

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM			DATE: April 7, 2023
TO: Land Development Services Community Development - Building & Safety Division			FROM: Peter Jackson, CFM Senior Engineering Assoc. Department of Public Works
SUBJECT:		Drainage Study for:	COPIES TO:
		Summerlin West Village 31 Detention Basin (Peaking Basin Improvements)	Atkins
Cross Streets:	Lake Mead Boulevard		Howard Hughes Company, LLC
File Number:	F:\Depot\DSMemos\DS5604B.doc		Bart Anderson, P.E., DevCo
Parcel Number:	137-21-101-007		CCRFC
Zoning Action:	N/A		State of Nevada – Division of Water Resources, Dam Safety
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	5/24/2011	7/13/2021	Not Approved	\$ 400.00	\$400
2 nd Submittal	8/10/2022 & 3/8/2023	8/29/2022 & 1/18/2023 & 4/7/2023	See Comments Below	\$ 400.00	\$400
TOTAL FEES (LDDRS):				\$ 800.00	----

REMARKS: A Flood Control Master Plan Amendment (MPA) is required for the Summerlin West Master Drainage Study that incorporates the Village 31 Detention Basin prior to the facility being accepted by the City.

1st Submittal – 60% Design submittal under DS5457. Drainage Study Number has been changed to DS5604.

2nd Submittal – 90% Design iterations have revised the overall Detention Basin Design after the 1st submittal.

Supplemental 2nd Submittal - The Supplemental information revised the Overall Basin configuration and Plans to meet the revised the Detention Basin design parameters.

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 State of Nevada, Division of Water Resources – Dam Safety concurrence.

The City of Las Vegas Flood Control Staff concurs with the Overall Drainage concepts presented and takes no exception to the Overall Hydrology impacting the Village 31 Detention Basin. The Detention Basin grading has been revised to reduce the slope impacts and the inlet structures have been changed to open channel chutes. The Detention Basin design has been revised using 4:1 slopes. The proposed concrete spillway cross section is also designed with 4:1 slopes.

1. The provided 1D HEC-RAS models used an n-value of 0.015. Provide additional models using an n-value of 0.013 to determine the velocity impacts. Where the velocities are in excess of 35 feet per

second, additional mitigation is required to reduce the long-term impacts. Provide a discussion of any proposed mitigation measures. Include a complete copy of the 1D HEC-RAS models in electronic format as part of the next submittal.

2. Revise the Detention Basin Outlet WSPG model to reflect the revised flow rate. The flow rate reduced from 1103 cfs to 966 cfs. The previous WSPG analysis used an n-value of 0.015. Provide an additional WSPG model of the Outlet utilizing an n-value of 0.013 to determine the impacts to the velocity. Provide updated rip-rap calculations at the transition back to the existing wash to verify any required changes to the rip-rap sizing.
3. The Inlet Concrete Ramp Structure design needs to address the USBR stilling basin requirements of chute & baffles. Provide revised inlet flow velocity calculations where the flow meets the bottom of the detention basin. Include energy dissipation and scour mitigation details with supporting calculations as necessary.
4. Clearly identify the Spillway limits and the ramp transitions up to the Embankment elevation of 4270.0. The overall weir information provided on the Master Grading Plan (Sheet #5) does not the Basin Information Table on Sheet #5. Extend the concrete access road improvements up to the Embankment elevation.
5. The current design for the spillway shows that the concrete spillway will be covered with 12-inch minimum sacrificial landscape cover to provide for Basin aesthetics. No vegetation will be allowed on the spillway/basin embankment.
6. Adjust the primary Basin access such that the access is not a major part of the spillway.
7. The CCRFCD Monitoring Station location and elevation shall be at or above the "Embankment Elevation" of 4270.0. Review and revise accordingly. Continue to coordinate the CCRFCD monitoring station details and requirements with Regional Flood. Provide detailed grading for the monitoring station and include the monitoring station details as a part of the improvement plans. It is not clear that the monitoring station location is outside of the PMF flow area. Relocate the monitoring station outside of the PMF flow area.
8. The current design shows the limits of the Proposed Detention Basin and the corresponding Flood Control Right-of-Way. These limits extend at least 25-foot past the Toe of Embankment and top of cut projections to provide for the proper long term Maintenance and Safety of the Detention Basin. Provide an Exhibit that shows the Proposed Flood Control Right-of Way.
9. Provide Detention Basin Performance Curve and Summary Table to the plan.
10. This proposed Detention Basin is adjacent to the Red Rock Canyon National Conservation Area (RRCA), a critical area of no disturbance. No grading impacts are allowed into the RRCA and an appropriate buffer has been identified on the plans. Typically block and cable fencing has been provided to secure the basin next to the RRCA. Provide Details and show a maximum 5-foot spacing between the blocks. The detail currently shows 30-foot spacing.
11. The intent of Howard Hughes Company is to construct *Summerlin West Village 31 Detention Basin* with the associated collection facilities, to update the CCRFCD Master Plan facilities and then dedicate them to the City of Las Vegas upon completion. *Summerlin West Village 31 Detention Basin* shall be dedicated to the City as *Flood Control Right-of-Way*. The total area of the dedication shall be of sufficient size to meet the public operational needs. The dedication needs to include the entire impact area of the construction as well as incorporate access and maintenance activities. The maintenance activities include staging for equipment and a temporary storage area for sediment removal. Include the Maintenance Staging Area on the plans. Update the Detention Basin property boundary accordingly.
12. Provide a complete structural details of the spillway including identifying expansion joint layout and other required joints.
13. Provide a complete structural details for the concrete embankment inletting structures including cutoff walls. Given the size of the Inlet Structure, provide expansion joint layout and provide all joint details.

14. Provide a complete detail of the Water Quality Wall including structural calculation with future submittal.
15. Provide a plan and profile across entire spillway.
16. Provide complete details for the cut-off walls at the downstream end of the spillway section. The depth of the cut-off walls is not specified on the Detail Sheets or on the Grading Plans.
17. Provide complete details of the various types of cut-off walls. Include cross sections at the access ramp into the basin, top of the spillway, and the upstream side of the 14-foot access road.
18. Provide complete details of the orifice plate for the outlet structures. The updated design uses 50" openings. Revise plan and report accordingly.
19. The proposed *Summerlin West Village 31 Detention Basin* must be approved by the State of Nevada, Division of Water Resources Dam Safety (DWR) prior to the issuance of any construction permits, including any request for early grading.
20. The site is a proposed *Clark County Regional Flood Control District (CCRFCD)* master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study. The engineer must provide a copy of *Building Department* approval of the structures to CCRFCD before they will issue concurrence.

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

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

21. Provide complete *Plans and Project Specifications* for approval by the *City of Las Vegas*. Provide a copy of the Geotechnical Report for the detention basin. The Structural Plans and Details shall be a part of the Civil Improvement Plan set. This project is considered as a *Capital Improvement Project (CIP)* with developer funding.
22. Structural plans for the proposed storm drain improvements and pertinent flood control facilities must be submitted for review. Provide soils report, structural calculations, specifications, structural plans, and a grading plan to the Building & Safety Division for processing. Coordinate the electronic submittal requirements with the Building & Safety Division. The engineer must provide a copy of Building & Safety Division approval of the structures to Flood Control prior to final acceptance of the drainage study.
23. All proposed improvements associated with *Summerlin West Village 31 Detention Basin* shall be bonded and inspected. This project, as an MPU facility, shall require that the inspection personnel be approved by the City. This project shall require Special Inspection. Coordinate the requirements of and the Agreements needed for Special Inspection with the Building Department.
24. Once this drainage study is approved, provide a legal description and exhibit for the easement dedication of the detention basin and collection facilities. This easement shall be recorded and would be subsequently replaced with the dedication of the facilities as *Flood Control Right-of-Way*. Coordinate the easement submittal with Flood Control. The easement shall record prior to issuance of the permits for the construction of the detention basin.
25. Prior to the adoption of the detention basin as a regional facility by the *City of Las Vegas*, City Council and the final inspection and acceptance by the *City of Las Vegas Public Works Department*, the proposed *Summerlin West Village 31 Detention Basin* shall remain a private facility owned and maintained by the master developer.
26. Provide the legal description with an exhibit of the proposed detention basin to City Right-of-Way Section for the dedication as *Flood Control Right-of-Way* to the City of Las Vegas after final acceptance of the basin by the City Public Works Department.
27. The detention basin will require the submittal and approval of an Emergency Action Plan (EAP) for this regional facility. The EAP format shall meet the City of Las Vegas submittal requirements for

inclusion with our overall EAP. Contact Flood Control for sample format requirements. The EAP must be approved by the *City of Las Vegas* and then submitted and approved by the *State of Nevada, Division of Water Resources - Dam Safety* prior to the release of any improvement bonds for the related detention basin improvements. The bonded improvements shall include a line item for the EAP in the amount of \$50,000.

28. Access roads shown for City use shall be dedicated access easements. The easements shall be dedicated prior to acceptance of facilities by the City.
29. This proposed Regional Detention Basin shall be secured. Label the access gate location. Provide a section and details of the fencing and access gates.
30. On Sheet 36 – Perimeter Fencing, clearly show the limit of proposed chain link fencing.
31. Provide input assumptions for calculating Wave Run Up calculations including equations.
32. SV card used in HEC-1 doesn't match with calculated storage volume provided in the Spreadsheet. Revise and reflect changes accordingly.
33. For trash rack design, add post & cable gate for the "man-access" along with step ladder to the bottom of the inlet structure.
34. Add post & cable to the top of NDOT outlet headwall for fall protection.
35. Consider rounding up the inlet concrete ramp wall height to nearest 0.5-ft for ease of construction.
36. For detail 2/33, extend wall bracket screw to past the entire outlet structure wall thickness with backing plate.
37. For detail D/35, the concrete block and chain must be spaced at maximum of 5-ft between the blocks.

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/PBJ

T/R/S: T21S/R59E/S03
AREA K-21