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Lochsa engineering

June 29, 2021

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

Subject: **Update #2 to the "Technical Drainage Study for Showboat Mixed-Use Development"**
(DS #5085)
Lochsa Job #181085

Dear Mr. Sung,

This letter is intended as an Update #2 to the "*Technical Drainage Study for Showboat Mixed-Use Development*" (DS #5085) prepared by Lochsa Engineering, which was approved by the City of Las Vegas on April 1, 2019. The proposed improvements to the site being addressed in the subject Update #2 will consist of commercial building shifting, building expansion and revised random areas of grading to accommodate parking spaces, drive aisles and parking lots to the proposed commercial buildings. Please refer to the attached revised grading plan set for the location of the proposed improvements.

The Showboat Mixed-Use site is located on the northwest corner of Fremont St and Oakey Blvd, within the City of Las Vegas, NV. The project site APNs are 162-01-212-005/010 and are more specifically located within a portion of the southern half of the northwest quarter (NW 1/4) of Section 1, Township 21 South, Range 61 East of the M.D.M., in the City of Las Vegas, Nevada.

The proposed improvements do not alter the overall drainage patterns and the discharge locations remain consistent with the Original drainage study.

Proposed Improvements

There are multiple minor grading improvements proposed on the site in these two revised areas. Both revised areas are along the northern boundaries of the site.

The westernmost revised area is APN 162-01-212-010 (0.47 acres). This parcel consists of a proposed restaurant building 'B' (Jack-N-Box) with a drive-thru lane. This area previously consisted of a small building 'B' (approved FF = 1855.75ft), drive thru lanes and parking area. The proposed improvements are very minor. The building footprint has changed a little and the revised grading has been revised to accommodate the minor change in the building configuration. The FF elevation remains the same as the approved FF. **Please note that the approved drainage patterns have been maintained and the flow values and discharge points did not change per the revised grading**. Please also note that we have included the previously approved Grading Plan Sheets that are affected by these changes. The approved Finished Floor has remained the same.

The other change we are proposing on the plans is located directly east of Building 'B' to the approved Building 'C'. The approved Commercial Building 'C' at the NEC of the Site has been increased in size and shifted south. This revision has impacted the parking lot areas north and south of the Building 'C' (a proposed Medical office). The area north of the building has expanded for additional parking spaces since the Building 'C' is shifting south. **However, the approved drainage patterns have been maintained and the flow values and discharge points did not change per the revised grading in this area**.

With the Building 'C' shifting south, there has been some revised parking space configurations to accommodate the main south drive aisle. With the parking lot space configurations revised, **the approved drainage patterns have still been maintained and the flow values and discharge points did not change per the revised grading in this area**.

One other change is with the size of Building 'C' increasing in square footage, the approved FF elevation (1853.70ft) has changed to now include stepping of the building inside to accommodate four (4) separate finished floor elevations. From the west (upstream), the revised FF elevation is 1855.00ft, then the center of the building drops to 1854.50ft and 1854.00ft, and the east side of the building is stepped down to 1853.50ft. **With these FF changes for Building 'C', the revised grading has been revised around the building and the approved drainage patterns have still been maintained and the flow values and discharge points did not change per the revised grading in this area. Please note the FF elevations all still meet drainage criteria of double the 100yr flow depth from the adjacent streets and the onsite area.**

These proposed improvements will not cause an impact on downstream properties. The drainage flow values, drainage patterns and discharge points all remain from the previously approved study.

The flow within the drive aisles of proposed Building 'B' is minimal. The proposed Building 'B' is within a portion of referenced approved Basin OND2 (northeast portion). Onsite basin OND2 (10.56 acres) discharges 15/21/29cfs in the 10yr, 25yr and 100yr storm events. Proposed Building 'B' is on the downstream side of the basin. The referenced approved drainage exhibit DR2 (interim / developed drainage plan) has been included in the Update #2 submittal. The Finished Floor (Proposed Building 'B') meets the criteria of being double the 100yr flow depth from the adjacent streets and the onsite area. We have provided an onsite hydraulic section east of Building 'B' within the driveway entrance at the upstream side of the building. This is where a majority of the Basin ND2 flow will be as it discharges north to exit the site. The FF elevation (1855.75ft) meets the criteria of being double the 100yr flow depth onsite and the adjacent streets.

The flow within the drive aisles of proposed Building 'C' is also minimal. The proposed Building 'C' is within a portion of referenced approved Basin OND3 (entire basin). Onsite basin OND3 (4.38 acres) discharges 8/11/15cfs in the 10yr, 25yr and 100yr storm events northerly along the east side of Building 'C' to Fremont Street. Proposed Building 'C' is on the upstream and downstream side of the basin. The referenced approved drainage exhibit DR2 (interim / developed drainage plan) has been included in the Update #2 submittal. The Finished Floors (Proposed Building 'C') all meet the criteria of being double the 100yr flow depth from the adjacent streets and the revised onsite area. We have provided an onsite hydraulic section south of the Southeast corner of Building 'C' at the upstream side of the lowest FF elevation of the building. This is where maybe half of the Basin ND3 flow will be as it discharges east and north to exit the site. However, we utilized the entire 100yr flow (15cfs) for the calculation to be conservative. The three different FF elevations all meet the criteria of being double the 100yr flow depth onsite and the adjacent perimeter streets.

The hydrology and drainage pattern remains the same as the approved plans. Therefore, no hydrologic analysis has been provided to address the proposed improvements. We have included the relevant referenced excerpts in Appendix C and folded with the submittal. The drainage from the parking areas and drive aisles will continue to be conveyed following the approved drainage patterns that were approved by the Original Study.

The site as previously designed is in accordance with the City of Las Vegas and the CCRFCD drainage design criteria, and is also based on generally accepted engineering principles and practices. The proposed improvement additions will not cause any adverse impact on the adjacent and/or downstream properties.

Please refer to the attached grading plans and details for further clarification of the proposed improvements.

If you have any questions or comments, please do not hesitate to contact our office at your earliest convenience.

Sincerely,
LOCHSA ENGINEERING

Chris Blake, E.I
Hydrologist