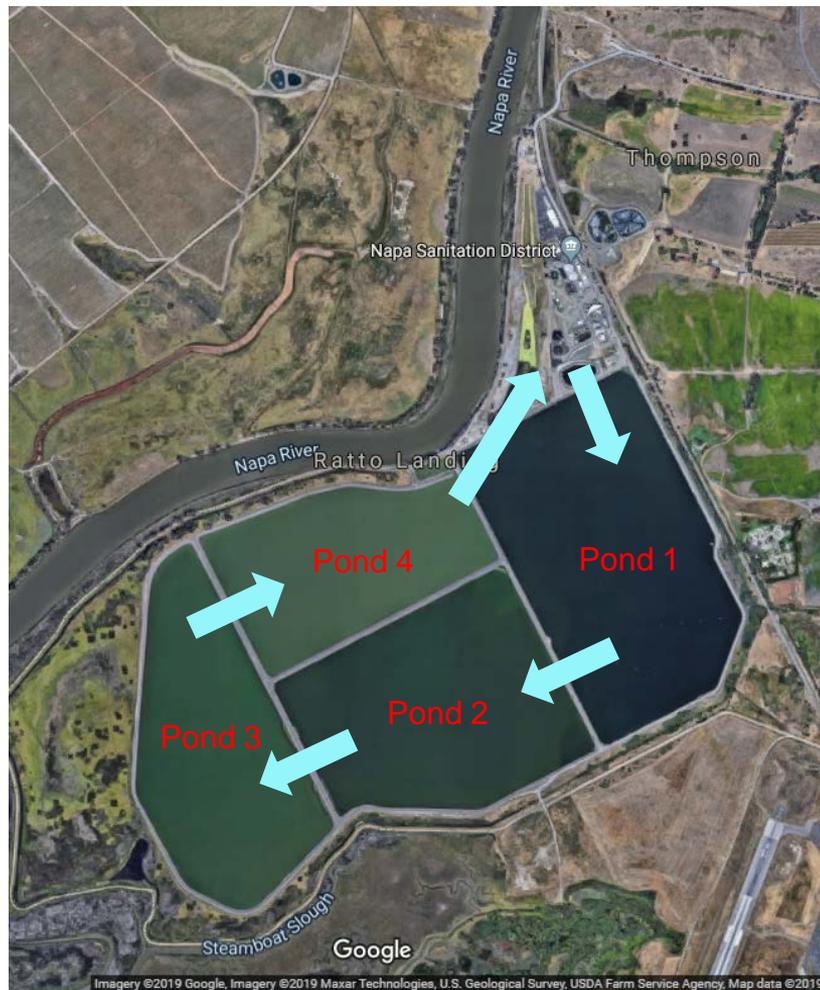




Pond Biosolids Removal and Reuse Project (CIP 13745)



NapaSan Board of Directors Meeting
December 4, 2019





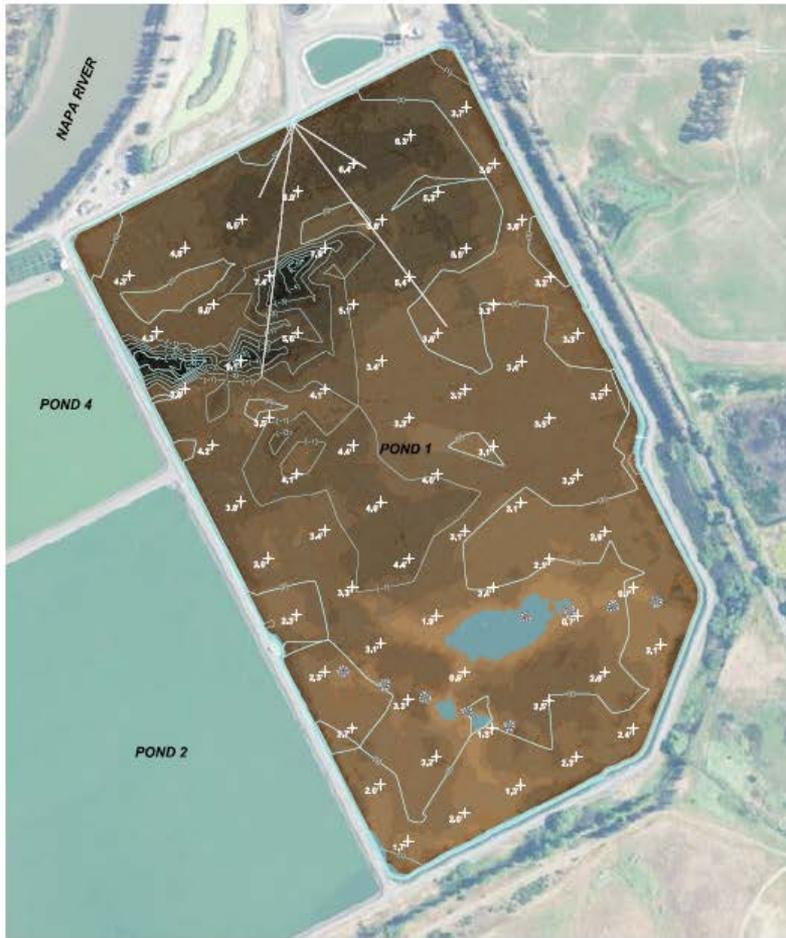
Background

- Biosolids accumulate in Pond 1 due to:
 - Plant influent flow diverted to Pond 1
 - Algae sludge
 - Belt filter press filtrate
 - Filter backwash
- Removing biosolids is important to:
 - Improve treatment performance in Pond 1
 - Re-establish water column
 - Eliminate exposed solids that form when water level fluctuates

Background

- Recent biosolids removal projects were completed using various methods between 1999 and 2008





NOTES

HORIZONTAL DATUM: NAD83 STATE PLANE CALIFORNIA ZONE 2 (US FEET)
 VERTICAL DATUM: PER ULTRASONIC LEVEL GAGE AT NORTHWEST CORNER OF POND 1

DATA SOURCES:

SEA-TECH POND BOTTOM SURVEY, SEPTEMBER 20, 1988
 (DEPTH MEASUREMENTS CONVERTED TO SURVEY DATUM ASSUMING 11.1' DEPTH
 CORRESPONDS TO LEVEL GAGE READING OF 0.0')

SLUDGE BATHYMETRY DATA RECORDED BY NAPASAN OPERATIONS STAFF USING
 LOWRANGE LCK-250

POND LEVEL WAS CONSTANT AT 93 INCHES (7.75 FEET) DURING SLUDGE BATHYMETRY SURVEY

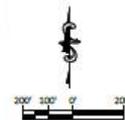
ESTIMATED TOTAL SLUDGE VOLUME = 650,000 CY (403 ACRE FEET)

LEGEND

- ⊕ SLUDGE THICKNESS SPOT MEASUREMENTS
- CONTOURS OF POND BOTTOM SURFACE ELEVATION
- ⊙ AERATOR LOCATIONS AS OF 5/20/17

SLUDGE THICKNESS BANDING KEY

0.0' - 1.0'
1.0' - 2.0'
2.0' - 3.0'
3.0' - 4.0'
4.0' - 5.0'
5.0' - 6.0'
7.0' - 8.0'
8.0' - 9.0'
9.0' - 10.0'
10.0' - 11.0'
11.0' - 12.0'



POND SLUDGE DREDGE
 (CIP 13745)
**POND 1 BATHYMETRY SURVEY
 CALCULATED SLUDGE THICKNESS**
 DECEMBER, 2017



Biosolids Removal

- Dredge method



<http://www.crisafullipumps.com/dredges/flump>



Biosolids Removal

- Benefits of using a dredge:
 - More widespread removal of solids
 - Keep Pond 1 in service
 - Dewatering the pond is time consuming and costly
 - Complete the project in one season
 - Reduced levels of dust and emissions
 - Less pumping and heavy equipment
 - Reduced impacts to roads and levees

Biosolids Removal

- Remove biosolids to elevation 1.0 ft.
- **Priority 1:**
 - Northern 1/3 of pond
- **Priority 2:**
 - Middle 1/3 of pond



Biosolids Dewatering



Drying bed to be used by contractor for staging area and biosolids dewatering

Biosolids Reuse

- Contractor will land-apply dewatered biosolids to Somky
- Application rates will be determined based on nutrient levels
- Crops will be grown after biosolids incorporation





Project Overview

- This project is part of a series of long-term projects to remove biosolids from Pond 1.
- The next project is budgeted for 2023 in the current 10-year CIP.



Project Overview

- Total contract price: **\$2,000,000**
 - Fixed contract price
 - Basis of award: Lowest unit price per dry ton (resulting in the highest quantity of biosolids removal from Pond 1)

- Total project budget: **\$2,337,000**



Anticipated Schedule

Milestone	Date
Notice Inviting Bids	December 2019
Bid Opening	January 2020
Award Construction	February 2020
Notice to Proceed	February 2020
Work Period	May 1 – September 30, 2020
Substantial Completion	September 2020



Recommendation

Approve the Project, Concur with CEQA Determination, and Authorize the General Manager to Issue Notice Inviting Bids for the Pond Biosolids Removal and Reuse Project (CIP 13745).