

DS #:

5206.1

APN:

137-23-410-002

PROJECT:

Summerlin West

SUBMITTAL:

5th

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		July 8, 2020
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:	
	Summerlin West Village 21 Parcel M - Update	
Cross Streets:	NWC of Carriage Hill Dr. & Kindle Corner Av.	COPIES TO: GCW Engineering
File Number:	F:\Depot\DSMemos\DS5206E.doc	Howard Hughes Company, LLC; Woodside Homes of Nevada, LLC
Parcel Number:	137-23-410-002	Bart Anderson, P.E., DevCo
Zoning Action:	TMP-77769	
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	10/21/2019	11/14/2019	Not Approved	\$400.00	3617825: \$400
2 nd Submittal & Supplement	12/11/2019 & 1/6/2020	1/23/2020	Not Approved	\$400.00	3673502: \$400
3 rd Submittal (Supplement)	2/18/2020	2/27/2020	Approved	N/C	N/C
4 th Submittal	5/11/2020	5/26/2020	Not Approved	\$100.00	3844575: \$100
5 th Submittal	6/24/2020	7/8/2020	See Comments Below	\$400.00	3901769: \$400
			TOTAL FEES (LDDRS):	\$1,300.00	----

REMARKS:

4th & 5th Submittals: Update & Addendum for Lotlines Adjustment and Minor Revision of Onsite Grading

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.

1. The subject development is under the premise of flood protection by the surrounding perimeter streets and the associated storm drain systems, ie, *Carriage Hill Drive, Kindle Corner Avenue, Clowder Spring Way and Red Pass Drive*. No occupancy permit of the houses will be issued prior to the substantial buildout of the perimeter streets.

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
HDR/AYS

T/R/S: T20S/R59E/23
AREA K-23

**UPDATE TO THE
TECHNICAL DRAINAGE STUDY
FOR
SUMMERLIN VILLAGE 21 PARCEL M**

793-533

May 2020

Prepared for:

**Woodside Homes
4670 South Fort Apache
Las Vegas, Nevada 89147
Phone: (702) 889-7824**

GCV
ENGINEERS SURVEYORS

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Summerlin Village 21 - Parcel M (Update) Date: May 2020

Location of Development: a) Descriptive (Cross Streets) North/South: I-215

East/West: Summerlin Parkway

b) Section: 23 Township: 20 Range: 59

c) APN : 137-23-410-002

Name of Owner: Howard Huges Company, LLC (Owner) / Woodside Homes of Nevada, LLC (Developer)

Telephone No.: (702) 889-7824 (Woodside) Fax No.: _____ E-Mail Address: sanderson@woodsidehomes.com

Address: 4670 S. Fort Apache Rd. #200, Las Vegas, NV 89147

Contact Person-Name: Cameron Bencini, PE Telephone No.: (702) 804-2126

* E-Mail Address: cbencini@gcwengineering.com Fax No.: _____

Firm: GCW Engineering

Address: 1555 South Rainbow Boulevard, Las Vegas, NV 89146

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: 28.93 Acres Being Developed/Disturbed: 8.93 Acres

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.): Residential

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

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: FCMP UP to the Smrlin West Planning Area (DS4926F), Carriage Hill Drive and Smrlin Pkwy (DS5064C), Kindle Corner Ave. Improvements (DS5086D)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Runoff from the site drains to an existing 36" RCP stub at the east edge of the site.

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

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

793-533

May 5, 2020

Oh Sang Kwon, P.E.
City of Las Vegas, Public Works
333 N. Rancho Drive, 7th Floor
Las Vegas, NV 89106

Re: Technical Drainage Study for Summerlin Village 21 Parcel M (Update)

Dear Mr. Kwon,

This letter is to certify that all documents provided on electronic submittal (CD) match the hardcopy version of the study.

Cordially,

Cameron Bencini, P.E.
GCW, INC.



5-5-20



**UPDATE TO THE
TECHNICAL DRAINAGE STUDY
FOR
SUMMERLIN VILLAGE 21 PARCEL M**

793-533

May 2020

Authored By:

**Cameron Bencini, PE
Nelson Baggs, E.I.**

Prepared By:

**GCW, Inc.
1555 S. Rainbow Blvd.
Las Vegas, Nevada 89146
Phone: (702) 804-2000
Fax: (702) 804-2299**

793-533

May 5, 2020

Albert Sung, P.E.
City of Las Vegas - Department of Public Works
333 N. Rancho Drive
Las Vegas, NV 89106

**Re: Update to the Technical Drainage Study for Summerlin West Village 21 Parcel M
(DS5206C)**

Dear Mr. Sung:

The purpose of this letter is to update the above-referenced project by addressing a change to the lot lines of the development. Details regarding the revision are addressed below.

Since the previous approval, the lot lines of the proposed development have been shifted slightly, therefore many of the finished floors and adjacent grades have changed. The lot layout and grading of the development remains the same. Note that all finished floor elevations meet criteria. Also note that the driveway slopes have been maxed out for all of the garages that do not meet twice the depth of flow per the criteria agreed upon by GCW and CLV in the meeting on November 26, 2019. An updated Finished Floor Summary Table and exhibit showing the garage finished floors and driveway slopes have been included. Pertinent reference material from previous submittals has also been included in the appendix.

Cordially,

GCW, INC.


Nelson Baggs, E.I.
Flood Control Division

APPENDIX



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		February 27, 2020
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:	
	Summerlin West Village 21 Parcel M	
Cross Streets:	NWC of Carriage Hill Dr. & Kindle Corner Av.	COPIES TO: GCW Engineering Howard Hughes Company, LLC; Woodside Homes of Nevada, LLC Bart Anderson, P.E., DevCo
File Number:	F:\Depot\DSMemos\DS5206C.doc	
Parcel Number:	137-23-410-002	
Zoning Action:	TMP-77769	
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	10/21/2019	11/14/2019	Not Approved	\$400.00	3617825: \$400
2 nd Submittal & Supplement	12/11/2019 & 1/6/2020	1/23/2020	Not Approved	\$400.00	3673502: \$400
3 rd Submittal (Supplement)	2/18/2020	2/27/2020	See Comments Below	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.

Note that the Clark County Regional Flood Control District (District) has begun efforts to update the Hydrologic Criteria and Drainage Design Manual (HCDDM) and is requesting participation from the engineering community. The District is collecting comments and suggestions on errors, clarifications, or changes needed to the current Manual and/or content and usability enhancements to be incorporated into the updated Manual. Additional information on procedures and deadline to provide feedback and comments are available online at (<http://www.ccrfcd.org/hcddmupdate.html>).

1. The subject development is under the premise of flood protection by the surrounding perimeter streets and the associated storm drain systems, ie, *Carriage Hill Drive, Kindle Corner Avenue, Clowder Spring Way and Red Pass Drive*. No occupancy permit of the houses will be issued prior to the substantial buildout of the perimeter streets.
2. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.

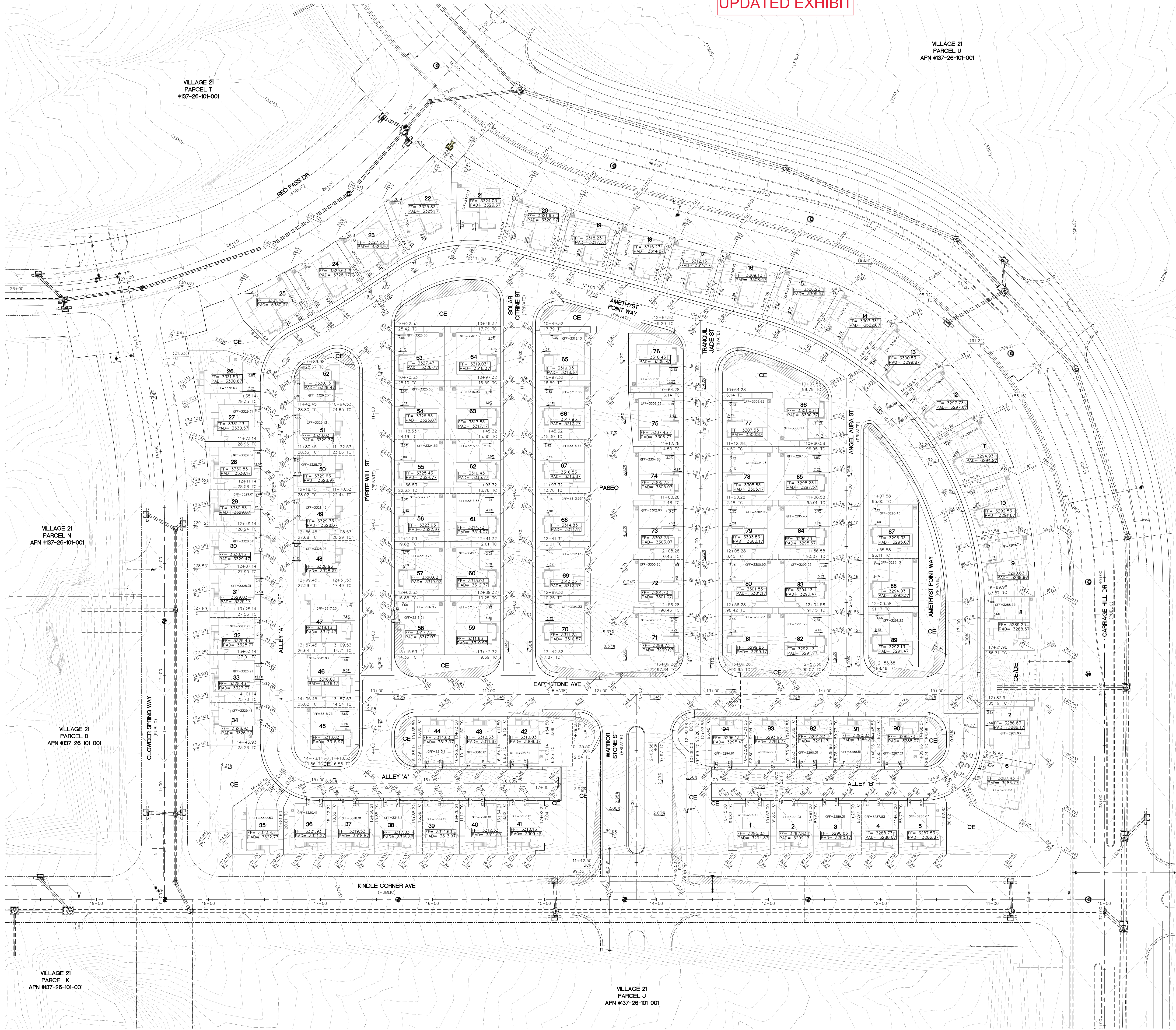
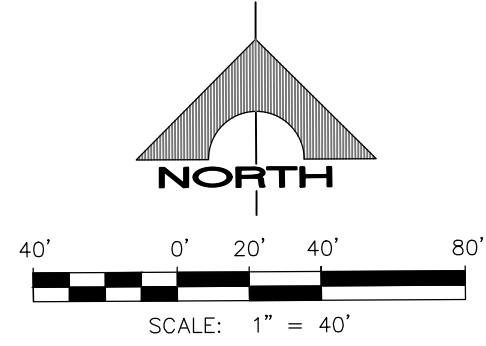
3. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

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
HDR/AYS

T/R/S: T20S/R59E/23
AREA K-23



VILLAGE 21 PARCEL M FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION									
Lot Number	Hydraulic Section Utilized	T/C (ft)	F/L (ft)	D ₁₀₀ (ft)	G.F.F -Design (ft)	G.F.F -Design - FL (ft)	G.F.F -Design - TC		
1	1.20	3293.02	3292.64	0.28	3293.4	0.77	0.39	Meets 2x Flow Depth	
2	1.20	3291.26	3290.88	0.28	3291.3	0.43	0.05	Driveway Slope is Maxed	
3	1.20	3289.28	3288.90	0.28	3289.3	0.41	0.03	Driveway Slope is Maxed	
4	1.20	3287.73	3287.35	0.28	3287.8	0.48	0.10	Driveway Slope is Maxed	
5	1.20	3286.60	3286.22	0.28	3286.6	0.41	0.03	Driveway Slope is Maxed	
6	1.20	3285.78	3285.40	0.28	3286.5	1.13	0.75	Meets 2x Flow Depth	
7	1.20	3285.37	3284.99	0.28	3285.9	0.94	0.56	Meets 2x Flow Depth	
8	1.3b	3287.67	3287.29	0.29	3288.3	1.04	0.66	Meets 2x Flow Depth	
9	1.3b	3289.07	3288.69	0.29	3289.7	1.04	0.66	Meets 2x Flow Depth	
10	1.3b	3290.89	3290.51	0.29	3291.6	1.12	0.74	Meets 2x Flow Depth	
11	1.3b	3293.20	3292.82	0.29	3294.0	1.21	0.83	Meets 2x Flow Depth	
12	1.3b	3295.98	3295.60	0.29	3296.8	1.23	0.85	Meets 2x Flow Depth	
13	1.3b	3298.80	3298.42	0.29	3299.6	1.21	0.83	Meets 2x Flow Depth	
14	1.3b	3301.65	3301.27	0.29	3302.4	1.16	0.78	Meets 2x Flow Depth	
15	1.3a	3304.49	3304.11	0.24	3305.3	1.22	0.84	Meets 2x Flow Depth	
16	1.3a	3307.63	3307.25	0.24	3308.2	0.98	0.60	Meets 2x Flow Depth	
17	1.3a	3310.67	3310.29	0.24	3311.2	0.94	0.56	Meets 2x Flow Depth	
18	1.3a	3313.72	3313.34	0.24	3314.3	0.99	0.61	Meets 2x Flow Depth	
19	1.3a	3316.76	3316.38	0.24	3317.3	0.95	0.57	Meets 2x Flow Depth	
20	1.3a	3319.80	3319.42	0.24	3320.7	1.31	0.93	Meets 2x Flow Depth	
21	1.3a	3322.22	3321.84	0.24	3323.1	1.29	0.91	Meets 2x Flow Depth	
22	1.3a	3324.14	3323.76	0.24	3324.9	1.17	0.79	Meets 2x Flow Depth	
23	1.3a	3325.98	3325.60	0.24	3326.7	1.13	0.75	Meets 2x Flow Depth	
24	1.3a	3327.92	3327.54	0.24	3328.7	1.19	0.81	Meets 2x Flow Depth	
25	1.3a	3329.06	3328.68	0.24	3330.5	1.85	1.47	Meets 2x Flow Depth	
26	1.40	3329.37	3328.99	0.29	3330.6	1.64	1.26	Meets 2x Flow Depth	
27	1.40	3329.31	3328.93	0.29	3329.7	0.78	0.40	Meets 2x Flow Depth	
28	1.40	3328.87	3328.49	0.29	3329.3	0.82	0.44	Meets 2x Flow Depth	
29	1.40	3328.52	3328.14	0.29	3329.0	0.87	0.49	Meets 2x Flow Depth	
30	1.40	3328.18	3327.80	0.29	3328.6	0.81	0.43	Meets 2x Flow Depth	
31	1.40	3327.84	3327.46	0.29	3328.3	0.85	0.47	Meets 2x Flow Depth	
32	1.40	3327.50	3327.12	0.29	3327.9	0.79	0.41	Meets 2x Flow Depth	
33	1.40	3326.84	3326.46	0.29	3326.9	0.45	0.07	Driveway Slope is Maxed	
34	1.40	3325.38	3325.00	0.29	3325.4	0.41	0.03	Driveway Slope is Maxed	

VILLAGE 21 PARCEL M FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION									
Lot Number	Hydraulic Section Utilized	T/C (ft)	F/L (ft)	D ₁₀₀ (ft)	G.F.F -Design (ft)	G.F.F -Design - FL (ft)	G.F.F -Design - TC		
35	1.40	3321.56	3321.18	0.29	3322.5	1.35	0.97	Meets 2x Flow Depth	
36	1.40	3320.17	3319.79	0.29	3320.4	0.62	0.24	Meets 2x Flow Depth	
37	1.40	3317.89	3317.51	0.29	3318.0	0.50	0.12	Driveway Slope is Maxed	
38	1.50	3315.42	3315.04	0.23	3315.5	0.47	0.09	Meets 2x Flow Depth	
39	1.50	3312.99	3312.61	0.23	3313.1	0.50	0.12	Meets 2x Flow Depth	
40	1.50	3310.71	3310.33	0.23	3310.8	0.48	0.10	Meets 2x Flow Depth	
41	1.50	3308.46	3308.08	0.23	3308.6	0.53	0.15	Meets 2x Flow Depth	
42	1.50	3308.43	3308.05	0.23	3308.5	0.46	0.08	Meets 2x Flow Depth	
43	1.50	3310.71	3310.33	0.23	3310.8	0.48	0.10	Meets 2x Flow Depth	
44	1.50	3312.99	3312.61	0.23	3313.1	0.50	0.12	Meets 2x Flow Depth	
45	1.10	3314.67	3314.29	0.34	3315.7	1.44	1.06	Meets 2x Flow Depth	
46	1.10	3314.62	3314.24	0.34	3315.9	1.69	1.31	Meets 2x Flow Depth	
47	1.10	3316.52	3316.14	0.34	3317.2	1.09	0.71	Meets 2x Flow Depth	
48	1.40	3327.62	3327.24	0.29	3328.0	0.79	0.41	Meets 2x Flow Depth	
49	1.40	3327.96	3327.58	0.29	3328.4	0.85	0.47	Meets 2x Flow Depth	
50	1.40	3328.30	3327.92	0.29	3328.7	0.81	0.43	Meets 2x Flow Depth	
51	1.40	3328.75	3328.37	0.29	3329.1	0.76	0.38	Meets 2x Flow Depth	
52	1.40	3328.86	3328.48	0.29	3329.2	0.75	0.37	Meets 2x Flow Depth	
53	1.60	3325.86	3325.48	0.28	3326.5	1.05	0.67	Meets 2x Flow Depth	
54	1.60	3324.96	3324.58	0.28	3325.6	1.05	0.67	Meets 2x Flow Depth	
55	1.60	3324.03	3323.65	0.28	3324.5	0.88	0.50	Meets 2x Flow Depth	
56	1.60	3322.29	3321.91	0.28	3322.7	0.82	0.44	Meets 2x Flow Depth	
57	1.60	3319.39	3319.01	0.28	3319.7	0.72	0.34	Meets 2x Flow Depth	
58	1.60	3316.54	3316.16	0.28	3316.8	0.67	0.29	Meets 2x Flow Depth	
59	1.60	3309.99	3309.61	0.28	3310.7	1.12	0.74	Meets 2x Flow Depth	
60	1.60	3311.75	3311.37	0.28	3312.1	0.76	0.38	Meets 2x Flow Depth	
61	1.60	3313.50	3313.12	0.28	3313.8	0.71	0.33	Meets 2x Flow Depth	
62	1.60	3315.09	3314.71	0.28	3315.5	0.82	0.44	Meets 2x Flow Depth	
63	1.60	3316.41	3316.03	0.28	3316.9	0.90	0.52	Meets 2x Flow Depth	
64	1.60	3317.61	3317.23	0.28	3318.1	0.90	0.52	Meets 2x Flow Depth	
65	1.60	3317.61	3317.23	0.28	3318.1	0.90	0.52	Meets 2x Flow Depth	
66	1.60	3316.41	3316.03	0.28	3317.0	1.00	0.62	Meets 2x Flow Depth	
67	1.60	3315.09	3314.71	0.28	3315.6	0.92	0.54	Meets 2x Flow Depth	
68	1.60	3313.50	3313.12	0.28	3313.9	0.81	0.43	Meets 2x Flow Depth	

VILLAGE 21 PARCEL M FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION									
Lot Number	Hydraulic Section Utilized	T/C (ft)	F/L (ft)	D ₁₀₀ (ft)	G.F.F -Design (ft)	G.F.F -Design - FL (ft)	G.F.F -Design - TC		
69	1.60	3311.75	3311.37	0.28	3312.1	0.76	0.38	Meets 2x Flow Depth	
70	1.60	3309.99	3309.61	0.28	3310.3	0.72	0.34	Meets 2x Flow Depth	
71	1.60	3298.38	3298.00	0.28	3298.8	0.83	0.45	Meets 2x Flow Depth	
72	1.60	3300.15	3299.77	0.28	3300.8	1.06	0.68	Meets 2x Flow Depth	
73	1.60	3302.18	3301.80	0.28	3302.8	1.03	0.65	Meets 2x Flow Depth	
74	1.60	3304.20	3303.82	0.28	3304.8	1.01	0.63	Meets 2x Flow Depth	
75	1.60	3305.90	3305.52	0.28	3306.5	1.01	0.63	Meets 2x Flow Depth	
76	1.60	3306.94	3306.56	0.28	3308.9	2.35	1.97	Meets 2x Flow Depth	
77	1.60	3305.90	3305.52	0.28	3306.6	1.11	0.73	Meets 2x Flow Depth	
78	1.60	3304.20	3303.82	0.28	3304.9	1.11	0.73	Meets 2x Flow Depth	
79	1.60	3302.18	3301.80	0.28	3302.9	1.13	0.75	Meets 2x Flow Depth	
80	1.60	3300.15	3299.77	0.28	3300.9	1.16	0.78	Meets 2x Flow Depth	
81	1.60	3298.11	3297.73	0.28	3298.8	1.10	0.72	Meets 2x Flow Depth	
82	1.70	3291.01	3290.63	0.21	3291.5	0.90	0.52	Meets 2x Flow Depth	
83	1.70	3292.78	3292.40	0.21	3293.2	0.83	0.45	Meets 2x Flow Depth	
84	1.70	3294.73	3294.35	0.21	3295.4	1.08	0.70	Meets 2x Flow Depth	
85	1.70	3296.67	3296.29	0.21	3297.3	1.04	0.66	Meets 2x Flow Depth	
86	1.70	3297.90	3297.52	0.21	3300.1	2.61	2.23	Meets 2x Flow Depth	
87	1.70	3294.77	3294.39	0.21	3295.4	1.04	0.66	Meets 2x Flow Depth	
88	1.70	3292.82	3292.44	0.21	3293.1	0.69	0.31	Meets 2x Flow Depth	
89	1.70	3290.85	3290.47	0.21	3291.2	0.76	0.38	Meets 2x Flow Depth	
90	1.20	3287.14	3286.76	0.28	3287.2	0.45	0.07	Driveway Slope is Maxed	
91	1.20	3288.49	3288.11	0.28	3288.5	0.40	0.02	Driveway Slope is Maxed	
92	1.20	3290.27	3289.89	0.28	3290.3	0.42	0.04	Driveway Slope is Maxed	
93	1.20	3292.41	3292.03	0.28	3292.4	0.38	0.00	Driveway Slope is Maxed	
94	1.20	3294.60	3294.22	0.28	3294.6	0.39	0.01	Driveway Slope is Maxed	

Referenced Materials

**RESPONSE TO COMMENTS FOR THE
TECHNICAL DRAINAGE STUDY
FOR
SUMMERLIN VILLAGE 21 PARCEL M**

793-533

January 2020

Prepared for:

**Woodside Homes
4670 South Fort Apache
Las Vegas, Nevada 89147
Phone: (702) 889-7824**

Comment 4:

The proposed residential project consists of lots with 5'-long driveway leading into the individual garage and finished floor.

In comparison to the traditional residential lots, normally with 20'-long driveway leading to the garage will provide a minimum of 0.5' freeboard from the garage elevation to the adjacent top of curb. In the next submittal, label garage elevation (GFF) in all lots to verify that a minimum of 0.5' freeboard is provided with relation to the adjacent high side TC.

GFF AGREEMENT**Response:**

Per meeting with CLV dating November 26, 2019, it was agreed upon that GFF elevations would not be held to the 0.5' of freeboard, but instead would be held to alternative criteria. In accordance with the Summerlin Development Standards, Front Loaded Lots and Rear Loaded Lots are limited to 3'-5' or greater than 18' from the garage to the drive isle. Due to the steepness of the development and the Summerlin Development Standards (between 3'-5' driveways), it's unlikely for GFFs to meet this criteria while maintaining garage accessibility. Therefore, an alternative solution of maxing driveway slopes was agreed upon. Note that where possible, GFF's are elevated above twice the depth of flow. In addition, GFF elevations have been provided on the grading plans and a GFF summary table has been provided. See Appendix B for a copy of the Summerlin Development Standards documents. See Appendix D for the GFF summary table, additional street section computations and for Driveway Grading Exhibit.

Comment 5:

Provide an Existing Condition Map

Response:

The existing condition is defined as the project undeveloped and the offsite watershed as defined by the Kindle Corner interim conditions. A map of this condition, referenced from the aforementioned study, is provided in Appendix F.

Comment 6:

Confirm the contributing sources for the *Table of Summary of Drainage Facilities* shown on Figure 5. For example *Facility 3* should list DI 1, DI 2, and DI 3 instead of just DI 2 and DI 3 only as the contributing sources

Response:

The Summary of Drainage Facilities have been reviewed and clarified on the drainage figures. See revised exhibit in Appendix E for more information.

Comment 7:

Confirm the flow that DI 4 should be analyzed, it is currently analyzed for 24 cfs but per the *Summary Table* in Figure 5 it should be analyzed for $M1+M5+M6+M8+DI3\text{-bypass}$ ($6+6+3+3+0.3=18.3\text{cfs}$)

Response:

The Summary of Drainage Facilities have been reviewed and corrected on the drainage figures. See revised exhibit in Appendix E for more information. Since the previous computations are

SECTIONS USED TO EVALUATE FINISHED FLOORS

Gross Section	Flow Depth	Section Location
1.1	0.34	Worst Case
1.2	0.28	M8
1.3a	0.24	(0.5) M1
1.4	0.29	M2
1.5	0.23	M7
1.6	0.28	M3, M4 & M5
1.7	0.21	M6
1.3b	0.29	M1

Gross Section	Curb Height
1.1	0.38
1.2	0.38
1.3a	0.38
1.4	0.38
1.5	0.38
1.6	0.38
1.7	0.38
1.3b	0.38

VILLAGE 21 PARCEL M								
FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION								
Lot Number	Hydraulic Section Utilized	T/C (ft)	F/L (ft)	D ₁₀₀ (ft)	G.F.F. - Design (ft)	G.F.F. - Design - FL (ft)	G.F.F. - Design - TC	
1	1.2	3293.45	3293.07	0.28	3293.5	0.44	0.06	Driveway Slope is Maxed
2	1.2	3291.26	3290.88	0.28	3291.3	0.43	0.05	Driveway Slope is Maxed
3	1.2	3289.28	3288.90	0.28	3289.3	0.41	0.03	Driveway Slope is Maxed
4	1.2	3287.73	3287.35	0.28	3287.8	0.48	0.10	Driveway Slope is Maxed
5	1.2	3286.60	3286.22	0.28	3286.6	0.41	0.03	Driveway Slope is Maxed
6	1.2	3285.78	3285.40	0.28	3286.5	1.13	0.75	Meets 2x Flow Depth
7	1.2	3285.48	3285.10	0.28	3285.7	0.63	0.25	Meets 2x Flow Depth
8	1.3b	3287.42	3287.04	0.29	3287.6	0.57	0.19	Driveway Slope is Maxed
8	1.3b	3287.71	3287.33	0.29	3288.2	0.90	0.52	Meets 2x Flow Depth
9	1.3b	3288.76	3288.38	0.29	3289.0	0.63	0.25	Meets 2x Flow Depth
9	1.3b	3289.07	3288.69	0.29	3289.6	0.94	0.56	Meets 2x Flow Depth
10	1.3b	3290.86	3290.48	0.29	3291.2	0.75	0.37	Meets 2x Flow Depth
10	1.3b	3290.43	3290.05	0.29	3290.6	0.56	0.18	Driveway Slope is Maxed
11	1.3b	3293.15	3292.77	0.29	3293.4	0.66	0.28	Meets 2x Flow Depth
12	1.3b	3295.93	3295.55	0.29	3296.1	0.58	0.20	Meets 2x Flow Depth
13	1.3b	3298.75	3298.37	0.29	3299.0	0.66	0.28	Meets 2x Flow Depth
14	1.3b	3301.57	3301.19	0.29	3301.8	0.64	0.26	Meets 2x Flow Depth
15	1.3a	3304.39	3304.01	0.24	3304.5	0.52	0.14	Meets 2x Flow Depth
16	1.3a	3307.39	3307.01	0.24	3307.5	0.52	0.14	Meets 2x Flow Depth
17	1.3a	3310.43	3310.05	0.24	3310.5	0.48	0.10	Meets 2x Flow Depth
18	1.3a	3313.47	3313.09	0.24	3313.6	0.54	0.16	Meets 2x Flow Depth
19	1.3a	3316.51	3316.13	0.24	3316.7	0.60	0.22	Meets 2x Flow Depth
20	1.3a	3319.55	3319.17	0.24	3319.7	0.56	0.18	Meets 2x Flow Depth
21	1.3a	3321.58	3321.20	0.24	3321.7	0.51	0.13	Meets 2x Flow Depth
22	1.3a	3324.15	3323.77	0.24	3324.7	0.96	0.58	Meets 2x Flow Depth
22	1.3a	3323.74	3323.36	0.24	3324.1	0.75	0.37	Meets 2x Flow Depth
23	1.3a	3326.00	3325.62	0.24	3326.7	1.11	0.73	Meets 2x Flow Depth
24	1.3a	3327.53	3327.15	0.24	3327.7	0.56	0.18	Meets 2x Flow Depth
24	1.3a	3327.84	3327.46	0.24	3328.3	0.87	0.49	Meets 2x Flow Depth
25	1.3a	3329.14	3328.76	0.24	3329.9	1.15	0.77	Meets 2x Flow Depth
25	1.3a	3329.23	3328.85	0.24	3330.5	1.68	1.30	Meets 2x Flow Depth
26	1.4	3329.43	3329.05	0.29	3330.0	0.96	0.58	Meets 2x Flow Depth
27	1.4	3329.29	3328.91	0.29	3329.7	0.80	0.42	Meets 2x Flow Depth
28	1.4	3328.87	3328.49	0.29	3329.3	0.82	0.44	Meets 2x Flow Depth

VILLAGE 21 PARCEL M									
FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION									
Lot Number	Hydraulic Section Utilized	T/C (ft)	F/L (ft)	D ₁₀₀ (ft)	G.F.F. - Design (ft)	G.F.F. - Design - FL (ft)	G.F.F. - Design - TC		
29	1.4	3328.52	3328.14	0.29	3329.0	0.87	0.49	Meets 2x Flow Depth	
30	1.4	3328.18	3327.80	0.29	3328.6	0.81	0.43	Meets 2x Flow Depth	
31	1.4	3327.84	3327.46	0.29	3328.3	0.85	0.47	Meets 2x Flow Depth	
32	1.4	3327.50	3327.12	0.29	3327.9	0.79	0.41	Meets 2x Flow Depth	
33	1.4	3326.84	3326.46	0.29	3326.9	0.45	0.07	Driveway Slope is Maxed	
34	1.4	3325.38	3325.00	0.29	3325.4	0.41	0.03	Driveway Slope is Maxed	
35	1.4	3321.94	3321.56	0.29	3322.6	1.07	0.69	Meets 2x Flow Depth	
36	1.4	3320.66	3320.28	0.29	3320.7	0.45	0.07	Driveway Slope is Maxed	
37	1.4	3318.22	3317.84	0.29	3318.3	0.49	0.11	Driveway Slope is Maxed	
38	1.5	3315.75	3315.37	0.23	3315.8	0.46	0.08	Meets 2x Flow Depth	
39	1.5	3313.29	3312.91	0.23	3313.3	0.42	0.04	Driveway Slope is Maxed	
40	1.5	3311.16	3310.78	0.23	3311.2	0.45	0.07	Driveway Slope is Maxed	
41	1.5	3309.04	3308.66	0.23	3309.1	0.47	0.09	Meets 2x Flow Depth	
42	1.5	3308.75	3308.37	0.23	3308.8	0.44	0.06	Driveway Slope is Maxed	
43	1.5	3310.89	3310.51	0.23	3310.9	0.40	0.02	Driveway Slope is Maxed	
44	1.5	3313.02	3312.64	0.23	3313.1	0.47	0.09	Meets 2x Flow Depth	
45	1.1	3314.67	3314.29	0.34	3315.7	1.44	1.06	Meets 2x Flow Depth	
46	1.1	3314.62	3314.24	0.34	3315.9	1.69	1.31	Meets 2x Flow Depth	
47	1.1	3316.54	3316.16	0.34	3317.2	1.07	0.69	Meets 2x Flow Depth	
48	1.4	3327.62	3327.24	0.29	3328.0	0.79	0.41	Meets 2x Flow Depth	
49	1.4	3327.96	3327.58	0.29	3328.4	0.85	0.47	Meets 2x Flow Depth	
50	1.4	3328.30	3327.92	0.29	3328.7	0.81	0.43	Meets 2x Flow Depth	
51	1.4	3328.75	3328.37	0.29	3329.1	0.76	0.38	Meets 2x Flow Depth	
52	1.4	3328.86	3328.48	0.29	3329.6	1.15	0.77	Meets 2x Flow Depth	
52	1.4	3325.89	3325.51	0.29	3326.5	1.02	0.64	Meets 2x Flow Depth	
53	1.6	3325.69	3325.31	0.28	3325.9	0.60	0.22	Meets 2x Flow Depth	
53	1.6	3324.99	3324.61	0.28	3325.6	1.02	0.64	Meets 2x Flow Depth	
54	1.6	3324.79	3324.41	0.28	3325.0	0.60	0.22	Meets 2x Flow Depth	
54	1.6	3324.07	3323.69	0.28	3324.5	0.84	0.46	Meets 2x Flow Depth	
55	1.6	3323.80	3323.42	0.28	3323.9	0.49	0.11	Driveway Slope is Maxed	
56	1.6	3322.31	3321.93	0.28	3322.7	0.80	0.42	Meets 2x Flow Depth	
57	1.6	3319.41	3319.03	0.28	3319.7	0.70	0.32	Meets 2x Flow Depth	
58	1.6	3316.48	3316.10	0.28	3316.8	0.73	0.35	Meets 2x Flow Depth	
59	1.6	3309.81	3309.43	0.28	3310.1	0.68	0.30	Meets 2x Flow Depth	

VILLAGE 21 PARCEL M								
FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION								
Lot Number	Hydraulic Section Utilized	T/C (ft)	F/L (ft)	D ₁₀₀ (ft)	G.F.F. - Design (ft)	G.F.F. - Design - FL (ft)	G.F.F. - Design - TC	
60	1.6	3311.42	3311.04	0.28	3311.5	0.47	0.09	Driveway Slope is Maxed
61	1.6	3313.18	3312.80	0.28	3313.2	0.41	0.03	Driveway Slope is Maxed
62	1.6	3314.82	3314.44	0.28	3314.9	0.47	0.09	Driveway Slope is Maxed
63	1.6	3316.18	3315.80	0.28	3316.3	0.51	0.13	Driveway Slope is Maxed
64	1.6	3317.39	3317.01	0.28	3317.5	0.50	0.12	Driveway Slope is Maxed
65	1.6	3317.39	3317.01	0.28	3317.5	0.50	0.12	Driveway Slope is Maxed
66	1.6	3316.18	3315.80	0.28	3316.4	0.61	0.23	Meets 2x Flow Depth
67	1.6	3314.82	3314.44	0.28	3315.6	1.19	0.81	Meets 2x Flow Depth
68	1.6	3313.18	3312.80	0.28	3313.3	0.51	0.13	Driveway Slope is Maxed
69	1.6	3311.42	3311.04	0.28	3311.5	0.47	0.09	Driveway Slope is Maxed
70	1.6	3309.60	3309.22	0.28	3309.7	0.49	0.11	Driveway Slope is Maxed
71	1.6	3298.30	3297.92	0.28	3298.6	0.69	0.31	Meets 2x Flow Depth
72	1.6	3300.21	3299.83	0.28	3300.5	0.70	0.32	Meets 2x Flow Depth
73	1.6	3302.23	3301.85	0.28	3302.5	0.68	0.30	Meets 2x Flow Depth
74	1.6	3304.26	3303.88	0.28	3304.5	0.65	0.27	Meets 2x Flow Depth
75	1.6	3305.63	3305.25	0.28	3305.7	0.46	0.08	Driveway Slope is Maxed
76	1.6	3306.98	3306.60	0.28	3308.9	2.31	1.93	Meets 2x Flow Depth
77	1.6	3305.94	3305.56	0.28	3306.6	1.07	0.69	Meets 2x Flow Depth
78	1.6	3304.26	3303.88	0.28	3304.7	0.85	0.47	Meets 2x Flow Depth
79	1.6	3302.23	3301.85	0.28	3302.6	0.78	0.40	Meets 2x Flow Depth
80	1.6	3300.21	3299.83	0.28	3300.6	0.80	0.42	Meets 2x Flow Depth
81	1.6	3298.17	3297.79	0.28	3298.6	0.84	0.46	Meets 2x Flow Depth
82	1.7	3290.86	3290.48	0.21	3290.9	0.43	0.05	Meets 2x Flow Depth
83	1.7	3292.46	3292.08	0.21	3292.5	0.43	0.05	Meets 2x Flow Depth
84	1.7	3294.78	3294.40	0.21	3295.1	0.73	0.35	Meets 2x Flow Depth
85	1.7	3296.72	3296.34	0.21	3297.0	0.69	0.31	Meets 2x Flow Depth
86	1.7	3297.96	3297.58	0.21	3299.5	1.93	1.55	Meets 2x Flow Depth
87	1.7	3294.78	3294.40	0.21	3295.4	1.03	0.65	Meets 2x Flow Depth
88	1.7	3292.84	3292.46	0.21	3293.1	0.67	0.29	Meets 2x Flow Depth
89	1.7	3290.87	3290.49	0.21	3291.1	0.64	0.26	Meets 2x Flow Depth
90	1.2	3287.14	3286.76	0.28	3287.2	0.45	0.07	Driveway Slope is Maxed
91	1.2	3288.49	3288.11	0.28	3288.5	0.40	0.02	Driveway Slope is Maxed
92	1.2	3290.27	3289.89	0.28	3290.3	0.42	0.04	Driveway Slope is Maxed
93	1.2	3292.40	3292.02	0.28	3292.4	0.39	0.01	Driveway Slope is Maxed

VILLAGE 21 PARCEL M								
FINISH FLOOR - CITY OF LAS VEGAS JURISDICTION								
Lot Number	Hydraulic Section Utilized	T/C (ft)	F/L (ft)	D ₁₀₀ (ft)	G.F.F. _{Design} (ft)	G.F.F. _{Design} - FL (ft)	G.F.F. _{Design} - TC	
94	1.2	3294.60	3294.22	0.28	3294.6	0.39	0.01	Driveway Slope is Maxed

Worksheet for Section 1.1 - Worst Case

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 1.61000 %
Discharge 5.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	27.64
0+00.38	27.64
0+01.50	27.26
0+02.50	27.34
0+02.50	27.38
0+15.00	27.13
0+27.50	26.88
0+27.50	26.84
0+28.50	26.76
0+29.63	27.14
0+30.00	27.14

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 27.64)	(0+30.00, 27.14)	0.016

Options

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

Results

Normal Depth 0.34 ft
Elevation Range 26.76 to 27.64 ft

Worksheet for Section 1.1 - Worst Case

Results

Flow Area	1.67	ft ²
Wetted Perimeter	13.07	ft
Hydraulic Radius	0.13	ft
Top Width	12.97	ft
Normal Depth	0.34	ft
Critical Depth	0.38	ft
Critical Slope	0.00714	ft/ft
Velocity	2.99	ft/s
Velocity Head	0.14	ft
Specific Energy	0.48	ft
Froude Number	1.47	
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	0.34	ft
Critical Depth	0.38	ft
Channel Slope	1.61000	%
Critical Slope	0.00714	ft/ft

Cross Section for Section 1.1 - Worst Case

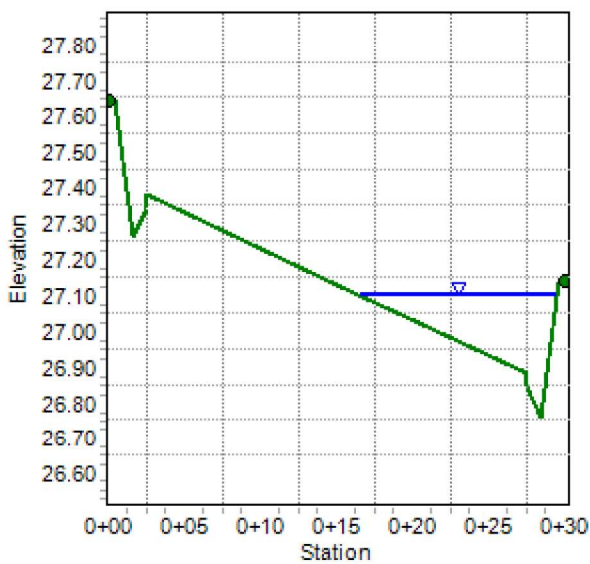
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.61000	%
Normal Depth	0.34	ft
Discharge	5.00	ft ³ /s

Cross Section Image



Worksheet for Section 1.2 - Sub Basin M8

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.51000 %
Discharge 3.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+15.50	0.38
0+28.50	0.12
0+28.50	0.08
0+29.50	0.00
0+30.63	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+31.00, 0.38)	0.016

Options

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

Results

Normal Depth 0.28 ft
Elevation Range 0.00 to 0.38 ft

Worksheet for Section 1.2 - Sub Basin M8

Results

Flow Area	2.07	ft ²
Wetted Perimeter	20.24	ft
Hydraulic Radius	0.10	ft
Top Width	20.06	ft
Normal Depth	0.28	ft
Critical Depth	0.27	ft
Critical Slope	0.00829	ft/ft
Velocity	1.45	ft/s
Velocity Head	0.03	ft
Specific Energy	0.32	ft
Froude Number	0.80	
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	0.28	ft
Critical Depth	0.27	ft
Channel Slope	0.51000	%
Critical Slope	0.00829	ft/ft

Cross Section for Section 1.2 - Sub Basin M8

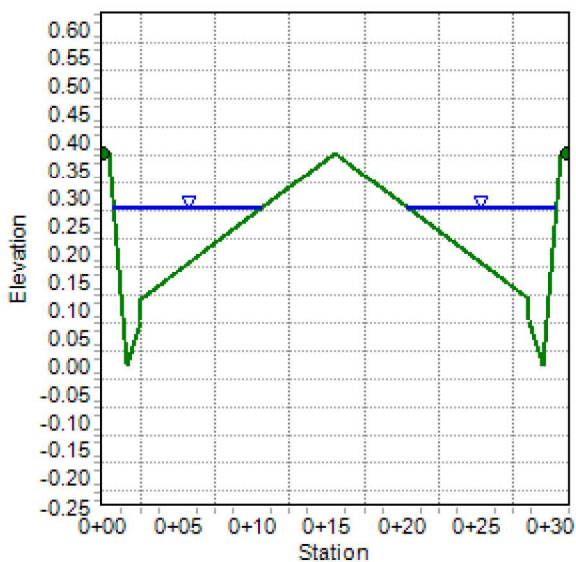
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.51000	%
Normal Depth	0.28	ft
Discharge	3.00	ft ³ /s

Cross Section Image



REFERENCED PREVIOUS SUBMITTAL STREET SECTION

Worksheet for Section 1.3a - Half Sub Basin M1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.34000	%
Discharge	3.00	ft ³ /s
Section Definitions		

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+15.50	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+15.50, 0.38)	0.016

Options

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

Results

Normal Depth	0.24	ft
Elevation Range	0.00 to 0.38 ft	
Flow Area	0.67	ft ²
Wetted Perimeter	7.96	ft
Hydraulic Radius	0.08	ft
Top Width	7.88	ft
Normal Depth	0.24	ft

Worksheet for Section 1.3a - Half Sub Basin M1

Results

Critical Depth	0.33	ft
Critical Slope	0.00758	ft/ft
Velocity	4.48	ft/s
Velocity Head	0.31	ft
Specific Energy	0.55	ft
Froude Number	2.71	
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	0.24	ft
Critical Depth	0.33	ft
Channel Slope	6.34000	%
Critical Slope	0.00758	ft/ft

Cross Section for Section 1.3a - Half Sub Basin M1

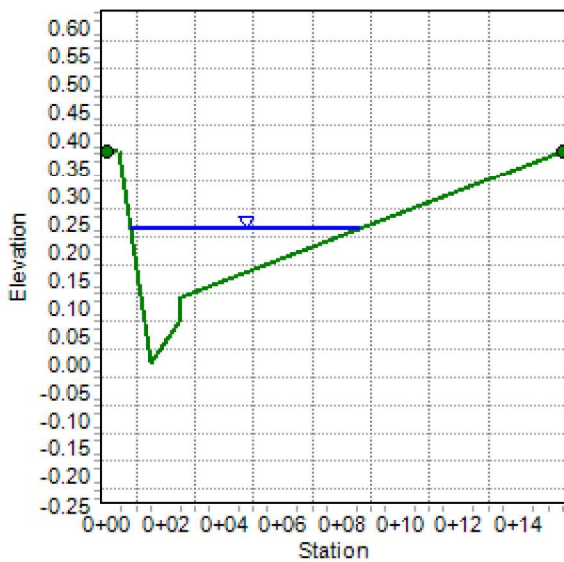
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.34000	%
Normal Depth	0.24	ft
Discharge	3.00	ft ³ /s

Cross Section Image



REFERENCED PREVIOUS SUBMITTAL STREET SECTION

Worksheet for Section 1.3b - Sub Basin M1

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.34000	%
Discharge	6.00	ft ³ /s
Section Definitions		

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+15.50	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+15.50, 0.38)	0.016

Options

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

Results

Normal Depth	0.29	ft
Elevation Range	0.00 to 0.38 ft	
Flow Area	1.14	ft ²
Wetted Perimeter	10.66	ft
Hydraulic Radius	0.11	ft
Top Width	10.57	ft
Normal Depth	0.29	ft

Worksheet for Section 1.3b - Sub Basin M1

Results

Critical Depth	0.40	ft
Critical Slope	0.00686	ft/ft
Velocity	5.27	ft/s
Velocity Head	0.43	ft
Specific Energy	0.73	ft
Froude Number	2.83	
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	0.29	ft
Critical Depth	0.40	ft
Channel Slope	6.34000	%
Critical Slope	0.00686	ft/ft

Cross Section for Section 1.3b - Sub Basin M1

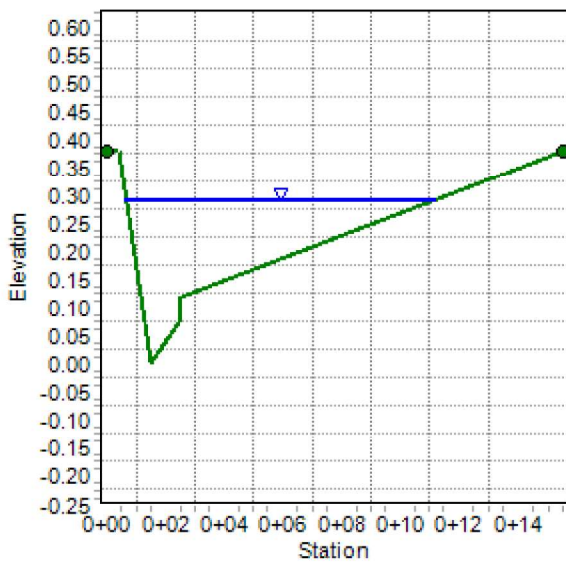
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.34000	%
Normal Depth	0.29	ft
Discharge	6.00	ft ³ /s

Cross Section Image



Worksheet for Section 1.4 - Sub Basin M2

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 0.90000 %
Discharge 2.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+15.50	0.38
0+28.50	0.12
0+28.50	0.08
0+29.50	0.00
0+30.63	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+31.00, 0.38)	0.016

Options

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

Results

Normal Depth 0.24 ft
Elevation Range 0.00 to 0.38 ft

Worksheet for Section 1.4 - Sub Basin M2

Results

Flow Area	1.21	ft ²
Wetted Perimeter	15.06	ft
Hydraulic Radius	0.08	ft
Top Width	14.89	ft
Normal Depth	0.24	ft
Critical Depth	0.24	ft
Critical Slope	0.00871	ft/ft
Velocity	1.65	ft/s
Velocity Head	0.04	ft
Specific Energy	0.28	ft
Froude Number	1.02	
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	0.24	ft
Critical Depth	0.24	ft
Channel Slope	0.90000	%
Critical Slope	0.00871	ft/ft

Cross Section for Section 1.4 - Sub Basin M2

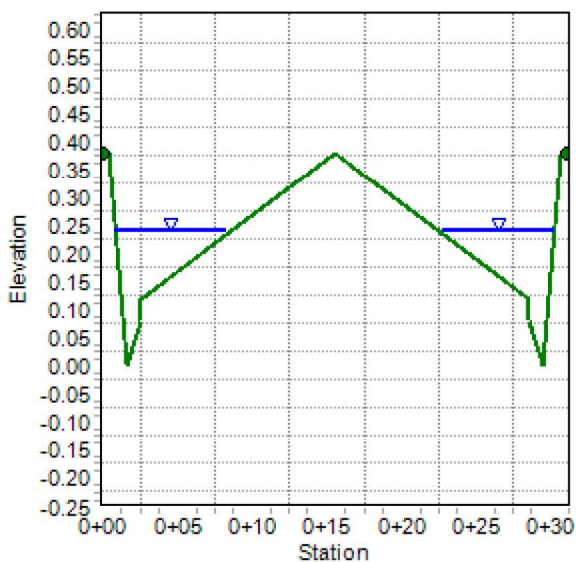
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.90000	%
Normal Depth	0.24	ft
Discharge	2.00	ft ³ /s

Cross Section Image



Worksheet for Section 1.5 - Sub Basin M7

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 6.00000 %
Discharge 5.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+15.50	0.38
0+28.50	0.12
0+28.50	0.08
0+29.50	0.00
0+30.63	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+31.00, 0.38)	0.016

Options

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

Results

Normal Depth 0.23 ft
Elevation Range 0.00 to 0.38 ft

Worksheet for Section 1.5 - Sub Basin M7

Results

Flow Area	1.18	ft ²
Wetted Perimeter	14.83	ft
Hydraulic Radius	0.08	ft
Top Width	14.66	ft
Normal Depth	0.23	ft
Critical Depth	0.31	ft
Critical Slope	0.00777	ft/ft
Velocity	4.23	ft/s
Velocity Head	0.28	ft
Specific Energy	0.51	ft
Froude Number	2.62	
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	0.23	ft
Critical Depth	0.31	ft
Channel Slope	6.00000	%
Critical Slope	0.00777	ft/ft

Cross Section for Section 1.5 - Sub Basin M7

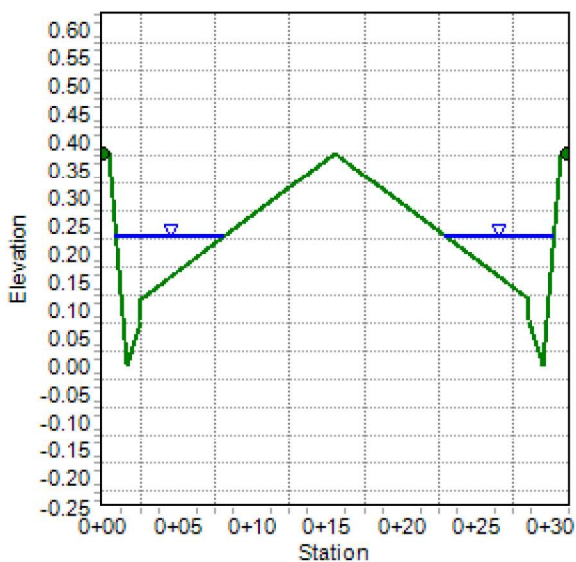
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	6.00000	%
Normal Depth	0.23	ft
Discharge	5.00	ft ³ /s

Cross Section Image



Worksheet for Section 1.6 - Sub Basin M3, M4 &M5

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 3.67000 %
Discharge 6.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+15.50	0.38
0+28.50	0.12
0+28.50	0.08
0+29.50	0.00
0+30.63	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+31.00, 0.38)	0.016

Options

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

Results

Normal Depth 0.26 ft
Elevation Range 0.00 to 0.38 ft

Worksheet for Section 1.6 - Sub Basin M3, M4 &M5

Results

Flow Area	1.65	ft ²
Wetted Perimeter	17.88	ft
Hydraulic Radius	0.09	ft
Top Width	17.71	ft
Normal Depth	0.26	ft
Critical Depth	0.33	ft
Critical Slope	0.00758	ft/ft
Velocity	3.64	ft/s
Velocity Head	0.21	ft
Specific Energy	0.47	ft
Froude Number	2.10	
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	0.26	ft
Critical Depth	0.33	ft
Channel Slope	3.67000	%
Critical Slope	0.00758	ft/ft

Cross Section for Section 1.6 - Sub Basin M3, M4 &M5

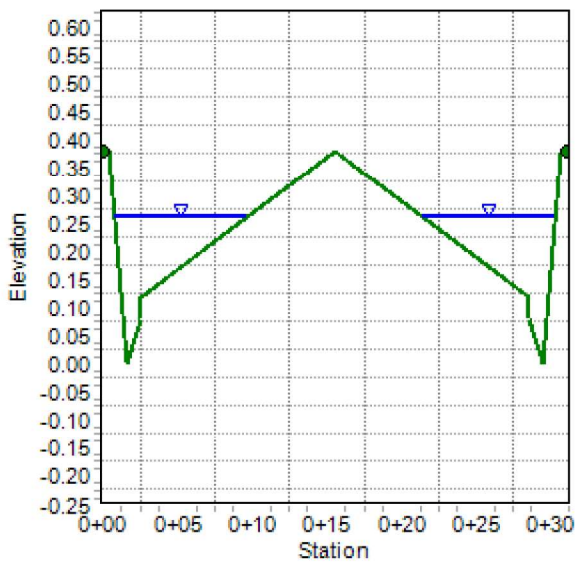
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.67000	%
Normal Depth	0.26	ft
Discharge	6.00	ft ³ /s

Cross Section Image



Worksheet for Section 1.7 - Sub Basin M6

Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope 4.05000 %
Discharge 3.00 ft³/s
Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+15.50	0.38
0+28.50	0.12
0+28.50	0.08
0+29.50	0.00
0+30.63	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+31.00, 0.38)	0.016

Options

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

Results

Normal Depth 0.21 ft
Elevation Range 0.00 to 0.38 ft

Worksheet for Section 1.7 - Sub Basin M6

Results

Flow Area	0.93	ft ²
Wetted Perimeter	12.85	ft
Hydraulic Radius	0.07	ft
Top Width	12.69	ft
Normal Depth	0.21	ft
Critical Depth	0.27	ft
Critical Slope	0.00829	ft/ft
Velocity	3.23	ft/s
Velocity Head	0.16	ft
Specific Energy	0.38	ft
Froude Number	2.11	
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	0.21	ft
Critical Depth	0.27	ft
Channel Slope	4.05000	%
Critical Slope	0.00829	ft/ft

Cross Section for Section 1.7 - Sub Basin M6

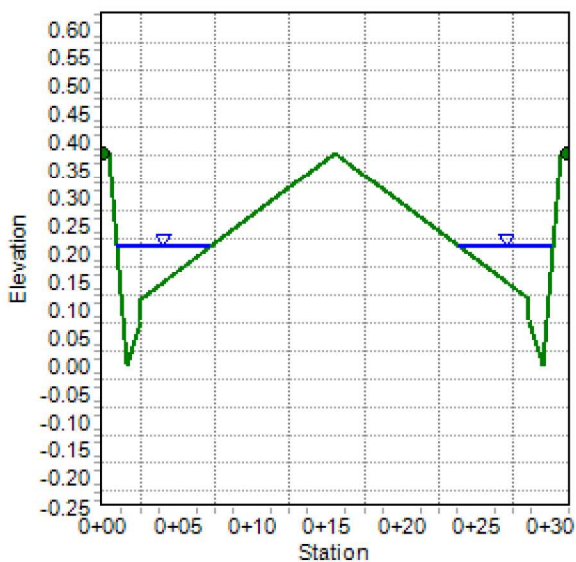
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.05000	%
Normal Depth	0.21	ft
Discharge	3.00	ft ³ /s

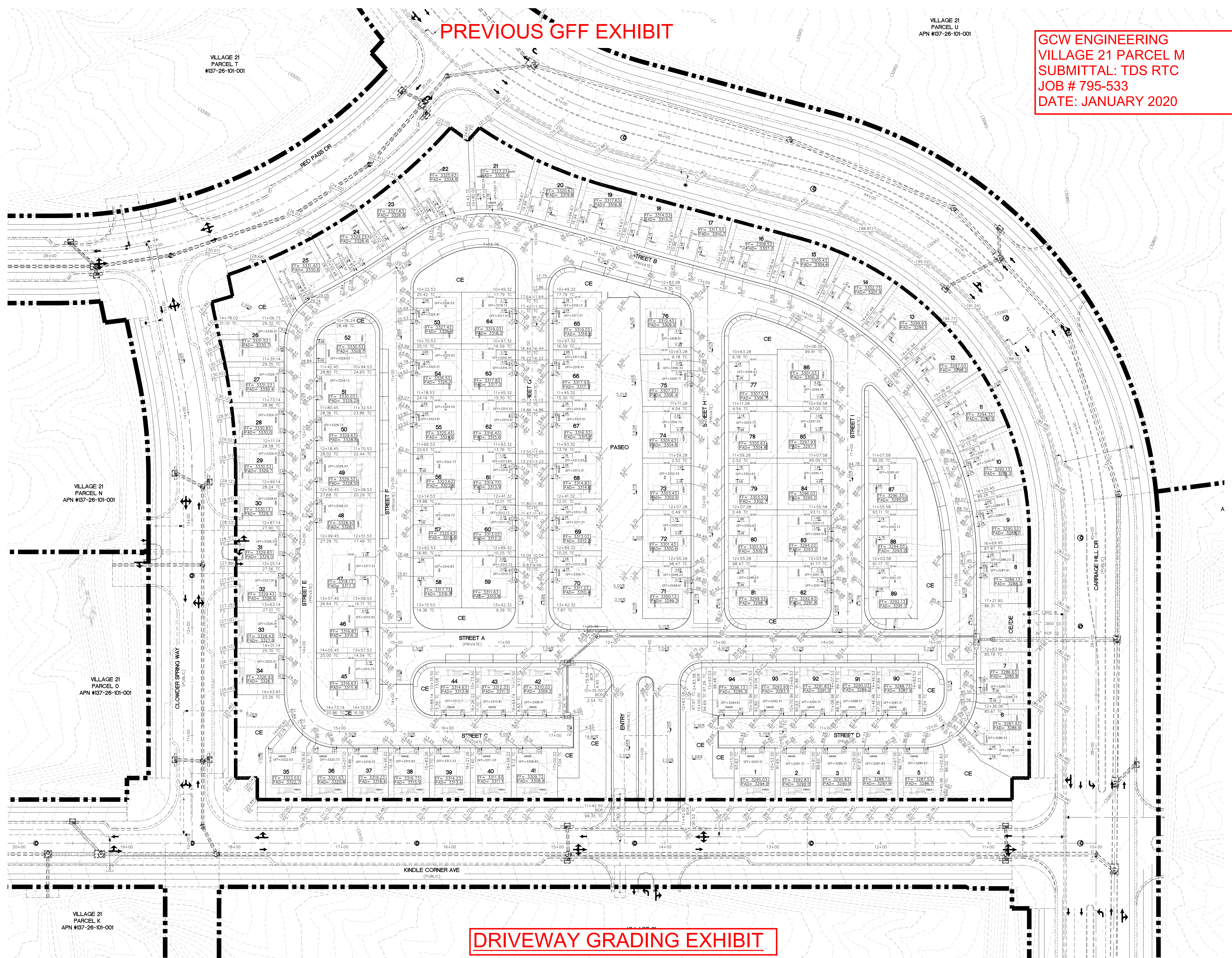
Cross Section Image



PREVIOUS GFF EXHIBIT

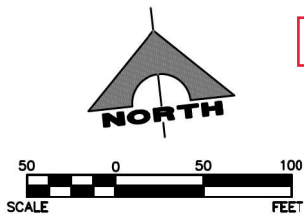
VILLAGE 21
PARCEL U
APN #137-26-101-001

GCW ENGINEERING
VILLAGE 21 PARCEL M
SUBMITTAL: TDS RTC
JOB # 795-533
DATE: JANUARY 2020



DRIVEWAY GRADING EXHIBIT

INCLUDED TO IDENTIFY SECTION LOCATIONS



ULTIMATE CONDITIONS PRORATED FLOW SUMMARY			
REFERENCED ULTIMATE CONDITION BASIN			
Subbasin	Q ₁₀₀ (cfs)	Area (acres)	cfs/acre
M	32	9.1	3.51
ONSITE PRO-RATED BASINS			
Subbasin	Q ₁₀₀ (cfs)	Area (acres)	cfs/acre
M1	6	1.7	3.51
M2	2	0.6	3.51
M3	4	1.1	3.51
M4	5	1.4	3.51
M5	6	1.6	3.51
M6	3	0.9	3.51
M7	3	0.8	3.51
M8	3	0.9	3.51
TOTAL	32	9	NA

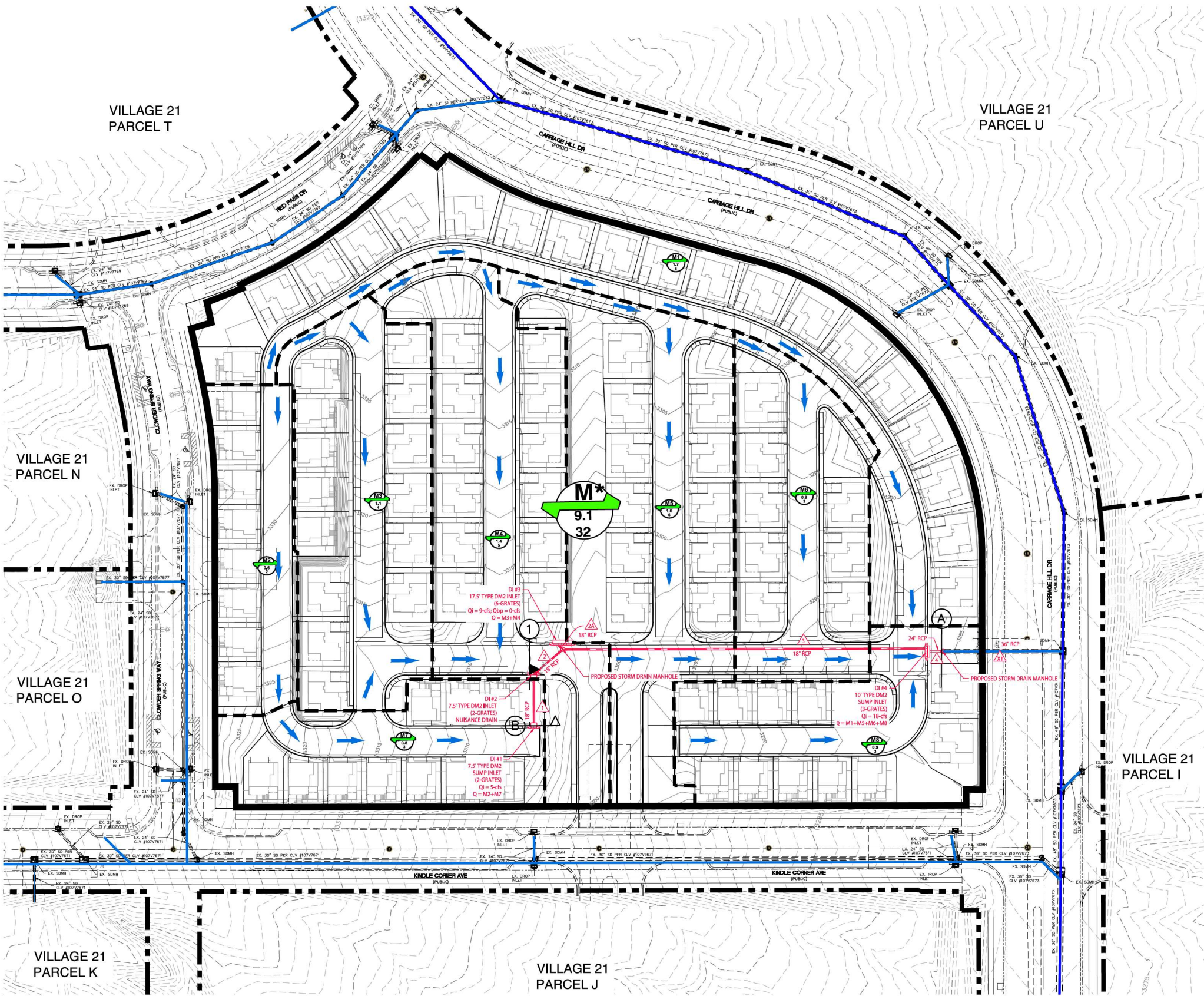
Summary of Drainage Facilities				
FACILITY ID	Q ₁₀₀ (cfs)	Contributing Sources	Facility Type & Size	Notes
1	5	M2+M7	18" RCP	Inflow from DI #1
2	5	M2+M7	18" RCP	
2A	9	M3+M4	18" RCP	Inflow from DI #3
3	14	M2+M7+M3+M4	18" RCP	
4	32	M	24" RCP	
X1	32	M	36" RCP	Existing Storm Drain Facility

Proposed Condition 100-Year Street Flow Summary						
Section ID	Tributary Sources	Slope (%)	Q ₁₀₀ (cfs)	Depth (ft)	Velocity (fps)	DxV
1	M3+M4	7.04	9	0.32	6.0	1.9
Crossfall Min Slope	M2+M7	1.61	5	0.34	3.0	1.0
Crossfall Max Slope	M2+M7	7.18	5	0.27	5.3	1.4
Crowned Min Slope	M3+M4	1.61	9	0.33	2.9	1.0
Crowned Max Slope	M3+M4	7.18	9	0.27	5.2	1.4
Section A	M	2.00	32	0.52	3.4	1.8

Weir Section Summary Table					
Section ID	Crest Length (ft)	Q ₁₀₀ (cfs)	Crest Elev (ft)	Headwater Elev (ft)	HW Above Crest (ft)
A	45	32	3286.31	3286.69	0.38
B	11	5	3306.72	3307	0.28

- NOTES:
- ALL OFFSITE ROADWAYS ARE AT LEAST 4.0 FT BELOW FIRST FLOOR ELEVATIONS, THEREFORE THE DEVELOPMENT IS CONSIDERED FLOOD PROTECTED AGAINST ALL FLOWS. SEE GRADING PLANS.
 - *PARCEL M BASIN INFORMATION REFERENCED FROM CARRIAGE HILL DRIVE STUDY, FIGURE 8.

LEGEND	
PARCEL M DELINEATION	
SUB BASIN DELINEATION	
SUB BASIN LABEL	
FLOW DIRECTION	
PROPOSED STORM DRAIN	
EXISTING STORM DRAIN	
EX FLOOD CONTROL FACILITIES	



PROJECT NO.
793-533

DESIGNER
GCV

DRAWN BY
CHECKED BY

PLOT DATE: 12-10-19

PLOT TIME: 17:58:45

1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcvengineering.com

ENGINEERS' SURVEYORS

WOODSIDE HOMES
SUMMERLIN VILLAGE 21 PARCEL M
ULTIMATE CONDITIONS DRAINAGE MAP

DRAWING
FIGURE 5
1 OF 1 SHEETS

DATE: GCW APP

DATE: AGEN APP

DATE: RCV

DESCRIPTION

% COMPLETE

GROSS ACREAGE: 11.94
NO. OF LOTS: 94
DENSITY(UNIT/AC): 7.87

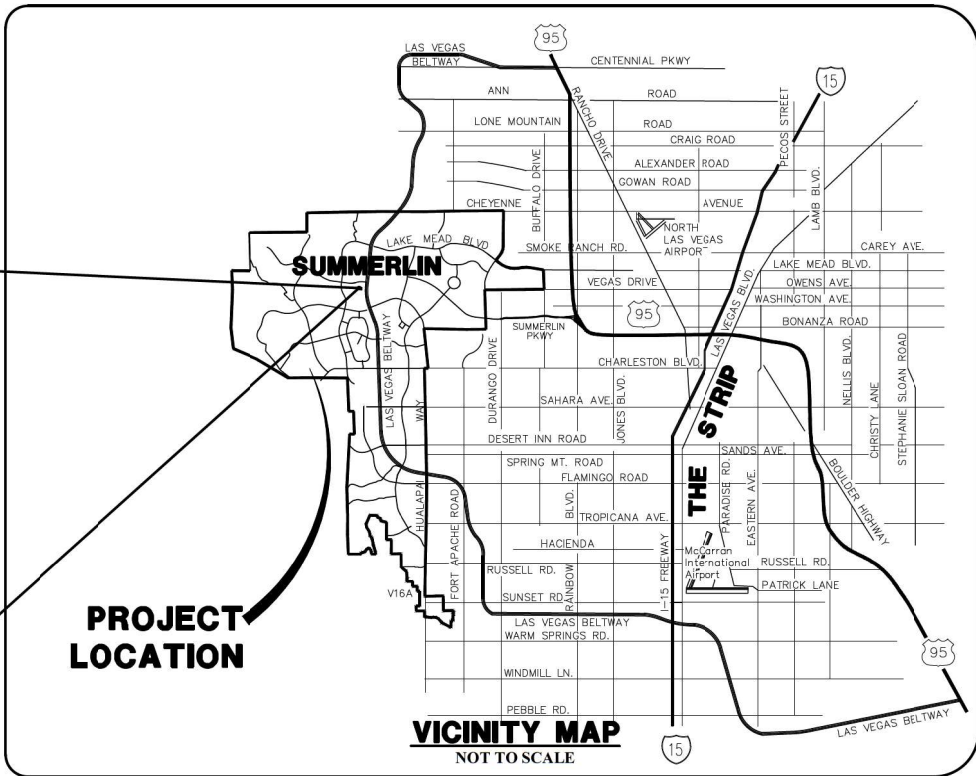
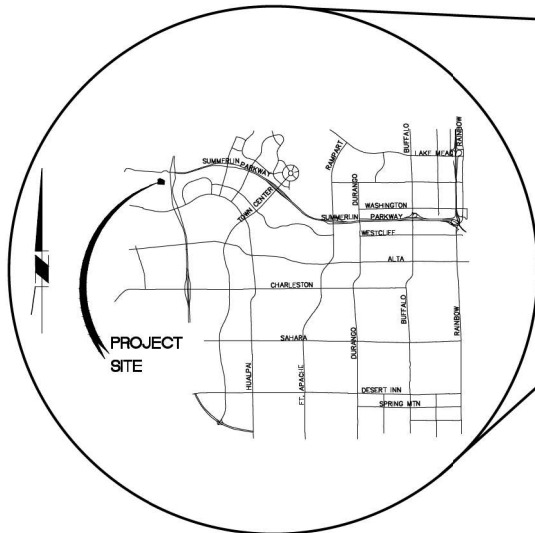
IMPROVEMENT PLAN
FOR
OBSIDIAN
SUMMERLIN VILLAGE 21 - PARCEL M
APN # 137-23-410-002

PREVIOUS APPROVED PLANS
WITH AREAS OF CHANGE
HIGHLIGHTED

LEGAL DESCRIPTION

PARCEL M OF "SUMMERLIN VILLAGE 21 - UNIT 3" AS SHOWN IN BOOK 159, PAGE 50 OF PLATS, ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE, LYING WITHIN THE SOUTH-WEST QUARTER (SE $\frac{1}{4}$) OF SECTION 23, THE NORTH-WEST QUARTER (NW $\frac{1}{4}$) OF SECTION 26, TOWNSHIP 21 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA.

CONTAINING 11.94 ACRES, MORE OR LESS AS DETERMINED BY COMPUTER METHODS.



INDEX OF DRAWINGS

SHEET NUMBER	SHEET NAME	SHEET TITLE
1	C1	COVER SHEET
2	C2	GENERAL NOTES
3	C3	LEGEND, ABBREVIATIONS, AND QUANTITIES
4	G1	GRADING PLAN 1
5	G2	GRADING PLAN 2
6	G3	GRADING PLAN 3
7	G4	GRADING PLAN 4
8	D1	GRADING SECTIONS AND DETAILS 1
9	D2	GRADING SECTIONS AND DETAILS 2
10	D3	GRADING SECTIONS AND DETAILS 3
11	P1	WARRIOR STONE ST STA: 9+84.00 TO STA: 11+83.00 PLAN AND PROFILE
12	P2	EARTH STONE ST STA: 9+84.50 TO STA: 12+50.00 PLAN AND PROFILE
13	P3	EARTH STONE ST STA: 12+50.00 TO STA: 15+38.53 PLAN AND PROFILE
14	P4	AMETHYST POINT WAY STA: 10+00.00 TO STA: 14+25.00 PLAN AND PROFILE
15	P5	AMETHYST POINT WAY STA: 14+25.00 TO STA: 17+78.40 PLAN AND PROFILE
16	P6	ALLEY "B" STA: 10+00.00 TO STA: 12+72.44 PLAN AND PROFILE
17	P7	ALLEY "A" STA: 9+98.67 TO STA: 14+50.00 PLAN AND PROFILE
18	P8	ALLEY "A" STA: 14+50.00 TO STA: 17+17.22 PLAN AND PROFILE
19	P9	PHYRRE WILL ST STA: 10+00.00 TO STA: 14+30.53 PLAN AND PROFILE
20	P10	SOLAR CITRINE ST STA: 10+00.00 TO STA: 13+77.82 PLAN AND PROFILE
21	P11	TRANQUIL JADE ST STA: 10+00.00 TO STA: 13+33.78 PLAN AND PROFILE
22	P12	ANGEL AURA ST STA: 10+00.00 TO STA: 12+82.08 PLAN AND PROFILE
23	P13	LVVWD ESMIT STA: 1+81.00 TO STA: 2+28.19 PLAN AND PROFILE
24	LAT	LATERAL A STORM DRAIN ESMIT STA: 1+00.00 TO STA: 2+23.00
25	MU	MASTER UTILITY PLAN
26	U1	UTILITY PLAN 1
27	U2	UTILITY PLAN 2
28	U3	UTILITY PLAN 3
29	U4	UTILITY PLAN 4
30	T1	TRAFFIC AND HORIZONTAL CONTROL PLAN 1
31	T2	TRAFFIC AND HORIZONTAL CONTROL PLAN 2
32	T3	TRAFFIC AND HORIZONTAL CONTROL PLAN 3
33	T4	TRAFFIC AND HORIZONTAL CONTROL PLAN 4

BASIS OF BEARING:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAD MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)

DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00

SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)

ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N

LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W

NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)

EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)

SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:

1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.

2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. 7LV0634SW6, FOUND RIVET AND PLATE IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF DESERT MOON ROAD AND SKY VISTA DRIVE. ELEVATION: 3318.31 (FEET)
1,011.422 (METERS)

BASED ON NORTH AMERICAN VERTICAL DATUM OF 2018 (NAVD88).

OWNER

HUGHES HOWARD COMPANY
LLC
10801 W.CHARLESTON BLVD
3RD FLOOR
LAS VEGAS, NV 89135
(702) 791-4000

DEVELOPER

WOODSIDE HOMES OF
NEVADA, LLC
7895 W. SUNSET RD. #2110
LAS VEGAS, NV 89113
(702) 889-7824

ENGINEER

GCW, INC.
1555 SOUTH RAINBOW BLVD.
LAS VEGAS, NEVADA 89146
(702) 804-2000
(702) 804-2299 (FAX)

UTILITY/AGENCY APPROVALS

COX COMMUNICATIONS LAS VEGAS, INC.

DATE

CENTRAL TELEPHONE COMPANY, DBA CENTURY LINK

DATE

THE AFFIXED CENTRAL TELEPHONE COMPANY, DBA CENTURY LINK APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION RULES AND REGULATIONS.

NV ENERGY

DATE

NEVADA POWER COMPANY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NEVADA POWER COMPANY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

NV ENERGY - TRANSMISSION ENGINEERING

DATE

SOUTHWEST GAS CORP.

DATE

APPROVALS

ACTING CITY ENGINEER - ROSA CORTEZ, PE# 17505

DATE

APPROVAL OF THESE PLANS IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHTS-OF-WAY AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE THE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS, EXCEPT THOSE SPECIFICALLY LISTED UNDER "DEVIATIONS FROM STANDARDS". THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN "DEVIATIONS FROM STANDARDS" IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS CLARK COUNTY AREA NEVADA.

CLV PLANNING DEPARTMENT

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE CITY OF LAS VEGAS PLANNING DEPARTMENT

PLANNING DEPARTMENT

DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS FIRE AND RESCUE, FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL

DATE

SUMMERLIN DESIGN REVIEW COMMITTEE

DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT NO. XXXXXX
LVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 30 GPM
SHEETS:

L#

CLV DWG#

PROJECT NO.
793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 12:26:43

GCW
ENGINEERS & SURVEYORS
gocwengineering.com

WOODSIDE HOMES
OBSIDIAN
SUMMERLIN VILLAGE 21 PARCEL M

COVER SHEET

DRAWING

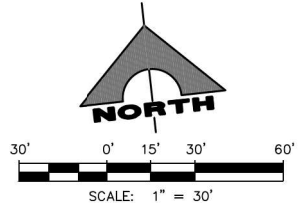
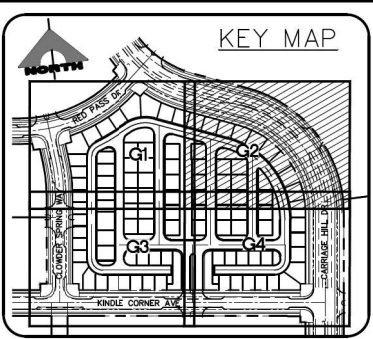
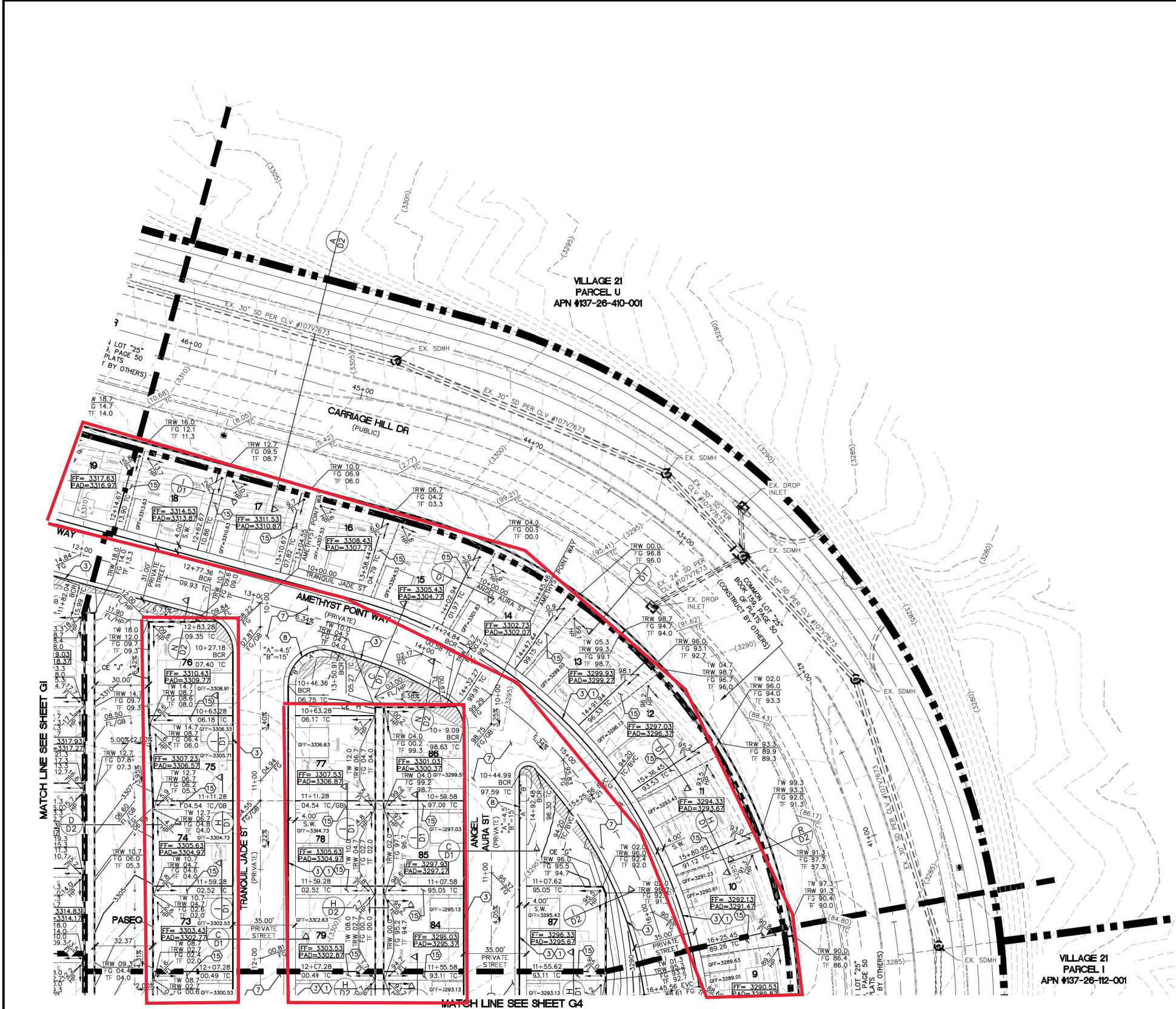
1 OF 33 SHTS



AVOID HITTING OVERHEAD
POWER LINES. IT'S COSTLY

**CALL BEFORE
YOU DO
OVERHEAD**

1-702-227-2929



- CONSTRUCTION NOTES**
- 1) CONSTRUCT CONCRETE SIDEWALK PER SUMMERLIN STD DWG NO. S-72 & S-48.
 - 2) CONSTRUCT 8" WIDE VALLEY GUTTER PER SUMMERLIN STD DWG NO. S-64.
 - 3) CONSTRUCT ROLL CURB PER SUMMERLIN STD DWG NO. S-48.
 - 4) CONSTRUCT MEDIAN "A" TYPE PER SUMMERLIN STD DWG NO. S-50.
 - 5) CONSTRUCT "L" CURB PER SUMMERLIN STD DWG NO. S-47.
 - 6) CONSTRUCT 6" CONCRETE CURB PER DETAIL "W" SHEET D2.
 - 7) CONSTRUCT 2" NO. OVER 4" TYPE II BASE-SEE SOIL REPORT PREPARED BY GEOTEK PROJ. #14880-LV FOR MORE DETAIL.
 - 8) CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 1. SEE PLAN FOR "A" & "B" DIMENSION.
 - 9) SAWCUT & MATCH TO EXISTING CURB & SIDEWALK. CONTRACTOR SHALL VERIFY EX. LOCATION & PAVEMENT PRIOR TO CONSTRUCTION.
 - 10) EXISTING CURB TO BE REMOVED.
 - 11) CONSTRUCT 5" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL "O" SHEET D2.
 - 12) CONSTRUCT 10" TRANSITION FROM 6" RIBBON CURB TO 30" ROLL CURB PER DETAIL "P" SHEET D2.
 - 13) CONSTRUCT REMOVABLE WROUGHT IRON FENCE PER USDOCA NO. 425.51.
 - 14) CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 2. SEE PLAN FOR "A" & "B" DIMENSION.
 - 15) PRIVATE ACCESS EASEMENT TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.

- STORM DRAIN CONSTRUCTION NOTES**
- 1) CONNECT TO EXISTING STORM DRAIN.
 - 2) CONSTRUCT MODIFIED TYPE "DM2" PER STD DWG 412.1 & 421. SEE PLAN PER SIZE.
 - 3) CONSTRUCT 48" TYPE I STORM DRAIN MANHOLE PER STD. DWG 403.
 - 4) CONSTRUCT 48" TYPE II STORM DRAIN MANHOLE PER STD. DWG 405.2.

EARTHWORKS

CUT-RAW	FILL-RAW
9,808 CY	40,406 CY

NOTES TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

DRAINAGE STUDY COMPLIANCE

I CERTIFY THAT THIS GRADING PLAN IS CONFORMANCE WITH THE APPROVED DRAINAGE STUDY D55206A ON THE FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT

GIA D. NGUYEN, P.E. DATE
NEVADA PE #14918

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. 7LV0934SW6, FOUND RIVET AND PLATE IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF DESERT MOON ROAD AND SKY VISTA DRIVE.
ELEVATION: 3318.31 (FEET)
1,011.422 (METERS)

BASED ON NORTH AMERICAN VERTICAL DATUM OF 2018 (NAVD83).

BASIS OF BEARING:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS). LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:

1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

Call before you Dig
1-702-432-5300

Call before you Dig
1-800-227-2600

Call before you dig overhead
1-702-227-2929

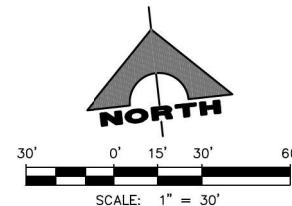
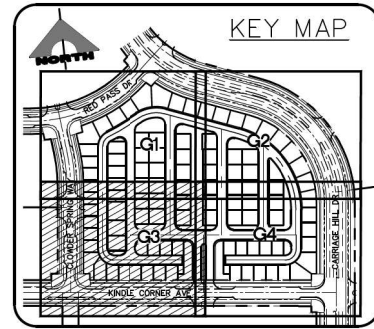
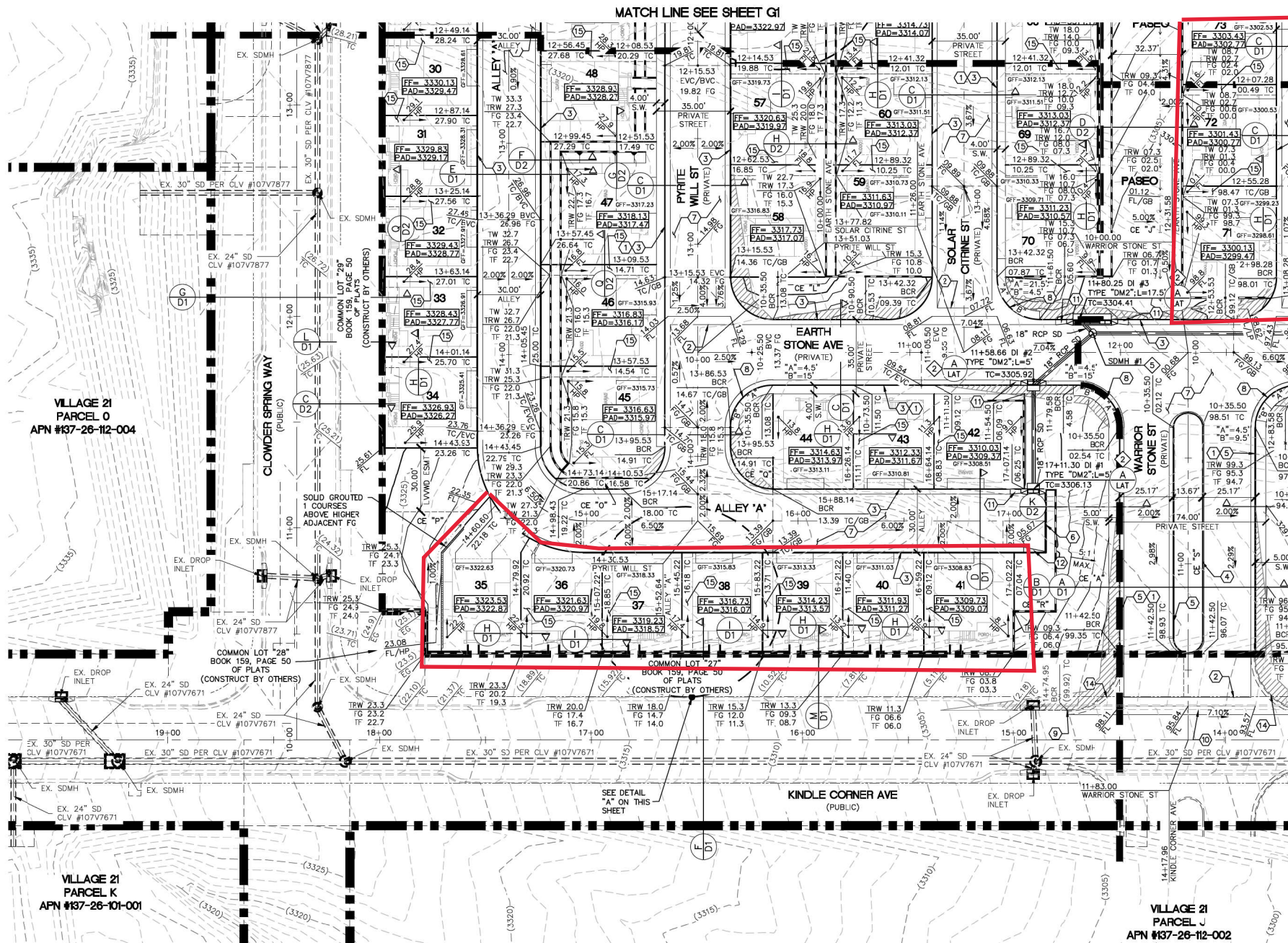
PROJECT NO. 793-533
DESIGN: 793-533
DRAWN: 793-533
CHECK: 793-533
PLOT DATE: 02-13-20
PLOT TIME: 09:27:29
DATE: 2/13/2020
GCM APP
DATE
AGN APP
DATE
DISCUSSION
REV
DATE

WOODSIDE HOMES
OSBIDIAN
SUMMERLIN VILLAGE 21 PARCEL M
GRADING PLAN 2

1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gownengineering.com

ENGINEERS \ SURVEYORS

DRAWING
G2
5 OF 33 SHTS



CONSTRUCTION NOTES

- CONSTRUCT CONCRETE SIDEWALK PER SUMMERLIN STD DWG NO. S-72 & S-48.
- CONSTRUCT 8" WIDE VALLEY GUTTER PER SUMMERLIN STD DWG NO. S-64.
- CONSTRUCT ROLL CURB PER SUMMERLIN STD DWG NO. S-48.
- CONSTRUCT MEDIAN "A" TYPE PER SUMMERLIN STD DWG NO. S-50.
- CONSTRUCT "L" CURB PER SUMMERLIN STD DWG NO. S-47.
- CONSTRUCT 6" CONCRETE CURB PER DETAIL "W" SHEET D2.
- CONSTRUCT 2" NO. OVER 4" TYPE II BASE-SEE SOIL REPORT PREPARED BY GEOTEK PROJ. #14880-LV FOR MORE DETAIL.
- CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 1. SEE PLAN FOR "A" & "B" DIMENSION.
- SAW CUT & MATCH TO EXISTING CURB & SIDEWALK. CONTRACTOR SHALL VERIFY EX. LOCATION & PAVEMENT PRIOR TO CONSTRUCTION.
- EXISTING CURB TO BE REMOVED.
- CONSTRUCT 5" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL "O" SHEET D2.
- CONSTRUCT 10" TRANSITION FROM 6" RIBBON CURB TO 30" ROLL CURB PER DETAIL "P" SHEET D2.
- CONSTRUCT REMOVABLE WROUGHT IRON FENCE PER USDOCA NO. 425.51.
- CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 2. SEE PLAN FOR "A" & "B" DIMENSION.
- PRIVATE ACCESS EASEMENT TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.

STORM DRAIN CONSTRUCTION NOTES

- CONNECT TO EXISTING STORM DRAIN.
- CONSTRUCT MODIFIED TYPE "DM2" PER STD DWG 412.1 & 421. SEE PLAN PER SIZE.
- CONSTRUCT 48" TYPE I STORM DRAIN MANHOLE PER STD. DWG 403.
- CONSTRUCT 48" TYPE II STORM DRAIN MANHOLE PER STD. DWG 405.2.

EARTHWORKS

CUT-RAW	FILL-RAW
9,808 CY	40,406 CY

NOTES TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

DRAINAGE STUDY COMPLIANCE

I CERTIFY THAT THIS GRADING PLAN IS CONFORMANCE WITH THE APPROVED DRAINAGE STUDY D55206A ON THE FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT

GIA D. NGUYEN, P.E.
NEVADA PE #14918

DATE

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. 7LV0934SW6, FOUND RIVET AND PLATE IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF DESERT MOON ROAD AND SKY VISTA DRIVE.
ELEVATION: 3318.31 (FEET)
1,011.422 (METERS)

BASED ON NORTH AMERICAN VERTICAL DATUM OF 2018 (NAVD83).

BASIS OF BEARING:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS). LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

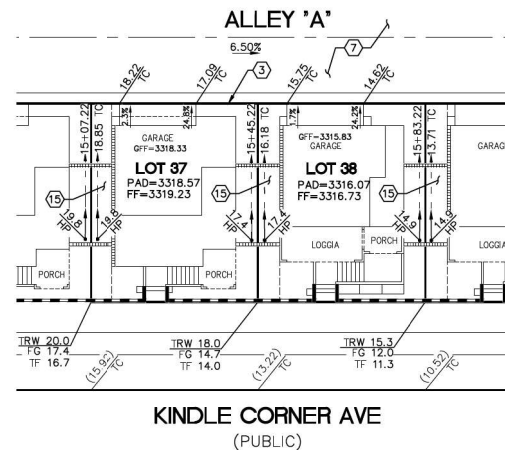
PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:

- ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
- GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

L#

CLV DWG#



PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36

PROJECT NO.

793-533

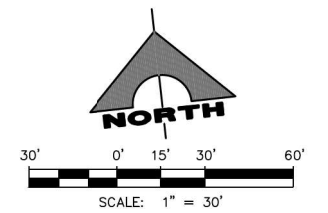
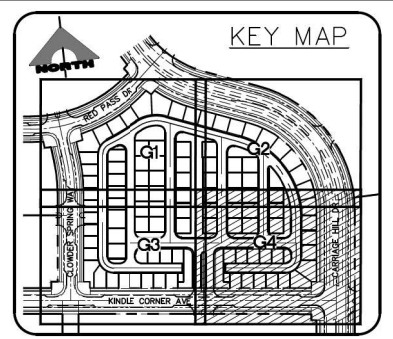
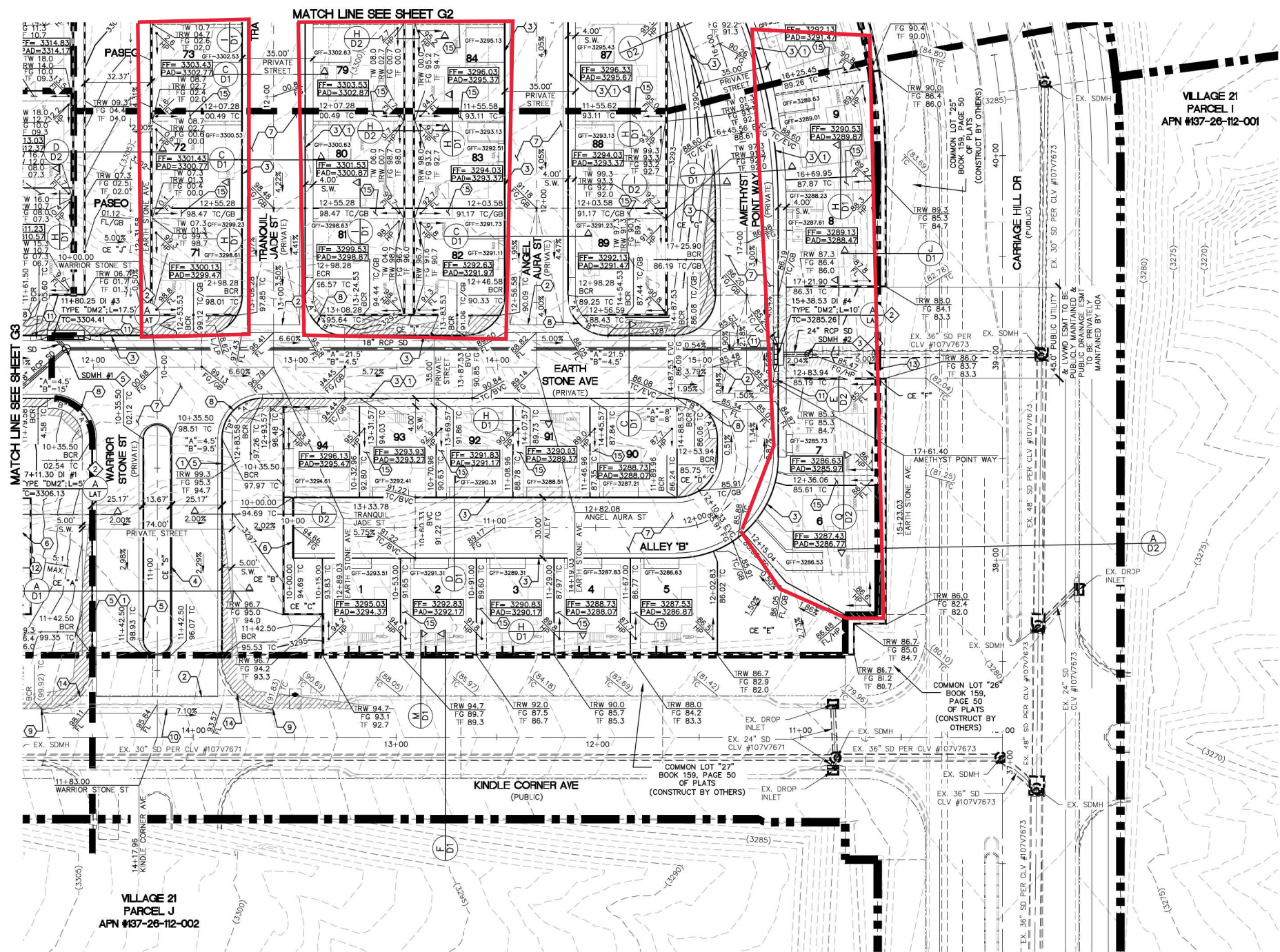
DESIGN

DRAWN

CHECK

PLOT DATE: 02-13-20

PLOT TIME: 10:27:36



- CONSTRUCTION NOTES**
- 1) CONSTRUCT CONCRETE SIDEWALK PER SUMMERLIN STD DWG NO. S-72 & S-48.
 - 2) CONSTRUCT 8" WIDE VALLEY GUTTER PER SUMMERLIN STD DWG NO. S-64.
 - 3) CONSTRUCT ROLL CURB PER SUMMERLIN STD DWG NO. S-48.
 - 4) CONSTRUCT MEDIAN "A" TYPE PER SUMMERLIN STD DWG NO. S-50.
 - 5) CONSTRUCT "L" CURB PER SUMMERLIN STD DWG NO. S-47.
 - 6) CONSTRUCT 6" CONCRETE CURB PER DETAIL "W" SHEET D2.
 - 7) CONSTRUCT 2" NO. OVER 4" TYPE II BASE-SEE SOIL REPORT PREPARED BY GEOTEK PROJ. #14880-LV FOR MORE DETAIL.
 - 8) CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 1. SEE PLAN FOR "A" & "B" DIMENSION.
 - 9) SAWCUT & MATCH TO EXISTING CURB & SIDEWALK. CONTRACTOR SHALL VERIFY EX. LOCATION & PAVEMENT PRIOR TO CONSTRUCTION.
 - 10) EXISTING CURB TO BE REMOVED.
 - 11) CONSTRUCT 5" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL "O" SHEET D2.
 - 12) CONSTRUCT 10" TRANSITION FROM 6" RIBBON CURB TO 30" ROLL CURB PER DETAIL "P" SHEET D2.
 - 13) CONSTRUCT REMOVABLE WROUGHT IRON FENCE PER USDOCA NO. 425.51.
 - 14) CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 2. SEE PLAN FOR "A" & "B" DIMENSION.
 - 15) PRIVATE ACCESS EASEMENT TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.

- STORM DRAIN CONSTRUCTION NOTES**
- 1) CONNECT TO EXISTING STORM DRAIN.
 - 2) CONSTRUCT MODIFIED TYPE "DM2" PER STD DWG 412.1 & 421. SEE PLAN PER SIZE.
 - 3) CONSTRUCT 48" TYPE I STORM DRAIN MANHOLE PER STD. DWG 403.
 - 4) CONSTRUCT 48" TYPE II STORM DRAIN MANHOLE PER STD. DWG 405.2.

EARTHWORKS

CUT-RAW	FILL-RAW
9,808 CY	40,406 CY

NOTES TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

DRAINAGE STUDY COMPLIANCE

I CERTIFY THAT THIS GRADING PLAN IS CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DSS206A ON THE FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT

GIA D. NGUYEN, P.E. DATE
NEVADA PE #14918

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. 7LV0934SW6, FOUND RIVET AND PLATE IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF DESERT MOON ROAD AND SKY VISTA DRIVE.
ELEVATION: 3318.31 (FEET)
1,011.422 (METERS)

BASED ON NORTH AMERICAN VERTICAL DATUM OF 2018 (NAVD83).

BASIS OF BEARING:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS). LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983, SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)

STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:

1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

L# CLV DWG#

FAST
Call before you Dig
1-702-432-5300

Call before you Dig
Avoid cutting underground utility lines. It's costly.

811
Call before you Dig
1-800-227-2600

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.

CALL BEFORE YOU DIG OVERHEAD
1-702-227-2929

DATE: 2/13/2020

PROJECT NO.	793-533
DESIGN	1555 S. RAINBOW BLVD., LAS VEGAS, NV 89146
DRAWN	T: 702.804.2000
CHECK	F: 702.804.2299
PLOT DATE	02-13-20
REV	PLOT TIME: 10:27:44
DISCRIPTION	f:\Projects\700\793-533\DWG\production\793-533-G.dwg
DATE	Quang Vinh Nguyen

WOODSIDE HOMES

OSBIDIAN

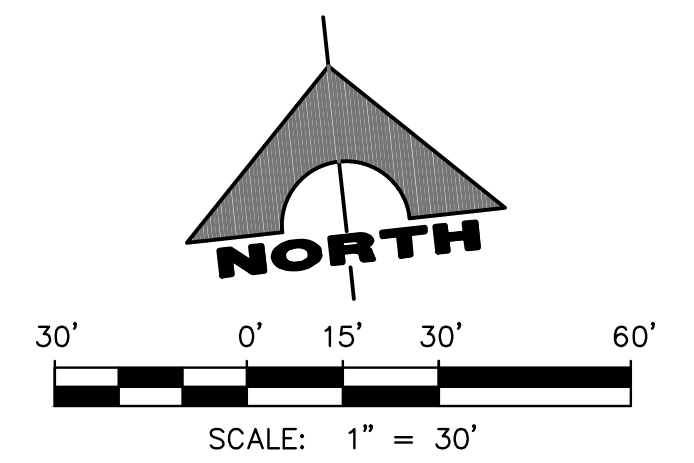
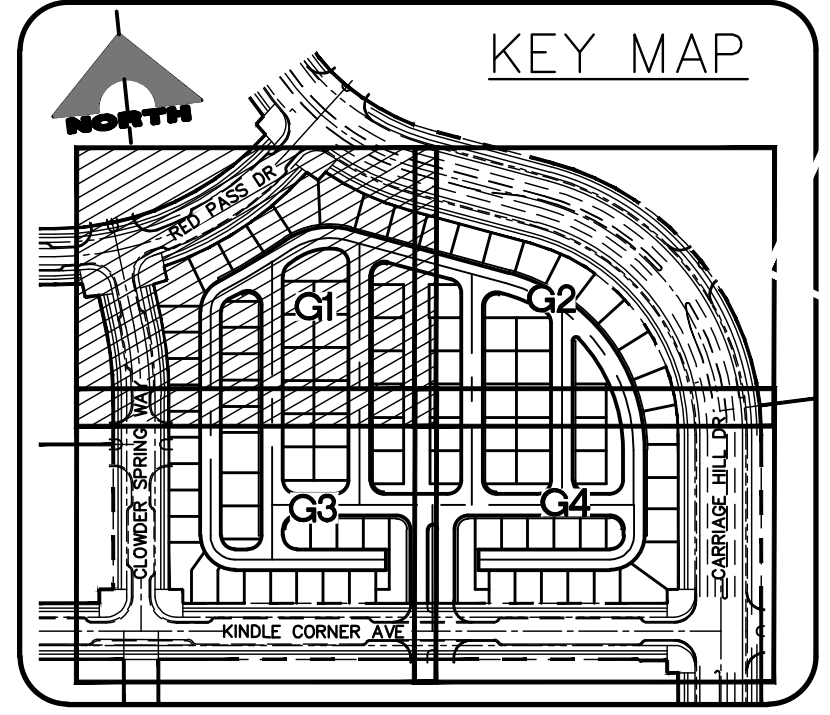
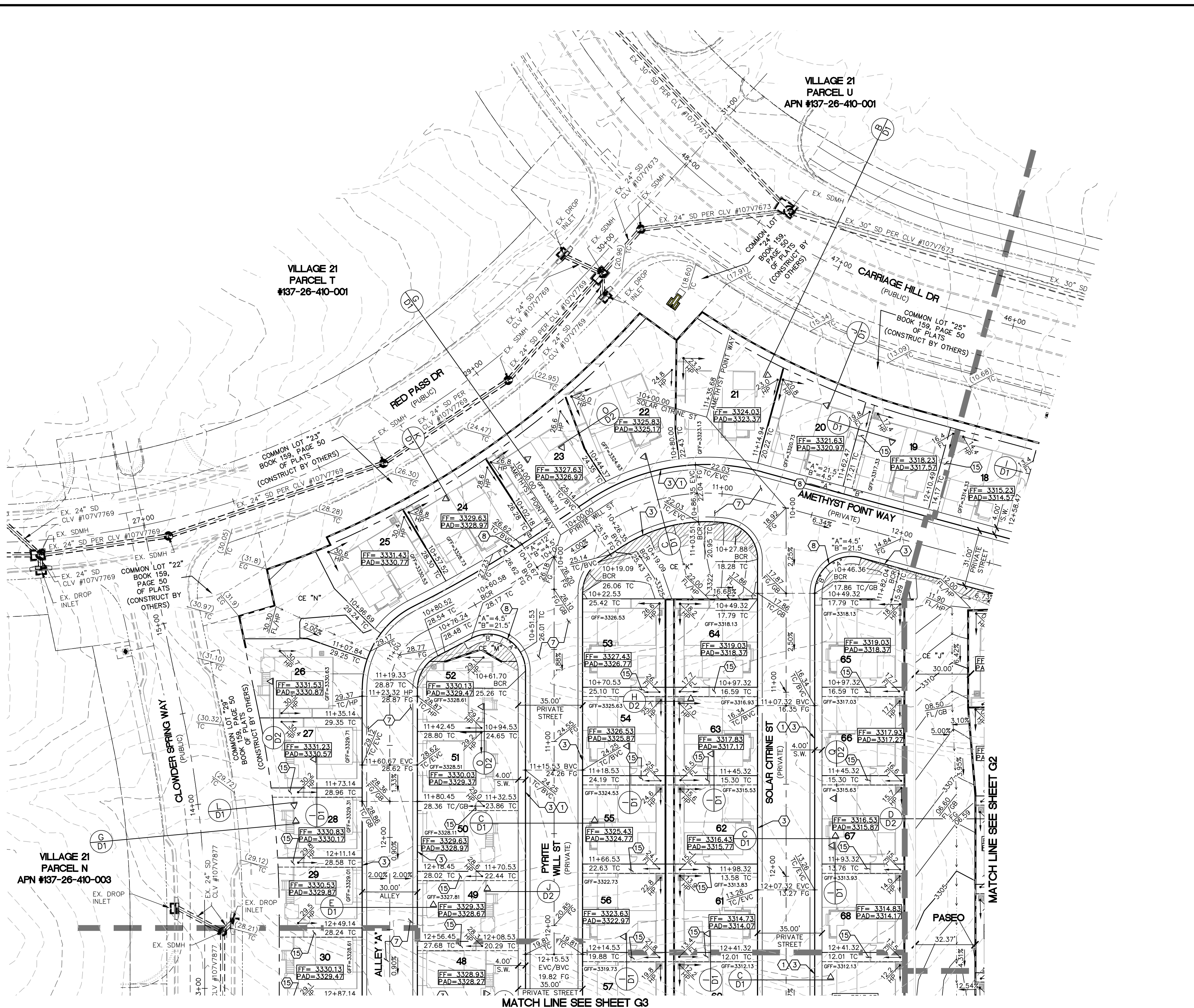
SUMMERLIN VILLAGE 21 PARCEL M

GRADING PLAN 4

DRAWING

G4

7 OF 33 SHTS



- CONSTRUCTION NOTES**
- CONSTRUCT CONCRETE SIDEWALK PER SUMMERLIN STD DWG NO. S-72 & S-48.
 - CONSTRUCT 8" WIDE VALLEY GUTTER PER SUMMERLIN STD DWG NO. S-64.
 - CONSTRUCT ROLL CURB PER SUMMERLIN STD DWG NO. S-48.
 - CONSTRUCT MEDIAN "A" TYPE PER SUMMERLIN STD DWG NO. S-50.
 - CONSTRUCT "L" CURB PER SUMMERLIN STD DWG NO. S-47.
 - CONSTRUCT 6" CONCRETE CURB PER DETAIL "M" SHEET D2.
 - CONSTRUCT 2" AC OVER 4" TYPE II BASE SEE SOIL REPORT PREPARED BY GEOTEK PROJ. #14880-LV FOR MORE DETAIL.
 - CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 1. SEE PLAN FOR "A" & "B" DIMENSION.
 - SAWCUT & MATCH TO EXISTING CURB & SIDEWALK. CONTRACTOR SHALL VERIFY EX. LOCATION & PAVEMENT PRIOR TO CONSTRUCTION.
 - EXISTING CURB TO BE REMOVED
 - CONSTRUCT 5" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL "A" SHEET D2.
 - CONSTRUCT 10" TRANSITION FROM 6" RIBBON CURB TO 30" ROLL CURB PER DETAIL "B" SHEET D2.
 - CONSTRUCT REMOVABLE WROUGHT IRON FENCE PER USDOCA NO. 425.51
 - CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 2. SEE PLAN FOR "A" & "B" DIMENSION.
 - PRIVATE ACCESS EASEMENT TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.
 - INSTALL SIDEWALK UNDERDRAIN PER USDOCA NO. 236.

- STORM DRAIN CONSTRUCTION NOTES**
- CONNECT TO EXISTING STORM DRAIN.
 - CONSTRUCT MODIFIED TYPE "DM2" PER STD DWG 412.1 & 421. SEE PLAN PER SIZE.
 - CONSTRUCT 48" TYPE I STORM DRAIN MANHOLE PER STD. DWG 403.
 - CONSTRUCT 48" TYPE II STORM DRAIN MANHOLE PER STD. DWG 405.2.

EARTHWORKS

CUT-RAW	FILL-RAW
9,808 CY	40,406 CY

BENCHMARK:
CITY OF LAS VEGAS BENCHMARK NO. 7LV0934SW6, FOUND RIVET AND PLATE IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF DESERT MOON LAS VEGAS, NEVADA AS PREPARED BY GEOTEK, INC., PROJECT NUMBER 14880-LV, DATED JULY 2, 2019
ELEVATION: 3318.31 (FEET)
1,011.422 (METERS)

BASED ON NORTH AMERICAN VERTICAL DATUM OF 2018 (NAVD88).

BASIS OF BEARING:
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:

- ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
- GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

NOTE

- THE GEOTECHNICAL EXPLORATION PROPOSED RESIDENTIAL DEVELOPMENT SUMMERLIN VILLAGE 21 WEST OF CLARK COUNTY 215 BETWEEN CHARLESTON BOULEVARD AND SUMMERLIN PKWY LAS VEGAS, NEVADA AS PREPARED BY GEOTEK, INC., PROJECT NUMBER 14880-LV, DATED JULY 2, 2019
- CONSTRUCTION FOR BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE BUILDING SAFETY AND MAINTENANCE DEPARTMENT
- WALLS CONSTRUCTED OTHER THAN THOSE AS DETAILED ON THIS SHEET ARE TO BE CONSTRUCTED BY WALL SUB-CONTRACTOR, DETAILS AND STRUCTURAL CALCULATIONS AS PREPARED BY OTHERS.
- NO OBJECT OVER 24" OTHER THAN TRAFFIC CONTROL DEVICES AND STREET LIGHT POLES CAN BE CONSTRUCTED OR INSTALLED WITHIN THE SIGHT VISIBILITY ZONE.
- ALL PRIVATE STREETS & COMMON ELEMENTS ARE PUBLIC UTILITY EASEMENT, PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

- STORMWATER MANAGEMENT NOTES**
- THE OWNER, SITE DEVELOPER, CONTRACTOR, AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF THE CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
 - ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
 - TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY, REFER TO THE NEVADA STORM WATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR 100000, SECTION III.A.5.
 - AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER A RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORM WATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORM WATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR 100000, SECTION III.A.12.
 - ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORM WATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.



DRAINAGE STUDY COMPLIANCE

I CERTIFY THAT THIS GRADING PLAN IS CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS206A ON THE FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT

GIA D. NGUYEN, P.E.
NEVADA PE #14918

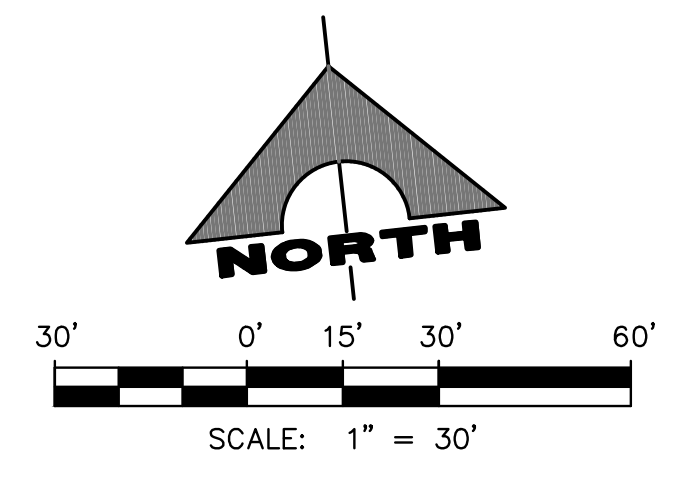
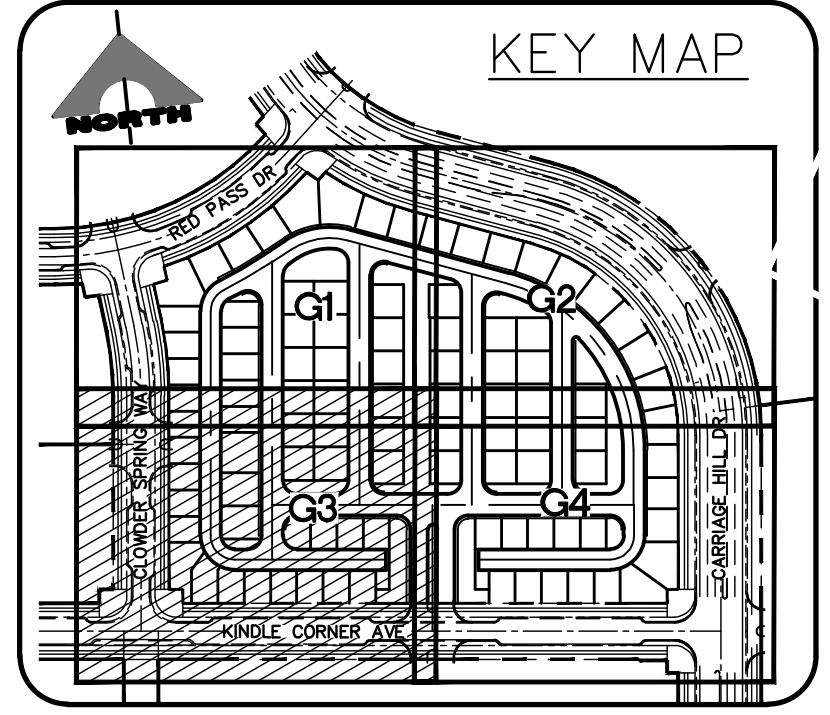
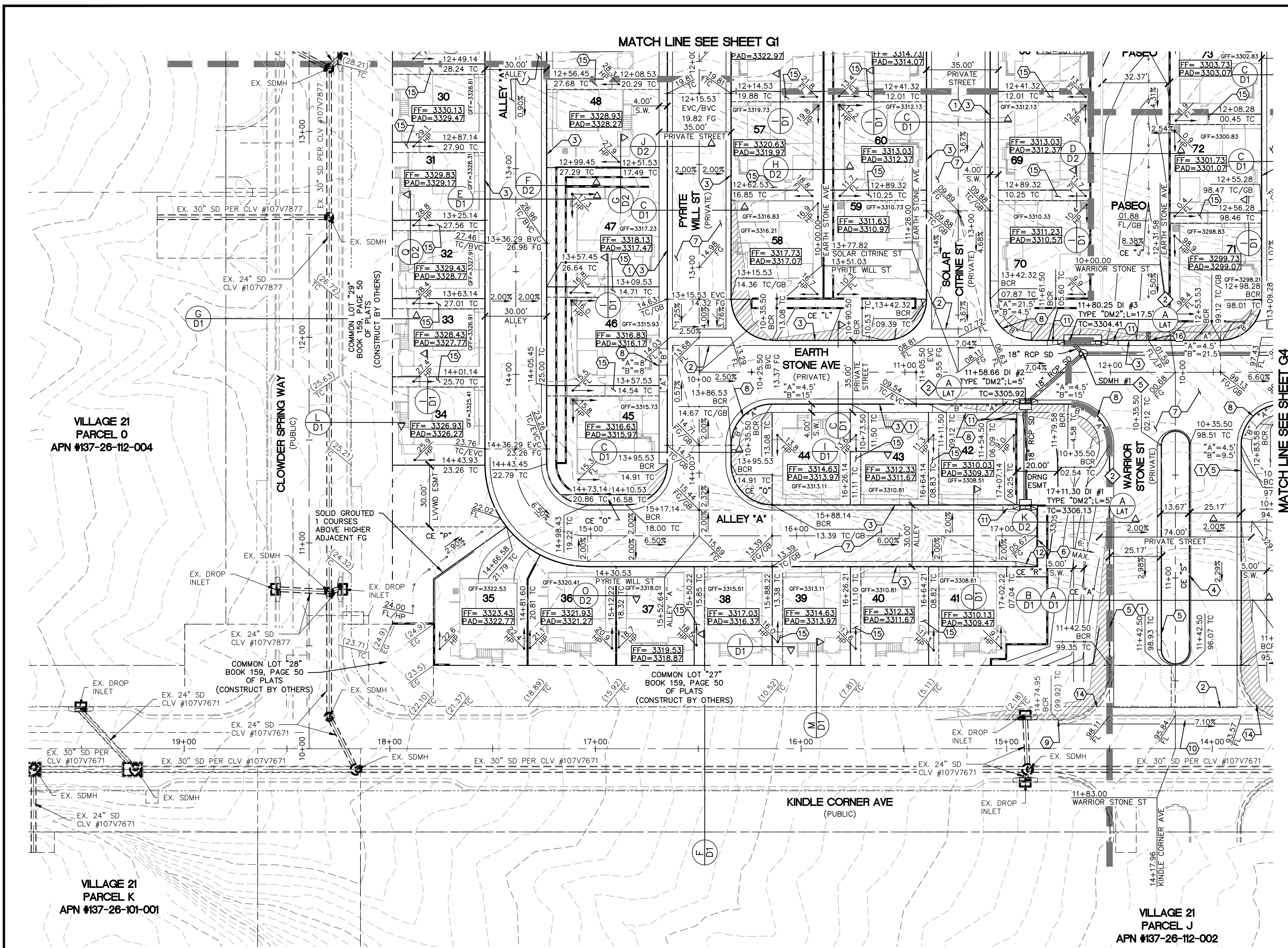
DATE: 5/4/2020

PROJECT NO.	793-533
DESIGN:	
DRAWN:	
CHECK:	
PLOT DATE:	05-04-20
PLOT TIME:	10:24:13

1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gawengineering.com

ENGINEERS / SURVEYORS

t: Projects\700\793-533\DWG\production\793-533-G.dwg
Luky Roxana Lopez



- ### CONSTRUCTION NOTES
- CONSTRUCT CONCRETE SIDEWALK PER SUMMERLIN STD DWG NO. S-72 & S-48.
 - CONSTRUCT 8" WIDE VALLEY GUTTER PER SUMMERLIN STD DWG NO. S-64.
 - CONSTRUCT ROLL CURB PER SUMMERLIN STD DWG NO. S-48.
 - CONSTRUCT MEDIAN "A" TYPE PER SUMMERLIN STD DWG NO. S-50.
 - CONSTRUCT "L" CURB PER SUMMERLIN STD DWG NO. S-47.
 - CONSTRUCT 6" CONCRETE CURB PER DETAIL "M" SHEET D2.
 - CONSTRUCT 2" AC OVER 4" TYPE II BASE-SEE SOIL REPORT PREPARED BY GEOTEK PROJ. #14880-LV FOR MORE DETAIL.
 - CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 1. SEE PLAN FOR "A" & "B" DIMENSION.
 - SAWCUT & MATCH TO EXISTING CURB & SIDEWALK. CONTRACTOR SHALL VERIFY EX. LOCATION & PAVEMENT PRIOR TO CONSTRUCTION.
 - EXISTING CURB TO BE REMOVED
 - CONSTRUCT 5" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL "A" SHEET D2.
 - CONSTRUCT 10" TRANSITION FROM 6" RIBBON CURB TO 30" ROLL CURB PER DETAIL "B" SHEET D2.
 - CONSTRUCT REMOVABLE WROUGHT IRON FENCE PER USDOCA NO. 425.51
 - CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 2. SEE PLAN FOR "A" & "B" DIMENSION.
 - PRIVATE ACCESS EASEMENT TO BE PRIVATELY MAINTAINED BY THE PROPER OWNER.
 - INSTALL SIDEWALK UNDERDRAIN PER USDOCA NO. 236.

- ### STORM DRAIN CONSTRUCTION NOTES
- CONNECT TO EXISTING STORM DRAIN.
 - CONSTRUCT MODIFIED TYPE "DM2" PER STD DWG 412.1 & 421. SEE PLAN PER SIZE.
 - CONSTRUCT 48" TYPE I STORM DRAIN MANHOLE PER STD. DWG 403.
 - CONSTRUCT 48" TYPE II STORM DRAIN MANHOLE PER STD. DWG 405.2.

EARTHWORKS	
CUT-RAW	FILL-RAW
9,808 CY	40,406 CY

NOTES TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

DRAINAGE STUDY COMPLIANCE

I CERTIFY THAT THIS GRADING PLAN IS CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS5206A ON THE FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT

Gia D. Nguyen 5/4/2020
DATE
GIA D. NGUYEN, P.E.
NEVADA PE #14918

BENCHMARK:

CITY OF LAS VEGAS BENCHMARK NO. 7LV0934SW6, FOUND RIVET AND PLATE IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF DESERT MOON ROAD AND SKY VISTA DRIVE.
ELEVATION: 3318.31 (FEET)
1,011.422 (METERS)

BASIS OF BEARING:

GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

- ### NOTES:
- ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
 - GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

FAST
Call before you UnderGround
1-702-432-5300
FIREWAY AND MATERIAL SYSTEM OF TRANSPORTATION

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 DIG OVERHEAD
1-702-227-2929

DATE: 5/4/2020

PROJECT NO.	793-533
DESIGN:	
DRAWN:	
CHECK:	
PLOT DATE:	05-04-20
PLOT TIME:	10:24:21
DESCRIPTION	
DATE	
AGEN APP	
DATE	
GCW APP	
DATE	

PROJECT NO. 793-533

1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gawengineering.com

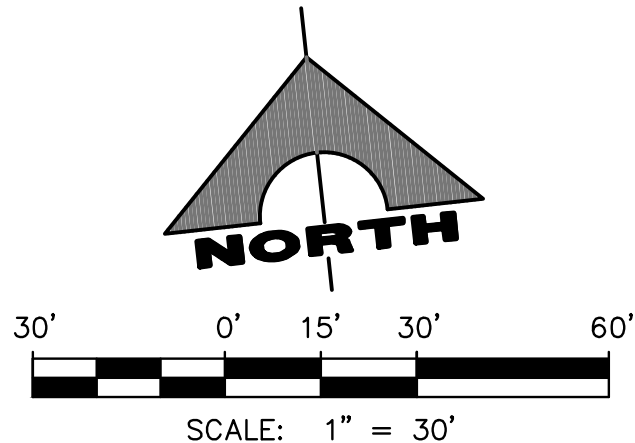
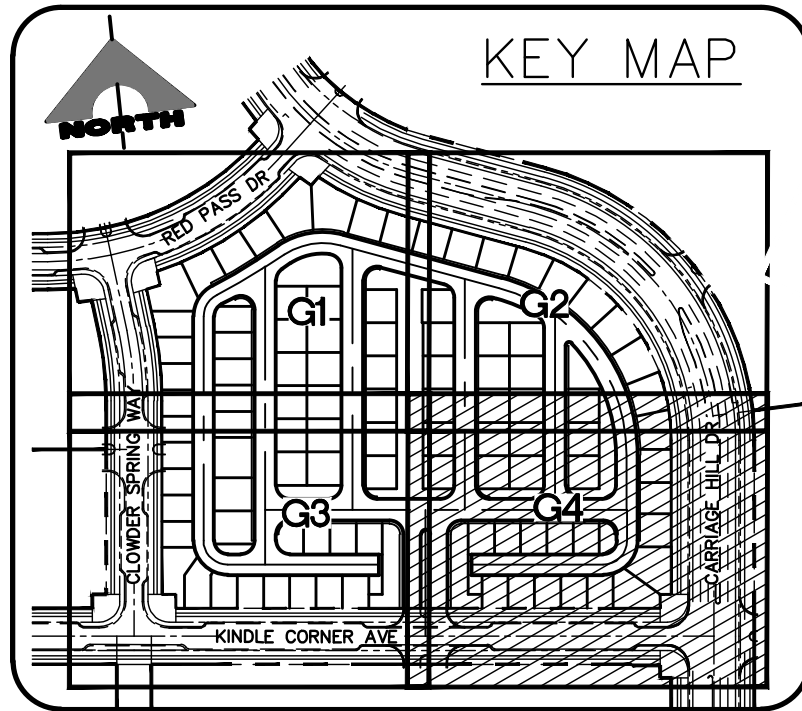
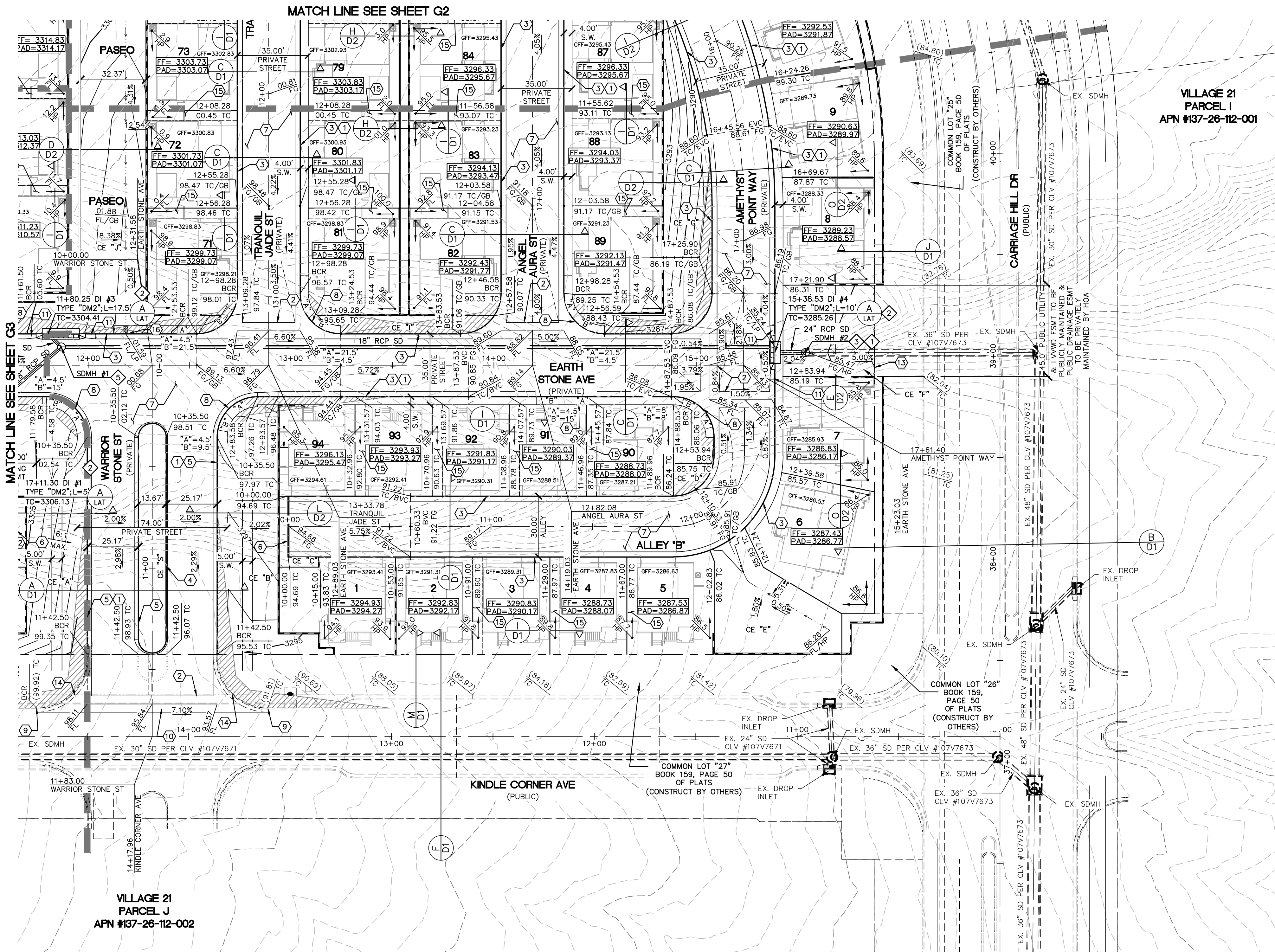
GCV
ENGINEERS & SURVEYORS

WOODSIDE HOMES
OBSIDIAN
SUMMERLIN VILLAGE 21 PARCEL M

GRADING PLAN 3

DRAWING
G3
6 OF 33 SHTS

L# CLV DWG#



- ### CONSTRUCTION NOTES
1. CONSTRUCT CONCRETE SIDEWALK PER SUMMERLIN STD DWG NO. S-72 & S-48.
 2. CONSTRUCT 8" WIDE VALLEY GUTTER PER SUMMERLIN STD DWG NO. S-64.
 3. CONSTRUCT ROLL CURB PER SUMMERLIN STD DWG NO. S-48.
 4. CONSTRUCT MEDIAN "A" TYPE PER SUMMERLIN STD DWG NO. S-50.
 5. CONSTRUCT "L" CURB PER SUMMERLIN STD DWG NO. S-47.
 6. CONSTRUCT 6" CONCRETE CURB PER DETAIL "M" SHEET D2.
 7. CONSTRUCT 2" AC OVER 4" TYPE II BASE SEE SOIL REPORT PREPARED BY GEOTEK PROJ. #14880-LV FOR MORE DETAIL.
 8. CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 1. SEE PLAN FOR "A" & "B" DIMENSION.
 9. SAWCUT & MATCH TO EXISTING CURB & SIDEWALK. CONTRACTOR SHALL VERIFY EX. LOCATION & PAVEMENT PRIOR TO CONSTRUCTION.
 10. EXISTING CURB TO BE REMOVED.
 11. CONSTRUCT 5" TRANSITION FROM "L" CURB TO ROLL CURB PER DETAIL "A" SHEET D2.
 12. CONSTRUCT 10" TRANSITION FROM 6" RIBBON CURB TO 30" ROLL CURB PER DETAIL "B" SHEET D2.
 13. CONSTRUCT REMOVABLE WROUGHT IRON FENCE PER USDOCA NO. 425.51.
 14. CONSTRUCT HANDICAP RAMP PER USDOCA NO. 235 CASE 2. SEE PLAN FOR "A" & "B" DIMENSION.
 15. PRIVATE ACCESS EASEMENT TO BE PRIVATELY MAINTAINED BY THE PROPERTY OWNER.
 16. INSTALL SIDEWALK UNDERDRAIN PER USDOCA NO. 236.

- ### STORM DRAIN CONSTRUCTION NOTES
1. CONNECT TO EXISTING STORM DRAIN.
 2. CONSTRUCT MODIFIED TYPE "DM2" PER STD DWG 412.1 & 421. SEE PLAN PER SIZE.
 3. CONSTRUCT 48" TYPE I STORM DRAIN MANHOLE PER STD. DWG 403.
 4. CONSTRUCT 48" TYPE II STORM DRAIN MANHOLE PER STD. DWG 403.2.

EARTHWORKS	
CUT-RAW	FILL-RAW
9,808 CY	40,406 CY

NOTES TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR UTILITIES NOT SHOWN OR UTILITIES NOT SHOWN IN THEIR PROPER LOCATION.

DRAINAGE STUDY COMPLIANCE

I CERTIFY THAT THIS GRADING PLAN IS CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS5206A ON THE FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

Gia D. Nguyen
GIA D. NGUYEN, P.E.
NEVADA PE #14918

5/4/2020
DATE

BENCHMARK:
CITY OF LAS VEGAS BENCHMARK NO. 7LV0934SW6, FOUND RIVET AND PLATE IN THE TOP OF CURB AT THE SOUTHEAST CORNER OF DESERT MOON ROAD AND SKY VISTA DRIVE.
ELEVATION: 3318.31 (FEET)
1,011.422 (METERS)

BASED ON NORTH AMERICAN VERTICAL DATUM OF 2018 (NAVD'88).

BASIS OF BEARING:
GRID NORTH AS DEFINED BY THE CENTRAL MERIDIAN OF THE NEVADA COORDINATE REFERENCE SYSTEM (NCRS), LAS VEGAS HIGH ELEVATION ZONE, NORTH AMERICAN DATUM OF 1983; SAID MERIDIAN BEING COINCIDENT WITH 114°58' WEST OF THE GREENWICH MERIDIAN.

LINEAR UNIT: US SURVEY FOOT (FTUS)
DATUM (REFERENCE FRAME): NAD 83 (2011) EPOCH 2010.00
SYSTEM: NEVADA COORDINATE REFERENCE SYSTEM (NCRS)
ZONE: LAS VEGAS HIGH ELEVATION ZONE

PROJECTION: TRANSVERSE MERCATOR
STANDARD PARALLEL (AND LATITUDE OF GRID ORIGIN): 36°15'00"N
LONGITUDE OF CENTRAL MERIDIAN: 114°58'00"W
NORTHING AT GRID ORIGIN: 400,000.00 M (1,312,333.3333 FTUS)
EASTING AT CENTRAL MERIDIAN: 300,000 M (984,250.0000 FTUS)
SCALE FACTOR ON CENTRAL MERIDIAN: 1.000135 (EXACT)

NOTES:
1. ALL DISTANCES AND BEARINGS SHOWN HEREON ARE PROJECTED (GRID) VALUES BASED ON THE PRECEDING PROJECTION DEFINITION. THE PROJECTION WAS DEFINED SUCH THAT PROJECTED (GRID) DISTANCES ARE EQUIVALENT TO "GROUND" DISTANCES IN THE PROJECT AREA.
2. GRID BEARINGS SHOWN HEREON (OR IMPLIED BY GRID COORDINATES) DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

FAST
Call before you Dig
1-702-432-5300

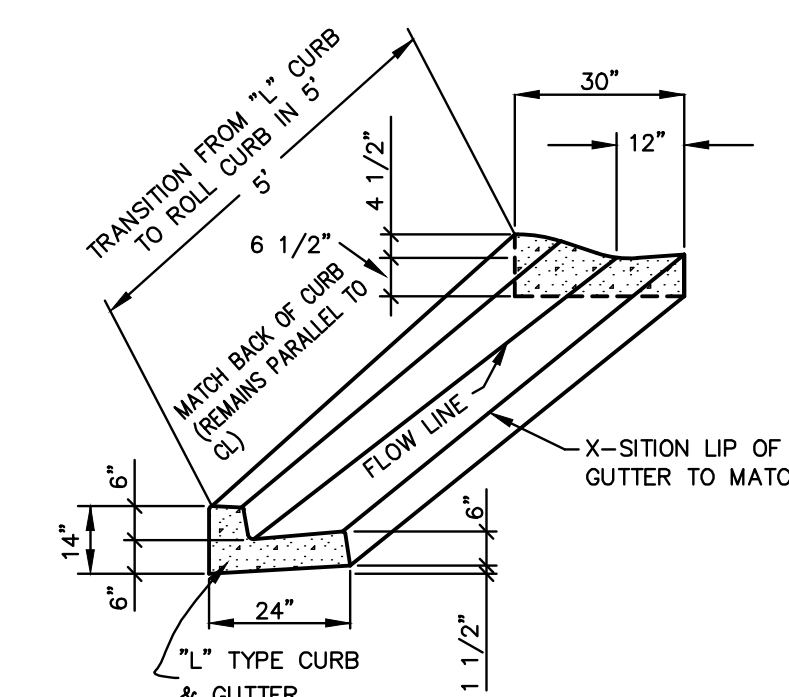
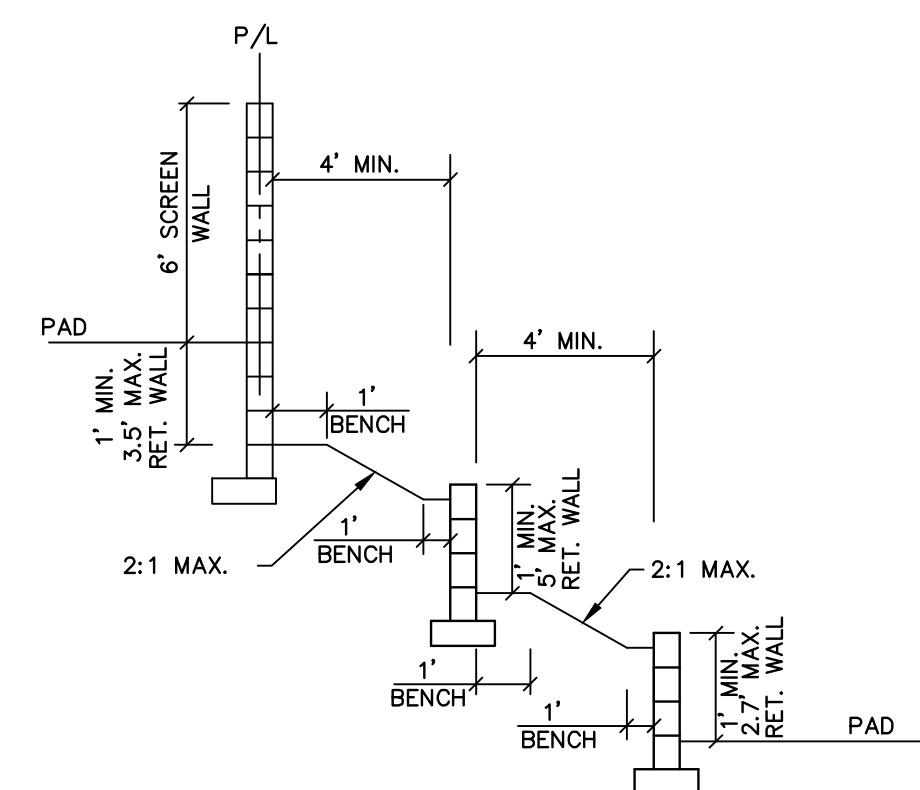
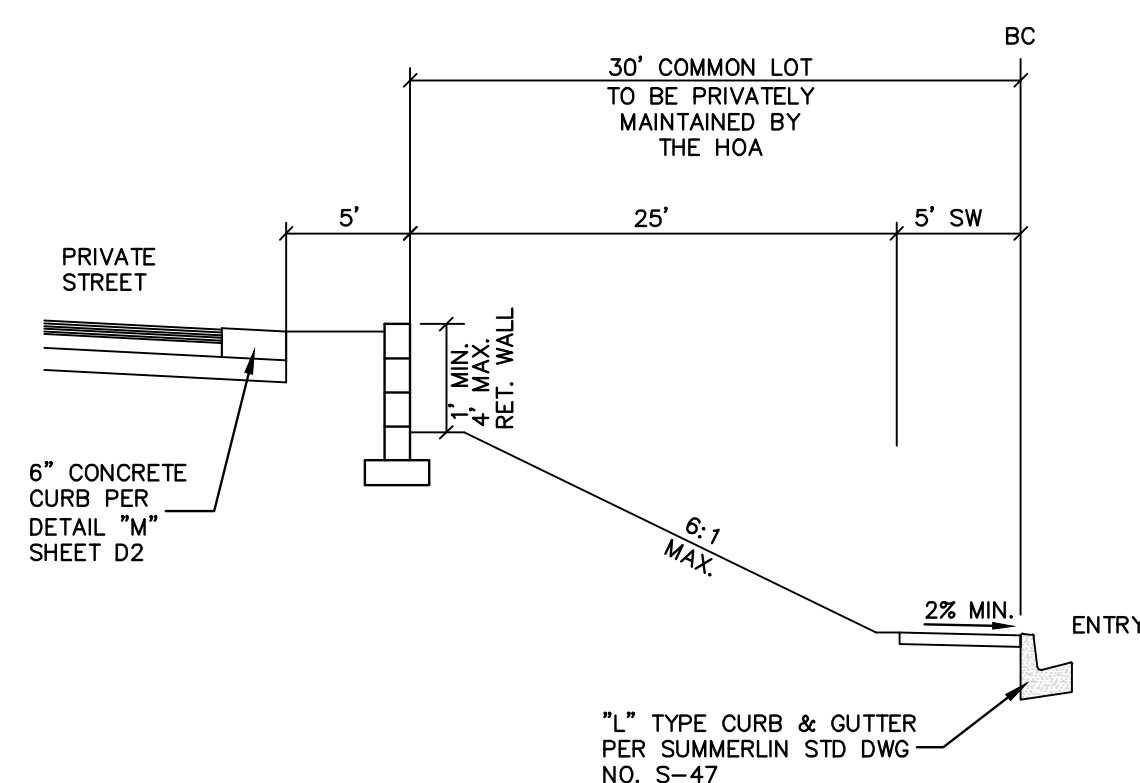
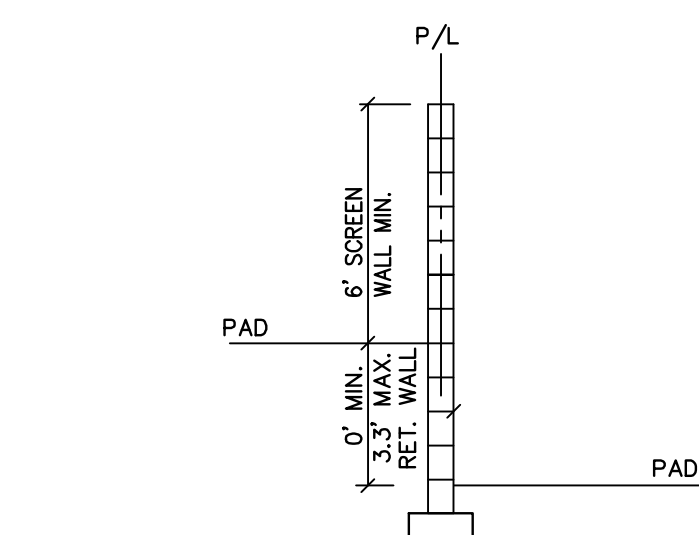
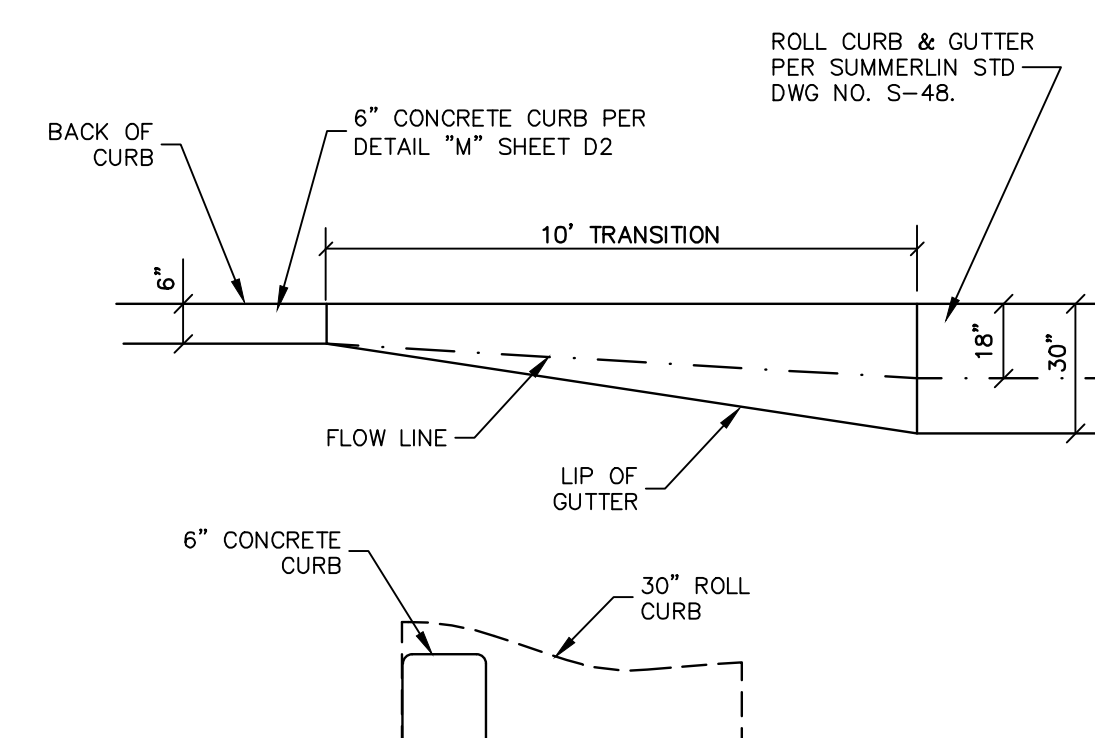
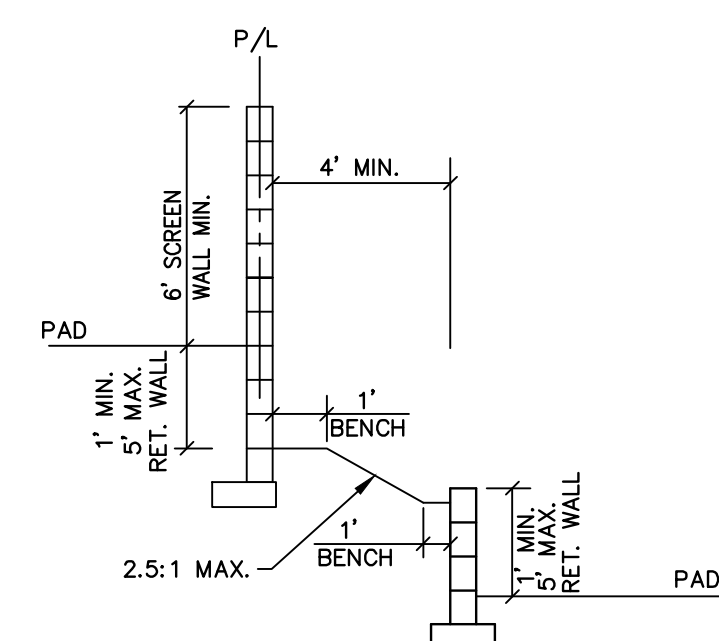
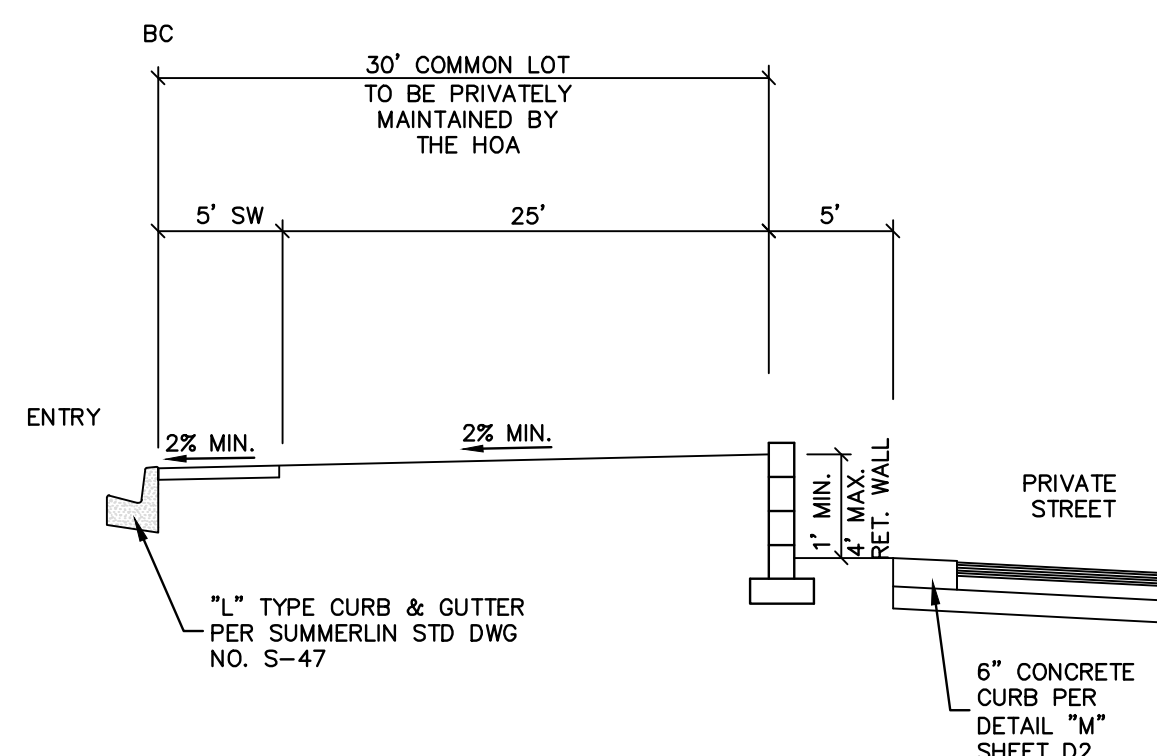
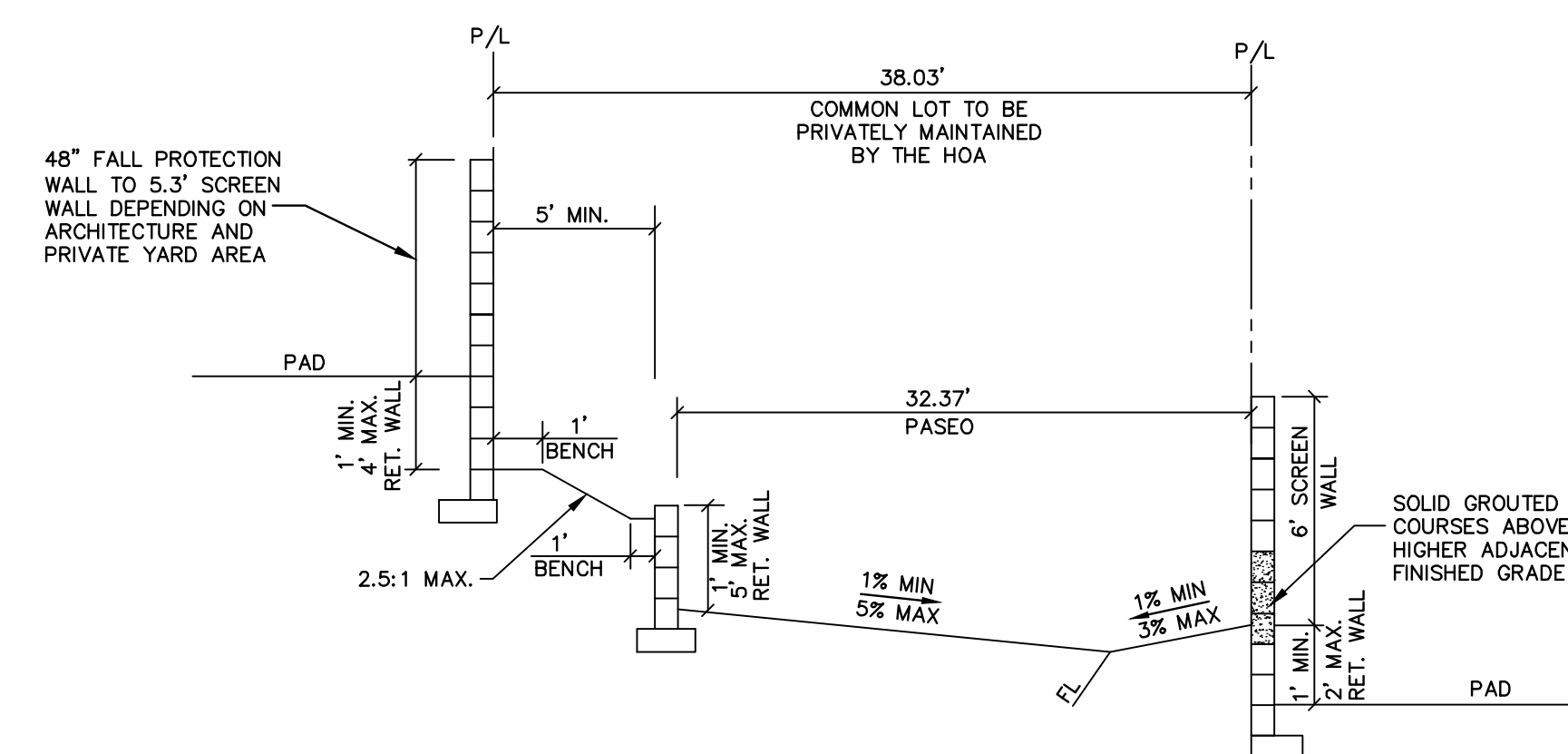
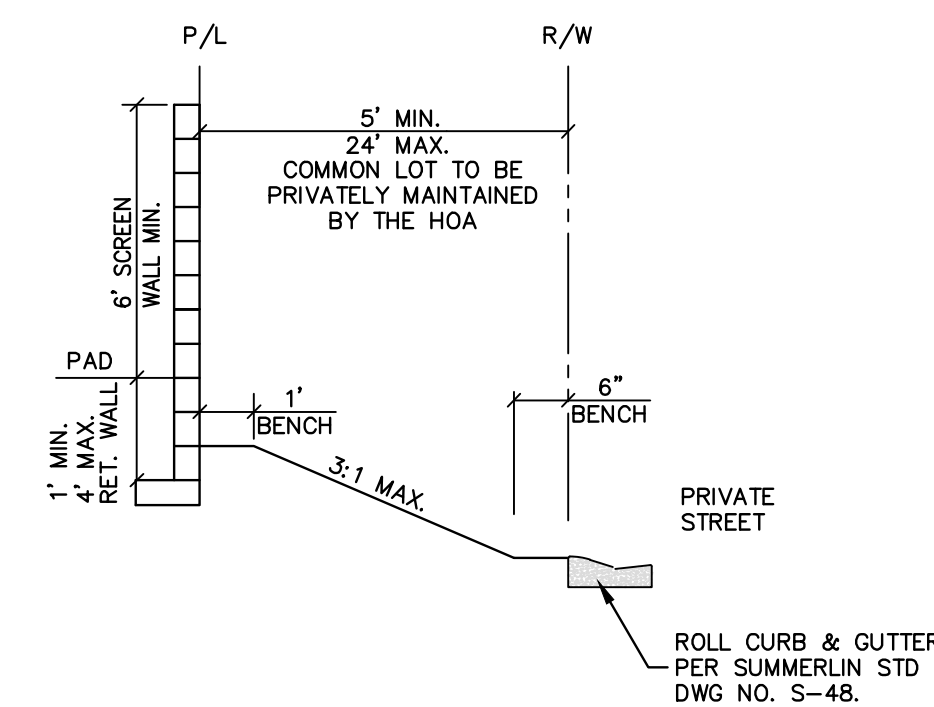
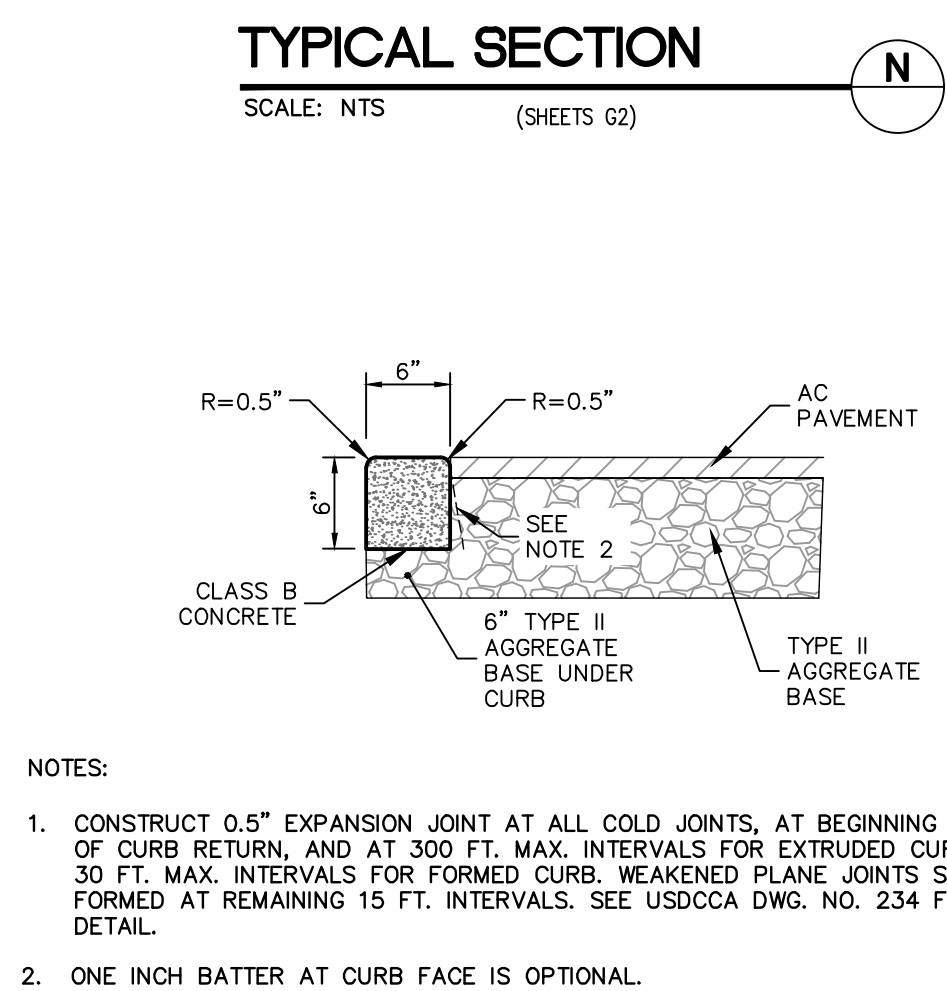
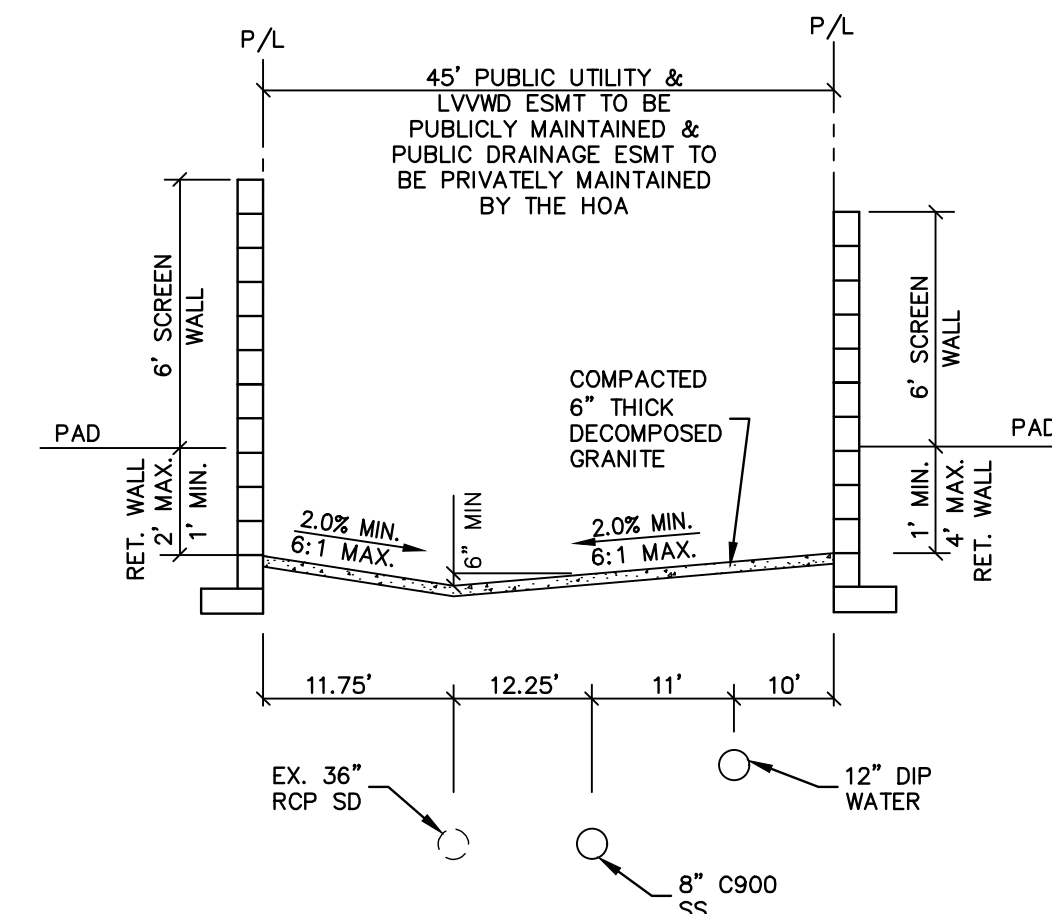
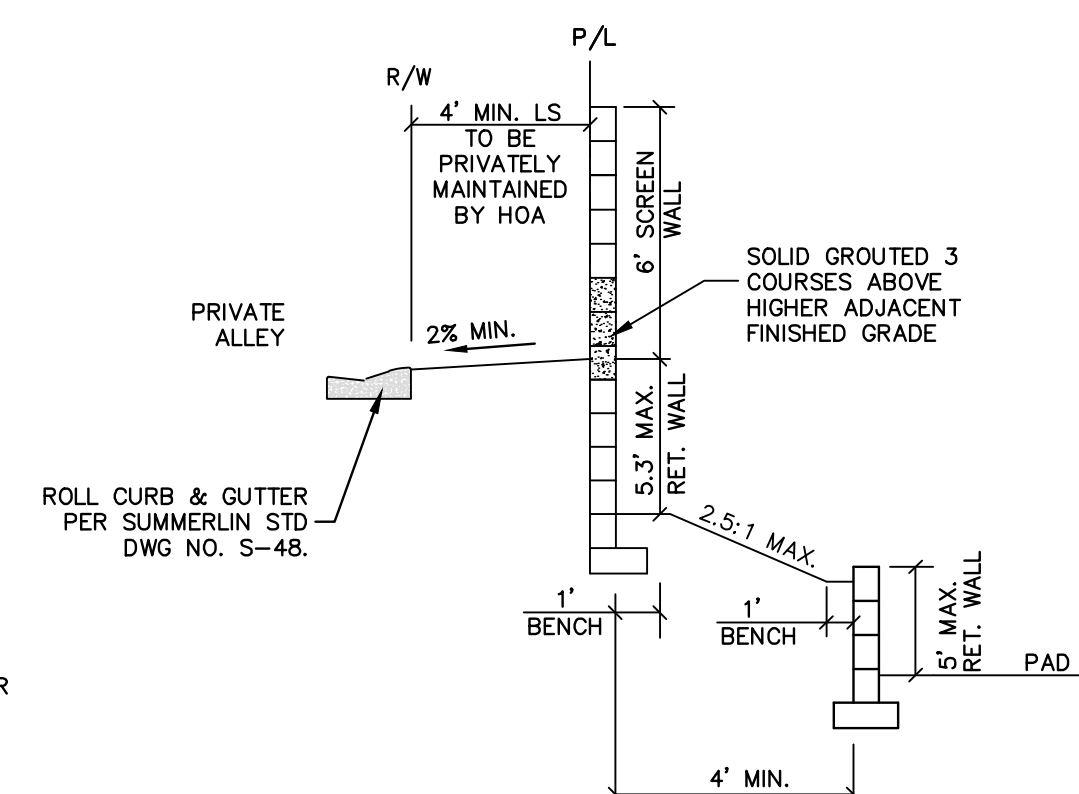
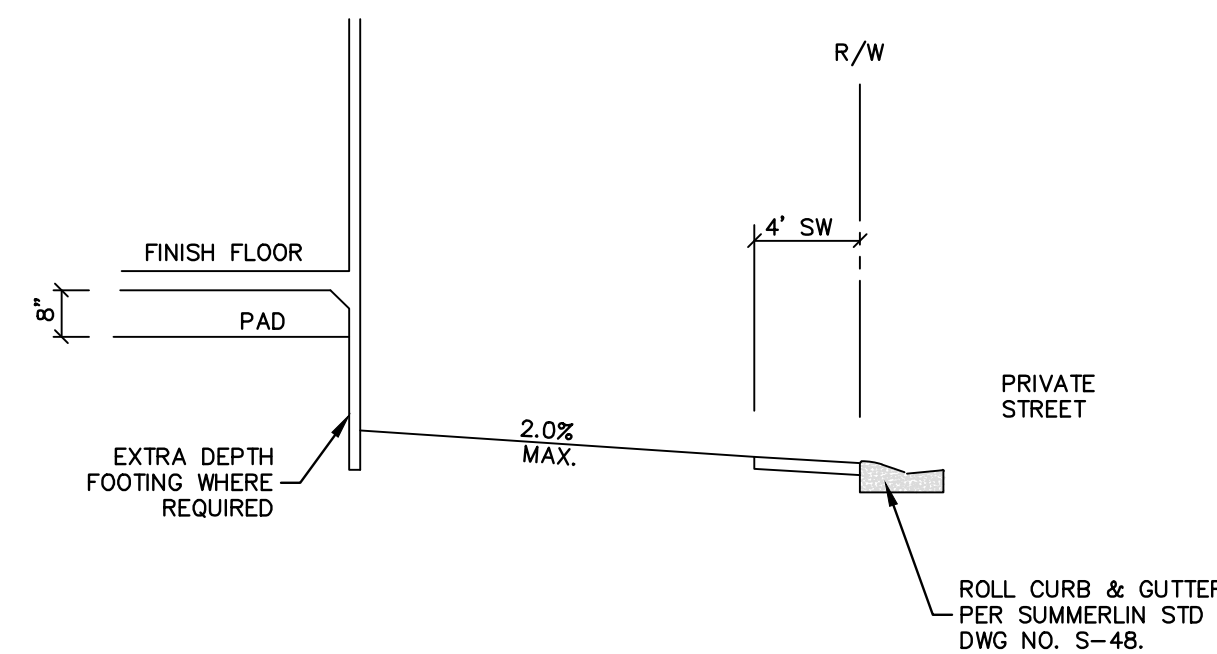
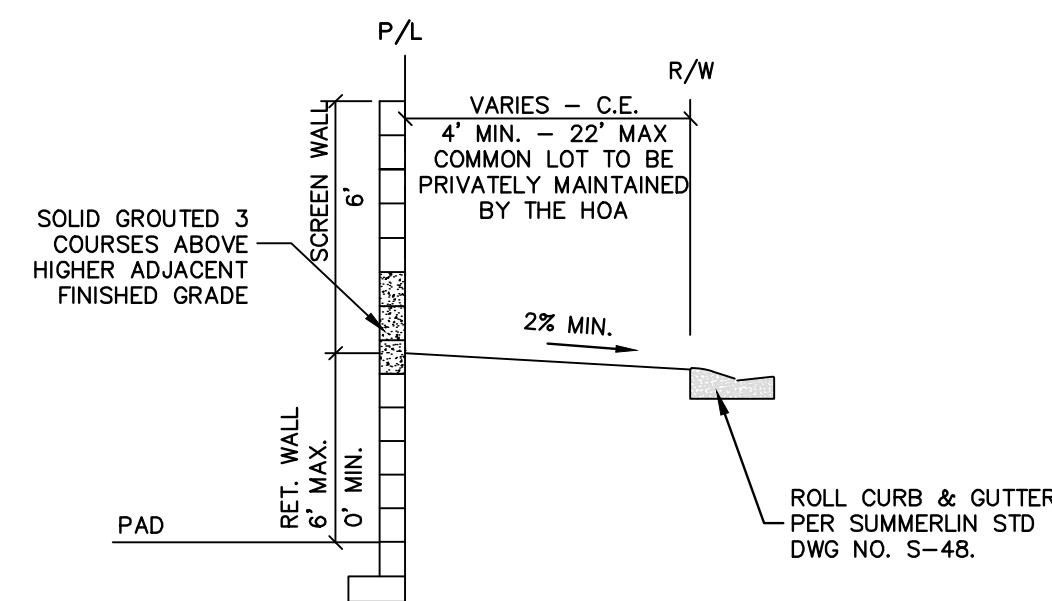
811
Call before you Dig
1-800-227-2600

CALL BEFORE YOU DIG
1-702-227-2929

PROJECT NO. 793-533
DESIGN: GOW ENGINEERING
DRAWN: GOW ENGINEERING
CHECK: GOW ENGINEERING
PLOT DATE: 05-04-20
PLOT TIME: 10:24:25

WOODSIDE HOMES
OBSIDIAN
SUMMERLIN VILLAGE 21 PARCEL M
GRADING PLAN 4

DRAWING
G4
7 OF 33 SHTS

[illegible][illegible]

PROJECT NO. 793-533	DESIGN: _____
	DRAWN: _____
	CHECK: _____
	PLOT DATE: 05-04-20
	PLOT TIME: 10:24:33

GCv
ENGINEERS \ SURVEYORS

1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcvengineering.com

Projects \ 700 \ 793 - 533 \ DWG \ production \ 793 - 533 - 0.dwg
Judy Roxana Lopez

WOODSIDE HOMES

OBSDIAN

SUMMERLIN VILLAGE 21 PARCEL M

GRADING SECTIONS AND DETAILS 2

DRAWING
D2
9 OF 33 SHTS

L#	CLV DWG#
----	----------

