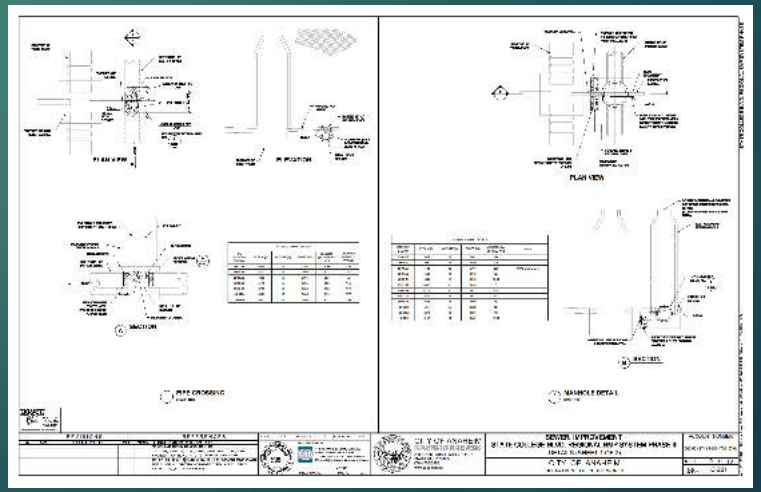
Santa Ana River Watershed Ambassador Program

City of Anaheim

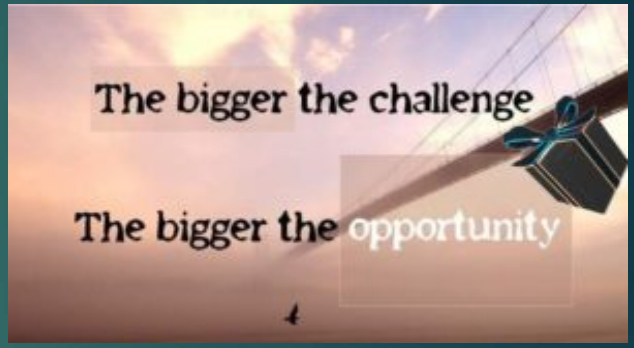
Stormwater Capture, Treatment and Recharge, Collaborative Projects



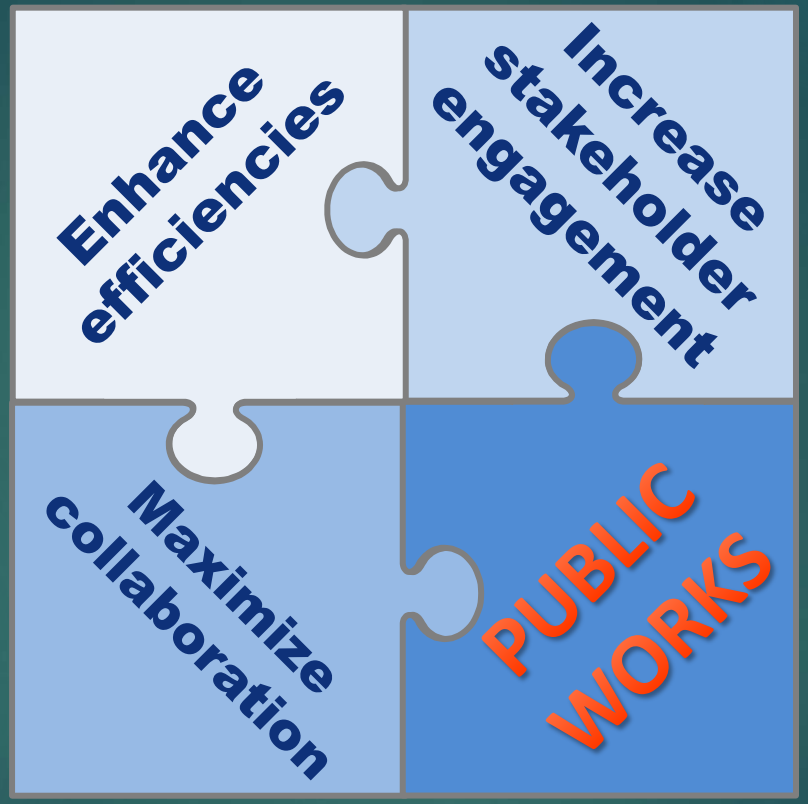
“Turning Challenges Opportunities”
“Doing More with Less” “Multitask”

challenges are opportunities in disguise

@ShaunRestar



Synergy = Collaboration; Cooperation; Leveraging Resources, etc.


Enhance efficiencies
Increase stakeholder engagement
Maximize collaboration
PUBLIC WORKS

Challenge/Need:

- Reduce pollutants in Stormwater to comply with NPDES Permit Requirements

Challenges/Needs:

- Address Stormwater Pollutant reduction for compliance with NPDES Regulations
- **Reduce Flood Risk**
- **Improve Reliability and Groundwater Supply**
- **Comply with Trash Capture Requirements to comply with State Trash Provisions Requirements**
- **Reduce standing water in Storm Drains to address Mosquito Breeding and related nuisances**
- **Improve Park Facilities and Public Works Infrastructure**

Opportunities:

- Improve potential for Grant funding
- Increased participation from other Departments/Agencies = $$$; Land; Infrastructure
- Sharing burden of responsibilities amongst stakeholders
- Economy of Scale: Bigger Project = More bang for the buck
- Broadened support for project from Policy Makers Community, Agencies

RESULT = MULTI-BENEFIT PROJECTS

WIPS Approach
Multiple Partners

MS4s

North OC Cities & County of Orange

Utilities + Parks

SCE/OC Parks/Others

Flood Control

OC Flood

Sanitation Districts

OCSD/IRWD

Water Districts

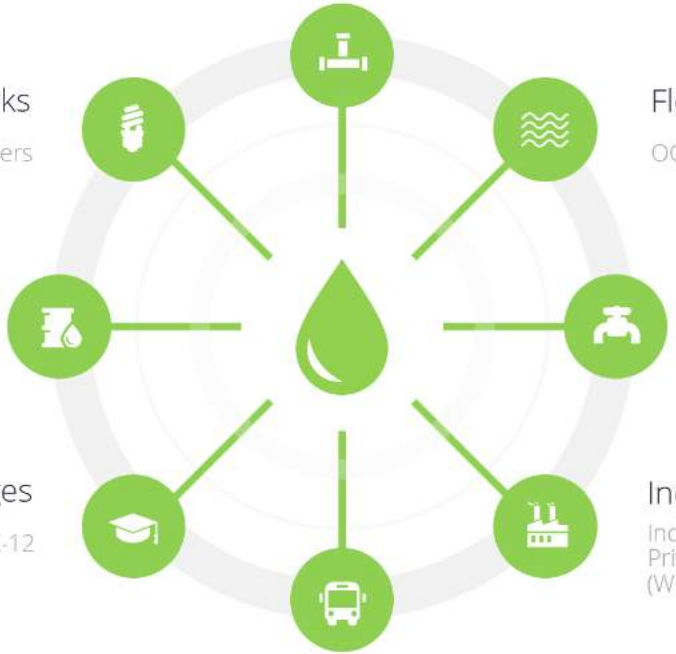
OCWD/IRWD/EOWD/Others

Schools + Colleges

Universities / Community Colleges / K-12

Industrial + Private

Industrial MS4s/
Private New & Existing Development
(WQ Credit & Trading)



Transportation

Caltrans / OCTA

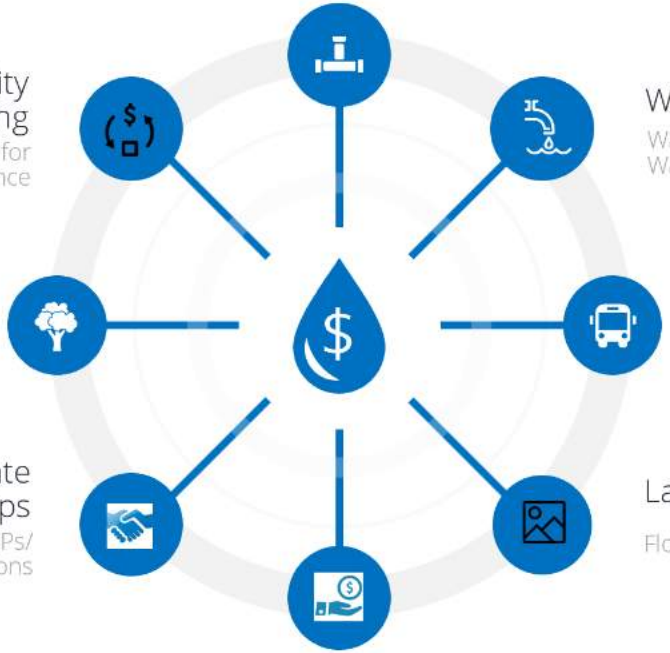
WIPS Funding Approach

Capital Improvement Program
Local MS4 Revenue/
Potential Future Stormwater Fee

Water Quality Credit & Trading
Public & Private Facilities for Offset of WQMP Compliance

Water Supply
Water Districts/
Water Infrastructure Funds

Climate Change
Resiliency/Urban Forestry Funding
Carbon Credits



Transportation
Transportation Funds/
OCTA/Caltrans

Public Private Partnerships
Conventional PPPs/
Private Environmental Foundations

Land Contribution
Flood Control/Utilities/Parks/Other

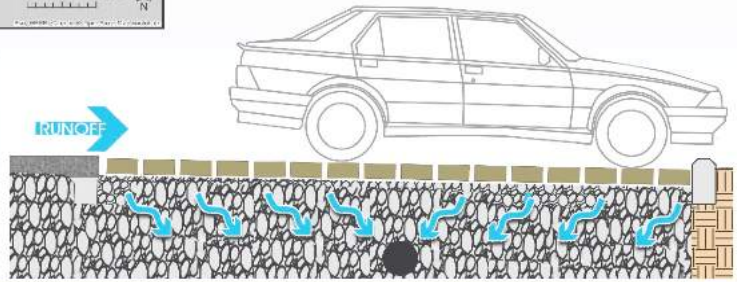
Grants/Loans
Prop 1 IRWM/Prop 1 Stormwater/SRF

MODJESKA PARK

City of Anaheim

Rain water that can't soak into the ground flows into the storm drain system. Along the way it picks up trash, oil, sediment, and metals from the parking lots and streets. Eventually, the polluted water reaches Bolsa Chica Channel and the Pacific Ocean.

- Under this parking lot is an underground pre-manufactured infiltration system. The concrete structures used for this project are approximately 14 feet tall and over 80 feet in length.
- Approximately 182-acre-feet of water per year will be directed into this groundwater system, which can support the annual indoor and outdoor needs of approximately 300 households annually.



Gaps within the permeable pavers allow rainwater to flow into an underdrain system that directs the flow to an infiltration system. Additional dry weather flows and rainwater are diverted to the infiltration system from the storm drain system along Nutwood Street.

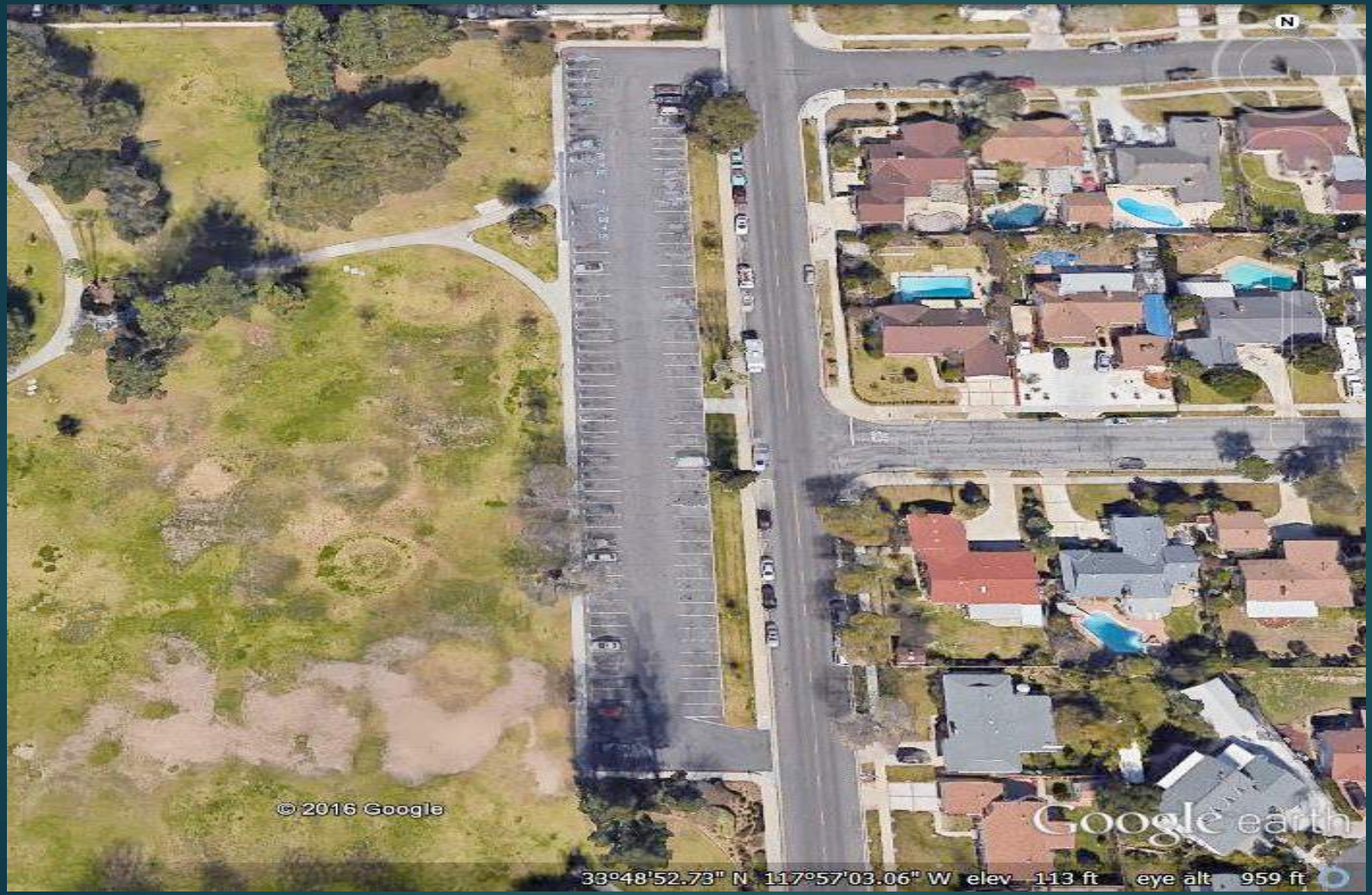
PROP 1
WATER BOND 2014

Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board.

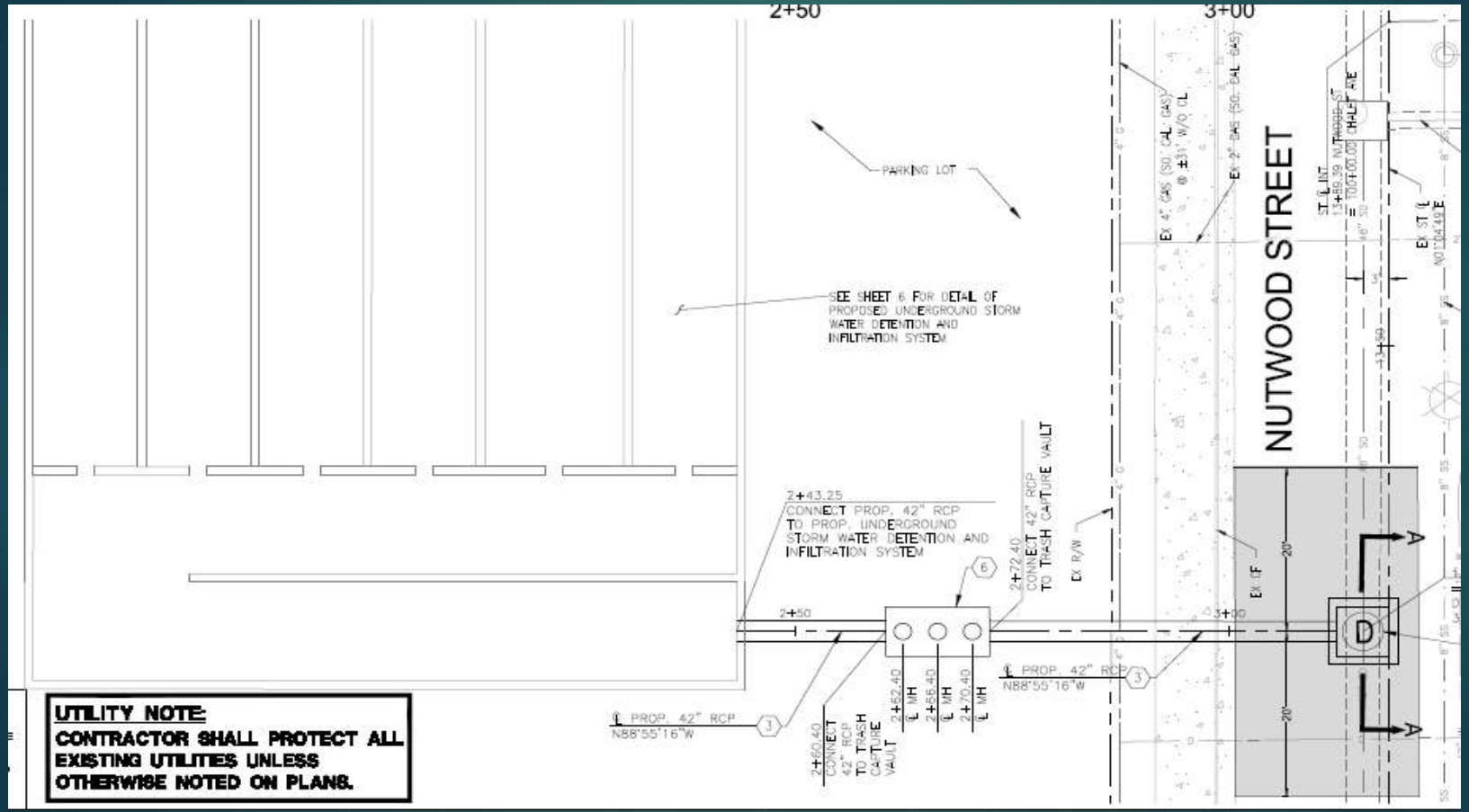
Underground Storm Water Detention and Infiltration System Project

200 acre Watershed in West Anaheim

Nearby 48” Storm Drain


© 2016 Google
Google earth
33°48'52.73" N 117°57'03.06" W elev 113 ft eye alt 959 ft

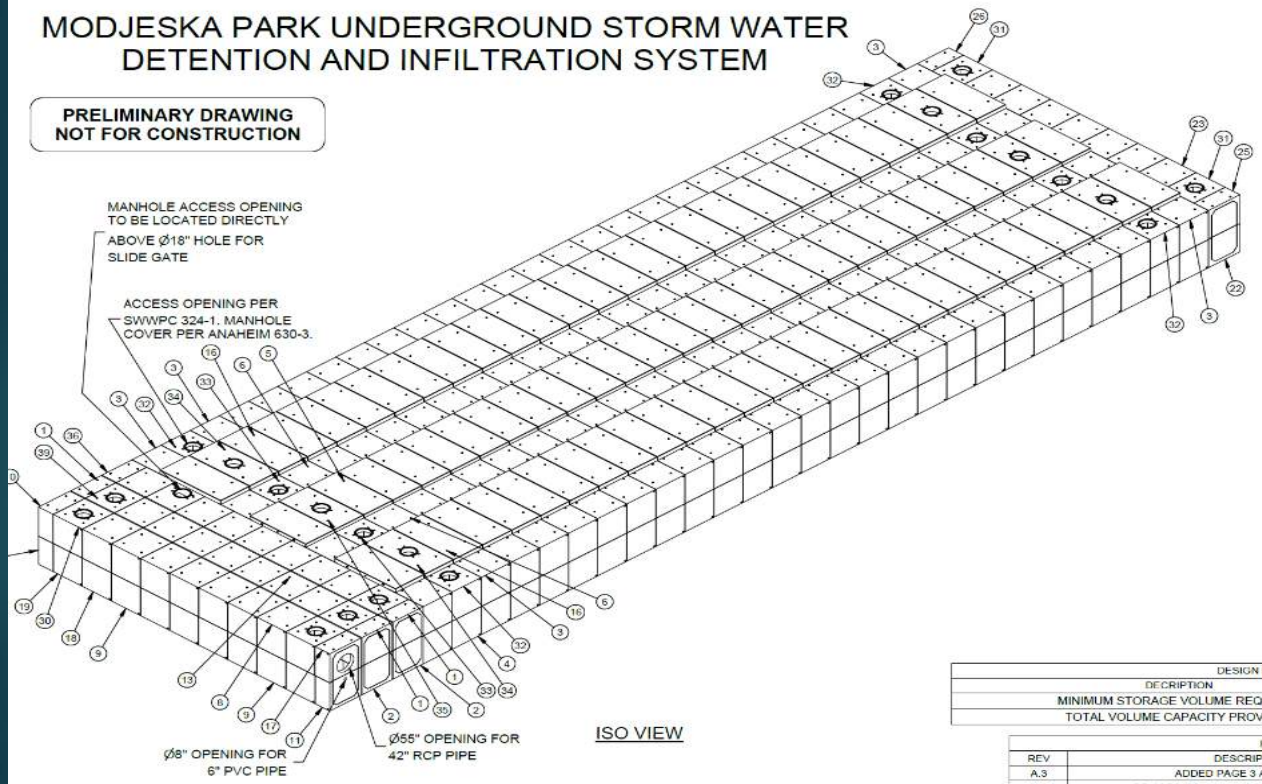
Diversion and Pre-treatment System



Capture and Infiltration Chamber

MODJESKA PARK UNDERGROUND STORM WATER DETENTION AND INFILTRATION SYSTEM

PRELIMINARY DRAWING NOT FOR CONSTRUCTION



ITEM	QTY	PART NUMBER	WEIGTH (lbs)
1	3	200021762	16555
2	4	200021763	16452
3	50	200021764	24669
4	54	200021765	24269
5	25	200021766	18406
6	50	200021767	21873
7	54	200021768	20943
8	7	200021769	24061
9	7	200021770	23758
10	1	200021771	18166
11	1	200021772	17969
12	81	200021773	2098
13	11	200021779	20871
14	11	200021780	20669
15	1	200021823	18013
16	50	200022564	23112
17	1	200023752	16100
18	1	200023771	22753
19	1	200023772	22753
20	3	200023773	19843
21	3	200023774	19843
22	1	200023779	17619
23	7	200023780	23667
24	9	200023781	23267
25	1	200023782	17773
26	1	200023809	17773
27	1	200023810	17619
28	2	200023860	20556
29	1	200023866	20714
30	2	200023869	23141
31	2	200023870	22748
32	4	200023871	23750
33	4	200023872	20954
34	4	200023875	21839
35	2	200023876	17310
36	1	200023878	16555
37	1	200023868	19509
38	1	200023864	20187
39	3	200025625	19952

DESIGN PARAMETERS		
DECRIPTION	(GALLONS)	CUBIC FT
MINIMUM STORAGE VOLUME REQUIRED	1,955,108	261,359
TOTAL VOLUME CAPACITY PROVIDED	1,963,564	262,490

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A.3	ADDED PAGE 3 AND PAGE 4.	7/10/2019	
A.4	REVISED PER CUSTOMER REDLINES 7/18/19	7/23/2019	
A.5	REVISED PER CUSTOMER REDLINES 8/7/19	8/12/2019	

DEPTH: to
LEVEL: WEIGHT: 12913/01.74 Lbs
SPEC: LOADING SPEC:
AGENCY SPEC:

JENSEN PRECAST EST. 1968
WWW.JENSENPRECAST.COM

DESCRIPTION: LAYOUT REVIEW
REV: A.5
PART NUMBER: 200021760
DRAWN BY: R. Ramos
CREATED:
MODIFIED: 8/14/2019
SHEET: 1 OF 8


CAUTION
H2OSUPPLY

Challenges in the Watershed

- **Stormwater Quality** improvements required presently and in the future
- Undersized **Storm Drain** System
- **Groundwater Recharge** needed
- **Trash Full-Capture** required based on State Trash Amendment Requirement
- Need for **Stormwater Credit** Banking to offset future projects (program in development)

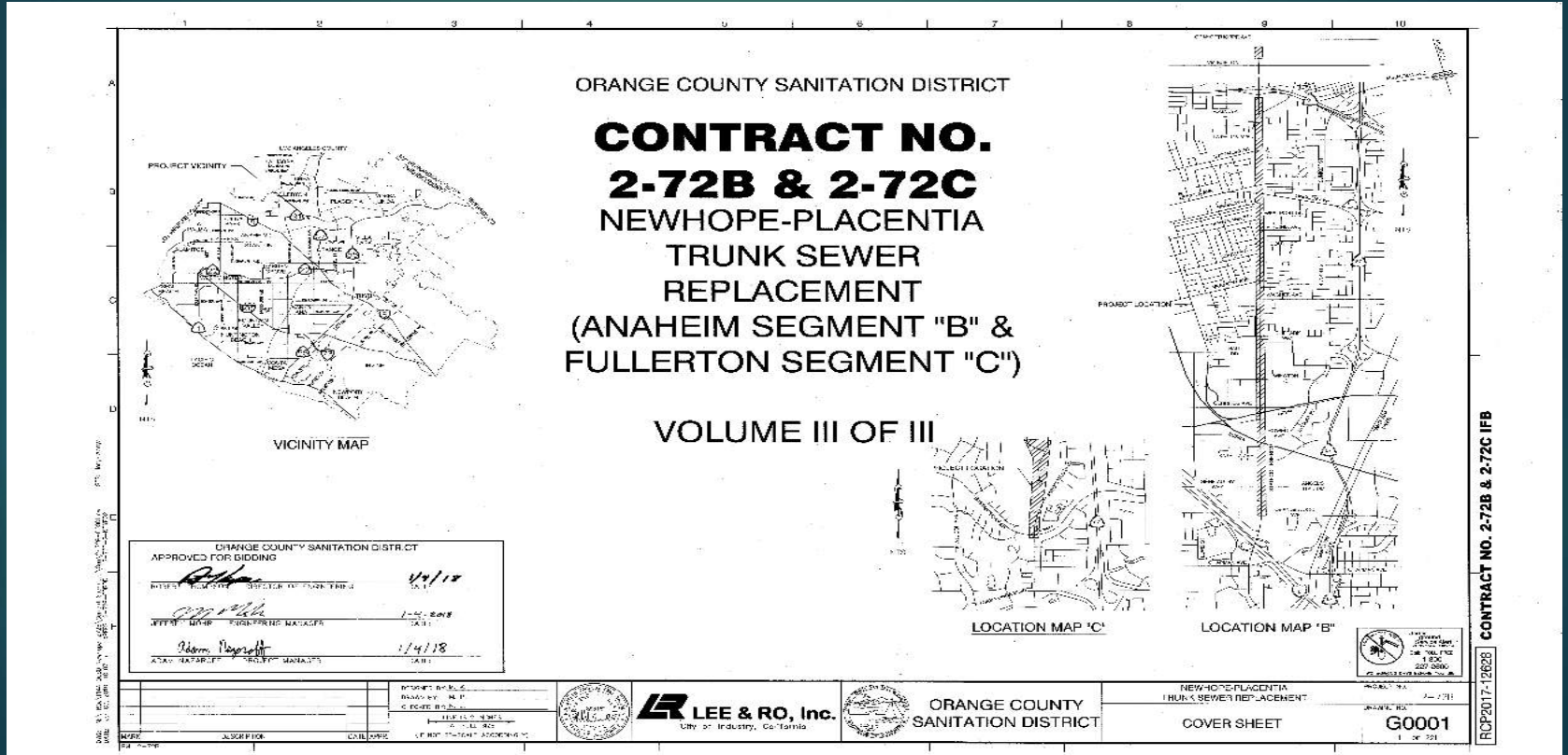
Opportunities at Modjeska Park

- **Grand Funding** opportunities (Prop 1) for large scale projects
- Nearby **Storm Drain**
- **Land** Available in Park
- **Limited Infrastructure Interference**
- Good Soil for **Infiltration**
- *Potential for **Cost Sharing** with benefiting Water Agencies*
- *Potential for generation of **Stormwater Credits** to be applied to future projects required to address stormwater quality*

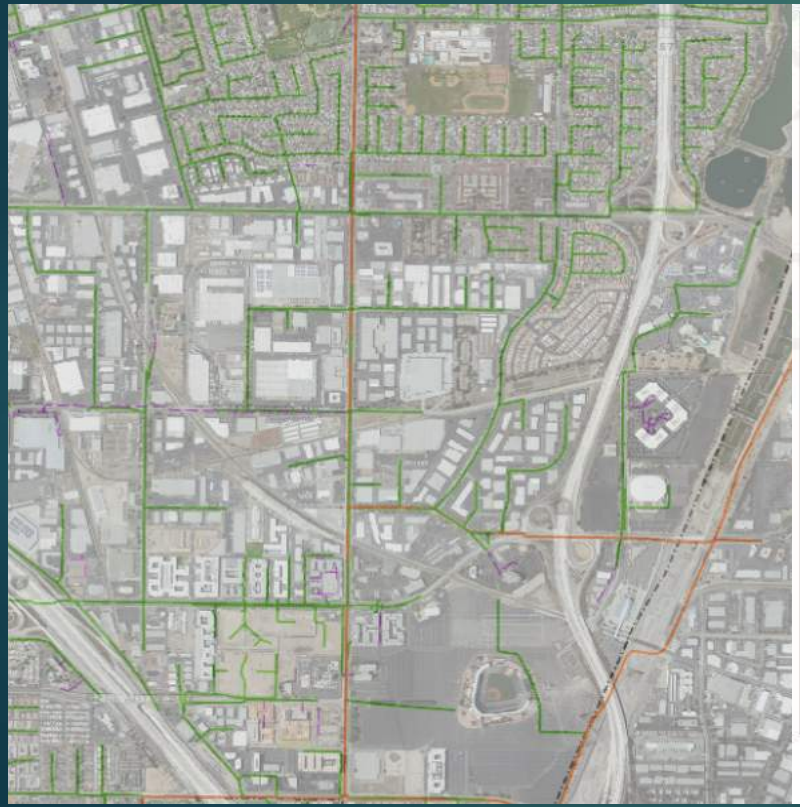
Synergy/Support

- Public Works Department Management Support of:
  - Cutting edge innovation (not bleeding edge)
  - Grant Application and Matching Funding
  - Design Division Support/Cooperation of new thinking (capture not capacity)
- Parks Department Cooperation & Support
  - Coordination of Construction (rescheduling of community activities)
  - Reconstruction of Irrigation System and Parking Lot
  - Use of Park Land

State College Linear Underground Storage Tank and Infiltration System

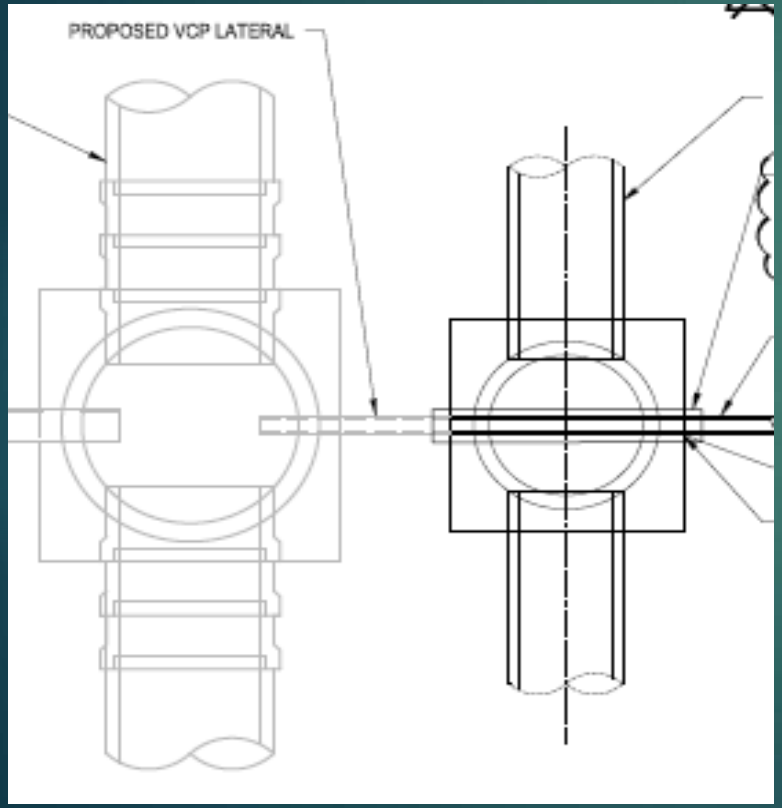


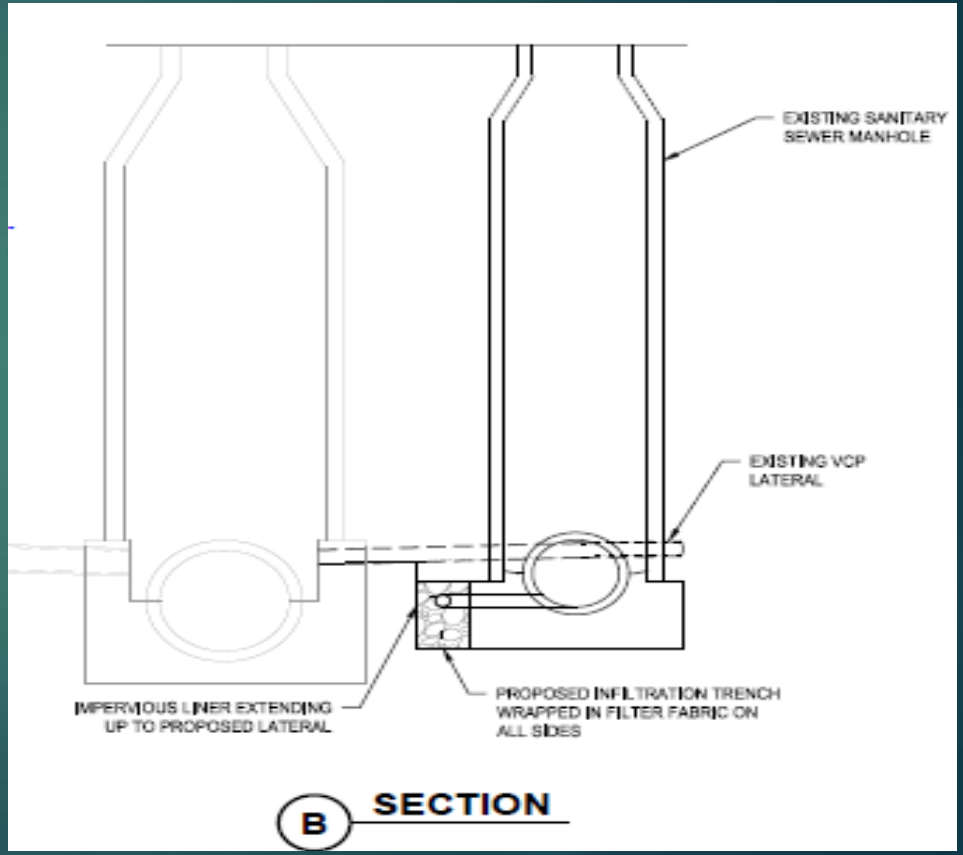
2 Miles of 42” Sewer was to be abandoned and filled with Concrete Slurry (2.5 acre ft.)



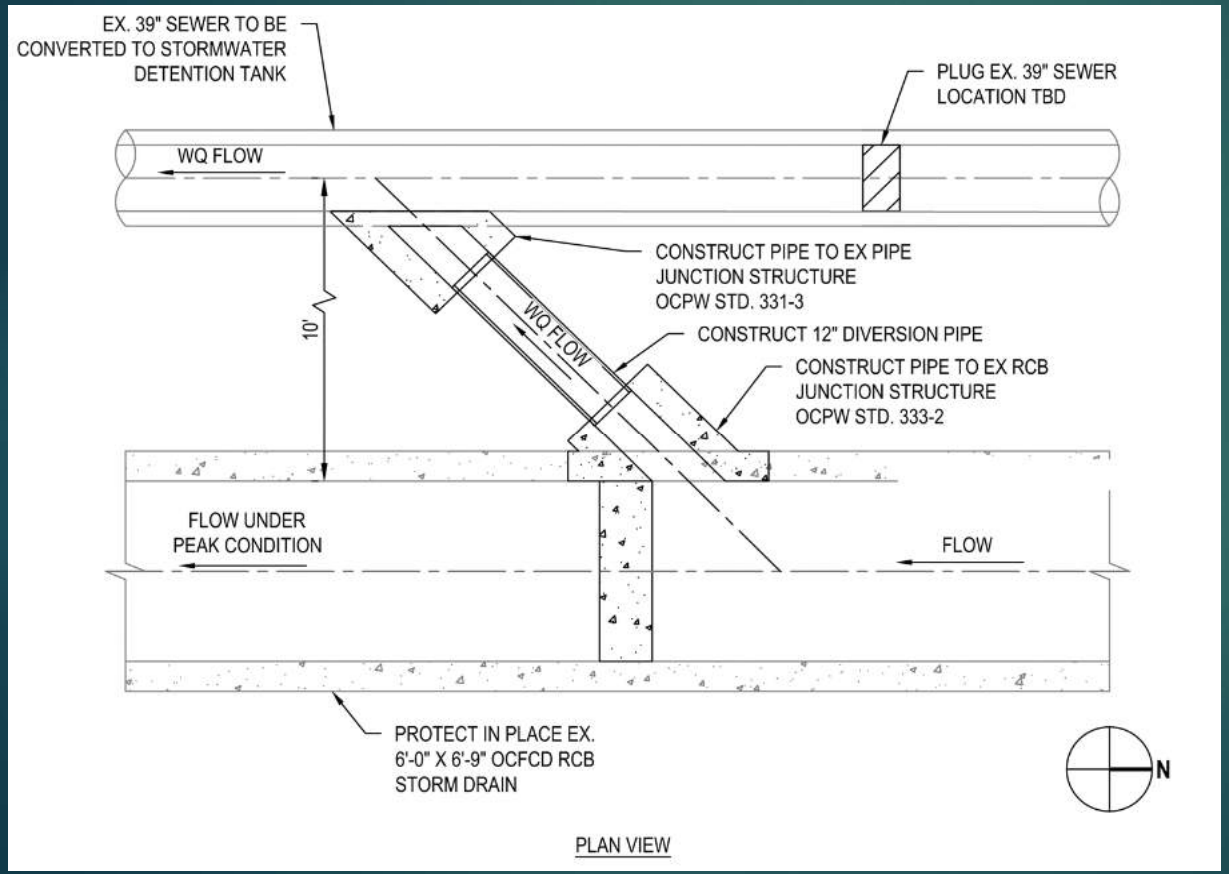
Step 1: Construct New Sewer/Abandon Old Sewer

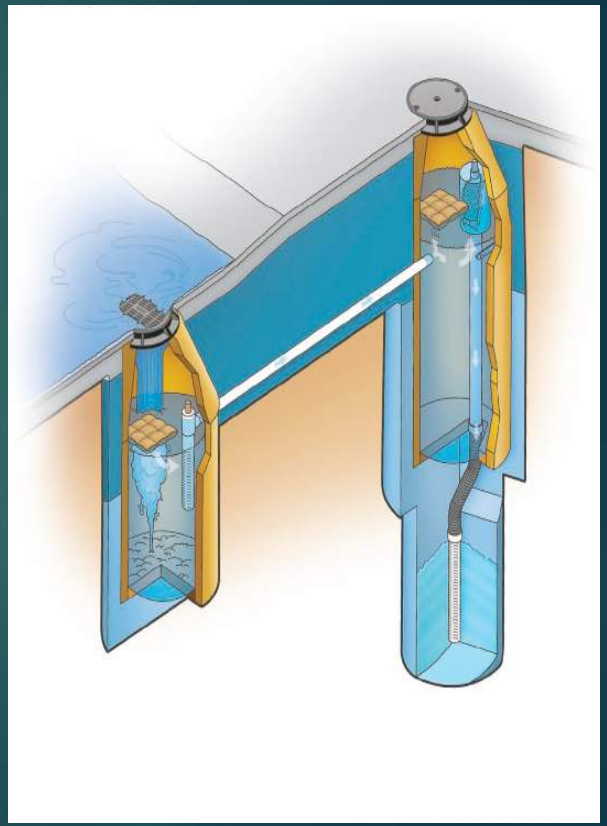
Step 2: Construct Manhole Crossings; No Slurry Backfill





Step 3: Connect to Storm Drain Upstream and Install Infiltration Wells Downstream





ORIGINAL

AGENDA

RECORDING REQUESTED
BY AND RETURN TO
ORANGE COUNTY SANITATION DISTRICT
10844 Ellis Avenue
Fountain Valley, California 92708

Attn: Clerk of the Board

(Space Above This Line for Recorder's Use)

Exempt from recording fee – California Government Code Section 6103

SEWER TRANSFER AGREEMENT
Project 2-72B, Newhope Placentia Sewer Improvements

This sewer transfer agreement ("**Agreement**") is dated June 27, 2018 ("**Effective Date**") and is between Orange County Sanitation District, a county sanitation district organized and existing pursuant to Health and Safety Code Section 4700 *et seq.* ("**District**") and the City of Anaheim, a municipal corporation and charter city ("**City**").

The District is a regional operator of sewage collection facilities. The District incidentally owns a trunk sewer along State College Boulevard where the City has numerous connections. The City owns and operates a local sewage collection system and the District serves the City by collecting their sewer flows. These flows are eventually treated at the District's reclamation plants in Fountain Valley and Huntington Beach.

The District is performing a Project that will re-construct this sewer and will result in new alignments and manhole locations. These changes require the District to construct new City sewers or grant existing sewers access so all of the existing connection locations can be re-established.

The parties intend by this Agreement for the District to convey to the City certain facilities, which the City will thereafter own, maintain, and operate as part of the City's local Storm Drain system.

The District and the City therefore agree as follows:

1. Grant of Sewer Pipelines

District hereby grants, conveys and transfers to the City all of District's right, title, and interest in the 15 manholes and 14 sewer segments (totaling 10,250 linear feet) as depicted in Exhibit A (collectively, "**Facilities**") and identified as "transferred facilities." Said transfer will become effective upon completion of filing of Notice of Completion of the sewer reconstruction project, which includes the construction of the facilities identified in Exhibit A.

Agreement with Orange County Sanitation District

Challenge/Need:

- Address **Stormwater Pollutant** reduction for compliance with NPDES Regulations
- Reduce **Flood Risk**
- Improve Reliability and **Groundwater Supply**
- Comply with **Trash Capture** Requirements to comply with State Trash Provisions Requirements
- **Avoid spending $** filling Sewer with Concrete

Opportunities for State College Tank

- Cooperative and **Supportive Sewer Agency** (OCSD)
- **Repurposing Infrastructure** at no cost
- Reduction in potential for **Local Flooding**
- **Stormwater Treatment**
- **Groundwater Recharge**
- Future **Tank adjacent to Storm Drain**
- Good Soil for **Infiltration**

Synergy/Support

- Public Works Department Management Support of Innovation
- Orange County Sanitation District Coordination and Support
  - Design
  - Legal
- OC Flood consideration of "Outflow Connection"

Breaking Down the Silos!!!

Multi Benefit Projects Require (in order):

- Innovation
- Leadership
- Cooperation
- YOU!