

Sitka Sedge Natural Area



Tierra del Mar Surface-Groundwater Modeling Study Scoping Meeting



Purpose of Meeting

1. Provide an overview of existing site conditions
2. Summarize the work completed to date
3. Present the current Work Plan and schedule
4. Solicit comments and questions
5. Discuss next steps

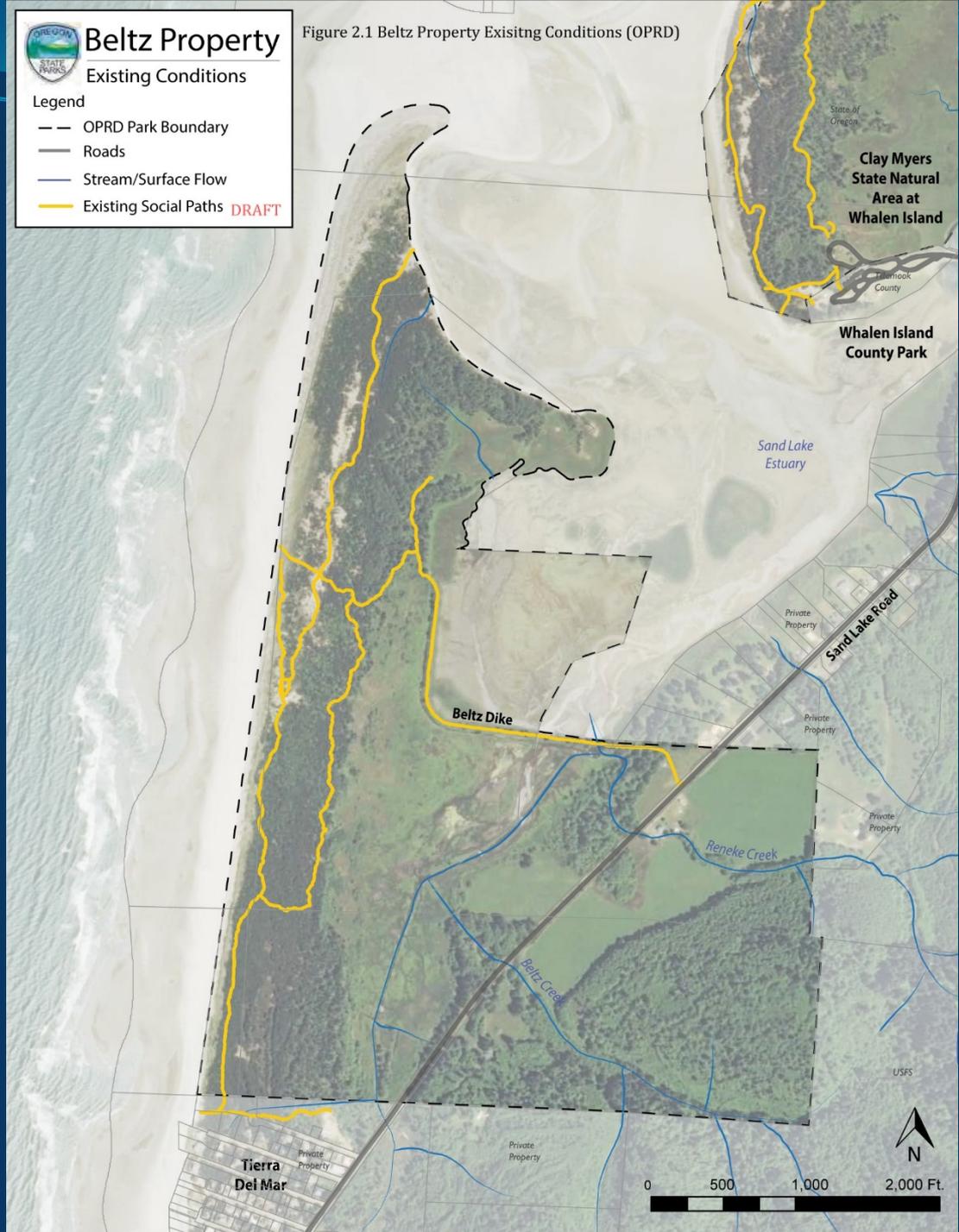
Existing Conditions

 **Beltz Property**
Existing Conditions

Legend

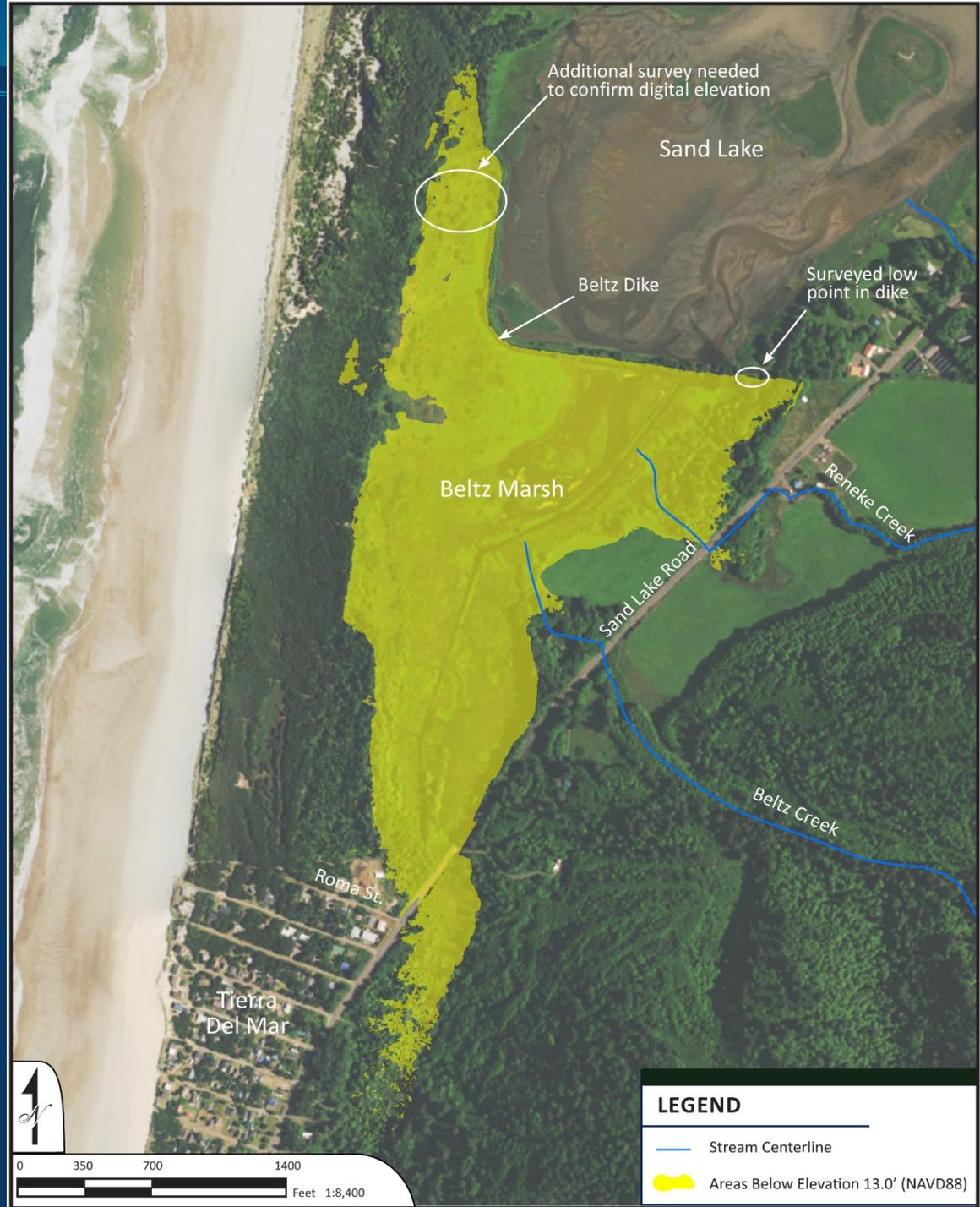
- OPRD Park Boundary
- Roads
- Stream/Surface Flow
- Existing Social Paths **DRAFT**

Figure 2.1 Beltz Property Existing Conditions (OPRD)

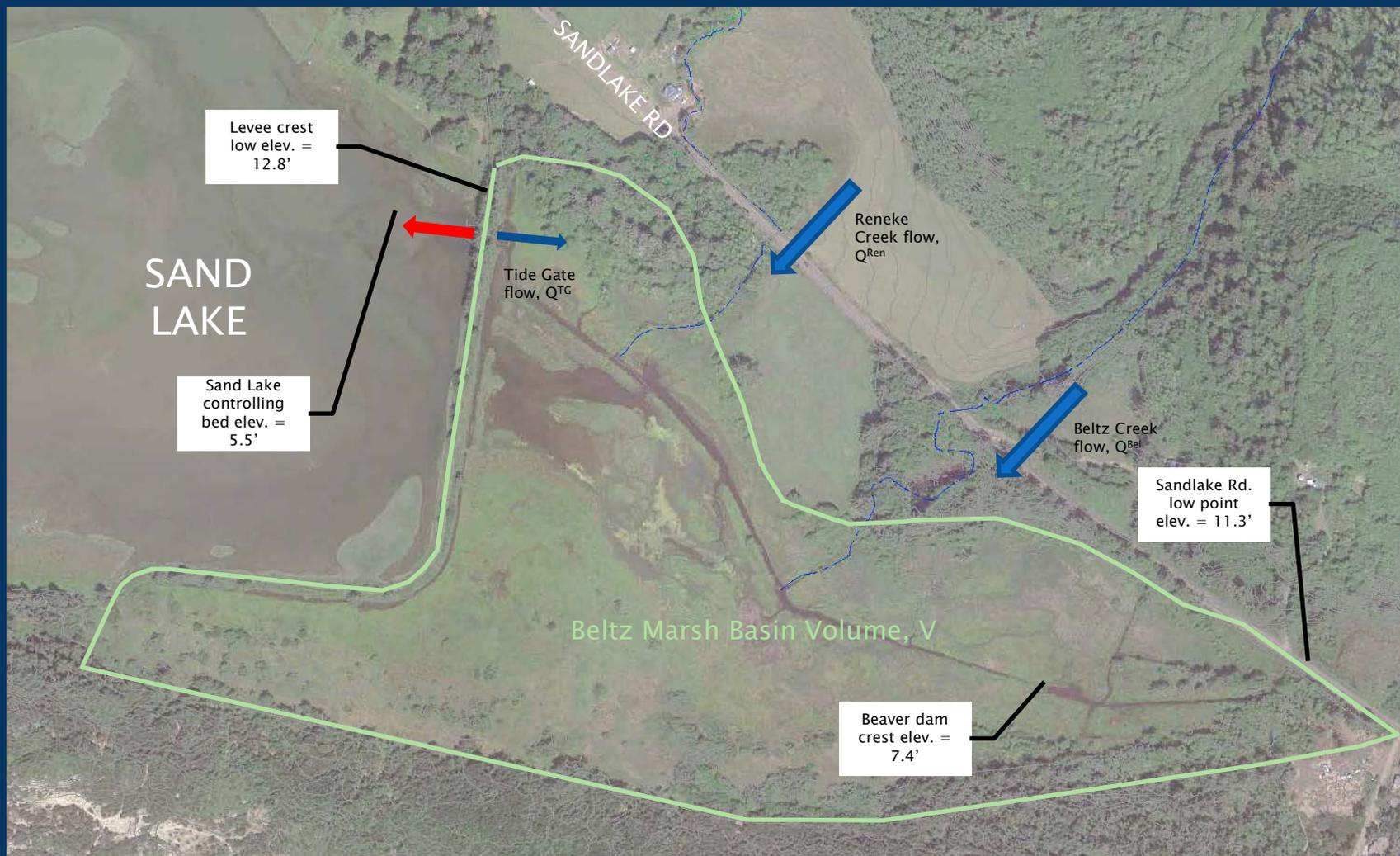


Existing Conditions

Land Currently Protected by Beltz Dike



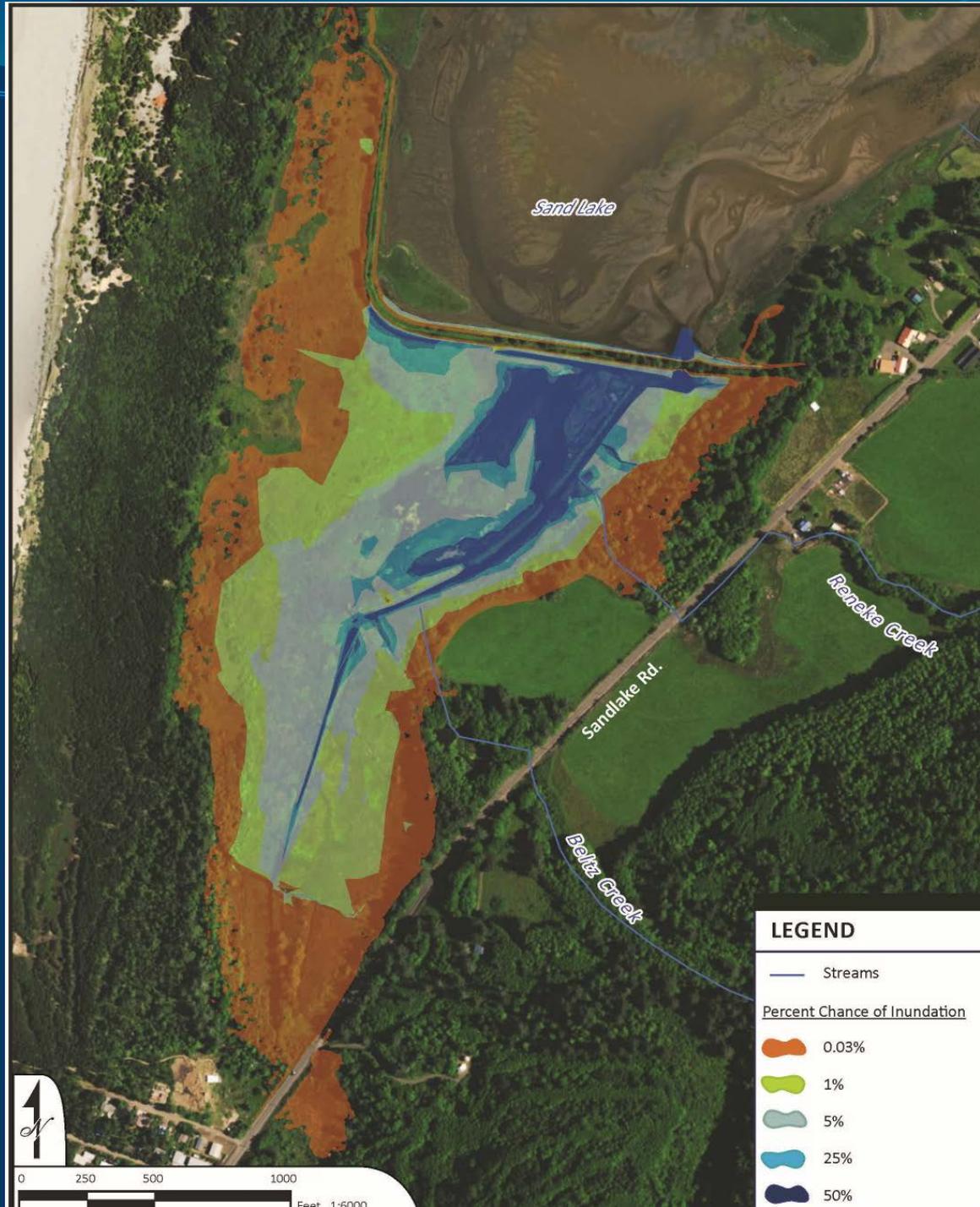
Preliminary Surface Water Model



Tidal Marsh Model Overview

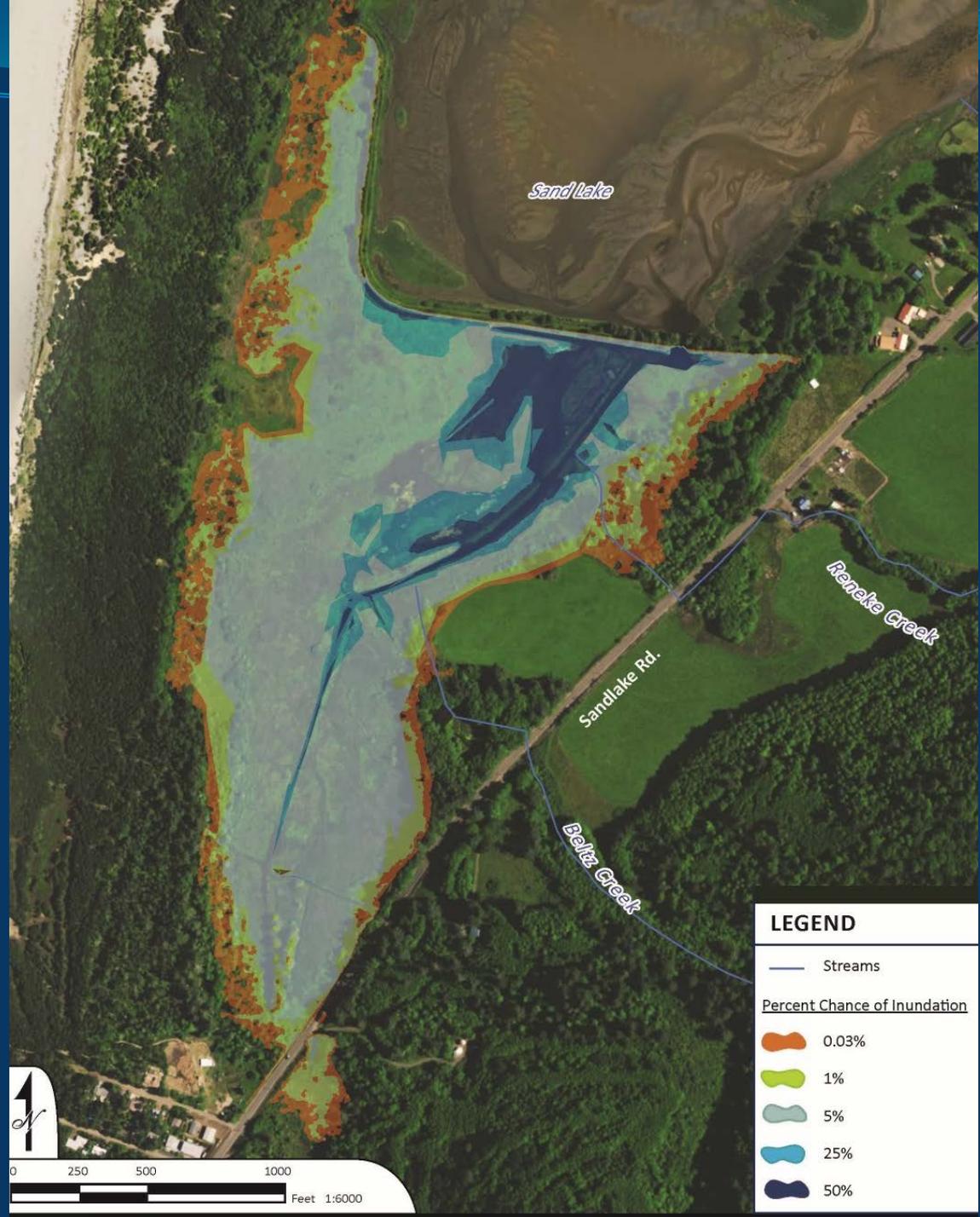
Preliminary Surface Water Study

Existing Conditions Model Results



Preliminary Surface Water Study

Dike Breach Model Results



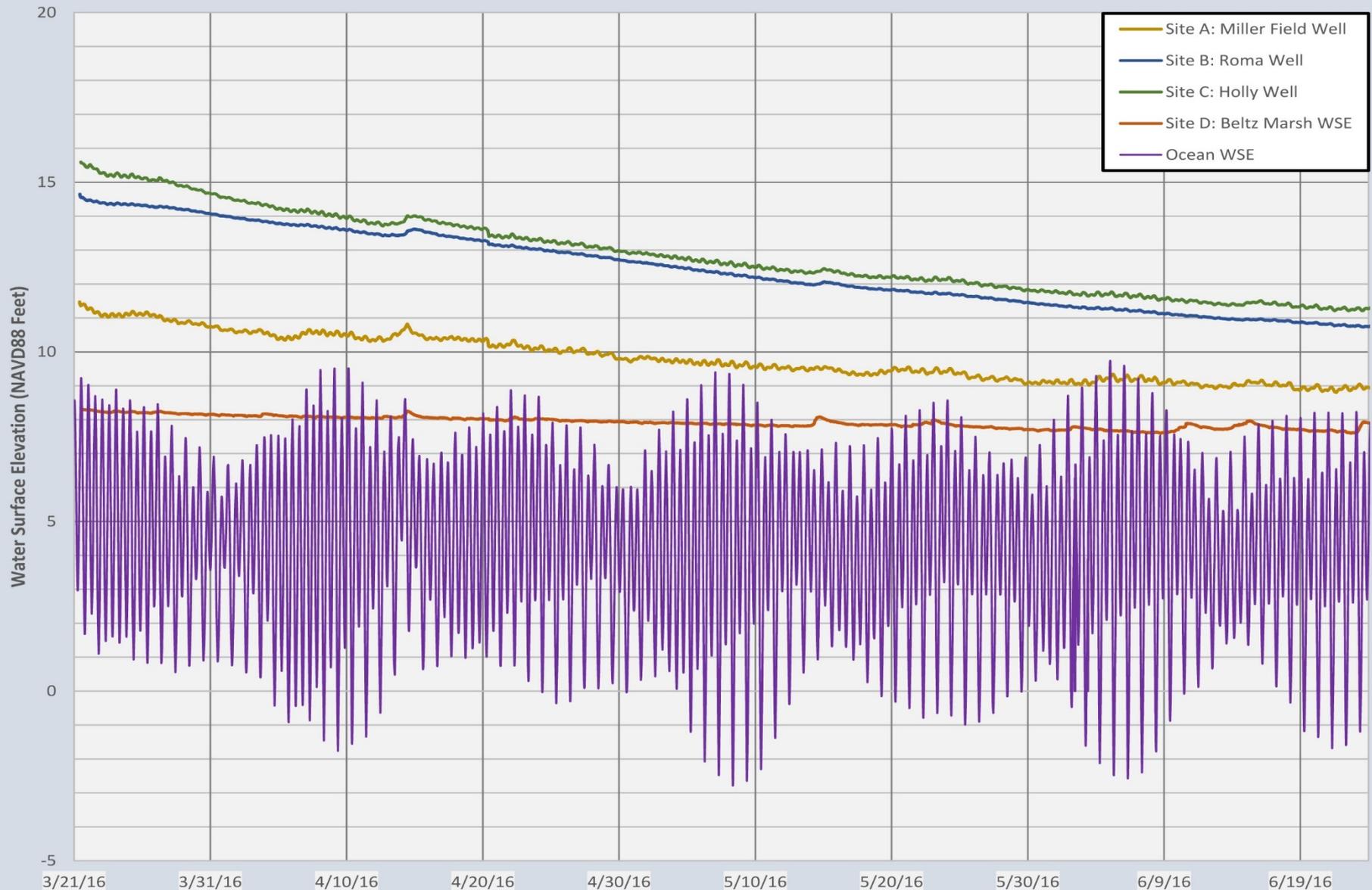
Preliminary GW Study



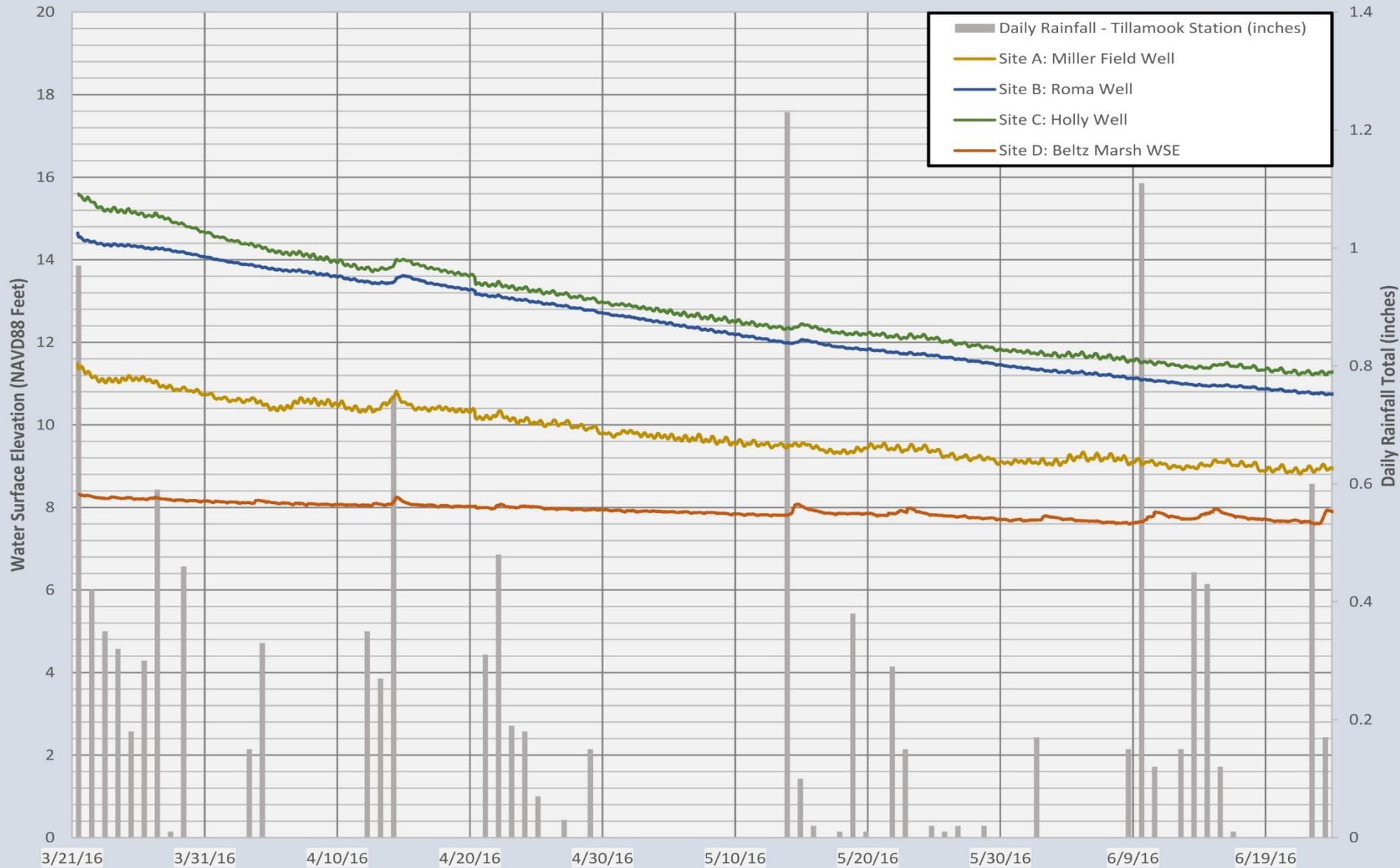
Preliminary GW Study

Site	Location	Cap elevation (feet NAVD88)	Sensor Elevation (feet NAVD88)	Ground Elevation (feet NAVD88)	Date of Deployment	Recording Interval (minutes)
A	Northwest of intersection of Roma Ave. and Sand Lake Rd	13.70	0.15	14.27	March 21, 2016	15
B	Located at west end of Roma Avenue	17.47	1.87	17.94	March 21, 2016	15
C	5905 Holly Avenue	18.60	4.20	19.11	March 21, 2016	60 ¹ /15
D	In Beltz Marsh just west of Sand Lake Road culvert	11.32	6.72	11.3 @ Sand Lake Road	March 21, 2016	15

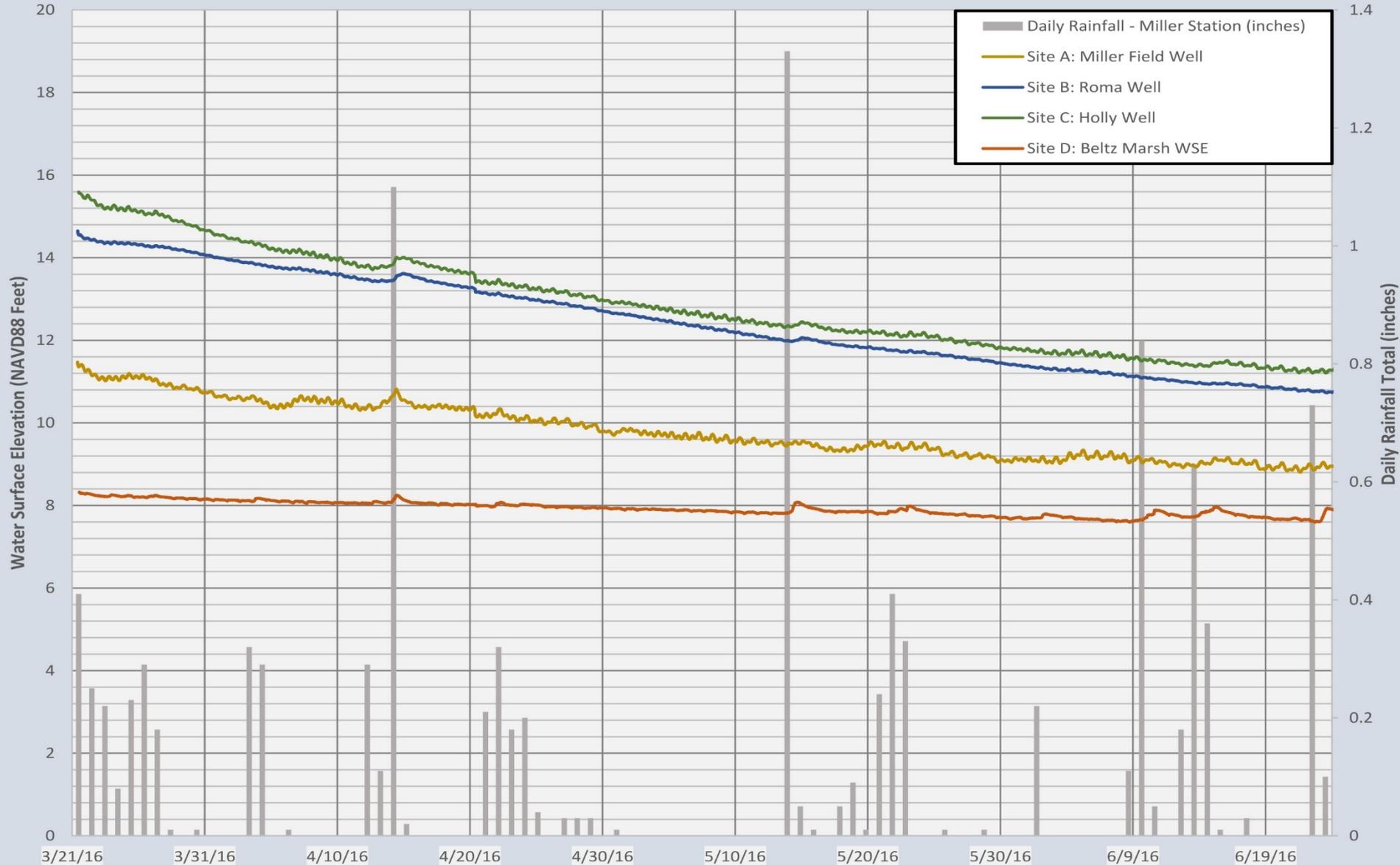
Preliminary GW Study



Preliminary GW Study



Preliminary GW Study



Preliminary GW Study

LEGEND

-  EXISTING CONTOURS
-  WATER TABLE CONTOURS
-  WATER TABLE SURFACE PROFILE
-  MONITORING LOCATION
-  FLOW DIRECTION

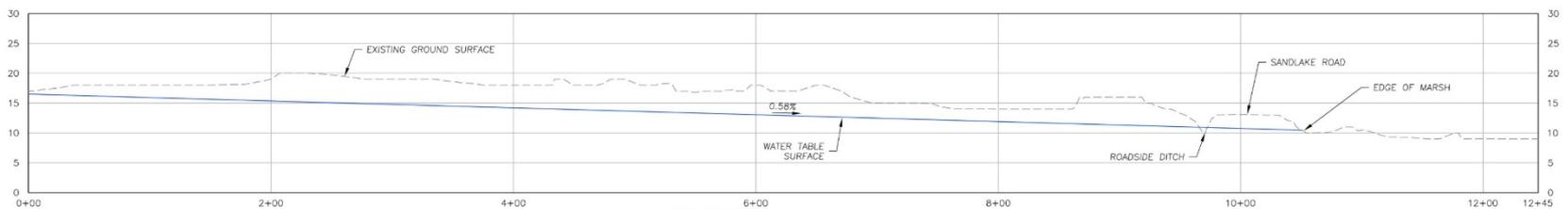


GROUNDWATER DATA FROM 3/21/16 • 2:00 PM

MONITORING LOCATION	WATER SURFACE B.G.S., FT	WATER SURFACE ELEVATION, (FT. NAVD. 88)
SITE A	2.88	11.39
SITE B	3.39	14.55
SITE C	3.55	15.56
SITE D	N/A	8.31

Image courtesy of USGS Earthstar

SITE PLAN
SCALE: 1" = 150'



SITE PROFILE
SCALE: 1" = 50' (H), 1" = 10' (V)

Work Plan – Overview

- Collect additional site data
 - Install additional GW wells
 - Install additional surface water monitoring sites
 - Assess geologic setting of shallow GW unit
 - Characterize soil conditions of GW study area
- Measure hydraulic conductivity of soils in TDM
- Collect continuous water surface data at monitoring sites through June 2017
- Develop and calibrate surface–groundwater interaction model
- Prepare and present existing conditions report
- Evaluate up to 8 future scenarios using model
- Prepare and present draft and final report

Work Plan – Meetings

Meeting 1

- Attended by OPRD, modeling team, and stakeholders
- Present existing conditions model results
- Solicit questions and comments
- Select up to 8 future scenarios for evaluation using the model

Meeting 2

- Attended by OPRD, modeling team, and stakeholders
- Present results of scenario evaluation
- Solicit questions and comments during and after meeting

Work Plan – Schedule

- Install additional monitoring wells and collect additional site data – September/October 2016
- Data collection from water level sensors – December 2016, March 2017, and June 2017
- Develop and calibrate existing conditions model – March 2017 through September 2017
- Existing Conditions Report – September 2017
- Meeting 1 – October 2017
- Evaluate future scenarios – November 2017
- Preliminary Groundwater Modeling Report – November 2017
- Meeting 2 – November/December 2017
- Final Groundwater Modeling Report – December 2017

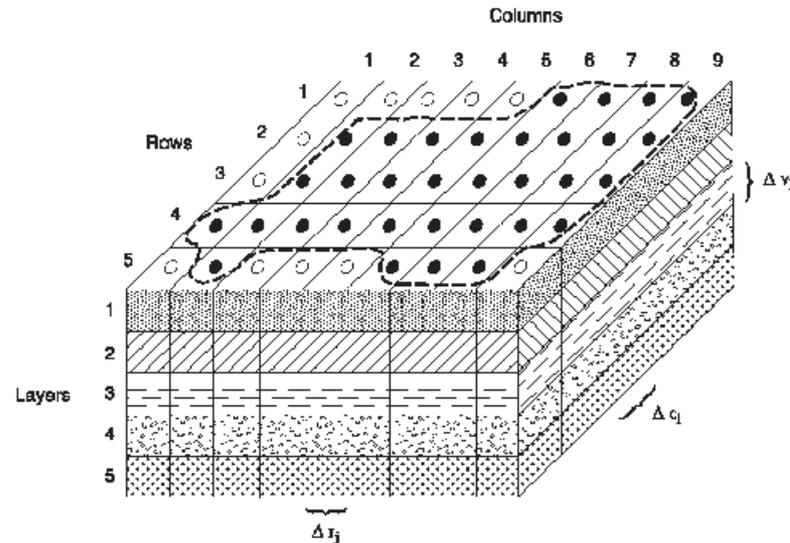
Groundwater Modeling

Software:
MODFLOW –
Industry standard
GW Flow model
developed by USGS.

Purpose:
Evaluate impact of
in water levels in
Beltz Marsh on
groundwater level
and flow in Terra
del Mar.



**MODFLOW-2005, The U.S. Geological Survey
Modular Ground-Water Model—the Ground-Water
Flow Process**

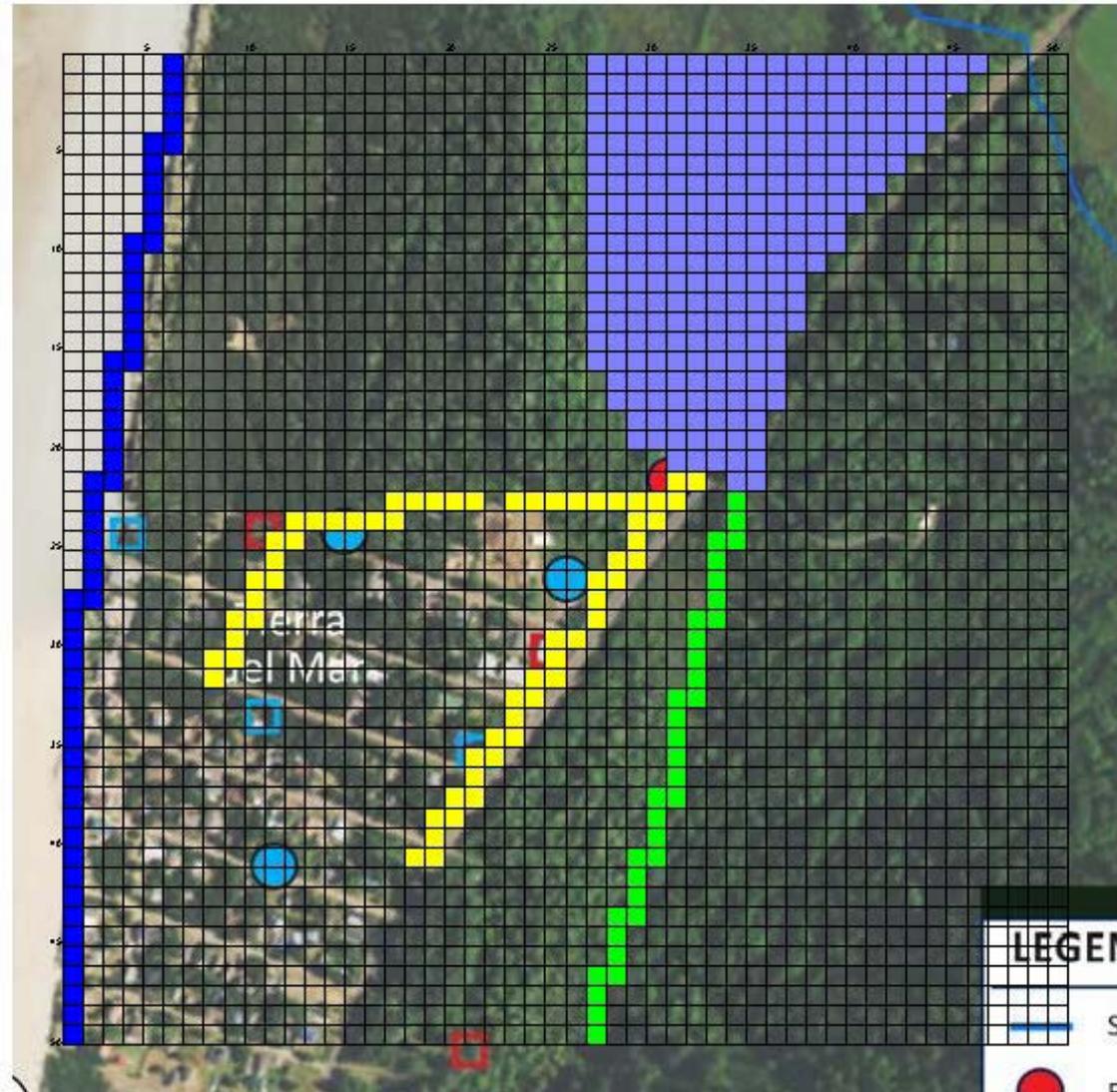


U.S. Geological Survey Techniques and Methods 6-A16

U.S. Department of the Interior
U.S. Geological Survey

Modeling Process

- Develop model structure from subsurface exploration data and best available information.
- Develop Existing Conditions Model
- Calibrate Existing Conditions Model
- Steady and Transient (Unsteady) Conditions
- Evaluate Future Scenarios



Work Plan

Additional Monitoring Sites

- New Surface Water Monitoring Sites

- *Sand Lake Estuary Site*
- *Beltz Marsh @ Dike Site*
- *Beltz Wetland near Austin Avenue Site*
- *Sand Lake Road Ditch Site*
- *TDM Ditch Site*

- New Shallow Groundwater Monitoring Wells

- *Jasmine Avenue Well #1*
- *Jasmine Avenue Well #2*
- *Sand Dune Well*

