



**Addendum to the
Technical Drainage Study
for**

ANN ROAD & HUALAPAI WAY

Date Prepared:
May 2021

Prepared for:
Richmond American Homes of Nevada, Inc.
7770 Dean Martin Drive, Suite 308
Las Vegas, NV 89193
702.240.5605

Prepared by:
Kimley-Horn and Associates, Inc.
6671 Las Vegas Boulevard South, Suite 320
Las Vegas, NV 89119
702.862.3600

Kimley»»Horn



May 27, 2021

Mr. Albert Sung, P.E.
City of Las Vegas Flood Control
333 Rancho Drive
Las Vegas, NV 89106

RE: *Addendum to the Technical Drainage Study for Ann Road and Hualapai Way*

Dear Mr. Sung,

This letter certifies that all items provided on the Addendum to the Technical Drainage Study for Ann Road and Hualapai Way electronic submittal matches the paper version bound into the study.

With Kimley-Horn, you should expect more and will experience better. Please contact me at (702) 790-0206 or michael.schwab@kimley-horn.com should you have any questions or concerns.

Sincerely,

Michael E. Schwab, P.E.

Mikayla Baillie, E.I.T

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL

DRAINAGE STUDY INFORMATION FORM

Name of Development: Ann Road & Hualapai Way Date: May 2021

Location of Development: a) Descriptive (Cross Streets) North/South: Hualapai Way
East/West: Ann Road

b) Section: 31 Township: 19S Range: 60E

c) APN : 125-31-101-001

Name of Owner: Richmond American Homes of Nevada, Inc.

Telephone No.: 702.240.5605 Fax No.: _____ E-Mail Address: angela.pinley@mdch.com

Address: 7770 Dean Martin Drive, Suite 308; Las Vegas, NV 89139

Contact Person-Name: Michael Schwab, P.E. Telephone No.: 702.790.0206

* E-Mail Address: michael.schwab@kimley-horn.com Fax No.: _____

Firm: KIMLEY-HORN

Address: 6671 Las Vegas Boulevard South, Suite 320 Las Vegas, NV 89119

Type of Land Development/Land Disturbance Process:

<input type="checkbox"/> Rezoning	<input type="checkbox"/> Subdivision Map	<input type="checkbox"/> Clearing and Grading Only
<input type="checkbox"/> Parcel Map	<input checked="" type="checkbox"/> Planned Unit Development	<input checked="" type="checkbox"/> Other (Please specify below)
<input type="checkbox"/> Large Parcel Map	<input type="checkbox"/> Building Permit	GRADING PERMIT

1. Total Owned Land Area: At Site: +/- 25.9 acres Being Developed/Disturbed: +/- 25.9 acres

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

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

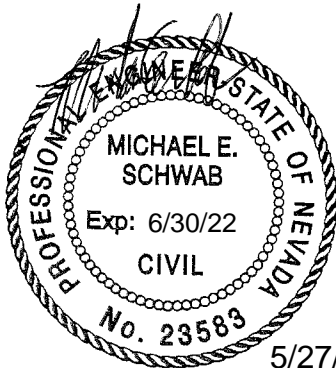
4. Proposed type of development (Residential, Commercial, Etc.): Residential

5. Approximate upstream land area which drains to the subject site: N/A

6. Has the site drainage been evaluated in the past? YES NO If yes, please identify documentation: TDS for Ann & Grand Canyon

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Two drainage easements to the northeast; undeveloped parcel to the southeast

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



Engineer's Seal

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

***New Required Field**

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

	Revision	Date

Local Entity File No. _____

REFERENCE:

STANDARD FORM 1

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: April 23, 2021
TO: Land Development Services Department of Building & Safety			FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:		Drainage Study for: Ann & Hualapai (SEC)	COPIES TO: Kimley-Horn Associates
Cross Streets:	SEC of Ann Road & Hualapai Way		Richmond American Homes
File Number:	F:\Depot\DSMemos\DS5439A.doc		Bart Anderson, P.E., DevCo
Parcel Number:	125-31-101-001		CCPW
Zoning Action:	21-0017-TMP1; 21-0017-VAR1 & 21-0017-VAC1		
FEMA Flood Zone	YES	NO X	
Proposed Storm Drain	YES	NO X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	4/7/2021	4/23/2021	See Comments Below	\$400.00	4238287: \$400
TOTAL FEES (LDDRS):				\$400.00	----

REMARKS:

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

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

1. Provide a copy of the zoning/planning conditions associated with this site (**21-0017-TMP1 & 21-0017-VAR1 had been approved while 21-0017-VAC1 will still need to be obtained**) with the next submittal to verify compliance with conditions. *Flood Control* will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the *City Council*). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.
2. Sites with a grade difference of 2 feet above or below existing are required to have approval from the *City Planning and Development Department*. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the *City Planning Department* (229-6301). The engineer must provide Planning approval with the next submittal.
3. The site is adjacent to the jurisdiction of *Clark County* to the north and east. The engineer must coordinate with *Clark County Public Works Department* (CCPW) and incorporate any concerns for drainage impact. CCPW concurrence is required prior to final approval of the study.
4. The *Ann Road Improvement project* and the associated storm drain system is owned and constructed by the *Clark County*. It is clear that the *Ann Road* intersections at Hualapai Way, Eula Street fronting the subject development require modifications to the *County Ann Road Project*.

Coordinate and obtain pertinent permits from the *Clark County Public Works Department* for the proposed curb cut in *Ann Road* prior to the final approval of the improvement plans.

5. Show the *Ann Road Street Improvements* including the associated storm drain and/or inlets, manholes as existing features on the pertinent grading plans in the next submittal.
6. *Table 1 (Existing Condition Flow Summary)* in the **Study** shows different values in the basin areas from the Table in the *Existing Condition Drainage Map (EX-1)*. Address and revise in the next submittal.
7. ***Existing Condition Drainage Map (EX-1)***: It is not clear where is the discharge point of Basin EON3 and the offsite discharge of 17/75 cfs impacting the adjacent "*Bretthauer Erich & S Fam Tr*" property at. Identify the location of the concentration points, CP1, 2(?) and the 10-yr/100-yr flows in the next submittal.

Note that the proposed discharge flow in the *Proposed Condition Drainage Map (PRO-1)* cannot be greater than the existing flow.

The developer/engineer should also consider discharge in *Eula Way* south into *Hammer Lane* to ease the drainage impact to the adjacent property owner. Address and resolve in the next submittal.

8. ***Proposed Condition Drainage Map (PRO-1)***: There are three distinct locations for discharge into the adjacent community to the east. Clearly label the Q_{10}/Q_{100} at those three discharge points. Note that the proposed discharge cannot exceed the existing condition.
9. **Sheet GD2**: The 100-year flow depth in *Ann Road* is 0.60'. The hump in *Eula Street* must provide a minimum freeboard of six inches. Address and verify in the next submittal.
10. **Sheet GD2**: A proposed swale leading into the adjacent existing drainage easement needs to provide a minimum of low flow concrete valley gutter or swale to reduce eroded mud flow to negatively impacting the downstream properties.
11. **Sheet GD2**: Clearly label the upstream and downstream flow line elevations in CE "A".
12. **Sheet GD2**: Label the proposed slope in the knuckle of *Street A* and *Street I*. The minimum allowable slope in a knuckle is 1%.
13. **Sheet GD3**: The proposed low point at the west curb of *Street F* at *Lot 10* is lower than the centerline of the street, ie, a ponding situation is created. Review and revise in the next submittal.
14. **Sheet GD4**: Same reasoning as in Comment #10 above, review and revise accordingly.
15. **Sheet GD4**: Label clearly the flow line elevations at the entrance of the drainage easement upstream of *Street C*.
16. **Sheet GD5**: Clearly label the upstream and downstream flow line elevations in CE "E".
17. **Sheet C3.1: Detail Sections A2/CS and B/CS**: Clearly indicate the bottom three courses of wall at the proposed pad to be solid grouted and must be 8"-thickness CMU or equivalent.
18. **Sheet C3.1: Detail Section C1/CS**: Double check the total width of pavement, swale, asphalt path and landscape vs. the 30'-R/W width. They don't match. Review and revise accordingly.
19. **Sheet C3.1: Detail Section C2/CS** is to be found nowhere on the grading plans. Also, where is *Detail Section C/CS* on the Detail Sheet?
20. Provide finished floor elevation of all adjacent residences on the pertinent grading plans.

21. **Sheet PP5 and Sheet PP6:** The “**Ann & 215**” development adjacent to the west of *Hualapai Way* has been approved not long ago by the *City of Las Vegas*. The subject project must match the centerline of *Hualapai Way* designed by “**Ann & 215**”.

The “*Existing Grade @ CL*” as shown on **PP5** and **PP6** appears to be the existing grade prior to the “**Ann & 215**” improvements. Note that the true existing grade for the subject development is indeed the proposed condition of “**Ann & 215**”. The subject engineer shall coordinate with the consulting engineer of “**Ann & 215**”, Westwood, for *Hualapai Way* design.

This must be addressed and resolved in the next submittal.

22. Private streets must be public drainage easements. Provide a note on the grading plans: “Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA”.
23. All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.
24. The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.
25. Any proposed wrought iron fence and gate must utilize **RTC Uniform Standard Drawing 425.S1**. Revise the detail in *Sheet C7.0* and all pertinent construction notes accordingly.

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/R60E/31
AREA G-31

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Technical Drainage Study
for**

Ann Road & Hualapai Way

Date Prepared:

May 2021

Prepared for:

Richmond American Homes of Nevada, Inc.

7770 Dean Martin Drive, Suite 308

Las Vegas, NV 89139

702.204.5605

Prepared by:

Kimley-Horn and Associates, Inc.

6671 Las Vegas Boulevard South, Suite 320

Las Vegas, NV 89119

702.862.3600



May 17, 2021
Albert Sung, P.E.
Flood Control Project Engineer
Department of Public Works

RE: *Drainage Study for: Ann & Hualapai (SEC)*

Dear Mr. Sung,

This letter is being submitted in response to the Comment Letter received on April 23, 2021. These comments have been reviewed and are addressed herein.

Comment 1: Provide a copy of the zoning/planning conditions associated with this site (21-0017-TMP1 & 21-0017-VAR1 had been approved while 21-0017-VAC1 will still need to be obtained) with the next submittal to verify compliance with conditions. Flood Control will not issue conditional approval of the drainage study without the associated zoning/planning conditions (issued by the City Council). Any associated conditions of approval that revise the site drainage parameters will require that the drainage study be revised and resubmitted.

Response: The zoning/planning conditions associate with the site are included in **Appendix A**.

Comment 2: Sites with a grade difference of 2 feet above or below existing are required to have approval from the City Planning and Development Department. The engineer must submit copies of the grading plans and detail sheet with a letter justifying the grade difference to the City Planning Department (229-6301). The engineer must provide Planning approval with the next submittal.

Response: The grading plans and letter justifying the grade difference to the City Planning Department on 5/25/21. We expect approval one week from this date and will pass along the approval once received.

Comment 3: The site is adjacent to the jurisdiction of Clark County to the north and east. The engineer must coordinate with Clark County Public Works Department (CCPW) and incorporate any concerns for drainage impact. CCPW concurrence is required prior to final approval of the study.

Response: Noted. The study will be submitted to CCPW for concurrence upon approval from CLV.

Comment 4: The Ann Road Improvement project and the associated storm drain system is owned and constructed by the Clark County. It is clear that the Ann Road intersections at Hualapai Way, Eula Street fronting the subject development require modifications to the County Ann Road Project. Coordinate and obtain pertinent permits from the Clark County Public Works Department for the proposed curb cut in Ann Road prior to the final approval of the improvement plans.

Response: Coordination with Clark County Public Works is ongoing will address any comments during CCPW concurrence. Pertinent permits will be obtained prior to final plan approval.

Comment 5: Show the Ann Road Street Improvements including the associated storm drain and/or inlets, manholes as existing features on the pertinent grading plans in the next submittal.

Response: The Ann Road Street Improvements have been shown as existing features on the grading plans found in **Appendix C**.

Comment 6: Table 1 (Existing Condition Flow Summary) in the Study shows different values in the basin areas from the Table in the Existing Condition Drainage Map (EX-1). Address and revise in the next submittal.

Response: Table 1 in the Study showed the correct values. The Existing Condition Flow Summary Table on **Figure EX-1** has been revised to show appropriate basin areas.

Comment 7: Existing Condition Drainage Map (EX-1): It is not clear where is the discharge point of Basin EON3 and the offsite discharge of 17/75 cfs impacting the adjacent "Bretthauer Erich & S Fam Tr" property at. Identify the location of the concentration points, CP1, 2(?) and the 10-yr/100-yr flows in the next submittal.

Note that the proposed discharge flow in the Proposed Condition Drainage Map (PRO-1) cannot be greater than the existing flow.

The developer/engineer should also consider discharge in Eula Way south into Hammer Lane to ease the drainage impact to the adjacent property owner. Address and resolve in the next submittal.

Response: Onsite discharge points have been clarified and concentration points have been added to show the 10-year and 100-year flows impacting adjacent property on **Figure EX-1**

and **PRO-1**. The proposed condition flow rate (**81 cfs**) is less than the existing condition flow rate (**83 cfs**).

There are multiple natural washes that discharge to the adjacent property in the existing condition, and this project is maintaining existing flow patterns while not increasing existing flow rates. However, in an effort to protect the adjacent property, a berm is proposed on the east side of Eula Way to direct any flows that overtop the centerline south to the Hammer Lane alignment. The berm is sized to account for the specific energy coming out of the drainage easement using hydraulic section **ON1-H3**. Hydraulic section **ON1-H4** was updated to account for the berm and to check velocity. Please note the velocity is below 4 ft/s and is considered non-erosive, so riprap is proposed along the berm. Refer to **Appendix B** for the updated hydraulic section and **Appendix C** for the revised grading plans.

Comment 8: **Proposed Condition Drainage Map (PRO-1): There are three distinct locations for discharge into the adjacent community to the east. Clearly label the Q10/Q100 at those three discharge points. Note that the proposed discharge cannot exceed the existing condition.**

Response: 10-year and 100-year flows have been labeled at the three discharge points on **Figure EX-1** and **PRO-1**. The proposed condition flow rates are less than the existing condition flow rates, and this project will not adversely affect downstream properties or facilities.

Comment 9: **Sheet GD2: The 100-year flow depth in Ann Road is 0.60'. The hump in Eula Street must provide a minimum freeboard of six inches. Address and verify in the next submittal.**

Response: The driveway at Ann Road has been humped appropriately to provide a minimum freeboard of six inches above the water surface elevation.

Comment 10: **Sheet GD2: A proposed swale leading into the adjacent existing drainage easement needs to provide a minimum of low flow concrete valley gutter or swale to reduce eroded mud flow to negatively impacting the downstream properties.**

Response: A concrete valley gutter has been provided leading to the adjacent existing drainage easement.

Comment 11: **Sheet GD2: Clearly label the upstream and downstream flow line elevations in CE "A".**

Response: Flow line elevations have been added.

Comment 12: Sheet GD2: Label the proposed slope in the knuckle of Street A and Street I. The minimum allowable slope in a knuckle is 1%.

Response: Slope labels in the knuckle of Street A and Street I have been provided, and the criteria for minimum slope has been met.

Comment 13: Sheet GD3: The proposed low point at the west curb of Street F at Lot 10 is lower than the centerline of the street, ie, a ponding situation is created. Review and revise in the next submittal.

Response: Grading has been revised such that there is no low point at the west curb along Street F.

Comment 14: Sheet GD4: Same reasoning as in Comment #10 above, review and revise accordingly.

Response: A concrete valley gutter has been provided leading to the adjacent existing drainage easement.

Comment 15: Sheet GD4: Label clearly the flow line elevations at the entrance of the drainage easement upstream of Street C.

Response: Flow line elevations have been added.

Comment 16: Sheet GD5: Clearly label the upstream and downstream flow line elevations in CE "E".

Response: Flow line elevations have been added.

Comment 17: Sheet C3.1: Detail Sections A2/CS and B/CS: Clearly indicate the bottom three courses of wall at the proposed pad to be solid grouted and must be 8"-thickness CMU or equivalent.

Response: Sheet C3.1 has been renamed to Sheet XS. The “CS” has been renamed ‘XS” for all cross sections. Detail sections have been revised to indicate courses of wall that require solid grout.

Comment 18: Sheet C3.1: Detail Section C1/CS: Double check the total width of pavement, swale, asphalt path and landscape vs. the 30’-R/W width. They don’t match. Review and revise accordingly.

Response: Detail section has been revised to show appropriate dimensions.

Comment 19: Sheet C3.1: Detail Section C2/CS is to be found nowhere on the grading plans. Also, where is Detail Section C/CS on the Detail Sheet?

Response: A section callout for detail section C2/XS (formerly C2/CS) is located on sheet GD5. Section callouts for C/CS have been revised to read C1/XS to match the detail section on sheet XS.

Comment 20: Provide finished floor elevation of all adjacent residences on the pertinent grading plans.

Response: Finished floor elevations of all adjacent residences have been provided.

Comment 21: Sheet PP5 and Sheet PP6: The “Ann & 215” development adjacent to the west of Hualapai Way has been approved not long ago by the City of Las Vegas. The subject project must match the centerline of Hualapai Way designed by “Ann & 215”.

The “Existing Grade @ CL” as shown on PP5 and PP6 appears to be the existing grade prior to the “Ann & 215” improvements. Note that the true existing grade for the subject development is indeed the proposed condition of “Ann & 215”. The subject engineer shall coordinate with the consulting engineer of “Ann & 215”, Westwood, for Hualapai Way design.

This must be addressed and resolved in the next submittal.

Response: Finished grade centerline shown on PP5 and PP6 matches the “Ann & 215” approved improvement plans, callout on profiles indicates that it is the centerline finished grade per CLV# 20-00818. The existing grade centerline shown on PP5 and PP6 reflects the topographic survey received on 1/25/21. At this time the roadway was under construction and not yet paved. The existing grade shown, therefore, reflects the rough subgrade of the road and the surface conditions at the time of topographic survey.

Comment 22: Private streets must be public drainage easements. Provide a note on the grading plans: “Note: All private streets are P.U.E., Public Sewer Easements and Public Drainage Easements to be privately maintained by HOA”.

Response: A “Private Streets Note” containing the above information has been added to all pertinent sheets.

Comment 23: All drainage easements must be public drainage easements to be privately maintained and common lots to be labeled on the grading plans and to be dedicated as such in the final map.

Response: Drainage easements have been called out as public drainage easements to be privately maintained. Common lots are labeled on the grading plans and will be dedicated as such on the final plans.

Comment 24: The engineer must provide a table on the grading plans that shows a quantity estimate of all drainage improvements within Public Drainage Easements. All drainage improvements within Public Drainage Easements must be bonded and inspected.

Response: The Overall Grading Plan, sheet GD0, now includes a table for quantity estimate of all drainage improvements within Public Drainage Easements.

Comment 25: Any proposed wrought iron fence and gate must utilize RTC Uniform Standard Drawing 425.S1. Revise the detail in Sheet C7.0 and all pertinent construction notes accordingly.

Response: Detail and construction notes have been revised so that the wrought iron gate and fence shall be constructed per RTC Uniform Standard Drawing 425.S1.

Please contact me at (702) 790-0206 or michael.schwab@kimley-horn.com should you have any questions or need any additional information.

Sincerely,

Michael Schwab, P.E.

Mikayla Baillie, E.I.

LIST OF APPENDICES

Appendix A – Documents & Figures

- EX-1 Existing Conditions Basin Map
- PRO-1 Proposed Conditions Basin Map
- Planning Conditions

Appendix B – Hydraulic Calculations

- Hydraulic Section – ON1-H4

Appendix C – Improvement Plans