

**Meeting of the Central Valley Flood Protection Board
July 24, 2015**

Staff Report – Encroachment Permit

**Carmichael Water District
American River Pipeline Conveyance Project
Sacramento County**

1.0 – ITEM

Consider approval of Permit No. 19028 (Attachment B)

2.0 – APPLICANT

Carmichael Water District

3.0 – LOCATION

The project is located east of Landis Avenue in Carmichael and extends across the American River and follows Rossmoor Drive to a point slightly north of the intersection of Rossmoor Drive and Ambassador Drive in Rancho Cordova. (American River Designated Floodway, Sacramento County, see Attachment A)

4.0 – DESCRIPTION

Applicant proposes to construct a new pipeline beneath the American River from Carmichael to Rancho Cordova; remove the existing pipeline from the American River; replace culverts and perform bank stabilization; perform stream restoration along the north and south banks of the American River; plant vegetation in the staging areas.

5.0 - AUTHORITY OF THE BOARD

California Water Code § 8534, 8590 – 8610.5, and 8700 - 8710

California Code of Regulations, Title 23 (Title 23)

- § 6, Need for a Permit
- § 13, Evidentiary Hearings
- § 112, Streams Regulated and Nonpermissible Work Periods
- § 123, Pipelines, Conduits, and Utility Lines
- § 131, Vegetation

6.0 – PROJECT ANALYSIS

The Carmichael Water District (CWD) provides treated water to approximately 40,000 people and maintains 12,000 connections to predominantly residential and some commercial customers. Approximately 70 to 80 percent of CWD's water supply comes from the American River with the remaining source coming from groundwater. The CWD American River Pipeline Conveyance Project will provide treated water to Golden State Water Company (GSWC) to replace the groundwater source lost due to contamination, improve safety by removing the partially exposed pipeline in the American River Designated Floodway, protect public utilities and private property adjacent to the Bajamont Water Treatment Plant, improve habitats by removing invasive species along the lower banks and replacing it with native vegetation, and provide improved drought water supply feasibility for the District. There are no project levees at this location.

The American River Pipeline Conveyance Project involves implementation of various improvements at the Aerojet Groundwater Extraction and Treatment (GET) LB facility outlet channel, new pipeline construction, removal of existing exposed pipeline, stream restoration and culvert upgrades. The improvements consist of:

1. A new 30-inch high density polyethylene pipe (HDPE) will be installed underneath the American River using horizontal directional drilling (HDD) techniques to a depth of up to 85 feet. The 30-inch HDPE pipe will connect to a proposed 24-inch ductile iron pipe installed in the designated floodway along Rossmoor Dr. using open cut trenching with approximately 5 feet of cover. This new pipeline will convey treated groundwater to customers within the GSWC service area and also have the ability to convey water back from GSWC to CWD during severe drought conditions.

2. Removal of the existing 300 feet of exposed and buried 33-inch pipeline and associated concrete and steel structures from the American River. The abandoned existing 33-inch steel pipe was initially trenched 8-feet below the river grade across the American River in the 1950s to convey water from the District's Ranney collectors to Carmichael Water District. The pipeline has since been exposed due to natural scouring of the river bottom, creating a potential safety hazard. Permit No. 2980 authorized the existing 33-inch pipeline and water collector facilities on the left bank of the American River Designated Floodway located south of Fair Oaks Boulevard and at the east end of Oak Avenue (see Attachment C). The permit will stay active because of the other authorized encroachments.
3. Replacement of the existing 24-inch diameter culvert with a 47-inch by 60-inch arch culvert. The existing culvert acts as a conveyance line for the Aerojet GET LB facility treated groundwater which flows from the District's Bajamont Water Treatment Plant to the American River. The existing culvert is undersized and overtopping would occur during storm events along with significant undercutting at the outlet which would lead to erosion and channel scouring.
4. Perform stream restoration activities for the North Bank Restoration Area which includes: grading of the riverbank to reduce erosion, removing the abandoned steel and concrete utility pads, and planting native vegetation along the river bank of the American River.

6.1 – Hydraulic Analysis

The pipeline will be installed underground resulting in no hydraulic impact; therefore a hydraulic analysis was not required.

6.2 – Geotechnical Analysis

Subsurface investigations were conducted by Kleinfelder, Inc to determine the feasibility of the soil for both the open cut and HDD methods. Liquefaction and dynamic settlement were also analyzed for the project site. Soil conditions were deemed feasible for both pipe installation methods. Liquefaction potential was determined to be low in the areas utilizing the open cut method but moderate to high in the areas utilizing the HDD method. The portion of the pipeline being installed via HDD method is still

considered to have low liquefaction potential because the pipeline will be installed below the soils that are most susceptible to liquefaction.

7.0 – AGENCY COMMENTS AND ENDORSEMENTS

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

- There is no local maintaining agency for the project area.
- The U.S. Army Corps of Engineers 208.10 comment letter has been received for this application. The USACE District Engineer has no objection to the project, subject to conditions. The letter is incorporated into the permit as Exhibit A.

8.0 – CEQA ANALYSIS

The Board, as a responsible agency under CEQA, has reviewed the Initial Study/Mitigated Negative Declaration (IS/MND) (SCH Number: 2015022027, February 2015), and Mitigation Measures for the American River Pipeline Conveyance Project prepared by the lead agency, Carmichael Water District. These documents, including project design, may be viewed or downloaded from the Central Valley Flood Protection Board website at: <http://www.cvfpb.ca.gov/meetings/2015/07-24-2015.cfm> under the link for this agenda item. These documents are also available for review in hard copy at the Board and the Carmichael Water District offices.

Carmichael Water District determined that the project would not have a significant effect on the environment on April 20, 2015 and adopted Resolution No. 04202105-1. A Notice of Determination was filed on April 22, 2015 with the State Clearinghouse. Board staff finds that although the proposed project could have a potentially significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. The project proponent has incorporated mandatory mitigation measures into the project plans to avoid identified impacts or to mitigate such impacts to a point where no significant impacts will occur. These mitigation measures are included in the project proponent's IS/MND and address impacts to biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, and transportation and traffic. The description of the mitigation measures are further described in the adopted IS/MND.

The documents and other materials which constitute the record of the Central Valley Flood Board's proceedings in this matter are in the custody of Leslie Gallagher, Acting Executive Officer, Central Valley Flood Protection Board, 3310 El Camino Ave., Rm. 151, Sacramento, California 95821.

9.0 – 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 original and updated applications and supporting documents, this Staff Report and attachments, all other evidence presented by any individual or group, and all letters and other correspondence received by the Board and in the Board's files related to this matter.

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 permit.

3. Effects of the decision on facilities of the State Plan of Flood Control, and consistency of the proposed project with the Central Valley Flood Protection Plan as adopted by Board Resolution 2012-25 on June 29, 2012:

The proposed project includes underground work and stream bank stabilization for erosion control; therefore there will be no adverse effect on facilities of the State Plan of Flood Control and is consistent with the Central Valley Flood Protection Plan.

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

No effects are anticipated for the proposed project from reasonable projected future events. The river banks will be stabilized to prevent erosion and the proposed pipeline in the American River will be buried deep enough that it will not be affected by scouring of the river bottom in future high water flow events.

10.0 – STAFF RECOMMENDATION

Staff recommends that the Board:

Adopt:

- The CEQA findings;

Approve:

- draft Encroachment Permit No. 19028 in substantially the form provided; and

Direct:

- the Executive officer to take the necessary actions to execute the permit and file a Notice of Determination pursuant to CEQA with the State Clearinghouse.

11.0 – LIST OF ATTACHMENTS

- A. Location Maps and Photos
- B. Draft Permit No. 19028
- C. Permit No. 2980
- D. Construction Plans

Design Review:

Minh Chieng

Environmental Review:

Andrea Buckley, Senior Environmental Scientist

Document Review:

Gary W. Lemon, P.E. Permitting Section Chief

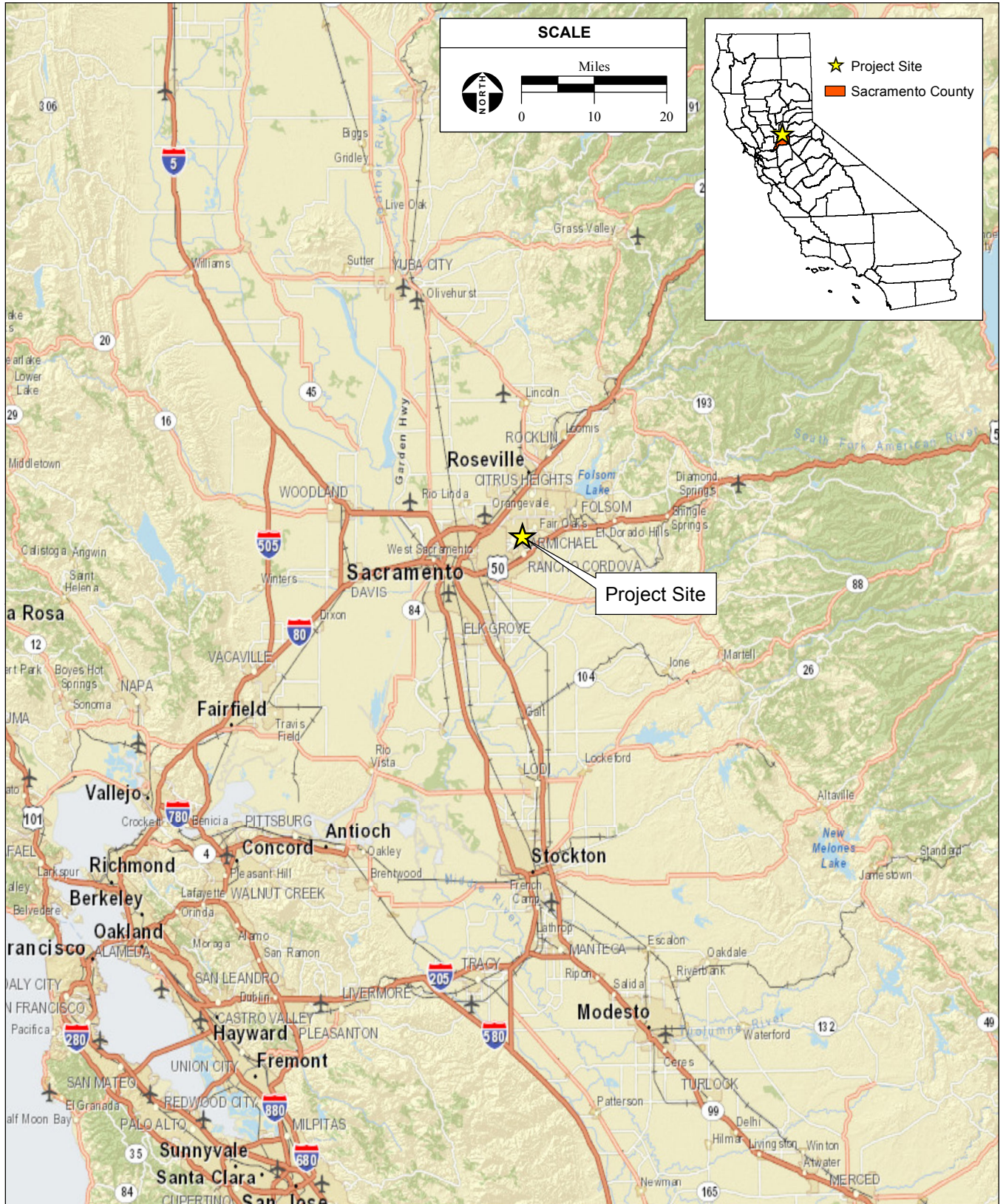
Mitra Emami, P.E. Permitting and Enforcement Branch Chief

Len Marino, P.E. Chief Engineer

Legal Review:

Nicole Rinke, Counsel

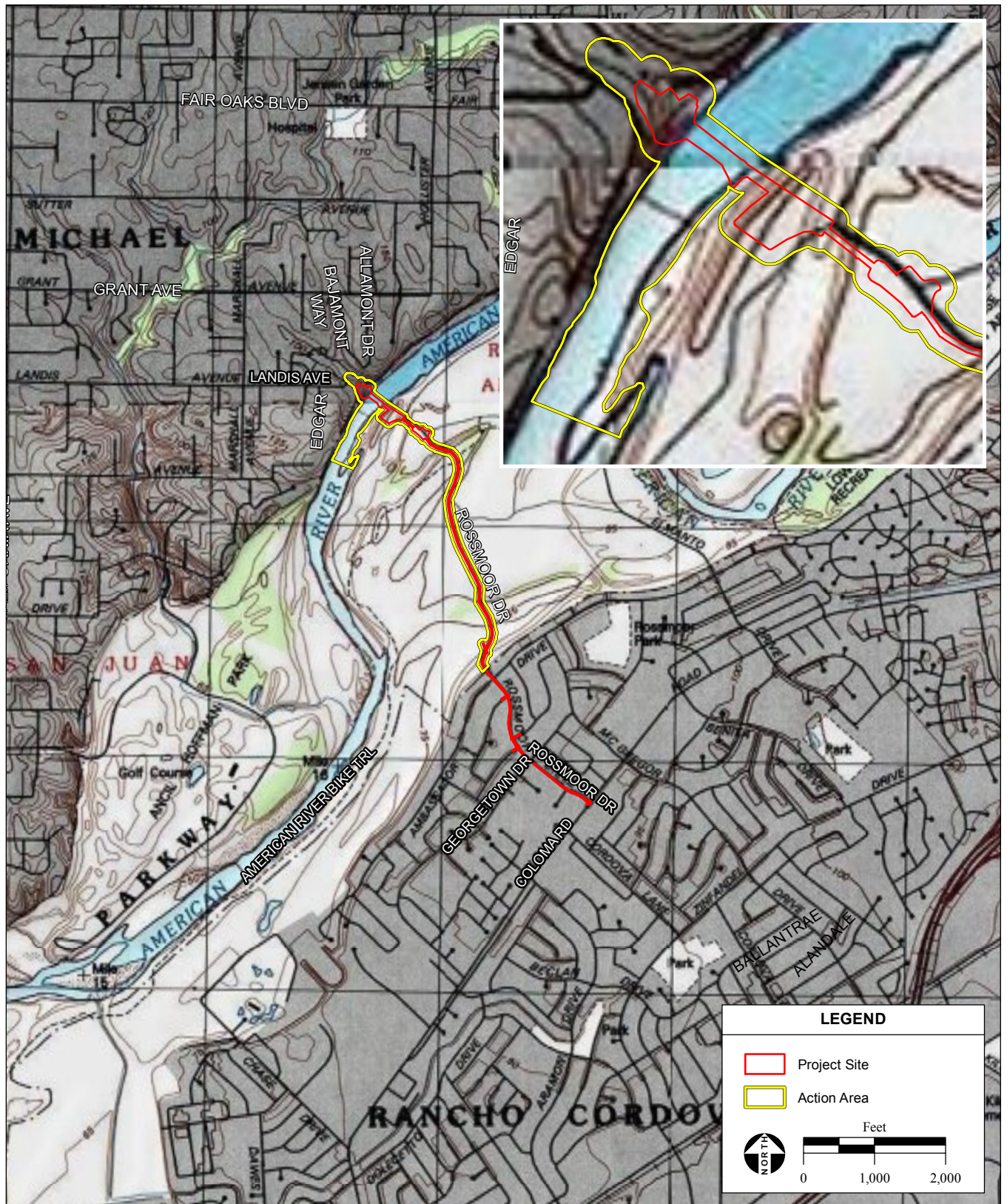
ATTACHMENT A



SOURCE: ESRI Data, 2014; AES, 2015

CWD American River Pipeline Conveyance Project / 210560 ■

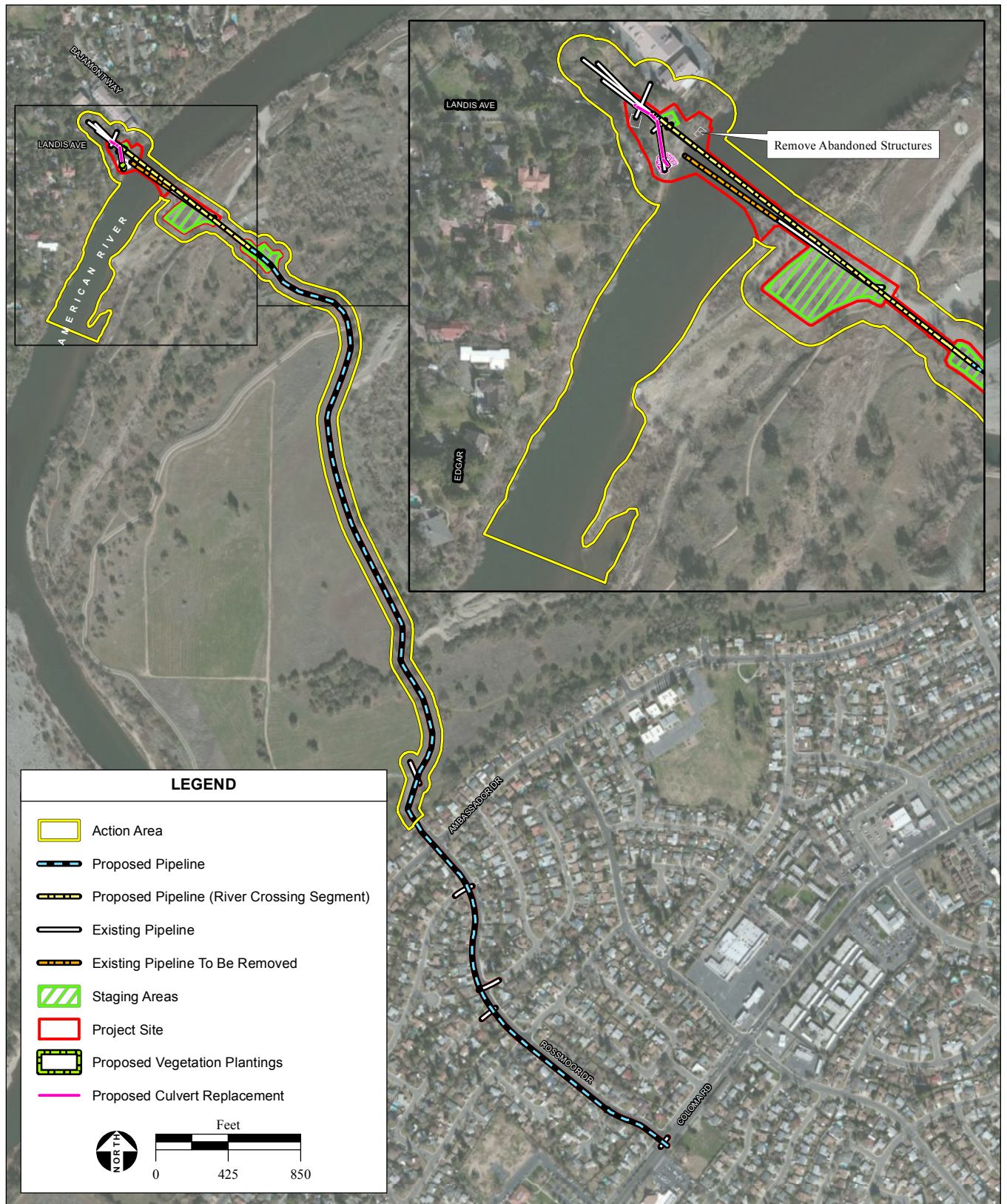
Figure 1
Regional Location



SOURCE: "Citrus Heights, CA" & "Carmichael, CA" USGS 7.5 Minute Topographic Quadrangles, T9N, R6E, Unsectioned Areas of Citrus Heights & Carmichael, Mt. Diablo Baseline & Meridian; AES, 2015

CWD American River Pipeline Conveyance Project / 210560 ■

Figure 2
Site and Vicinity



SOURCE: Kennedy-Jenks, 8/2014; DigitalGlobe aerial photograph, 2/2/2012; AES, 2015

CWD American River Pipeline Conveyance Project / 210560 ■

Figure 3
Aerial Photograph

Section 9.E: Project site color photographs:

South Bank



Photo 1: A view of the existing abandoned pipeline emerging onto the south bank, with debris field on the right. Photo taken 10/01/2014.



Photo 3: A view of riparian corridor taken from the abandoned pipeline, looking east of the project area on south bank of American River. Photo taken 10/01/2014.



Photo 2: A view of the existing abandoned pipeline and the debris field from the top of north bank. Photo taken 10/01/2014.



Photo 4: A view of the staging area for the abandoned pipeline removal. 10/1/2014.

Figure 4a

Section 9.E: Project site color photographs:

North Bank



Photo 1) A view of the staging area, the approximate location where the bottomless culvert will cross and the jack and bore pipeline that will emerge to connect with the treated water distribution system from the access road. Photo taken 10/1/2014.

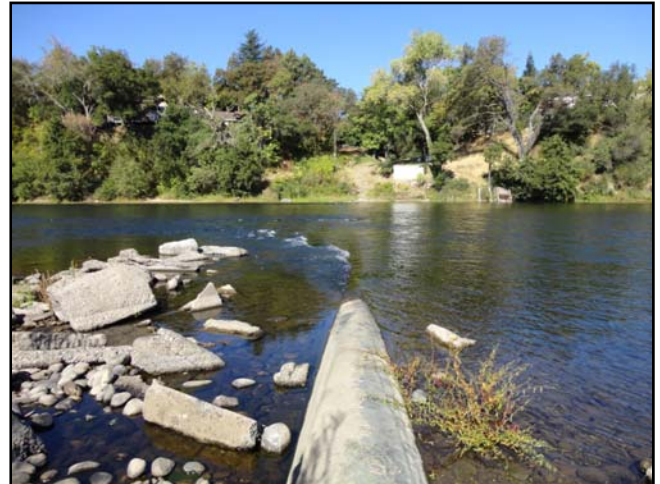


Photo 3) This view shows the north bank work area taken from the south bank showing the debris field and abandoned pipeline in the foreground. Photo taken 10/1/2014.



Photo 2) A view of the abandoned concrete structures, the maintained lawn, sparse riparian vegetation, and staging area on north bank of American River, from the access road above site. Photo taken 10/01/2014.



Photo 4) A view of the abandoned concrete vaults and fragmented riparian corridor on the north bank; looking from the south bank. Photo taken 10/01/2014.

Figure 5a



Photo 5) This view is of the sewer lift station to the left, which will be protected by the culvert extension; the unnamed drainage and the entrance/headwall to the culvert with the maintained lawn in the foreground. Photo taken 10/1/2014.



Photo 7) This view is the outflow from the unnamed drainage at the discharge point to the American River showing invasive plant species. Photo taken 10/1/2014.



Photo 6) This view is of the outflow of the unnamed drainage where it emerges from the culvert and drops eight to ten feet into an eroded scour pool flanked by invasive plant species. Step ponds will be placed to within two to three feet of the outflow and invasive vegetation will be removed and replaced with native plant species. Photo taken 10/1/2014.



Photo 8) This photo shows a high flow event that occurred in December 2010, during which the stage of the American River was 10 to 12 inches below the culverted drainage. Note that the high river flows have eroded the banks around culvert. Photo taken 12/16/2010.

Figure 5b

DRAFT

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

PERMIT NO. 19028 BD

This Permit is issued to:

Carmichael Water District
7837 Fair Oaks Boulevard
Carmichael, California 95608

To construct a new pipeline beneath the American River from Carmichael to Rancho Cordova; remove the existing pipeline from the American River; replace culverts and perform bank stabilization; perform stream restoration along the north and south banks of the American River; plant vegetation in the staging areas.

The project is located east of Landis Avenue in Carmichael and extends across the American River and follows Rossmoor Drive to a point slightly north of the intersection of Rossmoor Drive and Ambassador Drive in Rancho Cordova. (Section 22, 23, T9N, R6E, MDB&M, American River, 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

ATTACHMENT B

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. 19028 BD

LIABILITY AND INDEMNIFICATION

THIRTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the herein permitted encroachment(s) and shall defend, indemnify, and hold the Central Valley Flood Protection Board (the Board) and the State of California (the State); 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.

FOURTEEN: The permittee shall defend, indemnify, and hold the Board and the State, 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.

FIFTEEN: The Board and the California Department of Water Resources (DWR) shall not be held liable for any damage(s) to the herein permitted encroachment(s) resulting from release(s) of water from reservoirs, flood fight, operation, maintenance, inspection, or emergency repair.

AGENCY CONDITIONS

SIXTEEN: The permittee shall comply with all conditions set forth in the letter from the Department of the Army (U.S. Army Corps of Engineers, Sacramento District) dated July 14, 2015 which is attached to this permit as Exhibit A and is incorporated by reference.

PRE-CONSTRUCTION

SEVENTEEN: 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 Board.

EIGHTEEN: Upon receipt of a signed copy of the issued permit the permittee shall contact the Board by telephone at (916) 574-0609, and submit the enclosed postcard, to schedule a preconstruction conference with the inspector that is assigned to your project. Failure to do so at least 10 working days prior to start of work may result in a delay of the project.

CONSTRUCTION

NINETEEN: No construction work of any kind shall be done during the flood season from November 1st to April 15th without prior approval of the Board.

TWENTY: All cleared trees and brush shall be completely burned or removed from the floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1st to April 15th.

TWENTY-ONE: Backfill material for any/all excavations relative to this permit and being within the American River Designated Floodway shall be of the same classification/type material as excavated during construction. Said 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-TWO: All debris generated by this project shall be properly disposed of outside the American River Designated Floodway.

TWENTY-THREE: The pipeline within the overflow area shall be buried with a minimum of 2 feet of cover.

TWENTY-FOUR: Pipe installed under the stream channel shall have a minimum of 30 feet of cover under the stream channel.

TWENTY-FIVE: Bentonite and/or other drilling fluids shall be properly disposed of outside of the floodway. The bentonite or other drilling fluids shall not be used as backfill.

POST-CONSTRUCTION

ATTACHMENT B

TWENTY-SIX: The designated floodway shall be restored to at least the condition that existed prior to commencement of work.

OPERATIONS AND MAINTENANCE

TWENTY-SEVEN: The permittee shall maintain the herein permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of DWR or any other responsible agency.

TWENTY-EIGHT: In the event that scour occurs at and/or adjacent to and as a result of the project, the permittee shall repair the eroded area and propose measures, to be approved by the Board, to prevent further erosion.

PROJECT ABANDONMENT / CHANGE IN PLAN OF FLOOD CONTROL

TWENTY-NINE: If the herein permitted encroachment(s), or any portion(s) thereof, is/are to be abandoned in the future, the permittee or successor shall abandon said encroachment(s) under direction of the Board at the permittee's or successor's cost and expense.

THIRTY: The permittee or successor may be required, at permittee's or successor's cost and expense, to remove or alter all or any part of the herein permitted encroachment(s) if modification or alteration 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 Board may modify/remove the herein permitted encroachment(s) at the permittee's expense.

END OF CONDITIONS



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

Flood Protection and Navigation Section (19028)

JUL 14 2015

Ms. Leslie M. Gallagher, Acting Executive Officer
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, California 95821

Dear Ms. Gallagher:

We have reviewed permit application number 19028 submitted by the Carmichael Water District. These plans include constructing a new pipeline beneath the American River from Carmichael to Rancho Cordova; removing an existing pipeline from the American River; replacing culverts and performing bank stabilization; performing stream restoration along the north and south banks of the American River; and planting vegetation in the staging areas. The project is located east of Landis Avenue in Carmichael and extends across the American River and follows Rossmoor Drive to a point slightly north of the intersection of Rossmoor Drive and Ambassador Drive in Rancho Cordova, at 38.625392°N 121.303872°W NAD83, Sacramento County, California.

The proposed work is not located within the boundary of a federally constructed project, however, because the American River flood risk management project is being designed to flow at 160,000 cubic feet per second (cfs), the Board shall ensure that the design flow is not compromised by this proposed work.

A copy of this letter is being furnished to Mr. Don Rasmussen, Chief, Flood Project Integrity and Inspection Branch, 3310 El Camino Avenue, Suite 200, Sacramento, CA 95821.

Sincerely,

A handwritten signature in blue ink, reading "Ryan Larson", is located below the "Sincerely," text.

Ryan Larson, P.E.
Chief, Flood Protection and Navigation Section

RECLAMATION BOARD MEETING

JANUARY 2, 1959

ORDER OF THE RECLAMATION BOARD

ORDERED, that the hereinafter indicated application and plans are hereby approved and permission to proceed with the work proposed is hereby granted, subject to the following conditions:

ONE: That this order, with its terms, conditions, and reservations, shall be ineffective for any purpose whatsoever until applicant, or the duly authorized agent thereof, shall accept in writing, and agree to all the terms, conditions, and restrictions hereof, which said acceptance and agreement shall be endorsed upon a copy of this order, in the form provided therefor, which form is hereby made a part of the substance hereof.

TWO: That this approval of plans does not carry with it permission to construct any works on lands owned by the Sacramento and San Joaquin Drainage District, nor on any other lands whatsoever.

THREE: That the work hereunder shall be accomplished under the direction and supervision of the State Department of Water Resources, and applicants shall conform to all requirements of said Department; and applicant shall notify said Department of Water Resources, P. O. Box 388, phone HI ckory 5-4711, local 5140, at least three days prior to commencement of the contemplated work.

FOUR: That applicant shall at the applicant's sole cost and expense, remove, alter, relocate, or reconstruct all or any part of the work herein approved immediately upon order of the Reclamation Board so to do, and in the manner prescribed thereby, should said work or any portion thereof not conform to the provisions of this order, or should they interfere with the proper operation or maintenance of any flood control or reclamation works, or should it be required under any flood control plans for the locality in which the work herein approved is to be accomplished, and which may be instituted in the future; and in case applicant delays acting upon any such order of the Reclamation Board, the Board may proceed to perform the required work and the cost thereof shall be paid by applicant.

FIVE: That applicant shall pay any and all expenses which the Reclamation Board or the Department of Water Resources shall find it necessary to incur for the purpose of assuring the Board or the Department that this order is being and has been complied with by applicant and that the work is performed in conformity with the plans herein approved.

The above indicated Order of the Reclamation Board pertains to that application filed in the office of the Reclamation Board on December 11, 1958, (Application No. 2980) by **CARMICHAEL IRRIGATION DISTRICT** for approval of plans for construction of water collector facilities south of the south end of Hollister Avenue, or south of Fair Oaks Boulevard on left bank of American River and the east end of Oak Avenue right bank American River, and for a pipeline crossing of American River at approximately the intersection of Landis Avenue extended and the American River, Sacramento County.

STATE OF CALIFORNIA }
COUNTY OF SACRAMENTO } ss.
Office of the Reclamation Board }

I WILLIAM A. CARVER do hereby certify that the above and foregoing is a true and correct copy of an Order made by said Board at the above indicated meeting.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Reclamation Board, this 2nd day of January, 1959.


WILLIAM A. CARVER
Assistant Secretary

The undersigned and heretofore named applicant, or the applicant's duly authorized agent, hereby accepts the above and foregoing Order subject to all the terms thereof, agrees to abide by the same, and on the applicant's behalf and on behalf of the applicant's successors, agents and assigns, waives all claims arising, directly or indirectly, out of, or in any manner based upon any act, order, regulation, or requirement of the Reclamation Board, the Sacramento and San Joaquin Drainage District, or the Department of Water Resources, the officials, agents or employees thereof, done pursuant to the terms and provisions of the above and foregoing Order, and does for the applicant, the applicant's successors, agents and assigns, agree to hold and save harmless the said Reclamation Board, the Sacramento and San Joaquin Drainage District, the Department of Water Resources and the officials, agents or employees thereof, from any and all claims, damages or liability due to or arising out of this application or any activity in connection therewith.

IN WITNESS WHEREOF, the said applicant, or the applicant's duly authorized agent, has executed this certificate, this _____ day of _____, 19____, at _____, California.

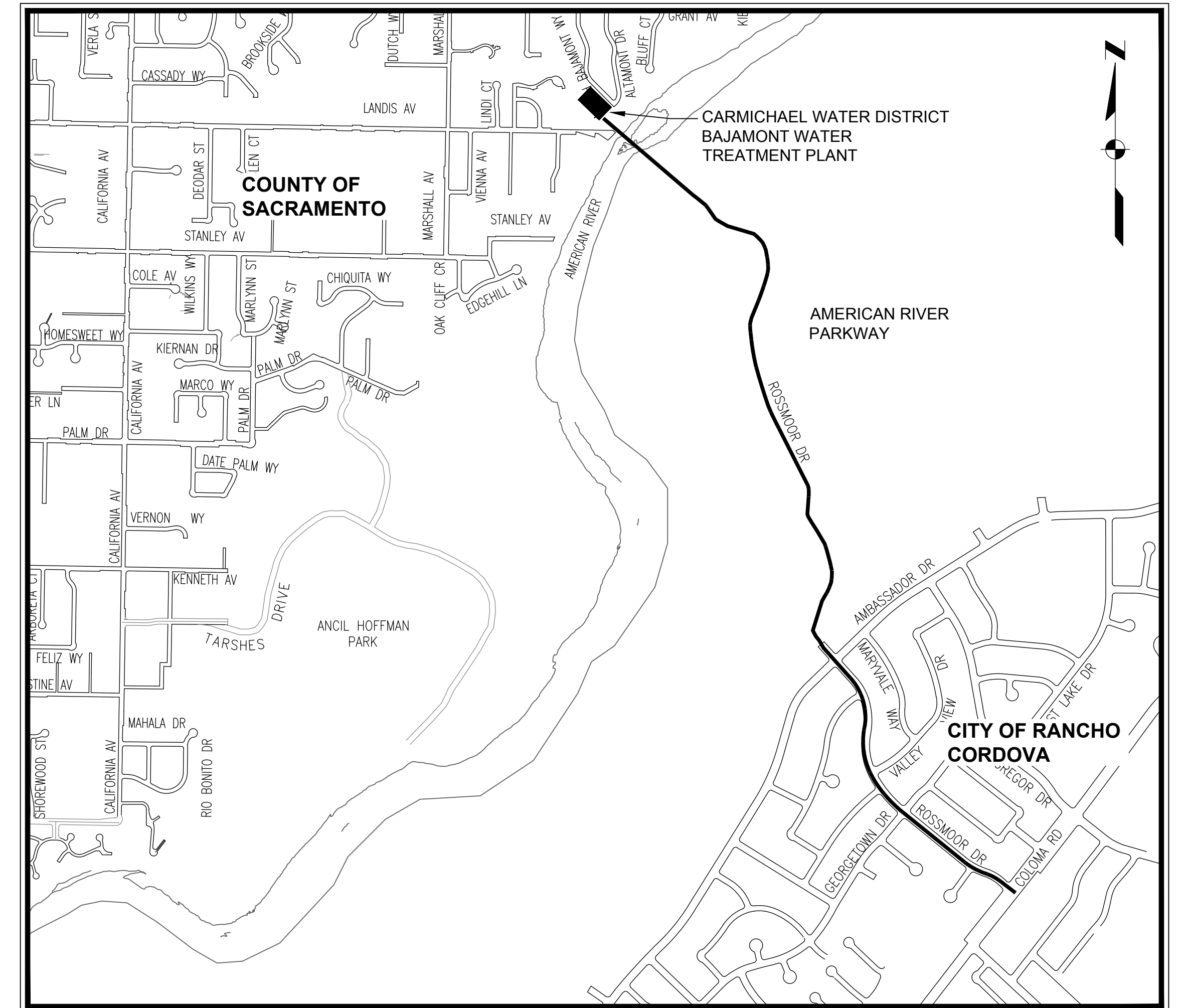
CARMICHAEL IRRIGATION DISTRICT

By _____

By _____

A detailed map of the Sacramento-San Joaquin River Delta region. The map shows major highways including SR 99, SR 80, SR 160, SR 50, and SR 16. Key cities and towns labeled include Sacramento, Fair Oaks, Carmichael, Roseville, Elverta, Rio Linda, Citrus Heights, Orangevale, Folsom, and Wilton. The Sacramento River and San Joaquin River are shown, along with the Sacramento-San Joaquin River Ship Canal. A black arrow points to the 'PROJECT LOCATION' near Fair Oaks and Carmichael. Other features include Folsom Lake, Mather Field, and various smaller communities like Elverta, Rio Linda, and Citrus Heights. The map also shows the Delta National Wildlife Refuge and the Delta Regional Center.

LOCATION MAP
SCALE: 1" = 1000' (APPROX)



UTILITY	REPRESENTATIVE	PHONE
GAS	PACIFIC GAS & ELECTRIC 5555 FLORIN-PERKINS ROAD SACRAMENTO, CA 95826	(916) 386-5153 OR U.S.A.
ELECTRICITY	SACRAMENTO MUNICIPAL UTILITY DISTRICT 1708 59TH STREET SACRAMENTO, CA 95817	(916) 349-3668 OR U.S.A.
TELEPHONE	SBC 3675 T STREET. ROOM 111 SACRAMENTO, CA 95816	(916) 453-7315 OR U.S.A.
WATER	CARMICHAEL WATER DISTRICT 7837 FAIR OAKS BLVD. CARMICHAEL, CA 95609	(916) 483-2452 OR U.S.A.
SEWER	CSD-1 10545 ARMSTRONG AVE, SUITE 101 MATHER, CA 95655	(916) 875-6730 OR U.S.A.

UTILITY	REPRESENTATIVE	PHONE
DRAINAGE	COUNTY OF SACRAMENTO 827 7TH STREET SACRAMENTO, CA 95814	(916) 874-6851 OR U.S.A.
CABLE TV	COMCAST CABLE 4350 PELL DRIVE SACRAMENTO, CA 95838	(916) 927-2225 OR U.S.A.
USA	UNDERGROUND SERVICE ALERT	(800) 642-2444 OR 811
FIRE DEPARTMENT	SACRAMENTO METRO FIRE DEPARTMENT 3112 GOLD CANAL DRIVE RANCHO CORDOVA, CA 95670	(916) 942-3300 OR 911 EMERGENCY

APPROVED BY:		DATE
	CITY OF RANCHO CORDOVA	

APPROVED BY:		DATE
	SACRAMENTO METRO FIRE DEPARTMENT	

APPROVED BY:		DATE
	STEVE NUGENT, GENERAL MANAGER CARMICHAEL WATER DISTRICT	


SUBMITTED BY:		DATE
	ALEX R. PETERSON, R.C.E. 46095	

FILE NAME	147000200G01
JOB NO.	1470002*00
DATE	AUGUST 2014
SHEET	OF
G1	21

THIS DOCUMENT, INCLUDING THE INCORPORATED
DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS
PROJECT AND SHALL NOT BE USED FOR ANY OTHER
PROJECT WITHOUT THE WRITTEN AUTHORIZATION
OF KENNEDY/JENKS CONSULTANTS.

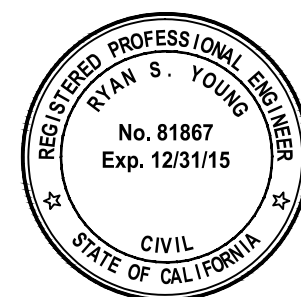
Nº.	REVISION	DATE	BY

SCALES

0  1"

0 25mm

IF THIS BAR IS NOT
DIMENSION SHOWN,
ADJUST SCALES
ACCORDINGLY.



DESIGNED	RSY
DRAWN	HCS
CHECKED	ARF

CARMICHAEL WATER DISTRICT
CARMICHAEL, CALIFORNIA

AMERICAN RIVER PIPELINE CONVEYANCE PROJECT

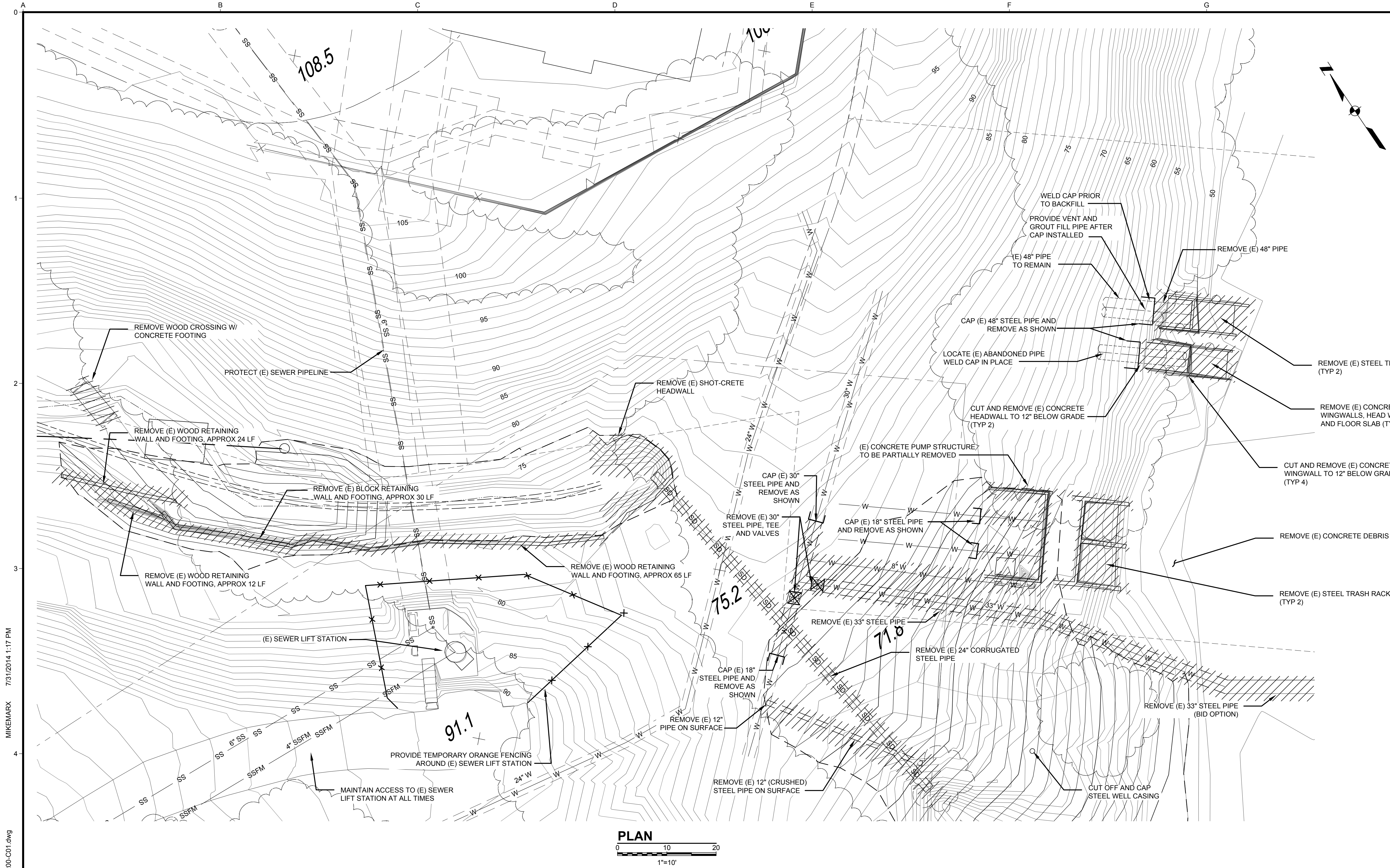
Kennedy/Jenks Consultants
10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670

TITLE SHEET, VICINITY AND LOCATION MAP

90% SUBMITTAL

P:\CAD\1414170002_00_CWD-GSWC-Pipeline\147000200g03.dwg
8/5/2014 3:16 PM
MIKEMARX

GENERAL NOTES					SYMBOLS		ABBREVIATIONS		VALVE SYMBOLS		
<div>1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CARMICHAEL DISTRICT CONSTRUCTION.</div> <div>2. THE LOCATION, PIPE DIAMETER, AND MATERIAL INDICATED AND/OR ELEVATIONS OF UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE ONLY. NEITHER THE OWNER NOR THE ENGINEER ASSUMES RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT ALL UTILITY COMPANIES SO THAT THOSE COMPANIES MAY MARK THE LOCATIONS OF THEIR LINES PRIOR TO PIPELINE INSTALLATION. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICES ALERT (USA) AT (800) 227-2600 IN ACCORDANCE WITH THE LAW PRIOR TO ALL EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE EXISTING UTILITIES, WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS, AND TO FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.</div> <div>3. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS TO AVOID EXISTING UTILITIES. METHOD OF ADJUSTMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.</div> <div>4. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.</div> <div>5. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING SURFACE FEATURES, AND REPORT ANY DISCREPANCIES TO THE ENGINEER 5 DAYS IN ADVANCE OF CONSTRUCTION IN THAT AREA.</div> <div>6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND FURNISH, INSTALL AND MAINTAIN TEMPORARY SIGNS, BARRICADES, FLAGMEN, AND OTHER FACILITIES TO ADEQUATELY SAFEGUARD THE GENERAL PUBLIC AND WORK, AND TO PROVIDE FOR THE PROPER ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC.</div> <div>7. MECHANICAL EQUIPMENT USED ON THIS PROJECT SHALL BE SELECTED TO MINIMIZE DAMAGE TO THE EXISTING PAVEMENT ALONG THE PROJECT SITE AND TO ALL ROADS USED AS TRUCK ROUTES TO BRING MATERIAL AND EQUIPMENT TO THE PROJECT. THE CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, REPLACE DAMAGED AC PAVEMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.</div> <div>8. THE CONTRACTOR SHALL MAINTAIN VEHICLE ACCESS TO ALL PROPERTIES ADJACENT TO THE WORK THROUGHOUT THE PERIOD OF CONSTRUCTION. ONE ACCESS ROUTE TO ALL BUSINESSES ADJACENT TO THE WORK SHALL BE PROVIDED AT ALL TIMES. ALL EXCAVATIONS WILL BE PLATED OR BACKFILLED AT THE END OF EACH WORKDAY.</div> <div>9. THE CONTRACTOR SHALL OBTAIN AN APPROVED ENCROACHMENT PERMIT AND TRAFFIC CONTROL PLAN FROM THE COUNTY OF SACRAMENTO AND CITY OF RANCHO CORDOVA FOR WORK WITHIN THE PUBLIC RIGHT OF WAY.</div> <div>10. PRIOR TO GRADING, TRENCHING, CUTTING AND/OR FILLING WITHIN THE DRIP LINE OF TREES, THE CONTRACTOR SHALL COORDINATE WITH ENGINEER.</div> <div>11. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL SURPLUS EXCAVATION MATERIAL AND DEBRIS PROMPTLY FROM THE SITE AND SHALL MAINTAIN THE SITE IN A NEAT AND ORDERLY CONDITION.</div> <div>12. ALL DISTANCES SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS. ALL STATIONING REFERS TO BASELINE UNLESS OTHERWISE NOTED. GROUND PROFILE IS ALONG ROAD CENTERLINE UNLESS OTHERWISE NOTED.</div> <div>13. THE CONTRACTOR SHALL PREPARE AND COMPLY WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). PER CALIFORNIA STATE WATER RESOURCES CONTROL BOARD CONSTRUCTION ACTIVITIES STORM WATER PERMIT NO. 2009-0009-DWS.</div> <div>14. THE CONTRACTORS SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS AND OTHER SURVEY MARKERS DURING CONSTRUCTION. ALL SUCH MONUMENTS OR MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.</div> <div>15. THE CONTRACTOR MUST OBTAIN WRITTEN PERMISSION FROM THE OWNER OF ANY PRIVATELY OWNED PROPERTY PRIOR TO BEGINNING ANY WORK. STORING MATERIALS OF OTHERWISE CONDUCTING ANY OPERATIONS ON SAID PROPERTY. THE WRITTEN APPROVAL FROM THE PROPERTY OWNER MUST BE ON FILE WITH THE DISTRICT BEFORE ANY OPERATIONS WILL BE PERMITTED ON SAID PROPERTY.</div> <div>16. ANY DISTRICT OR PRIVATE PROPERTY INCLUDING LANDSCAPING, IRRIGATION OR OTHER IMPROVEMENTS, WHICH IS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE DISTRICT AND TO THE SATISFACTION OF THE ENGINEER.</div> <div>17. THE CONTRACTOR IS RESPONSIBLE FOR HAVING A COMPLETE SET OF CONTRACT PLANS AND SPECIFICATIONS, CITY PERMITS, AND THE LATEST GOVERNING STANDARD SPECIFICATIONS AT THE PROJECT SITE DURING WORKING HOURS.</div> <div>18. THE CONTRACTOR SHALL KEEP UP-TO-DATE A COMPLETE RECORD SET OF RED-LINED PRINTS OF THE CONTRACT DRAWINGS SHOWING EVERY CHANGE FROM THE ORIGINAL DRAWINGS MADE DURING THE COURSE OF CONSTRUCTION. INCLUDING EXACT LOCATIONS, SIZES, MATERIALS, AND EQUIPMENT. A COMPLETE SET OF CORRECTED AND COMPLETED RECORD DRAWINGS SHALL BE SUBMITTED TO THE DISTRICT PRIOR TO FINAL ACCEPTANCE OF THE SYSTEM.</div> <div>19. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL POWER, UTILITIES, AND TEMPORARY FACILITIES THAT ARE NECESSARY TO COMPLETE THE WORK.</div> <div>20. NO TRENCHING WHATSOEVER SHALL BE ALLOWED WITHIN THE DRIPLINES OF EXISTING TREES NOT AUTHORIZED FOR REMOVAL WITHOUT AUTHORIZATION FROM THE DISTRICT. INCLUDING ISSUANCE OF AN APPROVED TREE PERMIT ISSUED BY THE DISTRICT ARBORIST IF NECESSARY. IF IT IS NECESSARY TO INSTALL UNDERGROUND UTILITIES WITHIN THE DRIPLINE OF AN EXISTING TREE NOT AUTHORIZED FOR REMOVAL THE UTILITY LINE SHALL BE EITHER BORED OR DRILLED. IF THE BORING OR DRILLING IS DETERMINED TO BE IMPOSSIBLE BY THE ENGINEER, THE UTILITY LINE TRENCH MAY BE HAND DUG UNDER THE DIRECT SUPERVISION OF A CERTIFIED ARBORIST.</div> <div>21. THE CONSTRUCTION WORK HOURS FOR THIS PROJECT ARE LIMITED TO MONDAY THROUGH FRIDAY, 7:00 AM TO 6:00 PM. CONSTRUCTION IS PROHIBITED ON SUNDAYS, STATE/FEDERAL HOLIDAYS, AND PER SPECIFICATIONS, EXCEPT WITH WRITTEN PERMISSION OF THE DISTRICT. REQUEST MUST BE SUBMITTED IN WRITING TO THE OWNER'S REPRESENTATIVE AT LEAST TWO (2) DAYS IN ADVANCE OF THE INTENDED WORK. IN CASE OF EMERGENCY THE CONTRACTOR WILL BE ALLOWED TO WORK AT NIGHT OR ON SUNDAYS OR LEGAL HOLIDAYS, BUT MUST NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY.</div>					<div>GENERAL CIVIL</div> <div>SPOT ELEVATION INTERMEDIATE CONTOUR INDEX CONTOUR TREE BUILDING ABANDONED WATERLINE WATERLINE OVER HEAD ELECTRICAL ELECTRICAL LINE STORM DRAIN SANITARY SEWER GAS STORM DRAIN CABLE TV RIGHT-OF-WAY EASEMENT EDGE OF PAVEMENT FLOWLINE PROPERTY LINE FENCE CENTERLINE TO BE REMOVED UNDISTURBED EARTH (IN SECTION) SLOPING GRADE (IN PLAN) CATCH BASIN MANHOLE CONCRETE ASPHALTIC CONCRETE PAVEMENT (IN SECTION) AGGREGATE BASE (IN SECTION) EDGE OF PAVEMENT (IN PLAN) SERVICE POLE JOINT UTILITY POLE STREET LIGHT FIRE HYDRANT WATER VALVE WATER BOX GAS METER MAILBOX SEWER CLEANOUT PROJECT BENCHMARK AIR RELEASE VALVE BLOW OFF VALVE</div>		<div>NEW</div> <div>EXISTING</div> <div></div>				



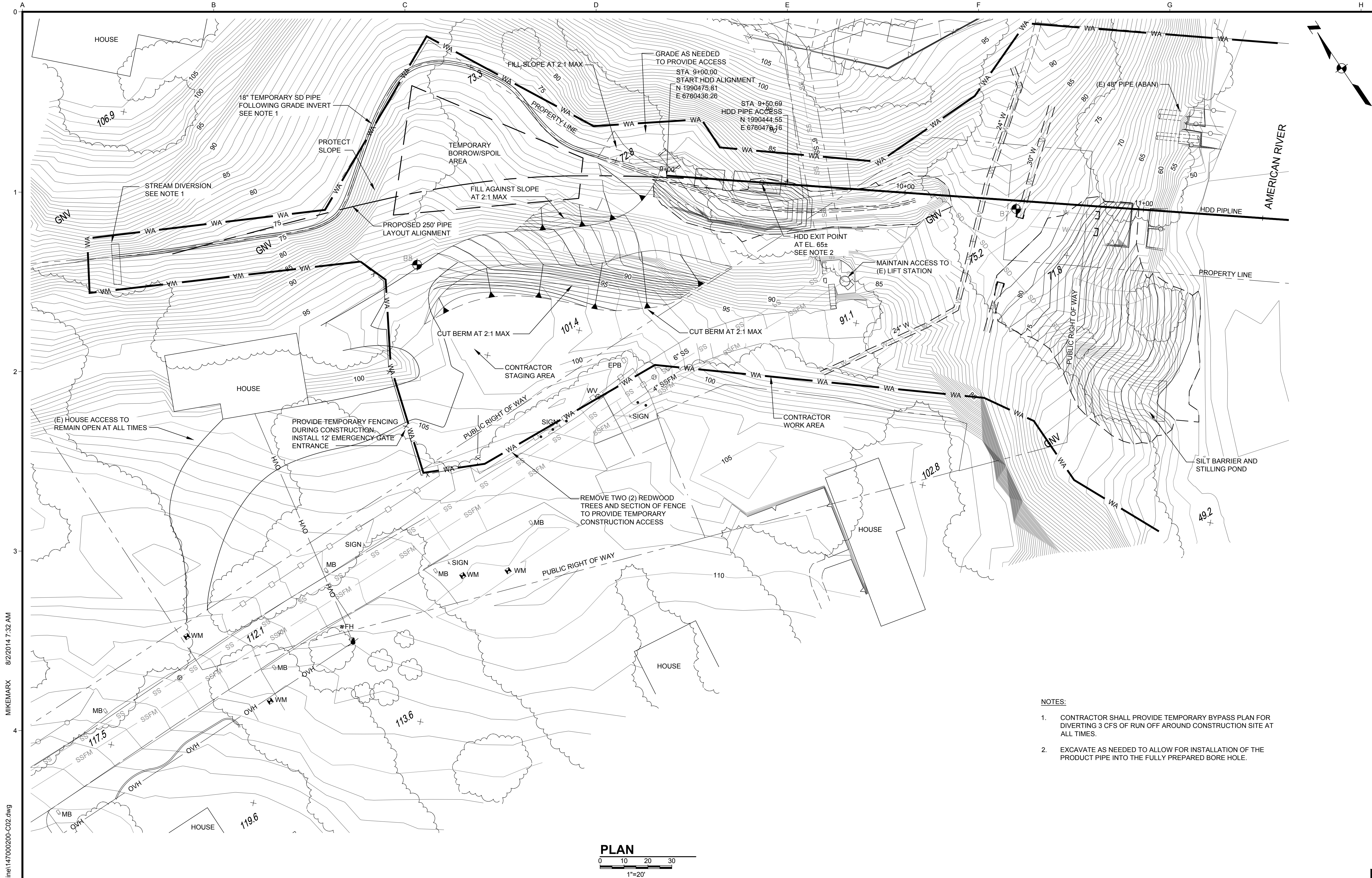
PLAN
0 10 20
1"=10'

PRELIMINARY N.F.C.

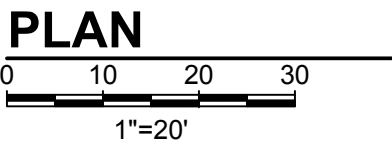
USE OF DOCUMENTS <small>THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.</small>					DESIGNED RSY DRAWN LMM CHECKED ARP	CARMICHAEL WATER DISTRICT CARMICHAEL, CALIFORNIA AMERICAN RIVER PIPELINE CONVEYANCE PROJECT Kennedy/Jenks Consultants 10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670	DEMOLITION PLAN 90% SUBMITTAL	FILE NAME 147000200-C01 JOB NO. 1470002'00 DATE AUGUST 2014 SHEET C1 OF 21
	NO.	REVISION	DATE	BY				

SCALES
0 1" 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.



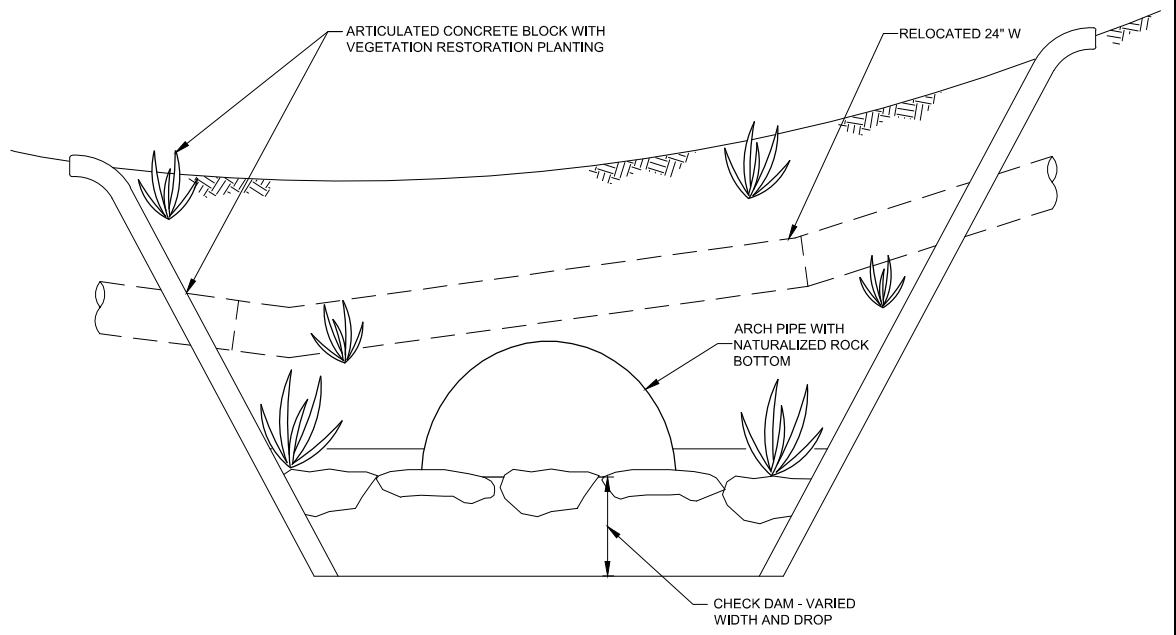
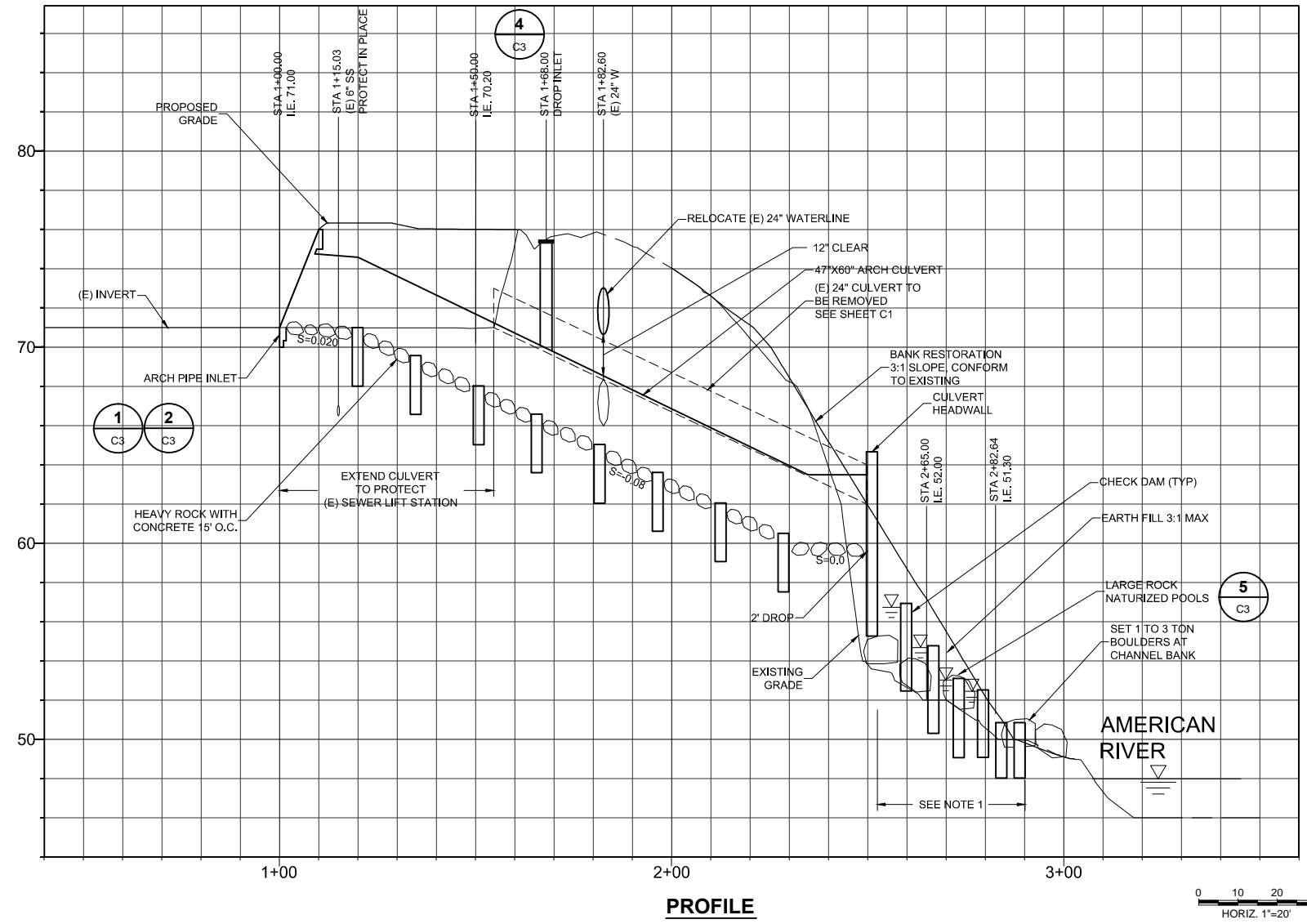
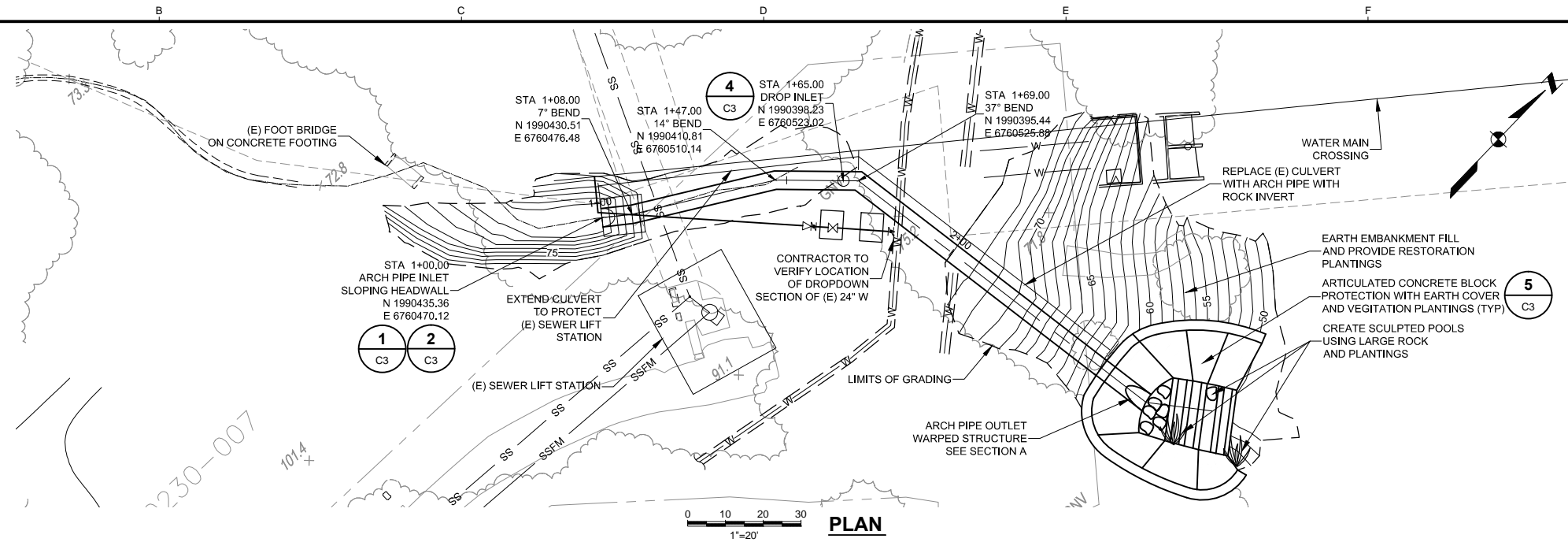


- NOTES:
1. CONTRACTOR SHALL PROVIDE TEMPORARY BYPASS PLAN FOR DIVERTING 3 CFS OF RUN OFF AROUND CONSTRUCTION SITE AT ALL TIMES.
 2. EXCAVATE AS NEEDED TO ALLOW FOR INSTALLATION OF THE PRODUCT PIPE INTO THE FULLY PREPARED BORE HOLE.



PRELIMINARY N.F.C.

<p>USE OF DOCUMENTS</p> <p>THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.</p>				<p>NO.</p> <p>REVISION</p> <p>DATE</p> <p>BY</p>				<p>SCALES</p> <p>0 1" 25mm</p> <p>IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.</p>				<p>DESIGNED</p> <p>RSY</p> <p>DRAWN</p> <p>LMM</p> <p>CHECKED</p> <p>ARP</p>		<p>CARMICHAEL WATER DISTRICT</p> <p>CARMICHAEL, CALIFORNIA</p> <p>AMERICAN RIVER PIPELINE CONVEYANCE PROJECT</p> <p>Kennedy/Jenks Consultants</p> <p>10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670</p>		<p>SITE ACCESS AND GRADING - NORTH BANK</p> <p>90% SUBMITTAL</p>		<p>FILE NAME</p> <p>147000200-C03</p> <p>JOB NO.</p> <p>1470002*00</p> <p>DATE</p> <p>AUGUST 2014</p> <p>SHEET</p> <p>OF</p> <p>C2</p> <p>21</p>	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	---	--

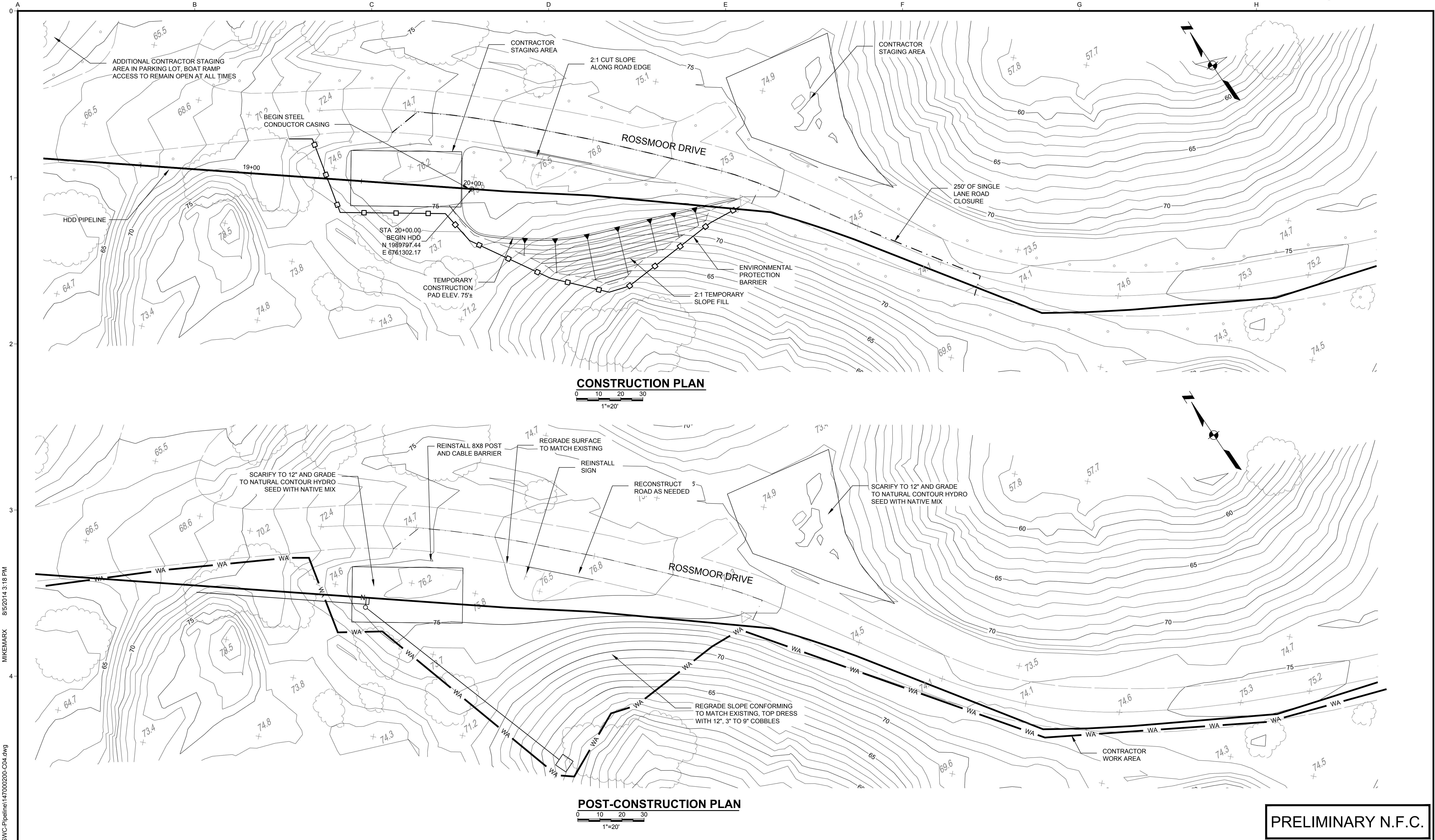


NOTES:
1. STEPPED PONDS RANGING IN SIZE AND DROP.

SECTION A

PRELIMINARY N.F.C.

USE OF DOCUMENTS THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.	NO.	REVISION	DATE	BY	SCALES 1" = 25mm IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.	DESIGNED RSY DRAWN LMM CHECKED ARP	CARMICHAEL WATER DISTRICT CARMICHAEL, CALIFORNIA AMERICAN RIVER PIPELINE CONVEYANCE PROJECT Kennedy/Jenks Consultants 10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670	ENVIRONMENTAL RESTORATION - NORTH BANK	90% SUBMITTAL	FILE NAME 147000200-C03
										JOB NO. 1470002*00
										DATE JULY 2014
										SHEET C3
										OF 20

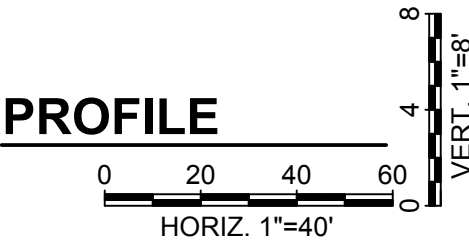
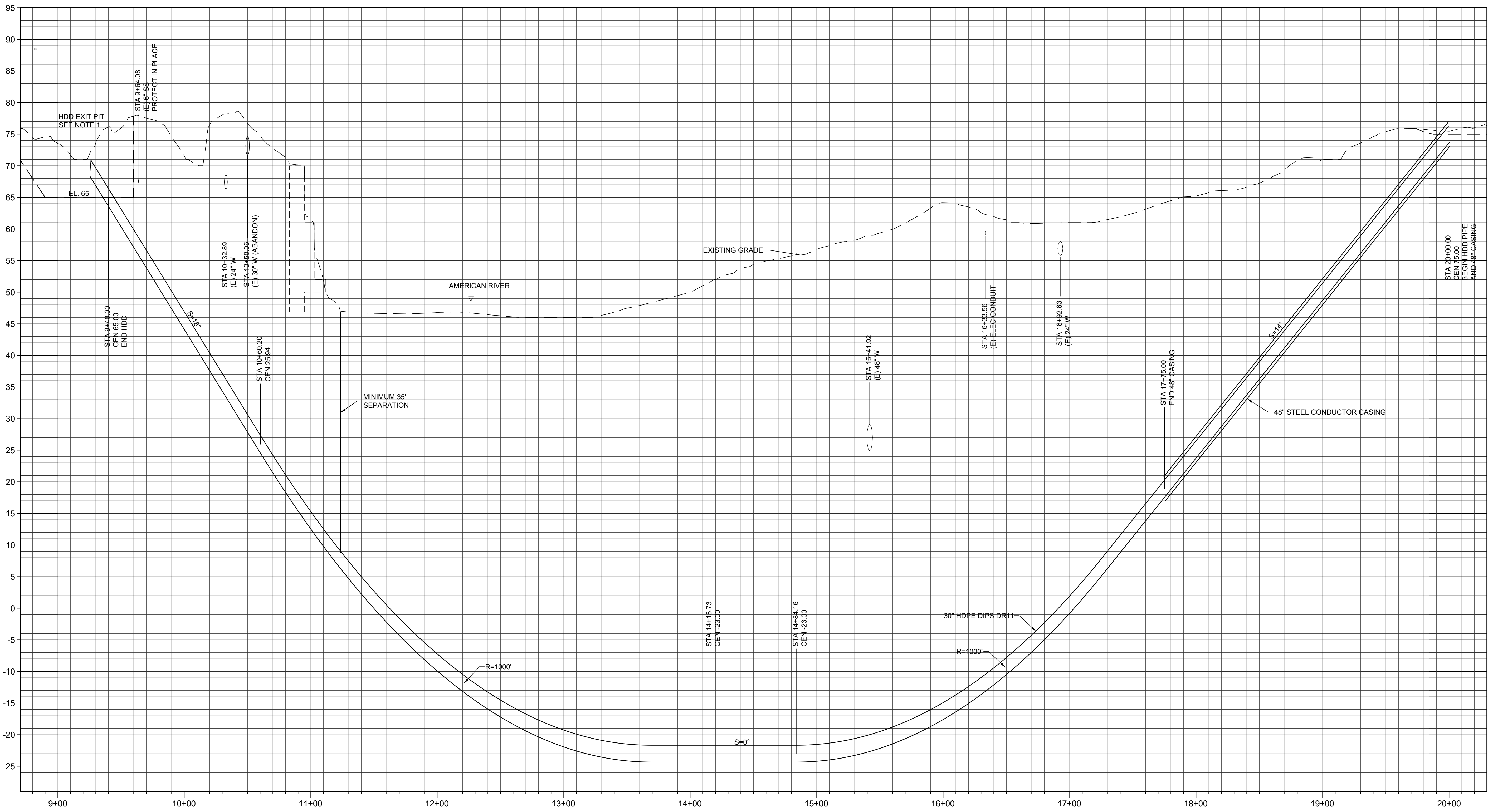


MIKEVARY 8/5/2014 3:18 PM

P:\CAD\141147002\00_CWD-GSWC-Pipeline\14700200-C04.dwg

<p>USE OF DOCUMENTS</p> <p>THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.</p>				<p>NO.</p> <p>REVISION</p> <p>DATE</p> <p>BY</p>				<p>DESIGNED</p> <p>RSY</p> <p>DRAWN</p> <p>LMM</p> <p>CHECKED</p> <p>ARP</p>		<p>CARMICHAEL WATER DISTRICT</p> <p>CARMICHAEL, CALIFORNIA</p> <p>AMERICAN RIVER PIPELINE CONVEYANCE PROJECT</p> <p>Kennedy/Jenks Consultants</p> <p>10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670</p>		<p>HDD GRADING PLAN SOUTH BANK</p> <p>90% SUBMITTAL</p>		<p>FILE NAME</p> <p>147000200-C04</p> <p>JOB NO.</p> <p>1470002*00</p> <p>DATE</p> <p>AUGUST 2014</p> <p>SHEET</p> <p>OF</p> <p>C4</p> <p>21</p>	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--

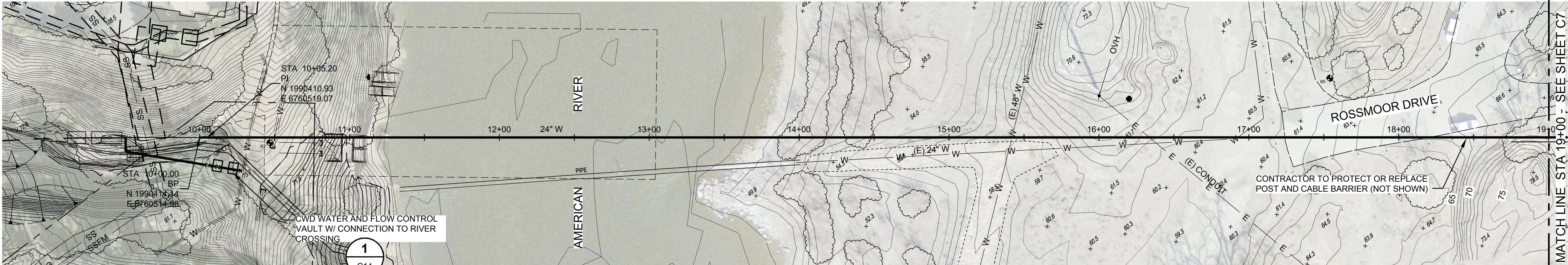
P:\CAD\1411470002.00_CWD-GSWC-Pipeline\147000200-C05.dwg
MIKEVARX 8/5/2014 3:13 PM



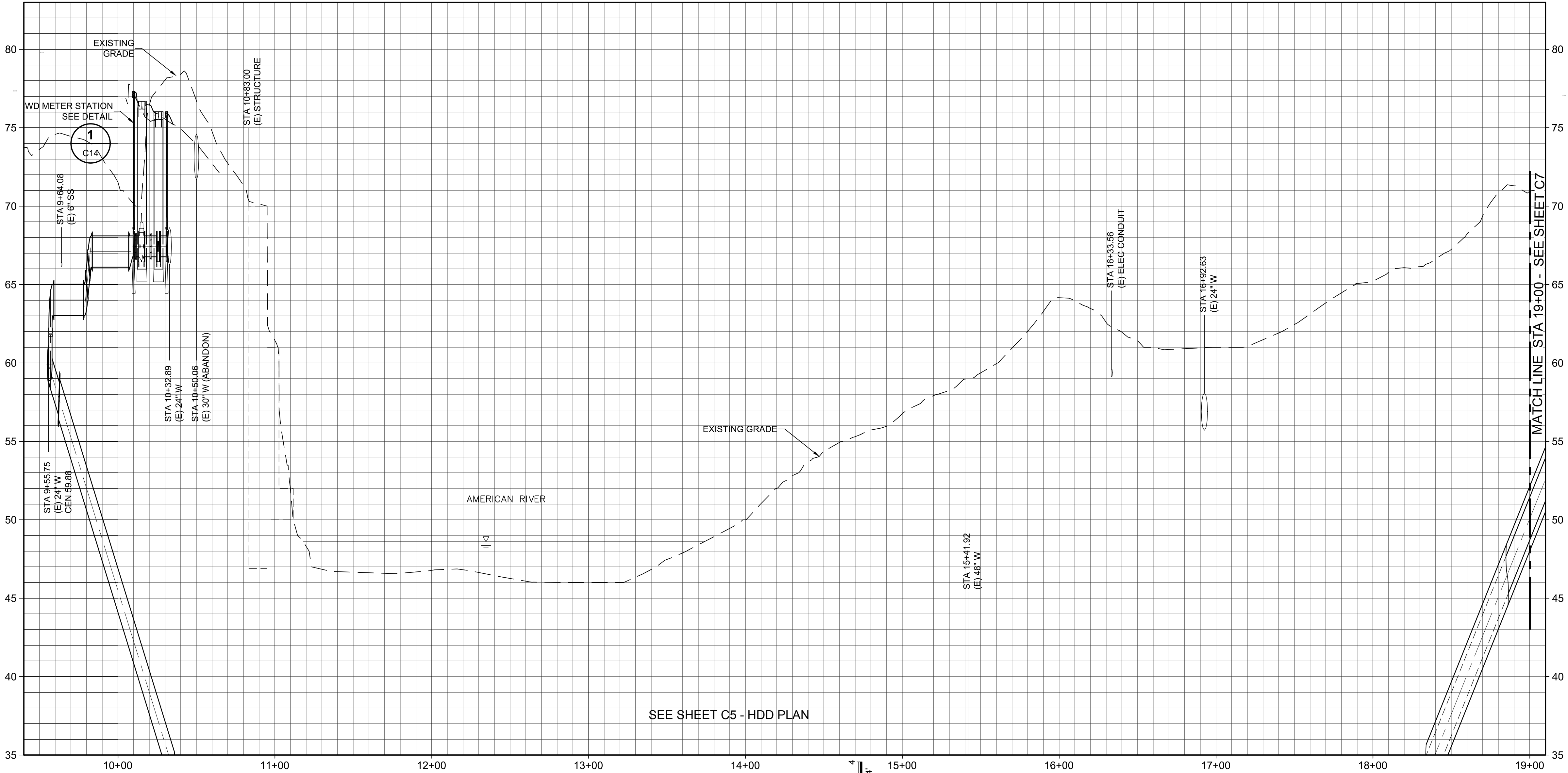
- NOTES:
- EXCAVATE AS NEEDED TO ALLOW FOR INSTALLATION OF THE PRODUCT PIPE INTO THE FULLY PREPARED BORE HOLE.

PRELIMINARY N.F.C.

<p>USE OF DOCUMENTS</p> <p>THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.</p>				<p>NO.</p> <p>REVISION</p> <p>DATE</p> <p>BY</p>				<p>DESIGNED</p> <p>RSY</p> <p>DRAWN</p> <p>LMM</p> <p>CHECKED</p> <p>ARP</p>		<p>CARMICHAEL WATER DISTRICT</p> <p>CARMICHAEL, CALIFORNIA</p> <p>AMERICAN RIVER PIPELINE CONVEYANCE PROJECT</p> <p>Kennedy/Jenks Consultants</p> <p>10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670</p>		<p>HDD PROFILE</p> <p>90% SUBMITTAL</p>		<p>FILE NAME</p> <p>147000200-C05</p> <p>JOB NO.</p> <p>1470002*00</p> <p>DATE</p> <p>AUGUST 2014</p> <p>SHEET</p> <p>OF</p> <p>C5</p> <p>21</p>	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--



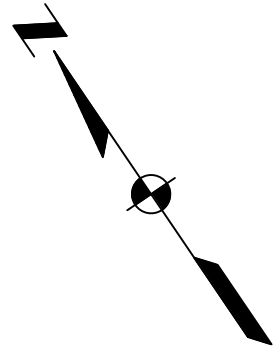
PLAN
0 20 40 60
1"=40'



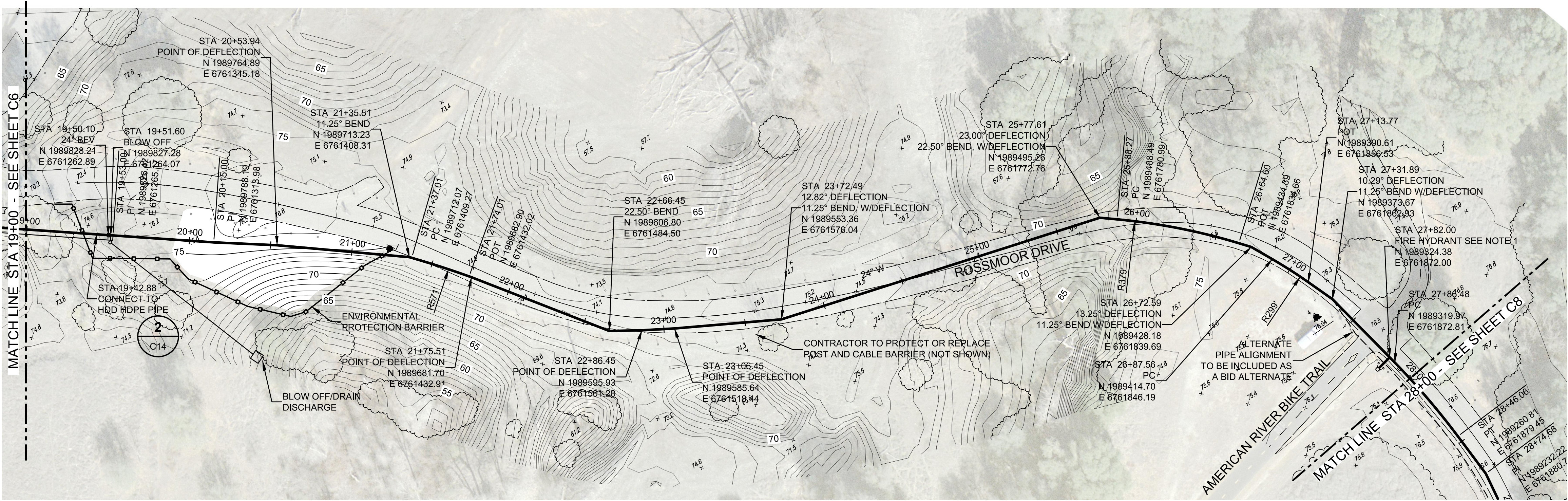
PROFILE
0 20 40 60
HORIZ. 1"=40'
VERT. 1"=4'

PRELIMINARY N.F.C.

<p>USE OF DOCUMENTS</p> <p>THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.</p>				<p>NO.</p> <p>REVISION</p> <p>DATE</p> <p>BY</p>				<p>SCALES</p> <p>0 1" 25mm</p> <p>IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.</p>		<p>REGISTERED PROFESSIONAL ENGINEER</p> <p>RYAN S. YOUNG</p> <p>No. 81867</p> <p>Exp. 12/31/15</p> <p>CIVIL</p> <p>STATE OF CALIFORNIA</p>		<p>DESIGNED</p> <p>RSY</p> <p>DRAWN</p> <p>HCS</p> <p>CHECKED</p> <p>ARP</p>		<p>CARMICHAEL WATER DISTRICT</p> <p>CARMICHAEL, CALIFORNIA</p> <p>AMERICAN RIVER PIPELINE CONVEYANCE PROJECT</p> <p>Kennedy/Jenks Consultants</p> <p>10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670</p>		<p>PLAN AND PROFILE STA. 10+00 TO 19+00</p> <p>90% SUBMITTAL</p>		<p>FILE NAME</p> <p>147000200-C06</p> <p>JOB NO.</p> <p>147000200</p> <p>DATE</p> <p>AUGUST 2014</p> <p>SHEET</p> <p>OF</p> <p>C6</p> <p>21</p>	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--

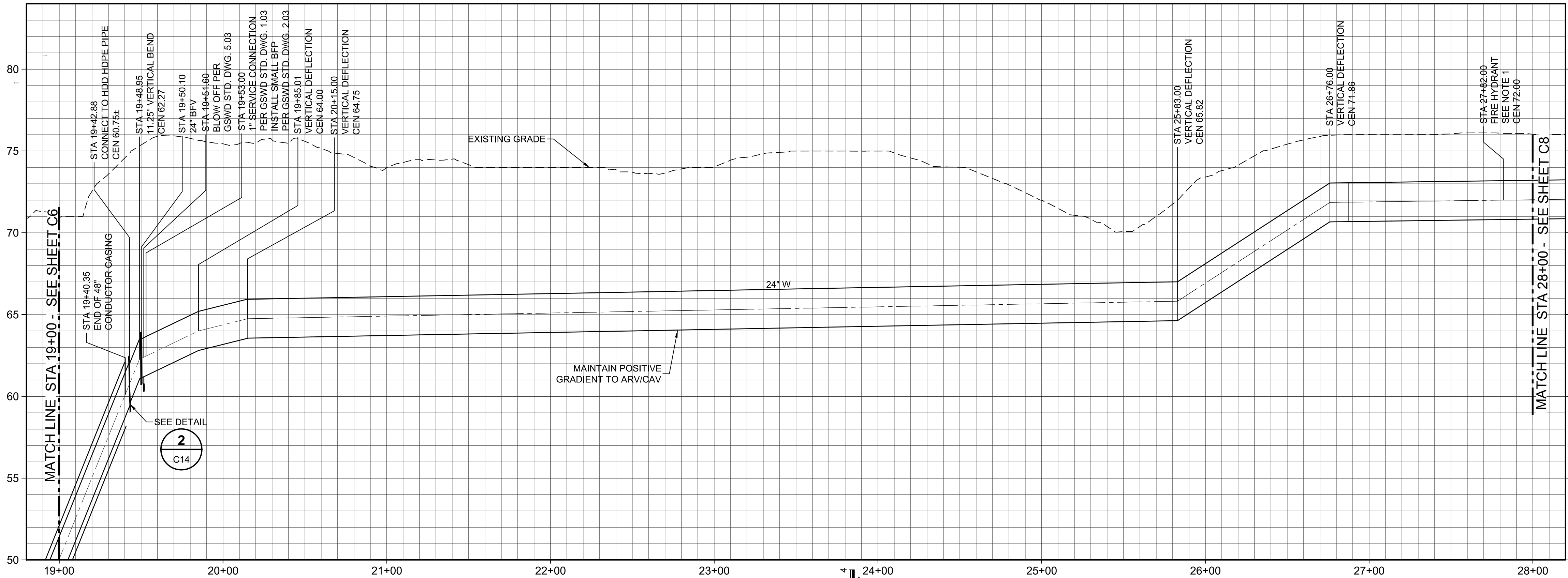


- NOTES:
1. INSTALL FIRE HYDRANT AND BOLLARDS PER STANDARD DRAWINGS 4.01 AND 4.03. INSTALL A 1" TAP FOR DRINKING FOUNTAIN.



PLAN

0 20 40 60
1"=40'



PROFILE

0 20 40 60
HORIZ. 1"=40'
VERT. 1"=4'

PRELIMINARY N.F.C.

USE OF DOCUMENTS

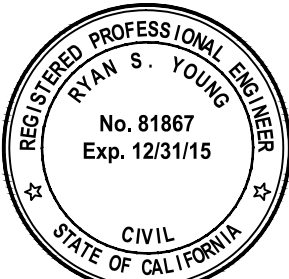
THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.

NO.	REVISION	DATE	BY
-----	----------	------	----

SCALES

1" = 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.



DESIGNED
RSY

DRAWN
LMM

CHECKED
ARP

CARMICHAEL WATER DISTRICT
CARMICHAEL, CALIFORNIA

AMERICAN RIVER PIPELINE CONVEYANCE PROJECT

Kennedy/Jenks Consultants

10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670

PLAN AND PROFILE STA. 19+00 TO 28+00

90% SUBMITTAL

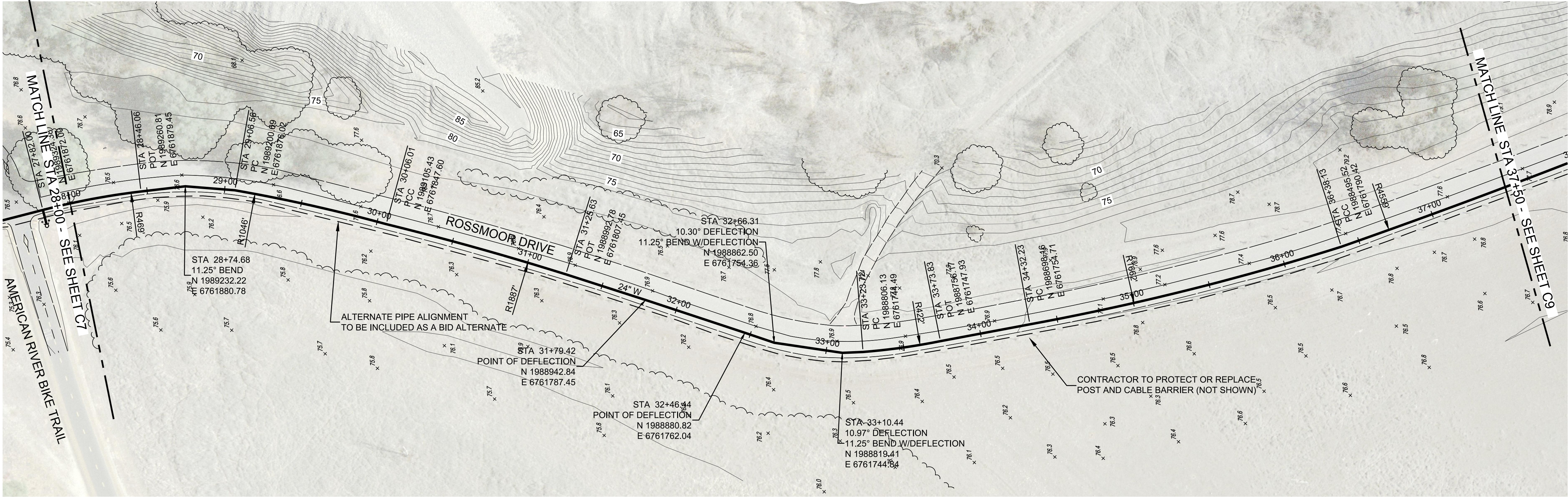
FILE NAME
147000200-C07

JOB NO.
1470002*00

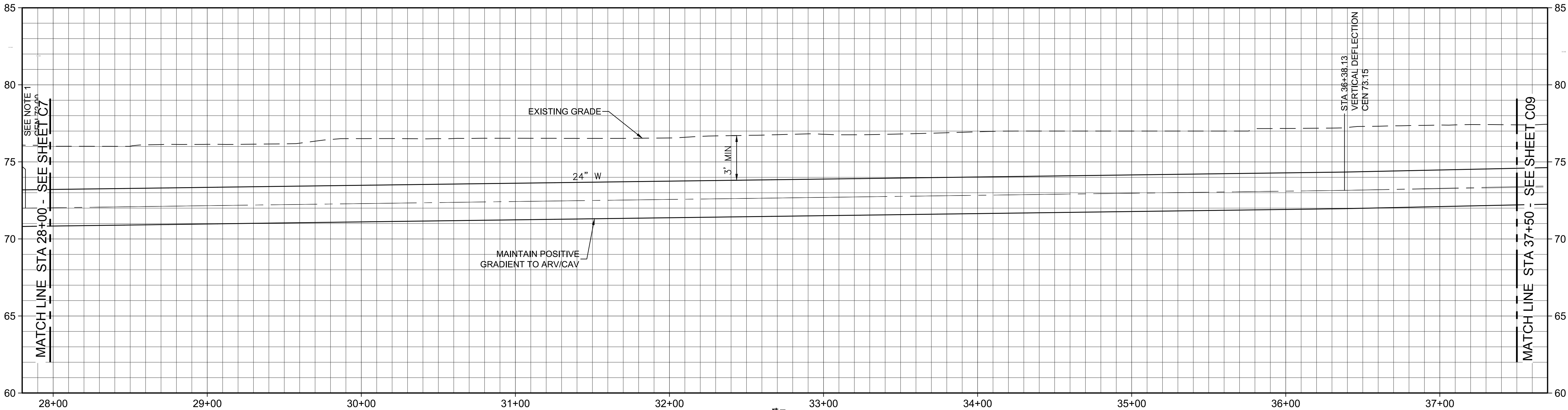
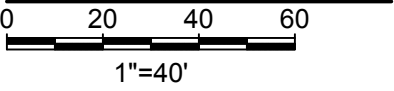
DATE
AUGUST 2014

SHEET
C7

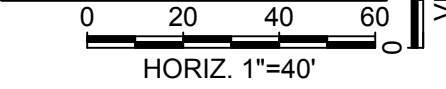
OF
21



PLAN



PROFILE



PRELIMINARY N.F.C.

USE OF DOCUMENTS

THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.

NO.	REVISION	DATE	BY
-----	----------	------	----

SCALES
1" = 25mm
IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.



DESIGNED
RSY
DRAWN
LMM
CHECKED
ARP

CARMICHAEL WATER DISTRICT
CARMICHAEL, CALIFORNIA

AMERICAN RIVER PIPELINE CONVEYANCE PROJECT

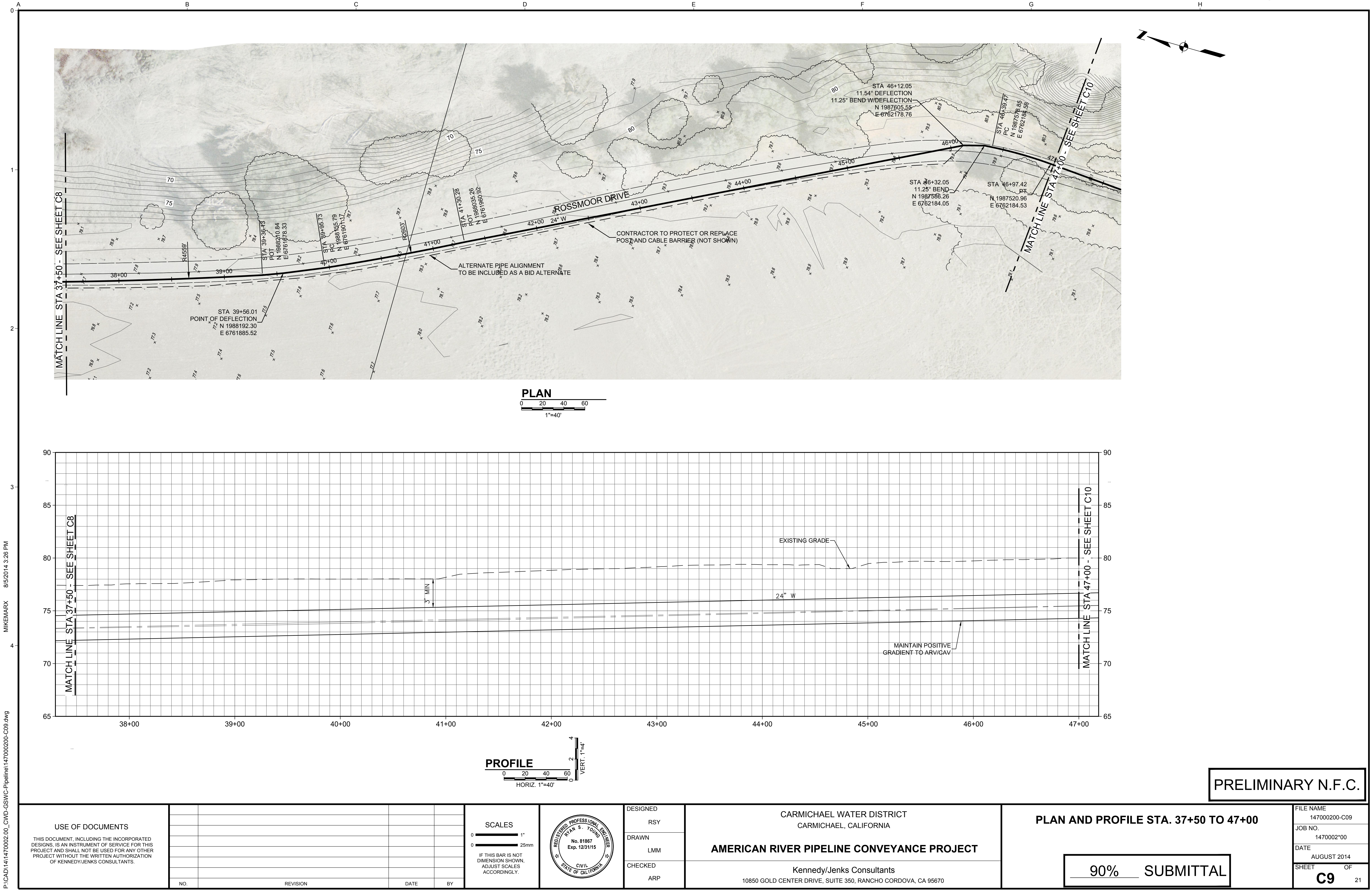
Kennedy/Jenks Consultants

10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670

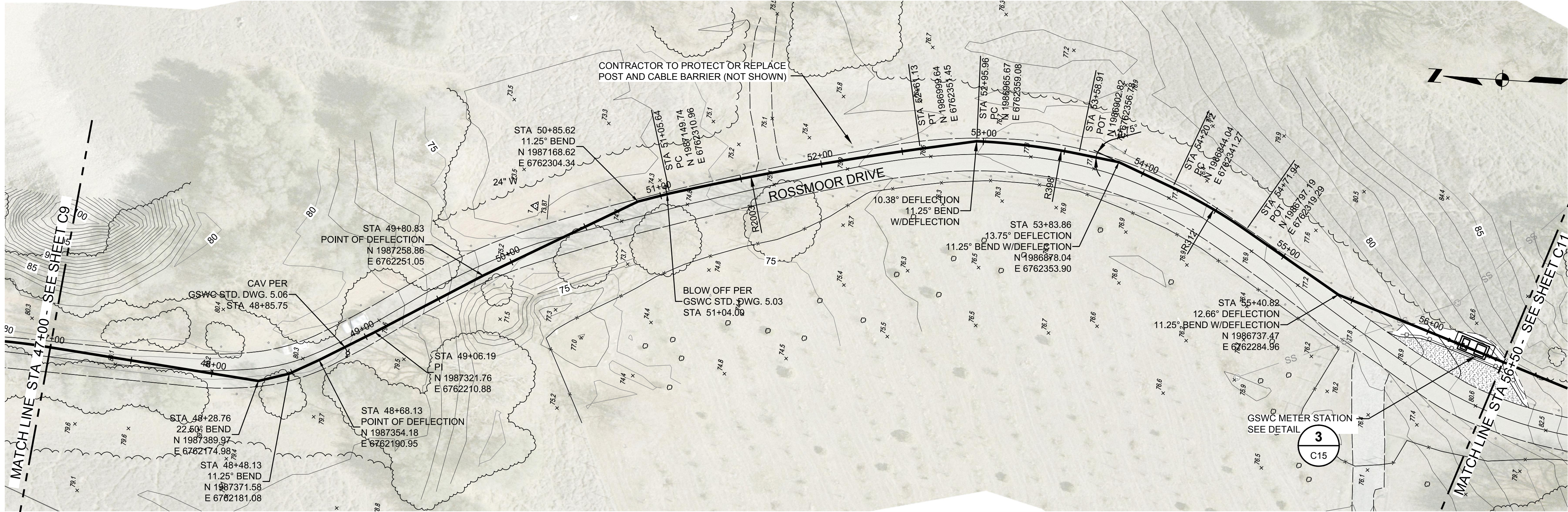
PLAN AND PROFILE STA. 28+00 TO 37+50

90% SUBMITTAL

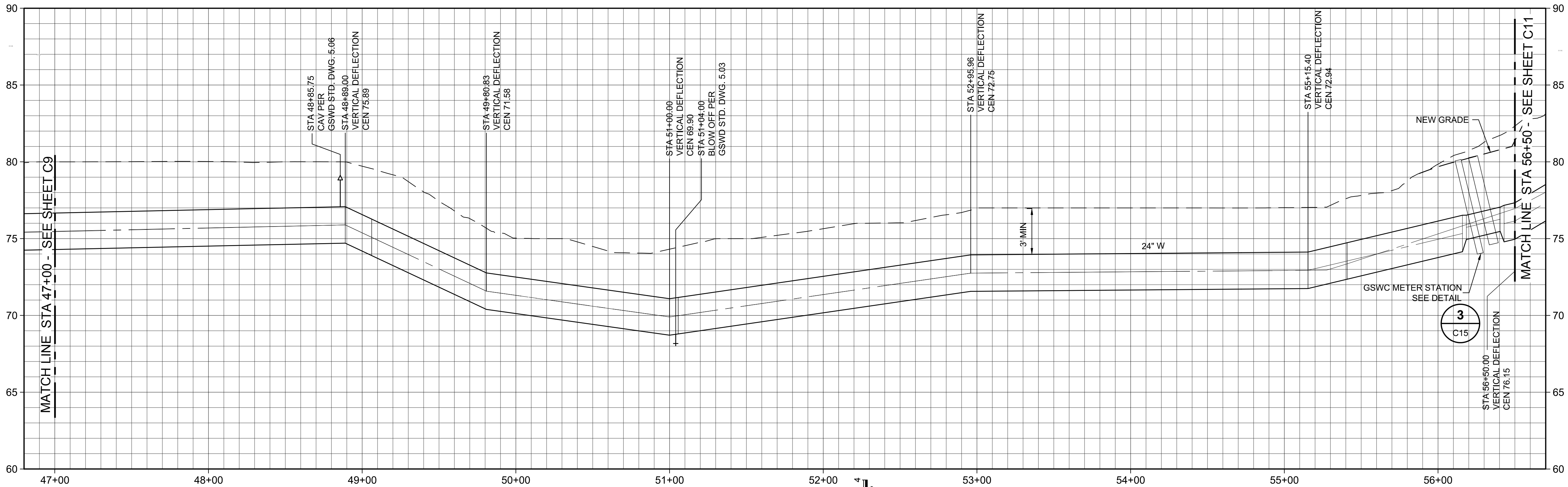
FILE NAME 147000200-C08
JOB NO. 1470002*00
DATE AUGUST 2014
SHEET C8
OF 21



P:\CAD\141\1470002\00_CWD-GSWC-Pipeline\147000200-C10.dwg
MIKEVARX 8/5/2014 3:32 PM



PLAN
0 20 40 60
1"=40'



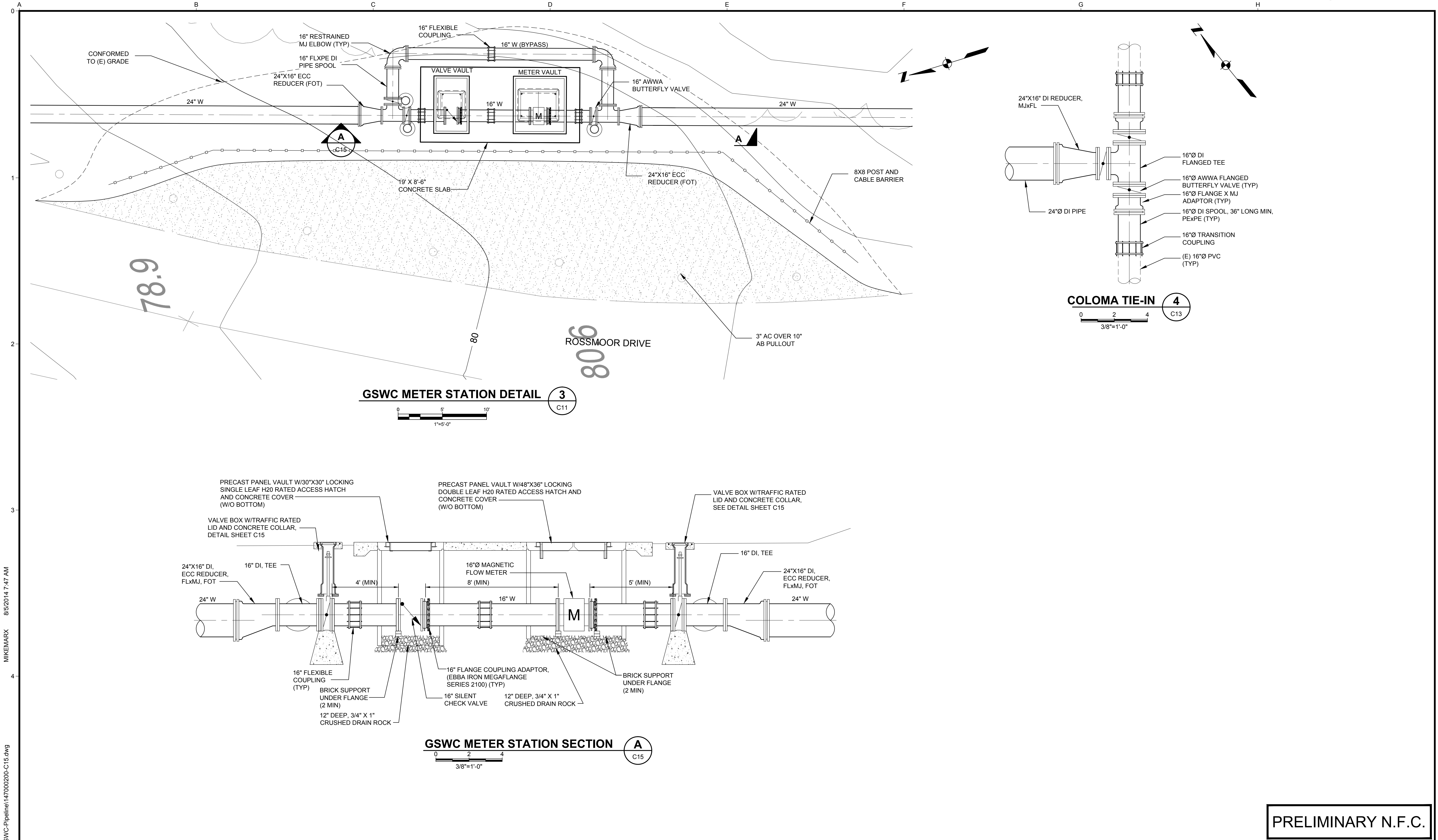
PROFILE
0 20 40 60
HORIZ. 1"=40'
VERT. 1"=4'

PRELIMINARY N.F.C.

<div>USE OF DOCUMENTS</div> <div>THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.</div>				<div>NO.</div> <div>REVISION</div> <div>DATE</div> <div>BY</div>				<div>SCALES</div> <div>0 1" 25mm</div> <div>IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.</div>		<div>REGISTERED PROFESSIONAL ENGINEER</div> <div>RYAN S. YOUNG</div> <div>No. 81867</div> <div>Exp. 12/31/15</div> <div>CIVIL</div> <div>STATE OF CALIFORNIA</div>		<div>DESIGNED</div> <div>RSY</div> <div>DRAWN</div> <div>LMM</div> <div>CHECKED</div> <div>ARP</div>		<div>CARMICHAEL WATER DISTRICT</div> <div>CARMICHAEL, CALIFORNIA</div> <div>AMERICAN RIVER PIPELINE CONVEYANCE PROJECT</div> <div>Kennedy/Jenks Consultants</div> <div>10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670</div>		<div>PLAN AND PROFILE STA. 47+00 TO 56+50</div> <div>90% SUBMITTAL</div>		<div>FILE NAME</div> <div>147000200-C10</div> <div>JOB NO.</div> <div>1470002*00</div> <div>DATE</div> <div>AUGUST 2014</div> <div>SHEET</div> <div>C10</div> <div>OF</div> <div>21</div>	
--	--	--	--	--	--	--	--	--	--	--	--	--	--	---	--	--	--	---	--



USE OF DOCUMENTS THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.					<div>SCALES</div> <div><div><div>0</div><div>1"</div></div><div><div>0</div><div>25mm</div></div></div> <div>IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.</div>	<div><div>REGISTERED PROFESSIONAL ENGINEER</div><div>RYAN S. YOUNG</div><div>No. 81867</div><div>Exp. 12/31/15</div><div>CIVIL</div><div>STATE OF CALIFORNIA</div></div>	DESIGNED	CARMICHAEL WATER DISTRICT CARMICHAEL, CALIFORNIA	CIVIL DETAIL I	FILE NAME	
							147000200-C14				
							JOB NO.				
							1470002'00				
							DATE				
							AUGUST 2014				
							CHECKED	Kennedy/Jenks Consultants 10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670	<div>90% SUBMITTAL</div>	SHEET	OF
						ARP	C14			21	
	NO.	REVISION	DATE	BY							



MIKEVARX 8/5/2014 7:47 AM

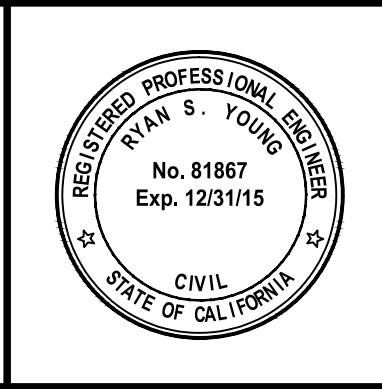
P:\CAD\141470002.00_CWD-GSWC-Pipeline\147000200-C15.dwg

USE OF DOCUMENTS				
THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.				
NO.	REVISION	DATE	BY	

SCALES

0 1" 25mm

IF THIS BAR IS NOT DIMENSION SHOWN, ADJUST SCALES ACCORDINGLY.



DESIGNED	RSY
DRAWN	LMM
CHECKED	ARP

CARMICHAEL WATER DISTRICT
CARMICHAEL, CALIFORNIA

AMERICAN RIVER PIPELINE CONVEYANCE PROJECT

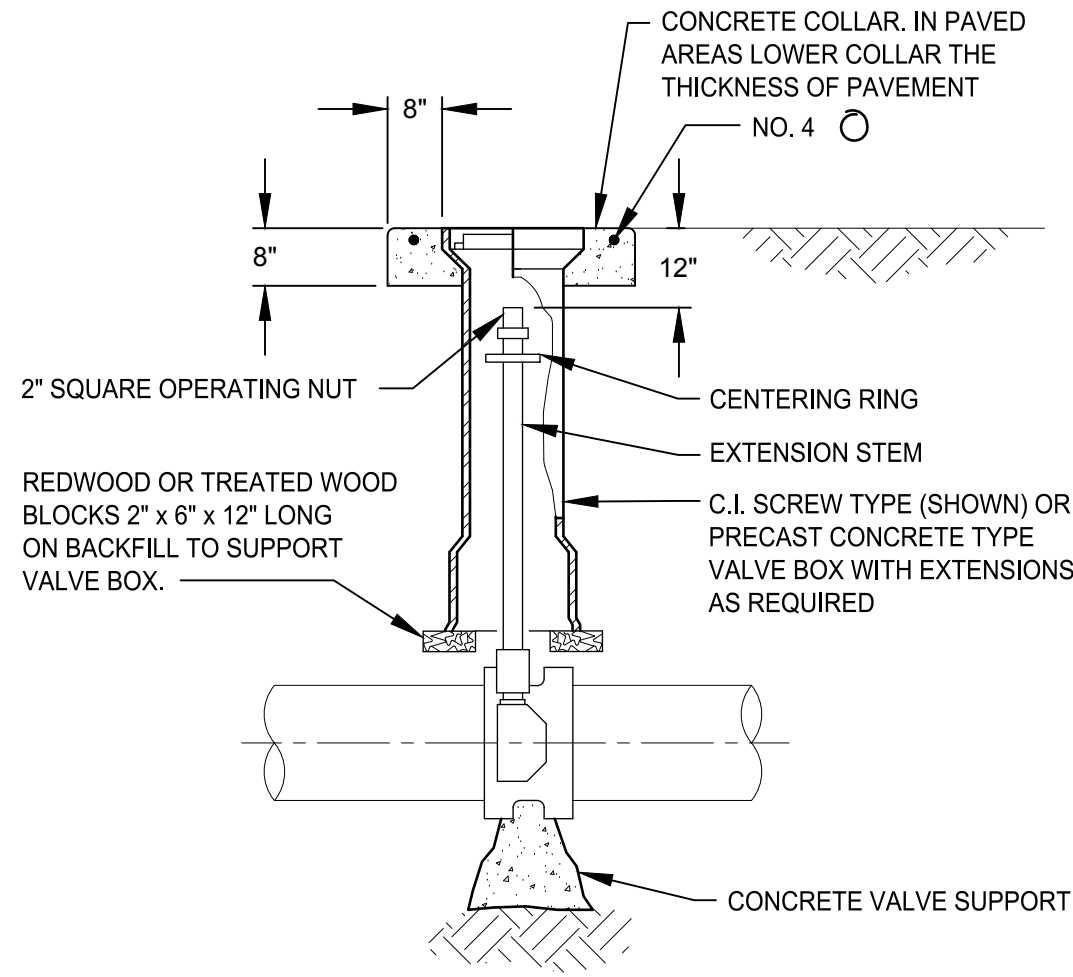
Kennedy/Jenks Consultants
10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670

CIVIL DETAILS II

90% SUBMITTAL

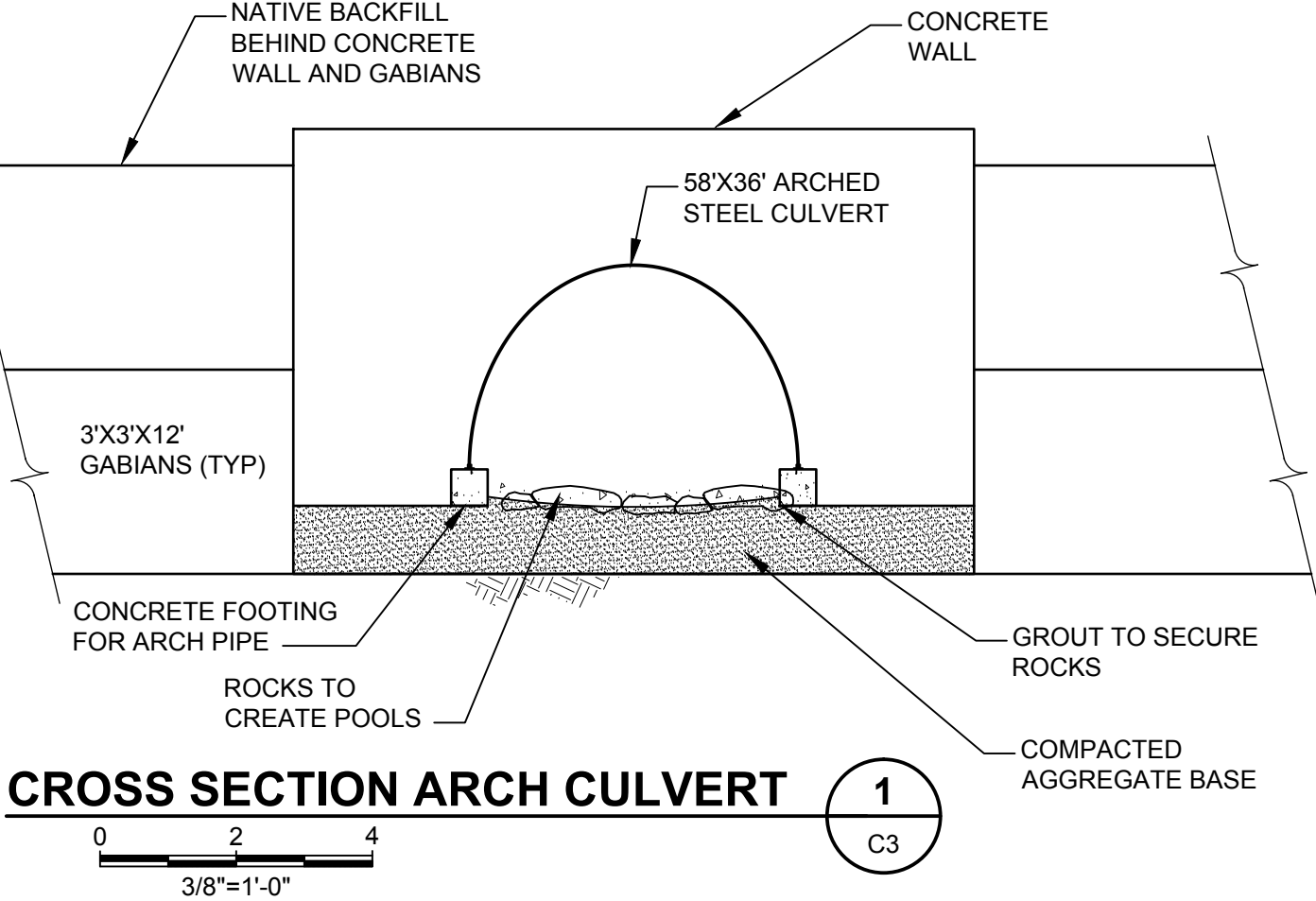
FILE NAME	147000200-C15
JOB NO.	1470002*00
DATE	AUGUST 2014
SHEET	OF
C15	21

PRELIMINARY N.F.C.



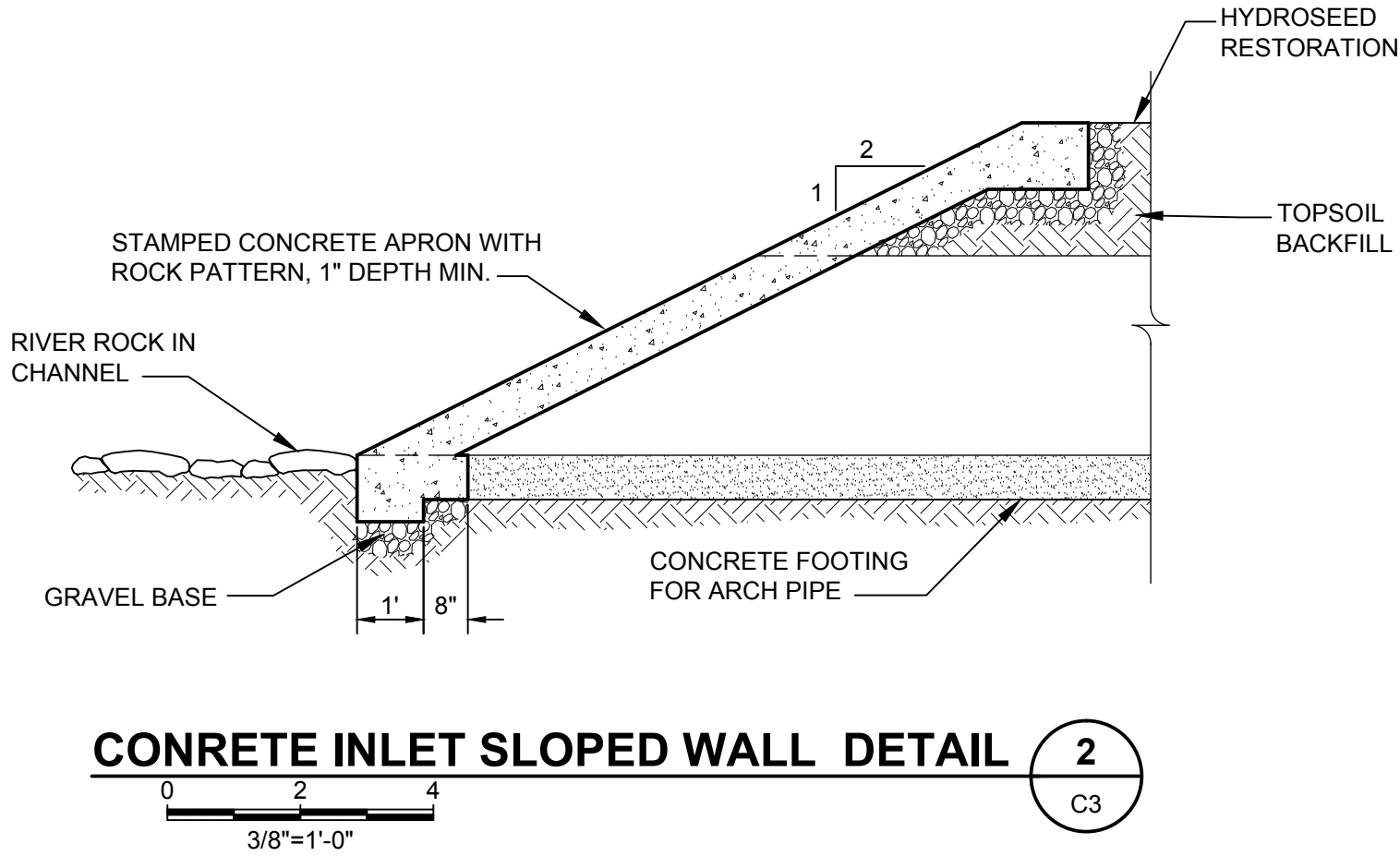
TYPICAL BURIED BUTTERFLY VALVE OPERATOR

SCALE: NONE



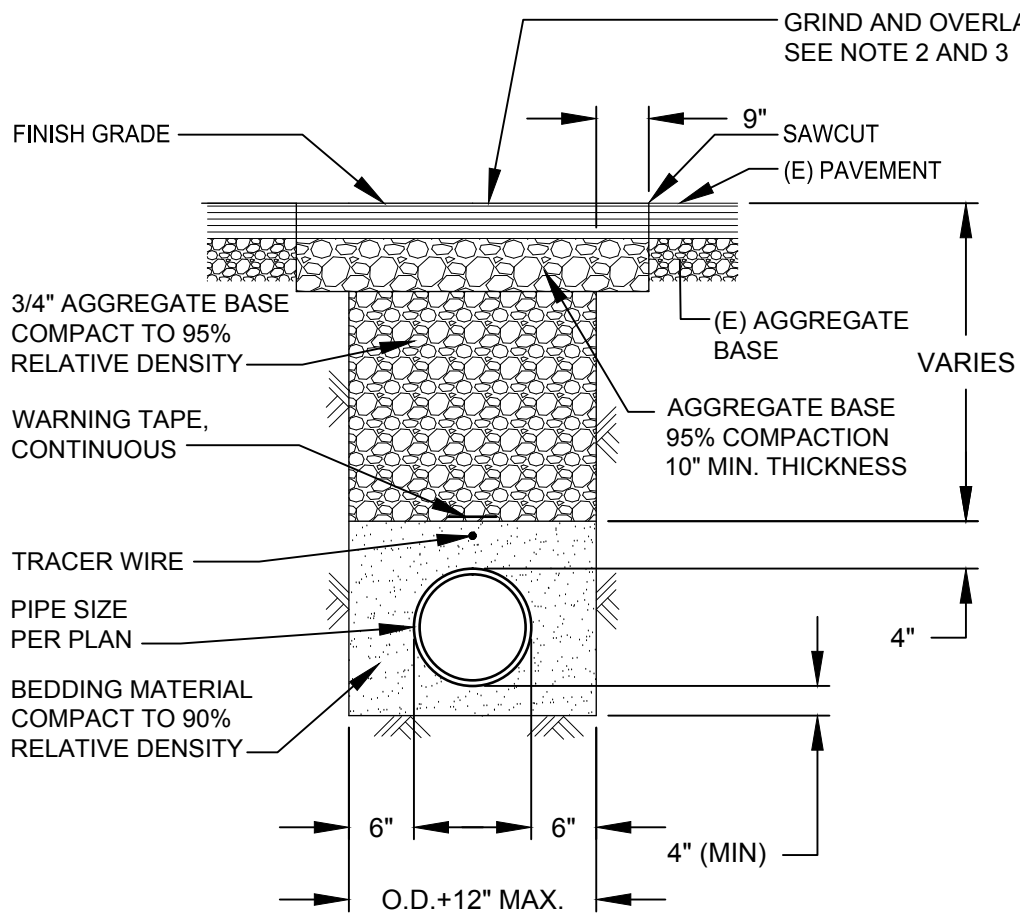
CROSS SECTION ARCH CULVERT

1
C3



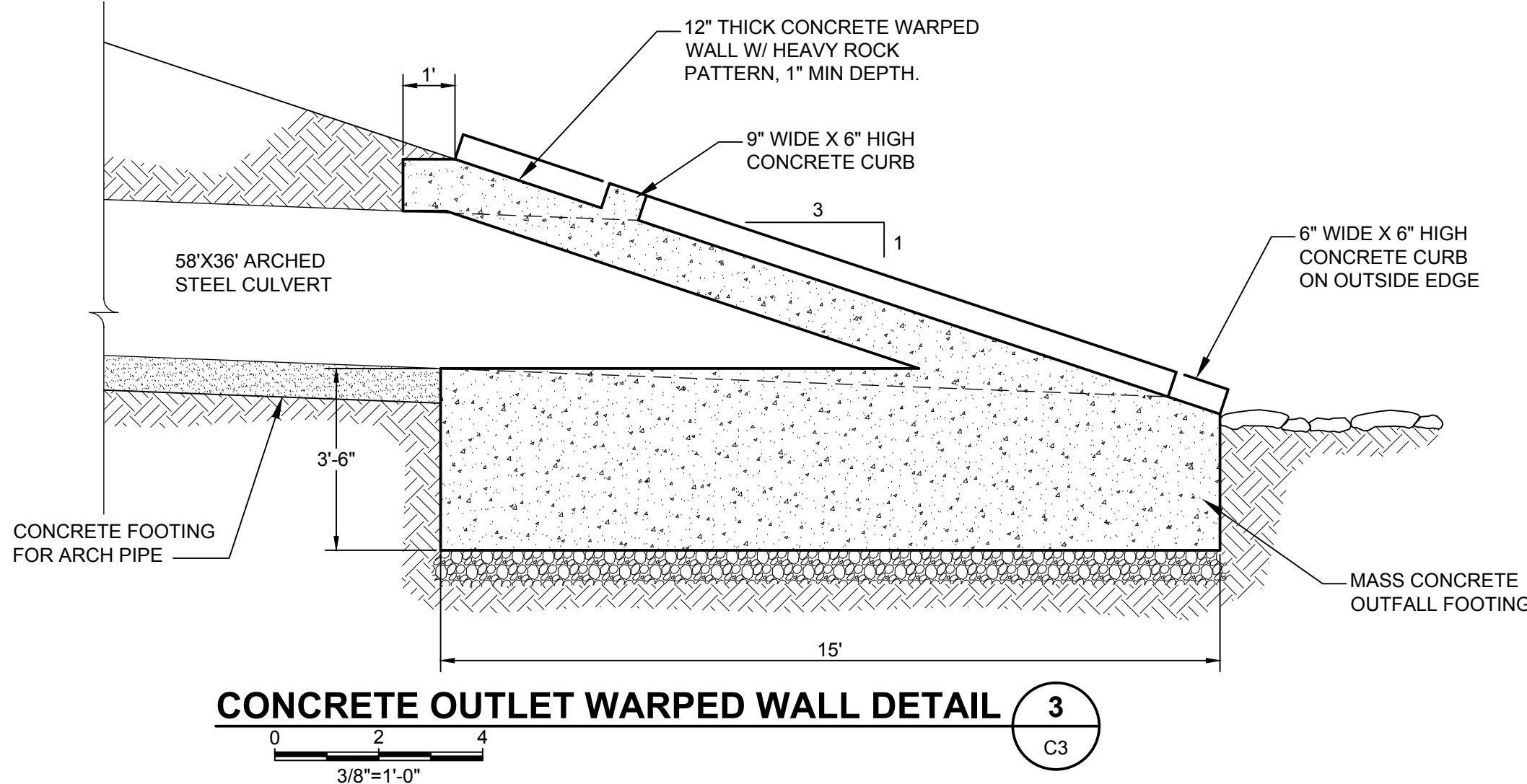
CONCRETE INLET SLOPED WALL DETAIL

2
C3



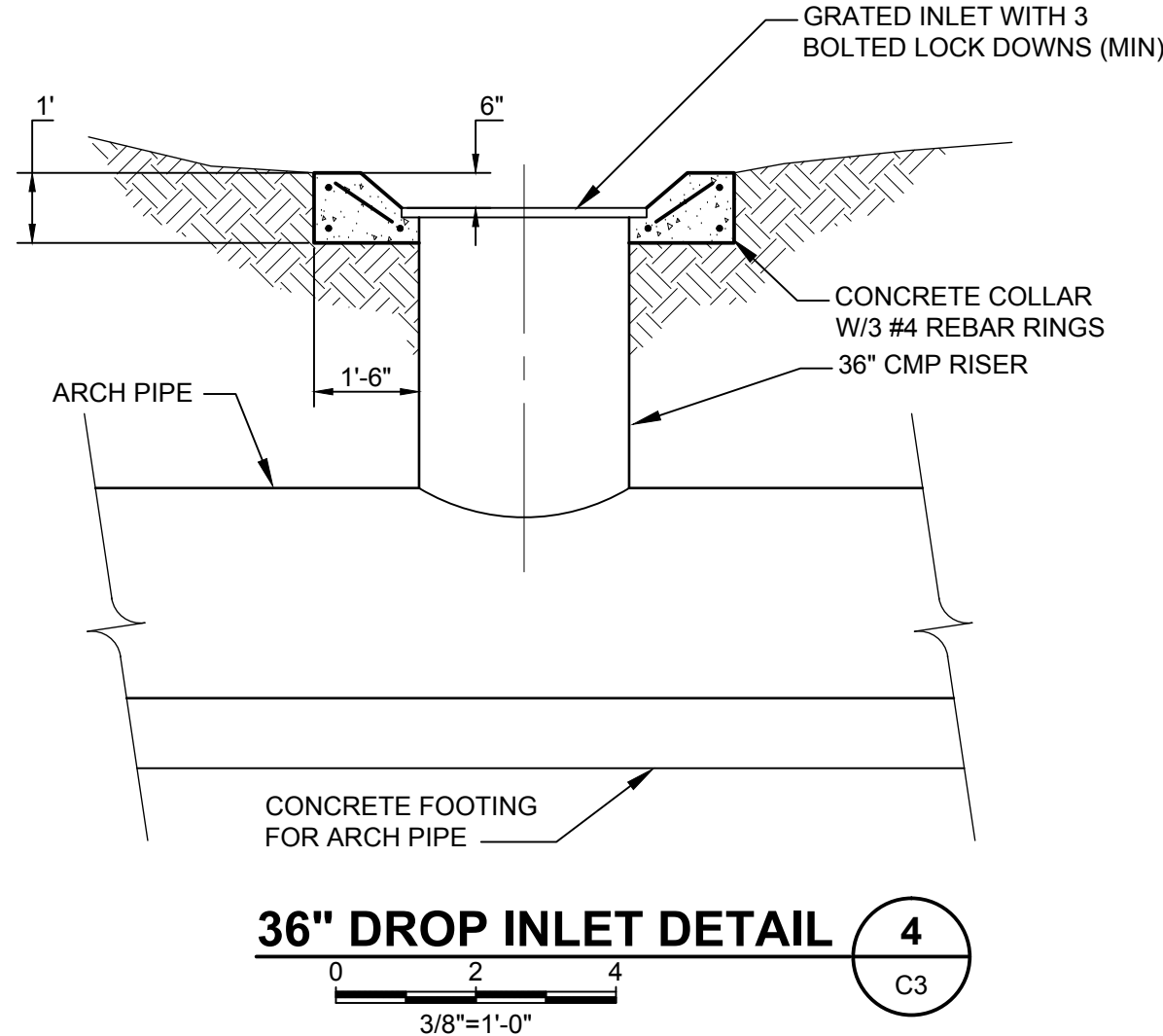
NOTES:

- 3" TOTAL MINIMUM AC THICKNESS
- GRIND AND PROVIDE OVERLAY FOR ENTIRE LANE WIDTH.
- INSTALL OVERLAY IN TWO 2" LIFTS.



CONCRETE OUTLET WARPED WALL DETAIL

3
C3

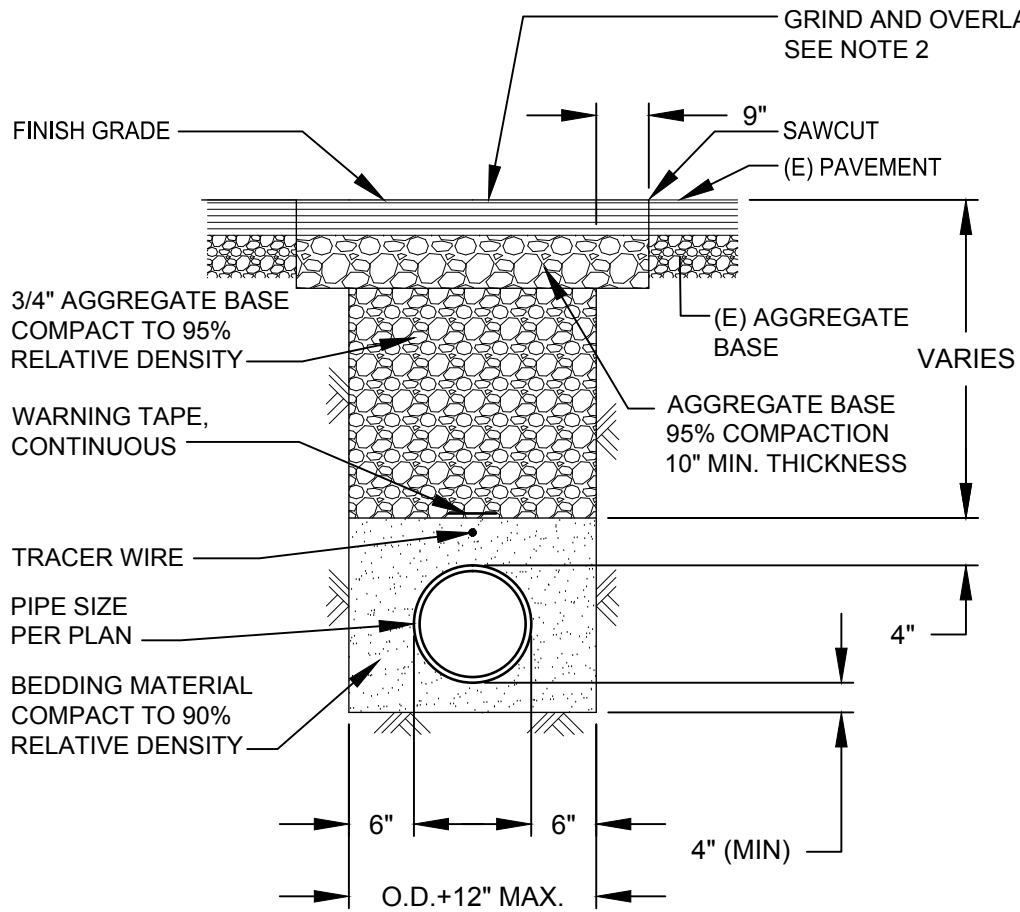


36" DROP INLET DETAIL

4
C3

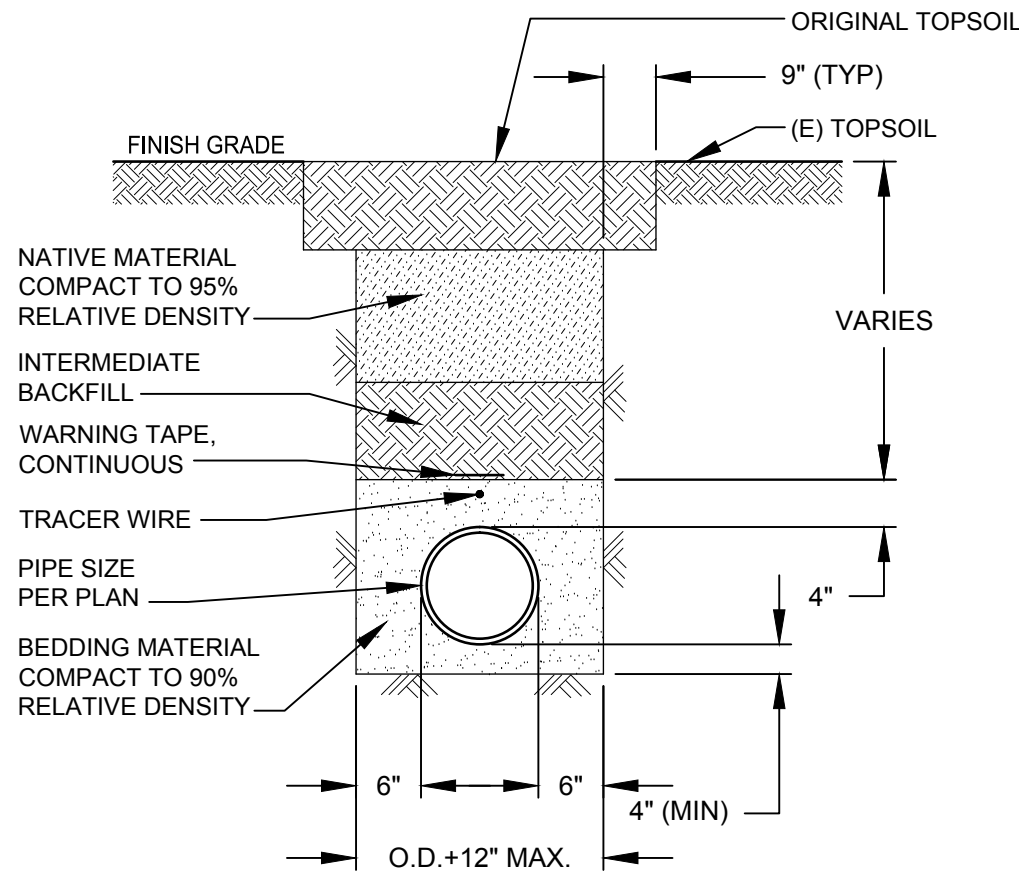
TYPICAL TRENCH SECTION THRU PAVED AREAS STA 58+60 TO 84+13.18

SCALE: NONE



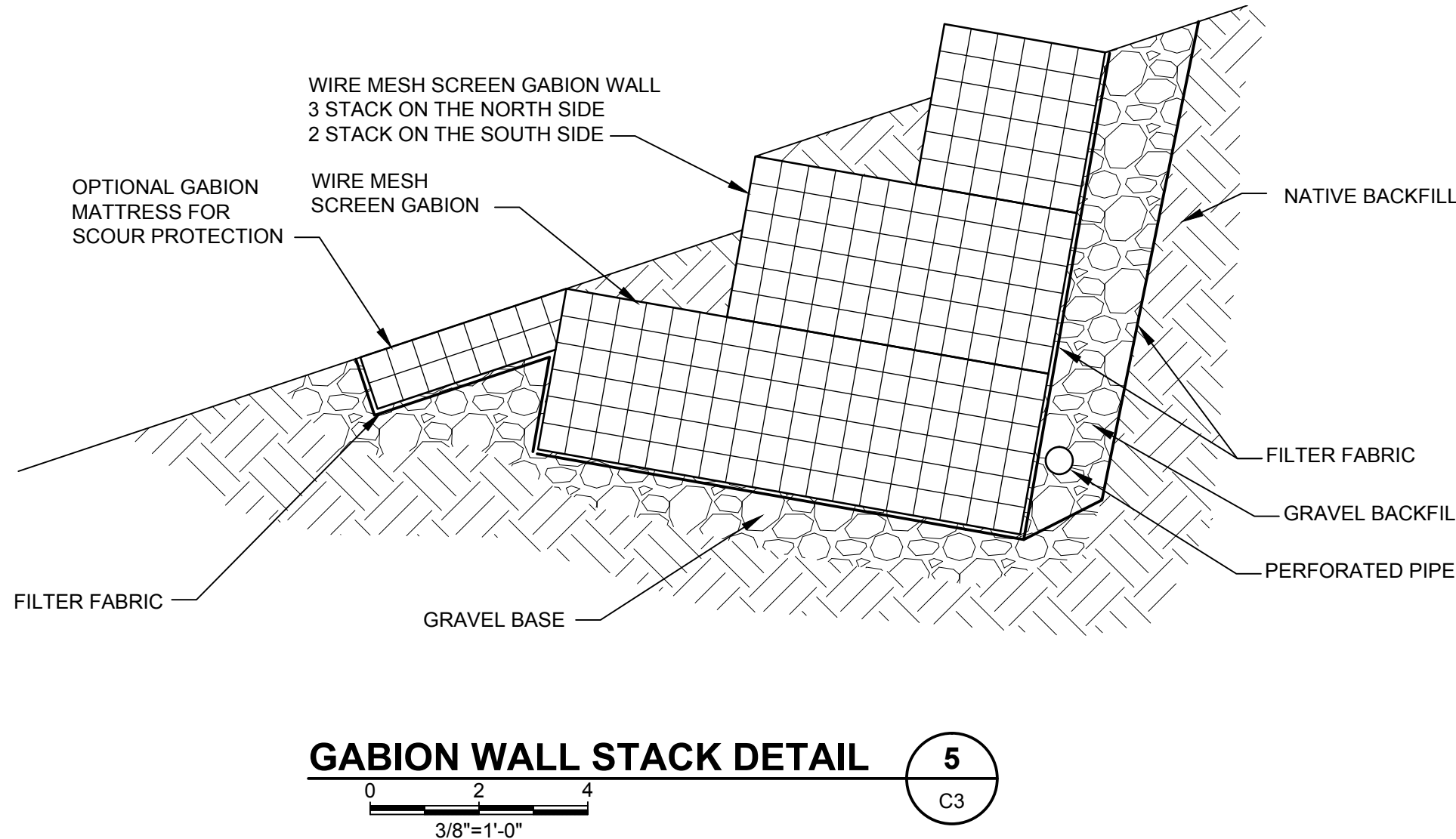
NOTES:

- 3" TOTAL MINIMUM AC THICKNESS
- INSTALL OVERLAY IN TWO 2" LIFTS.



TYPICAL TRENCH SECTION THRU UN-IMPROVED AREAS

SCALE: NONE



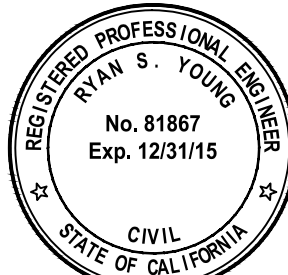
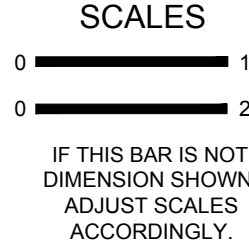
GABION WALL STACK DETAIL

5
C3

PRELIMINARY N.F.C.

USE OF DOCUMENTS

THIS DOCUMENT, INCLUDING THE INCORPORATED DESIGNS, IS AN INSTRUMENT OF SERVICE FOR THIS PROJECT AND SHALL NOT BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF KENNEDY/JENKS CONSULTANTS.



DESIGNED
RSY

DRAWN
LMM

CHECKED
ARP

CARMICHAEL WATER DISTRICT
CARMICHAEL, CALIFORNIA

AMERICAN RIVER PIPELINE CONVEYANCE PROJECT

Kennedy/Jenks Consultants
10850 GOLD CENTER DRIVE, SUITE 350, RANCHO CORDOVA, CA 95670

CIVIL DETAILS III

90% SUBMITTAL

FILE NAME
147000200-C16
JOB NO.
1470002*00
DATE
AUGUST 2014
SHEET
C16 OF 21