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AMENDED (June 12, 2023)  
ENGINEERING REPORT  
2401, 2421, 2451 AND 2501 60<sup>th</sup> Ave. NW

This report covers a floodplain permit application for constructing a gravel driveway to serve lots addressed as 2401, 2421, and 2501 60<sup>th</sup> Avenue NW, Norman, OK. These properties are located in the famous Ten Mile Flat Area and these properties are located partially in the floodplain of Ten Mile Flat Creek. A Vincent Trust, with Jason Vincent being the trustee, owns the properties addressed as 2421, 2451, and 2501 60<sup>th</sup> Ave. NW, and this trust has obtained a 50-foot wide roadway easement crossing the property addressed as 2401 60<sup>th</sup> Avenue NW. All of these properties abut 60<sup>th</sup> Avenue NW, but the owner plans to take access off Rock Creek Road due to the high cost of constructing suitable culverts and entryways at 60<sup>th</sup> Avenue NW. The high cost is due to the fact that the bar-ditch of 60<sup>th</sup> Avenue NW is actually a major drainage way. As shown by the attached site plan, the owner intends to construct a private driveway to serve his three lots. He has current plans to construct a home and a barn on the property addressed as 2501. This is the middle lot of his three five-acre lots. For now, he plans to develop the middle lot and use the two adjacent lots as buffer zones, but his plans might change in the future.

As shown by exhibits presented these properties are located at the NE corner of 60<sup>th</sup> Avenue NW and Rock Creek Road. The current plan does not include using the proposed driveway for access to the five-acre lot with a different owner and addressed as 2401; but, this might change in the future. Approval of any additional future use of this driveway is not being sought at this time. As shown by the plans, the proposed driveway is a 12' wide gravel drive paved with a six-inch thick layer of crushed rock. To avoid any compensatory storage requirements, the owner proposed to excavate six inches of soil prior to placing six inches of crushed rock. The owner will transport the soil removed to portions of his lots that are located outside the floodplain. This includes the soil removed prior to placing crushed rock, the soil removed to construct bar ditches, and any other soil removed from the floodplain. Bar ditches will be constructed on both sides of the driveway to assist in draining the property and in protecting the roadway by reducing moisture content in the subgrade. In a recent Floodplain Committee Meeting, concern was discussed about risks of traveling a roadway when the roadway is flooded, due to various issues, including visibility of the roadway. This owner is proposing to place metal "T-posts", with light reflectors attached along the side of the roadway so that motorists can tell where the roadway is when under water. These posts will be placed on both sides of the driveway at intervals of approximately 100 feet. Similar "T-posts" are commonly used on public highways in snow country to assist motorists during periods of blowing snow known as "white-outs". This engineer has prepared a profile of the proposed driveway, which is included in the exhibits, that shows the top of the roadway and the BFE. At the deepest point, the 1% chance flood will cover the roadway by just 1-1/8 feet (less than 14 inches). This roadway is located at the very edge of the floodplain; therefore the floodwater velocities experienced at this location are expected to be very low and of little concern. Incidentally, to accurately analyze this situation, many accurate elevation shots were taken on portions of this site by a surveyor and contours were generated (NAVD) and presented in the exhibits.

The owner proposes to construct a barn and a residence on the middle lot (2501), but these structures will be located outside the floodplain; therefore, these are not included in this permit application. Both of these structures will be elevated to place the lowest floor at an elevation at least two feet above the BFE. The BFE at this lot is 1128.2'; therefore the lowest floor of these structures must be at or above an elevation of 1130.2' NAVD.

In summary, this proposal appears to fully meet the requirements of the City's floodplain regulations, and this engineer recommends approval.

Engineer's Certification

No net fill material will be placed in the floodplain and the construction of the the roadway will not result in an increase in the elevation of the ground at that location. All other construction will be in portions of the property that are located outside the floodplain; therefore the rise on this property or any nearby properties will be minuscule. The width of the floodplain at this location exceeds 4000 feet, and this fact contributes greatly to the opinion expressed herein. Certainly, if constructed according to the proposed plans, the increase in the BFE at this property or any other properties will be less than 0.05 feet.

Signature

Signed by Earl Gary Keen

## AMENDMENTS

After the Floodplain Committee Meeting when this application was initially considered, this engineer, the Jason Vincent (owner) met with Jason Murphy, Todd McLellan and Ken Danner, City staff members to discuss concerns about development of this property. This engineer and Jason Vincent are appreciative for the opportunity to meet with staff regarding this matter, and based upon additional information received and an explanation of the Staff's concerns about this development, this application is being amended to address several concerns presented. A summary of the proposed modifications is discussed below.

Staff members explain a policy of restricting the level of development in a floodplain to the minimum necessary and suggested that the length of driveways and roads in the floodplain be minimized. Accordingly, this revised proposal calls for reducing the length of roadways and driveway to be constructed in the floodplain in this development. First, the proposed driveway has been largely changed to a private road, which is to named and addressed in accordance twith the City's policy. The owner is agreeable to providing a certificate of survey that meets the City's standard. In addition, the owner is agreeable to arranging for the private road to serve the first three lots north of Rock Creek Road. This private road will not serve the 4<sup>th</sup> lot north of Rock Creek Road, which is currently addressed as 2501 60<sup>th</sup> Avenue NW. As part of this development, a private driveway will be constructed to serve the 3<sup>rd</sup> lot north of Rock Creek Road. This lot is currently addressed as 2451. Furthermore, the location of the proposed house and barn on lot 2451 has been changed, and this change has resulted in a further reduction of the length of driveway and private road located in the floodplain.

During the previous Floodplain Committee Meeting, concerns were expressed about portions of the proposed roadways/ driveways being subject to flooding during a one percent chance flood. Currently, this amended proposal is to elevate all roads and driveway constructed pursuant to this application such that the top of the gravel road will be a minimum of 0.25 feet (3") above the base flood elevation (BFE).

Soil used to elevate the portion of the road/ driveway located in the floodplain will be obtained onsite for areas located within the floodplain. An extra-wide bar-ditch will be constructed on the west side of the private road to drain to Rock Creek Road. This bar-ditch will be constucted to a depth 1.5 feet lower than the historic ground elevation or lower. One of the objectives of this wide bar-ditch is to provide a source of fill dirt and to meet the requirement for compensatory floodplain storage. During construction of this bar ditch, 499 cubic yards of soil will be removed from below the BFE in floodplain. Fill placed below the BFE when constructing the private road is calculated to be 274 cubic yards and fill placed below the BFE in construction of the driveway is 85 cubic yards for a total of 359 cubic yards, which is less that the 499 cubic yards of storage created during the construction of the private road.

In case it is discovered during construction that additional fill or compensatory storage is required, then soil can be removed from lot 2501, within the floodplain as shown on the exhibit . Removing soil two inches deep within the floodplain of lot 2501 will generate an

additional 373 cubic yards of compensatory storage, if needed.

The owner intends to obtain all other permits required by the City of Norman, which includes a permit for the approach connecting to Rock Creek Road. Additional information regarding the construction of the approach will be provided at this time.

The owner is eager to obtain building permits and get started on his new house and barn, accordingly, he is hopefully that this floodplain application can be approved henceforth and quickly followed by buiding permits. This owner is eager to get started on the certificate of survey, dedication and naming of private road, easements and anything else that is needed to clear the way for building to commence.

Please let us know if there are any other concerns.