Valley Municipal Utility District No. 2, Brownsville, Texas
Main Canal Replacement

General Criteria

1. Type of Project

The proposed project is to implement priority improvements to the conveyance system of Valley Municipal Utility District No. 2 (VMUD No. 2) to reduce evaporation and seepage losses and operation and maintenance costs. The project includes the replacement of Main Canal with a pipeline from The Rio Grande to Resaca de Rancho Viejo. The project falls under the Border Environment Cooperation Commission (BECC) priority area of water conservation.

2. Project Location

The project is located within the boundaries of the VMUD No.2 in Cameron County, Texas. Cameron County is the southernmost county in Texas and is bounded by the Rio Grande and the Gulf of Mexico. VMUD No.2 lies in the south part of Cameron County in the Lower Rio Grande Valley. The District extends from the Town of Rancho Viejo to the River Bend Resort located next to the Rio Grande. The District is located approximately 10 miles north of the central downtown business district of the City of Brownsville, Texas and 15 miles south of the central downtown business district of Harlingen, Texas. The District lies partially within the Town of Rancho Viejo and partially within the extraterritorial jurisdiction of the City of Brownsville, Texas and within the boundaries of Brownsville Independent School District and Los Fresnos Independent School District. Access to the District is provided by U.S. Highway 77/83 and U.S. Highway 281. The proposed project is within the 62-mile limit from the border that the BECC requires for project certification.

3. Project Description and Work Tasks

The project Sponsor is the VMUD No. 2. VMUD No. 2 is a tax-exempt entity, was created by an order of the Texas Water Rights Commission (Predecessor to the Texas Commission of Environmental Quality, TCEQ), effective March 15, 1972, in accordance with the Texas Water Code Chapter 54 as amended. The Board of Directors held its first meeting on May 1, 1972 and the first bonds were sold September 28, 1973, in the amount of $2.6 million. The District provides water and sewer services to approximately 4,217 acres of land that includes the town of Rancho Viejo, Texas and a development known as River Bend Resorts. The District also furnishes irrigation water to land areas within and outside the District's boundaries. As a conservation and reclamation District, it is empowered, among other things, to purchase, construct, operate and maintain all works, improvements, facilities, any plants necessary for the supply and distribution of water, the collection, transportation, and treatment of wastewater, and the control and diversion of storm water. The District may issue bonds and other forms of indebtedness to purchase or construct such facilities. The District

is also empowered to establish, operate, and maintain fire-fighting facilities, independently or with one or more conservation and reclamation districts after approval by the TCEQ and the voters of the District.

The District was created in accordance with pertinent provisions of Article XVI, Section 59 of the Texas Constitution. The District operates as a municipal utility district pursuant to Chapter 54, Texas Water Code as amended. The original acreage at creation was of 4,200 acres with annexation of 17 additional acres making a total current acreage of 4,217.

The District holds the Certificate of Adjudication No. 0072-002 authorizing the District to divert from the Rio Grande a maximum quantity of 6,611 ac-ft of "Class B" irrigation water. The District also holds the Certificate of Adjudication No. 0202-000 which authorizes the District to direct 898 acre-feet of municipal surface water rights from the Rio Grande. The average quantity of water diverted at the Rio Grande is approximately 2,500 ac-ft per year for irrigation and 800 ac-ft per year for municipal and domestic use.

Water is diverted from the District's pumping station located on the United States side of the Rio Grande located at River Bend Resort, Texas. After pumping from the river, the water is transported by the main canal. The existing main canal is an earthen canal approximately 29,700 feet in length. The main canal transports water to Resaca del Rancho Viejo. Resaca del Rancho Viejo serves as a storage reservoir and provides the raw water supply for the existing Rancho Viejo Surface Water Treatment Plant. The water plant serves the community of Rancho Viejo and River Bend Resort. The District diverts 90% of the water used in the system from the Rio Grande. All of this water diverted by the District from the Rio Grande originates as surface water that is released by the International Boundary and Water Commission (IBWC) from Falcon Reservoir. The other 10% comes from groundwater for municipal uses (equivalent to 112 Acre-ft of raw groundwater source treated by a Reverse Osmosis Water Treatment Plant). The District's water delivery efficiency for water diverted for irrigation is approximately 75%.

The District has approximately 6 miles of an earthen canal and one Resaca Reservoir. The surface area of the main canal and the Resaca are of approximately 125 acres. The net evaporation in the Rio Grande Valley is approximately 5 feet per year. The existing canal operation loses are of approximately 570 acre-feet of water a year by evaporation, seepage, and "canal charging".

The District's existing main canal was constructed in the 1930's. The District is proposing to replace the existing main canal with a 42" pipeline to improve operational efficiencies not only in terms of annual operation and maintenance expenditures, but also with respect to energy and water conservation. The replacement of the main canal with a pipeline will result in conservation of water, which would otherwise be lost to seepage and evaporation. The existing pumps are decades old and this water conservation project will result in energy conservation through reduced pumping requirements.

The construction cost for this project is estimated at $2,255,000, and the total project cost including planning studies, design, construction, and contingencies is estimated to be $2,480,500.

The estimated annual water savings resulting from the implementation of this project, estimated by the Project Sponsor, are of 570 ac-ft/yr. The expected water savings from this project, estimated by the Project Sponsor, over its expected productive life are of 28,500 acre-feet based on a 50-year life. Texas A&M University is in the process of conducting a detailed study to further refine these savings.

The energy savings estimated by the Project Sponsor, with the implementation of this water conservation project, are of 51,585 Kw-hr/yr. The expected energy savings from this project over its expected productive life are of 2,579,250 Kw-hr. Texas A&M University is in the process of conducting a detailed study to further refine these savings.

Work tasks include:

1) *Final Plans (concluded August 2003)*
2) *Final Design (from September 2003 to February 2004)*
3) *Construction Specifications (March to April 2004)*
4) *Pipeline Construction (May 2004 to march 2005, Procurement process included)*
5) *Final Inspection (April 2005)*

The project cost breakdown is as follows:

Cost Breakdown

Item	*Total (USD)*
Construction	*$2,255,000*
Engineering & Admin	*$ 225,500*
Total Project	*$2,480,500*

4. Compliance with International Treaties and Agreements

The TCEQ and the IBWC are the authorities for allocation of water to the District. The 1944 Water Treaty between the United States and Mexico applies. VMUD No. 2 diverts water from the Rio Grande River in accordance with a Permit issued by TCEQ, governed by Chapters 49 and 58 of the Texas Water Code. TCEQ's Rio Grande Watermaster Office in Harlingen is responsible for allocating, monitoring, and controlling the use of surface water by the District in coordination with IBWC. The Watermaster also cooperates with IBWC and its Mexican counterpart to monitor U.S. and Mexican compliance with the U.S.-Mexico Treaty of 1944. The District will continue to meet all state surface water diversions from the Rio Grande in accordance with the agreements in place and the restrictions of the Treaty. There is no reported non-compliance by VMUD No. 2 under the TCEQ permit.

Human Health and Environment

1. Human Health and Environmental Need

The human health effects from this project would be all positive from the sense that through water conservation, additional water would be made available for growing crops for human consumption as well as for municipal use. This water conservation would partially offset water shortages during periods of drought. Through water conservation and a more efficient use of the allocated waters for irrigation and municipal use, a growing population of the region can be sustained over a longer period without creating health risks through diseases due to unsanitary conditions because of lack of water. The District does use groundwater, as a supplemental source, for its domestic operations only not for irrigation purposes. The groundwater source is equivalent to 112 acre-feet of surface water. Therefore, utilizing groundwater for domestic consumption independent from the Rio Grande is another form of water conservation. This source of water has TDS of approximately 3000 mg/L. A 0.25 mgd Reverse Osmosis Water Treatment Plant treats this source to TCEQ drinking water standards for consumption by residents of the District. The Rio Grande traditionally runs from 500 to 1000 mg/L of TDS, which meets TCEQ primary water standards.

The Rio Grande Valley has in the past 7 years experienced a drought, which has limited the amount of surface water available for irrigation and municipal use. The drought in northern Mexico and the entire Rio Grande Basin, which includes the Rio Conchos Basin in northern central Mexico, has contributed significantly to the water shortages for irrigation in the Lower Rio Grande Valley. This water shortage has created an economic hardship in the region through reduction of crops and subsequent reduced revenue. The proposed water conservation project will provide a modern, centralized means of controlling and monitoring flows to the various accounts/parcels and eliminate water seepage losses with resulting water savings and respective energy savings through reduced pumping.

2. Environmental Assessment

2.1 Archaeological Background Review

VMUD No.2 proposes to convert approximately 5.57 miles of an existing irrigation canal into a buried pipeline near Olmito, Cameron County, Texas. The existing canal is approximately 8- 12 ft wide at the surface. A 42-inch diameter pipe would be placed in the canal and then buried with dirt from the spoil piles along the edges of the canal. Some cutting below the bottom of the canal might be necessary to provide a more stable base for the pipeline, but this would be minimal. The project would be subject to review by the Texas Historical Commission (THC) under the Texas Antiquities Code and possibly under Section 106 of the National Historic Preservation Act for its potential to impact significant cultural resources. NRS Consulting Engineers contracted SWCA to conduct a background review of the project area to determine the likelihood that the project would impact significant cultural resources.

SWCA conducted a thorough background archaeological literature and records search of the project area. An SWCA archaeologist searched site files and maps at the Texas Archeological Research Laboratory, the THC, and the THC's Historic Sites Atlas on-line database for any previously recorded surveys and historic or prehistoric archaeological sites located in or near the project area.

The background review determined that areas immediately adjacent to portions of the proposed project area have been previously surveyed for cultural resources (Maslyk et al. 1999). Archaeologists from Prewitt and Associates surveyed approximately 1 mile (divided into two segments) of a proposed buried gas pipeline that parallels and is immediately adjacent to the VMUD No. 2 canal (Maslyk et al. 1999). During that survey, Maslyk et al. (1999:9) examined "the base of the dredge spoil piles paralleling the ditches, the tops of the spoil piles, and the ditch walls, where possible." They did not excavate any shovel tests or backhoe trenches because ground surface visibility was so good. In general, the study classified the VMUD No. 2 project area as having a low probability for containing archaeological sites because settlement is generally limited to topographic rises in the otherwise nearly level deltaic plain (Maslyk et al. 1999:9). The greatest potential for encountering an archaeological site would be near Resaca de la Palma—one of the settings known to contain prehistoric settlement—but Maslyk et al. (1999:9) determined that the areas adjacent to the resaca within the VMUD No. 2 project area "are too disturbed to contain intact sites."

Prewitt and Associates did not discover any archaeological sites near the VMUD No. 2 project area, and the review of files at TARL and the THC determined that no previously recorded sites are located along the canal. Sites are known from the general area, including 41CF178, which was discovered by Maslyk et al. (1999), but none would be impacted by the proposed project.

VMUD No. 2 proposes to convert an existing canal into a buried pipeline in Cameron County, Texas. Portions of the area immediately adjacent to the canal were previously surveyed for cultural resources, but none were found (Maslyk et al. 1999). In general, the setting has a low potential for containing cultural resources, and the previous impacts from the construction and maintenance of the canal would have destroyed any archaeological sites that may have once existed in the area of potential effect for the pipeline installation.

Based on the level of disturbance associated with the canal, the results of the Prewitt and Associates survey, and nature of the proposed project (placing a pipeline in the existing canal), the project has little to no potential to adversely effect significant cultural resources. We recommend that an archaeological survey of the project area is not necessary and would request that the THC concur should they review this letter.

2.2 Endangered Species Assessment

SWCA® Environmental Consultants has assessed the potential for the occurrence of endangered species along an approximately 5.7-mile proposed pipeline route in Cameron County, Texas. The proposed route is located approximately 3 miles northwest of Brownsville, crossing State Highway 281, Cameron County, Texas.

The U.S. Fish and Wildlife Service (USFWS) lists thirteen endangered species as having the potential to occur in Cameron County. These species include three mammals, the Gulf Coast jaguarundi (Herpailurus [=Felis] yagouaroundi cacomitli), ocelot (Leopardus (=Felis) pardalis), and West Indian Manatee (Trichechus manatus); four birds, the northern Aplomado falcon (Falco femoralis septentrionalis), Brown Pelican (Pelecanus occidentalis), whooping crane (Grus americana), and least tern (Sterna antillarum); three reptiles, the hawksbill sea turtle (Eretmochelys imbricata), Kemp's Ridley sea turtle (Lepidochelys kempii), and leatherback sea turtle (Dermochelys coriacea); and three plants, the star cactus (Astrophytum (=Echinocactus) asterias), South Texas ambrosia (Ambrosia cheiranthifolia), and Texas ayenia (Ayenia limitaris).

Four species that potentially occur in Cameron County are listed as threatened by USFWS. These species include two birds, the bald eagle (Haliaeetus leucocephalus) and piping plover (Charadrius melodus); and two reptiles, the green sea turtle (Chelonia mydas) and loggerhead sea turtle (Caretta caretta). In addition, the mountain plover (Charadrius montanus) has been proposed by USFWS as a threatened species, and the American alligator is threatened due to similarity of appearance to the American crocodile (Crocodylus acutus).

Topography of the area is generally flat. The proposed pipeline route runs north south through Resaca de la Palma at one point in the north and runs adjacent to the resaca at another. The southern end of the pipeline ends at the Rio Grande River. Lands in the proposed pipeline route appear to be primarily agricultural in use, either for hay fields or livestock grazing; some appeared to have been previously cultivated. Surrounding properties have similar land uses and vegetation types as the proposed pipeline route.

An assessment of the potential for the occurrence of threatened and endangered species on the subject proposed pipeline route is presented below, by species or group of related species.

2.2.1 Endangered Species

The **ocelot** *is known only to occur in the United States in south Texas and possibly in part of Arizona. In Texas, the principle population is believed to occur in Cameron and Willacy counties in the Lower Rio Grande Valley west of Harlingen. Studies indicate the ocelot occupies vegetation that is extremely dense and brushy, especially between ground level and 5 feet, with 75% to 95% of available canopy cover occurring in the shrub layer. Some researchers suggest that ocelots are reluctant to cross open areas and prefer to travel along brush corridors. It is apparent from the aerial photograph that the proposed pipeline route lacks the dense shrub layer required by the ocelot and is completely surrounded by agricultural fields, it is considered unlikely that the ocelot regularly occurs on or adjacent to*

the proposed pipeline route. Therefore, we believe it is unlikely that the proposed pipeline will adversely affect this species.

The **jaguarundi** *was historically known to occur in Cameron and Willacy counties. The last confirmed capture of a jaguarundi occurred in 1969 in Willacy County. In 1986, a road-killed specimen was recovered from Cameron County indicating the species is most likely present in low densities in the aforementioned counties. Habitat requirements for the jaguarundi are poorly understood, but are thought to be similar to that of the ocelot. Some researchers believe brushy corridors are also important for the jaguarundi and may facilitate dispersal of the species. It is apparent from the aerial photograph that the proposed pipeline route lacks shrubs and is completely surrounded by agricultural fields. Therefore, it is considered unlikely that the jaguarundi regularly occurs in the vicinity of the pipeline route and it is unlikely that the proposed pipeline will adversely affect this species.*

The **West Indian manatee** *occurs primarily in larger rivers and brackish water bays and is considered an extremely rare visitor to Texas. As none of the required habitat is present on the proposed pipeline route and all stormwater runoff on the route will flow into bodies of water not known to contain the mammal, it is extremely unlikely that the West Indian manatee will be adversely affected by the proposed development of the proposed pipeline route.*

Brown pelicans *typically nest on small, isolated coastal islands and feed exclusively on fish and crustaceans primarily in shallow, estuarine waters. As there no large bodies of water on the proposed pipeline route and stormwater runoff from the developed areas will not enter any bodies of water likely to be utilized by the brown pelican, it is considered unlikely that the brown pelican will be adversely affected by the proposed development of the pipeline route.*

A small population of **Northern Aplomado falcon** *is present near the proposed pipeline route. These birds are the product of a captive breeding and release program attempting to re-establish the species in Texas. These birds were released at sites on Laguna Atascosa and Matagorda Island National Wildlife Refuges. In Texas, habitat of the aplomado falcon consists of open grasslands and savannas. As the proposed pipeline route has no such habitat and the surrounding area consists of agricultural fields, it is considered unlikely that the aplomado falcon will be adversely affected by the proposed development of the tract.*

The **whooping crane** *uses marshes, river bottoms, potholes, prairies, and croplands. Critical habitat for the crane has been designated in the Aransas Wildlife Refuge in Refugio, Calhoun, and Aransas counties. The whooping crane winters at the Aransas Wildlife Refuge and adjacent areas. During migration (October-November and March-April), the crane uses croplands for feeding and primarily palustrine wetlands for roosting. As the proposed pipeline route contains very limited wetland area, it is considered extremely unlikely that this species will roost in the vicinity of the proposed pipeline route. Although the whooping crane utilizes cropland for feeding, the bird would only be found in the area during migration. In addition, the area to be disturbed would represent a negligible portion of the crane's available migratory foraging habitat. Therefore, we believe it is unlikely that the proposed pipeline will adversely affect this species.*

Federal protection for the **least tern** *in Texas is restricted to the "interior" population, or those occurring more than 50 miles from the Gulf Coast. Since the proposed pipeline route is within 50 miles of the Gulf Coast, no impacts on the interior population of the least term would be expected.*

The three species of turtle **Hawksbill Sea Turtle, Leatherback Sea Turtle, Kemp's Ridley Sea Turtle** *are restricted to marine environments. The males spend their lives at sea, while the females return to beaches only to lay their eggs. As the proposed pipeline route is approximately 20 miles from the coast, it is considered extremely unlikely that these species will be adversely affected by the proposed development of the tract.*

The **star cactus** *is a flat to low-dome-shaped, spineless cactus that blooms from March through May and fruits from April through June in the wild. TPWD suggests root-plowing*

and chemical brush control practices played a role in the decline of the species, as well as overzealous collectors. It historically occurred in Cameron, Starr, and Hidalgo Counties in Texas and in Nuevo Leon and Tamaulipas states in Mexico. In Texas, it is now limited to one site along a creek drainage in Starr County. The proposed pipeline route is outside of its current range, therefore, it is considered extremely unlikely that this species will occur in the vicinity of the proposed pipeline route and therefore, we believe it is unlikely that the proposed pipeline will adversely affect this species.

South Texas ambrosia *is found in Nueces and Kleberg counties and was historically known from Cameron and Jim Wells counties. According to the Texas Parks and Wildlife Department (TPWD) this species does not appear to survive intensive plowing. Further, TPWD suggests that invasion of open areas by shrub and trees species contributes to loss of habitat for this species. Because the proposed pipeline route lies outside the current range for this South Texas ambrosia, it is considered unlikely that this species occurs on the tract and therefore, it is unlikely that this plant will be adversely affected by the proposed development of the tract.*

Texas ayenia *was historically known from Cameron and Hidalgo counties in Texas and is currently known only from the latter county. This species occurs in clay soils on the edges of thickets in the Texas ebony-anacua (Pithecellobium ebano- Ehretia anacua) plant community. TPWD suggests that the conversion of native brush-land to agricultural or urban use has resulted in a dramatic decrease in this species' habitat. The proposed pipeline route is outside the current known range of the species in Texas, and as past land use was agricultural in nature, it is unlikely that Texas ayenia occurs on the tract or would be adversely affected by the proposed development of the tract.*

2.2.2 Threatened and Proposed Threatened Species

In Texas, **bald eagles** *nest primarily along large rivers and lakes in the east-central and eastern parts of the state. Preferred nesting habitat includes undisturbed coastal regions or large river systems with large (40 to 120 foot tall) trees for nest sites. Eagles winter along the upper Texas coast and are considered a very rare winter visitor to the south Texas coastline. As stormwater runoff from the proposed pipeline route will not enter any permanent bodies of water that would most likely be used by eagles and as the bald eagle is a very rare visitor to south Texas, it is considered unlikely that the proposed pipeline will adversely affect this species.*

Piping plovers *nest on sandy beaches along the Atlantic Coast, along the shores of the Great Lakes, and on river sandbars and shorelines of inland lakes in the northern Great Plains. They spend the winter along the southern Atlantic and Gulf Coasts. Wintering piping plovers in Texas forage on tidal mudflats and sandflats and are relatively common winter birds on South Padre Island. As the proposed pipeline route is approximately 20 miles from the coast, it is unlikely that this species will be adversely affected by the proposed development of the tract.*

The **Green Sea Turtle and Loggerhead Sea Turtle** *are restricted to marine environments. The males spend their entire lives at sea, while the females return to beaches only to lay their eggs. As the proposed pipeline route is approximately 20 miles from the coast, it is extremely unlikely that these species will be adversely affected by the proposed development of the tract.*

The **mountain plover** *nests and winters in shortgrass prairie and shrub-steppe landscapes characterized by short vegetation, bare ground, and flat topography. The plover is associated with areas of heavy grazing or denuded vegetation such as prairie dog towns and may use fallow and cultivated fields that mimic these habitats. As the proposed pipeline route does not contain short grass, cultivated fields, bare ground or denuded areas, it is extremely unlikely that this species regularly occurs in the vicinity of the pipeline route and therefore, we believe it is unlikely that the proposed pipeline will adversely affect this species.*

The **American alligator** *occurs from coastal North Carolina to extreme southern Florida and sporadic on the Keys; west to central Texas, and is probably introduced in the lower Rio Grande Valley. The alligator is threatened due to similarity of appearance to the American crocodile, which is confined in the United States chiefly to Florida Bay in the Everglades National Park, Biscayne Bay, and the Florida Keys. Assuming best management practices will be followed to protect water quality during construction activities, the effect of stormwater runoff on any crocodilian encountered in the Rio Grande Valley or in the vicinity of the proposed pipeline route would be considered negligible and the proposed pipeline project will not adversely impact the species.*

Based on the results of this assessment, SWCA believes that the development of the proposed pipeline route or stormwater leaving the project area is unlikely to adversely affect any species currently listed as threatened or endangered by the USFWS.

3. Compliance with Applicable Environmental and Cultural Resource Laws and Regulations

As previously mentioned and as part of the preparation of the Environmental Summary Report, comments were solicited from relevant Federal, State, and Local cooperating agencies, including: THC, the USFWS, TPWD, TCEQ, and the U.S. Corps of Engineers. The project improvements comply with all applicable regulations from the contacted agencies. Regarding water rights VMUD No.2 has the required water rights and is fully compliant with the terms of its water use permit.

Technical Feasibility

1. Appropriate Technology

The two alternatives for this water conservation project include: 1) Rehabilitation of the existing canal; 2) Replacement of the existing canal with a 42" pipeline. The first alternative was determined to be cost prohibited for the District. The rehabilitation would require re-working of the canal bank slopes with the implementation of a liner. While it might improve water delivery, the canal would continue having water losses due to evaporation. The best option is alternative No.2. The replacement of the main canal with a pipeline will eliminate seepage and evaporation losses. This alternative is a cost effective water conservation project.

Main Canal Replacement.
The District is proposing to construct a 42" pipeline extending from the Rio Grande to the Resaca del Rancho Viejo. This pipeline will improve the District's water conveyance efficiency and reduce energy consumption and maintenance costs. The proposed 42" RCP pipeline will convey water from the river eliminating the need for the existing main canal and improving the delivery rate and efficiency to the District.

The proposed pipeline will serve the Resaca del Rancho Viejo and farmland currently irrigated with water pumped directly from the canal and the Resaca. The implementation of the new pipeline will result in reduced energy consumption and significant water conservation. In addition, implementation of this project will result in a significant increase in available irrigation and municipal water.

The 42" RCP pipeline will be approximately 29,000 feet long and will have a capacity of 11,000 gpm. It is contemplated to use the existing canal in certain areas for installation of the pipeline backfilling utilizing then existing levees for backfill. In other areas, it will become necessary to excavate and backfill for installation of the line.

2. Operation and Maintenance Plan

Because discharge from the pumping station will be directly into the pipeline, inspection and maintenance of the system will be simple and routine. No special equipment or means of access will be required. Flow measurement will be accomplished at the outlet structure of each connection through use of weirs and staff gauges. Simply starting or stopping a pump unit will accomplish flow control.

Access and removal of equipment, valves, motors, or pumps will be accomplished with a mobile crane. Installation and removal of bulkhead gates will also be performed with a mobile crane.

Any emergencies or contingencies that may occur during the course of the proposed project shall have none or very limited impact on the ongoing operations of the delivery of raw water by the District. No contingency plan is required for the proposed project. The bid specifications shall specify the standards and submittals required by all vendors and contractors for the proposed projects.

3. Compliance with Applicable Design Regulations and Standards

The Project will comply with the design standards of the Texas Commission on Environmental Quality (TCEQ), responsible for this type of projects, whom should review periodically the pipeline construction and supervise the final test.

Financial Feasibility and Project Management

1. Financial Feasibility.

The Accounts of the VMUD No. 2 are organized into 2 basic funds, the operating fund and the Ad Valorem fund. Ad Valorem revenues are restricted to the payment of Bond Debt, and the payment of the obligations of the Southmost Regional Water Authority contract.

The Operating fund is segregated into Maintenance & Operation and Capital Expenditures. Capital Expenditures are further divided into Capital expenses and bond Projects. Bond projects are the items specifically approved by the TCEQ to be completed with Bond Proceeds.

As of August 31, 2002, the District had current assets of $1,923,402, fixed assets of $8,178,851, current liabilities of $127,684, for a total equity of $9,974,569. The current assets are invested in money market accounts and short term Certificates of Deposit, as most funds are scheduled for capital improvement projects or debt service.

For the year ending August 31, 2002, VMUD No. 2 had total revenue of $1,400,352, comprising water and sewer services of $744,747, total tax revenue of $524,807, tap fees of $38,150, Interest income of $28,278 and other revenues of $64,370.

Water sales declined in 2003 due to 5 years of increasingly stringent conservation measures followed by an unseasonably wet year. The revenue projections for 2004 include a rate increase expected to raise about $45,600.00.

For the fiscal year ending August 31, 2002, the District had total M&O expenses of $949,532.00, capital expenses of $856,153, including bond projects, and total debt service payments of $386,743.

In 2001, the District was approved by the TCEQ to sell $5,125,000.00 in bonds for capital improvements projects. The District elected to sell $2,400,000.00 in bonds in 2001, delaying the remaining $2,725,000.00 in bond sales until 2004. In 2005, the District's 1993 refunding bonds will be paid off.

The funding plan entails contributions from the Water Conservation Investment Fund (WCIF) of the North American Development Bank (NADB) and from the District. The sources of funds for this project are shown below.

Sources of Funds

Sources of Funds	Total
NADB WCIF	*$1,097,729*
District Cash	*$1,352,271*
Total Project Cost	*$2,450,000*

The District plans to fund the initial matching funds with a bond issue to sell in first quarter 2005. This is projected to require little or no tax increase to fund the debt service requirements of this issue. The VMUD No. 2 has indicated that in-kind contributions will not be used to fund this project.

The District is a member of the Texas Municipal League which provides worker's compensation coverage and liability and property coverage for the District based upon a sharing of risks among the members of the Pool. The District currently obtains all of its liability, casualty and workman's compensation insurance through the TML. The District continues to carry commercial insurance for the risks of loss from employee dishonesty and for the bonding of its directors. There have been no claims resulting from these risks in any of the past three fiscal years ending August 31, 2002.

The District charges an annual flat rate assessment on every acre that is irrigable whether it is irrigated or not. The flat rate assessment is for the maintenance and operation of the District. The flat rate assessment is currently set at $5.25 per acre. The District charges a delivery fee of $17.50 per acre-feet. The irrigation charge is paid by the water user prior to the date that water is to be delivered by the District to the water user. The District charges $6.00 per month for Resaca pumpage on landscape irrigation. The Cameron County Tax office collects property taxes levied by the District, on property located within the boundaries, on behalf of the District.

Based on our review of the project, the operations of the VMUD No.2, and the VMUD No.2 financial condition, it is the opinion of NRS Consulting Engineers that the VMUD No.2 is capable of providing the initial matching cash contribution and supporting the ongoing operation and maintenance expenses of the projects through the end of the evaluation period without adjustments to its current fee structure.

This opinion addresses the current situation of the VMUD No.2, reflecting economic conditions, financial conditions, and other conditions, as they exist as of this date.

2. Project Management.

The project will be managed by VMUD No.2. The District will operate in a self-sufficient manner, supporting itself through user fees. The project will not require additional staffing. Therefore, the existing organizational structure, which has been provided, will be sufficient.

Community Participation

1. Comprehensive Community Participation Plan

BECC certification requires a public participation process to promote community understanding of and support for the proposed project is required. The Public Participation Plan (Plan) was developed per certification requirements and was designed to provide a framework for the sponsor and steering committee to conduct public participation in the areas served by Valley Municipal Utility District No.2. The Plan was submitted and approved on September 17 and approved on September 19, 2003.

2. Steering Committee

The steering committee members are Richard Lindeman and Robert Buckley, District Board Members; Miguel Ortiz, landowner and Developer; Ray Downs, Town Of Rancho Viejo Mayor; Bill Sharp, Resident and landowner. Robert Burkhart, P.E., District General Manager; Bill Norris, P.E. and Jesus Leal, P.E., NRS Consulting Engineers; and Tomas Tamayo, District Chief Operator will form the technical support group.

3. Local Organizations

In a small community served by VMUD No. 2, the only local organization impacted in any way by this project is the town of Rancho Viejo itself. On October 14. 2003 a presentation was made to the Board of Aldermen of the Town to review engineering plans and proposed project. Approximately 20 residents were present at this meeting. No objections were voiced to the proposed project or the proposed rates.

4. Public Access to Project Information

The Project Plan has been available at the VMUD No. 2, Town of Rancho Viejo City Hall, and the local Circle K Convenience Store since mid-September. In addition, the availability of the Project Plan was included in public meeting notice published in the Brownsville Herald, mailed with water bills and hand delivered to all customers and posted at the above locations as well as the River Bend Resort Pro Shop Club House. A fact sheet was developed that included basic technical, environmental, financial components of the project and were available at the District office and mailed with water bills. A petition asking for support has been available at the District office for customers to respond to when paying their water bills. The petition summarizes the proposed project and the increase in rates.

5. Public Meetings

Two public meetings will be held, one in October 24th and the other on the 27th of the same month at the meeting room of the District. The meeting public notice was published on September 21th, in the Brownsville Herald. Survey questions will be distribute to landowners to receive public input asking to indicate their level of support for the project including the Financial Plan.

Sustainable Development

1. Definition and Principles

The project complies with BECC's definition of Sustainable Development: "Conservation oriented social and economic development that emphasizes the protection and sustainable use of resources, while addressing both current and future needs, and present and future impacts of human actions." This project would positively impact the area and sustainable life of the area's residents through the conservation of water which is becoming a scarce resource and critical for sustainability of life and economic growth. Through elimination of water loss through seepage and evaporation, and reduction of energy needs by closely monitoring water distribution times and quantities of flow, the project provides a positive impact on the overall environment by conserving and effectively using a limited water supply resource. Local residents will benefit from better agricultural yields within a sustainable development framework and from a better quality of life within mature water resources conservation scheme, being careful not to compromise water and soil resources for the future, considering that modernization and technical improvements within the District's operational system provide a net positive effect.

The required public review process ensures that residents in the project's influence area participate in the development process fully aware that the decisions they make will focus on the sustainable management of environmental resources to achieve a better environmental and socio-economic improvement in their community. Besides the water conservation from mitigating seepage and evaporation losses, there are energy savings both from pumping less water forthcoming from reducing losses.

2. Institutional and Human Capacity Building

The Rio Grande Regional Water Plan, in support for the implementation of agricultural water conservation strategies, includes the following strategies for reducing irrigation shortages:

- *Expanded technical assistance should be available from local, state, and federal sources to assist irrigation districts with more detailed, systematic evaluations of district facilities and management policies to identify cost effective water efficiency improvements.*
- *The State of Texas and the federal government should assist with the financing of irrigation water efficiency improvements through the provision of low interest loans and /or grants.*

The following projects/studies have been previously conducted by the District which involve water conservation:

1. *Pond System Hydraulic Study by Norris Stone & Associates, September, 1988*
   Conducted to determine hydraulic capacity of the pond system within River Bend Resorts.

2. *Comprehensive Plan to recommend improvements to the system to meet needs of the District, September 2000.*

3. *Canal Study by Cooper & Associates September 1990*
   Comprehensive hydraulic study of the District's water supply canal within River Bend Resorts, Inc.

4. *Geotechnical Investigation of Canal Levee May 1989*
   Prepared by Southwestern Laboratories to determine construction methods and recommendations for canal reroute within River Bend Resorts

5. *Canal cleaning and rehabilitation project May 2001*
   Project performed by District personnel to increase canal capacity and to replace deteriorated structures

6. *Rate Study April 1999*
   Implemented conservation (inverted block or multi tier) rates to the District

7. *Implementation of 0.25 mgd Reverse Osmosis Project in December 1999 utilizing groundwater as an alternate source of water.*

8. *Reuse of effluent from Rancho Viejo Wastewater Plant for irrigation of the Rancho Viejo Golf Course.*

9. *Reuse of effluent from River Bend Resorts Wastewater Plant for irrigation of the River Bend Resort Rancho Viejo Golf Course.*

The NADBank Water Conservation Investment Fund will complement with grant funds the capital investment that will be spent by the District. The use of these grant funds allows the District to improve its infrastructure in order to reduce water losses in water conveyance.

The project will be managed by the local sponsor and be constructed and operated in conformance with the requirements of both regulatory and funding agencies. According to the project financial analysis, the VMUD No. 2 is capable of providing the initial matching cash contribution and supporting the ongoing operation and maintenance expenses of the project without adjustments to its current fee structure.

The District will be able to operate in as self-sufficient manner, supporting itself through user fees. The project will not require additional staffing. Therefore, the existing organizational structure will be sufficient.

The process used in the development of this project has followed a planning and public participation process that has developed alternatives and associated costs, solicited public input in to the process, established priorities based on input of the stakeholders and proceed according to the priorities established in the planning process.

A monitoring program will be established for a two-year period to evaluate and quantify actual water and energy savings following construction of the projects. The monitoring program will consist of the following:

- *The electrical use per acre-foot of water pumped will be determined on a monthly basis and reported annually. The annual report will include the historic electrical costs per acre-foot for comparison.*
- *The water pumped will be measured and compared with the water delivered on a monthly basis and submitted annually. The annual report will include historic water pumped and water delivered volumes for comparison.*

3. Conformance with Applicable Local and Regional Conservation and Development Plans

The proposed projects comply with all local and regional conservation and development plans. In particular, the projects comply with the following:

- "*Rio Grande Regional Water Plan*", *which recommends agricultural water conservation and on-farm water use efficiency, in order to reduce irrigation shortages.*

- *Drought Contingency Plan, August 2002. Prepared by the District to comply with TCEQ requirements*

The Project Report for the project has been prepared in accordance with the guidelines of the Border Environment Cooperation Commission.

4. Natural Resources Conservation

The proposed project was developed with the intent of conserving water. The District irrigation water right is 6,611 acre-feet per year; however, this water right is "*as-available*" *and the actual water available to the District may vary from year to year. In 2002 the District's allocation was approximately 2,500 acre-feet.*

In addition to their irrigation water rights, the District holds municipal/domestic water rights of 898 ac-ft per year. The municipal/domestic water has municipal priority, but can be used either for municipal water supply or for domestic use.

The estimated annual water savings resulting from the implementation of this project, estimated by the Project Sponsor, are of 570 ac-ft/yr. The expected water savings from this project, estimated by the Project Sponsor, over its expected productive life are of 25,000 acre-feet based on a 50-year life. Texas A&M University is in the process of conducting a detailed study to further refine these savings.

The energy savings, with the implementation of this water conservation project, estimated by the Project Sponsor, are of 28,000 Kw-hr/yr. The expected energy savings from this project over its expected productive life are of 1,400,000 Kw-hr. Texas A&M University is in the process of conducting a detailed study to further refine these savings

Water conservation in the agricultural sector will not only reduce projected irrigation shortages, it will also "*free up*" *additional Rio Grande water supplies for future domestic-municipal industrial needs. Therefore, the District would be able to manage sustainable growth within its available resources.*

The project will not only have an impact in water resources, but it will also contribute in savings of natural resources required to generate the energy that will be saved with the implementation of the improvements in the VMUD No.2.

5. Community Development

The benefit obtained by the modernization of these irrigation facilities by the proposed project may directly impact agricultural production and may result in an increased income and an improved quality of life for the end users. With this, the increased economic may be enhanced by making residents active participants in their community's development. An improved quality of life for the residents may also have a favorable impact on the development of health, and education of the area.

Agriculture has been the primary component of the region's economy. Based on Texas Cooperative Extension data presented in "*Alternative Approaches to Estimate the Impact of*

Irrigation Water Shortages on the Rio Grande Valley Agriculture", the estimated economic benefit of an acre-foot of irrigation water is $652 in business activity and 0.02 jobs. Based on this information, the water conserved from this project would allow the region to realize $7,782,728 in business activities and 238 jobs.

Based on Texas Water Development Board data presented in "1995 Per Capita Water Use For Texas Cities", the per capita water use in Brownsville is 184 gallons per day, or 0.206 ac-ft per year. Regardless of whether the conserved water is applied to additional crop irrigation or to M&I usage, the conservation benefits are significant and will have a lasting impact on the region.

Available Documents

1. *Step I Application*
2. *Baseline Conditions Report*
3. *Financial Report by the Project Sponsor*
4. *Endangered Species Assessment Results of an approximately 5.7-mile proponed pipeline route in Cameron County, Texas, by SWCA Environmental Consultants for the Project Sponsor.*
5. *Archaeological Background Review of VMUD No. 2 Project Area, Letter Report, by SWCA Environmental Consultants for the Project Sponsor.*
6. *Letters sent by Project Sponsor to Texas Historical Comisión, U.S. Fish and Wildlife, Texas Parks and Wildlife Department, and Texas Commission of Environmental Quality, asking concurrence letters.*
7. *Public Participation Plan by the Steering Committee Project.*
8. *Public Participation Plan Approval letter by BECC.*
9. *Project Financial Analysis by Brown and Caldwell, BECC Consultant.*
10. *Project Schedule.*
11. *Environmental Summary Report by the Project Sponsor.*
12. *Concurrence Letter from Texas Commission of Environmental Quality and U.S. Fish and Wildlife Service.*
13. *Letter from Texas Parks and Wildlife Department and Texas Historical Commission indicating that documents are under review.*