



Addendum to  
Technical Drainage Study  
for

## *RACEL & MAVERICK*

Date Prepared:  
October 2024

Prepared for:  
Richmond American Homes of Nevada, Inc.  
7770 Dean Martin Drive, Suite 308  
Las Vegas, NV 89139  
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**

HYDROLOGIC CRITERIA AND DRAINAGE MANUAL  
**DRAINAGE STUDY INFORMATION FORM**

Name of Development: Racel and Maverick - Addendum Date: October 2024

Location of Development: a) Descriptive (Cross Streets) North/South: Maverick Street  
 East/West: Racel Street

b) Section: 11 Township: 19S Range: 60E

c) APN : 125-11-703-005, -006, -007, -008, -009, -010, -011, -012

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

1. Total Owned Land Area: At Site: +/- 9.80 acres Being Developed/Disturbed: +/- 9.80 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 Maverick/Racel (DS-3483C)

7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Racel Street and Meisenheimer Avenue

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

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

Engineer's Seal

Local Entity File No.

REFERENCE:

STANDARD FORM 1

<b>CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM</b>		<b>DATE: 09/26/2024</b>	
<b>TO:</b> Land Development Services Department of Community Development – Building & Safety Division		<b>FROM:</b> Albert Sung, P.E. Flood Control Project Engineer Department of Public Works	
<b>SUBJECT:</b> Drainage Study for: <b>RACEL &amp; MAVERICK</b>		<b>COPIES TO:</b> Kimley-Horn and Associates	
<b>Cross Streets:</b>	Racel Street & Maverick Street	Richmond American Homes	
<b>File Number:</b>	F:\Depot\DSMemos\DS5801A.doc	Bart Anderson, P.E., DevCo	
<b>Parcel Number:</b>	125-11-703-005, 006, 007, 008, 009, 010, 011, 012		
<b>Zoning Action:</b>	24-0306-TMP1		
<b>FEMA Flood Zone</b>	YES NO <b>X</b>		
<b>Proposed Storm Drain</b>	YES NO <b>X</b>		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 <sup>st</sup> Submittal	09/09/2024	09/26/2024	See Comments Below	\$400	5923291: \$400
<b>TOTAL FEES (LDDRS):</b>					----

**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:
<b>X</b>	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 24-0306-TMP1 on 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. The site is adjacent to Clark County jurisdiction to the south on Racel Street. The engineer must coordinate with Clark County Public Works Department (CCPW) and incorporate any concerns for boundary conditions. CCPW concurrence is required prior to final acceptance of the study.
3. A review of the grading plan shows an elevation difference of approximately 3.0-feet of cut/fill adjacent to developed properties. 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.
4. Along the west property line, flows through the existing lots heading in the southeast direction will be blocked from the new wall. The existing property owners has complained to the city regarding excessive flows through their lots. Provide drainage easement and address on the next submittal on how this will be mitigated.

5. Many streets within this development are designed to a slope of 0.40% and less. 0.40% street slope is the minimum allowed without a nuisance storm drain system and is difficult to construct. The engineer and developer is advised that ponding in proposed improvements is not allowed. Sections of substandard improvements may have to be removed and replaced during the inspection process. On Racel Street and Meisenheimer Ave, the street slopes are less than 0.40%, provide drop inlets and storm drain or revise grading so the slope is at least 0.40% minimum.
6. The Q100 flow entering drainage easement between lots 13 and 14 must be contained within the curb opening and sidewalk underdrain. Address on the next submittal.
7. The high point at the two entrances off of Meisenheimer Ave does not meet the requirement of 6" above the flow depth in Meisenheimer Ave. Revise grading to provide adequate protection from offsite flow.
8. Figure EX and PRO: Verify is there a flow split at Torrey Pines Dr and Meisenheimer Ave? It looks like some of the flow going down Torrey Pines Dr will head east down Meisenheimer Ave. Review and revise all subsequent calculations accordingly.
9. Figure EX: Correct the EON1 area on the Existing Flow Summary Table on the Existing Conditions Basin Map. Should say 9.83 acres.
10. Figure PRO: For the physical copy, please provide the correct exhibit for the Proposed Conditions Basin Map, the exhibit for the Lone Mountain Temple was included.
11. Figure PRO: On the Proposed Conditions Basin Map, update the map to the correct acreages on the basin ID callouts.
12. Figure PRO: Street Hydraulic Section RAC2 (min), the slope of 0.05% is too low. Review and revise calculations accordingly.
13. The Developed Condition Weighted Curve Numbers and Precipitation Values Table shows EOFF1 and EOFF2 as 20,000 sq ft lots, but they are 40,000 sq ft lots. This issue is isolated to this table and is not in the HEC model but should be revised for consistency.
14. The Developed Condition Weighted Curve Numbers and Precipitation Values shows under EOFF3 the incorrect CN for the 20,000 lot value, so the weighted curve number should be 88.8, not 88.2 as shown. This issue is isolated to this table and is not in the HEC model but should be revised for consistency.
15. The DON2 value from the Developed Condition HEC states the time of concentration is 0.143 but is calculated to be 0.161 on the Standard Form 4.
16. Sheet 2 General Notes Sheet: Update the Stormwater Management Notes to the current version.
17. Per the Valley Gutter detail, the valley gutter cannot contain the flow through the drainage easement and will inundate the surrounding walls. Use concrete flume to contain the Q100 flow.
18. Overall Grading Sheet 4: Label Meisenheimer Ave street name.
19. Overall Grading Sheet 4: Show existing storm drain and drop inlets at Racel St and Maverick St.
20. Label existing storm drain and drop inlets per CLV drawing number 107Y4821.
21. Profile Sheets PP1, PP2, PP6 and PP7: Verify if there is a new proposed grade at centerline for Racel Street and Meisenheimer Ave. It should be existing.
22. Profile Sheets PP6 and PP7: Station and elevations labels are missing from the profile view bottom grid/row.

- 23. Add finish floor elevations to the existing properties on the west side.
- 24. Lighten or remove the existing onsite property lines.
- 25. 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."
- 26. 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. The minimum width for a public drainage easement is 10'.

**\*\*\* The City of Las Vegas Flood Control is standardizing the file naming of drainage studies and plans during the digitizing process. When saving the project files in the CD or thumb drive, please follow the system below:**

**If drainage study only contains one combined file, use the following naming convention in Document Title:**

- 1<sup>st</sup> Submittal DS and Plans (for first and original submittal);
- 2<sup>nd</sup> Submittal DS and Plans (for second submittal (addendum #1)) etc.

**If drainage study contains multiple files, use the following naming convention in Document Title:**

- 1<sup>st</sup> Submittal DS (for the report of the drainage study)
- 1<sup>st</sup> Submittal Plan 1 (could be the drainage condition maps)
- 1<sup>st</sup> Submittal Plan 2 (could be the improvement plans) etc.

**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.

**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, final approval 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.

**END OF REMARKS**  
HDR/AYS/SF

T/R/S: T19S/R60E/S11  
AREA G11

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*RACEL & MAVERICK*

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October 2024

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702.240.5605

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



October 15, 2024

Albert Sung, P.E.  
Flood Control Project Engineer  
Department of Public Works  
City of Las Vegas  
495 S. Main Street  
Las Vegas, NV 89101

**RE: Technical Drainage Study for Racel Street & Maverick Street (#DS5801A)**

The purpose of this letter is to provide satisfactory answers to the comments issued in the subject Comment Letter dated September 26, 2024. These comments have been reviewed and are addressed herein.

**Comment 1:** Provide a copy of the zoning/planning conditions associated with this site 24-0306-TMP1 on 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: A copy of the approved zoning/planning conditions associated with this site, 24-0306-TMP1, has been provided in **Appendix A**.

**Comment 2:** The site is adjacent to Clark County jurisdiction to the south on Racel Street. The engineer must coordinate with Clark County Public Works Department (CCPW) and incorporate any concerns for boundary conditions. CCPW concurrence is required prior to final acceptance of the study.

Response: Noted.

**Comment 3:** A review of the grading plan shows an elevation difference of approximately 3.0-feet of cut/fill adjacent to developed properties. 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 justification of fill was submitted to the City Planning Department on October 11, 2024. We have received notification this is under review. We will send the approval once we receive it.

**Comment 4:** Along the west property line, flows through the existing lots heading in the southeast direction will be blocked from the new wall. The existing property owners has complained to the city regarding excessive flows through their lots. Provide drainage easement and address on the next submittal on how this will be mitigated.

**Response:** 10-ft wide drainage easement has been provided along the west property line to convey the offsite flows from existing lots to Racel Street. Refer to **Appendix C** for the easement calculations.

**Comment 5:** Many streets within this development are designed to a slope of 0.40% and less. 0.40% street slope is the minimum allowed without a nuisance storm drain system and is difficult to construct. The engineer and developer is advised that ponding in proposed improvements is not allowed. Sections of substandard improvements may have to be removed and replaced during the inspection process. On Racel Street and Meisenheimer Ave, the street slopes are less than 0.40%, provide drop inlets and storm drain or revise grading so the slope is at least 0.40% minimum.

**Response:** The longitudinal slopes of the flow lines at Racel Street and Meisenheimer Avenue adjacent to the site have been revised to be more than 0.40% by varying the cross slope from the sawcut line. The hydraulic calculations have been revised accordingly. Please refer to the revised hydraulic calculations in **Appendix C** and the improvement plans in **Appendix E**.

**Comment 6:** The Q100 flow entering drainage easement between lots 13 and 14 must be contained within the curb opening and sidewalk underdrain. Address on the next submittal.

**Response:** The drainage easement between lots 13 and 14 has been revised to be an 11-foot-wide U-channel with 6-in curb on either side with 0-inch curb at the upstream end to allow flow to enter. Three 2-ft sidewalk underdrains are provided to convey the flows under the sidewalk to the 10-foot drainage easement between the two lots. Calculations have been provided for the flows at underdrains and the at the easement. Refer to the hydraulic calculations in **Appendix C**.

**Comment 7:** The high point at the two entrances off of Meisenheimer Ave does not meet the requirement of 6" above the flow depth in Meisenheimer Ave. Revise grading to provide adequate protection from offsite flow.

**Response:** The grading has been revised to provide 6" of freeboard above the flow depth in Meisenheimer Avenue for the two entrances. Refer to the improvement plans in **Appendix E**.

**Comment 8:** Figure EX and PRO: Verify is there a flow split at Torrey Pines Dr and Meisenheimer Ave? It looks like some of the flow going down Torrey Pines Dr will head east down Meisenheimer Ave. Review and revise all subsequent calculations accordingly.

Response: Flow split analysis has been provided at Torrey Pines Drive and Meisenheimer Avenue based on previous flow split calculations performed with the *Neighborhood Study*. By analyzing a flow split at Torrey Pines Drive and Meisenheimer Avenue that was not previously analyzed, the downstream flow split at Torrey Pines Drive and Racel Street was reanalyzed. The flow split calculation involved creating a rating table based on normal depth for Street 1 (Torrey Pines) and Street 2 (Meisenheimer) using different flow rates. These depths were then input into a spreadsheet used to calculate other flow splits in the *Neighborhood Study* to find the calculated flow values that were input into the HEC-1 models.

Basin NW173 from *Neighborhood Study* has been split into two subbasins NW173-A and NW173-B, with flows from NW173-A contributing to the intersection of Torrey Pines and Meisenheimer Avenue in addition to the 140/43 cfs from RDCCNW17. Flow split calculations are based on the rating curve generated for the two streets analyzed. Additional flow split analysis has been done at the intersection of Torrey Pines and Racel Street which yielded revised flow split values from the *Neighborhood Study*. The HEC-1 model from the *Neighborhood Study* was used as the basis for the HEC-1 model for this submittal. The project specific HEC-1 model can be found in **Appendix B**. The normal depth calculations for Meisenheimer Avenue and Racel Street adjacent to the site have been revised based on the new flow rates. Refer to the hydraulic calculations in **Appendix C**.

**Comment 9:** Figure EX: Correct the EON1 area on the Existing Flow Summary Table on the Existing Conditions Basin Map. Should say 9.83 acres.

Response: The correction has been made. Refer to the revised Figure EX provided in **Appendix A**.

**Comment 10:** Figure PRO: For the physical copy, please provide the correct exhibit for the Proposed Conditions Basin Map, the exhibit for the Lone Mountain Temple was included.

Response: The correct PRO map has been provided with the study package. Refer to **Appendix A**.

**Comment 11:** Figure PRO: On the Proposed Conditions Basin Map, update the map to the correct acreages on the basin ID callouts.

Response: PRO map has been revised with the correction of acreages on the basin ID callouts. Refer to **Appendix A**.

**Comment 12:** Figure PRO: Street Hydraulic Section RAC2 (min), the slope of 0.05% is too low. Review and revise calculations accordingly.

Response: The street slopes at Racel Street adjacent to the site has been regraded to be steeper than 0.40% and the related hydraulic calculations have been revised. Refer to the **Appendix C** for new Racel Street section calculations and **Appendix A** for revised PRO map with updated hydraulic sections table.

**Comment 13:** The Developed Condition Weighted Curve Numbers and Precipitation Values Table shows EOFF1 and EOFF2 as 20,000 sq ft lots, but they are 40,000 sq ft lots. This issue is isolated to this table and is not in the HEC model but should be revised for consistency.

Response: The Developed Condition Weighted Curve Numbers and Precipitation Values Table has been corrected to show 40,000 sq ft lots for basins EOFF1 and EOFF2. Refer to the revised table in **Appendix B**.

**Comment 14:** The Developed Condition Weighted Curve Numbers and Precipitation Values shows under EOFF3 the incorrect CN for the 20,000 lot value, so the weighted curve number should be 88.8, not 88.2 as shown. This issue is isolated to this table and is not in the HEC model but should be revised for consistency.

Response: The CN for EOFF3 in the developed condition has been revised. Refer to the updated table in **Appendix B**.

**Comment 15:** The DON2 value from the Developed Condition HEC states the time of concentration is 0.143 but is calculated to be 0.161 on the Standard Form 4.

Response: The time of concentration of DON2 has been revised from 0.143 to 0.161. The results from the HEC-1 model remains unchanged. Refer to the updated developed condition HEC-1 model in **Appendix B**.

**Comment 16:** Sheet 2 General Notes Sheet: Update the Stormwater Management Notes to the current version.

Response: The general note has been updated to the current version of the plan sets. Refer to the revised improvement plans in **Appendix E**.

**Comment 17: Per the Valley Gutter detail, the valley gutter cannot contain the flow through the drainage easement and will inundate the surrounding walls. Use concrete flume to contain the Q100 flow.**

Response: A concrete flume has been provided at the upstream end and the walls are solid grouted through the rest of the easement.

**Comment 18: Overall Grading Sheet 4: Label Meisenheimer Ave street name.**

Response: Meisenheimer Avenue has been labeled on the Overall Grading Sheet. Refer to the revised plan sheet in **Appendix E**.

**Comment 19: Overall Grading Sheet 4: Show existing storm drain and drop inlets at Racel St and Maverick St.**

Response: The existing storm drain and drop inlets at Racel Street and Maverick Street have been shown on the Overall Grading Sheet as well as sheet GD2. Refer to the revised plans in **Appendix E**.

**Comment 20: Label existing storm drain and drop inlets per CLV drawing number 107Y4821.**

Response: The existing storm drain has been labeled with the CLV drawing number.

**Comment 21: Profile Sheets PP1, PP2, PP6 and PP7: Verify if there is a new proposed grade at centerline for Racel Street and Meisenheimer Ave. It should be existing.**

Response: The grade at the centerline is existing. The plans have been corrected to show the Existing Grade at Center Line and Proposed Grade at Sawcut Line.

**Comment 22: Profile Sheets PP6 and PP7: Station and elevations labels are missing from the profile view bottom grid/row.**

Response: The profiles sheets PP6 and PP7 have been revised to include the station and elevation labels from the profile view bottom grid/row.

**Comment 23: Add finish floor elevations to the existing properties on the west side.**

Response: The finished floor elevations has been provided for the existing properties on the west side.

**Comment 24: Lighten or remove the existing onsite property lines.**

Response: The comment has been addressed.

**Comment 25: 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: The note has been provided on the grading plans.

**Comment 26: 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. The minimum width for a public drainage easement is 10'.**

Response: The drainage easements have been revised to be a minimum of 10 feet wide. Refer to the revised improvement plans in **Appendix E** and revised drainage easement calculations in **Appendix C**.

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

Sincerely,

Michael Schwab, PE

Abhusan Achhami, PE

## LIST OF APPENDICES

### Appendix A – Documents & Figures

- EX-1 Overall Existing Conditions Basin Map
- EX-2 Onsite Existing Conditions Basin Map
- PRO-1 Overall Proposed Conditions Basin Map
- PRO-2 Onsite Proposed Conditions Basin Map
- Tentative Map Approval Letter

### Appendix B – Hydrologic Parameters & HEC-1 Analyses

- Curve Number Calculations - EX
- Curve Number Calculations – Neighborhood Study Basins
- Standard Form 4 - EX
- HEC-1 Output - EX
- Curve Number Calculations – DEV
- Standard Form 4 - DEV
- HEC-1 Output – DEV

### Appendix C – Hydraulic Calculations

- Normal Depth Calculations – Streets
- Normal Depth Calculations – Onsite
- Normal Depth Calculations – Easements
- Flow Split Calculations
- Finished Floor Elevation Table Check

### Appendix D – Reference Materials

- *City of Las Vegas – Northwest Neighborhood Study Phase 2* (Neighborhood Study, September 1999)

### Appendix E – Improvement Plans

### Appendix F – Data CD