



# THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

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## THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

Project Status Report dated June 8, 2009

(Submitted to The Central Valley Flood Protection Board for the June 19, 2009 meeting)

A progress report of the various phases of the Three Rivers Levee Improvement Authority (TRLIA) project is provided in the followings sections of this document. Updates are indicated with italics and underline.

### 1. Administrative and Other Items:

- a. TRLIA Counsel drafted a letter to Board Counsel to confirm the parties' understanding that there is no need to amend the Second Implementation Agreement as a result of the changed funding sources and that TRLIA and Yuba County have met their obligations in regard to regulating development. Board Counsel has agreed with TRLIA Counsel's understanding and has referred the matter to the Board Executive Officer.
- b. DWR has submitted Prop 1E payment requests to the State Controller's office for the TRLIA EIP Feather River Levee project. As of 6-8-09 TRLIA has not received this next payment from the State.
- c. On June 2, 2009 TRLIA formed a Benefit Assessment District to pay for levee maintenance on the improved RD784 levees. The weighted percentage of the ballots returned supporting formation of the Assessment District was 62% which meets the conditions of Proposition 218. Levee assessments will begin Fiscal Year 2009-2010.

### 2. Levee Design and Construction Work:

- a. **Phase 4 – Yuba River Levee between Simpson Lane and the Goldfields:**
  - 1) TRLIA has submitted a \$67 million application to DWR for this fiscal year EIP program. The DWR decision document and funding agreement are anticipated to be executed this month (June 09).
- b. **Phase 4 – Feather River Levee between Bear and Yuba Rivers:**
  - 1) **Segment 1:**
    - a) Segment 1: Nordic Inc. is done with levee work except for future work required for the crack (next item in this report).

b) Segment 1 Crack: TRLIA continues to monitor the site. Updated information is being shared with the Corps, DWR and the CVFPB. The site continues to stabilize. Movement has essentially ceased. TRLIA met with CVFPB and DWR Technical Personnel on April 17 to resolve final technical questions and agree on a repair for the crack. Based on the discussions from the April 17<sup>th</sup> meeting TRLIA provided on April 24<sup>th</sup> a Final Draft of a consolidated comprehensive Technical Memorandum on the crack which included a proposed repair. This Technical Memorandum was sent to a wide range of individuals in the CVFPB, the Corps and DWR. At the conclusion of the April 17<sup>th</sup> meeting between CVFPB, DWR and TRLIA, DWR stated that it would provide meeting notes that would summarize the discussion that occurred. These notes were received on the afternoon of April 24, 2009 after TRLIA had sent the consolidated Technical Memorandum report. These meeting notes contained several unresolved issues that were not mentioned at the April 17<sup>th</sup> technical meeting. To address these meeting notes, TRLIA provided on May 18, 2009 an addendum to the consolidated Technical Memorandum. The addendum provided responses to each additional unresolved issue identified in the meeting notes. On April 27 the CVFPB provided a letter to TRLIA that transmitted and agreed with a DWR letter dated April 17<sup>th</sup> which stated DWR considers the Segment 1 crack incident as unresolved and will not recommend to the Board acceptance of the proposed corrective action until a more comprehensive evaluation is received and reviewed. TRLIA understands the main reason that the issue with the crack is considered unresolved is due to the lack of a consolidated comprehensive Technical report that both CVFPB and DWR technical people can review. As stated TRLIA has supplied that Technical report and an addendum. TRLIA is waiting for comments on the Technical Memorandum and the proposed crack repair project. On June 3, 2009 TRLIA provided an independent expert assessment by Dr. Les harder on the Crack to the CVFPB, DWR, and the Corps. The conclusions of that assessment are attached to this Status Report.

2) **Segment 2:**

a) Part A of encroachment permit:

- Earth moving operations began in late April and are currently placing 30,000 cubic yards of embankment each day depending on the weather.
- On April 9, 2009, the State Mining and Geology Board (“SMGB”) heard TRLIA’s request for an exemption from the California Surface Mining and Reclamation Act (“SMARA”). TRLIA sought a determination that the Platter/JTS Borrow and the Ella Borrow sites were each exempt from SMARA as either onsite construction or as a one-time exemption (Public Resources Code § 2714(b), (f).). At the SMGB meeting the Board voted unanimously to require TRLIA to submit a reclamation plan and financial assurances for the two borrow sites. However, the Board also made it clear at the meeting that they wanted the project to continue given public safety concerns if the project was delayed. On April 15<sup>th</sup> the SMGB issued TRLIA an Order to Comply for surface mining operations at the Platter/JTS and Ella borrow sites. The SMGB Order transmittal letter and Order require TRLIA to accomplish the following items:

1. Letter: Provide proposed interim financial assurance amount to SMGB by April 30<sup>th</sup>. Status: Submitted on April 17, 2009. SMGB approved at meeting on May 14. TRLIA is now posting the bonds for the interim financial agreement.
2. Order: Obtain an approved SMGB State Reclamation Plan by July 9<sup>th</sup> for the Platter/JTS and Ella Borrow sites. Status: The plan was submitted on May 1. SMGB comments on the plan were received on June 2. TRLIA is now making the edits to the plan and will provide an updated plan to SMGB by mid June. The SMGB will consider approving the plan at their July 9, 2009 meeting.
3. Order: Obtain approved SMGB financial assurance by July 9<sup>th</sup> for the Platter/JTS and Ella Borrow sites. Status: These financial assurances are being work concurrently with the Reclamation Plan and may be the same as the interim financial assurances that are now being bonded for by TRLIA in item 1 above.
4. Order: Obtain an approved County surface mining permit. Status: TRLIA has coordinated the SMGB action with Yuba County. The County has determined that the Ella site does not require any further permits, and that the Platter/JTS site does require a mining permit. Per discussion with the County, TRLIA has applied for an Ordinance amendment that provides a process for the County to allow for excavation/earthwork (mining) for flood protection purposes at the Platter/JTS site in a residential zone (not currently allowed). The CUP is for the actual mining activity for that portion of the project that is not exempt from SMARA.

b) Part B: of encroachment permit:

- An intact archaeological feature and prehistoric cultural midden deposit including skeletal elements of an infant and an adult have been discovered in the vicinity of the south tie-in of the setback levee. The subsurface material is within the footprint of the proposed levee and stabilization berm. Efforts to more precisely determine the lateral extent of the site have been completed. TRLIA continues coordination with the Corps and the Enterprise Rancheria according to the protocols established in the adopted Historic Properties Treatment Plan to determine mitigation measures to offset impacts at this cultural site. Construction at the southerly tie-in will be delayed until later in the 2009 construction season pending the outcome of what needs to be done. The Rancheria has agreed on an alternative design (widen levee and cover the cultural site) at the cultural site. TRLIA submitted on May 29 revised plan sheets and a settlement analysis for this design modification to the CVFPB, DWR and the Corps for their review. TRLIA will continue coordinating with these reviewers for their comments and eventual approval of the modification.
- Department of Fish and Game (DFG) has not finalized the 2081 permit. This impacts work in the South Tie-In area.

- The tie-in foundation and continuing embankment work was awarded on April 22 to Teichert. Work continues on the foundation slurry wall at the North Tie-In. The existing levee at the north tie-in connection has been degraded so that the tie-in can be completed.

c) **Existing Levee Degrade:** TRLIA submitted an encroachment permit application on November 17, 2008 for degradation of the existing Feather East levee being replaced by the Feather Setback levee. Degradation is proposed to begin when the Setback Levee is substantially complete around mid summer 2009. *The proposed encroachment is on the June 2009 Board meeting agenda for consideration.*

3) **Segment 3:** TRLIA plans to construct erosion protection this summer at the confluence of the Feather and Yuba Levees in Segment 3. This erosion protection was identified as necessary by the Corps of Engineers and required before this reach of levee could be certified. TRLIA has applied for an encroachment permit and has asked that this permit be considered at the July Board Meeting.

**3. Building Permits Issued in Plumas Lake Specific Plan Area and North Arboga Study Area in 2009:**

- a. The attached table and graph provides information related to residential building permits issued for the Plumas Lake Plan Area (PLSPA) and the North Arboga Study Area (NASA) within Yuba County in 2009.
- b. As shown in the table, a total of 34 building permits have been issued in 2009. Sixteen of the permits were issued in May of 2009.

Attachments:

1. Segment 1 Crack Independent Review Conclusions
2. Building permit graphic
3. Building permit table

## Attachment 1

### **Conclusions from Independent Review of Feather Segment 1 Crack**

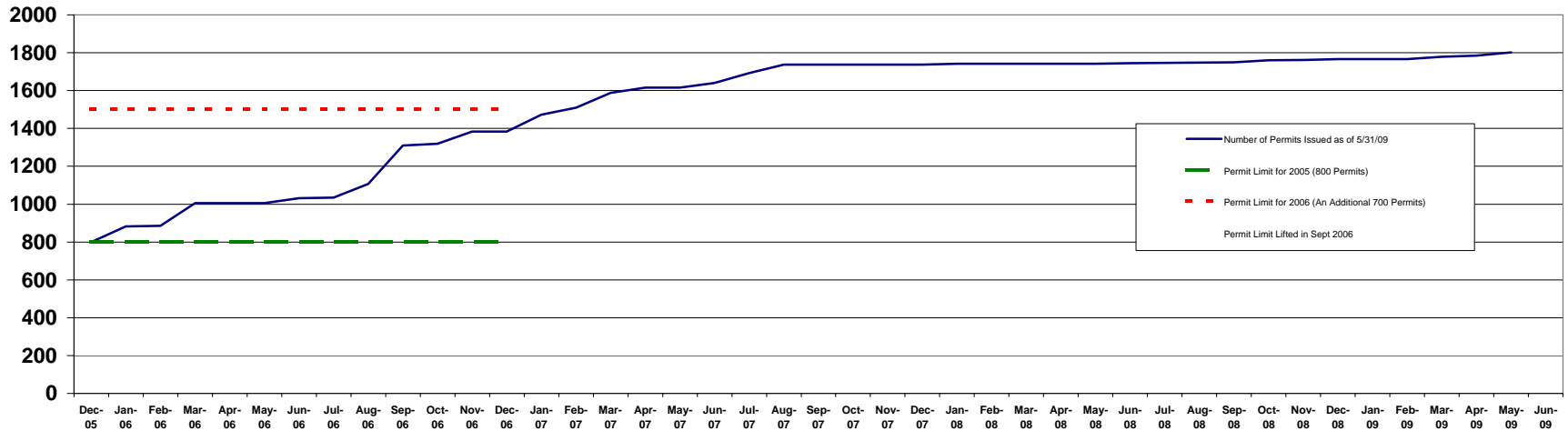
1. The post-cracking investigations completed by GEI show that the longitudinal cracking on the landside slope of the levee between Station 220+75 and 226+50 is largely associated with medium-stiff clays lying between Elevations +5 and +35 feet. The cracking appears to be a tension crack with a small amount of downslope shear corresponding to relatively small deformations in the foundation and embankment towards the cutoff wall. The medium-stiff clay deposit is coincident with the length of cracking and may be the result of sedimentation within an older river channel.
2. There are no indications that the soil block between the riverbank and the cutoff wall is moving towards the river. The inclinometer installed at the riverbank shows no significant movements and the inclinometer on the waterside edge of the cutoff wall shows small movements towards the cutoff wall and away from the river.
3. There appears to have been two critical loading conditions when the levee had marginal stability towards the cutoff wall: one while there was only bentonite-water slurry in the trench, and the other after the trench was backfilled with the soft soil-bentonite mixture and when the waterside slope of the levee was reconstructed. This latter point in time is coincident with the discovery of cracking.
4. The suggestion that a portion of the cracking was associated with consolidation of the foundation clays by the reconstruction of the waterside slope is not persuasive.
5. The stability of the levee is expected to increase with time as the soil-bentonite backfill continues to age and transition more towards a solid clayey soil. However, additional loadings, such as rapid drawdown, earthquake, or the addition of new fill could induce additional cracking due to strain incompatibility associated with a dry, stiff levee embankment overlying deformable clays and set against a soft vertical wall. This potential future cracking would be expected to be similar in nature and magnitude to what developed in September 2008.
6. GEI appears to have completed the designs with an adequate standard of care. In the area of cracking, the pre-existing borehole completed by the Corps, 2F96-1, may have given unrepresentative or erroneously high blow counts that were relied upon during the design. In addition, the apparent good performance of a similar SB wall completed in 1997 in the same general area gave indications that there would not be a problem with the 2008 wall.
7. It is unlikely that instrumentation would have given advance warning of the cracking that would have been sufficient to prevent the deformations and the cracking. It is likely that by the time the instruments registered the small movements that took place, the levee would already have cracked.

Attachment 1 - Feather Segment 1 Crack Independent Review Conclusions  
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8. Using backhoe trench cuttings as an indicator of potentially soft soils would not be expected to be useful as the cuttings are a highly remolded and sloppy mix of soil and bentonite-water slurry. Further, there are no “soft” soils to discover – the clays in question are medium-stiff. Field classifications of the cuttings actually tended to describe them more as stiff or very stiff as opposed to medium-stiff, and thus would not have been helpful.

9. The 2008 cracking of the Feather River East Levee represents a wake-up call that levee engineers practicing in the Central Valley need to heed. Prior to this event, the potential for such levee movements was generally considered to be remote given the apparent good performance of similar walls. Given the 2008 event, engineers who are designing such walls should be very cognizant of this potential behavior and design their levee improvements with this in mind. In some cases, more conservative designs may be appropriate. Already, other projects (e.g. Sacramento River East Levee, Natomas Levee Improvement Project) are considering design modifications as a result of the cracking experienced in the Feather River East Levee.

### Building Permits Issued in TRLIA Project Area



**Plumas Lake Specific Plan Area and North Arboga Study Area - Building Permits Issued in 2009**

Developer/Builder	Monthly Building Permits Issued for Plumas Lake and North Arboga Study Area												Total (By Builder)	
	Jan-09		Feb-09		Mar-09		Apr-09		May-09		Jun-09			
	Plumas	NASA	Plumas	NASA	Plumas	NASA	Plumas	NASA	Plumas	NASA	Plumas	NASA		
KB Homes North Bay						11		7	16					34
Cresleigh Homes														0
Forecast Homes/K Hovnanian														0
Homes by Towne/HBT Constr.														0
Beazer Homes														0
California Homes/Home Builders														0
Cassano Kamilos Homes														0
D.R. Horton/Western Pacific														0
Other														0
<b>Monthly Totals</b>	<b>0</b>		<b>0</b>		<b>11</b>		<b>7</b>		<b>16</b>		<b>0</b>		<b>34</b>	

**Total Permits for 2009 34**  
As of May 31, 2009