

**FACT SHEET
TOOELE VALLEY PUBLIC INFRASTRUCTURE DISTRICT
NEW PERMIT: DISCHARGE
UPDES PERMIT NUMBER: UT0026409
MINOR INDUSTRIAL**

FACILITY CONTACTS

Operator Name: Tooele Valley Public Infrastructure District
Contact: Melanie Poulsen
Position: District General Manager
Phone Number: (801) 618-7973

Permittee Name: Tooele Valley Public Infrastructure District (TVPID)
Facility Name: TVPID RO Water Treatment Plant
Mailing Address: 8371 South State Street
Sandy, UT 84070
Actual Address: Burmester – I-80 Interchange, Tooele County, UT 84029

DESCRIPTION OF FACILITY

The Tooele Valley Public Infrastructure District (TVPID; Permittee) was organized by the Utah Inland Port Authority under the Public Infrastructure District Act on May 9, 2024. The TVPID's purpose is to construct, operate, maintain, and own public infrastructure serving a planned commercial and industrial development.

The TVPID RO Water Treatment Plant (Facility) is located near the I-80 and Burmester Road interchange in Tooele County, Utah. The Facility will operate a reverse osmosis (RO) water treatment plant designed to provide potable water for the inland port project. The Facility's infrastructure includes Production Well No. 1, RO treatment skids, well control piping, and a booster pump building.

The water treatment process utilizes an AMPAC USA Model BWRO-80K-LX RO system designed for brackish water purification. At full build-out, the raw water flow train could reach 600 gallons per minute (gpm) with a reject brine stream of up to 150 gpm. The RO treatment process inherently generates reject water (concentrate or brine), which constitutes the regulated effluent subject to this Utah Pollutant Discharge Elimination System (UPDES) permit. The expected daily maximum design discharge flow is 0.26 million gallons per day (MGD).

Outfall 001 will discharge the treated RO effluent (reject brine) via a 6-inch high-density polyethylene (HDPE) force main into Unclassified Waters. From there, the effluent flows into the Great Salt Lake Transitional Area and ultimately into Gilbert Bay of the Great Salt Lake. Operations are expected to commence in January 2027.

DISCHARGE

DESCRIPTION OF DISCHARGE

The Facility operates a RO water treatment plant that produces a reject brine effluent with a maximum daily design flow of 0.26 MGD. This is a new UPDES permit authorizing TVPID to discharge from Outfall 001,

with operations anticipated to commence in January 2027; no prior discharge monitoring data are available.

Permit compliance monitoring shall occur at the following outfall location:

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40.681094° and longitude -112.438754°. The discharge is into Unclassified Waters. Surface water flows northerly through the central east portion of property into a wetland area before passing downstream through a railroad culvert and flowing to the Great Salt Lake Transitional Area and then Gilbert Bay.

RECEIVING WATERS AND STREAM CLASSIFICATION

The receiving water for Outfall 001 is *Unclassified Waters*. The effluent may flow from these Unclassified Waters into the downstream Class 5E Transitional Waters and then Class 5A Gilbert Bay of the Great Salt Lake.

Per Utah Administrative Code (UAC) R317-2-13.13, the designated beneficial uses for *Unclassified Waters* 2B and 3D are as follows:

Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

Class 3D - Protected for waterfowl, shore birds, and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.

Per UAC R317-2-13.11, the designated beneficial uses for the downstream Class 5E Transitional Waters and Class 5A Gilbert Bay of the Great Salt Lake are as follows:

Class 5A – All open waters at or below approximately 4,208-foot elevation south of the Union Pacific Causeway, excluding all of the Farmington Bay south of the Antelope Island Causeway and salt evaporation ponds. Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

Class 5E – All waters below approximately 4,208-foot elevation to the current lake elevation of the open water of the Great Salt Lake receiving their source water from naturally occurring springs and streams, impounded wetlands, or facilities requiring a UPDES permit. The geographical areas of these transitional waters change corresponding to the fluctuation of open water elevation. Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

According to Utah's Final 2024 Integrated Report on Water Quality, the immediate receiving water for the Outfall 001 discharge is unassessed (Category 3 — insufficient data) and does not have an approved TMDL for any parameters. The downstream waterbody, Great Salt Lake Gilbert Bay (Assessment Unit Name: *Gilbert Bay*, Assessment Unit ID: *UT-L-16020310-001_00*), is listed as Category 2 — fully supporting assessed beneficial uses, with no approved TMDLs for any parameters. Because neither the immediate receiving waters nor the downstream waterbodies are listed as impaired, there are currently no approved

TMDLs or associated TMDL-driven effluent limits required for this Facility.

BASIS FOR EFFLUENT LIMITATIONS

In accordance with regulations promulgated in 40 Code of Federal Regulations Part 122.44 and UAC R317-8-4.2, effluent limitations are derived from technology-based effluent limitations guidelines, Utah Secondary Treatment Standards (UAC R317-1-3.2) or Utah Water Quality Standards (UAC R317-2) as applicable. In cases where multiple limits have been developed, those that are more stringent apply. In cases where no limits or multiple limits have been developed, Best Professional Judgment (BPJ) of the permitting authority may be used where applicable per 40 CFR 122.44(d). Best Professional Judgment, or BPJ, refers to a discretionary, best professional decision made by the permit writer based upon precedent, prevailing regulatory standards, or other relevant information.

Permit limits can also be derived from the wasteload analysis (WLA), which incorporates Water Quality Standards, including any applicable TMDL impairments as appropriate, Antidegradation Reviews (ADR), and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet State water quality standards in the receiving waters. A Level II ADR was required for this new discharge and was submitted by the Permittee on March 13, 2026. The Level II ADR was reviewed and approved by Division of Water Quality (DWQ) staff. The WLA and Level II ADR are attached to this Fact Sheet.

Because the receiving water is seasonally dry with a critical low flow (7Q10) of zero, no dilution is available, and no mixing zone is authorized under UAC R317-2-5. Accordingly, applicable in-stream water quality criteria from UAC R317-2-14 apply as end-of-pipe effluent limits at Outfall 001, consistent with the WLA approach. Downstream Class 5A and 5E Great Salt Lake waters are not assigned numeric criteria in R317-2-14 for the parameters of concern; DWQ has determined that attainment of the upstream Class 2B and 3D criteria at the outfall is protective of downstream designated uses (UAC R317-2-8).

Limitations on pH are based on Utah Secondary Treatment Standards (UAC R317-1-3.2). Oil and grease is based on the narrative no-sheen standard (UAC R317-2-7.2) with a 10 mg/L instantaneous maximum applied per BPJ. DO effluent limitations are derived from the Class 3D numeric criteria in UAC R317-2-14, Table 2.14.2, applied end-of-pipe per the principle established above. Based on the WLA and the source water characterization, this discharge is not expected to cause or contribute to a violation of water quality standards in the receiving water.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential (RP) analysis on all new and renewal applications received after that date. Because the Facility has not yet commenced discharge operations, no Discharge Monitoring Report (DMR) data are available to conduct a quantitative RP analysis at this time. Accordingly, annual metals monitoring is required under this permit, specifically in support of future RP analysis work. To ensure the resulting dataset is directly comparable to the applicable Class 3D numeric criteria in UAC R317-2-14 - Table 2.14.2, most of which are expressed as dissolved-fraction concentrations for aquatic life protection, samples shall be analyzed for both total recoverable and dissolved fractions for metals whose criteria are expressed as dissolved.

Permit effluent limitations for Outfall 001 are shown in the table below.

Parameter	Effluent Limitations ^{(a)(b)(c)}			
	Minimum Monthly Avg	Daily Minimum	Daily Maximum	Units
Total Flow^(d)	--	--	0.26	MGD
pH	--	6.5	9.0	SU
Oil & Grease^(e)	--	--	10.0	mg/L
DO	5.0	3.0	--	mg/L

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements apply to this new permit. The permit requires reports to be submitted monthly and annually, as applicable, on DMR forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results shall be submitted using NetDMR unless the Permittee has successfully petitioned for an exception. Lab sheets for biomonitoring, metals, and toxic organics shall be attached to the DMRs.

Parameter	Self-Monitoring and Reporting Requirements ^{(a)(c)}			
	Frequency	Sample Type	Units	Reporting Frequency
Total Flow^(d)	Continuous	Recorder	MGD	Monthly
TSS	Monthly	Grab	mg/L	Monthly
TDS	Monthly	Grab	mg/L	Monthly
DO	Monthly	Grab	mg/L	Monthly
Oil & Grease^(e)	When Sheen Observed	Grab	mg/L	Monthly
pH	Monthly	Grab	SU	Monthly
Temperature	Monthly	Grab	°C	Monthly
Metals^{(f)(g)(h)}	Annually	Composite	mg/L	Annually

Table Footnotes

- See Permit Part VIII for definition of terms.
- There shall be no visible sheen or floating solids or visible foam in other than trace amounts. There shall be no discharge of sanitary wastes.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the outfall pipe of the final treatment prior to mixing with any receiving water.
- Flow measurements of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained.
- Oil & Grease shall be sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- Metals samples should be analyzed using a method that meets method detection limit (MDL) requirements. If a test method is not available, the Permittee must submit documentation to the DWQ Director (Director) regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The metals will be monitored and reported annually by the Facility on DMR but will not have a limit associated with them. If the Permittee chooses to sample more frequently for these metals, the additional data will be welcome.
- Metals to be analyzed include arsenic, cadmium, chromium, copper, cyanide, lead, mercury, nickel, selenium, silver, and zinc. For metals whose Class 3D water quality criteria in UAC R317-2-14 are expressed as dissolved (e.g., arsenic, cadmium, chromium, copper, lead, nickel, selenium, silver, zinc), samples shall be analyzed for both total recoverable and dissolved fractions to support reasonable potential analysis.

BIOSOLIDS

The State of Utah has adopted the Title 40 Code of Federal Regulations Title (40 CFR) 503 federal

regulations for the disposal of sewage sludge (biosolids) by reference. However, this Facility does not receive, generate, treat or dispose of biosolids. Therefore, 40 CFR 503 does not apply at this time. In the future, if sludge needs to be removed and disposed of in some way, the DWQ must be contacted prior to the removal of the sludge to ensure that all applicable state and federal regulations are met.

STORM WATER

If the Facility conducts industrial activities subject to storm water permit coverage under 40 CFR 122.26(b)(14), the Permittee is required to obtain coverage under Utah's Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activity. The Permittee shall determine applicability based on the Facility's Standard Industrial Classification (SIC) code and the types of industrial activities occurring on site. If coverage is required and the Facility is not already covered, the Permittee shall submit the appropriate Notice of Intent (NOI) for the MSGP, or documentation supporting an exclusion or no-exposure certification, within 30 days of the effective date of this permit. Storm water discharges associated with industrial activity are regulated separately from process wastewater discharges to provide consistency among permittees, enable electronic reporting of storm water DMRs, and allow flexibility to respond to changing site conditions.

Permit coverage under the Construction General Storm Water Permit (CGP) is required for any construction at the Facility that disturbs one acre or more of land, or that is part of a common plan of development or sale that is an acre or greater. The Permittee shall submit a Notice of Intent (NOI) to obtain CGP coverage prior to commencement of construction activities. Information on storm water permit requirements can be found at <http://stormwater.utah.gov>.

PRETREATMENT REQUIREMENTS

The Facility does not currently discharge process wastewater to a sanitary sewer system, and accordingly no pretreatment standards apply at the time of permit issuance. Should the Permittee subsequently discharge any process wastewater to a Publicly Owned Treatment Works (POTW), either as a direct discharge or as a hauled waste, such discharges shall be subject to federal, state, and local pretreatment regulations. Pursuant to Section 307 of the Clean Water Act, the Permittee shall comply with all applicable federal general pretreatment regulations promulgated, found in 40 CFR 403, the state's pretreatment requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste.

Additionally, in accordance with 40 CFR 403.12(p)(1), the Permittee shall provide written notification to the POTW, the Environmental Protection Agency (EPA) Regional Waste Management Director, the DWQ Director and the State hazardous waste authorities if any discharge to a POTW of a substance, which if otherwise disposed of, would be considered a hazardous waste under 40 CFR 261. This notification shall identify the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the UPDES Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring), dated February 2018. Authority to require effluent biomonitoring is provided in Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317 -2-7.2.

The Facility is a new minor industrial discharger of reverse osmosis reject brine with a maximum daily design flow of 0.26 MGD, well below the 1.0 MGD threshold identified in the State of Utah UPDES

Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (February 2018) for routine Whole Effluent Toxicity (WET) monitoring of industrial dischargers. The discharge consists of concentrated source water constituents from a brackish groundwater treatment process, in which toxicity is neither an existing concern nor likely to be present. The receiving water is an unclassified channel conveying flow to the Great Salt Lake Transitional Area and Gilbert Bay, and no receiving-water toxicity data are available. Based on these considerations, there is no reasonable potential for the Permittee's discharge to cause or contribute to instream toxicity. Accordingly, this permit contains no numerical WET limitations and no WET monitoring requirements at this time.

The permit includes a toxicity reopener provision authorizing modification of the permit to incorporate WET limitations and monitoring should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

It is recommended that this permit be effective for a duration of five (5) years.

Drafted and Reviewed by:
Jordan Bentley, Permit Writer
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Carl Adams, Storm Water
Lucy Parham, TMDL/Watershed Protection
Christopher Shope, Wasteload Analysis/ADR
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE INFORMATION (to be updated after)

Began: Month Day, Year

Ended: Month Day, Year

Comments will be received at: 195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870

The Public Notice of the draft permit was published on State of Utah and/or DWQ's website for at least 30 days as required.

During the public notice and comment period provided under UAC R317-8-6.5, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in UAC R317-8-6.12.

ADDENDUM TO FACT SHEET

During finalization of the Permit certain dates, spelling edits and minor language corrections were completed. Due to the nature of these changes, they are considered minor changes and the permit is not required to be re Public Noticed as provided in UAC R317-8-5.6(3)

Responsiveness Summary

(Explain any comments received and response sent. Actual letters can be referenced, but not required to be included).

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ATTACHMENT 1

Wasteload Analysis

Insert DWQ-2026-000904 and -002824



State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Tim Davis
Executive Director

DIVISION OF WATER QUALITY
Candice Hasenyager, P.E.
Director

**Utah Division of Water Quality
Statement of Basis ADDENDUM
Wasteload Analysis and Antidegradation Level I Review**

Date: May 7, 2026

Prepared by: Christopher L. Shope, PhD
Standards and Technical Services

Facility: Tooele Valley Public Infrastructure District
UPDES Permit No. Preliminary - 7CTVPID

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

DISCHARGE

There is a single discharge point listed in the permit renewal application (Figure 6).

- Outfall 001 discharges treated reverse osmosis (RO) effluent into Unclassified Waters. Effluent flows into the Great Salt Lake Transitional Area and into Gilbert Bay of the Great Salt Lake. Effluent is discharged at an expected daily maximum design flow of 0.26 MGD.
- Outfall 001 is located at 40.681094°, -112.438754° (Figure 1).

RECEIVING WATER

The receiving water for Outfall 001 is *Unclassified Waters*. Per UAC R317-2-13.13, the designated beneficial uses for *Unclassified Waters* are 2B and 3D.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low*

degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

- *Class 3D - Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.*

DWQ performed a site visit to verify that the area wasn't a tributary of any specifically designated waters in the area. DWQ consulted with local water users. Furthermore, DWQ consulted topographic, hydrologic, and historical satellite imagery maps to further validate potential beneficial uses. Surface water flows northerly through the central east portion of property at approximately 2 ft³/s (Figure 2). This surface water feature appears to be a collection drain for agricultural, animal husbandry, and other processes in area based on visual observations and discussions with adjacent landowners. The groundwater infiltration is evident as it creates wide, spongy, clayey/silty evaporation ponds (Figure 3) with highly variable thalweg sinuosity. There is no visible stock vegetation and no standing water, indicating a periodic potential ponding with lack of a continuous flow regime (Figure 4). There is likely very poor water quality from the agricultural return flows, animal husbandry, and other uses upstream (Figure 5). The nearest upstream DWQ monitoring location is approximately 11 miles upstream. All Division of Water Rights points of diversion appear to be greater than 0.7 mi upgradient to the north of Outfall 001 and are groundwater wells. Analysis of Division of Drinking Water groundwater protection zones indicates the closest is Class 2 to 4 at 5.4 miles in Grantsville, Utah.

Per UAC R317-2-8 Protection of Downstream Uses, all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.

The effluent may flow from *Unclassified Waters* into the downstream Class 5E Transitional Waters and Class 5A Gilbert Bay of the Great Salt Lake. Per UAC R317-2-13.11, the designated beneficial uses are.

- *Class 5E - Transitional Waters along the Shoreline of the Great Salt Lake. Geographical Boundary - All waters below approximately 4,208-foot elevation to the current lake elevation of the open water of the Great Salt Lake receiving their source water from naturally occurring springs and streams, impounded wetlands, or facilities requiring a UPDES permit. The geographical areas of these transitional waters change corresponding to the fluctuation of open water elevation. Beneficial Uses - Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.*
- *Class 5A - Gilbert Bay of the Great Salt Lake. Geographical Boundary - All open waters at or below approximately 4,208-foot elevation south of the Union Pacific Causeway, excluding all of the Farmington Bay south of the Antelope Island Causeway and salt evaporation ponds. Beneficial Uses - Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.*

The 4208 foot elevation, which denotes 5E transitional waters, is located approximately 1.6 miles

downstream of the Outfall 001 location on the northeast side of Interstate-80 and the adjacent railroad tracks



Figure 1-Location of proposed Outfall 001, looking north.



Figure 2-Surface water at north central portion of property.



Figure 3-Example of soil and vegetation in spongy wetland area above Outfall 001 discharge location.



Figure 4-Downstream of railroad culvert at Outfall 001.



Figure 5-Surface water prior to culvert at Higley Road.

DWQ expects attainment of upstream use classifications will be protective of any downstream uses associated with Great Salt Lake

WATER QUALITY STANDARDS

Numeric criteria based on designated beneficial uses are specified in UAC R317-2-14. In addition, narrative water quality standards must not be violated per UAC R317-2-7.2:

It shall be unlawful, and a violation of these rules, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures; or determined by biological assessments in Subsection R317-2-7.3.

No permit may be issued by the Director per UAC R317-8-2.2(7) to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or [a] new discharger proposing to discharge into a water segment which does not meet Utah water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by the UPDES rules and for which the Director has performed a wasteload allocation for the pollutants to be discharged, must demonstrate, before the close of the public comment period, that:

(a) There are sufficient remaining wasteload allocations to allow for the discharge; and

(b) The existing dischargers into the segment are subject to schedules of compliance designed to bring the segment into compliance with Utah Water Quality Standards. (See UAC R317-2.)

CRITICAL LOW FLOW

Typically, the critical flow for the receiving water in a wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten-year return frequency (7Q10). Because the receiving water is seasonally dry, gravity-driven, sheet flow, the 7Q10 is assumed to be zero and effluent limits revert to end-of-pipe (EOP) water quality standards.

RECEIVING WATER ASSESSMENT AND TOTAL MAXIMUM DAILY LOAD (TMDL)

According to the Utah's [Final 2024 Integrated Report on Water Quality](#) dated April 30, 2024 (UDWQ, 2024), the receiving water for Outfall 001 discharge is unassessed and has no TMDL for any parameters.

The downstream waterbody, Great Salt Lake Gilbert Bay (AU name: *Gilbert Bay* AU ID: *UT-L-16020310-001_00*), is listed as "No Evidence of Impairment".

MIXING ZONE

Per UAC R317-2-5, the maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions. Water quality standards must be met at the end of the regulatory mixing zone. In this case, because the 7Q10 was assumed to be zero, no mixing zone is allowed, and no dilution factor was applied.

PARAMETERS OF CONCERN

The potential parameters of concern identified for the discharge/receiving water were determined in consultation with the UPDES Permit Writer, the Utah Water Quality Assessment Reports, and the industry SIC codes from <https://www.osha.gov/data/sic-search>. The potential parameters of concern for this facility include: total suspended solids (TSS), dissolved oxygen (DO), biochemical oxygen demand (BOD₅), total phosphorus (TP), total nitrogen (TN), total ammonia (TAN), turbidity, E. coli, and pH.

WET LIMITS

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

WET limits for Outfall 001 for IC25 should be based on 100% effluent due to critical low flow conditions of zero.

WASTELOAD ALLOCATION METHODS

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ 2021). The mass balance analysis is summarized in the Wasteload Addendum.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. Background data were not sampled for this location. To evaluate effluent discharge water quality, the Tooele Valley Public Infrastructure District discharge monitoring report (DMR) would be used. Since the facility is not fully operational, the DMR is not available. Due to a lack of flow dilution, effluent limits for this discharge are water quality standards for the specific receiving water. The applicable water quality standards are attached as an appendix to this wasteload.

For parameters without a WQBEL, permit limits should be set according to rules found in R317-1-3 and categorical UPDES discharge requirements.

Models and supporting documentation are available for review upon request.

LOCATION MAP



Figure 6-Location map of outfalls, monitoring locations, and surface water channels.

ANTIDEGRADATION LEVEL I REVIEW

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial and existing uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

ANTIDEGRADATION LEVEL II REVIEW REQUIREMENTS

A Level II Antidegradation Review (ADR) is required for this facility. This is a new effluent discharge and the pollutant concentration with concurrent contaminant loading is being increased under this new preliminary permit.

DOCUMENTS

WLA Document: *260507-TVPID_EOP_WLA_2026.docx*

Wasteload Analysis and Addendums: *260507-TVPID_EOP_WLA_2026.xlsm*

REFERENCES

Utah Division of Water Quality. 2024. Final 2024 Integrated Report on Water Quality. <https://lf-public.deq.utah.gov/WebLink/DocView.aspx?id=87957&repo=Public&searchid=fcd9ea4c-51e1-4227-aa29-fb1921c2cc19&cr=1>

Utah Division of Water Quality. 2021. Utah Wasteload Analysis Procedures Version 2.0. <https://documents.deq.utah.gov/water-quality/standards-technical-services/DWQ-2021-000684.pdf>

WASTELOAD ANALYSIS [WLA]

Not included in WLA

Date: 4/29/2026

Appendix A: Mass Balance Mixing Analysis for Conservative Constituents**A Level II Antidegradation Review (ADR) is NOT required for this facility.**

Discharging Facility: Tooele Valley Public Infrastructure District
 UPDES No: 7CTVPID
 NA

Permit Flow [MGD]: 0.26000 Annual Max. Daily
 0.26000 Annual Max. Monthly

Receiving Water: Unnamed Ditch -> Middle Canyon Creek and tributaries -> GSL transitional -> GSL Gilbert Bay
 Stream Classification: 2B,3A,4, 5E,5A
 Stream Flows [cfs]: 0.00 All Seasons Critical Low Flow
 - All Seasons Critical Low Flow (20th %)

Fully Mixed: YES
 Acute River Width: 100%
 Chronic River Width: 100%

Modeling Information

A mass balance mixing analysis was used to determine the effluent limits.

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort reflect the environmental conditions expected at low stream flows.

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.26 MGD. If the discharger is allowed to have a flow greater than 0.26 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitations for Protection of Recreation (Class 2B Waters) (R317-2-14.1)

Physical Parameter	Concentration	
	Minimum	Maximum
pH	6.5	9.0
Turbidity Increase (NTU)		10.0

Bacteriological (R317-2-14.1)

E. coli (30 Day Geometric Mean)	206 (#/100 mL)
E. coli (Maximum)	668 (#/100 mL)

Effluent Limitations for Protection of Aquatic Wildlife (Class 3A Waters) (R317-2-14.21)

Physical Parameter	Concentration	
	Minimum	Maximum
pH	6.5	9.0
Turbidity Increase (NTU)		10.0
Temperature (deg C)		20
Temperature Change (deg C)		2

Dissolved Oxygen (mg/L)	Minimum Concentration	
	ELS Present	Others Present
Instantaneous	8.0	4.0
30-day Average	6.5	6.5

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7-day Average 9.5 5

Inorganics

	Chronic (30-day ave)	Acute (1-hour ave)
Parameter		Standard
Phenol (mg/L)		0.010
Hydrogen Sulfide (Undissociated-mg/L)		0.002
Total Residual Chlorine (mg/L)	0.011	0.019

Ammonia-Total (mg/L)

	Chronic (30-day ave)			Acute (1-hour ave)		
	ELS Present					
Season	Standard	Background	Limit	Standard	Background	Limit
Summer	0.9		0.9	3.8		3.8
Fall	0.9		0.9	3.8		3.8
Winter	0.9		0.9	3.8		3.8
Spring	0.9		0.9	3.8		3.8
	ELS Absent					
Season	Standard	Background	Limit	Standard	Background	Limit
Summer	0.9		0.9	3.8		3.8
Fall	0.9		0.9	3.8		3.8
Winter	0.9		0.9	3.8		3.8
Spring	0.9		0.9	3.8		3.8

Metals-Total Recoverable

	Chronic (4-day ave)			Acute (1-hour ave)		
Parameter	Standard¹	Background	Limit	Standard¹	Background	Limit
Aluminum (µg/L)	87.0		87.0	750.0		750.0
Arsenic (µg/L)	150.0		150.0	340.0		340.0
Cadmium (µg/L)	2.4		2.4	7.4		7.4
Chromium VI (µg/L)	11.0		11.0	16.0		16.0
Chromium III (µg/L)	268.2		268.2	5611.7		5,612
Copper (µg/L)	30.5		30.5	51.7		51.7
Cyanide (µg/L) ²	5.2		5.2	22.0		22.0
Iron (µg/L)				1000.0		1,000
Lead (µg/L)	18.6		18.6	476.8		476.8
Mercury (µg/L) ²	0.0		0.012	2.4		2.4
Nickel (µg/L)	168.5		168.5	1515.9		1,516
Selenium (µg/L)	4.6		4.6	18.4		18.4
Silver (µg/L)				41.1		41.1
Tributyltin (µg/L) ²	0.1		0.072	0.5		0.46
Zinc (µg/L)	387.8		387.8	387.8		387.8

1: Based upon a Hardness of 400 mg/l as CaCO₃

2: Background concentration assumed 67% of chronic standard

Organics [Pesticides]

	Chronic (4-day ave)		Acute (1-hour ave)	
Parameter	Standard	Limit	Standard	Limit
Aldrin (µg/L)			1.5	1.5
Chlordane (µg/L)	0.0043	0.0043	1.2	1.2
DDT, DDE (µg/L)	0.001	0.001	0.55	0.55
Diazinon (µg/L)	0.17	0.17	0.17	0.17
Dieldrin (µg/L)	0.0056	0.0056	0.24	0.24
Endosulfan, a & b (µg/L)	0.056	0.056	0.11	0.11
Endrin (µg/L)	0.036	0.036	0.086	0.086
Heptachlor & H. epoxide (µg/L)	0.0038	0.0038	0.26	0.26
Lindane (µg/L)	0.08	0.08	1.0	1.0
Methoxychlor (µg/L)			0.03	0.03
Mirex (µg/L)			0.001	0.001
Nonylphenol (µg/L)	6.6	6.6	28.0	28.0
Parathion (µg/L)	0.0130	0.0130	0.066	0.066
PCB's (µg/L)	0.014	0.014		
Pentachlorophenol (µg/L)	15.0	15.0	19.0	19.0
Toxephene (µg/L)	0.0002	0.0002	0.73	0.73

Radiological

Parameter	Maximum Concentration Standard
Gross Alpha (pCi/L)	15

DRAFT

Freshwater total ammonia criteria based on Title R317-2-14 Utah Administrative Code
Acute

INPUT				
pH:	Summer 8.20	Fall 8.20	Winter 8.20	Spring 8.20
Beneficial use classification:	3A	3A	3A	3A
OUTPUT				
Total ammonia nitrogen criteria (mg N/L):				
Acute (Class 3A):	3.825	3.825	3.825	3.825
Acute (Class 3B, 3C, 3D):	5.727	5.727	5.727	5.727

Freshwater total ammonia criteria based on Title R317-2-14 Utah Administrative Code
Chronic

INPUT				
Temperature (deg C):	Summer 25.00	Fall 25.00	Winter 25.00	Spring 25.00
pH:	8.20	8.20	8.20	8.20
Are fish early life stages present?	No	No	No	No
OUTPUT				
Total ammonia nitrogen criteria (mg N/L):				
Chronic - Fish Early Life Stages Present:	0.912	0.912	0.912	0.912
Chronic - Fish Early Life Stages Absent:	0.912	0.912	0.912	0.912

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ATTACHMENT 2

Level II ADR and Alternative Analysis

Insert DWQ-2026-001542 and -001543

LEVEL II ANTIDEGRADATION REVIEW FORM

UTAH DIVISION OF WATER QUALITY

Instructions

The objective of antidegradation rules and policies is to protect existing high quality waters and set forth a process for determining where and how much degradation is allowable for socially and/or economically important reasons. In accordance with Utah Administrative Code (UAC R317-2-3), an antidegradation review (ADR) is a permit requirement for any project that will increase the level of pollutants in waters of the state. The rule outlines requirements for Level I and Level II ADRs, as well as public comment procedures. This review form is intended to assist the applicant and Division of Water Quality (DWQ) staff in complying with the rule but is not a substitute for the complete rule in R317-2-3.5. Additional details can be found in the *Utah Antidegradation Implementation Guidance* and relevant sections of the guidance are cited in this review form.

ADRs should be among the first steps of an application for a UPDES permit because the review helps establish treatment expectations. The level of effort and amount of information required for the ADR depends on the nature of the project and the characteristics of the receiving water. To avoid unnecessary delays in permit issuance, the Division of Water Quality (DWQ) recommends that the process be initiated at least one year prior to the date a final approved permit is required.

DWQ will determine if the project will impair beneficial uses (Level I ADR) using information provided by the applicant and whether a Level II ADR is required. The applicant is responsible for conducting the Level II ADR. For the permit to be approved, the Level II ADR must document that all feasible measures have been undertaken to minimize pollution for socially, environmentally or economically beneficial projects resulting in an increase in pollution to waters of the state.

For permits requiring a Level II ADR, this antidegradation form must be completed and approved by DWQ before any UPDES permit can be issued. Typically, the ADR form is completed in an iterative manner in consultation with DWQ. The applicant should first complete the statement of social, environmental and economic importance (SEEI) in Part C and determine the parameters of concern (POC) in Part D. Once the POCs are agreed upon by DWQ, the alternatives analysis and selection of preferred alternative in Part E can be conducted based on minimizing degradation resulting from discharge of the POCs. Once the applicant and DWQ agree upon the preferred alternative, the review is considered complete, and the form must be signed, dated, and submitted to DWQ.

**Utah Division of Water Quality
Level II Antidegradation Review Form**

Part A: Application Information

Facility Name: Tooele Valley Public Infrastructure District (TVPID) RO Water Treatment Plant

Facility Owner: Tooele Valley Public Infrastructure District (TVPID)

Facility Location: Burmester - I-80 Interchange, Tooele County, UT 84029

Form Prepared By: Fred Duberow PE Ensign Engineering

Outfall Number: 001

Receiving Water: Unclassified waters to Gilbert Bay

Designated Beneficial Uses of the Receiving Water (R317-2-13):

Domestic Water Supply: ☐ 1C

Recreation: ☐ 2A ☒ 2B

Aquatic Life: ☐ 3A ☐ 3B ☐ 3C ☒ 3D ☐ 3E

Agricultural Water Supply: ☐ 4

Great Salt Lake: ☒ 5A ☐ 5B ☐ 5C ☐ 5D ☒ 5E

Antidegradation Category of Receiving Water (R317-2-12):

☐ 1 ☐ 2 ☒ 3

UPDES Permit Number:

Effluent Flow Reviewed: 252,000 gpd

Typically, this is the maximum monthly average discharge at design capacity. Exceptions should be noted.

What is the application for? (check all that apply)

- ☒ A UPDES permit for a new facility, project, or outfall.
- ☐ A UPDES permit renewal with an expansion or modification of an existing wastewater treatment works.
- ☐ A UPDES permit renewal requiring limits for a pollutant not covered by the previous permit and/or an increase to existing permit limits.
- ☐ A UPDES permit renewal with no changes in facility operations.

**Utah Division of Water Quality
Level II Antidegradation Review Form**

Part B. Determination of Need for Level II Review

This section of the form is intended to help applicants determine if a Level II ADR is required for specific permitted activities. In addition, the Executive Secretary may require a Level II ADR for an activity with the potential for major impact on the quality of waters of the state (R317-2-3.5a.1).

B1. The UPDES permit is new or is being renewed and the proposed effluent concentration and loading limits are higher than the concentration and loading limits in the previous permit and any previous antidegradation review(s).

X Yes (Proceed to Part B2 of the Form)

No No Level II ADR is required and there is no need to proceed further with review questions.

B2. Will any pollutants use assimilative capacity of the receiving water, i.e. do the pollutant concentrations in the effluent exceed those in the receiving waters at critical conditions? For most pollutants, effluent concentrations that are higher than the ambient concentrations require an antidegradation review. For a few pollutants, such as dissolved oxygen, an antidegradation review is required if the effluent concentrations are less than the ambient concentrations in the receiving water. (Refer to Section 3.3 of Implementation Guidance)

X Yes (Proceed to Part B3 of the Form)

No No Level II ADR is required and there is no need to proceed further with review questions.

B3. Are water quality impacts of the proposed project temporary and limited (Section 3.3.3 of Implementation Guidance)? Proposed projects that will have temporary and limited effects on water quality can be exempted from a Level II ADR.

Yes Identify the reasons used to justify this determination in Part B3.1 and proceed to Part G. No Level II ADR is required.

X No A Level II ADR is required (Proceed to Part C)

**Utah Division of Water Quality
Level II Antidegradation Review Form**

B3.1 Complete this question only if the applicant is requesting a Level II review exclusion for temporary and limited projects (see R317-2-3.5(b)(3) and R317-2-3.5(b)(4)). For projects requesting a temporary and limited exclusion please indicate the factor(s) used to justify this determination (check all that apply and provide details as appropriate) (Section 3.3.3 of Implementation Guidance):

Water quality impacts will be temporary and related exclusively to sediment or turbidity and fish spawning will not be impaired.

Factors to be considered in determining whether water quality impacts will be temporary and limited:

- a) The length of time during which water quality will be lowered:
- b) The percent change in ambient concentrations of pollutants:
- c) Pollutants affected:
- d) Likelihood for long-term water quality benefits:
- e) Potential for any residual long-term influences on existing uses:
- f) Impairment of fish spawning, survival and development of aquatic fauna excluding fish removal efforts:

Additional justification, as needed:

**Utah Division of Water Quality
Level II Antidegradation Review Form**

LEVEL II ANTIDEGRADATION REVIEW

Part C, D, E, and F of the form constitute the Level II ADR Review. The applicant must provide as much detail as necessary for DWQ to perform the antidegradation review. Questions are provided for the convenience of applicants; however, for more complex permits it may be more effective to provide the required information in a separate report. Applicants that prefer a separate report should record the report name here and proceed to Part G of the form.

Optional Report Name: TVPID RO Water Treatment Plant Reject Discharge
Alternatives Analysis

**Utah Division of Water Quality
Level II Antidegradation Review Form**

Part C. Statement of Social, Economic and Environmental Importance

This section determines whether the degradation from the project is necessary to accommodate important social and/or economic development in the area in which the waters are located. The applicant must provide as much detail as necessary for DWQ to concur that the project is socially and economically necessary when answering the questions in this section. More information is available in Section 6.2 of the Implementation Guidance.

C1. Describe the proposed project or activity that requires a discharge of pollutants to waters of the State of Utah.

The discharge will be the reject water from a reverse osmosis (RO) water treatment plant that is necessary to treat water from a newly constructed potable well with a high TDS level of 924 mg/l (500 desired), a high chloride level of 425 mg/l (250 MCL), a high sodium level of 153 mg/l (30 – 60 mg/l desired) and a high magnesium level of 43.5 (30 mg/l desired). The phase I discharge will be on the order of 29,000 gpd and nearly 33 acre-feet annually. The buildout discharge could be on the order of 252,000 gpd and 282 acre- feet annually.

C2. Describe the social and economic benefits that would be realized through the proposed project, including the number and nature of jobs created and anticipated tax revenues.

The TVPID was organized by the Utah Inland Port Authority under the Public Infrastructure District Act, ("Act") Title 17D, Chapter 4 of the Utah Code on May 9, 2024, for the purpose of constructing, operating, maintaining, and owning all public infrastructure and improvements, (Public Infrastructure) as this term is defined in section 102(8) of the Act within TVPID which is adjacent to I-80 and Burmester Road in Tooele County. The TVPID will serve warehouse distribution centers, light manufacturing plants, data centers, a truck stop/travel center with restaurants and a small hotel and restaurant.

Job creation by the project could be in the range of 1,500 to 2,000 jobs.

C3. Describe any environmental benefits to be realized through implementation of the proposed project.

The project could provide up to 252,000 gallons per day and over 282 acre-feet annually of additional water to the Great Salt Lake (GSL) at a salinity content of 3,280 mg/l, less than 3.0% of the salinity content of the GSL, Gilbert Bay receiving water, which is in the range of 120,000 to 150,000 mg/l.

**Utah Division of Water Quality
Level II Antidegradation Review Form**

C4. Describe any social and economic losses that may result from the project, including impacts to recreation or commercial development.

No social and economic losses are anticipated.

C5. Summarize any supporting information from the affected communities on preserving assimilative capacity to support future growth and development.

The project is about 6 miles north of Grantsville Main Street and will provide a great place for employment of workers who now commute over 8 miles into Tooele or Tooele Army Depot or over 20 to 30 miles to jobs in the Salt Lake Valley.

C6. Describe any structures or equipment associated with the project that will be placed within or adjacent to the receiving water.

The 6-inch HDPE RO reject water line will daylight into an existing drainage channel which will run in a northwesterly direction along an existing railroad for about 800 feet at which point it will join the intermittent North Willow Creek channel as it enters, parallel 30-inch and 36-inch diameter culverts under the railroad before discharging to the salt flats of the Great Salt Lake, about 3.25 miles west of the present day south end of Gilbert Bay of the Great Salt Lake. (See Exhibit EX-100 the UPDES facilities map for the location of facilities placed near the receiving water channel).

**Utah Division of Water Quality
Level II Antidegradation Review Form**

Part D. Parameters of Concern

This section identifies and ranks the parameters of concern from increasing to decreasing potential threat to beneficial uses of the receiving waters. Parameters of concern are constituents in the effluent at concentrations greater than ambient concentrations in the receiving water. The applicant is responsible for identifying parameter concentrations in the effluent and UDWQ will provide parameter concentrations for the receiving water through the wasteload allocation. More information is available in Section 3.3.3 of the Implementation Guidance.

D1. Parameters of Concern:

Rank	Pollutant	Ambient Concentration/ Units	Basis	Effluent Concentration/ Units	Basis
1	TDS	0 mg/L (dry channel)	WLA (Zero Flow)	3,280.7 mg/L	Feb 19 Proton Calc
2	Chloride	0 mg/L (dry channel)	WLA (Zero Flow)	1,544.64 mg/L	Feb 19 Proton Calc
3	Sodium	0 mg/L (dry channel)	WLA (Zero Flow)	606.55 mg/L	Feb 19 Proton Calc
4	pH	Unknown	Unassessed Water	7.92 SU	Feb 19 Proton Calc
5	Total Suspended Solids	0 mg/L (dry channel)	WLA (Zero Flow)	Pending	DWQ WLA List
6	BOD5	0 mg/L (dry channel)	WLA (Zero Flow)	Pending	DWQ WLA List
7	Total Ammonia (TAN)	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw <0.20 mg/L)	2-16 Lab Data
8	Total Phosphorus	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw <0.02 mg/L)	2-16 Lab Data
9	Turbidity	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw <0.05 NTU)	2-16 Lab Data
10	E. coli / DO / TN	Unknown	WLA (Zero Flow)	Pending	DWQ WLA List

**Utah Division of Water Quality
Level II Antidegradation Review Form**

11	Arsenic	0 mg/L (dry channel)	WLA (Zero Flow)	0.0063 mg/l	2-16 Lab Data
12	Cadmium	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw<0.0002mg/l)	2-16 Lab Data
13	Chromium (total)	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw<0.005mg/l)	2-16 Lab Data
14	Copper	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw<0.001mg/l)	2-16 Lab Data
15	Cyanide (Total)	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw<0.016mg/l)	2-16 Lab Data
16	Lead	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw<0.03mg/l)	2-16 Lab Data
17	Mercury	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw <0.0002mg/l)	2-16 Lab Data
18	Nickel	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw <0.005 mg/l)	2-16 Lab Data
19	Selenium	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw <0.0006mg/l)	2-16 Lab Data
20	Silver	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw <0.0005Mg/l)	2-16 Lab Data
21	Zinc	0 mg/L (dry channel)	WLA (Zero Flow)	ND (Raw < 0.01mg/l)	2-16 Lab Data

**Utah Division of Water Quality
Level II Antidegradation Review Form**

D2. Parameters Present in the Effluent Not Considered Parameters of Concern:

Pollutant	Ambient Concentration	Effluent Concentration	Justification
Calcium	0 mg/L	221.46 mg/L	Naturally occurring mineral; below concern limits
Silica	0 mg/L	208.82 mg/L	Naturally occurring mineral; below concern limits
Magnesium	0 mg/L	173.67 mg/L	Naturally occurring mineral; below concern limits
Sulfate	0 mg/L	101.77 mg/L	Naturally occurring mineral; below concern limits
Fluoride	0 mg/L	1.17 mg/L	Detected in trace amounts; below toxicity limits
Barium	0 mg/L	0.74 mg/L	Detected in trace amounts; below toxicity limits
MBAS Surfactants	0 mg/L	~0.48 mg/L (Est)	Trace presence in raw water (0.12 mg/L)

**Utah Division of Water Quality
Level II Antidegradation Review Form**

Part E. Alternative Analysis

Level II ADRs require the applicant to determine whether there are feasible less-degrading alternatives to the proposed project. For new and expanded discharges, the Alternatives Analysis must be prepared under the supervision of and stamped by a Professional Engineer registered with the State of Utah. DWQ may grant an exception from this requirement under certain circumstances, such as the alternatives considered potentially feasible do not include engineered treatment alternatives. More information regarding the requirements for the Alternatives Analysis is available in Section 5 of the Implementation Guidance.

E1. Attach as an appendix to this form a report that describes the following factors for all alternative treatment options 1) a technical description of the treatment process, including construction costs and continued operation and maintenance expenses, 2) the mass and concentration of discharge constituents, and 3) a description of the reliability of the system, including the frequency where recurring operation and maintenance may lead to temporary increases in discharged pollutants. Most of this information is typically available from a Capital Facility Plan, if available.

Report Name: TVPID RO Water Treatment Plant Reject Discharge Alternatives Analysis

E2. Describe the proposed method and cost of the baseline treatment alternative. The baseline treatment alternative is the minimum treatment required to meet water quality based effluent limits (WQBEL) as determined by the preliminary or final wasteload analysis (WLA) and any secondary or categorical effluent limits.

No additional treatment of the RO reject water is contemplated

E3. Were any of the following alternatives feasible and affordable?

Alternative	Feasible	Reason Not Feasible/Affordable
Pollutant Trading	☐ Yes ☒ No	
Water Recycling/Reuse	☐ Yes ☒ No	
Land Application	☐ Yes ☒ No	The 3281 mg/l reject water is above the 3000 mg/l maximum level that alfalfa can tolerate. It will be desirable to leach accumulated salts from the soil profile. However the soils in our land application area are quite clayey and will not leach well and too much land would be required. Total added cost over discharge to lake \$2.57M.
Connection to Other Facilities	☐ Yes ☒ No	Grantsville WWTP is 5 miles away
Upgrade to Existing Facility	☐ Yes ☒ No	No existing facilities
Total Containment	☐ Yes ☒ No	Total containment evaporation/infiltration ponds were considered. While they would

**Utah Division of Water Quality
Level II Antidegradation Review Form**

		work for phase I, requiring only 13 acres to evaporate the 33 acre – feet annually the buildout land requirement of over 113 acres to evaporate the over 282 acre-feet annually produced as very little infiltration is expected with the predominately clay soils in the area. Also 8 to 10 foot dikes on the low side of the evaporation pond would be required. Total added cost over discharge to lake \$2.62M.
Improved O&M of Existing Systems	☐ Yes ☒ No	
Seasonal or Controlled Discharge	☐ Yes ☒ No	
New Construction	☒ Yes ☐ No	
No Discharge	☐ Yes ☒ No	

**Utah Division of Water Quality
Level II Antidegradation Review Form**

E4. From the applicant's perspective, what is the preferred treatment option?

Discharge RO reject water to the unclassified channel that goes to the GSL

E5. Is the preferred option also the least polluting feasible alternative?

☐ Yes

☒ No

If no, what were less degrading feasible alternative(s)?

The evaporation pond alternative would be less degrading but it comes with a minimum price tag of over \$2.3M over the discharge the GSL.

If no, provide a summary of the justification for not selecting the least polluting feasible alternative and if appropriate, provide a more detailed justification as an attachment.

The reject water is really not that polluting at less than 3% of the TDS of Gilbert Bay. Sending the 282 ac-ft annually to the lake is a win for the lake that desperately needs water

E6. Describe any optional mitigation to compensate for the proposed water quality degradation?

There really will be very little water quality degradation

**Utah Division of Water Quality
Level II Antidegradation Review Form**

Part F. Public Notice

Level II ADRs require an opportunity for the public and interested parties to review and comment on the documentation. UDWQ conducts the mandatory Public Notice once the Level II ADR has been reviewed and is considered complete, which typically occurs with the environmental determination or the draft UPDES permit. Level II ADRs are public noticed for a minimum 30 day comment period. More information is available in Section 3.7.1 of the Implementation Guidance.

F1. Does the applicant want to conduct optional public review(s) of components of the Level II ADR in addition to the mandatory public review?

- ☐ **Statement of Social, Economic and Environmental Importance**
- ☐ **Parameters of Concern**
- ☐ **Alternatives Analysis**

**Utah Division of Water Quality
Level II Antidegradation Review Form**

Part G. Certification of Antidegradation Review

G1. Applicant's Certification

The form must be signed by the same responsible person who signed the accompanying UPDES permit application per UAC R317-8-3.1(3) or 401 Certification.

Based on my inquiry of the person(s) who manage the system or who prepared the documentation, the information in this form and associated documents is, to the best of my knowledge and belief, true, accurate, and complete.

Print Name: Melanie Poulsen _____

Signature: Melanie Poulsen _____

Date: 3/13/26 _____

G2. Professional Engineer's Certification

The Alternatives Analysis must be prepared under the supervision of and stamped by a Professional Engineer registered with the State of Utah. UDWQ may grant an exception from this requirement under certain circumstances, such as the alternatives considered potentially feasible do not include engineered treatment alternatives.

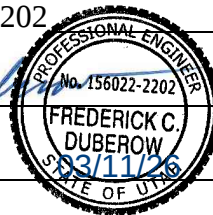
The Alternatives Analysis was prepared under my supervision and the information in this form and associated documents is, to the best of my knowledge and belief, true, accurate, and complete. Apply the Professional Engineer stamp below.

Print Name: Frederick C. Duberow _____

Professional Engineer License Number: 156022-2202 _____

Signature: Frederick C. Duberow _____

Date: 03/11/26 _____



TVPID RO Water Treatment Plant Reject Discharge Alternatives Analysis

March 12, 2026



Prepared For:

Tooele Valley Public Improvement District
8371 South State Street
Sandy, Utah 84070

Prepared By:

Frederick C. Duberow P.E.

Reviewed By:

Robert Rouselle P.E.

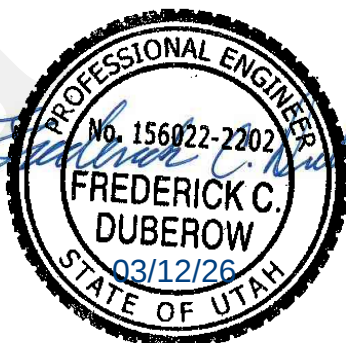


Table of Contents

Glossary of Technical Terms.....	i
Abbreviations and Units	i
Discharge Alternatives Analysis Discussion	1
Discharge Alternatives	2
Conclusions	3

Appendices

Appendix A – Exhibits EX-100 and EX-200

Appendix B - References

Appendix C– Engineer’s Estimate of Probable Costs for Discharge Alternatives

Glossary of Technical Terms

Average Daily or Day Demand

The average yearly demand volume expressed as a flow rate. Demand is typically used in irrigation or drinking water terminology.

Average Daily or Day Flow

The average yearly flow volume expressed as a flow rate. Term typically used in wastewater terminology.

Average Yearly Demand

Amount of water delivered to consumers by a public water system during a typical year. Demand is typically used in irrigation or drinking water terminology.

Cost Estimate

Typically, an Engineer's Estimate of Probably Costs for a project improvement based on recently bid projects and current construction climate. A cost estimate may include design fees, permitting, administrative costs, and contingency.

Infiltration

Process by which water enters the soil and recharges streams, lakes, rivers, and underground aquifers. Term typically used in storm water terminology.

Water Line

Pipe or conduit which contains and conveys water.

Abbreviations and Units

ac	acre [area unit of measurement]
ac-ft	acre-foot (1 acre-foot = 325,851 gallons) [volume unit of measurement]
cfs	cubic feet per second [flow rate unit of measurement]
Ensign	Ensign Engineering and Land Surveying
gpd	gallons per day [flow rate unit of measurement]
gpm	gallons per minute [flow rate unit of measurement]
HDPE	High-density Polyethylene [material used for various building materials]
yr	year [time unit of measurement]

Discharge Alternatives Analysis Discussion

The purpose of this report is reviewing alternatives for disposing of the reject water from the proposed Reverse Osmosis (RO) water treatment plant which will produce potable water for customers of the Tooele Valley Public Improvement District (TVPID). In all cases there will be no further treatment of the reject stream once it leaves RO WTP.

For proposed UPDES permitted discharges, the following list of alternatives to discharging to the Great Salt Lake were considered, but only alternatives (j) and (k) were consider remotely feasible:

- (a) innovative or alternative treatment options
- (b) more effective treatment options or higher treatment levels
- (c) connection to other wastewater treatment facilities
- (d) process changes or product or raw material substitution
- (e) seasonal or controlled discharge options to minimize discharging during critical water quality periods
- (f) pollutant trading
- (g) water conservation
- (h) water recycle and reuse
- (i) alternative discharge locations or alternative receiving waters
- (j) land application – Irrigation of alfalfa fields
- (k) total containment – Evaporation/Infiltration basin
- (l) improved operation and maintenance of existing treatment systems
- (m) other appropriate alternatives

RO reject water flow: 175 gpm, 252,000 gpd, 282 acre-feet per year

Discharge Alternatives

There are three (3) alternatives for disposing of the RO reject water:

1. Discharge directly to an unclassified drainage channel which leads directly to Gilbert Bay of the Great Salt Lake (GSL)

Water simply runs into the GSL thru existing unclassified drainage channels with no infrastructure cost other than the 6-inch HDPE force main to the point of discharge.

2. Discharge to a total containment evaporation/infiltration basin

The total inflow to the containment pond is 282 ac-ft annually. There is 45 to 50-inches of annual pond evaporation less 11.5-15.4 inches of annual precipitation leaving a net evaporation per year of 45 minus 15 inches or 30 inches annually. This will require a containment pond with a total area of 282 ac-ft divided by 2.5 ac-ft/acre of net evaporation which will require 113 acres of evaporation pond. Due to land ownership issues, there will have to be a 95-acre pond on the east side of the railroad and a 20-acre pond on the west side of the railroad. (Please see EX-100 UPDES facilities plan and EX-200 Evaporation/infiltration pond areas in Appendix A). Over 10,000 LF of dike construction 4 to 8 feet high with a top width of 10 feet and will be required to contain the discharge. Also, 48-inch RCP culvert 2,700 feet long will be required to carry the intermittent flow from the North Willow drainage starting with a concrete transition structure to go from the existing 30 and 30-inch cmp culverts under the railroad to the 48-inch RCP under and through the east side evaporation pond so it does not commingle with the evaporating RO reject water. The total cost to build this alternative is estimated to be \$2.32M plus 0.3M for land for a total of \$2.62M over the simple discharge to the GSL. (See Detailed Cost Estimate in Appendix C)

3. Land application

The 3,281 mg/l TDS reject water is just over the maximum tolerable by alfalfa of 3,000 mg/l. The soils would have to allow for some drainage to leach salts from the root zone. This may be difficult as soils studies in the area show extremely clayey soils. The area required for the land application would essentially be similar to that of the evaporation ponds. (See EX-200 in Appendix A). The land would need to be graded so it is relatively flat so no runoff occurs. A pump and sprinkler system, wheel lines on the west area and a center pivot for the east area. Also, 48-inch RCP culvert 2,700 feet long will be required to carry the intermittent flow from the North Willow drainage starting with a concrete transition structure to go from the existing 30 and 30-inch cmp culverts under

the railroad to the 48-inch RCP under and through the east side land application area so it does not commingle with the RO reject water being applied to the land application area. The sprinkler system would have to operate year-round with potential freeze up problems in the winter, making this alternate less feasible. The total cost to build this alternative is \$2.27M plus 0.3M for land for a total of \$2.57M over the simple discharge to the GSL. (See Detailed Cost Estimate in Appendix C)

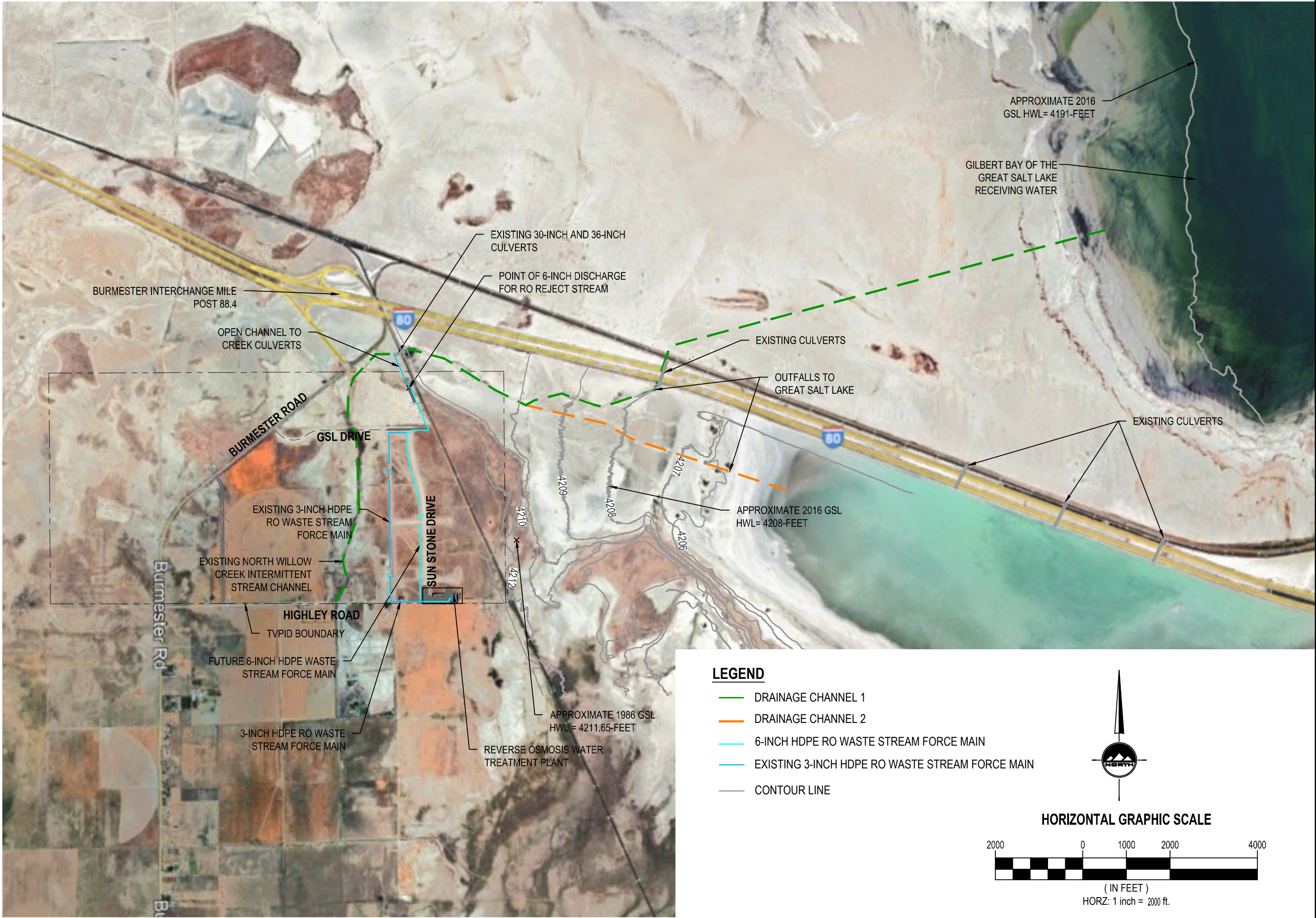
Conclusions

Because of the low cost associated with the direct discharge to the unclassified channel and the GSL it is the alternative of choice. Additionally, the State of Utah is looking for more surface water to recharge the Great Salt Lake.

The total containment/evaporation ponds would be a solution, which would allow for year-round discharge, but it would be very expensive and take up a lot of land that the land owners have other plans for.

As with the total containment/evaporation ponds the land application alternative would also be very expensive and take up a lot of land that the land owners have other plans for. But because of the winter freeze potential with the land application alternative, it may be infeasible because the reject water production must continue year-round.

Appendix A – Exhibits EX-100 and EX-200





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TOOELE VALLEY PUBLIC INFRASTRUCTURE DISTRICT

RO WATER TREATMENT PLANT REJECT WATER DISCHARGE

UPDES PERMIT- FACILITIES

TOOELE, UTAH

UPDES PERMIT
FACILITIES MAP

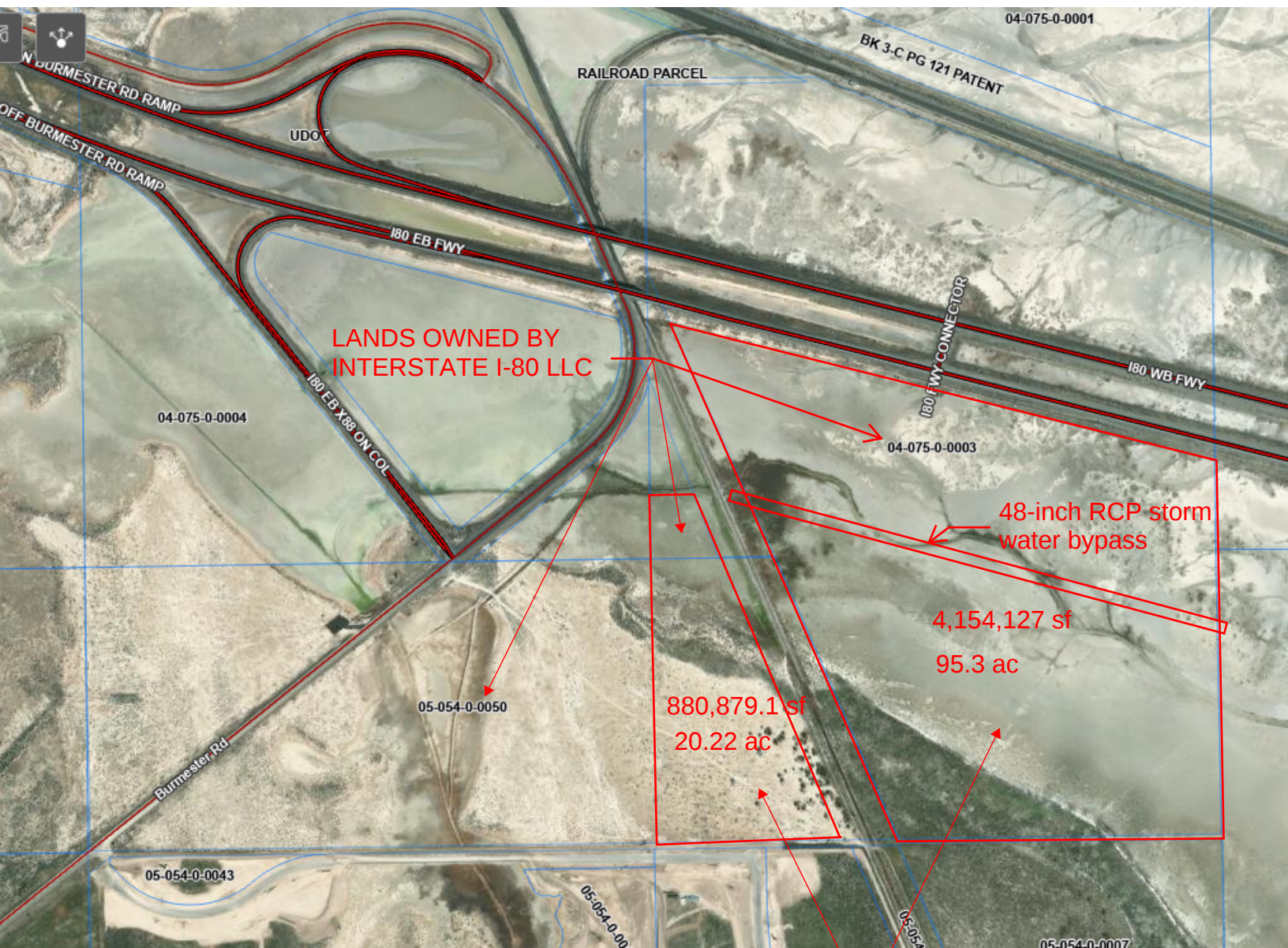
PROJECT NUMBER
10438A

PRINT DATE
2026-02-04

PROJECT MANAGER
F. DUBEROW

DESIGNED BY
D. SAWADOGO

EX-100



EVAPORATION/INFILTRATION POND AREAS
LAND APPLICATION AREAS

Appendix B - References

Utah Division of Water Quality

Statement of Basis ADDENDUM Wasteload Analysis and Antidegradation Level I Review.

Christopher L. Shope, PhD Standards and Technical Services

February 12 2026



State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Tim Davis
Executive Director

DIVISION OF WATER QUALITY
Candice Hasenyager, P.E.
Director

**Utah Division of Water Quality
Statement of Basis ADDENDUM
Wasteload Analysis and Antidegradation Level I Review**

Date: February 12, 2026

Prepared by: Christopher L. Shope, PhD
Standards and Technical Services

Facility: Tooele Valley Public Infrastructure District
UPDES Permit No. Preliminary - 7CTVPID

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

DISCHARGE

There is a single discharge point listed in the permit renewal application (Figure 6).

- Outfall 001 discharges treated reverse osmosis (RO) effluent into Unclassified Waters. Effluent flows into the Great Salt Lake Transitional Area and into Gilbert Bay of the Great Salt Lake. Effluent is discharged at an expected daily maximum design flow of 0.26 MGD.
- Outfall 001 is located at 40.681094°, -112.438754° (Figure 1).

RECEIVING WATER

The receiving water for Outfall 001 is *Unclassified Waters*. Per UAC R317-2-13.13, the designated beneficial uses for *Unclassified Waters* are *2B* and *3D*.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low*

degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.

- *Class 3D - Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.*

DWQ performed a site visit to verify that the area wasn't a tributary of any specifically designated waters in the area. DWQ consulted with local water users. Furthermore, DWQ consulted topographic, hydrologic, and historical satellite imagery maps to further validate potential beneficial uses. Surface water flows northerly through the central east portion of property at approximately 2 ft³/s (Figure 2). This surface water feature appears to be a collection drain for agricultural, animal husbandry, and other processes in area based on visual observations and discussions with adjacent landowners. The groundwater infiltration is evident as it creates wide, spongy, clayey/silty evaporation ponds (Figure 3) with highly variable thalweg sinuosity. There is no visible stock vegetation and no standing water, indicating a periodic potential ponding with lack of a continuous flow regime (Figure 4). There is likely very poor water quality from the agricultural return flows, animal husbandry, and other uses upstream (Figure 5). The nearest upstream DWQ monitoring location is approximately 11 miles upstream. All Division of Water Rights points of diversion appear to be greater than 0.7 mi upgradient to the north of Outfall 001 and are groundwater wells. Analysis of Division of Drinking Water groundwater protection zones indicates the closest is Class 2 to 4 at 5.4 miles in Grantsville, Utah.

Per UAC R317-2-8 Protection of Downstream Uses, all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.

The effluent may flow from *Unclassified Waters* into the downstream Class 5E Transitional Waters and Class 5A Gilbert Bay of the Great Salt Lake. Per UAC R317-2-13.11, the designated beneficial uses are.

- *Class 5E - Transitional Waters along the Shoreline of the Great Salt Lake. Geographical Boundary - All waters below approximately 4,208-foot elevation to the current lake elevation of the open water of the Great Salt Lake receiving their source water from naturally occurring springs and streams, impounded wetlands, or facilities requiring a UPDES permit. The geographical areas of these transitional waters change corresponding to the fluctuation of open water elevation. Beneficial Uses - Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.*
- *Class 5A - Gilbert Bay of the Great Salt Lake. Geographical Boundary - All open waters at or below approximately 4,208-foot elevation south of the Union Pacific Causeway, excluding all of the Farmington Bay south of the Antelope Island Causeway and salt evaporation ponds. Beneficial Uses - Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.*

The 4208 foot elevation, which denotes 5E transitional waters, is located approximately 1.6 miles

downstream of the Outfall 001 location on the northeast side of Interstate-80 and the adjacent railroad tracks



Figure 1-Location of proposed Outfall 001, looking north.



Figure 2-Surface water at north central portion of property.



Figure 3-Example of soil and vegetation in spongy wetland area above Outfall 001 discharge location.



Figure 4-Downstream of railroad culvert at Outfall 001.



Figure 5-Surface water prior to culvert at Higley Road.

DWQ expects attainment of upstream use classifications will be protective of any downstream uses associated with Great Salt Lake

WATER QUALITY STANDARDS

Numeric criteria based on designated beneficial uses are specified in UAC R317-2-14. In addition, narrative water quality standards must not be violated per UAC R317-2-7.2:

It shall be unlawful, and a violation of these rules, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures; or determined by biological assessments in Subsection R317-2-7.3.

No permit may be issued by the Director per UAC R317-8-2.2(7) to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or [a] new discharger proposing to discharge into a water segment which does not meet Utah water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by the UPDES rules and for which the Director has performed a wasteload allocation for the pollutants to be discharged, must demonstrate, before the close of the public comment period, that:

(a) There are sufficient remaining wasteload allocations to allow for the discharge; and

(b) The existing dischargers into the segment are subject to schedules of compliance designed to bring the segment into compliance with Utah Water Quality Standards. (See UAC R317-2.)

CRITICAL LOW FLOW

Typically, the critical flow for the receiving water in a wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten-year return frequency (7Q10). Because the receiving water is seasonally dry, gravity-driven, sheet flow, the 7Q10 is assumed to be zero and effluent limits revert to end-of-pipe (EOP) water quality standards.

RECEIVING WATER ASSESSMENT AND TOTAL MAXIMUM DAILY LOAD (TMDL)

According to the Utah's [Final 2024 Integrated Report on Water Quality](#) dated April 30, 2024 (UDWQ, 2024), the receiving water for Outfall 001 discharge is unassessed and has no TMDL for any parameters.

The downstream waterbody, Great Salt Lake Gilbert Bay (AU name: *Gilbert Bay* AU ID: *UT-L-16020310-001_00*), is listed as “No Evidence of Impairment”.

MIXING ZONE

Per UAC R317-2-5, the maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions. Water quality standards must be met at the end of the regulatory mixing zone. In this case, because the 7Q10 was assumed to be zero, no mixing zone is allowed, and no dilution factor was applied.

PARAMETERS OF CONCERN

The potential parameters of concern identified for the discharge/receiving water were determined in consultation with the UPDES Permit Writer, the Utah Water Quality Assessment Reports, and the industry SIC codes from <https://www.osha.gov/data/sic-search>. The potential parameters of concern for this facility include: total suspended solids (TSS), dissolved oxygen (DO), biochemical oxygen demand (BOD₅), total phosphorus (TP), total nitrogen (TN), total ammonia (TAN), turbidity, *E. coli*, and pH.

WET LIMITS

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

WET limits for Outfall 001 for IC₂₅ should be based on 100% effluent due to critical low flow conditions of zero.

WASTELOAD ALLOCATION METHODS

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ 2021). The mass balance analysis is summarized in the Wasteload Addendum.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. Background data were not sampled for this location. To evaluate effluent discharge water quality, the Tooele Valley Public Infrastructure District discharge monitoring report (DMR) would be used. Since the facility is not fully operational, the DMR is not available. Due to a lack of flow dilution, effluent limits for this discharge are water quality standards for the specific receiving water. The applicable water quality standards are attached as an appendix to this wasteload.

For parameters without a WQBEL, permit limits should be set according to rules found in R317-1-3 and categorical UPDES discharge requirements.

Models and supporting documentation are available for review upon request.

LOCATION MAP

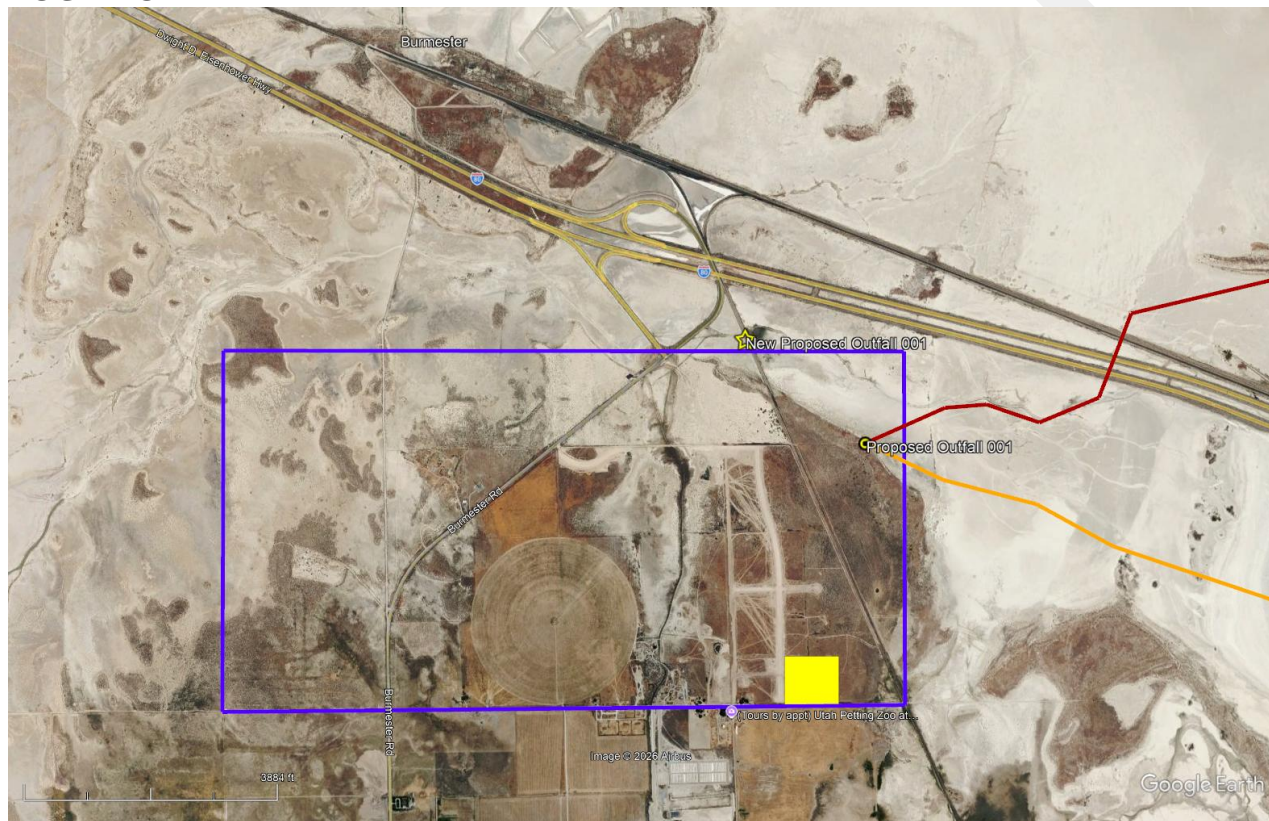


Figure 6-Location map of outfalls, monitoring locations, and surface water channels.

ANTIDEGRADATION LEVEL I REVIEW

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial and existing uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

ANTIDEGRADATION LEVEL II REVIEW REQUIREMENTS

A Level II Antidegradation Review (ADR) is required for this facility. This is a new effluent discharge and the pollutant concentration with concurrent contaminant loading is being increased under this new preliminary permit.

DOCUMENTS

WLA Document: 260212-TVPID_EOP_WLA_2026.docx

Wasteload Analysis and Addendums: 260206-TVPID_EOP_WLA_2026.xlsm

REFERENCES

Utah Division of Water Quality. 2024. Final 2024 Integrated Report on Water Quality. <https://lf-public.deq.utah.gov/WebLink/DocView.aspx?id=87957&repo=Public&searchid=fcd9ea4c-51e1-4227-aa29-fb1921c2cc19&cr=1>

Utah Division of Water Quality. 2021. Utah Wasteload Analysis Procedures Version 2.0. <https://documents.deq.utah.gov/water-quality/standards-technical-services/DWQ-2021-000684.pdf>

Appendix C– Engineer’s Estimate of Probable Costs for Discharge Alternatives

ENGINEER'S ESTIMATE OF PROBABLE COSTS



PROJECT TITLE: TVPID - RO reject water Evaporation ponds - total land area required = 113 acres			PROJECT NUMBER: 10438A	
LOCATION: Burmester, Utah 84029			DATE: March 9, 2026	
CLIENT: Tooele County			SHEET: 1 OF 1	

ESTIMATED BY: Diane Sawadogo	CHECKED BY: Fred Duberow	APPROVED BY: Robert Rouselle
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EVAPORATION/INFILTRATION POND EARTHWORK

Item no.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
1.0	Site Clearing/Grubbing 6-inches deep of topsoil and organic vegetation and stockpile.	SQ. FT.	5,035,000	\$0.10	\$503,500
2.0	10' wide gravel access roads on top of dikes - 8" thick 3/4" minus Gravel -10,200 LF	SQ. FT.	81,600	\$1.50	\$122,400
3.0	Lagoon excavation cut/ fill/dike construction compacted to 95% standard proctor density (3.8 cy/ft X 10,200ft)	CY	38,760	\$8.50	\$329,460
4.0	Angular Riprap 8" thick from 1' above high water line to bottom of pond (16' wide X 10,200 long) haul from 5 miles away. D50 shall be 6".	CY	6,044	\$40.00	\$241,760
5.0	Concrete overflow and transfer box with Waterman slide gates from pond 1 to pond 2	EA	2	\$20,000.00	\$40,000
6.0	8" DR 17 HDPE pipe from pond 1 to pond 2	LF	650	\$60.00	\$39,000
7.0	Mitered end section and inlet/outlet aprons	LF	2	\$250.00	\$500
8.0	2" Distribution tee with (2) 2" gate valves with valve boxes	EA	3	\$2,000.00	\$6,000
9.0	Mitered End Section	EA	10	\$500.00	\$5,000
10.0	Embankment compaction testing	LS	1	\$10,000.00	\$10,000
11.0	Spread stock piled topsoil on outside dike slopes	LS	1	\$150,000.00	\$150,000
12.0	Erosion Control/Reseeding	LS	1	\$50,000.00	\$50,000
13.0	Transition box from 30 and 36" culverts under RR to 48" RCP	LS	1	\$20,000.00	\$20,000
14.0	Install 48" RCP bypass storm drain pipe through pond 2 for North Willow Stream channel	LF	2,700	\$95.00	\$256,500
15.0	Construction Staking	LS	1	\$20,000.00	\$20,000
16.0	Mobilization 5%	LS	-	\$89,706.00	\$89,706

PROJECT SUBTOTAL

	Subtotal	\$1,883,826
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CONTINGENCY

15% Contingency	LS	-	-	\$282,574
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Total Project Construction Cost \$2,166,400

ENGINEER'S ESTIMATE OF PROBABLE COSTS



PROJECT TITLE: TVPID - RO reject water Land application - total land area required = 113 acres			PROJECT NUMBER: 10438A		
LOCATION: Burmester, Utah 84029			DATE: March 9, 2026		
CLIENT: Tooele County			SHEET: 1 OF 1		
ESTIMATED BY: Diane Sawadogo		CHECKED BY: Fred Duberow		APPROVED BY: Robert Rouselle	

LAND APPLICATION FACILITIES AND GRADING

Item no.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
1.0	Site Clearing/Grubbing 6-inches deep of topsoil and organic vegetation and stockpile.	SQ. FT.	5,035,000	\$0.10	\$503,500
3.0	Land leveling for preparation of alfalfa field assume 2' cut to 2' fill on half the area 2' X 2,518,000/27cf/cy	CY	186,500	\$3.00	\$559,500
6.0	Install 5 ac-ft regulating pond	LS	1	\$50,000.00	\$50,000
7.0	Install irrigation pump station to land applic sprinklers included (2) 20hp pumps pumping 175 gpm to 80 psi with flow meter	LS	1	\$30,000.00	\$30,000
10.0	install 20 acre wheel line on area 1	LS	1	\$30,000.00	\$30,000
11.0	install 95 acre center pivot on area 2	EA	2	\$100,000.00	\$200,000
14.0	Spread stock piled topsoil on land application area	LS	1	\$50,000.00	\$50,000
15.0	alfalfa seeding	LS	1	\$50,000.00	\$50,000
16.0	Transition box from 30 and 36" culverts under RR to 48" RCP	LS	1	\$20,000.00	\$20,000
16.0	Install 48" RCP bypass storm drain pipe through field 2 for North Willow Stream channel	LF	2,700	\$95.00	\$256,500
16.0	Construction Staking	LS	1	\$10,000.00	\$10,000
17.0	Mobilization 5%	LS	-	\$87,975.00	\$87,975
PROJECT SUBTOTAL					
				Subtotal	\$1,847,475
CONTINGENCY					
	15% Contingency	LS	-	-	\$277,121
Total Project Construction Cost					\$2,124,596