CITY OF LAS VEGAS **INTER-OFFICE MEMORANDUM**				**DATE:** **August 4, 2025**
TO: **Land Development Services** Department of Community Development – Building & Safety Division				**FROM:** Oh-Sang Kwon, P.E. Flood Control Project Manager Department of Public Works
SUBJECT:	Drainage Study for: **Badlands Infrastructure and Mass Grading**			**COPIES TO:** Lennar
Cross Streets:	Charleston Blvd and Rampart Blvd			Westwood
File Number:	F:\Depot\DSMemos\DS5889A.doc			CCRFCD
Parcel Number:	138-31-201-005 and more			
Zoning Action:	N/A			
FEMA Flood Zone	YES **X**	NO		
Proposed Storm Drain	YES **X**	NO		

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal	7/9/2025	8/4/2025	See Comments Below	$400.00	6311829: $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. The Badlands Master Drainage Study is proposing to revise the hydrology and facility sizes identified in the Clark County Regional Flood Control District's (CCRFCD) 2023 Las Vegas Valley Flood Control Master Plan Update. A master Plan Amendment (MPA) or Master Plan Change (MPC) must be submitted to the City of Las Vegas for approval and City of Las Vegas will coordinate the submittal to CCRFCD for approval.
2. The project proposes to build a future MPU facility. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (off-site berms or channels) 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 facility 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, the Master Plan Amendment (MPA) approval is required and a drainage update / letter will be required to justify that the offsite berms / channels are no longer necessary and can be removed.

3. The site is adjacent to or crosses an existing or proposed *Clark County Regional Flood Control District* (CCRFCD) master planned facility. Therefore, CCRFCD concurrence is required prior to final approval of the drainage study.
4. Please note that any future technical drainage study submittal that differs from the Master Drainage Study (ie. Changes in pods, infrastructure, flows, ect.) will require an update to the Master Drainage Study and this update mush be approved by the City of Las Vegas Flood Control Section prior to final approval of the technical drainage study.
5. Technical drainage studies are required for each of the POD's. The technical drainage study for the POD's may not be submitted until the conditional approval of the pertinent infrastructure drainage study is obtained. Final approval for the infrastructure drainage study must be obtained prior to conditional approval of the impacted POD drainage studies.
6. Building permits for the homes within the individual POD's will not be issued until construction of the street and flood control infrastructure around the POD is substantially complete.
7. Please note that the proposed 100-year flood protection facilities identified on Exhibit G must be constructed by the Master Developer as part of the master planned infrastructure. Technical drainage studies are required for each phase of the master planned infrastructure improvements. The technical drainage studies for the infrastructure improvements may be submitted with conditional approval of this Master Drainage Study. However, final approval of the Master Drainage Study must be obtained prior to conditional approval of the infrastructure drainage studies.
8. Please note that all proposed drainage facilities must meet the City of Las Vegas Municipal Code.
9. The engineer must submit the drainage study to FEMA for a Conditional Letter of Map Revision (CLOMR). A favorable CLOMR must be obtained prior to the issuance of any permits. This site is located in a FEMA Zone A. Clark County Regional Flood Control District (CCRFCD) review and approval is required prior to recordation of final map or issuance of building/grading permits. The Engineer must send a copy of the report to the CCRFCD for review. **The developer/engineer must also obtain a Letter of Map Revision (LOMR) using the approved drainage study as technical support to inform FEMA of the modifications within the flood zone. The approved LOMR must be submitted to the City of Las Vegas prior to the release of the bond.** FEMA Elevation Certificates, showing as-built finish floor elevations, must be completed for each building in the FEMA A Zone. The certificate must be submitted to the City of Las Vegas Flood Control Section prior to scheduling a framing inspection.
10. A **Letter of Map Revision (LOMR/LOMR-F)** must be obtained from FEMA after the completion of any project within a FEMA Special Flood Hazard Area (SFHA), Flood Zone "A". The bonded improvements shall include a line item of **$50,000.00 for the LOMR**. The bonded improvements will not be released until the **LOMR/LOMR-F** is obtained from FEMA and filed with A **Letter of Map Revision (LOMR/LOMR-F)** must be obtained from FEMA after the completion of any project within a FEMA Special Flood Hazard Area (SFHA), Flood Zone "A". The bonded improvements shall include a line item of **$50,000.00 for the LOMR**. The bonded improvements will not be released until the **LOMR/LOMR-F** is obtained from FEMA and filed with the **City of Las Vegas.**
11. Please note that all proposed interim drainage facilities must be bonded and maintained by the Master Developer. Prior to final plan approval the developer must complete a maintenance and liability agreement for the interim drainage improvements (off-site berms or channels) and post a minimum maintenance bond of $50,000 or 50-percent of the construction cost for the improvements, whichever is greater. If the interim drainage improvements are bonded per phase, each phase must post a minimum maintenance bond of $50,000 or 50-percent of the construction cost, whichever is greater, for each phase. The engineer must submit an estimate of the quantities for constructing the facility 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 / channels are no longer necessary and can be removed.

12. Please obtain necessary 401 & 404 permits from US Army Corps of Engineers and provide a copy of the permit to City of Las Vegas Flood Control Section.
13. Please note that with a technical drainage study for the proposed CCRFCD MPU facility, provide complete Plans and Project Specifications for approval by the City of Las Vegas. 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.
14. Please note that with a technical drainage study for the proposed CCRFCD MPU facility, structural plans for the proposed storm drain improvements and permanent flood control facilities must be submitted for review. Provide a soils report, structural calculations and specifications, two wet stamped structural sets, and a grading plan to the Building Department for processing. The engineer must provide a copy of Building Department approval of the structures to Regional Flood prior to their concurrence and to Flood Control prior to final acceptance of the drainage study.
15. Please note that with a technical drainage study for the proposed CCRFCD MPU facility, all proposed improvements associated with the Storm Drain facilities shall be bonded and inspected. This project shall require Special Inspection. Coordinate the requirements of and the Agreements needed for Special Inspection with the Building Department.
16. 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 CLV Streets & Sanitation Department for their review. Streets & Sanitation approval must be secured prior to drainage study approval.
17. This site accepts offsite flows and conveys them through the site. Provide a “Public Drainage Easement to be Privately Maintained” and show the easement on the grading plan. Public drainage easements must be recorded by separate document prior to the final acceptance of the improvement plans unless they are to be recorded by parcel or final map.
18. A review of the grading plan shows an elevation difference of approximately 5-feet of cut/fill adjacent to (un)developed properties. Sites with a grade difference of 2 feet above or below existing grades are required to have approval from the *City of Las Vegas 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 *City Planning* approval with the next submittal.
19. The provided WSPG analysis used an n-value of 0.015. Provide an additional WSPG model of the system utilizing an n-value of 0.013 to determine the impacts to the velocity. For segments of pipe with velocities between 25 and 35 feet per second, 6000-psi concrete with 2-inch additional (sacrificial) thickness is required. For segments of pipe with velocities in excess of 35 feet per second, added mitigation to reduce long term impacts is required. A Special Construction Note must be added to the Grading Plans and the Plan and Profile Sheet that calls out the special construction requirement for the additional sacrificial concrete.
    a. Many locations on the WSPG have velocities greater than 25 fps and 35 fps. Update plans as noted above. This could be exacerbated when using a Mannings of 0.013.
20. Provide D load calculation or explanation of determination of RCP pipe class as utilized in the plan set.
21. Provide transition length calculations for the proposed RCB transitions.
22. On all exhibits show all basins that are being used in the HEC-1 models.
23. On Exhibit F,
    a. Provide row headers to the Concentration Points Table.

b. For section D2A, move the section downstream slightly to include the added flow from subbasin 57B-3D. This will allow it to match what is shown in the table by using the concentration point CON7B which has a flow of 265 cfs.

c. Section D9B,

   i. Appears to be missing the flow from subbasin 57B-2E. May need to move the section downstream slightly to add flow. Of not, the section is essentially the same as D9C.

   ii. The two subbasins just south of ION9 need to be labelled. Also, do they flow into ION9? If so, where? Look like the north one needs to be added to section D9B.

d. The swale just downstream of section D9A appears to flatten out rather than continuing to the graded sump at CON10. Regrade swale to extend to sump.

24. According to Flowmaster cross section 2 of Charleston with no median, it appears that flow that overtops the 3-6'x6' RCBs will flow into the project site just east of the culvert crossing where the median opens. Check and update as needed.

25. On Exhibit G,

    a. There is a blue hatch that appears off the project site.

    b. There are a handful of Reach Names that appear to be incorrect,

       i. ID 5053 should be Reach 2.

       ii. ID 9221 should be Reach 1.

       iii. ID2833 should be Reach 1-Lower 12.

       iv. ID 2632 should be Reach 1-Lower 1.

26. On Exhibit H,

    a. Add QUlt to the facility table and indicate which flow is being used for the calculation.

    b. Many of the flows in this chart do not match Figure F or the nomographs.

       i. For example, ML2A uses 97 cfs in the nomograph.

27. For the nomograph for ML7, plan sheet PP21 has a Q100 of 425 cfs which appears should be used for this calculation. Update WSPG as well.

28. For lateral WSPGs add the tailwater to the model to match the water surface in the RCB mainline.

29. Why do the standard form 6 calculations for the ML3, ML4, ML5, and ML6 all use a flow of 21.75 cfs. What does ultimate condition map show? Is flow really going to be even distributed?

30. Where applicable, in accordance with USDCCA 401, manholes with a depth greater than 18' are require a special structural detail and calculations. Submit structural design and calculations to *City Building & Safety Department* for review and approval prior to the final approval of the drainage study.

31. Show all existing finish floor elevations of existing structures shown on the Grading Sheets.

32. On many Grading Sheets, there is proposed riprap being called out, but the riprap hatch is not being used. Show the limits of the proposed riprap.

33. Sheets G-6, G-7, G-12, G-13, and G-16, it looks as if there are structures that are being proposed within the area of mass grading. Explain what is being shown with the light grey hatch.

34. On sheet G-7, Cross Section M is located on sheet D-3, but the call out says D-2. Revise the cross section call out.

35. On all associated detail sheets, show the areas of proposed riprap on all cross sections needed.

36. On all PP sheets, including lateral profile sheets, add the lateral number to match Exhibit H.

37. On all PP sheets, clearly show where the high strength sacrificial concrete is to be used on the proposed infrastructure.
38. On sheet PP1, add note that the existing culverts are dual 8'x8' RCBs.
39. On sheet PP7, it seems odd that there is not a significant hydraulic jump around station 35+00 due to the drastic slope change.
40. On sheet PP8, adjust manhole at 28+50 to top of the RCB.
41. On sheet PP10, the connecting lateral into the RCB is missing from the profile.
42. On sheet PP12, the existing culverts are triple 6'x6' RCBs. Update notes.
43. On sheet PP24,
    a. For stub #10 profile, the proposed manhole does not appear to be constructible.
    b. For stub #11 profile, add the HGL.
44. On sheet PP25, provide the calculation for the inlet capture and ponding depth.
45. Add a note in all pertinent sheets for the construction of all storm drain drop inlets per a newly adopted USDCCA Drawing No. 421 (*Stormwater Quality Management Stamp and Sign Detail*).

***** 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:

1st Submittal DS and Plans (for first and original submittal);

2nd Submittal DS and Plans (for second submittal (addendum #1)) etc.

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

1st Submittal DS (for the report of the drainage study)

1st Submittal Plan 1 (could be the drainage condition maps)

1st 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
OSK

T/R/S: T20S/R60E/S31&32
AREA F-28