



**Pedersen Associates  
Landscape Architecture**

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September 2, 2020

Alaina Lipp  
Community Development Department  
City of Sausalito  
420 Litho Street  
Sausalito, CA 94965

Subject: #1 & 3 Harbor Drive: List of Changes

Dear Alaina,

Please see the summary of changes made for the resubmitted drawings dated 8/24/20.

1. L-1 is divided into two sheets, L-1.1 (site improvement) and L-1.2 (tree inventory and removal).
2. On L-1.1, Per the request made during the Planning Commission meeting, a rough idea of the water savings by replacing the existing lawn irrigated with spray to the drip irrigated, water-wise/native plants is included. An example of the expected savings for a week in July with this replacement is shown.
3. To address the concern of the commissioners and the neighbor's for the tree removal, we revisited the plan.
  - i. Only remove two large Lombardi Poplars, which are very close to Building 3 and are causing hardscape damage and potential hazards to the building and the occupants. One willow along Bridgeway is also proposed to be removed.
  - ii. Instead of removing the remaining large poplars, we propose interplanting new trees (Eucalyptus or alternate, Ginkgos). As they grow they will replace the existing large trees in time.
  - iii. Monterey Pines and Acacias to be removed (not protected and on the undesirable tree list in Sausalito).
  - iv. Leave other ornamental trees unless there is problem with their health, structure or form.
4. A row of street trees (Magnolia 'Little Gem' – Dwarf Southern Magnolia) will be added along Bridgeway.
5. Asphalt along Harbor Drive is to remain.
6. Master Plan is updated to reflect items #3 to #5 above.

Please contact us with any questions or if you need additional information.

Sincerely,

Kai Okada  
Pedersen Associates  
(415) 456-2070  
kokada@pedersenassociates.com

# HARBOR DRIVE EXECUTIVE OFFICE PARK

## LANDSCAPE RENOVATION

1 & 3 HARBOR DRIVE  
SAUSALITO, CA  
APN: 063-140-15

### VICINITY MAP:



### GENERAL NOTES

1. ALL WORK SHALL CONFORM TO OR EXCEED THE REQUIREMENTS OF THE 2016 EDITION OF THE CALIFORNIA BUILDING CODE, REGARDLESS OF WHAT IS SHOWN OR NOT SHOWN IN THE CONTRACT DOCUMENTS. ALL WORK SHALL COMPLY WITH THE FOLLOWING CODES.

THE FOLLOWING 2016 CALIFORNIA BUILDING STANDARDS CODES AS ADOPTED BY CALIFORNIA WILL BE ENFORCED BY THE CITY OF SAUSALITO:

- CALIFORNIA BUILDING CODE
- CALIFORNIA RESIDENTIAL CODE
- CALIFORNIA PLUMBING CODE
- CALIFORNIA MECHANICAL CODE
- CALIFORNIA ELECTRICAL CODE
- CALIFORNIA FIRE CODE
- CALIFORNIA ENERGY CODE
- CALIFORNIA GREEN BUILDING STANDARDS CODE

2. THE CONTRACTOR SHALL COMPLY WITH THE CITY OF SAUSALITO ORDINANCE AND ALL OTHER APPLICABLE STATE OR LOCAL ORDINANCES. IN THE EVENT OF A CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

3. CONFLICTS IN THE CONTRACT DOCUMENTS: IN CASE OF DISCREPANCIES OR CONFLICTS IN INFORMATION OR REQUIREMENTS WITHIN THE DRAWINGS, SPECS, OR BETWEEN THE DRAWINGS AND THE SPECS, THE MOST EXPENSIVE REQUIREMENT SHOWN OR SPECIFIED SHALL BE THE BASIS OF THE CONTRACT FOR CONSTRUCTION.

4. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER GRAPHIC SCALE SHOWN ON THE DRAWINGS. DO NOT SCALE DRAWINGS. ALL DIMENSIONS ARE SHOWN TO THE FACE OF FINISH UNLESS OTHERWISE NOTED.

5. ALL SYSTEMS AND ASSEMBLIES SHALL BE COMPLETE AND OPERATIVE THOUGH NOT FULLY DESCRIBED IN THE CONTRACT DOCUMENTS. IN THE EVENT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECS, THEN THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER OF SIMILAR CONDITIONS SHOWN OR CALLED FOR.

6. UNLESS OTHERWISE NOTED ALL CONNECTIONS AND FASTENERS SHALL BE CONCEALED. THE USE OF SURFACE FASTENERS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT. ALL EXTERIOR FASTENERS SHALL BE HOT-DIPPED GALVANIZED OR STAINLESS STEEL.

7. THE OWNER AND ARCHITECT SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS OR TECHNIQUES, SEQUENCES OR PROCEDURES OF THE CONTRACTOR; SAFETY PRECAUTIONS AND PROGRAMS OF THE CONTRACTOR; OR FAILURE OF THE CONTRACTOR TO PERFORM THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

8. THESE DRAWINGS MAY NOT BE TO SCALE AND ARE FOR ILLUSTRATION PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO EXECUTING THE WORK.

9. LARGER SCALE DRAWINGS TAKE PRECEDENCE OVER SMALLER DRAWINGS.

10. INSTALL ALL MATERIALS, EQUIPMENT, FIXTURES, APPLIANCES AND ACCESSORIES IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS. ALL WORK SHALL BE INSTALLED PLUMB, LEVEL AND TRUE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

11. THE CONTRACTOR SHALL HOLD HARMLESS THE OWNER, THE ARCHITECT AND THE CITY OF SAUSALITO FROM ALL LIABILITIES AND DAMAGES RESULTING FROM HIS CONSTRUCTION OPERATIONS.

12. ANY AMBIGUITY OR DISCREPANCY DISCOVERED BY THE USE OF THESE PLANS SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT.

13. SPOT ELEVATIONS INDICATED ARE CRITICAL ELEVATIONS. INTERVENING ELEVATIONS NOT SPECIFICALLY NOTED SHALL BE INTERPOLATED FROM ELEVATIONS SHOWN. A MINIMUM SLOPE OF EXTERIOR SURFACES SHALL BE 2% U.O.N.

14. INSURANCE: EACH CONTRACTOR SHALL MAINTAIN INSURANCE IN FULL FORCE AND EFFECT FOR THE LIFE OF THE CONTRACT, AND GIVE EVIDENCE OF SAME OR A CERTIFICATE INDICATING ITS EXISTENCE DELIVERED TO THE OWNER AND THE ARCHITECT AND GENERAL CONTRACTOR THE POLICIES LISTED HEREIN:

a) WORKER'S COMPENSATION COVERING CONTRACTOR'S FULL LIABILITY UNDER "THE WORKMAN'S COMPENSATION AND SAFETY ACTS."

b) COMPREHENSIVE GENERAL LIABILITY INSURANCE IN THE FOLLOWING AMOUNTS:  
BODILY INJURY: \$1,000,000  
PROPERTY DAMAGE: \$1,000,000

c) COMPREHENSIVE AUTO LIABILITY INSURANCE IN THE FOLLOWING AMOUNTS:  
BODILY INJURY: \$1,000,000 EACH PERSON  
PROPERTY DAMAGE: \$1,000,000 EACH OCCURRENCE

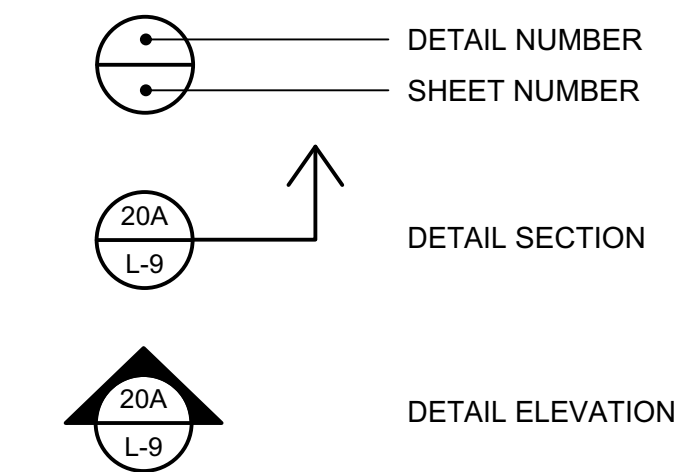
15. CONTRACTOR'S LIABILITY INSURANCE SHALL INCLUDE THE "OWNER" AND THE "ARCHITECT" AS ADDITIONAL INSURED. CONTRACTOR IS TO PROVIDE CERTIFICATE OF INSURANCE TO EACH OF THE ADDITIONAL INSURED PRIOR TO COMMENCING WORK. PROGRESS PAYMENTS WILL BE WITHHELD UNTIL CERTIFICATES ARE RECEIVED BY THE OWNER AND THE ARCHITECT.

16. GUARANTEE: UNLESS SPECIFICALLY STATED TO THE CONTRARY IN THE DRAWINGS, THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO THE EFFECT THAT ALL MATERIALS AND WORKMANSHIP FURNISHED UNDER THE CONTRACT SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE TO BE FREE FROM DEFECTS AND FAULTY WORKMANSHIP AND THAT ANY SUCH DEFECTS SHALL BE PROMPTLY REPAIRED OR REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.

### INDEX TO DRAWINGS:

L-0	COVER SHEET
L-1.1	(E) SITE ANALYSIS, PROJECT SCOPE & IRRIGATION WATER SAVING CALC
L-1.2	(E) TREE PLAN & PHOTOS OF PROTECTED TREES TO BE REMOVED
L-2	(E) SITE PHOTOS
L-3	MASTER PLAN
L-4	PHASE I ENLARGED PLANS #1 HARBOR DR.
L-5	PHASE I ENLARGED PLANS #3 HARBOR DR.
L-6	PHASE I ENLARGED PLANS & SECTIONS/ELEVATIONS
L-7	MATERIAL & IMAGES

### DETAIL SYMBOL KEY



8/24/20 PLANNING RE-SUB 2

4/22/20 PLANNING SUB 1

DATE ISSUES & REVISIONS NO.

PROJECT# 1921 DRAWN BY: KO/TK

ORIGINAL DRAWING SIZE: 24" X 36"

### COVERSHEET

SHEET #

# L-0

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1 (E) SITE PLAN

SCALE: 1" = 60'-0"

2 (N) SITE PLAN

SCALE: 1" = 60'-0"

# PROJECT SCOPE & OBJECTIVES

THE FOLLOWING IS AN INVENTORY AND ANALYSIS OF EXISTING CONDITIONS AND BUILDINGS #1 AND #3 HARBOR DRIVE, SAUSALITO.

PROJECT INTENT IS TO REFRESH THE EXISTING LANDSCAPE TO IMPROVE CURB APPEAL AND REDUCE WATER AND MAINTENANCE COST.

THE SITE HAS BEEN BROKEN INTO AREAS WITH SPECIFIC RECOMMENDATIONS.

1 COURT YARD RENOVATION - #3 HARBOR DR.

2 MONUMENT SIGN TREATMENT @ BRIDGEWAY + HARBOR DR.

3 NORTH PROPERTY LINE FENCE AND TRASH & TRANSFORMER ENCLOSURES

4 BRIDGEWAY FRONTAGE LANDSCAPE RENOVATION

5 HARBOR DRIVE FRONTAGE LANDSCAPE RENOVATION

6 ENTRY RENOVATIONS - #1 HARBOR DR.

7 COURTYARD RENOVATION - #1 HARBOR DR.

8 LANDSCAPE RENOVATION - #3 HARBOR DR.

9 NEW SCREENS AND PLANTING: NORTH END - #3 HARBOR DR.

10 CLEAN UP ALONG EAST PROPERTY LINE

11 INTERNAL PARKING LOT & ALONG EAST PROPERTY LINE

# LEGEND

**PHASE I LANDSCAPE RENOVATION:**  
AREA 1, 6 & 8

**PHASE II LANDSCAPE RENOVATION:**  
AREA 2, 4, 5, 7, 9 & 11

**PHASE III LANDSCAPE RENOVATION:**  
AREA 3 & 10

PROTECTED TREE - SEE ARBORIST REPORT  
(E) TREE  
TREE ID - SEE ARBORIST REPORT

**MODERATE TO MAJOR PLANTING/IRRIGATION RENOVATION, DEMO/OFF HAULING, SHEET MULCHING**

**(E) LAWN TO BE REPLACED W/ WATER-WISE/NATIVE PLANTS IRRIGATION TO BE CONVERTED TO DRIP SYSTEM: WATER WILL BE SAVED APPROX. 13,191 GALLON PER WEEK IN JULY**

### CALCULATION:

From **MWELO (Model Water Efficient Landscape Ordinance)** definition "reference evapotranspiration" or "ET<sub>o</sub>" means a standard measurement of environmental parameters which affect the water use of plants. ET<sub>o</sub> is expressed in inches per day, month, or year as represented in Appendix A, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered.

- Estimated Total Water Use (ETWU) = ET<sub>o</sub> x 0.62 x ETAF x Area  
\* 0.62, in definition, is a conversion factor that converts acre inches per acre per year to gallons per square foot per year.

- ETAF (ET adjustment factor) = PF/IE

- PF (Plant Factor) = very low water use 0 to 0.1  
Low 0.1 to 0.3  
Moderate 0.4 to 0.6  
High 0.7 to 1.0  
Cool season grass 1.0

- IE (Irrigation Efficiency) = Spray Head 0.75  
Drip 0.81

From **California Irrigation Management Information System (CIMIS)**  
Northern California Coast (Zone 1) in July : ET<sub>o</sub> = 4.65 inch/month

Area to be converted from lawn to water-wise plants = approx. 21,800 square foot

Existing  
Plant Type: Cool Weather Lawn (PF = 1)  
Irrigation Method: Spray (IE = 0.75)

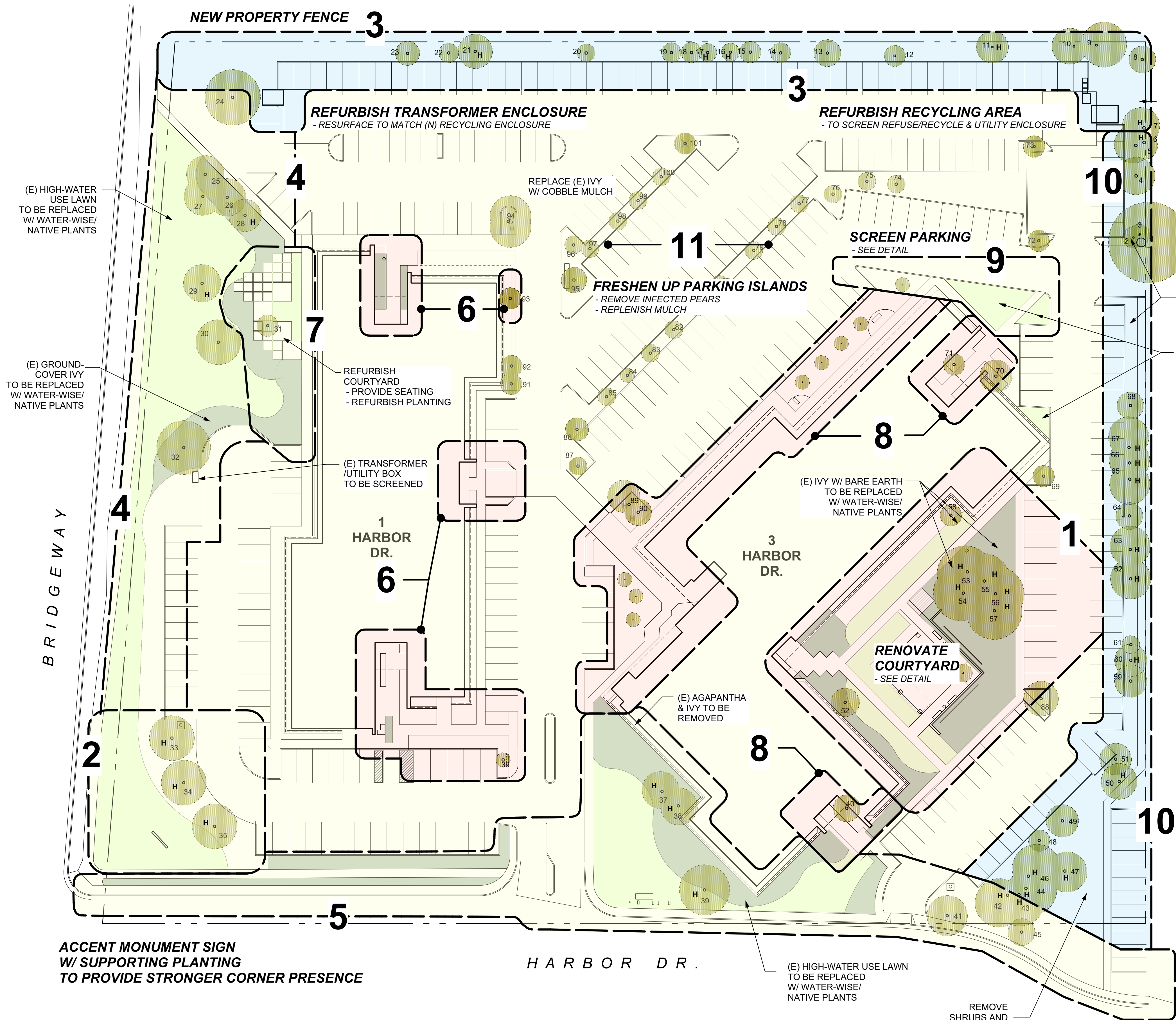
ETWU = 4.65 x 0.62 x (1/0.75) x 21800  
= 83,799 gallon per month

Proposed  
Plant Type: "Mow Free" Low Water Use Grass & Low and Moderate Water Use Plants (PF = 0.4 average)  
Irrigation Method: Drip (IE = 0.81)

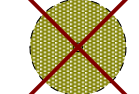
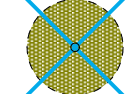
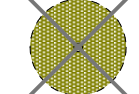
ETWU = 4.65 x 0.62 x (0.4/0.81) x 21800  
= 31,037 gallon per month

The water saving is

83,799 gallon per month - 31,037 gallon per month  
= 52,762 gallon per month  
= approx. 13,191 gallon per week in July



**EXISTING TREES TO BE REMOVED**

A  PROTECTED TREE TREE REMOVAL PERMIT REQUIRED		B  SAUSALITO UNDESIRABLE TREE		C  UNPROTECTED TREE	
ID	Species	ID	Species	ID	Species
29	Weeping Willow	2	Blackwood Acacia	12	Lombardi Poplar
37	Lombardi Poplar	3	Blackwood Acacia	52	Purple leaf Plum
38	Lombardi Poplar	24	Monterey Pine		
TOTAL	3	32	Monterey Pine	TOTAL	2
		41	Monterey Pine		
		45	Monterey Pine		
		48	Monterey Pine		
		49	Monterey Pine		
		51	Monterey Pine		
		64	Monterey Pine		
		88	Monterey Pine		
		TOTAL	11		



#29  
WEeping WILLOW



#32  
MONTEREY PINE



#37 & 38  
LOMBARDI POPLARS



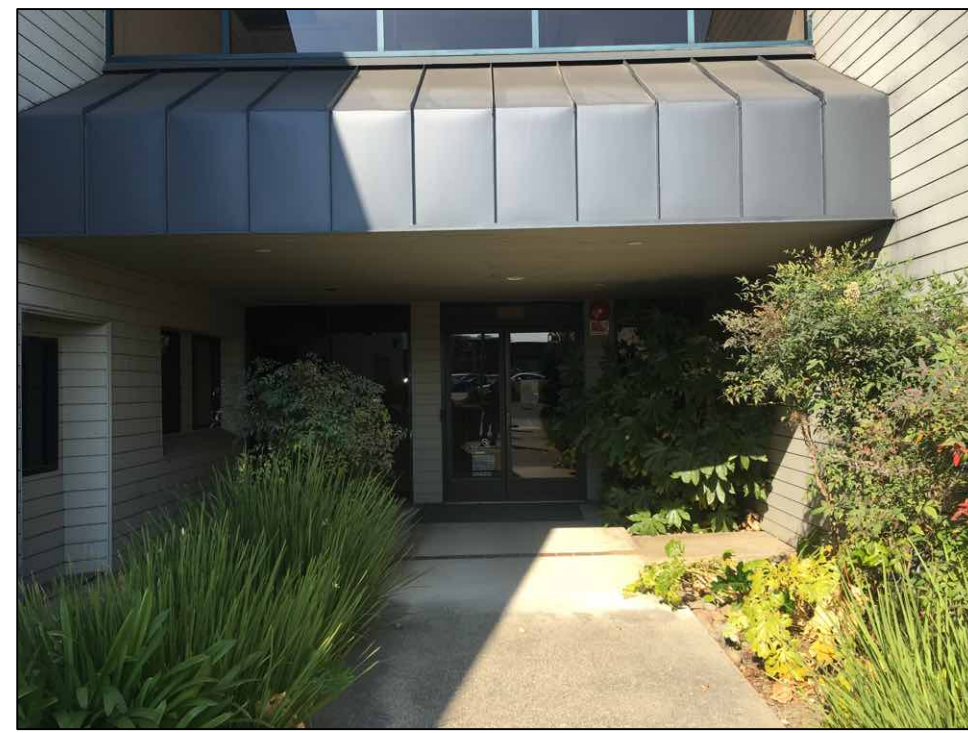
8/24/20	PLANNING RE-SUB	2
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**(E) TREE PLAN & PHOTOS**  
 SHEET #

**L-1.2**

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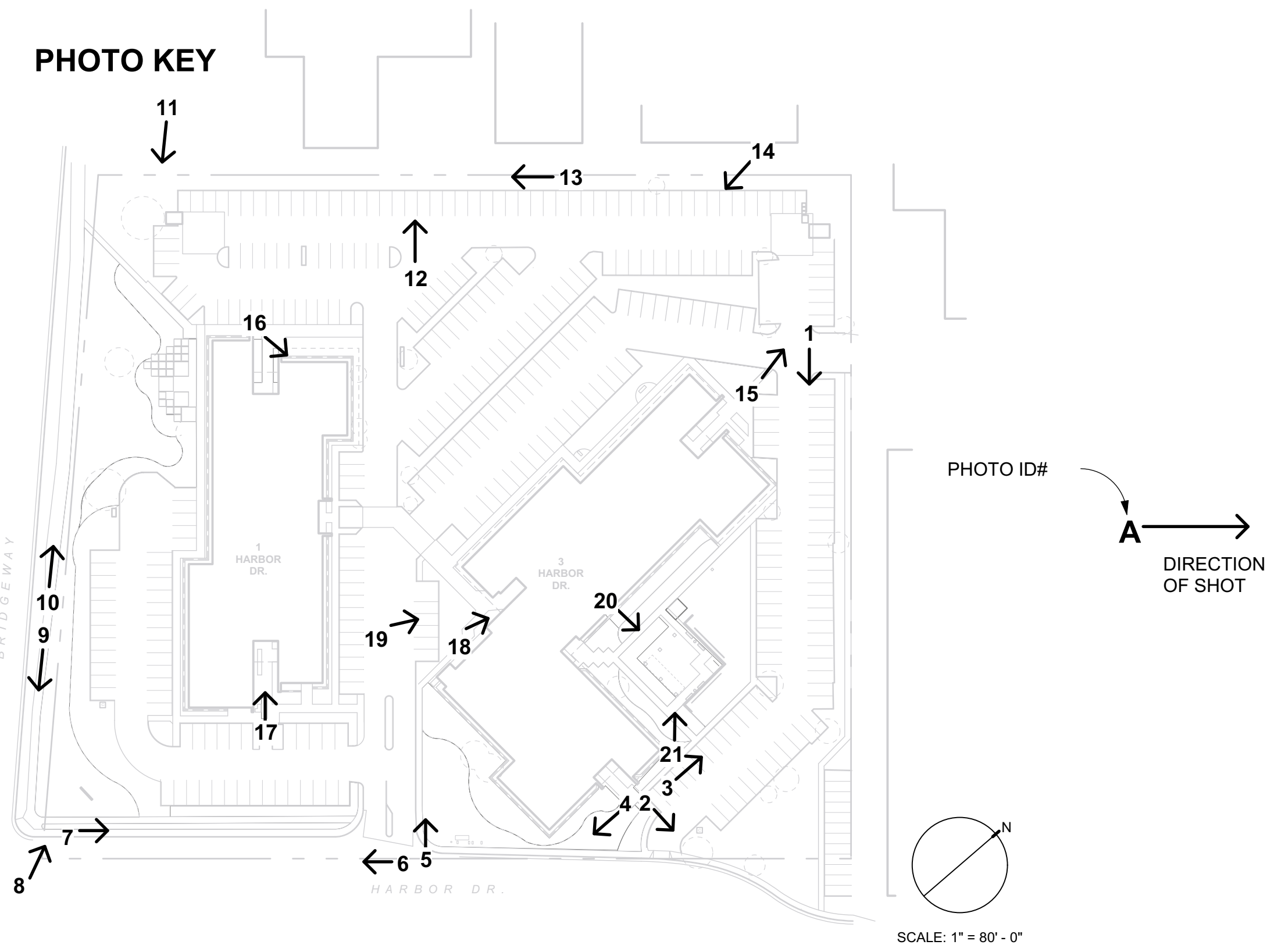
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12



7



18



13



8



19



14



9



4



1



20



15



10



5



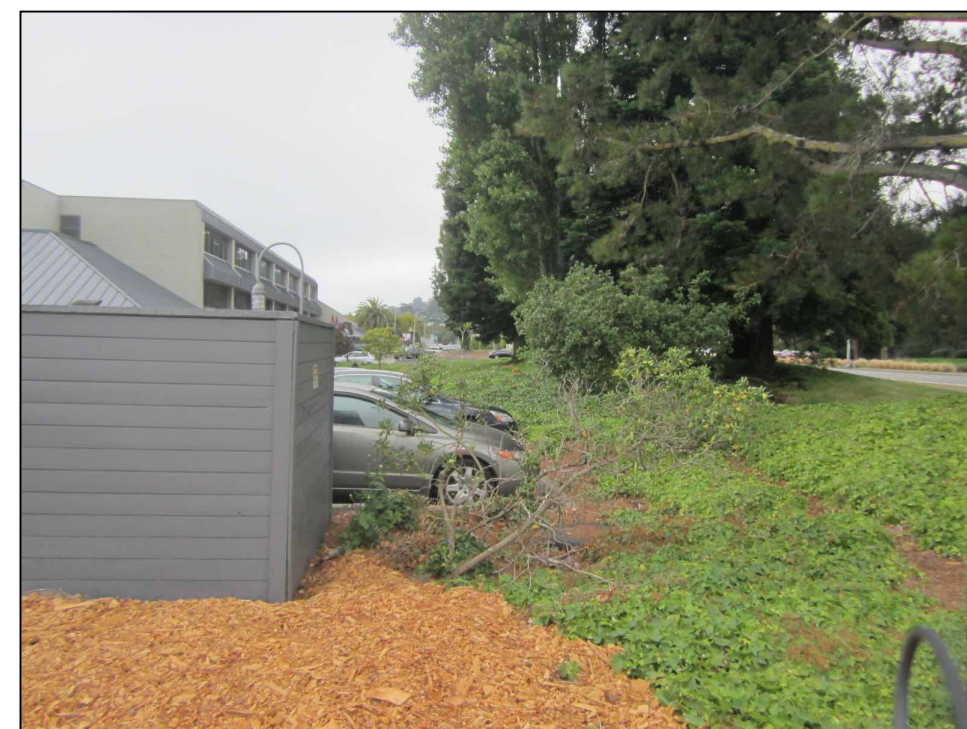
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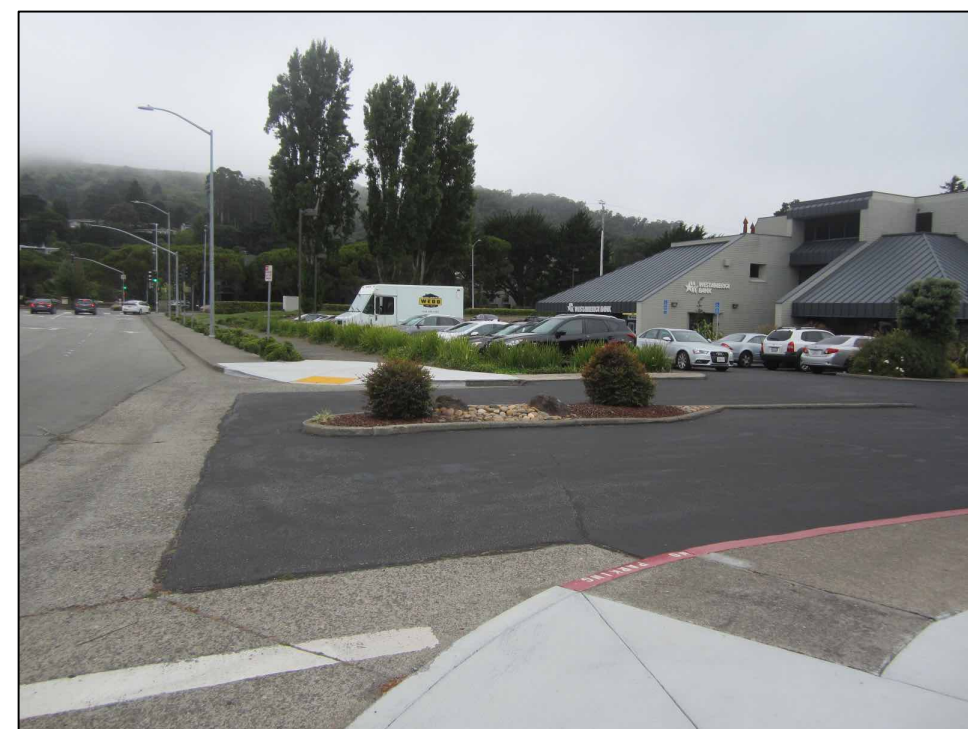
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16



11



6



3

**HARBOR DRIVE**  
**EXECUTIVE**  
**OFFICE PARK**

1 & 3 HARBOR DRIVE  
 SAUSALITO, CA  
 APN: 063-140-15

12/11/19 PLANNING SUB

DATE	ISSUES & REVISIONS	NO.

PROJECT# 1921 DRAWN BY: KO/TK  
 ORIGINAL DRAWING SIZE: 24" X 36"

**(E) SITE PHOTOS**

SHEET #

**L-2**

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**HARBOR DRIVE EXECUTIVE OFFICE PARK**

1 & 3 HARBOR DRIVE  
 SAUSALITO, CA  
 APN: 063-140-15



**PLANT LEGEND**

Symbol	Latin Name	Common Name	Size	Quantity
<b>Trees (57 TOTAL NEW TREES)</b>				
(Green circle)	CAR FRA	Carpinus betulus 'Frans Fontaine'	Frans Fontaine European Hornbeam	24" Box 3
(Blue circle)	EUC POL	Eucalyptus polyanthemos	Silver Dollar Gum	24" Box 13
(Light green circle)	LOP CON	Lophostemon confertus	Brisbane Box	24" Box 6
(Dark green circle)	MAG LIT	Magnolia grandiflora 'Little Gem'	Dwarf Southern Magnolia	24" Box 7
(Light green circle)	MAG SAM	Magnolia grandiflora 'Samuel Sommer'	Samuel Sommer Southern Magnolia	24" Box 5
(Light blue circle)	MET EXC	Metrosideros excelsa	New Zealand Christmas Tree	24" Box 2
(Red circle)	PRU KRA	Prunus cerasifera 'Krauter Vesuvius'	Krauter Vesuvius Plum	24" Box 4
(Light green circle)	TRI LAU	Tristaniopsis laurina	Water Gum	24" Box 13
<b>Shrubs</b>				
	CAM ESP	Camelia spp.	Camelia Espalier	15 Gal.
	COR IVO	Correa 'Ivory Bells'	Australian Fuchsia	1 Gal.
	FRA MOU	Frangula californica 'Mound San Bruno'	California Coffeeberry	5 Gal.
	LAV PRO	Lavandula x intermedia 'Provence'	'Provence' Lavender	1 Gal.
	LOR PUR	Loropetalum chinense 'Purple Diamond'	Purple Diamond Semi-Dwarf Loropetalum	5 Gal.
	PIT WHE	Pittosporum tobira 'Wheeler's Dwarf'	Wheeler's Dwarf Tobira	1 Gal.
	PLA AUR	Plumbago auriculata 'Imperial Blue'	Blue Cape Plumbago	15 Gal.
	PUN NAN	Punica granatum 'Nana'	Dwarf Pomegranate	15 Gal.
	RHA MIN	Rhaphiolepis umbellata 'Minor'	Dwarf Yedda Hawthorn	5 Gal.
	SAL LEU	Salvia leucantha	Mexican Bush Sage	1 Gal.
<b>Perennials</b>				
	AGA ATT	Agave attenuata	Fox Tail Agave	5 Gal.
	AGA TIN	Agapanthus africanus 'Tinkerbell'	Dwarf Variegated Agapanthus	1 GAL.
	ASP ELA	Aspidistra elatior	Cast Iron Plant	5 Gal.
	DIE BIC	Dietes bicolor	Fortnight Lily	1 Gal.
	LIM PER	Limonium perezii	Statice	1 Gal.
	LIR SIL	Liriope spicata 'Silver Dragon'	Silver Dragon Lily Turf	1 Gal.
	LOM BRE	Lomandra longifolia 'Breeze'	'Breeze' Dwarf Mat Rush	1 Gal.
	PHO BRO	Phormium tenax 'Bronze Baby'	New Zealand Flax	5 Gal.
	PHO DUS	Phormium tenax 'Dusky Chief'	New Zealand Flax	5 Gal.
	SAN TRI	Sansevieria trifasciata 'Moonshine'	Silver Snakeplant	1 Gal.
	SEN SER	Senecio serpens	Blue Chalk Stick	1 Gal.
<b>Grasses</b>				
	CAL FOL	Calamagrostis foliosa	Mendocino Reed Grass	1 Gal.
	CAR DIV	Carex divulsa	Berkeley Sedge	1 Gal.
	CHO ELE	Chondropetalum elephantinum	Large Cape Rush	15 Gal.
	CHO TEC	Chondropetalum tectorum	Cape Rush	1 Gal.
	MIS MOR	Miscanthus sinensis 'Morning Light'	Japanese Silver Grass	1 Gal.
	MUH RIG	Muhlenbergia rigens	Deer Grass	1 Gal.
	PEN LIT	Pennisetum alopecuroides 'Little Bunny'	Little Bunny Dwarf Fountain Grass	1 Gal.
<b>Groundcovers</b>				
	ARC EME	Arctostaphylos 'Emerald Carpet'	Carpet Manzanita	1 Gal.
	COT DAM	Cotoneaster dammeri 'Coral Beauty'	Bearberry Cotoneaster	1 Gal.
	LOR PIX	Loropetalum 'Purple Pixie'	Purple Pixie Loropetalum	1 Gal.
	MAH REP	Mahonia repens	Creeping Mahonia	1 Gal.
	ROS CAR	Rosa 'Flower Carpet'	Groundcover Rose	1 Gal.
(Green square)	<b>Low Water Use Grass</b>		'Mow Free' from Delta Bluegrass Co.	Sod or equal.
(Green square)	<b>"No Mow" Grass</b>			

DATE	ISSUES & REVISIONS	NO.
8/24/20	PLANNING RE-SUB	2
4/22/20	PLANNING SUB	1
12/11/19	PLANNING SUB	

PROJECT# 1921 DRAWN BY: KO/TK  
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SCALE: 1" = 30' - 0"

**MASTER PLAN**

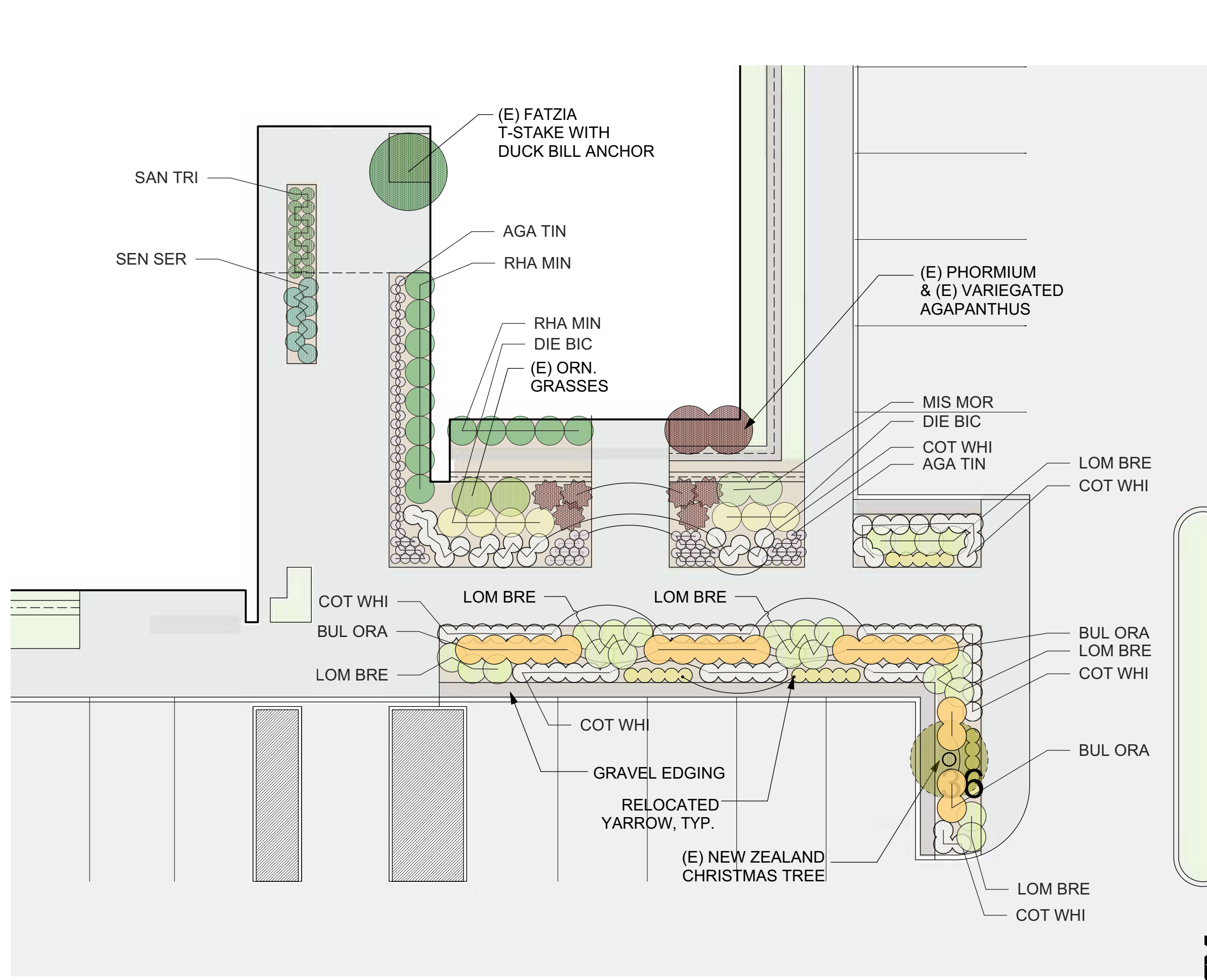
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**L-3**

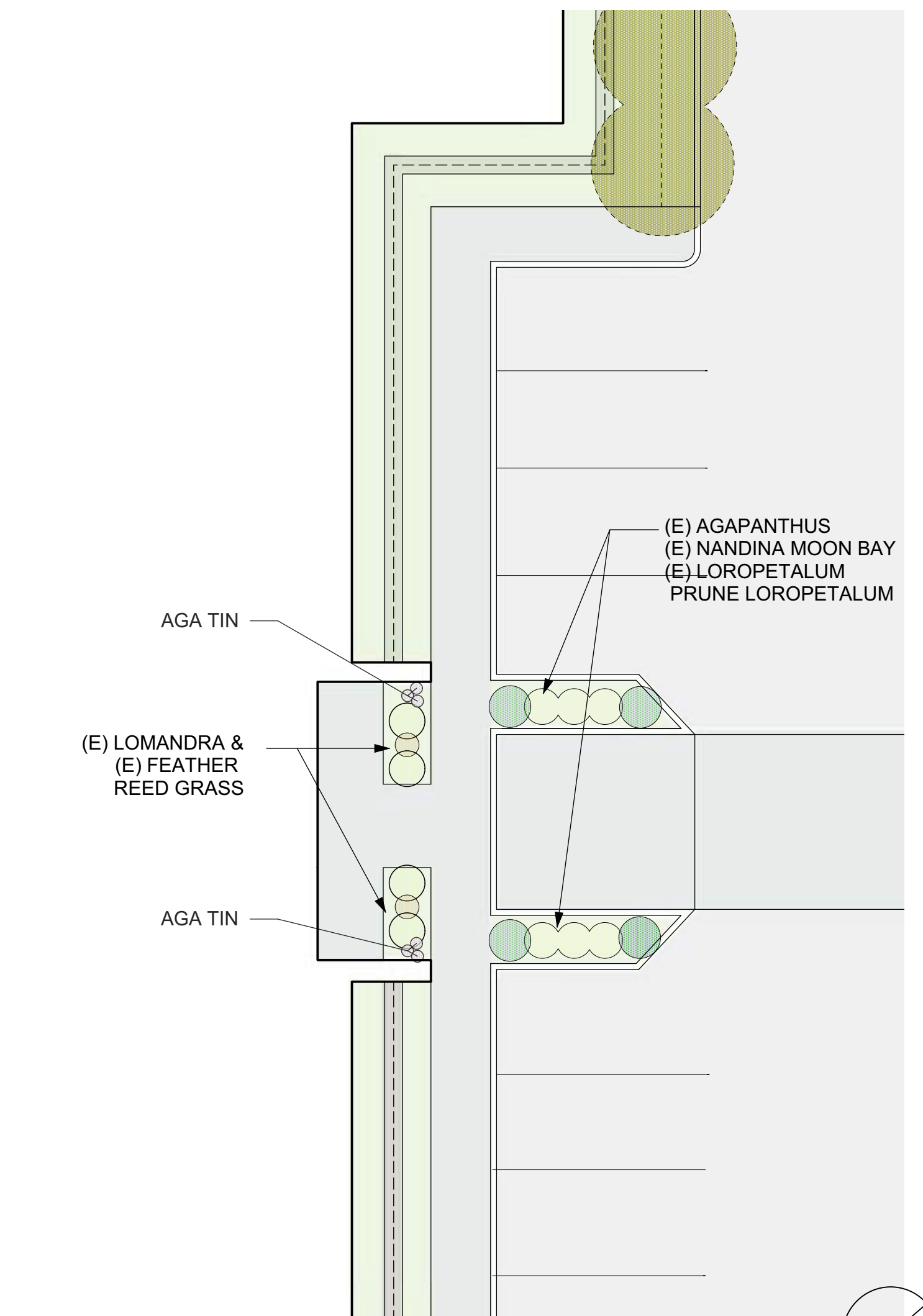
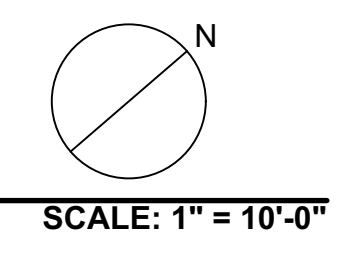
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**HARBOR DRIVE EXECUTIVE OFFICE PARK**

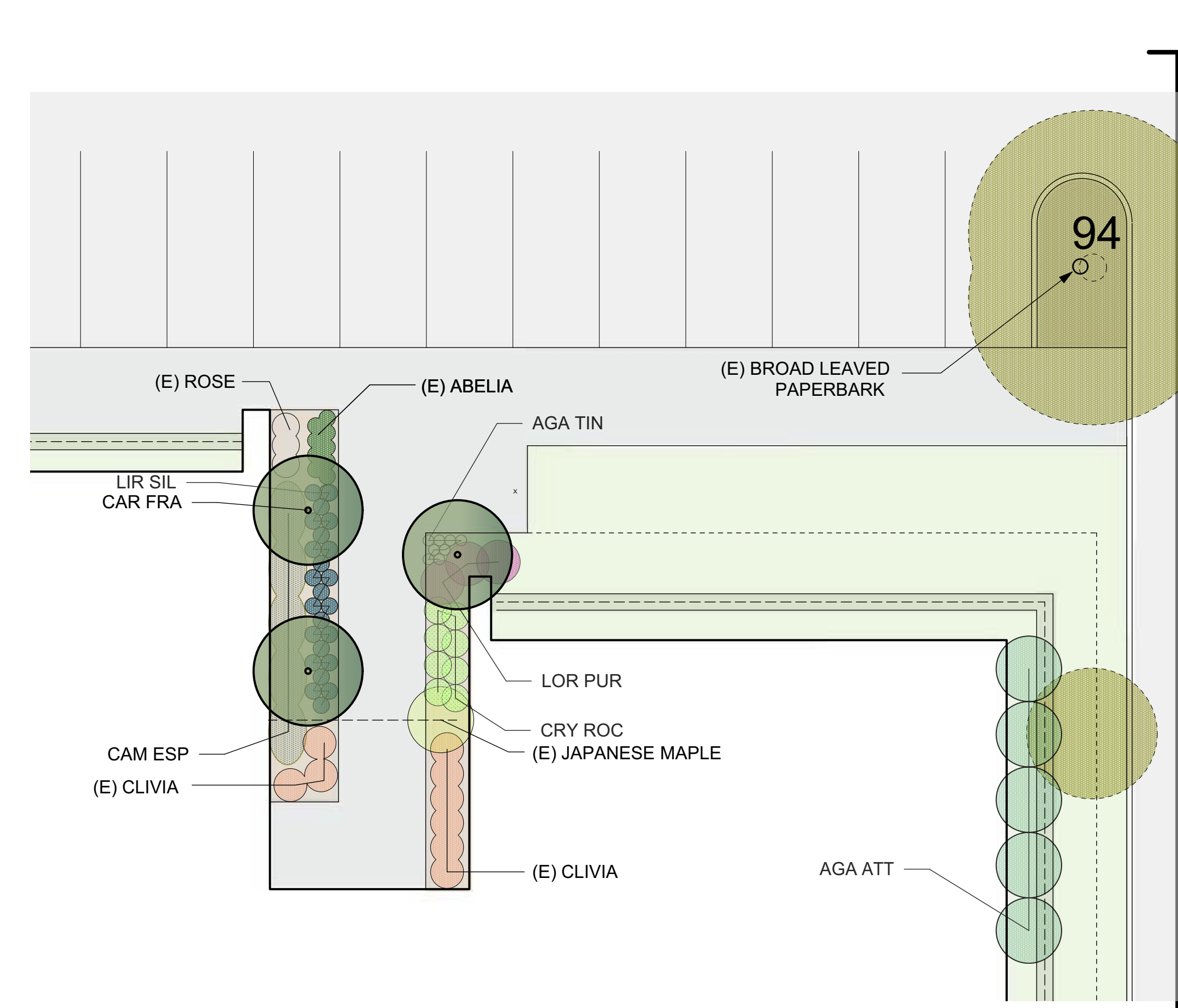
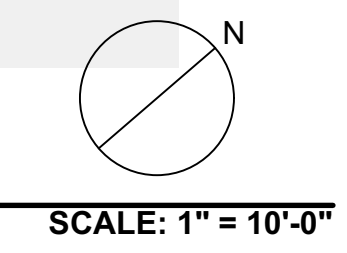
1 & 3 HARBOR DRIVE  
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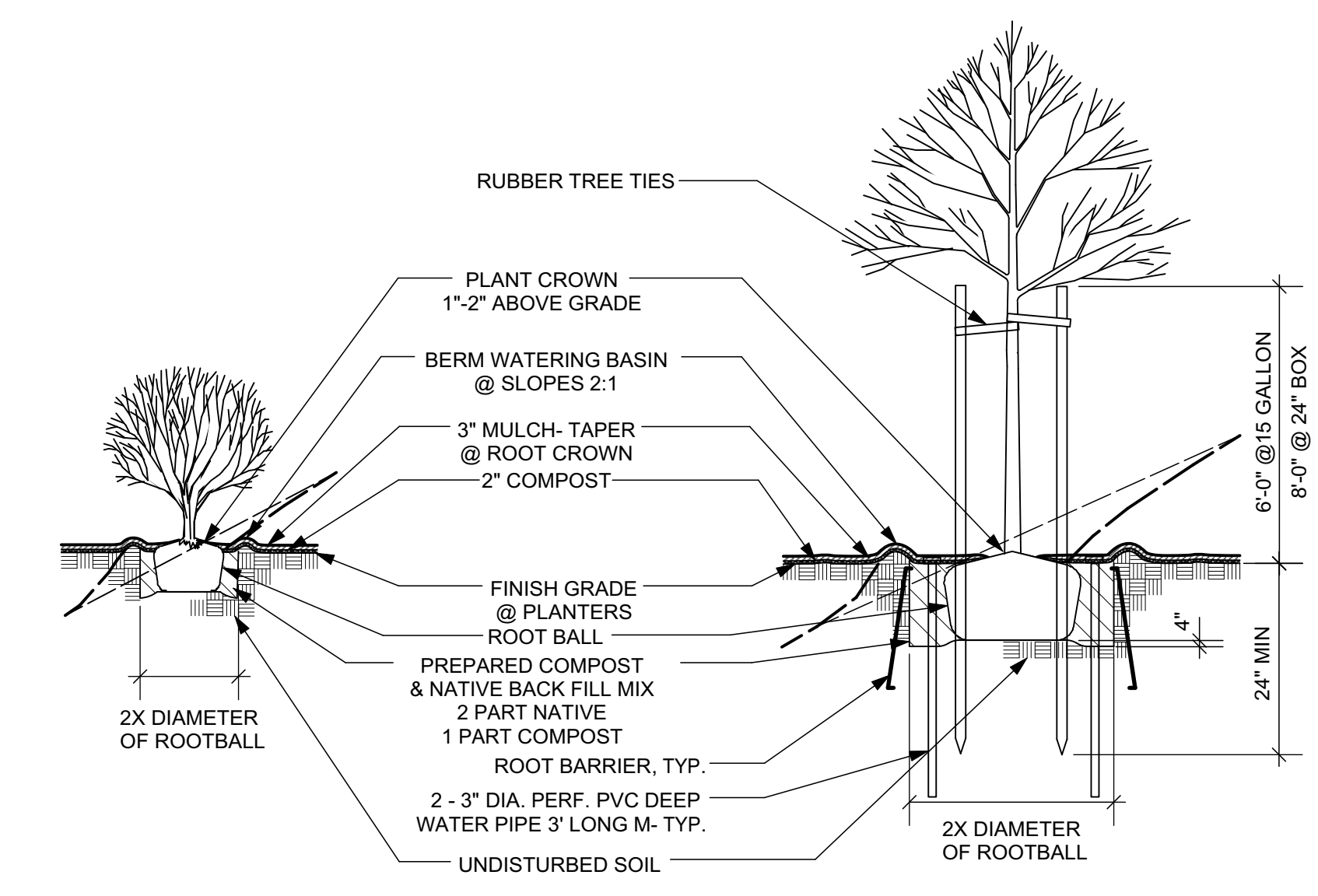
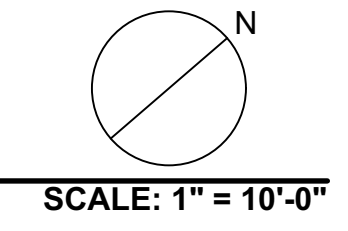
**3 1 HARBOR DR. SOUTH**



**2 1 HARBOR DR. EAST**



**1 1 HARBOR DR. NORTH**



**4 TREE & SHRUB PLANTING**

SLOPE CONDITION SHOWN DASHED NO SCALE

**LANDSCAPE NOTES**

- PLANT SYMBOLS REPRESENT A 3-5 YEAR GROWTH PROJECTION.
- PLANTING SHALL BE PERFORMED BY PERSONS FAMILIAR WITH THIS TYPE OF WORK AND UNDER THE SUPERVISION OF A QUALIFIED FOREMAN.
- STAKE OR GUY TREES PER DETAILS.
- CONTRACTOR SHALL COORDINATE ALL PLANTING WITH UTILITY LOCATIONS NOT SHOWN ON THE PLANS. ANY CONFLICTS BETWEEN LOCATIONS OF PROPOSED SITE UTILITIES OR LIGHTING SHALL BE CALLED TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
- ALL EXISTING TREES SHALL REMAIN AND PROTECTED IN PLACE, UNLESS DESIGNATED TO BE REMOVED OR TRANSPLANTED.
- PLANTING HOLES TO BE TILLED SO THAT THE SOIL IS LOOSE AND NOT COMPACTED TO A MINIMUM DEPTH OF 8". COMPACTED SOILS SHALL BE RIPPED TO 10" DEPTH AND GRADED SMOOTH TO TRANSITION TO SURROUNDING AREAS.
- SOIL TESTS (THERE SHALL BE A MINIMUM OF 6) SHALL BE PERFORMED ON THE EXISTING SOIL TO DETERMINE THE FINAL AMENDMENT AND FERTILIZER FORMULA. THE SOILS REPORT SHALL CONTAIN THE FOLLOWING INFORMATION:  
 SOIL PERMEABILITY RATE IN INCHES PER HOUR  
 SOIL TEXTURE TEST  
 CATION EXCHANGE CAPACITY  
 SOIL FERTILITY (including tests for nitrogen, potassium, phosphorous, pH, organic matter and electrical conductivity)  
 RECOMMENDATIONS FOR AMENDMENTS TO THE PLANTING AREA SOIL
- FURNISH AND INSTALL A 3" LAYER OF MULCH, PLUS A 2" LAYER OF COMPOST OVER TWO PLYS OF RECYCLED CARDBOARD IN ALL PLANTING AREAS. MULCH TO BE 'VINEYARD' MULCH FROM SONOMA COMPOST/WESTMARIN COMPOST (PH# 707-864-9113), 'ORGANIC ARBOR MULCH' FROM GRAB N' GROW (PH# 707-575-7275) OR FOREST FLOOR MULCH FROM AMERICAN SOIL PRODUCTS (PH# 510-860-0197). TRANSITION MULCHES TO 1" DEPTH AT ALL PLANT ROOT CROWNS. PLANT ALL MATERIALS 2" MINIMUM ABOVE EXISTING SOIL LEVELS.
- THE CONTRACTOR SHALL GUARANTEE TREES FOR A PERIOD OF 1 YEAR.
- THE CONTRACTOR SHALL GUARANTEE PLANTED STOCK FOR A 90-DAY MAINTENANCE PERIOD AFTER FINAL ACCEPTANCE BY THE OWNER.
- IRRIGATION SYSTEM TO BE A FULLY AUTOMATIC, LOW GALLONAGE DRIP SYSTEM WITH COMPLETE WATER PROTECTION. TREE, SHRUB, AND GROUND COVER AREAS TO RECEIVE DRIP EMITTER TYPE IRRIGATION.

12/11/19 PLANNING SUB

DATE	ISSUES & REVISIONS	NO.

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 ORIGINAL DRAWING SIZE: 24" X 36"

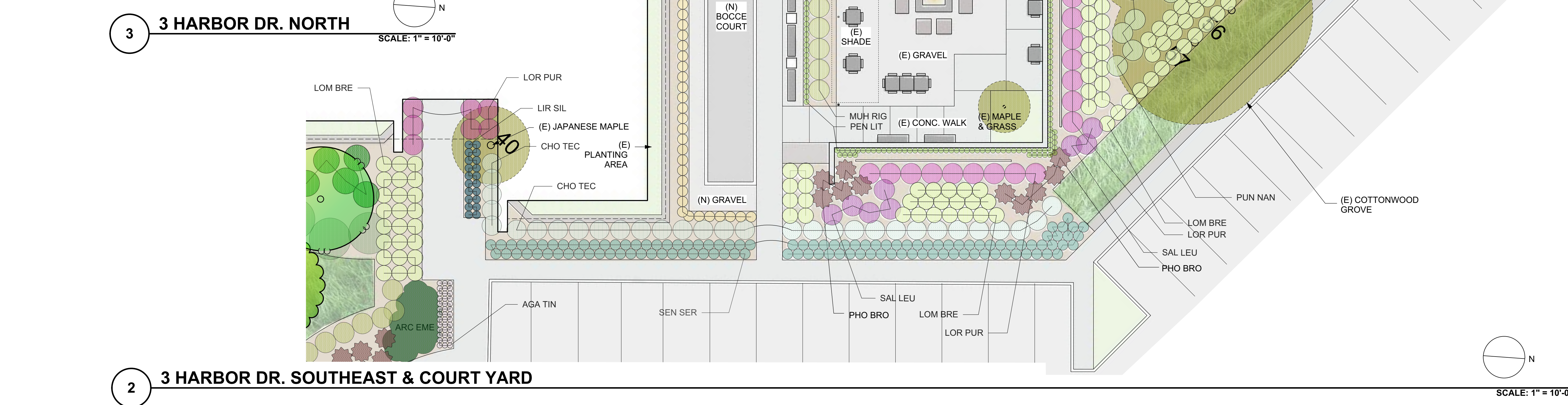
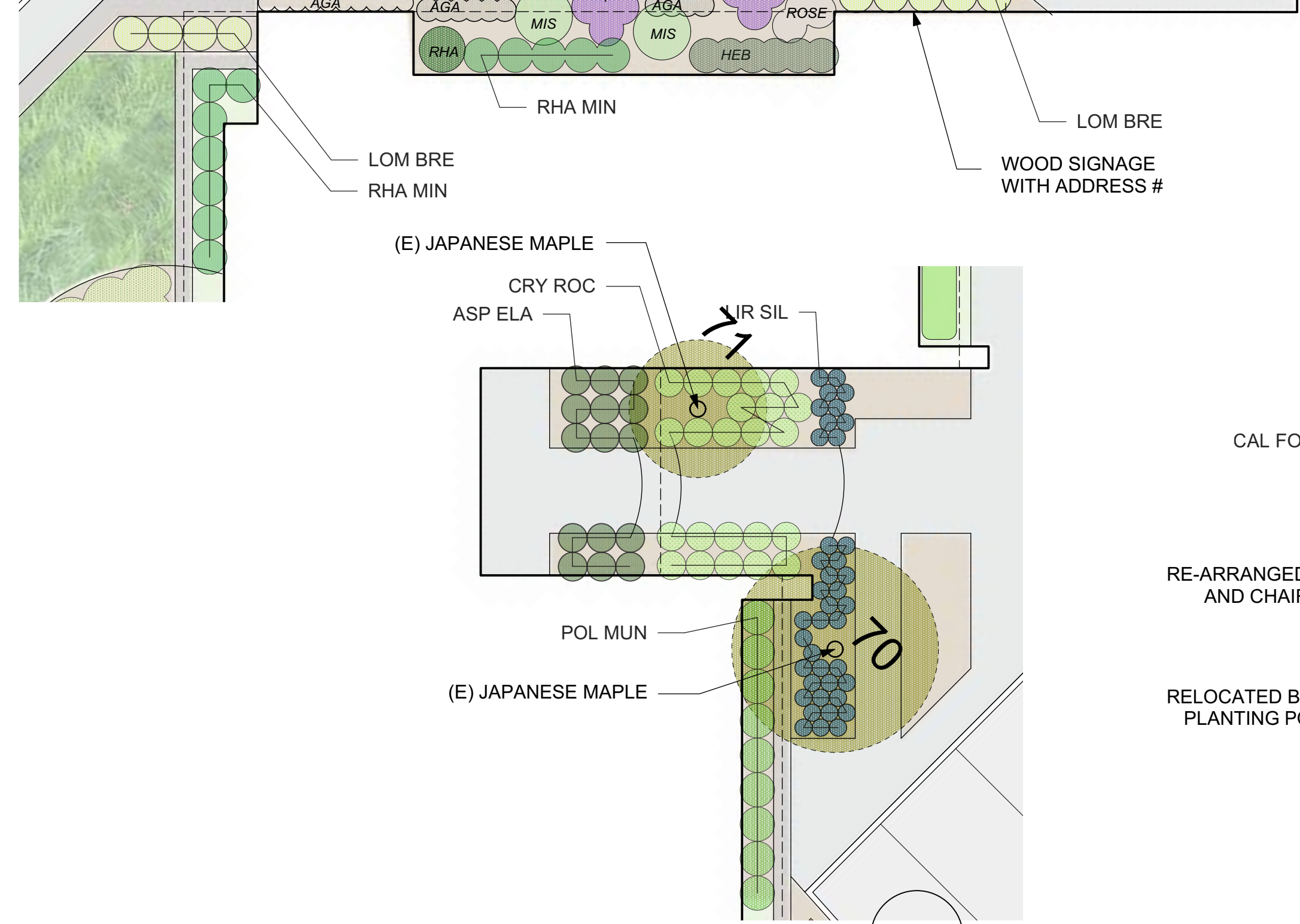
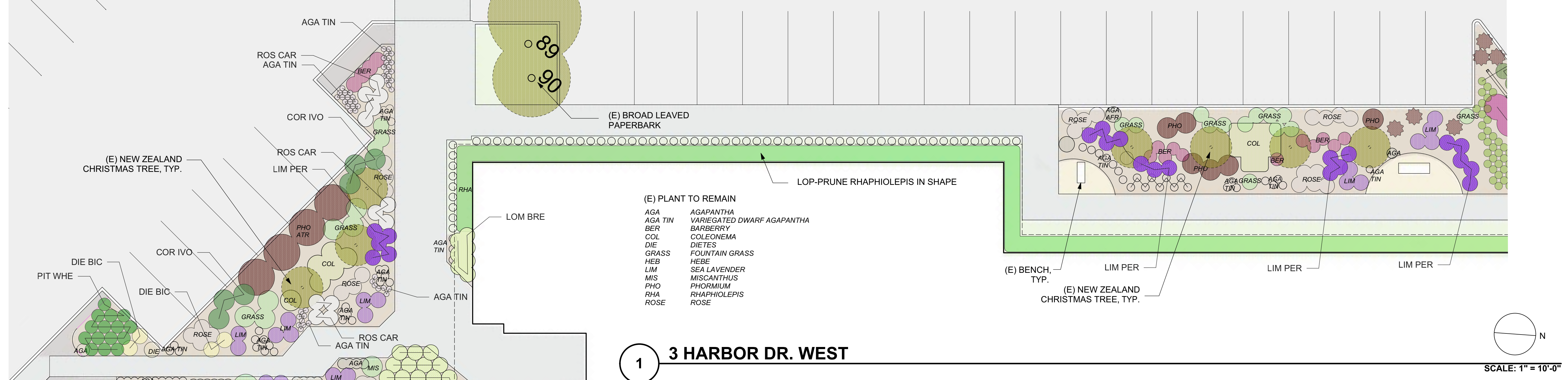
**PHASE I ENLARGED PLANS #1 HARBOR DR.**  
 SHEET #

**L-4**

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**HARBOR DRIVE**  
**EXECUTIVE**  
**OFFICE PARK**

1 & 3 HARBOR DRIVE  
 SAUSALITO, CA  
 APN: 063-140-15



12/11/19 PLANNING SUB

DATE	ISSUES & REVISIONS	NO.

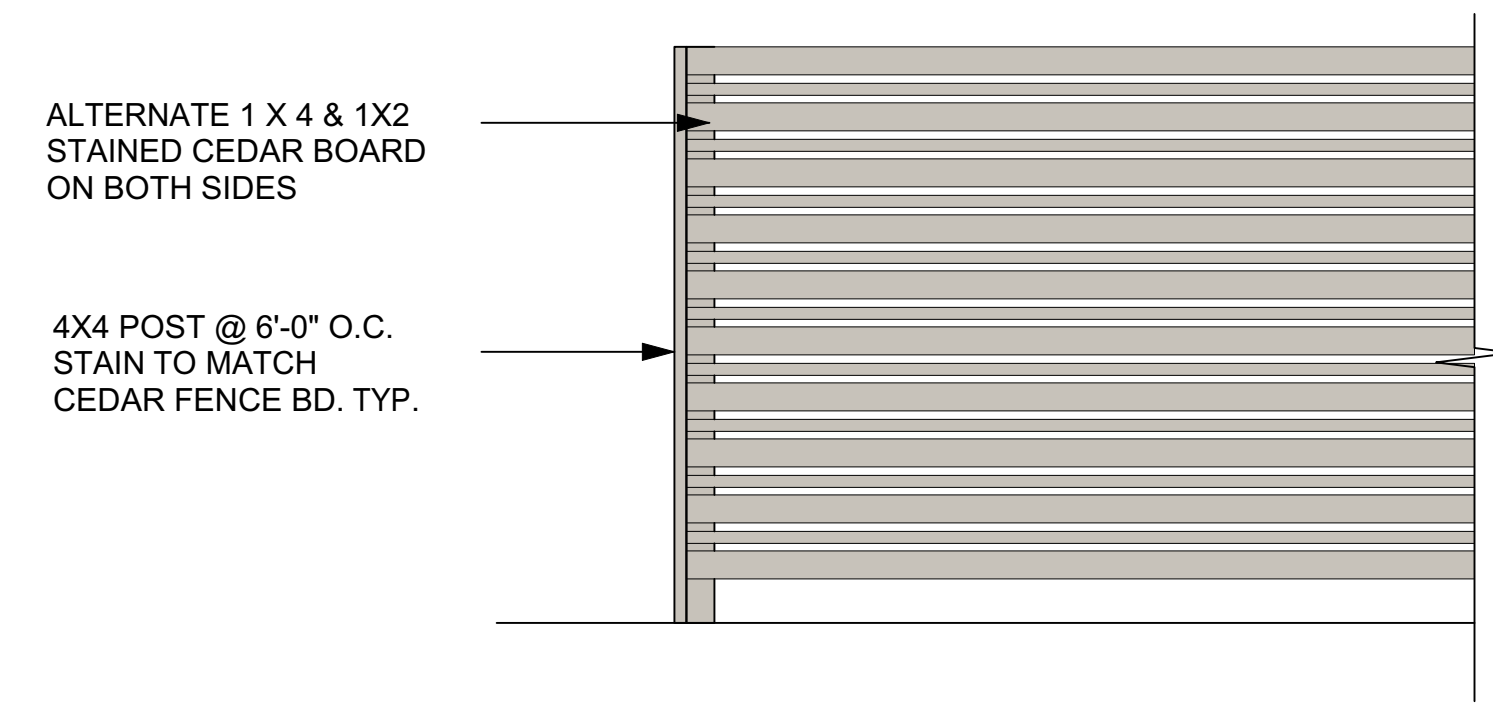
PROJECT# 1921 DRAWN BY: KO/TK  
 ORIGINAL DRAWING SIZE: 24" X 36"

**PHASE I**  
**ENLARGED PLANS**  
**#3 HARBOR DR.**  
 SHEET #

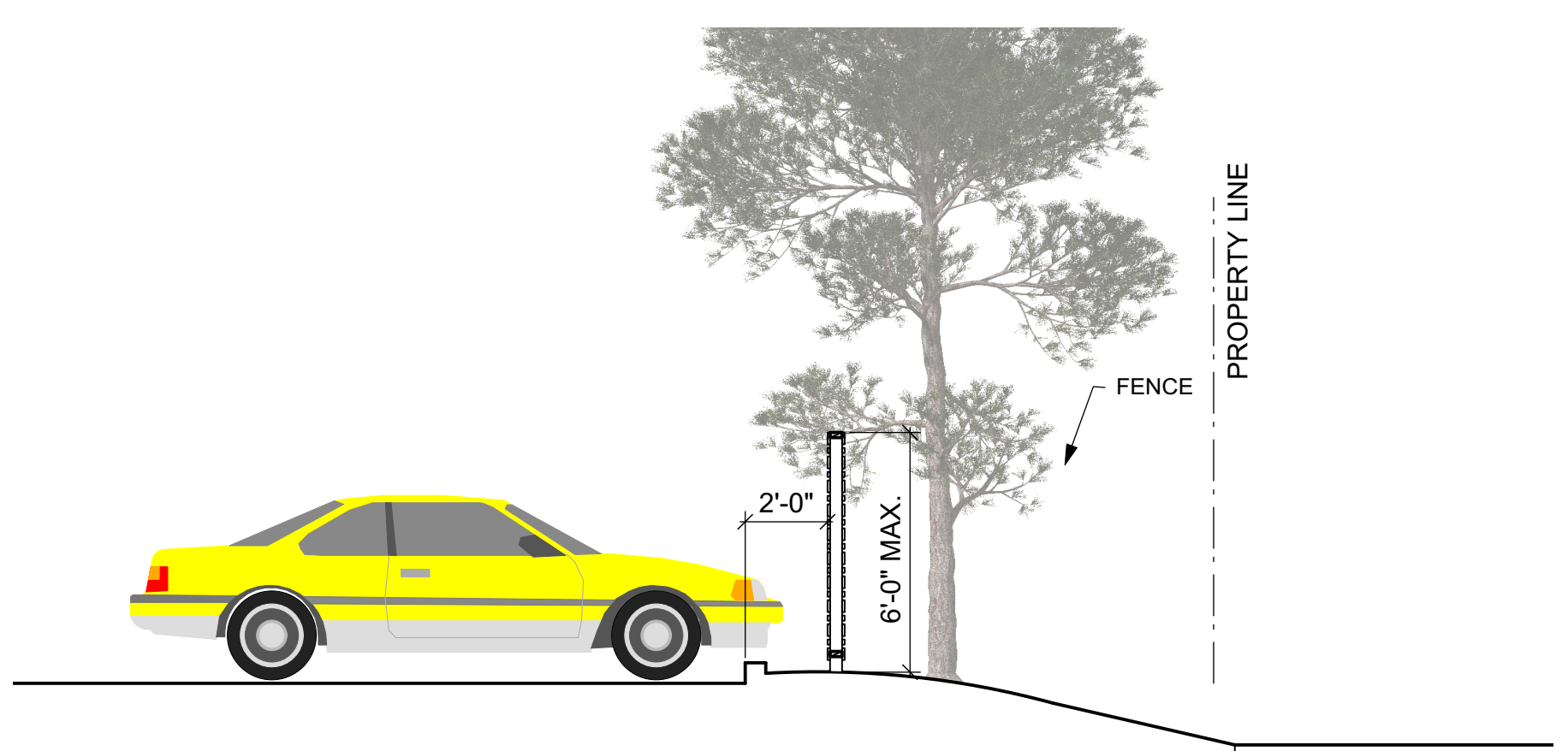
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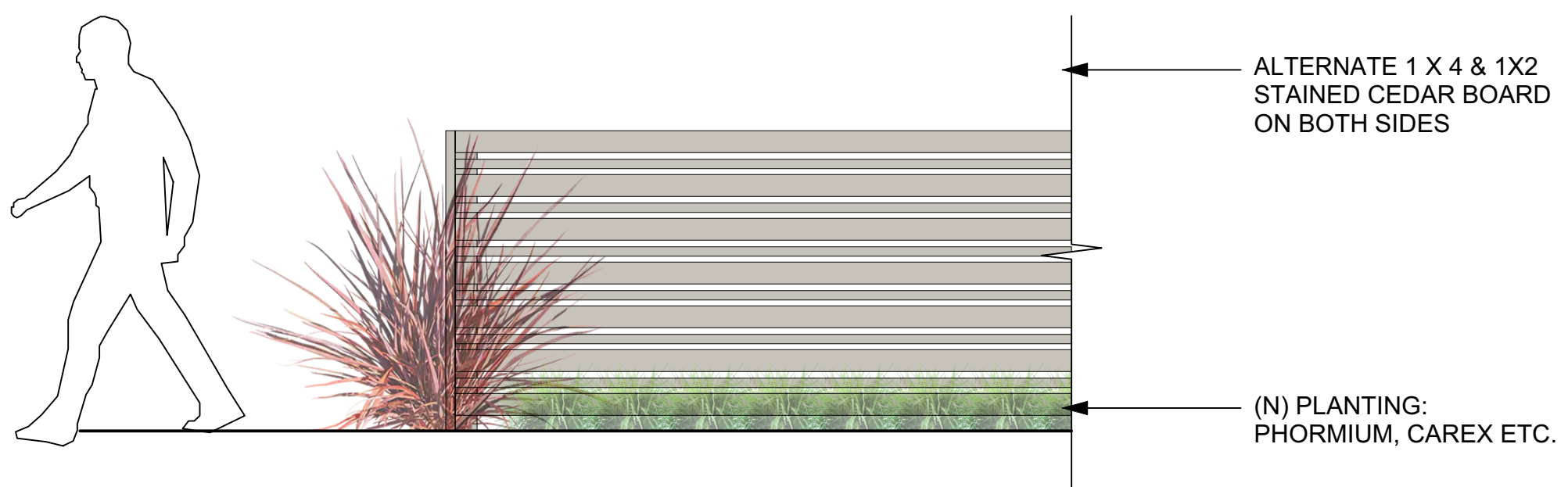




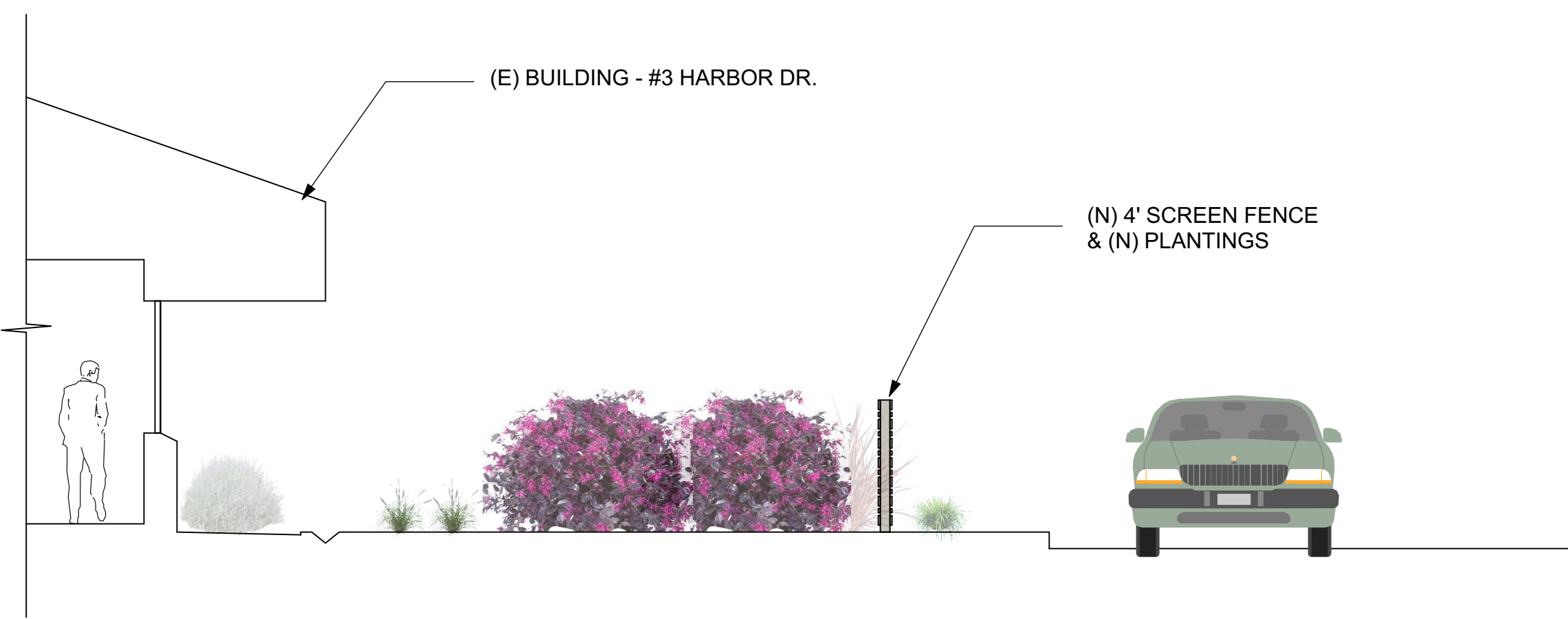
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4 TYP. SCREEN FENCE, SECTION SCALE: 1/4" = 1'-0"



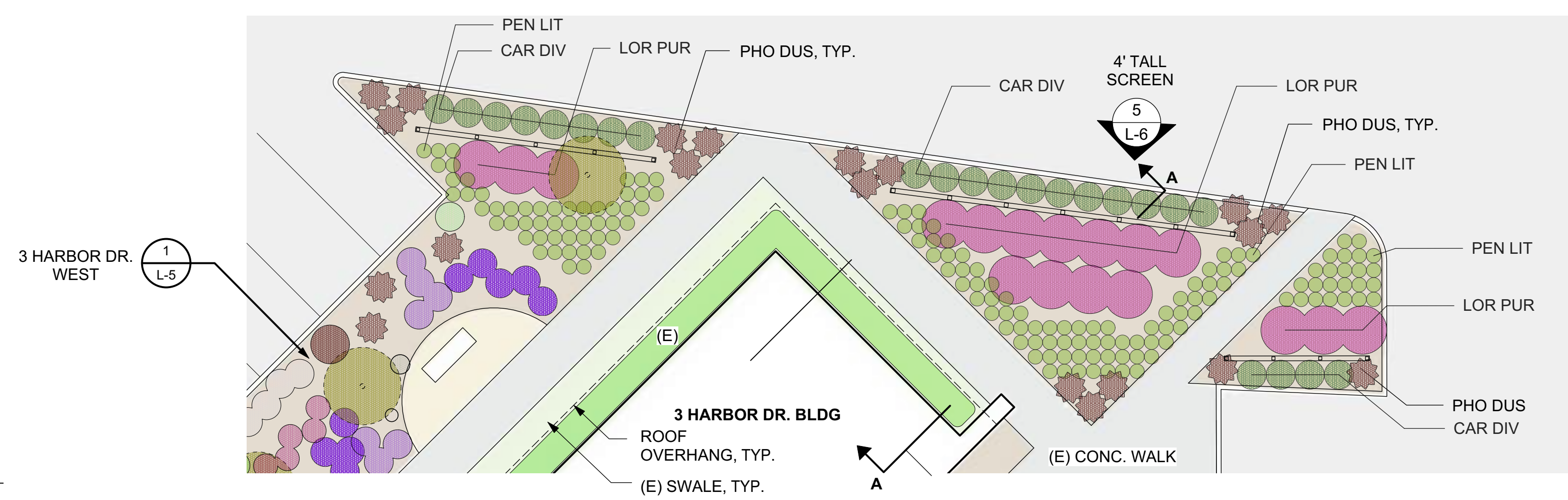
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1 TREATMENT @ SIGNAGE SCALE: 1" = 10'-0"



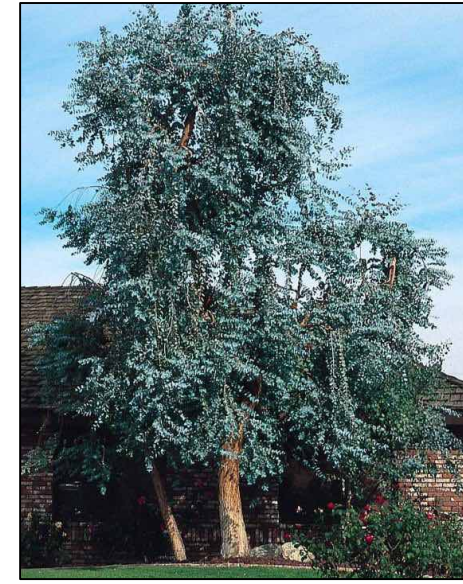
2 3 HARBOR DR. SCREENS SCALE: 1" = 10'-0"

08/24/19	PLANNING RE-SUB	2
12/11/19	PLANNING SUB	
DATE	ISSUES & REVISIONS	NO.

**TREES**



*Carpinus betulus* 'Frans Fontaine'  
Frans Fontaine European Hornbeam



*Eucalyptus polyanthemos*  
Silver Dollar Gum



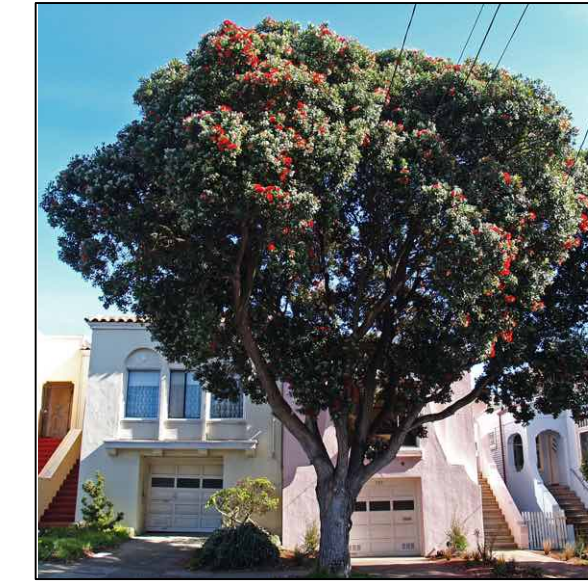
*Lophostemon confertus*  
Brisbane Box



*Magnolia grandiflora*  
'Little Gem'  
Dwarf Southern Magnolia



*Magnolia grandiflora* 'Samuel Sommer'  
Samuel Sommer Southern Magnolia



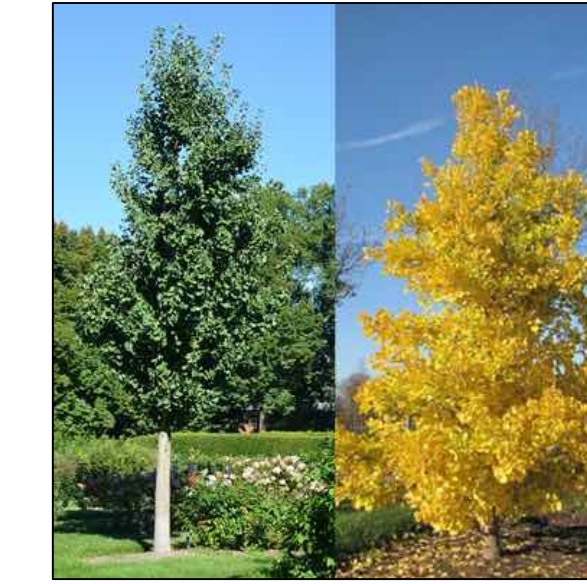
*Metrosideros excelsa*  
New Zealand Christmas Tree



*Prunus cerasifera* 'Krauter Vesuvius'  
Krauter Vesuvius Plum



*Tristaniopsis laurina*  
Water Gum



*Ginkgo biloba* 'Princeton Sentry'  
Princeton Sentry Maidenhair Tree  
(Alternate for *Eucalyptus polyanthemos*)

**SHRUBS**



*Camelia* spp.  
Camelia Espalier



*Correa* 'Ivory Bells'  
Australian Fuchsia



*Frangula californica* 'Mound San Bruno'  
California Coffeeberry



*Lavandula x intermedia* 'Provence'  
'Provence' Lavender



*Loropetalum chinense* 'Burgundy'  
Loropetalum



*Pittosporum tobira* 'Wheeler's Dwarf'  
Wheeler's Dwarf Japanese Mock Orange



*Plumbago auriculata* 'Imperial Blue'  
Blue Cape Plumbago



*Raphiolepis umbellata* 'Minor'  
Dwarf Yedda Hawthorn



*Punica granatum* 'Nana'  
Dwarf Pomegranate



*Salvia leucantha*  
Mexican Bush Sage



*Agave attenuata*  
Fox Tail Agave



*Aspidistra elatior*  
Cast Iron Plant

**PERENNIALS**



*Diets bicolor*  
Fortnight Lily



*Limonium perezii*  
Statice



*Liriope spicata* 'Silver Dragon'  
Silver Dragon Lily Turf



*Lomandra longifolia* 'Breeze'  
'Breeze' Dwarf Mat Rush



*Phormium tenax* 'Bronze Baby'  
New Zealand Flax



*Sansevieria trifasciata* 'Moonshine'  
Silver Snakeplant



*Senecio serpens*  
Blue Chalk Stick



*Calamagrostis foliosa*  
Mendocino Reed Grass



*Carex divulsa*  
Berkeley Sedge



*Chondropetalum elephantinum*  
Large Cape Rush



*Chondropetalum tectorum*  
Cape Rush



*Miscanthus sinensis* 'Moon Light'  
Japanese Silver Grass

**GROUNDCOVERS**



*Muhlenbergia rigens*  
Deer Grass



*Pennisetum alopecuroides* 'Little Bunny'  
Little Bunny Dwarf Fountain Grass



*Cotoneaster dammeri* 'Coral Beauty'  
Bearberry Cotoneaster



*Loropetalum* 'Purple Pixie'  
Purple Pixie Loropetalum



*Mahonia repens*  
Creeping Mahonia



*Rosa* 'Flower Carpet'  
Groundcover Rose

**OUTDOOR GRILL COUNTER**



**CONVERSATION GROUP FURNITURE**



**FORM BOARD CONC. FIRE PIT AND S.S. BRANCH INSERT**



**HARBOR DRIVE**  
**EXECUTIVE**  
**OFFICE PARK**

1 & 3 HARBOR DRIVE  
SAUSALITO, CA

APN: 063-140-15

8/21/20	PLANNING RE-SUB	2
12/11/19	PLANNING SUB	
DATE	ISSUES & REVISIONS	NO.

PROJECT# 1921 DRAWN BY: KO/TK  
ORIGINAL DRAWING SIZE: 24" X 36"

**MATERIAL & IMAGES**

SHEET #

**L-7**

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# 1 & 3 Harbor Drive Tree Removal Report

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*Prepared for:*  
**Dennis Fisco**

*Prepared by:*  
**Zach Vought**  
**Urban Forestry Associates**  
**8 Willow St.**  
**San Rafael, CA 94901**

**August 25, 2020**



**URBAN FORESTRY ASSOCIATES, INC.**

8 Willow Street San Rafael, CA 94901  
(415) 454-4212 info@urbanforestryassociates.com

## Harbor Drive Tree Removal Report

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## ASSIGNMENT/ PURPOSE

As a part of a landscape improvement project, Kai Okada, of Pederson Landscape Architecture contacted Urban Forestry Associates to assess trees at the 1 and 3 Harbor Drive, a commercial property in Sausalito. The purpose was to assess the species and condition of the trees onsite, and document trees slated for removal to satisfy the City of Sausalito's arborist report requirements.

## SUMMARY

A total of 16 trees will be removed for the project, 3 of which require a permit.

The following (3) trees scheduled for removal and require a permit: 29, 37, 38 (See Table 1)

## METHODOLOGY

1. Identify trees to species and assign condition ratings. Specific observations related to tree condition were included in the comments section of the inventory
2. Measure trunk diameter at 4.5" above grade unless noted otherwise in the inventory.
3. Determine protected status using the Sausalito Municipal Code
4. Label trees in the field with an aluminum tree tag relative to the inventory found on the map that is to accompany this report
5. Photography was produced of each tree included in the report which can be made available upon request.

## OBSERVATIONS/ DISCUSSION

A total of 101 trees were included in the inventory, most of which are non-native, ornamental species. I understand that the property owner is interested in updating the plant palette onsite to reduce water use, abate undesirable tree characteristics, and improve aesthetics.

Most protected trees onsite are Fremont cottonwood (*Populus fremontii*) and Lombardy poplar (*Populus nigra 'italica'*) trees. High water use, root issues, and frequent pruning by the species are a few notable downsides to both cottonwood and poplar trees. Also limited planter space is a concern due to the history of root damage.

Removal of high water-use trees and plants is planned (in part) to reduce water use onsite. Both cottonwood and poplar trees require regular irrigation to thrive.

Surface rooting and conflicts with infrastructure was a reoccurring issue observed with poplar trees, especially for trees near asphalt and/ or drainage v-ditches (See Figures 1, 2). Many planting basins onsite are narrow and do not accommodate the large growth potential of both cottonwoods are poplar. Consequently, asphalt repairs appear to have been performed in many areas of the properties where roots have caused issues.

Many cottonwood trees have not reached their full growth potential, so if left to grow, continued issues (such as asphalt or hardscape damage) are likely to occur. All this considered removing and replacing problematic trees is a reasonable option for the property owners.

The young New Zealand Christmas trees (*Metrosideros excelsa*) are performing very nicely. The trees are

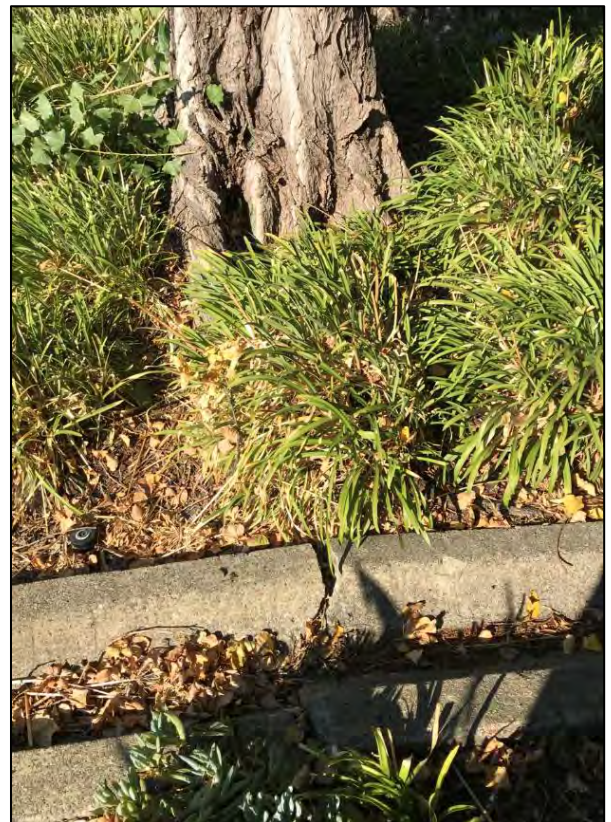


Figure 1- Cracked v-ditch in foreground caused by the surface roots of Tree #38.

well-established but do not appear to have received pruning recently. In the first five years of a tree's life, structural pruning can have a huge impact on the tree by removing defective or competing stems (See Pages 14, 15).

Monterey pine (*Pinus radiata*) trees are performing suboptimal onsite. While a select few are in good health most are declining and thus have a poor suitability onsite over the long term due to their sensitivity to drought and susceptibility to pests and disease.

### **SCOPE OF WORK / LIMITATIONS**

Information regarding property boundaries, land ownership, and tree ownership was evident from a land survey, property fencing and/or provided by the client. UFA has no personal or monetary interest in the outcome of this matter. All determinations reflected in this report are objective and to the best of our ability. All observations regarding the sites and trees were made by UFA personnel, independently, based on our education and experience. Determinations of the health and hazard potential of the subject trees are through visual inspection only and of our best professional judgment.

The health and hazard assessments in this report are limited by the visual nature of the assessment. Defects may be obscured by soil, brush, vines, aerial foliage, branches, multiple trunks or other trees. None of the subject trees were examined using invasive techniques such as increment coring or Resistograph® tests. The probability of tree failure is dependent on a number of factors including: topography, geology, soil characteristics, wind patterns, species characteristics (both visually evident and concealed), structural defects, and the characteristics of a specific storm. Structurally sound, healthy trees fail during severe storms. Consequently, a conclusion that a tree does not require corrective surgery or removal is not a guarantee of no risk, hazard, or sound health.

### **TREE WORK STANDARDS AND QUALIFICATION**

All tree work, removal, pruning, planting, shall be performed using industry standards as established by the International Society of Arboriculture. Contractor must have a State of California Contractors License for Tree Service (C61-D49) or Landscaping (C-27) with general liability, worker's compensation, and commercial auto/equipment insurance.

Contractor standards of workmanship shall adhere to current Best Management Practices of the International Society of Arboriculture (ISA) and the American National Standards Institute (ANSI) for tree pruning, fertilization and safety (ANSI A300 and Z133.1).

### **SOURCES**

- Field data collected by Urban Forestry Associates in November, 2019
- Site plan provided by Pederson Landscape Architecture.



---

Zachary Vought, Urban Forester  
ISA Certified Arborist WE-9995A

**Table 1. Heritage trees scheduled for removal**

Tree Number	Species	Diameter	Health	Structure	Form	Comments	Canopy Spread	Height	Protected Status	Appraised Value
29	Weeping willow	24	Fair	Very Poor	Fair	Established, active decay in the main trunk and roots. It has been pruned extensively but still targets bench seating area and pedestrian path running parallel with Bridgeway.	25	20	Heritage	\$ 789.00
37	Lombardy poplar	30	Good	Fair to Good	Good	Marked surface rooting along drainage ditch. Decay was observed in large roots and evidence of decay in the lower trunk was observed.	30	70	Heritage	\$ 7,701.00
38	Lombardy poplar	30	Good	Fair	Good	Roots are breaking up the drainage ditch.	30	70	Heritage	\$ 7,701.00

**Table 2. Full Inventory**

Tree Number	Species	Diameter	Health	Structure	Form	Comments	Undesirable tree	Protected Status	Removal
1	Blue Gum Eucalyptus	60	Good	Fair to Good	Good	Appears co-owned.	yes	Unprotected	
2	Blackwood Acacia	9.8	Fair to Good	Poor to Fair	Poor	Main trunk makes 90 degree turn over parking spots.	yes	Unprotected	X
3	Blackwood Acacia	8.5, 4.9	Fair to Good	Poor to Fair	Poor	Strong lean into road.	yes	Unprotected	X
4	Monterey Pine	18.2	Poor to Fair	Fair	Fair	Beetle damage. Co-dominant stems. Poor suitability for preservation due to suboptimal health.	yes	Unprotected	
5	Monterey Pine	18.4	Fair to Good	Fair to Good	Good		yes	Unprotected	
6	Narrow leafed peppermint	21.4	Fair to Good	Poor	Poor	Odd form but has been pruned extensively to keep it small. PL not obvious in this area.		Heritage	
7	Red Flowering Gum	13.4	Good	Fair to Good	Good	Codominant stems.		Heritage	
8	Bottle brush	5, 3 inch stems	Good	Fair to Good	Good			Unprotected	
9	Monterey Pine	18.1	Fair to Good	Fair	Poor	It's asymmetrical canopy was influenced by an adjacent pine tree that was remove. Moderate beetle damage.	yes	Unprotected	
10	Monterey Pine	11.9	Poor to Fair	Fair	Poor	Heavy sequoia pitch moth activity on underside of upper trunk. Poor suitability for preservation due to poor health.	yes	Unprotected	
11	Japanese Black Pine	11	Good	Good	Good			Heritage	
12	Lombardy poplar	3, 2, 2	Fair	Poor	Fair	Sprout arising from the stump of a previously removed tree.		Unprotected	X
13	Monterey Pine	16	Poor to Fair	Poor to Fair	Poor	Moderate beetle activity. Poor suitability for preservation due to poor health.	yes	Unprotected	



Tree Number	Species	Diameter	Health	Structure	Form	Comments	Undesirable tree	Protected Status	Removal
14	Monterey Pine	12.8	Fair	Fair	Fair		yes	Unprotected	
15	Monterey Pine	12.8	Fair	Fair	Fair		yes	Unprotected	
16	Lombardy poplar	18	Good	Fair to Good	Good			Heritage	
17	Lombardy poplar	12, 8, 4	Good	Fair to Good	Good	The asphalt adjacent to this row of trees appears uplifted does to roots		Heritage	
18	Lombardy poplar	6, 5, 4	Good	Fair to Good	Good			Unprotected	
19	Lombardy poplar	6, 6, 4	Good	Fair	Fair	The stems of this tree appear to be arising from the stump of a previously removed tree.		Unprotected	
20	Monterey Pine	8.3	Poor to Fair	Poor to Fair	Poor	Large wound on trunk and many dead roots.	yes	Unprotected	
21	Lombardy poplar	12, 6	Good	Fair to Good	Good			Heritage	
22	Lombardy poplar	9	Good	Fair to Good	Good			Unprotected	
23	Lombardy poplar	Multiple stems	Fair to Good	Fair	Fair	Main stem was topped.		Unprotected	
24	Monterey Pine	30.7	Fair to Good	Fair	Good		yes	Unprotected	X
25	Coast Redwood	23.2	Good	Good	Good		yes	Unprotected	
26	Coast Redwood	30.4	Good	Good	Good		yes	Unprotected	

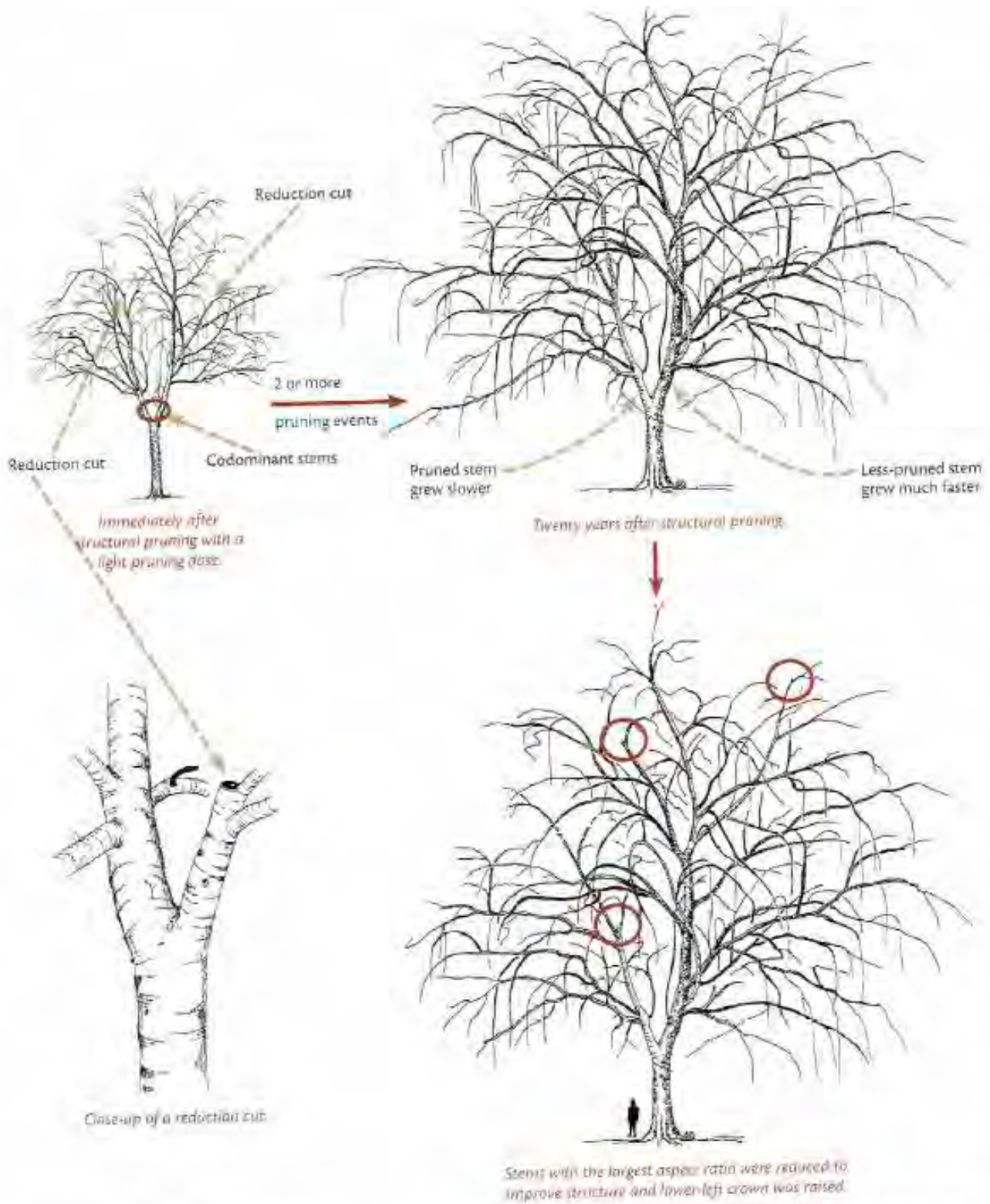
Tree Number	Species	Diameter	Health	Structure	Form	Comments	Undesirable tree	Protected Status	Removal
27	Coast Redwood	39.4	Good	Good	Good		yes	Unprotected	
28	Lombardy poplar	26.5	Good	Fair	Good	Many vertical stems.		Heritage	
29	Weeping willow	24	Fair	Very Poor	Fair	Established, active decay in the main trunk and roots. It has been pruned extensively but still targets bench seating area and pedestrian path running parallel with Bridgeway.		Heritage	X
30	Coast Redwood	37	Good	Good	Good		yes	Unprotected	
31	Strawberry tree	3	Fair	Fair	Good	Poorly established root system.		Unprotected	
32	Monterey Pine	25	Fair	Fair to Good	Fair	The canopy is asymmetrical due to it previously sharing canopy space with an adjacent tree.	yes	Unprotected	X
33	Lombardy poplar	33.2	Good	Fair	Good	Marked surface rooting. The asphalt parking lot appears to have been damaged by root growth.		Heritage	
34	Lombardy poplar	33.1	Good	Fair	Fair	The tree's canopy asymmetry was influenced by a pine tree that was removed.		Heritage	
35	Lombardy poplar	30	Good	Fair to Good	Good	Marked surface rooting. Acute angle branch attachments. The asphalt adjacent to the tree is broken up, apparently from root damage.		Heritage	
36	New Zealand Christmas tree	3	Good	Fair	Good			Unprotected	

Tree Number	Species	Diameter	Health	Structure	Form	Comments	Undesirable tree	Protected Status	Removal
37	Lombardy poplar	30	Good	Fair to Good	Good	Marked surface rooting along drainage ditch. Decay was observed in large roots and evidence of decay in the lower trunk was observed.		Heritage	X
38	Lombardy poplar	30	Good	Fair	Good	Roots are breaking up the drainage ditch.		Heritage	X
39	Lombardy poplar	38.2	Good	Fair	Good	Many acute angle branch attachments.		Heritage	
40	Japanese Maple	4, 3-4" stems	Good	Fair	Good	Many acute angle branch attachments.		Unprotected	
41	Monterey Pine	22.8	Fair to Good	Fair to Good	Fair		yes	Unprotected	X
42	Lombardy poplar	19.8	Good	Fair to Good	Fair			Heritage	
43	Lombardy poplar	15.6	Good	Fair to Good	Fair			Heritage	
44	Lombardy poplar	20	Good	Fair to Good	Fair			Heritage	
45	Monterey Pine	16.5	Fair to Good	Fair to Good	Good		yes	Unprotected	X
46	Lombardy poplar	14	Good	Fair to Good	Good			Heritage	
47	Lombardy poplar	16.7	Good	Fair to Good	Good			Heritage	
48	Monterey Pine	9.5	Poor to Fair	Poor to Fair	Poor	Very sparse canopy and previously topped.	yes	Unprotected	X
49	Monterey Pine	20	Fair to Good	Good	Good		yes	Unprotected	X
50	Lombardy poplar	16.7	Good	Fair to Good	Good			Heritage	
51	Monterey Pine	15.4	Fair to Good	Fair to Good	Fair		yes	Unprotected	X
52	Purple leaf plum	4, 2	Good	Fair	Good			Unprotected	X
53	Cottonwood	20.2	Good	Good	Fair	Slight canopy asymmetry north.		Heritage	

Tree Number	Species	Diameter	Health	Structure	Form	Comments	Undesirable tree	Protected Status	Removal
54	Cottonwood	24.1	Good	Fair to Good	Fair	Scattered deadwood in the canopy ranging from 1-4" diameter.		Heritage	
55	Cottonwood	16.4	Good	Fair	Poor	Strong canopy asymmetry north toward parking lot. Decay cavity in lower trunk.		Heritage	
56	Cottonwood	12.5	Good	Fair	Poor	Strong canopy asymmetry northeast.		Heritage	
57	Cottonwood	27.6	Good	Fair to Good	Good			Heritage	
58	Purple leaf plum	4,2	Good	Fair to Good	Good	Mower damage to trunk and roots.		Unprotected	
59	Myoporum	7.4, 6.8	Good	Fair to Good	Good	Typical myoporum thrip insect feeding on leaves. Tree is tolerating the leaf feeding.		Unprotected	
60	Myoporum	12	Good	Fair to Good	Poor	Asymmetry over parking spaces.		Heritage	
61	Myoporum	4	Good	Fair	Fair	The whole tree fell in the past but persisted and is performing well.		Unprotected	
62	Cottonwood	23.9	Good	Fair to Good	Good	Codominant stems at 8'.		Heritage	
63	Cottonwood	14.6	Good	Fair to Good	Good			Heritage	
64	Monterey Pine	13.6	Fair	Poor to Fair	Fair	This tree is very poorly structured. It targets parking spaces. Previous pruning mitigated the risk somewhat but it has a poor suitability for preservation.	yes	Unprotected	X
65	Cottonwood	16.4	Good	Fair	Fair			Heritage	
66	Cottonwood	14	Good	Fair	Fair			Heritage	
67	Cottonwood	15.2	Good	Fair to Good	Fair			Heritage	
68	Myoporum	8.9	Very Poor	Fair		This tree is in decline and not expected to recover.		Unprotected	

Tree Number	Species	Diameter	Health	Structure	Form	Comments	Undesirable tree	Protected Status	Removal
69	Evergreen pear	4	Fair	Fair to Good	Good	This tree appears to have failed to become established.		Unprotected	
70	Japanese Maple	Multiple 3" stems	Good	Fair to Good	Good	Pop up sprayers create decay problems for maples when water hits the trunk frequently. Convert irrigation to drip to avoid spraying trunk with water		Unprotected	
71	Japanese Maple	4.2	Good	Fair to Good	Good			Unprotected	
72	Evergreen pear	4.2	Fair	Fair to Good	Good	Stunted. Root system never became established.		Unprotected	
73	Evergreen pear	5.8	Fair	Fair to Good	Fair			Unprotected	
74	New Zealand Christmas tree	4.6	Good	Good	Good			Unprotected	
75	New Zealand Christmas tree	4.5	Good	Good	Good			Unprotected	
76	New Zealand Christmas tree	5.2	Good	Good	Good			Unprotected	
77-85	New Zealand Christmas tree	3-5	Good	Good	Good	Group of young healthy trees. All could benefit from structural pruning.		Unprotected	
86	Evergreen pear	7	Fair to Good	Fair to Good	Fair			Unprotected	
87	Evergreen pear	6.4	Fair to Good	Fair to Good	Fair			Unprotected	
88	Monterey Pine	13.2	Fair	Fair	Fair	This tree is poorly placed in the small planter and has a poor suitability for preservation given its suboptimal health.	yes	Unprotected	X
89	Broad leaved paperbark	10.9	Good	Fair	Good	Poor branch attachment through much of the canopy.		Heritage	

Tree Number	Species	Diameter	Health	Structure	Form	Comments	Undesirable tree	Protected Status	Removal
90	Broad leaved paperbark	10.8, 10.4, 8.2	Good	Fair	Good	Poor branch attachments.		Heritage	
91	Evergreen pear	5.7	Fair to Good	Fair to Good	Fair			Unprotected	
92	Evergreen pear	9.2	Fair to Good	Fair to Good	Good			Unprotected	
93	Evergreen pear	5.1	Fair to Good	Fair to Good	Good			Unprotected	
94	Broad leaved paperbark	16.5, 16.1, 12.3	Good	Fair	Good	Acute attachment of branches and stems.		Heritage	
95	Evergreen pear	6.4	Fair to Good	Fair to Good	Good			Unprotected	
96-100	New Zealand Christmas tree	3	Good	Fair to Good	Good	Group of young healthy trees. All could benefit from structural pruning.		Unprotected	
101	Evergreen pear	7.1	Fair to Good	Fair to Good	Good			Unprotected	



**Figure 4-16.** This tree (top left) was just pruned by reducing the left stem and reducing and thinning the right side. Over the next 20 years, more growth occurred on the right side because less was removed from that side, resulting in a smaller aspect ratio in the lowest union (top right). Some pruning now (circles) will further subordinate the lower left stem so it remains much smaller than the main trunk (bottom right).

## Structural Pruning Explanation- Sourced from 'Structural Pruning: A guide for the green industry' 2013

### Introduction

The objective of structural pruning on young and medium-aged trees is to develop and maintain a dominant leader from which smaller primary branches arise that are radially and vertically spaced along the trunk (Figure 4-1; see also Figures 3-1 and 3-3). In mature trees, the structure has already been developed and cannot be corrected without making large pruning cuts. Structural pruning that reduces weight to create less mechanical stress on weak areas is the primary strategy for reducing risk of failure in mature trees. These strategies are summarized in Appendix C.

Young trees should be pruned to guide growth so their crowns clear traffic, signs, and buildings while ensuring that they develop strong structure. Established trees in urban landscapes should be pruned primarily to reduce risk, preserve a tree structure that boosts amenity values, provide clearance, and improve the aesthetic value of the property. Achieving these customer expectations requires different pruning strategies for trees of different species, life stages, and size at maturity.

Structural pruning should be performed at planting and every few years thereafter on young and medium-aged trees in the landscape to gradually encourage more growth in the selected leader and less on competing branches. Invigoration of the leader occurs from a combination of slower growth on the pruned competing branches and exposing branches higher on the leader to more sunlight. The pruned branches grow slower because there are fewer leaves to conduct photosynthesis; removal of

the upright portions of lower branches allows more sunlight to reach the leader. Some species require more frequent pruning than others, especially when young (Table 4-1). Early structural pruning can reduce pruning costs in the future by creating a strong architecture early in the life of the tree so less material is removed later.

When done correctly and routinely, more branches are ultimately retained in the crown than with other strategies, minimizing costs associated with debris removal. However, the first pruning on trees with poor structure may remove a large amount of foliage, buds, and wood. Although the size of pruning cuts and the amount of removed material may be large at the initial structural pruning,

in subsequent years there will be smaller cuts and less material removed unless too much time passes before the tree is pruned again.

Open-grown trees naturally develop into various shapes and sizes and grow at different rates due primarily to variation

in genetics and soil attributes. Pruning strategies should consider these differences (Table 4-1). Excurrent trees like London plane (*Platanus × hispanica*) usually maintain a strong central leader with small lateral branches. These trees usually require minimal pruning to maintain a dominant leader and provide clearance. Removal of one or two competing upright stems may be all that is needed. Decurrent trees like Chinese elm (*Ulmus parvifolia*), however, typically require regular pruning to establish and maintain a leader. Without it, the form reverts back to a rounded crown growing on large scaffold branches borne low on the trunk.

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In young trees, it is usually possible to correct most structural defects. In mature trees, many defects cannot be corrected but often can be managed through pruning.

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