October 9, 2023

Shawn Cross
Project Manager
KCMO WSD

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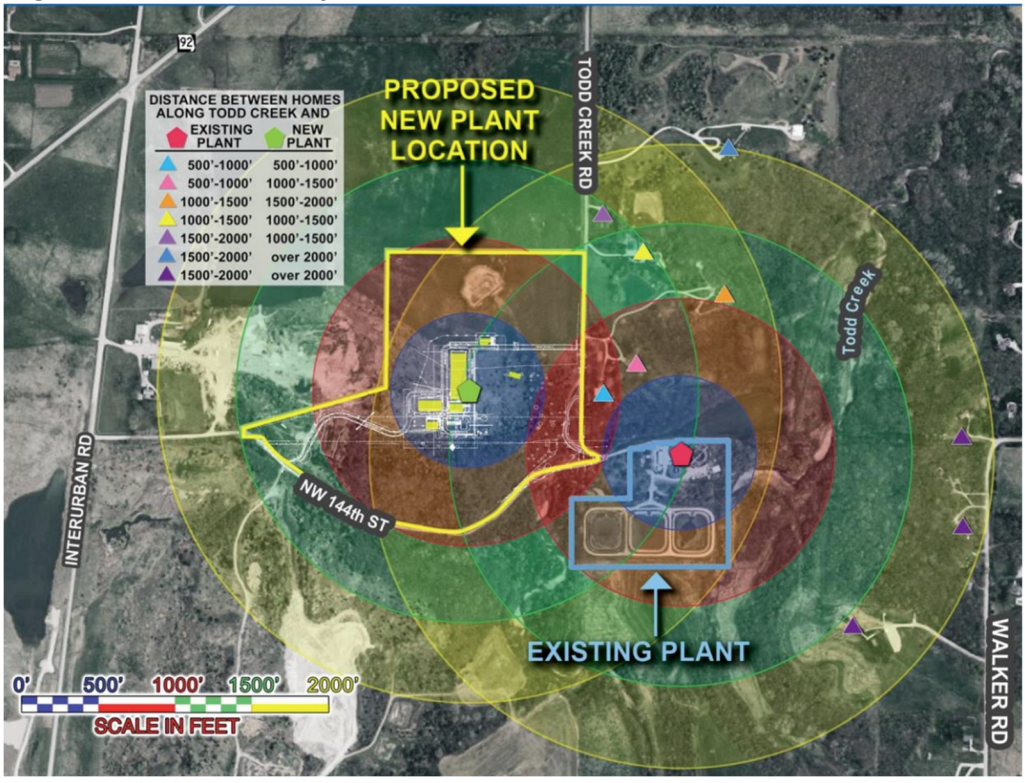
Re: Todd Creek WWTP – Alternative Site Evaluation
Burns & McDonnell Project No. 125460

At the direction of KC Water (KCW), Burns & McDonnell performed a concept-level evaluation of relocating the planned Todd Creek WWTP (TCWWTP) to one of two potential alternative sites. The evaluation considers the viability of the two site as well as the effects of relocation on design and construction cost and schedule. This evaluation also identifies key assumptions that could affect the outcome of a change in project location.

BACKGROUND

The new WWTP is currently planned to be constructed within a site owned by Hunt Midwest. The planned property measures approximately 61 acres, which allows for large setbacks, room for expansion, and captures smaller parcels that the project might otherwise leave orphaned. The project site is immediately to the NW of the current Todd Creek facility (see Figure 1)

Figure 1 – Planned Project Location



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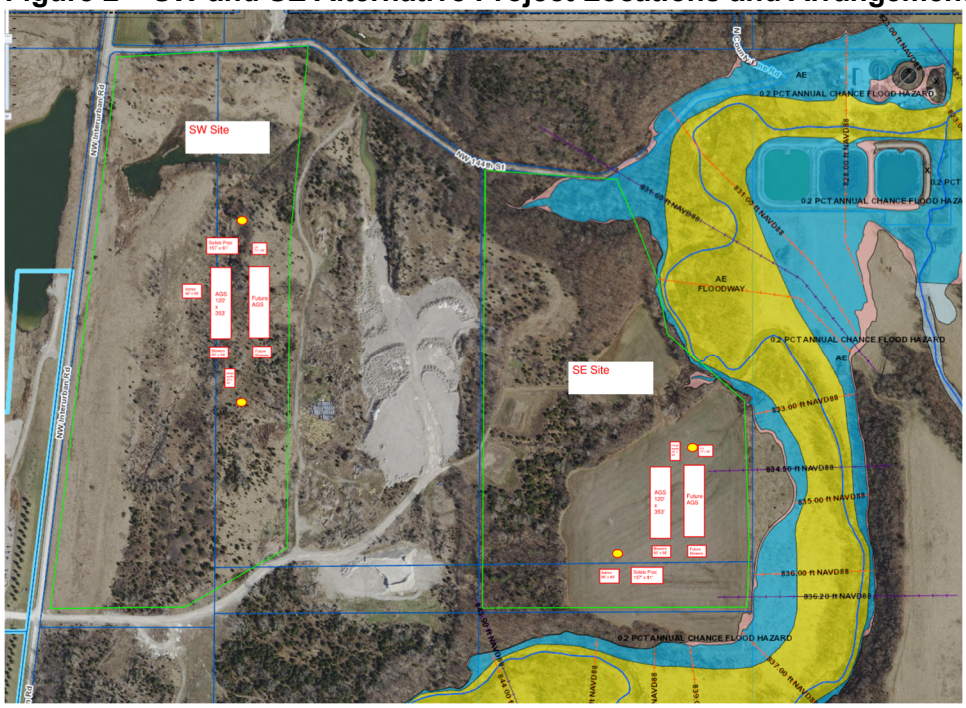
The design of the new 4.6mgd ADF facility is at 100% and the Issued for Bid set can be provided to KCW within approximately 3 weeks of such a request.

In response to public requests, the City requested that Burns & McDonnell investigate the cost and schedule impacts of moving the project to one of two properties as shown in Figure 2 below.

Figure 2 – SW and SE Alternative Project Locations and Arrangements



The results of the investigation are provided in the sections below.

SITE ACCESS, SIZING AND FUTURE EXPANSION

SW Site – this site includes 2 existing parcels with a combined area of approximately 118 acres. The proposed and ultimate Todd Creek WWTP will fit using approximately 29 acres. The Southwest site includes 500ft setbacks to the west, north and south. The parcels that make up this proposed site are all owned by a single entity. Site access would be off Interurban Road or NW 144th Street.

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SE Site – this site includes 2 parcels with a combined area of approximately 72 acres. The proposed and ultimate buildout Todd Creek WWTP will fit the project using approximately 30 acres, not including a 500ft setback to the west and north. The parcels that make up this site are owned by a single entity. Site access would be off Interurban Road or NW 144th Street.

Neither of the two sites sit within the reported 100- for 500- year floodplains.

POTENTIAL IMPACT ON PROJECT SCHEDULE

Construction Schedule – because the earthwork required is much more significant at the two alternative sites compared to the current site, more construction time is anticipated. In particular, the earthwork at the SE site includes fills of more than 25 feet, which will require time for consolidation of the soils. These factors suggest an increase in construction schedule of 6 months or more for the SE site, and an increase of potentially 3 months for the SW site, depending on a variety of factors.

Engineering Schedule – many elements of the design would require revision, including new site survey, new geotechnical investigation, site civil redesign, redesign of the primary and secondary power supply, and other discipline modifications and coordination. In addition, revision and resubmittal of the facility plan, permitting documents and other documents to MDNR will be required. KC Water has indicated that onsite field activities such as the necessary geotechnical work would not begin until after the property acquisition was complete. Because of these factors, the overall impact on project schedule is provided in Table 1 below.

Table 1 – Potential Schedule Impacts from Alternative Site Locations

	SW Site	SE Site
Total	26 months	21 months

POTENTIAL IMPACT ON PROJECT COST

Construction Cost - A preliminary grading plan for each site was developed which would allow the relative elevations for each unit process and building to remain the same as exists in the current design. Preliminary revised alignments for the influent force main and effluent gravity line were established. Preliminary site access road alignments were also developed. These items represent the major changes that would allow the existing design to be integrated into the alternative sites. The material quantities for this changed work were developed and compared

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to the same categories of work previously developed in the Opinion of Cost at 100% design for the current project. In addition, the impact on project schedule will result in an increase in construction costs simply due to inflation in the price of equipment, materials and labor.

Engineering Cost – Key engineering efforts required to adapt the existing project to a new site would include a complete redesign of the site civil design, redesign of the primary and secondary power supplies brought to the site by Evergy, and a complete redesign of the influent force main route and effluent line and outfall. Site security and fiber optic line routing would be redesigned. The lower elevation of the TCWWTP would reduce the size of the influent pumps. The redesign cost of the pumps and VFDs were included in the redesign cost, but any potential downsizing of the influent pump station structures was not considered in order to support larger flowrates as the watershed develops.

Table 2 provides a summary cost impact on the project if either of the alternative sites were chosen.

Table 2 – Potential Cost Impacts from Alternative Site Locations

	SW Site	SE Site
Total	$11.9M	$14.0M

EXISTING SITE – IMPROVEMENT COSTS

During discussions with KC Water, various measures were discussed to further address public concerns while keeping the current project site. Burns & McDonnell was asked to develop potential costs to cover the AGS basins, and costs to significantly increase the amount of vegetative screening along Todd Creek Road.

Cover for the AGS Basins – based on budget-level pricing from cover manufacturers, it is projected that covering all 4 AGS basins and allow operator access would cost at least $10.8M. This would also raise the height of this section of the AGS basins by approximately 15 feet considering the entire top of the basins would need to be enclosed and walkable. Offensive odors are not expected to be generated from these basins, so a cover would serve only cosmetic purposes.

Increased Vegetative Screening – a budget cost for adding approximately 100 trees along Todd Creek Road, arranged on 5-6ft tall earthen berms to maximize screening early in the project, is projected to cost approximately $180,000. KCW will need to provide care for these

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trees, in particular early in the life of the facility, to assure that the screening is successful. If screening is needed on other property borders, this cost would increase.

EQUIPMENT COST INCREASES

One cost impact that KCW risks regardless of site selection is the potential cost increases if the project is bid too late in this year. In this scenario, if the bid opening date is pushed to an early 2024 date, equipment vendors would likely begin to use higher pricing than was provided in 2023 for the 100% opinion of construction cost. In discussions with multiple equipment providers, the cost increases ranged from 3.5% up to 15% depending on the specific equipment. The design team used this information to project that the potential equipment cost impact to the project if bid prices utilize 2024 pricing to be approximately $2.1M.

ASSUMPTIONS

The development of cost and schedule impacts for this letter report included many assumptions necessary to produce information in a short time frame. The following items describe assumptions and their potential consequences to the findings of this document:

1. No survey was performed on the alternative properties. Elevations were taken from public sources. Actual conditions might vary from what was obtained for this report, consequently impacting design and construction costs and schedule.

2. No geotechnical investigation was conducted. The reported elevation of groundwater and rock reported near the planned Influent Pump Station was assumed to match conditions at the alternative sites. If actual conditions differ, this could have a significant impact on design and construction costs, as well as construction duration.

3. No site investigation regarding historical uses of the property, existence of wetlands, endangered species habitat, or cultural resource was performed on either property. The presence of any of these elements could have an impact on the suitability of these alternative sites.

4. Property costs have not been included in this analysis.

5. The availability of survey and geotechnical field crews can substantially affect the time needed to complete redesign efforts. If these field efforts are delayed, the overall project schedule may also be delayed.

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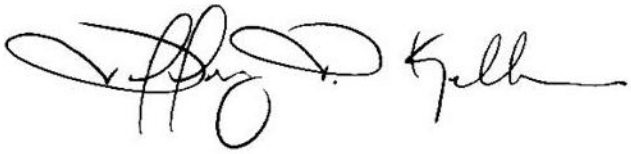
Please note that opinions of probable costs and schedule are based primarily on our experience and judgement as a professional consultant combined with information from past experience, vendors, and published sources. Burns & McDonnell has no control over weather, cost and availability of labor, material and equipment, labor productivity, construction contractor's procedures and methods, unavoidable delays, construction contractor's methods of determining prices, economic conditions, government regulations and laws (including the interpretation thereof), competitive bidding or market conditions and other factors affecting such opinions or projections; consequently, the final project costs and schedule will vary from the opinions of costs presented in this letter report. If KC Water wishes to further pursue either of these alternative sites, a more detailed evaluation is recommended to more fully define the cost and schedule impacts.

If more information is desired by the City, I would be happy to discuss at your earliest convenience.

Sincerely,



Jeff Keller, PE
Project Manager

cc: Blake Anderson, KC Water
Project File 125460
Willie Williams, Burns & McDonnell

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