

DS #:

04991-1

APN:

138.32-312-613

PROJECT:

Renaissance Lot 1 Storm Drain - Update

SUBMITTAL:

3rd

SCANNED BY/DATE:

CHECKED BY/DATE:



CITY OF LAS VEGAS		DATE:
INTER-OFFICE MEMORANDUM		June 21, 2019
TO: Land Development Services Department of Building & Safety		FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT: Drainage Study for: Renaissance Lot 1 Storm Drain - Update		COPIES TO: GCW Engineers / Surveyors
Cross Streets:	SEC of Alta Drive & Rampart Boulevard	RA Southeast Land Company
File Number:	F:\Depot\DSMemos\DS4991D.doc	Bart Anderson, P.E., DevCo
Parcel Number:	138-32-312-013	
Zoning Action:	TMP-71533	
FEMA Flood Zone	YES	NO X
Proposed Storm Drain	YES	NO X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	5/16/2018	6/7/2018	Not Approved	\$400.00	495840: \$400
2 nd Submittal	6/28/2018	7/16/2018	Conditional Approval	\$400.00	496991: \$400
CCRFGD	8/9/2018	8/21/2018	Concurrence Recv'd	N/C	N/C
3 rd Submittal	6/17/2019	6/21/2019	See Comments Below	\$100.00	3454674: \$100
TOTAL FEES (LDDRS):				\$900.00	----

REMARKS:

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

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

1. *City of Las Vegas* does not allow HDPE pipe in public right-of-ways or public drainage easements. Note that *City of Las Vegas* only allows the use of HDPE storm drain pipes for privately owned and privately maintained storm drain systems which serve and are located exclusively on private properties. Any proposed HDPE storm drain pipes must also meet all design criteria established by the *Clark County Regional Flood Control District* and must be installed per *Clark County Regional Transportation Commission Uniform Standard Drawings and Specifications*.

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

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

END OF REMARKS

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T/R/S: T20S/R60E/32
AREA L-32

**TECHNICAL DRAINAGE STUDY
UPDATE
FOR
RENAISSANCE LOT 1
(RENAISSANCE LOT 1 STORM DRAIN)**

840-065

June 2019

Prepared for:

**RA Southeast Land Company LLC
6422 W. Charleston Blvd.
Las Vegas, NV 89117**

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

Name of Development: Renaissance Lot 1 - Update Date: June 2019

Location of Development: a) Descriptive (Cross Streets) North/South: Rampart Boulevard

East/West: Alta Drive

b) Section: 32 Township: 20S Range: 60E

c) APN : 138-32-723-001

Name of Owner: RA Southeast Land Company LLC

Telephone No.: 702-940-6930 Fax No.: 702-970-6931 E-Mail Address: info@EHBcompanies.com

Address: 9755 W. Charleston Blvd Las Vegas, NV 89117

Contact Person-Name: Todd Kelley, P.E. Telephone No.: 702-804-2144

* E-Mail Address: TKelley@gcwengineering.com Fax No.: 702-804-2299

Firm: GCW

Address: 1555 S. Rainbow Blvd Las Vegas, NV 89146

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: 7.8 ac Being Developed/Disturbed: 7.8 ac

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

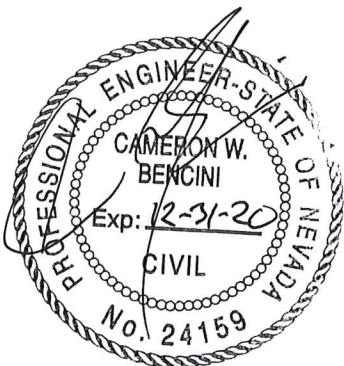
4. Proposed type of development (Residential, Commercial, Etc.): Commercial

5. Approximate upstream land area which drains to the subject site: 2 acres

6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Boca Park North Phase II @ Peccole Town Center DS 2799 & Peccole Town Center DS2278

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: 60" RCP under Alta Drive and surface flow to Alta Drive

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



Engineer's Seal 6-10-19

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

840-065

June 11, 2019

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

Re: Update to the Technical Drainage Study for Renaissance Lot 1 (DS4991C)

Dear Mr. Sung:

The purpose of this letter is to update the above-referenced project per the significantly reduced scope of the work. Details regarding the reduced scope are addressed below.

Since the previous approval, the proposed site plan was scrapped. Currently there isn't a site plan prepared for this project; however, the developer wants to construct storm drain infrastructure in preparation for potential investors. Note that the name of the project has been revised to for Renaissance Lot 1 Storm Drain.

Storm drain changes include;

- The existing mainline storm drain conveying flow through the site is to remain in place.
- This study no longer proposes to redirect storm drain flow along the site entryway.
- Most the storm drain stubs are to remain as designed within the Original TDS with the exception of the stub centrally located within the development which is no longer proposed.
- The existing system located west of the Elysian Renaissance building is to be upsized in preparation of a future storm drain connection. To optimize the entire development area, it's anticipated that future developers will likely want to divert flow from the Boca Park Study (103-cfs) around the property. The proposed storm drain system will allow for this diversion.
- The existing pipe that traverses through the property that connects the garage runoff to the existing storm drain will be removed as indicated by the Original TDS.

An illustration of the storm drain to remain is provided on Figure 4 in Appendix B. All pertinent hydraulic calculations have been included in Appendix C. A copy of the approved TDS IPs with mark-ups is provided in Appendix D.

Cordially,

GCW, INC.



Cameron Bencini, P.E.
Flood Control Division

APPENDIX A

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM		DATE: August 21, 2018
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: Renaissance Lot 1	COPIES TO: GCW Engineers / Surveyors
Cross Streets:	SEC of Alta Drive & Rampart Boulevard	RA Southeast Land Company
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END OF REMARKS

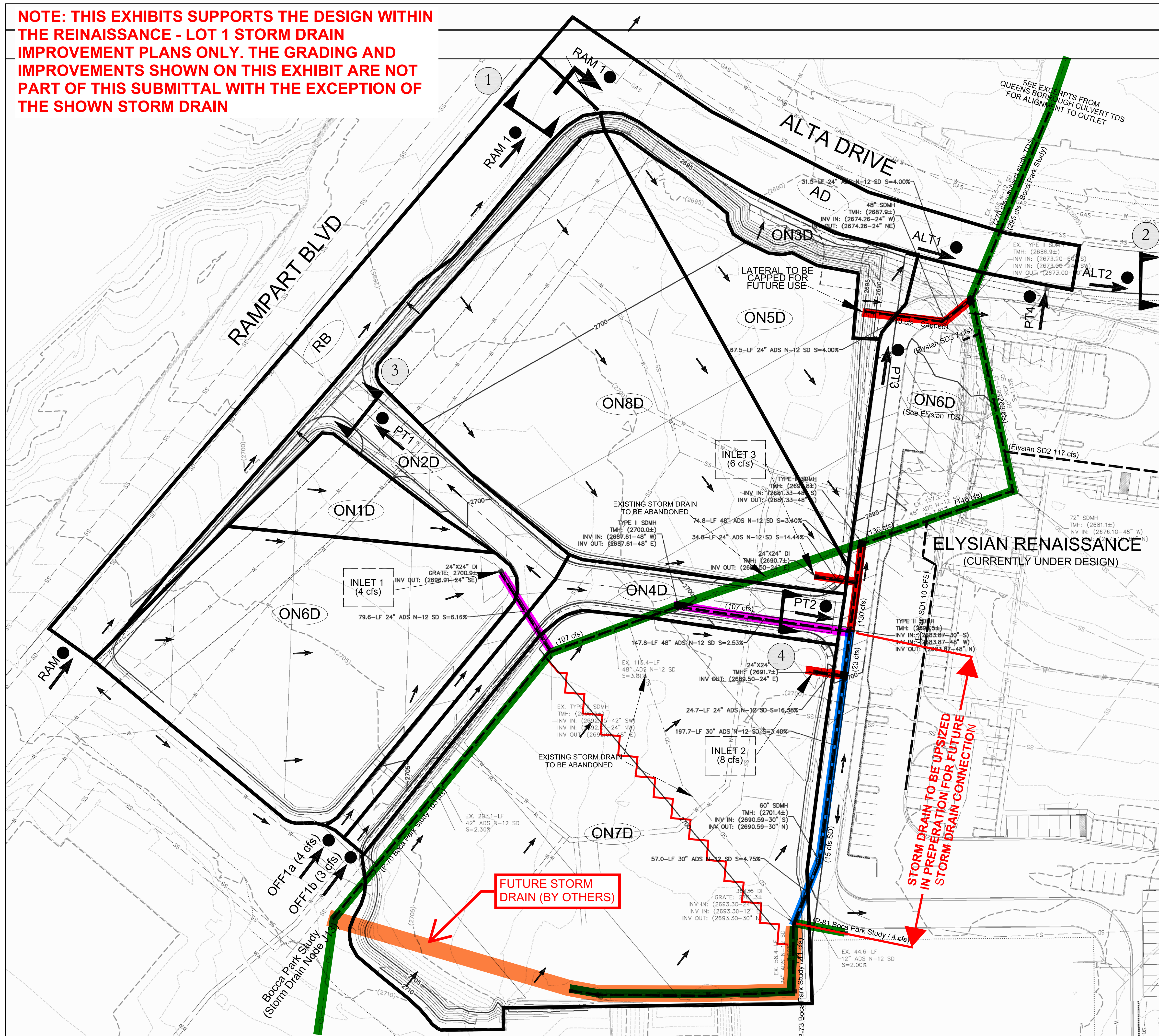
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T/R/S: T20S/R60E/32

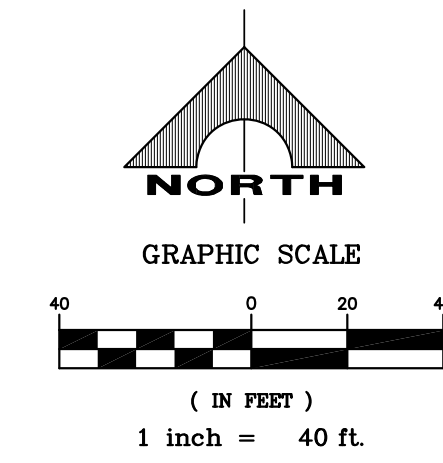
AREA L-32

APPENDIX B

NOTE: THIS EXHIBITS SUPPORTS THE DESIGN WITHIN THE REINAISSANCE - LOT 1 STORM DRAIN IMPROVEMENT PLANS ONLY. THE GRADING AND IMPROVEMENTS SHOWN ON THIS EXHIBIT ARE NOT PART OF THIS SUBMITTAL WITH THE EXCEPTION OF THE SHOWN STORM DRAIN



DRAINAGE LEGEND	
	BASIN IDENTIFICATION
	BASIN BOUNDARY
	CONCENTRATION POINT
	FLOW PATH
	STORM DRAIN LOCATION AND 100% RUNOFF
	HYDRAULIC CROSS SECTION



PEAK FLOW RATES FOR DEVELOPED CONDITIONS					
CONC. POINT/ DRAINAGE AREA / FACILITY		AREA, ACRES	PEAK FLOW, CFS		NOTES
			10-YR	100-YR	
OFF1b			2	4	Half of OFF1c- See Figure 3
ON1D		0.23	<1	1	
ON2D		0.054	1	2	
PT1			3	7	OFF1a+ON1D+ON2D
RAM			1	24	1
RB		0.74	2	3	
RAM1			6	34	PT1+RAM+RB
AD		1.48	1	2	
ON3D		0.22	<1	1	
ALT1			7	37	RAM1+AD+ON3D
OFF1b			1	3	Half of OFF1c- See Figure 3
ON4D		0.37	1	1	
PT2			2	4	OFF1b+ON4D
ON5D		0.63	1	2	
PT3			3	6	PT2+ON5D
ON6D (offsite)		0.64	1	2	
PT4			4	8	PT3+ON6D
ALT2			11	45	ALT1+PT4
ON6D		1.26	2	4	
ON7D		2.54	4	8	
ON8D		1.56	3	6	

1. Referenced from Peccole Town Center study. Runoff generated from eastern half of Rampart Boulevard expected to flow down the south half of Alta Drive.
2. Referenced from Elysian Renaissance TDS

STORM DRAIN CALCS FOR DEVELOPED CONDITIONS		
RENAISSANCE LOT 1		
INLET / NODE	STORM DRAIN RUNOFF / INTERCEPTION (cfs)	NOTES
P-70	103	See Bocca Park Study
INLET 1	4	
TOTAL1	107	P70+INLET1
	4	
P-81	4	See Bocca Park Study
P-73	11	See Bocca Park Study
INLET 2	8	
TOTAL2	23	P81 + P73 + INLET2
	6	
INLET 3	6	
TOTAL3	136	TOTAL1 + TOTAL2 + INLET3
Elysian SD1	10	See Elysian T06
Elysian SD2	117	See Elysian T05
Elysian SD3	7	See Elysian T05
TOTAL4	270	TOTAL 3 + Elysian

STREET CAPACITY CALCULATIONS DEVELOPED CONDITIONS - RENAISSANCE LOT1						
HYDRAULIC SECTION	SLOPE,	Q ₂₅ / Q ₁₀₀	V ₁₀ / V ₁₀₀ ,	V ₁₀ ³ / V ₁₀₀ ³	Dry Lane Feet	Yes/No
	%	CFS	FEET	FPS		
Section 1 - Rampart East Half (MIN)	1.1	61/44	0.42/0.67	2.83/3.80	1.1/2.5	YES
Section 1 - Rampart East Half (MAX)	4.0	61/44	4.30/6.37	11.0/16.49	1.1/2.5	YES
Section 2 - Alta Drive South Half	2.1	11/45	0.45/0.57	4.41/5.81	2.1/2.44	YES
Section 3 - Interior Street	2.3	3/7	0.27/0.34	2.69/3.21	0.73/1.09	NA
Section 4 - Interior Street	1.7	2/4	0.26/0.30	2.17/2.50	0.54/0.75	NA

- 
- | | |
|---|--|
|  | EXISTING STORM DRAIN TO BE REMOVED |
|  | EXISTING STORM DRAIN TO REMAIN |
|  | STORM DRAIN PROPOSED BY ORIGINAL STUDY, TO BE CONSTRUCTED WITH STORM DRAIN PHASE |
|  | STORM DRAIN PROPOSED BY ORIGINAL STUDY, BUT NOT TO BE CONSTRUCTED WITH STORM DRAIN PHASE |
|  | STORM DRAIN TO BE UPSIZED IN PREPARATION FOR FUTURE STORM DRAIN CONNECTION |
|  | FUTURE STORM DRAIN (TO BE CONSTRUCTED BY OTHERS) |

FIGURE 4

DEVELOPED CONDITIONS DRAINAGE MAP
RENAISSANCE LOT 1

GCI
ENGINEERS' SURVEYORS

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

APPENDIX C

FILE: Main1.WSW Main1.EDT
W S P G W - EDIT LISTING - Version 14.10 Date: 6-10-2019 Time: 4:19:28
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE WIDTH	PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1			4.000														
CD	2	4	1			2.500														
CD	3	4	1			2.000														
CD	4	4	1			5.000														
CD	5	4	1			4.500														
CD	6	4	1			3.500														

W S P G W PAGE NO 1
WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS - Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)
HEADING LINE NO 2 IS - Main Model Update
HEADING LINE NO 3 IS - Modified Previously Approved Model for Renaissance Lot 1

W S P G W PAGE NO 2
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	SYSTEM OUTLET	STATION	INVERT	SECT	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO 1	IS	A	SYSTEM OUTLET	U/S DATA	STATION	INVERT	SECT				
				-136.960	2659.300	4	2669.000				
ELEMENT NO 2	IS	A	WALL EXIT	U/S DATA	STATION	INVERT	SECT				
				-136.960	2659.300	4					
ELEMENT NO 3	IS	A	REACH	U/S DATA	STATION	INVERT	SECT				
				-2.960	2660.570	4					
ELEMENT NO 4	IS	A	WALL ENTRANCE	U/S DATA	STATION	INVERT	SECT				
				-2.960	2660.570	4					
ELEMENT NO 5	IS	A	REACH	U/S DATA	STATION	INVERT	SECT				
				3.040	2660.770	4					
ELEMENT NO 6	IS	A	WALL EXIT	U/S DATA	STATION	INVERT	SECT				
				3.040	2660.770	4					
ELEMENT NO 7	IS	A	REACH	U/S DATA	STATION	INVERT	SECT				
				167.540	2673.000	4					
ELEMENT NO 8	IS	A	WALL ENTRANCE	U/S DATA	STATION	INVERT	SECT				
				167.540	2673.000	4					
ELEMENT NO 9	IS	A	REACH	U/S DATA	STATION	INVERT	SECT				
				173.540	2673.200	4					
ELEMENT NO 10	IS	A	WALL EXIT	U/S DATA	STATION	INVERT	SECT				
				173.540	2673.200	4					
ELEMENT NO 11	IS	A	REACH	U/S DATA	STATION	INVERT	SECT				
				201.250	2673.510	4					
ELEMENT NO 12	IS	A	JUNCTION	U/S DATA	STATION	INVERT	SECT				
				203.250	2673.530	4					

W S P G W PAGE NO 3
WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	IS	A	REACH	STATION	INVERT	SECT	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
ELEMENT NO 13	IS	A	REACH	U/S DATA	STATION	INVERT	SECT						
				300.670	2674.600	4							
ELEMENT NO 14	IS	A	JUNCTION	U/S DATA	STATION	INVERT	SECT						
				306.670	2674.800	4							
ELEMENT NO 15	IS	A	REACH	U/S DATA	STATION	INVERT	SECT						
				335.650	2675.100	4							
ELEMENT NO 16	IS	A	WALL ENTRANCE	U/S DATA	STATION	INVERT	SECT						
				335.650	2675.100	4							
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS													
ELEMENT NO 17	IS	A	REACH	U/S DATA	STATION	INVERT	SECT						
				341.650	2676.100	1							
ELEMENT NO 18	IS	A	WALL EXIT	U/S DATA	STATION	INVERT	SECT						
				341.650	2676.100	1							
ELEMENT NO 19	IS	A	REACH	U/S DATA	STATION	INVERT	SECT						
				406.050	2678.680	1							
ELEMENT NO 20	IS	A	JUNCTION	U/S DATA	STATION	INVERT	SECT						
				412.050	2678.880	1							

Main1.EDT

ELEMENT NO	IS A	REACH	STATION	INVERT	SECT	RADIUS	ANGLE	ANG PT	MAN H
21	IS A	REACH	472.850	2681.230	1	.013	.000	.000	0
22	IS A	WALL ENTRANCE	472.850	2681.230	1	FP	.020		
W S P G W									
WATER SURFACE PROFILE - ELEMENT CARD LISTING									
23	IS A	REACH	478.850	2681.430	1	.014	.000	.000	0
24	IS A	WALL EXIT	478.850	2681.430	1		.000	-50.000	0
25	IS A	REACH	509.580	2682.477	1	.013	.000	.000	0
26	IS A	JUNCTION	509.580	2682.477	1	.014	.000	.000	0
Q3 Q4 INVERT-3 INVERT-4 PHI 3 PHI 4									
6.000 .000 2682.477 .000 90.000 .000									
RADIUS ANGLE									
.000 .000									
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING									
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING									
27	IS A	REACH	590.080	2685.214	1	.013	.000	.000	0
28	IS A	JUNCTION	590.080	2685.214	1	.014	.000	.000	0
Q3 Q4 INVERT-3 INVERT-4 PHI 3 PHI 4									
8.000 .000 2685.214 .000 90.000 .000									
RADIUS ANGLE									
.000 .000									
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING									
THE ABOVE ELEMENT CONTAINED AN INVERT ELEV WHICH WAS NOT GREATER THAN THE PREVIOUS INVERT ELEV -WARNING									
29	IS A	REACH	748.290	2690.590	1	.013	.000	.000	0
30	IS A	WALL EXIT	748.290	2690.590	6		.000	14.040	0
31	IS A	REACH	805.290	2692.460	6	.013	.000	.000	0
W S P G W									
WATER SURFACE PROFILE - ELEMENT CARD LISTING									
32	IS A	SYSTEM HEADWORKS	805.290	2692.460	6		.000		5
W S ELEV									
.000									

WATER SURFACE PROFILE LISTING
 Date: 6-10-2019 Time: 4:19:30
 Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)
 Main Model Update

Modified Previously Approved Model for Renaissance Lot 1

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
-136.960	2659.300	9.700	2669.000	270.00	13.75	2.94	2671.94	.00	4.54	.00	5.000	.000	.00	0 .0
WALL EXIT														
-136.960	2659.300	9.700	2669.000	270.00	13.75	2.94	2671.94	.00	4.54	.00	5.000	.000	.00	1 .0
134.000	.0095					.0107	1.44	9.70	.00	4.49	.013	.00	.00	PIPE
-2.960	2660.570	9.870	2670.440	270.00	13.75	2.94	2673.38	.00	4.54	.00	5.000	.000	.00	1 .0
HYDRAULIC JUMP														
-2.960	2660.570	2.446	2663.016	270.00	28.29	12.42	2675.44	.00	4.54	5.00	5.000	.000	.00	0 .0
HYDRAULIC DROP														
-2.960	2660.570	9.870	2670.440	270.00	13.75	2.94	2673.38	.00	4.54	.00	5.000	.000	.00	1 .0
6.000	.0333					.0125	.07	9.87	.00	2.82	.014	.00	.00	PIPE
3.040	2660.770	9.842	2670.612	270.00	13.75	2.94	2673.55	.00	4.54	.00	5.000	.000	.00	0 .0
WALL EXIT														
3.040	2660.770	9.842	2670.612	270.00	13.75	2.94	2673.55	.00	4.54	.00	5.000	.000	.00	1 .0
11.179	.0743					.0107	.12	9.84	.00	2.14	.013	.00	.00	PIPE
14.219	2661.601	9.131	2670.732	270.00	13.75	2.94	2673.67	.00	4.54	.00	5.000	.000	.00	1 .0
HYDRAULIC JUMP														
14.219	2661.601	2.457	2664.058	270.00	28.11	12.27	2676.33	.00	4.54	5.00	5.000	.000	.00	1 .0
3.246	.0743					.0453	.15	2.46	3.57	2.14	.013	.00	.00	PIPE

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L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
17.465	2661.843	2.467	2664.310	270.00	27.96	12.14	2676.45	.00	4.54	5.00	5.000	.000	.00	1 .0
31.410	.0743					.0422	1.33	2.47	3.55	2.14	.013	.00	.00	PIPE
48.875	2664.178	2.562	2666.740	270.00	26.66	11.03	2677.77	.00	4.54	5.00	5.000	.000	.00	1 .0
24.356	.0743					.0372	.91	2.56	3.30	2.14	.013	.00	.00	PIPE
73.231	2665.989	2.661	2668.650	270.00	25.42	10.03	2678.68	.00	4.54	4.99	5.000	.000	.00	1 .0
19.460	.0743					.0328	.64	2.66	3.07	2.14	.013	.00	.00	PIPE
92.690	2667.435	2.765	2670.200	270.00	24.23	9.12	2679.32	.00	4.54	4.97	5.000	.000	.00	1 .0
15.870	.0743					.0290	.46	2.77	2.85	2.14	.013	.00	.00	PIPE
108.560	2668.615	2.874	2671.489	270.00	23.11	8.29	2679.78	.00	4.54	4.94	5.000	.000	.00	1 .0
13.083	.0743					.0256	.33	2.87	2.65	2.14	.013	.00	.00	PIPE
121.644	2669.588	2.990	2672.578	270.00	22.03	7.54	2680.11	.00	4.54	4.90	5.000	.000	.00	1 .0
10.877	.0743					.0227	.25	2.99	2.46	2.14	.013	.00	.00	PIPE
132.520	2670.396	3.113	2673.510	270.00	21.01	6.85	2680.36	.00	4.54	4.85	5.000	.000	.00	1 .0
9.084	.0743					.0201	.18	3.11	2.27	2.14	.013	.00	.00	PIPE

Main1.OUT

141.604	2671.072	3.243	2674.315	270.00	20.03	6.23	2680.54	.00	4.54	4.77	5.000	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
7.561	.0743					.0178	.13	3.24	2.10	2.14	.013	.00	.00	PIPE	
149.165	2671.634	3.382	2675.016	270.00	19.10	5.66	2680.68	.00	4.54	4.68	5.000	.000	.00	1	.0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
6.239	.0743					.0159	.10	3.38	1.94	2.14	.013	.00	.00	PIPE	

FILE: Main1.WSW
 W S P G W - CIVILDESIGN Version 14.08
 Program Package Serial Number: 3074
 WATER SURFACE PROFILE LISTING
 Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)
 Main Model Update
 Modified Previously Approved Model for Renaissance Lot 1
 Date: 6-10-2019 Time: 4:19:30
 PAGE 3

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
155.404	2672.098	3.532	2675.630	270.00	18.21	5.15	2680.78	.00	4.54	4.55	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
5.086	.0743					.0142	.07	3.53	1.78	2.14	.013	.00	.00	PIPE
160.490	2672.476	3.694	2676.170	270.00	17.36	4.68	2680.85	.00	4.54	4.39	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
4.031	.0743					.0127	.05	3.69	1.63	2.14	.013	.00	.00	PIPE
164.521	2672.776	3.871	2676.647	270.00	16.55	4.25	2680.90	.00	4.54	4.18	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
3.019	.0743					.0115	.03	3.87	1.48	2.14	.013	.00	.00	PIPE
167.540	2673.000	4.068	2677.068	270.00	15.78	3.87	2680.94	.00	4.54	3.89	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
.177	.0333					.0126	.00	4.07	1.33	2.82	.014	.00	.00	PIPE
167.717	2673.006	4.073	2677.079	270.00	15.76	3.86	2680.94	.00	4.54	3.89	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
5.823	.0333					.0121	.07	4.07	1.32	2.82	.014	.00	.00	PIPE
173.540	2673.200	4.300	2677.500	270.00	15.03	3.51	2681.01	.00	4.54	3.47	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
WALL EXIT														
173.540	2673.200	4.299	2677.499	270.00	15.03	3.51	2681.01	.00	4.54	3.47	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
27.710	.0112					.0097	.27	4.30	1.16	4.01	.013	.00	.00	PIPE
201.250	2673.510	4.537	2678.047	270.00	14.42	3.23	2681.28	.00	4.54	2.90	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
JUNCT STR	.0100					.0114	.02	4.54	1.00		.014	.00	.00	PIPE
203.250	2673.530	5.123	2678.653	263.00	13.39	2.79	2681.44	.00	4.50	.00	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
97.420	.0110					.0102	.99	5.12	.00	3.94	.013	.00	.00	PIPE

FILE: Main1.WSW
 W S P G W - CIVILDESIGN Version 14.08
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 WATER SURFACE PROFILE LISTING
 Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)
 Main Model Update
 Modified Previously Approved Model for Renaissance Lot 1
 Date: 6-10-2019 Time: 4:19:30
 PAGE 4

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
300.670	2674.600	5.046	2679.646	263.00	13.39	2.79	2682.43	.00	4.50	.00	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
JUNCT STR	.0333					.0077	.05	5.05	.00		.014	.00	.00	PIPE
306.670	2674.800	8.511	2683.311	146.00	7.44	.86	2684.17	.00	3.46	.00	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
28.980	.0104					.0031	.09	8.51	.00	2.65	.013	.00	.00	PIPE
335.650	2675.100	8.302	2683.402	146.00	7.44	.86	2684.26	.00	3.46	.00	5.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
HYDRAULIC JUMP														
335.650	2675.100	2.118	2677.219	146.00	18.44	5.28	2682.50	.00	3.46	4.94	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
HYDRAULIC DROP														
335.650	2675.100	8.302	2683.402	146.00	11.62	2.10	2685.50	.00	3.56	.00	4.000	.000	.00	1 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
6.000	.1667					.0120	.07	8.30	.00	1.41	.014	.00	.00	PIPE
341.650	2676.100	7.962	2684.062	146.00	11.62	2.10	2686.16	.00	3.56	.00	4.000	.000	.00	0 .0

Main1.OUT

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
WALL EXIT	341.650	2676.100	7.962	2684.062	146.00	11.62	2.10	2686.16	.00	3.56	.00	4.000	.000	.00
	64.400	.0401					.0103	.67	7.96	.00	2.02	.013	.00	.00
JUNCT STR	406.050	2678.680	6.047	2684.727	146.00	11.62	2.10	2686.82	.00	3.56	.00	4.000	.000	.00
		.0333					.0112	.07	6.05	.00	.014	.00	.00	.00
	412.050	2678.880	6.469	2685.349	136.00	10.82	1.82	2687.17	.00	3.47	.00	4.000	.000	.00
	34.374	.0387					.0090	.31	6.47	.00	1.96	.013	.00	.00

FILE: Main1.WSW
 W S P G W - CIVILDESIGN Version 14.08
 Program Package Serial Number: 3074
 WATER SURFACE PROFILE LISTING
 Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)
 Main Model Update
 Modified Previously Approved Model for Renaissance Lot 1
 Date: 6-10-2019 Time: 4:19:30
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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
446.424	2680.208	5.448	2685.656	136.00	10.82	1.82	2687.47	.00	3.47	.00	4.000	.000	.00	1 .0
HYDRAULIC JUMP														
446.424	2680.208	2.166	2682.375	136.00	19.58	5.95	2688.33	.00	3.47	3.99	4.000	.000	.00	1 .0
	26.426	.0387				.0264	.70	2.17	2.61	1.96	.013	.00	.00	PIPE
472.850	2681.230	2.224	2683.454	136.00	18.95	5.58	2689.03	.00	3.47	3.97	4.000	.000	.00	1 .0
HYDRAULIC DROP														
472.850	2681.230	4.664	2685.894	136.00	10.82	1.82	2687.71	.00	3.47	.00	4.000	.000	.00	1 .0
HYDRAULIC JUMP														
472.850	2681.230	2.224	2683.454	136.00	18.94	5.57	2689.03	.00	3.47	3.97	4.000	.000	.00	1 .0
	6.000	.0333				.0291	.17	2.22	2.48	2.14	.014	.00	.00	PIPE
478.850	2681.430	2.229	2683.659	136.00	18.90	5.54	2689.20	.00	3.47	3.97	4.000	.000	.00	0 .0
WALL EXIT														
478.850	2681.430	2.228	2683.657	136.00	18.91	5.55	2689.21	.00	3.47	3.97	4.000	.000	.00	1 .0
	30.730	.0341				.0240	.74	2.23	2.48	2.03	.013	.00	.00	PIPE
509.580	2682.477	2.292	2684.769	136.00	18.27	5.18	2689.95	.00	3.47	3.96	4.000	.000	.00	1 .0
JUNCT STR						.0294	.00	2.29	2.35		.014	.00	.00	PIPE
509.580	2682.477	2.101	2684.578	130.00	19.44	5.87	2690.45	.00	3.41	3.99	4.000	.000	.00	1 .0
	36.941	.0340				.0268	.99	2.10	2.65	1.98	.013	.00	.00	PIPE

FILE: Main1.WSW
 W S P G W - CIVILDESIGN Version 14.08
 Program Package Serial Number: 3074
 WATER SURFACE PROFILE LISTING
 Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)
 Main Model Update
 Modified Previously Approved Model for Renaissance Lot 1
 Date: 6-10-2019 Time: 4:19:30
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Main1.OUT

73.118	.0340					.0277	2.02	1.99	2.76	1.91	.013	.00	.00	PIPE
676.539	2688.152	2.065	2690.217	122.00	18.65	5.40	2695.62	.00	3.32	4.00	4.000	.000	.00	1 .0
42.832	.0340					.0244	1.04	2.07	2.57	1.91	.013	.00	.00	PIPE
719.372	2689.607	2.144	2691.751	122.00	17.78	4.91	2696.66	.00	3.32	3.99	4.000	.000	.00	1 .0
28.918	.0340					.0215	.62	2.14	2.39	1.91	.013	.00	.00	PIPE
748.290	2690.590	2.229	2692.819	122.00	16.95	4.46	2697.28	.00	3.32	3.97	4.000	.000	.00	0 .0
WALL EXIT														
748.290	2690.590	2.484	2693.074	122.00	16.71	4.33	2697.41	.00	3.26	3.18	3.500	.000	.00	1 .0
3.530	.0328					.0201	.07	2.48	1.94	2.10	.013	.00	.00	PIPE
751.820	2690.706	2.500	2693.206	122.00	16.59	4.27	2697.48	.00	3.26	3.16	3.500	.000	.00	1 .0
19.517	.0328					.0189	.37	2.50	1.92	2.10	.013	.00	.00	PIPE

FILE: Main1.WSW W S P G W - CIVILDESIGN Version 14.08 PAGE 7

Program Package Serial Number: 3074

WATER SURFACE PROFILE LISTING

Date: 6-10-2019 Time: 4:19:30

Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)

Main Model Update

Modified Previously Approved Model for Renaissance Lot 1

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
771.337	2691.346	2.616	2693.962	122.00	15.81	3.88	2697.85	.00	3.26	3.04	3.500	.000	.00	1 .0
14.232	.0328					.0169	.24	2.62	1.75	2.10	.013	.00	.00	PIPE
785.569	2691.813	2.743	2694.556	122.00	15.08	3.53	2698.09	.00	3.26	2.88	3.500	.000	.00	1 .0
10.216	.0328					.0153	.16	2.74	1.59	2.10	.013	.00	.00	PIPE
795.785	2692.148	2.885	2695.033	122.00	14.38	3.21	2698.24	.00	3.26	2.66	3.500	.000	.00	1 .0
6.674	.0328					.0140	.09	2.89	1.42	2.10	.013	.00	.00	PIPE
802.459	2692.367	3.051	2695.418	122.00	13.71	2.92	2698.34	.00	3.26	2.34	3.500	.000	.00	1 .0
2.831	.0328					.0130	.04	3.05	1.24	2.10	.013	.00	.00	PIPE
805.290	2692.460	3.261	2695.721	122.00	13.07	2.65	2698.37	.00	3.26	1.76	3.500	.000	.00	1 .0

Renaissance Lot 1 - Update (Renaissance Lot 1 Storm Drain)

Main Model Update

Modified Previously Approved Model for Renaissance Lot 1

-136.96	.IYYYYYYYYYCH	W	E		WX
-128.91	.I	CH	W	E	R
-120.85	.				
-112.80	.				
-104.75	.				
-96.69	.				
-88.64	.				
-80.59	.				

Main1.OUT

-72.53	.									.									
-64.48	.									.									
-56.43	.									.									
-48.37	.									.									
-40.32	.									.									
-32.27	.									.									
-24.21	.									.									
-16.16	.									.									
-8.11	.									.									
-.05	.	I	Y	Y	Y	Y	Y	Y	C	H		W		E			.	WE	
8.00	.	I	Y	Y	Y	Y	Y	Y	Y	C	H				E			.	WE
16.05	.	I								C	H		W		E			.	R
24.11	.	I	Y	Y	Y	Y	Y	Y	Y	Y	C	H		W		E		.	WX
32.16	.	I									CH		W		E			.	R
40.22	.	I									CH		W		E			.	R
48.27	.	I			W		CH								E			.	R
56.32	.	I			W		CH								E			.	R
64.38	.				I		W		CH						E			.	R
72.43	.																	.	
80.48	.				I		W		CH						E			.	R
88.54	.																	.	
96.59	.					I		W		CH					E			.	R
104.64	.																	.	
112.70	.					I		W		CH					E			.	R
120.75	.																	.	
128.80	.					I		W		C	H				E			.	R
136.86	.					I			W		CH				E			.	R
144.91	.						I			W		CH			E			.	R
152.96	.						I			W		CH			E			.	R

161.02	.	I	W	CH	E	Main1.OUT	.	R
169.07	.	I		W	CH	E	.	R
177.12	.	I		W	CH	E	.	R
185.18	.	I		W	CH	E	.	R
193.23	.	I		W	CH	E	.	R
201.28	.	I	Y	Y	Y	Y	Y	W
209.34	.	I		W	CH	E	.	R
217.39	.	I		W	H	E	.	JX
225.44	.	I		C	H	E	.	R
233.50	.						.	
241.55	.						.	
249.60	.						.	
257.66	.						.	
265.71	.						.	
273.76	.						.	
281.82	.						.	
289.87	.						.	
297.92	.						.	
305.98	.	I		CH	W	E	.	JX
314.03	.	I		C	H	W	E	R
322.08	.						.	
330.14	.						.	
338.19	.		I	Y	Y	Y	Y	W
346.25	.		I	Y	Y	Y	Y	E
354.30	.	I		CH		W	E	R
362.35	.		I	Y	Y	Y	Y	W
370.41	.	I		CH		W	E	R
378.46	.						.	
386.51	.						.	
394.57	.						.	

Main1.OUT

402.62	.								.
410.67	.	I		CH	W	E			. JX
418.73	.	I		C H	W	E			. R
426.78	.								.
434.83	.								.
442.89	.								.
450.94	.	I		CH	W	E			. R
458.99	.	I		W CH		E			. R
467.05	.								.
475.10	.	I		W CH		E			. R
483.15	.			IYYYYYYYCH	W	E			. WE
491.21	.	I		W CH		E			. R
499.26	.			IYYYYWYCH		E			. WX
507.31	.	I		W CH		E			. R
515.37	.			I W CH		E			. JX
523.42	.			I W CH		E			. R
531.47	.								.
539.53	.								.
547.58	.			I W CH		E			. R
555.63	.								.
563.69	.								.
571.74	.								.
579.79	.								.
587.85	.								.
595.90	.			I W CH		E			. JX
603.95	.			I W C H		E			. R
612.01	.			I W C H		E			. R
620.06	.								.
628.11	.								.
636.17	.								.

Main1.OUT

[illegible]

2659.300 2663.207 2667.115 2671.022 2674.929 2678.836 2682.743 2686.651 2690.558 2694.465 2698.373

NOTES

1. GLOSSARY

I = INVERT ELEVATION
C = CRITICAL DEPTH
W = WATER SURFACE ELEVATION
S = SUPER-ELEVATION
H = HEIGHT OF CHANNEL
E = ENERGY GRADE LINE
X = CURVES CROSSING OVER
B = BRIDGE ENTRANCE OR EXIT
Y = WALL ENTRANCE OR EXIT

2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY

APPENDIX D

T1	Renaissance Lot 1										0							
T2	1	2		3		4		5		6	7	8	9					
T3	4567890123456789012345678901234567890123456789012345678901234567890																	
SO	-136.9602659.300	4								2669.000								
WX	-136.9602659.300	4																
R	-2.9602660.570	4		.013							.000	00.000						
WE	-2.9602660.570	4		.20														
R	3.0402660.770	4		.014							.000	10.000	0					
WX	3.0402660.770	4																
R	167.5402673.000	4		.013							.000	000.000	0					
WE	167.5402673.000	4		.20														
R	173.5402673.200	4		.014							.000	-20.000	0					
WX	173.5402673.200	4																
R	201.2502673.510	4		.013							.000	00.000	0					
JX	203.2502673.530	4	3	.014	7.000			2676.060			45.0		00.000					
R	300.6702674.600	4		.013							.000	00.000	0					
JX	306.6702674.800	4	5	.014	117.000			2675.200			80.0		00.000					
R	335.6502675.100	4		.013							.000	00.000	0					
WE	335.6502675.100	4		.20														
R	341.6502676.100	1		.014							.000	85.000	0					
WX	341.6502676.100	1																
R	406.0502678.680	1		.013							.000	00.000	0					
JX	412.0502678.880	1	1	.014	10.000			2678.780			90.0		000.000					
R	472.8502681.230	1		.013							.000	00.000	0					
WE	472.8502681.230	1		.20														
R	478.8502681.430	1		.014							.000	-50.000	0					
WX	478.8502681.430	1																
R	521.7602683.080	1		.013							.000	00.000	0					
JX	523.7602683.140	1	3	.014	6.000			2683.370			90.0		00.000					
R	547.6502683.770	1		.013							.000	00.000	0					
JX	553.6502683.970	1	2	.014	23.000			2683.370			90.0		90.000					
R	695.4502687.510	1		.013							.000	00.000	0					
WE	695.4502687.510	1		.20														
R	701.4502687.710	1		.014							.000	-30.000	0					
WX	701.4502687.710	1																
R	810.8502691.110	1		.013							.000	00.000	0					
JX	816.8502691.910	1	1	.014	103.000			2692.450			90.0		85.000					
R	893.4502696.900	3		.013							.000	00.000	0					
SH	893.4502696.900	3						2696.900										
CD	1 4 0	.000	4.000	.000	.000	.000	.000	.00										
CD	2 4 0	.000	2.500	.000	.000	.000	.000	.00										
CD	3 4 0	.000	2.000	.000	.000	.000	.000	.00										
CD	4 4 0	.000	5.000	.000	.000	.000	.000	.00										
CD	5 4 0	.000	4.500	0.000	.000	.000	.000	.00										
CD	6 3 0	.000	4.000	8.000	.000	.000	.000	.00										
CD	8 3 0	.000	5.000	3.000	.000	.000	.000	.00										
Q		4.000	.0															

REVISED
PORTION
OF WSPG
MODEL

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
-136.960	2659.300	9.700	2669.000	270.00	13.75	2.94	2671.94	.00	4.54	.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
WALL EXIT														
-136.960	2659.300	9.701	2669.001	270.00	13.75	2.94	2671.94	.00	4.54	.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
134.000	.0095					.0107	1.44	9.70	.00	4.49	.013	.00	.00	PIPE
-2.960	2660.570	9.871	2670.441	270.00	13.75	2.94	2673.38	.00	4.54	.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
HYDRAULIC JUMP														
-2.960	2660.570	2.445	2663.015	270.00	28.29	12.43	2675.44	.00	4.54	5.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
HYDRAULIC DROP														
-2.960	2660.570	9.871	2670.441	270.00	13.75	2.94	2673.38	.00	4.54	.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
6.000	.0333					.0125	.07	9.87	.00	2.82	.014	.00	.00	PIPE
3.040	2660.770	9.842	2670.612	270.00	13.75	2.94	2673.55	.00	4.54	.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
WALL EXIT														
3.040	2660.770	9.843	2670.613	270.00	13.75	2.94	2673.55	.00	4.54	.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
11.278	.0743					.0107	.12	9.84	.00	2.14	.013	.00	.00	PIPE
14.318	2661.608	9.122	2670.730	270.00	13.75	2.94	2673.67	.00	4.54	.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
HYDRAULIC JUMP														
14.318	2661.608	2.458	2664.066	270.00	28.11	12.27	2676.33	.00	4.54	5.00	5.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
3.068	.0743					.0452	.14	2.46	3.57	2.14	.013	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
17.387	2661.836	2.468	2664.304	270.00	27.96	12.14	2676.44	.00	4.54	5.00	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31.450	.0743					.0423	1.33	2.47	3.55	2.14	.013	.00	.00	PIPE
48.837	2664.175	2.562	2666.737	270.00	26.66	11.04	2677.77	.00	4.54	5.00	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.366	.0743					.0372	.91	2.56	3.30	2.14	.013	.00	.00	PIPE
73.203	2665.986	2.661	2668.647	270.00	25.42	10.03	2678.68	.00	4.54	4.99	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.463	.0743					.0328	.64	2.66	3.07	2.14	.013	.00	.00	PIPE
92.666	2667.433	2.765	2670.198	270.00	24.24	9.12	2679.32	.00	4.54	4.97	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.860	.0743					.0290	.46	2.77	2.85	2.14	.013	.00	.00	PIPE
108.526	2668.612	2.875	2671.487	270.00	23.11	8.29	2679.78	.00	4.54	4.94	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.092	.0743					.0256	.34	2.87	2.65	2.14	.013	.00	.00	PIPE
121.618	2669.586	2.991	2672.576	270.00	22.03	7.54	2680.11	.00	4.54	4.90	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.886	.0743					.0227	.25	2.99	2.46	2.14	.013	.00	.00	PIPE
132.504	2670.395	3.113	2673.508	270.00	21.01	6.85	2680.36	.00	4.54	4.85	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.081	.0743					.0201	.18	3.11	2.27	2.14	.013	.00	.00	PIPE
141.585	2671.070	3.244	2674.313	270.00	20.03	6.23	2680.54	.00	4.54	4.77	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.560	.0743					.0178	.13	3.24	2.10	2.14	.013	.00	.00	PIPE
149.145	2671.632	3.383	2675.015	270.00	19.10	5.66	2680.68	.00	4.54	4.68	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.251	.0743					.0159	.10	3.38	1.94	2.14	.013	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
155.396	2672.097	3.532	2675.629	270.00	18.21	5.15	2680.78	.00	4.54	4.55	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.092	.0743					.0142	.07	3.53	1.78	2.14	.013	.00	.00	PIPE
160.488	2672.476	3.694	2676.169	270.00	17.36	4.68	2680.85	.00	4.54	4.39	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.032	.0743					.0127	.05	3.69	1.63	2.14	.013	.00	.00	PIPE
164.520	2672.775	3.871	2676.646	270.00	16.55	4.26	2680.90	.00	4.54	4.18	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.020	.0743					.0115	.03	3.87	1.48	2.14	.013	.00	.00	PIPE
167.540	2673.000	4.068	2677.068	270.00	15.78	3.87	2680.94	.00	4.54	3.89	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.164	.0333					.0126	.00	4.07	1.33	2.82	.014	.00	.00	PIPE
167.704	2673.005	4.073	2677.078	270.00	15.76	3.86	2680.94	.00	4.54	3.89	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.836	.0333					.0121	.07	4.07	1.32	2.82	.014	.00	.00	PIPE
173.540	2673.200	4.300	2677.500	270.00	15.03	3.51	2681.01	.00	4.54	3.47	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WALL EXIT														
173.540	2673.200	4.299	2677.499	270.00	15.03	3.51	2681.01	.00	4.54	3.47	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.710	.0112					.0097	.27	4.30	1.16	4.01	.013	.00	.00	PIPE
201.250	2673.510	4.537	2678.047	270.00	14.42	3.23	2681.28	.00	4.54	2.90	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0100					.0114	.02	4.54	1.00		.014	.00	.00	PIPE
203.250	2673.530	5.123	2678.653	263.00	13.39	2.79	2681.44	.00	4.50	.00	5.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
97.420	.0110					.0102	.99	5.12	.00	3.94	.013	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
300.670	2674.600	5.046	2679.646	263.00	13.39	2.79	2682.43	.00	4.50	.00	5.000	.000	.00	0 .0
JUNCT STR	.0333					.0077	.05	5.05	.00		.014	.00	.00	PIPE
306.670	2674.800	8.511	2683.311	146.00	7.44	.86	2684.17	.00	3.46	.00	5.000	.000	.00	0 .0
28.980	.0104					.0031	.09	8.51	.00	2.65	.013	.00	.00	PIPE
335.650	2675.100	8.302	2683.402	146.00	7.44	.86	2684.26	.00	3.46	.00	5.000	.000	.00	0 .0
HYDRAULIC JUMP														
335.650	2675.100	2.166	2677.266	146.00	17.91	4.98	2682.25	.00	3.46	4.96	5.000	.000	.00	0 .0
HYDRAULIC DROP														
335.650	2675.100	8.302	2683.402	146.00	11.62	2.10	2685.50	.00	3.56	.00	4.000	.000	.00	0 .0
6.000	.1667					.0120	.07	8.30	.00	1.41	.014	.00	.00	PIPE
341.650	2676.100	7.962	2684.062	146.00	11.62	2.10	2686.16	.00	3.56	.00	4.000	.000	.00	0 .0
WALL EXIT														
341.650	2676.100	7.962	2684.062	146.00	11.62	2.10	2686.16	.00	3.56	.00	4.000	.000	.00	0 .0
64.400	.0401					.0103	.67	7.96	.00	2.02	.013	.00	.00	PIPE
406.050	2678.680	6.047	2684.727	146.00	11.62	2.10	2686.82	.00	3.56	.00	4.000	.000	.00	0 .0
JUNCT STR	.0333					.0112	.07	6.05	.00		.014	.00	.00	PIPE
412.050	2678.880	6.469	2685.349	136.00	10.82	1.82	2687.17	.00	3.47	.00	4.000	.000	.00	0 .0
60.800	.0387					.0090	.55	6.47	.00	1.96	.013	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
472.850	2681.230	4.664	2685.894	136.00	10.82	1.82	2687.71	.00	3.47	.00	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
HYDRAULIC JUMP														
472.850	2681.230	2.485	2683.715	136.00	16.58	4.27	2687.98	.00	3.47	3.88	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
HYDRAULIC DROP														
472.850	2681.230	4.664	2685.894	136.00	10.82	1.82	2687.71	.00	3.47	.00	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
6.000	.0333					.0104	.06	4.66	.00	2.14	.014	.00	.00	PIPE
478.850	2681.430	4.827	2686.257	136.00	10.82	1.82	2688.08	.00	3.47	.00	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
WALL EXIT														
478.850	2681.430	4.827	2686.257	136.00	10.82	1.82	2688.08	.00	3.47	.00	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
16.825	.0385					.0090	.15	4.83	.00	1.96	.013	.00	.00	PIPE
495.675	2682.077	4.323	2686.400	136.00	10.82	1.82	2688.22	.00	3.47	.00	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
HYDRAULIC JUMP														
495.675	2682.077	2.663	2684.740	136.00	15.31	3.64	2688.38	.00	3.47	3.77	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
5.227	.0385					.0142	.07	2.66	1.76	1.96	.013	.00	.00	PIPE
500.902	2682.278	2.727	2685.005	136.00	14.90	3.45	2688.45	.00	3.47	3.73	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
7.546	.0385					.0130	.10	2.73	1.68	1.96	.013	.00	.00	PIPE
508.448	2682.568	2.848	2685.417	136.00	14.21	3.13	2688.55	.00	3.47	3.62	4.000	.000	.00	0 .0
- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	-
5.717	.0385					.0116	.07	2.85	1.54	1.96	.013	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
514.165	2682.788	2.980	2685.768	136.00	13.55	2.85	2688.62	.00	3.47	3.49	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.098	.0385					.0104	.04	2.98	1.41	1.96	.013	.00	.00	PIPE
518.263	2682.946	3.124	2686.069	136.00	12.92	2.59	2688.66	.00	3.47	3.31	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.564	.0385					.0094	.02	3.12	1.28	1.96	.013	.00	.00	PIPE
520.826	2683.044	3.285	2686.329	136.00	12.32	2.36	2688.68	.00	3.47	3.07	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.934	.0385					.0086	.01	3.28	1.14	1.96	.013	.00	.00	PIPE
521.760	2683.080	3.472	2686.552	136.00	11.74	2.14	2688.69	.00	3.47	2.71	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0299					.0095	.02	3.47	1.00		.014	.00	.00	PIPE
523.760	2683.140	4.079	2687.219	130.00	10.35	1.66	2688.88	.00	3.41	.00	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.678	.0264					.0082	.01	4.08	.00	2.13	.013	.00	.00	PIPE
524.438	2683.158	4.064	2687.221	130.00	10.35	1.66	2688.88	.00	3.41	.00	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HYDRAULIC JUMP														
524.438	2683.158	2.777	2685.935	130.00	13.96	3.03	2688.96	.00	3.41	3.69	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.709	.0264					.0118	.03	2.78	1.55	2.13	.013	.00	.00	PIPE
527.147	2683.229	2.810	2686.039	130.00	13.78	2.95	2688.99	.00	3.41	3.66	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.096	.0264					.0110	.10	2.81	1.51	2.13	.013	.00	.00	PIPE
536.243	2683.469	2.938	2686.407	130.00	13.14	2.68	2689.09	.00	3.41	3.53	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.283	.0264					.0098	.06	2.94	1.38	2.13	.013	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
542.526	2683.635	3.078	2686.712	130.00	12.53	2.44	2689.15	.00	3.41	3.37	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.791	.0264					.0089	.03	3.08	1.26	2.13	.013	.00	.00	PIPE
546.317	2683.735	3.233	2686.968	130.00	11.95	2.22	2689.18	.00	3.41	3.15	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.333	.0264					.0080	.01	3.23	1.13	2.13	.013	.00	.00	PIPE
547.650	2683.770	3.411	2687.181	130.00	11.39	2.01	2689.19	4.00	3.41	2.84	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.0333							4.00	1.00		.014	.00	.00	PIPE
553.650	2683.970	1.952	2685.922	107.00	17.56	4.79	2690.71	.00	3.13	4.00	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
141.800	.0250					.0230	3.26	1.95	2.51	1.93	.013	.00	.00	PIPE
695.450	2687.510	2.009	2689.519	107.00	16.93	4.45	2693.97	.00	3.13	4.00	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.000	.0333					.0251	.15	2.01	2.37	1.86	.014	.00	.00	PIPE
701.450	2687.710	2.020	2689.730	107.00	16.82	4.39	2694.12	.00	3.13	4.00	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WALL EXIT														
701.450	2687.710	2.019	2689.729	107.00	16.83	4.40	2694.13	.00	3.13	4.00	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.548	.0311					.0207	.40	2.02	2.35	1.81	.013	.00	.00	PIPE
720.998	2688.317	2.066	2690.384	107.00	16.34	4.15	2694.53	.00	3.13	4.00	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.995	.0311					.0187	.45	2.07	2.25	1.81	.013	.00	.00	PIPE
744.993	2689.063	2.146	2691.209	107.00	15.58	3.77	2694.98	.00	3.13	3.99	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.725	.0311					.0165	.29	2.15	2.09	1.81	.013	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
762.718	2689.614	2.231	2691.844	107.00	14.85	3.43	2695.27	.00	3.13	3.97	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.493	.0311					.0146	.20	2.23	1.94	1.81	.013	.00	.00	PIPE
776.211	2690.033	2.319	2692.353	107.00	14.16	3.11	2695.47	.00	3.13	3.95	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.404	.0311					.0129	.13	2.32	1.80	1.81	.013	.00	.00	PIPE
786.615	2690.357	2.413	2692.770	107.00	13.50	2.83	2695.60	.00	3.13	3.91	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.030	.0311					.0114	.09	2.41	1.67	1.81	.013	.00	.00	PIPE
794.645	2690.606	2.512	2693.119	107.00	12.88	2.57	2695.69	.00	3.13	3.87	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.119	.0311					.0101	.06	2.51	1.55	1.81	.013	.00	.00	PIPE
800.763	2690.796	2.618	2693.415	107.00	12.28	2.34	2695.75	.00	3.13	3.80	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.514	.0311					.0090	.04	2.62	1.43	1.81	.013	.00	.00	PIPE
805.277	2690.937	2.731	2693.668	107.00	11.70	2.13	2695.80	.00	3.13	3.72	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.115	.0311					.0080	.02	2.73	1.32	1.81	.013	.00	.00	PIPE
808.393	2691.034	2.853	2693.886	107.00	11.16	1.93	2695.82	.00	3.13	3.62	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.840	.0311					.0071	.01	2.85	1.21	1.81	.013	.00	.00	PIPE
810.232	2691.091	2.984	2694.075	107.00	10.64	1.76	2695.83	.00	3.13	3.48	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.618	.0311					.0064	.00	2.98	1.10	1.81	.013	.00	.00	PIPE
810.850	2691.110	3.130	2694.240	107.00	10.14	1.60	2695.84	4.00	3.13	3.30	4.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
JUNCT STR	.1333					.0035	.02	4.00	1.00		.014	.00	.00	PIPE

Program Package Serial Number: 7204

WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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1 2 3 4 5 6 7
 456789012345678901234567890123456789012345678901234567890123

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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
816.850	2691.910	5.264	2697.174	4.00	1.27	.03	2697.20	.00	.70	.00	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50.346	.0651					.0003	.02	5.26	.00	.36	.013	.00	.00	PIPE
867.196	2695.190	2.000	2697.190	4.00	1.27	.03	2697.21	.00	.70	.00	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.804	.0651					.0003	.00	2.00	.00	.36	.013	.00	.00	PIPE
870.000	2695.372	1.815	2697.187	4.00	1.34	.03	2697.21	.00	.70	1.16	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.618	.0651					.0003	.00	1.81	.15	.36	.013	.00	.00	PIPE
871.618	2695.478	1.707	2697.185	4.00	1.40	.03	2697.22	.00	.70	1.41	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.323	.0651					.0003	.00	1.71	.17	.36	.013	.00	.00	PIPE
872.941	2695.564	1.618	2697.182	4.00	1.47	.03	2697.22	.00	.70	1.57	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.149	.0651					.0003	.00	1.62	.20	.36	.013	.00	.00	PIPE
874.089	2695.639	1.540	2697.179	4.00	1.54	.04	2697.22	.00	.70	1.68	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.024	.0651					.0004	.00	1.54	.22	.36	.013	.00	.00	PIPE
875.113	2695.706	1.470	2697.176	4.00	1.62	.04	2697.22	.00	.70	1.77	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.928	.0651					.0004	.00	1.47	.24	.36	.013	.00	.00	PIPE
876.041	2695.766	1.406	2697.172	4.00	1.69	.04	2697.22	.00	.70	1.83	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.848	.0651					.0005	.00	1.41	.26	.36	.013	.00	.00	PIPE
876.889	2695.821	1.347	2697.168	4.00	1.78	.05	2697.22	.00	.70	1.88	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.780	.0651					.0005	.00	1.35	.29	.36	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
877.669	2695.872	1.292	2697.164	4.00	1.86	.05	2697.22	.00	.70	1.91	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.719	.0651					.0006	.00	1.29	.31	.36	.013	.00	.00	PIPE
878.388	2695.919	1.240	2697.159	4.00	1.96	.06	2697.22	.00	.70	1.94	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.665	.0651					.0007	.00	1.24	.34	.36	.013	.00	.00	PIPE
879.052	2695.962	1.191	2697.153	4.00	2.05	.07	2697.22	.00	.70	1.96	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.613	.0651					.0008	.00	1.19	.36	.36	.013	.00	.00	PIPE
879.665	2696.002	1.145	2697.147	4.00	2.15	.07	2697.22	.00	.70	1.98	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.434	.0651					.0009	.00	1.15	.39	.36	.013	.00	.00	PIPE
880.100	2696.031	1.101	2697.132	4.00	2.26	.08	2697.21	.00	.70	1.99	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HYDRAULIC JUMP														
880.100	2696.031	.406	2696.437	4.00	8.74	1.19	2697.62	.00	.70	1.61	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.012	.0651					.0358	.04	.41	2.89	.36	.013	.00	.00	PIPE
881.112	2696.096	.420	2696.516	4.00	8.34	1.08	2697.59	.00	.70	1.63	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.477	.0651					.0313	.08	.42	2.71	.36	.013	.00	.00	PIPE
883.589	2696.257	.434	2696.691	4.00	7.95	.98	2697.67	.00	.70	1.65	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.969	.0651					.0274	.05	.43	2.54	.36	.013	.00	.00	PIPE
885.558	2696.385	.449	2696.834	4.00	7.58	.89	2697.73	.00	.70	1.67	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.596	.0651					.0239	.04	.45	2.38	.36	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

Date: 4-27-2018 Time: 5:54:19

Renaissance Lot 1

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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
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
887.154	2696.489	.465	2696.954	4.00	7.23	.81	2697.76	.00	.70	1.69	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.307	.0651					.0209	.03	.46	2.22	.36	.013	.00	.00	PIPE
888.461	2696.574	.480	2697.055	4.00	6.89	.74	2697.79	.00	.70	1.71	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.078	.0651					.0183	.02	.48	2.08	.36	.013	.00	.00	PIPE
889.539	2696.645	.497	2697.142	4.00	6.57	.67	2697.81	.00	.70	1.73	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.891	.0651					.0160	.01	.50	1.95	.36	.013	.00	.00	PIPE
890.430	2696.703	.514	2697.217	4.00	6.26	.61	2697.83	.00	.70	1.75	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.737	.0651					.0140	.01	.51	1.83	.36	.013	.00	.00	PIPE
891.167	2696.751	.532	2697.283	4.00	5.97	.55	2697.84	.00	.70	1.77	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.604	.0651					.0122	.01	.53	1.71	.36	.013	.00	.00	PIPE
891.771	2696.790	.550	2697.340	4.00	5.69	.50	2697.84	.00	.70	1.79	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.490	.0651					.0107	.01	.55	1.60	.36	.013	.00	.00	PIPE
892.261	2696.822	.569	2697.391	4.00	5.43	.46	2697.85	.00	.70	1.80	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.389	.0651					.0094	.00	.57	1.50	.36	.013	.00	.00	PIPE
892.650	2696.848	.589	2697.437	4.00	5.18	.42	2697.85	.00	.70	1.82	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.304	.0651					.0082	.00	.59	1.40	.36	.013	.00	.00	PIPE
892.954	2696.867	.610	2697.477	4.00	4.94	.38	2697.86	.00	.70	1.84	2.000	.000	.00	0 .0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
.224	.0651					.0072	.00	.61	1.31	.36	.013	.00	.00	PIPE

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WATER SURFACE PROFILE LISTING

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Renaissance Lot 1

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PAGE 1

CD	1	4	0		4.000				
CD	2	4	0		2.500				
CD	3	4	0		2.000				
CD	4	4	0		5.000				
CD	5	4	0		4.500				
CD	6	3	0	.000	4.000	8.000	.000	.000	.00
CD	8	3	0	.000	5.000	3.000	.000	.000	.00

PAGE NO 1

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1	2	3	4	5	6	7
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4567890123456789012345678901234567890123456789012345678901234567

PAGE NO 2

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W S ELEV
  2669.000
```

U/S DATA	STATION	INVERT	SECT
	-136.960	2659.300	4

U/S DATA	STATION	INVERT	SECT
	-2.960	2660.570	4

U/S DATA	STATION	INVERT	SECT
	-2.960	2660.570	4

U/S DATA	STATION	INVERT	SECT
	3.040	2660.770	4

U/S DATA	STATION	INVERT	SECT
	3.040	2660.770	4

U/S DATA	STATION	INVERT	SECT
	167.540	2673.000	4

U/S DATA	STATION	INVERT	SECT
	167.540	2673.000	4

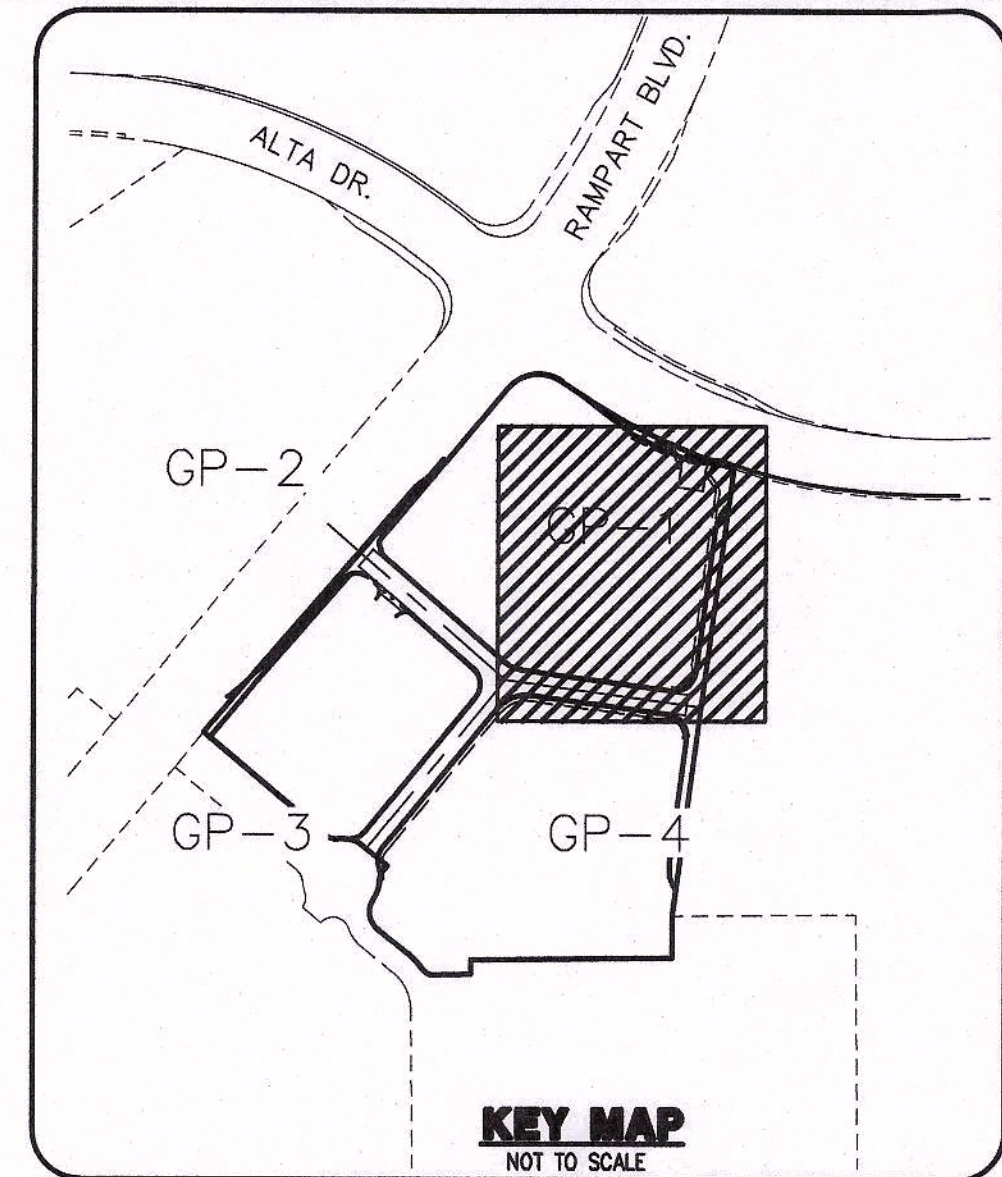
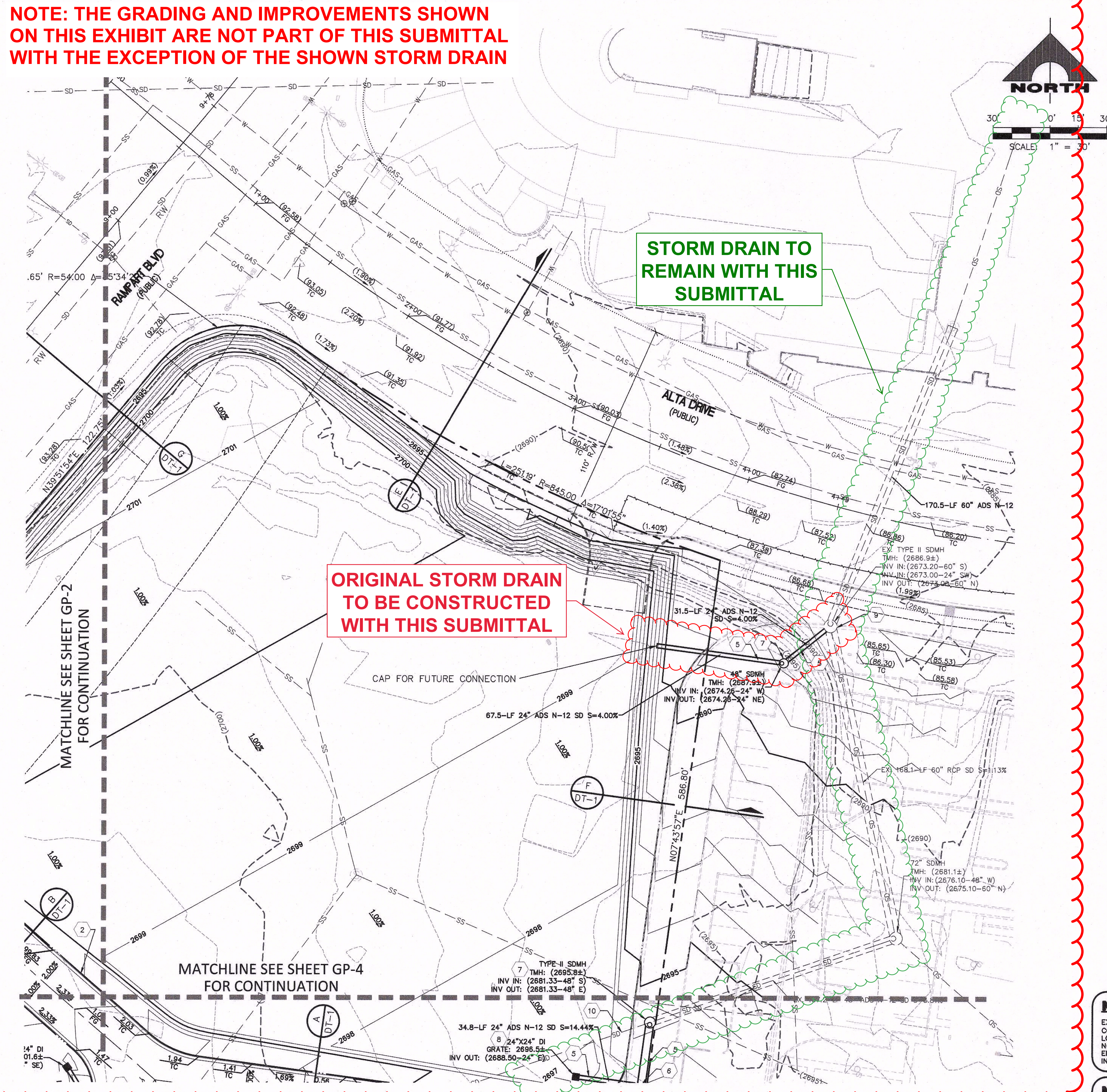
U/S DATA	STATION	INVERT	SECT
	173.540	2673.200	4

U/S DATA	STATION	INVERT	SECT
	173.540	2673.200	4

ELEMENT NO	11	IS A REACH	*	*	*										
		U/S DATA	STATION	INVERT	SECT	N				RADIUS	ANGLE	ANG PT	MAN H		
			201.250	2673.510	4	.013				.000	.000	.000	0		
ELEMENT NO	12	IS A JUNCTION	*	*	*			*		*		*			
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	
			203.250	2673.530	4	3	0	.014	7.000	.000	2676.060	.000	45.000	.000	
											RADIUS	ANGLE			
											.000	.000			
													W S P G W		
													WATER SURFACE PROFILE - ELEMENT CARD LISTING		
ELEMENT NO	13	IS A REACH	*	*	*										
		U/S DATA	STATION	INVERT	SECT	N					RADIUS	ANGLE	ANG PT	MAN H	
			300.670	2674.600	4	.013					.000	.000	.000	0	
ELEMENT NO	14	IS A JUNCTION	*	*	*			*		*		*			
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	
			306.670	2674.800	4	5	0	.014	117.000	.000	2675.200	.000	80.000	.000	
											RADIUS	ANGLE			
											.000	.000			
ELEMENT NO	15	IS A REACH	*	*	*										
		U/S DATA	STATION	INVERT	SECT	N					RADIUS	ANGLE	ANG PT	MAN H	
			335.650	2675.100	4	.013					.000	.000	.000	0	
ELEMENT NO	16	IS A WALL ENTRANCE			*										
		U/S DATA	STATION	INVERT	SECT	FP									
			335.650	2675.100	4	.200									
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS															
ELEMENT NO	17	IS A REACH	*	*	*										
		U/S DATA	STATION	INVERT	SECT	N					RADIUS	ANGLE	ANG PT	MAN H	
			341.650	2676.100	1	.014					.000	.000	85.000	0	
ELEMENT NO	18	IS A WALL EXIT			*										
		U/S DATA	STATION	INVERT	SECT										
			341.650	2676.100	1										
ELEMENT NO	19	IS A REACH	*	*	*										
		U/S DATA	STATION	INVERT	SECT	N					RADIUS	ANGLE	ANG PT	MAN H	
			406.050	2678.680	1	.013					.000	.000	.000	0	
ELEMENT NO	20	IS A JUNCTION	*	*	*			*		*		*			
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	
			412.050	2678.880	1	1	0	.014	10.000	.000	2678.780	.000	90.000	.000	
											RADIUS	ANGLE			
											.000	.000			
ELEMENT NO	21	IS A REACH	*	*	*										
		U/S DATA	STATION	INVERT	SECT	N					RADIUS	ANGLE	ANG PT	MAN H	
			472.850	2681.230	1	.013					.000	.000	.000	0	
ELEMENT NO	22	IS A WALL ENTRANCE			*										
		U/S DATA	STATION	INVERT	SECT	FP									
			472.850	2681.230	1	.200									
													W S P G W		
													WATER SURFACE PROFILE - ELEMENT CARD LISTING		
ELEMENT NO	23	IS A REACH	*	*	*										
		U/S DATA	STATION	INVERT	SECT	N					RADIUS	ANGLE	ANG PT	MAN H	
			478.850	2681.430	1	.014					.000	.000	-50.000	0	
ELEMENT NO	24	IS A WALL EXIT			*										
		U/S DATA	STATION	INVERT	SECT										

ELEMENT NO	25	IS A REACH	478.850	2681.430	1												
		U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H			
			521.760	2683.080	1		.013				.000	.000	.000	0			
ELEMENT NO	26	IS A JUNCTION	*	*	*	*		*			*		*				
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4			
			523.760	2683.140	1	3	0	.014	6.000	.000	2683.370	.000	90.000	.000			
											RADIUS	ANGLE					
											.000	.000					
ELEMENT NO	27	IS A REACH	*	*	*												
		U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H			
			547.650	2683.770	1		.013				.000	.000	.000	0			
ELEMENT NO	28	IS A JUNCTION	*	*	*	*		*			*		*				
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4			
			553.650	2683.970	1	2	0	.014	23.000	.000	2683.370	.000	90.000	.000			
											RADIUS	ANGLE					
											3.820	90.000					
ELEMENT NO	29	IS A REACH	*	*	*												
		U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H			
			695.450	2687.510	1		.013				.000	.000	.000	0			
ELEMENT NO	30	IS A WALL ENTRANCE			*												
		U/S DATA	STATION	INVERT	SECT		FP										
			695.450	2687.510	1		.200										
ELEMENT NO	31	IS A REACH	*	*	*												
		U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H			
			701.450	2687.710	1		.014				.000	.000	-30.000	0			
ELEMENT NO	32	IS A WALL EXIT			*												
		U/S DATA	STATION	INVERT	SECT												
			701.450	2687.710	1												
W S P G W															PAGE NO	5	
WATER SURFACE PROFILE - ELEMENT CARD LISTING																	
ELEMENT NO	33	IS A REACH	*	*	*												
		U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H			
			810.850	2691.110	1		.013				.000	.000	.000	0			
ELEMENT NO	34	IS A JUNCTION	*	*	*	*		*			*		*				
		U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4			
			816.850	2691.910	1	1	0	.014	103.000	.000	2692.450	.000	90.000	.000			
											RADIUS	ANGLE					
											4.044	85.000					
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS																	
ELEMENT NO	35	IS A REACH	*	*	*												
		U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H			
			893.450	2696.900	3		.013				.000	.000	.000	0			
ELEMENT NO	36	IS A SYSTEM HEADWORKS			*				*								
		U/S DATA	STATION	INVERT	SECT						W S ELEV						
			893.450	2696.900	3						2696.900						

NOTE: THE GRADING AND IMPROVEMENTS SHOWN ON THIS EXHIBIT ARE NOT PART OF THIS SUBMITTAL WITH THE EXCEPTION OF THE SHOWN STORM DRAIN



- ### CONSTRUCTION NOTES
- GRADING**
1. CONSTRUCT 3" AC OVER 4" TYPE II AB OVER 6" TYPE I AB 95% COMPACTION.
 2. CONSTRUCT 24" L TYPE CURB AND GUTTER PER USDOCA DWG NO. 216.
 3. CONSTRUCT "A" CURB PER PER USDOCA DWG NO. 219. CONSTRUCT 30" VALLEY GUTTER PER DETAIL I SHT DT-1.
 4. CONSTRUCT 6" CROSS GUTTER PER USDOCA DWG NO. 228.
 5. INSTALL ADS N-12 STORM DRAIN PIPE, SEE PLAN FOR SIZE.
 6. INSTALL ADS INSERTA TEE, SEE PLAN FOR SIZE.
 7. CONSTRUCT TYPE II SD MANHOLE PER USDOCA DWG NO. 405.2, SEE PLAN FOR SIZE.
 8. CONSTRUCT JENSEN PRECAST SD DRAIN INLET PER DETAIL A SHT DT-2 WITH TRAFFIC FRAME AND GRATE. SEE PLAN FOR SIZE, USE EXTENSIONS AS NEEDED. RETAIN AND PROTECT EXISTING STORM DRAIN STRUCTURE.
 9. ADJUST TO NEW FINISH GRADE.
 10. ABANDON EXISTING STORM DRAIN STRUCTURE.
 11. CONSTRUCT SIDEWALK RAMP PER USDOCA DWG NO. 235.

BENCHMARK		
STATION	ELEVATION	DESCRIPTION
OLV00 32C4	820.819 (M) 2692.97 (FT.)	BEING A RIVET & PLATE TOP CURB SE CORNER OF RAMPART AND ALTA.

CITY OF LAS VEGAS VERTICAL CONTROL (DATE RE-OBSERVED 2005-2007)
BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)
ADD 2000 TO ALL SPOT ELEVATION TAGS.

NOTE TO CONTRACTOR

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

NOTE

ALL ONSITE STORM DRAINS AND ASSOCIATED STORM FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED.

BASIS OF BEARINGS

SOUTH 00°32'07" EAST, BEING THE BEARING OF THE CENTERLINE OF RAMPART BOULEVARD AS SHOWN IN FILE 117, PAGE 83 OF PARCEL MAPS ON FILE AT CLARK COUNTY, NEVADA RECORDER'S OFFICE.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

TODD N. KELLEY P.E. 14711 DATE

H# - CLV DWG# -

Call before you Dig

Avoid cutting underground utility lines. It's costly.

Call 811 or 1-800-227-2800

CALL BEFORE YOU DIG OVERHEAD

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.

1-702-227-2929

FAST

Call before you UnderGround.

1-702-432-5300

FIREWAY AND AIRWAY SYSTEM OF TRANSPORTATION

ENGINEER OF RECORD
TODD N. KELLEY
Exp. 6/28/2019
CIVIL
NOISS533036 NV

DATE: 5-10-18

NOT FOR CONSTRUCTION

PROJECT NO.	840-060
DESIGN	840-060
DRAWN	840-060
CHECK	840-060
PLOT DATE	05-10-18
DATE	16-11-35
REV	
DESCRIPTION	

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

ENGINEERS & SURVEYORS

EBH COMPANIES LLC

RENAISSANCE

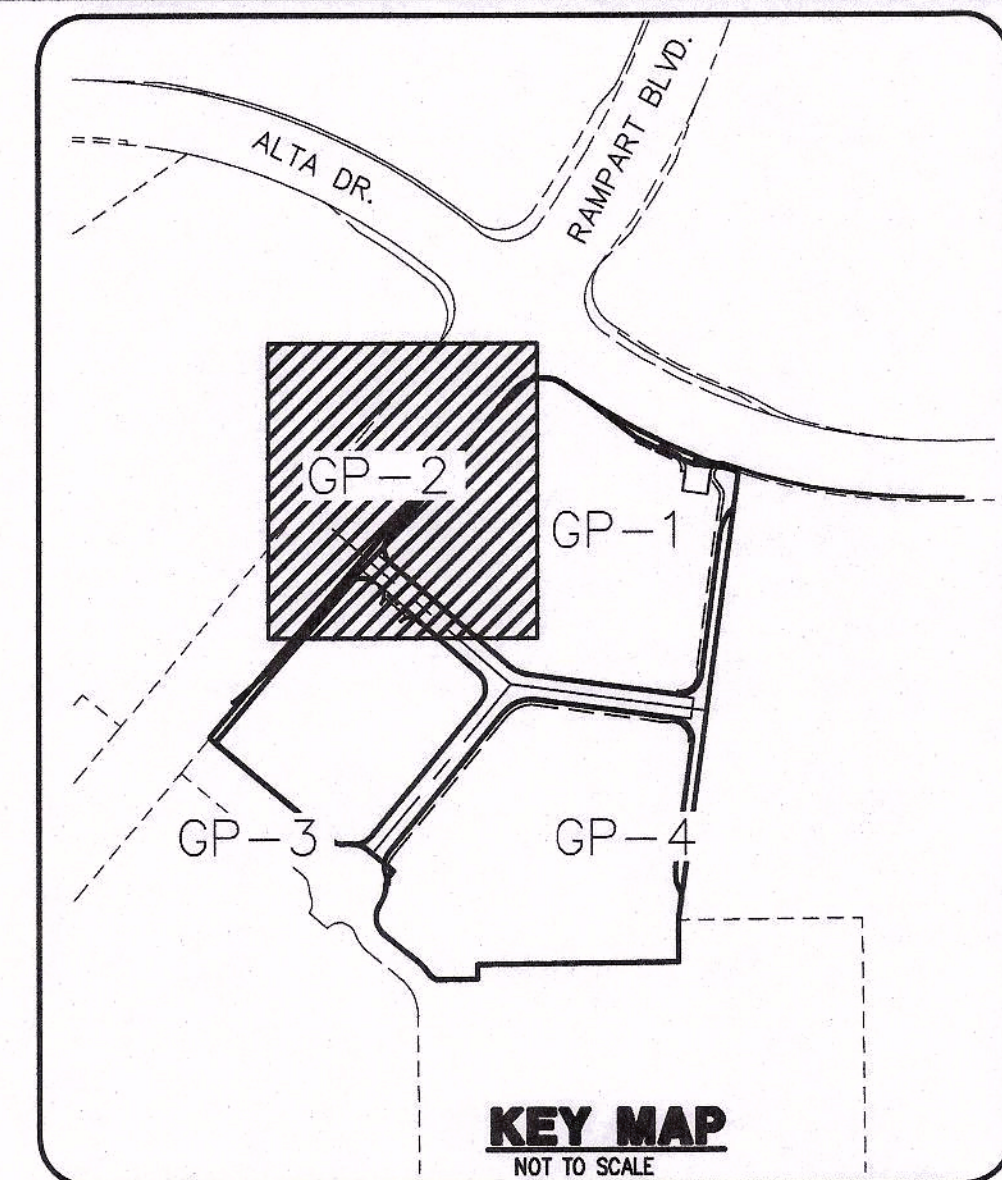
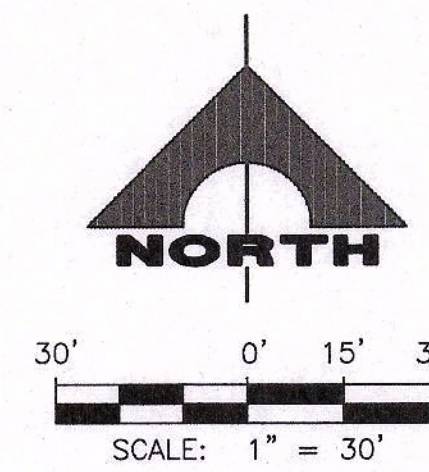
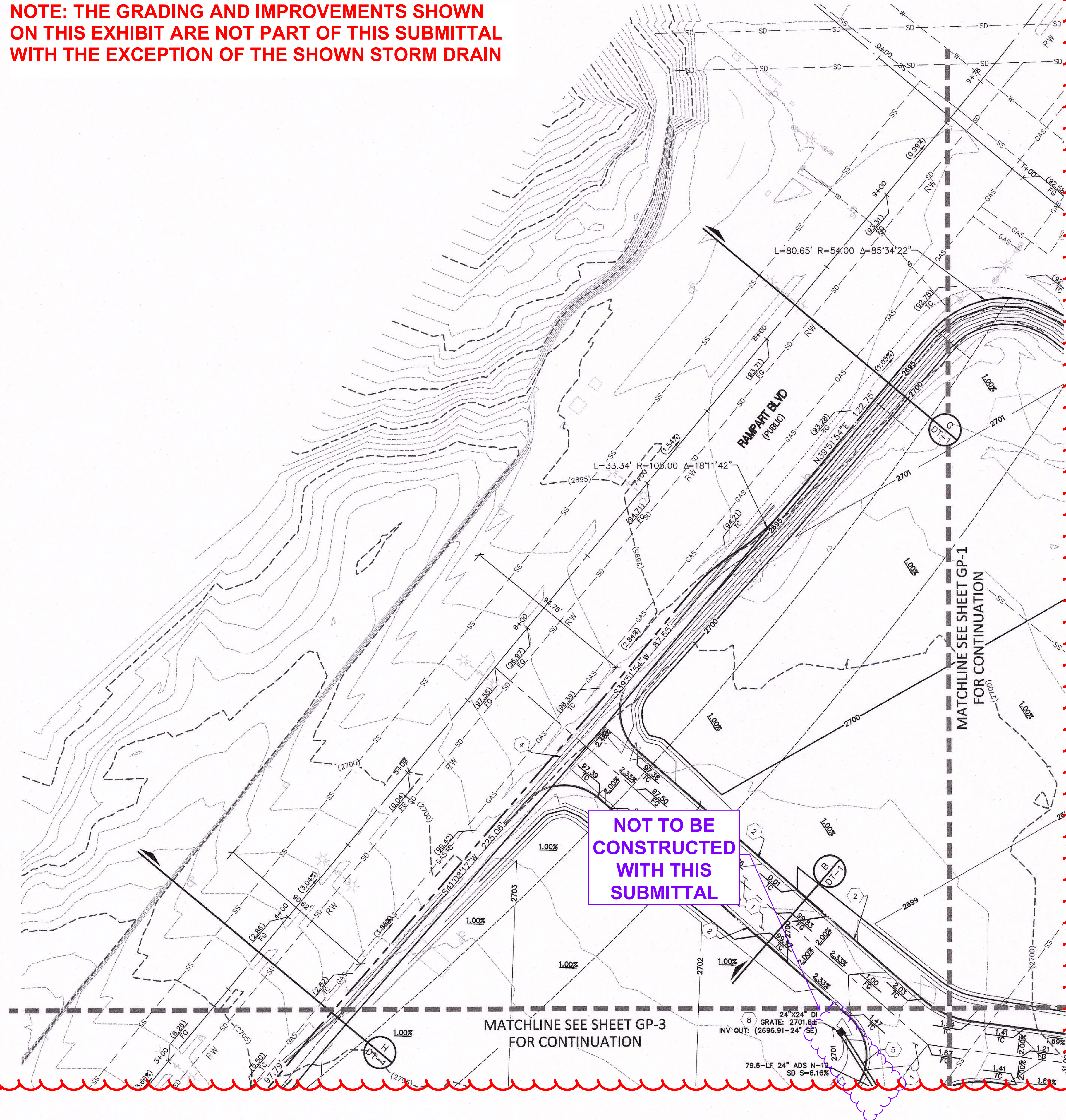
GRADING PLAN 1

DRAWING

GP-1

9 OF 20 SHTS

NOTE: THE GRADING AND IMPROVEMENTS SHOWN ON THIS EXHIBIT ARE NOT PART OF THIS SUBMITTAL WITH THE EXCEPTION OF THE SHOWN STORM DRAIN



- CONSTRUCTION NOTES**
- GRADING**
1. CONSTRUCT 3" AC OVER 4" TYPE II AB OVER 6" TYPE I AB 95% COMPACTION.
 2. CONSTRUCT 24" L TYPE CURB AND GUTTER PER USDOCA DWG NO. 216.
 3. CONSTRUCT "A" CURB PER PER USDOCA DWG NO. 219. CONSTRUCT 30" VALLEY GUTTER PER DETAIL I SHT DT-1.
 4. CONSTRUCT 6" CROSS GUTTER PER USDOCA DWG NO. 228.
 5. INSTALL ADS N-12 STORM DRAIN PIPE, SEE PLAN FOR SIZE.
 6. INSTALL ADS INSERTA TEE, SEE PLAN FOR SIZE.
 7. CONSTRUCT TYPE II SD MANHOLE PER USDOCA DWG NO. 405.2, SEE PLAN FOR SIZE.
 8. CONSTRUCT JENSEN PRECAST SD DRAIN INLET PER DETAIL A SHT DT-2 WITH TRAFFIC FRAME AND GRATE. SEE PLAN FOR SIZE, USE EXTENSIONS AS NEEDED. RETAIN AND PROTECT EXISTING STORM DRAIN STRUCTURE.
 9. ADJUST TO NEW FINISH GRADE.
 10. ABANDON EXISTING STORM DRAIN STRUCTURE.
 11. CONSTRUCT SIDEWALK RAMP PER USDOCA DWG NO. 235.

NOTE TO CONTRACTOR

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NOTE

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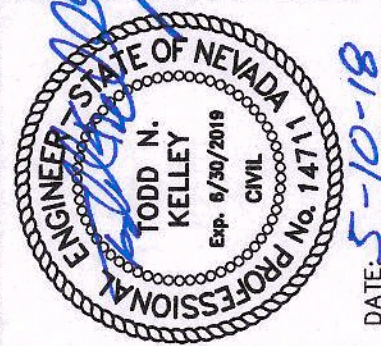
BENCHMARK		
STATION	ELEVATION	DESCRIPTION
OLV00 32C4	820.819 (M)	BEING A RIVET & PLATE TOP CURB SE CORNER OF RAMPART AND ALTA.
	2692.97 (FT.)	

CITY OF LAS VEGAS VERTICAL CONTROL (DATE RE-OBSERVED 2005-2007) BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)

ADD 2000 TO ALL SPOT ELEVATION TAGS.

BASIS OF BEARINGS	
SOUTH 00°32'07" EAST, BEING THE BEARING OF THE CENTERLINE OF RAMPART BOULEVARD AS SHOWN IN FILE 117, PAGE 83 OF PARCEL MAPS ON FILE AT CLARK COUNTY, NEVADA RECORDER'S OFFICE.	

DRAINAGE CERTIFICATION	
I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.	
TODD N. KELLEY P.E. 14711	DATE
H# -	CLV DWG# -



PROJECT NO.	840-060
DESIGN:	
DRAWN:	
CHECK:	
PLOT DATE:	05-10-18
PLOT TIME:	16:11:40

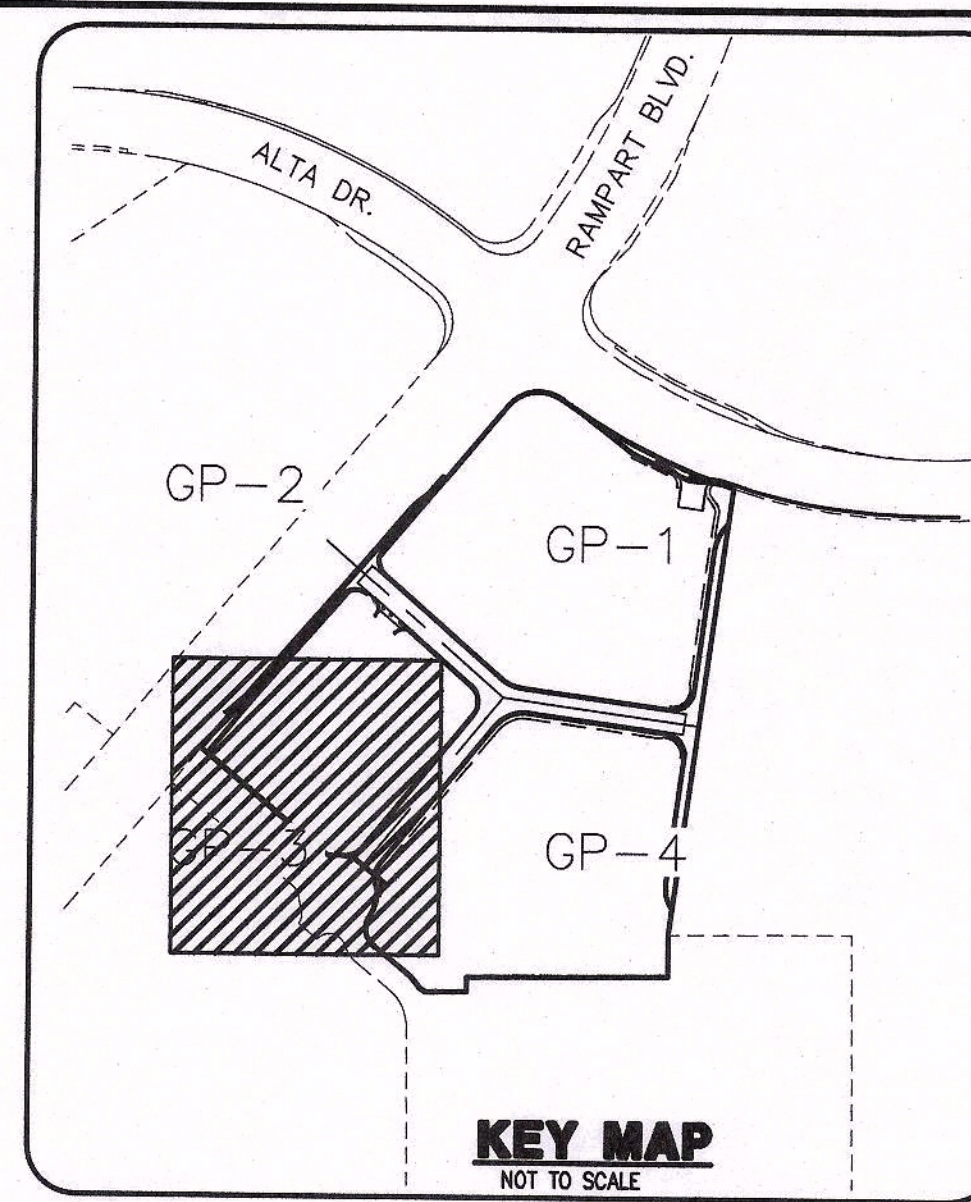
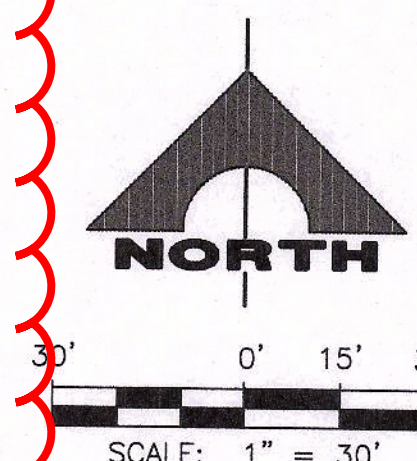
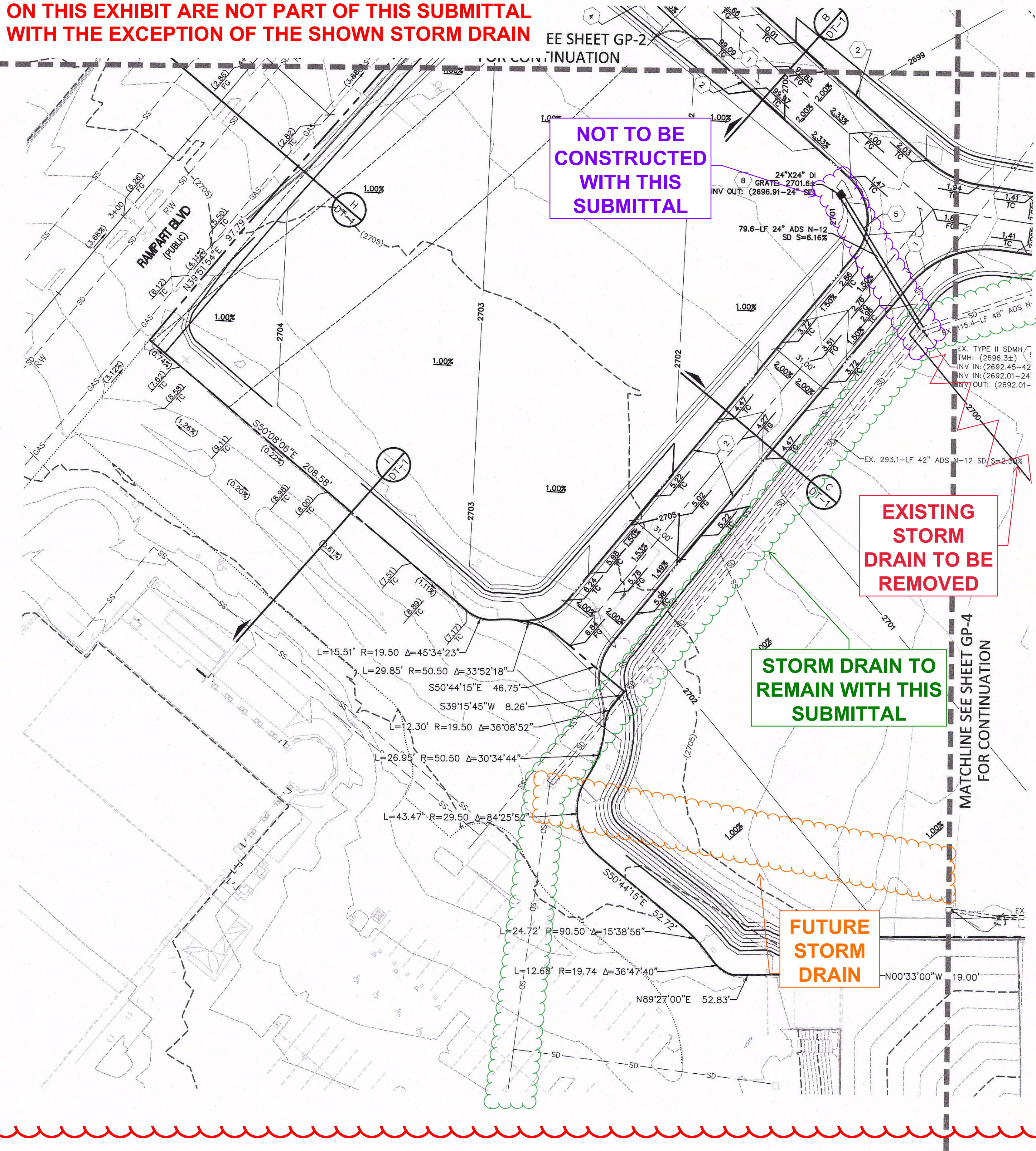
PROJECT NO.	840-060
DESIGN:	
DRAWN:	
CHECK:	
PLOT DATE:	05-10-18
PLOT TIME:	16:11:40

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

EHB COMPANIES LLC	RENAISSANCE	GRADING PLAN 2
DRAWING GP-2		
10 OF 20 SHTS		

NOT FOR CONSTRUCTION

NOTE: THE GRADING AND IMPROVEMENTS SHOWN ON THIS EXHIBIT ARE NOT PART OF THIS SUBMITTAL WITH THE EXCEPTION OF THE SHOWN STORM DRAIN



CONSTRUCTION NOTES	
1	CONSTRUCT 3" AC OVER 4" TYPE II AB OVER 6" TYPE I AB 95% COMPACTION.
2	CONSTRUCT 24" L TYPE CURB AND GUTTER PER USDOCA DWG NO. 216.
3	CONSTRUCT "A" CURB PER PER USDOCA DWG NO. 219. CONSTRUCT 30" VALLEY GUTTER PER DETAIL I SHT DT-1.
4	CONSTRUCT 6" CROSS GUTTER PER USDOCA DWG NO. 228.
5	INSTALL ADS N-12 STORM DRAIN PIPE, SEE PLAN FOR SIZE.
6	INSTALL ADS INSERTA TEE, SEE PLAN FOR SIZE.
7	CONSTRUCT TYPE II SD MANHOLE PER USDOCA DWG NO. 405.2, SEE PLAN FOR SIZE.
8	CONSTRUCT JENSEN PRECAST SD DRAIN INLET PER DETAIL A SHT DT-2 WITH TRAFFIC FRAME AND GRATE. SEE PLAN FOR SIZE, USE EXTENSIONS AS NEEDED. RETAIN AND PROTECT EXISTING STORM DRAIN STRUCTURE.
9	ADJUST TO NEW FINISH GRADE.
10	ABANDON EXISTING STORM DRAIN STRUCTURE.
11	CONSTRUCT SIDEWALK RAMP PER USDOCA DWG NO. 235.

NOTE TO CONTRACTOR

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NOTE

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Call before you Dig

Avoid hitting overhead power lines. It's costly.

Call 811

OR

1-800-227-2600

CALL BEFORE YOU DO OVERHEAD

FAST

Call before you UnderGround.

1-702-432-5300

BENCHMARK		
STATION	ELEVATION	DESCRIPTION
OLVOO 32C4	820.819 (M) T 2692.97 (FT.)	BEING A RIVET & PLATE TOP CURB SE CORNER OF RAMPART AND ALTA.

CITY OF LAS VEGAS VERTICAL CONTROL (DATE RE-OBSERVED 2005-2007) BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)

ADD 2000 TO ALL SPOT ELEVATION TAGS.

BASIS OF BEARINGS

SOUTH 00°32'07" EAST, BEING THE BEARING OF THE CENTERLINE OF RAMPART BOULEVARD AS SHOWN IN FILE 117, PAGE 83 OF PARCEL MAPS ON FILE AT CLARK COUNTY, NEVADA RECORDER'S OFFICE.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

TODD N. KELLEY P.E. 14711 DATE

H# - CLV DWG# -

ENGINEER STATE OF NEVADA

TODD N. KELLEY

Exp. 4/30/2018

CIVIL

14711

DATE: 5-10-18

PROJECT NO.	840-060
DESIGN:	
DRAWN:	
CHECK:	GCW
PLOT DATE:	05-10-18
PLOT TIME:	16:11:50

PROJECT NO. 840-060

DESIGN: GCW

DRAWN: GCW

CHECK: GCW

PLOT DATE: 05-10-18

PLOT TIME: 16:11:50

1555 S. RAINBOW BLVD.

LAS VEGAS, NV 89146

T: 702.804.2000

F: 702.804.2299

gocwengineering.com

EHB COMPANIES LLC

RENAISSANCE

GRADING PLAN 3

DRAWING GP-3

12 OF 20 SHTS

NOTE: THE GRADING AND IMPROVEMENTS SHOWN ON THIS EXHIBIT ARE NOT PART OF THIS SUBMITTAL WITH THE EXCEPTION OF THE SHOWN STORM DRAIN

STORM DRAIN TO REMAIN WITH THIS SUBMITTAL

NOT TO BE CONSTRUCTED WITH THIS SUBMITTAL

ORIGINAL STORM DRAIN TO BE CONSTRUCTED WITH THIS SUBMITTAL

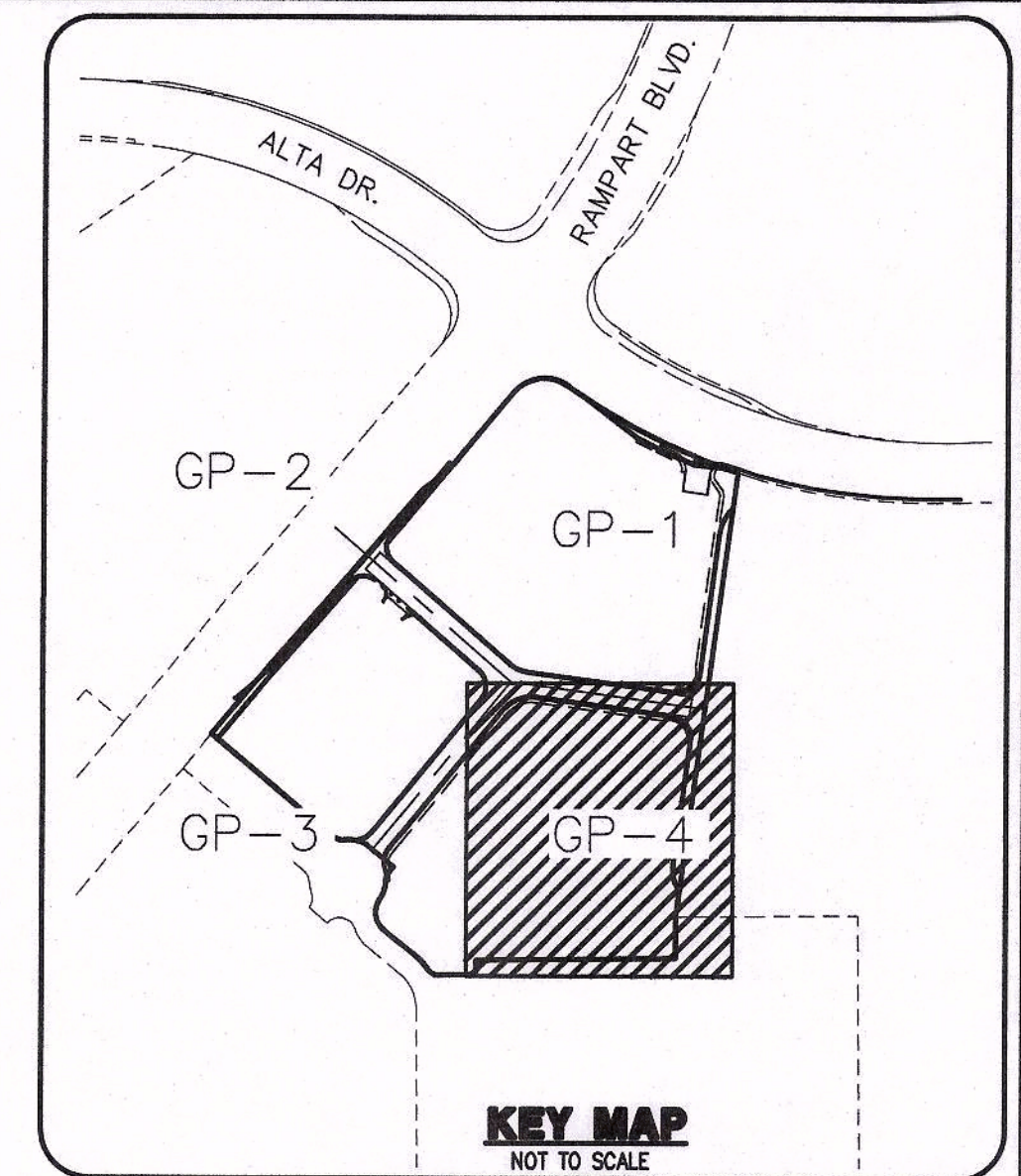
ORIGINAL STORM DRAIN TO BE CONSTRUCTED WITH THIS SUBMITTAL

EXISTING STORM DRAIN TO BE REMOVED

STORM DRAIN TO BE UPSIZED IN PREPARATION FOR FUTURE CONNECTION (BY OTHERS)

STORM DRAIN TO REMAIN WITH THIS SUBMITTAL

FUTURE STORM DRAIN



CONSTRUCTION NOTES

1. CONSTRUCT 3" AC OVER 4" TYPE II AB OVER 6" TYPE I AB 95% COMPACTION.
2. CONSTRUCT 24" L TYPE CURB AND GUTTER PER USDOCA DWG NO. 216.
3. CONSTRUCT "A" CURB PER PER USDOCA DWG NO. 219. CONSTRUCT 30" VALLEY GUTTER PER DETAIL I SHIT DT-1.
4. CONSTRUCT 8" CROSS GUTTER PER USDOCA DWG NO. 228.
5. INSTALL ADS N-12 STORM DRAIN PIPE, SEE PLAN FOR SIZE.
6. INSTALL ADS INSERTA TEE, SEE PLAN FOR SIZE.
7. CONSTRUCT TYPE II SD MANHOLE PER USDOCA DWG NO. 405.2, SEE PLAN FOR SIZE.
8. CONSTRUCT JENSEN PRECAST SD DRAIN INLET PER DETAIL A SHIT DT-2 WITH TRAFFIC FRAME AND GRATE. SEE PLAN FOR SIZE, USE EXTENSIONS AS NEEDED. RETAIN AND PROTECT EXISTING STORM DRAIN STRUCTURE.
9. ADJUST TO NEW FINISH GRADE.
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11. CONSTRUCT SIDEWALK RAMP PER USDOCA DWG NO. 235.

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BENCHMARK		
STATION	ELEVATION	DESCRIPTION
OLVOO 32C4	820.819 (M) 2692.97 (FT.)	BEING A RIVET & PLATE TOP CURB SE CORNER OF RAMPART AND ALTA.

CITY OF LAS VEGAS VERTICAL CONTROL (DATE RE-OBSERVED 2005-2007) BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88) ADD 2000 TO ALL SPOT ELEVATION TAGS.

BASIS OF BEARINGS		
SOUTH 00°32'07" EAST, BEING THE BEARING OF THE CENTERLINE OF RAMPART BOULEVARD AS SHOWN IN FILE 117, PAGE 83 OF PARCEL MAPS ON FILE AT CLARK COUNTY, NEVADA RECORDER'S OFFICE.		
TODD N. KELLEY	P.E. 14711	DATE

H# - CLV DWG# -

PROJECT NO. 840-060

1555 S. RAINBOW BLVD. LAS VEGAS, NV 89146

EHB COMPANIES LLC

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:

A. PAVEMENT AREA SUBGRADE

HORIZONTAL

VERTICAL

COMPACTION

B. ENGINEERED FILL

0.1'±

+0.0' TO -0.1'

SEE SOILS REPORT

0.5'±

+0.1' TO -0.1'

SEE SOILS REPORT

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE. COMPACTION SHALL COMPLY WITH THE REQUIREMENTS OF THE ENGINEER.

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, SUCH ITEM SHALL BE PROVIDED, AS DIRECTED BY THE CITY ENGINEER, AT NO EXPENSE TO THE CITY OF LAS VEGAS. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 4/15/10

STORMWATER RUNOFF MANAGEMENT

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAYS OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.

2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CITY OF LAS VEGAS AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.

3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.5.

4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPs WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVRI00000, SECTION III.A.12.

5. ACCUMULATED SEDIMENT IN BMPs SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

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 LVWD 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

DEVIATION FROM STANDARDS

1. NONE

LAS VEGAS FIRE AND RESCUE GENERAL 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 SECTION 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 SECTION 3310, SECTION 3312]

5. TO IDENTIFY FIRE HYDRANT LOCATIONS, CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF STREET ADJACENT TO THE FIRE HYDRANTS [IFC SECTION 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 SECTION 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 SECTION 507.2.1]

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 SECTION 507]

9. PRIVATE FIRE HYDRANTS SHALL BE PAINTED RED. [IFC SECTION 507]

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 SECTION 507]

11. FIRE HYDRANTS SPACING SHALL BE AS FOLLOWS: [IFC SECTION C102]
RESIDENTIAL - 500 FT UNSPRINKLERED; 600 FT SPRINKLERED
COMMERCIAL - 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.

12. WHERE NEW 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 1,000 FOOT SPACING. PROVIDE ONE FIRE HYDRANT PER TRANSVERSE STREET. ALL STREETS 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 FEET ON AN ALTERNATING BASIS. [IFC SECTION C102.8]

13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL-DE-SAC OR WITHIN 20 FEET OF THE PERIMETER OF THE RADIUS OF THE CUL-DE-SAC.

14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FEET OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. [IFC SECTION 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 SECTION C102.4]

16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FEET, AS MEASURED BY AN APPROVED ROUTE. [IFC SECTION C102.7]

17. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. [IFC SECTION 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 SECTION. 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 SECTION 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 SECTION 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 FEET PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. [IFC SECTION 503.2.7, SECTION 503.2.6]

21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FEET OUTSIDE AND 28 FEET INSIDE TURNING RADIUS. [IFC 503.2.4]

22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13 FEET 6 INCHES. [IFC SECTION 503.2.1]

23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 40FT 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 24 FT WIDE, FLOW LINE TO FLOW LINE, WHERE NO PARKING IS PERMITTED ON EITHER SIDE. FIRE LANES THROUGH PARKING LOTS SHALL NOT BE LESS THAN 24 FT. [IFC SECTION 503.2.1.1]

24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL FO 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 SECTION 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 SECTION 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 SECTION 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 IN STALLED 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 SECTION 503.3]

28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. SAID SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE IFC SECTION 503.6 AND IFC APPENDIX M.

LAS VEGAS FIRE DEPARTMENT

DATE

REVISED MARCH 1, 2016

APPROVED FOR CONSTRUCTION

LAS VEGAS FIRE AND RESCUE, 4,000 GPM FIRE FLOW AT 20 PSI RESIDUAL

DATE

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 STREET NAMES 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 ADVANCED 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 "SAFE ROUTE TO SCHOOL" IS ENCLOSED 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 SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO 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 STREET NAME SIGNS.

10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND ANY ADAPTED SPECIAL AREA, STANDARD.

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 CITIZENS AREA TRANSIT (C.A.T.) 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. 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 DETAILING 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 4/15/10

CITY OF LAS VEGAS STREETLIGHT NOTES

1. ALL STREET LIGHTING INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE STREET LIGHTING PLANS, THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA, NEVADA", LATEST REVISION, AND ANY ADAPTED SPECIAL AREA, STANDARD.

2. NO DEVIATION OF STREET LIGHT, PULL BOX, CONDUITS (ETC.) LOCATIONS SHALL BE PERMITTED WITHOUT WRITTEN APPROVAL OF THE TRAFFIC ENGINEER AND THE CITY ENGINEER.

3. ALL EXISTING STREET LIGHTING SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.

4. ALL STREET LIGHTING CONDUITS STUB SHALL HAVE AT LEAST ONE GREEN #8 THW WIRE INSTALLED, AS TRACER WIRE. WHEN "EMPTY" CONDUIT IS COMPLETELY INSTALLED FROM PB TO PB, IT SHALL HAVE MINIMUM OF 2 #4 AND 1 #8 THW WIRE WITH THE ENDS TAPED OR "SAFE OFF" PRIOR TO FINAL INSPECTION.

5. ANY STRUCTURE SUCH AS BLOCK WALLS, CHAIN LINK FENCES, RETAINING WALLS, ETC., SHALL LEAVE A MINIMUM CLEARANCE IN ACCORDANCE WITH THE USD NO. 320A.

6. AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE TEF0 PRIOR TO ANY PRE-FINAL INSPECTION. THE AS-BUILT DRAWING NEEDS TO BE STAMPED AS-BUILT AND SIGNED BY THE PREPARER.

7. SERVICE POINT SHALL BE COORDINATED WITH NV ENERGY COMPANY, AND WHEREVER POSSIBLE, BE LOCATED NEAR THE CENTER OF THE CIRCUIT. SERVICE POINTS SHALL BE SHOWN ON THE PLANS.

8. IT SHALL BE ASSUMED THAT IN THE ABSENCE OF AN EXISTING, WORKABLE CIRCUIT TO ATTACH TO, ALL INSTALLATIONS SHALL REQUIRE A NEW SERVICE FOR OPERATION OF THE CIRCUIT.

9. WHEREVER THERE IS AN OVERHEAD UTILITY THAT MAY CONFLICT WITH THE INSTALLATION OF STREET LIGHTING CIRCUITS AND/OR POLES, THESE CONFLICTS MUST BE RESOLVED BETWEEN THE DEVELOPER AND THE UTILITIES INVOLVED, AT NO EXPENSE TO THE CITY OF LAS VEGAS, BEFORE STREETLIGHT BASES ARE INSTALLED.

10. THE CONTRACTOR SHALL FURNISH COMPLETE SERVICE TO TRANSFORMERS AND CONTROL SYSTEMS IF REQUIRED ON PLANS.

11. THE DEVELOPER/OWNER WILL BE REQUIRED TO SUPPLY POWER TO ALL NEW PUBLIC STREET LIGHTS INSTALLED PRIOR TO DESIGN PRIOR TO BOND RELEASE OR PROJECT COMPLETION. THE DEVELOPER/OWNER WILL BE RESPONSIBLE FOR ALL ITEMS ASSOCIATED WITH THE INSTALLATION, CONSTRUCTION, ENERGIZING, MAINTENANCE AND OPERATIONAL COST OF SAID STREET LIGHTS PRIOR TO PROJECT COMPLETION. REFER TO THE PLAN FOR ANY NEW SERVICE REQUIREMENTS. THE TRANSFER OF OWNERSHIP FROM THE DEVELOPER/OWNER TO THE CITY OF LAS VEGAS FOR ALL NEW PUBLIC STREET LIGHT/S AND/OR SERVICE/S INSTALLED UNDER THIS PLAN WILL BE IN CONJUNCTION WITH THIS PROJECT COMPLETION. COORDINATE ALL MAINTENANCE AND OPERATIONAL TRANSFERS WITH THE CITY OF LAS VEGAS TRAFFIC ENGINEERING DEPARTMENT (TEF0) AT (702) 229-6331.

REVISED 04/15/10

FLOOD ZONE NOTE

NO PORTION OF THE SITE FALLS WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA. SITE LOCATED ON PANEL 32003C1743E, DATED SEPTEMBER 27, 2002. THIS PANEL SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE X AND NOT LOCATED WITHIN A FEMA DESIGNATED 100-YEAR ZONE A OR SPECIAL FLOOD HAZARD AREA.

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE 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 PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCES 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 (1/2") ABOVE UP 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 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 ANGLE ENGINEER, PROJECT NUMBER 7703-1, DATED MAY 28, 2014, 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 N.R.S. 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 THE OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL LOCATING DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.

21. AFTER HAUNCHING AND PRIOR TO BACKFILL OPERATIONS WHICH WOULD COVER SANITARY SEWER AND STORM DRAIN FACILITIES, CONTRACTOR IS REQUIRED TO SCHEDULE CLV OPEN-TRENCH UTILITY SURVEY INSPECTION FOR DETERMINATION OF FINAL LOCATION COORDINATES. FACILITIES TO BE LOCATED BY CLV SHALL INCLUDE AT A MINIMUM 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 LATERALS EXIT THE PUBLIC RIGHT-OF-WAY, SEWER AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS.

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 02/03/15

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION

GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1-877-860-6020.

2. THERE SHALL BE A MINIMUM HORIZONTAL AND VERTICAL CLEARANCE OF 12-INCHES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND FACILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRIC.

3. FOR VALVE ADJUSTMENT CONTACT 702-668-6107 48 HOURS PRIOR TO CONSTRUCTION.

4. IN THE EVENT OF A NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND/OR STRUCTURES CONTACT 702-365-2099.

APPROVED FOR CONSTRUCTION

SOUTHWEST GAS CORP.

DATE

CAUTION: HIGH PRESSURE GAS!!

CALL SOUTHWEST GAS AT 702-400-1789 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES 48 HOURS PRIOR TO CONSTRUCTION.

CLV

ENGINEERS \ SURVEYORS

GOVENGINEERING.COM

PROJECT NO. 840-065

DESIGN: 840-065

DRAWING: 840-065

CHECK: 840-065

PLOT DATE: 06-11-19

PLOT TIME: 13:43:50

1555 S. RAINBOW BLVD.

LAS VEGAS, NV 89146

T: 702.804.2000

F: 702.804.2299

RA SOUTHEAST LAND COMPANY

RENAISSANCE - LOT 1

STORM DRAIN

GENERAL NOTES

C2

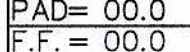
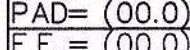
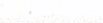
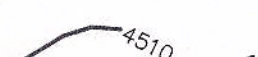
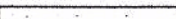
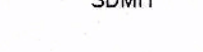
2 OF 6 SHTS

CLV DWG#

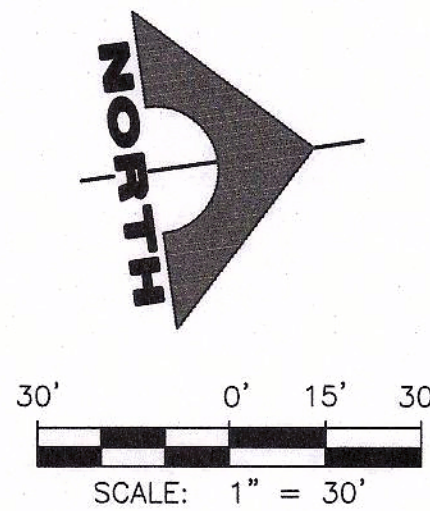
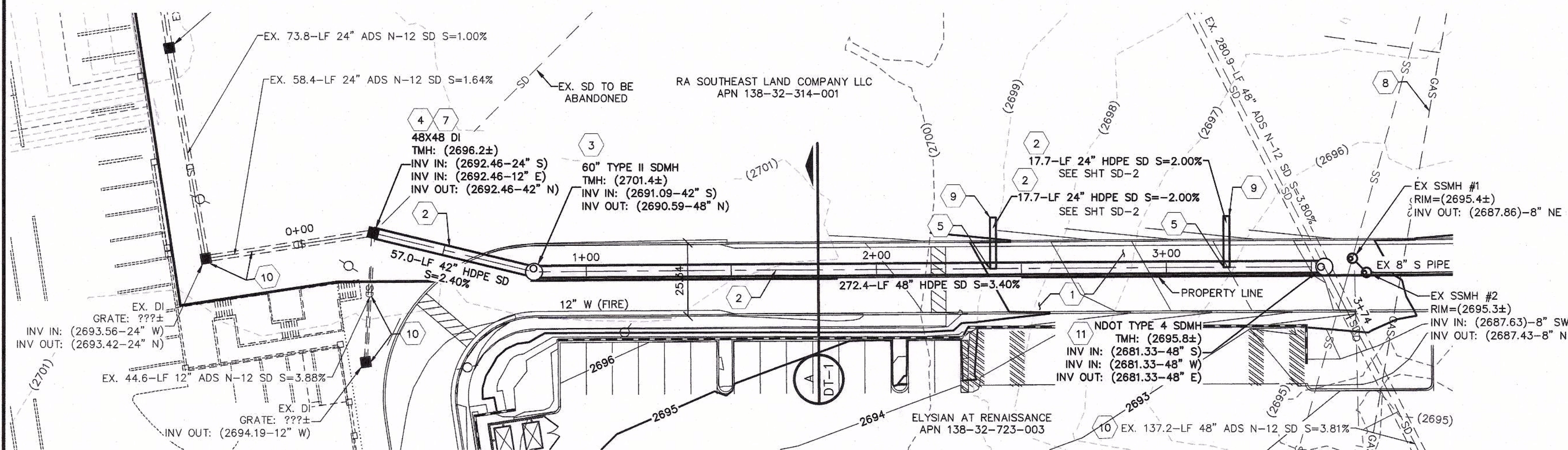
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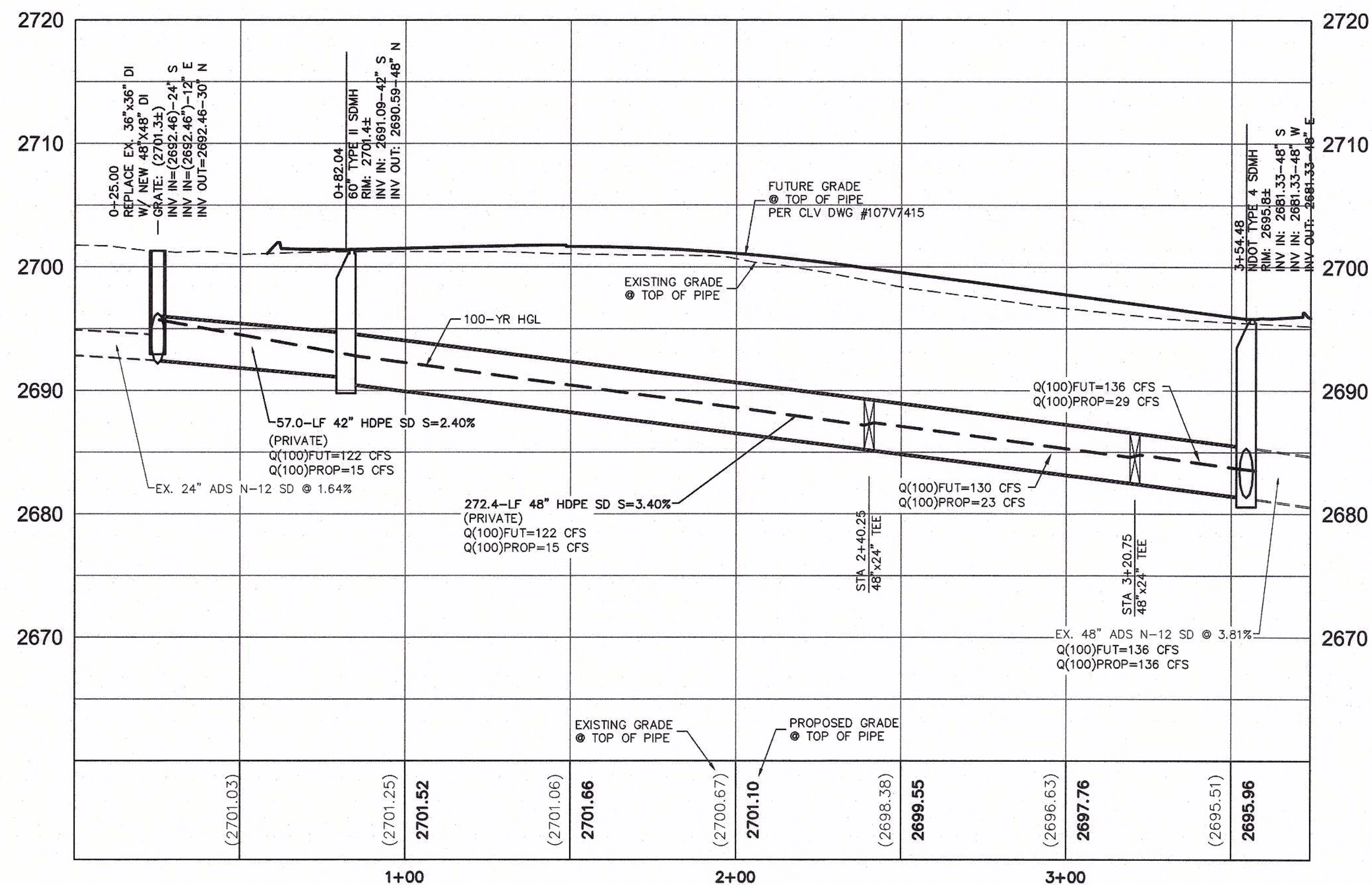
LEGEND

	LOT NUMBER		FUTURE ELEVATION
	BLOCK NUMBER		GRADE BREAK ELEVATION
	PAD ELEVATION FINISH FLOOR ELEVATION		PROPOSED ELEVATION
	EXISTING PAD ELEVATION EXIST. FINISH FLOOR ELEV.		EXISTING ELEVATION
	RIGHT-OF-WAY		
	SCARP		PROPERTY LINE
	EXISTING CONTOUR (5' INTERVAL)		CENTER LINE
	EXISTING CONTOUR (1' INTERVAL)		RETAINING WALL
	CONCRETE DRIVEWAY		KNEE WALL
	TOP OF FOOTING		PERIMETER WALL
	TOP OF RETAINING WALL		STORM DRAIN LINE
	STORM DRAIN MANHOLE		SIDEWALK
	SVZ - SIGHT VISIBILITY ZONE, NO STRUCTURES/ LANDSCAPING TALLER THAN 24"		DITCH OR SWALE
			CURB TRANSITION AT SIDEWALK RAMP (ROLL CURB TO "L" CURB)

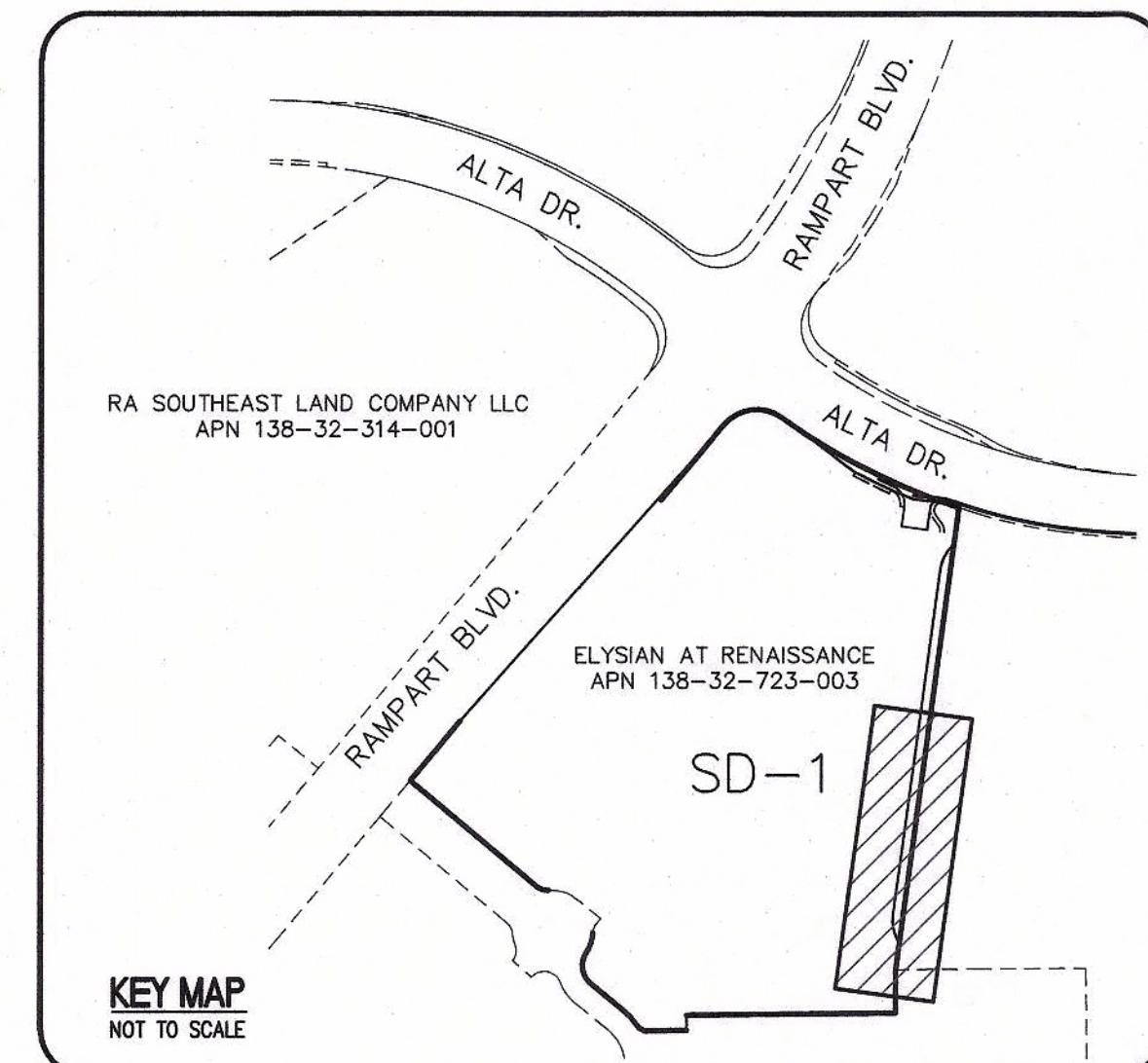
RA SOUTHEAST LAND COMPANY RENAISSANCE - LOT 1 STORM DRAIN ABBREVIATION, LEGEND AND QUANTITIES	GCLV ENGINEERS SURVEYORS	1555 S. RAINBOW BLVD. LAS VEGAS, NV 89146 T: 702.804.2000 F: 702.804.2299 gowingengineering.com
	DRAWING C3 3 OF 6 SHTS	
	F:\PROJECTS\800\840-065\DWG\PRODUCTION\940_065CC.DWG HUNG LE	



SD-1 PLAN VIEW
SCALE: 1"=30' HORIZONTAL



SD-1 PROFILE
SCALE: 1"=30' HORIZONTAL
1"=8' VERTICAL



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

Call 811
OR
1-800-227-2600

CALL BEFORE YOU DO OVERHEAD
AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.

FAST
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1-702-432-5300
FREEMAN AND ARTERIAL SYSTEM OF TRANSPORTATION

NOTE TO CONTRACTOR
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NOTE
ALL ONSITE STORM DRAINS AND ASSOCIATED STORM FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED.

- CONSTRUCTION NOTES**
- 1 FUTURE ROADWAY PER ELYSIAN AT RENAISSANCE, CLV DWG #107V7415
 - 2 CONSTRUCT HDPE STORM DRAIN. SEE PLAN FOR SIZE.
 - 3 CONSTRUCT TYPE II SD MANHOLE PER USDOCA DWG NO. 405, SEE PLAN FOR SIZE.
 - 4 CONSTRUCT JENSEN PRECAST SD DRAIN INLET PER DETAIL "B" ON SHEET DT-1 WITH TRAFFIC FRAME AND GRATE. SEE PLAN FOR SIZE, USE EXTENSIONS AS NEEDED.
 - 5 INSTALL 24"x48" STORM DRAIN TEE.
 - 6 ADJUST TO NEW FINISH GRADE.
 - 7 ABANDON EXISTING STORM DRAIN STRUCTURE.
 - 8 CONTACT SW GAS CORPORATION FOR ABANDONMENT SCHEDULE.
 - 9 STUB & CAP FOR FUTURE CONNECTION.
 - 10 EXISTING STORM DRAIN FACILITY RETAIN & PROTECT.
 - 11 INSTALL NDOT TYPE 4 MANHOLE PER DETAIL "C" SHEET DT-1.

SOUTHWEST GAS CORPORATION APPROVAL

SOUTHWEST GAS CORP. _____ DATE _____

BENCHMARK

STATION	ELEVATION	DESCRIPTION
QLV00 32C4	820.819 (M) 2692.97 (FT.)	BEING A RIVET & PLATE TOP CURB SE CORNER OF RAMPART AND ALTA.

CITY OF LAS VEGAS VERTICAL CONTROL (DATE RE-OBSERVED 2005-2007)
BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88)
ADD 2600 TO ALL SPOT ELEVATION TAGS.

BASIS OF BEARINGS

SOUTH 00°32'07" EAST, BEING THE BEARING OF THE CENTERLINE OF RAMPART BOULEVARD AS SHOWN IN FILE 117, PAGE 83 OF PARCEL MAPS ON FILE AT CLARK COUNTY, NEVADA RECORDER'S OFFICE.

DRAINAGE CERTIFICATION

I CERTIFY THAT THE GRADING PLANS ARE IN CONFORMANCE WITH THE APPROVED DRAINAGE STUDY DS 4991 ON FILE AT THE CITY OF LAS VEGAS FOR THIS PROJECT.

TODD N. KELLEY P.E. 14711 DATE _____

L CLV DWG# _____

ENGINEER - STATE OF NEVADA
TODD N. KELLEY
P.E. 14711
DATE: 6-11-19

PROJECT NO.	DATE	GCW APP	DATE	JAGER APP	DATE	DESCRIPTION
840-065						

PROJECT NO. 840-065
DESIGN: _____
DRAWN: _____
CHECK: GCW
PLOT DATE: 06-11-19
PLOT TIME: 14:48:51

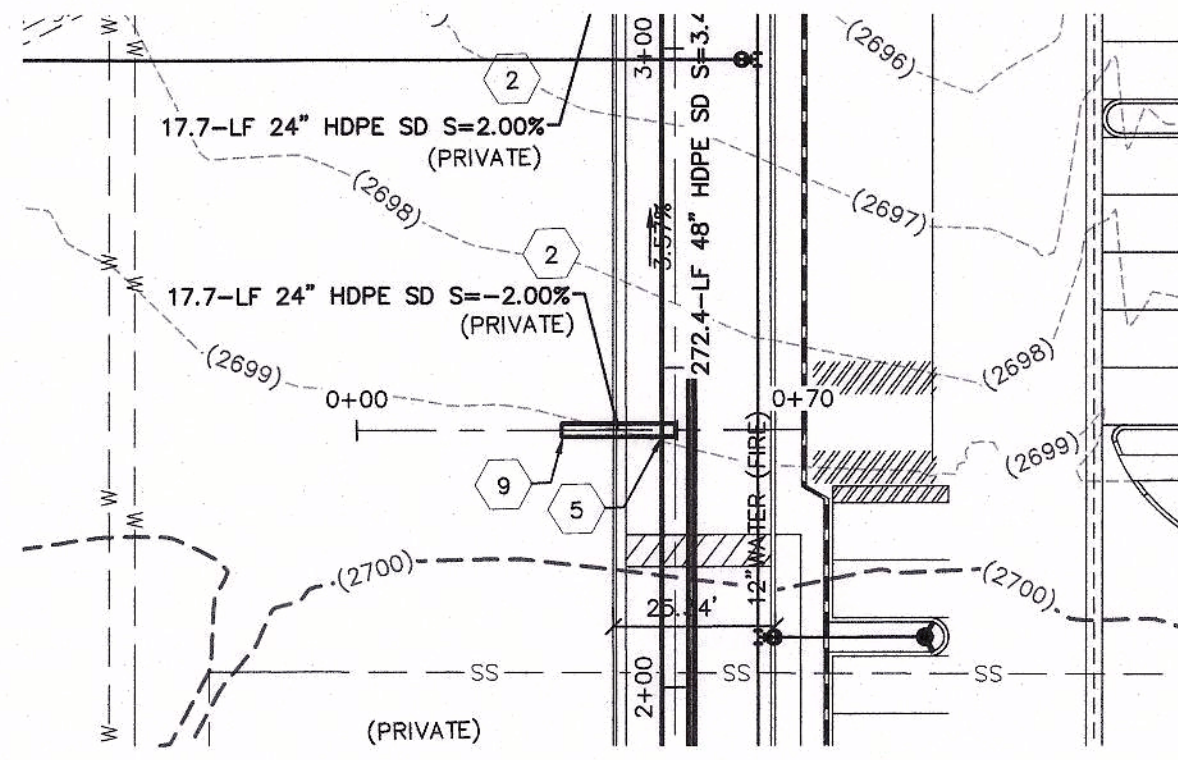
GCV
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

ENGINEERS \ SURVEYORS

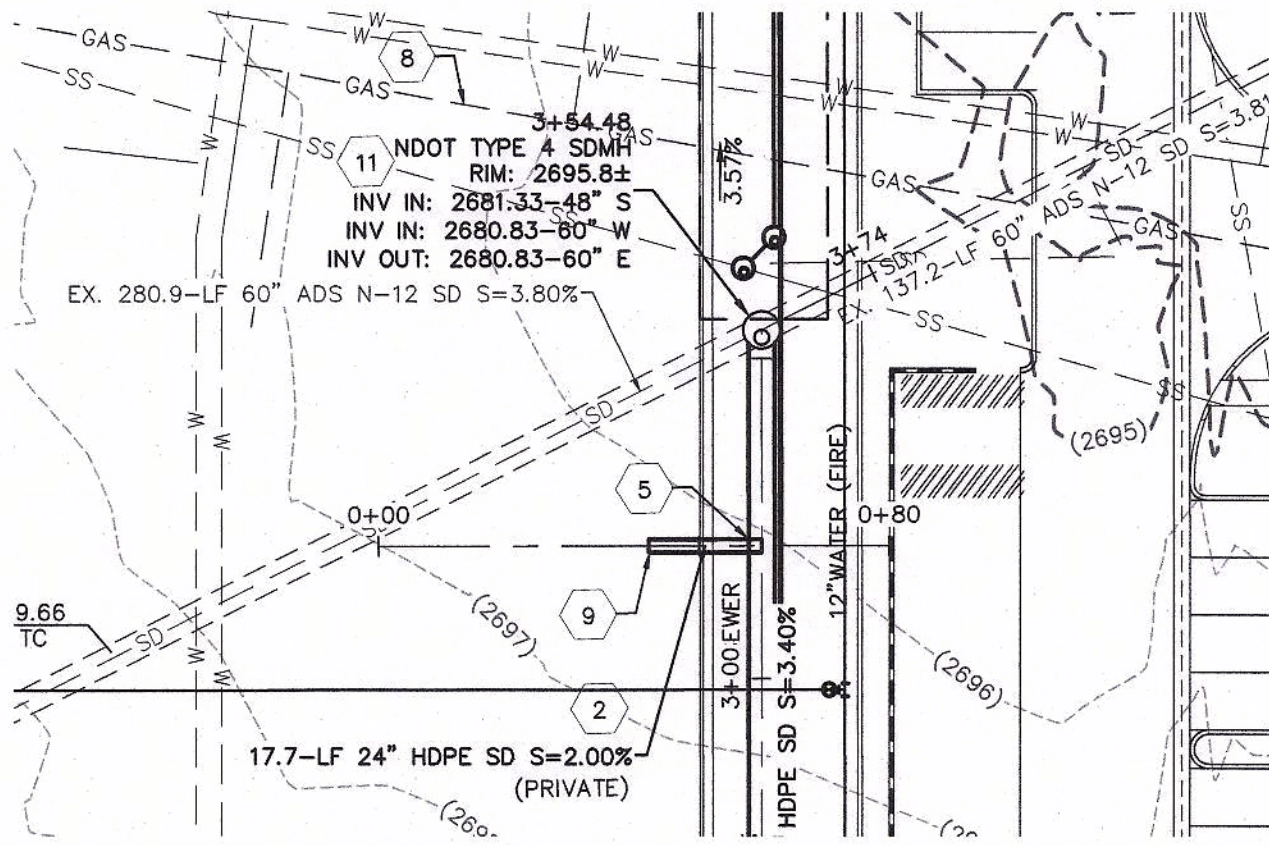
RA SOUTHEAST LAND COMPANY
RENAISSANCE - LOT 1
STORM DRAIN

STORM DRAIN PLAN AND PROFILE 1

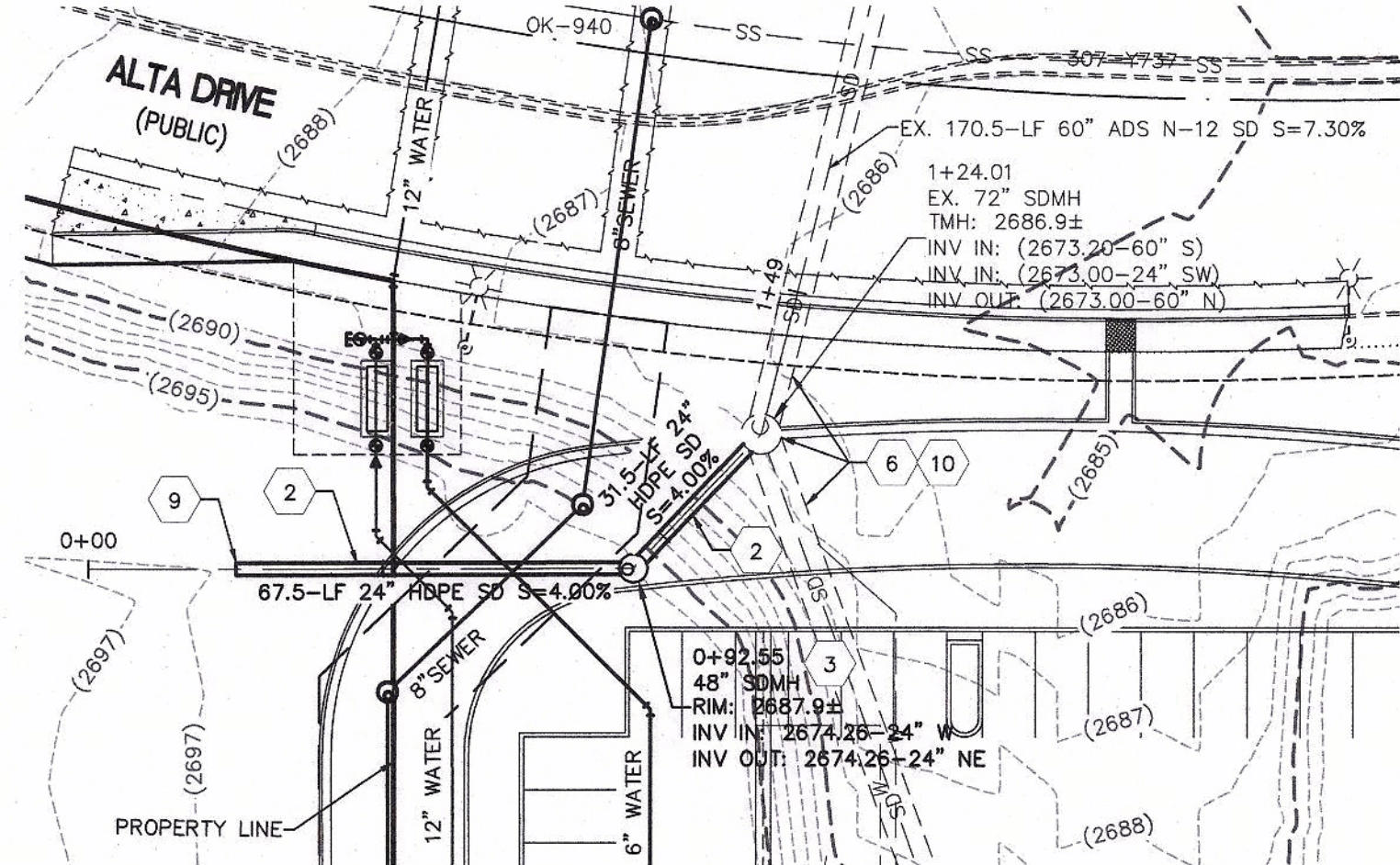
DRAWING
SD-1
4 OF 6 SHTS



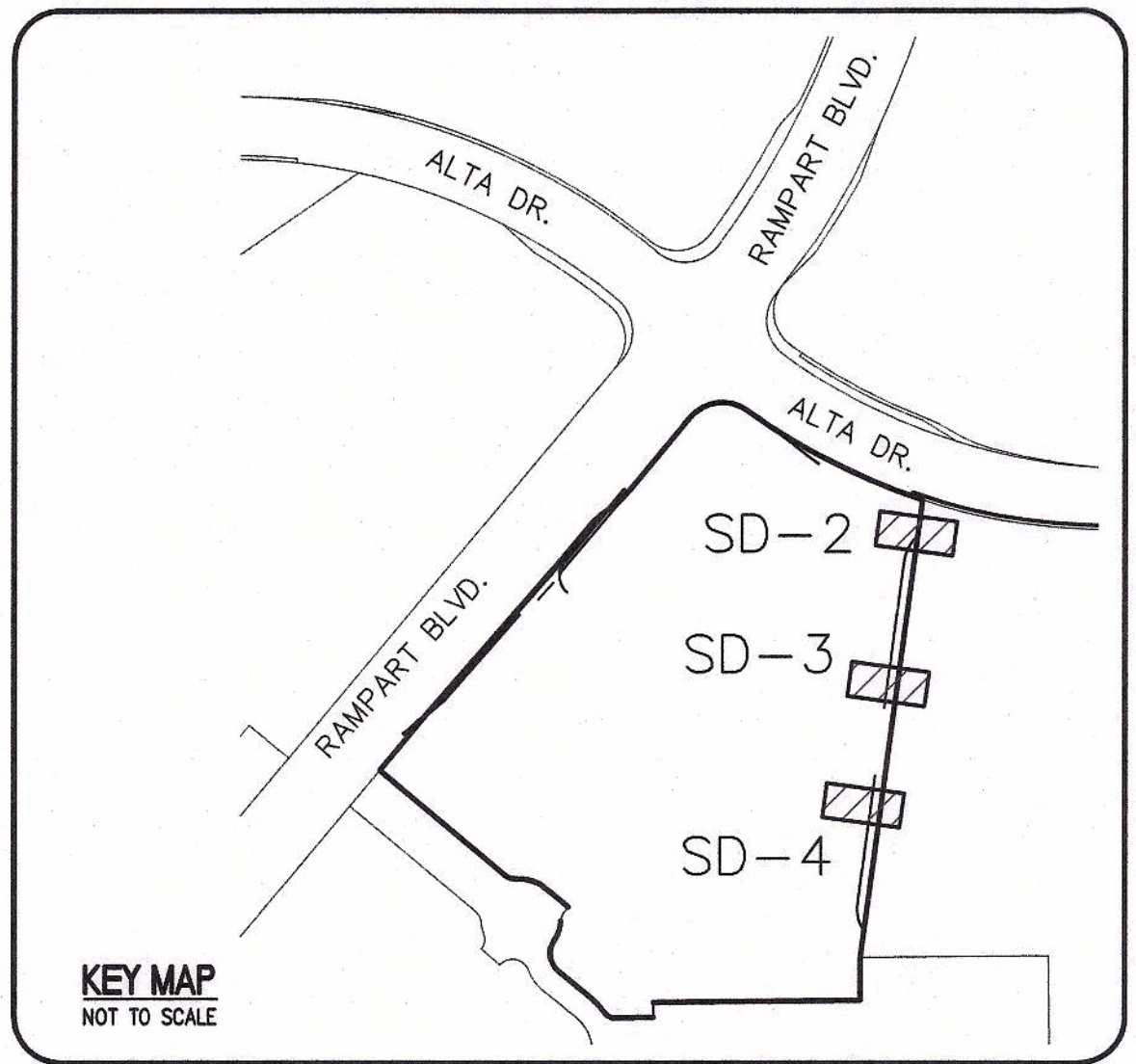
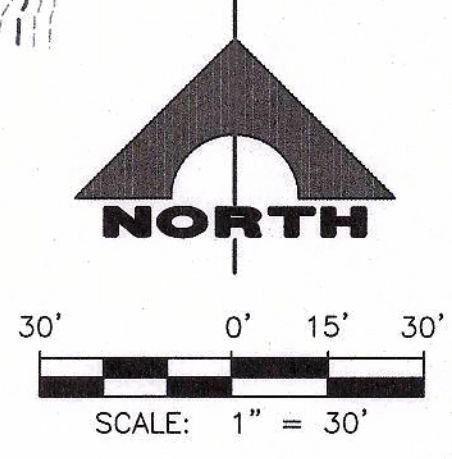
SD-4 PLAN VIEW
SCALE: 1"=30' HORIZONTAL



SD-3 PLAN VIEW
SCALE: 1"=30' HORIZONTAL



SD-2 PLAN VIEW
SCALE: 1"=30' HORIZONTAL



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FREEMAN AND ARTERIAL SYSTEM OF TRANSPORTATION

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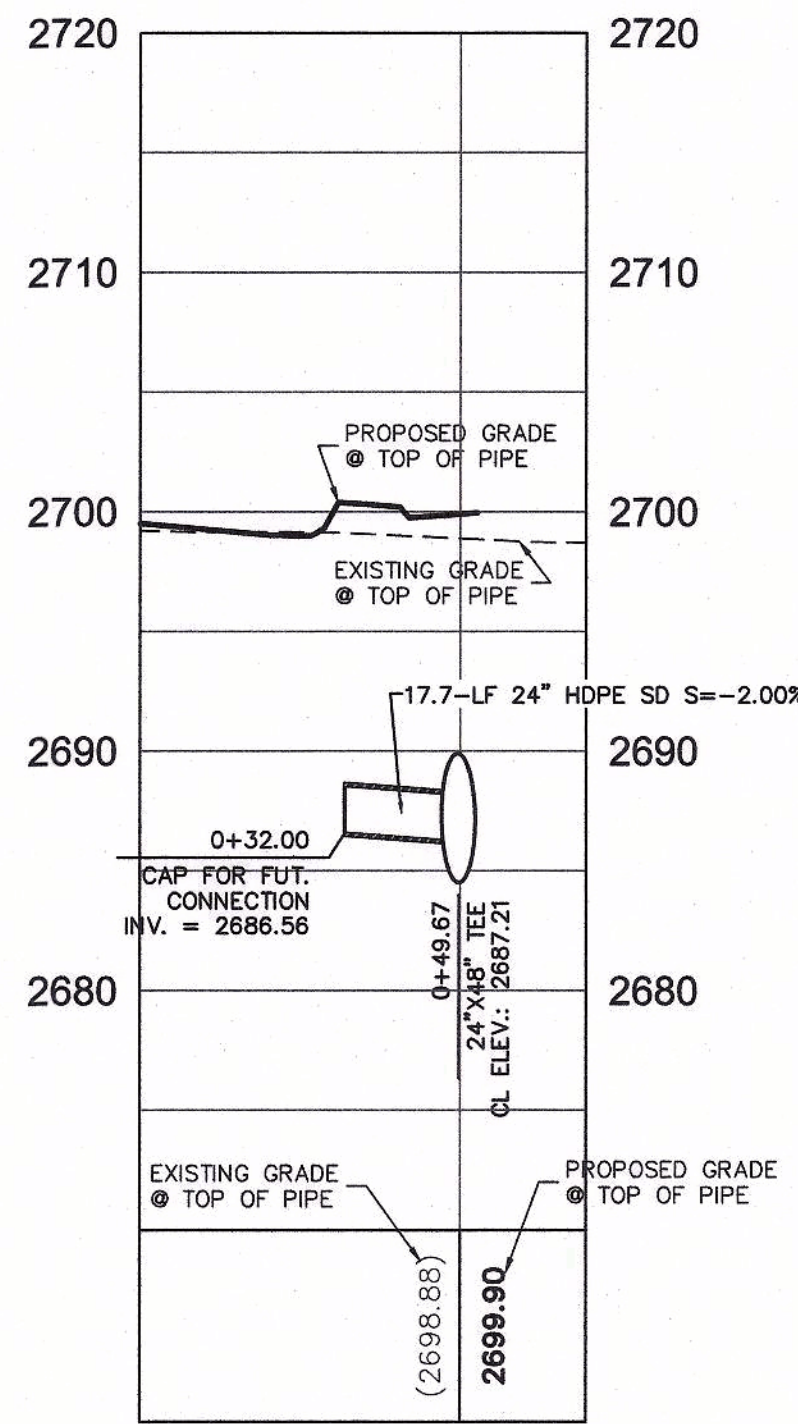
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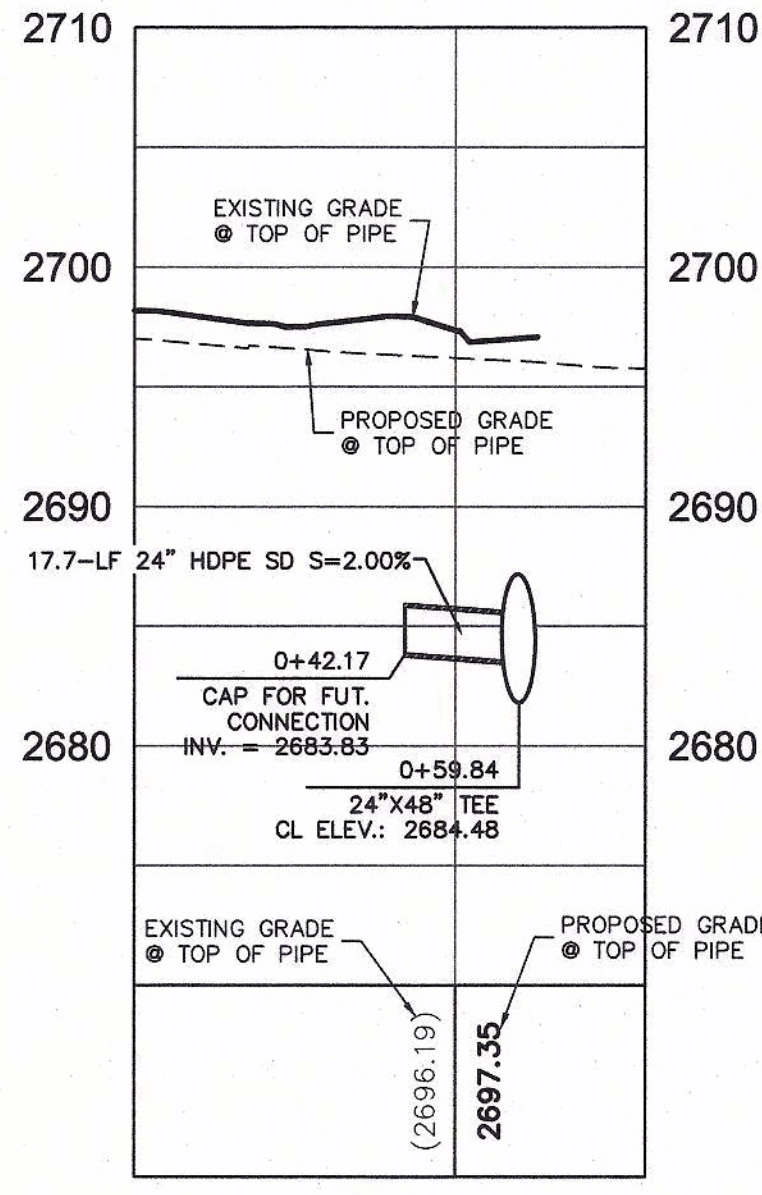
DRAINAGE CERTIFICATION
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TODD N. KELLEY P.E. 14711 DATE _____

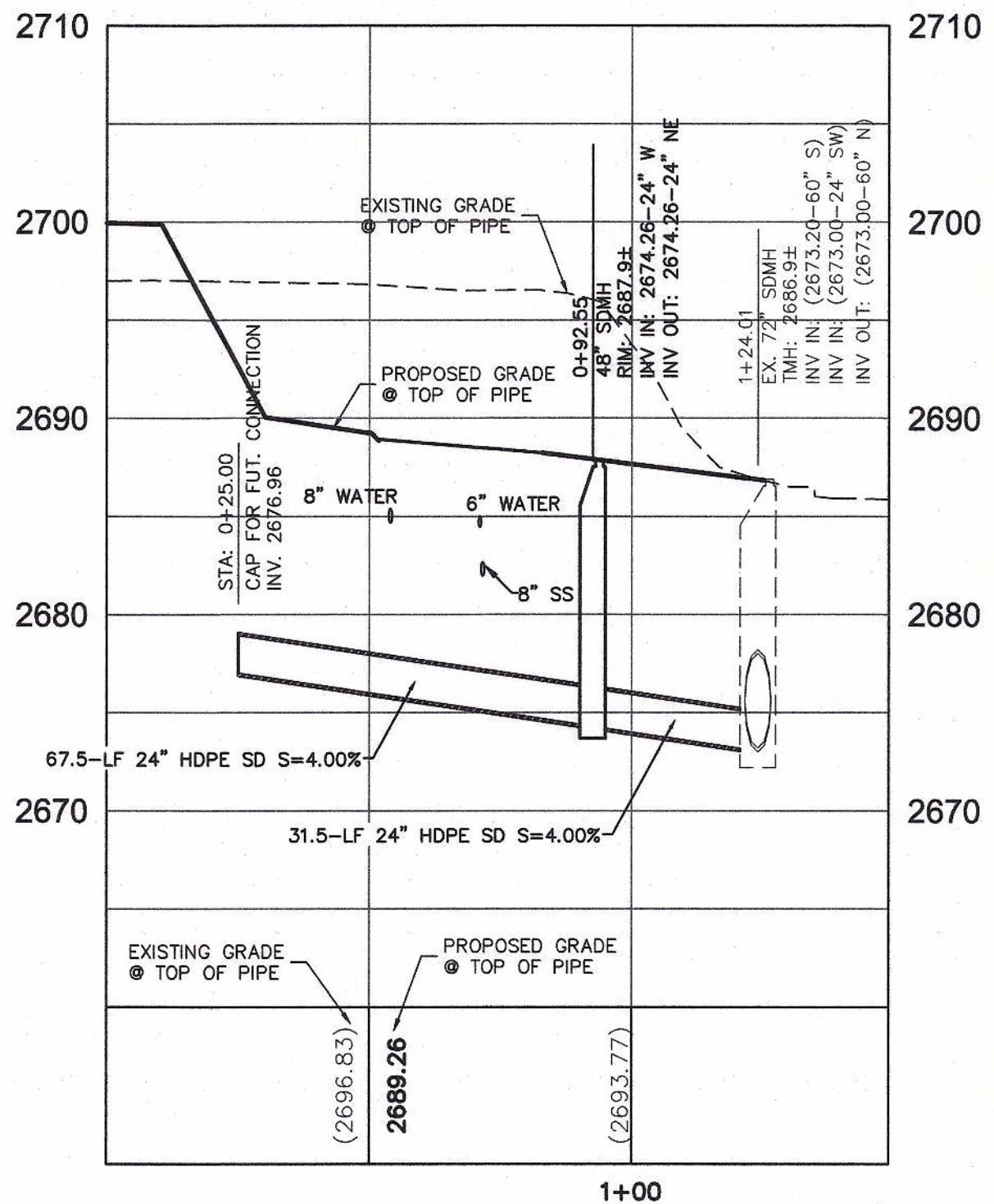
L19-XXXXX CLV DWG# _____



SD-4 PROFILE
SCALE: 1"=30' HORIZONTAL
1"=8' VERTICAL



SD-3 PROFILE
SCALE: 1"=30' HORIZONTAL
1"=8' VERTICAL



SD-2 PROFILE
SCALE: 1"=30' HORIZONTAL
1"=8' VERTICAL

PROJECT NO.	840-065
DESIGN	1555 S. RAINBOW BLVD., LAS VEGAS, NV 89146
DRAWN	T: 702.804.2000
CHECK	F: 702.804.2299
PLOT DATE	08-11-19
PLOT TIME	14:49:12

RA SOUTHEAST LAND COMPANY

RENAISSANCE - LOT 1
STORMDRAIN

STORM DRAIN PLAN AND PROFILE 2

DRAWING
SD-2
5 OF 6 SHTS

