

**Meeting of the Central Valley Flood Protection Board
June 24, 2011
Staff Report
Reclamation District (RD) 1601
Sevenmile Slough Setback Levee, Sacramento County**

1.0 – ITEM

Consider approval of Permit No. 18387 (Attachment B)

2.0 – APPLICANT

Reclamation District (RD) 1601

3.0 – LOCATION

The project is located southeast of Rio Vista, east of Highway 160, and along the left (south) bank of Sevenmile Slough. (Sevenmile Slough, Sacramento County, see Attachment A)

4.0 – DESCRIPTION

This application is to authorize approximately 1,900-linear-feet of an existing non-federal backup levee/ county road re-alignment and appurtenances; along the left (south) bank levee of Sevenmile Slough.

5.0 – PROJECT ANALYSIS

The proposed project, to be authorized, proposes to leave the existing wet levee, defined as the “stream adjacent” levee, in-place and functional for passing the design capacity of Sevenmile Slough and authorize an already constructed dry levee, defined as the “non-federal backup levee/county road.” This definition is located in Special Condition THIRTEEN of Permit No. 18387.

The non-federal backup levee/county road realignment, was constructed with a 2:1 (H:V) waterside and 3:1 (H:V) landside slope, with hydroseeded slopes, a 30-foot crest (with minimum 28-foot wide) 3-inches asphalt concrete surface over 8-inches of Class 2 aggregate base, as shown in Attachment C. A 12-foot inspection trench and 2-feet of foundation excavation was completed, as well as a 3-foot wide toe drain (at a minimum of 10-feet from the landside levee toe) was constructed. A barb wire fence will be placed landward of the toe drain and from Station 4+00 to 16+00 a pad for an irrigation ditch was constructed landward of the barb wire fence.

5.1 – Project Background

This project is located along a non-federal regulated stream at this location of Sevenmile Slough. The U.S. Army Corps of Engineers has stated their lack of flood control interest and comments in a letter issued on January 22, 2009. Therefore, the County and Board are the only interested Regulatory Agencies concerned with the design of the non-federal backup levee/county road realignment authorized under Permit No. 18387. This project is coming before the Board as an authorization because the applicant stated that they were unaware that the project was within Board's jurisdiction and only received County approval for the construction drawings.

In the summer of 2008 Reclamation District 1601 completed construction of a new dry setback levee, defined above as the non-federal backup levee/county road, along Sevenmile Slough. The initial goal of the backup levee was to provide greater flood protection as well as provide a greater degree of public safety. The pre-project existing levee was a busy County Road also known as Twitchell Island Road. This road and levee came to a sharp hairpin turn at the project location and was becoming more and more dangerous with the increase of traffic on the road. The setback levee was thus constructed to meet minimum Hazard Mitigation Standards and to connect the existing levee roadway at safer approach locations therefore eliminating the dangerous turn. The new road alignment was adopted by Sacramento County and gates were installed to prevent public vehicular access to the wet levee, defined above as the stream adjacent levee, road. This new roadway was designed and constructed under full compliance and coordination with the Sacramento County Department of Transportation.

5.2 – Project Design Review

Board staff has reviewed the following documents, provided by the applicant, in preparation of this staff report:

- Design Assumptions Memorandum – KSN, Inc. (Attachment C)
- Design Plans – KSN, Inc. (Excerpts in Attachment D)

5.3 – Hydraulic Analysis

The minimum design levee crown height, of the dry backup levee, was elevation 9.3 feet (NGVD29) which provides 2 feet of freeboard above the 100 year Base Flood Elevation of 7.3 feet (NGVD29) as listed in the 1992 US Army Corps of Engineers Sacramento-San Joaquin Delta Hydrology Special Study. RD1601 employs a full time Superintendent who maintains the vegetation and monitors erosion and subsidence of both this new backup levee and the existing stream adjacent wet levee. The adjoining waterway to the existing stream adjacent wet levee, Sevenmile Slough, is used almost entirely for irrigation purposes through culverts and siphons for the adjoining landowners' agricultural lands. There are no hydraulic impacts from the construction of the new backup levee. The slough is a controlled waterway with dams and culverts on each end eliminating any regular tidal influence. If the existing stream adjacent wet levee is ever degraded, for the sake of an environmental restoration project or for any other reason, the District will consider implementing erosion protection measures along the waterside slope of the new setback levee as well as complying with Special Condition FORTY-TWO of Permit No. 18387, shown below. The change in water surface elevation of Sevenmile Slough, provided the area between the stream adjacent wet levee and backup levee was ever inundated, would be minor given the system is considered to be part of the Delta Pool. At present there is no intention of degrading the old levee and it is still, existing along with the new setback levee, continually maintained and monitored as per District Standards.

Special Condition FORTY-TWO: “This permit is contingent upon the placement and proper performance of the stream adjacent levee. If at any time the permittee plans to degrade, modify, or remove any portion of the stream adjacent levee or the stream adjacent levee is deemed to be un-stable or un-fit to carry the flow capacity of Sevenmile Slough, then the permittee shall submit additional analysis (deemed appropriate by Central Valley Flood Protection Board staff) to prove that the non-federal backup levee/county road will sufficiently and safely pass the flow capacity of Sevenmile Slough and will meet required Title 23 design standards. If the analysis does not so show to the satisfaction of the Board, the permittee shall modify the current project as required by the Central Valley Flood Protection Board pursuant to an application to modify this permit.”

Staff has concluded that they agree with the applicant's assessment that the proposed project has no adverse hydraulic impact on the Sacramento adopted plan of flood control, and therefore is in compliance with Board standards.

5.4 – Geotechnical Analysis

A Geotechnical investigation, complete with field explorations, laboratory testing, slope stability analysis, and design studies, was performed by Neil O. Anderson & Associates Inc. in August 2007. Based on the findings and recommendations of this report, a backup levee/ county road design section was selected with a 2:1 'waterside' slope, 30-foot wide levee crown, and a 3: 1 'landside' slope. The minimum design levee crown height was elevation 9.3- feet, as state above in Section 5.3. To comply with DWR levee design standards, RD 1601 implemented a levee keyway and inspection trench excavation beneath the setback levee's foundation, and two layers of geogrid fabric were placed within the levee section to reduce the potential for post construction settlement. Hydroseed was applied to the finished levee fill slopes immediately after construction to control erosion. RD1601 employs a full time Superintendent who maintains the vegetation and monitors erosion and subsidence of both this new dry backup levee/ county road and the existing stream adjacent wet levee.

Staff has concluded that they agree with the applicant's assessment that the project does not bear any geotechnical impacts to the adopted plan of flood control, per the design plans and specifications.

5.5 – Project Benefits

The project has the following benefits associated with its completion:

- Provides a backup level of flood protection.
- Provides a greater degree of public safety by meeting minimum Hazard Mitigation Standards and connecting the existing levee roadway at a safer approach by eliminating a dangerous hairpin turn.
- The new access allowed the County to install gates to restrict vehicular access along the old levee alignment.
- Roadway and levee were constructed in compliance with current County and State standards.

6.0 – AGENCY COMMENTS AND ENDORSEMENTS

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- U.S. Army Corps of Engineers (USACE) Non-Federal letter was received on January 22, 2009, stating that the USACE District Engineer had no comments or recommendations regarding flood control because the project does not affect a federally constructed project.

7.0 – PROPOSED CEQA FINDINGS

Board staff has prepared the following CEQA determination:

The Board, acting as the CEQA lead agency, has determined the project is categorically exempt in accordance with CEQA under a Class 1 Categorical Exemption (CEQA Guidelines Section 15301) covering existing public facilities or structures.

8.0 – SECTION 8610.5 CONSIDERATIONS

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

The Board has considered all the evidence presented in this matter, including the application, Staff Report and attachments. The Board has also considered all letters and other correspondence received by the Board and in the Board's files related to this matter.

The custodian of the file is Executive Officer Jay Punia at the Central Valley Flood Protection Board.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this application.

3. Effects of the decision on the entire State Plan of Flood Control:

This project does not have significant impacts on the State Plan of Flood Control, as the project does not impair the structural or hydraulic functions of the system.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

There are no other foreseeable projected future events that would impact this project, since the project is located within a controlled waterway with control structures on both the upstream and downstream ends.

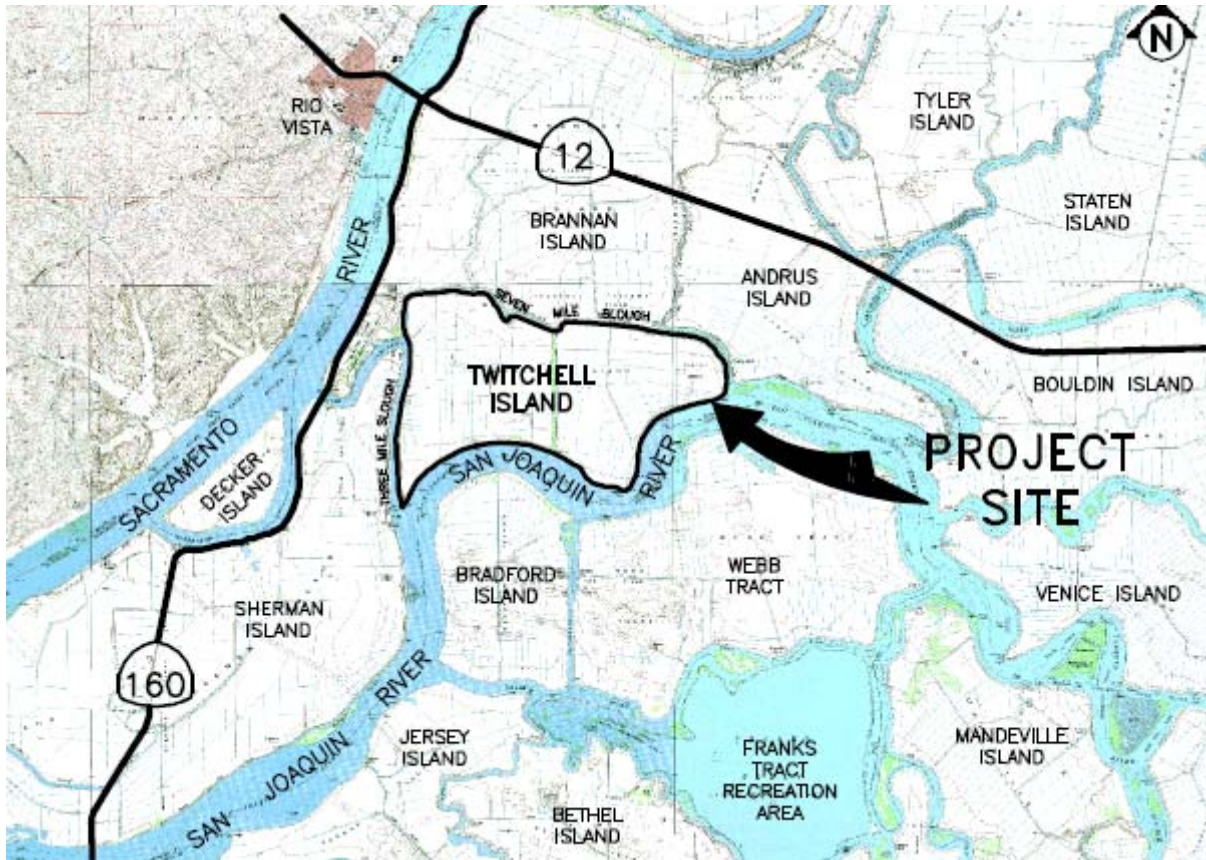
9.0 – STAFF RECOMMENDATION

Staff recommends that the Board determine the project to be exempt from CEQA, approve Permit No. 18387, and direct the Executive Officer to take necessary actions to execute the permit and to file a Notice of Exemption with the State Clearinghouse.

10.0 – LIST OF ATTACHMENTS

- A. Location Map
- B. Draft Permit No. 18387
 - Exhibit A: USACE Non-Fed Letter
- C. Design Plans – KSN, Inc.

Design Review:	Nancy C. Moricz, P.E.
Environmental Review:	James Herota, E.S. and Andrea Mauro, E.S.
Document Review:	David R. Williams, P.E., Dan S. Fua, P.E., and Len Marino, P.E.



DRAFT

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 18387 BD

This Permit is issued to:

Reclamation District No. 1601
2360 West Twitchell Island Road
Rio Vista, California 94571

To authorize approximately 1,900-linear-feet of an existing non-federal backup levee/ county road re-alignment and appurtenances; along the left (south) bank levee of Sevenmile Slough. The project is located southeast of Rio Vista and east of Highway 160 (Section 9, T3N, R3E, MDB&M, Reclamation District 1601, Sevenmile Slough, Sacramento County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: _____

Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15

days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 18387 BD

THIRTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications, except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the Central Valley Flood Protection Board. Henceforth, in this permit, the "stream adjacent" levee shall refer to the wet levee, to remain in-place and functional, and the "non-federal backup levee/county road" dry levee shall refer to the existing construction authorized under this permit.

FOURTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California; including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

FIFTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Central Valley Flood Protection Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

SIXTEEN: The permittee shall be responsible for repair of any damages to the, stream adjacent, levee and other flood control facilities due to construction, operation, or maintenance of the proposed project.

SEVENTEEN: There shall be no plantings within the project area under this permit, except that of

native grasses, which may be required for slope protection. The permittee shall be required to apply for a separate or modified permit for any proposed plantings within the floodway.

EIGHTEEN: The permittee shall replant or reseed the, stream adjacent, levee slopes to restore sod, grass, or other non-woody ground covers if damaged during project work.

NINETEEN: The permittee shall provide construction supervision and inspection services acceptable to the Central Valley Flood Protection Board.

TWENTY: The stability of the, stream adjacent, levee shall be maintained at all times during construction.

TWENTY-ONE: Any excavations made in the, stream adjacent, levee section or within 10 feet of the levee toes shall be backfilled in 4- to 6-inch layers with impervious material with 20 percent or more passing the No. 200 sieve, a plasticity index of 8 or more, and a liquid limit of less than 50 and free of lumps or stones exceeding 3 inches in greatest dimension, vegetative matter, or other unsatisfactory material. Backfill material shall be compacted in 4- to 6-inch layers to a minimum of 90 percent relative compaction as measured by ASTM Method D1557-91.

TWENTY-TWO: Excavations below the design flood plane and within the, stream adjacent, levee section or within fifty (50) feet of the projected waterward and landward levee slopes, shall have side slopes no steeper than 1 horizontal to 1 vertical. Flatter slopes may be required to ensure stability of the excavation.

TWENTY-THREE: Prior to placement of fill against the, stream adjacent, levee slope and within 10 feet of the levee toe, all surface vegetation shall be removed to a depth of 6 inches. Organic soil and roots larger than 1-1/2 inches in diameter shall be removed to a depth of 3 feet.

TWENTY-FOUR: Compaction tests by a certified soils laboratory will be required to verify compaction of backfill within the, stream adjacent, levee section or within 10 feet of the toe.

TWENTY-FIVE: Backfill material for excavations shall be placed in 4- to 6-inch layers and compacted to at least the density of the adjacent, firm, undisturbed material.

TWENTY-SIX: The permittee shall be responsible for all damages due to settlement, consolidation, or heave from any construction-induced activities.

TWENTY-SEVEN: Fill on the, stream adjacent, levee slope shall be keyed into with each lift.

TWENTY-EIGHT: Fill material shall be placed only within the area indicated on the approved plans.

TWENTY-NINE: The fill surface area shall be graded to direct drainage away from the toe of the, stream adjacent, levee.

THIRTY: All fencing, gates and signs removed during construction of this project shall be replaced in kind and at the original locations. If it is necessary to relocate any fence, gate or sign, the permittee is required to obtain written approval from the Central Valley Flood Protection Board prior to installation at a new location.

THIRTY-ONE: All temporary fencing, gates and signs shall be removed upon completion of the project.

THIRTY-TWO: The permittee shall cooperate with the Central Valley Flood Protection Board to ensure that any encroachment that must be relocated, modified or otherwise altered to accommodate construction of the improvements permitted herein are relocated, modified or otherwise altered in a manner that complies with current applicable state and federal standards. If the affected encroachment has an existing Board permit or is subject to some other applicable Board authorization, the permittee shall cooperate with the Board to ensure the permit or other authorization is appropriately amended to reflect the changed condition as shown on as-built drawings for the encroachment and the overall project. If the encroachment does not have a Board permit or other Board authorization, the permittee shall cooperate with the Board to determine whether a Board permit is required. If so, permittee shall cooperate with the Board to ensure that required permit application is made and, if granted, the permit reflects the changed condition as shown on as-built drawings for the encroachment and the overall project.

THIRTY-THREE: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Department of Water Resources, or any other agency responsible for maintenance.

THIRTY-FOUR: In the event that permitted improvements cause levee or bank erosion injurious to the adopted plan of flood control to occur at or adjacent to the permitted encroachment(s), the permittee shall repair the eroded area and propose measures, to be approved by the Central Valley Flood Protection Board, to prevent further erosion.

THIRTY-FIVE: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

THIRTY-SIX: Within 120 days of permit issuance, the permittee shall submit to the Central Valley Flood Protection Board the associated "as-built" drawings for alterations made by the project.

THIRTY-SEVEN: The permittee is responsible for all liability associated with damage to the permitted facilities resulting from flood fight, operation, maintenance, inspection or emergency repair and shall defend, indemnify, and hold the Central Valley Flood Protection Board, the Department of Water Resources, and the State of California, including their agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "agencies"), safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The agencies expressly reserve the right to supplement or take over their defense, in their sole discretion.

THIRTY-EIGHT: This project does not affect a federally constructed project and the U.S. Army Corps of Engineers' District Engineer has no comments or recommendations regarding flood control, as stated in the U.S. Army Corps of Engineers letter dated January 22, 2009, which is attached to this permit as Exhibit A and incorporated by reference.

THIRTY-NINE: If the permittee or successor does not comply with the conditions of the permit and an enforcement by the Central Valley Flood Protection Board is required, the permittee or successor shall be responsible for bearing all costs associated with the enforcement action, including reasonable attorney's fees.

FORTY: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board and Department of Water Resources, at the permittee's or successor's cost and expense.

FORTY-ONE: Any additional encroachment(s) in the floodway, on or in the, stream adjacent levee section, and within ten (10) feet of the landside levee toe and berm toes, require an approved permit from the Central Valley Flood Protection Board and shall be in compliance with the Central Valley Flood Protection Board's regulations (Title 23 California Code of Regulations).

FORTY-TWO: This permit is contingent upon the placement and proper performance of the stream adjacent levee. If at any time the permittee plans to degrade, modify, or remove any portion of the stream adjacent levee or the stream adjacent levee is deemed to be un-stable or un-fit to carry the flow capacity of Sevenmile Slough, then the permittee shall submit additional analysis (deemed appropriate by Central Valley Flood Protection Board staff) to prove that the non-federal backup levee/county road will sufficiently and safely pass the flow capacity of Sevenmile Slough and will meet required Title 23 design standards. If the analysis does not so show to the satisfaction of the Board, the permittee shall modify the current project as required by the Central Valley Flood Protection Board pursuant to an application to modify this permit.

FORTY-THREE: By acceptance of this permit, the permittee acknowledges the authority of the Central Valley Flood Protection Board to regulate all future encroachments along this, stream adjacent, levee reach, including those that may encroach upon alterations approved by this permit.

FORTY-FOUR: This permit shall run with the land and all conditions are binding on permittee's successors and assigns.



DEPARTMENT OF THE ARMY
U.S. Army Engineer District, Sacramento
Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

REPLY TO
ATTENTION OF

Flood Protection and Navigation Section (18387)

Mr. Jay Punia, Executive Officer
Central Valley Flood Protection Board
3310 El Camino Avenue, Room LL40
Sacramento, California 95821

JAN 22 2009

Dear Mr. Punia:

We have reviewed a permit application by Reclamation District No.1601 (application number 18387). These plans include constructing a setback levee, approximately 1,900-linear feet long, on the left (south) bank levee of Sevenmile Slough. The project is located southeast of Rio Vista and east of Highway 160, at 38.1193°N 121.6587°W NAD83, Sacramento County, California.

The District Engineer has no comments or recommendations regarding flood control because the proposed work does not affect a federally constructed project.

A Section 10 and/or Section 404 permit may be required. Please advise the applicant to contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Division, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250.

If you have any questions concerning our comments on this permit application, please contact Ms. Megan Nagy at (916) 557-7257 or Mr. Robert Murakami at (916) 557-6738.

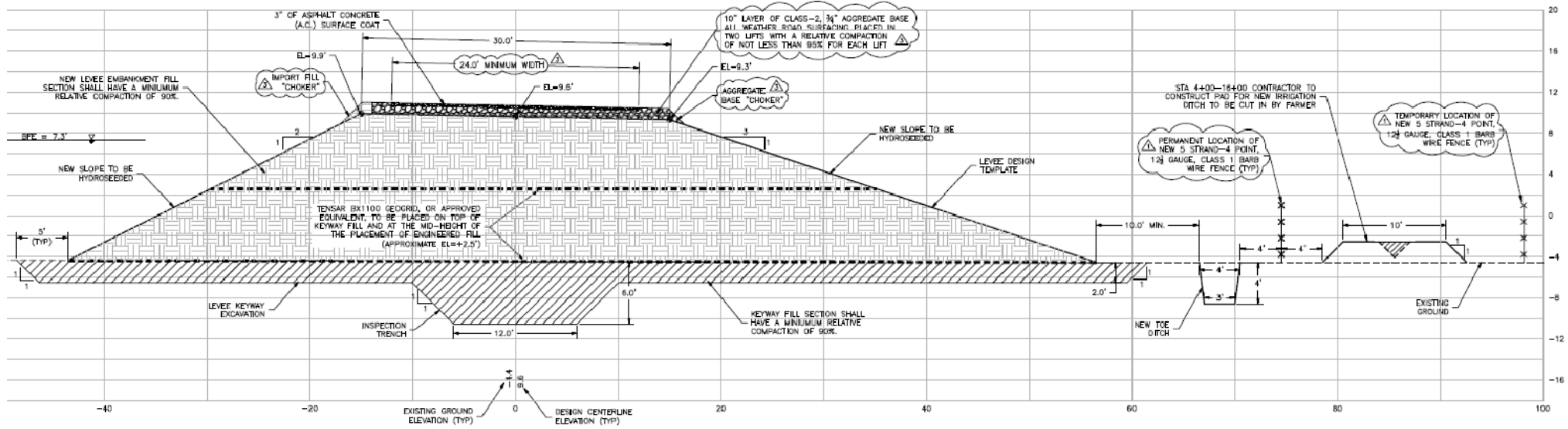
Sincerely,

A handwritten signature in black ink that reads "Megan G. Nagy".

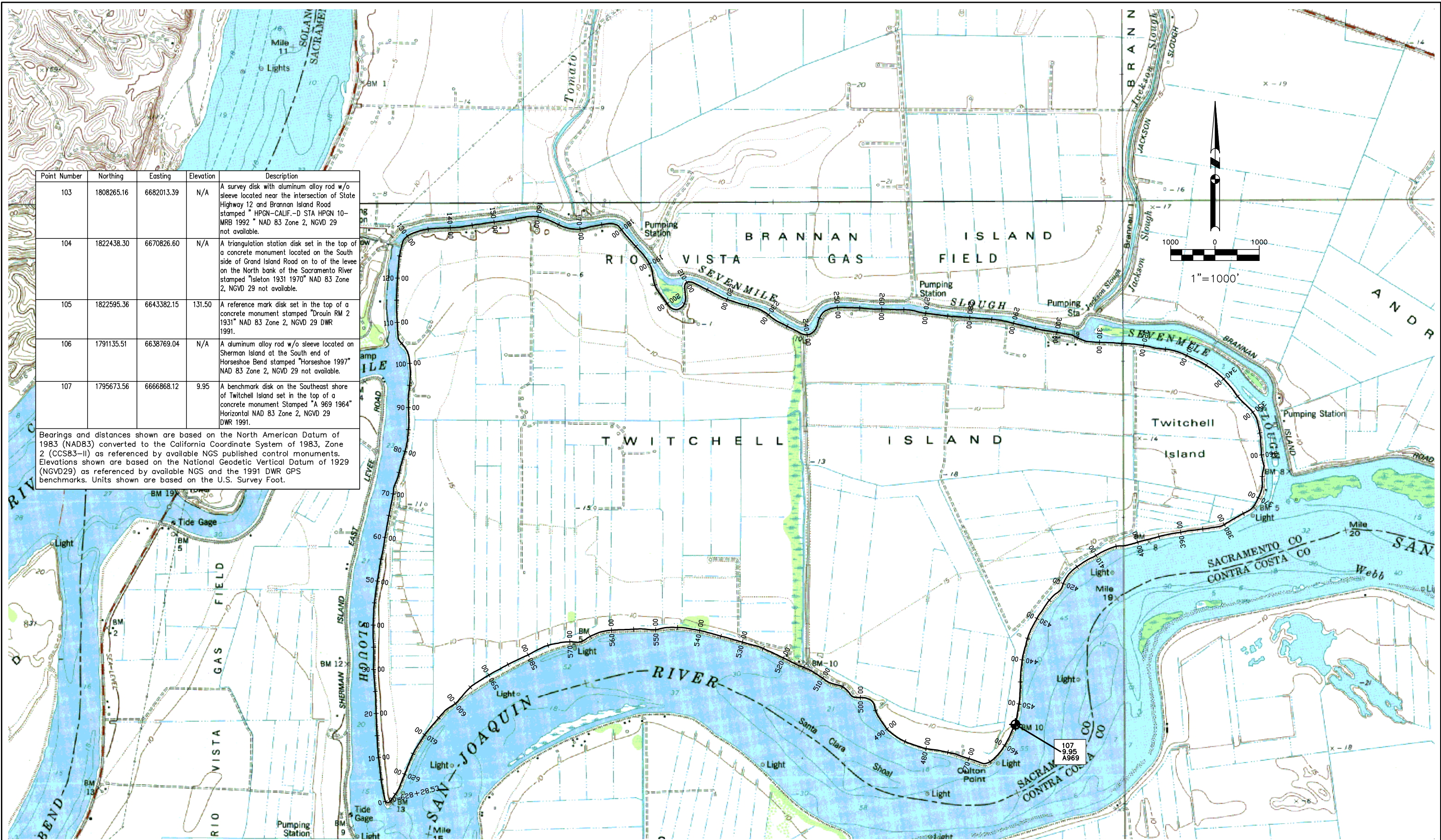
Meegan G. Nagy, P.E.
Chief, Flood Protection and Navigation Section

Copy Furnished:

Mr. Jeremy Arrich, Chief, Flood Project Integrity and Inspection Branch,
3310 El Camino Avenue, Suite LL30, Sacramento, CA 95821

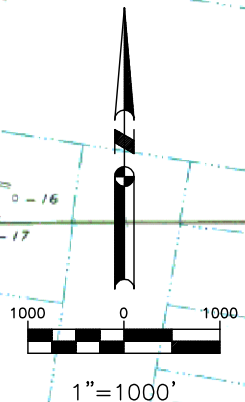


1 SITE 2 LEVEE DESIGN DETAIL



Point Number	Northing	Eastng	Elevation	Description
103	1808265.16	6682013.39	N/A	A survey disk with aluminum alloy rod w/o sleeve located near the intersection of State Highway 12 and Brannan Island Road stamped "HPGN-CALIF.-D STA HPGN 10-MRB 1992" NAD 83 Zone 2, NGVD 29 not available.
104	1822438.30	6670826.60	N/A	A triangulation station disk set in the top of a concrete monument located on the South side of Grand Island Road on to of the levee on the North bank of the Sacramento River stamped "Isleton 1931 1970" NAD 83 Zone 2, NGVD 29 not available.
105	1822595.36	6643382.15	131.50	A reference mark disk set in the top of a concrete monument stamped "Droin RM 2 1931" NAD 83 Zone 2, NGVD 29 DWR 1991.
106	1791135.51	6638769.04	N/A	A aluminum alloy rod w/o sleeve located on Sherman Island at the South end of Horseshoe Bend stamped "Horseshoe 1997" NAD 83 Zone 2, NGVD 29 not available.
107	1795673.56	6666868.12	9.95	A benchmark disk on the Southeast shore of Twitchell Island set in the top of a concrete monument Stamped "A 969 1964" Horizontal NAD 83 Zone 2, NGVD 29 DWR 1991.

Bearings and distances shown are based on the North American Datum of 1983 (NAD83) converted to the California Coordinate System of 1983, Zone 2 (CCS83-II) as referenced by available NGS published control monuments. Elevations shown are based on the National Geodetic Vertical Datum of 1929 (NGVD29) as referenced by available NGS and the 1991 DWR GPS benchmarks. Units shown are based on the U.S. Survey Foot.

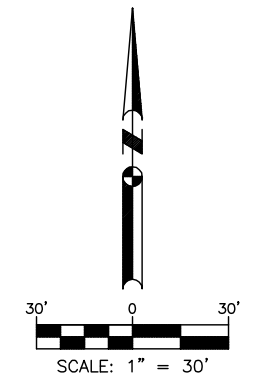
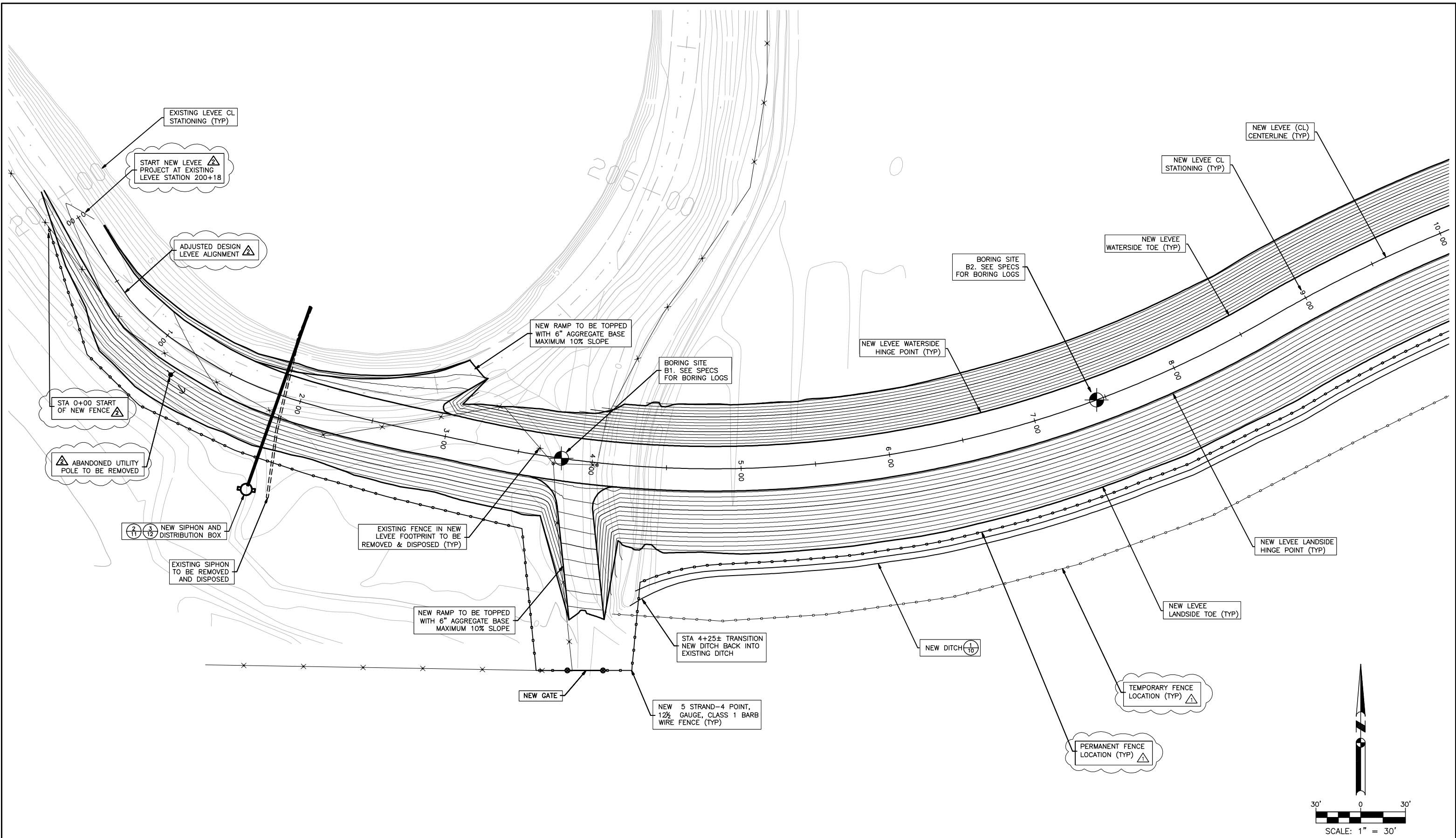


Bench Mark
 A NGS benchmark disk stamped A 969, set in concrete located on Twitchell Island approximately 1.1 miles east along the South levee from the intersection of an unnamed road through Twitchell Island and the South levee. NGVD 1929 elevation of 9.95 feet per the DWR 1991 GPS Survey.

K S N KJELDEN SINNOCK NEUDECK INC.
 Consulting Engineers and Land Surveyors
 Post Office Box 844
 711 N. Pershing Avenue
 Stockton, CA 95201-0844
 Office: (209) 946-0268
 Faxes: (209) 946-0296
 E-mail: KSN@ksninc.com

RECLAMATION DISTRICT NO. 1601
 TWITCHELL ISLAND
 7 MILE SLOUGH LEVEE IMPROVEMENTS
 CONTROL SHEET

Revisions				Design DGR	Scale 1" = 1000'	Date DECEMBER 2007
No.	Description	Date	By			
				Drawn KFN	Original Drawing Scale 0 1/2" 1"	Sheet Number 3 Of 12
				Check DGR		

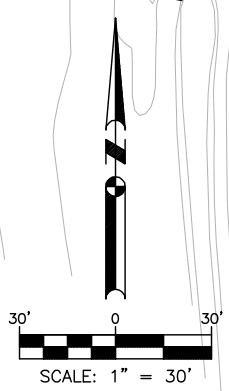
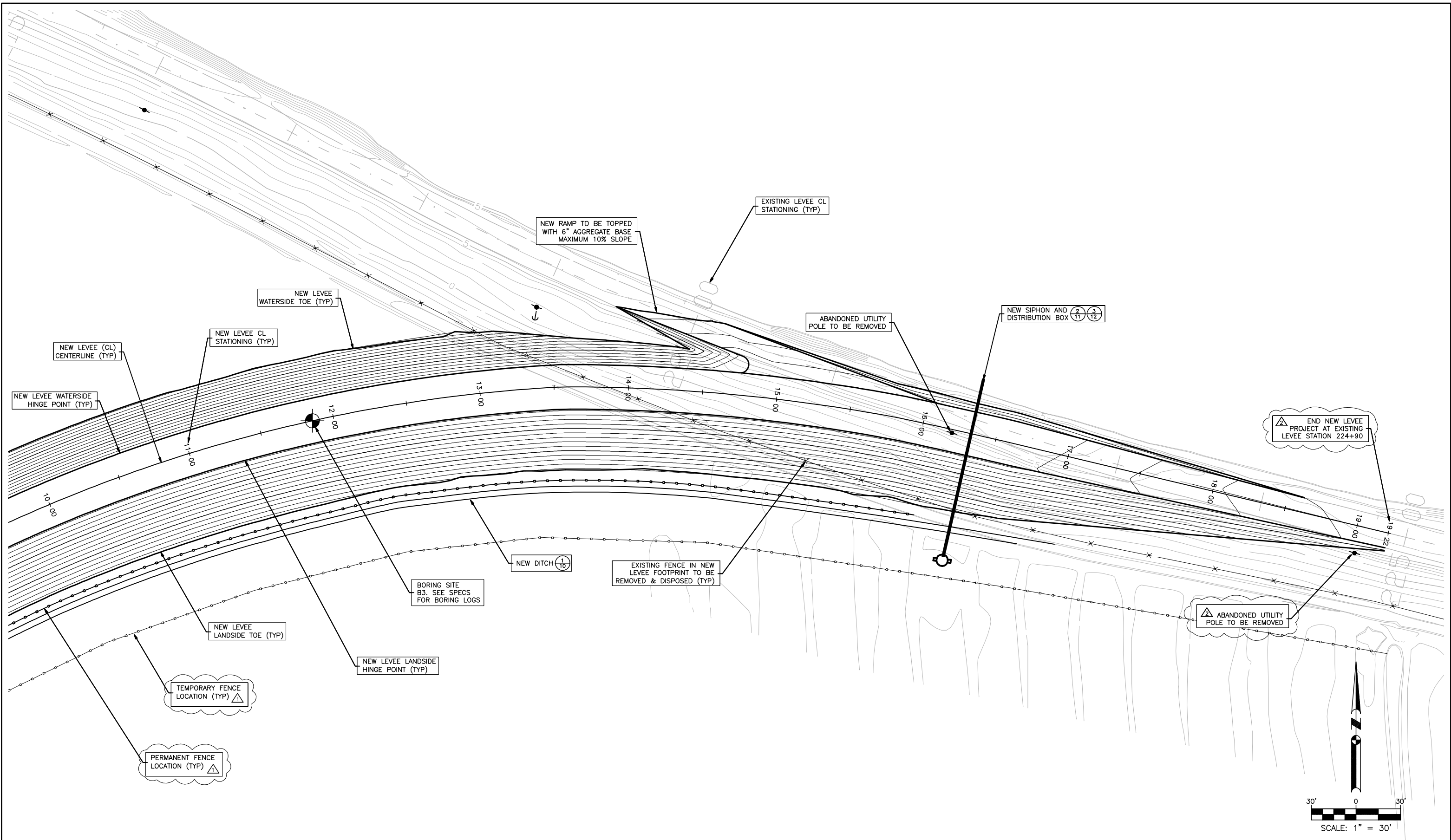


K S N INC.
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 E-mail: KSN@ksninc.com

RECLAMATION DISTRICT NO. 1601
 TWITCHELL ISLAND
 7 MILE SLOUGH LEVEE IMPROVEMENTS
 AERIAL TOPO MAP

Revisions				
No.	Description	Date	By	Aprvd. By
1	TEMPORARY/PERMANENT FENCING	3/13/08	JAM	JLH
2	ADJUSTED DESIGN ALIGNMENT	3/31/08	JAM	JLH

Design JAM	Scale 1" = 30'	Date APRIL 2008
Drawn JAM	Original Drawing Scale 0 1/2" 1"	Sheet Number 5 Of 12
Check CHN		Project File No. 1110-0540

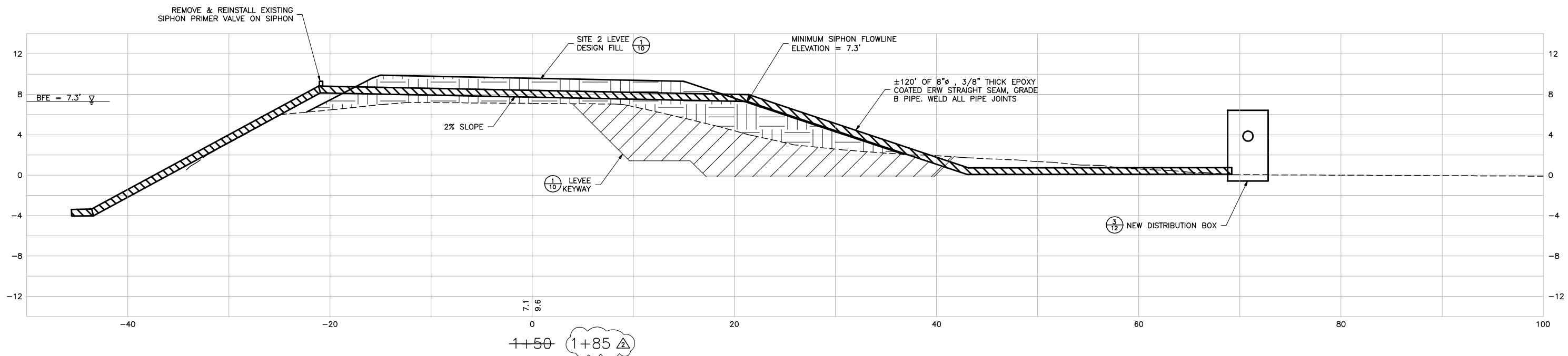
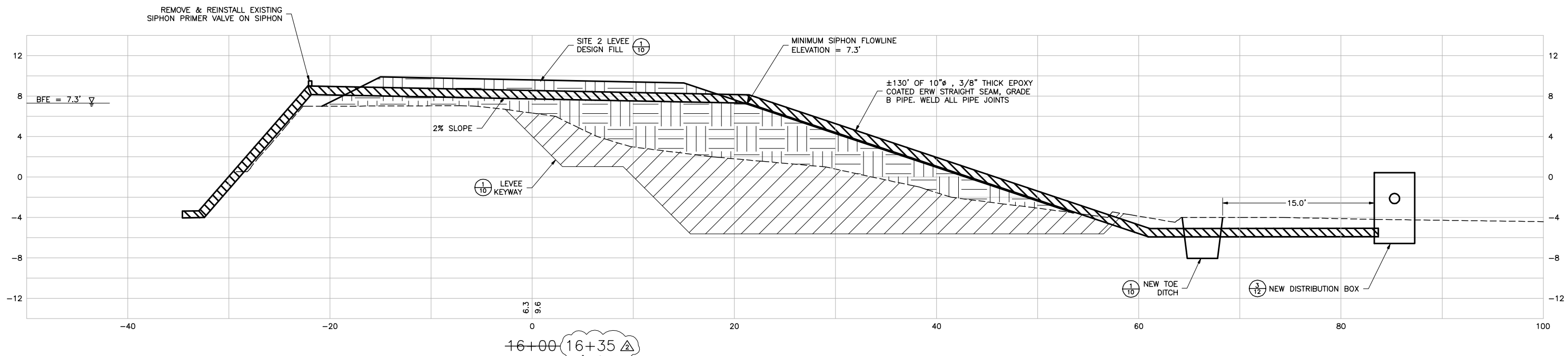


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RECLAMATION DISTRICT NO. 1601
 TWITCHELL ISLAND
 7 MILE SLOUGH LEVEE IMPROVEMENTS
 AERIAL TOPO MAP

Revisions				
No.	Description	Date	By	Appr'd. By
1	TEMPORARY/PERMANENT FENCING	3/13/08	JAM	JLH
2	ADJUSTED DESIGN ALIGNMENT	3/31/08	JAM	JLH

Design JAM	Scale 1" = 30'	Date APRIL 2008
Drawn JAM	Original Drawing Scale 0 1/2" 1"	Sheet Number 6 Of 12
Check CHN		Project File No. 1110-0540



2 NEW SIPHON SECTION DETAILS
SCALE: 1" = 5'

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RECLAMATION DISTRICT NO. 1601
TWITCHELL ISLAND
7 MILE SLOUGH LEVEE IMPROVEMENTS
DETAILS

Revisions				
No.	Description	Date	By	Aprvd. By
1	DESIGN ALIGNMENT ADJUSTMENT	3/31/08	JAM	JLH

Design JAM	Scale 1" = 5'	Date DECEMBER 2007
Drawn JAM	Original Drawing Scale 0 1/2" 1"	Sheet Number 11 Of 12
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