Case Name: South Thornton Lift Station
Case Number: RCU2019-00050

October 3, 2019

The Adams County Planning Commission is requesting comments on the following application: conditional use permit to allow a public service use (lift station) in the Agricultural-1 zone district. This request is located at 7150 York Street. The Assessor’s Parcel Number is 0182501200072.

Applicant Information: BRENDA ADAMS, METRO WASTEWATER RECLAMATION DISTRICT
6450 YORK ST
DENVER, CO 80229

Please forward any written comments on this application to the Community and Economic Development Department at 4430 South Adams County Parkway, Suite W2000A Brighton, CO 80601-8216 or call (720) 523-6800 by 10/25/2019 in order that your comments may be taken into consideration in the review of this case. If you would like your comments included verbatim please send your response by way of e-mail to GJBarnes@adcogov.org.

Once comments have been received and the staff report written, the staff report and notice of public hearing dates may be forwarded to you upon request. The full text of the proposed request and additional colored maps can be obtained by contacting this office or by accessing the Adams County web site at www.adcogov.org/planning/currentcases.

Thank you for your review of this case.

Greg Barnes
Planner III
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Item 3: Written Explanation of the Project

The Metro Wastewater Reclamation District’s (Metro District or District) Thornton North Washington (TNW) Lift Station has reached the end of its useful life and needs replacement. A new lift station is proposed to replace TNW. The new lift station will be referred to as the South Thornton Lift Station (STLS). The Metro District discussed the project with the County at the Conceptual Review Meeting on April 1, 2019. The following sections describe the project and how the proposed use is consistent with the purposes of the Adams County Development Standards and Regulations.

The TNW Lift Station was originally constructed and put into service in 1967 and has been upgraded and modified through six previous projects. The lift station receives flow from the District’s South Thornton Interceptor and two North Washington Street Water and Sanitation District Interceptors. Wastewater flows from the TNW Lift Station are conveyed to the Robert W. Hite Treatment Facility (RWHTF) for treatment. The District completed the Study Phase for the TNW Lift Station in February 2018. The Study included a condition assessment of the existing lift station and produced a Final Study Report resulting in the District’s decision to build a new Lift Station as a replacement immediately adjacent to the existing facility.

An increase in capacity is not proposed for the replacement lift station, which will be designed to meet the original specifications of the existing facility and provide system reliability and improved functionality as critical infrastructure to the District’s sewer network. The existing facility is planned for demolition following the construction and commissioning of the STLS in 2022.

The Project is currently in the design phase with a focus on layout evaluations, stakeholder outreach, surveying, land acquisition, and permitting. The primary benefits of the project include:

- Continued function of critical infrastructure
- Improved system reliability
- Increased safety
- Improved operations and maintenance

PROPOSED FACILITIES

The Project elements for the STLS include the following:

- A new lift station is proposed as a replacement immediately adjacent to the existing station consisting of pipe connections, grinders, pumps, valves, flow meters, vaults, and biofilter.
- The rated capacity of the existing lift station is 39 million gallons per day (MGD). The rated capacity of the replacement lift station will likely decrease.
- Supporting systems include HVAC, electrical, controls, site access, and security.
- Connection to the existing 60-inch South Thornton Interceptor pipe will divert flow to the replacement station.
- Connection to the existing 24-inch diameter North Washington sewer pipe will send flow to the replacement lift station.
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- Connections to the two existing 42-inch diameter force mains will send flow from the replacement lift station to the Robert W. Hite Treatment facility.
- Demolition of the existing lift station will follow commissioning of the replacement lift station.

STLS will have dual wet wells designed to minimize the need for maintenance allowing one wet well to be isolated and taken offline if needed during maintenance activities and still have a functioning lift station. Each wet well (and the associated pumps and piping) will be designed to accommodate average and maximum daily flows so there will be no disruption to service while maintenance activities are performed. During normal operation, both wet wells will be in service.

For access and safety, a grating walkway from the grinder vault to the wet well will be provided. The walkway will allow the maintenance staff to safely enter the wet well to perform routine maintenance and washdown activities. A vacuum truck may be needed periodically to help remove debris from the wet well. To minimize the onsite cleaning effort of bringing hoses from grade to the lower levels of the station, the STLS shall be equipped with a vacuum piping header. This header will provide a quick connection at grade for the vac truck and a quick connection at the lower levels for the vacuum hoses. The vacuum header will include numerous cleanout fittings and flushing points to remove potential solids from the piping.

The new lift station will have similar flow metering and sampling facilities to the existing lift station through utilizing much of the existing infrastructure. The lift station will be designed with an odor control system utilizing biofiltration technology of the air space.

For improved system reliability and operations, the STLS will have a new control system, ethernet communications, a new uninterruptible power supply, and an on-site standby generator with an automatic transfer switch. Proximity card readers and/or keypads will be used to allow access to the site. Alarms will be tied to the SCADA to the RWHTF. The exterior of the building will be monitored using video technology and the interior of the building will equipped with door sensors and motion detectors. The entire perimeter of the site will be fenced with two locking vehicle access gates.

Metro will submit the design of the STLS for review to receive approval for construction documentation through Adams County Development Engineering Services.

BUILDING

The 2018 International Building Code (IBC) along with the 2017 National Electric Code, with Adams County Amendments, will be the adopted code for the design of the STLS. The architecture for the new lift station building will be compatible with the surrounding area, harmonious with the character of the neighborhood. The appropriate building permits will be acquired prior to construction.

The standards and requirements for Low Impact Development (LID) will be incorporated into design where applicable. Opportunities to implement sustainable development practices will be limited due to the highly specialized function of a lift station. As a wastewater conveyance facility, the water bearing structure will be designed to meet the requirements of the American Concrete Institute. Above-grade structures must be secure and have multiple fail-safe systems in place to maintain operation and minimize down time. A backup power generator will be located inside the perimeter fence.
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PROPOSED PROJECT SITE

The existing TNW Lift Station is located at 7150 York Street in unincorporated Adams County, Colorado. Entrance to the Lift Station is accessed by a private dirt road and is not visible from York Street or East 74th Avenue. The area is surrounded by natural vegetation with Clear Creek to the north, South Platte River to the east, open land to the south, and Colorado Parks and Wildlife wetland areas to the west. North of Clear Creek is an industrial sand and gravel business and staging area. South of the open land is Interstate-76. There is approximately 400 feet of separation from the lift station property line and the interstate. Reference Item 8 Legal Description.

The existing lift station is operational and must remain in service during construction of the replacement lift station. Due to operational and site constraints, the replacement lift station will be constructed on a parcel immediately adjacent to the existing facility as shown in Attachment Item 4.

The proposed Project site is located on undeveloped property (County Parcel No. 0182501200100) adjacent and east of the existing facility (County Parcel No. 0182501200072). Boundary spacing around the structure will be similar to that of the existing lift station. The proposed site is also located within the 100-year floodplain and floodway, and as such, the new lift station superstructure access will be raised above the floodway to protect the equipment and maintain functionality of the system during storm events. The new facility will be located within the existing conveyance shadow of the current lift station and will result in a zero net rise condition following demolition of the existing facility, as described in the attached correspondence and meeting notes with the Adams County Development Engineering Services provided in Attachment Item 12. A floodplain use permit will also demonstrate suitability of the design of structures to withstand the hydraulic and hydrostatic forces during a flood condition. Access to the proposed site will be from York Street via the existing access road.

The District is acquiring approximately 1.5 acres of land that is currently within County Parcel No. 0182501200100. The legal description for the proposed site is included in Attachment Item 8. The proposed property is currently designated as Agricultural-i (A-i) zone district that allows for government-owned facilities and is the same zoning as the current lift station parcel. The site is suitable for the conditional use having adequate space, access, and absence of environmental constraints. The site plan in Attachment 4 shows the space proposed for the lift station structure with connecting pipes.

Geotechnical investigation will be completed during the design phase and the geotechnical report can be made available upon request when report is completed. The access road would remain unchanged and has served the District’s operations and maintenance needs for 50 years at the existing site. Proposed site improvements will provide for adequate access by the Adams County Fire Rescue and Metro Wastewater Reclamation District vehicles, and other emergency services. The District will continue to coordinate with Adams County Fire Rescue as well as Colorado Parks and Wildlife (owner of property to the west) as described in correspondence provided in Attachment Item 12.

An Environmental Natural Resources Evaluation of the proposed site has been conducted which includes an evaluation of the site’s general description, observed and potential habitat for threatened and endangered species, the presence of wetlands and other Waters of the United States, and general wildlife observations. The review concluded the proposed site does not have wetlands or suitable habitat for federally and state listed threatened, endangered, and sensitive species and that coordination with the
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USACE, USFWS, and CPW will not be necessary for the project. Reference Attachment Item 11, Natural Resources Evaluation, for results of the environmental study.

SITE DEVELOPMENT

The site was previously used as a landfill for materials from a sand and gravel operation designated by Adams County as FID 195. The adjacent property just east of the site is designated as former Landfill AD-042 and was filled with construction demolition debris and coal ash. Though the waste streams of these former landfills are not typically associated with methane gas generation, other wastes may have been co-disposed of that could produce methane. The backfill materials found on site are described in the geotechnical investigation and flammable gas investigation.

The Tri-County Health Department (TCHD) has recommended a Flammable Gas Investigation Plan (FGIP) should be implemented to evaluate if methane gas may potentially be present as of a result of previous landfill and nearby landfills. The FGIP has been drafted and was approved by TCHD on August 13, 2019. In compliance with TCHD recommendations, sampling will be performed during well installation and subsequent monitoring will be performed on a minimum of three wells. Monitoring results will be summarized during the design phase and submitted to TCHD, as described in correspondence included in Attachment Item 12. Pre-construction methane monitoring will be performed by the design consultant's geotechnical team. Sampling is currently ongoing, and results will be provided to TCHD when available. Construction monitoring, if required, will be performed by the Construction Contractor.

SITE ACCESS

An existing unnamed gravel/dirt road, south of Clear Creek and north of the existing lift station, provides vehicular traffic access to the existing lift station site east of York Street. Traffic conditions of the access road are summarized in the exemption for traffic study memorandum listed in Attachment Item 10. This same road will provide access to the STLS site with a proposed turn in constructed with this project. A new access gate will be constructed with the perimeter chain link fence. Reference Attachment Item 8, Legal Description, for details on the permanent easement for access.

A new eight-foot perimeter chain link fence with barbed wire is proposed for the boundaries of the property. A 24-foot manual security gate will be located along the north side of the new property. Once inside the perimeter chain link fence, pavement will be placed to provide a stable surface for equipment delivery and maintenance vehicles. Adequate room will be provided for maneuverability and circumferential access for a utility pickup truck. The design will also include consideration for emergency vehicles and construction access using Autoturn or similar software. The design vehicle will be coordinated with the District and regional suppliers. Asphalt pavement will be designed for H-20 loads per the standards of the Colorado DOT and/or AASHTO. Slopes will be limited to 8 percent for paved roads and 12 percent for gravel roads. Other geometric road criteria will be determined based upon space constraints, design vehicle and weight, anticipated vehicle speed, utilities, and potential exclusion areas. Three parking spaces will be provided for maintenance staff. Utilities in traveled roadways will be designed for H-20 loading.
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UTILITIES

The Project will include the installation of various utility connections including, water, fiber optic communications, electrical, and natural gas utilities in addition to the influent interceptor and effluent force main connections. These utilities will be designed in accordance with Metro District and industry standards, including AWWA, ASTM and ANSI. Buried pipelines located in roadways will be designed for both the soil loading using the appropriate soil properties from the Geotechnical Report and maximum expected vehicle (H-20) loadings. Bury depth for pressure water pipelines will assume a maximum frost penetration depth of five feet.

An existing 6-inch potable water line runs east-west along the north side of the site in the access road. A new 2-inch connection will provide service water to the new lift station site. The existing fire hydrant outside the perimeter fence will be used for fire protection. The service line will flow through a new meter pit located outside the perimeter fence. The 2-inch water line will be Type K copper tube with soldered fittings in accordance with Metro District design standards.

Where potable or process utilities cross a non-potable water system that could pose a contamination risk, minimum separation of water sources will be provided as outlined in the State of Colorado Design Criteria for Potable Water Systems. Generally, the requirements for minimum separation of water line and sanitary sewer lines is 10-foot horizontal and 18-inch vertical. For other utility crossovers of concern such as water over chemical services, the same guidelines will be followed and/or encasement will be provided.

The new lift station will be provided with a unisex bathroom facility similar to the bathroom facility currently available at the TNWLS. The sanitary sewer line will be routed to the lift station influent manhole or directly to the wet well.

Electrical service for the new lift station will include two new transformers inside the perimeter fence. The existing lift station has a power drop from overhead lines to an existing transformer pad at the northwest corner of that site. An existing 4-inch fiber optic conduit runs east-west along the access road north of the site, along the Thornton Force Main Parallel alignment. The Project includes the installation of new fiber optic cable from the new lift station to the RWHTF through this existing corridor.

There is an existing 1.5-inch natural gas line running east-west just south of the existing access road. Natural gas service for the new lift station will be provided by extending this line east to the new lift station. Piping shall be polyethylene (PE) and include a PE ball valve. Just inside the fence boundary shall be a new gas meter. The gas shall be supplied to the air handling units located on the roof of the new lift station.

DEMOLITION

Demolition will consist of removal of all above ground facilities and site features required to accommodate the new facilities. In some cases, existing site utilities will need to be relocated.