CERTIFICATION AND FINANCING PROPOSAL

WATER TREATMENT PLANT REPLACEMENT AND WATER METER UPGRADES IN JIM HOGG COUNTY, TEXAS

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EXECUTIVE SUMMARY

WATER TREATMENT PLANT REPLACEMENT AND WATER METER UPGRADES IN JIM HOGG COUNTY, TEXAS

Project: The proposed project consists of replacing a non-operational drinking water treatment facility with a reverse osmosis plant, as well as replacing 1,813 water meters in the city of Hebbronville located in Jim Hogg County, Texas (the "Project").

Project Objective: The purpose of the Project is to provide additional drinking water treatment capacity and thus reduce human health risks associated with waterborne diseases, especially those related to excess arsenic and total dissolved solids. In addition, the Project will increase the operational efficiency of the utility by providing a more energy efficient treatment process and improving water metering.

Expected Outcomes: The Project is expected to generate environmental and human health benefits, as well as enhance operational efficiency, as a result of the following outcomes:

- Increase water treatment capacity from 0.73 to 1.73 million gallons a day (mgd), thus providing the necessary flows to meet peak demand and comply with the requirements established by the Texas Commission on Environmental Quality (TCEQ) regarding minimum capacity and redundancy.
- Ensure adequate water quality and quantity for 1,813 existing connections.
- Replace of 1,813 water meters.
- Promote efficient water control and billing by accounting for up to 6% of water losses (4,104,000 gallons per year).
- Generate cost savings of up to US$257,000 during the first year of operations due to a more efficient water treatment process and better water supply control.[1]

Population to Benefit: 4,558 residents of the city of Hebbronville in Jim Hogg County, Texas.[2]

[1] The Project will be implemented under two performance agreements: (i) a water treatment agreement currently under negotiation and (ii) a metering agreement already executed, both with Schneider Electric, who guarantees financial benefits of US$155,000 from the metering and US$102,000 from the water treatment plant.
[2] Estimate provided by the Sponsor. According to the U.S. census, the county population was 5,192 in 2018. Data results of the 2010 U.S. Census indicate that the population of the county was 5,300, while its county seat, Hebbronville, was 4,558.

Project Sponsor: Jim Hogg County Water Control Improvement District 2.

Borrower: Jim Hogg County Water Control Improvement District 2.

Estimated Project Cost US$4.26 million.

NADB Loan: Up to US$4.26 million.

Uses and Sources of Funds:
(US$)

Uses		Amount	%
Water treatment plant	$	2,000,000	46.9
Water meters		1,700,000	39.9
Closing costs and contingencies*		560,000	13.2
TOTAL	**$**	**4,260,000**	**100.0**

Sources		Amount	%
NADB Loan	$	4,260,000	100.0
TOTAL	**$**	**4,260,000**	**100.0**

*This provision will help cover any additional project requirements (i.e. change orders, cost escalations) in a timely manner.

CERTIFICATION AND FINANCING PROPOSAL

WATER TREATMENT PLANT REPLACEMENT AND WATER METER UPGRADES IN JIM HOGG COUNTY, TEXAS

1. PROJECT OBJECTIVE AND EXPECTED OUTCOMES

The proposed project consists of replacing a non-operational electrodialysis reversal (EDR) drinking water treatment facility with a reverse osmosis plant, as well as replacing 1,813 water meters in the city of Hebbronville in Jim Hogg County, Texas (the "Project"). The purpose of the Project is to provide additional drinking water treatment capacity and thus reduce human health risks associated with waterborne diseases, especially those related to excess arsenic and total dissolved solids. In addition, the project will increase the operational efficiency of the utility by providing a more energy efficient treatment process and improving water metering. Specifically, the Project is expected to (i) increase water treatment capacity from 0.73 to 1.73 million gallons a day (mgd), (ii) ensure adequate water quality and quantity for 1,813 existing connections, (iii) replace 1,813 water meters, (iv) promote efficient water control and billing accounting for up to 6% of water losses (4,104,000 gallons per year), and (v) generate cost savings of up to US$257,000 during the first year of operations.[3]

2. ELIGIBILITY

2.1. Project Type

The Project falls within the eligible category of drinking water.

2.2. Project Location

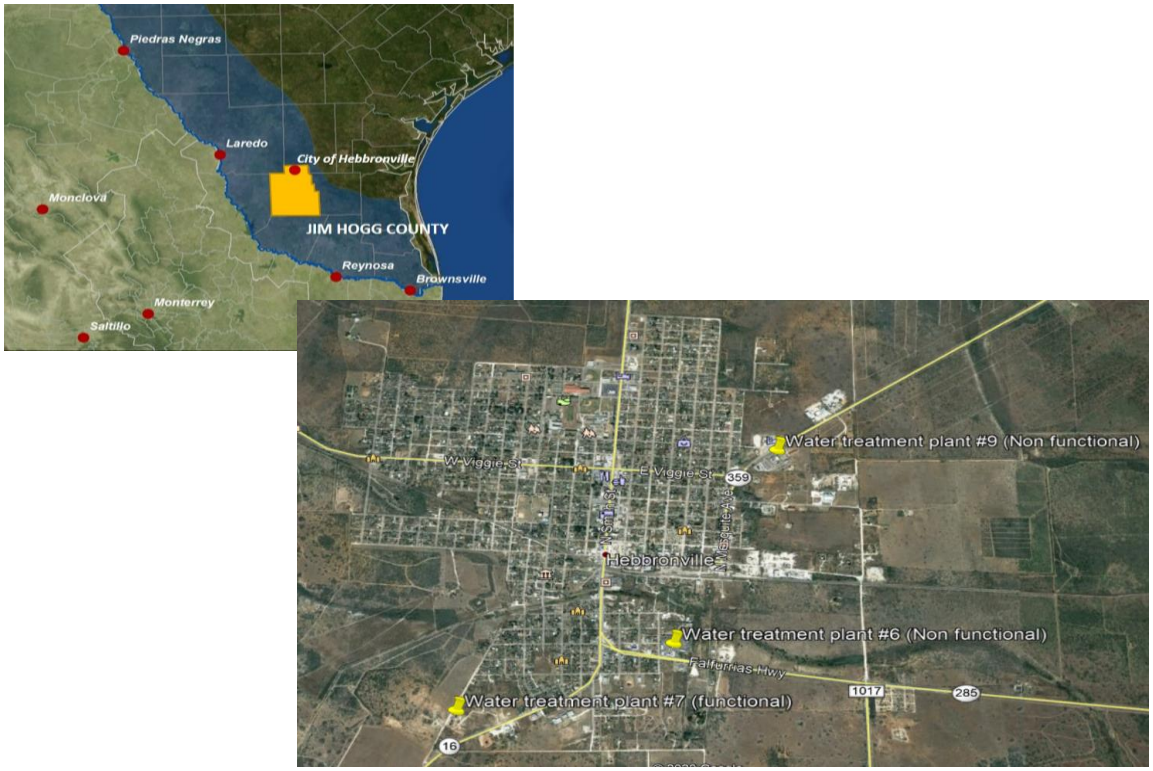
The Project will be implemented in the city of Hebbronville in Jim Hogg County, Texas. Hebbronville is the county seat and largest town in the county. It is located approximately 75 kilometers (46.6 miles) from the U.S.-Mexico border. The closest major U.S. cities are Laredo approximately 50 miles to the northwest and McAllen about 80 miles to the southeast. The geographical coordinates of the city of Hebbronville town center are approximately 27° 18' 26" N

[3] The Project will be implemented under two performance contracts: (i) a water treatment contract currently under negotiation and (ii) a metering contract already executed with Schneider Electric, who guarantees benefits of US$155,000 on the metering and US$102,000 on the water treatment plant.

and 98° 40' 42" W. Water treatment plant (WTP) No. 9 to be replaced as part of the project is adjacent to the Hebbronville Border Patrol Station at 34 E. Hwy 359, Hebbronville TX 78361.

Figure 1 shows the location of the community and of the Project.

Figure 1
PROJECT LOCATION MAP



2.3. Project Sponsor and Legal Authority

The public-sector Project Sponsor is the water utility Jim Hogg County Water Control Improvement District 2 (JHWCID2 or the "Sponsor"), which is responsible for providing drinking water and wastewater collection services within the county limits. The Public Utility Commission of Texas issued Certificate of Convenience and Necessity (CCN) 12744 to the JHWCID2. The CCN grants the holder the exclusive right to provide retail water and/or sewer utility services to an identified geographic area. Chapter 13 of the Texas Water Code requires a CCN holder to provide continuous and adequate service to the area within its CCN boundary. This certificate covers the entire city where the Project will be constructed.

3. CERTIFICATION CRITERIA

3.1. Technical Criteria

3.1.1. General Community Profile

According to the 2010 U.S. census, the population of Jim Hogg county was approximately 5,300, with about 90% residing in the city of Hebbronville. Estimates for 2019 indicate that the population has declined to roughly 5,200.[4]

For economic development and analysis purposes, the Texas Workforce Commission divides the counties into several economic regions. Jim Hogg County, along with Webb and Zapata counties, belong to the South Texas Workforce Development Area (WDA). Economic activities in the South Texas WDA include education and health services (30.9%), trade, transportation and utilities (29.9%), and leisure and hospitality (11.2%), among others.[5]

In 2019, the county had a median household income of US$32,049, which is considerably less than the median household income of the state of Texas (US$59,570).[6] The poverty level for Jim Hogg County was estimated at 25.2%, considerably higher than the 14.9% poverty level estimated for the state.[7]

The following table summarizes the status of public water services coverage by JHWCID2 in Hebbronville.

[4] Source: U.S. Census Bureau (https://www.census.gov/quickfacts/jimhoggcountytexas).
[5] Source: Texas Workforce Commission. Texas Labor Market Information (https://texaslmi.com/EconomicProfiles/WDAProfiles).
[6] Source: U.S. Census Bureau (https://www.census.gov/quickfacts/TX).
[7] Source: Ibid.

Table 1
PUBLIC WATER SERVICES AND INFRASTRUCTURE*

Water			
Coverage:	99%		
Water supply source:	Gulf Coast Aquifer, through 3 wells		
Number of hookups:	1,813 (1,592 residential and 221 non-residential)		
Treatment plants (EDR)**	**Plant**	**Capacity**	**Status**
	No. 6	0.86 mgd	Not operational
	No. 7	0.73 mgd	In operation
	No. 9	1.04 mgd	Not operational
Wastewater Collection			
Coverage:	99%		
Number of connections:	1,813		
Wastewater Treatment			
Coverage:	100% of collected wastewater		
Treatment facilities:	Activated sludge process with capacity: 1 mgd		

* Information provided by Sponsor, 2020.
** According to the Sponsor, the treatment plants at Wells No. 6 and 9 were in operation for 10 years and ceased operating in 2014 due to the recurring failure of the EDR equipment. The EDR treatment plant at Well No. 7 began operations in 2018 and was financed by a grant and loan from the U.S. Department of Agriculture (USDA).
mgd = million gallons a day

Local Water and Wastewater Systems

Water Distribution

JHWCID2 owns and operates the local water distribution system, which serves 1,813 water customers. The water supply source is groundwater from the Gulf Coast Aquifer, which has the highest levels of arsenic in the state of Texas.[8] Since the quality of the groundwater is not optimal, it requires treatment in order to comply with the applicable standards of the Texas Commission on Environmental Quality (TCEQ). TCEQ has been issuing notices to JHWCID2 since 2013, indicating that the arsenic in its water supply exceeds the maximum contaminant level (MCL) under Texas state regulations.[9] In 2017, TCEQ notified the utility that its water supply exceeded the MCL with an arsenic level of 0.023 milligrams per liter (mg/l). JHWCID2 is expecting to conduct a thorough water analysis by October 2020 to determine arsenic levels and verify compliance with the TCEQ MCL. JHWCID2 has also indicated that total dissolved solids (TDS) are estimated at 1,571 mg/l, thus surpassing the TDS MCL. A raw analysis performed in 2016, confirmed that total dissolved solids are not in compliance with TCEQ standards.

[8] Source: Texas Commission on Environmental Quality (TCEQ) (https://www.tceq.texas.gov/drinkingwater/chemicals/arsenic/arsenic.html).
[9] Source: TCEQ. The MCL is 0.01 milligrams per liter (mg/l) for arsenic and 1000 mg/l for total dissolved solids. (https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-346.pdf).

The drinking water system includes a 500,000-gallon ground storage tank, a 250,000-gallon elevated storage tank and three wells, which are paired to three electrodialysis reversal water treatment plants. Two of the plants with a combined capacity of 1.9 mgd are currently non-operational and thus JHWCID2 is unable to provide the minimum volume per connection required by TCEQ regulations (0.6 gallons per minute (gpm)). The only operational water treatment plant has a capacity of 0.73 mgd.[10]

Average water consumption during the summer is 0.59 mgd. However, the Public Works office of JHWCID2 mentioned that a few years ago they had seen larger daily demand approaching 0.8 mgd and even 1.0 mgd, which stresses supply. JHWCID2 is currently not able to meet peak demand, nor comply with the TCEQ technical requirement of having at least two operating groundwater supply sources for the district. Additionally, current capacity is insufficient for residential irrigation, which is restricted to certain schedules. The community has been relying on this sole, limited supply source for the last 18 months, posing a high risk for the community should a shutdown occur. Moreover, the operation and maintenance costs of the current EDR technology are high compared to more commercial technologies, such as reverse osmosis.

As for water metering, JHWCID2 estimates that 74% out of the 1,813 existing water meters are underreporting water use, which represents losses in unaccounted water of nearly 6% (4,104,000 gallons per year) of all water losses by the utility. Approximately 4.3% of the meters were overreporting water use and 21.7% were accurately reporting water use. Installation of new water meters will address a portion of the unaccounted water losses.[11]

To address the deficiencies described above, the Sponsor is undertaking the proposed Project which will (i) improve water quality, in particular compliance with arsenic and TDS levels, (ii) provide sufficient installed capacity to comply with the required minimum volume per connection, (iii) ensure proper water billing while reducing unaccounted water losses and (iv) generate additional revenue for the District,.

Wastewater Treatment

The activated sludge wastewater treatment plant (WWTP) has a capacity of 1 mgd and currently receives an average flow of 0.4 mgd. Effluent discharges are in compliance with applicable regulations.

The reject water from the existing EDR WTP is conveyed to the WWTP for treatment.

[10] Source: Title 30 Texas Administrative Code (TAC) of the TCEQ, Chapter 290, Subchapter D: Rules and Regulations for Public Water Systems, which requires water systems that serve more than 250 connections to have at least two wells with a total capacity of 0.6 gallons per minute (gpm) per connection. (https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=290&rl=45).

[11] According to the Sponsor, implementing this project will increase overall efficiency by 50%.

3.1.2. Project Scope

As described in detail in section 3.1.3, the Project is the result of the measures proposed to JHWCID2 in the two performance contracts negotiated with a qualified vendor selected through an open and competitive procurement process.

The Project consists of replacing one non-operational EDR desalination water treatment plant with a reverse osmosis (RO) plant designed to comply with TCEQ standards for TDS, arsenic and all other MCL, as well as replacing 1,813 water meters. The new treatment plant will also allow JHWCID2 to comply with all TCEQ water capacity and supply requirements.

The Project will be implemented through performance contracts, as the improvements are designed to generate benefits such as increased revenue or lower the overall operation and maintenance (O&M) costs of the system. The following elements will be installed as part of the Project:

- *Water treatment plant replacement*

  The plant will be equipped with a single reverse osmosis membrane system designed to treat up to 1 mgd of water and lower total dissolved solids and arsenic to levels that meet or exceed TCEQ requirements. The volume of brine discharge, estimated at a 20% reject rate, will be similar to the discharge from the current plant and will be conveyed to the wastewater treatment plant. The components of the reverse osmosis system are described below:

  - *Prefiltration system*. A prefilter housing system with five-micron cartridges will be included in the system design.

  - *High pressure feed pump.* A single centrifugal pump will be installed. The pump will be coupled to a 100-horsepower motor. A variable frequency drive will be installed in the system control center to provide soft starting of the pump motor and flexibility over a range of operating parameters.

  - *Reverse osmosis membranes*. Thin-film composite membranes will be installed. Thin-film composite membranes offer higher productivity and less compaction, as well as better salt rejection with lower applied pressure.

  - *Pressure vessels*. Plastic pressure vessels will be used for the membranes. The selected vessels offer high resistance to chemicals and corrosion.

  - *Piping.* All low-pressure piping will consist of polyvinyl chloride (PVC) pipes or thermoplastic tubing. The arrangement of piping and valves has been developed for ease of service and operation.

  - *Valves.* All low-pressure valves will be PVC ball, ball check or butterfly check. All high-pressure valves will be stainless steel ball, butterfly, globe or needle valves.

- *System control center.* A programmable logic controller (PLC) will be provided for comprehensive control of the unit. The PLC will accept control signals/inputs from the system, evaluate the system inputs and maintain the operation of the system within the design parameters.

The Performance Contract for this component is still pending execution but the estimated cost of this component is US$1.97 million and is expected to include: the RO unit and its installation, an automation and control package for remote monitoring, electrical material for interconnection, wiring and hook up, engineering, permitting, project development, construction/project/site management, annual O&M for the RO unit (filters, chemicals and cleaning in place), and payment and performance bonds. The contract will define the activities to be performed, as well as the deliverables and equipment to be provided. The contract will also include the corresponding payment mechanism.

- *Water meters replacement*

The Project also includes the replacement of 1,813 old water meters with ultrasonic technology and remote reading meters. The new meters will be able to read low flows accurately and will eliminate the need for physical reading, thus reducing maintenance costs.

The Performance Contract for this component was executed in March 2020. It provides the scope of work to be performed and the equipment to be provided. Payments to the contractor will be on a monthly basis based on the percentage of completion of the tasks. The cost of this component is US$1.68 million and includes: advanced metering infrastructure (AMI), tower-based radio equipment to be installed at two locations (water towers), installation of new AMI-compatible ultrasonic water meters with 20-year warranty, 100 new meter box lids, training on system operation and meter replacement, along with testing after construction to prove system performance and supervision.

The cost estimate includes an additional 13% to cover any price escalations, potential change orders and financial and closing costs.

3.1.3. Technical Feasibility

Under Texas Government Code Title 7, Section 791: Interlocal Cooperation Contracts, JHWCID2 issued a request for qualifications for an energy savings performance contract proposal. The procurement process was implemented through The Interlocal Purchasing System (TIPS) a national purchasing cooperative that offers its membership access to competitively procured purchasing contracts and is managed by the Region 8 Education Service Center (ESC) located in Pittsburg, Texas. Some of the benefits from using a purchasing cooperative like TIPS are:

- Access to competitively procured contracts with quality vendors;
- Savings of time and financial resources necessary to fulfill bid requirements;
- Assistance with purchasing process by qualified TIPS staff; and

- Access to pricing based on a "national" high-profile contract.

The general process for awarding a contract to a vendor through TIPS is as follows: (i) TIPS posts a Request for Proposals (RFP)/Request for Qualifications (RFQ) for a specific product/service with a deadline (date and time) for submission of responses; (ii) TIPS advertises the posting of the RFP/RFQ in a manner that meets the requirements of the State of Texas, as well as in additional formats established by TIPS as beneficial to TIPS members, including two consecutive weeks in the *Pittsburg Gazette* in Pittsburg, Texas, as well as nationally in *USA Today*; (iii) TIPS collects all incoming proposals until the submission deadline; (iv) TIPS staff open and record all of the proposals submitted prior to the deadline; (v) a scoring committee reviews all proposals and scores the proposals based on the criteria established by TIPS (scoring rubric is included in the posted RFP/RFQ documents); (vi) a vendor receiving a score of at least 80 on the scoring rubric is then recommended to the Region 8 ESC Board of Directors at its monthly meeting to receive a TIPS Vendor Agreement (the "Vendor Agreement") to sell the specified product/service; (vii) the ESC Board of Directors votes to award contracts following the recommendation and discussion of the proposed contracts.

In January 2017, TIPS issued RFQ No. 170103 for the selection of a vendor to implement energy savings performance contracts (the "Performance Contracts") with proposals due in February 2017.[12] The purpose of the RFQ was to identify and award an agreement to a highly qualified vendor capable of carrying out Performance Contracts with JHCWID2 through TIPS.[13] Twenty-four companies responded to the RFQ. Evaluation criteria included previous and recent successful experience in the field of performance contracts, adequate staffing, financial strength and project management capabilities, among other qualifications. On March 23, 2017, the Vendor Agreement was awarded to Schneider Electric Building Americas, Inc., an American subsidiary of Schneider Electric, a French global company active since 1836 with more than 135,000 employees worldwide and € 27.2 billion euros in revenue in 2019. Schneider Electric provides leading sustainable, reliable and efficient energy technologies, real-time automation, and integrated solutions for its customers. The Vendor Agreement is renewed yearly until March 23, 2022. All purchase orders are validated, approved and reported through TIPS.

NADB reviewed the procurement process and concluded that it was open and consistent with its Procurement Policies and Procedures. Project start-up was delayed by an outstanding debt that did not allow the utility to undertake an additional project.

The first purchase order under the Vendor Agreement resulted in a Performance Contract to develop the water metering component of the Project, which was executed in March 2020. The

[12] Energy savings performance contracts are defined under Specifications in Texas Local Government Code § 302 and in Texas Education Code § 44.901, as applicable. These contracts are defined as a contract for energy or water conservation measures to reduce energy or water consumption or operating costs of new or existing governmental facilities in which the estimated savings in utility costs resulting from the measures is guaranteed to offset the cost of the measures over a specified period. "Energy savings" means an estimated reduction in net fuel costs, energy costs, water costs, stormwater fees, other utility costs or related net operating costs from or as compared to an established baseline of those costs.

[13] In Texas, energy savings performance contracts must be procured in accordance with the methodology established in Texas Government Code §2254.004 for contracting the professional services of architects, engineers and surveyors.

second purchase order for a Performance Contract to develop the WTP is expected to be signed by October 2020.

Water Treatment Plant

JHWCID2 operates a 0.73-mgd EDR system at one of its water wells. The water produced complies with the quality standards set by TCEQ. Nevertheless, this facility does not have the treatment capacity to comply with TCEQ regulations regarding water volume per connection served. Therefore, JHWCID2 needs to add additional water treatment capacity to its water system.

EDR systems are more expensive overall compared to other systems and are also more complicated to operate as they are designed to remove ions selectively. EDR systems are currently manufactured by Ionics, Inc., which has a monopoly for aftermarket parts & services leading to price and availability issues during operation & maintenance. Existing systems and infrastructure result in overall high costs and an insufficient clean water supply.

A preliminary engineering report of the current drinking water infrastructure system concluded that two of the three EDR WTPs are non-operational. As a result of the review, a reverse osmosis system was proposed to replace the non-operational electrodialysis plant located at Well No. 9, since RO technology is easier to operate than EDR technology. The replaced facility will provide the necessary capacity and redundancy required by TCEQ for water supply systems of more than 250 connections.

The reverse osmosis system uses membrane technology that is very economical and cost effective to operate. Chemical usage for a RO can be minimal compared to an EDR system. Reverse osmosis has been widely accepted for drinking water applications with high TDS levels and is recommended by state regulatory agencies. There are several RO system manufacturers in the industry. Components, such as membranes, pressure vessels, high pressure pumps etc., are readily available and comparatively less expensive to other technologies.

Reverse osmosis is one of the best available technologies to treat high levels of TDS in raw water because of its higher performance (i.e. high quality of water produced), lower maintenance, less downtime resulting in a higher production rate, less chemical usage and low operational cost due to less chemicals and maintenance costs. Additionally, reverse osmosis is very effective at removing all primary contaminants, such as arsenic, nitrates, fluoride, radium, viruses and bacteria. There are several TCEQ-approved municipal RO systems in the state of Texas.

Schneider is proposing that the RO WTP supply 80% of water demand and the existing EDR WTP cover the remaining 20%. This scheme is expected to generate an estimated US$102,000 in savings during the first year of operation. The brine produced by the upgraded WTP will be treated in the existing WWTP. Since the EDR and RO systems have similar water rejection rates, no additional flow is expected to be sent to the WWTP.

Once the Project is implemented, the system will be able to provide for future residential demand and irrigation needs within the city limits and generate savings for JHWCID2 deriving from a substantial decrease in its operation and maintenance costs. In addition, the system will help the

utility meet the aforementioned TCEQ regulations in terms of minimum water volume per customer.

The no-action alternative was not considered viable given that the current water system does not comply with TCEQ capacity standards and any failure of the only WTP currently in operation would be critical.

Water meters

A water audit report prepared by the Texas Water Development Board (TWDB) in 2019 indicated that unaccounted for water exceeds 30%, with 6% of those losses related to inaccurate water metering (4,104,000 gallons per year). Based on these findings and on the operational conditions and technical characteristics of the existing meters, new water meters were analyzed and selected for the Project using the following criteria:

- Compatibility with current infrastructure.
- Balance between cost and the number of meters.
- Operation and maintenance cost.
- Remote metering capability.

This component of the Project will generate financial benefits estimated at US$155,000 during the first year of operation for a cumulative total of US$2.89 million in year 15 under the Performance Contract.[14]

The no-action alternative was not considered viable given the percentage of water losses due to deficient meters.

3.1.4. Land Acquisition and Right-of-Way Requirements

All the construction tasks of the proposed Project will take place within existing county and city rights of ways given that the new meters will replace the current meters. The water treatment components will be installed at Well No. 9 where one of the non-operational EDR WTPs is located. No additional land or right-of-way acquisition is expected to be required.

3.1.5. Project Milestones

Project planning, procurement and contract award to execute the Project, as well as preliminary design for the replacement of the water treatment plant and water meters, have been completed.

[14] At the end of the 1st year of operation under the Performance Contract, selected meters will be tested to confirm that the expected benefits under the terms and conditions of the performance guarantee are being met. Should a cashflow shortfall occur, Schneider will either make adjustments to meet the guarantee or make a one-time payment to JHWCID2 to compensate for the shortfall, extrapolated for the 15-year guarantee under the contract.

Construction of the WTP is expected to take up to 300 days from notice to proceed, once financing becomes available. Since the Project does not entail an increase in the permitted capacity, no environmental assessment is required.

Replacement of the water meters will be carried out concurrently with treatment plant construction. The installation of the water meters is expected to take up to 180 days and will start once the financing is available. Table 2 presents the status of key milestones for Project implementation.

Table 2
PROJECT MILESTONES

Key Milestones	Status
Water meter selection	Completed – March, 2020
Preliminary design of the water treatment plant	Completed – June 2020
Final design of the water treatment plant	Completion expected by the end of October 2020
TCEQ permit amendments	Expected to be submitted by the end of October 2020
TCEQ final authorizations	Expected by November 2020
Construction/installation period (water meters)	Up to 180 days
Construction/installation period (water treatment plant)	Up to 300 days

3.1.6. Management and Operation

The WTP construction contract includes one year of operation & maintenance (O&M) services. After the first year, JHWCID2 has the option to renew the O&M contract or to take over the O&M activities itself. The agreement specifies the tasks to be performed for regular equipment maintenance and optimum plant operation. The scope of the plan includes furnishing filters and chemicals, routine maintenance service, quarterly inspections, 24/7 remote troubleshooting and on-call labor services for the treatment systems installed in the new plant.

The long-term maintenance program will include routine service, along with maintenance that will extend the life of the membranes and other plant components and reduce the frequency of membrane cleanings for less downtime resulting in higher production rates. Additionally, the maintenance program will help JHWCID2 operators optimize system operation by finetuning chemical dosing, while also helping detect early operational issues. The utility will ensure that sufficient resources, training, and staff are available for the proper operation and maintenance of the new infrastructure. According to Schneider, the optimal operational ratio for water production will be 80% supply from the RO WTP and 20% from the existing EDR WTP to meet instant demand at any given time.

To comply with TCEQ requirements, the existing permits for both the water treatment process and discharge permit will have to be updated and amended. The permit for the water treatment process will be upgraded from the current electrodialysis reversal process to a reverse osmosis

technology. This amendment is expected to be submitted by the end of October 2020, and the final authorization is expected to be obtained by November 2020. According to information provided by the Sponsor, TCEQ has indicated that since the water source is groundwater from an existing well no small scale pilot study is expected to be required even if the water has primary contaminants, such as arsenic, nitrate or high fluorides. TCEQ will require a Step 1 RO TCEQ application and a Step 2 TCEQ RO application for approval of the design and construction of the RO system, as well as the decommissioning of EDR WTP at Well No. 9.

The discharge permit will be amended based on volumes and quality of reject water from the reverse osmosis system. This amendment is expected to be submitted by the end of October 2020, and the final authorization is expected to be obtained by November 2020. As indicated above, no pilot study is expected to be required by TCEQ based on recent conversations between the Sponsor and state authorities. In any case, TCEQ will confirm this assumption with the issuance of the corresponding permits.

With respect to the water meters, Schneider Electric will install them, and the Sponsor will be responsible for operating them. Training activities for JHWCID2 personnel will be conducted by Schneider Electric and will include measuring and verifying savings, performance assurance services, monitoring and reporting.

Under the Performance Contract, Schneider Electric will be responsible for replacing the meters. Schneider Electric will provide post-installation training and support, including training in measuring and verifying savings and performance assurance services, as well as monitoring and reporting during the first year of operation. At the end of 1st year, selected meters will be tested to confirm that expected benefits under the terms and conditions of the performance guarantee are being met. Should a cashflow shortfall occur, Schneider will either make adjustments to meet the guarantee or make a one-time payment to JHAWCID2 to compensate for the shortfall, extrapolated for the 15-year guarantee under the contract. The selection of Schneider as a reliable vendor with proven track record for providing these services, and the selection of high-end water meters with a 20-year warranty that goes beyond the 15-year performance guarantee, provide assurance that the expected benefits will be achieved. After the first year of operation, the Sponsor will be responsible for operating the highly automated metering system.

3.2. Environmental Criteria

3.2.1. Environmental and Health Effects/Impacts

A. Existing Conditions

Two out of the three water treatment plants located in JHWCID2 are non-operational. The only operational water treatment plant has a capacity of 0.73 mgd, and the utility does not have a backup plant or system in the event that it fails or has to be shut down. Furthermore, the existing plant does not have sufficient capacity to meet peak water demand nor the minimum capacity required by TCEQ for water supply systems with more than 250 connections.

A recent analysis showed that total dissolved solids in the raw water supply exceed the maximum contaminant level established under TCEQ standards. In 2017, TCEQ notified JHWCID2 that its water supply also exceeded the applicable MCL for arsenic.

Moreover, according to the water audit developed for JHWCID2, 30% of the drinking water produced annually (65.3 million gallons) was not accounted for in 2018, representing a significant loss and putting financial stress on the utility.

B. Project Impacts

The Project will address the existing non-efficient water metering and reported issues of exceeding levels of total dissolved solids and arsenic. Specifically, the Project is expected to generate the following outcomes:

- Increase the water treatment capacity from 0.73 to 1.73 mgd, thus providing the necessary flows to meet peak demand and comply with the requirements established by TCEQ regarding minimum capacity and redundancy.
- Ensure adequate water quality and quantity for 1,813 existing connections.
- Replace 1,813 water meters.
- Promote efficient water control and billing by accounting for up to 6% of current water losses (4,104,000 gallons per year).
- Generate cost savings of up to US$257,000.00 during the first year of operations due to a more efficient water treatment process and better water supply control.[15]

The replacement of the water treatment plant includes installing a reverse osmosis system, a technology suitable for treating high levels of the contaminants regulated by TCEQ, including TDS and arsenic. The proposed Project will ensure that JHWCID2 will be able to supply drinking water in compliance with the applicable standards for public water systems. Moreover, no additional reject wastewater is expected to be generated. Finally, the new meters have no lead content.

C. Transboundary Impacts

No transboundary impacts are anticipated as a result of the Project.

3.2.2. Compliance with Applicable Environmental Laws and Regulations

The Safe Drinking Water Act (SDWA) is the primary law regulating public water systems in the United States. In accordance with the SDWA, the United States Environmental Protection Agency (EPA) has published regulatory requirements setting limits on contaminants allowed in drinking water. In Texas, TCEQ is responsible for monitoring drinking water systems and issuing enforcement actions in those cases where the system is not in compliance. Specifically, the

[15] The Project will be implemented under two performance agreements: (i) a water treatment agreement currently under negotiation and (ii) a metering agreement already executed, both with Schneider Electric, who guarantees financial benefits of US$155,000 on the metering and US$102,000 on the water treatment plant.

Drinking Water Standards Governing Drinking Water Quality and Reporting Requirements for Public Water Systems (30 Texas Administrative Code (TAC), Chapter 290, Subchapter F) of the TCEQ, describes the minimum required sampling, levels and public notification for public water systems.

The Project will help the utility comply with the above law and applicable regulations.

A. Environmental Clearance

Since the Project does not entail any increase in the permitted capacity, an environmental assessment is not required.

B. Mitigation Measures

The mitigation measures to be implemented during the construction and installation of the Project include:

- Construction will normally occur between 8 a.m. and 5 p.m. to avoid noise disruptions extending into the evening.
- Tune-ups to vehicles will be performed to reduce emissions and noise effects.
- All construction personnel will attend a briefing describing the potential impacts of construction activities and to familiarize workers with the mitigation measures.

By following best management practices, temporary impacts due to construction and installation will be minimized. Moreover, the results from the implementation of the proposed Project will be positive overall. The Project is expected to have a positive environmental impact by protecting the local water supply and public health.

C. Pending Environmental Tasks and Authorizations

No environmental tasks and authorizations for the implementation of the Project are pending.

3.3. Financial Criteria

The total estimated cost of the Project is US$4.26 million, which includes construction, contingencies and related financial costs. The Project Sponsor has requested financing from NADB to support implementation of the Project. NADB is proposing to provide a US$4.26 million loan through the issuance of a revenue bond by JHWCID2. Table 3 presents a breakdown of the estimated Project costs and proposed financing.

Table 3
SOURCES AND USES OF FUNDS
(US$)

Uses	Amount	%
Water treatment plant	$ 2,000,000	46.9
Water meters	1,700,000	39.9
Closing costs and contingencies*	560,000	13.2
TOTAL	**$ 4,260,000**	**100.0**
Sources	**Amount**	**%**
NADB Loan	$ 4,260,000	100.0
TOTAL	**$ 4,260,000**	**100.0**

*This provision will help cover any additional project requirements (i.e. change order, cost escalation, etc.) in a timely manner.

The NADB loan will be disbursed into an escrow account and will be drawn down to make partial payments to the contractor once NADB has verified construction progress and gives its no objection. The revenue bond will be secured by and payable from a first lien on and pledge of net revenue, defined as the revenue from water and sewer services less service expenditures. The revenue collected will be irrevocably pledged and deposited into an interest and sinking fund for the payment of the NADB loan. Service rates will be adjusted, if needed, should the minimum debt service coverage ratio (DSCR Threshold) not be attained.

The preliminary analysis conducted by NADB verified that the Project Sponsor has the legal authority to contract the financing and has sufficient net revenue to issue a bond commitment and meet the DSCR Threshold. It also has the legal and financial capacity to operate and maintain the Project.

Considering the Project's characteristics and based on the financial and risk analysis performed, the proposed Project is considered to be financially feasible and presents an acceptable level of risk. Therefore, NADB has begun processing a financing package that includes a loan for up to US$4.26 million, which would be contracted by JHCWCID2 for the construction of the Project.

4. PUBLIC ACCESS TO INFORMATION

4.1. Public Consultation

NADB published the draft certification and financing proposal for a 30-day public comment period beginning October 9, 2020.

4.2. Outreach Activities

On September 23, 2019, JHWCID2 held a public board meeting to discuss and take action on the Project The agenda for JHWCID2 public meetings are posted in advance. A presentation from Schneider Electric was included as part of the agenda.

On February 18, 2020, JHWCID2 held a board meeting to discuss and take action on the Project. A presentation of the findings from the water meter audit developed for the utility was included on the agenda, and the board members discussed the possibility of beginning contract negotiations for procurement of the water meters. The meeting agenda also included the next steps for proceeding with the replacement of the water treatment plant.

In addition, the JHWCID2 will notify the public with a notice of intent to issue revenue bonds for the implementation of the Project.

NADB also conducted a media search to identify potential public opinion about the Project. No articles were found related to the development of the Project, but two articles were identified regarding water quality in some regions of the state of Texas, including Jim Hogg County:

- *Dallas Observer* (March 15, 2016) – "*Lots of Texas Water Has Lots of Arsenic, but the State Says It's OK to Drink*" (https://www.dallasobserver.com/news/lots-of-texas-water-has-lots-of-arsenic-but-the-state-says-its-ok-to-drink-8123582).

- *Houston Press* (April 6, 2016) – "*Report: There Are 65 Flint, Michigan-Type Water Systems in Texas*" (https://www.houstonpress.com/news/report-there-are-65-flint-michigan-type-water-systems-in-texas-8296477).

Opposition to the Project was not detected from the available media coverage. The Project Sponsor has followed all public consultation requirements in order to comply with applicable permitting processes.