

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: January 18, 2023
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:	COPIES TO:
		Summerlin West V30A - Mountain Run Drive (Twilight Run Dr. to Park Drift Trail)	Atkins
Cross Streets:	Park Drift Trail and Mountain Run Drive		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5637A.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-21-701-002		CCRFCFCD
Zoning Action:	N/A		
FEMA Flood Zone	YES	NO X	
Proposed Storm Drain	YES X	NO	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1 st Submittal	12/20/2022	1/17/2023	See Comments Below	\$400.00	5079571: \$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.

1. The project proposes to build a temporary drainage facilities such as berms and swales along the west boundary of **Village 30A Parcel D**, along the north boundary of **Village 30A COS-1 & NP-1**, and along the west side of the proposed **Mountain Run Drive**. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (off-site berms or swales) and post a minimum maintenance bond of \$50,000 or 50-percent of the construction cost for the improvements, whichever is greater. The engineer must submit an estimate of the quantities for constructing the facilities and an exhibit that adequately shows the location and limits of the drainage facility to *City of Las Vegas Flood Control* for approval. Once the drainage study is conditionally approved, the engineer should contact the *City's Land Development Section* (229-6371) to begin the agreement process.

In order for the maintenance bond to be released in the future, a drainage update / letter will be required to justify that the offsite berms / swales are no longer necessary and can be removed.

2. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCFCD) master planned facility. Therefore, CCRFCFCD concurrence is required prior to final approval of the drainage study.

Please note that effective March 15, 2019, the CCRFCFCD adopted new requirements for drainage study concurrence submittal. Follow the link below for specific guidance.

<http://gustfront.ccrfcd.org/LandDev/LandDev.aspx>

3. The subject improvement is premised on the build-out of the dual 6'x6'-RCBs in *Park Drift Trail* downstream of the intersection at *Mountain Run Drive*. The subject improvement plans will not be approved prior to the posting of construction bonds for the above stated dual 6'x6'-RCBs in *Park Drift Trail*.
4. In reading **Figure 4: Ultimate Condition Hydrology** with **Sheet 5/47: Overall Grading Plan** and **Sheet 31/47: Grading Plan V30A/31 Diversion Berm**, it appears that portion of **Basin A4** will drain and add on to the concentration point **CP-2.2A** because of a proposed high point within the **Basin V30A-COS2-S**. Re-evaluate the total runoff to **CP-2.2A** and revise all pertinent hydrologic and hydraulic calculations in the next submittal.
5. A 24"-RCP stub is provided for the discharge of **V30A Parcel D** at Station 21+00.40. However, the 100-year flow from **Parcel D** is 110 cfs. The size of a 24"-RCP is not adequate. Review and revise accordingly.
6. A 30"-RCP stub is provided for the discharge of **V30A Parcel C** at Station 29+48.08. However, the 100-year flow from **Parcel C** is 108 cfs. The size of a 30"-RCP is not adequate. Review and revise accordingly.
7. Same reasoning, **Parcel E** is proposed to discharge to a 24"-RCP stub. However, the 100-year runoff from **Parcel E** is 114 cfs. The proposed stub is not adequate in size.
8. Provide an overall WSPG map identifying the WSPG stationing relative to the plan & profile stationing.
9. The overall WSPG map must clearly show and identify all the parcel stub locations and the corresponding addition of flows into the mainline storm drain. The WSPG model shall reflect all the additional flows along the mainline storm drain.
10. The WSPG modeling run must start at least 100' downstream of the diversion of boxes at the intersection of *Park Drift Trail* and *Mountain Run Drive*.
11. It appears that the WSPG calculations provided in the last submittal runs on one set of *Manning's Coefficient* of $n=0.015$ for the mainline storm drain. However, another set of run using *Manning's Coefficient* of $n=0.013$ must be provided to find the maximum flow velocity in the mainline. Portions of the mainline with velocity higher than 25 ft/s requiring sacrificial concrete shall be based on the $n=0.013$ calculations.
12. Show the hydraulic grade line (HGL) and label the Q_{100} in the profile of the proposed 6'x6'-RCB boxes in all pertinent plan and profile sheets in the next submittal.
13. **Storm Drain Manhole (SDMH) #1, #4, #7 and #8** are special junction structures which need special structural design and calculations to be reviewed by the *City of Las Vegas Building & Safety Department*. Approval by the *Building Department* must be obtained prior to the final approval of the subject drainage study.
14. **Storm Drain Manhole #8** is a junction structure to split the flow from a single barrel box to a dual-cell boxes with the intention to split the flow equally (50%-50%) into the downstream dual-boxes. However, the WSPG provided in the last submittal did not provide detail analysis to prove steady flow in the junction structure so as to transition the flow smoothly and equally to the dual boxes. The proposed 20'-long structure does not appear to be adequate to transition flow from a turbulent state to a steady state.

In the next submittal, provide a section to detail explain the methodology of attaining equalization of flow split through the special junction structure.

15. The above comment applies to SDMH #7, SDMH #4 and SDMH #1.
16. All *Storm Drain Manholes* at the proposed RCB shall use Standard 405.2 and must have 30"-minimum frame and cover. Revise all pertinent construction notes and detail sections accordingly.
17. The proposed improvement plans show drainage facilities of a size that must be reviewed for Maintenance and Access concerns. The engineer must submit a separate set of improvement plans to *City of Las Vegas Streets & Sanitation Department* for their review. *Streets & Sanitation* approval must be secured prior to the drainage study approval.
18. **Ultimate Condition Exhibit:** Provide contours on the exhibit.
19. **Interim Condition Exhibit:** Confirm prorated flows of *I-MRD1*. Calculations seem inconsistent, several prorated basins with the same area, for example *I-MRD1-1W* and *I-MRD1-2E* have different calculated discharges on same basin areas.
20. **Ultimate Condition Exhibit:** Specify what studies each basin is referenced from. Notes state that referenced values are from the *Grand Park Master Drainage Study* and the *V25 Park Drift Trail TDS*, but there is nothing signifying which basins are referenced from which study.
21. **Ultimate Condition Exhibit:** Adjust rounding of values for the Tributary Areas shown to be consistent with the values from the referenced studies.
22. **Ultimate Condition Exhibit:** Confirm all shown Tributary Areas. For example, the Tributary Area for COS14 is shown as 0.000, but in the HEC-1 it is 0.0044.
23. **Interim Condition Hydraulics:** The flows shown on the exhibit do not match the calculations provided.

Section	Exhibit Flow	Calculation Flow
1E	3	4
1W	6	5
2E	4	5
3N	2	3
3S	3	4
4S	2	4

24. **Interim Condition Hydraulics:** The flow depth on the exhibit for 1W is 0.4 ft, but the calculations provided show a flow depth of 0.3 ft. Double check for all the other hydraulic sections to be consistent.
25. **Interim Condition Hydraulics:** The velocities shown on the exhibit do not match the calculations provided. Provide a better quality control in the next submittal.

Section	Exhibit Flow	Calculation Flow
1E	4.3	4.5
1W	4.9	4.7
2E	5.3	5.5
2W	5.5	5.3

27. **Interim Condition Hydraulics:** Provide inlet calculations for SDDI#1.
28. **Ultimate Condition Hydraulics:** Provide inlet calculations for SDDI#13.
29. **Sheet 9/47 and Sheet 10/47:**
- Provide a storm drain manhole at the angle point of the RCB storm drain.
 - Provide and show access ramp at 10% maximum slope from the roadway to the headwall structure.
 - Provide concrete pad at the headwall structure large enough for a maintenance vehicle for turnaround.
30. **Sheet 27/47 and Sheet 28/47:**
- The proposed 12'x8' Maintenance Access structure must be accessible to both cells of the dual-box. It appears that a wall opening has to be provided in the common wall or something equivalent.
 - Provide structural calculations and design detail with sections in the next submittal.
 - The structural must be approved by *City Building Department* prior to the final approval of the drainage study.
 - Show the slope of the existing dual-boxes in the profile.
31. The ponding depth at SDDI#11 per the hydraulic worksheet is 4.6'. The grading shows that the berm with an elevation to 4.1'. The flow will overtop and allow for bypass that is not accounted for in the calculations.
32. Provide a profile for the SDDI#11 lateral.
33. The flow in the storm drain for the SDDI#11 lateral and the proposed mainline exceeds the maximum velocity allowed (25 fps) per the *CCRFCD Hydrologic & Hydraulic Design Manual*. The Engineer must provide a detail showing additional sacrificial concrete (1-inch minimum) on the plans. A Special Construction Note must be added to the *Grading Plans* and the *Plan and Profile Sheets* that calls out the special construction requirement for the additional sacrificial concrete.
34. Provide sections for all proposed swales and determine if rip-rap is required for those that have erosive velocities.

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
HDR/AYS

T/R/S: T20S/R59E/21
AREA **K-21**