MEMORANDUM

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TO: Olivia Whittaker, P.E., CFM

CC: David Phan, P.E., CFM

FROM: Jeremy D. Dixon, P.E., CFM, Maria C. Velazquez, E.I.T., CFM

SUBJECT: FP23-04 – 6050 Belt Line 2nd Submittal

DATE: February 5, 2024

PROJECT: DWU22105 - Dallas Floodplain Reviews

Freese and Nichols, Inc. (FNI) has reviewed the second submittal of the Fill Permit Application dated October 2023 by Kimley-Horn and Associates, Inc., (KH). FNI received the submittal from the City of Dallas (City) on February 5th, 2024, and included a Fill Permit Application form, a Fill Permit Application, H&H Models and Drawings. The Fill Permit Application was previously reviewed by the Dallas Water Utilities (DWU), providing comments to KH on August 25, 2023. City requested that FNI review and confirm no major errors with the review process and the submittal provided.

This review is not considered all-inclusive and does not relieve the Owner, Developer, Responsible Engineer and/or Surveyor from the due diligence necessary for completion of all aspects of the project according to the City's Ordinances, Regulations, Design and Construction Criteria, and Development Standards.

Review Summary

In general, DWU's review of the proposed improvements was confirmed satisfactory based upon our review. The conclusion of no negative impacts to the floodplain is legitimate and the conclusion holds regardless of various preference-based modeling techniques used to evaluate the impact of the floodplain fill. We agree with the comments made by DWU and acknowledge that KH has satisfied the requirements of the fill permit process. Furthermore, supplemental review performed under this assignment is documented below:

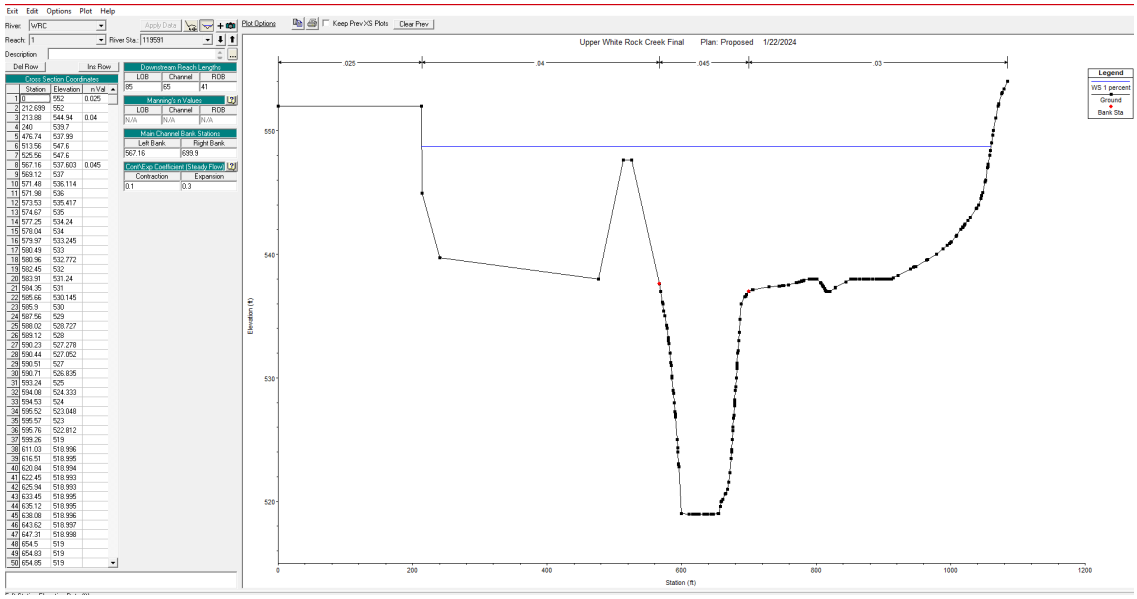
Additional review:

1. The flow files used in the HEC-RAS models for White Rock Creek and Kiowa Branch were cross-checked with the results from the HEC-HMS WRC_CON_ULT basin. A comparison was made between the effective flows from "WRC 2015" and the adjusted flow files that take into account the modifications to the Kiowa Branch KIO_R04 routing reach. This comparison confirmed the accuracy of the corrected flows for the models, and it was found that the results did not alter the final conclusion.

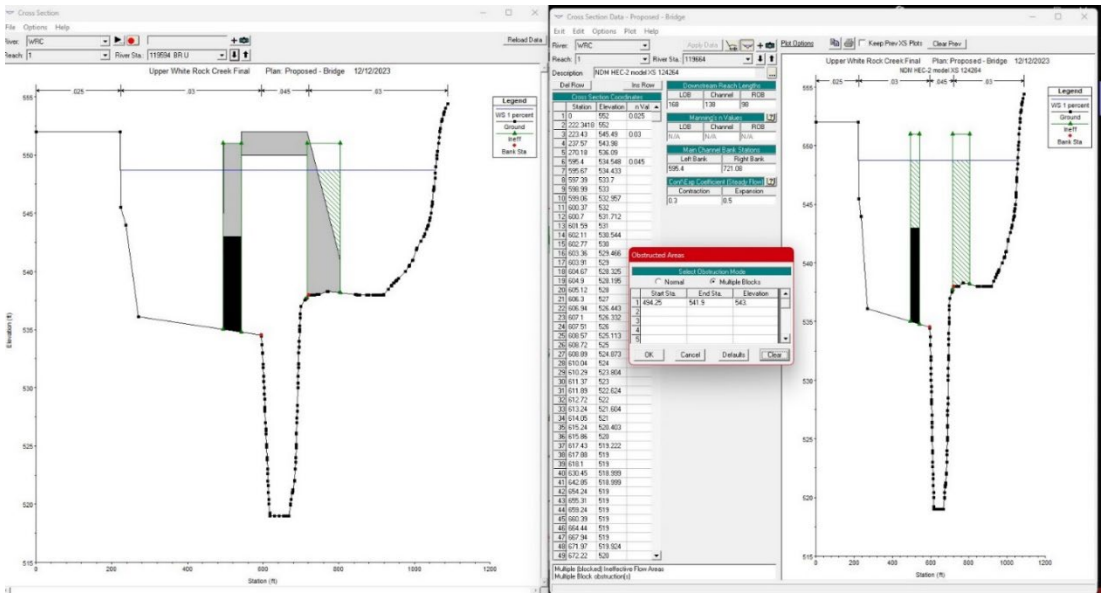
2. It was verified that the erosive velocities for the UWRC HEC-RAS model did not show any

increase for smaller storm events when comparing the revised existing conditions and proposed conditions for both scenarios - without a pedestrian bridge and with a pedestrian bridge.

3. In the proposed conditions model for the scenario without a bridge, cross section 119591 (referenced below) was eliminated. This was done to ensure that there were no negative alterations between the revised existing and proposed conditions results, in the event that the proposed grading for the pedestrian bridge is excluded. This modeling preference did not alter the final conclusion.



4. In the proposed conditions scenario that includes a pedestrian bridge, the blocked obstruction at cross section 119664 (referenced below) was eliminated. This modeling preference did not alter the final conclusion.



5. FNI reviewed valley storage, Manning's n, reach lengths, contraction/expansion coefficients, bank stations and ineffective areas for all plans. All hydraulic parameters met City criteria and are consistent with standard practice.

6. The Dallas Design Manual (DDM) detention/retention analysis section, Section 2.3.1.3, states that increases in discharge or erosive velocities are considered not to occur when the "channel velocities do not exceed the permissible maximum velocity at any location within the downstream assessment for the 1%, 2%, 10%, or 50% annual chance events". The 10-year storm has minor velocity increases (no greater than 0.03 ft/s) at cross sections 2391, 2210, and 2020 for the Kiowa Branch model. Given that the 10-year velocity increases are beyond the requirements necessary to fulfill the floodplain fill permit, and a broader interpretation of the DDM is required to make them applicable in this case, KH should address these velocity increases as part of the final design as appropriate.

DWU comments not addressed:

7. As mentioned in DWU Comment 17, "There are two duplicate effective plans for Kiowa Branch. Please clarify which plan is correct and delete the other". KH Response: "KH has removed incorrect duplicate effective plan from the Kiowa Branch model". However, upon review of the Kiowa Branch HEC-RAS model, the two duplicate plans were present. Please remove additional plan.

   Addressed, 2nd Submittal.

City of Dallas 10-Point Floodplain Criteria:

8. Please address the following criteria that are noted as "Fail" below.

The process of addressing the above comments may require significant changes to the approaches used in this study. As such, the next submittal will be reviewed again with the same level of detail as a first submittal.

City of Dallas 10 Point Floodplain Criteria Review	Pass/Fail
Criterion 1: No increase in water surface elevation upstream, downstream, or through the project area.	Pass
Comment:	
Criterion 2: No creation or increase of erosive velocities off-site. The mean velocity of stream flow at the downstream end of the site after fill may not exceed the mean velocity of the stream flow under existing conditions.	Pass
Comment:	
Criterion 3a: Effects of the existing and proposed public and private improvements will be used in determining water surface elevations and velocities.	Pass

City of Dallas 10 Point Floodplain Criteria Review	Pass/Fail
Comment:	
Criterion 3b: Alteration of the floodplain area may not cause any additional expense to current or projected public improvements	Pass
Comment:	
Criterion 4: The floodplain area may be altered only to the extent permitted by equal conveyance reduction on both sides of the natural channel.	Pass
Comment:	
Criterion 5a: For areas within a council-adopted management plan with valley storage regulations, provided valley storage complies with the plan.	N/A
Comment:	Project area is not within a council-adopted management plan.
Criterion 5b: For areas not within a council-adopted management plan: No loss of valley storage along a stream with a drainage area of 3 square miles or more. Valley storage losses with a drainage area between 100 acres and 3 square miles may not exceed 15% loss as calculated on a site by site basis. Valley storage losses along streams with a drainage area of less than 100 acres are not limited. Valley Storage Maintenance form is provided.	Pass
Comment:	
Criterion 6: An environmental impact study and a complete stream rehabilitation program must be approved before relocation or alteration of the natural channel or alteration of an environmentally significant area, or area deemed to house threatened or endangered species. The net environmental impacts of the proposal may not be negative.	N/A
Comment:	
Criterion 7: The toe of any fill slope must parallel the natural channel to prevent an unbalanced stream flow in the altered floodplain area.	Pass
Comment:	
Criterion 8: To ensure maximum accessibility to the floodplain area for maintenance and other purposes and to lessen the probability of slope erosion during periods of high water, maximum slopes of the filled area may not exceed 4:1 for 50% of the length of the fill and 6:1 for the remaining length of the fill. The slope of any excavated area may not exceed 4:1 unless the excavation is in rock. Vertical walls, terracing, and other slope treatments may be used provided no unbalancing of stream flow results and the slope treatment is approved as part of a landscaping plan for the property.	Pass
Comment:	Proposed slopes do not exceed 4:1

City of Dallas 10 Point Floodplain Criteria Review	Pass/Fail
Criterion 9: The elevation of excavated areas in the floodplain area may not be lower than 1/3 of the depth of the natural channel, as measured from the adjacent bank. Excavation must be at least 50 feet from the bank of the natural channel, except as necessary to provide proper drainage.	Pass
Comment:	
Criterion 10: A landscape and erosion control plan must be submitted and approved.	Pass
Comment:	
Note: The above conditions are based the applicants current modeling and reporting. Changes in approach as a result of these or additional comments may affect these conclusions.	