

**Meeting of the Central Valley Flood Protection Board
October 24, 2014**

Staff Report

**Sacramento Regional County Sanitation District
Flow Equalization Project
Sacramento County**

1.0 – ITEM

Consider approval of Draft Permit No. 18975
(Attachment B).

2.0 – APPLICANT

Sacramento Regional County Sanitation District (SRCSD)

3.0 – LOCATION

The project is located approximately two miles north of Laguna Boulevard and one mile east of Interstate 5 at 8521 Laguna Station Road in Elk Grove. The project is located outside of the Legal Delta.
(Morrison and Laguna Creeks, Sacramento County, see Attachment A).

4.0 – PROJECT DESCRIPTION

The applicant proposes to increase the capacity of the existing Emergency Storage Basins (ESBs) at the Sacramento Regional Wastewater Treatment Plant (SRWTP). The work will impact the north and west levees of the SRWTP which protect the facility from Morrison and Laguna Creeks. The levees are features of the South Sacramento Streams Group Project which is a Board sponsored project.

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
- § 120, Levees
- § 123, Pipelines, Conduits, and Utility Lines

6.0 – PROJECT ANALYSIS

The Sacramento Regional County Sanitation District (SRCSD) provides regional wastewater conveyance, treatment, and disposal through the operation of the Sacramento Regional Wastewater Treatment Plant (SRWTP). The SRWTP provides service for the cities of Sacramento, West Sacramento, Rancho Cordova, Citrus Heights, Elk Grove, Folsom; unincorporated Sacramento County; and the communities of Courtland and Walnut Grove. Approximately 1.4 million people are located within the SRCSD service area. The SRCSD proposes to upgrade its existing facilities at the SRWTP to meet the new National Pollutant Discharge Elimination System (NPDES) permit requirements that have been issued by the Central Valley Regional Water Quality Control Board. To meet these new standards the SRCSD will need to modify the existing Emergency Storage Basins (ESBs) located at the SRWTP. The Flow Equalization Project (FEQ) will increase the capacity of the existing ESBs at the facility by deepening and subdividing the existing ESB-A, ESB-B, and ESB-C basins. The northern levee of ESB-A, ESB-B, and ESB-C, and the western levee of ESB-C and ESB-D are considered Project Levees as they were modified as part of the South Sacramento Streams Group Project which is a Board sponsored project. These levees protect the facility from flood flows coming from Morrison and Laguna Creeks (area referred to as Beach Lake).

The modified ESBs will allow the facility to store partially and/or fully treated wastewater under a variety of circumstances including planned and unplanned shutdowns of treatment processes, high flow events, and permit compliance regarding temperature and dilution requirements (i.e., they store water during periods of low-flow in the Sacramento River). This process is called flow equalization. The ESBs are located along the northern and western perimeter levees of the treatment plant. Some of the ESBs will be deepened to provide approximately 80 million gallons of additional storage.

The ESBs will be lined with 9-inches of roller compacted concrete and one will be subdivided into three approximately equal sub-basins to facilitate cleaning and maintenance activities. The landside levee slopes of the Project Levees will be lined with 6-inches of shotcrete. New large diameter (84-inch) piping, valves, instrumentation, and wash down facilities will also be installed to provide more operational flexibility. An underdrain system and pumping station for groundwater control will also be included as part of the project. All work associated with the proposed FEQ Project, except for the paving of the top of the levee roads, will be conducted on the SRWTP side or landward side of the perimeter Project Levees. No work will be conducted within the Morrison/Laguna Creek floodway.

6.1 – Hydraulic Analysis

All proposed work will occur inside the SRWTP which is on the landside of the perimeter Project Levees; therefore a hydraulic analysis was not required.

6.2 – Geotechnical Analysis

A geotechnical analysis was conducted by Shannon & Wilson, Inc. The report included a levee seepage and slope stability analysis that was done along the northern perimeter Project Levee at two cross sections, S1 and S2. Cross section S1 was selected to represent soft, levee-foundation material observed during field explorations. Cross section S2 was selected to represent typical subsurface conditions along the levee alignment. Based on the field explorations it was concluded that cross section S1 represented the least stable conditions along the levee alignment.

Six different conditions were evaluated to include existing conditions and the proposed excavation within ESB-C. The analysis used guidelines from the Department of Water Resources (DWR) *Urban Levee Design Criteria* (May 2012) to evaluate stability of the cross section for cases with water on the Beach Lake side, and Division of Safety of Dams (DSOD) criteria to evaluate stability of the cross sections for cases with water on the ESB-C side. The DSOD requirements allow for the use of either the Federal Energy Regulatory Commission's guidelines or the United States Army Corps of Engineers (USACE) guidelines. The USACE guidelines were used, as found in USACE's Engineering Manual *EM 1110-2-1902* (October 2003).

The seepage analysis showed that the exit gradient through the perimeter levee for the worst case scenario, water at top of levee and ESB-C empty, resulted in an exit gradient of zero. The slope stability analysis considered multiple circular failure surfaces at the two levee cross sections. The results from the slope stability analysis showed that the

perimeter Project levee remained stable under all conditions in addition to meeting the intermittently loaded criteria, frequently loaded criteria, and DSOD criteria.

7.0 – AGENCY COMMENTS AND ENDORSEMENTS

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

- The Sacramento Regional County Sanitation District as the maintaining agency of the Project Levees protecting the SRWTP has endorsed the project with no conditions.
- The U.S. Army Corps of Engineers (USACE) Sacramento District comment letter has not been received for this application. Staff anticipates receipt of a letter indicating that the USACE District has no objection to the project, subject to conditions. Upon receipt of the letter, staff will review to ensure conformity with the permit language and incorporate it into the permit as Exhibit A.

8.0 – CEQA ANALYSIS

Board staff has prepared the following CEQA findings:

The Board, acting as a responsible agency under CEQA, has independently reviewed the Draft Environmental Impact Report (DEIR, SCH No. 2012052017, March 2014), the Final Environmental Impact Report (FEIR, SCH No. 2012052017, September 2014), and the Mitigation Monitoring and Reporting Plan (MMRP) on the EchoWater Project (incorporated herein by reference and available at the Central Valley Flood Protection Board or Sacramento Regional County Sanitation District offices). 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/2014/10-24-2014.cfm> under a link for this agenda item. The documents are also available for review in hard copy at the Board and SRCSD offices.

The Sacramento Regional County Sanitation District, as the lead agency, determined that the project would have a significant effect on the environment on September 24, 2014 (including Statement of Facts, Findings, Impacts and Mitigation Measures, Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program) and adopted Resolution No. SR-2742. The Notice of Determination was filed with State Clearinghouse and Sacramento County Clerk on September 25, 2014.

Based on its independent review of the FEIR, the Board finds that although the proposed project could have a potentially significant effect on the environment, revisions have been made to the project and/or agreed to by the project proponent that reduce the environmental impacts to less than significant. 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. Moreover, such changes or alterations are within the responsibility and jurisdictions of another public agency, SRCSD, and such changes have been adopted by that agency. These mitigation measures are included in the project proponent's FEIR and address impacts to air quality, biological resources, climate change, cultural resources, hydrology and water quality, noise, public health and safety, traffic and transportation. The description of the mitigation measures are further described in the certified FEIR.

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 – WATER CODE 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 earth work proposed and water delivery channels 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:

There will be no adverse effects on facilities of the State Plan of Flood Control as the project is located on the landside of the project levee(s). This also makes the project consistent with the 2012 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:

There will be no effects of reasonable projected future events as the project will be on the landside of the levee.

10.0 – STAFF RECOMMENDATION

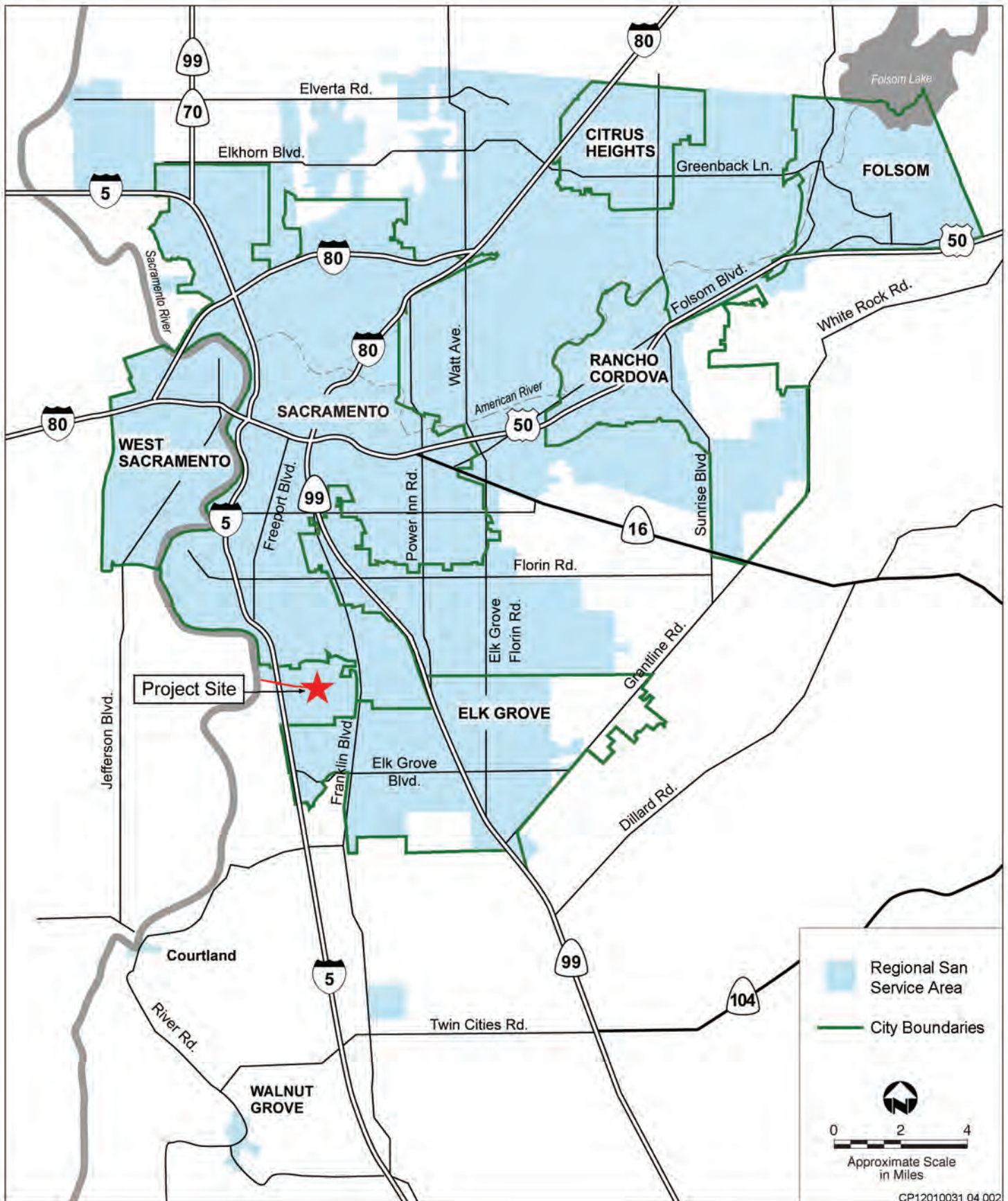
Staff recommends that the Board (in substantially the form provided):

- Adopt the CEQA findings;
- Approve Board Encroachment Permit No. 18975 conditioned upon receipt of a U.S. Army Corps of Engineers comment letter indicating that the District Engineer has no objection to the project, subject to conditions, and direct staff to file a Notice of Determination with the State Clearing House.

11.0 – LIST OF ATTACHMENTS

- A. Location Maps and Photos
- B. Draft Permit No. 18975
- C. Project Drawings

Design Review:	Gary W. Lemon P.E.
Environmental Review:	Andrea Buckley, Senior Environmental Scientist
Document Review:	Mitra Emami P.E., Permitting Section Chief, Len Marino P.E., Chief Engineer
Legal Review:	Leslie Gallagher, Chief Counsel



CP12010031 04 002

Source: Data provided by Regional San in 2013; adapted by Ascent Environmental in 2013

Exhibit 3-3

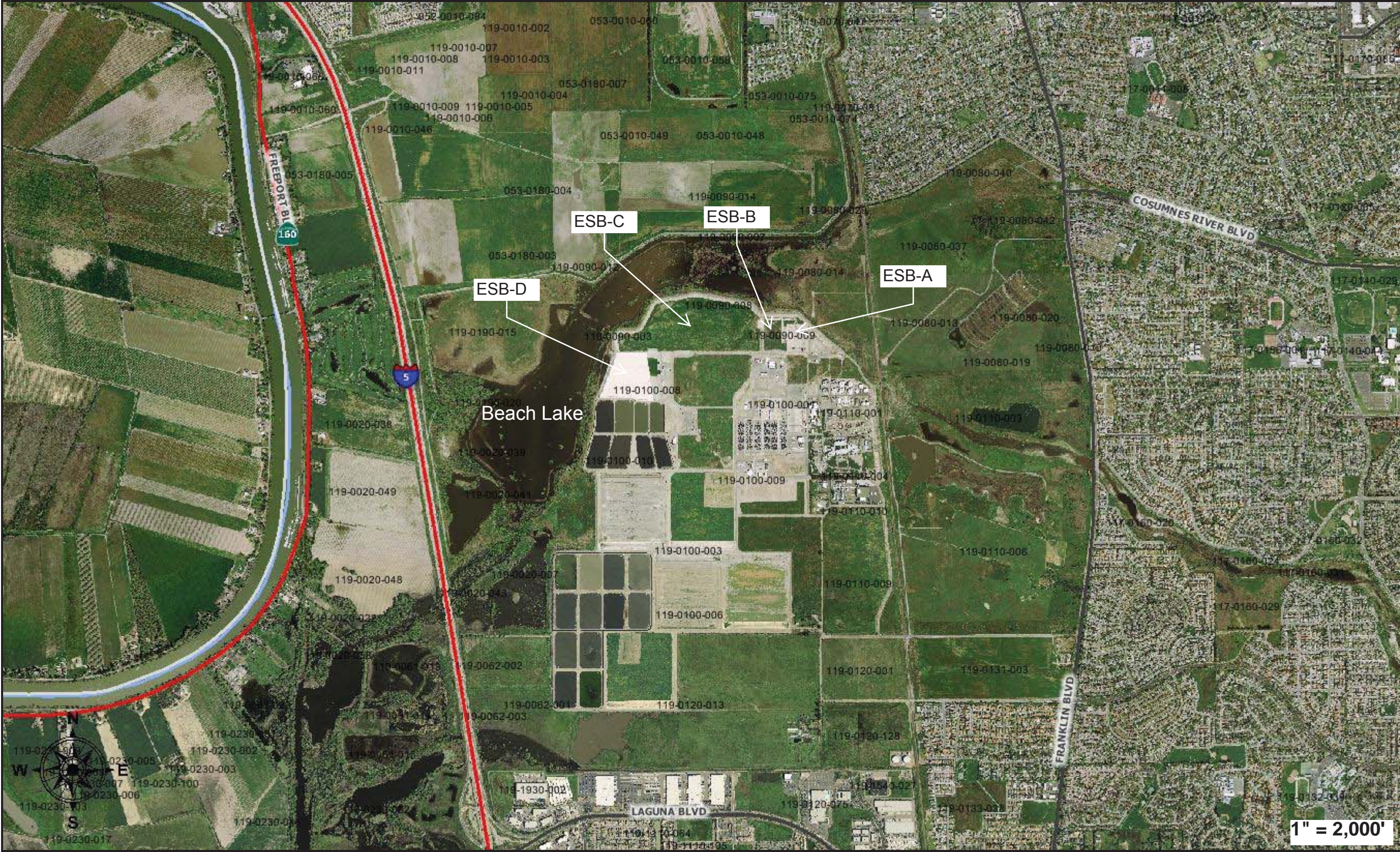
Sacramento Regional County Sanitation District's Service Area



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Parcel Viewer

Aerial View of SRWTP



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Photo taken at CVFPB levee east of ESB-A looking west towards panhandle area of ESB-B.



Photo taken at north CVFPB levee north of ESB-B looking east along the northern levee road.



Photo taken at ESB-B on north CVFPB levee looking southwest at ESB-B.



Photo taken at ESB-B on north CVFPB levee looking west towards ESB-B to ESB-C overflow.



Photo taken at CVFPB north levee east of ESB-B looking sothwest across ESB-C.



Photo taken at north CVFPB levee east of ESB-B looking west along the northern levee road.



Photo taken on northwest corner of ESB-C CVFPB levee looking south along western ESB-C levee towards ESB-D.



Photo taken on northwest corner of ESB-C CVFPB levee looking southwest across ESB-C towards ESB-D.

DRAFT

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

PERMIT NO. 18975 BD

This Permit is issued to:

Sacramento Regional County Sanitation District
8521 Laguna Station Road
Elk Grove, California 95758

To increase the capacity of the existing Emergency Storage Basins (ESBs) at the Sacramento Regional Wastewater Treatment Plant (SRWTP). The work will impact the north and west levee of the SRWTP which protect the facility from Morrison and Laguna Creek flood flows. The levees are features of the South Sacramento Streams Group Project. The project is located approximately two miles north of Laguna Boulevard and one mile east of Interstate 5 in the City of Elk Grove (Section 18, 19, T7N, R5E, MDB&M, Sacramento County Regional Sanitation District, Laguna Creek/Morrison Creek Basin, 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. 18975 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.

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 Central Valley Flood Protection Board and the Department of Water Resources shall not be held liable for any damages to the permitted encroachment(s) resulting from flood fight, operation, maintenance, inspection, or emergency repair.

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

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

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

TWENTY: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

TWENTY-ONE: 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.

TWENTY-TWO: The permitted encroachment(s) shall not interfere with operation and maintenance of the flood control project. If the permitted encroachment(s) are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachment(s) under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachment(s) at the permittee's expense.

TWENTY-THREE: 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.

TWENTY-FOUR: 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.

TWENTY-FIVE: 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 October xx, which is attached to this permit as Exhibit A and is incorporated by reference.

TWENTY-SIX: Upon completion of the project, the permittee shall submit as-constructed drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite 256, Sacramento, California 95821.

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CAROLLO ENGINEERS
2880 GATEWAY OAKS DR., SUITE 300
SACRAMENTO, CA
PHONE: 1-916-565-4888
CONTACT: SCOTT PARKER
WWW.CAROLLO.COM

SUB CONSULTANT



PRELIMINARY

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**FLOW
EQUALIZATION
(FEQ)**

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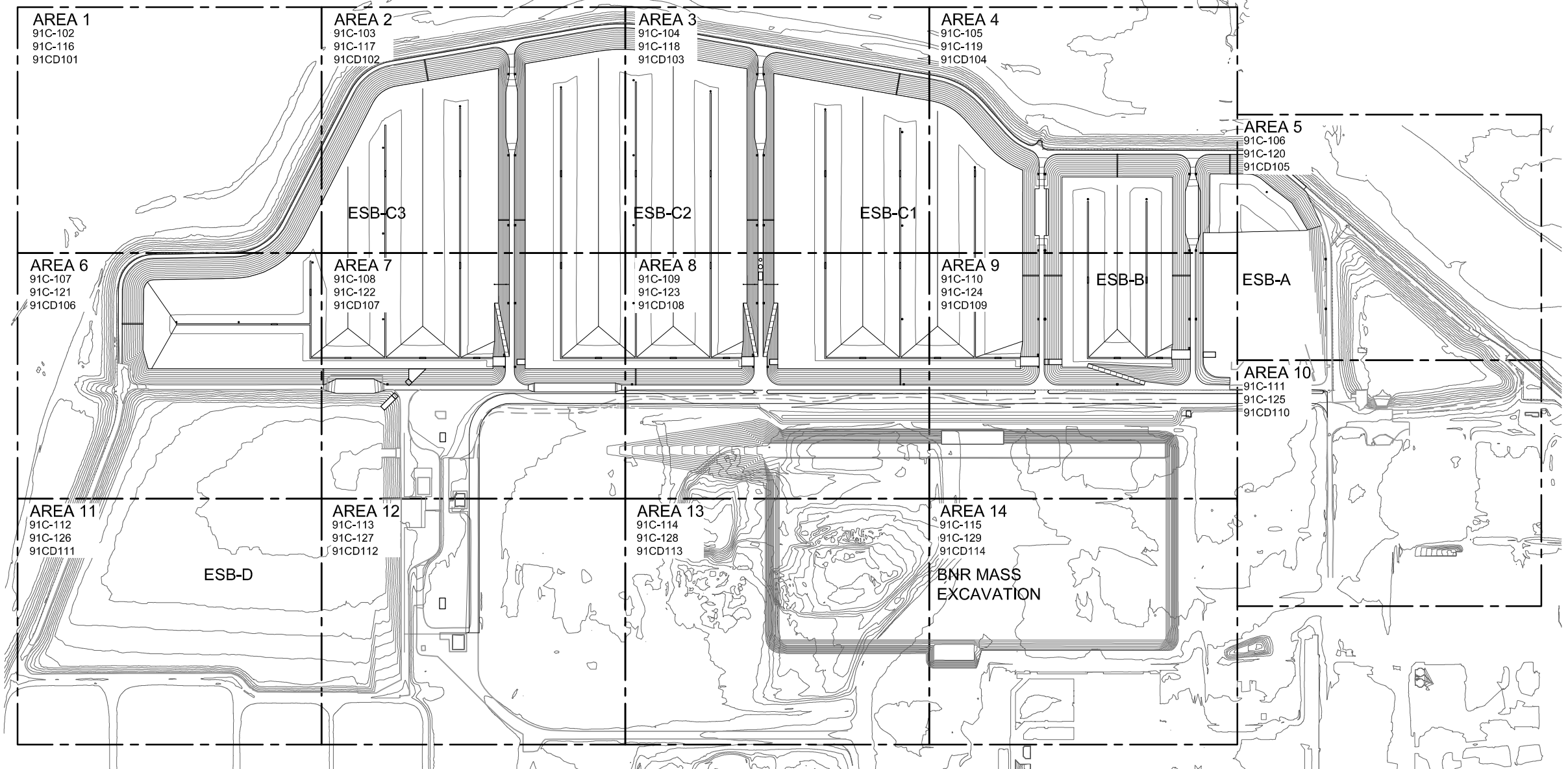
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DRAWN	J. LEFEVRE
CHECKED	T. BESETT
APPROVED	

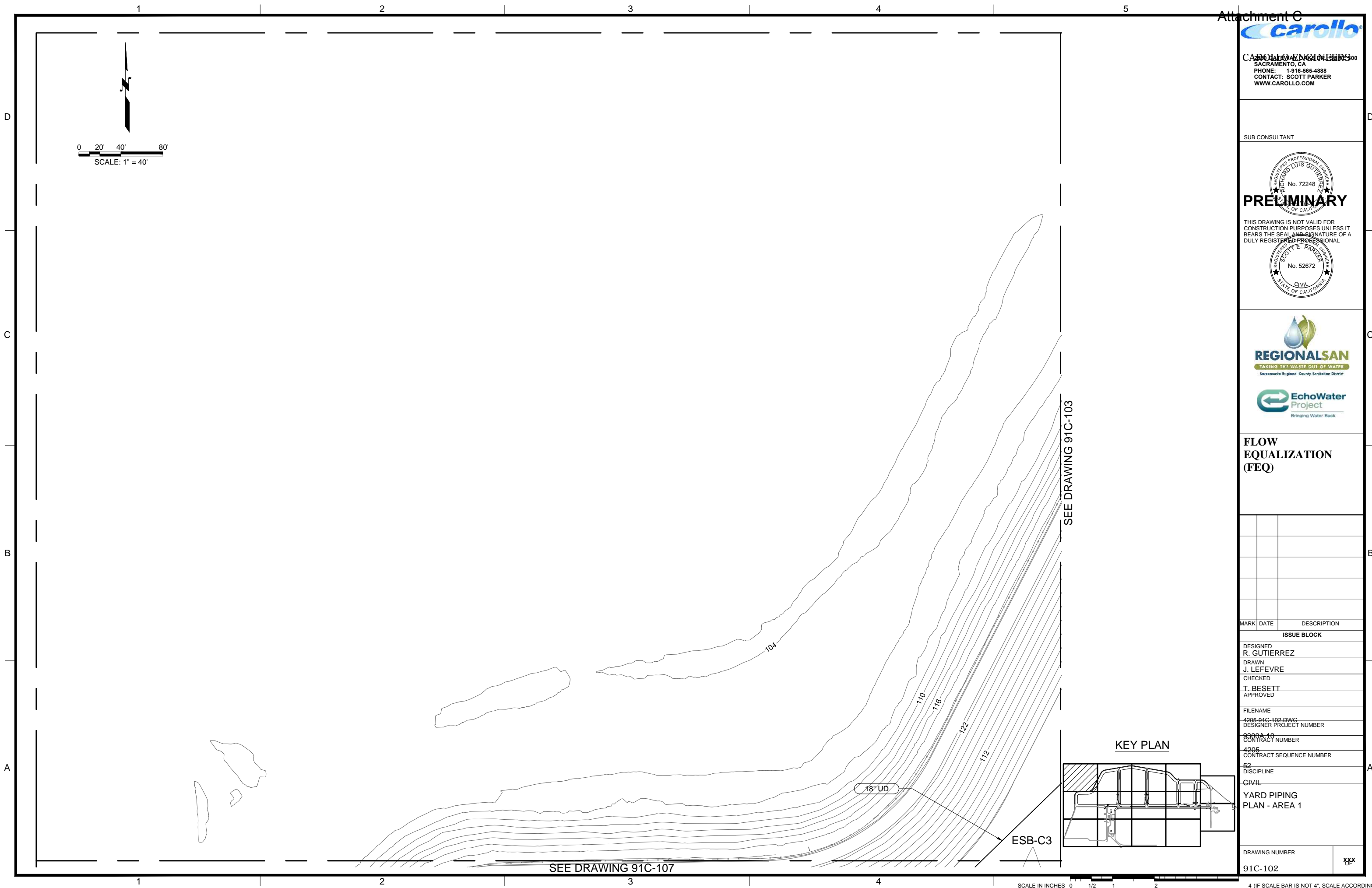
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SITE CIVIL KEY PLAN

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Attachment C

carollo

CAROLLO ENGINEERS
2800 HARVEY DRIVE, SUITE 300
SACRAMENTO, CA 95833
PHONE: 1-916-565-4888
CONTACT: SCOTT PARKER
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SUB CONSULTANT

REGISTERED PROFESSIONAL ENGINEER
RICHARD LUIS GUTIERREZ
No. 72248
STATE OF CALIFORNIA

PRELIMINARY

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REGISTERED PROFESSIONAL ENGINEER
SCOTT E. PARKER
No. 52672
CIVIL
STATE OF CALIFORNIA

REGIONALSAN
TAKING THE WASTE OUT OF WATER
Sacramento Regional County Sanitation District

EchoWater Project
Bringing Water Back

FLOW EQUALIZATION (FEQ)

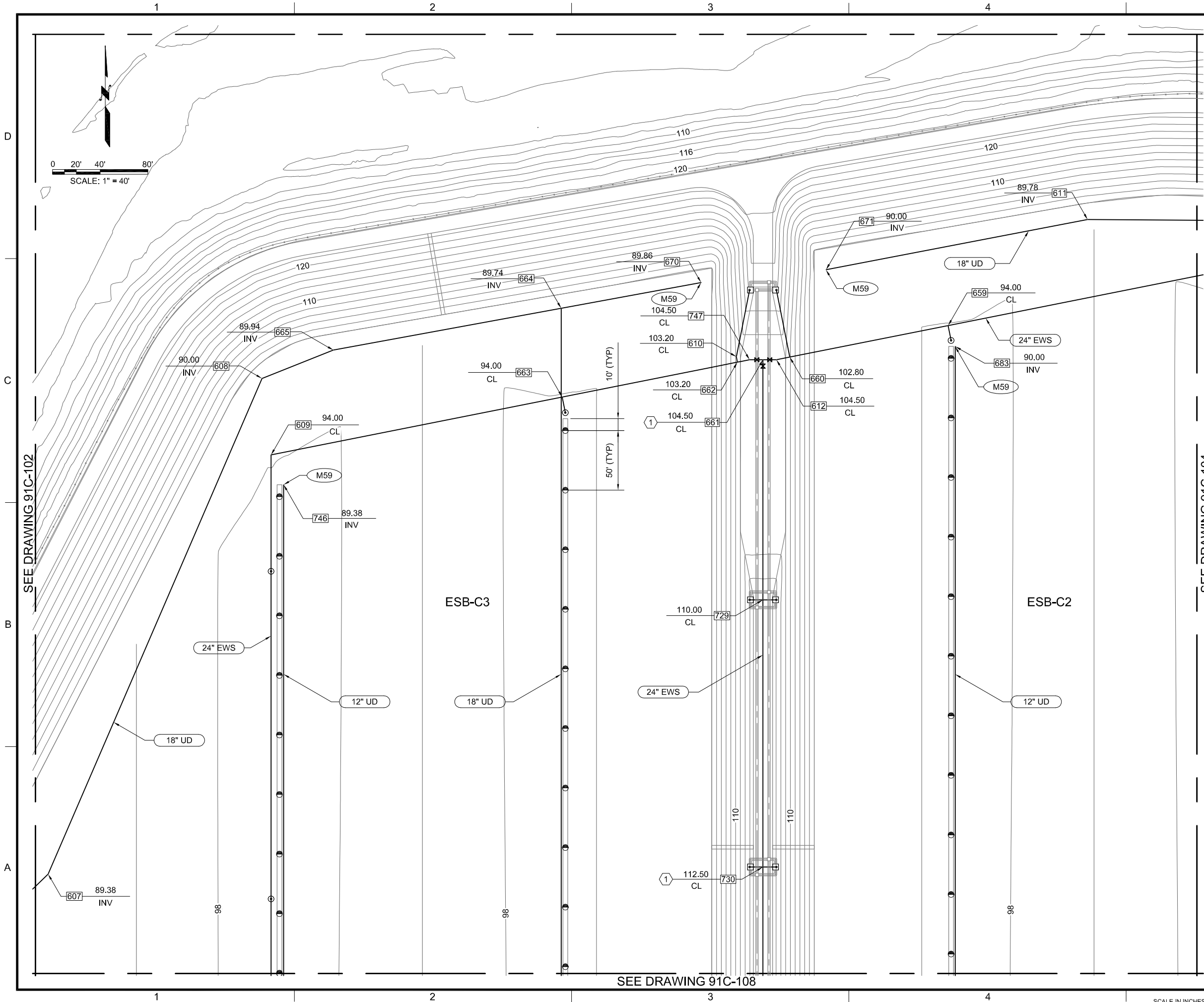
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APPROVED		
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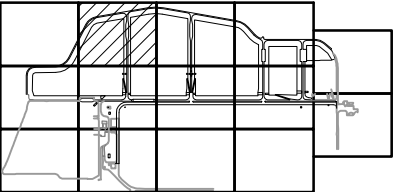
SHEET KEYNOTES

1. INSTALL ARV AT THIS LOCATION
PER DETAIL P240.

LEGEND

- 6" DUCKBILL TYPE UNDERDRAIN
- PRESSURE RELIEF VALVE PER
DETAIL A3/91C-305.
- MANUAL WASHDOWN MONITOR
STATION ON BERM PER DETAIL
B1/91C-138
- IN BASIN MOTORIZED
WASHDOWN MONITOR STATION
PER DETAIL B1/91C-137

KEY PLAN



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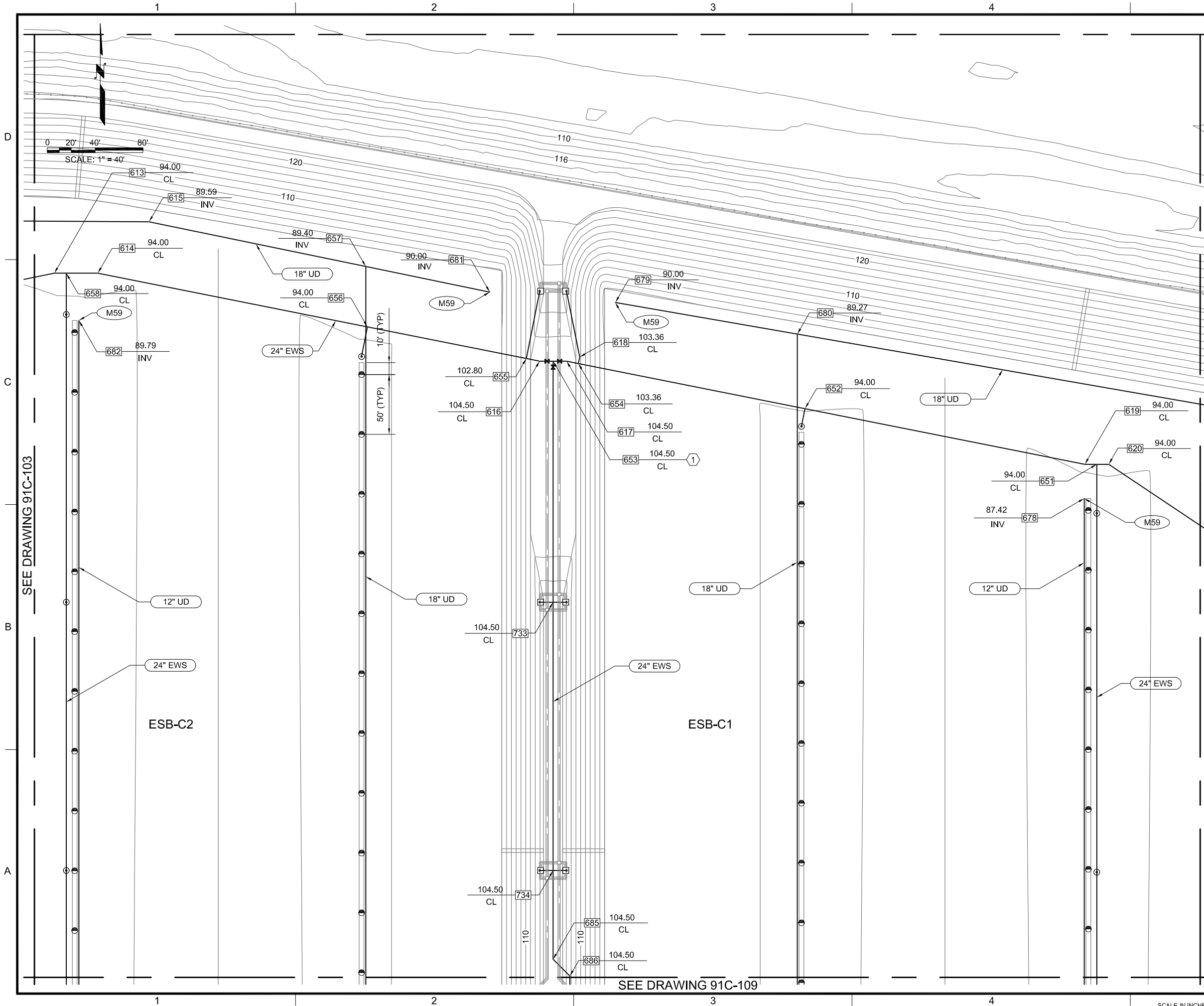


**FLOW
EQUALIZATION
(FEQ)**

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DRAWN		J. LEFEVRE
CHECKED		T. BESETT
APPROVED		
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SHEET KEYNOTES

1. INSTALL ARV AT THIS LOCATION PER DETAIL P240.



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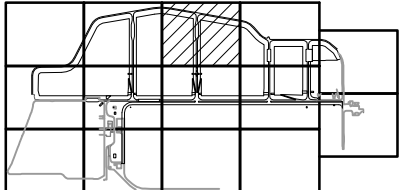
FLOW EQUALIZATION (FEQ)

MARK	DATE	DESCRIPTION

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- PRESSURE RELIEF VALVE PER DETAIL A3/91C-305.
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL B3/91C-137

KEY PLAN

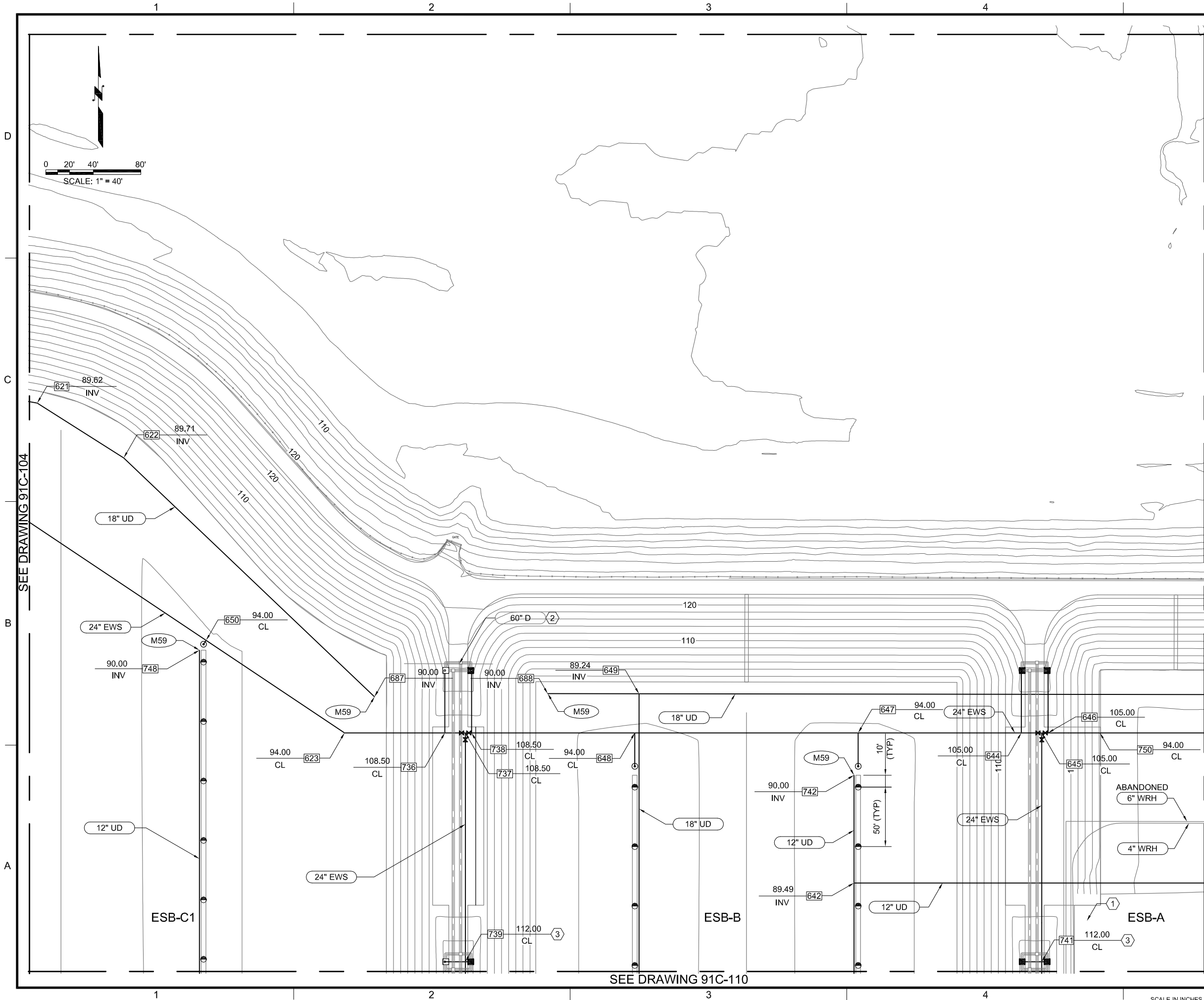


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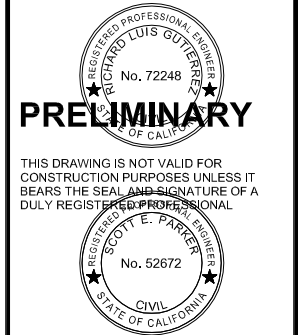
SHEET KEYNOTES

1. CAP EXISTING PIPE.
2. ABANDON PIPE IN PLACE. PLUG BY FILLING PIPE WITH CONCRETE SLURRY.
3. INSTALL ARV AT THIS LOCATION PER DETAIL P240.



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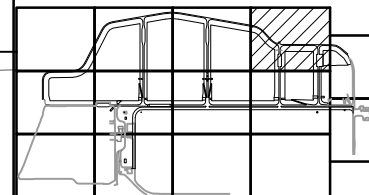


FLOW
EQUALIZATION
(FEQ)

LEGEND

- 6" DUCKBILL TYPE UNDERDRAIN
- PRESSURE RELIEF VALVE PER DETAIL A3/91C-305.
- MOTORIZED WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL B3/91C-137

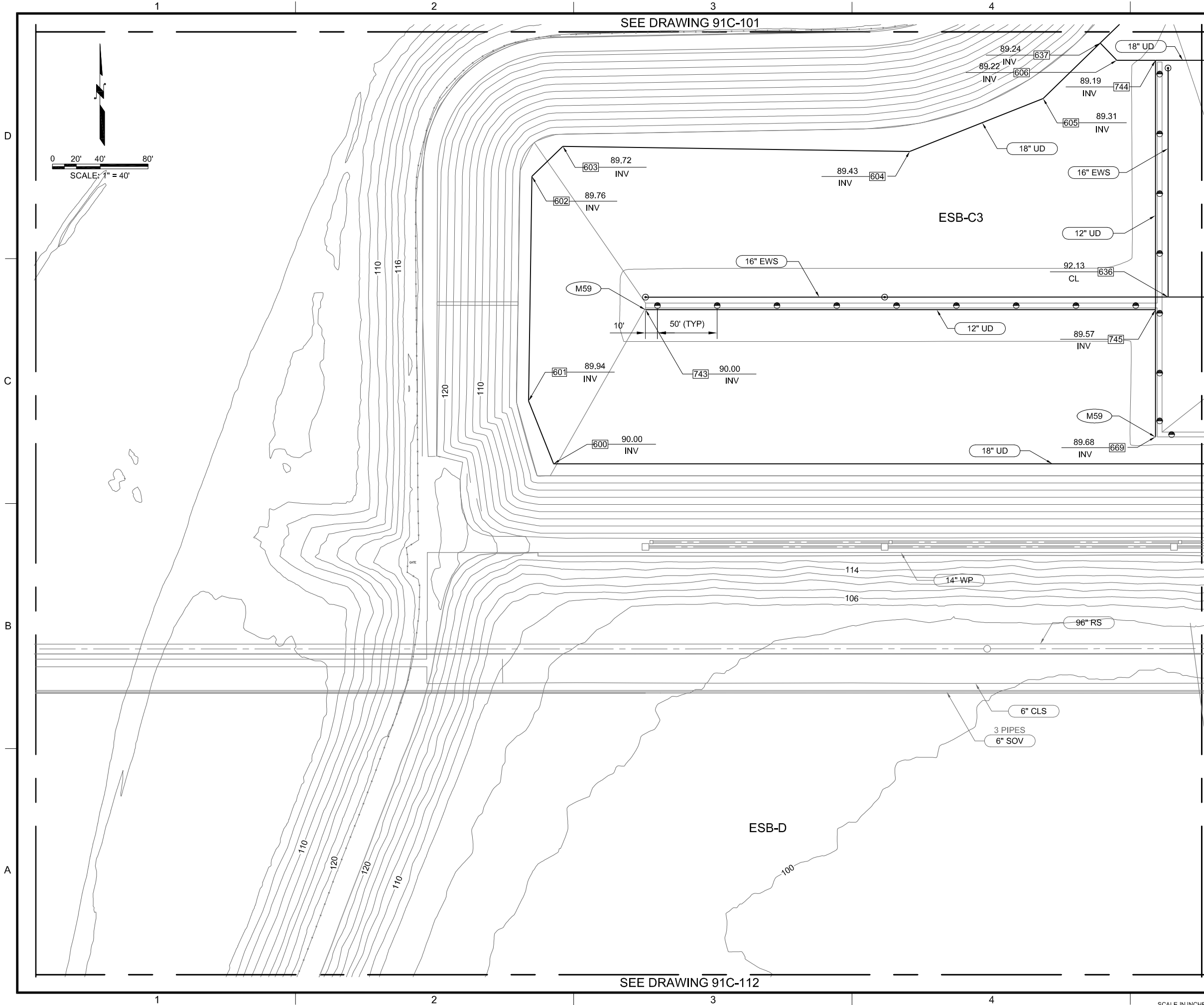
KEY PLAN



MARK	DATE	DESCRIPTION
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DRAWN J. LEFEVRE		
CHECKED T. BESETT		
APPROVED		
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YARD PIPING PLAN - AREA 4		
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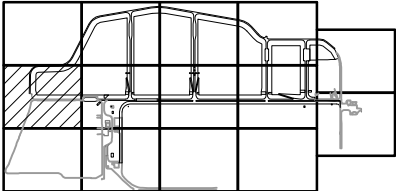


SEE DRAWING 91C-108

LEGEND

- 6" DUCKBILL TYPE UNDERDRAIN
- PRESSURE RELIEF VALVE PER DETAIL A3/91C-305.
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL B3/91C-137

KEY PLAN



Attachment C



CAROLLO ENGINEERS
2880 GATEWAY OAKS DR., SUITE 300
SACRAMENTO, CA
PHONE: 1-916-565-4888
CONTACT: SCOTT PARKER
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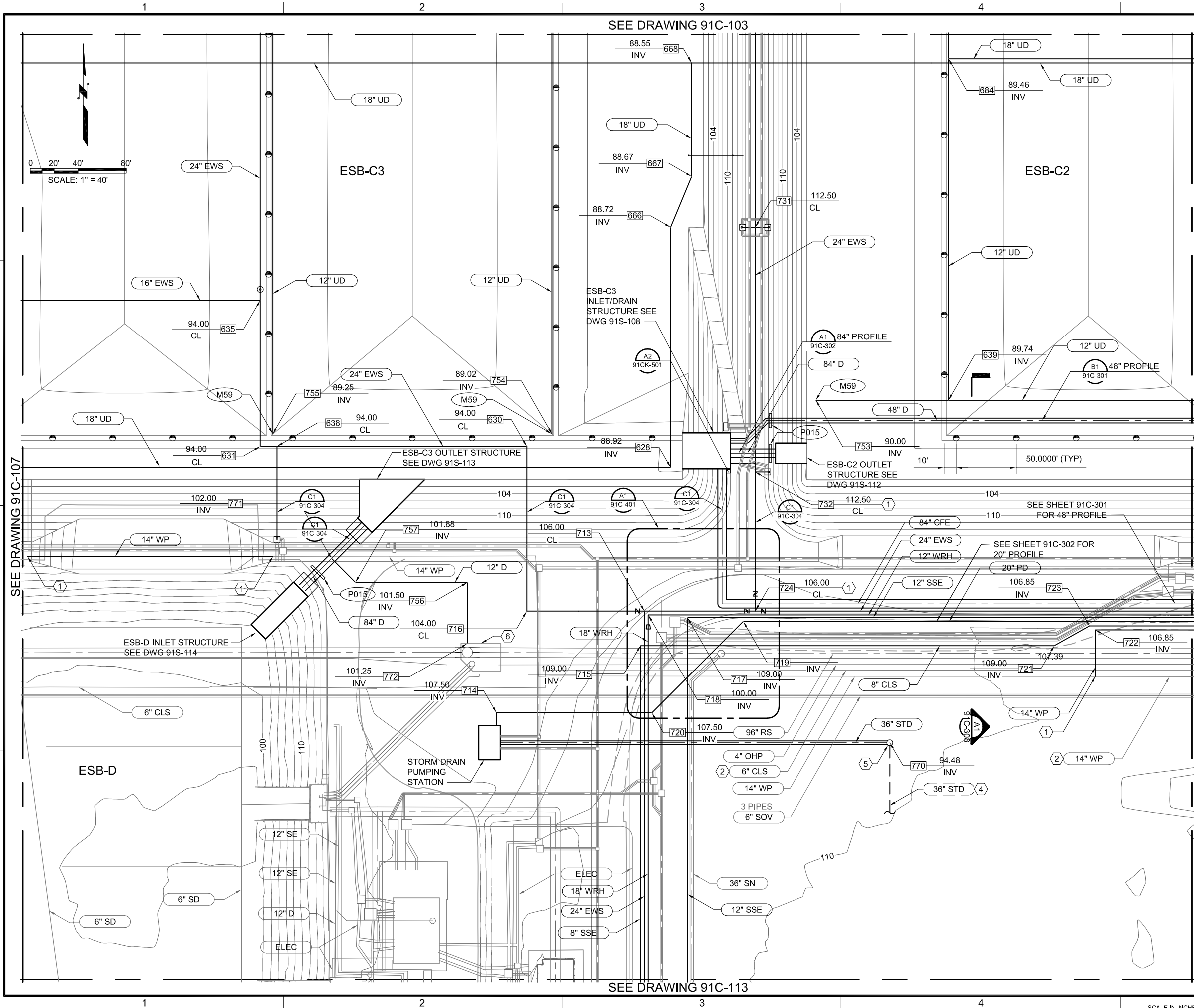
PRELIMINARY

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**FLOW
EQUALIZATION
(FEQ)**

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ISSUE BLOCK		
DESIGNED		R. GUTIERREZ
DRAWN		J. LEFEVRE
CHECKED		T. BESETT
APPROVED		
FILENAME		4205-91C-107.DWG
DESIGNER PROJECT NUMBER		9300A.10
CONTRACT NUMBER		4205
CONTRACT SEQUENCE NUMBER		52
DISCIPLINE		CIVIL
YARD PIPING PLAN - AREA 6		
DRAWING NUMBER	91C-107	
	xxx	OF



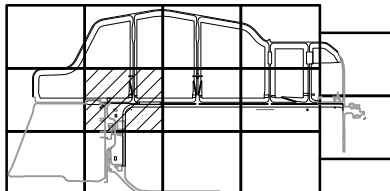
SHEET KEYNOTES

1. CONNECT TO EXIST 14" WP. REFERENCE SEQUENCING REQUIREMENTS.
2. TO BE ABANDONED
3. NOT USED
4. INSTALLED BY OTHERS.
5. START OF 36" STD UNDER THIS CONTRACT CONNECT TO MANHOLE CONSTRUCTED BY OTHERS..
6. CONNECT TO MH AT EXISTING JUNCTION STRUCTURE. PROVIDE 12" DUCKBILL CHECK VALVE AT END OF PIPE. REPAIR PVC LINER AFTER INSTALLATION.
7. INSTALL ARV AT THIS LOCATION PER DETAIL P240.

LEGEND

- 6" DUCKBILL TYPE UNDERDRAIN PRESSURE RELIEF VALVE PER DETAIL A3 / 91C-305.
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL B3/91C-137

KEY PLAN



Attachment C

CAROLLO ENGINEERS
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PHONE: 1-916-565-4888
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TAKING THE WASTE OUT OF WATER
Sacramento Regional County Sanitation District

EcoWater Project
Bringing Water Back

FLOW EQUALIZATION (FEQ)

MARK	DATE	DESCRIPTION
ISSUE BLOCK		
DESIGNED		R. GUTIERREZ
DRAWN		J. LEFEVRE
CHECKED		T. BESETT
APPROVED		
FILENAME	4205-91C-108.DWG	
DESIGNER PROJECT NUMBER	9300A.10	
CONTRACT NUMBER	4205	
CONTRACT SEQUENCE NUMBER	52	
DISCIPLINE	CIVIL	
YARD PIPING PLAN - AREA 7		
DRAWING NUMBER	91C-108	
	XXX	OF

2880 GATEWAY OAKS DR., SUITE 300
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**FLOW
EQUALIZATION
(FEQ)**

MARK	DATE	DESCRIPTION
ISSUE BLOCK		
DESIGNED	R. GUTIERREZ	
DRAWN	J. LEFEVRE	
CHECKED	T. BESETT	
APPROVED		

FILENAME	4205-91C-109.DWG
DESIGNER PROJECT NUMBER	9300A.10
CONTRACT NUMBER	4205
CONTRACT SEQUENCE NUMBER	52
DISCIPLINE	CIVIL

YARD PIPING
PLAN - AREA 8

DRAWING NUMBER
91C-109

XX
O

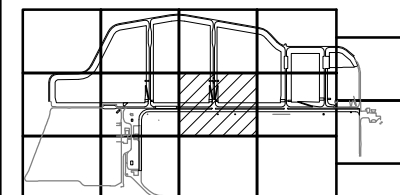
SHEET KEYNOTES

1. CAP FOR FUTURE CONNECTION BY BNR PROJECT.
2. TO BE ABANDONED
3. INSTALL ARV AT THIS LOCATION PER DETAIL P240.

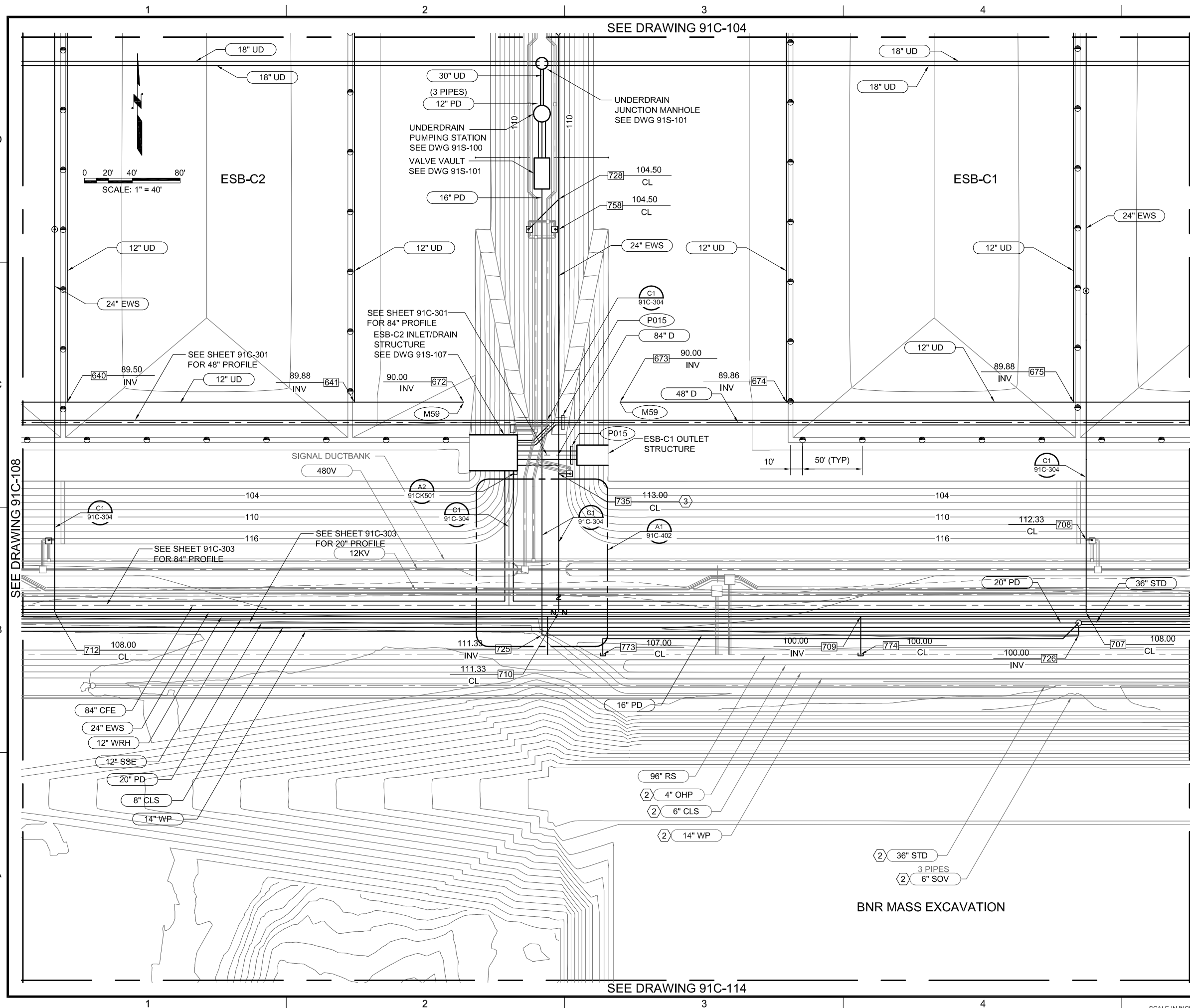
LEGEND

- 6" DUCKBILL TYPE UNDERDRAIN PRESSURE RELIEF VALVE PER DETAIL A3/91C-305.
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- ◎ IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL B3/91C-137

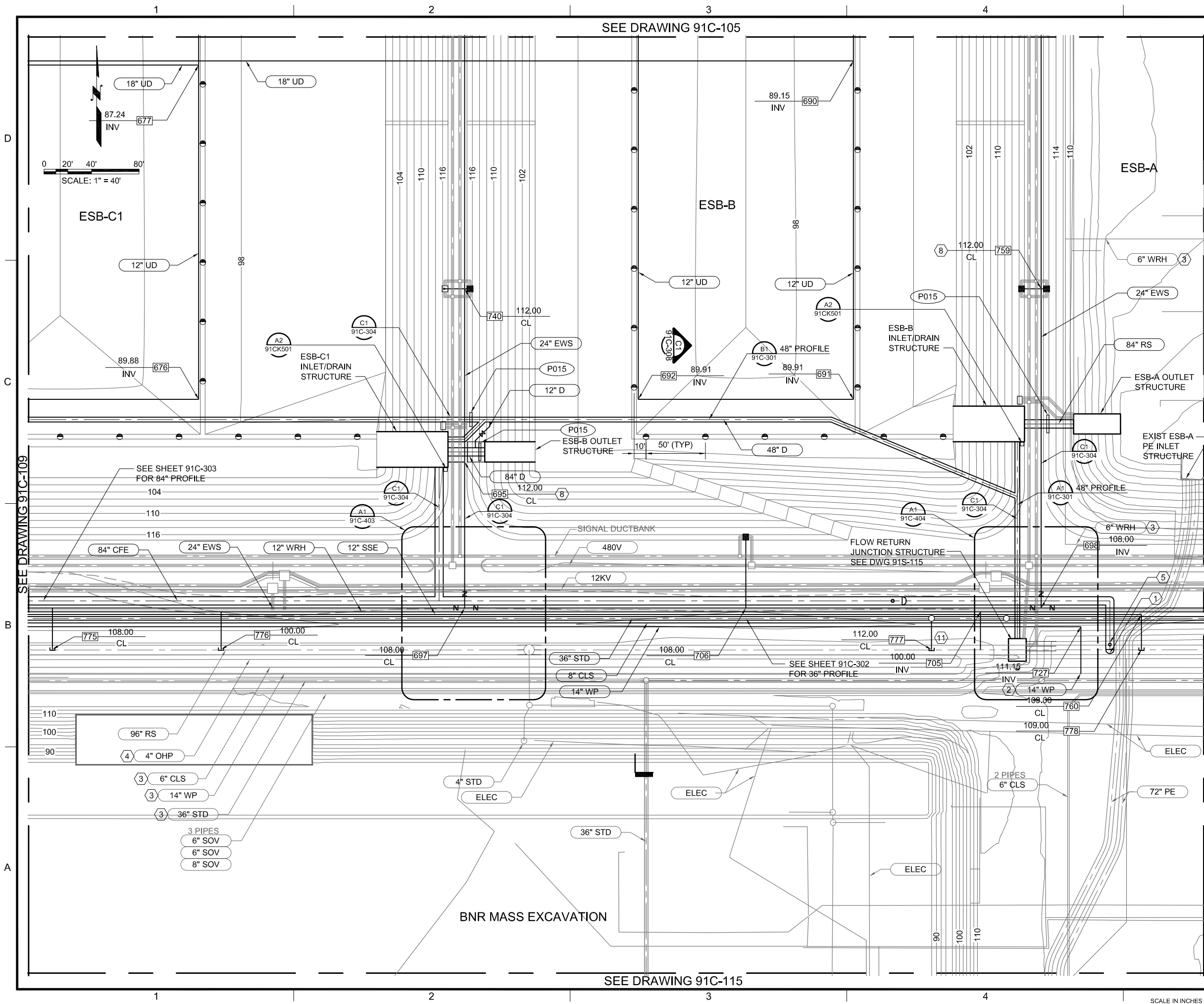
KEY PLAN



SCALE IN INCHES 0 1/2 1 2 4 (IF SCALE BAR IS NOT 4", SCALE ACCORDINGLY)



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SHEET KEYNOTES

1. WELDED STEEL CAP FOR CONNECTION TO FUTURE PEPS PROJECT
2. CONNECT TO EXIST 14" WP. REFERENCE SEQUENCING CONSTRAINTS.
3. TO BE ABANDONED
4. ABANDONED
5. 30" MANWAY
6. CAP FOR FUTURE CONNECTION BY PEPS PROJECT.
7. INSTALLED BY OTHERS.
8. INSTALL ARV AT THIS LOCATION PER DETAIL P204..
9. CAP FOR FUTURE CONNECTION BY BNR PROJECT.
10. NOT USED
11. STUB OUT 24"D 5 FEET FROM STRUCTURE AND INSTALL TEMPORARY PIPE PLUG FOR FUTURE CONNECTION FROM PEPS PROJECT.

LEGEND

- 6" DUCKBILL TYPE UNDERDRAIN
- PRESSURE RELIEF VALVE PER DETAIL A3/91C-305.
- MOTORIZED WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138

KEY PLAN

FLOW EQUALIZATION (FEQ)

MARK	DATE	DESCRIPTION
ISSUE BLOCK		
DESIGNED		R. GUTIERREZ
DRAWN		J. LEFEVRE
CHECKED		T. BESETT
APPROVED		
FILENAME	4205-91C-110.DWG	
DESIGNER PROJECT NUMBER	9300A.10	
CONTRACT NUMBER	4205	
CONTRACT SEQUENCE NUMBER	52	
DISCIPLINE	CIVIL	
YARD PIPING PLAN - AREA 9		
DRAWING NUMBER	91C-110	
XXX OF		

Attachment C

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SACRAMENTO, CA
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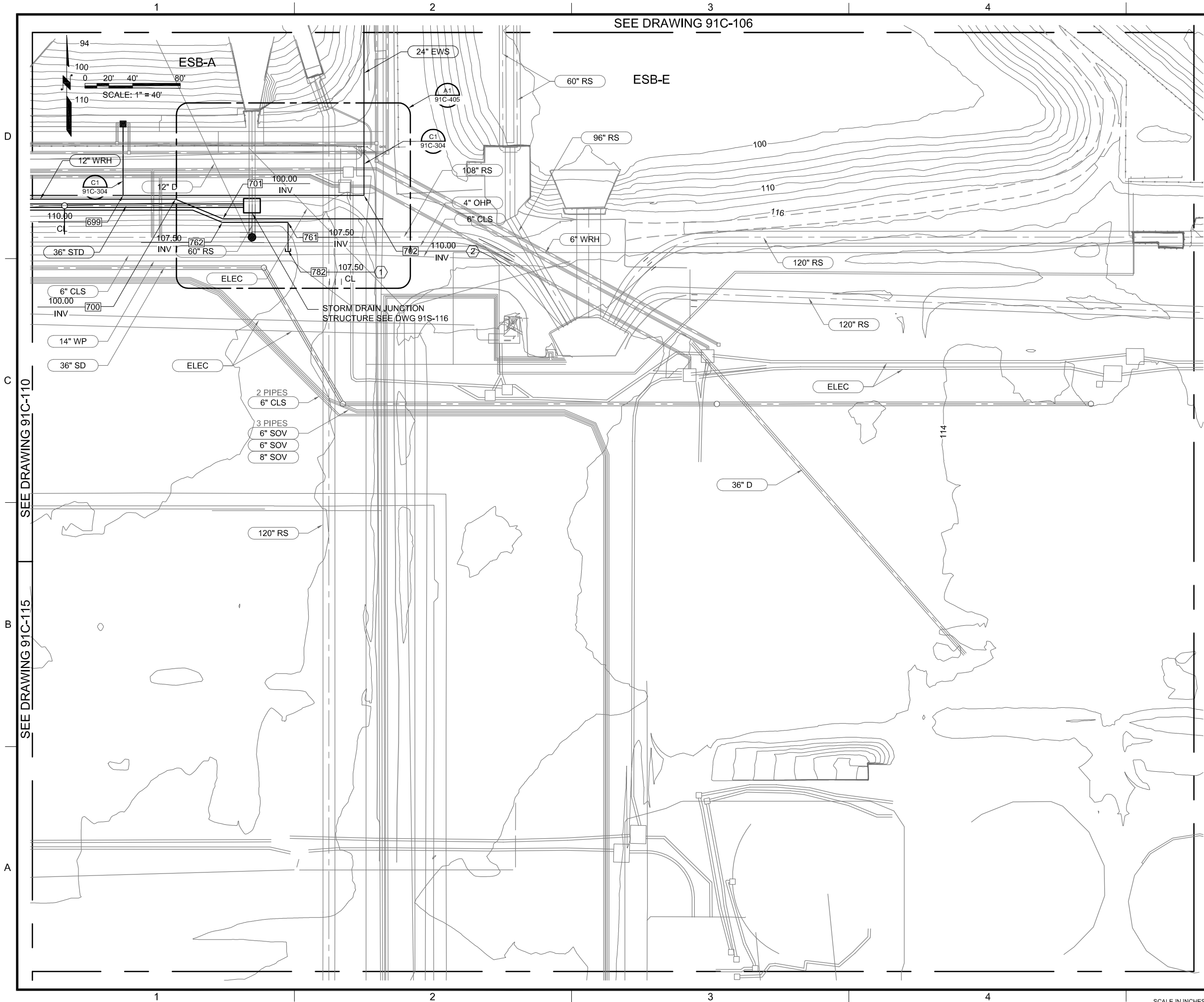
PRELIMINARY

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REGIONALSAN
TAKING THE WASTE OUT OF WATER
Sacramento Regional County Sanitation District

EchoWater Project
Bringing Water Back

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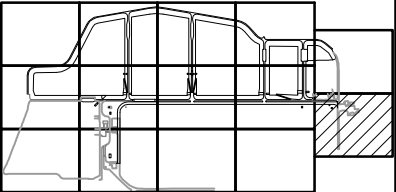
SHEET KEYNOTES

1. CAP FOR FUTURE CONNECTION BY PEPS PROJECT.
2. INSTALL ARV AT THIS LOCATION PER DETAIL P420.

LEGEND

- MOTORIZED WASHDOWN
■ MONITOR STATION ON BERM PER DETAIL B1/91C-138

KEY PLAN



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(FEQ)**

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DRAWN

J. LEFEVRE

CHECKED

T. BESETT

APPROVED

FILENAME

4205-91C-111.DWG

DESIGNER PROJECT NUMBER

9300A.10

CONTRACT NUMBER

4205

CONTRACT SEQUENCE NUMBER

52

DISCIPLINE

CIVIL

YARD PIPING

PLAN - AREA 10

DRAWING NUMBER

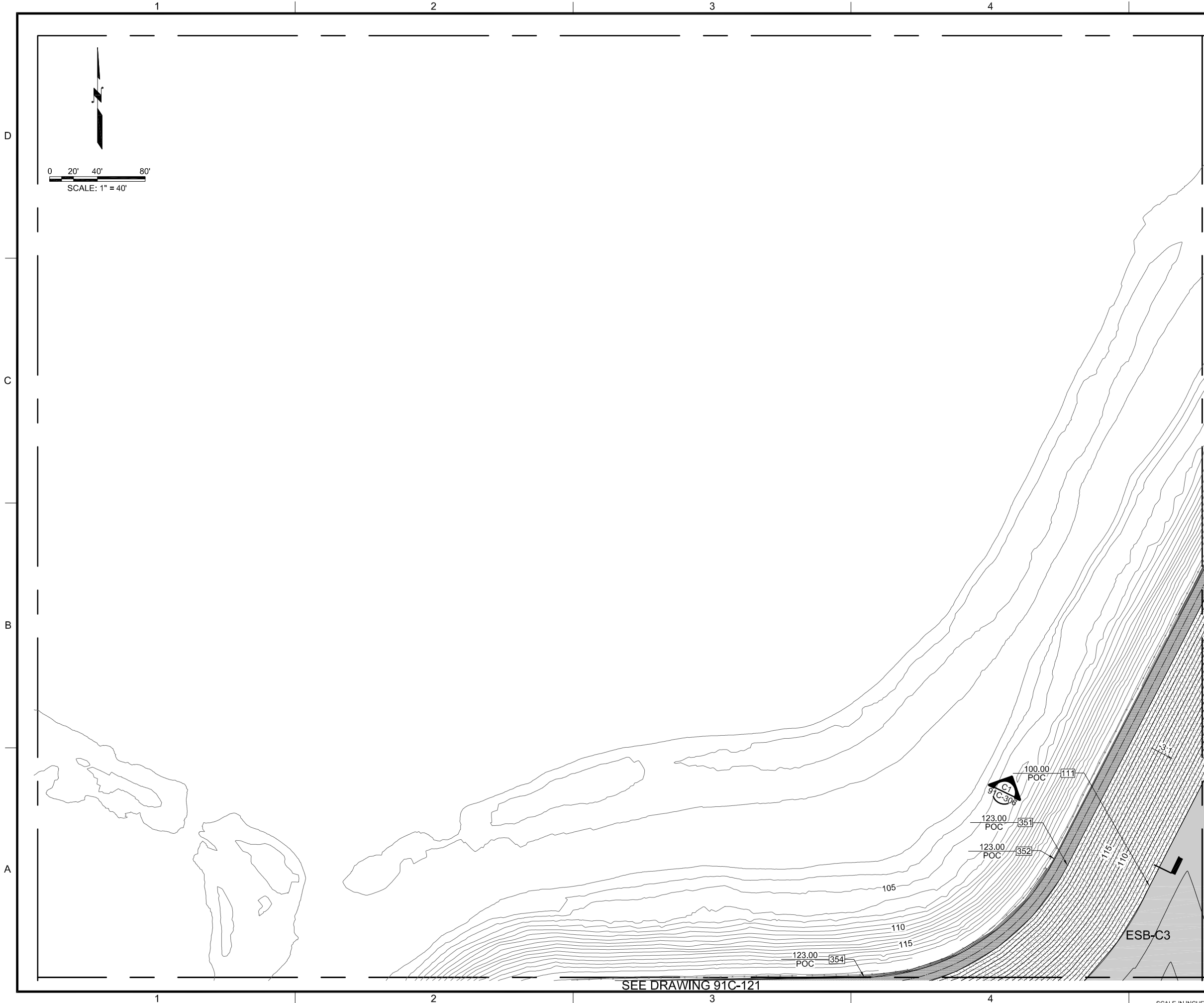
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OF

SCALE IN INCHES 0 1/2 1 2 4 (IF SCALE BAR IS NOT 4", SCALE ACCORDINGLY)

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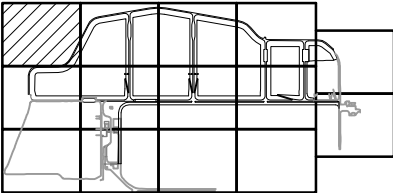
GENERAL SHEET NOTES

- FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR RCC SLABS PROVIDE CONTROL JOINTS PER DETAIL A3/91C-505 AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE EXPANSION JOINTS AT MAXIMUM 80' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE CONTROL JOINTS AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.

LEGEND

- | | |
|-----------|--|
| 100 | COORDINATE SEE TABLE ON SHEETS 91C-601 AND 91C-602 |
| [Pattern] | 6" RCC PAVING |
| [Pattern] | 9" RCC LINER |
| [Pattern] | 6" SHOTCRETE LINER |
| [Pattern] | CAST IN PLACE CONCRETE |

KEY PLAN



CAROLLO ENGINEERS
2880 GATEWAY OAKS DR., SUITE 300
SACRAMENTO, CA
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ISSUE BLOCK

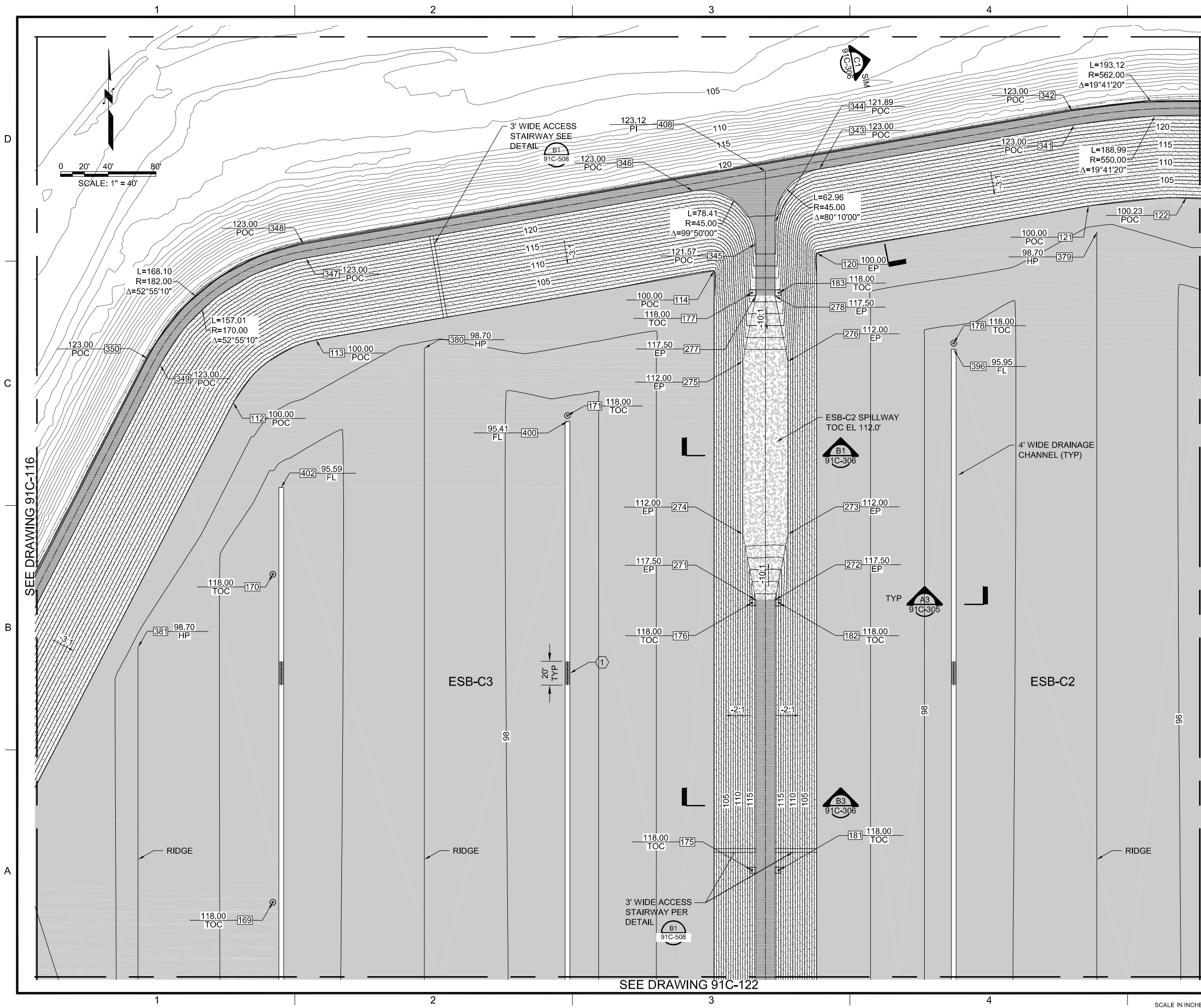
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R. GUTIERREZ
DRAWN
J. LEFEVRE
CHECKED
T. BESETT
APPROVED

FILENAME
4205-91C-116.DWG
DESIGNER PROJECT NUMBER
9300A.10
CONTRACT NUMBER
4205
CONTRACT SEQUENCE NUMBER
52

DISCIPLINE
CIVIL
PAVING AND GRADING
PLAN - AREA 1

DRAWING NUMBER
91C-116
XXX
OF

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CADD User: Jerry LeFevre



GENERAL SHEET NOTES

- FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR RCC SLABS PROVIDE CONTROL JOINTS PER DETAIL A3/91C-505 AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE EXPANSION JOINTS AT MAXIMUM 80' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE CONTROL JOINTS AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.

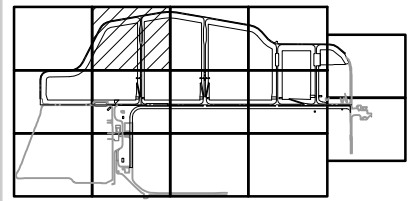
SHEET KEYNOTES

- HOT-DIP GALVANIZED HEAVY DUTY TRAFFIC RATED GRATING.

LEGEND

- COORDINATE SEE TABLE ON SHEETS 91C-601 AND 91C-602
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL A1/91C-137
- 6" RCC PAVING
- 9" RCC LINER
- 6" SHOTCRETE LINER
- CAST IN PLACE CONCRETE

KEY PLAN



Attachment C

CAROLLO ENGINEERS
2880 GATEWAY OAKS DR., SUITE 300
SACRAMENTO, CA
PHONE: 1-916-565-4888
CONTACT: SCOTT PARKER
WWW.CAROLLO.COM

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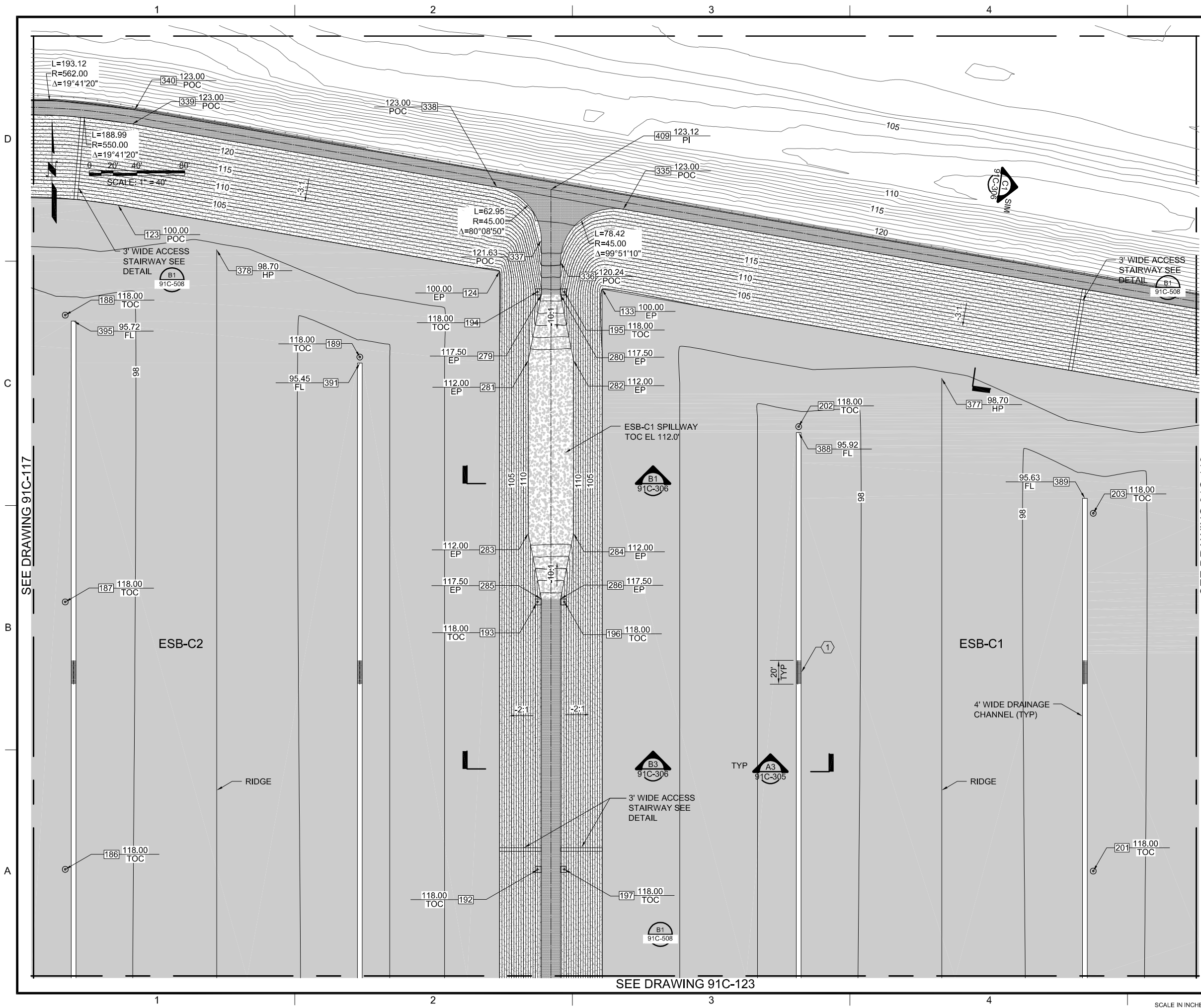
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FLOW EQUALIZATION (FEQ)

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DESIGNED R. GUTIERREZ		
DRAWN J. LEFEVRE		
CHECKED T. BESETT		
APPROVED		
FILENAME 4205-91C-117.DWG		
DESIGNER PROJECT NUMBER 9300A.10		
CONTRACT NUMBER 4205		
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DISCIPLINE CIVIL		
PAVING AND GRADING PLAN - AREA 2		

DRAWING NUMBER 91C-117	XXX OF
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Path: C:\Client\CA\SRCS\9300A10\CAD\1-Sheets\C Filename: 4205-91C-118.dwg



GENERAL SHEET NOTES

- FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR RCC SLABS PROVIDE CONTROL JOINTS PER DETAIL A3/91C-505 AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE EXPANSION JOINTS AT MAXIMUM 80' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE CONTROL JOINTS AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.

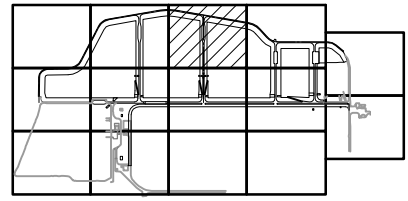
SHEET KEYNOTES

- HOT-DIP GALVANIZED HEAVY DUTY TRAFFIC RATED GRATING.

LEGEND

- COORDINATE SEE TABLE ON SHEETS 91C-601 AND 91C-602
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL A1/91C-137
- 6" RCC PAVING
- 9" RCC LINER
- 6" SHOTCRETE LINER
- CAST IN PLACE CONCRETE

KEY PLAN



Attachment C

CAROLLO ENGINEERS
2880 GATEWAY OAKS DR., SUITE 300
SACRAMENTO, CA
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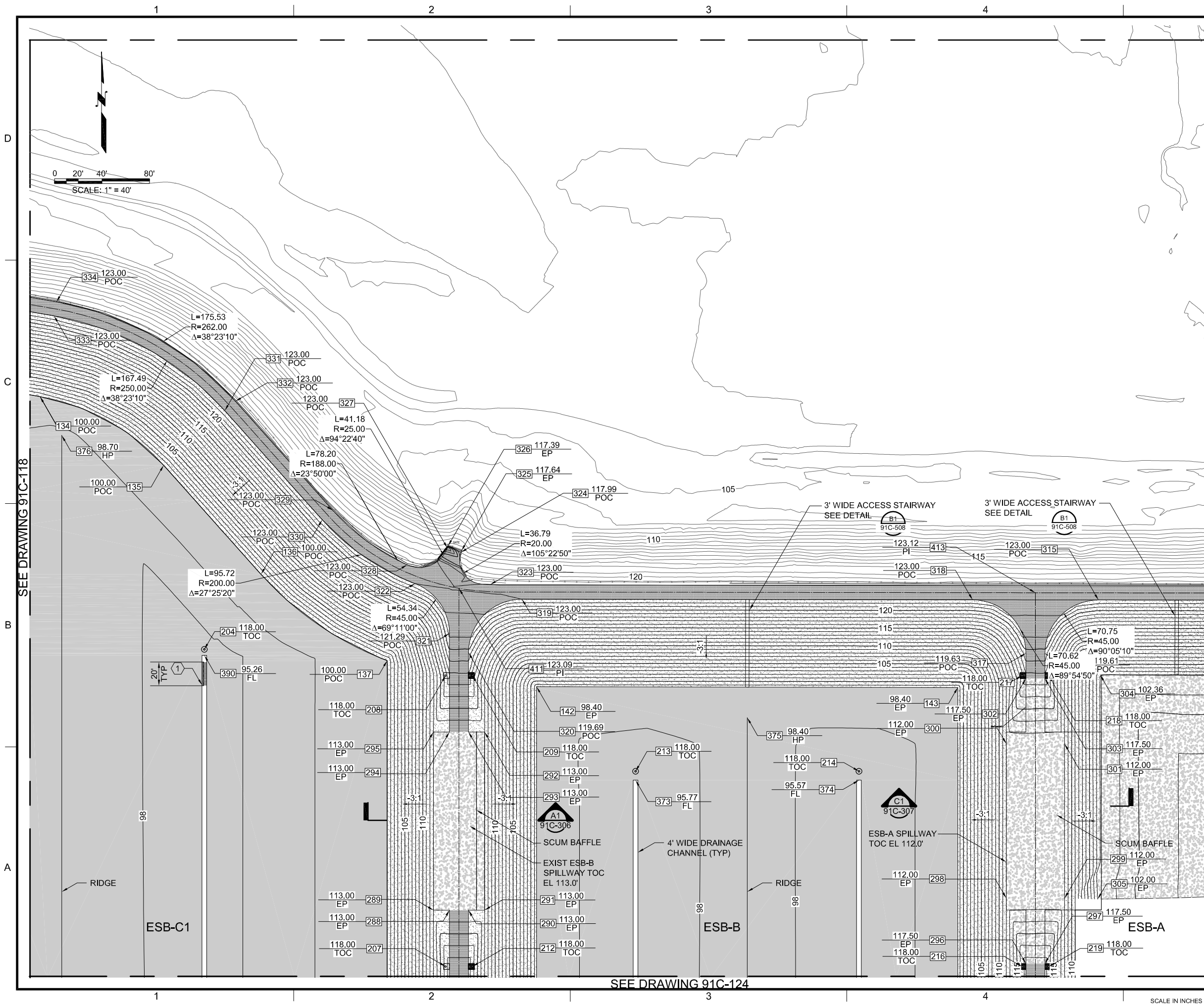
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DESIGNER PROJECT NUMBER 9300A.10		
CONTRACT NUMBER 4205		
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DISCIPLINE CIVIL		
PAVING AND GRADING PLAN - AREA 3		

DRAWING NUMBER 91C-118	XXX OF
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SEE DRAWING 91C-123

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CADD User: Jerry LeFevre
Filename: 4205-91C-119.dwg



GENERAL SHEET NOTES

1. FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
2. FOR RCC SLABS PROVIDE CONTROL JOINTS PER DETAIL A3/91C-505 AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
3. FOR SHOTCRETE LINER PROVIDE EXPANSION JOINTS AT MAXIMUM 80' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
4. FOR SHOTCRETE LINER PROVIDE CONTROL JOINTS AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.

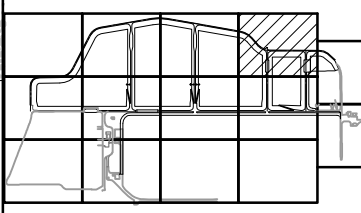
SHEET KEYNOTES

1. HOT-DIP GALVANIZED HEAVY DUTY TRAFFIC RATED GRATING.


LEGEND

- 100 COORDINATE SEE TABLE ON SHEETS 91C-601 AND 91C-602
- MOTORIZED WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL A1/91C-137
- 6" RCC PAVING
- 9" RCC LINER
- 6" SHOTCRETE LINER
- CAST IN PLACE CONCRETE

KEY PLAN




Attachment C




CAROLLO ENGINEERS
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TAKING THE WASTE OUT OF WATER
Sacramento Regional County Sanitation District



EcoWater
Project
Bringing Water Back

FLOW EQUALIZATION (FEQ)

MARK	DATE	DESCRIPTION
ISSUE BLOCK		
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DRAWN		J. LEFEVRE
CHECKED		T. BESETT
APPROVED		
FILENAME	4205-91C-119.DWG	
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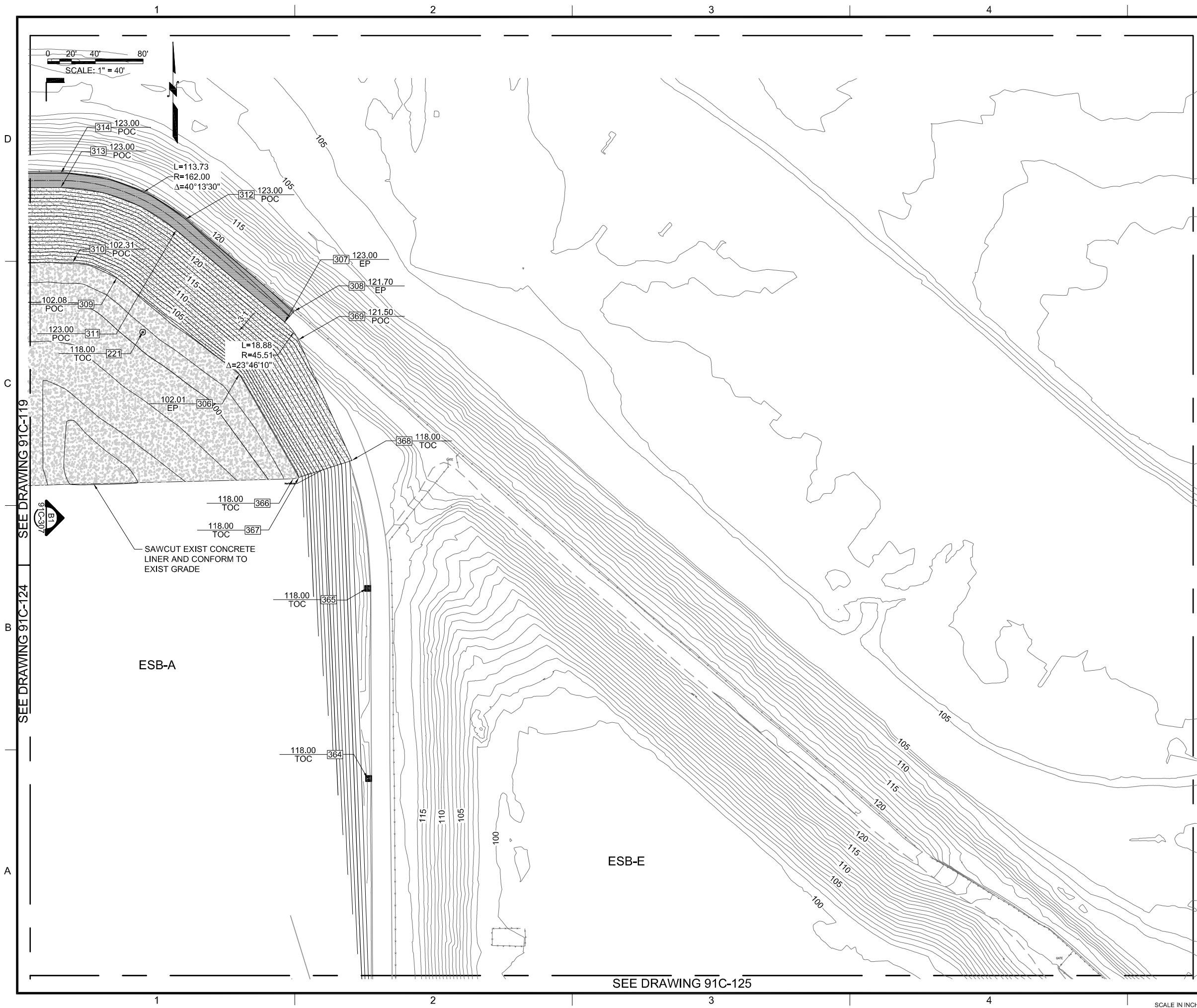
PAVING AND GRADING PLAN - AREA 4

DRAWING NUMBER
91C-119

XXX OF

SEE DRAWING 91C-124

SCALE IN INCHES 0 1/2 1 2 4 (IF SCALE BAR IS NOT 4", SCALE ACCORDINGLY)



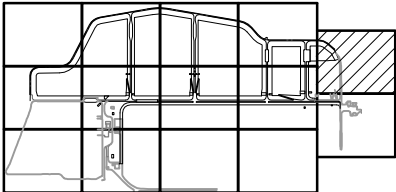
GENERAL SHEET NOTES

1. FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
2. FOR RCC SLABS PROVIDE CONTROL JOINTS PER DETAIL A3/91C-505 AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
3. FOR SHOTCRETE LINER PROVIDE EXPANSION JOINTS AT MAXIMUM 80' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
4. FOR SHOTCRETE LINER PROVIDE CONTROL JOINTS AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.

LEGEND

- 100 COORDINATE SEE TABLE ON SHEETS 91C-601 AND 91C-602
- MOTORIZED WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL A1/91C-137
- 6" RCC PAVING
- 9" RCC LINER
- 6" SHOTCRETE LINER
- CAST IN PLACE CONCRETE

KEY PLAN



CAROLLO ENGINEERS

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FLOW EQUALIZATION (FEQ)

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ISSUE BLOCK		
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DRAWN J. LEFEVRE		
CHECKED T. BESETT		
APPROVED		

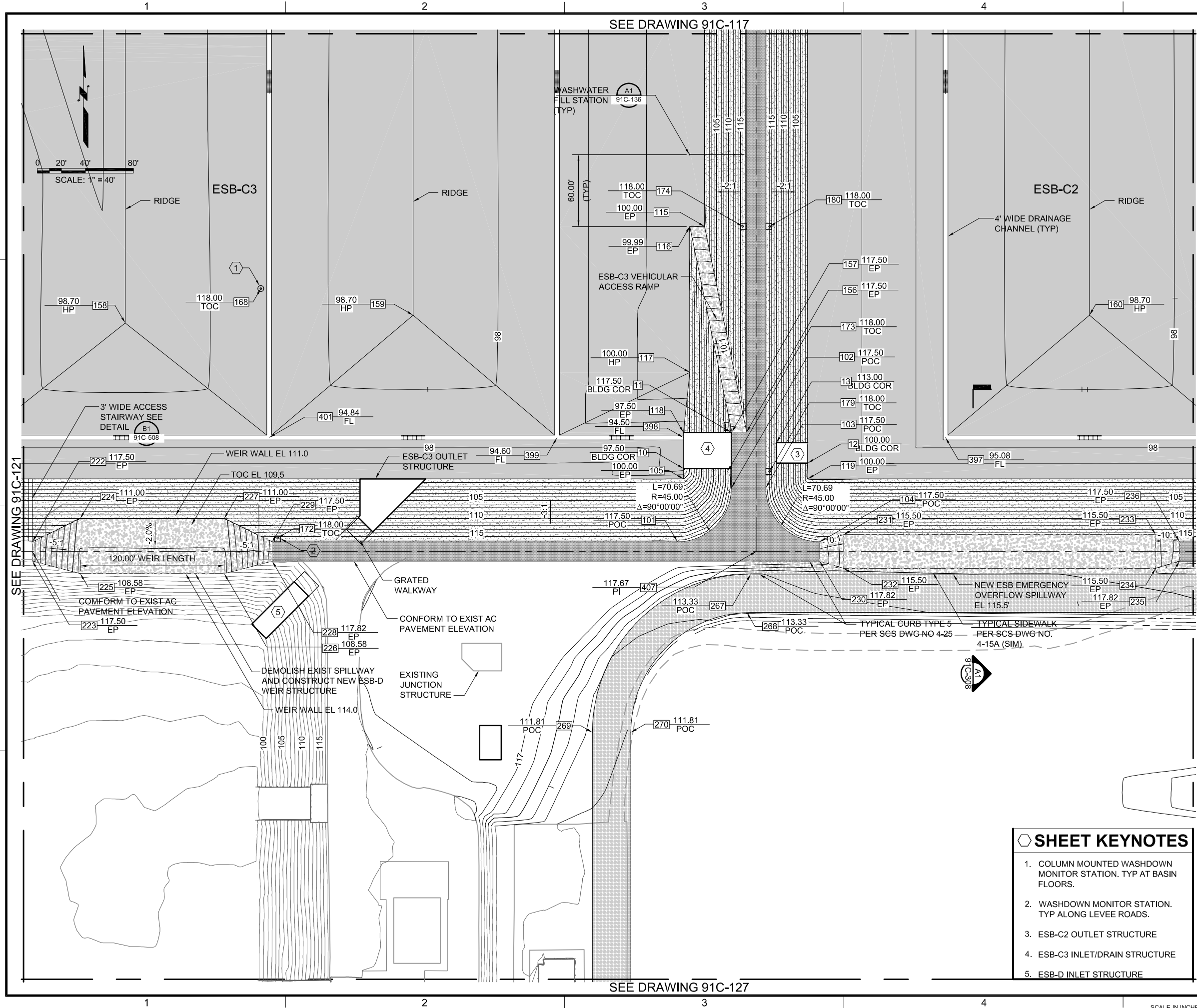
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PAVING AND GRADING
PLAN - AREA 5

DRAWING NUMBER

91C-120

XXX
OF



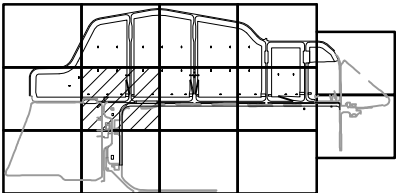
GENERAL SHEET NOTES

- FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR RCC SLABS PROVIDE CONTROL JOINTS PER DETAIL A3/91C-505 AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE EXPANSION JOINTS AT MAXIMUM 80' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- FOR SHOTCRETE LINER PROVIDE CONTROL JOINTS AT MAXIMUM 20' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN MINIMUM 7 FEET OF COVER ABOVE 14" WP, ALL CLS, FOR VEHICLE LOADS EXCEEDING H-20. EXCAVATE AND EXPOSE THESE PIPES AND AVOID OVERLOADING DURING EXCAVATION, GRADING AND BACKFILLING BY AVOIDING H-20 AND ABOVE VEHICLE LOADS AND BY TAKING CARE DURING BACKFILLING THE INITIAL 7 FEET ABOVE THE PIPES.
- MAINTAIN MIN 3 FEET OF COVER OVER 102" FE, 48" FE, AND 96" RS FOR ALL VEHICLE LOADS GREATER THAN H-20.

LEGEND

- 100 COORDINATE SEE TABLE ON SHEETS 91C-601 AND 91C-602
- MANUAL WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- IN BASIN MOTORIZED WASHDOWN MONITOR STATION PER DETAIL A1/91C-137
- 6" RCC PAVING
- 9" RCC LINER
- 6" SHOTCRETE LINER
- CAST IN PLACE CONCRETE
- 5 1/2" AB OVER 19" AB

KEY PLAN



SHEET KEYNOTES

- COLUMN MOUNTED WASHDOWN MONITOR STATION. TYP AT BASIN FLOORS.
- WASHDOWN MONITOR STATION. TYP ALONG LEVEE ROADS.
- ESB-C2 OUTLET STRUCTURE
- ESB-C3 INLET/DRAIN STRUCTURE
- ESB-D INLET STRUCTURE

CAROLLO ENGINEERS

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SACRAMENTO, CA
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SUB CONSULTANT



PRELIMINARY

THIS DRAWING IS NOT VALID FOR CONSTRUCTION PURPOSES UNLESS IT BEARS THE SEAL AND SIGNATURE OF A DULY REGISTERED PROFESSIONAL ENGINEER



FLOW EQUALIZATION (FEQ)

MARK	DATE	DESCRIPTION

ISSUE BLOCK	
DESIGNED	R. GUTIERREZ
DRAWN	J. LEFEVRE
CHECKED	T. BESETT
APPROVED	

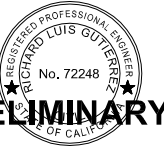
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DESIGNER PROJECT NUMBER	9300A.10
CONTRACT NUMBER	4205
CONTRACT SEQUENCE NUMBER	52
DISCIPLINE	CIVIL

PAVING AND GRADING PLAN - AREA 7

DRAWING NUMBER	91C-122	XXX OF
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1. FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.

SUB CONSULTANT



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ISSUE BLOCK
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APPROVED

FILENAME	4205-91C-123.DWG
DESIGNER PROJECT NUMBER	9300A.10
CONTRACT NUMBER	4205
CONTRACT SEQUENCE NUMBER	52
DISCIPLINE	CIVIL

PAVING AND GRADING
PLAN - AREA 8

DRAWING NUMBER	XX O
91C-123	

COORDINATE SEE TABLE
ON SHEETS 91C-601 AND
91C-602

MANUAL WASHDOWN
MONITOR STATION ON
BERM PER DETAIL
B1/91C-138

IN BASIN MOTORIZED
WASHDOWN MONITOR
STATION PER DETAIL
A1/91C-137

A technical cross-section drawing of a car body, likely a station wagon or SUV, showing the roof structure, interior seating area, and rear cargo area. The drawing is overlaid with a grid. The roof is supported by a series of pillars, and the interior is shown with a flat floor and a rear window. The rear of the vehicle features a large, hinged tailgate. The drawing is a black and white line drawing with hatching used to indicate different materials or components.

1. HOT-DIP GALVANIZED HEAVY DUTY TRAFFIC RATED GRATING.
2. VALVE VAULT
3. ESB-C1 OUTLET STRUCTURE
4. ESB-C2 INLET/DRAIN STRUCTURE

BNR MASS EXCAVATION

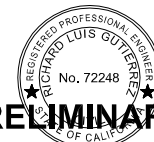
SEE DRAWING 91C-128

SCALE IN INCHES 0 1/2 1 2 4 (IF SCALE BAR IS NOT 4", SCALE ACCORDINGLY)

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1. FOR RCC SLABS PROVIDE EXPANSION JOINTS PER DETAIL A1/91C-506 AT MAXIMUM 120' SPACING THROUGHOUT. SUBMIT JOINT LAYOUT FOR REVIEW PRIOR TO CONSTRUCTION.

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MARK	DATE	DESCRIPTION
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MARK	DATE	DESCRIPTION
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ISSUE BLOCK

DESIGNED R. GUTIERREZ
DRAWN J. LEFEVRE
CHECKED T. BESETT
APPROVED

FILENAME	4205-91C-124.DWG
DESIGNER PROJECT NUMBER	9300A.10
CONTRACT NUMBER	4205
CONTRACT SEQUENCE NUMBER	52

PAVING AND GRADING
PLAN - AREA 9

DRAWING NUMBER
91C-124

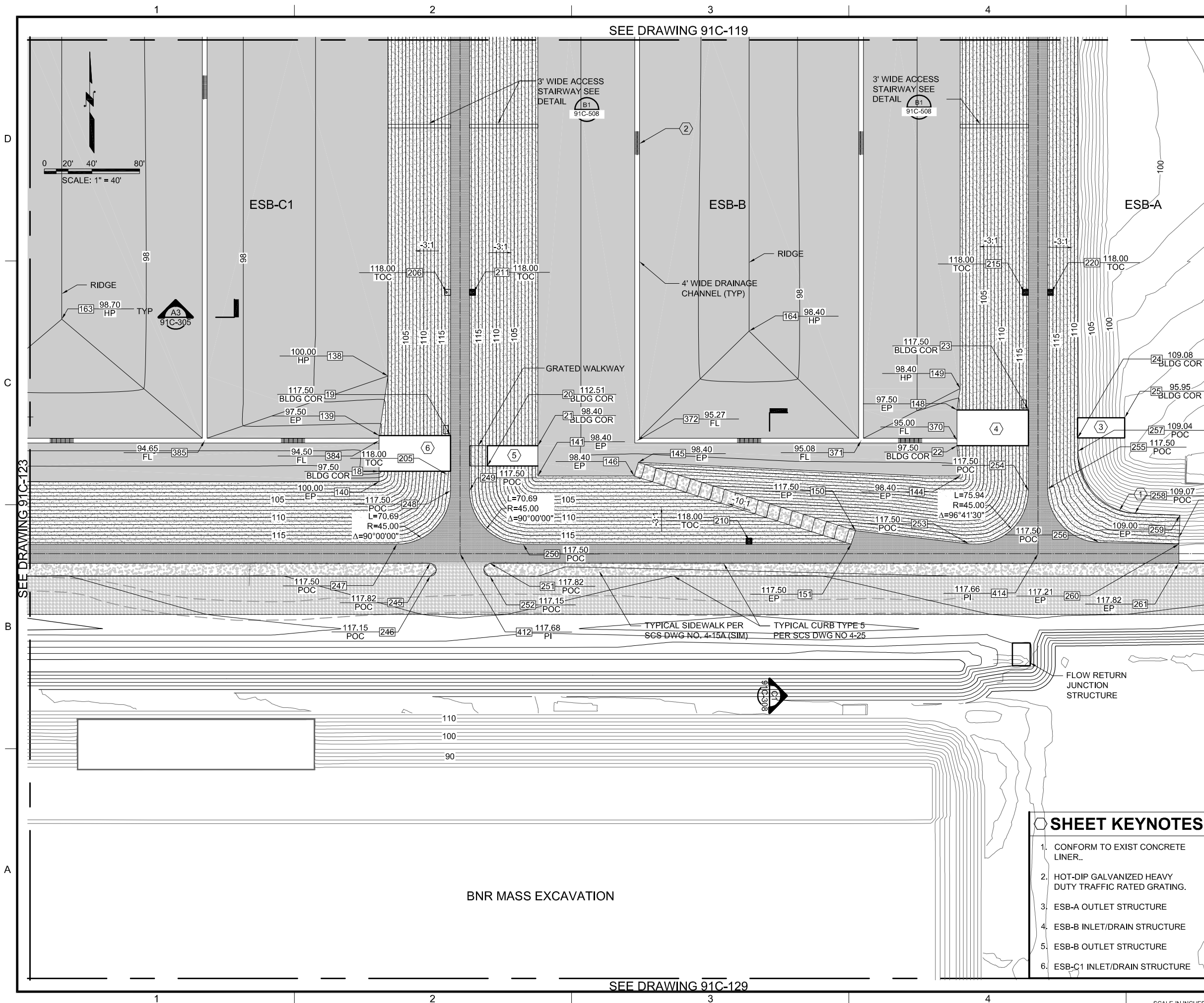
XX
○

A technical drawing of a car body cross-section, showing the roof and side structure. The drawing is overlaid on a grid. The roof is shown with a curved profile, and the side structure includes the door and rear window area. The drawing is a line drawing with some hatching to indicate different materials or sections.

1. CONFORM TO EXIST CONCRETE LINER..
2. HOT-DIP GALVANIZED HEAVY DUTY TRAFFIC RATED GRATING.
3. ESB-A OUTLET STRUCTURE
4. ESB-B INLET/DRAIN STRUCTURE
5. ESB-B OUTLET STRUCTURE
6. ESB-C1 INLET/DRAIN STRUCTURE

SCALE IN INCHES 0 1/2 1 2 4 (IF SCALE BAR IS NOT 4", SCALE ACCORDINGLY)

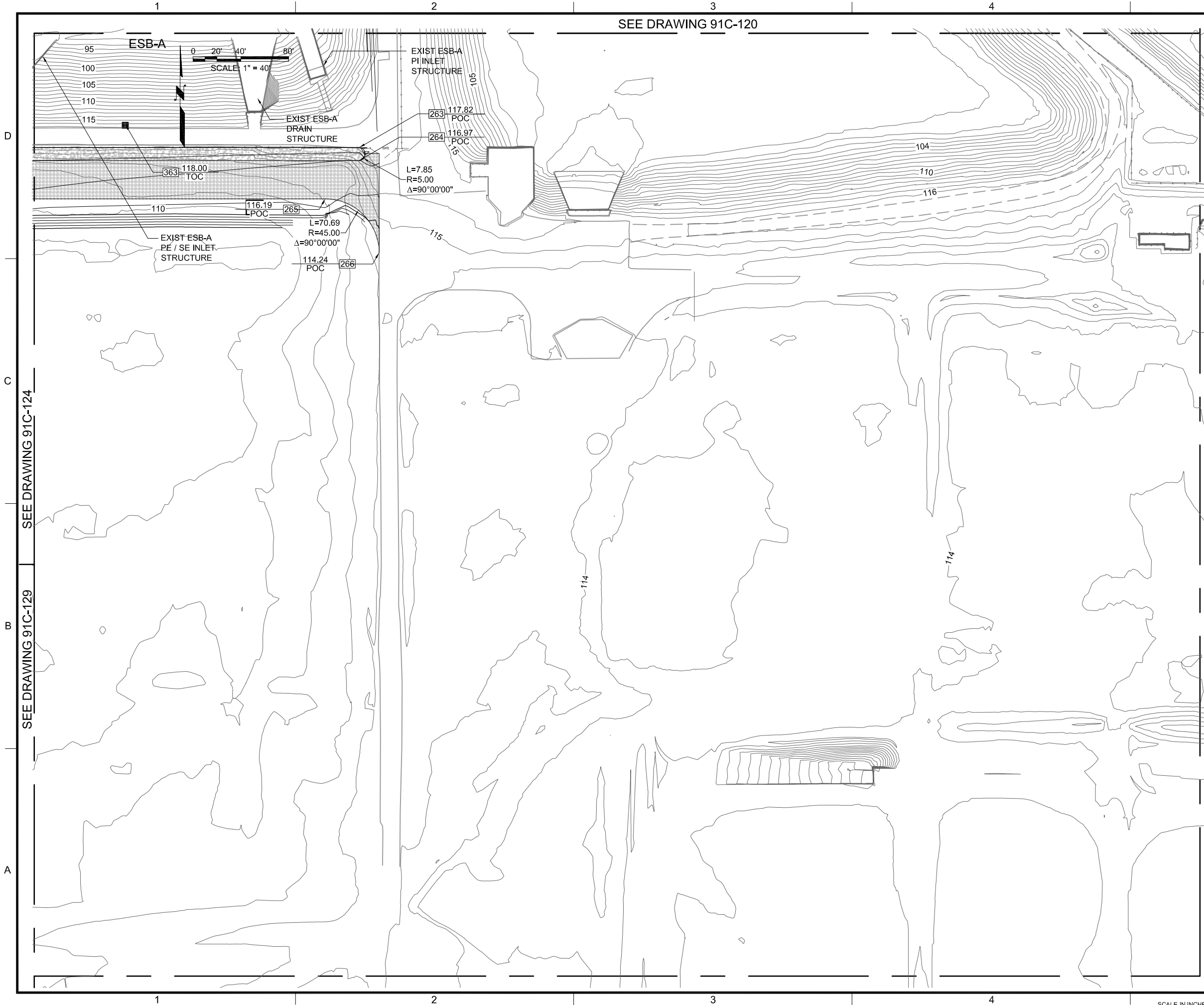
SEE DRAWING 91C-129



BNR MASS EXCAVATION

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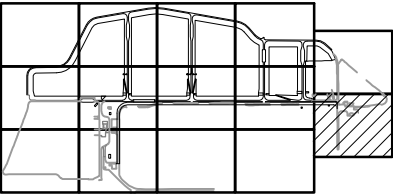
GENERAL SHEET NOTES

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2. MAINTAIN MIN 3 FEET OF COVER OVER 102" FE, 48" FE, AND 96" RS FOR ALL VEHICLE LOADS GREATER THAN H-20.

LEGEND

- COORDINATE SEE TABLE ON SHEETS 91C-601 AND 91C-602
- MOTORIZED WASHDOWN MONITOR STATION ON BERM PER DETAIL B1/91C-138
- CAST IN PLACE CONCRETE
- 5 1/2" AC OVER 19" AB

KEY PLAN



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DESIGNED R. GUTIERREZ		
DRAWN J. LEFEVRE		
CHECKED T. BESETT		
APPROVED		
FILENAME 4205-91C-125.DWG		
DESIGNER PROJECT NUMBER 9300A.10		
CONTRACT NUMBER 4205		
CONTRACT SEQUENCE NUMBER 52		
DISCIPLINE CIVIL		

PAVING AND GRADING PLAN - AREA 10

DRAWING NUMBER
91C-125

XXX
OF

SCALE IN INCHES 0 1/2 1 2 4 (IF SCALE BAR IS NOT 4", SCALE ACCORDINGLY)