO	7	16	1	8.0	13	2	X	X								Full Crown, Basal Decay, Included Bank/Weak Union, Co-Dominant Stems	
10	17 Australian Laurel	Pittosporum tobira	Pittosporum tobira	75 Good	NO	NO	7	16	1	8.0	14	2	X	X								Full Crown, Small DW (1-2), Included Bank/Weak Union, Co-Dominant Stems	
11	6 Maple, Japanese	Acer palmatum	Acer palmatum	75 Good	NO	NO	7	16	1	4.0	5	2	X	X								Full Crown, Small DW (1-2)	
12	17 Australian Laurel	Pittosporum tobira	Pittosporum tobira	70 Good	NO	NO	5	10	1	8.0	14	2	X	X								Full Crown, Included Bank/Weak Union, Co-Dominant Stems	
13	8 Juniper, Chinese	Juniperus chinensis	Juniperus chinensis	75 Good	NO	NO	5	12	1	5.0	7	2	X	X								Full Crown	
14	8 Juniper, Chinese	Juniperus chinensis	Juniperus chinensis	75 Good	NO	NO	5	12	1	5.0	7	2	X	X								Full Crown, Included Bank/Weak Union, Co-Dominant Stems	
15	8 Citrus limon	Citrus limon	Citrus limon	75 Good	NO	NO	4	12	1	4.0	5	2	X	X								Full Crown, Trunk Decay, Basal Decay	
16	8 Citrus limon	Citrus limon	Citrus limon	50 Fair	NO	NO	6	12	1	5.0	7	3	X	X								Full Crown	
17	8 Citrus limon	Citrus limon	Citrus limon	75 Good	NO	NO	6	14	1	6.0	8	2	X	X								Full Crown	
18	8 Pomegranate	Punica granatum	Punica granatum	75 Good	NO	NO	6	14	1	5.0	7	2	X	X								Full Crown, Co-Dominant Stems	
19	7 Juniper, Chinese	Juniperus chinensis	Juniperus chinensis	72 Good	NO	NO	4	16	1	4.0	6	3	X	X								Full Crown	
20	32 Cedar, nodosa	Cedrus deodara	Cedrus deodara	75 Good	NO	NO	0	0	1	10.0	27	1	X	X								Full Crown	

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 Email: info@davey.com

August 14th, 2019

3215 Webster St., Palo Alto, California

Dear Mr. Perkins,

We are pleased to provide you with the attached report for your project. Davey Resource Group (DRG) is pleased to provide you with the attached report for your project. Davey Resource Group (DRG) is pleased to provide you with the attached report for your project. Davey Resource Group (DRG) is pleased to provide you with the attached report for your project.

ARBORIST REPORT AND TREE PROTECTION PLAN
 2353 Webster St.
 Palo Alto, California
 August 2019



2315 Webster St., Palo Alto, CA
 August 2019

Wetland
 5300 Wellington Branch Drive • Suite 100
 Conroy, Virginia 20155
 Phone: (703) 799-6666 • Fax: (703) 799-6667
 www.wetlandinc.com

DAVEY Resource Group

DATE: 08/14/19
 TIME: 10:00 AM
 PROJECT: 2353 WEBSTER ST
 SHEET: 01

WSS PROJECT # DR0WEST14
ZHOU RESIDENCE
2353 WEBSTER ST
PALO ALTO, CALIFORNIA

All other tree-related reports shall be added to the space provided on this sheet (adding as needed).
 Include this sheet(s) on Project Sheet Index or Legend Page.
 A copy of T-1 can be downloaded at www.cityofpaloalto.org/atb/forms

City of Palo Alto
 Special Tree Protection Instruction Sheet
 T-4

Attachment F

Project Plans

During Shelter-in-Place, plans are only available online.

Directions to review Project plans online:

1. Go to: <https://paloalto.buildingeye.com/planning>
2. Search for “2353 Webster Street” and open record by clicking on the green dot
3. Review the record details on the left side and open the “more details” option
4. Use the “Records Info” drop down menu and select “Attachments”
5. Open the attachment named “**2353 Webster Approved Plans**” and dated 12/05/19 to review the tentatively approved plan set.