DS #: 5261-1

APN: 125-06-501-001 & 125-06-701-001

PROJECT: Parcel 3 at Sunstone Phase 1 & Model Phase

SUBMITTAL: 3rd

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS NEVADA

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: August 5, 2020
TO: **Land Development Services** Department of Building & Safety				FROM: Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for: **Parcel 3 at Sunstone Phase 1 & Model Phase**			**COPIES TO:** Westwood Professional Services
Cross Streets:	NEC of Sky Pointe Drive & Log Cabin Way			Eastland, LLC & Northland, LLC
File Number:	F:\Depot\DSMemos\DS5261C.doc			Shea Homes
Parcel Number:	125-06-501-001 & 125-06-701-001			Bart Anderson, P.E., DevCo
Zoning Action:	TMP-78230			CCRFCD
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES X	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	3/23/2020	4/16/2020	See Comments	$400.00	3784917: $400
2nd Submittal	5/13/2020	5/28/2020	Conditionally Approved	$400.00	3846782: $400
3rd Submittal	7/21/2020	8/5/2020	Approved	$100.00	
			TOTAL FEES (LDDRS):	**$900.00**	----

REMARKS:

3rd Submittal – Update #1 to decrease fall across the Club House site, revise model FFEs and drop inlets.

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. This drainage study analyzes Phase 1 and Model Phase only. Future phases of development of Parcel 3 will require technical studies to address the interim and developed condition of each phase.

2. The study assumes the storm drain infrastructure proposed by the Technical Drainage Study for Sunstone Phase 1 Infrastructure is in place and functioning. Substantial completion of the Sunstone Phase 1 Infrastructure facilities is required prior to residential occupancy permits.

3. The substantial completion of the developer's Moccasin facility prior to any residential occupancy permits within the Sunstone development is required.

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
jks

T/R/S: T19S/R60E/06
AREA G-06

REGIONAL FLOOD CONTROL DISTRICT

Steven C. Parrish, P.E.
General Manager/Chief Engineer

BOARD OF DIRECTORS

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City of North Las Vegas

Mayor Kiernan McManus
City of Boulder City

June 24, 2020

Mr. Oh Sang Kwon, P.E.
City of Las Vegas Department of Public Works
333 North Rancho Drive
Las Vegas, NV 89106

DISTRICT CONCURRENCE: **PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE (DS5261B) (RFCD No. 20-13531)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated March 19, 2020, Addendum No. 1 dated May 11, 2020 for above-mentioned project as submitted by WESTWOOD PROFESSIONAL SERVICES. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated May 28, 2020.

District concurs with acceptance of this Technical Drainage Study by City of Las Vegas Department of Public Works with the following condition(s):

> Note that per District's Policies and Procedures Manual, Section VIII.D.13 Uniform Regulations for the Control of Drainage, the Lead Entity shall provide As-Built plans or record drawings to the District after completion and final inspection of such privately installed flood control facilities that have a regional flood control significance.

District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

Please be aware that as additional information becomes available and/or restudies of Flood Insurance Studies are performed, information submitted by WESTWOOD PROFESSIONAL SERVICES may be superseded. Compliance with regulatory elements and design standards specified in *Uniform Regulations for the Control of Drainage* does not imply a guarantee that properties will be free from flooding or flood damage. The District, its officials, or employees assume no liability for information, data, or conclusions presented by consulting engineers. We, therefore, make no warranties, either expressed or implied, in conducting this review.

TECHNICAL DRAINAGE STUDY UPDATE

Parcel 3 at Sunstone Phase 1 & Model Phase

PREPARED FOR:

Shea Homes Limited Partnership

Las Vegas, Nevada

PREPARED BY:

Westwood

Parcel 3 at Sunstone Phase 1 & Model Phase

Technical Drainage Study Update

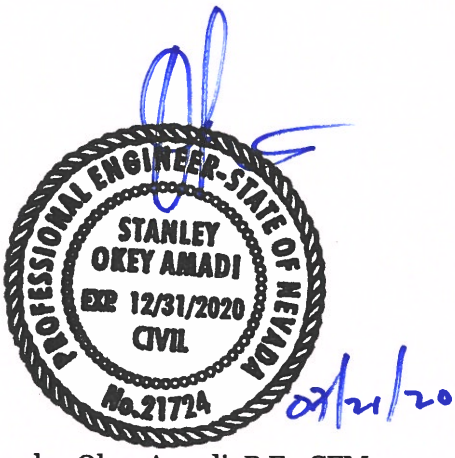
City of Las Vegas, NV

Prepared For:

Shea Homes Limited Partnership
4182 Solace Street
Las Vegas, NV 89135
Phone: (702) 265-9366

Prepared By:

Westwood Professional Services
5740 S. Arville Street, Suite 216
Las Vegas, NV 89118
Phone: (702) 284-5300
Fax: (702) 284-5339



Project Number: SHE1901.001
Date: July 2020

Stanley Okey Amadi, P.E., CFM
NV Professional Engineer No. 21724
Assisted by: Caitlyn Alcantara, E.I.

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

SHE1901.001

July 20, 2020

Ms. Jennifer Shinn, P.E.
City of Las Vegas Public Works
333 Rancho Drive (7th Floor)
Las Vegas, NV 89101

Re: Update to the Technical Drainage Study for Parcel 3 at Sunstone Phase 1 & Model Phase (CLV# DS5261)

Dear Ms. Shinn:

This letter certifies that all items provided on the *Update to the Technical Drainage Study for Parcel 3 at Sunstone Phase 1 & Model Phase* submittal CD match the paper version bound into the study.

Please contact me if you have any questions.

Sincerely,

Caitlyn Alcantara

WESTWOOD PROFESSIONAL SERVICES

Caitlyn Alcantara, E.I.
Graduate Engineer

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

SHE1901.001

July 20, 2020

Ms. Jennifer Shinn, P.E.
City of Las Vegas Public Works
333 Rancho Drive (7th Floor)
Las Vegas, NV 89101

Subject: Technical Drainage Study Update for Parcel 3 at Sunstone Phase 1 & Model Phase (CLV# DS5261)

Dear Ms. Shinn:

This letter is intended to serve as the *Technical Drainage Study Update for Parcel 3 at Sunstone Phase 1 & Model Phase* (hereinafter referred to as the Update Study). The *Technical Drainage Study for Sunstone Phase 1 & Model Phase* (hereinafter referred to as the Original Study) was approved by the City of Las Vegas (CLV) on May 28, 2020 and Clark County Regional Flood Control District (CCRFCD) issued a concurrence on June 24, 2020. The CLV and CCRFCD approval letters for the Original Study are provided in Appendix A.

This Update Study is provided to address the grading changes made to the Phase 1 & Model Phase per the client's request to reduce the fall and grade difference across the development of Clubhouse area. The revisions mainly include lowering the street grades and profile of Hematite Place and raising the street grades and profile Heliolite Place to better mitigate the grade difference between the two streets and across the Clubhouse area. The street changes resulted in revisions to some of the finished floors and grading of portions of the project site as well as adjustments to the storm drain facilities.

Hydrologic Analyses: No new hydrologic analyses have been provided with the Update Study. Subbasins have been added to the EAA4 basin reflecting additional flow from the parking lots of the Clubhouse development along Hematite Place and subbasins EAA3(o) and EAA3(p) have been revised.

Hydraulic Analyses: Hydraulic computations have been analyzed in two areas with the Update Study: street flow computations and storm drain model & drop inlet sizing due to the revised street profiles and grades. Refer to Exhibit E, provided in Appendix B for a summary of street sections and facilities in the proposed/ultimate condition.

Street Flows: A majority of section flows remain unchanged from the original study. Due to changes in grading, various street slopes have changed in the project site area, therefore, street sections in the pertinent areas have been revised and provided in Appendix C. A table summarizing the street sections is provided on Exhibit E for the proposed/ultimate condition included in Appendix B. Note that an additional section 19 has been provided to establish the amount of flow being rerouted through

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5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

the Clubhouse since initial grading of the Clubhouse could not establish a highpoint at the applicable driveway entry point off of Hematite Place.

Storm Drain and Drop Inlets: The alignment of the proposed condition Phase 1 main storm drain system (PH1MP) remains same as approved in the Original Study. However, the model has been revised to reflect the proposed grading and minor elevation changes to avoid utility conflicts. The drop inlets have been sized using the same procedure as in the Original Study. With reduced flow approaching the drop inlets since a portion of the upstream flow conveys thru the Clubhouse drive aisle, less flow is now impacting the storm drain; hence, Facility P5 has been removed from the design. The size of facility P6 has increased to a 20' Type CM2 Drop Inlet to prevent additional bypass flows to the future phases. Please refer to Exhibit E, for the locations of the respective drop inlets.

Finished Floors: Finished floors have been analyzed to ensure adequate protection against the following: emergency overflow paths, adjacent streets, fronting streets, and specific energy. Review of the finished floor analyses indicate that the proposed finished floors will be adequately flood protected during the 100-year storm event. All the revised finished floors and grades have been provided in red on the improvement plans for ease of identifying the revisions.

Conclusions: The adjusted drainage patterns results in no adverse impacts. The proposed storm drain facilities are still in compliance with the CCRFCD Manual. Therefore, the adjusted drainage patterns and development of the project site in a proposed/ultimate condition is considered acceptable.

The revised improvement plans included in Appendix E supports the drainage patterns, conclusions and/or recommendations detailed in this update. If you have any questions or require additional information, please do not hesitate to contact us at 702-284-5300.

Respectfully Submitted,
WESTWOOD PROFESSIONAL SERVICES

Caitlyn Alcantara

Caitlyn Alcantara, E.I.
Graduate Engineer II – Flood Control Division

cc: Stanley Okey Amadi, P.E., CFM
Mark Failla, P.E., CFM
Derick Yoro, P.E.
Mark Johnson, P.E.
Chelsea Jensen

Westwood

5740 S. Arville St., Suite 216
Las Vegas, NV 89118

main (702) 284-5300

APPENDIX

Appendix A – Reference Material

Technical Drainage Study for Parcel 3 at Sunstone Phase 1 and Model Phase (CLV#5261)

Appendix B – Revised Drainage Exhibits

Appendix C – Revised Hydraulic Computations

- FlowMaster Sections
- WSPGW Models

Appendix D – Revised Finished Floor Analysis

Appendix E – CD of Electronic Copy & Improvement Plans

APPENDIX A

Reference Material

Technical Drainage Study for Parcel 3 at Sunstone Phase 1 and Model Phase (CLV#5261)

CITY OF LAS VEGAS **INTER-OFFICE MEMORANDUM**				**DATE:** **May 28, 2020**
TO: **Land Development Services** Department of Building & Safety				**FROM:** Jennifer Shinn, P.E. Flood Control, Engr. Associate Department of Public Works
SUBJECT:	Drainage Study for:			**COPIES TO:**
Parcel 3 at Sunstone Phase 1 & Model Phase				Westwood Professional Services
Cross Streets:	NEC of Sky Pointe Drive & Log Cabin Way			Eastland, LLC & Northland, LLC
File Number:	F:\Depot\DSMemos\DS5261B.doc			Shea Homes
Parcel Number:	125-06-501-001 & 125-06-701-001			Bart Anderson, P.E., DevCo
Zoning Action:	TMP-78230			CCRFCD
FEMA Flood Zone	YES	NO **X**		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	3/23/2020	4/16/2020	See Comments	$400.00	3784917: $400
2nd Submittal	5/13/2020	5/28/2020	Conditionally Approved	$400.00	3846782: $400
			TOTAL FEES (LDDRS):	**$800.00**	**----**

REMARKS:

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

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

1. **This drainage study is acceptable in concept;** however, *City of Las Vegas* will not formally accept the study until the *Clark County Regional Flood Control District (CCRFCD)* has issued a letter of concurrence. The engineer should contact the CCRFCD to confirm that they have begun their review.

2. This drainage study analyzes Phase 1 and Model Phase only. Future phases of development of Parcel 3 will require technical studies to address the interim and developed condition of each phase.

3. The study assumes the storm drain infrastructure proposed by the Technical Drainage Study for Sunstone Phase 1 Infrastructure is in place and functioning. Substantial completion of the Sunstone Phase 1 Infrastructure facilities is required prior to residential occupancy permits.

4. The substantial completion of the developer's Moccasin facility prior to any residential occupancy permits within the Sunstone development is required.

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.

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END OF REMARKS

jks

T/R/S: T19S/R60E/06

AREA G-06

REGIONAL FLOOD CONTROL DISTRICT

Steven C. Parrish, P.E.
General Manager/Chief Engineer

BOARD OF DIRECTORS

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Clark County

Mayor Carolyn Goodman
City of Las Vegas

Stavros Anthony
City of Las Vegas

Isaac Barron
City of North Las Vegas

Mayor Kiernan McManus
City of Boulder City

June 24, 2020

Mr. Oh Sang Kwon, P.E.
City of Las Vegas Department of Public Works
333 North Rancho Drive
Las Vegas, NV 89106

DISTRICT CONCURRENCE: **PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE (DS5261B) (RFCD No. 20-13531)**

Dear Mr. Kwon:

Clark County Regional Flood Control District (District) reviewed Technical Drainage Study dated March 19, 2020, Addendum No. 1 dated May 11, 2020 for above-mentioned project as submitted by WESTWOOD PROFESSIONAL SERVICES. In addition, District is in receipt of the Conditional Letter of Acceptance from City of Las Vegas Department of Public Works dated May 28, 2020.

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District's review of this project was limited to issues of Regional Flood Control Significance as defined in *Uniform Regulations for the Control of Drainage*.

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REGIONAL FLOOD CONTROL DISTRICT

STEVEN C. PARRISH, P.E.
General Manager/Chief Engineer

BY: _____
Ching C. Wang, P.E.
Senior Civil Engineer

CCW:sa

c: Stanley Okey Amadi, Westwood Professional Services

P:\Letters and Memos\Local Drainage\Land Development & Drainage\2020\L-20-13531as_built.doc

EXISTING 42" RCP STUB

EXISTING 54" RCP STUB

MG1

EAA3

SKY POINTE DRIVE

US 95

LOG CABIN WAY

CHRYSOLITE PLACE

LAPIS LANE

SAND LANE

AMONG LANE

JADEITE LANE

BLOODSTONE LANE

BELONG ROAD

CUBIC PLACE

SPINEL PLACE

HEMATITE PLACE

LAVENDRITE PLACE

aa

a

b

c

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Proposed Condition Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
EAA3*	102	51.20	2.0
MG1	62	58.96	1.1
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
EAA3*(f)	1	0.39	2.0
EAA3*(g)	2	1.10	2.0
EAA3*(h)	1	0.45	2.0
EAA3*(i)	3	1.43	2.0
EAA3*(j)	5	2.40	2.0
EAA3*(k)	5	2.64	2.0
EAA3*(l)	2	1.08	2.0
EAA3*(o)	5	2.30	2.0
EAA3*(p)	9	4.32	2.0
EAA3*(q)	5	2.55	2.0
EAA3*(r)	1	0.27	2.0
EAA3*(s)	4	1.95	2.0
EAA3*(t)	1	0.68	2.0
EAA3*(u)	3	1.37	2.0
EAA3*(w)	5	2.56	2.0
EAA3*(w)	3	1.47	2.0
EAA3*(x)	3	1.33	2.0
EAA3*(y)	3	1.61	2.0
EAA3*(z)	2	0.91	2.0
TOTAL	***61***	***30.81***	
MG1(aa)	16	15.64	1.1
TOTAL	***16***	***15.64***	

Revised areas decreased flow

Proposed Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)
EAA3*	51.2	102
MG1	59.0	62

LEGEND

- BASIN BOUNDARY
- PRORATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITY
- PROPOSED DRAINAGE FACILITY
- PHASE BOUNDARY
- ID — BASIN ID
- (ID) — PRORATED SUBBASIN ID
- FLOW DIRECTION

SCALE – 1"=100' (0, 100, 200 FEET)

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.
-					

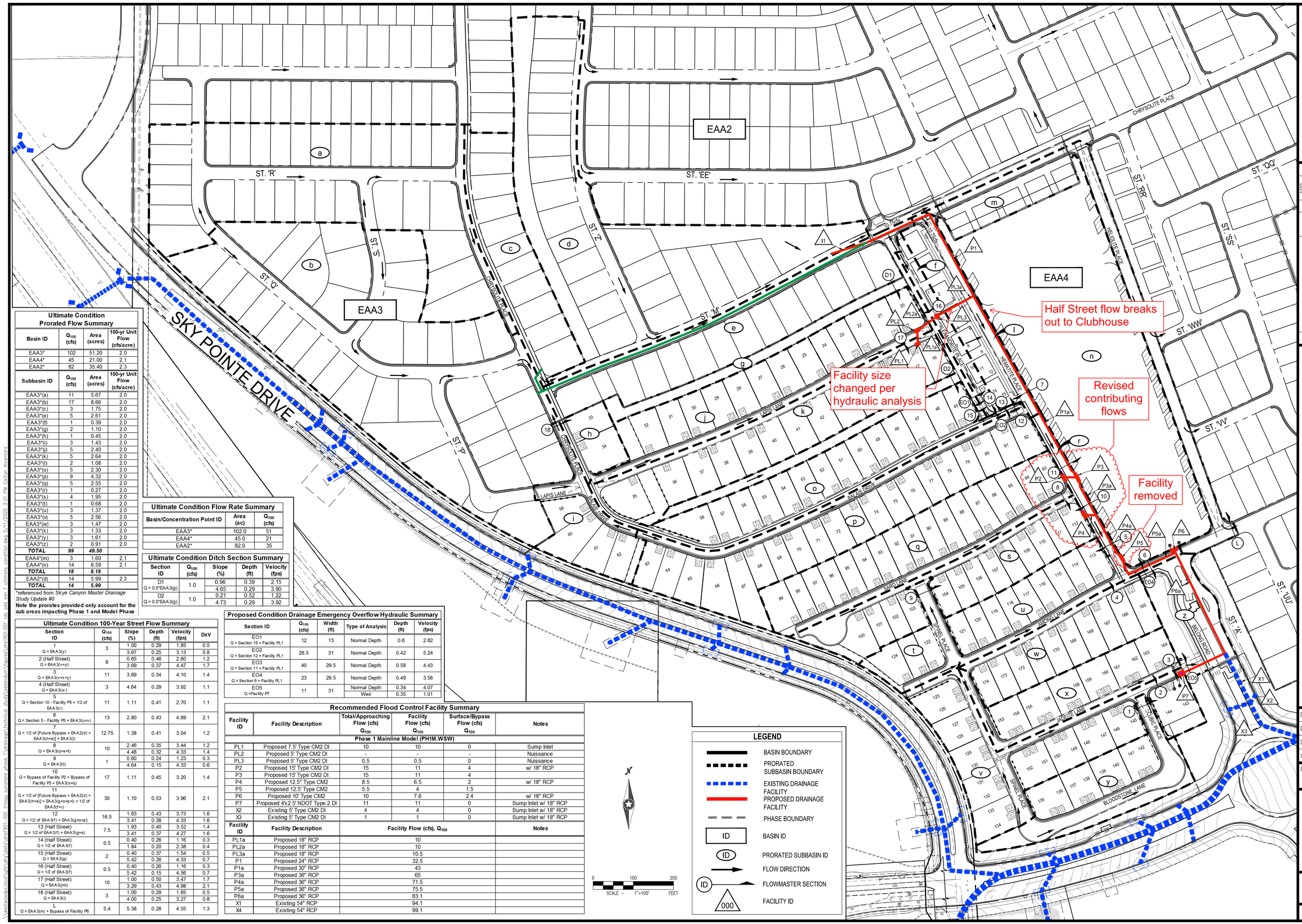
SHLP

PARCEL 3 AT SUNSTONE MODEL PHASE & PHASE 1
PROPOSED CONDITION DRAINAGE MAP

DATE: MAY 2020
DRAFTER: CAA
DESIGNER: CAA
CHECKED: SOA
PROJECT NO. SHE1901.001

EXHIBIT E
SHEET 1 OF 1

\\westwoodps.local\vdi\shlp\data\she1901-001 trdrpy sunstone phase 1\drainage\technical study\addendum\figures\she1901.001 tds odd exh e proposed condition.dwg 5/11/2020 2:58 PM Collyn Alcantara



Ultimate Condition Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
EAA3*	102	51.20	2.0
EAA4*	45	21.00	2.1
EAA2*	82	35.40	2.3
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
EAA3*(a)	11	5.67	2.0
EAA3*(b)	17	8.66	2.0
EAA3*(c)	3	1.75	2.0
EAA3*(e)	5	2.61	2.0
EAA3*(f)	1	0.39	2.0
EAA3*(g)	2	1.10	2.0
EAA3*(h)	1	0.45	2.0
EAA3*(i)	3	1.43	2.0
EAA3*(j)	5	2.40	2.0
EAA3*(k)	5	2.64	2.0
EAA3*(l)	2	1.08	2.0
EAA3*(o)	5	2.30	2.0
EAA3*(p)	9	4.32	2.0
EAA3*(q)	5	2.55	2.0
EAA3*(r)	1	0.27	2.0
EAA3*(s)	4	1.95	2.0
EAA3*(t)	1	0.68	2.0
EAA3*(u)	3	1.37	2.0
EAA3*(v)	5	2.56	2.0
EAA3*(w)	3	1.47	2.0
EAA3*(x)	3	1.33	2.0
EAA3*(y)	3	1.61	2.0
EAA3*(z)	2	0.91	2.0
TOTAL	***99***	***49.50***	
EAA4*(m)	3	1.60	2.1
EAA4*(n)	14	6.59	2.1
TOTAL	***18***	***8.19***	
EAA2*(d)	14	5.99	2.3
TOTAL	***14***	***5.99***	

*referenced from *Skye Canyon Master Drainage Study Update #5*

Note the prorates provided only account for the sub areas impacting Phase 1 and Model Phase

Ultimate Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)
EAA3*	102.0	51
EAA4*	45.0	21
EAA2*	82.0	35

Ultimate Condition Ditch Section Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)
D1 Q = 0.5*EAA3(g)	1.0	0.96	0.39	2.15
		4.65	0.29	3.90
D2 Q = 0.5*EAA3(g)	1.0	0.21	0.52	1.22
		4.73	0.29	3.92

Ultimate Condition 100-Year Street Flow Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV
1 Q = EAA3(y)	3	1.00	0.29	1.85	0.5
		3.67	0.25	3.13	0.8
2 (Half Street) Q = EAA3(v+y)	8	0.65	0.46	2.60	1.2
		3.69	0.37	4.47	1.7
3 Q = EAA3(v+x+y)	11	3.69	0.34	4.10	1.4
4 (Half Street) Q = EAA3(w)	3	4.64	0.29	3.92	1.1
5 Q = Section 10 - Facility P5 + 1/2 of EAA3(r)	11	1.11	0.41	2.70	1.1
6 Q = Section 5 - Facility P5 + EAA3(u+v)	13	2.80	0.43	4.89	2.1
7 Q = 1/2 of [Future Bypass + EAA2(d) + EAA3(h+e)] + EAA3(l)	12.75	1.38	0.41	3.04	1.2
8 Q = EAA3(q+s+t)	10	2.46	0.35	3.44	1.2
		4.48	0.32	4.33	1.4
9 Q = EAA3(t)	1	0.60	0.24	1.23	0.3
		4.64	0.15	4.33	0.6
10 Q = Bypass of Facility P2 + Bypass of Facility P3 + EAA3(s+q)	17	1.11	0.45	3.20	1.4
11 Q = 1/2 of [Future Bypass + EAA2(d) + EAA3(h+e)] + EAA3(g+o+p+l) + 1/2 of EAA3(f+r)	30	1.10	0.53	3.96	2.1
12 Q = 1/2 of EAA3(f) + EAA3(g+o+p)	16.5	1.93	0.43	3.73	1.6
		3.41	0.38	4.33	1.6
13 (Half Street) Q = 1/2 of EAA3(f) + EAA3(g+o)	7.5	1.93	0.40	3.52	1.4
		3.41	0.37	4.27	1.6
14 (Half Street) Q = 1/2 of EAA3(f)	0.5	0.40	0.26	1.16	0.3
		1.84	0.20	2.38	0.4
15 (Half Street) Q = EAA3(g)	2	0.40	0.37	1.54	0.5
		5.42	0.26	4.33	0.7
16 (Half Street) Q = 1/2 of EAA3(f)	0.5	0.40	0.26	1.16	0.3
		5.42	0.15	4.56	0.7
17 (Half Street) Q = EAA3(j+k)	10	1.00	0.50	3.47	1.7
		3.29	0.43	4.98	2.1
18 (Half Street) Q = EAA3(i)	3	1.00	0.29	1.85	0.5
		4.00	0.25	3.27	0.8
L Q = EAA3(m) + Bypass of Facility P6	5.4	5.38	0.28	4.55	1.3

Proposed Condition Drainage Emergency Overflow Hydraulic Summary

Section ID	Q_{100} (cfs)	Width (ft)	Type of Analysis	Depth (ft)	Velocity (fps)
EO1 Q = Section 15 + Facility PL1	12	13	Normal Depth	0.6	2.82
EO2 Q = Section 12 + Facility PL1	26.5	31	Normal Depth	0.42	5.24
EO3 Q = Section 11 + Facility PL1	40	29.5	Normal Depth	0.58	4.43
EO4 Q = Section 6 + Facility PL1	23	29.5	Normal Depth	0.49	3.58
EO5 Q =Facility P7	11	31	Normal Depth	0.34	4.07
			Weir	0.35	1.01

Recommended Flood Control Facility Summary

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}	Facility Flow (cfs) Q_{100}	Surface/Bypass Flow (cfs) Q_{100}	Notes
Phase 1 Mainline Model (PH1M.WSW)					
PL1	Proposed 7.5' Type CM2 DI	10	10	0	Sump Inlet
PL2	Proposed 5' Type CM2 DI	-	-	-	Nuissance
PL3	Proposed 5' Type CM2 DI	0.5	0.5	0	Nuissance
P2	Proposed 15' Type CM2 DI	15	11	4	w/ 18" RCP
P3	Proposed 15' Type CM2 DI	15	11	4	
P4	Proposed 12.5" Type CM2	8.5	6.5	2	w/ 18" RCP
P5	Proposed 12.5' Type CM2	5.5	4	1.5	
P6	Proposed 10' Type CM2	10	7.6	2.4	w/ 18" RCP
P7	Proposed 4'x2.5' NDOT Type 2 DI	11	11	0	Sump Inlet w/ 18" RCP
X2	Existing 5' Type CM2 DI	4	4	0	Sump Inlet w/ 18" RCP
X3	Existing 5' Type CM2 DI	1	1	0	Sump Inlet w/ 18" RCP

Facility ID	Facility Description	Facility Flow (cfs), Q_{100}	Notes
PL1a	Proposed 18" RCP	10	
PL2a	Proposed 18" RCP	10	
PL3a	Proposed 18" RCP	10.5	
P1	Proposed 24" RCP	32.5	
P1a	Proposed 30" RCP	43	
P3a	Proposed 36" RCP	65	
P4a	Proposed 36" RCP	71.5	
P5a	Proposed 36" RCP	75.5	
P6a	Proposed 36" RCP	83.1	
X1	Existing 54" RCP	94.1	
X4	Existing 54" RCP	99.1	

LEGEND

- BASIN BOUNDARY
- PRORATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITY
- PROPOSED DRAINAGE FACILITY
- PHASE BOUNDARY
- ID — BASIN ID
- (ID) — PRORATED SUBBASIN ID
- FLOW DIRECTION
- (ID) — FLOWMASTER SECTION
- 000 — FACILITY ID

SCALE – 1"=100' FEET (0, 100, 200)

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.
1					

SHLP
PARCEL 3 AT SUNSTONE MODEL PHASE & PHASE 1
ULTIMATE DRAINAGE CONDITION MAP

DATE: MAY 2020
DRAFTER: CAA
DESIGNER: CAA
CHECKED: SOA
PROJECT NO. SHE1901.001

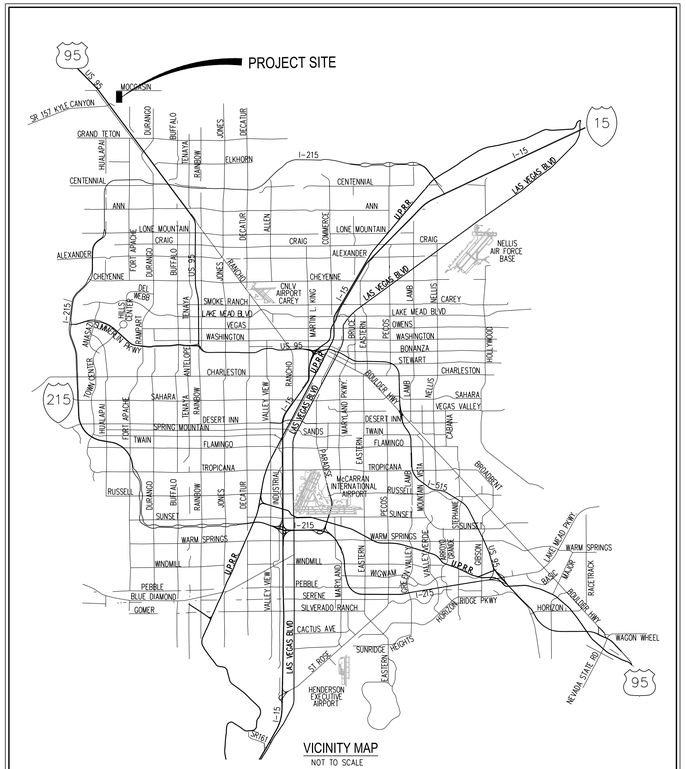
EXHIBIT F
SHEET 1 OF 1

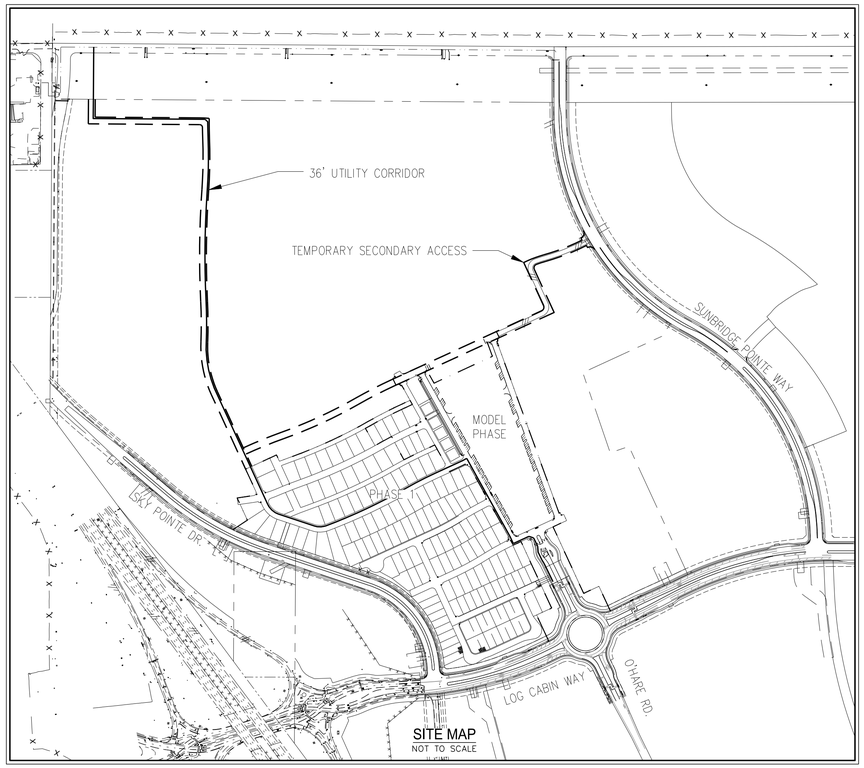
\\vanwestfs1\projects\shl\she1901.001 - fancy pointe phase 1\drainage\technical study\calculations\hydraflow\she1901.001 ult cond 1 ultimate conditions.dwg 5/11/2020 3:01 PM Gillian Alcantara

SHLP

IMPROVEMENT PLANS FOR PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE

CITY OF LAS VEGAS, NEVADA
RESIDENTIAL SUBDIVISION
APN: 125-06-501-001 & 125-06-701-001





SHEET INDEX

Sheet Number	Sheet Description	Sheet Title
1	C-1	COVER SHEET
2	C-2	GENERAL NOTES
3	C-3	LEGEND – QUANTITIES
4	MG	MASTER GRADING PLAN
5	G-1	GRADING PLAN I
6	G-2	GRADING PLAN II
7	G-3	GRADING PLAN III
8	G-4	GRADING PLAN IV
9	G-5	GRADING PLAN V
10	G-6	GRADING PLAN VI
11	G-7	GRADING PLAN VII
12	G-8	GRADING PLAN VIII
13	G-9	GRADING PLAN IX
14	G-10	GRADING PLAN X
15	G-11	GRADING PLAN XI
16	G-12	GRADING PLAN XII
17	G-13	GRADING PLAN XIII
18	G-14	GRADING PLAN XIV
19	P-1	JADETTE LANE PLAN & PROFILE 14+00 TO 16+50
20	P-2	BELONG ROAD PLAN & PROFILE 9+50 TO 15+50
21	P-3	AMOND LANE PLAN & PROFILE 8+00 TO 14+00
22	P-4	HEMATITE PLACE PLAN & PROFILE 15+00 TO 20+50
23	P-5	HEMATITE PLACE PLAN & PROFILE 9+50 TO 15+00 †
24	P-6	SANDLOT LANE PLAN & PROFILE 15+50 TO 21+50
25	SD-1	STORM DRAIN LATERALS PLAN & PROFILE I
26	SD-2	STORM DRAIN LATERALS PLAN & PROFILE II
27	D-1	DETAIL SHEET I
28	D-2	DETAIL SHEET II
29	D-3	DETAIL SHEET III
30	D-4	DETAIL SHEET IV

APPROVALS

ACTING CITY ENGINEER–ROSA CORTEZ PE, #17505 DATE

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

LAS VEGAS FIRE AND RESCUE DATE

CITY OF LAS VEGAS – PLANNING DEPARTMENT DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

CENTRAL TELEPHONE CO. DBA CENTURYLINK DATE

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 3,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM
SHEETS: ADD FIELD

NV ENERGY DATE

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

SOUTHWEST GAS CORPORATION DATE

COX COMMUNICATIONS LAS VEGAS, INC. DATE

OWNER

NORTHLAND, LLC AND EASTLAND, LLC
C/O NINETY FIVE MGT, LLC
C/O D HENSLEY
11411 SOUTHERN HIGHLANDS #300
LAS VEGAS, NV 89141

DEVELOPER

SHEA HOMES LIMITED PARTNERSHIP
4182 SOLACE STREET
LAS VEGAS, NV 89135
CONTACT: JEREMY FRITZ
PHONE: 702-265-9366

ENGINEER

WESTWOOD PROFESSIONAL SERVICES
5740 S. ARVILLE STREET, SUITE 216
LAS VEGAS, NV 89118
PH: (702) 284-5300
FX: (702) 284-5399
CONTACT: DERICK YORO

LEGAL DESCRIPTION

BEING ALL OF PARCEL 3 OF THAT CERTAIN PARENT FINAL MAP ENTITLED "SUNSTONE" ON FILE IN BOOK 161, PAGE 40 OF PLATS, OFFICIAL RECORDS CLARK COUNTY, NEVADA, LYING WITHIN THE NORTHWEST QUARTER OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CITY OF LAS VEGAS, CLARK COUNTY, NEVADA

BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

TOTAL DISTURBED AREA

54.26 ACRES

DEVIATIONS FROM STANDARDS

NONE

SWPPP NOTE

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

PROJECT INFORMATION

ACREAGE (GROSS):	= 54.26 AC
ACREAGE (NET):	= 54.26 AC
DENSITY (LOTS/NET ACRE):	= 3.21 DU/NET AC
ZONING:	= R-1, R-TH
TOTAL NO. OF RESIDENTIAL LOTS	= 174
TOTAL NO. OF COMMON ELEMENTS *	= 14

EARTHWORK SUMMARY (UNADJUSTED)

CUT	20,323 CY.
FILL	98,779 CY.
NET	78,456 CY. FILL

GEOTECHNICAL ENGINEER

PREPARED BY: SOUTHWEST GEOTECHNICAL
ADDRESS: 5275 ARVILLE ST. #108
PHONE: 702-323-6000
PROJECT NO. 182187
DATED: 4/25/18

UPDATED
PROJECT NO. 205210
DATED: 02/27/20

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE

COVER SHEET

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

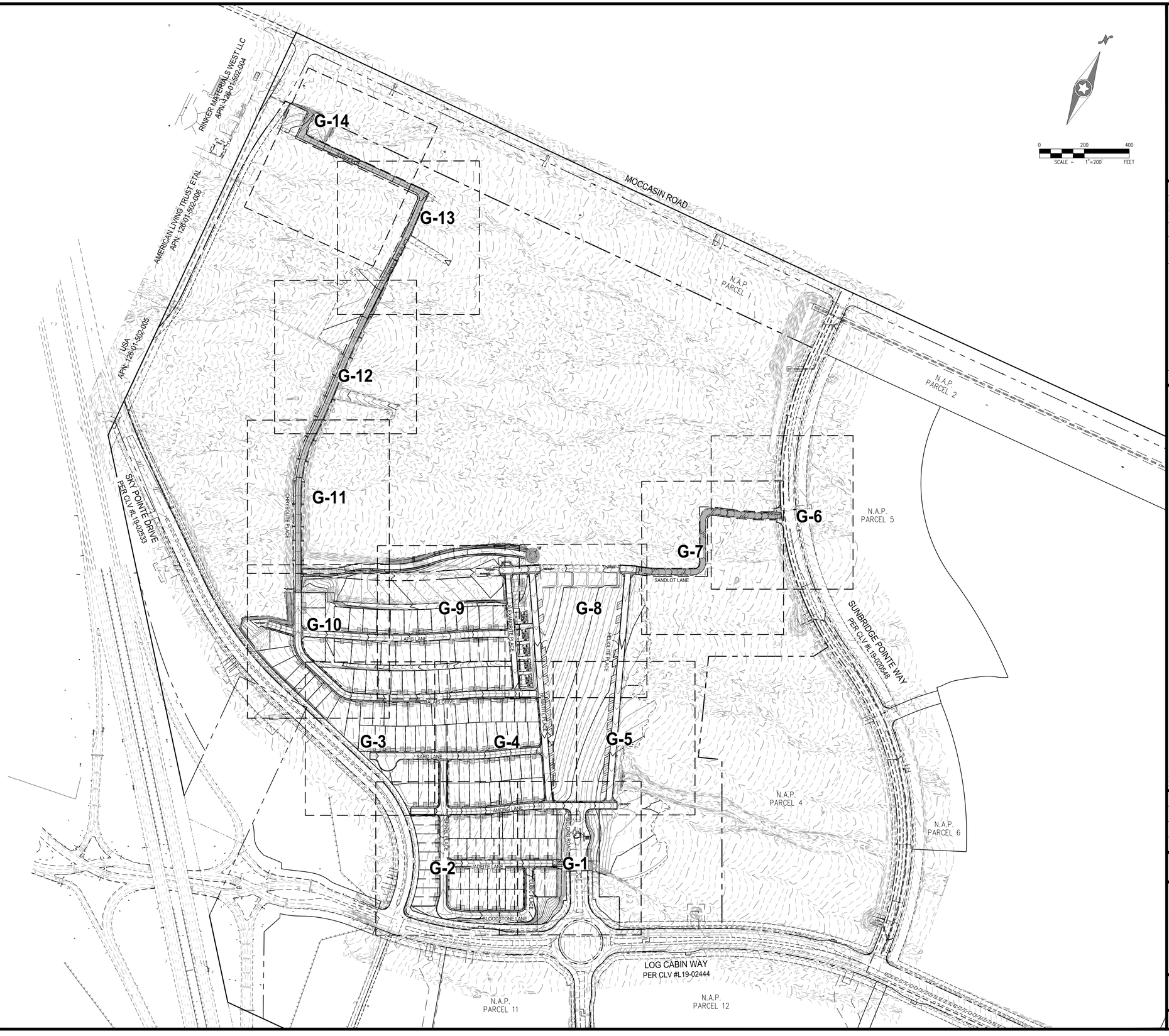
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERICK D.J YORO
Expr: 06/30/2022
CIVIL
No. 16396
5/11/20

C-1
SHEET 1 OF 30

DS-5261

J:\she1901-001 trilogy sunstone phase 1\dwg\improv\she1901-001_cvr.dwg 5/11/2020 11:50 AM John Austin Jr



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Suite 215
Las Vegas, NV 89118

westwoodps.com

Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
MASTER GRADING PLAN

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER - STATE OF NEVADA
DERICK D.J YORO
Exp: 06/30/2022
CIVIL
No. 16396
5/11/20

MG
SHEET 4 OF 30

DS-5261

\\Vlas\SHE1901-001 H:\Sky Sunstone phase 1\Dwg\Grading\Vlas\SHE1901-001_grd.dwg, 5/11/2020 11:27 AM, John Austin Jr

Grading Changes
Revised Finished Floors
and Street Grades

C.E. "A"

MATCHLINE SEE SHEET G-8

MATCHLINE SEE SHEET G-9

MATCHLINE SEE SHEET G-5

MATCHLINE SEE SHEET G-3

MATCHLINE SEE SHEET G-1

MATCHLINE SEE SHEET G-2

BALAIS DRIVE

HEMATITE PLACE

SARD LANE

AMONG LANE

SPINEL PLACE

MODEL PHASE

PHASE 1

BLDG. #4 PAD= 2756.7 FF = 2757.4

BLDG. #5 PAD= 2755.9 FF = 2756.6

SDMH #9 STA:15+11.40, 10.25' L RIM=2752.36± (8") INV IN:2743.93 – NW

SDMH #8 STA:17+38.25, 10.25' L RIM=2749.83± (30") INV IN:2741.38 – NW (30") INV OUT:2741.32 – SE

SDDI #6 STA:17+45.86, 12.75' R D=4.4' TC=2747.3± (18") INV OUT:2745.51 – E

SDDI #5 STA:1+36.24, 5.32' R D=8.8' TC=2749.79± (36") INV OUT:2740.51 – S

SDMH #7 STA:17+85.72, 10.25' L RIM=2749.31± (36") INV IN:2740.41 – N (36") INV OUT:2740.41 – SE

SDDI #4 STA:18+53.41, 12.75' R D=5.3' TC=2750.10± (18") INV OUT:2744.33 – E

SDMH #6 STA:18+66.69, 10.25' L RIM=2748.41± (36") INV IN:2739.42 – NW (18") INV IN:2740.92 – W (36") INV OUT:2739.42 – SE

SDMH #5 STA:19+72.12, 10.25' L RIM=2747.19± (36") INV IN:2738.22 – NW (36") INV OUT:2738.22 – SE

SDDI #3 STA:19+96.98, 14.75' L D=9.2' TC=2747.18± (36") INV OUT:2737.95 – S

SDMH #4 STA:20+11.84, 10.25' L RIM=2746.72± (36") INV IN:2737.82 – N (36") INV OUT:2737.82 – SE

SDMH #3 STA:8+86.37, 9.50' L

0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 182187 DATED 04/25/18

UPDATED SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 205210 DATED 02/27/20

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ADD FIELD CU YDS
FILL= ADD FIELD CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

DISCLAIMER NOTE

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

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

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

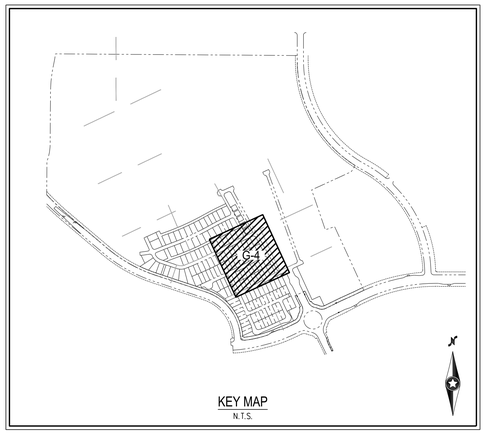
LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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 A 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.



KEY MAP
N.T.S.

GRADING NOTES

(P) CONTRACTOR SHALL PROTECT IN PLACE EXISTING IMPROVEMENTS (IE.UTILITY STRUCTURE, CURB & GUTTER) IN PLACE DURING CONSTRUCTION. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE AT NO COST TO OWNER. (ANY LANDSCAPING REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND.)

1. MATCH EXISTING IMPROVEMENTS
2. CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216
3. CONSTRUCT ROLL TYPE CURB & GUTTER PER CCAUSD # 217.S1
4. CONSTRUCT "A" TYPE CURB & GUTTER PER CCAUSD #219
5. CONSTRUCT 5' SIDEWALK PER CCAUSD #234
6. CONSTRUCT CASE I SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOME OR EQUIVALENT PER CCAUSD #235
7. CONSTRUCT CROSS GUTTER PER DETAIL 16 ON SHEET D-2
8. CONSTRUCT 2" AC OVER 4" TYPE II AGGREGATE BASE, SEE SOILS REPORTS
9. CONSTRUCT "L" TO ROLL CURB TRANSITION PER DETAIL 13 ON SHEET D-2
10. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 10 ON SHEET D-1
11. CONSTRUCT 3" AC OVER 4" TYPE II AGGREGATE BASE, SEE SOILS REPORTS
12. CONSTRUCT DEPRESSED 'L'-CURB CURB PER DETAIL 14 ON SHEET D-2
13. CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236
14. CONSTRUCT CROSS GUTTER PER CCAUSD #228
15. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=5' (1 GRATE), DEPTH PER PLAN
16. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=7.5' (2 GRATE), DEPTH PER PLAN
17. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=15' (5 GRATE), DEPTH PER PLAN
18. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=12.5' (4 GRATE), DEPTH PER PLAN
19. CONSTRUCT 48" TYPE II SDMH PER CCAUSD #401 & 405
20. CONSTRUCT 60" TYPE III SDMH PER CCAUSD #401 & 406
21. CONSTRUCT 2.5' X 4' NDOT TYPE 2 D.I. WITH (2) GRATES, PER DETAIL ON SHEET D-3
22. CONSTRUCT NDOT DROP INLET CONCRETE APRON PER DETAIL ON SHEET D-3
23. CONSTRUCT 'L'-CURB TO CONCRETE FLUME PER DETAIL 19 ON SHEET D-2
24. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=10' (3 GRATE), DEPTH PER PLAN

BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD.

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

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NORTH 08°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

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DERICK YORO, P.E. 16396 DATE

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westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN IV

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERICK D.J YORO
Exp: 06/30/2022
CIVIL
No. 16396
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G-4
SHEET 8 OF 30

DS-5261

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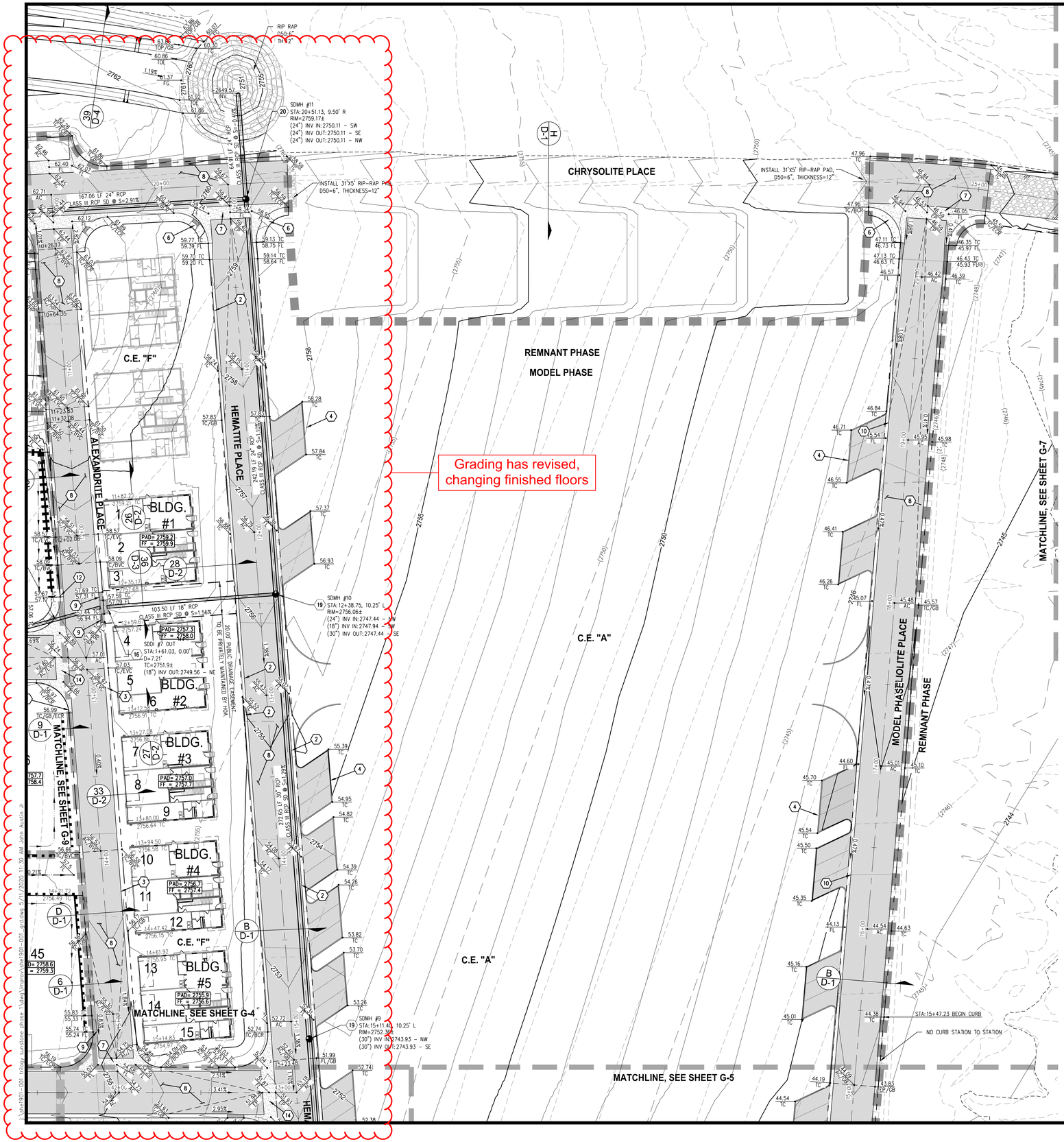

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SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 182187 DATED 04/25/18

UPDATED SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 205210 DATED 02/27/20

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

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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 A 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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.

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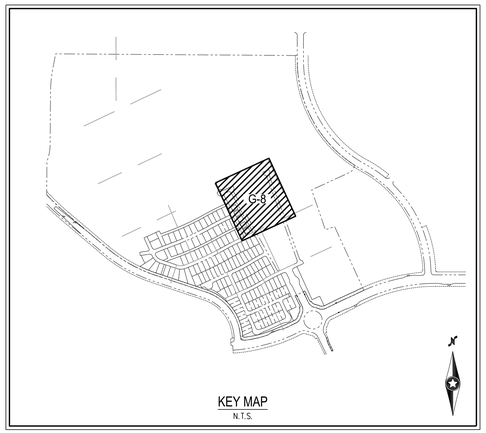
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.



KEY MAP
N.T.S.

GRADING NOTES

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1. MATCH EXISTING IMPROVEMENTS
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18. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=12.5' (4 GRATE), DEPTH PER PLAN
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21. CONSTRUCT 2.5' X 4' NDOT TYPE 2 D.I. WITH (2) GRATES, PER DETAIL ON SHEET D-3
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BENCHMARK

MONUMENT ID: USDA (1934) 19

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LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN VIII

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

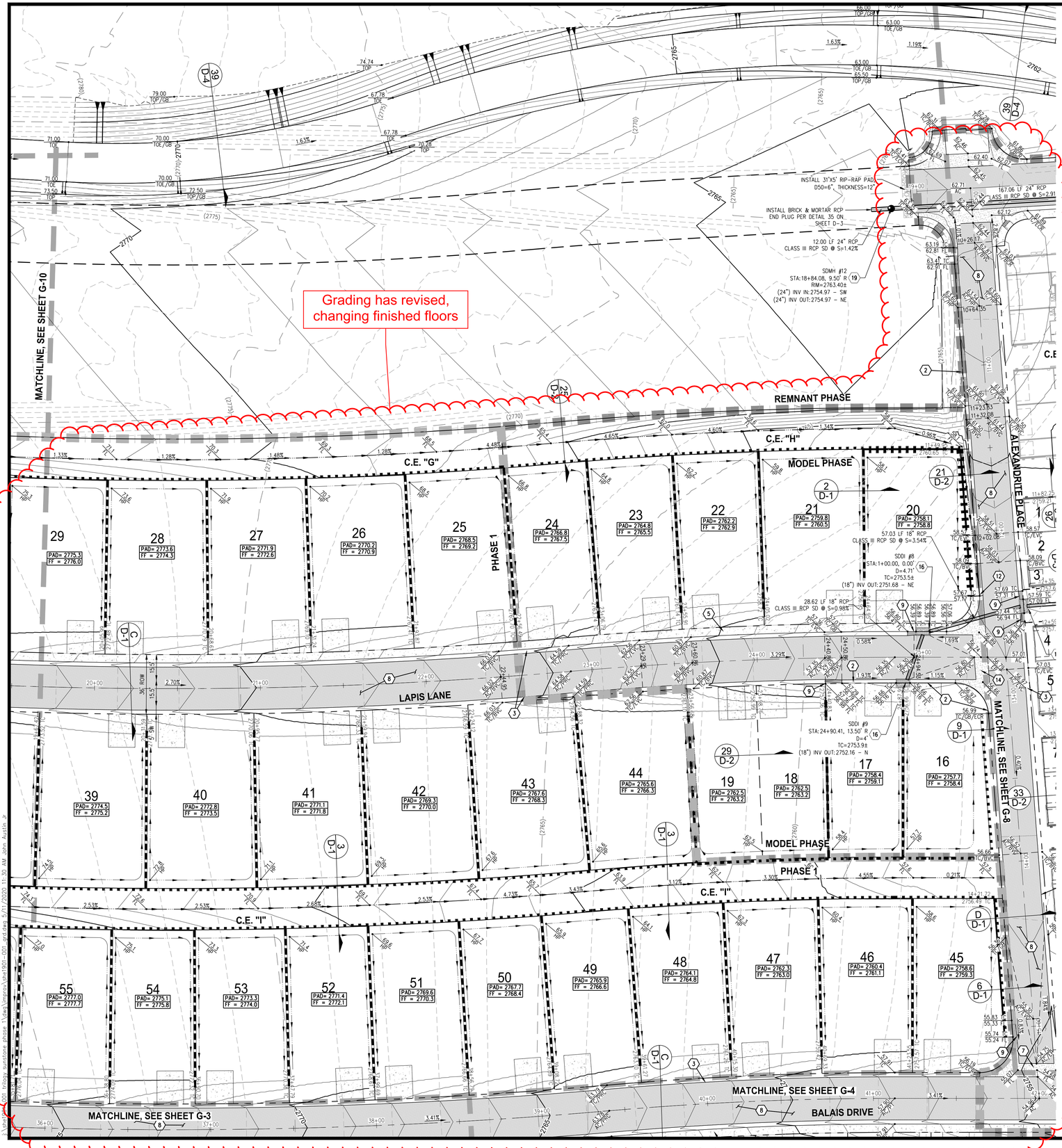
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERICK D.J YORO
Exp: 06/30/2022
CIVIL
No. 16396
5/11/20

G-8
SHEET 12 OF 30

DS-5261

V:\SHE1901-001 Shlpg Sunstone phase 1\Civil\Grading\Plan\G-008 - grading 5/7/2020 1:30 AM John Austin Jr



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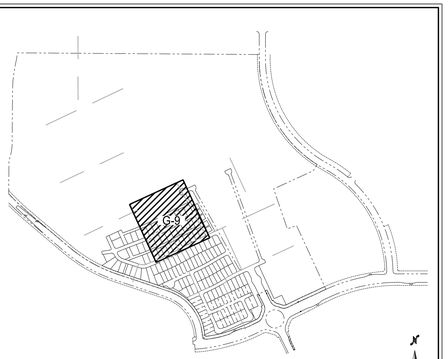

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

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SHLP
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SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
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CHECKED: DY

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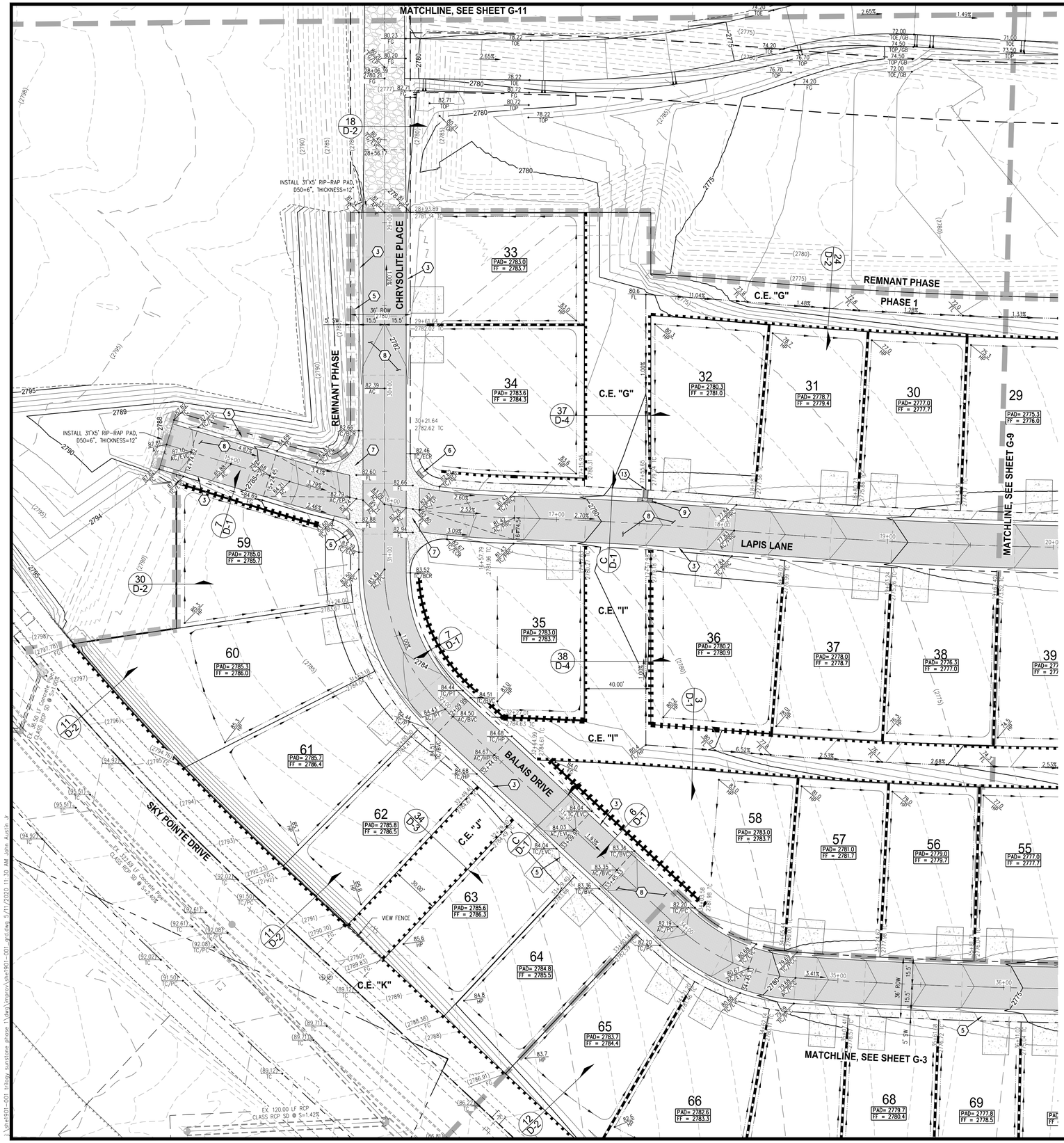
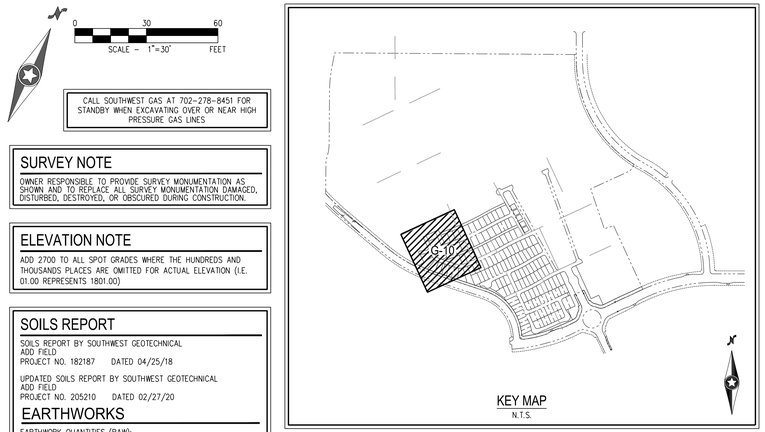
SHEET 13 OF 30

DS-5261

S:\Jobs\SHE1901 Sunstone phase 1\Civil\Working\Grading\SHE1901_GRD.dwg 5/11/2020 11:30 AM John Austin Jr





0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

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ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 182187 DATED 04/25/18

UPDATED SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 205210 DATED 02/27/20

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ADD FIELD CU YDS
FILL= ADD FIELD CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

DISCLAIMER NOTE

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

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

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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 A 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

GRADING NOTES

(P) CONTRACTOR SHALL PROTECT IN PLACE EXISTING IMPROVEMENTS (IE.UTILITY STRUCTURE, CURB & GUTTER) IN PLACE DURING CONSTRUCTION. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE AT NO COST TO OWNER. (ANY LANDSCAPING REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND.)

(1) MATCH EXISTING IMPROVEMENTS
(2) CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216
(3) CONSTRUCT ROLL TYPE CURB & GUTTER PER CCAUSD # 217.S1
(4) CONSTRUCT "A" TYPE CURB & GUTTER PER CCAUSD #219
(5) CONSTRUCT 5' SIDEWALK PER CCAUSD #234
(6) CONSTRUCT CASE I SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOME OR EQUIVALENT PER CCAUSD #235
(7) CONSTRUCT CROSS GUTTER PER DETAIL 16 ON SHEET D-2
(8) CONSTRUCT 2" AC OVER 4" TYPE II AGGREGATE BASE, SEE SOILS REPORTS
(9) CONSTRUCT "L" TO ROLL CURB TRANSITION PER DETAIL 13 ON SHEET D-2
(10) CONSTRUCT 2' VALLEY GUTTER PER DETAIL 10 ON SHEET D-1
(11) CONSTRUCT 3" AC OVER 4" TYPE II AGGREGATE BASE, SEE SOILS REPORTS
(12) CONSTRUCT DEPRESSED 'L'-CURB CURB PER DETAIL 14 ON SHEET D-2
(13) CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236
(14) CONSTRUCT CROSS GUTTER PER CCAUSD #228
(15) CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=5' (1 GRATE), DEPTH PER PLAN
(16) CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=7.5' (2 GRATE), DEPTH PER PLAN
(17) CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=15' (5 GRATE), DEPTH PER PLAN
(18) CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=12.5' (4 GRATE), DEPTH PER PLAN
(19) CONSTRUCT 48" TYPE II SDMH PER CCAUSD #401 & 405
(20) CONSTRUCT 60" TYPE III SDMH PER CCAUSD #401 & 406
(21) CONSTRUCT 2.5' X 4' NDOT TYPE 2 D.I. WITH (2) GRATES, PER DETAIL ON SHEET D-3
(22) CONSTRUCT NDOT DROP INLET CONCRETE APRON PER DETAIL ON SHEET D-3
(23) CONSTRUCT 'L'-CURB TO CONCRETE FLUME PER DETAIL 19 ON SHEET D-2
(24) CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=10' (3 GRATE), DEPTH PER PLAN

BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK– 2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS, AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY H.O.A.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5261 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

DERICK YORO, P.E. 16396 DATE

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 215
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP
PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN X

SEC 6
T-19-S
R-60-E

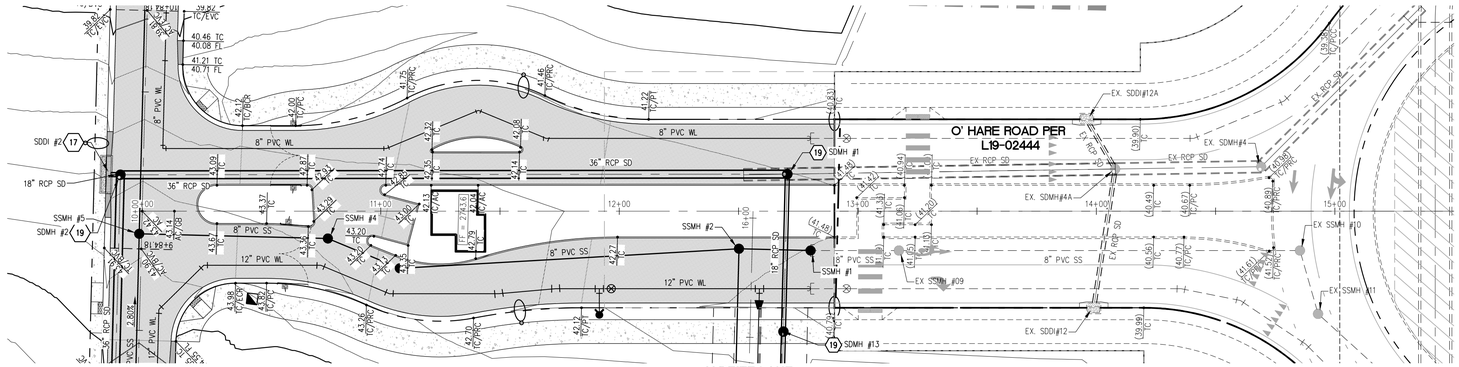
DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERICK D.J YORO
Exp: 06/30/2022
CIVIL
No. 16396
5/11/20

G-10
SHEET 14 OF 30

DS-5261

X:\SHE1901-001 Hidden Sunstone phase 1\Civil\Versions\SHE1901-001_grd dwg 5/11/2020 11:30 AM John Anstine



AMONG LANE
SEE SHEET P-3
FOR CONTINUATION

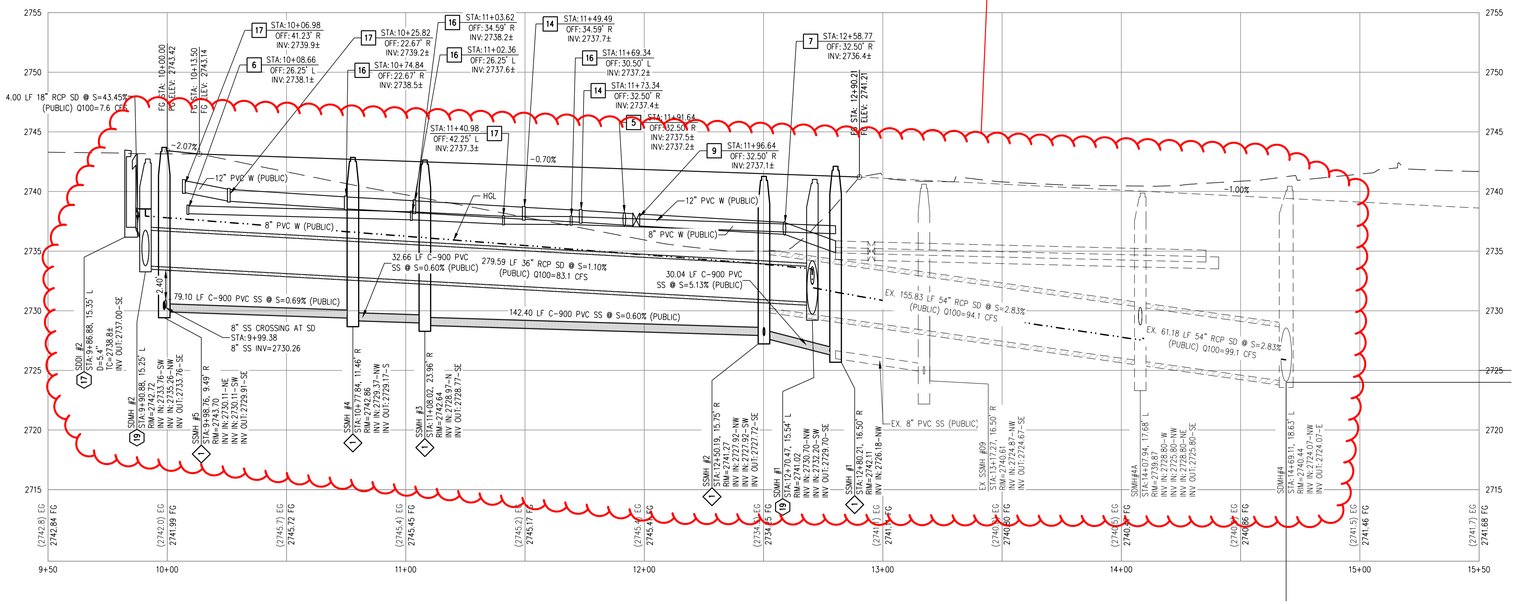
JADEITE LANE
SEE SHEET P-1
FOR CONTINUATION

Storm drain flows have been revised

BELONG ROAD - PLAN VIEW

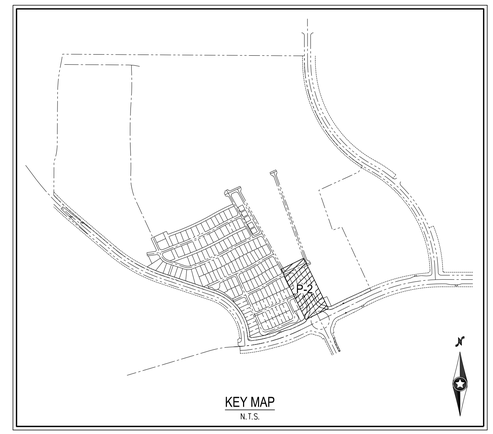
SCALE: 1"= 30'

0 30 60
SCALE – 1"=30' FEET



BELONG ROAD - PROFILE VIEW

HORIZ: 1" = 30'
VERT: 1" = 6'



KEY MAP
N.T.S.

WATER NOTES

1. INSTALL 1" COPPER SERVICE WITH 3/4" METER PER UDACS PLATE NO. 1
2. INSTALL 1" COPPER SERVICE WITH 3/4" IRRIGATION METER AND 1" RPPA PER UDACS PLATE NO. 4 & 8.
3. INSTALL 1.5" COPPER SERVICE WITH 1.5" METER AND 2" RPPA PER UDACS PLATE NO. 4 & 8.
4. INSTALL 8"X6" TEE PER UDACS PLATE NO. 31 AND FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
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6. INSTALL 8"X8" TEE WITH THRUST BLOCKS PER UDACS PLATE NO. 31
7. INSTALL 12"X12" TEE WITH THRUST BLOCKS PER UDACS PLATE NO. 31
8. INSTALL 8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39
9. INSTALL 12" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39
10. INSTALL 8"X6" REDUCER PER UDACS PLATE NO. 30
11. INSTALL 12"X8" REDUCER PER UDACS PLATE NO. 30
12. INSTALL CAP AND 2" BLOWOFF VALVE PER UDACS PLATE NO. 36
13. INSTALL 1' HORIZONTAL DEFLECTION PER UDACS SEC. 2.07
14. INSTALL 5' HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
15. INSTALL 11.25° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
16. INSTALL 22.5° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
17. INSTALL 45° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
18. INSTALL 90° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
19. FIELD VERIFY, REMOVE EX CAP & BLOW-OFF, AND CONNECT TO EXISTING WATERLINE
20. INSTALL 1' VERTICAL DEFLECTION PER UDACS SEC. 2.07
21. INSTALL 8" 45' VERTICAL BEND PER UDACS PLATE NO. 31
22. INSTALL (2) 4" IRRIGATION SLEEVES
23. INSTALL STEEL ENCASEMENT PER UDACS PLATE 22 & 23
24. INSTALL 8" RPDA PER UDACS PLATE 56
25. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40

SEWER NOTES

1. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1, SD-3, AND SD-4, WITH SINGLE 24" LID
2. INSTALL 8" SDR-35 PVC SANITARY SEWER PER DCSWCS SD-15 & SD-17
3. INSTALL 4" PVC SANITARY SEWER LATERAL PER DCSWCS SD-17, SD-20, AND SD-23
4. INSTALL 8" C-900 SANITARY SEWER PER DCSWCS SD-15 & SD-17
5. INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5

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MONUMENT ID: USDA (1934) 19

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Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
BELONG ROAD PLAN & PROFILE 9+50 TO 15+50

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

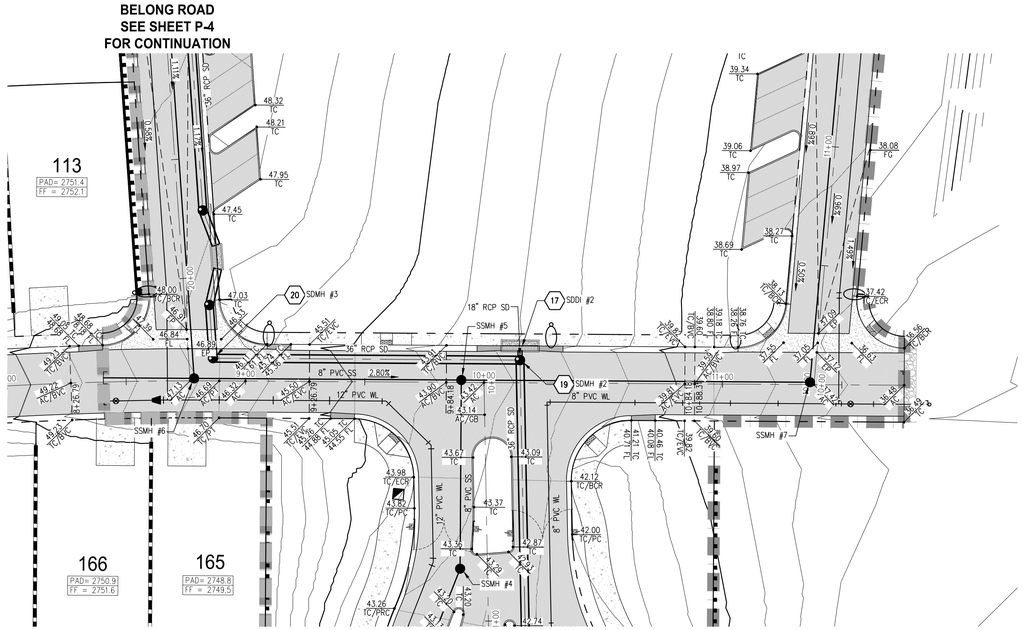
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERICK D. J YORO
Exp: 06/30/2022
CIVIL
No. 16396
5/11/20

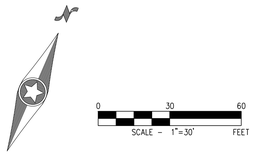
P-2
SHEET 20 OF 30

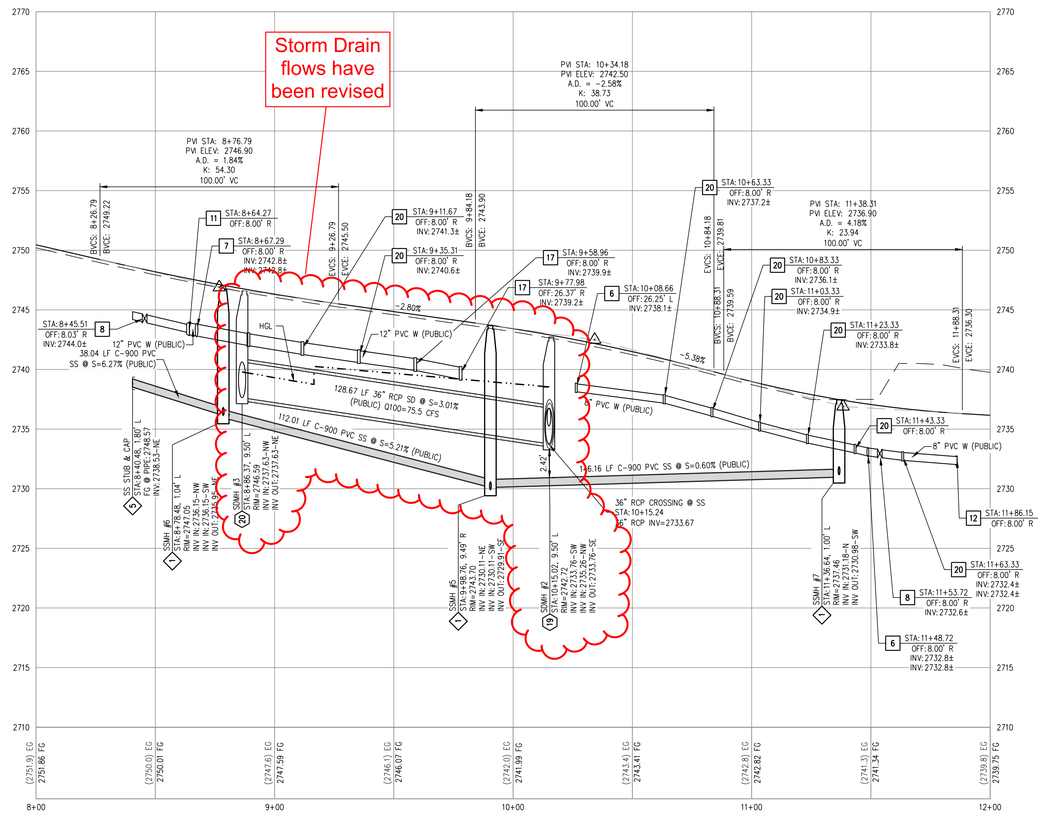
DS-5261

J:\Jobs\SHE1901-001\Engr Sunstone phase 1\Dwg\Versions\Jobs\SHE1901-001_prop dwg 5/11/2020 11:33 AM John Austin Jr



AMONG LANE - PLAN VIEW
SCALE: 1"= 30'





AMONG LANE - PROFILE VIEW
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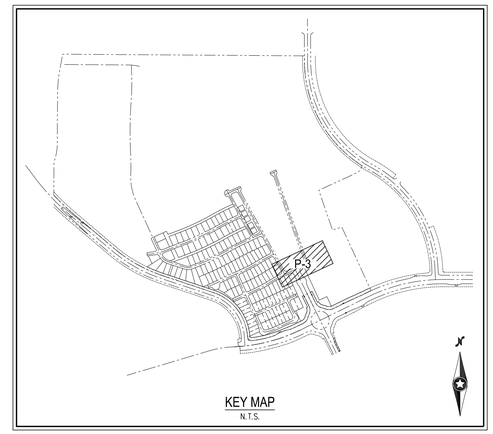
VERT: 1" = 6'



KEY MAP
N.T.S.

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17. INSTALL 45° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
18. INSTALL 90° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
19. FIELD VERIFY, REMOVE EX CAP & BLOW-OFF, AND CONNECT TO EXISTING WATERLINE
20. INSTALL 1' VERTICAL DEFLECTION PER UDACS SEC. 2.07
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22. INSTALL (2) 4" IRRIGATION SLEEVES
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25. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40

SEWER NOTES

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3. INSTALL 4" PVC SANITARY SEWER LATERAL PER DCSWCS SD-17, SD-20, AND SD-23
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BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

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westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
AMOND LANE PLAN & PROFILE 8+00 TO 14+00

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

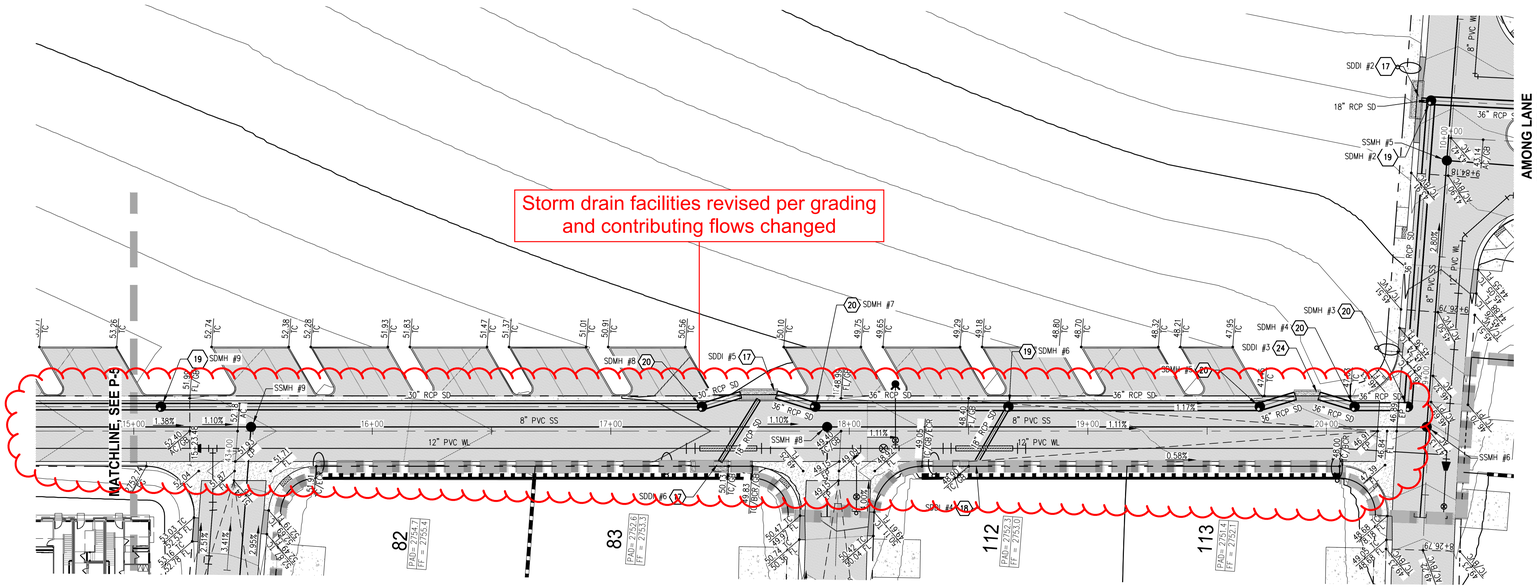
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERICK D. J. YORO
Exp: 06/30/2022
CIVIL
No. 16396
5/11/20

P-3
SHEET 21 OF 30

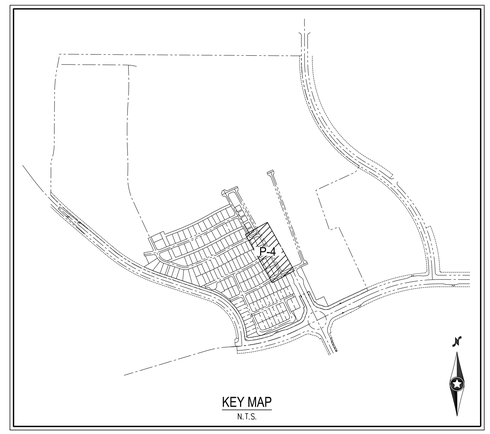
DS-5261

J:\She1901-001 (Hoop Junction phase 1\Dwg\Xrefs\She1901-001 amp.dwg 5/11/2020 11:33 AM John Austin Jr



HEMATITE PLACE - PLAN VIEW
SCALE: 1"= 30'

SCALE = 1"=30' (0, 30, 60 FEET)



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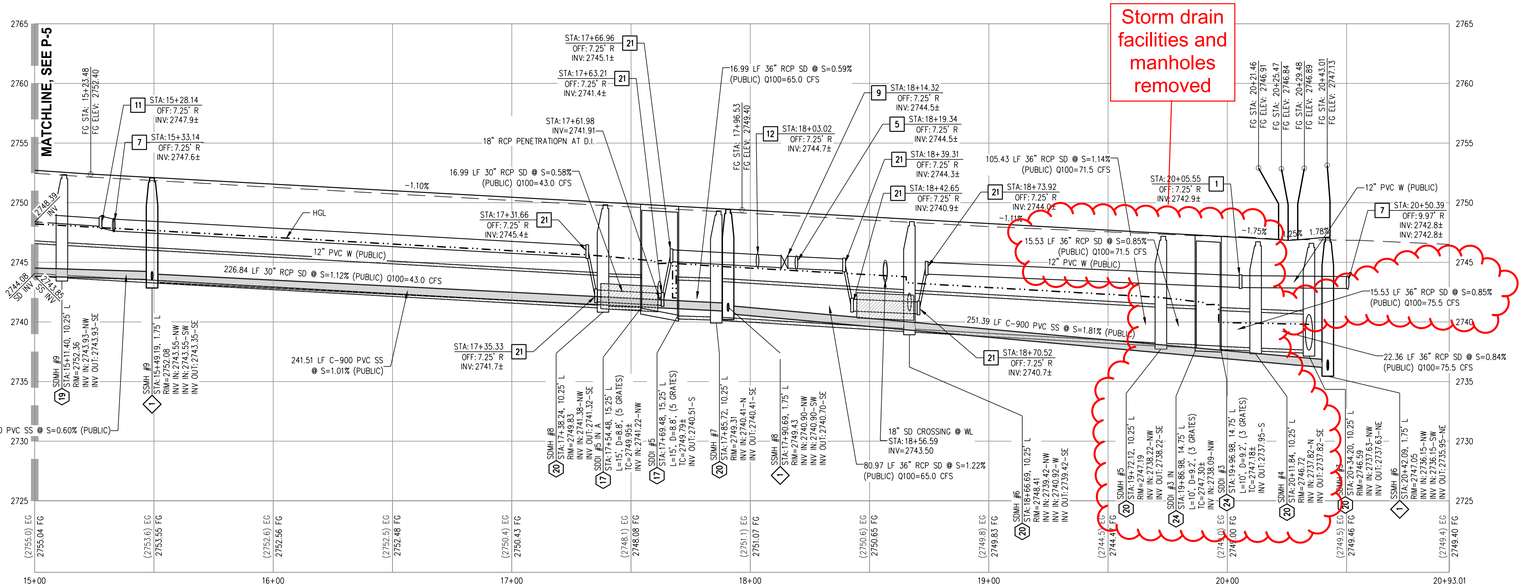

HEMATITE PLACE - PROFILE VIEW
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VERT: 1" = 6'

FAST
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1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T)

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
HEMATITE PLACE PLAN & PROFILE 15+00 TO 20+50

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERICK D. YORO
No. 16396
Exp: 06/30/2022
CIVIL
5/11/20

P-4
SHEET 22 OF 30

DS-5261

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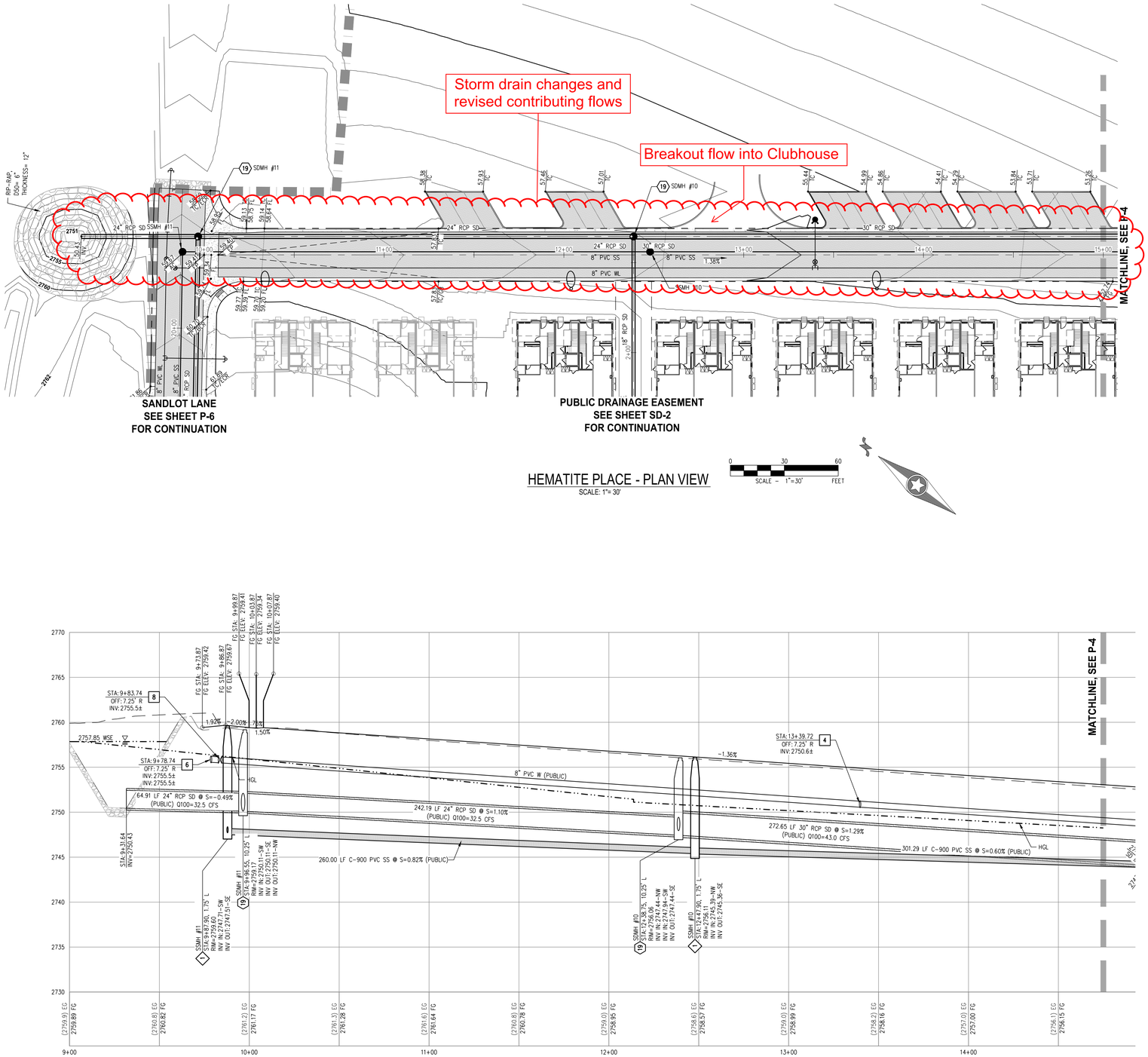

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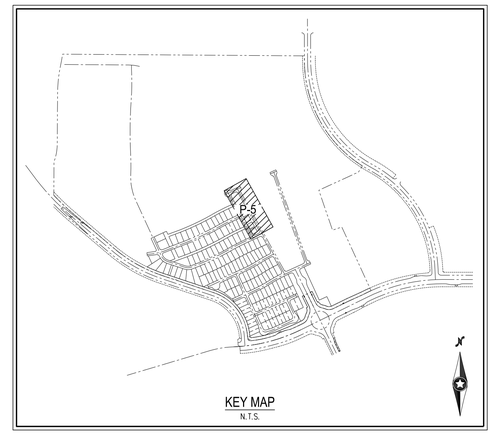

KEY MAP
N.T.S.

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NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL
HEMATITE PLACE PLAN & PROFILE 9+50 TO 15+00 1

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

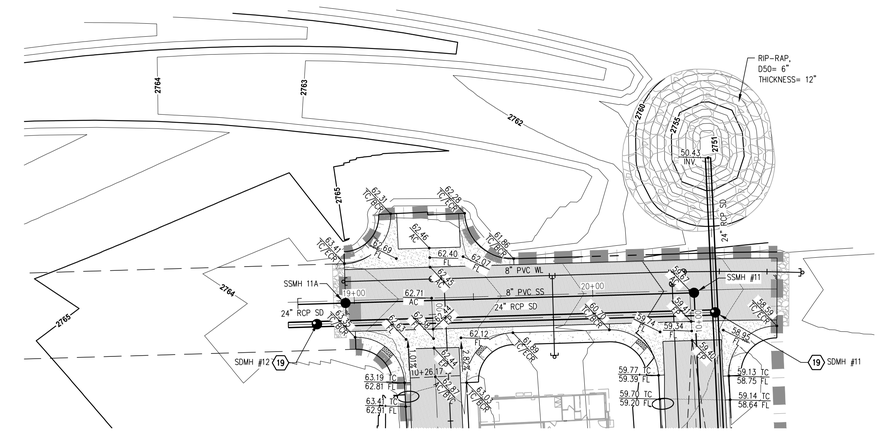
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA – DERICK D. YORO – Exp: 06/30/2022 – CIVIL – No. 16396 – 5/11/20

P-5
SHEET 23 OF 30

DS-5261

J:\she1901-001 (tropy sunstone phase 1\dwg\tmpros\she1901-001 proc.dwg 5/11/2020 11:34 AM John Austin Jr

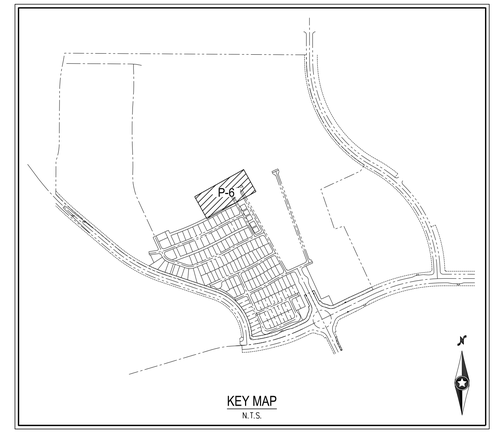


HEMATITE PLACE
SEE SHEET P-5
FOR CONTINUATION

0 30 60
SCALE - 1"=30' FEET

SANDLOT LANE - PLAN VIEW

SCALE: 1"= 30'



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10. INSTALL 8"X6" REDUCER PER UDACS PLATE NO. 30
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12. INSTALL CAP AND 2" BLOWOFF VALVE PER UDACS PLATE NO. 36
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24. INSTALL 8" RPDA PER UDACS PLATE 56
25. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40

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5. INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5

BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK-
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

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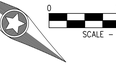
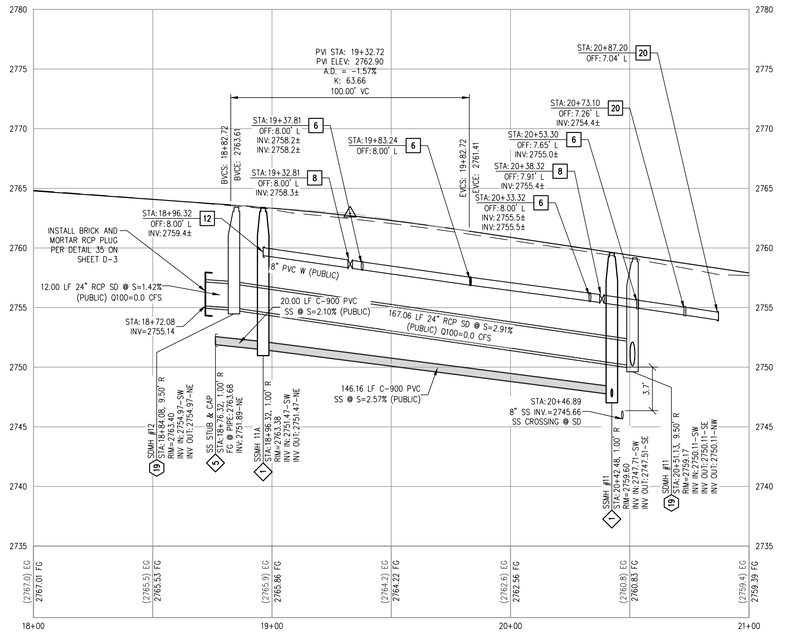
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES





SANDLOT LANE - PROFILE VIEW

HORIZ: 1" = 30'
VERT: 1" = 6'

J:\Vault\SHLP_001 (Ospy sunstone phase 1)\dwg\Vistapro\Vault1901_001_comp dwg, 5/11/2020 11:35 AM, John Austin Jr

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
SANDLOT LANE PLAN & PROFILE 15+50 TO 21+50

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

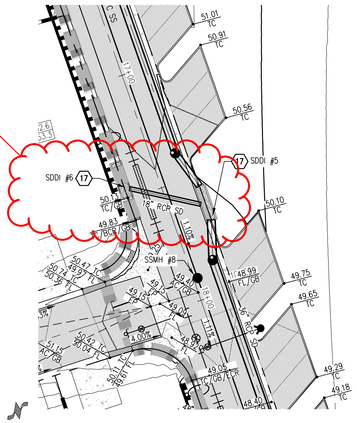
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER - STATE OF NEVADA
DERICK D.J YORO
Exp: 06/30/2022
CIVIL
No. 16396
5/11/20

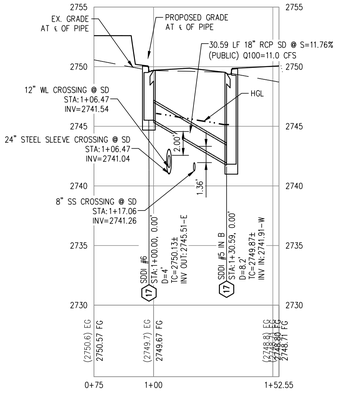
P-6
SHEET 24 OF 30

DS-5261

Revised Contributing Flow



SDDI #6 TO SDDI #5 - PLAN VIEW
SCALE: 1"= 30'



SDDI #6 TO SDDI #5 - PROFILE VIEW
HORIZ: 1" = 30'
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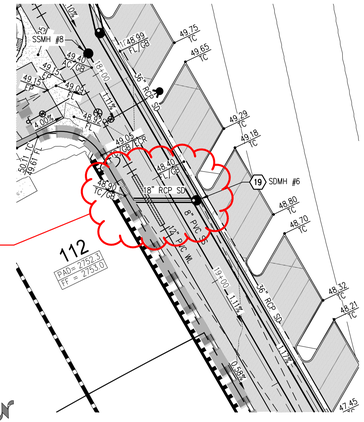
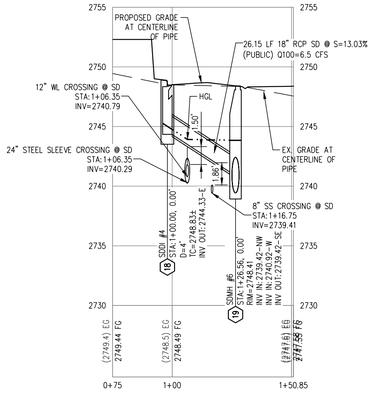
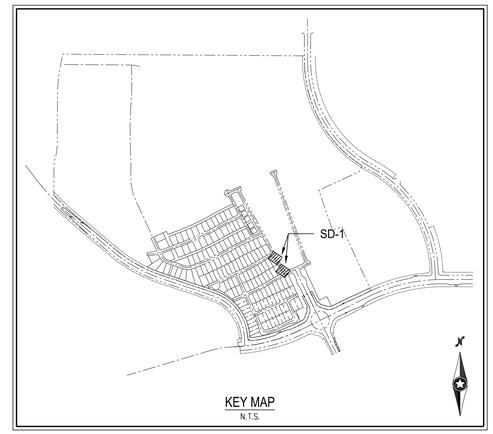


SDDI #4 TO SDMH #6 - PLAN VIEW
SCALE: 1"= 30'



SDDI #4 TO SDMH #6 - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 6'



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FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
STORM DRAIN LATERALS PLAN & PROFILE I

SEC 6
T 19 S
R 60 E

DATE: 5/11/2020
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

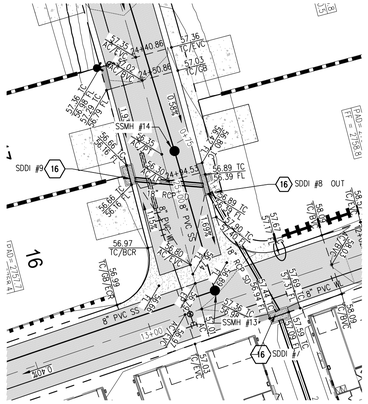
PROFESSIONAL ENGINEER - STATE OF NEVADA
DERICK D.J YORO
Exp: 06/30/2022
CIVIL
No. 16396
5/11/20

SD-1
SHEET 25 OF 30

DS-5261

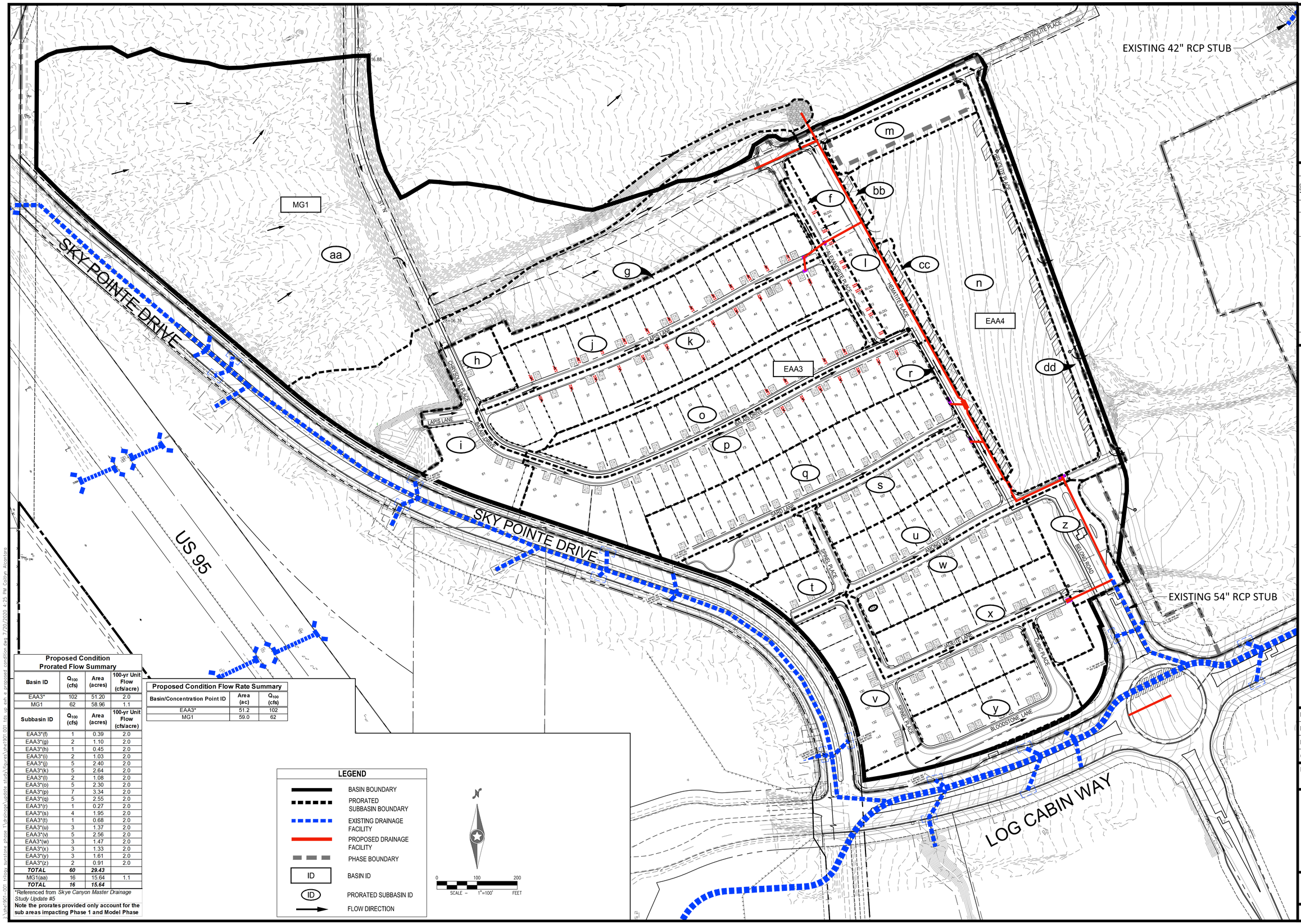
J:\she\1901-001 Infopy sunstone phase 1\dwg\improv\she1901-001 prof.dwg 5/11/2020 11:35 AM John Austin

Grading changes changed the FG and inverts of the storm drain



APPENDIX B

Revised Drainage Exhibits



Proposed Condition Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
EAA3*	102	51.20	2.0
MG1	62	58.96	1.1
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
EAA3*(f)	1	0.39	2.0
EAA3*(g)	2	1.10	2.0
EAA3*(h)	1	0.45	2.0
EAA3*(i)	2	1.03	2.0
EAA3*(j)	5	2.40	2.0
EAA3*(k)	5	2.64	2.0
EAA3*(l)	2	1.08	2.0
EAA3*(o)	5	2.30	2.0
EAA3*(p)	7	3.34	2.0
EAA3*(q)	5	2.55	2.0
EAA3*(r)	1	0.27	2.0
EAA3*(s)	4	1.95	2.0
EAA3*(t)	1	0.68	2.0
EAA3*(u)	3	1.37	2.0
EAA3*(v)	5	2.56	2.0
EAA3*(w)	3	1.47	2.0
EAA3*(x)	3	1.33	2.0
EAA3*(y)	3	1.61	2.0
EAA3*(z)	2	0.91	2.0
TOTAL	***60***	***29.43***	
MG1(aa)	16	15.64	1.1
TOTAL	***16***	***15.64***	

*Referenced from *Skye Canyon Master Drainage Study Update #5*

Note the prorates provided only account for the sub areas impacting Phase 1 and Model Phase

Proposed Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)
EAA3*	51.2	102
MG1	59.0	62

LEGEND

- BASIN BOUNDARY
- PRORATED SUBBASIN BOUNDARY
- EXISTING DRAINAGE FACILITY
- PROPOSED DRAINAGE FACILITY
- PHASE BOUNDARY
- ID — BASIN ID
- (ID) — PRORATED SUBBASIN ID
- FLOW DIRECTION

Westwood

5740 S. Arville Street
Suite 216
Las Vegas, NV 89118

Phone (702) 284-5300
Fax (702) 284-5399

westwoodps.com

Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.
-					

SHLP

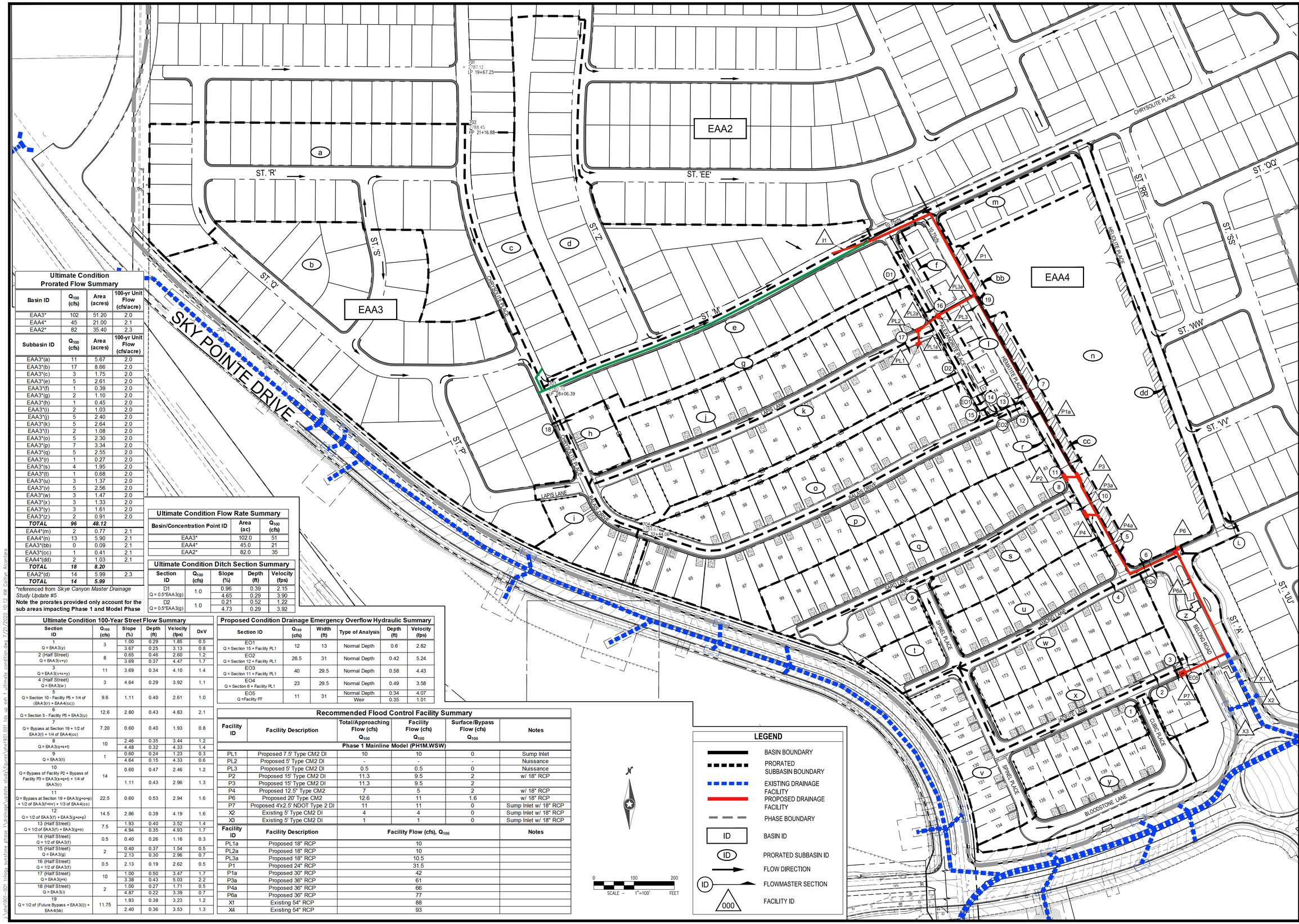
PARCEL 3 AT SUNSTONE MODEL PHASE & PHASE 1
PROPOSED CONDITION DRAINAGE MAP

DATE: JULY 2020
DRAFTER: CAA
DESIGNER: CAA
CHECKED: SOA

PROJECT NO.
SHE1901.001

EXHIBIT E
SHEET 1 OF 1

J:\she1901-001 trtcity sunstone phase 1\drainage\update study\figures\she1901.001 tds up exh e proposed condition.dwg 7/29/2020 4:25 PM Collyn Alcantara



Ultimate Condition Prorated Flow Summary

Basin ID	Q_{100} (cfs)	Area (acres)	100-yr Unit Flow (cfs/acre)
EAA3*	102	51.20	2.0
EAA4*	45	21.00	2.1
EAA2*	82	35.40	2.3
Subbasin ID	**Q_{100} (cfs)**	**Area (acres)**	**100-yr Unit Flow (cfs/acre)**
EAA3*(a)	11	5.67	2.0
EAA3*(b)	17	8.66	2.0
EAA3*(c)	3	1.75	2.0
EAA3*(e)	5	2.61	2.0
EAA3*(f)	1	0.39	2.0
EAA3*(g)	2	1.10	2.0
EAA3*(h)	1	0.45	2.0
EAA3*(i)	2	1.03	2.0
EAA3*(j)	5	2.40	2.0
EAA3*(k)	5	2.64	2.0
EAA3*(l)	2	1.08	2.0
EAA3*(o)	5	2.30	2.0
EAA3*(p)	7	3.34	2.0
EAA3*(q)	5	2.55	2.0
EAA3*(r)	1	0.27	2.0
EAA3*(s)	4	1.95	2.0
EAA3*(t)	1	0.68	2.0
EAA3*(u)	3	1.37	2.0
EAA3*(v)	5	2.56	2.0
EAA3*(w)	3	1.47	2.0
EAA3*(x)	3	1.33	2.0
EAA3*(y)	3	1.61	2.0
EAA3*(z)	2	0.91	2.0
TOTAL	***96***	***48.12***	
EAA4*(m)	2	0.77	2.1
EAA4*(n)	13	5.90	2.1
EAA3*(bb)	0	0.09	2.1
EAA3*(cc)	1	0.41	2.1
EAA4*(dd)	2	1.03	2.1
TOTAL	***18***	***8.20***	
EAA2*(d)	14	5.99	2.3
TOTAL	***14***	***5.99***	

*referenced from *Skye Canyon Master Drainage Study Update #5*

Note the prorates provided only account for the sub areas impacting Phase 1 and Model Phase

Ultimate Condition Flow Rate Summary

Basin/Concentration Point ID	Area (ac)	Q_{100} (cfs)
EAA3*	102.0	51
EAA4*	45.0	21
EAA2*	82.0	35

Ultimate Condition Ditch Section Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)
D1	1.0	0.96	0.39	2.15
Q = 0.5*EAA3(g)		4.65	0.29	3.90
D2	1.0	0.21	0.52	1.22
Q = 0.5*EAA3(g)		4.73	0.29	3.92

Ultimate Condition 100-Year Street Flow Summary

Section ID	Q_{100} (cfs)	Slope (%)	Depth (ft)	Velocity (fps)	DxV
1	3	1.00	0.29	1.85	0.5
Q = EAA3(y)		3.67	0.25	3.13	0.8
2 (Half Street)	8	0.65	0.46	2.60	1.2
Q = EAA3(v+y)		3.69	0.37	4.47	1.7
3	11	3.69	0.34	4.10	1.4
Q = EAA3(v+x+y)					
4 (Half Street)	3	4.64	0.29	3.92	1.1
Q = EAA3(w)					
5	9.6	1.11	0.40	2.61	1.0
Q = Section 10 - Facility P5 + 1/4 of (EAA3(r) + EAA4(cc))					
6	12.6	2.80	0.43	4.83	2.1
Q = Section 5 - Facility P5 + EAA3(u)					
7	7.20	0.60	0.40	1.93	0.8
Q = Bypass at Section 19 + 1/2 of EAA3(l) + 1/4 of EAA4(cc)					
8	10	2.46	0.35	3.44	1.2
Q = EAA3(q+s+t)		4.48	0.32	4.33	1.4
9	1	0.60	0.24	1.23	0.3
Q = EAA3(t)		4.64	0.15	4.33	0.6
10	14	0.60	0.47	2.46	1.2
Q = Bypass of Facility P2 + Bypass of Facility P3 + EAA3(s+q+t) + 1/4 of EAA3(r)		1.11	0.43	2.96	1.3
11	22.5	0.60	0.53	2.94	1.6
Q = Bypass at Section 19 + EAA3(g+o+p) + 1/2 of EAA3(f+l+r) + 1/3 of EAA4(cc)					
12	14.5	2.86	0.39	4.19	1.6
Q = 1/2 of EAA3(f) + EAA3(g+o+p)					
13 (Half Street)	7.5	1.93	0.40	3.52	1.4
Q = 1/2 of EAA3(f) + EAA3(g+o)		4.94	0.35	4.93	1.7
14 (Half Street)	0.5	0.40	0.26	1.16	0.3
Q = 1/2 of EAA3(f)					
15 (Half Street)	2	0.40	0.37	1.54	0.5
Q = EAA3(g)		2.13	0.30	2.96	0.7
16 (Half Street)	0.5	2.13	0.19	2.62	0.5
Q = 1/2 of EAA3(f)					
17 (Half Street)	10	1.00	0.50	3.47	1.7
Q = EAA3(j+k)		3.38	0.43	5.03	2.2
18 (Half Street)	2	1.00	0.27	1.71	0.5
Q = EAA3(i)		4.87	0.22	3.39	0.7
19	11.75	1.93	0.38	3.23	1.2
Q = 1/2 of (Future Bypass + EAA3(i)) + EAA4(bb)		2.40	0.36	3.53	1.3

Proposed Condition Drainage Emergency Overflow Hydraulic Summary

Section ID	Q_{100} (cfs)	Width (ft)	Type of Analysis	Depth (ft)	Velocity (fps)
EO1	12	13	Normal Depth	0.6	2.82
Q = Section 15 + Facility PL1					
EO2	26.5	31	Normal Depth	0.42	5.24
Q = Section 12 + Facility PL1					
EO3	40	29.5	Normal Depth	0.58	4.43
Q = Section 11 + Facility PL1					
EO4	23	29.5	Normal Depth	0.49	3.58
Q = Section 6 + Facility PL1					
EO5	11	31	Normal Depth	0.34	4.07
Q =Facility P7			Weir	0.35	1.01

Recommended Flood Control Facility Summary

Facility ID	Facility Description	Total/Approaching Flow (cfs) Q_{100}	Facility Flow (cfs) Q_{100}	Surface/Bypass Flow (cfs) Q_{100}	Notes
Phase 1 Mainline Model (PH1M.WSW)					
PL1	Proposed 7.5' Type CM2 DI	10	10	0	Sump Inlet
PL2	Proposed 5' Type CM2 DI	-	-	-	Nuissance
PL3	Proposed 5' Type CM2 DI	0.5	0.5	0	Nuissance
P2	Proposed 15' Type CM2 DI	11.3	9.5	2	w/ 18" RCP
P3	Proposed 15' Type CM2 DI	11.3	9.5	2	
P4	Proposed 12.5' Type CM2	7	5	2	w/ 18" RCP
P6	Proposed 20' Type CM2	12.6	11	1.6	w/ 18" RCP
P7	Proposed 4'x2.5' NDOT Type 2 DI	11	11	0	Sump Inlet w/ 18" RCP
X2	Existing 5' Type CM2 DI	4	4	0	Sump Inlet w/ 18" RCP
X3	Existing 5' Type CM2 DI	1	1	0	Sump Inlet w/ 18" RCP
Facility ID	**Facility Description**	**Facility Flow (cfs), Q_{100}**			**Notes**
PL1a	Proposed 18" RCP	10			
PL2a	Proposed 18" RCP	10			
PL3a	Proposed 18" RCP	10.5			
P1	Proposed 24" RCP	31.5			
P1a	Proposed 30" RCP	42			
P3a	Proposed 36" RCP	61			
P4a	Proposed 36" RCP	66			
P6a	Proposed 36" RCP	77			
X1	Existing 54" RCP	88			
X4	Existing 54" RCP	93			

Westwood
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5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.
1					

SHLP

PARCEL 3 AT SUNSTONE MODEL PHASE & PHASE 1 UPDATE

ULTIMATE DRAINAGE CONDITION MAP

DATE: JULY 2020
DRAFTER: CAA
DESIGNER: CAA
CHECKED: SOA
PROJECT NO. SHE1901.001

EXHIBIT F
SHEET 1 OF 1

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APPENDIX C

Revised Hydraulic Computations

Interior Street Computations

Worksheet for Section 5 - FULL STREET 100-YR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.11	%
Discharge	9.60	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+14.75	0.41
0+27.50	0.17
0+27.50	0.13
0+29.00	0.00
0+29.00	0.48
0+29.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+29.50, 0.50)	0.013

Options

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

Worksheet for Section 5 - FULL STREET 100-YR

Results

Normal Depth		0.40	ft
Elevation Range	0.00 to 0.50 ft		
Flow Area		3.68	ft²
Wetted Perimeter		27.64	ft
Hydraulic Radius		0.13	ft
Top Width		26.75	ft
Normal Depth		0.40	ft
Critical Depth		0.42	ft
Critical Slope		0.00695	ft/ft
Velocity		2.61	ft/s
Velocity Head		0.11	ft
Specific Energy		0.50	ft
Froude Number		1.24	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.40	ft
Critical Depth	0.42	ft
Channel Slope	1.11	%
Critical Slope	0.00695	ft/ft

Cross Section for Section 5 - FULL STREET 100-YR

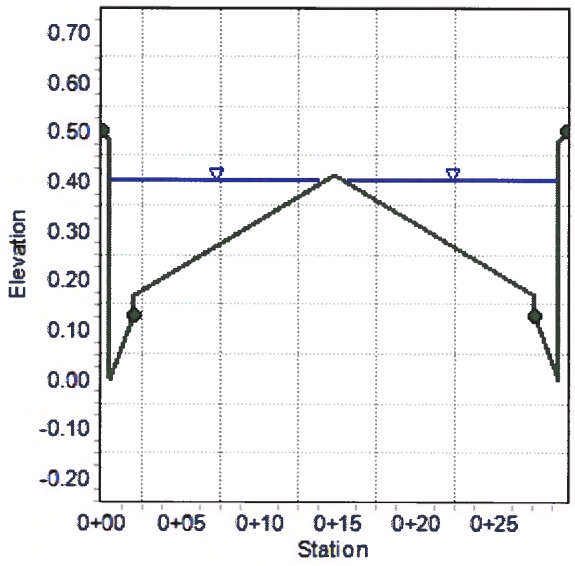
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.11	%
Normal Depth	0.40	ft
Discharge	9.60	ft^3/s

Cross Section Image



Worksheet for Section 6 - HALF STREET 100-YR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.80	%
Discharge	12.60	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.50	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+15.50, 0.38)	0.016

Options

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

Results

Normal Depth	0.43	ft
Elevation Range	0.00 to 0.38 ft	
Flow Area	2.61	ft^2
Wetted Perimeter	15.75	ft
Hydraulic Radius	0.17	ft

Worksheet for Section 6 - HALF STREET 100-YR

Results

Top Width		15.50	ft
Normal Depth		0.43	ft
Critical Depth		0.53	ft
Critical Slope		0.00563	ft/ft
Velocity		4.83	ft/s
Velocity Head		0.36	ft
Specific Energy		0.79	ft
Froude Number		2.08	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.43	ft
Critical Depth	0.53	ft
Channel Slope	2.80	%
Critical Slope	0.00563	ft/ft

Cross Section for Section 6 - HALF STREET 100-YR

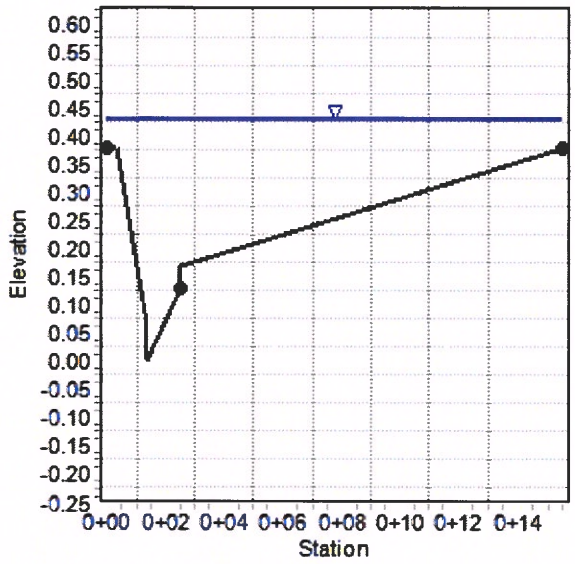
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.80	%
Normal Depth	0.43	ft
Discharge	12.60	ft³/s

Cross Section Image



Worksheet for Section 7 - FULL STREET 100-YR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Discharge	7.20	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+14.75	0.41
0+27.50	0.17
0+27.50	0.13
0+29.00	0.00
0+29.00	0.48
0+29.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+29.50, 0.50)	0.013

Options

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

Worksheet for Section 7 - FULL STREET 100-YR

Results

Normal Depth		0.40	ft
Elevation Range	0.00 to 0.50 ft		
Flow Area		3.74	ft²
Wetted Perimeter		27.86	ft
Hydraulic Radius		0.13	ft
Top Width		26.97	ft
Normal Depth		0.40	ft
Critical Depth		0.39	ft
Critical Slope		0.00726	ft/ft
Velocity		1.93	ft/s
Velocity Head		0.06	ft
Specific Energy		0.46	ft
Froude Number		0.91	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.40	ft
Critical Depth	0.39	ft
Channel Slope	0.60	%
Critical Slope	0.00726	ft/ft

Cross Section for Section 7 - FULL STREET 100-YR

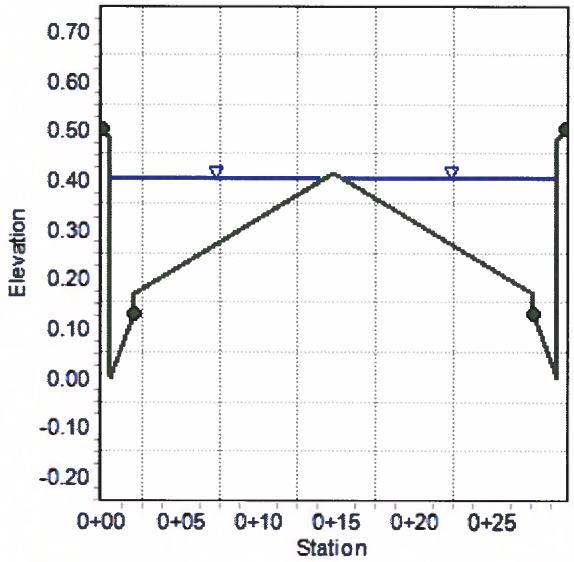
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.40	ft
Discharge	7.20	ft³/s

Cross Section Image



Worksheet for Section 10 - FULL STREET 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Discharge	14.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+14.75	0.41
0+27.50	0.17
0+27.50	0.13
0+29.00	0.00
0+29.00	0.48
0+29.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+29.50, 0.50)	0.013

Options

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

Worksheet for Section 10 - FULL STREET 100-YR (min%)

Results

Normal Depth		0.47	ft
Elevation Range	0.00 to 0.50 ft		
Flow Area		5.69	ft²
Wetted Perimeter		29.53	ft
Hydraulic Radius		0.19	ft
Top Width		28.50	ft
Normal Depth		0.47	ft
Critical Depth		0.46	ft
Critical Slope		0.00643	ft/ft
Velocity		2.46	ft/s
Velocity Head		0.09	ft
Specific Energy		0.56	ft
Froude Number		0.97	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.47	ft
Critical Depth	0.46	ft
Channel Slope	0.60	%
Critical Slope	0.00643	ft/ft

Cross Section for Section 10 - FULL STREET 100-YR (min%)

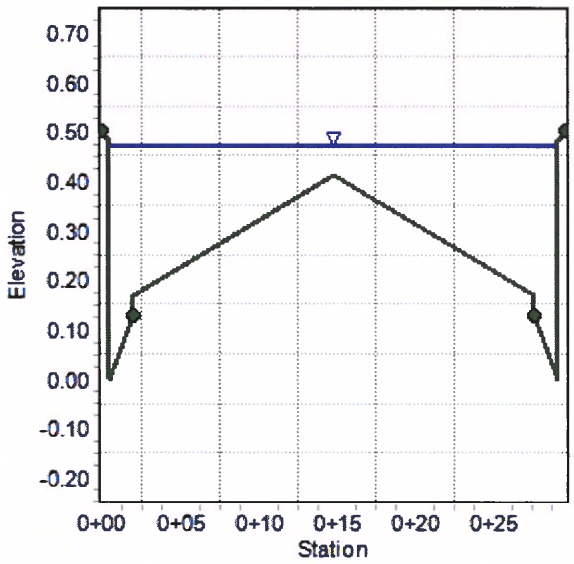
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.47	ft
Discharge	14.00	ft³/s

Cross Section Image



Worksheet for Section 10 - FULL STREET 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.11	%
Discharge	14.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+14.75	0.41
0+27.50	0.17
0+27.50	0.13
0+29.00	0.00
0+29.00	0.48
0+29.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+29.50, 0.50)	0.013

Options

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

Worksheet for Section 10 - FULL STREET 100-YR (max%)

Results

Normal Depth		0.43	ft
Elevation Range	0.00 to 0.50 ft		
Flow Area		4.73	ft²
Wetted Perimeter		29.46	ft
Hydraulic Radius		0.16	ft
Top Width		28.50	ft
Normal Depth		0.43	ft
Critical Depth		0.46	ft
Critical Slope		0.00643	ft/ft
Velocity		2.96	ft/s
Velocity Head		0.14	ft
Specific Energy		0.57	ft
Froude Number		1.28	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.43	ft
Critical Depth	0.46	ft
Channel Slope	1.11	%
Critical Slope	0.00643	ft/ft

Cross Section for Section 10 - FULL STREET 100-YR (max%)

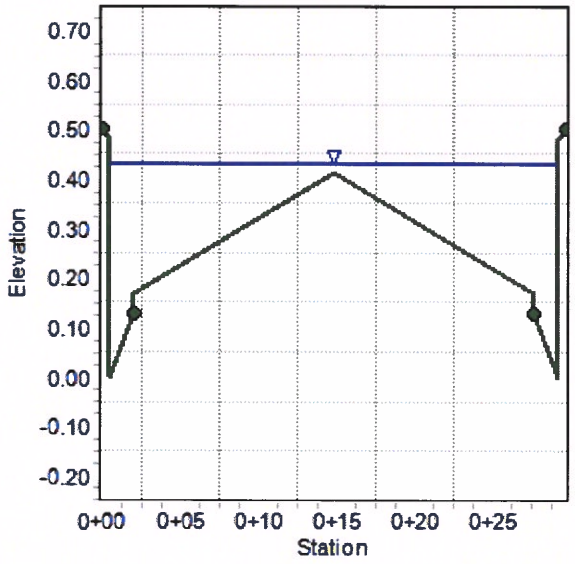
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.11	%
Normal Depth	0.43	ft
Discharge	14.00	ft³/s

Cross Section Image



Worksheet for Section 11 - FULL STREET 100-YR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Discharge	22.50	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+14.75	0.41
0+27.50	0.17
0+27.50	0.13
0+29.00	0.00
0+29.00	0.48
0+29.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+29.50, 0.50)	0.013

Options

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

Worksheet for Section 11 - FULL STREET 100-YR

Results

Normal Depth		0.53	ft
Elevation Range	0.00 to 0.50 ft		
Flow Area		7.65	ft²
Wetted Perimeter		30.63	ft
Hydraulic Radius		0.25	ft
Top Width		29.50	ft
Normal Depth		0.53	ft
Critical Depth		0.54	ft
Critical Slope		0.00578	ft/ft
Velocity		2.94	ft/s
Velocity Head		0.13	ft
Specific Energy		0.67	ft
Froude Number		1.02	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.53	ft
Critical Depth	0.54	ft
Channel Slope	0.60	%
Critical Slope	0.00578	ft/ft

Cross Section for Section 11 - FULL STREET 100-YR

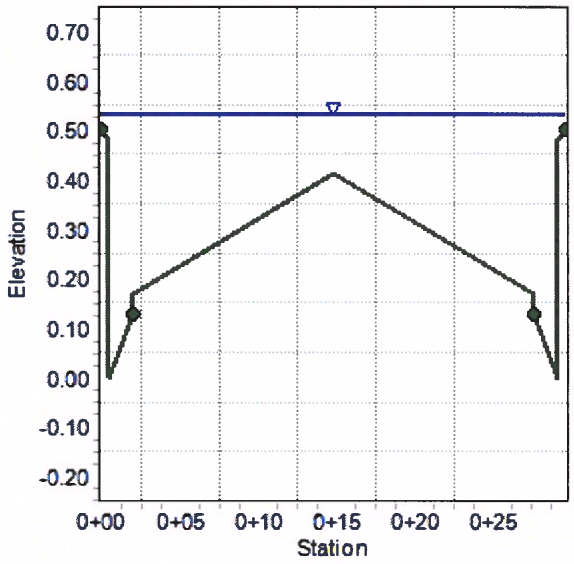
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.60	%
Normal Depth	0.53	ft
Discharge	22.50	ft³/s

Cross Section Image



Worksheet for Section 12 - FULL STREET 100-YR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.86	%
Discharge	14.50	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.50
0+00.50	0.48
0+00.50	0.00
0+02.00	0.13
0+02.00	0.17
0+14.75	0.43
0+27.50	0.17
0+27.50	0.13
0+29.00	0.00
0+29.00	0.48
0+29.50	0.50

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.50)	(0+02.00, 0.13)	0.013
(0+02.00, 0.13)	(0+27.50, 0.13)	0.016
(0+27.50, 0.13)	(0+29.50, 0.50)	0.013

Options

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

Worksheet for Section 12 - FULL STREET 100-YR

Results

Normal Depth		0.39	ft
Elevation Range	0.00 to 0.50 ft		
Flow Area		3.46	ft²
Wetted Perimeter		26.14	ft
Hydraulic Radius		0.13	ft
Top Width		25.26	ft
Normal Depth		0.39	ft
Critical Depth		0.47	ft
Critical Slope		0.00636	ft/ft
Velocity		4.19	ft/s
Velocity Head		0.27	ft
Specific Energy		0.67	ft
Froude Number		2.00	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.39	ft
Critical Depth	0.47	ft
Channel Slope	2.86	%
Critical Slope	0.00636	ft/ft

Cross Section for Section 12 - FULL STREET 100-YR

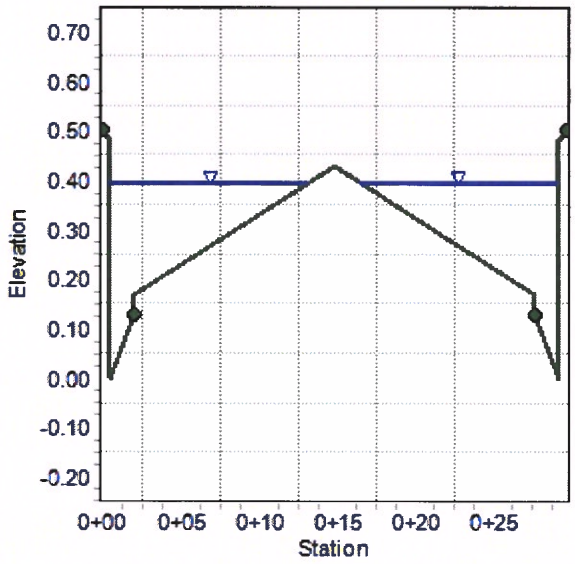
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.86	%
Normal Depth	0.39	ft
Discharge	14.50	ft^3/s

Cross Section Image



Worksheet for Section 13 - HALF STREET 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.93	%
Discharge	7.50	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.50	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+15.50, 0.38)	0.016

Options

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

Results

Normal Depth	0.40	ft
Elevation Range	0.00 to 0.38 ft	
Flow Area	2.13	ft²
Wetted Perimeter	15.69	ft
Hydraulic Radius	0.14	ft

Worksheet for Section 13 - HALF STREET 100-YR (min%)

Results

Top Width		15.50	ft
Normal Depth		0.40	ft
Critical Depth		0.45	ft
Critical Slope		0.00624	ft/ft
Velocity		3.52	ft/s
Velocity Head		0.19	ft
Specific Energy		0.59	ft
Froude Number		1.67	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.40	ft
Critical Depth	0.45	ft
Channel Slope	1.93	%
Critical Slope	0.00624	ft/ft

Cross Section for Section 13 - HALF STREET 100-YR (min%)

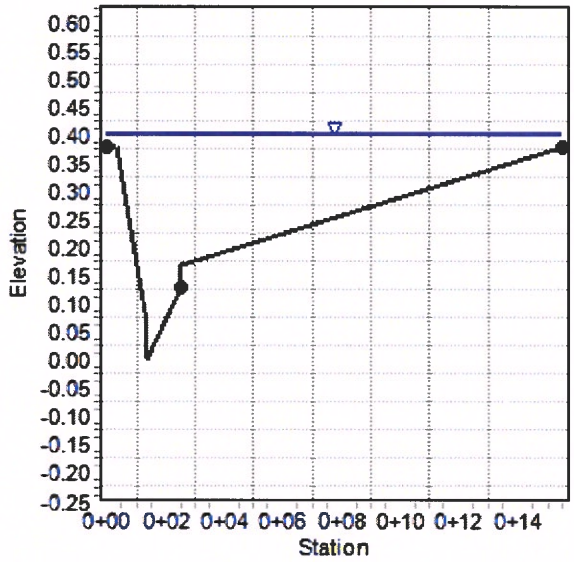
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.93	%
Normal Depth	0.40	ft
Discharge	7.50	ft³/s

Cross Section Image



Worksheet for Section 13 - HALF STREET 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.94	%
Discharge	7.50	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.50	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+15.50, 0.38)	0.016

Options

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

Results

Normal Depth	0.35	ft
Elevation Range	0.00 to 0.38 ft	
Flow Area	1.52	ft^2
Wetted Perimeter	13.63	ft
Hydraulic Radius	0.11	ft

Worksheet for Section 13 - HALF STREET 100-YR (max%)

Results

Top Width		13.48	ft
Normal Depth		0.35	ft
Critical Depth		0.45	ft
Critical Slope		0.00625	ft/ft
Velocity		4.93	ft/s
Velocity Head		0.38	ft
Specific Energy		0.73	ft
Froude Number		2.59	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.35	ft
Critical Depth	0.45	ft
Channel Slope	4.94	%
Critical Slope	0.00625	ft/ft

Cross Section for Section 13 - HALF STREET 100-YR (max%)

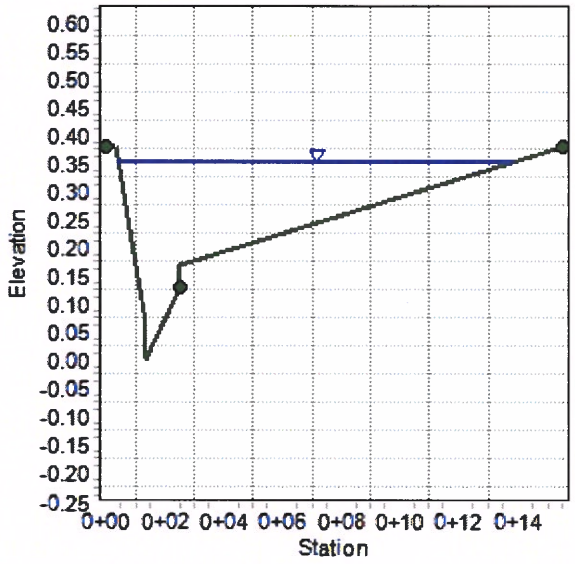
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.94	%
Normal Depth	0.35	ft
Discharge	7.50	ft³/s

Cross Section Image



Worksheet for Section 14 - HALF STREET 100-YR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.40	%
Discharge	0.50	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+13.00	0.43

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+13.00, 0.43)	0.016

Options

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

Results

Normal Depth	0.26	ft
Elevation Range	0.00 to 0.43 ft	
Flow Area	0.43	ft²
Wetted Perimeter	5.37	ft
Hydraulic Radius	0.08	ft

Worksheet for Section 14 - HALF STREET 100-YR

Results

Top Width		5.23	ft
Normal Depth		0.26	ft
Critical Depth		0.23	ft
Critical Slope		0.00811	ft/ft
Velocity		1.16	ft/s
Velocity Head		0.02	ft
Specific Energy		0.28	ft
Froude Number		0.71	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.26	ft
Critical Depth	0.23	ft
Channel Slope	0.40	%
Critical Slope	0.00811	ft/ft

Cross Section for Section 14 - HALF STREET 100-YR

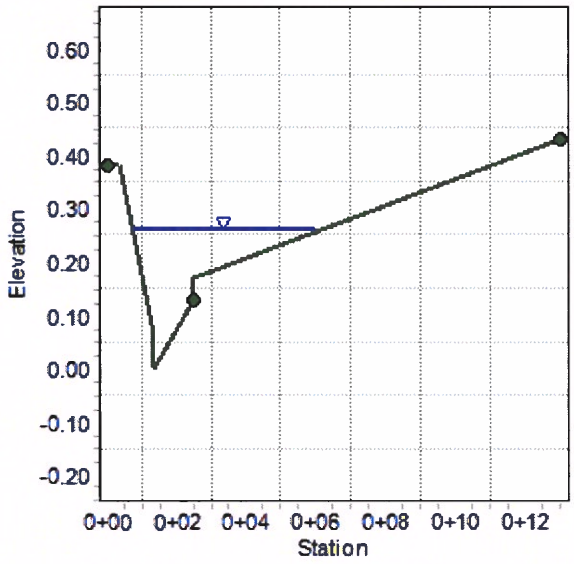
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.40	%
Normal Depth	0.26	ft
Discharge	0.50	ft³/s

Cross Section Image



Worksheet for Section 15 - HALF STREET 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.40	%
Discharge	2.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+13.00	0.43

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+13.00, 0.43)	0.016

Options

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

Results

Normal Depth	0.37	ft
Elevation Range	0.00 to 0.43 ft	
Flow Area	1.30	ft²
Wetted Perimeter	10.31	ft
Hydraulic Radius	0.13	ft

Worksheet for Section 15 - HALF STREET 100-YR (min%)

Results

Top Width		10.15	ft
Normal Depth		0.37	ft
Critical Depth		0.34	ft
Critical Slope		0.00725	ft/ft
Velocity		1.54	ft/s
Velocity Head		0.04	ft
Specific Energy		0.41	ft
Froude Number		0.76	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth		0.00	ft
Length		0.00	ft
Number Of Steps		0	

GVF Output Data

Upstream Depth		0.00	ft
Profile Description			
Profile Headloss		0.00	ft
Downstream Velocity		Infinity	ft/s
Upstream Velocity		Infinity	ft/s
Normal Depth		0.37	ft
Critical Depth		0.34	ft
Channel Slope		0.40	%
Critical Slope		0.00725	ft/ft

Cross Section for Section 15 - HALF STREET 100-YR (min%)

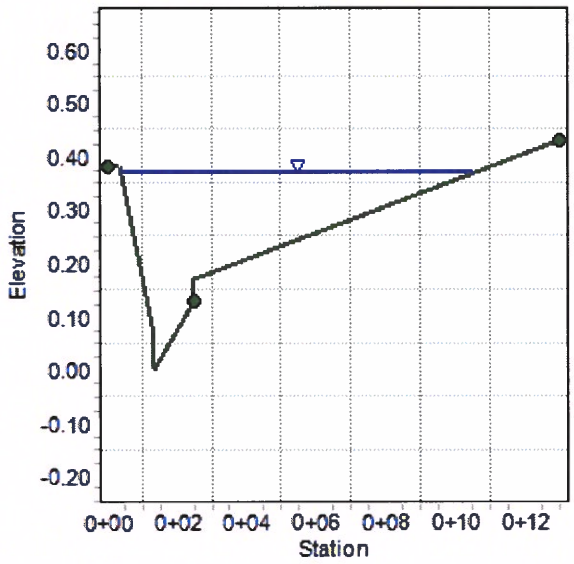
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.40	%
Normal Depth	0.37	ft
Discharge	2.00	ft³/s

Cross Section Image



Worksheet for Section 15 - HALF STREET 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.13	%
Discharge	2.00	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+13.00	0.43

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+13.00, 0.43)	0.016

Options

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

Results

Normal Depth	0.30	ft
Elevation Range	0.00 to 0.43 ft	
Flow Area	0.68	ft^2
Wetted Perimeter	7.13	ft
Hydraulic Radius	0.09	ft

Worksheet for Section 15 - HALF STREET 100-YR (max%)

Results

Top Width		6.98	ft
Normal Depth		0.30	ft
Critical Depth		0.34	ft
Critical Slope		0.00708	ft/ft
Velocity		2.96	ft/s
Velocity Head		0.14	ft
Specific Energy		0.43	ft
Froude Number		1.67	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.30	ft
Critical Depth	0.34	ft
Channel Slope	2.13	%
Critical Slope	0.00708	ft/ft

Cross Section for Section 15 - HALF STREET 100-YR (max%)

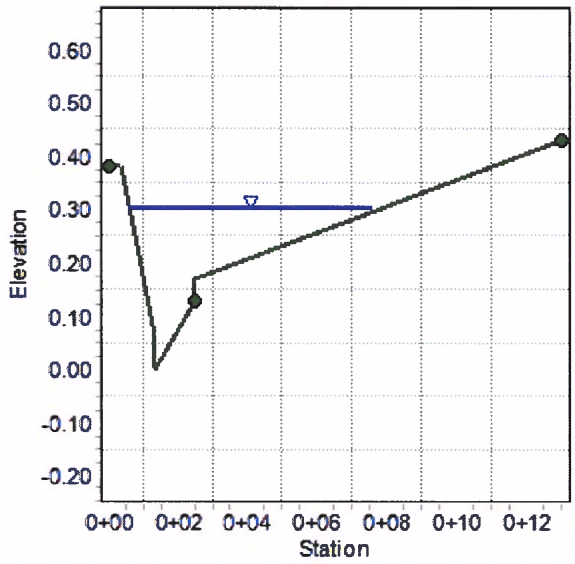
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.13	%
Normal Depth	0.30	ft
Discharge	2.00	ft³/s

Cross Section Image



Worksheet for Section 16 - HALF STREET 100-YR

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.13	%
Discharge	0.50	ft^3/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+13.00	0.43

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+13.00, 0.43)	0.016

Options

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

Results

Normal Depth	0.19	ft
Elevation Range	0.00 to 0.43 ft	
Flow Area	0.19	ft^2
Wetted Perimeter	2.70	ft
Hydraulic Radius	0.07	ft

Worksheet for Section 16 - HALF STREET 100-YR

Results

Top Width		2.57	ft
Normal Depth		0.19	ft
Critical Depth		0.23	ft
Critical Slope		0.00725	ft/ft
Velocity		2.62	ft/s
Velocity Head		0.11	ft
Specific Energy		0.30	ft
Froude Number		1.69	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.19	ft
Critical Depth	0.23	ft
Channel Slope	2.13	%
Critical Slope	0.00725	ft/ft

Cross Section for Section 16 - HALF STREET 100-YR

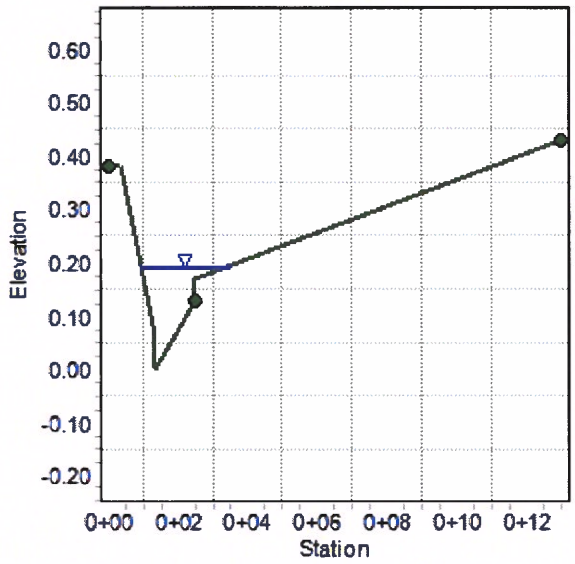
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.13	%
Normal Depth	0.19	ft
Discharge	0.50	ft³/s

Cross Section Image



Worksheet for Section 17 - HALF STREET 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Discharge	10.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+13.00	0.43

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+13.00, 0.43)	0.016

Options

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

Results

Normal Depth	0.50	ft
Elevation Range	0.00 to 0.43 ft	
Flow Area	2.88	ft²
Wetted Perimeter	13.34	ft
Hydraulic Radius	0.22	ft

Worksheet for Section 17 - HALF STREET 100-YR (min%)

Results

Top Width		13.00	ft
Normal Depth		0.50	ft
Critical Depth		0.54	ft
Critical Slope		0.00565	ft/ft
Velocity		3.47	ft/s
Velocity Head		0.19	ft
Specific Energy		0.68	ft
Froude Number		1.30	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.50	ft
Critical Depth	0.54	ft
Channel Slope	1.00	%
Critical Slope	0.00565	ft/ft

Cross Section for Section 17 - HALF STREET 100-YR (min%)

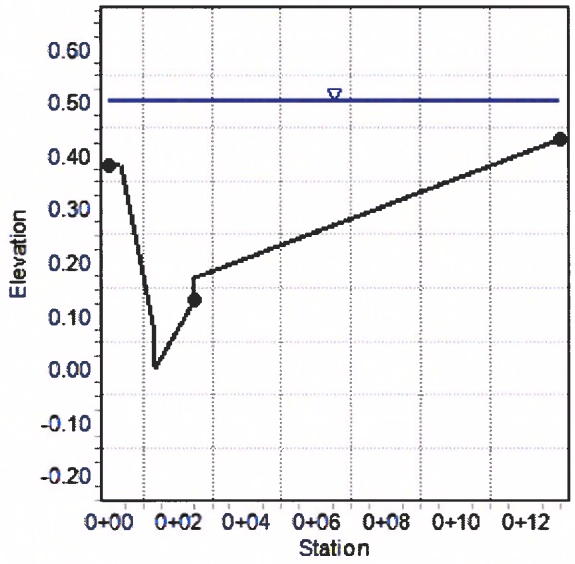
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Normal Depth	0.50	ft
Discharge	10.00	ft³/s

Cross Section Image



Worksheet for Section 17 - HALF STREET 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.38	%
Discharge	10.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+13.00	0.43

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+13.00, 0.43)	0.016

Options

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

Results

Normal Depth	0.43	ft
Elevation Range	0.00 to 0.43 ft	
Flow Area	1.99	ft²
Wetted Perimeter	13.12	ft
Hydraulic Radius	0.15	ft

Worksheet for Section 17 - HALF STREET 100-YR (max%)

Results

Top Width		12.91	ft
Normal Depth		0.43	ft
Critical Depth		0.54	ft
Critical Slope		0.00565	ft/ft
Velocity		5.03	ft/s
Velocity Head		0.39	ft
Specific Energy		0.82	ft
Froude Number		2.26	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.43	ft
Critical Depth	0.54	ft
Channel Slope	3.38	%
Critical Slope	0.00565	ft/ft

Cross Section for Section 17 - HALF STREET 100-YR (max%)

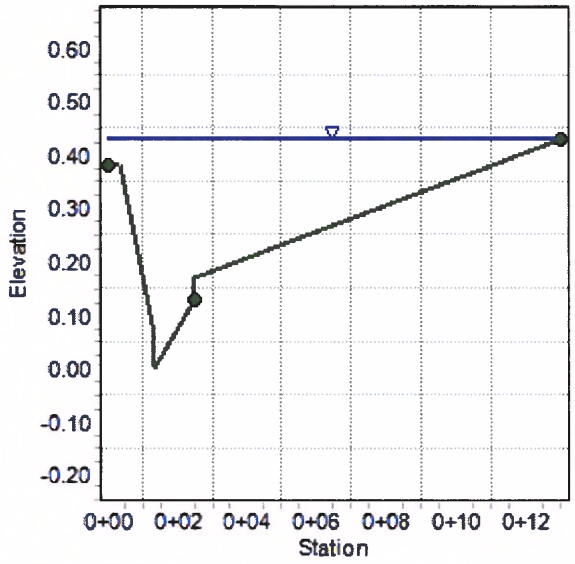
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	3.38	%
Normal Depth	0.43	ft
Discharge	10.00	ft³/s

Cross Section Image



Worksheet for Section 18 - FULL STREET 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Discharge	2.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.50	0.38
0+28.50	0.17
0+28.50	0.13
0+29.67	0.00
0+29.67	0.06
0+30.65	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+28.50, 0.13)	0.016
(0+28.50, 0.13)	(0+31.00, 0.38)	0.013

Options

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

Worksheet for Section 18 - FULL STREET 100-YR (min%)

Results

Normal Depth		0.27	ft
Elevation Range	0.00 to 0.38 ft		
Flow Area		1.17	ft²
Wetted Perimeter		15.77	ft
Hydraulic Radius		0.07	ft
Top Width		15.49	ft
Normal Depth		0.27	ft
Critical Depth		0.27	ft
Critical Slope		0.00821	ft/ft
Velocity		1.71	ft/s
Velocity Head		0.05	ft
Specific Energy		0.31	ft
Froude Number		1.10	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.27	ft
Critical Depth	0.27	ft
Channel Slope	1.00	%
Critical Slope	0.00821	ft/ft

Cross Section for Section 18 - FULL STREET 100-YR (min%)

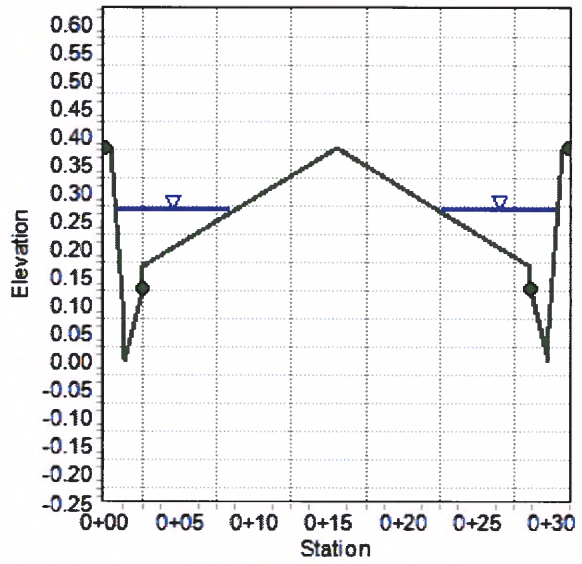
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.00	%
Normal Depth	0.27	ft
Discharge	2.00	ft³/s

Cross Section Image



Worksheet for Section 18 - FULL STREET 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.87	%
Discharge	2.00	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.50	0.38
0+28.50	0.17
0+28.50	0.13
0+29.67	0.00
0+29.67	0.06
0+30.65	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+28.50, 0.13)	0.016
(0+28.50, 0.13)	(0+31.00, 0.38)	0.013

Options

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

Worksheet for Section 18 - FULL STREET 100-YR (max%)

Results

Normal Depth		0.22	ft
Elevation Range	0.00 to 0.38 ft		
Flow Area		0.59	ft²
Wetted Perimeter		9.68	ft
Hydraulic Radius		0.06	ft
Top Width		9.42	ft
Normal Depth		0.22	ft
Critical Depth		0.27	ft
Critical Slope		0.00784	ft/ft
Velocity		3.39	ft/s
Velocity Head		0.18	ft
Specific Energy		0.40	ft
Froude Number		2.39	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.22	ft
Critical Depth	0.27	ft
Channel Slope	4.87	%
Critical Slope	0.00784	ft/ft

Cross Section for Section 18 - FULL STREET 100-YR (max%)

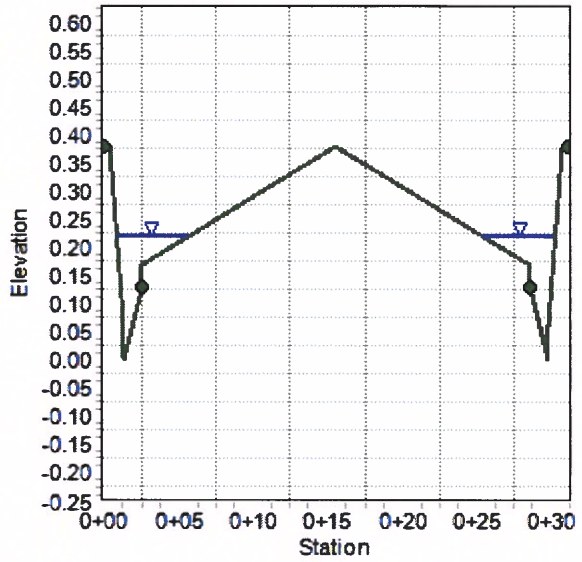
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	4.87	%
Normal Depth	0.22	ft
Discharge	2.00	ft³/s

Cross Section Image



Worksheet for Section 19 - FULL STREET 100-YR (min%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.93	%
Discharge	11.75	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.50	0.38
0+28.50	0.17
0+28.50	0.13
0+29.67	0.00
0+29.67	0.06
0+30.65	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+28.50, 0.13)	0.016
(0+28.50, 0.13)	(0+31.00, 0.38)	0.013

Options

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

Worksheet for Section 19 - FULL STREET 100-YR (min%)

Results

Normal Depth		0.38	ft
Elevation Range	0.00 to 0.38 ft		
Flow Area		3.63	ft²
Wetted Perimeter		29.97	ft
Hydraulic Radius		0.12	ft
Top Width		29.66	ft
Normal Depth		0.38	ft
Critical Depth		0.42	ft
Critical Slope		0.00657	ft/ft
Velocity		3.23	ft/s
Velocity Head		0.16	ft
Specific Energy		0.54	ft
Froude Number		1.63	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.38	ft
Critical Depth	0.42	ft
Channel Slope	1.93	%
Critical Slope	0.00657	ft/ft

Cross Section for Section 19 - FULL STREET 100-YR (min%)

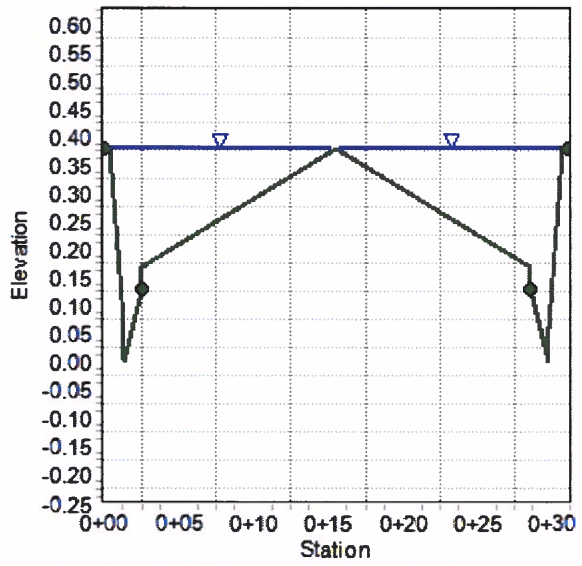
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	1.93	%
Normal Depth	0.38	ft
Discharge	11.75	ft³/s

Cross Section Image



Worksheet for Section 19 - FULL STREET 100-YR (max%)

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.40	%
Discharge	11.75	ft³/s

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.35	0.38
0+01.33	0.06
0+01.33	0.00
0+02.50	0.13
0+02.50	0.17
0+15.50	0.38
0+28.50	0.17
0+28.50	0.13
0+29.67	0.00
0+29.67	0.06
0+30.65	0.38
0+31.00	0.38

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 0.38)	(0+02.50, 0.13)	0.013
(0+02.50, 0.13)	(0+28.50, 0.13)	0.016
(0+28.50, 0.13)	(0+31.00, 0.38)	0.013

Options

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

Worksheet for Section 19 - FULL STREET 100-YR (max%)

Results

Normal Depth		0.36	ft
Elevation Range	0.00 to 0.38 ft		
Flow Area		3.33	ft²
Wetted Perimeter		28.61	ft
Hydraulic Radius		0.12	ft
Top Width		28.29	ft
Normal Depth		0.36	ft
Critical Depth		0.42	ft
Critical Slope		0.00656	ft/ft
Velocity		3.53	ft/s
Velocity Head		0.19	ft
Specific Energy		0.56	ft
Froude Number		1.82	
Flow Type	Supercritical		

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.36	ft
Critical Depth	0.42	ft
Channel Slope	2.40	%
Critical Slope	0.00656	ft/ft

Cross Section for Section 19 - FULL STREET 100-YR (max%)

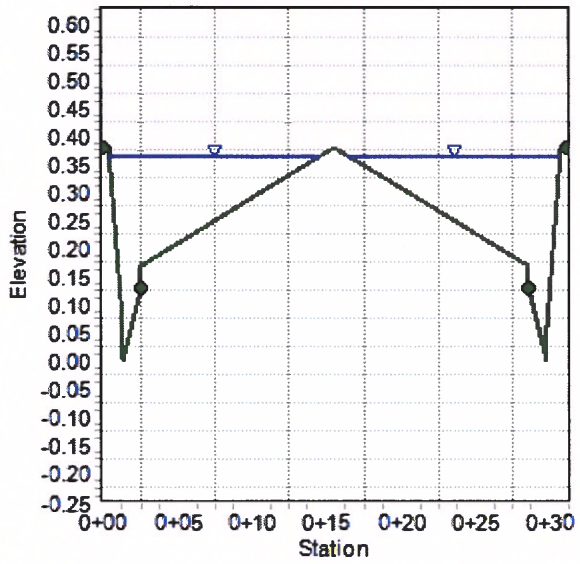
Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	2.40	%
Normal Depth	0.36	ft
Discharge	11.75	ft³/s

Cross Section Image



Drop Inlet Sizing Computations

Curb Inlet Sizing Computation

Westwood
Multi-Disciplined
Surveying & Engineering

Project Name & Number:	**PARCEL 3 AT SUNSTONE MODEL PHASE & PHASE 1**
Date:	**7/20/2020**
By:	**CAA & GNS**

	Notes:		
	Facility ID:	P2 & P3	
	Drainage Condition:	Ultimate	
	Source of Flow:	Q100 = Bypass at Section 19 + EAA3(g+o+p) + 1/2 of EAA3(f+l+r) + 1/3 of EAA4(cc)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	15.-ft	
	Number of Grates	5	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	11.3
	Longitudinal Slope (ft/ft)	S_o	0.0060
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	2.94
	Street Flow Depth (ft)	D	0.53
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	12.25
	Length of Curb Opening (ft)	L_c	14.50
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	6.1
	Effective Curb Opening Length (ft)	L_{ce}	7.25
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	15.33
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.21
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	2.31
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	8.9
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	18.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.55
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	7.3
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.043
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	3.996
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	18.31
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	2.4
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**9.5**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

Westwood
Multi-Disciplined
Surveying & Engineering

Project Name & Number:	**PARCEL 3 AT SUNSTONE MODEL PHASE & PHASE 1**
Date:	**7/20/2020**
By:	**CAA & GNS**

	Notes:		
	Facility ID:	P4	
	Drainage Condition:	Ultimate	
	Source of Flow:	Q100 = Bypass of Facility P2 + Bypass of Facility P3 + EAA3(s+q+t) + 1/4 of EAA3(r)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	12.5-ft	
	Number of Grates	4	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	7.0
	Longitudinal Slope (ft/ft)	S_o	0.0600
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	2.46
	Street Flow Depth (ft)	D	0.47
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	9.75
	Length of Curb Opening (ft)	L_c	12.00
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	4.9
	Effective Curb Opening Length (ft)	L_{ce}	6.00
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	10.19
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.24
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	1.70
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	5.3
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	15.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.50
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	4.4
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.047
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	2.639
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	29.04
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	0.9
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**5**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

Curb Inlet Sizing Computation

Westwood
Multi-Disciplined
Surveying & Engineering

Project Name & Number:	**PARCEL 3 AT SUNSTONE MODEL PHASE & PHASE 1**
Date:	**7/20/2020**
By:	**CAA & GNS**

	Notes:		
	Facility ID:	P6	
	Drainage Condition:	Ultimate	
	Source of Flow:	Q100 = Section 10 - Facility P4 + 1/2 of EAA3(r) + 1/3 of EAA4(cc)	
	Inlet Type:	Type CM2 (Continuous Grade)	
	Inlet Length:	20.-ft	
	Number of Grates	7	
	Input:	**Variable:**	**Input:**
	Street Flow (cfs)	Q	12.6
	Longitudinal Slope (ft/ft)	S_o	0.0280
	Manning's Coefficient	n	0.016
	Street Flow Velocity (fps)	V	4.83
	Street Flow Depth (ft)	D	0.43
	Street Cross Slope (ft/ft)	S_x	0.02
	Grate Width (ft)	W	1.5
	Grate Depression (in)	D_g	2.0
	Length of Grate (ft)	L_g	17.25
	Length of Curb Opening (ft)	L_c	19.50
	Clogging Factor - Grate (%)	CF_g	50%
	Clogging Factor - Curb (%)	CF_c	50%
	Effective Grate Length (ft)	L_{ge}	8.6
	Effective Curb Opening Length (ft)	L_{ce}	9.75
	Output (Grate):	**Equation:**	**Output (Grate):**
[1]	R_f - Frontal Flow Factor	1-0.09*(V-V_x) if V>V_x; else Frontal Flow Factor=1	1.00
[2]	V_o - Splash Over Velocity (fps)	V_x=p+q*Lg-r*L_{ge}^2+sy*L_{ge}^3 ; where	40.92
		p=0.30,q=4.85,r=1.31,sy=0.15 (for Vane Grate)	
[1]	E - Grate Flow Ratio	Frontal Flow/Side Flow	0.28
[2]	Q_w - Frontal Flow (cfs)	$Q_w = Q[1-(1-(W/T))^{2.67}]$	3.48
[1]	Q_s - Side Flow (cfs)	Q_s = Q-Qw	9.1
	T - Side Flow Spread (ft)	$(D-D_g)/S_x$	13.17
[1]	R_s - Side Flow Factor	$1/(1+(0.15*V^{1.8})/(S_x*L_{ge}^{2.3}))$	0.53
[1]	Q_{gi} - Intercepted Flow (cfs)	$(R_f*E+R_s*(1-E))*Q$	8.3
	Output (Curb):	**Equation:**	**Output (Curb):**
[1]	S_e - Equivalent Cross Slope (ft/ft)	S_x+S_g*E	0.051
	Q_{sx} - Remaining Flow After Grate Interception (cfs)	$Q-Q_{gi}$	4.320
	S_g - Gutter Cross Slope (ft/ft)	D_g/W	0.111
[1]	L_t - Effective Interception Length (ft)	$0.60*Q_{sx}^{0.42}*S_o^{0.30}*(1/n*S_e)^{0.6}$	27.16
[1]	Q_{ci} - Intercepted Flow (cfs)	$(1-(1-L_{ce}/L_t)^{1.8})*Q_{sx}$	2.4
		or Q_{sx} if L_t is less than L_{ce}	
	Output (Combination):	**Equation:**	**Output (Combination):**
	Total Intercepted Flow (cfs)	Intercepted (Grate) + Intercepted (Curb)	**11**
	Bypass Flow (cfs)	Street Flow - Total Intercepted Flow	**2**

[1] Formula referenced from the CCRFCD Manual

[2] Formula referenced from FHWA Urban Drainage Design Manual (HEC-22)

WSPGW Storm Drain Computations

Proposed Condition WSPG Summary

PHASE 1 MAIN STORM DRAIN FUTURE CONDITION DRAINAGE (PH1MP.WSW)

WSPG Station	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1 - 'HGL Check' reflects the minimum 1-ft below finished grade.										
1000.00	14+69.11	P-2	54" RCP	2724.07	93.00	2725.84	15.97	2740.44	Existing	OK
1061.18	14+07.94	P-2	54" RCP	2725.80	93.00	2727.72	14.37	2739.87	Junction with Facility X2 & X3	OK
1061.18	14+07.94	P-2	54" RCP	2725.80	88.00	2727.53	15.60	2739.87		OK
1217.01	12+70.47	P-2	54" RCP	2729.70	88.00	2732.45	8.65	2741.02	Junction with Facility P7	OK
1217.01	12+70.47	P-2	36" RCP	2729.70	77.00	2733.30	10.89	2741.02		OK
1496.60	9+90.88	P-2	36" RCP	2733.76	77.00	2735.78	15.18	2742.72	Junction with Facility P6	OK
1496.60	9+90.88	P-2	36" RCP	2733.76	77.00	2737.07	10.89	2742.72		OK
1625.27	20+34.2	P-3	36" RCP	2737.63	66.00	2739.91	11.46	2746.59		OK
1792.78	18+66.69	P-4	36" RCP	2739.42	66.00	2741.39	13.43	2748.41	Junction with Facility P4	OK
1792.78	18+66.69	P-4	36" RCP	2739.42	61.00	2741.15	14.45	2748.41		OK
1873.75	17+69.48	P-4	36" RCP	2740.41	61.00	2741.91	17.22	2749.30		OK
1890.74	17+69.48	P-4	4' x 8' RCB	2740.51	61.00	2741.95	10.63	2749.30	Facility P3 & Junction with Facility P2	OK
1898.24	17+61.98	P-4	4' x 8' RCB	2740.87	61.00	2742.80	7.89	2749.30		OK
1898.24	17+61.98	P-4	4' x 8' RCB	2740.87	42.00	2743.77	3.62	2749.30		OK
1905.74	17+54.48	P-4	30" RCP	2741.22	42.00	2743.70	8.57	2749.30		OK
1922.73	17+38.24	P-4	30" RCP	2741.32	42.00	2743.91	8.56	2749.54		OK
2149.57	15+11.4	P-4	30" RCP	2743.93	42.00	2745.79	10.73	2750.90		OK
2422.22	12+38.75	P-5	30" RCP	2747.44	42.00	2749.61	9.28	2753.65	Junction with PH1LP.WSW	OK
2422.22	12+38.75	P-5	24" RCP	2747.44	31.50	2750.85	10.03	2753.65		OK
2664.41	9+96.55	P-6	24" RCP	2750.11	31.50	2755.62	10.03	2759.36		OK
2729.32	9+31.64	P-6	24" RCP	2750.43	31.50	2756.88	10.03	2760.00		OK
2729.32	9+19.64	P-6	24" RCP	2750.43	31.50	2756.88	10.03	2760.00		OK

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T1 SHE1901: PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE UPDATE
T2 PHASE 1 MAIN STORM DRAIN FUTURE (PH1MF.WSW)
T3 FROM SUMP INLET TO EXISTING LATERAL STUB
SO   1000.0002724.070 54                        2725.830
R    1061.1802725.800 54      .013                                    0.0
JX   1061.1802725.800 54 18 18.013    4.0      1.0  2728.8002728.800-81.0 61.0
R    1217.0102729.700 54      .013                                    0.0
JX   1217.0102729.700 54 18   .013   11.0           2729.700        -89.0
R    1496.6002733.760 36      .013                                   -8.0
JX   1496.6002733.760 36 18   .013   11.0           2735.260          2.0
R    1625.2702737.630 36      .013                                   86.0   1
R    1792.7802739.420 36      .013                                    0.0
JX   1792.7802739.420 36 18   .013    5.0           2740.920        -60.0
R    1873.7502740.410 36      .013                                   17.0   1
R    1890.7402740.510 36      .013                                  -17.0
R    1898.2402740.865  1      .013                                    0.0
JX   1898.2402740.865  1  1 18.013    9.5      9.5  2740.8652741.910 90.0 58.0
R    1905.7402741.220  1      .013                                  -17.0
R    1922.7302741.320 30      .013                                   17.0   1
R    2149.5702743.930 30      .013                                    0.0   1
R    2422.2202747.440 30      .013                                    0.0
JX   2422.2202747.440 30 18   .013   10.5           2747.940         90.0
R    2664.4102750.110 24      .013                                    0.0   1
R    2729.3202750.430 24      .013
SH   2729.3202750.430 24
CD   1  3   0   0.000   8.000    4.000 0.000 0.000  0.0000.00  0.00
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
CD  30  4   1   0.000   2.500    0.000 0.000 0.000  0.0000.00  0.00
CD  36  4   1   0.000   3.000    0.000 0.000 0.000  0.0000.00  0.00
CD  42  4   1   0.000   3.500    0.000 0.000 0.000  0.0000.00  0.00
CD  48  4   1   0.000   4.000    0.000 0.000 0.000  0.0000.00  0.00
CD  54  4   1   0.000   4.500    0.000 0.000 0.000  0.0000.00  0.00
Q           31.500
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FILE: PH1MP.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 7-20-2020 Time: 7:57:34

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE 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	3	0	.000	8.000	4.000	.000	.000	.00										
CD	18	4	1		1.500														
CD	24	4	1		2.000														
CD	30	4	1		2.500														
CD	36	4	1		3.000														
CD	42	4	1		3.500														
CD	48	4	1		4.000														
CD	54	4	1		4.500														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
SHE1901: PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE UPDATE

HEADING LINE NO 2 IS -
PHASE 1 MAIN STORM DRAIN FUTURE (PH1MF.WSW)

HEADING LINE NO 3 IS -
FROM SUMP INLET TO EXISTING LATERAL STUB

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2724.070	54	2725.830

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1061.180	2725.800	54	.013	.000	.000	.000	0

ELEMENT NO 3 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1061.180	2725.800	54	18	18	.013	4.000	1.000	2728.800	2728.800	-81.000	61.000

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

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1217.010	2729.700	54	.013	.000	.000	.000	0

ELEMENT NO 5 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1217.010	2729.700	54	18	0	.013	11.000	.000	2729.700	.000	-89.000	.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
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1496.600	2733.760	36	.013	.000	.000	-8.000	0

ELEMENT NO 7 IS A JUNCTION * * * * * * * *

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                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                             1496.600 2733.760   36    18     0   .013    11.000      .000  2735.260      .000   2.000     .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
                                                W S P G W                                                    PAGE NO   3
                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
 ELEMENT NO   8 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             1625.270 2737.630   36               .013                            .000     .000    86.000     1
 ELEMENT NO   9 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             1792.780 2739.420   36               .013                            .000     .000      .000     0
 ELEMENT NO  10 IS A JUNCTION          *         *     *     *                 *                   *                *
                  U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                             1792.780 2739.420   36    18     0   .013     5.000      .000  2740.920      .000 -60.000     .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
 ELEMENT NO  11 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             1873.750 2740.410   36               .013                            .000     .000    17.000     1
 ELEMENT NO  12 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             1890.740 2740.510   36               .013                            .000     .000   -17.000     0
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
 ELEMENT NO  13 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             1898.240 2740.865    1                .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
                             1898.240 2740.865    1     1    18   .013     9.500     9.500  2740.865  2741.910  90.000   58.000
                                                                                                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
 ELEMENT NO  15 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             1905.740 2741.220    1                .013                            .000     .000   -17.000     0
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
 ELEMENT NO  16 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             1922.730 2741.320   30               .013                            .000     .000    17.000     1
                                                W S P G W                                                    PAGE NO   4
                          WATER SURFACE PROFILE - ELEMENT CARD LISTING
 ELEMENT NO  17 IS A REACH             *         *     *
                  U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                             2149.570 2743.930   30               .013                            .000     .000      .000     1
 ELEMENT NO  18 IS A REACH             *         *     *
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                    U/S DATA   STATION    INVERT  SECT              N                            RADIUS    ANGLE     ANG PT  MAN H
                               2422.220 2747.440   30              .013                             .000     .000      .000     0
 ELEMENT NO  19 IS A JUNCTION          *         *     *     *                *                *                *              *
                    U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                               2422.220 2747.440   30    18     0   .013    10.500      .000  2747.940      .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
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
 ELEMENT NO  20 IS A REACH             *         *     *
                    U/S DATA   STATION    INVERT  SECT              N                            RADIUS    ANGLE     ANG PT  MAN H
                               2664.410 2750.110   24              .013                             .000     .000      .000     1
 ELEMENT NO  21 IS A REACH             *         *     *
                    U/S DATA   STATION    INVERT  SECT              N                            RADIUS    ANGLE     ANG PT  MAN H
                               2729.320 2750.430   24              .013                             .000     .000      .000     0
 ELEMENT NO  22 IS A SYSTEM HEADWORKS                  *                      *
                    U/S DATA   STATION    INVERT  SECT                                    W S ELEV
                               2729.320 2750.430   24                                        .000
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SHE1901: PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE UPDATE
PHASE 1 MAIN STORM DRAIN FUTURE (PH1MF.WSW)
FROM SUMP INLET TO EXISTING LATERAL STUB

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
1000.000	2724.070	1.774	2725.844	93.00	15.97	3.96	2729.80	.00	2.83	4.40	4.500	.000	.00	1 .0
8.473	.0283					.0205	.17	1.77	2.44	1.63	.013	.00	.00	PIPE
1008.473	2724.310	1.787	2726.097	93.00	15.81	3.88	2729.98	.00	2.83	4.40	4.500	.000	.00	1 .0
30.946	.0283					.0190	.59	1.79	2.41	1.63	.013	.00	.00	PIPE
1039.419	2725.185	1.852	2727.037	93.00	15.07	3.53	2730.56	.00	2.83	4.43	4.500	.000	.00	1 .0
21.761	.0283					.0167	.36	1.85	2.25	1.63	.013	.00	.00	PIPE
1061.180	2725.800	1.920	2727.720	93.00	14.37	3.21	2730.93	.00	2.83	4.45	4.500	.000	.00	1 .0
JUNCT STR	.0000					.0180	.00	1.92	2.10		.013	.00	.00	PIPE
1061.180	2725.800	1.732	2727.531	88.00	15.60	3.78	2731.31	.00	2.75	4.38	4.500	.000	.00	1 .0
21.381	.0250					.0198	.42	1.73	2.42	1.64	.013	.00	.00	PIPE
1082.561	2726.335	1.755	2728.090	88.00	15.32	3.65	2731.74	.00	2.75	4.39	4.500	.000	.00	1 .0
38.991	.0250					.0182	.71	1.76	2.36	1.64	.013	.00	.00	PIPE
1121.553	2727.311	1.819	2729.130	88.00	14.61	3.31	2732.44	.00	2.75	4.42	4.500	.000	.00	1 .0
25.862	.0250					.0159	.41	1.82	2.20	1.64	.013	.00	.00	PIPE
1147.415	2727.958	1.885	2729.843	88.00	13.93	3.01	2732.86	.00	2.75	4.44	4.500	.000	.00	1 .0
18.551	.0250					.0140	.26	1.89	2.06	1.64	.013	.00	.00	PIPE
1165.965	2728.422	1.954	2730.377	88.00	13.28	2.74	2733.12	.00	2.75	4.46	4.500	.000	.00	1 .0
13.874	.0250					.0123	.17	1.95	1.92	1.64	.013	.00	.00	PIPE

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1179.839	2728.770	2.027	2730.796	88.00	12.66	2.49	2733.29	.00	2.75	4.48	4.500	.000	.00	1 .0
10.605	.0250					.0108	.11	2.03	1.79	1.64	.013	.00	.00	PIPE
1190.444	2729.035	2.102	2731.137	88.00	12.07	2.26	2733.40	.00	2.75	4.49	4.500	.000	.00	1 .0
8.157	.0250					.0095	.08	2.10	1.67	1.64	.013	.00	.00	PIPE
1198.601	2729.239	2.182	2731.421	88.00	11.51	2.06	2733.48	.00	2.75	4.50	4.500	.000	.00	1 .0
6.253	.0250					.0084	.05	2.18	1.56	1.64	.013	.00	.00	PIPE
1204.854	2729.396	2.265	2731.660	88.00	10.98	1.87	2733.53	.00	2.75	4.50	4.500	.000	.00	1 .0
4.705	.0250					.0074	.03	2.26	1.45	1.64	.013	.00	.00	PIPE
1209.559	2729.513	2.352	2731.865	88.00	10.47	1.70	2733.57	.00	2.75	4.50	4.500	.000	.00	1 .0
3.411	.0250					.0065	.02	2.35	1.35	1.64	.013	.00	.00	PIPE
1212.970	2729.599	2.443	2732.042	88.00	9.98	1.55	2733.59	.00	2.75	4.48	4.500	.000	.00	1 .0
2.298	.0250					.0057	.01	2.44	1.25	1.64	.013	.00	.00	PIPE
1215.268	2729.656	2.539	2732.195	88.00	9.51	1.41	2733.60	.00	2.75	4.46	4.500	.000	.00	1 .0
1.316	.0250					.0051	.01	2.54	1.16	1.64	.013	.00	.00	PIPE
1216.584	2729.689	2.641	2732.330	88.00	9.07	1.28	2733.61	.00	2.75	4.43	4.500	.000	.00	1 .0
.426	.0250					.0045	.00	2.64	1.08	1.64	.013	.00	.00	PIPE
1217.010	2729.700	2.749	2732.449	88.00	8.65	1.16	2733.61	.00	2.75	4.39	4.500	.000	.00	1 .0
JUNCT STR	.0000					.0029	.00	2.75	1.00		.013	.00	.00	PIPE

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1217.010	2729.700	3.595	2733.295	77.00	10.89	1.84	2735.14	.00	2.74	.00	3.000	.000	.00	1 .0
218.169	.0145					.0133	2.91	3.60	.00	2.35	.013	.00	.00	PIPE
1435.179	2732.868	3.370	2736.239	77.00	10.89	1.84	2738.08	.00	2.74	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1435.179	2732.868	2.132	2735.001	77.00	14.33	3.19	2738.19	.00	2.74	2.72	3.000	.000	.00	1 .0
17.233	.0145					.0185	.32	2.13	1.80	2.35	.013	.00	.00	PIPE
1452.413	2733.118	2.112	2735.231	77.00	14.48	3.25	2738.49	.00	2.74	2.74	3.000	.000	.00	1 .0
44.187	.0145					.0199	.88	2.11	1.83	2.35	.013	.00	.00	PIPE
1496.600	2733.760	2.023	2735.783	77.00	15.18	3.58	2739.36	.00	2.74	2.81	3.000	.000	.00	1 .0
HYDRAULIC DROP														
1496.600	2733.760	3.310	2737.070	77.00	10.89	1.84	2738.91	.00	2.74	.00	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0116	.00	3.31	.00		.013	.00	.00	PIPE
1496.600	2733.760	3.987	2737.747	66.00	9.34	1.35	2739.10	.00	2.60	.00	3.000	.000	.00	1 .0
15.803	.0301					.0098	.15	3.99	.00	1.62	.013	.00	.00	PIPE
1512.403	2734.235	3.761	2737.996	66.00	9.34	1.35	2739.35	.00	2.60	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1512.403	2734.235	1.729	2735.964	66.00	15.65	3.80	2739.77	.00	2.60	2.96	3.000	.000	.00	1 .0
23.165	.0301					.0238	.55	1.73	2.31	1.62	.013	.00	.00	PIPE

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 7-20-2020 Time: 7:57:36

SHE1901: PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE UPDATE
PHASE 1 MAIN STORM DRAIN FUTURE (PH1MF.WSW)
FROM SUMP INLET TO EXISTING LATERAL STUB

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
1535.568	2734.932	1.766	2736.698	66.00	15.25	3.61	2740.31	.00	2.60	2.95	3.000	.000	.00	1 .0
30.520	.0301				.0217	.66	1.77	2.22	1.62	.013	.00	.00	PIPE	
1566.088	2735.850	1.838	2737.688	66.00	14.54	3.28	2740.97	.00	2.60	2.92	3.000	.000	.00	1 .0
20.421	.0301				.0192	.39	1.84	2.06	1.62	.013	.00	.00	PIPE	
1586.509	2736.464	1.914	2738.378	66.00	13.86	2.98	2741.36	.00	2.60	2.88	3.000	.000	.00	1 .0
14.569	.0301				.0170	.25	1.91	1.90	1.62	.013	.00	.00	PIPE	
1601.077	2736.902	1.996	2738.898	66.00	13.22	2.71	2741.61	.00	2.60	2.83	3.000	.000	.00	1 .0
10.686	.0301				.0152	.16	2.00	1.75	1.62	.013	.00	.00	PIPE	
1611.763	2737.224	2.083	2739.306	66.00	12.60	2.47	2741.77	.00	2.60	2.76	3.000	.000	.00	1 .0
7.864	.0301				.0135	.11	2.08	1.61	1.62	.013	.00	.00	PIPE	
1619.627	2737.460	2.177	2739.637	66.00	12.01	2.24	2741.88	.00	2.60	2.68	3.000	.000	.00	1 .0
5.643	.0301				.0121	.07	2.18	1.48	1.62	.013	.00	.00	PIPE	
1625.270	2737.630	2.279	2739.909	66.00	11.46	2.04	2741.95	.00	2.60	2.56	3.000	.000	.00	1 .0
32.894	.0107				.0117	.38	2.28	1.35	2.35	.013	.00	.00	PIPE	
1658.164	2737.981	2.243	2740.224	66.00	11.65	2.11	2742.33	.00	2.60	2.61	3.000	.000	.00	1 .0
59.566	.0107				.0126	.75	2.24	1.39	2.35	.013	.00	.00	PIPE	
1717.730	2738.618	2.144	2740.761	66.00	12.21	2.32	2743.08	.00	2.60	2.71	3.000	.000	.00	1 .0
41.651	.0107				.0141	.59	2.14	1.52	2.35	.013	.00	.00	PIPE	

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 7-20-2020 Time: 7:57:36

SHE1901: PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE UPDATE
PHASE 1 MAIN STORM DRAIN FUTURE (PH1MF.WSW)
FROM SUMP INLET TO EXISTING LATERAL STUB

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	

1759.381	2739.063	2.052	2741.115	66.00	12.81	2.55	2743.66	.00	2.60	2.79	3.000	.000	.00	1 .0
33.399	.0107					.0158	.53	2.05	1.66	2.35	.013	.00	.00	PIPE
1792.780	2739.420	1.967	2741.387	66.00	13.43	2.80	2744.19	.00	2.60	2.85	3.000	.000	.00	1 .0
JUNCT STR	.0000					.0188	.00	1.97	1.80		.013	.00	.00	PIPE
1792.780	2739.420	1.730	2741.150	61.00	14.45	3.24	2744.39	.00	2.52	2.96	3.000	.000	.00	1 .0
17.832	.0122					.0219	.39	1.73	2.13	2.08	.013	.00	.00	PIPE
1810.612	2739.638	1.685	2741.323	61.00	14.93	3.46	2744.78	.00	2.52	2.98	3.000	.000	.00	1 .0
23.336	.0122					.0243	.57	1.68	2.25	2.08	.013	.00	.00	PIPE
1833.948	2739.923	1.621	2741.544	61.00	15.66	3.81	2745.35	.00	2.52	2.99	3.000	.000	.00	1 .0
20.854	.0122					.0276	.57	1.62	2.42	2.08	.013	.00	.00	PIPE
1854.802	2740.178	1.560	2741.739	61.00	16.42	4.19	2745.92	.00	2.52	3.00	3.000	.000	.00	1 .0
18.948	.0122					.0313	.59	1.56	2.60	2.08	.013	.00	.00	PIPE
1873.750	2740.410	1.503	2741.913	61.00	17.22	4.61	2746.52	.00	2.52	3.00	3.000	.000	.00	1 .0
3.427	.0059					.0338	.12	1.50	2.79	3.00	.013	.00	.00	PIPE
1877.177	2740.430	1.489	2741.919	61.00	17.42	4.71	2746.63	.00	2.52	3.00	3.000	.000	.00	1 .0
13.563	.0059					.0366	.50	1.49	2.84	3.00	.013	.00	.00	PIPE
1890.740	2740.510	1.435	2741.945	61.00	10.63	1.75	2743.70	.00	1.93	4.00	8.000	4.000	.00	0 .0
.670	.0473					.0108	.01	1.43	1.56	.86	.013	.00	.00	BOX

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
1891.410	2740.542	1.452	2741.993	61.00	10.50	1.71	2743.71	.00	1.93	4.00	8.000	4.000	.00	0 .0

```
    2.274    .0473                                        .0100      .02     1.45    1.54     .86    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1893.684  2740.649    1.523  2742.172     61.00   10.02    1.56  2743.73     .00    1.93    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
    1.745    .0473                                        .0088      .02     1.52    1.43     .86    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1895.429  2740.732    1.597  2742.329     61.00    9.55    1.42  2743.74     .00    1.93    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
    1.281    .0473                                        .0077      .01     1.60    1.33     .86    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1896.710  2740.792    1.675  2742.467     61.00    9.11    1.29  2743.75     .00    1.93    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
     .870    .0473                                        .0067      .01     1.67    1.24     .86    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1897.579  2740.834    1.757  2742.590     61.00    8.68    1.17  2743.76     .00    1.93    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
     .499    .0473                                        .0059      .00     1.76    1.15     .86    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1898.078  2740.857    1.842  2742.700     61.00    8.28    1.06  2743.76     .00    1.93    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
     .162    .0473                                        .0052      .00     1.84    1.07     .86    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1898.240  2740.865    1.933  2742.798     61.00    7.89     .97  2743.76     .00    1.93    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
JUNCT STR   .0000                                        .0028      .00    1.93    1.00             .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1898.240  2740.865    2.900  2743.765     42.00    3.62     .20  2743.97     .00    1.51    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
    2.465    .0473                                        .0009      .00     2.90     .37     .67    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1900.705  2740.982    2.765  2743.746     42.00    3.80     .22  2743.97     .00    1.51    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
    2.292    .0473                                        .0010      .00     2.76     .40     .67    .013       .00   .00  BOX
```


Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 7-20-2020 Time: 7:57:36

SHE1901: PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE UPDATE
PHASE 1 MAIN STORM DRAIN FUTURE (PH1MF.WSW)
FROM SUMP INLET TO EXISTING LATERAL STUB

```
         | Invert |  Depth |  Water |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev  |  (FT)  |  Elev  |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
         |        |        |        |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
 L/Elem  |Ch Slope|        |        |         |               |         |       |        |        |       |       |      |
*********|********|********|********|*********|*******|*******|*********|*******|********|********|*******|*******|******|*******
         |        |        |        |         |               |         |       |        |        |       |       |      |
 1902.997  2741.090    2.636  2743.726     42.00    3.98     .25  2743.97     .00    1.51    4.00    8.000    4.000   .00   0   .0
       -|-      -|-      -|-      -|-      -|-     -|-     -|-      -|-     -|-     -|-     -|-     -|-     -|-     -|-     |-
    2.120    .0473                                        .0011      .00     2.64     .43     .67    .013       .00   .00  BOX
         |        |        |        |        |             |        |       |       |       |       |       |       |
 1905.117  2741.190    2.513  2743.704     42.00    4.18     .27  2743.97     .00    1.51    4.00    8.000    4.000   .00   0   .0
```

.623	.0473				.0012	.00	2.51	.46	.67	.013	.00	.00	BOX			
1905.740	2741.220	2.476	2743.697	42.00	8.57	1.14	2744.84	.00	2.17	.48	2.500	.000	.00	1	.0	
5.117	.0059				.0098	.05	2.48	.47	2.50	.013	.00	.00	PIPE			
1910.857	2741.250	2.500	2743.750	42.00	8.56	1.14	2744.89	.00	2.17	.00	2.500	.000	.00	1	.0	
11.873	.0059				.0102	.12	2.50	.00	2.50	.013	.00	.00	PIPE			
1922.730	2741.320	2.594	2743.914	42.00	8.56	1.14	2745.05	.00	2.17	.00	2.500	.000	.00	1	.0	
122.300	.0115				.0104	1.27	2.59	.00	1.95	.013	.00	.00	PIPE			
2045.030	2742.727	2.500	2745.227	42.00	8.56	1.14	2746.36	.00	2.17	.00	2.500	.000	.00	1	.0	
30.390	.0115				.0098	.30	2.50	.00	1.95	.013	.00	.00	PIPE			
2075.420	2743.077	2.426	2745.503	42.00	8.63	1.16	2746.66	.00	2.17	.85	2.500	.000	.00	1	.0	
HYDRAULIC JUMP																
2075.420	2743.077	1.913	2744.990	42.00	10.42	1.69	2746.68	.00	2.17	2.12	2.500	.000	.00	1	.0	
74.150	.0115				.0125	.92	1.91	1.33	1.95	.013	.00	.00	PIPE			
2149.570	2743.930	1.858	2745.788	42.00	10.73	1.79	2747.58	.00	2.17	2.18	2.500	.000	.00	1	.0	
16.407	.0129				.0129	.21	1.86	1.41	1.86	.013	.00	.00	PIPE			

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 7-20-2020 Time: 7:57:36

SHE1901: PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE UPDATE
PHASE 1 MAIN STORM DRAIN FUTURE (PH1MF.WSW)
FROM SUMP INLET TO EXISTING LATERAL STUB

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
2165.977	2744.141	1.858	2746.000	42.00	10.73	1.79	2747.79	.00	2.17	2.18	2.500	.000	.00	1 .0
122.352	.0129				.0128	1.57	1.86	1.41	1.86	.013	.00	.00	PIPE	
2288.329	2745.716	1.862	2747.578	42.00	10.71	1.78	2749.36	.00	2.17	2.18	2.500	.000	.00	1 .0
102.917	.0129				.0122	1.25	1.86	1.41	1.86	.013	.00	.00	PIPE	

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 2391.246  2747.041    1.952  2748.993     42.00   10.21    1.62  2750.61     .00    2.17     2.07    2.500     .000   .00   1   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-     -|-     |-
   24.802    .0129                                          .0110      .27     1.95    1.28     1.86    .013       .00   .00  PIPE
       |         |        |         |         |              |         |        |       |        |        |       |       |       |
 2416.048  2747.361    2.053  2749.413     42.00    9.74    1.47  2750.89     .00    2.17     1.92    2.500     .000   .00   1   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-     -|-     |-
    6.172    .0129                                          .0100      .06     2.05    1.14     1.86    .013       .00   .00  PIPE
       |         |        |         |         |              |         |        |       |        |        |       |       |       |
 2422.220  2747.440    2.170  2749.610     42.00    9.28    1.34  2750.95     .00    2.17     1.69    2.500     .000   .00   1   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-     -|-     |-
JUNCT STR   .0000                                          .0077      .00    2.17    1.00             .013       .00   .00  PIPE
       |         |        |         |         |              |         |        |       |        |        |       |       |       |
 2422.220  2747.440    3.406  2750.845     31.50   10.03    1.56  2752.41     .00    1.88      .00    2.000     .000   .00   1   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-     -|-     |-
  242.190    .0110                                          .0194     4.70     3.41     .00    2.00    .013       .00   .00  PIPE
       |         |        |         |         |              |         |        |       |        |        |       |       |       |
 2664.410  2750.110    5.509  2755.619     31.50   10.03    1.56  2757.18     .00    1.88      .00    2.000     .000   .00   1   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-     -|-     |-
   64.910    .0049                                          .0194     1.26     5.51     .00    2.00    .013       .00   .00  PIPE
       |         |        |         |         |              |         |        |       |        |        |       |       |       |
 2729.320  2750.430    6.448  2756.878     31.50   10.03    1.56  2758.44     .00    1.88      .00    2.000     .000   .00   1   .0
       -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-      -|-     -|-     -|-     |-
```

Proposed Condition WSPG Summary

PHASE 1 LATERAL 1 STORM DRAIN PROPOSED CONDITION DRAINAGE (PH1L1.WSW)

WSPG Station	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1 - 'HGL Check' reflects the minimum 1-ft below finished grade.										
1000.00	2+64.53	SD-2	24" RCP	2747.44	10.60	2750.85	3.37	2753.65	Connection to Mainline	OK
1103.50	1+61.03	SD-2	18" RCP	2749.56	10.60	2750.91	4.72	2754.88	Facility PL3	OK
1103.50	1+61.03	SD-2	4' x 8' RCB	2749.56	10.60	2751.41	1.43	2754.88		OK
1106.00	1+59.03	SD-2	4' x 8' RCB	2749.61	10.10	2751.42	1.40	2754.88		OK
1106.00	1+59.03	SD-2	4' x 8' RCB	2749.61	10.10	2751.42	1.40	2754.88		OK
1108.50	1+57.03	SD-2	4' x 8' RCB	2749.66	10.10	2751.42	1.44	2754.88		OK
1108.50	1+57.03	SD-2	18" RCP	2749.66	10.10	2751.42	5.72	2754.88		OK
1165.53	1+28.62	SD-2	18" RCP	2749.96	10.10	2751.96	5.72	2754.25	Facility PL2	OK
1165.53	1+28.62	SD-2	4' x 8' RCB	2749.96	10.10	2752.45	1.01	2754.25		OK
1168.03	1+28.62	SD-2	4' x 8' RCB	2750.01	10.00	2752.45	1.02	2754.25		OK
1168.03	1+28.62	SD-2	4' x 8' RCB	2750.01	10.00	2752.45	1.02	2754.25		OK
1170.53	1+28.62	SD-2	4' x 8' RCB	2750.06	10.00	2752.45	1.04	2754.25		OK
1170.53	1+28.62	SD-2	18" RCP	2750.06	10.00	2752.45	5.66	2754.25		OK
1199.15	1+00.	SD-2	18" RCP	2750.35	10.00	2752.71	5.66	2754.02	Facility PL1	OK
1199.15	1+00.	SD-2	18" RCP	2750.35	10.00	2752.71	5.66	2754.02		OK

```
T1 SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
T2 PHASE 1 LATERAL STORM DRAIN (PH1L.WSW)
T3 FROM FACILITY P1A TO MAINLINE
SO   1000.0002747.440 24                        2750.845
R    1103.5002749.560 24      .013
WE   1103.5002749.560  2      .013
R    1106.0002749.610  2      .013
JX   1106.0002749.610  2  2   .013    0.5           2749.610            90.0
R    1108.5002749.660  2      .013
WX   1108.5002749.660 18      .013
R    1165.5302749.960 18      .013                                       7.0
WE   1165.5302749.960  2      .013
R    1168.0302750.010  2      .013
JX   1168.0302750.010  2  2   .013    0.1           2750.010            90.0
R    1170.5302750.060  2      .013                                      59.0
WX   1170.5302750.060  2      .013
R    1199.1502750.350 18      .013
SH   1199.1502750.350 18
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
CD   2  2   0   0.000   8.000    4.000 0.000 0.000  0.0000.00  0.00
CD  24  4   1   0.000   2.000    0.000 0.000 0.000  0.0000.00  0.00
Q            10.000
```

FILE: PH1L1.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 7-20-2020 Time:10: 9:52

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE 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	18	4	1		1.500														
CD	2	2	0	.000	8.000	4.000			.00										
CD	24	4	1		2.000														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
HEADING LINE NO 2 IS -
PHASE 1 LATERAL STORM DRAIN (PH1L.WSW)
HEADING LINE NO 3 IS -
FROM FACILITY P1A TO MAINLINE

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2747.440	24	2750.845

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1103.500	2749.560	24	.013	.000	.000	.000	0

ELEMENT NO 3 IS A WALL ENTRANCE *

U/S DATA	STATION	INVERT	SECT	FP
	1103.500	2749.560	2	.013

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1106.000	2749.610	2	.013	.000	.000	.000	0

ELEMENT NO 5 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1106.000	2749.610	2	2	0	.013	.500	.000	2749.610	.000	.900	.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

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1108.500	2749.660	2	.013	.000	.000	.000	0

ELEMENT NO 7 IS A WALL EXIT *

U/S DATA	STATION	INVERT	SECT
	1108.500	2749.660	18

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1165.530	2749.960	18	.013	.000	.000	7.000	0

ELEMENT NO 9 IS A WALL ENTRANCE *

U/S DATA	STATION	INVERT	SECT	FP
	1165.530	2749.960	2	.013

ELEMENT NO 10 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H

```
                          1168.030 2750.010    2              .013                          .000     .000      .000     0
 ELEMENT NO  11 IS A JUNCTION          *         *     *     *                *                *                *
                    U/S DATA   STATION    INVERT  SECT LAT-1 LAT-2   N      Q3        Q4     INVERT-3 INVERT-4  PHI 3  PHI 4
                          1168.030 2750.010    2     2     0   .013      .100      .000  2750.010      .000    .900     .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
                                                W S P G W                                                    PAGE NO   3
                              WATER SURFACE PROFILE - ELEMENT CARD LISTING
 ELEMENT NO  12 IS A REACH             *         *     *
                    U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                          1170.530 2750.060    2              .013                            .000     .000    59.000     0
 ELEMENT NO  13 IS A  WALL  EXIT                       *
                    U/S DATA   STATION    INVERT  SECT
                          1170.530 2750.060    2
WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS
 ELEMENT NO  14 IS A REACH             *         *     *
                    U/S DATA   STATION    INVERT  SECT               N                           RADIUS    ANGLE     ANG PT  MAN H
                          1199.150 2750.350   18              .013                            .000     .000      .000     0
 ELEMENT NO  15 IS A SYSTEM HEADWORKS                  *                     *
                    U/S DATA   STATION    INVERT  SECT                                  W S ELEV
                          1199.150 2750.350   18                                        .000
```

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
PHASE 1 LATERAL STORM DRAIN (PH1L.WSW)
FROM FACILITY P1A TO MAINLINE

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
1000.000	2747.440	3.405	2750.845	10.60	3.37	.18	2751.02	.00	1.17	.00	2.000	.000	.00	1 .0
76.825	.0205					.0022	.17	3.41	.00	.79	.013	.00	.00	PIPE
1076.825	2749.014	2.000	2751.014	10.60	3.37	.18	2751.19	.00	1.17	.00	2.000	.000	.00	1 .0
9.037	.0205					.0020	.02	2.00	.00	.79	.013	.00	.00	PIPE
1085.862	2749.199	1.815	2751.013	10.60	3.54	.19	2751.21	.00	1.17	1.16	2.000	.000	.00	1 .0
4.771	.0205					.0020	.01	1.81	.39	.79	.013	.00	.00	PIPE
1090.634	2749.296	1.707	2751.003	10.60	3.71	.21	2751.22	.00	1.17	1.41	2.000	.000	.00	1 .0
3.677	.0205					.0022	.01	1.71	.46	.79	.013	.00	.00	PIPE
1094.311	2749.372	1.618	2750.990	10.60	3.89	.24	2751.23	.00	1.17	1.57	2.000	.000	.00	1 .0
2.996	.0205					.0024	.01	1.62	.52	.79	.013	.00	.00	PIPE
1097.307	2749.433	1.540	2750.973	10.60	4.08	.26	2751.23	.00	1.17	1.68	2.000	.000	.00	1 .0
2.471	.0205					.0026	.01	1.54	.58	.79	.013	.00	.00	PIPE
1099.777	2749.484	1.470	2750.954	10.60	4.28	.28	2751.24	.00	1.17	1.77	2.000	.000	.00	1 .0
2.030	.0205					.0029	.01	1.47	.64	.79	.013	.00	.00	PIPE
1101.807	2749.525	1.406	2750.931	10.60	4.49	.31	2751.24	.00	1.17	1.83	2.000	.000	.00	1 .0
1.627	.0205					.0033	.01	1.41	.70	.79	.013	.00	.00	PIPE
1103.434	2749.559	1.347	2750.906	10.60	4.71	.34	2751.25	.00	1.17	1.88	2.000	.000	.00	1 .0
.066	.0205					.0035	.00	1.35	.76	.79	.013	.00	.00	PIPE

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
PHASE 1 LATERAL STORM DRAIN (PH1L.WSW)
FROM FACILITY P1A TO MAINLINE

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
1103.500	2749.560	1.344	2750.905	10.60	4.72	.35	2751.25	.00	1.17	1.88	2.000	.000	.00	1 .0
WALL	ENTRANCE													
1103.500	2749.560	1.853	2751.413	10.60	1.43	.03	2751.45	.00	.60	4.00	8.000	4.000	.00	0 .0
2.500	.0200					.0002	.00	1.85	.19	.36	.013	.00	.00	RECTANG
JUNCT STR	.0000					.0002	.00	1.80	.19		.013	.00	.00	RECTANG
1106.000	2749.610	1.808	2751.418	10.10	1.40	.03	2751.45	.00	.58	4.00	8.000	4.000	.00	0 .0
2.500	.0199					.0002	.00	1.81	.18	.35	.013	.00	.00	RECTANG
1108.500	2749.660	1.757	2751.417	10.10	1.44	.03	2751.45	.00	.58	4.00	8.000	4.000	.00	0 .0
WALL	EXIT													
1108.500	2749.660	1.757	2751.417	10.10	5.72	.51	2751.92	.00	1.22	.00	1.500	.000	.00	1 .0
57.030	.0053					.0092	.53	1.76	.00	1.50	.013	.00	.00	PIPE
1165.530	2749.960	1.996	2751.956	10.10	5.72	.51	2752.46	.00	1.22	.00	1.500	.000	.00	1 .0
WALL	ENTRANCE													
1165.530	2749.960	2.494	2752.454	10.10	1.01	.02	2752.47	.00	.58	4.00	8.000	4.000	.00	0 .0
2.500	.0200					.0001	.00	2.49	.11	.35	.013	.00	.00	RECTANG
JUNCT STR	.0000					.0001	.00	2.44	.12		.013	.00	.00	RECTANG

Program Package Serial Number: 7189
WATER SURFACE PROFILE LISTING Date: 7-20-2020 Time:10: 9:56

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
PHASE 1 LATERAL STORM DRAIN (PH1L.WSW)
FROM FACILITY P1A TO MAINLINE

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

```
1168.030  2750.010    2.444  2752.454     10.00    1.02     .02  2752.47     .00     .58     4.00    8.000    4.000   .00   0   .0
   2.500    .0200                                    .0001      .00     2.44     .12     .35    .013       .00   .00  RECTANG
1170.530  2750.060    2.394  2752.454     10.00    1.04     .02  2752.47     .00     .58     4.00    8.000    4.000   .00   0   .0
WALL  EXIT
1170.530  2750.060    2.394  2752.454     10.00    5.66     .50  2752.95     .00    1.22      .00    1.500     .000   .00   1   .0
  28.620    .0101                                    .0091      .26     2.39     .00    1.16    .013       .00   .00  PIPE
1199.150  2750.350    2.363  2752.713     10.00    5.66     .50  2753.21     .00    1.22      .00    1.500     .000   .00   1   .0
```

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE

PHASE 1 LATERAL STORM DRAIN (PH1L.WSW)

FROM FACILITY P1A TO MAINLINE

```
1000.00    .I         C       H             WE                                                          .    R
1004.06    .                                                                                           .
1008.13    .                                                                                           .
1012.19    .                                                                                           .
1016.26    .                                                                                           .
1020.32    .                                                                                           .
1024.39    .                                                                                           .
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1028.45    .                                                                .
1032.51    .                                                                .
1036.58    .                                                                .
1040.64    .                                                                .
1044.71    .                                                                .
1048.77    .                                                                .
1052.84    .                                                                .
1056.90    .                                                                .
1060.96    .                                                                .
1065.03    .                                                                .
1069.09    .                                                                .
1073.16    .                                                                .
1077.22    .             I          C       H E                             .    R
1081.29    .                                                                .
1085.35    .                                                                .
1089.41    .               I          C     W H                             .    R
1093.48    .                I         C     W EH                            .    R
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1097.54    .                I         C   W E H                                                                .    R

1101.61    .                I         C   W E H                                                                .    R

1105.67    .                 I         C  W E  H                                                               .    R

1109.74    .                 I         C W  E  H                                                               .    R

1113.80    .                 I         C W  E  H                                                               .    R

1117.86    .                 IYYYYYYYYYYCYWYYEYYH                                                              .    WE

1121.93    .                 I    C          W                                                        H     .    R

1125.99    .                  I   C          W                                                        H     .    R

1130.06    .                  IYYYYYCYYYYYYYYYYWYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYH    .    WX

1134.12    .                  I          C  H W   E                                                            .    R

1138.19    .                                                                                                 .

1142.25    .                                                                                                 .

1146.31    .                                                                                                 .

1150.38    .                                                                                                 .

1154.44    .                                                                                                 .

1158.51    .                                                                                                 .

1162.57    .                                                                                                 .
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   1166.64    .                      IYYYYYYYYYYYCYH    W    E                                                    .    WE

   1170.70    .                      I     C               W                                                  H .    R

   1174.76    .                       I    C               W                                                  H .    R

   1178.83    .                       IYYYYYCYYYYYYYYYYYYYYYYWYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYH.    WX

   1182.89    .                       I          C H       W   E                                                .    R

   1186.96    .                                                                                                   .

   1191.02    .                                                                                                   .

   1195.09    .                                                                                                   .

   1199.15    .                          I         C  H      W    E                                              .    R

            2747.440  2748.502  2749.564  2750.626  2751.688  2752.750  2753.812  2754.874  2755.936  2756.998  2758.060
```

N O T E S
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

Proposed Condition WSPG Summary

PHASE 1 LATERAL 2 STORM DRAIN PROPOSED CONDITION DRAINAGE (PH1L2.WSW)

WSPG Station	Equivalent Roadway Station	Improvement Plan Sheet	Storm Drain Dimension	Invert Elevation (ft)	Q_{100} (cfs)	WSE (ft)	Velocity (ft/s)	FG Elevation	Facility Description	HGL Check[1]
1 - 'HGL Check' reflects the minimum 1-ft below finished grade.										
1000.00	12+70.47	P-1	18" RCP	2729.70	11.00	2733.30	6.22	2741.02	Connection to Mainline	OK
1066.06	15+52.74	P-1	18" RCP	2732.56	11.00	2733.12	18.44	2741.26		OK
1116.80	15+02.	P-1	18" RCP	2740.55	11.00	2741.82	6.89	2743.65	Facility P7	OK
1116.80	15+02.	P-1	18" RCP	2740.55	11.00	2741.82	6.89	2743.65		OK

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T1 SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
T2 PHASE 1 LATERAL 2 STORM DRAIN (PH1L2.WSW)
T3 FROM FACILITY P7 TO MAINLINE
SO   1000.0002729.700 18                          2733.295
R    1066.0602732.560 18      .013                                          1
R    1116.8002740.550 18      .013
SH   1116.8002740.550 18
CD  18  4   1   0.000   1.500    0.000 0.000 0.000  0.0000.00  0.00
Q            11.000
```

FILE: PH1L2.WSW W S P G W - EDIT LISTING - Version 14.10 Date: 7-20-2020 Time:10:10:16

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE 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	18	4	1		1.500														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
HEADING LINE NO 2 IS -
PHASE 1 LATERAL 2 STORM DRAIN (PH1L2.WSW)
HEADING LINE NO 3 IS -
FROM FACILITY P7 TO MAINLINE

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	2729.700	18	2733.295

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1066.060	2732.560	18	.013	.000	.000	.000	1

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1116.800	2740.550	18	.013	.000	.000	.000	0

ELEMENT NO 4 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1116.800	2740.550	18	.000

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
PHASE 1 LATERAL 2 STORM DRAIN (PH1L2.WSW)
FROM FACILITY P7 TO MAINLINE

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
1000.000	2729.700	3.595	2733.295	11.00	6.22	.60	2733.90	.00	1.27	.00	1.500	.000	.00	1 .0
32.602	.0433					.0110	.36	3.59	.00	.75	.013	.00	.00	PIPE
1032.602	2731.112	2.554	2733.666	11.00	6.22	.60	2734.27	.00	1.27	.00	1.500	.000	.00	1 .0
HYDRAULIC JUMP														
1032.602	2731.112	.649	2731.761	11.00	15.01	3.50	2735.26	.00	1.27	1.49	1.500	.000	.00	1 .0
4.024	.0433					.0741	.30	.65	3.77	.75	.013	.00	.00	PIPE
1036.626	2731.286	.642	2731.927	11.00	15.24	3.61	2735.53	.00	1.27	1.48	1.500	.000	.00	1 .0
8.992	.0433					.0809	.73	.64	3.85	.75	.013	.00	.00	PIPE
1045.618	2731.675	.619	2732.294	11.00	15.98	3.97	2736.26	.00	1.27	1.48	1.500	.000	.00	1 .0
7.681	.0433					.0921	.71	.62	4.13	.75	.013	.00	.00	PIPE
1053.299	2732.008	.597	2732.605	11.00	16.76	4.36	2736.97	.00	1.27	1.47	1.500	.000	.00	1 .0
6.737	.0433					.1049	.71	.60	4.42	.75	.013	.00	.00	PIPE
1060.036	2732.299	.577	2732.876	11.00	17.58	4.80	2737.67	.00	1.27	1.46	1.500	.000	.00	1 .0
6.025	.0433					.1196	.72	.58	4.73	.75	.013	.00	.00	PIPE
1066.060	2732.560	.557	2733.116	11.00	18.44	5.28	2738.39	.00	1.27	1.45	1.500	.000	.00	1 .0
8.699	.1575					.1224	1.06	.56	5.06	.53	.013	.00	.00	PIPE
1074.759	2733.930	.569	2734.499	11.00	17.89	4.97	2739.47	.00	1.27	1.46	1.500	.000	.00	1 .0
9.126	.1575					.1102	1.01	.57	4.85	.53	.013	.00	.00	PIPE

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
PHASE 1 LATERAL 2 STORM DRAIN (PH1L2.WSW)
FROM FACILITY P7 TO MAINLINE

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
1083.885	2735.367	.590	2735.956	11.00	17.06	4.52	2740.48	.00	1.27	1.47	1.500	.000	.00	1 .0
6.408	.1575					.0967	.62	.59	4.53	.53	.013	.00	.00	PIPE
1090.293	2736.376	.611	2736.987	11.00	16.27	4.11	2741.10	.00	1.27	1.47	1.500	.000	.00	1 .0
4.838	.1575					.0849	.41	.61	4.23	.53	.013	.00	.00	PIPE
1095.131	2737.138	.633	2737.771	11.00	15.51	3.74	2741.51	.00	1.27	1.48	1.500	.000	.00	1 .0
3.814	.1575					.0745	.28	.63	3.95	.53	.013	.00	.00	PIPE
1098.945	2737.738	.657	2738.395	11.00	14.79	3.40	2741.79	.00	1.27	1.49	1.500	.000	.00	1 .0
3.091	.1575					.0655	.20	.66	3.69	.53	.013	.00	.00	PIPE
1102.036	2738.225	.681	2738.906	11.00	14.10	3.09	2741.99	.00	1.27	1.49	1.500	.000	.00	1 .0
2.554	.1575					.0576	.15	.68	3.44	.53	.013	.00	.00	PIPE
1104.591	2738.627	.706	2739.334	11.00	13.44	2.81	2742.14	.00	1.27	1.50	1.500	.000	.00	1 .0
2.140	.1575					.0507	.11	.71	3.21	.53	.013	.00	.00	PIPE
1106.730	2738.964	.733	2739.697	11.00	12.82	2.55	2742.25	.00	1.27	1.50	1.500	.000	.00	1 .0
1.807	.1575					.0446	.08	.73	2.99	.53	.013	.00	.00	PIPE
1108.538	2739.249	.761	2740.010	11.00	12.22	2.32	2742.33	.00	1.27	1.50	1.500	.000	.00	1 .0
1.536	.1575					.0393	.06	.76	2.78	.53	.013	.00	.00	PIPE
1110.074	2739.491	.790	2740.281	11.00	11.65	2.11	2742.39	.00	1.27	1.50	1.500	.000	.00	1 .0
1.310	.1575					.0346	.05	.79	2.59	.53	.013	.00	.00	PIPE

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
1111.383	2739.697	.821	2740.518	11.00	11.11	1.92	2742.44	.00	1.27	1.49	1.500	.000	.00	1 .0
1.117	.1575					.0306	.03	.82	2.40	.53	.013	.00	.00	PIPE
1112.500	2739.873	.854	2740.727	11.00	10.59	1.74	2742.47	.00	1.27	1.49	1.500	.000	.00	1 .0
.952	.1575					.0270	.03	.85	2.23	.53	.013	.00	.00	PIPE
1113.453	2740.023	.888	2740.911	11.00	10.10	1.58	2742.49	.00	1.27	1.47	1.500	.000	.00	1 .0
.807	.1575					.0239	.02	.89	2.07	.53	.013	.00	.00	PIPE
1114.260	2740.150	.924	2741.074	11.00	9.63	1.44	2742.51	.00	1.27	1.46	1.500	.000	.00	1 .0
.678	.1575					.0212	.01	.92	1.92	.53	.013	.00	.00	PIPE
1114.938	2740.257	.962	2741.219	11.00	9.18	1.31	2742.53	.00	1.27	1.44	1.500	.000	.00	1 .0
.563	.1575					.0188	.01	.96	1.77	.53	.013	.00	.00	PIPE
1115.500	2740.345	1.003	2741.349	11.00	8.76	1.19	2742.54	.00	1.27	1.41	1.500	.000	.00	1 .0
.456	.1575					.0167	.01	1.00	1.64	.53	.013	.00	.00	PIPE
1115.957	2740.417	1.047	2741.465	11.00	8.35	1.08	2742.55	.00	1.27	1.38	1.500	.000	.00	1 .0
.357	.1575					.0149	.01	1.05	1.50	.53	.013	.00	.00	PIPE
1116.313	2740.473	1.095	2741.568	11.00	7.96	.98	2742.55	.00	1.27	1.33	1.500	.000	.00	1 .0
.262	.1575					.0133	.00	1.09	1.38	.53	.013	.00	.00	PIPE
1116.575	2740.515	1.147	2741.661	11.00	7.59	.89	2742.56	.00	1.27	1.27	1.500	.000	.00	1 .0
.165	.1575					.0120	.00	1.15	1.25	.53	.013	.00	.00	PIPE

Program Package Serial Number: 7189

WATER SURFACE PROFILE LISTING Date: 7-20-2020 Time:10:10:18

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE
PHASE 1 LATERAL 2 STORM DRAIN (PH1L2.WSW)
FROM FACILITY P7 TO MAINLINE

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	
1116.740	2740.541	1.204	2741.744	11.00	7.24	.81	2742.56	.00	1.27	1.19	1.500	.000	.00	1 .0
.060	.1575				.0109	.00	1.20	1.13	.53	.013	.00	.00	PIPE	
1116.800	2740.550	1.270	2741.820	11.00	6.89	.74	2742.56	.00	1.27	1.08	1.500	.000	.00	1 .0

SHE1901: PARCEL3 AT SUNSTONE PHASE 1 AND MODEL PHASE

PHASE 1 LATERAL 2 STORM DRAIN (PH1L2.WSW)

FROM FACILITY P7 TO MAINLINE

1000.00 .I C H W E . R

1002.05 . .

1004.10 . .

1006.15 . .

1008.20 . .

1010.25 . .

1012.29 . .

1014.34 . .

1016.39 . .

```
1018.44    .                                                                .
1020.49    .                                                                .
1022.54    .                                                                .
1024.59    .                                                                .
1026.64    .                                                                .
1028.69    .                                                                .
1030.74    .                                                                .
1032.79    .          I         C H       W    E                           .    R
1034.84    .          I     W   C H                  E                      .    R
1036.88    .            I    W    CH                   E                   .    R
1038.93    .                                                                .
1040.98    .                                                                .
1043.03    .                                                                .
1045.08    .                                                                .
1047.13    .              I    W    C H                    E                .    R
1049.18    .                                                                .
1051.23    .                                                                .
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1053.28 . .

1055.33 . I W C H E . R

1057.38 . .

1059.42 . .

1061.47 . I W CH E . R

1063.52 . .

1065.57 . .

1067.62 . I W CH E . R

1069.67 . .

1071.72 . .

1073.77 . .

1075.82 . I W C H E . R

1077.87 . .

1079.92 . .

1081.96 . .

1084.01 . I W C H E . R

1086.06 . .

1088.11 . .
1090.16 . .
1092.21 . I W C H E . R
1094.26 . .
1096.31 . I W C H E . R
1098.36 . .
1100.41 . I W C H E . R
1102.46 . I W CH E . R
1104.51 . .
1106.55 . I W C H E . R
1108.60 . I W C H E . R
1110.65 . I W CH E . R
1112.70 . I W CH E . R
1114.75 . I W C H E . R
1116.80 . I W C H E . R
2729.700 2730.986 2732.272 2733.558 2734.844 2736.129 2737.415 2738.701 2739.987 2741.273 2742.558

N O T E S

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

Lateral Loss Computations

Project Name:	Parcel 3 at Sunstone Phase 1 and Model Phase Update
Project Number:	SHE1901.001
Date:	7/20/2020
By:	CAA

Westwood

STORM SEWER HYDRAULIC CALCULATIONS

CONDUIT DATA							FLOW DATA							LOSS	HGL		COMMENTS	
STATION		SIZE / TYPE	n	INVERTS		LENGTH	A	R	Φ	Q	V	$H_V = V^2/2g$	S_f	PIPE	PIPE		PRESS. FLOW?	OTHER
FROM	TO		Manning's Roughness	D / S ELEV.	U / S ELEV.		(FT^2)	(FT)		(CFS)	(FPS)	(FT)	(FT/FT)	H_f (FT)	D/S HGL ELEV.	U/S HGL ELEV.		
1000	1030.59	ROUND 18" RCP	0.013	2741.91	2745.32	30.59	1.767146	0.375	0.004925	9.5	5.3759	0.448763	0.008145829	0.249	2743.77	2744.019	No	SDDI#6 / Facility P2
1000	1026.15	ROUND 18" RCP	0.013	2740.92	2744.33	26.15	1.767146	0.375	0.004925	5	2.829421	0.124311	0.002256462	0.059	2741.39	2741.449	No	SDDI#4 / Facility P4
1000	1004.00	ROUND 18" RCP	0.013	2735.26	2737	4	1.767146	0.375	0.004925	11	6.224727	0.601665	0.010921277	0.044	2737.747	2737.791	No	SDDI#2 / Facility P6

$Sf = \Phi Hv / R^{1.33}$

$\Phi = 2g (n^2) / 2.21$

1 - Where pipes are not under pressure, assume U/S HGL is at top of pipe

APPENDIX D

Revised Finished Floor Analysis

TRILOGY SUNSTONE PHASE 1 TDS UPDATE
FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline $F.F._{\cdot min}$[3] (ft)	T/C + 6" $F.F._{\cdot min}$[4] (ft)	$F.F._{\cdot Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
1	14	2757.62	2757.24	0.26	2757.76	2758.12	2759.9	OK	OK	
2	14	2757.62	2757.24	0.26	2757.76	2758.12	2758.2	OK	OK	
3	14	2757.62	2757.24	0.26	2757.76	2758.12	2758.2	OK	OK	
4	14	2755.43	2755.05	0.26	2755.57	2755.93	2756.2	OK	OK	
5	14	2755.43	2755.05	0.26	2755.57	2755.93	2756.2	OK	OK	
6	14	2755.43	2755.05	0.26	2755.57	2755.93	2756.2	OK	OK	
7	14	2755.00	2754.62	0.26	2755.14	2755.50	2755.8	OK	OK	
8	14	2755.00	2754.62	0.26	2755.14	2755.50	2755.8	OK	OK	
9	14	2755.00	2754.62	0.26	2755.14	2755.50	2755.8	OK	OK	
10	14	2756.58	2756.20	0.26	2756.72	2757.08	2757.4	OK	OK	
11	14	2756.58	2756.20	0.26	2756.72	2757.08	2757.4	OK	OK	
12	14	2756.58	2756.20	0.26	2756.72	2757.08	2757.4	OK	OK	
13	14	2754.10	2753.72	0.26	2754.24	2754.60	2754.7	OK	OK	
14	14	2754.10	2753.72	0.26	2754.24	2754.60	2754.7	OK	OK	
15	14	2754.10	2753.72	0.26	2754.24	2754.60	2754.7	OK	OK	
16	17	2755.16	2754.78	0.5	2755.78	2755.66	2756.6	OK	OK	
17	17	2755.55	2755.17	0.5	2756.17	2756.05	2757.3	OK	OK	
18	17	2756.87	2756.49	0.5	2757.49	2757.37	2760.5	OK	OK	
19	17	2758.37	2757.99	0.5	2758.99	2758.87	2760.5	OK	OK	
20	17	2755.26	2754.88	0.5	2755.88	2755.76	2756.9	OK	OK	
21	17	2756.74	2756.36	0.5	2757.36	2757.24	2758.5	OK	OK	
22	17	2758.39	2758.01	0.5	2759.01	2758.89	2760.2	OK	OK	
23	17	2760.06	2759.68	0.5	2760.68	2760.56	2761.9	OK	OK	
24	17	2761.76	2761.38	0.5	2762.38	2762.26	2763.6	OK	OK	
25	17	2763.87	2763.49	0.5	2764.49	2764.37	2765.7	OK	OK	
26	17	2765.99	2765.61	0.5	2766.61	2766.49	2767.8	OK	OK	
27	17	2768.11	2767.73	0.5	2768.73	2768.61	2769.9	OK	OK	
28	17	2770.23	2769.85	0.5	2770.85	2770.73	2772.0	OK	OK	
29	17	2772.34	2771.96	0.5	2772.96	2772.84	2774.1	OK	OK	
30	17	2774.46	2774.08	0.5	2775.08	2774.96	2776.3	OK	OK	
31	17	2776.58	2776.20	0.5	2777.20	2777.08	2778.4	OK	OK	
32	17	2778.69	2778.31	0.5	2779.31	2779.19	2780.5	OK	OK	
33	18	2782.02	2781.64	0.27	2782.18	2782.52	2783.7	OK	OK	
34	18	2782.46	2782.08	0.27	2782.62	2782.96	2784.3	OK	OK	
35	17	2781.96	2781.58	0.5	2782.58	2782.46	2783.7	OK	OK	
36	17	2778.61	2778.23	0.5	2779.23	2779.11	2780.3	OK	OK	
37	17	2775.80	2775.42	0.5	2776.42	2776.30	2777.6	OK	OK	
38	17	2773.70	2773.32	0.5	2774.32	2774.20	2775.4	OK	OK	
39	17	2771.53	2771.15	0.5	2772.15	2772.03	2773.2	OK	OK	
40	17	2769.36	2768.98	0.5	2769.98	2769.86	2771.1	OK	OK	
41	17	2767.19	2766.81	0.5	2767.81	2767.69	2768.9	OK	OK	
42	17	2765.02	2764.64	0.5	2765.64	2765.52	2766.7	OK	OK	
43	17	2762.85	2762.47	0.5	2763.47	2763.35	2764.6	OK	OK	
44	17	2760.68	2760.30	0.5	2761.30	2761.18	2762.4	OK	OK	
45	12	2755.45	2755.07	0.39	2755.85	2755.95	2757.2	OK	OK	
46	12	2757.61	2757.23	0.39	2758.01	2758.11	2759.3	OK	OK	
47	12	2760.24	2759.86	0.39	2760.64	2760.74	2761.9	OK	OK	
48	12	2762.80	2762.42	0.39	2763.20	2763.30	2764.5	OK	OK	
49	12	2764.87	2764.49	0.39	2765.27	2765.37	2766.6	OK	OK	
50	12	2766.66	2766.28	0.39	2767.06	2767.16	2768.4	OK	OK	
51	12	2768.61	2768.23	0.39	2769.01	2769.11	2770.3	OK	OK	
52	12	2770.38	2770.00	0.39	2770.78	2770.88	2772.1	OK	OK	
53	12	2772.32	2771.94	0.39	2772.72	2772.82	2774.0	OK	OK	
54	12	2774.09	2773.71	0.39	2774.49	2774.59	2775.8	OK	OK	
55	12	2776.04	2775.66	0.39	2776.44	2776.54	2777.7	OK	OK	
56	12	2777.98	2777.60	0.39	2778.38	2778.48	2779.7	OK	OK	
57	12	2780.00	2779.62	0.39	2780.40	2780.50	2781.7	OK	OK	
58	12	2781.98	2781.60	0.39	2782.38	2782.48	2783.7	OK	OK	
59	18	2783.67	2783.29	0.27	2783.83	2784.17	2785.7	OK	OK	
60	18	2784.04	2783.66	0.27	2784.20	2784.54	2786.0	OK	OK	
61	18	2784.41	2784.03	0.27	2784.57	2784.91	2786.4	OK	OK	
62	18	2784.67	2784.29	0.27	2784.83	2785.17	2786.5	OK	OK	
63	12	2784.49	2784.11	0.39	2784.89	2784.99	2786.3	OK	OK	
64	12	2783.66	2783.28	0.39	2784.06	2784.16	2785.5	OK	OK	
65	12	2782.59	2782.21	0.39	2782.99	2783.09	2784.4	OK	OK	

TRILOGY SUNSTONE PHASE 1 TDS UPDATE FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION										
INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.$_{\cdot min}$[3] (ft)	T/C + 6" F.F.$_{\cdot min}$[4] (ft)	F.F.$_{\cdot Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
66	12	2781.46	2781.08	0.39	2781.86	2781.96	2783.3	OK	OK	
67	12	2780.11	2779.73	0.39	2780.51	2780.61	2781.9	OK	OK	
68	12	2778.57	2778.19	0.39	2778.97	2779.07	2780.4	OK	OK	
69	12	2776.72	2776.34	0.39	2777.12	2777.22	2778.5	OK	OK	
70	12	2775.04	2774.66	0.39	2775.44	2775.54	2776.8	OK	OK	
71	12	2773.20	2772.82	0.39	2773.60	2773.70	2775.0	OK	OK	
72	12	2771.52	2771.14	0.39	2771.92	2772.02	2773.3	OK	OK	
73	12	2769.67	2769.29	0.39	2770.07	2770.17	2771.5	OK	OK	
74	12	2767.98	2767.60	0.39	2768.38	2768.48	2769.8	OK	OK	
75	12	2766.14	2765.76	0.39	2766.54	2766.64	2767.9	OK	OK	
76	12	2764.41	2764.03	0.39	2764.81	2764.91	2766.2	OK	OK	
77	12	2762.10	2761.72	0.39	2762.50	2762.60	2763.9	OK	OK	
78	12	2759.61	2759.23	0.39	2760.01	2760.11	2761.4	OK	OK	
79	12	2756.96	2756.58	0.39	2757.36	2757.46	2758.8	OK	OK	
80	12	2755.08	2754.70	0.39	2755.48	2755.58	2756.9	OK	OK	
81	12	2753.48	2753.10	0.39	2753.88	2753.98	2755.3	OK	OK	
82	12	2752.26	2751.88	0.39	2752.66	2752.76	2754.1	OK	OK	
83	8	2751.10	2750.72	0.35	2751.42	2751.60	2753.5	OK	OK	
84	8	2753.45	2753.07	0.35	2753.77	2753.95	2755.3	OK	OK	
85	8	2755.41	2755.03	0.35	2755.73	2755.91	2757.2	OK	OK	
86	8	2757.37	2756.99	0.35	2757.69	2757.87	2759.2	OK	OK	
87	8	2759.45	2759.07	0.35	2759.77	2759.95	2761.3	OK	OK	
88	8	2761.52	2761.14	0.35	2761.84	2762.02	2763.3	OK	OK	
89	8	2763.60	2763.22	0.35	2763.92	2764.10	2765.4	OK	OK	
90	8	2765.50	2765.12	0.35	2765.82	2766.00	2767.3	OK	OK	
91	8	2767.27	2766.89	0.35	2767.59	2767.77	2769.1	OK	OK	
92	8	2768.69	2768.31	0.35	2769.01	2769.19	2770.5	OK	OK	
93	8	2769.82	2769.44	0.35	2770.14	2770.32	2771.6	OK	OK	
94	8	2770.93	2770.55	0.35	2771.25	2771.43	2772.7	OK	OK	
95	8	2772.04	2771.66	0.35	2772.36	2772.54	2773.8	OK	OK	
96	8	2773.15	2772.77	0.35	2773.47	2773.65	2775.0	OK	OK	
97	8	2774.25	2773.87	0.35	2774.57	2774.75	2776.1	OK	OK	
98	8	2775.36	2774.98	0.35	2775.68	2775.86	2777.2	OK	OK	
99	8	2776.47	2776.09	0.35	2776.79	2776.97	2778.3	OK	OK	
100	7	2772.87	2772.37	0.4	2773.17	2773.37	2774.6	OK	OK	
101	7	2771.74	2771.24	0.4	2772.04	2772.24	2773.4	OK	OK	
102	7	2770.63	2770.13	0.4	2770.93	2771.13	2772.3	OK	OK	
103	7	2769.52	2769.02	0.4	2769.82	2770.02	2771.2	OK	OK	
104	7	2766.94	2766.44	0.4	2767.24	2767.44	2768.6	OK	OK	
105	7	2764.95	2764.45	0.4	2765.25	2765.45	2766.7	OK	OK	
106	7	2763.08	2762.58	0.4	2763.38	2763.58	2764.8	OK	OK	
107	7	2761.24	2760.74	0.4	2761.54	2761.74	2762.9	OK	OK	
108	7	2759.41	2758.91	0.4	2759.71	2759.91	2761.1	OK	OK	
109	7	2757.57	2757.07	0.4	2757.87	2758.07	2759.3	OK	OK	
110	7	2755.59	2755.09	0.4	2755.89	2756.09	2757.3	OK	OK	
111	7	2753.45	2752.95	0.4	2753.75	2753.95	2755.2	OK	OK	
112	7	2751.30	2750.80	0.4	2751.60	2751.80	2753.0	OK	OK	
113	4	2750.27	2749.89	0.29	2750.47	2750.77	2752.1	OK	OK	
114	4	2752.53	2752.15	0.29	2752.73	2753.03	2754.3	OK	OK	
115	4	2754.56	2754.18	0.29	2754.76	2755.06	2756.4	OK	OK	
116	4	2756.72	2756.34	0.29	2756.92	2757.22	2758.5	OK	OK	
117	4	2758.97	2758.59	0.29	2759.17	2759.47	2760.8	OK	OK	
118	4	2761.23	2760.85	0.29	2761.43	2761.73	2763.0	OK	OK	
119	4	2763.49	2763.11	0.29	2763.69	2763.99	2765.3	OK	OK	
120	4	2765.64	2765.26	0.29	2765.84	2766.14	2767.4	OK	OK	
121	4	2767.81	2767.43	0.29	2768.01	2768.31	2769.6	OK	OK	
122	4	2771.08	2770.70	0.29	2771.28	2771.58	2772.9	OK	OK	
123	4	2771.59	2771.21	0.29	2771.79	2772.09	2773.4	OK	OK	
124	4	2771.86	2771.48	0.29	2772.06	2772.36	2773.7	OK	OK	
125	2	2769.78	2769.40	0.46	2770.32	2770.28	2771.8	OK	OK	
126	2	2767.17	2766.79	0.46	2767.71	2767.67	2771.8	OK	OK	
127	2	2765.68	2765.30	0.46	2766.22	2766.18	2767.7	OK	OK	
128	2	2764.27	2763.89	0.46	2764.81	2764.77	2767.7	OK	OK	
129	2	2763.19	2762.81	0.46	2763.73	2763.69	2765.2	OK	OK	
130	2	2762.46	2762.08	0.46	2763.00	2762.96	2765.2	OK	OK	

TRILOGY SUNSTONE PHASE 1 TDS UPDATE
FINISHED FLOOR - CITY OF LAS VEGAS JURISDICTION

INPUT INFORMATION					FINISHED FLOORS					NOTES
Lot Number	Hydraulic Section Utilized	T/C[1] (ft)	F/L[2] (ft)	D_{100} (ft)	Flowline F.F.$_{\cdot min}$[3] (ft)	T/C + 6" F.F.$_{\cdot min}$[4] (ft)	F.F.$_{\cdot Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
131	2	2762.57	2762.19	0.46	2763.11	2763.07	2765.0	OK	OK	
132	2	2762.95	2762.57	0.46	2763.49	2763.45	2765.0	OK	OK	
133	2	2763.33	2762.95	0.46	2763.87	2763.83	2765.8	OK	OK	
134	2	2763.57	2763.19	0.46	2764.11	2764.07	2765.8	OK	OK	
135	1	2763.26	2762.88	0.29	2763.46	2763.76	2765.4	OK	OK	
136	1	2762.34	2761.96	0.29	2762.54	2762.84	2765.4	OK	OK	
137	1	2761.34	2760.96	0.29	2761.54	2761.84	2763.4	OK	OK	
138	1	2760.41	2760.03	0.29	2760.61	2760.91	2763.4	OK	OK	
139	1	2759.49	2759.11	0.29	2759.69	2759.99	2761.6	OK	OK	
140	1	2758.56	2758.18	0.29	2758.76	2759.06	2761.6	OK	OK	
141	1	2757.63	2757.25	0.29	2757.83	2758.13	2759.7	OK	OK	
142	1	2756.70	2756.32	0.29	2756.90	2757.20	2759.7	OK	OK	
143	3	2746.49	2746.11	0.34	2746.79	2746.99	2750.4	OK	OK	
144	3	2748.25	2747.87	0.34	2748.55	2748.75	2750.4	OK	OK	
145	2	2751.49	2751.11	0.46	2752.03	2751.99	2755.1	OK	OK	
146	2	2752.96	2752.58	0.46	2753.50	2753.46	2755.1	OK	OK	
147	2	2754.44	2754.06	0.46	2754.98	2754.94	2758.0	OK	OK	
148	2	2755.92	2755.54	0.46	2756.46	2756.42	2758.0	OK	OK	
149	2	2757.40	2757.02	0.46	2757.94	2757.90	2761.0	OK	OK	
150	2	2758.87	2758.49	0.46	2759.41	2759.37	2761.0	OK	OK	
151	2	2760.35	2759.97	0.46	2760.89	2760.85	2763.7	OK	OK	
152	2	2761.55	2761.17	0.46	2762.09	2762.05	2763.7	OK	OK	
153	2	2762.24	2761.86	0.46	2762.78	2762.74	2764.0	OK	OK	
154	2	2760.77	2760.39	0.46	2761.31	2761.27	2764.0	OK	OK	
155	2	2759.29	2758.91	0.46	2759.83	2759.79	2760.9	OK	OK	
156	2	2757.82	2757.44	0.46	2758.36	2758.32	2760.9	OK	OK	
157	2	2756.34	2755.96	0.46	2756.88	2756.84	2757.9	OK	OK	
158	2	2754.86	2754.48	0.46	2755.40	2755.36	2757.9	OK	OK	
159	2	2753.38	2753.00	0.46	2753.92	2753.88	2755.0	OK	OK	
160	2	2751.91	2751.53	0.46	2752.45	2752.41	2755.0	OK	OK	
161	2	2750.43	2750.05	0.46	2750.97	2750.93	2752.0	OK	OK	
162	2	2748.95	2748.57	0.46	2749.49	2749.45	2752.0	OK	OK	
163	2	2747.47	2747.09	0.46	2748.01	2747.97	2749.1	OK	OK	
164	2	2745.99	2745.61	0.46	2746.53	2746.49	2749.1	OK	OK	
165	4	2747.78	2747.40	0.29	2747.98	2748.28	2749.5	OK	OK	
166	4	2749.94	2749.56	0.29	2750.14	2750.44	2751.6	OK	OK	
167	4	2752.21	2751.83	0.29	2752.41	2752.71	2753.9	OK	OK	
168	4	2754.49	2754.11	0.29	2754.69	2754.99	2756.2	OK	OK	
169	4	2756.74	2756.36	0.29	2756.94	2757.24	2758.4	OK	OK	
170	4	2758.97	2758.59	0.29	2759.17	2759.47	2760.7	OK	OK	
171	4	2761.19	2760.81	0.29	2761.39	2761.69	2762.9	OK	OK	
172	4	2763.41	2763.03	0.29	2763.61	2763.91	2765.1	OK	OK	
173	4	2765.64	2765.26	0.29	2765.84	2766.14	2767.3	OK	OK	
174	4	2767.58	2767.20	0.29	2767.78	2768.08	2769.3	OK	OK	

Where:

1: Top of Curb at High Side of Lot

2: TC-0.38 (For Roll Curb), TC-0.5 (For L Curb)

3: Minimum Allowable Finished Floor Elevation above flowline elevation @ high side of lot = (2 x D_{100}) + F/L

4: City of Las Vegas minimum allowable finished floor elevation = T.C. @ high side of lot + 6-inches

5: These lots have an adjacent solid grouted wall that protects the FF.

City of Las Vegas Finished Floor Criteria:

-The finished floor shall be set a vertical distance above the gutter flowline of at least twice the depth of flow in the gutter flowline up to a maximum of 18 inches above the WSEL in the street.

-The finished floor shall be set a vertical distance of at least 6-inches above the highest adjacent top of curb.

Supplemental Finish Floor Checks

Adjacent/Perimeter Street Check

Lot Number	Street	High TC[1]	High FL[2]	Section	Flow Depth[3]	Min FF[4]	Design FF	Check	Solid Grout
1, 2, & 3	Hematite Place	2755.00	2754.50	19	0.38	2755.26	2759.9	OK	No
4, 5, & 6	Hematite Place	2753.68	2753.18	19	0.38	2753.94	2756.2	OK	No
7, 8, & 9	Hematite Place	2752.70	2752.20	7	0.40	2753.00	2755.8	OK	No
10, 11, & 12	Hematite Place	2752.18	2751.68	7	0.40	2752.48	2757.4	OK	No
13, 14, & 15	Balais Drive	2752.45	2751.95	7	0.40	2752.75	2754.7	OK	No
13, 14, & 15	Hematite Place	2751.87	2751.37	7	0.40	2752.17	2754.7	OK	No
16	Alexandrite Place	2755.05	2754.67	15	0.37	2755.41	2756.6	OK	No
20	Alexandrite Place	2758.04	2757.66	15	0.37	2758.40	2756.9	CHECK	Yes
34	Lapis Lane	2782.50	2782.12	15	0.37	2782.86	2784.3	OK	No
35	Balais Drive	2784.63	2784.25	15	0.37	2784.99	2783.7	CHECK	Yes
45	Alexandrite Place	2754.84	2754.46	15	0.37	2755.20	2757.2	OK	No
58	Balais Drive	2784.61	2784.23	13	0.40	2785.03	2783.7	CHECK	Yes
59	Lapis Lane	2787.11	2786.73	18	0.27	2787.27	2785.7	CHECK	Yes
60	Sky Pointe Dr.	2797.00	2796.50	SP4b	0.34	2797.18	2786.0	CHECK	Yes
61	Sky Pointe Dr.	2794.00	2793.50	SP4b	0.34	2794.18	2786.4	CHECK	Yes
62	Sky Pointe Dr.	2792.00	2791.50	SP4b	0.34	2792.18	2786.5	CHECK	Yes
63	Sky Pointe Dr.	2789.00	2788.50	SP4b	0.34	2789.18	2786.3	CHECK	Yes
64	Sky Pointe Dr.	2788.00	2787.50	SP4b	0.34	2788.18	2785.5	CHECK	Yes
65	Sky Pointe Dr.	2786.00	2785.50	SP4b	0.34	2786.18	2784.4	CHECK	Yes
66	Sky Pointe Dr.	2784.00	2783.50	SP4b	0.34	2784.18	2783.3	CHECK	Yes
67	Sky Pointe Dr.	2781.00	2780.50	SP4b	0.34	2781.18	2781.9	OK	No
82	Hematite Place	2750.81	2750.31	11	0.53	2751.37	2754.1	OK	No
83	Hematite Place	2750.67	2750.17	11	0.53	2751.23	2753.5	OK	No
100	Sky Pointe Dr.	2773.90	2773.40	SP4b	0.34	2774.08	2774.6	OK	No
103	Spinel Place	2768.88	2768.50	9	0.24	2768.98	2771.2	OK	No
104	Spinel Place	2767.90	2767.52	9	0.24	2768.00	2768.6	OK	No
112	Hematite Place	2749.05	2748.55	5	0.40	2749.35	2753.0	OK	No
113	Hematite Place	2748.40	2747.90	5	0.40	2748.70	2752.1	OK	No
121	Spinel Place	2768.90	2768.52	9	0.24	2769.00	2769.6	OK	No
122	Spinel Place	2769.48	2769.10	9	0.24	2769.58	2772.9	OK	No
124	Sky Pointe Dr.	2773.17	2772.79	SP2	0.00	2772.79	2773.7	OK	No
125	Sky Pointe Dr.	2769.00	2768.62	SP2	0.00	2768.62	2771.8	OK	No
125	Among Lane	2769.00	2768.62	2	0.46	2769.54	2771.8	OK	No
126	Sky Pointe Dr.	2768.00	2767.62	SP2	0.00	2767.62	2771.8	OK	No
127	Sky Pointe Dr.	2767.03	2766.65	SP2	0.00	2766.65	2767.7	OK	No
128	Sky Pointe Dr.	2766.80	2766.42	SP2	0.00	2766.42	2767.7	OK	No
129	Sky Pointe Dr.	2764.50	2764.12	SP2	0.00	2764.12	2765.2	OK	No
130	Sky Pointe Dr.	2765.82	2765.44	SP2	0.00	2765.44	2765.2	CHECK	Yes
131	Sky Pointe Dr.	2765.82	2765.44	SP2	0.00	2765.44	2765.0	CHECK	Yes
132	Sky Pointe Dr.	2765.82	2765.44	SP2	0.00	2765.44	2765.0	CHECK	Yes
133	Sky Pointe Dr.	2765.57	2765.19	SP2	0.00	2765.19	2765.8	OK	No
134	Sky Pointe Dr.	2765.57	2765.19	SP2	0.00	2765.19	2765.8	OK	No
135	Spinel Place	2763.05	2762.67	2	0.46	2763.59	2765.4	OK	No
142	Cubic Place	2755.41	2755.03	1	0.29	2755.61	2759.7	OK	No
144	Cubic Place	2748.25	2747.87	1	0.29	2748.45	2750.4	OK	No
145	Cubic Place	2752.07	2751.69	1	0.29	2752.27	2755.1	OK	No
152	Spinel Place	2763.05	2762.67	2	0.46	2763.59	2763.7	OK	No
153	Spinel Place	2764.94	2764.56	2	0.46	2765.48	2764.0	CHECK	Yes
174	Spinel Place	2767.73	2767.35	2	0.46	2768.27	2769.3	OK	No

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Flow depth is the normal depth in adjacent perimeter street

4: Min FF is the High FL plus twice the depth of flow.

Specific Energy Check							
Lot Number	High TC[1]	High FL[2]	Section	Specific Energy[3]	Min FF[4]	Design FF	Check
91	2767.27	2766.89	9	0.44	2767.33	2769.10	OK
92	2768.69	2768.31	9	0.44	2768.75	2770.50	OK
161	2750.43	2750.05	1	0.40	2750.45	2752.00	OK
162	2748.95	2748.57	1	0.40	2748.97	2752.00	OK

1: High TC is the elevation at the high side of the adjacent perimeter street

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Specific energy depth is taken from FlowMaster calculation for street directing flow toward lot.

4: Min FF is the High FL plus the specific energy depth.

Emergency Overflow Finish Floor Checks

Adjacent/Perimeter Street Check - Emergency Overflow									
Lot Number	Street	High TC[1]	High FL[2]	Section	Flow Depth[3]	Min FF[4]	Design FF	Check	Solid Grout
16	Alexandrite Place	2755.05	2754.67	EO1	0.60	2755.27	2756.6	OK	No
45	Alexandrite Place	2754.84	2754.46	EO1	0.60	2755.06	2757.2	OK	No
82	Hematite Place	2750.81	2750.43	EO3	0.58	2751.01	2754.1	OK	No
83	Hematite Place	2750.67	2750.29	EO3	0.58	2750.87	2753.5	OK	No
112	Hematite Place	2749.05	2748.67	EO3	0.58	2749.25	2753.0	OK	No
113	Hematite Place	2748.40	2748.02	EO3	0.58	2748.60	2752.1	OK	No

1: High TC is the elevation at the high side of the adjacent perimeter street.

2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Flow depth is the normal depth of emergency overflow in adjacent perimeter street.

4: Min FF is the High FL plus the depth of emergency overflow.

Finished Floor Check - Emergency Overflow							
Lot Number	High TC[1]	High FL[2]	Section	Flow Depth[3]	Min FF[4]	Design FF	Check
4, 5, & 6	2755.13	2754.75	EO1	0.60	2755.35	2758.00	OK
7, 8, & 9	2755.00	2754.62	EO1	0.60	2755.22	2757.70	OK
10, 11, & 12	2754.72	2754.34	EO1	0.60	2754.94	2757.40	OK
13, 14, & 15	2755.95	2755.57	EO1	0.60	2756.17	2756.60	OK
16	2755.16	2754.78	EO1	0.60	2755.38	2756.60	OK
20	2755.14	2754.76	EO1	0.60	2755.36	2756.90	OK
81	2753.48	2753.10	EO2	0.42	2753.52	2755.30	OK
82	2753.61	2753.23	EO2	0.42	2753.65	2754.10	OK
143	2746.49	2746.11	EO5	0.35	2746.46	2750.40	OK
164	2745.99	2745.61	EO5	0.35	2745.96	2749.10	OK
165	2747.78	2747.40	EO4	0.49	2747.89	2749.50	OK

1: High TC is the elevation at the high side of the lot

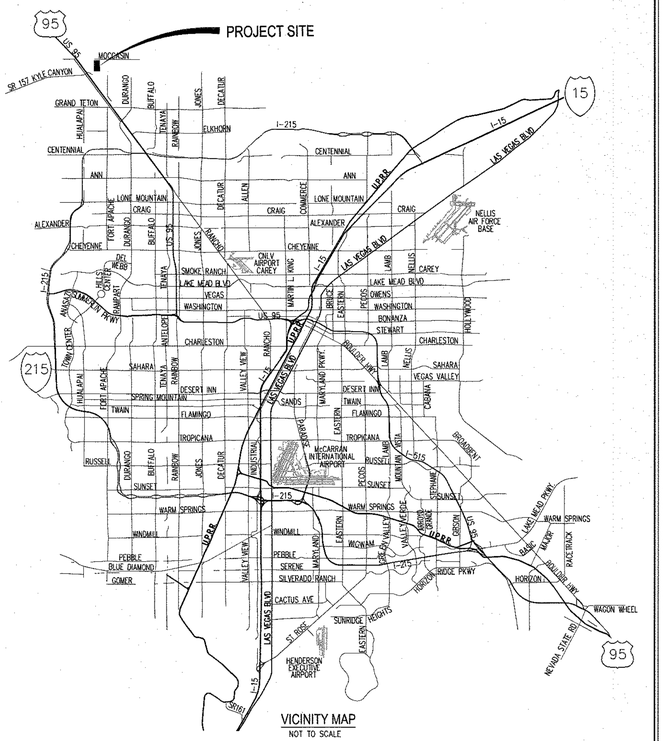
2: 0.38-ft is subtracted from the High TC to obain the High FL elevation

3: Flow depth is the normal depth of the emergency overflow in adjacent street.

4: Min FF is the High FL plus the depth of emergency overflow.

APPENDIX E

CD of Electronic Files & Improvement Plans

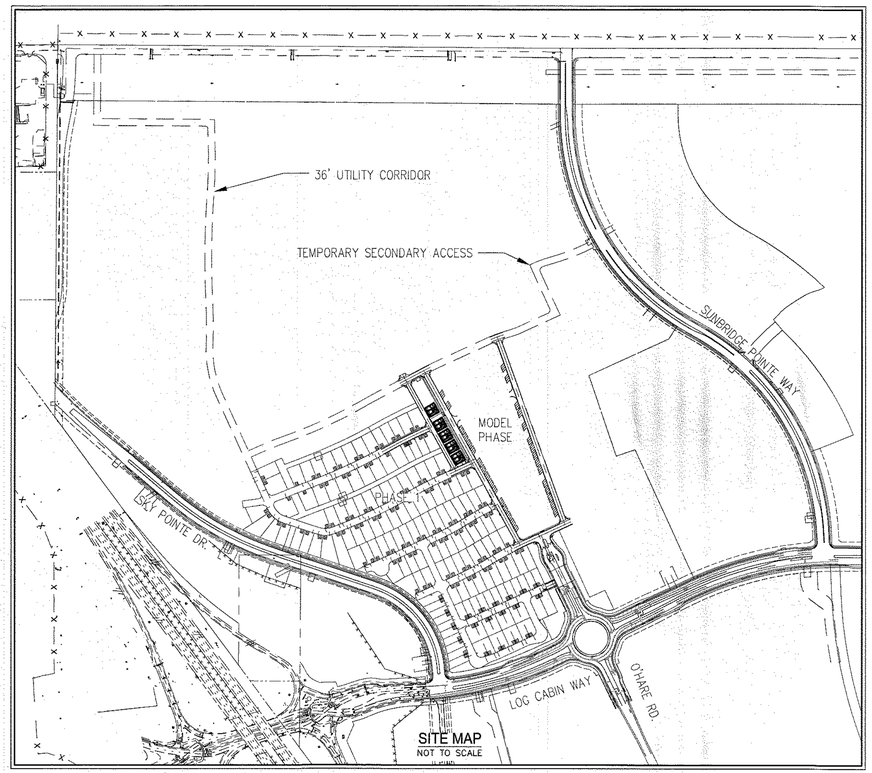


VICINITY MAP
NOT TO SCALE

SHLP

IMPROVEMENT PLANS FOR PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE

CITY OF LAS VEGAS, NEVADA
RESIDENTIAL SUBDIVISION
APN: 125-06-501-001 & 125-06-701-001



SITE MAP
NOT TO SCALE

SHEET INDEX

Sheet Number	Sheet Description	Sheet Title
1	C-1	COVER SHEET
2	C-2	GENERAL NOTES
3	C-3	LEGEND - QUANTITIES
4	MG	MASTER GRADING PLAN
5	G-1	GRADING PLAN I
6	G-2	GRADING PLAN II
7	G-3	GRADING PLAN III
8	G-4	GRADING PLAN IV
9	G-5	GRADING PLAN V
10	G-6	GRADING PLAN VI
11	G-7	GRADING PLAN VII
12	G-8	GRADING PLAN VIII
13	G-9	GRADING PLAN IX
14	G-10	GRADING PLAN X
15	G-11	GRADING PLAN XI
16	G-12	GRADING PLAN XII
17	G-13	GRADING PLAN XIII
18	G-14	GRADING PLAN XIV
19	P-1	JADETTE LANE PLAN & PROFILE 14+00 TO 16+50
20	P-2	BELONG ROAD PLAN & PROFILE 9+50 TO 15+50
21	P-3	AMOND LANE PLAN & PROFILE 8+00 TO 14+00
22	P-4	HEMATITE PLACE PLAN & PROFILE 15+00 TO 20+50
23	P-5	HEMATITE PLACE PLAN & PROFILE 9+50 TO 15+00 1
24	P-6	SANDLOT LANE PLAN & PROFILE 15+50 TO 21+50
25	SD-1	STORM DRAIN LATERALS PLAN & PROFILE I
26	SD-2	STORM DRAIN LATERALS PLAN & PROFILE II
27	D-1	DETAIL SHEET I
28	D-2	DETAIL SHEET II
29	D-3	DETAIL SHEET III
30	D-4	DETAIL SHEET IV

APPROVALS

CITY OF LAS VEGAS ENGINEER APPROVAL

LAS VEGAS FIRE AND RESCUE DATE

CITY OF LAS VEGAS PLANNING DEPARTMENT

CENTRAL TELEPHONE CO. DBA CENTURYLINK DATE

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

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES
PROJECT NO. ###### FIRST APPROVED DATE:
LVVWD APPROVED FIRE FLOW 1,500 GPM AT 20 PSI RESIDUAL
MAXIMUM AVAILABLE FIRE SPRINKLER FLOW 20 GPM

SHEETS: ADD FIELD

NV ENERGY DATE

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

SOUTHWEST GAS CORPORATION DATE

COX COMMUNICATIONS LAS VEGAS, INC. DATE

OWNER	DEVELOPER	ENGINEER
NORTHLAND, LLC AND EASTLAND, LLC C/O NINETY FIVE MGT, LLC C/O D HENSLEY 11411 SOUTHERN HIGHLANDS #300 LAS VEGAS, NV 89141	SHEA HOMES LIMITED PARTNERSHIP 4182 SOLACE STREET LAS VEGAS, NV 89135 CONTACT: JEREMY FRITZ PHONE: 702-265-9366	WESTWOOD PROFESSIONAL SERVICES 5740 S. ARVILLE STREET, SUITE 216 LAS VEGAS, NV 89118 PH: (702) 284-5300 FX: (702) 284-5399 CONTACT: DERICK YORO

LEGAL DESCRIPTION

BEING ALL OF PARCEL 3 OF THAT CERTAIN PARENT FINAL MAP ENTITLED "SUNSTONE" ON FILE IN BOOK 161, PAGE 40 OF PLATS, OFFICIAL RECORDS CLARK COUNTY, NEVADA, LYING WITHIN THE NORTHWEST QUARTER OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CITY OF LAS VEGAS, CLARK COUNTY, NEVADA

BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK--
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

FEMA FLOOD ZONE INFORMATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

TOTAL DISTURBED AREA

54.26 ACRES

DEVIATIONS FROM STANDARDS

NONE

SWPPP NOTE

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

PROJECT INFORMATION

ACREAGE (GROSS):	= 54.26 AC
ACREAGE (NET):	= 54.26 AC
DENSITY (LOTS/NET ACRE):	= 3.21 DU/NET AC
ZONING:	= R-1, R-TH
TOTAL NO. OF RESIDENTIAL LOTS	= 174
TOTAL NO. OF COMMON ELEMENTS *	= 14

EARTHWORK SUMMARY (UNADJUSTED)

CUT	20,323 CY.
FILL	98,779 CY.
NET	78,456 CY. FILL

GEOTECHNICAL ENGINEER

PREPARED BY: SOUTHWEST GEOTECHNICAL
ADDRESS: 5275 ARVILLE ST. #108
PHONE: 702-323-6000
PROJECT NO. 182187
DATED: 4/25/18

UPDATED
PROJECT NO. 205210
DATED: 02/27/20

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

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

DERICK D.J YORO
Exp. 6/30/22
CIVIL
No. 16396
STATE OF NEVADA
PROFESSIONAL ENGINEER
7/20/20

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
COVER SHEET

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

PROJECT NO.
SHE1901-001

C-1
SHEET 1 OF 30

DS-5261

J:\she1901-001 trilogy sunstone phase 1\dwg\improv\she1901-001_cvr.dwg 7/20/2020 2:11 PM John Austin Jr

STORMWATER RUNOFF MANAGEMENT

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
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 TITLE 24.40 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 NVR100000, 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 NVR100000, 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.

LEGAL DESCRIPTION

BEING ALL OF PARCEL 3 OF THAT CERTAIN PARENT FINAL MAP ENTITLED "SUNSTONE" ON FILE IN BOOK 151, PAGE 64 OF PLATS, OFFICIAL RECORDS CLARK COUNTY, NEVADA, LYING WITHIN THE NORTHWEST QUARTER OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M. CITY OF LAS VEGAS, CLARK COUNTY, NEVADA

BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

SOUTHERN NEVADA - SOUTHWEST GAS CORPORATION GENERAL NOTES

1. IN THE EVENT OF NATURAL GAS EMERGENCIES CALL 911 AND 1–877–860–6020
2. MINIMUM HORIZONTAL AND VERTICAL CLEARANCES BETWEEN NATURAL GAS FACILITIES AND ANY UNDERGROUND UTILITIES AND/OR STRUCTURES, INCLUDING BUT NOT LIMITED TO WATER, SEWER, STORM DRAIN, COMMUNICATIONS, AND ELECTRICAL SHALL BE AT LEAST 12–INCHES OR GREATER AS DICTATED BY LOCAL CODES AND STANDARDS.
   A) ANY DEVIATION FROM SPECIFIED MINIMUM CLEARANCES MUST BE APPROVED BY ALL AFFECTED UTILITIES AND/OR MUNICIPALITIES
3. FOR VALVE ADJUSTMENT CONTACT 702–668–6107 48 HOURS PRIOR TO CONSTRUCTION.
4. IN THE EVENT OF NATURAL GAS CONFLICT WITH PROPOSED UTILITIES AND STRUCTURES CONTACT 702–365–2099
5. SOUTHWEST GAS STANDBY CONTACT NUMBER (702)–400–1789

SOUTHWEST GAS APPROVAL

SOUTHWEST GAS CORPORATION DATE

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

LAS VEGAS VALLEY WATER DISTRICT (LVVWD) STANDARD NOTES

LVVWD PROJECT # ADD FIELD (REVISED 08/01/2017)

1. NO WORK SHALL BEGIN UNTIL THE WATER PLANS HAVE BEEN APPROVED FOR CONSTRUCTION BY THE LVVWD. FOLLOWING WATER PLAN APPROVAL, NOTICE SHALL BE GIVEN TO THE LVVWD COMMUNICATION SUPPORT CENTER (258–7171) TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. FOR FUTURE INSPECTIONS, NOTICE MUST BE GIVEN BY 2:00 P.M. THE BUSINESS DAY PRIOR TO THE REQUESTED LVVWD INSPECTION. WHEN REQUESTING INSPECTIONS, PLEASE REFER TO THE PROJECT # IDENTIFIED ABOVE.
2. ALL WORK SHALL CONFORM TO LVVWD STANDARD PLATES, DRAWINGS, AND SPECIFICATIONS, AND TO THE 2010 EDITION OF THE UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR POTABLE WATER SYSTEMS (UDACS). THE LATEST EDITION OF UDACS SHALL SUPERSEDE ANY CONFLICTS CONTAINED IN THE APPROVED DRAWINGS AND/OR SPECIFICATIONS.
3. ALL WORK, EXCEPT AS MODIFIED BY THESE PLANS OR BY NOTE 2 ABOVE, SHALL BE DONE IN ACCORDANCE WITH THE MOST RECENT DRAFT OR EDITION OF THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFFSITE IMPROVEMENT, CLARK COUNTY AREA.
4. A SINGLE PIPE MATERIAL SHALL BE USED THROUGHOUT THE PROJECT UNLESS OTHERWISE APPROVED BY THE LVVWD.
5. ALL SERVICE LATERALS TWO (2) INCHES IN DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING WITH LVVWD APPROVED SERVICE SADDLES.
6. ALL WATER METER BOXES SHALL BE LOCATED OUTSIDE OF DRIVEWAY AREAS.
7. ALL VALVES SHALL BE LOCATED OUTSIDE OF DRIVEWAYS, VALLEY AND CURB GUTTERS.
8. ALL WATER AND STORM DRAIN OR SANITARY SEWER CROSSINGS SHALL CONFORM TO SECTION 2.22 OF THE 2010 EDITION OF THE UDACS.
9. ALL WATER FACILITIES AND APPURTENANCES SHALL BE DISINFECTED, PRESSURE TESTED, AND HAVE AN ACCEPTABLE PASSING HEALTH WATER SAMPLE OBTAINED, PRIOR TO OPERATION AND USE.
10. THE CONTRACTOR MUST OBTAIN ALL METERS TWO (2) INCHES AND SMALLER FROM LVVWD CENTRAL STORES. TELEPHONE 258–3152 OR 258–3802, TWO (2) WORKING DAYS PRIOR TO METER PICKUP.
11. ANY INTERRUPTION OF SERVICE MUST BE PERFORMED IN ACCORDANCE WITH UDACS SECTION 3.14.01, AND APPROVED BY THE LVVWD INSPECTION DIVISION PRIOR TO SHUTDOWN. PROPER WRITTEN NOTIFICATION MUST BE GIVEN TO ALL AFFECTED CUSTOMERS.
12. ALL WATER FACILITY CONSTRUCTION MATERIALS USED MUST BE AS LISTED ON THE LVVWD APPROVED PRODUCT'S LIST FOR NEW FACILITIES, LATEST REVISION, OR SPECIFICALLY APPROVED ON THESE PLANS BY SUBMITTING SHOP DRAWINGS.
13. TELEPHONE "CALL BEFORE YOU DIG" AT "811" OR 1–800–227–2600.
14. THE INSTALLATION OF LVVWD MUNICIPAL WATER FACILITIES WITHIN ALL STREETS IS ASSUMED TO BE IN COMPLIANCE WITH THE UNIFORM STANDARDS, INCLUDING THE PLACEMENT OF ASPHALT PAVING STREET SURFACES. ANY REPAIR WORK DONE BY THE LVVWD TO THE MUNICIPAL WATER FACILITIES WILL INCLUDE THE PLACEMENT OF AN APPROPRIATELY SIZED ASPHALT REPAIR PATCH ON THE STREET SURFACE.

    ANY DECORATIVE PAVING SURFACE WITHIN THE STREET IS THE RESPONSIBILITY OF THE OWNER'S ASSOCIATION, OR THE INDIVIDUAL PROPERTY OWNERS IF NO OWNER'S ASSOCIATION IS IN EXISTENCE, OR THE AGENCY HAVING JURISDICTION. DECORATIVE SURFACE MATERIALS PLACED WITHIN THE TEN FOOT EASEMENT ABUTTING A PUBLIC OR PRIVATE STREET, IF DISTURBED BY THE LVVWD DURING THE REPAIR OR OPERATION OF ITS FACILITIES, WILL BE REPLACED BY LVVWD WITH AN APPROPRIATELY SIZED PLAIN FINISH CONCRETE PATCH. THE LVVWD WILL NOT RESTORE, AND WILL NOT BE RESPONSIBLE FOR THE RESTORATION OF, ANY DECORATIVE PAVING SURFACE WITHIN THE STREET. THE LVVWD WILL NOT ATTEMPT TO MATCH COLOR OR FINISH OF ANY ADJACENT MATERIALS.

15. **NO LEAD COMPLIANCE NOTE:**
    TO COMPLY WITH THE FEDERAL SAFE DRINKING WATER ACT, ALL WATER WORKS BRASS PRODUCTS PROPOSED TO BE RELOCATED, OR INSTALLED AS NEW MUST BE INSTALLED WITH THE LEAD FREE APPROVED PRODUCT. THE OLD LEADED PRODUCT MAY NOT BE REUSED.

GRADING NOTES

1. INDICATED GRADES OTHER THAN T.C., F.G. & GUTTER F.L. ARE ROUGH GRADES.
2. THE ROUGH GRADING PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. THE ROUGH GRADING SHALL BE FINISHED IN CONFORMANCE WITH THE LINES AND GRADES SHOWN ON THE PLANS. THE GRADING QUANTITIES ARE BASED ON THE ELEVATION AND DETAILS SHOWN ON THE PLANS. ANY DEVIATIONS FROM THE PLANS WILL RESULT IN QUANTITY CHANGES.
3. CARE SHALL BE EXERCISED IN GRADING CORNER LOTS.
4. ROUGH PAD ELEVATIONS SHALL BE GRADED TO WITHIN 0.1' OF THE PAD ELEVATIONS SHOWN ON THE PLANS. WHEN GRADING IS COMPLETE PER THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE LOTS CAN BE INSPECTED. AT THAT TIME THE ENGINEER SHALL ALSO DECIDE IF ANY ADDITIONAL DITCHES OR BERMS ARE REQUIRED. THE CONTRACTOR IS REQUESTED NOT TO REMOVE ANY OF HIS ROUGH GRADING EQUIPMENT UNTIL HE RECEIVES GRADING APPROVAL FROM THE ENGINEER.
5. SOILS REPORT PREPARED BY SOUTHWEST GEOTECHNICAL, PROJECT NO. 205210, DATED 02/27/20.
6. EARTHWORK QUANTITIES (RAW):
   –CUT = 20,323 CUBIC YARDS.
   –FILL = 98,779 CUBIC YARDS

   A) THE ABOVE QUANTITIES DO NOT REFLECT LOSSES DUE TO SUBSIDENCE OR SHRINKAGE.
   B) THE ABOVE QUANTITIES DO REFLECT USING NATIVE MATERIAL IN LIEU OF TYPE I GRAVEL BASE MATERIAL FOR STREET SECTIONS.
   C) THE ABOVE QUANTITIES DO NOT REFLECT ANY EARTHWORK WHICH MAY BE REQUIRED BY THE ENGINEER TO CONSTRUCT ADDITIONAL PROTECTIVE DITCHES OR BERMS NOT SHOWN ON THESE DRAWINGS.

CITY OF 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 # 6631 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 PRIOR TO COMMENCEMENT OF WORK. IFC §105.6.15
4. ON ANY RESIDENTIAL OR COMMERCIAL INSTALLATIONS, FIRE HYDRANTS SHALL BE INSTALLED AND FIRE APPARATUS ACCESS ROADS SHALL BE MAINTAINED BEFORE COMMENCEMENT OF ANY COMBUSTIBLE CONSTRUCTION. ALL FIRE HYDRANTS SHALL BE IN GOOD WORKING ORDER AND SHALL BE CAPABLE OF DELIVERING THE REQUIRED FIRE FLOW. IFC §3310, §3312
5. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIRE HYDRANTS. IFC §507.5.7.3
6. ALL UNDERGROUND INSPECTIONS, PRESSURE AND FLUSH VERIFICATIONS OF ALL FIRE HYDRANTS AND FIRE LINES, SHALL BE CONDUCTED BEFORE COVERING THE LINES. CENTER LOADING IS ACCEPTABLE FOR THE HYDRO TESTS WITH PRIOR FIRE PREVENTION APPROVAL. IFC §106.3
7. ALL ON–SITE UNDERGROUND WATER MAINS AND MATERIALS SHALL BE U.L. LISTED, A.W.W.A APPROVED AND SHALL BE RATED FOR THE APPROPRIATE WORKING PRESSURE. IFC §507.2.1, NFPA 24
8. PAINTING OF CURBS, FIRE HYDRANTS, PADS, PROTECTION OF FIRE HYDRANTS FROM PHYSICAL DAMAGE, AND ALL OTHER WORK NECESSARY PER PLANS SHALL BE COMPLETED BEFORE APPROVAL BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION. IFC §507
9. PRIVATE HYDRANTS SHALL BE PAINTED RED. IFC §507.5.7.1
10. PRIOR TO THE FINAL OCCUPANCY, A FIRE FLOW TEST SHALL BE WITNESSED BY LAS VEGAS FIRE AND RESCUE, FIRE PREVENTION DIVISION TO VERIFY AVAILABILITY OF THE REQUIRED FIRE FLOW. IFC §507
11. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: IFC §C102
    - RESIDENTIAL – 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
    - COMMERCIAL – 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.
12. WHERE THE WATER MAINS ARE EXTENDED ALONG STREETS OR NEW STREETS ARE INSTALLED WHERE FIRE HYDRANTS ARE NOT NEEDED FOR PROTECTION OF THE STRUCTURES, FIRE HYDRANTS SHALL BE INSTALLED AT A MAXIMUM OF 1000 FT SPACING, TO PROVIDE FOR TRANSPORTATION HAZARDS. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS OR HAVE FOUR (4) OR MORE TRAFFIC LANES AND HAVE A TRAFFIC COUNT OF MORE THAN 30,000 PER DAY, HYDRANTS ARE REQUIRED ON EACH SIDE OF THE STREET SPACED AT 500 FT ON AN ALTERNATING BASIS. IFC ♣C102.8
13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN THE RADIUS OF A CUL–DE–SAC OR WITHIN 20 FT OF THE PERIMETER OF THE RADIUS OF THE CUL–DE–SAC.
14. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. IFC ♣C102.10
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 ♣C102.4
16. THE MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. IFC ♣C102.7
17. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD–END STREET SHALL NOT EXCEED 200 FT. IFC ♣C102.6
18. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD–INS ARE INSTALLED ON A SINGLE SYSTEM. FOR SYSTEMS REQUIRED TO HAVE TWO (2) SOURCES OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD–INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. FOR SYSTEMS PERMITTED TO HAVE ONE SOURCE OF WATER SUPPLY, SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 3 FIRE HYDRANTS AND/OR FIRE SPRINKLER LEAD–INS CAN BE OUT OF SERVICE DUE TO A SERVICE INTERRUPTION. IFC ♣C104
19. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL–WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. IFC ♣503.2.3
20. THE GRADIENT FOR THE FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 12% ANGLES OF APPROACH AND ANGLES OF DEPARTURE SHALL NOT EXCEED 6% FOR 25 FT PRIOR TO OR AFTER THE GRADE CHANGE. ADJACENT TO THE STRUCTURES GRADIENT SHALL NOT EXCEED 6%. IFC ♣503.2.7, ♣503.2.8
21. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. IFC ♣503.2.4
22. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13FT 6 INS. IFC ♣ 503.2.1
23. FIRE DEPARTMENT ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 33 FT WITH PARKING ON BOTH SIDES MEASURED TO FACE OF CURB. NOT LESS THAN 28 FT WIDE WITH PARKING RESTRICTED TO ONE SIDE MEASURED TO FACE OF CURB. NOT LESS THAN 24 FT WIDE WITH NO PARKING ON EITHER SIDE MEASURED TO FACE OF CURB. FIRE LANES THROUGH PARKING LOTS SHALL BE NOT LESS THAN 24 FT. IFC ♣ 503.2.1.1
24. A FIRE APPARATUS ACCESS ROAD SHALL BE REQUIRED WHEN ANY PORTION OF AN EXTERIOR WALL OF THE FIRST STORY IS LOCATED MORE THAN 150 FT FROM A FIRE DEPARTMENT VEHICLE ACCESS. IFC ♣503.1.1
25. APPROVED SECONDARY FIRE APPARATUS ACCESS SHALL BE PROVIDED FOR 200 OR MORE DWELLING UNITS, ROAD(S) WITH DEAD– ENDS OR A SINGLE POINT OF ACCESS IN EXCESS OF 600 FT. CLV REGULATION AND MOU
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. CLV REGULATION
27. ALL FIRE APPARATUS ACCESS ROADS SHALL BE MARKED BY PLACING APPROVED SIGNS AT THE START OF THE DESIGNATED FIRE LANE, ONE SIGN AT THE END OF THE FIRE LANE AND WITH SIGNS AT INTERVALS OF 100 FT ALONG THE DESIGNATED FIRE LANES. SIGNS TO BE PLACED ON BOTH SIDES OF AN ACCESS ROADWAY IF NEEDED TO PREVENT PARKING ON EITHER SIDE. SIGNS TO BE INSTALLED NO HIGHER THAN 10 FT OR LESS THAN 6 FT FROM THE ROADWAY LEVEL. THE CURB ALONG OR ON THE PAVEMENT OR CEMENT (IF NO CURB IS PROVIDED) SHALL BE PAINTED WITH A RED WEATHER RESISTANT PAINT IN ADDITION TO THE SIGNS. IFC ♣503.3
28. ELECTRICALLY CONTROLLED ACCESS GATES SHALL BE PROVIDED WITH AN APPROVED EMERGENCY VEHICLE DETECTOR/RECEIVER SYSTEM. IFC ♣503.6
29. WHERE STREETS ARE PROVIDED WITH MEDIAN DIVIDERS, OR HAVING FOUR OR MORE TRAVEL LANES AND A TRAFFIC COUNT OF MORE THAN 30,000 VEHICLES PER DAY, ALL HYDRANTS BEING UTILIZED TO DELIVER FIRE FLOW TO THE PROPOSED LOCATION SHALL BE LOCATED ON THE SAME SIDE OF THE STREET AS THE PROPOSED DEVELOPMENT. CLV REGULATION

CITY OF LAS VEGAS GRADING NOTES

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

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

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

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

UTILITY LOCATION NOTE TO CONTRACTOR

EXISTING UTILITY LOCATIONS SHOWN HEREIN 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 LOCATIONS. CALL BEFORE YOU DIG: 1 (800) 227–2600; SOUTHWEST GAS CORPORATION: 702–400–1789 (STANDBY CONTACT NUMBER)

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 INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF–SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT–OF–WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED–TYPE CURB.
8. AC PAVEMENT TO BE ONE–HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESS

ABBREVIATIONS

AC	ASPHALTIC CONCRETE OR ACRE	FL	FLOWLINE	PVI	POINT OF VERTICAL INTERSECTION
AGG	AGGREGATE BASE	FT	FEET OR FOOT	QTY	QUANTITY
APN	ASSESSORS PARCEL NUMBER	FUT	FUTURE	R	RADIUS
APPROX OR ~	APPROXIMATE	GRD	GRADE OR GROUND	RCA	REINFORCED CONCRETE ARCH
AVE	AVENUE	GB	GRADE BREAK OR GRADE CHANGE	RCB	REINFORCED CONCRETE BOX
@	AT	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE
BC	BEGIN CURVE OR BACK OF CURB	HDPE	HIGH DENSITY POLYETHYLENE	RD	ROAD
BCR	BEGINNING OF CURB RETURN	HOA	HOME OWNERS ASSOCIATION	ROWY ESMT	ROADWAY EASEMENT
BHW	BOTTOM OF HEADWALL	HORZ	HORIZONTAL	REQD	REQUIRED
BLDG	BUILDING	HP	HIGH POINT	REV	REVISION
BLVD	BOULEVARD	HWL	HIGH WATER LEVEL	RG	ROUGH GRADE
BM	BENCHMARK	HDWL OR HW	HEADWALL	RT OR R	RIGHT
BVC	BEGIN VERTICAL CURVE	HYD	HYDRAULIC OR HYDRANT	RW, ROW	RIGHT OF WAY
BWV	BACK WATER VALVE	ID	INSIDE DIAMETER	S	SLOPE
CC	CLARK COUNTY	IN	INCH	SCH	SCHEDULE
CCAUSD	CLARK COUNTY AREA UNIFORM STANDARD DRAWINGS	INT	INTERSECTION	SD	STORM DRAIN
CCPW	CLARK COUNTY PUBLIC WORKS	INV	INVERT ELEVATION	SDDI	STORM DRAIN DROP INLET
CCRFCD	CLARK COUNTY REGIONAL FLOOD DISTRICT	IP	IRON PIPE	SDMH	STORM DRAIN MANHOLE
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	IRRG	IRRIGATION	SEC	SECTION
CE	COMMON ELEMENT	LF	LINEAR FEET	SF	SQUARE FEET
CL,C/L,C	CENTERLINE	LMC	LANDSCAPE MAINTENANCE CORPORATION	SHT	SHEET
CLR	CLEAR OR CLEARANCE	LP	LOW POINT	SLTC	STREET LIGHT & TRAFFIC CONTROL ESMT
CLSM	CONTROLLED LOW STRENGTH MATERIAL	LT OR L	LEFT	SNWA	SOUTHERN NEVADA WATER AUTHORITY
CLV	CITY OF LAS VEGAS	LVVWD	LAS VEGAS VALLEY WATER DISTRICT	SPECS	SPECIFICATIONS
CML&C	CEMENT MORTAR LINED AND COATED	LWL	LOW WATER LEVEL	ST	STREET
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	SSMH	SANITARY SEWER MANHOLE
CNLV	CITY OF NORTH LAS VEGAS	MECH	MECHANICAL	STA	STATION
COH	CITY OF HENDERSON	MH	MANHOLE	STD	STANDARD
CONC	CONCRETE	MIN	MINIMUM	STL	STEEL
CT	COURT	MISC	MISCELLANEOUS	STLT	STREET LIGHT
CY OR CU YD	CUBIC YARD	MUE	MUNICIPAL UTILITY EASEMENT	SW	SIDEWALK
DCWCS	DESIGN AND CONSTRUCTION FOR WASTEWATER COLLECTION SYSTEMS	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	SWG	SOUTHWEST GAS
		NTS	NOT TO SCALE	SWR OR SS	SANITARY SEWER
DE	DRAINAGE EASEMENT	NUE	NONEXCLUSIVE UTILITY EASEMENT	SY	SQUARE YARD
DET	DETAIL	NVE	NV ENERGY	TAN	TANGENT
DI	DUCTILE IRON OR DRAIN INLET	OC	ON CENTER	TC	TOP OF CURB
DIA, ø	DIAMETER	OD	OUTSIDE DIAMETER OR OVERALL DIMENSION	TF	TOP OF FLOOR OR TOP OF FOOTING
DIP	DUCTILE IRON PIPE	OFF	OFFSET	TG	TOP OF GRATE
DR	DRIVE	ORIG	ORIGINAL	THRU	THROUGH
DWG(S)	DRAWING	PAE	PUBLIC OR PEDESTRIAN ACCESS EASEMENT	THW	TOP OF HEADWALL
DWY	DRIVEWAY	PB	PULL BOX	TP	TOP OF PIPE
EA	EACH	PC	POINT OF CURVE	TW	TOP OF WALL
ECR	END CURB RETURN	PCC	POINT OF COMPOUND CURVE	TRW	TOP OF RETAINING WALL
EG	EXISTING GROUND	PDE	PUBLIC DRAINAGE EASEMENT	TSW	TOP OF SCREEN WALL
ELEV	ELEVATION	℄ OR PL	PROPERTY LINE	TYP	TYPICAL
ESMT	EASEMENT	POB	POINT OF BEGINNING	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
EP	EDGE OF PAVEMENT	POC	POINT OF CURVATURE		
ERU	EQUIVALENT RESIDENTIAL UNIT	POE	POINT OF ENDING	UE	UTILITY EASEMENT
EVC	END VERTICAL CURVE	PRC	POINT OF REVERSE CURVATURE	VC	VERTICAL CURVE
EX OR EXIST	EXISTING	PRELIM	PRELIMINARY	VERT	VERTICAL
FC	FACE OF CURB	PROP	PROPOSED	VG	VALLEY GUTTER
FF	FINISHED FLOOR	PRV	PRESSURE REDUCING VALVE	WI	WROUGHT IRON
FG	FINISHED GRADE	PUE	PUBLIC UTILITY EASEMENT	WL	WATER LINE
FGH	FINISHED GRADE, HIGH SIDE	PT	POINT OF TANGENT OR POINT	WPZ	WATER PRESSURE ZONE
FGL	FINISHED GRADE, LOW SIDE	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
FH	FIRE HYDRANT			WTR	WATER LINE

SPECIAL NOTE

IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED WHICH IS NOT SHOWN ON THESE DRAWINGS, THE OWNER AGREES TO PROVIDE AND INSTALL SUCH ITEM AT HIS OWN EXPENSE AND AT THE DIRECTION OF THE CITY OF LAS VEGAS DEPT. OF PUBLIC WORKS. TEMPORARY CONSTRUCTION ITEMS INCLUDE: PAVEMENT TRANSITIONS, PROTECTIVE DITCHES AND BERMS, ROAD SIGNS AND BARRICADES, ETC.

NOTICE TO CONTRACTOR

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

-EXISTING UTILITY LOCATIONS SHOWN HEREIN 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 LOCATIONS. CALL BEFORE YOU DIG: (800) 227-2600

LEGEND

EXISTING	PROPOSED	DESCRIPTION
(1900)	1900	5' CONTOUR
		1' CONTOUR
		STRIPING
		SEWER MANHOLE
		CURB AND GUTTER
EX 8" PVC SS	8" PVC SS	SANITARY SEWER PIPE AND FLOW ARROW
EX 8" PVC WTR	8" PVC WTR	WATER PIPE
		WATER GATE VALVE
		FIRE HYDRANT
		WATER BLOW-OFF
		WATER LATERAL W/ METER
		SANITARY SEWER LATERAL
		STREETLIGHT
		EDGE OF PAVEMENT
		TRAFFIC SIGN
EXIST XXX.X FF = XXX.X	PAD XXX.X FF = XXX.X	PAD ELEVATION FINISHED FLOOR ELEVATION
(XX.XX) TC	XX.XX TC	ELEVATION
		RETAINING WALL
		STORM DRAIN W/ MANHOLE

	EXISTING GAS GATE VALVE		PROPOSED SCARP AREA
@4in	EXISTING UNKNOWN MANHOLE		
GAS	EXISTING GAS, SIZE PER PLAN		DRIVEWAY
	EXISTING POWER POLE		
4X8	EXISTING TRAFFIC SIGNAL		PROPOSED RIP RAP
	EXISTING WALL		
	WATER PIPE FITTING		SIGHT VISIBILITY ZONE PER STD DWG NO. 201.2
POC	WATER POINT OF CONNECTION		
POC	SEWER POINT OF CONNECTION		HANDICAP RAMP
	DAYLIGHT LINE		FLOOD PROTECTED PERIMETER WALL (3 COURSES SOLID GROUT)
	STREET CENTERLINE		
	RIGHT-OF-WAY		
	MATCHLINE		
	BOUNDARY LINE		
	PHASE LINE		
	PROPERTY LINE		
	FLOWLINE		
	SAWCUT		
V FILL CUT V	CUT/FILL TRANSITION LINE		
	SIDEWALK		
	EX STRIPING TO BE OBLITERATED		
	GRADE BREAK LINE		
	REFLECTIVE RAISED PAVEMENT MARKERS		
BWV	BACK WATER VALVE		
	WROUGHT IRON FENCE		
	PONY WALL		
	DECORATIVE PERIMETER WALL		
	DECORATIVE PERIMETER RETAINING WALL		
	PROPOSED CURB AND CUTTER WITH RIGHT-OF-WAY AT BACK OF CURB		
	EXISTING CURB AND CUTTER WITH RIGHT-OF-WAY AT BACK OF CURB		
	FUTURE CURB AND CUTTER WITH RIGHT-OF-WAY AT BACK OF CURB		

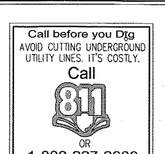
QUANTITIES

			PRIVATE	PUBLIC
DRAINAGE				
1.	48" TYPE II STORM DRAIN MANHOLE	EA	--	7
2.	60" TYPE III STORM DRAIN MANHOLE	EA	--	3
3.	2.5' X 4' NDOT TYPE II DROP INLET (2 GRATES)	EA	--	1
4.	7.5' TYPE "CM2" DROP INLET	EA	--	3
5.	15.0' TYPE "CM2" DROP INLET	EA	--	2
6.	12.5' TYPE "CM2" DROP INLET	EA	--	1
7.	20' TYPE "CM2" DROP INLET	EA	--	1
8.	18" RCP CLASS IV STORM DRAIN	LF	--	178
9.	18" PVC C-900 STORM DRAIN	LF	--	86
10.	24" RCP CLASS IV STORM DRAIN	LF	--	590
11.	30" RCP CLASS IV STORM DRAIN	LF	--	517
12.	36" RCP CLASS IV STORM DRAIN	LF	--	674
13.	42" RCP CLASS IV STORM DRAIN	LF	--	--
14.	RIPRAP D50=6", THK=12"	SF	--	3,475
15.	2' CONCRETE WIDE VALLEY GUTTER	SF	--	3,768
16.	8' WIDE CONCRETE CROSS GUTTER W/10" TYPE II AGGREGATE BASE	SF	--	8,407
17.	SIDEWALK UNDER DRAIN	EA	--	1
18.	DROP INLET CONCRETE APRON	SF	--	99
SEWER SYSTEM				
1.	4" PVC SEWER LATERAL (PRIVATE)	LF	--	--
2.	8" PVC SEWER PIPE (PUBLIC)	LF	--	--
3.	STANDARD 48" SEWER MANHOLE (PUBLIC)	EA	--	--
4.	8" SEWER PIPE CAP	EA	--	--
5.	BACK WATER VALVE	EA	--	--
6.	8" C-900 WATER QUALITY SEWER PIPE (PUBLIC)	EA	--	--
7.				
WATER SYSTEM				
1.	FIRE HYDRANT ASSEMBLY W/6" GATE VALVE PER UDACS PLATE NO. 40	EA	--	--
2.	6" PVC WATER PIPE (CLASS 150)	LF	--	--
3.	8" PVC WATER PIPE (CLASS 150)	LF	--	--
4.	8" DIP WATER PIPE (CLASS 53)	LF	--	--
5.	8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39	EA	--	--
6.	8" X 6" TEE PER UDACS PLATE NO. 31	EA	--	--
7.	8" X 8" TEE PER UDACS PLATE NO. 31	EA	--	--
8.	8" 5 DEGREE BEND WITH RESTRAINED JOINTS	EA	--	--
9.	8" 11.25 DEGREE BEND PER UDACS PLATE NO. 31	EA	--	--
10.	8" 22.5 DEGREE BEND PER UDACS PLATE NO. 31	EA	--	--
11.	8" 45 DEGREE BEND PER UDACS PLATE NO. 31	EA	--	--
12.	8" 90 DEGREE BEND PER UDACS PLATE NO. 31	EA	--	--
13.	CAP AND 2" BLOW-OFF ASSEMBLY W/CAP PER UDACS PLATE NO. 36	EA	--	--
14.	1" COPPER SERVICE W/ 3/4" METER PER UDACS PLATE NO. 2	EA	--	--
15.	1" COPPER SERVICE W/ 1" METER PER UDACS PLATE NO. 4	EA	--	--
16.	1" COPPER SERVICE W/ 3/4" METER & 1" RPPA PER UDACS PLATE NO. 4 & 8	EA	--	--
		EA	--	
STREET IMPROVEMENTS				
1.	2" A.C. PAVEMENT W/ 4" TYPE II OVER 6" TYPE I AGGREGATE BASE	SY	--	--
2.	STANDARD 18" TYPE "L" ISLAND CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	--	--
3.	STANDARD 8" TYPE "A" ISLAND CURB W/6" TYPE I AGGREGATE BASE	LF	--	--
4.	STANDARD 30" TYPE "ROLL" CURB & GUTTER W/6" TYPE I AGGREGATE BASE	LF	--	--
5.	4' WIDE CONCRETE SIDEWALK W/4" TYPE II AGGREGATE BASE	SF	--	--
6.				--
7.				
TRAFFIC SIGNALS				
1.	30" STOP SIGN WITH POST (R1-1)	EA	--	--
2.	9" STREET NAME SIGN (D-3, BROWN W/ WHITE LETTERS)(6 POLES x 2 PER POLE=12)	EA	--	--
3.	BLUE COLORED REFLECTIVE RAISED PAVEMENT MARKER	EA	--	--
4.	CROSSWALK MARKINGS	LF	--	--
5.				
6.				
7.				
8.				
DRY UTILITIES				
1.	100W H.P.S. LUMINAIRE STREET LIGHT W/DECORATIVE POLE	EA	--	--
2.	1-1/4" PVC STREET LIGHT CONDUIT WITH (2) #4 AND (1) #8 CONDUCTORS	LF	--	--
3.	NO. 3-1/2 PULL BOX W/METAL COVER	EA	--	--
4.	150 AMP SERVICE PEDESTAL (IRR)	EA	--	--
5.	200 AMP SERVICE PEDESTAL (STLT)	EA	--	--
6.				

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT PLANNING AND ENGINEERING SERVICES

PROJECT NO. _____ ADD. FIELD _____ FIRST APPROVED DATE: _____



Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

SEC 6
T 19 S
R 60 E

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
LEGEND - QUANTITIES

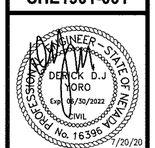
DATE: 7/20/20

DRAFTER: JDA

DESIGNER: JDA

CHECKED: DY

PROJECT NO.
SHE1901-001



C-3
SHEET 3 OF 30

DS-5261

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Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
MASTER GRADING PLAN

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER - STATE OF NEVADA
DERICK D. J. YORO
Exp. 06/30/2022
CIVIL
No. 16396
7/20/20

MG
SHEET 4 OF 30

DS-5261

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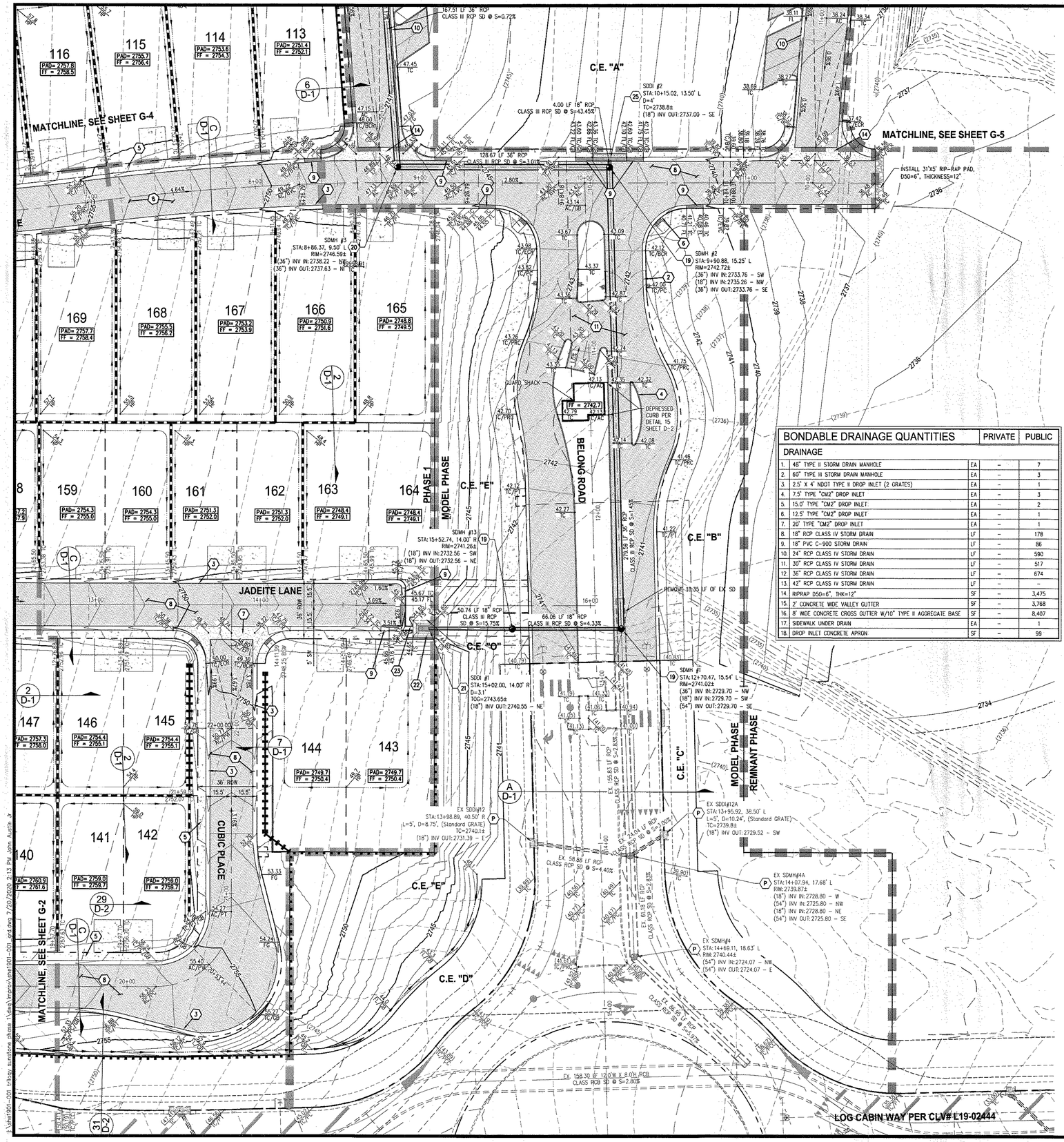

BONDABLE DRAINAGE QUANTITIES		PRIVATE	PUBLIC
DRAINAGE			
1. 48" TYPE II STORM DRAIN MANHOLE	EA	–	7
2. 60" TYPE III STORM DRAIN MANHOLE	EA	–	3
3. 2.5' X 4' NDOT TYPE II DROP INLET (2 GRATES)	EA	–	1
4. 7.5' TYPE "CM2" DROP INLET	EA	–	3
5. 15.0' TYPE "CM2" DROP INLET	EA	–	2
6. 12.5' TYPE "CM2" DROP INLET	EA	–	1
7. 20' TYPE "CM2" DROP INLET	EA	–	1
8. 18" RCP CLASS IV STORM DRAIN	LF	–	178
9. 18" PVC C-900 STORM DRAIN	LF	–	86
10. 24" RCP CLASS IV STORM DRAIN	LF	–	590
11. 30" RCP CLASS IV STORM DRAIN	LF	–	517
12. 36" RCP CLASS IV STORM DRAIN	LF	–	674
13. 42" RCP CLASS IV STORM DRAIN	LF	–	–
14. RIPRAP D50=6", THK=12"	SF	–	3,475
15. 2' CONCRETE WIDE VALLEY GUTTER	SF	–	3,768
16. 8' WIDE CONCRETE CROSS GUTTER W/10" TYPE II AGGREGATE BASE	SF	–	8,407
17. SIDEWALK UNDER DRAIN	EA	–	1
18. DROP INLET CONCRETE APRON	SF	–	99

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 182187 DATED 04/25/18

UPDATED SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 205210 DATED 02/27/20

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ADD FIELD CU YDS
FILL= ADD FIELD CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

DISCLAIMER NOTE

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

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

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEPING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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 A 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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.

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

GRADING NOTES

(P) CONTRACTOR SHALL PROTECT IN PLACE EXISTING IMPROVEMENTS (IE.UTILITY STRUCTURE, CURB & GUTTER) IN PLACE DURING CONSTRUCTION. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE AT NO COST TO OWNER. (ANY LANDSCAPING REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND.)

1. MATCH EXISTING IMPROVEMENTS
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3. CONSTRUCT ROLL TYPE CURB & GUTTER PER CCAUSD # 217.S1
4. CONSTRUCT "A" TYPE CURB & GUTTER PER CCAUSD #219
5. CONSTRUCT 5' SIDEWALK PER CCAUSD #234
6. CONSTRUCT CASE I SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOME OR EQUIVALENT PER CCAUSD #235
7. CONSTRUCT CROSS GUTTER PER DETAIL 16 ON SHEET D-2
8. CONSTRUCT 2" AC OVER 4" TYPE II AGGREGATE BASE, SEE SOILS REPORTS
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19. CONSTRUCT 48" TYPE II SDMH PER CCAUSD #401 & 405
20. CONSTRUCT 60" TYPE III SDMH PER CCAUSD #401 & 406
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BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

NOTE

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FLOOD CERTIFICATION

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DERICK YORO, P.E. 16396 — 7/20/20 DATE

FAST Call before you UnderGround 1-702-432-5300 FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP	APP DATE

LAS VEGAS, NEVADA

SHLP
PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN I

SEC 6 T 19 S R 60 E

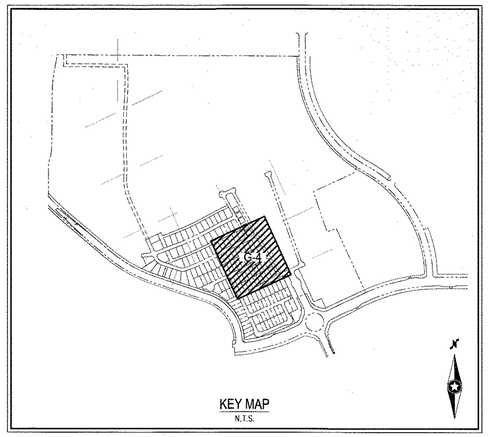
DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO. SHE1901-001

PROFESSIONAL ENGINEER STATE OF NEVADA DERICK D. J. YORO Exp. 06/30/2022 CIVIL No. 16396 7/20/20

G-1
SHEET 5 OF 30

DS-5261

X:\she1901-001 trilogy sunstone phase 1\dwg\xmicro\she1901-001 grd.dwg 7/20/2020 2:13 PM john Austin Jr



0 30 60
SCALE – 1"=30' FEET

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

SOILS REPORT

SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 182187 DATED 04/25/18

UPDATED SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 205210 DATED 02/27/20

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ADD FIELD CU YDS
FILL= ADD FIELD CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.

DISCLAIMER NOTE

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

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

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEIRNG FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENCING.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
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BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

NOTE

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DERICK YORO, P.E. 16396 — DATE 7/20/20

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westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN IV

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

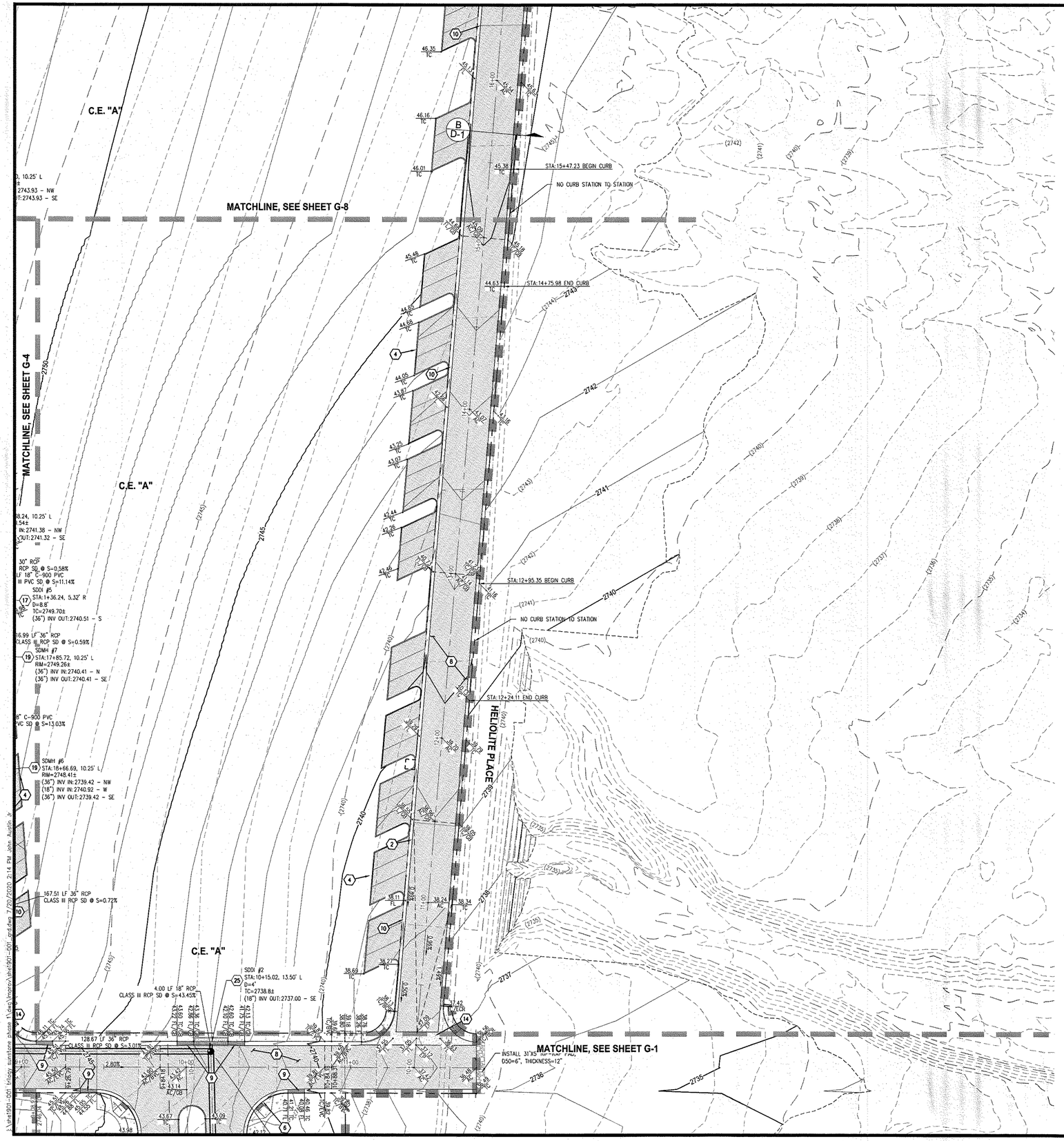
PROJECT NO.
SHE1901-001

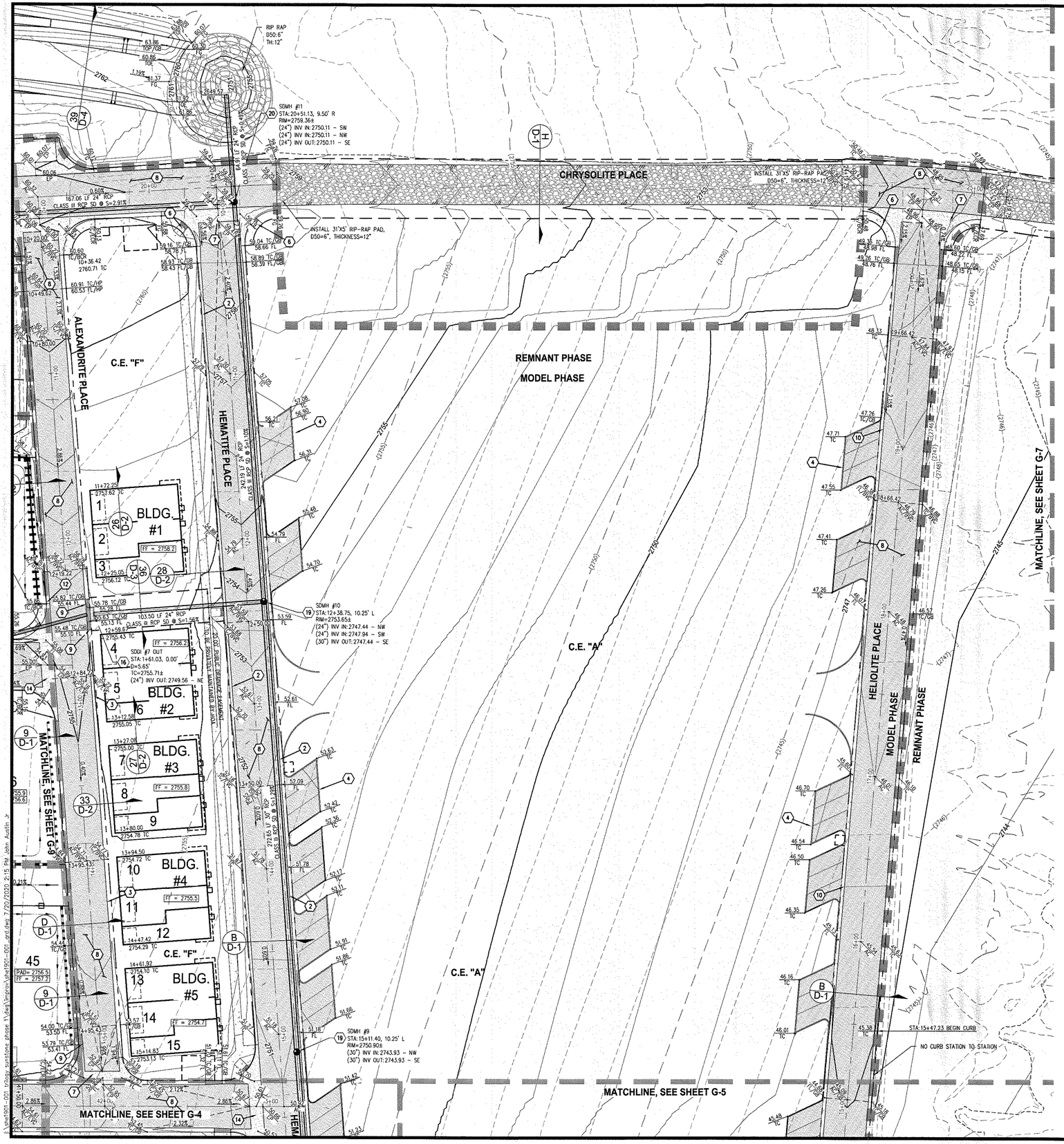
PROFESSIONAL ENGINEER – STATE OF NEVADA – DERICK D.J YORO – Exp. 06/30/2022 – CIVIL – No. 16396 – 7/20/20

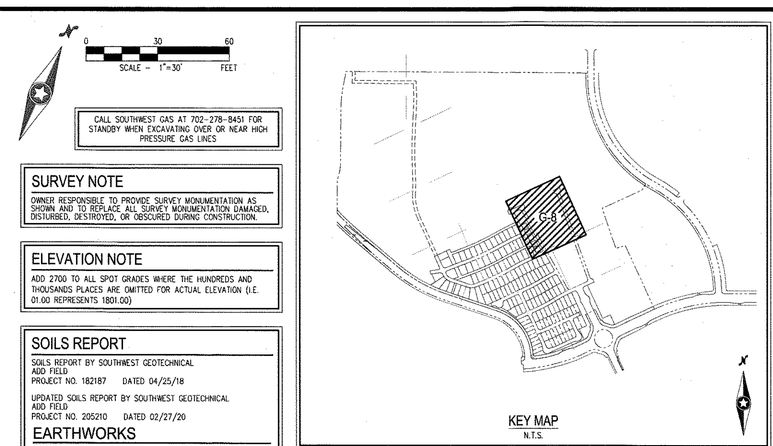
G-4
SHEET 8 OF 30

DS-5261

J:\she1901-001 Infinity sunstone phase 1\dwg\engrave\she1901-001_grd.dwg 7/20/2020 2:14 PM John Austin Jr


MATCHLINE, SEE SHEET G-8
MATCHLINE, SEE SHEET G-4
MATCHLINE, SEE SHEET G-1
C.E. "A"
HELIOLITE PLACE
STA:15+47.23 BEGIN CURB
NO CURB STATION TO STATION
STA:14+75.98 END CURB
STA:12+95.35 BEGIN CURB
NO CURB STATION TO STATION
STA:12+24.11 END CURB
INSTALL 31'X5' CONC. PAD, D50=6", THICKNESS=12"
SDDI #5 STA:1+36.24, 5.32' R D=8.8± TC=2749.70± (36") INV OUT:2740.51 - S
SDMH #7 STA:17+85.72, 10.25' L RIM=2749.26± (36") INV IN:2740.41 - N (36") INV OUT:2740.41 - SE
SDMH #6 STA:18+66.69, 10.25' L RIM=2748.41± (36") INV IN:2739.42 - NW (18") INV IN:2740.92 - W (36") INV OUT:2739.42 - SE
SDDI #2 STA:10+15.02, 13.50' L D=4' TC=2738.8± (18") INV OUT:2737.00 - SE
4.00 LF 18" RCP CLASS III RCP SD @ S=43.45%
128.67 LF 36" RCP CLASS III RCP SD @ S=3.01%
167.51 LF 36" RCP CLASS III RCP SD @ S=0.72%
16.99 LF 36" RCP CLASS III RCP SD @ S=0.59%
30" RCP RCP SD @ S=0.58%
18" C-900 PVC PVC SD @ S=11.14%
8" C-900 PVC PVC SD @ S=13.03%
2.80%
2.00%
2.00%
2.00





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DERICK YORO, P.E. 16396 — 7/20/20 DATE

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN VIII

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

PROJECT NO.
SHE1901-001

DERICK D. J. YORO — Exp. 06/30/2022 — No. 16396 — CIVIL — 7/20/20

G-8
SHEET 12 OF 30

DS-5261

J:\she1901-001 trilogy sunstone phase 1\dwg\improv\she1901-001 grd.dwg 7/20/2020 2:15 PM John Austin Jr

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

SOILS REPORT

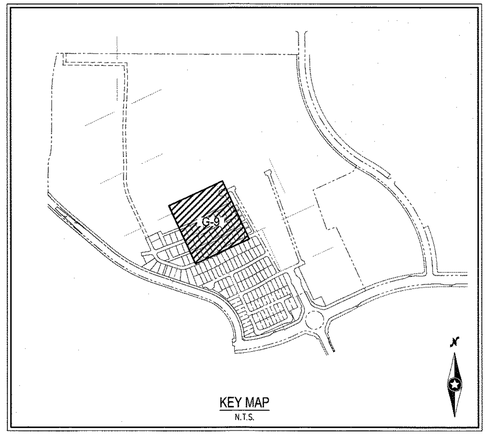
SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 182187 DATED 04/25/18

UPDATED SOILS REPORT BY SOUTHWEST GEOTECHNICAL
ADD FIELD
PROJECT NO. 205210 DATED 02/27/20

EARTHWORKS

EARTHWORK QUANTITIES (RAW):
CUT= ADD FIELD CU YDS
FILL= ADD FIELD CU YDS

EXPORTED MATERIAL TO BE DISPOSED OF AT AN APPROVED LICENSED DISPOSAL FACILITY OR AT A SITE WITH AN APPROVED AND ACTIVE GRADING PERMIT.



KEY MAP
N.T.S.

DISCLAIMER NOTE

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

GRADING NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
2. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
3. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
4. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
5. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
6. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
7. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING UTILITY STRUCTURES AND FACILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. CONTRACTOR TO PROTECT IN PLACE DURING CONSTRUCTION. ENGINEER/OWNER SHALL BE NOTIFIED OF PRIOR DAMAGE TO EXISTING FACILITIES PRIOR TO CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR/REPLEIING FACILITIES IF ENGINEER/OWNER IS NOT NOTIFIED OF EXISTING DAMAGE PRIOR TO CONSTRUCTION COMMENONG.
8. NO STRUCTURE, VEGETATION, OR OBJECTS OF ANY KIND IS PERMITTED OVER TWENTY-FOUR (24) INCHES IN HEIGHT (MEASURED FROM THE TOP OF THE ADJACENT CURB IF CURB EXIST) WITHIN THE SIGHT VISIBILITY ZONES.

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(P) CONTRACTOR SHALL PROTECT IN PLACE EXISTING IMPROVEMENTS (IE.UTILITY STRUCTURE, CURB & GUTTER) IN PLACE DURING CONSTRUCTION. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE AT NO COST TO OWNER. (ANY LANDSCAPING REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND.)

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3. CONSTRUCT ROLL TYPE CURB & GUTTER PER CCAUSD # 217.S1
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LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDELINES

(REQUIRED FOR ALL SITES GREATER THAN 1 ACRE (43,560 SQ.FT.))

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 ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
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 CLARK COUNTY TITLE 24.40 AND IN THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, 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 A 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 THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
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BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK– 2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

NOTE

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FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS-5261 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

DERRICK YORO, PE# 16396 — DATE 7/20/20

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T)

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

Call before you Dig
AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY.
Call 811 OR 1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP'D DATE	APP'D

LAS VEGAS, NEVADA

SHLP
PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN IX

SEC 6
T19S
R60E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

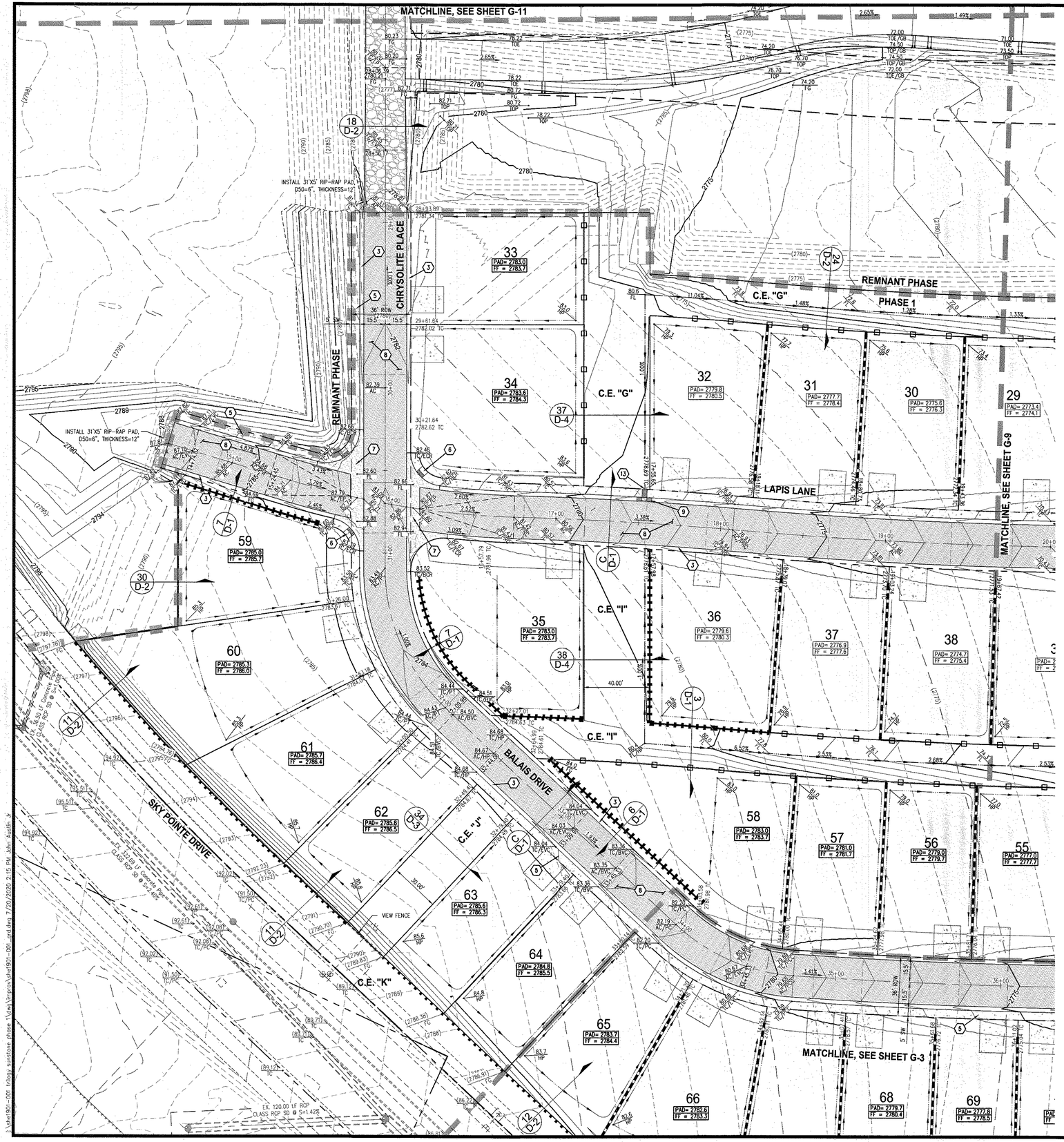
PROJECT NO.
SHE1901-001

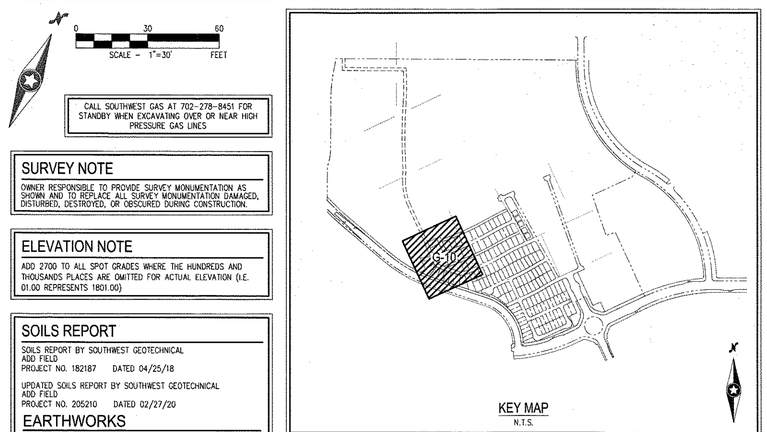
PROFESSIONAL ENGINEER – STATE OF NEVADA – DERRICK D. J. YORO – Exp. 06/30/2022 – CIVIL – No. 16396 – 7/20/20

G-9
SHEET 13 OF 30

DS-5261

J:\she1901-001 tridory sunstone phase 1\dwg\mgnrch\she1901-001 grd.dwg 7/20/2020 2:15 PM John Austin Jr





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ADD FIELD
PROJECT NO. 182187 DATED 04/25/18

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MONUMENT ID: USDA (1934) 19

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DERICK YORO, P.E. 16396 — DATE 7/20/20

FAST Call before you Underground 1-702-432-5300 FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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

Call before you Dig AVOID CUTTING UNDERGROUND UTILITY LINES. IT'S COSTLY. Call 811 OR 1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

LAS VEGAS, NEVADA

SHLP
PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
GRADING PLAN X

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

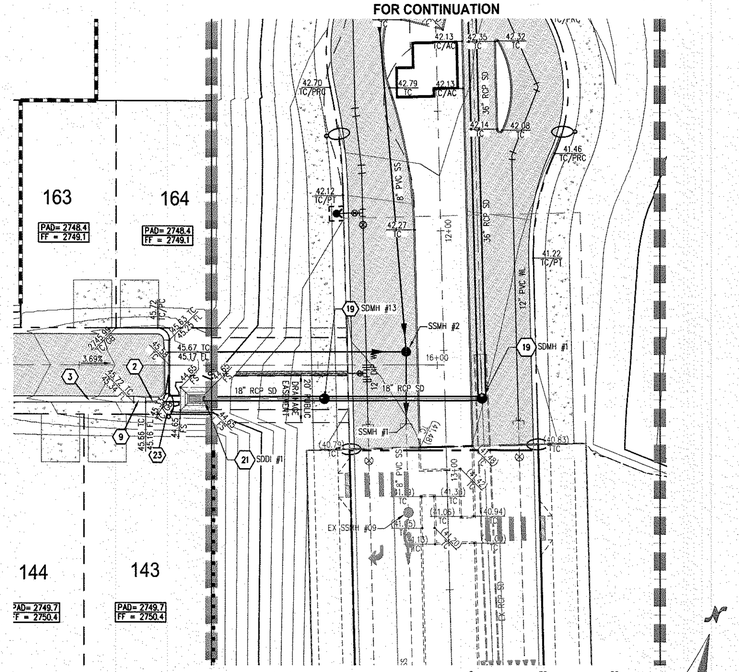
PROFESSIONAL ENGINEER STATE OF NEVADA DERICK D.J YORO No. 16396 EXP. 06/30/2022 CIVIL — 7/20/20

G-10
SHEET 14 OF 30

DS-5261

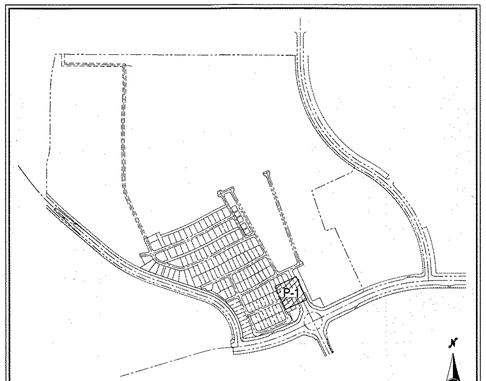
I:\she1901-001 tidicy sunstone phase 1\dwg\approx\she1901-001_grd.dwg 7/20/2020 2:15 PM John Austin Jr

BELONG ROAD
SEE SHEET P-2
FOR CONTINUATION



JADEITE LANE - PLAN VIEW
SCALE: 1"= 30'

SCALE – 1"=30' (0, 30, 60 FEET)



KEY MAP
N.T.S.

WATER NOTES

1. INSTALL 1" COPPER SERVICE WITH 3/4" METER PER UDACS PLATE NO. 1
2. INSTALL 1" COPPER SERVICE WITH 3/4" IRRIGATION METER AND 1" RPPA PER UDACS PLATE NO. 4 & 8.
3. INSTALL 1.5" COPPER SERVICE WITH 1.5" METER AND 2" RPPA PER UDACS PLATE NO. 4 & 8.
4. INSTALL 8"X6" TEE PER UDACS PLATE NO. 31 AND FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
5. INSTALL 12"X6" TEE PER UDACS PLATE NO. 31 AND FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
6. INSTALL 8"X8" TEE WITH THRUST BLOCKS PER UDACS PLATE NO. 31
7. INSTALL 12"X12" TEE WITH THRUST BLOCKS PER UDACS PLATE NO. 31
8. INSTALL 8" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39
9. INSTALL 12" GATE VALVE WITH VALVE BOX PER UDACS PLATE NO. 30 & 39
10. INSTALL 8"X6" REDUCER PER UDACS PLATE NO. 30
11. INSTALL 12"X8" REDUCER PER UDACS PLATE NO. 30
12. INSTALL CAP AND 2" BLOWOFF VALVE PER UDACS PLATE NO. 36
13. INSTALL 1° HORIZONTAL DEFLECTION PER UDACS SEC. 2.07
14. INSTALL 5° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
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GRADING NOTES

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BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 0°0'1"50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

SURVEY NOTE

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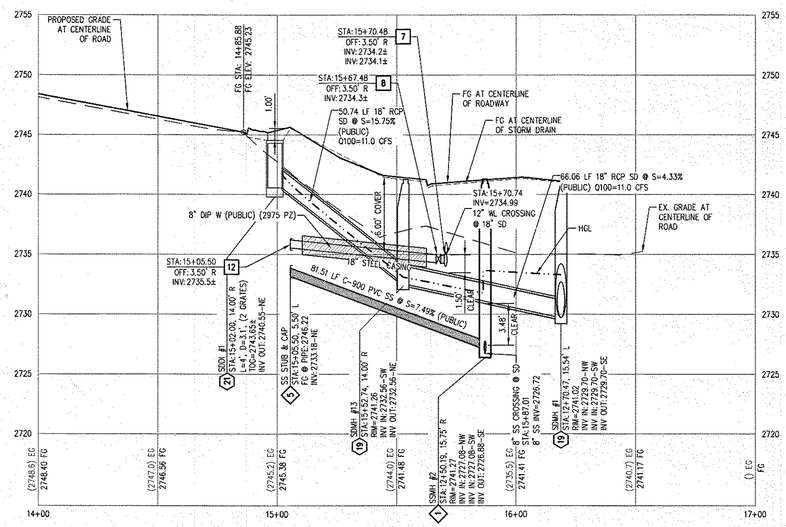
5. INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5



JADEITE LANE - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 6'

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES

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FREEWAY & ARTERIAL SYSTEM OF TRANSPORTATION (F.A.S.T.)

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CALL BEFORE YOU DO OVERHEAD
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Call 811
OR
1-800-227-2600

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

SEC'S 6
T-19 S
R 60 E

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
JADEITE LANE PLAN & PROFILE 14+00 TO 16+50

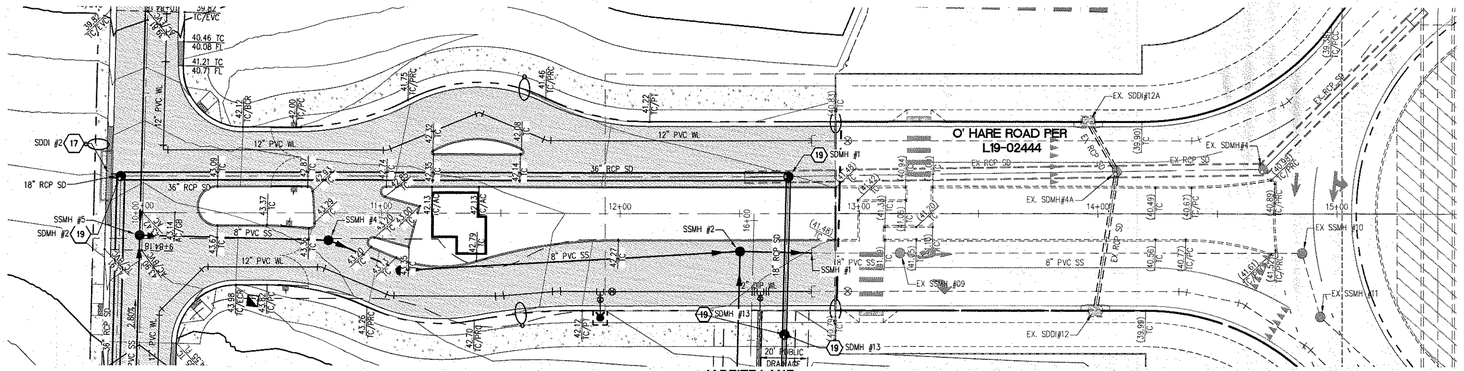
DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

DERICK D.J. YORO
Exp. 06/30/2022
CIVIL
No. 16396
7/20/20

P-1
SHEET 19 OF 30

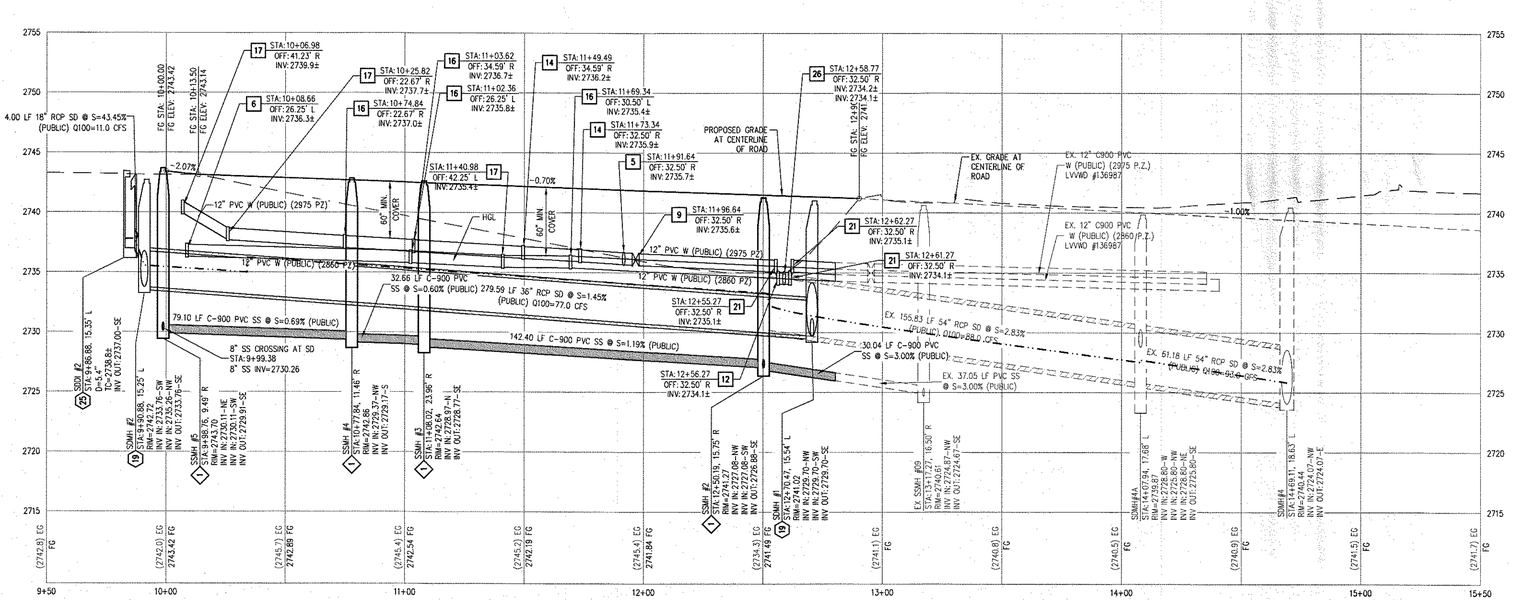
DS-5261

Z:\shle1901-001 1-Sdpy sunstone phase 1\dwg\engrcv\she1901-001_pms.dwg 7/20/2020 2:16 PM John Austin Jr



BELONG ROAD - PLAN VIEW
SCALE: 1"= 30'

SCALE – 1"=30' (0, 30, 60 FEET)



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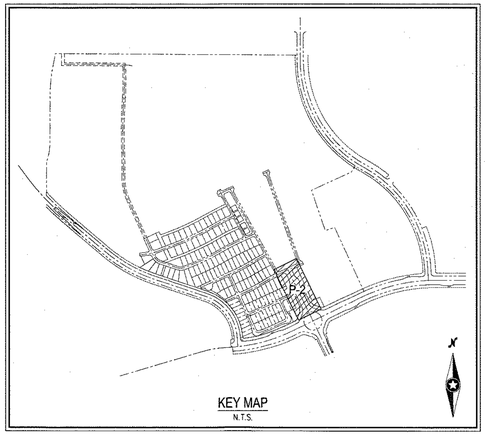

KEY MAP
N.T.S.

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BENCHMARK

MONUMENT ID: USDA (1934) 19

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Las Vegas, NV 89118
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Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP.	APP. DATE

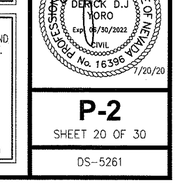
LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
BELONG ROAD PLAN & PROFILE 9+50 TO 15+50

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001



P-2
SHEET 20 OF 30

DS-5261

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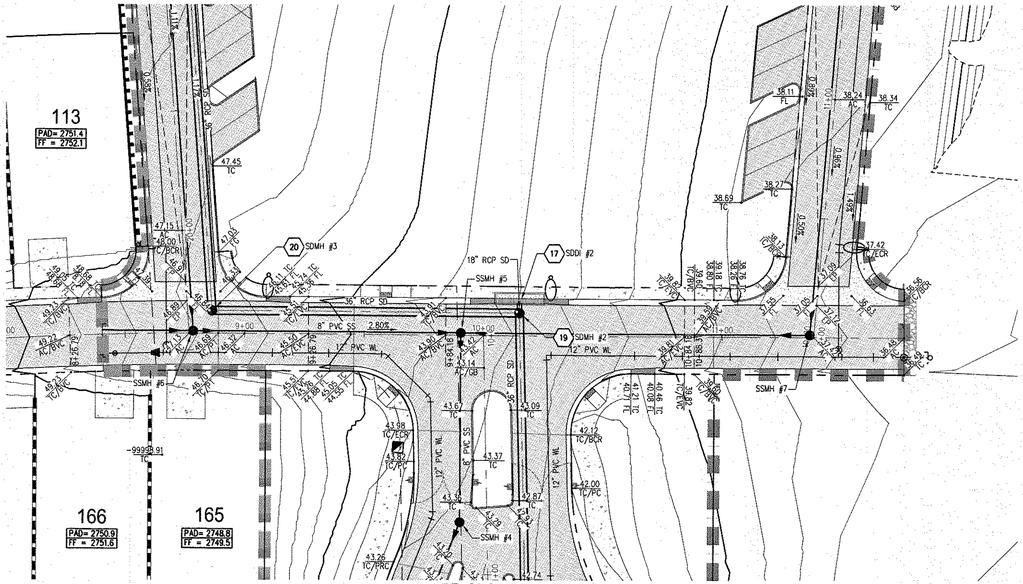
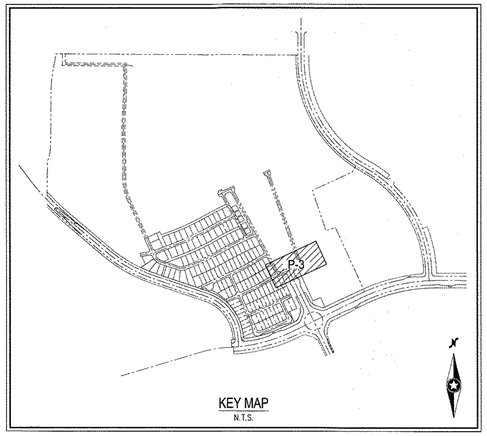
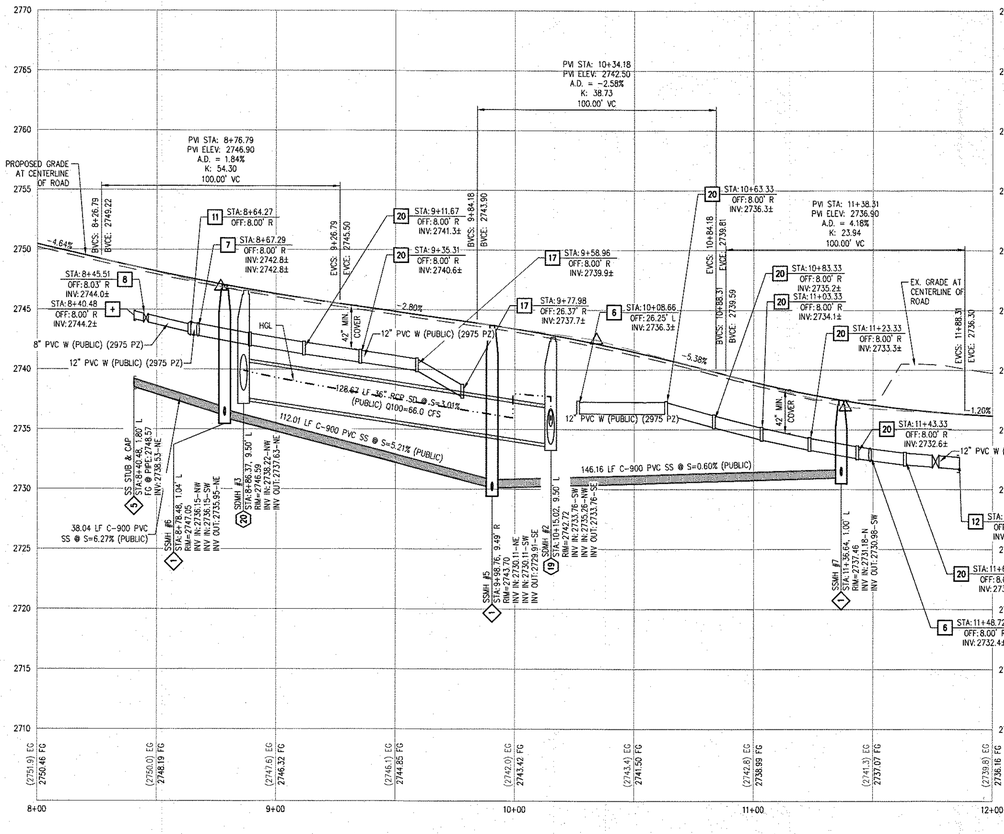


AMONG LANE - PLAN VIEW
SCALE: 1"= 30'



0 30 60
SCALE – 1"=30' FEET



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2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

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THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

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Fax (702) 284-5399
5740 S. Arville Street
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Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

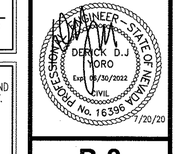
SHLP

SEC 6
T 19 S
R 60 E

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
AMOND LANE PLAN & PROFILE 8+00 TO 14+00

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: DY
CHECKED: DY

PROJECT NO.
SHE1901-001



P-3
SHEET 21 OF 30

DS-5261

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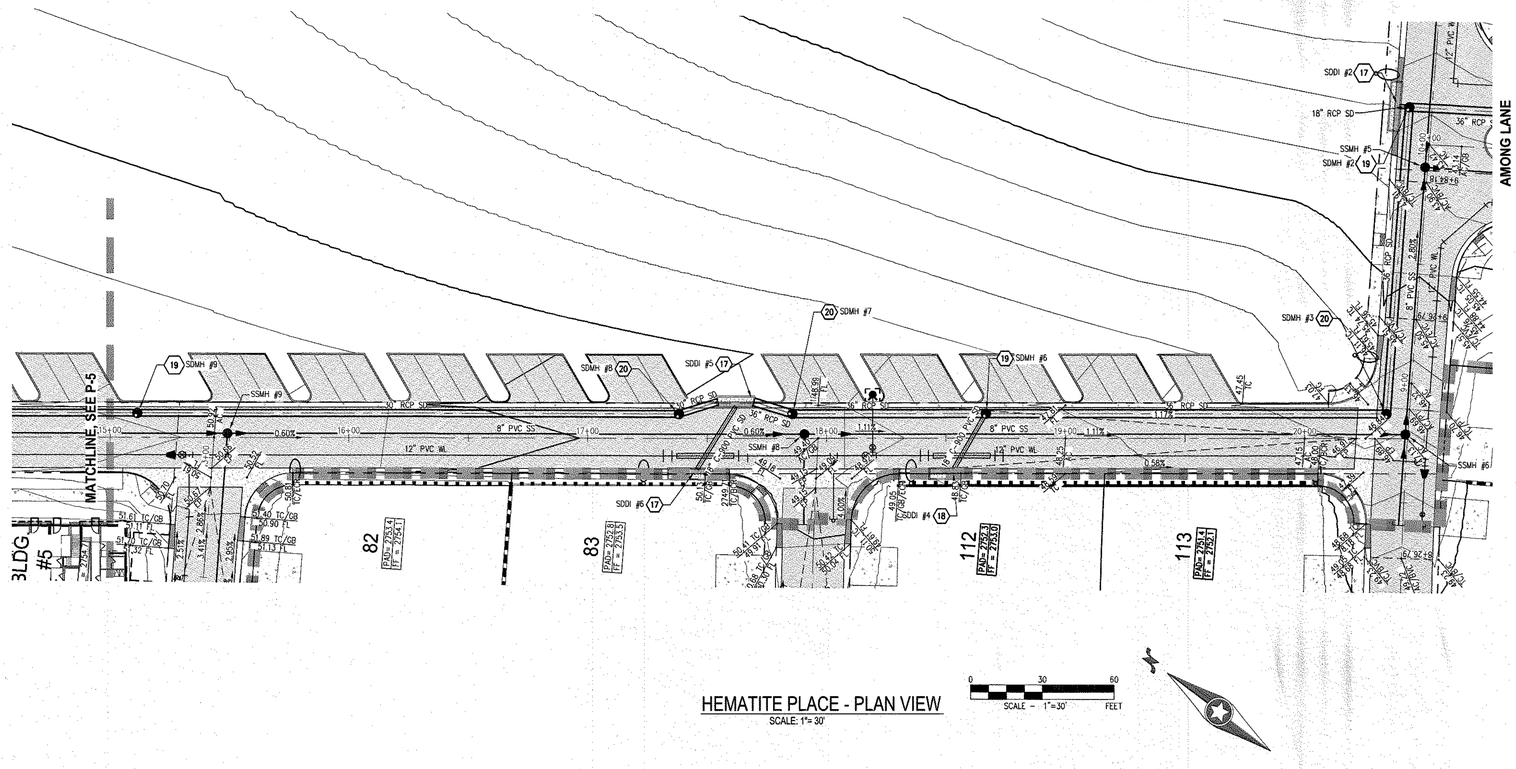
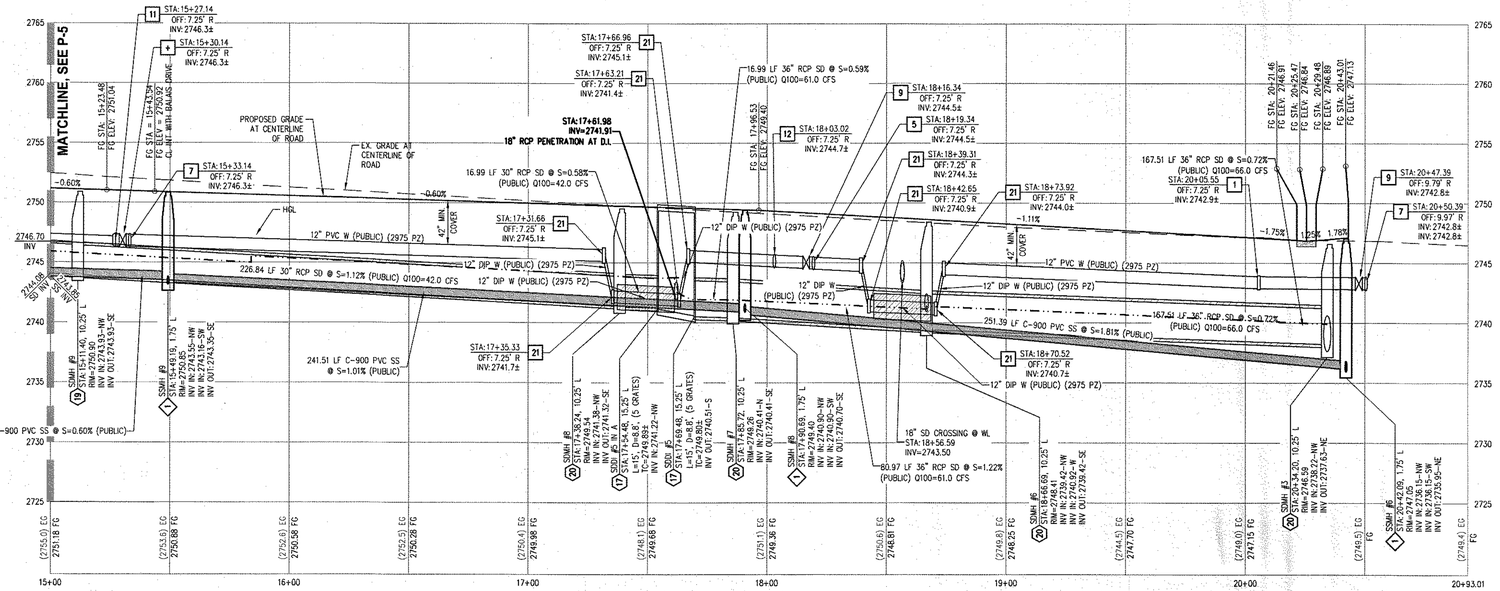
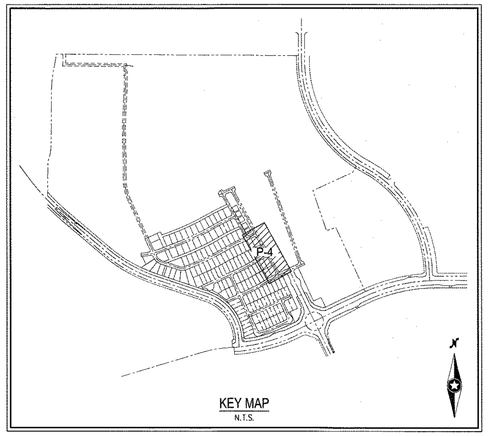


HEMATITE PLACE - PLAN VIEW
SCALE: 1"= 30'

0 30 60
SCALE - 1"=30' FEET



HEMATITE PLACE - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 6'



KEY MAP
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WATER NOTES

1. INSTALL 1" COPPER SERVICE WITH 3/4" METER PER UDACS PLATE NO. 1
2. INSTALL 1" COPPER SERVICE WITH 3/4" IRRIGATION METER AND 1" RPPA PER UDACS PLATE NO. 4 & 8.
3. INSTALL 1.5" COPPER SERVICE WITH 1.5" METER AND 2" RPPA PER UDACS PLATE NO. 4 & 8.
4. INSTALL 8"X6" TEE PER UDACS PLATE NO. 31 AND FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
5. INSTALL 12"X6" TEE PER UDACS PLATE NO. 31 AND FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40
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7. INSTALL 12"X12" TEE WITH THRUST BLOCKS PER UDACS PLATE NO. 31
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10. INSTALL 8"X6" REDUCER PER UDACS PLATE NO. 30
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13. INSTALL 1° HORIZONTAL DEFLECTION PER UDACS SEC. 2.07
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3. INSTALL 4" PVC SANITARY SEWER LATERAL PER DCSWCS SD-17, SD-20, AND SD-23
4. INSTALL 8" C-900 SANITARY SEWER PER DCSWCS SD-15 & SD-17
5. INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5

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BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

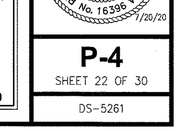
SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
HEMATITE PLACE PLAN & PROFILE 15+00 TO 20+50

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

PROJECT NO.
SHE1901-001



P-4
SHEET 22 OF 30

DS-5261

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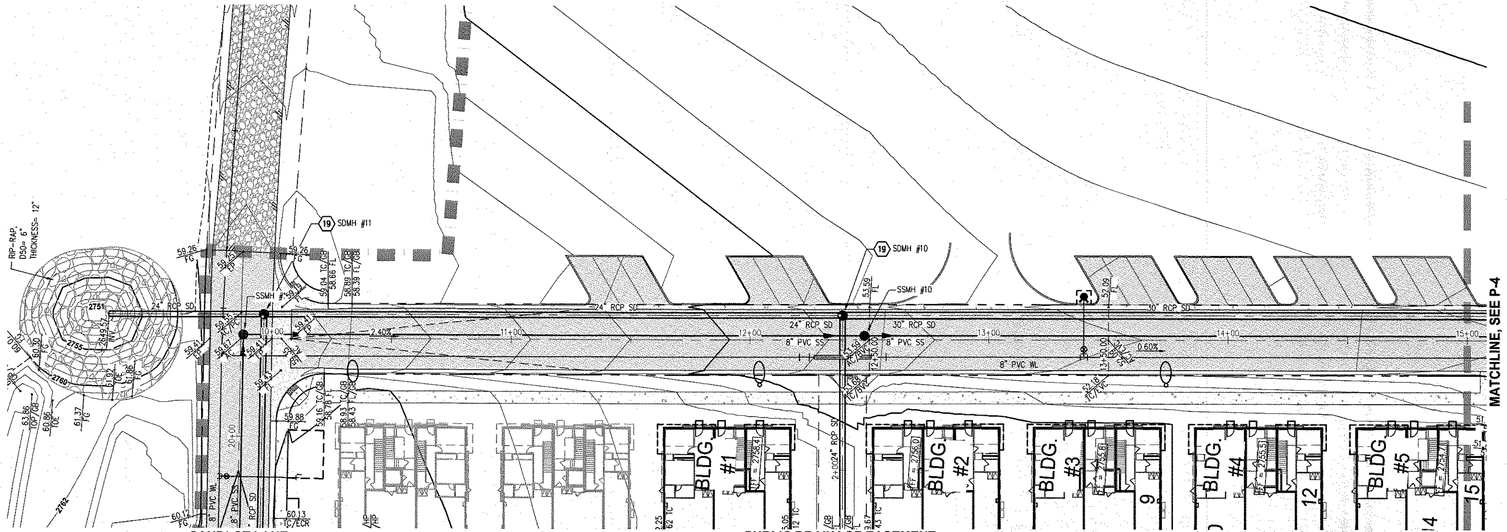

HEMATITE PLACE - PLAN VIEW
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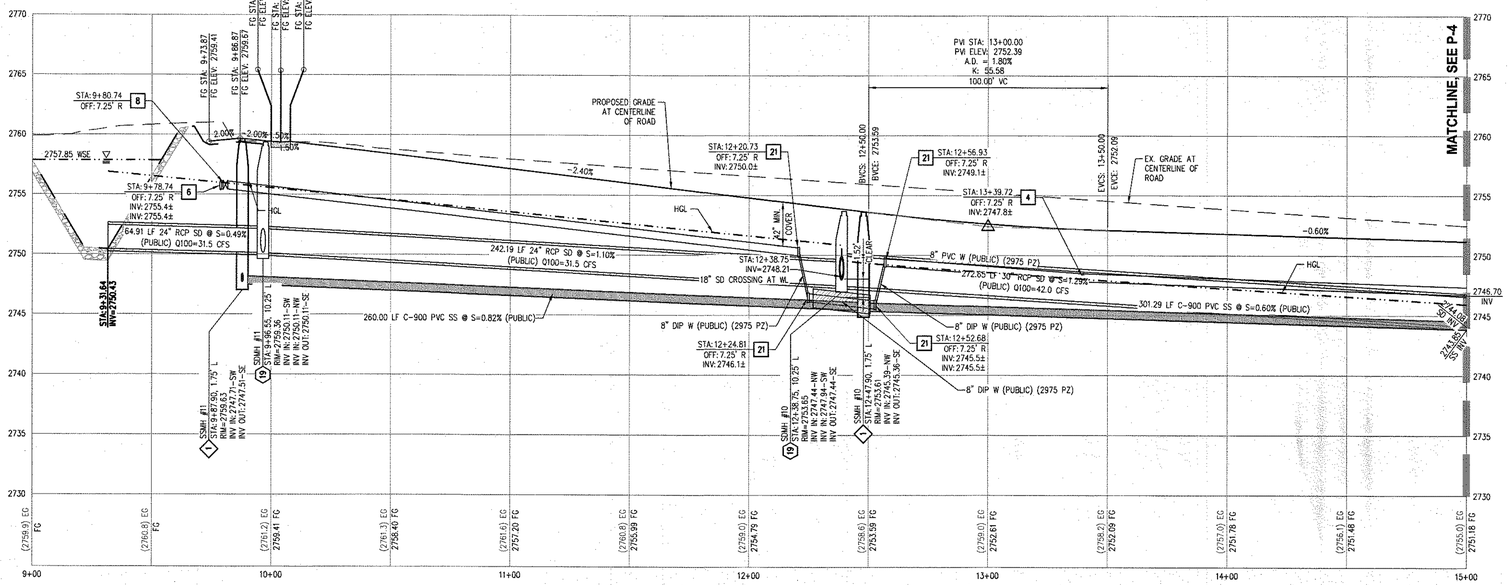
SCALE – 1"=30' (0, 30, 60 FEET)



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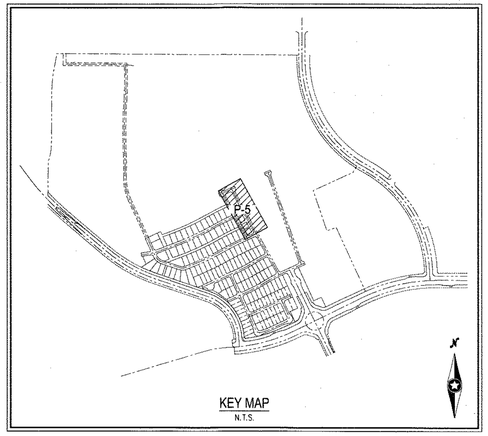

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MONUMENT ID: USDA (1934) 19

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NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
HEMATITE PLACE PLAN & PROFILE 9+50 TO 15+00

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER – STATE OF NEVADA
DERRICK D.J. VORO
Exp. 06/30/2022
CIVIL
No. 16396
7/20/20

P-5
SHEET 23 OF 30

DS-5261

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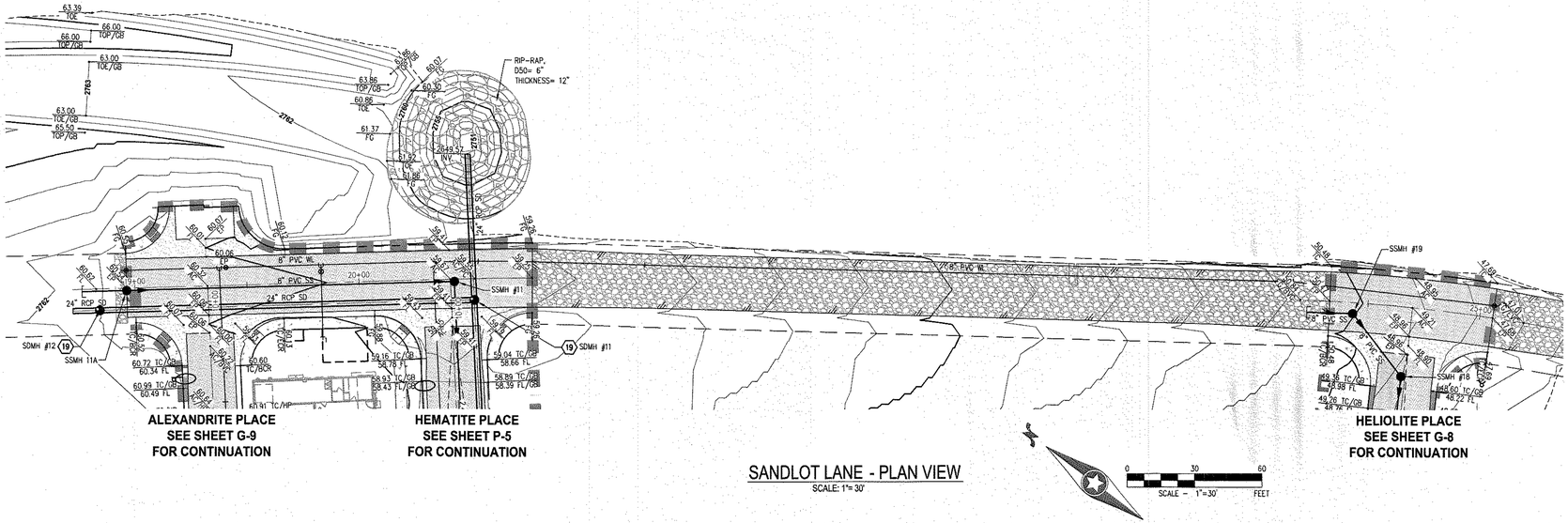
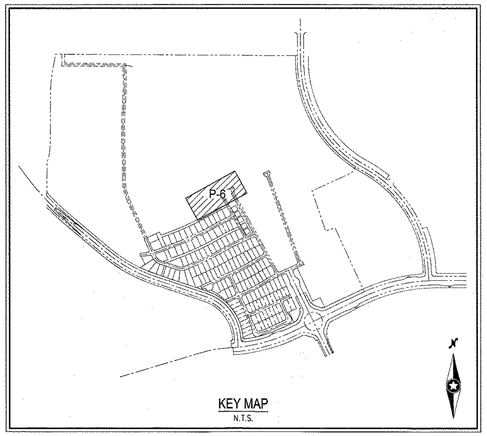


SANDLOT LANE - PLAN VIEW
SCALE: 1"= 30'

SCALE – 1"=30' 0 30 60 FEET



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12. INSTALL CAP AND 2" BLOWOFF VALVE PER UDACS PLATE NO. 36
13. INSTALL 1° HORIZONTAL DEFLECTION PER UDACS SEC. 2.07
14. INSTALL 5° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
15. INSTALL 11.25° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
16. INSTALL 22.5° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
17. INSTALL 45° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
18. INSTALL 90° HORIZONTAL BEND PER UDACS PLATE NO. 31 (SIZE SHALL MATCH WATER MAIN SIZE)
19. FIELD VERIFY, REMOVE EX CAP & BLOW-OFF, AND CONNECT TO EXISTING WATERLINE
20. INSTALL 1° VERTICAL DEFLECTION PER UDACS SEC. 2.07
21. INSTALL 8" 45° VERTICAL BEND PER UDACS PLATE NO. 31
22. INSTALL (2) 4" IRRIGATION SLEEVES
23. INSTALL STEEL ENCASEMENT PER UDACS PLATE 22 & 23
24. INSTALL 8" RPDA PER UDACS PLATE 56
25. INSTALL FIRE HYDRANT ASSEMBLY WITH 6" GATE VALVE PER UDACS PLATE NO. 40

GRADING NOTES

- (P) CONTRACTOR SHALL PROTECT IN PLACE EXISTING IMPROVEMENTS (IE.UTILITY SIRUCTURE, CURB & GUTTER) IN PLACE DURING CONSTRUCTION. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE AT NO COST TO OWNER. (ANY LANDSCAPING REMOVED DURING CONSTRUCTION SHALL BE REPLACED IN KIND.)
1. MATCH EXISTING IMPROVEMENTS
2. CONSTRUCT "L" TYPE CURB & GUTTER PER CCAUSD #216
3. CONSTRUCT ROLL TYPE CURB & GUTTER PER CCAUSD # 217.S1
4. CONSTRUCT "A" TYPE CURB & GUTTER PER CCAUSD #219
5. CONSTRUCT 5' SIDEWALK PER CCAUSD #234
6. CONSTRUCT CASE I SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOME OR EQUIVALENT PER CCAUSD #235
7. CONSTRUCT CROSS GUTTER PER DETAIL 16 ON SHEET D-2
8. CONSTRUCT 2" AC OVER 4" TYPE II AGGREGATE BASE, SEE SOILS REPORTS
9. CONSTRUCT "L" TO ROLL CURB TRANSITION PER DETAIL 13 ON SHEET D-2
10. CONSTRUCT 2' VALLEY GUTTER PER DETAIL 10 ON SHEET D-1
11. CONSTRUCT 3" AC OVER 4" TYPE II AGGREGATE BASE, SEE SOILS REPORTS
12. CONSTRUCT DEPRESSED 'L'-CURB CURB PER DETAIL 14 ON SHEET D-2
13. CONSTRUCT SIDEWALK UNDERDRAIN PER CCAUSD #236
14. CONSTRUCT CROSS GUTTER PER CCAUSD #228
15. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=5' (1 GRATE), DEPTH PER PLAN
16. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=7.5' (2 GRATE), DEPTH PER PLAN
17. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=15' (5 GRATE), DEPTH PER PLAN
18. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=12.5' (4 GRATE), DEPTH PER PLAN
19. CONSTRUCT 48" TYPE II SDMH PER CCAUSD #401 & 405
20. CONSTRUCT 60" TYPE III SDMH PER CCAUSD #401 & 406
21. CONSTRUCT 2.5' X 4' NDOT TYPE 2 D.I. WITH (2) GRATES, PER DETAIL ON SHEET D-3
22. CONSTRUCT NDOT DROP INLET CONCRETE APRON PER DETAIL ON SHEET D-3
23. CONSTRUCT 1'-CURB TO CONCRETE FLUME PER DETAIL 19 ON SHEET D-2
24. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=10' (3 GRATE), DEPTH PER PLAN
25. CONSTRUCT TYPE "CM2" D.I. PER CCAUSD #412.1 & 421 L=20' (7 GRATE), DEPTH PER PLAN

SEWER NOTES

1. INSTALL 48" DIAMETER SANITARY SEWER MANHOLE PER DCSWCS SD-1, SD-3, AND SD-4, WITH SINGLE 24" LID
2. INSTALL 8" SDR-35 PVC SANITARY SEWER PER DCSWCS SD-15 & SD-17
3. INSTALL 4" PVC SANITARY SEWER LATERAL PER DCSWCS SD-17, SD-20, AND SD-23
4. INSTALL 8" C-900 SANITARY SEWER PER DCSWCS SD-15 & SD-17
5. INSTALL 8" CAP WITH THRUST BLOCK PER DCSWCS SECTION 2.2.5

BENCHMARK

MONUMENT ID: USDA (1934) 19

U.S. DEPARTMENT OF AGRICULTURE BRASS DISC AT SOUTHWEST CORNER OF U.S. 95 AND KYLE CANYON ROAD

ELEVATION = 2817.61 FEET, 858.810 METERS
NAVD 88 DATUM

PER THE CITY OF LAS VEGAS BENCHMARK BOOK–
2008 ADJUSTMENT (UPDATED 05/24/2010)

BASIS OF BEARINGS

NORTH 00°01'50" WEST, BEING THE BEARING OF THE EAST LINE OF THE NORTHEAST QUARTER (NE1/4) OF SECTION 6, TOWNSHIP 19 SOUTH, RANGE 60 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA, AS SHOWN BY MAP THEREOF IN FILE 151, PAGE 14 OF SURVEYS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

ELEVATION NOTE

ADD 2700 TO ALL SPOT GRADES WHERE THE HUNDREDS AND THOUSANDS PLACES ARE OMITTED FOR ACTUAL ELEVATION (I.E. 01.00 REPRESENTS 1801.00)

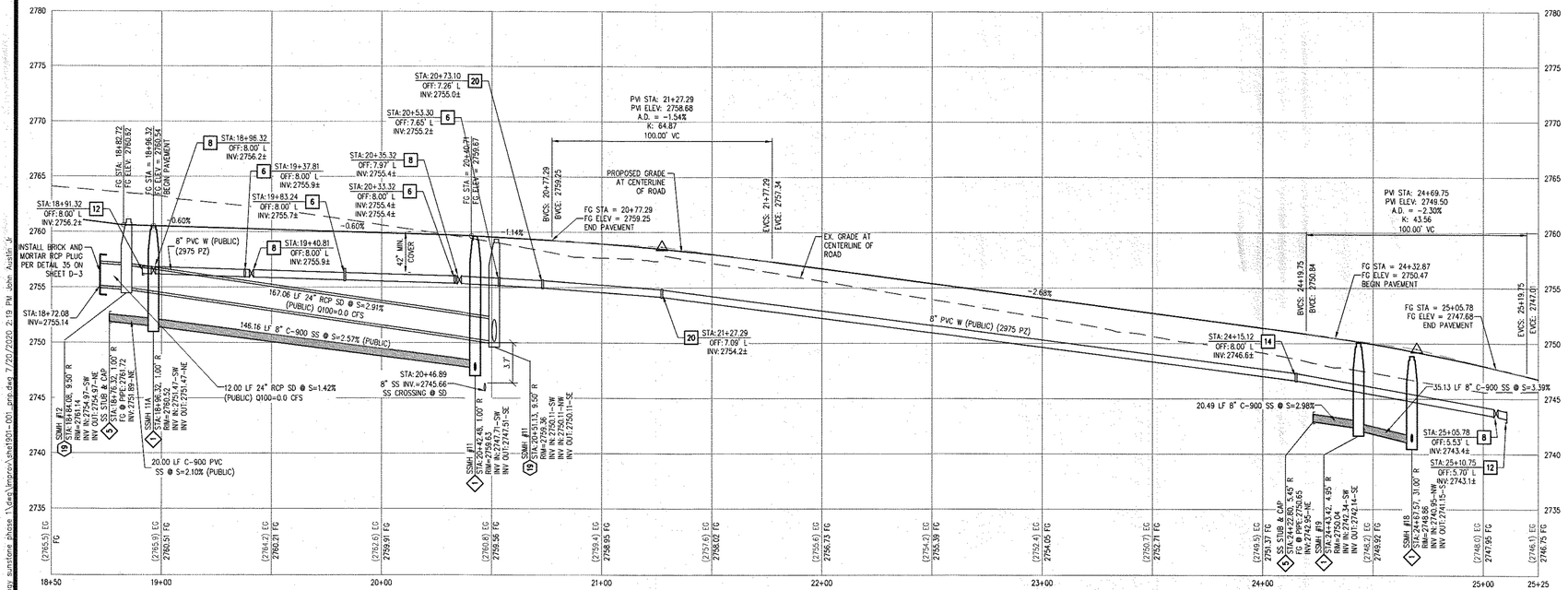
FLOOD ZONE

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATION ZONE X, UNSHADED (AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PER FLOOD INSURANCE RATE MAP (FIRM) PANEL 32003C1750E, UPDATED SEPTEMBER 27, 2002.

SURVEY NOTE

OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR OBSCURED DURING CONSTRUCTION.

CALL SOUTHWEST GAS AT 702-278-8451 FOR STANDBY WHEN EXCAVATING OVER OR NEAR HIGH PRESSURE GAS LINES



SANDLOT LANE - PROFILE VIEW
HORIZ: 1" = 30'
VERT: 1" = 6'

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
SANDLOT LANE PLAN & PROFILE 15+50 TO 21+50

SEC 6
T 19
R 60E

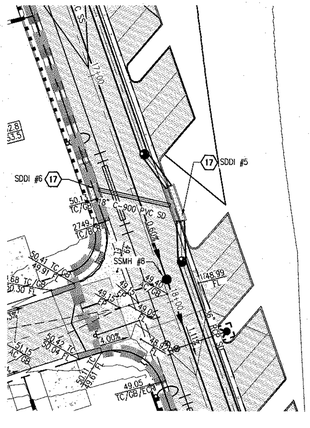
DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO.
SHE1901-001

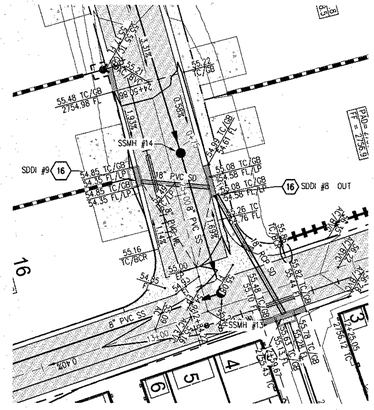
DERRICK D.J. YORO — Exp. 06/30/2022 — CIVIL — No. 16396 — STATE OF NEVADA — PROFESSIONAL ENGINEER
7/20/20

P-6
SHEET 24 OF 30

DS-5261

J:\she1901-001 tricopy sunstone phase 1\dwg\engrov\she1901-001 prin.dwg 7/20/2020 2:19 PM John Austin Jr


SDDI #6
17
SDDI #5
SSMH #8
TC=2749.82
INV OUT=2745.32-E
SSMH #9
TC=2749.70
INV IN=2741.91-W
49.05 TC/108.00 FG
49.41 TC/108.00 FG
49.30 FL
49.45 TC/108.00 FG
49.45 TC/108.00 FG
49.45 TC/108.00 FG


SSMH #14
SDDI #9
SDDI #8 OUT
8" PVC SD
55.48 TC/GB
55.85 TC/GB
55.16 TC/BOX
54.85 FL/UP
54.35 FL/UP
55.08 TC/GB
54.58 FL/UP
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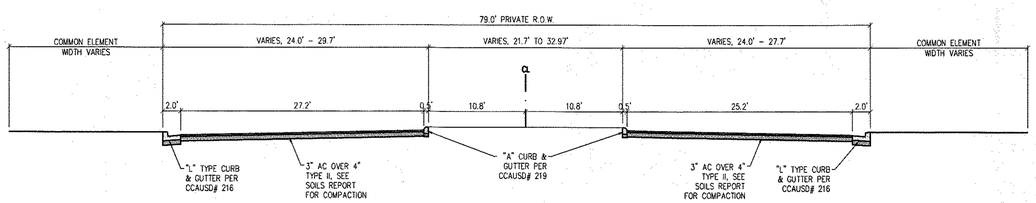
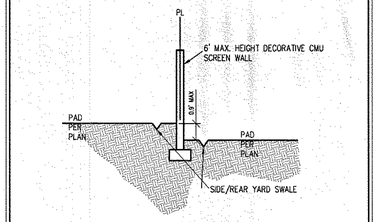
55.16 TC/GB
54.66 FL/UP
54.16



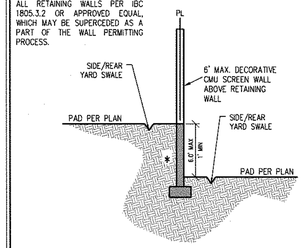
A. PRIVATE COMMUNITY ENTRY ROAD

NOT TO SCALE — NO PARKING



1. CROSS SECTION

NOT TO SCALE



2. CROSS SECTION

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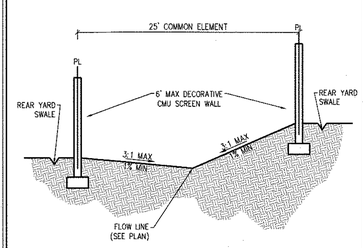
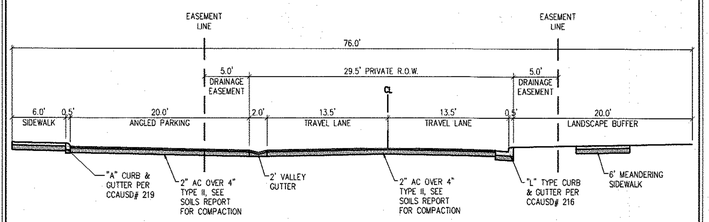


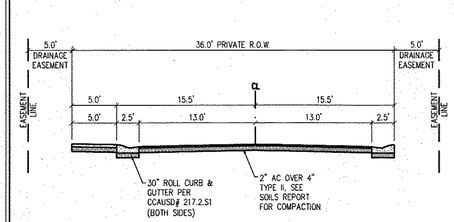
3. COMMON ELEMENT 'I' CROSS SECTION

NOT TO SCALE



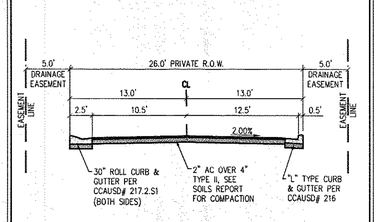
B. PRIVATE CLUB DRIVE WITH ANGLED PARKING

NOT TO SCALE — PARKING IN ANGLED PARKING ONLY



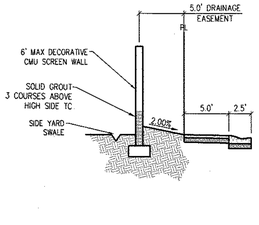
C. PRIVATE RESIDENTIAL STREET

NOT TO SCALE — PARKING ONE SIDE ONLY



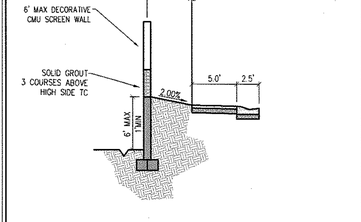
D. PRIVATE ALLEY

NOT TO SCALE — NO PARKING



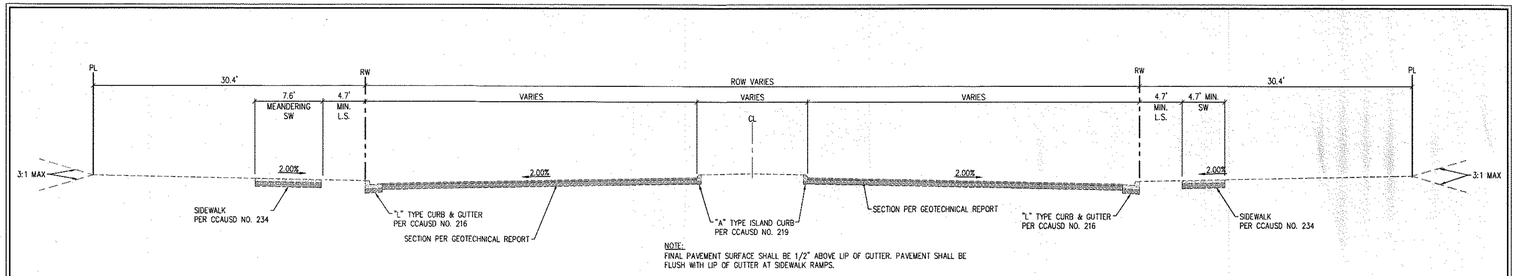
4. CROSS SECTION WITH GROUT WALL

NOT TO SCALE



5. SECTION WITH GROUT WALL ON RET. WALL

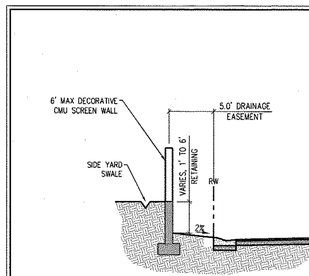
NOT TO SCALE



NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER. PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

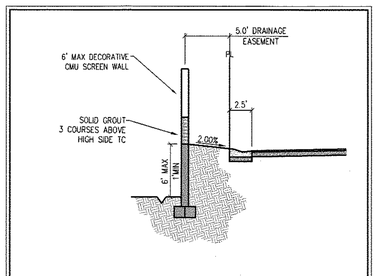
E. EX. LOG CABIN WAY PER CLV# L19-02444

NOT TO SCALE



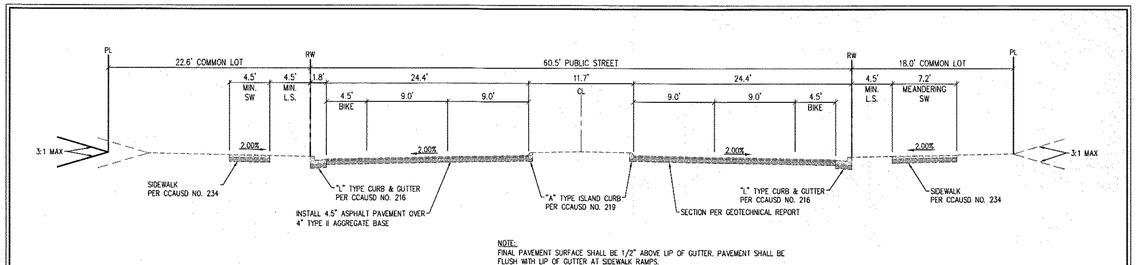
6. CROSS SECTION WITH GROUT WALL

NOT TO SCALE — NO SIDEWALK



7. SECTION WITH GROUT WALL ON RET. WALL

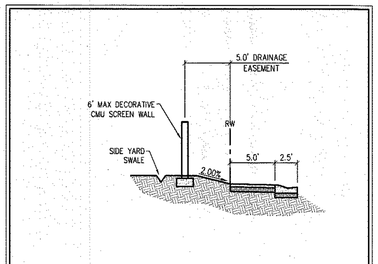
NOT TO SCALE — NO SIDEWALK



NOTE:
FINAL PAVEMENT SURFACE SHALL BE 1/2" ABOVE LIP OF GUTTER. PAVEMENT SHALL BE FLUSH WITH LIP OF GUTTER AT SIDEWALK RAMPS.

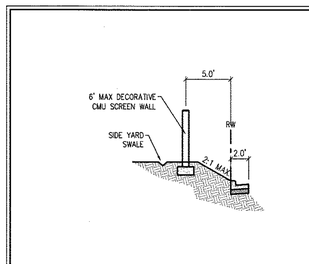
F. EX. SKY POINTE DRIVE WITH TRAIL ONE SIDE (PUBLIC) PER CLV# L19-02533

NOT TO SCALE



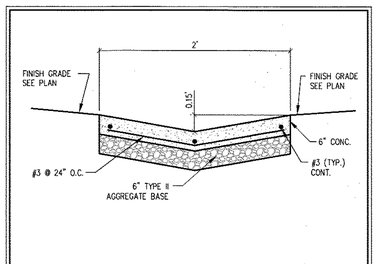
8. DECORATIVE WALL NO GROUT

NOT TO SCALE



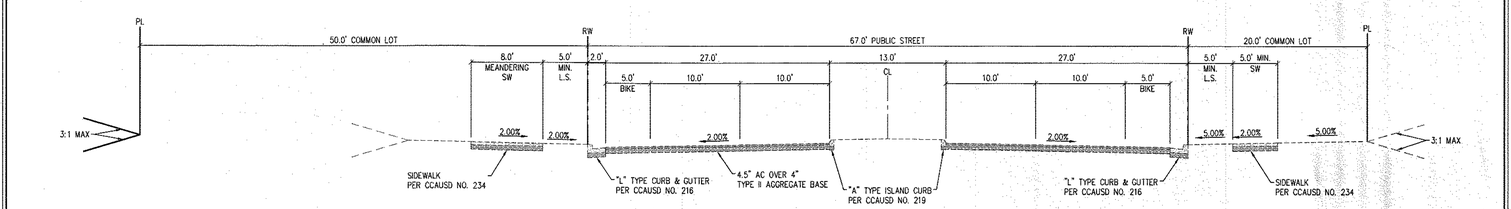
9. DECORATIVE WALL NO GROUT

NOT TO SCALE — NO SIDEWALK



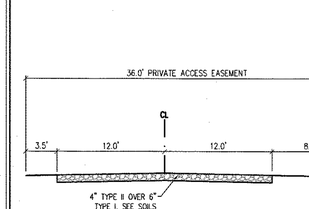
10. 2' VALLEY GUTTER

NOT TO SCALE



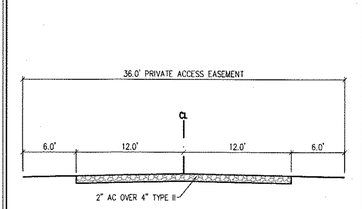
G. EX. SUNBRIDGE POINTE WAY WITH TRAIL ONE SIDE (PUBLIC) PER CLV#L19-020548

NOT TO SCALE



H. PRIVATE ACCESS EASEMENT

NOT TO SCALE



I. PRIVATE ACCESS EASEMENT

NOT TO SCALE

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

SEC 6
T 19 S
R 60 E

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
DETAIL SHEET I

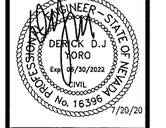
DATE: 7/20/20

DRAFTER: JDA

DESIGNER: JDA

CHECKED: DY

PROJECT NO.
SHE1901-001

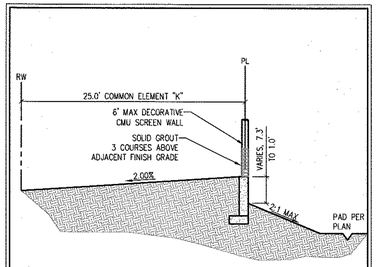


D-1

SHEET 27 OF 30

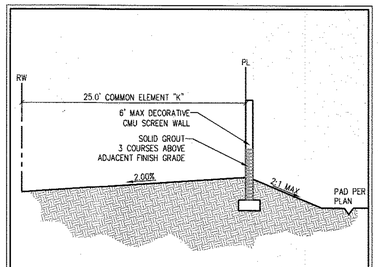
DS-5261

k:\she1901-001 trilogy sunstone phase 1\dwg\improv\she1901-001_dtl.dwg 7/20/2020 2:21 PM John Austin Jr



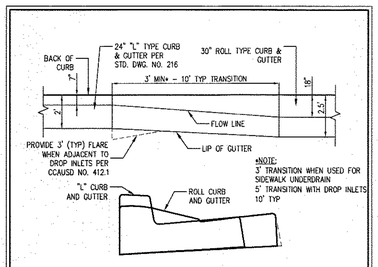
11. PERIMETER SECTION

NOT TO SCALE — WITH RETAINING WALL



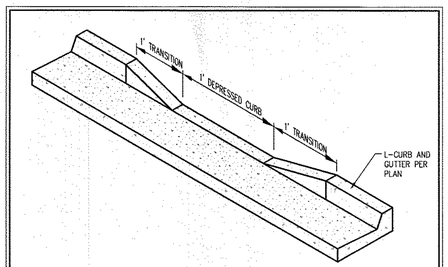
12. PERIMETER SECTION

NOT TO SCALE



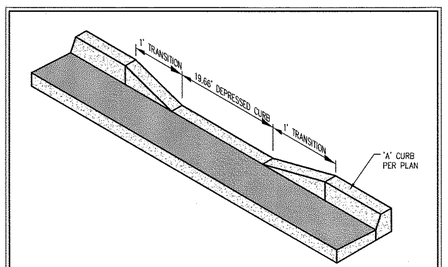
13. "L" CURB TO ROLL TRANSITION

NOT TO SCALE



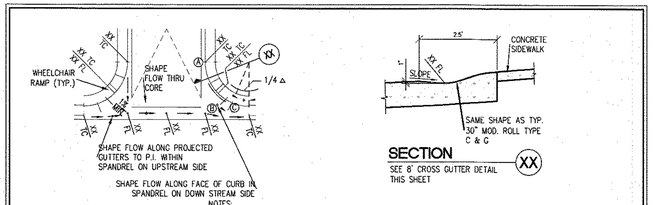
14. DEPRESSED L-CURB DETAIL

NOT TO SCALE — WITH RETAINING WALL

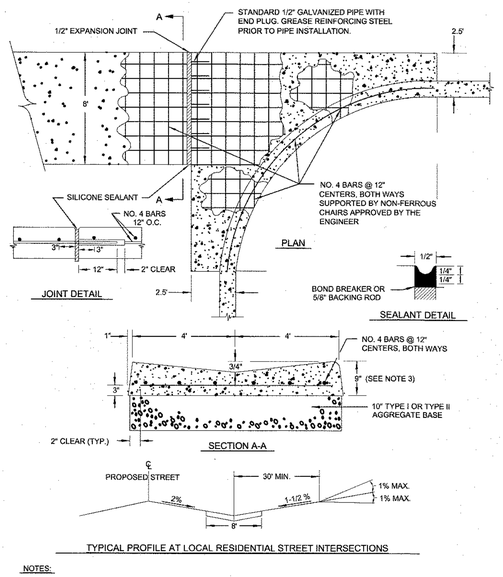


15. DEPRESSED A-CURB DETAIL

NOT TO SCALE — WITH RETAINING WALL



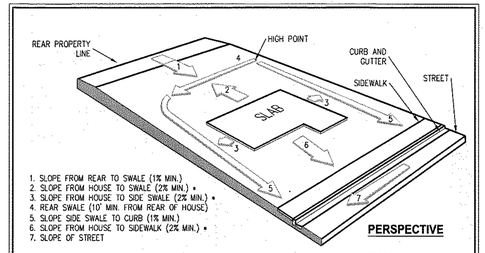
NOTES:
1. VALLEY GUTTERS TO FLOW AT GRADES SHOWN ON DRAWINGS.
2. CONSTRUCTION STAKING TO BE PROVIDED AT ALL POINTS DESIGNATED BY XX SHOWN ON DETAIL ABOVE.
3. MAINTAIN SECTION "X" FROM POINT A TO POINT B, TRANSITION AREA FROM POINT B TO POINT C.



NOTES:
1. FINISHED ASPHALT CONCRETE SURFACE TO BE FLUSH WITH CROSS GUTTER LIP.
2. CONSTRUCTION OF CROSS GUTTER IS NOT ALLOWED ACROSS MAJOR COLLECTOR OR ARTERIAL STREETS.
3. ADJACENT SPANDREL SHALL BE 9" THICK P.C.C.

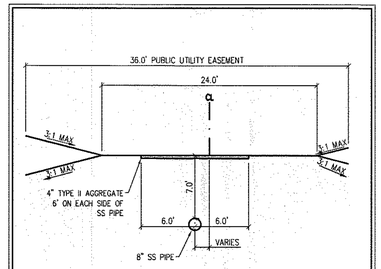
16. MODIFIED 8" CROSS GUTTER DETAIL

NOT TO SCALE



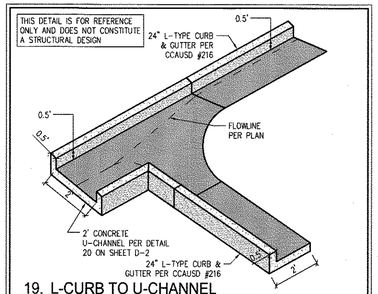
17. TYPICAL LOT GRADING - FHA TYPE 'A'

NOT TO SCALE



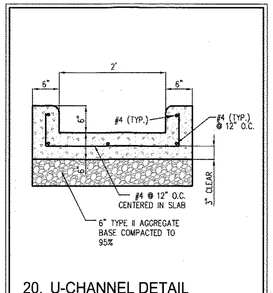
18. PUBLIC UTILITY EASEMENT

NOT TO SCALE



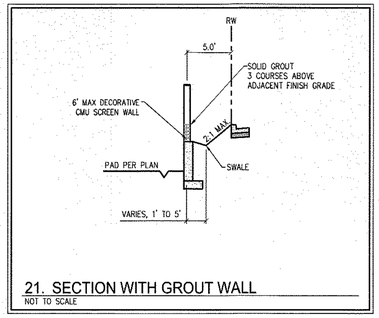
19. L-CURB TO U-CHANNEL

NOT TO SCALE



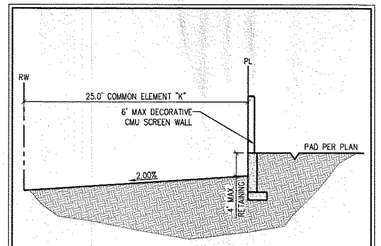
20. U-CHANNEL DETAIL

NOT TO SCALE



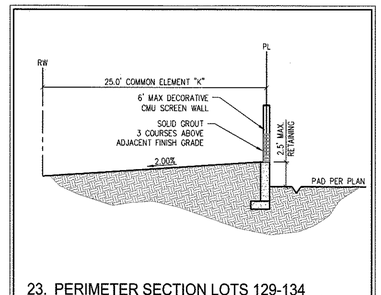
21. SECTION WITH GROUT WALL

NOT TO SCALE



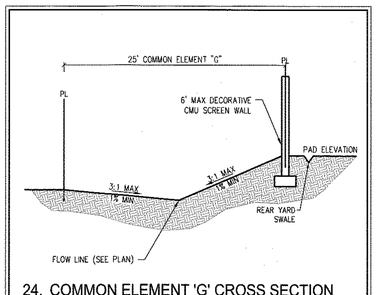
22. PERIMETER SECTION LOTS 125, 126 & 128

NOT TO SCALE — WITH RETAINING WALL



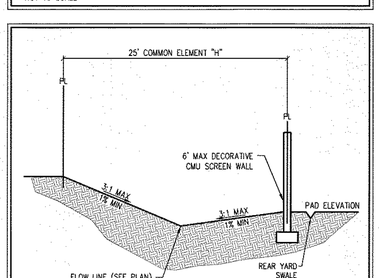
23. PERIMETER SECTION LOTS 129-134

NOT TO SCALE — WITH RETAINING WALL



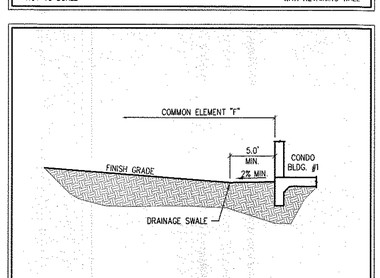
24. COMMON ELEMENT 'G' CROSS SECTION

NOT TO SCALE



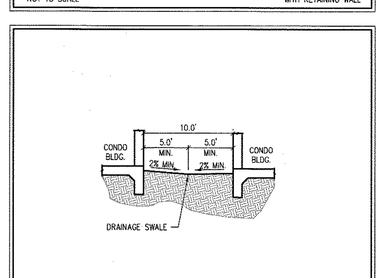
25. COMMON ELEMENT 'H' CROSS SECTION

NOT TO SCALE



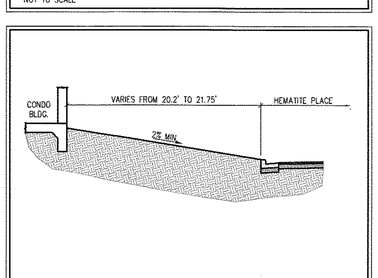
26. COMMON ELEMENT 'F' CROSS SECTION

NOT TO SCALE



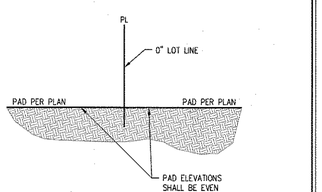
27. BUILDING TO BUILDING CROSS SECTION

NOT TO SCALE



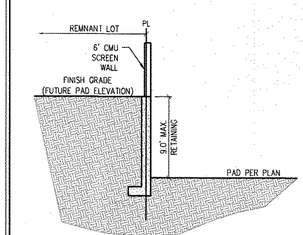
28. CONDO BLDG. TO STREET CROSS SECTION

NOT TO SCALE



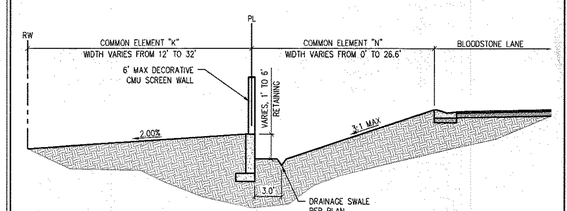
29. DUPLEX LOT CROSS SECTION

NOT TO SCALE — LOTS 18, 19 & 125 THROUGH 164



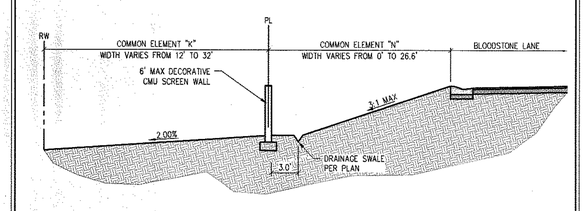
30. CROSS SECTION AT REMNANT LOT

NOT TO SCALE — LOTS 18, 19 & 125 THROUGH 164



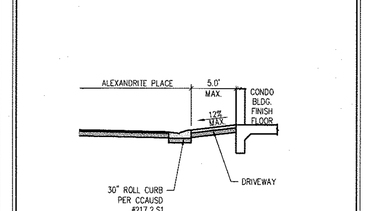
31. PERIMETER SECTION

NOT TO SCALE — WITH RETAINING WALL



32. PERIMETER SECTION

NOT TO SCALE



33. CONDO TO STREET CROSS SECTION

NOT TO SCALE

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

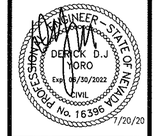
LAS VEGAS, NEVADA

SHLP

SEC 6
T-19
R-60 E

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
DETAIL SHEET II

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY
PROJECT NO. SHE1901-001



D-2
SHEET 28 OF 30

DS-5261

J:\she1901-001 trilogy sunstone phase 1\dwg\improv\she1901-001.dtl.dwg 7/20/2020 2:21 PM John Austin Jr

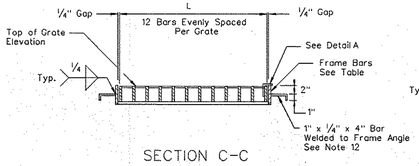
BILL OF MATERIALS (RCP HDPE CMP)

PIPE SIZE (INCH)	SINGLE (ONE GRATE)					DOUBLE (TWO GRATES)					TRIPLE (THREE GRATES)				
	* CONCRETE (CY)		* REINF. (LB.)			* CONCRETE (CY)		* REINF. (LB.)			* CONCRETE (CY)		* REINF. (LB.)		
	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	STR STEEL (LB)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	STR STEEL (LB)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	STR STEEL (LB)
≤15	0.71	0.19	36	10	211	1.06	0.26	50	13	397	1.41	0.33	70	17	583
18	0.89	0.20	40	10	306	1.31	0.28	56	13	574	1.72	0.35	77	18	842
24	1.08	0.22	58	12	349	1.56	0.30	80	15	652	2.04	0.37	105	20	956
30	1.28	0.24	63	12	390	1.83	0.31	86	16	729	2.38	0.39	113	20	1068
36	1.50	0.26	67	13	524	2.11	0.33	92	16	980	2.72	0.41	120	21	1435
42	1.71	0.28	90	15	575	2.39	0.35	120	18	1073	3.07	0.43	154	22	1571
48	1.94	0.30	95	15	707	2.68	0.37	127	18	1329	3.42	0.44	163	23	1951

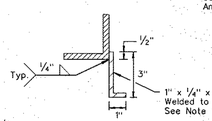
*The Concrete And Reinforcing Quantities Are Based On The H Min. Shown. Increase The Concrete And Reinforcing Base Quantity By The Corresponding Add Rate (Per Foot Of Increased H) If The H Specified Is Larger Than H Min.

TABLE OF DIMENSIONS (RCP HDPE CMP)

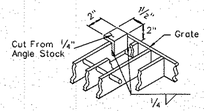
PIPE SIZE (INCH)	A	H Min. (FT)	MAIN BARS (INCH)	FRAME ANGLES (INCH)	FRAME BARS (INCH)	L (FT)		
						SINGLE GRATE	DOUBLE GRATE	TRIPLE GRATE
≤15	2"	2.50	3½ x ⅜	4 X 3 X ⅜	4 X ⅜	2	4	6
18	2' 6"	3.00	4½ x ⅜	5 X 3 X ⅜	5 X ⅜	2	4	6
24	3"	3.50	4½ x ⅜	5 X 3 X ⅜	5 X ⅜	2	4	6
30	4"	4.00	4½ x ⅜	5 X 3 X ⅜	5 X ⅜	2	4	6
36	4"	4.50	5½ x ⅜	6 X 3½ x ⅜	6 X ⅜	2	4	6
42	5"	5.00	5½ x ⅜	6 x 3½ x ⅜	6 X ⅜	2	4	6
48	5"	5.50	5½ x ⅞	6 X 3½ x ⅜	6 X ⅜	2	4	6



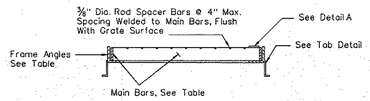
SECTION C-C



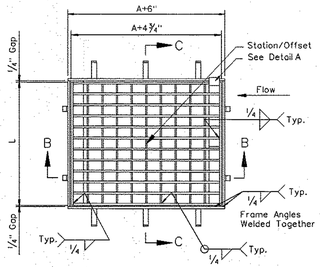
TAB DETAIL



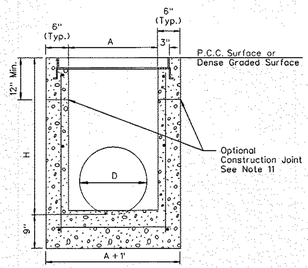
DETAIL A



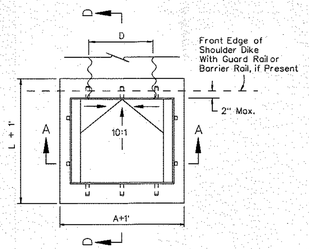
SECTION B-B



CPATE AND FRAME



SECTION A-A



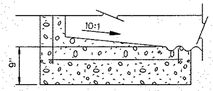
PLAN

NOTES:

1. ALL CONCRETE SHALL BE CLASS A OR AA.
2. REINFORCING STEEL SHALL BE NO.4 BARS WITH MAXIMUM SPACING AT 18" CENTERS, WIRED TIGHTLY AT ALL INTERSECTIONS AND EMBEDDED 2" CLEAR OF ALL CONCRETE SURFACES.
3. EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1".
4. DIMENSIONS MAY BE VARIED TO FIT LOCAL CONDITIONS IF ORDERED BY THE ENGINEER.
5. COMMERCIAL PREFABRICATED GRATINGS APPROVED BY THE BRIDGE DIVISION MAY BE USED IN LIEU OF THE FIELD-WELDED GRATING SHOWN ABOVE.
6. EXTREME LOW COVER SITUATIONS TO BE REVIEWED BY HYDRAULICS ENGINEER.
7. SLOPE CATCH BASIN FLOORS 10:1 FROM ALL DIRECTIONS TOWARD OUTLET PIPE. IF BASIN IS USED AS A JUNCTION, SHAPE FLOW LINE(S) TO OUTLET PIPE AND PROVIDE A 10:1 SLPOE TO FLOW LINE(S).
8. SEE SHEET R-2.9.1 FOR DETAILS IF CONNECTING HDPE PIPE.
9. A SINGLE TYPE 2 DROP INLET SHALL BE CONSTRUCTED UNLESS A DOUBLE OR TRIPLE IS SPECIFIED.
10. SINGLE GRATE CONFIGURATION SHOWN FOR CLARITY. OUTSIDE DIMENSIONS OF EACH GRATE SHALL MEASURE 2' BY A+4¾".
11. RUN REBAR CONTINUOUS THRU CONSTRUCTION JOINT. JOINT MUST BE A MINIMUM OF 3" FROM HORIZONTAL BARS.
12. WELD ONE TAB ON ℄ OF GRATE AND REMAINING TWO TABS 6" FROM EDGE OF FRAME. SIX TABS PER INLET, THREE TABS ON EACH SIDE
13. WELD TABS 6" FROM EDGE OF FRAME. FOUR TABS PER GRATE, TWO ON EACH SIDE.

DESIGN NOTES:

D1. ADDITIONAL PIPE PENETRATIONS MAY BE PLACED IN ANY WALL.



SECTION D-D

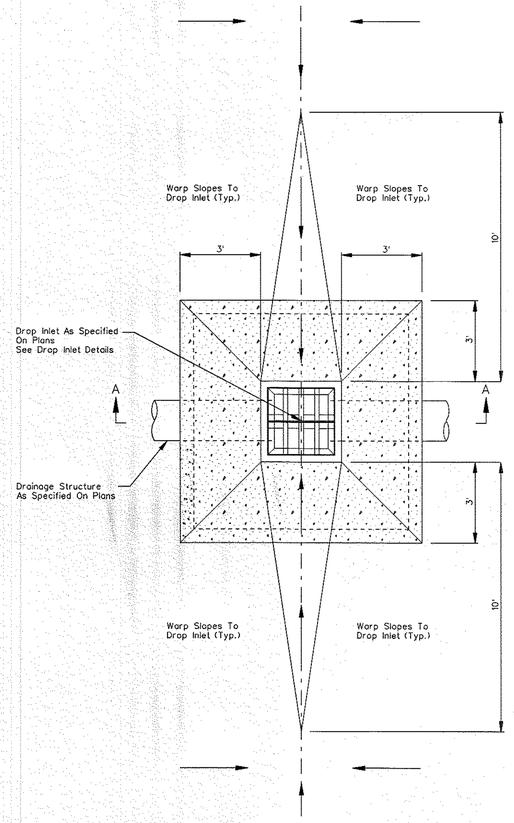
NEVADA DEPARTMENT OF TRANSPORTATION

TYPE 2 DROP INLET

Signed Original On File	R-4.2.1	(609)
CHIEF HYDRAULICS ENGINEER	ADOPTED: 11/70	REVISION: 5/09

2.5'x4' NDOT TYPE 2 DROP INLET WITH (2) GRATES & NDOT DROP INLET CONCRETE APRON

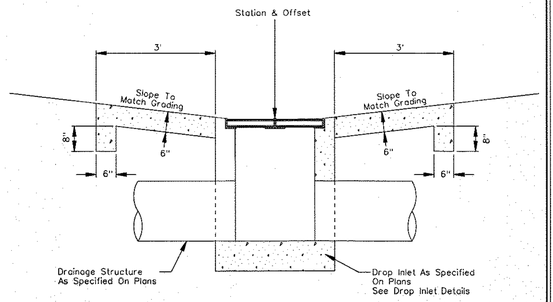
NOT TO SCALE



DROP INLET CONCRETE APRON

GENERAL NOTES:

1. CONCRETE SHALL BE CLASS A OR AA.

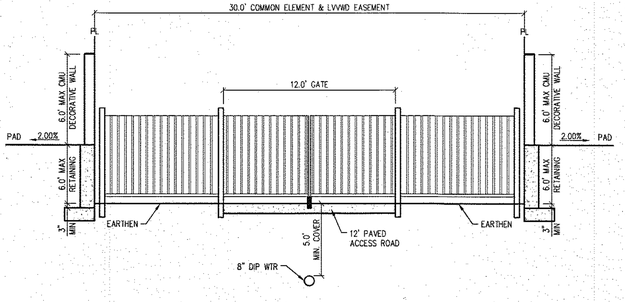


SECTION A-A

NEVADA DEPARTMENT OF TRANSPORTATION

DROP INLET CONCRETE APRON

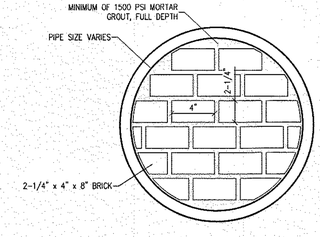
Signed Original On File	R-4.2.7	(609)
CHIEF HYDRAULICS ENGINEER	ADOPTED: 5/09	REVISION



THIS DETAIL IS FOR REFERENCE ONLY AND DOES NOT CONSTITUTE A STRUCTURAL DESIGN

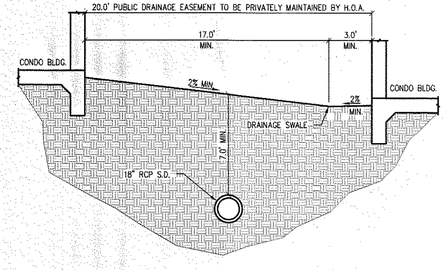
34. COMMON ELEMENT 'J' CROSS SECTION

NOT TO SCALE



35. BRICK AND MORTAR RCP PLUG

NOT TO SCALE



36. PRIVATE DRAINAGE EASEMENT CROSS SECTION

NOT TO SCALE

Westwood
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
Phone (702) 284-5300
Fax (702) 284-5399
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE

LAS VEGAS, NEVADA

SHLP

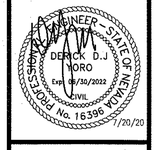
PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE

DETAIL SHEET III

SEC 6
T 19 S
R 60 E

DATE: 7/20/20
DRAFTER: JDA
DESIGNER: JDA
CHECKED: DY

PROJECT NO.
SHE1901-001

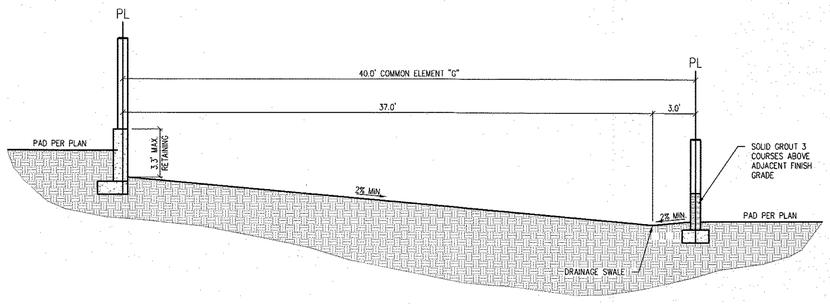


D-3

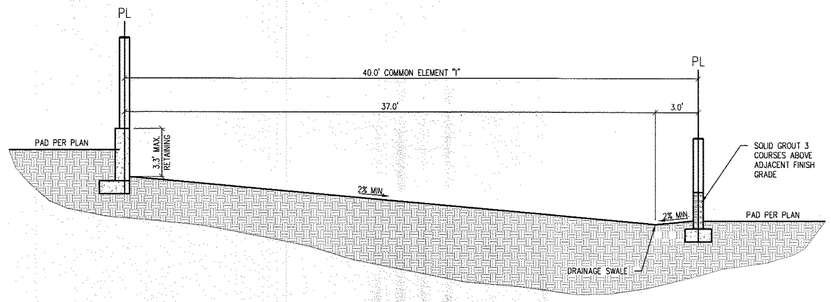
SHEET 29 OF 30

DS-5261

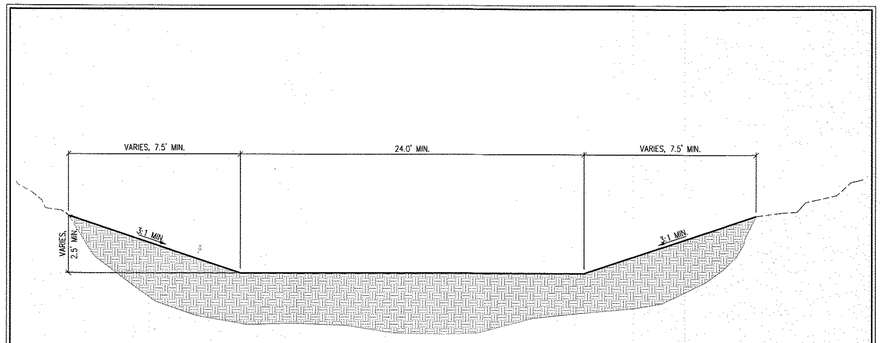
J:\she1901-001 trilogy sunstone phase 1\Civil\engrov\she1901-001 dtl.dwg 7/20/2020 2:21 PM John Austin, P



37. COMMON ELEMENT "G" CROSS SECTION
NOT TO SCALE



38. COMMON ELEMENT "I" CROSS SECTION
NOT TO SCALE



39. EARTHEN DRAINAGE DITCH CROSS SECTION
NOT TO SCALE

Westwood
Phone (702) 284-5300
Fax (702) 284-5399
5740 S. Arville Street
Suite 216
Las Vegas, NV 89118
westwoodps.com
Westwood Professional Services, Inc.

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

LAS VEGAS, NEVADA

SHLP

SEC 6
T 19 S
R 60 E

PARCEL 3 AT SUNSTONE PHASE 1 AND MODEL PHASE
DETAIL SHEET IV

DATE: 7/20/20
DRAFTER: ##
DESIGNER: ##
CHECKED: DY

PROJECT NO.
SHE1901-001

PROFESSIONAL ENGINEER STATE OF NEVADA
DERRICK D. J. MORO
No. 16396
Exp. 09/30/2022
CIVIL
7/20/20

D-4
SHEET 30 OF 30

DS-5261

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