DS #: 4654

APN: 126-24-110-007

PROJECT: PROVIDENCE POD 211 – UPDATE FOR PH. 2

SUBMITTAL: 3RD.

SCANNED BY/DATE:

CHECKED BY/DATE:

CITY OF LAS VEGAS NEVADA

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: December 24, 2014
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Providence POD 211 – Update for Phase 2**			**COPIES TO:** Slater Hanifan Group
Cross Streets:	NWC of Shaumber Road & Dorrell Lane			CG-211, LLC / Focus Group
File Number:	F:\Depot\DSMemos\DS4654C.doc			Bart Anderson, P.E., DevCo
Parcel Number:	126-24-110-007			
Zoning Action:	TMP-52107 & WVR-52233			
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES	NO	X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	2/6/2014 & 2/20/2014	2/27/2014	Not Approved	$400.00	347178: $400
2nd Submittal	3/13/2014	3/26/2014	Approved	$400.00	350810: $400
3rd Submittal	12/10/2014	12/24/2014	See Comments Below	$100.00	379531: $100
			TOTAL FEES (LDDRS):	**$900.00**	**----**

REMARKS:

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

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

1. The drainage study for *Providence POD 211* is based on the condition that the *Cliff's Edge*'s master infrastructure improvements are complete. The perimeter streets and all associated storm drain facilities must be completed prior to the issuance of any building permits of the subject pod.

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

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

END OF REMARKS

ays

T/R/S: T19S/R59E/24
AREA F-24

****
*** FAX TX REPORT ***
****

TRANSMISSION OK

JOB NO.	0139
DESTINATION ADDRESS	7022845399
PSWD/SUBADDRESS	
DESTINATION ID	
ST. TIME	12/24 15:02
USAGE T	00'37
PGS.	1
RESULT	OK

CITY OF LAS VEGAS
INTER-OFFICE MEMORANDUM

DATE: December 24, 2014

TO:
Land Development Services
Department of Building & Safety

FROM:
Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

SUBJECT: Drainage Study for:
Providence POD 211 – Update for Phase 2

COPIES TO:
Slater Hanifan Group
CG-211, LLC / Focus Group
Bart Anderson, P.E., DevCo

Cross Streets:	NWC of Shaumber Road & Dorrell Lane		
File Number:	F:\Depot\DSMemos\DS4654C.doc		
Parcel Number:	126-24-110-007		
Zoning Action:	TMP-52107 & WVR-52233		
FEMA Flood Zone	YES	NO	X
Proposed Storm Drain	YES	NO	X

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	2/6/2014 & 2/20/2014	2/27/2014	Not Approved	$400.00	347178: $400
2nd Submittal	3/13/2014	3/26/2014	Approved	$400.00	350810: $400
3rd Submittal	12/10/2014	12/24/2014	See Comments Below	$100.00	379531: $100
			TOTAL FEES (LDDRS):	**$900.00**	----

REMARKS:

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

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

1. The drainage study for *Providence POD 211* is based on the condition that the *Cliff's Edge*'s master infrastructure improvements are complete. The perimeter streets and all associated storm drain facilities must be completed prior to the issuance of any building permits of the subject pod.

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

Recd: 12/10/14
DS4654-
F-24
$100

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET, SUITE 216
LAS VEGAS, NEVADA 89118
PHONE: 702-284-5300 • FAX: 702-284-5399

TECHNICAL DRAINAGE STUDY
UPDATE

Providence POD 211 Phase 2

City of Las Vegas, Nevada

Job No.: RAH1407.000
Date: December 2014

Prepared By:
Slater Hanifan Group, Inc.
5740 S. Arville Street, Suite 216
Las Vegas, Nevada 89118
Phone: 702-284-5300 ▪ Fax: 702-284-5399

Prepared For:
Richmond American Homes
7770 S. Dean Martin Drive, Suite 410
Las Vegas, Nevada 89139
Phone: 702-617-8439 ▪ Fax: 702-617-8499

Stanley Okey Amadi, P.E.
NV Professional Engineer No. 21724

Assisted by: Pavel Kontchakov, E.I. II

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Providence POD 211 (Phase 2 Update) Date: December 2014

Location of Development: a) Descriptive (Cross Streets): North/South: Shaumber Road
East/West: Dorrell Lane

b) Section: 24 Township: 19 S Range: 59 E

c) APN: 126-24-110-007

Name of Owner: C G-211 LLC/Richmond American Homes

Telephone No.: 702-617-8412 Fax No.: 702-617-8499 E-mail Address: Brian.Walsh@mdch.com

Address: 7770 S. Dean Martin Drive, Suite 410; Las Vegas, NV 89139

Contact Person – Name: Stanley Okey Amadi, P.E. Telephone No.: (702) 284-5300

*E-mail Address: samadi@shg-inc.com Fax No.: (702) 284-5399

Firm: Slater Hanifan Group

Address: 5740 S. Arville Street, Suite 216, Las Vegas, NV 89131

Type of Land Development/Land Disturbance Process:

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

1. Total Owned Land Area: At Site: 18.15 ± acres Being Developed/Disturbed: 9.4 ± acres

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

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

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

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

6. Has the site drainage been evaluated in the past? ☒ Yes** ☐ No If yes, please identify documentation: Master Drainage Study for Cliffs Edge (DS #3404), Technical Drainage Study for Cliffs Edge Infrastructure (DS #3617), Technical Drainage Study for Windimere Providence/Cliffs Edge (DS #3665), and Technical Drainage Study for Providence POD 211-Phase 1 (DS #4654B)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Existing Storm Drain in Shaumber Road and Unit 1 of Windimere At Providence

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

PROFESSIONAL ENGINEER - STATE OF NEVADA
STANLEY OKEY AMADI
EXP. 12/31/16
CIVIL
No. 21724
12/10/14

Engineer's Seal

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

*Newly Required Field

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

Revision	Date

Local Entity File No.

REFERENCE: STANDARD FORM 1

Updated 05/01/2008

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS

RAH1407.000

December 10, 2014

Albert Sung, P.E.
Flood Control Project Engineer
City of Las Vegas Department of Public Works
333 N. Rancho Drive
Las Vegas, Nevada 89106

Subject: Update to the Technical Drainage Study for Providence POD 211 – Phase 2 (Previous CLV # DS4654B)

Dear Mr. Sung:

Submitted for your review is this Update to the Technical Drainage Study for Providence POD 211(Previous CLV # DS4654B), (hereinafter referred to as the Update Study). The Technical Drainage Study for Providence POD 211 (hereinafter referred to as the Original TDS), was approved by the City of Las Vegas Public Works Department on March 27, 2014. The approval letters for the Original TDS have been included in Appendix A and Appendix E for your reference. The project site is within the Providence Master Plan Community formerly known as Cliffs Edge and is generally located approximately 1500 feet north of the intersection of Shaumber Road and Dorrell Lane within the City of Las Vegas, Nevada.

This update is intended to address Phase 2 of the POD 211 site development. Please note that the following improvements have already been constructed per the Original TDS as well as the Providence Master Plan Improvements:

- Onsite Phase 1 improvements have been approved and are considered to be fully developed prior to the subject Phase 2.
- Onsite Phase 2 is currently rough graded with the Phase 1 improvements.
- Adjacent segment of Puli Road has been rough graded per Master Plan Improvements.
- Perimeter screen walls along the west and northwest boundary adjacent to Phase 2 perimeter have not been constructed.

Existing Drainage Condition

The existing Phase 2 onsite drainage condition analyses has already been addressed in the proposed condition of the Original TDS and therefore will not be revisited by this Update Study. The onsite Phase 2 grading was done per the previous design as addressed in the interim condition analysis of Phase 1 TDS. The rough graded Phase 2 drainage patterns are identical to the proposed Phase 2 in the ultimate condition. The interim condition HEC-1 models have been provided in Appendix E for convenience. Table 1 below has been provided with 100-year and 10-year storm peak flow summary for the existing rough graded condition of Phase 2.

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

Table 1: Summary of Existing Condition Flow			
Basin / Concentration Point ID	**Area (ac)**	**Q_{100} (cfs)**	**Q_{10} (cfs)**
ON1-P*	3.9	13	6
ON2-P*	4.8	16	8
ON3-P*	4.0	10	4
ON4-P*	5.4	13	5
CP* Q = ON1-P + ON3-P	N/A	24	10
CP0* Q = ON2-P + ON4-P	N/A	29	12
CP1* Q = CP + CP0	N/A	53	22

*Referenced from Original TDS

Please refer to referenced Exhibit E included in Appendix E, for a detailed illustration of developed Phase 1 and rough graded Phase 2.

Ultimate Drainage Condition

During the ultimate condition, the Phase 2 onsite area is considered fully developed with the adjacent Puli Road improvements completed. This Update Study does not change the drainage patterns, lot layout and street alignment from those that were approved within the Original TDS. Therefore, the ultimate condition hydrology provided within the Original TDS is still considered valid. Table 2 below has been provided with the 100-year and 10-year storm peak flow summary during the Phase 2 ultimate condition which are referenced from the Original TDS.

Table 2: Summary of Ultimate Condition Flow			
Basin / Concentration Point ID	**Area (ac)**	**Q_{100} (cfs)**	**Q_{10} (cfs)**
ON1-D*	8.0	25	11
ON2-D*	10.2	20	14
CP1* Q = ON1-D* + ON2-D*	N/A	54	25

*Referenced from Original TDS

Table 3 below has been provided with the 100-year prorated storm flow summary during the Phase 2 ultimate condition. Please note that an additional sub basin ON2-D5 was prorated for the Phase 2 portion of the site by modifying the area of sub basin ON2-D2 from the Original TDS to more accurately assess the storm flows for hydraulic street analysis.

Table 3: Summary of Ultimate Condition Prorated Subbasin Flow Rates			
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON1-D*	25	7.9	3.2

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

Table 3: Summary of Ultimate Condition Prorated Subbasin Flow Rates			
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON1-D1*	13	4.0	3.2
ON1-D2*	12	3.9	3.2
TOTAL	***25***	***7.9***	***3.2***
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON2-D*	30	10.2	2.9
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON2-D1*	3	1.1	2.9
ON2-D2***	6	2.0	2.9
ON2-D3*	5	1.6	2.9
ON2-D4*	<1	0.1	2.9
ON2-D5	16	5.4	2.9
TOTAL	***30***	***10.2***	***2.9***

* Referenced from Original TDS
***Modified & Referenced from Original TDS

Please refer to the Updated Exhibit F included in Appendix B, for a detailed illustration of proposed Phase 2. Additionally, the approved ultimate condition HEC-1 model and the Exhibit F from the Original TDS has been provided in Appendix E.

Street Flow Hydraulics

The street flow computations were performed by this study to ensure that CCRFCD street flow criteria are satisfied. Please note that the 100-year street flow also satisfies the 10-year DxV criteria; therefore, 10-year street flow computations have not been performed. Phase 2 onsite street sections were analyzed for the minimum and maximum longitudinal slopes to determine critical flow depths and velocities respectively. Additionally, the perimeter hydraulics for Puli Road have been previously addressed by the Master Study and have been adopted by the Original TDS. No changes are proposed to the outside limits of Phase 2 boundary. Therefore, the approved offsite hydraulics for Puli Road are still valid and have been referenced from the Original TDS for convenience. Please refer to Appendix E for referenced hydraulic summary table from the report of the Original TDS.

The following table summarizes the developed Phase 2 onsite street calculations and hydraulic characteristics. Refer to Exhibit F, included in Appendix B, for the location of each street section.

Table 4: 100-Year Summary of Phase 2 Interior Street Flow						
Cross Section ID	**Street**	**Slope (%)**	**Q_{100} (cfs)**	**Depth (ft)**	**Velocity (fps)**	**DxV**
5 Q = ON1-D1	Niobrara Road	1.46 (min %)	13	0.36	3.39	1.2
		3.92 (max %)		0.31	5.08	1.6

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

Table 4: 100-Year Summary of Phase 2 Interior Street Flow						
Cross Section ID	Street	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (fps)	DxV
6 Q = ON2-D5	Cowlite Road	2.27 (min %)	16	0.36	4.22	1.5
		3.61 (max %)		0.33	5.09	1.7

In reviewing Table 4, the interior street flows in the ultimate condition meet CCRFCD criteria. The Flowmaster hydraulic street flow computations have been included in Appendix C.

Finished Floor Analysis

Finished floor elevations for the proposed lots have been determined to be a vertical distance above the gutter flow line of twice the depth of flow in the street on the high side of the lot up to 18-inches, and 6-inches above the top of curb at the high side of the lot whichever is higher. Additionally, the finished floors have been assessed at "T" intersections with the velocity heads of the approaching flows. The finished floor analysis for the lots proposed with this project site, indicating that all the proposed finished floors meet criteria, has been provided in Appendix D.

Conclusions

1. The drainage patterns and flowrates approved in the Original TDS have not been changed. Therefore, the updated design of the Phase 2 is in compliance to the Original TDS, and will not result in any adverse impacts to downstream properties or facilities.

2. The Proposed finished floor elevations have been determined to satisfy City of Las Vegas as well as the CCRFCD criteria for flood protection.

3. The improvement plans included in Appendix F of this study support the drainage patterns, conclusions and/or recommendations detailed in this study.

4. The perimeter hydraulics for Puli Road have been previously addressed by the Master Study and were adopted by the Original TDS. No changes are proposed outside the limits of Phase 2 boundary. Hence the approved offsite hydraulics for Puli Road adopted from the Original TDS are still valid and have been referenced.

The improvement plans for Phase 2 have been included in Appendix F. An electronic copy of this update study and pertinent improvement plans are provided on a compact disc (CD) in Appendix G. If you have any questions or require additional information, please do not hesitate to contact us at 284-5300.

Respectfully Submitted,
SLATER HANIFAN GROUP

Pavel Kontchakov, E.I. II
Flood Control Division

pc: Stanley Okey Amadi, P.E. - SHG
pc: Todd Steadham, P.E.- SHG

J:\RAH1407 POD 211\Drainage\Update Study\Report\RAH1407 Report.doc

APPENDIX CONTENTS

Appendix A – CLV Approval Letter

Appendix B – Updated Drainage Exhibit F

Appendix C – Street Flow Flowmaster Computations

Appendix D – Finished Floor Analysis

Appendix E – Reference Material
Technical Drainage Study for Providence POD 211 (CLV # DS4654B)
- Approval Letter
- Excerpts From the Report
- Interim Condition HEC-1 Model
- Ultimate Condition HEC-1 Model
- Interim Condition Exhibit E and Ultimate Condition Exhibit F
- Pertinent Improvement Plans

Appendix F – Updated Improvement Plans, Profiles and Details

Appendix G – CD of Drainage Study and Improvement Plans

5740 S. Arville Street #216, Las Vegas, NV 89118 ph (702) 284-5300 fax (702) 284-5399

APPENDIX A

CLV Approval Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: March 27, 2014
TO: Land Development Services Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Providence POD 211			COPIES TO: Slater Hanifan Group
Cross Streets:	NWC of Shaumber Road & Dorrell Lane			CG-211, LLC / Focus Group
File Number:	F:\Depot\DSMemos\DS4654B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	126-24-110-007			
Zoning Action:	TMP-52107 & WVR-52233			
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES	NO	X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	2/6/2014 & 2/20/2014	2/27/2014	Not Approved	$400.00	347178: $400
2nd Submittal	3/13/2014	3/26/2014	See Comments Below	$400.00	350810: $400
			TOTAL FEES (LDDRS):	$800.00	----

REMARKS:

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

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

1. The rough graded onsite without any permanent cover such as paving, building construction or planting, is considered ongoing project under construction whereas a *Stormwater Pollution Prevention Plan* must be kept active under the NDEP Permit. In order to close out the permit, the developer must install permanent cover to the site to stabilize and control stormwater pollution to the satisfaction of NDEP.

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

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

END OF REMARKS

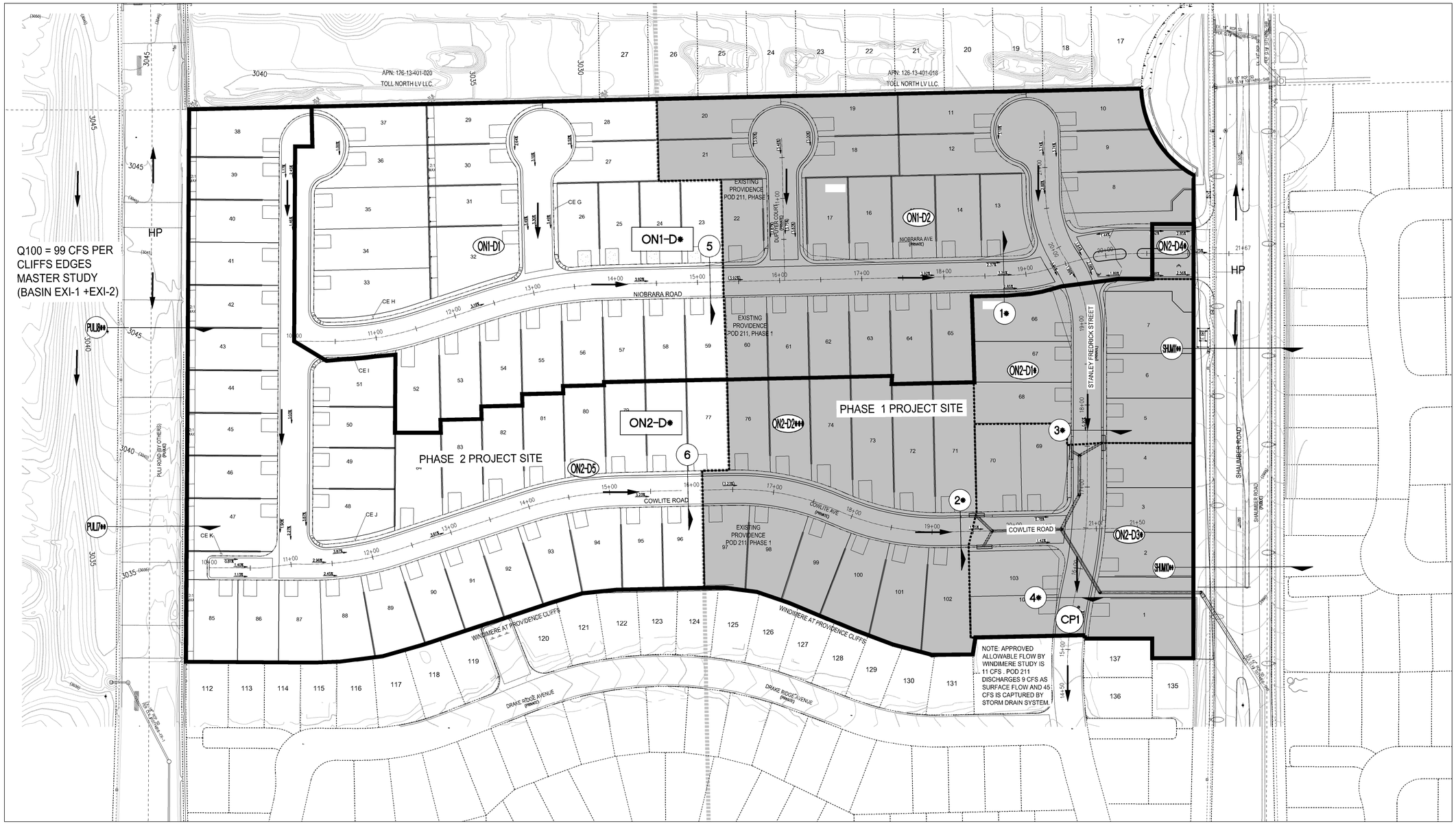
ays

T/R/S: T19S/R59E/24

AREA F-24

APPENDIX B

Updated Drainage Exhibit F



Flow Rate Summary			
Ultimate Drainage Condition			
Basin ID / Concentration Point	**Area (ac)**	**Q_{100} (cfs)**	**Q_{10} (cfs)**
ON1-D*	7.9	25	11
ON2-D*	10.2	30	14
CP1* *= ON-1D* + ON-2D**	-	54	25

* Referenced from Original TDS

Prorated Flow Summary			
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON1-D*	25	7.9	3.2
Subbasin	Q_{100} (cfs)	Area (acres)	Unit Flow (cfs/acre)
ON1-D1*	13	4.0	3.2
ON1-D2*	12	3.9	3.2
TOTAL	***25***	***7.9***	***3.2***
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON2-D*	30	10.2	2.9
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON2-D1*	3	1.1	2.9
ON2-D2***	6	2.0	2.9
ON2-D3*	5	1.6	2.9
ON2-D4*	<1	0.1	2.9
ON2-D5	16	5.4	2.9
TOTAL	***30***	***10.2***	***2.9***

* Referenced from Original TDS
***Modified & Referenced from Original TDS

Street Flow Summary - Ultimate Condition Flow Rates (100-Yr)						
Street Section ID	**Contributing Flow**	**Slope (%)**	**Q (cfs)**	**Depth (ft)**	**Velocity (ft/s)**	**D*V**
1*	ON1-D	2.88 (min%)	25	0.40	4.82	1.9
		3.92 (max%)		0.38	5.73	2.2
2*	ON2-D5 + ON2-D2***	1.95 (min%)	22	0.41	4.01	1.6
		3.23 (max%)		0.37	5.17	1.9
3*	ON1-D + ON2-D1	0.90	28	0.49	3.22	1.6
4*	ON1-D3 + DI1 & $DI2_{Bypass}$ + DI3 & $DI4_{Bypass}$	0.90	9	0.34	2.60	0.9
5	ON1-D1	1.46 (min%)	13	0.36	3.39	1.2
		3.92 (max%)		0.31	5.08	1.6
6	ON2-D5	2.27 (min%)	16	0.36	4.22	1.5
		3.61 (max%)		0.33	5.09	1.7
SHUM-10**	Ref. Flow	1.26	25	0.51	3.48	1.8
SHUM-11**	Ref. Flow	3.28	25	0.43	5.46	2.3
PULI 7**	Ref. Flow	1.42	51	0.62	4.08	2.5
PULI 8**	Ref. Flow	3.37	51	0.55	5.74	3.2

Note: * Referenced from Original TDS
** Approved Flow master Section have been adopted by the Original TDS from the Master Study
*** Referenced and modified from Original TDS

N

S-IG

0 60 120
SCALE – 1" = 60' FEET

LEGEND

- BASIN BOUNDARY
- ID — BASIN ID
- SUBBASIN BOUNDARY
- (ID) — SUBBASIN ID
- FLOW DIRECTION
- (ID) — CONCENTRATION POINT
- (ID) — FLOWMASTER SECTION
- PHASE 1 BOUNDARY

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

RICHMOND AMERICAN HOMES

PROVIDENCE POD 211 PHASE 2
ULTIMATE CONDITION DRAINAGE MAP

DATE: 12/10/14
DRAFTER: PSK
DESIGNER: PSK
CHECKED: SOA

PROJECT NO.
RAH1407-000

EXHIBIT F
SHEET 1 OF 1

J:\rah1407 pod 211\drainage\update study\figures\rah1407 exhibit f ultimate condition drainage map.dwg 12/10/2014 10:52 AM Pavel Kontchakov

APPENDIX C

Street Flow Flowmaster Computations

SECTION 5 (min%) STREET NIOBRARA ROAD
Worksheet for Irregular Channel

Project Description	
Worksheet	SECTION 5 (min%) STREET NIOBRARA RO/
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Channel Slope	1.46	%
Discharge	13	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.014	
Water Surface Elevation	0.36	ft
Elevation Range	0.00 to 0.46	
Flow Area	3.8	ft²
Wetted Perimeter	28.08	ft
Top Width	27.87	ft
Actual Depth	0.36	ft
Critical Elevation	0.42	ft
Critical Slope	0.54	%
Velocity	3.39	ft/s
Velocity Head	0.18	ft
Specific Energy	0.54	ft
Froude Number	1.61	
Flow Type	Supercritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+02.50	0.013
0+02.50	0+36.50	0.016
0+36.50	0+43.00	0.013

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+19.50	0.46
0+36.50	0.12
0+36.50	0.08
0+37.50	0.00

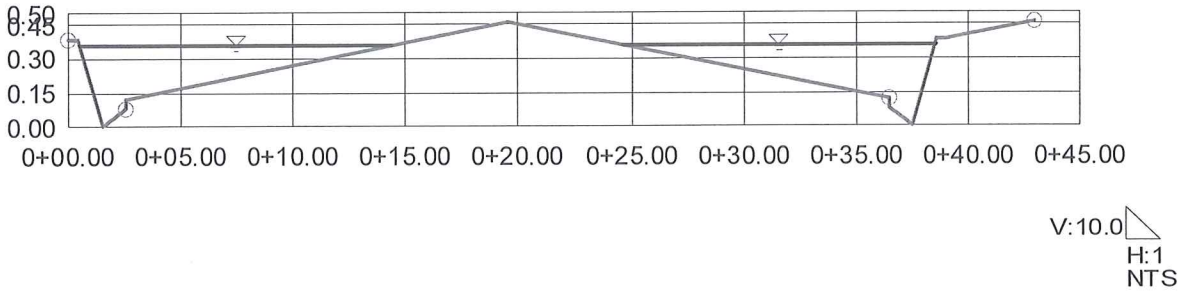
SECTION 5 (min%) STREET NIOBRARA ROAD
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
0+38.62	0.38
0+39.00	0.38
0+43.00	0.46

SECTION 5 (min%) STREET NIOBRARA ROAD
Cross Section for Irregular Channel

Project Description	
Worksheet	SECTION 5 (min%) STREET NIOBRARA RO/
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.014	
Channel Slope	1.46	%
Water Surface Elevation	0.36	ft
Elevation Range	0.00 to 0.46	
Discharge	13	cfs



SECTION 5 (max%) STREET NIOBRARA ROAD
Worksheet for Irregular Channel

Project Description	
Worksheet	SECTION 5 (max%) STREET NIOBRARA RO.
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Channel Slope	3.92	%
Discharge	13	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.014	
Water Surface Elevation	0.31	ft
Elevation Range	0.00 to 0.46	
Flow Area	2.6	ft²
Wetted Perimeter	22.70	ft
Top Width	22.51	ft
Actual Depth	0.31	ft
Critical Elevation	0.42	ft
Critical Slope	0.50	%
Velocity	5.08	ft/s
Velocity Head	0.40	ft
Specific Energy	0.71	ft
Froude Number	2.65	
Flow Type	Supercritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+02.50	0.013
0+02.50	0+36.50	0.016
0+36.50	0+43.00	0.013

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+19.50	0.46
0+36.50	0.12
0+36.50	0.08
0+37.50	0.00

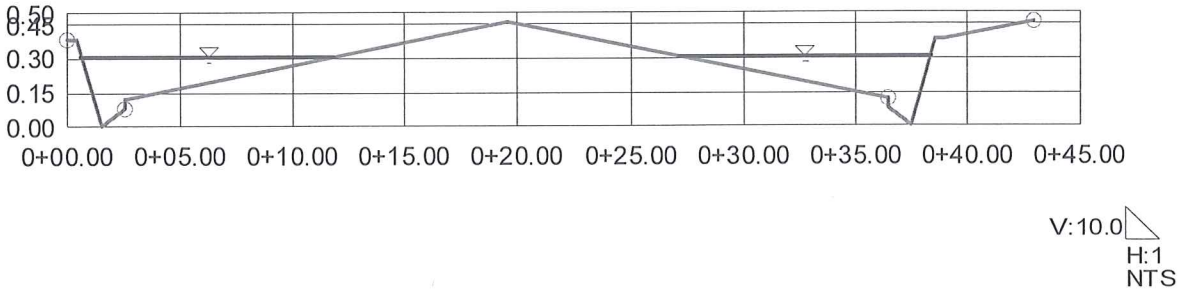
SECTION 5 (max%) STREET NIOBRARA ROAD
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
0+38.62	0.38
0+39.00	0.38
0+43.00	0.46

SECTION 5 (max%) STREET NIOBRARA ROAD
Cross Section for Irregular Channel

Project Description	
Worksheet	SECTION 5 (max%) STREET NIOBRARA RO.
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.014	
Channel Slope	3.92	%
Water Surface Elevation	0.31	ft
Elevation Range	0.00 to 0.46	
Discharge	13	cfs



SECTION 6 (min%) COWLITE ROAD
Worksheet for Irregular Channel

Project Description	
Worksheet	SECTION 6 (min%) COWLITE ROAI
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Channel Slope	2.27	%
Discharge	16	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.014	
Water Surface Elevation	0.36	ft
Elevation Range	0.00 to 0.46	
Flow Area	3.8	ft²
Wetted Perimeter	27.93	ft
Top Width	27.72	ft
Actual Depth	0.36	ft
Critical Elevation	0.45	ft
Critical Slope	0.53	%
Velocity	4.22	ft/s
Velocity Head	0.28	ft
Specific Energy	0.63	ft
Froude Number	2.01	
Flow Type	Supercritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+02.50	0.013
0+02.50	0+36.50	0.016
0+36.50	0+43.00	0.013

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+19.50	0.46
0+36.50	0.12
0+36.50	0.08
0+37.50	0.00

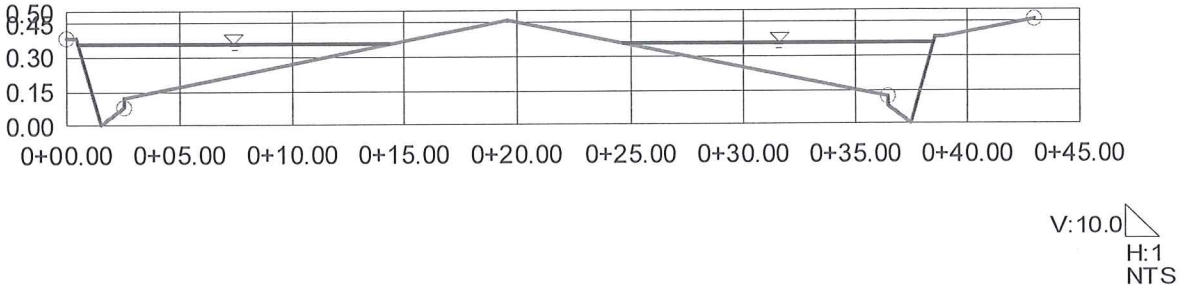
SECTION 6 (min%) COWLITE ROAD
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
0+38.62	0.38
0+39.00	0.38
0+43.00	0.46

SECTION 6 (min%) COWLITE ROAD
Cross Section for Irregular Channel

Project Description	
Worksheet	SECTION 6 (min%) COWLITE ROAI
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficient	0.014	
Channel Slope	2.27	%
Water Surface Elevation	0.36	ft
Elevation Range	0.00 to 0.46	
Discharge	16	cfs



SECTION 6 (max%) COWLITE ROAD
Worksheet for Irregular Channel

Project Description	
Worksheet	SECTION 6 (max%) COWLITE ROA
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Channel Slope	3.61	%
Discharge	16	cfs

Options	
Current Roughness Method	Improved Lotter's Method
Open Channel Weighting Method	Improved Lotter's Method
Closed Channel Weighting Method	Horton's Method

Results		
Mannings Coefficient	0.014	
Water Surface Elevation	0.33	ft
Elevation Range	0.00 to 0.46	
Flow Area	3.1	ft²
Wetted Perimeter	25.30	ft
Top Width	25.10	ft
Actual Depth	0.33	ft
Critical Elevation	0.45	ft
Critical Slope	0.51	%
Velocity	5.09	ft/s
Velocity Head	0.40	ft
Specific Energy	0.73	ft
Froude Number	2.54	
Flow Type	Supercritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00.00	0+02.50	0.013
0+02.50	0+36.50	0.016
0+36.50	0+43.00	0.013

Natural Channel Points

Station (ft)	Elevation (ft)
0+00.00	0.38
0+00.38	0.38
0+01.50	0.00
0+02.50	0.08
0+02.50	0.12
0+19.50	0.46
0+36.50	0.12
0+36.50	0.08
0+37.50	0.00

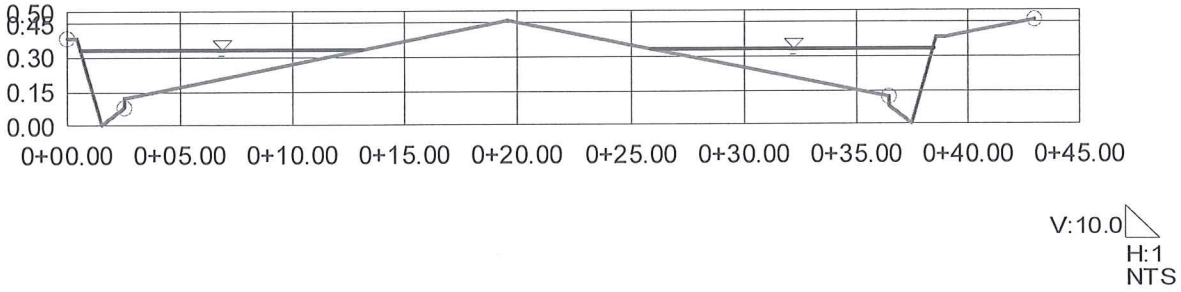
SECTION 6 (max%) COWLITE ROAD
Worksheet for Irregular Channel

Natural Channel Points	
Station (ft)	Elevation (ft)
0+38.62	0.38
0+39.00	0.38
0+43.00	0.46

SECTION 6 (max%) COWLITE ROAD
Cross Section for Irregular Channel

Project Description	
Worksheet	SECTION 6 (max%) COWLITE ROA
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data	
Mannings Coefficient	0.014
Channel Slope	3.61 %
Water Surface Elevation	0.33 ft
Elevation Range	0.00 to 0.46
Discharge	16 cfs



APPENDIX D

Finished Floor Analysis

PROVIDENCE POD 211 PHASE 2
FINISH 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 $F.F._{min}$[3] (ft)	T/C + 6" $F.F._{min}$[4] (ft)	$F.F._{Design}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
23	5	3017.62	3017.24	0.36	3017.96	3018.12	3019.4	OK	OK	
24	5	3019.58	3019.20	0.36	3019.92	3020.08	3021.3	OK	OK	
25	5	3021.52	3021.14	0.36	3021.86	3022.02	3023.2	OK	OK	
26	5	3022.78	3022.40	0.36	3023.12	3023.28	3024.6	OK	OK	
27	5	3029.16	3028.78	0.36	3029.50	3029.66	3030.9	OK	OK	
28	5	3030.59	3030.21	0.36	3030.93	3031.09	3032.5	OK	OK	
29	5	3030.59	3030.21	0.36	3030.93	3031.09	3032.5	OK	OK	
30	5	3029.04	3028.66	0.36	3029.38	3029.54	3030.9	OK	OK	
31	5	3027.65	3027.27	0.36	3027.99	3028.15	3029.4	OK	OK	
32	5	3025.90	3025.52	0.36	3026.24	3026.40	3027.6	OK	OK	
33	5	3036.89	3036.51	0.36	3037.23	3037.39	3038.6	OK	OK	
34	5	3037.73	3037.35	0.36	3038.07	3038.23	3039.5	OK	OK	
35	5	3038.45	3038.07	0.36	3038.79	3038.95	3040.2	OK	OK	
36	5	3039.13	3038.75	0.36	3039.47	3039.63	3040.9	OK	OK	
37	5	3039.70	3039.32	0.36	3040.04	3040.20	3041.6	OK	OK	
38	6	3039.70	3039.32	0.36	3040.04	3040.20	3041.6	OK	OK	
39	6	3038.89	3038.51	0.36	3039.23	3039.39	3040.6	OK	OK	
40	6	3038.25	3037.87	0.36	3038.59	3038.75	3039.4	OK	OK	
41	6	3037.49	3037.11	0.36	3037.83	3037.99	3039.2	OK	OK	
42	6	3036.48	3036.10	0.36	3036.82	3036.98	3038.2	OK	OK	
43	6	3034.98	3034.60	0.36	3035.32	3035.48	3036.7	OK	OK	
44	6	3033.41	3033.03	0.36	3033.75	3033.91	3035.1	OK	OK	
45	6	3031.84	3031.46	0.36	3032.18	3032.34	3033.5	OK	OK	
46	6	3030.26	3029.88	0.36	3030.60	3030.76	3032.0	OK	OK	
47	6	3028.69	3028.31	0.36	3029.03	3029.19	3030.4	OK	OK	
48	6	3029.07	3028.69	0.36	3029.41	3029.57	3030.8	OK	OK	
49	6	3030.58	3030.20	0.36	3030.92	3031.08	3032.4	OK	OK	
50	6	3032.09	3031.71	0.36	3032.43	3032.59	3033.9	OK	OK	
51	6	3033.30	3032.92	0.36	3033.64	3033.80	3035.1	OK	OK	
52	5	3030.67	3030.29	0.36	3031.01	3031.17	3032.4	OK	OK	
53	5	3028.98	3028.60	0.36	3029.32	3029.48	3030.7	OK	OK	
54	5	3027.31	3026.93	0.36	3027.65	3027.81	3029.0	OK	OK	
55	5	3025.59	3025.21	0.36	3025.93	3026.09	3027.3	OK	OK	
56	5	3023.52	3023.14	0.36	3023.86	3024.02	3025.2	OK	OK	

PROVIDENCE POD 211 PHASE 2
FINISH 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.$_{\text{-min}}$[3] (ft)	T/C + 6" F.F.$_{\text{-min}}$[4] (ft)	F.F.$_{\text{-Design}}$ (ft)	Flowline Check	T/C + 6" Check	See References on Last Sheet
57	5	3021.48	3021.10	0.36	3021.82	3021.98	3023.1	OK	OK	
58	5	3019.50	3019.12	0.36	3019.84	3020.00	3021.2	OK	OK	
59	5	3017.54	3017.16	0.36	3017.88	3018.04	3019.2	OK	OK	
77	6	3010.13	3009.75	0.36	3010.47	3010.63	3011.9	OK	OK	
78	6	3011.75	3011.37	0.36	3012.09	3012.25	3013.5	OK	OK	
79	6	3013.33	3012.95	0.36	3013.67	3013.83	3015.1	OK	OK	
80	6	3014.87	3014.49	0.36	3015.21	3015.37	3016.6	OK	OK	
81	6	3016.59	3016.21	0.36	3016.93	3017.09	3018.3	OK	OK	
82	6	3018.46	3018.08	0.36	3018.80	3018.96	3020.2	OK	OK	
83	6	3020.35	3019.97	0.36	3020.69	3020.85	3022.1	OK	OK	
84	6	3022.58	3022.20	0.36	3022.92	3023.08	3024.3	OK	OK	
85	6	3028.22	3027.84	0.36	3028.56	3028.72	3029.9	OK	OK	
86	6	3027.35	3026.97	0.36	3027.69	3027.85	3029.2	OK	OK	
87	6	3026.69	3026.31	0.36	3027.03	3027.19	3028.4	OK	OK	
88	6	3025.91	3025.53	0.36	3026.25	3026.41	3027.6	OK	OK	
89	6	3024.51	3024.13	0.36	3024.85	3025.01	3026.2	OK	OK	
90	6	3022.85	3022.47	0.36	3023.19	3023.35	3024.5	OK	OK	
91	6	3021.00	3020.62	0.36	3021.34	3021.50	3022.7	OK	OK	
92	6	3019.20	3018.82	0.36	3019.54	3019.70	3020.9	OK	OK	
93	6	3017.39	3017.01	0.36	3017.73	3017.89	3019.0	OK	OK	
94	6	3015.07	3014.69	0.36	3015.41	3015.57	3016.7	OK	OK	
95	6	3012.83	3012.45	0.36	3013.17	3013.33	3014.5	OK	OK	
96	6	3011.21	3010.83	0.36	3011.55	3011.71	3012.9	OK	OK	

Where:

1: Top of Curb at High Side of Lot

2: TC-0.38 (For Roll 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.

APPENDIX E

Reference Material

Technical Drainage Study for Providence POD 211 (CLV # DS4654B)
Approval Letter
Excerpts From the Report
Interim Condition HEC-1 Model
Ultimate Condition HEC-1 Model
Interim Condition Exhibit E and Ultimate Condition Exhibit F
Pertinent Improvement Plans

Approval Letter

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: March 27, 2014
TO: Land Development Services Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: Providence POD 211			COPIES TO: Slater Hanifan Group
Cross Streets:	NWC of Shaumber Road & Dorrell Lane			CG-211, LLC / Focus Group
File Number:	F:\Depot\DSMemos\DS4654B.doc			Bart Anderson, P.E., DevCo
Parcel Number:	126-24-110-007			
Zoning Action:	TMP-52107 & WVR-52233			
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES	NO	X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	2/6/2014 & 2/20/2014	2/27/2014	Not Approved	$400.00	347178: $400
2nd Submittal	3/13/2014	3/26/2014	See Comments Below	$400.00	350810: $400
			TOTAL FEES (LDDRS):	$800.00	-----

REMARKS:

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

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

1. The rough graded onsite without any permanent cover such as paving, building construction or planting, is considered ongoing project under construction whereas a *Stormwater Pollution Prevention Plan* must be kept active under the NDEP Permit. In order to close out the permit, the developer must install permanent cover to the site to stabilize and control stormwater pollution to the satisfaction of NDEP.

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

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

END OF REMARKS
ays

T/R/S: T19S/R59E/24
AREA F-24

Excerpts From the Report

approximately 1 cfs. The changes in flow rates noted above are very insignificant and will not result to any negative impact to the downstream properties.

5.4 Summary of Proposed/Ultimate Condition Street Flows

Perimeter Streets: Tables 7 provides a summary of perimeter offsite street flow hydraulic characteristics as analyzed in the Master Study. The perimeter streets have been previously assessed and are utilized in the design of the project site in this study. Please refer to the referenced Cliffs Edge Storm Drain and FlowMaster Exhibit included in Appendix E, for the cross section locations.

Perimeter Street flows

Table 7: Summary of Perimeter Street Flow - 100-Year Event
(Referenced from the Master Study)

Cross Section ID	Street	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (fps)	DxV
PULL-7	Puli Road	1.43	51	0.62	4.08	2.53
PULL-8	Puli Road	3.37	51	0.55	5.74	3.16
SHAUM-10	Shaumber Road	1.25	25	0.51	3.48	1.77
SHAUM-11	Shaumber Road	3.28	25	0.43	5.46	2.35

Review of Table 7 indicates that the referenced street characteristics for Puli Road and Shaumber Road adjacent to the project site as analyzed in the Master Study satisfies all the street design criteria as stipulated in the CCRFCD HCDDM. Additionally, the 100-year flows in both streets will satisfy the 10-year street design criteria. Therefore, no additional calculations for the 10-year storm event were provided.

Interior Streets: Table 8 provides a summary of interior street flow hydraulic characteristics. Please refer to Exhibit F, included in Appendix A, for the cross section locations. Hydraulic computations are provided in Appendix C.

Table 8: Summary of Interior Street Flow - 100-Year Event

Cross Section ID	Street	Slope (%)	Q_{100} (cfs)	Depth (ft)	Velocity (fps)	DxV
1 Q = ON1-D	Niobrara Road	2.88 (min.)	25	0.40	4.82	1.9
		3.92 (max)		0.38	5.73	2.2
2 Q = ON2-D2	Cowlite Road	1.95 (min)	22	0.41	4.01	1.6
		3.23 (max)		0.37	5.17	1.9
3 Q = ON1-D + ON2-D1	Stanley Fredrick Street	0.90	28	0.49	3.22	1.6

Interim Condition HEC-1 Model

```
1*****************************************
*                                       *
*    FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998                *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   31JAN14  TIME  15:03:30   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*            (916) 756-1104             *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

              *DIAGRAM
    1         ID     SLATER HANIFAN GROUP
    2         ID     Providence POD 211
    3         ID     CG-211, LLC by CORE MANAGER, LLC
    4         ID     PROPOSED CONDITION
    5         ID
    6         ID     RETURN PERIOD ------- 100-YR & 10-YR
    7         ID     DISTRIBUTION -------- 6-HOUR SDN3
    8         ID     PROJECT NO. --------- FIG1302-000
    9         ID     FILENAME ------------ POD211int.H1
   10         ID     DATE ---------------- 01/2/2014
   11         ID     MODELED BY ---------- PSK/SOA
   12         ID
   13         ID        PRECIPITATION STORM EVENT RATIOS
   14         ID        STORM EVENT              RATIO
   15         ID        100-YR                   1.00
   16         ID        10-YR                    0.61
   17         ID
   18         IT       5       0       0     300
   19         IO       5       0       0
   20         IN       5       0       0
   21         JR    PREC    1.00    0.55
              *

   22         KK  ON1-P
   23         KM   ONSITE BASIN
   24         BA  .00609
   25         PB    3.15
   26         PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
   27         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
   28         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
   29         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
   30         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
   31         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
   32         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
   33         PC   0.998   0.999       1
   34         LS       0    92.2
   35         UD   0.072
              *

   36         KK  ON3-P
   37         KM   ROUGH GRADED ONSITE BASIN
   38         BA  .00621
   39         LS       0    86.4
   40         UD   0.101
              *

   41         KK      CP
   42         KM   COLLECTION POINT FOR ON1-P AND ON3-P
   43         HC       2
              *
```

1 HEC-1 INPUT PAGE 2

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   44         KK  ON2-P
   45         KM   ONSITE BASIN
   46         BA  .00750
   47         LS       0    92.2
   48         UD   0.074
              *

   49         KK  ON4-P
   50         KM   ROUGH GRADED ONSITE BASIN
   51         BA  .00841
   52         LS       0    86.4
   53         UD   0.121
```

```
                     *
            54       KK     CP0
            55       KM   COLLECTION POINT FOR ON2-P AND ON4-P
            56       HC       2
                     *
            57       KK     CP1
            58       KM   COLLECTION POINT FOR  CP AND  CP0
            59       HC       2
                     *
            60       ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK

 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

    NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    22      ON1-P
                .
                .
    36          .      ON3-P
                .           .
                .           .
    41        CP............
                .
                .
    44          .      ON2-P
                .           .
                .           .
    49          .           .      ON4-P
                .           .           .
                .           .           .
    54          .         CP0............
                .           .
                .           .
    57        CP1............

  (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *               JUN  1998               *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   31JAN14  TIME  15:03:30   *
 *                                       *
 *****************************************

 ***************************************
 *                                     *
 *    U.S. ARMY CORPS OF ENGINEERS     *
 *    HYDROLOGIC ENGINEERING CENTER    *
 *          609 SECOND STREET          *
 *       DAVIS, CALIFORNIA 95616       *
 *            (916) 756-1104           *
 *                                     *
 ***************************************

                              SLATER HANIFAN GROUP
                              Providence POD 211
                              CG-211, LLC by CORE MANAGER, LLC
                              PROPOSED CONDITION

                              RETURN PERIOD ------- 100-YR & 10-YR
                              DISTRIBUTION -------- 6-HOUR SDN3
                              PROJECT NO. --------- FIG1302-000
                              FILENAME ------------ POD211int.H1
                              DATE ---------------- 01/2/2014
                              MODELED BY ---------- PSK/SOA

                                 PRECIPITATION STORM EVENT RATIOS
                                 STORM EVENT             RATIO
                                 100-YR                  1.00
                                 10-YR                   0.61


   19 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

      IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE       1    0  STARTING DATE
                      ITIME         0000  STARTING TIME
                         NQ          300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE       2    0  ENDING DATE
                     NDTIME         0055  ENDING TIME
                     ICENT            19  CENTURY MARK

                    COMPUTATION INTERVAL      .08 HOURS
                        TOTAL TIME BASE    24.92 HOURS

           ENGLISH UNITS
                DRAINAGE AREA          SQUARE MILES
                PRECIPITATION DEPTH    INCHES
                LENGTH, ELEVATION      FEET
                FLOW                   CUBIC FEET PER SECOND
                STORAGE VOLUME         ACRE-FEET
                SURFACE AREA           ACRES
                TEMPERATURE            DEGREES FAHRENHEIT

      JP          MULTI-PLAN OPTION
                       NPLAN          1  NUMBER OF PLANS

      JR          MULTI-RATIO OPTION
                      RATIOS OF PRECIPITATION
                     1.00       .55
1
```

POD211int.OUT

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 1.00	RATIO 2 .55
HYDROGRAPH AT	ON1-P	.01	1	FLOW	13.	6.
+				TIME	3.50	3.50
HYDROGRAPH AT	ON3-P	.01	1	FLOW	10.	4.
+				TIME	3.50	3.50
2 COMBINED AT	CP	.01	1	FLOW	24.	10.
+				TIME	3.50	3.50
HYDROGRAPH AT	ON2-P	.01	1	FLOW	16.	8.
+				TIME	3.50	3.50
HYDROGRAPH AT	ON4-P	.01	1	FLOW	13.	5.
+				TIME	3.58	3.58
2 COMBINED AT	CP0	.02	1	FLOW	29.	12.
+				TIME	3.50	3.50
2 COMBINED AT	CP1	.03	1	FLOW	53.	22.
+				TIME	3.50	3.50

*** NORMAL END OF HEC-1 ***

Ultimate Condition HEC-1 Model

```
1*****************************************
*                                       *
*    FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998                *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   31JAN14  TIME  08:50:37   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

              *DIAGRAM
    1         ID     SLATER HANIFAN GROUP
    2         ID     Providence POD 211
    3         ID     CG-211, LLC by CORE MANAGER, LLC
    4         ID     ULTIMATE CONDITION
    5         ID
    6         ID     RETURN PERIOD ------- 100-YR & 10-YR
    7         ID     DISTRIBUTION -------- 6-HOUR SDN3
    8         ID     PROJECT NO. --------- FIG1302-000
    9         ID     FILENAME ------------ POD211.H1
   10         ID     DATE ---------------- 01/2/2014
   11         ID     MODELED BY ---------- PSK/SOA
   12         ID
   13         ID        PRECIPITATION STORM EVENT RATIOS
   14         ID        STORM EVENT              RATIO
   15         ID        100-YR                   1.00
   16         ID        10-YR                    0.61
   17         ID
   18         IT       5       0       0     300
   19         IO       5       0       0
   20         IN       5       0       0
   21         JR    PREC    1.00    0.55
              *

   22         KK  ON1-D
   23         KM   ONSITE BASIN
   24         BA  .01234
   25         PB    3.15
   26         PC       0   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
   27         PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
   28         PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
   29         PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
   30         PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
   31         PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
   32         PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
   33         PC   0.998   0.999       1
   34         LS       0    92.2
   35         UD   0.101
              *

   36         KK  ON2-D
   37         KM   ONSITE BASIN
   38         BA  .01593
   39         LS       0    92.2
   40         UD   0.119
              *

   41         KK     CP1
   42         KM   COLLECTION POINT FOR  ON1-D AND  ON2-D
   43         HC       2
              *
   44         ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    22      ON1-D
              .
              .
    36        .      ON2-D
              .           .
              .           .
    41      CP1............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             JUN  1998                 *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   31JAN14  TIME  08:50:37   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*            (916) 756-1104             *
*                                       *
*****************************************
```

SLATER HANIFAN GROUP
Providence POD 211
CG-211, LLC by CORE MANAGER, LLC
ULTIMATE CONDITION

RETURN PERIOD ------- 100-YR & 10-YR
DISTRIBUTION -------- 6-HOUR SDN3
PROJECT NO. --------- FIG1302-000
FILENAME ------------ POD211.H1
DATE ---------------- 01/2/2014
MODELED BY ---------- PSK/SOA

PRECIPITATION STORM EVENT RATIOS

STORM EVENT	RATIO
100-YR	1.00
10-YR	0.61

19 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN		5	MINUTES IN COMPUTATION INTERVAL
IDATE	1	0	STARTING DATE
ITIME		0000	STARTING TIME
NQ		300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	2	0	ENDING DATE
NDTIME		0055	ENDING TIME
ICENT		19	CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION
NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION
RATIOS OF PRECIPITATION
1.00 .55

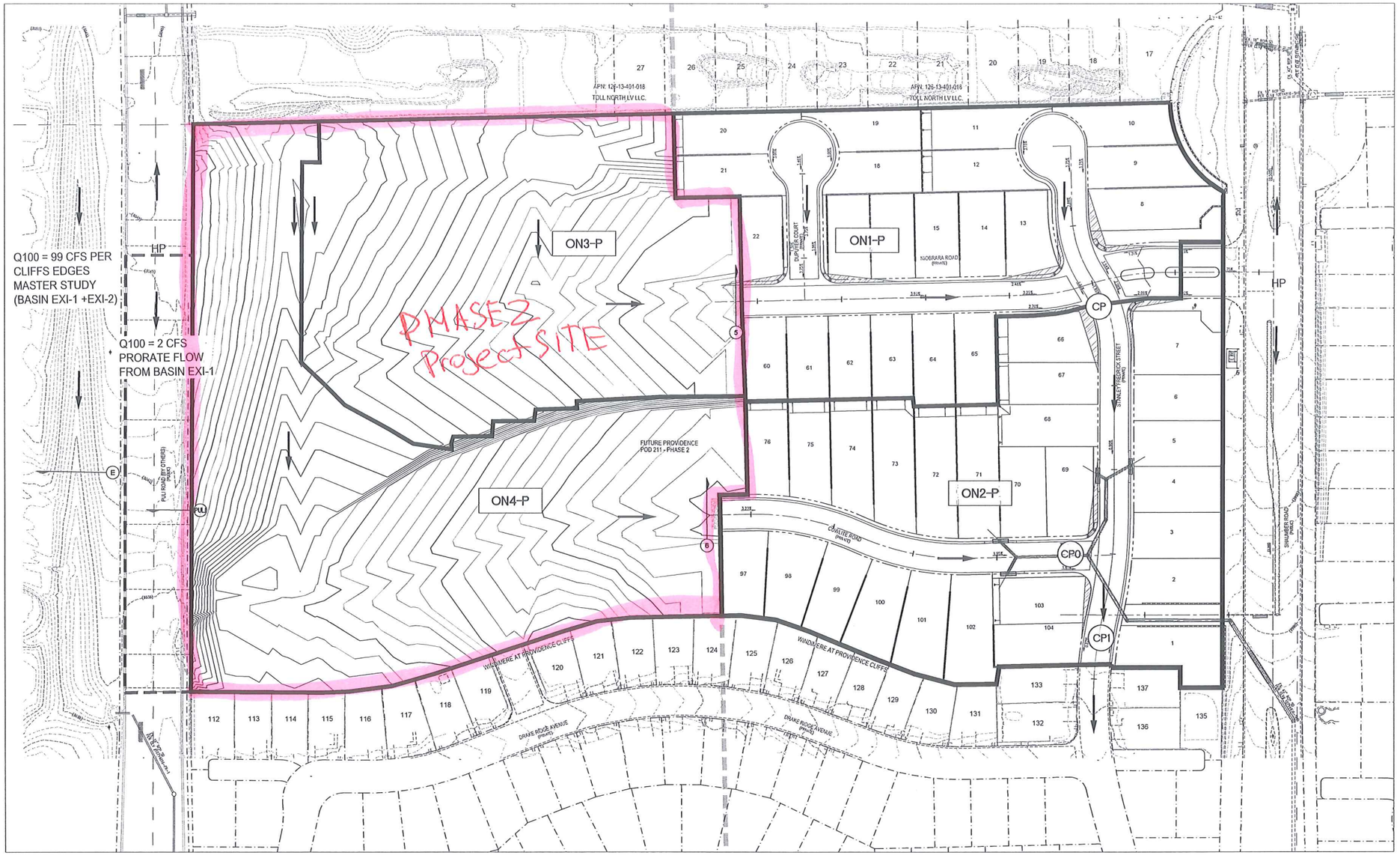
1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 1.00	RATIO 2 .55
HYDROGRAPH AT						
+	ON1-D	.01	1	FLOW	25.	11.
				TIME	3.50	3.50
HYDROGRAPH AT						
+	ON2-D	.02	1	FLOW	30.	14.
				TIME	3.58	3.58
2 COMBINED AT						
+	CP1	.03	1	FLOW	54.	25.
				TIME	3.50	3.58

*** NORMAL END OF HEC-1 ***

Interim Condition Exhibit E and Ultimate Condition Exhibit F



Flow Rate Summary
Interim Drainage Condition

Basin ID / Concentration Point	Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
ON1-P	3.9	13	6
ON2-P	4.8	16	8
ON3-P	4.0	10	4
ON4-P	5.4	13	5
CP *= ON-1P + ON-3P*	-	24	10
CP0 *= ON-2P + ON-4P*	-	29	12
CP1 *= CP + CP0*	-	53	22

Ditch Summary - Interim Condition Flow Rates (100-Yr)

Street Section ID	Contributing Flow	Slope (%)	Q (cfs)	Depth (ft)	Velocity (ft/s)	Notes
PULI	Prorated EXI-1 Flow	0.50	2	0.50	1.63	Existing Offsite Ditch
E	Basin EXI-1 +EXI-2	1.80	99	1.71	7.09	Existing Offsite Ditch
5	ON3-P	3.92	10	0.26	3.00	-
6	ON4-P	3.23	13	0.30	2.98	-

N

0 60 120
SCALE – 1" = 60' FEET

LEGEND
- BASIN BOUNDARY
- BASIN ID
- SUBBASIN BOUNDARY
- SUBBASIN ID
- FLOW DIRECTION
- CONCENTRATION POINT
- FLOWMASTER SECTION

SLATER HANFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.
1					

CG-211, LLC by CORE MANAGER, LLC

PROVIDENCE POD 211

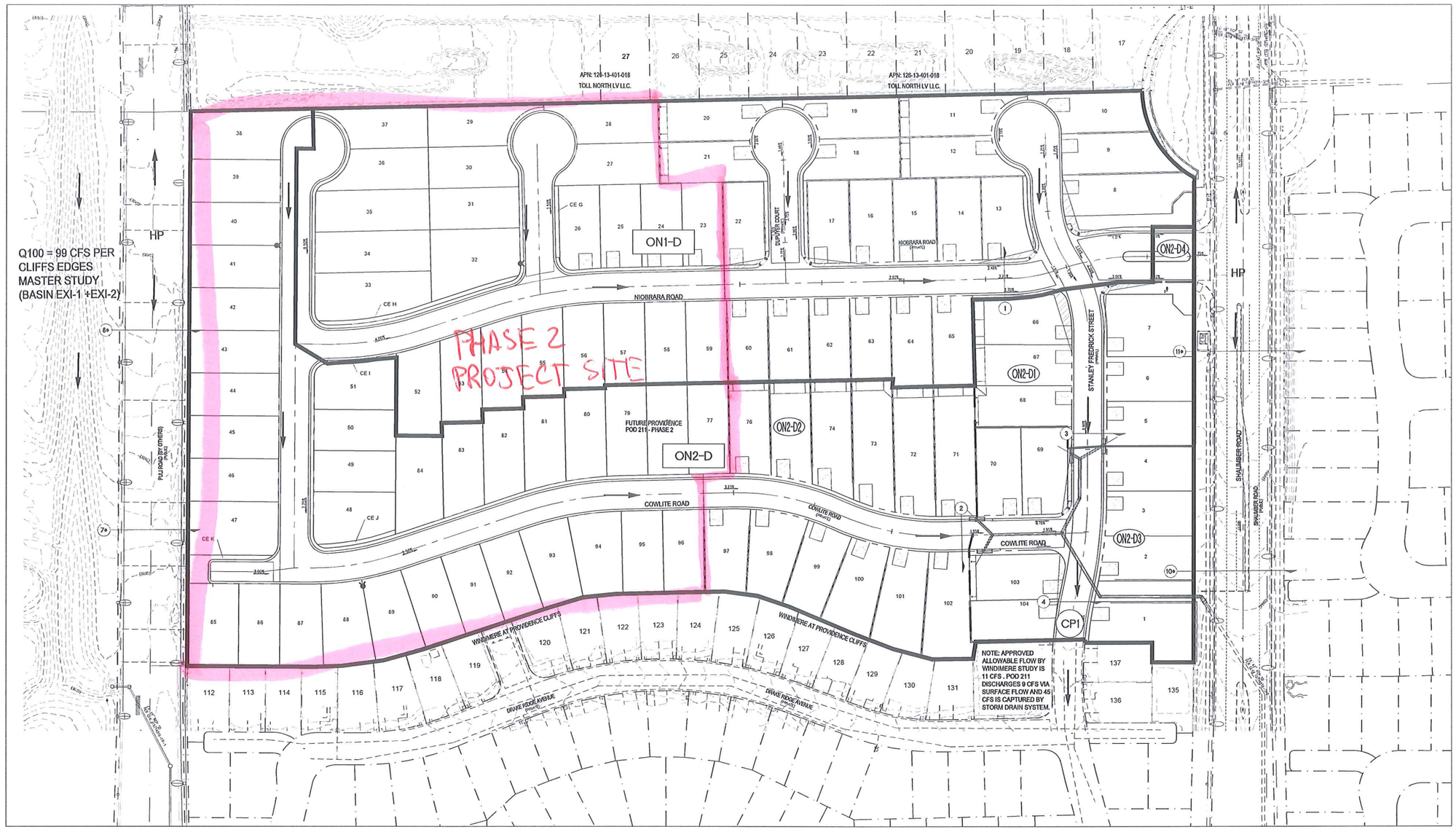
INTERIM CONDITION DRAINAGE MAP

III

DATE: MAR 2014
DRAFTER: PSK/KC
DESIGNER: PSK/KC
CHECKED: SOA
PROJECT NO. FIG1302-000

EXHIBIT E
SHEET 1 OF 1

J:\Fig1302-000 providence pod 211\drainage\technical studs\addendum1\figure\Fig1302-000 addt exhibit e proposed condition map.dwg 3/13/2014 11:59 AM Kellin Collins

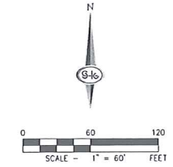


Flow Rate Summary Ultimate Drainage Condition			
Basin ID / Concentration Point	**Area (ac)**	**Q_{100} (cfs)**	**Q_{10} (cfs)**
ON1-D	7.9	25	11
ON2-D	10.2	30	14
CP1 *= ON-1D + ON-2D*	-	54	25

Prorated Flow Summary			
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON2-D	30	10.2	2.9
Subbasin	**Q_{100} (cfs)**	**Area (acres)**	**Unit Flow (cfs/acre)**
ON2-D1	3	1.1	2.9
ON2-D2	22	7.4	2.9
ON2-D3	5	1.6	2.9
ON2-D4	0	0.1	2.9
TOTAL	***30***	***10.2***	***2.9***

Street Flow Summary - Ultimate Condition Flow Rates (100-Yr)						
Street Section ID	**Contributing Flow**	**Slope (%)**	**Q (cfs)**	**Depth (ft)**	**Velocity (ft/s)**	**D*V**
1	ON1-D	2.88 (min%)	25	0.4	4.82	1.9
		3.92 (max%)		0.38	5.73	2.2
2	ON2-D2	1.95 (min%)	22	0.41	4.01	1.6
		3.23 (max%)		0.37	5.17	1.9
3	ON1-D + ON2-D1	0.90	28	0.49	3.22	1.6
4	ON1-D3 + DI1 & $DI2_{By\,pass}$ + DI3 & $DI4_{By\,pass}$	0.90	9	0.34	2.60	0.9
SHUM-10*	Ref. Flow	1.26	25	0.51	3.48	1.8
SHUM-11*	Ref. Flow	3.28	25	0.43	5.46	2.3
PULI7*	Ref. Flow	1.42	51	0.62	4.08	2.5
PULI8*	Ref. Flow	3.37	51	0.55	5.74	3.2

Note: Street Sections designated with "*" are referenced cross sections SHUM-10, SHUM-11, PULI-7 and PULI-8 from the Cliff's Edge Infrastructure 2 Study



LEGEND

- BASIN BOUNDARY
- ID — BASIN ID
- SUBBASIN BOUNDARY
- (ID) — SUBBASIN ID
- FLOW DIRECTION
- (ID) — CONCENTRATION POINT
- (ID) — FLOWMASTER SECTION

SLATER HANFAN GROUP
CONSULTING ENGINEERS & PLANNERS
8740 S. ARVILLE STREET #216, LAS VEGAS, NV 89116
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP

CG-211, LLC by CORE MANAGER, LLC

PROVIDENCE POD 211

PROPOSED/ULTIMATE CONDITION DRAINAGE MAP

DATE: JAN 2014
DRAFTER: PSK
DESIGNER: PSK
CHECKED: SOA
PROJECT NO.
FIG1302-000

EXHIBIT F
SHEET 1 OF 1

J:\fig1302-000 providence pod 211\drainage\technical study\figures\fig1302-000 exhibit f ultimate condtio drainage map.dwg 3/6/2014 8:50 AM Pavel Kostchakov

Pertinent Improvement Plans

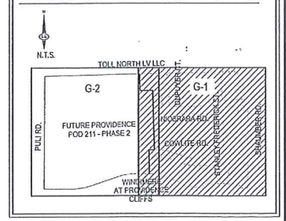
NOTE

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

NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

KEY MAP



CONSTRUCTION NOTES

1. CONSTRUCT 2.5" AC PAVEMENT WITH 6" TYPE II AGGREGATE BASE OVER NATIVE MATERIAL PER SOILS REPORT.
2. CONSTRUCT 4.5" AC PAVEMENT WITH 12" TYPE II AGGREGATE BASE OVER NATIVE MATERIAL PER SOILS REPORT.
3. CONSTRUCT 30" ROLL TYPE CURB PER CCAUSD NO. 217.1
4. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
5. CONSTRUCT 4' WIDE SIDEWALK PER CCAUSD NO. 234
6. SAWCUT AND MATCH EXISTING IMPROVEMENTS
7. FIELD VERIFY AND CONNECT TO EXISTING CURB, GUTTER AND SIDEWALK
8. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I, SEE P SHEETS FOR A AND B LENGTHS
9. INSTALL 48" TYPE B STORM DRAIN MANHOLE PER CCAUSD NO. 401 & 405
10. INSTALL 17.5' TYPE CM DROP INLET PER CCAUSD NO. 412.1, W/ STORM WATER QUALITY MANAGEMENT STAMP AND SIGN PER CCAUSD NO. 421, SEE PROFILES, SHEET P-2.
11. INSTALL 24" RCP CLASS III SD (PRIVATE)
12. INSTALL 42" RCP CLASS III SD (PRIVATE)
13. INSTALL "A" TYPE ISLAND CURB PER CCAUSD DWG NO. 219
14. REMOVE EXISTING BARRICADES
15. REMOVE EXISTING CHAIN LINK FENCE
16. CONNECT TO EXIST 42" STORM DRAIN VERIFY CONCRETE COLLAR REF. DETAIL 2 ON SHEET D-2.
17. INSTALL RIPRAP PAD, D50=6", THICKNESS=16"
18. INSTALL 30" RCP CLASS III SD (PRIVATE)

SEE SHEET C-2 FOR ABBREVIATIONS, LEGEND & QUANTITIES

S-16

0 40' 80'
SCALE: 1"=40 FEET

NOTE

1. ADD 2900 TO PLAN GRADES, EXCLUDING PAD ELEVATIONS, FF ELEVATIONS, AND EXISTING & PROPOSED CONTOURS

GENERAL NOTES

1. FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2006, SECTION 2304.11.2.2.
2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
3. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
4. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
5. SEE DETAIL SHEET FOR STREET SECTIONS AND DETAILS.
6. ALL PUBLIC AND PRIVATE DRAINAGE IMPROVEMENTS TO BE BONDED FOR AND INSPECTED.
7. CONSTRUCTION OF BLOCK WALLS REQUIRES A SEPARATE BUILDING PERMIT AND APPROVAL BY THE CITY OF LAS VEGAS BUILDING DEPARTMENT.
8. 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.
9. 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.

FEMA FLOOD ZONE DESIGNATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X", (UNSHADED) (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD), PER FIRM PANELS 32003C1750E DATED SEPTEMBER 27, 2002.

BASIS OF BEARING

NORTH 89°48'43" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHWEST QUARTER (NW1/4) OF SECTION 24, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, PER BOOK 118, PAGE 88 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

BENCHMARK

BENCHMARK NUMBER: ELV992406

RIVET AND PLATE IN TOP CURB WEST SIDE OF SCHAUMBER ROAD AT DEER SPRINGS WAY.

ELEVATION = 2957.70 FEET, 901.509 METERS
N.A.V.D. 88 DATUM

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

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS6654 ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

DOUGLAS E. BERGSTROM, P.E. 17103 — DATE

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

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you do UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
or
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

SLATER HANFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300
FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

CG-211, LLC by CORE MANAGER, LLC

PROVIDENCE POD 211, PHASE 1

GRADING PLAN I

S24 T19S R59E

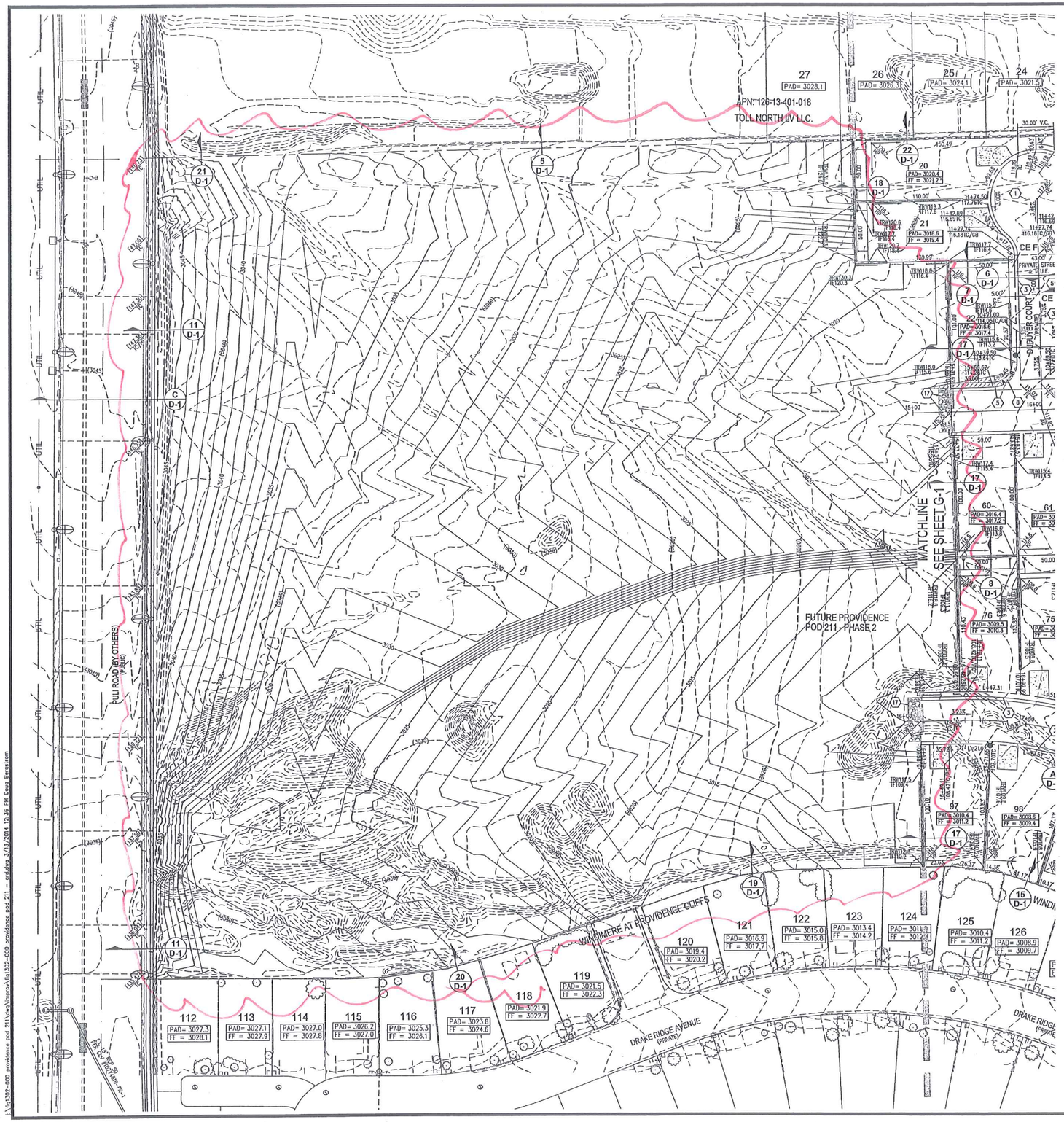
DATE: 2/3/14
DRAFTER: SS
DESIGNER: DEB
CHECKED: BDP

PROJECT NO.
FIG1302-000

DOUGLAS E. BERGSTROM — STATE OF NEVADA — PROFESSIONAL ENGINEER — CIVIL — No. 17103 — EXP. 12/31/2014 — 3/13/14

G-1
SHEET 3 OF 18

J:\fig1302-000 providence pod 211\civil\mxrox\fig1302-000 providence pod 211 - grd.dwg 3/13/2014 12:35 PM Doug Bergstrom


27
PAD= 3028.1
APN: 126-13-401-018
TOLL NORTH LV LLC.
26
PAD= 3026.3
25
PAD= 3024.1
24
PAD= 3021.5
22
D-1
20
PAD= 3020.4
FF = 3021.4
18
D-1
21
PAD= 3018.6
FF = 3019.4
21
D-1
11
D-1
5
D-1
C
D-1
6
D-1
7
D-1
22
PAD= 3016.6
FF = 3017.4
17
D-1
8
D-1
60
PAD= 3016.4
FF = 3017.2
61
PAD= 30
FF = 30
76
PAD= 3009.5
FF = 3010.3
75
PAD= 30
FF = 30
97
PAD= 3010.4
FF = 3011.2
96
PAD= 3008.6
FF = 3009.4
17
D-1
19
D-1
15
D-1
20
D-1
112
PAD= 3027.3
FF = 3028.1
113
PAD= 3027.1
FF = 3027.9
114
PAD= 3027.0
FF = 3027.8
115
PAD= 3026.2
FF = 3027.0
116
PAD= 3025.3
FF = 3026.1
117
PAD= 3023.8
FF = 3024.6
118
PAD= 3021.9
FF = 3022.7
119
PAD= 3021.5
FF = 3022.3
120
PAD= 3019.4
FF = 3020.2
121
PAD= 3016.9
FF = 3017.7
122
PAD= 3015.0
FF = 3015.8
123
PAD= 3013.4
FF = 3014.2
124
PAD= 3011.7
FF = 3012
125
PAD= 3010.4
FF = 3011.2
126
PAD= 3008.9
FF = 3009.7
FUTURE PROVIDENCE
POD 211 - PHASE 2
PUBLIC ROAD (BY OTHERS)
(PRIVATE)
WINDMERE AT PROVIDENCE CLIFFS
DRAKE RIDGE AVENUE
(PRIVATE)
SEE SHEET G-1
MATCHLINE
SEE SHEET G-1
TOLL COURT
(PRIVATE)
PRIVATE STREET
W.V.E.
CE
CE
30.00' V.C.
50.00'
43.00'
110.00'
155.49'
120.99'
164.00'
154.00'
50.00'
100.00'
100.00'
50.00'
50.00'
50

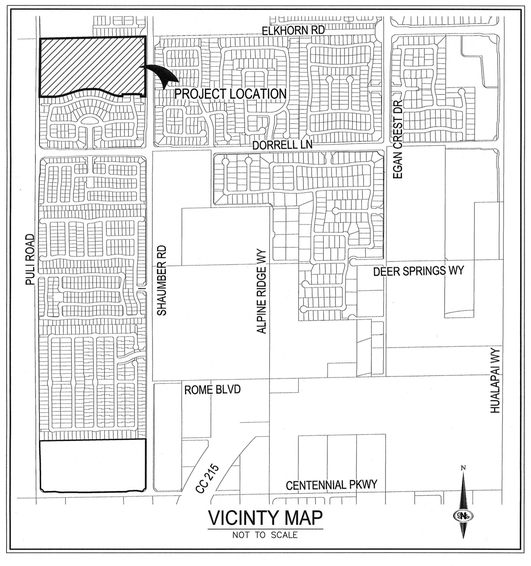
APPENDIX F

Updated Improvement Plans, Profiles and Details

APPENDIX G

CD of Drainage Study and Improvement Plans

IMPROVEMENT PLANS
FOR
PROVIDENCE 211 PHASE 2
APN 126-24-110-007



LEGAL DESCRIPTION

LOT TWO-HUNDRED ELEVEN (211) IN BLOCK FOUR (4) OF CLIFFS EDGE PARENT, AS SHOWN BY MAP THEREOF ON FILE IN BOOK 118 OF PLATS, PAGE 88, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA AND AS AMENDED BY CERTIFICATE OF AMENDMENT RECORDED OCTOBER 2, 2006 IN BOOK 20061002 AS DOCUMENTED NO.02626, OFFICIAL RECORDS.

EXCEPTING THEREFROM ALL THE PROPERTY LYING WITHIN THE EXTERIOR BOUNDARIES OF WINDIMERE @ PROVIDENCE/CLIFFS EDGE UNIT 1, AS SHOWN BY MAP THEREOF ON FILE IN BOOK 132 OF PLATS, PAGE 5, IN THE OFFICE OF THE COUNTY RECORDER OF CLARK COUNTY, NEVADA.

APPROVALS

CITY ENGINEER–DAVID BOWERS PE, PTOE #16736 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.

CITY OF LAS VEGAS SEWER DATE

LAS VEGAS FIRE AND RESCUE DATE

CHRIS KNIGHT, DIRECTOR DATE
BUILDING AND SAFETY DEPARTMENT

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE PLANNING DEPARTMENT.

CENTRAL TELEPHONE COMPANY D/B/A 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 MANAGER
PROJECT NO. 122955 DATE:

SHEETS: C-1, C-2, P-2 THRU P-6, AND U-1.

LVVWD APPROVED FIRE FLOW: 1,500 GPM AT 20 PSI RESIDUAL

APPROVAL BY THE FIRE DEPARTMENT HAVING JURISDICTION IS REQUIRED PRIOR TO OBTAINING FINAL APPROVAL FROM THE LAS VEGAS VALLEY WATER DISTRICT.

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 DATE

COX COMMUNICATIONS LAS VEGAS, INC. DATE

PROJECT INFORMATION

EXISTING ZONING:	PD
PROPOSED ZONING:	LOW DENSITY RESIDENTIAL
ACREAGE (GROSS):	19.92 AC
ACREAGE (NET):	18.15 AC
TOTAL DWELLING UNITS:	47
TYP. LOT SIZE:	50'X100'
MIN. LOT WIDTH	50'
MIN. LOT SF	5,000 SF
MAX LOT SF	7,807 SF
DENSITY (NET ACREAGE):	5.73 DU/AC
MAX. LOT COVERAGE:	50%

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

BASIS OF BEARING

NORTH 88°48'43" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHWEST QUARTER (NW1/4) OF SECTION 24, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, PER BOOK 118, PAGE 88 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

BENCHMARK

BENCHMARK NUMBER: 6LV9924W6

RIVET AND PLATE IN TOP CURB WEST SIDE OF SCHAUMBER ROAD AT DEER SPRINGS WAY.

ELEVATION = 2957.70 FEET, 901.509 METERS
N.A.V.D. 88 DATUM

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

AVOID HITTING UNDERGROUND TRAFFIC SIGNALS SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you do UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

OWNER/DEVELOPER

CG-211, LLC
3455 CLIFF SHADOWS PARKWAY
SUITE 220
LAS VEGAS, NV 89129
CONTACT: THOMAS J. DEVORE

ENGINEER

SLATER HANIFAN GROUP
5740 S. ARVILLE ST SUITE 216
LAS VEGAS, NV 89118
PH (702) 284-5300
FX (702) 284-5399

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

RICHMOND AMERICAN HOMES

PROVIDENCE 211 PHASE 2
COVER SHEET

S24 T19S R59E

DATE: 12/10/14
DRAFTER: CZ
DESIGNER: CZ
CHECKED: TJS

PROJECT NO.
RAH1407

PROFESSIONAL ENGINEER – STATE OF NEVADA
TODD J. STEADHAM
Exp. 06/30/2016
CIVIL
No. 15297
12/10/14

C-1
SHEET 1 OF ----

\\rah1407.pod 211\data\Vanpro\rah1407cvr.dwg 12/10/2014 11:35 AM Christopher Zhong

2.1 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 NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.

12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY ENGLE ENGINEERING, PROJECT #26173-1, DATED SEPTEMBER 19, 2014 APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.

13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.

14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.

15. UTILITY COMPANY MASTER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER. ALL ABOVE GROUND UTILITY APPERTANANCES SHALL CONFORM TO THE REQUIREMENTS OF 19.12.040.

WALL NOTES:
16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.

17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.

18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.

19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.

20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.

21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE OFFSITE INSPECTION AND TESTING SECTION PRIOR TO PROJECT ACCEPTANCE AND BOND RELEASE. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, AND THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXITS THE PUBLIC RIGHT-OF-WAY. THE LOCATION SHALL BE DESCRIBED BY STATE PLANE COORDINATES WHICH SHALL BE BASED ON THE "NEVADA COORDINATE SYSTEM OF 1983, EAST ZONE" AS DEFINED BY THE NEVADA REVISED STATUTES CHAPTER 327, AND TIED TO THE CITY OF LAS VEGAS VERTICAL CONTROL BENCHMARK NETWORK. COORDINATES MUST BE CERTIFIED BY A NEVADA PROFESSIONAL LAND SURVEYOR TO HAVE POSITIONAL CERTAINTIES OF +/- 0.1 METER (+/- 0.3 FEET). A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).

22. STORM DRAIN LATERALS REQUIRE THE INSTALLATION OF A MARKER BALL AT THE CONNECTION OF THE STORM DRAIN LATERAL TO THE STORM DRAIN MAIN AND WHERE THE STORM DRAIN LATERAL EXITS THE PUBLIC RIGHT-OF-WAY OR WHERE THE STORM DRAIN LATERAL CONNECTS TO A DROP INLET. THE MARKER BALL SHALL BE 3M 4" MARKER BALL 1404-XR OR APPROVED EQUAL.

23. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST ADDITION.

24. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

2.2 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.

2.3 CITY OF LAS VEGAS TRAFFIC NOTES

1. ALL CONSTRUCTION SIGNING, BARRICADING, AND TRAFFIC DELINEATION SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.

2. THE STREET SIGN CONTRACTOR SHALL OBTAIN STREET NAMES AND BLOCK NUMBERING FROM THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION.

3. BEFORE ANY WORK IS STARTED IN THE RIGHT-OF-WAY, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS FOR THE CONSTRUCTION ZONE. THE CONTRACTOR SHALL INSTALL TEMPORARY STOP SIGNS AT ALL NEW STREET ENCROACHMENTS INTO EXISTING CITY STREETS WHERE WARRANTED IMMEDIATELY AFTER GRADING WORK IS ACCOMPLISHED, AND SHALL MAINTAIN SAID SIGNS UNTIL PERMANENT SIGNS ARE INSTALLED.

4. WHEN A DESIGNATED "SAFE ROUTE TO SCHOOL" IS ENCROACHED UPON BY A CONSTRUCTION WORK ZONE AND PUBLIC WORKS STAFF IDENTIFIES A NEED FOR STUDENTS TO BE ASSISTED IN THE SAFE CROSSING THROUGH THAT WORK ZONE, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE A QUALIFIED "CROSSING GUARD". THE GUARD SHALL BE PRESENT FOR THE FULL DURATION OF TIME THAT CHILDREN ARE LIKELY TO BE PRESENT.

5. IF THE IMPROVEMENTS NECESSITATE THE OBLITERATION, TEMPORARY OBSTRUCTION, TEMPORARY REMOVAL OR RELOCATION OF ANY EXISTING TRAFFIC PAVEMENT MARKING, SUCH PAVEMENT MARKING SHALL BE RESTORED OR REPLACED WITH LIKE MATERIALS TO THE SATISFACTION OF THE CITY TRAFFIC ENGINEER.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL PERMANENT SIGNS SHOWN ON THE PLANS. ALL NEW TRAFFIC SIGNS SHALL BE FABRICATED WITH DIAMOND GRADE VIP CLASS 6 REFLECTIVE SHEETING OR APPROVED EQUAL. ALL NEW TRAFFIC SIGNS, EXCEPT STREET NAME AND SCHOOL SPEED LIMIT SIGNS, SHALL HAVE 3M SERIES 1160 OR APPROVED EQUIVALENT ANTI-GRAFFITI PROTECTIVE OVERLAY FILM; SCHOOL ZONE SIGNS SHALL HAVE 3M SERIES 1150 ANTI-GRAFFITI PROTECTIVE OVERLAY FILM. STREET NAME SIGNS SHALL CONFORM IN THEIR ENTIRETY TO CURRENT CITY STANDARDS. ALL OTHER SIGNS SHALL BE STANDARD SIZE UNLESS OTHERWISE SPECIFIED ON THE PLANS. ALL SIGN POSTS SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT CITY STANDARDS.

7. WHEN A PROPOSED STREET LIGHT STANDARD IS LOCATED WITHIN FIVE (5') FEET OF ANY PROPOSED SIGN SHOWN ON THE PLANS TO BE MOUNTED ON A SIGNPOST, THE SIGN SHALL BE MOUNTED ON THE STREET LIGHT STANDARD AND THE SIGNPOST SHALL BE ELIMINATED.

8. ALL PERMANENT TRAFFIC CONTROL DEVICES CALLED FOR HEREON SHALL BE IN PLACE AND IN FINAL POSITION PRIOR TO ALLOWING ANY PUBLIC TRAFFIC ONTO THE PORTIONS OF THE ROAD(S) BEING IMPROVED HERE UNDER, REGARDLESS OF THE STATUS OF COMPLETION OF PAVING OR OTHER OFF-SITE IMPROVEMENTS CALLED FOR BY THESE PLANS.

9. STREET SIGNS AND STOPS SIGNS SHALL BE INSTALLED PER CITY STANDARD SPECIFICATIONS FOR PLACEMENT OF STREET NAME SIGNS.

10. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TRAFFIC CONTROL DEVICES AND FLAGGERS TO INSURE THE SAFETY OF THE PUBLIC IN OR AROUND THE WORK AREA. THE CONTRACTOR SHALL HAVE A CERTIFIED ATSSA TRAFFIC CONTROL TECHNICIAN OR IMSA WORK ZONE SAFETY SPECIALIST SET UP, MAINTAIN AND/OR REMOVE ALL TRAFFIC CONTROL DEVICES IN THE CITY OF LAS VEGAS RIGHT OF WAY.

11. WORK IN PUBLIC STREETS, ONCE BEGUN, SHALL BE EXPEDITED TO COMPLETION SO AS TO PROVIDE MINIMUM INCONVENIENCE TO ADJACENT PROPERTY OWNERS AND TO THE TRAVELING PUBLIC.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING CITIZENS AREA TRANSIT (C.A.T.) IF THE CONSTRUCTION INTERRUPTS OR RELOCATES A BUS STOP OR HAS AN ADVERSE EFFECT ON BUS SERVICE OR THAT STREET TO ARRANGE FOR TEMPORARY RELOCATION OF STOP.

13. GUARDS SHALL BE OBTAINED BY CONTACTING THE METROPOLITAN POLICE DEPARTMENT SPECIAL EVENTS UNIT (PHONE # 828-3442) WHO WILL PROVIDE OFFICERS PROPERLY TRained IN TRAFFIC CONTROL TTES FOR THE USE OF THESE OFFICERS SHALL BE SET BY METRO AND WILL BE PAID BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR ALL ARRANGEMENTS WITH METRO.

14. ANY WORK WITHIN 300' OF A SIGNALIZED INTERSECTION WILL BE NIGHT WORK, UNLESS OTHERWISE DIRECTED BY THE CITY OF LAS VEGAS TRAFFIC ENGINEER.

15. THE CONTRACTOR SHALL CONTACT THE TRAFFIC ENGINEERING DIVISION (TRANSPORTATION SECTION) THROUGH THE PROJECT'S OFFSITE INSPECTOR PRIOR TO INITIATING PAVING TO RECEIVE DIRECTION FOR ANY PERMANENT OR TEMPORARY MODIFICATIONS TO THE APPROVED DRAWINGS REGARDING FINAL PAVEMENT TRANSITIONS, MARKINGS AND SIGNING THAT ARE REQUIRED TO MATCH ADJACENT ROADWAY SEGMENTS. THE CONTRACTOR SHALL PROVIDE A DRAWING FOR APPROVAL BY THE TRAFFIC ENGINEERING DIVISION DEPICTING ANY ADJUSTMENTS TO THE FINAL PAVEMENT MARKINGS AND SIGNAGE, WHICH MAY INCLUDE OMITTING, ADDING OR MODIFYING PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SUCH THAT ADEQUATE TRANSITIONS AND LANE TERMINATIONS BETWEEN ADJACENT ROADWAY SEGMENTS ARE CONSTRUCTED.

2.4 CITY OF LAS VEGAS STREETLIGHT NOTES

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

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

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

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

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

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

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

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

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

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

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

2.5 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.

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 # 6124 FOR HYDRANT SPECIFICATIONS AND HYDRANT INSTALLATIOIL SPECIFICATIONS. AUTHORIZED FIRE HYDRANTS ARE AS FOLLOWS;

- KENNEDY – GUARDIAN MODELS K81A AND K81D
- MUELLER– SUPER CENTURION 250, MODEL A-423
- CLOW – MEDALLION MODEL F-2546LVD
- U.S.PIPE – METROFLOW/M-03

2. A PERMIT IS REQUIRED FROM LAS VEGAS FIRE AND RESCUE FOR THE INSTALLATION OF ON-SITE WATER LINES AND FIRE HYDRANTS. THE PERMIT AND CONTRACTORS MATERIAL TEST CERTIFICATE FOR UNDERGROUND PIPING FORM SHALL BE OBTAINED FROM THE FIRE PROTECTION ENGINEER BEFORE COMMENCEMENT OF WORK.

3. 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. SNFC #6124, SECTION 1412.

4. TO IDENTIFY THE FIRE HYDRANT LOCATIONS, THE CONTRACTOR SHALL PLACE A BLUE REFLECTIVE MARKER AT THE CENTER LINE OF THE STREET ADJACENT TO THE FIFE HYDRANTS. SNFC #6124 SECTION 507.5.7.3

5. 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.

6. 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. SNFC 507.2.1, NFPA 24

7. 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 DIVISON IFC 507; SNFC 507.5.7

8. PRIVATE HYDRANTS SHALL BE PAINTED RED. SNFC 507.5.7.1

9. 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; SNFC 507.1

10. FIRE HYDRANT SPACING SHALL BE AS FOLLOWS: SNFC C102

- RESIDENTIAL– 500 FT UNSPRINKLERED; 600 FT SPRINKLERED.
- COMMERCIAL– 300 FT UNSPRINKLERED; 400 FT SPRINKLERED.

11. 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. SNFC C102.14

12. 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.

13. NO FIRE HYDRANTS SHALL BE LOCATED WITHIN 6 FT OF ANY CURB RETURN, DRIVEWAY, POWER POLE, STREETLIGHT OR ANY OTHER OBSTRUCTION. SNFC C102.12

14. A MAXIMUM DISTANCE FROM A FIRE HYDRANT TO A ONE-TWO FAMILY DWELLING SHALL NOT EXCEED 300 FT, AS MEASURED BY AN APPROVED ROUTE. SNFC 102.4

15. THE MINIMUM DISTANCE FROM A FIRE HYDRANT TO A FIRE DEPARTMENT CONNECTION (FDC) SHALL NOT EXCEED 100 FT, AS MEASURED BY AN APPROVED ROUTE. SNFC C1 02.7

16. THE MAXIMUM DISTANCE FROM A HYDRANT TO THE END OF A DEAD-END STREET SHALL NOT EXCEED 200 FT. SNFC 102.6

17. TWO (2) SOURCES OF SUPPLY ARE REQUIRED WHENEVER THERE IS 4 OR MORE FIRE HYDRANTS/SPRINKLER LEAD-INS ARE INSTALLED ON A SINGLE SYSTEM. SECTIONAL CONTROL VALVES SHALL BE INSTALLED SO THAT NO MORE THAN 2 FIRE HYDRANTS CAN BE OUT OF SERVICE DUE TO A BREAK IN A WATER MAIN.

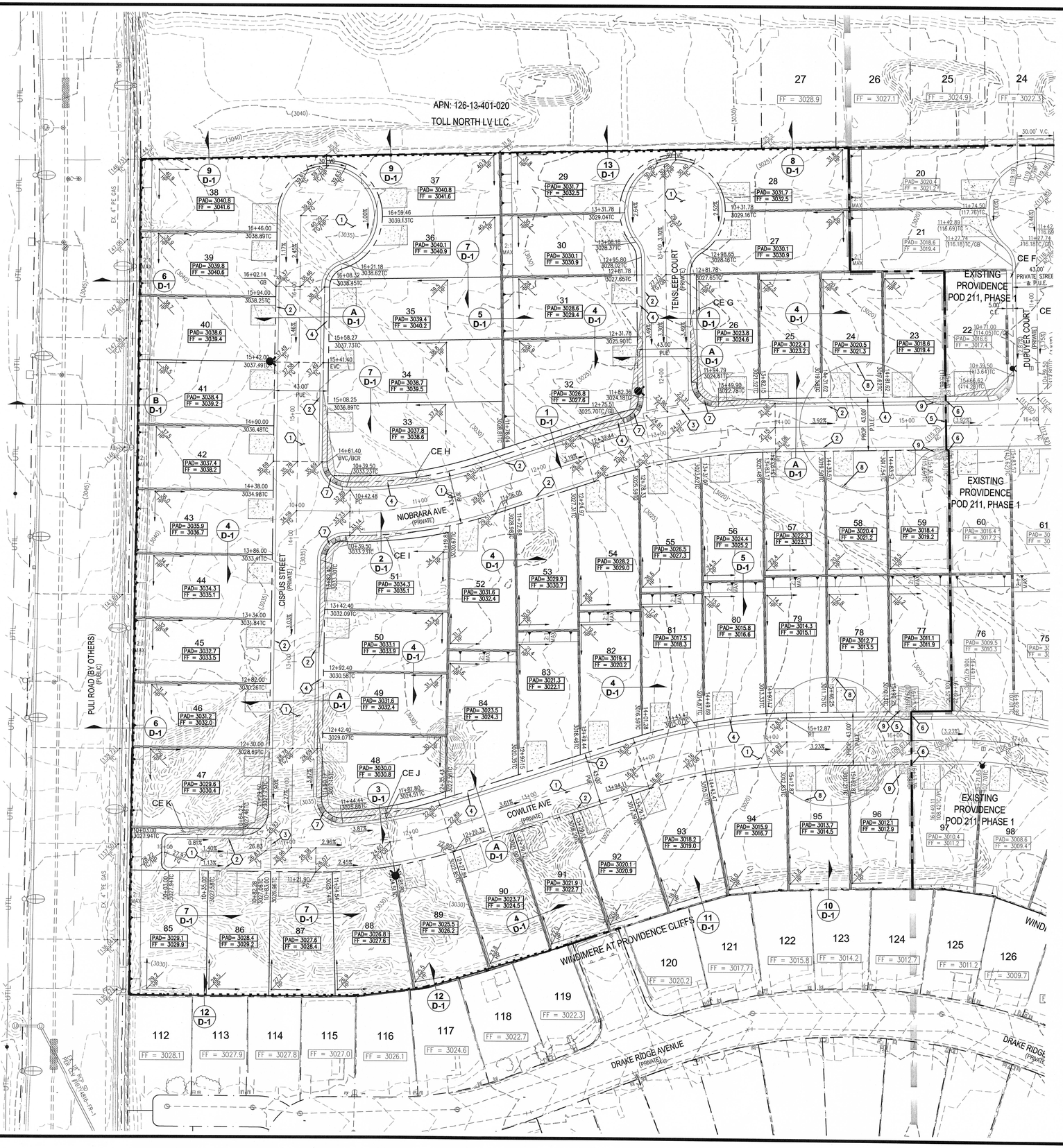
18. ALL FIRE APPARATUS ACCESS ROADS SHALL BE PAVED TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES, AND SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF THE FIRE APPARATUS. SNFC 503.2.3

19. 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% SNFC 503.2.7 / 503.2.8

20. THE TURNING RADIUS OF THE FIRE APPARATUS ACCESS ROADS SHALL BE NO LESS THAN 52 FT OUTSIDE AND 28 FT INSIDE TURNING RADIUS. SNFC 503.2.4

21. VERTICAL CLEARANCE OF ALL FIRE APPARATUS ACCESS ROADS SHALL NOT BE LESS THAN 13 FT 6 INS. SNFC 503.2.1.1 I IFC 503

22. FIRE DEPARTMENT ACCESS ROADS IN ALL RESIDENTIAL DEVELOPMENTS (EXCEPT APARTMENT BUILDINGS) SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF NOT LESS THAN 36 FT FLOW LINE TO FLOW LINE (THIS WIDTH MAY BE REDUCED TO 24 FT IF ALL BUILDINGS FRONTING THE STREET ARE SPRINKLERED) FOR MAIN RESIDENTIAL STREETS, WITH P



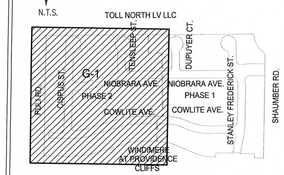
STORM DRAIN NOTE

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

EASEMENT NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

KEY MAP



CONSTRUCTION NOTES

1. CONSTRUCT AC PAVEMENT WITH TYPE II AGGREGATE BASE, PER SOILS REPORT
2. CONSTRUCT 30" ROLL TYPE CURB PER CCAUSD NO. 217.S1
3. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
4. CONSTRUCT 4' WIDE SIDEWALK PER CCAUSD NO. 234
5. SAWCUT AND MATCH EXISTING IMPROVEMENTS
6. FIELD VERIFY AND CONNECT TO EXISTING CURB, GUTTER AND SIDEWALK
7. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I, SEE P SHEETS FOR A AND B LENGTHS
8. REMOVE EXISTING ASHPALT
9. REMOVE EXISTING RIPRAP

SEE SHEET C-2 FOR ABBREVIATIONS, LEGEND & QUANTITIES

N

0 40' 80'

SCALE: 1"=40 FEET

NOTE

1. ADD 2900 TO PLAN GRADES, EXCLUDING PAD ELEVATIONS, FF ELEVATIONS, AND EXISTING & PROPOSED CONTOURS

GENERAL NOTES

1. FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2009, SECTION 2304.11.2.2.
2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
3. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
4. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
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/REPLEINING 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.

FEMA FLOOD ZONE DESIGNATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X", (UNSHADED) (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD), PER FIRM PANELS 32003C1750E DATED SEPTEMBER 27, 2002.

BASIS OF BEARING

NORTH 88°48'43" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHWEST QUARTER (NW1/4) OF SECTION 24, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, PER BOOK 118, PAGE 88 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

BENCHMARK

BENCHMARK NUMBER: 6LV9924W6

RIVET AND PLATE IN TOP CURB WEST SIDE OF SCHAUMBER ROAD AT DEER SPRINGS WAY.

ELEVATION = 2957.70 FEET, 901.509 METERS
N.A.V.D. 88 DATUM

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

FLOOD CERTIFICATION

I CERTIFY THAT THIS GRADING PLAN IS IN CONFORMANCE WITH THE APPROVED TECHNICAL DRAINAGE STUDY DS #4654O ON FILE AT CITY OF LAS VEGAS FOR THE SUBJECT PROJECT.

TODD J. STEADHAM, P.E. 15292 DATE

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

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you do UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

RICHMOND AMERICAN HOMES

PROVIDENCE 211 PHASE 2

GRADING PLAN

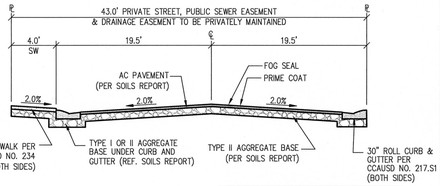
S24 T19S R59E

DATE: 12/10/14
DRAFTER: CZ
DESIGNER: CZ
CHECKED: TJS
PROJECT NO.
RAH1407

PROFESSIONAL ENGINEER STATE OF NEVADA
TODD J. STEADHAM
Exp. 06/30/2016
CIVIL
No. 15292
12/10/14

G-1
SHEET 3 OF ----

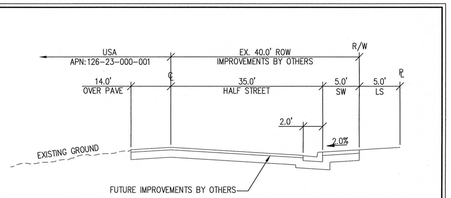
J:\rah1407_pod_211\dwg\mmpro\rah1407grd.dwg 12/10/2014 11:35 AM Christopher Zhong



A. PRIVATE STREET SECTION

NOT TO SCALE

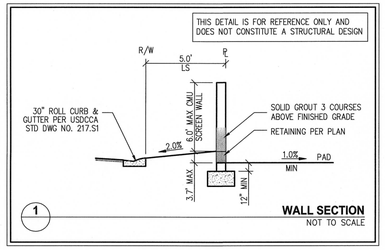
NOTE: SEE GEOTECHNICAL REPORT FOR AC AND BASE SECTIONS. SOILS REPORT DONE BY OTHERS.



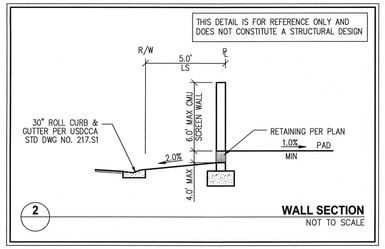
B. PUBLIC STREET SECTION

PULI RD

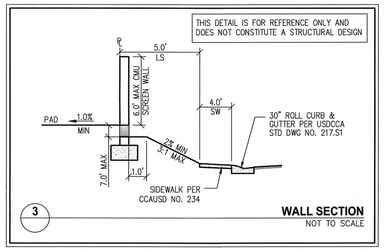
NOT TO SCALE



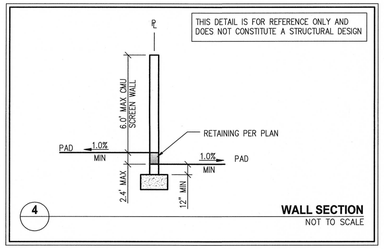
1 **WALL SECTION** NOT TO SCALE



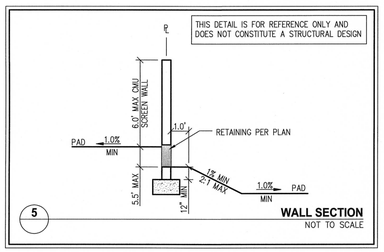
2 **WALL SECTION** NOT TO SCALE



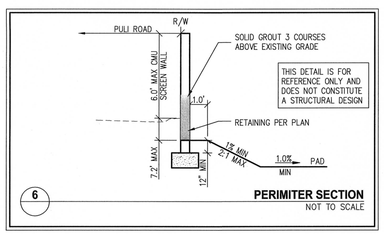
3 **WALL SECTION** NOT TO SCALE



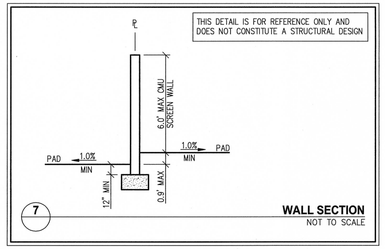
4 **WALL SECTION** NOT TO SCALE



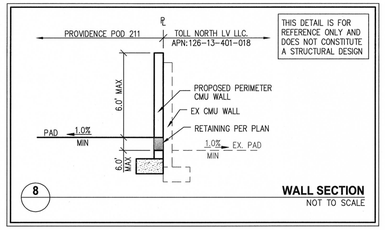
5 **WALL SECTION** NOT TO SCALE



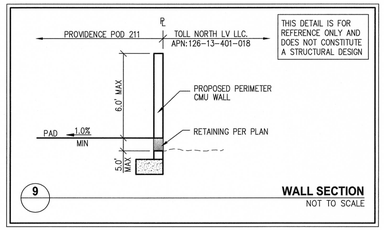
6 **PERIMITER SECTION** NOT TO SCALE



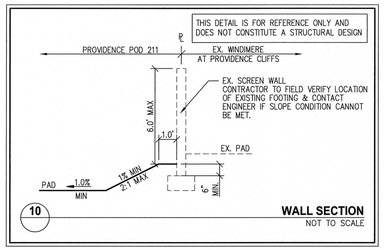
7 **WALL SECTION** NOT TO SCALE



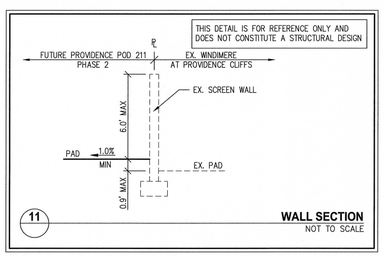
8 **WALL SECTION** NOT TO SCALE



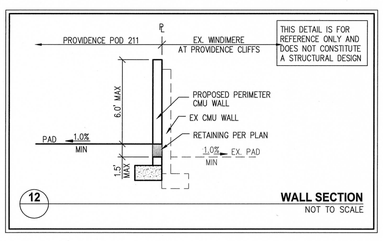
9 **WALL SECTION** NOT TO SCALE



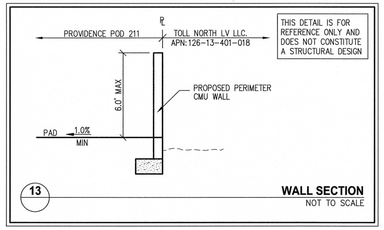
10 **WALL SECTION** NOT TO SCALE



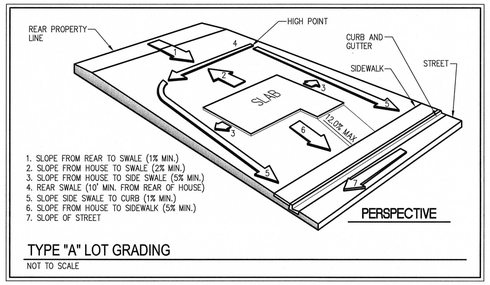
11 **WALL SECTION** NOT TO SCALE



12 **WALL SECTION** NOT TO SCALE



13 **WALL SECTION** NOT TO SCALE



1. SLOPE FROM REAR TO SWALE (1% MIN.)
2. SLOPE FROM HOUSE TO SWALE (2% MIN.)
3. SLOPE FROM HOUSE TO SIDE SWALE (5% MIN.)
4. REAR SWALE (10' MIN. FROM REAR OF HOUSE)
5. SLOPE SIDE SWALE TO CURB (1% MIN.)
6. SLOPE FROM HOUSE TO SIDEWALK (5% MIN.)
7. SLOPE OF STREET

PERSPECTIVE

TYPE "A" LOT GRADING

NOT TO SCALE

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

RICHMOND AMERICAN HOMES

PROVIDENCE 211 PHASE 2
DETAIL SHEET

S24
T19S
R59E

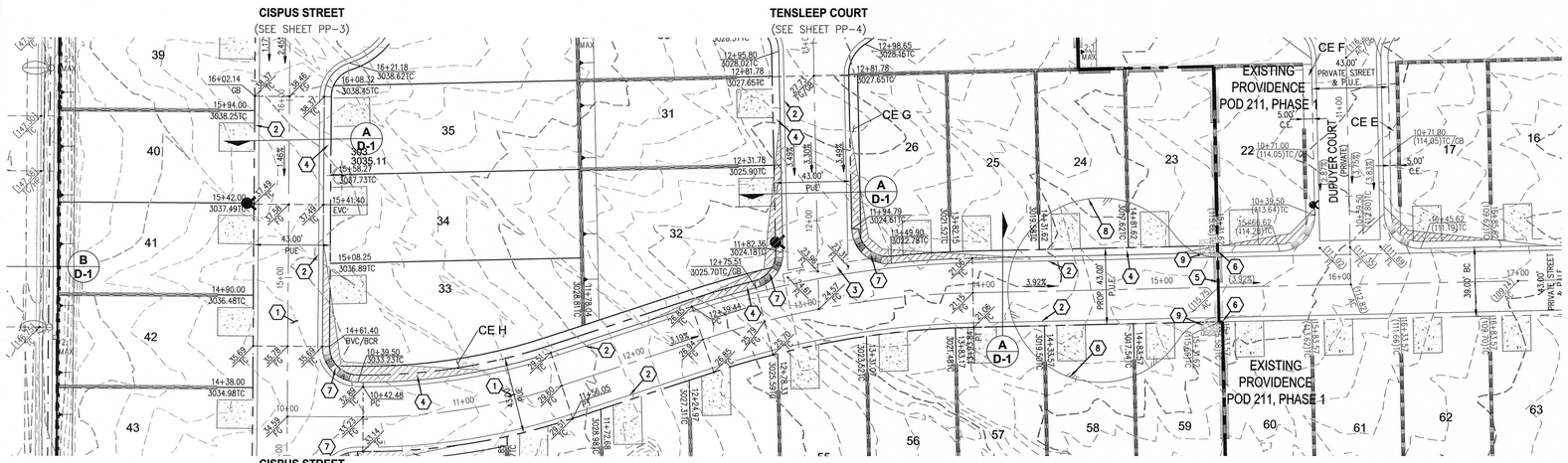
DATE: 12/10/14
DRAFTER: CZ
DESIGNER: CZ
CHECKED: TJS

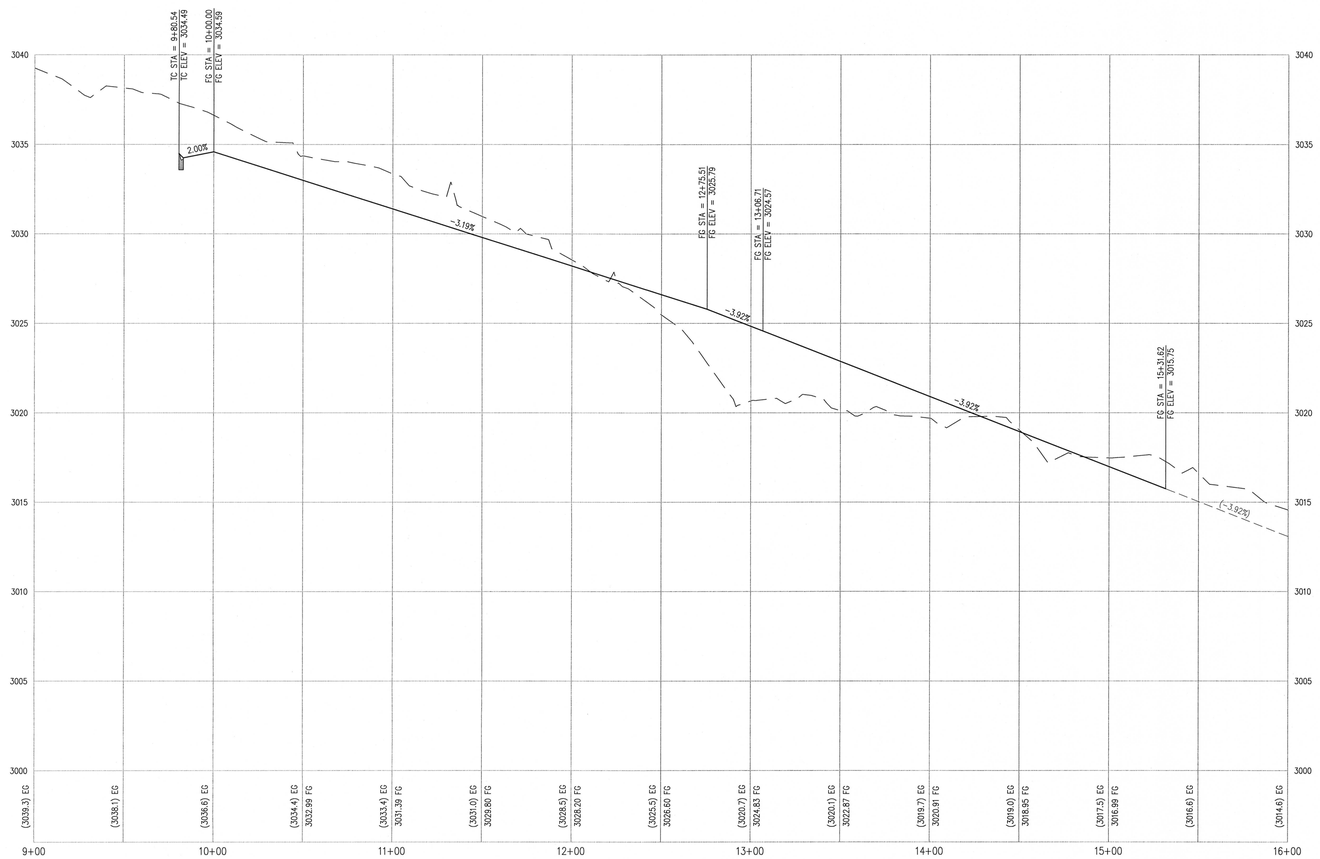
PROJECT NO.
RAH1407

PROFESSIONAL ENGINEER – STATE OF NEVADA
TODD J. STEADHAM
Exp. 06/30/2016
CIVIL
No. 15292

D-1
SHEET 4 OF ----

J:\rah1407 pod 211\dwg\Improv\rah1407det.dwg 12/10/2014 11:35 AM Christopher Zhong





NIOBRARA ROAD PROFILE

HOR: 1"=40'
VERT: 1"=4'

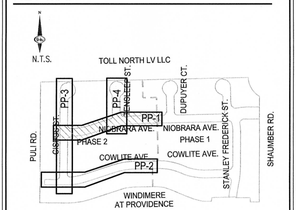
STORM DRAIN NOTE

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

EASEMENT NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

KEY MAP



CONSTRUCTION NOTES

1. CONSTRUCT AC PAVEMENT WITH TYPE II AGGREGATE BASE, PER SOILS REPORT
2. CONSTRUCT 30" ROLL TYPE CURB PER CCAUSD NO. 217.S1
3. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
4. CONSTRUCT 4' WIDE SIDEWALK PER CCAUSD NO. 234
5. SAWCUT AND MATCH EXISTING IMPROVEMENTS
6. FIELD VERIFY AND CONNECT TO EXISTING CURB, GUTTER AND SIDEWALK
7. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I. SEE P SHEETS FOR A AND B LENGTHS
8. REMOVE EXISTING ASHPALT
9. REMOVE EXISTING RIPRAP

SEE SHEET C-2 FOR ABBREVIATIONS, LEGEND & QUANTITIES

N

0 40' 80'

SCALE: 1"=40 FEET

NOTE

1. ADD 2900 TO PLAN GRADES, EXCLUDING PAD ELEVATIONS, FF ELEVATIONS, AND EXISTING & PROPOSED CONTOURS

GENERAL NOTES

1. FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2009, SECTION 2304.11.2.2.
2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
3. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
4. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
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.

FEMA FLOOD ZONE DESIGNATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X", (UNSHADED) (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD), PER FIRM PANELS 32003C1750E DATED SEPTEMBER 27, 2002.

BASIS OF BEARING

NORTH 88°48'43" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHWEST QUARTER (NW1/4) OF SECTION 24, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, PER BOOK 118, PAGE 88 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

BENCHMARK

BENCHMARK NUMBER: 6LV9924W6

RIVET AND PLATE IN TOP CURB WEST SIDE OF SCHAUMBER ROAD AT DEER SPRINGS WAY.

ELEVATION = 2957.70 FEET, 901.509 METERS
N.A.V.D. 88 DATUM

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

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

RICHMOND AMERICAN HOMES

PROVIDENCE 211 PHASE 2
PLAN AND PROFILE - NIOBRARA ROAD

S24 T19S R59E

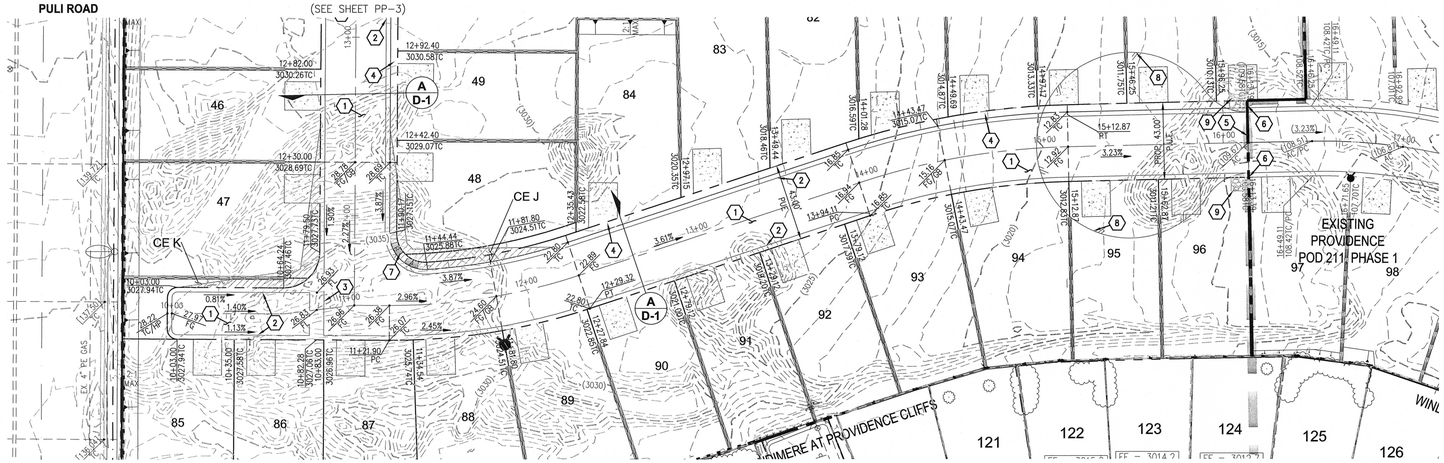
DATE: 12/10/14
DRAFTER: CZ
DESIGNER: CZ
CHECKED: TJS

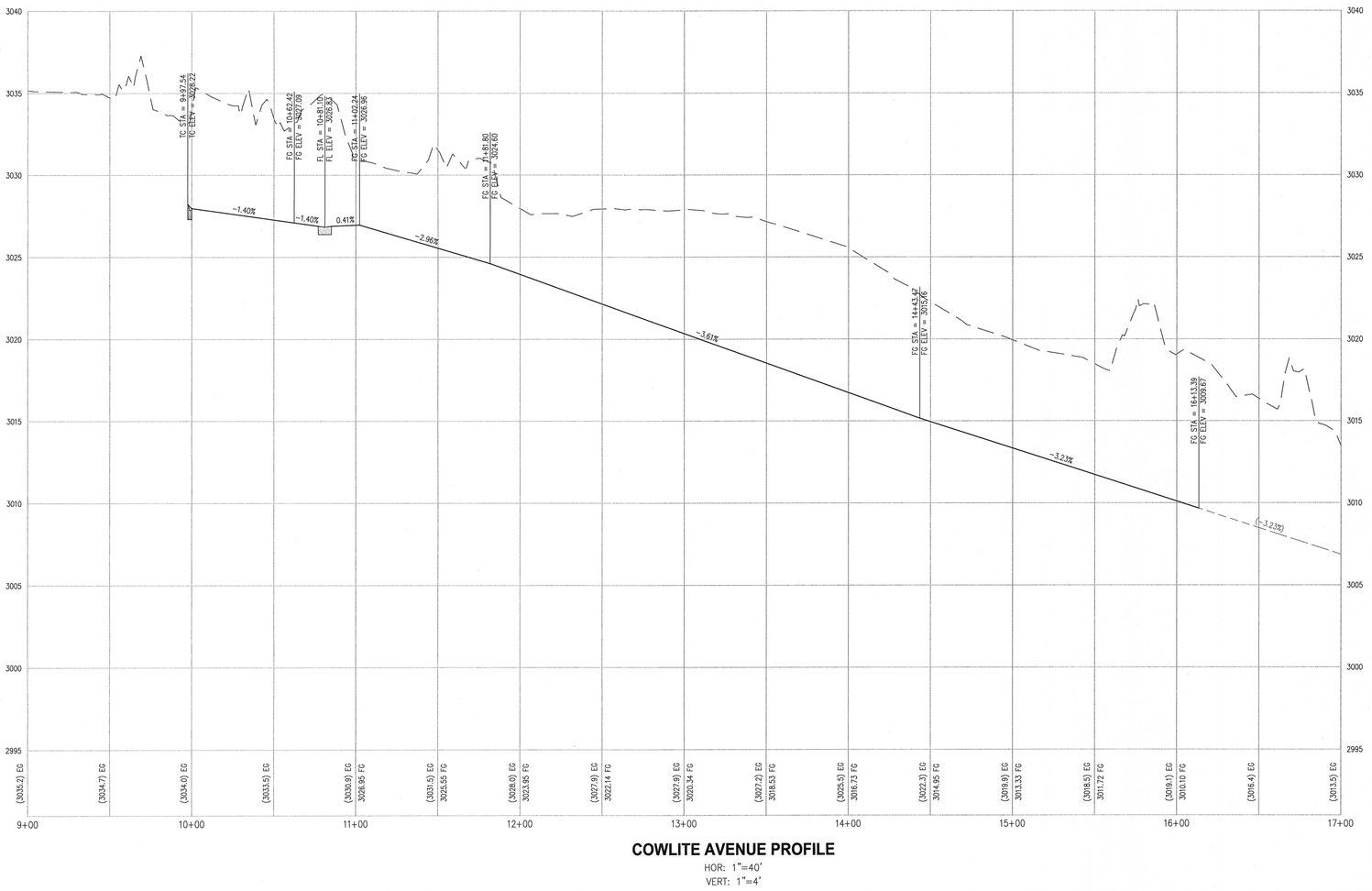
PROJECT NO.
RAH1407

PROFESSIONAL ENGINEER STATE OF NEVADA
TODD J. STEADHAM
Exp. 06/30/2016
CIVIL
No. 15292
12/11/14

PP-1
SHEET 5 OF ----

J:\rah1407 post 211\Dwg\Interior\rah1407anp.dwg 12/10/2014 8:54 AM Christopher Zhang





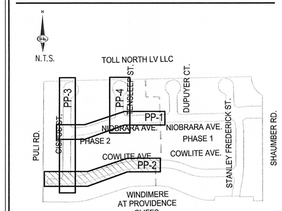
STORM DRAIN NOTE

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

EASEMENT NOTE

ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

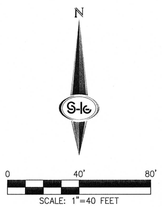
KEY MAP



CONSTRUCTION NOTES

1. CONSTRUCT AC PAVEMENT WITH TYPE II AGGREGATE BASE, PER SOILS REPORT
2. CONSTRUCT 30" ROLL TYPE CURB PER CCAUSD NO. 217.S1
3. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
4. CONSTRUCT 4' WIDE SIDEWALK PER CCAUSD NO. 234
5. SAWCUT AND MATCH EXISTING IMPROVEMENTS
6. FIELD VERIFY AND CONNECT TO EXISTING CURB, GUTTER AND SIDEWALK
7. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I. SEE P SHEETS FOR A AND B LENGTHS
8. REMOVE EXISTING ASHPALT
9. REMOVE EXISTING RIPRAP

SEE SHEET C-2 FOR ABBREVIATIONS, LEGEND & QUANTITIES



NOTE

1. ADD 2900 TO PLAN GRADES, EXCLUDING PAD ELEVATIONS, FF ELEVATIONS, AND EXISTING & PROPOSED CONTOURS

GENERAL NOTES

1. FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2009, SECTION 2304.11.2.2.
2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
3. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
4. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
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.

FEMA FLOOD ZONE DESIGNATION

THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X", (UNSHADED) (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD), PER FIRM PANELS 32003C1750E DATED SEPTEMBER 27, 2002.

BASIS OF BEARING

NORTH 88°48'43" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHWEST QUARTER (NW1/4) OF SECTION 24, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, PER BOOK 118, PAGE 88 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

BENCHMARK

BENCHMARK NUMBER: 6LV9924W6

RIVET AND PLATE IN TOP CURB WEST SIDE OF SCHAUMBER ROAD AT DEER SPRINGS WAY.

ELEVATION = 2957.70 FEET, 901.509 METERS
N.A.V.D. 88 DATUM

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

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

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHT SYSTEM CONDUITS. IT'S COSTLY.
Call before you do UnderGround
1-702-455-7511
CLARK COUNTY TRAFFIC OPERATIONS
AND
1-702-432-5300
LAS VEGAS AREA COMPUTERIZED TRAFFIC SYSTEM

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call
811
OR
1-800-227-2600
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-7544

SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

RICHMOND AMERICAN HOMES

PROVIDENCE 211 PHASE 2
PLAN AND PROFILE - COWLITE AVENUE

S24 T19S R59E

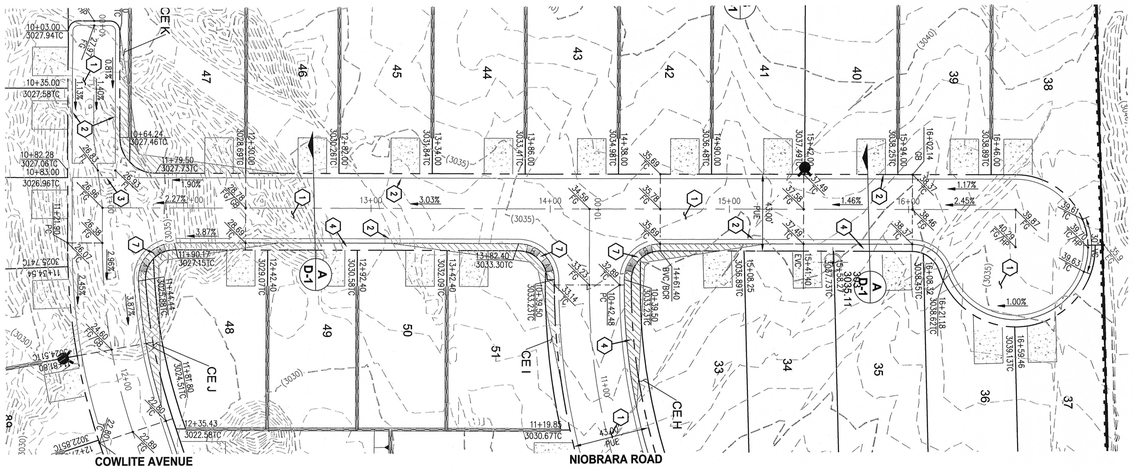
DATE: 12/10/14
DRAFTER: CZ
DESIGNER: CZ
CHECKED: TJS

PROJECT NO.
RAH1407

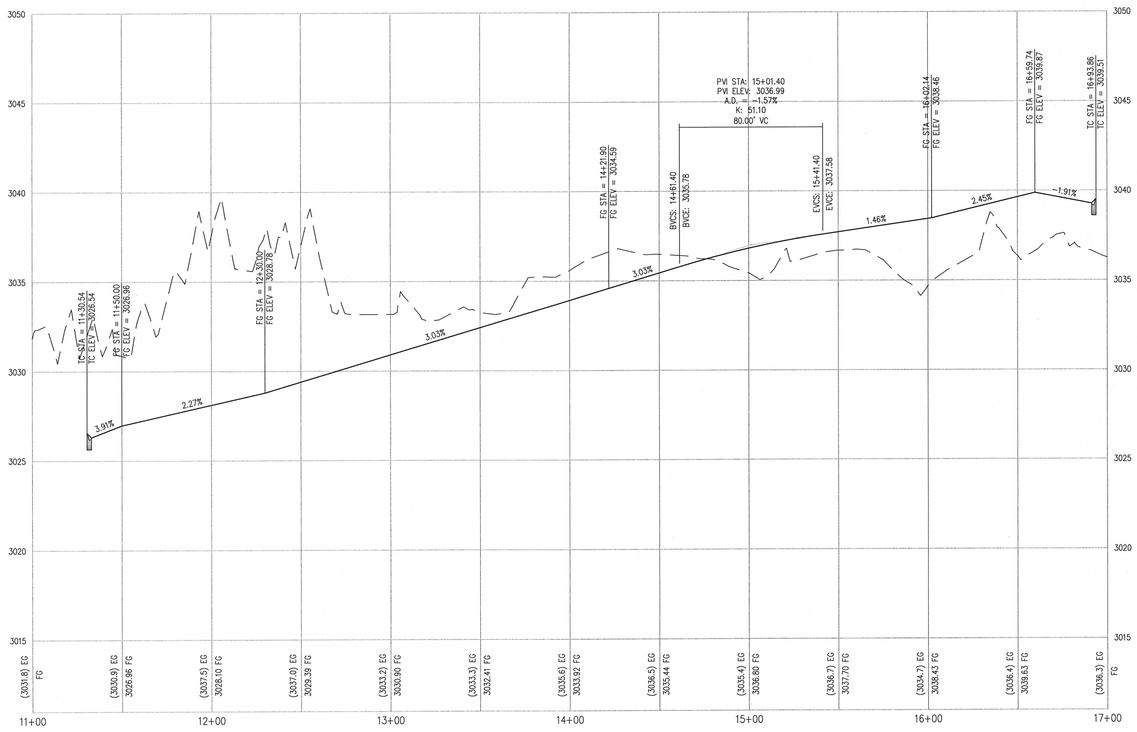
PROFESSIONAL ENGINEER STATE OF NEVADA
TODD J. STEADHAM
Exp. 06/30/2016
CIVIL
No. 15292
12/10/14

PP-2
SHEET 6 OF ----

J:\rah1407_pod 211\dwg\improv\rah1407prpp.dwg 12/10/2014 11:35 AM Christopher Zhong



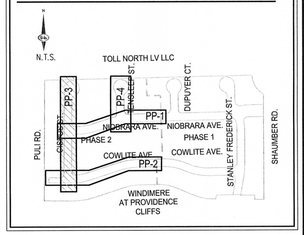
CISPUS STREET
(PRIVATE)

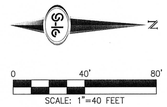


CISPUS STREET PROFILE
HOR: 1"=40'
VERT: 1"=4'

STORM DRAIN NOTE
ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY HOA.

EASEMENT NOTE
ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

KEY MAP




CONSTRUCTION NOTES
1. CONSTRUCT AC PAVEMENT WITH TYPE II AGGREGATE BASE, PER SOILS REPORT
2. CONSTRUCT 30" ROLL TYPE CURB PER CCAUSD NO. 217.S1
3. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
4. CONSTRUCT 4' WIDE SIDEWALK PER CCAUSD NO. 234
5. SAWCUT AND MATCH EXISTING IMPROVEMENTS
6. FIELD VERIFY AND CONNECT TO EXISTING CURB, GUTTER AND SIDEWALK
7. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I. SEE P SHEETS FOR A AND B LENGTHS
8. REMOVE EXISTING ASHPALT
9. REMOVE EXISTING RIPRAP

SEE SHEET C-2 FOR ABBREVIATIONS, LEGEND & QUANTITIES

NOTE
1. ADD 2900 TO PLAN GRADES, EXCLUDING PAD ELEVATIONS, FF ELEVATIONS, AND EXISTING & PROPOSED CONTOURS

GENERAL NOTES
1. FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2009, SECTION 2304.11.2.2.
2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
3. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
4. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
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.

FEMA FLOOD ZONE DESIGNATION
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X", (UNSHADED) (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD), PER FIRM PANELS 32003C1750E DATED SEPTEMBER 27, 2002.

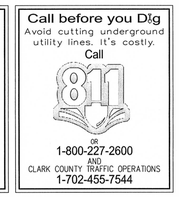
BASIS OF BEARING
NORTH 88°48'43" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHWEST QUARTER (NW1/4) OF SECTION 24, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, PER BOOK 118, PAGE 88 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

BENCHMARK
BENCHMARK NUMBER: 6LV9924W6

RIVET AND PLATE IN TOP CURB WEST SIDE OF SCHAUMBER ROAD AT DEER SPRINGS WAY.

ELEVATION = 2957.70 FEET, 901.509 METERS
N.A.V.D. 88 DATUM

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



SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

RICHMOND AMERICAN HOMES

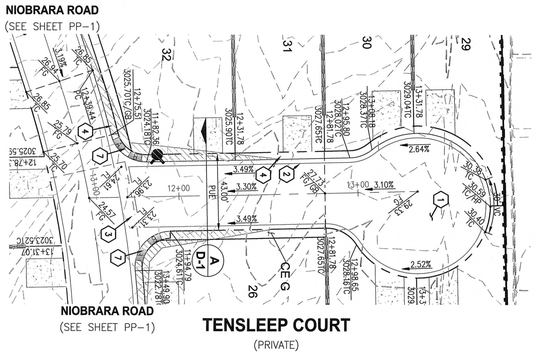
PROVIDENCE 211 PHASE 2
PLAN AND PROFILE - CISPUS STREET

S24 T19S R59E

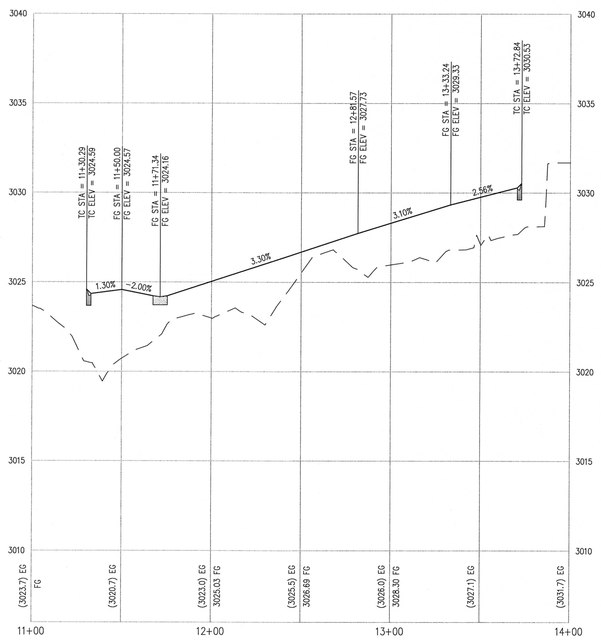
DATE: 12/10/14
DRAFTER: CZ
DESIGNER: CZ
CHECKED: TJS
PROJECT NO. RAH1407

PP-3
SHEET 7 OF ----

J:\rah1407 ppsd 211\dwg\mxrev\rah1407psp.dwg 12/10/2014 11:35 AM Christopher Zhang



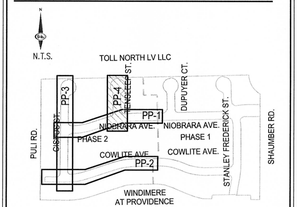
TENSLEEP COURT
(PRIVATE)

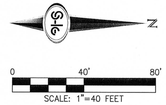


TENSLEEP COURT PROFILE
HOR: 1"=40'
VERT: 1"=4'

STORM DRAIN NOTE
ALL ONSITE STORM DRAINS AND THE ASSOCIATED FACILITIES ARE PRIVATELY OWNED AND TO BE PRIVATELY MAINTAINED BY HOA.

EASEMENT NOTE
ALL PRIVATE STREETS ARE P.U.E., PUBLIC SEWER EASEMENTS AND PUBLIC DRAINAGE EASEMENTS TO BE PRIVATELY MAINTAINED BY THE HOA.

KEY MAP




CONSTRUCTION NOTES
1. CONSTRUCT AC PAVEMENT WITH TYPE II AGGREGATE BASE, PER SOILS REPORT
2. CONSTRUCT 30" ROLL TYPE CURB PER CCAUSD NO. 217.S1
3. CONSTRUCT 8' CROSS GUTTER PER CCAUSD NO. 228
4. CONSTRUCT 4' WIDE SIDEWALK PER CCAUSD NO. 234
5. SAWCUT AND MATCH EXISTING IMPROVEMENTS
6. FIELD VERIFY AND CONNECT TO EXISTING CURB, GUTTER AND SIDEWALK
7. CONSTRUCT SIDEWALK RAMPS USING ARMOR TILE TRUNCATED DOMES OR EQUIVALENT PER CCAUSD NO. 235, CASE I. SEE P SHEETS FOR A AND B LENGTHS
8. REMOVE EXISTING ASHPALT
9. REMOVE EXISTING RIPRAP

SEE SHEET C-2 FOR ABBREVIATIONS, LEGEND & QUANTITIES

NOTE
1. ADD 2900 TO PLAN GRADES, EXCLUDING PAD ELEVATIONS, FF ELEVATIONS, AND EXISTING & PROPOSED CONTOURS

GENERAL NOTES
1. FINAL GRADES ADJACENT TO STRUCTURES SHALL BE IN CONFORMANCE WITH IBC 2009, SECTION 2304.11.2.2.
2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
3. ALL IMPROVEMENTS TO BE PROTECTED FROM EROSION BY SWPPP.
4. MAXIMUM/MINIMUM SLOPES AND MINIMUM STREET SECTIONS NOT TO EXCEED THAT SHOWN ON GEOTECH REPORT.
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.

FEMA FLOOD ZONE DESIGNATION
THE PROJECT SITE IS LOCATED WITHIN A FEMA DESIGNATED ZONE "X", (UNSHADED) (OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD), PER FIRM PANELS 32003C1750E DATED SEPTEMBER 27, 2002.

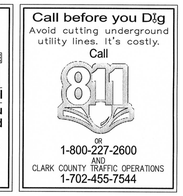
BASIS OF BEARING
NORTH 88°48'43" EAST, BEING THE BEARING OF THE SOUTH LINE OF THE NORTHWEST QUARTER (NW1/4) OF THE NORTHWEST QUARTER (NW1/4) OF SECTION 24, TOWNSHIP 19 SOUTH, RANGE 59 EAST, M.D.M., CLARK COUNTY, NEVADA, PER BOOK 118, PAGE 88 OF PLATS IN THE CLARK COUNTY RECORDER'S OFFICE, NEVADA.

BENCHMARK
BENCHMARK NUMBER: 6LV9924W6

RIVET AND PLATE IN TOP CURB WEST SIDE OF SCHAUMBER ROAD AT DEER SPRINGS WAY.

ELEVATION = 2957.70 FEET, 901.509 METERS
N.A.V.D. 88 DATUM

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



SLATER HANIFAN GROUP
CONSULTING ENGINEERS & PLANNERS
5740 S. ARVILLE STREET #216, LAS VEGAS, NV 89118
PHONE (702) 284-5300 FAX (702) 284-5399

NO.	DESCRIPTION	DATE	BY	APP. DATE	APP.

CITY OF LAS VEGAS

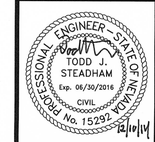
RICHMOND AMERICAN HOMES

PROVIDENCE 211 PHASE 2
PLAN AND PROFILE - TENSLEEP COURT

S24 T19S R69E

DATE: 12/10/14
DRAFTER: CZ
DESIGNER: CZ
CHECKED: TJS

PROJECT NO.
RAH1407



PP-4
SHEET 8 OF ----

J:\rah1407 ppd 211\dwg\morrow\rah1407pnp.dwg 12/10/2014 8:51 AM Christopher Zhang