



STAFF REPORT

Board of Adjustment

CASE #: AH-1747-18

BOA Date:	August 3, 2018	Case Planner:	Steve Timms	Phone:	303.227.8816
Location:	6450 York Street, Commerce City, CO 80022				
Applicant:	Metro Wastewater Reclamation District 6450 York Street Commerce City, CO 80022		Owner:	Same as Applicant	

Case Summary

Request:	The Metro Wastewater Reclamation District (MWWRD) is proposing to construct a new Pre-dewatering Phosphorus Recovery (PDPR) facility that is 83-feet tall.
Project Description:	The MWWRD operates a water treatment facility at the subject property. The state (CDPHE) has adopted new regulations concerning nutrient management control regulations. In order to meet these requirements, MWWRD would like to obtain approval for a project that would install a facility that reduces the potential for nuisance struvite (magnesium ammonium phosphate) within the solids process at the facility and improves dewaterability of the biosolids to agricultural users. The proposed new facility will allow them to meet increased demand, comply with state regulations, and provide greater operational efficiency.
Issues/Concerns:	• Compliance with other regulatory agencies. • Compliance with the height exception approval criteria.
Key Approval Criteria:	• Compliance with other regulatory agencies. • Compliance with the height exception approval criteria.
Staff Recommendation:	Approval
Current Zone District:	I-3 (Heavy-Intensity Industrial Zone District)
Comp Plan Designation:	Utility

Attachments for Review: *Checked if applicable to case.*

- ☒ Applicant's Narrative Summary
- ☒ Site Plan

- ☒ Vicinity Map
- ☒ Facility Elevations

Background Information

Site Information	
Site Size:	135 +/- acres
Current Conditions:	The site is currently developed as a regional water treatment facility.
Existing Right-of-Way:	York Street on the west
Neighborhood:	Riverside
Existing Buildings:	There are a number of buildings and structures (100+) on the subject property that help facilitate the applicants operations.
Buildings to Remain?	☒ Yes ☐ No
Site in Floodplain?	☐ Yes ☒ No

Surrounding Properties			
Existing Land Use		Occupant	Zoning
North	MWWRD Office	Metro Wastewater Reclamation District	ADCO
South	Industrial	Denver Water & Multiple Industrial Users	Public & I-3
East	Industrial	Suncor Refinery and Storage	PUD
West	Industrial	Xcel Energy – Cherokee Power Plant	ADCO

Case History

The relevant case history related to the subject property has been detailed below.

<u>Case</u>	<u>Date</u>	<u>Request</u>	<u>Action</u>
CU-37-93	10/18/93	Approval of a Conditional Use Permit for a Wastewater Treatment Facility	Approved, with 1 condition
CU-37-93-10	8/9/10	Approval of a modification to the approved site development from 1993.	Approved, with 1 condition
AH-1737-17	1/10/17	Approval of a Height Exception to allow a 87-foot tall Biosolids Dewatering and Storage Facility (BDSF)	Approved

CU-37-93:

In October of 1993, the City Council approved a Conditional Use Permit to operate a water treatment facility subject to the condition that any change to the proposed development of the property at that time had to be approved via a Conditional Use Permit amendment.

CU-37-93-16:

In August of 2010, the City Council approved a Conditional Use Permit amendment to allow the applicant to modify the configuration of their operations to meet federal standards. The approval was granted subject to the condition that the applicant remain current with all necessary permits required by their regulating agencies. To date, the applicant has been compliant with this condition.

AH-1737-17:

In January 2017, the Board of Adjustment approved a Height Exception application to allow the applicant to construct an 87-foot tall new biosolids dewatering and storage facility (BDSF). This construction bid for this facility has been awarded and a building permit is under review for this facility.

Applicant's Request

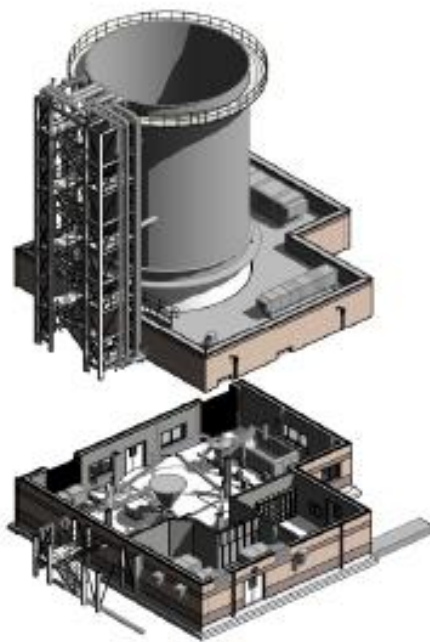
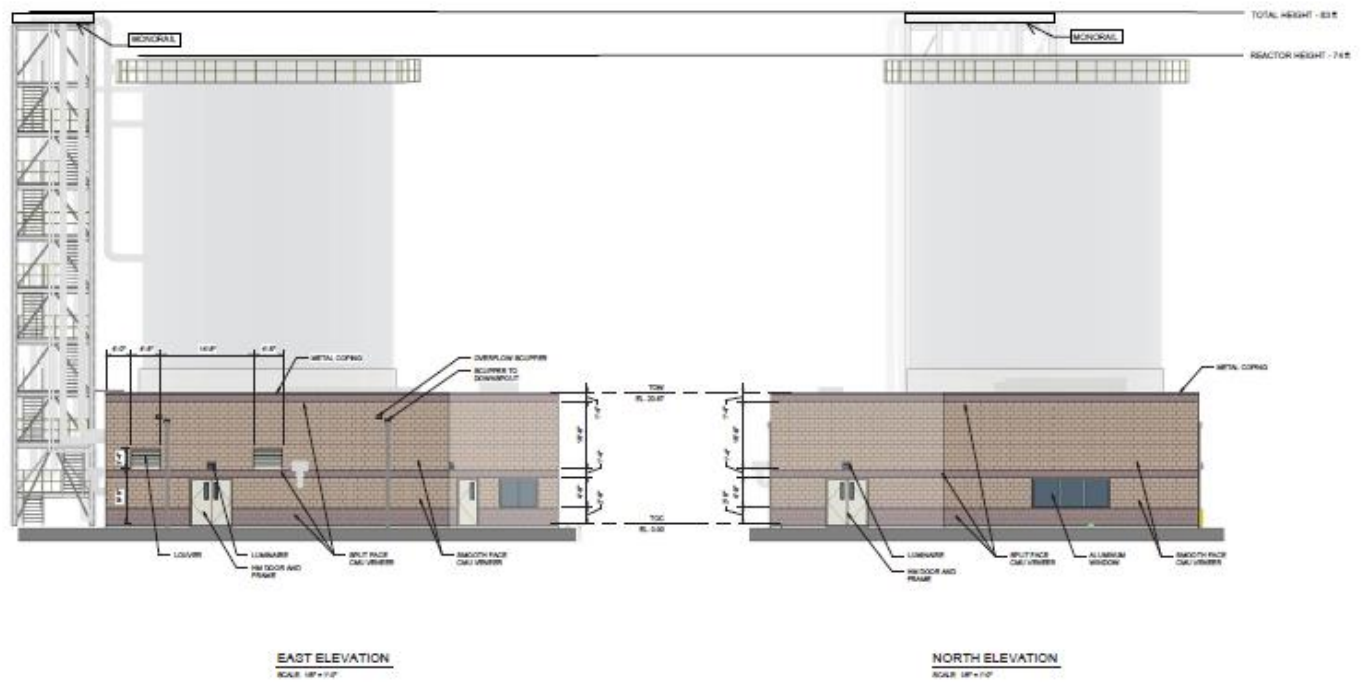
The Metro Wastewater Reclamation District's (MWWRD) Service Area includes the City and County of Denver, parts of Adams, Arapahoe, Douglas, Jefferson, and Weld counties. The District serves 22 municipalities, 26 special connectors, and 2 corporate connectors. South Adams County Water and Sanitation District is a member municipality and serves Commerce City. By approving the proposed height exception, the Metro District can more efficiently process and handle solids from the wastewater treatment processes and continue to meet the ongoing growth in the Denver and Commerce City areas.

Wastewater (from homes, businesses, and industries) is conveyed to the Robert W. Hite Treatment Facility (RWHTF) for treatment continuously every day. Influent wastewater flows average nearly 135 million gallons per day. The treatment process generates waste material called sludge, which is continuously produced and treated. Treated sludge, called biosolids, is produced at a rate of approximately 1,000 gallons per minute, which equates to approximately 1.4 million gallons of biosolids generated per day. Treatment consists of stabilizing the organic matter and reducing disease causing organisms (pathogens) within the material. The dewatering process is one of the last steps in the wastewater treatment process, whereby the excess water is removed from the biosolids via centrifuges. The biosolids are then recycled via land application (for crops or soils reclamation) or composting. Solids dewatering is an essential continuous operation at the RWHTF site to meet permit requirements. Interruption would significantly impact the District's ability to handle the generated material.

In June 2012, CDPHE adopted a new nutrient management control regulation (Regulation 85) establishing treatment requirements for wastewater dischargers. In order to meet CDPHE's Regulation 85, the District recently upgraded the facility to provide for biological phosphorus removal. However, biological phosphorus removal followed by digestion of solids promotes an environment that is ideal for formation of magnesium ammonium phosphate (struvite). Formation of struvite impacts the efficiency of treatment by collecting on pipe walls and reducing flow to and from processes. The purpose of this project is to install a system that reduces the potential for nuisance struvite within the solids process and improves dewaterability of the biosolids. The district has obtained site location and design approval for this project from CDPHE in April of 2018.

The Metro Wastewater Reclamation District (MWWRD) wishes to construct an 83-foot high Pre-dewatering Phosphorous Recovery (PDPR) facility, which includes a process reactor (AirPlex) located on top of a one-story building and associated access system consisting of monorails, steel walkways, platforms, and stairs, at their property addressed at 6450 York Street. The new structure will be located in the center of their site and not adjacent to any public right-of-way or neighboring properties. Ancillary equipment, such as pumps, blowers, and dumpsters, will be located in the one-story building. (see Figure 1.1). In the future, (potentially 10-20 years), a second reactor may be constructed to accommodate additional population growth within the service area. That secondary reactor would be contained under the 83 foot high limit.

Figure 1.1



3D VIEW
NO SCALE

The PDPR facility, which includes the AirPrex reactor height and structure of 83 feet is required by the manufacturer to provide the necessary treatment and performance for the removal of constituents that form struvite from the wastewater stream and convert them to a beneficially reusable fertilizer product. Formation of struvite impacts the efficiency of treatment processes by collecting on pipe walls and reducing flow to and from the system. This project can help reduce the potential and impact that Struvite causes to operations. (Example of Struvite build up- not from MWWRD-see Figure 1.2).

Figure 1.2



Alternatives were evaluated to determine the best solutions for meeting these state regulations and for the location of this facility on the site. Since the site is largely built-out, it was important to place this facility within the existing infrastructure and processes that were already occurring on site. In 2016, the District completed a Pilot Study of the AirPrex system, which demonstrated that a reduction in the orthophosphate (OP) concentration will 1) improve the BPR performance, resulting in less phosphorous discharged to the South Platte River, improving water quality of the river to benefit the aquatic ecosystem and surrounding communities, including Commerce City and South Adams County; and 2) reduce biosolids hauling and application, resulting in less truck traffic to and from the facility at approximately 2 trucks loads per day. Finally, the project will improve the efficiency of the operations of the treatment processes at the facility by reducing the amount of maintenance required to control nuisance scaling on solids process pipes and equipment. As the RWHTF is a 24 hour per day, 7 days a week facility, construction of the new facility will allow for existing operations to continue while the PDPR facility is built and equipment installed.

As it relates to odor control, the AirPrex improvements, located upstream of current dewatering centrifuges, will strip some of the gases dewatering operations currently remove, thus shifting the point at which emissions are released. The AirPrex system includes an aeration process to strip carbon dioxide from the wastewater stream, which results in the potential to also strip residual dissolved sulfides and ammonia. Dedicated odor control systems are not currently employed for the centrifugal dewatering operation and it is also expected odor control will not be required for the AirPrex improvements since the net emissions are not expected to increase with this project. This facility will be located near the center of the site, approximately 580 feet from the nearest property line, which allows for additional space for dilution of odorous compounds before they reach the fence line. Finally, the AirPrex reactor will be located much higher in elevation than the current dewatering system, allowing for more dilution and dispersion than the existing dewatering facilities, thus reducing impacts at the ground level.

Development Review Team Analysis

The Development Review Team (DRT) began their analysis by evaluating the proposal against the goals of the City's Comprehensive Plan. That analysis is provided below.

Comprehensive Planning Documents

The DRT recommendation for this case is supported by the following Comprehensive Planning Goals:

<u>Section</u>	<u>Goal</u>	<u>Description</u>
Land Use and Growth	LU 1a	<u>Future Land Use Plan (FLUP) as a Guide:</u> Use the FLUP to guide development patterns and mix of uses and amendments to the LDC.
<u>Analysis:</u>	The subject property is identified for General Industrial uses, which is consistent with the existing use and the requested height exception.	

<u>Section</u>	<u>Goal</u>	<u>Description</u>
Economic Development Strategies	ED3a	<u>FLUP to Guide Decisions:</u> Use the FLUP to guide land use decisions.
<u>Analysis:</u>	The subject property is currently being used for industrial purposes and the request is directly related to the industrial use of the property.	

<u>Section</u>	<u>Goal</u>	<u>Description</u>
Fiscal Stability	FS 2a	<u>FLUP Consistency:</u> Retain, support, and expand the community's industrial base by approving development that is consistent with the FLUP and Economic Development Strategic Plan and modifying the LDC to reflect the FLUP.
<u>Analysis:</u>	The approval of this height exception will allow the Metro Wastewater Reclamation District to continue to meet the demand for services and help keep their business in Commerce City.	

Site Layout:

The site is developed as a wastewater treatment facility. It is bounded by the South Platte River on the west and north, and the FRICO Burlington Ditch and Sand Creek on the east and south. The equipment on site includes interceptors, bar screens, grit basins, clarifiers, and aeration basins. The site is secure and is not accessible to the general public.

Need for a Height Exception:

Table IV-15 in Article IV of the Land Development Code identifies a maximum height of 50-feet in the I-3 zone district. In cases where equipment, buildings, facilities, or structures cannot meet the 50-foot maximum height requirement, the appropriate process for relief is the Height Exception process. Therefore, the applicant has submitted the requested height exception to exceed the maximum height allowed by the underlying zone district.

Due to the nature of the operations of the Pre-dewatering Phosphorus Recovery (PDPR) facility and the surrounding development on-site, the facility needs to exceed the 50-foot height maximum allowed in the I-3 zone district. The area that surrounds the proposed facility is developed with equipment that allows the District to treat wastewater. Therefore, there is a small footprint that can accommodate the new structure and associated equipment, which requires the equipment to be accommodated vertically rather than horizontally, given the engineering and technology of the AirPrex reactor. Given the height of the necessary reactor and associated accessory equipment, the

resulting build height is 87-feet. This height is below the previously approved height exception of 87 feet, and also far below the approximate heights of surrounding structures, including Xcel Transmission Towers (100 feet), Suncor Refinery (175 feet) and Xcel Cherokee Power Plant (400 feet).

Staff Analysis:

The DRT has determined that the applicant is compliant with all other land use requirements (bulk standards, industrial design standards, etc.) and all conditions that were attached to their previous conditional use land use approval. The DRT has also determined that the requested height exception is being made to incorporate a new facility that will allow the applicant to increase their capabilities in an effort to meet their current and future demands. The height of the structure (83-feet tall) is necessary based on the nature of the applicant's operations and the nature of the equipment that will be housed within. The DRT also determined that the location of the structure on the site is appropriate since it will be located at the interior of the site near where the biosolid dewatering operations currently take place. In terms of compatibility with the surrounding area, the RWHTF is located amongst heavy industrial users and the Wastewater Facility has been in place at this location for decades. Finally, these upgrades to the site are required to be in compliance with State Health Regulations (Regulation 85) and they have received state approval for this facility at this location.

Referral Responses:

The requested height exception was referred to a variety of agencies within the city and outside of the city. None of the referral agencies responded with any concerns.

Conclusion:

The DRT has concluded that the applicant is compliant with their previous land use approval as well as all of the requirements of their regulating agencies. The DRT has also determined that the Height Exception is necessary based on the applicant's operations and that the proposed structure will be located in an area that already accommodates similar operations. The proposal will bring the facility into compliance with state law, will help the operator's efficiency at the site, will help the environmental quality of the South Platte River, and will reduce the truck traffic generated at this site. Given the analysis provided above and the request's compliance with the Height Exception approval criteria listed below, the DRT is recommending approval of the request.

Criteria Met?	Sec. 21-3220. Height Exceptions	Rationale
☒	The structure and development, if applicable, complies with all other standards not specifically waived by the city;	The subject property and proposed structure do and will continue to comply with all other standards of the city.
☒	The exception would have minimal effect upon adjacent properties with respect to solar access, visual access, and rights of privacy, light, and air	There will be no effect on adjacent properties because the proposed structure will be located in the center of the site and will not impact any of the stated items.
☒	The exception will not interfere with the city's ability to provide public services to the site at the level currently enjoyed by the area, or at adequate levels per existing city policies and regulations	The proposed structure will have no impact on the city's ability to serve the subject property.
☒	There is no evidence to suggest that the exception would interfere with or complicate emergency services or otherwise impair public safety; and	There has been no indication that emergency services will be impacted by the proposed structure.
☒	The architecture and character of the proposed building or structure that will exceed the height standards are compatible with existing development on surrounding or adjacent parcels.	The height exception is being requested for a pre-dewatering phosphorous recovery facility, which is consistent with the existing equipment and operations of the subject property. The properties located around the subject property are heavy industrial in nature with structures that are hundreds of feet tall, which is consistent or taller than the proposed structure.

Development Review Team Recommendation

Based upon the analysis above, the Development Review Team believes that the application meets the criteria for a Height Exception set forth in the Land Development Code and recommends that the Board of Adjustment approve the request.

The Development Review Team's (DRT) Recommended Motion

To recommend approval:

I move that the Board of Adjustment find that the requested Height Exception for the property located at 6450 York Street contained in case AH-1747-18 meets the criteria of the Land Development Code and based upon such finding, approve the Height Exception.

Alternative Motions

To recommend approval subject to condition(s):

I move that the Board of Adjustment find that upon satisfying the following conditions:

Insert Condition(s)

the requested Height Exception for the property located at 6450 York Street contained in case AH-1747-18 meets the criteria of the Land Development Code and, based upon such finding, approve the Height Exception.

To recommend denial:

I move that the Board of Adjustment deny the requested Height Exception for the property located at 6450 York Street contained in case AH-1747-18 because it fails to meet the following criteria of the Land Development Code:

List the criteria not met

To recommend continuance:

I move that the Board of Adjustment continue the requested Height Exception for the property located at 6450 York Street contained in case AH-1747-18.