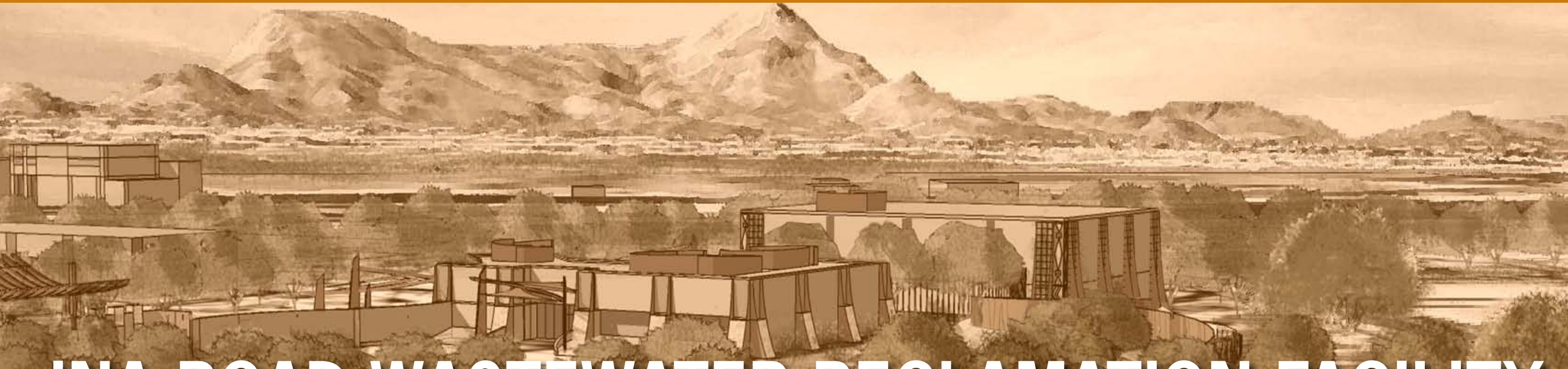
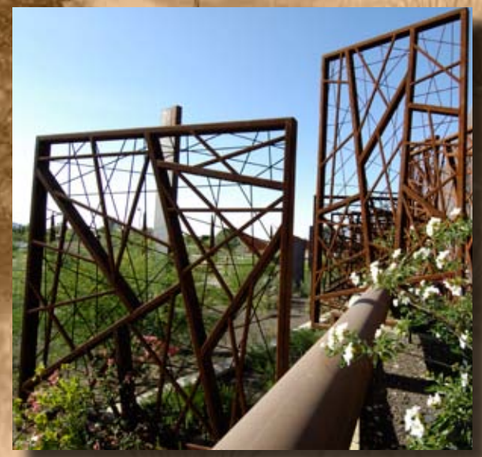
PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT



INA ROAD WASTEWATER RECLAMATION FACILITY ARCHITECTURAL THEME & CHARACTER



PREPARED BY SWABACK PARTNERS PLLC

JULY 2009

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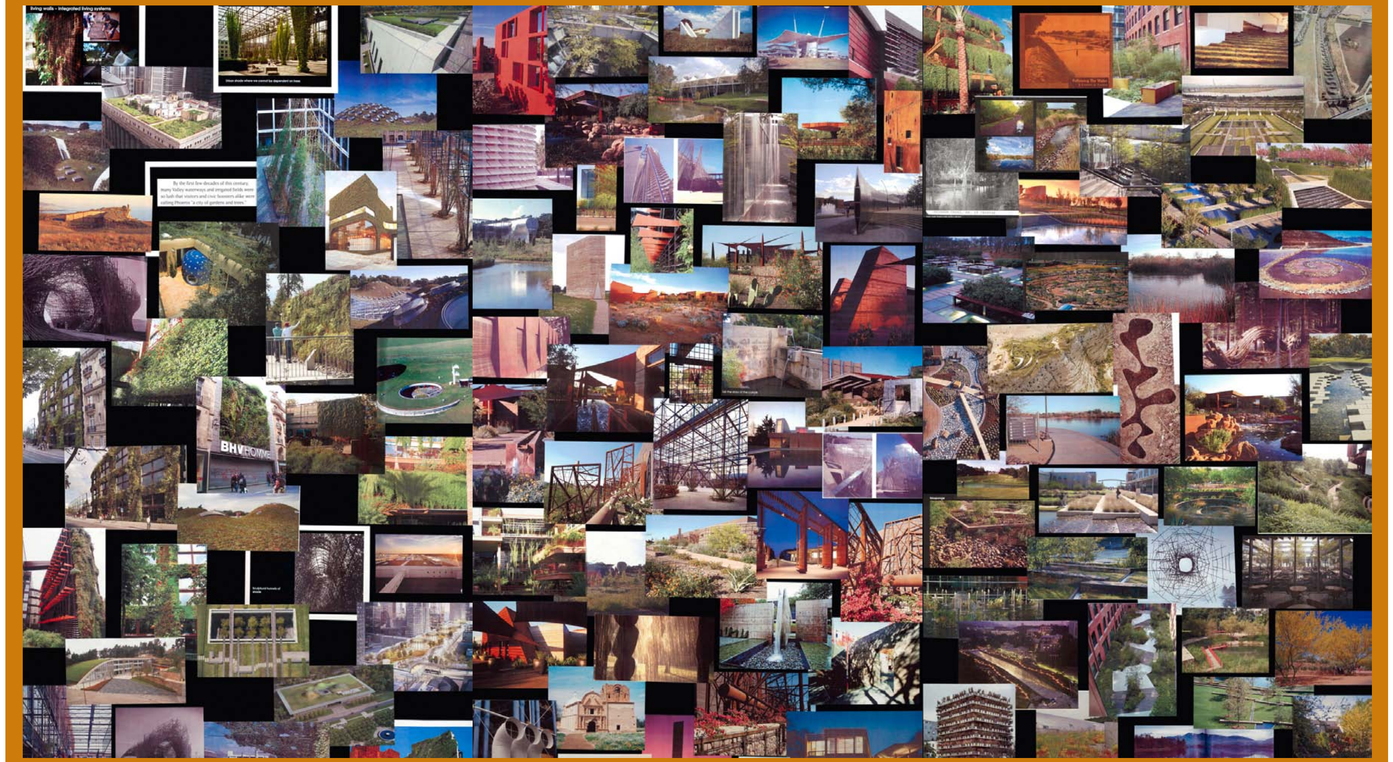


Introduction

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 upgrading and 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 up to 28 mgd from the Roger Road WRF service area to the Ina Road WRF.

Purpose

This document is intended to cast an overall architectural theme and character for the Wastewater Reclamation Facility (WRF) at Ina Road. Design professionals will be issued this document to conceptualize the overall design intent as new phases of improvements are initiated by PCRWRD.

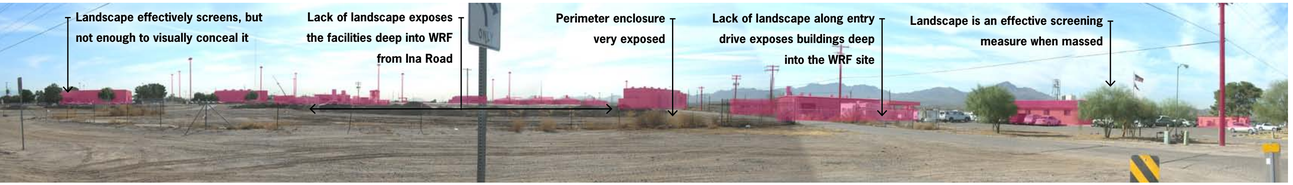
Images and concepts depicted within this document serve as guiding framework for design consideration.

The purpose of the visual research exercise was to draw inspiration from effective and artistic ideas and strategies to begin the process of crafting the WRF architectural theme and character.

Inspiration drawn from these images led to the creation of design principles that will carry forward throughout the design process. These principles are the ideas that will guide final architectural design. In addition to design considerations, cost consciousness will be of critical concern prior to executing the proposed expansion and future modifications.

The document presents a process that should be repeated as new phases are initiated. The visual impact this facility has on its surroundings is an important issue to resolve and is something that will require on-going evaluation from various vantage points, both internally and externally with each phase of planned improvements. This document proposes an implementation strategy to evaluate how to appropriately allocate resources toward proposed improvements. This implementation strategy introduces a "tool kit of parts" that will vary in application. 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.

The collection of images on these pages represent commercial and industrial facilities, landscapes and gardens, effective "green" technologies, and art installations throughout the world.

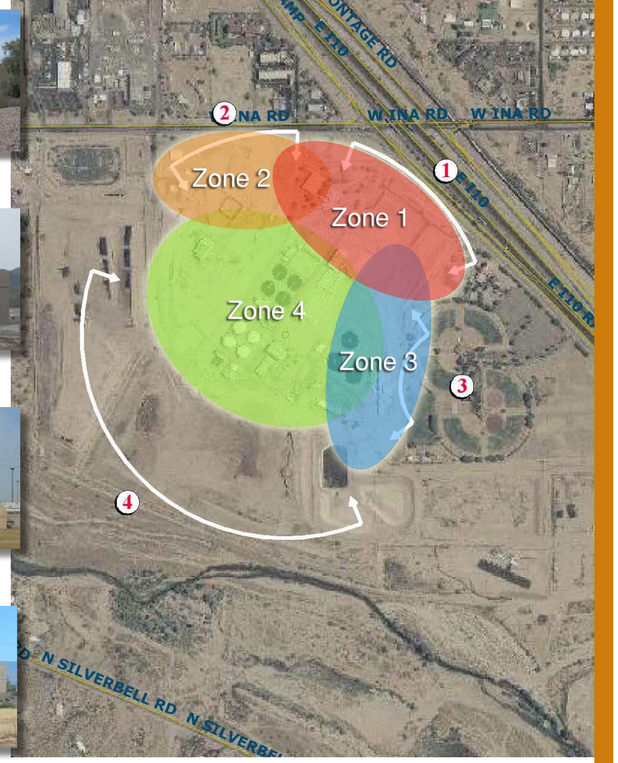


Zone 1

Zone 2

Zone 3

Zone 4



Existing Conditions & Observations

1

Observations were gathered from within the facility as well as from its surrounding setting. To categorize the large facility into areas with more public visibility, and therefore more potential for improvement, four zones of external visual impact were identified. The adjacent graphic depicts these zones in order of most to least publicly visible impact: 1) Interstate 10 corridor; 2) Ina Road frontage; 3) From within the County Sports Complex; and 4) From the surrounding foothills neighborhoods west of the Santa Cruz River.

Zone 1: The I-10 corridor is elevated as it crosses over Ina Road leaving the WRF highly exposed to interstate traffic in both direction. The frontage road is the primary access, leading to the Administration building or 'front door' to the facility. The high level of exposure and relative importance of the facility entry and administration functions in this zone make it the most critical side to address visually.

Zone 2: Zone two is comprised of buildings and processing facilities that are highly exposed to Ina Road. While these facilities lie more than five hundred feet away from Ina Road itself, the lack of visual screening by way of landscape or screen walls makes them highly exposed and these facilities appear visually larger as a result. This is compounded by the fact that traffic is frequently backed up to this open stretch, allowing an extended, unimpeded view of the facility core.

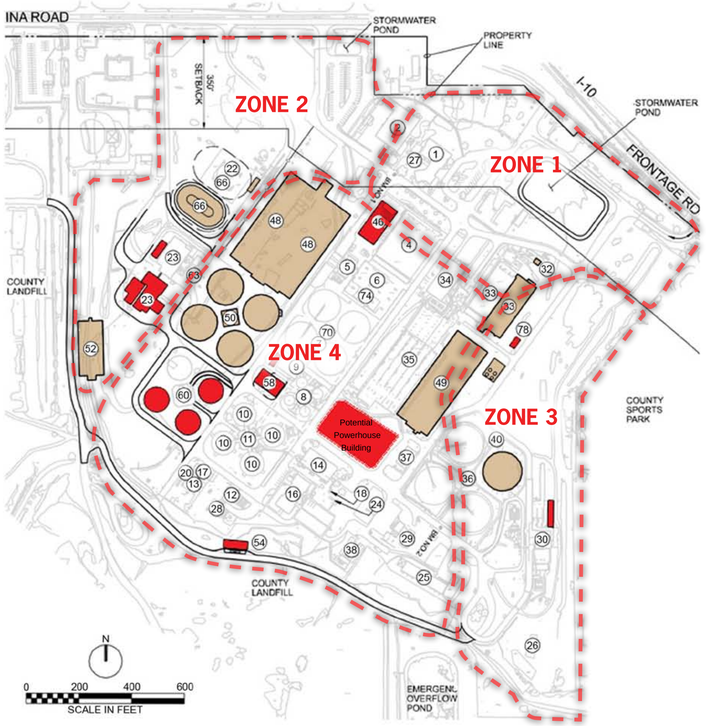
Zone 3: Zone three is made up primarily of processing facilities. These facilities are tucked furthest away from I-10 and Ina Road, therefore not highly visible to motorists. However, the County Sports Complex and its proximity to this zone makes it highly visible from close range. An existing cluster of vegetation along the western fields screen the facility effectively. The area most affected is the western soccer field that lies immediately adjacent to the Headworks Facility where the public would come in closest contact to the WRF. County Parks and Recreation improvement plans to this park may dictate a need to require more visual screening.

Zone 4: The final zone addresses the foothills neighborhoods west of the Santa Cruz River. The landfill berm just west of the facility is an effective means to visually screen it from the foothills. However, the present color scheme of the facility contrasts sharply against the mountain background and neighborhoods to the east. It is also from this vantage point that the existing tall light standards are most evident.

FACILITY LEGEND:

NO.	NEW FACILITY
23	CENTRIFUGE FACILITY
33	PRIMARY CLARIFIERS
36	SECONDARY CLARIFIER - EAST
46	BLOWER BUILDING - WEST
48	BIOREACTOR BASINS - WEST
49	BIOREACTOR BASINS - EAST
50	SECONDARY CLARIFIER FACILITY - WEST
52	CHLORINE CONTACT BASINS
54	CHEMICAL FACILITY
58	WAS THICKENING FACILITY
60	ANAEROBIC DIGESTION FACILITY
63	INTERIM DIGESTED SLUDGE THICKENING FACILITY
66	BIOSOLIDS STORAGE AND LOADOUT
70	SLUDGE STORAGE TANKS / PUMP STATION
74	RECYCLE EQUALIZATION TANKS
76	PLANT DRAIN PUMP STATION - WEST
78	ELECTRICAL BUILDING

NO.	EXISTING FACILITY
1	ADMINISTRATION / LABORATORY BUILDING
2	WAREHOUSE / MAINTENANCE
4	PRIMARY CLARIFIERS
5	OXYGEN PRODUCTION FACILITY
6	ACTIVATED SLUDGE REACTORS
7	SECONDARY CLARIFIERS / RAS PUMP STATIC
8	SLUDGE THICKENERS / CONTROL BUILDING
9	SOLIDS THICKENING BUILDING
10	SLUDGE DIGESTERS
11	DIGESTER CONTROL BUILDING
12	CHLORINATION BUILDING (HYPOCHLORITE)
13	CHLORINE CONTACT BASIN (HYPOCHLORITI
14	ENERGY RECOVERY BUILDING
15	TUNNELS (NOT SHOWN)
16	TRAINING CENTER
17	SERVCE WATER BUILDING
18	DOMESTIC WELL
20	SERVICE WATER BOOSTER STATION
22	SLUDGE STORAGE BASIN (COVERED)
23	CENTRIFUGE FACILITY
24	PROPANE TANK
25	WAREHOUSE - 2
26	PIG RECEIVING UNIT
27	LABORATORY ADMINISTATION TRAILER
28	CHLORINE RESIDUAL REDUCTION FACILITY
29	OPERATIONS TRAILER
30	HEADWORKS
32	INTERMEDIATE PUMP STATION
33	PRIMARY CLARIFIERS
34	BLOWER BUILDING
35	ANOXIC / AERATION BASINS
36	SECONDARY CLARIFIERS
37	RAS / WAS PUMP STATION
38	CHLORINE CONTACT BASINS
39	ENERGY RECOVERY FACILITY (FUTURE)
40	TANK DRAIN PUMP STATION
41	EFFLUENT FLOW METER



WRF Master Plan

2

The Ina Road WRF is approximately 160-acres, and is surrounded by additional County land. The only exceptions are a privately held property north of the existing warehouse facility, and a State Land piece immediately adjacent to it. To the east, along the I-10 frontage road is the County Sports Park, while the County landfill surrounds it to the south and west respectively.

Initial engineering studies and recommendations for upgrade and expansion to the existing plant were completed in the ROMP study in November 2007. Engineering design for the expansion of the Ina WRF is now under way. The master plan shown on these pages depict the existing and new facilities that makes the composite master plan for the WRF. During an early reconnaissance site visit, the determination of partitioning the site into four zones established a key determinant in establishing a strategy for the architectural theme and character implementation strategy.

Facilities outlined in gray are existing facilities, with new facilities colored in either tan or red. Those depicted as tan represent facilities that are low-profile; facilities that are either at-grade or less than one story. Those depicted in red are buildings and facilities that will be as tall as a single-story structure, but not more than two stories.

Majority of buildings scheduled for future completion are located toward the center of the facility and are relatively limited in their height.

Facilities shown in Red are anticipated to be between one and two story tall structures

Facilities shown in Tan are anticipated to be less than one story tall structures

Site Improvements

ZONE 1

- **1** Direct Entry Drive to Administration Building with Guardhouse for Secured Access
- **2** Enhance Landscape along Frontage Road
- **3** Opportunity for Highly Visible Public Art
- **4** Enhance Administration Entry
- **5** Enhance Employee Courtyard
- **6** Reshape Storm water Storage / Potential Passive Recreation Park Expansion
- **7** Enhanced Parking Area (integrating landscape and solar photovoltaic panels)
- **8** Enhanced Perimeter Enclosure
- **9** Primary Access into WRF
- **10** Landscape Internal WRF

ZONE 2

- **11** Enhanced Parking Area (integrating landscape and solar photovoltaic panels)
- **12** Enhance Perimeter Enclosure
- **13** Enhance Landscape & Berming along Ina Road Frontage
- **14** Existing Ingress (Enhance Access Gate)
- **15** Existing Egress (Consider Combining with Ingress to Remove Curb Cut)
- **16** Existing Internal Fencing (to remain)

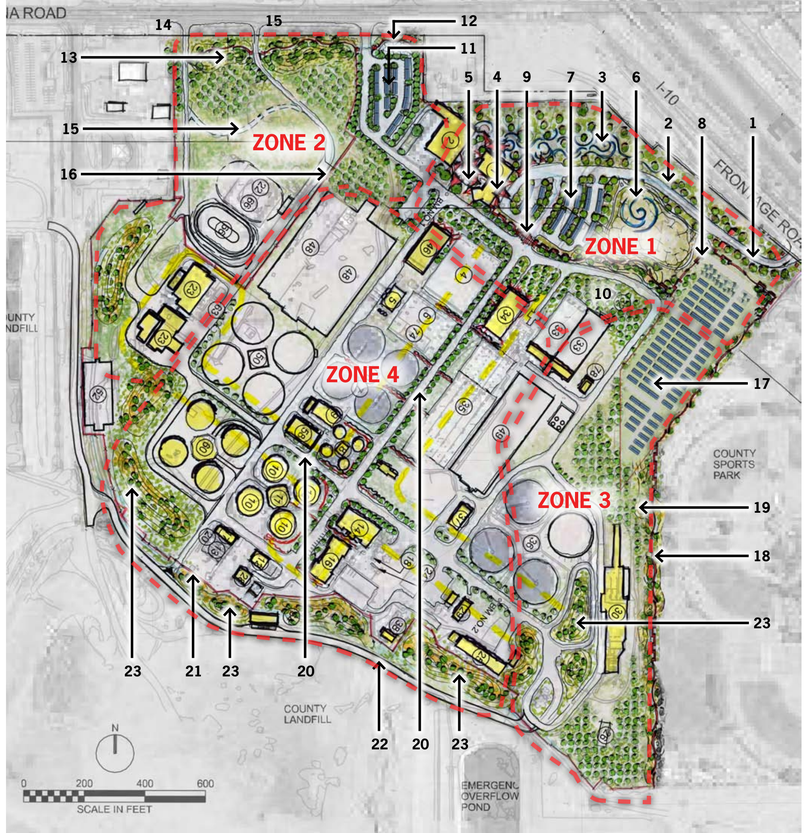
ZONE 3

- **17** Potential Solar Arrays by Others
- **18** Enhanced Perimeter Enclosure
- **19** Enhance Landscape & Berming along Perimeter Fence Line

ZONE 4

- **20** Improve Cross-Axis Route (Organizing Element)
- **21** Existing Southern Perimeter Fence
- **22** Proposed New Road outside of Perimeter Enclosure
- **23** Enhance Landscape & Berming along Southern Perimeter as Visual Screening

***New Facilities/Building indicated in Yellow**



WRF Master Plan
Site Improvements Plan

Zones 1 and 2 are the most visible to the surrounding freeway and developments and therefore require a focused level of attention. Both of these zones are primarily focused on presenting a clean, organized, aesthetically meaningful face to both the water reclamation facility and to the surrounding area due to its prominent location.

Under consideration are the existing facilities as well as future planned and unplanned development within the WRF. Accordingly, the suggested improvements are proposed due to their ability to be implemented in stages (i.e. landscaping) and their ability to easily unify existing facilities with future improvements (i.e. updated coherent color scheme).

Highly visible portions of Zones 1 & 2 should be selectively exposed to the public, with other areas screened from view. Both Zones 1 & 2 assume the requirement of a fully secured perimeter. However in the prominent Zone 1 this perimeter is enhanced architecturally and pulled in toward the center of the facility, in effect redistributing enhanced land back to the public. The administration building and adjacent warehouse are the focus of renovations that enhance the public face of the facility.

The adjacency of Zone 3 to the County Sports Park deserves attention at pedestrian scale. As such, a trail connects the park to the landscaped natural setting established by Zone 1. The overall theme of the perimeter enclosure is reduced in detail and design as the enclosure meets the less exposed Zone 4, essentially summarizing the intent of the proposed improvements.

Zone 4 is largely screened due to its proximity to the perimeter however the structures from the residences to the south still contrast sharply against the distant views and are therefore an important part of the overall color scheme. Areas that are not adequately screened by the large berms of the landfill are enhanced with landscaping and berming to assist in screening the facility from the neighborhoods to the south.

Architectural enhancements to provide shade and texture to building openings & facades

Sculptural enhancement to functional areas such as retention basins

Color scheme that compliments surrounding views

Provide screening systems for exposed rooftop equipment

Tree-lined direct entry drive to Administration Facility

Unified landscape plan for screening along Ina Road

Public art feature to assist in screening and gateway appeal

Context Map

Architectural Vision 3

The Architectural Vision for the Ina Road Wastewater Reclamation Facility is to enhance the facility both internally and externally in ways that render the facility a point of pride for both the facilities occupants and for the greater Tucson area as a whole. A successful project will be one that is a precedent-setting facility that simultaneously creates a visual statement the City's entry corridor and sets the tone for future improvements of surrounding properties along the interstate. Depicted here are the guiding elements that will lead to its creation.

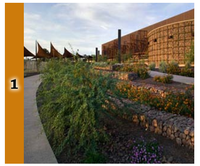
Proposed improvement strategies must be flexible in their implementation with regards to both budget and schedule. As such, the basic design tools that will serve as the basis for implementing an architectural theme and character are: 1) Landscape; 2) Color; 3) Architectural Enhancements; and 4) Materials Palette. Additionally, Design Principles serve as a guiding framework to consider and measure against with each subsequent design phase. Achieving this vision relies on continued evaluation of future and existing projects beyond their inherent functional value. Consideration for the level of detail and improvement for future projects should be made from within the overall WRF site as well as from the periphery.

Landscape

Color

Architectural Enhancements

Materials Palette



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

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

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

4 Implement Pima County's **Sustainable Action Plan** by designing future buildings to achieve U.S. Green Building Council's LEED Silver standards at a minimum.

5 Redefine the notion of an industrial park by creating a **campus environment** for the proposed site.

6 Compose a setting with **shaded environments** that create cool micro-climates and exploit light and shadow as dynamic design elements.

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

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

9 Utilize mass-excavated material to **create sculptural landforms** that will serve as a visual screening design element.

10 Creatively adapt the appearance and function of existing and future facility expansions with creative **artistic forms**.

11 Incorporate design elements that **thoughtfully consider sight lines** and views to, from, and within the wastewater reclamation facility.

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

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

14 **Implement industrial art** as a component of the overall campus composition.

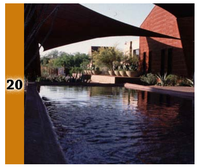
15 Employ **water conservation** measures such as low-flow and waterless processes within the buildings; xeriscape principles utilizing harvested and recycled water for all irrigated landscape.

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

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

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

19 **Create inter-connectedness** throughout the campus by incorporating multi-modal paths and trails for employees and visitors alike.



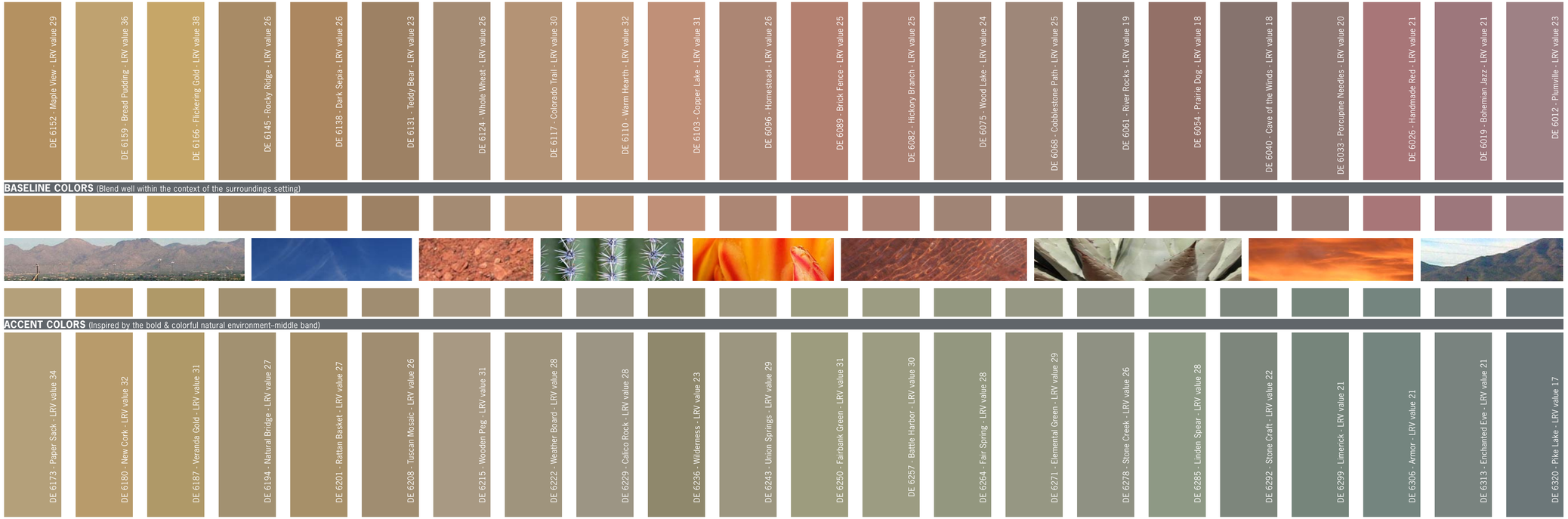
20 Create opportunities for **showcasing reclaimed water** as a design feature, such as created wetlands for wildlife and recharge, and fountains as focal elements within courtyards.

Achieving the Vision

Design Principles

These design principles are intended to serve as a guiding framework for the design of the Wastewater Reclamation Facility. Future design considerations will be measured against their ability to maintain an organized site plan, implement a cohesive landscape plan, and create appropriate structures that positively affect the gateway to Tucson based on these guiding principles.

Individually these design principles reflect unique opportunities for individual components of the facility. Collectively these principles work to form the foundation of a highly meaningful, and enduring liveable habitat.



Color arrays depicted are from the Dunn-Edwards "Warm Neutral" and "Cool Neutral" family of colors.

Achieving the Vision
Color

Color can be utilized to upgrade the appearance of existing buildings and facilities, while establishing a color scheme for new buildings throughout the WRF. The advantages that a new color scheme offer include an ability to implement in stages as budget and schedule allows. It is a relatively inexpensive option to upgrade existing facilities, while preserving resources for other areas as needed. Color also efficiently ties existing facilities to new facilities and future unknown improvements.

Presently, buildings and processing facilities throughout the WRF employ a "muted desert" color theme, with few if any secondary accent colors. Some employ simple detailing in a slightly darker accent strip, while others utilize a striking and contrasting teal, both on buildings as well as some of the processing equipment. The other color utilized is white, utilized primarily for pipes and other processing equipment. Other buildings and several of the facilities incorporate super graphics that compliment these color schemes.

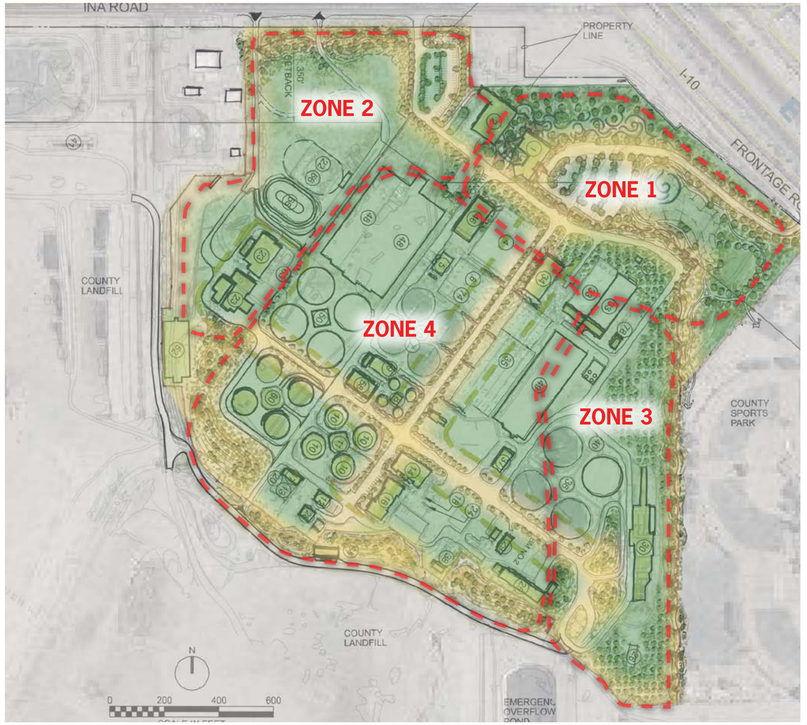
Up close, the colors employed seem to make the buildings blend in well against the desert floor which is a lighter beige tone. However the surrounding mountains and the vegetation on the valley floor creates slate-gray to blue-green backdrop. The result is that the buildings employing this muted desert color scheme stand out more than was otherwise intended.

The implementation strategy is to evaluate and update the paint scheme throughout the facility. The color ranges depicted on these pages offer a color palette that is a departure from the "muted desert" tones currently utilized. These colors sample from a wider range of sources than just the immediate desert floor. The paint color scheme will vary based on the four zones described earlier as suggested with the following four grades of articulation:

- **Zone 1** - Highest level of articulation -- Multiple Paint Colors / Multiple Accent Colors / Dramatic Effects for highly visible areas
- **Zone 2** - Focused level of articulation -- Up to Two Paints / An Accent Color / Dramatic Effects optional based on visual impact analysis
- **Zone 3** - Moderate level of articulation -- Up to two paints / An accent color if necessary
- **Zone 4** - Least articulate -- Complimentary to overall color scheme / An accent color if necessary.

MESQUITE BOSQUE

DESERT XERISCAPE

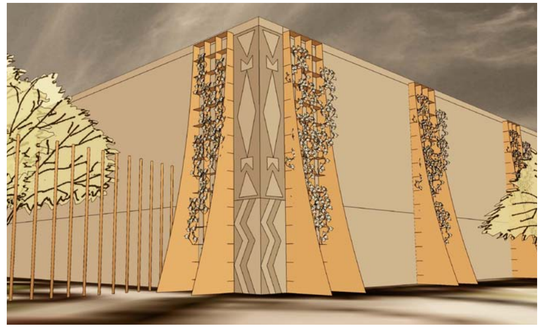


Achieving the Vision
Landscape

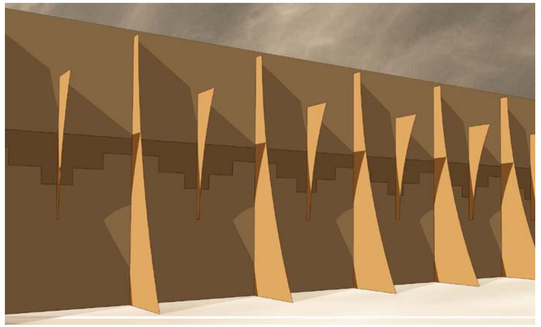
The second tool in the implementation strategy tool kit is landscape. In addition to trees, shrubs, and ground covers, this tool includes landsculpting, which can prove to be an effective and artistic screening mechanism. Landscape will serve several other functional roles including: 1) Filtering out pollutants by diverting and retaining storm-water runoff within bio-swales and bio-filters; 2) Improve air quality by minimizing dust that may otherwise be blown into the atmosphere; and 3). Create a cohesive landscape setting to the facility grounds. Presently, a fragmented landscape exists with a varied mix of plants including palms, pines, and desert plants. The intent is to clean up the disjointed appearance of the grounds and bring a level of cohesiveness to the overall setting.

The images on these pages are representative of the landscape theme proposed. While plants in both categories are xeric and complimentary, the intent is to mix higher percentages of either category as appropriate for each of the respective zones. The general setting is proposed to be comprised of a mesquite bosque, and accented with a desert xeriscape palette. Special consideration should be taken when selecting plants that will promote wildlife habitat, support a regional and healthy environment utilizing non-invasive plants, while emphasizing aesthetic appeal especially along the I-10 corridor and along the Ina Road frontage. The landscape theme will vary in intensity based according to the four zones described earlier. Following is a suggested qualitative ranking:

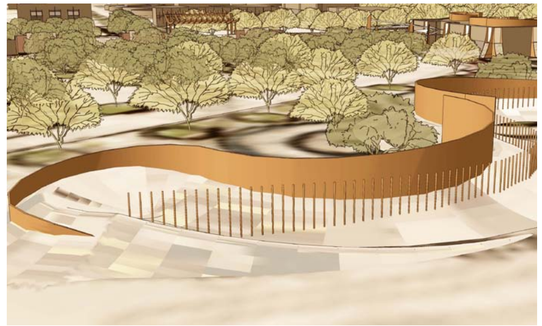
- **Zone 1** - High level of articulation -- Mesquite Bosque Palette Throughout / Desert Xeriscape Accent Trees / Accent Cacti / Colorful ground plane -- Highly Visible / Plant in Massings
- **Zone 2** - Focused level of articulation -- Mesquite Bosque Palette Throughout / Desert Xeriscape Accent Trees / Complimentary ground plane
- **Zone 3** - Moderate level of articulation -- Mesquite Bosque Palette Throughout / Some Desert Xeriscape Accent Trees / Complimentary ground plane
- **Zone 4** - Least articulate -- Mesquite Bosque Landscape Setting / Complimentary ground plane



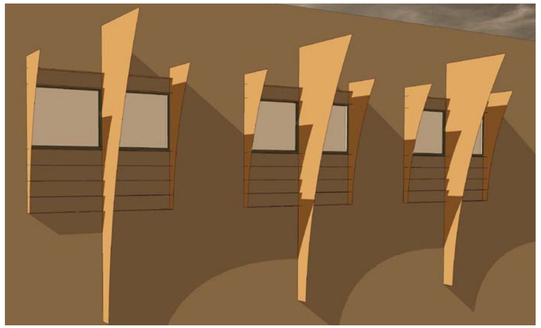
Architectural components frame updated graphics & accent colors, and provide areas for unique landscaping opportunities



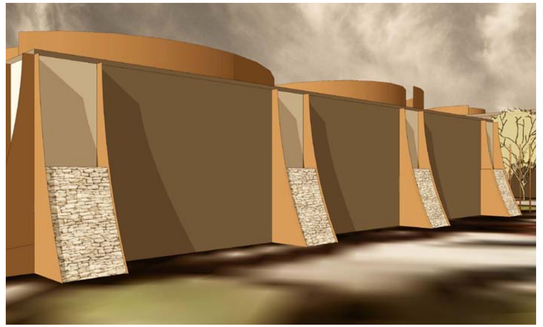
Elegant features break up long, expansive wall masses and provide an opportunity to utilize light and shadow as a design feature



Public art feature interprets the dynamics of water and becomes the face of the facility and the Tucson gateway corridor



Windows exposed to direct sunlight protected with features furnished of recycled or repurposed materials



Complimentary elements provide a setting to showcase local materials and enhanced lighting features

Perimeter enclosure can vary in opacity to allow for selected views into facility

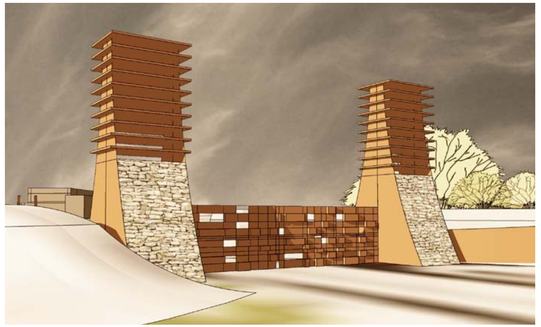
Achieving the Vision
Architectural Enhancements

The final tool in the implementation strategy tool kit is the utilization of architectural enhancements that will serve functional as well as aesthetic roles. The functional role can sub-categorize as a screening mechanism or as an application that is designed to improve building performance. Incorporated onto existing buildings as covers over windows and door openings, screen devices can reduce energy consumption by providing shade to interior spaces. Additionally, they can screen out unsightly roof-top equipment and ground-level service yards. Aesthetic applications offer limitless possibilities, however the primary consideration aesthetically is to bring a level of architectural cohesiveness to the overall site in terms of texture, color and form.

Included in these, and the following pages are vignette examples relating to architectural enhancements. These vignettes illustrate various application considerations for both functional as well as aesthetic considerations. Decisions to incorporate architectural enhancements should carefully weigh building occupancy, for purposes of incorporating details that will improve building performance, its public visibility for purposes of functional screening and controlling the viewshed, and to incorporate architectural enhancements that will compliment and add to the overall architectural character, thus creating enduring architectural appeal.

Please note the tone depicted on these graphics do not suggest a preferred color scheme. Differentiation in color help to separate masses and elements described herein.

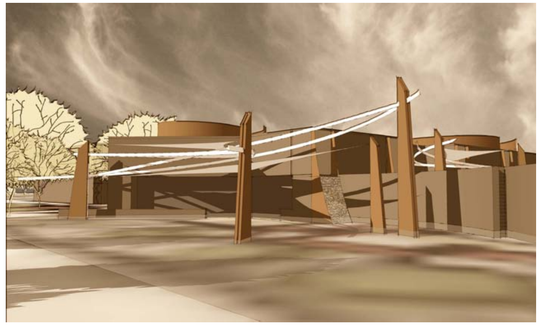
Secured point of entry is enhanced architecturally, showcasing regional and recycled materials in distinct ways



Entries to facility continue the theme of creatively using local, reclaimed materials, in addition to providing identifiable, signature access points

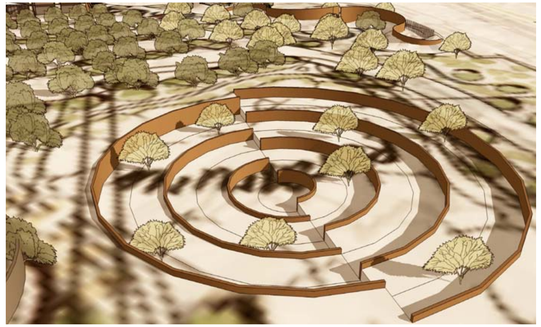
Perimeter of facility enhanced with iconic elements showcasing local materials to break up long distances of secured enclosure

Perimeter enclosure compliments the graceful dynamics of flowing water while maintaining a secured boundary

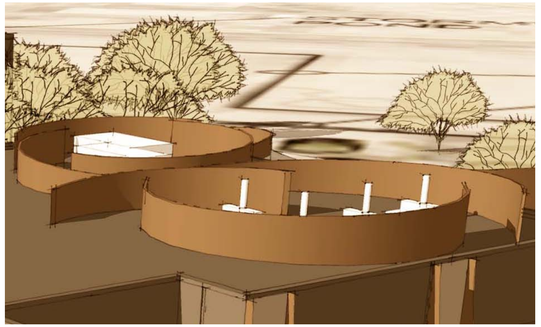


Exposed windows at highly visible facilities offer an opportunity to create distinct features such as shade devices

Primary public entry points are enhanced with consistent materials and forms used in unique and inviting ways



Functional site features such as retention basins coordinate materials and forms with other facility components

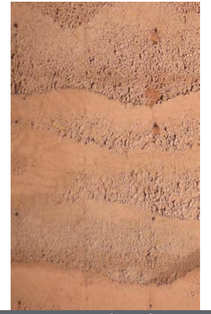


Sculptural devices screen rooftop mechanical equipment from view

decomposed granite

large river rock

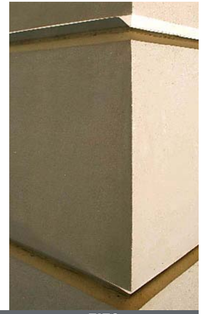
fluted split-face CMU


rammed earth

copper

kalwall

recycled-content steel


EIFS

porous asphalt

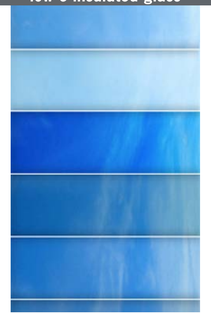
permeable paving

split-face CMU

adobe block

board-formed concrete

low-e insulated glass



gabion baskets

cor-ten steel

Achieving the Vision
Materials Palette

The material palette for the Ina Road Water Reclamation Facility should reinforce the notion of a coordinated, cohesive facility. This coordination can extend to the larger Pima County Regional Wastewater Reclamation Department, with similar material, color and landscape palettes utilized at other facilities such as the Water Reclamation Campus.

Materials for existing buildings will remain largely unchanged with the exception of additive details and screen systems.

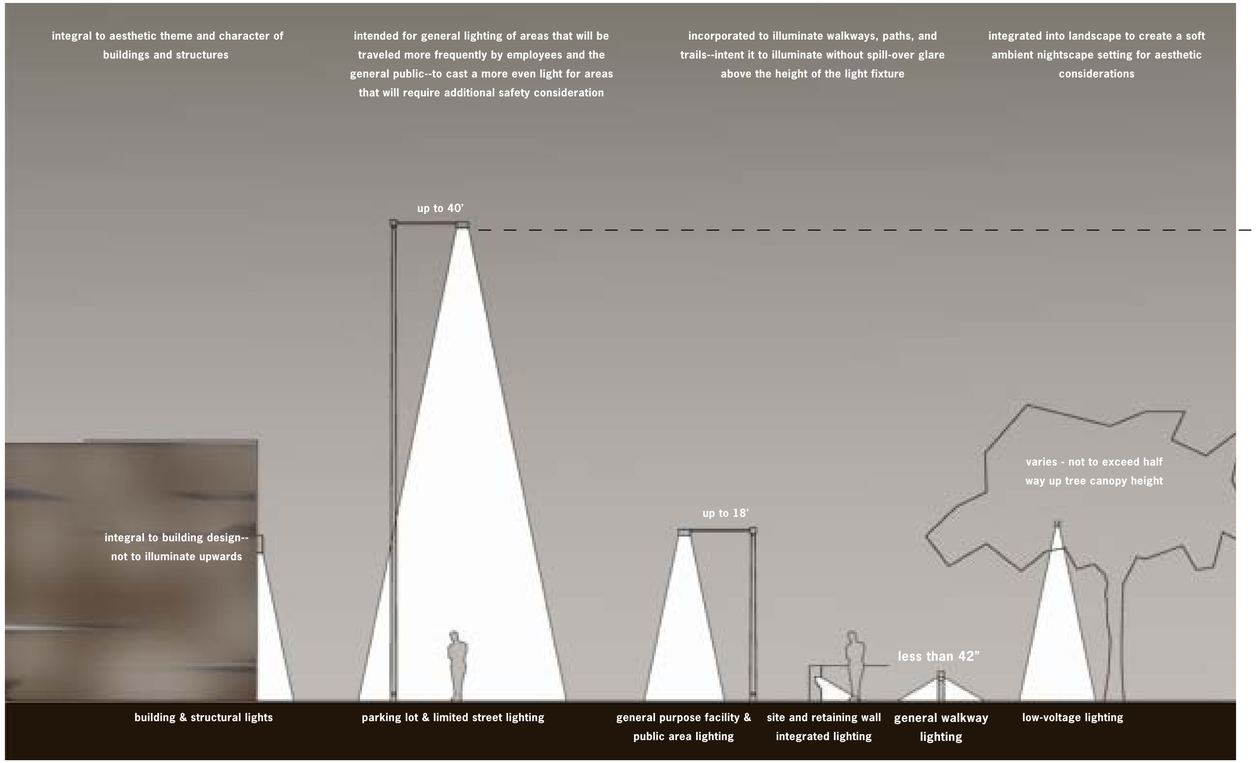
The materials which are recommended for use for new buildings have been chosen for their ability to complement the natural environment in a sustainable manner. Selected project materials have a durable, permanent quality and are assembled and combined in such a way as to create lasting aesthetic value.

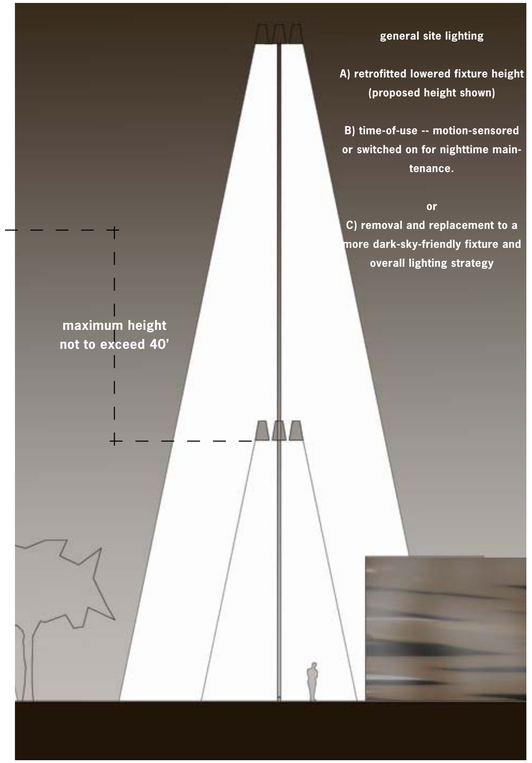
Sustainable considerations when choosing materials also must coordinate with any LEED certification requirements as designated by the Pima County Sustainable Action Plan. Locally extracted, processed or manufactured materials should be utilized where ever possible.

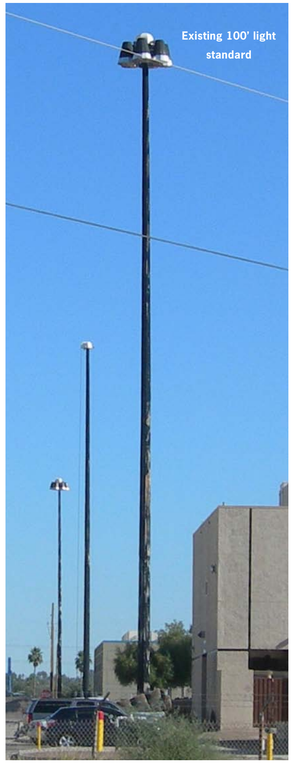
Materials that are composed of recycled content are to be utilized. Recycled content steel for structural elements and reclaimed or repurposed steel for architectural details such as equipment screening systems are examples of material reuse that should be considered essential.

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. Creative use of appropriate materials is considered a fundamental part of the design.







Special Considerations 5

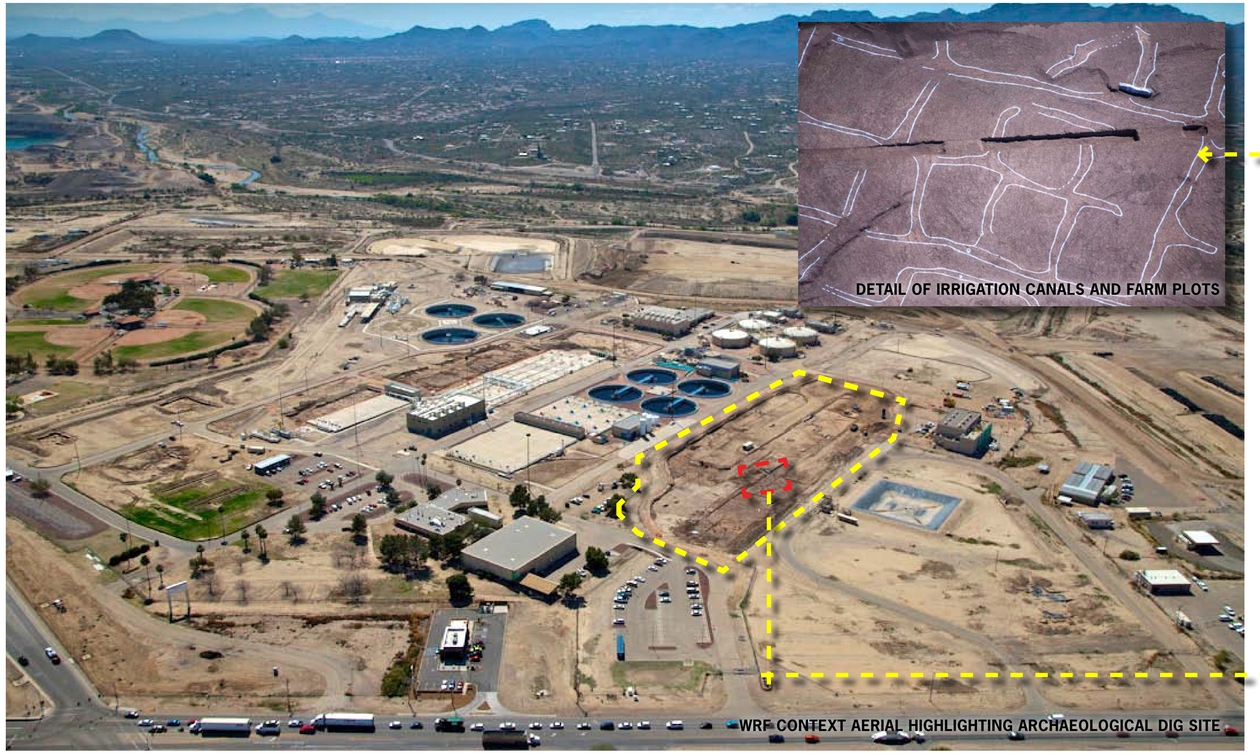
Lighting & Security

Lighting and security are synonymous in context of the wastewater operations within the WRF. The facility operates twenty-four hours a day and illumination of a safe work environment is an important consideration. Existing operational fixtures provide this at the expense of night-sky light pollution. Overspill of light affect adjacent foothills neighborhoods as well as nocturnal wildlife and certainly quality of skyline.

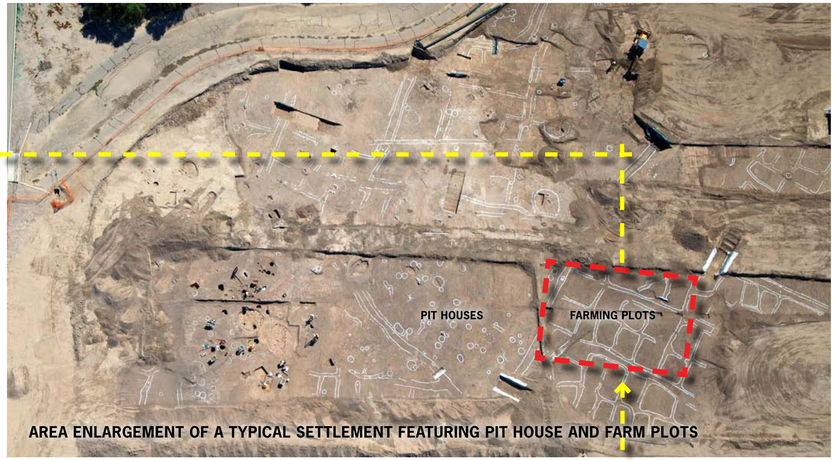
In accordance with the Sustainable Action Plan for Pima County, the lighting concept for the WRF should preserve natural dark sky conditions to the maximum extent possible, through the selection of outdoor lighting fixtures that reduce sky glow impacts. This is achieved by utilizing light fixtures equipped with full light cut-off or fixture shielding equipment. Fixtures will be strategically placed to ensure that employees are provided adequate night time visibility to perform work activities.

Existing light standards that currently rise 100' above the facility floor represents a challenge. Special consideration should be taken to retrofit existing light standards to lower the heights to a more acceptable height that will improve the viewshed for surrounding neighborhoods. Additional consideration to incorporate emerging adaptive lighting strategies such as light emmitting diodes (LED) should be explored as 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.

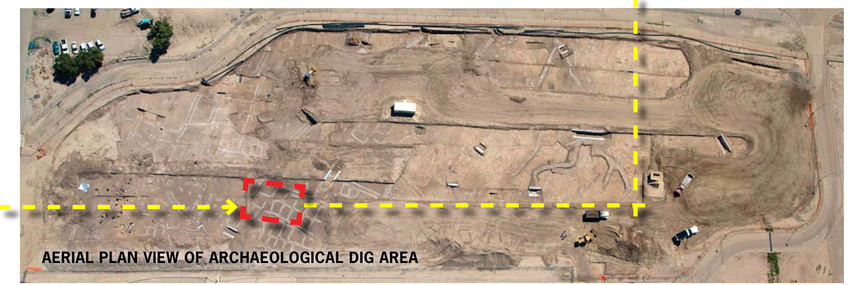
The illustrations on these pages represent general lighting considerations and applicability relating to lighting intent.



WRF CONTEXT AERIAL HIGHLIGHTING ARCHAEOLOGICAL DIG SITE



AREA ENLARGEMENT OF A TYPICAL SETTLEMENT FEATURING PIT HOUSE AND FARM PLOTS



AERIAL PLAN VIEW OF ARCHAEOLOGICAL DIG AREA

Special Consideration
Cultural Resources

Recent archaeological digs being conducted by Desert Archaeology, Inc., unearthed an agrarian settlement dating over 1,200 years before the rise of the Hohokam civilization. Archaeologists have determined this area to have been the remnants of extensive irrigation systems including irrigation canals, plots where crops would have been planted, and some habitations where farmers tended to fields that sustained a people of the region during the Early Agriculture Period in the Southwest. The site is called "*Las Capas*", or *"The Layers"* derived from the silt deposited over the site until it was covered over and hidden from view.

Findings such as these are important to understand civilizations that existed before our time. As much as this teaches us about how people lived thousands of years ago, today's needs for a growing population continue to challenge our dependence on technological advancements that provides our present-day lifestyle. The archaeological dig will be recorded and new state-of-the-art wastewater treatment equipment will take its place to continue to afford the rate-payers clean, odorless wastewater treatment.

Special consideration should be taken to ensure exercises such as these have meaning beyond the archaeological exercise. Design elements that recall the irrigation techniques of these early farmers can be re-introduced in a contemporary open-air water design feature, for example. Interpretive signage located within a public zone nearby can re-tell the story of this Early Agricultural Period in the Southwest as another option. Other considerations can link its findings to a more formalized Visitor Center, such as the one proposed for the Water Reclamation Campus--a few miles south of the WRF.

The images on these pages are the result of the archaeological digs. Counter-clockwise from the opposite page, the overall site context locates the dig toward the northern half of the WRF. Enlargements of the site unfold on this page, with an enlargement of farming plots detailed on the upper-right corner on the opposite page.

Zones 1 & 2
Site Plan Enlargement

ZONE 1

1 Enhance Facility Access from I-10 Frontage Road with Feature Entry Monumentation
2 Direct Entry Road to Administration Building
3 Property Line
4 Reshape Storm Water Retention (Opportunity for Public Art)
5 Public Art Feature (Opportunity for Public Art)
6 Enhance Administrative/Public Parking Area (integrating landscape and solar photovoltaic panels)
7 Enhance Entry Gate to WRF
8 Public Entry to Administration Facility is Identified and Enhanced
9 Enhance Landscape and Berming Along Ina and Frontage Roads to form a Unified Concept
10 Landscape internal WRF campus

ZONE 2

11 Enhance Parking Area (integrating landscape and solar photovoltaic panels)
12 Enhanced Perimeter Enclosure
13 Create Enhanced Employee Courtyard Between Buildings
14 Existing Ingress (Enhance access gate)
15 Existing Egress (Consider combining with Ingress to remove curb cut)
16 Existing Internal Fencing (to remain)
17 Potential Solar Arrays by Others (opportunity to showcase in architecturally artistic manner)

***Above-grade Facilities/Buildings indicated in yellow.**

Implementation Concept
Zones 1 & 2

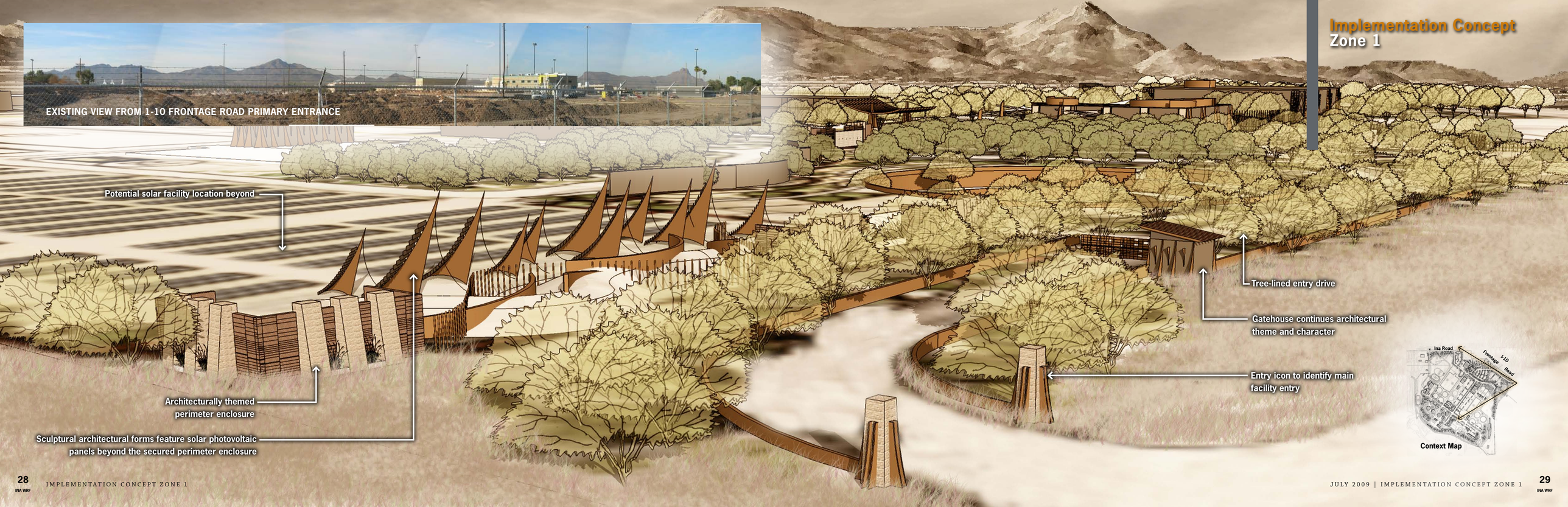
6

Zones one and two are the most exposed to the general public. Highly visible from I-10 and Ina Road respectively, these zones represent the best opportunity to create a visual statement and address the primary visual impact concerns. The tool kit of parts address the four visual impact zones throughout the 160-acre site. The site plan depicted on these pages represents an approach that address a phase one improvement strategy. The pages that follow will illustrate how an existing building can apply these tools to create the architectural vision described in this document.

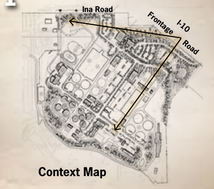
Zone 1 shows a reconfigured entry drive that is a more direct route to the Administration Building. Lined with trees, the intent is to define the arrival more clearly, while providing a visual screen from the I-10 Frontage Road and the elevated I-10 into the WRF. The new entry passes between a reconfigured retention basin and a potential public art piece announcing the WRF. The courtyard between the administration building and the adjacent warehouse is an opportunity for a welcoming, sculptural space, pleasing area for plant staff, and also potentially highly visible from the I-10, I-10 Frontage Road, and Ina Road, which offers a unique opportunity to enhance the Gateway Corridor.

Context Map

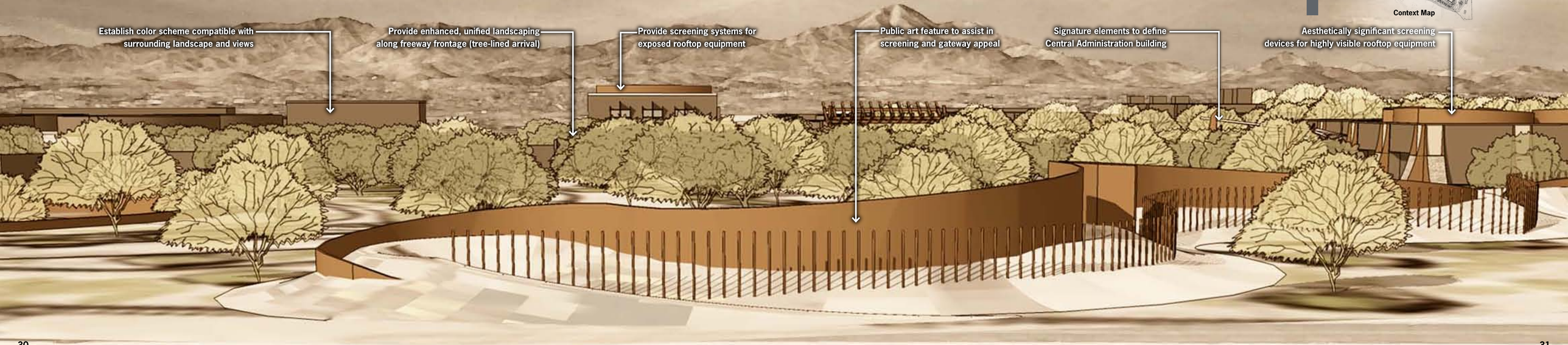
Implementation Concept
Zone 1



Implementation Concept
Zone 1



Context Map



Implementation Concept
Zone 2

Context Map

Zones 3 & 4
Site Plan Enlargement

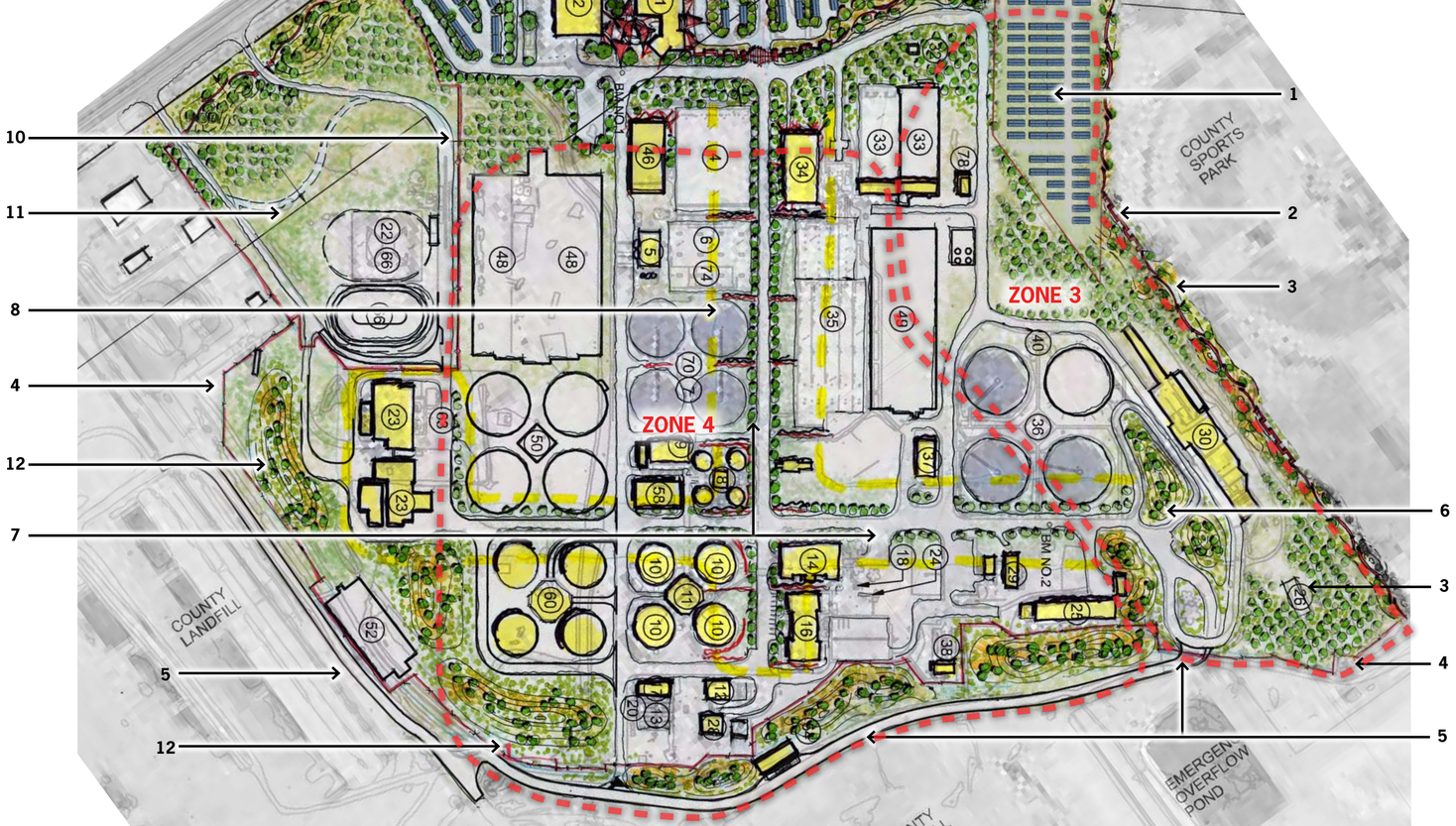
ZONE 3

1 Potential Solar Arrays by Others
2 Enhance Perimeter Enclosure
3 Enhance Landscape & Berming along Perimeter Fence Line
4 Existing Perimeter Enclosure (Typ.)
5 Proposed New Road / Southern perimeter access
6 Internal WRF Berming/Landscape where possible to provide visual screening and reduce air-borne particulates

ZONE 4

7 Improved Cross-Axis Route – Landscaped if sub-surface infrastructure allows (Organizing Element)
8 Free-standing Architectural Screen (Aesthetic) ("Living Screen")
9 Existing Southern Perimeter Enclosure
10 Secondary Internal Security Enclosure (Typ.)
11 Optional Egress Lane Combined with Ingress Lane (Consider to removal of one curb cut along Ina Road)
12 Enhance Landscape & Berming along Southern perimeter as visual screening

***Above-grade facilities/buildings indicated in yellow.**



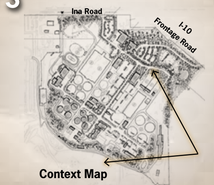
Implementation Concept
Zones 3 & 4

Zones three and four will undergo significant expansion relating to the wastewater processing facilities. These combined zones represent a larger physical land area, however, is less visible to the general public along Ina Road or the I-10 corridor. The visibility will be evident from the surrounding foothills to the south and west. Because of this, proposed improvements do not need to be as detailed as those proposed for zones one and two. Instead, proposed improvements should focus on screening existing and future expansions. Key tools to be utilized here will be color and landscape, with less emphasis on architectural enhancements.

The site plan on these pages depict ideas that focus primarily on perimeter improvements to address visual impact on surrounding neighborhoods. Zone three is adjacent to the County Sports Complex and will engage directly with the facility along the eastern WRF edge. Special consideration should be made to improve perimeter enclosure to this publicly interfaced edge that will compliment proposed improvements at zones one and two. Zone four is less accessible to the public, and therefore less critical to address aesthetic improvements.

Context Map

Implementation Concept
Zone 3



EXISTING VIEW FROM COUNTY SPORTS COMPLEX

Implementation Concept
Zone 4

Context Map

Conclusion

8

This document explores and proposes an architectural theme & character that is based upon a group of clear observations, introduces a series of simple tools, and illustrates graphically how to utilize these tools to implement creative design solutions.

Visual impact of the WRF on its adjacent neighborhoods and the prominent location establishes the basis for the analysis. The site is highly visible along two heavily trafficked transportation corridors and presents Pima County with an opportunity to create a precedent-setting facility that can be a catalyst for future commercial and industrial facilities along the I-10 corridor. Because of this, the visual impact analysis should be an on-going effort, and should be considered from various vantage points, and at various times of the day, including after the sun has set.

Design principles establish a guiding framework for designers. These become the basis for design consideration and will serve as a tool to judge design proposals throughout the design and development of the various phases WRF will undergo.

Physical improvements to the WRF will involve transforming and retrofitting existing buildings and facilities, as well as creating new ones into a seemless and holistic composition. A series of tools are proposed to implement an overall theme and character. **Landscape** has the capability to establish a cohesive appearance, while providing other environmental benefits including dust control, bio-filtration of storm water runoff, and creating wildlife habitat. **Color** will update the appearance of existing buildings, while establishing a cohesive color scheme for new buildings and facilities. **Building enhancements** that have been illustrated can improve building performance, and provide visual screening mechanisms, while selectively improving its appearance through unique design details. A cohesive and updated appearance can be established for existing and new buildings by utilizing a simple **materials palette** in creative ways.

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7/09