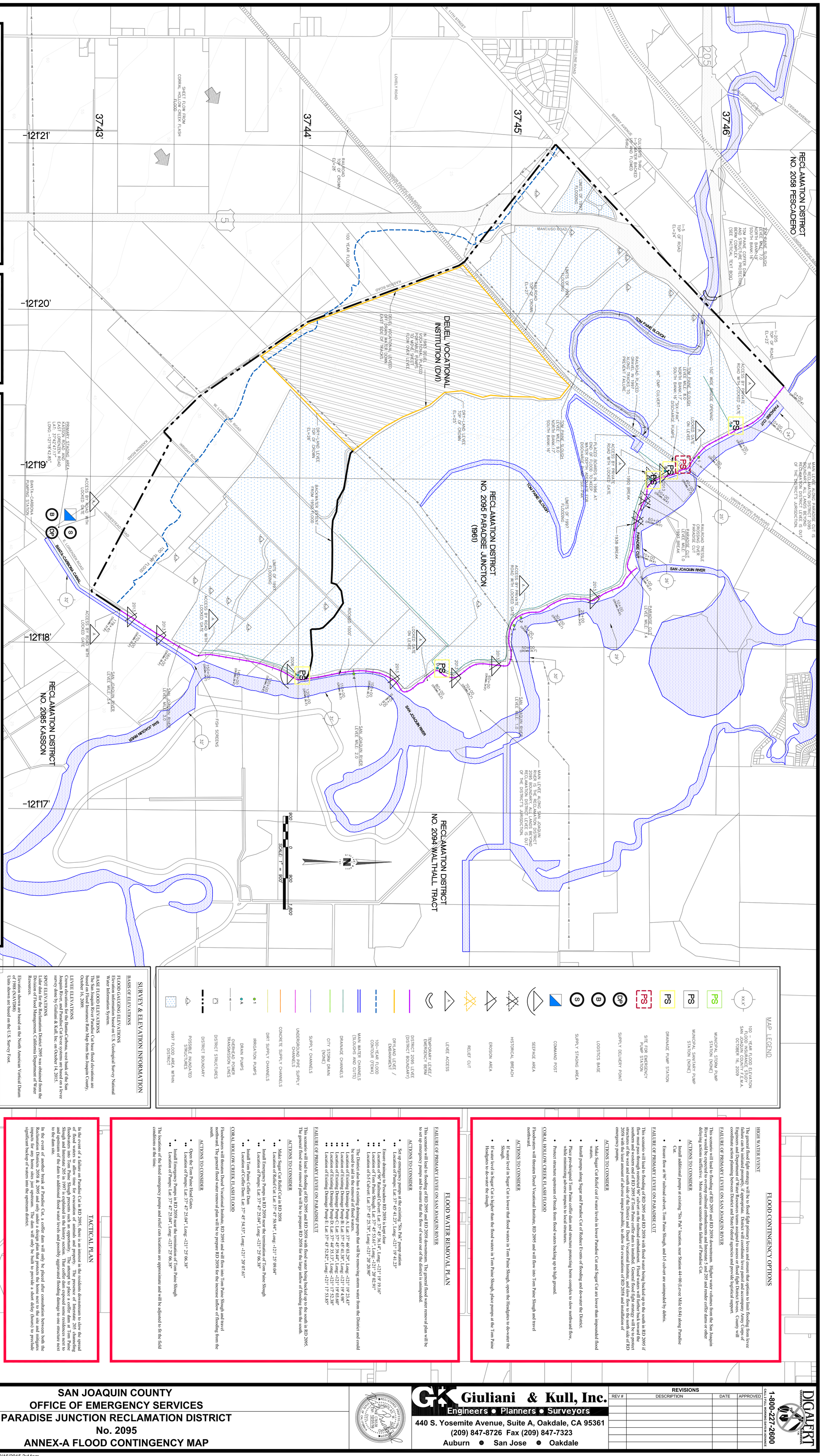
RECLAMATION DISTRICT NO. 2058 PESCADERO



MAP LEGEND

- XX.X' — 100 - YEAR FLOOD ELEVATION SAN JOAQUIN COUNTY F.E.M.A. OCTOBER 16, 2009
- PS — MUNICIPAL STORM PUMP STATION (NONE)
- PS — MUNICIPAL SANITARY PUMP STATION (NONE)
- PS — DRAINAGE PUMP STATION
- PS1 — SITE FOR EMERGENCY PUMP STATION
- DP — SUPPLY DELIVERY POINT
- B — LOGISTICS BASE
- S — SUPPLY STAGING AREA
- COMMAND POST
- SEEPAGE AREA
- HISTORICAL BREACH
- EROSION AREA
- RELIEF CUT
- A — LEVEE ACCESS
- TEMPORARY LEVEE/ EMERGENCY BERM
- DISTRICT 2095 LEVEE (DISTRICT BOUNDARY)
- DRYLAND LEVEE / EMBANKMENT
- 100--YEAR FLOOD CONTOUR (FEMA)
- MAIN WATER CHANNELS (SLOUGHS AND CUTS)
- DRAINAGE CHANNELS
- CITY STORM DRAIN (NONE)
- SUPPLY CHANNELS
- UNDERGROUND PIPE SUPPLY CHANNELS
- CONCRETE SUPPLY CHANNELS
- DIRT SUPPLY CHANNELS
- IRRIGATION PUMPS
- DRAIN PUMPS
- OVERHEAD POWER TRANSMISSION LINES
- DISTRICT STRUCTURES
- DISTRICT BOUNDARY
- POSSIBLE INUNDATED STRUCTURES
- 1997 FLOOD AREA WITHIN DISTRICT

FLOOD MONITORING STAGING

Vernalis Gauging Station
USGS ID#: 11303500
Latitude: 37.67604063
Longitude: -121.26652928

(NGVD 29)		(NAVD 88)	
Monitoring Stage - 24.5'	Monitoring Stage - 27.0'		
Flood Stage - 29.0'	Flood Stage - 31.5'		
Danger Stage - 29.5'	Danger Stage - 32.0'		

COMMUNICATION PLAN

RECLAMATION 2095

Communications equipment - The District will require that all District officials and volunteers have personal cellular phones for levee patrol.

Internal communications - Means of internal communications among district staff will be personal cellular telephones.

Communication with outside jurisdictions - Primary means of communications with outside jurisdictions will be personal cellular telephones.

EVACUATION PLAN

RESPONSIBLE AGENCIES

The Sheriff's Office of San Joaquin County, California Highway Patrol, and the San Joaquin County Sheriff's Department are responsible for alerting, warning and evacuation within Reclamation District 2095.

EVACUATION MAPS FOR GENERAL PUBLIC

Evacuation maps for the general public are available at www.sjmap.org/evacmaps. Full size maps can be accessed for posting at business and institutions and brochures (8.5"x11") with map and safety information for printing on standard home printers.

SPECIAL FLOOD CONSIDERATION

RECLAMATION 2095

Historic breaks in the District have been on Paradise Cut levees and flood extent shown has resulted from the flows from Paradise Cut. However, the highest flows in the San Joaquin River have not been through Paradise Cut. Paradise Cut flows typically peak before San Joaquin River flows peak. However if the San Joaquin River levee were to breach, the much higher flow from the river would likely cause more damaging than the flows experienced from Paradise Cut. The resulting larger flows could cut interstate highway and railroad embankments to the northwest at the culvert locations.

FLOOD FIGHT HISTORY

Flood Fight History - Impacts on West Bank of San Joaquin River from Banta-Carbona Canal to Paradise Cut

1950 - A series of unusually severe storms from November 13 to December 8 resulted in flows of 79,000 cfs at Vernalis on December 9. General flood characteristics was a rapid rise in river stages which lasted a couple days with a rapid decline in river stages. Paradise Junction RD 2095 levee breached down stream of Paradise Cut inlet, at location shown on map. Water backed up south of Paradise Junction RD2095 break and along the San Joaquin River (Baldwin after interview with Ralph Timan, RD 2085 & David Pellegri, RD 2095).

1997 - Heavy rains during period of December 30 to January 2 caused San Joaquin River flows estimated at over 70,000 cfs. Don Pedro Dam emergency releases caused a dramatic surge in San Joaquin River stages near Paradise Cut by late morning of January 4, 1997. Flows in excess of 15,000 cfs entered Paradise Cut situated on West Bank of San Joaquin River which was designed to relieve flows on the main stem of the river once the main stem of San Joaquin reaches stages that overtop a fixed concrete weir at the mouth of Paradise Cut. On January 5, 1997 the South Bank levee on Paradise Cut in RD2095 failed approximately one-half mile South of Interstate 5 bridge and near the site of the 1950 failure. District officials feel this area was vulnerable due to restriction of water flow by debris catching in railroad trestle over Paradise Cut which was vulnerable due to restriction of water flow by debris catching in railroad trestle over Paradise Cut and by the fact that the levee was not armored with rock. Water flow continued into Tom Paine Slough through 36" culverts under coffer dam. Due to these restrictions, flood waters backed up against levee protecting Deuel Vocational Institute and higher ground to West and South of Tom Paine Slough. On January 10, 1997 coffer dam failed allowing full flow of water to move north in Tom Paine Slough. RD2085 placed 19 pumps on Sugar Cut and Paradise Cut at north end of district to pump waters which began to flood north end of district and build back toward higher ground to southeast. District officials feel that delay provided by coffer dam provided time for placement of pumps that subsequently reduced extent of flooding in higher central portion of district. Placement of coffer dam caused more extensive flooding of four residences than would have occurred with unrestricted flow through Tom Paine Slough. (Baldwin after interview with Greg Pombo, Bob Pombo and Nat Bacchetti)

1998 - El Nino event caused intense rainfall events in Central Valley bottom land and adjacent foothills. Intense rainfall event caused Corral Hollow Creek in the Tracy foothills to flash flood creating extensive sheet flow south of the City of Tracy which drained toward junction of San Joaquin River and Paradise Junction. Sheet flow threatened Deuel Vocational Institute and flooded scattered rural structures. (Baldwin)

2006 - Spring flood occurred on San Joaquin River due to sustained rains in March that saturated ground culminating in a very heavy rainfall event on April 2 to April 4 which forced reservoirs to make large releases. Initial predictions of a 32' (NGVD 29) stage at Vernalis, combined with a forecasted additional large precipitation event, initiated a large flood fight operation. Precipitation event failed to occur and subsequent peak flow crested at 35,000 cfs at Vernalis Gauge causing a peak stage of 29.3 (NGVD 29). Erosion protection and seepage control work were necessary at nearly a dozen sites but no levees failed. Extensive seepage flooded numerous fields and some structures and seepage continued to hinder farm operations into the summer. (Baldwin after interview with Art Hinojosa)

SURVEY & ELEVATION INFORMATION

BASIS OF ELEVATIONS

FLOOD GAUGING ELEVATIONS
Elevation information based on U.S. Geological Survey National Water Information System.

BASE FLOOD ELEVATIONS
The San Joaquin River Paradise Cut base flood elevations are based on Flood Insurance Rate Map from San Joaquin County, October 16, 2009.

LEVEE ELEVATIONS
Crown elevations for the Banta-Carbona, west bank of the San Joaquin River, and Paradise Cut levee systems are based on a levee survey done by Giuliani & Kull, Inc. on October 14, 2015.

SPOT ELEVATIONS
Lidar data for the Reclamation District 2095 was obtained from the Division of Flood Management, California Department of Water Resources.

Elevation shown are based on the North American Vertical Datum of 1988 (NAVD88)
Units shown are based on the U.S. Survey Foot.

TACTICAL PLAN

In the event of a failure on Paradise Cut in RD 2095, there is an interest in the residents downstream to slow the spread of flood waters to allow time for evacuation of animals and property. The presence of Interstate 205 channeling floodwaters into Tom Paine Slough presents such an opportunity. The attempt to place a coffer dam at Tom Paine Slough would be in the vicinity of the Interstate 5 bridge. Placement of a coffer dam at this location would have the benefit that coffer dam would not impound water against Deuel Vocational Institute and higher ground to the West and South of Tom Paine Slough. Any flood waters backed up against the levee protecting Deuel Vocational Institute would likely cause more damaging flooding than the flows experienced from Paradise Cut. The resulting larger flows could cut interstate highway and railroad embankments to the northwest at the culvert locations.

In the event of another break at Paradise Cut, a coffer dam will only be placed after consultation between both the Reclamation Districts 2058 & 2095 and only under a design plan that protects the home next to the site and mitigates impacts for any home sites just upstream. The dam will only be built to provide a short delay (hours) to preclude significant backup of waters into the upstream district.

The locations of the listed emergency pumps and relief cuts locations are approximate and will be adjusted to fit the field conditions at the time.

FLOOD CONTINGENCY OPTIONS

HIGH WATER EVENT

The general flood fight strategy will be to flood fight primary levees and ensure that options to limit flooding from levee failure can be initiated promptly, if appropriate. District will coordinate levee patrol and accompany Army Corps of Engineers and Department of Water Resources teams assigned to assess of flood fight District levees. County will coordinate action planning between District and State/Federal agencies and provide logistical support.

FAILURE OF PRIMARY LEVEE ON SAN JOAQUIN RIVER

This scenario will lead to flooding of RD 2095 and RD 2058 downstream. Higher water volumes from the San Joaquin River would be expected to overtop railroad embankments and Interstate 5 and 205 and render coffer dams or other delaying actions ineffective. More serious scenario than failure of Paradise Cut.

ACTIONS TO CONSIDER

- Install additional pumps at existing "Six Pak" location, near Station 44+00 (Levee Mile 0.94) along Paradise Cut.
- Ensure flow at 96" railroad culvert, Tom Paine Slough, and I-5 culvert are unimpeded by debris.

FAILURE OF PRIMARY LEVEE ON PARADISE CUT

This scenario will lead to flooding of RD 2095 and RD 2058 with flood water being backed up to the south in RD 2095 if flow must pass through restricted 96" culvert on the railroad embankment. Flood waters will further back toward the southern and western end of RD 2095 if Tom Paine coffer dam is installed. General flood fight strategy will be to protect structures of the west and south side of the District and Deuel Vocational Institute, and slow flow to the north side of RD 2058 with the least amount of adverse impact possible, to allow for evacuations of RD 2058 and installation of emergency pumps.

ACTIONS TO CONSIDER

- Make Sugar Cut Relief cut if water levels in lower Paradise Cut and Sugar Cut are lower than impounded flood waters.
- Install pumps along Sugar and Paradise Cut of Reduce Events of flooding and de-water the District.
- Place pre-designed Tom Paine coffer dam and structure protecting berm complex to slow northward flow, while minimizing adverse impacts to local structures.
- Protect structure upstream of break from flood waters backing up to high ground.

CORAL HOLLOW CREEK FLASH FLOOD

Floodwaters will threaten Deuel Vocational Institute, RD 2095 and will flow into Tom Paine Slough and travel northward.

ACTIONS TO CONSIDER

- If water level in Sugar Cut is lower that flood waters in Tom Paine Slough, open the Headgates to de-water the Slough.
- If water level in Sugar Cut is higher than the flood waters in Tom Paine Slough, place pumps at the Tom Paine Headgates to de-water the slough.

FLOOD WATER REMOVAL PLAN

FAILURE OF PRIMARY LEVEE ON SAN JOAQUIN RIVER

This scenario will lead to flooding of RD 2095 and RD 2058 downstream. The general flood water removal plan will be to set up emergency pumps and to ensure that the flow of water out of the district is unimpeded.

ACTIONS TO CONSIDER

- Set up emergency pumps at the existing "Six Pak" pump station
  - Location of Pumps: Lat: 37° 45' 41.23"; Long: -121° 19' 41.23"
- Ensure drainage to Pescadero RD 2058's is kept clear
  - Location of 96" Railroad Culvert: Lat: 37° 45' 56.14"; Long: -121° 19' 19.16"
  - Location of Tom Paine Slough Culvert: Lat: 37° 45' 53.34"; Long: -121° 20' 02.91"
  - Location of I-5 Culvert: Lat: 37° 45' 25.78"; Long: -121° 20' 20.90"
- The District also has 6 existing drainage pumps that will be removing storm water from the District and could be used to aid in the removal of flood waters.
  - Location of Existing Drainage Pump A: Lat: 37° 46' 03.39"; Long: -121° 19' 23.43"
  - Location of Existing Drainage Pump B: Lat: 37° 45' 41.38"; Long: -121° 19' 43.98"
  - Location of Existing Drainage Pump C: Lat: 37° 45' 44.34"; Long: -121° 19' 44.98"
  - Location of Existing Drainage Pump D: Lat: 37° 44' 58.37"; Long: -121° 17' 53.38"
  - Location of Existing Drainage Pump E: Lat: 37° 43' 52.82"; Long: -121° 17' 53.85"

FAILURE OF PRIMARY LEVEE ON PARADISE CUT

This scenario will lead to flooding of RD 2095 and RD 2058 with flood water being backed up to the south in RD 2095. The general flood water removal plan will be to prepare RD 2058 for the large inflow of flooding from the south.

ACTIONS TO CONSIDER

- Make Sugar Cut Relief Cut in RD 2058
  - Location of Relief Cut: Lat: 37° 47' 50.94"; Long: -121° 25' 09.04"
- Install Emergency Pumps in RD 2058 near the termination of Tom Paine Slough
  - Location of Pumps: Lat: 37° 47' 25.04"; Long: -121° 25' 06.38"

CORAL HOLLOW CREEK FLASH FLOOD

Floodwaters will threaten Deuel Vocational Institute, RD 2095 and will flow into Tom Paine Slough and travel northward. The general flood water removal plan will be to prepare RD 2058 for the increase inflow of flooding from the south.

ACTIONS TO CONSIDER

- Open the Tom Paine Head Gates
  - Location of Pumps: Lat: 37° 47' 25.04"; Long: -121° 25' 06.38"
- Install Emergency Pumps in RD 2058 near the termination of Tom Paine Slough
  - Location of Pumps: Lat: 37° 47' 25.04"; Long: -121° 25' 06.38"

SUPPLY DELIVERY POINTS

RECLAMATION DISTRICT 2095

#1: Banta-Carbona Pumping Station at the intersection of Banta-Carbona Canal and Kasson Road

LEVEE PATROL PLANS

RECLAMATION DISTRICT 2095

Continuous 24-hour levee patrols of both San Joaquin River and Paradise Cut will be initiated by the incident commander once the water elevation at the Vernalis gauge reaches 28.0' or by the direction of the San Joaquin County Office of Emergency Services. The staging location will be the Banta-Carbona Pumping Station.

The motor patrol will consist of the following:

- One four wheel drive vehicle with cell phones.
- Patrol vehicles will normally operate with two observers per vehicle.
- Patrol observers will be equipped with 2-way radios.
- Completion of a Division Activity Log will be required for each shift.
- All members will receive a safety briefing and utilize appropriate safety gear

LATH PROTOCOL

Red - Boil/Seepage, Blue - Rock Slippage, White - Slope/Levee Distress

SAN JOAQUIN COUNTY
OFFICE OF EMERGENCY SERVICES
PARADISE JUNCTION RECLAMATION DISTRICT
No. 2095
ANNEX-A FLOOD CONTINGENCY MAP

SCALE	1" = 900'
DRAWN BY	NWP
DESIGNED BY	NWP
CHECKED BY	WFK
DATE	12/15/15
SHEET	1
OF	1
JOB NO.	15205

REGISTERED PROFESSIONAL ENGINEER — William F. Kull — No. C 053178 — Civil — STATE OF CALIFORNIA

Giuliani & Kull, Inc.
Engineers ● Planners ● Surveyors
440 S. Yosemite Avenue, Suite A, Oakdale, CA 95361
(209) 847-8726 Fax (209) 847-7323
Auburn ● San Jose ● Oakdale

REVISIONS

REV #	DESCRIPTION	DATE	APPROVED

DIGALERT — 1-800-227-2600 — CALL 2 FULL WORKING DAYS IN ADVANCE

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