DS #: 5421

APN: 137-23-210-001

PROJECT: Summerlin West Village 22 - Flight Range Avenue (St. E)
(Desert Foothills Dr. to Kettle Ridge Dr.)

SUBMITTAL: 2nd

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS
NEVADA

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: March 22, 2021
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:			**COPIES TO:**
Summerlin West Village 22 - Flight Range Avenue (St. E) (Desert Foothills Dr. to Kettle Ridge Dr.)				Atkins
Cross Streets:	Desert Foothills Drive & Flight Range Avenue			Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5421B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-23-210-001			
Zoning Action:	N/A			
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	2/3/2021	2/23/2021	Not Approved	$400.00	4157978: $400
2nd Submittal	3/8/2021	3/22/2021	See Comments Below	$400.00	4204462: $400
			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.

1. The subject project is based on the premise that the upstream *Kettle Ridge Drive* and the downstream *Desert Foothill Drive* and the associated storm drain facilities are in place for flood protection. The subject drainage study will not be finally approved prior to the posting of the construction bonds of *Summerlin West Village 22 – Kettle Ridge Drive (Sunset Run to Kindle Rise) and Summerlin West Village 22 – Desert Foothill Drive (Sunset Run to Fleet Wing)*.
2. The project proposed to construct temporary drainage facilities including drainage berms/ditches along both sides of the proposed improvements. Prior to the final plans approval, the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

   In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

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

SNC·LAVALIN

ATKINS
Member of the SNC-Lavalin Group

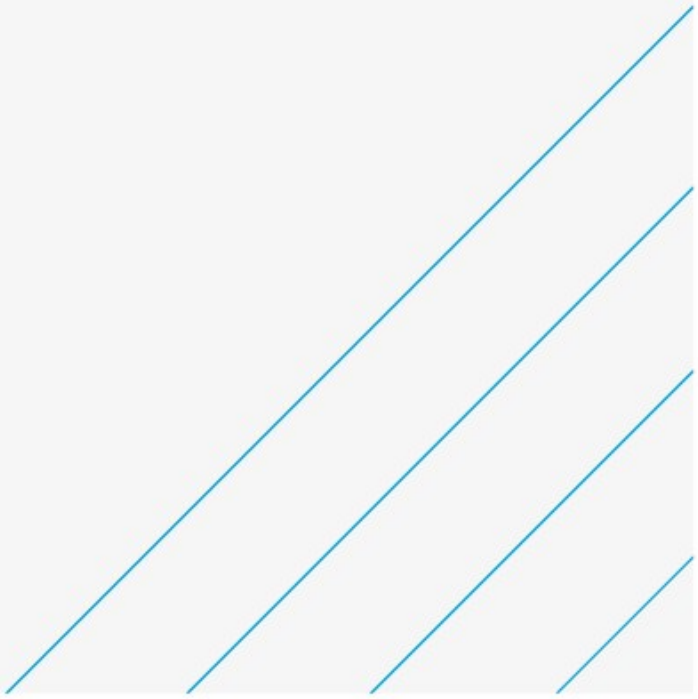
SUMMERLIN®

Summerlin West Village 22

Flight Range Avenue (Street E): Kettle Ridge Drive (Street J) to Desert Foothills Drive

Prepared for Howard Hughes Company, LLC

March 2021



HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Flight Range Avenue (Street E): Desert Foothills Drive to Kettle Ridge Drive (Street J) Date: March 4, 2021

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

East/West: Flight Edge Way

b) Section: 23 and 14 Township: 20S Range: 59E

c) APN : 137-23-210-001

Name of Owner: Howard Hughes Company, LLC

Telephone No.: (702) 791-4201 Fax No.: (702) 791-4450 E-Mail Address: april.chapman@howardhughes.com

Address: 10845 Griffith Peak Drive, Suite 160, Las Vegas, NV 89135

Contact Person-Name: Janelle Klein, PE **Telephone No.:** (702) 551-0365

* **E-Mail Address:** janelle.klein@atkinsglobal.com **Fax No.:** (702) 263-7200

Firm: Atkins

Address: 2270 Corporate Circle, Ste 200, Henderson, NV 89074

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	X	Roadway Improvements

1. Total Owned Land Area: At Site: +/- 446 acres Being Developed/Disturbed: 5.26 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.): Public - Roadway Improvements
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: Master Conceptual Drainage Study for Summerlin West Village 22 Update #2
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing CC-215 Western Beltway Channel
8. Briefly describe your proposed schedule for the subject project: ASAP



3/4/2021

Engineer's Seal

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

Updated 05/01/2008

Engineer's Certification

Atkins certifies that the information contained herein has been prepared in accordance with generally accepted engineering principles and practices, and to the best of our knowledge, is true and correct.

This letter certifies that all items in the **Addendum #1 to the Technical Drainage Study for Flight Range Avenue (Street E): Kettle Ridge Drive (Street J) to Desert Foothills Drive** electronic submittal matches the paper version bound into the study.



Janelle L. Klein, PE (NV #17313)
Senior Engineer

Comment Response Letter

Your reference: DS #5421A

Albert Sung
City of Las Vegas Public Works
333 N. Rancho Dr, 7th Floor
Las Vegas, NV 89106

March 4, 2021

RE: ADDENDUM #1 TECHNICAL DRAINAGE STUDY FOR SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E): KETTLE RIDGE DRIVE (STREET J) to DESERT FOOTHILLS DRIVE

To Albert Sung,

This letter and the attached documents have been prepared as an Addendum #1 to the *Technical Drainage Study (TDS) for Summerlin West Village 22 Flight Range Avenue (Street E): Kettle Ridge Drive (Street J) to Desert Foothills Drive.*

Comment #1: The subject project is based on the premised that the upstream *Kettle Ridge Drive* and the downstream *Desert Foothills Drive* and the associated storm drain facilities are in place for flood protection. The subject drainage study will not be finally approved prior to the posting of the construction bonds of *Summerlin West Village 22 - Kettle Ridge Drive (Sunset Run to Kindle Rise) and Summerlin West Village 22 - Desert Foothills Drive (Sunset Run to Fleet Wing)*.

Comment response: Understood.

Comment #2: The project proposes to build temporary drainage facilities including berms/ditches along the both sides of the proposed improvements. Prior to the final plans approval, the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements (berms or channels) and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

Comment response: It is acknowledged that Atkins will contact the City's Land Development Section to begin the agreement process for the interim drainage improvements upon conditional approval of this study.

Comment #3: Per **Table 6** in the subject *Study*, either it is a typo error or the downstream system that the *Flight Range Avenue* system is connecting to is already surcharged and the HGL is well above the proposed ground. Therefore, the downstream system is not adequate to collect the flow from the proposed system. Address and revise accordingly in the next submittal

Comment response: ***Table 6*** *has been corrected in this submittal.*

Comment #4: The HGL shown on the Plan and Profile sheets does not appear to match the HGL provided in the WSPG.

Comment response: The HGL shown on the Plan and Profile sheets has been updated to match the HGL in the WSPG.

Comment #5: *Storm Drain Construction Note #7* proposed to install Type A drop inlet which is not allowed by the **City of Las Vegas** anymore. Use modified Type CM. Review and revise in the next submittal.

Comment response: The Construction Note has been removed.

Comment #6: Provide connection detail for the proposed main line 36"-RCP to the existing 36"-RCP in *Flight Range Avenue*.

Comment response: Construction Note: Connect to Existing Storm Drain per CCAUSS #509.03.06 "Extending Existing Culverts".

Comment #7: All storm drain inlets that are more than 10'-deep require a special structural detail and calculations. Submit structural design and calculations to *City Building & Safety Department* for review and approval prior to the final approval of the drainage study

Comment response: The design of the drop inlet laterals has been revised to make the drop inlets be less than 10'-deep.

Janelle L. Klein, PE (NV #17313)
Senior Engineer

Appendices

Appendix A. TDS Comment Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: February 23, 2021
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:			**COPIES TO:**
Summerlin West Village 22 - Flight Range Avenue (St. E) (Desert Foothills Dr. to Kettle Ridge Dr.)				Atkins
Cross Streets:	Desert Foothills Drive & Flight Range Avenue			Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5421A.doc			Bart Anderson, P.E., DevCo
Parcel Number:	137-23-210-001			
Zoning Action:	N/A			
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	2/3/2021	2/23/2021	See Comments Below	$400.00	4157978: $400
			TOTAL FEES (LDDRS):	**$400.00**	**----**

REMARKS:

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

	is approved subject to conformance to all City standards and the following conditions:
X	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 project is based on the premise that the upstream *Kettle Ridge Drive* and the downstream *Desert Foothill Drive* and the associated storm drain facilities are in place for flood protection. The subject drainage study will not be finally approved prior to the posting of the construction bonds of *Summerlin West Village 22 – Kettle Ridge Drive (Sunset Run to Kindle Rise) and Summerlin West Village 22 – Desert Foothill Drive (Sunset Run to Fleet Wing)*.
2. The project proposed to construct temporary drainage facilities including drainage berms/ditches along both sides of the proposed improvements. Prior to the final plans approval, the developer must complete a ***Maintenance & Liability Agreement*** for the interim drainage improvements and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facilities to *City Flood Control* for approval. Once the drainage study is conditionally approved, the engineer/developer should contact the *City's Land Development Section* (702-229-6371) to begin the agreement process.

   In order for the maintenance bond to be released in the future, a drainage update/letter will be required to justify that the berm/swale are no longer necessary and can be removed.

3. Per **Table 6** in the subject *Study*, either it is typo error or the downstream system that the *Flight Range Avenue* system is connecting to is already surcharged and the HGL is well above the proposed ground. Therefore, the downstream system is not adequate to collect the flow from the proposed system. Address and revise accordingly in the next submittal.
4. The HGL shown on the Plan and Profile sheets does not appear to match the HGL provided in the WSPG.
5. *Storm Drain Construction Note #7* proposed to install Type A drop inlet which is not allowed by the **City of Las Vegas** anymore. Use modified Type CM. Review and revise in the next submittal.
6. Provide connection detail for the proposed main line 36”-RCP to the existing 36”-RCP in *Flight Range Avenue*.
7. All storm drain inlets that are more than 10’-deep require a special structural detail and calculations. Submit structural design and calculations to *City Building & Safety Department* for review and approval prior to the final approval of the drainage study.

   Label clearly the depth of all proposed drop inlets on all pertinent plans. The aforementioned *Building & Safety Department* review requirement may be waived in the next submittal after the inlet depth information is confirmed.

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

Appendix B. Hydraulics

Table 6 – WSPG-W Mainline Summary Table

SDMH#	Improvement Plan Station	WSPG-W Station	100-yr Ultimate Condition		
			Q_{100}	$\sum Q_{100}$	HGL (Ft)
7	25+68.79	2610.36	2	2	3430.573
6	25+36.82	2572.20	23	25	3429.555
5	24+32.15	2461.21	13	38	3417.890
4	22+70.03	2293.08	2	40	3402.659
3	22+36.30	2253.42	19	59	3403.373
2	20+55.80	2067.89	0	59	3383.546
1	19+22.47	1928.61	4	63	3377.139
*EX SDMH #4	18+57.21*	844.55*	58*	77.98*	3375.269*

* Referenced from Addendum #1 to the Technical Drainage Study for Summerlin West Village 22 Desert Foothills Drive: Sunset Run Drive to Fleet Wing Avenue – DS#5344

```
T1 SUMMERLIN WEST VILLAGE 22                                                    0

T2 FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)

T3 ATKINS - 100 YEAR ULTIMATE CONDITION
SO   1900.00 3373.01  36                          3374.475

R    1900.00 3373.01  36     .013                                  .000  00.0 0
REM*****     ATKINS    BEGIN SDMH#1 DI #1,2
R    1922.61 3375.51  36     .013                                  .000  00.0 0
R    1923.61 3375.55  36     .013                                  .000  00.0 0
R    1924.61 3375.58  36     .013                                  .000  00.0 1

JX   1925.61 3375.61  36 24 24.013     2.0     2.0  3375.71 3375.71  90.0-90.0    .000

TS   1926.61 3375.64  30     .013                                  .000  00.0 0
R    1927.61 3375.67  30     .013                                  .000  00.0 0
R    1928.61 3375.71  30     .013                                  .000  00.0 0
REM*****     ATKINS    END SDMH#1 DI #1,2
REM*****     ATKINS    BEGIN SDMH#2 No DI

R    2061.89 3382.09  30     .013                                  .000  00.0 0
R    2062.89 3382.13  30     .013                                  .000  00.0 0
R    2063.89 3382.16  30     .013                                  .000  01.5 1
R    2064.89 3382.19  30     .013                                  .000  00.0 0

R    2065.89 3382.22  30     .013                                  .000  01.5 0
R    2066.89 3382.25  30     .013                                  .000  00.0 0
R    2067.89 3382.29  30     .013                                  .000  00.0 0
REM*****     ATKINS    END SDMH#2
REM*****     ATKINS    BEGIN SDMH#3 with a Stub
R    2247.42 3398.35  30     .013                                  .000  00.0 0
R    2248.42 3398.39  30     .013                                  .000  00.0 0
R    2249.42 3398.42  30     .013                                  .000  01.5 1
JX   2250.42 3398.45  30 30   .013   19.0           3398.55         -90.0         .000

R    2251.42 3398.48  30     .013                                  .000  01.5 0
R    2252.42 3398.51  30     .013                                  .000  00.0 0
R    2253.42 3398.55  30     .013                                  .000  00.0 0
REM*****     ATKINS    END SDMH#3   with a Stub

REM*****     ATKINS    BEGIN SDMH#4   DI#3, 4

R    2287.08 3401.50  30     .013                                  .000  00.0 0
```

```
R    2288.08 3401.54  30     .013                                    .000  00.0 0
R    2289.08 3401.57  30     .013                                    .000  00.0 1
JX   2290.08 3401.60  30 24 24.013     1.0     1.0  3401.70 3401.70  90.0-45.0    .000

R    2291.08 3401.63  30      .013                                   .000  00.0 0
R    2292.08 3401.66  30      .013                                   .000  00.0 0
R    2293.08 3401.70  30      .013                                   .000  00.0 0
REM*****     ATKINS    END SDMH#4   DI#3, 4

REM*****     ATKINS    BEGIN SDMH#5 with a Stub
R    2455.21 3416.90  30      .013                                   .000  00.0 0
R    2456.21 3416.94  30      .013                                   .000  00.0 0
R    2457.21 3416.97  30      .013                                   .000  00.0 1
JX   2458.21 3417.00  30 30   .013   13.0           3417.10          90.0         .000

R    2459.21 3417.03  30      .013                                   .000  00.0 0
R    2460.21 3417.06  30      .013                                   .000  00.0 0
R    2461.21 3417.10  30      .013                                   .000  00.0 0
REM*****     ATKINS    END SDMH#5 with a Stub
REM*****     ATKINS    BEGIN SDMH#6 with a stub
R    2566.20 3426.50  30      .013                                   .000  00.0 0
R    2567.98 3426.54  30      .013                                   .000  00.0 0
R    2568.98 3426.57  30      .013                                   .000  02.0 1
JX   2569.99 3426.60  30 30   .013   23.0           3426.70          -90.0        .000

TS   2570.98 3426.63  24      .013                                   .000  02.0 0
R    2571.98 3426.66  24      .013                                   .000  00.0 0
R    2572.20 3426.70  24      .013                                   .000  00.0 0
REM*****     ATKINS    END SDMH#6 with a stub
REM*****     ATKINS    BEGIN SDMH#7 DI#6
R    2604.36 3430.03  24      .013                                   .000  15.0 0
R    2605.14 3430.08  24      .013                                   .000  15.0 0
R    2606.14 3430.13  24      .013                                   .000  15.0 0
JX   2607.14 3430.16  24 24   .013    1.0           3430.33          -45.0        .000

TS   2608.14 3430.23  24      .013                                   .000  15.0 0
R    2609.14 3430.28  24      .013                                   .000  15.0 0
R    2610.36 3430.33  24      .013                                   .000  15.0 0
REM*****     ATKINS    END SDMH#7 DI#6
REM*****     ATKINS    BEGIN SDMH#7 to SDDI#5
R    2643.07 3430.98  24      .013                                   .000  00.0 0
REM*****     ATKINS    BEGIN SDMH#7 to SDDI#5
SH   2643.07 3430.98  24
```

```
CD  24  4   1    .000   2.000     .000  .000  .000   .00
CD  30  4   1    .000   2.500     .000  .000  .000   .00
CD  36  4   1    .000   3.000     .000  .000  .000   .00
Q             1.0
```

FILE: FR_Main_U.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 1

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:12-29-2020 Time: 3:12:40

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1900.000	3373.010	1.309	3374.320	63.00	21.26	7.02	3381.34	.00	2.55	2.98	3.000	.000	.00	1 .0
5.879	.1106					.0554	.33	1.31	3.75	1.09	.013	.00	.00	PIPE
1905.879	3373.660	1.335	3374.995	63.00	20.72	6.66	3381.66	.00	2.55	2.98	3.000	.000	.00	1 .0
9.219	.1106					.0502	.46	1.34	3.62	1.09	.013	.00	.00	PIPE
1915.098	3374.679	1.385	3376.064	63.00	19.75	6.06	3382.12	.00	2.55	2.99	3.000	.000	.00	1 .0
7.512	.1106					.0442	.33	1.38	3.37	1.09	.013	.00	.00	PIPE
1922.610	3375.510	1.437	3376.947	63.00	18.83	5.51	3382.46	.00	2.55	3.00	3.000	.000	.00	1 .0
1.000	.0400					.0414	.04	1.44	3.14	1.45	.013	.00	.00	PIPE
1923.610	3375.550	1.437	3376.987	63.00	18.84	5.51	3382.50	.00	2.55	3.00	3.000	.000	.00	1 .0
1.000	.0300					.0414	.04	1.44	3.14	1.58	.013	.00	.00	PIPE
1924.610	3375.580	1.435	3377.015	63.00	18.86	5.52	3382.54	.00	2.55	3.00	3.000	.000	.00	1 .0
JUNCT STR	.0300					.0477	.05	1.44	3.15		.013	.00	.00	PIPE
1925.610	3375.610	1.284	3376.894	59.00	20.42	6.48	3383.37	.00	2.48	2.97	3.000	.000	.00	1 .0
TRANS STR	.0298					.0534	.05	1.28	3.65		.013	.00	.00	PIPE
1926.610	3375.640	1.432	3377.072	59.00	20.29	6.39	3383.46	.00	2.39	2.47	2.500	.000	.00	1 .0
1.000	.0300					.0531	.05	1.43	3.30	1.74	.013	.00	.00	PIPE
1927.610	3375.670	1.430	3377.100	59.00	20.33	6.42	3383.52	.00	2.39	2.47	2.500	.000	.00	1 .0
1.000	.0400					.0533	.05	1.43	3.31	1.57	.013	.00	.00	PIPE

FILE: FR_Main_U.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 2

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:12-29-2020 Time: 3:12:40

SUMMERLIN WEST VILLAGE 22

FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)

ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1928.610	3375.710	1.428	3377.139	59.00	20.35	6.43	3383.57	.00	2.39	2.47	2.500	.000	.00	1 .0
64.692	.0479					.0569	3.68	1.43	3.31	1.48	.013	.00	.00	PIPE
1993.302	3378.807	1.375	3380.181	59.00	21.34	7.07	3387.25	.00	2.39	2.49	2.500	.000	.00	1 .0
39.643	.0479					.0644	2.55	1.37	3.57	1.48	.013	.00	.00	PIPE
2032.945	3380.705	1.323	3382.028	59.00	22.38	7.78	3389.80	.00	2.39	2.50	2.500	.000	.00	1 .0
28.945	.0479					.0730	2.11	1.32	3.84	1.48	.013	.00	.00	PIPE
2061.890	3382.090	1.274	3383.364	59.00	23.47	8.55	3391.92	.00	2.39	2.50	2.500	.000	.00	1 .0
1.000	.0398					.0779	.08	1.27	4.12	1.57	.013	.00	.00	PIPE
2062.890	3382.130	1.271	3383.401	59.00	23.53	8.59	3392.00	.00	2.39	2.50	2.500	.000	.00	1 .0
1.000	.0300					.0785	.08	1.27	4.14	1.74	.013	.00	.00	PIPE
2063.890	3382.160	1.268	3383.428	59.00	23.60	8.65	3392.08	.00	2.39	2.50	2.500	.000	.00	1 .0
1.000	.0300					.0792	.08	1.27	4.16	1.74	.013	.00	.00	PIPE
2064.890	3382.190	1.265	3383.455	59.00	23.68	8.71	3392.16	.00	2.39	2.50	2.500	.000	.00	1 .0
1.000	.0300					.0799	.08	1.26	4.18	1.74	.013	.00	.00	PIPE
2065.890	3382.220	1.261	3383.481	59.00	23.76	8.77	3392.25	.00	2.39	2.50	2.500	.000	.00	1 .0
1.000	.0300					.0806	.08	1.26	4.20	1.74	.013	.00	.00	PIPE
2066.890	3382.250	1.258	3383.508	59.00	23.84	8.83	3392.33	.00	2.39	2.50	2.500	.000	.00	1 .0
1.000	.0400					.0812	.08	1.26	4.22	1.57	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22

FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)

ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2067.890	3382.290	1.256	3383.546	59.00	23.90	8.87	3392.42	.00	2.39	2.50	2.500	.000	.00	1 .0
32.032	.0895					.0795	2.55	1.26	4.24	1.22	.013	.00	.00	PIPE
2099.923	3385.156	1.275	3386.430	59.00	23.45	8.54	3394.97	.00	2.39	2.50	2.500	.000	.00	1 .0
43.896	.0895					.0729	3.20	1.27	4.12	1.22	.013	.00	.00	PIPE
2143.819	3389.082	1.324	3390.406	59.00	22.36	7.76	3398.17	.00	2.39	2.50	2.500	.000	.00	1 .0
25.969	.0895					.0643	1.67	1.32	3.83	1.22	.013	.00	.00	PIPE
2169.788	3391.405	1.375	3392.781	59.00	21.32	7.06	3399.84	.00	2.39	2.49	2.500	.000	.00	1 .0
17.941	.0895					.0567	1.02	1.38	3.56	1.22	.013	.00	.00	PIPE
2187.729	3393.010	1.430	3394.440	59.00	20.33	6.42	3400.86	.00	2.39	2.47	2.500	.000	.00	1 .0
13.368	.0895					.0501	.67	1.43	3.31	1.22	.013	.00	.00	PIPE
2201.096	3394.206	1.487	3395.693	59.00	19.38	5.83	3401.53	.00	2.39	2.45	2.500	.000	.00	1 .0
10.406	.0895					.0444	.46	1.49	3.07	1.22	.013	.00	.00	PIPE
2211.502	3395.137	1.548	3396.685	59.00	18.48	5.30	3401.99	.00	2.39	2.43	2.500	.000	.00	1 .0
8.323	.0895					.0393	.33	1.55	2.84	1.22	.013	.00	.00	PIPE
2219.825	3395.882	1.613	3397.494	59.00	17.62	4.82	3402.31	.00	2.39	2.39	2.500	.000	.00	1 .0
6.767	.0895					.0349	.24	1.61	2.62	1.22	.013	.00	.00	PIPE
2226.592	3396.487	1.682	3398.169	59.00	16.80	4.38	3402.55	.00	2.39	2.35	2.500	.000	.00	1 .0
5.554	.0895					.0311	.17	1.68	2.42	1.22	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING Date:12-29-2020 Time: 3:12:40

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2232.146	3396.984	1.756	3398.740	59.00	16.02	3.98	3402.72	.00	2.39	2.29	2.500	.000	.00	1 .0
4.572	.0895					.0277	.13	1.76	2.22	1.22	.013	.00	.00	PIPE
2236.718	3397.393	1.836	3399.228	59.00	15.27	3.62	3402.85	.00	2.39	2.21	2.500	.000	.00	1 .0
3.744	.0895					.0248	.09	1.84	2.03	1.22	.013	.00	.00	PIPE
2240.461	3397.728	1.923	3399.651	59.00	14.56	3.29	3402.94	.00	2.39	2.11	2.500	.000	.00	1 .0
3.016	.0895					.0224	.07	1.92	1.85	1.22	.013	.00	.00	PIPE
2243.477	3397.997	2.020	3400.017	59.00	13.88	2.99	3403.01	.00	2.39	1.97	2.500	.000	.00	1 .0
2.336	.0895					.0203	.05	2.02	1.67	1.22	.013	.00	.00	PIPE
2245.813	3398.206	2.131	3400.337	59.00	13.24	2.72	3403.06	.00	2.39	1.77	2.500	.000	.00	1 .0
1.607	.0895					.0188	.03	2.13	1.47	1.22	.013	.00	.00	PIPE
2247.420	3398.350	2.264	3400.615	59.00	12.62	2.47	3403.09	.00	2.39	1.46	2.500	.000	.00	1 .0
1.000	.0398					.0180	.02	2.26	1.24	1.57	.013	.00	.00	PIPE
2248.420	3398.390	2.314	3400.704	59.00	12.44	2.40	3403.11	.00	2.39	1.31	2.500	.000	.00	1 .0
1.000	.0300					.0179	.02	2.31	1.15	1.74	.013	.00	.00	PIPE
2249.420	3398.420	2.386	3400.806	59.00	12.22	2.32	3403.12	.00	2.39	1.04	2.500	.000	.00	1 .0
JUNCT STR	.0300					.0137	.01	2.39	1.00		.013	.00	.00	PIPE
2250.420	3398.450	4.889	3403.339	40.00	8.15	1.03	3404.37	.00	2.13	.00	2.500	.000	.00	1 .0
1.000	.0300					.0095	.01	4.89	.00	1.34	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2251.420	3398.480	4.874	3403.354	40.00	8.15	1.03	3404.38	.00	2.13	.00	2.500	.000	.00	1 .0
1.000	.0300					.0095	.01	4.87	.00	1.34	.013	.00	.00	PIPE
2252.420	3398.510	4.853	3403.363	40.00	8.15	1.03	3404.39	.00	2.13	.00	2.500	.000	.00	1 .0
1.000	.0400					.0095	.01	4.85	.00	1.23	.013	.00	.00	PIPE
2253.420	3398.550	4.822	3403.373	40.00	8.15	1.03	3404.40	.00	2.13	.00	2.500	.000	.00	1 .0
1.772	.0876					.0095	.02	4.82	.00	.99	.013	.00	.00	PIPE
2255.192	3398.705	4.683	3403.389	40.00	8.15	1.03	3404.42	.00	2.13	.00	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
2255.192	3398.705	1.025	3399.731	40.00	21.10	6.91	3406.64	.00	2.13	2.46	2.500	.000	.00	1 .0
31.888	.0876					.0724	2.31	1.03	4.23	.99	.013	.00	.00	PIPE
2287.080	3401.500	1.057	3402.557	40.00	20.26	6.38	3408.93	.00	2.13	2.47	2.500	.000	.00	1 .0
1.000	.0400					.0687	.07	1.06	3.99	1.23	.013	.00	.00	PIPE
2288.080	3401.540	1.055	3402.595	40.00	20.31	6.41	3409.00	.00	2.13	2.47	2.500	.000	.00	1 .0
1.000	.0300					.0692	.07	1.06	4.01	1.34	.013	.00	.00	PIPE
2289.080	3401.570	1.052	3402.623	40.00	20.38	6.45	3409.07	.00	2.13	2.47	2.500	.000	.00	1 .0
JUNCT STR	.0300					.0773	.08	1.05	4.03		.013	.00	.00	PIPE
2290.080	3401.600	.968	3402.568	38.00	21.64	7.27	3409.84	.00	2.08	2.44	2.500	.000	.00	1 .0
1.000	.0298					.0856	.09	.97	4.49	1.30	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2291.080	3401.630	.965	3402.595	38.00	21.73	7.34	3409.93	.00	2.08	2.43	2.500	.000	.00	1 .0
1.000	.0300					.0866	.09	.97	4.52	1.30	.013	.00	.00	PIPE
2292.080	3401.660	.962	3402.622	38.00	21.83	7.40	3410.02	.00	2.08	2.43	2.500	.000	.00	1 .0
1.000	.0400					.0876	.09	.96	4.55	1.20	.013	.00	.00	PIPE
2293.081	3401.700	.959	3402.659	38.00	21.91	7.45	3410.11	.00	2.08	2.43	2.500	.000	.00	1 .0
56.390	.0938					.0828	4.67	.96	4.57	.94	.013	.00	.00	PIPE
2349.470	3406.987	.993	3407.979	38.00	20.93	6.80	3414.78	.00	2.08	2.45	2.500	.000	.00	1 .0
27.979	.0938					.0729	2.04	.99	4.28	.94	.013	.00	.00	PIPE
2377.449	3409.610	1.029	3410.638	38.00	19.96	6.19	3416.82	.00	2.08	2.46	2.500	.000	.00	1 .0
17.653	.0938					.0640	1.13	1.03	4.00	.94	.013	.00	.00	PIPE
2395.102	3411.265	1.066	3412.331	38.00	19.03	5.62	3417.95	.00	2.08	2.47	2.500	.000	.00	1 .0
12.582	.0938					.0562	.71	1.07	3.73	.94	.013	.00	.00	PIPE
2407.684	3412.444	1.106	3413.550	38.00	18.14	5.11	3418.66	.00	2.08	2.48	2.500	.000	.00	1 .0
9.558	.0938					.0494	.47	1.11	3.48	.94	.013	.00	.00	PIPE
2417.241	3413.340	1.147	3414.487	38.00	17.30	4.65	3419.13	.00	2.08	2.49	2.500	.000	.00	1 .0
7.546	.0938					.0435	.33	1.15	3.25	.94	.013	.00	.00	PIPE
2424.787	3414.048	1.190	3415.237	38.00	16.50	4.22	3419.46	.00	2.08	2.50	2.500	.000	.00	1 .0
6.108	.0938					.0382	.23	1.19	3.03	.94	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2430.896	3414.620	1.235	3415.855	38.00	15.73	3.84	3419.70	.00	2.08	2.50	2.500	.000	.00	1 .0
5.027	.0938					.0337	.17	1.23	2.82	.94	.013	.00	.00	PIPE
2435.923	3415.092	1.282	3416.374	38.00	15.00	3.49	3419.87	.00	2.08	2.50	2.500	.000	.00	1 .0
4.179	.0938					.0297	.12	1.28	2.62	.94	.013	.00	.00	PIPE
2440.102	3415.484	1.331	3416.815	38.00	14.30	3.17	3419.99	.00	2.08	2.49	2.500	.000	.00	1 .0
3.499	.0938					.0262	.09	1.33	2.44	.94	.013	.00	.00	PIPE
2443.600	3415.812	1.384	3417.195	38.00	13.63	2.89	3420.08	.00	2.08	2.49	2.500	.000	.00	1 .0
2.937	.0938					.0231	.07	1.38	2.27	.94	.013	.00	.00	PIPE
2446.538	3416.087	1.438	3417.525	38.00	13.00	2.62	3420.15	.00	2.08	2.47	2.500	.000	.00	1 .0
2.461	.0938					.0204	.05	1.44	2.11	.94	.013	.00	.00	PIPE
2448.999	3416.318	1.496	3417.814	38.00	12.39	2.38	3420.20	.00	2.08	2.45	2.500	.000	.00	1 .0
2.053	.0938					.0181	.04	1.50	1.95	.94	.013	.00	.00	PIPE
2451.052	3416.510	1.558	3418.068	38.00	11.82	2.17	3420.24	.00	2.08	2.42	2.500	.000	.00	1 .0
1.695	.0938					.0160	.03	1.56	1.81	.94	.013	.00	.00	PIPE
2452.747	3416.669	1.623	3418.292	38.00	11.27	1.97	3420.26	.00	2.08	2.39	2.500	.000	.00	1 .0
1.378	.0938					.0142	.02	1.62	1.67	.94	.013	.00	.00	PIPE
2454.125	3416.798	1.693	3418.491	38.00	10.74	1.79	3420.28	.00	2.08	2.34	2.500	.000	.00	1 .0
1.085	.0938					.0127	.01	1.69	1.54	.94	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
2455.210	3416.900	1.768	3418.667	38.00	10.24	1.63	3420.30	.00	2.08	2.28	2.500	.000	.00	1 .0
1.000	.0400					.0117	.01	1.77	1.41	1.20	.013	.00	.00	PIPE
2456.210	3416.940	1.798	3418.738	38.00	10.06	1.57	3420.31	.00	2.08	2.25	2.500	.000	.00	1 .0
1.000	.0300					.0113	.01	1.80	1.37	1.30	.013	.00	.00	PIPE
2457.210	3416.970	1.820	3418.790	38.00	9.93	1.53	3420.32	.00	2.08	2.23	2.500	.000	.00	1 .0
JUNCT STR	.0300					.0438	.04	1.82	1.33		.013	.00	.00	PIPE
2458.210	3417.000	.797	3417.797	25.00	18.54	5.34	3423.14	.00	1.70	2.33	2.500	.000	.00	1 .0
1.000	.0300					.0770	.08	.80	4.30	1.02	.013	.00	.00	PIPE
2459.210	3417.030	.795	3417.825	25.00	18.63	5.39	3423.21	.00	1.70	2.33	2.500	.000	.00	1 .0
1.000	.0300					.0780	.08	.79	4.32	1.02	.013	.00	.00	PIPE
2460.210	3417.060	.792	3417.852	25.00	18.72	5.44	3423.29	.00	1.70	2.33	2.500	.000	.00	1 .0
1.000	.0400					.0790	.08	.79	4.35	.95	.013	.00	.00	PIPE
2461.210	3417.100	.790	3417.890	25.00	18.79	5.48	3423.37	.00	1.70	2.32	2.500	.000	.00	1 .0
27.134	.0895					.0753	2.04	.79	4.38	.77	.013	.00	.00	PIPE
2488.344	3419.529	.812	3420.342	25.00	18.08	5.08	3425.42	.00	1.70	2.34	2.500	.000	.00	1 .0
19.077	.0895					.0669	1.28	.81	4.15	.77	.013	.00	.00	PIPE
2507.421	3421.237	.841	3422.078	25.00	17.24	4.61	3426.69	.00	1.70	2.36	2.500	.000	.00	1 .0
12.584	.0895					.0586	.74	.84	3.88	.77	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
2520.005	3422.364	.871	3423.235	25.00	16.44	4.19	3427.43	.00	1.70	2.38	2.500	.000	.00	1 .0
9.172	.0895					.0513	.47	.87	3.62	.77	.013	.00	.00	PIPE
2529.178	3423.185	.902	3424.087	25.00	15.67	3.81	3427.90	.00	1.70	2.40	2.500	.000	.00	1 .0
7.060	.0895					.0450	.32	.90	3.39	.77	.013	.00	.00	PIPE
2536.238	3423.817	.934	3424.751	25.00	14.94	3.47	3428.22	.00	1.70	2.42	2.500	.000	.00	1 .0
5.624	.0895					.0395	.22	.93	3.17	.77	.013	.00	.00	PIPE
2541.862	3424.321	.968	3425.289	25.00	14.25	3.15	3428.44	.00	1.70	2.44	2.500	.000	.00	1 .0
4.579	.0895					.0346	.16	.97	2.96	.77	.013	.00	.00	PIPE
2546.441	3424.731	1.003	3425.734	25.00	13.58	2.86	3428.60	.00	1.70	2.45	2.500	.000	.00	1 .0
3.785	.0895					.0304	.12	1.00	2.76	.77	.013	.00	.00	PIPE
2550.226	3425.070	1.039	3426.109	25.00	12.95	2.60	3428.71	.00	1.70	2.46	2.500	.000	.00	1 .0
3.161	.0895					.0267	.08	1.04	2.58	.77	.013	.00	.00	PIPE
2553.387	3425.353	1.078	3426.430	25.00	12.35	2.37	3428.80	.00	1.70	2.48	2.500	.000	.00	1 .0
2.655	.0895					.0234	.06	1.08	2.41	.77	.013	.00	.00	PIPE
2556.042	3425.590	1.117	3426.708	25.00	11.77	2.15	3428.86	.00	1.70	2.49	2.500	.000	.00	1 .0
2.235	.0895					.0206	.05	1.12	2.24	.77	.013	.00	.00	PIPE
2558.278	3425.791	1.159	3426.949	25.00	11.23	1.96	3428.91	.00	1.70	2.49	2.500	.000	.00	1 .0
1.881	.0895					.0181	.03	1.16	2.09	.77	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2560.158	3425.959	1.203	3427.161	25.00	10.70	1.78	3428.94	.00	1.70	2.50	2.500	.000	.00	1 .0
1.578	.0895					.0159	.03	1.20	1.95	.77	.013	.00	.00	PIPE
2561.736	3426.100	1.248	3427.348	25.00	10.21	1.62	3428.97	.00	1.70	2.50	2.500	.000	.00	1 .0
1.313	.0895					.0140	.02	1.25	1.82	.77	.013	.00	.00	PIPE
2563.049	3426.218	1.296	3427.514	25.00	9.73	1.47	3428.98	.00	1.70	2.50	2.500	.000	.00	1 .0
1.082	.0895					.0124	.01	1.30	1.69	.77	.013	.00	.00	PIPE
2564.131	3426.315	1.346	3427.661	25.00	9.28	1.34	3429.00	.00	1.70	2.49	2.500	.000	.00	1 .0
.873	.0895					.0109	.01	1.35	1.57	.77	.013	.00	.00	PIPE
2565.003	3426.393	1.399	3427.792	25.00	8.85	1.21	3429.01	.00	1.70	2.48	2.500	.000	.00	1 .0
.685	.0895					.0096	.01	1.40	1.46	.77	.013	.00	.00	PIPE
2565.688	3426.454	1.455	3427.909	25.00	8.43	1.10	3429.01	.00	1.70	2.47	2.500	.000	.00	1 .0
.511	.0895					.0085	.00	1.45	1.36	.77	.013	.00	.00	PIPE
2566.200	3426.500	1.514	3428.014	25.00	8.04	1.00	3429.02	.00	1.70	2.44	2.500	.000	.00	1 .0
1.780	.0225					.0076	.01	1.51	1.26	1.11	.013	.00	.00	PIPE
2567.980	3426.540	1.569	3428.109	25.00	7.71	.92	3429.03	.00	1.70	2.42	2.500	.000	.00	1 .0
.743	.0300					.0068	.01	1.57	1.17	1.02	.013	.00	.00	PIPE
2568.723	3426.562	1.632	3428.194	25.00	7.36	.84	3429.04	.00	1.70	2.38	2.500	.000	.00	1 .0
.257	.0300					.0061	.00	1.63	1.09	1.02	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
2568.980	3426.570	1.704	3428.274	25.00	7.02	.76	3429.04	.00	1.70	2.33	2.500	.000	.00	1 .0
JUNCT STR	.0297					.0029	.00	1.70	1.00		.013	.00	.00	PIPE
2569.990	3426.600	2.957	3429.557	2.00	.41	.00	3429.56	.00	.46	.00	2.500	.000	.00	1 .0
TRANS STR	.0301					.0001	.00	2.96	.00		.013	.00	.00	PIPE
2570.980	3426.630	2.925	3429.555	2.00	.64	.01	3429.56	.00	.49	.00	2.000	.000	.00	1 .0
1.000	.0300					.0001	.00	2.92	.00	.31	.013	.00	.00	PIPE
2571.980	3426.660	2.895	3429.555	2.00	.64	.01	3429.56	.00	.49	.00	2.000	.000	.00	1 .0
.220	.1820					.0001	.00	2.90	.00	.20	.013	.00	.00	PIPE
2572.200	3426.700	2.855	3429.555	2.00	.64	.01	3429.56	.00	.49	.00	2.000	.000	.00	1 .0
8.266	.1035					.0001	.00	2.85	.00	.23	.013	.00	.00	PIPE
2580.466	3427.556	2.000	3429.556	2.00	.64	.01	3429.56	.00	.49	.00	2.000	.000	.00	1 .0
1.776	.1035					.0001	.00	2.00	.00	.23	.013	.00	.00	PIPE
2582.242	3427.740	1.815	3429.554	2.00	.67	.01	3429.56	.00	.49	1.16	2.000	.000	.00	1 .0
1.034	.1035					.0001	.00	1.81	.07	.23	.013	.00	.00	PIPE
2583.276	3427.847	1.707	3429.554	2.00	.70	.01	3429.56	.00	.49	1.41	2.000	.000	.00	1 .0
.851	.1035					.0001	.00	1.71	.09	.23	.013	.00	.00	PIPE
2584.127	3427.935	1.618	3429.553	2.00	.73	.01	3429.56	.00	.49	1.57	2.000	.000	.00	1 .0
.744	.1035					.0001	.00	1.62	.10	.23	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2584.871	3428.012	1.540	3429.552	2.00	.77	.01	3429.56	.00	.49	1.68	2.000	.000	.00	1 .0
.668	.1035					.0001	.00	1.54	.11	.23	.013	.00	.00	PIPE
2585.539	3428.081	1.470	3429.551	2.00	.81	.01	3429.56	.00	.49	1.77	2.000	.000	.00	1 .0
.610	.1035					.0001	.00	1.47	.12	.23	.013	.00	.00	PIPE
2586.149	3428.144	1.406	3429.551	2.00	.85	.01	3429.56	.00	.49	1.83	2.000	.000	.00	1 .0
.563	.1035					.0001	.00	1.41	.13	.23	.013	.00	.00	PIPE
2586.711	3428.203	1.347	3429.550	2.00	.89	.01	3429.56	.00	.49	1.88	2.000	.000	.00	1 .0
.523	.1035					.0001	.00	1.35	.14	.23	.013	.00	.00	PIPE
2587.234	3428.257	1.292	3429.548	2.00	.93	.01	3429.56	.00	.49	1.91	2.000	.000	.00	1 .0
.488	.1035					.0001	.00	1.29	.16	.23	.013	.00	.00	PIPE
2587.722	3428.307	1.240	3429.547	2.00	.98	.01	3429.56	.00	.49	1.94	2.000	.000	.00	1 .0
.458	.1035					.0002	.00	1.24	.17	.23	.013	.00	.00	PIPE
2588.180	3428.355	1.191	3429.546	2.00	1.03	.02	3429.56	.00	.49	1.96	2.000	.000	.00	1 .0
.429	.1035					.0002	.00	1.19	.18	.23	.013	.00	.00	PIPE
2588.609	3428.399	1.145	3429.544	2.00	1.08	.02	3429.56	.00	.49	1.98	2.000	.000	.00	1 .0
.405	.1035					.0002	.00	1.15	.20	.23	.013	.00	.00	PIPE
2589.014	3428.441	1.101	3429.542	2.00	1.13	.02	3429.56	.00	.49	1.99	2.000	.000	.00	1 .0
.382	.1035					.0002	.00	1.10	.21	.23	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2589.395	3428.481	1.060	3429.541	2.00	1.18	.02	3429.56	.00	.49	2.00	2.000	.000	.00	1 .0
.361	.1035					.0003	.00	1.06	.23	.23	.013	.00	.00	PIPE
2589.756	3428.518	1.021	3429.539	2.00	1.24	.02	3429.56	.00	.49	2.00	2.000	.000	.00	1 .0
.340	.1035					.0003	.00	1.02	.24	.23	.013	.00	.00	PIPE
2590.096	3428.553	.983	3429.536	2.00	1.30	.03	3429.56	.00	.49	2.00	2.000	.000	.00	1 .0
.322	.1035					.0004	.00	.98	.26	.23	.013	.00	.00	PIPE
2590.417	3428.586	.947	3429.534	2.00	1.36	.03	3429.56	.00	.49	2.00	2.000	.000	.00	1 .0
.303	.1035					.0004	.00	.95	.28	.23	.013	.00	.00	PIPE
2590.721	3428.618	.913	3429.531	2.00	1.43	.03	3429.56	.00	.49	1.99	2.000	.000	.00	1 .0
.286	.1035					.0005	.00	.91	.30	.23	.013	.00	.00	PIPE
2591.007	3428.647	.880	3429.528	2.00	1.50	.03	3429.56	.00	.49	1.99	2.000	.000	.00	1 .0
.065	.1035					.0005	.00	.88	.32	.23	.013	.00	.00	PIPE
2591.073	3428.654	.849	3429.503	2.00	1.57	.04	3429.54	.00	.49	1.98	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
2591.073	3428.654	.244	3428.899	2.00	9.13	1.29	3430.19	.00	.49	1.31	2.000	.000	.00	1 .0
1.967	.1035					.0726	.14	.24	3.93	.23	.013	.00	.00	PIPE
2593.040	3428.858	.252	3429.111	2.00	8.70	1.17	3430.29	.00	.49	1.33	2.000	.000	.00	1 .0
2.448	.1035					.0633	.16	.25	3.68	.23	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
2595.488	3429.112	.261	3429.373	2.00	8.29	1.07	3430.44	.00	.49	1.35	2.000	.000	.00	1 .0
1.832	.1035					.0553	.10	.26	3.45	.23	.013	.00	.00	PIPE
2597.320	3429.302	.270	3429.571	2.00	7.91	.97	3430.54	.00	.49	1.37	2.000	.000	.00	1 .0
1.434	.1035					.0483	.07	.27	3.24	.23	.013	.00	.00	PIPE
2598.754	3429.450	.279	3429.729	2.00	7.54	.88	3430.61	.00	.49	1.38	2.000	.000	.00	1 .0
1.157	.1035					.0421	.05	.28	3.04	.23	.013	.00	.00	PIPE
2599.911	3429.570	.288	3429.857	2.00	7.19	.80	3430.66	.00	.49	1.40	2.000	.000	.00	1 .0
.949	.1035					.0368	.03	.29	2.85	.23	.013	.00	.00	PIPE
2600.860	3429.668	.297	3429.965	2.00	6.85	.73	3430.69	.00	.49	1.42	2.000	.000	.00	1 .0
.789	.1035					.0321	.03	.30	2.67	.23	.013	.00	.00	PIPE
2601.648	3429.750	.307	3430.057	2.00	6.54	.66	3430.72	.00	.49	1.44	2.000	.000	.00	1 .0
.662	.1035					.0280	.02	.31	2.50	.23	.013	.00	.00	PIPE
2602.310	3429.818	.318	3430.136	2.00	6.23	.60	3430.74	.00	.49	1.46	2.000	.000	.00	1 .0
.559	.1035					.0245	.01	.32	2.34	.23	.013	.00	.00	PIPE
2602.870	3429.876	.328	3430.204	2.00	5.94	.55	3430.75	.00	.49	1.48	2.000	.000	.00	1 .0
.473	.1035					.0214	.01	.33	2.20	.23	.013	.00	.00	PIPE
2603.342	3429.925	.339	3430.264	2.00	5.66	.50	3430.76	.00	.49	1.50	2.000	.000	.00	1 .0
.399	.1035					.0187	.01	.34	2.06	.23	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2603.742	3429.966	.351	3430.317	2.00	5.40	.45	3430.77	.00	.49	1.52	2.000	.000	.00	1 .0
.337	.1035					.0163	.01	.35	1.93	.23	.013	.00	.00	PIPE
2604.079	3430.001	.362	3430.363	2.00	5.15	.41	3430.78	.00	.49	1.54	2.000	.000	.00	1 .0
.281	.1035					.0142	.00	.36	1.81	.23	.013	.00	.00	PIPE
2604.360	3430.030	.375	3430.405	2.00	4.91	.37	3430.78	.00	.49	1.56	2.000	.000	.00	1 .0
.048	.0642					.0132	.00	.37	1.69	.26	.013	.00	.00	PIPE
2604.408	3430.033	.376	3430.409	2.00	4.89	.37	3430.78	.00	.49	1.56	2.000	.000	.00	1 .0
.405	.0642					.0123	.00	.38	1.68	.26	.013	.00	.00	PIPE
2604.813	3430.059	.389	3430.448	2.00	4.66	.34	3430.78	.00	.49	1.58	2.000	.000	.00	1 .0
.327	.0642					.0107	.00	.39	1.58	.26	.013	.00	.00	PIPE
2605.140	3430.080	.402	3430.482	2.00	4.44	.31	3430.79	.00	.49	1.60	2.000	.000	.00	1 .0
.208	.0498					.0096	.00	.40	1.48	.27	.013	.00	.00	PIPE
2605.348	3430.090	.409	3430.500	2.00	4.33	.29	3430.79	.00	.49	1.61	2.000	.000	.00	1 .0
.305	.0498					.0087	.00	.41	1.42	.27	.013	.00	.00	PIPE
2605.653	3430.105	.423	3430.529	2.00	4.13	.26	3430.79	.00	.49	1.63	2.000	.000	.00	1 .0
.228	.0498					.0076	.00	.42	1.33	.27	.013	.00	.00	PIPE
2605.881	3430.117	.438	3430.554	2.00	3.93	.24	3430.79	.00	.49	1.65	2.000	.000	.00	1 .0
.161	.0498					.0066	.00	.44	1.25	.27	.013	.00	.00	PIPE

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SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
2606.042	3430.125	.452	3430.577	2.00	3.75	.22	3430.80	.00	.49	1.67	2.000	.000	.00	1 .0
.098	.0498					.0058	.00	.45	1.17	.27	.013	.00	.00	PIPE
2606.140	3430.130	.468	3430.598	2.00	3.58	.20	3430.80	.00	.49	1.69	2.000	.000	.00	1 .0
JUNCT STR	.0300					.0174	.02	.47	1.10		.013	.00	.00	PIPE
2607.140	3430.160	.221	3430.381	1.00	5.28	.43	3430.81	.00	.34	1.25	2.000	.000	.00	1 .0
TRANS STR	.0701					.0274	.03	.22	2.39		.013	.00	.00	PIPE
2608.140	3430.230	.229	3430.459	1.00	5.02	.39	3430.85	.00	.34	1.27	2.000	.000	.00	1 .0
1.000	.0500					.0239	.02	.23	2.24	.19	.013	.00	.00	PIPE
2609.140	3430.280	.236	3430.516	1.00	4.80	.36	3430.87	.00	.34	1.29	2.000	.000	.00	1 .0
1.220	.0410					.0211	.03	.24	2.11	.20	.013	.00	.00	PIPE
2610.360	3430.330	.243	3430.573	1.00	4.59	.33	3430.90	.00	.34	1.31	2.000	.000	.00	1 .0
14.859	.0199					.0191	.28	.24	1.98	.24	.013	.00	.00	PIPE
2625.219	3430.625	.247	3430.872	1.00	4.48	.31	3431.18	.00	.34	1.32	2.000	.000	.00	1 .0
7.811	.0199					.0173	.14	.25	1.92	.24	.013	.00	.00	PIPE
2633.031	3430.780	.255	3431.036	1.00	4.28	.28	3431.32	.00	.34	1.34	2.000	.000	.00	1 .0
3.619	.0199					.0151	.05	.26	1.80	.24	.013	.00	.00	PIPE
2636.649	3430.852	.264	3431.116	1.00	4.08	.26	3431.37	.00	.34	1.35	2.000	.000	.00	1 .0
2.188	.0199					.0132	.03	.26	1.69	.24	.013	.00	.00	PIPE

FILE: FR_Main_U.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 17

Program Package Serial Number: 7271

WATER SURFACE PROFILE LISTING Date:12-29-2020 Time: 3:12:40

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE EAST (KETTLE RIDGE DRIVE TO DESERT FOOTHILLS DRIVE)
ATKINS - 100 YEAR ULTIMATE CONDITION

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope				SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch	
2638.838	3430.896	.273	3431.168	1.00	3.89	.23	3431.40	.00	.34	1.37	2.000	.000	.00	1 .0
1.472	.0199				.0115	.02	.27	1.58	.24	.013	.00	.00	PIPE	
2640.310	3430.925	.282	3431.207	1.00	3.71	.21	3431.42	.00	.34	1.39	2.000	.000	.00	1 .0
1.016	.0199				.0100	.01	.28	1.48	.24	.013	.00	.00	PIPE	
2641.325	3430.945	.291	3431.236	1.00	3.53	.19	3431.43	.00	.34	1.41	2.000	.000	.00	1 .0
.705	.0199				.0088	.01	.29	1.39	.24	.013	.00	.00	PIPE	
2642.030	3430.959	.301	3431.260	1.00	3.37	.18	3431.44	.00	.34	1.43	2.000	.000	.00	1 .0
.493	.0199				.0076	.00	.30	1.30	.24	.013	.00	.00	PIPE	
2642.523	3430.969	.311	3431.280	1.00	3.21	.16	3431.44	.00	.34	1.45	2.000	.000	.00	1 .0
.316	.0199				.0067	.00	.31	1.22	.24	.013	.00	.00	PIPE	
2642.839	3430.975	.321	3431.297	1.00	3.06	.15	3431.44	.00	.34	1.47	2.000	.000	.00	1 .0
.174	.0199				.0058	.00	.32	1.14	.24	.013	.00	.00	PIPE	
2643.013	3430.979	.332	3431.311	1.00	2.92	.13	3431.44	.00	.34	1.49	2.000	.000	.00	1 .0
.057	.0199				.0051	.00	.33	1.07	.24	.013	.00	.00	PIPE	
2643.070	3430.980	.344	3431.324	1.00	2.77	.12	3431.44	.00	.34	1.51	2.000	.000	.00	1 .0

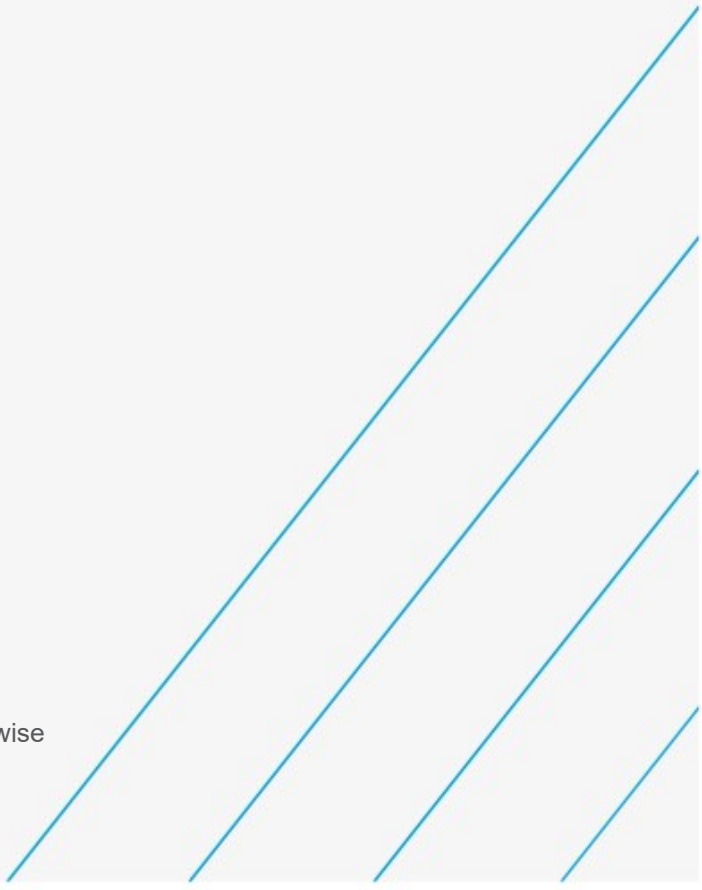
Appendix C. Revised Plans

Appendix D. CD-ROM

Atkins

2270 Corporate Circle
Suite 200
Henderson, NV 89074-7755

Tel: +1 702 263 7275/+1 800 483 6244
Fax: +1 702 263 7200
Direct: +1 702 551 0330
molly.anderson@atkinsglobal.com



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SUMMERLIN VILLAGE 22
IMPROVEMENT PLANS FOR:

FLIGHT RANGE AVENUE (STREET E)

DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)
FUTURE SID PROJECT

SUMMERLIN®

UTILITY NOTE

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.

CALL BEFORE YOU DIG: 1-800-642-2444

THIS PROPERTY MAY HAVE STATIC WATER PRESSURE IN EXCESS OF 80 PSI. THE UNIFORM PLUMBING CODE REQUIRES THAT INDIVIDUAL, ON-SITE (PRIVATE) PRESSURE REDUCING VALVES BE INSTALLED WHENEVER THE PRESSURE EXCEEDS 80 PSI. PRV'S ARE THE DEVELOPER'S RESPONSIBILITY AND WILL NOTE BE INSPECTED OR INCLUDED IN THE ACCEPTANCE OF THE LAS VEGAS VALLEY WATER DISTRICT FACILITIES.

NOTICE OF INTENT NOTE

NOTE: ALL LAND SURFACE AREA DISTURBANCES OVER 1 ACRE REQUIRE A STORMWATER DISCHARGE PERMIT ISSUED BY THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP). A PHASED CONSTRUCTION UNIT IN A CONTIGUOUS SUBDIVISION IS CONSIDERED UNDER CONSTRUCTION UNTIL ALL STRIPPED SURFACE AREAS HAVE BEEN COVERED BY PAVING, BUILDING CONSTRUCTION OR PLANTING. A STORMWATER DISCHARGE PERMIT APPLICATION AND ASSOCIATED INFORMATION MAY BE DOWNLOADED FROM THE WEB SITE: HTTP://WWW.STATE.NV.US/SWPC/STORM01.HTM. PROJECTS THAT DISTURB MORE THAN ONE ACRE OF LAND MUST SUBMIT TO NDEP A "NOTICE OF INTENT" FOR INCLUSION UNDER STORMWATER PERMIT NO. NVR100000 ALONG WITH APPROPRIATE FILLING FEE.

NPDES PERMIT NOTE

THE ENGINEER SHOULD CONTACT THE NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP) TO OBTAIN A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT PRIOR TO CONSTRUCTION. ALL CONSTRUCTION PROJECTS ONE ACRE OR LARGER MUST APPLY FOR THE PERMIT THROUGH NDEP. ALL QUESTIONS REGARDING THE NPDES PERMIT REQUIREMENTS SHOULD BE DIRECTED TO THE NDEP AT (775) 687-9429.

DISCLAIMER NOTE

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 IN THEIR PROPER LOCATION.

FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE X (UNSHADED) AS DEPICTED ON FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C2150E, DATED 9/27/2002. A ZONE X (UNSHADED) IS DESCRIBED AS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.

PROPOSED RIGHT-OF-WAY ACREAGE
2.09 AC.

PROPOSED DISTURBED AREA ACREAGE
5.26 AC.

GEOTECHNICAL ENGINEER
PREPARED BY: NOVA GEOTECHNICAL & INSPECTION SERVICES
4480 W. HACIENDA AVENUE, SUITE 104, LAS VEGAS, NV 89118
PHONE: 702-873-3478
PROJECT NO.: G-18-176
DATED: DECEMBER 3, 2018 AND SUBSEQUENT UPDATE LETTERS
DATED ON DECEMBER 30, 2019 AND DECEMBER 2, 2020

OWNER /DEVELOPER

OWNER

CONTACT: KEVIN ORROCK
HOWARD HUGHES COMPANY LLC, A DELAWARE LIMITED LIABILITY COMPANY
10845 GRIFFITH PEAK DRIVE, SUITE 160
LAS VEGAS, NEVADA 89135

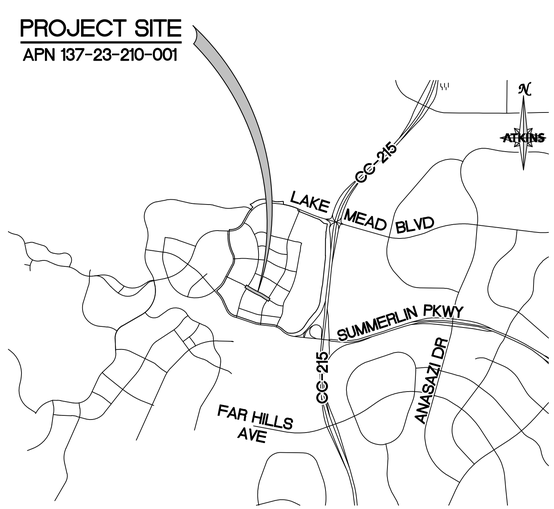
KEVIN T. ORROCK, VICE PRESIDENT — DATE

ENGINEER / CONSULTANT

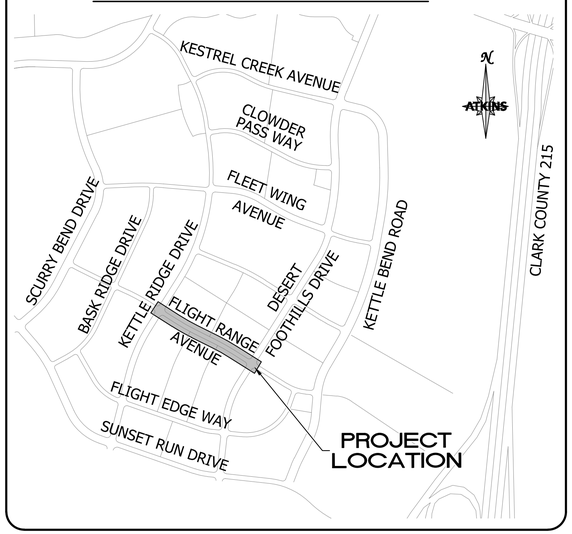
CIVIL

CONTACT: DAVID WILSON P.E.
ATKINS
2270 CORPORATE CIRCLE SUITE 200
HENDERSON, NEVADA 89074
(702) 263-7275

LOCATION MAP



VICINITY MAP



APPROVALS

ENGINEERING APPROVAL STAMP

STEPHEN FORD, P.E. #012175 — DATE
ACTING CITY ENGINEER

DEPARTMENT OF PLANNING

CITY OF LAS VEGAS PLANNING DEVELOPMENT — DATE

NOTE:
THIS PLAN CONFORMS TO THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

LAS VEGAS FIRE AND RESCUE — DATE

CENTRAL TELEPHONE COMPANY d/b/a CENTURYLINK — DATE

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING & ENGINEERING SERVICES
PROJECT NO. 0000 FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW _____ GPM AT 20 PSI RESIDUAL
SHEETS: TBD AT RESUBMITTAL

NV ENERGY — DATE

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

SOUTHWEST GAS CORPORATION — DATE

COX COMMUNICATIONS OF LAS VEGAS, INC — DATE

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.

BENCHMARK

PROJECT DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

LEGAL DESCRIPTION

BEING A PORTION OF LOT 1 AS SHOWN ON THE MAP THEREOF IN BOOK 161 OF PLATS, PAGE 68, OFFICIAL RECORDS, CITY OF LAS VEGAS CLARK COUNTY, NEVADA

FAST Call before you UnderGround 1-702-432-5300 (811) — Call before you Dig — Call 811 or 1-800-642-2444 — AVOID OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DIG OVERHEAD 1-702-227-2929

PROFESSIONAL ENGINEER-STATE OF NEVADA — NICOLAS A. BARCOS — EXP. 12-31-22 — CIVIL — No. 25575 — 2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN®

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

COVER SHEET

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE
DRAWING NO. 1 /24
DATE FEBRUARY, 2021
XXXVXXXXX
LXX-XXXXX
JOB NO. 100068107

C:\pw_work\atkinsn01\westlinks_her5612\dms56082\68107-01-TITL-C1.dwg LAYOUT: C-1 Feb 25, 2021 - 2:12PM

@	AT
#	NUMBER
AB	ABANDONED
AC	ASPHALTIC CONCRETE
ACP	ASBESTOS CEMENT PIPE
AGG	AGGREGATE
AIP	ABANDON IN PLACE
ALT	ALTERNATE
AP	ANGLE POINT
APPROX	APPROXIMATE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS INTERNATIONAL
AV/AR	AIR VACUUM AIR RELIEF VALVE
BC	BACK OF CURB
BCR	BACK OF CURB RETURN
BLK	BLOCK
BLVD	BOULEVARD
BM	BENCHMARK
BO	BLOW OFF
BP	BOTTOM OF PIPE
BSW	BACK OF SIDEWALK
BVC	BEGIN VERTICAL CURVE
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION
BVCS	BEGINNING OF VERTICAL CURVE STATION
BW	BOTTOM WIDTH
C&G	CURB AND GUTTER
C–C	CENTER TO CENTER
CATV	CABLE TELEVISION
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWING
CCRFCD	CLARK COUNTY REGIONAL FLOOD CONTROL DISTRICT
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT
CF	CUBIC FOOT
CIP	CAST IRON PIPE OR CAST IN PLACE
CL	CENTERLINE
CLR	CLEAR
CLV	CITY OF LAS VEGAS
CM	CONSTRUCTION MANAGER
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNDT	CONDUIT
CNLV	CITY OF NORTH LAS VEGAS
CO	CLEANOUT
COH	CITY OF HENDERSON
COL	COLUMN
CON'T	CONTINUATION
CONC	CONCRETE
CONST	CONSTRUCT OR CONSTRUCTION
COR	CORNER
COS	COMMUNITY OPEN SPACE
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
CU	CUBIC
CULV	CULVERT
CY	CUBIC YARD
D	DEPTH
DCSWCS	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS
DET, DTL	DETAIL
DEPT	DEPARTMENT
DG	DESIGN GRADE
DI	DROP INLET
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
DOC	DOCUMENT
DW	DRIVEWAY
DWG	DRAWING
E	EAST
EA	EACH
EB	EASTBOUND
EC	END OF CURVE
ECR	END CURB RETURN
EF	EACH FACE
EG	EXISTING GROUND
ELEC	ELECTRICAL
ELEV	ELEVATION
EMBK	EMBANKMENT
EOP	EDGE OF PAVEMENT
EP	EDGE OF PAVEMENT ALIGNMENT END
EQ	EQUAL
ESMT	EASEMENT
EVC	END VERTICAL CURVE
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EX, EXST	EXISTING
EXP, JT	EXPANSION JOINT
FA	FIRE ALARM
FC	FACE OF CURB
FF	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE
FO	FIBER OPTIC
FT	FOOT OR FEET
G	GAS LINE
GALV	GALVANIZED
GB	GRADE BREAK
GL	GRATE LENGTH
GM	GAS METER
GUT	GUTTER
GV	GATE VALVE
H	HEIGHT
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HDWL	HEADWALL
HE	HORIZONTAL ELLIPTICAL
HGL	HYDRAULIC GRADE LINE
HOA	HOMEOWNER'S ASSOCIATION
HOR	HORIZONTAL
HP	HIGH POINT
ID	INSIDE DIAMETER
IN	INCH(ES)
INT	INTERSECTION
INV	INVERT
IQAC	INTERAGENCY QUALITY ASSURANCE COMMITTEE
IRR	IRRIGATION
ISL	ISLAND
JB	JUNCTION BOX
JCT	JUNCTION
JT	JOINT
K	VERTICAL CURVE K VALUE
L	LENGTH
LB	POUND(S)
LF	LINEAR FEET
LIN	LINEAR
LIN #	CCWRD MANHOLE NUMBER
LOC	LENGTH OF CURVE
LOL	LAYOUT LINE
LP	LOW POINT
LS	LANDSCAPE
LT	LEFT
LVC	LENGTH OF VERTICAL CURVE
LVVWD	LAS VEGAS VALLEY WATER DISTRICT
MAS	MASONRY
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MON	MONOLITHIC, MONUMENT
MTL	MATERIAL
ME	MATCH EXISTING
MUE	MUNICIPAL UTILITY EASEMENT
N	NORTH
NAP	NOT A PART
NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
NF	NEAR FACE
NG	NUMBER OF GRATES, NATURAL GRADE
NIC	NOT IN CONTRACT
No.	NUMBER
NTS	NOT TO SCALE
NVE	NV ENERGY
OC	ON CENTER
OD	OUTSIDE DIAMETER
OG	OPEN GRADE
OH	OVERHEAD
OHP	OVERHEAD POWER
OS	OFFSET
P	POWER
PB	PULL BOX
PBS	PLANTMIX BITUMINOUS SURFACE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVATURE
PE	POLYETHYLENE
PG	PROPOSED GRADE
PGL	PROFILE GRADE LINE
PH	POT HOLE
PI	POINT OF INTERSECTION
PIP	PROTECT IN PLACE
PL	PROPERTY LINE
PLCS	PLACES
PMF	PAVEMENT MARKING FILM
POC	POINT OF CONNECTION
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PT	POINT, POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
QTY	QUANTITY
(R)	RADIAL
R/W,ROW	RIGHT OF WAY
R	RADIUS
RC	REINFORCED CONCRETE
RCB	REINFORCED CONCRETE BOX
RCC	ROLLER COMPACTED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REINF	REINFORCED OR REINFORCEMENT
RELOC	RELOCATE
REV	REVISION
RG	ROUGH GRADE
RP	RADIUS POINT
RPM	RAISED PAVEMENT MARKER
RR	RAILROAD
RT	RIGHT
SCHED	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FOOT/SQUARE FEET
SHLD	SHOULDER
SHT	SHEET
SHP	STEEL HIGH PRESSURE PIPE
SMFO	SINGLE MODE FIBER OPTIC
SNWA	SOUTHERN NEVADA WATER AUTHORITY
SQ	SQUARE
SS	SANITARY SEWER OR SIDE SLOPE
SSD	SUMMERLIN STANDARD DRAWING
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STLT	STREETLIGHT
SDHW	STORM DRAIN HEADWALL
STRUCT	STRUCTURAL OR STRUCTURE
SUM #	CCWRD MANHOLE NUMBER
SURV	SURVEY
SVZ	SIGHT VISIBILITY ZONE
SW	SIDEWALK
SY	SQUARE YARD
T	TELEPHONE LINE
TAN	TANGENT
TB	TOP OF BOX
TBA	TO BE ADJUSTED
TBC	TOP OF BACK OF CURB
TBR	TO BE REMOVED
TC	TOP OF CURB
TCD	TRAFFIC CONTROL DEVICE
TDS	TECHNICAL DRAINAGE STUDY
TEL	TELEPHONE
TEMP	TEMPORARY
TF	TOP OF FOOTING
THK	THICK
THR	THRUST
THW	TOP OF HEADWALL
TOF	TOP OF FACE
TOP	TOP OF BANK
TW/TOW	TOP OF WALL
TP	TOP OF PIPE
TRANS	TRANSITION
TS	TRAFFIC SIGNAL
TSI	TRAFFIC SIGNAL INTERCONNECT
TW	TOP OF WALL
TYP	TYPICAL
UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS
UG	UNDERGROUND
UGP	UNDERGROUND POWER
UIE	UPPER INVERT ELEVATION
UNO	UNLESS NOTED OTHERWISE
UPRR	UNION PACIFIC RAILROAD
USD	UNIFORM STANDARD DRAWING
UTACS	ULTRA THIN ASPHALT CONCRETE SURFACE
USTCDE	UTILITY, STREETLIGHT, TRAFFIC CONTROL DEVICE EASEMENT
V	VOLT
VAR	VARIABLE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VG	VALLEY GUTTER
W	WEST, WATER
W/	WITH
WB	WEST BOUND
WL	WATER LINE
WM	WATER METER
W/O	WITHOUT
WPJ	WEAKENED PLANE JOINT
WV	WATER VALVE
WW	WING WALL
YD	YARD(S)

	EXISTING	PROPOSED
DAYLIGHT LINE		
FLOWLINE		
CENTERLINE		
PARCEL LINE		
RIGHT OF WAY		
PAVEMENT STRIPING		
OVERHEAD POWER	—OHP—	—OHP—
UNDERGROUND POWER	—UGP—	—UGP—
SANITARY SEWER	—S—	15" SS
WATER		24"W (3550)
STORM DRAIN		
GAS	—G—	—G—
CABLE T.V.	—CATV—	—CATV—
TELEPHONE	—T—	—T—
STREETLIGHT CONDUIT	—STLT—	STLT
STOP BAR		
CONCRETE ENCASEMENT		
FENCE		
BLOCK WALL		
RETAINING WALL		
SAWCUT PAVEMENT		
CONTOUR	(3000)	3005
SPOT ELEVATION	3011.6	3011.67
CURB AND GUTTER		
EDGE OF PAVEMENT		
EASEMENT		
MATCHLINE		
SIGN		
DOUBLE POST SIGN		
STORM DRAIN MANHOLE	SD	
STORM DRAIN STRUCTURE		
DROP INLET		
BEEHIVE INLET		OR
SEWER MANHOLE	S	S
FIRE HYDRANT		
CAP AND BLOWOFF		
GATE VALVE		
REDUCER		
STREETLIGHT	OR	
PULLBOX		
SIGNAL POLE		
ELEVATION	(0000.0) EG	0000.00 FG
WATER PRESSURE ZONE BOUNDARY		
WATER PRESSURE ZONE		3550
		FUTURE
HARDSCAPE		

NOTE TO CONTRACTOR

- QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE INTENDED TO ILLUSTRATE SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXACT QUANTITIES INVOLVED.

ROADWAY ALIGNMENT DESIGNATIONS

"FRA" = FLIGHT RANGE AVENUE
"DFD" = DESERT FOOTHILLS DRIVE
"KRD" = KETTLE RIDGE DRIVE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368
(REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 NEVADA ONE NATIONAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. DIAL DIGRITE. Call 811 OR 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. IT'S DIGRITE. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS 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.

PROFESSIONAL ENGINEER-STATE OF NEVADA NICOLAS A BARROS EXP. 12-31-22 CIVIL No. 25573 2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

LEGEND AND ABBREVIATIONS

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE

XXXVXXXX
LXX–XXXXX
DATE: FEBRUARY, 2021
DRAWING NO. 2 /24
JOB NO. 100068107

C:\pw_work\atkinson01\westlkins_herr5612\dms56082\68107-02-LGND-02.dwg LAYOUT: C-2 Feb 25, 2021 – 2:12PM

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF–SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT–OF–WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300´ IN EXTRUDED–TYPE CURB.
8. AC PAVEMENT TO BE ONE–HALF INCH (½´) ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY THE (NOVA, G–18–176, 12/03/18) APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT–OF–WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. FINAL LOCATION MAPS MUST BE SEALED AND CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINTIES OF ± 0.09 METERS (± 0.3 FEET) HORIZONTALLY AND VERTICALLY. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).
22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

REVISED 06/04/2018

CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF–SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

	HORIZONTAL	VERTICAL	COMPACTION
A. PAVEMENT AREA SUBGRADE	0.1'+	+0.0' TO –0.1'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'+	+0.1' TO –0.1'	SEE SOILS REPORT

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT–OF–WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY ENGINEER. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 04/15/10

CONSTRUCTION CONCURRENCY NOTE

THE FOLLOWING SEPARATE VILLAGE 22 ROADWAY IMPROVEMENT PLANS ARE ASSUMED TO BE CONSTRUCTED CONCURRENTLY AND ARE SHOWN AS FUTURE (BY OTHERS):

1. KETTLE RIDGE DRIVE ((ONE–WAY) FLEET WING AVENUE TO SUNSET RUN DRIVE)
2. DESERT FOOTHILLS DRIVE ((ONE–WAY) SUNSET RUN DRIVE TO FLEET WING AVENUE)

DEVIATIONS FROM STANDARDS

NONE.

CITY OF LAS VEGAS FIRE DEPARTMENT NOTES

1. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LAS VEGAS FIRE AND RESCUE ADOPTED FIRE CODE ORDINANCE #6325 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATION SPECIFICATIONS.
2. ONLY FIRE HYDRANTS THAT ARE ON THE LAS VEGAS VALLEY WATER DISTRICT'S APPROVED PRODUCTS LIST ARE ALLOWED TO BE INSTALLED.
3. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON–SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK. IFC § 105.7.12
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. IFC § 3310, § 3312
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC § 507.5.7.3
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC § 106.3
7. ALL ON–SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC § 507.2.1, NFPA 24
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC § 507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC § 507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC § 507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC § C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC § C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL–DE–SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL–DE–SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC § C102.12
15. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE–TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § 102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC § C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD–END STREET SHALL NOT EXCEED 200 FT. IFC § C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD–INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN. IFC § C104
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL–WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC § 503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC § 503.2.7; 503.2.8
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC § 503.2.4
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC § 503.2.1
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40 FT FLOW LINE TO FLOW LINE WITH PARALLEL PARKING PERMITTED ON BOTH SIDES. NOT LESS THAN 32 FT WIDE, FLOW LINE TO FLOW LINE, WHERE PARKING IS PERMITTED ONLY ON ONE SIDE OF THE FIRE APPARATUS ACCESS ROAD. NOT LESS THAN 24FT WIDE, FLOW LINE TO FLOW LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC § 503.2.1.1
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. THIS DISTANCE COULD BE INCREASED TO 250 FT IF THE BUILDING IS SPRINKLERED. IFC § 503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 100 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD–ENDS OR WITH A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. COMMERCIAL AND INDUSTRIAL DEVELOPMENTS WHERE BUILDINGS EXCEED 2 STORIES OR 30 FEET IN HEIGHT, OR EXCEEDING 62,000 SQUARE FEET IN AREA. IFC § 503.1.2
26. ALL DEAD–END FIRE APPARATUS ROADS AND/OR FIRE LANES, PUBLIC OR PRIVATE, IN EXCESS OF 150 FT IN LENGTH SHALL BE PROVIDED WITH AN APPROVED TURN AROUND HAVING A MINIMUM DIAMETER OF 81 FT. IFC § 503.2.5
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC § 503.3
28. ELECTRONICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC § 503.6 AND IFC APPENDIX M.

REVISED MARCH 1, 2016

CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
2. THE STREET SIGN CONTRACTOR SHALL OBTAIN SCURRY BEND DRIVEAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.
3. BEFORE ANY WORK IS STARTED IN THE RIGHT–OF–WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER FIRST GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.
4. WHEN A DESIGNATED "SUGGESTED ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.
5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL UTILIZE TYPE XI REYNORELFECTIVE SHEETING IN ACCORDANCE WITH CCAUSS 627 AND 716 AND SHALL HAVE AN ANTI–GRAFFITI PROTECTIVE OVERLAY FILM THAT IS A MATCHING COMPONENT TO, AND OF THE SAME MANUFACTURER AS THE RETROREFLECTIVE SHEETING TO WHICH IT IS APPLIED. SCURRY BEND DRIVEAME SIGNS SHALL CONFORM TO THE CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.
7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.
8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF–SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.
9. STREET SIGNS AND STOP SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF SCURRY BEND DRIVEAME SIGNS.
10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.
11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING REGIONAL TRANSPORTATION COMMISSION OF SOUTHERN NEVADA (RTC). IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE ON THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.
13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828–3442) WHO WILL PROVIDE OFFICERS PROPERLY TRAINED IN TRAFFIC CONTROL. FEES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.
14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.
15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

REVISED JUNE 4, 2018

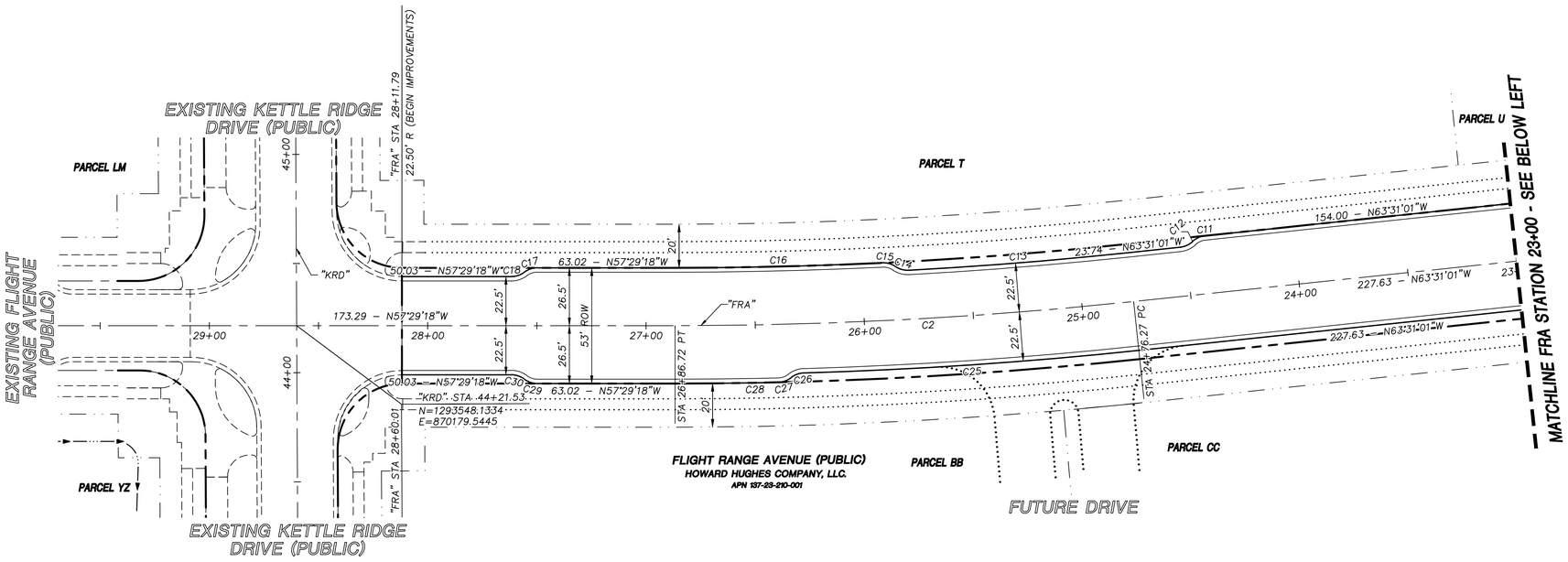
CITY OF LAS VEGAS SEWER NOTES

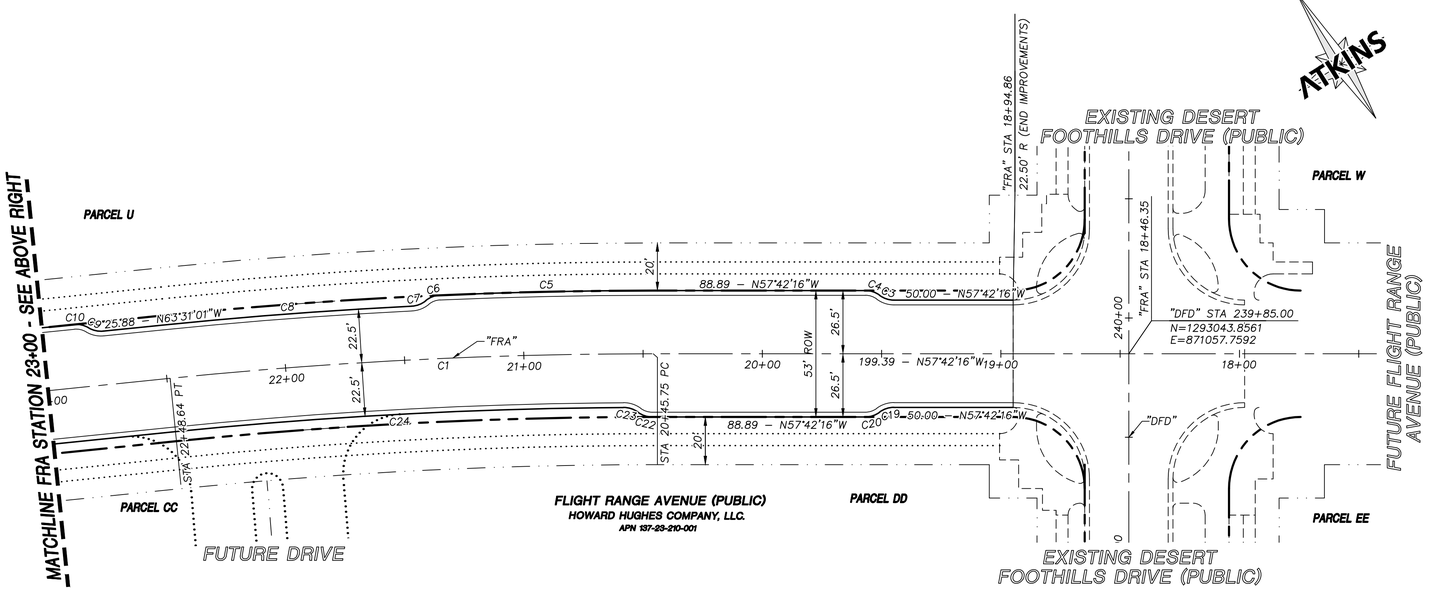
1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS AND THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS' CONSTRUCTION OFF–SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA, AS AMENDED. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE AWARE OF THE CONTENTS OF THE ABOVE SPECIFICATIONS.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM CONSTRUCTION AS PER PLANS. ANY ADDITIONS, DELETIONS, OR CHANGES SHALL FIRST MEET WITH THE APPROVAL OF THE CITY ENGINEER.
3. CHISEL "S" OR "G" IN CURBS WHERE SEWER OR GAS LATERALS PASS UNDER THE CURB.
4. POLYVINYL (PVC) SEWER PIPE SHALL MEET ASTM D–3034 SDR 35 SPECIFICATIONS, INSTALLED WITH SAND BEDDING AND BACKFILL OF TYPE II AGGREGATE BASE.
5. ALL MANHOLES PAVED IN STREETS EIGHTY (80') FOOT R/W AND LARGER SHALL HAVE CONCRETE COLLARS. STREETS LESS THAN EIGHTY (80') FOOT R/W WILL REQUIRE RETROFIT IF PAVING DOES NOT CONFORM TO CITY STANDARDS AT THE MANHOLE.
6. TEE SADDLES SHALL BE USED TO CONNECT SEWER LATERALS TO EXISTING MAIN LINES UP TO TWELVE INCH (12") DIAMETER. CONNECTIONS TO FIFTEEN INCH (15") OR LARGER MAINS SHALL REQUIRE SPECIAL PROCEDURES. IN LINE "Y"'S SHALL BE USED ON LINES TWELVE INCHES (12") OR ABOVE.
7. WATER MAINS SHALL BE PROTECTED IN ACCORDANCE WITH LVVWD STANDARDS WHENEVER A SEWER MAIN CROSSES OVER A WATER MAIN OR THE SEWER IS LESS THAN EIGHTEEN INCH (18") UNDER A WATER MAIN.
8. ALL CONTRACTORS INSTALLING SEWER MAINS THAT WILL BE UNDER THE JURISDICTION OF THE CITY OF LAS VEGAS MUST BE STATE OF NEVADA CLASS "A" CONTRACTORS.
9. THE CITY OF LAS VEGAS WILL NOT ACCEPT ANY SEWER MAINS WHICH HAVE A VERTICAL DEFLECTION OF MORE THAN ONE TENTH (0.1) OF A FOOT FROM THE APPROVED CONSTRUCTION PLANS AT ANY LOCATION. SEWER MAINS FOUND TO EXCEED THIS TOLERANCE WILL HAVE TO BE REPAIRED OR REMOVED OR REPLACED TO THE SATISFACTION OF THE CITY ENGINEER PRIOR TO ACCEPTANCE BY THE CITY OF LAS VEGAS.
10. INSTALLATION OF CURVED SEWER REQUIRES THE USE OF C–900 PIPE WHICH ALLOWS FOR PIPE DEFLECTION AT THE JOINTS.

REVISED 04/15/10

CITY OF LAS VEGAS STREET LIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION OFF–SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION (USS), AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF–SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA" (USD), LATEST REVISION.
2. DESIGN PROFESSIONAL AND CONTRACTOR SHALL VERIFY CITY'S LATEST LED FIXTURE SPECIFICATIONS AND APPROVED FIXTURES PER CLV WEBSITE, UNDER BUILDING AND SAFETY FORMS, PRIOR TO ORDERING MATERIALS.
3. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS, ETC., LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC AND CITY ENGINEER. ANY DEVIATION FROM THE PLAN LOCATION WILL REQUIRE COMPLIANCE WITH SECTION 623 OF THE USS.
4. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION IN ACCORDANCE WITH SECTION 623 G.03.01 OF THE USS.
5. ALL EMPTY CONDUIT SHALL HAVE AT LEAST ONE GREEN NO. #8 AWG WIRE INSTALLED AS TRACER WIRE IN ACCORDANCE WITH SECTION 623 G.02.01 OF THE USS PRIOR TO BACKFILLING AND FINAL INSPECTION.
6. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES





SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
ROADWAY		
3" PLANTMIX MITUMINOUS PAVEMENT	4510	SY
STANDARD "L" TYPE CURB & GUTTER W/ TYPE 11 AGGREGATE BASE	1850	LF
8" AGGREGATE BASE, TYPE II	550	CY

ROADWAY NOTES

1. SEE SHEET 21 FOR TYPICAL SECTIONS, DETAILS
2. SEE SHEET 2 FOR ROADWAY ALIGNMENT ABBREVIATIONS

CENTERLINE CURVE TABLE

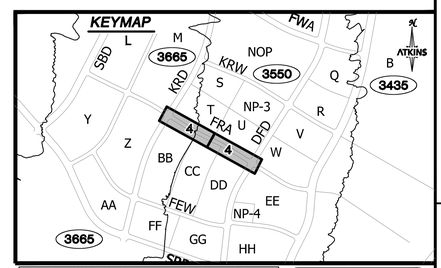
NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	2000.00'	5°48'45"	202.90'	101.54'
C2	2000.00'	6°01'44"	210.45'	105.32'

BACK OF CURB CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C3	10.00'	36°52'12"	6.44'	3.33'
C4	10.00'	36°52'12"	6.44'	3.33'
C5	2026.50'	2°31'48"	89.48'	44.75'
C6	10.00'	36°59'50"	6.46'	3.35'
C7	10.00'	36°44'35"	6.41'	3.32'
C8	2022.50'	2°56'35"	103.89'	51.95'
C9	10.00'	36°52'12"	6.44'	3.33'
C10	10.00'	36°52'12"	6.44'	3.33'
C11	10.00'	36°52'12"	6.44'	3.33'
C12	10.00'	36°52'12"	6.44'	3.33'
C13	1977.50'	2°55'33"	100.98'	50.50'
C14	10.00'	37°00'02"	6.46'	3.35'
C15	10.00'	36°44'23"	6.41'	3.32'
C16	1973.50'	2°45'18"	94.89'	47.45'

BACK OF CURB CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C17	10.00'	36°52'09"	6.43'	3.33'
C18	10.00'	36°52'12"	6.44'	3.33'
C19	10.00'	36°52'12"	6.44'	3.33'
C20	10.00'	36°52'12"	6.44'	3.33'
C22	10.08'	38°54'47"	6.85'	3.56'
C23	10.00'	37°02'39"	6.47'	3.35'
C24	1977.50'	5°27'06"	188.16'	94.15'
C25	2022.50'	4°21'20"	153.74'	76.91'
C26	10.00'	36°42'02"	6.41'	3.32'
C27	10.00'	37°02'24"	6.46'	3.35'
C28	2026.50'	1°20'02"	47.18'	23.59'
C30	10.00'	36°52'12"	6.44'	3.33'



GRAPHIC SCALE
30 0 15 30 60
HORIZONTAL: 1"= 30'

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
1215,859E,503

FAST Call before you UnderGround 1-702-432-5300 REGIONAL AND NATIONAL SYSTEMS OF TRANSPORTATION

Call before you Dig AVOID CUTTING OR DISTURBING UTILITY LINES. IT'S COSTLY. Call 811 or 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS 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.

PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS F. BARROS
EXP. 12-31-22
CIVIL
NO. 25675
2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

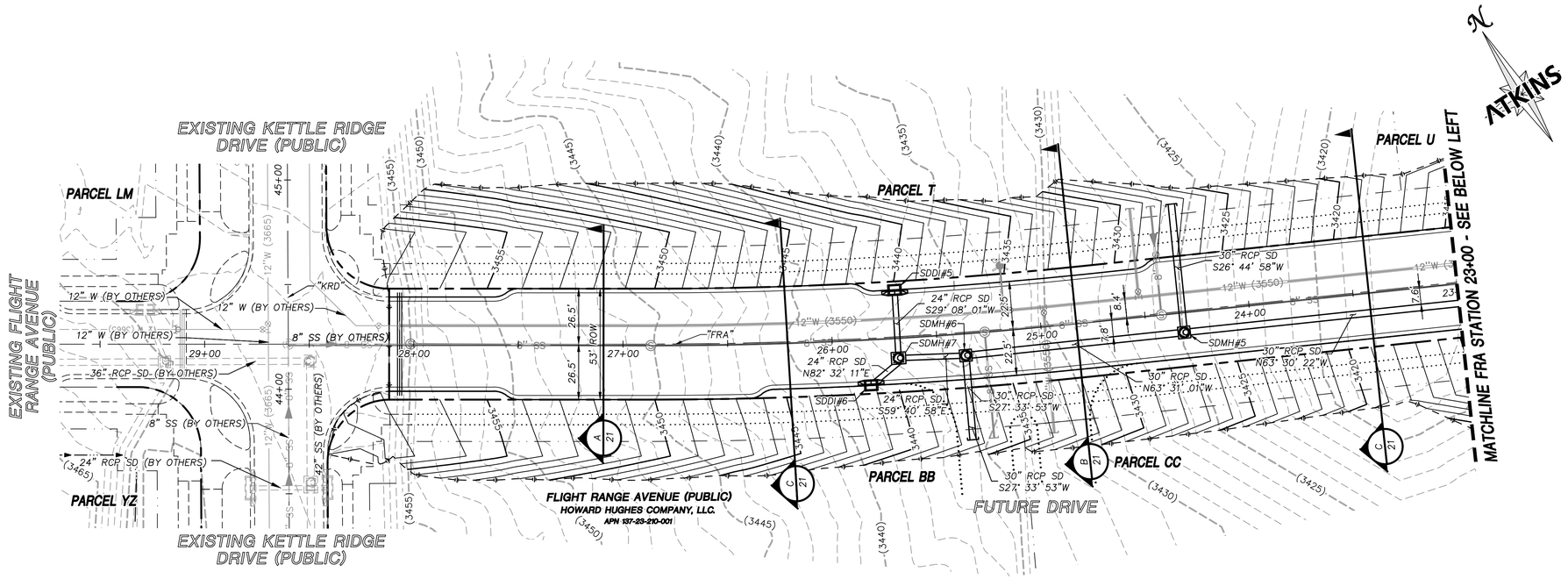
SUMMERLIN

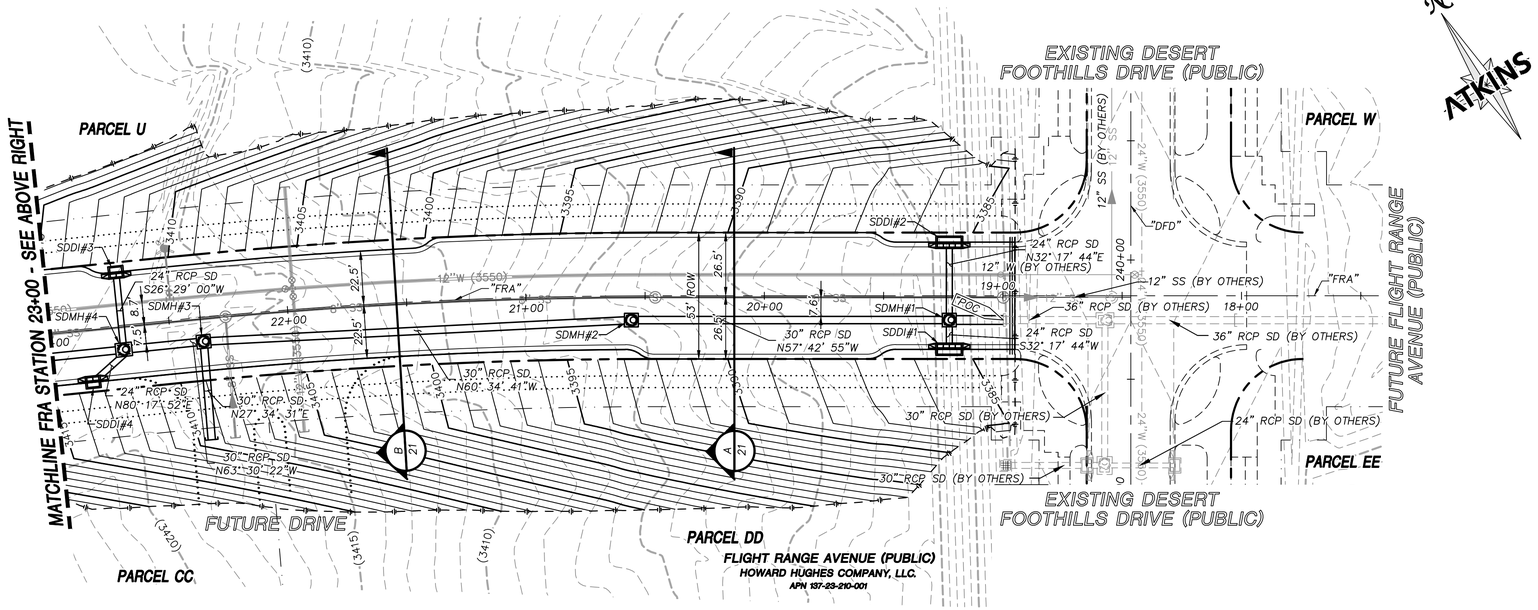
SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

HORIZONTAL CONTROL PLAN

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=30'
VERT.:	NONE
XXXVXXXX	
LXX-XXXXX	
DATE:	FEBRUARY, 2021
DRAWING NO.	4 /24
JOB NO.	100068107

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SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
DRAINAGE		
5' TYPE CM2 DROP INLET	4	EA
10' TYPE CM2 DROP INLET	2	EA
60" TYPE III SD MANHOLE	7	EA
30" CLASS III RCP SD	950	LF
STORM DRAIN CAP	3	EA

MASTER PLAN NOTE

THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS AN OVERALL REPRESENTATION OF THE UTILITY FOR REVIEW AND COORDINATION WITH OTHER PROJECT DETAILS WITHIN THIS PLAN SET.

STORM DRAIN NOTES

1. SEE PROFILE SHEETS FOR CONSTRUCTION NOTES AND INFORMATION RELATED TO PIPE SIZE (INNER DIAMETER), MANHOLE BASE SIZE (INSIDE DIMENSIONS), AND DROP INLET LENGTHS (CURB OPENING).
2. ALL STORM DRAIN MATERIAL TO BE CLASS III REINFORCED CONCRETE PIPE, UNLESS OTHERWISE NOTED IN PROFILES.
3. CONTRACTOR TO PROVIDE 6" MINIMUM OF CLEARANCE BETWEEN OUTSIDE OF PIPE TO INSIDE WALL OF STORM DRAIN STRUCTURES.

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

MASTER DRAINAGE PLAN

GRAPHIC SCALE
30 0 15 30 60
HORIZONTAL: 1"= 30'

SOILS REPORT

BY NOVA
PROJECT NO. G-18-176
DATED 12/03/18 AND
SUBSEQUENT UPDATE LETTER
DATED 12/02/20
EARTHWORK QUANTITIES (RAW):
CUT= 14,600 CU YDS
FILL= 28,400 CU YDS

GRADING PLAN CERTIFICATION

NICOLAS BARCOS PE#25673 DATE

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

DS#----

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.

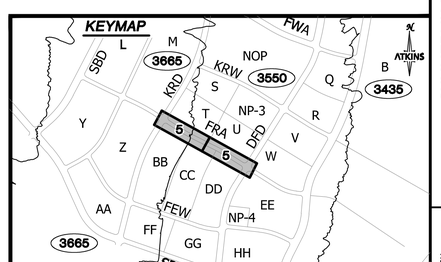
BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368
(REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 REMOVES AND AVOIDS SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

AVOID FUTURE OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DIG OVERHEAD 1-702-227-2929

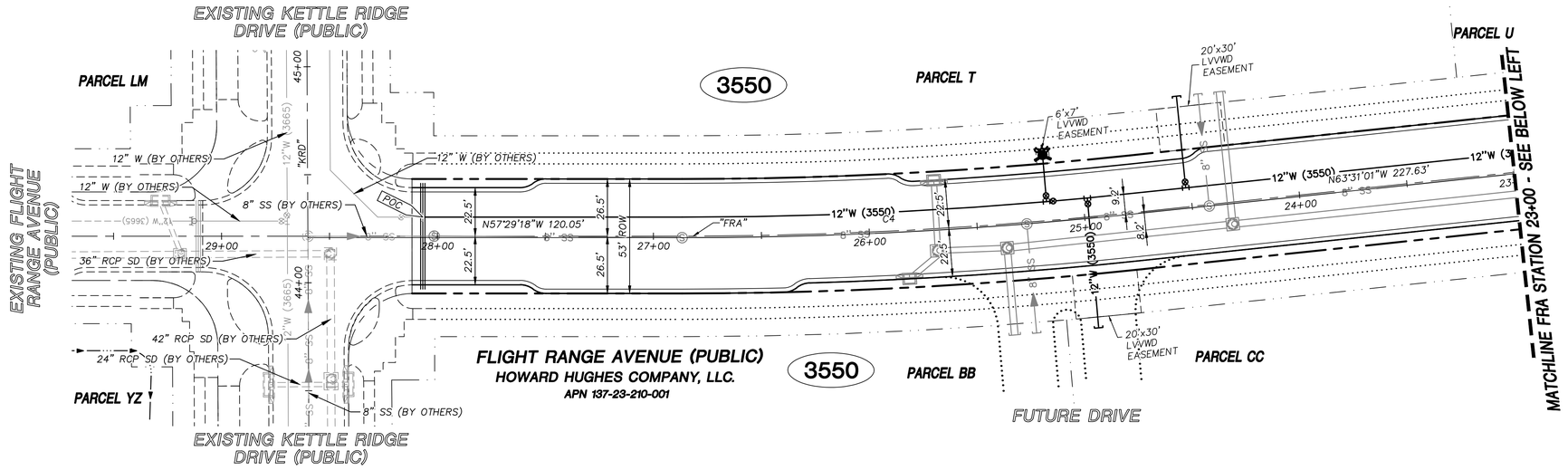
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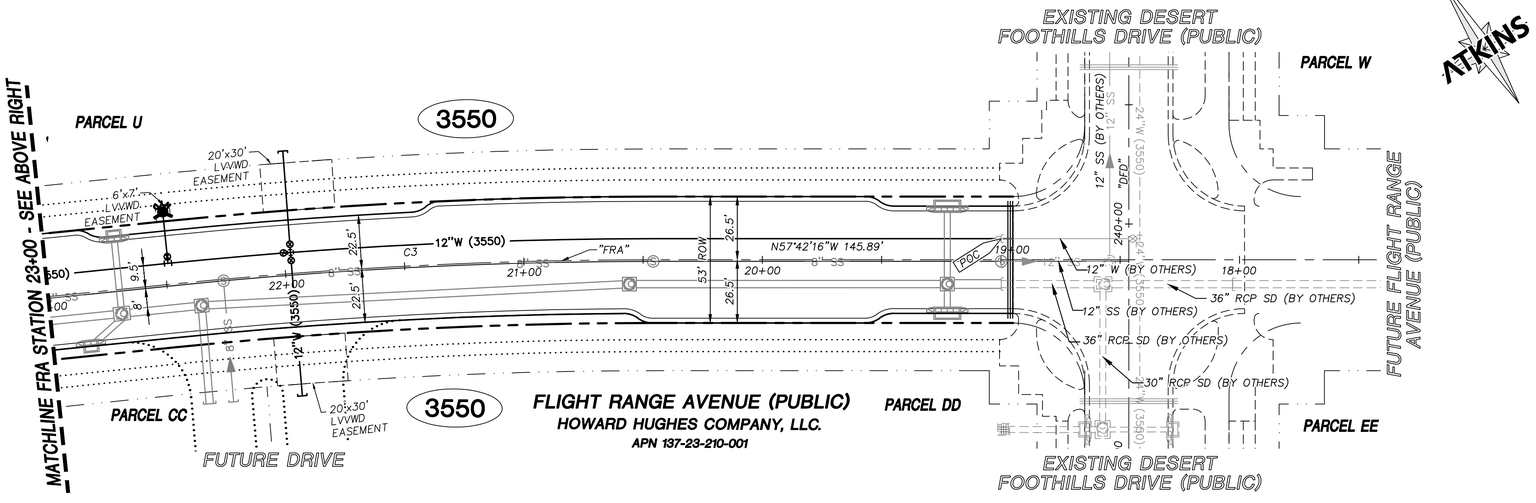
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PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A. BARCOS
EXP. 12-31-22
CIVIL
No. 25673
2/25/2021

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=30'
VERT.:	NONE
XXXVXXXX	
LXX-XXXXX	
DATE	FEBRUARY, 2021
DRAWING NO.	5 /24
JOB NO.	100068107

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SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
WATER		
12" C-900 WATER PIPE	1120	LF
6" C-900 WATER PIPE	35	LF
6" FIRE HYDRANT ASSEMBLY	2	EA
WATER CAP	4	EA
12"X12" TEE PER UDACS PLATE #31	2	EA
6"X12" TEE PER UDACS PLATE #31	2	EA
12"X12" CROSS PER UDACS PLATE #31	1	EA
IRRIGATION SLEEVES	270	LF
12" GATE VALVE W/ BOX & COVER	6	EA
6" GATE VALVE W/ BOX & COVER	2	EA

MASTER PLAN NOTE

THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS AN OVERALL REPRESENTATION OF THE UTILITY FOR REVIEW AND COORDINATION WITH OTHER PROJECT DETAILS WITHIN THIS PLAN SET.

WATER NOTES

1. SEE ROADWAY PLAN AND PROFILE SHEETS FOR CONSTRUCTION NOTES AND INFORMATION RELATED TO PIPE SIZE, LENGTH, AND SIZE OF FITTINGS.
2. ALL 3550 PRESSURE ZONE WATER PIPE MATERIAL TO BE WATER QUALITY RATED AWWA C-900, UNLESS OTHERWISE NOTED IN PROFILES.
3. ALL MEASUREMENTS ARE FROM CENTER OF FITTING TO CENTER OF FITTING.
4. INSTALL PIPELINE MARKER BALLS IN TRENCH ABOVE EACH HORIZONTAL ELBOW FITTING PER UDACS PLATE #15.
5. SEE SHEET 23 FOR WATERLINE DETAILS.

WATERLINE CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C1	2008.83'	5°48'45"	203.79'	101.98'

GRAPHIC SCALE
30 0 15 30 60
HORIZONTAL: 1"= 30'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COURTLY. Call 811 OR 1-800-642-2444

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PROFESSIONAL ENGINEER - STATE OF NEVADA - NICOLAS A. BARCOS - EXP. 12-31-22 - CIVIL - No. 25573
2/25/2021

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7375
Fax: +1.702.263.7200

REVISIONS

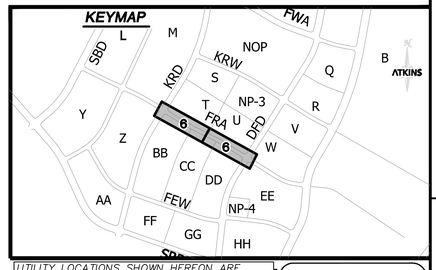
REV.	DESCRIPTION	BY	DATE	APPROVAL

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

MASTER WATER PLAN

KEYMAP

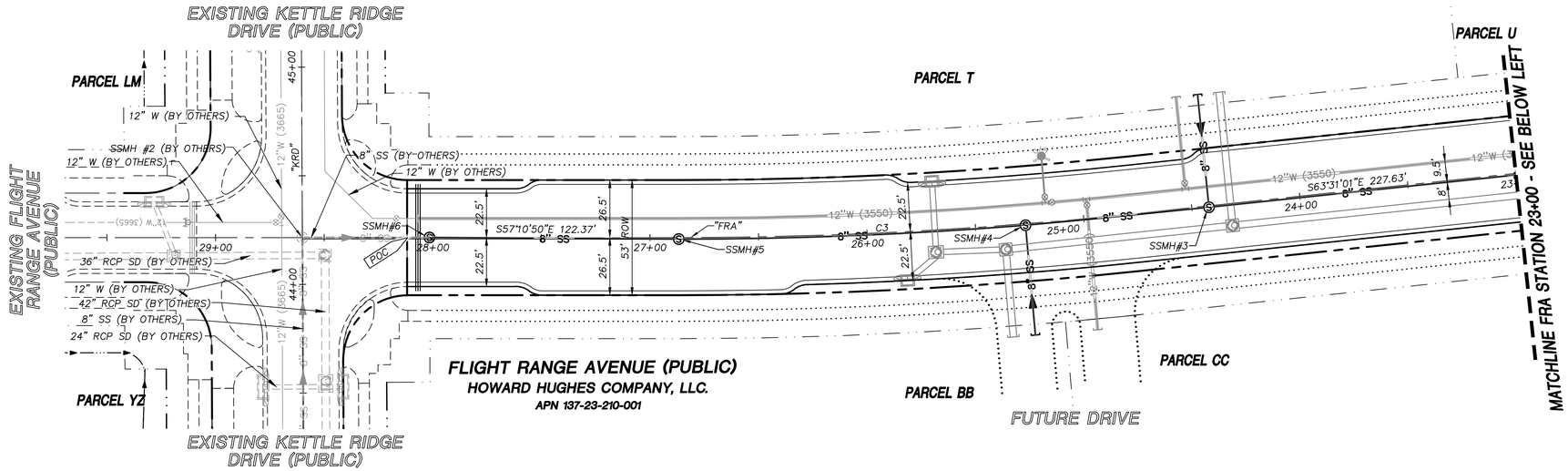


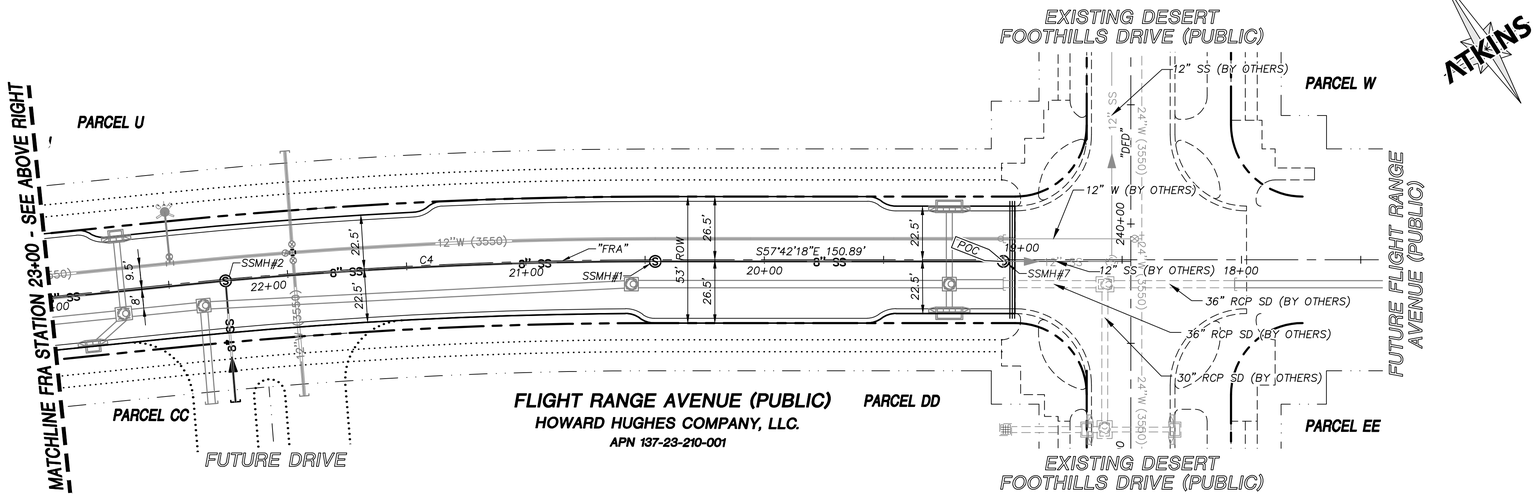
DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=30'
VERT.: NONE

XXXVXXXX
LXX-YXXXX
DATE: FEBRUARY, 2021
DRAWING NO. 6 /24

JOB NO. 100068107

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SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
SEWER		
12" C-900 SEWER PIPE	920	LF
8" C-900 SEWER PIPE	140	LF
48" SEWER MANHOLE	7	EA
SEWER CAP	3	EA

MASTER PLAN NOTE

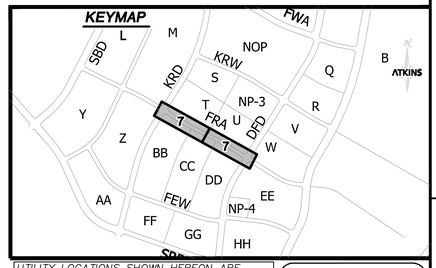
THIS SHEET IS FOR INFORMATIONAL PURPOSES ONLY. IT IS AN OVERALL REPRESENTATION OF THE UTILITY FOR REVIEW AND COORDINATION WITH OTHER PROJECT DETAILS WITHIN THIS PLAN SET.

SEWER NOTES

1. SEE ROADWAY PLAN AND PROFILE SHEETS FOR CONSTRUCTION NOTES AND INFORMATION RELATED TO PIPE SIZE, SLOPE, INVERT, RIM INFORMATION, AND MANHOLE BASE SIZE.
2. ALL SEWER PIPE MATERIAL TO BE WATER QUALITY RATED AWWA C-900, UNLESS OTHERWISE NOTED IN PROFILES.
3. ALL SEWER MANHOLES TO BE POLYMER LINED AND ALL JOINTS TO HAVE SIKAFLEX 2C NS SEALANT BETWEEN COMPONENTS.
4. ALL SEWER MANHOLES GREATER THAN 20' DEEP TO BE LINED WITH CORROSION PROTECTION PER DCSCWS STANDARD PLATE SD-1.

SEWER LINE CURVE TABLE

NO.	RADIUS	DELTA	LENGTH	TANGENT
C3	2000.67'	6°01'44"	210.52'	105.36'
C4	1999.33'	5°48'45"	202.83'	101.50'



GRAPHIC SCALE
30 0 15 30 60
HORIZONTAL: 1"= 30'

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS 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.

PROFESSIONAL ENGINEER - STATE OF NEVADA - NICOLAS A. BARCOS - EXP. 12-31-22 - CIVIL - No. 25573 - 2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

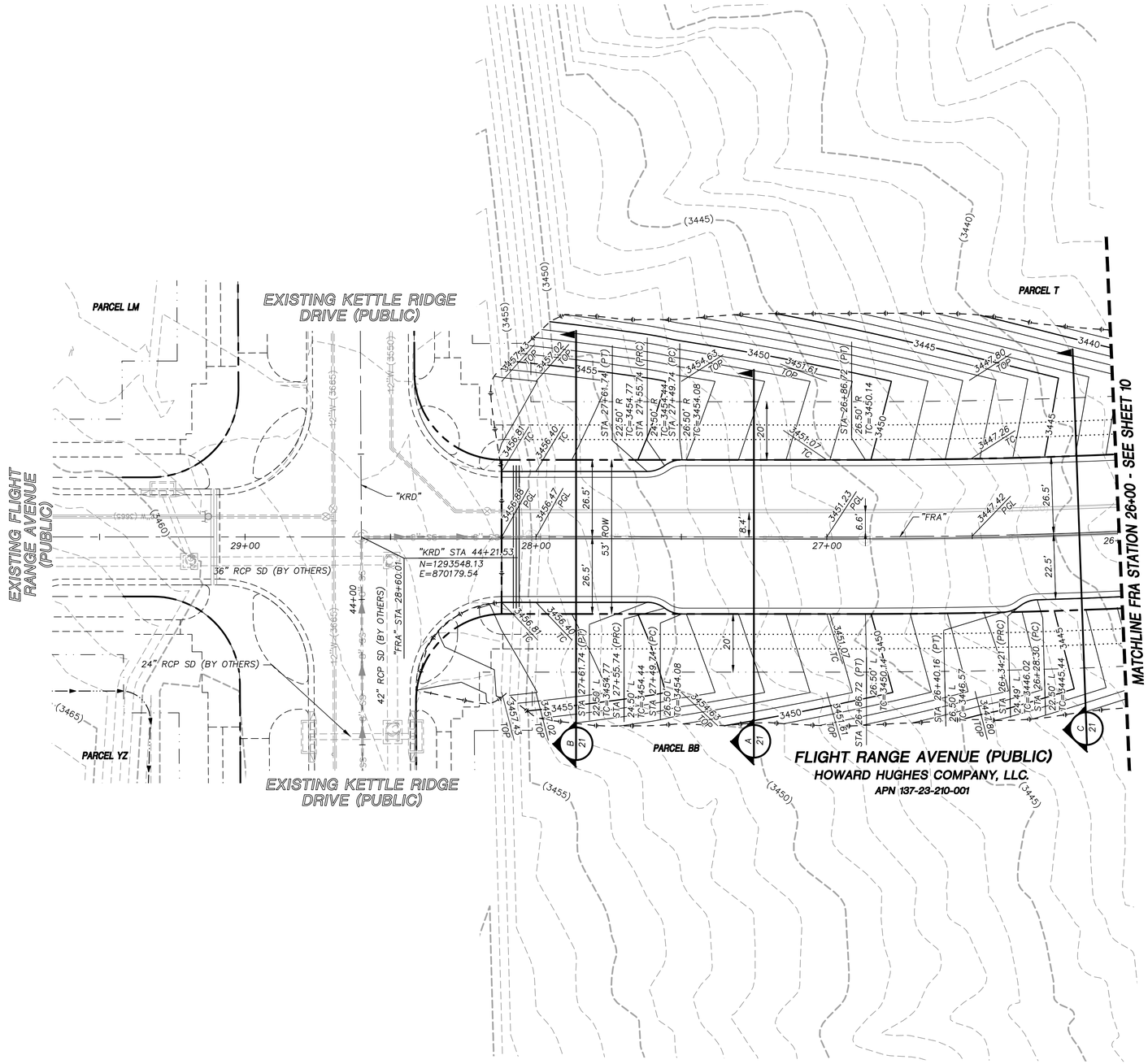
SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

MASTER SEWER PLAN

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=30'
VERT.: NONE

XXXVXXXX
LXX-YXXXX
DATE: FEBRUARY, 2021
DRAWING NO. 7 /24
JOB NO. 100068107

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STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 21)
4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. NOT USED
8. CONNECT TO EXISTING STORM DRAIN PER CCAUSS #509.03.06 "EXTENDING EXISTING CULVERTS"
9. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL
10. INSTALL RIP-RAP (D50=8", THICKNESS=24")

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

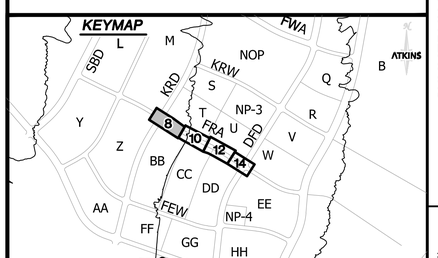
ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7375
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY GRADING PLAN
STA 26+00 TO END

KEYMAP



GRAPHIC SCALE
20 0 10 20 40
HORIZONTAL: 1"=20'

GRADING PLAN CERTIFICATION

NICOLAS BARCOS PE#25673 DATE

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

DS#----

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.

BENCHMARK

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T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 EMERGENCY AND NOTIFICATION SYSTEM OF TRANSPORTATION

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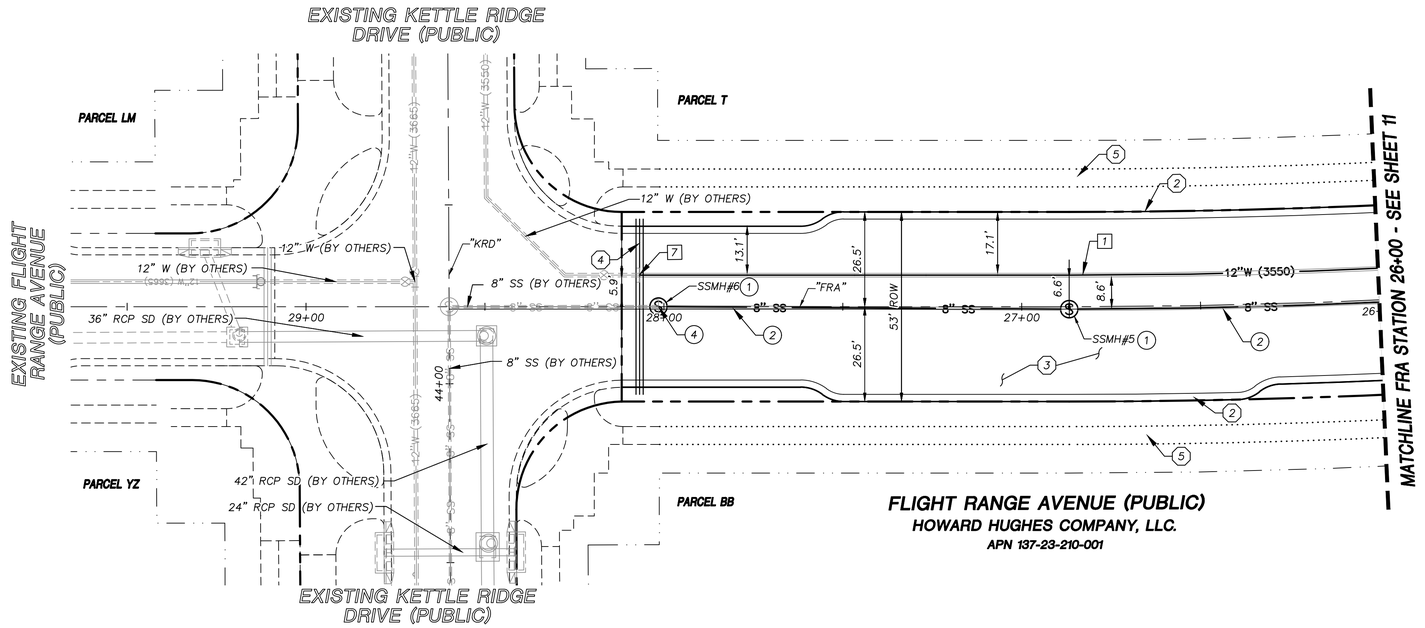
AVOID HITTING OVERHEAD POWER LINES, ITS QUICK! CALL BEFORE YOU DIG OVERHEAD 1-702-227-2929

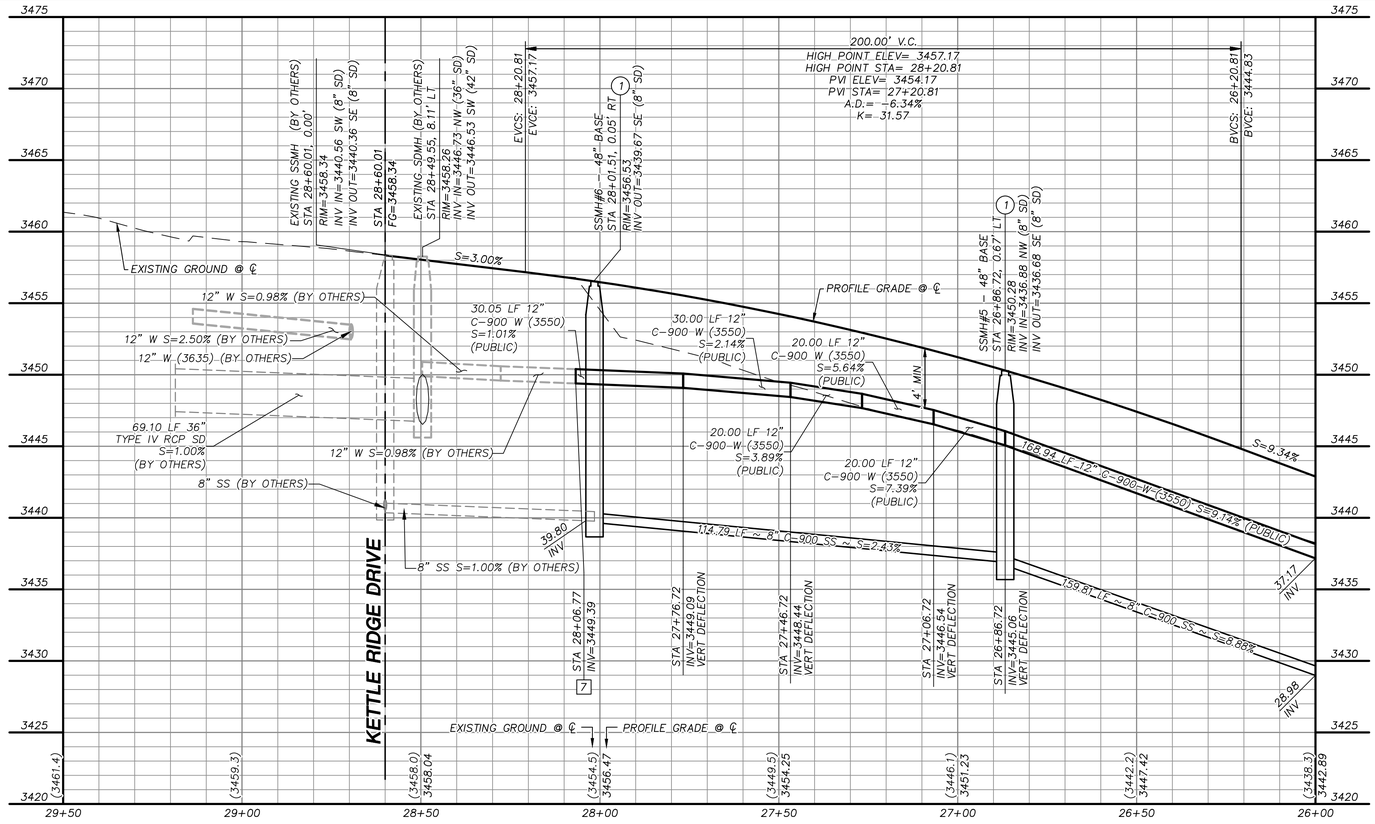
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PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A. BARCOS
EXP. 12-31-22
CIVIL
No. 25673
2/25/2021

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
VERT.:	NONE
XXXVXXXX.	
LXX-XXXXX	
DATE:	FEBRUARY, 2021
DRAWING NO.	8 /24
JOB NO.	100068107

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STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 21)
4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. NOT USED
8. CONNECT TO EXISTING STORM DRAIN PER CCAUSS #509.03.06 "EXTENDING EXISTING CULVERTS"
9. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL
10. INSTALL RIP-RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

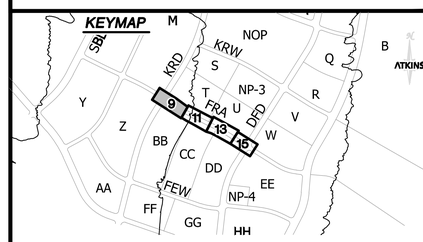
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
2. INSTALL SEWER MAIN PER DCSWCS SD-17
3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"X4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19
7. SEWER MANHOLE BY OTHERS

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
2. INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
3. INSTALL CROSS PER UDACS PLATE #31
4. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
5. INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
6. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40
7. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
8. INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM OF 1°)

ROADWAY CONSTRUCTION NOTES

1. SAWCUT AND MATCH EXISTING
2. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 21 FOR TYPICAL PAVEMENT SECTION.
4. INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL ON SHEET 23
5. FUTURE SIDEWALK BY OTHERS



GRAPHIC SCALE
20 0 10 20 40
HORIZONTAL: 1"=20'
5 0 2.5 5 10
VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

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.

BENCHMARK

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T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-6300 FIBER OPTIC AND ANTENNA SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES, ITS QUICK! Call 811 or 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES, ITS QUICK! CALL BEFORE YOU DIG OVERHEAD 1-702-227-2929

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PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A. BARCOS
EXP. 12-31-22
CIVIL
No. 25673
2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

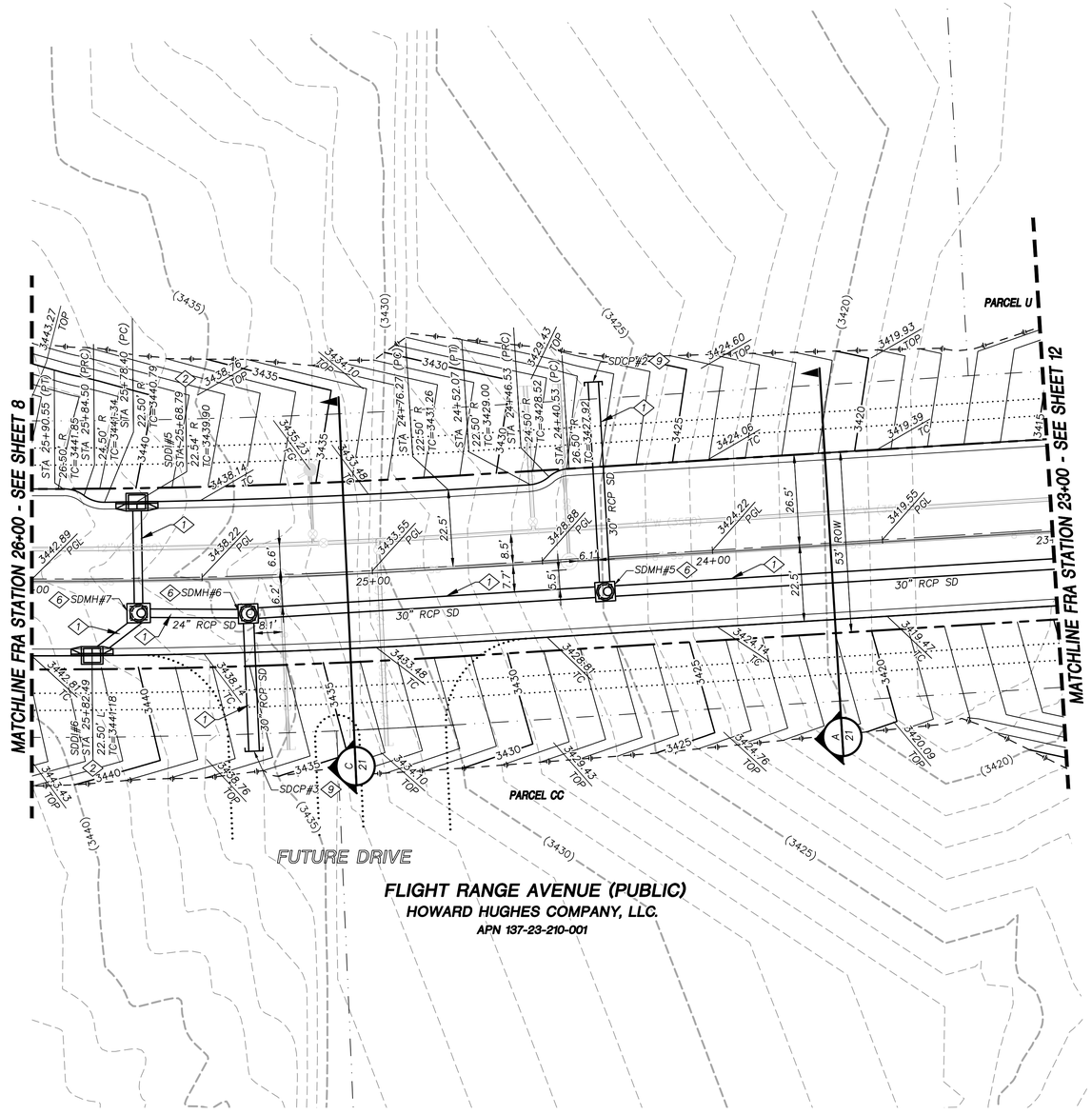
SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY PLAN AND PROFILE
STA 26+00 TO END

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
VERT.:	1"=5'
XXXVXXXX. LXX-XXXXX	
DATE:	MARCH, 2021
DRAWING NO.	9 /24
JOB NO.	100068107

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GRAPHIC SCALE

20 0 10 20 40

HORIZONTAL: 1"=20'

GRADING PLAN CERTIFICATION

NICOLAS BARCOS PE#25673 DATE

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

DS#-----

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.

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T21S,R59E,S03

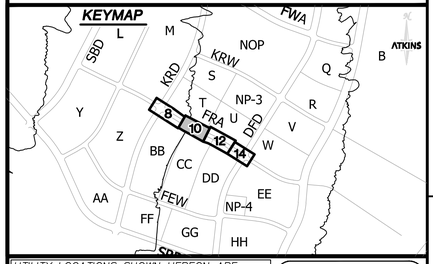
FAST Call before you UnderGround 1-702-432-5300 EMERGENCY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. ITS COSTLY. Call 811 OR 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. ITS COSTLY. CALL BEFORE YOU DIG OVERHEAD 1-702-227-2929

STORM DRAIN CONSTRUCTION NOTES

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PROFESSIONAL ENGINEER - STATE OF NEVADA - NICOLAS P. BARCOS - EXP. 12-31-22 - CIVIL - No. 25673 - 2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7375
Fax: +1.702.263.7200

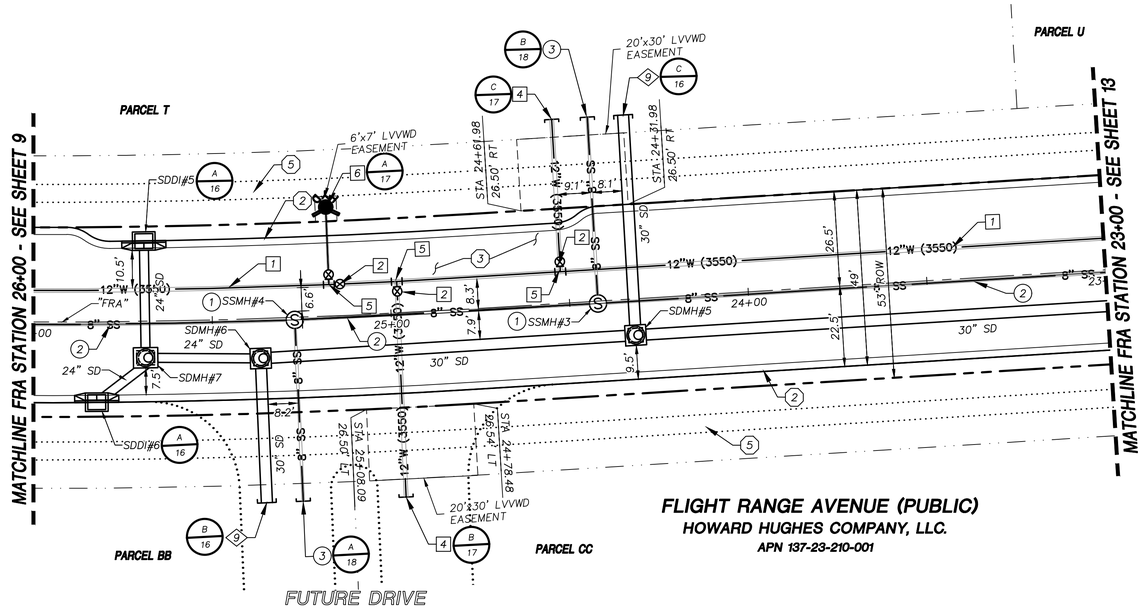
SUMMERLIN

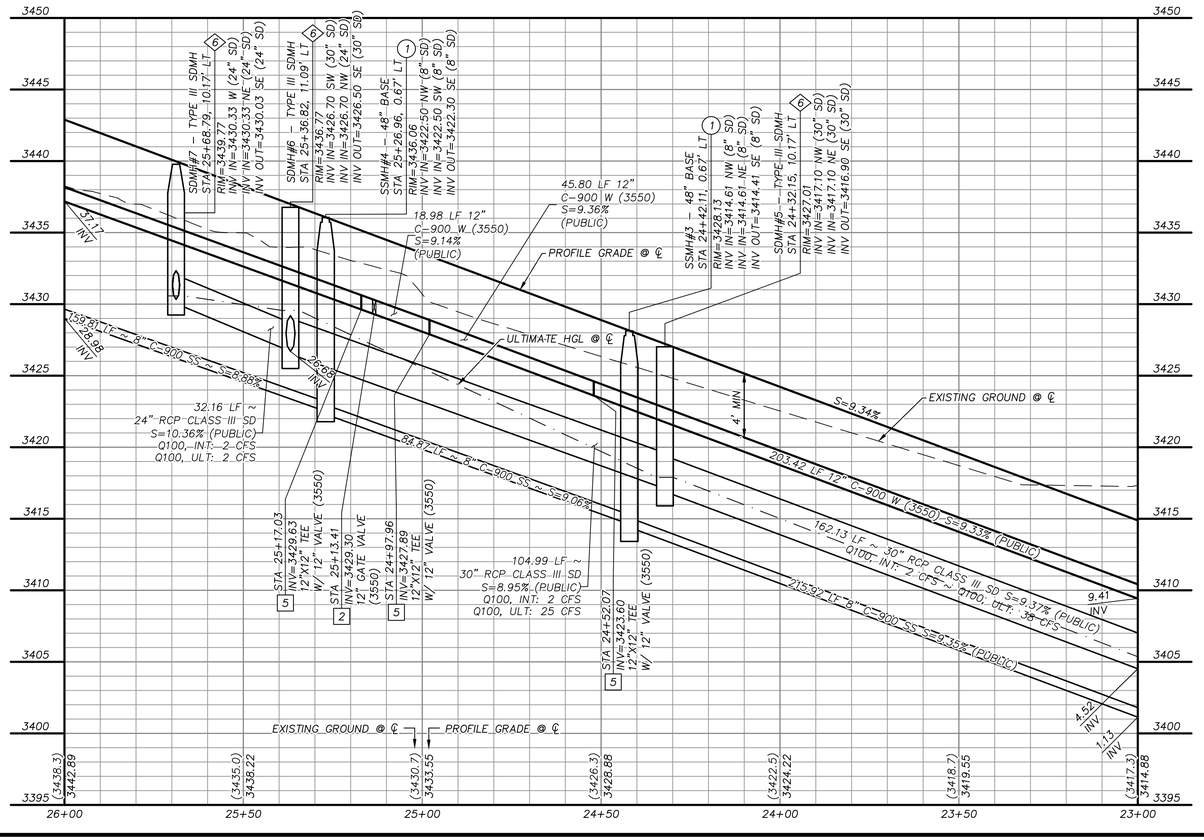
SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY GRADING PLAN
STA 23+00 TO 26+00

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
VERT.:	NONE
XXXVXXXX LXX-XXXXX	
DATE:	FEBRUARY, 2021
DRAWING NO.	10/24
JOB NO.	100068107

C:\pw_work\atkinsnv01\westkins_her5612\dms56082\68107-08-GRAD-G1.dwg LAYOUT: G-2 Feb 25, 2021 - 2:41PM





GRAPHIC SCALE

HORIZONTAL: 1"=20'

VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

BASIS OF BEARING

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SEWER CONSTRUCTION NOTES

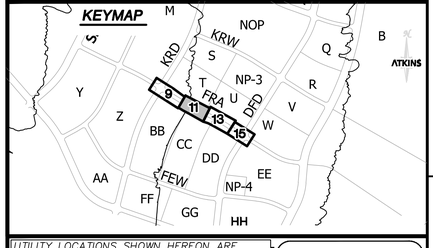
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
2. INSTALL SEWER MAIN PER DCSWCS SD-17
3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"X4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19
7. SEWER MANHOLE BY OTHERS

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
2. INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
3. INSTALL CROSS PER UDACS PLATE #31
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7. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
8. INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM OF 1°)

ROADWAY CONSTRUCTION NOTES

1. SAWCUT AND MATCH EXISTING
2. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 21 FOR TYPICAL PAVEMENT SECTION.
4. INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL ON SHEET 23
5. FUTURE SIDEWALK BY OTHERS



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PROFESSIONAL ENGINEER - STATE OF NEVADA - NICOLAS P. BARCOS - EXP. 12-31-22 - CIVIL - No. 25573 - 2/25/2021

REVISIONS			
REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

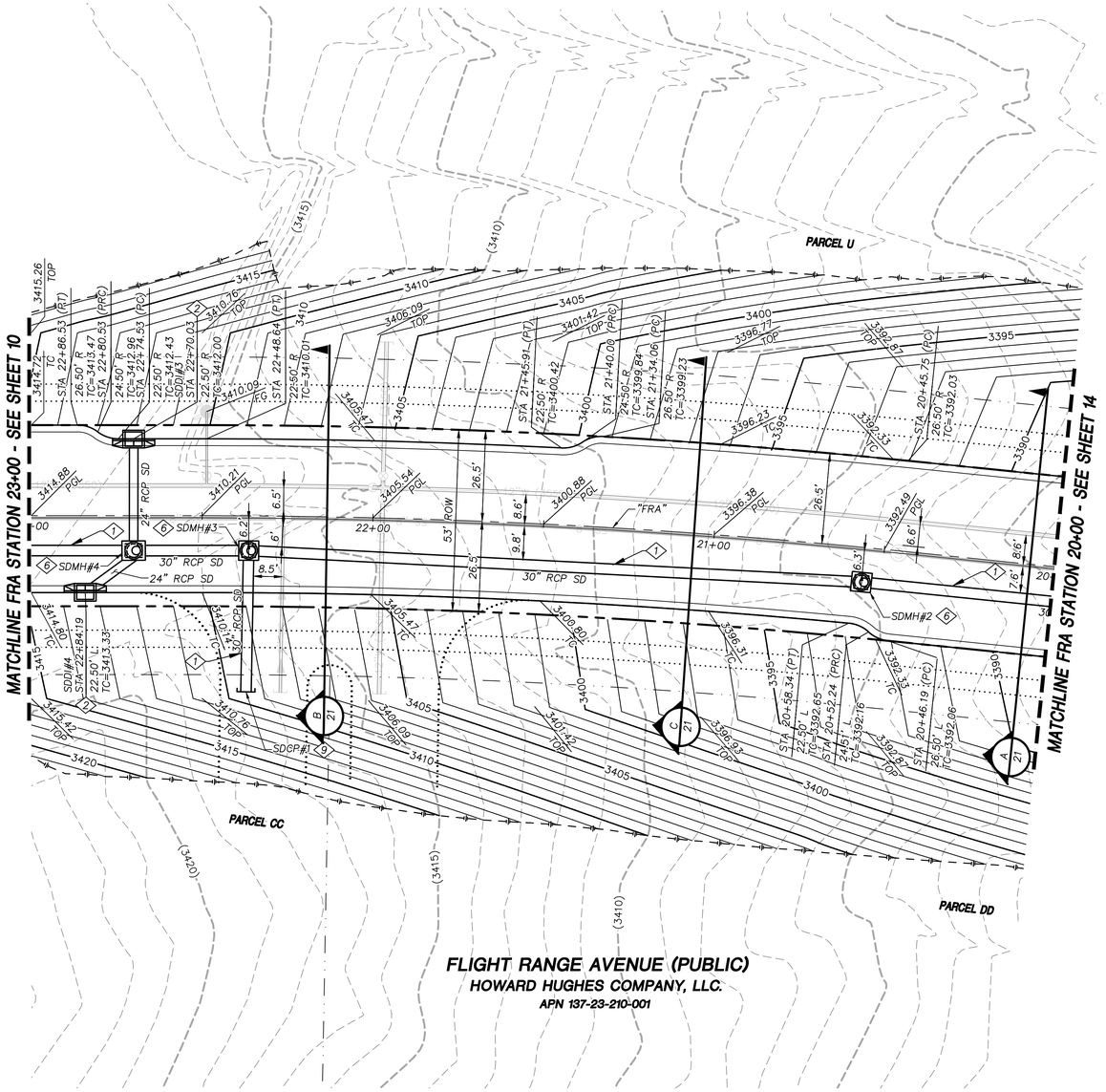
SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY PLAN AND PROFILE
STA. 23+00 TO 26+00

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=20'
VERT.: 1"=5'

XXXVXXXX
LXX-YXXXX
DATE: MARCH, 2021
DRAWING NO. 11/24
JOB NO. 100068107

C:\pw_work\atkinsv01\westkins_her5612\dms56082\68107-08-PLAN-P1.dwg LAYOUT: P2 Mar 02, 2021 - 2:03PM



GRAPHIC SCALE

20 0 10 20 40

HORIZONTAL: 1"=20'

GRADING PLAN CERTIFICATION

NICOLAS BARCOS PE#25673 DATE

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

DS#----

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 REGULATORY AND INFORMATIONAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING TELECOMMUNICATION UTILITY CABLES. DON'T BE COSTLY. Call 811 or 1-800-642-2444

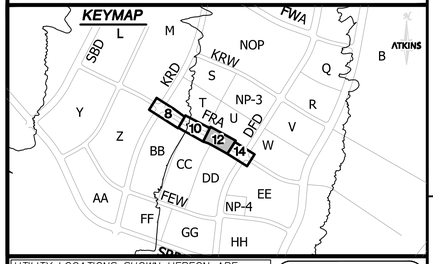
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 21)
4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. NOT USED
8. CONNECT TO EXISTING STORM DRAIN PER CCAUSS #509.03.06 "EXTENDING EXISTING CULVERTS"
9. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL
10. INSTALL RIP-RAP (D50=8", THICKNESS=24")

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL



UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS 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.

PROFESSIONAL ENGINEER-STATE OF NEVADA NICOLAS A. BARCOS EXP. 12-31-22 CIVIL No. 25673

2/25/2021

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

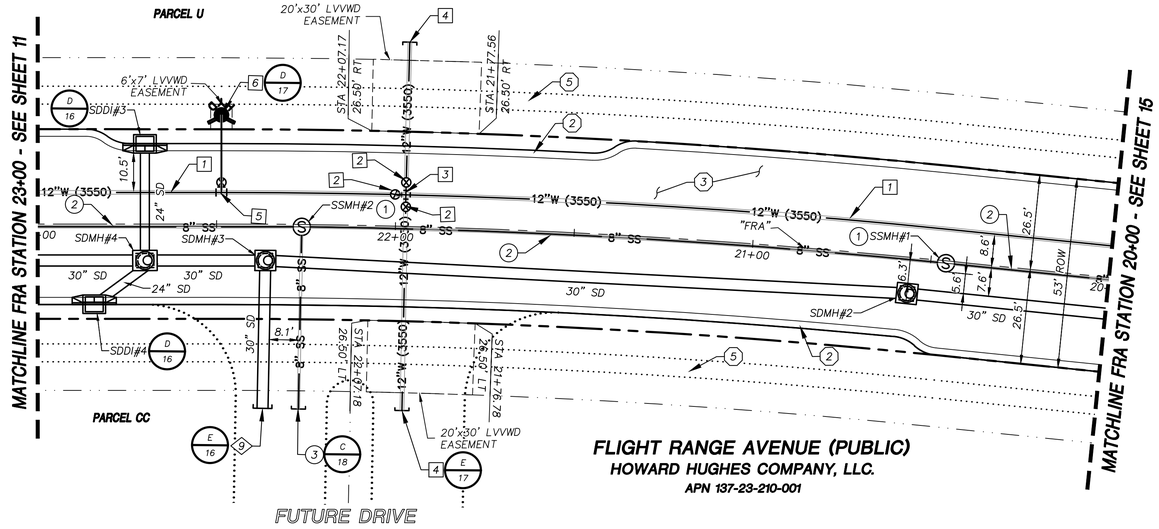
SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

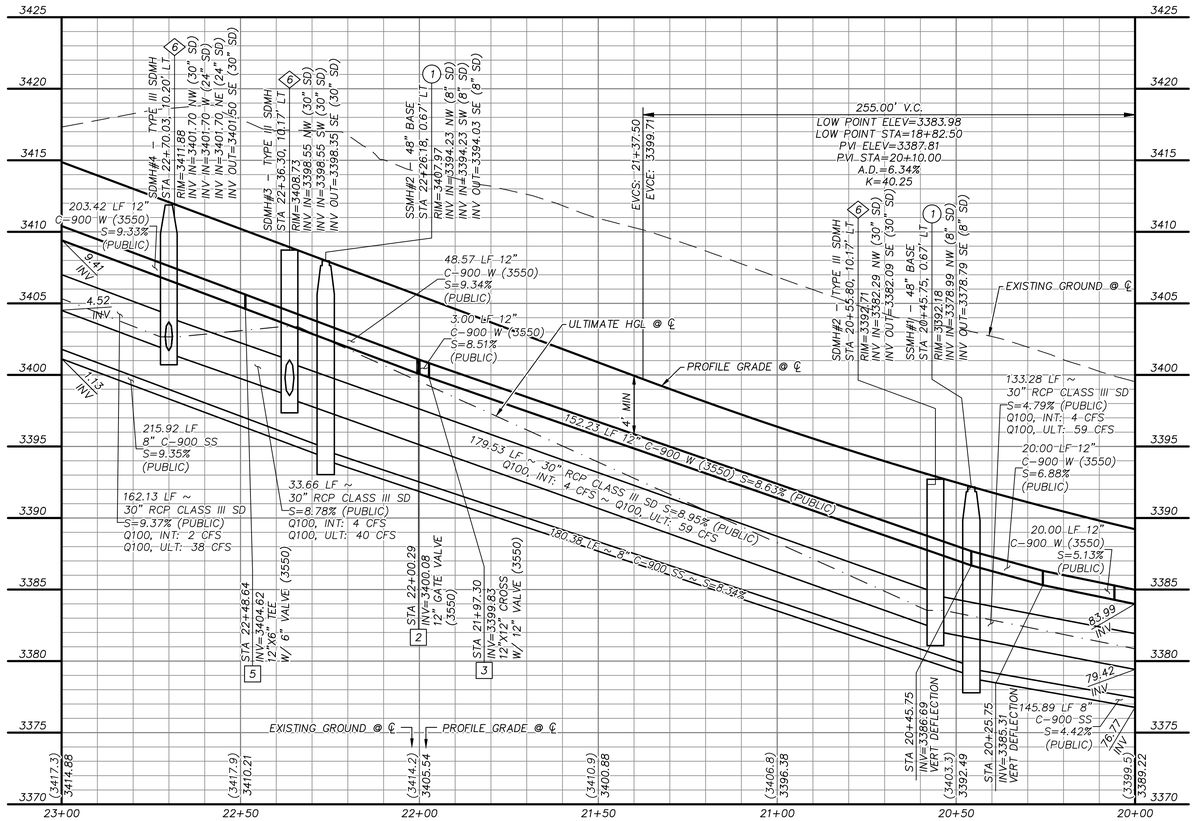
ROADWAY GRADING PLAN
STA. 20+00 TO 23+00

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
VERT.:	NONE
XXXVXXXX	
LXX-XXXXX	
DATE	FEBRUARY, 2021
DRAWING NO.	12/24
JOB NO.	100068107

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STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
3. INSTALL NDOT TYPE II DROP INLET PER NDOT R-4.2.1 (SEE SHEET 21)
4. INSTALL TYPE I SD MANHOLE PER CCAUSD #403
5. INSTALL TYPE II SD MANHOLE PER CCAUSD #405.2
6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. NOT USED
8. CONNECT TO EXISTING STORM DRAIN PER CCAUSS #509.03.06 "EXTENDING EXISTING CULVERTS"
9. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL
10. INSTALL RIP-RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

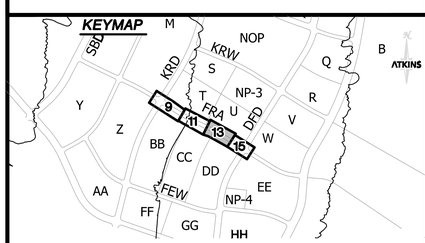
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
2. INSTALL SEWER MAIN PER DCSWCS SD-17
3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"X4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19
7. SEWER MANHOLE BY OTHERS

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
2. INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
3. INSTALL CROSS PER UDACS PLATE #31
4. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
5. INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
6. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40
7. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
8. INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM OF 1°)

ROADWAY CONSTRUCTION NOTES

1. SAWCUT AND MATCH EXISTING
2. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 21 FOR TYPICAL PAVEMENT SECTION.
4. INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL ON SHEET 23
5. FUTURE SIDEWALK BY OTHERS



REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY PLAN AND PROFILE
STA. 20+00 TO 23+00

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=20'
VERT.: 1"=5'

XXXVXXXX
LXX-XXXXX
DATE: MARCH, 2021
DRAWING NO. 13/24
JOB NO. 100068107

GRAPHIC SCALE
20 0 10 20 40
HORIZONTAL: 1"=20'
5 0 2.5 5 10
VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 FEDERAL AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES IN CLARK COUNTY. Call 811 OR 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES, IT'S DEADLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

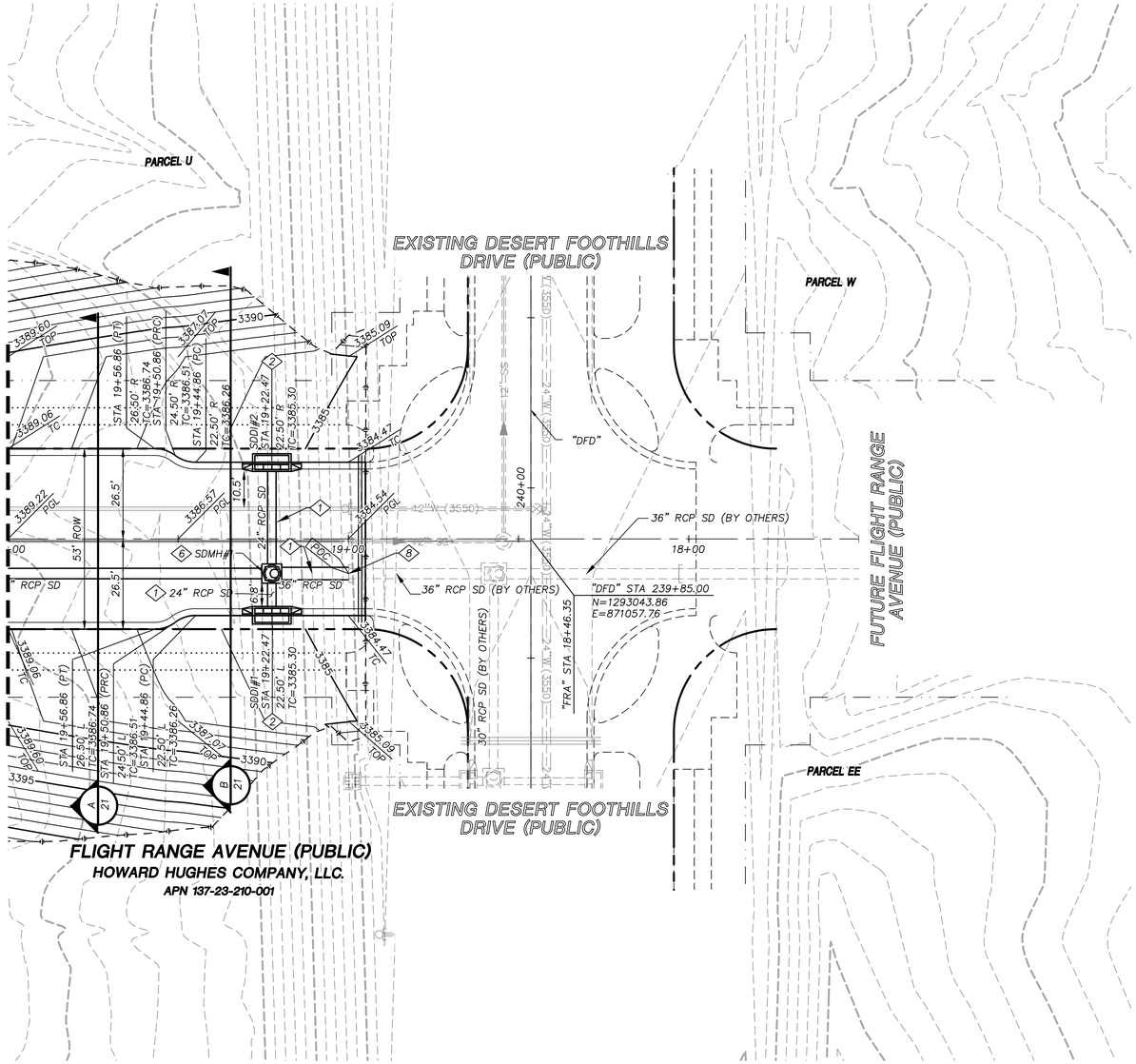
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PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A BARCOS
EXP. 12-31-22
CIVIL
No. 25873
2/25/2021

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STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
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6. INSTALL TYPE III SD MANHOLE PER CCAUSD #406
7. NOT USED
8. CONNECT TO EXISTING STORM DRAIN PER CCAUSS #509.03.06 "EXTENDING EXISTING CULVERTS"
9. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL
10. INSTALL RIP-RAP (D50=8", THICKNESS=24")



GRAPHIC SCALE
20 0 10 20 40
HORIZONTAL: 1"=20'

GRADING PLAN CERTIFICATION

NICOLAS BARCOS PE#25673 DATE

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

DS#----

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368
(REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING INFORMATION OR UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

AVOID VICTIMS! OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

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PROFESSIONAL ENGINEER - STATE OF NEVADA - NICOLAS P. BARCOS - EXP. 12-31-22 - CIVIL - No. 25673
2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

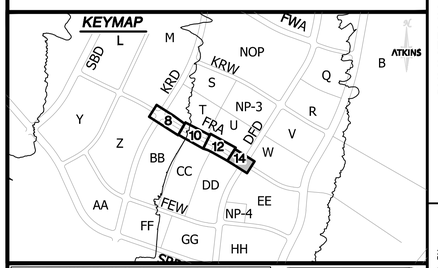
ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY GRADING PLAN
STA BEGIN TO 20+00

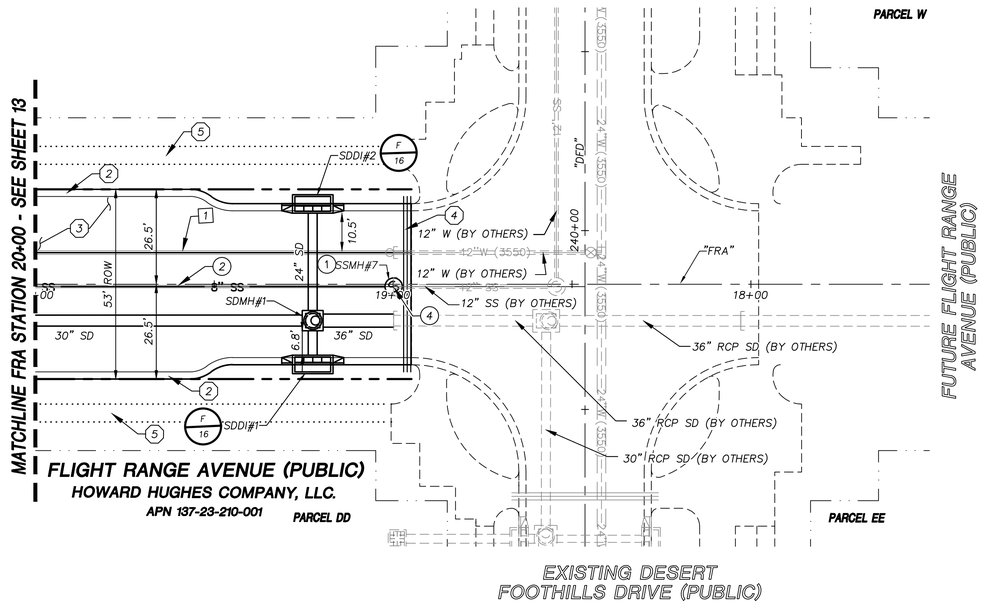
KEYMAP

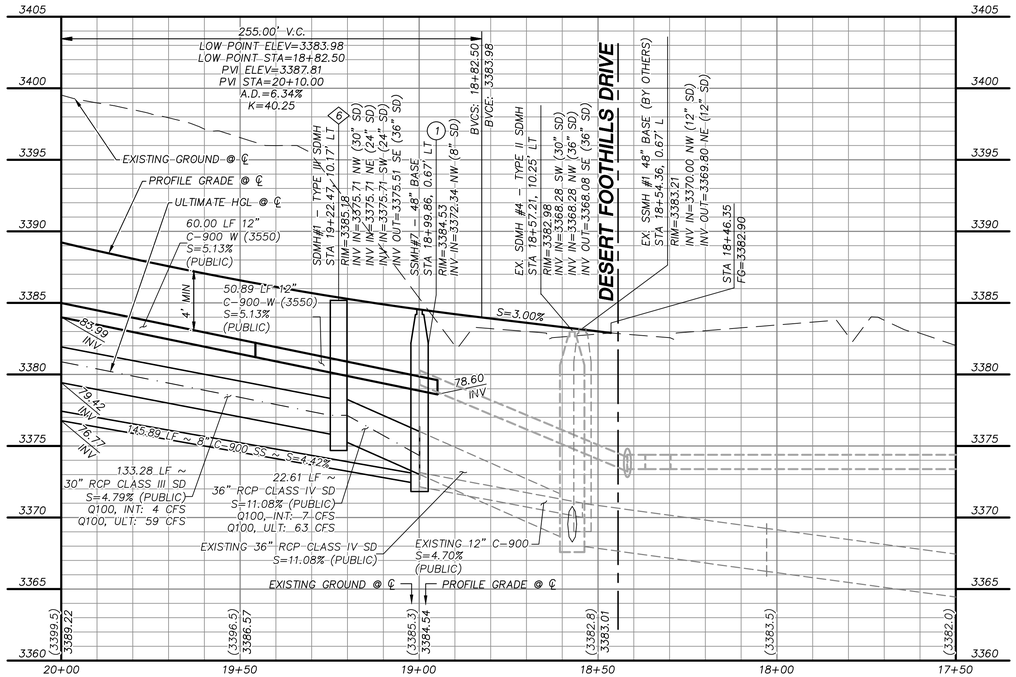


DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
VERT.:	NONE
XXXVXXXX	LXX-XXXXX
DATE:	FEBRUARY, 2021
DRAWING NO.	14/24

JOB NO. 100068107

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GRAPHIC SCALE

20 0 10 20 40

HORIZONTAL: 1"=20'

5 0 2.5 5 10

VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368
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NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 REGIONAL AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING HAZARDOUS UTILITY LINES. IT'S COURTLY. Call 811 OR 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. IT'S COURTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
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9. STUB & PLUG STORM DRAIN FOR FUTURE CONNECTION PER MANUFACTURER'S PLUG, OR APPROVED EQUAL
10. INSTALL RIP-RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

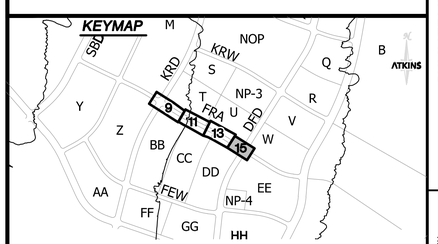
1. INSTALL SEWER MANHOLE PER DCSWCS SD-1, AND SD-4
2. INSTALL SEWER MAIN PER DCSWCS SD-17
3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"X4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
5. ADJUST EXISTING MANHOLE TO GRADE PER DCSWCS SD-5.
6. PROTECT SEWER AT UTILITY CROSSING PER DCSWCS SD-19
7. SEWER MANHOLE BY OTHERS

WATERLINE CONSTRUCTION NOTES

1. INSTALL WATER MAIN PER UDACS PLATES #17 AND PLATE #19
2. INSTALL GATE VALVE PER UDACS PLATES #30 AND #39
3. INSTALL CROSS PER UDACS PLATE #31
4. INSTALL CAP AND 2" MANUAL BLOWOFF ASSEMBLY PER UDACS PLATE #36
5. INSTALL TEE W/ VALVE AND LATERAL PER UDACS PLATES #17, #19, #30, #31 AND #39
6. INSTALL FIRE HYDRANT WITH APPURTENANCES (CONCRETE PAD, LATERAL, VALVE, AND TEE) PER UDACS PLATES #30, #31, #39, AND #40
7. REMOVE CAP AND 2" BLOWOFF AND CONNECT TO EXISTING WATERLINE STUB
8. INSTALL DEFLECTION AT PIPE JOINTS (MAXIMUM OF 1°)

ROADWAY CONSTRUCTION NOTES

1. SAWCUT AND MATCH EXISTING
2. CONSTRUCT "L" TYPE CURB AND GUTTER PER CCAUSD #216
3. CONSTRUCT PLANTMIX BITUMINOUS SURFACE OVER TYPE II AGGREGATE BASE PER SOILS REPORT. SEE SHEET 21 FOR TYPICAL PAVEMENT SECTION.
4. INSTALL SCHEDULE 40 PVC IRRIGATION SLEEVES (2-4", 1-6") PER DETAIL ON SHEET 23
5. FUTURE SIDEWALK BY OTHERS



UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS 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.

PROFESSIONAL ENGINEER - STATE OF NEVADA - NICOLAS A. BARCOS - EXP. 12-31-22 - CIVIL - No. 25673

2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

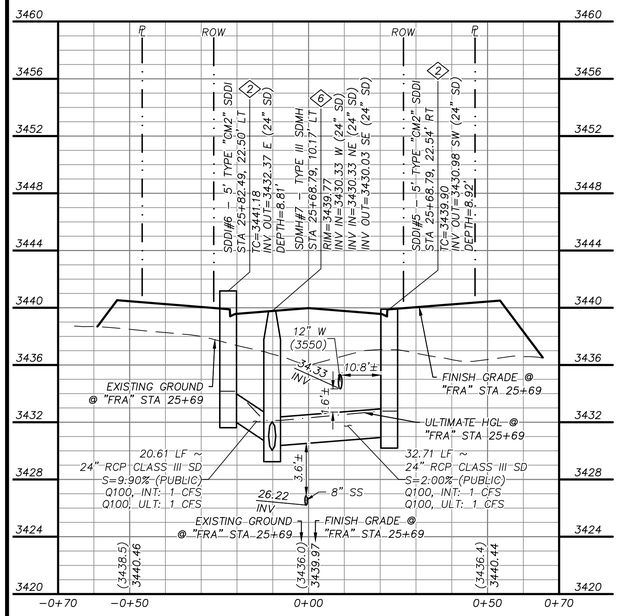
SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

ROADWAY PLAN AND PROFILE
STA. BEGIN TO 20+00

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
VERT.:	1"=5'
XXVXVXXX	
LXX-XXXXX	
DATE:	MARCH, 2021
DRAWING NO.	15 /24
JOB NO.	100068107

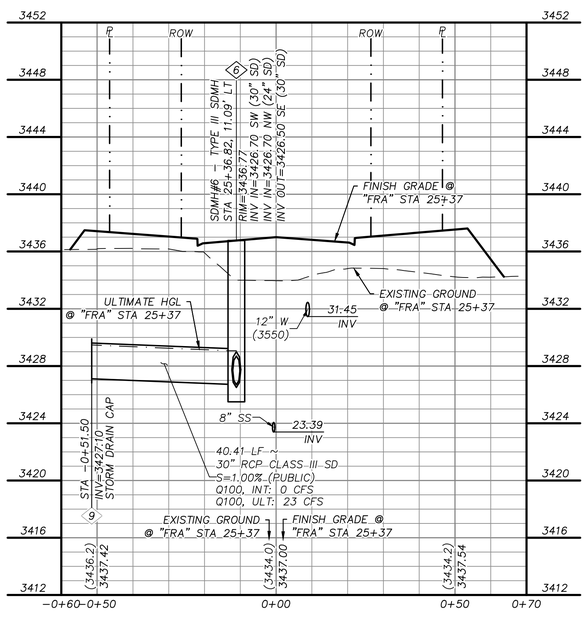
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STORM DRAIN LATERAL 1

"FRA" STA. 25+69 SEE SHEET 11

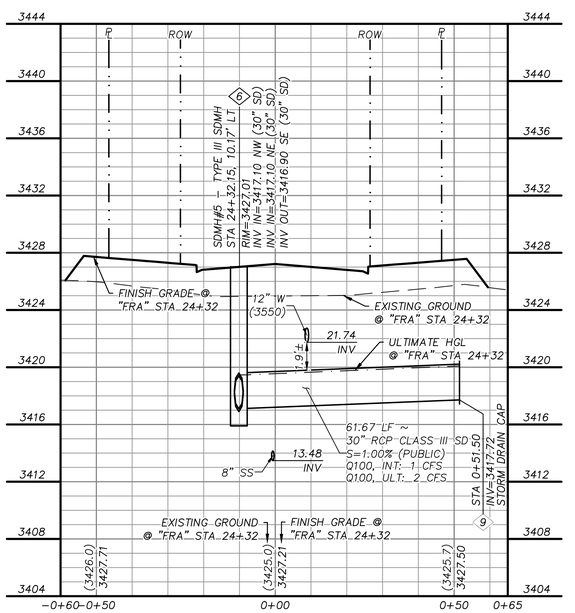
A 16



STORM DRAIN LATERAL 2

"FRA" STA. 25+37 SEE SHEET 11

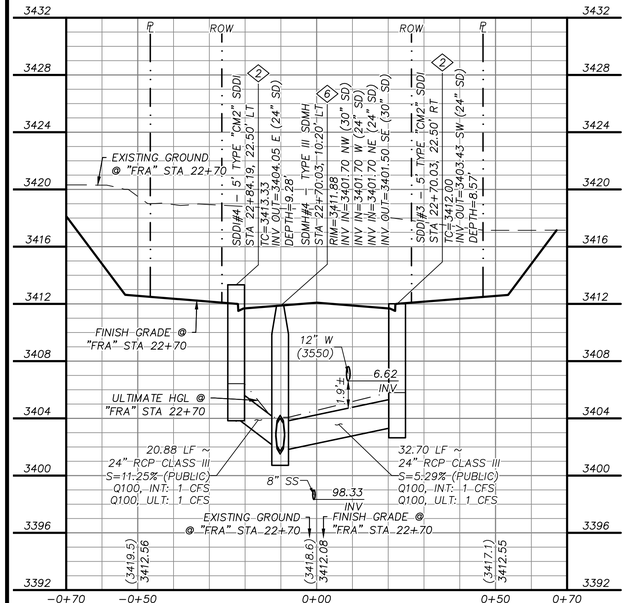
B 16



STORM DRAIN LATERAL 3

"FRA" STA. 24+32 SEE SHEET 11

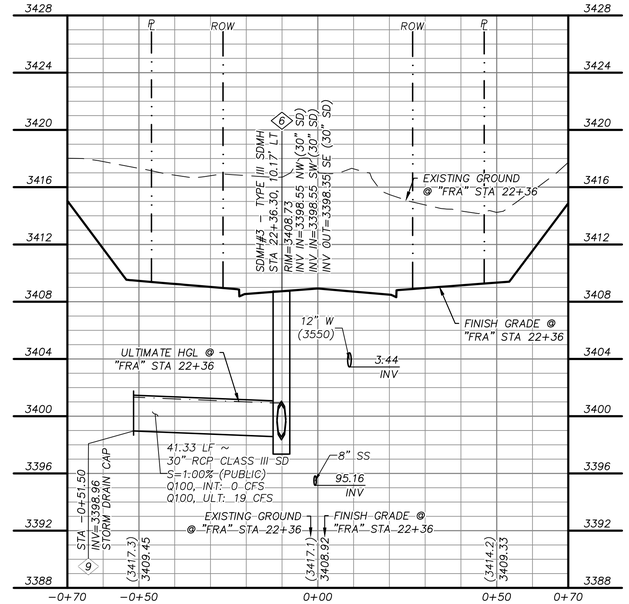
C 16



STORM DRAIN LATERAL 4

"FRA" STA. 22+70 SEE SHEET 13

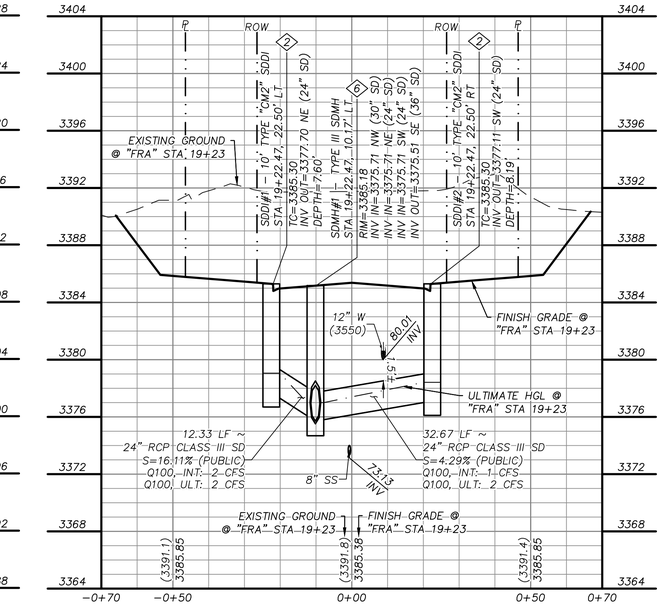
D 16



STORM DRAIN LATERAL 5

"FRA" STA. 22+36 SEE SHEET 13

E 16



STORM DRAIN LATERAL 6

"FRA" STA. 19+23 SEE SHEET 15

F 16

GRAPHIC SCALE

20 0 10 20 40

HORIZONTAL: 1"=20'

5 0 2.5 5 10

VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

GRADING PLAN CERTIFICATION

NICOLAS BARCOS PE#25673 DATE

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

DS#----

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

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Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES IN YOUR COUNTY. Call 811 or 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES, IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

STORM DRAIN CONSTRUCTION NOTES

1. INSTALL STORM DRAIN. SEE SHEET ROADWAY PLAN AND PROFILE SHEETS FOR ADDITIONAL STORM DRAIN NOTES AND INFORMATION.
2. INSTALL TYPE "CM2" DROP INLET PER CCAUSD #412.1 & #421
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10. INSTALL RIP−RAP (D50=8", THICKNESS=24")

SEWER CONSTRUCTION NOTES

1. INSTALL SEWER MANHOLE PER DCSWCS SD−1, AND SD−4
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3. STUB AND CAP SEWER PIPE. PLACE MARKER BALL AND 4"X4" POST, DOUGLAS FIR, OVER END OF PIPE AND INSTALL THRUST BLOCK (1 CUBIC FT. MINIMUM).
4. REMOVE CAP AND CONNECT TO EXISTING SEWER STUB
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7. SEWER MANHOLE BY OTHERS

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PROFESSIONAL ENGINEER−STATE OF NEVADA — NICOLAS A BARCOS — EXP. 12-31-22 — CIVIL — No. 25673 — 2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

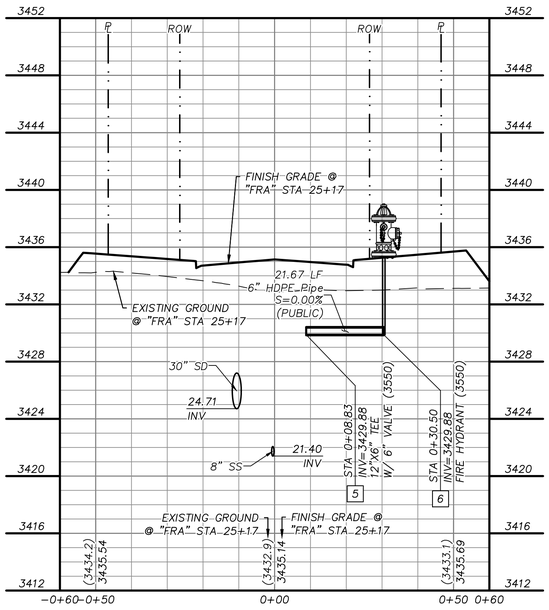
SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

STORM DRAIN LATERALS

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
VERT.:	1"=5'
DATE:	FEBRUARY, 2021
DRAWING NO.	16 /24
JOB NO.	100068107

XXVVXXXX
LXX−XXXXX

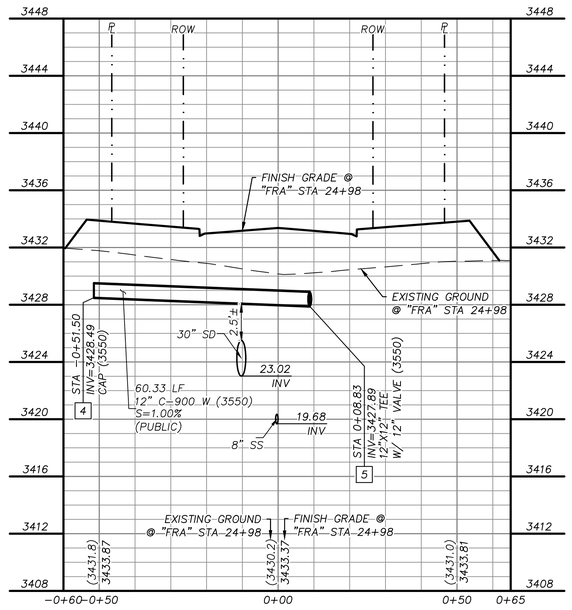
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WATER LATERAL 1

"FRA" STA. 25+17 SEE SHEET 11

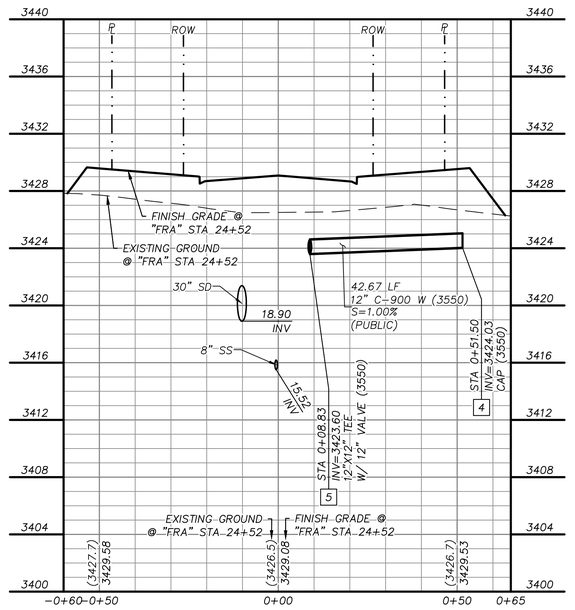
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WATER LATERAL 2

"FRA" STA. 24+98 SEE SHEET 11

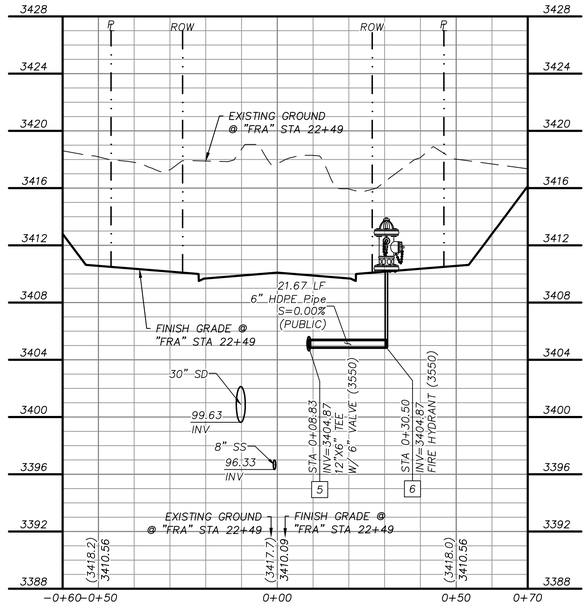
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WATER LATERAL 3

"FRA" STA. 24+52 SEE SHEET 11

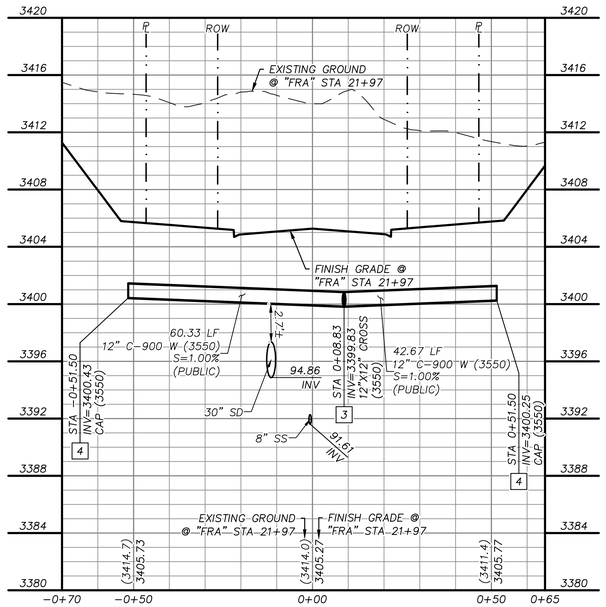
C 17



WATER LATERAL 4

"FRA" STA. 22+49 SEE SHEET 13

D 17



WATER LATERAL 5

"FRA" STA. 21+97 SEE SHEET 13

E 17

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WATER LATERAL PROFILES

GRAPHIC SCALE
20 0 10 20 40
HORIZONTAL: 1"=20'
5 0 2.5 5 10
VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

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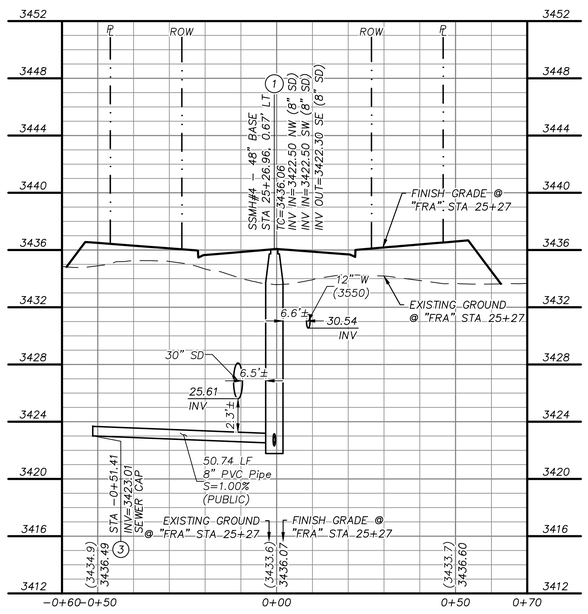
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PROFESSIONAL ENGINEER−STATE OF NEVADA NICOLAS A BARCOS EXP. 12-31-22 CIVIL No. 25673 2/25/2021

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: 1"=20'
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XXVVXXXX
LXX−XXXXX
DATE: FEBRUARY, 2021
DRAWING NO. 17 /24
JOB NO. 100068107

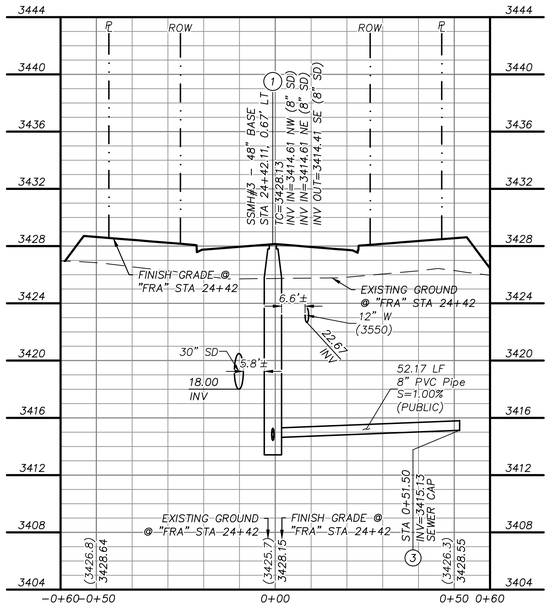
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SEWER LATERAL 1

"FRA" STA. 25+27 SEE SHEET 11

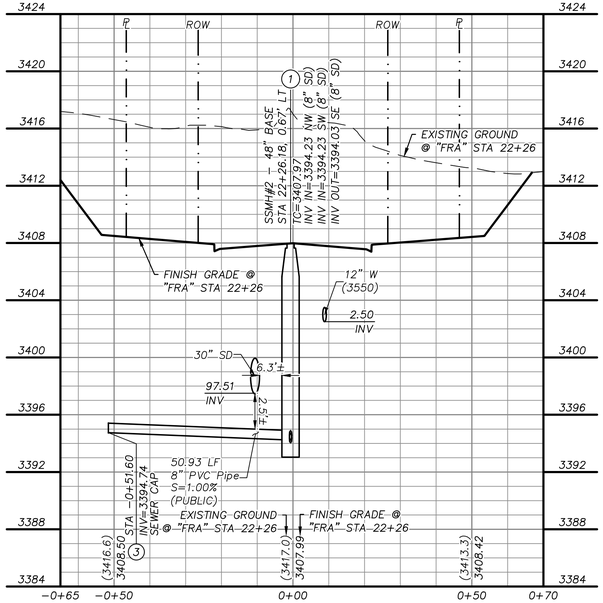
A 18



SEWER LATERAL 2

"FRA" STA. 24+42 SEE SHEET 11

B 18



SEWER LATERAL 3

"FRA" STA. 22+26 SEE SHEET 13

C 18

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GRAPHIC SCALE

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HORIZONTAL: 1"=20'

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VERTICAL: 1"=5'

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

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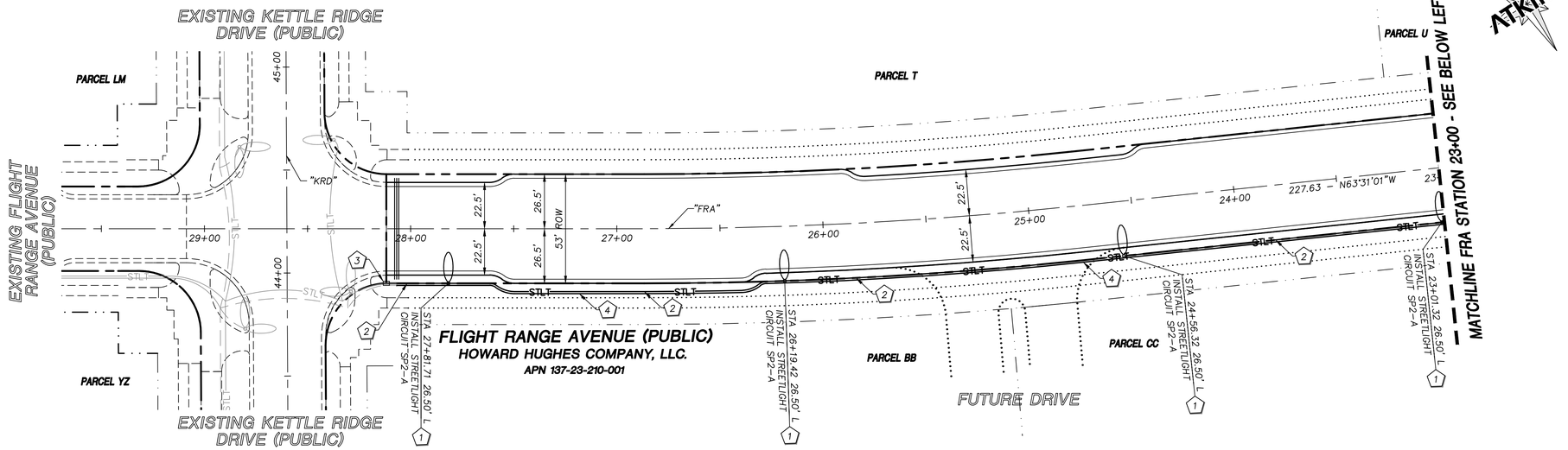
SUMMERLIN

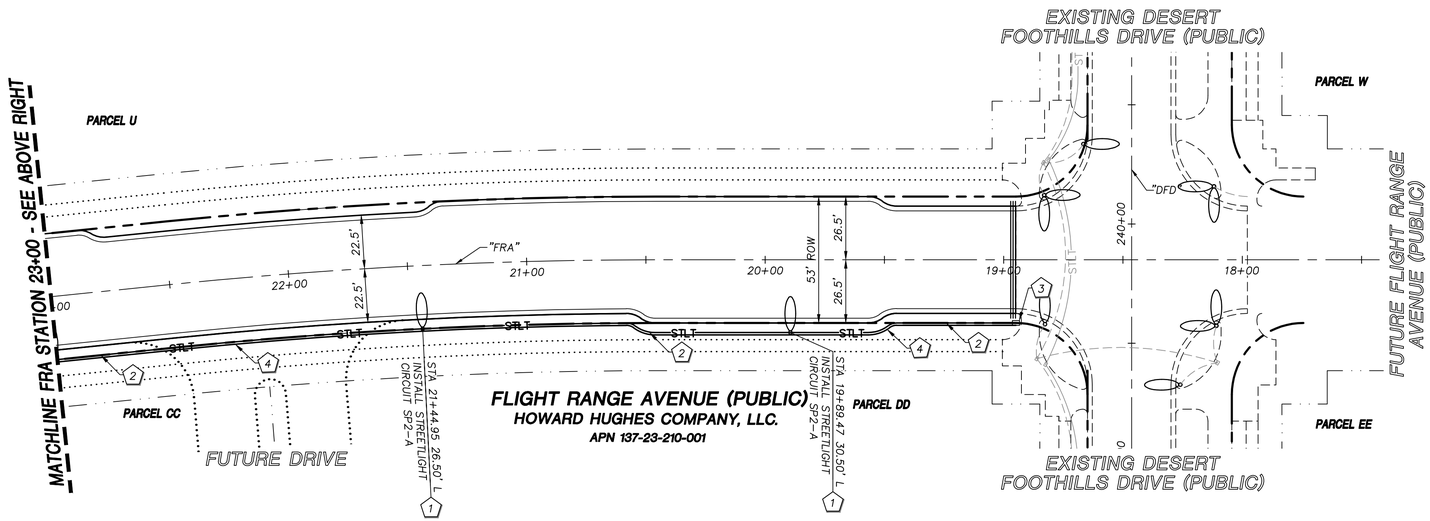
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SEWER LATERAL PROFILES

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	1"=20'
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XXVVXXXX	
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DATE:	FEBRUARY, 2021
DRAWING NO.	18 / 24
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STREET LIGHTING CONSTRUCTION NOTES

1	INSTALL TYPE 4 LED STREETLIGHT WITH 8' MAST ARMS AND LSI LUMINARE FIXTURE SUM-XGBM-LED-26L-SIL-2-UE-DIM-27-7-CRI-BRZ-NR-4397-SM BRKT WITH A 2700K COLOR TEMPERATURE PER APPROVED LED LIGHTING ANALYSIS. REFER TO SUMMERLIN STD DWG E-2, SEE SHEET 24 FOR TYPICAL LOCATION, AND CCAUSD #311, #316, AND #320.
2	INSTALL 1-1/4" STREETLIGHT CONDUIT W/ 2-#4 AND 1-#8 PER CCAUSD #501
3	INSTALL NO. 3-1/2" PULL BOX PER CCAUSD #705, SEE SHEET 24
4	INSTALL FAST CONDUIT

SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
STREETLIGHT		
TYPE 4 SINGLE ARM STREET LIGHT POLE ASSEMBLY	6	EA
1 1/4" STREET LIGHT CONDUIT WITH ALL WIRING	1890	LF
NO.3 1/2 PULL BOX	2	EA

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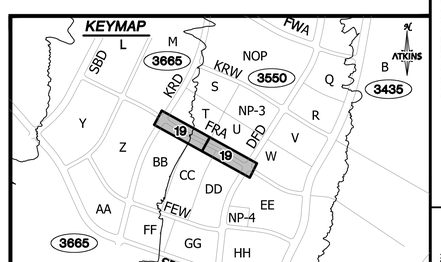
REVISIONS

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SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

STREETLIGHT PLAN



GRAPHIC SCALE
30 0 15 30 60
HORIZONTAL: 1"= 30'

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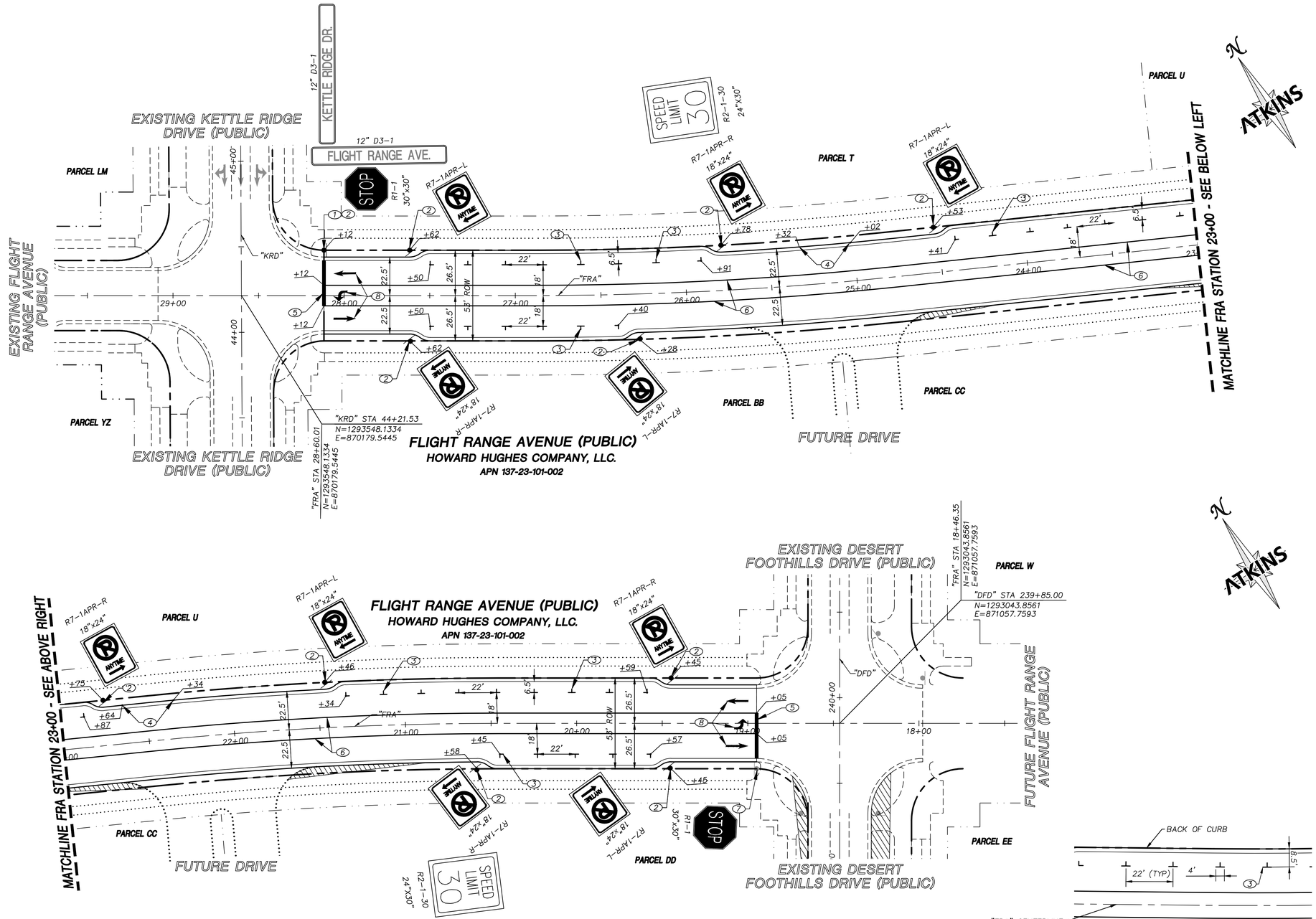
UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING CONSTRUCTION. NO REPRESENTATION IS MADE THAT ALL EXISTING UTILITIES ARE SHOWN HEREON. THE ENGINEER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

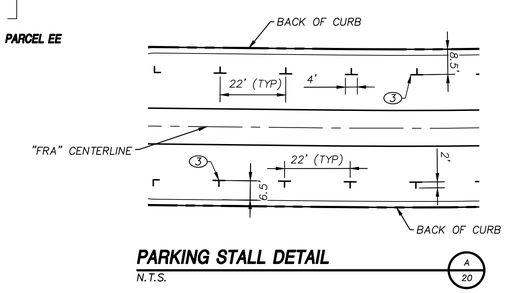
PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A. BARCOS
EXP. 12-31-22
CIVIL
No. 25673
2/25/2021

XXXVXXXX LXX-XXXXX	DESIGNED BY: N. BARCOS	DRAWN BY: L. MAMACLAY	CHECKED BY: P. BATES
DATE: FEBRUARY, 2021	DRAWING NO. 19/24	HORIZ.: 1"=30'	VERT.: NONE

JOB NO. 100068107

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PARKING STALL DETAIL

N.T.S.

A 20

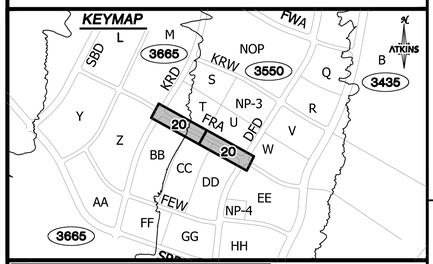
STRIPING AND SIGNAGE CONSTRUCTION NOTES

1. INSTALL STREET NAME SIGN (D3-1) PER CCAUSD #250 ON TOP OF STOP SIGN
2. INSTALL SIGN(S) ON PROPOSED POST PER CCAUSD #249.1
3. INSTALL PARKING STALLS PER DETAIL A THIS SHEET, TO BE MAINTAINED BY SUMMERLIN HOA.
4. PAINT CURB 15' EITHER DIRECTION OF FIRE HYDRANT (30' MINIMUM) & PLACE BLUE REFLECTIVE PAVEMENT MARKER IN MIDDLE OF ADJACENT DRIVE LANE NEAREST TO HYDRANT
5. INSTALL 24" SOLID WHITE LINE PER CCAUSD #254 (TYPE 2 PMF)
6. INSTALL 6" SOLID WHITE LINE PER CCAUSD #244.9 (POLUREA LPM)
7. INSTALL SIGN(S) ON EXISTING POST
8. INSTALL WHITE LANE USE ARROW (TYPE 2 PMF) PER MUTCD FIGURE 3B-24

SUMMARY OF QUANTITIES

DESCRIPTION	QUANTITY	UNIT
SIGNAGE AND STRIPING		
FIRE HYDRANT MARKING	2	EA
STOP SIGN	2	EA
STREET NAME SIGN	2	EA
6" WHITE STRIPE	1720	LF
24" WHITE STRIPE	82	LF
STREET SIGNS	14	EA
TYPE 2 PMF WHITE LANE USE ARROW	6	EA

REV.	DESCRIPTION	BY	DATE	APPROVAL
	REVISIONS			



ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

SIGNAGE AND STRIPING PLAN

GRAPHIC SCALE
30 0 15 30 60
HORIZONTAL: 1"= 30'

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368
(REVISED 2008)
NAVD88 ELEVATION: 989.574 METERS
(3,246.63 FEET)
FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
1215,859E,503

FAST Call before you UnderGround 1-702-432-5300 REGIONAL AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING OR HITTING BURIED UTILITY LINES. IT'S SAFETY. Call 811 or 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

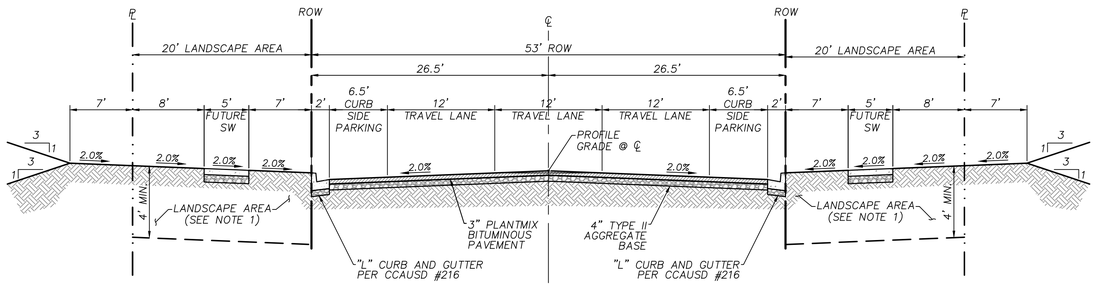
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PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS P. HARROS
EXP. 12-31-22
CIVIL
NO. 25675
2/25/2021

XXXVXXXX	DESIGNED BY: N. BARCOS
LXX-XXXXX	DRAWN BY: L. MAMACLAY
DATE: FEBRUARY, 2021	CHECKED BY: P. BATES
DRAWING NO. 20/24	HORIZ.: 1"=30' VERT.: NONE

JOB NO. 100068107

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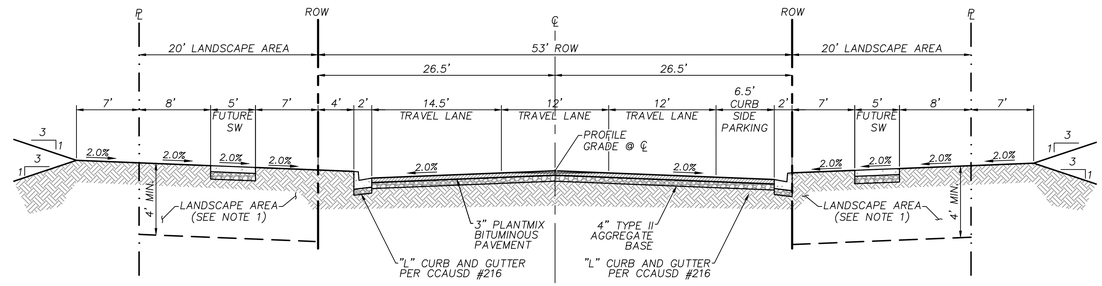
NOTES:

1. EXCAVATE BOTH SIDES TO DEPTH INDICATED PRIOR TO STREET IMPROVEMENTS. SIFT/SCREEN OUT ROCK AND DEBRIS GREATER THAN 6" FROM EXCAVATED MATERIAL, THEN BACKFILL TO 85% COMPACTION. FILL AS NECESSARY TO 2" BELOW THE FINISHED GRADE.

FLIGHT RANGE AVENUE - TYPICAL SECTION WITH PARKING BOTH SIDES

A / 21

N.T.S.



NOTES:

1. EXCAVATE BOTH SIDES TO DEPTH INDICATED PRIOR TO STREET IMPROVEMENTS. SIFT/SCREEN OUT ROCK AND DEBRIS GREATER THAN 6" FROM EXCAVATED MATERIAL, THEN BACKFILL TO 85% COMPACTION. FILL AS NECESSARY TO 2" BELOW THE FINISHED GRADE.

FLIGHT RANGE AVENUE - TYPICAL SECTION WITH PARKING ONE-SIDE PARKING

C / 21

N.T.S.

NOTES:

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FLIGHT RANGE AVENUE - TYPICAL SECTION WITHOUT PARKING

B / 21

N.T.S.

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

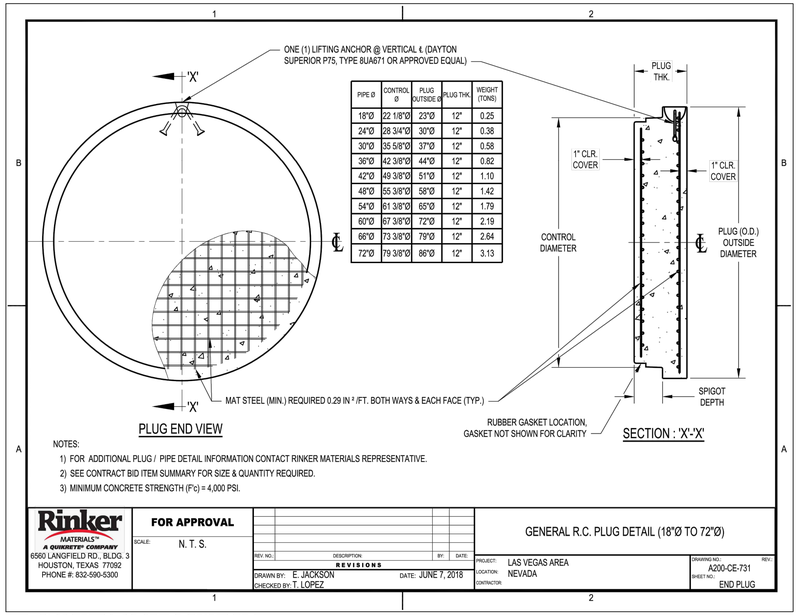
TYPICAL SECTIONS

PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A. BARCOS
EXP. 12-31-22
CIVIL
No. 25573
2/25/2021

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	NONE
VERT.:	NONE
XXXVXXXX	
LXX-XXXXX	
DATE	FEBRUARY, 2021
DRAWING NO.	21/24

JOB NO. 100068107

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PIPE Ø	CONTROL Ø	PLUG OUTSIDE Ø	PLUG THK	WEIGHT (TONS)
18"Ø	22 1/8"Ø	23"Ø	12"	0.25
24"Ø	28 3/4"Ø	30"Ø	12"	0.38
30"Ø	35 5/8"Ø	37"Ø	12"	0.58
36"Ø	42 3/8"Ø	44"Ø	12"	0.82
42"Ø	49 3/8"Ø	51"Ø	12"	1.10
48"Ø	55 3/8"Ø	58"Ø	12"	1.42
54"Ø	61 3/8"Ø	65"Ø	12"	1.79
60"Ø	67 3/8"Ø	72"Ø	12"	2.19
66"Ø	73 3/8"Ø	79"Ø	12"	2.64
72"Ø	79 3/8"Ø	86"Ø	12"	3.13

NOTES:
1) FOR ADDITIONAL PLUG / PIPE DETAIL INFORMATION CONTACT RINKER MATERIALS REPRESENTATIVE.
2) SEE CONTRACT BID ITEM SUMMARY FOR SIZE & QUANTITY REQUIRED.
3) MINIMUM CONCRETE STRENGTH (F'c) = 4,000 PSI.

Rinker MATERIALS™ A QUIKRETE® COMPANY
6560 LANGFIELD RD., BLDG. 3
HOUSTON, TEXAS 77092
PHONE #: 832-590-5300

FOR APPROVAL

SCALE: N. T. S.

REVISIONS

REV. NO.	DESCRIPTION	BY:	DATE:

DRAWN BY: E. JACKSON DATE: JUNE 7, 2018
CHECKED BY: T. LOPEZ

GENERAL R.C. PLUG DETAIL (18"Ø TO 72"Ø)

PROJECT: LAS VEGAS AREA
LOCATION: NEVADA
CONTRACTOR:

DRAWING NO.: A200-CE-731 REV:
SHEET NO.: END PLUG

TYPICAL STORM DRAIN CAP
N.T.S.

A
22

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.

BENCHMARK

CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008) NAVD88 ELEVATION: 989.574 METERS (3,246.63 FEET) FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN. T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 REGIONAL AND ARTERIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID CUTTING HAZARDOUS UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-642-2444

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PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A. BARCOS
EXP. 12-31-22
CIVIL
No. 25573
2/25/2021

REVISIONS

REV.	DESCRIPTION	BY:	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

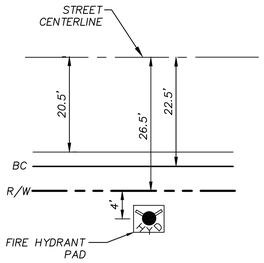
SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

STORM DRAIN DETAILS

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE

XXXVXXXX
LXX-XXXXX
DATE: FEBRUARY, 2021
DRAWING NO. 22/24
JOB NO. 100068107

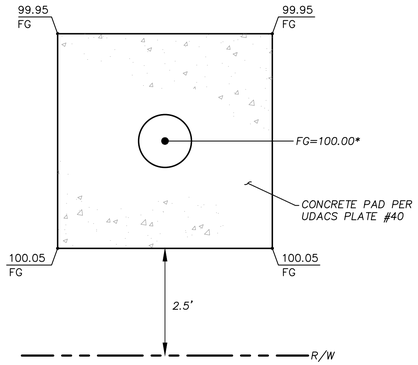
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FIRE HYDRANT LOCATION DETAIL

N.T.S.

A 23



*NOTE: THE GRADES SHOWN IN THIS DETAIL ARE RELATIVE NOT ACTUAL, 100.00 IS THE REFERENCE GRADE FOR THE CENTER OF PAD ELEVATION. SEE P-SHEETS FOR ACTUAL FINISHED GRADE FOR CENTER OF PAD. CALCULATE THE CORNER GRADES PER SHEET 9 FINISHED GRADE.

FIRE HYDRANT PAD GRADING DETAIL

N.T.S.

B 23

NOTES:

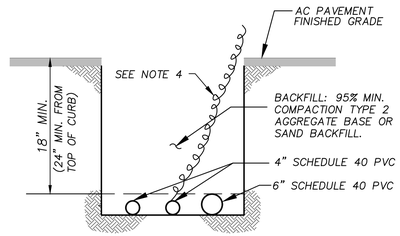
1 SLEEVES AND CONDUITS SHALL BE INSTALLED 18" BELOW FINISHED GRADE AND SHALL EXTEND 5' BEYOND BACK OF CURBS, WALLS AND PAVING.

2 CONTRACTOR SHALL RECORD LOCATIONS OF INSTALLED SLEEVES: A COPY OF THE FILED NOTES SHALL BE GIVEN TO SUMMERLIN'S ENGINEER FOLLOWING CONSTRUCTION.

3 HORIZONTAL LOCATION OF SLEEVES SHOWN ON P-SHEETS.

4 THE CONTRACTOR TO PROVIDE A WIRE THROUGH THE SLEEVE TO GRADE LEVEL (FOR FUTURE SLEEVE LOCATION).

5 CONTRACTOR TO IDENTIFY SLEEVE LOCATION ON TOP OF CURB.



IRRIGATION SLEEVES DETAIL

N.T.S.

C 18

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT
PLANNING AND ENGINEERING SERVICES

PROJECT NO. 0000 FIRST APPROVED DATE: _____

LVVWD APPROVED FIRE FLOW 1500 GPM AT 20 PSI RESIDUAL

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.

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(REVISED 2008)
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FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

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PROFESSIONAL ENGINEER-STATE OF NEVADA
NICOLAS A. BARCOS
EXP. 12-31-22
CIVIL
No. 25673
2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

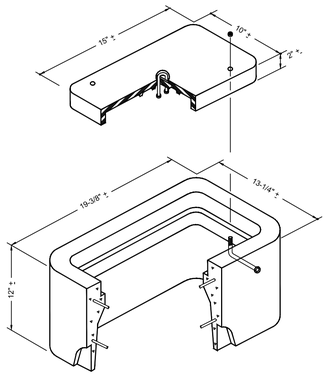
SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

WATER DETAILS

DESIGNED BY:	N. BARCOS
DRAWN BY:	L. MAMACLAY
CHECKED BY:	P. BATES
HORIZ.:	NONE
VERT.:	NONE
XX.XX.XXXX	
LXX-XXXXX	
DATE:	FEBRUARY, 2021
DRAWING NO.	23/24
JOB NO.	100068107

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CAST IRON SIDEWALK COVER MARKED "STREET LIGHT"

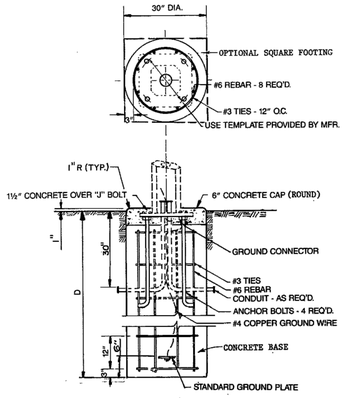
PRECAST REINFORCED CONCRETE BODY

NOTES:

1. THIS PULL BOX SHALL NOT BE USED IN TRAFFIC OR PARKING LANES.
2. ALL DIMENSIONS ARE NOMINAL.

AGENCY APPROVED	B	C	H	L	M	N
SPECIFICATION REFERENCE	UNIFORM STANDARD DRAWINGS CLARK COUNTY AREA					
	NO. 3 1/2 PULL BOX					
	DATE	DWG. NO. 705				

STREET LIGHT POLE FOUNDATIONS



	DEPTH "D"	ANCHOR BOLT
TYPE 1	6'6"	1¼" × 44" × 4"
TYPE 2	5'6"	1" × 36" × 4"
TYPE 3	4'6"	1" × 36" × 4"
TYPE 4	4'0"	1" × 30" × 4"

NOTE:

1. **ALL CONCRETE SHALL BE TYPE V CONCRETE CLASS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA.**
2. **PLACE CONCRETE AGAINST UNDISTURBED EARTH OR 95% COMPACTED BACKFILL (10' MIN. RADIUS AROUND FOUNDATION)**
3. **CALCULATION SHEETS AND DETAILS WILL BE SUBMITTED, SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. TO CLV FOR REVIEW AND APPROVAL FOR FOUNDATION DESIGNS OTHER THAN SHOWN PER THIS STANDARD.**

	DEPTH "D"	ANCHOR BOLTS
TYPE 5	12'-0"	1¾" × 0" × 6"
TYPE 6	10'-6"	1¼" × 44" × 4"

REVISED	APPROVALS (INITIALS)		
6-10-99	HHP	CCW	CLV
DATE			

REVISED	APPROVALS (INITIALS)		
2/2/93	HHP	CCW	CLV
DATE			

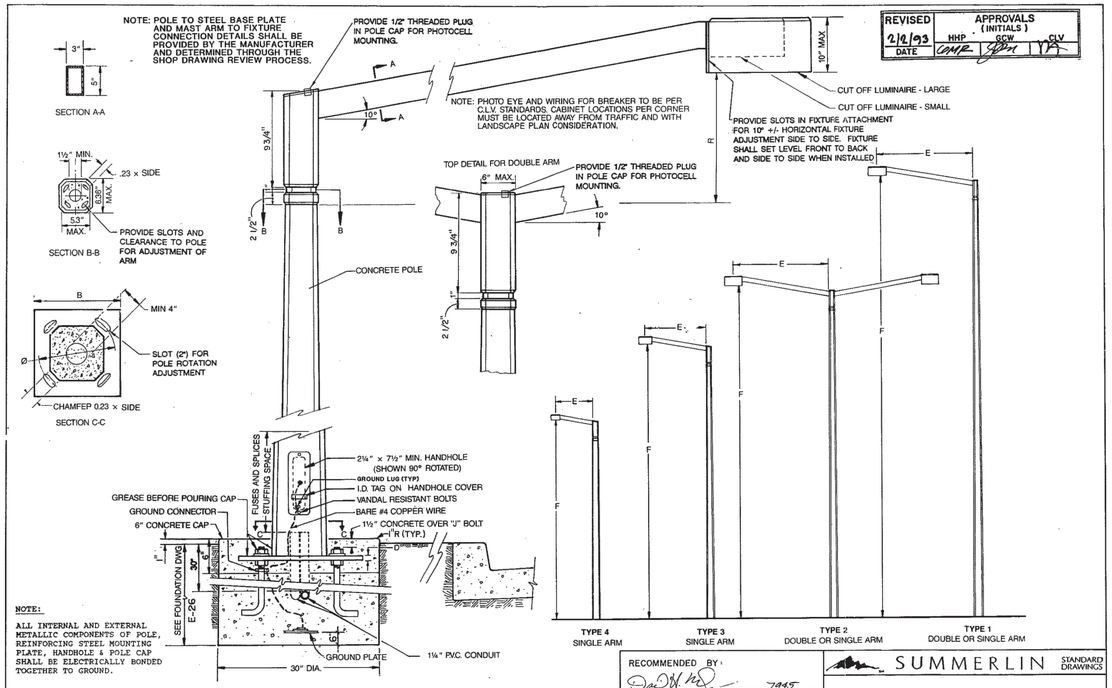
RECOMMENDED BY: DAVID H. MALPASS 7445 R.P.E.

APPROVED BY: C.L.V. CITY ENGINEER R.P.E.# 7569

SUMMERLIN STANDARD DRAWINGS

FOUNDATION

DATE 8-88 | DWG. NO. E-26 | PAGE NO. 1 OF 1



NOTE:

ALL INTERNAL AND EXTERNAL METALLIC COMPONENTS OF POLE, REINFORCING STEEL MOUNTING PLATE, HANDHOLE & POLE CAP SHALL BE ELECTRICALLY BONDED TOGETHER TO GROUND.

	"G"	"B"	"D"	"E"	"F"	"R"	SHAFT BASE	FOOTING	CUTOFF LUMINAIRE
TYPE 1	16"	16"	1"	8'	41'-9"	2.16	10'-1/4"	30"Ø X 6'6"	LARGE
TYPE 2A	14"	14"	3/4"	6'	31'-2"	2.16	9'-3/16"	30"Ø X 5'6"	LARGE
TYPE 2B	14"	14"	3/4"	5'	30'-7"	1.64	9'-3/16"	30"Ø X 5'6"	LARGE

	"B"	"B"	"D"	"E"	"F"	"R"	SHAFT BASE	FOOTING	CUTOFF LUMINAIRE
TYPE 3	14"	14"	3/4"	5'	264.5"	1.64	8'-5/8"	30"Ø X 4'4"	SMALL
TYPE 4	14"	14"	3/4"	3'	16'11.5"	1.29	7'-3/4"	30"Ø X 4'0"	SMALL

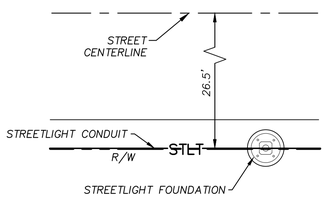
RECOMMENDED BY: DAVID H. MALPASS 7445 R.P.E.

APPROVED BY: C.L.V. CITY ENGINEER R.P.E.# 7569

SUMMERLIN STANDARD DRAWINGS

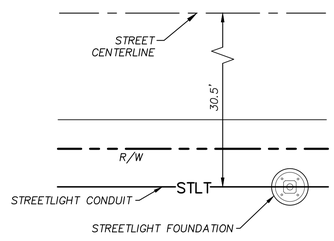
STREET LIGHT POLE, ARM AND FIXTURE DETAIL

DATE 8-88 | DWG. NO. E-2 | PAGE NO. 1 OF 1



STREETLIGHT FOUNDATION LOCATION DETAIL (A 24)

N.T.S.



STREETLIGHT FOUNDATION LOCATION DETAIL-PARKING (B 24)

N.T.S.

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.

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CITY OF LAS VEGAS BENCHMARK: D368 (REVISED 2008)
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FND USC&GS DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD. & WEST OF DETENTION BASIN.
T21S,R59E,S03

FAST Call before you UnderGround 1-702-432-5300 NEVADA'S ONE AND ONLY OFFICIAL SYSTEM OF TRANSPORTATION

Call before you Dig AVOID EXPENSIVE DAMAGE TO UNDERGROUND UTILITY LINES. IT'S COURTLY. Call 811 or 1-800-642-2444

AVOID HITTING OVERHEAD POWER LINES. IT'S COURTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

UTILITY LOCATIONS SHOWN HEREON ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS 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.

PROFESSIONAL ENGINEER-STATE OF NEVADA NICOLAS A. BARCOS EXP. 12-31-22 CIVIL No. 25575 2/25/2021

REVISIONS

REV.	DESCRIPTION	BY	DATE	APPROVAL

ATKINS
2270 Corporate Circle Suite 200
Henderson, Nevada 89074
Telephone: +1.702.263.7275
Fax: +1.702.263.7200

SUMMERLIN

SUMMERLIN WEST VILLAGE 22
FLIGHT RANGE AVENUE (STREET E)
DESERT FOOTHILLS DRIVE TO KETTLE RIDGE DRIVE (STREET J)

STREETLIGHT DETAILS

DESIGNED BY: N. BARCOS
DRAWN BY: L. MAMACLAY
CHECKED BY: P. BATES
HORIZ.: NONE
VERT.: NONE
DRAWING NO. 24/24
DATE FEBRUARY, 2021
XXXVXXXX LXX-XXXXX
JOB NO. 100068107

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