



THREE RIVERS LEVEE IMPROVEMENT AUTHORITY

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Project Status Report dated April 6, 2007
(Submitted to The Reclamation Board for the April 20, 2007, 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.

State Reclamation Board TRLIA Sub-Committee Meeting: On March 22, 2007 the State Reclamation Board sub-committee met in Marysville to discuss the following topics:

- A. Response to February 26, 2007 public comments on TRLIA compliance with Yuba River South levee permit conditions (*TRLIA and Reclamation Board Staff*)
- B. Status and plans for the Phase 4 of Feather River Improvement Program
 - I. Status of State Review of Hydraulic Analysis (*DWR Staff*)
 - II. TRLIA cash flow projection for existing and future Right-of-Way and project expenditures (*TRLIA and Reclamation Board Staff*)
 - III. Funding potential from Proposition 1E and/or 84 for Phase 4 Feather River Improvement Program (*DWR or Reclamation Board Staff*)
 - IV. Revised TRLIA Financing Plan (*TRLIA*)
 - V. Report back on maintenance responsibility (*TRLIA*)

Corps Certification: On 14 December 2006 TRLIA requested the Corp of Engineers to certify portions of RD 784's levee system, as outlined below:

1. Yuba River (south levee): From Hwy 70 to Simpson Lane
2. Yuba River/Feather River (east levee) from Hwy 70 to Island Ave. (removed from the TRLIA certification request – see March 2007 report)
3. Bear River (north levee): From Western Pacific Interceptor Canal to Feather River
4. Western Pacific Interceptor Cana (west levee): From Highway 70 to Bear River

On 30 January 2007 the Corp of Engineers sent a letter to TRLIA that provided the status of their certification effort. The Corp letter asked TRLIA for additional information. Provided below is the status of the remaining open items mentioned in the January 30, 2007 Corps Letter to TRLIA with respect to certification. See the March 2007 TRLIA report for other items listed in the 30 January 2007 Corp of Engineers letter.

- a. **Provide all Construction Records to verify that levees were built according to the design** –TRLIA has provided a construction report on Phases 1, 2, and 4 (Yuba) and a separate construction report on Phase 3 (Bear Setback Levee) to the Corps. The corps has provided some review comments on these reports, TRLIA consultants have responded to the comments and the Corps is reviewing these responses.
- b. **Provide information to show that utility crossings meet current Corps and State of California Criteria** – TRLIA has sent letters to all utilities with levee crossings asking that they supply information on the crossing. This information will be reviewed to determine if standards have been met. If not, TRLIA will work with the utility to have the crossing modified. The Corps has requested documentation of meeting the standard or a plan to meet the standard by April 30, 2007. The following utilities have been contacted:

Kinder Morgan – 1 Crossing – Has Responded.
PG&E – 3 Gas Line Crossings – No Response
AT&T – 3 Communication Line Crossings – No Response
Sprint – 3 Communication Line Crossings – No Response
Comcast – 1 Communication Line Crossing – No Response

The utilities are slow in responding. TRLIA has contacted all of the utilities by phone asking for their information. TRLIA is seeking the assistance of the Reclamation Board by asking them to send letters to the utility companies to provide the asbuilt information to document that the crossings were constructed according to the conditions in their encroachment permits. We do not believe this lack of response will delay certification, but it will remain an issue that must be resolved and we will need the Reclamation Board's assistance in the resolution.

Levee Design and Construction Work

Phase 2 Levee Repair - Bear River Station 131 and easterly, Western Pacific Interceptor Canal and Yuba River from just east of Highway 70 to the Union Pacific Railroad:

- a. This reach of levee is under evaluation by the Corps for certification.
- b. The State Reclamation Board has accepted and is processing the encroachment permit application for the Caltrans detention basin as agreed to at the February State Reclamation Board meeting.
- c. TRLIA has repaired the surface scrape that was identified on the landside of the Yuba River levee near the UPRR. This work was done under an encroachment permit variance.
- d. The completed levee work is being inspected for erosion damage during winter rains and erosion prevention measures are being maintained as necessary via routine operations and maintenance activity.

Phase 3 Construction – Bear River Setback Levee between the Feather River Levee and the limit of Phase 2 Construction:

- a. This reach of levee is under evaluation by the Corps for certification.
- b. Restoration plantings are being monitored and maintained.

- c. The completed levee work is being inspected for erosion damage during winter rains and erosion prevention measures are being maintained as necessary via routine operations and maintenance activity.

Phase 4 – Yuba River Levee between the Union Pacific Railroad and the Goldfields:

- a. The reach of this levee from the UPRR to Simpson Lane is under evaluation by the Corps for certification.
- b. The completed levee work is being inspected for erosion damage during winter rains and erosion prevention measures are being maintained as necessary via routine operations and maintenance activity.
- c. Design continues on the erosion problem that exists just downstream of the Goldfields. This was a site of erosion during the 1997 event.

Phase 4 – Feather River Levee between Bear and Yuba Rivers:

- a. Segments 1, 2, and 3: On 29 March 2007 DWR posted the application form for Prop 1E funding on their web page and has asked for applications to be submitted by 1 May 2007. TRLIA is completing the application form. DWR has indicated that if the TRLIA application is approved for funding then a State agreement might be able to be accomplished by June with early project funding in July.
- b. Segments 1 and 3 which will be strengthened in place have been advertised for construction. Award of this contract is anticipated to occur in mid May to early June. Depending upon available funding, the improvements planned for Segment 1 might be accomplished in the 2008 construction season. The encroachment permit for this work is on today's State Reclamation Board Agenda. We are concerned that the Corps recent requirement for SAFCA to obtain 408 approval for slurry wall work may impact our Segment 1 & 3 construction schedule. It is unclear what the schedule implications are at this time.
- c. Segment 2 design and land acquisition is underway. The Section 104 credit request for this work is on today's State Reclamation Board Agenda.



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Supplemental to Project Status Report dated April 6, 2007

(Submitted to The Reclamation Board for inclusion in the April 20, 2007, meeting agenda)

Discontinue Supplemental Status Report: This will be the last supplemental status report that the Reclamation Board will receive. It is TRLIA's intent to complete a comprehensive update in the regular scheduled written report, which will include the building permit information. This should preclude the need for a supplemental report. This new process will begin in May.

State Reclamation Board TRLIA Sub-Committee Meeting: On March 22, 2007 the State Reclamation Board sub-committee met in Marysville. Attached to this Supplemental Status Report is the compliance update memorandum provided to the members of the sub-committee.

Building Permits Issued in Plumas Lake Specific Plan Area and North Arboga Study Area in 2007: 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 2007.

As shown in the table, a total of 205 building permits have so far been issued in 2007. 800 Permits were issued in 2005 and 583 permits in 2006.

- Table - Permits issued within PLSPA and NASA in 2007
- Graph – Building Permits Issued in TRLIA Project Area (Dec 2005 – Mar 2007)

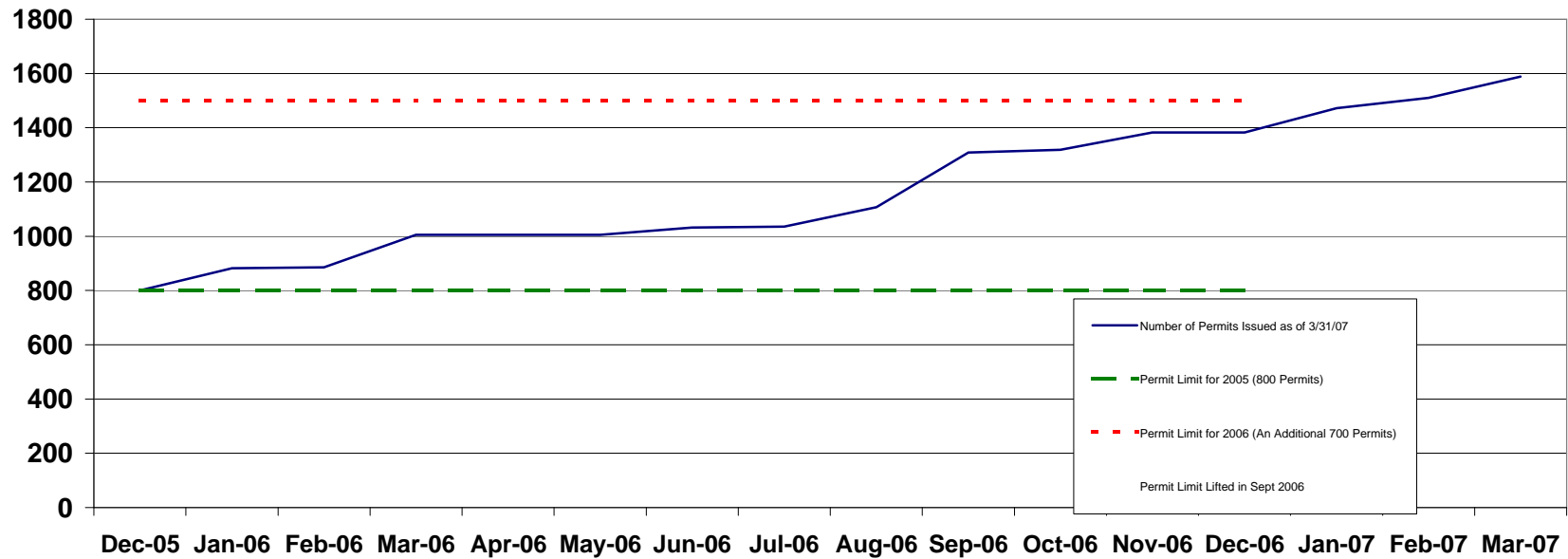
Plumas Lake Specific Plan Area and North Arboga Study Area - Building Permits Issued in 2007

Developer/Builder	Monthly Building Permits Issued for Plumas Lake and North Arboga Study Area								Total (By Builder)
	Jan-07		Feb-07		Mar-07		Apr-07		
	Plumas	NASA	Plumas	NASA	Plumas	NASA	Plumas	NASA	
KB Homes North Bay	28	15	17	4	18	8			90
Cresleigh Homes			5		9				14
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					4				4
Other		46	2	10		39			97
Monthly Totals	89		38		78		0		205

Thru 3/31/07

Total Permits for 2007 Thus Far 205

Building Permits Issued in TRLIA Project Area





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Responses to Issues Raised on February 26, 2007 before the State Reclamation Board Subcommittee

Prepared for March 22, 2007 State Reclamation Board Subcommittee

Reviewed by State Reclamation Board Staff
the week of March 19, 2007

At the February 26, 2007 State Reclamation Board Subcommittee meeting held in Marysville, three members of the public raised 12 questions or claims in regard to the meeting and the information discussed during the meeting. The purpose of this document is to identify the 12 questions or claims and provide conclusive responses.

Issue #1

Claim: The February 26th meeting constituted a violation of the Bagley-Keene Act.

Response: This is an issue that has been referred to Reclamation Board Staff Counsel. Three Rivers is not the appropriate entity to provide a response to this claim.

Issue #2

Claim: Three Rivers has worked on the Yuba River Levees beyond the authorized time contained within the relevant encroachment permit.

Response: During 2006-2007 winter Three Rivers worked on the Yuba River levee system between Hwy 70 and Simpson Lane under Encroachment Permit #18095 GM and Encroachment Permit #17921 GM. Three Rivers also performed O&M work on the levee in 2006.

- Worked performed under 18095 GM between UPRR and Simpson Lane in the late fall and over the winter included the following:

Activity	Start Date	Completion Date
Slurry Wall	September 14, 2006	October 22, 2006
Re-grade slope on water side to 3:1	October 1, 2006	October 26, 2006

Install seepage berm @ Cemex property – Time extension granted to work until February 9, 2007	January 26, 2007	February 2, 2007
Install two monitoring wells @ Cemex property by seepage berm – Time extension granted to work until February 9, 2007	January 31, 2007	February 1, 2007

- Worked performed during this period under 17921 GM on seepage berm:

Activity	Start Date	Completion Date
Completed Seepage Berm	July 2005	October 21, 2006
Caltrans Maintenance Yard Detention Pond excavation – Three Rivers has agreed to obtain an encroachment permit and has submitted the application. At the March 16, 2007 State Reclamation Board meeting accepted the application.	January 12, 2007	January 19, 2007

- Additional work performed by Three Rivers on or near the seepage berm by the Caltrans Maintenance Yard after 1 Nov 2006. Three Rivers considered this work to be O&M because the seepage berm was already constructed:

Activity	Start Date	Completion Date
Sand placement to fill low spots identified by survey data	November 13, 2006	November 15, 2006
Strippings placed on seepage berm to provide top cover to prevent erosion	December 6, 2006	December 8, 2006
Cobble slope of seepage berm to prevent erosion	December 5, 2006	December 19, 2006
Further strippings to provide top cover to prevent erosion	January 11, 2007	January 14, 2007
Aggregate base for road placed on seepage berm	January 10, 2007	January 31, 2007
Hydroseeding of seepage berm	February 7, 2007	February 9, 2007

Issue #3

Claim: The public has no confidence in the statements of the Army Corps of Engineers in regard to the level of protection provided by the Yuba River Levee, especially in light of the presence of the boulders used to seal the 1986 break.

Response: The Corp of Engineers is the recognized National levee expert.

Issue #4

Claim: Three Rivers is not qualified to be undertaking the levee improvement program for the Yuba, Feather, and Bear River Levees or the Western Pacific Interceptor Canal Levees; the work should be done by RD 784, the State of California, or the Army Corps of Engineers.

Response: Three Rivers Levee Improvement Authority was specifically created in 2004 by RD 784 and Yuba County as a Joint Powers Authority to improve the levees in South Yuba County. The Executive Director (Paul G. Brunner) of Three Rivers is a Professional Civil Engineer in the State of California with more than 30 years of engineering experience. Since the beginning of the levee projects Three Rivers has utilized the services of MBK Engineers to perform program management and hydraulic modeling support. Ric Reinhardt is the Three Rivers Program Manager. Mr. Reinhardt is a Professional Civil Engineer in the State of California with 12 years of flood protection planning, design, and construction experience. Three Rivers has utilized nationally respected engineering firms to do the levee design work and to oversee construction. The two prime engineering firms are GEI and HDR. Both of these firms are currently working for other local agencies, DWR, and the Corps to investigate and implement levee improvement projects in the Central Valley.

Issue #5

Claim: Three Rivers has repeatedly made statements to the public about when the completed levees would be certified; to date those levees have still not been certified.

Response: On 14 December 2006 Three Rivers asked the Corps to provide certification to FEMA by the end of January 2007 for the levee repairs completed to date. Three Rivers and the Corps of Engineers were hopeful that this timeline could be met since the Corp of Engineers had been involved in the Three Rivers levee design and construction process. Three Rivers' plan is to construct levee repairs to provide 200-year protection to Reclamation District 784. However, when FEMA provides certification for a levee, its certification is for only the 100-year flood level since this is the level that its flood plain maps depict. Thus, the Corps review of Three Rivers' completed levees is for the 100-year flood.

At the 15 December 2006 State Reclamation Board meeting Three Rivers stated it had recently asked the Corp of Engineers to certify four levee reaches in order to achieve FEMA 100-year certification. The four reaches are as follows:

1. Yuba River (south levee): From Hwy 70 to Simpson Lane
2. Yuba River/Feather River (east levee) from Hwy 70 to Island Ave. (recently removed from pending certification request – see item j. below)
3. Bear River (north levee): From Western Pacific Interceptor Canal to Feather River
4. Western Pacific Interceptor Cana (west levee): From Highway 70 to Bear River

The anticipated timeframe for Corp of Engineers certification was stated to be late January 2007. At the 19 January 2007 Reclamation Board meeting the anticipated January 2007 certification timeframe was re-stated by Three Rivers.

At the 16 February 2007 State Reclamation Board meeting Three Rivers said the “certification process with the Corps has gone well. Three Rivers staff continues to provide information to the Corps to assist in their certification. Originally, Three Rivers was hopeful that the certification process would be completed by the end of January; however, the completion date is now projected to be mid to late February 2007.” Three Rivers provided to the State Reclamation Board a copy of the Corp of Engineers 30 January 2007 letter to Three Rivers that stated certification was close. At the meeting Three Rivers provided a recap of many of the remaining items needed for certification.

The following update was provided to the State Reclamation Board in the Three Rivers March monthly report to the State Reclamation Board:

- a. **Provide all Construction Records to verify that levees were built according to the design** – Three Rivers has provided a construction report on Phases 1, 2, and 4 (Yuba) and a separate construction report on Phase 3 (Bear Setback Levee) to the Corps. The Corps has provided comments on the draft reports. Three Rivers has responded to those comments and is coordinating with the Corps to determine if our responses completely address their comments.
- b. **Provide additional wind-wave analysis to support reducing the length of riprap on the WPIC** – This work has been completed and accepted by the Corp.
- c. **Provide information to show that utility crossings meet current Corps and State of California Criteria** – Three Rivers has sent letters to all utilities with levee crossings asking that they supply information on the crossing. This information will be reviewed to determine if standards have been met. If not, Three Rivers will work with the utility to have the crossing modified. Five utility companies representing eleven utility crossings have been contacted. We have had a response from only one of the companies. The utilities are slow in responding. Three Rivers may request the assistance of the Reclamation Board in obtaining as built information for permitted utility crossings. The Corps has requested documentation of meeting the standard or a plan to meet the standard by April 30, 2007. This will most likely not delay certification but will remain an issue that must be resolved with the Corps of Engineers with the Reclamation Board’s assistance
- d. **Construct seepage berm and install monitoring wells along the Yuba levee between Station 35+00 and 39+00** – This work has been completed.
- e. **Install a monitoring well along the WPIC at Station 216+50** – This work has been completed.
- f. **Raise Levee of WPIC at Station 311+00 to elevations permitted under encroachment permit #17782 BD to achieve 4 feet of freeboard for the base flood** – This work has been completed.
- g. **Two power poles currently located within the Yuba seepage berm near Station 33+00 shall be relocated to outside the berm** – One of the poles was found to no longer be

needed and has been removed. Three Rivers and PG&E have executed a contract for relocation of the remaining pole, which satisfies the Corp of Engineers requirement for certification. This work will be accomplished this summer.

- h. **Provide as-built drawings of the earthwork performed along the Bear River between Station 139+00 and 144+00 for review and acceptance by the Corps** – This work has been completed.
- i. **Provide documentation that a 24-inch corrugated metal pipe as shown in the Operation and Maintenance Manual at WPIC Station 264+00 has been properly abandoned** – Three Rivers has issued a change order to the contractor to pothole along the landside toe to search for this pipe after the flood season has passed. This Three Rivers change order to pothole along the landside toe to search for this pipe after the flood season has passed satisfies the Corp of Engineers requirement for certification.
- j. **Perform additional investigations into the potential for embankment erosion along the Yuba/Feather levee from Highway 70 to Island Avenue** – Three Rivers has developed a more detailed 2-Dimensional hydraulic model of this reach and has performed some scour analysis for the overflow channel that runs along the toe of the levee in this reach. Results of these analyses are being discussed with the Corps to determine what is required to assure erosion protection. Due to these discussions Three Rivers has opted to remove this portion of levee reach from its certification request and move this levee reach into the Phase 4 Feather River Segment 3 design work.

At this time, Three Rivers projects the levee reaches 1, 3, and 4 will be certified by the end of March 2007; however, Three Rivers does not control the outcome of this effort. Both, Three Rivers and the Corps of Engineers believe levee certification to be a serious and significant event that should not be rushed. Three Rivers will continue to update the State Reclamation Board on this item until certification is achieved.

Issue #6

Claim: Three Rivers has not been truthful in dealing with the State Reclamation Board.

Response: Three Rivers provides monthly updates (initial report, supplement report, and verbal report) to the State Reclamation Board. Three Rivers' goal in each of these reports is to provide accurate and timely information to the State Reclamation Board. If there is an error in one of these reports, Three Rivers will correct it. To the extent that any past reports provided incomplete or incorrect information, Three Rivers regrets the action and will work diligently to correct these errors.

Issue #7

Claim: Three Rivers has been illegally working on the levees during the winter months.

Response: See response to Issue #2.

Issue #8

Claim: A significant cut has been made into the Yuba River Levee and Three Rivers is hiding that from the State Reclamation Board.

Response: Three Rivers was not aware of the cut until the issue was raised at the meeting. During the meeting State Reclamation Board General Manager Jay Punia acknowledged that he was aware of the cut, but that he had not yet informed Three Rivers. Three Rivers has since inspected the site and found that the cut was most likely caused by work on the seepage berm in the 2005 timeframe and that the cut has not damaged the structural integrity of the levee (See HDR tech memo dated March 15, 2007 attached). Three Rivers has requested, and State Reclamation Board staff has approved, a variance to permit 17921 GM to repair this cut during March 2007.

Issue #9

Claim: Three Rivers illegally constructed a detention basin on Cal Trans property adjacent to the seepage berm without an encroachment permit from the State Reclamation Board.

Response: At the March 16, 2007 State Reclamation Board meeting the Board adopted a motion accepting for processing Three Rivers' encroachment permit application for the activities already performed. Three Rivers agreed to include a condition in the title informing the property owner of the existence of the permit and further agreed to provide a detailed analysis of the basin and its lack of impact on the flood protection structure.

This issue was first raised at the January Reclamation Board meeting. As reported at the February Reclamation Board, as a condition of constructing the large seepage berm near the Caltrans maintenance facility Three Rivers was required to build a detention basin. To build the seepage berm and detention basin Three Rivers acquired property from Caltrans and Auburn Manor. The detention basin is located on the property purchased from Auburn Manor. The basin was designed to be located more than 25 feet from the toe of the seepage berm and more than 100 feet from the levee itself. As described in the February Reclamation Board Meeting, the basin was designed to be no more than 2.5 feet deep. To ensure that the basin would not have a negative impact on the flood protection system, a geotechnical analysis was performed and the analysis was provided to the Army Corps of Engineers for review. Because the analysis demonstrated that the basin would not have an impact on the levee integrity and because the basin is 25 feet away from the seepage berm, Three Rivers did not apply for an encroachment permit. Three Rivers submitted an encroachment permit applications as requested at the February 16 Reclamation Board meeting, but the Reclamation Board staff did not accept the permit application until Board action was taken at the March 16, 2007 meeting.



Issue #10

Claim: The Yuba River Levee seepage berm was constructed later than originally planned.

Response: This statement is correct. The seepage berm is located on the landside of the South Yuba levee embankment just north of the UPRR. The seepage berm is also known as the CEMEX seepage berm since it is located adjacent to the CEMEX facility. The construction of this seepage berm was authorized under permit 18095 GM and a variance to this permit. Three Rivers had planned to construct this berm during the 2006 construction season as part of the levee work done between the UPRR and Simpson Lane. Three Rivers did not receive real estate rights to construct the levee until 22 January 2007, so the berm construction was postponed until after this date. Three Rivers also originally believed this seepage berm was required to achieve 200 year flood protection, but not for 100 year certification, thus allowing this program element to slip until 2007 if necessary. During the Corp of Engineers levee certification review of this reach of levee the Corp of Engineers asked in January 2007 for this seepage berm to be constructed. Once real estate rights were secured, Three Rivers applied for a variance to permit 18095 GM to allow work to be done in the flood season and also to construct two monitoring wells. With variance in hand the seepage berm was constructed.

Issue #11

Claim: The accepting of a permit from the State Reclamation Board is a commitment to perform all of the work contained within the permit within the time period identified within the permit.

Response: An encroachment permit is an authorization from the State Reclamation Board to perform work – it is not a requirement that the work be performed. Similarly, Reclamation Board permits do not typically contain dates by which the work must be completed. Rather, they typically state that they will expire if the work is not commenced within one year, and they do establish a flood season during which work may not be performed without a variance.

Three Rivers has every interest in completing the work under the various permits in order to achieve 200 year protection. However, changing conditions on the ground coupled with changing requirements from FEMA or the Corps of Engineers can result in a reconsideration of certain elements after the issuance of a permit, and can result in a further application to the Reclamation Board to revise elements of the permit. Similarly, cost efficiencies, conditions in environmental permits, and difficulties in obtaining rights of way can lead to necessary revisions in originally proposed schedules.

Issue #12

Claim: The Yuba River Levees are now washing out as a result of the recent rains.

Response: Three Rivers and RD784 do not have any indication that recent rains have severely eroded the Yuba levees. At the last State Reclamation Three Rivers Sub-Committee meeting pictures were presented by the public that showed minor erosion along the levee. RD784 or Three Rivers will repair this minor erosion during normal maintenance work at the appropriate time.

HDR memo dated: March 15, 2007

Reviewed by: Randy Olsen, Chris Krivanec, P.E., G.E.

Prepared by: Blake Johnson, P.E.

Introduction

As part of the Three Rivers Levee Improvement Authority (Three Rivers) Phase 2 flood control project, a seepage berm was designed on the landside of the south levee of the Yuba River from Shad Pad Road to the crossing of the Union Pacific Railroad. The length of the berm is approximately 2,350 feet (Station 10+00 to Station 34+50). The berm width is 90 feet from Station 10+00 to Station 23+00, transitions from a width of 90 feet to 300 feet between Station 23+00 and Station 26+50, and 300 feet from Station 26+50 to its terminus at Station 34+50.

Construction

Construction of this seepage berm began July 29, 2005. The first few weeks of construction included stripping of grasses, clearing and grubbing, tree removal, and the removal of cobble from both the landside slope and a toe trench as shown on the design drawings. Once the cobble was removed, sand was then placed back in the toe trench and the placement of sand began for the berm itself.

The contractor used an excavator to remove the cobbles from both the side slope and the toe trench. Photo 1 shows the contractor removing cobble from the landside slope. Photo 2 shows the contractor removing cobble on the side slope and preparing a bench or a key for the placement of sand. Photo 3 shows the placing of sand for the berm.



Photo 1: Yuba Seepage Berm - Cobble Removal



Photo 2: Yuba Seepage Berm – Cobble Removal and Benching



Photo 3: Yuba River – Sand Placement

Post Construction

After the completion of the seepage berm, it was noted that a scar or scrape was visible just above the seepage berm on the landside slope of the Yuba River south levee. The scrape is located approximately in the middle of the landside slope (half way between the hinge point and the toe). The cross section of the levee is quite wide at this point. The scrape itself averages approximately 1 foot high by 6 inches deep. The worst case for the scrape (Photo 5) is about 2 feet high and 1 foot deep. The length of the scrape is approximately 400 feet (from Station 19+00 to Station 23+00). Photo 4 shows this scrape in January 2007. Photo 5 shows the scrape in February 2007. This photo was provided by Rex Archer.



Photo 4: Yuba River Levee Scrape January 2007



Photo 5: Yuba River Levee Scrape February 2007

Causes of Scrape

After reviewing the pictures and visiting the site several times, several possibilities may have contributed to this scrape along the landside of the Yuba River south levee:

1. During the removal of the cobble, the contractor may have over excavated and removed more material than what was necessary to key the sand berm into the existing levee.
2. During the placement of the sand, the contractor may have scraped the side slope with a piece of equipment (i.e. motorgrader).

3. This scrape could have been pre-existing (see Photo 2).
4. Possible erosion has created a larger scrape (Photo 5 shows thick grass below the scrape).

It is not known what the true cause of this scrape is. Interviews with HDR inspectors, contractor, and quality control cannot verify the exact cause.

Conclusion/Recommendation

After reviewing the scrape along the landside of the Yuba River south levee and discussions with the U.S. Army Corps of Engineers' geotechnical representative, HDR has determined that this surficial scrape is cosmetic and does not impact the structural integrity of the levee. USACE has indicated that this shallow scrape could be considered as more of a maintenance issue and is not considered to be of significant concern from a stability standpoint.

Although this is cosmetic, we recommend that the scrape be repaired immediately. The procedure for repairing the scrape includes:

1. Removal of existing vegetation.
2. Place select fill (per Phase 2 specifications) from the sand berm to just above the scrape at a 3 horizontal to 1 vertical slope.
3. Mechanically compact the select fill using a sheep's foot attached to an excavator. Contractor shall apply a significant compaction effort and a minimum of 5 passes with the sheep's foot roller. However, HDR will be onsite to review the compaction technique and to accept the final product.
4. Hydroseed the disturbed work area.

Construction of this repair could begin immediately. As noted on our March 14th site visit, the site is dry enough for construction traffic without impacting the seepage berm. If rain is forecasted, construction will have to be re-evaluated.

The California Reclamation Board allows for construction from April until the first of November. It is recommended that we ask for a variance on our current Reclamation Board Permit prior to proceeding with any work. A letter requesting this variance will be sent to the Reclamation Board by March 15, 2007.