GeoEngineers

Memorandum

8410 154th Avenue NE, Redmond, WA 98052, Telephone: 425.861.6000, Fax: 425.861.6050

www.geoengineers.com

To:	Matt Corsi – Urban Evolution
From:	Matthew W. Smith, PE and Aaron Hartvigsen, PE
Date:	January 5, 2016
File:	12406-015-00
Subject:	Issaquah Senior – Steep Slope Considerations

MATTHEW W. SMITH
STATE OF WASHINGTON
35217
REGISTERED
PROFESSIONAL ENGINEER
1/5/16

The purpose of this memorandum is to provide discussion of code requirements and available information regarding steep slopes mapped along the western property line.

CODE REQUIREMENTS

The Issaquah Municipal Code regarding steep slopes states that "steep slope hazard areas and associated buffers shall not be altered" (IMC 18.10.580) with steep slopes defined as 40 percent slope or steeper. The following exemptions are included in the code:

E. Limited Exemptions:

1. Slopes 40 percent and steeper with a vertical elevation change of up to 20 feet may be exempted from the provisions of this section (through Level 1 Review or through the appropriate land use permitting process), based on the City review and acceptance of a soils report prepared by a geologist or licensed geotechnical engineer when no adverse impact will result from the exemption.
2. Any slope which has been created through previous, legal grading activities may be regarded as part of an approved development proposal. Any slope which remains equal to or in excess of 40 percent following site development shall be subject to the protection mechanisms for steep slopes.

SITE TOPOGRAPHY

We reviewed the site topography based on the Existing Slope Analysis Figure provided by VIA Architecture and Site Sections Provided by Triad (attached). The areas shaded the darkest gray are 40 percent or steeper. The area that meets steep slope requirements per the above referenced code is located at the northwest portion of the property. The elevation changes is approximately 22 to 24 feet through the steep portion of the slope immediately below Newport Way. The contours are at a consistent spacing until the catch point, which is typically near Elevation 70 feet. The slope of what appears to be the natural grade is not as steep (15 percent to 25 percent) before transitioning to a much shallower slope (less than 15 percent) across the eastern half of the site. Cross Section A depicts the portion of the slope that is steeper than 40 percent and in excess of 20 feet in height. The other sections, B, C and D, depict that the portions of the slope that are steeper than 40 percent are shorter than 20 feet tall.

SITE GEOLOGY

Published geologic information for the project vicinity includes a United States Geological Survey (USGS) geologic map of the East Half of the Bellevue South 7.5' x 15' Quadrangle, Issaquah Area, King County,

Washington (Booth and others, 2012). Pre-Olympia age glacial deposits are mapped on the northwest corner of the site and consist of weakly to strongly oxidized silt, sand, gravel and till of glacial origin. The mapped geologic unit at the base of the slope and the majority of the project site consists of alluvium deposits. The alluvium locally includes sediments of similar texture and age found in low-lying areas adjacent to Lake Sammamish, particularly beach and shallow lacustrine deposits. The alluvium generally consists of cobble gravel, pebbly sand, and sandy silt, moderately sorted; deposited along major stream channels.

HISTORICAL REVIEW

The western portion of the property is bounded by Newport Way. Based on our research of aerial photographs the roadway existed prior to 1936. We understand that the roadway was likely improved in the 1950s. Typical construction practice for both the original road construction and any improvements that would have occurred in the 1950s was to cut material from the upslope and place it on the downslope. This method of construction is commonly referred to as side-cast fill.

CONCLUSIONS AND RECOMMENDATIONS

Our borings for the site development were completed at the base of the steep slope in the vicinity of the building footprints. We do not have borings at the top of the steep slope at Newport Way. Based on our review of available information, the slope is likely constructed of fill derived from glacial soils and founded on glacial deposits. Although no plans are available, the slopes are interpreted to be created during the construction of Newport Way. We have marked up the cross sections with our interpretation of the likely original ground surface based on existing surface topography and typical construction practice at the time of the road construction. No known slope stability issues have been recorded by City of Issaquah officials and we did not observe indication of slope instability during our site visits for explorations.

It is our opinion that the steep slopes at the site with less than 20 feet in elevation change (Sections B, C and D) meet the requirements of Limited Exemption 1. It is our opinion that slopes with greater than 20 feet in elevation change (Section A) meet the requirements of Limited Exemption 2, based on our review of site topography as well as existing and historical information. All earthwork and retaining structures should be designed and built in accordance with our recommendations.

Attachments:

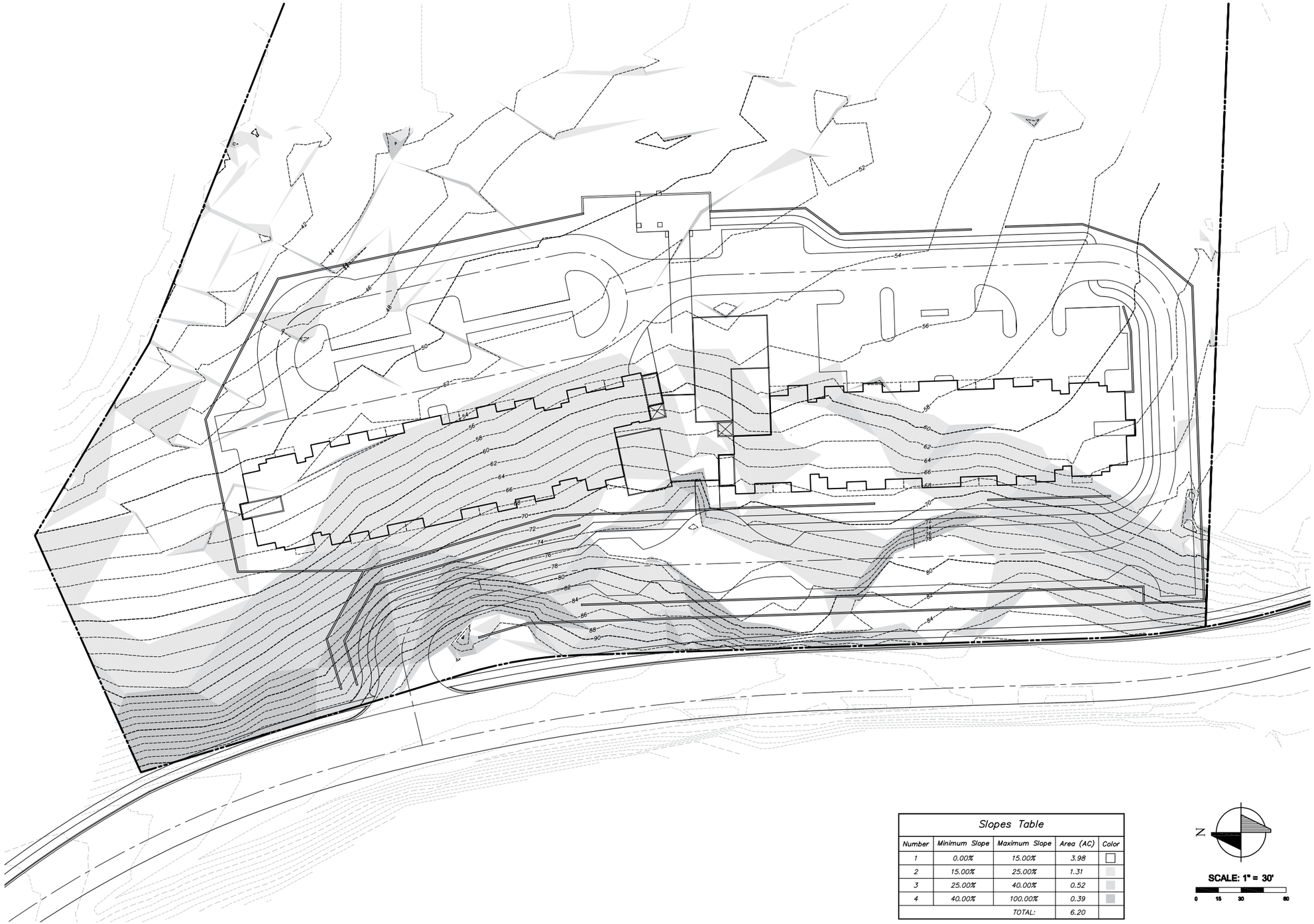
Existing Slope Analysis

Site Sections (w/ markups)

AJH:MWS:nld

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

EXISTING SLOPE ANALYSIS



GRADING

Areas of steep slope on the existing site have excluded portions of the site area from the developable area as calculated according to the City of Issaquah standards. The remaining grade difference is accomodated with a new frontage road directly accessed from Newport Way to allow appropriate slope for pedestrians and vehicles on site.

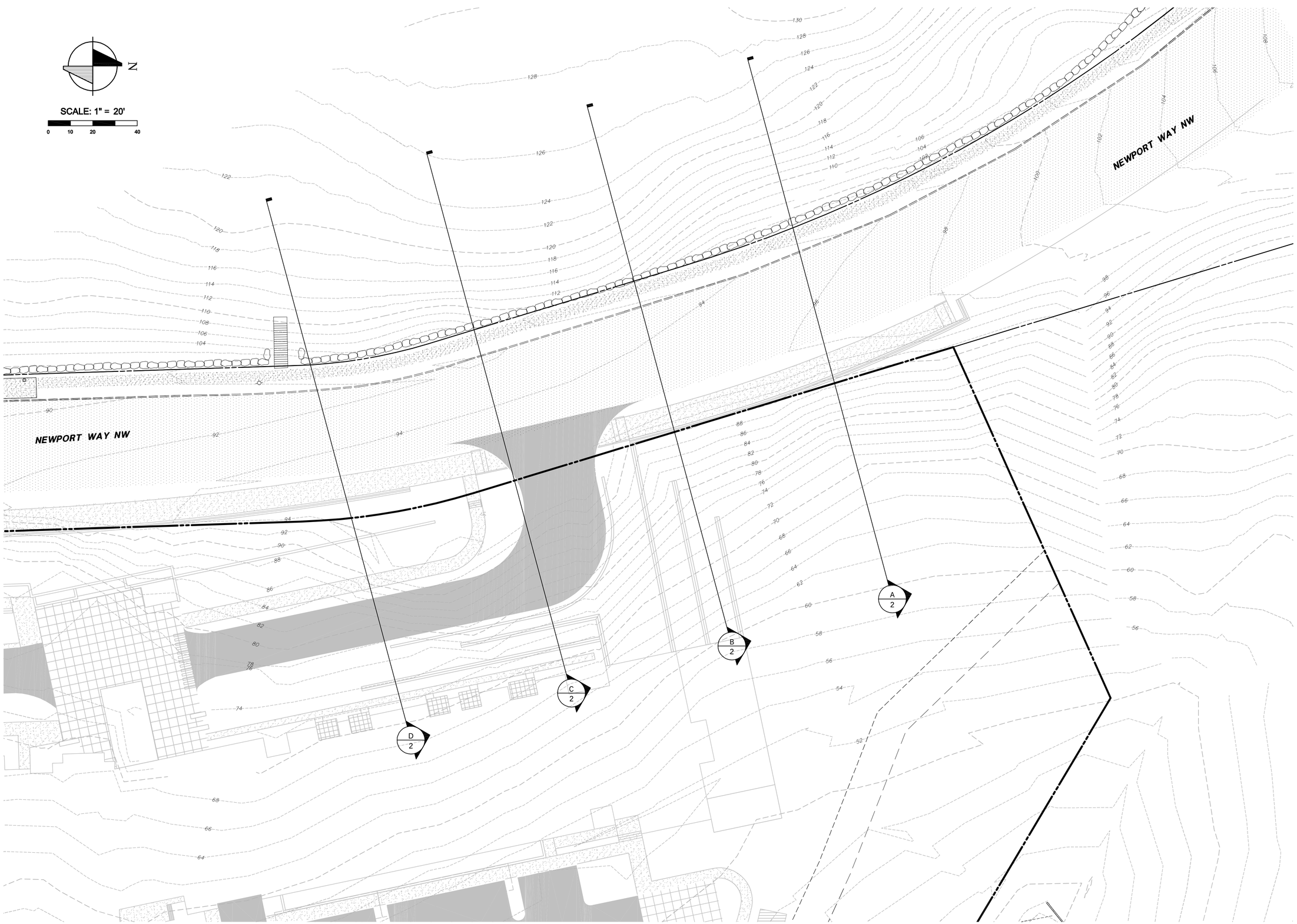
Slopes Table

Number	Minimum Slope	Maximum Slope	Area (AC)	Color
1	0.00%	15.00%	3.98	
2	15.00%	25.00%	1.31	
3	25.00%	40.00%	0.52	
4	40.00%	100.00%	0.39	
		TOTAL:	6.20	

N

SCALE: 1" = 30'

0 15 30 60



triad
20300 Woodinville Snohomish Rd NE
Suite A • Woodinville, WA 98072
p: 425.415.2000 f: 425.486.5059
w: triadassociates.net

SITE SECTIONS

THE WOLFF CO.

ISSAQUAH GATEWAY

SENIOR HOUSING

CITY OF ISSAQUAH, WASHINGTON

NO.	DATE	REVISION	BY	CK

REVIEWED BY: DATE:

ROY E. LEWIS, JR., PE
PROJECT MANAGER

MARY H. MCDOWELL, PLS
PROJECT SURVEYOR

BEAU J. WILLERT, EIT
PROJECT ENGINEER

PROJECT LANDSCAPE ARCHITECT
FIRST SUBMITTAL DATE: 12/21/2015
SCALE: HORIZ.: 1"=20' VERT.: 1"=2'

STAMP NOT VALID
UNLESS SIGNED AND DATED

JOB NUMBER 14-148

SHEET NUMBER 1 OF 2

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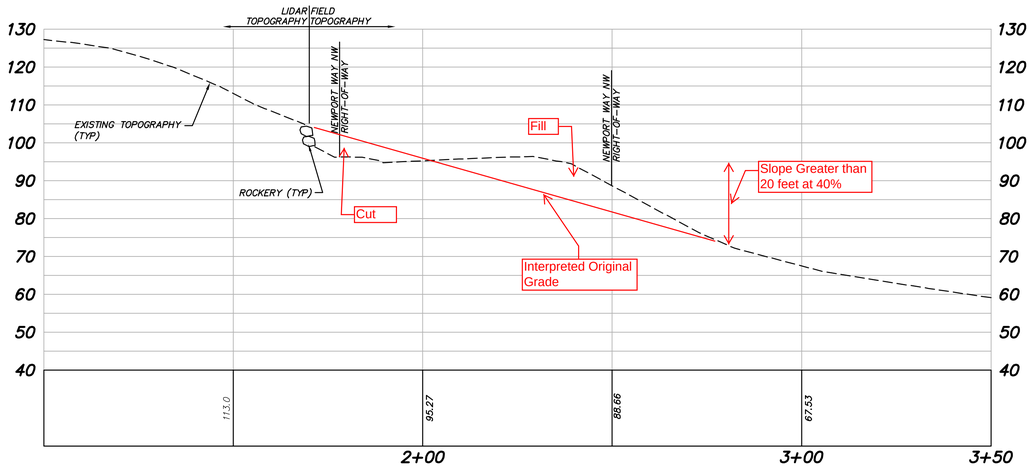
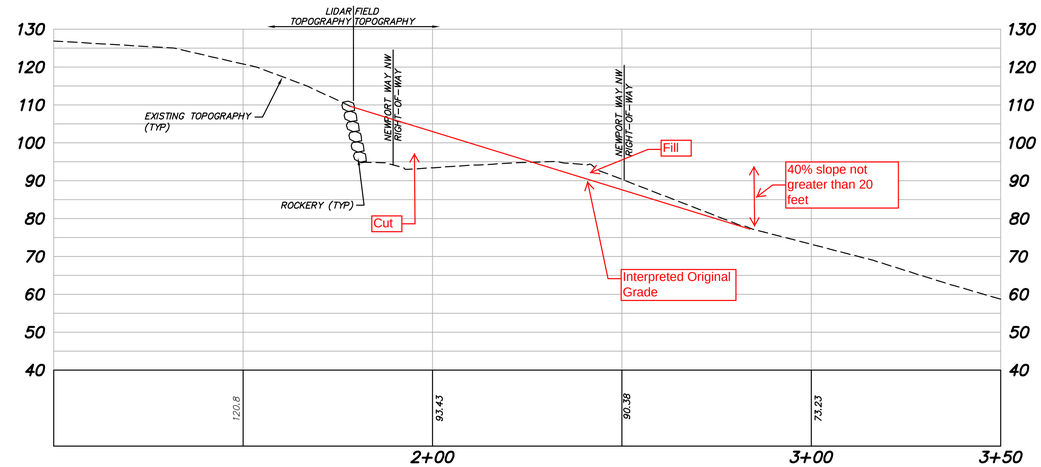
bwillert, Dec 21, 2015 - 4:03pm
E:\PROJECTS\14148\Dwgfiles\Exhibits\Final\14148 Willert 15-1221 Site Sections.dwg, plan, 14148-BS1 14133_T01 14133 Site Survey 117997A02-ORIGINAL 14133BLA 634c_critical areas base 10-3-14-20SCALE 14133 Issaquah Gateway Apartments 15-1214 Base_v2007_TRIAD EDIT, WA-Issaquah-DevSvsBlock.jpg



SECTION A

SCALE: 1"=20' HORIZ, 1"=20' VERT



SECTION B

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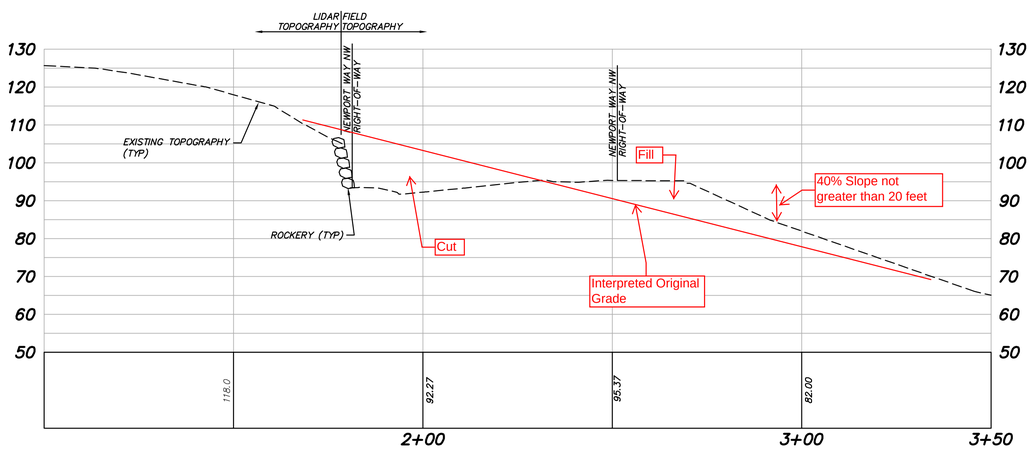

SECTION C

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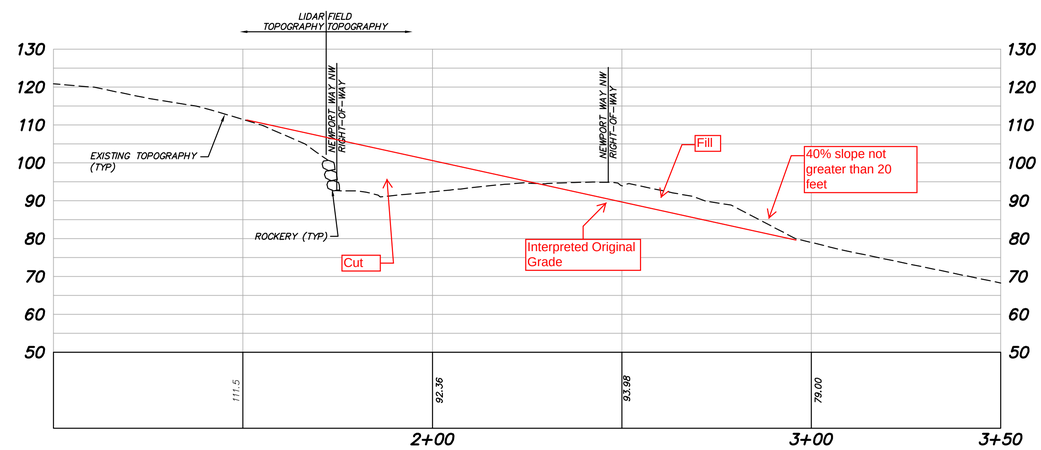

SECTION D

SCALE: 1"=20' HORIZ, 1"=20' VERT

triad
20300 Woodinville Snohomish Rd NE
Suite A • Woodinville, WA 98072
p: 425.415.2000 f: 425.486.5059
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