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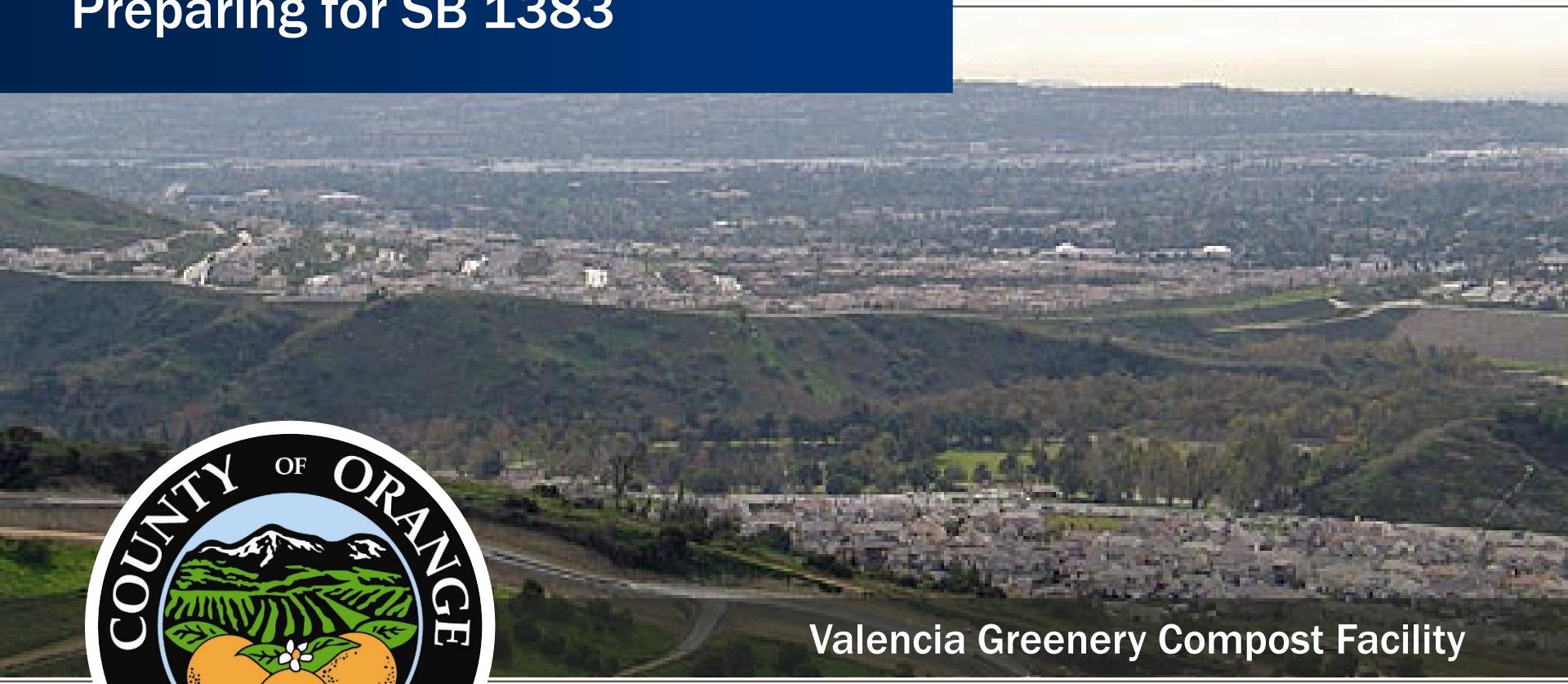
Preparing for SB 1383



Valencia Greenery Compost Facility

complex world | CLEAR SOLUTIONS™

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Presenters:

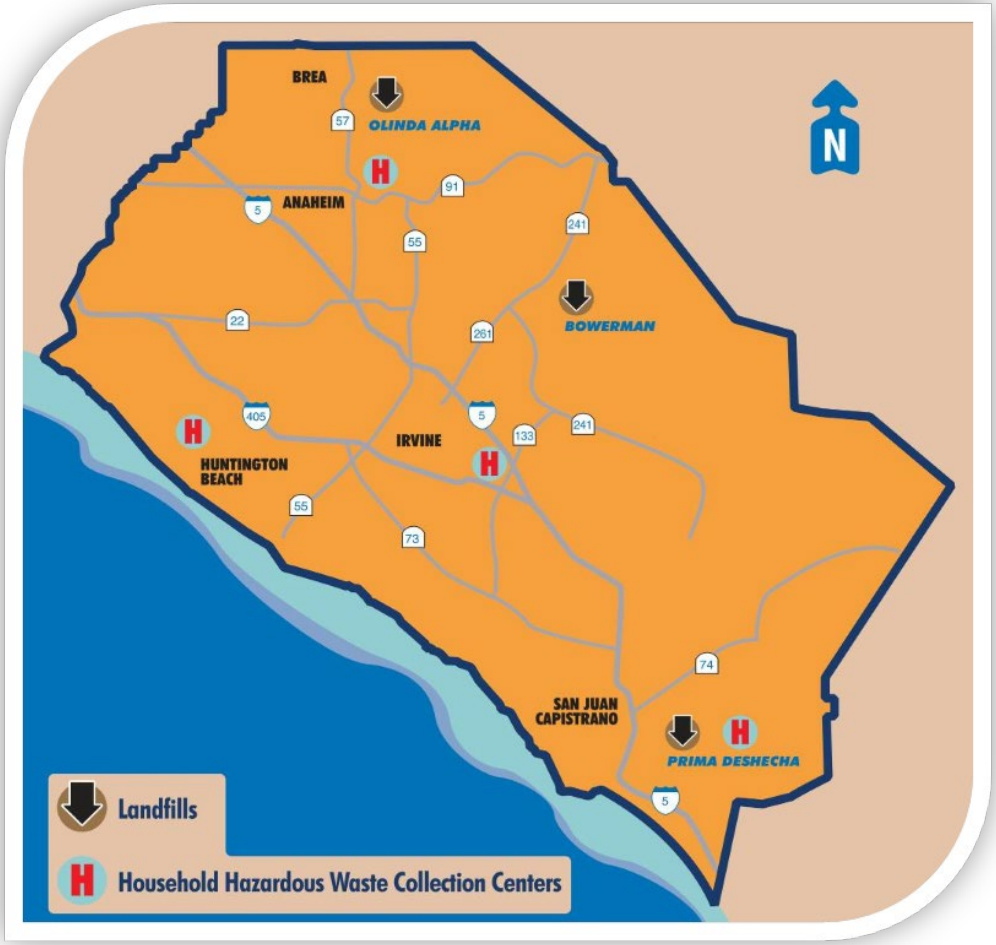
- John Powers, PMP, OCWR
- Nicole Guerena-Pantaleo, E.I.T., Tetra Tech
- Alex Newell, P.E., Tetra Tech

Presentation Overview

- OCWR Background
- Project
  - Outline/Scope
  - Constraints
- Solutions Implemented
- Questions

Bee Canyon Greenery (Irvine, CA)

OCWR Background



- OC Waste & Recycling serves over 3 million residents and businesses in the County's 34 cities and unincorporated areas.
- Our three active landfills are among the largest in the state and annually receive more than 4 million tons of solid waste.
- Four Household Hazardous Waste Collection Centers
- Regional Recycling and Waste Diversion Education
- Oversight of Unincorporated Discarded Materials Management

OCWR's Pivot to Resource Recovery

PRIOR TO 2020

- OCWR operated with a traditional waste disposal model
- Only buried waste, no resource recovery
- Sites received Processed Greenwaste Material (PGM) from residential curbside bins in Orange County which was used as Alternative Daily Cover (ADC) or erosion control
- Cities received diversion credit for PGM usage

OCWR's Pivot to Resource Recovery

NEW LEGISLATION IN 2020

- AB 1594 - Use of PGM as ADC no longer counts as diversion
- SB 1383 - Sets a statewide goal to reduce organic waste disposal
- Orange County cities need ways to meet the new organic waste diversion requirements

OCWR's Pivot to Resource Recovery

BEGINNING IN 2020

- As a response to the legislation, OCWR has shifted from a landfilling only model to a resource recovery model
- New initiatives such as mattress and metals recycling
- The main focus of this new effort is a three-phase approach to organics processing
  - Phase 1 – Composting
  - Phase 2 – Source Separated Organics processing
  - Phase 3 – Anaerobic Digestion

Phase 1 – Composting

- Newly opened composting facilities at two of the three active landfills
- **Bee Canyon Greenery** at Frank R. Bowerman Landfill
  - Open windrow
  - 210 TPD
  - Started operations in October 2020
  - Expansion in progress
- **Capistrano Greenery** at Prima Deshecha Landfill
  - Open windrow
  - 204 TPD
  - Started operations in September 2021
- Third composting facility to be constructed at **Olinda Alpha Landfill**

Olinda Alpha Landfill

- Opened in 1960
- Unlined
- 565 total acres (453 acres permitted for waste disposal)
- Public and commercial disposal
- Permitted for 8,000 tons of refuse per day with an average of 7,000 tons of refuse per day
- 32 MW landfill gas to energy facility
- Current closure date is December 2036

Olinda Alpha Landfill

- Challenges with siting a composting facility at Olinda
  - No water
    - Site has limited flow, no infrastructure in back half of site
  - No power
    - Site has limited capacity, no infrastructure in back half of site
  - No space
    - Site is built out and rapidly pyramiding
  - Need to reclaim airspace
    - Compost facility built on refuse fill will preclude further landfilling after settlement

Project Outline


Valencia Greenery Proposed Location

- Greenery Siting
  - Landfill is canyon fill, not much of the inactive area is flat area suitable for a composting operation
  - Greenery is located on the active deck
    - Recently landfill
      - Settlement
    - Changes needed based on adjusted fill plans
    - Relocate facility
  - Location of landfill has no water or power sources

Technology Considered

- Types of Facilities Considered:
  - **Traditional Windrow**
    - Area intensive for equal throughput
    - High water demand
    - Low power demand
    - Operations intensive

  - **Covered Aerated Static Pile (CASP)**
    - Increased throughput/reduced operational requirements
    - *Option 1*: Finished Compost Cover
      - Requires consistent moisture conditioning
    - *Option 2*: Membrane Cover
      - Lower water requirements

  - **Aerated Pad/In Vessel/Bunker**
    - Permanent facility

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Technology Considered (Cont.)

Selected Membrane CASP

- Lower water requirements
- Solar powered option
- Mobile system can be adjusted for settlement
- More capacity for limited space

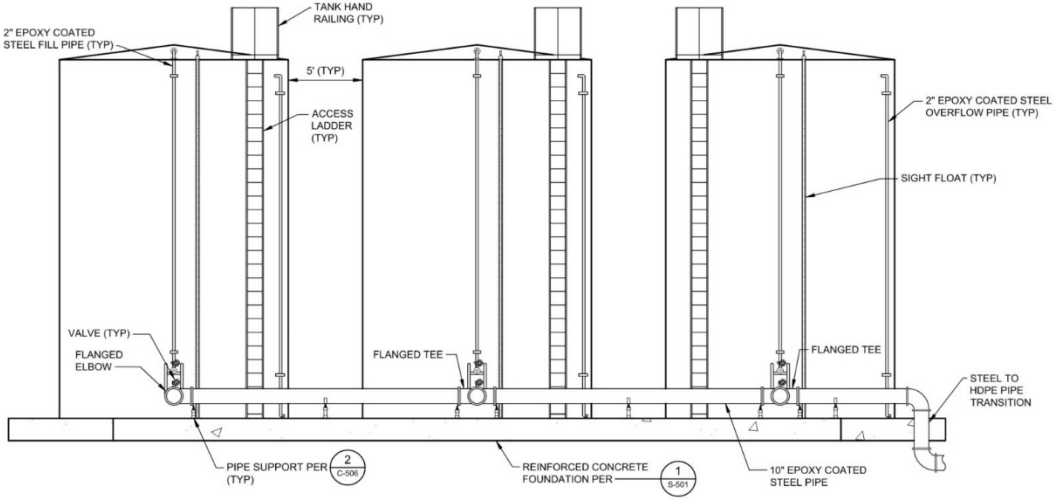
Design Approach – Water Supply

- Current water system for Landfill operations:
  - No ability to add additional pumps
  - Can add additional tanks
- Elevated tanks for landfill operations and composting
  - Water piles with water trucks


Capistrano Greenery (San Juan Capistrano, CA)

Design Approach – Water Supply (cont.)

- Fire Water Supply
  - 60,000 gallons required by Orange County Fire Authority
  - Three (3) 20,000-gallon tanks
  - Gravity feed waterline
    - Fire hydrants around facility
    - Zero power requirements
  - Elevated pad



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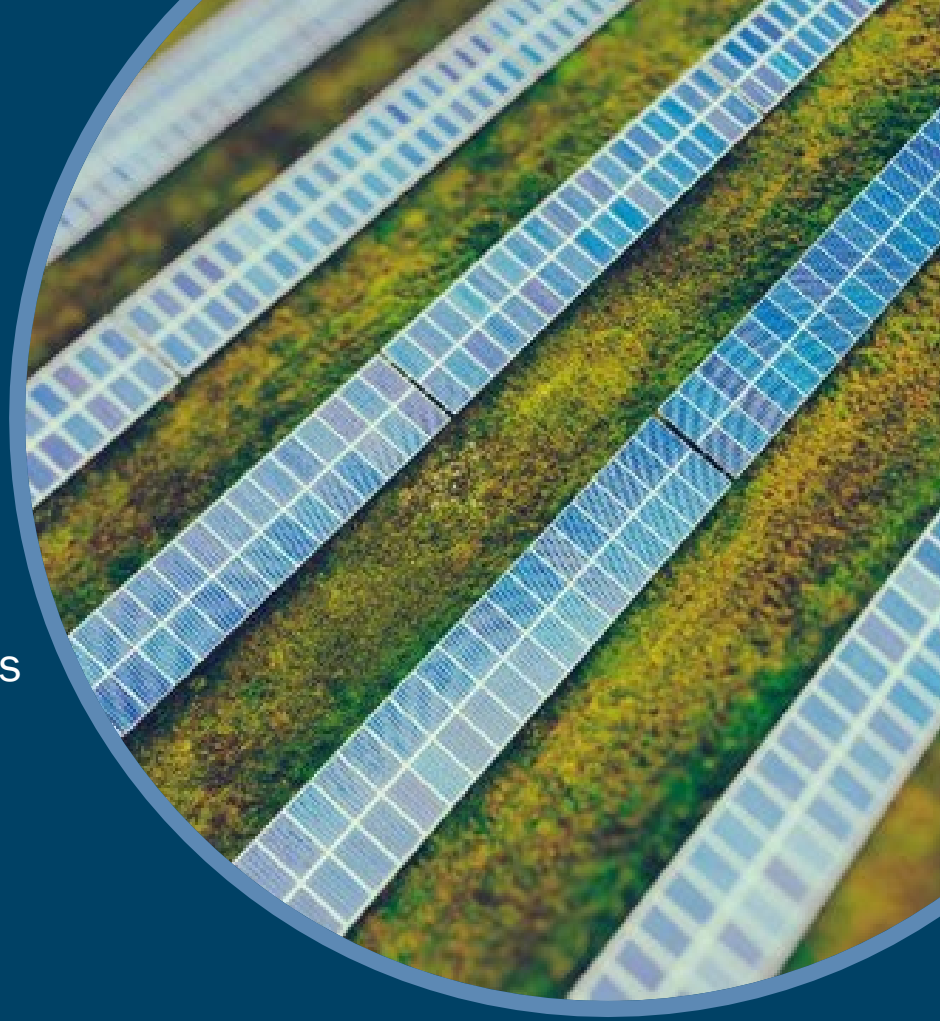
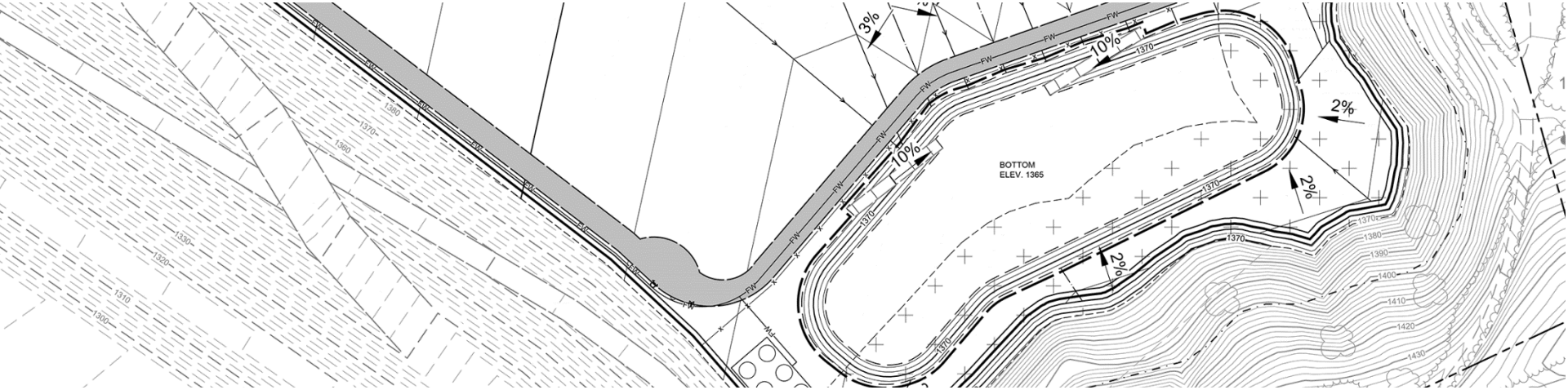


Design Considerations - Power

- No power in local area of site
- No additional capacity in current panels
- Remote Power
  - Generators
    - Air permitting
  - Solar Field
    - Site well located for solar
    - OCWR experience with solar power
    - TT has experience with solar power facilities
  - Permanent Power Source
    - Limited

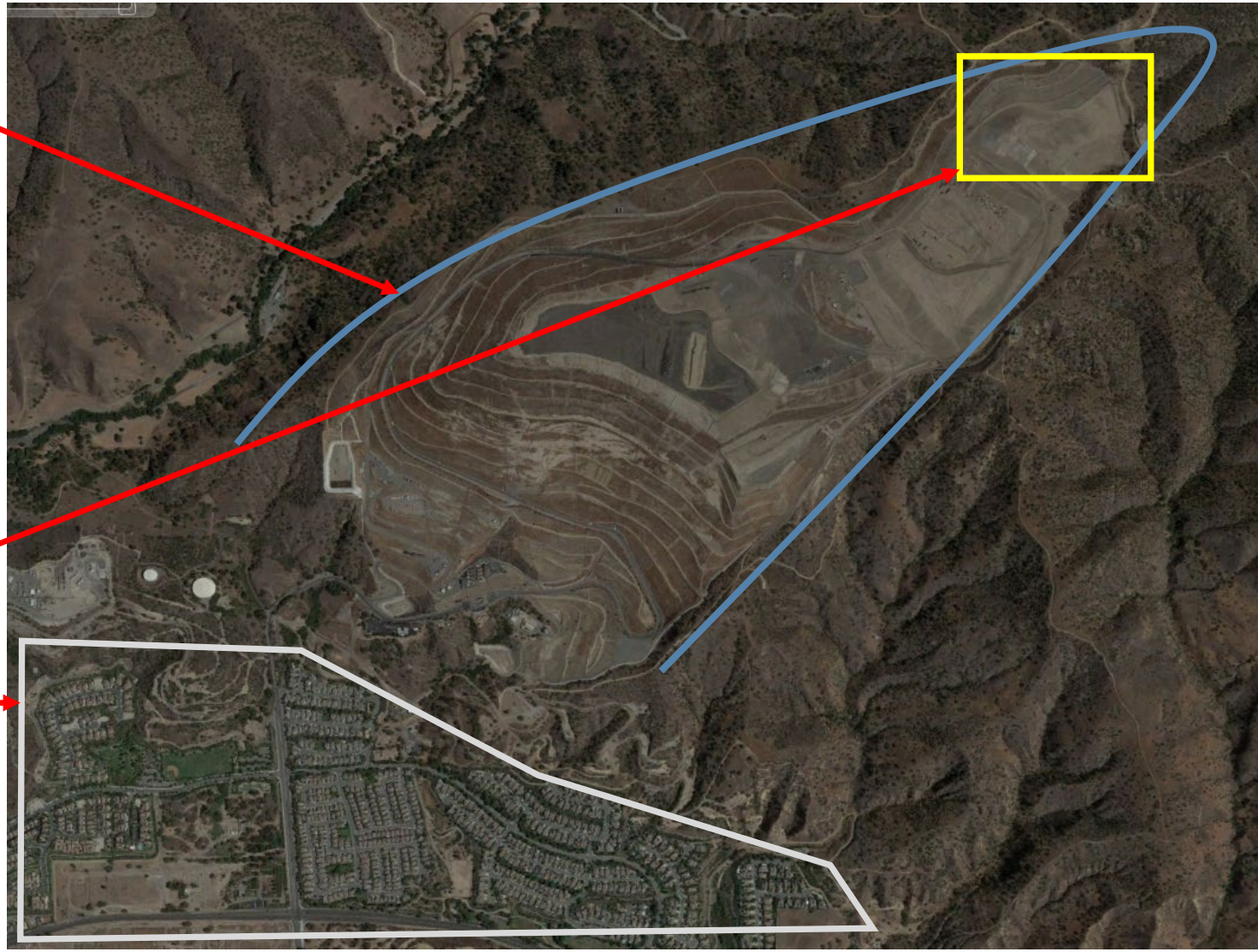
Design Considerations - Settlement

- Site is located on recently active landfill area
- Potential grading adjustment to accommodate settlement
- Increased thickness of compost pad to allow grading in the future
- Modulated/segmented system to allow for future grading and deck repairs



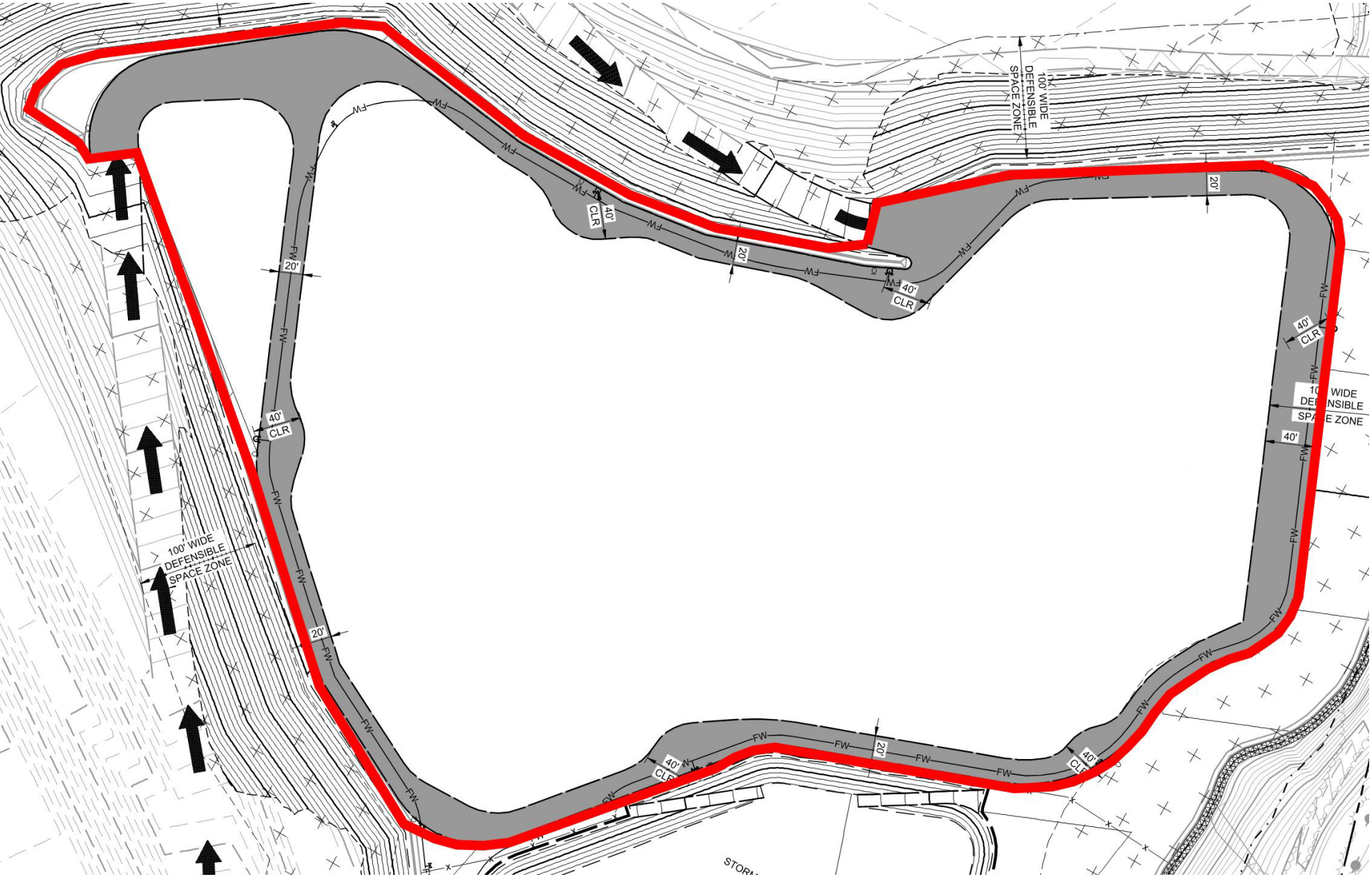
Design Considerations – Limited Space

- Canyon Fill Sequencing
- Efficiency
- Flexibility in Mobile system
- ~7 Acre pad
- High-density urban environment



OCFA Permitting

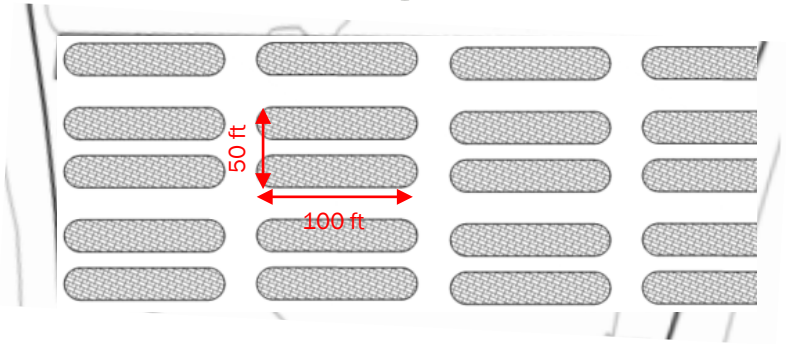
- OCFA specific permitting requirements for composting facilities
- All 3 landfills are located in high fire hazard zones
- Water Supply
  - 60,000 gallons
  - 500 gpm at 20 psi
- Perimeter road around facility
- Hydrant Radius - 150 feet


100' WIDE DEFENSIBLE SPACE ZONE
100' WIDE DEFENSIBLE SPACE ZONE
FW
20'
40'
CLR

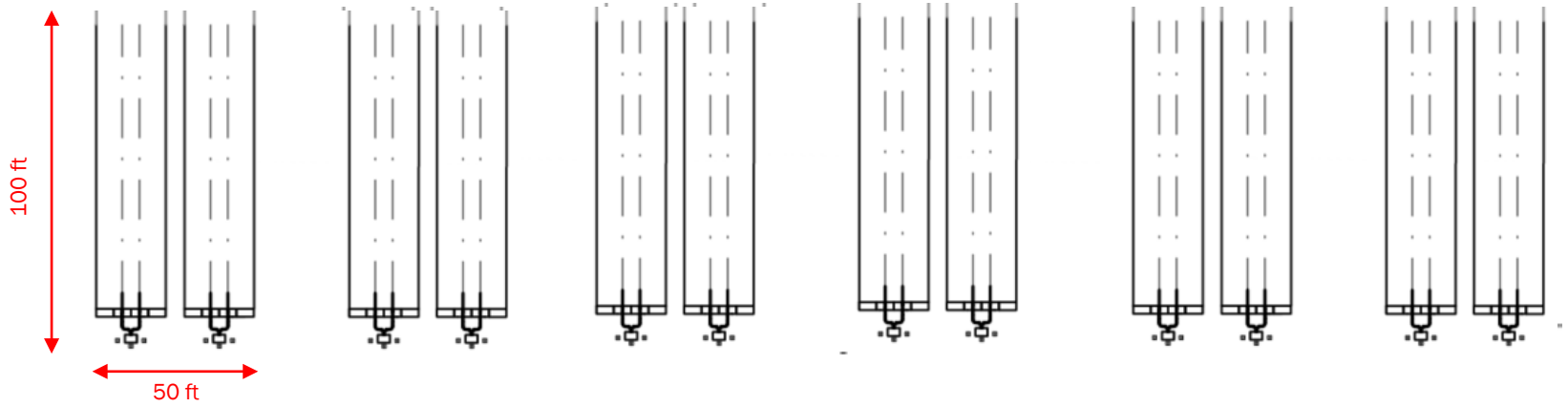
OCFA Permitting

- Pile Spacing
  - 50 x 100-foot group size
  - 20-foot clearance around each group
- Unique design
- Safety vs. Capacity
- Ever evolving

Curing Piles



Active Piles



Summary

- Challenges/Hurdles
  - Water/power/space limitations
  - Located on a landfill
  - OCFA permitting
- Solutions
  - Mobile System
  - Membrane cover
  - Solar array power source
  - Unique design/increased spacing between piles
- Project Status
  - Received bids for Phase 1
  - Construction to start by July
  - Phase 2 (CASP) to start December
  - Fully operational March 2023

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Questions or Comments

John Powers, PMP

john.powers@ocwr.ocgov.com

Nicole Guerena-Pantaleo, E.I.T.

nicole.guerena@tetratech.com

Alex Newell, P.E.

alex.newell@tetratech.com