



WATER RECLAMATION CAMPUS ARCHITECTURAL THEME & CHARACTER



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Introduction

HISTORY

The Santa Cruz River has been the lifeline in the Sonoran Desert for thousands of years. Archaeological evidence indicates that the Tucson Basin has been occupied for more than 10,000 years. Early people gathered plants along the Santa Cruz River floodplain and hunted the animals that came to drink from its water. Harvestable crops such as corn, squash, and beans were planted along the banks and irrigated by seasonal floods. Later, the Hohokam people of the Phoenix Basin introduced irrigation canals to the people of the Tucson Basin, which continued to be utilized after European settlers arrived.

As irrigation canals served to be an innovative concept for people thousands of years ago, this facility will incorporate new and innovative applications of building technology that will be an inspiring and guiding facility to push Pima County to the forefront of the 21st Century.

Equally as important as the history and culture of Pima County's past is the natural settings and the surroundings which provide inspiration for the architectural theme. The Tucson Basin is as rich in its natural surrounding as it is in its cultural and historical past. Striking jagged mountains to the north and west of Tucson serve as inspiration, just as the sinuous line that is created by the flow of the Santa Cruz River across the desert floor.

Pima County Regional Wastewater Reclamation Department

The Pima County Regional Wastewater Reclamation Department (PCRWRD) prepared a Regional Optimization Master Plan (ROMP). The goal of ROMP is to comply with current and future regulatory requirements to improve the quality of the effluent being discharged into the Santa Cruz River and to upgrade and rehabilitate aging infrastructure. This will be accomplished by implementing state of the art technology that is substantially automated, staff-friendly, while fully

engaging and serving the community needs projected out to 2030.

Two facilities in particular will undergo major improvements within the Metropolitan Sewerage System. The ROMP includes expanding the existing Ina Road Wastewater Reclamation Facility (WRF) to 50 million gallons per day (mgd) as well as constructing a new 32 mgd Water Reclamation Campus in the vicinity of the existing Roger Road Wastewater Reclamation Facility (WRF). A plant interconnect pipeline will transfer 28 mgd from the Roger Road WRF service area to the Ina Road WRF, which will ultimately allow the existing 41 mgd Roger Road WRF to be decommissioned.

PURPOSE

This document is intended to cast an overall architectural theme and character for the Water Reclamation Campus (WRC). Design professionals will be issued this document to finalize the overall design intent. Images and concepts serve as a guiding framework for ultimate design considerations and are intended to advance the design principles that are stated at the outset of this document. These principles are the ideas that will serve as guidance for the final architectural design.

The WRC architectural theme and character master plan is comprised of four key components: 1) Solar Power Generating Facility; 2) Central Lab and Administration Campus; 3) Water Reclamation Facility; and 4) Future Sustainability Research and Development Campus (site of the existing Roger Road WRF). This document demonstrates concepts and ideas with specific focus on the Central Lab and Administration Campus, and the Water Reclamation Facility. While these concepts graphically illustrate and expand upon the design principles, it is not intended to imply that this is the specific design direction since many other factors need to be considered and final budgets need to be adhered to.



1 Produce a project that will **set a precedent** for future generations of sustainable garden business and commercial developments within Tucson's Gateway Overlay Zone.



2 Deliver an enduring, aesthetically pleasing, and **cost effective project** that efficiently uses County resources.



3 Redefine the notion of a commercial/industrial park by creating a **campus environment** for the proposed site.



4 Employ security measures to **safeguard against public vulnerabilities** while providing a publicly visible and accessible facility.



5 Employ a timeless **desert architecture** that emphasizes appropriate colors, varying textures, and sustainable materials.



6 Implement Pima County's **Sustainable Action Plan** by designing the campus buildings to achieve U.S. Green Building Council's LEED Silver Certification at a minimum.



7 Create a site plan that **optimizes solar orientation** for both individual buildings and the overall campus.



8 Compose a setting with **shaded environments** that create cool microclimates and exploit light and shadow as dynamic design elements.



9 Implement measures to **preserve the natural dark sky** conditions, while providing the necessary illumination for a safe, efficient campus workplace environment.



10 Utilize building techniques that employ the use of **ordinary materials in creative ways**.



11 Employ **water conservation** measures such as low-flow and waterless processes within the buildings; xeriscape principles utilizing harvested and recycled water for all irrigated landscape.



12 Create a landscape setting that promotes **regional landscape**, emphasizing the riparian zones and mesquite bosques historically found along the Santa Cruz River.



13 Incorporate elements of **historical precedent** into an expression of sustainable building practice for the 21st century.



14 **Manage stormwater** runoff by diverting surface flows into bio-swales and bio-sponges, and incorporating permeable surfaces for walkways, drives, and parking areas.



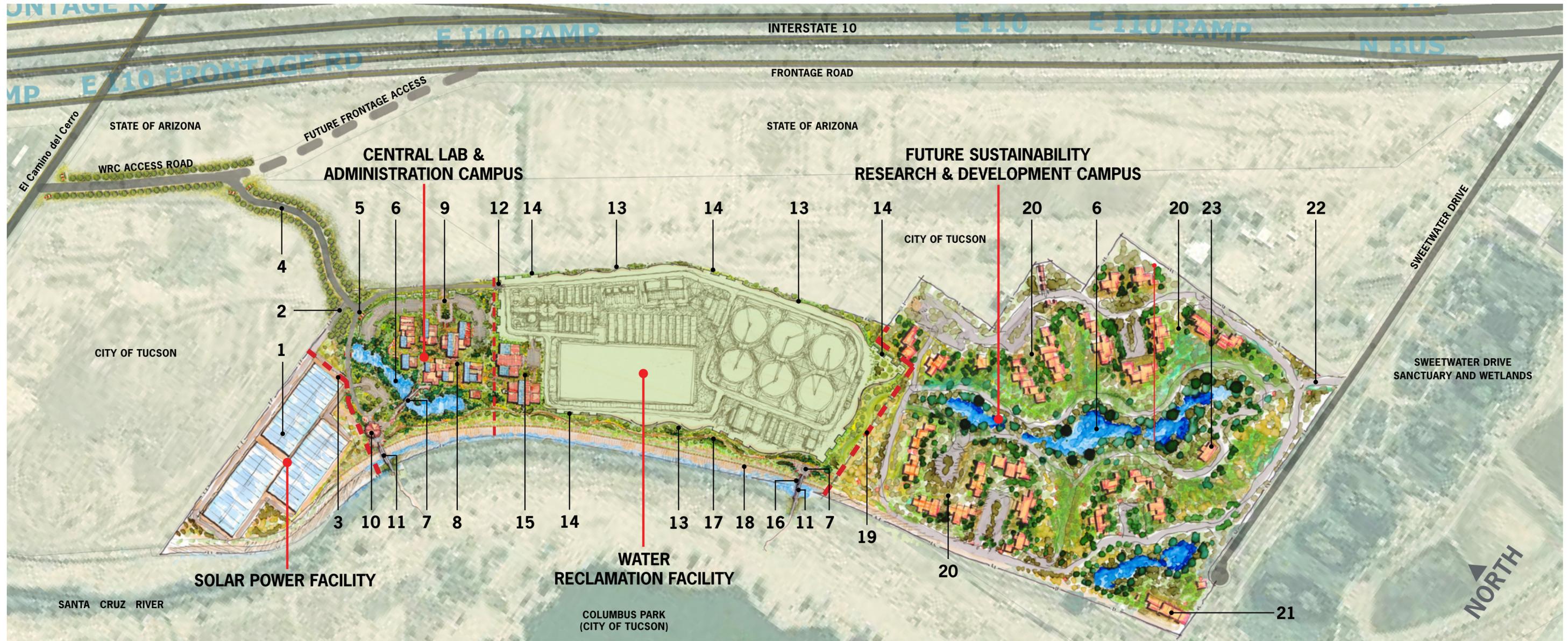
15 **Create interconnectedness** throughout the campus by incorporating multi-modal paths and trails for employees and visitors alike.



16 Create opportunities for **showcasing reclaimed water** as a design feature, such as created wetlands for wildlife and recharge, and fountains as focal elements within courtyards.

Design Principles

Design principles are intended to serve as a guiding framework for the design of the Water Reclamation Campus in the vicinity of the existing Roger Road WRF. All future design considerations will be measured against their ability to implement and organize the site plan, its setting, and its structures based on these guiding principles.



Water Reclamation Campus Master Plan

Legend

- SOLAR POWER FACILITY**
 - 1 Solar Arrays (By Others)
 - 2 Solar Array Access Road
 - 3 Boundary Limits of Solar Project
- CENTRAL LAB & ADMINISTRATION CAMPUS**
 - 4 WRC Access Road
 - 5 WRC Entry Feature
 - 6 Wetland/Recharge Basin
 - 7 Bridge over Recharge Basin
 - 8 Central Labs & Administration Campus
 - 9 Access to Central Labs & Admin Campus
 - 10 Proposed Visitors Center
 - 11 Pedestrian Bridge to Columbus Park
- WATER RECLAMATION FACILITY**
 - 12 WRF Security Gateway
 - 13 WRF Security Enclosure (Type A)
 - 14 WRF Security Enclosure (Type B)
 - 15 WRF Buildings As Perimeter Enclosure
 - 16 Effluent Discharge
 - 17 Meandering Levee Trail
 - 18 Existing Maintenance Road
- FUTURE SUSTAINABILITY RESEARCH & DEVELOPMENT CAMPUS**
 - 19 Boundary Limits Sustainability Campus
 - 20 Future R&D Office Clusters
 - 21 Existing Vocational School
 - 22 Future Proposed Access into R&D Campus
 - 23 Existing Administration Building

Master Plan

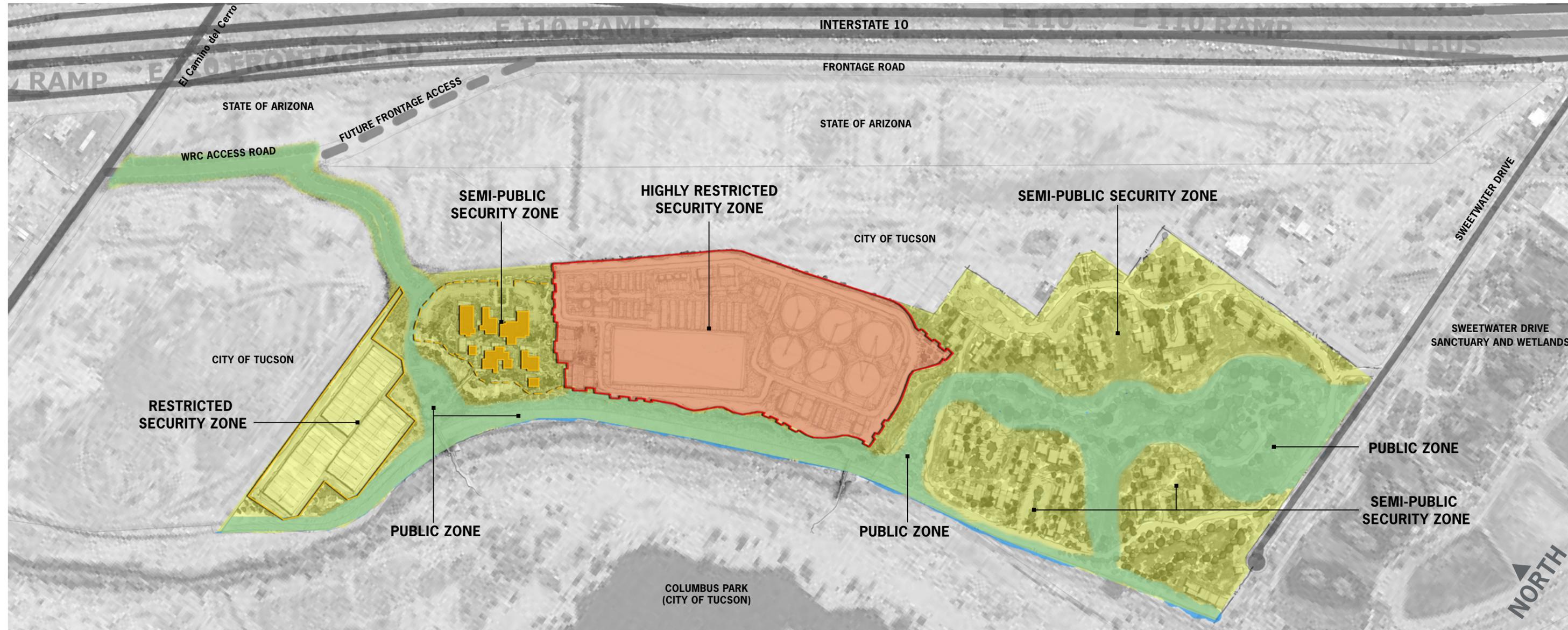
The master plan is approximately 104-acres and is comprised of four key components. The site is immediately surrounded by City of Tucson property. To the south, a sanctuary and wetlands offers passive recreational activities such as bird watching, and nature walking; while Columbus Park lies across the Santa Cruz River and offers a multitude of active and passive recreational opportunities. Two vacant parcels surround the northern and eastern property boundaries respectively. Access to the new WRC will traverse the northern City of Tucson property.

Upon entering the facility, and split off to the west, PCRWRD has allotted a ten-acre parcel reserved for a solar power generating plant. This facility will eventually generate up to one megawatt of power that will be utilized by the WRC.

The southern half of the WRC is approximately sixty acres and is the location for the existing Roger Road WRF. This is the largest section and will be decommissioned once the new WRF is operational. The master plan proposes a use for this site as a future sustainability-focused business research and development (R&D) campus. While this use is ultimately guided by market demand and the County's ultimate desires, the proposed use is appropriate with today's environmentally conscious trends, and anticipates its use to be compatible with sustainable topics that will become commonplace in the years to come.

A notable element within the WRF and future Sustainability R&D Campus is the desire to have a connective open space corridor that will eventually link up the County's path and trail network--part of which exists along a 100'-easement along the western property boundary.

The heart of the WRC is made up of the Central Labs and Administration and the new WRF. These components make up the balance of the site. The architectural theme and character depicted in this document will primarily focus on these two components within the WRC.



Water Reclamation Campus Security Plan

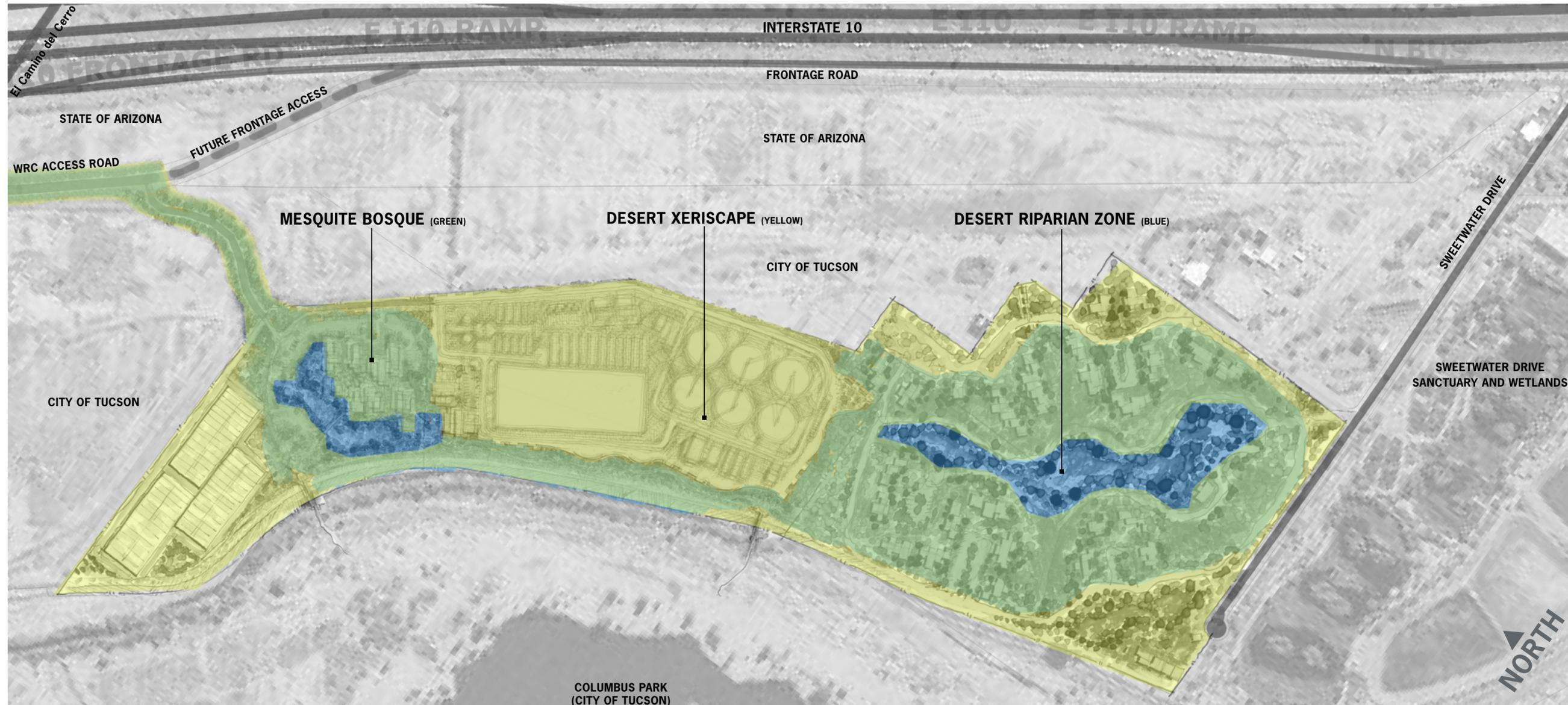
Security Master Plan

PCRWRD is developing a security master plan for all of their existing wastewater treatment facilities throughout Pima County. Under consideration is the level of security that exists currently as well as the integration of state-of-the-art upgrades that will need to be implemented into existing facilities to elevate them to an acceptable level of security. The security master plan for the WRC will follow the recommendations that will result from this study. At the same time, the PCRWRD is committed to offering accessibility and educational opportunities to the general public. The exhibit on these pages depict a suggested level of appropriate security that will be described in the following general categories: 1) Public; 2) Semi-public; 3) Restricted; and 4) Highly restricted areas.

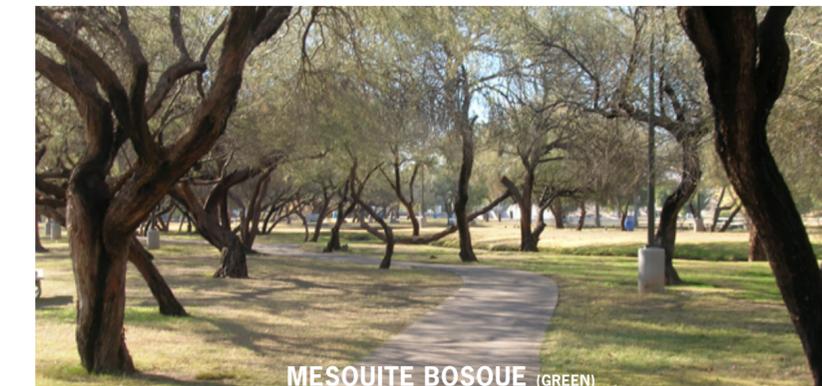
Public areas are accessible to the general public. The most notable instance is the requirement of providing a 100'-easement along the western property boundary as part of a linear trail network. Another example is the proposed visitors center. The former will generally be open twenty-four hours a day, while the latter would have restricted hours of operation. These areas will require different levels of security appropriate to address potential vandalism in this area of town. Possible mitigation measures include surveillance cameras that are monitored by on-site security agents.

Semi-public/restricted areas include facilities such as the proposed solar power facility, the central lab and administration campus, and the proposed sustainability campus. These facilities are fairly visible and/or accessible by the general public. However, each of these would require security check-in at the respective entry points to gain access into the facilities themselves--employees will be required to have appropriate access identification.

The restricted areas include all wastewater processing facilities, its campus setting, and any buildings that will house its SCADA Systems. These will be highly restricted to employees only, would require appropriate identification, and would be extremely guarded against public security vulnerabilities. Appropriate measures should be carefully considered to ensure a secure co-existence between those highly secure areas, and those that are publicly accessible.



Water Reclamation Campus Landscape Master Plan



MESQUITE BOSQUE (GREEN)



DESERT RIPARIAN ZONE (BLUE)



DESERT XERISCAPE (YELLOW)

Landscape Master Plan

The landscape master plan is intended to introduce several key principles. First and foremost, the design should acknowledge and create a setting complimentary of the region which includes riparian zones evident along the Santa Cruz River. Secondly, the setting should apply xeriscape principles for all landscaped zones and should seamlessly transition between the respective zones. A third principle is to create a healthy environment both for the campus setting itself and its employees, and also for the wildlife habitat that will result. Both are accomplished by utilizing the effluent water in a naturalized setting much like what has been accomplished with the Sweetwater Wetlands immediately south of the existing Roger Road WRF. A functional aspect of the landscape design should be to manage stormwater by diverting and absorbing runoff utilizing bio-swales to divert and bio-sponges to retain and absorb stormwater. Finally, and consistent with the County's goals of designating riparian habitat, the landscape should enhance and restore wildlife habitat by creating a connective landscape.

Images on the following pages are representative of the three landscape themes proposed. It is not all-inclusive, but is a representation of the landscape intent. Special consideration should be taken when selecting plants that will promote wildlife habitat, support a regional and healthy environment with non-invasive plants, and creates an aesthetically pleasing setting. In this manner, the WRC will set a precedent by breaking with the typical industrial park development found along the I-10 freeway corridor.



MESQUITE BOSQUE

Landscape Zones

Images depicted on these pages represent a sample of plants that could reside within each of the respective zones. It is not to imply that this is the definitive list of plants, but rather a complimentary range that describes the intent.

The mesquite bosque theme is the predominant landscape setting proposed for the overall WRC. Mesquites will serve as the predominant tree within the zone with other trees serving as accents and as possibly a sub-zone within the zone with greater cover. This zone will be publicly visible, so shrubs and groundcovers should be utilized that compliment, as well as provide colors, textures, and accents that will be highly engaging.

A desert riparian wetland provides a second featured setting. This is proposed for two specific zones: 1) Central Lab and Administration Campus; and 2) Future decommissioned Roger Road WRF. These riparian wetland zones serve several purposes. First, this zone will serve as bio-filtration and on-site retention. Secondly, it can serve as wildlife habitat. Finally, it creates a tranquil landscape setting enjoyed by employees and visitors alike. Another possible use for this zone is as a potential recharge basin.

The final landscape setting is a desert xeriscape zone to be placed predominantly around the perimeter of the Water Reclamation Facility and will serve as a transition to future developments. This landscape setting can incorporate non-invasive drought tolerant plants that may not be native to the Sonoran Desert, although the predominant mix should be of native Sonoran plant species and complimentary to the mesquite setting.



DESERT RIPARIAN ZONE



DESERT XERISCAPE



decomposed granite



large river rock



fluted split-face CMU



rammed earth



copper



kalwall



recycled-content steel



recycled-content steel



porous asphalt



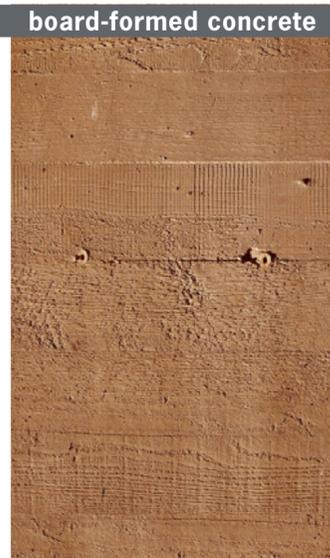
permeable surface CMU



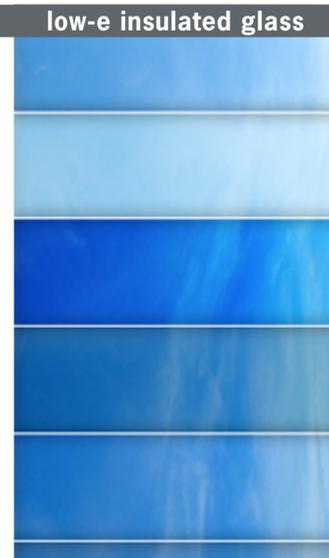
split-face CMU



adobe block



board-formed concrete



low-e insulated glass



river rock - gabion basket



cor-ten steel

Materials Palette

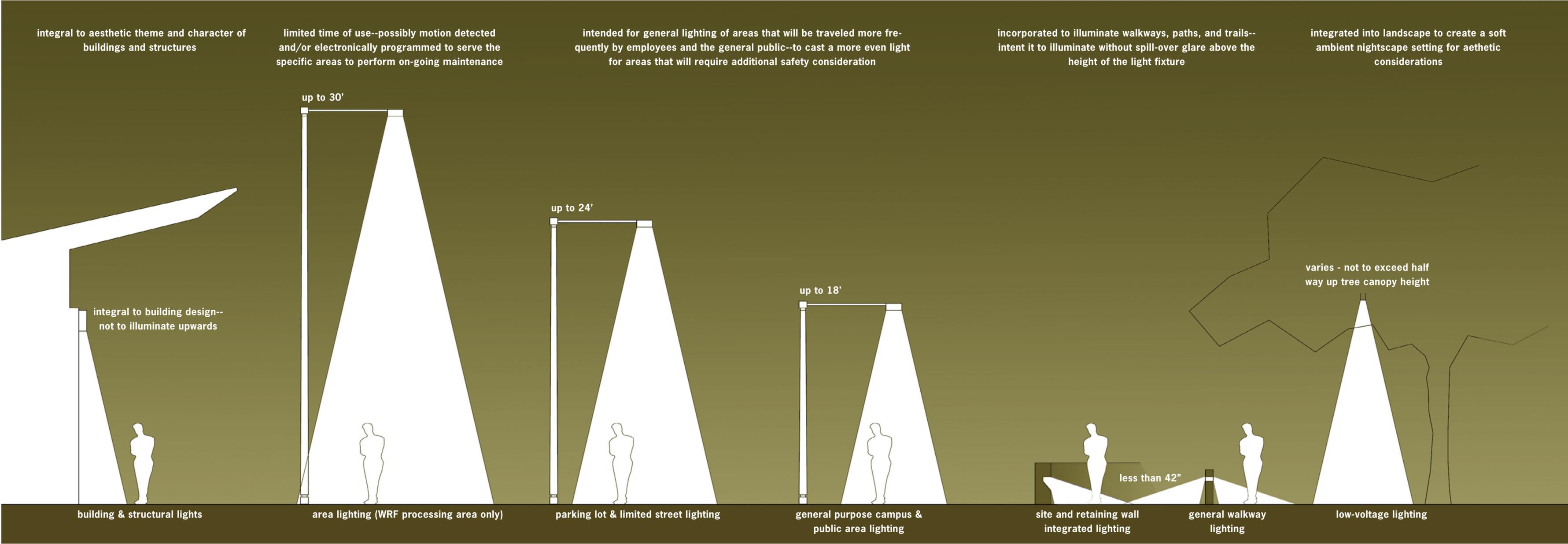
The materials which are selected for use have been chosen for their ability to complement the natural environment in a sustainable manner. Selected project materials have a durable, permanent quality and are assembled and combined in such a way as to create lasting aesthetic value. Sustainable considerations when choosing materials also must coordinate with any LEED certification requirements as designated by the Pima County Sustainable Action Plan.

Locally extracted, processed or manufactured materials should be utilized where ever possible. Stone, rammed earth, river rock and concrete are examples of materials that are either wholly or in part from the surrounding desert environment. For example, a compacted granite paving surface can be utilized at parking areas, thereby managing storm water run-off with a local material.

Where ever possible, materials that are composed of recycled content are to be utilized. For example, fly ash should be used as appropriate in concrete to replace Portland cement. Fly ash also has characteristics that allow it to be used in structural fill or embankment applications. Recycled content steel for structural elements and reclaimed or repurposed steel for architectural details such as equipment screening systems are examples of material reuse that should be considered essential. Recycled aluminum content materials can be used in various building envelope systems as well.

Building envelopes, including roofs, walls, insulation, ventilation and fenestration systems, should be as energy efficient as achievable. High performance building systems used in conjunction with sustainable materials create buildings with enduring value and operational savings.

In addition to the sustainable considerations for a material's selection, its inherent aesthetic quality should be maximized. Complimentary colors and textures can be combined to emphasize the character of adjacent materials. A material's color and texture should also consider adjacent landscape and the complimentary contrast between the two. Repetitive components used in conjunction with more free-flowing elements provide an opportunity to showcase different materials. Creative use of appropriate materials is considered a fundamental part of the design.



Site Lighting

The site lighting master plan for the WRC considers four key factors: 1) Night Sky Ambiance; 2) Safety and Security; 3) Energy Efficiency; and 4) Aesthetics. These four considerations shall conform to all applicable codes including jurisdictional, building, electrical, and sign codes, while providing a friendly nighttime environment that will not harm the activity of nocturnal animals and ecosystems.

In accordance with the Sustainable Action Plan for Pima County, the lighting concept for the WRC will preserve natural dark sky conditions to the maximum extent possible, through the selection of outdoor lighting fixtures that reduce sky glow impacts. This is achieved by utilizing light fixtures equipped with full light cut-off or fixture shielding equipment.

Additionally, the lighting concept for the WRC shall provide a functional level of safety and security. Fixtures will be strategically placed to ensure that employees of the site are provided adequate night time visibility to perform work activities; as well as providing safe lighting levels for employees and the general public who may engage in outdoor night time activities.

Energy efficiency shall be a critical component in achieving LEED Silver Certification at a minimum. Special consideration should be taken to integrate solar collecting devices, and consider emerging adaptive lighting strategies such as light emitting diodes (LED) as an integral part of the overall lighting strategy. These concepts create opportunities to employ renewable energy, while offering a fully programmable technology that is a longer lasting, more efficient light, and produces less glare than conventional sodium vapor-powered lights.

The final consideration is aesthetics. Light fixtures should fit cohesively with the architectural style and landscape design concept for the WRC master plan. Integrating solar collecting panels into the design of the light fixtures should be as important as their proposed materials.

The illustrations on these pages represent general lighting considerations and applicability relating to lighting intent.

Central Lab & Administration Campus

Legend

Central Lab & Administration (CLA)

1. Primary Access Road
2. Proposed Access to Solar Facility
3. WRC Entry Feature & Direction Signage
4. WRC/CLA Access Road
5. CLA Site Screen Thematic Wall
6. CLA Entry
7. CLA Drop-off
8. CLA Campus
9. CLA Parking
10. Building Integrated Photovoltaics
11. Wetland | Recharge Basin
12. Visitor Center Access Road
13. Visitors Center
14. Visitor's Center Parking
15. Pedestrian Bridge to Columbus Park
16. WRF Security Gateway
17. WRF Buildings
18. Meandering Levee Trail
19. Flood Control Levee & Maintenance Road



Central Lab & Administration

Access to the WRC is gained through an easement across the City of Tucson property to the north. Upon entering the WRC, the road comes to an intersection specifically designed to direct traffic flow. Directional signage will be incorporated into entry feature to direct traffic. Large utility vehicles are split off to the left, traveling along the eastern boundary to gain access to the new WRC and will be screened from the future Central Labs and Administration Campus. This will also be the route employees will take to gain access into the Central Lab and Administration Campus. The entry drive that splits along the northern boundary will lead past the planned solar power facility before arriving at a proposed Visitor Center. The Central Lab and Administration Campus is proposed to be in the foreground of this arrival intersection.

The pages that follow depict the buildings and spaces that help to illustrate the architectural theme and character of Central Lab and Administration Campus.

Included are renderings depicting the following:

- **Entry Drive**
- **Campus Interior Courtyard**
- **Pedestrian Bridge over a Proposed Recharge Basin**
- **Proposed Pedestrian Bridge and Visitor Center**



DESERT XERISCAPE LANDSCAPE

ICONIC ENTRY | DIRECTIONAL
MONUMENTATION

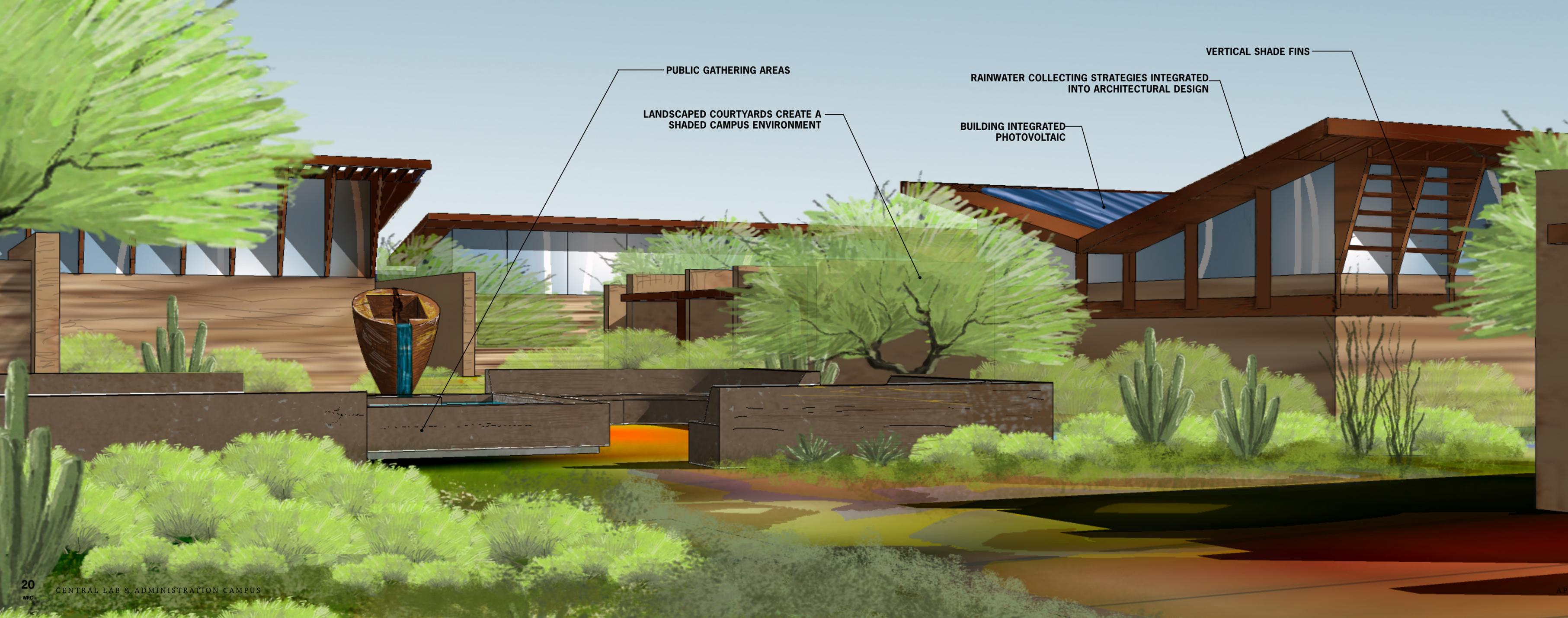
VISITORS CENTER

Entry Drive

El Camino del Cerro is the nearest arterial road north of the project. An easement that bisects two parcels to the north implies a possible road connection from the El Camino del Cerro to the Interstate 10 freeway frontage road. This easement runs southerly between City of Tucson and State Land before cutting across to connect to the frontage road.

Access into the WRC is gained through an easement across the City of Tucson property just before the road heads toward the frontage road. The arrival is the initial opportunity to showcase PCRWRD's WRC. As such, a tree-lined drive showcasing xeriscape plantings creates an impressive arrival experience, while functionally addressing the need to keep the access out of storm-water floodplain issues.

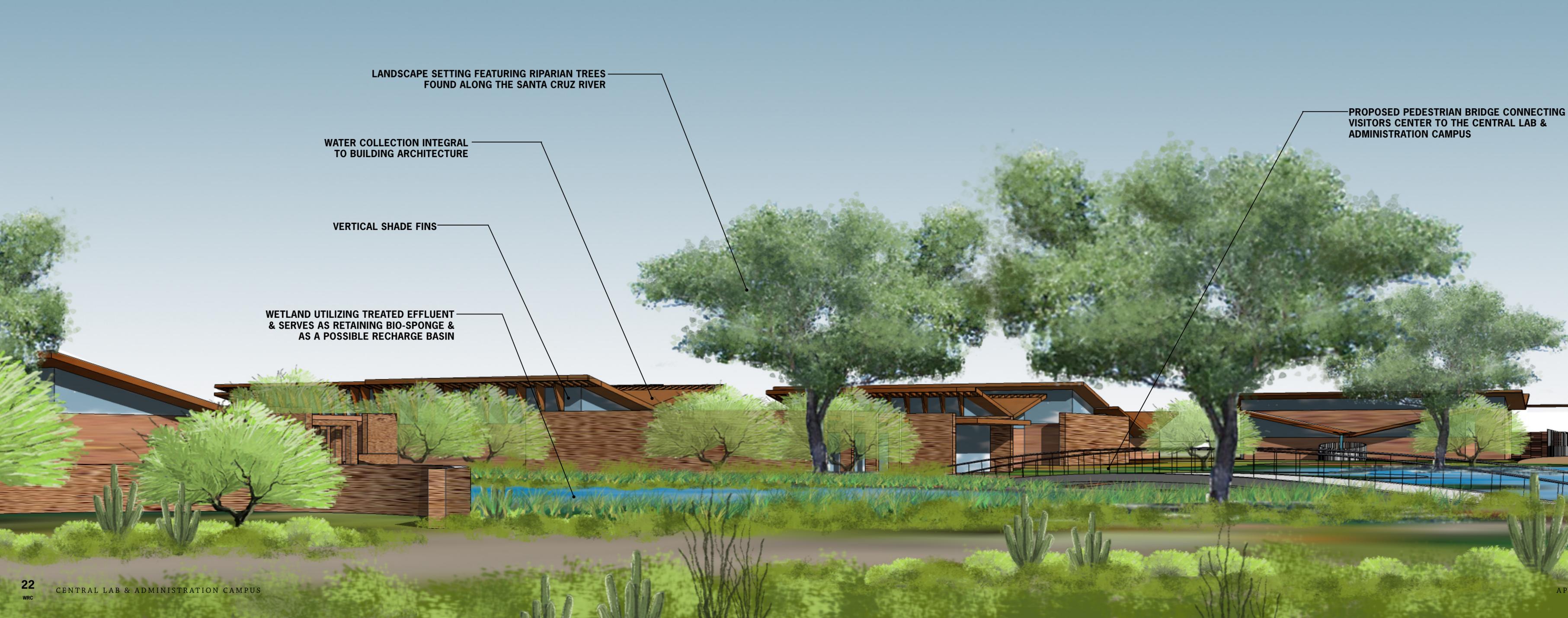
The graphic depicted here illustrates a simple landscaped drive, an arrival feature wall, the proposed Visitors Center to the right, and the Central Lab and Administration Campus to the left.



Interior Courtyard

A key design feature of the Central Lab and Administration Campus is the arrangement of buildings. This arrangement creates several opportunities. First, more buildings will be able to be sited in a manner that maximizes solar orientation. Secondly, it allows for phasing of buildings based on need and demand. Finally, it creates opportunities to create aesthetically complimentary outdoor spaces.

The illustration depicts a typical courtyard setting. A complimentary landscape will create an interconnected, and shaded environment that will create a healthy workplace setting.



Pedestrian Bridge over Recharge Basin

The Central Lab and Administration Campus features a proposed water element between the existing levee and the new buildings. This water element can serve as a wildlife habitat as well as a recharge basin. From a historical standpoint, this body of water presents an opportunity to reintroduce the desert riparian habitat that has been largely diminished due to urban development.

The illustration depicts a proposed pedestrian bridge that would connect the Central Lab and Administration Campus to the proposed Visitors Center situated at the levee. By connecting the two components in this manner, it presents an opportunity to allow employees to utilize the enhanced pedestrian path along the Santa Cruz River, and possibly connect across to Columbus Park. At the same time, visitors may be offered the opportunity to learn about the wastewater processing facilities and the importance of wastewater reclamation evident in the setting that is created with this recharge basin.

PROPOSED VISITORS CENTER ADJACENT TO THE SANTA CRUZ RIVER / ICONIC BUILDING FORM ORIENTED WITH VIEWS OF COLUMBUS PARK AND ACCESSIBLE TO PEDESTRIANS AND BICYCLISTS ALONG THE LEVEE TRAIL

BRIDGE TO COLUMBUS PARK

FLOOD CONTROL DISTRICT MAINTENANCE ROAD

ENHANCED LEVEE TRAIL

SANTA CRUZ RIVER

CENTRAL LAB & ADMIN BUILDINGS BEYOND / ELEVATION SET LOWER THAN TOP OF LEVEE

Proposed Visitor Center and Pedestrian Bridge

The proposed Visitor Center offers a wonderful educational opportunity. From an environmental stand-point, it sits between a renewable energy facility as well as a state-of-the-art Water Reclamation Facility that will serve in part to replenish the Santa Cruz River. From a recreational standpoint, it creates a stopping point along the levee trail and possibly a connecting opportunity to Columbus Park. Finally, it can focus educational programming aimed at highlighting the historical, cultural, and biological existence of the Santa Cruz River and PCRWRD's commitment to its continued rehabilitation.

Situated at an elevation higher than the rest of the WRC campus, the proposed Visitor Center is a prominent and key node along the public trail. The illustration depicts a pedestrian bridge that would span over the Santa Cruz River to connect it to Columbus Park. Evident in the background is the Central Lab and Administration Campus at a proposed lower elevation. By setting the elevation lower, the levee and the proposed landscape along the levee trail will help to visually screen the facility from the neighborhoods west of Columbus Park.



Water Reclamation Facility - Site Plan

Legend

Water Reclamation Campus (WRC)

1. WRF Access Road
2. WRF Gated Security Access
3. WRF Perimeter Enclosure (Type A)
4. WRF Perimeter Enclosure (Type B)
5. WRF Electrical Building (Perimeter Enclosure)
6. WRF Control Building (Perimeter Enclosure)
7. WRF Parking
8. Building Integrated Photovoltaics
9. Central Lab & Administration Buildings
10. Central Lab & Administration Parking
11. Wetland | Recharge Basin
12. Celebrated Effluent Discharge Node
13. Proposed Pedestrian Bridge to Columbus Park
14. Meandering Levee Trail
15. Flood Control Levee & Maintenance Road
16. Future Sustainability-Focused R & D Campus

Water Reclamation Facility

The initial phase of the WRC master plan is the water reclamation facility. PCRWRD is currently conducting a Request For Qualification (RFQ) procurement process with specific technical requirements. Ultimately, the design of the facility, its circulation, and water treatment components may change depending on the qualified teams' proposals. As such, the architectural concept will focus on several considerations for buildings within the facility, the perimeter enclosure and materials for each, with special considerations both internal to the campus, as well as areas outside of the WRF perimeter enclosure.

The WRF perimeter enclosure is comprised of four elements; two complimentary wall types, buildings utilized as a portion of the perimeter enclosure, and finally the entry gate where access to the WRC facility would occur. The vehicular access is located at the northeastern-most corner of the WRF site, with an additional pedestrian access considered either through future buildings planned as part of the Central Lab and Administration Campus, or as a second exterior portal along the northern boundary. Materials and details are discussed in this document as well. Ultimately the design of this facility is part of a larger master plan PCRWRD is executing. Architectural treatment of the WRC and its aesthetic consideration will be critical in executing a holistic and choreographed master plan at its build-out.

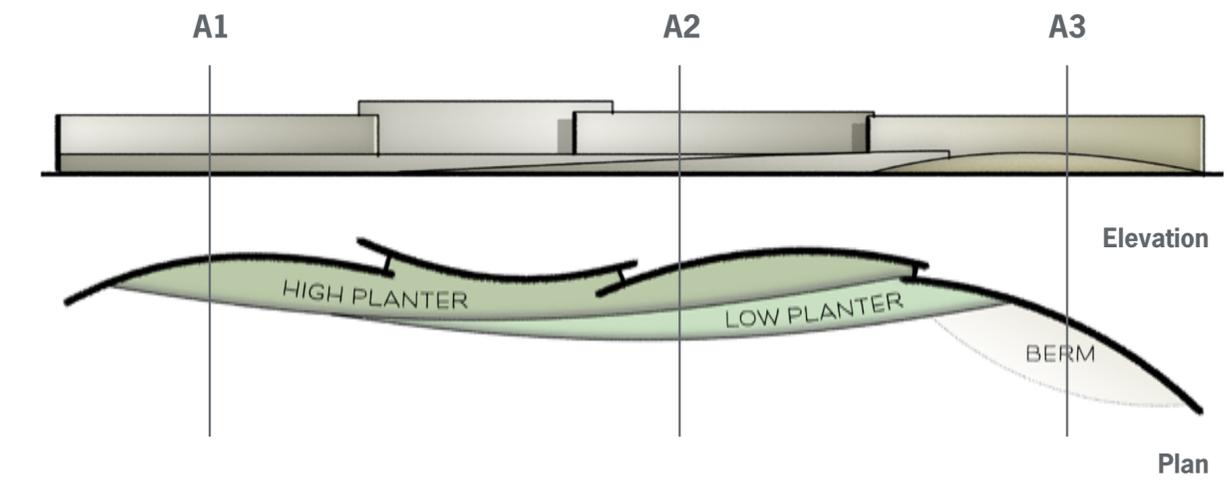
The master plan considers all these assets to offer and promote connectivity between the WRC and its adjacent property owners. An underlying aspect of the master plan will be to provide open and interconnected opportunities for the general public. A 100'-easement exists along the western edge of the Pima County parcel, and will be enhanced as part of the overall pedestrian connectivity. This will be situated outside of the WRF perimeter enclosure so as to provide security for the facility. The levee will be softened by varying the slopes, improving trails, and will be landscaped to consider the biotic community in its ultimate execution. Specifically, the connection to Columbus Park is carefully considered at two key points of the master plan. Under con-

sideration are pedestrian bridge crossings at the visitor center, and a second bridge connection near the effluent discharge of the new WRC facility to provide a larger looping pedestrian and biking opportunity connecting from one side of the Santa Cruz River to the other, and likewise, from Sweetwater Road to Camino del Cerro.

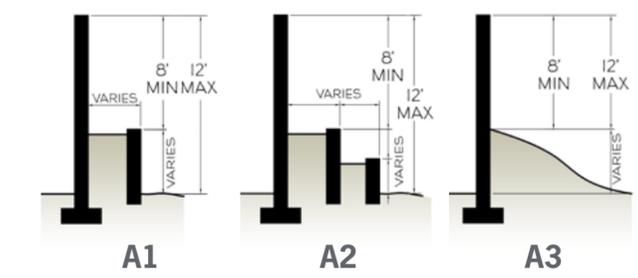
Additionally, PCRWRD is committed to providing renewable energy to be utilized by the WRC. As previously mentioned, an existing ten-acre site is planned at the northern-most boundary for a solar energy project that will produce up to one megawatt of power to be utilized by the WRC. Upon completion, the WRF will demand up to three megawatts. The plan for the WRC challenges the notion of isolated solar arrays and will identify additional areas internal to the campus itself to locate solar arrays. The anticipation is that in addition to the renewable energy produced, these solar arrays could provide shaded work environments otherwise sun-drenched, possibly incorporating solar panels integral to the buildings as well.



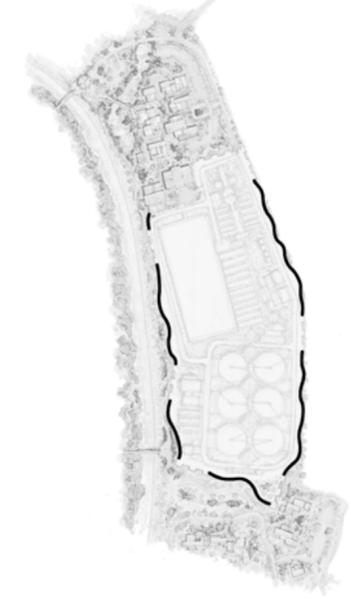
Typical Perimeter Enclosure Segment



Typical Enclosure Conditions



Context Map



Materials



Perimeter Enclosure Type A

The perimeter property boundary of the WRF is approximately 4,850 lineal feet. The conceptual site plan shortens this length somewhat by adjusting for easements and landscape consideration. Even with these considerations, the perimeter enclosure itself is over three-quarters of a mile in length.

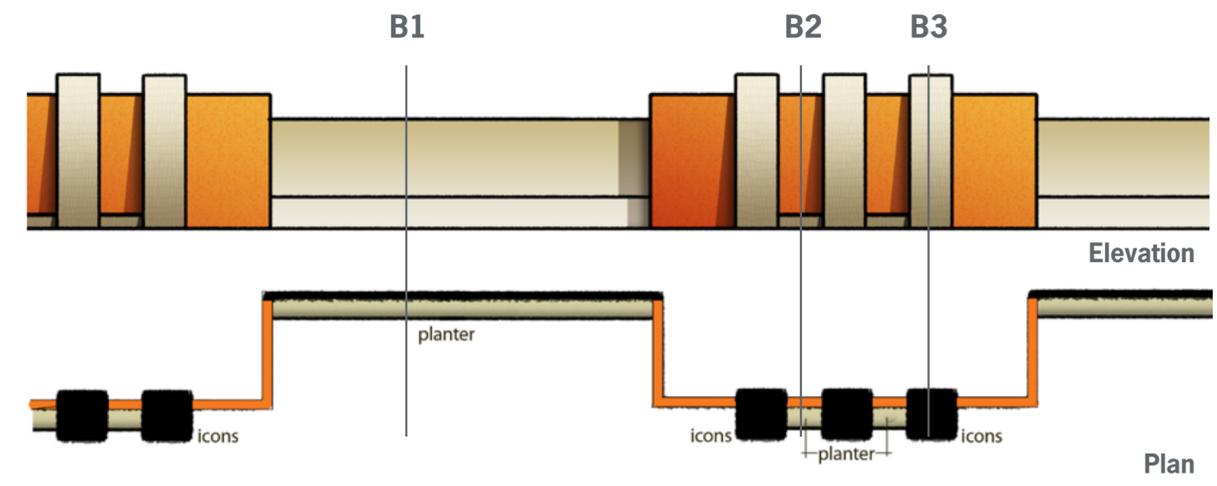
Design of a perimeter enclosure of this length can be monotonous and uninteresting. The conceptual site plan breaks up the lineal mass of the perimeter enclosure utilizing several concepts. The graphic depicted on this page is a type of enclosure utilizing a raised planter to break up the vertical mass. The security function of the enclosure is identified as an eight-foot vertical height that will be the minimum acceptable dimension. The ultimate height including planter walls and security enclosure could range up to twelve feet in total height.

The plan and elevation on this page depict a representative segment of perimeter enclosure describing various conditions. The curvilinear layout is separated in sections. This allows for the perimeter enclosure to gradually address the gently sloping site while adding an element of depth to the elevation. Each separated segment could take up to two feet of grade. Likewise, the planters undulate to provide interest and break up the vertical mass of the perimeter enclosure elevation. The different conditions are described with the three cross-sections, and are located on the site key map—special consideration is placed on the public view side such as the levee, while less emphasis can be placed on the side less visible by the general public. The material considerations are also addressed with the perspective illustration and material sample key.

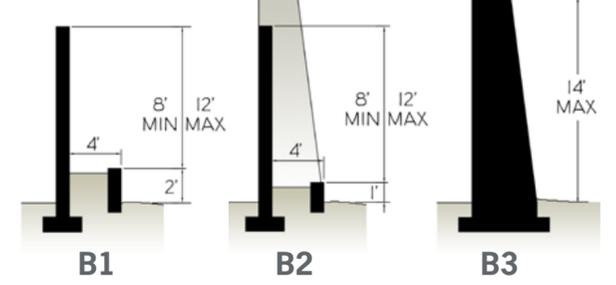
The total length of this publicly visible enclosure type is approximately 2,650 feet and made up of six segments ranging between one hundred fifty to seven hundred fifty feet in length for each segment.



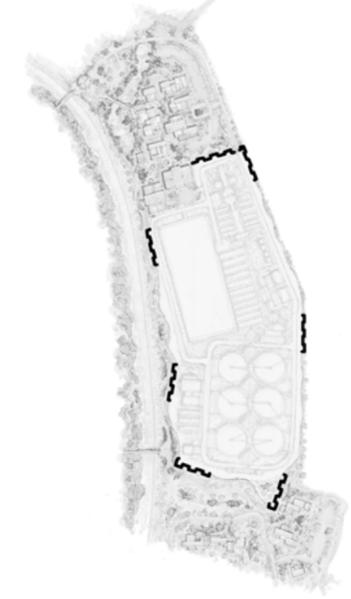
Typical Perimeter Enclosure Segment



Typical Enclosure Conditions



Context Map



Materials



Perimeter Enclosure Type B

The design of the second perimeter enclosure type provides additional interest and helps to break up the lineal mass of the first enclosure type. It will be more articulated with special consideration of its materials, textures, and forms.

Each Type B enclosure is rectilinear in its layout. Two less articulated faces recede behind the three more articulated faces. The two receding segments are typical of a Type A1 or A3 enclosure described in the previous section. The returning segment from these faces will vary depending on how much space is allocated on the plan, but a typical dimension for this segment is eight feet. A repeating triptych form adds interest by way of the material consideration, and also by its height that further divides the forward face of the wall.

Designed to add more interest at the pedestrian scale, the materials are also specifically selected to be bold and contrasting to the Type A enclosure type. Rammed earth triptych forms break up the bold cor-ten steel forward enclosure face and are reminders of building forms of centuries past. The receding segments return to the typical concrete block material utilized for the Type A enclosure. The total length of this enclosure type is approximately 2,050 feet. The wall heights vary between ten and fourteen feet.



VERTICAL COR-TEN SHADE FIN'S

INTEGRAL COLOR CMU WITH ALTERNATIVE MATERIAL ACCENTS

PERIMETER ENCLOSURE TERMINATING AT BUILDING

RAINWATER COLLECTION INTEGRAL TO BUILDING FORM

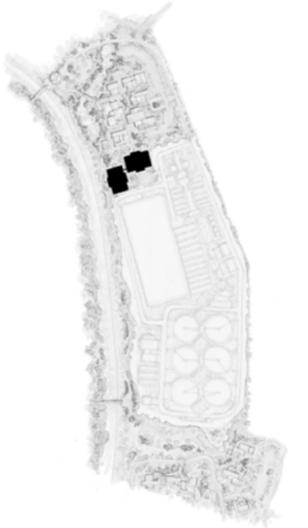
RAINWATER HARVESTING 'CANAL'

RAINWATER STORAGE CISTERN

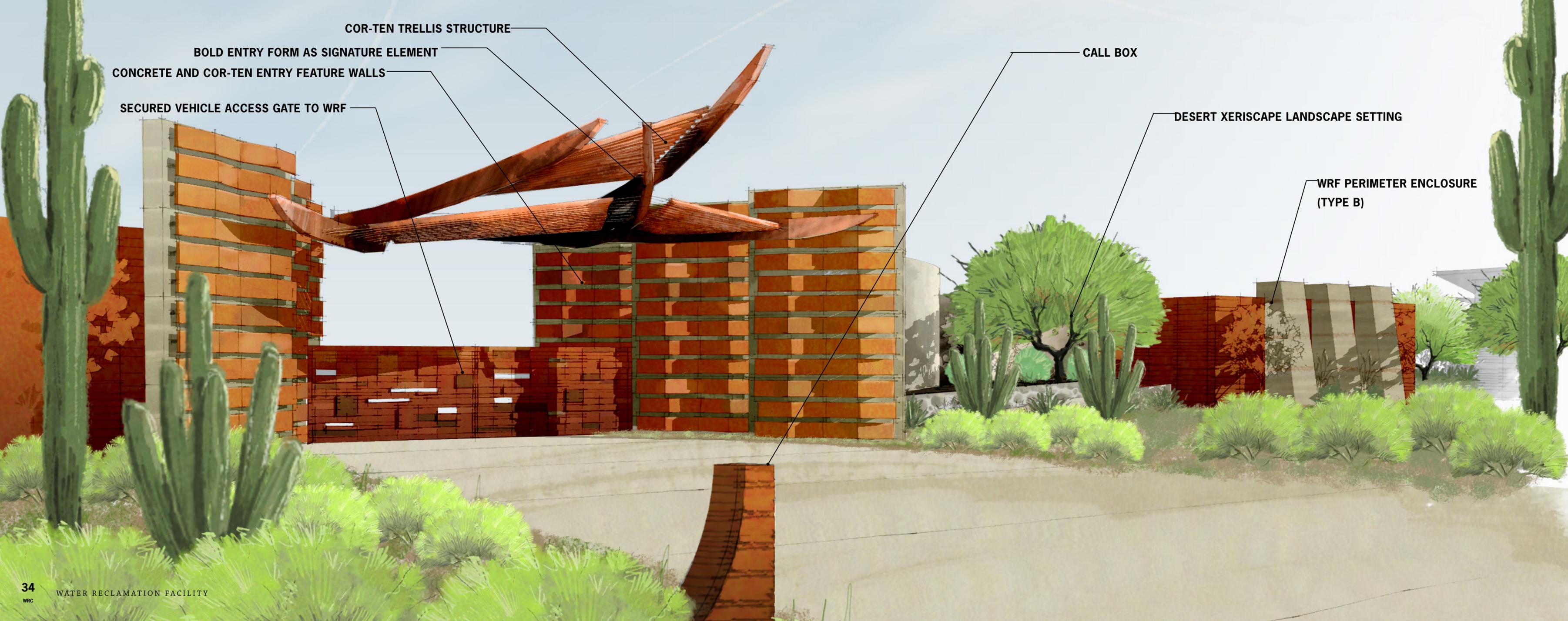
Perimeter Enclosure Buildings as Enclosure

Two buildings proposed within the perimeter enclosure are the electrical and control buildings. Taking this into account, an opportunity is presented that proposes to utilize these buildings as perimeter enclosure. There are several advantages to this. One is that by pulling the buildings to the perimeter, the total length of perimeter enclosure is reduced. Another advantage is that the buildings become incorporated with the Central Lab and Administration Campus beyond its northern boundary. As such, the architectural design and appearance will correlate to the design and aesthetic consideration of those buildings by utilizing comparable materials and design articulation. Finally, by grouping the buildings together, it creates opportunities for shaded courtyards internal to the WRF campus.

In addition to these aesthetic considerations, the bold and dramatic roof forms serve functional purposes such as storm-water management by utilizing an inverted butterfly roof design to catch and divert water, as well as considering its southern exposure to integrate solar photovoltaic panels.



Context Map



COR-TEN TRELLIS STRUCTURE

BOLD ENTRY FORM AS SIGNATURE ELEMENT

CONCRETE AND COR-TEN ENTRY FEATURE WALLS

SECURED VEHICLE ACCESS GATE TO WRF

CALL BOX

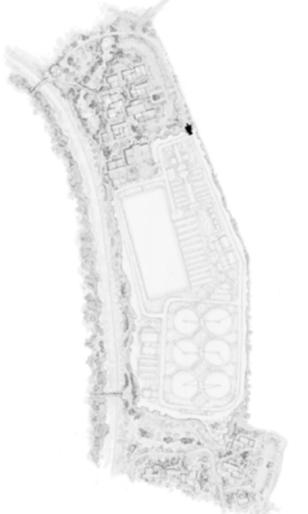
DESERT XERISCAPE LANDSCAPE SETTING

WRF PERIMETER ENCLOSURE (TYPE B)

Perimeter Enclosure Secured Access Point

The WRF provides secured access in two ways. As described in the master plan section, vehicular traffic will travel along the eastern property boundary passing the Central Lab and Administration Campus along the way to gain access to the WRC via its northeastern corner. A secured gate will allow access to utility vehicles and facility employees. The second method will be via a pedestrian connection along the northern boundary. Personnel at the Central Lab will need to have access to monitor water quality. Two opportunities to accommodate this are to pass through an exterior portal between buildings, or through one of the Central Lab buildings. The former may be an interim condition until such time that the Central Lab and Administration Campus is completed.

The plan and perspective depicted below are as bold and dramatic as the surrounding mountain ranges. This expressive architectural design is intended to be precedent setting. Its material considerations are comparable to the Type B enclosure, highlighting corten steel.



Context Map



ENHANCED DESERT XERISCAPE/MESQUITE
BOSQUE LANDSCAPE SETTING

GABION BASKET SITE
RETAINING WALL

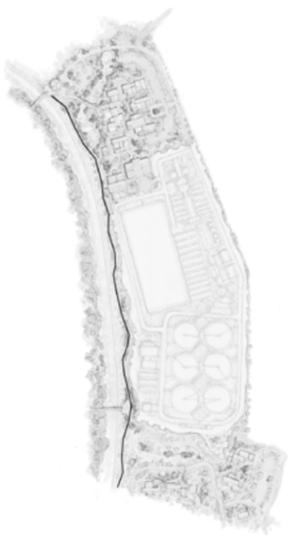
RESHAPED PEDESTRIAN AND
BICYCLE LEEVE TRAIL

WRF CONTROL BUILDING

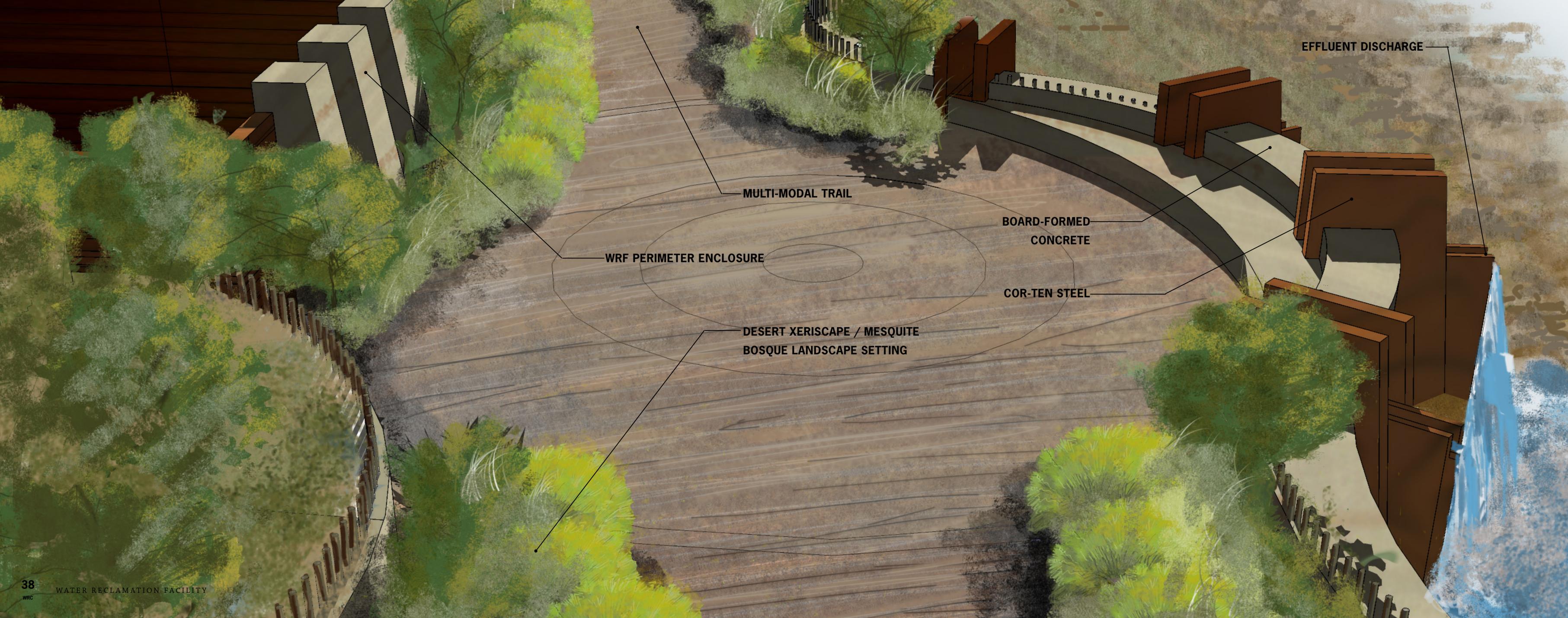
WRF PERIMETER
ENCLOSURE

Connectivity Public Levee Trail

The existing pedestrian path atop the levee will be enhanced with additional vertical and horizontal movement. This will be accomplished by adding material to the east side of the levee to shape it in a more interesting way. The reconfigured path should be wide enough to accommodate pedestrians and bicycles and be constructed of compacted, crushed granite.



Context Map



EFFLUENT DISCHARGE

MULTI-MODAL TRAIL

WRF PERIMETER ENCLOSURE

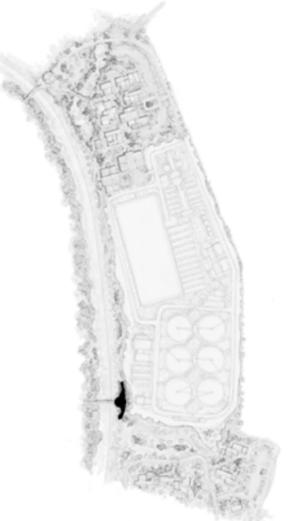
DESERT XERISCAPE / MESQUITE
BOSQUE LANDSCAPE SETTING

BOARD-FORMED
CONCRETE

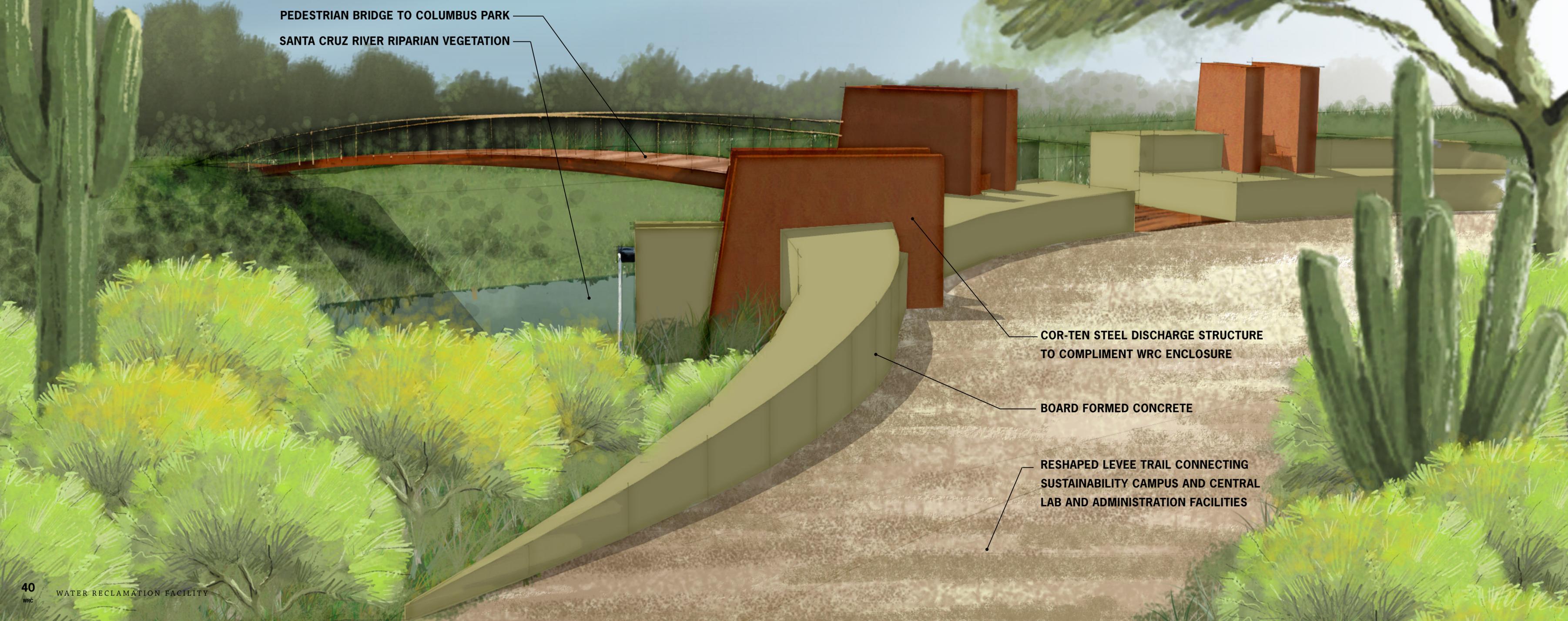
COR-TEN STEEL

Special Component Celebrated Effluent Discharge at Santa Cruz River

It is proposed that the ROMP enhanced effluent discharge could be celebrated visually while maintaining its function of discharging the Santa Cruz River. As the product of an essential process, it is proposed that this result should be celebrated in a manner appropriate to its functional significance.



Context Map



PEDESTRIAN BRIDGE TO COLUMBUS PARK

SANTA CRUZ RIVER RIPARIAN VEGETATION

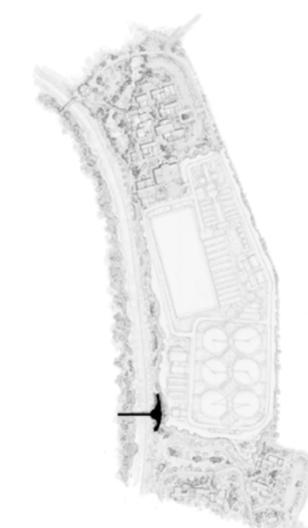
COR-TEN STEEL DISCHARGE STRUCTURE
TO COMPLIMENT WRC ENCLOSURE

BOARD FORMED CONCRETE

RESHAPED LEVEE TRAIL CONNECTING
SUSTAINABILITY CAMPUS AND CENTRAL
LAB AND ADMINISTRATION FACILITIES

Special Component Pedestrian Connectivity to Columbus Park

Columbus Park offers a variety of recreational activities. As part of the improved pedestrian experience along the levee trail, access to Columbus Park can be linked more directly at two key points via pedestrian bridges over the Santa Cruz River. The first opportunity is at the existing effluent discharge location at the south-west corner of the WRC. The second location is the proposed Visitors Center at the north-west corner of the Administration Campus. Consideration for these linkages requires challenging cross-jurisdictional coordination, but can serve to be an important asset for the WRC master plan and the surrounding stakeholders.



Context Map



Sustainability Research & Development Campus - Site Plan

Legend

Sustainability R & D Campus

- 1. Sustainability Campus Primary Access Road
- 2. Campus Perimeter Road
- 3. Potential Connection to City of Tucson
- 4. Wetland | Recharge Basin
- 5. Desert Riparian Landscape Zone
- 6. Mesquite Bosque Landscape Zone
- 7. R&D Building Cluster
- 8. Water Reclamation Facility
- 9. WRF Perimeter Enclosure (Type A)
- 10. WRF Perimeter Enclosure (Type B)
- 11. Celebrated Effluent Discharge Node
- 12. Proposed Pedestrian Bridge to Columbus Park
- 13. Meandering Levee Trail
- 14. Flood Control Levee & Maintenance Road
- 15. Internal Trail

Future Sustainability Research & Development Campus

The final component is also the largest and furthest out in terms of its development. Over half of the site is currently occupied by the Roger Road Wastewater Reclamation Facility (approx. sixty acres). When the new WRC is completed and operating, the existing plant will be decommissioned and its eventual use will be subject to market conditions and its value to the County will ultimately guide its eventual use. The graphic on the opposite page proposes a use that could prove to be a viable economic driver for Pima County and add value to the subject property.

Contextually, the site plan proposes a connective landscape setting creating a connective open space network running from the northern boundary of the Sweetwater Wetlands and connecting near the proposed WRF effluent discharge. Within this setting, the intent would be to create a garden business and industrial park around its edges that would open out to this naturalized setting. While this type of development is not uncommon, it is not evident along the I-10 freeway corridor and could be an attractive setting to consider.

The proposed use, would in many ways, redefine the notion of a typical industrial park and could be an economic catalyst to draw industry related to sustainable research and development. Potential uses could be light industrial manufacturing related to renewable energy, research and educational related to cultural, biological, and other sustainable issues, as well as vocational training related to environmental trades. Clusters of independently owned and operated businesses would surround a created wetland environment providing a sustained economic base for Pima County.

SWABACK PARTNERS pllc

7550 East McDonald Drive
Scottsdale, Arizona 85250

O 480.367.2100

F 480.367.2101

www.swabackpartners.com