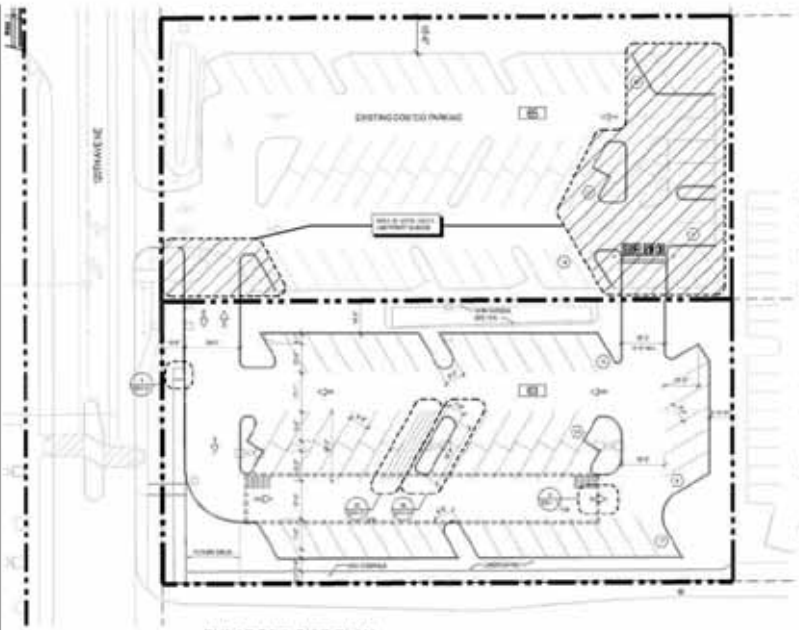
Enclosure 6

ENCLOSURE 4



1 ENLARGED SITE PLAN
SCALE: 1:20

PROJECT DATA

CLIENT: COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

PROJECT ADDRESS: 9820 120TH AVE NE
KIRKLAND, WA 98033

SITE DATA:

TOTAL SITE AREA: [illegible]

INCLUDES:

[illegible]

JURISDICTION: CITY OF KIRKLAND

ZONING: RIDGE HILL BUSINESS DISTRICT (RHBD)

SETBACKS:
FRONT: 10'-0"
SIDE: 0'-0"
BACK: 0'-0"

BOUNDARIES INFORMATION: THIS PLAN WAS SEEN PREPARED BY MULVANNY G2 ARCHITECTURE BASED SURVEY BY BARGHAUSEN CONSULTING ENGINEERS DATED SEPTEMBER 10, 2015

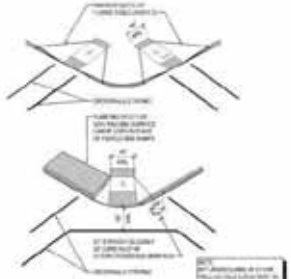
PARKING DATA

TOTAL PARKING: 53 STALLS

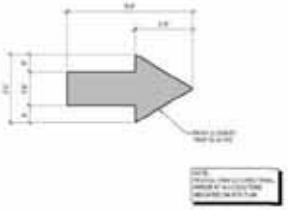
INCLUDES:

SUMMARY PARKING PROVIDED:

[illegible]



4 DIAGONAL CURB RAMPS
SCALE: 1/8" = 1'-0"



5 DIRECTIONAL ARROW
SCALE: 1/2" = 1'-0"

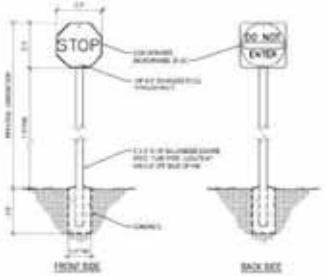
COSTCO GASOLINE
KIRKLAND, WA
008
9820 120TH AVE NE
KIRKLAND, WA 98033

COSTCO WHOLESALE CORPORATION
999 LAKE DRIVE
ISSAQUAH, WA 98027
T: 425.313.8100
www.costco.com

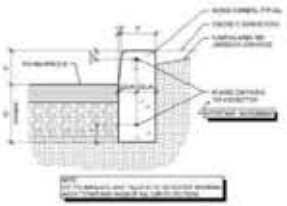
MULVANNY G2

[illegible]

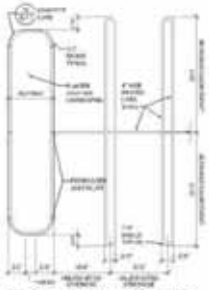
PERMIT ISSUE



11 "STOP" AND "DO NOT ENTER" SIGNS
SCALE: 1/2" = 1'-0"

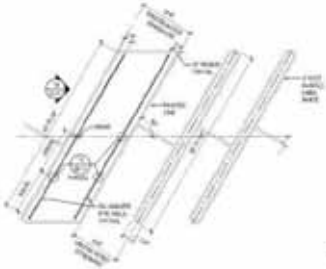


12 CAST-IN-PLACE CONCRETE CURB
SCALE: 1 1/2" = 1'-0"

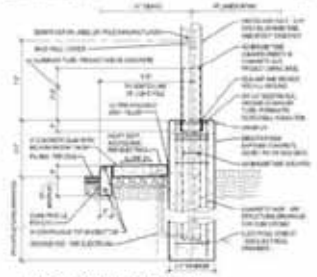


13 LANDSCAPE ISLAND CURBS
SCALE: 1/8" = 1'-0"

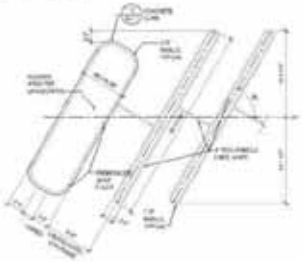
14 PAINTED DETAIL
SCALE: 1/8" = 1'-0"



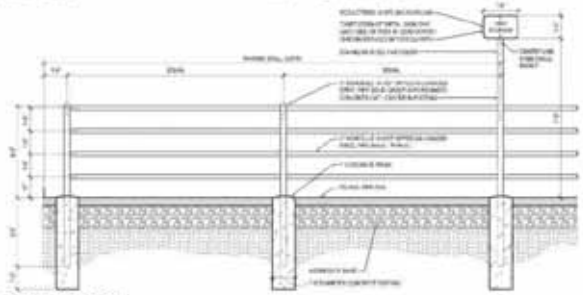
15 CART CORRAL AND TYPICAL PARKING STALL
SCALE: 1/8" = 1'-0"



16 LIGHT POLE BASE AT CONCRETE ISLAND / LANDSCAPING
SCALE: 1/2" = 1'-0"



18 LANDSCAPE ISLAND CURBS AT DIAGONAL PARKING STALLS
SCALE: 1/8" = 1'-0"



19 CART STORAGE
SCALE: 1/2" = 1'-0"

[illegible]

[illegible]

[illegible]

SITE DETAILS

SD1.01

Enclosure 7

ENCLOSURE 4

GUYNUP PARCEL

COVER SHEET AND KEY MAP

COSTCO PARKING LOT ADDITION

8629 120TH AVENUE N.E., KIRKLAND, WA.

Location No. 8

GENERAL SITE DEVELOPMENT NOTES

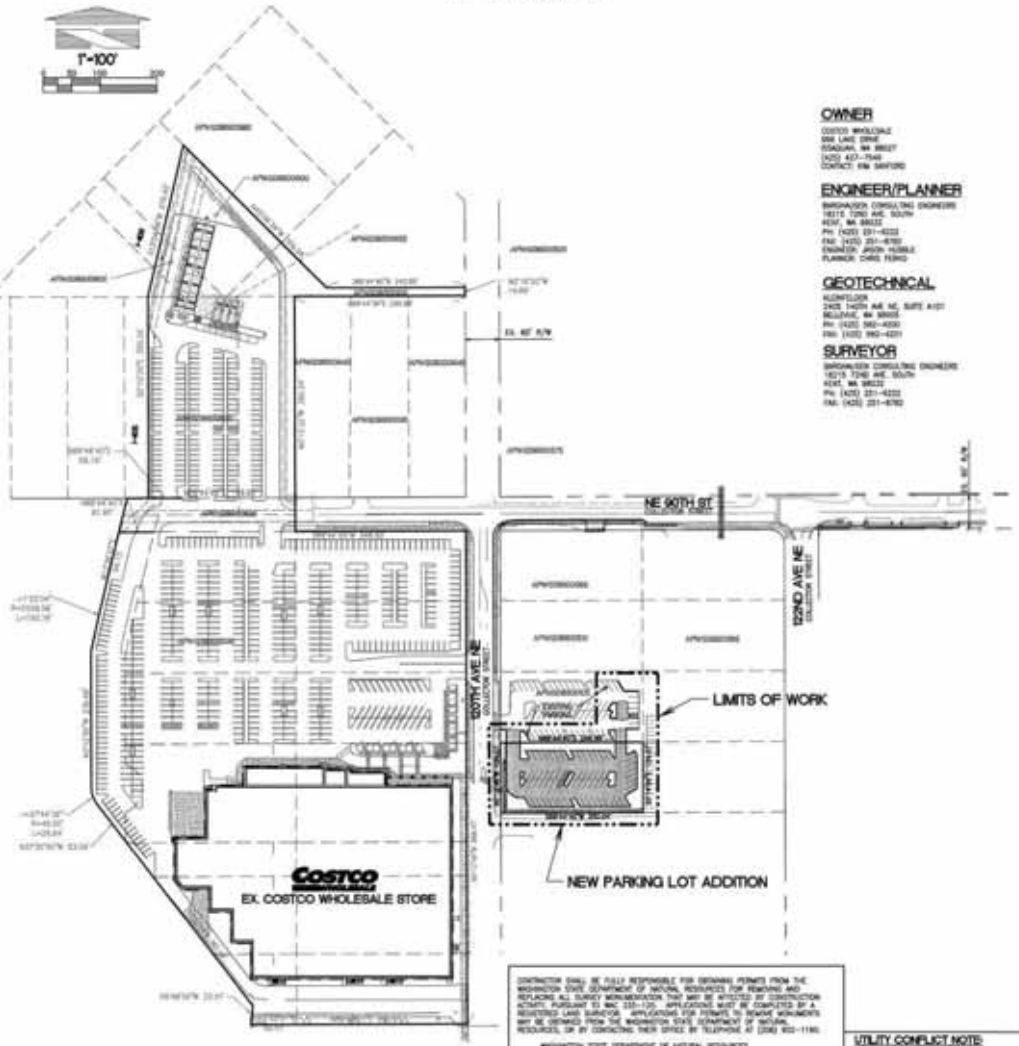
1. THE CONTRACTOR SHALL OBTAIN AND HAVE AVAILABLE COPIES OF THE APPLICABLE GOVERNING AGENCY STANDARDS AT THE JOB SITE DURING THE RELATED CONSTRUCTION OPERATIONS.
2. CONTRACTOR SHALL ASSURE THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION WHETHER SHOWN ON THESE PLANS OR NOT. UTILITIES OTHER THAN THOSE SHOWN MAY EXIST ON THIS SITE. ONLY THOSE UTILITIES WITH EVIDENCE OF THEIR INSTALLATION VISIBLE AT GROUND SURFACE OR SHOWN ON RECORD DRAWINGS PROVIDED BY OTHERS ARE SHOWN HEREON. EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY AND ARE SUBJECT TO A DEGREE OF UNKNOWN VARIATION. SOME UNDERGROUND LOCATIONS SHOWN HEREON MAY HAVE BEEN TAKEN FROM PUBLIC RECORDS. BARGHAUSEN CONSULTING ENGINEERS, INC. ASSUMES NO LIABILITY FOR THE ACCURACY OF PUBLIC RECORDS OR RECORDS OF OWNERS. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC., TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE APPROPRIATE UTILITIES INVOLVED PRIOR TO CONSTRUCTION.
6. INSPECTION OF SITE WORK WILL BE ACCOMPLISHED BY A REPRESENTATIVE OF THE CITY. INSPECTION OF PRIVATE FACILITIES WILL BE ACCOMPLISHED BY A REPRESENTATIVE OF THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE INSPECTOR 24 HOURS IN ADVANCE OF BACKFILLING ALL CONSTRUCTION.
7. PRIOR TO ANY CONSTRUCTION OR DEVELOPMENT ACTIVITY THE CONTRACTOR SHALL CONTACT THE AGENCY AND/OR UTILITY INSPECTION PERSONNEL AND ARRANGE ANY REQUIRED PRE-CONSTRUCTION MEETINGS. CONTRACTOR SHALL PROVIDE 72 HRS MIN. ADVANCE NOTIFICATION TO OWNER, FIELD ENGINEER AND ENGINEER OF PRE-CONSTRUCTION MEETINGS.
8. THE CONTRACTOR IS RESPONSIBLE FOR WORKER AND SITE SAFETY AND SHALL COMPLY WITH THE LATEST OSHA STANDARDS AND REGULATIONS, OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE TASKS AND METHODS REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL INCLUDE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED.
10. PROTECTIVE MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT ALL ADJACENT PUBLIC AND PRIVATE PROPERTIES AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL EXISTING UTILITY SERVICES THAT ARE TO REMAIN / OPERATIONAL WITHIN THE CONSTRUCTION AREA WHETHER SHOWN OR NOT SHOWN ON THE PLANS.
11. TWO (2) COPIES OF THESE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS. ONE (1) SET WITH REVISIONS OF AS-BUILT INFORMATION SHALL BE SUBMITTED TO BARGHAUSEN CONSULTING ENGINEERS, INC. AT COMPLETION OF PROJECT.

NOTES

1. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL OBTAIN SERVICES OF A LICENSED LAND SURVEYOR TO STAKE HORIZONTAL CONTROL FOR ALL NEW IMPROVEMENTS. STAKING CONTROL SHALL BE TAKEN FROM ELECTRONIC PLAN FILES PROVIDED BY BCE.
3. CONTRACTOR SHALL COORDINATE ALL SITE, GRADING, AND UTILITY WORK WITH SITE CONTRACTOR TO ENSURE SMOOTH TRANSITION BETWEEN PROJECTS.

LEGEND

- EXISTING GAS
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING OVERHEAD POWER
- EXISTING SPOT ELEVATION
- NEW SPOT ELEVATION
- EXISTING CONTOUR
- NEW FINISHED GRADE CONTOUR
- RIDGE LINE
- MATCH EXISTING
- EXISTING SWALE
- NEW CURB
- EXISTING CURB
- EXISTING CURB TO REMAIN
- NEW ASPHALT PAVEMENT
- NEW CONCRETE/PAVEMENT
- EXISTING CHANNELIZATION MARKING
- EXISTING LANDSCAPING
- R/W RIGHT-OF-WAY
- NEW TYPE 1 CATCH BASIN
- EXISTING TYPE 1 CATCH BASIN
- NEW STORM DRAIN PIPE
- EXISTING STORM LINE
- EXISTING SANITARY SEWER LINE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING WATER LINE
- EXISTING WATER FITTINGS
- PROPOSED WATER FITTINGS
- EXISTING LOT LIGHT
- PROPOSED LOT LIGHT
- SURFACE FLOW DIRECTION
- LIMITS OF WORK



OWNER

COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027
(425) 427-7546
CONTACT: KIM SANFORD

ENGINEER/PLANNER

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVE. SOUTH
KENT, WA 98032
PH: (425) 251-6222
FAX: (425) 251-6782
ENGINEER: JASON HUSMILE
PLANNER: CHRIS FERRO

GEOTECHNICAL

KLEINFELDER
2405 140TH AVE NE, SUITE A101
BELLEVUE, WA 98005
PH: (425) 562-4000
FAX: (425) 562-4001

SURVEYOR

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVE. SOUTH
KENT, WA 98032
PH: (425) 251-6222
FAX: (425) 251-6782

SHEET INDEX

CIVIL SET

C1 COVER SHEET AND KEY MAP
C2 DEMOLITION AND EROSION CONTROL PLAN
C3 EROSION CONTROL NOTES AND DETAILS
C4 GRADING AND STORM DRAINAGE PLAN
C5 CONSTRUCTION NOTES AND DETAILS
C6 STORM DRAINAGE FACILITY NOTES AND DETAILS
C7 CONSTRUCTION NOTES AND DETAILS
C8 CONSTRUCTION NOTES AND DETAILS

LANDSCAPE SET

L1.1 LANDSCAPE PLANTING PLAN
L1.2 LANDSCAPE PLANTING PLAN NOTES AND DETAILS
L3.1 LANDSCAPE IRRIGATION PLAN
L3.2 LANDSCAPE IRRIGATION PLAN NOTES AND DETAILS
L3.1 TREE RETENTION PLAN

LEGAL DESCRIPTION

LOT 4, BLOCK 31, BURKE AND FARRAR'S KIRKLAND ADDITION TO THE CITY OF SEATTLE, DIVISION NO. 14, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 22 OF PLATS, PAGE 14, IN KING COUNTY, WASHINGTON, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID LOT 4;
THENCE NORTH 00°13'46" WEST, 124.67 FEET ALONG THE WEST LINE OF SAID LOT 4 TO THE NORTHWEST CORNER OF SAID LOT 4;
THENCE NORTH 89°44'40" EAST, 348.99 FEET ALONG THE NORTH LINE OF SAID LOT 4 TO THE NORTHEAST CORNER OF SAID LOT 4;
THENCE SOUTH 00°14'04" EAST, 124.07 FEET ALONG THE EAST LINE OF SAID LOT 4 THE SOUTHEAST CORNER OF SAID LOT 4;
THENCE SOUTH 89°44'40" WEST, 350.04 FEET ALONG THE SOUTH LINE OF SAID LOT 4 TO THE TRUE POINT OF BEGINNING

TAX PARCEL #
123050-0110-08

PARCEL AREA
AREA=31,020 SF (0.712 ACRES)

HORIZONTAL DATUM - BASIS OF BEARINGS
THE BASIS OF BEARINGS IS THE BEARING BETWEEN CITY OF KIRKLAND CONTROL POINT #22 AND POINT #31, TAKEN AS NORTH 46° 28' 00" EAST, USING THE NORTH AMERICAN DATUM OF 1983 – NAD 83 (91) CITY OF KIRKLAND – WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE.

CONTROL POINT #27	CONTROL POINT #31
N=610171.2630	N=614408.2801
E=722,814.15	E=691,2.2237
ELEV.=276.77	ELEV.=258.84

VERTICAL DATUM - BASIS OF ELEVATIONS
NORTH AMERICAN VERTICAL DATUM OF 1988 PER CITY OF KIRKLAND.
(NAVD 88)
ESTABLISHED BY HOLDING CITY OF KIRKLAND 27 AND VERIFYING TO CITY OF KIRKLAND 31 WITH AN ERROR OF CLOSURE 0.02' ELEV. OF CITY OF KIRKLAND 27= 270.767 FEET

CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR OBTAINING PERMITS FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES FOR REMOVING AND REPLACING ALL SURVEY MONUMENTATION THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITY, PURSUANT TO WAC 332-120. APPLICATIONS MUST BE COMPLETED BY A REGISTERED LAND SURVEYOR. APPLICATIONS FOR PERMITS TO REMOVE MONUMENTS MAY BE OBTAINED FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES, OR BY CONTACTING THEIR OFFICE BY TELEPHONE AT (206) 902-1190.

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
PUBLIC LAND SURVEY OFFICE
1111 WASHINGTON STREET S.E.
P.O. BOX 47060
OLYMPIA, WASHINGTON 98504-7060

UPON COMPLETION OF CONSTRUCTION, ALL MONUMENTS DISPLACED, REMOVED, OR DESTROYED SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR, AT THE COST AND AT THE DIRECTION OF THE CONTRACTOR, PURSUANT TO THESE REGULATIONS. THE APPROPRIATE FORMS FOR REPLACEMENT OF SAID MONUMENTATION SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR.

CALL BEFORE YOU DIG!
1-800-424-5555

UTILITY CONFLICT NOTE:
CAUTION
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY NOTIFYING THE OWNERS AND SUPERVISING THE EXCAVATION, AND REQUESTING LOCATION PRIOR TO CONSTRUCTION. THE UTILITY NOTIFICATION CALLING UNDERGROUND UTILITIES IN 1-800-424-5555 AND THEN NOTIFYING ALL OF THE EXISTING UTILITIES OF LOCATIONS OF NEW UTILITY CROSSINGS TO ENSURE THEY ARE WITHIN OR NOT CONFLICTED BY LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS AND BASED UPON THE UNOFFICIAL PUBLIC INFORMATION AND ARE SUBJECT TO MANAGER. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

APPROVED FOR CONSTRUCTION
FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 180 Days from Above Date

No.	Date	By	Chk	Appr	Revision
1	11/08/11	DMK	JSH	KMH	PERMIT SUBMITTAL

Title: COVER SHEET
KIRKLAND, WA 98033
GUYNUP PARCEL

For: COSTCO
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

11/08/11

Scale: Horizontal 1"=100'; Vertical N/A
Designed: DMK; Drawn: MTB; Checked: JSH; Approved: JSH; Date: 10/31/11
Scale 1:1 DWG#6222 Sheet 1

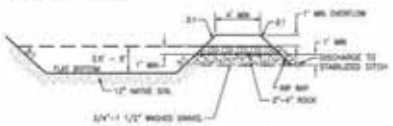
BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-6782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number: 6222
Sheet: C1.0

ENCLOSURE 4

DEMOLITION AND EROSION CONTROL PLAN

1"=20'

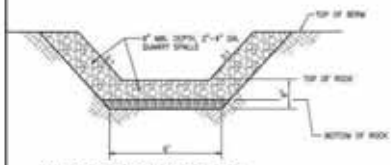


MAINTENANCE STANDARDS
1. SEDIMENT SHALL BE REMOVED FROM THE TRAP WHEN IT REACHES 1 FOOT IN DEPTH
2. ANY DAMAGE TO THE TRAP EMBANKMENTS OR SLOPES SHALL BE REPAIRED

NOTE: TRAP MAY BE FORMED BY BERM OR BY PARTIAL EXCAVATION

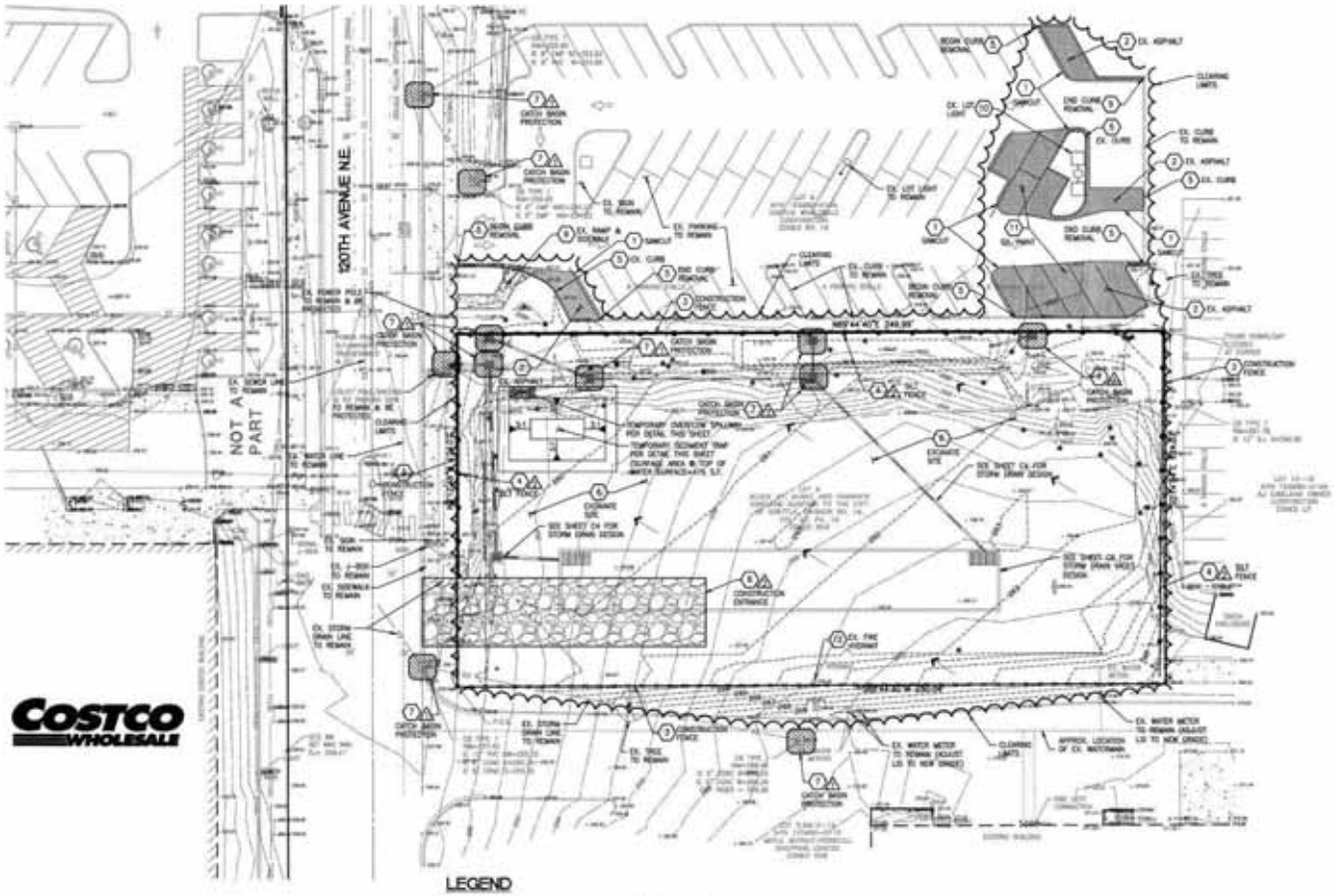
TEMPORARY SEDIMENT TRAP

NOT TO SCALE



OVERFLOW SPILLWAY DETAIL

NOT TO SCALE



DEMOLITION NOTES

1. ALL PAVEMENTS, SLABS, GROUND COVER, UTILITIES, ETC., INSIDE CLEARING LIMITS SHALL BE REMOVED AS SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL CAP/PLUG ALL UTILITIES WHICH ARE TO BE ABANDONED OR REMOVED.
2. CONTRACTOR SHALL CONTACT AND COORDINATE WITH THE VARIOUS UTILITY COMPANIES ON REQUESTING DISCONNECTIONS, REMOVALS AND/OR RELOCATION OF EXISTING SERVICE LINES. DISRUPTION OF EXISTING SERVICES TO REMAIN SHALL BE COORDINATED WITH OWNER.
3. CONTRACTOR SHALL ASSURE THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCING WORK.
4. GENERAL CONTRACTOR SHALL CONFIRM DEMOTIONS, SHORING, AND/OR CONDEMNATION REQUIREMENTS WITH GEOTECHNICAL ENGINEER.
5. CONTRACTOR SHALL REPLACE ALL EXISTING CURB, PAVING, AND LANDSCAPING DAMAGED AS A RESULT OF CONSTRUCTION.

DEMOLITION/ EROSION CONTROL KEYNOTES

1. SAWCUT IN SMOOTH, CONTINUOUS LINE AND REMOVE AS NECESSARY FOR NEW IMPROVEMENTS.
2. DEMOLISH EXISTING ASPHALT PAVEMENT AND DISPOSE OF OFF-SITE.
3. 6' CHAIN LINK CONSTRUCTION FENCE AND GATE PER CITY STANDARDS. FIELD VERIFY AND CONFIRM LOCATION WITH ARCHITECT/OWNER. RELOCATE AS NEEDED DURING CONSTRUCTION.
4. INSTALL TEMPORARY SILT FENCE, PER DETAIL ON SHEET C3
5. DEMOLISH EXISTING CONCRETE CURB AND DISPOSE OF OFF-SITE.
6. EXCAVATE SITE PER GRADING PLAN, INCLUDING REMOVAL OF TOPSOIL, TREES AND DEBRIS DOWN TO A DEPTH SUITABLE FOR LOAD BEARING PER GEOTECH REPORT.
7. INSTALL CB INLET PROTECTION, PER DETAIL ON SHEET C3
8. INSTALL TEMPORARY CONSTRUCTION ENTRANCE, PER DETAIL ON SHEET C3
9. DEMOLISH EXISTING CONCRETE SIDEWALK AND RAMP AND DISPOSE OF OFF-SITE.
10. RELOCATE EXISTING LOT LIGHT.
11. EXISTING STRIPING BETWEEN PAVEMENT REMOVAL AREAS TO BE REMOVED BY SAND BLASTING OR OTHER APPROVED METHODS.
12. EXISTING FIRE HYDRANT TO BE RELOCATED. SEE SHEET C4 FOR DESIGN INFORMATION.

TEMP. EROSION/SEDIMENT CONTROL CALLOUTS

1. CONTRACTOR TO INSTALL STORM DRAIN INLET FILTER BAGS AT ALL EXISTING AND PROPOSED CATCH BASINS AND CONCRETE SUMPS AS REQUIRED TO PREVENT SILT-LADEN WATER FROM ENTERING STORM DRAINAGE SYSTEM, AND AS DIRECTED BY CITY INSPECTOR.
2. CONTRACTOR TO INSTALL SILT FENCE ON ALL EXISTING DOWN SLOPE TERRAIN TO PREVENT SILT-LADEN WATER FROM ENTERING ADJACENT PROPERTIES, OR AS DIRECTED BY CITY INSPECTOR.
3. CONTRACTOR TO INSTALL CONSTRUCTION ENTRANCE, RELOCATE AS NEEDED DURING CONSTRUCTION, OR AS DIRECTED BY CITY INSPECTOR.

SITE GRADING AND TESCP NOTES

1. PUBLIC STREETS AND PARKING LOT TO BE KEPT CLEAN OF DIRT AND DEBRIS DURING EXCAVATION AND CONSTRUCTION, SWEEP AS REQUIRED.
2. ALL REQUIRED TEMPORARY EROSION/SEDIMENTATION CONTROL FEATURES SHALL BE INSTALLED PRIOR TO ANY GRADING OR EXTENSIVE DEMOLITION IN ACCORDANCE WITH CITY REQUIREMENTS. THESE FEATURES MUST BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED, AND THE POTENTIAL FOR SILT RUNOFF EROSION HAS PASSED.
3. STOCKPILES MUST BE LOCATED IN SAFE AREAS AND ADEQUATELY PROTECTED TO PREVENT EROSION.
4. CITY INSPECTOR MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES IF MEASURES SPECIFIED ON PLAN ARE NOT ADEQUATE.

LEGEND

EXISTING STORM DRAIN
EXISTING SEWER DRAIN
EXISTING WATER LINE
EXISTING GAS LINE
EXISTING OVERHEAD POWER
EXISTING UNDERGROUND POWER
EXISTING UNDERGROUND TELEPHONE
EXISTING CONTOURS
PROPOSED CONTOURS
SAWCUT LINE
TEMPORARY SILT FENCE
FLOW DIRECTION
CATCH BASIN PROTECTION
CLEARING LIMITS
EX. CURB TO BE REMOVED
EX. ASPHALT TO BE REMOVED
EX. CONCRETE TO BE REMOVED
EX. TREE TO REMAIN
EX. TREE TO BE REMOVED

APPROVED FOR CONSTRUCTION FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 180 Days from Above Date

No.	Date	By	Chk	Appr.	Revision
1	11/09/11	DMC	JRD		PCNC SUBMITTAL

Title: DEMOLITION AND EROSION CONTROL PLAN

KIRKLAND, WA 98033
OLYMUP PARCEL

For: COSTCO
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

11/09/11

Scale: 1"=20'
Horizontal
Vertical N/A

Designed DMC
Drawn MTS
Checked JRD
Approved JRH
Date 10/31/11

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number 6222

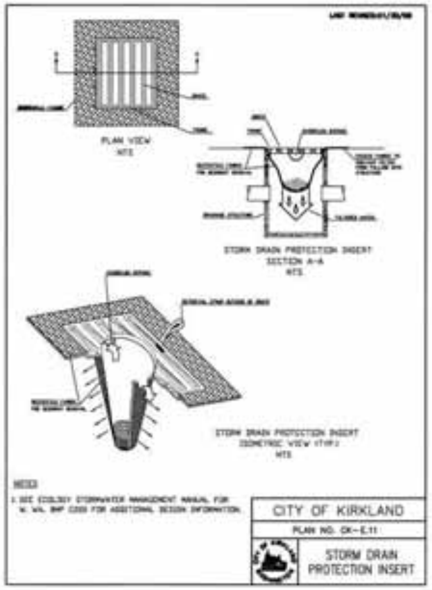
Sheet C2.0

ENCLOSURE 4

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

CITY OF KIRKLAND
EROSION/SEDIMENTATION CONTROL - PLAN NOTES

[illegible]



STORM DRAIN INSERT MATERIALS OF CONSTRUCTION

[illegible]

DIMENSIONS

[illegible]

DISPOSAL REQUIREMENTS

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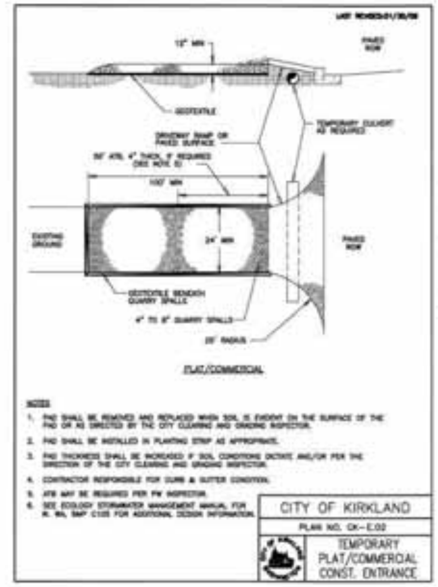
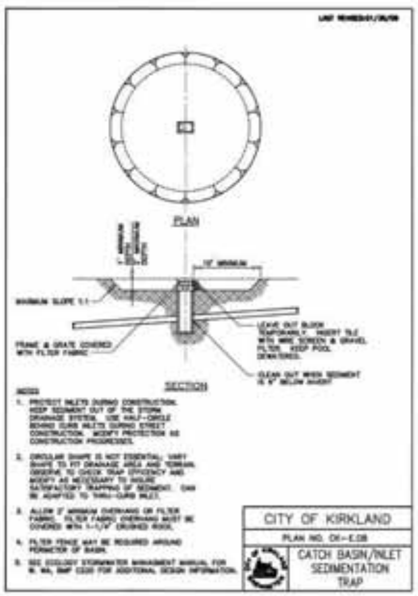
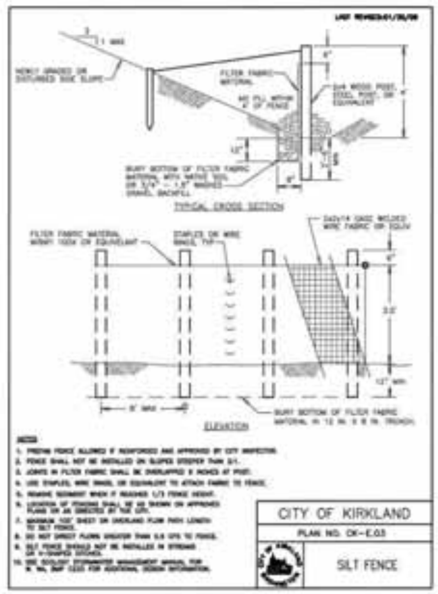






SEEDING NOTES

1. SEED MIXTURE SHALL BE EROSION CONTROL SEED MIXTURE, AND SHALL BE APPLIED AT THE RATE OF 120 POUNDS PER ACRE.
2. SEED BEDS PLANTED BETWEEN MAY 1 AND OCTOBER 31 WILL REQUIRE IRRIGATION AND OTHER MAINTENANCE AS NECESSARY TO FOSTER AND PROTECT THE ROOT STRUCTURE.
3. FOR SEED BEDS PLANTED BETWEEN OCTOBER 31 AND APRIL 30, ARMORING OF THE SEED BED WILL BE NECESSARY (E.G., GEOTEXTILES, JUTE MAT, CLEAR PLASTIC COVERING).
4. BEFORE SEEDING, INSTALL NEEDED SURFACE RUNOFF CONTROL MEASURES SUCH AS GRADIENT TERRACES, INTERCEPTOR DIKES, SWALES, LEVEL SPREADER, AND SEDIMENT BASINS.
5. THE SEED BED SHALL BE FIRM WITH A FAIRLY FINE SURFACE, FOLLOWING SURFACE ROUGHENING. PERFORM ALL OPERATIONS ACROSS OR AT RIGHT ANGLES TO THE SLOPE.
6. FERTILIZERS ARE TO BE USED ACCORDING TO SUPPLIERS' RECOMMENDATIONS. AMOUNTS USED SHOULD BE MINIMIZED, ESPECIALLY ADJACENT TO WATER BODIES AND WETLANDS.

SEED MIXTURE FOR EROSION CONTROL			
NAME	PROPORTIONS BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
REDTOP (AGROSTIS ALBA)	10 PERCENT	92	90
ANNUAL RYE (LOLIUM MULTIFLORUM)	40 PERCENT	98	90
CHEWING FESCUE (FESTUCA RUBRA COMMUTATA)	40 PERCENT	97	90
WHITE DUTCH CLOVER (TRIFOLIUM REPENS)	10 PERCENT	96	90

APPROVED FOR CONSTRUCTION
FOR THE CITY OF KIRKLAND

BY: ______ DATE: ______

Approval Expires 180 Days from Above Date

Title: TEMPORARY EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
KIRKLAND, WA 98033
GUYNUP PARCEL

For: COSTCO
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX

Job Number: 6222
Sheet: 8
C3

ENCLOSURE 4

GRADING AND STORM DRAINAGE PLAN

1"=20'

SITE CONSTRUCTION SCHEDULE

1. NEW ASPHALT PAVEMENT SEE DETAIL SHEET 1/C3
2. NEW CONCRETE BARRIER CURB. SEE DETAIL SHEET 3/C3
3. NEW LANDSCAPE W/IRRIGATION PER LANDSCAPE PLANS
4. SAWCUT LINE SHALL BE A SMOOTH STRAIGHT LINE
5. NEW DOUBLE LINE PARKING STALL PER COSTCO DEVELOPMENT REQUIREMENTS
6. NEW DIRECTIONAL ARROWS PER DETAIL SHEET 4/C3
7. NEW CONCRETE SIDEWALK PER DETAIL SHEET 2/C3
8. NEW CART CORRAL PER COSTCO DEVELOPMENT REQUIREMENTS
9. RELOCATE FIRE HYDRANT. (PER CITY OF KIRKLAND STDS.)
10. ROCKERY PER DETAIL DX-W.16, ALSO SHEET C5.
11. CITY OF KIRKLAND SIDEWALK PER DETAIL SHEET C5
12. FRENCH DRAIN PER DETAIL SHEET C7
13. 2.5' HIGH ROCKERY OR KEYSTONE WALL

NOTE

1. PROPOSED SPOT ELEVATIONS ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
2. TC= TOP OF CURB ELEVATION FOR 2' HIGH (MAX) CURB WALL
3. CONTRACTOR SHALL ADHERE TO SOILS ENGINEER RECOMMENDATIONS FOR PAVEMENT/SUBGRADE EXCAVATION, SUBGRADE PREPARATION, AND PLACEMENT OF STRUCTURAL FILL.
4. SEE CITY OF KIRKLAND TRENCH DETAIL ON SHEET C8 FOR ALL STORM DRAIN PIPE TRENCHING.

STORM DRAINAGE CONSTRUCTION KEYNOTES

1. NEW STORM DRAINAGE FACILITY. PER DETAIL SHEET C8
2. 86 LF 8" ADS N-12 SD @ 1.25%
3. 76 LF 8" ADS N-12 SD @ 0.50%
4. 28 LF 8" ADS N-12 SD @ 0.50%
5. 23 LF 12" ADS N-12 SD @ 0.50%
6. 68 LF 12" ADS N-12 SD @ 0.50%
7. 15 LF 12" ADS N-12 SD @ 0.50%
8. 13 LF 8" ADS N-12 SD @ 0.50%
9. FIELD VERIFY EX. VERTICAL & HORIZONTAL LOCATION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
   EX. CB
   RIM=257.30
   EX. E=253.27 (12" S)
   EX. E=253.17 (12" N)
   NEW E=253.60 (8" E)
10. RAIN GARDEN PER DETAIL SHEET C8
11. 16 LF 8" ADS N-12 SD @ 0.50%
12. 231 LF 4" PERFORATED PVC @ 3.72%
13. 39 LF 4" SOLID WALL PVC @ 7.35%

STORM DRAINAGE STRUCTURE TABLE

NEW CB #1, TYPE 1
W/SOLID LOCKING LID
(PER C.O.K. STD. DETAIL ON SHT. C8)
RIM=258.44
E= 253.53 (8" S, W)

NEW SDMH #2, STORM FILTER-48"
W/3 ZPG CARTRIDGES
RIM=260.18
E IN=255.38
E OUT=253.87
SEE DETAIL SHEET C7

NEW CB #3, TYPE 1
W/STANDARD GRATE
(PER C.O.K. STD. DETAIL ON SHT. C8)
RIM=258.08
E=255.40 (8" SE)

NEW CB #4, TYPE 1
W/STANDARD GRATE
(PER C.O.K. STD. DETAIL ON SHT. C8)
RIM=258.88
E=255.21 (12" NW, E)

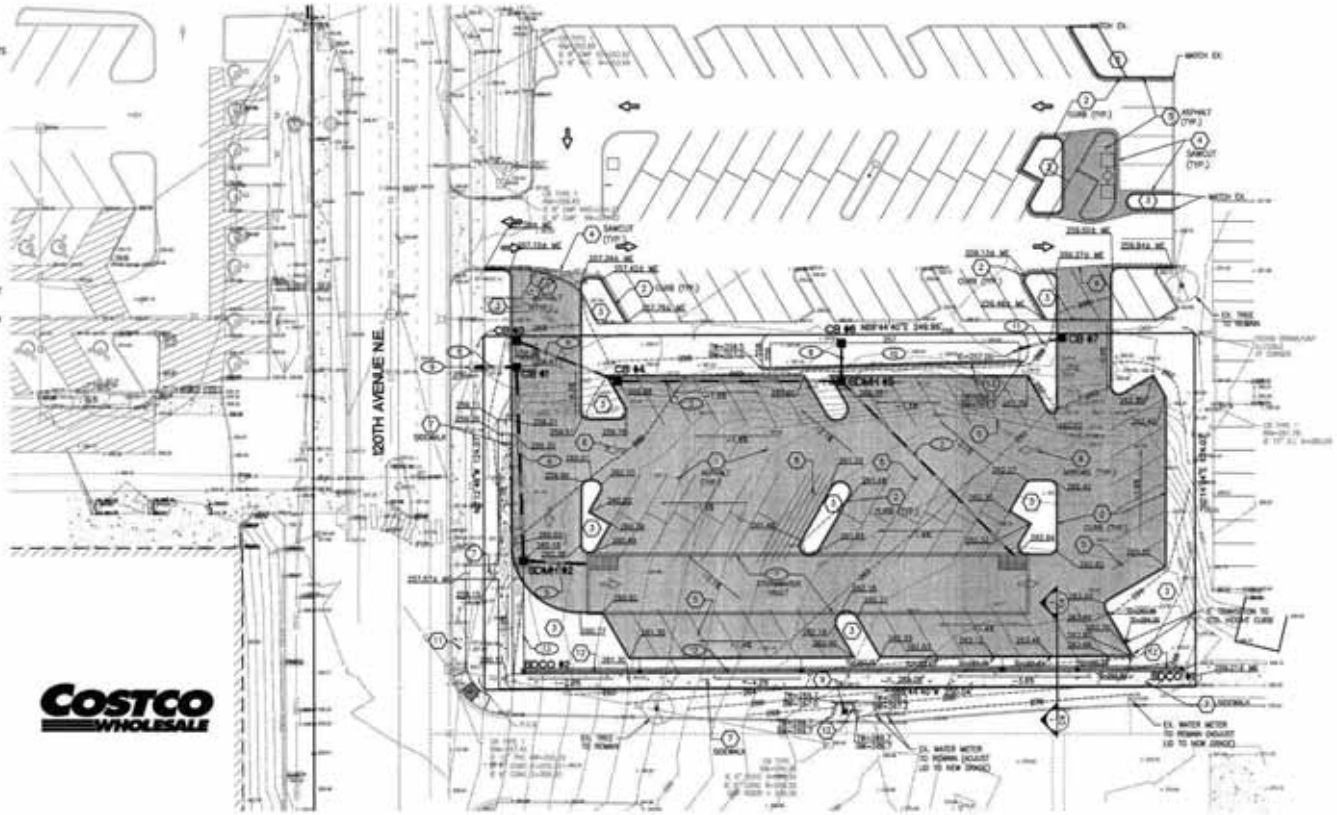
NEW SDMH #5, TYPE 2-48"
W/STANDARD GRATE
(PER C.O.K. STD. DETAIL ON SHT. C8)
RIM=260.77
E=254.91 (8" W, N, SE)

NEW CB #6, TYPE 1
W/SECURE GRATE
(PER C.O.K. STD. DETAIL ON SHT. C8)
RIM=258.30
E=254.87 (8" S)

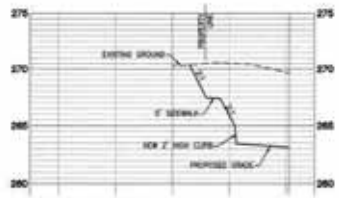
NEW CB #7, TYPE 1
W/STANDARD GRATE
(PER C.O.K. STD. DETAIL ON SHT. C8)
RIM=260.08
E=257.04 (8" SW)

SDCO #1
RIM=260.75
E=256.75 (4" W)

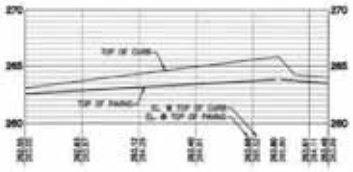
SDCO #2
RIM=260.15
E=256.15 (4" N, E)



COSTCO WHOLESALE



SITE SECTION (1/C4)



CURB PROFILE

APPROVED FOR CONSTRUCTION
FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 180 Days from Above Date

No.	Date	By	Chk	Appr.	Revision
1	11/09/11	DW	DW	JRD	CITY/WC SUBMITTAL

Title: GRADING AND STORM DRAINAGE PLAN
KIRKLAND, WA 98033
GUYNUP PARCEL

For: COSTCO
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

11/09/11

Scale: Horizontal 1"=20' Vertical N/A
Designed DW; Drawn DW; Checked JRD; Approved JRD; Date 10/31/11

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number 6222
Sheet C4 of 60

ENCLOSURE 4

CONSTRUCTION NOTES AND DETAILS

CITY OF KIRKLAND WATER PLAN NOTES:

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.

2. ALL WATER MAIN WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH CURRENT AWWA, WSDOT, AND APWA STANDARD SPECIFICATIONS, AS AMENDED BY THE CITY OF KIRKLAND. ALL MATERIAL UTILIZED SHALL BE NEW. NO PARTS SHALL BE REUSED. ANY PART REMOVED FROM THE SYSTEM FOR ANY REASON MAY NOT BE REUSED AND SHALL BE REPLACED WITH A NEW PART. (E.G. A RONAC WITH A BAD GASKET MUST BE REPLACED WITH AN ENTIRELY NEW RONAC ASSEMBLY).

3. THE WATER MAIN SHALL BE CLASS 52 DUCTILE IRON PIPE CONFORMING TO ANSI/AWWA C151/A21.51-96 (IN THE MOST RECENT REVISION. THE PIPE SHALL BE 1/16" CEMENT LINED AND SEALED IN ACCORDANCE WITH ANSI/AWWA C104/A21.4-95. THE CAST IRON OR DUCTILE IRON PIPE FITTINGS SHALL BE CLASS 250 AS PER ANSI/AWWA C110/A21.10-82. PIPE BEDDING SHALL BE COMPACTED TO 95 PERCENT OF ITS MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. THE MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF 36" AND A MAXIMUM COVER OF 60". ANY DEVIATIONS FROM THIS MUST BE APPROVED BY THE CITY OF KIRKLAND PRIOR TO CONSTRUCTION.

4. CONCRETE BLOCKING FOR WATER MAINS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH AWWA AND CITY OF KIRKLAND SPECIFICATIONS AND SHALL BE INSTALLED AT ALL VERTICAL AND HORIZONTAL BENDS AND FITTINGS PRIOR TO BLOCKING, THE FITTINGS SHALL BE WRAPPED WITH VISQUEEN.

5. ALL CONNECTIONS TO EXISTING MAINS AND ALL TESTING AND DISINFECTION SHALL BE PERFORMED UNDER THE SUPERVISION OF THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS INSPECTOR.

6. APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF THE LOCATIONS SHOWN AND FOR DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN SO AS TO AVOID DAMAGE OR DISTURBANCE. THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION PRIOR TO ANY CONSTRUCTION. THE OWNER OR HIS REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION IN KING COUNTY, CALL 1-800-424-5555. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.

7. ALL CONTRACTORS WORKING WITH AC PIPE MUST BE STATE-CERTIFIED. THE CONTRACTOR SHALL PROVIDE PROTECTIVE CLOTHING AND EQUIPMENT (COVERALLS, GLOVES, BOOTS, HEAD COVERING, GOGGLES, RESPIRATORS, ETC.) TO CREWS WORKING WITH ASBESTOS CEMENT PIPE IN ORDER TO ASSURE THE WORKER'S EXPOSURE TO ASBESTOS MATERIAL IS AT OR BELOW THE LIMITS PRESCRIBED IN WAC 296-62-07705.

8. AN APPROVED COPY OF THE WATER PLAN MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

9. A 5' MINIMUM HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ALL WATER FACILITIES AND UNDERGROUND POWER AND TELEPHONE FACILITIES, UNLESS OTHERWISE APPROVED BY THE CITY OF KIRKLAND.

10. FOR WATER MAIN AND SEWER MAIN SEPARATION REQUIREMENTS, SEE ITEM #6LE OF THE SANITARY SEWER - DESIGN CRITERIA SECTION AND DETAIL W.01.

11. PRESSURE AND PURITY TESTING SHALL BE DONE IN THE PRESENCE OF, AND UNDER THE SUPERVISION OF, A CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS INSPECTOR. THE CONTRACTOR SHALL PROVIDE ALL PLUGS AND TEMPORARY BLOWOUT ASSEMBLIES FOR PRESSURE TESTING AND DISINFECTION. PRIOR TO FINAL TIE-IN, NO CONNECTION SHALL BE MADE BETWEEN THE NEW MAIN AND THE EXISTING MAINS UNTIL THE NEW PIPING HAS BEEN DISINFECTED, FLUSHED, AND PASSED WITH PRESSURE AND PURITY TESTING. TEMPORARY PLUGS AND BLOCKING SHALL BE INSTALLED AT THE POINTS OF CONNECTION TO THE EXISTING SYSTEM. FOR CONSTRUCTION OF NEW WATER MAIN, THE SERVICES, HYDRANTS ETC., WILL BE TESTED WITH THE MAIN. PRESSURE TESTING WILL REQUIRE A MINIMUM OF 200 PSI FOR 15 MINUTES WITH NO PRESSURE DROP. UPON SATISFACTORY COMPLETION OF THE PRESSURE TEST, THE LINE SHALL BE DISINFECTED, FLUSHED, AND THEN A SAMPLE SHALL BE TAKEN FOR PURITY TESTING BY THE PUBLIC WORKS INSPECTOR.

12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF KIRKLAND INSPECTOR 24 HOURS IN ADVANCE OF BACKFILLING ALL WATER MAIN CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING AS-BUILT DRAWINGS OF ALL CONSTRUCTION NOT INSTALLED ACCORDING TO THE APPROVED PLANS. (THIS DOES NOT GIVE APPROVAL FOR AS-BUILT CONSTRUCTION.)

13. THE CONTRACTOR SHALL CONTACT THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS FIVE (5) DAYS PRIOR TO ANY WORK REGARDING THE SHUTDOWN OF EXISTING WATER MAINS. THE CONTRACTOR IS REQUIRED TO GIVE TWO (2) WORKING DAYS NOTICE TO ALL CUSTOMERS AFFECTED BY A WATER MAIN SHUTDOWN. CONTACT INFORMATION AND MAPS FOR THE SHUTDOWN WILL BE PROVIDED BY THE WATER DIVISION. SHUTDOWNS SHALL BE SCHEDULED FOR MONDAYS, TUESDAYS, WEDNESDAYS, AND THURSDAYS BETWEEN 8 AM AND 3 PM. SHUTDOWNS AFFECTING INSTITUTIONS SHALL BE SCHEDULED AT NIGHT. ONLY WATER DIVISION PERSONNEL OR A DESIGNATE OF THE WATER DIVISION MANAGER MAY OPERATE VALVES, AND/OR HYDRANTS, BLOW-OFFS, ETC., FOR FILLS, SHUT DOWNS, FLUSHING, OR RECHARGING OF WATER LINES. TWO (2) WORKING DAYS NOTICE TO THE WATER DIVISION IS REQUIRED TO SCHEDULE FILLS.

14. THERE SHALL BE NO WATER MAIN CONSTRUCTION ON A SATURDAY, SUNDAY, OR HOLIDAYS OBSERVED BY THE CITY OF KIRKLAND.

15. SHOULD THE WATER MAIN WORK NECESSITATE THE CLOSING OF CERTAIN GATE VALVES WITHIN THE EXISTING SYSTEM, THE CITY OF KIRKLAND MAINTENANCE DEPARTMENT SHALL BE RESPONSIBLE FOR THE OPERATION OF SUCH VALVES.

16. THE FIRE FLOW SYSTEM SHALL BE INSTALLED, TESTED, AND APPROVED PRIOR TO ABOVE-GROUND COMBUSTIBLE CONSTRUCTION.

17. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 85 PERCENT.

18. MEGA-LUGS (OR SIMILAR PRODUCT) SHALL BE REQUIRED ON ALL FITTINGS AND VALVES FOR TE-IN3, OR BUILD-OUTS FOR TE-4R2 PRIOR TO A FINAL CONNECTION TO THE EXISTING WATER MAIN. APPROPRIATE CONCRETE BLOCKING IS ALSO REQUIRED IN ADDITION TO MEGA-LUGS.

19. FOR THE DURATION OF ANY WATER MAIN INSTALLATION PROJECT, ALL EXISTING AND NEWLY INSTALLED VALVE CANS ARE TO REMAIN ACCESSIBLE TO WATER DIVISION PERSONNEL.

20. WHEN IT BECOMES NECESSARY TO RE-PLUMB THE CUSTOMER'S SIDE OF AN EXISTING WATER METER AS THE RESULT OF THE RELOCATION OF THE EXISTING SERVICE OR TO COMPLY WITH OTHER CITY OF KIRKLAND PUBLIC WORKS SPECIFICATIONS, THE CUSTOMER'S SIDE SHALL BE RECONNECTED WITH THE APPROPRIATE PLUMBING MATERIALS (AND RELATED FITTINGS) SUCH AS BRASS, COPPER, PVC/SCHEDULE WITH A 200 P.S.I. RATING, OR PVC.

21. NO TE-4R WILL BE ALLOWED INTO THE EXISTING TAILPIECE ON THE CUSTOMER'S SIDE OF THE METER. IF THE EXISTING METER DOES NOT HAVE A CHECK VALVE INSTALLED ON THE BACK SIDE OF THE METER (CUSTOMER'S SIDE) A CHECK VALVE CANNOT BE INSTALLED WHEN DOING THE TE-1N.

22. IF A FITTING, EITHER DURING INSTALLATION OR AFTER, IS FOUND TO BE DEFECTIVE IN ANY WAY AS DETERMINED BY THE CITY, THE CONTRACTOR SHALL REPLACE THE ENTIRE FITTING AND NOT JUST THE DEFECTIVE COMPONENT.

CITY OF KIRKLAND GENERAL GRADING NOTES:

1. PRIOR TO THE START OF GRADING, ALL EXISTING VEGETATION, DEBRIS, RUBBLE, ASPHALT PAVEMENT, ETC., SHALL BE REMOVED FROM THE SITE TO THE SATISFACTION OF THE OWNER. STOCKPILING OF DEBRIS, AND RUBBLE OTHER UNSUITABLE MATERIALS WILL NOT BE PERMITTED DURING GRADING AND UTILITY INSTALLATIONS.

2. ALL MATERIAL TO BE USED AS FILL (BOTH ON SITE AND IMPORTED) SHALL BE IN COMPLIANCE WITH THE RECOMMENDATIONS CONTAINED WITHIN THE SOILS REPORT. ORGANIC MATERIAL SHALL NOT BE PERMITTED IN FILLS, EXCEPT AS PERMITTED BY SOILS ENGINEER. COBBLES OR BOULDERS OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 6 INCHES SHALL BE REMOVED AND NOT BE BURIED OR PLACED IN FILLS. IMPORTED MATERIAL FOR FILLS WE SHALL BE FOR THE PURPOSES INTENDED, MEETING THE GRADATION REQUIREMENTS CONTAINED WITHIN THE SOILS REPORT.

3. ALL "ENGINEERED FILLS" OR STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE SOILS MAXIMUM DENSITY AS DETERMINED BY ASTM TEST DESIGNATION D-1557. THE EMBANKMENTS SHALL BE CONSTRUCTED IN SUCCESSIVE HORIZONTAL LAYERS NOT EXCEEDING 8 INCHES IN THICKNESS.

4. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, THEY SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE OWNER'S ENGINEER PRIOR TO PROCEEDING.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING AND/OR EXPORTING ALL MATERIAL AS REQUIRED TO PROPERLY GRADE THE SITE TO THE FINISHED ELEVATIONS SHOWN HEREON IN ACCORDANCE WITH THE APPROVED PLANS, SPECIFICATIONS, AND THE SOILS ENGINEER'S RECOMMENDATIONS.

6. SOIL STERILIZATION (WEED KILLER) SHALL BE APPLIED IN AREAS TO BE PAVED. KEEP 2-FOOT MINIMUM CLEAR OF EXISTING AND PROPOSED LANDSCAPE AREAS. APPLY AT MANUFACTURER'S RECOMMENDED RATE TO ASSURE 3-FOOT MINIMUM PENETRATION.

7. FOUNDING OF "BEDRAPTED" EXISTING ONE-QUARTER INCH IN DEPTH IN ALL PAVED AREAS SHALL NOT BE ACCEPTABLE AND SHALL BE CORRECTED BY THE CONTRACTOR.

8. PRIOR TO FINAL PAVING, PAVEMENT AT MATCH LINES WITH EXISTING PAVEMENTS SHALL BE SAW-CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT.

9. THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS SHALL BE ADJUSTED, IF REQUIRED, TO MATCH PROPOSED GRADES IN ACCORDANCE WITH KIRKLAND STANDARDS.

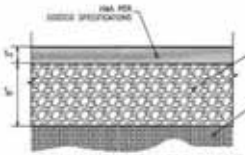
10. COMPACTED BUILDING PADS(S) MUST EXTENDING A MINIMUM OF TEN (10) FEET BEYOND THE BUILDING FOOTPRINT, INCLUDING CANOPIES OR OTHER STRUCTURAL APPURTENANCES, UNTIL THE PERIMETER FOUNDATION AND WALLS ARE CONSTRUCTED AND BACKFILLED. THE EXTENDED PORTION OF THE BUILDING PAD SUBGRADE MUST THEN BE REMOVED/REGRADED TO MEET THE FINAL GRADE AND MATERIAL REQUIREMENTS AROUND THE BUILDING PERIMETER.

11. SUBGRADE ELEVATIONS OF BUILDING PADS TO BE FINISHED FLOOR MINUS 8 INCHES (0.75'). ALL BUILDING PAD SUBGRADES TO BE PREPARED AS PER THE RECOMMENDATIONS CONTAINED WITHIN THE SOILS REPORT. SEE SOILS REPORT NOTES.

12. UNLESS OTHERWISE NOTED ALL SIDE SLOPES SHOWN ON THESE PLANS SHALL BE 3H:1V (MAXIMUM).

13. ALL SPOT ELEVATIONS SHOWN ON THE PLAN ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.

14. GRADING OUTSIDE OF THE CITY RIGHT-OF-WAY MUST COMPLY WITH INTERNATIONAL BUILDING CODE (INCLAPPENDIX J AS AMENDED BY CITY OF KIRKLAND TEMPORARY, SWPPP AND GRADING PERMIT CONDITIONS



1 ASPHALT PAVEMENT SECTION

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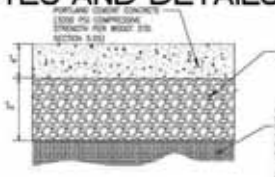
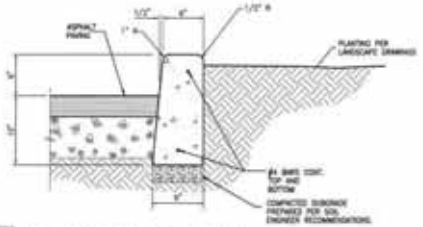


2 CONCRETE SIDEWALK PAVEMENT SECTION

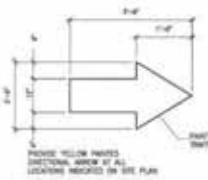
NOT TO SCALE



NOTES:
1. PROVIDE REMOVABLE PLANK JOINT EVERY 10', EXPANSION JOINT 20' O.C. (MAX.) AND IN THE START AND FINISH OF ALL CURVED SECTIONS
2. PAINT CURBS WHERE NOTED ON ARCHITECT SITE PLAN
3. PREPARATION OF SUBGRADE SHALL BE PER PROCEDURE OUTLINED IN THE LATEST EDITION OF THE SOILS REPORT.

3 CEMENT CONCRETE BARRIER CURB

N.T.S.

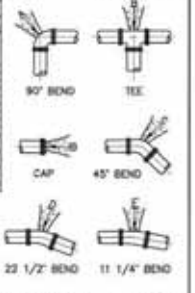


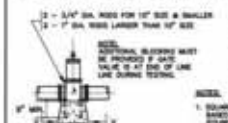
4 DIRECTIONAL ARROW

NOT TO SCALE

THRUST BLOCK - TABLE

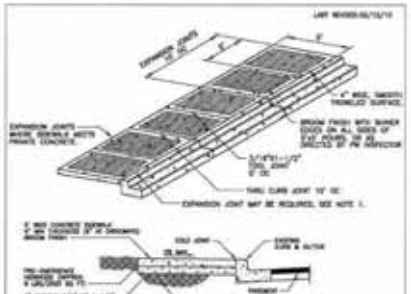
PIPE SIZE	PRESSURE (PSI)	MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL SQUARE FEET					
		A	B	C	D	E	F
4"	200	0.5	0.5	0.5	0.5	0.5	NONE
6"	200	0.5	0.5	0.5	0.5	0.5	NONE
8"	200	0.5	0.5	0.5	0.5	0.5	NONE
10"	200	0.5	0.5	0.5	0.5	0.5	NONE
12"	200	0.5	0.5	0.5	0.5	0.5	0.5
14"	200	0.5	0.5	0.5	0.5	0.5	0.5
16"	200	0.5	0.5	0.5	0.5	0.5	0.5
18"	200	0.5	0.5	0.5	0.5	0.5	0.5
20"	200	0.5	0.5	0.5	0.5	0.5	0.5
24"	200	0.5	0.5	0.5	0.5	0.5	0.5
4"	150	0.5	0.5	0.5	0.5	0.5	NONE
6"	150	0.5	0.5	0.5	0.5	0.5	NONE
8"	150	0.5	0.5	0.5	0.5	0.5	NONE
10"	150	0.5	0.5	0.5	0.5	0.5	0.5
12"	150	0.5	0.5	0.5	0.5	0.5	0.5
14"	150	0.5	0.5	0.5	0.5	0.5	0.5
16"	150	0.5	0.5	0.5	0.5	0.5	0.5
18"	150	0.5	0.5	0.5	0.5	0.5	0.5
20"	150	0.5	0.5	0.5	0.5	0.5	0.5
24"	150	0.5	0.5	0.5	0.5	0.5	0.5



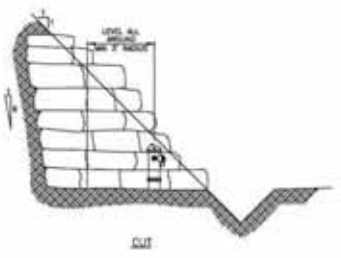


NOTES:
1. SQUARE FEET OF CONCRETE THRUSTS - BLOCK AREA BASED ON SAFE BEARING LOAD OF 2000LC2000 POUNDS PER SQUARE FOOT.
2. AREAS MUST BE ADJUSTED FOR OTHER SIZE PIPE, PRESSURES & SOIL CONDITIONS.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE & HAVE MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY & SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OF DISMANTLING JOINT.
5. CONTRACTOR SHALL INSTALL BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

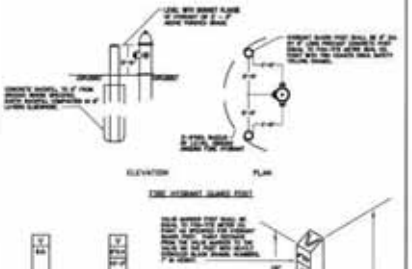
CITY OF KIRKLAND
PLAN NO. CK-W.02
CONCRETE THRUST BLOCKING



CITY OF KIRKLAND
PLAN NO. CK-W.23
SIDEWALK SECTION



CITY OF KIRKLAND
PLAN NO. CK-W.16
HYDRANT LOCATION IN CUT OR FILL



NOTES:
1. GUARD POSTS TO BE INSTALLED ONLY AS DIRECTED BY CITY OF KIRKLAND.
2. VALVE MARKERS TO BE USED FOR BLOW OFF AND MAINLINE VALVES OUTSIDE PAVED AREAS.

CITY OF KIRKLAND
PLAN NO. CK-W.13
HYDRANT PROTECTION AND VALVE MARKER POST

APPROVED FOR CONSTRUCTION FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 180 Days from Above Date

Title: CONSTRUCTION NOTES AND DETAILS

KIRKLAND, WA 98033
GUYNUP PARCEL

For: COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

BARGHAUSEN CONSULTING ENGINEERS

18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number: 6222

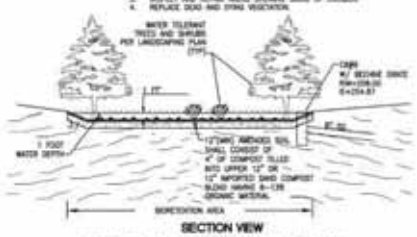
Sheet: C5.8

ENCLOSURE 4

STORM DRAINAGE FACILITY NOTES AND DETAILS

RAIN GARDEN MAINTENANCE INSTRUCTIONS

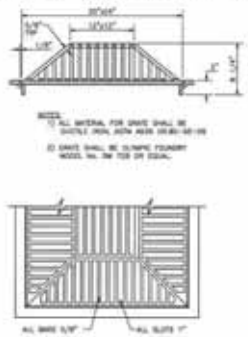
1. TEMPORARY IRRIGATION SYSTEMS SHALL BE INSTALLED TO PROVIDE ADEQUATE WATERING DURING INITIAL ESTABLISHMENT PERIOD, THEREAFTER INCREASING THE PLANT SURVIVAL RATE.
2. REPLACE MULCH LATER MANUALLY.
3. INSPECT AND REPAIR AREAS SHOWING SIGNS OF EROSION.
4. REPLACE DEAD AND DYING VEGETATION.



SECTION VIEW

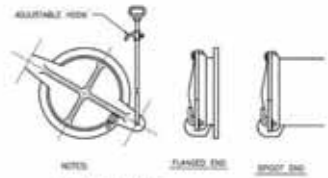
RAIN GARDEN (BIORETENTION) DETAIL

NOT TO SCALE



SQUARE BEEHIVE DRAIN GRATE

NOT TO SCALE

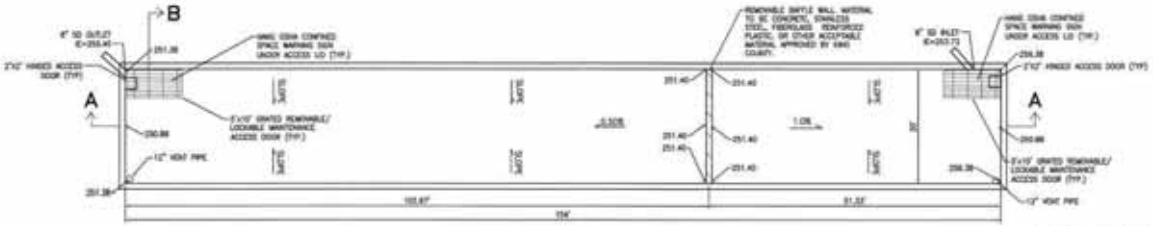


NOTES:

1. SHEAR GATE SHALL BE:
   A. SHEAR GATE, CAST IRON BODY AND GATE, OLYMPIC FOUNDRY STANDARD OR EQUAL, OR
   B. SHEAR GATE, ALUMINUM OR CAST IRON, DRAINAGE SPECIALTIES (DRAINMASTER) STANDARD OR EQUAL.
2. GATE SHALL BE 8" DIAM. UNLESS OTHERWISE SPECIFIED.
3. GATE SHALL BE JOINED TO THE SECTION BY BOLTING (THROUGH FLANGE), WELDING, OR OTHER SECURE MEANS.
4. LIFT ROD: AS SPECIFIED BY MANUFACTURER WITH HANDLE EXTENDING TO WITHIN ONE FOOT OF COVER AND ADJUSTABLE HOOK LOCK FASTENED TO FRAME OR UPPER HANDHOLD.

FROP-T SHEAR GATE

NOT TO SCALE



DETENTION/WETVAULT DETAIL - PLAN

SCALE: 1"=10'

STORMWATER VAULT NOTES

1. ALL SEDIMENT ACCUMULATION IN VAULT AND PIPES MUST BE REMOVED AFTER CONSTRUCTION.
2. INLET AND OUTLET PIPES SHALL BE SEALED USING A NON-POROUS, NON-SHRINKING GROUT.
3. CONCRETE USED FOR VAULT CONSTRUCTION SHALL BE A MINIMUM OF 3,000 PSI STRUCTURAL REINFORCED CONCRETE. CONSTRUCTION JOINTS MUST BE PROVIDED WITH WATER STOPS. SEE STRUCTURAL PLANS AND REPORT FOR DETAILS.

STORMWATER FACILITIES

DETENTION

CONSERVATION FLOW CONTROL
MAX DESIGN WATER SURFACE EL=256.40
BOTTOM OF DETENTION EL=255.40

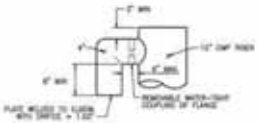
STORAGE REQUIRED=4,240 CF
STORAGE PROVIDED=4,240 CF

WATER QUALITY

ENHANCED BASIC WATER QUALITY

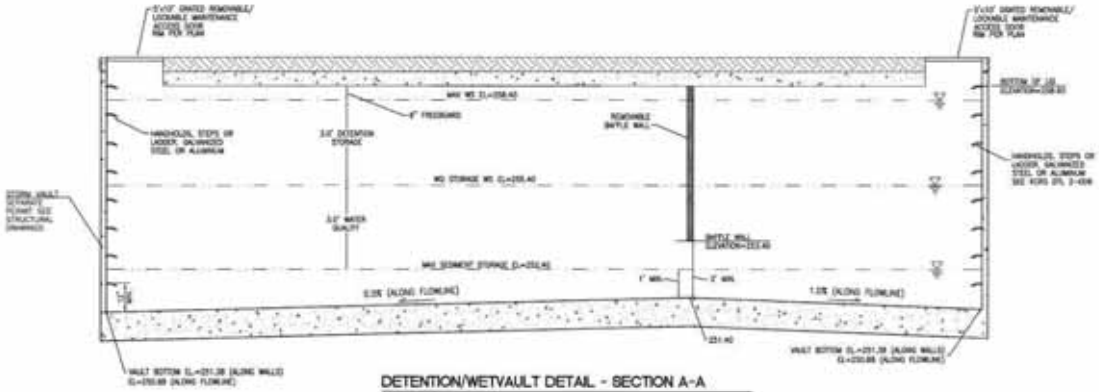
METAMULT VOLUME REQUIRED=4,240 CF
METAMULT VOLUME PROVIDED=4,240 CF

STORMFILTER MANHOLE (MF) = 2 CPS CARTRIDGE



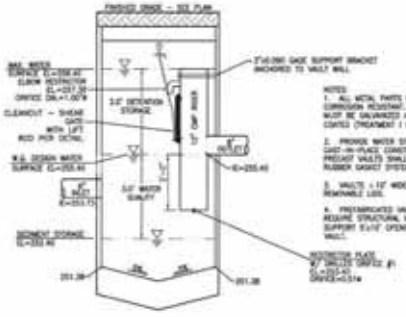
FLOW RESTRICTOR ELBOW DETAIL

NOT TO SCALE



DETENTION/WETVAULT DETAIL - SECTION A-A

SCALE: H: 1"=10' V: 1"=5'



NOTES:

1. ALL METAL PARTS MUST BE CORROSION RESISTANT. STEEL PARTS MUST BE GALVANIZED AND ASPHALT COATED (TREATMENT 1 OR BETTER.)
2. PROVIDE WATER STOP AT ALL CAST-IN-PLACE CONSTRUCTION JOINTS. PRECAST VAULTS SHALL HAVE APPROVED RUBBER GASKET SYSTEM.
3. VAULTS > 10' WIDE MUST USE REMOVABLE LIDS.
4. PRESEMBRICATED VAULT SECTIONS MAY REQUIRE STRUCTURAL MODIFICATIONS TO SUPPORT 5'x10' OPENING DOOR MARK VAULT.

DETENTION VAULT CROSS SECTION B-B

SCALE: H: 1"=10' V: 1"=5'

APPROVED FOR CONSTRUCTION
FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 90 Days from Above Date

1	11/08/11	DWK	JBH
No.	Date	By	Chk

Revision

Title: STORM DRAINAGE FACILITY NOTES AND DETAILS

KIRKLAND, WA 98033
GUYNUP PARCEL

For:

COSTCO
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

11/08/11

Scale: —
Horizontal: —
Vertical: —

Designed: DWK
Drawn: —
Checked: JBH
Approved: JBH
Date: 10/31/11

BARGHAUSEN CONSULTING ENGINEERS

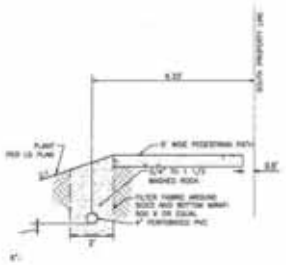
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number: 6222

Sheet: C8.0

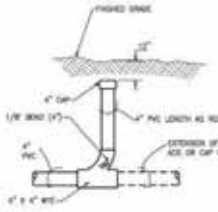
ENCLOSURE 4

CONSTRUCTION NOTES AND DETAILS



FRENCH DRAIN

NOT TO SCALE



STORM DRAINAGE CLEANOUT DETAIL

NOT TO SCALE

DRAINAGE NOTES

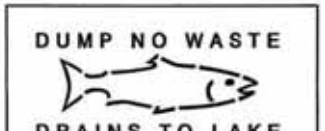
CITY OF KIRKLAND NOTES SHALL PREVAIL SHOULD ANY CONFLICT BETWEEN THESE NOTES AND THE CITY NOTES OCCUR.

1. ALL DRAINAGE STRUCTURES, SUCH AS CATCH BASINS AND MANHOLES, NOT LOCATED WITHIN A TRAVELED ROADWAY OR SIDEWALK SHALL HAVE SOLID LOCKING LIDS. ALL DRAINAGE STRUCTURES ASSOCIATED WITH A PERMANENT RETENTION/DETENTION FACILITY SHALL HAVE SOLID LOCKING LIDS. ALL OTHER CATCH BASINS TO HAVE LOCKING VANED GRATES UNLESS OTHERWISE NOTED.
2. ALL CATCH BASIN GRATES SHALL CONFORM TO CITY OF KIRKLAND, AND SHALL INCLUDE THE STAMPING "DUMP NO POLLUTANTS".
3. THE APPLICANT/CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS OF ALL STUB-OUT CONNECTIONS LINES WITH RESPECT TO UTILITIES (I.E., POWER, GAS, TELEPHONE, TELEVISION, ETC.).
4. ALL STORM DRAINAGE CONVEYANCE PIPE SHALL BE ONE OF THE FOLLOWING AS DESIGNATED (UNLESS OTHERWISE NOTED):
   A. CONCRETE STORM SEWER PIPE SHALL CONFORM TO THE REQUIREMENTS OF ASTM 76-85 CLASS IV REINFORCED CONCRETE PIPE.
   B. SMOOTH WALL SPIRAL RIB METAL PIPE (ALUMINUM, OR ALUMINIZED STEEL), 16 GAUGE WITH 2/3" X 5/8" ON 12" CENTER.
   C. DUCTILE IRON PIPE CLASS 50 OR 52.
   D. POLYVINYL CHLORIDE (PVC) SEWER PIPE. (SDR 35 OR THICKER). COVER OVER PVC SHALL BE AT 3 FEET MINIMUM.
   E. LDPE (LINED CORRUGATED POLYETHYLENE) PIPE SHALL HAVE A SMOOTH INTERIOR WALL MEETING OR EXCEEDING TYPE 111, CATEGORY 4 OR 5, GRADE PE3 OR PE4, CLASS 2 PER ASTM D1248, MINIMUM C.F.L.L. CLASS ASTM D1693, 204NCSC. LDPE SHALL ALSO MEET OR EXCEED THE REQUIREMENTS IC 7 AASHTO M294, TYPE S. LDPE SHALL BE BEDDED ON GRAVEL BACKFILL FOR PIPE BEDDING AS SPECIFIED 1 IN SECTION 9-03 OF WSDOT/APWA STANDARD SPECIFICATIONS. ADD 9-12 OF CGSM.
5. ALL DRAINS FOR TYPE 2 CATCH BASINS SHALL ALSO INCLUDE AN OFFSET TO THE TOP BACK OF CURB.

STENCILING OF CATCH BASINS FOR POLLUTION CONTROL

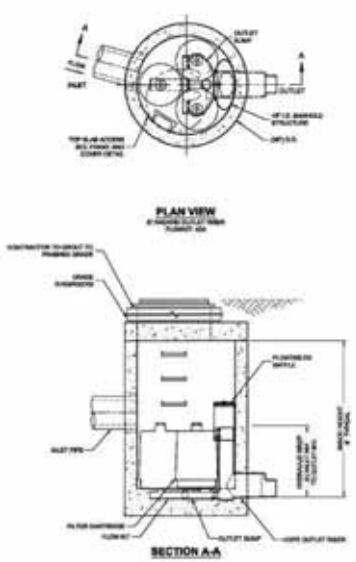
ALL NEW CATCH BASINS ADDED TO THE CITY OF KIRKLAND DRAINAGE SYSTEM OR TO PRIVATE DRAINAGE SYSTEMS MUST BE STENCILED WITH "DUMP NO WASTE - DRAINS TO LAKE" (SEE FIGURE 1 BELOW). ALSO, ANY EXISTING CATCH BASINS WHICH FRONT PROPERTY BEING DEVELOPED MUST BE STENCILED.

THE STENCIL MUST BE PLACED ON THE STREET SIDE OF THE CATCH BASIN GRATE, NOT ON THE CURB. USE A WHITE TRAFFIC ZONE LATEX PAINT. CLEAN THE AREA TO BE PAINTED WITH A WIRE BRUSH SO THAT THE SURFACE IS FREE OF DIRT. ANY QUESTIONS SHOULD BE DIRECTED TO THE PUBLIC WORKS DEPARTMENT AT (425) 587-3800.



STORM DRAINAGE - PLAN NOTES (CITY OF KIRKLAND):

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. BEFORE ANY CONSTRUCTION MAY OCCUR, THE CONTRACTOR SHALL HAVE PLANS WHICH HAVE BEEN SIGNED AND APPROVED BY THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT, OBTAINED ALL CITY, COUNTY, STATE, FEDERAL AND OTHER REQUIRED PERMITS, AND HAVE POSTED ALL REQUIRED BONDS.
3. ALL STORM DRAINAGE IMPROVEMENTS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF KIRKLAND PUBLIC WORKS PRE-APPROVED PLANS AND POLICIES AND THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, PREPARED BY WSDOT AND THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA).
4. ANY DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL. ALL CHANGES SHALL BE SUBMITTED TO THE CITY.
5. A COPY OF THE APPROVED STORM WATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO THE SATISFACTION OF THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS FOR THE PREVENTION OF ON-SITE EROSION AFTER THE COMPLETION OF CONSTRUCTION.
7. MINIMUM COVER OVER STORM DRAINAGE PIPES IN ROW OR VEHICULAR PATH SHALL BE 18 INCHES, UNLESS OTHER DESIGN IS APPROVED.
8. STEEL PIPE SHALL HAVE ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE.
9. ALL CATCH BASINS SHALL BE TYPE 1 UNLESS OTHERWISE NOTED. CATCH BASINS WITH A DEPTH OF OVER FIVE FEET (5') TO THE PIPE INVERT SHALL BE A TYPE 2 CATCH BASIN. TYPE 2 CATCH BASINS EXCEEDING FIVE FEET (5') IN DEPTH SHALL HAVE A STANDARD LADDER INSTALLED.
10. ALL STORM DRAINAGE MAIN EXTENSIONS WITHIN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS MUST BE STAKED FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.
11. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF ONE FOOT (1') AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-6" ROCK/40%-70% PASSING, 2"-4" ROCK/50%-40% PASSING, 2"-MINUS ROCK/10%-20% PASSING.
12. ALL PIPE, MANHOLES, CATCH BASINS, AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (WSDOT). THIS SHALL INCLUDE NECESSARY LEVELING OF THE TRENCH BOTTOM ON THE TOP OF THE FOUNDATION MATERIAL AS WELL AS PLACEMENT AND COMPACTION OF REQUIRED BEDDING MATERIAL TO UNIFORM GRADE SO THAT THE ENTIRE LENGTH OF THE PIPE WILL BE SUPPORTED ON A UNIFORMLY DENSE, UNYIELDING BASE. IF THE NATIVE MATERIAL IN THE BOTTOM OF THE TRENCH MEETS THE REQUIREMENTS FOR "GRAVEL BACKFILL FOR PIPE BEDDING," THE FIRST LIFT OF PIPE BEDDING MAY BE OMITTED PROVIDED THE MATERIAL IN THE BOTTOM OF THE TRENCH IS LOOSENED, REGRADED, AND COMPACTED TO FORM A DENSE, UNYIELDING BASE. ALL PIPE BEDDING SHALL BE APWA CLASS B. TYPE 1, OR BETTER. PIPE SHALL NOT BE INSTALLED ON ICE, FROZEN EARTH, LARGE BOULDERS, OR ROCK. PIPE BEDDING FOR FLEXIBLE PIPES SHALL BE PEA GRAVEL TO THE SPRINGLINE OF THE PIPE.
13. CONSTRUCTION OF DEWATERING (GROUNDWATER) SYSTEMS SHALL BE IN ACCORDANCE WITH THE APWA STANDARD SPECIFICATIONS.
14. ISSUANCE OF A BUILDING OR LAND SURFACE MODIFICATION PERMIT BY THE CITY OF KIRKLAND DOES NOT RELIEVE THE OWNER OF THE CONTAINED LEGAL OBLIGATION AND/OR LIABILITY CONNECTED WITH STORM SURFACE WATER DISPOSITION. FURTHER, THE CITY OF KIRKLAND DOES NOT ACCEPT ANY OBLIGATION FOR THE PROPER FUNCTIONING AND MAINTENANCE OF THE SYSTEM DURING OR FOLLOWING CONSTRUCTION EXCEPT AS OUTLINED IN THE CITY OF KIRKLAND PUBLIC WORKS STANDARDS.
15. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PATHS AND DRIVEWAYS, AND 90 PERCENT DENSITY IN UNPAVED AREAS. ALL PITS ZONE COMPACTION SHALL BE 95 PERCENT.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, COMPANIES SHALL PROTECTION, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE A TRAFFIC CONTROL PLAN APPROVED BY THE CITY OF KIRKLAND. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, TRAFFIC CONTROL, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL APPLY.
17. NO FINAL CUT OR FILL SLOPE SHALL EXCEED SLOPES OF TWO (2) HORIZONTAL TO ONE (1) VERTICAL WITHOUT STABILIZATION BY REGRADE OR BY A STRUCTURAL RETAINING WALL.
18. ALL MANHOLE LADDERS SHALL BE FIRMLY ATTACHED AND EXTEND TO WITHIN 1' OF THE BOTTOM OF THE STRUCTURE.
19. APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARE TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION INSPECTOR AND ANY CHANGES REQUIRED SHALL BE APPROVED BY THE DEVELOPMENT ENGINEER PRIOR TO COMMENCEMENT OF RELATED CONSTRUCTION ON THE PROJECT.
20. THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. THE OWNER OR HIS REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION IN KING COUNTY, CALL 1-800-424-5555. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
21. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESS, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES THAT ARE TO INTERFACE WITH NEW WORK. PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SCARFING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY, TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, ACCEPTABLE TO THE ENGINEER AND THE CITY OF KIRKLAND, COMPLETE IN PLACE AND READY TO USE.
22. ALL INLETS, MANHOLE, AND CATCH BASIN FRAMES AND GRATES SHALL NOT BE ADJUSTED TO GRADE UNTIL IMMEDIATELY PRIOR TO FINAL PAVING. ALL CATCH BASIN GRATES SHALL BE SET 0.02' BELOW PAVEMENT LEVEL.
23. OPEN CUT ROAD CROSSINGS FOR UTILITY TRENCHES ON EXISTING TRAVELED ROADWAY SHALL BE BACKFILLED ONLY WITH 5/8" MINUS CRUSHED ROCK AND MECHANICALLY COMPACTED (UNLESS OTHERWISE APPROVED BY THE CITY). FOR STREETS CLASSIFIED AS ARTERIALS OR COLLECTORS, BACKFILL FOR CROSSINGS SHALL BE CDF. QUTE NOTE THE EXISTING ASPHALT SHALL BE NEAT LINE CUT WITH SAW OR JACKHAMMER IN A CONTINUOUS LINE. A TEMPORARY COLD MIX PATCH MUST BE PLACED IMMEDIATELY AFTER BACKFILL AND COMPACTION. A PERMANENT HOT MIX PATCH SHALL BE PLACED WITHIN 30 DAYS AND SHALL BE A MINIMUM OF 1" THICKER THAN THE ORIGINAL ASPHALT WITH A MINIMUM THICKNESS OF 2". SEE STANDARD 5.02.
24. ALL DAMAGES INCURRED TO PUBLIC AND/OR PRIVATE PROPERTY BY THE CONTRACTOR DURING THE COURSE OF CONSTRUCTION SHALL BE PROMPTLY REPAIRED TO THE SATISFACTION OF THE CITY CONSTRUCTION INSPECTOR BEFORE PROJECT APPROVAL AND/OR THE RELEASE OF THE PROJECT'S PERFORMANCE BOND.
25. GROUT ALL SEAMS AND OPENINGS IN ALL INLETS, CATCH BASINS, AND MANHOLES.
26. WHEN WIDENING AN EXISTING ROADWAY WHERE AN EXISTING TYPE 1 CATCH BASIN WILL REMAIN IN THE TRAVEL LANE, THE EXISTING FRAME AND COVER SHALL BE REPLACED WITH A ROUND, LOCKING FRAME AND COVER.
27. FOR OTHER THAN SINGLE-FAMILY DWELLINGS, ALL EXPOSED OR READILY EXPOSED INDOOR STORM DRAINAGE PIPING/PLUMBING SHALL BE LABELED WITH THE WORDS "STORM DRAIN" WITH APPROXIMATE 2 INCH HIGH LETTERS.



STORMFILTER DESIGN NOTES

CARTRIDGE HEIGHT	27"		18"		LOW DROP	
RECOMMENDED HYDRAULIC GRADE (HG)	2.0'		1.3'		1.0'	
SPECIFIC FLOW RATE (gpm/ft²)	1 gpm/ft²	1 gpm/ft²	1 gpm/ft²	1 gpm/ft²	1 gpm/ft²	1 gpm/ft²
CARTRIDGE FLOW RATE (gpm)	22.5	11.25	15	7.5	15	7.5

FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WQ FLOW RATE (cfs)	
PEAK FLOW RATE (cfs)	
PIPE DIAMETER (in)	
RIM ELEVATION	
PIPE INVERT ELEVATION	
SUMP DEPTH (if required)	
GRATE TYPE	
BOLT DOWN	
SPECIAL CONSIDERATIONS	

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1		PVC	8"
INLET PIPE 2			
OUTLET PIPE		PVC	8"
PIPE SLOPE			
RIM ELEVATION			
INVERT ELEVATION			

INVERT ELEVATIONS VALVE?	YES(*)	NO(*)

CONTRACTOR/SPECIAL INSPECTION REQUIREMENTS

(*) PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTRACTOR PROVIDES ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH (.) ARE PREFERRED DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. CONTECH SHOULD BE CONTACTED WITH ALL VALID SITE DIMENSIONS AND REQUESTED PLANS FOR NEXT "YEAR END CONSTRUCTION PRODUCTS" REPRESENTATIVE. www.contechcp.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THE DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CARTRIDGE SHALL MEET AASHTO H20 LOAD RATING. KEEPING GROUNDWATER ELEVATION AT OR BELOW THE OUTLET PIPE INVERT ELEVATION. DEPENDENT ON INCLUDED TO CONTROL ACTUAL GROUNDWATER ELEVATION.
6. FLOW DISTRIBUTION SHALL BE SEDIMENT FREE, BUT NOT NECESSARILY UNIFORM. FLOW WILL ONLY CLEAN THE MEDIA DEPTH SHALL BE 2 INCHES. PER THE MEDIA CONTACT TIME SHALL BE AT LEAST 30 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm/ft²) DIVIDED BY THE FILTER CONTACT SURFACE AREA (ft²).

INSTALLATION NOTES
1. INSTALLATION DETAILS, DEPTH, ANCHOR ANTI-FLOTATION PROVISIONS AND SITE SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
2. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING ELUTS ARE PROVIDED).
3. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND VERIFIABLE STRUCTURE.
4. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPES.
5. CONTRACTOR TO PROVIDE AND INSTALL CONNECTION TO THE OUTLET PIPE STUB. STORMFILTER EQUIPPED WITH A EQUAL DIAMETER HDPE OUTLET STUB AND MAKE COUPLING. IF OUTLET PIPE IN LARGER THAN 8 INCHES, CONTRACTOR TO REMOVE THE 8 INCH OUTLET STUB AT BE BOLTED IN CAST CAME COUPLING BY TRANSITION BY INSTALL AND PROVIDED BY CONTRACTOR.
6. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT EARTHWORK FROM CONTRACTION INDUCED EROSION HAZARDS.

CONTECH CONSTRUCTION PRODUCTS

SFM448
STORMFILTER
STANDARD DETAIL

APPROVED FOR CONSTRUCTION
FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 90 Days from Above Date

No.	Date	By	Chk	App	Revision
1	11/18/11	CMF	CMF	JDC	STORMF. SUBMITTAL

Title: CONSTRUCTION NOTES AND DETAILS

KIRKLAND, WA 98033
GUYNUP PARCEL

For: COSTCO
COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

BARGHAUSEN CONSULTING ENGINEERS

18215 72ND AVENUE SOUTH
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(425)251-6222
(425)251-8782 FAX

CIVIL ENGINEERING, LAND PLANNING, STRUCTURAL ENGINEERING, SURVEYING

Job Number: 6222

Sheet: C7.0

Scale: Horizontal: NA; Vertical: NA

Date: 11/18/11

Designed: CMF; Drawn: ---; Checked: JDC; Approved: JDC; Date: 10/31/11

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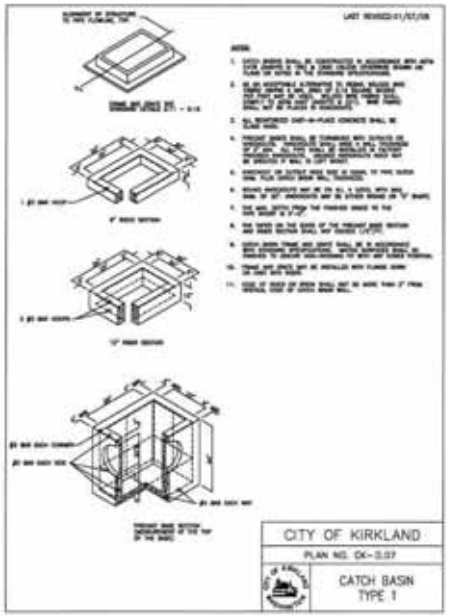
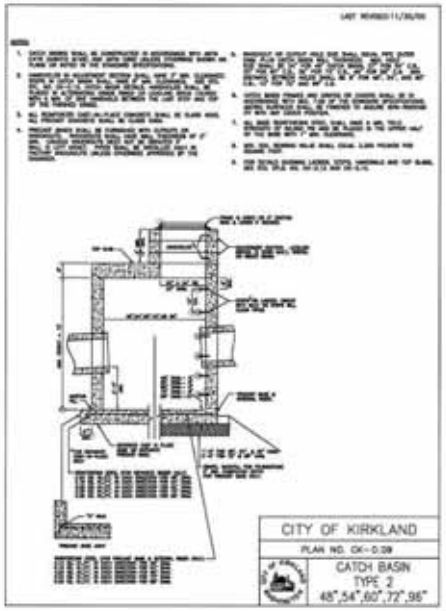
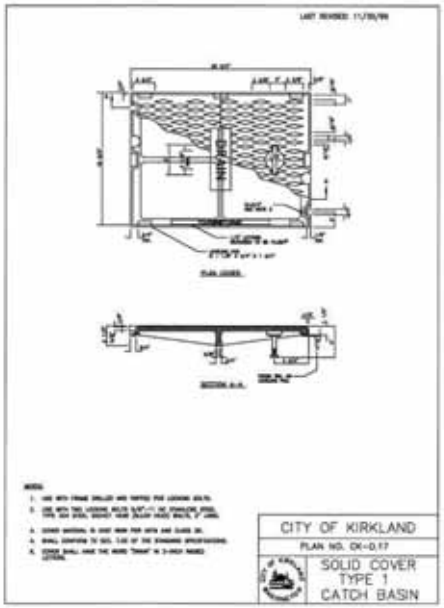
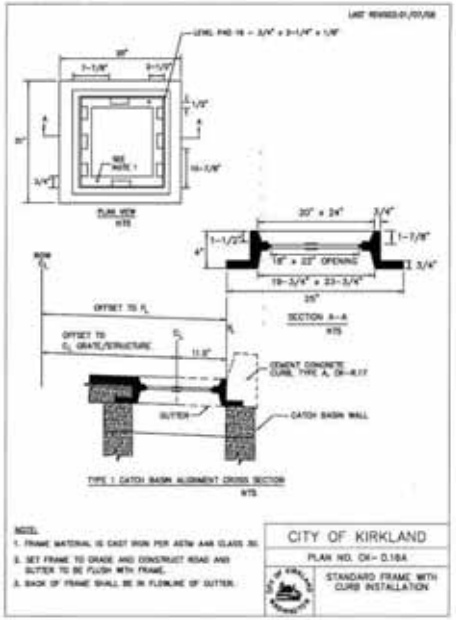
ENCLOSURE 4

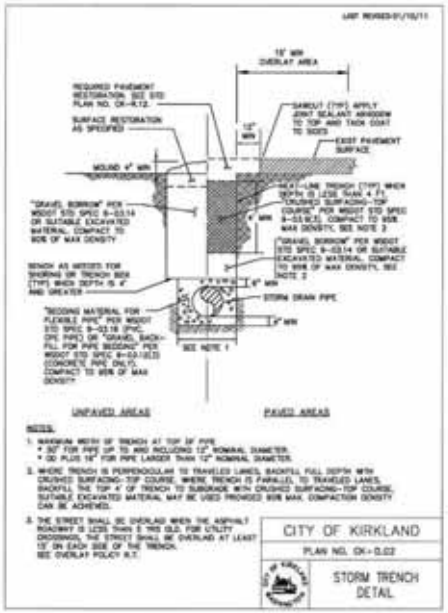
CONSTRUCTION NOTES AND DETAILS

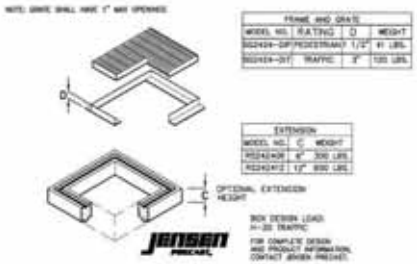












COSTCO STANDARD FRAME AND GRATE

NOT TO SCALE

APPROVED FOR CONSTRUCTION FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 90 Days from Above Date

Title: CONSTRUCTION NOTES AND DETAILS

KIRKLAND, WA 98033
GUYNUP PARCEL

For: COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

BARGHAUSEN CONSULTING ENGINEERS

18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX

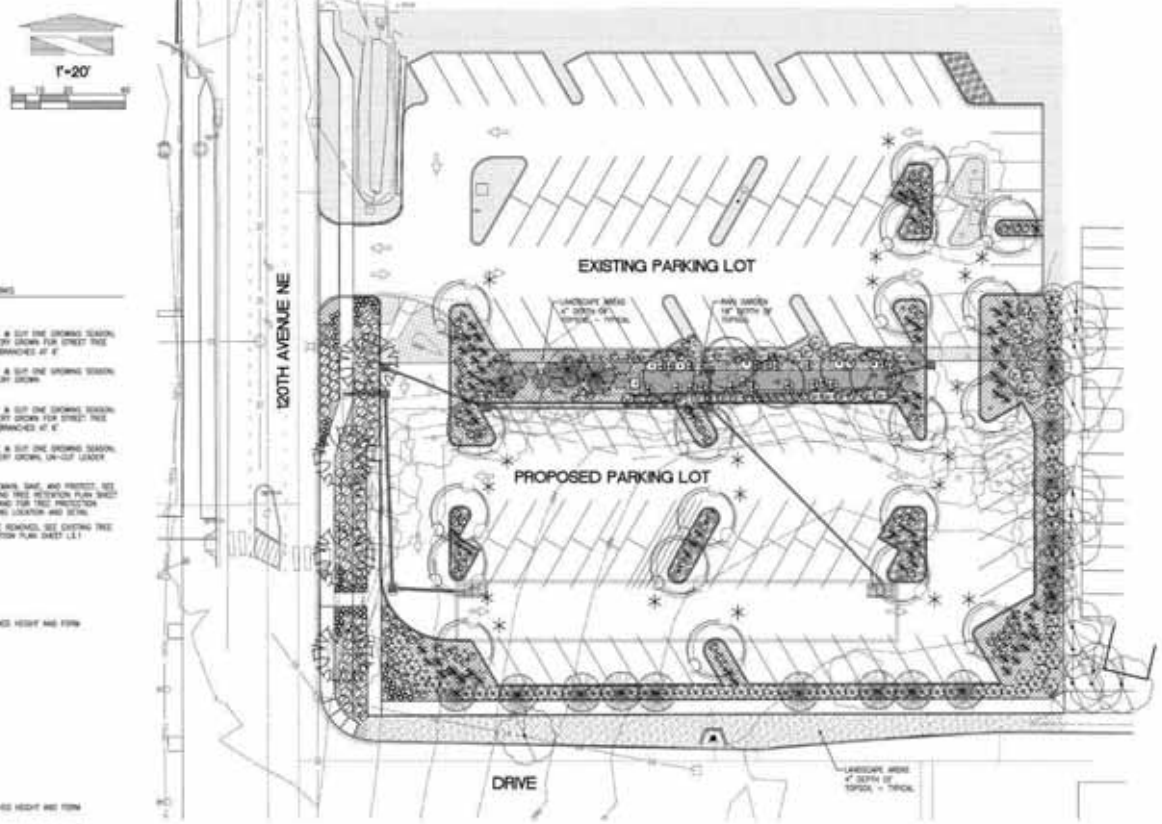
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number: 6222

Sheet: CB 60

ENCLOSURE 4

LANDSCAPE PLANTING PLAN



LANDSCAPE PLANT MATERIAL LEGEND

SYMBOL	BOTANICAL / COMMON NAMES	SIZE CONDITION	SPACING	QUANTITY	REMARKS
	TREES:				
	FRAXINUS EXCELSIOR 'HIMERLY' / EUROPEAN ASH (PARKING LOT TREE)	2.5" CAL.	AS SHOWN	19	STAKE & GUY ONE GROWING SEASON. NURSERY GROWN FOR STREET TREE USE. BRANCHES AT 6'
	FRAXINUS PENNSYLVANICA 'PATMORE' / PATMORE ASH	1" CAL.	AS SHOWN	5	STAKE & GUY ONE GROWING SEASON. NURSERY GROWN
	QUERCUS COCCINEA / SCARLET OAK (STREET TREE)	2.5" CAL.	24" O.C.	4	STAKE & GUY ONE GROWING SEASON. NURSERY GROWN FOR STREET TREE USE. BRANCHES AT 6'
	PINUS SYLVESTRIS / SCOTCH PINE (BUFFER TREE)	6' - 7' HT.	AS SHOWN	18	STAKE & GUY ONE GROWING SEASON. NURSERY GROWN, UN-CUT LEADER
	EXISTING TREE			75	TO REMAIN. SAVE AND PROTECT. SEE EXISTING TREE RETENTION PLAN SHEET L1.1 AND FOR TREE PROTECTION FENCING LOCATION AND DETAIL
	EXISTING TREE			39	TO BE REMOVED. SEE EXISTING TREE RETENTION PLAN SHEET L1.1
*	INDICATES REQUIRED PARKING LOT TREE				
	SHRUBS:				
	BERBERIS THUNBERGII / JAPANESE BARBERRY	21" - 24"	3' O.C.	40	MATCHES HEIGHT AND FORM
	BERBERIS THUNBERGII 'GARRETTII' / COMPACT JAPANESE BARBERRY	18" - 21"	2.5' O.C.	132	
	CORNUS STOLONIFERA 'KELSEYI' / DWARF RED-OSIER DOGWOOD	1 GALLON	3' O.C.	21	
	EUONYMUS ALATUS 'COMPACTUS' / COMPACT WINGED EUONYMUS	21" - 24"	3' O.C.	74	
	MAHONIA AQUIFOLIUM / OREGON GRAPE	21" - 24"	3' O.C.	40	
	MYRICA CALIFORNICA / PACIFIC WAX MYRTLE	21" - 24"	3' O.C.	17	
	ROSA PISOCARPA / CLUSTERED WILD ROSE	1 GALLON	4' O.C.	7	
	PRUNUS LAUROCERASUS 'OTTO LUYKEN' / OTTO LUYKEN LAUREL	18" - 21"	3.5' O.C.	34	MATCHES HEIGHT AND FORM
	PRUNUS LAUROCERASUS 'SCHIPKAENSIS' / SCHIPKA LAUREL	21" - 24"	3.5' O.C.	89	MATCHES HEIGHT AND FORM
	SALIX PURPUREA 'NANA' / DWARF ARCTIC WILLOW	2 GALLON	3.5' O.C.	21	
	STIPA GIGANTEA / GIANT FEATHER GRASS	1 GALLON	2' O.C.	19	
	GROUNDCOVERS:				
	JUNCUS EFFUSUS / COMMON RUSH	4" POT	18" O.C.	AS REQ'D	
	JUNCUS ENSIFOLIUS / DAGGERLEAF RUSH	4" POT	18" O.C.	AS REQ'D	
	SCIRPUS MICROCARPUS / SMALL-FRUITED BULRUSH	4" POT	18" O.C.	AS REQ'D	
	RUBUS PENTALOBUS / CHEROKEE BRAMBLE	4" POT	12" O.C.	AS REQ'D	HOLD 18" FROM BORDERS, SHRUBS, AND TREES
	FRAGARIA CHILOENSIS / BEACH STRAWBERRY	4" POT	12" O.C.	AS REQ'D	HOLD 18" FROM BORDERS, SHRUBS, AND TREES
	LOW GROW SOD MIX	HYDROSEED	COVER		COMMERCIAL SOD BLOND
	EXISTING LANDSCAPE				TO REMAIN. SAVE AND PROTECT
	EXISTING LANDSCAPE				TO BE REMOVED

LANDSCAPE CODE REQUIREMENTS/COMPLIANCE

GUYNUP PARCEL 123800-0110-08	RH3-R	95.44	INTERNAL PARKING LOT LANDSCAPE REQUIREMENTS: PARKING LOT AREAS CONTAIN 25 SQUARE FEET OF LANDSCAPE AREA PER PARKING STALL; PROVIDE LANDSCAPE STRIPS (GENERALLY EVERY 8 STALLS). PROVIDE ONE TREE PER ISLAND			
			SQ. FOOTAGE REQUIRED	SQ. FOOTAGE PROVIDED	NUMBER OF TREES REQUIRED	NUMBER OF TREES PROVIDED
NUMBER OF STALLS WITHIN PARCEL: 84			1,650	1,241	8	13
GUYNUP PARCEL 123800-0110-08	RH3-R	95.45	PERIMETER LANDSCAPE BUFFERING FOR DRIVING AND PARKING AREAS SHALL BUFFER ALL PARKING AREAS AND DRIVEWAYS FROM ABUTTING RIGHT-OF-WAY AND FROM ADJACENT PROPERTY WITH A 5-FOOT-WIDE LANDSCAPE STRIP ALONG THEIR PERIMETER OF THE PARKING AREAS AND DRIVEWAYS. PLANT TREES AT THE RATE OF (1) TREE PER 30 LINEAR FT.			
			SQ. FOOTAGE REQUIRED	SQ. FOOTAGE PROVIDED	NUMBER OF TREES REQUIRED	NUMBER OF TREES PROVIDED
WEST PROPERTY LINE ALONG 120TH AVE. NE (5' WIDE LANDSCAPE STRIP) (124 L.F.)			620	946	4.1	4
NORTH PROPERTY LINE ALONG ADJ. PROPERTY (5' WIDE LANDSCAPE STRIP) (249.6 L.F)			1,248.0	3,280	8.3	8
EAST PROPERTY LINE ALONG ADJ. PROPERTY (5' WIDE LANDSCAPE STRIP) (124 L.F.)			620	1,210	4.1	8
SOUTH PROPERTY LINE ALONG ADJ. PROPERTY (5' WIDE LANDSCAPE STRIP) (256 L.F.)			1,280	1,424	8.2	8

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT

APPROVED FOR CONSTRUCTION FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 180 Days from Above Date

BARGHAUSEN CONSULTING ENGINEERS

18215 72ND AVENUE SOUTH KENT, WA 98032 (425)251-6222 (425)251-8782 FAX

CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number: 6222

Sheet: L1.1 of 5

No.	Date	By	Chk	App	Revision
1	11/16/11	MR	DM	JD	STREET SUBMITTAL

Title: LANDSCAPE PLANTING PLAN

KIRKLAND, WA 98033

COSTCO WAREHOUSE #8

For: COSTCO WHOLESALE GAS STATION ADDITION 999 LAKE DRIVE ISSAQUAH, WASHINGTON 98027

Scale: 1"=20'

Designed: MR

Drawn: MR

Checked: JD

Approved: JD

Date: 9/23/11

ENCLOSURE 4

LANDSCAPE PLANTING NOTES AND DETAILS

LANDSCAPE PLANTING NOTES AND MATERIALS

SCOPE OF WORK

FURNISH ALL MATERIALS, LABOR, EQUIPMENT AND RELATED ITEMS NECESSARY TO ACCOMPLISH TOPSOIL, TREATMENT AND PREPARATION OF SOIL, FINISH GRADING, PLACEMENT OF SPECIFIED PLANT MATERIALS, FERTILIZER, STAKING, MULCH, CLEAN-UP, DEBRIS REMOVAL, AND 90-DAY MAINTENANCE.

QUALIFICATIONS:
LANDSCAPE CONTRACTOR TO BE SKILLED AND KNOWLEDGEABLE IN THE FIELD OF WORK AND HAVE A MINIMUM FIVE (5) YEARS EXPERIENCE INSTALLING SIMILAR WORK. CONTRACTOR TO BE LICENSED TO PERFORM THE WORK SPECIFIED WITHIN THE PRESIDING JURISDICTION.

JOB CONDITIONS:
IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE SITE AND REPORT ANY DISCREPANCIES TO THE OWNER OR THE OWNER'S REPRESENTATIVES. ALL PLANT MATERIAL AND FINISH GRADES ARE SUBJECT TO APPROVAL BY THE OWNER.

PROTECTION:
SAVE AND PROTECT ALL EXISTING PLANTINGS SHOWN TO REMAIN. DO NOT PLANT UNTIL OTHER CONSTRUCTION OPERATIONS WHICH CONFLICT HAVE BEEN COMPLETED. IF AN IRRIGATION SYSTEM IS TO BE INSTALLED DO NOT PLANT UNTIL THE SYSTEM HAS BEEN INSTALLED, TESTED, AND APPROVED BY THE OWNER. HANDLE PLANTS WITH CARE - DO NOT DAMAGE OR BREAK ROOT SYSTEM, BARK, OR BRANCHES. REPAIR AND/OR REPLACE ITEMS DAMAGED AS A RESULT OF WORK, OR WORK NOT IN COMPLIANCE WITH PLANS AND SPECIFICATIONS, AS DIRECTED BY OWNER AT NO ADDITIONAL COST TO THE OWNER.

REPAIR OF EXISTING PLANTINGS:
DURING THE COURSE OF WORK, REPAIR ALL EXISTING PLANTING AREAS BY PRUNING DEAD GROWTH, RE-ESTABLISHING FINISH GRADE AND RE-MULCHING TO SPECIFIED DEPTH.

REPAIR OF IRRIGATION SYSTEM:
DURING THE COURSE OF WORK, REPAIR ANY DAMAGE TO THE IRRIGATION SYSTEM TO MATCH CONDITIONS PRIOR TO THE DAMAGE.

SUBMITTAL:
SUBMITTED ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE JOB BY OWNER.

90-DAY MAINTENANCE:
CONTRACTOR TO PROVIDE OWNER WITH A SCOPE OF WORK AT TIME OF INITIAL PROJECT BID TO PROVIDE LANDSCAPE AND IRRIGATION MAINTENANCE FOR 90 DAYS FOLLOWING COMPLETION OF PROJECT (ACCEPTANCE) OF FACILITY BY OWNER. WHICH TO INCLUDE MAINTENANCE AS DESCRIBED BELOW, IN PLANTING AND IRRIGATION MAINTENANCE.

MATERIALS:

PLANT MATERIALS
PLANT MATERIALS TO BE GRADE NO. 1, SIZES IN ACCORDANCE WITH (ANS) AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1-1986). PRUNE PLANTS NECESSARY FROM THE NURSERY ONLY UPON AUTHORIZATION BY THE LANDSCAPE ARCHITECT. "B & B" INDICATES BALLED AND BURLAPPED; "CONT." INDICATES CONTAINER; "BR" INDICATES BARE ROOT; "CAL." INDICATES CALIPER AT 6" ABOVE SOIL LINE; "DAL." INDICATES GALLON.
A) SPECIFIED PLANT CANOPY SIZE OR CALIPER IS THE MINIMUM ACCEPTABLE CONTAINER OR BALL SIZE ESTABLISHES MINIMUM PLANT CONDITION TO BE PROVIDED.
B) QUALITY:
PLANT MATERIAL TO COMPLY WITH STATE AND FEDERAL LAWS FOR DISEASE INSPECTION. PLANTS TO BE FULLY LIVE, VIGOROUS, WELL FORMED, WITH WELL DEVELOPED FIBROUS ROOT SYSTEMS. ROOT BALLS OF PLANTS TO BE SOLID AND FIRMLY HELD TOGETHER, SECURELY CONTAINED AND PROTECTED FROM INJURY AND DESICCATION. PLANTS DETERMINED BY LANDSCAPE ARCHITECT TO HAVE BEEN DAMAGED, HAVE DEFORMITIES OF STEM, BRANCHES, OR ROOTS, LACK SYMMETRY, HAVE MULTIPLE LEADERS OR "V" CROTCHES LESS THAN 30 DEGREES IN TRUNK, OR DO NOT MEET SIZE OR AND STANDARDS WILL BE REJECTED. PLANT MATERIAL TO BE FROM A SINGLE NURSERY SOURCE FOR EACH SPECIFIED SPECIES/VARIANT. NURSERY SOURCES TO BE THOSE LOCATED IN THE SAME REGION AS THE JOB SITE.
C) SUBSTITUTION:
NO SUBSTITUTION OF PLANT MATERIAL, SPECIES OR VARIETY, WILL BE PERMITTED UNLESS WRITTEN EVIDENCE IS SUBMITTED TO THE OWNER FROM TWO QUALIFIED PLANT BROKERAGE OFFICES. SUBSTITUTIONS WHICH ARE PERMITTED TO BE IN WRITING FROM THE OWNER AND LANDSCAPE ARCHITECT. THE SPECIFIED SIZE, SPECIES AND NUMBER WANTED, AS APPROVED, TO BE FURNISHED. SUBSTITUTIONS MAY REQUIRE SUBMITTAL TO REVISED LANDSCAPE PLAN TO CITY FOR APPROVAL.

SOIL PREPARATION:
TOPSOIL, AMENDMENT, AND BACKFILL ARE GENERAL REQUIREMENTS FOR ALL LANDSCAPE AREAS, UNLESS NOTED OTHERWISE ON THE PLANS. SOIL AMENDMENTS AND FERTILIZER NOTED BELOW ARE TO BE USED FOR NO PRICE BASIS ONLY. SPECIFIC AMENDMENTS AND FERTILIZERS WILL BE MADE AFTER SOIL SAMPLES ARE LABORATORY TESTED BY THE CONTRACTOR. PROVIDE CHANGE ORDER FOR ADDITIONAL OR REDUCTION OF MATERIALS REQUIRED OR NOT REQUIRED BY THE SOILS REPORT.

SOIL FERTILITY AND AGRICULTURAL SUITABILITY ANALYSIS:
AFTER ROUGH GRADING AND PRIOR TO SOIL PREPARATION, CONTRACTOR TO OBTAIN TWO REPRESENTATIVE SOIL SAMPLES, FROM LOCATIONS AS DIRECTED BY THE LANDSCAPE ARCHITECT, TO NORTHERN LIGHTS ANALYTICAL & CONSULTING INC. (NAVIGATION) WA. TEL. (253-383-3310) OR EQUIVALENT TESTING LABORATORY FOR TEST #406-2. SUBMIT RESULTS TO LANDSCAPE ARCHITECT FOR REVIEW. IF ON-SITE TOPSOIL HAS BEEN STOCKPILED, A TEST IS TO BE COMPLETED FOR IT, ALSO. TESTS TO INCLUDE FERTILITY AND SUITABILITY ANALYSIS WITH WRITTEN RECOMMENDATIONS FOR SOIL AMENDMENT, FERTILIZER, CONDITIONERS, APPLICATION RATES, AND POST-CONSTRUCTION MAINTENANCE PROGRAM. TESTS TO BE CONTRACTED WITH AND PAID FOR BY THE CONTRACTOR.

A) TOPSOIL:
CONTRACTOR IS RESPONSIBLE FOR SUPPLYING ALL TOPSOIL AND FOR DETERMINING THE VOLUME OF TOPSOIL REQUIRED PER THE INFORMATION ON PLANS AND NOTES HERE-ON. CONTRACTOR IS RESPONSIBLE FOR ANY NECESSARY WEED CONTROL RESULTING FROM CONTAMINATED OFF SITE SOURCES.
B) TOPSOIL TO CONSIST OF WINTER MIX AS PRODUCED AND PREMIXED BY PACIFIC TOPSOILS, INC. WINTER MIX TO CONSIST OF 1/3 BY VOLUME SANDY LOAM, 1/3 BY VOLUME COMPOSTED GARDEN MULCH, AND 1/3 BY VOLUME COARSE WASHED SAND OR EQUIVALENT. AT MINIMUM, TOPSOIL PRODUCTS BROUGHT ON SITE TO CONTAIN AMENDMENTS AS LISTED IN "D".
C) NATIVE SURFACE SOIL INCLUDING STOCKPILED SURFACE SOIL, ON-SITE, MAY MEET TOPSOIL PRODUCT CONDITIONS AS NOTED ABOVE. IF NOT, THE NECESSARY AMENDMENTS NOTED BELOW, ARE ADDED AND EVENLY BLENDED TO SPECIFIED DEPTH.
D) NATIVE SURFACE SOIL/STOCKPILED SURFACE SOIL (AND TOPSOIL BROUGHT ON SITE) TO INCLUDE THE FOLLOWING AMENDMENTS AS NECESSARY:
THE FOLLOWING AMOUNT PER 1,000 SQUARE FEET:
1. 8-CUBIC YARDS ORGANIC COMPOST. COMPOST TO BE FREE OF NON-FARM ANIMAL SOURCES, NOR TO BE FROM SOURCES CONTAINING REDWOOD OR CEDAR PRODUCTS.
2. 30-POUNDS NITROFORM (28-0-0)
3. 5-POUNDS AMMONIUM SULFATE
4. 40-POUNDS CALCIUM CARBONATE LIMESTONE
5. 40-POUNDS DOLOMITE LIMESTONE
6. 3-OUNES BORON (AS BORAX)
ALL AMENDMENTS TO BE THOROUGHLY MIXED PRIOR TO INCORPORATION INTO TOPSOIL.
E) PLANTING BACKFILL FOR ALL TREES, SHRUBS, AND GROUNDCOVERS:
1. 0.8-CUBIC YARDS PER VOLUME TOPSOIL
2. 0.4-CUBIC YARDS ORGANIC COMPOST
3. 3-POUNDS NITROFORM (28-0-0)
4. 1-POUNDS AMMONIUM SULFATE
5. 2-POUNDS CALCIUM CARBONATE LIMESTONE
6. 2-POUNDS DOLOMITE LIMESTONE

F) TOPSOIL PREPARATION AND INSTALLATION:
1. VERIFY SUBGRADES TO -4 INCHES BELOW FINISH ELEVATION IN ALL LANDSCAPE AREAS AND 12" IN RAIN GARDEN, EXCEPT AREAS NOTED ON PLANS. VERIFY SUBGRADES TO -4 INCHES BELOW FINISH ELEVATION IN ALL SOD AREAS. THIS ACCOMMODATES TOPSOIL, AMENDMENTS, AND MULCH.
2. DRAGOUT ANY SURFACE VEGETATION ROOTS IN THE SUB-GRADE PRIOR TO SUB-GRADE PREPARATION.
3. THOROUGH Y SCARIFY AND RIP ALL LANDSCAPE SUB-GRADES WHICH HAVE BECOME COMPACTED TO A DEPTH OF 12 INCHES WITH MULTIPLE PASSES, 90 DEGREES TO EACH OTHER. SCARIFY AREAS INACCESSIBLE TO MECHANIZED EQUIPMENT OR AROUND EXISTING PLANTINGS NOTED TO REMAIN WITH HAND TOOLS.
4. REMOVE SOIL LUMPS, ROCK, VEGETATION AND/OR DEBRIS LARGER THAN 2 INCHES FROM ALL SUB-GRADE PRIOR TO PLACEMENT OF SPECIFIED TOPSOIL.
5. REMOVE ANY ASPHALT EXTENDING BEYOND 6 INCHES FROM CURBS INTO ADJACENT LANDSCAPE AREAS.
6. PARKING LOT PLANTER ISLANDS TO BE OVER EXCAVATED BY BACKHOE. REMOVE PAVING WASTE, GRAVEL, BASE MATERIAL AND UNDERLYING SUBSOIL TO 18 INCHES BELOW TOP OF PAVING. SCARIFY AND OVER EXCAVATE PLANT PIT BOTTOM 12 INCHES TO MINIMIZE STRUCTURAL COMPACTION.
G) TOPSOIL PLACEMENT:
PLACE 2 INCHES OF TOPSOIL AND AMENDMENTS OVER THE PREPARED SUB-GRADE AND THOROUGHLY ROTOTILL WITH MULTIPLE PASSES INTO THE TOP 8 INCHES OF SUB-GRADE FOR A TOTAL DEPTH OF 8 INCHES. PLACE AN ADDITIONAL 3 INCHES IN LANDSCAPE AREAS AND 14 INCHES LIFT OF TOPSOIL OVER THE AMENDED SOIL AS A SURFACES COURSE. PLACE ADDITIONAL TOPSOIL AS REQUIRED TO MEET FINISH ELEVATIONS IN SOD AREAS OR IN AREAS INDICATED TO BE MOUNTED.

BARK MULCH (TOPDRESSING):
ONE-HALF-INCH (1/2") SIZE, TO ONE-QUARTER (1/4"), I.E., "FINE," HEMLOCK/FIR BARK.

STAKES:
2-INCH DIAMETER BY 8-FOOT MINIMUM LODGEPOLE PINE STAKES.

GUY MATERIAL:
1-INCH WIDE POLYETHYLENE CHAIN LOCK TYPE TIES; OR, 3/8" DIAMETER RUBBER. NO WIRE.

LAWN:
COMMERCIAL SEED AS NOTED ON PLAN.

HERBICIDE:
HERBICIDE IS NOT RECOMMENDED FOR THE FIRST YEAR AFTER INSTALLATION.

ANTI-DESICCANT:
"WILT-PROOF," AN INSULIS PRIOR TO SHIPMENT TO SITE FROM JUNE 1 THROUGH SEPTEMBER THOROUGHLY ROOT WATER PLANTS PRIOR TO DELIVERY. PLANT MATERIAL DELIVERED TO SITE TO BE KEPT CONSTANTLY MOIST THROUGH INSTALLATION.

EXECUTION:

FINISH GRADES:
FINE GRADE AND REMOVE ROCKS AND FOREIGN OBJECTS OVER 2 INCHES DIAMETER FROM TOP SURFACE OF PREPARED LANDSCAPE AREAS. FINISH ELEVATIONS TO BE DEFINED AS 2 INCHES BELOW CURBS, WALKS AND/OR OTHER ADJACENT HARDSCAPE FOR ALL AREAS TO BE SEED AREAS AND 1-INCH BELOW CURBS, WALKS AND/OR OTHER ADJACENT HARDSCAPE FOR ALL LAWN AREAS. FINISH GRADE REFER TO GRADES PRIOR TO INSTALLATION OF MULCH OR LAWN.
ALL FINISH GRADES TO BE SMOOTH EVEN GRADED, LIGHTLY COMPACTED, AS SHOWN ON THE PLAN AND DETAILED. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND STRUCTURES. SITE CIVIL DRAWINGS IDENTIFY FINAL ELEVATIONS.

TREES and SHRUBS:
ARRANGE TREES AND SHRUBS ON SITE IN PROPOSED LOCATIONS PER DRAWINGS. EXCAVATE PIT, PLANT AND STAKE OR GUY, AS CALLED OUT AND DETAILED. ALL TREES, SHRUBS, AND SUPPORTS TO STAND VERTICAL. BACKFILL SHALL BE PIT SPOILS. SETTLE BACKFILL USING WATER ONLY. NO MECHANICAL COMPACTION.

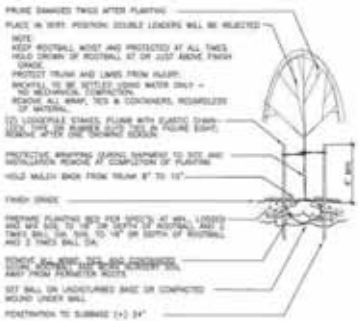
GROUNDCOVERS:
EXCAVATE PITS TO A MINIMUM OF 3 INCHES BELOW, AND TWICE THE ROOT BALL DIAMETER. WATER THOROUGHLY AND TAKE CARE TO ENSURE THAT ROOT CROWN IS AT PROPER GRADE, AS DETAILED.

MULCH:
MULCH ALL PROTRIED AND EXISTING LANDSCAPE AREAS (BOTH PARKING LOTS) NOT COVERED BY LAWN. APPLY SUFFICIENT QUANTITY TO PROVIDE A THREE (3) INCH DEPTH.

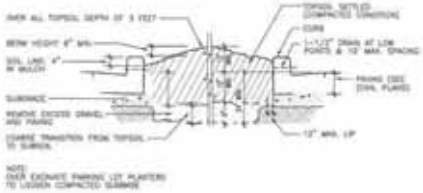
UTILITY CLEARANCES:
FIELD ADJUST PLANT LOCATIONS FOR 8-FOOT SEPARATION OF TREES/SHRUBS AND 3-FOOT SEPARATION FOR GROUNDCOVER FROM FIRE HYDRANTS AND UTILITY VAULTS.

PLANTING MAINTENANCE:
CONTRACTOR TO MAINTAIN PLANTINGS THROUGH COMPLETED INSTALLATION, AND UNTIL ACCEPTANCE OF LANDSCAPE INSTALLATION. PLANTING MAINTENANCE TO INCLUDE WATERING, WEEDING, CULTIVATING, TIGHTENING AND REMAKING OF TREE GUYS, RESETTING PLANTS TO PROPER GRADES OR POSITION, RE-ESTABLISHING SETTLED GRADES, AND MOWING LAWNS WEEKLY AFTER ESTABLISHMENT. HERBICIDE IS NOT RECOMMENDED FOR ONE YEAR FOLLOWING LANDSCAPE INSTALLATION. INCLUDED IS REPLACEMENT OF DEAD PLANTS AND PLANTS SHOWING LOSS OF 40 PERCENT OR MORE OF FOLIAGE.

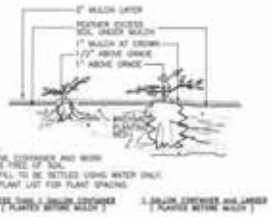
IRRIGATION MAINTENANCE:
THE IRRIGATION SYSTEM TO BE MAINTAINED INCLUDING ADJUSTMENTS FOR BALANCED WATER DISTRIBUTION AND PRESSURE. FAILED OR MALFUNCTIONING IRRIGATION EQUIPMENT SHALL BE REPLACED AND/OR CORRECTED. PLANTING AND IRRIGATION MAINTENANCE TO INCLUDE THOSE OPERATIONS NECESSARY TO THE PROPER GROWTH AND SURVIVAL OF ALL PLANT MATERIALS. CONTRACTOR TO PROVIDE THIS WORK IN ADDITION TO SPECIFIC WARRANTY/GUARANTEES.



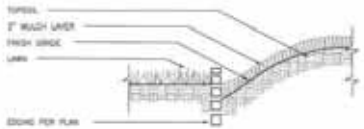
TREE PLANTING/STAKING DETAIL
NOT TO SCALE



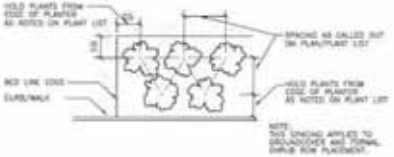
GRADING @ PARKING LOT PLANTERS DETAIL
NOT TO SCALE



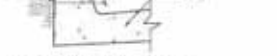
GROUNDCOVER PLANTING DETAIL
NOT TO SCALE



PLANTING BED ADJACENT TO LAWN DETAIL
NOT TO SCALE



PLANT MATERIAL SPACING DETAIL
NOT TO SCALE



MULCH AT CURB DETAIL
NOT TO SCALE

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT

APPROVED FOR CONSTRUCTION FOR THE CITY OF KIRKLAND

BY _____ DATE: _____

Approval Expires 180 Days from Above Date

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Title: LANDSCAPE PLANTING NOTES AND DETAILS

KIRKLAND, WA 98033
COSTCO WAREHOUSE #8

For: COSTCO WHOLESALE
GAS STATION ADDITION
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

Job Number: 6222
Sheet: L1.2 of 5

ENCLOSURE 4

LANDSCAPE IRRIGATION PLAN

LANDSCAPE IRRIGATION LEGEND

DESCRIPTION

SPRINKLER HEADS
RAINBIRD 1800-S-SAM-PRS POP-UP FOR SPRAY HEADS

SYMBOL	NOZZLE	PSI	GPM	PRECIP	RADIUS
	RAINBIRD 5 F, H, T, Q SERIES	30	0.41, 0.22, 0.13, 0.10	1.62	8'
	RAINBIRD 6 F, H, T, Q SERIES	30	1.05, 0.52, 0.35, 0.26	1.62	9'
	RAINBIRD 10 F, H, T, Q SERIES	30	1.36, 0.76, 0.53, 0.38	1.75	12'
	RAINBIRD 12 F, TQ, TT, H, T, Q SERIES	30	2.62, 1.95, 1.74, 1.30, 0.87, 0.65	2.01	13'
	RAINBIRD 15 F, TQ, TT, H, T, Q SERIES	30	3.70, 2.76, 2.46, 1.85, 1.23, 0.90	1.63	15'
	RAINBIRD 15 SST, 23T SERIES	30	1.21, 0.61	-	4'x30'/15'

RAINBIRD 100 PEB REMOTE CONTROL VALVE, IN VALVE BOX, ONE VALVE PER BOX

HUNTER MRC WIRELESS RAIN-CLIK WITH RECEIVER, COORDINATE LOCATION WITH OWNER AND GENERAL CONTRACTOR PRIOR TO INSTALLATION

EXISTING 3/4" IRRIGATION WATER METER, VERIFY LOCATION, SIZE, AND WORKING CONDITION PRIOR TO THE START OF ANY WORK

PROPOSED LOCATION FOR THE EXISTING RAINBIRD CONTROLLER, REWIRE AND WIRE ALL EXISTING AND NEW VALVES TO NEW LOCATION, VERIFY THAT EXISTING CONTROLLER WILL HANDLE 13 ADDITIONAL VALVE, IF NOT PROVIDE COST FOR NEW CONTROLLER TO HANDLE ALL EXISTING AND NEW VALVES

EXISTING RAINBIRD CONTROLLER TO BE RELOCATED AND REUSED AS INDICATED ON PLAN, VERIFY LOCATION, SIZE, AND WORKING CONDITION PRIOR TO THE START OF ANY WORK

EXISTING 3/4" BACKFLOW PREVENTION DEVICE TO REMAIN AND REUSE, VERIFY LOCATION, SIZE, AND WORKING CONDITION PRIOR TO THE START OF ANY WORK

RAINBIRD 44-LRC 1" QUICK COUPLING VALVE, IN VALVE BOX, PROVIDE (2) KEYS AND SWIVELS

PLASTIC BALL VALVE, MATCH LINE SIZE, IN VALVE BOX

P.O.C. TO EXISTING 1 1/4" PVC IRRIGATION MAINLINE AS INDICATED ON PLAN, VERIFY LOCATION, SIZE, AND WORKING CONDITION PRIOR TO THE START OF ANY WORK

P.O.C. TO EXISTING LATERAL LINE AS INDICATED ON PLAN, VERIFY LOCATION, SIZE, AND WORKING CONDITION PRIOR TO THE START OF ANY WORK

EXISTING MAINLINE – CLASS 200 PVC, 1 1/4" SIZE, VERIFY LOCATION, SIZE, AND WORKING CONDITION ON SITE PRIOR TO THE START OF ANY WORK, MODIFY AND EXTENDED AS INDICATED ON PLANS AND REQUIRED

MAINLINE – CLASS 200 PVC (18" COVER), 1 1/4" SIZE MINIMUM, TO BE CONNECTED TO EXISTING 1 1/4" MAINLINE AS INDICATED ON PLANS

LATERAL – CLASS 200 PVC (12" COVER), SIZE PER PLAN, 3/4" SIZE MINIMUM

SLEEVE – CLASS 160 (SDR-26) PVC, 24" MINIMUM COVER AT VEHICLE CROSSINGS, TWICE THE SIZE OF INSERT PIPE AND/OR WIRES, 4" SIZE MINIMUM

TYPICAL VALVE CALL-OUT
VALVE STATION NUMBER
VALVE GPM
VALVE SIZE

EXISTING LANDSCAPE AND IRRIGATION TO REMAIN, SAVE, AND PROTECT

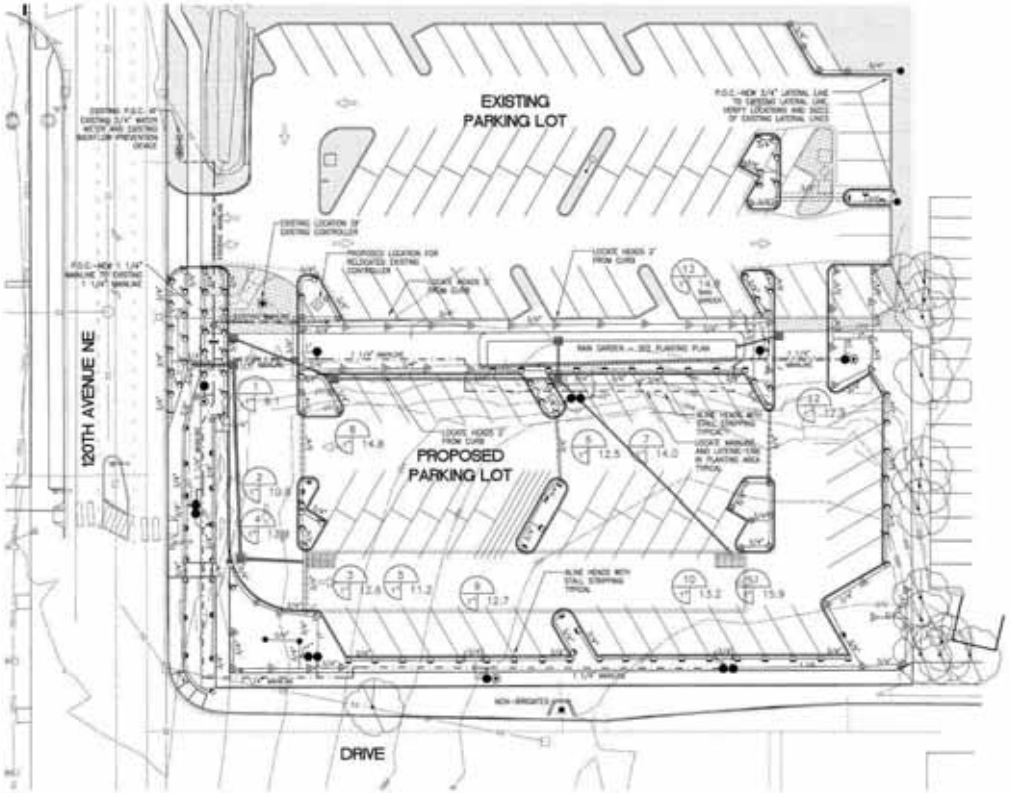
EXISTING TREE TO REMAIN, SAVE, AND PROTECT

EXISTING LANDSCAPE AND IRRIGATION TO BE REMOVED AND/OR MODIFIED, COORDINATE WITH SITE LANDSCAPE MAINTENANCE COMPANY, WAREHOUSE MANAGER AND GENERAL CONTRACTOR

IRRIGATION SHOWN DIAGRAMMATICALLY FOR PLAN CLARITY, COMMON TRENCH AND PLACE EQUIPMENT IN LANDSCAPE MINIMIZE GROUPED VALVES IN ALLEYWAY SIMILAR AREAS WHERE FEASIBLE

REPAIR AND/OR MODIFY EXISTING ZONES TO REMAIN AS REQUIRED BY NEW CONSTRUCTION

1"=20'



STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT

APPROVED FOR CONSTRUCTION FOR THE CITY OF KIRKLAND

BY: _____ DATE: _____

Approval Expires 180 Days from Above Date

Title: LANDSCAPE IRRIGATION PLAN

KIRKLAND, WA 98033
COSTCO WAREHOUSE #8

For: COSTCO WHOLESALE
GAS STATION ADDITION
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

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job number 6222

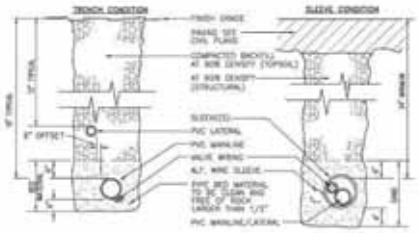
Sheet L2.1 of 5

ENCLOSURE 4

LANDSCAPE IRRIGATION NOTES AND DETAILS

LANDSCAPE IRRIGATION NOTES

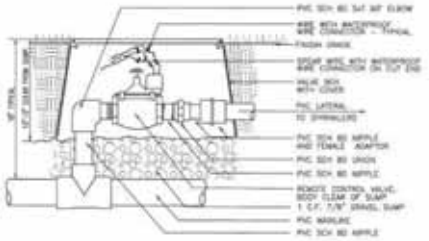
1. PROVIDE A COMPLETE, OPERABLE, AND AUTOMATIC MODIFICATION TO THE EXISTING IRRIGATION SYSTEM FOR ALL NEW LANDSCAPE AREAS (DEFINED ON THIS PLAN).
2. VISIT SITE AND VERIFY LOCATIONS OF ALL EXISTING IRRIGATION COMPONENTS AND COVERAGE PRIOR TO COMMENCEMENT OF WORK. PROMPTLY NOTIFY THE GENERAL CONTRACTOR OF ANY CONFLICTS OR OBSTRUCTIONS.
3. PROVIDE PROTECTION OF ALL PROPERTY, WORK IN PROGRESS, EXISTING LANDSCAPE AND EXISTING IRRIGATION SYSTEM. ALL DAMAGE CAUSED BY THE CONTRACTOR TO BE REPAIRED TO MATCH EXISTING CONDITIONS, BEFORE CONSTRUCTION, AT NO ADDITIONAL EXPENSE TO OWNER.
4. AT ALL TIMES MAINTAIN IN PROPER WORKING ORDER ALL EXISTING IRRIGATION SYSTEM THROUGHOUT CONSTRUCTION.
5. CONNECT NEW IRRIGATION COMPONENTS TO EXISTING IRRIGATION SYSTEM AS REQUIRED. USE EXISTING BACKFLOW ASSEMBLY, IRRIGATION WATER METER, MAINLINE, ETC. AS REQUIRED. SEE NOTE 25 BELOW.
6. REMOVE EXISTING IRRIGATION SYSTEM AND COMPONENTS, AS REQUIRED, PRIOR TO NEW CONSTRUCTION. CAP (WATER TIGHT) ALL MAINLINE, LATERALS, CONTROL WIRES, ETC., FOR MODIFICATION AND/OR RECONNECTION.
7. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND FEES AS REQUIRED BY APPLICABLE CODES AND ORDINANCES FOR THIS WORK. ALL WORK TO BE INSTALLED PER LOCAL CODE REQUIREMENTS AND MANUFACTURERS WRITTEN SPECIFICATIONS.
8. CONTRACTOR TO BE RESPONSIBLE FOR ANY AND ALL COORDINATION WITH GENERAL AND SUB-CONTRACTORS AS REQUIRED TO ACCOMPLISH THEIR WORK.
9. GENERAL CONTRACTOR AND LANDSCAPE CONTRACTOR TO COORDINATE AND PROVIDE:
   - A. 110v ELECTRICAL SERVICE FROM ELECTRICAL SOURCE TO AUTOMATIC CONTROLLER.
   - B. EXISTING IRRIGATION/SERVICE METER.
   - C. STATIC WATER PRESSURE AT POINT-OF-CONNECTION (P.O.C.) CONTRACTOR TO NOTIFY OWNER AND BARGHAUSEN CONSULTING ENGINEERS, INC., OF ANY VARIATION IN STATIC PRESSURE OVER 5 PSI GREATER/LESS THAN DESIGN PRESSURE.
   - D. INSTALLATION OF SLEEVING AS INDICATED ON PLANS.
10. WHERE SLEEVING IS REQUIRED ACROSS EXISTING ASPHALT, SAW CUT AND EXCAVATE A SMOOTH STRAIGHT, OVEN TRENCH. AFTER INSTALLATION OF THE PIPING AND/OR WIRING REPLACE WITH SPECIFIED MATERIAL AND COMPACT TO MINIMUM 95% MODIFIED PROCTOR METHOD. REPAIR ALL ASPHALT IN ACCORDANCE WITH CIVIL DRAWINGS, DETAILS, AND NOTES.
11. ALL WORK PER LOCAL CODES. INSTALLATION PER MANUFACTURER'S WRITTEN SPECIFICATIONS.
12. HEAD AND LINE POSITIONING IS DIAGRAMMATIC ON PLAN. ADJUST IN FIELD AS NECESSARY FOR ADEQUATE COVERAGE. VALVES TO BE POSITIONED ADJACENT TO CURBS, IN SHRUB BEDS WHERE POSSIBLE.
13. PROVIDE OWNER WITH TWO (2) SETS "AS-BUILT" DRAWINGS AND OPERATOR'S MANUAL UPON COMPLETION. DURING INSTALLATION OF THE WORK NOTE ANY LOCATIONS OF EXISTING IRRIGATION INFRASTRUCTURE AND CLEARLY NOTE ON NEW "AS-BUILT" DRAWINGS TO INCORPORATE ALL IRRIGATION ON THE SITE FOR OWNER'S INFORMATION AND USE.
14. FAMILIARIZE FACILITY OPERATOR WITH IRRIGATION SYSTEM FUNCTION, CONTROLLER PROGRAMMING, SYSTEM OPERATION AND MAINTENANCE REQUIREMENTS.
15. NO SPRINKLERS ON RISERS WILL BE ALLOWED.
16. ANTI-DRAIN VALVES TO BE INSTALLED AS NECESSARY TO PREVENT LOW-HEAD RUN-OFF.
17. ALL ELECTRICAL EQUIPMENT TO BE U.L. TESTED AND APPROVED, AND TO BEAR THE U.L. LABEL.
18. IRRIGATION SCHEDULING:
    COORDINATE IRRIGATION SCHEDULE WITH OWNER AND SITE LANDSCAPE MAINTENANCE COMPANY. COORDINATE NEW CONTROLLER TIMING WITH EXISTING CONTROLLER.
19. SUBSTITUTION OF IRRIGATION MATERIAL/EQUIPMENT TO BE MADE ONLY UPON WRITTEN APPROVAL OF OWNER'S REPRESENTATIVE.
20. ALL ZONES TO PROVE A MINIMUM DISTRIBUTION UNIFORMITY OF 62 PERCENT, AS TESTED THROUGH AN IRRIGATION ASSOCIATION CERTIFIED WATER AUDIT.
21. AFTER INSTALLATION THE NEW IRRIGATION SYSTEM RUN THE ENTIRE SYSTEM THROUGHOUT THE SITE TO MAKE SURE THAT THERE IS CONTINUITY TO ALL ZONES AND FLUSH THE ENTIRE SYSTEM TO ENSURE THERE ARE NO CONTAMINATES WHATSOEVER IN THE SYSTEM. DURING THE PUNCH LIST PERFORM THESE SAME OPERATIONS FOR REVIEW BY THE LANDSCAPE ARCHITECT AND OWNER.
22. REPAIR ALL NEW AND EXISTING LANDSCAPE AREAS DISTURBED BY IRRIGATION MODIFICATIONS TO EXISTING SYSTEM.
23. INCLUDE A $500.00 ALLOWANCE IN BID FOR REPAIR AND/OR REPLACEMENT OF EXISTING IRRIGATION. PROVIDE UNIT PRICES FOR INSTALLATION OF ADDITIONAL HEADS, PIPE, WIRE, AND VALVES.
24. IRRIGATION SYSTEMS ARE TO BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ALL STATE AND LOCAL APPLICABLE CODES AND STANDARDS AS OF THE APPROVED DATED OF THESE PLANS.
25. **IRRIGATION IMPROVEMENTS ARE BEING CONNECTED TO EXISTING OPERATING SYSTEM. NO NEW BACKFLOW DEVICE SPECIFIED CONTRACTOR TO INSPECT AND VERIFY EXISTING DEVICES FOR COMPLIANCE WITH CURRENT CODES. PROVIDE OWNER WITH SCOPE AND RELATED COSTS FOR NECESSARY UPGRADES.**
26. EXISTING CONDITION INFORMATION BASE ON WAREHOUSE "RECORD" DRAWINGS BY KEITHAN DESIGN GROUP DATED 05/11/91, 04/05/93, 04/30/04, AND 05/08/06.



NOTE:
DIMENSIONS ARE MINIMUM CLEARANCES.
ALL IRRIGATION SLEEVING TRENCH BACKFILL MATERIAL TO BE CLASS "B" OR BETTER SAND, OR FOR EXISTING NO-AC PAVEMENT, AND BE COMPACTED TO MIN. 95% OPTIMUM DENSITY PER ASTM D-1557-70 (MODIFIED PROCTOR).

SLEEVE/TRENCHING DETAIL

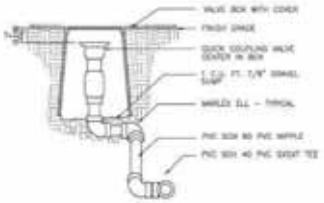
NOT TO SCALE



NOTE:
ONE VALVE PER BOX.
PROVIDE EXTRA COILS (18") OF EACH WIRE IN VALVE BOX.
COMPACT SOIL AROUND VALVE BOX.
USE TEFLON ON FLEXIBLE SEALANT IN ALL THREADED FITTINGS, PER MANUFACTURES SPECS.

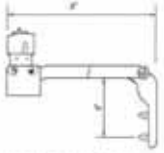
REMOTE CONTROL VALVE ASSEMBLY

NOT TO SCALE



QUICK COUPLING VALVE ASSEMBLY

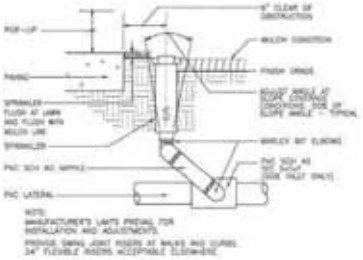
NOT TO SCALE



NOTE:
MOUNT ON WEATHER EXPOSED WALL 6" ABOVE GRADE.

RAIN SENSOR DETAIL (WALL MOUNT)

NOT TO SCALE



NOTE:
MANUFACTURER'S UNITS PREVAIL FOR INSTALLATION AND ADJUSTMENTS.
PROVIDE SWING JOINT RISERS AT VALVES AND CURBS.
24" FLEXIBLE RISERS ACCEPTABLE ELSEWHERE.

POP-UP RISER ASSEMBLY

NOT TO SCALE

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT

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KIRKLAND, WA 98033
COSTCO WAREHOUSE #8

For: COSTCO WHOLESALE
GAS STATION ADDITION
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

Scale: NOTED
Drawn: A.R.
Checked: A.R.
Approved: A.R.
Date: 8/13/07

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
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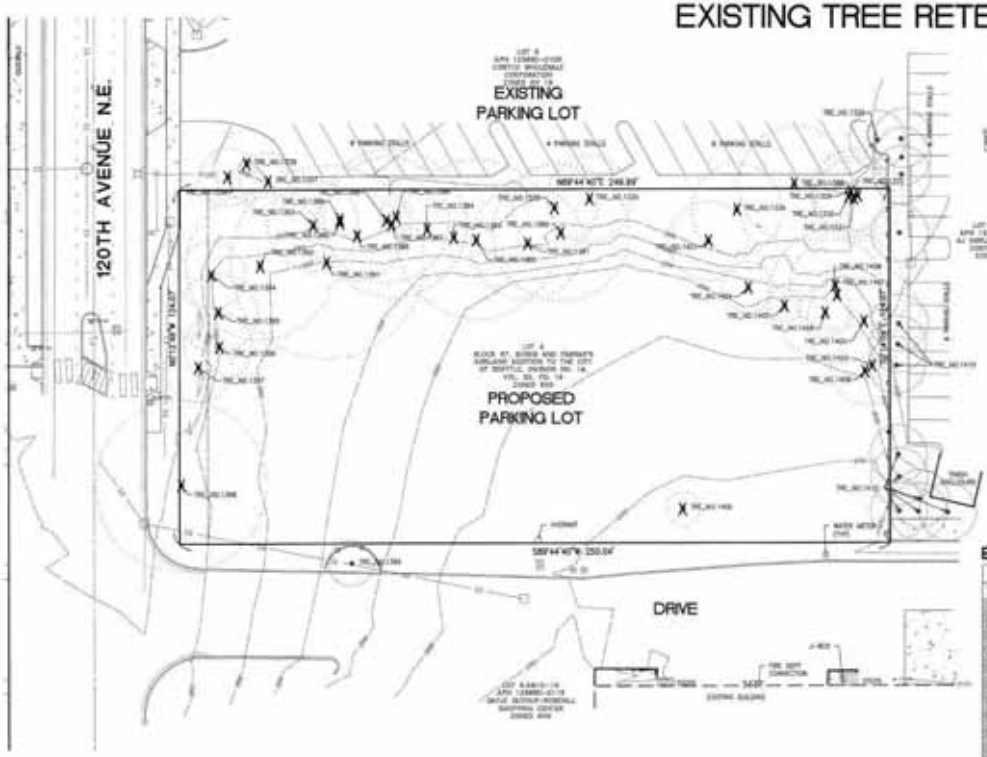
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Job Number: 6222
Sheet: L2.5

ENCLOSURE 4

EXISTING TREE RETENTION PLAN



EXISTING TREE LEGEND

SPECIES	COMMON NAME	SCIENTIFIC NAME
ABP/Pn	Austrian Black Pine,	Pinus nigra
AYC/Cn	Alaska Yellow Cedar,	Chamaecyparis nootkatensis
BCa/Pt	Black Cottonwood,	Populus trichocarpa
CH/Pap	Cherry, Prunus sp.	
D/Pm	Douglas Fir,	Pseudotsuga menziesii
FW/Pap	Flowering Pear,	Pyrus sp.
GNa/Fp	Green Ash,	Fraxinus pennsylvanica
HC/Ch	Horse Chestnut,	Aesculus hippocastanum
LC/SC	Laurel Cherry,	Cupressocyparis leyland
LP/Pb/T	Lombardy Poplar	Populus nigra 'Italica'
M/Ma	Maple Fir,	Abies procera
Pum/Pap	Plum	Prunus nigra 'Italica'
Rb/Ab	Red Alder,	Alnus rubra
Rm/Ar	Red Maple,	Acer rubrum
SC/Cs	Sawara Cypress,	Chamaecyparis pisifera
SM/Aa	Silver Maple,	Acer saccharinum
SP/Pa	Scotch Pine	Pinus sylvestris
WH/Th	Western Hemlock,	Tsuga heterophylla
WRC/Tp	Western Red Cedar	Thuja plicata

EXISTING TREE SCHEDULE

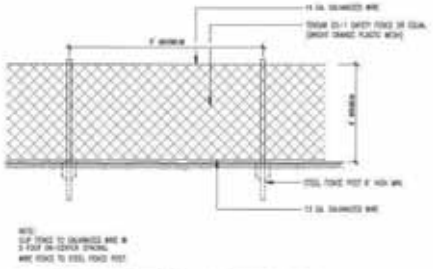
TREE LOCATION	TREE # SPECIES	DBH	DRIP LINE	LIMIT OF DISTURBANCE NORTH	SOUTH	EAST	WEST	DISPOSITIONS	CURRENT HEALTH RATING	PROPOSED TREE STATUS	COMMENTS
PARKING LOT NORTH OF SUBJECT PROPERTY	1203 Ma/Ca	8.0"	12'	12'	12'	TO SOUTH PROPERTY LINE	TO CURB	SIGNIFICANT	EXCELLENT	REMOVE	NOT SHOWN
PARKING LOT NORTH OF SUBJECT PROPERTY	1204 Ma/Ca	10.0"	14'	TO CURB	TO SOUTH PROPERTY LINE	TO SOUTH PROPERTY LINE	14'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
PARKING LOT NORTH OF SUBJECT PROPERTY	1205 Ma/Ca	8.0"	12'	TO CURB	TO SOUTH PROPERTY LINE	TO SOUTH PROPERTY LINE	12'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
PARKING LOT NORTH OF SUBJECT PROPERTY	1207 Ma/Ca	8.0"	14'	TO CURB	TO SOUTH PROPERTY LINE	TO SOUTH PROPERTY LINE	14'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
PARKING LOT NORTH OF SUBJECT PROPERTY	1208 Ma/Ca	10.0"	14'	TO CURB	TO SOUTH PROPERTY LINE	TO SOUTH PROPERTY LINE	14'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
PARKING LOT NORTH OF SUBJECT PROPERTY	1209 Ma/Ca	13.0"	20'	TO CURB	TO SOUTH PROPERTY LINE	TO SOUTH PROPERTY LINE	20'	SIGNIFICANT	EXCELLENT	REMOVE	NOT SHOWN
PARKING LOT NORTH OF SUBJECT PROPERTY	1210 Ma/Ca	10.0"	14'	TO CURB	TO SOUTH PROPERTY LINE	TO SOUTH PROPERTY LINE	14'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
PARKING LOT NORTH OF SUBJECT PROPERTY	1212 Ma/Ca	26.0"	31'	TO CURB	TO SOUTH PROPERTY LINE	31'	31'	SIGNIFICANT	VERY GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
PARKING LOT NORTH OF SUBJECT PROPERTY	1213 Ma/Ca	9.1"	12'	TO CURB	TO SOUTH PROPERTY LINE	12'	12'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
PARKING LOT NORTH OF SUBJECT PROPERTY	1217 Ma/Ca	8.1"	12'	TO CURB	TO SOUTH PROPERTY LINE	TO CURB	12'	SIGNIFICANT	GOOD	REMOVE	NOT SHOWN
PARKING LOT NORTH OF SUBJECT PROPERTY	1218 Ma/Ca	9.0"	12'	TO CURB	TO SOUTH PROPERTY LINE	TO CURB	12'	SIGNIFICANT	GOOD	REMOVE	NOT SHOWN
PARKING LOT NORTH OF SUBJECT PROPERTY	1219 Ma/Ca	9.0"	12'	TO CURB	TO SOUTH PROPERTY LINE	TO CURB	12'	SIGNIFICANT	GOOD	REMOVE	NOT SHOWN
NORTH SIDE	1220 Ma/Ca	26.0"	31'	TO CURB TO PARKING LOT	31'	31'	31'	SIGNIFICANT	VERY GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1221 Ma/Ca	11.0"	14'	TO CURB TO PARKING LOT	14'	14'	14'	SIGNIFICANT	VERY GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1222 Ma/Ca	14.0"	18'	CURB	18'	18'	18'	SIGNIFICANT	VERY GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1223 Ma/Ca	8.0"	12'	12'	12'	12'	12'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1224 Ma/Ca	7.0"	12'	12'	12'	12'	12'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1225 Ma/Ca	8.0"	14'	14'	14'	14'	14'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1226 Ma/Ca	8.0"	8'	8'	8'	8'	8'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1228 Ma/Ca	9.0"	12'	12'	12'	12'	12'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1229 Ma/Ca	10.0"	14'	14' TO NORTH PROPERTY LINE	14'	14'	14'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1230 Ma/Ca	21.0"	25'	TO NORTH PROPERTY LINE	25'	25'	25'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1231 Ma/Ca	21.0"	25'	25'	TO NORTH PROPERTY LINE	TO WALK	25'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1232 Ma/Ca	22.0"	26'	26'	26'	26'	TO SIDEWALK	SIGNIFICANT	VERY GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1234 Ma/Ca	11.0"	12'	12'	12'	12'	TO SIDEWALK	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
WEST SIDE	1236 Ma/Ca	8.0"	12'	12'	12'	12'	TO SIDEWALK	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
WEST SIDE	1237 Ma/Ca	8.0"	14'	14'	14'	14'	TO SIDEWALK	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
WEST SIDE	1238 Ma/Ca	9.1"	12'	12'	12'	12'	12'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
WEST SIDE	1239 Ma/Ca	9.1"	12'	12'	12'	12'	TO SIDEWALK	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
WEST SIDE	1240 Ma/Ca	22.0"	26'	26'	TO SOUTH PROPERTY LINE	26'	TO SIDEWALK	SIGNIFICANT	VERY GOOD	REMOVE	
SOUTH PROPERTY LINE	1256 LP/Pn/T	12.0"	8'	8'	TO SOUTH PROPERTY LINE	8'	8'	SIGNIFICANT	EXCELLENT	REMOVE	NOT SHOWN
SOUTH PROPERTY LINE	1442 LC/SC	8.1"	8'	8'	8'	8'	8'	SIGNIFICANT	EXCELLENT	REMOVE	PROPOSED CONSTRUCTION AREA
NORTH SIDE	1443 Pun/Pap	8.0"	12'	TO NORTH PROPERTY LINE	12'	12'	12'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1462 Ma/Ca	26.0"	22'	22'	22'	TO EAST PROPERTY LINE	22'	SIGNIFICANT	VERY GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1463 Ma/Ca	11.0"	14'	14'	14'	TO EAST PROPERTY LINE	14'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1464 Ma/Ca	5.0"	8'	8'	8'	8'	8'	NOT SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1465 Ma/Ca	10.1"	8'	8'	8'	8'	8'	SIGNIFICANT	EXCELLENT	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1466 Ma/Ca	6.1"	8'	8'	8'	8'	8'	NOT SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1467 Ma/Ca	16.1"	21'	21'	21'	TO EAST PROPERTY LINE	21'	SIGNIFICANT	VERY GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1468 Ma/Ca	12.0"	16'	16'	16'	TO EAST PROPERTY LINE	16'	SIGNIFICANT	FAIR	REMOVE	PROPOSED CONSTRUCTION AREA
LOT PROPERTY	1469 Ma/Ca	7.1	12'	12'	12'	TO EAST PROPERTY LINE	12'	SIGNIFICANT	GOOD	REMOVE	PROPOSED CONSTRUCTION AREA
EAST OF THE EAST PROPERTY LINE	1470 Rm/Ar & Sawa Pine	8.0" - 9.0"	10'	N/A	N/A	N/A	10' WEST OF THE EAST PROPERTY LINE	SIGNIFICANT	EXCELLENT	REMOVE	NOT SHOWN

EXISTING TREE RETENTION LEGEND

SYMBOL	DESCRIPTION	REMARKS
TRC_No.1111	EXISTING TREE CALL-OUT OF TREE TO REMAIN	SEE EXISTING TREE RETENTION SCHEDULES THIS SHEET
TRC_No.1111	EXISTING TREE CALL-OUT OF TREE TO BE REMOVED	SEE EXISTING TREE RETENTION SCHEDULES THIS SHEET
●	EXISTING TREE	TO REMAIN, SAVE, AND PROTECT
X	EXISTING TREE	TO BE REMOVED
	EXISTING TREE DRIPLINE OF TREE TO REMAIN	TO BE PROTECTED
	EXISTING TREE DRIPLINE OF TREE TO BE REMOVED	
	DENOTES EXISTING TREE TO BE REMOVED	AS SHOWN ON TREE SCHEDULE SHEET L3.2
X	DENOTES EXISTING NON-SIGNIFICANT TREE	AS SHOWN ON TREE SCHEDULE SHEET L3.2
#	DENOTES EXISTING TREE TO BE REMOVED DUE TO POOR HEALTH CONDITIONS	AS SHOWN ON TREE SCHEDULE SHEET L3.2
	EXISTING TREE PROTECTION FENCE	SEE THIS SHEET BELOW FOR DETAIL

NOTE:

1. EXISTING TREE LOCATION INFORMATION IS BASED ON SITE TREE SURVEY BY BARGHAUSEN CONSULTING ENGINEERS, INC. DATED AUGUST 20, 2011, BCE JOB NUMBER 6222.
2. EXISTING TREE EVALUATION INFORMATION IS BASED ON EVALUATION OF TREES AT THE SUNSUP PROPERTY 120TH AVENUE NE KIRLAND WA. - COSTCO PARKING LOT BY GALES CONSULTING ARBORIST, DATED AUGUST 20, 2011.



EXISTING TREE PROTECTION FENCING DETAIL

NOT TO SCALE

Title: EXISTING TREE RETENTION PLAN
KIRKLAND, WA 98033
COSTCO WAREHOUSE #6

For: COSTCO WHOLESALE
GAS STATION ADDITION
999 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027

Scale: 1"=20'

Job Number: 6222

Sheet: L3.1 5

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SERVICES

Enclosure 9

ENCLOSURE 4

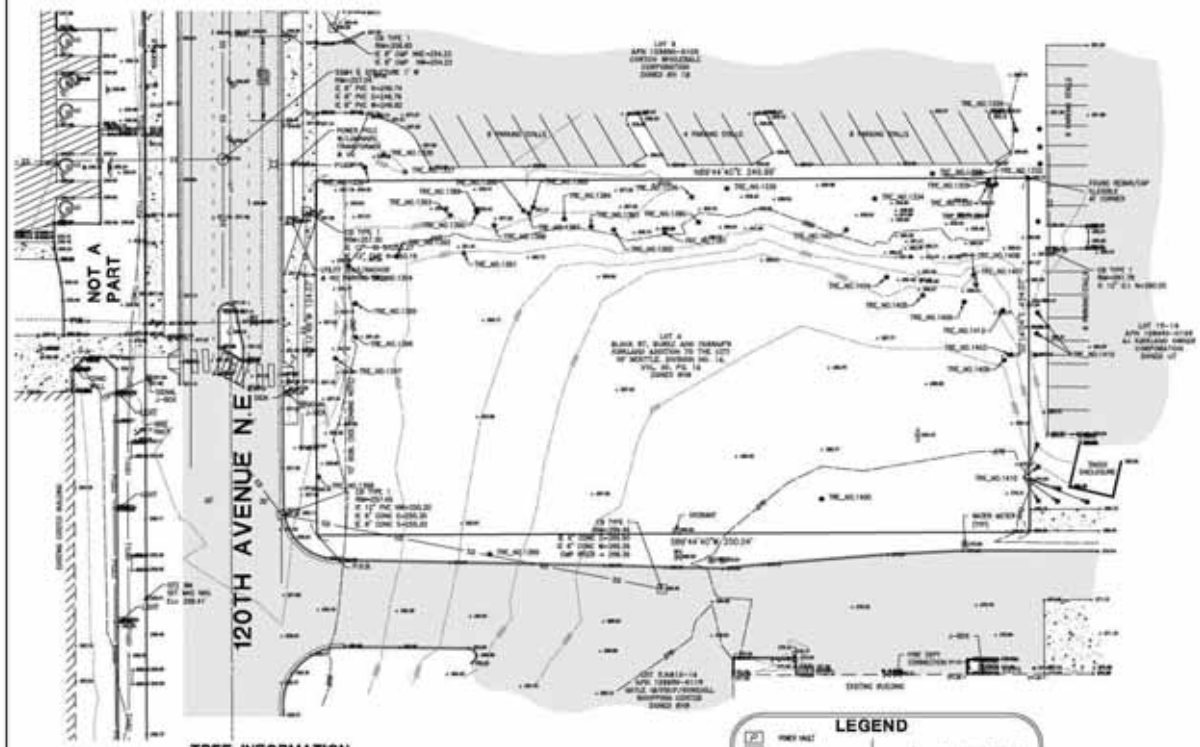
ALTA / ACSM LAND TITLE SURVEY

A PORTION OF NE1/4 OF THE SW1/4 OF SECTION 4, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M. CITY OF KIRKLAND, KING COUNTY, WASHINGTON

SURVEYOR NOTES & BOUNDS LEGAL DESCRIPTION

LOT A, BLOCK 27, BURKE AND FARRAR'S KIRKLAND ADDITION TO THE CITY OF SEATTLE, DIVISION NO. 14, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 20 OF PLATS, PAGE 14, IN KING COUNTY, WASHINGTON, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID LOT A;
THENCE NORTH 00°12'40" WEST, 124.07 FEET ALONG THE WEST LINE OF SAID LOT A TO THE NORTHWEST CORNER OF SAID LOT A;
THENCE NORTH 89°44'40" EAST, 249.98 FEET ALONG THE NORTH LINE OF SAID LOT A TO THE NORTHEAST CORNER OF SAID LOT A;
THENCE SOUTH 00°14'54" EAST, 124.07 FEET ALONG THE EAST LINE OF SAID LOT A TO THE SOUTHEAST CORNER OF SAID LOT A;
THENCE SOUTH 89°44'40" WEST, 250.04 FEET ALONG THE SOUTH LINE OF SAID LOT A TO THE TRUE POINT OF BEGINNING.



SURVEYOR'S CERTIFICATION

TO: COSTCO WHOLESALE CORPORATION AND FIRST AMERICAN TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2-7, 11(b), 13, 16 AND 17 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED IN AUGUST, 2011.

DATE OF PLAT OR MAP: SEPTEMBER 2, 2011

9/02/2011
DATE

TRAVIS S. LANDRUM
WASHINGTON REGISTRATION NO. 45788

SURVEY INFORMATION

BASIS OF BEARING: NAD83/91 NORTH (GRID/ARCC) – PER CITY OF KIRKLAND

THE BASIS OF BEARING IS THE BEARING BETWEEN CITY OF KIRKLAND CONTROL POINT #27 AND POINT #31, TRACK #3, NORTH 42° 28' 00" EAST, USING THE NORTH AMERICAN DATUM OF 1983 – NAD 83 (NA) CITY OF KIRKLAND – WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE.

VERTICAL DATUM– NAVD88 (CITY OF KIRKLAND)
NORTH AMERICAN VERTICAL DATUM OF 1988 PER CITY OF KIRKLAND.

ESTABLISHED BY HOLDING CITY OF KIRKLAND ST AND WORKING TO CITY OF KIRKLAND 31 WITH AN ORDER OF CLOSURE 0.02
ELEV. OF CITY OF KIRKLAND 31: 215.767 FEET

PROCEDURE / NARRATIVE:
A FIELD TRAVERSE USING A "TRIMBLE M6DR" ROBOTIC TOTAL STATION, AND TSC1 MAGNET DATA COLLECTOR SUPPLEMENTED WITH FIELD NOTES WAS PERFORMED, ESTABLISHING THE ANGULAR, DISTANCE, AND VERTICAL RELATIONSHIPS BETWEEN THE MONUMENTS, PROPERTY LINES, AND TOPOGRAPHIC FEATURES AS SHOWN HEREON. A "2030 M+DR" AUTOMATIC LEVEL WAS USED TO CHECK AND ESTABLISH THE ELEVATION OF BENCHMARKS AND CONTROL POINTS. THE RESULTING DATA MEETS OR EXCEEDS THE STANDARDS FOR LAND BOUNDARY SURVEYS AS SET FORTH IN WAC 332-130-090.

TAX PARCEL NUMBER:
1255049-010-08

ZONING INFORMATION: ZONED RM-3.6 PER KIRKLAND ZONING MAP, MARKED 8/17/2011. SETBACK AND DEVELOPMENT STANDARDS ARE DEPENDENT UPON USE PLACED UPON THE PROPERTY. ZONING CODE SHOULD BE REFERRED TO DETERMINE APPROPRIATE STANDARDS.

FLOOD ZONE INFORMATION: FEMA PRELIMINARY FIRM MAP PANEL 575 OF 1750, MAP NO. 53033C0575H (KING COUNTY PRELIMINARY), DOWNLOADED 8/5/2011 FROM HTTP://FEMAMAPS.SAFER.GOV/SAFER/ASPX/INDEX.ASPX?MODE=AOI&FLOODING&MAPTOOL/FLOOD-INSURANCE-RATE-MAPS/FLOODZONE/MAP
– ZONE X "AREA DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN

CALCULATED LAND AREA:
21591 ± SQUARE FEET (0.7123 ACRES)

NOTES:
1. ALL DISTANCE SHOWN UPON THE FACE OF THIS SURVEY ARE IN US SURVEY FEET.
2. UNDERGROUND UTILITY LOCATES WERE NOT PERFORMED AS PART OF THE SURVEY AND SALVES ARE SHOWN BASED UPON SURFACE OBSERVATIONS.

DATES OF SURVEYS:
FIELD SURVEYS BY MIRKAMDEH CHANGCHAI ENGINEERS, INC. CONDUCTED IN AUGUST, 2011.

TITLE INFORMATION:
FIRST AMERICAN TITLE INSURANCE COMPANY ORDER NO. NCS-436603-WA1, DATED JULY 08, 2011, OF 2.00 AM, WAS RELIED UPON FOR TITLE INFORMATION AND SUPPORTING DOCUMENTS. PLEASE REFER TO THE TITLE REPORT FOR ADDITIONAL INFORMATION REGARDING FINANCIAL MATTERS BEYOND THE SCOPE OF THIS SURVEY.

LEGAL DESCRIPTION:

LOT A, BLOCK 27, BURKE AND FARRAR'S KIRKLAND ADDITION TO THE CITY OF SEATTLE, DIVISION NO. 14, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 20 OF PLATS, PAGE 14, IN KING COUNTY, WASHINGTON.

SPECIAL EXCEPTIONS

1. NOT APPLICABLE TO BE SHOWN ON SURVEY.
2. A LEASE DATED JULY 23, 1986, EXECUTED BY MOHRO CENTER ROAD PARTNERSHIP, A CALIFORNIA GENERAL PARTNERSHIP AS LESSOR AND WAREHOUSE "EXCITE CO., INC., A MISSISSIPPI CORPORATION AS LESSEE, FOR A TERM OF 10 YEARS RECORDED AUGUST 4, 1986 AS RECORDING NO. 8608040705 OF OFFICIAL RECORDS.

   SAID LEASE, AMONG OTHER THINGS PROVIDES FOR AN OPTION TO RENEW FOR A PERIOD OF 2 CONSECUTIVE TERMS OF 5 YEARS EACH.

   DOCUMENT(S) DESCRIBING MODIFICATIONS THEREOF RECORDED AUGUST 4, 1986, DECEMBER 14, 2006 AND DECEMBER 13, 2006 AS RECORDING NOS. 8608040706, 20061214000386 AND 20061213001338 OF OFFICIAL RECORDS.
   (NOT PLOTTABLE)
3. CONDITIONS, NOTES, EASEMENTS, PROVISIONS CONFIRMED AND/OR DELINEATED ON THE FACE OF THE SURVEY RECORDED JULY 25, 2006 UNDER RECORDING NO. 20060725000506, IN VOLUME 138 OF SURVEYS, AT PAGE(S) 36, IN KING COUNTY, WASHINGTON
   (DOES NOT CREATE ANY ENCUMBRANCES UPON SUBJECT PROPERTY)
4. ANY RIGHT, TITLE OR INTEREST OF ROSEWALL SHOPPING CENTER, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY, AS DISCLOSED BY THE INSTRUMENT RECORDED DECEMBER 14, 2006 AND DECEMBER 13, 2006 AS RECORDING NOS. 20061214000386 AND 20061213001338 OF OFFICIAL RECORDS
   (NOT PLOTTABLE)
5. CONDITIONS, NOTES, EASEMENTS, PROVISIONS CONFIRMED AND/OR DELINEATED ON THE FACE OF THE SURVEY RECORDED FEBRUARY 22, 2008 UNDER RECORDING NO. 20080229900004, IN VOLUME 241 OF SURVEYS, AT PAGE(S) 5, IN KING COUNTY, WASHINGTON
   (DOES NOT CREATE ANY ENCUMBRANCES UPON SUBJECT PROPERTY)
6. TERMS, CONDITIONS, PROVISIONS, AND OBLIGATIONS OF THE PARTNERSHIP AGREEMENT OF MOHRO CENTER ROAD PARTNERSHIP, A CALIFORNIA PARTNERSHIP. A COPY OF THE CURRENT AGREEMENT AND ANY AMENDMENTS MUST BE SUBMITTED PRIOR TO CLOSING. ANY CONVEYANCE OR ENCUMBRANCE OF THE PARTNERSHIP PROPERTY MUST BE EXECUTED BY ALL OF THE GENERAL PARTNERS.
   (NOT PLOTTABLE)
7. MATTERS WHICH MAY BE DISCLOSED BY A SEARCH OF THE RECORDS AGAINST THE NAME(S) OF THE GENERAL/MANAGING PARTNER(S) OF THE PARTNERSHIP NAMED BELOW, PROVIDED THAT MATTERS REFERENCE PARTNERSHIP DESIGNATING
   PARTNERSHIP: MOHRO CENTER ROAD PARTNERSHIP, A CALIFORNIA PARTNERSHIP
   (GENERAL EXCEPTION– NOT PLOTTABLE)
8. UNRECORDED LEASEHOLDS, IF ANY, RIGHTS OF VENDORS AND SECURITY ON PERSONAL PROPERTY AND RIGHTS OF TENANTS, AND SECURED PARTIES TO REMOVE TRADE FIXTURES AT THE EXPIRATION OF THE TERM.
   (GENERAL EXCEPTION– NOT PLOTTABLE)

TREE INFORMATION

TREE LOCATION	TREE	SPECIES	DBH
SURVEY PROPERTY NORTH SIDE	1361	BOW/TT	28.2"
SURVEY PROPERTY NORTH SIDE	1361	BOW/TT	21.4"
SURVEY PROPERTY NORTH SIDE	1362	BOW/TT	42.6"
SURVEY PROPERTY NORTH SIDE	1363	BN/NW	6.0"
SURVEY PROPERTY NORTH SIDE	1364	BN/NW	7.8"
SURVEY PROPERTY NORTH SIDE	1365	BOW/TT	6.0"
SURVEY PROPERTY NORTH SIDE	1366	BOW/TT	18.1"
SURVEY PROPERTY NORTH SIDE	1367	BOW/TT	22.6"
SURVEY PROPERTY NORTH SIDE	1368	BN/TW	8.0"
SURVEY PROPERTY NORTH SIDE	1369	BN/NW	8.0"
SURVEY PROPERTY NORTH SIDE	1370	CO/NW	5.0"
SURVEY PROPERTY NORTH SIDE	1371	BOW/TT	20.0"
SURVEY PROPERTY NORTH SIDE	1372	BOW/TT	20.2"
SURVEY PROPERTY NORTH SIDE	1373	BN/NW	12.0"
SURVEY PROPERTY NORTH SIDE	1374	BN/NW	8.0"

TREE LOCATION	TREE	SPECIES	DBH
SURVEY PROPERTY WEST SIDE	1375	BL/NW	8.0"
SURVEY PROPERTY WEST SIDE	1376	BL/NW	8.1"
SURVEY PROPERTY WEST SIDE	1377	CO/TSP	8.1"
SURVEY PROPERTY WEST SIDE	1378	BOW/TT	22.7"
SURVEY PROPERTY SOUTH SIDE			
SURVEY PROPERTY SOUTH SIDE	1379	CF/PN T	10.2"
SURVEY PROPERTY SOUTH SIDE	1400	F/PN T	8.1"
SURVEY PROPERTY NORTH SIDE	1401	PU/AN/TSP	8.4"
SURVEY PROPERTY EAST PROPERTY LINE	1402	BOW/TT	28.8"
SURVEY PROPERTY EAST PROPERTY LINE	1403	BOW/TT	11.1"
SURVEY PROPERTY EAST PROPERTY LINE	1404	BOW/TT	5.0"
SURVEY PROPERTY EAST PROPERTY LINE	1405	BOW/TT	19.1"
SURVEY PROPERTY EAST PROPERTY LINE	1406	BOW/TT	6.7"
SURVEY PROPERTY EAST PROPERTY LINE	1407	BOW/TT	18.1"
SURVEY PROPERTY EAST PROPERTY LINE	1408	BN/NW	10.0"

TREE LOCATION	TREE	SPECIES	DBH
SURVEY PROPERTY EAST PROPERTY LINE	1409	BOW/TT	7.4"
SURVEY PROPERTY EAST PROPERTY LINE OF THE EAST PROPERTY ZONE	1410	BOW (2 IN SHOW TRNK)	6" – 8"

TREE CONTRACTOR

SPECIES	COMMON NAME	SCIENTIFIC NAME
ABP/Pn	Austrian Black Pine	Pinus nigra
ATC/Cn	Alaska Yellow Cedar	Chamaecyparis nootkatensis
BCo/Pt	Black Cottonwood	Populus trichocarpa
DF/Pm	Douglas Fir	Pseudotsuga menziesii
EPc/Pyc	Flowering Pear	Pyrus sp.
GAN/Fp	Green Ash	Fraxinus pennsylvanica
LC/KO	Lawson Cypress	Cupressocyparis lawsonii
NF/Np	Noble Fir	Abies procera
NA/Na	Red Alder	Alnus rubra
RM/Ar	Red Maple	Acer rubrum
SC/Cs	Sawara Cypress	Chamaecyparis pisifera
SM/Ns	Silver Maple	Acer saccharinum
WH/Th	Western Hemlock	Tsuga heterophylla
WRC/Ap	Western Red Cedar	Thuja plicata

LEGEND

POWER VAULT
TELEPHONE VAULT
WATER VALVE
GREEN LIGHT
LIGHT LIGHT
POWER METER
POWER POLE
GUY WIRE
TRAFFIC SIGNAL
PEDESTRIAN PUSH BUTTON
JUNCTION BOX
TELEPHONE MANHOLE
CATCH BASIN (TYP)
STORM MANHOLE (STMH)
SANITARY SEWER MANHOLE (SSMH)
SANITARY SEWER CLEANOUT (SSCO)
GAS METER
GAS VALVE
WATER VALVE (WV)
FIRE CONNECTION
FIRE HYDRANT (FH)
WATER MANHOLE
WATER METER
SIGN
SURVEY MONUMENT (AS NOTED)
FOUND SOLDIER/NAIL (SNAIL)
FOUND REBAR/CAP
ASPHALT
CONCRETE
GRAVEL
SANITARY SEWER LINE
STORM DRAINAGE LINE
CHAIN LINK FENCE
WOOD FENCE
GUY FENCE
WATER LINE
WATER LINE (PARTIALLY)
GAS LINE (PARTIALLY)
TELEPHONE LINE (PARTIALLY)
POWER LINE (PARTIALLY)
DRAINAGE POWER LINES
DECIDUOUS TREE

NOTE: NOT ALL SYMBOLS WILL APPEAR IN THE DRAWING

Title: ALTA / ACSM LAND TITLE SURVEY
A PORTION OF THE NE1/4 OF THE SW1/4, SEC. 6, TOWNSHIP 25 NORTH, RANGE 5 EAST, W.M.
CITY OF KIRKLAND, KING COUNTY, WA

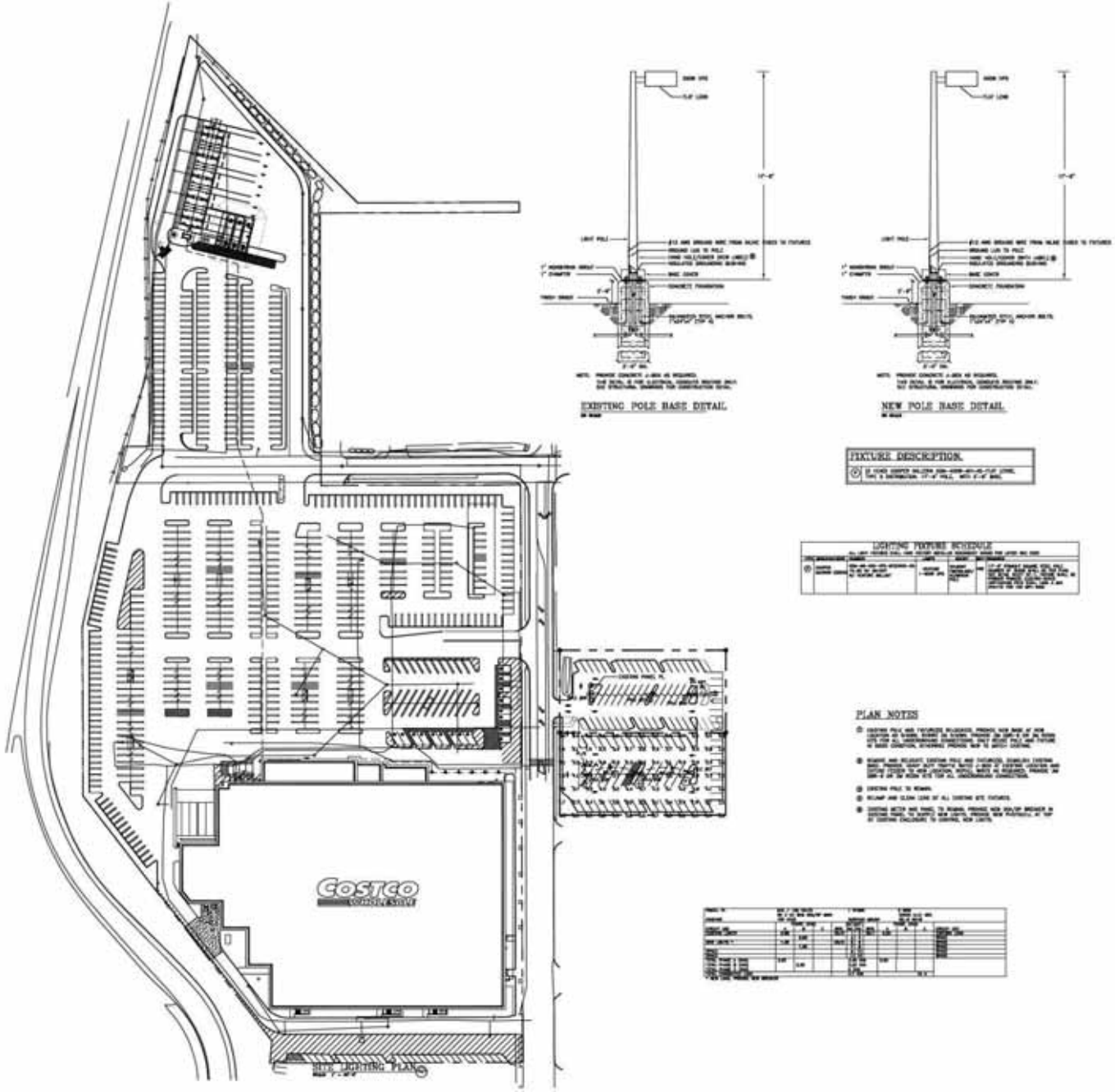
For: COSTCO WHOLESALE CORPORATION
999 LAKE DRIVE
ISSAQUAH, WA 98027

BARGHAUSEN CONSULTING ENGINEERS
18215 72ND AVENUE SOUTH
KENT, WA 98032
(425)251-6222
(425)251-8782 FAX
CIVIL ENGINEERING, LAND PLANNING, SURVEYING, ENVIRONMENTAL SCIENCES

Job Number: 6222
Sheet: 1

Enclosure 10

ENCLOSURE 4


EXISTING POLE BASE DETAIL
NEW POLE BASE DETAIL
FIXTURE DESCRIPTION
LIGHTING FIXTURE SCHEDULE
PLAN NOTES
COSTCO
SITE LIGHTING PLAN
SITE LIGHTING PLAN CUTNUP PARCEL
COSTCO WHOLESALE
GAS STATION
WAREHOUSE #008
8629 120TH AVE NE
KIRKLAND, WA 98033
T.E., Inc.
SE-2

Enclosure 11

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Gilles Consulting
Brian K. Gilles
425-822-4994

ENCLOSURE 4

Evaluation of Trees
AT

The Guynup Property
On 120th Avenue NE
Kirkland, WA 98033

August 20, 2011

PREPARED FOR:

Costco Wholesale Corporation
Kim Katz, Director of Real Estate Development
999 Lake Drive
Issaquah, WA 98027

PREPARED BY:

GILLES CONSULTING
Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
PNW-ISA Certified Tree Risk Assessor #148

fax: 425-822-6314
email: bkgilles@comcast.net
P.O. Box 2366 Kirkland, WA 98083

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EXECUTIVE SUMMARY

Significance:	
Non-Significant:	3
Significant:	28
Total # of Trees:	**31**

Viability:	
Non-Viable *:	5
Viable:	26
Total # of Trees:	31

ASSIGNMENT

Kim Katz, Director of Real Estate Development for Costco Wholesale Corporation contracted with Gilles Consulting to evaluate the trees at the Guynup property 120th Avenue NE in Kirkland, Washington. The property is being considered for re-development to convert the land into a parking lot. The City of Kirkland requires an analysis of the trees as part of the permit process. This report provides the required analysis. The information in this report can be utilized to create a Tree Plan as required by Chapter 95 of the Kirkland Code.

METHODOLOGY

To evaluate the trees and to prepare the report, I drew upon my 30+ years of experience in the field of arboriculture and my formal education in natural resources management, dendrology, forest ecology, plant identification, and plant physiology. I also followed the protocol of the International Society of Arboriculture (ISA) for Visual Assessment (VA) that includes looking at the overall health of the trees as well as the site conditions. This is a scientifically based process to look at the entire site, surrounding land and soil, as well as a complete look at the trees themselves.

In examining each tree, I looked at such factors as: size, vigor, canopy and foliage condition, density of needles, injury, insect activity, root damage and root collar health, crown health, evidence of disease-causing bacteria, fungi or virus, dead wood and hanging limbs.

Tree Tags

The trees were tagged and numbered 1380 through 1410. The tags are made of shiny aluminum approximately one inch by three inches in size and are attached to the tree with staples and a one foot strip of brightly colored survey tape. The tags were placed as high

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as possible to minimize their removal and were generally placed on the backsides of the trees as inconspicuously as possible. Please refer to *Attachment 1, General Site Sketch/Site Plan* for an orientation to the site and the approximate location of the trees.

OBSERVATIONS

The property is adjacent to the east employee parking lot that currently exists east of 12th Avenue NE. Currently the property is vacant of improvements. It is covered with at scattering of trees, grasses, and Himalayan Blackberries.

There is an elevation gain going south to the main level of the Guynup property. The Guynup property meets the alley/parking lane to the south at close to grade. The Guynup property drops off to the west to the sidewalk along 120th Avenue NE and to the adjacent property to the east.

In an effort to present the information and conclusions for each tree in a manner that is clear and easy to understand, as well as to save paper, I have included a detailed spreadsheet, *Attachment 2, Tree Inventory/Condition Spreadsheet*. All the same information from the ISA Tree Hazard Form is included in this spreadsheet and the attached glossary. The descriptions on the spreadsheet were left brief in order to include as much pertinent information as possible and to make the report manageable. The attached glossary provides a detailed description of the terms used in the spreadsheet and in this report. It can be found in *Attachment 3, Glossary*. A brief review of these terms and descriptions will enable the reader to rapidly move through the spreadsheet and better understand the information.

Additional Testing

None of the trees presented symptoms or signs that would indicate internal decay or structural defects. Therefore, no additional tests were performed during this site visit.

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Right-of-Way Trees

There are no right-of-way trees observed adjacent to the Guynup property.

Trees on Adjacent Properties

On the east, beginning at the southeast property corner and extending north, are a row of 9 Shore Pines in the adjacent planter bed. Their canopies overhang the subject property by less than three feet. They can be adequately retained with tree protection fencing/limits of disturbance fencing installed at the 5-foot property setback.

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Trees on the Subject Property

There are 30 trees on the subject property that are *Significant* in size or close to that size that were measured, evaluated, and documented. Three are less than 6 inches in diameter measured at the standard 4.5 feet above the average ground level and are therefore, *Non-Significant*. However, they are *Viable* and worthy of retention if development plans and permit requirements allow. The *Non-Significant Trees* are #'s *139*0, 1404, & 1406.

The remaining 27 trees are *Significant.* However, 5 of these are *Non-Viable* due to disease, insect infestations, structural defects, a lack of wind-firmness, or a combination of these factors. The five *Non-Viable Trees* are #'s 1383, 1385, 1389, 1391, & 1393. The remaining 25 trees have the health, vigor, and stored reserves to be able to withstand the stresses of construction and survive long term.

However, since the property is going to be re-developed into a parking lot, I assume all of the interior trees will need to be removed to accommodate parking and infrastructure installation. In addition, there are several Black Cottonwood trees on the property. A few of these have already attained a large stature.

A Note About Black Cottonwood Trees

Black Cottonwood trees are one of the trees known as "primary cultivators" by forest ecologists. These trees fill the ecological niche of colonizing an area after disturbance such as forest fire, logging, or construction. The Black Cottonwood's natural history is to grow very fast and very large. They reproduce profusely. They have a short lifespan compared to other trees—sixty to eighty years is considered an average lifespan for Black Cottonwood trees. Also, because so much energy is placed into rapid growth and reproduction, these trees tend to be more brittle and have inadequate immune response systems compared to other species. This results in Black Cottonwood trees being prone to failure in adverse weather conditions, being susceptible to several kinds of root disease, and even losing large limbs on hot summer days when little or no wind is present. Once disturbed, Black Cottonwood trees are highly susceptible to root disease and insect infestations. It is common for Black Cottonwood trees to rapidly become hazards after construction activity.

The Black Cottonwood trees appear to have seeded into the property on their own. It is my recommendation that all of the Cottonwoods be removed now while they are small and not potentially dangerous.

Tree Protection Measures

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and possibly die. With proper preparation, often costing little or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for

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tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The minimum Tree Protection Measures in *Attachment 9, Tree Protection Measures* are on three separate sheets that can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

WAIVER OF LIABILITY

There are many conditions affecting a tree's health and stability, which may be present and cannot be ascertained, such as, root rot, previous or unexposed construction damage, internal cracks, stem rot and more which may be hidden. Changes in circumstances and conditions can also cause a rapid deterioration of a tree's health and stability. Adverse weather conditions can dramatically affect the health and safety of a tree in a very short amount of time. While I have used every reasonable means to examine these trees, this evaluation represents my opinion of the tree health at this point in time. These findings do not guarantee future safety nor are they predictions of future events.

The tree evaluation consists of an external visual inspection of an individual tree's root flare, trunk, and canopy from the ground only unless otherwise specified. The inspection may also consist of taking trunk or root soundings for sound comparisons to aid the evaluator in determining the possible extent of decay within a tree. Soundings are only an aid to the evaluation process and do not replace the use of other more sophisticated diagnostic tools for determining the extent of decay within a tree.

As conditions change, it is the responsibility of the property owners to schedule additional site visits by the necessary professionals to ensure that the long-term success of the project is ensured. It is the responsibility of the property owner to obtain all required permits from city, county, state, or federal agencies. It is the responsibility of the property owner to comply with all applicable laws, regulations, and permit conditions. If there is a homeowners association, it is the responsibility of the property owner to comply with all Codes, Covenants, and Restrictions (CC&R's) that apply to tree pruning and tree removal.

This tree evaluation is to be used to inform and guide the client in the management of their trees. This in no way implies that the evaluator is responsible for performing recommended actions or using other methods or tools to further determine the extent of internal tree problems without written authorization from the client. Furthermore, the

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evaluator in no way holds that the opinions and recommendations are the only actions required to insure that the tree will not fail. A second opinion is recommended. The client shall hold the evaluator harmless for any and all injuries or damages incurred if the evaluator's recommendations are not followed or for acts of nature beyond the evaluator's reasonable expectations, such as severe winds, excessive rains, heavy snow loads, etc.

This report and all attachments, enclosures, and references, are confidential and are for the use of the client concerned. They may not be reproduced, used in any way, or disseminated in any form without the prior consent of the client concerned and Gilles Consulting.

Thank you for calling Gilles Consulting for your arboricultural needs.

Sincerely,

Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
PNW-ISA Certified Tree Risk Assessor #148

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ATTACHMENTS

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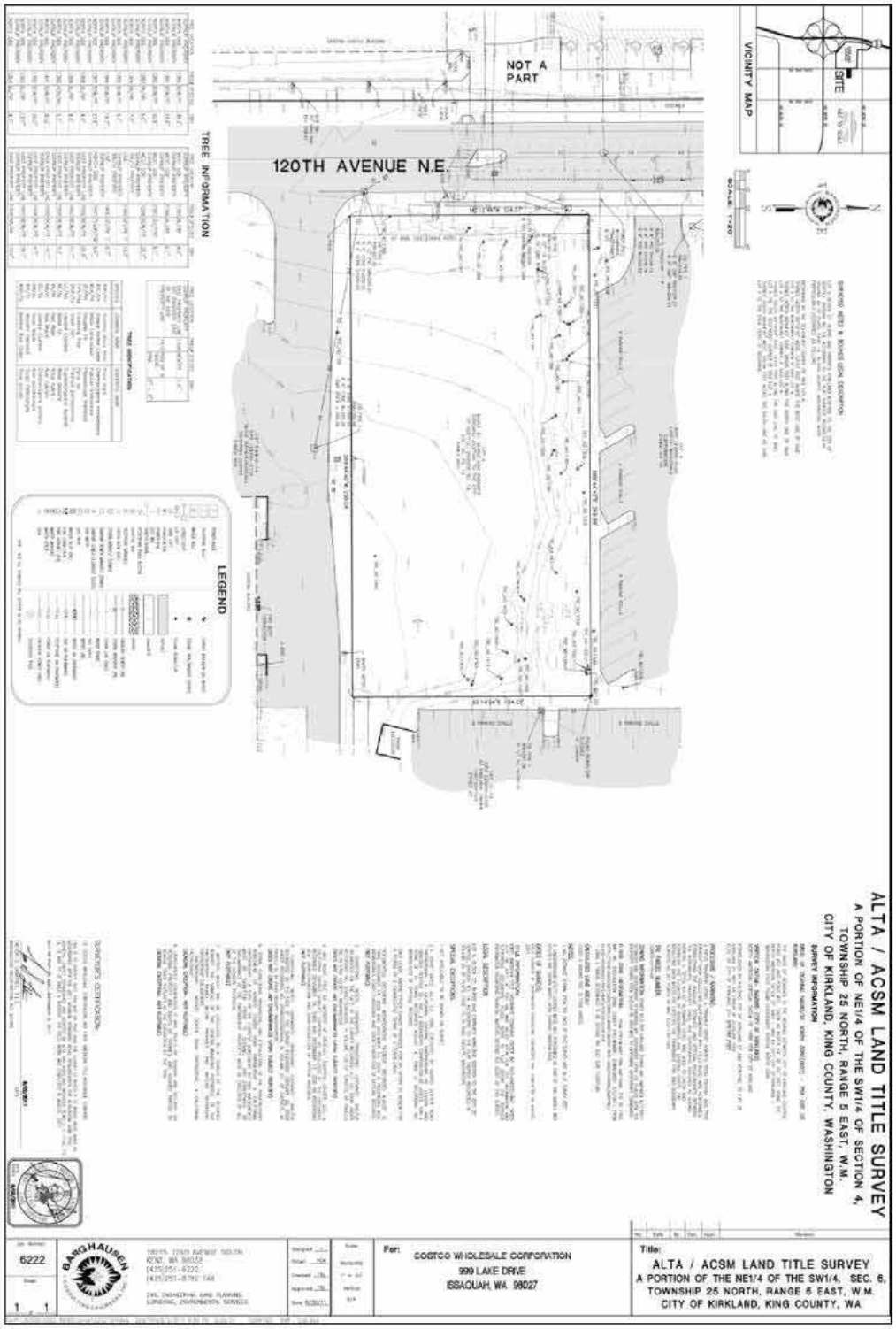
ATTACHMENT 1 - SITE PLAN



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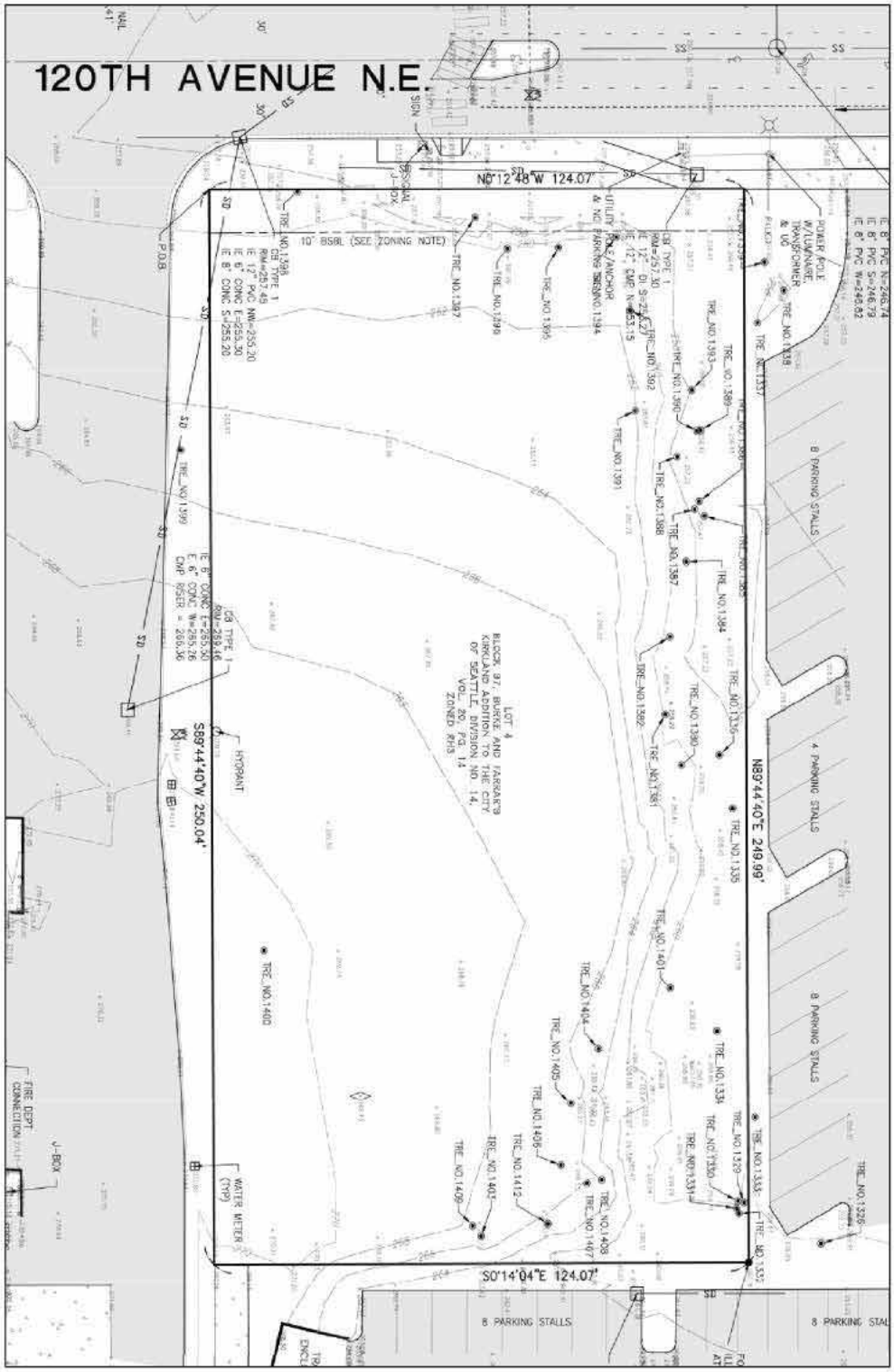

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ATTACHMENT 2 - TREE INVENTORY/CONDITIONS SPREADSHEET

ABBREVIATED LEGEND--SEE GLOSSARY IN REPORT ATTACHMENTS FOR GREATER DETAIL

#1 ***Property:*** Whether the tree is on or off the Subject Property, or a Right-of-Way tree.
#2 ***Tree Location:*** Relative placement of the tree on the Subject Property.
#3 ***Tree #:*** The unique tag number of each tree.
#4 ***Species:***

	BCw/Pt	Black Cottonwood, *Populus trichocarpa*
	BL/Rp	Black Locust, *Robinia pseudoacacia*
	Ch/Psp.	Cherry, *Prunus sp.*
	HCn/Ah	Horse Chestnut, *Aesculus hippocastinatum*
	LP/Pn 'I'	Lombardy Poplar, *Populus nigra 'Italica'*
	Plum/Psp	Plum, *Prunus sp.*
	RA/Ar	Red Alder, *Alnus rubra*
	WH/Th	Western Hemlock, *Tsuga heterophylla*
	WRC/Tp	Western Red Cedar, *Thuja plicata*

#5 ***DBH:*** Trunk diameter @ 4.5' above average ground level.
#6 ***Tree Credit:*** This is based upon Table 95.35.1, Page 12, Chapter 95 of the Kirkland Municipal Code.
#7 ***Drip Line:*** The radius, the distance from the trunk to the furthest branch tips.
Trees in Red are those trees in Dead, Dying, or Poor Condition that should be removed.
Data shown in Blue is 2011 updates of the 2009 evaluation.

#8 ***Limits of Disturbance:*** The boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional.
#9 ***LCR:*** *Live Crown Ratio* - the amount of live canopy expressed as a % of the entire tree height
#10 ***Symmetry:*** General shape of canopy and weight distribution of the tree around the trunk.
#11 ***Foliage:*** General description of foliage density that indicates tree health and vigor.
#12 ***Crown Condition:*** The most important external indication of tree health and vigor.
#13 ***Trunk:*** Description of trunk condition or abnormalities if any.
#14 ***Root Collar:*** The base of the tree where the trunk flares into the roots--deformities or problems are noted here.
#15 ***Roots:*** Root problems are noted here.
#16 ***Comments:*** Additional observations about the tree's condition.
#17 ***Significance:*** A "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
#18 ***Current Health Rating:*** A description of general health ranging from dead, dying, hazard, poor, suppressed, fair, good, very good, to excellent.
#19 ***Viability:*** A significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.
#20 ***Recommendation:*** This is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.

1	2	3	4		6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Guynup Property	North side	1380	BCw/Pt	38.3"	15.0	24'	To Parking Lot Curb	24'	24'	24'	90%	Generally Symmetrical	Dense	Healthy	Fork at 4.5' w/ included bark to base	NAD	Surface	Base is approximately 18 feet south of the parking lot curb. Also tagged 1117, 118, & 119--however, they are three trunks of the same tree.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1381	BCw/Pt	21.6"	6.0	20'	To Parking Lot Curb	20'	20'	20'	95%	Generally Symmetrical	Dense	Healthy	serpentine	NAD	NAD	Also tagged 116.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1382	BCw/Pt	42.6"	17.0	28'	To Parking Lot Curb	28'	28'	28'	95%	Generally Symmetrical	Dense	Healthy	Fork at 6' w/ included bark to base	NAD	NAD	Also tagged 114 & 115--two trunks of the same tree.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1383	RA/Ar	6.0"	0.0	10'	10'	10'	10'	10'	45%	Major Asymmetry	Average	Dead	leans south, Center Rot	Base Rot	Probable Root Rot		Significant	Dying	Non-viable	Remove
Guynup Property	North side	1384	RA/Ar	7.8"	1.0	14'	14'	14'	14'	14'	90%	Minor Asymmetry	Average	Weak	bowed	NAD	Fill on 45% of Root Zone		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1385	BCw/Pt	6.2"	0.0	6'	6'	6'	6'	6'	10%	Major Asymmetry	Sparse	Dead	serpentine	Exposed	NAD	Also tagged 112.	Significant	Dying	Non-viable	Remove
Guynup Property	North side	1386	BCw/Pt	16.7"	4.0	22'	to North Property line	22'	22'	22'	85%	Major Asymmetry	Dense	Healthy	Fork at 2' with included bark to base	Partially exposed	NAD	Also tagged 111 & 110. Trunk diameters are 7.5", 5	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1387	BCw/Pt	27.6"	9.0	26'	to North Property line	26'	26'	26'	85%	Generally Symmetrical	Dense	Healthy	Fork at 14' w/ included bark down 4' & forked at 46'	NAD	NAD	Also tagged 109.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1388	BL/Rp	9.9"	1.0	16'	16'	16'	16'	16'	80%	Major Asymmetry	Average	Suppressed	Fork at base, typical	NAD	Fill on 45%	Also tagged 108. Trunk diameters are 8.1", 2.8", & 5.0" = single trunk of 9.9 inches.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1389	BL/Rp	8.8"	0.0	6'	6'	6'	6'	6'	5%	Major Asymmetry	Sparse	Dead	Center Rot	Base Rot	Root Rot	Trunk diameters are 6.2"& 6.3" = single trunk of 8.8".	Significant	Dying	Non-viable	Remove
Guynup Property	North side	1390	HCn/Ah	5.5"	0.5	12'	12'	12'	12'	12'	85%	Major Asymmetry	Average	Average	Kink and Leans NW	NAD	NAD		Not Significant	Fair	Viable	Potential to retain with Tree Protection Measures

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1	2	3	4		6	7	8 -- LIMITS OF DISTURBANCE				9	10	11	12	13	14	15	16	17	18	19	20
PROPERTY	TREE LOCATION	TREE #	SPECIES	DBH	TREE CREDIT	DRIP LINE	North	South	East	West	LCR	SYMMETRY	FOLIAGE	CROWN CONDITION	TRUNK	ROOT COLLAR	ROOTS	COMMENTS	SIGNIFICANCE	CURRENT HEALTH RATING	VIABILITY	RECOMMENDATION
Guynup Property	North side	1391	BCw/Pt	35.2"	0.0	34'	to North Property line	34'	34'	34'	98%	Generally Symmetrical	Dense	Healthy	Typical	NAD	Surface	Previously topped at 66 feet with 3 major trunk above	Significant	Poor	Non-viable	Remove
Guynup Property	North side	1392	BCw/Pt	29.0"	10.0	26'	26'	26'	26'	to Sidewalk	98%	Generally Symmetrical	Dense	Healthy	Typical	NAD	Surface	Also tagged 105.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1393	BL/Rp	12.0"	0.0	16'	16'	16'	16'	to Sidewalk	40%	Major Asymmetry	Thin	Flagging	Kink at 3.5' & Leans NW	Partially exposed	NAD	Center Rot. Larger trunk forks again at 7.5 feet and is dead.	Significant	Dying	Non-viable	Remove
Guynup Property	North side	1394	BL/Rp	8.6"	1.0	12'	12'	12'	12'	to Sidewalk	60%	Major Asymmetry	Average	Average	Leans NW & Serpentine	NAD	Fill on 45% of Root Zone		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	West side	1395	BL/Rp	8.2"	1.0	14'	14'	14'	14'	to Sidewalk	80%	Generally Symmetrical	Dense	Healthy	Fork at 9', Typical	NAD	Fill on 45% of Root Zone		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	West side	1396	BL/Rp	6.1"	1.0	12'	12'	12'	12'	12'	70%	Minor Asymmetry	Average	Average	Kink at 3', Typical	NAD	NAD		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	West side	1397	Ch/Psp	6.1"	1.0	12'	12'	12'	12'	to Sidewalk	80%	Minor Asymmetry	Dense	Average	serpentine	NAD	NAD		Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	West side	1398	BCw/Pt	23.7"	7.0	30'	30'	to south property line	30'	to Sidewalk	98%	Generally Symmetrical	Dense	Healthy	Typical	NAD	Restricted	Also tagged 102.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	South Property Line	1399	LP/Pn 'f'	10.2"	1.0	8'	8'	to south property line	8'	8'	98%	Generally Symmetrical	Dense	Healthy	Typical	NAD	Restricted	Trunk diameters are 9.4", 4.6", & 3.5" = single trunk of 10.2 inches.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
Guynup Property	South Property Line	1400	LP/Pn 'f'	9.7"	1.0	6'	6'	6'	6'	6'	95%	Generally Symmetrical	Dense	Healthy	Typical	NAD	NAD	Trunk diameters are 8.3 & 5.1" = single trunk of 9.7 inches.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
Guynup Property	North side	1401	Plum/Psp	9.6"	1.0	14'	to North Property line	14'	14'	14'	60%	Minor Asymmetry	Dense	Healthy	Fork at base, typical	NAD	Fill on 45% of Root Zone	Trunk diameters are 4.1", 6.5", & 5.7" = single trunk of 9.6 inches.	Significant	Good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1402	BCw/Pt	26.5"	9.0	20'	20'	20'	to east property line	20'	85%	Generally Symmetrical	Dense	Healthy	Typical	NAD	Restricted	Fork at 3.5 feet with included bark to base. Base is approximately 12 feet west of the adjacent property parking lot curb. Trunk diameters are 24.6" & 9.8" = single trunk of 26.5 inches.	Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1403	BCw/Pt	11.1"	1.0	14'	14'	14'	to east property line	14'	90%	Minor Asymmetry	Dense	Healthy	Fork at base, typical	NAD	Restricted	Base is approximately 9 feet west of adjacent property parking lot curb. There are two rot pockets at old trunk failures near the base. They appear compartmentalized. Trunk diameter are 6.8", 5.3", 4.1", 2.3", & 5.1" = single trunk of 11.1 inches.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1404	BCw/Pt	5.3"	0.5	9'	9'	9'	9'	9'	75%	Generally Symmetrical	Average	Average	Fork at 1.5' w/ included bark to base. Typical	NAD	NAD	Trunk diameters are 4.9 & 2.1 inches = single trunk of 5.3 inches.	Not Significant	Good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1405	BCw/Pt	19.1"	5.0	6'	6'	6'	6'	6'	95%	Generally Symmetrical	Dense	Healthy	Typical	Exposed	NAD		Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1406	BCw/Pt	4.7"	0.5	9'	9'	9'	9'	9'	80%	Major Asymmetry	Dense	Healthy	serpentine	Pistol Butt Base	Surface		Not Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1407	BCw/Pt	18.1"	5.0	24'	24'	24'	to east property line	24'	80%	Minor Asymmetry	Dense	Healthy	Typical	NAD	Surface		Significant	Very good	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1408	RA/Ar	10.0"	1.0	16'	16'	16'	to east property line	16'	75%	Major Asymmetry	Average	Average	Leans North, Serpentine	NAD	NAD	Trunk diameters are 9.5" & 3.1" = single trunk of 10.0 inches.	Significant	Fair	Viable	Potential to retain with Tree Protection Measures
Guynup Property	East Property Line	1409	BCw/Pt	7.4"	1.0	12'	12'	12'	to east property line	12'	90%	Major Asymmetry	Dense	Healthy	Typical	Partially exposed	Surface		Significant	Good	Viable	Potential to retain with Tree Protection Measures
Off Property	East of the East property line	1410	Row of 9 Shore Pine	6" - 9"	0.0	6' - 12'	n/a	n/a	n/a	5 feet west of the east property line	75% to 90%	Generally Symmetrical	Dense	Healthy	Typical	NAD	Restricted	Growing in planter bed between parking lot and common property lines. Their canopies only overhang the subject property by 0 to 3 feet with the average being 1 - 2 feet. They can all be adequately protected with a fence 5 feet west of the east property line.	Significant	Excellent	Viable	Potential to retain with Tree Protection Measures
					106.5	Total # of Tree Credits on the Subject Property as of July 22, 2011.																

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ATTACHMENT 3 - GLOSSARY
Terms Used in This Report, on the Tree Condition / Inventory Spreadsheet, and Their Significance

In an effort to clearly present the information for each tree in a manner that facilitates the reader's ability to understand the conclusions I have drawn for each tree, I have collected the information in a spreadsheet format. This spreadsheet was developed by Gilles Consulting based upon the *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface* course manual and the *Tree Risk Assessment Form*, both sponsored by the Pacific Northwest Chapter of the International Society of Arboriculture, and the *Hazard Tree Evaluation Form* from the book, *The Evaluation of Hazard Trees in Urban Areas*, by Matheny and Clarke. The descriptions were left brief on the spreadsheet in an effort to include as much pertinent information as possible, to make the report manageable, and to avoid boring the reader with infinite levels of detail. However, a review of these terms and descriptions will allow the reader to rapidly move through the report and understand the information.

1) **PROPERTY**—Whether the tree is on or off the Subject Property, or a Right-of-Way tree.
2) **TREE LOCATION**—Relative placement of the tree.
3) **TREE #**—the unique tag number of each tree.
4) **SPECIES**—this describes the species of each tree with both most readily accepted common name and the officially accepted scientific name.
5) **DBH**—Diameter Breast Height. This is the standard measurement of trees taken at 4.5 feet above the average ground level of the tree base.
    i) Occasionally it is not practical to measure a tree at 4.5 feet above the ground. The most representative area of the trunk near 4.5 feet is then measured and noted on the spreadsheet. For instance, a tree that forks at 4.5 feet can have an unusually large swelling at that point. The measurement is taken below the swelling and noted, e.g. '28.4" at 36"'.
    ii) Trees with multiple stems are listed as a "clump of x," with x being the number of trunks in the clump. Measurements may be given as an average of all the trunks, or individual measurements for each trunk may be listed.
        (1) Every effort is made to distinguish between a single tree with multiple stems and several trees growing close together at the bases.
6) **TREE CREDIT**—Tree Credit based on Trunk Diameter
7) **DRIP LINE**— the radius, the distance from the trunk to the furthest branch tips.
8) **LIMITS OF DISTURBANCE**— the boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional. From Kirkland Zoning Code 95.30.4.c.2: A description of the method(s) used to determine the limits of disturbance (i.e., critical root zone, root plate diameter, or a case-by-case basis description for individual trees).

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9) **% LCR**—Percentage of Live Crown Ratio. The relative proportion of green crown to overall tree height. This is an important indication of a tree's health. If a tree has a high percentage of Live Crown Ratio, it is likely producing enough photosynthetic activity to support the tree. If a tree has less than 30% to 40% LCR, it can create a shortage of needed energy and can indicate poor health and vigor.
10) **SYMMETRY**—is the description of the form of the canopy, i.e., the balance or overall shape of the canopy and crown. This is the place I list any major defects in the canopy shape, e.g. does the tree have all its foliage on one side or in one unusual area? Symmetry can be important if there are additional defects in the tree such as rot pockets, cracks, loose roots, weak crown, etc. Symmetry is generally categorized as Generally Symmetrical, Minor Asymmetry or Major Asymmetry:
    i) Gen. Sym.—Generally Symmetrical. The canopy/foliage is generally even on all sides with spacing of scaffold branches typical for the species, both vertically and radially.
    ii) Min. Asym.—Minor Asymmetry. The canopy/foliage has a slightly irregular shape with more weight on one side, but appears to be no problem for the tree.
    iii) Maj. Asym.—Major Asymmetry. The canopy/foliage has a highly irregular shape for the species with the majority of the weight on one side of the tree. This can have a significant impact on the tree's stability, health and hazard potential—especially if other defects are noted such as cracks, rot, or root defects.
11) **FOLIAGE/BRANCH**—describes the foliage of the tree in relation to a perfect specimen of that particular species. First the branch growth and foliage density is described, and then any signs or symptoms of stress and/or disease are noted. The condition of the foliage, or the branches and buds for deciduous trees in the dormant season, are important indications of a tree's health and vigor.
    i) For Deciduous trees in the dormant season:
        (1) The structure of the deciduous tree is visible.
        (2) The quantity and quality of buds indicates health, and is described as good bud set, average bud set, or poor bud set. These are abbreviated in the spreadsheet as: gbs, abs, or pbs.
        (3) The amount of annual shoot elongation is visible and is another major indication of tree health and vigor. This is described as:
            a) Excellent, Good, Average, or Short Shoot Elongation. These are abbreviated in the spreadsheet as ESE, GSE, ASE, or SSE.
    ii) For evergreen trees year round and deciduous trees in leaf, the color and density of the foliage indicates if the tree is healthy or stressed, or if an insect infestation, a bacterial, fungal, or viral infection is present. Foliage is categorized on a scale from:
        (1) Dense—extremely thick foliage, an indication of healthy vigorous growth,
        (2) Good—thick foliage, thicker than average for the species,

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(3) Normal/Average—thick foliage, average for the species, an indication of healthy growth,
(4) Thin or Thinning—needles and leaves becoming less dense so that sunlight readily passes through; an indication that the tree is under serious stress that could impact the long-term survivability and safety of the tree,
(5) Sparse—few leaves or needles on the twigs, an indication that the tree is under extreme stress and could indicate the future death of the tree,
(6) Necrosis—the presence of dead twigs and branchlets. This is another significant indication of tree health. A few dead twigs and branches are reasonably typical in most trees of size. However, if there are dead twigs and branchlets all over a certain portion of the tree, or all over the tree, these are indications of stress or attack that can have an impact on the tree's long-term health.
(7) Hangers—a term to describe a large branch or limb that has broken off but is still hanging up in the tree. These can be particularly dangerous in adverse weather conditions.

12) **CROWN CONDITION**—the crown is uppermost portion of the tree, generally considered the top 10 to 20% of the canopy or that part of the canopy above the main trunk in deciduous trees and above the secondary bark in evergreen trees.

i) The condition of the tree's crown is a reflection of the overall health and vigor of the entire tree. The crown is one of the first places a tree will demonstrate stress and pathogenic attack such as root rot.

ii) If the **Crown Condition** is healthy and strong, this is a good sign. If the crown condition is weak, broken out, or shows other signs of decline, it is an indication that the tree is under stress. It is such an important indication of health and vigor that this is the first place a trained forester or arborist looks to begin the evaluation of a tree. Current research reveals that, by the time trees with root rot show significant signs of decline in the crown, fully 50% or more of the roots have already rotted away. **Crown Condition** can be described as:

(1) Healthy Crown—exceptional growth for the species.
(2) Average Crown—typical for the species.
(3) Weak Crown—thin spindly growth with thin or sparse needles.
(4) Flagging Crown—describes a tree crown that is weak and unable to grow straight up.
(5) Dying Crown—describes obvious decline that is nearing death.
(6) Dead Crown—the crown has died due to pathological or physical injury. The tree is considered to have significant stress and/or weakness if the crown is dead.
(7) Broken out—a formerly weak crown condition that has been broken off by adverse weather conditions or other mechanical means.

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(8) Regenerated or Regenerating—formerly broken out crowns that are now growing back. Regenerating crowns may appear healthy, average, or weak and indicate current health of the tree.

(9) Suppressed—a term used to describe poor condition of an entire tree or just the crown. Suppressed crowns are those that are entirely below the general level of the canopy of surrounding trees which receive no direct sunlight. They are generally in poor health and vigor. Suppressed trees are generally trees that are smaller and growing in the shade of larger trees around them. They generally have thin or sparse needles, weak or missing crowns, and are prone to insect attack as well as bacterial and fungal infections.

13) **TRUNK**—this is the area to note any defects that can have an impact on the tree's stability or hazard potential. Typical things noted are:

i) FORKED—bifurcation of branches or trunks that often occur at a narrow angle.

ii) INCLUDED BARK—a pattern of development at branch or trunk junctions where bark is turned inward rather than pushed out. This can be a serious structural defect in a tree that can and often does lead to failure of one or more of the branches or trunks, especially during severe, adverse weather conditions.

iii) EPICORMIC GROWTH—this is generally seen as dense thick growth near the trunk of a tree. Although this looks like a healthy condition, it is, in fact the opposite. Trees with Epicormic Growth have used their reserve stores of energy in a last ditch effort to produce enough additional photosynthetic surface area to produce more sugars, starches and carbohydrates to support the continued growth of the tree. Generally speaking, when conifers in the Pacific Northwest exhibit heavy amounts of Epicormic Growth, they are not producing enough food to support their current mass and are already in serious decline.

iv) INTERNAL STRUCTURAL WEAKNESS—a physical characteristic of the tree trunk, such as a **kink, crack, rot pocket, or rot column** that predisposes the tree trunk to failure at the point of greatest weakness.

v) BOWED—a gradual curve of the trunk. This can indicate an Internal Structural Weakness or an overall weak tree. It can also indicate slow movement of soils or historic damage of the tree that has been corrected by the curved growth.

vi) KINKED—a sharp angle in the tree trunk that indicates that the normal growth pattern is disrupted. Generally this means that the internal fibers and annual rings are weaker than straight trunks and prone to failure, especially in adverse weather conditions.

vii) GROUND FLOWER—an area of deformed bark near the base of a tree trunk that indicates long-term root rot.

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14) **ROOT COLLAR**—this is the area where the trunk enters the soil and the buttress roots flare out away from the trunk into the soil. It is here that signs of rot, decay, insect infestation, or fungal or bacterial infection are noted. **NAD** stands for **N**o **A**pparent **D**efects.
15) **ROOTS**—any abnormalities such as girdling roots, roots that wrap around the tree itself that strangle the cambium layer and kill the tree, are noted here.
16) **COMMENTS**—this is the area to note any additional information that would not fit in the previous boxes or attributes about the tree that have bearing on the health and structure of the tree.
17) **COMMENTS**—this is the area to note any additional information that would not fit in the previous boxes or attributes about the tree that have bearing on the health and structure of the tree.
18) **SIGNIFICANCE**—a "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
19) **CURRENT HEALTH RATING**— a description of general health ranging from dead, dying, poor, senescent, suppressed, fair, good, very good, to excellent.
20) **VIABILITY**— a significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.
    (1) Please note that many trees may be listed as "Non-Viable" due to poor health, poor structure, or the tree may be below the size threshold for a "Viable Tree." However, it is worth examining the Non-Viable Trees to determine if any or all of them can be left on the property. They can add significant benefit to the landscape and contribute to wildlife habitat.
21) **RECOMMENDATION**— this is an estimate of whether or not the tree is of sufficient health, vigor, and structure that it is worth retaining. Specific recommendations for each tree are included in this column. They may include anything from pruning dead wood, mulching, aerating, injecting tree-based fertilizer into the root system, shortening into a habitat tree or wildlife snag, or to completely removing the tree.
    i) **Monitor: "**Monitor" is a specific recommendation that the tree be re-evaluated on a routine basis to determine if there are any significant changes in health or structural stability. "Monitor annually" (or bi-annually, tri-annually, etc.)" means the tree should be looked at once every year (or every 2 or 3 years, etc.) This yearly monitoring can be a quick look at the trees to see if there are any significant changes. Significant changes such as storm damage, loss of crown, partial failure of one or more roots, etc. require that a full evaluation be done of the tree at that time.
    ii) **Potential to retain with tree protection measures:** means that the tree appears to have the internal resources, the health and vigor, structural stability, and the wind firmness to be able to withstand the stresses of construction if development requirements and construction requirements allow.

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iii) **Habitat or Remove:** means that the tree has a high potential to fail and cause either personal injury or property damage—in other words the tree has been declared a hazard tree and should be dealt with prior to the next large storm. If it is at all possible the recommendation is to leave some of the trunk standing for wildlife habitat and some of the trunk on the ground as a nurse log. The height of the standing habitat tree depends upon the size of the tree, the condition of the tree, and the distance to a probable target. It should be short enough so that when it does fail years in the future it will not cause personal injury or property damage. Nurse logs can be laid horizontally across the slope to aid with erosion control and to provide microenvironments for new plantings. The nurse logs meaning to be steak to prevent their movement and potential harm to people. If for some reason this is not possible that should be removed for safety.

NOTE: TREES WITH THE SAME DESCRIPTION AND DIFFERENT RATINGS: Two trees may have the same descriptions in the matrix boxes, one may be marked "Significant," while another may be marked "Non-Significant." The difference is in the degree of the description, i.e., "early necrosis" versus "advanced necrosis" for instance. Another example is "center rot" or 'base rot". In a Western Red Cedar tree, the presence of low or even moderate rot is not significant and does not diminish the strength of the tree. However, low levels of rot in the base of a Douglas Fir tree, in an area known to have virulent pathogens present, is highly significant and predisposes that tree to windthrow.

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ATTACHMENT 4 - TREE PROTECTION MEASURES

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and will possibly die. With proper preparation, often costing little, or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The following minimum Tree Protection Measures are included on three separate sheets so that they can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

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TREE PROTECTION MEASURES:

1. Tree Protection Fences will need to be placed around each tree or group of trees to be retained.
    a. Tree Protection Fences are to be placed according to the attached drawing and as noted in the attached Tree Inventory/Conditions Spreadsheet, Column 6 - Limits of Disturbance.
    b. Tree Protection Fences must be inspected prior to the beginning of any construction work/activities.
    c. Nothing must be parked or stored within the Tree Protection Fences—no equipment, vehicles, soil, debris, or construction supplies of any sorts.

2. Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.

3. The Tree Protection Fences need to be clearly marked with the following or similar text in four inch or larger letters:

TREE PROTECTION AREA, ENTRANCE PROHIBITED
To report violations contact
City Code Enforcement at
425-587-3225

4. The area within the Tree Protection Fencing must be covered with wood chips, hog fuel, or similar materials to a depth of 8 to 10 inches. The materials should be placed prior to beginning construction and remain until the Tree Protection Fencing is taken down.

5. When excavation occurs near trees that are scheduled for retention, the following procedure must be followed to protect the long term survivability of the tree:
    a. An International Society of Arboriculture, (ISA) Certified Arborist must be working with all equipment operators.
        i. The Certified Arborist should be outfitted with a shovel, hand pruners, a pair of loppers, a handsaw, and a power saw (a "sawsall" is recommended).
    b. The hoe must be placed to "comb" the material directly away from the trunk as opposed to cutting across the roots.
        i. Combing is the gradual excavation of the ground cover plants and soil in depths that only extend as deep as the tines of the hoe.
    c. When any roots of one inch diameter or greater, of the tree to be retained, is struck by the equipment, the Certified Arborist should stop the equipment operator.
    d. The Certified Arborist should then excavate around the tree root by hand/shovel and cleanly cut the tree root.

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i. The Certified Arborist should then instruct the equipment operator to continue.

6. Putting Utilities Under the Root Zone:
   a. Boring under the root systems of trees (and other vegetation) shall be done under the supervision of an ISA Certified Arborist. This is to be accomplished by excavating a limited trench or pit on each side of the critical root zone of the tree and then hand digging or pushing the pipe through the soil under the tree. The closest pit walls shall be a minimum of 7 feet from the center of the tree and shall be sufficient depth to lay the pipe at the grade as shown on the plan and profile.
   b. Tunneling under the roots of trees shall be done under the supervision of an ISA Certified Arborist in an open trench by carefully excavating and hand digging around areas where large roots are exposed. No roots 1 inch in diameter or larger shall be cut.
   c. The contractor shall verify the vertical and horizontal location of existing utilities to avoid conflicts and maintain minimum clearances; adjustment shall be made to the grade of the new utility as required.

7. Watering:
   a. The trees will require significant watering throughout the summer and early fall in order to survive long-term. An easy and economical watering can be done using soaker hoses placed three feet from the trunk of the tree and spiraled around the tree. One 75-foot soaker hose per tree is adequate. It is best to place the soakers using landscape staples, (available from HD Fowler in Bellevue for pennies apiece) then cover the area with two to three inches composed materials. The composted material will act as a mulch to minimize evaporation and will also stimulate the microbial activity of the soil which is another benefit to the health of the tree.
   b. Water the tree to a depth of 18 to 20 inches. I recommended leaving the water on the soaker hoses for six to eight hours and then digging down to determine how deep your water is penetrating. Then adjust accordingly. It may take a good two days of watering to reach the proper depth.
   c. Once the water reaches the proper depth, turn off the hoses for four weeks and then water again. Water more often when temperatures increase—every three weeks when temperatures exceed 80 degrees and every two weeks when temperatures exceed 90 degrees. This drying out of the soil in between watering is important to prevent soil pathogens from attacking the trees.

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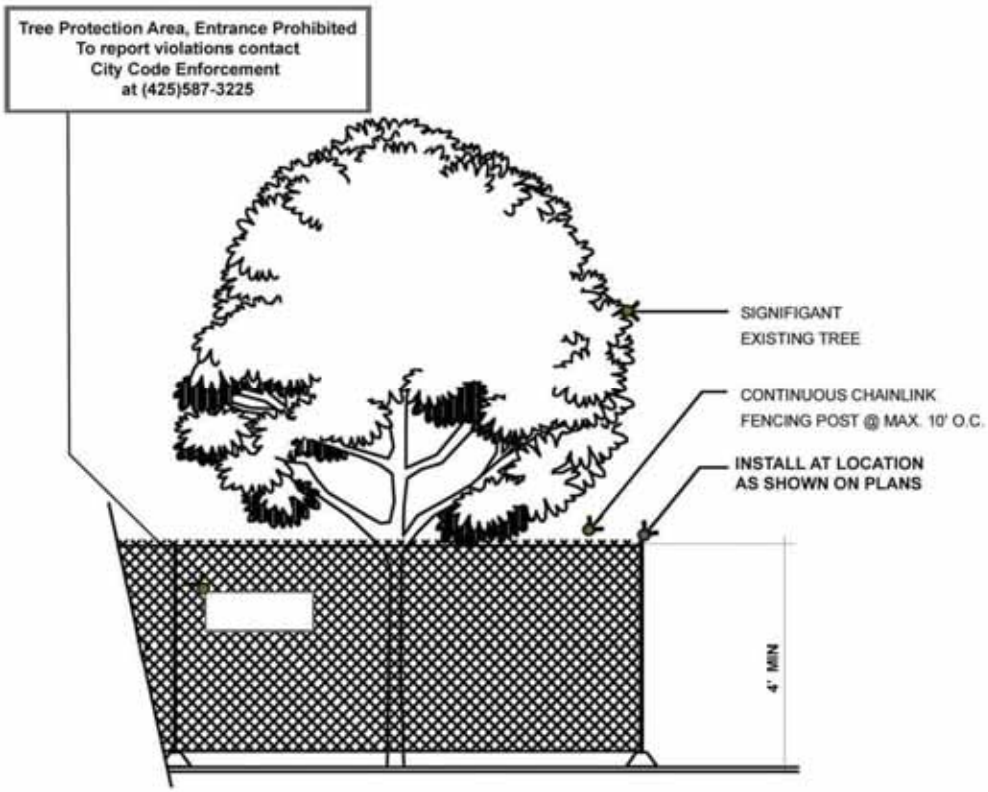
FENCING SIGN DETAIL



1. MINIMUM FOUR (4) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE (S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.

2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.

3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.

4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.

CITY OF KIRKLAND WASHINGTON

TREE PROTECTION FENCING DETAIL

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ATTACHMENT 5 - REFERENCES

1. Dirr, Michael A. *Manual of Woody Landscape Plants, Their Identification, Ornamental Characteristics, Culture, Propagation, and Uses*. Champaign: Stipes Publishing Company, 1990.

2. Eric Allen, et al. *Common Tree Diseases of British Columbia*. Victoria: Canadian Forest Service, 1996.

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4. Matheny, Nelda P. and Clark, James R. *Evaluation of Hazard Trees*. 2nd ed. Savoy: The International Society of Arboriculture Press, 1994.

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6. Mattheck, Claus and Breloer, Helge. *The Body Language of Trees, A Handbook for Failure Analysis.* London: HMSO, 1994.

7. Pacific Northwest Chapter-ISA. *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface.* Course Manual. Release 1.5. PNW-ISA: Silverton, Oregon, 2011.

Enclosure 12

October 19, 2011
Kleinfelder Project No.: 121302

Costco Wholesale
999 Lake Drive
Issaquah, WA 98027

Attn: Ms. Kim Sanford, Director of Real Estate Development

Subject: Geotechnical Engineering Report
Proposed Parking Lot Addition (Guynup Property)
Kirkland Costco Warehouse No. 8
8629 120th Avenue, NE
Kirkland, Washington
Costco Wholesale Project CW#11-0157-01

Dear Kim:

This letter transmits one electronic copy (portable document format) of our geotechnical engineering report for the proposed parking lot addition at the Kirkland Costco Warehouse in Kirkland, Washington. This report was prepared in accordance with our proposal dated July 28, 2011.

We appreciate the opportunity to provide geotechnical services to you on this project. Please contact the undersigned at (425) 562-4200, or Andy Franks, Kleinfelder's Senior Client Service Manager at (801) 261-3336 if you have any questions regarding this report, or if we can provide assistance with other aspects of the project.

Sincerely,
KLEINFELDER WEST, INC.

Marcus Byers, P.E.
Senior Geotechnical Engineer
Senior Project Manager

Attachment: October 19, 2011, Geotechnical Engineering Report

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ENCLOSURE 4

KLEINFELDER
Bright People. Right Solutions.

Prepared for:
Costco Wholesale
999 Lake Drive
Issaquah, WA 98027

Geotechnical Engineering Report
Proposed Parking Lot Addition (Guynup Property)
Kirkland Costco Warehouse No. 8
8629 120th Avenue, NE
Kirkland, Washington
Costco Wholesale Project CW#11-0157-01

Prepared by:

David M. Cotton, P.E,
Principal Geotechnical Engineer

MARCUS BENNETT BYERS
STATE OF WASHINGTON
37351
REGISTERED
PROFESSIONAL ENGINEER
10/19/11

Marcus B. Byers, P.E.
Senior Geotechnical Engineer
Senior Project Manager

KLEINFELDER WEST, INC.
14710 NE87th Street, Suite 100
Redmond, WA 98052
Phone: (425) 636-7900
Fax: (425) 636-7901

October 19, 2011
Kleinfelder Project No. 121302

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Figure 1 – Vicinity Map
Figure 2 – Site and Exploration Plan

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EXECUTIVE SUMMARY

PROPOSED PARKING LOT ADDITION (GUYNUP PROPERTY)
COSTCO WAREHOUSE NO. 8
KIRKLAND, WASHINGTON

The project involves expansion of an existing parking lot by adding four rows of parking to the south, in an undeveloped lot east of the Costco Kirkland Warehouse No. 8, located at 8629 120th Avenue NE in Kirkland, Washington. Site grading will require cuts up to about 7 feet high. Grade transitions will include 2H:1V cut slopes.

Based on the results of our subsurface exploration and engineering analyses, we present the following key geotechnical conclusions:

- Cuts will expose a subgrade consisting of fill and/or the old topsoil horizon. These soils consist of silty sand and silt, with potential for organics or debris. These soils are moisture sensitive and will not be suitable for compaction during wet weather.
- The parking area will be subject to car traffic only. The recommended Standard Duty pavement section is 3 inches of HMA over 6 inches crushed rock in accordance with Costco Wholesale Development Requirements.
- Performance Grade binder (PG) 58-16 is appropriate for the project.
- We recommend a French drain be installed along the south and east perimeter of the parking lot.

This summary should only be used in conjunction with the full text contained in the pavement design report.

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1.0 INTRODUCTION AND SCOPE

1.1 GENERAL

This report presents the results of Kleinfelder's geotechnical engineering study for the design and construction of the proposed parking lot expansion at the Costco Wholesale Warehouse in Kirkland, Washington. The project site is located east of the existing Warehouse at 8629 120th Avenue NE as shown on the Vicinity Map, Figure 1.

Previously, ABPB Consulting prepared a report titled Geotechnical Evaluation, Proposed Parking Lot (Parcel #1238500110), Rose Hill Shopping Center dated November 5, 2010. The ABPB report contains recommendations for development of the Guynup parcel into a parking lot with a fill retaining wall at the north boundary of the parcel.

1.2 PROJECT DESCRIPTION

Our understanding of the project is based on conversations with and information provided by Barghausen Consulting Engineers Inc. (Barghausen), including a site grading plan dated September 23, 2011. As currently envisioned, the project includes expansion of an existing parking lot by adding four rows of parking to the south in an undeveloped lot as shown on the Site and Exploration Plan, Figure 2. At the time of our explorations, preliminary grading plans called for cuts up to 8 feet and construction of a retaining wall on the south and east sides of the parking lot. Current plans call for 2H:1V slopes at the north and south sides of the proposed expansion with no retaining walls. We understand the proposed parking lot will only be subject to passenger vehicle traffic.

1.3 AUTHORIZATION AND SCOPE OF SERVICES

The purpose of our study was to explore subsurface conditions at the site and provide geotechnical recommendations for design and construction of the proposed parking lot. Our scope of services was consistent with that presented in our proposal dated July 28, 2011, and included:

- **Field Exploration:** Soil and groundwater conditions at the Guynup parcel were explored with four borings extending to a depth of 20 feet.
- **Laboratory Testing:** Geotechnical laboratory testing included 12 natural moisture content tests and 5 grain size distribution tests.

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- **Geotechnical Analysis:** Engineering analyses were performed as a basis for developing geotechnical design and construction recommendations.
- **Geotechnical Report:** The results of our study are presented in this geotechnical engineering report.

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2.0 SITE EXPLORATION AND LABORATORY TESTING

2.1 SITE EXPLORATION

The site exploration program was conducted under full-time observation of a Kleinfelder geotechnical engineer on August 9, 2011. The exploration program included four hollow-stem auger borings, designated B-1 through B-4, advanced to a depth of 21½ feet at the locations shown on the Site and Exploration Plan, Figure 2. Borings B-1 and B-2 were advanced on the south side of the Guynup parcel, near a planned cut slope. Borings B-3 and B-4 were advanced on the south edge of the existing employee parking lot near the boundary with the Guynup parcel. Borings were advanced by Geologic Drill, operating under subcontract to Kleinfelder. No survey control was available at the time of our explorations. The exploration locations were determined by taping distances from existing site features and the locations and elevations should be considered approximate.

Soil samples were collected at 2½-foot intervals to a depth of 10 feet and at 5-foot intervals thereafter, using Standard Penetration Test (SPT) sampling techniques (ASTM D1586). The SPT consisted of driving a 1-3/8-inch inside diameter (2-inch outside diameter) split spoon sampler a distance of 18 inches into the bottom of the boring. The sampler was driven with a 140-pound hammer falling 30 inches. The hammer was controlled using a rope and cathead mechanism. The number of blows required to drive the sampler each of three 6-inch increments was recorded on the boring logs. The number of blows required for the last 12 inches of penetration is called the standard penetration resistance (N-value). This value is an indicator of the relative density of granular soils or the consistency of fine-grained soils.

Kleinfelder's geotechnical engineer examined and classified the materials encountered during the field exploration in accordance with ASTM D2487, obtained representative soil samples, and recorded pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, and groundwater occurrence. Kleinfelder classified soil samples collected. All samples were placed in plastic jars to limit moisture loss, labeled, and returned to our laboratory for further examination and testing. Upon completion of drilling, the borings were backfilled with bentonite grout.

Summary logs of the explorations are presented in Appendix A. The stratification lines shown on the individual logs represent the approximate boundaries between soil types;

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actual transitions may be either more gradual or more severe. The conditions depicted are for the date and location indicated only, and it should not necessarily be expected that they are representative of conditions at other locations and times. All depth information is relative to the ground surface with no reference to elevation because survey data was not available at the time of this report.

ABPB Consulting completed a total of four test pits in the Guynup parcel for a prior study in 2010. The test pits were excavated to depths ranging from 12 to 14 feet below the existing site grade. We have included the logs from these borings in Appendix C.

2.2 LABORATORY TESTING

Laboratory tests were performed on selected soil samples in general accordance with ASTM standards to determine index and engineering properties of the site soils. Tests included 12 natural moisture content tests and six grain size distribution tests including fines. Laboratory test results are presented on laboratory test reports included in Appendix B and/or on the summary boring logs in Appendix A.

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3.0 SITE CONDITIONS

3.1 SURFACE CONDITIONS

Guynup parcel slopes down to the north and west with a maximum elevation change of about 10 feet. Slopes are steepest along the north edge of the parcel, where grades decrease and match the south edge of the existing employee parking lot. The site is vegetated with a mix of evergreen and deciduous trees and heavy underbrush, including blackberries.

3.2 GENERAL GEOLOGIC CONDITIONS

General geological information for the project area was obtained from the *Geologic Map of the Kirkland Quadrangle, Washington* (Minard, 1983). According to the map, the project area is underlain by advance outwash. Advance outwash generally consists of glacially overridden sand and gravel soils with low silt content. Fine grained sand and some silt are common in the lower part of the unit but occur sparingly in the upper part.

3.3 SOIL CONDITIONS

Soil conditions encountered in our explorations were generally consistent with those described in the geologic mapping discussed in Section 3.2 as well as those described in the ABPB Consulting report discussed in Section 1.1. Our explorations indicate the site is underlain by fill overlying an old topsoil horizon, which in turn overlies advance outwash. Soils encountered are described in the order encountered as follows:

- **Fill:** Fill was encountered in borings BH-1 and BH-2 and extended to a depth of about 8 feet. The fill generally consisted of gray, medium dense silty sand with gravel. Standard penetration test (SPT) N-values ranged from about 11 blows per foot (b/ft) to 25 b/ft. Fill conditions described in the ABPB report noted scattered fragments of wood, a few tire fragments, and some concrete and asphalt.
- **Old Topsoil Horizon:** An old top soil horizon was encountered below the fill in boring BH-1 and BH-2. The topsoil horizon consisted of dark brown silt with sand and trace organics. Based on SPT N-values ranging from about 12 b/ft to 15 b/ft, the topsoil horizon is interpreted to grade into a weathered advance outwash material. A similar layer of dark brown silt to silty sand was encountered at the ground surface in boring BH-3 and BH-4, though this material did not contain significant organics.

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- **Advance Outwash:** Advance glacial outwash was encountered at depths ranging from 3 to 8 feet. These soils generally consisted of gray, medium dense to dense silty sand to sand with silt. The SPT values ranged from12 b/ft to 40 b/ft. An increase in SPT values was generally observed with increased depth.

3.4 GROUNDWATER CONDITIONS

Groundwater seepage was not encountered in any of our explorations, as evidenced from a wet sampler or free water in the sample. However, soil moisture conditions appeared to increase at about 10 feet below the existing site grades, suggesting the presence of a groundwater table at that depth. In addition, low lying ground north of the existing employee parking lot is often wet during the winter months, suggesting a shallow ground water table. Ground water levels at the site will fluctuate seasonally, generally being highest in the winter and spring, or following periods of prolonged precipitation. Exploration was performed in the season and likely represents a seasonally low groundwater table.

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4.0 DESIGN RECOMMENDATIONS

4.1 ASPHALT AND PORTLAND CEMENT CONCRETE PAVEMENTS

4.1.1 Design Assumptions

We understand that pavements in the parking area will consist of standard duty flexible asphalt. Pavement design recommendations were developed using the following traffic loading assumptions provided in the Costco development guidelines:

- A pavement design life of 20 years; and
- A Traffic Index of 5.0.

Based on the soils encountered in the explorations, we anticipate that cuts will expose a subgrade consisting of fill and/or the old topsoil horizon. Prior to placing crushed surfacing rock, all subgrade should be prepared as discussed in Section 5.1.3 of this report. Our analyses assumed an average subgrade resilient modulus of 6,000 psi, which corresponds roughly to a CBR of 4.

4.1.2 Asphaltic Concrete Pavement

Asphaltic concrete pavement, also referred to as Hot Mix Asphalt (HMA) was designed in accordance with the Asphalt Institute Manual Series MS-1. We recommend that all HMA be compacted to a minimum of 92 percent of the rice maximum density in accordance with ASTM D2041. The recommended heavy duty HMA pavement section is presented in Table 1.

Table 1: Recommended Minimum HMA Pavement Sections

	Material	Layer Thickness (inches)
Standard Duty	HMA	3
	Crushed Surfacing	6

Crushed surfacing should conform to the requirements of Section 9-03.9(3) Crushed Surfacing Top Course or Base Course of the *WSDOT Standard Specifications* and be compacted to a minimum of 95 percent relative compaction per ASTM D1557.

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4.1.3 Asphaltic Performance Grade Binder

Performance Grade binder (PG) 58-16 is appropriate for the project. Binder selection was performed in accordance with Costco Wholesale Specifications Section 02741. Air temperature data for the five data stations nearest the project site was averaged and the PG was selected using the FHWA program LTTPBind Version 3.1. The high-end temperature rating was selected as one grade higher that the 98% reliability binder and the low-end temperature was selected to provide a reliability of at least 90%.

4.2 PERMANENT SLOPES

We recommend that permanent slopes be graded no steeper than 2H:1V for long-term stability and that slopes be vegetated or otherwise protected to minimize erosion. However, establishing vegetation on 2H:1V slopes can be difficult and irrigation could contribute to erosion and sloughing. Therefore, it may be desirable to grade slopes at a flatter 3H:1V to reduce erosion potential and provide for easier vegetation.

4.3 DRAINAGE CONSIDERATIONS

We recommend a French drain be installed along the south and east perimeter of the parking lot to intercept potential seepage. The drain should be installed to a minimum depth of 18 inches, consist of a minimum 4-inch diameter slotted pipe, and be surrounded with a minimum 6 inches of drain rock.

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5.0 CONSTRUCTION RECOMMENDATIONS

5.1 EARTHWORK

5.1.1 Excavation

We anticipate that excavation of the on-site fill soils can generally be performed with conventional earthmoving equipment such as bulldozers and trackhoe excavators. The contractor should be prepared to excavate boulders, cobbles, stumps or potential debris that may be encountered.

5.1.2 Clearing, Grubbing and Demolition

Prior to site grading, all grass, brush, and trees should be removed and properly disposed of offsite. Roots greater than 1-inch in diameter should be removed along with all root balls. We estimate topsoil stripping will generally be 6 inches deep with some localized areas up to 12 inches deep.

5.1.3 Subgrade Preparation

After excavations have been completed to the planned subgrade elevations the entire exposed subgrade should be evaluated by a Kleinfelder representative. Subgrade should be evaluated by proof-rolling with two passes of a fully-loaded dump truck or water truck. Any soft, yielding or unsuitable areas identified by the Kleinfelder representative should be over-excavated to the depth determined by the geotechnical engineer and replaced with compacted structural fill.

If excessively soft or yielding subgrade, fill debris or organic materials are encountered, the soils should be over-excavated as directed by a Kleinfelder representative. Following over-excavation and prior to placement of structural fill, the subgrade should be covered with a geotextile fabric conforming to the requirements of Section 9-33 Geotextile for Soil Stabilization of the Washington Department of Transportation (WSDOT) *Standard Specifications*.

Following subgrade evaluation, all exposed subgrade areas should be thoroughly compacted with a vibratory drum roller or vibratory hoepack compactor. The purpose of the recompaction is to compact any loose soils that may be present below the exposed subgrade and minimize potential for future settlement.

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5.1.4 Weather Considerations

The on-site soils contain a high amount of fines and are expected to be moisture sensitive. These soils will only be suitable for re-use as structural fill during dry weather. If major earthwork is planned during the drier summer months, use of imported soils will likely not be required. However, we recommend that a unit cost and contingency for import of granular structural fill and export of on-site soils be included in the contract documents.

During wet weather, the contractor should take measures to protect the exposed subgrade and limit construction traffic once the geotechnical engineer has approved them. These measures could include, but are not limited to, placing a layer of crushed rock or covering the exposed subgrade with a plastic tarp. If additional over-excavation is required because the subgrade was not protected, the cost of such additional work should be borne by the contractor.

5.2 STRUCTURAL FILL MATERIALS AND COMPACTION

Material placed below pavements should be considered structural fill. Structural fill should consist of well-graded, free-draining sand and gravel free from organics or other deleterious matter and have a maximum particle size of 6 inches. Imported structural fill material should conform to Section 9-03.14(1), Gravel Borrow, of the *WSDOT Standard Specifications*.

The contractor should submit samples of each of the required earthwork materials to the geotechnical engineer for evaluation and approval prior to use. The samples should be submitted at least 4 days prior to their use and sufficiently in advance of the work to allow the contractor to identify alternative sources if the material proves unsatisfactory.

Structural fill should be moisture conditioned to within 3 percent of the optimum moisture content prior to compaction and should be placed in maximum 8-inch thick lifts.

All structural fill should be compacted to a dense and unyielding condition and to a minimum of 95 percent of the modified Proctor maximum dry density as determined per ASTM D1557.

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5.3 TEMPORARY EXCAVATIONS AND SLOPES

All excavations and slopes must comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards and WISHA Safety Standards for Construction Work. Construction site safety is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing soil type information solely as a service to our client for planning purposes. Under no circumstances should the information be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

The soils encountered in our explorations generally classify as Type C soils and excavations in these materials should be inclined no steeper than 1½H:1V per WAC 295-115. Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed near the top of any excavation. Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning may be required to provide structural stability and to protect personnel working within the excavation. Earth retention, bracing, or underpinning required for the project (if any) should be designed by a professional engineer registered in the State of Washington.

Temporary excavations and slopes should be protected from the elements by covering with plastic sheeting or some other similar impermeable material. Sheeting sections should overlap by at least 12 inches and be tightly secured with sandbags, tires, staking, or other means to prevent wind from exposing the soils under the sheeting.

Trench and excavation backfill should be placed and compacted as described in Section 5.2. Pipe bedding material should conform to the manufacturers' recommendations. Particular care should be taken to make sure bedding or fill material is properly compacted in place to provide adequate support to the pipe. Jetting or flooding is not a substitute for mechanical compaction and should not be allowed.

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6.0 ADDITIONAL SERVICES

The recommendations made in this report are based on the assumption that an adequate program of tests and observations will be made during construction to verify compliance with these recommendations. Testing and observations performed during construction should include, but not necessarily be limited to, the following:

- Observations and testing during site preparation, earthwork, structural fill, and pavement section placement;
- Testing and inspection of asphalt and concrete; and
- Consultation as may be required during construction.

We further recommend that project plans and specifications be reviewed by us to verify compatibility with our conclusions and recommendations.

Also, Kleinfelder retains fully accredited, WABO-certified laboratory and inspection personnel, and are available for this project's testing and inspection needs. Information concerning the scope and cost for these services can be obtained from our office.

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7.0 LIMITATIONS

Recommendations contained in this report are based on the field explorations and our understanding of the proposed project. The investigation was performed using a mutually agreed upon scope of services. It is our opinion that this study was a cost-effective method to explore the subject site and evaluate the potential geotechnical concerns.

The soils data used in the preparation of this report were obtained from exploratory borings completed for this study. It is possible that variations in soil and groundwater conditions exist between the points explored. The nature and extent of these variations may not be evident until construction occurs. If soil or groundwater conditions are encountered at this site that are different from those described in this report, our firm should be immediately notified so that we may make any necessary revisions to our recommendations. In addition, if the scope of the proposed project, locations of facilities, or design building loads change from the descriptions given in this report, our firm should be notified.

The scope of our services does not include services related to construction safety precautions and our recommendations are not intended to direct the contractor's methods, techniques, sequences or procedures, except as specifically described in our report for consideration in design.

This report has been prepared for use in design for development of the subject property by Costco Wholesale, MulvannyG2 and their design consultants in accordance with the generally accepted standards of practice at the time the report was written. No warranty, express or implied, is made.

This report may be used only by Costco Wholesale, MulvannyG2 and their design consultants and only for the purposes stated within a reasonable time from its issuance, but in no event should this time exceed 12 months from the date of the report. Land or facility use, site conditions (both on- and off-site), regulations, advances in man's understanding of applied science, and/or other factors may change over time and could materially affect our findings and may require additional work. Therefore, this report should not be relied upon after 12 months from its issue. Kleinfelder should be notified if the project is delayed by more than 12 months from the date of this report so that a

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review of site conditions can be made, and recommendations revised if appropriate. Any party other than Costco Wholesale and MulvannyG2, or their design consultants who wishes to use this report, shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued.

It is the responsibility of Costco Wholesale and MulvannyG2 to see that all parties to the project including the designer, contractor, subcontractors, etc., are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk. Further guidelines and information on this geotechnical report can be found in the ASFE publication entitled Important Information About Your Geotechnical Engineering Report, which is included for your reference in Appendix E of this report.

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8.0 REFERENCES

Geologic Map of the Kirkland Quadrangle, Washington ,Minard, 1983.

2009 International Building Code, International Code Council.

Washington State Department of Transportation *Standard Specifications for Road, Bridge, and Municipal Construction 2010.*

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ENCLOSURE 4

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Figures

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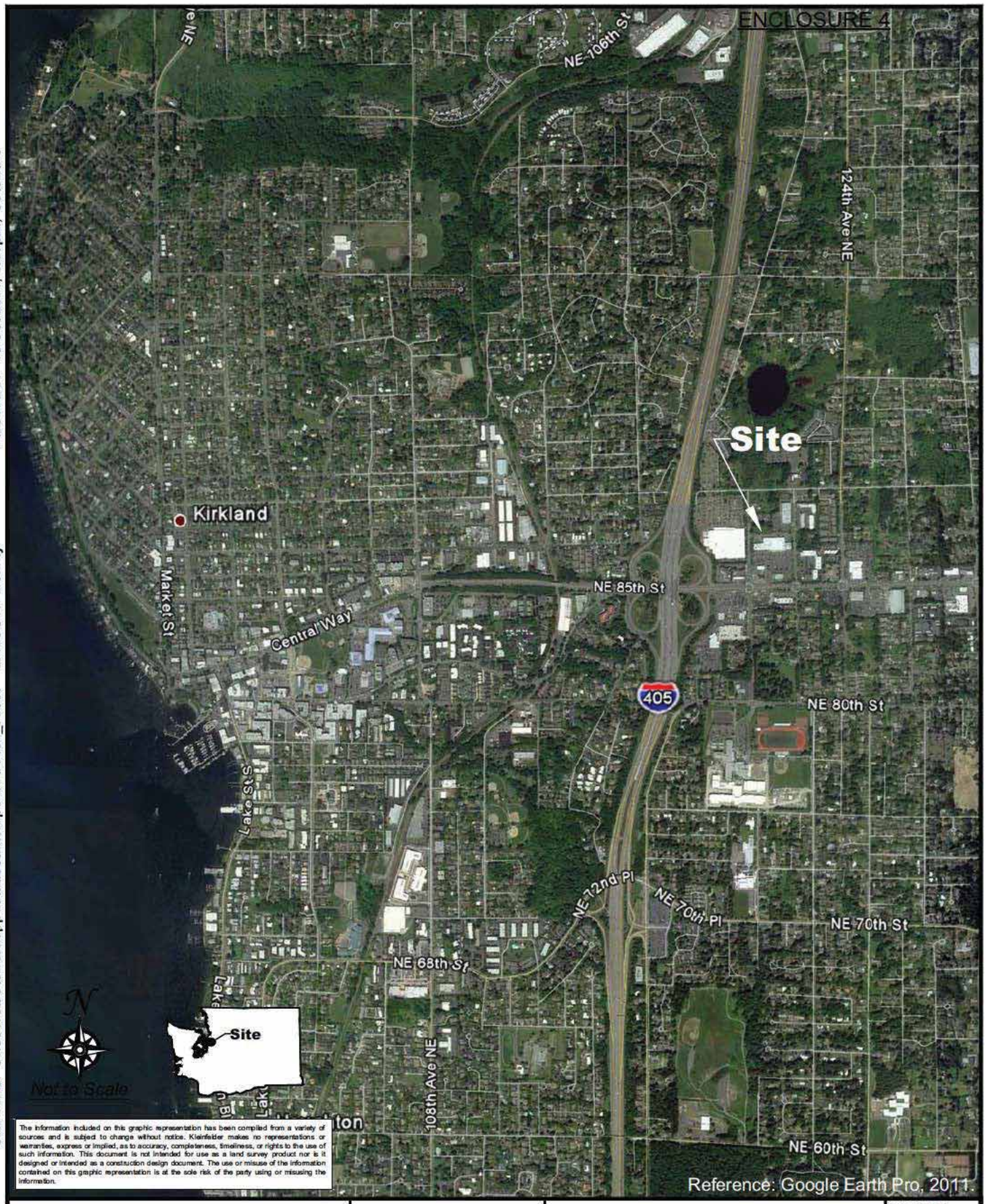

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Reference: Google Earth Pro, 2011.

PLOTTED: 18 Oct 2011, 4:50pm, JStewart

LAYOUT: Vicinity

CAD FILE: C:\Users\JStewart\appdata\local\temp\AcPublish_7008\

Images: Aerial.jpg Images: Guynup Prelim Grading.png Images: Vicinity.tif

ATTACHED IMAGES:
ATTACHED XREFS:
SEATTLE, WA

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PROJECT NO.	121302
DRAWN:	September 2011
DRAWN BY:	J.S.
CHECKED BY:	S.F.
FILE NAME:	121302_Figs.dwg

Vicinity Map

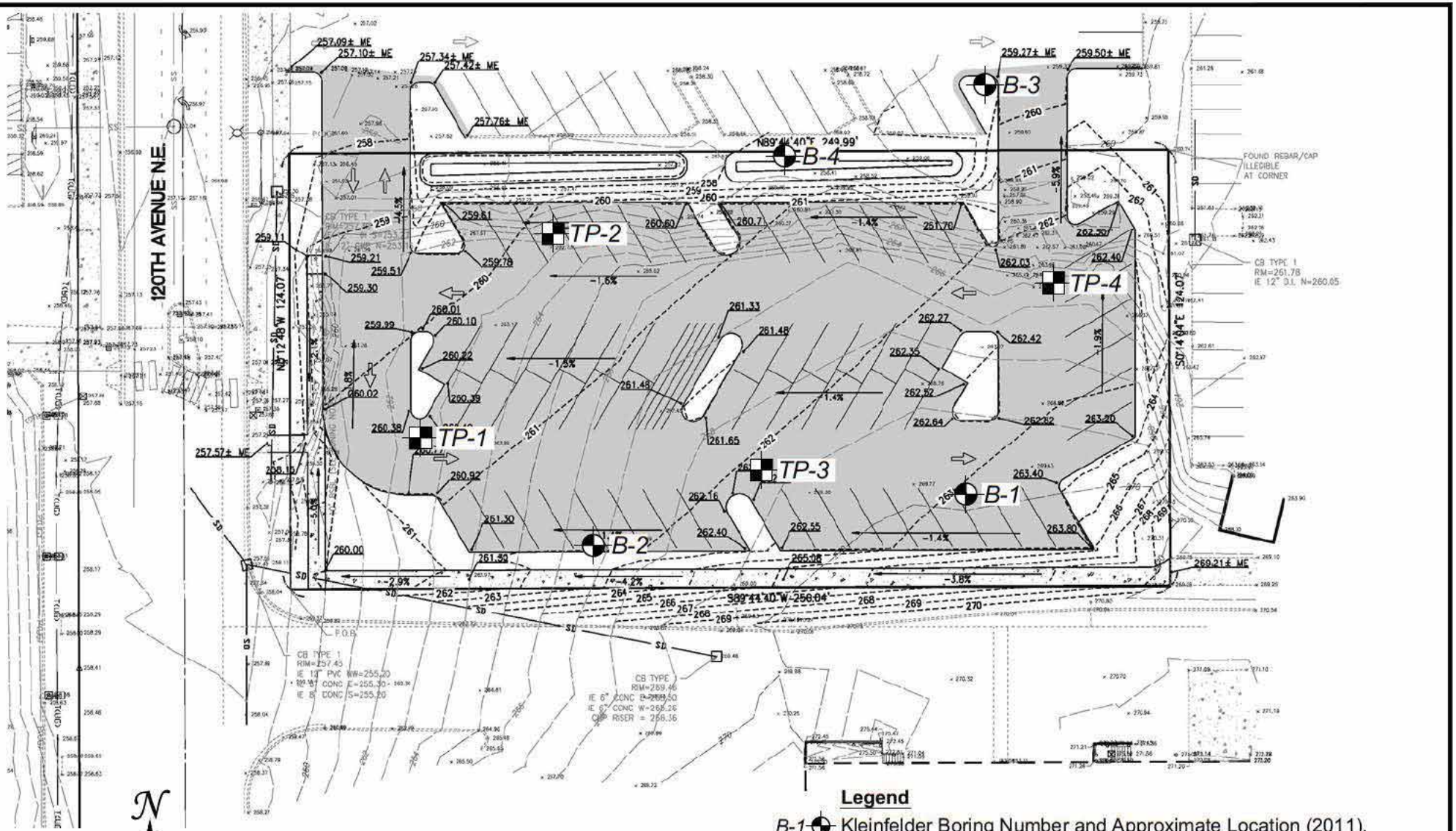
Proposed Parking Lot
Costco Warehouse #8
8629 120th Avenue NE
Kirkland, Washington

FIGURE

1

ATTACHED IMAGES: Images: Aerial.jpg Images: Guynup Prelim Grading.png Images: Vicinity.tif
ATTACHED XREFS:
SEATTLE, WA CAD FILE: C:\Users\JStewart\appdata\local\temp\AcPublish_7008\ LAYOUT: Site Map PLOTTED: 18 Oct 2011, 4:50pm, JStewart

ENCLOSURE 4



Legend

B-1 Kleinfelder Boring Number and Approximate Location (2011).

TP-1 Test Pit Number and Approximate Location (ABPB Consulting 2010).

Reference: Base Map provided by Barghausen Consulting Engineers, Inc., September 23, 2011.

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PROJECT NO.	121302
DRAWN:	September 2011
DRAWN BY:	J.S.
CHECKED BY:	M.B.
FILE NAME:	121302_Figs.dwg

Site and Exploration Plan

Proposed Parking Lot
Costco Warehouse #8
8629 120th Avenue NE
Kirkland, Washington

FIGURE
2

ENCLOSURE 4

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Appendix A

APPENDIX A
FIELD EXPLORATIONS

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Boring Number: B-1	**Location:** SE Guynup Property	**Drilling Method:** Hollow-stem auger
Boring Total Depth: 21.5 ft	**Coordinates (X/Y, Lat/Long):** ft / ft	**Drilling Equipment:** XL Trailer Drill
Depth to Rock: No Rock was Encountered	**Datum/Coordinate System:** No Survey	**Drilling Company:** Geologic Drill
Date Begin/End: 08-09-11 / 08-09-11	**Top of Boring Elevation:** 269.0 ft	**Bit Size/Type:** 8-inch
Surface Conditions: Grass	**Coordinate Data Source:** None	**Hammer Type/Method:** Cathead
WL Measurement Point: Ground Surface	**Depth to Groundwater Initial/Time:**	**Hammer Drop/Weight:** 30 in. / 140 lbs.
Logged By: S. Flowers	**Depth to Groundwater Final/Time:**	**Angle From Horizontal/Bearing:** -90°

Field Soil Description & Classification

The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Pocket Pen. (tsf)	Graphic Log	ASTM Symbol	Description	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests and Field Notes
							SM	3-inch sod mat **Silty SAND** (SM): gray, moist, fine to coarse sand, some fine, subangular gravel (FILL)	Md								
			S1	8 10 13									6				
5	264.0		S2	9 11 14									8		85	26	
			S3	12 10 9			ML	**SILT With Sand** (ML): dark brown, moist to wet, fine to medium sand, trace to some organic content (OLD TOPSOIL HORIZON)	Md	Np			20				
10	259.0		S4	5 7 8			SM	**Silty SAND** (SM): gray, wet, fine to medium sand (ADVANCE OUTWASH)	D				16				
15	254.0		S5	12 14 17			SP-SM	**SAND With Silt** (SP-SM): gray, wet, fine to medium sand (ADVANCE OUTWASH)	D				15		90	7	
20	249.0		S6	12 14 18				Grades to brown									The boring was backfilled with bentonite chips.
								Boring completed at a depth of 21.5 ft below existing site grade.									

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Project Number: 121302	**BORING LOG B-1**	**Plate** 1 of 1
Date: 08-09-11		
Entry By: S. Flowers	**Proposed Parking Lot** **Costco Wholesale No. 8** **8629 120th Avenue NE** **Kirkland, Washington**	**3**
Checked By: K. Deputy		
File Name:		

SOIL BORING LOG KLEINFELDER_GINT_TEMPLATE_VER_2.GDT KLEINFELDER GINT STD LIBRARY R4.GLB 121302 COSTCO KIRKLAND GUYNUP.GPJ 10/18/11

Boring Number: B-2	**Location:** SW Guynup Property	**Drilling Method:** Hollow-stem auger
Boring Total Depth: 21.5 ft	**Coordinates (X/Y, Lat/Long):** ft / ft	**Drilling Equipment:** XL Trailer Drill
Depth to Rock: No Rock was Encountered	**Datum/Coordinate System:** No Survey	**Drilling Company:** Geologic Drill
Date Begin/End: 08-09-11 / 08-09-11	**Top of Boring Elevation:** 266.0 ft	**Bit Size/Type:** 8-inch
Surface Conditions: Grass	**Coordinate Data Source:** None	**Hammer Type/Method:** Cathead
WL Measurement Point: Ground Surface	**Depth to Groundwater Initial/Time:**	**Hammer Drop/Weight:** 30 in. / 140 lbs.
Logged By: S. Flowers	**Depth to Groundwater Final/Time:**	**Angle From Horizontal/Bearing:** -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Pocket Pen. (tsf)	Graphic Log	ASTM Symbol	Field Soil Description & Classification: Description	Consistency / Apparent Density	Plasticity	Laboratory: Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests and Field Notes
								5-inch sod mat									
							SM	**Silty SAND** (SM): gray, moist, fine and medium sand, some fine gravel (FILL)	Md								
			S1	10 7 8									10				
5	261.0		S2	5 5 6									14				
			S3a	5 4	2.0			Becomes wet					31		96	32	
			S3b	3/0"													
							ML	**SILT With Sand** (ML): dark brown, moist to wet, trace to some organic content (OLD TOPSOIL HORIZON)	Md	Np							
10	256.0		S4	4 5 7									20				
							SP-SM	**SAND With Silt** (SP-SM): gray, wet (ADVANCE OUTWASH)	Md								
15	251.0		S5	10 12 16				grades to gray	Md								
20	246.0		S6	15 17 17				grades to brown	D								The boring was backfilled with bentonite chips.
								Boring completed at a depth of 21.5 ft below existing site grade.									

The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.

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Project Number: 121302
Date: 08-09-11
Entry By: S. Flowers
Checked By: K. Deputy
File Name:

BORING LOG B-2

Proposed Parking Lot
Costco Wholesale No. 8
8629 120th Avenue NE
Kirkland, Washington

Plate
1 of 1
4

SOIL BORING LOG KLEINFELDER_GINT_TEMPLATE_VER_2.GDT KLEINFELDER GINT STD LIBRARY R4.GLB 121302 COSTCO KIRKLAND GUYNUP.GPJ 10/18/11

Boring Number: B-3	**Location:** E Employee Parking	**Drilling Method:** Hollow-stem auger
Boring Total Depth: 21.5 ft	**Coordinates (X/Y, Lat/Long):** ft / ft	**Drilling Equipment:** XL Trailer Drill
Depth to Rock: No Rock was Encountered	**Datum/Coordinate System:** No Survey	**Drilling Company:** Geologic Drill
Date Begin/End: 08-09-11 / 08-09-11	**Top of Boring Elevation:** 258.0 ft	**Bit Size/Type:** 8-inch
Surface Conditions: Soil	**Coordinate Data Source:** None	**Hammer Type/Method:** Cathead
WL Measurement Point: Ground Surface	**Depth to Groundwater Initial/Time:**	**Hammer Drop/Weight:** 30 in. / 140 lbs.
Logged By: S. Flowers	**Depth to Groundwater Final/Time:**	**Angle From Horizontal/Bearing:** -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Pocket Pen. (tsf)	Graphic Log	ASTM Symbol	Description (Field Soil Description & Classification)	Consistency / Apparent Density	Plasticity	Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests and Field Notes
							ML	**SILT** (ML): dark brown, moist, some fine and medium sand	F	Np							
			S1	2 4 8	3.0										100	50	
							SM	**Silty SAND** (SM): gray, wet, fine and medium sand (ADVANCE OUTWASH)	Md								
5	253.0		S2	6 6 6													
			S3	10 11 14													
10	248.0		S4	13 17 21									16		99	26	
							ML	**SILT With Sand** (ML): gray, wet, fine and medium sand	Md	Np							
15	243.0		S5	6 8 11									14				
20	238.0		S6	8 6 10	2.5			Grades to moist									The boring was backfilled with bentonite chips.
								Boring completed at a depth of 21.5 ft below existing site grade.									

The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.

Laboratory

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Project Number: 121302	**BORING LOG B-3**
Date: 08-09-11	
Entry By: S. Flowers	**Proposed Parking Lot** **Costco Wholesale No. 8** **8629 120th Avenue NE** **Kirkland, Washington**
Checked By: K. Deputy	
File Name:	

Plate
1 of 1
5

SOIL BORING LOG KLEINFELDER_GINT_TEMPLATE_VER_2.GDT KLEINFELDER GINT STD LIBRARY R4.GLB 121302 COSTCO KIRKLAND GUYNUP.GPJ 10/18/11

Boring Number: B-4	**Location:** S Employee Parking	**Drilling Method:** Hollow-stem auger
Boring Total Depth: 21.5 ft	**Coordinates (X/Y, Lat/Long):** ft / ft	**Drilling Equipment:** XL Trailer Drill
Depth to Rock: No Rock was Encountered	**Datum/Coordinate System:** No Survey	**Drilling Company:** Geologic Drill
Date Begin/End: 08-09-11 / 08-09-11	**Top of Boring Elevation:** 258.0 ft	**Bit Size/Type:** 8-inch
Surface Conditions: Soil	**Coordinate Data Source:** None	**Hammer Type/Method:** Cathead
WL Measurement Point: Ground Surface	**Depth to Groundwater Initial/Time:**	**Hammer Drop/Weight:** 30 in. / 140 lbs.
Logged By: S. Flowers	**Depth to Groundwater Final/Time:**	**Angle From Horizontal/Bearing:** -90°

Depth (ft)	Elevation (ft)	Sample Type Symbol	Sample Number	Blows per 6 in.	Pocket Pen. (tsf)	Graphic Log	ASTM Symbol	Field Soil Description & Classification: Description	Consistency / Apparent Density	Plasticity	Laboratory: Plasticity Index	Liquid Limit	Water Content (%)	Dry Unit Weight (pcf)	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Other Tests and Field Notes
								11-inch sod and leaf mat									
							SM	**Silty SAND** (SM): dark brown, moist, fine and medium sand, trace organic content	Md								
			S1	4 5 6	3.0								24				
5	253.0						SP-SM	**SAND** (SP-SM): gray, moist, fine and medium sand, some silt (ADVANCE OUTWASH)	Md								
			S2	7 7 10													
								Becomes wet	Md								
			S3	10 7 17													
10	248.0								D								
			S4	13 14 19													
							SM	**Silty SAND** (SM): gray, moist, fine and medium sand	Md								
15	243.0																
			S5	7 13 13													
20	238.0								D								The boring was backfilled with bentonite chips.
			S6	16 18 22													
								Boring completed at a depth of 21.5 ft below existing site grade.									

The report and log key are an integral part of these logs. All data and interpretations in this log are subject to those stated explanations and limitations.

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Project Number: 121302	**BORING LOG B-4**
Date: 08-09-11	
Entry By: S. Flowers	**Proposed Parking Lot** **Costco Wholesale No. 8** **8629 120th Avenue NE** **Kirkland, Washington**
Checked By: K. Deputy	
File Name:	

Plate
1 of 1
6

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ENCLOSURE 4

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Appendix B

APPENDIX B
GEOTECHNICAL LABORATORY TESTING

B.1 GENERAL

Kleinfelder conducted laboratory tests on selected representative soil samples to better identify the soil classification of the units encountered and to evaluate the material's general physical properties and engineering characteristics. A brief description of the tests performed for this study is provided below. The results of laboratory tests performed on specific samples are provided at the appropriate sample depths on the individual boring logs. However, it is important to note that these test results may not accurately represent in situ soil conditions. All of our recommendations are based on our interpretation of these test results and their use in guiding our engineering judgment.

In accordance with your requirements, the soil samples for this project will be retained a period of 6 months following completion of this report, or until the foundation installation is complete, unless we are otherwise directed in writing.

B.2 SOIL CLASSIFICATION

Our representative visually examined soil samples in the field at the time they were obtained. Our representative subsequently packaged and returned the samples to our laboratory where we reexamined them and checked and verified or modified the original description. With the help of information obtained from the other classification tests, described below, we described the samples in general accordance with the Unified Classification System, ASTM Standard D2487. The resulting descriptions are provided at the appropriate locations on the individual boring logs, located in Appendix A, and are qualitative only.

B.3 GRAIN-SIZE DISTRIBUTION

Klienfelder conducted detailed grain-size distribution analysis on five samples in general accordance with ASTM Standard D422 to determine the grain-size distribution of the on-site soil. Additionally, we analyzed the percent fines to determine the amount of material passing the U.S. Standard No. 200 size sieve (material less than 0.075 mm).

The information gained from this analysis allows us to provide a detailed description and classification of the in-place materials. In turn, this information helps us to understand

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how the in-place materials will react to conditions such as loading, potential liquefaction, and so forth.

B.4 MOISTURE CONTENT

Kleinfleder conducted moisture content tests on 12 samples obtained from the borings. The purpose of these tests is to approximately ascertain the in-place moisture content of the soil sample at the time it was collected. We determined the moisture content in general accordance with ASTM Standard D2216. The information obtained assists us by providing qualitative information regarding soil compactability and fines content. The results of these tests are presented at the appropriate sample depths on the exploration logs. Moisture content ranged from 5.0 to 27.3 percent in the samples tested.

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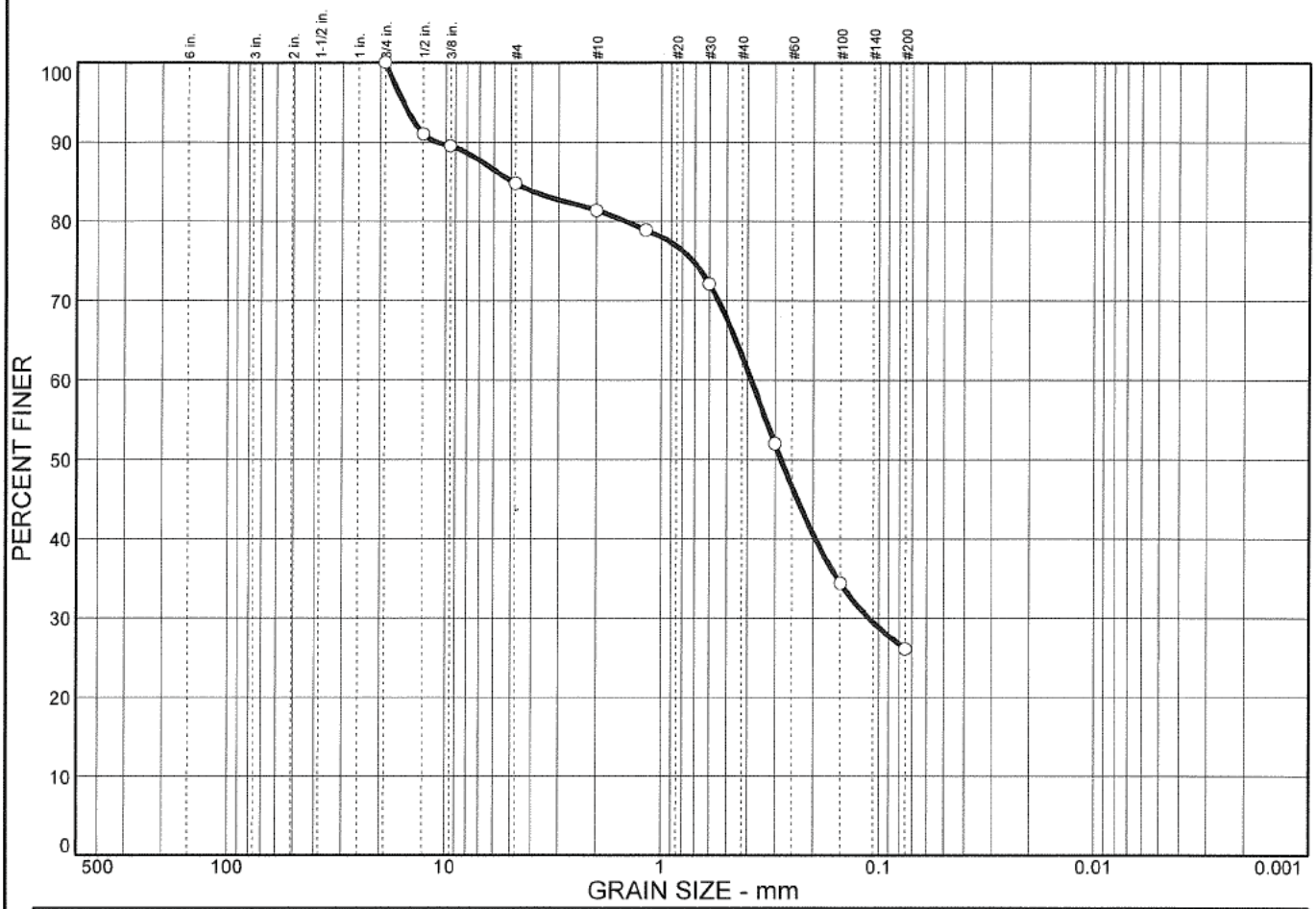
14710 NE 87th Street, Suite A100, Redmond, WA 98052 **p |** 425.636.7900 **f |** 425.636.7901

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	15.2	58.7	26.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	91.0		
.375 in.	89.5		
#4	84.8		
#10	81.4		
#16	78.9		
#30	72.1		
#50	52.0		
#100	34.4		
#200	26.1		

* (no specification provided)

Soil Description

Silty sand with gravel
Laboratory Sample No.: 10521

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.90 D_{60}= 0.385 D_{50}= 0.281
D_{30}= 0.111 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

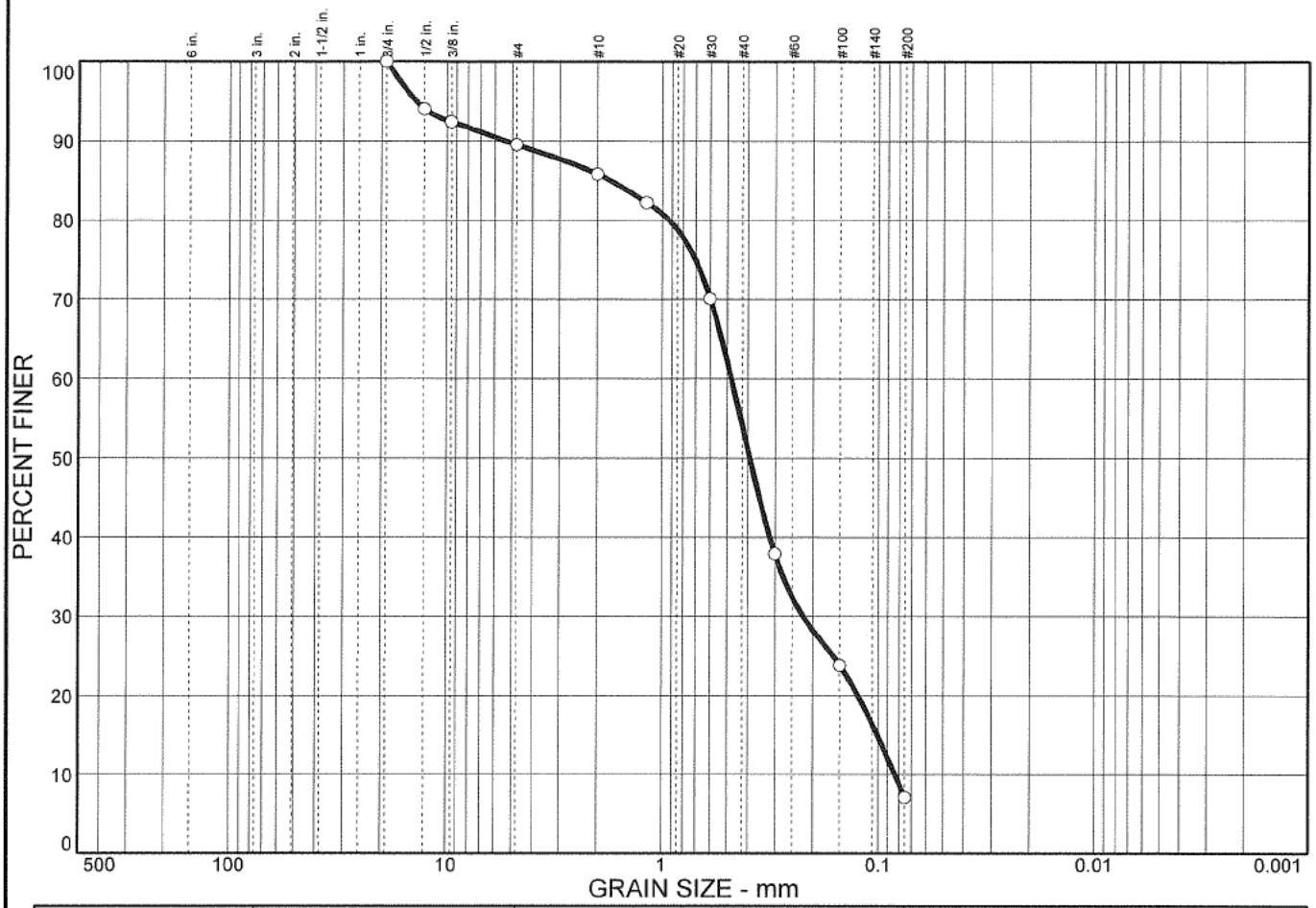
Sampled by: S. Flowers
Tested by: B. Della

Sample No.: S-2 **Source of Sample:** B-1 **Date:** 89/11/11
Location: **Elev./Depth:** 5.0'

KLEINFELDER, INC.

Client: Costco Wholesale
Project: Proposed Parking Lot, Costco Warehouse No. 8 Kirland, WA
Project No: 121302 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	10.5	82.4	7.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	94.0		
.375 in.	92.4		
#4	89.5		
#10	85.8		
#16	82.2		
#30	70.1		
#50	37.9		
#100	23.8		
#200	7.1		

* (no specification provided)

Soil Description

Poorly graded sand with silt
Laboratory Sample No.:10524

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 1.75 D_{60}= 0.478 D_{50}= 0.393
D_{30}= 0.222 D_{15}= 0.101 D_{10}= 0.0834
C_u= 5.73 C_c= 1.24

Classification

USCS= SP-SM AASHTO=

Remarks

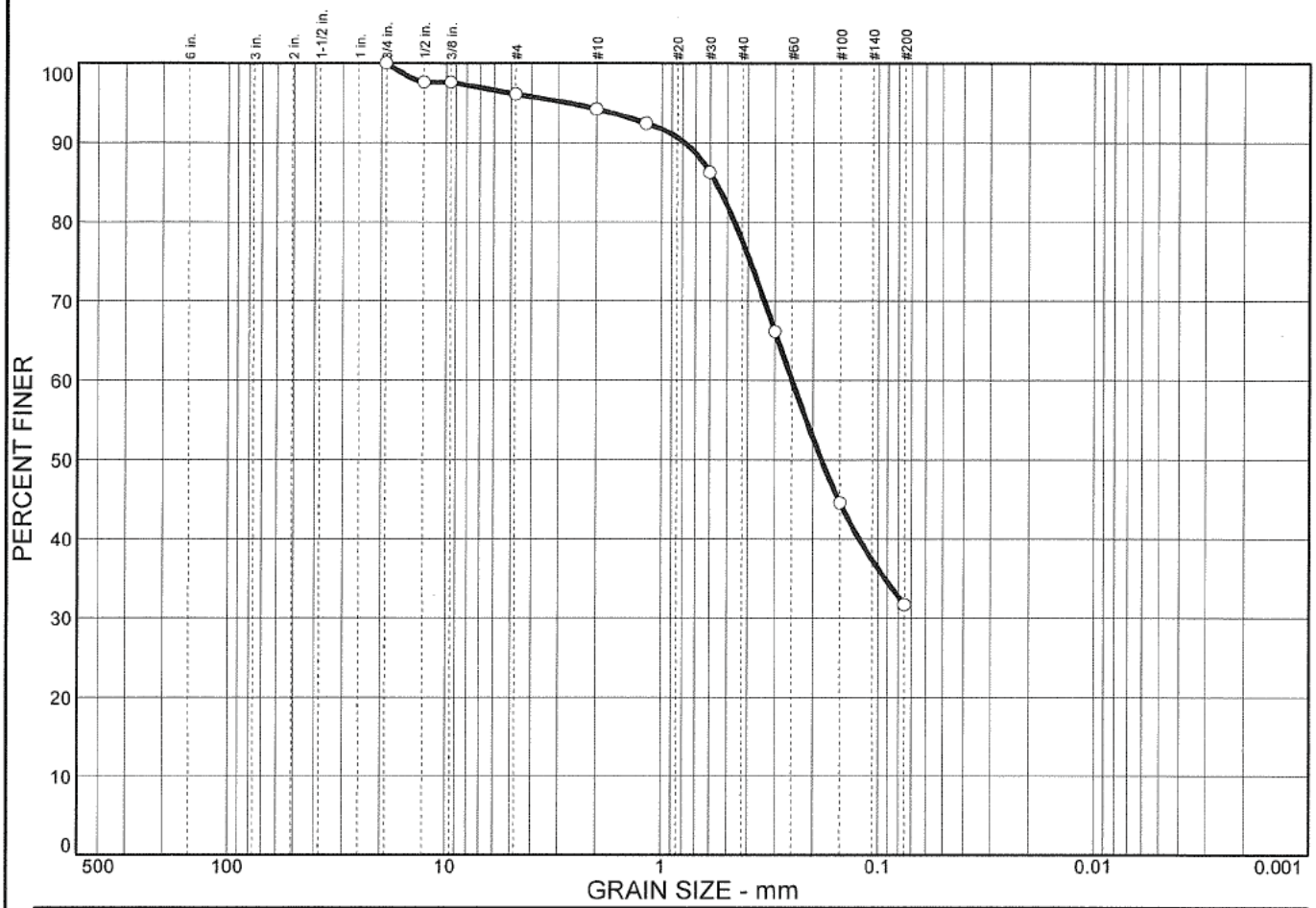
Sampled by: S. Flowers
Tested By: B.Della
Reviewed By: G.Kaechtel,Lab Manager

Sample No.: S-5 **Source of Sample:** B-1 **Date:** 8-11-11
Location: **Elev./Depth:** 15.0'

KLEINFELDER, INC.

Client: Costco Wholesale
Project: Proposed Parking Lot, Costco Warehouse No. 8 Kirland, WA
Project No: 121302 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	3.9	64.4	31.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	97.6		
.375 in.	97.6		
#4	96.1		
#10	94.2		
#16	92.4		
#30	86.2		
#50	66.2		
#100	44.6		
#200	31.7		

* (no specification provided)

Soil Description

Silty Sand
Laboratory Smaple no.: 10527

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.565 D_{60}= 0.250 D_{50}= 0.183
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

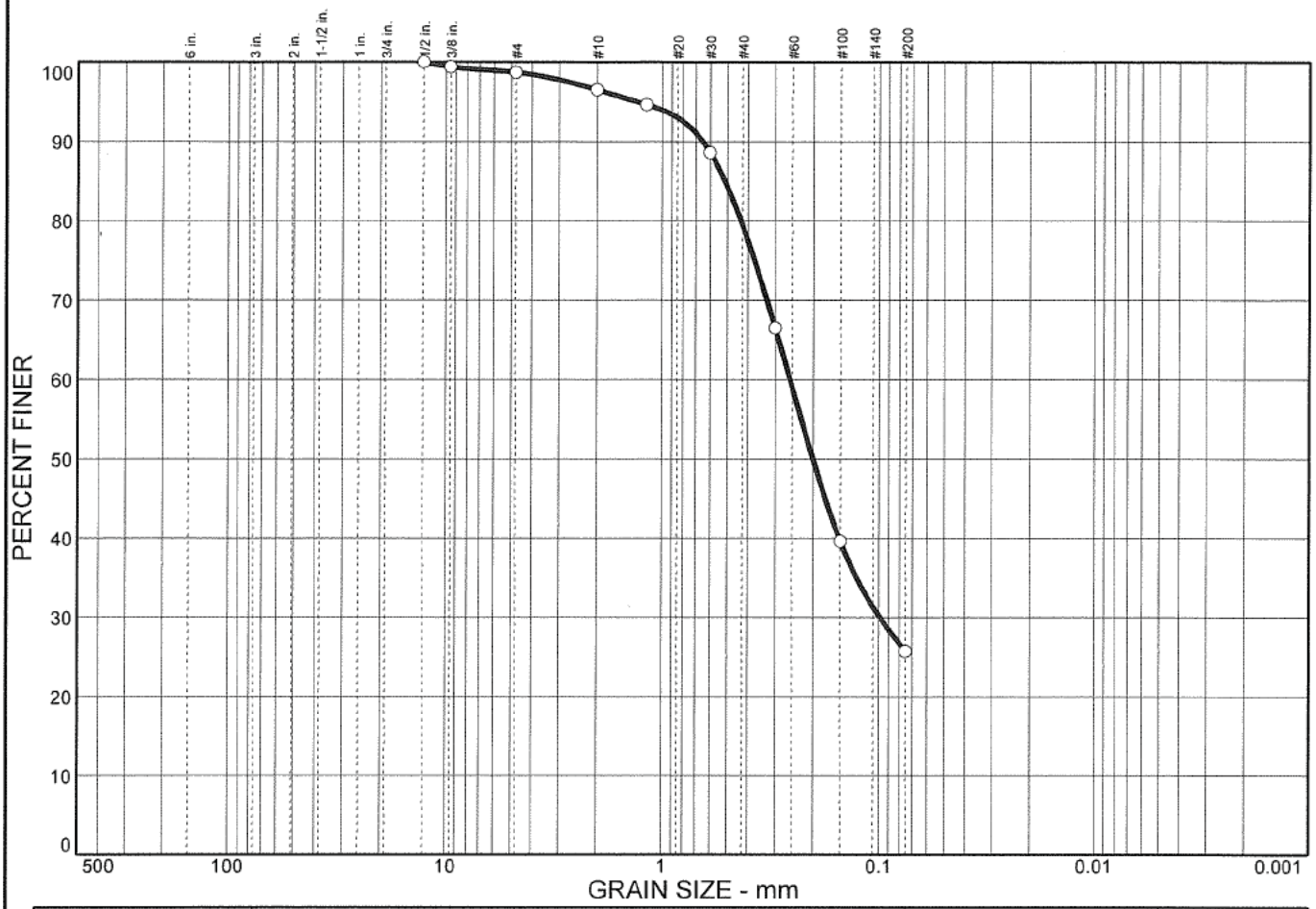
Sampled By: S.Flowers
Tested By: B.Della
Reviewed By: G.Knechtel, Lab Manager

Sample No.: S-3 **Source of Sample:** B-2 **Date:** 8/11/11
Location: **Elev./Depth:** 7.5'

KLEINFELDER, INC.

Client: Costco Wholesale
Project: Proposed Parking Lot, Costco Warehouse No. 8 Kirland, WA
Project No: 121302 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.3	73.0	25.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
.375 in.	99.4		
#4	98.7		
#10	96.5		
#16	94.6		
#30	88.6		
#50	66.5		
#100	39.6		
#200	25.7		

* (no specification provided)

Soil Description

Silty sand
Laboratory Sample No.: 10529

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.513 D_{60}= 0.256 D_{50}= 0.201
D_{30}= 0.0986 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

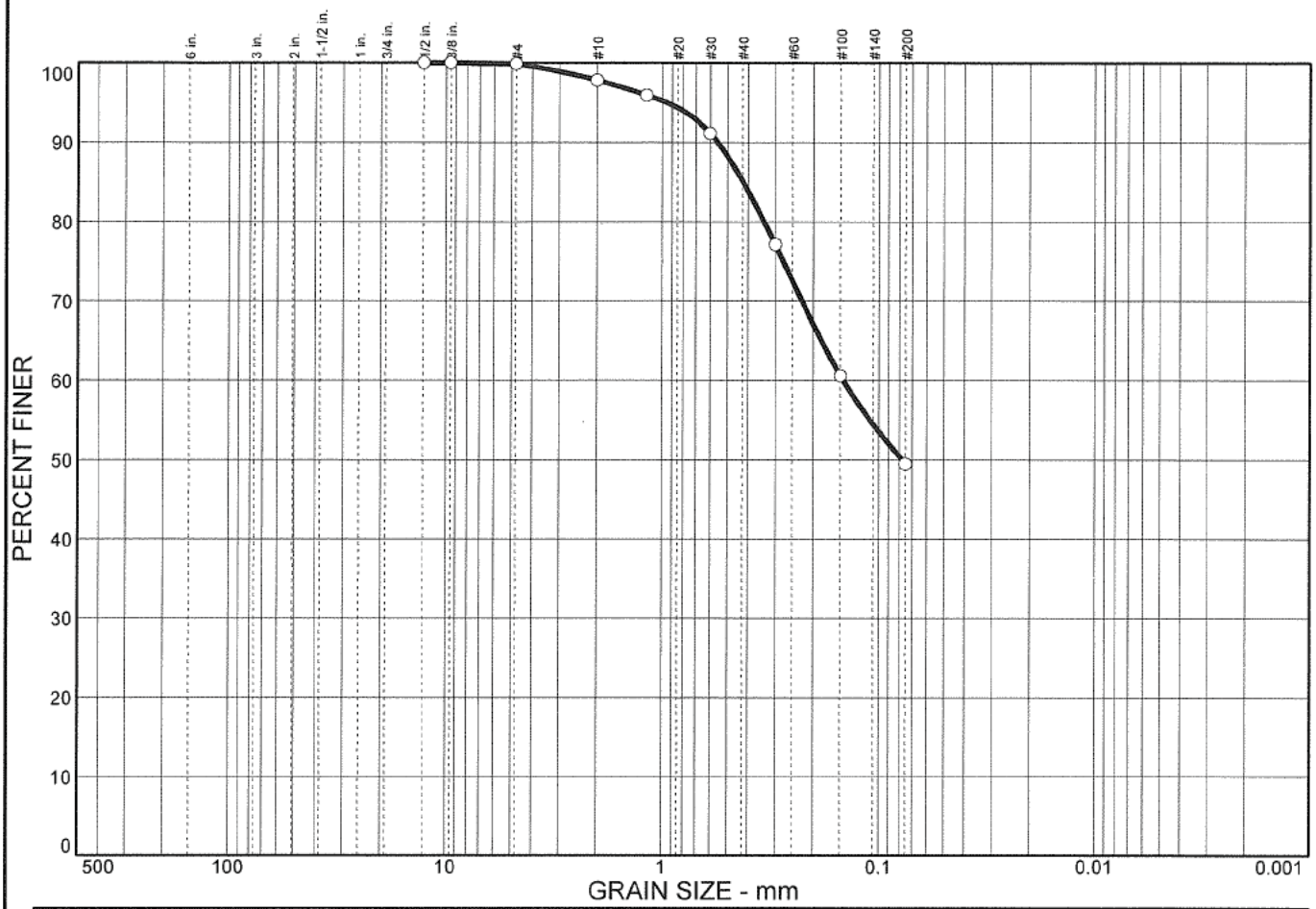
Sampled by: S.Flowers
Tested by: B.Della
Reviewed by:G.Knechtel, Lab Manager

Sample No.: S-4 **Source of Sample:** B-3 **Date:** 8/11/11
Location: **Elev./Depth:** 10'

KLEINFELDER, INC.

Client: Costco Wholesale
Project: Proposed Parking Lot, Costco Warehouse No. 8 Kirland, WA
Project No: 121302 **Figure**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.1	50.4	49.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.50 in.	100.0		
.375 in.	100.0		
#4	99.9		
#10	97.8		
#16	95.9		
#30	91.1		
#50	77.1		
#100	60.6		
#200	49.5		

* (no specification provided)

Soil Description

Silty sand
Laboratory Sample No.:10530

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.423 D_{60}= 0.146 D_{50}= 0.0777
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sampled by; S.Flowers
Tested by:B.Della
Reviewed by: G.Knechtel,Lab Manager

Sample No.: S-5 **Source of Sample:** B-3 **Date:**
Location: **Elev./Depth:** 2.5'

KLEINFELDER, INC.

Client: Costco Wholesale
Project: Proposed Parking Lot, Costco Warehouse No. 8 Kirland, WA
Project No: 121302 **Figure**

ENCLOSURE 4

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Appendix C

APPENDIX C
PRIOR EXPLORATIONS BY OTHERS

Project :	**Rose Hill Parking Lot**		
Project No.	1233-1	**Date :**	10-26-10
Client :	Rose Hill Shpg. Ctr.	**Elevation**	261 feet
Location:	NW Corner	**Logged By:**	Paul Bonifaci

ENCLOSURE 4

Test Pit TP - 1

SUBSURFACE PROFILE			SAMPLE			Field Strength Tests	**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS		Moisture Content
0		Fill: (6 inches surface Sod),Tan brown to grey, silty gravelly SAND FILL, with scattered small concrete pieces, tire fragments, and small wood fragments, loose, wet grading to moist			SM		
-1							
-2							
-3							
-4							
-5							
-6							
-7							
-8		Peat: Brown to black brown, organic peaty Topsoil, loose, rooty, wet	▼		PT		
-9							
-10		Sand: Grey tan, clean to slightly silty, fine to medium SAND, small roots, wet, loose to medium dense			SP		
-11							
-12		Groundwater seepage below 8 feet					

ABPB Consulting

Geotechnical Consultants

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Date : Nov. 2010	Project Name : Rose Hill Parking Lot	Figure 2

Project :	**Rose Hill Parking Lot**		
Project No.	1233-1	**Date :**	10-26-10
Client :	Rose Hill Shpg. Ctr	**Elevation**	262 feet
Location:	NW Corner	**Logged By:**	Paul Bonifaci

ENCLOSURE 4

Test Pit TP - 2

SUBSURFACE PROFILE			SAMPLE				**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS	Field Strength Tests	Moisture Content
0		Fill: (6 inches surface Sod),Tan brown to grey, silty gravelly SAND FILL, loose, wet grading to moist					
-1							
-2							
-3					SM		
-4							
-5							
-6							
-7							
-8							
-9		Peat: Brown to black brown, organic peaty Topsoil with straw, loose, rooty, wet	▼				
-10					PT		
-11		Sand: Grey tan, clean to slightly silty, fine to medium gravelly SAND, small roots, wet, loose to medium dense			SP		
-12		Groundwater seepage below 9 feet					

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Geotechnical Consultants

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Date : Nov. 2010	Project Name : Rose Hill Parking Lot	Figure 3

Project :	**Rose Hill Parking Lot**		
Project No.	1233-1	**Date :**	10-26-10
Client :	Rose Hill Shpg. Ctr.	**Elevation**	268 feet
Location:	NW Corner	**Logged By:**	Paul Bonifaci

ENCLOSURE 4

Test Pit TP - 3

SUBSURFACE PROFILE			SAMPLE				**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS	Field Strength Tests	Moisture Content
0		Fill: (6 inches surface Sod),Tan brown to grey, silty gravelly SAND FILL, loose, wet grading to moist					
-1							
-2							
-3					SM		
-4							
-5							
-6							
-7							
-8							
-9			▼				
-10		Fill: Brown, organic filled silty gravelly SAND FILL, loose, wet			SM		
-11		Peat: Brown black, peaty Topsoil, rooty, loose, wet			PT		
-12		Sand: Grey tan, clean to slightly silty SAND, wet, loose to medium dense			SP		
-13							
-14		Groundwater seepage below 9 feet					

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Geotechnical Consultants

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Date : Nov. 2010	Project Name : Rose Hill Parking Lot	Figure 4

Project :	**Rose Hill Parking Lot**		
Project No.	1233-1	**Date :**	10-26-10
Client :	Rose Hill Shpg. Ctr.	**Elevation**	266 feet
Location:	NW Corner	**Logged By:**	Paul Bonifaci

ENCLOSURE 4

Test Pit TP - 4

SUBSURFACE PROFILE			SAMPLE			Field Strength Tests	**Laboratory Results**
Depth (ft)	Soil Lithology	Soil Description	Water Level	Sample	USCS		Moisture Content
0		Fill: (6 inches surface Sod),Tan brown to grey, silty gravelly SAND FILL, loose, wet grading to moist					
-1							
-2							
-3					SM		
-4							
-5							
-6		Fill: Tan, mixed silty gravelly SAND FILL and concrete and asphalt rubble, loose, with water pockets,					
-7							
-8					SM		
-9							
-10		Peat: Brown black, peaty Topsoil, rooty, loose, wet	▼				
-11					PT		
-12		Sand: Grey tan, clean to slightly silty SAND, wet, loose to medium dense Groundwater seepage below 10 feet			SP		
-13							

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Date : Nov. 2010	Project Name : Rose Hill Parking Lot	Figure 5

ENCLOSURE 4

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Appendix D

APPENDIX D
IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

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