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**ENGINEERING REPORT
3124 MEADOW AVE., NORMAN, OK
APPLICATION FOR FLOODPLAIN PERMIT**

The residence at 3124 Meadow Avenue, is a condo that is one unit of a structure containing a total of four units. As with most condos, these condos share common walls.

The floodplain permit at 3124 Meadow Avenue is for landscaping work in the back yard (aka patio), replacing the masonry blocks in a patio area with pour-cast concrete, and replacing an old wooden fence with a new wooden fence.

This work has already been completed. The owner explained that she did not know that a floodplain permit was required for this work, and that she relied upon her contractor to get all required permits. She understood that her condo building had been removed from the floodplain via a LOMA approved by FEMA and she was surprised to learn that your back yard is still in the floodplain.

The owner provided a few photographs of her property that were taken prior to the construction that are helpful in determining the impact the recently constructed improvements have on the floodplain. I have examined these photographs carefully along with the existing site. I have identified several points within the back yard where I used the photographs to compare the elevations of the pre-construction conditions to the post-construction elevations at the same points. I used identifiable undisturbed objects to determine whether soil and paving elevations were increased during the recent construction. Reference objects included brick or block lines in the walls of the house, a cover for a utility box, a post with a horizontal board, and the ground on both sides of the fence that surrounds the back yard. It appears to me that the ground and the paved patio pad elevations have not change a significant amount as a result of the construction.

It appears that soil was removed from the site prior to the placement of the concrete pad to compensate for added volume of concrete. The old blocks were approximately two inches thick and the new concrete pad is four inches thick. The elevation of the finished surface of the concrete is the same as the elevation of the old concrete blocks, according to all three reference points studies in regard to the concrete pad.

A concrete manhole exists in the back of the back yard, adjacent to the back fence. This manhole is surrounded with bricks, which are probably a part of the manhole. Prior to the improvements, these bricks were surrounded with soil and woody plants, shrubs and small trees. All of that (except the bricks) were removed during the recent construction. Also, there was a brick flower bed adjacent to the back fence, which has remained in place. I cannot determine a volume of the soil removed at this specific location, but it is my opinion that soil has been removed from this property at this location, rather than being added. Therefore it is my opinion that the requirement for compensatory storage has been met.

The back yard of this property is located in the floodplain of the Canadian River. The profile included in the Cleveland County FIS was used to determine that the base flood elevation (BFE) at this property is 1100.0 feet NAVD '88. The floor of the residence is at an elevation 1100.40 feet, and the elevation of the surface of the concrete pad and other areas of the back yard range from a lot of 1099.32 feet to a high of 1099.92 feet. The top of the manhole is at an elevation of 1100.89 feet.

Therefore, the greatest floodplain depth in this yard is 0.68 feet (approximately eight inches. The greater length of the side yard for this property is approximately 42 feet. The size of the portion of the floodplain of the Canadian River is much greater, being 2400 feet +/- from this yard to the boundary of the City of Norman, and the floodplain of this river extends a significant distance into the Town of Goldsby. Consequently, this work will have no measurable effect on the floodplain of the Canadian River at any point in this community. Certainly, the BFE will not increase more than 0.05 feet as required by applicable regulations.

Floodwater entering this property will create a situation know as back-water, which has no significant velocity. Therefore the flow of water across this property will be insignificant. Water will enter this property as the flood water rises and will flow outward as the floodwater decreases. The manhole that exists adjacent to the back fence and the area around it is at an elevation that will block flow across the back fence line for a distance of about 70 percent of the width of the property. There are openings when water can flow under the rear gate and from or to adjacent yards by flowing under the fence.

The floodwater from the river would likely be slow to rise and fall due to the large drainage basin being drained by the river. Likely, the time of concentration for flow from the headwaters of this river to this specific location will be measured in days and not minutes, as is commonly experienced within this city. Consequently, the storage volume provided by this yard will be slow to fill or to empty; therefore, flow rates into and out of this yard will be low, and even a small opening under the fences will be adequate. This discussion is provided to show that the storage volume provided by this yard will still be effective.

Several photographs and exhibits are attached hereto, and a list of these is found on the following page. Please contact me for questions or to request additional information.

I am thanking the Staff and Floodplain Committee for considering this application, and it is my recommendation that this application be approved.