



MEMORANDUM

DATE: February 11, 2018

TO: Jamison Loos (Holland Development)

FROM: Todd Prager, RCA #597, ISA Board Certified Master Arborist

RE: Tree Removal and Protection Recommendations for Grass Valley Development

Summary

This memorandum provides tree removal and protection recommendations for the surveyed trees at the proposed Grass Valley development.

Background

Holland Development is proposing to construct the Grass Valley development in Camas, Washington. The existing conditions survey with tree locations is provided in Attachment 1 and the proposed site plan with tree impacts is provided in Attachment 2.

The assignment requested of our firm for this project was as follows:

1. Provide an assessment of the surveyed trees;
2. Provide recommendations for tree removal and retention based on the proposed site improvements; and
3. Provide protection recommendations for the trees to be retained.

Tree Assessment

On February 6, 2018, I completed my assessment of the surveyed trees. The complete inventory data is provided in the tree inventory spreadsheet in Attachment 3. The data collected for each tree includes the tree number, species (common and scientific names), trunk diameter (DBH), tree health condition, tree structural condition, pertinent comments, and treatment (remove or retain). The tree numbers in the tree inventory in Attachment 3 correspond to the tree numbers on the plans in Attachments 1 and 2.

Proposed Tree Removal

A typical minimum recommended tree protection zone encompasses a radius around a tree that is .5 feet per inch of DBH. For example, a tree with a 24-inch DBH would have a minimum protection radius of 12 feet. However, this standard may need to be adjusted on a case by case basis due to tree health, root distribution, species tolerance, whether the tree will be impacted on multiple sides, and other factors.

Attachment 2 shows the proposed impacts for site improvements in relation to the trees. Forty-three (43) of the 108 trees at the site are proposed for removal for the following reasons:

- **Trees 7 through 27 and 44 through 50:** Construction impacts from site grading and improvements.
- **Trees 37.1, 41.5, and 41.6:** Potential grading impacts.
- **Trees 41.1 through 41.4:** Very poor health and structural condition, risk to improvements, potential grading impacts.
- **Trees 57 through 60 and 85 through 87:** Site access from NW 38th Avenue.

Protection recommendations for the remaining trees to be retained at the site are provided in the next section of this report.

Tree Protection Recommendations

The following recommendations apply to the 70 trees to be retained:

- **Protection Fencing:** Establish tree protection fencing in the locations shown in Attachment 2. The intent of the tree protection fencing is to protect a minimum root protection zone radius around each tree to be retained of .5 feet per inch of DBH (e.g. 12-foot radius around a 24-inch tree). Note that tree protection fencing is not required for trees 1 through 6 if the existing fence is to remain during construction.
- **Modify Grading and Pathway:** Grading and pathway construction is proposed within the critical root zones of trees 31, 33.1, 33.2, 33.3, and 38. The grading and pathway construction should be relocated so it is outside the critical root zones. Note that the use of retaining walls may be required to move proposed grading outside the root zones.
- **Protect Crowns of Trees:** The crowns of the trees may extend beyond the tree protection fencing. Care will need to be taken to not contact or otherwise damage the crowns of the trees during construction activities.

Attachment 4 includes additional recommendations to adequately protect the trees during construction.

Conclusion

Forty-three trees are necessary to remove at the Grass Valley development for construction and/or condition. The 70 trees to be retained will be adequately protected by adhering to the recommendations in this report.

Please contact me if you have questions, concerns, or need any additional information.

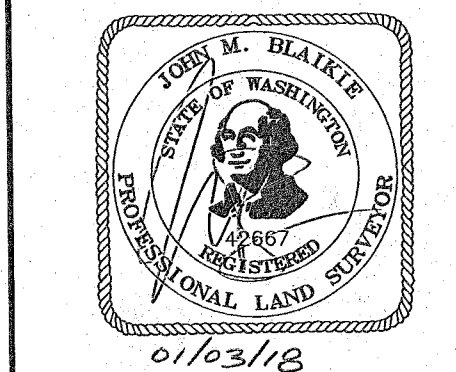
Sincerely,



Todd Prager

*ASCA Registered Consulting Arborist #597
ISA Board Certified Master Arborist, WE-6723B
ISA Qualified Tree Risk Assessor
AICP, American Planning Association*

Attachment 1:	Existing Conditions Survey with Tree Locations
Attachment 2:	Proposed Site Plan with Trees and Tree Protection
Attachment 3:	Tree Inventory
Attachment 4:	Additional Tree Protection Recommendations
Attachment 5:	Assumptions and Limiting Conditions

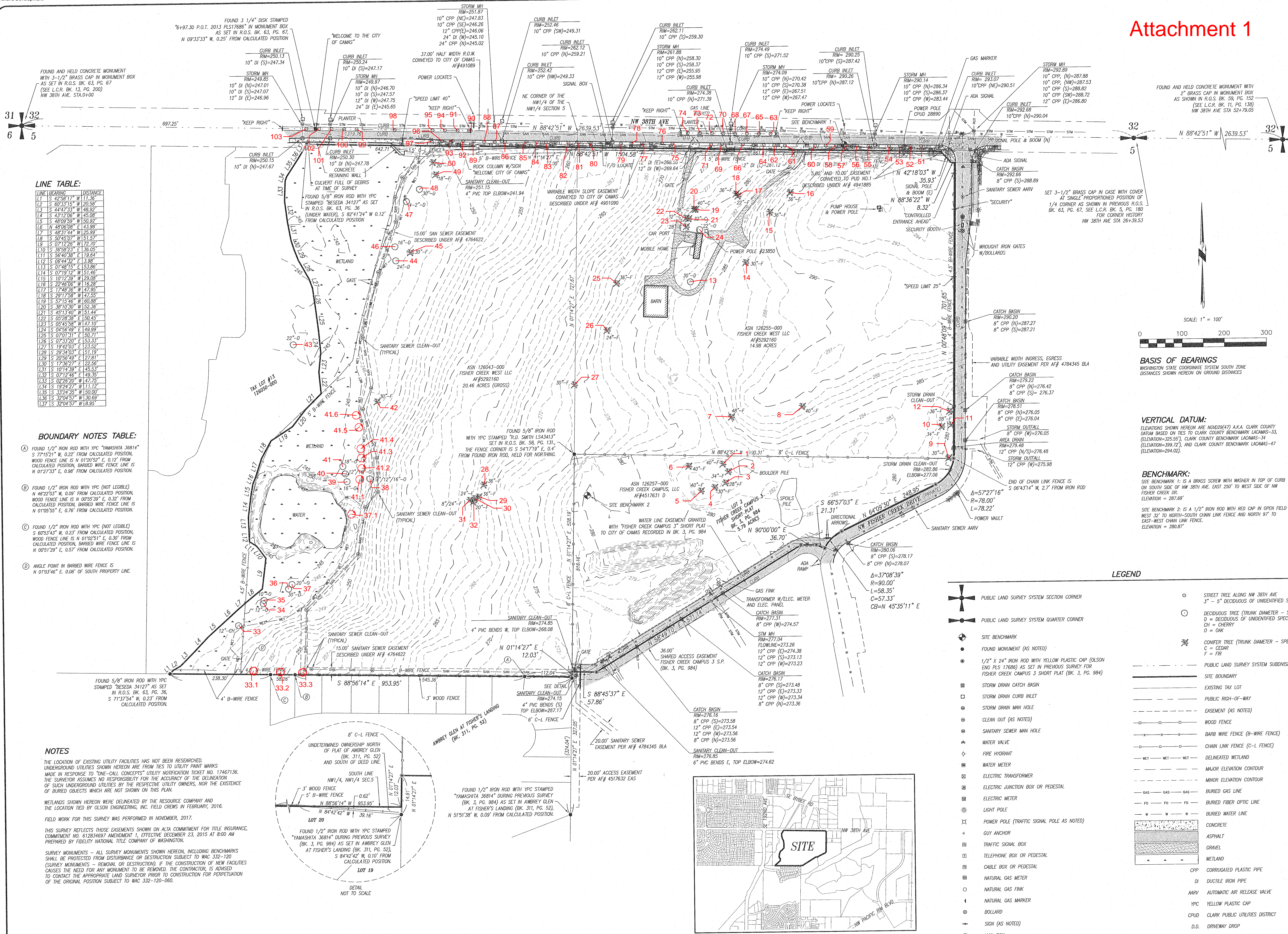


CHANGES / REVISIONS	
DESCRIPTION	DATE

DESIGNED:	
DRAWN: M.K.	
CHECKED: J.M.B.	
DATE: DECEMBER, 2017	
SCALE: 1" = 100'	
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EXISTING CONDITIONS	
JOB NO. 8368.04.03	

Attachment 1



LINE TABLE:

LINE BEARING	DISTANCE
L1 S 42°58'17" W 11.36'	
L2 S 60°33'15" W 20.58'	
L3 S 44°42'53" W 46.82'	
L4 S 43°12'06" W 45.08'	
L5 S 48°09'59" W 50.92'	
L6 N 48°06'00" E 53.98'	
L7 S 48°31'44" W 56.92'	
L8 S 50°45'07" W 51.57'	
L9 S 07°12'26" W 72.70'	
L10 S 36°58'23" E 36.05'	
L11 S 56°40'38" E 19.64'	
L12 S 06°44'32" E 3.98'	
L13 S 01°48'15" E 53.88'	
L14 S 07°19'12" W 51.46'	
L15 S 10°12'39" W 29.08'	
L16 S 22°46'06" W 16.28'	
L17 S 17°48'36" E 47.89'	
L18 S 28°17'58" W 42.55'	
L19 S 57°15'46" W 60.88'	
L20 S 38°10'30" W 52.36'	
L21 S 45°13'40" W 51.44'	
L22 S 05°28'38" E 50.45'	
L23 S 05°45'58" W 47.10'	
L24 S 04°56'49" E 49.99'	
L25 S 07°12'46" E 49.35'	
L26 S 07°33'20" E 53.33'	
L27 S 19°42'03" E 23.52'	
L28 S 29°34'03" E 51.19'	
L29 S 20°56'49" E 27.81'	
L30 S 17°36'27" E 22.56'	
L31 S 10°14'50" E 45.33'	
L32 S 07°12'46" E 49.35'	
L33 S 02°26'20" W 47.75'	
L34 S 19°24'27" W 11.12'	
L35 S 33°24'25" W 50.00'	
L36 S 32°04'57" W 30.69'	
L37 S 32°04'57" W 18.95'	

BOUNDARY NOTES TABLE:

A	FOUND 1/2" IRON ROD WITH YPC "YAMASHITA 38814" S 77°15'21" W, 0.22' FROM CALCULATED POSITION. WOOD FENCE LINE IS N 01°20'52" E, 0.12' FROM CALCULATED POSITION. BARBED WIRE FENCE LINE IS N 01°23'33" E, 0.98' FROM CALCULATED POSITION.
B	FOUND 1/2" IRON ROD WITH YPC (NOT LEGIBLE) N 45°22'03" W, 0.09' FROM CALCULATED POSITION. WOOD FENCE LINE IS N 07°55'39" E, 0.32' FROM CALCULATED POSITION. BARBED WIRE FENCE LINE IS N 07°05'56" E, 0.78' FROM CALCULATED POSITION.
C	FOUND 1/2" IRON ROD WITH YPC (NOT LEGIBLE) S 60°33'43" W, 0.23' FROM CALCULATED POSITION. WOOD FENCE LINE IS N 01°20'52" E, 0.12' FROM CALCULATED POSITION. BARBED WIRE FENCE LINE IS N 07°05'56" E, 0.78' FROM CALCULATED POSITION.
D	ANGLE POINT IN BARBED WIRE FENCE IS N 01°03'46" E, 0.08' OF SOUTH PROPERTY LINE.

NOTES

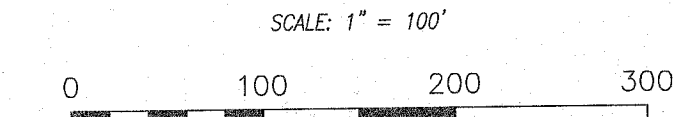
THE LOCATION OF EXISTING UTILITY FACILITIES HAS NOT BEEN RESEARCHED. UNDERGROUND UTILITIES SHOWN HEREON ARE FROM TIES TO UTILITY PAINT MARKS MADE IN RESPONSE TO "ONE-CALL" CONCEPTS' UTILITY NOTIFICATION TICKET NO. 17467136. THE SURVEYOR ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES BY THE RESPECTIVE UTILITY OWNERS, NOR THE EXISTENCE OF BURIED OBJECTS WHICH ARE NOT SHOWN ON THIS PLAN.

WETLANDS SHOWN HEREON WERE DELINEATED BY THE RESOURCE COMPANY AND THE LOCATION TIED BY OLSON ENGINEERING, INC. FIELD CREWS IN FEBRUARY, 2016.

FIELD WORK FOR THIS SURVEY WAS PERFORMED IN NOVEMBER, 2017.

THIS SURVEY REFLECTS THOSE EASEMENTS SHOWN ON ALTA COMMITMENT FOR TITLE INSURANCE, COMMITMENT NO. 612834697 AMENDMENT 1, EFFECTIVE DECEMBER 23, 2015 AT 8:00 AM PREPARED BY FIDELITY NATIONAL TITLE COMPANY OF WASHINGTON.

SURVEY MONUMENTS - ALL SURVEY MONUMENTS SHOWN HEREON, INCLUDING BENCHMARKS SHALL BE PROTECTED FROM DISTURBANCE OR DESTRUCTION SUBJECT TO WAC 332-120 (SURVEY MONUMENTS - REMOVAL OR DESTRUCTION). IF THE CONSTRUCTION OF NEW FACILITIES CAUSES THE NEED FOR ANY MONUMENT TO BE REMOVED, THE CONTRACTOR, IS ADVISED TO CONTACT THE APPROPRIATE LAND SURVEYOR PRIOR TO CONSTRUCTION FOR PERPETUATION OF THE ORIGINAL POSITION SUBJECT TO WAC 332-120-060.



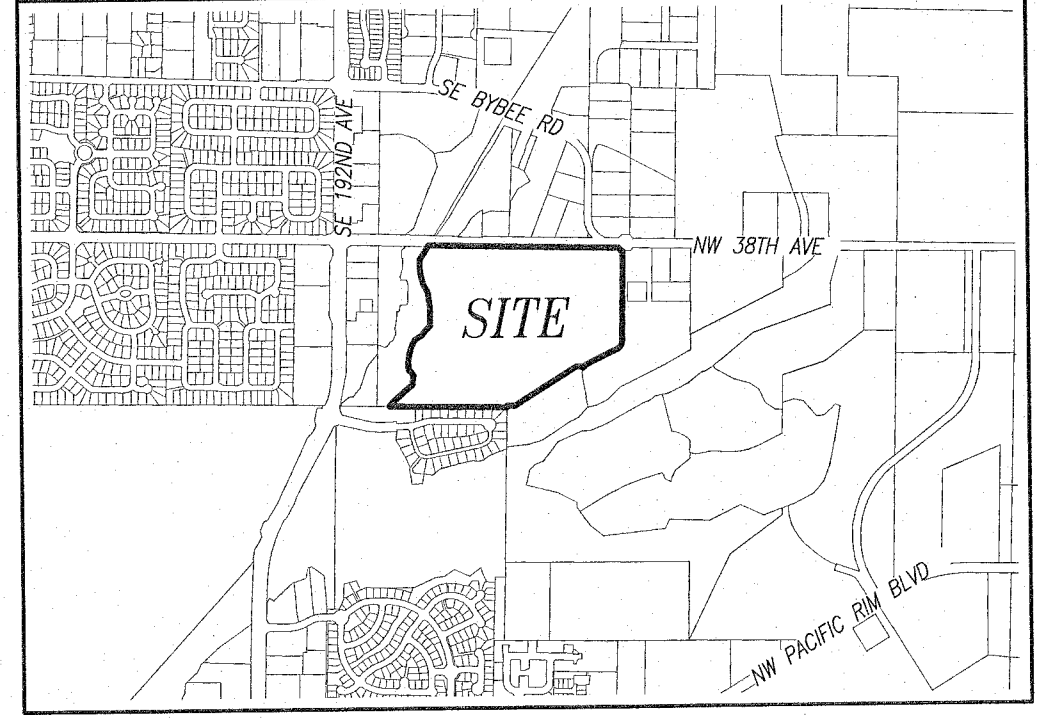
BASIS OF BEARINGS
WASHINGTON STATE COORDINATE SYSTEM SOUTH ZONE
DISTANCES SHOWN HEREON ON GROUND DISTANCES

VERTICAL DATUM:
ELEVATIONS SHOWN HEREON ARE NGVD29(47) A.K.A. CLARK COUNTY DATUM BASED ON TIES TO CLARK COUNTY BENCHMARK LACAMAS-33, (ELEVATION=326.53), CLARK COUNTY BENCHMARK LACAMAS-34, (ELEVATION=399.72), AND CLARK COUNTY BENCHMARK LACAMAS-47, (ELEVATION=294.02).

BENCHMARK:
SITE BENCHMARK 1: IS A BRASS SCREW WITH WASHER IN TOP OF CURB ON SOUTH SIDE OF NW 38TH AVE, EAST 250' TO WEST SIDE OF NW FISHER CREEK DR. ELEVATION = 287.68'
SITE BENCHMARK 2: IS A 1/2" IRON ROD WITH RED CAP IN OPEN FIELD WEST 32' TO NORTH-SOUTH CHAIN LINK FENCE AND NORTH 97' TO EAST-WEST CHAIN LINK FENCE. ELEVATION = 280.87'

LEGEND

	PUBLIC LAND SURVEY SYSTEM SECTION CORNER		STREET TREE ALONG NW 38TH AVE 3" - 5" DECIDUOUS OF UNIDENTIFIED SPECIES
	PUBLIC LAND SURVEY SYSTEM QUARTER CORNER		DECIDUOUS TREE (TRUNK DIAMETER - SPECIES) D = DECIDUOUS OF UNIDENTIFIED SPECIES CH = CHERRY O = OAK
	SITE BENCHMARK		CONIFER TREE (TRUNK DIAMETER - SPECIES) C = CEDAR F = FIR
	FOUND MONUMENT (AS NOTED)		PUBLIC LAND SURVEY SYSTEM SUBDIVISION
	1/2" X 24" IRON ROD WITH YELLOW PLASTIC CAP (OLSON ENG PLS 17686) AS SET IN PREVIOUS SURVEY FOR FISHER CREEK CAMPUS 3 SHORT PLAT (BK. 3, PG. 984)		SITE BOUNDARY
	STORM DRAIN CATCH BASIN		EXISTING TAX LOT
	STORM DRAIN CURB INLET		PUBLIC RIGHT-OF-WAY
	STORM DRAIN MAN HOLE		EASEMENT (AS NOTED)
	CLEAN OUT (AS NOTED)		WOOD FENCE
	SANITARY SEWER MAN HOLE		BARB WIRE FENCE (B-WIRE FENCE)
	WATER VALVE		CHAIN LINK FENCE (C-L FENCE)
	FIRE HYDRANT		DELINEATED WETLAND
	WATER METER		MAJOR ELEVATION CONTOUR
	ELECTRIC TRANSFORMER		MINOR ELEVATION CONTOUR
	ELECTRIC JUNCTION BOX OR PEDESTAL		BURIED GAS LINE
	ELECTRIC METER		BURIED FIBER OPTIC LINE
	LIGHT POLE		BURIED WATER LINE
	POWER POLE (TRAFFIC SIGNAL POLE AS NOTED)		CONCRETE
	GUY ANCHOR		ASPHALT
	TRAFFIC SIGNAL BOX		GRAVEL
	TELEPHONE BOX OR PEDESTAL		WETLAND
	CABLE BOX OR PEDESTAL		CORRUGATED PLASTIC PIPE
	NATURAL GAS METER		DUCTILE IRON PIPE
	NATURAL GAS FINK		AUTOMATIC AIR RELEASE VALVE
	NATURAL GAS MARKER		YELLOW PLASTIC CAP
	BOLLARD		CLARK PUBLIC UTILITIES DISTRICT
	SIGN (AS NOTED)		DRIVEWAY DROP
	MAIL BOX		BOUNDARY NOTE (A-D)



VICINITY MAP
SCALE: 1" = 1500'

Attachment 2

PARKING PROVIDED
1,003 PARKING STALLS
271,430 SF = 3.69 STALLS/1,000 SF

PARKING REQUIRED PER CODE
1/250 = 963 OFFICE STALLS + 80 RETAIL
1/400 = 602 OFFICE STALLS + 80 RETAIL

1" = 40' @ 24X36



Modify grading and trail to
outside critical root zones

Attachment 3

Tree No.	Common Name	Scientific Name	DBH ¹	Condition ²	Structure ²	Comments	Treatment
1	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	good	fair	moderately one sided	retain
2	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	good	fair	moderately one sided, codominant at 10'	retain
3	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	good	good		retain
4	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	good	fair	moderately one sided	retain
5	Douglas-fir	<i>Pseudotsuga menziesii</i>	42	good	good		retain
6	Douglas-fir	<i>Pseudotsuga menziesii</i>	42	good	good		retain
7	Douglas-fir	<i>Pseudotsuga menziesii</i>	47	good	fair	upright leader at 10'	remove
8	Douglas-fir	<i>Pseudotsuga menziesii</i>	42	fair	fair	moderately thin crown, multiple leaders at 50'	remove
9	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	good	fair	moderately one sided	remove
10	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	good	good		remove
11	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	fair	fair	one sided, moderately thin crown	remove
12	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	good	good		remove
13	red-alder	<i>Acer rubrum</i> 'Scarlet Sentinel'	33	very poor	very poor	dying, extensive decay throughout trunk and branches	remove
14	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	fair	fair	moderate vigor, branch failures in upper crown	remove
15	Douglas-fir	<i>Pseudotsuga menziesii</i>	41	good	good		remove
16	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	good	good		remove
17	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	good	fair	moderately one sided	remove
18	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	good	fair	overtopped by adjacent tree, lost top at 35'	remove
19	Douglas-fir	<i>Pseudotsuga menziesii</i>	40	good	fair	one sided	remove
20	Douglas-fir	<i>Pseudotsuga menziesii</i>	43	very poor	very poor	<i>Phaeolus schweinitzii</i> conk on structural root on south side of tree, one sided	remove
21	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	good	fair	one sided	remove
22	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	good	fair	one sided	remove
23	incense cedar	<i>Calocedrus decurrens</i>	28	good	fair	one sided, multiple leaders	remove

Attachment 3

Tree No.	Common Name	Scientific Name	DBH ¹	Condition ²	Structure ²	Comments	Treatment
24	English oak	<i>Quercus robur</i>	24	good	fair	multiple leaders, moderately one sided	remove
25	Douglas-fir	<i>Pseudotsuga menziesii</i>	38	good	fair	branch failures in mid crown	remove
26	Douglas-fir	<i>Pseudotsuga menziesii</i>	21	good	good		remove
27	Douglas-fir	<i>Pseudotsuga menziesii</i>	33	fair	fair	previously failed at 10' with multiple upright leaders, moderately thin crown	remove
28	Douglas-fir	<i>Pseudotsuga menziesii</i>	40	good	fair	moderately one sided	retain
29	Douglas-fir	<i>Pseudotsuga menziesii</i>	35	good	fair	one sided	retain
30	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	fair	fair	crown growth suppressed by adjacent trees	retain
31	Douglas-fir	<i>Pseudotsuga menziesii</i>	31	good	fair	one sided, 8" stem arises at base of trunk	retain
32	Douglas-fir	<i>Pseudotsuga menziesii</i>	29	good	fair	one sided	retain
33	sweet cherry	<i>Prunus avium</i>	12	good	good	nuisance species	retain
33.1	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	good	fair	moderately one sided, added to site map in approximate location by arborist	retain
33.2	Douglas-fir	<i>Pseudotsuga menziesii</i>	25	good	fair	moderately one sided, added to site map in approximate location by arborist	retain
33.3	Douglas-fir	<i>Pseudotsuga menziesii</i>	14	good	fair	one sided, added to site map in approximate location by arborist	retain
34	Oregon ash	<i>Fraxinus latifolia</i>	12	fair	fair	significant decay pocket in lower trunk, one sided	retain
35	Oregon ash	<i>Fraxinus latifolia</i>	11	good	fair	upright crown growth	retain
36	Oregon white oak	<i>Quercus garryana</i>	27	good	fair	one sided, overtopped by adjacent trees	retain
37	Oregon ash	<i>Fraxinus latifolia</i>	22	fair	poor	scaffold failure with significant decay at 20'	retain

Attachment 3

Tree No.	Common Name	Scientific Name	DBH ¹	Condition ²	Structure ²	Comments	Treatment
37.1	Scouler's willow	<i>Salix scouleriana</i>	34	fair	fair	decay pockets throughout trunk and branches, codominant at 2', added to site map in approximate location by arborist	remove
38	Oregon white oak	<i>Quercus garryana</i>	35	good	fair	multiple leaders at 2'	retain
39	Oregon ash	<i>Fraxinus latifolia</i>	16	good	fair	codominant at 25'	retain
40	Oregon ash	<i>Fraxinus latifolia</i>	28	good	fair	multiple leaders at 4'	retain
41	Oregon ash	<i>Fraxinus latifolia</i>	16	good	fair	codominant at 15'	retain
41.1	black cottonwood	<i>Populus trichocarpa</i>	18	very poor	very poor	top failure and decay, within wetland, added to site map in approximate location by arborist	remove
41.2	black cottonwood	<i>Populus trichocarpa</i>	18	very poor	very poor	top failure and decay, within wetland, added to site map in approximate location by arborist	remove
41.3	black cottonwood	<i>Populus trichocarpa</i>	22	very poor	very poor	top failure and decay, within wetland, added to site map in approximate location by arborist	remove
41.4	black cottonwood	<i>Populus trichocarpa</i>	22	very poor	very poor	top failure and decay, within wetland, added to site map in approximate location by arborist	remove
41.5	black cottonwood	<i>Populus trichocarpa</i>	30	fair	fair	added to site map in approximate location by arborist	remove
41.6	black cottonwood	<i>Populus trichocarpa</i>	30	fair	fair	added to site map in approximate location by arborist	remove
42	Douglas-fir	<i>Pseudotsuga menziesii</i>	36	good	fair	scaffold failures in upper crown	remove
43	Oregon ash	<i>Fraxinus latifolia</i>	22	fair	fair	multiple leaders, not tagged or measured because of limited access	retain
44	Oregon ash	<i>Fraxinus latifolia</i>	24	fair	poor	major leader failures in upper crown	remove
45	Douglas-fir	<i>Pseudotsuga menziesii</i>	28	fair	fair	codominant at 6', moderately thin crown	remove

Attachment 3

Tree No.	Common Name	Scientific Name	DBH ¹	Condition ²	Structure ²	Comments	Treatment
46	Oregon ash	<i>Fraxinus latifolia</i>	20	fair	fair	history of branch failure	remove
47	Oregon ash	<i>Fraxinus latifolia</i>	45	fair	fair	multiple leaders at 2', history of branch failures	remove
48	Oregon ash	<i>Fraxinus latifolia</i>	31	fair	fair	multiple leaders at 8', history of branch failures, decay pocket at base of trunk	remove
49	Douglas-fir	<i>Pseudotsuga menziesii</i>	22	fair	fair	multiple leaders at 30', moderate crown dieback	remove
50	Douglas-fir	<i>Pseudotsuga menziesii</i>	18	very poor	very poor	dying	remove
51	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	3	fair	fair	street tree, not tagged	retain
52	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	3	fair	fair	street tree, not tagged	retain
53	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	3	fair	fair	street tree, not tagged	retain
54	common ash	<i>Fraxinus excelsior</i>	4	good	fair	street tree, not tagged	retain
55	common ash	<i>Fraxinus excelsior</i>	4	good	fair	street tree, not tagged	retain
56	common ash	<i>Fraxinus excelsior</i>	4	good	fair	street tree, not tagged	retain
57	common ash	<i>Fraxinus excelsior</i>	4	good	fair	street tree, not tagged	remove
58	common ash	<i>Fraxinus excelsior</i>	4	good	fair	street tree, not tagged	remove
59	common ash	<i>Fraxinus excelsior</i>	4	good	fair	street tree, not tagged	remove
60	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	remove
61	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
62	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
63	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain

Attachment 3

Tree No.	Common Name	Scientific Name	DBH ¹	Condition ²	Structure ²	Comments	Treatment
64	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
65	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
66	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
67	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
68	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
69	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
70	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
71	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
72	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
73	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
74	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
75	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
76	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
77	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
78	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain

Attachment 3

Tree No.	Common Name	Scientific Name	DBH ¹	Condition ²	Structure ²	Comments	Treatment
79	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
80	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
81	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
82	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
83	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
84	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	retain
85	red maple	<i>Acer rubrum</i> 'Scarlet Sentinel'	3	good	fair	street tree, not tagged	remove
86	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	remove
87	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	remove
88	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	retain
89	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	retain
90	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	retain
91	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	retain
92	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	retain
93	common ash	<i>Fraxinus excelsior</i>	3	good	fair	street tree, not tagged	retain
94	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
95	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
96	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
97	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain

Attachment 3

Tree No.	Common Name	Scientific Name	DBH ¹	Condition ²	Structure ²	Comments	Treatment
98	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
99	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
100	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
101	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
102	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain
103	Eastern redbud	<i>Cercis canadensis</i> 'Forest Pansy'	1.5	fair	fair	street tree, not tagged	retain

¹**DBH** is the trunk diameter measured per International Society of Arboriculture (ISA) standards.

²**Condition** and **Structure** ratings range from very poor, poor, fair, good, to very good.

Attachment 4 Tree Protection Recommendations

Before Construction Begins

1. Notify all contractors of tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
 - a. Hold a tree protection meeting with all contractors to explain the goals of tree protection.
 - c. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the resulting fines issued by the local jurisdiction plus the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outlined in the current edition of the *Guide for Plant Appraisal* by the Council of Tree & Landscape Appraisers. The penalty should be paid to the owner of the property.
2. Fencing
 - a. Tree protection fencing may be set as shown in Attachment 2.
 - b. The fencing should be put in place before the ground is cleared in order to protect the trees and the soil around the trees from disturbances.
 - c. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
 - d. Fencing should consist of 4-foot high steel fencing on concrete blocks or 4-foot metal fencing secured to the ground with 6-foot metal posts to prevent it from being moved by contractors, sagging, or falling down.
 - e. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.
3. Signage
 - a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

TREE PROTECTION ZONE

DO NOT REMOVE OR ADJUST THE LOCATION OF THIS
TREE PROTECTION FENCING
UNAUTHORIZED ENCROACHMENT MAY RESULT IN FINES

Please contact the project arborist if alterations to the location of the tree protection fencing are necessary.

Todd Prager, Project Arborist, Teragan & Associates, 971-295-4835

- b. Signage should be placed every 75-feet or less.

During Construction

1. Protection Guidelines Within the Tree Protection Zones:
 - a. No new buildings; grade change or cut and fill, during or after construction; new impervious surfaces; or utility or drainage field placement should be allowed within the tree protection zones.
 - b. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
 - c. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
 - d. Construction trailers should not to be parked/placed within the tree protection zones.
 - e. No vehicles should be allowed to park within the tree protection zones.
 - f. No other activities should be allowed that will cause soil compaction within the tree protection zones.
2. The trees should be protected from any cutting, skinning or breaking of branches, trunks or woody roots.
3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
4. Trees that have woody roots cut should be provided supplemental water during the summer months.
5. Any necessary passage of utilities through the tree protection zones should be by means of tunneling under woody roots by hand digging or boring with oversight by the project arborist.
6. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

After Construction

1. Carefully landscape the areas within the tree protection zones. Do not allow trenching for irrigation or other utilities within the tree protection zones.
2. Carefully plant new plants within the tree protection zones. Avoid cutting the woody roots of trees that are retained.
3. Do not install permanent irrigation within the tree protection zones unless it is drip irrigation to support a specific planting or the irrigation is approved by the project arborist.
4. Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
5. Provide for the ongoing inspection and treatment of insect and disease populations that are capable of damaging the retained trees and plants.
6. The retained trees may need to be fertilized if recommended by the project arborist.
7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

Attachment 5

Assumptions and Limiting Conditions

1. Any legal description provided to the consultant is assumed to be correct. The information provided by Holland Development and their consultants was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The purpose of this report is to:
 - Provide an assessment of the surveyed trees;
 - Provide recommendations for tree removal and retention based on the proposed site improvements; and
 - Provide protection recommendations for the trees to be retained.