

DS #:

5157-1

APN:

137-27-510.001

PROJECT:

Cascades Summitin Village 21. Parcel L Update #1

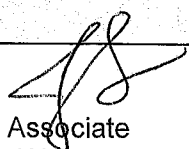
SUBMITTAL:

5th

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		April 27, 2020
TO: Land Development Services Department of Building & Safety		FROM: Jennifer Shinn, P.E.  Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for:	
	Cascades Summerlin Village 21 – Parcel L Update #1	
Cross Streets:	SWC Desert Foothill Dr. & Kindle Corner Ave	Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5157E.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-27-510-001	CCRFGD
Zoning Action:	TMP-76889	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES X NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/17/2019	7/31/2019	Not Approved	\$400.00	3492232: \$400
2 nd Submittal	8/26/2019	9/12/2019	Conditional Approval	\$400.00	3542364: \$400
Structural Approval Recv'd	9/16/2019	9/16/2019	Conditional Approval	N/C	N/C
CCRFGD	10/8/2019	10/23/2019	Concurrence Recv'd	N/C	N/C
5 th Submittal	4/8/2020	4/27/2020	Approved	\$100.00	3811400: \$100
			TOTAL FEES (LDDRS):	\$900.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

5th Submittal: Update #1 to revise FFs and drop inlet

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

END OF REMARKS

Ays/jks

T/R/S: T20S/R59E/27
AREA K-27

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Cascades (Summerlin Village 21 - Parcel L Update #1) Date: 03/26/2020

Location of Development: a) Descriptive (Cross Streets) North/South: Desert Foothills Drive

East/West: Kindle Corner

b) Section: 27 Township: 20S Range: 59E

c) APN: 137-27-510-001

Name of Owner: REDPOINT VILLAGE - SUMMERLIN L P c/o William Lyon Homes

Telephone No.: 702-263-8200 Fax No.: N/A E-Mail Address: EDuenas@taylormorrison.com

Address: 1980 Festival Plaza Drive, Suite 500, Las Vegas, NV 89118

Contact Person-Name: Darryl Lattimore Telephone No.: (702) 586-9296

* E-Mail Address: darryl.lattimore@actus-nv.com Fax No.: N/A

Firm: Actus

Address: 3283 E. Warm Springs Road Suite 300, Las Vegas, NV 89120

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☒	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☐	Planned Unit Development	☐	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit	☐	

1. Total Owned Land Area: At Site: 7.47+/- Being Developed/Disturbed: 7.47+/-

2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No

3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No

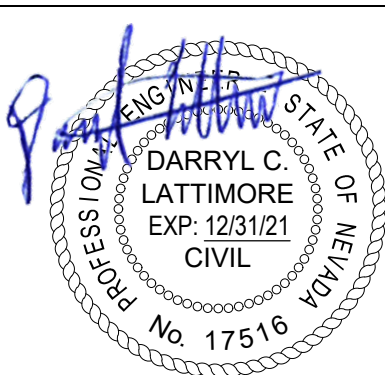
4. Proposed type of development (Residential, Commercial, Etc.): Single Family Residential

5. Approximate upstream land area which drains to the subject site: 0 +/-

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: 2018 Summerlin West Planning Area Master Plan Update

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Proposed infrastructure in Desert Foothills Drive

8. Briefly describe your proposed schedule for the subject project: ASAP



Engineer's Seal 03/26/2020

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

***New Required Field**

****Review and concurrence of the Clark County Regional Flood Control District is required.**

	Revision	Date
Local Entity File No. _____		

REFERENCE:

STANDARD FORM 1

**UPDATE #1 TO THE
TECHNICAL DRAINAGE STUDY
For
Cascades (Summerlin Village 21 – Parcel L)
(APN: 137-27-510-001)**

Desert Foothills Drive and Kindle Corner

City of Las Vegas

Date: March 26, 2020

Prepared for:

William Lyon Homes
1980 Festival Plaza Drive, Suite 500
Las Vegas, Nevada 89118
702-263-8200



Prepared by: Roshan Poudel, EI

Reviewed by: Darryl Lattimore, PE

March 28, 2020

Albert Sung, P.E.
Project Engineer
City of Las Vegas
333 N. Rancho Dr.
Las Vegas, NV 89106



3283 E. Warm Springs Road
Suite 300, Las Vegas, NV 89120
(702) 586-9296

**Re: Update #1 to the Technical Drainage Study for Cascades (Summerlin Village 21 – Parcel L)
(PHYD: 20190801)**

Mr. Sung,

We have prepared the current update to reflect the following changes:

The Summerlin Design Review Committee has asked the developer to minimize the use of concrete in the approved drainage easement in Common Element D and to update street grading. In addition, the previous McLoughlin Street stub street was eliminated per the request of Summerlin and replaced a street stub at Dragontail Peak Avenue. Please note that the improvement plans for the project were approved by the City of Las Vegas. We will be submitting revisions to the approved improvement plans, therefore redlined plans are included in the Appendix of this update for your reference. This update addresses the necessary hydraulics associated with the changes mentioned above. A proposed 20' Type CM2 drop inlet at the end of McLoughlin Street will adequately collect the cumulative 100-year runoff within the project and convey the runoff within the existing 30" RCP stub to the project. The hydraulics of the existing storm drain system remain the same as within the original study.

The drainage patterns remain unchanged, however basin delineation lines were updated slightly to accurately reflect conservative street flow depths. Please note the updated basin line did not affect the estimated 100-year runoff within either subbasin. We have included an updated *Interim/Ultimate Condition Basins Map* (Figure 8) with the updated street normal depth calculations. The correlating updated finished floor elevations continue to meet the minimum required street-flow freeboard criteria. All corner lots that do not meet the requisite minimum freeboard of 6" above the high side TC will be provided with the required courses of solid grouted-screen walls as a mitigation for the said criteria (same lots as in the approved study). The finished floors at T-intersections continue to remain above the street-flow EGL. A copy of the updated Finished Floor analysis table, street hydraulic calculations and the updated Figure 8 has been provided in the Appendix of this report for reference, as well as the overall grading plans and details.

We hope the above responses satisfy any concerns. If you have any questions or need any additional information, please feel free to call our office at (702) 586-9296.

Sincerely,

Roshan Poudel, E.I.

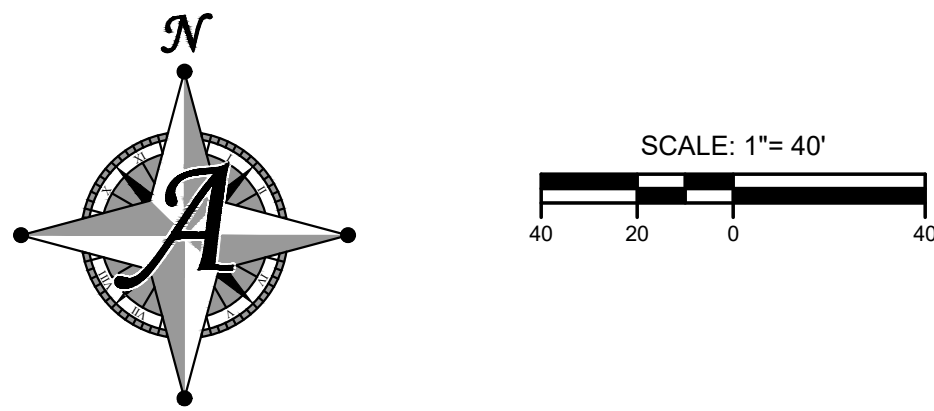
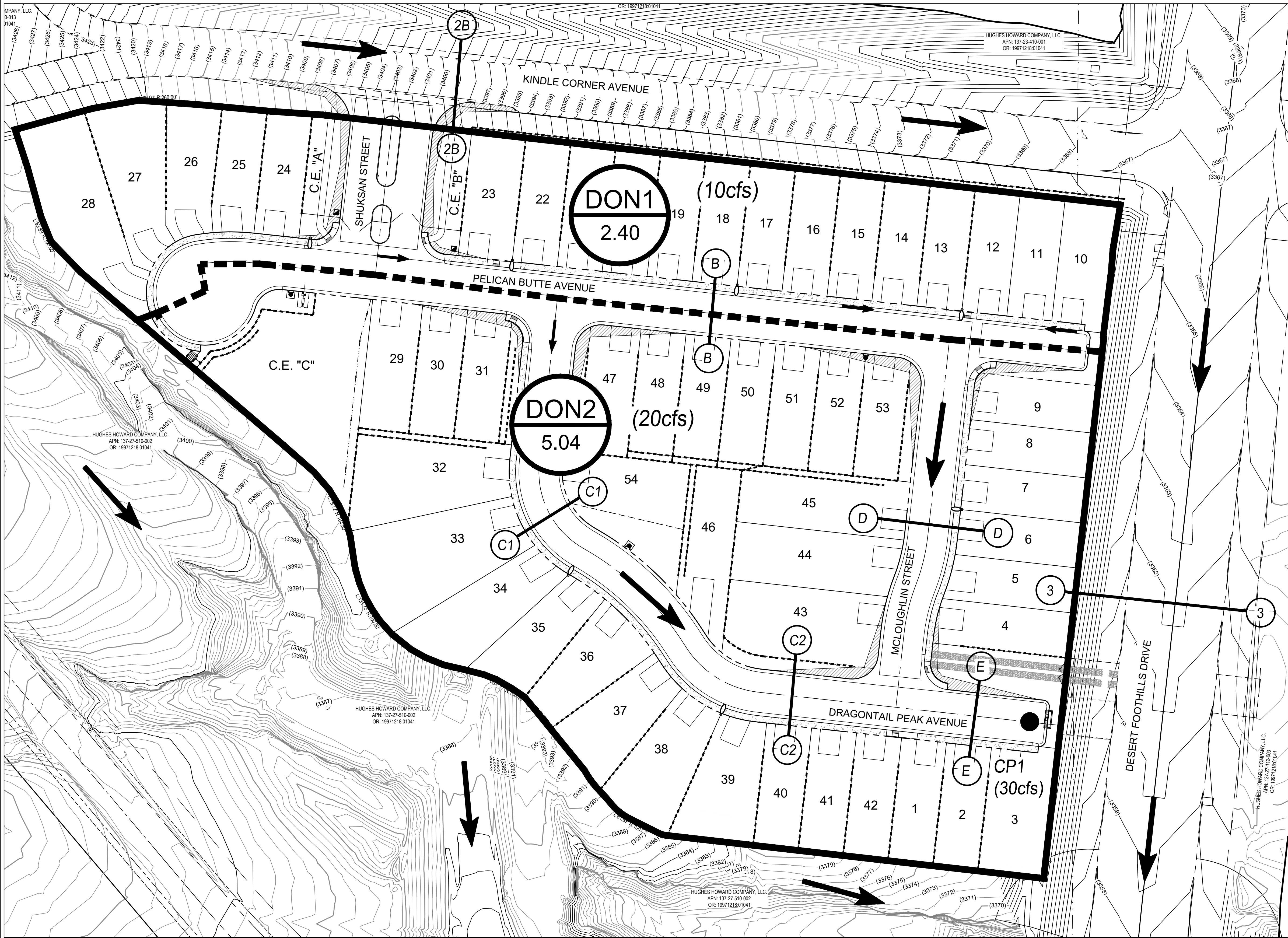
A handwritten signature in blue ink, appearing to read "Darryl Lattimore", with a long horizontal flourish extending to the right.

Darryl Lattimore, P.E.
President

APPENDIX



Plot Stamp: 1/22/2020 3:01:12 PM - Roshan Poudel
File: P:\W\1011901 - V2 Parcel L\Studies & Reports\Drainage\Update #1\Exhibits\Ultimate Condition Basin Map 1-21-20.dwg, Tab: Layout1



DRAINAGE LEGEND	
	BASIN IDENTIFICATION
	BASIN AREA (ACRES)
	BASIN BOUNDARY
	CONCENTRATION POINT
	FLOW PATH
	CROSS SECTION
	REFERENCE FLOW (CFS)

TABLE 2 Flow Summary (Interim/Ultimate Condition)			
BASIN ID/CONCENTRATION POINT	DRAINAGE AREA	Reference	Q ₁₀₀
	(acres)		cfs
DON1	2.40	<i>Algebraically based on Master Study</i>	10.0
DON2	5.04	<i>Algebraically based on Master Study</i>	20.0
CP1	-	<i>DON1+DON2</i>	30.0

1 Referenced from Master Plan Update

Table 3 100-year Street Flow Analysis (Ultimate Condition)						
Street	Section	Flattest Slope (%)	Flow (100 year)	Velocity (ft/s)	Flow Depth (ft)	VxD
Pelican Butte Ave	B	6.10	10.0	5.17	0.32	1.65
Dragontail Peak Ave	C1	0.50	20.0	2.37	0.52	1.23
Dragontail Peak Ave	C2	8.94	20.0	6.98	0.36	2.51
McLaughlin St.	D	0.50	30.0	2.79	0.58	1.62
Kindie Corner Ave.	*2B	5.69	5.0	4.40	0.27	1.19
Desert Foothills Drive	*3	1.50	7.0	2.82	0.40	0.96
Dragontail Peak Ave	E	3.14	30.0	4.93	0.47	2.32

* Referenced from Master Plan Update

FIGURE 8: INTERIM/ULTIMATE CONDITION BASIN MAP (UPD#1)

SUMMERLIN VILLAGE 21 - PARCEL L

WILLIAM LYON HOMES

LAS VEGAS, NEVADA

DATE	DESCRIPTION

DATE	01/22/20
DRAWN	Rd Po.
DESIGNED	RS
CHECKED	DL
PROJECT #	WLH011901
SHEET TITLE	FIGURE 8
SHEET NUMBER	1

HTE # HTE# or SHEET#

HYDRAULIC CALCULATIONS

Interior Streets - Flow Calculations



Project Description

Input Data

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.00
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.48
0+38.50	0.17
0+38.50	0.13
0+39.67	0.00
0+39.67	0.00
0+40.65	0.37
0+41.00	0.38

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.17)	0.013
(0+07.50, 0.17)	(0+38.50, 0.17)	0.016
(0+38.50, 0.17)	(0+41.00, 0.38)	0.013

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Worksheet for Section B - 41' ROW 100 Year

Options

Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth	0.32	ft
Elevation Range	0.00 to 0.48	ft
Flow Area	1.94	ft ²
Wetted Perimeter	19.28	ft
Hydraulic Radius	0.10	ft
Top Width	18.98	ft
Normal Depth	0.32	ft
Critical Depth	0.43	ft
Critical Slope	0.00672	ft/ft
Velocity	5.17	ft/s
Velocity Head	0.41	ft
Specific Energy	0.73	ft
Froude Number	2.85	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.32	ft
Critical Depth	0.43	ft
Channel Slope	6.10	%
Critical Slope	0.00672	ft/ft

Cross Section for Section B - 41' ROW 100 Year

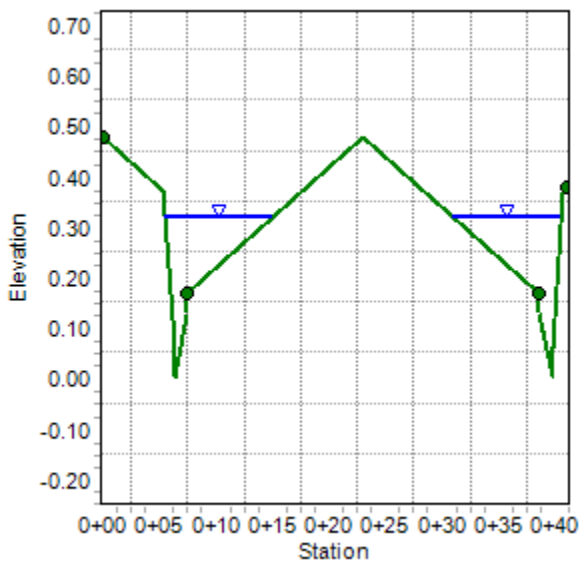
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.10	%
Normal Depth	0.32	ft
Discharge	10.00	cfs

Cross Section Image



Worksheet for Section C1 - 41' ROW 100 Year

Project Description

Friction Method Manning Formula

Solve For Normal Depth

Input Data

Channel Slope	0.50	%
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Discharge 20.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.06
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.48
0+38.50	0.17
0+38.50	0.13
0+39.67	0.00
0+39.67	0.06
0+40.65	0.37
0+41.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.17)	0.013
(0+07.50, 0.17)	(0+38.50, 0.17)	0.016
(0+38.50, 0.17)	(0+41.00, 0.38)	0.013

Options

Current Roughness Weighted Pavlovskii's Method

Method	
Open Channel Weighting Method	Pavlovskii's Method

Worksheet for Section C1 - 41' ROW 100 Year

Options

Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth	0.52	ft
Elevation Range	0.00 to 0.48	ft
Flow Area	8.42	ft ²
Wetted Perimeter	41.51	ft
Hydraulic Radius	0.20	ft
Top Width	41.00	ft
Normal Depth	0.52	ft
Critical Depth	0.51	ft
Critical Slope	0.00597	ft/ft
Velocity	2.37	ft/s
Velocity Head	0.09	ft
Specific Energy	0.61	ft
Froude Number	0.92	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.52	ft
Critical Depth	0.51	ft
Channel Slope	0.50	%
Critical Slope	0.00597	ft/ft

Cross Section for Section C1 - 41' ROW 100 Year

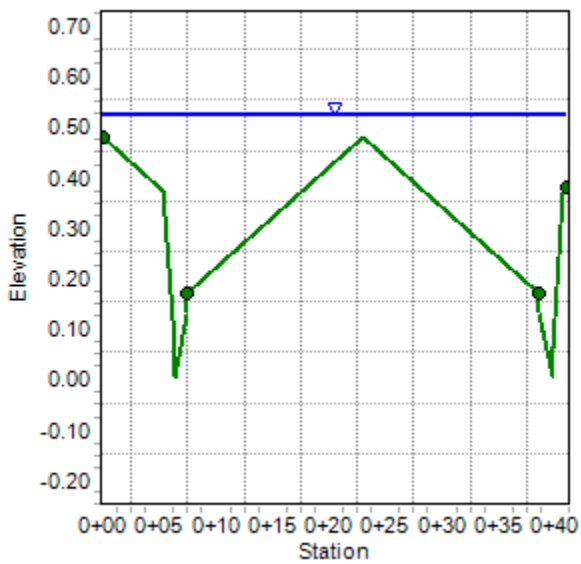
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Normal Depth	0.52	ft
Discharge	20.00	cfs

Cross Section Image



Worksheet for Section C2 - 41' ROW 100 Year

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 8.94 %
Discharge 20.00 cfs
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.06
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.48
0+38.50	0.17
0+38.50	0.13
0+39.67	0.00
0+39.67	0.06
0+40.65	0.37
0+41.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.17)	0.013
(0+07.50, 0.17)	(0+38.50, 0.17)	0.016
(0+38.50, 0.17)	(0+41.00, 0.38)	0.013

Options

Current Roughness Weighted Method Pavlovskii's Method
Open Channel Weighting Method Pavlovskii's Method

Worksheet for Section C2 - 41' ROW 100 Year

Options

Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth	0.36	ft
Elevation Range	0.00 to 0.48	ft
Flow Area	2.87	ft ²
Wetted Perimeter	23.94	ft
Hydraulic Radius	0.12	ft
Top Width	23.62	ft
Normal Depth	0.36	ft
Critical Depth	0.51	ft
Critical Slope	0.00611	ft/ft
Velocity	6.98	ft/s
Velocity Head	0.76	ft
Specific Energy	1.12	ft
Froude Number	3.53	
Flow Type	Supercritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.36	ft
Critical Depth	0.51	ft
Channel Slope	8.94	%
Critical Slope	0.00611	ft/ft

Cross Section for Section C2 - 41' ROW 100 Year

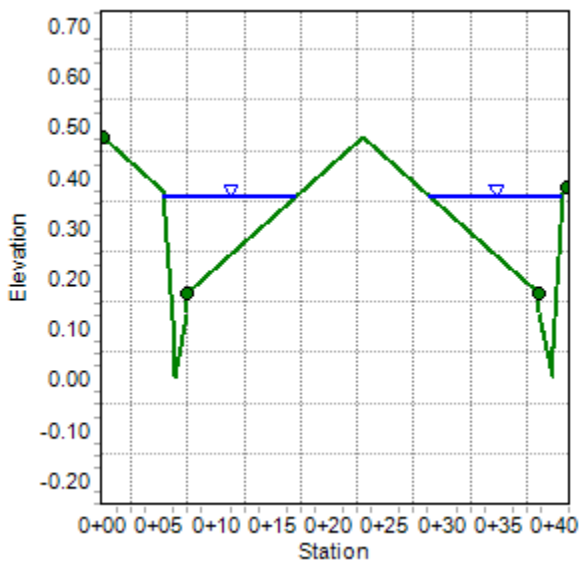
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	8.94	%
Normal Depth	0.36	ft
Discharge	20.00	cfs

Cross Section Image



Project Description

Input Data

Station (ft)	Elevation (ft)
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Roughness Segment Definitions

Options

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Worksheet for Section E - 41' ROW 100 Year

Results

Normal Depth		0.47	ft
Elevation Range	0.00 to 0.50 ft		
Flow Area		6.08	ft ²
Wetted Perimeter		39.43	ft
Hydraulic Radius		0.15	ft
Top Width		38.76	ft
Normal Depth		0.47	ft
Critical Depth		0.58	ft
Critical Slope		0.00557	ft/ft
Velocity		4.93	ft/s
Velocity Head		0.38	ft
Specific Energy		0.85	ft
Froude Number		2.20	
Flow Type	Supercritical		

This section is applicable to Lot 1 and Lot 42 for EGL analysis. The finished floor for these lots are above the EGL.

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.47	ft
Critical Depth	0.58	ft
Channel Slope	3.14	%
Critical Slope	0.00557	ft/ft

Cross Section for Section E - 41' ROW 100 Year

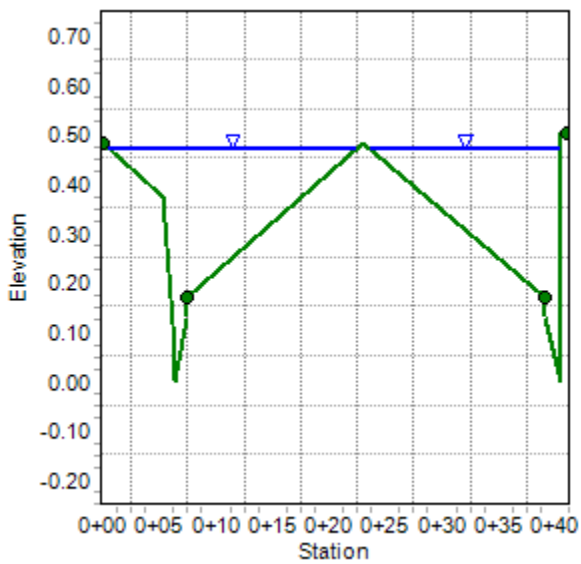
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.14	%
Normal Depth	0.47	ft
Discharge	30.00	cfs

Cross Section Image



Project Description

Input Data

Station (ft)	Elevation (ft)
0+00.00	0.48
0+05.00	0.38
0+05.35	0.37
0+06.33	0.00
0+06.33	0.00
0+07.50	0.13
0+07.50	0.17
0+23.00	0.48
0+38.50	0.17
0+38.50	0.13
0+39.67	0.00
0+39.67	0.00
0+40.65	0.37
0+41.00	0.38

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.48)	(0+07.50, 0.17)	0.013
(0+07.50, 0.17)	(0+38.50, 0.17)	0.016
(0+38.50, 0.17)	(0+41.00, 0.38)	0.013

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Worksheet for Section D - 41' ROW 100 Year

Options

Closed Channel Weighting Method Pavlovskii's Method

Results

Normal Depth	0.58	ft
Elevation Range	0.00 to 0.48	ft
Flow Area	10.76	ft ²
Wetted Perimeter	41.62	ft
Hydraulic Radius	0.26	ft
Top Width	41.00	ft
Normal Depth	0.58	ft
Critical Depth	0.57	ft
Critical Slope	0.00548	ft/ft
Velocity	2.79	ft/s
Velocity Head	0.12	ft
Specific Energy	0.70	ft
Froude Number	0.96	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.58	ft
Critical Depth	0.57	ft
Channel Slope	0.50	%
Critical Slope	0.00548	ft/ft

Cross Section for Section D - 41' ROW 100 Year

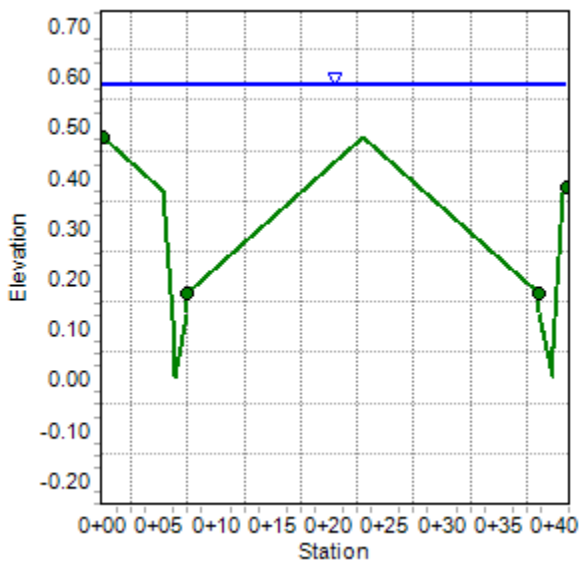
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.50	%
Normal Depth	0.58	ft
Discharge	30.00	cfs

Cross Section Image



HYDRAULIC CALCULATIONS

Finish Floor Analysis



SUMMERLIN VILLAGE 21 PARCEL L - CITY OF LAS VEGAS														
FINISH FLOOR ANALYSIS (OVERALL) - UPDATE#1														
FINISHED FLOORS														
INPUT INFORMATION														
Lot Number	Hydraulic Section Utilized	Centerline Elevation	T/C ¹	Mod Roll, Roll, or L Curb?	F/L ²	D ₁₀₀	Flowline FF min ³	Centerline (of TC) FF min ⁴	Pad	Section	FF Design	Flowline Check	Centerline Check	NOTES
		(ft)	(ft)	Type	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	See References on Last Sheet (ft)
1	E	3370.66	3370.66	Roll	3370.28	0.47	3371.22	3372.16	3371.3	1.00	3372.30	OK	OK	
2	E	3368.65	3368.65	Roll	3368.27	0.47	3369.21	3370.15	3369.3	1.00	3370.30	OK	OK	
3	E	3367.05	3367.05	Roll	3366.67	0.47	3367.61	3368.55	3367.9	1.00	3368.90	OK	OK	
4	D	3372.36	3372.36	Roll	3371.98	0.58	3373.14	3373.86	3373.1	1.00	3374.10	OK	OK	
5	D	3372.71	3372.71	Roll	3372.33	0.58	3373.49	3374.21	3373.7	1.00	3374.70	OK	OK	
6	D	3372.88	3372.88	Roll	3372.50	0.58	3373.66	3374.38	3373.8	1.00	3374.80	OK	OK	
7	D	3373.05	3373.05	Roll	3372.67	0.58	3373.83	3374.55	3374.0	1.00	3375.00	OK	OK	
8	D	3372.23	3372.23	Roll	3371.85	0.58	3373.01	3373.73	3374.2	1.00	3375.20	OK	OK	
9	D	3373.46	3373.46	L-Type	3372.96	0.58	3374.12	3374.96	3374.4	1.00	3375.40	OK	OK	
10	B	3374.02	3374.02	Roll	3373.64	0.32	3374.28	3375.52	3375.0	1.00	3376.00	OK	OK	
11	B	3373.88	3373.88	Roll	3373.50	0.32	3374.14	3375.38	3374.8	1.00	3375.80	OK	OK	
12	B	3374.00	3374.00	Roll	3373.62	0.32	3374.26	3375.50	3374.8	1.00	3375.80	OK	OK	
13	B	3375.12	3375.12	Roll	3374.74	0.32	3375.38	3376.62	3375.8	1.00	3376.80	OK	OK	
14	B	3376.79	3376.79	Roll	3376.41	0.32	3377.05	3378.29	3377.4	1.00	3378.40	OK	OK	
15	B	3378.86	3378.86	Roll	3378.48	0.32	3379.12	3380.36	3379.5	1.00	3380.50	OK	OK	
16	B	3381.12	3381.12	Roll	3380.74	0.32	3381.38	3382.62	3381.8	1.00	3382.80	OK	OK	
17	B	3383.59	3383.59	Roll	3383.21	0.32	3383.85	3385.09	3384.2	1.00	3385.20	OK	OK	
18	B	3386.25	3386.25	Roll	3385.87	0.32	3386.51	3387.75	3386.9	1.00	3387.90	OK	OK	
19	B	3389.10	3389.10	Roll	3388.72	0.32	3389.36	3390.60	3389.6	1.00	3390.60	OK	OK	
20	B	3391.99	3391.99	Roll	3391.61	0.32	3392.25	3393.49	3392.5	1.00	3393.50	OK	OK	
21	B	3394.87	3394.87	Roll	3394.49	0.32	3395.13	3396.37	3395.4	1.00	3396.40	OK	OK	
22	B	3397.76	3397.76	Roll	3397.38	0.32	3398.02	3399.26	3398.3	1.00	3399.30	OK	OK	
23	B	3400.99	3400.99	Roll	3400.61	0.32	3401.25	3402.49	3401.6	1.00	3402.60	OK	OK	
24	B	3412.48	3412.48	Roll	3412.10	0.32	3412.74	3413.98	3413.0	1.00	3414.00	OK	OK	
25	B	3315.24	3315.24	Roll	3314.86	0.32	3315.50	3316.74	3416.0	1.00	3417.00	OK	OK	
26	B	3417.76	3417.76	Roll	3417.38	0.32	3418.02	3419.26	3418.7	1.00	3419.70	OK	OK	
27	B	3420.21	3420.21	Roll	3419.83	0.32	3420.47	3421.71	3421.0	1.00	3422.00	OK	OK	
28	B	3422.26	3422.26	Roll	3421.88	0.32	3422.52	3423.76	3423.4	1.00	3424.40	OK	OK	
29	C1	3404.80	3404.80	Roll	3404.42	0.52	3405.46	3406.30	3405.3	1.00	3406.30	OK	OK	
30	C1	3402.42	3402.42	Roll	3402.04	0.52	3403.08	3403.92	3403.0	1.00	3404.00	OK	OK	
31	C1	3400.16	3400.16	Roll	3399.78	0.52	3400.82	3401.66	3400.7	1.00	3401.70	OK	OK	
32	C1	3393.80	3393.80	Roll	3393.42	0.52	3394.46	3395.30	3394.8	1.00	3395.80	OK	OK	
33	C1	3393.64	3393.64	Roll	3393.26	0.52	3394.30	3395.14	3394.6	1.00	3395.60	OK	OK	
34	C1	3393.47	3393.47	Roll	3393.09	0.52	3394.13	3394.97	3394.4	1.00	3395.40	OK	OK	
35	C1	3393.02	3393.02	Roll	3392.64	0.52	3393.68	3394.52	3393.7	1.00	3394.70	OK	OK	
36	C1	3391.51	3391.51	Roll	3391.13	0.52	3392.17	3393.01	3392.1	1.00	3393.10	OK	OK	
37	C2	3386.80	3386.80	Roll	3386.42	0.36	3387.14	3388.30	3387.4	1.00	3388.40	OK	OK	
38	C2	3384.14	3384.14	Roll	3383.76	0.36	3384.48	3385.64	3384.7	1.00	3385.70	OK	OK	
39	C2	3381.65	3381.65	Roll	3381.27	0.36	3381.99	3383.15	3382.2	1.00	3383.20	OK	OK	
40	C2	3379.00	3379.00	Roll	3378.62	0.36	3379.34	3380.50	3379.5	1.00	3380.50	OK	OK	
41	C2	3375.88	3375.88	Roll	3375.50	0.36	3376.22	3377.38	3376.5	1.00	3377.50	OK	OK	
42	C2	3373.07	3373.07	Roll	3372.69	0.36	3373.41	3374.57	3373.7	1.00	3374.70	OK	OK	
43	D	3372.47	3372.47	Roll	3372.09	0.58	3373.25	3373.97	3373.3	1.00	3374.30	OK	OK	

SUMMERLIN VILLAGE 21 PARCEL L - CITY OF LAS VEGAS														
FINISH FLOOR ANALYSIS (OVERALL) - UPDATE#1														
Lot Number	Hydraulic Section Utilized	INPUT INFORMATION					FINISHED FLOORS					NOTES		
		Centerline Elevation (ft)	T/C ¹ (ft)	Mod Roll, Roll, or L Curb? Type	F/L ² (ft)	D ₁₀₀ (ft)	Flowline FF min ³ (ft)	Centerline (of TC) FF min ⁴ (ft)	Pad (ft)	Section (ft)	FF Design (ft)	Flowline Check (ft)	Centerline Check (ft)	See References on Last Sheet (ft)
44	D	3372.71	3372.71	Roll	3372.33	0.58	3373.49	3374.21	3373.6	1.00	3374.60	OK	OK	
45	D	3372.89	3372.89	Roll	3372.51	0.58	3373.67	3374.39	3373.7	1.00	3374.70	OK	OK	
46	C1	3386.09	3389.02	Roll	3388.64	0.52	3389.68	3387.59	3389.0	1.00	3390.00	OK	OK	
47	D	3393.74	3393.74	Roll	3393.36	0.58	3394.52	3395.24	3394.6	1.00	3395.60	OK	OK	
48	D	3391.09	3391.09	Roll	3390.71	0.58	3391.87	3392.59	3391.6	1.00	3392.60	OK	OK	
49	D	3388.69	3388.69	Roll	3388.31	0.58	3389.47	3390.19	3389.2	1.00	3390.20	OK	OK	
50	D	3386.26	3386.26	Roll	3385.88	0.58	3387.04	3387.76	3386.9	1.00	3387.90	OK	OK	
51	D	3383.59	3383.59	Roll	3383.21	0.58	3384.37	3385.09	3384.2	1.00	3385.20	OK	OK	
52	D	3381.13	3381.13	Roll	3380.75	0.58	3381.91	3382.63	3381.8	1.00	3382.80	OK	OK	
53	D	3378.86	3378.86	Roll	3378.48	0.58	3379.64	3380.36	3379.5	1.00	3380.50	OK	OK	
54	C1	3376.80	3376.80	Roll	3376.42	0.52	3377.46	3378.30	3377.4	1.00	3378.40	OK	OK	
Where														
1: Top of Curb at High Side of Lot														
2: Flowline = TC - 0.38 feet (for Mod Roll)														
3: Minimum Allowable Finished Floor Elevation above flowline @ high side of lot = (2 x D ₁₀₀) + F/L														
4: Minimum Allowable Finished Floor Elevation above centerline (or TC whichever is higher) elevation = Centerline elevation (or Center TC) + 1.5 feet														

HYDRAULIC CALCULATIONS

Drop Inlet Calculations



Project Name: By: Date:	Parcel L Roshan Poudel 1/22/2020		
Notes: Facility ID: Drainage Condition Source of Flow Design Flow (cfs) Inlet Type: Inlet Length: Number of Grates:	DI#1 at the end of Dragontail Peak Ave Proposed 30 cfs Type CM2 (Sump) 20 ft 7		
Input:	Variable:	Input:	
Depth at Inlet (ft)	D	0.60	
Grate Width (ft)	W	1.50	
Length of Grate (ft)	L_g	17.50	
Length of Curb Opening (ft)	L_c	20.00	
Height of Curb Opening (ft)	H	0.50	
Weir Coef. - Curb Opening	W_c	2.30	
Weir Coef. - Grate	W_g	3.00	
Orifice Coef.	O_c	0.67	
Grate Coef.	G_c	0.60	
Clogging Factor - Grate (%)	CF_g	50.00	
Clogging Factor - Curb (%)	CF_c	50.00	
Output (Grate):	Equation:	Output (Grate):	
Effective Weir Length (ft)	$2*W+L_g$	20.50	
Adjusted Effective Weir Length(ft)	$2*(1-CF_g/100)*W+(1-CF_g/100)*L_g$	10.25	
Grate Open Area (sf)	$W*L_g$	26.25	
Adjusted Grate Open Area (sf)	Grate Open Area * G_c * $(1-CF_g/100)$	7.88	
Controlling Flow Type (weir/orifice)	If $D < 1.792*(Adj. \text{ Grate Open Area}/Adj. \text{ Eff. Length})$ use weir, else orifice	weir	
Intercepted Flow (cfs)	weir: $W_g*(Adj. \text{ Eff. Weir Length}) * D^{1.5}$ orifice: $O_c*(Adj. \text{ Grate Open Area})*(64.4*D)^{0.5}$	14.29	
Output (Curb):	Equation:	Output (Curb):	
Effective Weir Length (ft)	$L+1.8*W$	22.70	
Adjusted Effective Weir Length (ft)	$L+1.8*(1-CF_c/100)*W$	21.35	
Curb Open Area (sf)	$L*H$	10.00	
Adjusted Curb Open Area (sf)	Curb Open Area* $(1-CF_c/100)$	5.00	
Controlling Flow Type (weir/orifice)	If $D < H$, weir, else orifice	orifice	
Intercepted Flow (cfs)	weir: $W_c*(Adj. \text{ Eff. Weir Length})*D^{1.5}$ orifice: $O_c*(Adj. \text{ Curb Open Area})*(64.4*(D-H/2))^{0.5}$	15.90	
Output (Total):	Equation:	Output (Total):	
Capacity Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	30.20	

HYDRAULIC CALCULATIONS

Weir Depth Calculations





Weir Depth Calculator

Company: **Actus**
 By: **Roshan Poudel, EI**
 Date: **3/26/2020**
 Project Name: **Update#1 to V21 Parcel L**
 Description: **Weir flow over drop inlet**
 Location: **In front of Lot 3**

Q **30** cfs
 C **3.0**
 L **36.0** ft

$$\text{Weir Flow} = Q = C * L * H^{(3/2)}$$

$$H = \left(\frac{Q}{C * L} \right)^{(2/3)}$$

$$H = \mathbf{0.426} \text{ ft}$$

[1] Q = Flow (cfs) (Q100 @ CP1) [4] H = Weir Height (ft)
 [2] C = Weir Coefficient
 [3] L = Weir Length (ft)

Finished Floor Elevation of Lot 3 = 3368.90'

Low side T/C for Lot 3 = 3366.51'

So, 3366.51' + 1.5' (freeboard) + 0.43' = 3368.44' < 3368.90'.

Therefore, ok.

GRADING PLANS AND DETAILS



REFERENCES

Cascades (Summerlin Village 21 Parcel L)

Final Approval Letter (Includes CCRFCD Concurrence)

Figure 9 Ultimate Condition Basin Map (*Addendum #1*)

Finished Floor Analysis Table (*Addendum #1*)

Original Overall Grading Plans, Details Sheets and Storm Drain Profile (*Addendum #1*)



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		October 24, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for:	
	Cascades Summerlin Village 21 – Parcel L	
Cross Streets:	SWC Desert Foothill Dr. & Kindle Corner Ave	Howards Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5157D.doc	Bart Anderson, P.E., DevCo
Parcel Number:	137-27-510-001	CCRFC
Zoning Action:	TMP-76889	
FEMA Flood Zone	YES NO X	
Proposed Storm Drain	YES NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	7/17/2019	7/31/2019	Not Approved	\$400.00	3492232: \$400
2 nd Submittal	8/26/2019	9/12/2019	Conditional Approval	\$400.00	3542364: \$400
Structural Approval Recv'd	9/16/2019	9/16/2019	Conditional Approval	N/C	N/C
CCRFC	10/8/2019	10/23/2019	Concurrence Recv'd	N/C	N/C
			TOTAL FEES (LDDRS):	\$800.00	----

REMARKS:

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

- Second Request: Sheet C5:** It appears that Common Element "D" is composed of two portions, a 33.71' drivable access and a 21.5' drainage easement. However, it was not demonstrated that the 100-year flow will be totally contained in the 21.5' drainage easement. If such is the case, the whole Common Element "D" shall be dedicated as a Public Drainage Easement.

The revised Detail Section 24/C6 does not show the extent of the proposed public drainage easement (privately maintained). Review and revise accordingly.

- Second Request:** It is not clear whether there is any wall opening at the back of the proposed drop inlet in C.E. "D". In case of a worst case scenario that the inlet is totally clogged, there is no overflow path if a wall opening is not provided. Address and resolve in the next submittal.

The revised grading plan still does not show clearly any wall opening behind the proposed drop inlet. Provide a minimum 10'-wide wrought iron fence behind the proposed drop inlet. Review and revise accordingly.

3. **Second Request:** *Revise Detail Sections 12/C7, 13/C7, 14/C7 and 26/C7 to provide minimum of three courses solid grout wall (8"-CMU or equivalent).*

Details Sections 12/C6, 13/C6, 14/C6 and 26/C6 still missing the "8"-CMU or equivalent" callout.

4. *Revise Detail Section 29/C6 to clearly show that the bottom three courses of the wall are 8"-CMU to be solid grouted.*

In an effort to increase administrative efficiency, for all original and re-submittal packages including updates and the addenda, the City of Las Vegas Public Works Department requires both a hardcopy and a digital copy (PDF) on CD for the drainage study.

A letter sealed and signed by a Nevada registered civil engineer must be included in every submittal certifying documents on the electronic CD matches 100% of the hardcopy submittal. The new submittal requirement is effective on May 1, 2019. If there are any questions regarding these new requirements, please contact Albert Sung in the City Flood Control Section at (702) 229-6541.



Sample Letter to
certify CD.pdf

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see <http://ndep.nv.gov/bwpc/storm01.htm> or call (775) 687-9429.

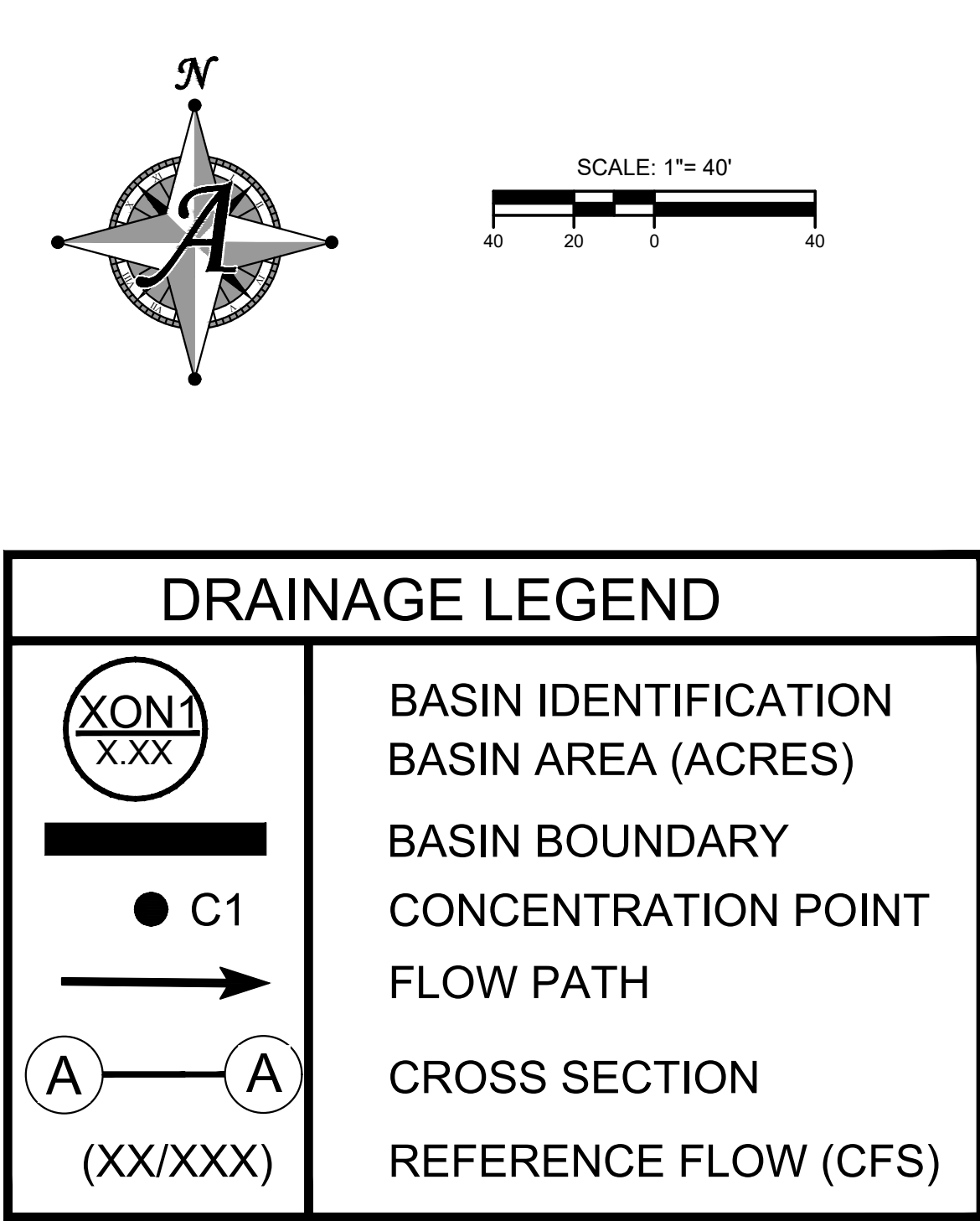
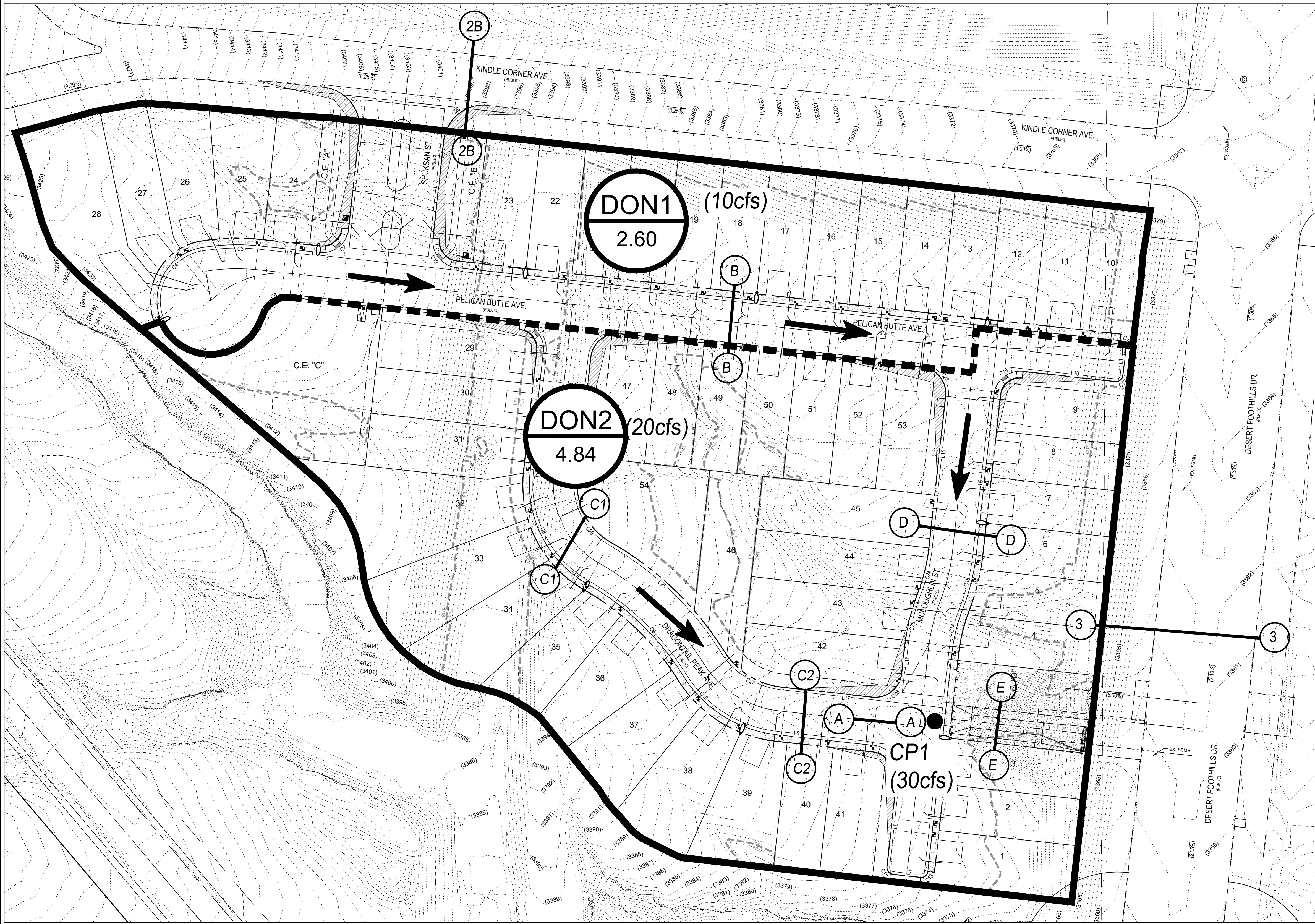
END OF REMARKS

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T/R/S: T20S/R59E/27

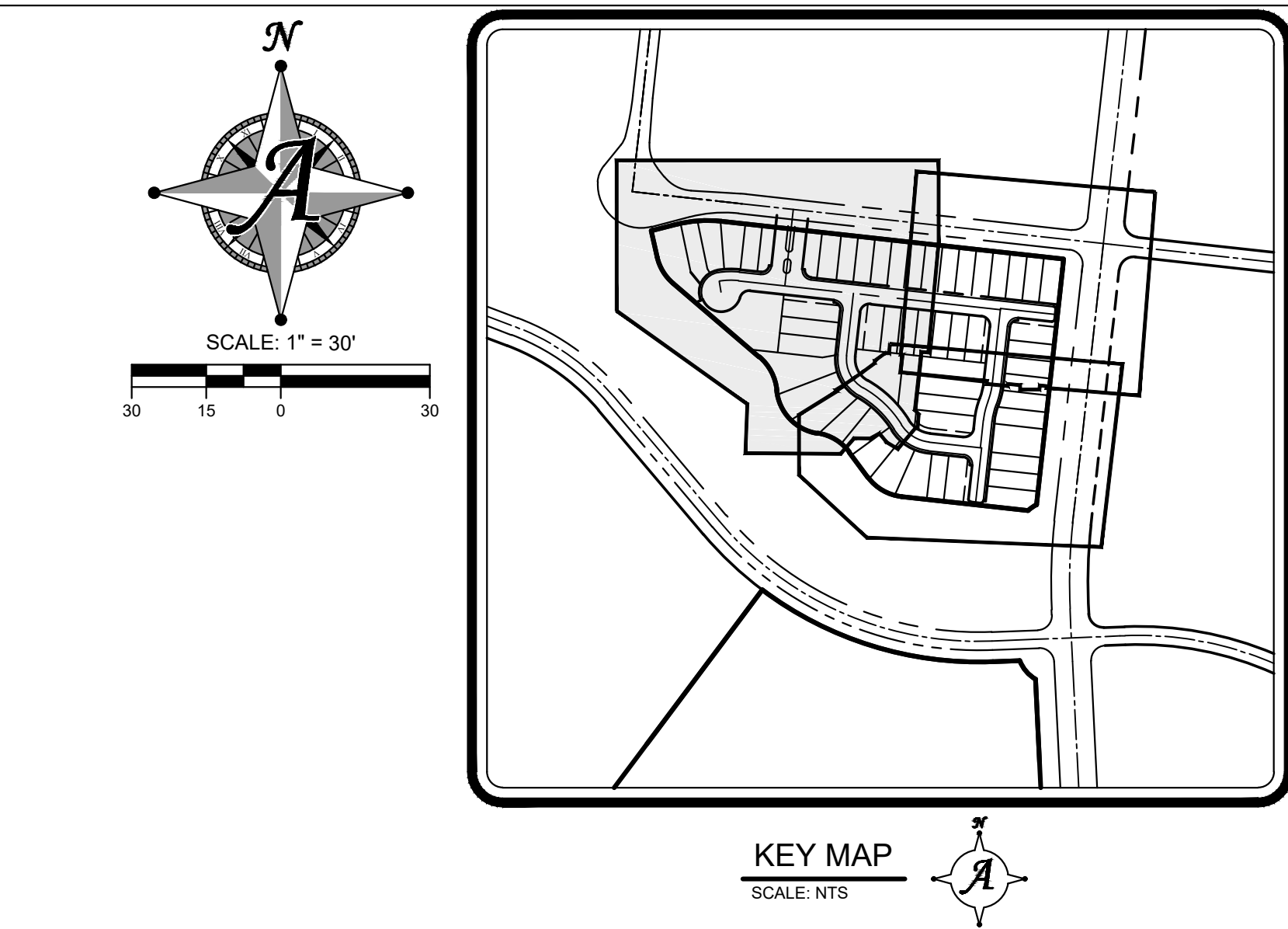
AREA K-27

Plot Stamp: 8/16/2019 11:06:50 AM - Christian O'Quinn
File: P:\NL1011901 - V21 Parcel L\Studies & Reports\Drainage\Addendum #1\Exhibit\Ultimate Condition Basin Map 7-12-19.dwg, Tab: Layout1



Summerlin Village 21 Parcel L														
FINISH FLOOR ANALYSIS (OVERALL)														
INPUT INFORMATION					FINISHED FLOORS							NOTES		
Lot Number	Hydraulic Section Utilized	Centerline Elevation (ft)	T/C ¹ (ft)	Mod Roll, Roll, or L Curb?	F/L ² (ft)	D ₁₀₀ (ft)	Flowline FF min ³ (ft)	Centerline (of TC) FF min ⁴ (ft)	Pad (ft)	Section (ft)	FF Design (ft)	Flowline Check (ft)	Centerline Check (ft)	See References on Last Sheet (ft)
1	D	3372.85	3372.85	Roll	3372.47	0.46	3373.39	3374.35	3373.6	1.00	3374.60	OK	OK	
2	D	3372.20	3372.20	Roll	3371.82	0.46	3372.74	3373.70	3372.9	1.00	3373.90	OK	OK	
3	D	3371.47	3371.47	Roll	3371.09	0.46	3372.01	3372.97	3372.2	1.00	3373.20	OK	OK	
4	D	3371.51	3371.51	Roll	3371.13	0.46	3372.05	3373.01	3372.4	1.00	3373.40	OK	OK	
5	D	3371.75	3371.75	Roll	3371.37	0.46	3372.29	3373.25	3372.6	1.00	3373.60	OK	OK	
6	D	3371.99	3371.99	Roll	3371.61	0.46	3372.53	3373.49	3372.8	1.00	3373.80	OK	OK	
7	D	3372.24	3372.24	Roll	3371.86	0.46	3372.78	3373.74	3373.1	1.00	3374.10	OK	OK	
8	D	3372.48	3372.48	Roll	3372.10	0.46	3373.02	3373.98	3373.3	1.00	3374.30	OK	OK	
9	D	3372.79	3372.79	Roll	3372.41	0.46	3373.33	3374.29	3373.6	1.00	3374.60	OK	OK	
10	B	3373.50	3373.50	Roll	3373.12	0.3	3373.72	3375.00	3375.8	1.00	3376.80	OK	OK	
11	B	3373.35	3373.35	Roll	3372.97	0.3	3373.57	3374.85	3375.1	1.00	3376.10	OK	OK	
12	B	3373.62	3373.62	Roll	3373.24	0.3	3373.84	3375.12	3374.9	1.00	3375.90	OK	OK	
13	B	3375.12	3375.12	Roll	3374.74	0.3	3375.34	3376.62	3376.9	1.00	3377.90	OK	OK	
14	B	3377.30	3377.30	Roll	3376.92	0.3	3377.52	3378.80	3379.1	1.00	3380.10	OK	OK	
15	B	3379.75	3379.75	Roll	3379.37	0.3	3379.97	3381.25	3381.5	1.00	3382.50	OK	OK	
16	B	3382.20	3382.20	Roll	3381.82	0.3	3382.42	3383.70	3384.0	1.00	3385.00	OK	OK	
17	B	3384.65	3384.65	Roll	3384.27	0.3	3384.87	3386.15	3386.4	1.00	3387.40	OK	OK	
18	B	3387.10	3387.10	Roll	3386.72	0.3	3387.32	3388.60	3388.9	1.00	3389.90	OK	OK	
19	B	3389.55	3389.55	Roll	3389.17	0.3	3389.77	3391.05	3391.3	1.00	3392.30	OK	OK	
20	B	3392.00	3392.00	Roll	3391.62	0.3	3392.22	3393.50	3393.8	1.00	3394.80	OK	OK	
21	B	3394.45	3394.45	Roll	3394.07	0.3	3394.67	3395.95	3396.2	1.00	3397.20	OK	OK	
22	B	3396.90	3396.90	Roll	3396.52	0.3	3397.12	3398.40	3398.7	1.00	3399.70	OK	OK	
23	B	3399.71	3399.71	Roll	3399.33	0.3	3399.93	3401.21	3401.5	1.00	3402.50	OK	OK	
24	B	3310.42	3310.42	Roll	3310.04	0.3	3310.64	3311.92	3412.2	1.00	3413.20	OK	OK	
25	B	3312.10	3312.10	Roll	3311.72	0.3	3312.32	3313.60	3413.9	1.00	3414.90	OK	OK	
26	B	3313.58	3313.58	Roll	3313.20	0.3	3313.80	3315.08	3415.3	1.00	3416.30	OK	OK	
27	B	3314.97	3314.97	Roll	3314.59	0.3	3315.19	3316.47	3416.8	1.00	3417.80	OK	OK	
28	B	3316.55	3316.55	Roll	3316.17	0.3	3316.77	3318.05	3418.5	1.00	3419.50	OK	OK	
29	C1	3393.71	3393.71	Roll	3393.33	0.4	3394.13	3395.21	3395.4	1.00	3396.40	OK	OK	
30	C1	3392.87	3392.87	Roll	3392.49	0.4	3393.29	3394.37	3394.7	1.00	3395.70	OK	OK	
31	C1	3392.08	3392.08	Roll	3391.70	0.4	3392.50	3393.58	3393.9	1.00	3394.90	OK	OK	
32	C1	3391.39	3391.39	Roll	3391.01	0.4	3391.81	3392.89	3393.3	1.00	3394.30	OK	OK	
33	C1	3390.78	3390.78	Roll	3390.40	0.4	3391.20	3392.28	3392.3	1.00	3393.30	OK	OK	
34	C1	3390.17	3390.17	Roll	3389.79	0.4	3390.59	3391.67	3391.3	1.00	3392.30	OK	OK	
35	C1	3389.53	3389.53	Roll	3389.15	0.4	3389.95	3391.03	3390.3	1.00	3391.30	OK	OK	
36	C1	3388.36	3388.36	Roll	3387.98	0.4	3388.78	3389.86	3389.3	1.00	3390.30	OK	OK	
37	C1	3385.25	3385.25	Roll	3384.87	0.4	3385.67	3386.75	3386.3	1.00	3387.30	OK	OK	
38	C1	3383.31	3383.31	Roll	3382.93	0.4	3383.73	3384.81	3384.5	1.00	3385.50	OK	OK	

Summerlin Village 21 Parcel L														
FINISH FLOOR ANALYSIS (OVERALL)														
Lot Number	Hydraulic Section Utilized	INPUT INFORMATION					FINISHED FLOORS					NOTES		
		Centerline Elevation (ft)	T/C ¹ (ft)	Mod Roll, Roll, or L Curb?	F/L ² (ft)	D ₁₀₀ (ft)	Flowline FF min ³ (ft)	Centerline (of TC) FF min ⁴ (ft)	Pad (ft)	Section (ft)	FF Design (ft)	Flowline Check (ft)	Centerline Check (ft)	See References on Last Sheet (ft)
39	C2	3381.18	3381.18	Roll	3380.80	0.34	3381.48	3382.68	3382.4	1.00	3383.40	OK	OK	
40	C2	3378.80	3378.80	Roll	3378.42	0.34	3379.10	3380.30	3379.3	1.00	3380.30	OK	OK	
41	C2	3375.98	3375.98	Roll	3375.60	0.34	3376.28	3377.48	3376.5	1.00	3377.50	OK	OK	
42	D	3371.34	3371.34	Roll	3370.96	0.46	3371.88	3372.84	3372.2	1.00	3373.20	OK	OK	
43	D	3371.58	3371.58	Roll	3371.20	0.46	3372.12	3373.08	3372.3	1.00	3373.30	OK	OK	
44	D	3371.83	3371.83	Roll	3371.45	0.46	3372.37	3373.33	3372.6	1.00	3373.60	OK	OK	
45	D	3372.11	3372.11	Roll	3371.73	0.46	3372.65	3373.61	3372.9	1.00	3373.90	OK	OK	
46	C1	3386.67	3386.67	Roll	3386.29	0.4	3387.09	3388.17	3389.0	1.00	3390.00	OK	OK	
47	B	3391.53	3391.53	Roll	3391.15	0.3	3391.75	3393.03	3393.3	1.00	3394.30	OK	OK	
48	B	3389.56	3389.56	Roll	3389.18	0.3	3389.78	3391.06	3391.3	1.00	3392.30	OK	OK	
49	B	3387.11	3387.11	Roll	3386.73	0.3	3387.33	3388.61	3388.9	1.00	3389.90	OK	OK	
50	B	3384.66	3384.66	Roll	3384.28	0.3	3384.88	3386.16	3386.4	1.00	3387.40	OK	OK	
51	B	3382.21	3382.21	Roll	3381.83	0.3	3382.43	3383.71	3384.0	1.00	3385.00	OK	OK	
52	B	3379.76	3379.76	Roll	3379.38	0.3	3379.98	3381.26	3381.5	1.00	3382.50	OK	OK	
53	B	3377.30	3377.30	Roll	3376.92	0.3	3377.52	3378.80	3379.1	1.00	3380.10	OK	OK	
54	C1	3391.75	3391.75	Roll	3391.37	0.4	3392.17	3393.25	3393.4	1.00	3394.40	OK	OK	
Where														
1: Top of Curb at High Side of Lot														
2: Flowline = TC - 0.38 feet (for Mod Roll)														
3: Minimum Allowable Finished Floor Elevation above flowline @ high side of lot = (2 x D ₁₀₀) + F/L														
4: Minimum Allowable Finished Floor Elevation above centerline (or TC whichever is higher) elevation = Centerline elevation (or Center TC) + 1.5 feet														



LEGEND

- | PROPOSED | EXISTING | DESCRIPTION |
|----------|----------|---|
| | ---- | PUBLIC R/W LINE |
| | ---- | PRIVATE R/W LINE |
| | ===== | BOUNDARY LINE |
| | ---- | EASEMENT LINE |
| | | MATCH LINE |
| | | CUT / FILL LINE |
| ===== | | CENTERLINE |
| ===== | | EDGE OF ASPHALT |
| ===== | | CURB & GUTTER |
| | | RETAINING WALL |
| | | SAWCUT LINE |
| | | FLOWLINE |
| ----- | ----- | GRADE BREAK |
| ----- | ----- | MAJOR CONTOUR - 5' |
| ----- | ----- | MINOR CONTOUR - 1' |
| | | FENCE |
| | | SCARP |
| | | CONCRETE SURFACE |
| | | PROPOSED ASPHALT PAVEMENT |
| | | REMOVE AND REPLACE ASPHALT |
| | | RIP-RAP |
| | | ELEVATION GRADE TAG |
| | | GRADE SLOPE TAG |
| | | SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER |
| | | SIGHT VISIBILITY ZONE |
- COMMON ABBREVIATIONS**

FF - FINISHED FLOOR	TRC - TOP OF 30" ROLL CURB
TC - TOP OF CURB	AC - TOP OF PAVEMENT
FL - FLOWLINE GRADE	EW - EDGE OF PAVEMENT
TB - TOP OF BERM	TRP - TOP OF RETAINING WALL
TF - TOP OF WALL FOOTER	PRV - PRIVATE
ST - STREET	TY - TYPICAL
ESMT - EASEMENT	RG - RIGHT-OF-WAY
TMH - TOP OF MANHOLE (RIM ELEV.)	DW - DESIGN GRADE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.

2. FOR ROADWAY IMPROVING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED JUD CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.

4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC;
ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED
WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

II CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# N/A ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E. DATE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: 5LV0926W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27, TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY, NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET
ARE GRANTED PER NFM #___-___ UNLESS OTHERWISE NOTED

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY, SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE PROJECT.

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL 32003C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED APRIL 17, 2019

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

Plot Stamp: 8/26/2019 11:33:31 AM - Ryan Sicner
File: P:\WLH011901 - V21 Parcel L\Civil\CDIWLH011901-CD-GRAD.dwg, Tab: C3 - Grading 1



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TRANSPORTATION DIVISION

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1-800-227-2600

Call before you dig
1-702-227-2929

LINE & CURVE DATA NOTE

PLEASE REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV0526W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27,
TOWNSHIP 21 SOUTH, RANGE 98 EAST, N.D.M., CITY LAS VEGAS, CLARK COUNTY,
NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE
OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET
ARE GRANTED PER NFM # _____ UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E. PUBLIC SEWER EASEMENTS, AND PUBLIC
DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE
APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY,
SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE
PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE
PROJECT.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD
INSURANCE RATE MAP COMMUNITY PANEL 3203C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING
DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL
AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN
THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES
SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS
POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEX RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED: APRIL 17, 2019

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE
EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO
EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAT
TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE
CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS
MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE
NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT,
GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT
VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

PLEASE REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR
CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL
VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF
PAVEMENT OR PROJECTED LIP OF CURB PRIOR TO SUBGRADE PREPARATION AND
CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT
MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL
BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO
DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC,
ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED
WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL AT FINAL INSPECTION.

CUT: 57,388 CY
FILL: 6,024 CY
BALANCE: 51,285 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED
DRAINAGE STUDY CLV# NA ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E.

DATE

DATE DESCRIPTION

BY

GRADING PLAN 2

CASCADES

WILLIAM LYON HOMES

CITY OF LAS VEGAS, NEVADA

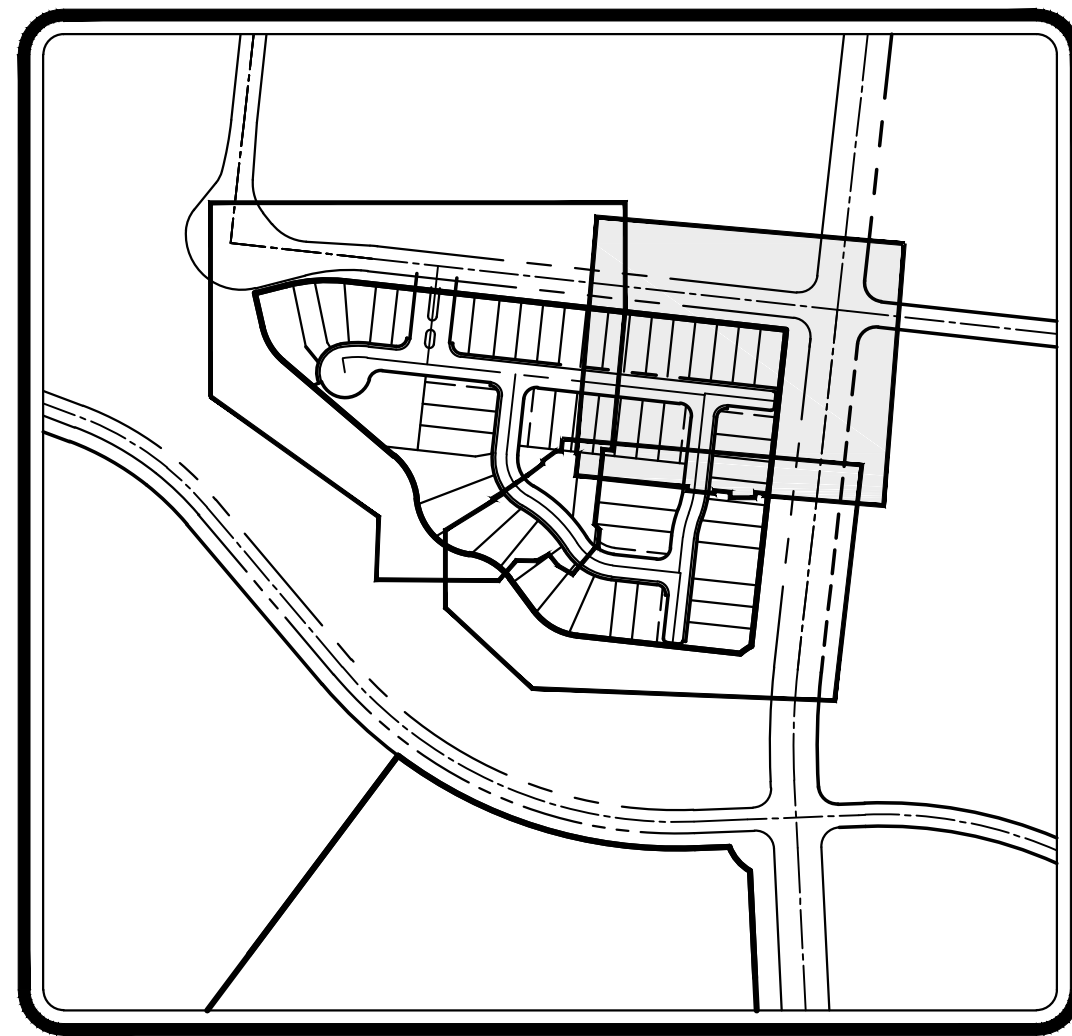
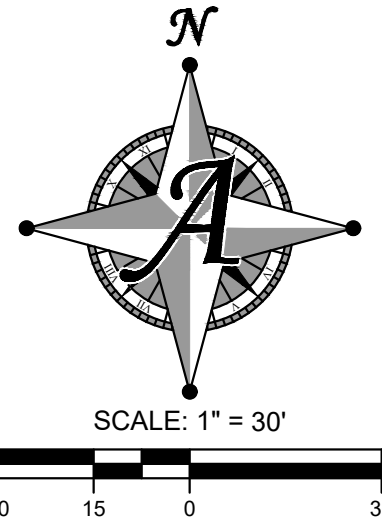
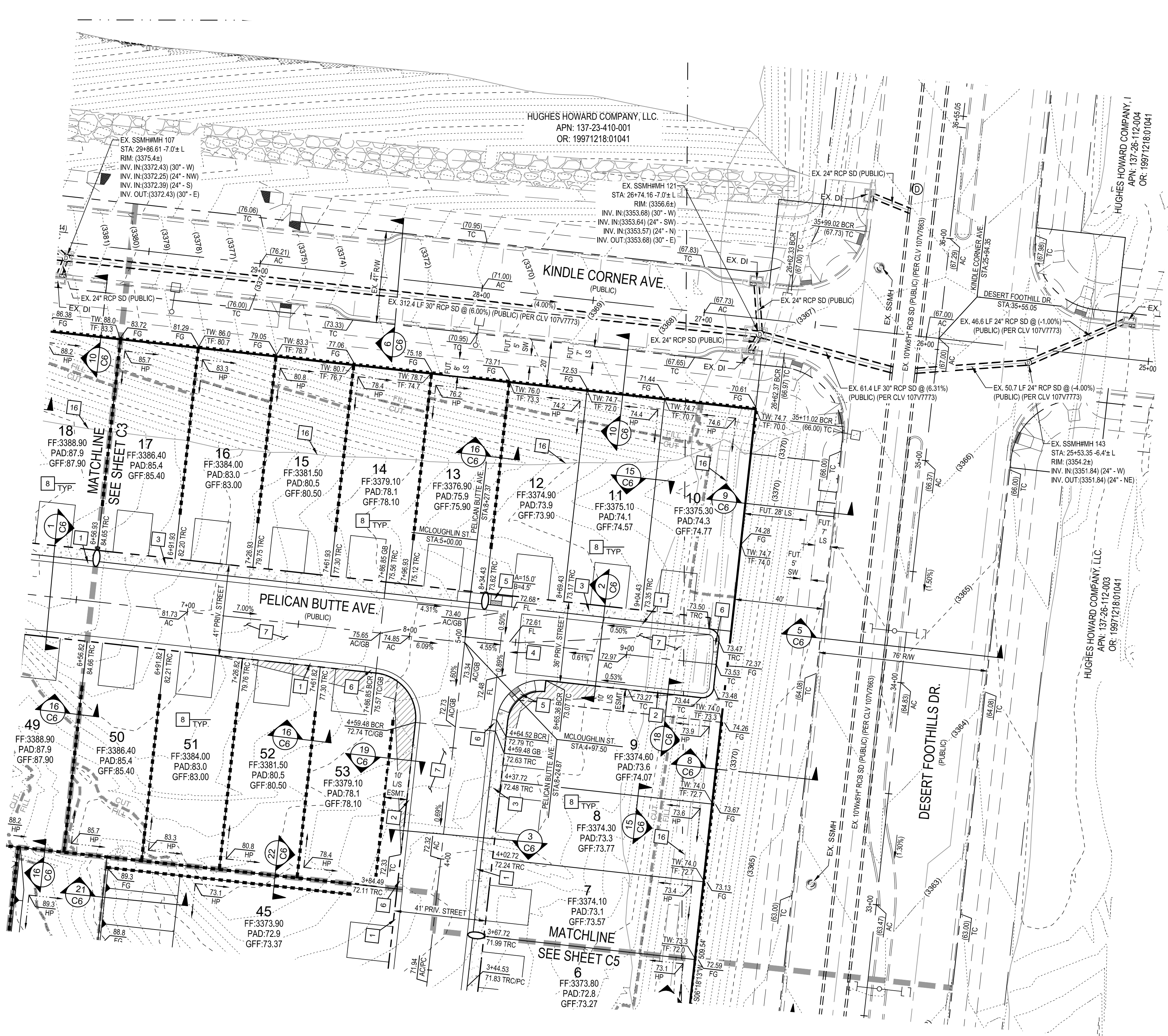


DATE 08/26/2019
DRAWN RLS
DESIGNED RLS
CHECKED DCL
PROJECT # WLH011901

SHEET TITLE
GRADING
SHEET NUMBER

C4

SHEET 4 OF 21



KEY MAP

SCALE: NTS

GRADING CONSTRUCTION NOTES

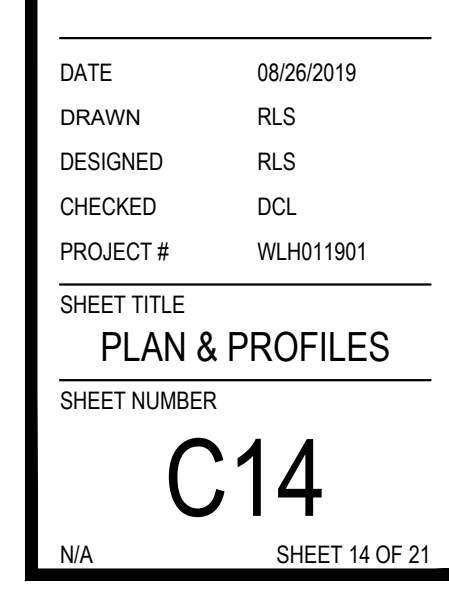
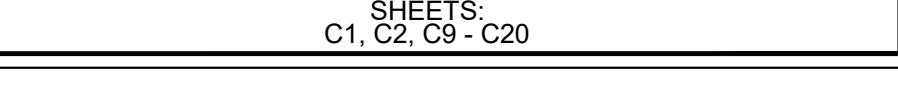
1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT 1" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5" WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8" CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I: "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5" TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "33" ON SHEET C6
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "34" ON SHEET C6
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER. SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II: "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONNECT TO EX. SD LINE (CONTRACTOR TO VERIFY SIZE, INVERT AND LOCATION OF EX. SD)
13. CONSTRUCT CONCRETE LINED DRAINAGE EASEMENT PER CCAUSD #425.S1
14. CONSTRUCT SIDEWALK DRAIN PER CCAUSD #236
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING SCARP TO BE REMOVED
17. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
18. CONSTRUCT 15" TYPE "CMZ" DROP INLET PER CCAUSD #412.1 & 421.1 (4" GRATES, L=10', W=4.15')
19. CONSTRUCT GATES PER CCAUSD #425.S1
20. CONSTRUCT 7" TRANSITION "DEPRESSED" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "32" ON SHEET C6
21. CONSTRUCT "DEPRESSED" CURB AND GUTTER PER DETAIL "32" ON SHEET C6
22. INSTALL 4" DIA. REMOVABLE BOLLARDS PER CCAUSD #425.S1
23. INSTALL 1.5" HIGH HEAD WALL

LEGEND

PROPOSED	EXISTING	DESCRIPTION
---	---	PUBLIC RW LINE
---	---	PRIVATE RW LINE
---	---	BOUNDARY LINE
---	---	EASEMENT LINE
---	---	MATCH LINE
---	---	CUT / FILL LINE
---	---	CENTERLINE
---	---	EDGE OF ASPHALT
---	---	CURB & GUTTER
---	---	RETAINING WALL
---	---	SAWCUT LINE
---	---	FLOWLINE
---	---	GRADE BREAK
---	---	MAJOR CONTOUR - 5'
---	---	MINOR CONTOUR - 1'
---	---	FENCE
---	---	SCARP
---	---	CONCRETE SURFACE
---	---	PROPOSED ASPHALT PAVEMENT
---	---	REMOVE AND REPLACE ASPHALT RIP-RAP
---	---	ELEVATION GRADE TAG
---	---	GRADE SLOPE TAG
---	---	SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
---	---	SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF - FINISHED FLOOR	TRC - TOP OF 30" ROLL CURB
TC - TOP OF CURB	AC - TOP OF PAVEMENT
FL - FLOWLINE GRADE	EP - EDGE OF PAVEMENT
TB - TOP OF BERM	TRW - TOP OF RETAINING WALL
TF - TOP OF WALL FOOTER	PRV - PRIVATE
ST - STREET	TYP - TYPICAL
ESMT - EASEMENT	R/W - RIGHT-OF-WAY
TMH - TOP OF MANHOLE (RIM ELEV.)	DG - DESIGN GRADE



SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27,
TOWNSHIP 21 SOUTH, RANGE 59 EAST, M.D.M., CITY LAS VEGAS, CLARK COUNTY,
NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE
OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS

**REDLINED
GRADING PLANS AND DETAILS
& STORM DRAIN PROFILE**





DATE	01/28/2020
DRAWN	RLS
DESIGNED	RLS
CHECKED	DCL
PROJECT #	WLH011901

SHEET TITLE

GRADING

SHEET NUMBER

C3

SHEET 3 OF 21

Call before you Dig Avoid hitting underground utility lines. It's costly.  Call before you Dig Avoid hitting underground utility lines. It's costly. Underground 1-702-432-5300 FREEDOM & AIRPORTS, SYSTEM OF TRANSPORTATION (STATE)	Call before you Dig Avoid cutting underground utility lines. It's costly. CALL 811 OR 1-800-227-2600	AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY CALL BEFORE YOU DO OVERHEAD  1-702-227-2929
--	--	--



LINE & CURVE DATA TABLE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV026W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27,
TOWNSHIP 21 SOUTH, RANGE 95 EAST, M.D.M. CITY LAS VEGAS, CLARK COUNTY,
NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE
OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET
ARE GRANTED PER PMP #77499 UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E. PUBLIC SEWER EASEMENTS, AND PUBLIC
DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE
APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY,
SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE
PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE
PROJECT.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD
INSURANCE RATE MAP COMMUNITY PANEL 3203C2150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING
DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL
AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN
THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES
SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS
POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED: APRIL 17, 2019

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE
EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO
EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT 1" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8" CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE I. "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "34" ON SHEET C6
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "35" ON SHEET C6
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER, SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE II. "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONSTRUCT GATES PER CCAUSD #425 S1
13. CONSTRUCT 20" TYPE "CM2" MODIFIED DROP INLET PER SHEET 50.00 (7" GRATES, L=20', W=15')
14. INSTALL TYPE "A" ISLAND CURB PER CCAUSD #219
15. EXISTING RIP-RAP CHANNEL TO BE REMOVED.
16. EXISTING SCARP TO BE REMOVED
17. CONSTRUCT 18-20" LOADING DECOMPOSED GRANITE ACCESS PATHS FOR UTILITY TRUCKS
18. CONSTRUCT STEPS AND HAND-RAILS PER DETAIL "36" ON SHEET C6
19. INSTALL 6" HIGH MAX. WROUGHT IRON FENCE PER DETAIL "37" ON SHEET C6

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PUBLIC RW LINE
		PRIVATE RW LINE
		BOUNDARY LINE
		EASEMENT LINE
		MATCH LINE
		CUT / FILL LINE
		CENTERLINE
		EDGE OF ASPHALT
		CURB & GUTTER
		RETAINING WALL
		SAWCUT LINE
		FLOWLINE
		GRADE BREAK
		MAJOR CONTOUR - 5'
		MINOR CONTOUR - 1'
		FENCE
		SCARP
		CONCRETE SURFACE
		PROPOSED ASPHALT PAVEMENT
		REMOVE AND REPLACE ASPHALT
		RIIP-RAP
		ELEVATION GRADE TAG
		GRADE SLOPE TAG
		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
		SIGHT VISIBILITY ZONE

COMMON ABBREVIATIONS

FF - FINISHED FLOOR	TRC - TOP OF 30" ROLL CURB
TC - TOP OF CURB	AC - TOP OF PAVEMENT
FL - FLOWLINE GRADE	EP - EDGE OF PAVEMENT
TB - TOP OF BERM	TR - TOP OF RETAINING WALL
TF - TOP OF WALL FOOTER	PRV. - PRIVATE
ST. - STREET	TYP. - TYPICAL
ESMT - EASEMENT	R/W - RIGHT-OF-WAY
TMH - TOP OF MANHOLE (RIM ELEV.)	DG - DESIGN GRADE

SIGHT VISIBILITY ZONE NOTE

NO WALLS, FENCES SHRUBS, UTILITY APPURTENANCES OR ANY OTHER OBJECT, OTHER THAN TRAFFIC CONTROL DEVICES, FIRE HYDRANTS, TREES, AND STREET LIGHT POLES, MAY BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE UNLESS SAID OBJECT IS MAINTAINED AT LESS THAN 24 INCHES IN HEIGHT, MEASURED FROM TOP OF CURB, OR WHERE NO CURB EXISTS, A HEIGHT OF 27 INCHES MEASURED FROM THE TOP OF ADJACENT ASPHALT, GRAVEL OR PAVEMENT STREET SURFACE. THIS RESTRICTION EXTENDS ALONG THE SIGHT VISIBILITY LINE THROUGH LANDSCAPED MEDIANS.

REFER TO TRAFFIC SHEET FOR SIGHT VISIBILITY ZONE DIMENSIONS.

GRADING NOTES

1. ACTUS SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES IN THE PLANS OR CONDITIONS IN THE FIELD.
2. FOR ROADWAY WIDENING AND HALF STREET IMPROVEMENTS, THE CONTRACTOR SHALL VERIFY CROSS SLOPES FROM EXISTING PAVEMENT SAWCUT LINE TO PROPOSED EDGE OF PAVEMENT OR PROJECTED TOP OF CURB PRIOR TO SUBGRADE PREPARATION AND CONSTRUCTION OF PROPOSED CURB LINE. IF MINIMUM OR MAXIMUM CROSS SLOPES DO NOT MEET AGENCY STANDARDS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
3. WALL DETAILS ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A STRUCTURAL DESIGN.
4. CONSTRUCTION OF BLOCK WALLS REQUIRE A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING DEPARTMENT.

ESTIMATED QUANTITIES

NOTE: QUANTITIES SHOWN ARE RAW QUANTITIES AND APPROXIMATE. CONTRACTOR TO DETERMINE HIS OWN QUANTITIES FOR GRADING PURPOSES.

WORK UNDER THIS PLAN CONSTITUTES GRADING IN ACCORDANCE WITH 2018 IBC. ENGINEERING REPORTS AND CERTIFICATIONS IN CONFORMANCE WITH IBC SHALL BE FILED WITH THE CITY OF LAS VEGAS PRIOR TO CITY OF LAS VEGAS APPROVAL, AT FINAL INSPECTION.

CUT: 57,309 CY
FILL: 6,024 CY
BALANCE: 51,285 CY (CUT)

ENGINEER'S CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CLV# D050157 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E.

DATE

01/28/2020

DRAWN: RLS

DESIGNED: RLS

CHECKED: DCL

PROJECT #: WLH011901

SHEET TITLE: GRADING

SHEET NUMBER: C4

3/25/2020

DATE: 01/28/2020

DRAWN: RLS

DESIGNED: RLS

CHECKED: DCL

PROJECT #: WLH011901

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SHEET TITLE: GRADING

SHEET NUMBER: C4

3/25/2020

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LINE & CURVE DATA NOTE

REFER TO TRAFFIC SHEETS FOR LINE AND CURVE DATA.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK
MONUMENT ID: SLV026W6
RIVET AND PLATE IN TOP OF CURB @ SE CORNER OF CARRIAGE HILL & FAR HILLS
ELEVATION: FEET = 3229.29' (NAVD88) METERS = 984.29 M (NAVD88)

BASIS OF BEARINGS

SOUTH 89°51'25" EAST, BEING THE BEARING OF NORTH LINE OF SECTION 27,
TOWNSHIP 21 SOUTH, RANGE 98 EAST, N.D.M., CITY LAS VEGAS, CLARK COUNTY,
NEVADA AS PER MAP RECORDED IN FILE 123, PAGE 36 OF PARCEL MAPS, IN THE
OFFICE OF THE CLARK COUNTY, NEVADA RECORDERS.

DEDICATION NOTE

ALL EASEMENTS, RIGHT-OF-WAY, AND OTHER DEDICATIONS WITHIN THIS PLAN SET
ARE GRANTED PER PMP #77499 UNLESS OTHERWISE NOTED

PRIVATE STREET NOTE

ALL PRIVATE STREETS ARE P.U.E. PUBLIC SEWER EASEMENTS, AND PUBLIC
DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA PER THE
APPROVED FINAL MAP FOR THE PROJECT.

COMMON LOT NOTE

ALL COMMON LOTS ARE TO BE PUBLIC DRAINAGE, PEDESTRIAN ACCESS, UTILITY,
SEWER, AND PRIVATE LANDSCAPE EASEMENTS OVER THEIR ENTIRETY TO BE
PRIVATELY MAINTAINED BY THE HOA PER THE APPROVED FINAL MAP FOR THE
PROJECT.

FLOOD ZONE DESCRIPTION

THIS SITE IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, PER THE FLOOD
INSURANCE RATE MAP COMMUNITY PANEL 32032C150E CLARK COUNTY, NEVADA DATED SEPTEMBER 27, 2002.

FLOOD DESIGNATION PROVIDED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

DISCLAIMER NOTE

THE UNDERGROUND UTILITIES AS SHOWN HEREON HAVE BEEN LOCATED FROM OBSERVED FIELD SURVEY EVIDENCE AND EXISTING
DRAWINGS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PLANS PROVIDED BY THE CLIENT, UTILITY COMPANIES, AND MUNICIPAL
AGENCIES. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN
THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES
SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS
POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

SOILS NOTE

ALL GRADING SHALL CONFORM TO GEOTECHNICAL REPORT
BY: GEOTEK RESIDENTIAL, LLC
ORIGINAL PROJECT NUMBER: 14658-LVR
DATED: MARCH 5, 2019
UPDATED: APRIL 17, 2019

STORM DRAIN CONNECTION NOTE

WHEN CONNECTING TO EXISTING RCP, CONTRACTOR SHALL REMOVE THE
EXISTING RCP TO THE NEAREST BELL CONNECTION, CONNECT NEW RCP TO
EXISTING RCP AND MATCH EXISTING PIPE SLOPE.

GRADING CONSTRUCTION NOTES

1. CONSTRUCT 30" MODIFIED ROLL CURB AND GUTTER PER CCAUSD #217.1
2. CONSTRUCT 1" CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT 5' WIDE SIDEWALK PER CCAUSD #234
4. CONSTRUCT 8" CROSS GUTTER PER CCAUSD #228
5. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE 1 "A" & "B" = 8' UNLESS OTHERWISE NOTED
6. CONSTRUCT 5' TRANSITION "L" CURB TO TYPE 30" MODIFIED ROLL CURB PER DETAIL "34" ON SHEET C6
7. INSTALL 2" AC OVER 4" TYPE II AGGREGATE BASE
8. CONSTRUCT PAD PER TYPICAL PAD SECTION DETAIL "35" ON SHEET C6
9. MATCH EX. ASPHALT, CURB, SIDEWALK, GUTTER, OR VALLEY GUTTER, SAW CUT CLEAN EDGE FOR CONNECTION.
10. INSTALL CALL BOX FOR ENTRY GATES
11. CONSTRUCT SIDEWALK RAMP PER CCAUSD #235 CASE "A" & "B" = 6.5' UNLESS OTHERWISE NOTED
12. CONSTRUCT GATES PER CCAUSD #425.51
13. CONSTRUCT 20" TYPE "CM" MODIFIED DROP INLET PER SHEET 50.00 (7" GRATES, L=20', W=15')
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		REMOVE AND REPLACE ASPHALT
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		SECTION MARKER - DETAIL NUMBER ABOVE SHEET NUMBER
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CUT: 57,309 CY
FILL: 6,024 CY
BALANCE: 51,285 CY (CUT)

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I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED UPDATED DRAINAGE STUDY CL#8 D505157 ON FILE WITH THE CITY OF LAS VEGAS.

DARRYL LATTIMORE, P.E.

DATE

01/28/2020

DRAWN: RLS

DESIGNED: RLS

CHECKED: DCL

PROJECT #: WLH011901

SHEET TITLE

GRADING

SHEET NUMBER

C5

SHEET 5 OF 21

DATE

01/28/2020

DRAWN: RLS

DESIGNED: RLS

CHECKED: DCL

PROJECT #: WLH011901

SHEET TITLE

GRADING

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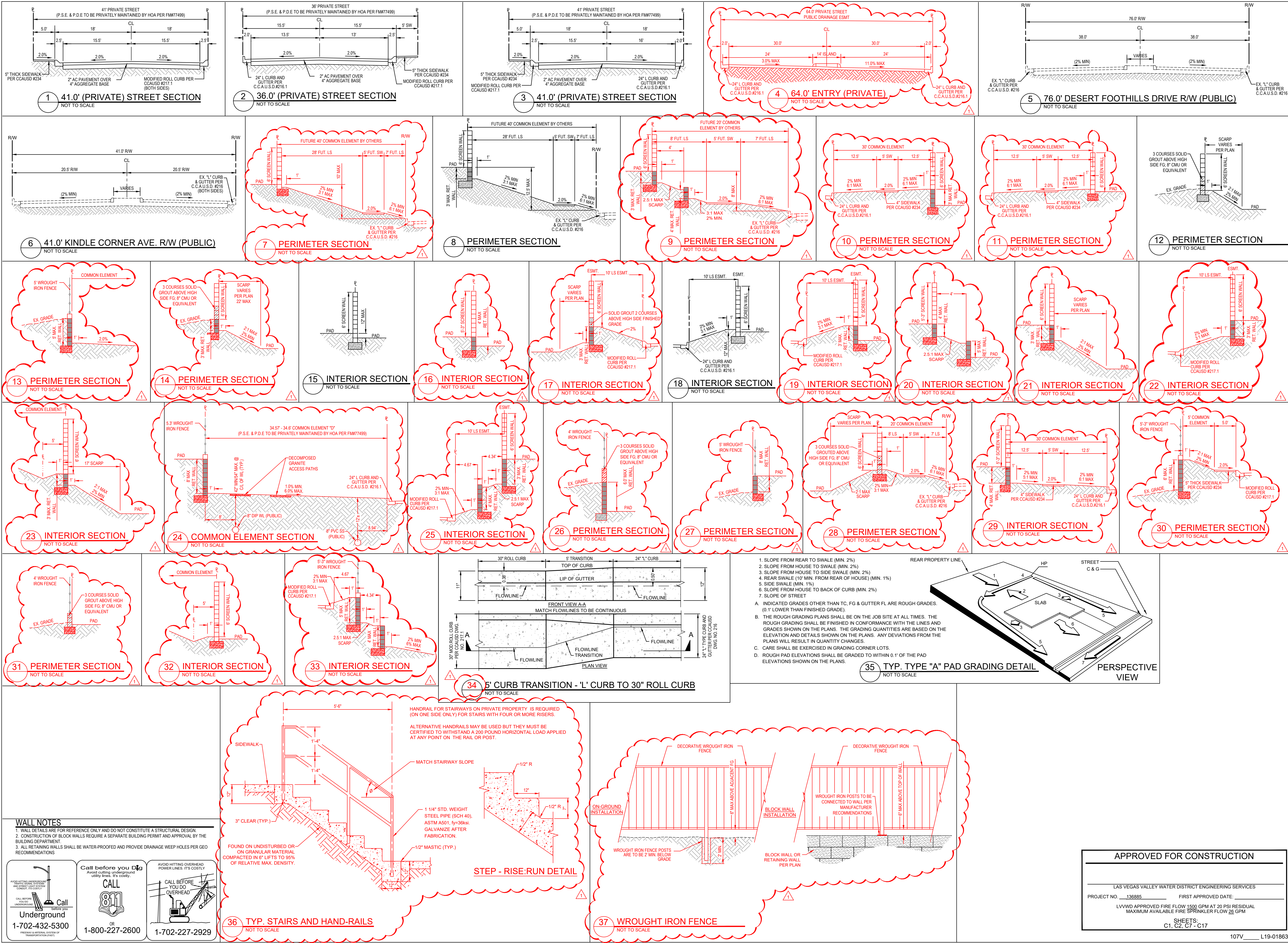
C5

SHEET 5 OF 21

DATE

01/28/2020

DRAWN: RLS



3283 E. Warm Springs Rd., Suite 300
Las Vegas, NV 89120
www.actus-nv.com
(702) 986-9296

Engineering - Surveying - Planning

DETAILS 1

CASCADES

WILLIAM LYON HOMES

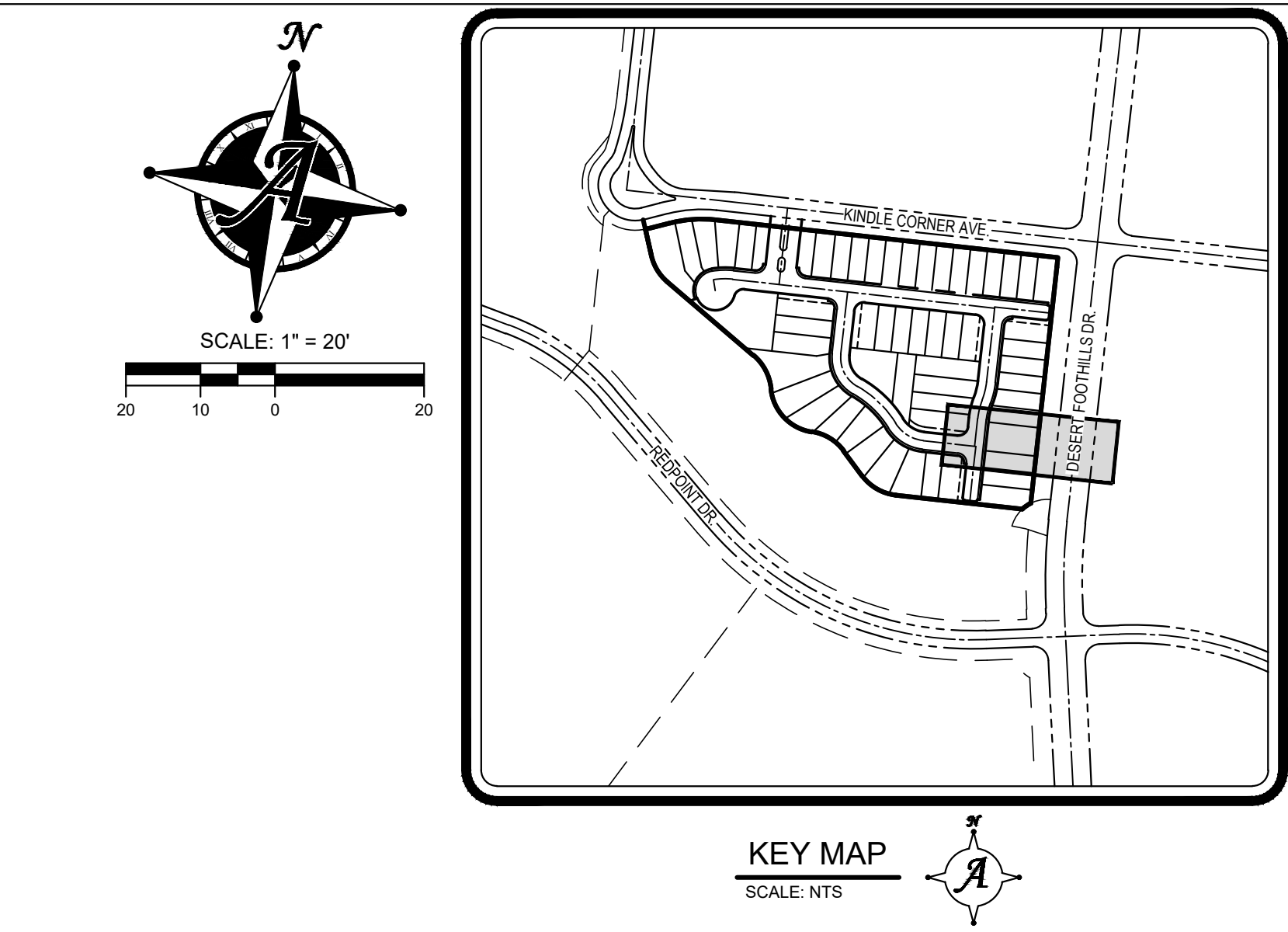
CITY OF LAS VEGAS, NEVADA

DATE	DESCRIPTION	BY
2020-03-09	UPDATED DETAILS	RLS

3/25/2020

DATE	01/28/2020
DRAWN	RLS
DESIGNED	RLS
CHECKED	DCL
PROJECT #	WLH011901
SHEET TITLE	DETAILS
SHEET NUMBER	C6

107V L19-01863



107V L19-01863



3283 Warm Springs Road Suite 300
Las Vegas, NV 89120
(702) 586-9296

April 9, 2020

City of Las Vegas
333 N. Rancho Dr.
Las Vegas, NV 89106

Re.: CD Certification for the TDS for Update No.1 for Cascades (Summerlin Village 21 Parcel L)

Dear Staff,

The pdfs on the submittal package CD matches the original submittal package.

We hope the above responses satisfy any concerns. If you have any questions or need any additional information, please feel free to call our office at (702) 586-9296.

Sincerely,



Darryl Lattimore, P.E.
President

4/9/2020