

**APPENDIX U: NORTH WATER TREATMENT PLANT  
NEAR LEONARD, FANNIN COUNTY, TEXAS**

## Background

In this FEIS, the No Action Alternative consists of not building the proposed Lower Bois d'Arc Creek dam and reservoir. However, the permit applicant plans to build the North water treatment plant (WTP), near Leonard in southwestern Fannin County regardless of whether the LBCR is constructed. The North WTP, also known as the Leonard WTP, was not part of the original Section 404 permit application in 2008 to the Tulsa District and does not fall under USACE jurisdiction.

The North WTP facility will be needed by NTMWD in the 2020-2021 timeframe, and is being designed to treat water from several potential sources. NTMWD's intent is to treat LBCR water at the North WTP; however, if the permit application required to construct the LBCR reservoir is not approved, the WTP will still be constructed.

As indicated by the agent for the permit applicant:

“The North Water Treatment Plant (WTP) has independent utility from the Lower Bois d'Arc Creek Reservoir (LBCR) project since the WTP will be built whether the reservoir is constructed or not. The North WTP does not depend on the proposed reservoir for its justification and vice versa. The North WTP is needed to provide treated water to the growing northern portion of NTMWD's service area” (Kiel, 2017).

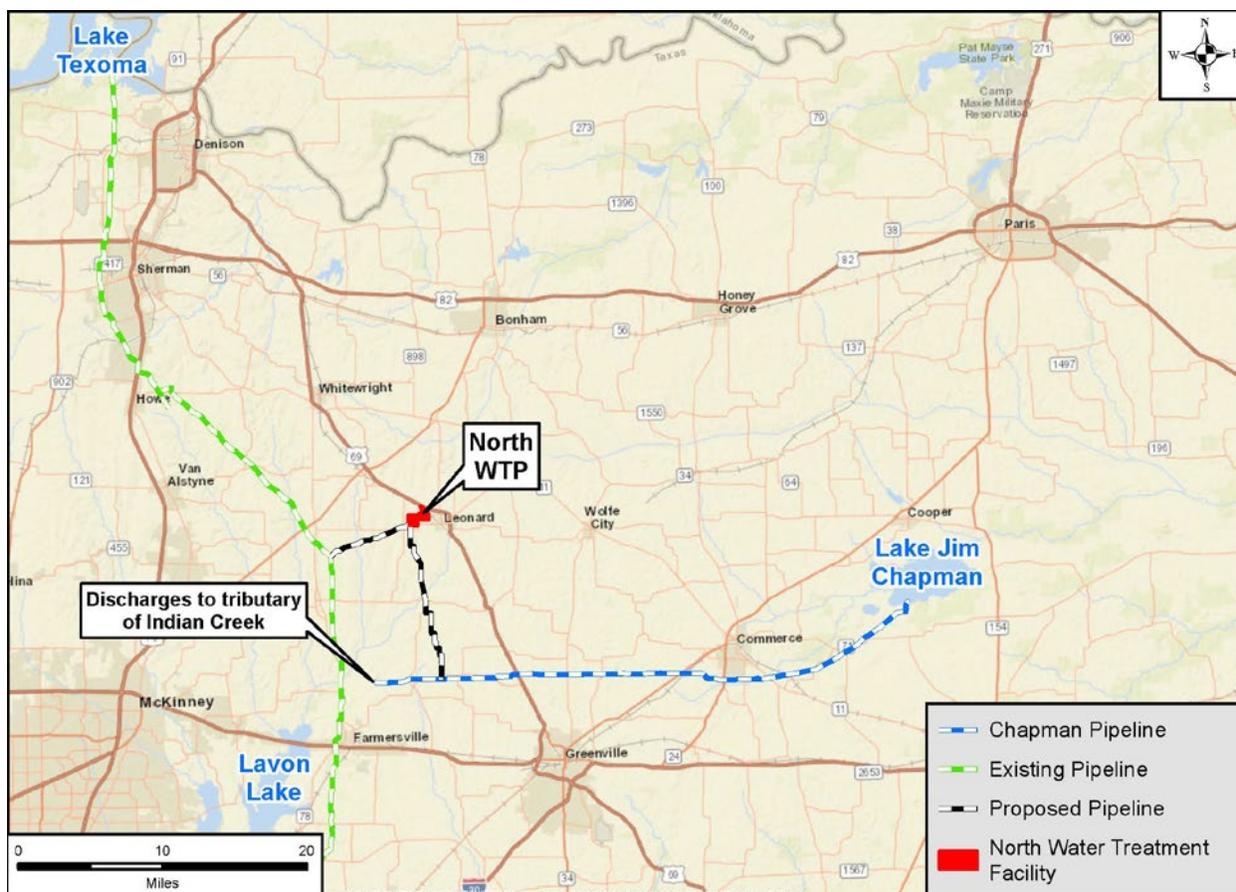
Therefore, construction of the North WTP is included in this FEIS as a component of the No Action Alternative.

Water transported to the North WTP under the No Action Alternative would not constitute new water for NTMWD; rather, it would be water from existing, permitted sources already in use (Kiel, 2017). Instead of being conveyed to the Wylie WTP for treatment and distribution to customers, the water would be redirected to the North WTP for treatment and distribution to the growing northern portion of NTMWD's service area. The No Action Alternative would not provide additional water overall to meet NTMWD's growing deficit identified in Chapter 1 of this EIS; it merely redistributes existing water supplies. Expanding existing water treatment facilities at Wylie to serve the growing northern portion of NTMWD's service area – in lieu of developing the North WTP – is not a viable option. It is not feasible to construct new large water transmission pipelines from existing facilities through already densely populated areas to reach developing areas to the northwest of Wylie (Kiel, 2017).

Construction of the planned North WTP, as sited, does not require a Section 404 permit because it will be located entirely on upland habitat and will not involve discharge of dredged or fill material into waters of the U.S. (USACE, 2015b). Similarly, the pipelines that would convey water to the North WTP from existing water sources (Lake Texoma and Lake Chapman) could be constructed without impacting waters of the United States.

Under the No Action Alternative, water from Lake Chapman would be transported through the existing Chapman – Wylie pipeline to a new connection south of the North WTP, as shown in Figure 1. The new connection would be a 12-mile pipeline segment built across rural countryside from the existing pipeline north to the North WTP site. Water from Lake Texoma would be conveyed to the North WTP through existing infrastructure to a new 84-inch pipeline extending eight miles from the existing 96-inch Wylie pipeline to the North WTP, also shown in Figure 1. The 84-inch pipeline would be constructed across primarily undeveloped, rural areas. It is anticipated that the water entering the North WTP would be blended at a 3:1 (Lake Chapman to Lake Texoma) ratio, although the ultimate blend ratio would be determined during final design (Kiel, 2017).

Initially, the volume of water treated at the North WTP would include up to 44,792 AFY of Lake Chapman water and about 14,000 AFY of Lake Texoma water. The remaining Lake Texoma supply (56,623 AFY) would be blended with NTMWD's other existing water supplies from Lavon Lake at the Wylie WTP. While the use of existing supplies at the North WTP would provide some treated water to the northern portion of NTMWD's service area, additional supplies would need to be developed to meet the NTMWD's projected water demands. These supplies could include the Lower Bois d'Arc Creek Reservoir and other new freshwater sources that NTMWD plans to develop in the future, including potential future sources that are described in Chapter 2 of this FEIS (Kiel, 2017).



**Figure 1. Proposed Pipeline Routes to the Planned North WTP from Existing NTMWD Water Sources**

### North Water Treatment Plant

Under the No Action Alternative, raw water transported from existing, permitted supplies at Lake Texoma and Lake Chapman would be blended and treated at the North WTP site that will be constructed just west of the city of Leonard, Texas. Figures 2, 3, 4, 5, 6, and 7 depict the planned location and specifications of the WTP and the related terminal storage reservoir (TSR), and TSR outfall. NTMWD currently owns an approximately 662-acre site that is located between State Highway (SH) 69 and FM 78. The 662-acre site is bisected by County Road (CR) 4965, dividing the site into an eastern section (339 acres) and a western section (323 acres). The planned WTP will be constructed within the western section and the grading limits would encompass approximately 186.2 acres.

The new North WTP will likely be a conventional, modular arrangement treatment facility, similar to the existing WTP IV in Wylie but with the addition of ozonation equipment.<sup>1</sup>

The TSR site, shown in Figures 4, 5, and 6, will be located on the 662-acre property owned by NTMWD, and will consist of a north cell and a south cell, with grading limits of approximately 153.5 acres. Both cells will hold approximately 210 million gallons of water, thus providing a total of 420 million gallons or approximately two days of water supply during peak water demand periods. The TSR site will be designed with the possibility of draining and directing the flow into the Red River Basin. This will be accomplished by building an overflow structure within the north cell which will lead to a drainage pipeline. The drainage pipeline will only be used during overflow events and as needed for maintenance of the TSR. The grading limits for construction of the drainage pipeline will be approximately 11.44 acres. It will have an outfall structure with a footprint of approximately 0.36 acres located slightly south of the headwaters of Valley Creek, as shown in Figure 5.

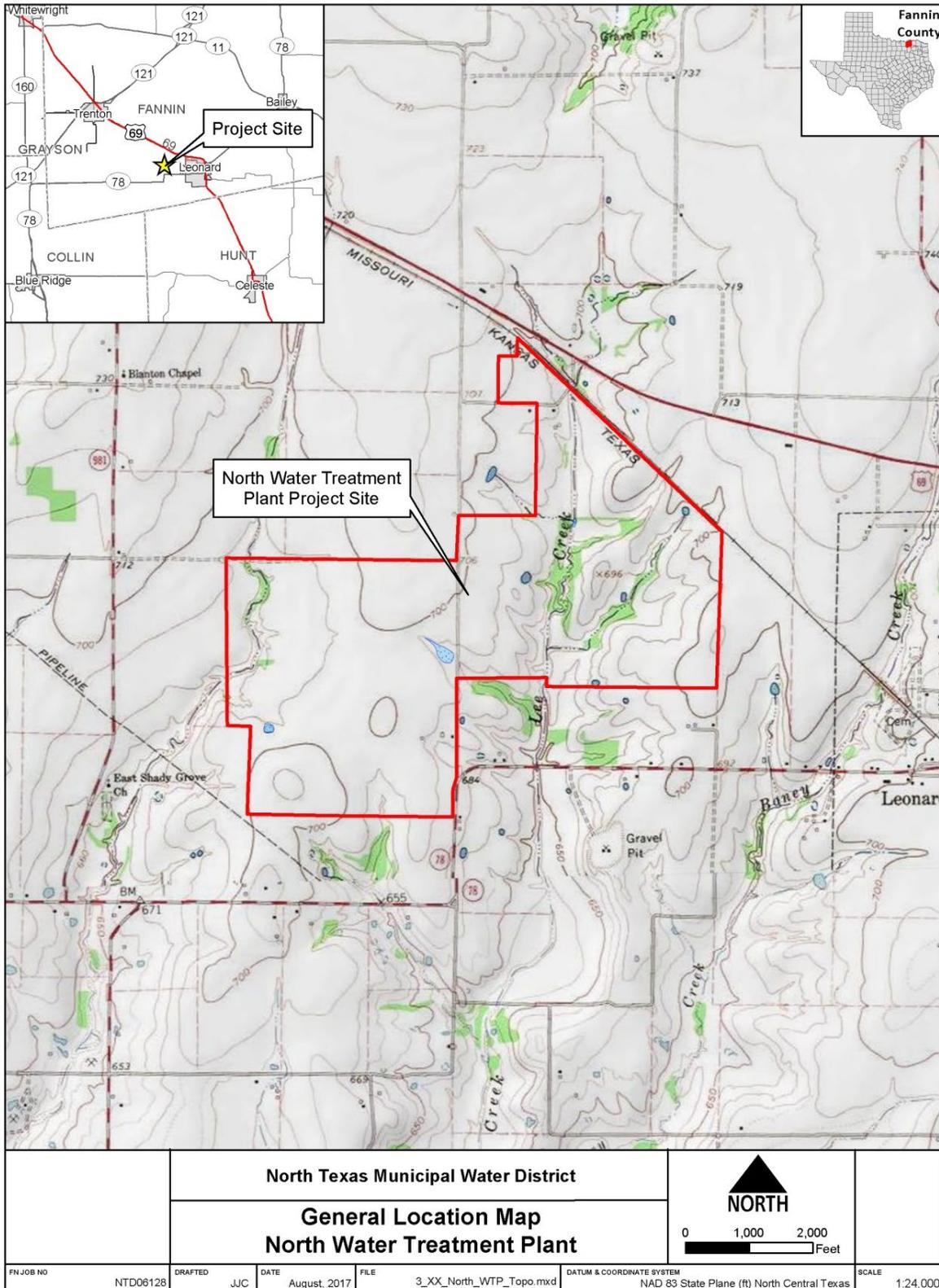
The North WTP will likely use conventional treatment with intermediate ozonation for primary disinfection and taste and odor control. Major treatment processes will include flow metering and distribution, rapid mix chambers, flocculation basins, sedimentation basins, ozone contact basins, biologically-active filters, and a clearwell. Major treatment plant structures will include a control and chemical feed building, blower building, reclaimed water basin, sludge lagoons, and maintenance building. Liquid ammonium sulfate and sodium hypochlorite will likely be utilized for residual disinfection to avoid the risk associated with gaseous chlorine and ammonia. The initial plant capacity is expected to be 70 mgd with future plant expansions to increase capacity as needed to meet growth in treated water system demands.

According to the Applicant, the North WTP is currently under design, with construction scheduled to start in early 2019. Construction will be completed in 2021 and full operation will begin in 2022 (Kiel, 2017).

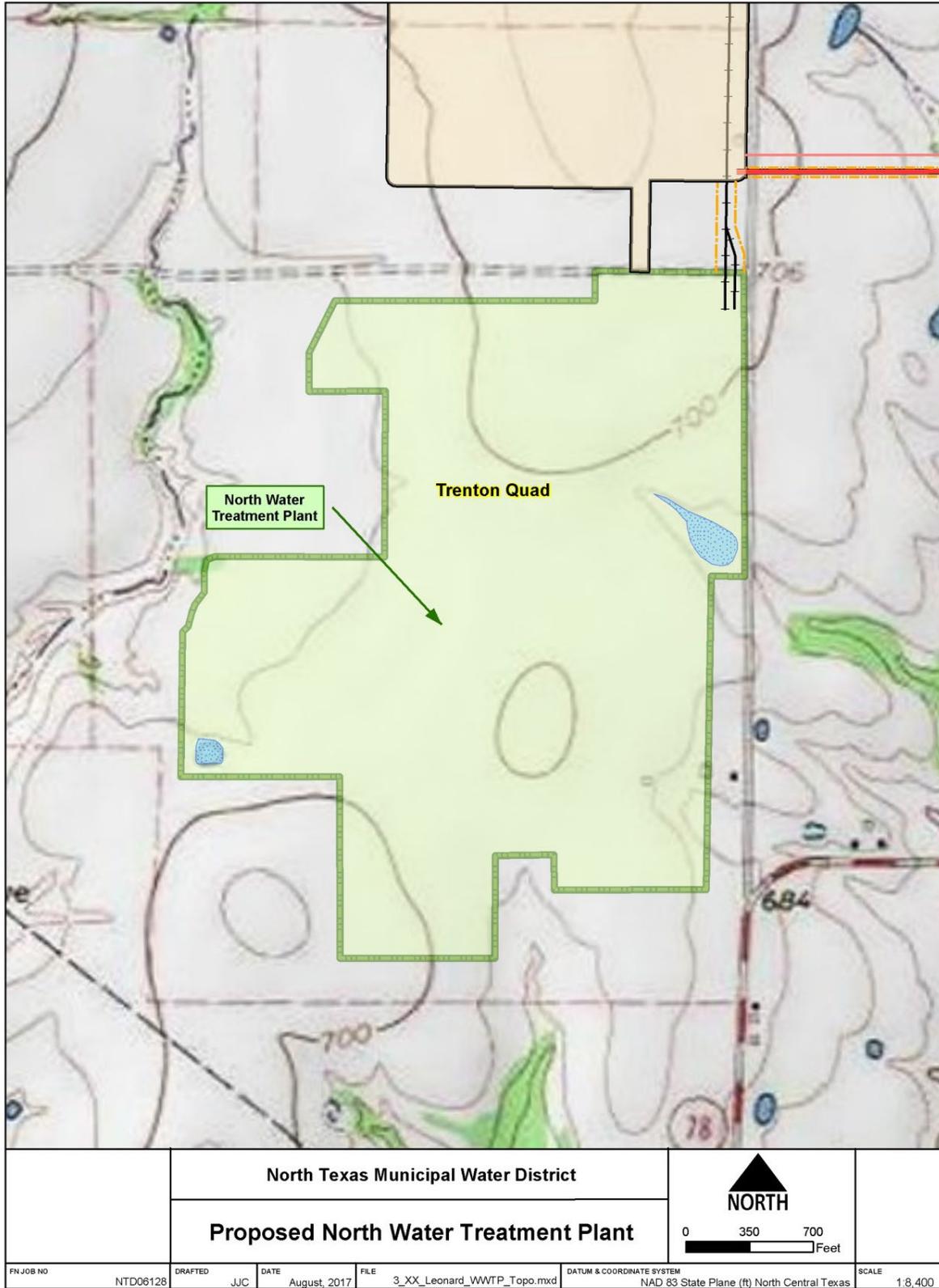
Since publication of the RDEIS, NTMWD notified the USACE that the proposed rail spur is not required for operation of the North WTP. Therefore, the proposed rail spur has been removed from consideration as a component of the North WTP. Note that some figures in this FEIS still include the proposed rail spur.

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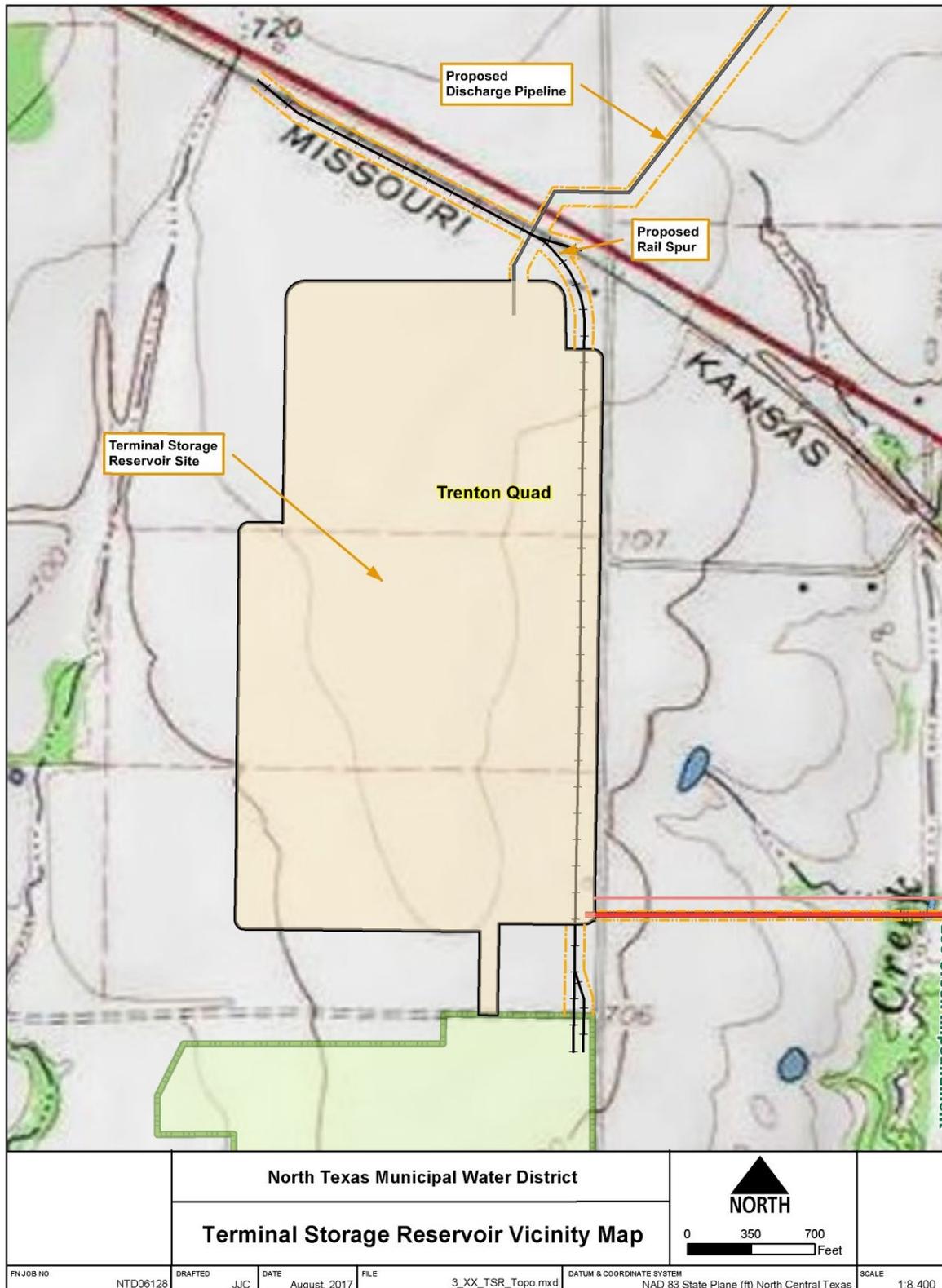
<sup>1</sup> Ozonation is the process of bubbling ozone gas through water during the water treatment process. The ozone reacts with metals present in the water to form insoluble metal oxides (solid particles) that can be filtered out.



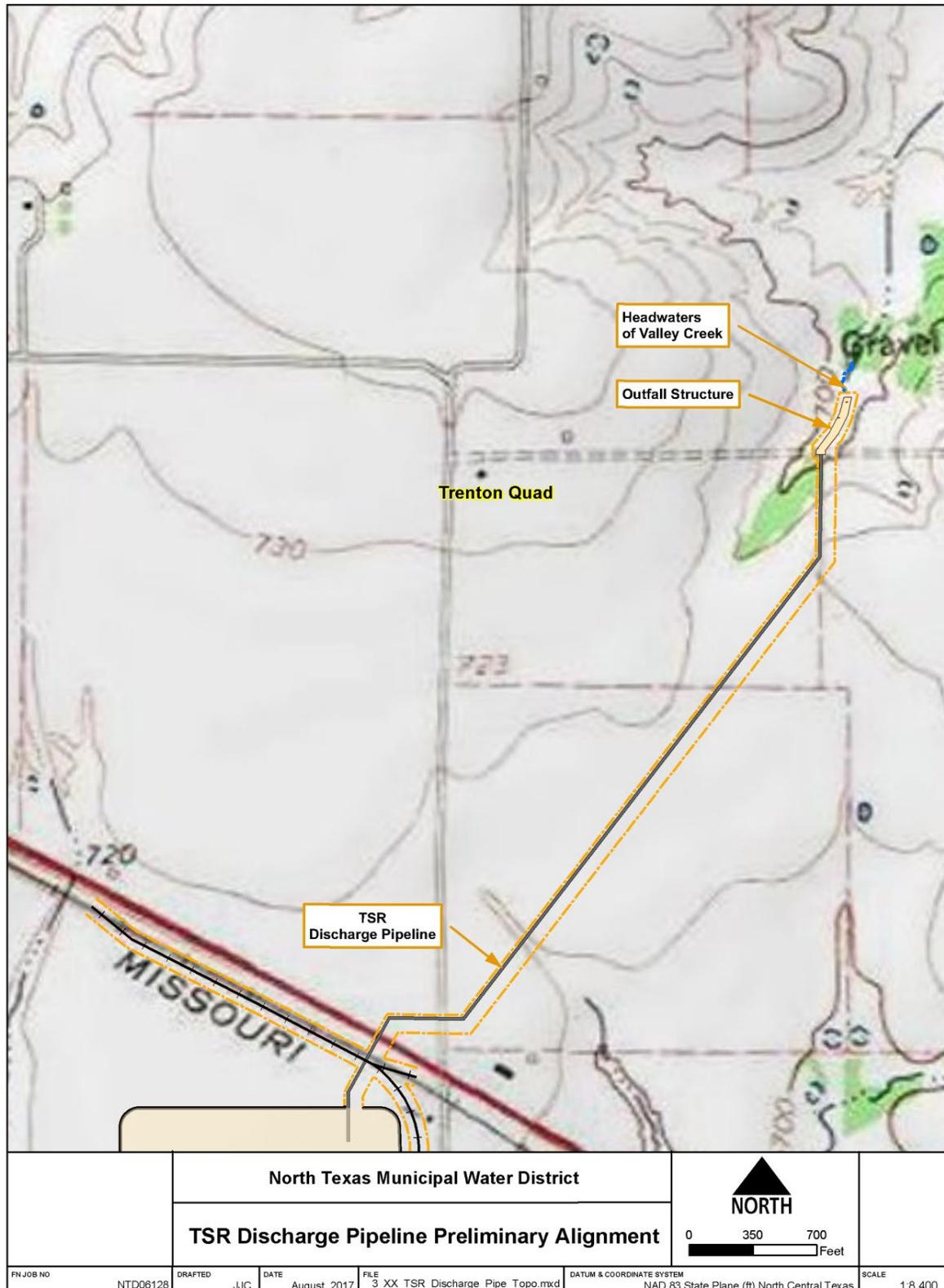
**Figure 2. Location of NTMWD-Owned Property for Construction of North WTP near Leonard, TX**



**Figure 3. Location of Planned North WTP near Leonard, TX**



**Figure 4. Location of Planned Terminal Storage Reservoir (TSR) for North WTP**



**Figure 5. Location of Planned TSR Discharge Pipeline and Outfall**

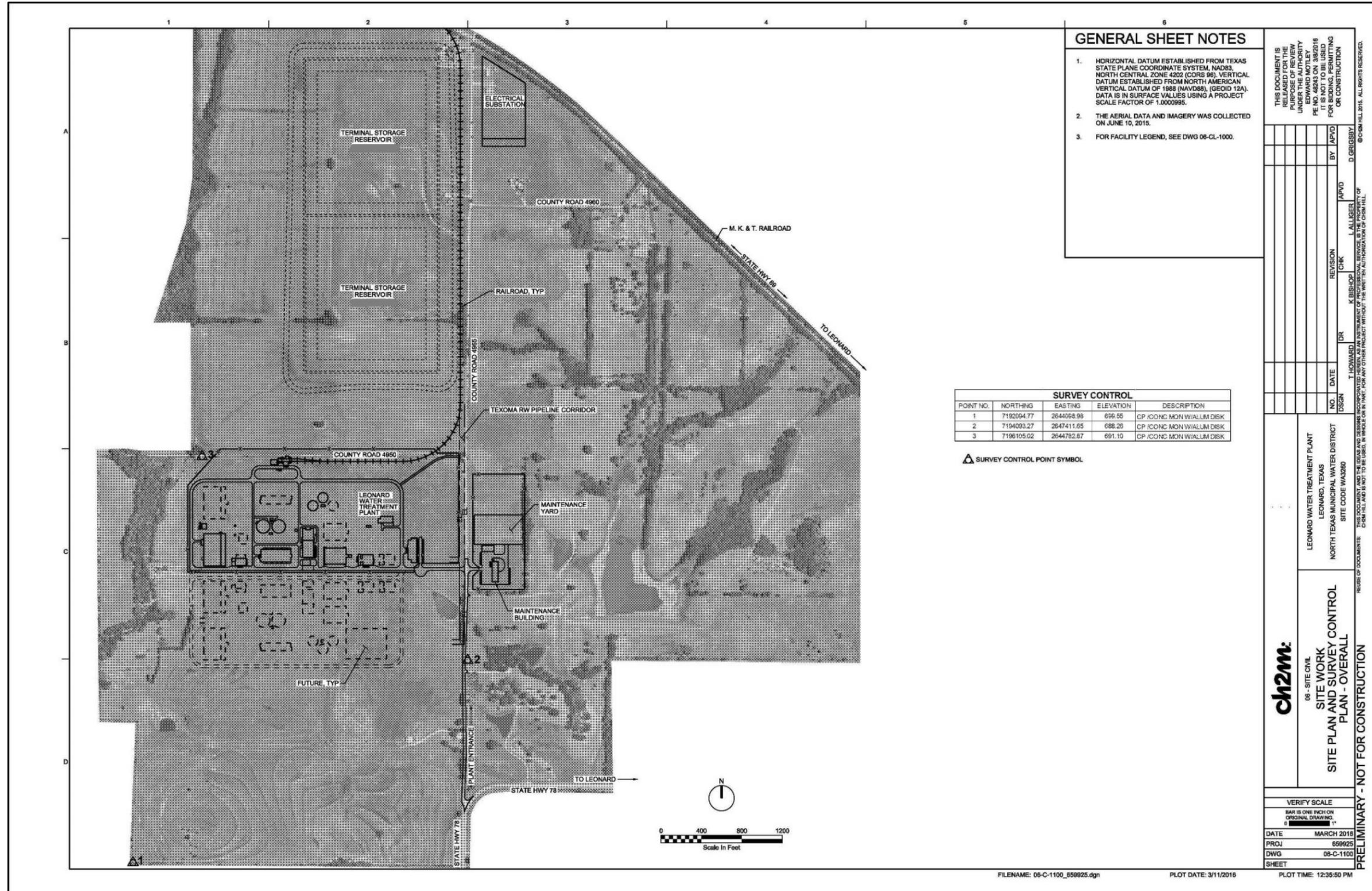


Figure 6. Site Plan Showing Planned North WTP and TSR

Source: CH2M, 2015a

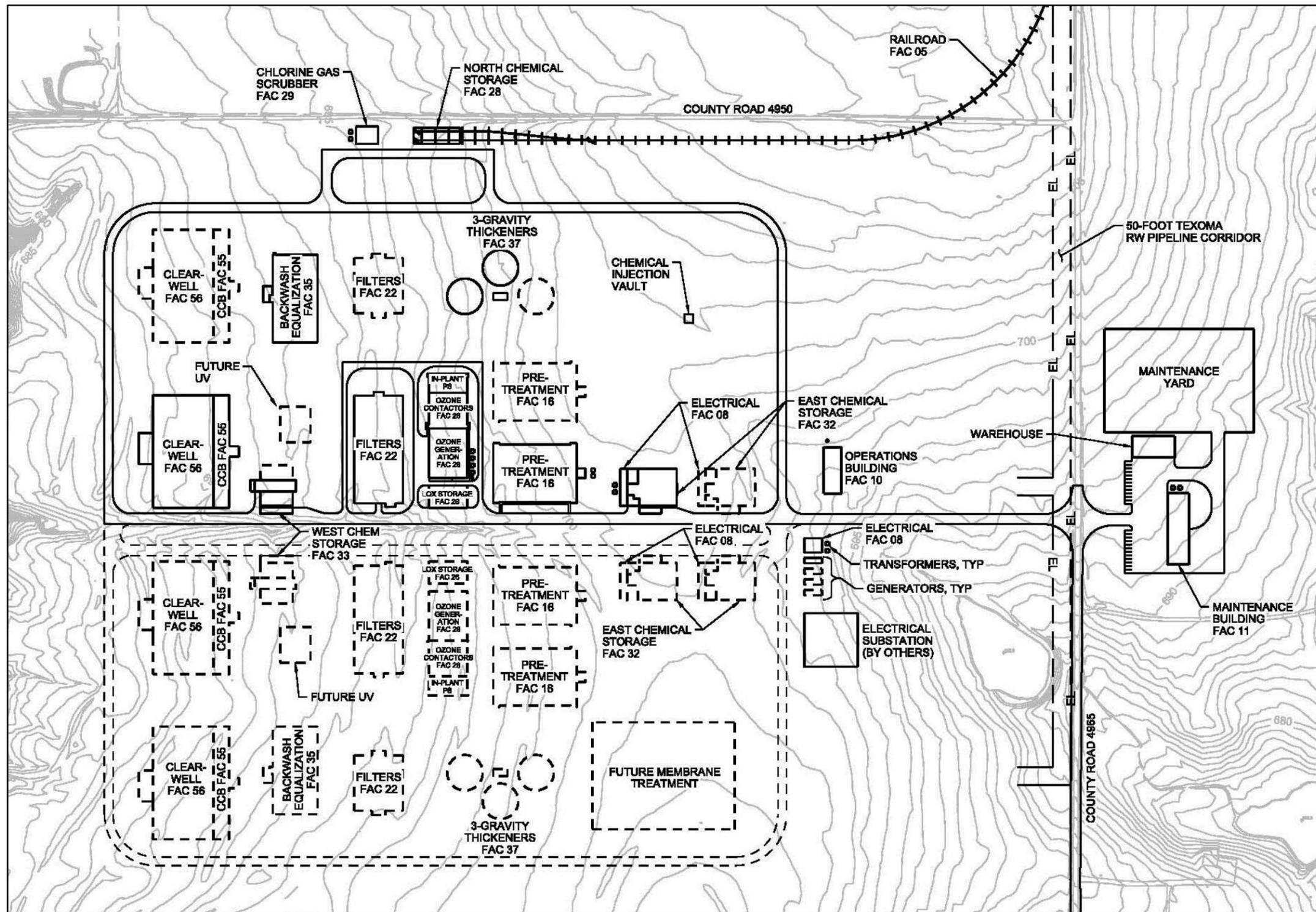


Figure 7. North WTP Site Plan

Source: CH2M, 2015b