February 9, 2024
Sacramento, California

The Board of Trustees of the American River Flood Control District met in regular session at 11:00 a.m. on Friday, February 9, 2024. In attendance were Trustee Johns, Trustee Holloway, and Trustee Vander Werf. Trustee Johns presided. Trustee L'Ecluse and Trustee Shah were absent. Also present from the District were General Manager (GM) Tim Kerr, Retired Annuitant Interim-Superintendent Ross Kawamura, Interim-Superintendent David Diaz, and Legal Counsel Rebecca Smith. No members of the public were present.

Item No. 1 Public Comments on Non-Agenda Items: There were no comments on non-agenda items from members of the public.

Item No. 2 Approval of Consent Agenda: On a motion by Trustee Vander Werf seconded by Holloway, the Board unanimously approved items 2a) Minutes of Regular Meeting on January 12, 20224 2b) Approval of Report of Investment Transactions December 2023 (City Pool, LAIF, River City) and Treasurer's Certification, 2c) District Financial Reports: Statement of Operations (December 2023) and Cash Flow Report, 2d) Correspondence: None.

Item No. 3 Accounts Payable and General Fund Expenses (January 2024): Trustee Vander Werf inquired on payments made to Cintas, Municipal Maintenance Equipment, Inc., and Pape Machinery. Following explanation by staff and on a motion by Trustee Vander Werf seconded by Trustee Holloway, the Board unanimously approved payments on the Schedule of Accounts Payable (January 2024) of $74,175.03 and General Fund Expenses of $110,285.84 (total aggregate sum $184,460.87).

Item No. 4 Canycom 25A Swivel Tracked Dumper: GM Kerr briefed the Board on the District's service information and value of the Canycom. Trustee Vander Werf inquired on the cost to fix the seat and 500-hour service. Interim-Superintendent Diaz estimated the cost to be around $3000. On a motion by Trustee Johns seconded by Trustee Holloway, the board unanimously approved the purchase of the Canycom.

Item No. 5 By-District Elections Schedule: Trustee Holloway discussed why it was requested that this item be brought back to the Board. Trustee Vander Werf expressed that the Trustees in attendance at the December meeting felt it was most appropriate to select the two trustees whose term was ending in 2024 to be the first for the new by-district voting schedule. Trustee Johns expressed his disappointment in the Board taking action at the December meeting without the full Board being present. On a motion by Trustee Holloway seconded by Trustee Johns, the Board unanimously voted to bring back the item for reconsideration in March.

Item No. 6 Administrative Staff Reports:

a) *General Manager Tim Kerr reported on the following:*
   - General Manager's January Meeting Summary: ARFCD Public Outreach Committee meeting and the MBK North Area Levee Tour were discussed;
   - US Army of Engineers Contract 3B Erosion Protection – Supplemental Environmental Impact Statement;

- Hydrologic Conditions: Folsom Lake is 61% of total capacity with an outflow of 1,919 cfs. The gauge at I Street Bridge shows a water surface elevation of 22-feet above sea level;
- Next Board Meeting is scheduled for March 8, 2024

b) *Legal Counsel Rebecca Smith:* Legal Counsel Smith: Nothing further to report.

c) *Office Manager Malane Chapman:* GM Kerr informed the Board that Office Manager Chapman has registered for the October 2024 CSDA Board Secretary Conference.

Item No. 7 Operations and Maintenance Staff Reports:
Interim-Superintendent David Diaz:

- Crew activities including gate repair and downed trees.

Item No. 8 Questions and Comments by Trustees: There were no questions or comments by Trustees.

Item No. 9 Adjourn: There being no further business requiring action by the Board, the meeting was adjourned by Trustee Johns at 12:07 p.m.

Attest:

_____ _____

Secretary President

American River Flood Control District
Staff Report

Investment Transactions Summary; January 2024

LAIF:

- On January 11, 2024 a quarterly interest payment was deposited in the amount of $696.31.

City Pool A

- Accrued Interest Receivable for the month of January was $22,070.50.
- As of January 31, 2024, the balance of Interest Receivable in this account was $144,843.31.

Interest Receivable is accrued and transferred to the Cash Balance at the discretion of the City.

River City Bank Money Market:

- On January 31, 2024, a monthly interest payment was received in the amount of $2,813.09.

River City Bank Checking:

- On January 5, 2024, a miscellaneous deposit was received in the amount of $34,737.49.
- On January 26, 2024, a miscellaneous deposit was received in the amount of $80,000.00.
- On January 31, 2024, a monthly interest payment was deposited in the amount of $11.66.
- Total amount of Accounts Payable cleared during the month of December was $158,160.93.

American River Flood Control District
Investment Transaction Report
January 2024

Balance and Transactions

Account		LAIF	City Pool A	River City Bank Money Market	River City Bank Checking
Beginning Balance	1/1/24	$69,311.48	$9,202,420.22	$1,474,758.70	$200,251.94
Transactions					
River City Miscellaneous Deposit	1/5/24				$34,737.49
LAIF Interest	1/11/24	$696.31			
River City Deposit - City of Sacramento	1/26/24				$80,000.00
City Pool A Interest	1/31/24		$22,070.35		
River City Bank Interest	1/31/24			$2,813.09	$11.66
Accounts Payable (cleared)					($158,160.93)
Ending Balance:	**1/31/24**	**$70,007.79**	**$9,202,420.22**	**$1,477,571.79**	**$156,840.16**

**City Pool A Interest is accrued and deposited in the account at the discretion of the City.

Interest

Date:	Feb 2023	Mar 2023	Apr 2023	May 2023
LAIF	2.62	2.83	2.87	2.99
City Pool A	2.35	2.33	2.38	2.53
River City Bank Money Market	1.11	1.26	1.26	1.26
River City Bank Checking	0.08	0.08	0.08	0.08
Date:	June 2023	July 2023	Aug 2023	Sep 2023
LAIF	3.17	3.31	3.43	3.53
City Pool A	2.79	2.67	2.57	2.64
River City Bank Money Market	1.26	1.26	0.35	2.11
River City Bank Checking	0.08	0.08	0.08	0.08
Date:	Oct 2023	Nov 2023	Dec 2023	**Jan 2024**
LAIF	3.67	3.84	3.93	**4.01**
City Pool A	2.69	2.61	2.60	**2.79**
River City Bank Money Market	2.28	2.28	2.28	**2.28**
River City Bank Checking	0.08	0.08	0.08	**0.08**

American River Flood Control District

AMERICAN RIVER FLOOD CONTROL DISTRICT

MONTHLY REVIEW – JANUARY 2024

STRATEGY

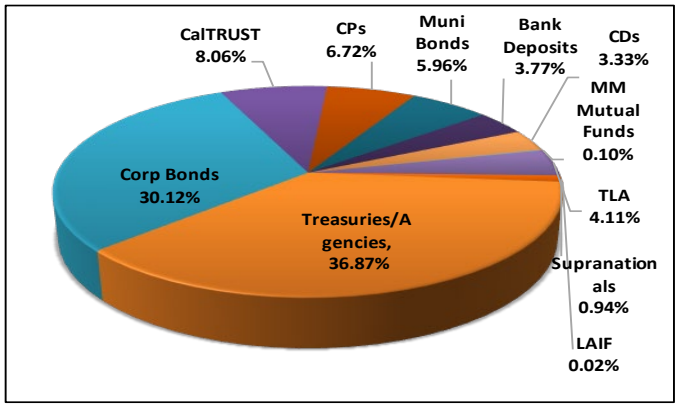
The ARFCD funds are invested in the City of Sacramento's Pool A investment fund. The Fund is invested pursuant to the objectives and requirements set forth in the City's investment policy. The three objectives of the investment policy, in order of priority, are (1) the preservation of capital by the investment in safe instruments, (2) the liquidity needs of the City and pool participants so such parties will have access to cash when they need it, and (3) the maximizing of current income while remaining consistent with the other more important objectives. The City's investment policy incorporates applicable provisions of state law including, among other things, the prudent person standard and California Code Section 53601 pertaining to eligible investments.

PORTFOLIO STATISTICS

Beginning Balance	9,325,193
Contributions	0
Withdrawals	0
Interest Earned	22,070
Ending Balance	9,347,263

PERFORMANCE COMPARISON

City Pool A	2.79%
LAIF	4.01%
90 Day T-Bill	5.36%
Federal Funds	5.50%

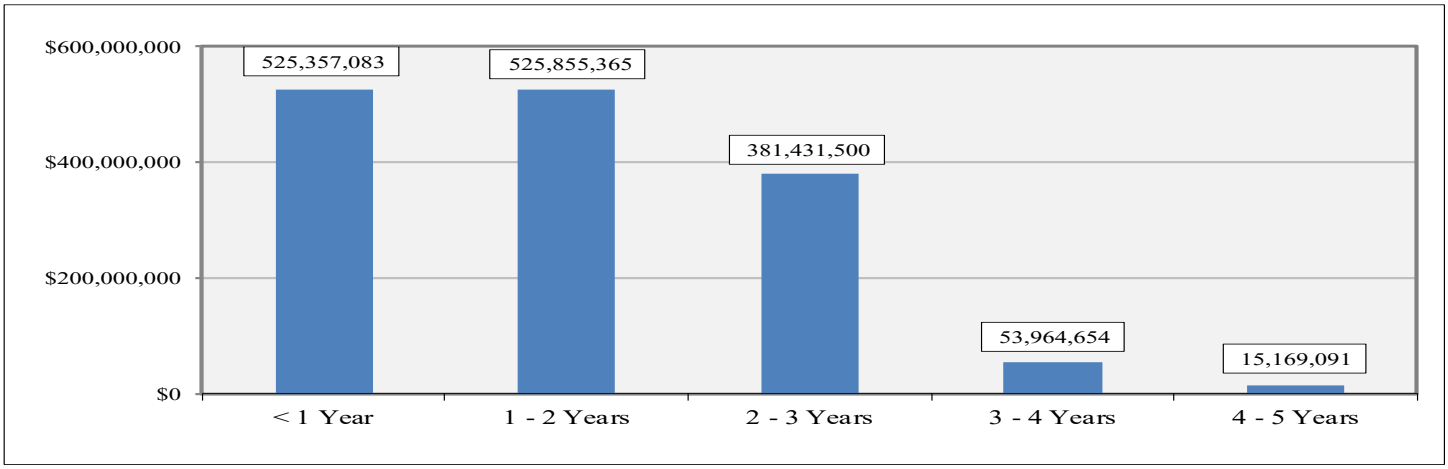


CITY POOL A MATURITY SCHEDULE

Maturity	Market Value	Pct. Holdings
< 1 Year	525,357,083	34.98%
1 - 2 Years	525,855,365	35.02%
2 - 3 Years	381,431,500	25.40%
3 - 4 Years	53,964,654	3.59%
4 - 5 Years	15,169,091	1.01%
Total	1,501,777,693	100.00%

Asset Type	Pct. Assets	YTM
Treasuries/Agencies	36.87%	2.06%
Corp Bonds	30.12%	2.31%
CalTRUST	8.06%	4.49%
CPs	6.72%	5.64%
Muni Bonds	5.96%	2.39%
Bank Deposits	3.77%	4.47%
CDs	3.33%	2.32%
MM Mutual Funds	0.10%	5.08%
TLA	4.11%	5.11%
Supranationals	0.94%	0.55%
LAIF	0.02%	4.01%

CITY POOL A PORTFOLIO COMPOSITION



City of Sacramento
CASH LEDGER
American River Flood Control District
From 01-01-24 To 01-31-24

All Cash Accounts

Trade Date	Settle Date	Tran Code	Quantity	Security	Amount	Cash Balance
Pool A Interest Receivable						
01-01-24				Beginning Balance		122,772.81
01-31-24	01-31-24	in		Pool A Cash	22,070.50	144,843.31
	Jan 2024 estimated Pool A interest					
					22,070.50	
01-31-24				**Ending Balance**		**144,843.31**
Pool A Cash						
01-01-24				Beginning Balance		9,202,420.22
01-31-24				**Ending Balance**		**9,202,420.22**

California State Treasurer
Fiona Ma, CPA

Local Agency Investment Fund
P.O. Box 942809
Sacramento, CA 94209-0001
(916) 653-3001

February 01, 2024

LAIF Home
PMIA Average Monthly Yields

AMERICAN RIVER FLOOD CONTROL DISTRICT

DISTRICT ENGINEER/MANAGER
165 COMMERCE CIRCLE, SUITE D
SACRAMENTO, CA 95815

Tran Type Definitions

Account Number: 90-34-002

January 2024 Statement

Effective Date	Transaction Date	Tran Type	Confirm Number	Web Confirm Number	Authorized Caller	Amount
1/12/2024	1/11/2024	QRD	1746399	N/A	SYSTEM	696.31

Account Summary

Total Deposit:	696.31	Beginning Balance:	69,311.48
Total Withdrawal:	0.00	Ending Balance:	70,007.79

River City Bank
WWW.RIVERCITYBANK.COM
PO Box 15247, Sacramento, CA 95851-0247
Return Service Requested

MEMBER FDIC

Last statement: December 31, 2023
This statement: January 31, 2024
Total days in statement period: 31

AMERICAN RIVER FLOOD CONTROL DISTRICT
C/O ROBERT MERRITT, CPA
4000 MAGNOLIA HILLS DR
EL DORADO HILLS CA 95762-6561

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Direct inquiries to:
916-567-2836

THE BANK MADE A CHANGE TO THE FEE SCHEDULES REGARDING NON-RCB ATM FEES THAT WAS EFFECTIVE ON 01/18/2024. IT IS IMPORTANT YOU REVIEW THESE CHANGES AT RIVERCITYBANK.COM. IF YOU WOULD PREFER TO HAVE UPDATED DISCLOSURES MAILED TO YOU, PLEASE CONTACT CUSTOMER SERVICE.

Public Fund Money Market

Account number	0811100952	Beginning balance	$1,474,758.70
Low balance	$1,474,758.70	Total additions	2,813.09
Average balance	$1,474,758.70	Total subtractions	0.00
Avg collected balance	$1,474,758	Ending balance	$1,477,571.79
Interest paid year to date	$2,813.09		

CREDITS

Date	Description	Additions
01-31	' Interest Credit	2,813.09

DAILY BALANCES

Date	Amount	Date	Amount	Date	Amount
12-31	1,474,758.70	01-31	1,477,571.79		

INTEREST INFORMATION

Annual percentage yield earned	2.28%
Interest-bearing days	31
Average balance for APY	$1,474,758.70
Interest earned	$2,813.09

OVERDRAFT/RETURN ITEM FEES

	Total for this period	Total year-to-date
Total Overdraft Fees	$0.00	$0.00
Total Returned Item Fees	$0.00	$0.00

River City Bank
WWW.RIVERCITYBANK.COM
PO Box 15247, Sacramento, CA 95851-0247
Return Service Requested

MEMBER FDIC

Last statement: December 31, 2023
This statement: January 31, 2024
Total days in statement period: 31

AMERICAN RIVER FLOOD CONTROL DISTRICT
C/O ROBERT MERRITT, CPA
4000 MAGNOLIA HILLS DR
EL DORADO HILLS CA 95762-6561

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Direct inquiries to:
916-567-2836

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Public Fund Interest Checking

Account number	0811090736	Beginning balance	$200,251.94
Enclosures	53	Total additions	114,749.15
Low balance	$85,807.82	Total subtractions	158,160.93
Average balance	$184,845.97	Ending balance	$156,840.16
Avg collected balance	$177,104		

CHECKS

Number	Date	Amount	Number	Date	Amount
9679	01-04	99.25	9728	01-22	239.96
9699 *	01-17	452.25	9729	01-22	450.00
9710 *	01-05	425.00	9730	01-23	14,310.00
9715 *	01-03	433.34	9731	01-25	347.53
9718 *	01-12	304.00	9732	01-24	293.21
9719	01-23	901.98	9733	01-29	244.37
9720	01-24	30,745.94	9734	01-24	214.00
9721	01-26	2.49	9735	01-25	60.00
9722	01-19	1,176.78	9736	01-22	1,716.00
9723	01-26	725.61	9737	01-29	236.04
9724	01-26	711.33	9738	01-29	1,482.61
9725	01-22	3,311.65	9739	01-23	4,894.77
9726	01-23	138.72	9740	01-23	235.97
9727	01-26	1,035.00	9741	01-23	58.46

Number	Date	Amount
9742	01-26	170.14
9743	01-19	1,062.25
9746 *	01-24	11,624.62
9747	01-31	384.75
9748	01-29	86.21
9749	01-23	744.85
9750	01-24	270.82
9751	01-22	1,575.00
9752	01-31	1,622.67
9753	01-31	945.00
9754	01-22	317.53
9755	01-24	862.17
9756	01-22	960.33

Number	Date	Amount
9757	01-25	249.00
9758	01-22	716.11
9759	01-18	1,859.85
9760	01-23	241.30
9761	01-25	669.83
9762	01-25	857.63
9763	01-23	1,202.11
9764	01-31	1,116.33
9765	01-31	60.00
9766	01-29	60.00
9767	01-26	94.67

*** Skip in check sequence**

DEBITS

Date	Description	Subtractions
01-08	' ACH Withdrawal CALPERS 3100 100000017341175	2,408.45
01-08	' ACH Withdrawal CALPERS 3100 100000017341226	2,707.15
01-08	' ACH Withdrawal CALPERS 1900 100000017402086	8,607.33
01-09	' ACH Withdrawal CALPERS 1900 100000017405728	1,932.00
01-10	' ACH Withdrawal HEALTHEQUITY INC HealthEqui 240110	250.00
01-16	' ACH Withdrawal INTUIT PAYROLL S QUICKBOOKS 240116 946000047	40,533.08
01-19	' ACH Withdrawal INTUIT PAYROLL S QUICKBOOKS 240119 946000047	857.75
01-22	' ACH Withdrawal INTUIT PAYROLL S QUICKBOOKS 240122 946000047	112.25
01-23	' ACH Withdrawal HEALTHEQUITY INC HealthEqui 240123	252.95
01-23	' ACH Withdrawal CALPERS 1900 100000017429603	1,598.20
01-23	' ACH Withdrawal CALPERS 3100 100000017387115	2,487.74
01-23	' ACH Withdrawal CALPERS 3100 100000017387145	2,977.89
01-25	' ACH Withdrawal INTUIT * CHECKS / F 240125	434.61
01-31	' Service Charge ADDITIONAL DEBITS	2.10

CREDITS

Date		Description	Additions
01-05	'	ACH Deposit RITCHIE BROS AUC PAYMENT SACRAMENTO, CA 202 3/12/15	34,737.49
01-26		Deposit	80,000.00
01-31	'	Interest Credit	11.66

DAILY BALANCES

Date	Amount	Date	Amount	Date	Amount
12-31	200,251.94	01-12	217,822.91	01-24	88,426.42
01-03	199,818.60	01-16	177,289.83	01-25	85,807.82
01-04	199,719.35	01-17	176,837.58	01-26	163,068.58
01-05	234,031.84	01-18	174,977.73	01-29	160,959.35
01-08	220,308.91	01-19	171,880.95	01-31	156,840.16
01-09	218,376.91	01-22	162,482.12		
01-10	218,126.91	01-23	132,437.18		

INTEREST INFORMATION

Annual percentage yield earned	0.08%
Interest-bearing days	31
Average balance for APY	$177,104.04
Interest earned	$11.66

OVERDRAFT/RETURN ITEM FEES

	Total for this period	Total year-to-date
Total Overdraft Fees	$0.00	$0.00
Total Returned Item Fees	$0.00	$0.00

CERTIFICATION

The American River Flood Control District's investment portfolio[__**X**__] is [____is not] in compliance with the District's Financial Management Investments Plan.

The District's investment portfolio is not in compliance in the following respects:

_____
_____
_____

A cash flow analysis confirms that the District [__**X**__is] [____is not] expected to be able to meet its expenditure requirements for the next six months.

The District's cash is insufficient to meet obligations for the next six months as a result of the following:

_____
_____
_____

Attached hereto are the most recent statements of accounts of the following District accounts:

LAIF Account, State Treasurer's Office	**Dated January 2024**
Investment Pool A Account, City of Sacramento	**Dated January 2024**
District Checking Account, River City Bank	**Dated January 2024**
District Repurchase Account, River City Bank	**Dated January 2024**

Certified by:_____ Date: _____
Cyril Shah, District Treasurer

American River Flood Control District
Statement of Operations
July 1, 2023 to February 29, 2024 (Eight Months Ending of Fiscal 2024)
For Internal Use Only

	Year to Date July 1, 2023 to February 29, 2024	Budget	Percent of Budget
Revenues			
Benefit assessment	$ 743,645	$ 1,429,792	52.01%
Consolidated capital assessment	-	980,000	0.00%
Interest	167,257	77,267	216.47%
O & M agreements	-	312,057	0.00%
Miscellaneous	34,890	-	Not budgeted
Total Revenues	945,792	2,799,116	33.79%
M & O Expenses			
Salaries and wages	620,103	861,494	71.98%
Payroll tax expense	47,409	68,920	68.79%
Pension expense	133,659	208,156	64.21%
Compensation insurance	13,346	43,075	30.98%
Medical/dental/vision	155,613	256,528	60.66%
Fuel/oil reimbursement	24,842	55,000	45.17%
Equipment rental	18,282	15,000	121.88%
Equipment repairs/parts	38,847	65,000	59.76%
Equipment purchases (< $5,000)	-	15,000	0.00%
Shop supplies	7,978	10,000	79.78%
Levee maint. (supp. & material)	11,151	20,000	55.76%
Levee maint. chemicals	23,208	25,000	92.83%
Levee maint. services	23,899	80,000	29.87%
Rodent abatement (supplies & materials)	15,392	15,000	102.61%
Employee uniforms	5,376	6,000	89.60%
Staff training	1,362	5,000	27.24%
Regulation Compliance (OSHA)	11,599	50,000	23.20%
Miscellaneous	2,088	1,500	139.20%
Small tools & equipment	21,618	7,500	288.24%
Emergency preparedness program	12,118	25,000	48.47%
Engineering services	5,122	20,000	25.61%
Encroachment remediation	-	15,000	0.00%
Urban camp cleanup	7,633	30,000	25.44%
Total M & O Expenses	1,200,645	1,898,173	63.25%
Administration Expenses			
Board of trustees compensation	3,329	7,600	43.80%
Trustee expenses	865	2,400	36.04%
Trustee training	-	5,000	0.00%
Accounting services	1,125	15,000	7.50%
Legal services (general)	10,184	50,000	20.37%
Utilities	30,619	55,000	55.67%
Telephone	16,043	25,000	64.17%
Retiree benefits	102,444	148,109	69.17%
Office/shop/yard lease	5,081	7,641	66.50%
Office equipment/furniture	-	2,500	0.00%
Auto allowance	4,733	6,600	71.71%
Parking reimbursement	-	500	0.00%
General office expense	9,796	15,000	65.31%
Technology and software	6,148	12,500	49.18%
Dues and associations	29,548	25,000	118.19%
Property and liability insurance	48,257	65,000	74.24%
Public relations/information	-	30,000	0.00%
Miscellaneous	3,510	5,000	70.20%
Conference/Workshop/Seminar	-	2,500	0.00%
Election expenses	-	50,000	0.00%
Employee morale/wellness	-	2,000	0.00%
Investment fees	9,233	20,000	46.17%
Community services	-	1,500	0.00%
Bookkeeping services	5,265	14,000	37.61%
Property taxes	1,788	3,000	59.60%
Building maintenance	10,057	20,000	50.29%
County Dtech fees for DLMS	14,060	35,000	40.17%
County assessment fees	17,146	-	Not budgeted
Interest expense	165	-	Not budgeted
Total Administration Expenses	329,396	625,850	52.63%
Special Projects Expenses			
Engineering studies/survey studies	-	20,000	0.00%
Levee standards compliance	-	25,000	0.00%
Small capital projects	2,509	-	Not budgeted
Total Special Project Expenses	2,509	45,000	5.58%
Capital Outlay			
Equipment purchases (over $5,000)	242,021	330,000	73.34%
Total Capital Outlay	242,021	330,000	
Capital Outlay: District Facilities			
District headquarters facilities	-	90,000	0.00%
	-	90,000	

Note: Amounts above are not audited

The above information is current through the last day of the previous month's bank activity.

Data has been verified by the bookkeeper and physical copies of checks have not been reviewed or received and some checks may not have cleared the bank account.

AMERICAN RIVER FLOOD CONTROL DISTRICT
Cash Flow Report
July 2023 through June 2024

Cash Flow Report

Maintenance and Operations Expens	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	TOTAL
500 · Salary/Wages	45,855.79	72,709.96	117,137.60	29,496.83	78,062.12	115,763.67	39,657.39	83,243.21	38,176.30	0.00	0.00	0.00	620,102.87
501 · Payroll Taxes	3,561.49	5,625.34	9,075.07	2,313.55	5,152.81	7,439.08	3,697.20	7,880.43	2,936.96	0.00	0.00	0.00	47,681.93
502 · Pension	4,893.14	24,683.89	9,232.82	22,508.21	5,802.60	20,962.28	17,692.86	16,761.21	12,363.21	0.00	0.00	0.00	134,900.22
503 · Compensation Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
504 · Medical/Dental/Vision	17,849.44	17,650.94	13,974.86	14,644.36	15,220.13	18,237.66	19,652.70	20,880.71	0.00	0.00	0.00	0.00	138,110.80
508 · Fuel/Oil	(6,576.85)	2,947.09	4,981.28	64.62	5,664.54	1,906.64	6,937.36	3,148.51	0.00	0.00	0.00	0.00	19,073.19
509 · Equipment Rental	0.00	0.00	0.00	0.00	5,006.35	10,126.12	0.00	3,150.00	0.00	0.00	0.00	0.00	18,282.47
510 · Equipment Purchase(< $5000	1,519.24	0.00	0.00	0.00	0.00	242,021.12	0.00	0.00	0.00	0.00	0.00	0.00	243,540.36
511 · Equipment Repair/Parts	9,133.86	9,235.23	4,270.24	2,055.75	5,752.73	7,628.28	2,405.06	6,658.94	0.00	0.00	0.00	0.00	47,140.09
512 · Shop Supplies	201.28	652.78	648.07	848.86	1,198.10	0.00	2,018.79	2,342.81	0.00	0.00	0.00	0.00	7,910.69
514 · Levee Maint(Supplies&Materi	(5,530.75)	(0.01)	530.21	0.00	3,456.64	4,269.68	3,551.86	0.00	0.00	0.00	0.00	0.00	6,277.63
515 · Levee Maintenance Services	(34,596.00)	0.00	0.00	0.00	9,350.00	0.00	14,310.00	0.00	0.00	0.00	0.00	0.00	(10,936.00)
516 · Employee Uniforms	0.00	650.00	3,676.79	393.14	164.00	433.34	58.46	0.00	0.00	0.00	0.00	0.00	5,375.73
518 · Staff Training	0.00	0.00	0.00	0.00	174.40	279.00	173.70	0.00	0.00	0.00	0.00	0.00	627.10
519 · Miscellaneous O&M	0.00	0.00	900.00	1,188.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,088.00
521 · Small Tools & Equip	4,346.45	0.00	241.93	1,357.09	63.23	17,525.40	2,693.70	399.00	0.00	0.00	0.00	0.00	26,626.80
523 · Levee Maint. (Chemicals)	7,895.26	0.00	0.00	271.53	2,832.48	0.00	11,624.62	3,803.58	0.00	0.00	0.00	0.00	26,427.47
525 · Emergency Preparedness Pr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
530 · Encroachment Remediation M	958.10	1,554.27	1,089.41	855.00	2,214.40	562.97	1,145.75	1,343.59	0.00	0.00	0.00	0.00	9,723.49
532 · Rodent Abatement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
533 · Urban Camp Cleanup	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605 · Engineering Services	126.38	73.00	77.01	104.99	263.48	0.00	201.98	117.68	0.00	0.00	0.00	0.00	964.52
615 · Survey Services	0.00	2,186.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,186.79
616· Environmental Services/Studi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total M&O Expense	49,636.83	137,969.28	165,835.29	76,101.93	140,378.01	447,155.24	125,821.43	149,729.67	53,476.47	0.00	0.00	0.00	1,346,104.15

Administrative Expenses	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	TOTAL
505 · Telephone	2,294.77	2,015.81	2,378.34	1,422.57	2,569.45	2,075.14	2,348.07	2,602.34	0.00	0.00	0.00	0.00	17,706.49
506 · Utility Charges	1,598.73	4,828.08	3,341.61	4,071.31	4,898.76	2,539.90	4,606.80	4,555.36	0.00	0.00	0.00	0.00	30,440.55
507 · Office/Shop Lease	636.72	636.72	636.72	636.72	636.72	636.72	636.72	0.00	0.00	0.00	0.00	0.00	4,457.04
513 · Office Supplies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
517 · Auto Allowance	275.00	550.00	825.00	275.00	550.00	825.00	275.00	550.00	275.00	0.00	0.00	0.00	4,400.00
520 · Retiree Benefits	11,541.80	11,541.80	11,541.80	10,340.87	11,141.49	11,597.99	11,597.99	11,597.99	0.00	0.00	0.00	0.00	90,901.73
522 · Office Equipment/Furniture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
526 · Mileage/Parking Reimbursem	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
527 · General Office Expense	0.00	0.00	8,400.00	0.00	918.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,318.01
529 · Pre-funding Retiree Benefits	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
531 · Technology & Software	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600 · Board of Trustees Compensa	(1,473.42)	133.34	1,427.34	7,120.78	1,987.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9,195.62
601 · Trustee Expenses	475.00	475.00	285.00	475.00	475.00	285.00	380.00	285.00	0.00	0.00	0.00	0.00	3,135.00
602 · Accounting Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	269,573.20	0.00	0.00	0.00	0.00	269,573.20
603 · Legal Fees (General)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
604 · Flood Litigation	126.38	73.00	77.01	104.99	263.48	0.00	201.98	117.68	0.00	0.00	0.00	0.00	964.52
606 · Legislative Services	0.00	0.00	0.00	0.00	0.00	425.00	0.00	0.00	0.00	0.00	0.00	0.00	425.00
607 · Dues and Assoc. Expenes	3,776.00	5,145.00	1,652.50	3,116.00	2,115.00	704.00	1,716.00	880.00	0.00	0.00	0.00	0.00	19,104.50
608 · Insurance Premiums	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
609 · Conference /Workshops/Sem	(34,524.00)	0.00	415.75	838.25	1,723.00	1,083.00	1,062.25	0.00	0.00	0.00	0.00	0.00	(29,401.75)
610 · Public Relations Information	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
611 · Election Expenses	60.00	0.00	6,405.00	15,517.00	8,187.00	0.00	12.21	177.79	0.00	0.00	0.00	0.00	30,359.00
612 · District Annexations	11,279.44	6,581.94	0.00	0.00	6,689.76	38,739.00	0.00	6,656.45	0.00	0.00	0.00	0.00	69,946.59
613 · Community Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
614 · Miscellaneous Admin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
617 · Investment Fees	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
618 · Property Tax	211.57	204.08	487.69	310.43	557.10	292.77	1,268.57	908.19	169.70	0.00	0.00	0.00	4,410.10
619 · Building Maintenance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
620 · Bookkeeping Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
621 · County Assessment Fees	0.00	4,572.00	0.00	0.00	4,601.00	0.00	0.00	4,632.00	0.00	0.00	0.00	0.00	13,805.00
622 · County DTech Fees for DLMS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

AMERICAN RIVER FLOOD CONTROL DISTRICT
Cash Flow Report
July 2023 through June 2024

623 · Employee Morale/Wellness	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Administrative	(3,722.01)	36,756.77	37,873.76	44,228.92	47,313.35	59,203.52	24,105.59	302,536.00	444.70	0.00	0.00	0.00	548,740.60

Special Projects Expenses	**Jul 23**	**Aug 23**	**Sep 23**	**Oct 23**	**Nov 23**	**Dec 23**	**Jan 24**	**Feb 24**	**Mar 24**	**Apr 24**	**May 24**	**Jun 24**	**TOTAL**
702 · Engineering/Survey Studies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
703 · Encroachment Remediation S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
704 · Vegetation Management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
705 · Small Capital Projects	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
707 · Levee Standards Compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Special Projects	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Capital Outlay: Flood Control	**Jul 23**	**Aug 23**	**Sep 23**	**Oct 23**	**Nov 23**	**Dec 23**	**Jan 24**	**Feb 24**	**Mar 24**	**Apr 24**	**May 24**	**Jun 24**	**TOTAL**
700 · Bank Protection	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
701 · Magpie Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
706 · Property Acquisition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
709 · Equipment Purchase (> $500(	(1,789.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1,789.00)
Total Capital Outlay: Flood Control	(1,789.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1,789.00)

Income

120 · Benefit Assessment	0.00	35,341.38	0.00	0.00	0.00	22,989.58	0.00	720,113.66	0.00	0.00	0.00	0.00	778,444.62
122 · SAFCA CAD4	980,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	980,000.00
123 · Interest	185,202.25	2,186.79	3,484.51	4,499.35	3,735.11	3,141.64	3,521.06	2,688.90	0.00	0.00	0.00	0.00	208,459.61
124 · O&M Agreements	0.00	0.00	0.00	0.00	0.00	0.00	0.00	269,573.20	0.00	0.00	0.00	0.00	269,573.20
126 · Miscellaneous Income	61,620.68	0.00	0.00	0.00	0.00	0.00	34,890.49	0.00	0.00	0.00	0.00	0.00	96,511.17
Total Income	1,226,822.93	37,528.17	3,484.51	4,499.35	3,735.11	26,131.22	38,411.55	992,375.76	0.00	0.00	0.00	0.00	2,332,988.60

Fund Balance

District Operations Fund	**Jul 23**	**Aug 23**	**Sep 23**	**Oct 23**	**Nov 23**	**Dec 23**	**Jan 24**	**Feb 24**	**Mar 24**	**Apr 24**	**May 24**	**Jun 24**
Beginning Balance	1,016,131.84	1,847,039.95	1,709,842.07	1,509,617.53	1,393,786.03	1,209,829.78	729,602.24	618,086.77	1,158,196.86	0.00	0.00	0.00
Income	1,226,822.93	37,528.17	3,484.51	4,499.35	3,735.11	26,131.22	38,411.55	992,375.76	0.00	0.00	0.00	0.00
Expenses	395,914.82	174,726.05	203,709.05	120,330.85	187,691.36	506,358.76	149,927.02	452,265.67	53,921.17	0.00	0.00	0.00
Ending Balance	1,847,039.95	1,709,842.07	1,509,617.53	1,393,786.03	1,209,829.78	729,602.24	618,086.77	1,158,196.86	1,104,275.69	0.00	0.00	0.00
Capital Outlay Reserve Fund												
Beginning Balance	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Ending Balance	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	1,270,000.00	0.00	0.00	0.00
Retiree Health Benefit Reserve Fund												
Beginning Balance	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Balance	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	3,552,014.00	0.00	0.00	0.00
Flood Emergency Response Reserve Fund												
Beginning Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00
Emergency Repair Reserve Fund												
Beginning Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00
Income	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ending Balance	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	1,500,000.00	0.00	0.00	0.00
Total Balance	9,669,053.95	9,531,856.07	9,331,631.53	9,215,800.03	9,031,843.78	8,551,616.24	8,440,100.77	8,980,210.86	8,926,289.69	0.00	0.00	0.00

American River Flood Control District
Schedule of Accounts Payable

Acct. #	Paid to	Memo	Amount	Chk. #	
	ARFCD General Fund	February Expenses	$ 134,780.33		
511	Acme Rigging & Supply Co.	Equipment Repair/Parts	$ 282.85		$ 597.21
514	Acme Rigging & Supply Co.	Levee Maint(Supplies&Materials)	$ 314.36		
504	ACWA Employee Benefits	Medical/Dental/Vision	$ 19,125.19		$ 30,723.18
520	ACWA Employee Benefits	Retiree Benefits	$ 11,597.99		
527	Alhambra/Sierra Springs	General Office Expense	$ 14.49		
505	AT&T	Telephone	$ 725.73		
505	AT&T Analog	Telephone	$ 711.56		
508	Bar-Hein Company	Fuel/Oil	$ 73.23		$ 383.40
511	Bar-Hein Company	Equipment Repair/Parts	$ 310.17		
514	Benson Fence Co. A Corp	Levee Maint(Supplies&Materials)	$ 1,695.16		
527	Blue Ribbon Maintenance	General Office Expense	$ 450.00		
511	Bobcat Central	Equipment Repair/Parts	$ 15,251.70		
603	Boutin Inc.	Legal Fees (General)	$ 252.50		
614	CA Dept Tax and Fee Administration	Miscellaneous Admin	$ 437.00		
511	Capital Rubber Co. Ltd.	Equipment Repair/Parts	$ 407.36		$ 441.26
512	Capital Rubber Co. Ltd.	Shop Supplies	$ 33.90		
512	Capitol Barricade, Inc.	Shop Supplies	$ 494.18		
511	Carquest Auto Parts	Equipment Repair/Parts	$ 104.27		
534	Cintas	Regulation Compliance (OSHA)	$ 86.39		
527	Clark Pest Control	General Office Expense	$ 107.00		
511	Contour-Sierra LLC	Equipment Repair/Parts	$ 79.03		
503	Downey Brand	Legal Fees (General)	$ 1,248.00		
512	Grainger	Shop Supplies	$ 671.72		$ 884.03
534	Grainger	Regulation Compliance (OSHA)	$ 212.31		
508	Hunt & Sons, Inc.	Fuel/Oil	$ 1,716.88		
527	KBA Document Solutions	General Office Expense	$ 345.65		
515	Kent Arborist Services	Levee Maintenance Services	$ 13,500.00		
515	L and D Landfill	Levee Maintenance Services	$ 2,851.11		$ 6,947.01
533	L and D Landfill	Urban Camp Cleanup	$ 4,095.90		
605	MBK Engineers	Engineering Services	$ 318.00		
531	Muller & Associates, Inc.	Technology & Software	$ 290.21		
511	Municipal Maintenance Equipment, Inc	Equipment Repair/Parts	$ (153.60)		
507	North Sacramento Land Company	Office/Shop Lease	$ 1,273.44		
509	Pioneer Machinery	Equipment Rental	$ 3,150.00		
620	Robert Merritt, CPA	Bookkeeping Services	$ 2,025.00		
506	Sacramento Utilities	Utility Expense	$ 1,400.35		
624	SCI Consulting Group	DLMS Fees and Services	$ 11,000.00		
533	Signs Now	Urban Camp Cleanup	$ 1,066.01		
506	SMUD	Utility Expense	$ 968.39		
506	Sonitrol	Utility Expense	$ 960.33		
531	Streamline	Technology & Software	$ 249.00		
505	Verizon Connect	Telephone	$ 241.30		
514	White Cap	Levee Maint(Supplies&Materials)	$ 359.20		
		Accounts Payable Subtotal	$ 100,343.26		
		General Fund and Accounts Payable aggregate total:	**$ 235,123.59**		

Invoices Paid

	DATE	AMOUNT	CHECK #
Quickbooks (Employees)	2/16/24	$46.75	EFT
AT&T Analog (Telephone)	2/20/24	$711.56	9810
Hunt & Sons (Fuel & Oil)	2/20/24	$1,684.62	9811
Office Depot (General Office Expense)	2/20/24	$596.59	9812
Sacramento Utilities (Utility Expense)	2/20/24	$195.34	9813
Umpqua Bank (Miscellaneous Admin, General Office Expense, Trustee Expense, Urban Camp Cleanup, Technology & Software, Dues & Assoc. Fee)	2/20/24	$1,601.55	9814
Verizon Wireless (Telephone)	2/20/24	$478.97	9815
State Water Resources Control Board (Arcade Creek)	2/21/24	$2,509.00	9817
Lucas Kelly (Dues and Assoc. Expenses)	2/21/24	$50.00	9818
Quickbooks (Trustees)	2/23/24	$12.75	EFT
Pioneer Machinery (Equipment Purchase >5000)	2/28/24	$22,794.00	9819
Quickbooks (Employees)	3/1/24	$166.75	EFT
HSA (Employee)	3/5/24	$250.00	EFT
Total		**$31,097.88**	

Trustee Compensation

	DATE	GROSS	NET	CHK#
2/9/24 Board Meeting				
Holloway, Brian F	2/23/24	$95.00	$86.69	Direct Dep
Johns, Steven T	2/23/24	$95.00	$86.69	Direct Dep
Vander Werf, Rae Ellen	2/23/24	$95.00	$86.69	Direct Dep
Total		**$190.00**	**$173.38**	

Trustee Taxes

	DATE	AMOUNT	CHK#
2/9/24 Board Meeting			
Federal Tax Payment	2/23/24	$87.24	EFT
CA Withholding & SDI	2/23/24	$6.24	EFT
CA UI & ETT	2/23/24	$15.36	EFT
Total		**$108.84**	

Payroll Summary

	DATE	GROSS	NET	CHK#
PP ending 2/15/24				
Malane Chapman	2/16/24	$4,163.28	$2,809.30	Direct Dep
Elijah Gallaher	2/16/24	$3,080.00	$2,627.25	Direct Dep
Miguel Espino	2/16/24	$2,200.00	$1,874.56	Direct Dep
Elvin Diaz	2/16/24	$2,523.84	$1,841.21	Direct Dep
David Diaz	2/16/24	$4,479.20	$3,616.23	Direct Dep
Gilberto Gutierrez	2/16/24	$3,344.00	$1,635.76	Direct Dep
Ross Kawamura	2/16/24	$3,754.85	$2,739.05	Direct Dep
Lucas Kelley	2/16/24	$3,081.76	$2,020.70	Direct Dep
Tim Kerr	2/16/24	$8,346.00	$6,026.22	Direct Dep
Victor Palacios	2/16/24	$2,988.48	$2,366.54	Direct Dep
Erich Quiring	2/16/24	$3,197.92	$2,084.28	Direct Dep
PP ending 2/29/24				
Malane Chapman	3/1/24	$3,784.80	$2,571.00	Direct Dep
Elijah Gallaher	3/1/24	$2,800.00	$2,417.07	Direct Dep
Miguel Espino	3/1/24	$2,000.00	$1,717.46	Direct Dep
Elvin Diaz	3/1/24	$2,294.40	$1,689.59	Direct Dep
David Diaz	3/1/24	$4,072.00	$3,320.55	Direct Dep
Gilberto Gutierrez	3/1/24	$3,040.00	$1,499.30	Direct Dep
Ross Kawamura	3/1/24	$3,413.50	$2,537.48	Direct Dep
Lucas Kelley	3/1/24	$2,801.60	$1,866.53	Direct Dep
Tim Kerr	3/1/24	$8,346.00	$6,026.23	Direct Dep
Victor Palacios	3/1/24	$2,716.80	$2,167.29	Direct Dep
Erich Quiring	3/1/24	$2,907.20	$1,924.12	Direct Dep
Total		**$79,335.63**	**$57,377.72**	

Employee & Relief GM Taxes

	DATE	AMOUNT	CHK#
PP ending 2/15/24			
Federal Tax Payment	2/16/24	$9,803.58	EFT
CA Withholding & SDI	2/16/24	$1,925.54	EFT
CA UI & ETT	2/16/24	$1,106.55	EFT
PP ending 2/29/24	3/1/24	$8,957.12	EFT
Federal Tax Payment	3/1/24	$1,692.40	EFT
CA Withholding & SDI	3/1/24	$5.40	EFT
CA UI & ETT			
Total		**$23,728.76**	

Employee Pension	DATE	AMOUNT	CHK#
PP ending 2/15/24			
PERS Retirement Contribution (Unfunded Liability)	2/20/24	$8,607.33	EFT
PERS Retirement Contribution	2/20/24	$5,465.61	EFT
457 Deferred Comp (Employee Paid)	2/20/24	$1,428.20	EFT
457 Deferred Comp ROTH (Employee Paid)	2/20/24	$50.00	EFT
457 District Contribution	2/20/24	$120.00	EFT
PP ending 2/29/24			
PERS Retirement Contribution	3/1/24	$5,115.61	EFT
457 Deferred Comp (Employee Paid)	3/1/24	$1,337.00	EFT
457 Deferred Comp ROTH (Employee Paid)	3/1/24	$50.00	EFT
457 District Contribution	3/1/24	$120.00	EFT
Total		**$22,293.75**	

Total of Invoices Paid and Payroll	**$134,780.33**

American River Flood Control District

CA CVFPB Encroachment Permit – Riverdale RV Resort and New Sewer Line Connection, American River North Levee

Staff Report

Discussion:

The owner of a Sacramento mobile home park has submitted an application to develop the site into an upscale RV Resort. The site location is within the levees near the North Levee of the American River. In addition to regrading the terrain and elevating the permanent structures to accommodate floodplain restrictions, the applicant is requesting the inclusion of a new sewer line connection into the floodway location. The sewer line is proposed to be installed by trenching within the Del Paso Blvd roadway and under the City's Del Paso Floodgates. No trenching or installation work will occur in the District levee.

Key notes about the project:

- The park site location is away from the levee and will not impact District O&M
- No trenching or utility installation will occur in the District levee
- Permanent structures will be elevated to accommodate floodplain development restrictions
- The hydraulic analysis showed that the proposed project will not raise the water surface in the American River
- The applicant has an evacuation plan to safely get occupants and their vehicles out of the floodway prior to high water

Recommendation:

The General Manager recommends that the Board of Trustees endorse the permit application for the Riverdale RV Resort and New Sewer Line Connection.

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.

The scope of this project involves both onsite and offsite improvements. Please see Attachment A for the scope of the proposed work associated with this application.

2. Project Location: 1501 Northgate Blvd., Sacramento County, in Section 30

Township: 9N (N) (S), Range: 5E (E) (W), M. D. B. & M.

Latitude: N 38° 35' 54" Longitude: W 121° 28' 35"

Stream: American River , Levee : Designated Floodway:

APN: 274-0120-010-0000

3. Primewest Investments, Inc. / Linda Frazier (Name of Applicant / Land *Owner*) of 27038 Co Rd 92F (Address)

Winters (City) Ca (State) 95694 (Zip Code) (530) 601-0650 (Telephone Number)

lindakfrazier@gmail.com (E-mail)

4. Tony McCreary (Name of Applicant's Representative) of CWE (Company)

Roseville (City) Ca (State) 95661 (Zip Code) (916) 772-7800 (Telephone Number)

amccreary@cwecorp.com (E-mail)

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of _____ (Name of LMA) approve this plan, subject to the following conditions:

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

Trustee Date Trustee Date

Trustee Date Trustee Date

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
City of Sacramento		
County of Sacramento		
Caltrans		

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☐ Yes ☑ No ☐ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

SCH No. _____

8. When is the project scheduled for construction? Spring, 2024

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

E. ☑ A minimum of four photographs depicting the project site.

Lynda K Frazier 10-2-23
Signature of Applicant Date

Include any additional information:

IMPROVEMENT PLANS FOR
RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA 95815
HCD OPERATING PERMIT NO.: 34-0054-MP

LEGEND

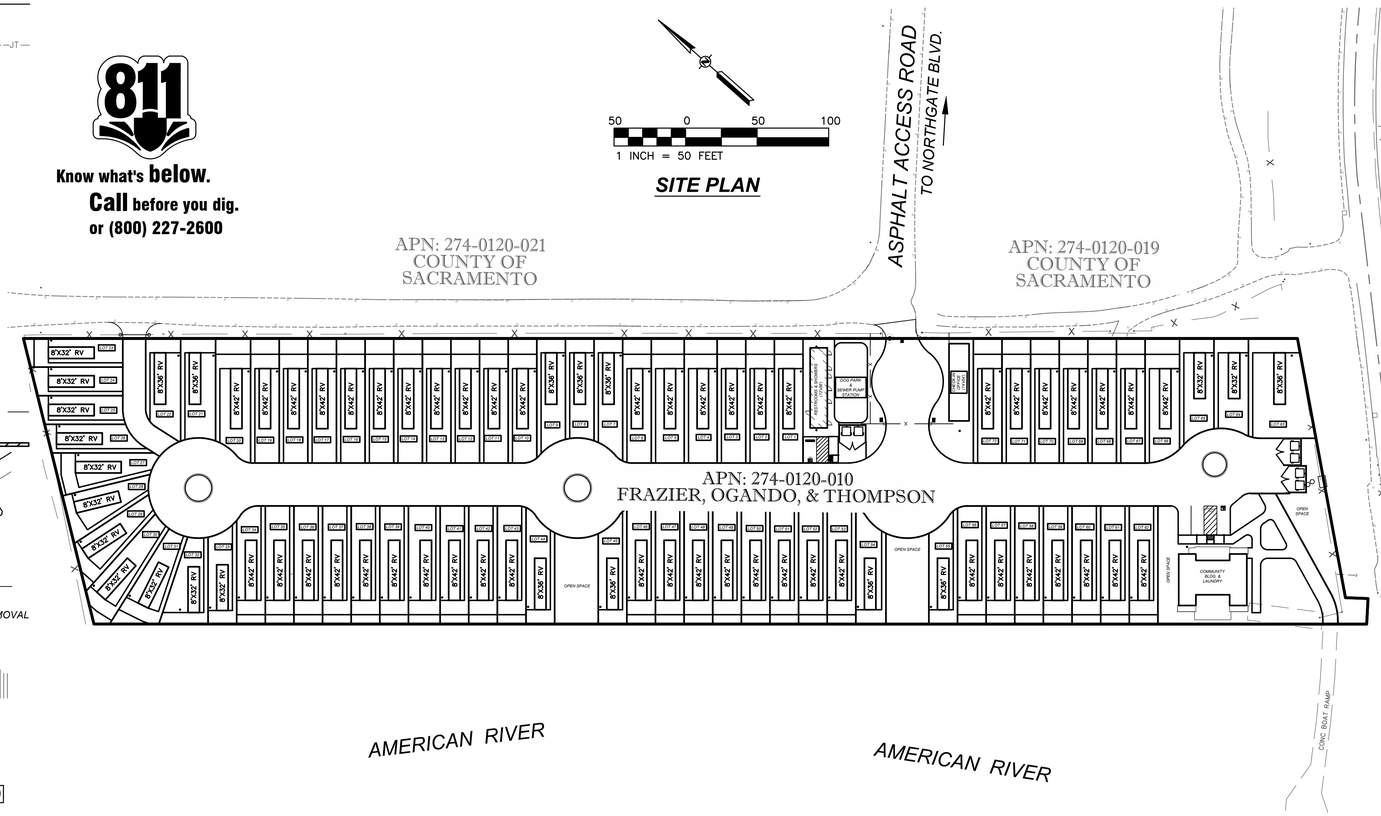
DESCRIPTION	EXISTING	PROPOSED
PROPERTY LINE		
ROW		
EASEMENT		
LOT LINE		
CENTERLINE		
SW, CURB & GUTTER		
DITCH / FLOWLINE		
EP		
STORM DRAIN	XX"SD	XX"SD
SANITARY SEWER	XX"SS	XX"SS
WATER	XX"W	XX"W
GAS LINE	GAS	
JOINT TRENCH		JT JT JT
DIRECTION OF SURFACE FLOW		
OVERLAND RELEASE PATH		
SSMH		
SSCO		
FIRE HYDRANT		
WATER VALVE		
WATER METER	WM	WM
CONCENTRIC REDUCER		
REDUCED PRINCIPAL PRESSURE ASSEMBLY		
MONUMENT WELL		
BOLLARD		
GAS VALVE		
UTILITY POLE		
UTILITY POLE WITH LIGHT		
STREET LIGHT		
DOUBLE POST TOP STREET LIGHT		
FENCE	X X	X X
BLOCK WALL		
INDEX CONTOUR	25	25
INTERMEDIATE CONTOURS		
HEDGE		
JUNCTION/PULL BOX	PB	PB
SIGN		
GRADE BREAK LINE		GB
TREE & DRIP		REMOVAL
PIPE CAP		
HANDICAP RAMP		
CONTROL POINT		100 100.00 PK
FOUND LOT CORNER		
FINISH FLOOR ELEVATION	FF: 123.00	FF: 123.00
SPOT ELEVATION (ASPHALT CONCRETE)	157.01 AC	13.34 AC
MATCH (E) GRADE ELEVATION		13.61 AC MATCH (E)
TRUNCATED DOMES		
BUILDING		
DOOR		

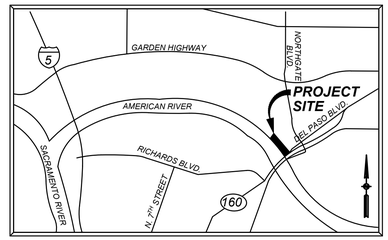
811

Know what's **below.**
Call before you dig.
or (800) 227-2600

50 0 50 100
1 INCH = 50 FEET

SITE PLAN





VICINITY MAP
NOT TO SCALE

SHEET INDEX:

ABBREVIATIONS:

AB	AGGREGATE BASE	FL	FLOW LINE	POC	POINT OF CONNECTION
AC	ASPHALT CONCRETE	FOC	FACE OF CURB	PRC	POINT OF REVERSE CURVE
ARV	AIR RELEASE VALVE	FP	FINISH PAVEMENT	PT	POINT OF TANGENCY
BC	BEGIN CURVE	FS	FIRE SPRINKLER	PUE	PUBLIC UTILITY EASEMENT
BCR	BEGIN CURVE RETURN	GB	GRADE BREAK	PVI	POINT OF VERTICAL INTERSECTION
BLDG	BUILDING	GR	GRATE ELEVATION	RC	RELATIVE COMPACTION
BOC	BACK OF CURB	GV	GATE VALVE	RCP	REINFORCED CONCRETE PIPE
BOW	BACK-OF-WALK	GVW	GROSS VEHICLE WEIGHT	ROW	RIGHT-OF-WAY
BVC	BEGIN VERTICAL CURVE	HC	HANDICAP	RT	RIGHT TURN OR RIGHT
BW	BOTTOM OF WALL	HCR	HANDICAP RAMP	RPPA	REDUCED PRESSURE PRINCIPLE ASSEMBLY
CAB	CABINET	HDPE	HIGH DENSITY POLYETHYLENE	RW	RETAINING WALL
CONC	CONCRETE	HP	HIGH POINT	SDMH	STORM DRAIN MANHOLE
C&G	CURB & GUTTER	IRR	IRRIGATION	SD	STORM DRAIN
CG&S	CURB, GUTTER & SIDEWALK	INV	INVERT	SE	SOUTHEAST
CH	CHORD	JP	JOINT POLE	SS	SANITARY SEWER
℄	CENTERLINE	L	LENGTH	SSCO	SANITARY SEWER CLEAN OUT
CMP	CORRUGATED METAL PIPE	LF	LINEAL FEET	SSMH	SANITARY SEWER MANHOLE
CR	CURB RETURN	LIP	LIP OF GUTTER	SWCT	SAWCUT
CTV	CABLE TV	LP	LOW POINT	SW	SIDEWALK OR SOUTHWEST
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	LT	LEFT TURN OR LEFT	STA	STATION
		MAX	MAXIMUM	TC	TOP OF CURB
DI	DRAIN / DROP INLET	MH	MAINTENANCE HOLE	TP	TOP OF PAVEMENT
DIP	DUCTILE IRON PIPE	MIN	MINIMUM	TS	TOP OF SIDEWALK
DS	DOWN SPOUT	NE	NORTHEAST	TW	TOP OF WALL
DU	DWELLING UNIT	NW	NORTHWEST	UNO	UNLESS NOTED OTHERWISE
(E)	EXISTING	OC	ON CENTER	W	WATER
EC	END CURVE	OH	OVERHEAD	WV	WATER VALVE
ECR	END CURB RETURN	OHT&E	OVERHEAD TELEPHONE & ELECTRIC	WM	WATER METER
EP	EDGE OF PAVEMENT	OMP	OPEN METAL PIPE	WWF	WELDED WIRE FABRIC
ETW	EDGE OF TRAVELED WAY	(P)	PROPOSED	VCP	VITRIFIED CLAY PIPE
EVC	END OF VERTICAL CURVE	PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVE	VIF	VERIFY-IN-FIELD
FDC	FIRE DEPARTMENT CONNECTION				
FF	FINISH FLOOR	PG	PROFILE GRADE		
FG	FINISHED GROUND	PIV	POST INDICATOR VALVE		
FH	FIRE HYDRANT	℄	PROPERTY LINE		

SWPPP NOTICE TO CONTRACTOR

THIS PROJECT HAS AN APPROVED STATE GENERAL CONSTRUCTION PERMIT AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP). WDID # _____

CONTRACTOR IS RESPONSIBLE TO HIRE A STATE CERTIFIED QSP (QUALIFIED SWPPP PRACTITIONER) TO OVERSEE IMPLEMENTATION OF THE SWPPP PRIOR TO START OF CONSTRUCTION. ALL REQUIRED INSPECTIONS, TRAINING AND REQUIRED TESTING AND REPORTING SHALL BE OVERSEEN BY THE QSP.

THE FINAL APPROVED SWPPP SHALL BE KEPT ON THE CONSTRUCTION SITE DURING CONSTRUCTION AND MAINTAINED BY THE QSP.

CONTRACTOR SHALL SEND THE FINAL SWPPP WITH ALL INSPECTION, TESTING, AMENDMENTS, REPORTS AND OTHER DOCUMENTATION TO THE OWNER ONCE CONSTRUCTION HAS BEEN COMPLETED AND THE NOTICE OF TERMINATION SUBMITTED.

CONTRACTOR SHALL HAVE A PRECONSTRUCTION MEETING AND INCLUDE THE QSP AND CIVIL ENGINEER IN THE MEETING, EITHER ON-SITE OR VIA TELEPHONE CONFERENCE.

UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

UNAUTHORIZED CHANGES AND USES:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

NOTICE TO CONTRACTOR - ORDER OF WORK:

PRIOR TO THE START OF ANY CIVIL WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST.

DISTURBED AREA: 4.056 ACRES

RAW EARTHWORK SUMMARY

CUT: 3,400 CY
FILL: 100 CY
NET: 3,300 CY EXPORT

NOTE:
EARTHWORK QUANTITIES ARE ESTIMATED TO SUBGRADE AND DO NOT TAKE INTO ACCOUNT SHRINKAGE, EXCESS MATERIALS FROM TRENCHING AND MISC. UNKNOWN STRUCTURAL SECTIONS. CONTRACTOR SHOULD VERIFY EARTHWORK QUANTITIES.

TOPOGRAPHIC SURVEY:

AERIAL BY: ROSE'S ENGINEERING

DATED: FEBRUARY, 1998

SUPPLEMENTAL GROUND SURVEY BY RFE ENGINEERING DATED:

BENCHMARK:

THE BENCHMARK USED FOR THIS SURVEY WAS NGS CONTROL POINT PID JS0993, WHICH IS A BENCH MARK DISC SET IN A MASSIVE STRUCTURE ALONG THE SOUTHERN PACIFIC RAILROAD, NEAR THE JUNCTION OF TRIBUTE ROAD AND FEE DRIVE, 105 FEET SOUTH AND ACROSS THE TRACKS FROM MILE-POLE 93, IN THE TOP AND 1.2 FEET EAST OF THE WEST END OF THE EAST CONCRETE WING WALL OF OVER-PASS 92.25 OVER STATE HIGHWAY 160, 9 FEET SOUTHEAST OF THE SOUTHEAST RAIL OF THE SOUTHEAST TRACK, 1.5 FEET SOUTHEAST OF THE SOUTHEAST STEEL GUARDRAIL, AND ABOUT LEVEL WITH THE TOP OF RAILS.

ELEVATION = 44.38 FEET (NAVD 88 DATUM)

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS GRID NORTH BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE 2 AND WAS ESTABLISHED FROM NGS CONTROL POINT PID AC9226.

FLOOD PLAIN:

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "AE", AREAS WITHIN ZONE "AE" ARE AREAS SUBJECT TO INUNDATION BY THE 1-PERCENT ANNUAL CHANCE FLOOD EVENT AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM, FLOOD INSURANCE RATE MAP

COMMUNITY PANEL NO.: 06067C0176J

DATED: 06-16-2017

JURISDICTION:

CALIFORNIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

SITE INFORMATION:

APN: 274-0120-010
ZONING: ARP-F (AMERICAN RIVER PARKWAY FLOODPLAIN)

OWNER

FRAZIER, OGANDO, AND THOMPSON
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

DEVELOPER

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-795-5853

GEOTECHNICAL REPORT:

BY: CTE CAL INC.
DATED: JANUARY 29, 2018
REPORT: 90-1493G

APPROVED: HOUSING & COMMUNITY DEVELOPEMENT

SIGNATURE | PRINT NAME | DATE

REVISION	NO.	CHECK	BY	APPR'D
		RFE	TSM	
		RFE	TSM	

DESIGN | DRAWN | QUANT.
ORIGINAL SCALE IS IN INCHES 0 1 2

REGISTERED PROFESSIONAL ENGINEER
ANTHONY S. MCGEARY
No. C90888
Exp. 03/31/24
CIVIL
STATE OF CALIFORNIA

2260 Douglas Blvd, Suite 150, Roseville, CA 95661
Ph: 916-772-9301 | www.RFEengineering.com
www.cwecorp.com

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

TITLE SHEET

Drawing	Sheet
of 1	of Total 46

10-04-2023

W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\C01 TITLE.dwg Oct 04, 2023-03:40 pm

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD, SACRAMENTO, CA

PORTLAND CEMENT PERVIOUS CONCRETE PAVEMENT

PART 1 GENERAL

1.01 SCOPE OF WORK:
A. THE WORK TO BE COMPLETED UNDER THIS CONTRACT INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CONSTRUCTION OF PORTLAND CEMENT PERVIOUS CONCRETE PAVEMENT FOR STREETS, PARKING AND PEDESTRIAN AREAS IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS.
B. WORK IN OTHER SECTIONS:
FORMWORK: SEE "CONCRETE FORMWORK" IN DIVISION 03
OTHER PAVING: SEE OTHER SECTIONS IN DIVISION 33
INSERTS OF LANDSCAPE ACCESSORIES INTO CONCRETE PAVEMENT: SEE DIVISION 32
DRAINS IN CONCRETE PAVEMENT: SEE DIVISION 32
SUBGRADES AND COMPACTION: SEE DIVISION 31

1.02 REFERENCES:
A. AMERICAN CONCRETE INSTITUTE
1. CONCRETE FIELD TESTING TECHNICIAN GRADE I

B. AMERICAN SOCIETY FOR TESTING AND MATERIALS
1. ASTM C 29 "TEST FOR BULK DENSITY (UNIT WEIGHT) AND VOIDS IN AGGREGATE ASTM C33 "SPECIFICATION FOR CONCRETE AGGREGATES"
2. ASTM C 33 "SPECIFICATION FOR CONCRETE AGGREGATES"
3. ASTM C 94 "SPECIFICATION FOR READY-MIXED CONCRETE"
4. ASTM C 150 "SPECIFICATION FOR PORTLAND CEMENT"
5. ASTM C 260 "SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE"
6. ASTM C 494 "SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE"
7. ASTM C 595 "SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS"
8. ASTM C 618 "SPECIFICATION FOR COAL FLY ASH AND RAW OR CALCINED NATURAL POZZOLAN FOR USE AS A MINERAL ADMIXTURE IN PORTLAND CEMENT CONCRETE."
9. ASTM C 685 "STANDARD SPECIFICATION FOR CONCRETE MADE BY VOLUMETRIC BATCHING AND CONTINUOUS MIXING"
10. ASTM C 989 "SPECIFICATION FOR GROUND GRANULATED BLAST-FURNACE SLAG FOR USE IN CONCRETE AND MORTARS."
11. ASTM C 1438 "STANDARD SPECIFICATION FOR LATEX AND POWDER MODIFIERS FOR HYDRAULIC CEMENT CONCRETE AND MORTAR."
12. ASTM C 1602 "SPECIFICATION FOR MIXING WATER USED IN THE PRODUCTION OF HYDRAULIC CEMENT CONCRETE"
13. ASTM C 1688 "STANDARD TEST METHOD FOR DENSITY AND VOID CONTENT OF FRESHLY MIXED PERVIOUS CONCRETE"
14. ASTM C 1701/C1701M "STANDARD TEST METHOD FOR INFILTRATION RATE OF IN PLACE PERVIOUS CONCRETE"
15. ASTM C 1751 "STANDARD SPECIFICATION FOR PREFORMED EXPANSION JOINT FILLER FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION (NONEXTRUDING AND RESILIENT BITUMINOUS TYPES)
16. ASTM C 1752 "STANDARD SPECIFICATION FOR PREFORMED SPONGE RUBBER CORK AND RECYCLED PVC EXPANSION JOINT FILLERS FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION."
17. ASTM D 994 "STANDARD SPECIFICATION FOR PREFORMED EXPANSION JOINT FILLER FOR CONCRETE (BITUMINOUS TYPE)"
18. ASTM E 329 "SPECIFICATION FOR AGENCIES ENGAGED IN THE TESTING AND/OR INSPECTION OF MATERIALS USED IN CONSTRUCTION."

C. NATIONAL READY MIXED CONCRETE ASSOCIATION
1. TEXT REFERENCE FOR PERVIOUS CONCRETE CONTRACTOR CERTIFICATION

1.03 QUALITY ASSURANCE:
A. THE PERVIOUS CONCRETE SUBCONTRACTOR:
1. SHALL SUBMIT:
a. EVIDENCE OF TWO SUCCESSFUL PERVIOUS CONCRETE PAVEMENT PROJECTS INCLUDING: THE PROJECT NAME AND ADDRESS, OWNER'S NAME, CONTACT INFORMATION AND SIZE OF EACH PROJECT.
b. VERIFICATION OF CURRENT NRMCA CERTIFICATION REQUIREMENTS DESCRIBED BELOW:
2. SHALL MEET, AT THE TIME OF BIDDING: ONE OF THE FOLLOWING CRITERIA FOR THE MINIMUM CERTIFICATION FOR EACH PLACEMENT CREW AND SUBMIT VERIFICATION OF NRMCA PERVIOUS CONCRETE CERTIFICATION WITH THE BID. (HTTP://WWW.NRMCA.ORG/EDUCATION/CERTIFICATIONS/PERVIOUS_CONTRACTOR.HTM)
a. THE PERVIOUS CONCRETE SUBCONTRACTOR SHALL EMPLOY NO LESS THAN ONE (1) NRMCA CERTIFIED PERVIOUS CONCRETE CRAFTSMAN WHO MUST BE ONSITE, ACTIVELY GUIDING AND WORKING WITH EACH PLACEMENT CREW DURING ALL PERVIOUS CONCRETE PLACEMENT.
b. THE PERVIOUS CONCRETE SUBCONTRACTOR SHALL EMPLOY NO LESS THAN THREE (3) NRMCA CERTIFIED PERVIOUS CONCRETE INSTALLERS WHO MUST BE ONSITE, ACTIVELY GUIDING AND WORKING WITH PERVIOUS CONCRETE FOR PROJECTS.
c. THE PERVIOUS CONCRETE SUBCONTRACTOR SHALL EMPLOY NO LESS THAN THREE (3) NRMCA PERVIOUS CONCRETE TECHNICIANS AND ONE (1) PERVIOUS INSTALLER WHO SHALL BE ONSITE, ACTIVELY GUIDING AND WORKING WITH EACH PLACEMENT CREW DURING ALL PERVIOUS CONCRETE PLACEMENT.

B. PERFORMANCE: UPON COMPLETION OF THE INITIAL CURING, THE PERVIOUS CONCRETE SHALL BE TESTED FOR INITIAL BASELINE INFILTRATION IN ACCORDANCE WITH ASTM C1701. THE RATE SHALL BE A MINIMUM OF 100 INCHES PER HOUR.

1.04 SUBMITTALS: BEFORE STARTING WORK, SUBMIT THE FOLLOWING:
A. CONCRETE MATERIALS:
1. PROPOSED CONCRETE MIXTURE PROPORTIONS INCLUDING ALL MATERIAL WEIGHTS, VOLUMES, DENSITY (UNIT WEIGHT), WATER / CEMENTITIOUS RATIO, AND VOID CONTENT. THE MIX DESIGN SHALL NOT SPECIFY A COMPRESSIVE OR FLEXURAL STRENGTH.
2. AGGREGATE TYPE, SOURCE AND GRADATION.
3. CEMENT, FLY ASH, GROUND GRANULATED BLAST-FURNACE SLAG AND ADMIXTURE MANUFACTURER CERTIFICATIONS

B. QUALIFICATIONS: EVIDENCE OF QUALIFICATIONS LISTED UNDER QUALITY ASSURANCE.

C. PROJECT DETAILS: SPECIFIC PLANS, DETAILS, SCHEDULE, CONSTRUCTION PROCEDURES AND QUALITY CONTROL PLAN.

D. TEST PANEL:
1. CONSTRUCT TEST PANEL(S) TO MEET REQUIREMENTS OF CONTRACT DOCUMENTS. PLACE A MINIMUM ONE 225 SQ. FT PANEL. PROVIDE JOINTS AND CURING USING MATERIALS, EQUIPMENT, AND PERSONNEL PROPOSED FOR THE PROJECT AS DESCRIBED IN SECTION 1.02.B. COORDINATE LOCATION OF TEST PANELS WITH OWNER AND ARCHITECT/ENGINEER.
2. THE TEST PANEL SHALL BE TESTED FOR ACCEPTANCE IN ACCORDANCE WITH SECTION 3.08 QUALITY CONTROL.
3. AN APPROVED TEST PANEL WILL BE USED AS QUALITY CONTROL FOR THE PROJECT AND MAY BE INCORPORATED INTO THE PROJECT IF OF ACCEPTABLE QUALITY.
4. REMOVE AND LEGALLY DISPOSE OF ALL MATERIALS USED FOR TEST PANELS NOT APPROVED AND ALL EXCESS MATERIALS.

PART 2 MATERIALS

2.01 MATERIALS:
A. CEMENT: PORTLAND CEMENT TYPE II OR V CONFORMING TO ASTM C150 OR PORTLAND CEMENT TYPE IP OR IS CONFORMING TO ASTM C595.

B. SUPPLEMENTARY CEMENTITIOUS MATERIALS:
1. CLASS F FLY ASH: ASTM C618
2. GROUND GRANULATED BLAST-FURNACE SLAG: ASTM C989

C. CHEMICAL ADMIXTURES:
1. AIR ENTRAINING AGENTS SHALL COMPLY WITH ASTM C260.
2. CHEMICAL ADMIXTURES SHALL COMPLY WITH ASTM C494.
3. LATEX BONDING AGENTS SHALL COMPLY WITH ASTM C1438.

D. AGGREGATES: COARSE AGGREGATE: ASTM C33. THE MAXIMUM SIZE AND GRADATION SHALL MEET THE PROJECT CRITERIA FOR SURFACE APPEARANCE AND VOID CONTENT.

E. WATER: ASTM C 1602.

F. ISOLATION JOINT MATERIAL: SHALL COMPLY WITH ASTM D994, D1751, OR D1752.

2.02 MIXTURE PROPORTIONS: THE COMPOSITION OF THE PROPOSED CONCRETE MIXTURES SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND SHALL COMPLY WITH THE FOLLOWING PROVISIONS UNLESS AN ALTERNATIVE COMPOSITION IS DEMONSTRATED TO COMPLY WITH THE PROJECT REQUIREMENTS. CONFORM WITH ALL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION (AHJ) FOR PAVEMENTS AND WALKWAYS.

A. CEMENTITIOUS CONTENT: COMPLY WITH THE APPROVED MIX DESIGN.
1. SUPPLEMENTARY CEMENTITIOUS CONTENT:
a. FLY ASH: 25% MAXIMUM OF THE TOTAL CEMENTITIOUS MATERIAL OR IN ACCORDANCE WITH APPROVED MIX DESIGN.
b. SLAG: 40% MAXIMUM OF THE TOTAL CEMENTITIOUS MATERIAL OR IN ACCORDANCE WITH APPROVED MIX DESIGN.

B. WATER / CEMENTITIOUS RATIO SHALL RANGE BETWEEN 0.27 LB/LB AND 0.31 LB/LB. OR IN ACCORDANCE WITH APPROVED MIX DESIGN.

C. AGGREGATE CONTENT: AS APPROPRIATE FOR APPROVED MIX DESIGN.

D. ADMIXTURES: USE IN ACCORDANCE WITH APPROVED MIX DESIGN.

E. MIX WATER: AS APPROPRIATE FOR APPROVED MIX DESIGN.

F. COLOR: PIGMENTS TO BE SELECTED BY THE ARCHITECT.

PART 3 EXECUTION

3.01 SUBGRADE: VERIFY SUBGRADE PREPARATION, GRADE, AND CONDUCT PERMEABILITY AND DENSITY TESTS FOR CONFORMANCE TO PROJECT REQUIREMENTS AND IS ACCEPTABLE FOR INSTALLATION OF PERVIOUS CONCRETE. (SEE 'SECTION 31 SUBGRADE GUIDELINES FOR PERVIOUS CONCRETE' THAT ACCOMPANIES THIS DOCUMENT.)

3.02 RECHARGE BASIN (DETENTION BASIN): WHEN BASE MATERIAL IS USED UNDER PERVIOUS CONCRETE FOR WATER RECHARGE, IT SHALL BE COMPOSED OF UNIFORM SIZED AGGREGATE CONFORMING TO ASTM C33, MINIMUM SIZE 6. FOR MINIMUM VOID CONTENT, REFER TO CIVIL OR GEOTECHNICAL CONTRACT DOCUMENTS.

3.03 FORMWORK: FORM MATERIALS: ANY MATERIAL PERMITTED BY AHJ AND OF SUFFICIENT STRENGTH AND STABILITY TO SUPPORT MECHANICAL EQUIPMENT WITHOUT DEFORMATION OF PLAN PROFILES FOLLOWING SPREADING, STRIKE-OFF AND COMPACTION OPERATIONS.

3.04 MIXING AND HAULING:
A. PRODUCTION: PERVIOUS CONCRETE SHALL BE MANUFACTURED AND DELIVERED IN ACCORDANCE WITH APPLICABLE SECTIONS OF ASTM C 94 OR ASTM C 685.

B. MIXING: PERVIOUS CONCRETE SHALL BE PRODUCED IN CENTRAL MIXERS, TRANSIT MIXERS OR IN VOLUMETRIC MIXERS.

C. DELIVERY: DELIVER PERVIOUS CONCRETE DIRECTLY FROM THE MIXER BY MEANS OF CONVEYER AS CLOSE AS POSSIBLE TO FINAL POSITION.

D. DISCHARGE: EACH TRUCKLOAD WILL BE VISUALLY INSPECTED FOR CONSISTENCY OF CONCRETE MIXTURE. JOB SITE WATER ADDITIONS ARE PERMITTED TO OBTAIN AND MAINTAIN THE REQUIRED MIX CONSISTENCY THROUGHOUT THE DISCHARGE. DISCHARGE SHALL BE A CONTINUOUS OPERATION. CONCRETE SHALL BE DEPOSITED AS CLOSE TO ITS FINAL POSITION AS PRACTICAL AND SUCH THAT DISCHARGED CONCRETE IS INCORPORATED INTO PREVIOUSLY PLACED PLASTIC CONCRETE.

3.05 PLACING AND FINISHING: SHALL COMPLY WITH THE CONTENT OF THE NATIONAL READY MIXED CONCRETE ASSOCIATION'S 'TEXT REFERENCE FOR PERVIOUS CONCRETE CONTRACTOR CERTIFICATION' WITH THE FOLLOWING PROVISIONS:

A. INTERNAL VIBRATION SHALL NOT BE PERMITTED. USE MECHANICAL SCREED EQUIPMENT. DO NOT USE HAND SCREEDS EXCEPT IN CONFINED AND SMALL AREAS. CROSS ROLL COMPACTED CONCRETE TO REMOVE ANY SCREEDING AND COMPACTION MARKS ON THE CONCRETE SURFACE.

B. COMPACT TO THE REQUIRED CROSS-SECTION AND SHALL NOT DEVIATE MORE THAN + 3/8 INCH IN 10 FEET FROM PROFILE GRADE.

3.06 JOINTING

A. JOINTS SHALL BE INSTALLED AT LOCATIONS AND TO DEPTHS SHOWN ON THE PROJECT PLANS.

B. CONTROL (CONTRACTION) JOINTS SHALL BE INSTALLED AT REGULAR INTERVALS NOT TO EXCEED 1.5 TIMES THE WIDTH OF THE PLACEMENT OR 20 FEET, OR IN ACCORDANCE WITH APPROVED JOINT PLACEMENT PLAN. THE CONTROL JOINTS SHALL BE INSTALLED AT ¼ THE THICKNESS OF THE PAVEMENT BUT NOT TO EXCEED 1-1/2". THESE JOINTS CAN BE INSTALLED IN THE PLASTIC CONCRETE OR SAW CUT AFTER THE CONCRETE HAS HARDENED. NEW JOINTS IN PLASTIC CONCRETE OR RECENTLY HARDENED CONCRETE SHALL ALIGN WITH JOINTS IN OLDER CONCRETE. JOINTS ABUTTING CURBS AND OTHER FIXED CONCRETE SHALL BE INSTALLED WITHIN 10 DEGREES OF PERPENDICULAR TO THE OLDER CONCRETE AS POSSIBLE.

C. INSTALL JOINTS TO MATCH APPROVED SAMPLE.

D. TRANSVERSE CONSTRUCTION JOINTS: INSTALL WHENEVER PLACING IS SUSPENDED FOR 20 MINUTES OR WHENEVER CONCRETE IS NO LONGER WORKABLE.

E. DO NOT DOWEL LONGITUDINAL JOINTS BETWEEN SUCCESSIVE PLACEMENTS.

F. ISOLATION JOINTS: USE WHEN ABUTTING FIXED VERTICAL STRUCTURES. PLACE ISOLATION MATERIAL BEFORE CONCRETE IS PLACED AND TO THE DEPTH OF THE PAVEMENT SECTION.

3.07 CURING:

A. FINAL CURING PROCEDURES SHALL BEGIN NO LATER THAN 20 MINUTES AFTER THE CONCRETE HAS BEEN DISCHARGED FROM THE MIXER. THE PAVEMENT SURFACE SHALL BE COVERED WITH A MINIMUM OF SIX (6) MIL THICK WHITE OR CLEAR POLYETHYLENE SHEET OR OTHER APPROVED COVERING MATERIAL. IN COLD WEATHER BLACK PLASTIC MAY BE USED TO AID IN HEAT RETENTION. THE COVER SHALL PREVENT AIR INFILTRATION TO THE FRESH CONCRETE AND SHALL OVERLAP ALL EXPOSED EDGES AND SHALL BE SECURED TO PREVENT DISLOCATION DUE TO WINDS OR ADJACENT TRAFFIC CONDITIONS.
B. THE CURING COVER SHALL REMAIN SECURELY IN PLACE FOR A MINIMUM OF 7 DAYS. NO VEHICULAR TRAFFIC SHALL BE PERMITTED ON THE PAVEMENT UNTIL CURING IS COMPLETE AND NO TRUCK TRAFFIC SHALL BE PERMITTED FOR AT LEAST 14 DAYS.

3.08 QUALITY CONTROL:

A. THE OWNER SHALL EMPLOY A TESTING LABORATORY THAT CONFORMS TO THE REQUIREMENTS OF ASTM E329 AND ASTM C1077. ALL PERSONNEL ENGAGED IN TESTING SHALL BE CERTIFIED BY THE AMERICAN CONCRETE INSTITUTE AS ACI CONCRETE FIELD TECHNICIANS OR EQUIVALENT AND SHALL BE CERTIFIED BY NRMCA AS A PERVIOUS CONCRETE TECHNICIAN.
B. PRIOR TO EACH PLACEMENT, THE FORMED THICKNESS SHALL BE AT LEAST THE DESIGN THICKNESS TESTING WITHIN -0" TO +3/4".

C. PLASTIC CONCRETE SHALL BE SAMPLED IN ACCORDANCE WITH ASTM C 172 AND DENSITY (UNIT WEIGHT) MEASURED IN ACCORDANCE WITH ASTM C 1688. THE DENSITY (UNIT WEIGHT) OF THE DELIVERED CONCRETE SHALL BE +/- 5 PCF OF THE DESIGN DENSITY (UNIT WEIGHT).

D. PLASTIC VOID CONTENT SHALL BE CALCULATED AS PER ASTM C1688 GRAVIMETRIC AIR DETERMINATION AND COMPARED TO THE VOID PERCENTAGE REQUIRED BY THE HYDRAULIC DESIGN.

E. UPON COMPLETION OF INITIAL CURING, THE PERVIOUS CONCRETE SHALL BE TESTED FOR A BASELINE INFILTRATION RATE USING ASTM C1701.

SUBGRADES AND COMPACTION FOR PORTLAND CEMENT PERVIOUS CONCRETE PAVEMENT

PART 1 GENERAL

1.01 SCOPE OF WORK:
A. THE WORK TO BE COMPLETED UNDER THIS CONTRACT INCLUDES THE SUBGRADE AND COMPACTION REQUIREMENTS FOR PORTLAND CEMENT PERVIOUS CONCRETE PAVEMENT FOR STREETS, PARKING & PEDESTRIAN AREAS IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS.

B. WORK IN OTHER SECTIONS:
FORMWORK: SEE "CONCRETE FORMWORK" IN DIVISION 03 OTHER PAVING: SEE OTHER SECTIONS IN DIVISION 33 INSERTS OF LANDSCAPE ACCESSORIES INTO CONCRETE PAVEMENT: SEE DIVISION 32 DRAINS IN CONCRETE PAVEMENT: SEE DIVISION 32 PORTLAND CEMENT PERVIOUS CONCRETE PAVEMENT: SEE DIVISION 33 SECTION 033729

1.02 REFERENCES:
A. AMERICAN SOCIETY FOR TESTING AND MATERIALS
1. ASTM D 1557 "TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT (56,000 FT-LBF/FT3)"
2. ASTM D 3385 "TEST METHOD FOR INFILTRATION RATE OF SOILS IN FIELD USING DOUBLE-RING INFILTROMETER"

1.03 SUBGRADE AND COMPACTION:
A. MATERIAL: THE TOP 6 INCHES SHALL BE COMPOSED OF GRANULAR OR GRAVELLY SOIL THAT IS PREDOMINANTLY SANDY WITH NO MORE THAN A MODERATE AMOUNT OF SILT OR CLAY. GRANULAR SUB-BASE MAY BE PLACED OVER THE SUBGRADE.

B. PERMEABILITY: SUBGRADE SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D3385.

C. COMPACTION: COMPACT SUB-GRADE TO A MINIMUM 90% AND A MAXIMUM 95%. COMPACTION SHALL BE IN ACCORDANCE WITH ASTM D 1557.

D. FILL: IF FILL MATERIAL IS REQUIRED TO BRING THE SUBGRADE TO FINAL ELEVATION, IT SHALL BE CLEAN AND FREE OF DELETERIOUS MATERIALS. IT SHALL BE PLACED IN 6-INCH MAXIMUM LAYERS, AND COMPACTED BY A MECHANICAL VIBRATORY COMPACTOR TO A MINIMUM DENSITY OF 90% AND A MAXIMUM DENSITY OF 95% IN ACCORDANCE WITH ASTM D 1557.

E. MOISTURE: THE SUBGRADE MOISTURE CONTENT SHALL BE 1% - 3% ABOVE OPTIMUM AS DETERMINED BY ASTM D 1557.

F. VERIFY SUBGRADE PREPARATION, GRADE, AND CONDUCT PERMEABILITY AND DENSITY TESTS FOR CONFORMANCE TO PROJECT REQUIREMENTS.

RECOGNIZED PROCEDURES FOR ACHIEVING QUALITY PERVIOUS CONCRETE

1. MIXTURE PROPORTIONS: THE COMPOSITION OF THE PROPOSED CONCRETE MIXTURES SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND/OR APPROVAL AND SHALL COMPLY WITH THE FOLLOWING PROVISIONS UNLESS AN ALTERNATIVE COMPOSITION IS DEMONSTRATED TO COMPLY WITH THE PROJECT REQUIREMENTS.

A. CEMENTITIOUS CONTENT: THE CONCRETE PRODUCER SHALL DETERMINE THE CEMENT CONTENT BASED UPON THE AVAILABLE AGGREGATE GRADATION.

B. SUPPLEMENTARY CEMENTITIOUS CONTENT: FLY ASH, IF USED, SHALL BE A MAXIMUM OF 25% OF THE TOTAL CEMENTITIOUS MATERIAL. BLAST FURNACE SLAG, IF USED, SHALL BE A MAXIMUM OF 40% OF THE TOTAL CEMENTITIOUS MATERIAL.

C. WATER / CEMENTITIOUS RATIO SHALL RANGE BETWEEN 0.27 LB/LB AND 0.31 LB/LB.

D. AGGREGATE CONTENT: THE BULK VOLUME OF AGGREGATE PER CUBIC YARD SHALL BE EQUAL TO 27 CUBIC FOOT WHEN CALCULATED FROM THE DRY RODDED DENSITY (UNIT WEIGHT) DETERMINED IN ACCORDANCE WITH ASTM C29 RODDING PROCEDURE.

E. ADMIXTURES: ADMIXTURES SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND DOSAGE DETERMINED BY THE CONCRETE PRODUCER.

F. MIX WATER: THE QUANTITY OF MIXING WATER SHALL BE ESTABLISHED TO PRODUCE A PERVIOUS CONCRETE MIXTURE OF THE DESIRABLE WORKABILITY TO FACILITATE PLACING, COMPACTION AND FINISHING TO THE DESIRED SURFACE CHARACTERISTICS.

2. MIXING AND HAULING:

A. PRODUCTION: PERVIOUS CONCRETE SHALL BE MANUFACTURED AND DELIVERED IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF ASTM C94 OR C685.

B. MIXING: PERVIOUS CONCRETE SHALL BE PRODUCED IN CENTRAL MIXERS, TRANSIT MIXERS, OR VOLUMETRIC MIXERS. THE MANUFACTURERS OF MIXING EQUIPMENT SHALL SPECIFY MIXING SPEED AND REVOLUTIONS TO PRODUCE A HOMOGENEOUS MIX. PERVIOUS CONCRETE PRODUCED IN TRANSIT MIXERS SHALL BE MIXED AT LEAST 70 REVOLUTIONS.

C. PRIOR TO DISCHARGE: THE CONTRACTOR SHALL VISUALLY EVALUATE THE HOMOGENEOUS UNIFORMITY OF EACH LOAD AND EITHER APPROVE THE CONCRETE OR ADD WATER. ALL PERSONS AUTHORIZED TO ADD WATER SHALL BE IDENTIFIED PRIOR TO THE START OF EACH DAY'S PLACEMENT. ADDED WATER SHALL BE RECORDED ON THE DELIVERY TICKET AND COMMUNICATED TO THE BATCH PLANT.

D. DISCHARGE: PERVIOUS CONCRETE SHALL BE DISCHARGED DIRECTLY FROM THE MIXER TO THE GRADE OR TO A BELT CONVEYOR. THE DISCHARGE SHALL BE AS CLOSE AS POSSIBLE TO ITS FINAL POSITION AND SUCH THAT THE DISCHARGED CONCRETE IS INCORPORATED INTO PREVIOUSLY PLACED PLASTIC CONCRETE. DISCHARGE OF INDIVIDUAL LOADS OF PERVIOUS CONCRETE SHALL BE COMPLETED AS QUICKLY AS POSSIBLE: WITHIN ONE HOUR FROM THE TIME OF INTRODUCTION OF CEMENT TO WATER OR 90 MINUTES WHEN A HYDRATION STABILIZER IS USED.

E. ADDITIONAL WATER ADDITIONS: THROUGHOUT THE PLACEMENT, THE CONTRACTOR SHALL VISUALLY MONITOR THE APPEARANCE OF THE CONCRETE. JOB SITE WATER ADDITION DURING PLACEMENT IS ALLOWED TO MAINTAIN THE REQUIRED MIX CONSISTENCY. ADDED WATER SHALL BE THOROUGHLY MIXED INTO THE CONCRETE.

F. IMMEDIATELY AFTER SCREEDING, IF THE PERVIOUS CONCRETE IS SUSCEPTIBLE TO PLASTIC SHRINKAGE ACCORDING TO ACI 305, THE SURFACE SHALL BE KEPT MOIST WITH ONE OR MORE OF THE FOLLOWING ACTIONS: AN EXTERNAL FOGGING DEVICE, OR APPLICATION OF A SPRAY APPLIED CURING COMPOUND, OR APPLICATION OF A SACRIFICIAL EVAPORATION COMPOUND.

3. PLACING AND FINISHING:

A. THE CONTRACTOR SHALL PROVIDE EQUIPMENT TO PLACE AND FINISH THE PERVIOUS CONCRETE. INTERNAL VIBRATION SHALL NOT BE PERMITTED. PLACEMENT PROCEDURES SHALL UTILIZE MECHANICAL SCREED EQUIPMENT SUCH AS A MOTORIZED ROLLER SCREED OR A VIBRATORY TRUSS SCREED. HAND SCREEDS ARE PROHIBITED EXCEPT IN CONFINED AND SMALL AREAS. HAND COMPACTION TOOLS ARE ALSO USED IN SUCH AREAS TO COMPACT THE PERVIOUS CONCRETE TO PROPER DENSITY AND ELEVATION.

B. MOTORIZED ROLLER SCREED CONSTRUCTION: PERVIOUS CONCRETE SHALL BE MANUALLY COMPACTED AT THE LOWER FORM EDGES PRIOR TO SCREED OPERATION. THE MOTORIZED ROLLER SCREED IS SUPPORTED BY EDGE FORMS AND POWERED TO SPIN COUNTER TO THE DIRECTION OF TRAVEL. THE COUNTER-ROTATING TUBE IS DRAWN OVER THE SLAB SURFACE TO STRIKE THE SURFACE ELEVATION AND COMPRESS THE SURFACE MATERIALS. SCREED ROLLERS SHALL BE MINIMUM 6 INCHES IN DIAMETER AND CAPABLE OF CONFIGURATION TO A WEIGHT OF 37 POUNDS PER LINEAR FOOT. STRIKE-OFF IS FOLLOWED BY CROSS ROLLER TOOLING TO APPLY MILD COMPRESSION AND UNIFORMITY TO THE SURFACE MATERIALS. THE PERVIOUS CONCRETE PAVEMENT SHALL BE COMPACTED TO THE REQUIRED CROSS-SECTION AND SHALL NOT DEVIATE MORE THAN +/- 3/8 INCH IN 10 FEET FROM PROFILE GRADE.

C. VIBRATORY TRUSS SCREED CONSTRUCTION. PERVIOUS CONCRETE SHALL BE MANUALLY COMPACTED AT THE LOWER FORM EDGES PRIOR TO SCREED OPERATION. THE VIBRATORY SCREED IS SUPPORTED BY EDGE FORMS AND ½ INCH RISER STRIPS TO ELEVATE THE SCREED ½ INCH ABOVE FINISHED ELEVATION. THE VIBRATORY TRUSS SCREED IS DRAWN OVER THE SLAB AT LOW INTENSITY VIBRATION WITH CARE TAKEN TO STOP VIBRATION IF TRAVEL MOVEMENT IS STOPPED. RISER STRIPS ARE REMOVED AFTER SCREED OPERATION IS COMPLETE AND A FULL WIDTH STATIC ROLLER IS DEPLOYED ON THE SLAB SURFACE TO COMPRESS THE PERVIOUS CONCRETE DOWN TO FINISHED ELEVATION. THE STATIC ROLLER SHALL EXERT A PRESSURE OF 10 PSI PER FOOT ON THE PLASTIC PERVIOUS CONCRETE. THE PERVIOUS CONCRETE PAVEMENT SHALL BE COMPACTED TO THE REQUIRED CROSS-SECTION AND SHALL NOT DEVIATE MORE THAN +/- 3/8 INCH IN 10 FEET FROM PROFILE GRADE. CARE SHALL BE TAKEN TO NOT SEAL THE PERVIOUS CONCRETE SURFACE DUE TO OVER VIBRATION OR EXCESSIVE ROLLING.

D. CROSS-ROLLING AND EDGING: IMMEDIATELY AFTER SCREEDING THE FINISHED SURFACE SHALL BE CROSS-ROLLED TO REMOVE ANY ROLLING AND COMPACTION MARKS. THE LONGITUDINAL EDGES ADJACENT TO THE FORMS SHALL BE MANUALLY COMPACTED WITH A HAND TAMP AND THEN EDGED WITH A ½" RADIUS EDGER. NO FURTHER FINISHING SHALL BE PERFORMED ON THE CONCRETE.

NO.	REVISION	DATE	BY	APPR'D

BY	CHECK
DESIGN TSM	RFE
DRAWN TSM	RFE
QUANT.	

ORIGINAL SCALE IS IN INCHES (0, 1, 2)

REGISTERED PROFESSIONAL ENGINEER ANTHONY S. MCCRARY No. C90888 Exp. 03/31/24 CIVIL STATE OF CALIFORNIA

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

PERVIOUS CONCRETE NOTES

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10-04-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD, SACRAMENTO, CA

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PROJECT GENERAL NOTES:

1. THE EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS IS FROM A TOPOGRAPHIC SURVEY PLAN REFERENCED ON SHEET C1. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS, ESPECIALLY POINTS OF CONNECTION TO EXISTING FACILITIES FOR ALL IMPROVEMENTS PRIOR TO CONSTRUCTION OF APPLICABLE FACILITIES. CONTRACTOR SHALL NOTIFY CWE IMMEDIATELY OF ANY DISCREPANCIES OR CONFLICTS DISCOVERED.

2. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE ENGINEER.

3. EXCAVATIONS SHALL BE ADEQUATELY SHORED, BRACED AND SHEETED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM A LACK OF ADEQUATE SHORING, BRACING AND SHEETING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL AFFECT NECESSARY REPAIRS OR RECONSTRUCTION AT HIS OWN EXPENSE. WHERE THE EXCAVATION FOR A CONDUIT TRENCH, AND/OR STRUCTURE IS FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING, SHORING AND BRACING OR EQUIVALENT METHOD, FOR THE PROTECTION OF LIFE, OR LIMB, WHICH SHALL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY OF THE STATE OF CALIFORNIA. THE CONTRACTOR SHALL ALWAYS COMPLY WITH OSHA REQUIREMENTS.

4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY ADDITIONAL PERMITS NECESSARY TO PERFORM THE WORK SHOWN ON THESE PLANS FROM THE APPROPRIATE AGENCIES.

5. THE CONTRACTOR SHALL TAKE EFFECTIVE ACTION TO PREVENT THE FORMATION OF AN AIRBORNE DUST NUISANCE AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM HIS FAILURE TO DO SO.

6. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO WORK THROUGHOUT THE PERIOD OF CONSTRUCTION. TRAFFIC MOVEMENT SHALL BE MAINTAINED AT ALL TIMES. IF TRAFFIC CONTROL PROCEDURES ARE DEEMED NECESSARY, THE CONTRACTOR SHALL CONFORM TO THE "WATCH HANDBOOK" AND CALTRANS TRAFFIC MANUAL. CITY/COUNTY ENGINEERS APPROVAL IS REQUIRED PRIOR TO ANY DETOURING, DISRUPTION, OR INTERRUPTION OF THE NORMAL TRAFFIC FLOW.

7. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF ALL VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO THE NORMAL WORKING HOURS.

8. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE, AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF THE JOBSITE.

9. ANY EXTRA CONSTRUCTION STAKING NECESSITATED SOLELY BY THE CONTRACTOR'S NEGLIGENCE WILL BE CHARGED TO THE CONTRACTOR ON A TIME AND MATERIAL BASIS, AND PAID FOR BY THE CONTRACTOR.

10. STATIONING HEREON IS ALONG STREET CENTERLINE UNLESS OTHERWISE SHOWN OR INDICATED.

11. ALL RETURN RADII AND CURB DATA ARE TO BOTTOM FACE OF CURB.

12. ALL QUANTITIES AND PAY ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.

13. LENGTHS OF SANITARY SEWERS AND STORM DRAINS ARE HORIZONTAL DISTANCES FROM CENTER TO CENTER OF STRUCTURES, ROUNDED OFF TO THE NEAREST FOOT.

14. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED ON FACILITIES IDENTIFIED BY THE TOPOGRAPHIC SURVEY AND UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 2 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. **CALL UNDERGROUND SERVICE ALERT (U.S.A.), AT 800-642-2444.** IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT UNIT PRICE.

15. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE APPLICABLE AGENCY ENGINEER, AT THE CONTRACTOR'S SOLE EXPENSE.

16. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY INCLUDING FEES, BONDS, PERMITS AND WORKING CONDITIONS, ETC. THIS WORK SHALL BE DONE AT NO EXPENSE TO THE UTILITY COMPANY. THE OWNER SHALL PAY THE COST OF ALL SUCH RELOCATION WORK INCLUDING FEES, BONDS, PERMITS, ETC.

17. IF ARCHAEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.

18. CWE DOES NOT SPECIFY NOR RECOMMEND THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS. ANY PARTY INSTALLING OR USING SUCH MATERIAL OR EQUIPMENT SHALL BE SOLELY RESPONSIBLE FOR ALL INJURIES, DAMAGE OR LIABILITIES, OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIALS OR EQUIPMENT. THE PROVISIONS OF THIS NOTE SHALL APPLY UNLESS THEY ARE EXPRESSLY WAIVED IN WRITING BY OWNER AND CWE.

PROJECT GENERAL NOTES (CONT):

19. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT CWE, AT (916) 772-7800 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.

20. CONTRACTOR SHALL PROVIDE PROTECTIVE FENCING AROUND EXISTING TREES TO REMAIN.

21. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT REFERENCED ON SHEET C1.

22. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL REGULATIONS, LAWS AND ORDINANCES, INCLUDING ALLOWABLE CONSTRUCTION HOURS, CONSTRUCTION NOISE NEAR RESIDENCES, DUST CONTROL AND EROSION CONTROL.

23. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL CONTRACT DOCUMENTS INCLUDING ALL PLANS AND SPECIFICATIONS PREPARED BY OTHER DISCIPLINES FOR THIS PROJECT PRIOR TO THE START OF CONSTRUCTION. SUCH REVIEW SHALL BE CONTINUOUS THROUGHOUT THE CONSTRUCTION PROCESS. ANYTIME THAT A CONFLICT BETWEEN SUCH PLANS AND SPECIFICATIONS IS IDENTIFIED, THE CONTRACTOR SHALL CONTACT CWE AND OTHER APPLICABLE DISCIPLINES TO REQUEST A VERIFICATION OF THE DESIGN REQUIREMENTS AND A RESOLUTION TO SUCH CONFLICTS PRIOR TO CONSTRUCTION OF SUCH FACILITIES.

24. BEFORE EXECUTION OF ANY WORK, THE CONTRACTOR SHALL EXAMINE ACTUAL JOB CONDITIONS AND REPORT TO CWE AND OWNER ANY ERROR, OMISSION, OR DISCREPANCY AFFECTING WORK. UPON COMMENCING CONSTRUCTION THE CONTRACT SHALL BE RESPONSIBLE FOR REPORTING ANY AND ALL CONFLICTS, ERRORS, OMISSIONS, ETC. TO CWE IMMEDIATELY UPON DISCOVERY. IF SO DIRECTED BY THE ENGINEER OR CITY/COUNTY ENGINEER, THE CONTRACTOR SHALL STOP WORK UNTIL MITIGATION CAN BE MADE. ANY COST INCURRED RESULTING FROM THE CONTRACTOR'S FAILURE TO STOP WORK AS DIRECTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

25. THE CONTRACTOR SHALL PROVIDE THE CIVIL ENGINEER "AS BUILT" DRAWINGS AT PROJECT COMPLETION. THE CONTRACTOR SHALL PROVIDE ONE COMPLETE ACCURATE SET OF RECORD CHANGES. THE CHANGES SHALL BE PLACED ON A CLEAN SET OF PROJECT DRAWINGS IN RED, AND GIVEN TO THE ENGINEER AT JOB COMPLETION.

26. THE ENGINEERS ESTIMATE OF QUANTITIES IS FOR DESIGN REFERENCE ONLY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE QUANTITIES FOR BID AND FIELD INSTALLATION. ALL CALCULATED EARTHWORK QUANTITIES FURNISHED FOR THIS PROJECT ARE APPROXIMATE. THE QUANTITIES HEREIN WERE CALCULATED TO FINISHED ROUGH GRADE AND EXISTING GROUND. THE ACTUAL MATERIALS MOVED ARE VARIABLE DEPENDENT UPON THE CONTRACTOR'S METHOD OF OPERATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR ANY EXCESS OR SHORTAGE OF EARTH MATERIAL FOR THIS PROJECT AND NO ADDITIONAL PAYMENT WILL BE MADE.

27. THESE DRAWINGS ARE FOR THIS SPECIFIC PROJECT AND NO OTHER USE IS AUTHORIZED. CWE DISCLAIMS ALL RESPONSIBILITY FOR CONSTRUCTION BEYOND WHAT IS SPECIFICALLY DESIGNED OR DETAILED HEREIN.

28. THE CONTRACTOR SHALL TAKE CARE TO PROTECT THE EXISTING SITE AND ADJACENT IMPROVEMENTS FROM DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THE CONSTRUCTION AND SHALL REPAIR OR MAKE REPLACEMENT TO CURRENT CITY/COUNTY STANDARDS. ALL SUCH WORK SHALL BE AT THE CONTRACTOR'S OWN EXPENSE. THE CONTRACTOR SHALL PERFORM THESE REPAIRS AND REMOVE ALL TRASH AND CONSTRUCTION DEBRIS AS DIRECTED BY CWE OR THE CITY/COUNTY ENGINEER.

29. THE AGENCY, CITY/COUNTY ENGINEER, OWNER OR CWE MAY REQUIRE THE CONTRACTOR TO UNCOVER ANY IMPROVEMENTS THAT HAVE BEEN COMPLETED WITHOUT PROPER INSPECTION AND/OR APPROVAL IF THE INSTALLATION IS FOUND NOT TO MEET APPLICABLE STANDARDS OR PREVIOUSLY APPROVED ALTERNATIVES SHOWN ON THE PLANS, THE CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE SUCH IMPROVEMENTS AT HIS OWN EXPENSE.

GENERAL PAVING NOTES:

1. CONSTRUCTION OF ALL PAVING SHALL BE CONSISTENT WITH REQUIREMENTS OUTLINED IN THE PROJECT GEOTECHNICAL ENGINEERING REPORT AND ALL ADDENDA.

2. PROPER PREPARATION OF THE SUBGRADE IS ESSENTIAL FOR OPTIMUM LONG-TERM PERFORMANCE OF THE CONCRETE PAVING. WHEN SUBGRADE IS SHAPED, LARGE EMBEDDED OBJECTS SHALL BE REMOVED AND THE TOP 12-INCHES OF SOIL SHALL BE THOROUGHLY MOISTURE CONDITIONED TO THE OPTIMUM MOISTURE CONTENT AND UNIFORMLY COMPACTED TO 95% RELATIVE COMPACTION FOR ALL STRUCTURAL SECTIONS SPECIFIED ON THESE PLANS. ALL UNSUITABLE SOIL SHALL BE REMOVED AND REPLACED WITH AN ACCEPTABLE ENGINEERED FILL.

3. CLASS 2 AGGREGATE BASE SHALL BE UNIFORM IN DEPTH AND COMPACTED TO 95% RELATIVE COMPACTION.

4. ACCEPTABLE TOLERANCES FOR FINE GRADING OF THE SUBGRADE AND AGGREGATE BASE ARE NO MORE THAN ¼-INCH ABOVE OR ½-INCH BELOW THE DESIGN GRADE.

5. PORTLAND CEMENT CONCRETE (PCC):
   - MINIMUM COMPRESSIVE STRENGTH: 3,500 PSI IN 28 DAYS
   - SLUMP: 3" TO 4"
   - AIR ENTRAINMENT: 5% TO 6%
   - AGGREGATE: MAXIMUM ¾ - INCH CRUSHED (ROUGH-TEXTURED, ANGULAR-SHAPED)
   - ADMIXTURES CONTAINING CHLORIDES AND SULFIDES ARE NOT ACCEPTABLE.

6. REINFORCING STEEL, IF SPECIFIED ON THE PLANS, SHALL BE CHAIRED AND LOCATED MID-SLAB DEPTH. REINFORCEMENT AND SPACING SHALL BE AS SPECIFIED ON THE PAVING PLAN. DEFORMED REINFORCEMENT SHALL BE GRADE 60 STEEL.

7. HEAVY DUTY TRAFFIC RATED PCC SLABS SHALL BE CONSTRUCTED WITH THICKENED EDGES, AT LEAST TWICE THE SPECIFIED SLAB THICKNESS AND TAPERED 4-FEET WIDE MEASURED HORIZONTALLY FROM THE PERIMETER OF THE SLAB. SEE DETAILS.

8. FORMS SHALL BE STRAIGHT, FREE FROM WARPING, AND STRONG ENOUGH TO RESIST THE LATERAL PRESSURE OF THE CONCRETE. A FORM RELEASE AGENT SHALL BE APPLIED TO EASE STRIPPING.

9. CONCRETE SHALL BE PLACED CONTINUOUSLY AS CLOSE AS POSSIBLE TO ITS FINAL POSITION AND BE CONSOLIDATED.

GENERAL PAVING NOTES CONT.:

10. IMMEDIATELY FOLLOWING STRIKE-OFF, THE SURFACE SHALL BE LEVELED WITH A BULLFLOAT OR A SCAPING STRAIGHTEDGE. THE SURFACE SHALL NOT BE FINISHED MORE THAN NECESSARY TO REMOVE IRREGULARITIES. ALL EDGES, TOOLED JOINTS, AND ISOLATION JOINTS SHALL BE ROUNDED TO THE SPECIFIED RADIUS WITH APPROPRIATE TOOLS. THE USE OF HAND OR POWER FLOATS AND TROWELS IS NOT NECESSARY AND IS NOT RECOMMENDED.

11. AS SOON AS THE FINISHED CONCRETE HAS SET SUFFICIENTLY TO MAINTAIN A TEXTURE AND NO BLEED WATER REMAINS ON THE SURFACE, THE SURFACE CAN BE DRAGGED WITH A SHORT LENGTH OF DAMP BURLAP OR OTHER MATERIAL SUCH AS SYNTHETIC TURF CARPETING. AS AN ALTERNATIVE, THE SURFACE CAN BE BROOMED TO DEVELOP A SKID-RESISTANCE SURFACE AND UNIFORM APPEARANCE. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SPECIAL CONCRETE FINISH REQUIREMENTS AND JOINT PATTERN REQUIREMENTS. UNLESS OTHERWISE SPECIFIED ON THE ARCHITECT'S PLANS, ALL CONCRETE SHALL HAVE A LIGHT BROOM FINISH.

12. THE CONCRETE SHALL BE PROTECTED FROM DAMAGE DURING THE CURING PROCESS.

13. CURING:
   - COLD TEMPERATURES - CONCRETE SHALL BE PROTECTED FROM FREEZING FOR AT LEAST 5-DAYS AFTER PLACEMENT. FOR FORECAST TEMPERATURES AROUND 32 TO 25 DEGREES FAHRENHEIT THE CONCRETE SHALL BE COVERED WITH POLYETHYLENE SHEETING. FOR COLDER TEMPERATURES, TWO SHEETS OF POLYETHYLENE SEPARATED BY 12-INCHES OF STRAW OR A SIMILAR DEGREE OF INSULATION.
   - WARM TEMPERATURES - WET CURING OR LIQUID MEMBRANE-FORMING CURING COMPOUND SHALL BE INITIATED IMMEDIATELY AFTER FINISHING IN SUNNY, WINDY, AND WARM CONDITIONS.
   - CONTRACTOR SHALL HAVE ENOUGH PLASTIC SHEETING AVAILABLE ON THE PROJECT SITE TO COMPLETELY COVER ANY SURFACES THAT MAY BE DAMAGED IN THE EVENT OF RAIN. THERE SHALL ALSO BE ADEQUATE WEIGHTS AVAILABLE TO KEEP THE PLASTIC SHEETING FROM BLOWING AWAY. FOR CONCRETE ON A SLOPE, DIVERSION SHALL BE PROVIDED FOR POTENTIAL RUN-ON TO PROTECT FROM WATER ABOVE WASHING ACROSS THE SURFACE.

14. CONCRETE JOINTS:

<u>ISOLATION / EXPANSION JOINTS:</u>

CONSTRUCT WHERE PCC MEETS FIXED FOUNDATIONS SUCH AS COLUMNS, BUILDING, MACHINERY FOUNDATIONS, WALLS, MANHOLES, DRAIN INLETS, UTILITY BOXES, ETC. ALL STRUCTURAL TUBING, PIPING, ETC. THAT EXTENDS UP THROUGH THE PCC SLAB SHALL BE WRAPPED WITH TWO LAYERS OF BUILDING PAPER OR ISOLATION JOINT MATERIAL TO BREAK BOND WITH PCC SLAB.

FOR PEDESTRIAN SIDEWALKS INSTALL AT 50-FOOT INTERVALS WITH APPLICABLE CONTRACTION CONTROL JOINTS BETWEEN.

EXPANSION JOINT MATERIAL = ½ - INCH FELT EXPANSION FIBER BOARD, OR APPROVED EQUIVALENT.
FULL DEPTH OF PCC
WIDTH = ⅜ - INCH
RADIUS = ¼ - INCH

EXPANSION JOINT TO BE GREENSTREAK PAVING CAP SEAL OR APPROVED SEALANT IF SPECIFIED ON THE PLAN.

<u>CONTRACTION CONTROL JOINTS HAND TOOLED OR SAWCUT</u>

JOINT IS A SAW CUT, TROWEL CUT OR PLASTIC OR HARDBOARD PREFORMED STRIP MINIMUM OF ONE QUARTER THE DEPTH OF THE SLAB THICKNESS, MINIMUM 1 - INCH. THIS JOINT PROVIDES A WEAK PLANE IN THE SLAB WHERE CRACKING CAN OCCUR. MAXIMUM SPACING FOR ¾ - INCH MAXIMUM AGGREGATE IS 2 x SLAB THICKNESS (DEPTH) IN FEET (I.E. A 4-INCH SLAB WITH ¾" MAXIMUM AGGREGATE SHALL HAVE A MAXIMUM SPACING OF 8-FEET). MAXIMUM SPACING FOR AGGREGATE GREATER THAN ¾ - INCH SHALL BE 2.5 x SLAB THICKNESS IN FEET (I.E. A 4-INCH SLAB WITH AGGREGATE GREATER THAN ¾" SHALL HAVE A MAXIMUM SPACING OF 10-FEET). IN NO CASE SHALL SPACING BE GREATER THAN 15 - FEET.

SLAB THICKNESS (INCHES)	JOINT DEPTH (INCHES)	JOINT TROWEL RADIUS (INCHES)	MAXIMUM JOINT SPACING (FEET) (EACH DIRECTION)
4	1	⅜	8
5	1¼	⅜	10
6	1½	⅜	12
6½	1⅝	⅜	13
7	1¾	⅜	14
8	2	⅜	15

TOOLING OR EARLY-ENTRY DRY-CUT SAW JOINTS ARE DESIRED TO PLACE JOINTS BEFORE DEVELOPMENT OF TENSILE STRESSES THAT ARE GREAT ENOUGH TO INITIATE CRACKING, THUS INCREASING THE PROBABILITY OF CRACKS FORMING AT THE JOINT. CONTRACTION JOINT PATTERNS SHOULD DIVIDE PAVEMENTS INTO APPROXIMATELY SQUARES. THE LENGTH OF A PANEL SHOULD NOT BE MORE THAN 25% GREATER THAN ITS WIDTH.

<u>CONSTRUCTION JOINTS</u>

CONSTRUCTION JOINTS ARE STOPPING PLACES IN THE PROCESS OF CONSTRUCTION

BUTT TYPE CONSTRUCTION JOINT WITH DOWEL
SMOOTH STEEL DOWEL BAR COATED TO PREVENT BOND
MINIMUM 1-FOOT LONG - 6-INCHES IN EACH SIDE OF JOINT
EDGE EACH SIDE WITH 1/8-INCH RADIUS.

DOWELS SHALL BE PLACED A MINIMUM OF 12-INCHES AWAY FROM ANY JOINT INTERSECTION.

PREVENT BOND OF CONCRETE AT JOINT OR EXTEND REBAR 1' MINIMUM BEYOND INITIAL SECTION TO TIE IN SECONDARY SECTION.

ALL NEW PCC PAVING SHALL BE TIED INTO EXISTING WITH 1/2-INCH STEEL DOWEL @ 12-INCHES O.C. EPOXY INTO EXISTING. DOWELS SHALL NOT BE WITHIN 12-INCHES OF EDGE OF CONCRETE OR JOINT INTERSECTION. EDGE NEW PCC WITH 1/8-INCH RADIUS AT JOINT.

<u>SCORE JOINTS</u> - HAND TROWELED FOR AESTHETICS ONLY.

15. ALL ISOLATION / EXPANSION JOINTS SHALL BE CAPPED WITH GREENSTREAK G-SEAL PAVING CAP SEAL PROFILE #610 OR #628 AS APPROPRIATE FOR USE.

GENERAL PAVING NOTES CONT.:

16. ALL CONTRACTION CONTROL AND CONSTRUCTION JOINTS SHALL BE SEALED WITH SIKAFLEX SELF-LEVELING SEALANT (COLOR TO MATCH CONCRETE) OR APPROVED EQUIVALENT. JOINT WALLS AND ALL SURFACES TO WHICH THE SEALING MATERIAL IS TO ADHERE SHALL BE SURFACE DRY FOR AT LEAST THREE HOURS PRIOR TO SEALING. THE SURFACE OF THE SEALING COMPOUND SHALL BE A MAXIMUM OF 1/8-INCH BELOW THE LEVEL OF THE PCC SLAB SURFACE.

17. CONTRACTOR SHALL TAKE PRECAUTIONS TO REDUCE RAPID LOSS OF MOISTURE FROM THE CONCRETE AND REDUCE PLASTIC SHRINKAGE CRACKING, PRIOR TO PLACEMENT, DURING PLACEMENT AND UP TO 5-DAYS AFTER PLACEMENT AND FINISHING OF THE CONCRETE.

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REGISTERED PROFESSIONAL ENGINEER
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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

GENERAL NOTES

Drawing C2.2 | Sheet 3 of Total 46

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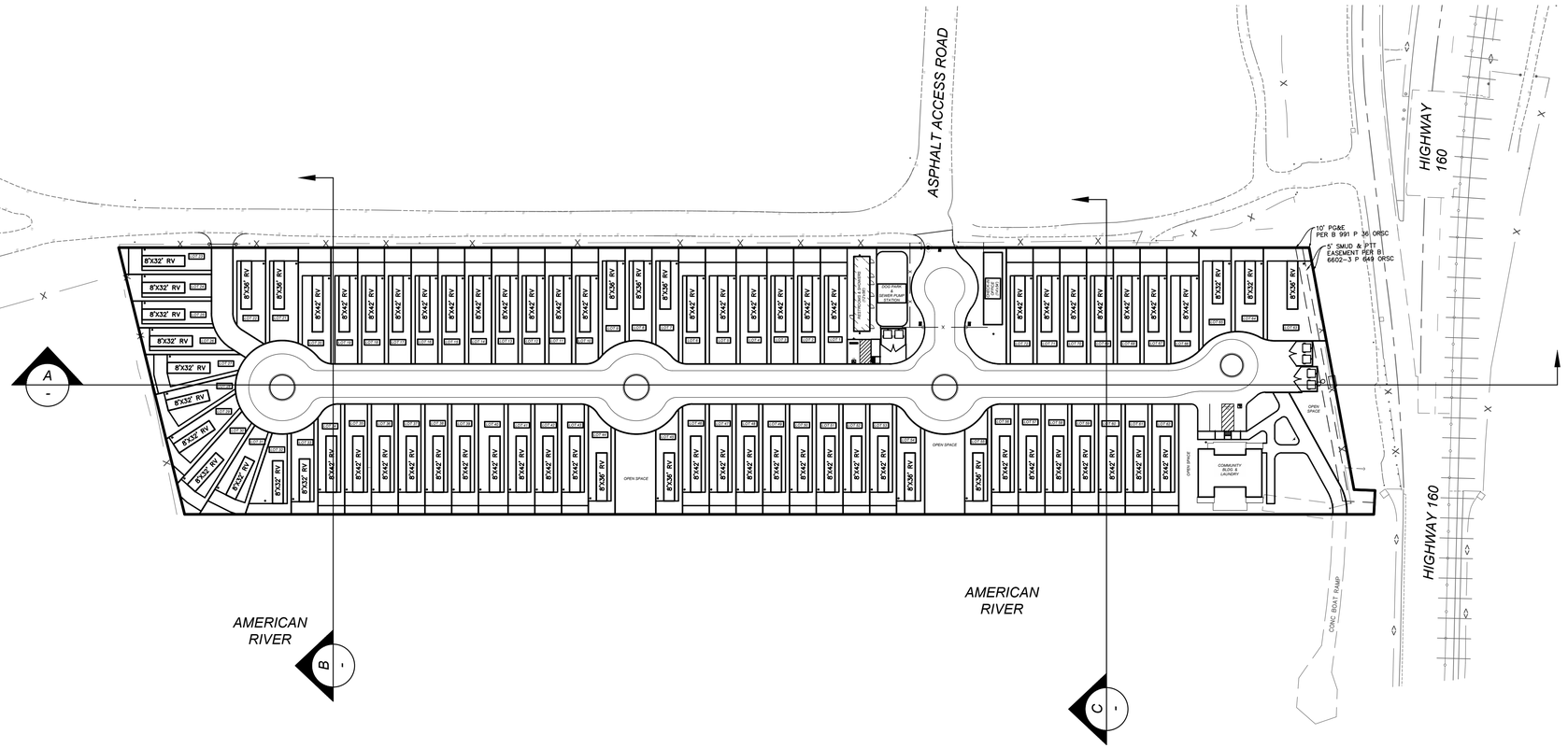
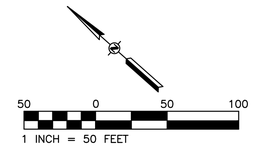
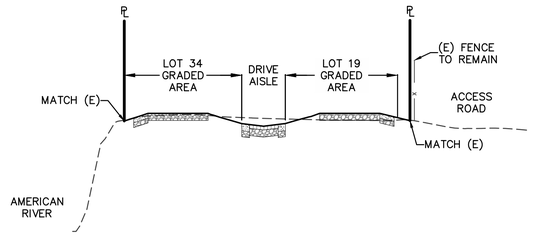
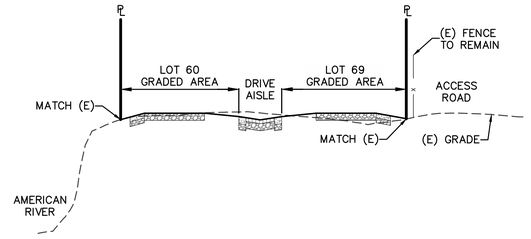






B — SECTION
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



C — SECTION
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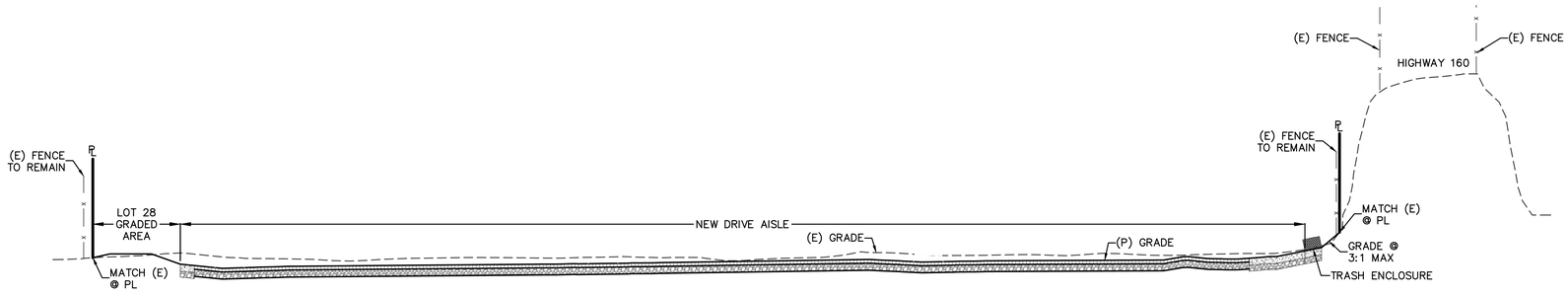
HORIZONTAL SCALE: 1" = 50'



A — SECTION
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

SITE CROSS SECTIONS

Drawing	Sheet
of 4	of Total 46

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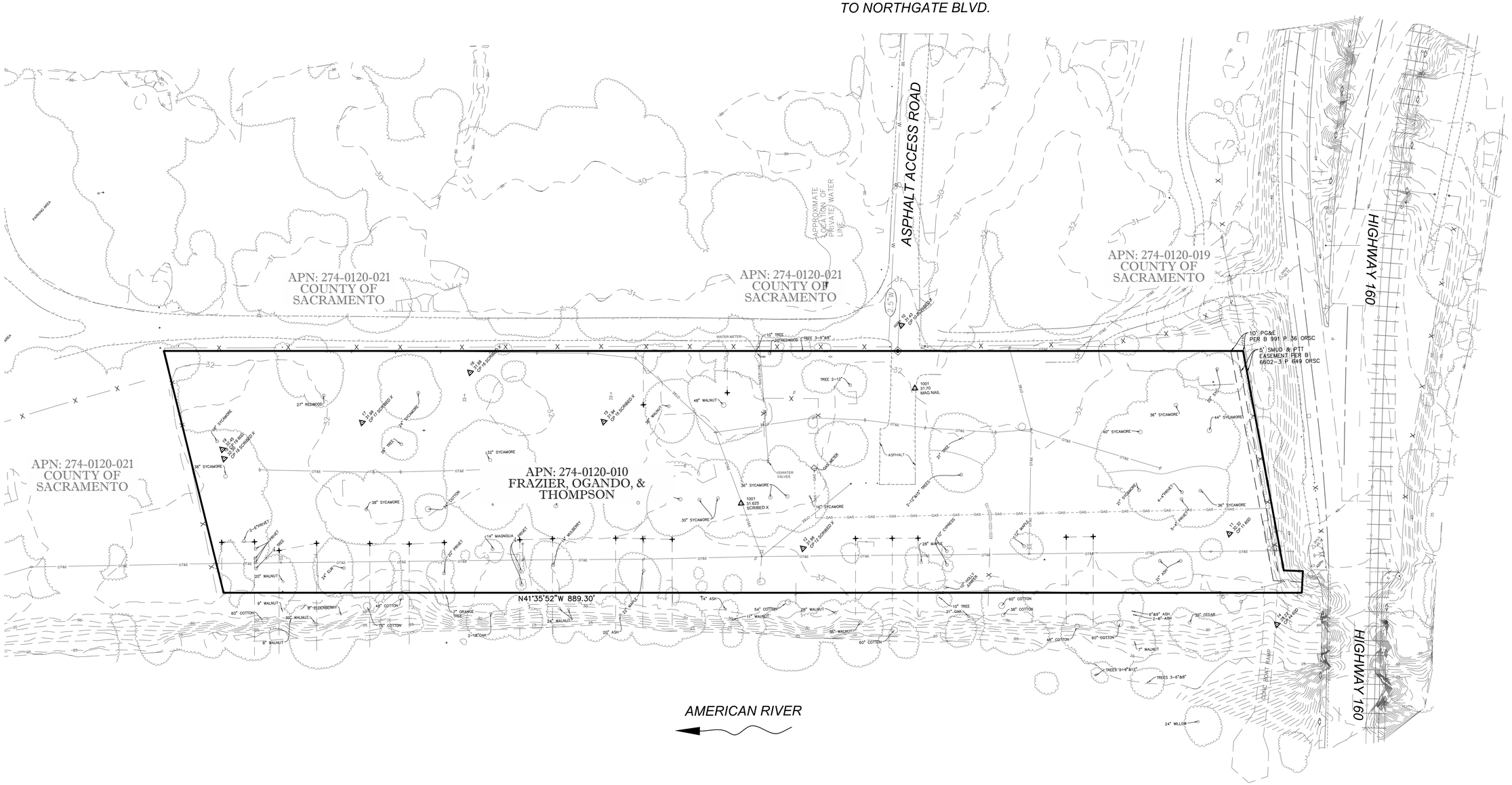
UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

NOTE:

1. *REFER TO SHEET C1 FOR BENCHMARK, BASIS OF BEARINGS, SOURCE OF TOPOGRAPHIC INFORMATION, AND FLOODPLAIN DESIGNATION.*



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1 INCH = 40 FEET

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

EXISTING CONDITIONS

Drawing	Sheet
of 5	C4 of Total 46

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PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

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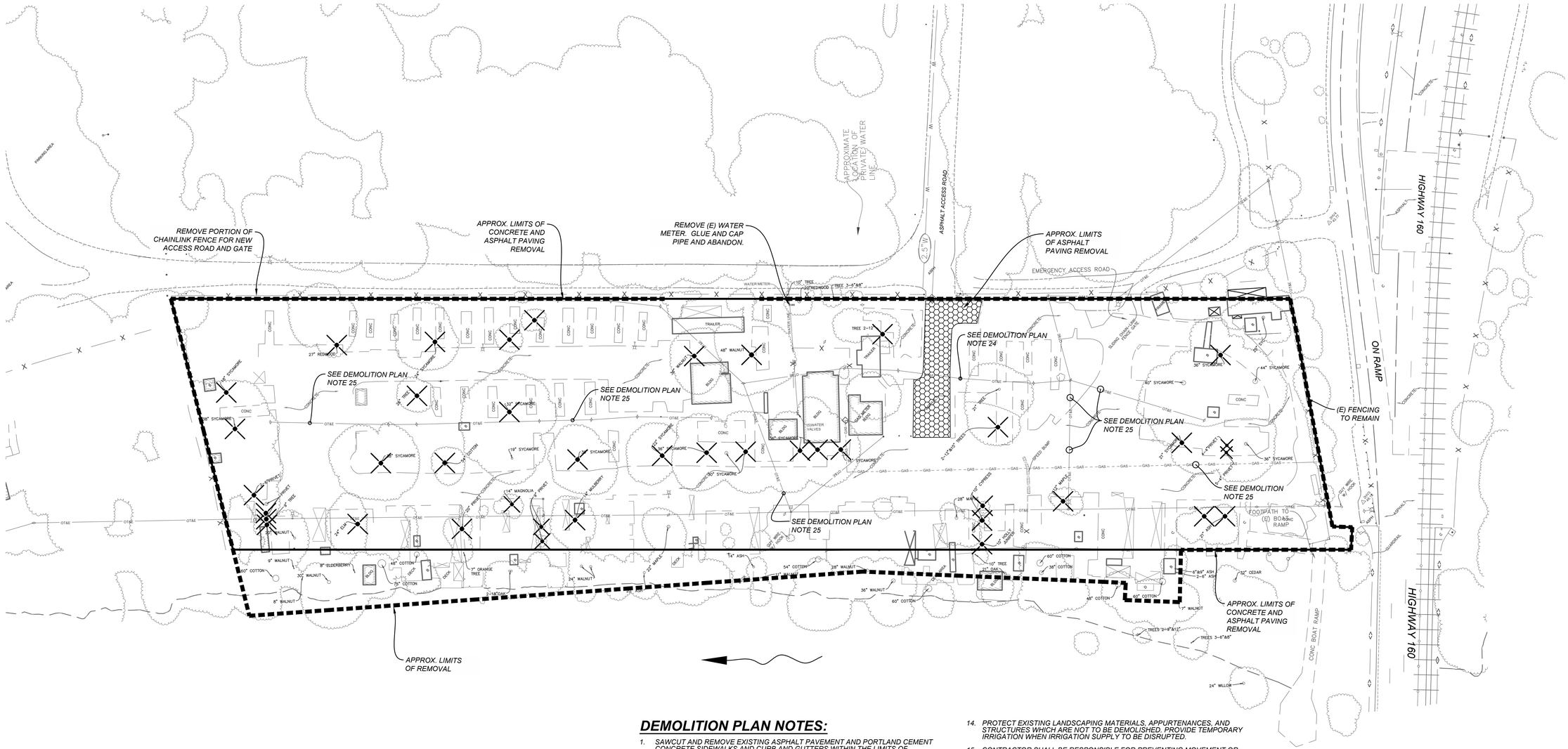

DEMOLITION PLAN NOTES:

1. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT AND PORTLAND CEMENT CONCRETE SIDEWALKS AND CURB AND GUTTERS WITHIN THE LIMITS OF DEMOLITION. ENGINEER SHALL VERIFY LIMITS OF DEMOLITION. PROTECT EXISTING PAVEMENTS AND IMPROVEMENTS TO REMAIN.
2. THE DISPOSAL OF ALL DEBRIS IS THE RESPONSIBILITY OF THE CONTRACTOR AND IT SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL REGULATIONS. ANY PERMITS REQUIRED FOR SUCH DISPOSAL ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. SAWCUT ASPHALT 2' MIN FROM (E) CURB, (P) CURB OR AS OTHERWISE SHOWN ON PLANS.
4. REMOVE EXISTING VEGETATION, MULCH, IRRIGATION, AND OTHER AS REQUIRED IN AREA OF PROJECT IMPROVEMENTS. CAP AND RELOCATE IRRIGATION AS NEEDED. SEE LANDSCAPE PLANS.
5. EXISTING FACILITIES (e.g. IRRIGATION, ELECTRICAL) TO REMAIN SHALL BE PROTECTED DURING CONSTRUCTION. SEE APPLICABLE LANDSCAPE, ELECTRICAL AND ARCHITECTURAL PLANS.
6. REMOVE EXISTING PCC TO LIMITS SHOWN. SAWCUT AT EXISTING SCORE AND/OR EXPANSION JOINTS WHEN POSSIBLE.
7. ANY WORK IN THE CITY ROW SHALL REQUIRE A TRAFFIC CONTROL PLAN PRIOR TO THE ISSUANCE OF ANY PERMIT.
8. ANY PAVEMENT CUT AND REPAIR WITHIN THE CITY ROW SHALL BE REPAIRED PER CITY OF SACRAMENTO STANDARDS.
9. THE CONTRACTOR SHALL COMPLY WITH PROVISIONS OF THE SAFETY AND HEALTH REGULATION FOR CONSTRUCTION, PROMULGATED BY THE SECRETARY OF LABOR UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (40 USC 327 ET SEQ.) AS SET FORTH IN TITLE 29, C.F.R., CAL/OSHA, AND THE REGULATIONS ISSUED THEREUNDER. COMPLIANCE SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY.
10. THE CONTRACTOR SHALL COMPLY WITH CURRENT CALIFORNIA FIRE CODE (CFC), CALIFORNIA CODE OF REGULATIONS, (CCR) TITLE 24, PART9, ARTICLE 87 - FIRE SAFETY DURING CONSTRUCTION ALTERATION OR DEMOLITION OF A BUILDING, SECTION 8706 - FIRE SAFETY DURING DEMOLITION.
11. CONTRACTOR SHALL PREPARE A DEMOLITION PLAN SCHEDULE TO IDENTIFY THE SEQUENCE OF SUCH WORK AND SUPPORTING DOCUMENTATION INCLUDING A RECYCLING PLAN, ANTICIPATED HAZARDOUS MATERIALS AND ABATEMENT PROCEDURES, NAME AND CERTIFICATION FOR THE INTENDED DISPOSAL AND/OR RECYCLING FACILITIES, AND DEMOLITION SAFETY PLAN. CONTRACTOR SHALL SCHEDULE ALL WORK TO COINCIDE WITH NEW CONSTRUCTION, MOVING AND FACILITY OCCUPANCY. DEMOLITION PLAN SHALL BE ACCEPTED BY THE OWNER PRIOR TO COMMENCING DEMOLITION WORK OF EXISTING STRUCTURES.
12. THE CONTRACTOR SHALL PROVIDE 72 HOUR NOTICE TO THE OWNER AND ANY AFFECTED UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY DEMOLITION ACTIVITIES.
13. EXISTING UTILITIES: LOCATE, IDENTIFY, DISCONNECT AND SEAL OR CAP OFF INDICATED UTILITIES TO BE DEMOLISHED.
14. PROTECT EXISTING LANDSCAPING MATERIALS, APPURTENANCES, AND STRUCTURES WHICH ARE NOT TO BE DEMOLISHED. PROVIDE TEMPORARY IRRIGATION WHEN IRRIGATION SUPPLY TO BE DISRUPTED.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING MOVEMENT OR SETTLEMENT OF ADJACENT STRUCTURES, AND PROTECTION OF ADJACENT UNDERGROUND UTILITIES. CONTRACTOR SHALL PROVIDE BRACING AND SHORING WHEN REQUIRED.
16. EXISTING UTILITIES TO BE REMOVED: DEMOLISH AND REMOVE EXISTING BELOW GRADE UTILITIES UNLESS OTHERWISE NOTED.
17. REMOVE MATERIALS TO BE RE-INSTALLED OR RETAINED IN MANNER TO PREVENT DAMAGE. STORE AND PROTECT.
18. BACKFILL OPEN PITS AND HOLES CAUSED AS A RESULT OF DEMOLITION WITH EXCESS SOIL ON SITE PER RECOMMENDATIONS CONTAINED IN THE SOILS REPORT FOR BACKFILL MATERIAL.
19. UNIFORMLY ROUGH GRADE AND COMPACT AREAS AFFECTED BY DEMOLITION TO MAINTAIN SITE GRADES AND CONTOURS.
20. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF CONSTRUCTION AREA AND PROTECTION OF PUBLIC SAFETY DURING ALL TIMES DURING DEMOLITION WORK.
21. HAZARDOUS MATERIALS:
    A. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS, PROCEDURES, AND ABATEMENT SPECIFICATIONS FOR THE SAFE REMOVAL OF HAZARDOUS WASTE MATERIALS.
    B. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB. NOTIFY ENGINEER & ARCHITECT.
    C. CONFORM TO APPLICABLE REGULATORY PROCEDURES WHEN DISCOVERING HAZARDOUS OR CONTAMINATED MATERIALS.
23. ALL CONCRETE AND ASPHALT PAVING WITHIN THE LIMITS SHOWN ON THE PLAN SHALL BE DEMOLISHED AND REMOVED AS DESCRIBED ON NOTE 2.
24. ALL EXISTING OVERHEAD UTILITY LINES AND ASSOCIATED POLES, GUY WIRES, ETC. WITHIN THE SCOPE OF THIS PROJECT SHALL BE REMOVED IN PREPARATION OF PLACING NEW LINES UNDERGROUND. CONTRACTOR SHALL COORDINATE THE REMOVAL OF THE UTILITY LINES WITH THE APPROPRIATE AGENCIES AND ENSURE THAT ADJACENT PROPERTY SERVICES REMAIN UNAFFECTED BY THE PROJECT DEVELOPMENT.
25. EXISTING GAS LINE SHALL BE REMOVED IN PREPARATION FOR NEW GAS SERVICE LINE INSTALLATION. CONTRACTOR SHALL COORDINATE THE REMOVAL OF THE GAS LINE WITH THE APPROPRIATE AGENCY.
26. REMOVE AND/OR ABANDON EXISTING CESSPITS AND LEACH FIELDS IN ACCORDANCE WITH STATE REQUIREMENTS.

LEGEND:

APPROXIMATE LIMITS OF CONCRETE AND ASPHALT PAVING REMOVAL

DEMOLISH EXISTING TRAILER / PAD / DECK

TREE TO BE REMOVED

40 0 40 80

1 INCH = 40 FEET

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RIVERDALE RESORT RV PARK
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DEMOLITION PLAN

Drawing	Sheet
of 6	of Total 46

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PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

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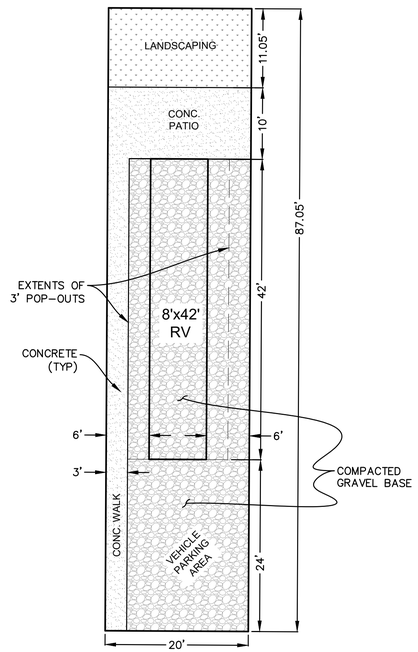
TYPICAL STALL NOTES:

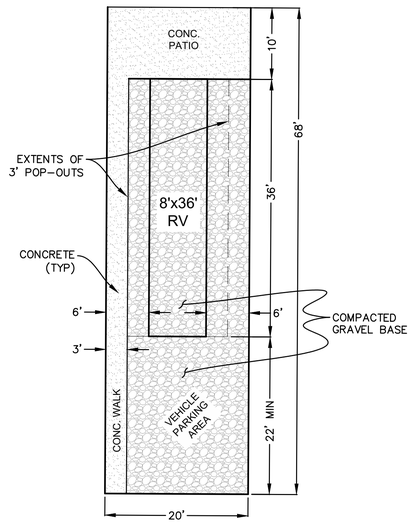
1. CONFIGURATIONS BELOW ARE GENERAL STALL LAYOUTS. ACTUAL STALL LAYOUT IS DEPENDENT ON LOT SIZE.
2. IN ALL CASES, PARKING AREA IN FRONT OF RV STALL SHALL BE NO LESS THAN 20'.
3. SETBACKS FROM SIDE LOT LINES SHALL BE NO LESS THAN 6'.
4. 3' WIDE SIDEWALK SHALL BE INSTALLED ALONG LEFT LOT LINE WHEN LOT IS VIEWED FROM THE FRONT.

SITE STATISTICS:

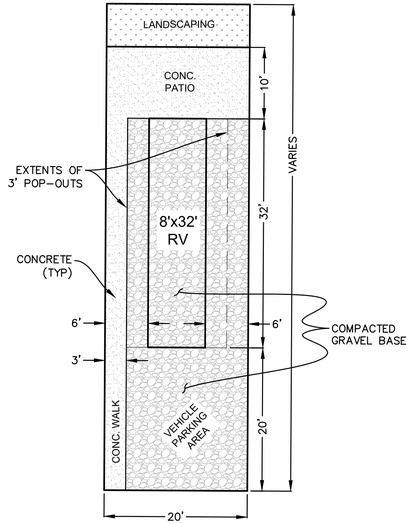
72 RV SPACES
1 COMMUNITY BUILDING & LAUNDRY
1 COMMUNITY RESTROOMS AND SHOWERS
3 TRASH ENCLOSURES



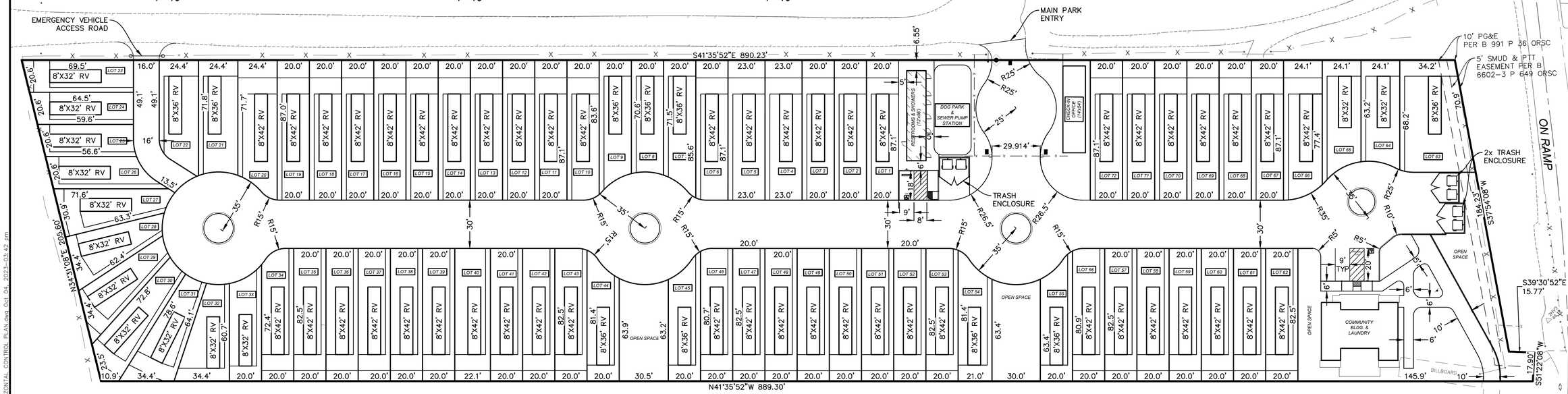
TYPICAL 42' RV STALL DETAIL
1"=10'

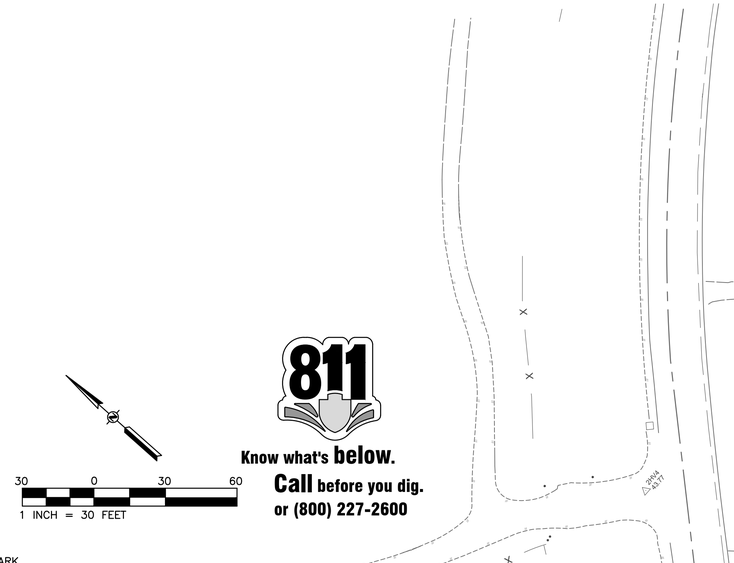


TYPICAL 36' RV STALL DETAIL
1"=10'



TYPICAL 32' RV STALL DETAIL
1"=10'





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REGISTERED PROFESSIONAL ENGINEER ANTHONY S. MCGREANEY No. C90888 Exp. 03/31/24 CIVIL STATE OF CALIFORNIA

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

HORIZONTAL CONTROL PLAN - RV PARK LAYOUT

Drawing	Sheet
	C6
of	of Total
7	46

10-04-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\C6 HORIZONTAL CONTROL PLAN.dwg Oct 04, 2023-03:42 pm

CONTRACTOR TO COORDINATE IMPROVEMENTS WITH PROPERTY OWNER PRIOR TO CONSTRUCTION.

31.60 AC MATCH (E)

31.71 AC MATCH (E)

10" TREE

MATCH LINE - SEE SHEET C7.2

MATCH LINE - SEE SHEET C7.2

N41°35'52"W 889.30'

AMERICAN RIVER

20' WALNUT

19" SYCAMORE

39" SYCAMORE

30" SYCAMORE

36" SYCAMORE

60" COTTON

30" WALNUT

9" WALNUT

8" WALNUT

75" COTTON

48" COTTON

7" ORANGE TREE

21" OAK

24" WALNUT

20" ASH

14" ASH

11" WALNUT

54" COTTON

LEGEND:

- HEAVY DUTY AC (TI=6.0) 3.0" AC / 5.0" CL 2 AB. SEE DETAIL 7/C11.
- HEAVY DUTY PCC (TI=6.0) 6.0" PCC / 5.0" CL 2 AB SEE DETAIL 7/C11
- RV UNIT 6.0" CL 2 AB
- PEDESTRIAN PCC 4.0" PCC/ 4.0" CL 2 AB
- PERVIOUS PAVERS SEE DETAIL 6, SHEET C11
- LANDSCAPING SEE LANDSCAPE PLANS
- DRAINAGE FLOW DIRECTION
- OVERLAND RELEASE
- FINISHED GRADE ELEVATION OF PAD — FG: XX.XX
- PERVIOUS PAVERS SPOT ELEVATION — XX.XX / PP

NOTE:

WITH EXCEPTION TO THE PERVIOUS PAVERS, ALL PAVING SECTIONS AND RV UNIT ROCK SECTIONS SHALL HAVE A MINIMUM 12"-THICK SUBGRADE COMPACTED TO 95% RELATIVE COMPACTION. CLASS 2 AGGREGATE BASE SHALL BE COMPACTED TO 95% RELATIVE COMPACTION. SEE GEOTECHNICAL REPORT FOR ADDITIONAL SUBGRADE PREPARATION AND PAVEMENT RECOMMENDATIONS.

GRADING CONSTRUCTION NOTES:

1. INSTALL HEAVY DUTY CONCRETE PAVING PER PAVING SECTION ABOVE AND DETAIL 7, SHEET C11.
2. CONSTRUCTION CONCRETE WALKWAY PER DETAILS 3 AND 7, SHEET C11.
3. CONSTRUCT PERVIOUS PAVERS DRIVEWAY. SEE DETAIL 6, SHEET C11 FOR TYPICAL SECTION AND DETAIL.
4. CONSTRUCT RAISED CURB PER DETAIL 2, SHEET C11.
5. CONSTRUCT TRASH ENCLOSURE PER ARCHITECTURAL PLANS.
6. PROTECT (E) TREE.
7. CONSTRUCT GRAVEL PAD FOR RV UNIT. SEE TYPICAL RV STALL LAYOUT SHEET C6. COORDINATE UTILITY SERVICE LOCATIONS TO UNIT ***PRIOR*** TO PLACING PAD.
8. CONSTRUCT ACCESSIBLE CURB RAMP PER DETAIL 4, SHEET C11.
9. CONSTRUCT BARRIER CURB PER DETAIL 1, SHEET C11.
10. INSTALL NEW SWINGING GATE, POSTS AND GATE OPERATER. TO BE CHOSEN BY OWNER.
11. INSTALL NEW GATE ENTRY PEDESTAL. TO BE CHOSEN BY OWNER.
12. INSTALL NEW FENCING. FENCING TO BE CHOSEN BY OWNER.

GRADING NOTES:

1. ALL VALVES, MANHOLES, CLEANOUTS, DI'S, ETC. WITHIN LIMITS OF CONSTRUCTION TO BE ADJUSTED TO FINISH GRADE AS NEEDED.
3. SEE PAVEMENT SECTIONS ON SHEET C11.
4. VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
5. SUBGRADE SOILS BENEATH NON-PERVIOUS PAVEMENT SHOULD BE SCARIFIED, MOISTURE CONDITIONED, AND COMPACTED TO 95% RELATIVE COMPACTION TO A MINIMUM DEPTH OF 12-INCHES. THE MOISTURE CONTENT AND COMPACTION OF THE SUBGRADE SOILS SHOULD BE MAINTAINED UNTIL SLAB OR PAVEMENT CONSTRUCTION.
6. CONTRACTOR TO PROVIDE SOIL TESTING DURING CONSTRUCTION AND PROVIDE DOCUMENTATION WITH TESTING RESULTS TO OWNER.

20 0 20 40
1 INCH = 20 FEET

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				RFE	TSM	

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REGISTERED PROFESSIONAL ENGINEER ANTHONY S. MCCREARY No. C90888 Exp. 03/31/24 CIVIL STATE OF CALIFORNIA

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

GRADING, DRAINAGE & PAVING PLAN 1

Drawing C7.1 of 8
Sheet of Total 46

10-04-2023

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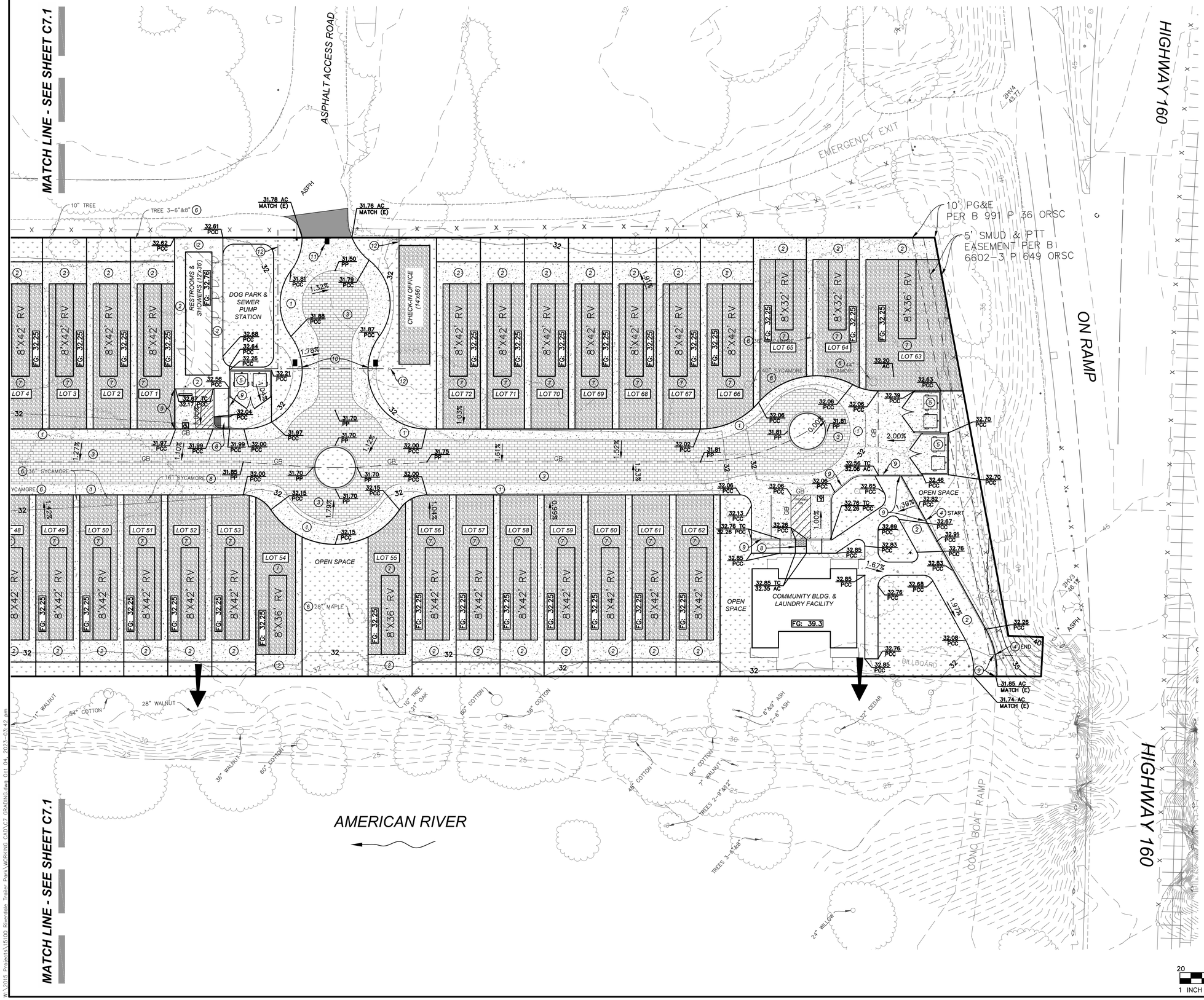
PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA



LEGEND:

- HEAVY DUTY AC (TI=6.0) 3.0" AC / 5.0" CL 2 AB. SEE DETAIL 7/C11.
- HEAVY DUTY PCC (TI=6.0) 6.0" PCC / 5.0" CL 2 AB SEE DETAIL 7/C11
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- PERVIOUS PAVERS SEE DETAIL 6, SHEET C11
- LANDSCAPING SEE LANDSCAPE PLANS
- DRAINAGE FLOW DIRECTION
- OVERLAND RELEASE
- FINISHED GRADE ELEVATION OF PAD — FG: XX.XX
- PERVIOUS PAVERS SPOT ELEVATION — XX.XX / PP

NOTE:

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GRADING CONSTRUCTION NOTES:

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2. CONSTRUCTION CONCRETE WALKWAY PER DETAILS 3 AND 7, SHEET C11.
3. CONSTRUCT PERVIOUS PAVERS DRIVEWAY. SEE DETAIL 6, SHEET C11 FOR TYPICAL SECTION AND DETAIL.
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5. CONSTRUCT TRASH ENCLOSURE PER ARCHITECTURAL PLANS.
6. PROTECT (E) TREE.
7. CONSTRUCT GRAVEL PAD FOR RV UNIT. SEE TYPICAL RV STALL LAYOUT SHEET C6. COORDINATE UTILITY SERVICE LOCATIONS TO UNIT **PRIOR** TO PLACING PAD.
8. CONSTRUCT ACCESSIBLE CURB RAMP PER DETAIL 4, SHEET C11.
9. CONSTRUCT BARRIER CURB PER DETAIL 1, SHEET C11.
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12. INSTALL NEW FENCING. FENCING TO BE CHOSEN BY OWNER.

GRADING NOTES:

1. ALL VALVES, MANHOLES, CLEANOUTS, DI'S, ETC. WITHIN LIMITS OF CONSTRUCTION TO BE ADJUSTED TO FINISH GRADE AS NEEDED.
3. SEE PAVEMENT SECTIONS ON SHEET C11.
4. VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
5. SUBGRADE SOILS BENEATH NON-PERVIOUS PAVEMENT SHOULD BE SCARIFIED, MOISTURE CONDITIONED, AND COMPACTED TO 95% RELATIVE COMPACTION TO A MINIMUM DEPTH OF 12-INCHES. THE MOISTURE CONTENT AND COMPACTION OF THE SUBGRADE SOILS SHOULD BE MAINTAINED UNTIL SLAB OR PAVEMENT CONSTRUCTION.
6. CONTRACTOR TO PROVIDE SOIL TESTING DURING CONSTRUCTION AND PROVIDE DOCUMENTATION WITH TESTING RESULTS TO OWNER.

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1 INCH = 20 FEET

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REGISTERED PROFESSIONAL ENGINEER ANTHONY S. MCCREARY No. C90888 Exp. 03/31/24 CIVIL STATE OF CALIFORNIA

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

GRADING, DRAINAGE & PAVING PLAN 2

Drawing	Sheet
	C7.2
of 9	of Total 46

10-04-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

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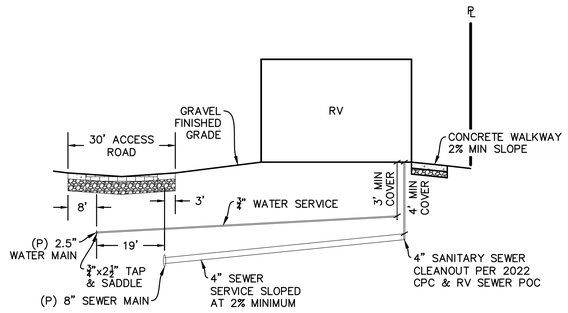
SANITARY SEWER PIPE TABLE				
PIPE #	SIZE	LENGTH	MATERIAL	SLOPE
SS1	8"	240 LF	SDR-35 PVC	0.50%
SS2	8"	223 LF	SDR-35 PVC	0.50%
SS3	8"	281 LF	SDR-35 PVC	0.50%
SS10	6"	16 LF	SDR-35 PVC	0.50%
SS11	6"	60 LF	SDR-35 PVC	0.50%
SS12	6"	65 LF	SDR-35 PVC	0.50%

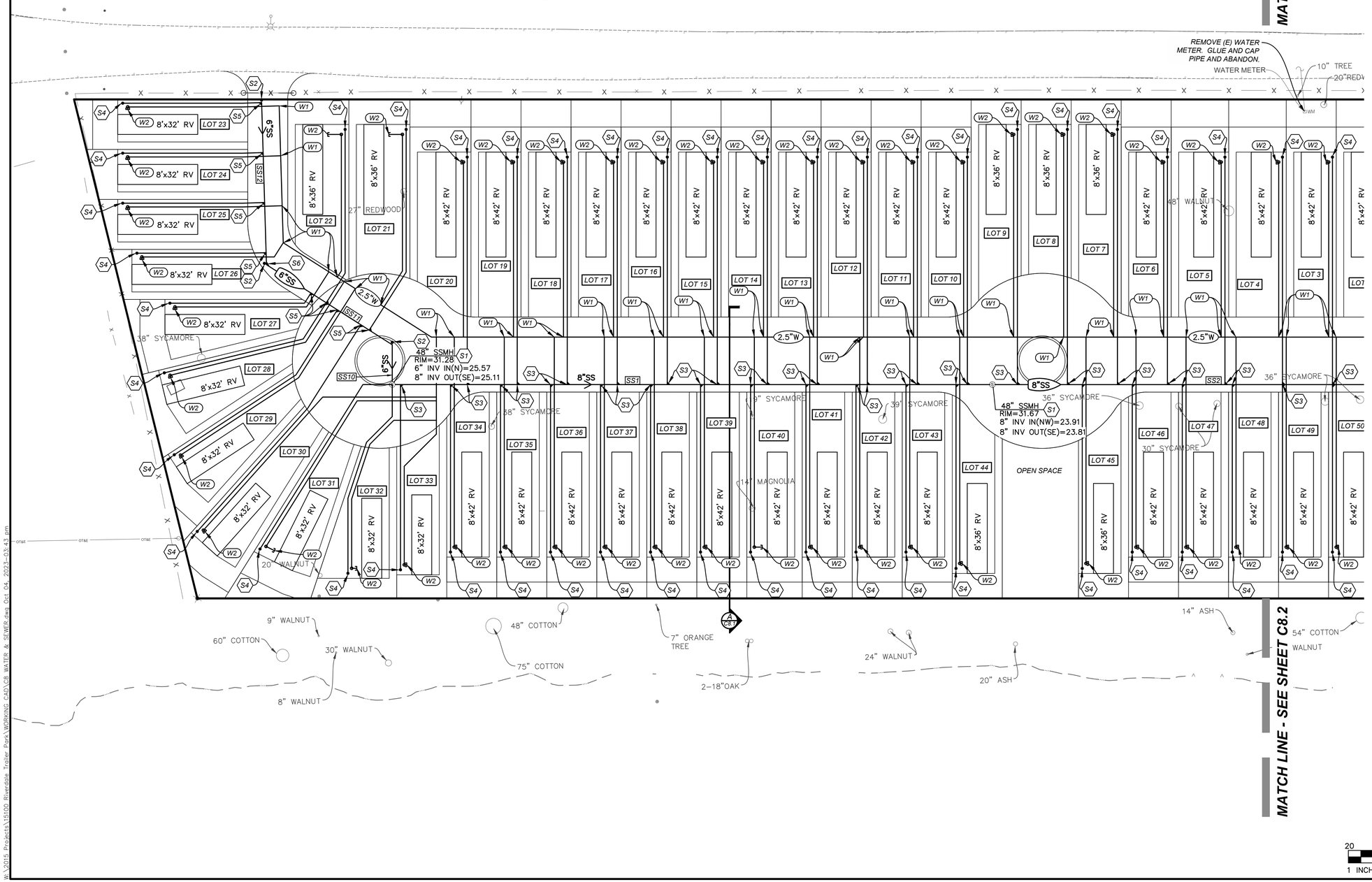
NOTICE TO CONTRACTOR - ORDER OF WORK:

PRIOR TO THE START OF ANY CIVIL WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST.



A — TYPICAL WATER & SEWER SERVICES DETAIL

NOT TO SCALE



SANITARY SEWER CONSTRUCTION NOTES:

- (S1) INSTALL 48"Ø JENSEN PRECAST (OR APPROVED EQUAL) H-20 TRAFFIC RATED SANITARY SEWER MANHOLE.
- (S2) INSTALL 6" SANITARY SEWER CLEANOUT PER 2022 CPC.
- (S3) INSTALL 8" WYE WITH 90° ELBOW AND 8"x4" REDUCER.
- (S4) SEWER POINT OF CONNECTION TO RV OR BUILDING. INSTALL 4" SANITARY SEWER CLEANOUT PER 2022 CPC. INSTALL CLEANOUT INVERT 4' MINIMUM DEEP FROM FINISHED GRADE. SEE DETAIL A, SHEET C8.1 AND DETAILS 4 AND 6, SHEET C12.
- (S5) INSTALL 6" WYE WITH 90° ELBOW AND 6"x4" REDUCER.
- (S6) INSTALL 6"x6"x4" REDUCING WYE WITH 45° ELBOW.
- (S7) INSTALL 48"Ø JENSEN PRECAST (OR APPROVED EQUAL) SANITARY SEWER MANHOLE AND PUMP STATION. SEE SHEET C9.1 FOR DETAILS.

WATER CONSTRUCTION NOTES:

- (W1) INSTALL ¾" WATER SERVICE PER MODIFIED CITY OF SACRAMENTO DETAIL W-405. SEE DETAIL ON SHEET C13.
- (W2) WATER POINT OF CONNECTION TO RV OR BUILDING. SEE DETAIL A, SHEET C8.1 AND DETAILS 4 AND 5, SHEET C12.
- (W3) INSTALL 2" ZURN WILKINS MODEL 975XL BACKFLOW PREVENTOR (OR APPROVED EQUAL).
- (W4) CONTRACTOR TO VERIFY LOCATION OF (E) 2.5" WATER LINE IN ACCESS ROAD AND CONNECT INTO (E) WATER SERVICE LINE. CONTRACTOR TO VERIFY SIZE OF LINE IS 2.5" PRIOR TO ANY CONSTRUCTION ACTIVITIES. IF SIZE IS DIFFERENT, CONTRACTOR SHALL NOTIFY CWE.
- (W5) INSTALL NEW 2" SENSUS OMNI R2 WATER SUB-METER.

NOTES:

1. THE CONTRACTOR SHALL POTHOLE AND VERIFY THE DEPTH OF ALL EXISTING UTILITIES PRIOR TO THE INSTALLATION OF PROPOSED WATER DISTRIBUTION FACILITIES. ANY UNANTICIPATED CONFLICTS SHALL BE REDESIGNED PRIOR TO BEGINNING WORK.
2. CONTRACTOR TO COORDINATE TRENCHING FOR TELEPHONE, CABLE POWER AND GAS WITH JOINT TRENCH CONSULTANT AND UTILITY COMPANY.
3. CONTRACTOR TO VERIFY SEWER POINT OF CONNECTION WITH PLUMBING AND ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
4. UNDERGROUND ELECTRICAL, TV LINES, AND SITE LIGHTING SHOWN FOR REFERENCE ONLY. VERIFY LOCATIONS AND DETAILS WITH PLANS BY JOINT TRENCH CONSULTANT.
5. ALL SEWER PIPE SHALL BE SDR-35 PVC.
6. ALL WATER PIPE SHALL BE PE4710 POLYETHYLENE PRESSURE PIPE TYPE WITH DR11 PRESSURE RATING MINIMUM.
7. SEE DETAILS 7 AND 8 ON SHEET C12 FOR UTILITY TRENCH PLACEMENT.

MATCH LINE - SEE SHEET C8.2

20 0 20 40
1 INCH = 20 FEET

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TSM	RFE

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REGISTERED PROFESSIONAL ENGINEER — ANTHONY S. MCCRARY — No. C90888 Exp. 03/31/24 — CIVIL — STATE OF CALIFORNIA

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

WATER & SANITARY SEWER PLAN 1

Drawing	Sheet
of 10	C8.1 of Total 46

10-04-2023

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PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD, SACRAMENTO, CA

SANITARY SEWER PIPE TABLE				
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SANITARY SEWER CONSTRUCTION NOTES:

S1. *INSTALL 48"Ø JENSEN PRECAST (OR APPROVED EQUAL) H-20 TRAFFIC RATED SANITARY SEWER MANHOLE.*

S2. *INSTALL 6" SANITARY SEWER CLEANOUT PER 2022 CPC.*

S3. *INSTALL 8" WYE WITH 90° ELBOW AND 8"x4" REDUCER.*

S4. *SEWER POINT OF CONNECTION TO RV OR BUILDING. INSTALL 4" SANITARY SEWER CLEANOUT PER 2022 CPC. INSTALL CLEANOUT INVERT 4' MINIMUM DEEP FROM FINISHED GRADE. SEE DETAIL A, SHEET C8.1 AND DETAILS 4 AND 6, SHEET C12.*

S5. *INSTALL 6" WYE WITH 90° ELBOW AND 6"x4" REDUCER.*

S6. *INSTALL 6"x6"x4" REDUCING WYE WITH 45° ELBOW.*

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W3. *INSTALL 2" ZURN WILKINS MODEL 975XL BACKFLOW PREVENTOR (OR APPROVED EQUAL).*

W4. *CONTRACTOR TO VERIFY LOCATION OF (E) 2.5" WATER LINE IN ACCESS ROAD AND CONNECT INTO (E) WATER SERVICE LINE. CONTRACTOR TO VERIFY SIZE OF LINE IS 2.5" PRIOR TO ANY CONSTRUCTION ACTIVITIES. IF SIZE IS DIFFERENT, CONTRACTOR SHALL NOTIFY CWE.*

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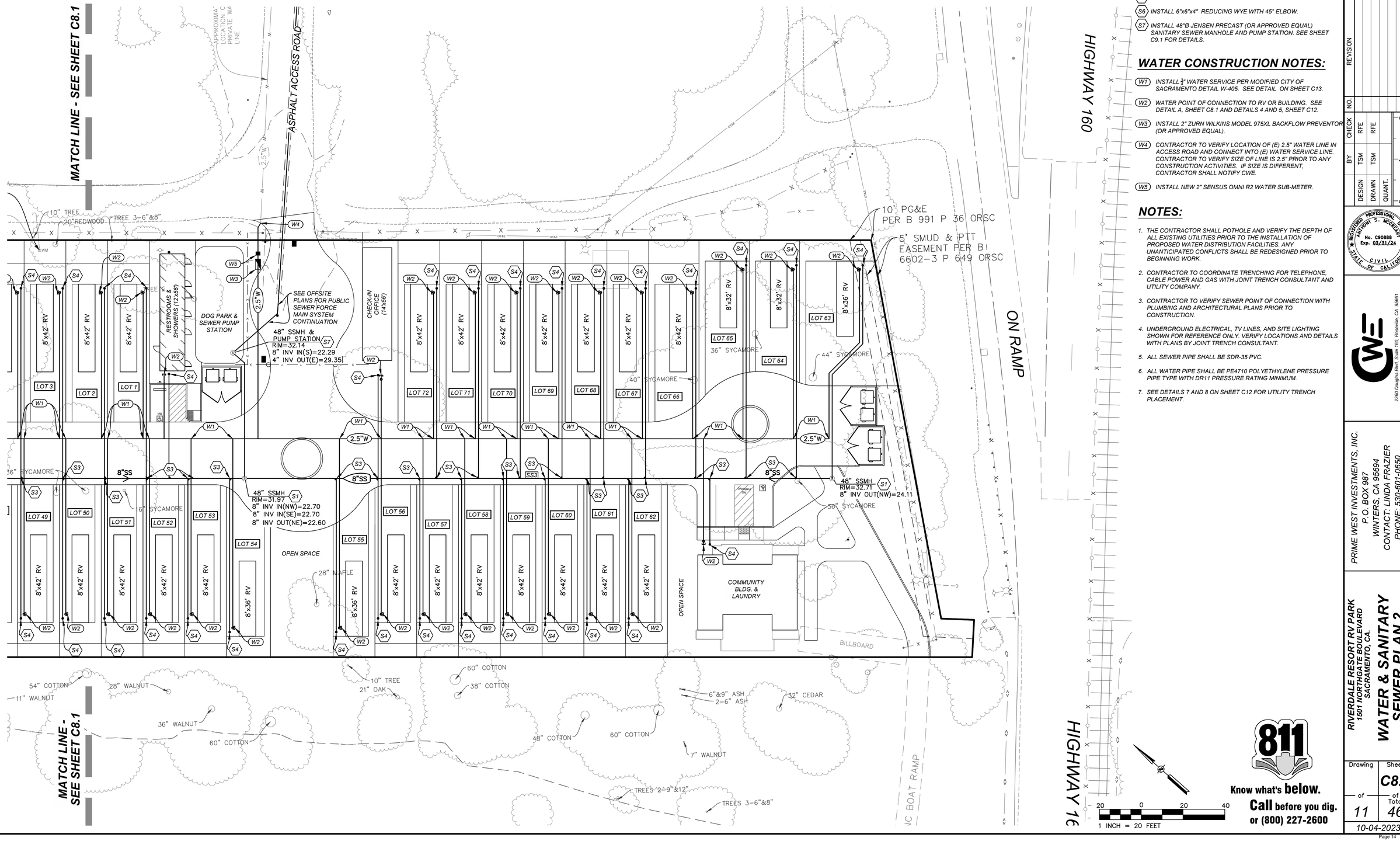

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WATER & SANITARY SEWER PLAN 2

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Drawing	Sheet
	C8.2
of 11	of Total 46

10-04-2023

Page 14

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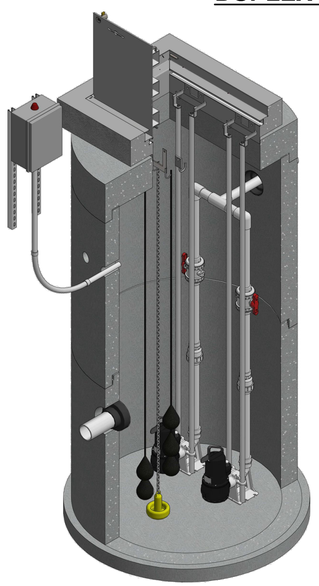
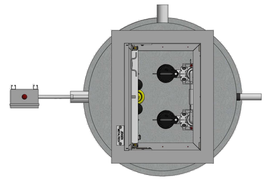
PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

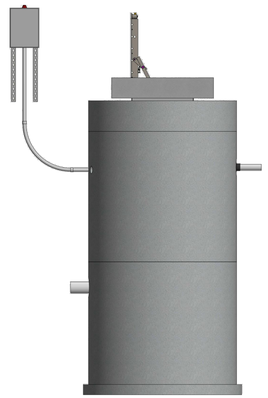
248-D SERIES STANDARD DUPLEX PUMP STATION



TOP LEFT ISOMETRIC VIEW w/ SECTION
NOT TO SCALE



PLAN VIEW
NOT TO SCALE



PROFILE VIEW
NOT TO SCALE

248-D Series Standard.rfaw

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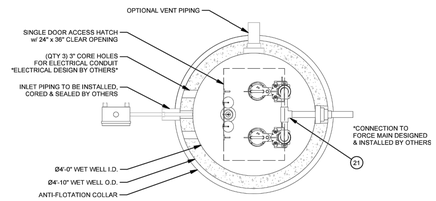
2.) These layout drawings are intended to show overall system design only. All concrete component thicknesses, dimensions, and joint orientations may vary across Jensen Precast's manufacturing facilities. Contractor to confirm all thicknesses, dimensions, and joint orientations prior to installation.
3.) System design criteria has been provided to Jensen Precast. Others are responsible for verification that system meets intended application.
4.) Foundation, subgrade, and backfill to be designed by others.

JENSEN PUMP STATIONS
521 DUNN CIRCLE, SPARKS, NV 89431
www.jensenwaterresources.com
(855) 468-5600

DESCRIPTION: RIVERDALE MOBILE HOME PARK
REV:
SHEET: 1 OF 2
PART NUMBER: 248-D Series Standard
DRAWN BY: J. EATON
CREATED:
MODIFIED: 01/31/2023



PLAN VIEW
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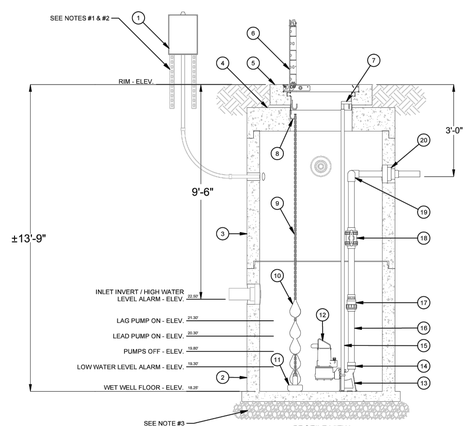

PROFILE VIEW
NOT TO SCALE

248-D Series Standard.rfaw

GENERAL NOTES
1.) Others responsible for sizing, design, supply and installation of elect/cal conduits. Contractor responsible for verifying pump and level detection cable lengths are adequate.
2.) Others responsible for force main and force main connection design.
3.) Inlet pipe shown for clarity only. Others responsible for providing pipe.

INSTALLATION NOTES
1.) Precast concrete joints to be sealed using butyl rubber compound supplied by Jensen Precast.
2.) Contractor to adjust elevation of frame and cover in field as necessary.
3.) Contractor to provide all pipe openings in field as necessary.
4.) Contractor to grout all pipe penetrations in precast concrete openings in field as necessary.

DESIGN NOTES
1.) Designed in accordance with ASTM C890 and ACI 318 for AASHTO HS-20 traffic loading.
2.) Structures are not suitable for additional loading conditions, such as but not limited to : footing loads, foundation loads, seismic loads, etc.
3.) Groundwater assumed to be below bottom of structure.
4.) Bury depth is assumed to be between 1-FT to 5-FT to top of structure / bury depth is as indicated on layout drawing.

DISCLAIMERS:
1. Control panel installation, mounting design & hardware by others.
2. Final control panel location to be determined according to project requirements. Consult all submitted pump and level control cable lengths when determining the control panel location.
3. All foundation, subgrade & backfill designed by others.

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION
1	1	DUPLEX ALTERNATING CONTROL PANEL
2	1	48IN DIA JENSEN PRECAST CONCRETE MANHOLE BASE *HEIGHT VARIES*
3	1	48IN DIA JENSEN PRECAST CONCRETE MANHOLE BARREL *HEIGHT VARIES *
4	1	48IN DIA JENSEN PRECAST CONCRETE MANHOLE FLAT TOP
5	1	JENSEN PRECAST CONCRETE HATCH RISER
6	1	SINGLE DOOR HATCH WITH A CLEAR OPENING OF 24IN X 36IN
7	2	UPPER GUIDE RAIL BRACKET 2IN
8	1	FLOAT BRACKET 3 HOOK TYPE 316SS
9	10 LF	LF CHAIN 1/4IN 316SS
10	5	FLOAT SWITCH w/ 100' CABLE
11	1	ANCHOR 15LB PVC COATED
12	2	2IN SUBMERSIBLE PUMP
13	2	AUTOCOUPLING ASSY 2IN STD
14	2	ADAPTER 2IN FML THRD X SLIP SCH 80 PVC
15	40 LF	LF PIPE 1IN SCH40 GLIDE RAIL 304SS
16	20 LF	LF PIPE PVC SCH 80 2IN DIA
17	2	BALL CHECK VALVE 2IN SCH 80 PVC SLIP
18	2	BALL VALVE 2IN SCH 80 PVC SLIP
19	2	90 DEG ELBOW 2IN SCH 80 PVC SLIP
20	1	FLEXIBLE PIPE CONNECTOR
21	1	FITTING PVC TEE 2IN SCH 80 SLIP

PROJECT SPECIFIC INFORMATION

FINISHED GRADE (FI.)	32.00 FT.
RIM ELEV. (FI.)	32.00 FT.
INLET ELEV. (FI.)	22.50 FT.
FORCE MAIN DISCHARGE ELEV. (FI.)	29.00 FT.
AVAILABLE POWER SUPPLY	120V ☐ 240V ☑ 480V ☐
AVAILABLE POWER PHASE	Single ☐ Three ☑

SYSTEM CHARACTERISTICS

APPLICATION	SEWAGE ☑ STORM WATER ☐
DESIGN FLOW (gpm)	20 GPM
TOTAL DYNAMIC HEAD (Ft.)	36.8 TDH
STATIC HEAD (Ft.)	9.0 FT.
PUMP MAKE & MODEL	HOMA GRP12/3FM
PUMP MOTOR (Std / XP)	Standard ☐ XP/IFM ☑
PUMP TYPE	Non-Clog ☐ Grinder ☑ Chopper ☐ Vortex ☐
PUMP RATED HP & CURRENT	1.2 HP / 3.6 A
ACCESS HATCH LOAD LEVEL	Pedestrian ☐ Incidental H-20 ☑ Parking Lot H-20 ☐ Full Traffic H-20 ☐

ADDITIONAL OPTIONS

OPTION	YES	NO
CONTROL PANEL SS ENCLOSURE	☐	☑
CONTROL PANEL AC UNIT	☐	☑
CONTROL PANEL REMOTE ALARM MONITORING	☐	☑
AIR RELEASE/VACUUM VALVE	☐	☑
INTERIOR LINER	☐	☑
CONCRETE WATERPROOFING	☐	☑
VENT PIPE	☐	☑
ODOR CONTROL VALVE	☐	☑
LIFTING CRANE	☐	☑
GENERATOR RECEPTACLE	☐	☑

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DESCRIPTION: RIVERDALE MOBILE HOME PARK
REV:
SHEET: 2 OF 2
PART NUMBER: 248-D Series Standard
DRAWN BY: J. EATON
CREATED:
MODIFIED: 01/31/2023

	NO.	REVISION	DATE	BY	APPR'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

ORIGINAL SCALE IS IN INCHES (0, 1, 2)

REGISTERED PROFESSIONAL ENGINEER
ANTHONY S. MCGREANEY
No. C90888
Exp. 03/31/24
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STATE OF CALIFORNIA

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PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

SANITARY SEWER LIFT STATION DETAILS 1

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

Drawing 12 of Total 46
Sheet C9.1

10-04-2023

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Drawing	Sheet
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of 13	of Total 46

10-04-2023

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

SANITARY SEWER LIFT STATION DETAILS 2

PRIME WEST INVESTMENTS, INC.
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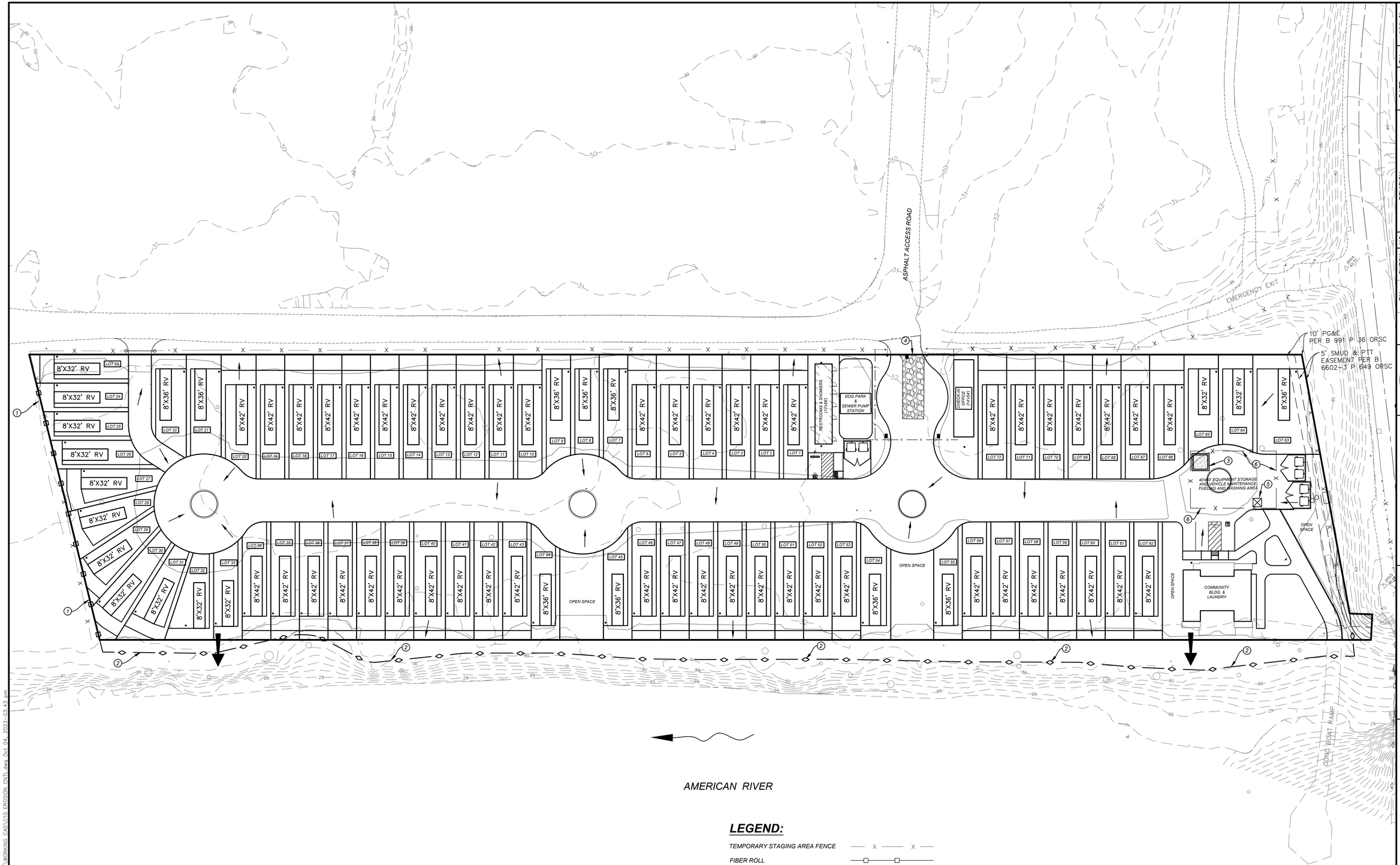

LEGEND:

- TEMPORARY STAGING AREA FENCE
- FIBER ROLL
- SILT FENCE
- SURFACE FLOW
- CONCRETE WASHOUT
- PORTABLE TOILET
- OVERLAND RELEASE
- STABILIZED CONSTRUCTION ENTRANCE

30 0 30 60

1 INCH = 30 FEET

CONSTRUCTION NOTES:

1. PLACE FIBER ROLL PER DETAIL 4, SHEET C10.2. - REF. CASQA BMP SE-5.
2. PLACE SILT FENCE AT TOP OF SLOPE BANK PER DETAIL 1, SHEET C10.2.
3. CONCRETE WASHOUT PER DETAIL 2, SEE SHEET C10.2.- REF. CASQA BMP WM-8.
4. PLACE TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT PER DETAIL 3, SHEET C10.2. -REF. CASQA BMP TC-1.
5. PLACE PORTABLE TOILET FOR USE DURING CONSTRUCTION. ANCHOR TO PREVENT OVERTURNING - REF. CASQA BMP WM-9.
6. STAGING AREA, MATERIAL STORAGE, TEMPORARY STOCKPILE STORAGE AREA, FUELING AREA.

811 Know what's **below.** **Call** before you dig. or (800) 227-2600

NO.	REVISION	DATE	BY	APPR'D

	BY	CHECK
DESIGN	TSM	RFE
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REGISTERED PROFESSIONAL ENGINEER ANTHONY S. MCGRATH No. C90888 Exp. 03/31/24 CIVIL STATE OF CALIFORNIA

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RIVERDALE RESORT RV PARK
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SACRAMENTO, CA.

EROSION CONTROL AND SEDIMENT CONTROL PLAN

Drawing	Sheet
	C10.1
of 14	of Total 46

10-04-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD, SACRAMENTO, CA

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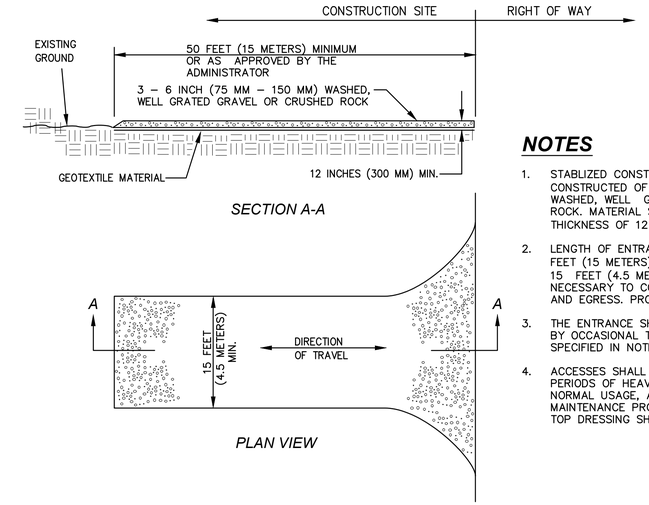
EROSION AND SEDIMENT CONTROL NOTES:

1. THE CONTRACTOR SHALL FOLLOW ALL JURISDICTIONAL GUIDELINES FOR GRADING AND THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN OR STATED ON THESE PLANS.
2. CONTRACTOR MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE ONSET OF ANY STORM. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FOR THE WINTER MONTHS PRIOR TO OCTOBER 1.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.
4. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD SUBJECT TO THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.
5. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
6. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMPS OR EROSION AND SEDIMENT CONTROL PLAN.
7. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.
8. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE. THE STABILIZED CONSTRUCTION ENTRANCE SHALL REMAIN IN PLACE UNTIL THE ROAD BASE ROCK COURSE IS COMPLETED.
9. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR AS NECESSARY.
10. CONTRACTOR SHALL PLACE GRAVEL BAG BARRIERS AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE GRAVEL BAG BARRIERS SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.
11. CONTRACTOR SHALL FOLLOW DUST CONTROL METHODS INCLUDING:
    A. WATERING THE SOIL OF THE SITE AND THE ADJACENT STREETS BEING USED IN CONNECTION WITH SOIL DISTURBANCE OPERATIONS ON THE SITE.
    B. COMPLETELY COVER GRAVEL OR ROCK LANDSCAPING UNTIL STABILIZED.
    C. WATER GRASSES AND LANDSCAPING UNTIL STABILIZED.
12. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:
    A. SOLID WASTE MANAGEMENT:
       PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.
    B. MATERIAL DELIVERY AND STORAGE:
       PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.
    C. CONCRETE WASTE:
       PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE CITY STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.
    D. PAINT AND PAINTING SUPPLIES:
       PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.
    E. VEHICLE FUELING, MAINTENANCE AND CLEANING:
       PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ON-SITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.
    F. HAZARDOUS WASTE MANAGEMENT:
       PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE, WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZATION STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.

EROSION AND SEDIMENT CONTROL MEASURES

PHASE OF CONSTRUCTION	(WET SEASON)				(WET AND DRY SEASON)								
	HYDRO-SEEDING	STRAW MULCHING & TACTIFIER	PRESERVATION OF EXISTING VEGETATION	SOIL BINDERS	FIBER ROLLS	OUTLET PROTECTION	STORM DRAIN INLET PROTECTION	DEWATERING	STABILIZED CONSTRUCTION ENTRANCE	MATERIAL & WASTE DISPOSAL LOCATION	CONCRETE WASHOUT	DUST CONTROL	SEDIMENT TRAP
PRE-GRADING			●		●		●		●	●		●	●
CUT AND FILL ACTIVITIES	●	●		●				●				●	●
UNDERGROUND WORK												●	
CURB & GUTTER							●					●	
STREET IMPROVEMENTS					●							●	
POST CONSTRUCTION	●	●	●										

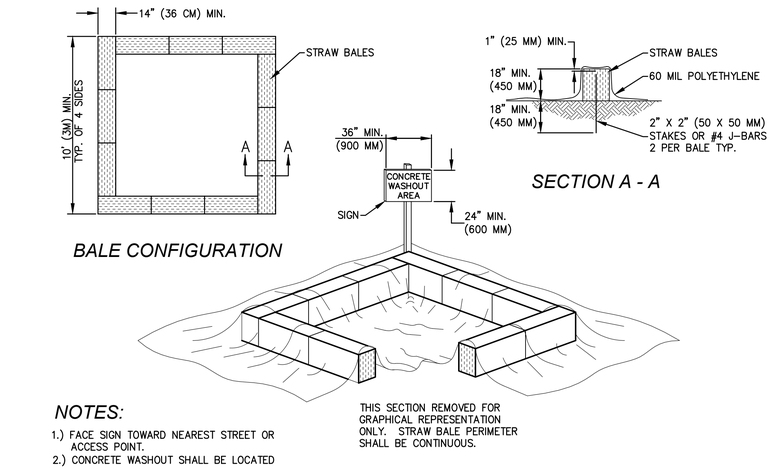
NOTES:
1. ALL EROSION BMPs SHALL BE IN PLACE PRIOR TO STORM EVENTS AND IN ACCORDANCE WITH THE LATEST EDITION OF SECTION II OF THE IMPROVEMENT STANDARDS AND THE CALIFORNIA STORM WATER HANDBOOK.
2. MAINTAIN BMP'S AS NECESSARY.



NOTES

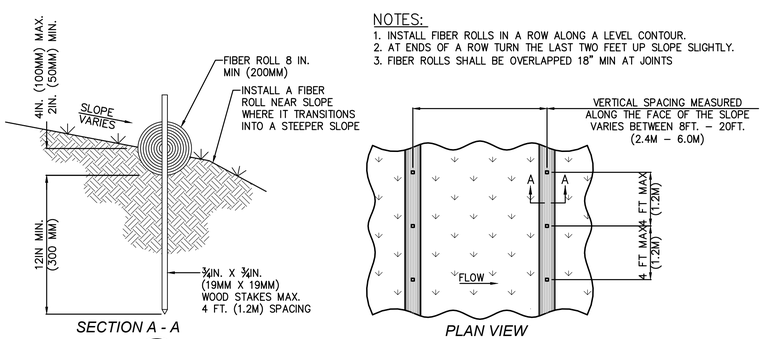
1. STABLIZED CONSTRUCTION SITE ACCESS SHALL BE CONSTRUCTED OF 3–6 INCH (75–125 MM) WASHED, WELL GRATED GRAVEL OR CRUSHED ROCK. MATERIAL SHALL BE PLACED TO A MINIMUM THICKNESS OF 12 INCHES (300 MM).
2. LENGTH OF ENTRANCE SHALL BE A MINIMUM OF 50 FEET (15 METERS). WIDTH SHALL BE A MINIMUM OF 15 FEET (4.5 METERS) OR GREATER IF NECESSARY TO COVER ALL VEHICULAR INGRESS AND EGRESS. PROVIDE AMPLE TURNING RADII.
3. THE ENTRANCE SHALL BE KEPT IN GOOD CONDITION BY OCCASIONAL TOP DRESSING WITH MATERIAL AS SPECIFIED IN NOTE 1.
4. ACCESSES SHALL BE INSPECTED WEEKLY DURING PERIODS OF HEAVY USAGE, MONTHLY DURING NORMAL USAGE, AND AFTER EACH RAINFALL, WITH MAINTENANCE PROVIDED AS NECESSARY. PERIODIC TOP DRESSING SHALL BE DONE AS NEEDED.

3 – CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE



NOTES:
1.) FACE SIGN TOWARD NEAREST STREET OR ACCESS POINT.
2.) CONCRETE WASHOUT SHALL BE LOCATED

2 – CONCRETE WASHOUT
NOT TO SCALE



4 – FIBER ROLL DETAIL
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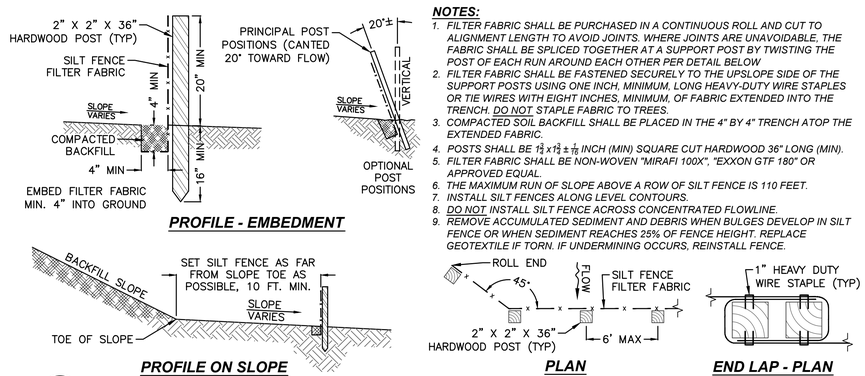

NOTES:
1. *FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO ALIGNMENT LENGTH TO AVOID JOINTS. WHERE JOINTS ARE UNAVOIDABLE, THE FABRIC SHALL BE SPLICED TOGETHER AT A SUPPORT POST BY TWISTING THE POST OF EACH RUN AROUND EACH OTHER PER DETAIL BELOW*
2. *FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE SUPPORT POSTS USING ONE INCH, MINIMUM, LONG HEAVY-DUTY WIRE STAPLES OR TIE WIRES WITH EIGHT INCHES, MINIMUM, OF FABRIC EXTENDED INTO THE TRENCH. DO NOT STAPLE FABRIC TO TREES.*
3. *COMPACTED SOIL BACKFILL SHALL BE PLACED IN THE 4" BY 4" TRENCH ATOP THE EXTENDED FABRIC.*
4. *POSTS SHALL BE $1\frac{1}{2} \times 1\frac{1}{2} \pm \frac{1}{16}$ INCH (MIN) SQUARE CUT HARDWOOD 36" LONG (MIN).*
5. *FILTER FABRIC SHALL BE NON-WOVEN "MIRAFI 100X", "EXXON GTF 180" OR APPROVED EQUAL.*
6. *THE MAXIMUM RUN OF SLOPE ABOVE A ROW OF SILT FENCE IS 110 FEET.*
7. *INSTALL SILT FENCES ALONG LEVEL CONTOURS.*
8. *DO NOT INSTALL SILT FENCE ACROSS CONCENTRATED FLOWLINE.*
9. *REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.*

1 – SILT FENCE DETAIL
NOT TO SCALE

NO.	REVISION	DATE	BY	APPR'D

DESIGN	TSM	CHECK	RFE
DRAWN	TSM		RFE
QUANT.			

ORIGINAL SCALE IS IN INCHES (0 – 1 – 2)

REGISTERED PROFESSIONAL ENGINEER
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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

EROSION & SEDIMENT CONTROL NOTES & DETAILS

Drawing	Sheet
	C10.2
of 15	of Total 46

10-04-2023
Page 18

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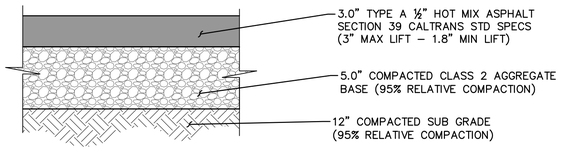
PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

NOTE:

PAVEMENT SECTIONS SHALL BE PER PROJECT GEOTECHNICAL REPORT

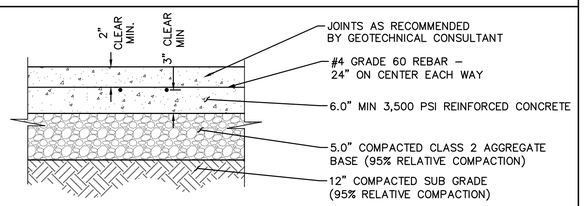
ASPHALT PAVEMENT



HEAVY DUTY ASPHALT DETAIL (TI = 6.0)

NOT TO SCALE

CONCRETE PAVEMENT



HEAVY DUTY CONCRETE DETAIL (TI = 6.0)

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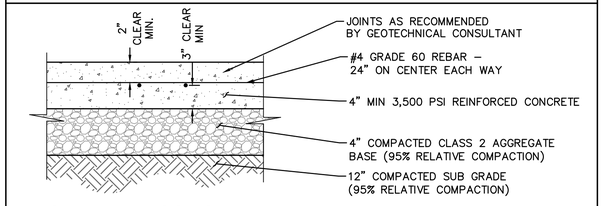


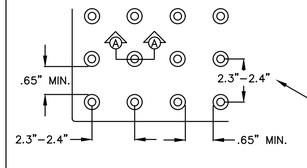
SIDEWALK CONCRETE DETAIL

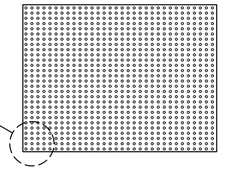
NOT TO SCALE

7	NTS	*PAVEMENT SECTIONS*

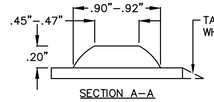
NOTES:

1. ALL TRUNCATED DOMES TO BE WET SET IN CONC. & FLUSH WITH ADJOINING SURFACES, UNLESS OTHERWISE STATED ON PLANS. ABRUPT CHANGES IN LEVEL TO ADJACENT SURFACES SHALL NOT EXCEED 1/4" VERTICAL HT. WITHOUT EDGE TREATMENT; LEVEL CHANGES BETWEEN 1/4" – 1/2" MUST BE BEVELED WITH A MAX. GRADIENT OF 1:2.
2. TRUNCATED DOMES ON A DETECTABLE WARNING SURFACE SHALL BE ARRANGED IN A SQUARE GRID. WHEN INSTALLED IN A RADIAL PATTERN, TRUNCATED DOMES SHALL HAVE A CENTER–TO–CENTER SPACING OF 1.6" TO 2.4".
3. DETECTABLE WARNINGS AT HAZARDOUS VEHICULAR AREAS SHALL BE YELLOW AND APPROXIMATE FS 33538 OF FEDERAL STD. 595C. DETECTABLE WARNINGS AT OTHER LOCATIONS SHALL PROVIDE A 70% MIN. VISUAL CONTRAST WITH ADJACENT WALKING SURFACES. THE MATERIAL USED TO PROVIDE VISUAL CONTRAST SHALL BE AN INTEGRAL PART OF THE SURFACE.
4. DETECTABLE WARNING SURFACES SHALL DIFFER FROM ADJOINING SURFACES IN RESILIENCY OR SOUND–ON–CANE CONTACT AT ALL LOCATIONS EXCEPT CURB RAMPS, ISLANDS & CUT–THROUGH MEDIANS.
5. IF A WALK CROSSES OR ADJOINS A VEHICULAR WAY, AND THE WALKING SURFACES ARE NOT SEPARATED BY CURBS, RAILINGS OR OTHER ELEMENTS BETWEEN THE PEDESTRIAN AREAS AND VEHICULAR ARES, THE BOUNDARY BETWEEN THE ARES SHALL BE DEFINED BY A CONTINUOUS DETECTABLE WARNING COMPLYING WITH SECTIONS 11B–705.1.1 AND 11B–705.1.2.5





NOTE: ONLY DSA–AC APPROVED DETECTABLE WARNING PRODUCTS SHALL BE INSTALLED.

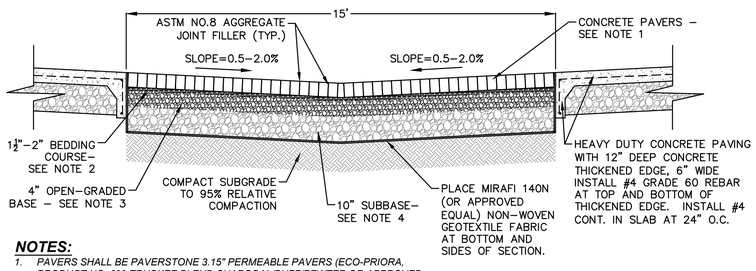


SECTION A–A

A TRUNCATED DOMES
NOT TO SCALE

NOTE: DETECTABLE WARNINGS AT CURB RAMPS SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN LESS 2" MAX. ON EACH SIDE & 36" IN THE DIRECTION OF TRAVEL, EXCLUDING ANY FLARED SIDES. ON PARALLEL CURB RAMPS, DETECTABLE WARNINGS SHALL BE PLACED ON THE TURNING SPACE AT THE FLUSH TRANSITION WITH VEHICULAR WAY.

5	NTS	*TRUNCATED DOMES*



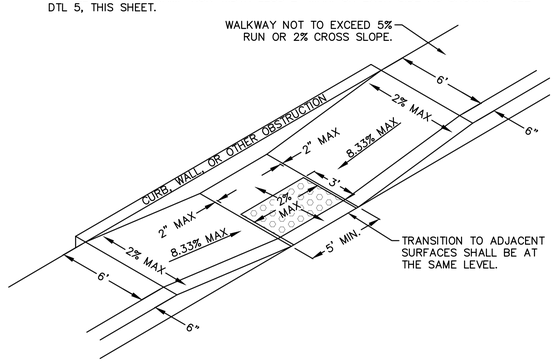
NOTES:

1. *PAVERS SHALL BE PAVERSTONE 3.15" PERMEABLE PAVERS (ECO–PRIORA, PRODUCT NO. 699 TRUCKEE BLEND CHARCOAL/BUFF/PEWTER OR APPROVED EQUAL).*
2. *BEDDING COURSE SHALL BE ASTM NO. 8 CRUSHED AGGREGATE*
3. *OPEN–GRADED BASE SHALL BE ASTM NO. 57 CRUSHED AGGREGATE*
4. *SUBBASE SHALL BE ASTM NO. 2 CRUSHED AGGREGATE*
5. *ALL PAVER CONSTRUCTION AND MATERIALS TO BE PLACED IN ACCORDANCE WITH ICPA STANDARDS. SEE SHEET C14 FOR SPECIFICATIONS.*

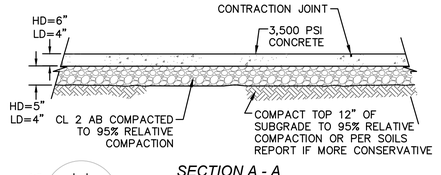
6	NTS	*PERVIOUS PAVERS DETAIL*

NOTES:

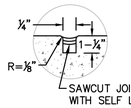
1. LANDINGS SUBJECT TO WET CONDITIONS SHALL BE DESIGNED TO PREVENT THE ACCUMULATION OF WATER. RAMP & LANDING SURFACES SHALL BE STABLE FIRM & SLIP–RESISTANT.
2. GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMP RUNS SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. SURFACES SLOPES THAT MEET AT GRADE BREAKS SHALL BE FLUSH.
3. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO AND WITHIN 24" OF THE CURB RAMP SHALL NOT EXCEED 5% SLOPE.
4. TRUNCATED DETECTABLE WARNINGS SHALL EXTEND 36" IN THE DIRECTION OF TRAVEL AND FULL RAMP RUN WIDTH LESS 2" MAX. ON EACH SIDE AS SHOWN. – SEE DTL 5, THIS SHEET.



4	NTS	*PARALLEL FLUSH PAN CURB RAMP*

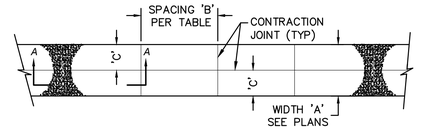


SECTION A - A



NOTE: CONTRACTION JOINT PATTERNS SHOULD DIVIDE PAVEMENTS INTO APPROXIMATELY SQUARES. THE LENGTH OF A PANEL SHOULD NOT BE MORE THAN 25% GREATER THAN ITS WIDTH.

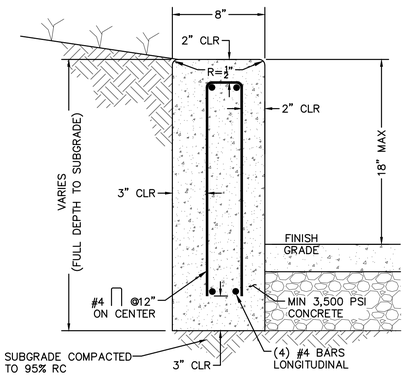
CONTRACTION JOINT



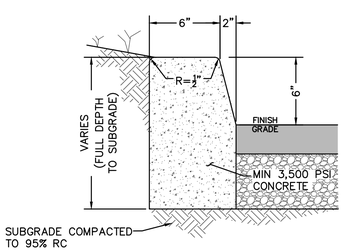
WIDTH 'A'	4'	5'	6'	7'	8'	9'	10'
MAX JOINT SPACING 'B'	5'	5'	5'	6'	8'	5'	5'
MID LONGITUDINAL JOINT 'C'	NA	NA	NA	NA	NA	4.5'	5'

PLAN VIEW

3	NTS	*CONCRETE DETAILS*



2	NTS	*REINFORCED RAISED CURB*



1	NTS	*BARRIER CURB*

NO.	REVISION	DATE	BY	APPR'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

ORIGINAL SCALE IS IN INCHES (0 – 1 – 2)

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

CONSTRUCTION DETAILS 1

Drawing	Sheet
	C11
of 16	of Total 46

10-04-2023

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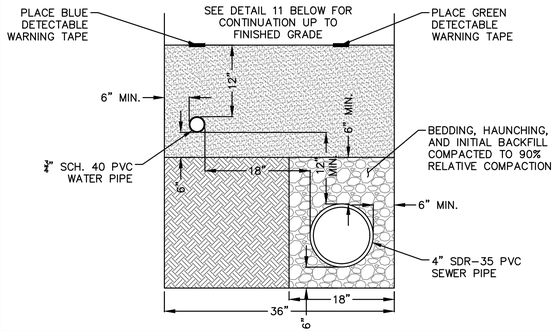
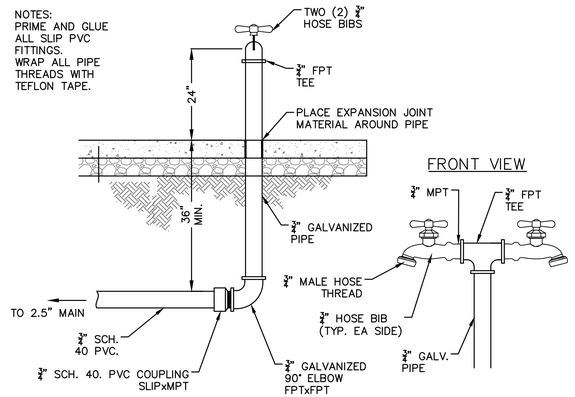
PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD, SACRAMENTO, CA

NOTES:
1. TRENCHES WITH DEPTHS GREATER THAN 5 FEET SHALL REQUIRE SHORING CONFORMING WITH OSHA REQUIREMENTS.
2. BEDDING, HAUNCHING, AND INITIAL BACKFILL TO BE ¾" CRUSHED AGGREGATE BASE FOR SEWER AND WELL-GRADED CLEAN SAND FOR WATER PIPES

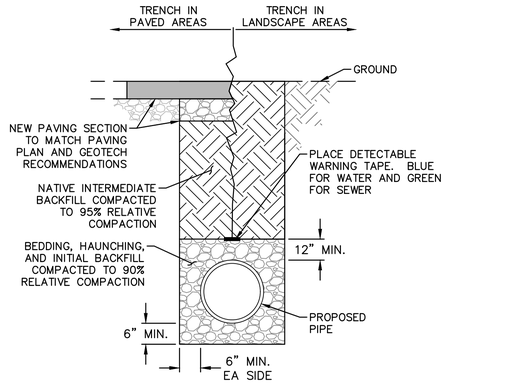


8 NTS SHARED UTILITY TRENCH

NOTES:
PRIME AND GLUE ALL SLIP PVC FITTINGS.
WRAP ALL PIPE THREADS WITH TEFLON TAPE.

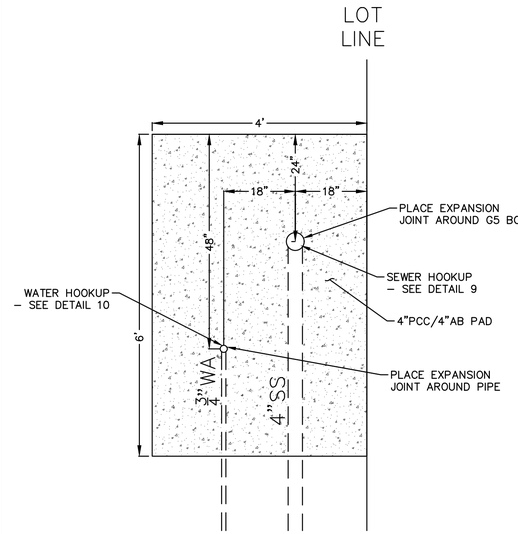


5 NTS WATER HOOKUP

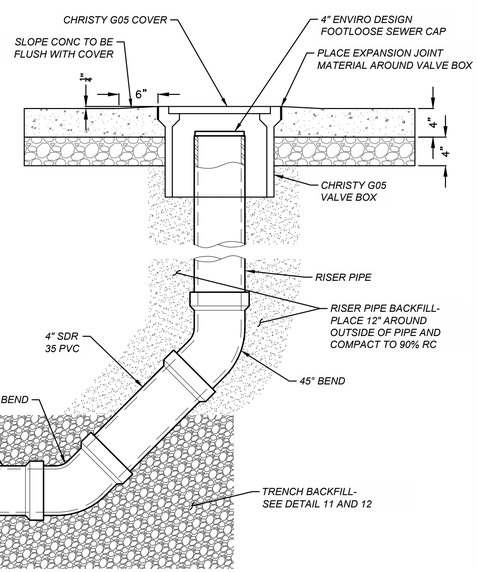


NOTES:
1. TRENCHES WITH DEPTHS GREATER THAN 5 FEET SHALL REQUIRE SHORING CONFORMING WITH OSHA REQUIREMENTS.
2. BEDDING, HAUNCHING, AND INITIAL BACKFILL TO BE ¾" CRUSHED AGGREGATE BASE FOR SEWER AND WELL-GRADED CLEAN SAND FOR WATER PIPES

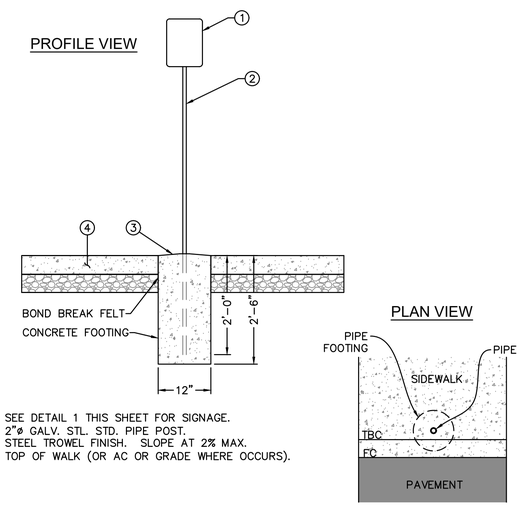
7 NTS UTILITY TRENCH



4 NTS RV UTILITY HOOKUPS

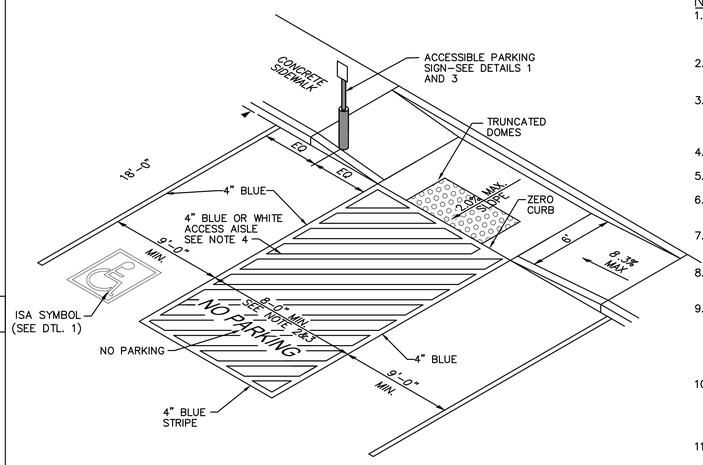


6 NTS SEWER HOOKUP



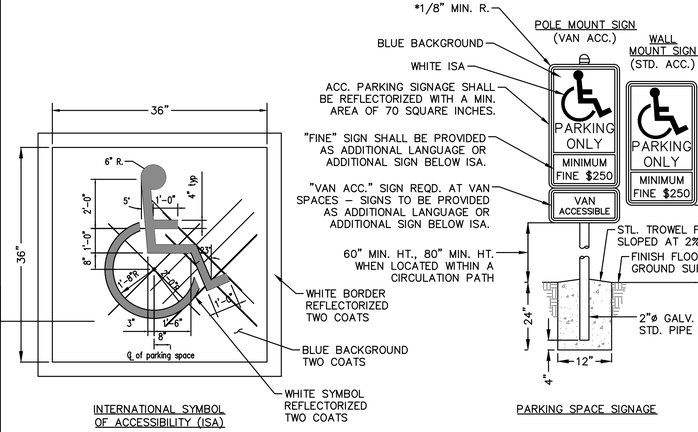
1. SEE DETAIL 1 THIS SHEET FOR SIGNAGE.
2. 2"ø GALV. STL. STD. PIPE POST.
3. STEEL TROWEL FINISH. SLOPE AT 2% MAX.
4. TOP OF WALK (OR AC OR GRADE WHERE OCCURS).

3 NTS ACCESSIBLE PARKING SIGN



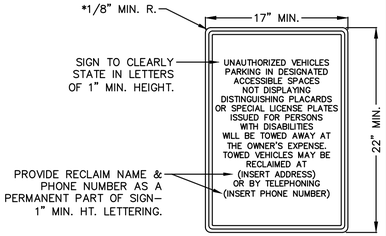
NOTES:
1. PAVEMENT-MARKING PAINT: ALKYD-RESIN TYPE, LEAD AND CHROMATE FREE, READY MIXED, COMPLYING WITH AASHTO M 248, TYPE N; COLORS COMPLYING WITH FS TT-P-1952
2. ACCESS AISLE FOR VAN ACCESSIBLE PARKING SPACES SHALL BE POSITIONED FOR PASSENGER SIDE OFFLOAD.
3. A MINIMUM 8' WIDE ACCESS AISLE IS REQUIRED FOR 9' WIDE VAN ACCESSIBLE STALLS. A MINIMUM 5' WIDE ACCESS AISLE MAY BE USED FOR 12' WIDE VAN ACCESSIBLE STALL.
4. 4" WIDE STRIPING FOR ALL STALL & ACCESS STRIPING (TYP.)
5. ACCESS AISLE SHALL ADJOIN AN ACCESSIBLE ROUTE.
6. SURFACE OF PARKING SPACES & ACCESS AISLES SERVING THEM SHALL BE STABLE, FIR & SLIP-RESISTANT; NOT TO EXCEED 2% IN ANY DIRECTION.
7. PARKING SPACES, ACCESS AISLES & VEHICULAR ROUTES SERVING THEM SHALL PROVIDE A 98" VERTICAL CLEARANCE.
8. ACCESS AISLES SHALL EXTEND THE FULL REQUIRED LENGTH OF THE PARKING SPACES THEY SERVE.
9. THE DIAGONAL HATCHING SHALL BE PAINTED A SUITABLE CONTRASTING COLOR (BLUE OR WHITE) TO THE PARKING SPACE AREA. TYPICAL IS WHITE ON AC AND PLUE ON PCC OR IN AREAS WHERE SNOW MAY CAUSE WHITE MARKINGS TO NOT BE VISIBLE. DIAGONALS SHALL BE 4" WIDE LINES WITH 3' SPACING AND AT 45° TO THE LOADING AREA BORDERS.
10. PARKING SPACE EMBLEM MUST BE LOCATED IN STALL SO THAT IT IS VISIBLE BY A TRAFFIC ENFORCEMENT OFFICER WHEN A VEHICLE IS PROPERLY PARKED IN THE SPACE (CENTERED AT ENTRANCE TO STALL IS RECOMMENDED).
11. THE ACCESSIBLE SIGN BOLLARD SHALL BE PROVIDED FOR EACH ACCESSIBLE PARKING STALL AND LOCATED TO PREVENT ENCROACHMENT OF VEHICLES OVER THE REQUIRED WIDTH OF WALKWAYS. PARKING STALLS SHALL BE SO LOCATED THAT PERSONS WITH DISABILITIES ARE NOT COMPELLED TO WHEEL OR WALK BEHIND PARKING CARS OTHER THAN THEIR OWN.

2 NTS ACCESSIBLE PARKING STALL



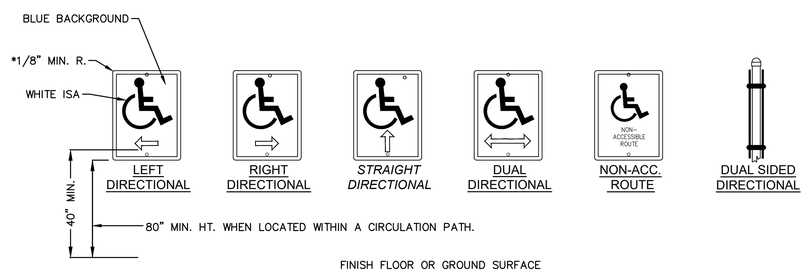
A ACCESSIBLE PARKING STALL
NOT TO SCALE

NOTES:
1. SITE ENTRANCE SIGNAGE SHALL BE POSTED IN A CONSPICUOUS PLACE AT EACH ENTRANCE TO AN OFF-STREET PARKING FACILITY OR IMMEDIATELY ADJACENT TO ONSITE ACCESSIBLE PARKING AND VISIBLE FROM EACH PARKING SPACE.
2. CHARACTERS ON SIGNS SHALL BE 40" MIN. ABOVE FINISH FLOOR OR GROUND SURFACE. SIGNS LOCATED WITHIN A CIRCULATION PATH SHALL BE 80" MIN. ABOVE FINISH FLOOR OR GROUND SURFACE MEASURED TO BOTTOM OF SIGN.



B SITE ENTRANCE SIGN
NOT TO SCALE

NOTES:
1. CHARACTERS ON SIGNS SHALL BE 40" MIN. ABOVE FINISH FLOOR OR GROUND SURFACE. SIGNS LOCATED WITHIN A CIRCULATION PATH SHALL BE 80" MIN. ABOVE FINISH FLOOR OR GROUND SURFACE MEASURED TO BOTTOM OF SIGN.
2. WHERE SIGNS ARE POLE OR POST MOUNTED WITH BOTTOM EDGES LESS THAN 80" ABOVE THE FLOOR OR GROUND SURFACE, THE EDGES OF SUCH SIGNS SHALL BE ROUNDED OR EASED AND THE CORNERS SHALL HAVE A 1/8" MIN. RADIUS.
3. THE ISA ON DIRECTIONAL SIGNAGE SHALL CONSIST OF A WHITE FIGURE ON A BLUE BACKGROUND. THE BLUE SHALL APPROXIMATE FS 15090 IN FED. STD. 595C. CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE SURFACE.
4. CHARACTER FONT, SPACING, LINE SPACING, STROKE THICKNESS AND MIN. CHARACTER HT. TO COMPLY WITH SPECIFICATIONS PROVIDED IN CBC. 11B-703.5.



C PATH OF TRAVEL DIRECTIONAL SIGNAGE
NOT TO SCALE

1 NTS ACCESSIBILITY SIGNAGE

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BY	CHECK
DESIGN TSM	RFE
DRAWN TSM	RFE
QUANT.	

ORIGINAL SCALE IS IN INCHES 0 1 2

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

CONSTRUCTION DETAILS 2

Drawing 17 of Total 46
Sheet C12

10-04-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD, SACRAMENTO, CA

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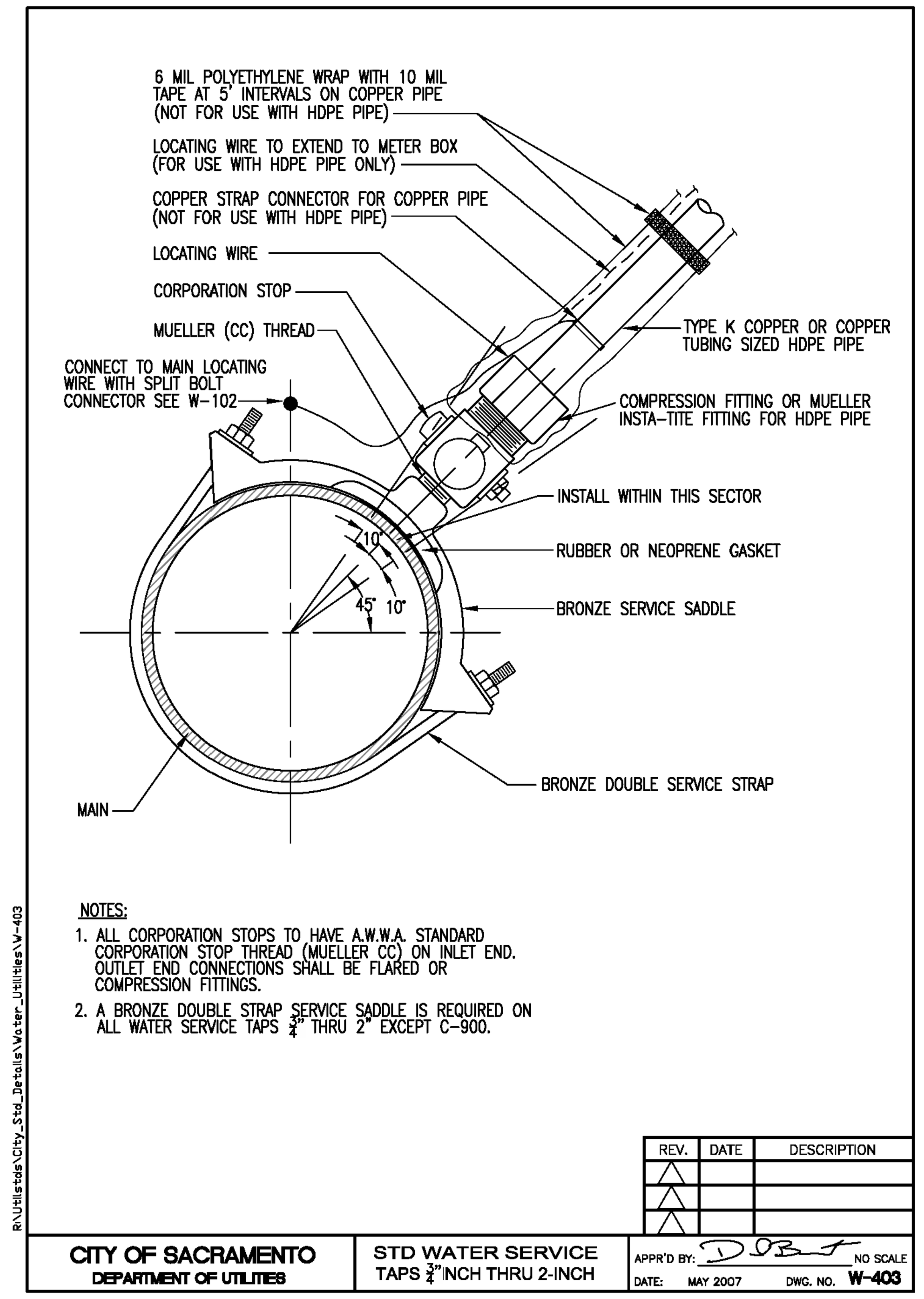
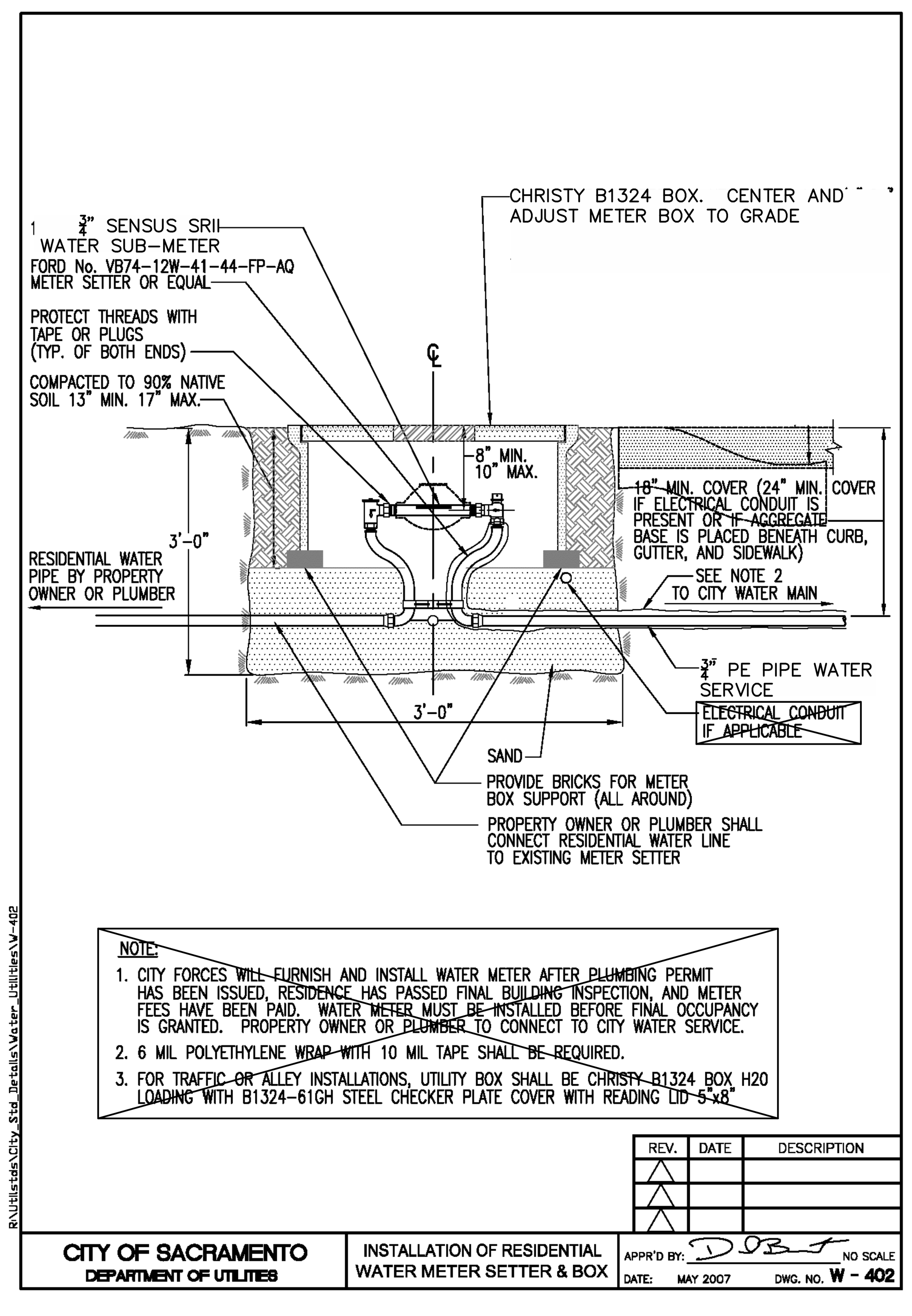
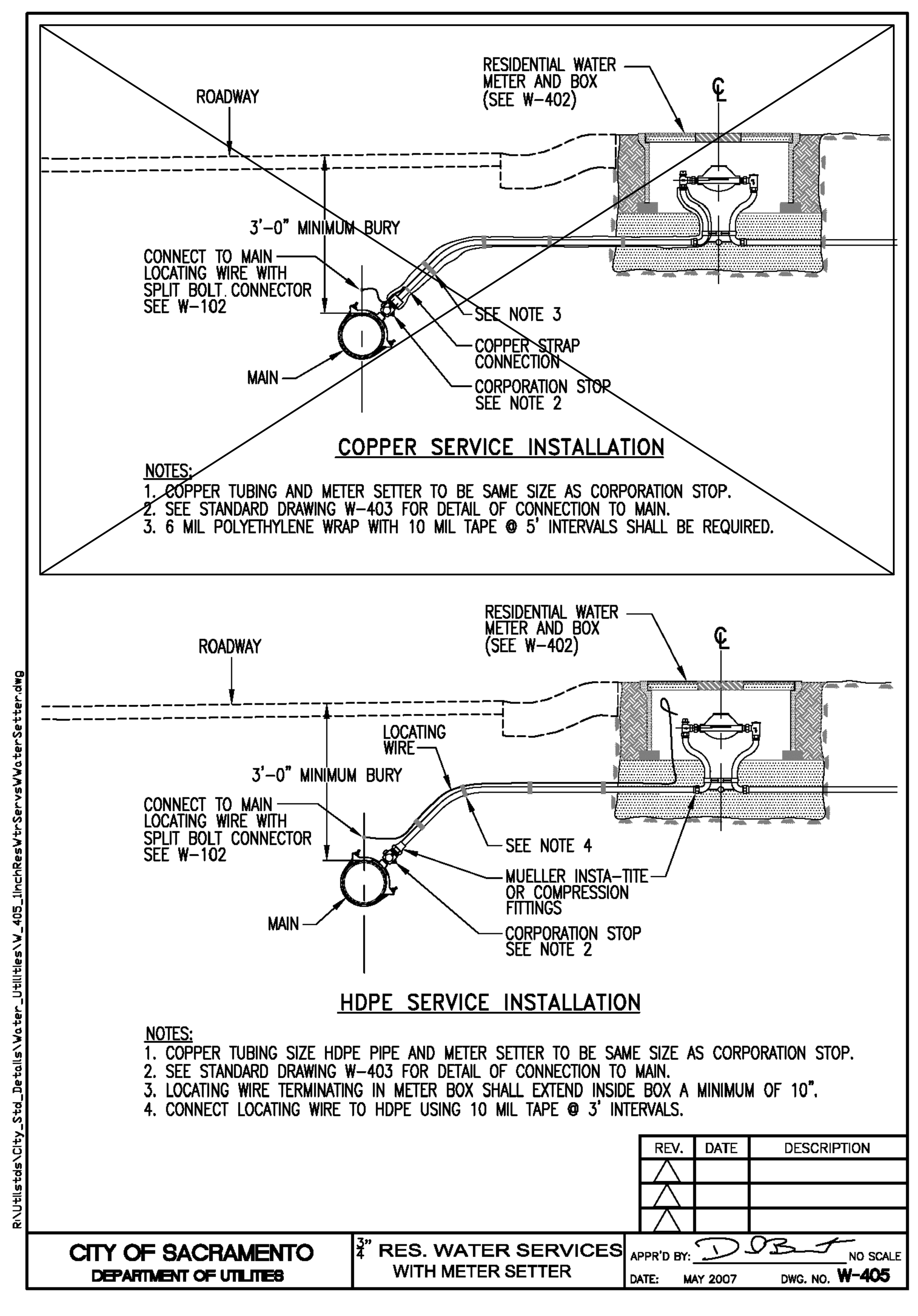

6 MIL POLYETHYLENE WRAP WITH 10 MIL TAPE AT 5' INTERVALS ON COPPER PIPE (NOT FOR USE WITH HDPE PIPE)
LOCATING WIRE TO EXTEND TO METER BOX (FOR USE WITH HDPE PIPE ONLY)
COPPER STRAP CONNECTOR FOR COPPER PIPE (NOT FOR USE WITH HDPE PIPE)
LOCATING WIRE
CORPORATION STOP
MUELLER (CC) THREAD
CONNECT TO MAIN LOCATING WIRE WITH SPLIT BOLT CONNECTOR SEE W-102
TYPE K COPPER OR COPPER TUBING SIZED HDPE PIPE
COMPRESSION FITTING OR MUELLER INSTA-TITE FITTING FOR HDPE PIPE
INSTALL WITHIN THIS SECTOR
RUBBER OR NEOPRENE GASKET
BRONZE SERVICE SADDLE
BRONZE DOUBLE SERVICE STRAP
MAIN
NOTES:
1. ALL CORPORATION STOPS TO HAVE A.W.W.A. STANDARD CORPORATION STOP THREAD (MUELLER CC) ON INLET END. OUTLET END CONNECTIONS SHALL BE FLARED OR COMPRESSION FITTINGS.
2. A BRONZE DOUBLE STRAP SERVICE SADDLE IS REQUIRED ON ALL WATER SERVICE TAPS ¾" THRU 2" EXCEPT C-900.
REV. DATE DESCRIPTION
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES
STD WATER SERVICE TAPS ¾" INCH THRU 2-INCH
APPR'D BY: NO SCALE
DATE: MAY 2007 DWG. NO. W-403


1 ¾" SENSUS SRII WATER SUB-METER
FORD No. VB74-12W-41-44-FP-AQ METER SETTER OR EQUAL
PROTECT THREADS WITH TAPE OR PLUGS (TYP. OF BOTH ENDS)
COMPACTED TO 90% NATIVE SOIL 13" MIN. 17" MAX.
CHRISTY B1324 BOX. CENTER AND ADJUST METER BOX TO GRADE
8" MIN. 10" MAX.
18" MIN. COVER (24" MIN. COVER IF ELECTRICAL CONDUIT IS PRESENT OR IF AGGREGATE BASE IS PLACED BENEATH CURB, GUTTER, AND SIDEWALK)
SEE NOTE 2 TO CITY WATER MAIN
3'-0"
RESIDENTIAL WATER PIPE BY PROPERTY OWNER OR PLUMBER
¾" PE PIPE WATER SERVICE
ELECTRICAL CONDUIT IF APPLICABLE
SAND
PROVIDE BRICKS FOR METER BOX SUPPORT (ALL AROUND)
PROPERTY OWNER OR PLUMBER SHALL CONNECT RESIDENTIAL WATER LINE TO EXISTING METER SETTER
NOTE:
1. CITY FORCES WILL FURNISH AND INSTALL WATER METER AFTER PLUMBING PERMIT HAS BEEN ISSUED, RESIDENCE HAS PASSED FINAL BUILDING INSPECTION, AND METER FEES HAVE BEEN PAID. WATER METER MUST BE INSTALLED BEFORE FINAL OCCUPANCY IS GRANTED. PROPERTY OWNER OR PLUMBER TO CONNECT TO CITY WATER SERVICE.
2. 6 MIL POLYETHYLENE WRAP WITH 10 MIL TAPE SHALL BE REQUIRED.
3. FOR TRAFFIC OR ALLEY INSTALLATIONS, UTILITY BOX SHALL BE CHRISTY B1324 BOX H20 LOADING WITH B1324-61GH STEEL CHECKER PLATE COVER WITH READING LID 5"x8"
REV. DATE DESCRIPTION
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES
INSTALLATION OF RESIDENTIAL WATER METER SETTER & BOX
APPR'D BY: NO SCALE
DATE: MAY 2007 DWG. NO. W - 402


ROADWAY
RESIDENTIAL WATER METER AND BOX (SEE W-402)
3'-0" MINIMUM BURY
CONNECT TO MAIN LOCATING WIRE WITH SPLIT BOLT CONNECTOR SEE W-102
SEE NOTE 3
COPPER STRAP CONNECTION
MAIN
CORPORATION STOP SEE NOTE 2
COPPER SERVICE INSTALLATION
NOTES:
1. COPPER TUBING AND METER SETTER TO BE SAME SIZE AS CORPORATION STOP.
2. SEE STANDARD DRAWING W-403 FOR DETAIL OF CONNECTION TO MAIN.
3. 6 MIL POLYETHYLENE WRAP WITH 10 MIL TAPE @ 5' INTERVALS SHALL BE REQUIRED.
ROADWAY
RESIDENTIAL WATER METER AND BOX (SEE W-402)
LOCATING WIRE
3'-0" MINIMUM BURY
CONNECT TO MAIN LOCATING WIRE WITH SPLIT BOLT CONNECTOR SEE W-102
SEE NOTE 4
MUELLER INSTA-TITE OR COMPRESSION FITTINGS
MAIN
CORPORATION STOP SEE NOTE 2
HDPE SERVICE INSTALLATION
NOTES:
1. COPPER TUBING SIZE HDPE PIPE AND METER SETTER TO BE SAME SIZE AS CORPORATION STOP.
2. SEE STANDARD DRAWING W-403 FOR DETAIL OF CONNECTION TO MAIN.
3. LOCATING WIRE TERMINATING IN METER BOX SHALL EXTEND INSIDE BOX A MINIMUM OF 10".
4. CONNECT LOCATING WIRE TO HDPE USING 10 MIL TAPE @ 3' INTERVALS.
REV. DATE DESCRIPTION
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES
¾" RES. WATER SERVICES WITH METER SETTER
APPR'D BY: NO SCALE
DATE: MAY 2007 DWG. NO. W-405

NO.	REVISION	DATE	BY	APPRV'D

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DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

0 1 2 ORIGINAL SCALE IS IN INCHES

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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

CONSTRUCTION DETAILS 3

Drawing	Sheet
	C13
of 18	of Total 46

10-04-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

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SECTION 32 14 13.19
PRIORA PERMEABLE INTERLOCKING CONCRETE UNIT PAVING

Note: This guide specification for U.S. applications describes construction of permeable interlocking concrete pavers on a permeable, open-graded crushed stone bedding layer (typically ASTM No. 8 or 9 stone). This 2 in. (50 mm) layer is placed over an open-graded base (typically No. 57 stone no greater than 4 in. or 100 mm thick) and a sub-base when storage is required (typically No. 2 stone or similar sized material). The pavers and bedding layer are placed over an open-graded crushed stone base with exfiltration to the soil subgrade. In low infiltration soils or installations with impermeable liners, some or all drainage is directed to an outlet via perforated drain pipes in the subbase. While this guide specification does not cover excavation, liners and drain pipes, notes are provided on these aspects.

The text must be edited to suit specific project requirements. It should be reviewed by a qualified civil or geotechnical engineer, or landscape architect familiar with the site conditions. Edit this specification term as necessary to identify the design professional in the General Conditions of the Contract.

PART 1 GENERAL

1.01 SUMMARY
A. Section Includes:
1. Permeable interlocking concrete pavers.
2. Crushed stone bedding material.
3. Open-graded subbase aggregate.
4. Open-graded base aggregate.
5. Bedding and joint/opening filler materials.
6. Edge restraints.
7. [Geotextiles].
B. Related Sections:
1. Section [_______]: Curbs.
2. Section [_______]: [Stabilized] aggregate base.
3. Section [_______]: [PVC] Drainage pipes.
4. Section [_______]: Impermeable liner.
5. Section [_______]: Edge restraints.
6. Section [_______]: Drainage pipes and appurtenances.
7. Section [_______]: Earthworks/excavation/soil compaction.

1.02 REFERENCES
A. American Society for Testing and Materials (ASTM)
1. C 131, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
2. C 136, Method for Sieve Analysis for Fine and Coarse Aggregate.
3. C 140, Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
4. D 448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction.
5. C 936, Standard Specification for Solid Interlocking Concrete Pavers.
6. C 979, Specification for Pigments for Integrally Colored Concrete.
7. D 698, Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 5.5-lb (2.49 kg) Rammer and 12 in. (305 mm) drop.
8. D 1557, Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 10-lb (4.54 kg) Rammer and 18 in. (457 mm) drop.

9. ASTM C 1645, Standard Test Method for Freeze-thaw and De-icing Durability of Solid Concrete Interlocking Paving Units.
10. D 1883, Test Method for California Bearing Ratio of Laboratory-Compacted Soils.
11. ASTM D 2922 Standard Test Methods for Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).
12. D 4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
B. Interlocking Concrete Pavement Institute (ICPI)
1. Permeable Interlocking Concrete Pavement manual.
2. Permeable Design Pro software for hydrologic and structural design.

1.03 SUBMITTALS
A. In accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
B. Paver manufacturer's/installation subcontractor's drawings and details: Indicate perimeter conditions, junction with other materials, expansion and control joints, paver [layout,] [patterns,] [color arrangement,] installation [and setting] details. Indicate layout, pattern and relationship of paving joints to fixtures, and project formed details.
C. Minimum 3 lb (2 kg) samples of subbase, base and bedding aggregate materials.
D. Sieve analysis of aggregates for subbase, base and bedding materials per ASTM C 136.
E. Project specific or producer/manufacturer source test results for void ratio and bulk density of the base and subbase aggregates.
F. Soils report indicating density test reports, classification, and infiltration rate measured on-site under compacted conditions, and suitability for the intended project.
G. Erosion and sediment control plan.
H. [Stormwater management (quality and quantity) calculations; structural analysis for vehicular applications] using ICPI Permeable Interlocking Concrete Pavements manual, Permeable Design Pro or [specify] design methods and models.
I. Permeable concrete pavers:
1. Paver manufacturer's catalog sheets with product specifications.
2. [Four] representative full-size samples of each paver type, thickness, color, and finish. Submit samples indicating the range of color expected in the finished installation.
3. Accepted samples become the standard of acceptance for the work of this Section.
4. Laboratory test reports certifying compliance of the concrete pavers with ASTM C 936.
5. Manufacturers' material safety data sheets for the safe handling of the specified paving materials and other products specified herein.
J. Paver Installation Subcontractor:
1. Demonstrate that job foremen on the project have a current certificate from the Interlocking Concrete Pavement Institute Concrete Paver Installer Certification program.
2. Job references from projects of a similar size and complexity. Provide Owner/Client/General Contractor names, postal address, phone, fax, and email address.
3. Written Method Statement and Quality Control Plan that describes material staging and flow, paving direction and installation procedures, including representative reporting forms that ensure conformance to the project specifications.

1.04 QUALITY ASSURANCE
A. Paver Installation Subcontractor Qualifications:
1. Utilize an installer having successfully completed concrete paver installation similar in design, material and extent indicated on this project.
2. Utilize an installer with job foremen holding a current certificate from the Interlocking Concrete Pavement Institute Permeable Interlocking Concrete Paver Certificate program.
B. Regulatory Requirements and Approvals: [Specify applicable licensing, bonding or other requirements of regulatory agencies.].
C. Review the manufacturers' quality control plan, paver installation subcontractor's Method Statement and Quality Control Plan with a pre-construction meeting of representatives from the manufacturer, paver installation subcontractor, general contractor, engineer and/or owner's representative.
D. Mock-Ups:
1. Install a 10 ft x 10 ft (3 x 3 m) paver area.

Note: Mechanized installations may require a larger mock up area. Consult with the paver installation contractor on the size of the mock up.

2. Use this area to determine surcharge of the bedding layer, joint sizes, and lines, laying pattern, color and texture of the job.
3. This area will be used as the standard by which the work will be judged.
4. Subject to acceptance by owner, mock-up may be retained as part of finished work.
5. If mock-up is not retained, remove and properly dispose of mock-up.

1.05 DELIVERY, STORAGE, AND HANDLING
A. General: Comply with Division 1 Product Requirement Section.
B. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged container packaging with identification tags intact on each paver bundle.
1. Coordinate delivery and paving schedule to minimize interference with normal use of buildings adjacent to paving.
2. Deliver concrete pavers to the site in steel banded, plastic banded, or plastic wrapped cubes capable of transfer by forklift or clamp lift.
3. Unload pavers at job site in such a manner that no damage occurs to the product or existing construction.
D. Storage and Protection: Store materials in protected area such that they are kept free from mud, dirt, and other foreign materials.

1.06 ENVIRONMENTAL REQUIREMENTS
A. Do not install in rain or snow.
B. Do not install frozen bedding materials.

1.07 MAINTENANCE
A. Extra materials: Provide [Specify area] [Specify percentage] additional material for use by owner for maintenance and repair.
B. Pavers shall be from the same production run as installed materials.

PART 2 PRODUCTS

Note: Some projects may include permeable and solid interlocking concrete pavements. Specify each product as required.

2.01 PERMEABLE INTERLOCKING CONCRETE PAVEMENT
A. Manufacturer: Pavestone Company 800-245-7283
1. Contact: [Specify Pavestone contact and phone number information.].
B. Permeable Interlocking Concrete Paver Units:
1. Paver Type: [Eco-Priora™].
a. Material Standard: Comply with ASTM C 936.
b. Color [and finish]: [Specify color.] [Specify finish].
c. Color Pigment Material Standard: Comply with ASTM C 979.
d. Size: [Specify.] inches [({Specify.}mm)] x [Specify.] inches [({Specify}mm)] x [Specify.] inches [({Specify.} mm)] thick.
e. Average Compressive Strength (C140): 8000 psi (55 MPa) with non individual unit under 7200 psi (50 MPa) per ASTM C 140.
f. Average Water Absorption (ASTM C 140): 5% with no unit greater than 7%.
g. Freeze/Thaw Resistance (ASTM C 1645): 25 freeze-thaw cycles with no greater loss than 200 g/m² of paver surface area or no greater loss than 500 g/m² of paver surface area after 50 freeze-thaw cycles. Freeze-thaw testing requirements shall be waived for applications not exposed to freezing conditions.
2. Paving Unit Interlocking Joints
Paving unit shall have interlocking joints with a minimum of two vertically aligned horizontal interlocking spacer bars on each of its sides exhibiting unit to unit horizontal restriction movement in both horizontal axes.
3. Paving Unit Joint Width
Paver joint width shall be a nominal 1/4 in. (7 mm) installation width to comply with being

less than the ADA maximum horizontal surface open area.
4. Paving Unit Chamfer
Paving unit shall have a maximum 1/16 in. (1.5 mm) chamfer to minimize vibration in the wheeled traffic traveling the jointed surface.

2.02 PRODUCT SUBSTITUTIONS
A. Product Substitutions: Product substitutions shall be submitted and approved in writing 10 days prior to bid date.
B. Aggregate Substitutions: Permitted for gradations for crushed stone jointing material, base and subbase materials. Base and subbase materials shall have a minimum 0.32 void ratio. All substitutions shall be approved in writing by the project engineer.

2.03 CRUSHED STONE FILLER, BEDDING, BASE AND SUBBASE
A. Crushed stone with 90% fractured faces, LA Abrasion < 40 per ASTM C 131, minimum CBR of 80% per ASTM D 1883.
B. Do not use rounded river gravel for vehicular applications.
C. All stone materials shall be washed with less than 1% passing the No. 200 sieve.
D. Joint/opening filler, bedding, base and subbase: conforming to ASTM D 448 gradation as shown in Tables 1, 2, 3 and 4 below:

Note: No. 89 stone or that having similar gradation and infiltration rates may be used to fill pavers with narrow joints.

Table 1
ASTM No. 8 Grading Requirements
Bedding and Joint/Opening Filler

Sieve Size	Percent Passing
12.5 mm (1/2 in.)	100
9.5 mm (3/8 in.)	85 to 100
4.75 mm (No. 4)	10 to 30
2.36 mm (No. 8)	0 to 10
1.16 mm (No. 16)	0 to 5

Table 2
ASTM No. 9 Grading Requirements
Bedding and Joint/Opening Filler

Sieve Size	Percent Passing
12.5 mm (1/2 in.)	100
9.5 mm (3/8 in.)	100
4.75 mm (No. 4)	85 to 100
2.36 mm (No. 8)	10 to 40
1.16 mm (No. 16)	0 to 10

Table 3
ASTM No. 57 Base
Grading Requirements

Sieve Size	Percent Passing
37.5 mm (1 1/2 in.)	100
25 mm (1 in.)	95 to 100
12.5 mm (1/2 in.)	25 to 60
4.75 mm (No. 4)	0 to 10
2.36 mm (No. 8)	0 to 5

Table 4
Grading Requirement for ASTM No. 2 Subbase

Sieve Size	Percent Passing
75 mm (3 in.)	100
63 mm (2 1/2 in.)	90 to 100
50 mm (2 in.)	35 to 70
37.5 mm (1 1/2 in.)	0 to 15
19 mm (3/4 in.)	0 to 5

E. Gradation criteria for the bedding and base:

Note: D_x is the particle size at which x percent of the particles are finer. For example, D_{15} is the particle size of the aggregate for which 15% of the particles are smaller and 85% are larger.

1. D_{15} base stone /D_{15} bedding stone < 5.
2. D_{50} base stone/D_{50} bedding stone > 2.

2.04 ACCESSORIES
A. Provide accessory materials as follows:

Note: Curbs will typically be cast-in-place concrete or precast set in concrete haunches. Concrete curbs may be specified in another Section. Do not use plastic edging with steel spikes to restrain the paving units for vehicular applications.

1. Edge Restraints
a. Manufacturer: [Specify manufacturer.].
b. Material: [Pre-cast concrete] [Cut stone] [Concrete.].
c. Material Standard: [Specify material standard.].

Note: See ICPI publication, Permeable Interlocking Concrete Pavements for guidance on geotextile selection. Geotextile use is optional.

2. Geotextile Fabric:
a. Material Type and Description: [Specify material type and description.].
b. Material Standard: [Specify material standard.].
c. Manufacturer: [Acceptable to interlocking concrete paver manufacturer.].

PART 3 EXECUTION

3.01 ACCEPTABLE INSTALLERS
A. [Specify acceptable paver installation subcontractors.].

3.02 EXAMINATION

Note: The elevations and surface tolerance of the soil subgrade determine the final surface elevations of concrete pavers. The paver installation contractor cannot correct deficiencies excavation and grading of the soil subgrade with additional bedding materials. Therefore, the surface elevations of the soil subgrade should be checked and accepted by the General Contractor or designated party, with written certification presented to the paver installation subcontractor prior to starting work.

A. Acceptance of Site Verification of Conditions:
1. General Contractor shall inspect, accept and certify in writing to the paver installation subcontractor that site conditions meet specifications for the following items prior to installation of interlocking concrete pavers.

Note: Compaction of the soil subgrade is optional and should be determined by the project engineer. If the soil subgrade requires compaction, compact to a minimum of 95% standard Proctor density per ASTM C 698. Compacted soil density and moisture should be checked in the field with a nuclear density gauge or other test methods for compliance to specifications. Stabilization of the soil and/or base material may be necessary with weak or continually saturated soils, or when subject to high wheel loads. Compaction will reduce the permeability of soils. If soil compaction is necessary, reduced infiltration may require drain pipes within the open-graded subbase to conform to local storm drainage requirements.

a. Verify that subgrade preparation, compacted density and elevations conform to specified requirements.
b. Provide written density test results for soil subgrade to the Owner, General Contractor and paver installation subcontractor.
c. Verify location, type, and elevations of edge restraints, [concrete collars around] utility structures, and drainage pipes and inlets.
2. Do not proceed with installation of bedding and interlocking concrete pavers until subgrade soil conditions are corrected by the General Contractor or designated subcontractor.

3.03 PREPARATION
A. Verify that the soil subgrade is free from standing water.
B. Stockpile joint/opening filler, base and subbase materials such that they are free from standing water, uniformly graded, free of any organic material or sediment, debris, and ready for placement.
C. Edge Restraint Preparation:
1. Install edge restraints per the drawings [at the indicated elevations.].

3.04 INSTALLATION

Note: The minimum slope of the soil subgrade is typically 0.5%. Actual slope of soil subgrade will depend on the drainage design and exfiltration type. All drain pipes, observation wells, overflow pipes, and (if applicable) geotextiles, berms, baffles and impermeable liner should be in place per the drawings prior to or during placement of the subbase and base, depending on their location. Care must be taken not to damage drainpipes during compaction and paving. No mud or sediment can be left on the base or bedding aggregates. If they are contaminated, they must be removed and replaced with clean materials. Base/subbase thicknesses and drainage should be determined using ICPI's Permeable Interlocking Concrete Pavements manual and Permeable Design Pro software.

A. General
1. Any excess thickness of soil applied over the excavated soil subgrade to trap sediment from adjacent construction activities shall be removed before application of the [Geotextile] and subbase materials.
2. Keep area where pavement is to be constructed free from sediment during entire job. [Geotextiles] Base and bedding materials contaminated with sediment shall be removed and replaced with clean materials.
3. Do not damage drainpipes, overflow pipes, observation wells, or any inlets and other drainage appurtenances during installation. Report any damage immediately to the project engineer.
B. Geotextiles
1. Place on [bottom and] sides of soil subgrade. Secure in place to prevent wrinkling from vehicle tires and tracks.
2. Overlap a minimum of [0.3 m (12 in.)] [0.6 m (24 in.)] in the direction of drainage.
C. Open-graded subbase (if required) and base
1. Moisten, spread and compact the No. 2 subbase in 4 to 6 in. (100 to 150 mm) lifts [without wrinkling or folding the geotextile. Place subbase to protect geotextile from wrinkling under equipment tires and tracks.].
2. For each lift, make at least two passes in the vibratory mode then at least two in the static mode with a minimum 10 t (10 T) vibratory roller until there is no visible movement of the No. 2 stone. Do not crush aggregate with the roller.
3. The surface tolerance of the compacted No. 2 subbase shall be ±2 1/2 in. (± 65mm) over a 10 ft (3 m) straightedge.
4. Moisten, spread and compact the No. 57 base layer in one 4 in. (100 mm) thick lift. On this layer, make at least two passes in the vibratory mode then at least two in the static mode with a minimum 10 t (10 T) vibratory roller until there is no visible movement of the No. 2 stone. Do not crush aggregate with the roller.

Note: At the option of the designer, this supplemental test method noted below can be used to establish a consistent methodology for in-situ density data collection of open-graded aggregate base layer (typically ASTM No. 57 stone). This test method can assist contractors in reaching adequate job site compaction and offer an additional level of confidence for the project owner and designer. This test method is appropriate for pavement subject to consistent vehicular traffic such as parking lots and roads. It is not needed for pedestrian areas and residential driveways.

5. Use part of the compacted base area as a control strip for density testing by the [Testing Company.].
a. The [Testing Company] shall supply nuclear moisture/density gauges and ancillary equipment required to conduct density and moisture content measurements for compaction of the No. 57 aggregate drainage layer. Qualified testing laboratory operators/gauges may conduct compaction testing. Each gauge operator shall be trained in the safe operation, transportation and handling of the gauge. The registered owner of the gauge shall have and maintain a valid Radioisotope License for each gauge.
b. Each gauge shall have been calibrated within the last 12 months, either by the manufacturer or other qualified agent, against certified density and moisture reference blocks. The density standard count and the moisture standard count shall be within 2 percent and 4 percent respectively, of the most recent calibration values. A certificate of calibration for each gauge shall accompany each gauge.
6. Target Density
a. Determine a target density on the control strip during under the following conditions: (1) after initial placement and compaction of the base aggregate layer (2) when there is a perceptible change in the appearance or gradation of the aggregate, (3) when there is a change in the source of aggregate.
b. Test field density according to ASTM D 2922 Standard Test Methods for Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (shallow Depth). Field density tests shall be performed on compacted base materials to determine within acceptable limits of a target density.
7. Control Strip
a. The Testing Company shall construct a control strip for the determination of a target density consisting of a single uniform lift as specified in the contract documents, but not more than 4 in. (100 mm) thick and covering approximately 600 yd² (500 m²) in area. No testing shall be performed within 10 ft (3 m) from any unrestrained outside edge of the work area. The control strip may be incorporated into the project upon acceptance of density measurements by the Testing Company.
b. During construction of the control strip, the surface of the aggregate shall be visibly moist and maintained as such throughout construction and compaction.
c. After initial placement of the aggregate base material, the compaction equipment shall make two passes over the entire surface of the control strip. Field densities and field moisture contents, using the backscatter/indirect method, shall be determined at five randomly selected locations at least 15 ft (5 m) apart. The dry density and moisture content shall be calculated for each of these locations and the averages shall be used as initial values. The maximum compacted thickness of the aggregate base layer measured for density shall be 4 in. (100 mm).
d. The compaction equipment shall then make two additional passes over the entire surface of the control strip. After compaction, three separate, random field density and moisture content determinations shall be made, using the backscatter/indirect method, and a new average dry density and moisture content shall be calculated.
e. If the new average dry density exceeds the previous value by more than 1.2 pcf (20 kg/m³) then two additional passes of the equipment shall be carried out as described above. If the new average dry density does not exceed the previous value by more than 1.2 pcf (20 kg/m³), then compaction of the control strip will be considered satisfactory and complete.
f. Upon satisfactory completion of the control strip, an additional seven (7) field density and moisture tests, using the backscatter/indirect method, shall be taken at random locations and the dry density and moisture content values shall be determined. The final dry density and moisture content of the control strip shall be the average of these seven values plus the three most recent values obtained upon completion.

8. Compaction Equipment
a. Use a smooth dual or single smooth drum, minimum 10 ton (10 T) vibratory roller or a minimum 13,500 lbf (60 kN) centrifugal force, reversible vibratory plate compactor that provides maximum compaction force without crushing the aggregate base.
9. Test Report
a. The test report shall include the following:
1) Project description.
2) Sketch of test area and test locations.
3) Aggregate type and layer thicknesses.
4) Aggregate characteristic properties: gradation, void ratio, bulk density.
5) Compaction equipment type and weight.
6) Static or vibratory compaction.
7) Number of passes of the compaction equipment.
8) Test number and location.
9) Individual and average field wet density, moisture content, and dry density values determined after each compaction operation in accordance with ASTM D 2922 Standard Test Methods for Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).
10) Calculation of target density.
D. The surface tolerance of compacted No. 57 base should not deviate more than. ±1 in. (25 mm) over a 10 ft (3 m) straightedge.

Note: As an alternative test method, in-place density of the base aggregate may be checked per ASTM D 4254. Compacted density should be 95% of the laboratory index density established for the base layer.

E. Bedding layer
1. Moisten, spread and screed the No. 8 or 9 stone bedding material.
2. Fill voids left by removed screed rails with No. 8 or 9 stone.
3. The surface tolerance of the screeded No. 8 or 9 bedding layer shall be ±3/8 in (10 mm) over a 10 ft (3 m) straightedge.
4. Do not subject screeded bedding material to any pedestrian or vehicular traffic before paving unit installation begins.
F. Permeable interlocking concrete pavers and joint/opening fill material
1. Lay the paving units in the pattern(s) with nominal 1/4 in. (6.35 mm) joint widths. Maintain straight pattern lines.
2. Fill gaps at the edges of the paved area with cut units. Cut pavers subject to tire traffic shall be no smaller than 1/3 of a whole unit.
3. Cut pavers and place along the edges with a [double-bladed splitter or] masonry saw.
4. Fill the openings and joints with [No. 8 or No. 9] stone.

Note: Some paver joint widths may be narrow and not accept most of the No. 8 stone. Use joint material that will fill joints such as washed ASTM No. 9 or No. 10 stone.

5. Remove excess aggregate on the surface by sweeping pavers clean.
6 Compact and seat the pavers into the bedding material using a low-amplitude, 75-90 Hz plate compactor capable of at least 5,000 lbf (22 kN) centrifugal compaction force. This will require at least two passes with the plate compactor.
7. Do not compact within 6 ft (2 m) of the unrestrained edges of the paving units.
8. Apply additional aggregate to the openings and joints if needed, filling them completely. Remove excess aggregate by sweeping then compact the pavers. This will require at least two passes with the plate compactor.
9. All pavers within 6 ft (2 m) of the laying face must be left fully compacted at the completion of each day.
10. The final surface tolerance of compacted pavers shall not deviate more than ±3/8 (10 mm) under a 10 ft (3 m) long straightedge.
11. The surface elevation of pavers shall be 1/8 to 1/4 in. (3 to 6 mm) above adjacent drainage inlets, concrete collars or channels.

3.05 FIELD QUALITY CONTROL
A. After sweeping the surface clean, check final elevations for conformance to the drawings.
B. Lippage: No greater than 1/8 in. (3 mm) difference in height between adjacent pavers.

Note: The surface of the pavers may be 1/8 to 1/4 in. (3 to 6 mm) above the final elevations after compaction. This helps compensate for possible minor settling normal to pavements.

C. The surface elevation of pavers shall be 1/8 to 1/4 in. (3 to 6 mm) above adjacent drainage inlets, concrete collars or channels.
D. Bond lines for paver courses: ±1/2 in. (±15 mm) over a 50 ft (15 m) string line.

3.06 PROTECTION
A. After work in this section is complete, the General Contractor shall be responsible for protecting work from sediment deposition and damage due to subsequent construction activity on the site.

END OF SECTION

NO.	REVISION	DATE	BY	APPRV'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

0 1 2
ORIGINAL SCALE IS IN INCHES

REGISTERED PROFESSIONAL ENGINEER
ANTHONY S. MCCREARY
No. C90888
Exp. 03/31/24
CIVIL
STATE OF CALIFORNIA

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www.cwecorp.com

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
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PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

PERMEABLE PAVER SPECIFICATIONS

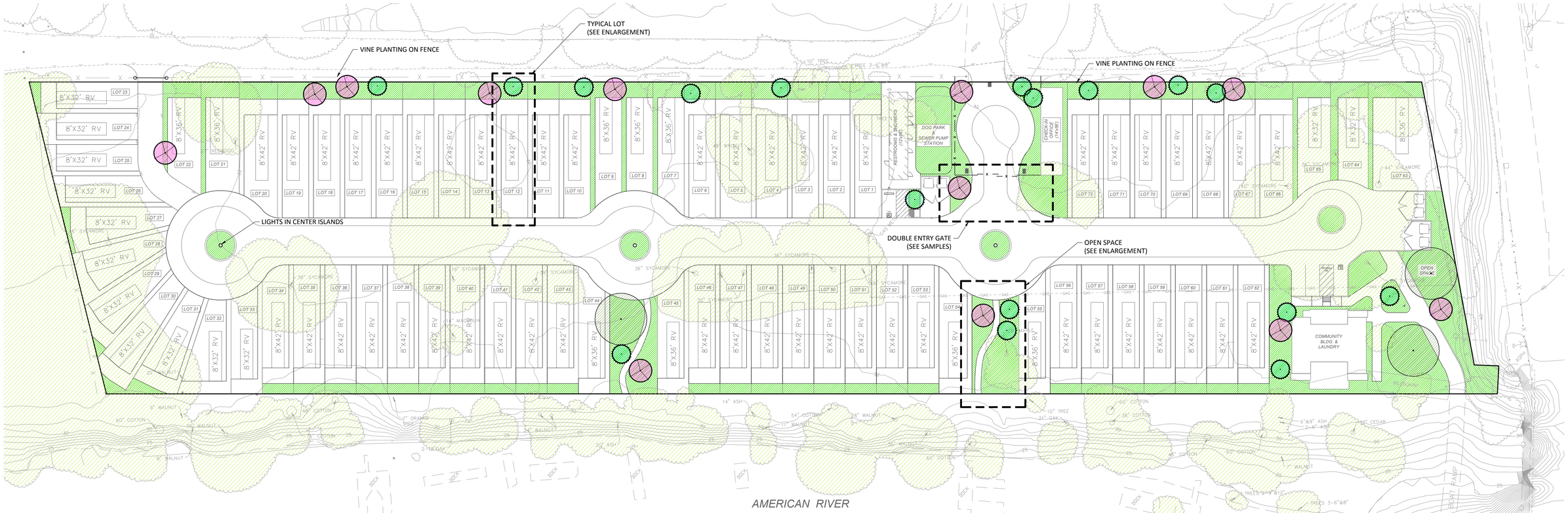
Drawing 19 of 19 — Sheet C14 of Total 46

10-04-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

RIVERDALE RESORT RV PARK

1501 NORTHGATE BOULEVARD, SACRAMENTO CALIFORNIA



PLANT LEGEND

SYM	BOTANICAL/ COMMON NAME
	TREES
	CERCIS OCCIDENTALIS/ WESTERN REDBUD (15 GAL)
	CORNUS NUTTALLII/ PACIFIC DOGWOOD
	UMBELLULARIA CALIFORNICA/ CALIFORNIA BAY LAUREL
	SHRUBS
	ACHILLEA MILLEFOLIUM/YARROW
	CAREX SPP./ SEDGE
	CARPENTERIA CALIFORNICA/ BUSH ANEMONE
	CEANOTHUS SPP./ CALIFORNIA LILAC
	JUNCUS EFFUSUS 'QUARTZ CREEK'/ RUSH
	MYRICA CALIFORNICA/ PACIFIC WAX MYRTLE
	SALVIA 'AROMAS'/ AROMAS SAGE

27,184 SQUARE FEET PROPOSED LANDSCAPE AREA


WESTERN REDBUD


DOGWOOD


CA. BAY LAUREL


YARROW


SEDGE


BUSH ANEMONE

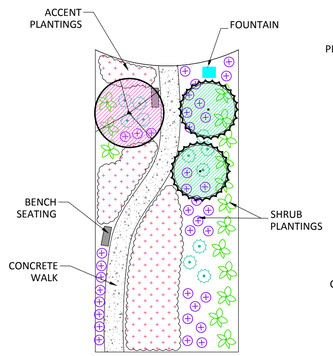

CA. LILAC


RUSH

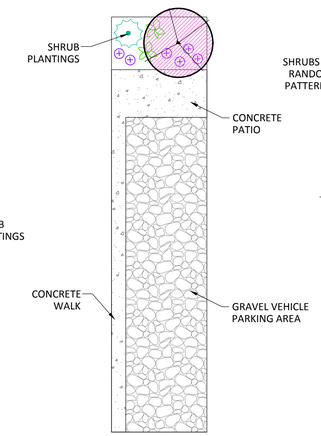

WAX MYRTLE


SAGE

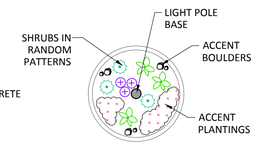

HONEYSUCKLE
(VINE)



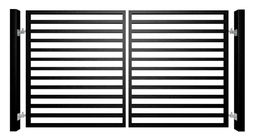
OPEN SPACE
SCALE: 1"=15'-0"



TYPICAL LOT
SCALE: 1"=15'-0"

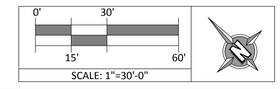


CIRCULAR PLANTERS
SCALE: 1"=15'-0"



NOTE :
GATES TO BE INSTALLED IN SLIDE ORIENTATION.
GRAPHICS SHOWN TO REPRESENT GENERAL DESIGN INTENT FOR HORIZONTAL SLATS.

DOUBLE SLIDE GATE SAMPLES
NTS



SCALE: 1"=30'-0"

PRELIMINARY LANDSCAPE PLAN

OCTOBER 4, 2023

MSLA
LANDSCAPE ARCHITECTURE, Inc.
306 Canyon Falls Dr. Folsom, CA 95630
916.989.3372 www.msladesign.com

PRELIMINARY

SHEET P1 OF TOTAL 1

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LIGHTING:

- 2X4 LIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE
- DOWNLIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE.
- 1X4 OR INDUSTRIAL FIXTURE. SEE LIGHT FIXTURE SCHEDULE
- POLE MOUNTED LIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE
- $ SINGLE POLE TOGGLE SWITCH, +48" TO TOP OF BOX, UNLESS OTHERWISE NOTED.
- $$ TWO POLE TOGGLE SWITCH, +48" TO TOP OF BOX, UNLESS OTHERWISE NOTED.
- $$$ THREE POLE TOGGLE SWITCH, +48" TO TOP OF BOX, UNLESS OTHERWISE NOTED.
- a,b,c SWITCH SUBSCRIPTS: a, b, c = DEVICE CONTROLLED; p = PILOT; k = KEYED
- D WALL MOTION SENSOR/DIMMER SWITCH (WATTSTOPPER PW-100D OR EQUAL).
- (D) DIMMING PC/DAYLIGHT SENSOR (LEVITON PCC1D OR EQUAL).
- $D DIMMER SWITCH 0-10V DIMMING & OFF. VERIFY COMPATIBILITY WITH LIGHT FIXTURE(S).
- M WALL MOTION SENSOR (LEVITON ODS-06 OR EQUAL).
- 4 BUTTON LIGHTING CONTROL STATION. (LEVITON RLVSW OR EQUAL.) SEE SHEET E2.1 FOR ADDITIONAL INFORMATION.

POWER:

- DUPLEX RECEPTACLE, 15 AMP, 125V, 3W, NEMA 5-15R, +18" UNLESS OTHERWISE NOTED
- DUPLEX RECEPTACLE, 20 AMP, 125V, 3W, NEMA 5-20R, +18" UNLESS OTHERWISE NOTED
- JUNCTION BOX, SIZE AND TYPE AS INDICATED OR REQUIRED
- DISCONNECT SWITCH. SIZE AND TYPE AS REQUIRED PER EQUIPMENT MANUFACTURER'S NAMEPLATE.
- SWITCHBOARD/DISTRIBUTION PANEL/MOTOR CONTROL CENTER
- RV POWER PEDESTAL. SEE POWER PLANS AND ONELINE DIAGRAM FOR ADDITIONAL INFORMATION.

RACEWAY:

- CONDUIT RUN CONCEALED IN CEILING OR WALL
- CONDUIT RUN CONCEALED BELOW FINISHED FLOOR OR GRADE
- HOME RUN TO RESPECTIVE PANEL OR TERMINAL CABINET
- 2,4 CIRCUIT INDENTIFICATION; CIRCUITS 2 & 4, CIRCUIT 4, ETC.
- HASH MARKS INDICATE NUMBER OF #12 AWG CONDUCTORS. NO HASH MARKS INDICATE (2)#12 AWG CONDUCTORS, OTHER SIZES AS NOTED ON PLANS
- BRANCH CIRCUIT WITH GREEN ("G") GROUND WIRE

ABBREVIATIONS:

CO	CONDUIT ONLY WITH PULL ROPE
WP	WEATHERPROOF
AFF	ABOVE FINISHED FLOOR
NL	NIGHT LIGHT – CONNECT TO EXISTING NIGHT LIGHT CIRCUIT
(N)	NEW
(E)	EXISTING DEVICE TO REMAIN
(ED)	EXISTING DEVICE TO BE REMOVED.
EM	EMERGENCY – PROVIDE WITH 90 MIN EMERGENCY BACK UP BALLAST
GFCI	GROUND FAULT CIRCUIT INTERRUPTING
LCP	LIGHTING CONTROL PANEL – LEVITON EZ-MAX OR EQUAL. PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.

CONVENTIONS:

- LIGHT FIXTURE TAG, LETTER INDICATES TYPE. SEE FIXTURE SCHEDULE
- XX NUMBERED SHEET NOTE, SEE SHEET NOTE SCHEDULE

GENERAL NOTES:

1. EMPTY CONDUIT STUB-UPS ARE TO EXTEND TO ACCESSIBLE CEILING SPACE.
2. PROVIDE PULL STRING IN EMPTY CONDUITS.
3. VERIFY EXACT LOCATION OF MOTORS/PUMPS, ETC. PRIOR TO BID.
4. PROVIDE SEISMIC ANCHORS ON ALL EQUIPMENT INCLUDING TRANSFORMERS, SWITCHGEAR, GENERATOR, ETC.
5. PROVIDE ARC FLASH HAZARD WARNING SIGN AT PANELS AND EQUIPMENT IN COMPLIANCE WITH CEC SECTION 110.16.
6. COORDINATE WITH THE UTILITY COMPANY NEW SERVICE COMMITMENT PACKAGE FOR WORK REQUIRED BY OWNER/CONTRACTOR.
7. COORDINATE WITH PRE-MANUFACTURED BUILDING SHOP DRAWING SUBMITTALS FOR ELECTRICAL PANEL LOCATIONS.

ELECTRICAL DATUM PLANE:

THE ELECTRICAL SYSTEM DESIGN IS BASED ON THE 2022 NATIONAL ELECTRICAL CODE, 2022 CALIFORNIA ELECTRICAL CODE, SECTION 551.3 (B), ELECTRICAL DATUM PLANE DISTANCE. THIS DISTANCE IS DETERMINED BY A HORIZONTAL PLANE THAT IS 2 FT. ABOVE THE NORMAL HIGH WATER LINE FOR THE AREA THAT OCCURS UNDER NORMAL CIRCUMSTANCES. FOR COMPLIANCE, ALL ELECTRICAL SWITCHGEAR AND TRANSFORMERS SHALL BE PLACED ON CONCRETE PADS/PEDESTALS MINIMUM 2 FT ABOVE GRADE LEVEL.

BELOW GRADE CONDUIT AND CONDUCTORS:

ALL BELOW GRADE CONDUIT RISERS SHALL BE STUBBED A MINIMUM OF 24" ABOVE GRADE AND PROVIDED WITH A WATERPROOF SEALANT.

ALL CONDUCTORS ROUTED BELOW GRADE SHALL BE TYPE THWN OR XHWN, RATED TEMPERATURE OF 75 DEGREE CELCIUS, (PER N.F.I.P. TABLE 3.3.5.)

SHEET INDEX:

SYMBOLS LIST

NO SCALE

NO.	REVISION	DATE	BY	APPR'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

ORIGINAL SCALE IS IN INCHES (0, 1, 2)

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

symbols list & load calculation

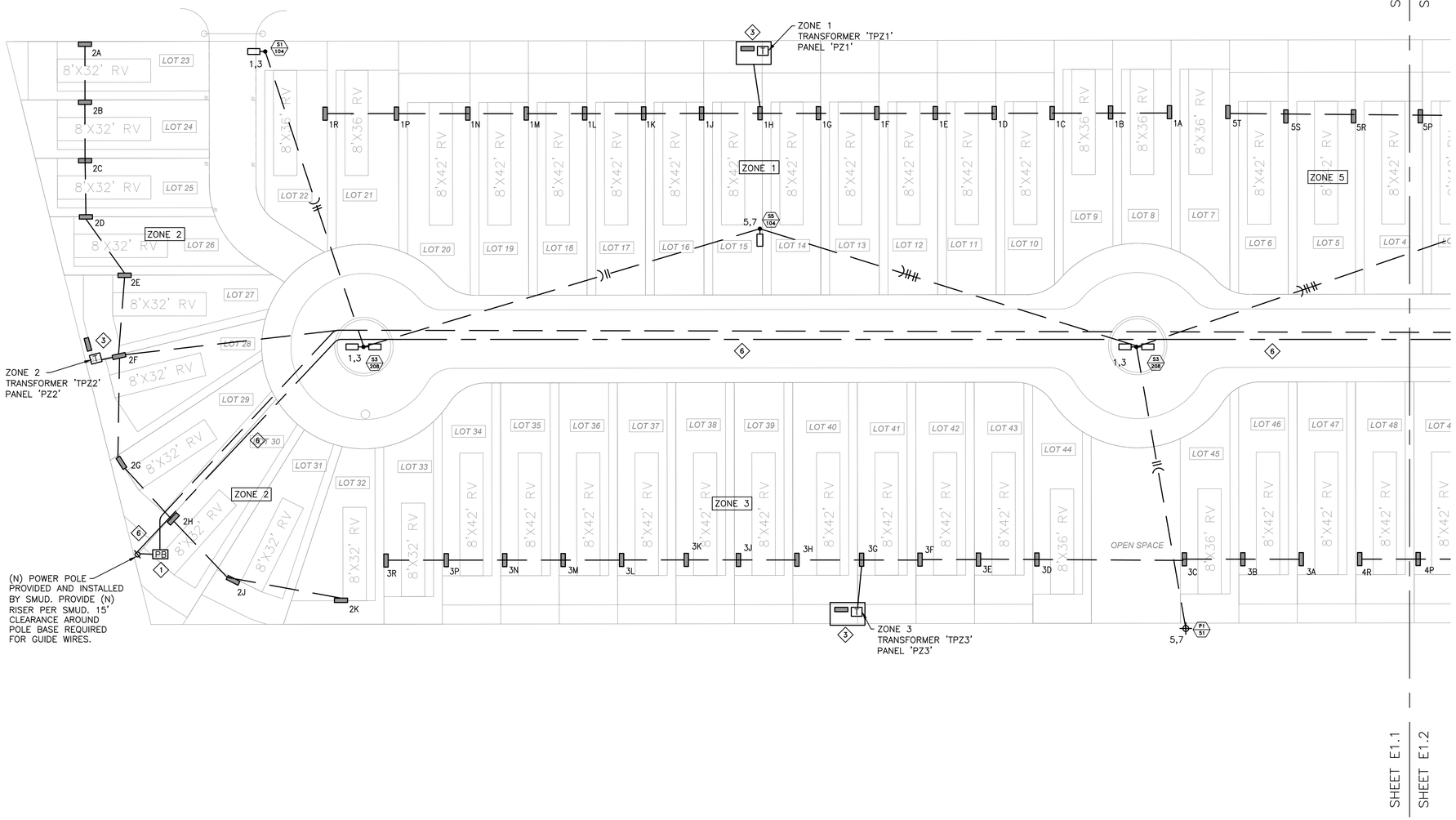
Drawing Sheet
E0.1
of of Total

09-29-2023

LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618
JEFF HULSE - PRESIDENT
1-530-681-5015

SHEET NOTES

1. EQUIPMENT REQUIRED PER SMUD NEW SERVICE DESIGN. SEE SMUD COMMITMENT PACKAGE/DRAWING FOR OWNER/CONTRACTOR SCOPE OF WORK. EQUIPMENT INCLUDES BUT NOT LIMITED TO PULLBOXES, CONDUIT, TRANSFORMER PAD, ETC.
2. POWER PEDESTAL (MIDWEST RV EQUIPMENT U075CP4L10 OR EQUAL). PEDESTAL SHALL BE RATED FOR 100 AMPS, PAD MOUNTED AND EQUIPPED WITH LED LIGHT. SEE SPEC SHEET E5.1.
3. PROVIDE CONCRETE TRANSFORMER MOUNTING PAD. FINAL HEIGHT TO BE DETERMINED.
4. EXISTING ELECTRICAL SERVICE TO BILLBOARD TO BE REMOVED. PROVIDE NEW CONDUIT & CONDUCTORS TO EXISTING BILLBOARD PANELBOARD AS SHOWN. COORDINATE WITH SMUD FOR DE-ENERGIZE AND REMOVAL OF EXISTING SERVICE.
5. RAISED STEEL STRUCTURAL PLATFORM FOR ELECTRICAL MSB AND DISTRIBUTION TRANSFORMERS. FINAL HEIGHT SHALL BE 24" ABOVE FLOOD PLAIN HEIGHT. COORDINATE FINAL EQUIPMENT DIMENSIONS AND HEIGHT REQUIREMENTS WITH STRUCTURAL, PRIOR TO ROUGH-IN.
6. 4" EMPTY CONDUIT SYSTEM WITH MULE TAPE FOR AT&T SERVICE RELOCATION. PROVIDE 4" CONDUIT RISERS AT EACH SMUD POLE AS SHOWN. PROVIDE 17"X30" SPLICE BOX AT CHECK-IN BUILDING WITH A 2" EMPTY CONDUIT TO DESIGNATED LOCATION IN BUILDING.
7. PULLBOX FOR FUTURE CLUBHOUSE BUILDING POWER. SEE ONELINE DIAGRAM FOR ADDITIONAL INFORMATION.



ELECTRICAL SITE PLAN - NORTH

1"=20'-0"

NORTH

BY	CHECK	NO.	REVISION	DATE	BY	APPRV'D
DESIGN TSM	RFE					
DRAWN TSM	RFE					
QUANT.						

0 1 2 ORIGINAL SCALE IS IN INCHES

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

electrical site plan - north

Drawing E1.1 Sheet of Total

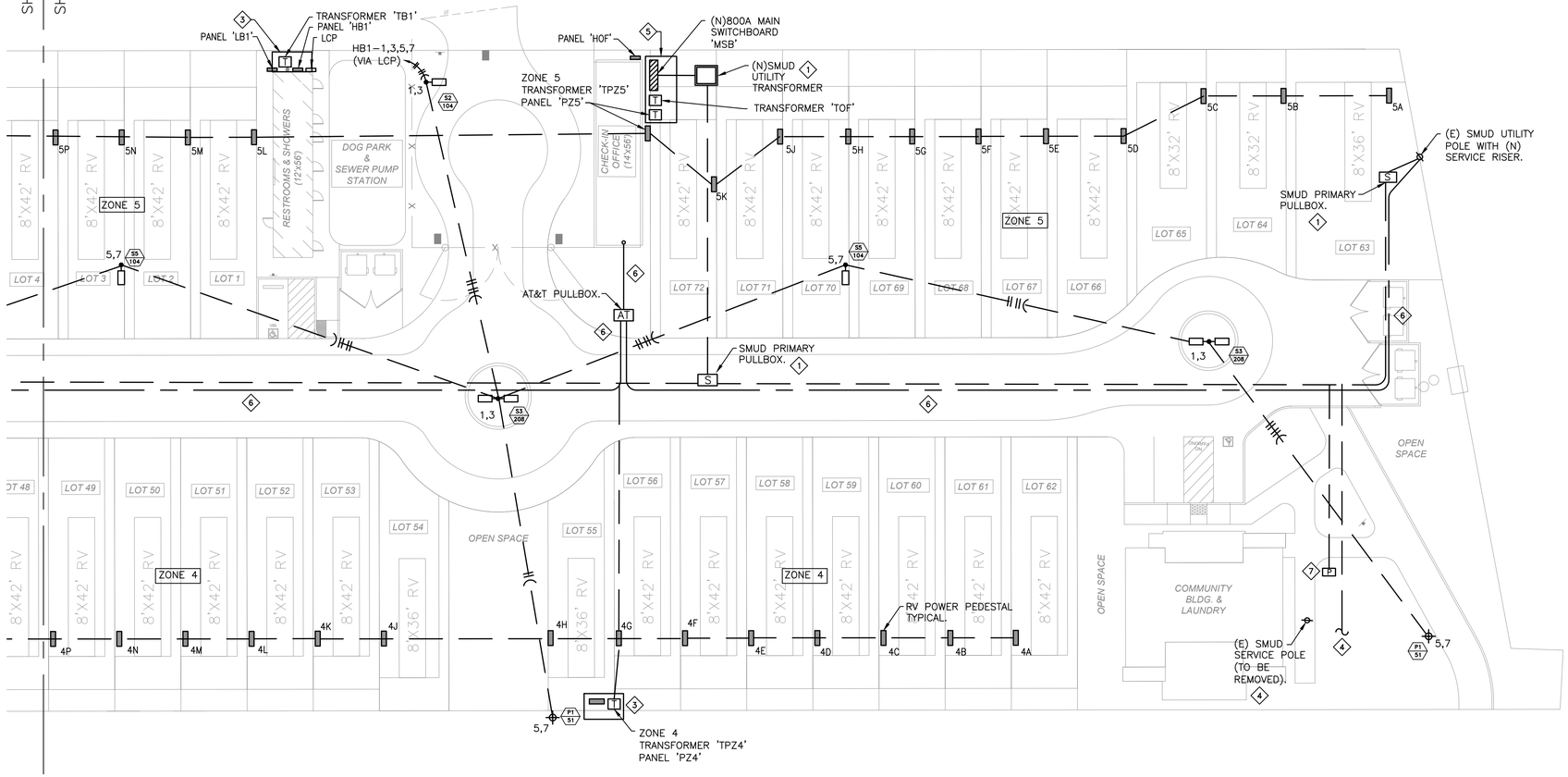
09-29-2023

LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618

JEFF HULSE - PRESIDENT
1-530-681-5015

SHEET NOTES

1. EQUIPMENT REQUIRED PER SMUD NEW SERVICE DESIGN. SEE SMUD COMMITMENT PACKAGE/DRAWING FOR OWNER/CONTRACTOR SCOPE OF WORK. EQUIPMENT INCLUDES BUT NOT LIMITED TO PULLBOXES, CONDUIT, TRANSFORMER PAD, ETC.
2. POWER PEDESTAL (MIDWEST RV EQUIPMENT U075CP4L10 OR EQUAL). PEDESTAL SHALL BE RATED FOR 100 AMPS, PAD MOUNTED AND EQUIPPED WITH LED LIGHT. SEE SPEC SHEET E5.1.
3. PROVIDE CONCRETE TRANSFORMER MOUNTING PAD. FINAL HEIGHT TO BE DETERMINED.
4. EXISTING ELECTRICAL SERVICE TO BILLBOARD TO BE REMOVED. PROVIDE NEW CONDUIT & CONDUCTORS TO EXISTING BILLBOARD PANELBOARD AS SHOWN. COORDINATE WITH SMUD FOR DE-ENERGIZE AND REMOVAL OF EXISTING SERVICE.
5. RAISED STEEL STRUCTURAL PLATFORM FOR ELECTRICAL MSB AND DISTRIBUTION TRANSFORMERS. FINAL HEIGHT SHALL BE 24" ABOVE FLOOD PLAIN HEIGHT. COORDINATE FINAL EQUIPMENT DIMENSIONS AND HEIGHT REQUIREMENTS WITH STRUCTURAL, PRIOR TO ROUGH-IN.
6. 4" EMPTY CONDUIT SYSTEM WITH MULE TAPE FOR AT&T SERVICE RELOCATION. PROVIDE 4" CONDUIT RISERS AT EACH SMUD POLE AS SHOWN. PROVIDE 17"X30" SPLICE BOX AT CHECK-IN BUILDING WITH A 2" EMPTY CONDUIT TO DESIGNATED LOCATION IN BUILDING.
7. PULLBOX FOR FUTURE CLUBHOUSE BUILDING POWER. SEE ONELINE DIAGRAM FOR ADDITIONAL INFORMATION.



ELECTRICAL SITE PLAN - SOUTH

1"=20'-0"

NORTH

REVISION	NO.	DATE	BY	APPR'D

CHECK	BY
RFE	TSM
RFE	TSM

DESIGN
DRAWN
QUANT.

0 1 2 ORIGINAL SCALE IS IN INCHES

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

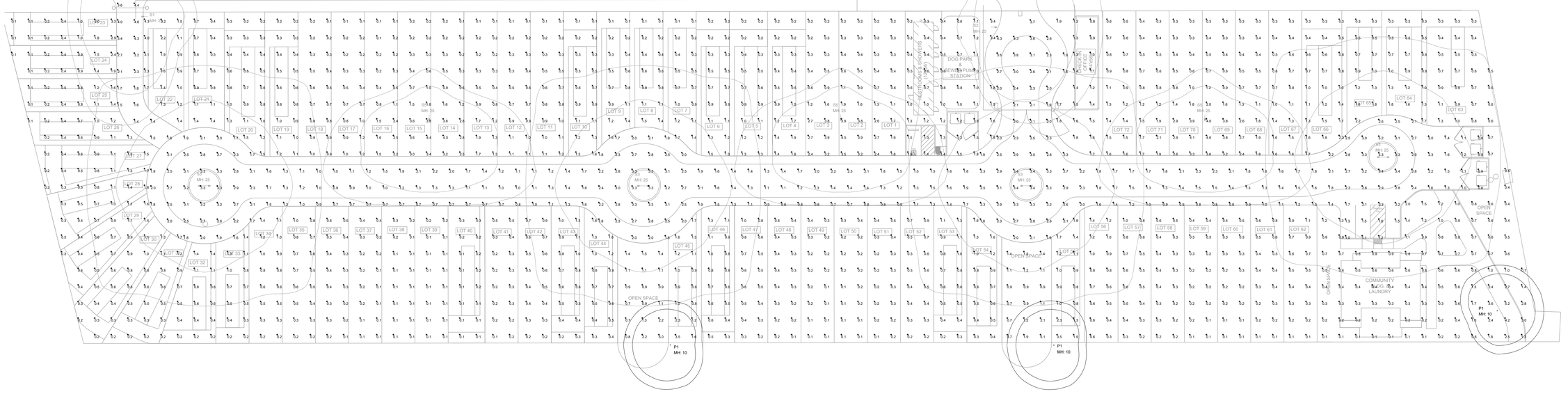
electrical site plan - south

Drawing E1.2 Sheet of Total

LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618

JEFF HULSE - PRESIDENT
1-530-681-5015

09-29-2023



SITE LIGHTING PHOTOMETRIC PLAN

NO SCALE

Luminaire Schedule							
Scene: GENERAL							
Symbol	Qty	Label	Arrangement	Description	Lum. Lumens	LLF	Filename
	1	S1	SINGLE	GARDCO OPF-S-A05-740-T2M-AR1-UNV	17154	0.900	OPF-S-A05-740-T2M.ies
	1	S2	SINGLE	GARDCO OPF-S-A05-740-T4M-AR1-UNV	17247	0.900	OPF-S-A05-740-T4M.ies
	4	S3	Back-Back	GARDCO OPF-S-A05-740-T5W-AR1-UNV	16995	0.900	OPF-S-A05-740-T5W.ies
	3	S5	SINGLE	GARDCO OPF-S-A05-740-T3M-AR1-UNV	17018	0.900	OPF-S-A05-740-T3M.ies
	3	P1	SINGLE	GARDCO PPT-196L-1150-WW-G2-3-UNV	5439	0.900	PPT-196L-1150-WW-G2-3-UNV.ies

Calculation Summary							
Scene: GENERAL							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
ROADWAY	Illuminance	Fc	1.98	4.6	0.7	2.83	6.57
RV PARKING	Illuminance	Fc	0.80	5.2	0.1	8.00	52.00

NO.	REVISION	DATE	BY	APPRV'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

0 1 2
ORIGINAL SCALE IS IN INCHES

PRIME WEST INVESTMENTS, INC.
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WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

site lighting photometric plan

Drawing Sheet
E1.3
of of Total

09-29-2023

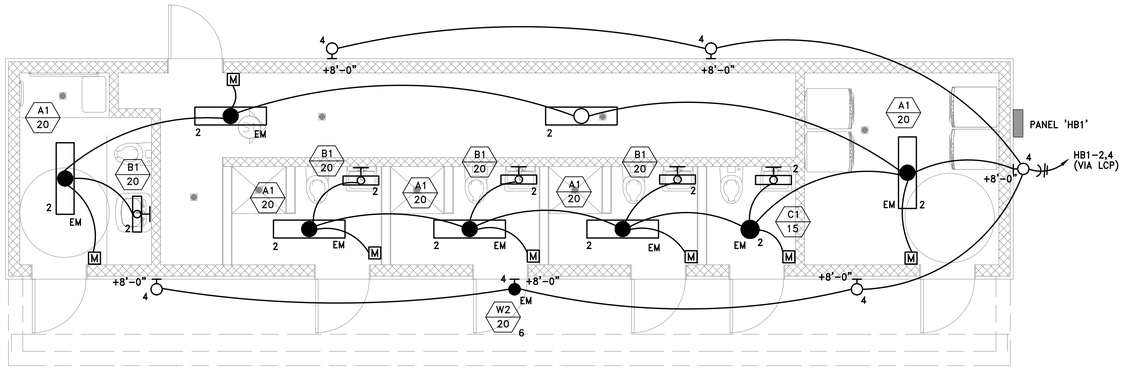
LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618

JEFF HULSE - PRESIDENT
1-530-681-5015

LIGHT FIXTURE SCHEDULE

NOTES: 1. ALL FIXTURES LABELED WITH 'EM' SHALL BE PROVIDED WITH 90 MIN BATTERY BACK UP.
2. COORDINATE WITH DIMMING CONTROL DEVICES PRIOR TO ORDER.
3. EXCEEDING THE FIXTURE WATTAGE SHOWN MAY REQUIRE RE-DESIGN & RE-SUBMITTAL.

SYM	DESCRIPTION	MANUFACTURER CATALOG NUMBER	LAMPS	VA	VOLTS 120	277	480	MOUNTING	REMARKS
A1	1X4 WRAPAROUND LED	TO BE SELECTED BY CONTRACTOR	LED	20	●			SURFACE	
B1	VANITY LIGHT	TO BE SELECTED BY CONTRACTOR	LED	20	●			SURFACE	
C1	SURFACE ROUND	TO BE SELECTED BY CONTRACTOR	LED	15	●			SURFACE	
W2	WALLPAK	TO BE SELECTED BY CONTRACTOR	LED	20	●			WALL @ 8'-0"	

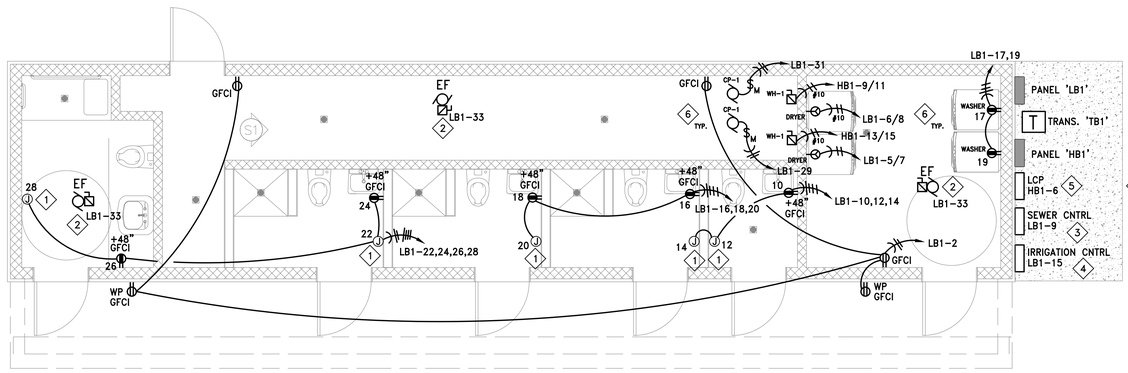


SHEET NOTES

1. JUNCTION BOX FOR ELECTRIC HAND DRYER CONNECTION. VERIFY INSTALLATION REQUIREMENTS PRIOR TO ROUGH-IN.
2. CEILING EXHAUST FANS 'M1' (TYPICAL OF 3). CONNECT TO CIRCUIT LB1-33. COORDINATE CONTROL REQUIREMENTS PRIOR TO ROUGH-IN. SEE MECHANICAL SHEET M1 FOR ADDITIONAL INFORMATION.
3. SEWER PUMP CONTROL PANEL. CONTRACTOR SHALL COORDINATE CONDUIT/WIRE REQUIRED FROM CONTROL PANEL TO PUMPS(S).
4. IRRIGATION CONTROL PANEL. PROVIDE POWER PER CIRCUIT INDICATED.
5. LIGHTING CONTROL PANEL (LEVITON EZ-MAX OR EQUAL). PROVIDE REQUIRED RELAYS, HARDWARE TO MAKE A COMPLETE AND OPERATIONAL SYSTEM.
6. SPECIFIC EQUIPMENT OUTLETS, DISCONNECT SWITCHES, ETC TO BE MOUNTED AT MINIMUM +24" A.F.F. WHERE APPLICABLE.
7. 6'x12'x2' RAISED CONCRETE PAD/PEDESTAL FOR ELECTRICAL EQUIPMENT INSTALLATION. SEE SITE PLAN SHEET E1.2 FOR ADDITIONAL INFORMATION.

LIGHTING PLAN

1/4"=1'-0"



POWER PLAN

1/4"=1'-0"

LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618

JEFF HULSE - PRESIDENT
1-530-681-5015

NO.	REVISION	DATE	BY	APPRV'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

0 1 2 ORIGINAL SCALE IS IN INCHES

PRIME WEST INVESTMENTS, INC.
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WINTERS, CA 95694
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PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

bath house -
lighting & power plan

Drawing E2.1 — Sheet — of — of Total

09-29-2023

PANEL: PZ2			VOLTAGE: 120/208					BUS: 250A VIA 'TPZ2' (112.5 KVA)					
TYPE:			3 PHASE 4 WIRE					MTG: SURFACE					
N	T	LOAD	KVA	C.B.	NO.	S/N	NO.	C.B.	KVA	LOAD	T	N
3	G	POWER PEDESTAL 2A-2E (5)	19.5	200/2	1 A		2			SPACE		
3	G		19.5		3 B		4			SPACE		
3	G	POWER PEDESTAL 2F-2K (5)	19.5	200/2	5 C		6			SPACE		
3	G		19.5		7 A		8			SPACE		
					9 B		10			SPACE		
					11 C		12			SPACE		
					13 A		14					
					15 B		16					
					17 C		18					
					19 A		20					
					21 B		22					
					23 C		24					
					25 A		26					
					27 B		28					
					29 C		30					
					31 A		32					
					33 B		34					
					35 C		36					
					37 A		38					
					39 B		40					
					41 C		42					

TOTAL CONNECTED:	PHASE A	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE B	19.5 KVA	162.5 AMPS
TOTAL CONNECTED:	PHASE C	19.5 KVA	162.5 AMPS
CONNECTED LOAD (SUM OF PH.)		78.0 KVA	216.5 AMPS

DEMAND LOAD: 78.0 KVA 216.5 AMPS
DEMAND INCL. 125% CONT. LOAD

NOTES (NOT ALL MAY APPLY):
1. (E) BREAKER (E) LOAD
2. (E) BREAKER (N) LOAD
3. (N) BREAKER AND LOAD
4. A.I.C. TO MATCH MSB
5. ROUTED VIA CEILING SENSORS (TITLE 24)
6. VIA LIGHTING CONTROL PANEL
7. PROVIDE ARC FLASH CIRCUIT INTERRUPTER
8. PROVIDE GFCI
9. PROVIDE BLOCK OFF DEVICE, PAINT RED & LABEL "FIRE ALARM CONTROL PANEL"

PANEL: PZ1			VOLTAGE: 120/208					BUS: 400A VIA 'TPZ1' (150 KVA)					
TYPE: CU			3 PHASE 4 WIRE					MTG: SURFACE					
N	T	LOAD	KVA	C.B.	NO.	S/N	NO.	C.B.	KVA	LOAD	T	N
3	G	POWER PEDESTAL 1A-1E (5)	19.5	200/2	1 A		2			SPACE		
3	G		19.5		3 B		4			SPACE		
3	G	POWER PEDESTAL 1F-1K (5)	19.5	200/2	5 C		6			SPACE		
3	G		19.5		7 A		8			SPACE		
3	G	POWER PEDESTAL 1L-1R (5)	19.5	200/2	9 B		10			SPACE		
3	G		19.5		11 C		12			SPACE		
					13 A		14					
					15 B		16					
					17 C		18					
					19 A		20					
					21 B		22					
					23 C		24					
					25 A		26					
					27 B		28					
					29 C		30					
					31 A		32					
					33 B		34					
					35 C		36					
					37 A		38					
					39 B		40					
					41 C		42					

TOTAL CONNECTED:	PHASE A	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE B	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE C	39.0 KVA	325.0 AMPS
CONNECTED LOAD (SUM OF PH.)		117.0 KVA	324.8 AMPS

DEMAND LOAD: 117.0 KVA 324.8 AMPS
DEMAND INCL. 125% CONT. LOAD

NOTES (NOT ALL MAY APPLY):
1. (E) BREAKER (E) LOAD
2. (E) BREAKER (N) LOAD
3. (N) BREAKER AND LOAD
4. A.I.C. TO MATCH MSB
5. ROUTED VIA CEILING SENSORS (TITLE 24)
6. VIA LIGHTING CONTROL PANEL
7. PROVIDE ARC FLASH CIRCUIT INTERRUPTER
8. PROVIDE GFCI
9. PROVIDE BLOCK OFF DEVICE, PAINT RED & LABEL "FIRE ALARM CONTROL PANEL"

PANEL: PZ5			VOLTAGE: 120/208					BUS: 400A VIA XFMR 'TPZ5' (150 KVA)					
TYPE:			3 PHASE 4 WIRE					MTG: SURFACE					
N	T	LOAD	KVA	C.B.	NO.	S/N	NO.	C.B.	KVA	LOAD	T	N
3	G	POWER PEDESTAL 5A-5E (5)	19.5	200/2	1 A		2			SPACE		
3	G		19.5		3 B		4			SPACE		
3	G	POWER PEDESTAL 5F-5K (5)	19.5	200/2	5 C		6			SPACE		
3	G		19.5		7 A		8			SPACE		
3	G	POWER PEDESTAL 5L-5T (7)	23.1	200/2	9 B		10			SPACE		
3	G		23.1		11 C		12			SPACE		
					13 A		14					
					15 B		16					
					17 C		18					
					19 A		20					
					21 B		22					
					23 C		24					
					25 A		26					
					27 B		28					
					29 C		30					
					31 A		32					
					33 B		34					
					35 C		36					
					37 A		38					
					39 B		40					
					41 C		42					

TOTAL CONNECTED:	PHASE A	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE B	42.6 KVA	355.0 AMPS
TOTAL CONNECTED:	PHASE C	42.6 KVA	355.0 AMPS
CONNECTED LOAD (SUM OF PH.)		124.2 KVA	344.7 AMPS

DEMAND LOAD: 124.2 KVA 344.7 AMPS
DEMAND INCL. 125% CONT. LOAD

NOTES (NOT ALL MAY APPLY):
1. (E) BREAKER (E) LOAD
2. (E) BREAKER (N) LOAD
3. (N) BREAKER AND LOAD
4. A.I.C. TO MATCH MSB
5. ROUTED VIA CEILING SENSORS (TITLE 24)
6. VIA LIGHTING CONTROL PANEL
7. PROVIDE ARC FLASH CIRCUIT INTERRUPTER
8. PROVIDE GFCI
9. PROVIDE BLOCK OFF DEVICE, PAINT RED & LABEL "FIRE ALARM CONTROL PANEL"

PANEL: PZ4			VOLTAGE: 120/208					BUS: 400A VIA XFMR 'TPZ4' (150 KVA)					
TYPE:			3 PHASE 4 WIRE					MTG: SURFACE					
N	T	LOAD	KVA	C.B.	NO.	S/N	NO.	C.B.	KVA	LOAD	T	N
3	G	POWER PEDESTAL 4A-4E (5)	19.5	200/2	1 A		2			SPACE		
3	G		19.5		3 B		4			SPACE		
3	G	POWER PEDESTAL 4F-4K (5)	19.5	200/2	5 C		6			SPACE		
3	G		19.5		7 A		8			SPACE		
3	G	POWER PEDESTAL 4L-4T (5)	19.5	200/2	9 B		10			SPACE		
3	G		19.5		11 C		12			SPACE		
					13 A		14					
					15 B		16					
					17 C		18					
					19 A		20					
					21 B		22					
					23 C		24					
					25 A		26					
					27 B		28					
					29 C		30					
					31 A		32					
					33 B		34					
					35 C		36					
					37 A		38					
					39 B		40					
					41 C		42					

TOTAL CONNECTED:	PHASE A	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE B	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE C	39.0 KVA	325.0 AMPS
CONNECTED LOAD (SUM OF PH.)		117.0 KVA	324.8 AMPS

DEMAND LOAD: 117.0 KVA 324.8 AMPS
DEMAND INCL. 125% CONT. LOAD

NOTES (NOT ALL MAY APPLY):
1. (E) BREAKER (E) LOAD
2. (E) BREAKER (N) LOAD
3. (N) BREAKER AND LOAD
4. A.I.C. TO MATCH MSB
5. ROUTED VIA CEILING SENSORS (TITLE 24)
6. VIA LIGHTING CONTROL PANEL
7. PROVIDE ARC FLASH CIRCUIT INTERRUPTER
8. PROVIDE GFCI
9. PROVIDE BLOCK OFF DEVICE, PAINT RED & LABEL "FIRE ALARM CONTROL PANEL"

PANEL: P23			VOLTAGE: 120/208					BUS: 400A VIA XFMR 'TPZ3' (150 KVA)					
TYPE:			3 PHASE 4 WIRE					MTG: SURFACE					
N	T	LOAD	KVA	C.B.	NO.	S/N	NO.	C.B.	KVA	LOAD	T	N
3	G	POWER PEDESTAL 3A-3E (5)	19.5	200/2	1 A		2			SPACE		
3	G		19.5		3 B		4			SPACE		
3	G	POWER PEDESTAL 3F-3K (5)	19.5	200/2	5 C		6			SPACE		
3	G		19.5		7 A		8			SPACE		
3	G	POWER PEDESTAL 3L-3T (5)	19.5	200/2	9 B		10			SPACE		
3	G		19.5		11 C		12			SPACE		
					13 A		14					
					15 B		16					
					17 C		18					
					19 A		20					
					21 B		22					
					23 C		24					
					25 A		26					
					27 B		28					
					29 C		30					
					31 A		32					
					33 B		34					
					35 C		36					
					37 A		38					
					39 B		40					
					41 C		42					

TOTAL CONNECTED:	PHASE A	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE B	39.0 KVA	325.0 AMPS
TOTAL CONNECTED:	PHASE C	39.0 KVA	325.0 AMPS
CONNECTED LOAD (SUM OF PH.)		117.0 KVA	324.8 AMPS

DEMAND LOAD: 117.0 KVA 324.8 AMPS
DEMAND INCL. 125% CONT. LOAD

NOTES (NOT ALL MAY APPLY):
1. (E) BREAKER (E) LOAD
2. (E) BREAKER (N) LOAD
3. (N) BREAKER AND LOAD
4. A.I.C. TO MATCH MSB
5. ROUTED VIA CEILING SENSORS (TITLE 24)
6. VIA LIGHTING CONTROL PANEL
7. PROVIDE ARC FLASH CIRCUIT INTERRUPTER
8. PROVIDE GFCI
9. PROVIDE BLOCK OFF DEVICE, PAINT RED & LABEL "FIRE ALARM CONTROL PANEL"

PANEL: LB1			VOLTAGE: 120/208					BUS: 125A 22K AIC NEMA 3R					
TYPE: CU			3 PHASE 4 WIRE					MTG: SURFACE					
N	T	LOAD	KVA	C.B.	NO.	S/N	NO.	C.B.	KVA	LOAD	T	N
3	M	EF-1	1.0	20/1	1 A		2	20/1	0.8	RECPS - GFCI	R	3
3	M	EF-2	1.0	20/1	3 B		4			SPACE		
3	B	208V RECP - DRYER	1.8	20/2	5 C		6	20/2	1.8	208V RECP - DRYER	R	3
3	B		1.8		7 A		8		1.8		R	3
3	C	SEWER PUMP CNTRL PANEL	0.4	20/1	9 B		10	20/1	1.0	RECP - GFCI	R	3
3	M	SEWER PUMP #1	1.2	20/2	11 C		12	20/1	1.0	HAND DRYER	M	3
3	M		1.2		13 A		14	20/1	1.0	HAND DRYER	M	3
3	C	IRRIGATION CNTRL PANEL	0.4	20/1	15 B		16	20/1	1.0	RECP - GFCI	R	3
3	R	RECP WASHER	1.5	20/1	17 C		18	20/1	1.0	RECP - GFCI	R	3
3	R	RECP WASHER	1.5	20/1	19 A		20	20/1	1.0	HAND DRYER	M	3
		SPACE			21 B		22	20/1	1.0	HAND DRYER	M	3
3	M	SEWER PUMP #2	1.2	20/2	23 C		24	20/1	1.0	RECP - GFCI	R	3
3	M		1.2		25 A		26	20/1	1.0	RECP - GFCI	R	3
		SPACE			27 B		28	20/1	1.0	HAND DRYER	M	3
3	M	CP-1	0.1	20/1	29 C		30			SPACE		
3	M	CP-2	0.1	20/1	31 A		32			SPACE		
3	M	EXHAUST FANS	1.5	20/1	33 B		34			SPACE		
		SPACE			35 C		36			SPACE		
		SPACE			37 A		38			SPACE		
		SPACE			39 B		40			SPACE		
		SPACE			41 C		42			SPACE		

TOTAL CONNECTED:	PHASE A	12.4 KVA	103.3 AMPS
TOTAL CONNECTED:	PHASE B	7.4 KVA	61.7 AMPS
TOTAL CONNECTED:	PHASE C	10.6 KVA	88.3 AMPS
CONNECTED LOAD (SUM OF PH.)		30.4 KVA	84.4 AMPS

DEMAND LOAD: 30.3 KVA 84.1 AMPS
DEMAND INCL. 125% CONT. LOAD

NOTES (NOT ALL MAY APPLY):
1. (E) BREAKER (E) LOAD
2. (E) BREAKER (N) LOAD
3. (N) BREAKER AND LOAD
4. A.I.C. TO MATCH MSB
5. ROUTED VIA CEILING SENSORS (TITLE 24)
6. VIA LIGHTING CONTROL PANEL
7. PROVIDE ARC FLASH CIRCUIT INTERRUPTER
8. PROVIDE GFCI
9. PROVIDE BLOCK OFF DEVICE, PAINT RED & LABEL "FIRE ALARM CONTROL PANEL"

PANEL: HB1			VOLTAGE: 277/480					BUS: 125A 22K AIC NEMA 3R					
TYPE: CU.			3 PHASE 4 WIRE					MTG: SURFACE					
N	T	LOAD	KVA	C.B.	NO.	S/N	NO.	C.B.	KVA	LOAD	T	N
6	L	SITE LIGHTING	1.0	20/2	1 A		2	20/1	0.2	LTG - BATH HOUSE INT.	L	6
6	L		1.0		3 B		4	20/1	0.2	LTG - BATH HOUSE EXTERIOR.	L	6
6	L	SITE LIGHTING	1.0	20/2	5 C		6	20/1	0.4	LIGHTING CONTROL PANEL	G	3
6	L		1.0		7 A		8			SPACE		
3	C	HWH-1	6.1	30/2	9 B		10			SPACE		
3	C		6.1		11 C		12			SPACE		
3	C	HWH-1	6.1	30/2	13 A		14			SPACE		
3	C		6.1		15 B		16		12.4		S	3
		SPACE			17 C		18	60/3	7.4	PANEL 'LB1' (VIA 'TB1' 45KVA)	S	3
		SPACE			19 A		20		10.6		S	3
		SPACE			21 B		22			SPACE		
		SPACE			23 C		24			SPACE		

TOTAL CONNECTED:	PHASE A	18.9 KVA	68.2 AMPS
TOTAL CONNECTED:	PHASE B	25.8 KVA	93.1 AMPS
TOTAL CONNECTED:	PHASE C	14.9 KVA	53.8 AMPS
CONNECTED LOAD (SUM OF PH.)		59.6 KVA	71.7 AMPS

DEMAND LOAD: 66.8 KVA 80.3 AMPS
DEMAND INCL. 125% CONT. LOAD

NOTES (NOT ALL MAY APPLY):
1. (E) BREAKER (E) LOAD
2. (E) BREAKER (N) LOAD
3. (N) BREAKER AND LOAD
4. A.I.C. TO MATCH MSB
5. ROUTED VIA CEILING SENSORS (TITLE 24)
6. VIA LIGHTING CONTROL PANEL
7. PROVIDE ARC FLASH CIRCUIT INTERRUPTER
8. PROVIDE GFCI
9. PROVIDE BLOCK OFF DEVICE, PAINT RED & LABEL "FIRE ALARM CONTROL PANEL"

PANEL SCHEDULES

NO SCALE

NO.	REVISION	DATE	BY	APPRV'D

DESIGN	TSM	CHECK	RFE
DRAWN	TSM		RFE
QUANT.			

ORIGINAL SCALE IS IN INCHES 0 1 2

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

panel schedules

Drawing Sheet
E3.1
of of Total

09-29-2023

LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618

JEFF HULSE - PRESIDENT
1-530-681-5015

LOAD CALCULATIONS

			KVA
1.	RV POWER PEDESTALS:		
	PANELS 'PV1' – 'PV5'		
	12.0 KVA EA. X QTY. (72)	=	864
	PER NEC. 551.73(A) @ 41%	=	354.3
2.	RESTROOMS & SHOWER BLDG:		
	PANEL 'HB1'	=	66.8
3.	CHECK–IN OFFICE BLDG:		
	160 AMPS @ 240V	=	38.4
4.	EXISTING BILLBOARD	=	15.0
5.	FUTURE COMMUNITY BUILDING		
	160 AMPS @ 240V	=	38.4
			512.9

512.9 KVA @ 480V/277, 3 PHASE, 4 WIRE = 617.2 AMPS

AN 800 AMP SERVICE IS ADEQUATE.

Powering forward. Together.

SMUD

August 4, 2023

PRIME WEST INVESTMENTS INC
ATTENTION: LINDA FRAZIER
27038 COUNTY ROAD 92F
WINTERS CA 95694

Notification # 32238823

SMUD COMMITMENT LETTER

Thank you for submitting your plans for **1501 NORTHGATE BL** for an electric service commitment. Your cooperation enables us to give you the best service possible, as well as provide for your future requirements.

We are returning one copy of your plans indicating the service location and other requirements checked below. Our commitment is subject to changing conditions and, as a result, may not be valid after twelve months.

Please contact the Designer if additional information is desired.

Designer: LEIGH CARRUTH Telephone (916) 732-6746
Service will be: Overhead [ ] Underground [X]
Volts: 277/480 Phase: THREE Wire: 4 Type: WYE
(Street light service voltage will be the same as above.)

Transformer pad required:	Yes [X]	No [ ]	SMUD Dwg. UVD 2.2 & 2.2A
Conduit required:	Yes [X]	No [ ]	(see sketch)
Right-of-way required:	Yes [X]	No [ ]	
Transformer protection required:	Yes [X]	No [ ]	see sketch and SMUD Dwg. UVD 2.5
Primary pull box required:	Yes [X]	No [ ]	SMUD Dwg. UVC 1.2, 1.2.2 & 1.2.9
Secondary J – Box Required:	Yes [ ]	No [X]	SMUD Dwg. N/A
Service box required:	Yes [ ]	No [X]	SMUD Dwg. N/A
Switchgear pad required:	Yes [ ]	No [X]	SMUD Dwg. N/A

Other requirements: See enclosed Booklet [X] Prints [X]

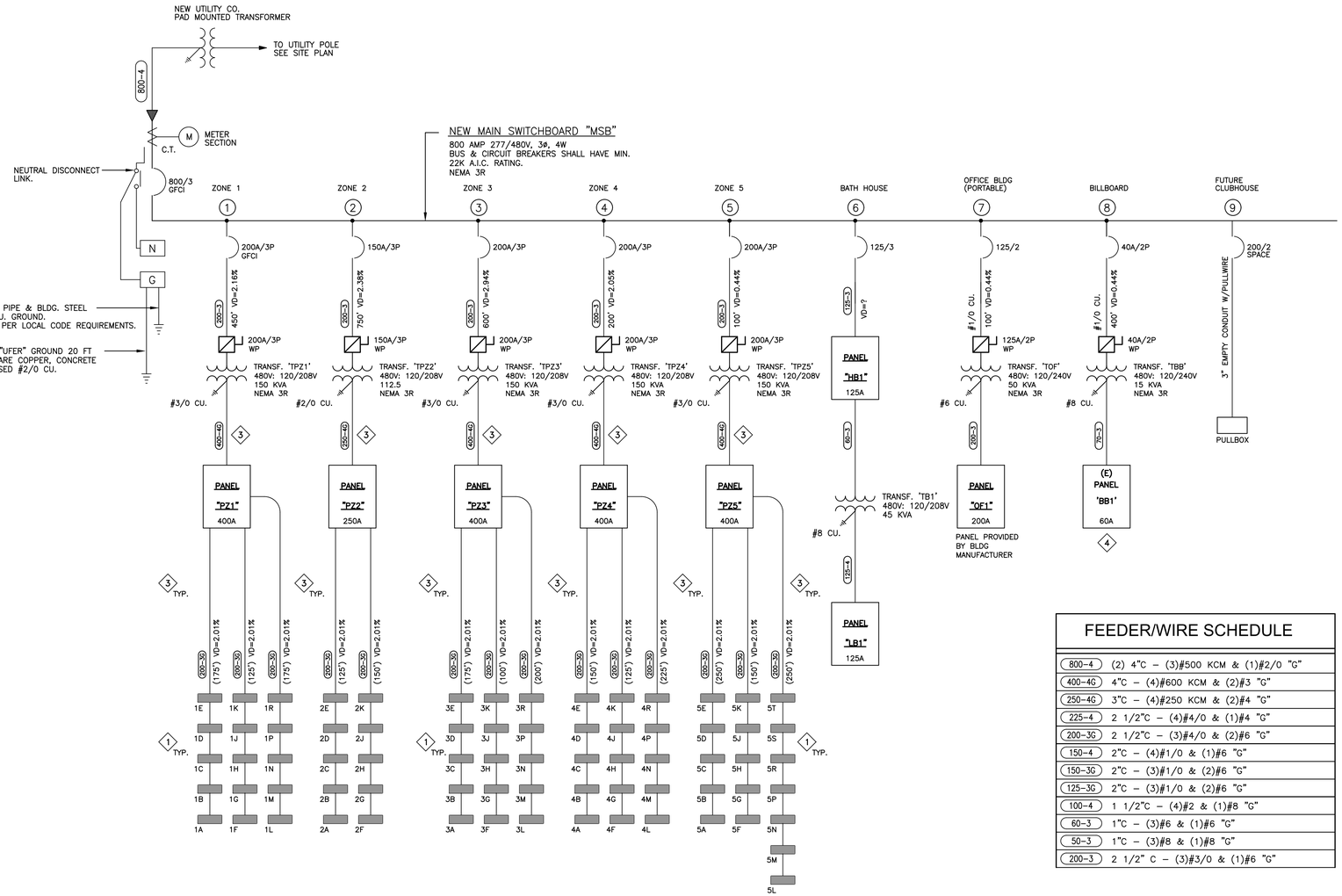
*A maximum fault current of 17,100 amps, symmetrical, is based on the largest transformer that could be needed to serve the Single [X] Combined [ ] main sizes of 800 amps under the following assumptions:

1. The largest transformer that could be needed is 750 kVA with 5.3 % impedance
2. A primary system impedance of zero ohms
3. No motor contributions to the fault, and
4. Zero ohms fault impedance

The meter(s) shall be located on the exterior of the building. When it is absolutely necessary to locate meters in locked rooms, cabinets, or fenced enclosures, consult SMUD's Field Metering at (916) 732-5167.

*If future load growth necessitates increasing the main switch size, the available fault current should be recalculated.

NOTE: This commitment letter may be required by local inspection authority as part of its plan check requirements.



SHEET NOTES

1. RV POWER PEDESTAL (MIDWEST U075CP4L10 OR EQUAL). PEDESTAL SHALL BE RATED FOR 100 AMPS, PAD MOUNT, UNMETERED, FEED THRU LUGS, TYPE WITH LED LIGHT. PEDESTAL LOCATION PER 2022 CEC SECTION 551.77; (A)–(F). LOOP FEED PEDESTALS WITH SPECIFIED CONDUIT/CONDUCTORS. SEE PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
2. NEW 800 AMP, 480/277V, 3 PHASE, 4 WIRE MAIN SWITCHBOARD 'MSB'.
3. EXPOSED, FIXED, NON–CURRENT CARRYING EQUIPMENT OF THE SITE SUPPLY (PEDESTALS) THAT IS NOT ELECTRICALLY CONNECTED TO GROUND, SHALL BE PROVIDED WITH AN EQUIPMENT GROUNDING CONDUCTOR. ROUTE CONDUCTOR WITH THE CIRCUIT CONDUCTORS TO THE SECONDARY SERVICE TRANSFORMER. INSTALL PER NEC/CEC SECTION 551.76; (A)–(E). SEE FEEDER SCHEDULE FOR ADDITIONAL INFORMATION.
4. EXISTING BILLBOARD POWER PANEL. PANEL LOCATED ON NORTH COLUMN OF BILLBOARD STRUCTURE. MOUNT NEW 15 KVA TRANSFORMER ON EXISTING BILLBOARD NEAR EXISTING PANEL 'BB1'. PROVIDE A COMPLETE AND OPERATIONAL SYSTEM. COORDINATE WITH SMUD FOR DISCONNECT OF EXISTING SERVICE AND SMUD POLE THAT CURRENTLY FEEDS BILLBOARD.
5. LOOP FEED POWER TO PEDESTALS IN DESIGNATED AREA/ZONE.

FEEDER/WIRE SCHEDULE

800–4	(2) 4"C – (3)#500 KCM & (1)#2/0 "G"
400–4G	4"C – (4)#600 KCM & (2)#3 "G"
250–4G	3"C – (4)#250 KCM & (2)#4 "G"
225–4	2 1/2"C – (4)#4/0 & (1)#4 "G"
200–3G	2 1/2"C – (3)#4/0 & (2)#6 "G"
150–4	2"C – (4)#1/0 & (1)#6 "G"
150–3G	2"C – (3)#1/0 & (2)#6 "G"
125–3G	2"C – (3)#1/0 & (2)#6 "G"
100–4	1 1/2"C – (4)#2 & (1)#8 "G"
60–3	1"C – (3)#6 & (1)#6 "G"
50–3	1"C – (3)#8 & (1)#8 "G"
200–3	2 1/2" C – (3)#3/0 & (1)#6 "G"

ONELINE DIAGRAM

NO SCALE

	APPRV'D	DATE	BY	REVISION	NO.	CHECK	BY
						RFE	TSM
						RFE	TSM

DESIGN
DRAWN
QUANT.

0 1 2 ORIGINAL SCALE IS IN INCHES

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

oneline diagram & load calculations

LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618

JEFF HULSE - PRESIDENT
1-530-681-5015

Drawing E4.1 Sheet — of — of Total

09-29-2023

Unmetered

90 – 125 Amps, 120/240V

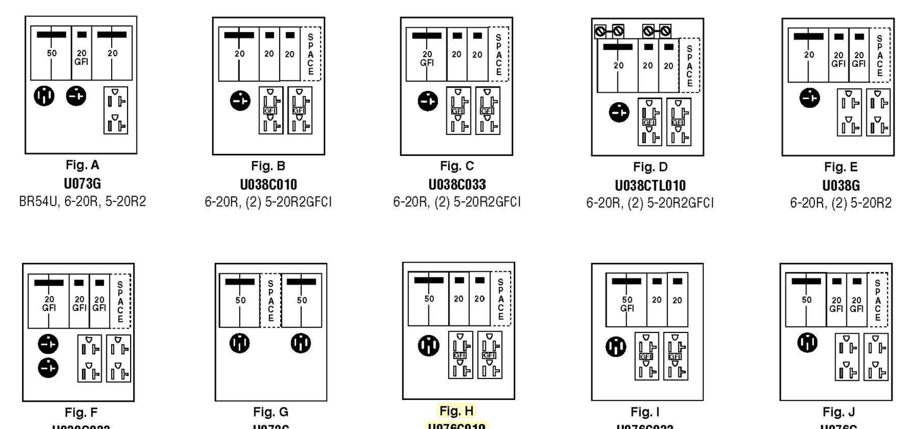


Fig. A U073G BR54U, 6-20R, 5-20R2 · Fig. B U038C010 6-20R, (2) 5-20R2GFCI · Fig. C U038C033 6-20R, (2) 5-20R2GFCI · Fig. D U038CTL010 6-20R, (2) 5-20R2GFCI · Fig. E U038G 6-20R, (2) 5-20R2

Fig. F U038G033 6-20R2, (2) 5-20R2 · Fig. G U072C (2) BR54U · Fig. H U076C010 BR54U, (2) 5-20R2GFCI · Fig. I U076C033 BR54U, (2) 5-20R2GFCI · Fig. J U076G BR54U, (2) 5-20R2

RV Equip – Metallic

Fig.	Model Number	Receptacles	Circuit Protection	Amps	Wire Range*	Cabinet Size	Hub Opening	Load & Neutral Bar	Unit Wt.	Std Pkg.	UL
A	U073G	BR54U, 6-20R, 5-20R2	THQL2150, THQL2120, THQL1120GFT	90	U	9 x 17		LC55N1	16	1	
B	U038C010	6-20R, (2) 5-20R2GFCI	THQL2120, (2) THQL1120	100	AA	9 x 17		LC55N1	15	1	
C	U038C033	6-20R, (2) 5-20R2GFCI	THQL2120GFT, (2) THQL1120, Space THQL1120	100	AA	9 x 17		LC55N1	15	1	
D	U038CTL010[1]	6-20R, (2) 5-20R2GFCI	THQL2120, (2) THQL1120, Space THQL1120	100	AA	9 x 17		LC55N1T	16	1	
E	U038G	6-20R, (2) 5-20R2	THQL2120, (2) THQL2120GFT, Space THQL1120	100	U	9 x 17	Y	LC55N1	15	1	cULus
F	U038G033	6-20R2, (2) 5-20R2	THQL2120GFT, (2) THQL1120GFT, Space THQL1120	100	U	9 x 17		LC55N1	15	1	
G	U072C	(2) BR54U	(2) THQL2150, Space THQL1120	100	V	9 x 17		LC55N1	16	1	
H	U076C010	BR54U, (2) 5-20R2GFCI	THQL2150, (2) THQL1120, Space THQL1120	100	AA	9 x 17		LC55N1	16	1	
I	U076C033	BR54U, (2) 5-20R2GFCI	(2) THQL1120, THQL2150GFT	100	AA	9 x 17		LC55N1	16	1	
J	U076G	BR54U, (2) 5-20R2	THQL2150, (2) THQL1120GFT, Space THQL1120	100	U	9 x 17		LC55N1	16	1	

[1] Available with GFI dual-pole breaker in place of GFI receptacle – replace "010" with "033". Order U038CTL033.
* Wire Range Table on page 11-12.

Data subject to change without notice.

RV Park Equipment

Successful camp ground owners provide their campers with the amenities that keep them coming back year after year: fun, recreation, relaxation, clean and well maintained facilities, friendly staff, and last but not least, hassle free RV hookups! That's where Midwest Electric Products comes in. Midwest offers a complete line of RV power outlets designed with both the camper and the campground owner in mind.

Camper Safety

- Designed and tested to stringent UL safety standards
- Personal protection against ground faults is accomplished via GFCI circuit breaker or receptacle (your choice)
- Duplex outlets are weather resistant and tamper resistant
- In-use covers and grade panels prevent cord and incoming cable abrasion
- Painted dead front panel separates the camper from all electrical wiring
- Power units and access panels can be padlocked to prevent unauthorized access/use

Customer Convenience

- RV power outlets are offered with a wide range of receptacle and circuit breaker combinations
- Power heads provide stay-open, in-use cover
- Convenience features include: LED light, TV, cable and water connections

Installation and Maintenance

- Installation and maintenance ease, durability, and aesthetics
- Factory wired circuit breakers and receptacles
- Surface mounted power heads have ample concentric knockouts
- Pedestal models are equipped with factory installed loop feed lugs to accommodate down-stream power outlets
- All mechanical lugs are rated for copper and aluminum wire, including the factory installed equipment ground lug
- G90 galvanized steel which provides superior corrosion protection and years of trouble free maintenance
- Durable, fade resistant, polyester powder coat paint finish that is baked on for extra protection

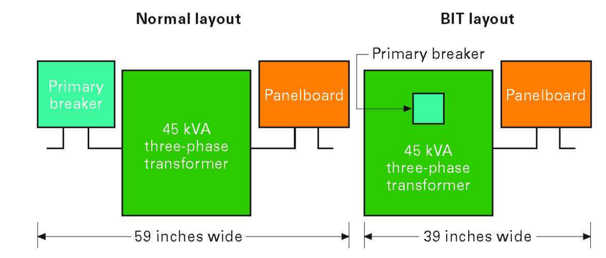
If you're a long-time Midwest RV power outlet customer, thank you for your continued business (many of our repeat customers have been buying from Midwest for over thirty years). If you're new to Midwest, welcome. We'll do our best to make you a believer in all Midwest Electric Products.

RV Park Equipment

Metallic RV · ParkMate™

Data subject to change without notice.

Reduce space (up to 30%) and cost with BIT transformers



Example of BIT with primary breaker shown; other configurations include secondary breaker, primary and secondary breakers, or two secondary breakers.

Customized to meet your needs

To help with unique breaker integrated transformer needs that cannot be met with standard offerings, Eaton's transformer Flex Center provides the ability to engineer or modify solutions to solve your most critical application challenges—with full access to our expert team of engineers.

Options include, but are not limited to:

- Tailor-made configurations and dimensions
- Harmonic mitigation transformers
- K-Factor rated transformers
- Custom testing for compliance with industry and regional standards
- NEMA® Type 3R with the addition of weathershields
- Stainless steel (304 or 316) enclosures, NEMA Type 1 or 3R construction
- Infrared windows to ease diagnostics
- Easy-access hinged doors to simplify maintenance and testing
- Custom paint colors
- Custom designs to meet special requirements for efficiency, sound, voltage, kVA ratings, impedance, altitude and temperature rise needs

Voltage, kVA ratings, catalog numbering system

R V 48 M 28 T 75 16 PDSD _

Type 1
R = Three-phase BIT
P = Single-phase BIT

Type 2
Three-phase
V = K1
H = K4
B = K9
N = K13
Single-phase
T = K1
HT = K4
BT = K9
NT = K13

Primary voltage ❷
Three-phase
48 = 480 V
Single-phase
20 = 240 x 480 V
24 = 240 V
48 = 480 V

Taps ❷
Three-phase
D = ±2 at 2.5%
M = +2 / –4 at 2.5%
Single-phase
G = 2 at –5%
M = 2 at +2.5%, 4 at –2.5%
P = 1 at +5%, 2 at –5% x 2 at +2.5%, 4 at –2.5%
R = 1 at +5%, 2 at –5%

Temperature rise ❶
Three-phase
B = 80 °C rise
F = 115 °C rise
T = 150 °C rise
Single-phase
B = 80 °C rise
F = 115 °C rise
S = 150 °C rise

Secondary voltage ❷
Three-phase
28 = 208Y/120 V
47 = 480Y/227 V
Single-phase
11 = 120/240 V
12 = 120 V
24 = 240 V

kVA ❷
Three-phase
30 = 30 kVA
45 = 45 kVA
75 = 75 kVA
12 = 112.5 kVA
49 = 150 kVA
22 = 225 kVA
33 = 300 kVA
Single-phase
15 = 15 kVA
25 = 25 kVA
37 = 37.5 kVA
50 = 50 kVA
75 = 75 kVA
99 = 100 kVA

Efficiency
16 = DOE 2016
16CU = DOE 2016 copper windings

MCCB ❷
PD = Primary breaker
SD = Secondary breaker
PDSD = Primary and secondary breakers
SDSD = Two secondary breakers

Accessories and modifications
T = Thermal sensor in coils
CS = Single copper shield
CU = Copper windings
DE = Double aluminum shield
DN = Double neutral (standard on K-Factor)
DS = Double copper shield
ES = Single aluminum shield (standard on K-Factor)
HD = Hinged front cover
I2 = 2-inch infrared window
I3 = 3-inch infrared window
I4 = 4-inch infrared window
S6 = 316 stainless steel NEMA 1 enclosure
SR = Certified sound level test report
SS = 304 stainless steel NEMA 1 enclosure
TR = Certified production test report
TS = Triple aluminum shield
W = Weather shields field kit

Breaker options
S1 = 120V AC shunt trip
ET = PXR10 LSI
H = High (65) kAIC

❶ 220 °C insulation.
❷ For custom configurations, contact the Flex Center at DTDTflex@eaton.com.

Breaker integrated transformer (BIT)

Reduce cost, footprint and arc-flash hazard

Today's power distribution components are expected to provide reliable performance and reduced footprint without breaking the budget. Eaton's breaker integrated transformer (BIT) meets these needs by integrating a traditionally separate molded case circuit breaker (MCCB) (primary, secondary or both simultaneously) and a low-voltage dry-type distribution transformer package—arriving factory assembled and fully tested to help you reduce the footprint and overall cost of your electrical distribution system.

EATON
Powering Business Worldwide

Features and benefits

Reduced project costs

- Replace the need for separate power distribution components with a fully enclosed MCCB integrated into Eaton's proven low-voltage dry-type distribution transformer technology
- Eliminate the need for extra panels, equipment, floor space and associated installation labor

Minimized footprint

- Take advantage of space savings with an integrated design that can save up to 30% compared to traditional, separately installed solutions
- Reduce installation footprint with 2-inch transformer-to-wall clearance

Simplified installation

- Meet NEC® 450.10A with a factory-installed ground bar
- Large cable entry area and wiring space for ease of installation
- Easy conveyance with 4-inch bottom-to-floor clearance

Enhanced power system flexibility

- Easily configure to specific application needs with a wide range of primary and secondary breaker choices
- Use Eaton's transformer Flex Center to meet special customer needs, including enclosure type, safety requirements, monitoring devices and more
- Reduce hazard of arc flash
- Arcflash Reduction Maintenance System™ compatible on 400 A and above applications

Compare the installation time savings—18% less

The table below shows the time saved by incorporating an Eaton BIT vs. a three-component system that uses a separate breaker, transformer and loadcenter.

Estimates in hours ❶

Installation	45 kVA Three-component system	Eaton BIT
Breaker layout	4	0
Breaker and fuse mount	3	0
Transformer layout, remove knockout, etc.	24	24
Loadcenter layout, mount and connect source	6	6
Total hours	**37**	**30**
Percent of time saved with Eaton's BIT	**18% savings**	

❶ Time estimates are typical and will vary by geographical area.

NO.	REVISION	DATE	BY	APPRV'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

0 1 2 ORIGINAL SCALE IS IN INCHES

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-601-0650

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

equipment spec sheets

LS&J ELECTRIC
44528 NORTH EL MACERO DRIVE
DAVIS, CA. 95618
JEFF HULSE - PRESIDENT
1-530-681-5015

Drawing Sheet
E5.1
of of Total

09-29-2023

BATHHOUSE AND TRASH ENCLOSURE DESIGN FOR:
RIVERDALE RESORT MOBILE HOME PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA

GENERAL NOTES:

1. ALL NAILING SHALL BE IN ACCORDANCE W/CBC TABLE R602.3(1) AND SECTION 2308

2. ALL EXTERIOR DOORS AND WINDOWS SHALL BE WEATHER STRIPPED. ALL JOINTS AND PENETRATIONS SHALL BE CAULKED AND SEALED.

3. AFTER THE INSTALLATION OF THE INSULATION, THE INSTALLER SHALL POST IN A CONSPICUOUS LOCATION AN INSULATION CERTIFICATE SIGNED BY THE INSTALLER AND THE BUILDER STATING THAT "THE INSTALLATION CONFORMS WITH THE REQUIREMENTS OF TITLE 24, PART 2, CHAPTER 2-53 OF THE CALIFORNIA ADMINISTRATION CODE.

4. THE INSULATION INSTALLED SHALL CONFORM TO FLAME-SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF CBC SCTION 719

5. MANUFACTURED FRAMING HARDWARE SHALL BE SIMPSON STRONG –TIE OR EQUAL HARDWARE SHALL BE INSTALLED PER MANUFACTURES SPECIFICATIONS

6. WHEN GYPSUM BOARD IS INSTALLED AS A BASE FOR TILE OR WALLS PANELS AT TUB, SHOW OR WATER CLOSET COMPARTMENT WALLS, WATER-RESISTANT BACKING BOARD SHALL BE INSTALLED PER CBC SECTION 2509

7. WATER RESISTANT GYPSUM BOARD SHALL NOT BE INSTALLED IN THE FOLLOWING LOCATIONS:

   A. OVER VAPOR RETARDER
   B. IN AREAS SUBJECT TO HIGH HUMIDITY, SUCH AS SAUNAS , STEAM ROOMS OR GANG SHOWERS
   C. ON CEILINGS WHERE FRAME SPACING EXCEEDS 12"O.C

8. GLAZING WITHIN 18" OF THE FLOOR AND 24" OF A DOOR SHALL BE TEMPERED GLASS PER CRC SECTION 308. PROVIDE PERMANENT IDENTIFICATION LABEL PER CRC SECTION 308.1

9. SHOWER AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH INDIVIDUAL CONTROL VALVES SETTING OF 120°F PER CBC SECTION 418.0

10. WATER HEATER
    SEISMIC STRAPPING: ANCHOR WATER HEATER TO WALL WITH STRAPS AT UPPER AND LOWER 1/3 POINTS PER CPC 508.2
    VENTING: TYPE B DOUBLE WAL VENT THROUGH THE ROOF W/CAP

11. PLUMBING FIXTURES MAXIMUM FLOW RATE (20% REDUCTION REQUIREMENT) PER CGBSC 4.303.1.3.1

SHOWERHEADS:	1.8 GPM @ 80 PSI
TUB/SHOWER COMBO:	1.8 GPM @ 80 PSI
GRAVITY TANK TOILET:	1.28 GAL/FLUSH
LAVATORY FAUCETS:	1.2 GPM @ 60 PSI
KITCHEN FAUCETS:	1.8 GPM @ 60 PSI
UTILITY SINK FAUCET:	1.8 GPM @ 60 PSI

12. IRRIGATION CONTROLLERS SHALL BE WEATHER OR SOIL MOISTURE BASED CONTROLLER THAT AUTOMATICALLY ADJUST IRRIGATION IN RESPONSE TO WEATHER CONDITION CHANGES . WEATHER BASED CONTROLLERS W/OUT INTEGRAL RAIN SENSORS OR COMMUNICATION SYSTEMS THAT FOR LOCAL RAINFALL SHALL HAVE SEPARATE WIRED OR WIRELESS RAIN SENSOR THAT CONNECTS OR COMMUNICATES WITH THE CONTROLLER PER CGBSC 4.304

13. ALL HOSE BIBS SHALL HAVE NON-REMOVABLE BACKFLOW DEVICES ATTACHED

14. PROVIDE 4" TALL STREET ADDRESS NUMBERS PLAINLY VISIBLE AND ON CONTRASTING BACK GROUNDS COMPLYING WITH CBC 501.2 AND LOCAL ORDINANCES. VERIFY REQUIREMENTS WITH BUILDING DEPT PRIOR TO INSTALLATION.

17. PROVIDE FOR A MINIMUM OF 60% RECYCLE/SALVAGE/REUSE OF NON-HAZARDOUS CONSTRUCTION MATERIALS AND DEMOLITION DEBRIS OR MEET LOCAL CONSTRUCTION/DEMOLITION WASTE MANAGEMENT ORDINANCE, WHICHEVER IS MORE STRINGENT PER CGBSC 4.408

18. PROJECT SHALL COMPLY WITH SENATE BILL 407, INSTALLATION OF WATER-CONSERVING PLUMBING FIXTURES THROUGHOUT THE HOUSE IS REQUIRED.

CODES AND ORDINANCES

CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND ORDINANCES:

- 2022 CALIFORNIA BUILDING CODE
- 2022 CALIFORNIA RESIDENTIAL CODE
- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE
- 2022 CALIFORNIA MECHANICAL CODE
- 2022 CALIFORNIA PLUMBING CODE
- 2022 CALIFORNIA ELECTRICAL CODE
- 2022 CALIFORNIA FIRE CODE
- 2022 CALIFORNIA ENERGY CODE (2022 RESIDENTIAL ENERGY STANDARDS)
- 2022 CALIFORNIA REFERENCED STANDARDS CODE
- APPLICABLE LOCAL CODES AND ORDINANCES

DESIGN CRITERIA

ROOF LIVE LOAD	20PSF
ROOF DEAD LOAD	20PSF
BASIC WIND SPEED	95 MPH
WIND EXPOSURE	B
SEISMIC DESIGN CATEGORY	D
SITE CLASS	D
SEISMIC RESPONSE FACTOR	5
Sds	0.64g
SOIL BEARING PRESSURE	1,500psf

CONSTRUCTION CRITERIA

BUILDING AREA:	672 S.F.
OCCUPANCY TYPE:	U
TYPE OF CONSTRUCTION:	III-B

REVISION TABLE			
NUMBER	DATE	REVISED BY	DESCRIPTION

COVER

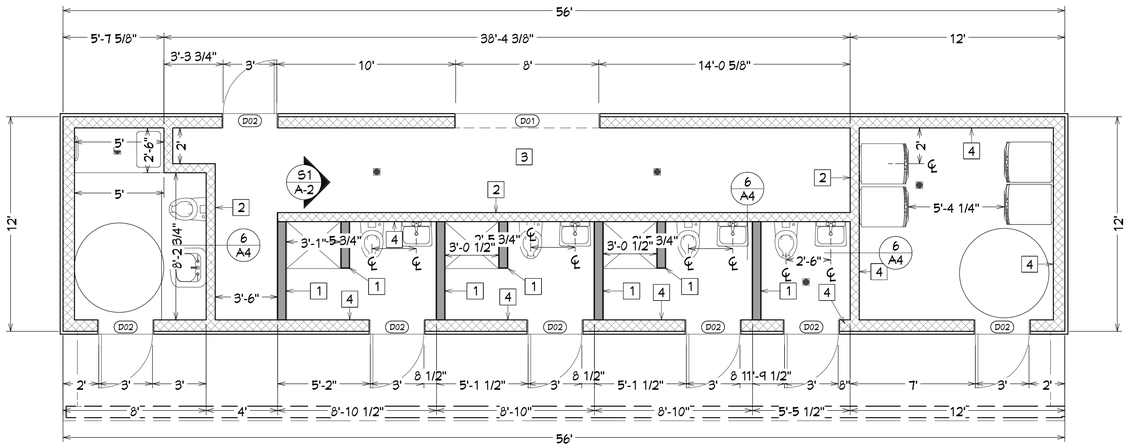
BATHHOUSE AND TRASH ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

J.B.
SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY, CA 95945
PHONE: 530-788-8794
EMAIL: JEFF@JBSANDGREN.COM

DATE: 9/20/2023

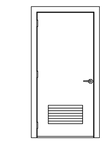
SCALE: 1/4" = 1'-0"

SHEET: A-1



FLOOR PLAN

DOOR SCHEDULE

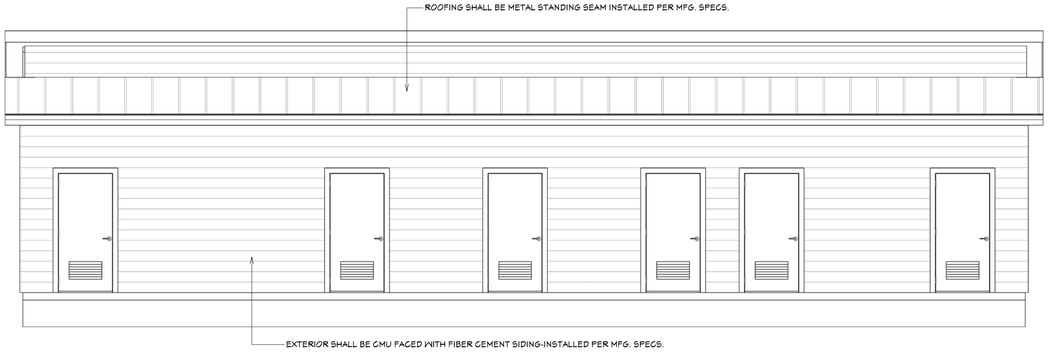
3D EXTERIOR ELEVATION	NUMBER	LABEL	QTY	COMMENTS
	D01	8080	2	8'X8' (NOMINAL) ROLL UP DOOR. STEEL FRAME. MANUAL OPERATION.
	D02	3068	14	3068 INSULATED METAL CLAD DOOR. STEEL FRAME. HARDWARE TO BE LEVER TYPE WITH EXTERIOR COMBINATION W/ AUTO RELEASE AT INTERIOR UPON HANDLE ACTIVATION.

NOTE SCHEDULE

1	INTERIOR WALLS SHALL BE FACED WITH FRP PANELING INSTALLED PER MFG SPECIFICATIONS
2	INTERIOR 6" CMU WALL. PROVIDE #4 REBAR VERTICAL AND HORIZONTAL SPACED MAX 40" O.C.
3	PROVIDE VENTILATION IN MECHANICAL ROOM FOR ALL EQUIPMENT AND EXHAUST VENTILATION FROM ADJACENT BATHROOMS THAT ARE OPEN TO THE MECHANICAL ROOM
4	PROVIDE GLOSS LATEX PAINT WITH ACRYLIC AT INTERIOR CMU WALLS

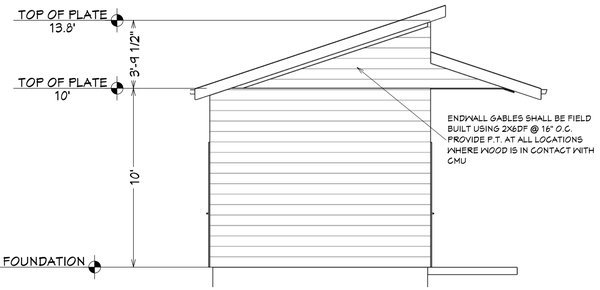
WALL SCHEDULE

2D SYMBOL	LABEL
	6" CMU WALL
	6" WOOD STUD WALL 16" O.C.
	8" CMU WALL

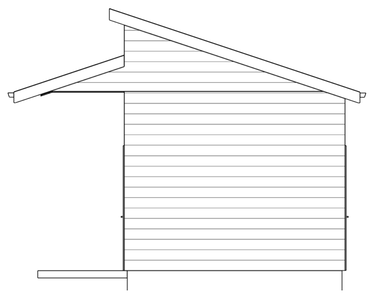


FRONT ELEVATION

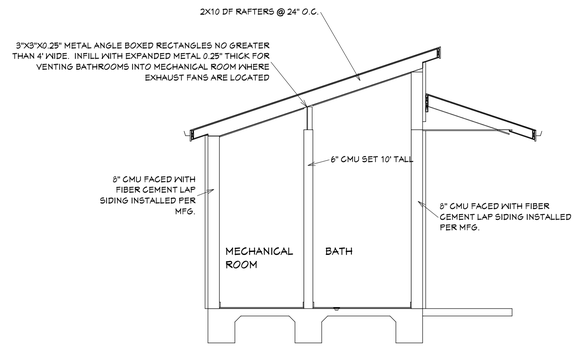
REAR ELEVATION



SIDE ELEVATION



SIDE ELEVATION



Cross Section 1

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

FLOOR PLAN

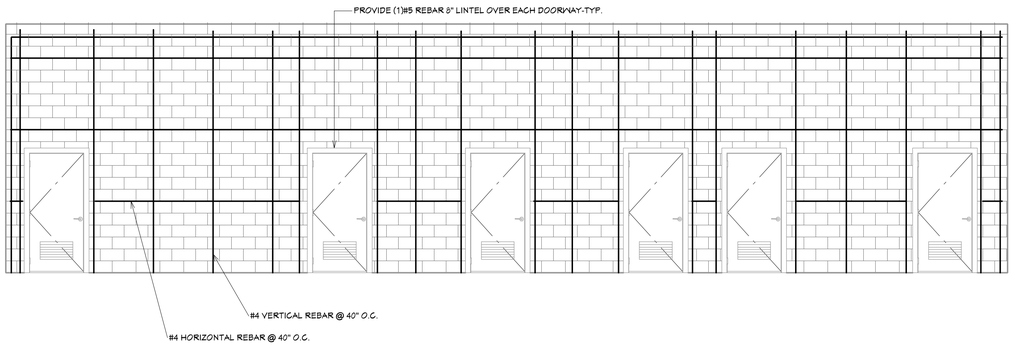
BATHHOUSE AND TRASH ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

J.B.
SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY, CA 95945
PHONE: 530-788-8794
EMAIL: JEFF@JBSANDGREN.COM

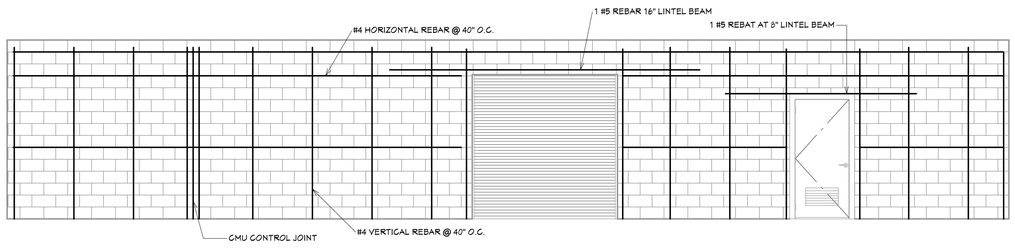
DATE: 9/20/2023

SCALE:

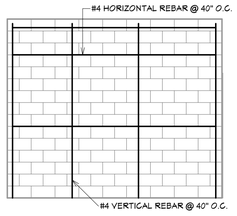
SHEET: A-2



FRONT WALL



REAR WALL



ENDWALLS

CMU NOTES

1. CONCRETE MASONRY UNITS (CMU) SHALL BE LIGHTWEIGHT UNITS NOT EXCEEDING 105 PCF CONFORMTING TO ASTM C90, GRADE N, WMINIMUM COMPRESSIVE STRENGTH = 1,900 PSI FOR 8" BLOCK, UNO. CMU UNITS MUST BE SAMPLED AND TESTED IN ACCORDANCE WITH ASTM C140.

2. MORTAR TO BE TYPE S AND BE FRESHLY PREPARED AND UNIFORMLY MIXED IN THE RATIO BY VOLUMES OF 1-PART CEMENT, 1/2 PART LIME PUTTY, 3 PARTS SAND W/ NO MORE WATER THAN IS REQUIRED FOR A WORKABLE CONSISTENCY, MORTAR SHALL BE IN ACCORDANCE WITH ASTM C270.

3. NORMAL WEIGHT GROUTE SHALL BE 1-PART CEMENT, 3 PARTS SAND, 2 PARTS PEA GRAVEL BY VOLUME AND BE OF FLUID CONSISTENCY AND A UNIT WEIGHT NOT EXCEEDING 140 PCF, THE MINIMUM 28 DAY ULTIMATE STRENGTH OF THE GROUT SHALL BE 2000 PSI IN ACCORDANCE WITH ASTM C476.

4. CONCRETE MASONRY SHALL BE SOLID GROUTED UNO ON DRAWINGS. MECHANICALLY VIBRATE EACH GROUT LIFT, EACH VERTICAL LIFT.

5. TYPICAL MASONRY UNIT SIZE SHALL BE NOMINAL 8 X 8 X 16 OPEN END BOND BEAM UNITS UNO. SOLID BOTTOM LINTEL BLOCKS MUST BE USED OVER OPENINGS IN WALLS.

6. UNLESS SHOWN OTHERWISE, TYPICAL REINFORCEMENT #4 VERTICAL BARS AT 32" O.C. AT CENTER OF WALL, HORIZONTAL BARS AT 40" O.C. PROVIDE DOWELS FROM FOOTING TO MATCH SIZE AND LOCATION OF EACH VERTICAL BAR, LAP DOWELS PER PLAN.
   A. 2 - #4 HORIZONTAL BARS AT TOP OF WALL
   B. 2 - #4 HORIZONTAL BARS AT HEAD OF OPENINGS 16'-0" OR LESS IN WIDTH.
   C. 2 - #4 VERTICAL BARS FULL HEIGHT IN END, JAMB AND CORNER CELLS.
   D. PROVIDE MIN. LAP SPLICE 62 DIAMETERS FOR #5 AND SMALLER BARS UNO. AT CORNERS PROVIDE HORIZONTAL LAP SPLICE OF 48 BAR DIAMETERS (30" MIN.)

7. MINIMUM GROUT LIFT SHALL NOT EXCEED 5'-0" IN ONE DAY UNLESS PROPER PROCEDURES FOR HIGH LIFT GROUTING OF THE GOVERNING AGENCIES ARE FOLLOWED, INCLUDING PROVISION OF CLEAN-OUTS AT THE BOTTOM OF EACH GROUTE LIFT AT EACH CELL CONTAINING VERTICAL REINFORCEMENT.

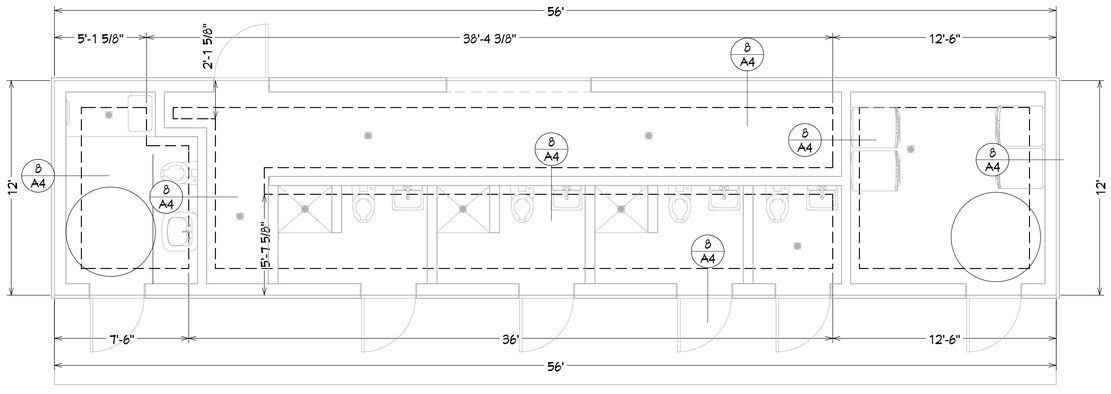
8. MASONRY UNITS SHALL BE CLEAN AND FREE OF ALL SUBSTANCE THAT MAY IMPAIR BOND.

9. BOND BEAM TYPE UNITS SHALL BE USED FOR ALL COURSES CONTAINING HORIZONTAL REINFORCEMENT.

10. WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER, PROVIDE A HORIZONTAL CONSTRUCTION JOINT BY STROPPING THE GROUT POUR 1 1/2" BELOW A HORIZONTAL MORTAR JOINT.

11. CONTRACTOR SHALL ADEQUATELY BRACE ALL MASONRY WALLS UNTIL BACKFILL COMPACTION AND/OR PLACEMENT IS COMPLETE.

12. REINFORCEMENT SHALL BE ACCURATELY PLACED AS DIMENSIONED ON DRAWINGS AND HELD IN POSITION DURING GROUTING. WHERE NO DIMENSIONS ARE SHOWN, PLACE VERTICAL REINFORCEMENT IN CENTER OF WALL.



FOUNDATION PLAN

FOUNDATION NOTES

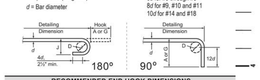
1. ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 3,000 PSI (WITHOUT INSPECTION)
2. CEMENT SHALL CONFORM TO ASTM C-150 TYPE 11.
3. CONCRETE AGGREGATE SHALL CONFORM TO ASTM C-33.
4. ALL REINFORCED STEEL SHALL BE ASTM A-615, GRADE 40 MINIMUM (FS-40,000 PSI) UNLESS OTHERWISE NOTED. MINIMUM LAP SPLICE SHALL BE 40 DIA. UNLESS NOTED OTHERWISE. PROVIDE 3" CLEAR BETWEEN REINFORCING STEEL AND EARTH AT ALL CONDITIONS.
5. ALL FOOTINGS SHALL BE PLACED AGAINST FIRM UNDISTURBED SOIL AT DEPTH BELOW GRADE AS SHOWN IN DRAWINGS.
6. ALLOWABLE SOIL BEARING VALUES SHALL BE PER GEOTECHNICAL REPORT OR AS ALLOWED BY CBC.
7. WIRE FABRIC SHALL BE AS INDICATED ON THE PLANS AND CONFIRMED TO ASTM A-185
8. SEE DRAWINGS FOR MISCELLANEOUS IRON AND STEEL, ETC. TO BE CAST IN CONCRETE, LOCATIONS OF FLOOR FINISHES AND SLAB DEPRESSIONS. TILE FLOORS AREAS SHALL BE SEPARATED FLOOR AREAS SHALL BE SEPERATED FROM ADJACENT SLAB AREAS WITH A CONTROL OR DEEP JOINT.
9. PIPES MAY PASS THROUGH STRUCTURAL CONCRETE IN SLEEVES OR OTHER APPROVED METHOD, BUT MAY NOT BE EMBEDDED THEREIN.
10. ALL HARDWARE SPECIFIED ON THE FOUNDATION PLAN SHALL BE SIMPSON STRONG-TIE UNLESS NOTED OTHERWISE. ALL FASTENERS USED ON THIS HARDWARE SHALL BE AS RECOMMENDED BY THE MANUFACTURED.
11. THE DISTANCE FROM THE CENTER OF THE HOLDOWN STRAP TO THE NEAREST CONCRETE CORNER SHALL BE PER MANUFACTURE'S REQUIREMENTS.
12. ALL ANCHOR BOLTS SHALL BE ASTM A-307, F1554 GRADE 36 AND PLACED WITHIN 12 INCHES OF ALL SPLICES, ENDS, AND CORNERS. ANCHOR BOLTS SPACING SHALL BE A MAXIMUM OF 4'-0" ON CENTER UNLESS NOTED OTHERWISE. PROVIDE 3"X3"X.224" STEEL PLATE WASHERS. MINIMUM ANCHOR BOLT EMBEDMENT SHALL BE 7 INCHES. SEE FOUNDATION PLAN AND SHEARWALL SCHEDULE FOR SPECIFIC REQUIREMENTS.
13. SEE PLANS FOR A MINIMUM EMBEDMENT REQUIREMENTS FOR ANCHOR BOLTS AND ALL-THREADED ANCHORS.
14. BOTTOM OF FOOTING TRENCHES SHALL BE CLEAN AND LEVEL.
15. VERIFY ALL DIMENSIONS WITH THE FLOOR PLAN ANY DISCREFANCIES SHALL BE CALLED TO THE ATTENTION OF THE DESIGNER AND SHALL BE RESOLVED BEFORE PROCEEDING IN THE WORK.
16. WHERE 1/2"X10" ANCHOR BOLTS HAVE NOT BEEN PROPERLY LOCATED, USE 1/2" DIAMETER ALL-THREAD AND SIMP. SET EPOXY WITH 41/4" MIN. EMBEDMENT. INSTALL PER MFR'S RQMNTS. VERIFY INSPEC. RQMTS WITH BLDG. DEPT.
17. WHERE 5/8"X12" ANCHOR BOLTS HAVE NOT BEEN PROPERLY LOCATED. USE 5/8" DIAMETER ALL-THREAD AND SIMP. SET APOXY WITH 5" MIN. EMBEDMENT. INSTALL PER MFR'S RQMTS. VERIFY INSPEC. RQMTS WITH BLDG. DEPT.
18. WHERE 3/4"X15" ANCHOR BOLTS HAVE NOT BEEN PROPERLY LOCATED, USE 3/4" DIAMETER ALL-THREAD AND SIMP. SET EPOXY WITH 63/4" MIN. EMBEDMENT. INSTALL PER MFR'S RQMTS. VERIFY INSPEC. RQMTS WITH BLDG. DEPT.
19. FOUNDATION PLATES AND SILLS SHALL BE FOUNDATION GRADE SEE PLANS FOR SIZE AND LOCATION.
20. PLUMBING FIXTURES SHOW FOR REFERENCE ONLY - SEE FLOOR PLAN FOR LOCATIONS.
21. ANCHOR BOLTS, HOLDOWN ANCHORS, REINFORCING STEEL AND FORMS SHALL BE IN-PLACE PRIOR TO CALLING FOR INSPECTION.

STANDARD HOOK DETAILS
in accordance with ACI 318 Building Code
All grades of steel (minimum yield strengths)

CRSI Concrete Reinforcing Steel Institute

D = Finished inside bend diameter (includes springback)
d = Bar diameter

ACI 318 min. bend diameter:
6*d* for #3 through #8
8*d* for #9, #10 and #11
10*d* for #14 and #18



RECOMMENDED END HOOK DIMENSIONS					
BAR SIZE	D	180° HOOKS		90° HOOKS	
		A or G	J	A or G	
#3	2¼"	0'-5"	0'-3"	0'-6"	
#4	3"	0'-6"	0'-4"	0'-8"	
#5	3¾"	0'-7"	0'-5"	0'-10"	
#6	4½"	0'-8"	0'-6"	1'-0"	
#7	5¼"	0'-10"	0'-7"	1'-2"	
#8	6"	0'-11"	0'-8"	1'-4"	
#9	9½"	1'-3"	0'-11½"	1'-7"	
#10	10½"	1'-5"	1'-1¼"	1'-10"	
#11	12"	1'-7"	1'-2¾"	2'-0"	
#14	18¼"	2'-3"	1'-9¾"	2'-7"	
#18	24"	3'-0"	2'-4½"	3'-5"	

STEEL TYPE	BAR SIZE RANGE	GRADE	MINIMUM YIELD (ksi)	MINIMUM TENSILE (ksi)
Carbon A615	#3 - #6	40	40	60
	#3 - #20	60	60	90
	#3 - #20	75	75	100
	#3 - #20	80	80	105
	#3 - #20	100	100	115
Low-Alloy A706	#3 - #18	60	60	80
	#3 - #18	80	80	100
Stainless	#3 - #18	60	60	90
	#3 - #18	75	75	100
Rail & Axle A996	#3 - #8	40	40	70
	#3 - #8	50	50	80
	#3 - #11	60	60	90
Low-Carbon	#3 - #18	100	100	150
	#3 - #11	120	120	150

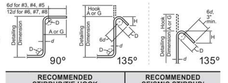
ASTM STANDARD REINFORCING BARS

CRSI Concrete Reinforcing Steel Institute

BAR SIZE DESIGNATION	NOMINAL DIMENSIONS AREA (in.²)	WEIGHT (lb/ft)	DIAMETER (in.)
#3	0.11	0.376	0.375
#4	0.20	0.668	0.500
#5	0.31	1.043	0.625
#6	0.44	1.502	0.750
#7	0.60	2.044	0.875
#8	0.79	2.670	1.000
#9	1.00	3.400	1.128
#10	1.27	4.303	1.270
#11	1.56	5.313	1.410
#14	2.25	7.65	1.693
#18	4.00	13.60	2.257
#20	4.91	16.69	2.50

D = Finished inside bend diameter (includes springback)
d = Bar diameter

ACI 318 min. bend diameter:
6*d* for #3 through #8
8*d* for #9, #10 and #11
10*d* for #14 and #18



RECOMMENDED STIRRUP/TIE HOOK DIMENSIONS					RECOMMENDED SEISMIC STIRRUP/ TIE HOOK DIMENSIONS			
BAR SIZE	D	90° A or G	90° A or G	135° H*	BAR SIZE	135° SEISMIC HOOK D	A or G	H*
#3	1½"	0'-4"	4"	2½"	#3	1½"	4½"	3"
#4	2"	0'-4½"	4½"	3"	#4	2"	4½"	3"
#5	2½"	0'-6"	5½"	3½"	#5	2½"	5½"	3½"
#6	4½"	1'-0"	8"	4½"	#6	4½"	8"	4½"
#7	5¼"	1'-2"	9"	5¼"	#7	5¼"	9"	5¼"
#8	6"	1'-4"	10½"	6"	#8	6"	10½"	6"

* Hi dimension is approximate

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

CMU REINFORCING LAYOUT/ FOUNDATION

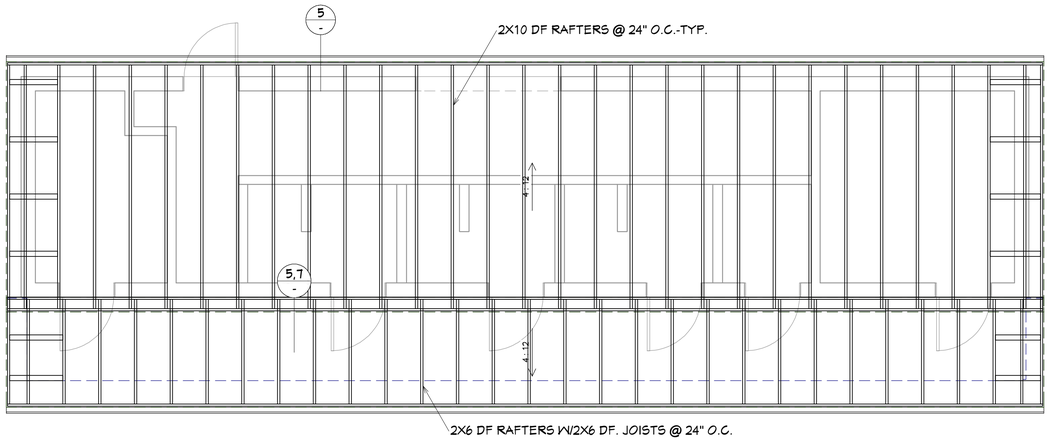
BATHHOUSE AND TRASH ENCLOSURE FOR: RIVERDALE RESORT SACRAMENTO, CA

J.B. SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY, CA 95945
PHONE: 530.788.8794
EMAIL: JEFF@JBSANDGREN.COM

DATE: 9/20/2023

SCALE: 1/4" = 1'-0"

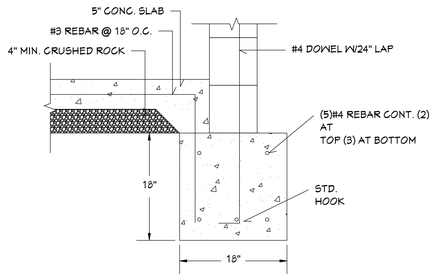
SHEET: A-3



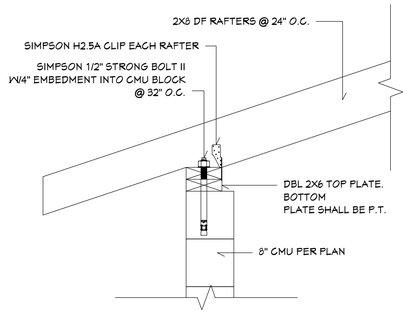
ROOF FRAMING PLAN

ROOF SHEATHING

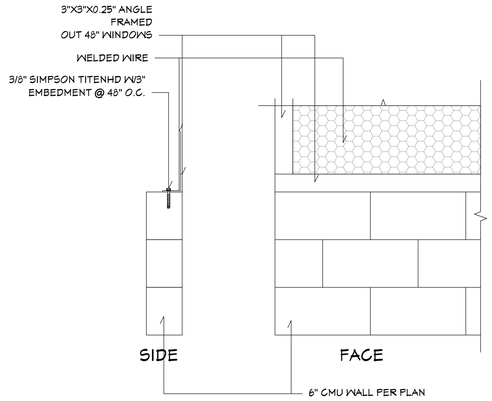
APA rated 15/32" OSB sheathing or equal, span rating 32/16 nailed w/ 8d at 6" o.c. sheathing ends and 12" o.c. field and 6" o.c. roof boundary.



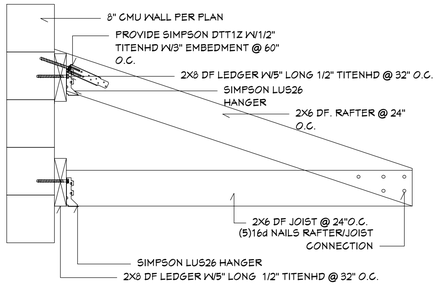
8 PERIMETER FOOTING DETAIL-TYP.



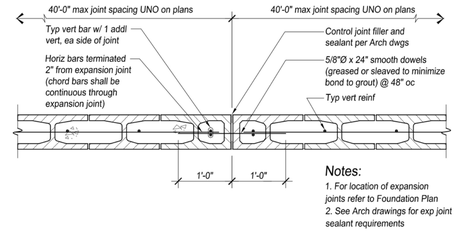
5 EAVE DETAIL



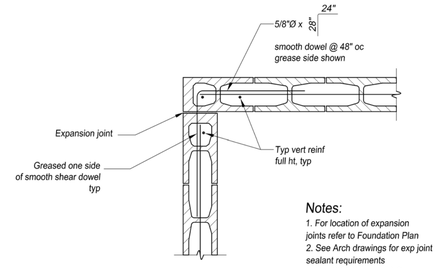
6 INTERIOR CMU DETAIL



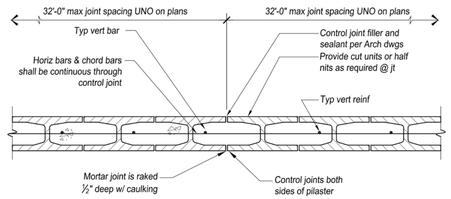
7 OVERHANG DETAIL



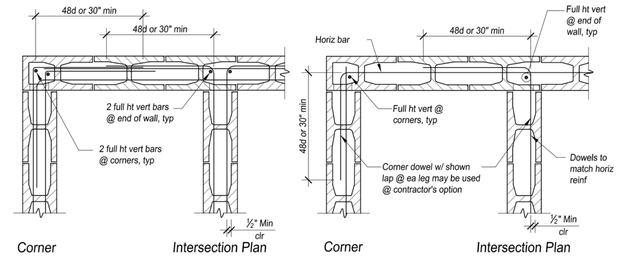
1 EXPANSION JOINT CMU

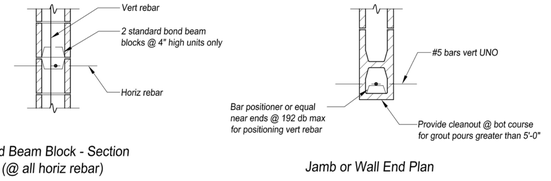


2 EXPANSION JOINT CMU



3 CONTROL JOINT CMU





4 CMU WALLS

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

BATHHOUSE AND TRASH ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

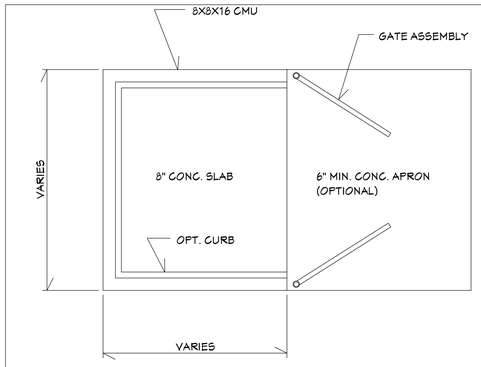
ROOF FRAMING PLAN

J.B. SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY, CA 95945
PHONE: 530-788-8794
EMAIL: JEFF@JBSANDGREN.COM

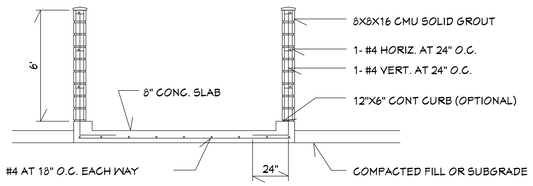
DATE: 9/20/2023

SCALE: 1/4" = 1'-0"

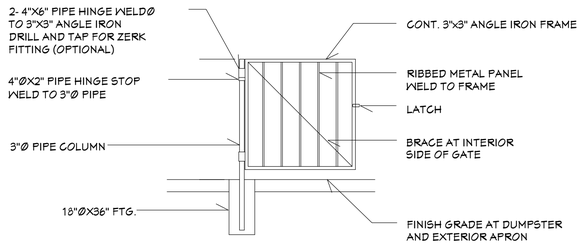
SHEET: A-4



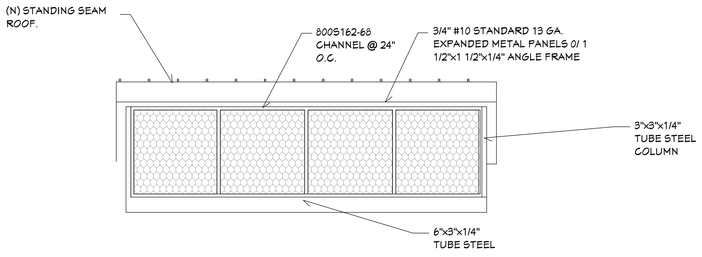
PLAN VIEW



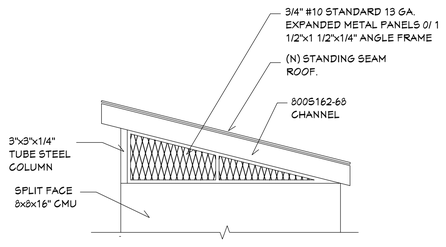
SECTION



GATE ASSEMBLY



TRASH ENCLOSURE ROOF-FACE VIEW



TRASH ENCLOSURE ROOF-SIDE VIEW

REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

TRASH ENCLOSURE

BATHHOUSE AND TRASH
ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

J.B.
SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY, CA 95945
PHONE: 530-788-8794
EMAIL: JEFF@JBSANDGREN.COM

DATE:
9/20/2023

SCALE:

SHEET:
A-5

11B-302 Floor or ground surfaces

11B-302.1 General.

Floor and ground surfaces shall be stable, firm and slip resistant and shall comply with Section 11B-302.

Exceptions:

1. Within animal containment areas, floor and ground surfaces shall not be required to be stable, firm and slip resistant.
2. Areas of sport activity shall not be required to comply with Section 11B-302.

11B-302.2 Carpet.

Carpet or carpet tile shall be securely attached and shall have a firm cushion, pad, or backing or no cushion or pad. Carpet or carpet tile shall have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. Pile height shall be 1/2 inch (12.7 mm) maximum. Exposed edges of carpet shall be fastened to floor surfaces and shall have trim on the entire length of the exposed edge. Carpet edge trim shall comply with Section 11B-303.

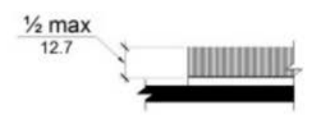


FIGURE 11B-302.2
CARPET PILE HEIGHT

11B-302.3 Openings.

Openings in floor or ground surfaces shall not allow passage of a sphere more than 1/2 inch (12.7 mm) diameter except as allowed in Sections 11B-407.4.3, 11B-409.4.3, 11B-410.4, 11B-810.5.3 and 11B-810.10. Elongated openings shall be placed so that the long dimension is perpendicular to the dominant direction of travel.

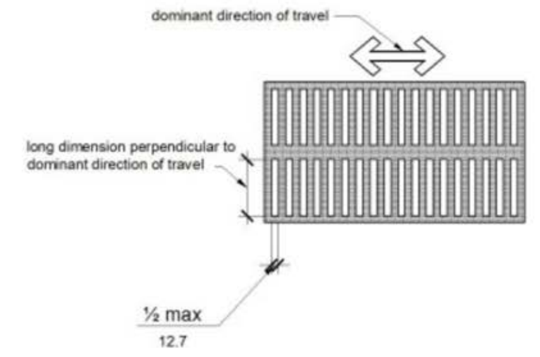


FIGURE 11B-302.3
ELONGATED OPENINGS IN FLOOR OR GROUND SURFACES

11B-303 Changes in level

11B-303.1 General.

Where changes in level are permitted in floor or ground surfaces, they shall comply with Section 11B-303.

Exceptions:

1. Animal containment areas shall not be required to comply with Section 11B-303.
2. Areas of sport activity shall not be required to comply with Section 11B-303.

11B-303.2 Vertical.

Changes in level of 1/4 inch (6.4 mm) high maximum shall be permitted to be vertical *and without edge treatment.*

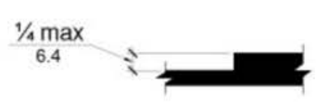


FIGURE 11B-303.2
VERTICAL CHANGE IN LEVEL

11B-303.3 Beveled.

Changes in level between 1/4 inch (6.4 mm) high minimum and 1/2 inch (12.7 mm) high maximum shall be beveled with a slope not steeper than 1:2.

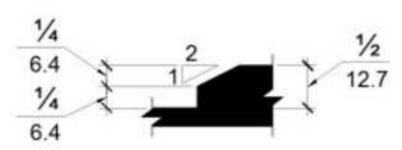


FIGURE 11B-303.3
BEVELED CHANGE IN LEVEL

11B-303.4 Ramps.

Changes in level greater than 1/2 inch (12.7 mm) high shall be ramped, and shall comply with Section 11B-405 or 11B-406.

11B-303.5 Warning curbs.

Abrupt changes in level exceeding 4 inches (102 mm) in a vertical dimension between walks, sidewalks or other pedestrian ways and adjacent surfaces or features shall be identified by warning curbs at least 6 inches (152 mm) in height above the walk or sidewalk surface.

Exceptions:

1. *A warning curb is not required between a walk or driveway and an adjacent street or driveway.*
2. *A warning curb is not required when a guard or handrail is provided with a guide rail centered 2 inches (51 mm) minimum and 4 inches (102 mm) maximum above the surface of the walk or sidewalk.*

11B-304 Turning space

11B-304.1 General.

Turning space shall comply with Section 11B-304.

11B-304.2 Floor or ground surfaces.

Floor or ground surfaces of a turning space shall comply with Section 11B-302. Changes in level, *slopes exceeding 1:48, and detectable warnings shall not be permitted.*

Exception: *Reserved.*

11B-304.3 Size.

Turning space shall comply with Section 11B-304.3.1 or 11B-304.3.2.

11B-304.3.1 Circular space.

The turning space shall be a space of 60 inches (1524 mm) diameter minimum. The space shall be permitted to include knee and toe clearance complying with Section 11B-306.

11B-304.3.2 T-Shaped space.

The turning space shall be a T-shaped space within a 60 inch (1524 mm) square minimum with arms and base 36 inches (914 mm) wide minimum. Each arm of the T shall be clear of obstructions 12 inches (305 mm) minimum in each direction and the base shall be clear of obstructions 24 inches (610 mm) minimum. The space shall be permitted to include knee and toe clearance complying with Section 11B-306 only at the end of either the base or one arm.

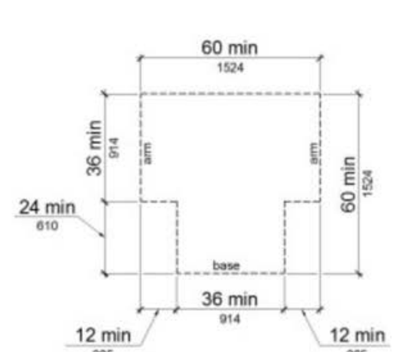


FIGURE 11B-304.3.2
T-SHAPED TURNING SPACE

11B-304.4 Door swing.

Doors shall be permitted to swing into turning spaces.

11B-305 Clear floor or ground space

11B-305.1 General.

Clear floor or ground space shall comply with Section 11B-305.

11B-305.2 Floor or ground surfaces.

Floor or ground surfaces of a clear floor or ground space shall comply with Section 11B-302. Changes in level, *slopes exceeding 1:48, and detectable warnings shall not be permitted.*

Exception: *Reserved.*

11B-305.3 Size.

The clear floor or ground space shall be 30 inches (762 mm) minimum by 48 inches (1219 mm) minimum.

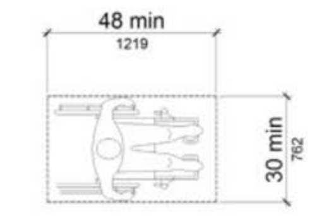


FIGURE 11B-305.3
CLEAR FLOOR OR GROUND SPACE

11B-305.4 Knee and toe clearance.

Unless otherwise specified, clear floor or ground space shall be permitted to include knee and toe clearance complying with Section 11B-306.

11B-305.5 Position.

Unless otherwise specified, clear floor or ground space shall be positioned for either forward or parallel approach to an element.

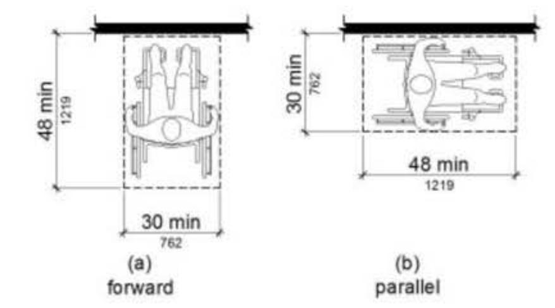


FIGURE 11B-305.5
POSITION OF CLEAR FLOOR OR GROUND SPACE

11B-305.6 Approach.

One full unobstructed side of the clear floor or ground space shall adjoin an accessible route or adjoin another clear floor or ground space. *Clear floor or ground space may overlap an accessible route, unless specifically prohibited elsewhere in this chapter.*

11B-305.7 Maneuvering clearance.

Where a clear floor or ground space is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearance shall be provided in accordance with Sections 11B-305.7.1 and 11B-305.7.2.

11B-305.7.1 Forward approach.

Alcoves shall be 36 inches (914 mm) wide minimum where the depth exceeds 24 inches (610 mm).

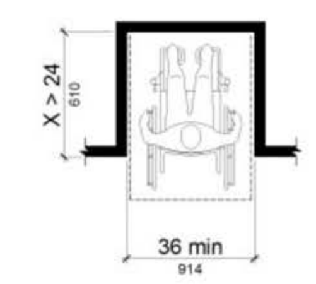


FIGURE 11B-305.7.1
MANEUVERING CLEARANCE IN AN ALCOVE, FORWARD APPROACH

11B-305.7.2 Parallel approach.

Alcoves shall be 60 inches (1524 mm) wide minimum where the depth exceeds 15 inches (381 mm).

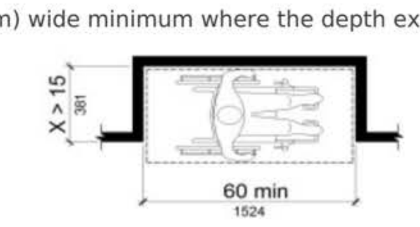


FIGURE 11B-305.7.2
MANEUVERING CLEARANCE IN AN ALCOVE, PARALLEL APPROACH

11B-306 Knee and toe clearance

11B-306.1 General.

Where space beneath an element is included as part of clear floor or ground space or turning space, the space shall comply with Section 11B-306. Additional space shall not be prohibited beneath an element but shall not be considered as part of the clear floor or ground space or turning space.

11B-306.2 Toe clearance

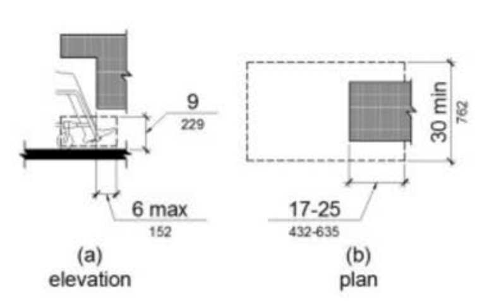


FIGURE 11B-306.2
TOE CLEARANCE

11B-306.2.1 General.

Space under an element between the finish floor or ground and 9 inches (229 mm) above the finish floor or ground shall be considered toe clearance and shall comply with Section 11B-306.2.

11B-306.2.2 Maximum depth.

Toe clearance shall extend 25 inches (635 mm) maximum under an element.

Exception: *Toe clearance shall extend 19 inches (483 mm) maximum under lavatories required to be accessible by Section 11B-213.3.4.*

11B-306.2.3 Minimum required depth.

Where toe clearance is required at an element as part of a clear floor space, the toe clearance shall extend 17 inches (432 mm) minimum under the element.

Exceptions:

1. *The toe clearance shall extend 19 inches (483 mm) minimum under sinks required to be accessible by Section 11B-212.3.*
2. *The toe clearance shall extend 19 inches (483 mm) minimum under built-in dining and work surfaces required to be accessible.*

11B-306.2.4 Additional clearance.

Space extending greater than 6 inches (152 mm) beyond the available knee clearance at 9 inches (229 mm) above the finish floor or ground shall not be considered toe clearance.

11B-306.2.5 Width.

Toe clearance shall be 30 inches (762 mm) wide minimum.

11B-306.3 Knee clearance.

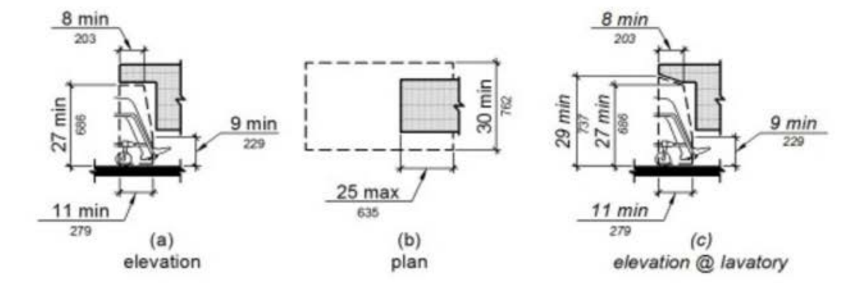


FIGURE 11B-306.3
KNEE CLEARANCE

11B-306.3.1 General.

Space under an element between 9 inches (229 mm) and 27 inches (686 mm) above the finish floor or ground shall be considered knee clearance and shall comply with Section 11B-306.3.

Exception: *At lavatories required to be accessible by Section 11B-213.3.4, space between 9 inches (229 mm) and 29 inches (737 mm) above the finish floor or ground, shall be considered knee clearance.*

11B-306.3.2 Maximum depth.

Knee clearance shall extend 25 inches (635 mm) maximum under an element at 9 inches (229 mm) above the finish floor or ground.

11B-306.3.3 Minimum required depth.

Where knee clearance is required under an element as part of a clear floor space, the knee clearance shall be 11 inches (279 mm) deep minimum at 9 inches (229 mm) above the finish floor or ground, and 8 inches (203 mm) deep minimum at 27 inches (686 mm) above the finish floor or ground.

Exceptions:

1. *At lavatories required to be accessible by Section 11B-213.3.4, the knee clearance shall be 27 inches (686 mm) high minimum above the finish floor or ground at a depth of 8 inches (203 mm) minimum increasing to 29 inches (737 mm) high minimum above the finish floor or ground at the front edge of a counter with a built-in lavatory or at the front edge of a wall-mounted lavatory fixture.*
2. *At dining and work surfaces required to be accessible, knee clearance shall extend 19 inches (483 mm) deep minimum at 27 inches (686 mm) above the finish floor or ground.*

11B-306.3.4 Clearance reduction.

Between 9 inches (229 mm) and 27 inches (686 mm) above the finish floor or ground, the knee clearance shall be permitted to reduce at a rate of 1 inch (25 mm) in depth for each 6 inches (152 mm) in height.

Exception: *The knee clearance shall not be reduced at built-in dining and work surfaces required to be accessible by Section 11B-226.1.*

11B-306.3.5 Width.

Knee clearance shall be 30 inches (762 mm) wide minimum.

11B-307 Protruding objects

11B-307.1 General.

Protruding objects shall comply with Section 11B-307.

11B-307.2 Protrusion limits.

Objects with leading edges more than 27 inches (686 mm) and not more than 80 inches (2032 mm) above the finish floor or ground shall protrude 4 inches (102 mm) maximum horizontally into the circulation path.

Exception: Handrails shall be permitted to protrude 4½ inches (114 mm) maximum.

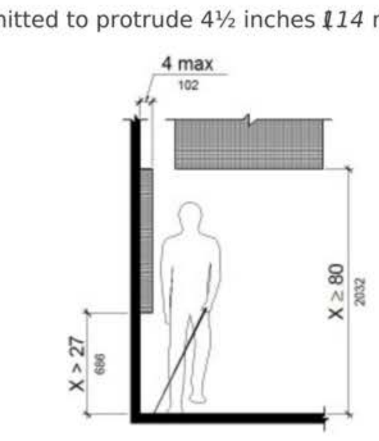


FIGURE 11B-307.2
LIMITS OF PROTRUDING OBJECTS

11B-307.3 Post-mounted objects.

Free-standing objects mounted on posts or pylons shall overhang circulation paths 12 inches (305 mm) maximum when located 27 inches (686 mm) minimum and 80 inches (2032 mm) maximum above the finish floor or ground. Where a sign or other obstruction is mounted between posts or pylons and the clear distance between the posts or pylons is greater than 12 inches (305 mm), the lowest edge of such sign or obstruction shall be 27 inches (686 mm) maximum or 80 inches (2032 mm) minimum above the finish floor or ground.

Exception: The sloping portions of handrails serving stairs and ramps shall not be required to comply with Section 11B-307.3.

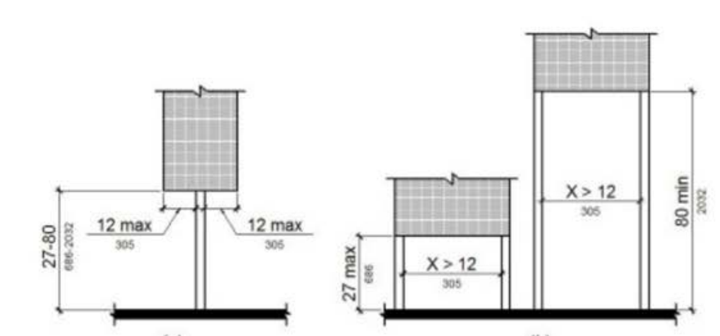


FIGURE 11B-307.3
POST-MOUNTED PROTRUDING OBJECTS

11B-307.3.1 Edges and corners.

Where signs or other objects are mounted on posts or pylons, and their bottom edges are less than 80 inches (2032 mm) above the floor or ground surface, the edges of such signs and objects shall be rounded or eased and the corners shall have a minimum radius of 1/8 inch (3.2 mm).

11B-307.4 Vertical clearance.

Vertical clearance shall be 80 inches (2032 mm) high minimum. Guardrails or other barriers shall be provided where the vertical clearance is less than 80 inches (2032 mm) high. The leading edge of such guardrail or barrier shall be located 27 inches (686 mm) maximum above the finish floor or ground.

Exception: Door closers and door stops shall be permitted to be 78 inches (1981 mm) minimum above the finish floor or ground.

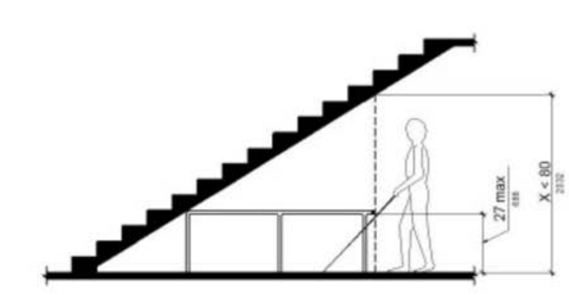


FIGURE 11B-307.4
VERTICAL CLEARANCE

Protruding objects shall not reduce the clear width required for accessible routes.

11B-308 Reach ranges

11B-308.1 General.

Reach ranges shall comply with Section 11B-308.

11B-308.1.1 Electrical switches.

Controls and switches intended to be used by the occupant of a room or area to control lighting and receptacle outlets, appliances or cooling, heating and ventilating equipment, shall comply with Section 11B-308 except the low reach shall be measured to the bottom of the outlet box and the high reach shall be measured to the top of the outlet box.

11B-308.1.2 Electrical receptacle outlets.

Electrical receptacle outlets on branch circuits of 30 amperes or less and communication system receptacles shall comply with Section 11B-308 except the low reach shall be measured to the bottom of the outlet box and the high reach shall be measured to the top of the outlet box.

11B-308.2 Forward reach.

11B-308.2.1 Unobstructed.

Where a forward reach is unobstructed, the high forward reach shall be 48 inches (1219 mm) maximum and the low forward reach shall be 15 inches (381 mm) minimum above the finish floor or ground.

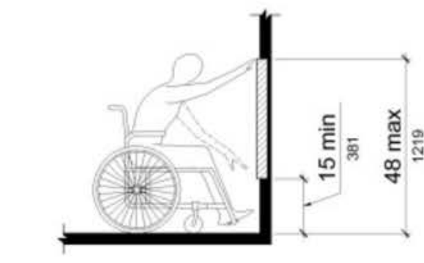


FIGURE 11B-308.2.1
UNOBSTRUCTED FORWARD REACH

11B-308.2.2 Obstructed high reach.

Where a high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 48 inches (1219 mm) maximum where the reach depth is 20 inches (508 mm) maximum. Where the reach depth exceeds 20 inches (508 mm), the high forward reach shall be 44 inches (1118 mm) maximum and the reach depth shall be 25 inches (635 mm) maximum.

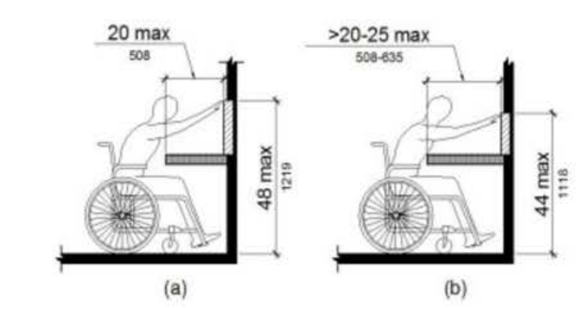


FIGURE 11B-308.2.2
OBSTRUCTED HIGH FORWARD REACH

11B-308.3 Side reach.

11B-308.3.1 Unobstructed.

Where a clear floor or ground space allows a parallel approach to an element and the side reach is unobstructed, the high side reach shall be 48 inches (1219 mm) maximum and the low side reach shall be 15 inches (381 mm) minimum above the finish floor or ground.

Exceptions:

1. An obstruction shall be permitted between the clear floor or ground space and the element where the depth of the obstruction is 10 inches (254 mm) maximum.
2. Operable parts of fuel dispensers shall be permitted to be 54 inches (1372 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

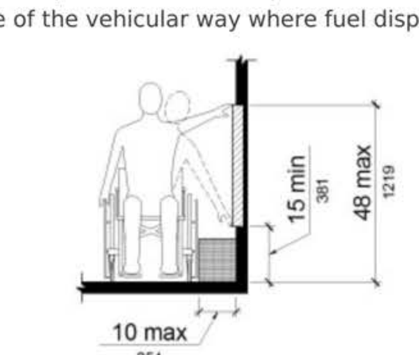


FIGURE 11B-308.3.1
UNOBSTRUCTED SIDE REACH

11B-308.3.2 Obstructed high reach.

Where a clear floor or ground space allows a parallel approach to an element and the high side reach is over an obstruction, the height of the obstruction shall be 34 inches (864 mm) maximum and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1219 mm) maximum for a reach depth of 10 inches (254 mm) maximum. Where the reach depth exceeds 10 inches (254 mm), the high side reach shall be 46 inches (1168 mm) maximum for a reach depth of 24 inches (610 mm) maximum.

Exceptions:

1. The top of washing machines and clothes dryers shall be permitted to be 36 inches (914 mm) maximum above the finish floor.
2. Operable parts of fuel dispensers shall be permitted to be 54 inches (1372 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

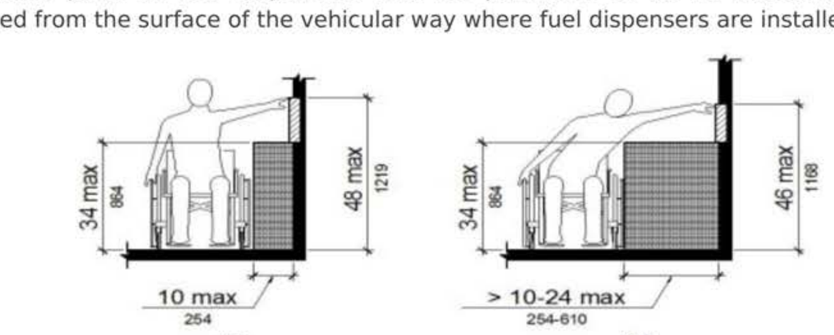


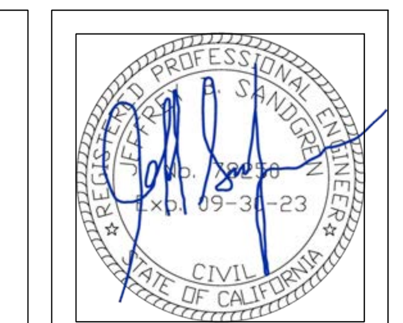
FIGURE 11B-308.3.2
OBSTRUCTED HIGH SIDE REACH

11B-308.4 Suggested reach ranges for children.

Where building elements such as coat hooks, lockers or operable parts are designed for use primarily by children, the suggested dimensions of Table 11B-308.4 shall be permitted. These dimensions apply to either forward or side reaches.

TABLE 11B-308.4
SUGGESTED DIMENSIONS FOR CHILDREN'S USE

SUGGESTED REACH RANGES FOR CHILDREN AGES 3 THROUGH 12			
Forward or Side Reach	**Ages 3 and 4**	**Ages 5 through 8**	**Ages 9 through 12**
High (maximum)	36 inches (914 mm)	40 inches (1016 mm)	44 inches (1118 mm)
Low (minimum)	20 inches (508 mm)	18 inches (457 mm)	16 inches (406 mm)



REVISION TABLE		
NUMBER	DATE	REVISED BY	DESCRIPTION

ACCESSIBILITY DETAILS

BATHHOUSE AND TRASH ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

J.B.
SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY CA 95945
PHONE: 530-798-8794
EMAIL: JEFF@JBSANDGREN.COM

DATE:
9/20/2023
SCALE:
SHEET:
A-6

11B-402 Accessible routes

11B-402.1 General.

Accessible routes shall comply with *11B*-402.

11B-402.2 Components.

Accessible routes shall consist of one or more of the following components: walking surfaces with a running slope not steeper than 1:20, doorways, ramps, curb ramps excluding the flared sides, elevators and platform lifts. All components of an accessible route shall comply with the applicable requirements of *Division* 4.

11B-403 Walking surfaces

11B-403.1 General.

Walking surfaces that are a part of an accessible route shall comply with *Section 11B*-403.

11B-403.2 Floor or ground surface.

Floor or ground surfaces shall comply with *Section 11B*-302.

11B-403.3 Slope.

The running slope of walking surfaces shall not be steeper than 1:20. The cross slope of walking surfaces shall not be steeper than 1:48.

Exception: *The running slope of sidewalks shall not exceed the general grade established for the adjacent street or highway.*

11B-403.4 Changes in level.

Changes in level shall comply with *Section 11B*-303.

11B-403.5 Clearances.

Walking surfaces shall provide clearances complying with *Section 11B*-403.5.

Exception: Within employee work areas, clearances on common use circulation paths shall be permitted to be decreased by work area equipment provided that the decrease is essential to the function of the work being performed.

11B-403.5.1 Clear width.

Except as provided in *Sections 11B*-403.5.2 and 11B-403.5.3, the clear width of walking surfaces shall be 36 inches (*914* mm) minimum.

Exceptions:

1. The clear width shall be permitted to be reduced to 32 inches (*813* mm) minimum for a length of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are 48 inches (*1219* mm) long minimum and 36 inches (*914* mm) wide minimum.
2. *The clear width for walking surfaces in corridors serving an occupant load of 10 or more shall be 44 inches (1118 mm) minimum.*
3. *The clear width for sidewalks and walks shall be 48 inches (1219 mm) minimum. When, because of right-of-way restrictions, natural barriers or other existing conditions, the enforcing agency determines that compliance with the 48-inch (1219 mm) clear sidewalk width would create an unreasonable hardship, the clear width may be reduced to 36 inches (914 mm).*
4. *The clear width for aisles shall be 36 inches (914 mm) minimum if serving elements on only one side, and 44 inches (1118 mm) minimum if serving elements on both sides.*
5. *The clear width for accessible routes to accessible toilet compartments shall be 44 inches (1118 mm) except for door-opening widths and door swings.*

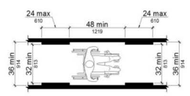


FIGURE *11B*-403.5.1
CLEAR WIDTH OF AN ACCESSIBLE ROUTE

11B-403.5.2 Clear width at turn.

Where the accessible route makes a 180 degree turn around an element which is less than 48 inches (*1219* mm) wide, clear width shall be 42 inches (*1067* mm) minimum approaching the turn, 48 inches (*1219* mm) minimum at the turn and 42 inches (*1067* mm) minimum leaving the turn.

Exception: Where the clear width at the turn is 60 inches (*1524* mm) minimum compliance with *Section 11B*-403.5.2 shall not be required.

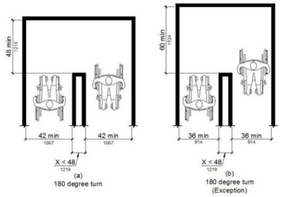


FIGURE *11B*-403.5.2
CLEAR WIDTH AT TURN

11B-403.5.3 Passing spaces.

An accessible route with a clear width less than 60 inches (*1524* mm) shall provide passing spaces at intervals of 200 feet (*60,960 mm)* maximum. Passing spaces shall be either: a space 60 inches (*1524* mm) minimum by 60 inches (*1524* mm) minimum; or, an intersection of two walking surfaces providing a T-shaped space complying with *Section 11B*-304.3.2 where the base and arms of the T-shaped space extend 48 inches (*1219* mm) minimum beyond the intersection.

11B-403.6 Handrails.

Where handrails are provided along walking surfaces with running slopes not steeper than 1:20 they shall comply with *Section 11B*-505.

11B-403.7 Continuous gradient.

All walks with continuous gradients shall have resting areas, 60 inches (1524 mm) in length, at intervals of 400 feet (121,920 mm) maximum. The resting area shall be at least as wide as the walk. The slope of the resting area in all directions shall be 1:48 maximum.

11B-404 Doors, doorways and gates

11B-404.1 General.

Doors, doorways and gates that are part of an accessible route shall comply with *Section 11B*-404.

Exceptions:

1. Doors, doorways and gates designed to be operated only by security personnel shall not be required to comply with *Sections 11B*-404.2.7, *11B*-404.2.8, *11B*-404.2.9, *11B*-404.3.2 and *11B*-404.3.4 through *11B*-404.3.7. *A sign visible from the approach side complying with Section 11B-703.5 shall be posted stating "Entry restricted and controlled by security personnel".*
2. *At detention and correctional facilities, doors, doorways and gates designed to be operated only by security personnel shall not be required to comply with Sections 11B-404.2.7, 11B-404.2.8, 11B-404.2.9, 11B-404.3.2 and 11B-404.3.4 through 11B-404.3.7.*

11B-404.2 Manual doors, doorways and manual gates.

Manual doors and doorways and manual gates intended for user passage shall comply with *Section 11B*-404.2.

11B-404.2.1 Revolving doors, gates and turnstiles.

Revolving doors, revolving gates and turnstiles shall not be part of an accessible route.

11B-404.2.2 Double-leaf doors and gates.

At least one of the active leaves of doorways with two leaves shall comply with *Sections 11B*-404.2.3 and *11B*-404.2.4.

11B-404.2.3 Clear width.

Door openings shall provide a clear width of 32 inches (*813* mm) minimum. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees. Openings more than 24 inches (610 mm) deep shall provide a clear opening of 36 inches (*914* mm) minimum. There shall be no projections into the required clear opening width lower than 34 inches (*864* mm) above the finish floor or ground. Projections into the clear opening width between 34 inches (*864* mm) and 80 inches (*2032* mm) above the finish floor or ground shall not exceed 4 inches (*102* mm).

Exceptions:

1. In alterations, a projection of $5/8$ inch (*15.9* mm) maximum into the required clear width shall be permitted for the latch side stop.
2. Door closers and door stops shall be permitted to be 78 inches (*1981* mm) minimum above the finish floor or ground.

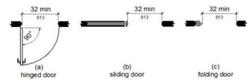


FIGURE *11B*-404.2.3
CLEAR WIDTH OF DOORWAYS

11B-404.2.4 Maneuvering clearances.

Minimum maneuvering clearances at doors and gates shall comply with *Section 11B*-404.2.4. Maneuvering clearances shall extend the full width of the doorway and the required latch side or hinge side clearance.

Exception: ***Reserved.***

11B-404.2.4.1 Swinging doors and gates.

Swinging doors and gates shall have maneuvering clearances complying with Table *11B*-404.2.4.1.

TABLE *11B*-404.2.4.1
MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS AND GATES

TYPE OF USE		MINIMUM MANEUVERING CLEARANCE	
Approach direction	**Door or gate side**	**Perpendicular to doorway**	**Parallel to doorway (beyond latch side unless noted)**
From front	Pull	60 inches (*1524* mm)	18 inches (*457* mm)[5]
From front	Push	48 inches (*1219* mm)	0 inches (0 mm)[1]
From hinge side	Pull	60 inches (*1524* mm)	36 inches (*914* mm)
From hinge side	Push	*44 inches (1118 mm)*[2]	22 inches (*559* mm)[3]
From latch side	Pull	*60 inches (1524 mm)*	24 inches (610 mm)
From latch side	Push	*44 inches (1118 mm)*[4]	24 inches (610 mm)

1. Add 12 inches (305 mm) if closer and latch are provided.
2. Add *4 inches (102 mm)* if closer and latch are provided.
3. Beyond hinge side.
4. Add *4 inches (102 mm)* if closer is provided.
5. *Add 6 inches (152 mm) at exterior side of exterior doors.*

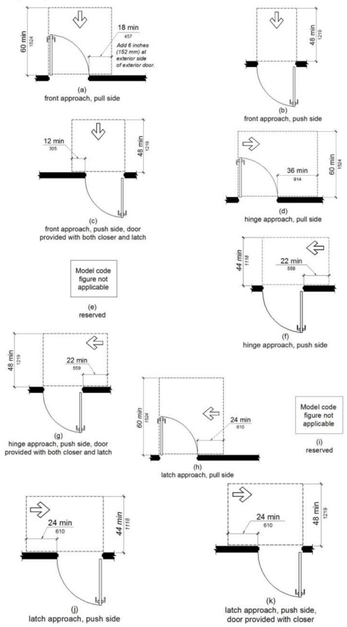


FIGURE *11B*-404.2.4.1
MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS AND GATES

11B-404.2.5 Thresholds.

Thresholds, if provided at doorways, shall be $1/2$ inch (*12.7* mm) high maximum. Raised thresholds and changes in level at doorways shall comply with *Sections 11B*-302 and *11B*-303.

11B-404.2.7 Door and gate hardware.

Handles, pulls, latches, locks and other operable parts on doors and gates shall comply with *Section 11B*-309.4.

Operable parts of such hardware shall be 34 inches (*864* mm) minimum and *44 inches (1118 mm)* maximum above the finish floor or ground. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.

Exceptions:

1. Existing locks shall be permitted in any location at existing glazed doors without stiles, existing overhead rolling doors or grilles and similar existing doors or grilles that are designed with locks that are activated only at the top or bottom rail.
2. Access gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (*1372* mm) maximum above the finish floor or ground provided the self-latching devices are not also self-locking devices and operated by means of a key, electronic opener or integral combination lock.

11B-404.2.8 Closing speed.

Door and gate closing speed shall comply with *Section 11B*-404.2.8.

11B-404.2.8.1 Door closers and gate closers.

Door closers and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

11B-404.2.8.2 Spring hinges.

Door and gate spring hinges shall be adjusted so that from the open position of 70 degrees, the door or gate shall move to the closed position in 1.5 seconds minimum.

11B-404.2.9 Door and gate opening force.

The force for pushing or pulling open a door or gate shall be as follows:

1. Interior hinged doors and gates: 5 pounds (22.2 N) maximum.
2. Sliding or folding doors: 5 pounds (22.2 N) maximum.
3. *Required fire doors: the minimum opening force allowable by the appropriate administrative authority, not to exceed 15 pounds (66.7 N).*
4. *Exterior hinged doors: 5 pounds (22.2 N) maximum.*

These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door or gate in a closed position.

Exception: *When, at a single location, one of every eight exterior door leafs, or fraction of eight, is a powered door, other exterior doors at the same location, serving the same interior space, may have a maximum opening force of 8.5 pounds (37.8 N). The powered leaf(s) shall be located closest to the accessible route.*

a. Powered doors shall comply with Section 11B-404.3. Powered doors shall be fully automatic doors complying with Builders Hardware Manufacturers' Association (BHMA) A156.10 or low energy operated doors complying with BHMA A156.19.

b. Powered doors serving a building or facility with an occupancy of 150 or more shall be provided with a back-up battery or back-up generator. The back-up power source shall be able to cycle the door a minimum of 100 cycles.

c. Powered doors shall be controlled on both the interior and exterior sides of the doors by sensing devices, push plates, vertical actuation bars or other similar operating devices complying with Section 11B-309.

At each location where push plates are provided there shall be two push plates; the centerline of one push plate shall be 7 inches (178 mm) minimum and 8 inches (203 mm) maximum above the floor or ground surface and the centerline of the second push plate shall be 30 inches (762 mm) minimum and 44 inches (1118 mm) maximum above the floor or ground surface. Each push plate shall be a minimum of 4 inches (102 mm) diameter or a minimum of 4 inches by 4 inches (102 mm by 102 mm) square and shall display the International Symbol of Accessibility complying with Section 11B-703.7.

At each location where vertical actuation bars are provided the operable portion shall be located so the bottom is 5 inches (127 mm) maximum above the floor or ground surface and the top is 35 inches (889 mm) minimum above the floor or ground surface. The operable portion of each vertical actuation bar shall be a minimum of 2 inches (51 mm) wide and shall display the International Symbol of Accessibility complying with Section 11B-703.7.

Where push plates, vertical actuation bars or other similar operating devices are provided, they shall be placed in a conspicuous location. A level and clear floor or ground space for forward or parallel approach complying with Section 11B-305 shall be provided, centered on the operating device. Doors shall not swing into the required clear floor or ground space.

d. Signs identifying the accessible entrance required by Section 11B-216.6 shall be placed on, or immediately adjacent to, each powered door. Signs shall be provided in compliance with BHMA A156.10 or BHMA A156.19, as applicable.

e. In addition to the requirements of Item d, where a powered door is provided in buildings or facilities containing assembly occupancies of 300 or more, a sign displaying the International Symbol of Accessibility measuring 6 inches by 6 inches (152 mm by 152 mm), complying with Section 11B-703.7, shall be provided above the door on both the interior and exterior sides of each powered door.

11B-404.2.10 Door and gate surfaces.

Swinging door and gate surfaces within 10 inches (*254* mm) of the finish floor or ground measured vertically shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within $1/16$ inch (1.6 mm) of the same plane as the other*and be free of sharp or abrasive edges*. Cavities created by added kick plates shall be capped.

Exceptions:

1. Sliding doors shall not be required to comply with *Section 11B-404.2.10*.
2. Tempered glass doors without stiles and having a bottom rail or shoe with the top leading edge tapered at 60 degrees minimum from the horizontal shall not be required to meet the 10 inch (*254* mm) bottom smooth surface height requirement.
3. Doors and gates that do not extend to within 10 inches (*254* mm) of the finish floor or ground shall not be required to comply with *Section 11B*-404.2.10.
4. ***Reserved.***

11B-404.2.11 Vision lights.

Doors, gates and side lights adjacent to doors or gates, containing one or more glazing panels that permit viewing through the panels shall have the bottom of at least one glazed panel located 43 inches (*1092* mm) maximum above the finish floor.

Exception: *Glazing panels* with the lowest part more than 66 inches (*1676* mm) from the finish floor or ground shall not be required to comply with *Section 11B*-404.2.11.

11B-603 Toilet and bathing rooms

11B-603.1 General.

Toilet and bathing rooms shall comply with *Section 11B*-603.

11B-603.2 Clearances.

Clearances shall comply with *Section 11B*-603.2.

11B-603.2.1 Turning space.

Turning space complying with *Section 11B*-304 shall be provided within the room.

11B-603.2.2 Overlap.

Required clear floor spaces, clearance at fixtures and turning space shall be permitted to overlap.

11B-603.2.3 Door swing.

Doors shall not swing into the clear floor space or clearance required for any fixture.*Doors to accessible water closet compartments shall be permitted to encroach into the turning space without limitation. Other than doors to accessible water closet compartments, a door, in any position, shall be permitted to encroach into the turning space by 12 inches (305 mm) maximum.*

Exceptions:

1. ***Reserved.***
2. Where the toilet room or bathing room is for individual use and a clear floor space complying with *Section 11B*-305.3 is provided within the room beyond the arc of the door swing, doors shall be permitted to swing into the clear floor space or clearance required for any fixture.
3. *In residential dwelling units complying with Section 11B-233.3.1.1, doors shall be permitted to swing over the turning space without limitation.*

11B-603.3 Mirrors.

Mirrors located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 40 inches (*1016* mm) maximum above the finish floor or ground. Mirrors not located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 35 inches (*889* mm) maximum above the finish floor or ground.

11B-603.4 Coat hooks, shelves *and medicine cabinets.*

Coat hooks shall be located within one of the reach ranges specified in *Section 11B*-308. Shelves shall be located 40 inches (*1016* mm) minimum and 48 inches (*1219* mm) maximum above the finish floor.*Medicine cabinets shall be located with a usable shelf no higher than 44 inches (1118 mm) maximum above the finish floor.*

11B-603.5 Accessories.

Where towel or sanitary napkin dispensers, waste receptacles or other accessories are provided in toilet facilities, at least one of each type shall be located on an accessible route. All operable parts, including coin slots, shall be 40 inches (1016 mm) maximum above the finish floor.

Exception: *Baby diaper changing stations are not required to comply with Section 11B-603.5.*

11B-603.6 Guest room toilet and bathing rooms.

Toilet and bathing rooms within guest rooms that are not required to provide mobility features complying with Section 11B-806.2 shall provide all toilet and bathing fixtures in a location that allows a person using a wheelchair measuring 30 inches by 48 inches (762 mm by 1219 mm) to touch the wheelchair to any lavatory, urinal, water closet, tub, sauna, shower stall and any other similar sanitary installation, if provided.

11B-604 Water closets and toilet compartments

11B-604.1 General.

Water closets and toilet compartments shall comply with *Sections 11B*-604.2 through *11B*-604.8.

Exception: Water closets and toilet compartments for children's use shall be permitted to comply with *Section 11B*-604.9.

11B-604.2 Location.

The water closet shall be positioned with a wall or partition to the rear and to one side. The center-line of the water closet shall be *17 inches (432 mm)* minimum to 18 inches (*457* mm) maximum from the side wall or partition, except that the water closet shall be 17 inches (*432* mm) minimum and 19 inches (*483* mm) maximum from the side wall or partition in the ambulatory accessible toilet compartment specified in *Section 11B*-604.8.2. Water closets shall be arranged for a left-hand or right-hand approach.

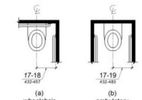


FIGURE *11B*-604.2
WATER CLOSET LOCATION

11B-604.3 Clearance.

Clearances around water closets and in toilet compartments shall comply with *Section 11B*-604.3.

11B-604.3.1 Size.

Clearance around a water closet shall be 60 inches (*1524* mm) minimum measured perpendicular from the side wall and 56 inches (*1422* mm) minimum measured perpendicular from the rear wall.*A minimum 60 inches (1524 mm) wide and 48 inches (1219 mm) deep maneuvering space shall be provided in front of the water closet.*

Exception: *In residential dwelling units complying with Section 11B-233.3.1.1, maneuvering space in front of the water closet shall be a minimum 60 inches (1524 mm) wide and 36 inches (914 mm) deep.*

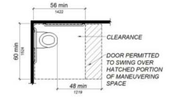


FIGURE *11B*-604.3.1
SIZE OF CLEARANCE AT WATER CLOSETS

11B-604.3.2 Overlap.

The required clearance around the water closet shall be permitted to overlap the water closet, associated grab bars, dispensers, sanitary napkin disposal units, coat hooks, shelves, accessible routes, clear floor space and clearances required at other fixtures and the turning space. No other fixtures or obstructions shall be located within the required water closet clearance.

Exception: In residential dwelling units, a lavatory complying with *Section 11B*-606 shall be permitted on the rear wall *26 inches (660 mm)* minimum from the water closet centerline*to allow for the installation of a grab bar* where the clearance at the water closet is 66 inches (*1676* mm) minimum measured perpendicular from the rear wall.

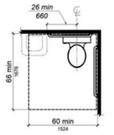


FIGURE *11B*-604.3.2 (EXCEPTION)
OVERLAP OF WATER CLOSET CLEARANCE IN RESIDENTIAL DWELLING UNITS

11B-604.4 Seats.

The seat height of a water closet above the finish floor shall be 17 inches (*432* mm) minimum and 19 inches (*483* mm) maximum measured to the top of the seat. Seats shall not be sprung to return to a lifted position. *Seats shall be 2 inches (51 mm) high maximum.*

Exceptions:

1. ***Reserved.***
2. In residential dwelling units, the height of water closets shall be permitted to be 15 inches (*381* mm) minimum and 19 inches (*483* mm) maximum above the finish floor measured to the top of the seat.
3. *A 3-inch (76 mm) high seat shall be permitted only in alterations where the existing fixture is less than 15 inches (381 mm) high.*

11B-604.5 Grab bars.

Grab bars for water closets shall comply with *Section 11B*-609. Grab bars shall be provided on the side wall closest to the water closet and on the rear wall. *Where separate grab bars are required on adjacent walls at a common mounting height, an L-shaped grab bar meeting the dimensional requirements of Sections 11B-604.5.1 and 11B-604.5.2 shall be permitted.*

Exceptions:

1. ***Reserved.***
2. In residential dwelling units, grab bars shall not be required to be installed in toilet or bathrooms provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with *Section 11B*-604.5.
3. In detention or correction facilities, grab bars shall not be required to be installed in housing or holding cells that are specially designed without protrusions for purposes of suicide prevention.

11B-604.5.1 Side wall.

The side wall grab bar shall be 42 inches (*1067* mm) long minimum, located 12 inches (305 mm) maximum from the rear wall and extending 54 inches (*1372* mm) minimum from the rear wall *with the front end positioned 24 inches (610 mm) minimum in front of the water closet.*

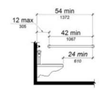


FIGURE *11B*-604.5.1
SIDE WALL GRAB BAR AT WATER CLOSETS

11B-604.5.2 Rear wall.

The rear wall grab bar shall be 36 inches (*914* mm) long minimum and extend from the centerline of the water closet 12 inches (305 mm) minimum on one side and 24 inches (610 mm) minimum on the other side.

Exceptions:

1. The rear grab bar shall be permitted to be 24 inches (610 mm) long minimum, centered on the water closet, where wall space does not permit a length of 36 inches (*914* mm) minimum due to the location of a recessed fixture adjacent to the water closet.
2. Where an administrative authority requires flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, then the rear grab bar shall be permitted to be split or shifted to the open side of the toilet area.

FIGURE *11B*-604.5.2
REAR WALL GRAB BAR AT WATER CLOSETS

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REVISION TABLE

NUMBER	DATE	REVISED BY	DESCRIPTION

ACCESSIBILITY DETAILS

BATHHOUSE AND TRASH ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

DATE:
9/20/2023

SCALE:

SHEET:
A-7

11B-604.6 Flush controls.

Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with *Section 11B*-309 *except they shall be located 44 inches (1118 mm) maximum above the floor*. Flush controls shall be located on the open side of the water closet except in ambulatory accessible compartments complying with *Section 11B*-604.8.2.

11B-604.7 Dispensers *and disposal units.*

Toilet paper dispensers and sanitary napkin disposal units shall comply with Section 11B-604.7. Combination accessory units are not permitted to encroach into the space required by Section 11B-609.3.

11B-604.7.1 Dispensers.

Toilet paper dispensers shall comply with *Section 11B*-309.4 and shall be 7 inches (*178* mm) minimum and 9 inches (*229* mm) maximum in front of the water closet measured to the centerline of the dispenser. The outlet of the dispenser shall be *below the grab bar, 19 inches (483 mm) minimum* above the finish floor and shall not be located behind grab bars. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow.

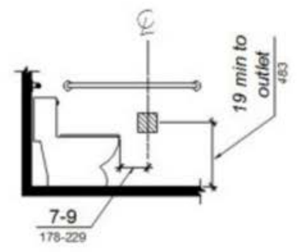


FIGURE *11B*-604.7.1

DISPENSER OUTLET LOCATION

11B-604.7.2 Disposal units.

Sanitary napkin disposal units, if provided, shall comply with Section 11B-309.4 and shall be wall mounted and located on the sidewall between the rear wall of the toilet and the toilet paper dispenser, adjacent to the toilet paper dispenser. The disposal unit shall be located below the grab bar with the opening of the disposal unit 19 inches minimum (483 mm) above the finish floor.

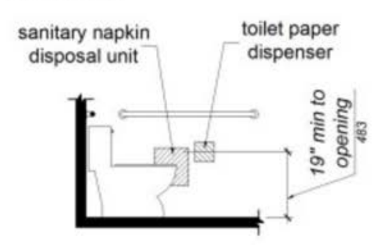


FIGURE 11B-604.7.2

DISPOSAL UNIT LOCATION

11B-604.8 Toilet compartments.

Wheelchair accessible toilet compartments shall meet the requirements of *Sections 11B*-604.8.1 and *11B*-604.8.3. Compartments containing more than one plumbing fixture shall comply with *Section 11B*-603. Ambulatory accessible compartments shall comply with *Sections 11B*-604.8.2 and *11B*-604.8.3.

11B-604.8.1 Wheelchair accessible compartments.

Wheelchair accessible compartments shall comply with *Section 11B*-604.8.1.

11B-604.8.1.1 Size.

Wheelchair accessible compartments shall be 60 inches (*1524* mm) wide minimum measured perpendicular to the side wall, and 56 inches (*1422* mm) deep minimum for wall hung water closets and 59 inches (*1499* mm) deep minimum for floor mounted water closets measured perpendicular to the rear wall. *Wheelchair accessible compartments shall additionally provide maneuvering space complying with Section 11B-604.8.1.1.1, 11B-604.8.1.1.2 or 11B- 604.8.1.1.3, as applicable.* Wheelchair accessible compartments for children's use shall be 60 inches (*1524* mm) wide minimum measured perpendicular to the side wall, and 59 inches (*1499* mm) deep minimum for wall hung and floor mounted water closets measured perpendicular to the rear wall.

11B-604.8.1.1.1 Maneuvering space with in-swinging door.

In a wheelchair accessible compartment with an in-swinging door, a minimum 60 inches (1524 mm) wide by 36 inches (914 mm) deep maneuvering space shall be provided in front of the clearance required in Section 11B-604.8.1.1. See Figures 11B-604.8.1.1.2 (b) and 11B-604.8.1.1.3 (b).

11B-604.8.1.1.2 Maneuvering space with side-opening door.

In a wheelchair accessible compartment with a door located in the side wall or partition, either in-swinging or out-swinging, a minimum 60 inches (1524 mm) wide and 60 inches (1524 mm) deep maneuvering space shall be provided in front of the water closet. See Figure 11B-604.8.1.1.2.

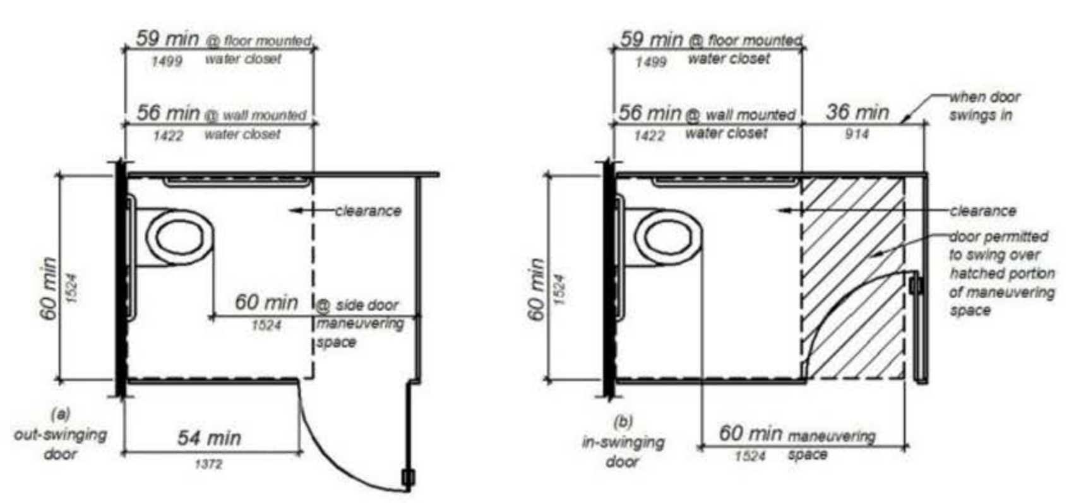


FIGURE 11B-604.8.1.1.2

MANEUVERING SPACE WITH SIDE-OPENING DOOR

11B-604.8.1.1.3 Maneuvering space with end-opening door.

In a wheelchair accessible compartment with a door located in the front wall or partition (facing the water closet), either in-swinging or out-swinging, a minimum 60 inches (1524 mm) wide and 48 inches (1219 mm) deep maneuvering space shall be provided in front of the water closet. See Figure 11B-604.8.1.1.3.

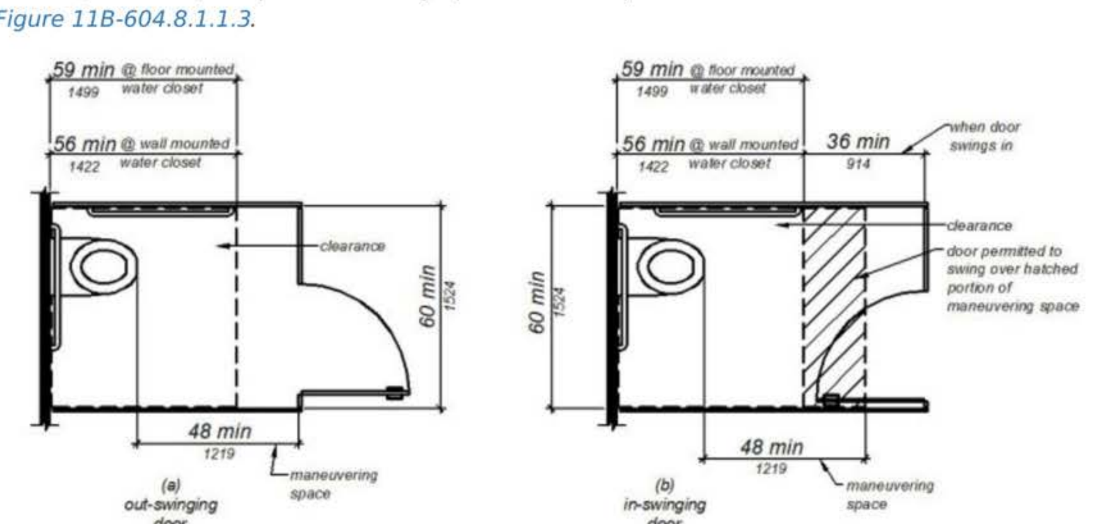


FIGURE 11B-604.8.1.1.3

MANEUVERING SPACE WITH END-OPENING DOOR

11B-604.8.1.2 Doors.

Toilet compartment doors, including door hardware, shall comply with *Section 11B*-404 except that if the approach is *from the push side* of the compartment door, clearance between the door side of the compartment and any obstruction shall be *48 inches (1219 mm)* minimum *measured perpendicular to the compartment door in its closed position*. Doors shall be located in the front partition or in the side wall or partition farthest from the water closet. Where located in the front partition, the door opening shall be 4 inches (*102* mm) maximum from the side wall or partition farthest from the water closet. Where located in the side wall or partition, *the door opening shall be farthest from the water closet and shall be 54 inches (1372 mm) minimum from the rear wall.* The door shall be self-closing. A door pull complying with *Section 11B*-404.2.7 shall be placed on both sides of the door near the latch. *Doors shall not swing into the clear floor space or clearance required for any fixture. Doors may swing into that portion of maneuvering space which does not overlap the clearance required at a water closet.*

Exception: *When located at the side of a toilet compartment, the toilet compartment door opening shall provide a clear width of 34 inches (864 mm) minimum.*

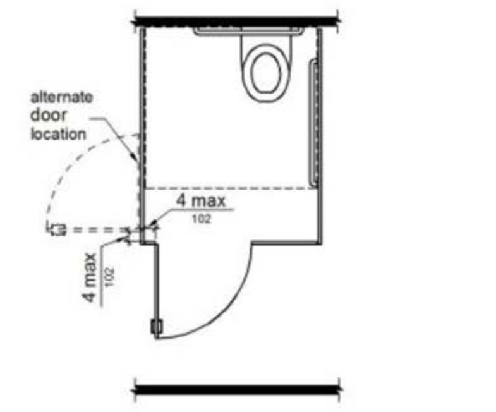


FIGURE *11B*-604.8.1.2

WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT DOORS

11B-604.8.1.3 Approach.

Compartments shall be arranged for left-hand or right-hand approach to the water closet.

11B-604.8.1.4 Toe clearance.

At least one side partition shall provide a toe clearance of 9 inches (*229* mm) minimum above the finish floor and 6 inches (*152* mm) deep minimum beyond the compartment-side face of the partition, exclusive of partition support members. *Partition components at toe clearances shall be smooth without sharp edges or abrasive surfaces.* Compartments for children's use shall provide a toe clearance of 12 inches (305 mm) minimum above the finish floor.

Exception: Toe clearance at the side partition is not required in a compartment greater than 66 inches (*1676* mm) wide.

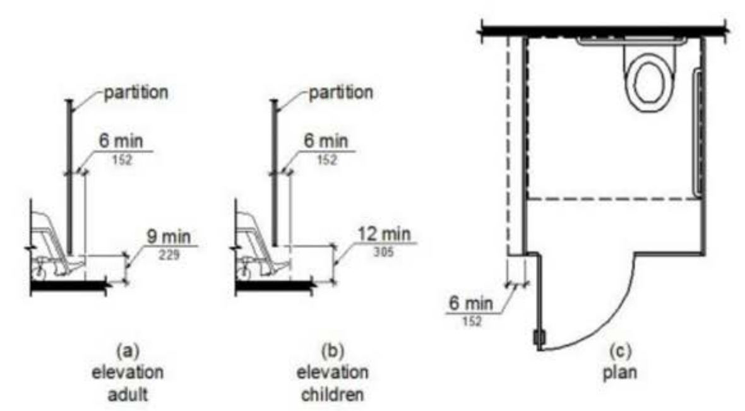


FIGURE *11B*-604.8.1.4

WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT TOE CLEARANCE

11B-604.8.1.5 Grab bars.

Grab bars shall comply with *Section 11B*-609. A side-wall grab bar complying with *Section 11B*-604.5.1 shall be provided and shall be located on the wall closest to the water closet. In addition, a rear-wall grab bar complying with *Section 11B*-604.5.2 shall be provided. *Where separate grab bars are required on adjacent walls at a common mounting height, an L-shaped grab bar meeting the dimensional requirements of Sections 11B-604.5.1 and 11B-604.5.2 shall be permitted.*

11B-606 Lavatories and sinks

11B-606.1 General.

Lavatories and sinks shall comply with *Section 11B*-606.

11B-606.2 Clear floor space.

A clear floor space complying with *Section 11B*-305, positioned for a forward approach, and knee and toe clearance complying with *Section 11B*-306 shall be provided.

Exceptions:

1. A parallel approach complying with *Section 11B*-305 shall be permitted to a kitchen sink in a space where a cook top or conventional range is not provided and to wet bars.
2. ***Reserved.***
3. In residential dwelling units, cabinetry shall be permitted under lavatories and kitchen sinks provided that all of the following conditions are met:
   - (a) the cabinetry can be removed without removal or replacement of the fixture;
   - (b) the finish floor extends under the cabinetry; and
   - (c) the walls behind and surrounding the cabinetry are finished.
4. A knee clearance of 24 inches (610 mm) minimum above the finish floor or ground shall be permitted at lavatories and sinks used primarily by children 6 through 12 years where the rim or counter surface is 31 inches (*787* mm) maximum above the finish floor or ground.
5. A parallel approach complying with *Section 11B*-305 shall be permitted to lavatories and sinks used primarily by children 5 years and younger.
6. The dip of the overflow shall not be considered in determining knee and toe clearances.
7. No more than one bowl of a multibowl sink shall be required to provide knee and toe clearance complying with *Section 11B*-306.

11B-606.3 Height.

Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface 34 inches (*864* mm) maximum above the finish floor or ground.

Exceptions:

1. ***Reserved.***
2. In residential dwelling unit kitchens, sinks that are adjustable to variable heights, 29 inches (*737* mm) minimum and 36 inches (*914* mm) maximum, shall be permitted where rough-in plumbing permits connections of supply and drain pipes for sinks mounted at the height of 29 inches (*737* mm).

11B-606.4 Faucets.

Controls for faucets shall comply with *Section 11B*-309. Hand-operated metering faucets shall remain open for 10 seconds minimum.

11B-606.5 Exposed pipes and surfaces.

Water supply and drain pipes under lavatories and sinks shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories and sinks.

11B-606.6 Adjacent side wall or partition.

Lavatories, when located adjacent to a side wall or partition, shall be a minimum of 18 inches (457 mm) to the centerline of the fixture.

11B-606.7 Sink depth.

Where a forward approach is required at a sink, knee and toe clearance shall be provided in compliance with Section 11B-306.

11B-608 Shower compartments

11B-608.1 General.

Shower compartments shall comply with *Section 11B*-608.

11B-608.2 Size and clearances for shower compartments.

Shower compartments shall have sizes and clearances complying with *Section 11B*-608.2.

11B-608.2.1 Transfer type shower compartments.

Transfer type shower compartments shall be 36 inches (914 mm) by 36 inches (914 mm) clear inside dimensions measured at the center points of opposing sides and shall have a 36-inch (914 mm) wide minimum entry on the face of the shower compartment. Clearance of 36 inches (914 mm) wide minimum by 48 inches (1219 mm) long minimum measured from the control wall shall be provided. *Transfer type shower compartments shall be permitted in transient lodging guest rooms, multibedroom housing units in undergraduate student housing and residential dwelling units; and shall not be permitted at other locations to meet the requirements of Section 11B-213.3.6.*

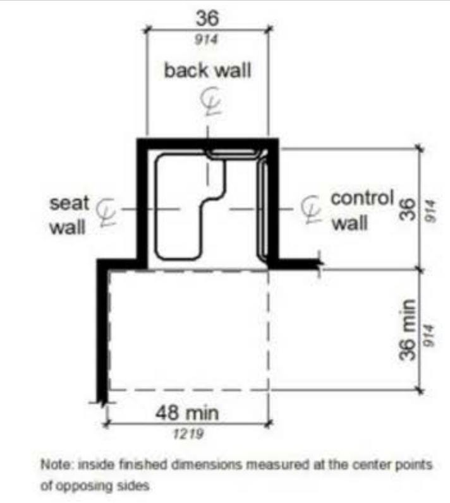


FIGURE *11B*-608.2.1

TRANSFER TYPE SHOWER COMPARTMENT SIZE AND CLEARANCE

11B-608.2.2 Standard roll-in type shower compartments.

Standard roll-in type shower compartments shall be 30 inches (*762* mm) wide minimum by 60 inches (*1524* mm) deep minimum clear inside dimensions measured at center points of opposing sides *with a full opening width on the long side.*

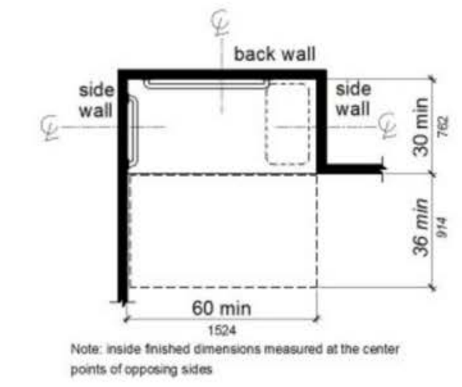


FIGURE *11B*-608.2.2

STANDARD ROLL-IN TYPE SHOWER COMPARTMENT SIZE AND CLEARANCE

11B-608.2.2.1 Clearance.

A *36 inch (914 mm)* wide minimum by 60 inch (*1524* mm) long minimum clearance shall be provided adjacent to the open face of the shower compartment.

Exception: *Reserved.*

11B-608.2.3 Alternate roll-in type shower compartments.

Alternate roll-in type shower compartments shall be 36 inches (*914* mm) wide and 60 inches (*1524* mm) deep minimum clear inside dimensions measured at center points of opposing sides. A 36 inch (*914* mm) wide minimum entry shall be provided at one end of the long side of the compartment.

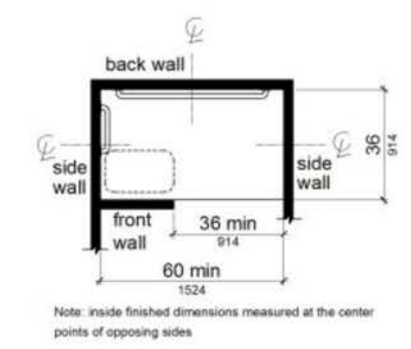


FIGURE *11B*-608.2.3

ALTERNATE ROLL-IN TYPE SHOWER COMPARTMENT SIZE AND CLEARANCE

11B-608.3 Grab bars.

Grab bars shall comply with *Section 11B*-609 and shall be provided in accordance with *Section 11B*-608.3. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the finish floor. *Where separate grab bars are required on adjacent walls at a common mounting height, an L-shaped or U-shaped grab bar meeting the dimensional requirements of Section 11B-608.3.2 or 11B-608.3.3 shall be permitted.*

Exceptions:

1. ***Reserved.***
2. In residential dwelling units, grab bars shall not be required to be installed in showers located in bathing facilities provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with *Section 11B*-608.3.

11B-608.3.1 Transfer type shower compartments.

In transfer type compartments, grab bars shall be provided across the control wall and back wall to a point 18 inches (*457* mm) from the control wall.

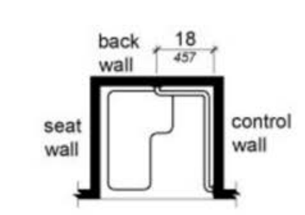


FIGURE 11B-608.3.1

GRAB BARS FOR TRANSFER TYPE SHOWERS

11B-608.3.2 Standard roll-in type shower compartments.

Grab bars shall be provided on the back wall and the side wall opposite the seat. Grab bars shall not be provided above the seat. Grab bars shall be installed 6 inches (*152* mm) maximum from adjacent walls.

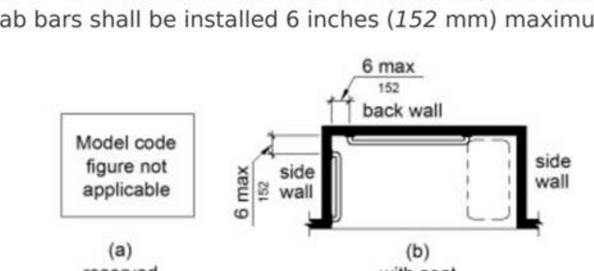


FIGURE *11B*-608.3.2

GRAB BARS FOR STANDARD ROLL-IN TYPE *SHOWER*

11B-608.3.3 Alternate roll-in type shower compartments.

In alternate roll-in type shower compartments, grab bars shall be provided on the back wall and the side wall farthest from the compartment entry. Grab bars shall not be provided above the seat. Grab bars shall be installed 6 inches (*152* mm) maximum from adjacent walls.

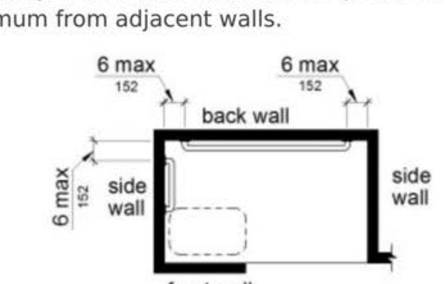


FIGURE *11B*-608.3.3

GRAB BARS FOR ALTERNATE ROLL-IN TYPE SHOWERS

11B-608.4 Seats.

A folding seat shall be provided in roll-in type showers *and transfer type shower compartments.* Seats shall comply with *Section 11B*-610.

Exception: In residential dwelling units, seats shall not be required in shower compartments provided that reinforcement has been installed in walls so as to permit the installation of seats complying with *Section 11B*-608.4.

11B-608.5 Controls.

Controls, faucets and shower spray units shall comply with *Section 11B*-309.4. *Controls and faucets shall allow the user to close and open the water supply.*

11B-608.5.1 Transfer type shower compartments.

In transfer type shower compartments, the controls, faucets and shower spray unit shall be installed on the side wall opposite the seat 38 inches (965 mm) minimum and 48 inches (*1219* mm) maximum above the shower floor and shall be located on the control wall 15 inches (380 mm) maximum from the centerline of the seat toward the shower opening.

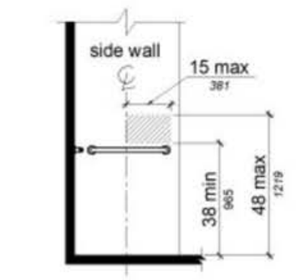


FIGURE *11B*-608.5.1

TRANSFER TYPE SHOWER COMPARTMENT CONTROL LOCATION

11B-608.5.2 Standard roll-in type shower compartments.

In standard roll-in type shower compartments, the controls, faucets and the shower spray unit shall be located on the back wall of the compartment adjacent to the seat wall 16 inches (406 mm) minimum and 27 inches (686 mm) maximum from the seat wall; and shall be located above the grab bar, but no higher than 48 inches (1219 mm) above the shower floor.

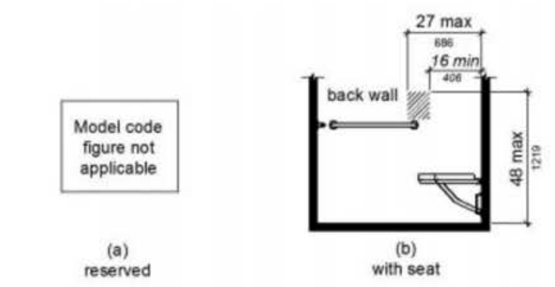


FIGURE *11B*-608.5.2

STANDARD ROLL-IN TYPE SHOWER COMPARTMENT CONTROL LOCATION

11B-608.5.3 Alternate roll-in type shower compartments.

In alternate roll-in type shower compartments, the controls, faucets and shower spray unit shall be located on the side wall of the compartment adjacent to the seat wall 16 inches (406 mm) minimum and 27 inches (686 mm) maximum from the seat wall or shall be located on the back wall opposite the seat 15 inches (381 mm) maximum, left or right of the centerline of the seat. The controls, faucets and shower spray units shall be located above the grab bar, but no higher than 48 inches (1219 mm) above the shower floor.

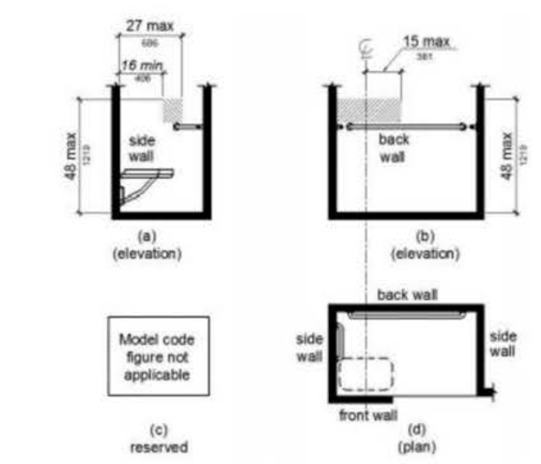


FIGURE 11B-608.5.3

ALTERNATE ROLL-IN TYPE SHOWER COMPARTMENT CONTROL LOCATION

11B-608.6 Shower spray unit and water.

A shower spray unit with a hose 59 inches (*1499* mm) long minimum that can be used both as a fixed-position shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Shower spray units shall deliver water that is 120°F (49°C) maximum.

Exception: *Where subject to excessive vandalism, two fixed shower heads shall be permitted instead of a hand-held spray unit in facilities that are not medical care facilities, long-term care facilities, transient lodging guest rooms or residential dwelling units. Each shower head shall be installed so it can be operated independently of the other and shall have swivel angle adjustments, both vertically and horizontally. One shower head shall be located at a height of 48 inches (1219 mm) maximum above the shower finish floor.*

11B-608.7 Thresholds.

Thresholds in roll-in type shower compartments shall be $1/2$ inch (*12.7* mm) high maximum in accordance with *Section 11B*-303. In transfer type shower compartments, thresholds $1/2$ inch (*12.7* mm) high maximum shall be beveled, rounded or vertical.

Exception: A threshold 2 inches (*51* mm) high maximum shall be permitted in transfer type shower compartments in existing facilities where provision of a $1/2$ inch (*12.7* mm) high threshold would disturb the structural reinforcement of the floor slab.

11B-608.8 Shower enclosures.

Enclosures for shower compartments shall not obstruct controls, faucets and shower spray units or obstruct transfer from wheelchairs onto shower seats.

11B-608.9 Shower floor or ground surface.

Floor or ground surfaces of showers shall comply with Section 11B-302.1 and shall be sloped 1:48 maximum in any direction. Where drains are provided, grate openings shall be $1/4$ inch (6.4 mm) maximum and flush with the floor surface.

11B-608.10 Soap dish.

Where a soap dish is provided, it shall be located on the control wall at 40 inches (1016 mm) maximum above the shower floor, and within the reach limits from the seat.

11B-609 Grab bars

11B-609.1 General.

Grab bars in toilet facilities and bathing facilities shall comply with *Section 11B*-609.

11B-609.2 Cross section.

Grab bars shall have a cross section complying with *Section 11B*-609.2.1 or *11B*-609.2.2.

11B-609.2.1 Circular cross section.

Grab bars with circular cross sections shall have an outside diameter of $1^1/_4$ inches (32 mm) minimum and 2 inches (51 mm) maximum.

11B-609.2.2 Non-circular cross section.

Grab bars with non-circular cross sections shall have a cross-section dimension of 2 inches (51 mm) maximum and a perimeter dimension of 4 inches (*102* mm) minimum and 4.8 inches (*122* mm) maximum.

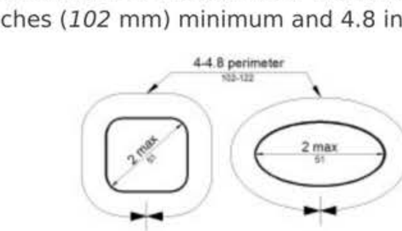


FIGURE *11B*-609.2.2

GRAB BAR NON-CIRCULAR CROSS SECTION

11B-609.3 Spacing.

The space between the wall and the grab bar shall be $1^1/_2$ inches (38 mm). The space between the grab bar and projecting objects below and at the ends shall be $1^1/_2$ inches (38 mm) minimum. The space between the grab bar

NUMBER	DATE	REVISED BY	DESCRIPTION
REVISION TABLE			

ACCESSIBILITY DETAILS

BATHHOUSE AND TRASH ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

J.B.
SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY, CA 95945
PHONE: 530-788-8794
EMAIL: JEFF@JBSANDGREN.COM

DATE:
9/20/2023

SCALE:

SHEET:
A-8

and projecting objects above shall be 12 inches (305 mm) minimum.

Exceptions:

1. The space between the grab bars and shower controls, shower fittings, and other grab bars above shall be permitted to be $1^{1}/_{2}$ inches (38 mm) minimum.
2. *For L-shaped or U-shaped grab bars complying with Section 11B-609.9 the space between the walls and the grab bar shall be $1^{1}/_{2}$ inches (38 mm) minimum for a distance of 6 inches on either side of the inside corner between two adjacent wall surfaces.*

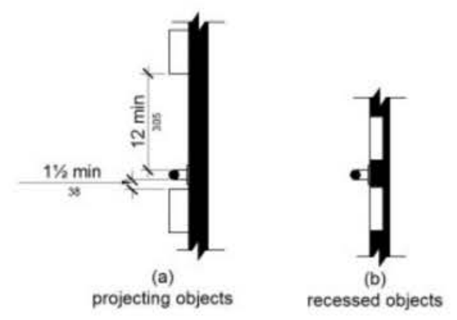


FIGURE *11B*-609.3
SPACING OF GRAB BARS

***11B-609.4* Position of grab bars.**

Grab bars shall be installed in a horizontal position, 33 inches (*838* mm) minimum and 36 inches (*914* mm) maximum above the finish floor measured to the top of the gripping surface, except that at water closets for children's use complying with *Section 11B*-604.9, grab bars shall be installed in a horizontal position 18 inches (*457* mm) minimum and 27 inches (*686* mm) maximum above the finish floor measured to the top of the gripping surface. The height of the lower grab bar on the back wall of a bathtub shall comply with *Section 11B*-607.4.1.1 or *11B*-607.4.2.1.

***11B-609.5* Surface hazards.**

Grab bars and any wall or other surfaces adjacent to grab bars shall be free of sharp or abrasive elements and shall have rounded edges.

***11B-609.6* Fittings.**

Grab bars shall not rotate within their fittings.

***11B-609.7* Installation.**

Grab bars shall be installed in any manner that provides a gripping surface at the specified locations and that does not obstruct the required clear floor space.

***11B-609.8* Structural strength.**

Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the grab bar, fastener, mounting device or supporting structure.

11B-609.9 Alternate configuration.

L-shaped or U-shaped grab bars shall be permitted.

11B-610 Seats

***11B-610.1* General.**

Seats in bathtubs and shower compartments shall comply with *Section 11B*-610.

***11B-610.2* Bathtub seats.**

The top of bathtub seats shall be 17 inches (*432* mm) minimum and 19 inches (*483* mm) maximum above the bathroom finish floor. The depth of a removable in-tub seat shall be 15 inches (*381* mm) minimum and 16 inches (*406* mm) maximum. The seat shall be capable of secure placement. Permanent seats at the head end of the bathtub shall be 15 inches (*381* mm) deep minimum and shall extend from the back wall to or beyond the outer

edge of the bathtub.

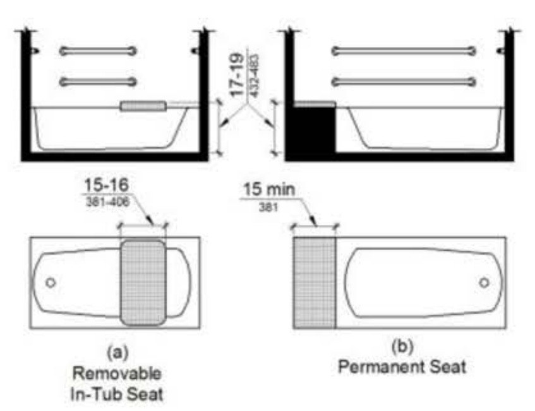


FIGURE *11B*-610.2
BATHTUB SEATS

***11B-610.3* Shower compartment seats.**

A seat in a standard roll-in shower compartment shall be a folding type, shall be installed on the side wall adjacent to the controls, and shall extend from the back wall to a point within 3 inches (*76* mm) of the compartment entry. *A seat* in an alternate roll-in type shower compartment shall be a folding type, shall be installed on the front wall opposite the back wall, and shall extend from the adjacent side wall to a point within 3 inches (*76* mm) of the compartment entry. In transfer type showers, the seat shall extend from the back wall to a point within 3 inches (*76* mm) of the compartment entry. The top of the seat shall be 17 inches (*432* mm) minimum and 19 inches (*483* mm) maximum above the bathroom finish floor. *When folded, the seat shall extend 6 inches (152 mm) maximum from the mounting wall.* Seats shall comply with *Section 11B*-610.3.1 or *11B*-610.3.2.

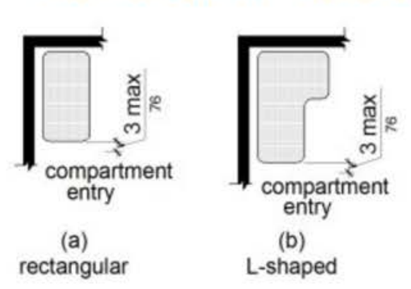


FIGURE *11B*-610.3
EXTENT OF SEAT

***11B-610.3.1* Rectangular seats.**

The rear edge of a rectangular seat shall be $2^{1}/_{2}$ inches (64 mm) maximum and the front edge 15 inches (*381* mm) minimum and 16 inches (*406* mm) maximum from the seat wall. The side edge of the seat shall be $1^{1}/_{2}$ inches (38 mm) maximum from the adjacent wall.

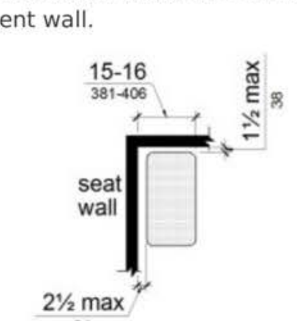


FIGURE *11B*-610.3.1
RECTANGULAR SHOWER SEAT

***11B-610.3.2* L-shaped seats.**

The rear edge of an L-shaped seat shall be $2^{1}/_{2}$ inches (64 mm) maximum and the front edge 15 inches (*381* mm) minimum and 16 inches (*406* mm) maximum from the seat wall. The rear edge of the "L" portion of the seat shall be $1^{1}/_{2}$ inches (38 mm) maximum from the wall and the front edge shall be 14 inches (*356* mm) minimum and 15 inches (*381* mm) maximum from the wall. The end of the "L" shall be 22 inches (*559* mm) minimum and 23 inches (*584* mm) maximum from the main seat wall.

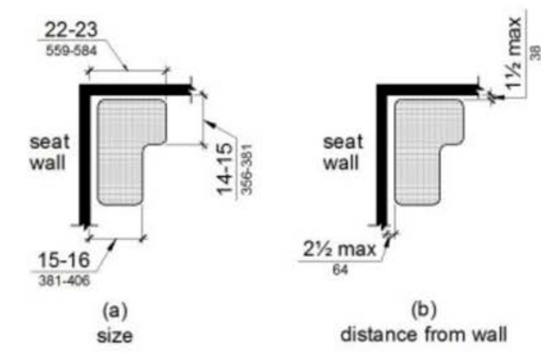


FIGURE *11B*-610.3.2
L-SHAPED SHOWER SEAT

***11B-610.4* Structural strength.**

Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of 250 pounds (1112 N) is applied at any point on the seat, fastener, mounting device or supporting structure.

11B-611 Washing machines and clothes dryers

***11B-611.1* General.**

Washing machines and clothes dryers shall comply with *Section 11B*-611.

***11B-611.2* Clear floor space.**

A clear floor or ground space complying with *Section 11B*-305 positioned for parallel approach shall be provided. The clear floor or ground space shall be centered on the appliance.

***11B-611.3* Operable parts.**

Operable parts, including doors, lint screens and detergent and bleach compartments shall comply with *Section 11B*-309.

***11B-611.4* Height.**

Top loading machines shall have the door to the laundry compartment located 36 inches (*914* mm) maximum above the finish floor. Front loading machines shall have the bottom of the opening to the laundry compartment located 15 inches (*381* mm) minimum and 36 inches (*914* mm) maximum above the finish floor.

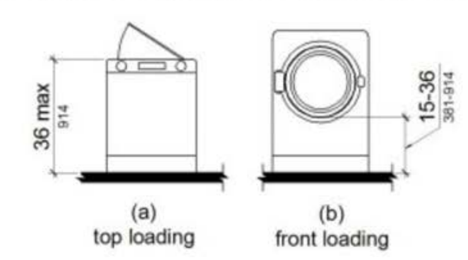
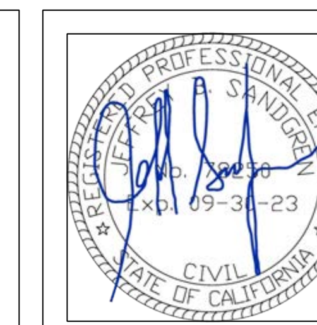


FIGURE *11B*-611.4
HEIGHT OF LAUNDRY COMPARTMENT OPENING



NUMBER	DATE	REVISED BY	DESCRIPTION

REVISION TABLE

ACCESSIBILITY DETAILS

BATHHOUSE AND TRASH ENCLOSURE FOR:
RIVERDALE RESORT
SACRAMENTO, CA

J.B.
SANDGREN ENGINEERING
120 N. AUBURN STREET SUITE 200
GRASS VALLEY, CA 95945
PHONE: 530-798-8794
EMAIL: JEFF@JBSANDGREN.COM

DATE:
9/20/2023

SCALE:

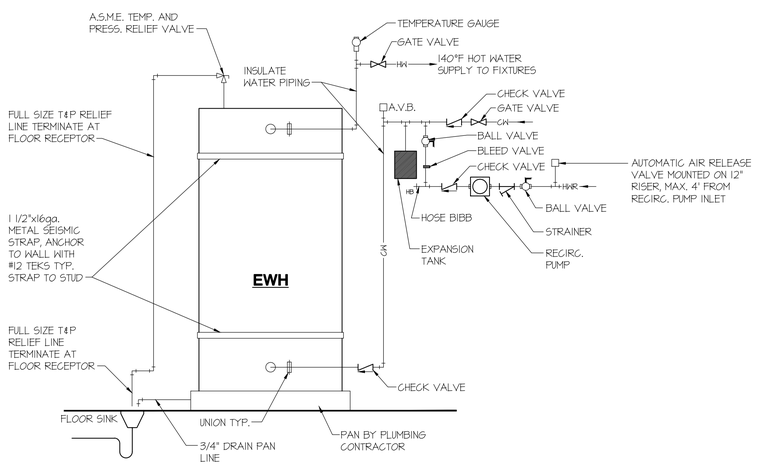
SHEET:
A-9

FIXTURE SCHEDULE

SYMBOL	MFR/MODEL	VENT	WASTE OUTLET	COLD WATER OUTLET	HOT WATER OUTLET	REMARKS
L 1	LAVATORY - KINGSTON KOHLER MODEL K2005WHT DELTA MODEL:DEL22C151 FAUCET	1 1/2"	2"	1/2"	1/2"	ACCESSIBLE APPROVED
WC 1	COMMODE - KINGSTON KOHLER MODEL WM FV BOWL SLOAN REGAL FLUSH VALVE - SLN111XL ADA COMPLIANT	2"	4"	1 1/4"	~	1.28 GAL. FLUSH VALVE ACCESSIBLE APPROVED
MS 1	MOP SINK FLORESTONE MSR-24243 / FLORESTONE 89T-RCF APPROVED FAUCET	2"	2"	1/2"	1/2"	APPROVED FAUCET WITH VACUUM BREAK
WH 1	WATER HEATER STATE EDT 80 20RT	~	~	~	~	INSTALLED PER MANUFACTURERS AND CODE REQUIREMENTS. 80 GAL., ELEC. 12.2 KW, 277V
CP 1	CIRCULATION PUMP GRUNDOS UPS 15-55 SFC 115V / 0.75 AMPS MAX.	~	~	~	~	INSTALLED PER MANUFACTURERS AND CODE REQUIREMENTS.
EXP 1	WATER EXPANSION TANK WATTS PLT-5-M1	~	~	~	~	INSTALLED PER MANUFACTURERS AND CODE REQUIREMENTS.
FS 1	FLOOR SINK WATTS FS-1-32-22	2"	11/2"	1/2"	~	
FD 1	FLOOR DRAIN WITH CHROME FLANGE COVER ZURN MODEL:ZURZN415PB52NH	~	2	~	~	
FCO 2	FLOOR CLEANOUT WITH CHROME FLANGE COVER ZURN MODEL:ZURC02500NH4	~	4"	~	~	
SH 1	SHOWER TRIM KIT DELTA MODEL:DELT13220 W/ DELTA VALVE BODY MODEL:DELR10000UNWS	~	4"	~	~	ACCESSIBLE APPROVED
HB 1	HOSE BIBB - MIFAB MHY-1500	~	~	~	~	
OX 1	SIOUX CHIEF MANUFACTURING WATER CONTROL OUTLET BOX - WASHER MODEL - 696-62313MF	2"	2"	1/2"	~	
FD 1	FLOOR DRAIN SIOUX CHIEF - 833-22DSR	2"	2"	1/2"	~	PROVIDE TRAP PRIMER IN ACCORDANCE W/ CODE RQMTS. FLOOR SHALL SLOPE TO DRAIN AT 1% SEE MANUFACTURER DETAIL/CUT SHEET FOR 2' - 4" INLINE FLOOR DRAIN TRAP SEALER **THE SURESEAL TRAP SEALER SPECIFICATION IS UNDER AN ALTERNATE MATERIALS & METHODS FOR COMPLIANCE WITH CPC 1007.0.**

ALL PLUMBING FIXTURES SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. PROVIDE AND INSTALL ANY ACCESSORIES AS REQUIRED FOR A COMPLETE AND PROPERLY OPERATIONAL SYSTEM.

NOTE:
ALL FAUCETS SHALL BE PROVIDED AND INSTALLED WITH THERMOSTATIC MIXING DEVICES THAT CONFORM WITH CODE REQUIREMENTS.
LIMITATION OF HOT WATER TEMPERATURE FOR PUBLIC LAVATORIES:
HOT WATER DELIVERED FROM PUBLIC-USE LAVATORIES SHALL BE LIMITED TO A MAXIMUM TEMPERATURE OF 120 DEGREES F, BY A DEVICE THAT IS IN ACCORDANCE WITH ASSE 1070R OR CSA B125.3. THE WATER HEATER THERMOSTAT SHALL NOT BE CONSIDERED A CONTROL FOR MEETING THIS PROVISION. (PER CBC)



1 WATER HEATER PIPING DETAIL
W-HEATER3 1=12

PLUMBING LEGEND

——SS——	PROPOSED SANITARY SEWER LINE - SCHEDULE 40 PVC MAINTAIN A MIN. 2% SLOPE FOR ALL HORIZONTAL LINES.
– – – –V– – – – –	WASTE VENT LINE - SCHEDULE 40 PVC
--------V----------	WASTE VENT LINE - SCHEDULE 40 PVC (UNDERGROUND)
O VTR	VENT THRU ROOF

WATER

—— - ——CW—— - ——	NEW COLD WATER - TYPE M COPPER
– – – – –HW– – – –	NEW HOT WATER - TYPE M COPPER INSULATED PER TITLE 24

GENERAL NOTES

1. ALL PLUMBING INSTALLATIONS SHALL CONFORM WITH THE 2022 CALIFORNIA BUILDING CODE, 2022 CALIFORNIA PLUMBING CODE AND THE 2022 CA. RETAIL FOOD CODE, AND OTHER, GOVERNING CODES.
2. THE CONTRACTOR WILL FIELD LOCATE EXISTING PIPING MAINS AND POINTS OF CONNECTION BEFORE STARTING THE WORK.
3. ALL PLUMBING DRAWINGS ARE SCHEMATIC. THE APPROXIMATE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHERE POSSIBLE.
4. WHERE APPLICABLE PROVIDE AND INSTALL APPROVED FIRE CAULK/SEALS AROUND ALL PIPES AND ETC. PENETRATING FIRE RATED WALLS AND PARTITIONS.
5. RESERVED
7. ALL PIPING AND ETC SHALL BE SUPPORTED AND BRACED IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE REQUIREMENTS.
8. ALL WASTE AND VENT PIPING SHALL BE SCHEDULE 40 PVC OR OTHER CODE APPROVED PIPING.
9. RESERVED
10. ALL ABOVE GROUND WATER PIPING SHALL BE TYPE M COPPER.
11. PLUMBING VENTS SHALL TERMINATE NOT LESS THAN 10 FEET FROM ANY OPENABLE WINDOW, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT.
12. RESERVED
13. CLEAN OUTS SHALL BE THE FULL SIZE OF THE PIPE BUT NO LARGER THAN 4" DIAMETER.
14. ANGLE STOPS SHALL BE PLUMBING CODE APPROVED.
15. ALL TRAPS SHALL BE SCHEDULE 40 PVC TRAPS COMPLETE WITH ALL ACCESSORIES INCLUDING TRAP TO WALL CONNECTION AND ESCUTCHEON PLATE.
16. MOUNTING HEIGHT OF FIXTURES AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ALL ACCESSIBILITY REQUIREMENTS.
17. WATER HAMMER ARRESTERS SHALL BE INSTALLED AT FIXTURES.

SHEET INDEX

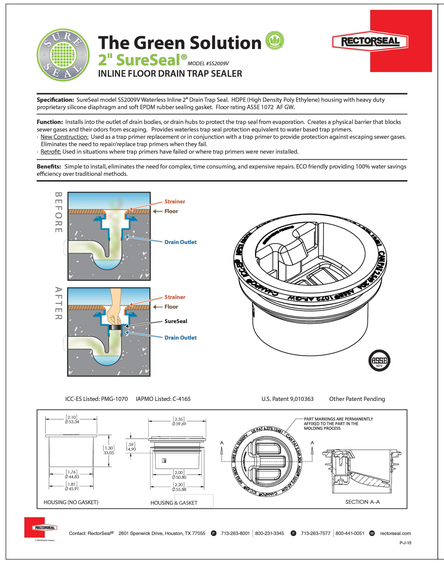
ADAMS
960 Grey Ave., Suite #C
Yuba City, CA. 95991
Office - 530-868-4850

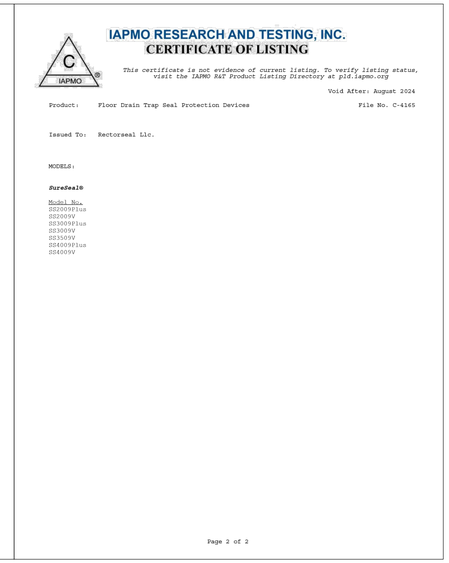
BATH HOUSE
RIVERDALE RESORT
HWY. 160
SACRAMENTO, CA.

PLUMBING SCHEDULE AND NOTES

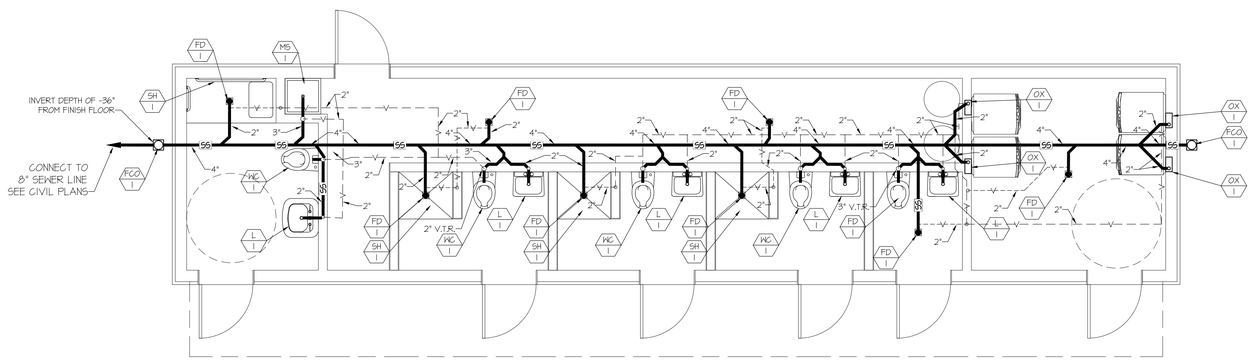
REVISIONS		
1		
2		
3		
4		
5		
6		

DATE 7-17-23
JOB NO. 23021
DRAWN J.O.
SCALE ~
SHEET **P0**
DWG. FILE RIVERDALE-P0.dwg





SEE SHEET P0
FOR FIXTURE SCHEDULE,
PLUMBING NOTES AND LEGEND



MAINTAIN A MIN. 2% SLOPE FOR
FOR ALL HORIZONTAL SEWER LINES.

WASTE AND VENT PIPING PLAN

1/4" = 1'-0"

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BATH HOUSE

RIVERDALE RESORT
HWY. 160
SACRAMENTO, CA.

WASTE AND VENT PIPING PLAN

REVISIONS		
1		
2		
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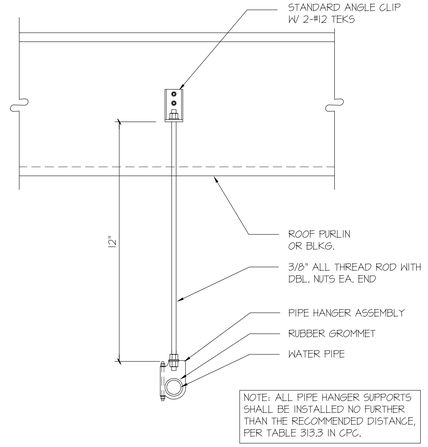
DATE	7-17-23
JOB NO.	23021
DRAWN	J.O.
SCALE	1/4" = 1'-0"
SHEET	P1
DWG. FILE	RIVERDALE-P0.dwg



NOTE: ALL PIPE HANGER SUPPORTS SHALL BE INSTALLED NO FURTHER THAN THE RECOMMENDED DISTANCE, PER TABLE 313.3 IN CPC.

1 TYPIAL PIPE HANGER

SHEL-DTT 1=4

SEE SHEET P0
FOR FIXTURE SCHEDULE,
PLUMBING NOTES AND LEGEND

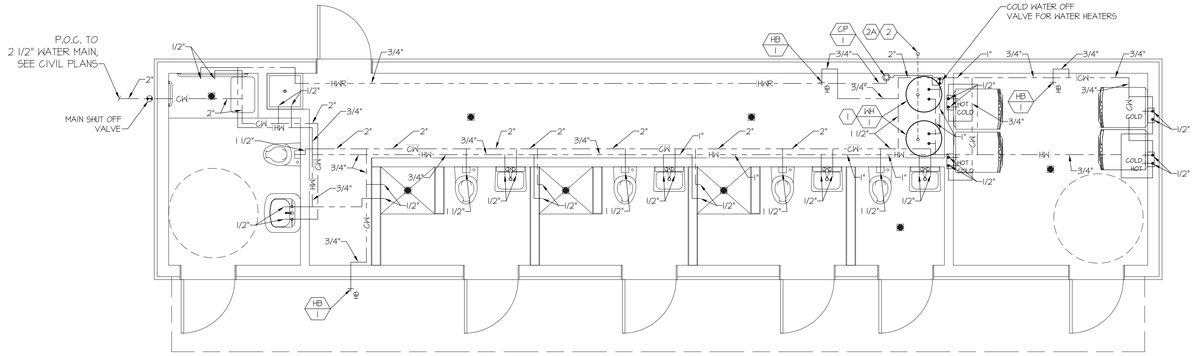
WATER PIPING KEYNOTES

(#) DESIGNATES TYPICAL KEYNOTE SYMBOLS.

1 TYPICAL WATER HEATER ANCHORAGE REQUIREMENTS SEE DETAIL 1/P0

2 PROVIDE/INSTALL WATER HEATER PRESSURE RELIEF VALVE (MAX PRESSURE SETTING 150 PSI) , PROVIDE/INSTALL AN APPROVED, LISTED, ADEQUATELY SIZED COMBINATION PRESSURE AND TEMPERATURE RELIEF VALVE IN ACCORDANCE WITH ITS LISTING AND THE MANUFACTURER'S INSTRUCTIONS. THE PRESSURE RELIEF VALVE SHALL BE CONNECTED TO A DRAIN. NO SHUTOFF VALVE SHALL BE INSTALLED BETWEEN THE RELIEF VALVE AND THE SYSTEM OR IN THE DRAIN LINE.

2A PRESSURE RELIEF VALVES LOCATED INSIDE A BUILDING SHALL BE PROVIDED WITH A DRAIN. NOT SMALLER THAN THE RELIEF VALVE OUTLET. THE DRAIN SHALL BE OF GALVANIZED STEEL, HARD DRAWN COPPER PIPING AND FITTINGS, CPVC, PB, OR LISTED RELIEF VALVE DRAIN TUBE WITH FITTINGS WHICH WILL NOT REDUCE THE INTERNAL BORE OF THE PIPE OR TUBING (STRAIGHT LENGTHS AS OPPOSED TO COILS) AND SHALL EXTEND FROM THE VALVE TO THE OUTSIDE OF THE BUILDING WITH THE END OF THE PIPE NOT MORE THAN TWO (2') FEET NOR LESS THAN 6 INCHES ABOVE THE GROUND AND POINTING DOWNWARD. SUCH DRAINS MAY TERMINATE AT OTHER APPROVED LOCATIONS. NO PART OF THE DRAIN PIPE SHALL BE TRAPPED AND THE TERMINAL END OF THE DRAIN PIPE SHALL NOT BE THREADED.



WATER PIPING PLAN

1/4" = 1'-0"

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Yuba City, CA. 95991
Office - 530-868-4850

BATH HOUSE

RIVERDALE RESORT
HWY. 160
SACRAMENTO, CA.

WATER PIPING PLAN

REVISIONS		
1		
2		
3		
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DATE	7-17-23
JOB NO.	23021
DRAWN	J.O.
SCALE	1/4" = 1'-0"
SHEET	P2
DWG. FILE	RIVERDALE-P0.dwg

MECHANICAL NOTES

1. THE MECHANICAL CONTRACTOR SHALL SUPPLY AND INSTALL COMPLETE AND PROPERLY FUNCTIONING EXHAUST FAN SYSTEMS COMPLETE. USE SPECIFIED ROOF PENETRATIONS FOR ALL PROPOSED ROOF PENETRATIONS, ETC. PROVIDE AND INSTALL ALL FLASHINGS, ROOF JACKS, WALL FLASHINGS, GALVANIZED METAL RAKE FLASHINGS, GUTTERS, DOWNSPOUTS/RELATED ASSESSORIES, ETC. COMPLETE. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS TRANSPORTATION, MISCELLANEOUS ITEMS, EQUIPMENT AND ETC. AS REQUIRED TO ACCOMPLISH THIS INTENT. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY ACCESSORIES WHICH MAY BE REASONABLY CONSTRUED AS A NECESSARY PART OF THE INSTALLATION WHETHER THE ACCESSORIES ARE SHOWN NOTED OR NOT.

2. ALL WORK SHALL CONFORM WITH THE REQUIREMENTS OF THE LATEST ADOPTED CODES AND ORDINANCES. NOTHING IN THESE PLANS SHALL BE CONSTRUED AS TO PERMIT WORK THAT IS NOT IN CONFORMANCE WITH THESE CODES OR OTHER GOVERNING CODES:

- 2022 CALIF. MECHANICAL CODE / UNIFORM MECHANICAL CODE (UMC)
- 2022 CALIF. BUILDING CODE / UNIFORM BUILDING CODE (UBC)
- 2022 CALIF. PLUMBING CODE / PLUMBING MECHANICAL CODE (UMC)
- 2022 CALIF. ELECTRICAL CODE / NATIONAL ELECTRICAL CODE (NEC)
- NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
- STATE TITLE 24 ENERGY CONSERVATION REQUIREMENTS
- SHEET METAL & AIR CONDITIONING CONTRACTORS NAT. ASSOC. (SMACNA)

3. THE DRAWINGS ARE SCHEMATIC ONLY. FIELD ADJUSTMENTS MAY BE REQUIRED TO ACCOMMODATE OBSTRUCTIONS.

4. ALL MECHANICAL EQUIPMENT SHALL BE MOUNTED AND ANCHORED IN ACCORDANCE WITH CALIF. BUILDING CODE REQUIREMENTS. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR MECHANICAL EQUIPMENT ANCHORAGE DESIGN AND INSTALLATION.

5. THE PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDENSATE PIPING TO PER CODE REQUIREMENTS.

6. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE CODE AND MANUFACTURER'S REQUIREMENTS.

7. COORDINATE ALL HVAC INSTALLATIONS WITH OTHER TRADES TO AVOID INTERFERENCES AND CONFLICTS.

8. THE MECHANICAL CONTRACTOR SHALL CONTACT THE ENGINEER AND RESOLVE ANY CONFLICTS IN THE CONSTRUCTION DOCUMENTS PRIOR TO ANY FABRICATION AND/OR INSTALLATION OF MATERIALS OR EQUIPMENT.

9. ELECTRICAL CONNECTION TO CONTROL EQUIPMENT ALONG WITH ANY APPARATUS SUCH AS SWITCHES, DISCONNECTS AND ETC. TO MAKE THE SYSTEM OPERATIVE ARE A PART OF THE ELECTRICAL CONTRACTOR'S WORK.

10. A MAINTENANCE LABEL SHALL BE AFFIXED TO THE MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNERS USE. THE LABEL SHALL CLEARLY INDICATE THE ROUTINE MAINTENANCE ACTIONS WHICH MUST BE PERFORMED TO MAINTAIN THE EQUIPMENT IN EFFICIENT OPERATING CONDITION.

11. ALL EQUIPMENT SHALL COMPLY WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS. EQUIPMENT MANUFACTURER'S AND SUPPLIERS SHALL PROVIDE ALL NECESSARY DATA FOR COMPLIANCE.

CLOTHES DRYER

12 MOISTURE EXHAUST DUCTS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING AND SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. DUCTS FOR EXHAUSTING CLOTHES DRYERS SHALL NOT BE CONNECTED OR INSTALLED WITH SHEETMETAL SCREWS OR OTHER FASTENER THAT WILL OBSTRUCT THE FLOW. CLOTHES DRYERS MOISTURE EXHAUST DUCT SHALL NOT BE CONNECTED TO A GAS VENT CONNECTOR, GAS VENT, OR CHIMNEY AND SHALL SERVE CLOTHES DRYERS. CLOTHES DRYER MOISTURE EXHAUST DUCTS UNDER POSITIVE PRESSURE SHALL NOT EXTEND INTO OR THROUGH DUCTS OR PLENUMS.

12.1 DOMESTIC CLOTHES DRYER MOISTURE EXHAUST DUCTS SHALL BE OF METAL AND SHALL HAVE SMOOTH INTERIOR SURFACES. CMC 504.4.2

12.2 LISTED CLOTHES DRYER TRANSITION DUCTS NOT MORE THAN 6 FEET IN LENGTH SHALL BE PERMITTED TO BE USED IN CONNECTION WITH DOMESTIC DRYER EXHAUSTS.FLEXIBLE CLOTHES DRYER TRANSITION

12.3 UNLESS OTHERWISE PERMITTED OR REQUIRED BY THE DRYER MANUFACTURERS DUCTS SHALL NOT BE CONCEALED WITHIN CONSTRUCTION. CMC 504.4.2.2 INSTRUCTIONS AND APPROVED BY THE AUTHORITY HAVING JURISDICTION, DOMESTIC DRYER MOISTURE EXHAUST DUCTS SHALL NOT EXCEED A TOTAL COMBINED HORIZONTAL AND VERTICAL LENGTH OF 14 FEET, INCLUDING TWO 90 DEGREE ELBOWS. A LENGTH OF 2 FEET SHALL BE DEDUCTED FOR EA. 90 DEGREE ELBOW IN EXCESS OF 2. CMC 504.4.2.1

MECHANICAL PLAN KEYNOTES

(#) DESIGNATES TYPICAL KEYNOTE SYMBOLS.

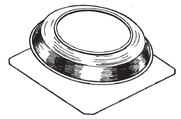
ROOF MOUNTED POWERED ATTIC VENTILATORS

M1 PROVIDE AND INSTALL BROAN MODEL 355BK ALONG WITH ALL FLASHING AND RELATED CONNECTIONS FROM THE VENTILATOR FAN THROUGH THE ROOF.

BROAN®

SPECIFICATION SHEET

ROOF MOUNTED POWERED ATTIC VENTILATORS



Powerful and easy to install, these units supplement or replace air conditioning by removing the blanket of hot, trapped air from attics - automatically.

FEATURES

- Precision balanced 14" metal blade for maximum air flow - minimum sound level
- PVC plastic dome provides ultraviolet protection and superior durability (Models 350BK*, 350BR*, 355BK, 355BR, 356BK*, 356BR*)
- .050 aluminum dome (Model 358)
- 23 gage metal flashing - allows for nailing and hot tar application
- Mesh bird screen
- Built-in adjustable thermostat - for automatic operation at your chosen temperature level
- Thermally protected, permanently lubricated motor
- Mounts easily between rafters - installation template included

CONTROLS DESIGNED FOR USE WITH THESE PRODUCTS (purchase separately):

- Model 69W (White) Single-Function Control
- Model 72W (White) Electronic Variable Speed Control- 6 amp (not for use with Model 356*)

Can be used to ventilate excess heat and humidity from single family, residential garages.

TYPICAL SPECIFICATION

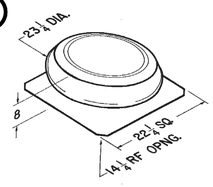
Roof Mounted Attic Ventilator shall be Broan Model 350BK* (350BR*) (355BK) (355BR) (356BK*) (356BR*) (358).

Ventilator shall have metal blade and flashing plate. Bird screen to be included.

Dome to be ultraviolet resistant plastic. (.050 Approx. 18 gage aluminum). Motor to be thermally protected and permanently lubricated. RPM not to exceed 1000 (Models 350BK*, 350BR*), 1100 (Models 355BK, 355BR, 358), 1500 (Models 356BK*, 356BR*).

Ventilator shall have a built-in adjustable thermostat and mount easily between rafters or wall studs.

Air delivery shall be no less than 1050 CFM (Models 350BK*, 350BR*), 1000 CFM (Models 355BK, 355BR, 358), 1600 CFM (Models 356BK*, 356BR*). Units to be U.L. Listed.



SPECIFICATIONS

MODEL	VOLTS	AMPS	RPM	CFM	ATTIC MAX. SQ. FT.	MIN. INLET AREA
350BK*, 350BR*	120	3.6	1000	1050	1500	3.5 SQ. FT.
355BK, 355BR	120	4.3	1050	1000	1400	4.0 SQ. FT.
356BK*, 356BR*	120	8.0	1500	1600	2285	5.5 SQ. FT.
358	120	4.3	1050	1000	1400	4.0 SQ. FT.

HVI CERTIFIED

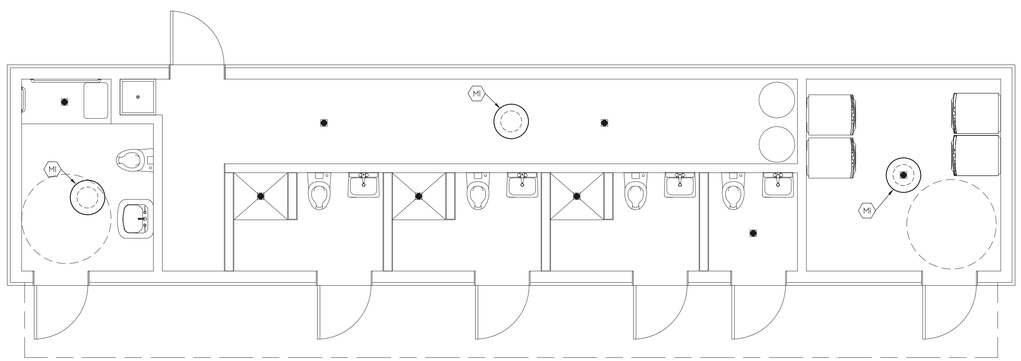
* HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in a state-of-the-art test laboratory. Sones are a measure of humanly-perceived loudness, based on laboratory measurements.

Broan Hartford, Wisconsin www.broan-nutone.com 800-558-1711

REFERENCE	QTY.	REMARKS

Project	
Location	
Architect	
Engineer	
Contractor	
Submitted by	Date

12D 99041108M



MECHANICAL PLAN

1/4" = 1'-0"

SHEET INDEX

ADAMS
960 Grey Ave., Suite #C
Yuba City, CA. 95991
Office - 530-868-4850

BATH HOUSE

RIVERDALE RESORT
HWY. 160
SACRAMENTO, CA.

MECHANICAL PLAN

REVISIONS		
1		
2		
3		
4		
5		
6		

DATE	7-17-23
JOB NO.	23021
DRAWN	J.O.
SCALE	1/4" = 1'-0"
SHEET	M1
DWG. FILE	RIVERDALE-M1.dwg

General

1. Interpretation of drawings & specifications
   A) For convenience, specifications have been prepared for this project and are arranged in several sections, but such separation shall not be considered as the limits of the work required by any separate trade. The terms and conditions of such limitations are wholly between the contractor and his subcontractors.
   B) In general, the working details will indicate dimensions, positions and kind of construction, and the specifications will indicate qualities and methods. Any work indicated on the working details mentioned but not in the specifications, or vice versa, shall be furnished as though fully set forth in both. Work not particularly detailed, marked, or specified, shall be the same as similar parts that are detailed, marked, or specified. If conflicts occur between drawings and specifications, the most expensive materials or methods will prevail.
   C) Should an error appear in the working details or specifications or in work done by others affecting this work, the contractor shall notify the architect at once and in writing. If the Contractor proceeds with the work so affected without having given such written notice and without receiving the necessary approval, decision or instruction in writing from the owner, then he shall have no valid claim against the owner, for the cost of so proceeding and shall make good any resulting damage or defect. No verbal approval, decision, or instruction shall be valid or be the basis for any claim against the owner, its officers, employees or agents. The foregoing includes typical errors in the specifications or notational errors in the working details where the interpretation is doubtful or where the error is sufficiently apparent as to place a reasonably prudent contractor on notice that, should he elect to proceed, he is doing so at his own risk.
2. Construction shall conform to all applicable codes and regulations.
3. Shop Drawing Note:
   A) Shop drawings shall be submitted in the form of one reproducible and two copies of each sheet.
   B) The purpose of shop drawing submittals by the Contractor is to demonstrate to the Structural Engineer that he understands the design concept by indicating which materials he intends to furnish and install, and by detailing the fabrication and installation methods he intends to use.
   C) Prior to fabrication, shop drawings shall be submitted for review to the Structural Engineer. Shop drawing submittals shall include, but are not necessarily limited to structural steel, reinforcing steel, glued laminated beams, and pre-fabricated wood roof framing items such as I-joists and trusses.
   D) Prior to submission the Contractor shall review all submittals for conformance with the contract documents and shall stamp submittals as being "Reviewed for Conformance".
   E) Shop drawing submittals processed by the Structural Engineer are not change orders.
   F) Any detail on the shop drawing that deviates from the contract documents shall clearly be marked with the note "This is a Change".
   G) Shop drawings or calculations submitted for review that require resubmittal for re-review shall be billed hourly for such time to the General Contractor. Re-review will not proceed without written approval from the General Contractor for additional engineering review services.
4. Safety Note:
   A) It is the Contractors responsibility to comply with the pertinent sections, as they apply to this project, of the "Construction Safety Orders" issued by the State of California latest edition, and all OSHA requirements.
   B) The owner and the Structural Engineer do not accept any responsibility for the Contractor's failure to comply with these requirements.
   C) The Contractor shall be responsible for adequate design and construction of all forms and shoring required.
5. The Contractor shall notify the Architect and Structural Engineer where a conflict or a discrepancy occurs between the structural drawings and any other portion of the contract documents or existing field conditions. Such notification shall be given in due time so as not to affect the construction schedule. In case of a conflict between structural drawings and specifications, the more restrictive condition shall take precedence unless written approval has been given for the least restrictive. Contractor shall verify all dimensions with architectural and structural drawings prior to commencing any work.
6. Where no specific detail is shown, the construction shall be identical or similar to that indicated for like cases of construction on this project. Should there be any question, contact the Architect and Structural Engineer prior to proceeding.
7. When construction attaches to an existing building, a complete set of drawings of the existing building shall be kept on the job site. Contractor to obtain these drawings from the owner.
8. Contractor shall provide an allowance equal to 2% of the bid for structural steel, misc. iron, light gauge framing, and reinforcing steel to be used at the discretion of the structural engineer. Unused amount to revert to the owner upon completion of the job.
9. Any substitutions for structural members, hardware, or details shall be reviewed by the Architect and Structural Engineer. Such review will be billed on a time and materials basis to the General Contractor with no guarantee that the substitution will be allowed.
10. Do not scale drawings. Contact the Architect or Structural Engineer for any dimensions not shown.
11. These drawings are not complete until reviewed and accepted by the local building official and signed by the owner and the Structural Engineer.
12. All drawings and written material appearing herein constitutes the original and unpublished work of the Structural Engineer and the same may not be duplicated, used or disclosed without written consent of the Structural Engineer.
13. The structure shown on these drawings is structurally sound only in its completed form. The stability of this structure depends on the diaphragms and the bracing members shown. The Contractor is to provide for the design and construction of shoring for all earth, forms, concrete, steel, wood, and masonry to resist gravity, earth, wind, seismic, and construction loads. Shoring shall remain in place until all diaphragms and lateral resisting elements are in place in their entirety. Construction materials shall be spread out if placed on framed floors or roofs. Load shall not exceed the design live load per square foot.

Foundations

1. Foundation design is based on the Geotechnical Investigation report for Riverdale Resort Subdivision, by GTE Cal, Inc., GTE job number 90-14936, dated January 29, 2018, and update letter dated XXXXXXXX, 2020.
2. All building pad preparation and foundation work shall be done in accordance with the requirements of the geotechnical report. Copies of the report may be obtained from the engineer upon request.
3. The Geotechnical Engineer shall observe all footing excavations prior to placement of reinforcing steel and concrete.
4. Foundation depths indicated on plans are for estimating purposes only. Actual depths are to be determined by the Geotechnical Engineer on the jobsite.
5. When structural observation is required, structural engineer shall observe footing reinforcing steel prior to concrete placement. Provide 48 hours notice to structural engineer prior to concrete placement.
6. The contractor shall be solely responsible for all excavation procedures including, but no limited to, lagging, shoring and protection of adjacent property, structures, streets, and utilities in accordance with the local building department.
7. Foundation type: conventional spread footings
   Mat Foundation design values:
   Allowable Bearing Pressures

DL	1000 psf
DL + LL	1000 psf
DL + LL + wind or seismic	1333 psf

   Lateral Resistance

Passive Pressure	150 pcf
Coefficient of friction	0.25

Structural Steel

1. Fabrication, erection and materials shall conform to the specifications and standards of the AISC, as contained in the "AISC 360-16 Specifications of Structural Steel Buildings" & the "AISC Manual of Steel Construction", 15th edition and California Building Code latest edition.
2. Structural steel shall conform to the following specifications, u.n.o.:

Shapes	
Wide Flanges (W, WT, S, M)	ASTM A992
Channels (C), Misc Channels (MC), Angles (L)	ASTM A36
Hollow Structural Steel (HSS)	ASTM A500, Gr. C
Steel Circular Pipes (P)	ASTM A53, Type E or S, Gr. B
Plates & Bars	
Column Base Plates	ASTM A36
Brace Gusset Plates	ASTM A36
Beam Shear Connection Plates	ASTM A36
Column Continuity Plates	ASTM A572, Gr. 50
Beam Stiffener Plates	ASTM A36
Deck Closure Plates	ASTM A36
Stainless Steel Plates & Bars	ASTM A276
Other	ASTM A36
Nuts, Bolts, Rods, & Washers	
General Bolts	ASTM A325-N
Slip Critical Bolts (see note #4 below)	ASTM A325-SC
High Strength Bolts	ASTM A325-N or A490
Machine Bolts (general use)	ASTM A307
Bent & Headed Anchor Bolts	ASTM F1554, Gr. 36, 55, or 105
Partial & Fully Threaded Anchor Rods	ASTM F1554, Gr. 36, 55, or 105
Fully Threaded Rod (general use)	ASTM A36 (A307 Gr. A for ⅜"Φ)
Welded Shear Connectors	ASTM A108, Gr. 1015 thru 1020
Welded Threaded Studs	ASTM A108, Gr. 1015 thru 1020
Nuts for Bolts & Machine Bolts	ASTM A563
Hardened Washers	ASTM F436
Unhardened Washers	ASTM F844
Plain Washers	ASTM B18.22.1
Beveled Washers	ASTM B18.23.1

3. Bolted connections shall consist of unfinished bolts per the table above unless noted otherwise. Anchor bolts cast in concrete or masonry shall be headed bolts with cut thread, full diameter body style conforming to ASTM F1554 u.n.o.. Unless noted otherwise, anchor bolts/rods shall be grade 36 except that welded anchor bolts shall be grade 55 per SI Supplementary requirements. All bolted connections and base plates shall have standard cut washers unless noted otherwise. Washers at base plates shall be placed at top and bottom of plate.
4. "Slip-critical" bolted connections:
   A) "Slip-critical" connections (A325-SC design values with special inspection) are required at all braced frame connections, at all connections along chord lines and drag lines (as noted on plans), and u.n.o., at all bolts in oversized or slotted holes.
   B) The special inspector must be present during installation and tightening operation of "slip-critical" connections.
5. All structural steel shall receive minimum of one shop coat of red primer with a minimum dry film thickness of 2.0 mils. Do not shop prime or paint areas to be field welded, fireproofed, galvanized, to receive slip-critical high strength bolts, or to be embedded in concrete. Prior to priming or painting, clean structural steel in accordance with Steel Structures Painting Council (SSPC) recommendations & as required by the primer & paint manufacturer. Provide additional painting as noted in the specifications.
6. All structural steel shall be erected plumb and true to line. Temporary bracing shall be installed and shall be left in place until other means are provided to adequately brace the structure. Contractor responsible for reviewing all base plate and support conditions during erection and bracing as required. See AISC and OSHA requirements.
7. Place non-shrink grout under all base plates before adding vertical load. See Concrete Notes for non-shrink grout requirements.
8. Structural steel below grade shall have 3" minimum of concrete cover.
9. Provide ½"Ø stitch bolts and ring fills, space at not more than 24" cc for all double angle members.
10. At wood to steel parallel contact, attach with ½"Φ welded threaded studs at maximum 32"cc. & 6" from ends of wood member, typical unless noted otherwise.
11. Holes for unfinished bolts shall be of the same nominal diameter of the bolt plus 1/16". Use standard AISC gage and pitch for bolts except as noted otherwise. Holes for anchor bolts embedded in concrete shall be of the same nominal bolt diameter plus ⅜" unless noted otherwise.
12. Welding shall be done by the electric arc process in accordance with American Welding Society standards, using only certified welders. All groove welds shall have complete penetration unless noted otherwise. All exposed welds shall be ground smooth. All welding to be done using E70xx electrodes. In addition, welding of ASTM A572 grade 50 steel and ASTM A992 steel shall be done with electrodes capable of depositing weld metal with a maximum diffusible hydrogen content of 16ml/100g (H16). Weld lengths called for on plans are the net effective lengths required.
13. Minimum Fillet welds:
    3/16" @ t < ½"
    ¼" @ t < ¾"
    5/16" @ t > ¾"
14. Welding Procedure Specifications (WPS) for shop and field pre-qualified weld joints and weld joints qualified by test shall be prepared for review prior for fabrication. All welding procedures that meet there requirements of AWS D1.1 Sec. 5.1 shall be considered as pre-qualified. Qualification testing is required when the depth of a partial penetration or complete penetration weld is 2" or greater.
15. Structural steel & fasteners that are permanently exposed to weather shall be either primed and painted or hot dipped galvanized in accordance with ASTM A123 & A153. Repair galvanizing after welding in accordance with ASTM A780.
16. When structural steel & connections will be exposed to view in the completed building, they shall be fabricated, erected & finished in compliance with Architecturally Exposed Structural Steel (AESS) guidelines & Section 10 of the AISC 303-10 "Code of Standard Practice for Steel Buildings and Bridges".

Concrete

1. Structural concrete shall attain 28-day compressive strength as required in note #30. Maximum slump shall not exceed 4".
2. Concrete mix designs shall be prepared by a registered Civil Engineer, reviewed by Owner's testing laboratory and submitted to the Structural Engineer for review. Selection of concrete mix proportions shall be per ACI 318-14 Section 26.4.3. & 26.4.4.
3. Cementitious materials:
   Cement shall conform to ASTM C-150 type I or II.
   Fly ash shall conform to ASTM C-618. Max quantity of fly ash shall be as given in specs (15% max u.n.o.)
4. Concrete aggregates shall conform to ASTM C-33 for normal weight concrete and ASTM C-330 for light weight concrete.
5. Water shall be clean and free from injurious amounts of oils, acids, alkalis, salts, organic materials or other substances deleterious to concrete or reinforcement.
6. Non-shrink grout or drypack shall consist of a premixed nonmetallic formula. See note #27 for additional information.
7. Reinforcing steel shall conform to ASTM A615-grade 60 for #4 and larger, and ASTM A615-grade 40 for #3 and smaller, except reinforcing steel to be welded shall conform to ASTM A706. Contractor shall submit rebar mill certificates.
8. Welded Wire fabric shall conform to ASTM A-1064.
9. All preheating and welding of reinforcing bars shall be done in accordance with AWS D1.4 latest edition and shall be continuously inspected by a qualified laboratory. Contractor shall furnish WPS for all rebar welding to the laboratory.
10. Reinforcing steel shall be fabricated according to "Manual of Standard Practice for Reinforced Concrete Construction".
11. Dimensions shown for location of reinforcing are to the face of bars listed and denote clear coverage. Non-prestressed, cast-in-place concrete coverage shall be as follows, u.n.o.:

Cast against earth (except slabs)	3"
Cast in forms and exposed to earth or weather	
#6 & larger	2"
#5 & smaller	1½"
Beams & columns (ties)	1½"
Beams & columns (main reinf)	2"
Cast-in-place walls	
(exterior face & soil side)	see above
Cast-in-place walls	
(interior face - #11 & smaller)	¾"
Tilt-up walls	see details
Slabs (on forms)	¾"
Slabs (on ground)	2" clr from top u.n.o.

12. Splices in continuous reinforcement shall be lapped u.n.o., lap bars 48 bar diameters u.n.o.. Splices in adjacent bars shall be greater than 5'-0" apart. Splice continuous bars in soil-bearing grade beams, structural slabs on grade and mat foundations as follows u.n.o.: top bars at centerline of support; bottom bars at mid-span. Splice continuous bars in elevated slabs and beams, etc., as follows u.n.o.: top bars at mid-span; bottom bars at centerline of support. All bars size #14 and larger shall be continuous for full length shown or spliced with mechanical couplers as noted in details. Splices in WWF shall overlap 2 squares minimum.
13. The minimum clear spacing between parallel bars in a layer shall not be less than the larger of bar diameter, 1", or 33% greater than the maximum aggregate size (nominal), whichever is greatest. This requirement also applies to the clear spacing between different layers of parallel bars and to the clear distance between a contact lap splice and adjacent splices or bars.
14. All hooks shall be standard hooks unless otherwise shown or noted. At walls, provide hooks at ends of all reinforcing ends, corners and intersections, u.n.o.
15. Provide construction/control joints @ all slabs on grade as noted on plan. Proposed joint plan shall be submitted to the Structural Engineering for approval prior to construction. Concrete surface at construction joints shall be thoroughly cleaned and laitance removed. Where indicated on drawings, roughen concrete surface to ¼" amplitude. Concrete may be roughened by chipping the entire surface, sand blasting, or raking the surface to provide ¼" deep deformations.
16. Remove all debris from forms before casting any concrete.
17. Reinforcing, dowels, bolts, anchors, sleeves, etc., to be embedded in concrete shall be securely positioned in forms before placing concrete.
18. Pipes and electrical conduits shall not be embedded in structural concrete or concrete fill over metal decking except where specifically approved by the Structural Engineer.
19. Anchor bolts (AB's) cast in concrete or masonry for wall sill and ledger/ applications shall be headed bolts with cut threads conforming to ASTM A307 or F1554 u.n.o. Refer to "Wood notes" for additional requirements for bolts in contact with pressure treated or fire retardant material. Refer to "Structural steel" note for requirements for anchor rods cast in concrete for column base plate and steel embed applications.
20. Walls shall be cast in horizontal layers of 2'-0" maximum depth.
21. Concrete in walls, piers or columns shall set at least 2 hours before placing concrete in beams, spandrels, or slabs supported thereon.
22. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309 to suit the type of concrete and project conditions. Concrete shall not be dropped through reinforcing steel (as in walls) so as to cause segregation of aggregates. In such cases hoppers and chutes or trunks of variable lengths shall be used so that the free unconfined fall of concrete shall not exceed 6 feet.
23. Drill through steel columns, beams and plates to pass continuous reinforcing, u.n.o.
24. No wood spreaders allowed. No wood stakes allowed in areas to be concreted.
25. Additional reinforcing in precast or tilt-up panels required for lifting stresses shall be supplied by Contractor.
26. Provide #5x4'-0" diagonal reinforcing at mid-depth of slab at all re-entrant corners typical. This applies to slab on grade, concrete over metal deck, and elevated structural slab conditions.
27. Place non-shrink grout under base plates, sill plates, etc as indicated on the drawings. Non-shrink grout shall be Masterflow 928 Grout by Master Builders Technologies or approved equal with a minimum f'c of 7500 psi @ 28 days.
28. All saw cutting shall be done after initial set has occurred to avoid tearing or damage by the saw blade, but before initial shrinkage has occurred.
29. Notify Structural Engineer a minimum of 48 hours before placing any concrete.
30. Concrete strength: (max slump = 4")

Use	f'c @ 28 days	Max Aggregate Size	Density (lbs/ft3)	Max W/C Ratio
Foundations	3000 psi	1½"	145	0.58
Slab-on-grade	3500 psi	1"	145	0.45
Tilt-up walls	4000 psi	1"	145	0.50
Concrete fill o/ metal deck	3500 psi	⅜"	145	0.52
Exterior flatwork	2500 psi	1"	145	0.60
Conc topping @ elevated flr	2500 psi	⅜"	115	.60

31. Development lengths shall be provided per the table below unless noted otherwise.

Bar	Straight Bars f'c 3000 psi	Straight Bars f'c 4000 psi	Bar	With Standard Hooks f'c 3000 psi	With Standard Hooks f'c 4000 psi
#3	15"	21"	#3	6"	6"
#4	29"	25"	#4	11"	10"
#5	36"	31"	#5	14"	12"
#6	43"	37"	#6	17"	15"
#7	63"	54"	#7	20"	17"
#8	72"	62"	#8	22"	19"
#9	80"	70"	#9	25"	22"
#10	89"	78"	#10	28"	24"
#11	98"	85"	#11	31"	26"

Test and Inspections

1. Tests and Inspections shall be provided as required below and shall conform to the requirements of 2019 CBC, Chapter 17.
2. All Test and Inspections shall be performed by a certified special inspector from an established Testing & Inspection Company, unless noted otherwise. Jobsite visits by the Structural Engineer do not constitute inspections and are not a substitute for special inspection.
3. The special inspector shall observe the work indicated for conformance with the approved construction documents.
4. The special inspector shall furnish inspection reports to the building department, the engineer or architect of record, and other designated persons. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority and to the building department.
5. The special inspector shall submit a final signed report stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved construction documents and the applicable workmanship provisions of the 2019 CBC.
6. It is the contractor's sole responsibility to see that these tests and inspections are performed.
7. Required Tests and Inspections are indicated below with a solid filled rectangle " ■ ".
8. Continuous notation indicates the full-time observation of work requiring special inspection by an approved special inspector who is present at the work area. Periodic notation indicates the intermittent observation of work.
   Tests & Documentation/Certification Required
   Note: Coordinate with building department Test & Inspection form.

- ☐ A. Compact fill
- ☐ B. Concrete mix design, cement, aggregates & admixtures
- ☐ C. Concrete strength f'c test
- ☐ D. Reinforcing steel mill certification
- ☐ E. Structural steel mill certification
- ☐ F. Structural steel, cold formed steel, and anchor bolt sampling & testing (if not properly identified)
- ☐ G. Post installed anchors: Expansion / Epoxy Anchors
- ☐ H. High strength bolts, nuts and washers
- ☐ I. End-welded studs
- ☐ J. Beam to column moment connection
- ☐ K. Prefabricated items

Verification and Inspection	Continuous	Periodic
☐ A. STEEL		
☐ 1. Material verification of high-strength bolts, nuts & washers	○	●
☐ 2. Inspection of high-strength bolting, bearing & typical connections	○	●
☐ 3. Inspection of Welding Structural Steel: (field/shop)		
☐ Complete & partial penetration groove welds	●	○
☐ Multi-pass fillet welds	●	○
☐ Single-pass fillet welds > ⅜"	●	○
☐ Single-pass fillet welds ≤ ⅜"	○	●
☐ Floor and roof deck welds	○	●
☐ 4. Inspection of Steel Frame Joint Details for Compliance with Approved Construction Documents	○	●
☐ 5. Automatic end-weld stud shear connectors	○	●
☐ B. CONCRETE		
☐ 1. Concrete Placement	●	○
☐ 2. Inspection of reinforcing steel & placement	○	●
☐ 3. Inspection of anchors cast in concrete	○	●
☐ C. WOOD		
☐ 1. Verify positive connection of wood members supporting balcony or deck connections to exterior walls prior to concealment	○	●
☐ D. SOIL (by Geotechnical Engineer)	○	●
☐ 1. Footing excavation	○	●
☐ 2. Fill/Filler foundation	●	○
☐ 3. Material verification below footing	○	●
☐ 4. Excavation verification to proper depth	○	●
☐ 5. Placement and compaction of controlled fill	●	○
☐ 6. Site preparation prior to placement of controlled fill	○	●
☐ E. POST INSTALLED ANCHORS		
☐ 1. Expansion anchor installation	○	●
☐ 2. Epoxy anchor installation	●	○

Design Criteria

1. Code: 2019 California Building Code (CBC)
2. Design Live Loads:

Area	Live Load	Remarks
Roof		
A) Flat to < 4:12	Lr = 20 psf	Reducible per code
B) 4:12 to ≤ 12:12	Lr = 12-20 psf	Reducible per code
Floor	L = 0 psf	Reducible per code

3. Snow Design Parameters: N/A
4. Wind Design Parameters:

Ultimate Design Wind Speed (3-sec gust)	Vult = 93 mph
Nominal Design Wind Speed (3-sec gust)	Vasd = 72 mph
Risk Category	II
Exposure Category	C
Internal Pressure Coefficient	±0.18
Analysis Method	Directional Procedure

   Roof Pressures for Components & Cladding:
   1. Wind Uplift loads (zones defined per ASCE 7-16 fig. 30.3-2 thru 30.3-6):
      A) Zone 1: 12 psf
      B) Zone 2: 34 psf
      C) Zone 3: 50 psf
   2. Discontinuity Distance: a = 7.2 ft

   Wall Pressures for Components & Cladding:

Heights:	10'-15'	15'-20'	20'-32.5'
Zone 4:	xx.xx psf	xx.xx psf	xx.xx psf
Zone 5:	xx.xx psf	xx.xx psf	xx.xx psf

5. Earthquake Design Parameters:
   5.1. Seismic Importance Factor: Ie = 1.0
   5.2. Risk Category: II
   5.3. Soil Site Classification: 'E'
   5.4. Seismic Design Category: 'D'
   5.5. Mapped Spectral Response Accel
      A) Short period: Ss = 0.655g
      B) 1-sec period: S1 = 0.284g
   5.6 Design Spectral Response Accel
      A) Short Period: Sps = 0.607g
      B) 1-sec period: Sp1 = 0.541g
   5.7 Seismic Force Resisting System
      A) Wood Bearing / Shear Walls & Flexible Diaphragm
   5.8 Seismic Base Shear: V = 0 kips
   5.9 Seismic Response Coefficient: Cs = 0.17g
   5.10 Component Response Modification Factor: R = 1.25 (cantilevered cols)
   5.11 Analysis Procedure: Equivalent Lateral Force

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Stamp

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STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

Project

Riverdale Resort
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Sacramento, CA

Sheet name

GENERAL NOTES

Revisions

drawn by xxx
checked by xxx
date 8/21/20

Sheet no.

S1.0

Wood

1. All sawn lumber shall be Douglas Fir-Larch as graded by the West Coast Lumber Inspection Bureau (WCLIB) in accordance with Standard Grading Rules No. 17 typical unless noted otherwise. All members shall have a minimum grade of No. 1 except 2x4 and 2x6 wall studs, plates, and blocking may be No. 2.
2. All structural sheathing used for shearwalls and roof sheathing shall conform to the requirements for their type in DOC PS1, DOC PS2 or ANSI/APA PRP 210. Each panel or member shall be identified for grade, bond classification, and performance category by the trademarks of an approved testing and grading agency.
3. All foundation plates or sills on concrete slabs which are in direct contact with earth, and plates or sills on concrete or masonry foundations, shall be pressure treated.
4. All wood shall have a moisture content of not more than 19% when sheathing is applied.
5. 8" minimum clearance shall be maintained at all exterior walls between finish grade and bottom of wood walls.
6. Bearing and shearwalls shall have double top plates lapped at wall corners and intersections and plates shall be internailed with 3-16d at such locations. For plate splice details, see drawings.
7. Sill plate anchor bolts shall be installed with plate washers 3x3x0.229 between nut and plate.
8. Provide solid blocking between joists and rafters at all supports.
9. Provide blocking at all ceiling levels.
10. Joists under and parallel to partitions shall be doubled and nailed together.
11. Holes for bolts in wood shall be bored with a bit of the same nominal diameter as the bolt plus 1/16".
12. Holes for lag screws shall be bored as follows:
    a. The clearance hole for the shank shall have the same diameter as the shank, and the same depth of penetration as the length of unthreaded shank.
    b. The lead hole for the threaded portion shall have a diameter equal to 60% to 75% of the shank diameter and a length equal to at least the length of the threaded portion.
13. Lag screws and wood screws shall be screwed and not driven into place. Soap may be used to lubricate the screws.
14. All bolts and lag screws shall be provided with metal washers under heads and nuts which bear on wood. Applies also to inserted expanding fasteners, Red Head, etc.

Bolt Diameter	MI Nasher	Steel Nasher
5/8"Φ	2¾"Φx⅝"	3"x3"x¼"
¾"Φ	3"Φx1⅛"	3"x3"x⅝"
⅞"Φ	3½"Φx1⅛"	3½"x3½"x⅜"
1"Φ	4"Φx½"	3¾"x3¾"x⅜"

15. All bolts and lag screws shall be tightened at installation and retightened before closing in or at completion of job.
16. Lay all structural sheathing on roof and floors with face grain perpendicular to support typical unless noted otherwise. Use ply-clips at unsupported sheathing edges.
17. Connector hardware model number are those for Simpson Strong-Tie Company. All joist hangers shall be Simpson U series unless noted otherwise. Equivalent connectors with ICC acceptance may be submitted for review as an alternate.
18. Notify Structural Engineer after wall, floor, and roof sheathing nailing has been completed and a minimum of 48 hours prior to concealing sheathing.
19. Fasteners, nuts, and washers in contact with SBX/DOT and zinc borate treated wood in interior dry conditions may be carbon steel. Fasteners in other preservative-treated wood (Anchor bolts, nails, screws) shall be approved silicon bronze or copper, stainless steel or hot-dipped zinc-coated steel per CBC 2304.10.5.1 u.n.o.

Adhesive Anchors-Concrete

1. Where "Hilti" or "Simpson" post-installed adhesive anchors in concrete are called out on plan, the following Hilti or Simpson adhesive products shall be used, respectively. Substitutions between or for other products shall be approved by the engineer prior to use:
    A. Hilti HIT-HY 200 Epoxy Adhesive as manufactured by Hilti, Inc. ICC Report No. ESR-3187 revised April 2019.
    B. Simpson "SET-XP" Adhesive Anchors as manufactured by Simpson Strong-Tie, Inc. ICC-ES Report No. ESR-2508 reissued July 2019.
2. Installation, inspection & testing of anchors shall be in accordance with the manufacturer's recommendations, ICC-ES report and these notes.
3. Threaded rod anchors shall be F1554, Grade 36 u.n.o.
4. Continuous special inspection is required in accordance with CBC Section 1701. Special inspector must verify product, expiration date, concrete type and strength, anchor diameter and steel grade, compliance of drill bit, hole diameter and location, cleanliness of hole and anchor, adhesive application, and anchor embedment. See "Test and Inspections" section of plans for additional information.
5. Where pull-test loads are designated on plan, each anchor type (loaded in either pullout or shear) shall have 50% of the anchors (alternate in each group arrangement) tested in tension to the tension load shown. If any anchor fails testing, all anchors of the same type not previously tested shall be tested until 20 consecutive anchors pass, then initial testing frequency may be resumed. Where pull-test loads are not shown, pull-testing is not required.
6. The testing of the anchors shall be done by the Testing Laboratory and a report of the test results shall be submitted to the Building Dept. and the Architect/Structural Engineer. Testing shall occur after full epoxy cure time has elapsed (24 hours min). Where the number of anchors of a specific size and type exceed 100, the following testing procedure may be used. The first 40 anchors shall be tested as specified in note 5 above, then 10% of the additional anchors shall be tested. Any failure shall be handled in the same manner as specified in note 5 above.
7. When installing anchors in existing concrete do not cut or damage existing reinforcing bars. Locate existing reinforcing bars with pachometer or x-ray if required.

Nailing Schedule

1. All nails for structural work shall be common wire nails conforming to the following minimum sizes:

8d	0.131"Φx2½"
10d	0.148"Φx3"
10d shorts	0.148"Φx1⅝" plus thickness of shtg
16d	0.162"Φx3½"
20d	0.192"Φx4"

2. Provide nails at connections as indicated on the structural drawings. Where nails at connections are not indicated nail per nailing schedule in note 5.
3. Nailing not noted in schedule or on plans shall be a minimum of two nails at each contact. 8d nails for 1" material and 16d nails for 2" material.
4. Holes shall be pre-drilled where necessary to prevent splitting.
5. Nailing schedule:

Connection	Fastening	Location
1. Joist to sill or girder.	3-8d common (2½"x0.131") 3-3"x0.131" nails	toenail
2. Bridging to joist.	2-8d common (2½"x0.131") 2-3"x0.131" nails	toenail ea end
3. 1"x6" subfloor or less	2-8d common (2½"x0.131")	face nail
4. Wider than 1"x6" subfloor	3-8d common (2½"x0.131")	face nail
5. 2" subfloor to joist or girder	2-16d common (3½"x0.162")	blind & face nail
6. Sole plate to joist or blocking	16d (3½"x0.135") @ 16"cc 3"x0.131" nails @ 8"cc	typical face nail
Sole plate to joist or blocking at braced wall panel	3-16d (3½"x0.135") @ 16"cc 4-3"x0.131" nails @ 16"cc	braced wall panels
7. Top plate to stud.	2-16d common (3½"x0.162") 3-3"x0.131" nails	end nail
8. Stud to sole plate	4-8d common (2½"x0.131") 4-3"x0.131" nails 2-16d common (3½"x0.162") 3-3"x0.131" nails	toenail end nail
9. Double studs.	16d (3½"x0.135") @ 24"cc 3"x0.131" nail @ 8"cc	face nail
10. Double top plates.	16d (3½"x0.135") @ 16"cc 3"x0.131" nail @ 12"cc 8-16d common (3½"x0.162") 12-3"x0.131" nails	typical face nail lap splice
11. Blocking between joists or rafters to top plate.	3-8d common (2½"x0.131") 3-3"x0.131" nails	toenail
12. Rim joist to top plate	8d (2½"x0.131" @ 6"cc 3"x0.131" nail @ 6"cc	toenail
13. Top plates, laps and intersections.	2-16d common (3½"x0.162") 3-3"x0.131" nails	face nail
14. Cont. header, two pieces.	16d common (3½"x0.162")	16"cc along edge
15. Ceiling joists to plate.	3-8d common (2½"x0.131") 5-3"x0.131" nails	toenail
16. Continuous header to stud.	4-8d common (2½"x0.131")	toenail
17. Ceiling joists, laps over partitions, (Section 2308.10.4.1, Table 2308.10.4.1)	3-16d common (3½"x0.162") min. Table 2308.10.4.1 4-3"x0.131" nails	face nail
18. Ceiling joists to parallel rafters. (Section 2308.10.4.1, Table 2308.10.4.1)	3-16d common (3½"x0.162") min. Table 2308.10.4.1 4-3"x0.131" nails	face nail
19. Rafter to plate. (Section 2308.10.1, Table 2308.10.1)	3-8d common (2½"x0.131") 3-3"x0.131" nails	toenail
20. 1" diagonal brace to stud & plate.	2-8d common (2½"x0.131") 2-3"x0.131" nails	face nail
21. 1"x8" & wider sheathing to ea bearing.	3-8d common (2½"x0.131")	face nail
22. Built-up corner studs.	16d (3½"x0.162") @ 24"cc 3"x0.131" nail @ 16"cc	
23. Built-up girder & beams.	20d common (4"x0.192") @ 32"cc 3"x0.131" nail @ 24"cc 2-20d common (4"x0.192") 3-3"x0.131" nails	face nail at t&b, staggered on opposite sides face nail @ ends and @ ea splice

Expansion Anchors-Concrete: (Carbon Steel)

1. Use Hilti Kwik Bolt-TZ Expansion Anchors as manufactured by Hilti Inc., Tulsa Oklahoma. ICC-ES Report No. ESR-1917 reissued May 2019.
2. Installation of anchors shall be in accordance with the manufacturer's recommendations, ICC-ES Report, and these notes.
3. Special inspection is required in accordance with the 2019 CBC Sections 1705A.1.1.3 and 1910A.5. Special inspector must verify product, expiration date, concrete type and strength, anchor diameter and steel grade, compliance of drill bit, hole diameter and location, cleanliness of hole and anchor, and anchor embedment.
4. Each anchor type (loaded in either pullout or shear) shall be torque tested in accordance with CBC Section 1910A.5 to the appropriate test load shown in the table. If any anchor fails testing, all anchors of the same type not previously tested shall be tested until 20 consecutive anchors pass, then initial testing frequency may be resumed.
5. When installing anchors in existing concrete do not cut or damage existing reinforcing bars. Locate existing reinforcing bars with pachometer or x-ray if required.
6. The testing of the anchors shall be done by the Testing Laboratory and a report of the test results shall be submitted to the Building Dept. and Architect/Structural Engineer.
7. Anchors installed up into the bottom of metal deck with concrete fill shall be installed in the center of the low flute of the decking. The decking shall have a minimum thickness of 20 gauge. The minimum depth of embedment above the top of the deck shall be 1½". The effective depth of embedment is considered to be one-third of the metal deck height plus the depth of embedment above the top of the deck. There shall be a minimum concrete cover of 1" between the top surface of the concrete and the end of the bolt.

Normal Weight Concrete Anchors
f'c = 3000 psi
Hilti Kwik Bolt-TZ Expansion Anchors — Carbon Steel Anchors

Anchor Diameter	Embed	Installation Torque Torque Test Load (ft-lbs)
⅜"	2"	25
½"	3¼"	40
⅝"	4"	60
¾"	4¾"	110

Abbreviations

addl ..... Additional
alt ..... Alternate
AISC ..... American Institute of Steel Construction
APA ..... American Plywood Association
ASTM ..... American Society for Testing and Materials
AWS ..... American Welding Society
AB ..... Anchor bolt
& ..... And
arch ..... Architect/Architectural
@ ..... At
b.o. ..... Bottom of
bm ..... Beam
brg ..... Bearing
btr ..... Better
btwn ..... Between
blkg ..... Blocking
B.S. ..... Both sides
bott ..... Bottom
BN ..... Boundary nail
clg ..... Ceiling
cc ..... Center to center
℄ ..... Center line
clr ..... Clear
col ..... Column
CP ..... Complete Penetration
conc ..... Concrete
CMU ..... Concrete masonry unit
conn ..... Connection
C.J ..... Construction Joint
cont ..... Continuous
csk ..... Countersink
CTJ ..... Control Joint
DL ..... Dead Load
det ..... Detail
diag ..... Diagonal
dia ..... Diameter
do ..... Ditto
D.F. ..... Douglas Fir
dbl ..... Double
dn ..... Down
dwg ..... Drawing
ea ..... Each
E.F. ..... Each Face
embed ..... Embedment
EN ..... Edge Nail
E.W. ..... Each Way
elev. el ..... Elevation
eq ..... Equal
equip ..... Equipment
(e) ..... Existing
E.J ..... Expansion Joint
FC ..... Face of Concrete
FB ..... Face of Block
FM ..... Face of Masonry
FP ..... Face of Plywood/Sheathing
FS ..... Face of Stud
fin ..... Finish
F.F. ..... Finish Floor
F.G. ..... Finish grade
flr ..... Floor
ftg ..... Footing
fnd ..... Foundation
f.o. ..... Face of
frmg ..... Framing
galv ..... Galvanized
ga ..... Gauge
glb ..... Glued-laminated beam
g.l. ..... Grid Line
hgr ..... Hanger
hdr ..... Header
ht ..... Height
HSB ..... High strength bolt
HSS ..... Hollow Steel Section
hk ..... Hook
horiz ..... Horizontal
I.d. ..... Inside diameter
Int ..... Interior
Inv ..... Inverted
Jst ..... Joist
Jh ..... Joist hanger
L.S ..... Lag screw
lt. wt. ..... Light weight
LL ..... Live Load
LLH ..... Long leg horizontal
LLV ..... Long leg vertical
LVL ..... Laminated Veneer Lumber
MB ..... Machine bolt
mfr ..... Manufacturer
max ..... Maximum
mech ..... Mechanical
Mi ..... Malleable iron
min ..... Minimum
misc ..... Miscellaneous
mtl. ..... Metal
N.I.C. ..... Not in contract
(N) ..... New
nts ..... Not to scale
..... Number or pounds
o/ ..... Over
oc ..... On center
OWJ ..... Open web joist
opng ..... Opening
opp ..... Opposite
O.H. ..... Opposite Hand
o.d. ..... Outside diameter
PP ..... Partial penetration
pc ..... piece
PL ..... Plate
ply. plywd. ..... Plywood
pcf ..... Pounds per cubic foot
psf ..... Pounds per square foot
psi ..... Pounds per square inch
PAF ..... Powder Actuated Fasteners
PTDF ..... Pressure Treated Douglas Fir
r, rad ..... Radius
RDWD ..... Redwood
reinf ..... Reinforcing
req'd ..... Required
rf ..... Roof
R.O. ..... Rough opening
Φ ..... Round or diameter
sched ..... Schedule
S.A.D. ..... See architectural drawings
S.E.D. ..... See electrical drawings
S.M.D. ..... See mechanical drawings
SMS ..... Sheet Metal Screws
SDS ..... Simpson Strong-Drive Screw
SDSTS ..... Self drilling self tapping screw
SC ..... shear connector ¾"Φ u.n.o.
shtg ..... Sheathing
sht ..... Sheet
SMS ..... Sheet metal screw
sim ..... Similar
s.o.g ..... Slab on grade
□ ..... square
stagg ..... Staggered
std ..... Standard
stl ..... Steel
sstl ..... Stainless Steel
stfnr ..... Stiffener
struct ..... Structural
SP ..... structural plywood
SPEN ..... structural plywood edge nailing
symm ..... Symmetrical
TN ..... Toe nail
t&b ..... Top & bottom
t.o.c ..... Top of concrete
t.o.f. ..... Top of framing
t.o.p. ..... Top of plate
t.o.s. ..... Top of Steel
t.o.w. ..... Top of Wall
t&g ..... Tongue & Groove
TS ..... Tube Steel
typ. ..... Typical
u.n.o. ..... Unless noted otherwise
vert. ..... Vertical
v.i.f. ..... Verify in field
w/ ..... With
w/in ..... Within
w/o ..... Without
WS ..... Wood screw
WLP ..... Working point
WHS ..... Welded headed studs
WWF ..... Welded wire fabric
WCLIB ..... West Coast Lumber Inspection Bureau

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Stamp

REGISTERED PROFESSIONAL ENGINEER
JEFFREY R KOVACH
No. 5652
STRUCTURAL
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION
RELEASED

Project

Riverdale Resort
1501 Northgate Blvd.
Sacramento, CA

Sheet name

GENERAL NOTES

Revisions

drawn by xxx
checked by xxx
date 8/21/20

Sheet no.

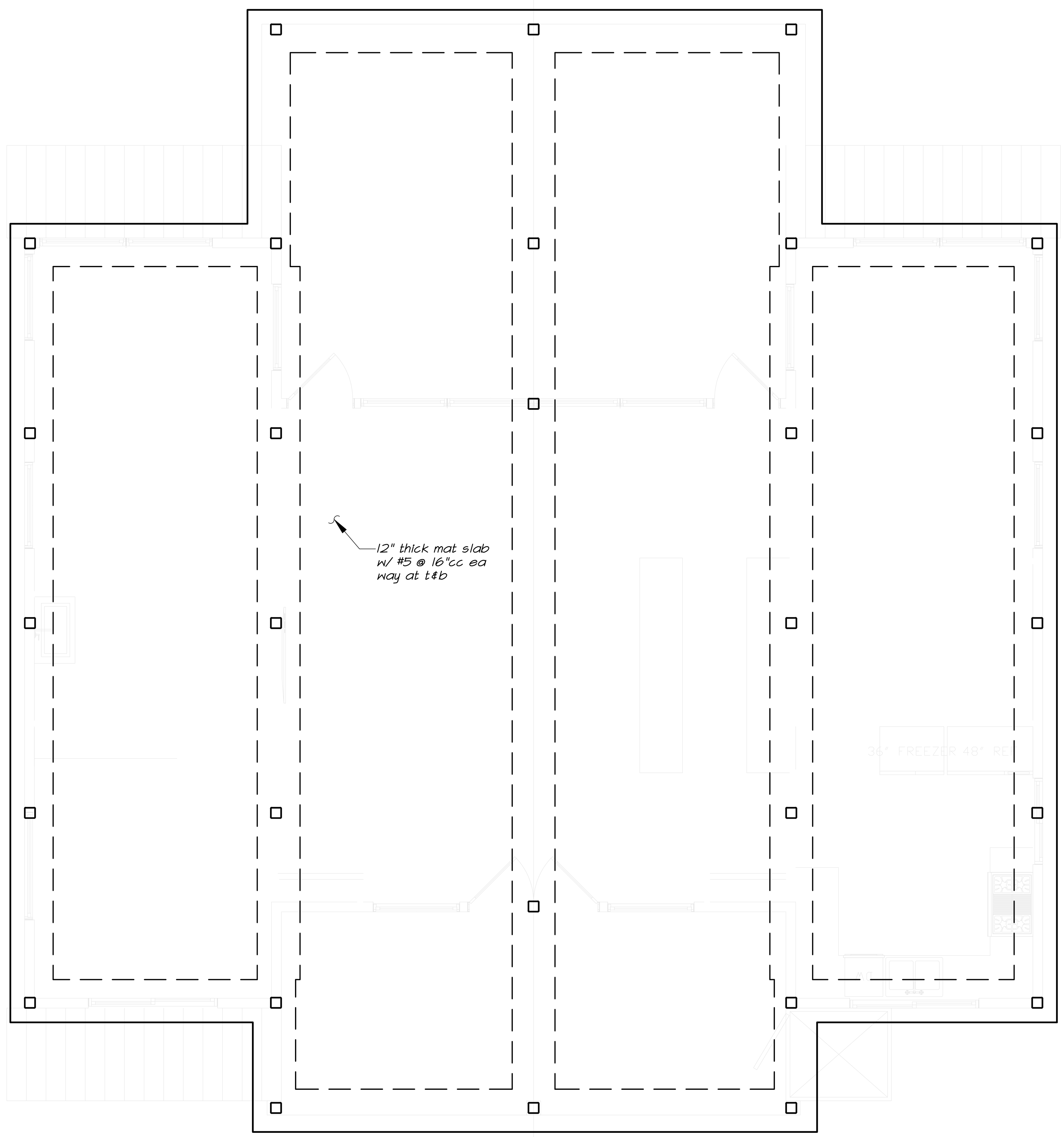
S1.1

Foundation Notes

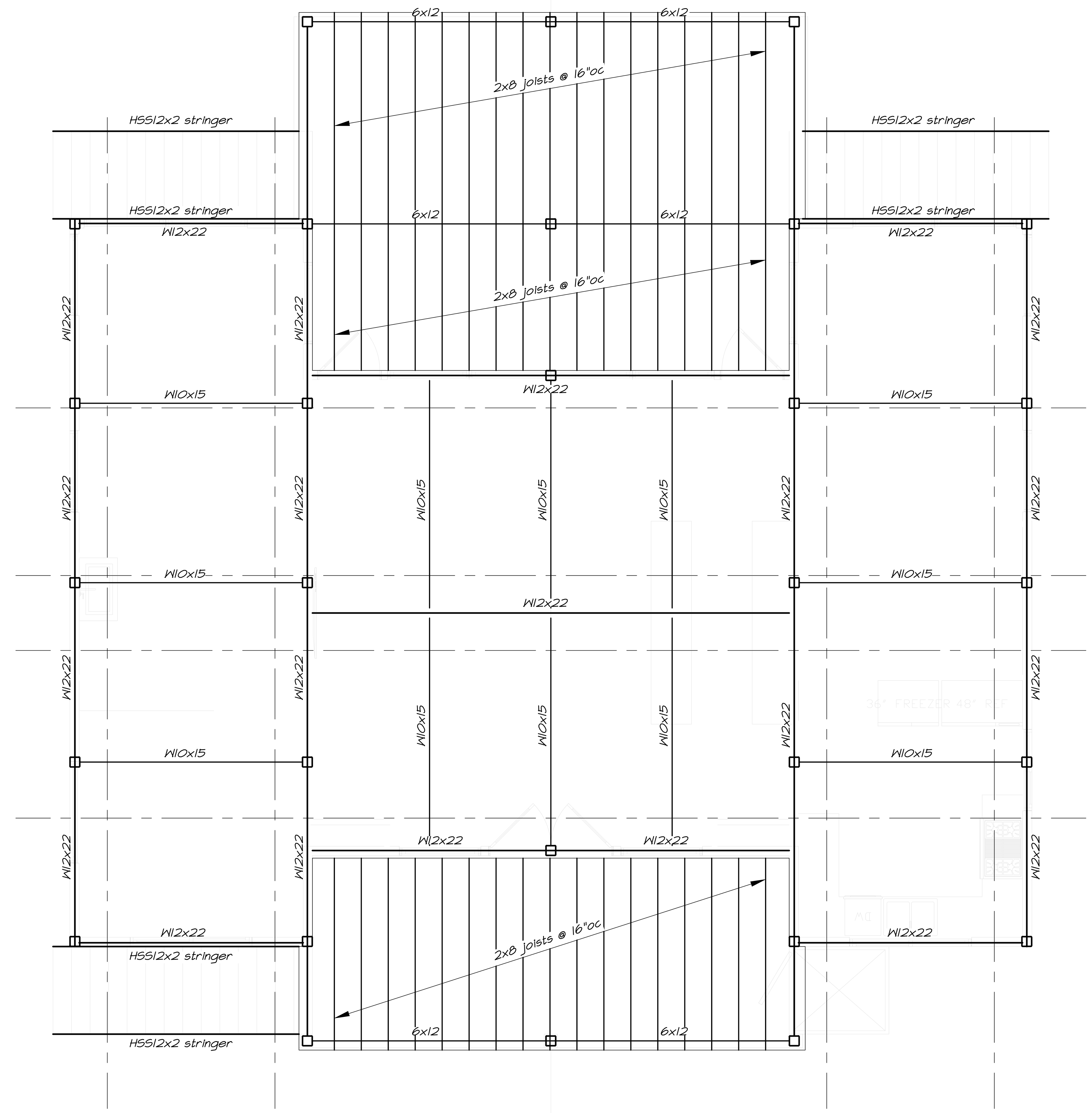
1. See sheet S2.1 for foundation notes.

Framing Notes

1. See sheet S2.1 for framing notes.



A
S2.13
Lodge Foundation Plan
¼"=1'-0"



B
S2.13
Lodge Framing Plan
¼"=1'-0"

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Project

Riverdale Resort
1501 Northgate Blvd.
Sacramento, CA

Sheet name

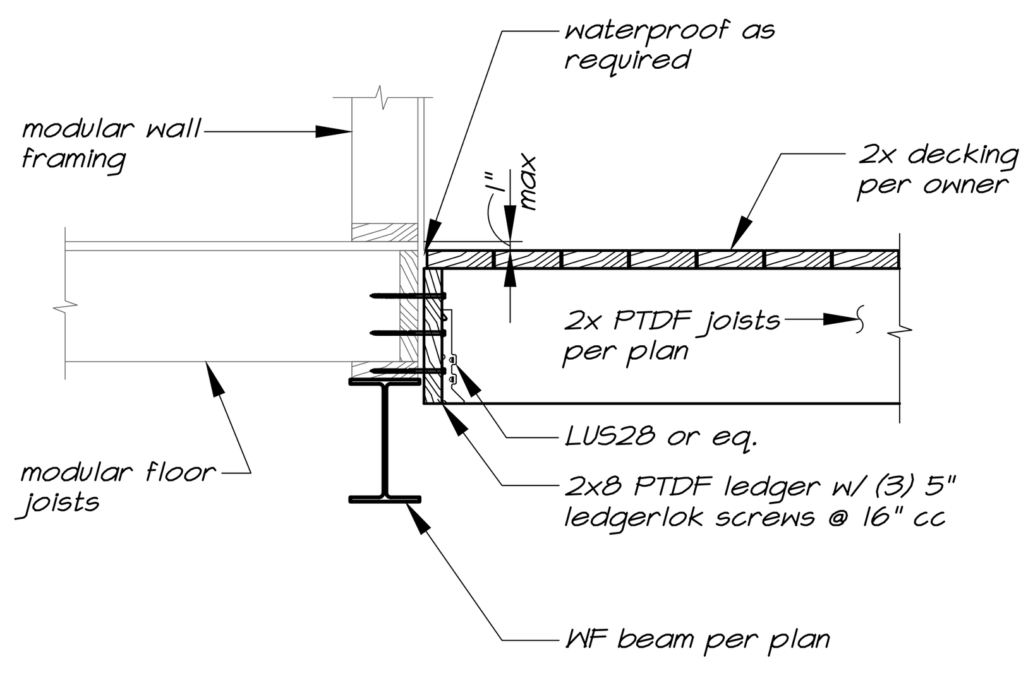
LODGE PLAN

Revisions

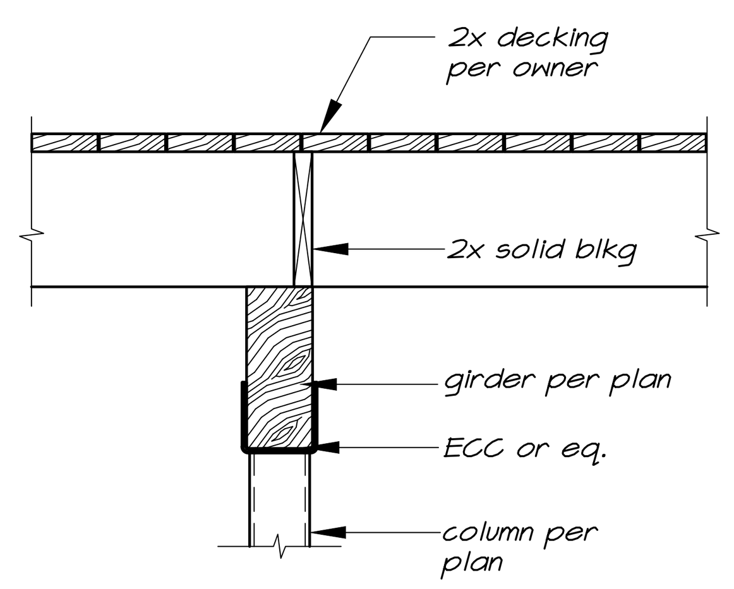
drawn by	xxx
checked by	xxx
date	8/21/20

Sheet no.

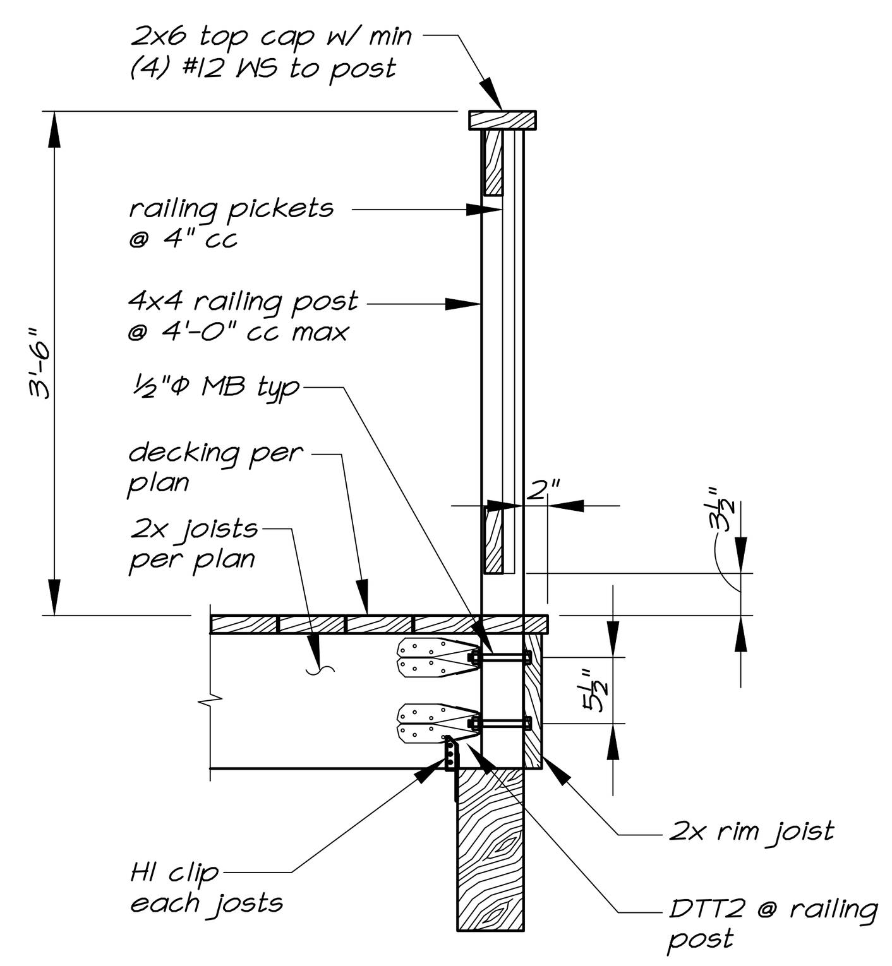
S2.13



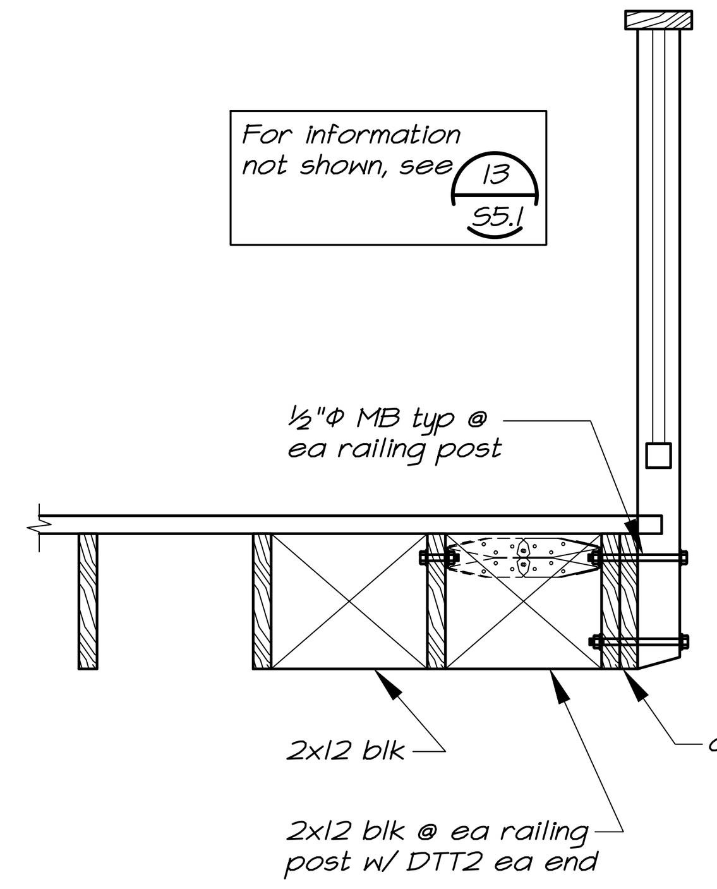
Deck Ledger 11/S5.1 3/4"=1'-0"



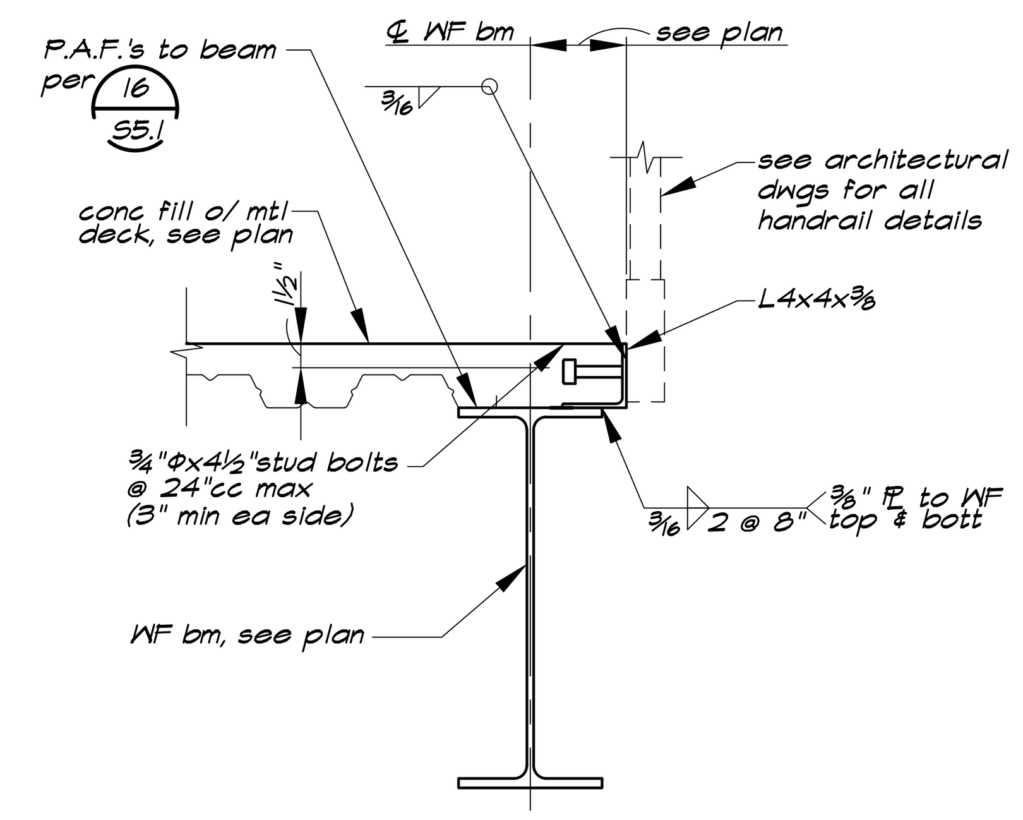
Section 12/S5.1 3/4"=1'-0"



Section 13/S5.1 3/4"=1'-0"



Section 14/S5.1 3/4"=1'-0"



Detail 15/S5.2 1"=1'-0"

16/S5.1 Deck Fastening Schedule

Mark	Deck Type	Depth & Gauge	Perpendicular Supports	Parallel Supports	Side Laps
1	B-36 deck	1 1/2"x18 ga	4 P.A.F.'s per sheet	P.A.F. @ 12"cc	VSC @ 18" cc

1. P.A.F. = Hilti Powder Actuated Fastener per ICC-ES Legacy Report No. 2197
   At deck use Hilti X-EDNK22 THQ12 into supports less than 1/4"
   use Hilti X-ENP -19 L15 into supports greater than or equal to 1/4"
   VSC = side lap connection w/ Verco punchlok tool or approved equal
2. Metal decking shall be ASC Steel Deck, Verco or approved equal, of type and gauge shown on plans and fastened as shown above.
3. See below for typical fastener patterns.
4. No conduit or non-structural items may be placed in concrete over metal deck.
5. Deck shall be 2-span minimum, typical.

Metal Deck Fastener Patterns

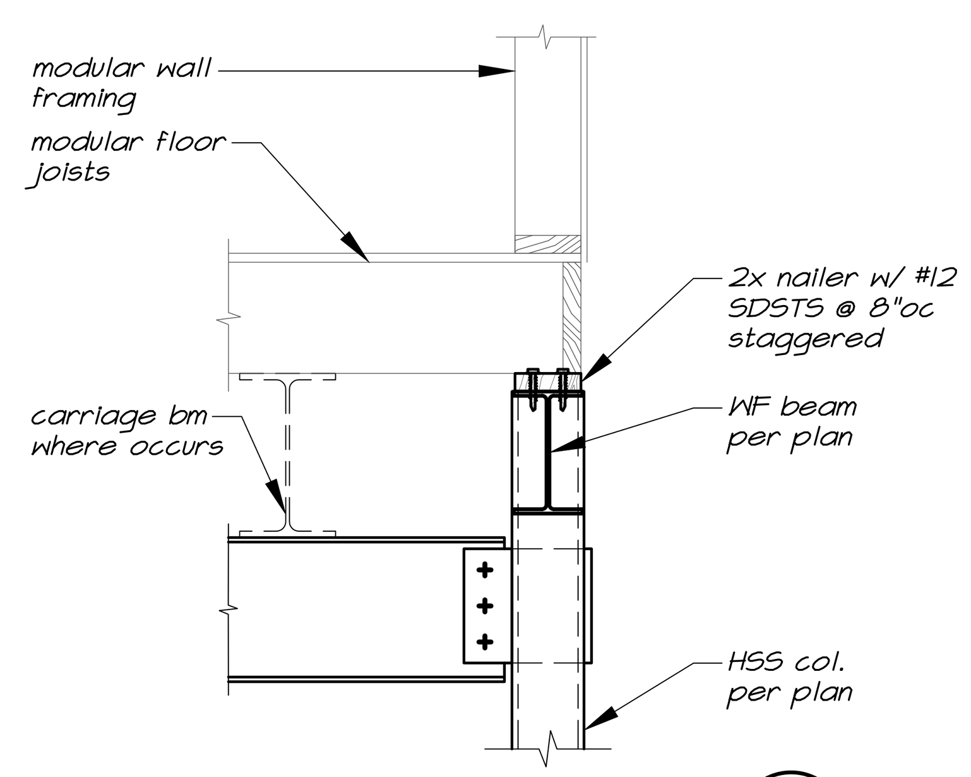
Deck Type	Profile	No. P.A.F.'s per sheet
B-36 deck	3 5/8" 2 3/8" 36" 1 1/2"	4

5/S5.1 Connection Schedule

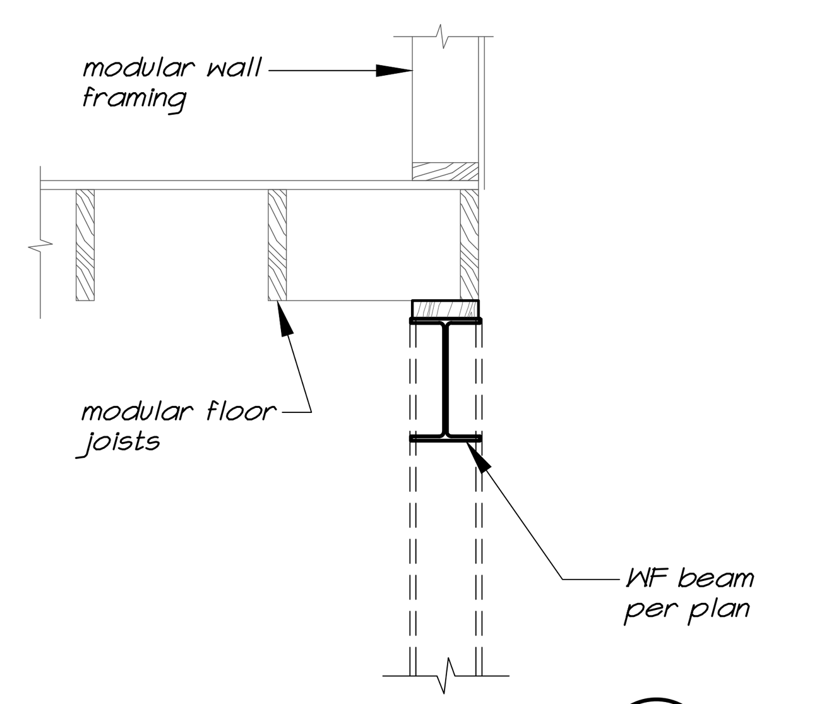
n.t.s.

bm size	No. & Dia. A325-SC Bolts per row, u.n.o.	shear ℙ thickness	W
C6, C8 & C10	2 - 7/8"Φ	1/4"	1/4"
W8 & W10	2 - 7/8"Φ	1/4"	1/4"
W12 & W14	3 - 7/8"Φ	5/16"	1/4"
W16	4 - 7/8"Φ	3/8"	1/4"
W18	5 - 7/8"Φ	3/8"	1/4"
W21	5 - 7/8"Φ	3/8"	5/16"
W24	6 - 7/8"Φ	1/2"	5/16"
W27	7 - 7/8"Φ	1/2"	5/16"
W30	7 - 7/8"Φ	1/2"	3/8"
W33	8 - 7/8"Φ	1/2"	3/8"

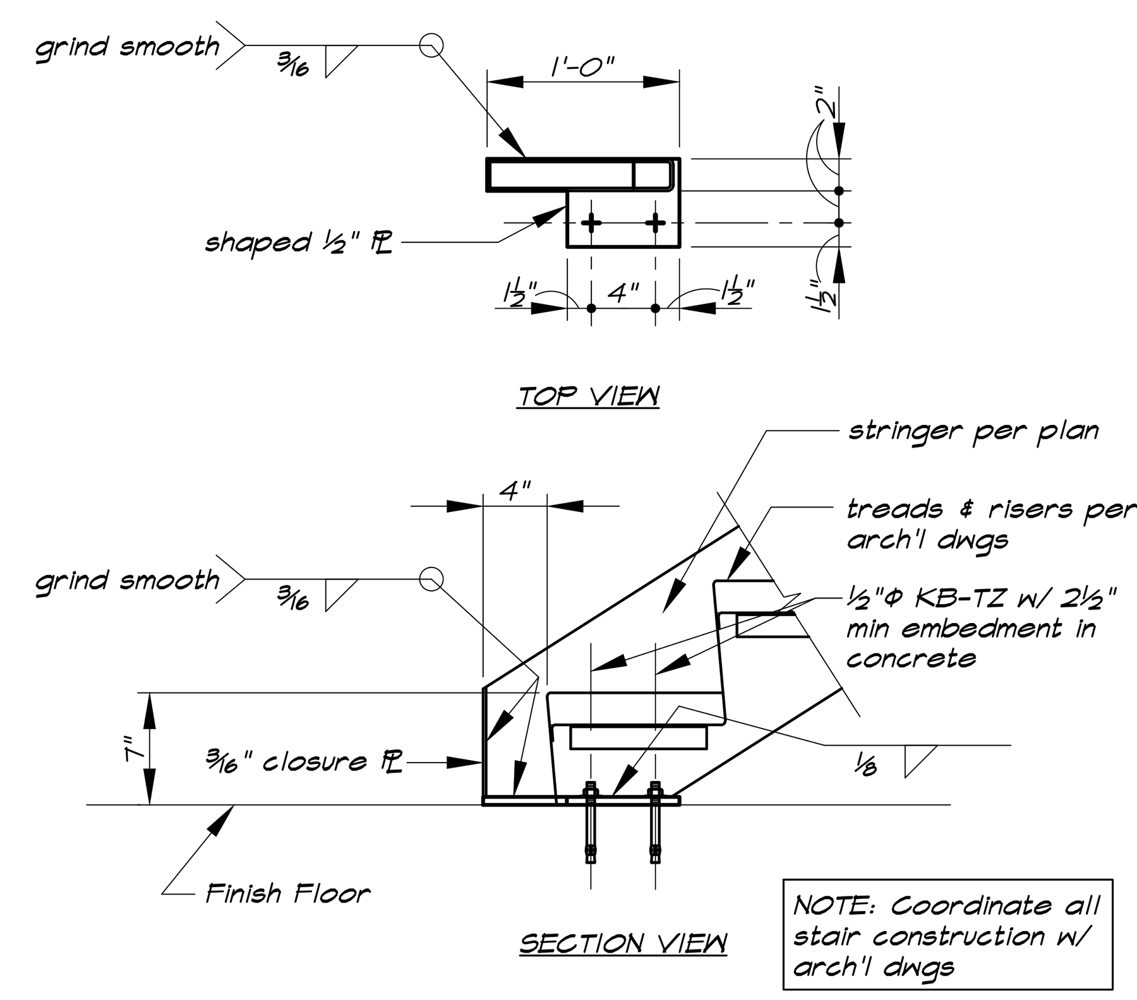
Note:
1. Use A325 SC group A bolts.



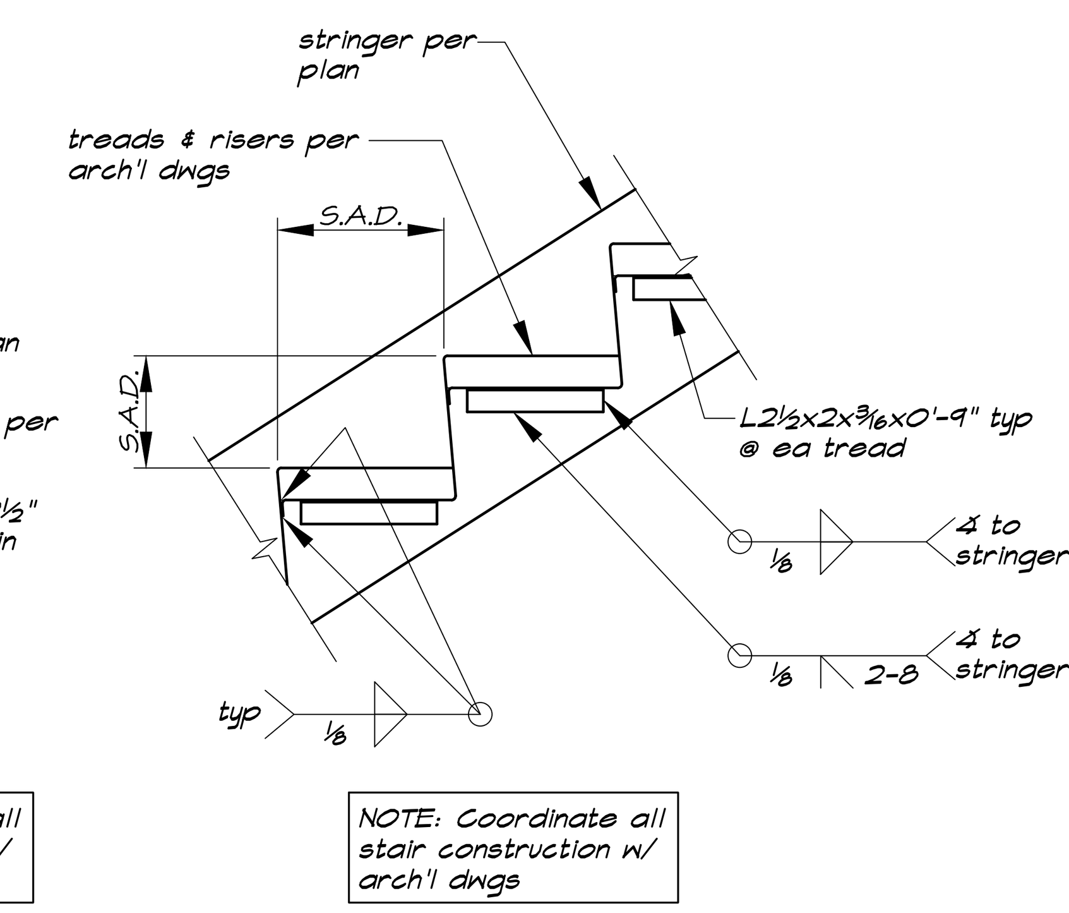
Stl Bms @ Col. 6/S5.1 3/4"=1'-0"



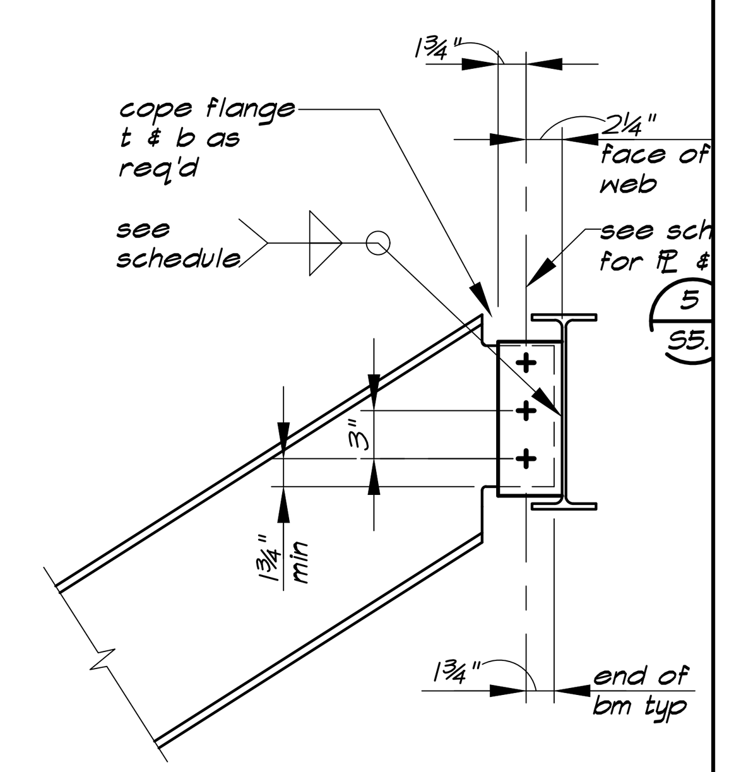
Section @ Bm 7/S5.1 3/4"=1'-0"



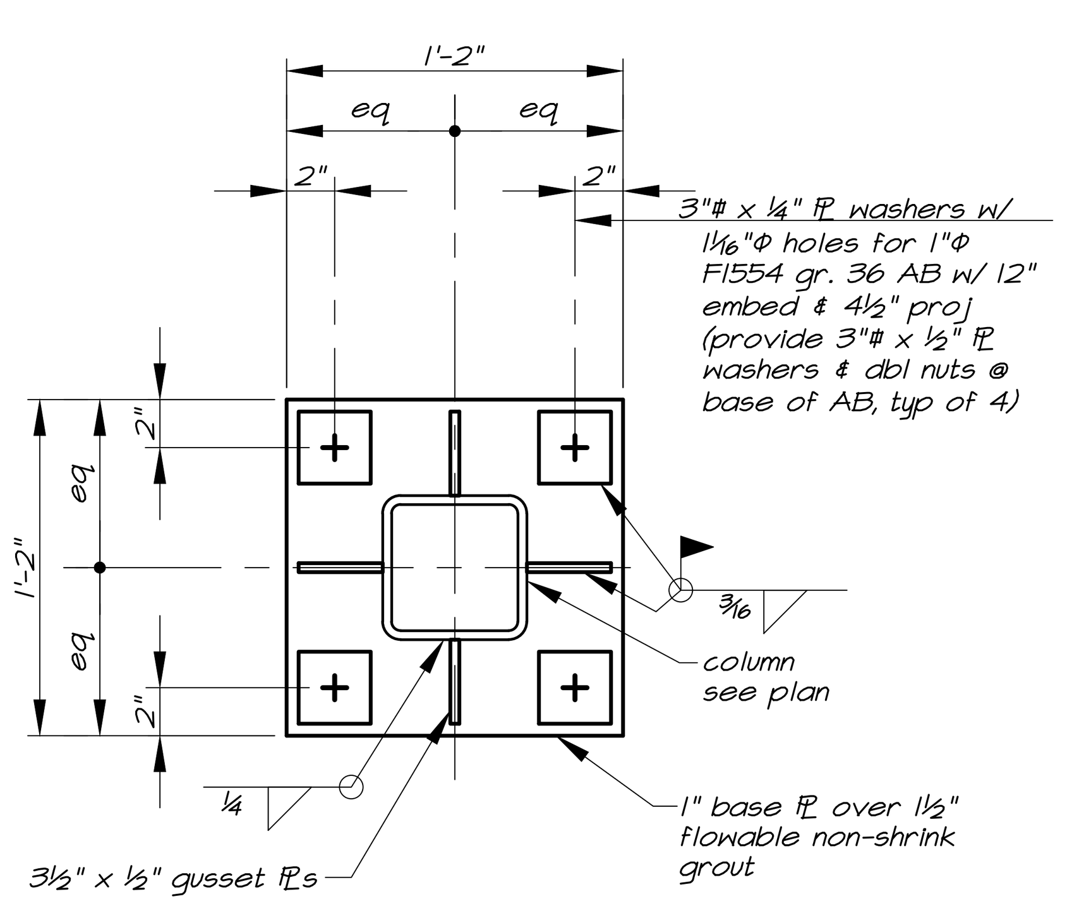
Detail 8/S5.1 1"=1'-0"



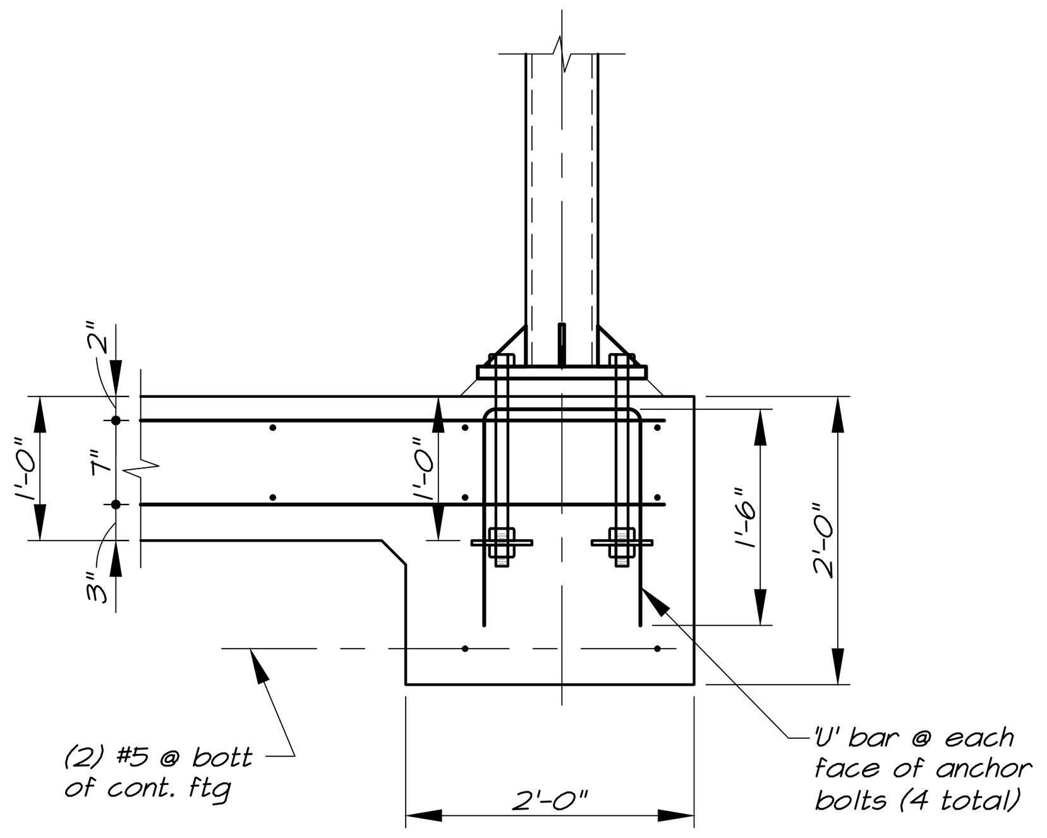
Detail 9/S5.1 1"=1'-0"



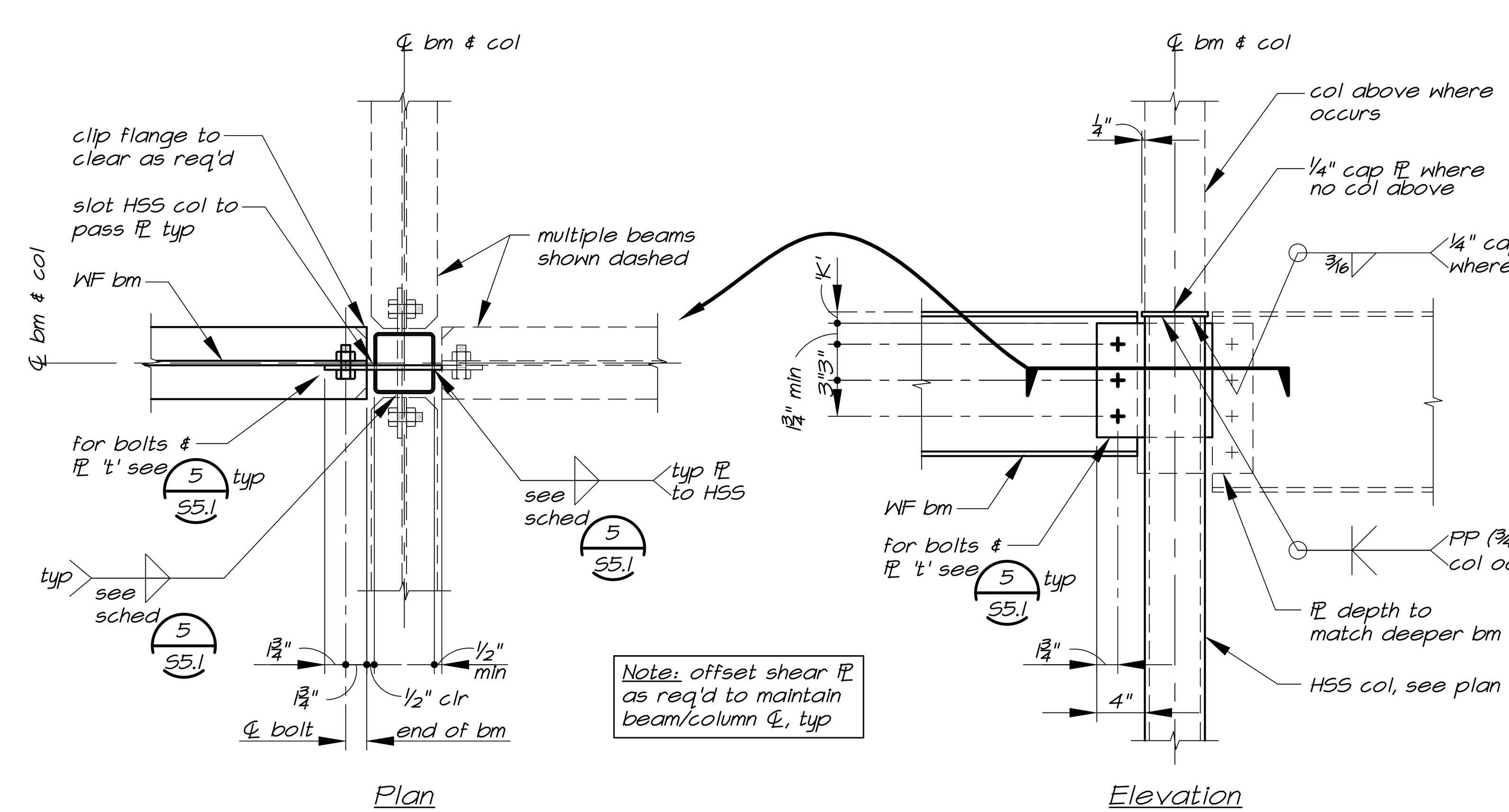
Detail 10/S5.1 1"=1'-0"



Steel Base ℙ 16/S5.1 1 1/2"=1'-0"

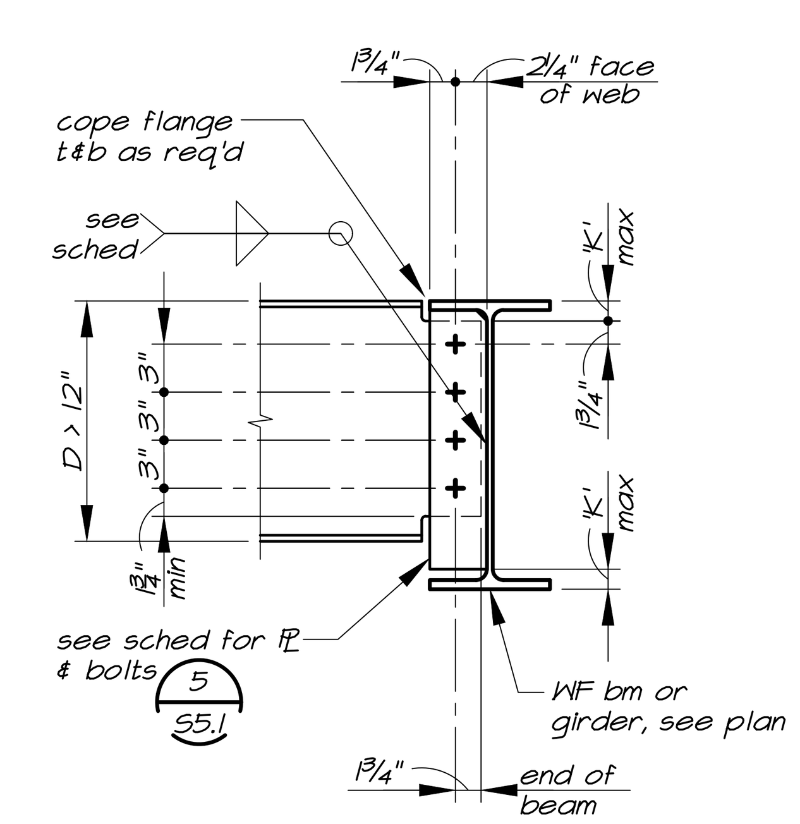


Column to Fnd 2/S5.1 3/4"=1'-0"



3/S5.1 Beam to Column Connection

1"=1'-0" one or multiple sides



4/S5.1 Beam to Beam Connection

1"=1'-0" one sided

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Sacramento, CA

Sheet name

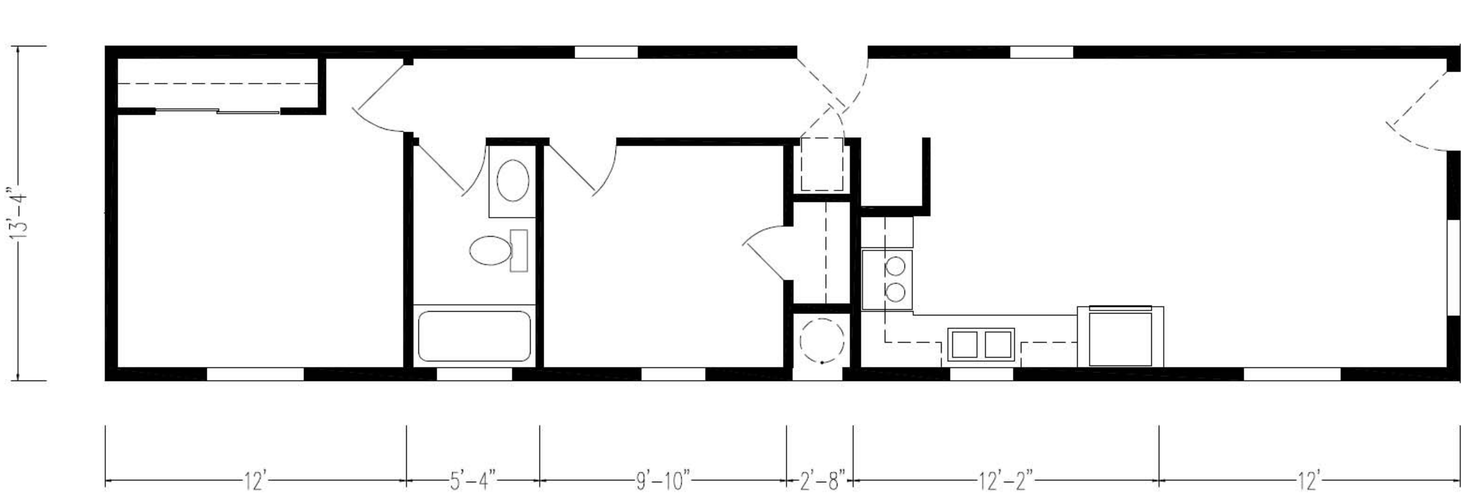
DETAILS

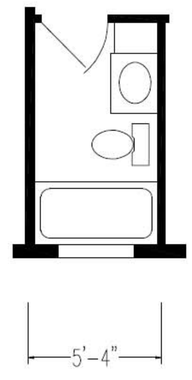
Revisions

drawn by xxx
checked by xxx
date 8/21/20

Sheet no.

S5.1





OPT HALL BATH

CHECK-IN OFFICE FLOOR PLAN

DIVISIONS		REVISIONS
	231 SUGARCREEK	
	233 ARKANSAS CITY	
	235 SAN JACINTO	
X	237 WOODLAND	
	239 OCALA	
	241 LEOLA	
	243 LANCASTER	
	245 McMINNVILLE	

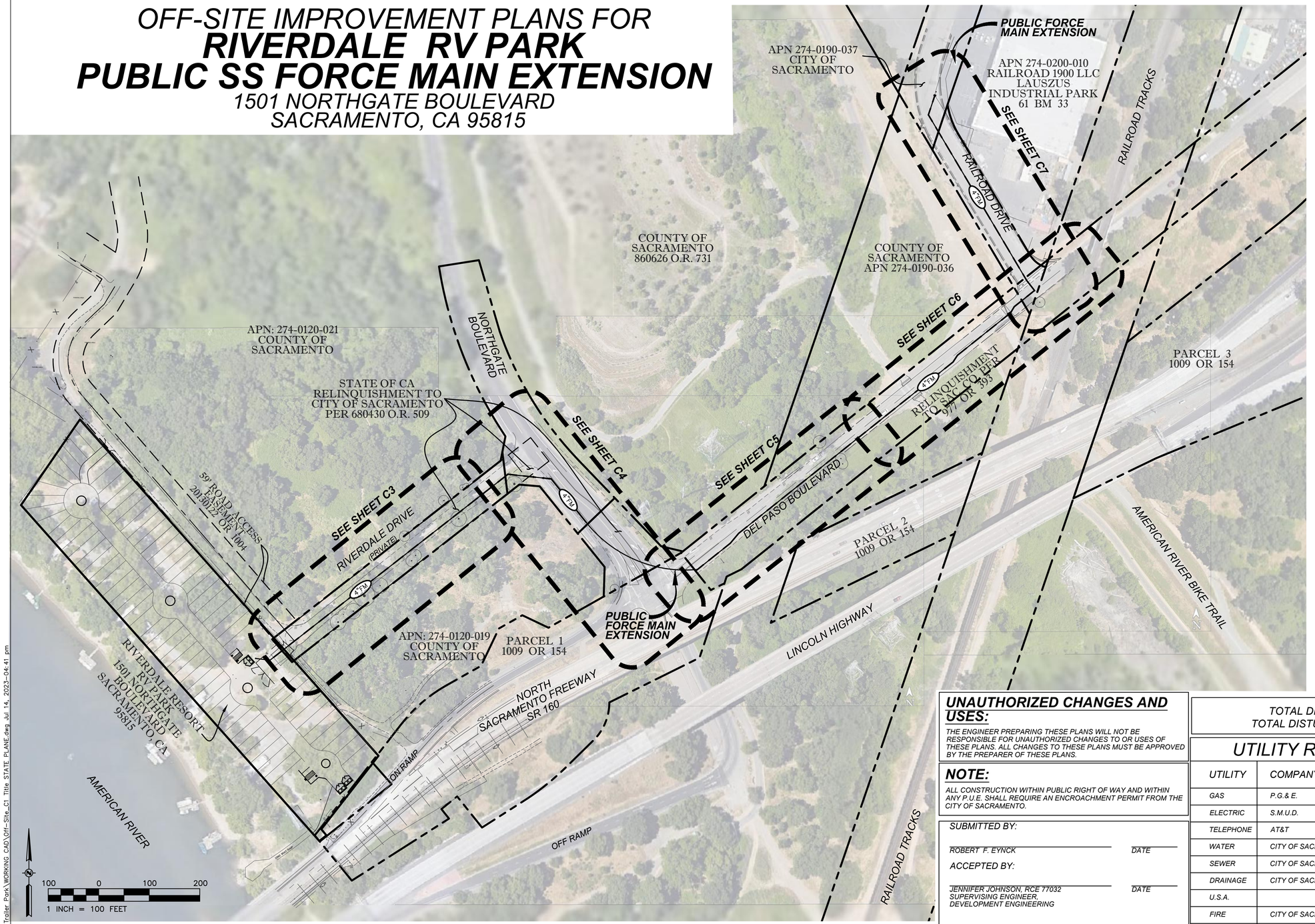
BOX LENGTH	DESCRIPTION
54'	6014-2CK

SKYLINE

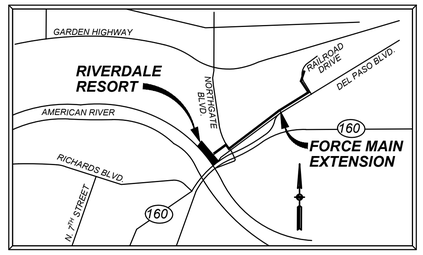
DRAWN BY: KS	WIND ZONE 15#
DATE: 10/12/2022	ROOF ZONE S,M,N
SHEET _____ OF _____	
DRAWING NUMBER	
14-04264-06Q	

4015 (14-04264-06Q) 5/22/2023

OFF-SITE IMPROVEMENT PLANS FOR
RIVERDALE RV PARK
PUBLIC SS FORCE MAIN EXTENSION
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA 95815



SITE PLAN
SCALE: 1" = 100'



VICINITY MAP
NOT TO SCALE

SHEET INDEX:

FLOOD PLAIN:

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "AE", AREAS WITHIN ZONE "AE" ARE AREAS SUBJECT TO INUNDATION BY THE 1-PERCENT ANNUAL CHANCE FLOOD EVENT AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM, FLOOD INSURANCE RATE MAP

COMMUNITY PANEL NO.: 06067C0176J

DATED: 06-16-2017

JURISDICTION:

CITY OF SACRAMENTO

SITE INFORMATION:

APN: 274-0120-010

ZONING: ARP-F (AMERICAN RIVER PARKWAY FLOODPLAIN)

OWNER

THOMPSON CURT A/ETAL
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-795-5853

DEVELOPER

THOMPSON CURT A/ETAL
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-795-5853

PROJECT DESCRIPTION:

CONSTRUCTION OF APPROXIMATELY 2,330 LINEAL FEET OF PUBLIC 4" SANITARY SEWER FORCE MAIN FROM 1501 NORTHGATE BOULEVARD TO RAILROAD DRIVE. PROJECT WILL ALSO INCLUDE INSTALLATION OF A NEW MANHOLE IN RAILROAD DRIVE AND APPROXIMATELY 40 LINEAL FEET OF NEW PUBLIC GRAVITY SEWER FROM THE NEW RAILROAD DRIVE MANHOLE TO EXISTING SEWER MANHOLE NO. 604.

UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

UNAUTHORIZED CHANGES AND USES:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

NOTE:

ALL CONSTRUCTION WITHIN PUBLIC RIGHT OF WAY AND WITHIN ANY P.U.E. SHALL REQUIRE AN ENCROACHMENT PERMIT FROM THE CITY OF SACRAMENTO.

SUBMITTED BY:

ROBERT F. EYNCK _____ DATE _____

ACCEPTED BY:

JENNIFER JOHNSON, RCE 77032 SUPERVISING ENGINEER, DEVELOPMENT ENGINEERING _____ DATE _____

UTILITIES DEPARTMENT _____ DATE _____

TOTAL DISTURBED AREA: 0.11 ACRES
TOTAL DISTURBED LINEAL FEET: 2,400 FEET

UTILITY REPRESENTATIVES

UTILITY	COMPANY	CONTACT	PHONE
GAS	P.G.& E.	DONNY KENNEDY	(530) 889-5089
ELECTRIC	S.M.U.D.	BLANDON GRANGER	(916) 732-5016
TELEPHONE	AT&T	ASTRID WILLARD	(916) 453-6136
WATER	CITY OF SACRAMENTO	SARAI OCHOA	(916) 808-5426
SEWER	CITY OF SACRAMENTO	SARAI OCHOA	(916) 808-5426
DRAINAGE	CITY OF SACRAMENTO	SARAI OCHOA	(916) 808-5426
U.S.A.			1-800-227-2600
FIRE	CITY OF SACRAMENTO	ROSS WOODMAN	(916) 808-5558
CAT V	COMCAST	STEVE ABELIA	1-800-266-2278
CAT V	AT&T	KERRY WATERS	(916) 648-8379

811 Know what's **below.** **Call** before you dig. or (800) 642-2444

REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYNCK No. C040666 Exp. 3-31-25 CIVIL STATE OF CALIFORNIA

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 25.808
DESCRIPTION
CITY BM: 297-FIA
HILTI NAIL ON WEST END OF RETAINING WALL AT NW CORNER OF DEL PASO BLVD. & RAILROAD DR.
(NAVD 88 DATUM)

FIELD BOOK
SCALE
HORIZ. ____
VERT. ____

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY:	DCJ	DESIGNED BY:	RFE	CHECKED BY:	RFE
DATE	07/14/2023	R.C.E.	C040666	R.C.E. C040666	DATE 07/14/23

2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 | www.cwecorp.com

OFF-SITE IMPROVEMENT PLANS FOR
RIVERDALE RV PARK
PUBLIC SS FORCE MAIN EXTENSION
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA 95815

TITLE SHEET

CP C#210042 | P# | SHEET C1 | 1 OF 9

W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\Off-Site_C1 Title STATE PLANE.dwg Jul 14, 2023-04:41 pm

PROJECT R15100 — RIVERDALE RV PARK 1501 NORTHGATE BLVD SACRAMENTO, CA

PROJECT GENERAL NOTES:

1. THE EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS IS FROM A SUPPLEMENTAL TOPOGRAPHIC SURVEY BY RFE ENGINEERING, INC. COMPLETED ON (SURVEY NOT YET PERFORMED). RFE ENGINEERING RECOMMENDS THAT CONNECTION POINTS AND POTENTIAL CONFLICT LOCATIONS ARE POTHOLED TO IDENTIFY THE ACTUAL HORIZONTAL AND VERTICAL LOCATION OF SUCH FACILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY RFE ENGINEERING, INC. IMMEDIATELY OF ANY DISCREPANCIES OR CONFLICTS DISCOVERED.
2. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF ENGINEER.
3. EXCAVATIONS SHALL BE ADEQUATELY SHORED, BRACED AND SHEETED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM A LACK OF ADEQUATE SHORING, BRACING AND SHEETING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL AFFECT NECESSARY REPAIRS OR RECONSTRUCTION AT HIS OWN EXPENSE. WHERE THE EXCAVATION FOR A CONDUIT TRENCH, AND/OR STRUCTURE IS FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING, SHORING AND BRACING OR EQUIVALENT METHOD, FOR THE PROTECTION OF LIFE, OR LIMB, WHICH SHALL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY OF THE SATE OF CALIFORNIA. THE CONTRACTOR SHALL ALWAYS COMPLY WITH OSHA REQUIREMENTS.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN PERMITS NECESSARY TO PERFORM THE WORK SHOWN ON THESE PLANS FROM THE APPROPRIATE AGENCIES.
5. THE CONTRACTOR SHALL TAKE EFFECTIVE ACTION TO PREVENT THE FORMATION OF AN AIRBORNE DUST NUISANCE AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM HIS FAILURE TO DO SO.
6. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO WORK THROUGHOUT THE PERIOD OF CONSTRUCTION. TRAFFIC MOVEMENT SHALL BE MAINTAINED AT ALL TIMES. IF TRAFFIC CONTROL PROCEDURES ARE DEEMED NECESSARY, THE CONTRACTOR SHALL CONFORM TO THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE MOST CURRENT CALTRANS TRAFFIC MANUAL. CITY/COUNTY ENGINEERS APPROVAL IS REQUIRED PRIOR TO ANY DETOURING, DISRUPTION, OR INTERRUPTION OF THE NORMAL TRAFFIC FLOW.
7. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF ALL VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO THE NORMAL WORKING HOURS.
8. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE, AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF THE JOBSITE.
9. ANY EXTRA CONSTRUCTION STAKING NECESSITATED SOLELY BY THE CONTRACTOR'S NEGLIGENCE WILL BE CHARGED TO THE CONTRACTOR ON A TIME AND MATERIAL BASIS, AND PAID FOR BY THE CONTRACTOR.
10. STATIONING HEREON IS ALONG STREET CENTERLINE UNLESS OTHERWISE SHOWN OR INDICATED.
11. ALL RETURN RADII AND CURB DATA ARE TO FACE OF CURB.
12. ALL QUANTITIES AND PAY ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.
13. LENGTHS OF SANITARY SEWERS AND STORM DRAINS ARE HORIZONTAL DISTANCES FROM CENTER TO CENTER OF STRUCTURES, ROUNDED OFF TO THE NEAREST FOOT.
14. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED ON FACILITIES IDENTIFIED BY THE TOPOGRAPHIC SURVEY AND UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 2 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. **CALL UNDERGROUND SERVICE ALERT (U.S.A.), AT 811.** IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT UNIT PRICE.
15. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE APPLICABLE AGENCY ENGINEER, AT THE CONTRACTOR'S SOLE EXPENSE.
16. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY INCLUDING FEES, BONDS, PERMITS AND WORKING CONDITIONS, ETC. THIS WORK SHALL BE DONE AT NO EXPENSE TO THE UTILITY COMPANY. THE OWNER SHALL PAY THE COST OF ALL SUCH RELOCATION WORK INCLUDING FEES, BONDS, PERMITS, ETC.
17. IF ARCHAEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.
18. RFE ENGINEERING, INC. DOES NOT SPECIFY NOR RECOMMEND THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS. ANY PARTY INSTALLING OR USING SUCH MATERIAL OR EQUIPMENT SHALL BE SOLELY RESPONSIBLE FOR ALL INJURIES, DAMAGED OR LIABILITIES, OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIALS OR EQUIPMENT. THE PROVISIONS OF THIS NOTE SHALL APPLY UNLESS THEY ARE EXPRESSLY WAIVED IN WRITING BY RFE ENGINEERING, INC.
19. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING, INC., AT (916) 772-7800 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.
20. CONTRACTOR SHALL PROVIDE PROTECTIVE FENCING AROUND EXISTING TREES TO REMAIN. SEE OTHER NOTES ON THESE PLANS. PROJECT CONATIONS OF APPROVAL, AND SPECIFIC JURISDICTION REQUIREMENTS FOR SUCH FENCING.
21. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL REGULATIONS, LAWS AND ORDINANCES, INCLUDING ALLOWABLE CONSTRUCTION HOURS, CONSTRUCTION NOISE NEAR RESIDENCES, DUST CONTROL AND EROSION CONTROL.

PROJECT GENERAL NOTES (CONT):

22. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL CONTRACT DOCUMENTS INCLUDING ALL PLANS AND SPECIFICATIONS PREPARED BY OTHER DISCIPLINES FOR THIS PROJECT PRIOR TO THE START OF CONSTRUCTION. SUCH REVIEW SHALL BE CONTINUOUS THROUGHOUT THE CONSTRUCTION PROCESS. ANYTIME THAT A CONFLICT BETWEEN SUCH PLANS AND SPECIFICATIONS IS IDENTIFIED, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING, INC. AND OTHER APPLICABLE DISCIPLINES TO REQUEST A VERIFICATION OF THE DESIGN REQUIREMENTS AND A RESOLUTION TO SUCH CONFLICTS PRIOR TO CONSTRUCTION OF SUCH FACILITIES.
23. BEFORE EXECUTION OF ANY WORK, THE CONTRACTOR SHALL EXAMINE ACTUAL JOB CONDITIONS AND REPORT TO RFE ENGINEERING, INC. ANY ERROR, OMISSION, OR DISCREPANCY AFFECTING WORK. UPON COMMENCING CONSTRUCTION THE CONTRACT SHALL BE RESPONSIBLE FOR REPORTING ANY AND ALL CONFLICTS, ERRORS, OMISSIONS, ETC. TO RFE ENGINEERING, INC. IMMEDIATELY UPON DISCOVERY. IF SO DIRECTED BY THE ENGINEER OR CITY/COUNTY ENGINEER, THE CONTRACTOR SHALL STOP WORK UNTIL MITIGATION CAN BE MADE. ANY COST INCURRED RESULTING FROM THE CONTRACTOR'S FAILURE TO STOP WORK AS DIRECTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
24. THE CONTRACTOR SHALL PROVIDE THE CIVIL ENGINEER "AS BUILT" DRAWINGS AT PROJECT COMPLETION. THE CONTRACTOR SHALL PROVIDE ONE COMPLETE ACCURATE SET OF RECORD CHANGES. THE CHANGES SHALL BE PLACED ON A CLEAN SET OF PROJECT DRAWINGS IN RED, AND GIVEN TO THE ENGINEER AT JOB COMPLETION.
25. THE ENGINEERS ESTIMATE OF QUANTITIES IS FOR DESIGN REFERENCE ONLY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE QUANTITIES FOR BID AND FIELD INSTALLATION. ALL CALCULATED EARTHWORK QUANTITIES FURNISHED FOR THIS PROJECT ARE APPROXIMATE. THE QUANTITIES HEREIN WERE CALCULATED TO FINISHED ROUGH GRADE AND EXISTING GROUND. THE ACTUAL MATERIALS MOVED ARE VARIABLE DEPENDENT UPON THE CONTRACTOR'S METHOD OF OPERATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR ANY EXCESS OR SHORTAGE OF EARTH MATERIAL FOR THIS PROJECT AND NO ADDITIONAL PAYMENT WILL BE MADE.
26. THESE DRAWINGS ARE FOR THIS SPECIFIC PROJECT AND NO OTHER USE IS AUTHORIZED. RFE ENGINEERING, INC. DISCLAIMS ALL RESPONSIBILITY FOR CONSTRUCTION BEYOND WHAT IS SPECIFICALLY DESIGNED OR DETAILED HEREIN.
27. THE CONTRACTOR SHALL TAKE CARE TO PROTECT THE EXISTING SITE AND ADJACENT IMPROVEMENTS FROM DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THE CONSTRUCTION AND SHALL REPAIR OR MAKE REPLACEMENT TO CURRENT CITY/COUNTY STANDARDS. ALL SUCH WORK SHALL BE AT THE CONTRACTOR'S OWN EXPENSE. THE CONTRACTOR SHALL PERFORM THESE REPAIRS AND REMOVE ALL TRASH AND CONSTRUCTION DEBRIS AS DIRECTED BY RFE ENGINEERING, INC. OR THE CITY/COUNTY ENGINEER.
28. THE AGENCY, CITY/COUNTY ENGINEER OR RFE ENGINEERING, INC. MAY REQUIRE THE CONTRACTOR TO UNCOVER ANY IMPROVEMENTS THAT HAVE BEEN COMPLETED WITHOUT PROPER INSPECTION AND/OR APPROVAL. IF THE INSTALLATION IS FOUND NOT TO MEET APPLICABLE STANDARDS OR PREVIOUSLY APPROVED ALTERNATIVES SHOWN ON THE PLANS, THE CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE SUCH IMPROVEMENTS AT HIS OWN EXPENSE.

DUST MITIGATION NOTES:

1. ENCLOSE, COVER OR WATER ALL SOIL PILES TWICE DAILY.
2. WATER EXPOSED SOIL WITH ADEQUATE FREQUENCY TO KEEP SOIL MOIST AT ALL TIMES.
3. WATER ALL HAUL ROADS TWICE DAILY.
4. MAINTAIN AT LEAST TWO (2) FEET OF FREEBOARD ON TRUCKS WHEN HAULING LOADS.
5. MAINTAIN CONSTRUCTION EQUIPMENT (STATIONARY AND MOBILE) IN OPTIMUM RUNNING CONDITION.

LEGEND

DESCRIPTION	EXISTING	PROPOSED
SEWER FORCE MAIN		SSFM
PROPERTY LINE	———	
RIGHT-OF-WAY	——— – – ———	
EASEMENT	– – – – – –	
ELECTRICAL (UNDERGROUND)	— – – – ELEC — – – – ELEC —	
GAS LINE (UNDERGROUND)	-----GAS-----GAS-----GAS-----	
FIBER OPTIC LINE (UNDERGROUND)	——— FO ———	
WATER (UNDERGROUND)	——— W ———	
TELEPHONE MAINTENANCE HOLE	Ⓣ	
UTILITY MAINTENANCE HOLE	(MH)	

ABBREVIATIONS:

AB	AGGREGATE BASE	FOC	FACE OF CURB	POC	POINT OF CONNECTION
AC	ASPHALT CONCRETE	FP	FINISH PAVEMENT	PRC	POINT OF REVERSE CURVE
ARV	AIR RELEASE VALVE	FS	FIRE SPRINKLER	PT	POINT OF TANGENCY
BC	BEGIN CURVE	GB	GRADE BREAK	PUE	PUBLIC UTILITY EASEMENT
BCR	BEGIN CURVE RETURN	GR	GRATE ELEVATION	PVI	POINT OF VERTICAL INTERSECTION
BLDG	BUILDING	GV	GATE VALVE	RC	RELATIVE COMPACTION
BOC	BACK OF CURB	GVW	GROSS VEHICLE WEIGHT	RCP	REINFORCED CONCRETE PIPE
BOW	BACK-OF-WALK	HC	HANDICAP	ROW	RIGHT-OF-WAY
BVC	BEGIN VERTICAL CURVE	HCR	HANDICAP RAMP	RT	RIGHT TURN OR RIGHT
BW	BOTTOM OF WALL	HDPE	HIGH DENSITY POLYETHYLENE	RPPA	REDUCED PRESSURE PRINCIPLE ASSEMBLY
CAB	CABINET	HP	HIGH POINT	RW	RETAINING WALL
CONC	CONCRETE	IRR	IRRIGATION	SDMH	STORM DRAIN MANHOLE
C&G	CURB & GUTTER	INV	INVERT	SD	STORM DRAIN
CG&S	CURB, GUTTER & SIDEWALK	JP	JOINT POLE	SE	SOUTHEAST
CH	CHORD	L	LENGTH	SS	SANITARY SEWER
℄	CENTERLINE	LF	LINEAL FEET	SSCO	SANITARY SEWER CLEAN OUT
CMP	CORRUGATED METAL PIPE	LIP	LIP OF GUTTER	SSMH	SANITARY SEWER MANHOLE
CR	CURB RETURN	LP	LOW POINT	SWCT	SAWCUT
CTV	CABLE TV	LT	LEFT TURN OR LEFT	SW	SIDEWALK OR SOUTHWEST
DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	MAX	MAXIMUM	STA	STATION
		MH	MAINTENANCE HOLE	TC	TOP OF CURB
DI	DRAIN / DROP INLET	MIN	MINIMUM	TP	TOP OF PAVEMENT
DIP	DUCTILE IRON PIPE	NE	NORTHEAST	TS	TOP OF SIDEWALK
DS	DOWN SPOUT	NW	NORTHWEST	TW	TOP OF WALL
(E)	EXISTING	OCEW	ON CENTER EACH WAY	W	WATER
EC	END CURVE	OH	OVERHEAD	WV	WATER VALVE
ECR	END CURB RETURN	OHT&E	OVERHEAD TELEPHONE & ELECTRIC	WM	WATER METER
EP	EDGE OF PAVEMENT	OMP	OPEN METAL PIPE	WWF	WELDED WIRE FABRIC
ETW	EDGE OF TRAVELED WAY	(P)	PROPOSED	VCP	VITRIFIED CLAY PIPE
EVC	END OF VERTICAL CURVE	PCC	PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVE	VIF	VERIFY-IN-FIELD
FDC	FIRE DEPARTMENT CONNECTION				
FF	FINISH FLOOR	PCF	POUNDS PER CUBIC FOOT		
FG	FINISHED GROUND	PG	PROFILE GRADE		
FH	FIRE HYDRANT	PIV	POST INDICATOR VALVE		
FL	FLOW LINE	ℙ	PROPERTY LINE		

REGISTERED PROFESSIONAL ENGINEER — ROBERT F. ETNIER — No. C040666 Exp. 3-31-25 — CIVIL — STATE OF CALIFORNIA

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GENERAL NOTES, LEGEND AND ABBREVIATIONS

CPC#210042

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SHEET **C2.1**

2 OF 9

CITY OF SACRAMENTO GENERAL NOTES

1. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CITY OF SACRAMENTO STANDARD SPECIFICATIONS, DATED NOVEMBER 2020 AND ALL APPLICABLE ADDENDA.

2. THE CONTRACTOR SHALL BE IN RECEIPT OF CITY ACCEPTED PLANS PRIOR TO BEGINNING CONSTRUCTION WITHIN THE STREET RIGHT-OF-WAY. ACCEPTANCE OF PLANS BY THE CITY OF SACRAMENTO IS BASED ON INFORMATION CONTAINED ON THE PLANS AND SUPPORTING DOCUMENTS, AND DOES NOT SUBROGATE THE DESIGN ENGINEER'S RESPONSIBILITY FOR THIS PROJECT. ANY AND/OR ALL ERRORS AND OMISSIONS ARE THE RESPONSIBILITY OF THE DESIGN ENGINEER.

3. CONTACT THE CITY OF SACRAMENTO CONSTRUCTION SECTION AT 808-8300 TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

4. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES AND FOR THE PROTECTION OF AND REPAIR OF DAMAGE TO THEM. CONTACT UNDERGROUND SERVICE ALERT 1-800-642-2444, 48 HOURS BEFORE WORK IS TO BEGIN.

5. RESPONSIBILITY FOR FINAL ACCEPTANCE OF LINE AND GRADE BY THE CITY OF SACRAMENTO WILL BE ASSUMED ONLY IF CONSTRUCTION STAKES ARE SET BY THE CITY SURVEY CREWS OR THEIR DESIGNATED REPRESENTATIVE. CITY WILL SET CONSTRUCTION STAKES ONLY IF SO INDICATED ON THE "NOTICE TO PROCEED" WITH CONSTRUCTION ISSUED FOR THIS PROJECT. CONTACT CITY OF SACRAMENTO CONSTRUCTION SECTION TWO (2) WORKING DAYS IN ADVANCE FOR CONSTRUCTION STAKES WITHIN PUBLIC RIGHT-OF-WAY.

6. FOR ALL TRENCH EXCAVATIONS 5 FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE DIVISION OF INDUSTRIAL SAFETY (2424 ARDEN WAY, SUITE 165, SACRAMENTO —PHONE 916-263-2800) PRIOR TO BEGINNING ANY EXCAVATION. A COPY OF THIS PERMIT SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNS, BRIDGES, 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. CONSTRUCTION OPERATIONS SHALL COMPLY WITH THE WORK AREA AND TRAFFIC CONTROL HANDBOOK (WATCH). THE CONTRACTOR SHALL PROVIDE TO THE CITY TRAFFIC ENGINEER FOR REVIEW, A PLAN SHOWING TRAFFIC CONTROL MEASURES AND/OR DETOURS FOR VEHICLES AFFECTED BY THE CONSTRUCTION WORK. THE APPROVED PLAN SHALL BE DELIVERED TO THE CONSTRUCTION INSPECTOR PRIOR TO THE IMPLEMENTATION OF TRAFFIC CONTROL MEASURES.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING RECORD DRAWINGS FOR ALL WORK THROUGHOUT THE COURSE OF CONSTRUCTION. SUCH DRAWINGS SHALL RECORD THE LOCATION AND GRADE (CITY DATUM) OF ALL UNDERGROUND IMPROVEMENTS CONSTRUCTED AND SHALL BE DELIVERED TO THE CONSTRUCTION INSPECTOR PRIOR TO, AND IN CONSIDERATION, OF THE CITY'S ACCEPTANCE OF WORK.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS OR MARKERS DURING CONSTRUCTION.

10. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE AND SEWER FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL NEW DRAINAGE AND SEWER IMPROVEMENTS ARE IN PLACE AND FUNCTIONING.

11. IF UNUSUAL AMOUNTS OF BONE, STONE OR ARTIFACTS ARE UNCOVERED, WORK WITHIN 50 METERS OF THE AREA SHALL CEASE IMMEDIATELY AND A QUALIFIED ARCHAEOLOGIST SHALL BE CONSULTED TO DEVELOP, IF NECESSARY, MITIGATION MEASURES TO REDUCE ANY ARCHAEOLOGICAL IMPACT TO A LESS THAN SIGNIFICANT EFFECT BEFORE CONSTRUCTION RESUMES IN THE AREA.

12. COST TO REMOVE AND REPLACE EXISTING PAVEMENT OVER UTILITY LINE TRENCHES SHALL BE INCLUDED IN THE BID PRICE. TRENCHES SHALL BE BACKFILLED AND PAVEMENT SHALL BE REPLACED PER CITY DETAIL T-80. PAVEMENT SHALL BE REPLACED IN KIND (MINIMUM OF 4"AC ON 12"AB) AS DETERMINED IN THE FIELD BY THE CITY INSPECTOR. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE RESTORED (IN THERMOPLASTIC).

13. PAVEMENT REPAIR NECESSARY DUE TO SUBSIDENCE RESULTING FROM TRENCH FAILURE OR OTHER DEFECTS IN WORKMANSHIP SHALL CONSIST OF KEY CUTTING AND OVERLAYING BETWEEN THE TWO NEAREST INTERSECTIONS, AS DETERMINED BY THE CITY INSPECTOR.

14. SIDEWALK RAMPS SHALL BE CONSTRUCTED AT THE CENTER OF ALL ROUND CORNERS UNLESS OTHERWISE SHOWN. RAMPS SHALL COMPLY WITH THE MOST RECENT CITY STANDARD RAMP DETAILS, WHICH ARE AVAILABLE FROM THE CITY INSPECTOR.

15. PIPE AND MANHOLE DIMENSIONS ARE TO THE CENTERLINE, UNLESS OTHERWISE NOTED.

16. ALL TAPS 24 INCHES AND SMALLER INTO SEWER & DRAIN MANHOLES SHALL BE CORE BORED WITH KOR-N-SEAL TAPS OR APPROVED EQUAL.

17. ANY WATER ENTERING THE SANITARY SEWER SYSTEM TO BE CONSTRUCTED UNDER THESE PLANS SHALL NOT BE DISCHARGED TO THE EXISTING SYSTEM. PLUGS MUST BE INSTALLED IN EXISTING MANHOLES AS NECESSARY TO PERMIT PUMPING THE NEW SYSTEM CLEAR OF WATER AND DEBRIS PRIOR TO ACCEPTANCE. CARE SHALL BE EXERCISED IN LOCATING PLUGS TO AVOID INTERRUPTING SERVICES TO EXISTING CONNECTIONS. MORTAR OR BRICK PLUGS MUST BE USED, INFLATABLE DEVICES ARE NOT SATISFACTORY.

18. UNLESS OTHERWISE APPROVED, DRAIN PIPE MATERIAL SHALL BE EITHER REINFORCED CONCRETE PIPE CONFROMING TO ASTM, DESIGNATION C76 Class III, IV, V OR PVC SDR-35 OR AS SPECIFIED ON PLANS. USE RCP CLASS III OR PVC SDR-35 WITH 18" OR MORE MINIMUM COVER, RCP CLASS IV WITH 12" - 18" MINIMUM COVER, RCP CLASS IV ENCASED IN CDF WITH 6" - 12" MINIMUM COVER, AND CLASS 150 CEMENT MORTAR LINED DUCTILE IRON PIPE CONFORMING TO AWWA C151 ENCASED IN CDF WITH 0" - 6" MINIMUM COVER. IN ALL CASES, PROVIDE RUBBER GASKETED JOINTS. (NOTE: MINIMUM COVER IS FROM TOP OF AB TO TOP OUTISDE DIAMETER OF DRAIN PIPE)

19. DI INLET LEADS SHALL BE RCP CLASS III OR PVC SDR-35 WITH 18" OR MORE MINIMUM COVER, PVC C-900 CLASS 150 OR RCP CLASS IV WITH 12" - 18" MINIMUM COVER, RCP CLASS IV OR PVC C-900 BOTH ENCASED IN CDF WITH 6" - 12" MINIMUM COVER, OR DUCTILE IRON PIPE ENCASED IN CDF WITH 0" - 6" MINIMUM COVER. IN ALL CASES, PROVIDE RUBBER GASKETED JOINTS. (NOTE: MINIMUM COVER IS FROM TOP OF AB TO TOP OUTSIDE DIAMETER OF DRAIN PIPE).

20. SANITARY SEWER PIPE MAINS SHALL BE CONSTRUCTED OF V.C.P., A.B.S. OR PVC UNLESS OTHERWISE SPECIFIED ON THE PLANS.

21. ALL SEWER SERVICES SHALL BE CONSTRUCTED OF A.B.S. PIPE PER CITY STANDARD DRAWINGS S-260 AND S-265, UNLESS OTHERWISE NOTED ON THE PLANS.

22. ALL SEWER SERVICES SHALL BE 4" DIAMETER UNLESS OTHERWISE NOTED.

23. AGGREGATE SUBBASE SHALL CONFORM TO CALTRANS SPECIFICATIONS DATED: 2010, SECTION 25.

24. THE CONTRACTOR SHALL VIDEO RECORD ALL DRAIN AND SEWER PIPES PER CITY STANDARD SPECIFICATIONS.

25. UNLESS OTHERWISE APPROVED, THE CONTRACTOR SHALL BALL AND FLUSH ALL SEWER AND DRAIN SYSTEMS PRIOR TO VIDEO RECORDING. THESE SYSTEMS SHALL BE FREE OF DEBRIS PRIOR TO ACCEPTANCE OF WORK.

26. A STORM WATER PERMIT MUST BE OBTAINED WHEN CONSTRUCTION ACTIVITY RESULTS IN SOIL DISTURBANCE OF ONE (1) OR MORE ACRES. THE STATE WATER RESOURCES CONTROL BOARD, DIVISION OF WATER QUALITY, STORM WATER PERMIT UNIT, P.O. BOX 1977, SACRAMENTO, CA 95812-1977, SHALL BE CONTACTED TO OBTAIN THE PERMIT PRIOR TO BEGINNING CONSTRUCTION.

27. IF WORK SHOWN ON THESE PLANS HAS NOT COMMENCED WITHIN TWO YEARS FROM THE DATE OF THE CITY'S ACCEPTANCE OF THE PLANS, A SUBSEQUENT PLAN REVIEW AT THE CITY'S DISCRETION AND THE DEVELOPER'S EXPENSE MAY BE NECESSARY.

28. CONTRACTOR SHALL COMPLY WITH THE CITY OF SACRAMENTO ADMINISTRATIVE AND TECHNICAL PROCEDURES MANUAL FOR GRADING/EROSION AND SEDIMENT CONTROL.

29. CONSTRUCT SURVEY MONUMENT WELL PER STD. DWG. T-350 AT LOCATIONS INDICATED ON THE FINAL MAP.

30. CONCRETE RESTORATION: COLOR OF NEW CONCRETE SHALL MATCH ADJACENT EXISTING CONCRETE BY ADDING LAMP BLACK.

31. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS.

32. THE EXACT WIDTH OF EXISTING PAVEMENT TO BE SALVAGED SHALL BE DETERMINED IN THE FIELD BY THE CONSTRUCTION SECTION.

33. EXISTING ASPHALT PAVEMENT SHALL BE CUT TO A NEAT STRAIGHT LINE. THE EXPOSED EDGE SHALL BE TACKED WITH EMULSION PRIOR TO PAVING.

34. THE EXACT LIMITS OF PAVEMENT OVERLAY SHALL BE DETERMINED IN THE FIELD BY THE CONSTRUCTION SECTION.

35. EXACT LIMITS OF CURB AND GUTTER, SIDEWALK, DRIVEWAY, AND PAVEMENT REMOVAL AND RECONSTRUCTION SHALL BE DETERMINED IN THE FIELD BY THE CONSTRUCTION SECTION.

36. COMPACTION OF TRENCH BACKFILL BY MEANS OF JETTING IS NOT PERMITTED.

37. GUTTER SLOPES FROM FLOWLINE TO LIP SHALL BE FIVE (5) PERCENT BETWEEN ROUND CORNER CURB RETURNS. THE FIVE (5) PERCENT SLOPE SHALL BE TRANSITIONED TO THE STANDARD GUTTER SLOPE OVER A DISTANCE OF THREE (3) TO FIVE (5) FEET, AS DIRECTED IN THE FIELD BY RESIDENT ENGINEER. THE GUTTER SLOPE ADJACENT TO HANDICAP RAMPS SHALL IN NO CASE BE GREATER THAN FIVE (5) PERCENT.

38. USE THE FOLLOWING NOTE FOR LOCAL AND MINOR COLLECTOR STREETS ONLY: TOP (FINAL) LIFT OF AC SHALL BE ½-INCH MIX

CITY OF SACRAMENTO GRADING NOTES:

1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARDS.

2. CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CITY OF SACRAMENTO STANDARD SPECIFICATIONS DATED: NOVEMBER 2020 AND ALL APPLICABLE ADDENDA.

3. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF THE SOIL AND GEOLOGICAL INVESTIGATION PREPARED BY (NAME OF FIRM AND DATE OF REPORT).

4. ALL SLOPE BANKS ARE 2:1 MAXIMUM UNLESS OTHERWISE NOTED.

5. MAXIMUM TOLERANCE FROM PAD ELEVATIONS SHALL BE +/- 0.2'.

6. ANY GRADING OPERATIONS OUTSIDE OF SUBDIVISION BOUNDARY SHALL REQUIRE A RIGHT-OF-ENTRY.

7. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CITY OF SACRAMENTO GRADING, EROSION, AND SEDIMENT CONTROL ORDINANCE (ORD.NO.93-068).

8. NO GRADING, TRENCHING, CUTTING AND/OR FILLING WITHIN THE DRIP LINE OF THOSE TREES, DESIGNATED ON THE SITE PLAN FOR PRESERVATION, SHALL OCCUR. NO ACTIONS SHALL BE TAKEN THAT WILL HARM THE HEALTH, VITALITY OR LONGEVITY OF THOSE TREES IDENTIFIED ON THE SITE PLAN FOR PRESERVATION.

REQUIRED TREE PRESERVATION MEASURES FOR CITY AND PRIVATE PROTECTED TREES

1. ANY REGULATED WORK WITHIN THE TREE PROTECTION ZONE OF A CITY OR PRIVATE PROTECTED TREES TREE SHALL BE SEPARATELY PERMITTED PRIOR TO THE START OF CONSTRUCTION AND SUPERVISED BY A QUALIFIED ARBORIST WHO SHALL MAKE RECOMMENDATIONS TO MINIMIZE THE IMPACT OF APPROVED WORK ON THE TREES. SUBMIT A TREE PERMIT APPLICATION AND A TREE PROTECTION PLAN CREATED BY A QUALIFIED ARBORIST TO URBANFORESTRY@CITYOFSACRAMENTO.ORG. AND REFER TO THE PLANNING PROJECT NUMBER OR OFF-SITE PROJECT NUMBER.

2. TREES TO BE PRESERVED WITHIN OR ADJACENT TO THE CONSTRUCTION AREA SHALL BE PROTECTED FROM DISTURBANCE PRIOR TO AND THROUGHOUT CONSTRUCTION BY THE FOLLOWING METHODS OR AS APPROVED BY THE CITY OR PRIVATE PROTECTED TREES ARBORIST:
   - A. PLACE A 6-FT HIGH CHAIN LINK FENCE AT THE EDGE OF THE TPZ.
   - B. ENCLOSE THE FULL TPZ OR THE ENTIRE RIGHT-OF-WAY PLANTER WITH CHAIN LINK FENCING. WHEN THE FULL TPZ CANNOT BE ENCLOSED BY CHAIN LINK FENCING, THE APPLICANT SHALL PROVIDE PROTECTION FOR THE TRUNK AND THE SOIL WITHIN THE ROOT ZONE AS APPROVED BY THE CITY OR PRIVATE PROTECTED TREES ARBORIST. ACCEPTED PRACTICES ARE:
     - I. ADD 4-6" OF WOOD CHIP MULCH COVERED BY TRENCH PLATES OR ¼ INCH PLYWOOD ON THE GROUND WITHIN THE TPZ
     - II. RETAIN ALL EXISTING SIDEWALK, DRIVEWAY OR OTHER CONCRETE THAT COVERS ROOTS OF EXISTING TREES UNTIL CONSTRUCTION IS COMPLETE.
     - III. WRAP FOAM OR STRAW WATTLES AROUND THE TRUNK AND SECURE 2X4S VERTICALLY AROUND THE TREE.

3. PROTECTION MEASURES SHALL REMAIN IN PLACE THROUGHOUT THE DURATION OF THE PROJECT, INCLUDING LANDSCAPE INSTALLATION.

4. EXCAVATION, GRADING OR TRENCHING WITHIN THE TPZ TREE SHALL EMPLOY ONE OF THE FOLLOWING METHODS: HYDRO-EXCAVATION, PNEUMATIC EXCAVATION OR HAND DIGGING.

5. ALL STREET TREES AND PRIVATE PROTECTED TREES SHALL BE WATERED REGULARLY THROUGHOUT THE CONSTRUCTION PROCESS PER PROJECT ARBORIST'S RECOMMENDATIONS.

6. THE CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR ANY DAMAGE TO THE CITY OR PRIVATE PROTECTED TREES ASSOCIATED WITH THE PROJECT. ACCIDENTAL OR NEGLIGENT ACTIONS THAT DAMAGE CITY OR PRIVATE PROTECTED TREES MAY RESULT IN A PENALTY. THE MONETARY VALUE OF ANY SUCH DAMAGES WILL BE APPRAISED BY THE CITY URBAN FORESTER OR HIS AUTHORIZED REPRESENTATIVE AND SHALL BE EXPRESSED AS THE MONETARY EQUIVALENT OF ALL LABOR AND MATERIALS REQUIRED TO BRING THE TREE IN QUESTION

REGISTERED PROFESSIONAL ENGINEER — ROBERT F. EYNON — No. C040666 Exp. 3-31-25 — CIVIL — STATE OF CALIFORNIA

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 25.808
DESCRIPTION
CITY BM: 297-FIA
HILTI NAIL ON WEST END OF RETAINING WALL AT NW CORNER OF DEL PASO BLVD. & RAILROAD DR.
(NAVD 88 DATUM)

FIELD BOOK

SCALE
HORIZ.
VERT.

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY: DCJ — DATE 07/14/2023
DESIGNED BY: RFE — R.C.E. C040666
CHECKED BY: RFE — R.C.E. C040666 DATE 07/14/23

2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 | www.cwecorp.com

OFF-SITE IMPROVEMENT PLANS FOR
RIVERDALE RV PARK
PUBLIC SS FORCE MAIN EXTENSION
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA 95815

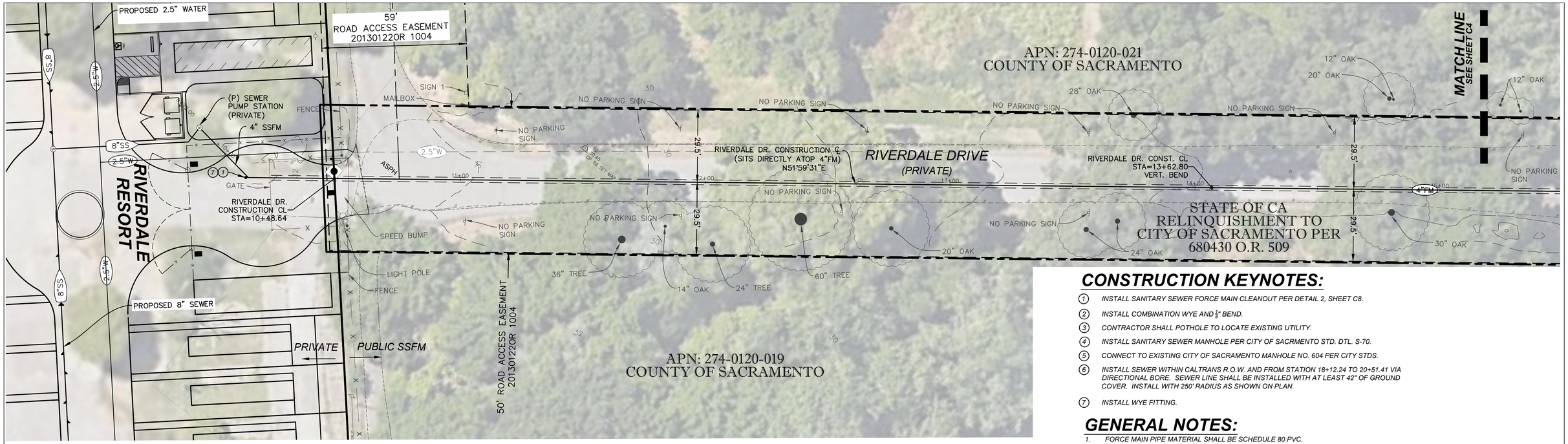
AGENCY NOTES

CPC#210042

P#

SHEET C2.2

3 OF 9



PLAN VIEW
SCALE: 1" = 20'

20 0 20 40
1 INCH = 20 FEET

CONSTRUCTION KEYNOTES:

1. INSTALL SANITARY SEWER FORCE MAIN CLEANOUT PER DETAIL 2, SHEET C8.
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3. CONTRACTOR SHALL POTHOLE TO LOCATE EXISTING UTILITY.
4. INSTALL SANITARY SEWER MANHOLE PER CITY OF SACRMENTO STD. DTL. S-70.
5. CONNECT TO EXISTING CITY OF SACRAMENTO MANHOLE NO. 604 PER CITY STDS.
6. INSTALL SEWER WITHIN CALTRANS R.O.W. AND FROM STATION 18+12.24 TO 20+51.41 VIA DIRECTIONAL BORE. SEWER LINE SHALL BE INSTALLED WITH AT LEAST 42" OF GROUND COVER. INSTALL WITH 250' RADIUS AS SHOWN ON PLAN.
7. INSTALL WYE FITTING.

GENERAL NOTES:

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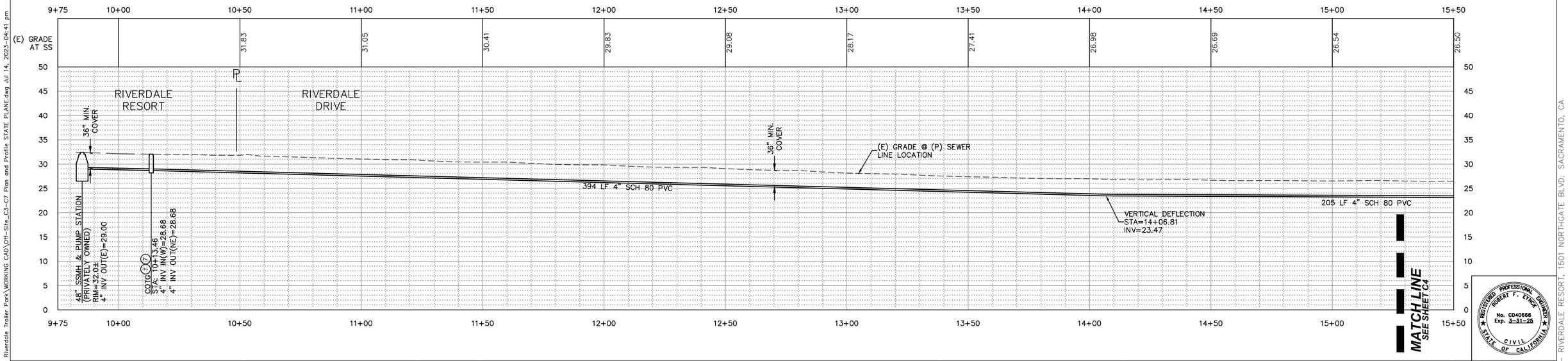
4. THERE SHALL BE NO TRENCHING WITHIN THE DRIPLINE OF TREES ON PROPERTY OWNED BY THE CITY OF SACRAMENTO.
5. RESTORE EXISTING STRIPING.



REGISTERED PROFESSIONAL ENGINEER ROBERT F. DYNOT No. C040666 Exp. 3-31-25 CIVIL STATE OF CALIFORNIA

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FIELD BOOK
SCALE
HORIZ.
VERT.

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY:	DCJ	DESIGNED BY:	RFE	CHECKED BY:	RFE
DATE	07/14/2023	R.C.E.	C040666	R.C.E. C040666	DATE 07/14/23

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OFF-SITE IMPROVEMENT PLANS FOR
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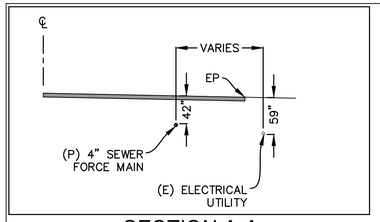
SACRAMENTO, CA 95815

FORCE MAIN PLAN AND PROFILE STA: 10+00 - 15+25

CPC#210042
P#
SHEET **C3**
4 OF 9



SECTION A-A

NOT TO SCALE

NOTES:

1. HORIZONTAL LOCATION OF EXISTING UTILITIES SHOWN BASED ON USA MARKING.
2. DEPTH FOR EXISTING ELECTRICAL UTILITY SHOWN IS BASED ON SMUD STANDARD TRENCH. DEPTH HAS NOT BEEN VERIFIED.
3. CONTRACTOR SHALL PROVIDE THE FOLLOWING CLEARANCES FOR THE PROPOSED 4" SEWER FORCE MAIN:
   - 3.1. DRY UTILITIES: 3-FT. MIN. HORIZONTAL AND 12-IN. VERTICAL
   - 3.2. WATER UTILITIES: 10-FT. HORIZONTAL AND 12-IN. VERTICAL (SEWER INSTALLED BELOW WATER)
   - 3.3. STORM DRAINAGE: 5-FT. HORIZONTAL AND 12-IN. VERTICAL (SEWER INSTALLED BELOW STORM)
4. PROPOSED SEWER FORCE MAIN TO BE INSTALLED WITH AT LEAST 42" OF COVER.
5. SECTION ABOVE DOES NOT SHOW ALL CROSSING OR TRANSVERSE UTILITIES ALONG PROPOSED SEWER INSTALLATION, ONLY AT STA 18+50. OTHER UTILITIES ARE SHOWN IN PLAN VIEW ALONG THE PROPOSED SEWER INSTALLATION AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE UTILITIES, AVOID CONFLICTS, AND PROVIDE THE NECESSARY CLEARANCES.

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3. CONTRACTOR SHALL POTHOLE TO LOCATE EXISTING UTILITY.
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PLAN VIEW

SCALE: 1" = 20'

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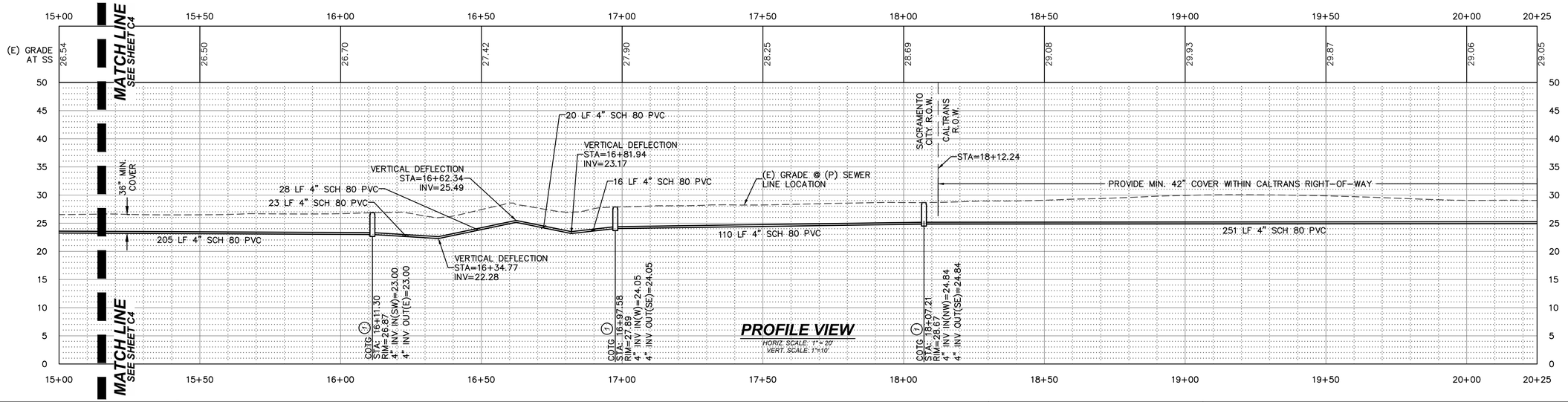
5. RESTORE EXISTING STRIPING.



PROFILE VIEW

HORIZ. SCALE: 1"= 20'
VERT. SCALE: 1"=10'

REGISTERED PROFESSIONAL ENGINEER ROBERT F. ETNYRE No. C040666 Exp. 3-31-25 CIVIL STATE OF CALIFORNIA

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 25.808
DESCRIPTION
CITY BM: 297-FIA
HILTI NAIL ON WEST END OF RETAINING WALL AT NW CORNER OF DEL PASO BLVD. & RAILROAD DR. (NAVD 88 DATUM)

FIELD BOOK

SCALE
HORIZ. ____
VERT. ____

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY:	DCJ	DESIGNED BY:	RFE	CHECKED BY:	RFE
DATE	07/14/2023	R.C.E.	C040666	R.C.E. C040666	DATE 07/14/23

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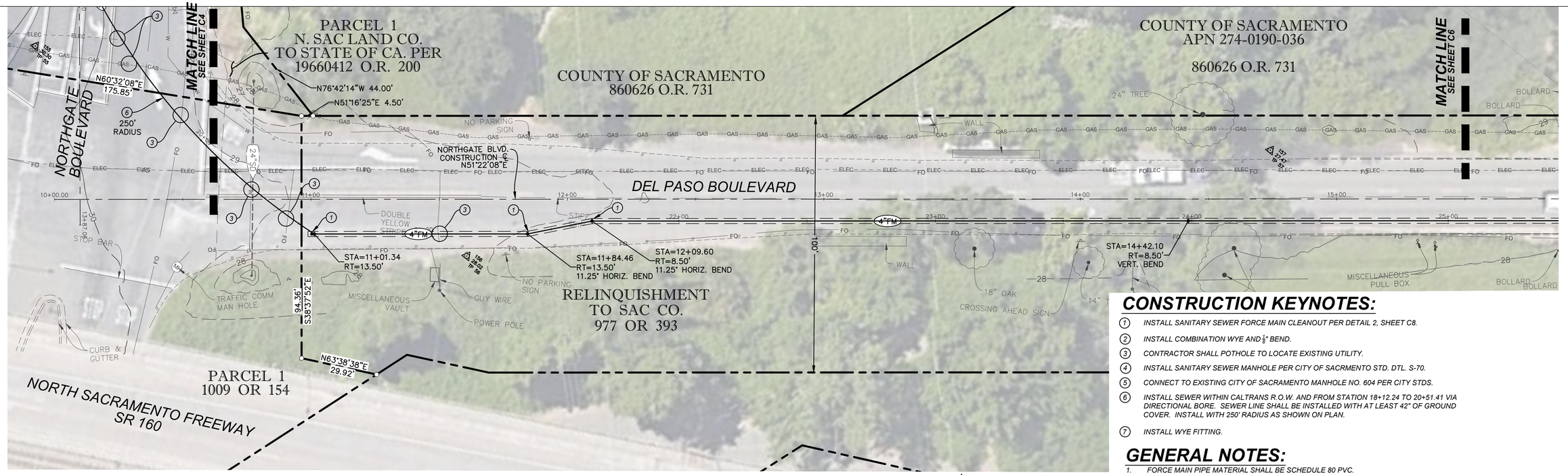
PUBLIC SS FORCE MAIN EXTENSION
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA 95815

FORCE MAIN PLAN AND PROFILE
STA: 15+25 - 20+00

CP C#210042 | P# | SHEET C4 | 5 OF 9



PLAN VIEW

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1 INCH = 20 FEET

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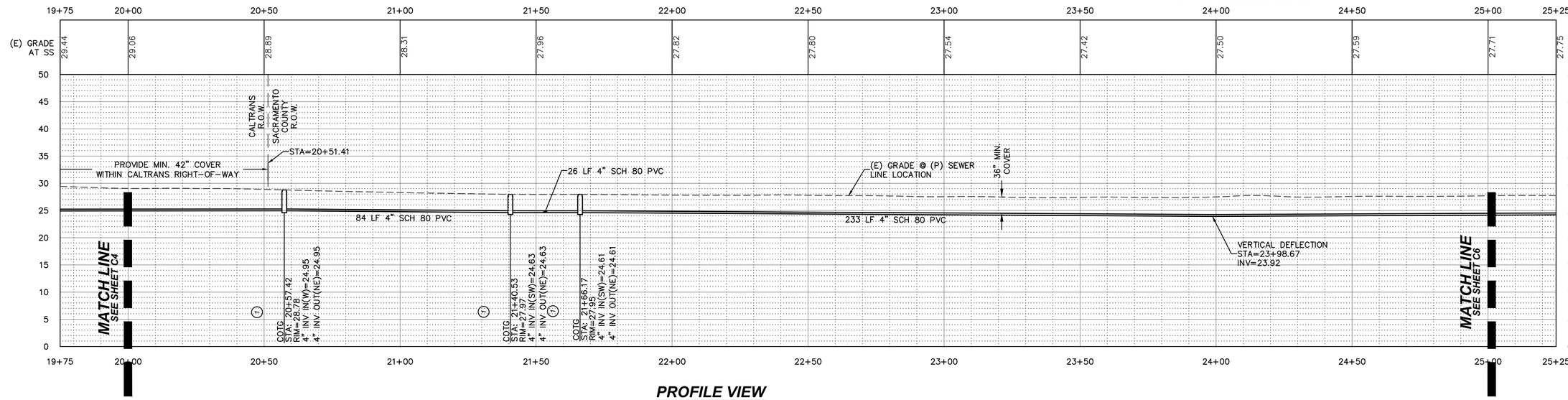

PROFILE VIEW

HORIZ. SCALE: 1" = 20'
VERT. SCALE: 1"=10'

REGISTERED PROFESSIONAL ENGINEER
ROBERT F. EVANS
No. C040666
Exp. 3-31-25
CIVIL
STATE OF CALIFORNIA

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 25.808
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FIELD BOOK

SCALE
HORIZ. ____
VERT. ____

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

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OFF-SITE IMPROVEMENT PLANS FOR
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PUBLIC SS FORCE MAIN EXTENSION
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SACRAMENTO, CA 95815

FORCE MAIN PLAN AND PROFILE
STA: 20+00 - 25+00

CPC#210042

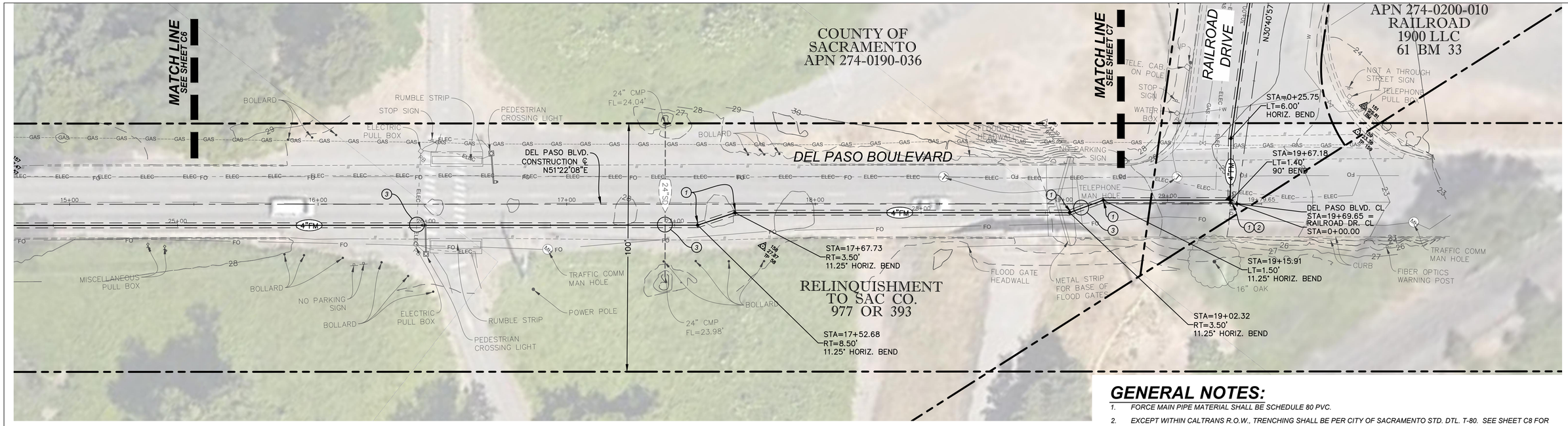
P#

SHEET C5

6 OF 9

W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\Off-Site_C3-C7 Plan and Profile STATE PLANE.dwg Jul 14, 2023-04:42 pm

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA



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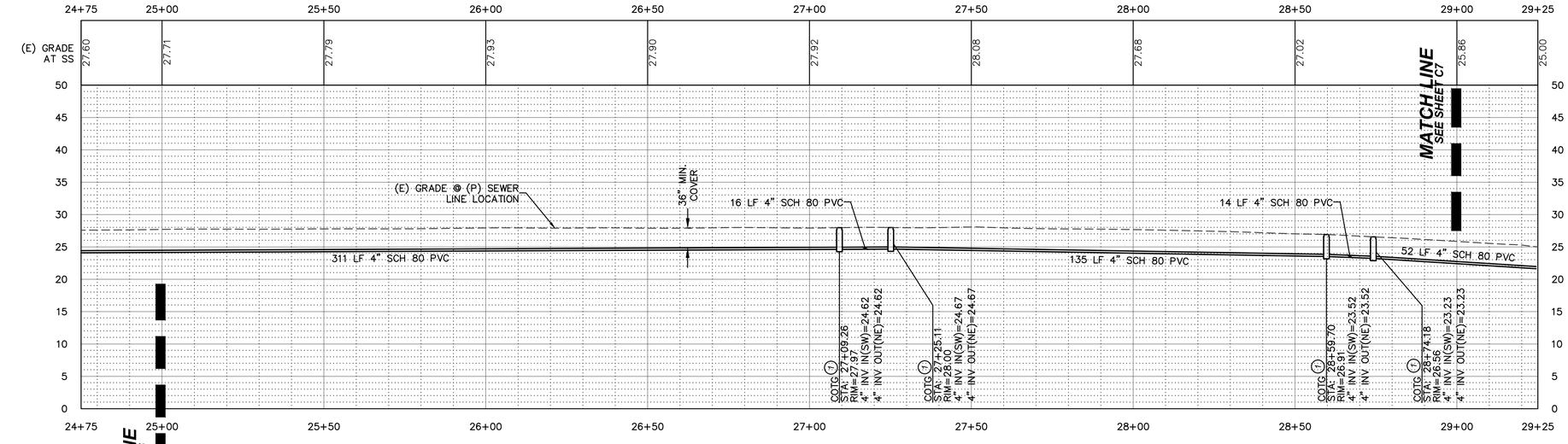

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REGISTERED PROFESSIONAL ENGINEER
ROBERT F. EVACK
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Exp. 3-31-25
CIVIL
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REVISIONS			
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FIELD BOOK

SCALE
HORIZ. ____
VERT. ____

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY:	DCJ	DESIGNED BY:	RFE	CHECKED BY:	RFE
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SACRAMENTO, CA 95815

FORCEMAIN PLAN AND PROFILE
STA: 25+00 - 29+00

CPC#210042

P#

SHEET **C6**

7 OF 9

NOTE: CONTRACTOR TO FILL OUT AFTER PROJECT COMPLETION.

CONSTRUCTION INFORMATION

CONTRACTOR:_____ INSTALL DATE:_____

SEWER MAIN MATERIAL:_____ PIPE MFG:_____
SERVICE LATERAL MATERIAL:_____ PIPE MFG:_____

DRAINAGE MAIN MATERIAL:_____ PIPE MFG:_____
DRAIN INLET LEAD MATERIAL:_____ PIPE MFG:_____

☐ SEWER LATERAL LOCATIONS SUBMITTED

INFORMATION APPROVED BY (CONTR):_____

INFORMATION ACCEPTED BY (CITY):_____

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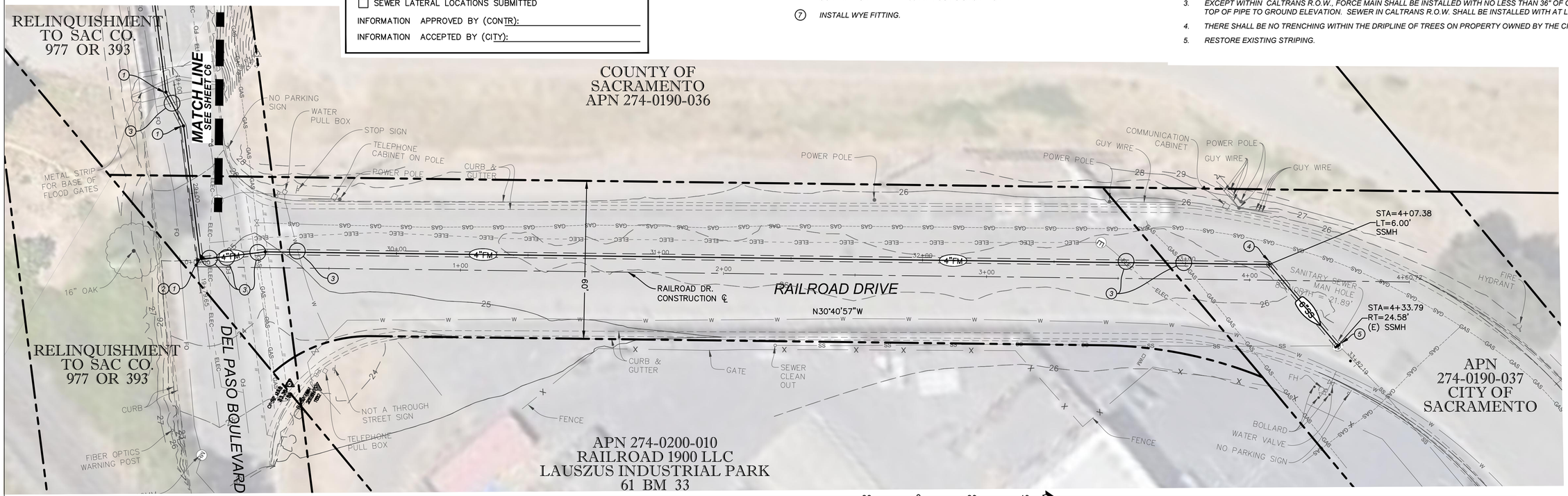
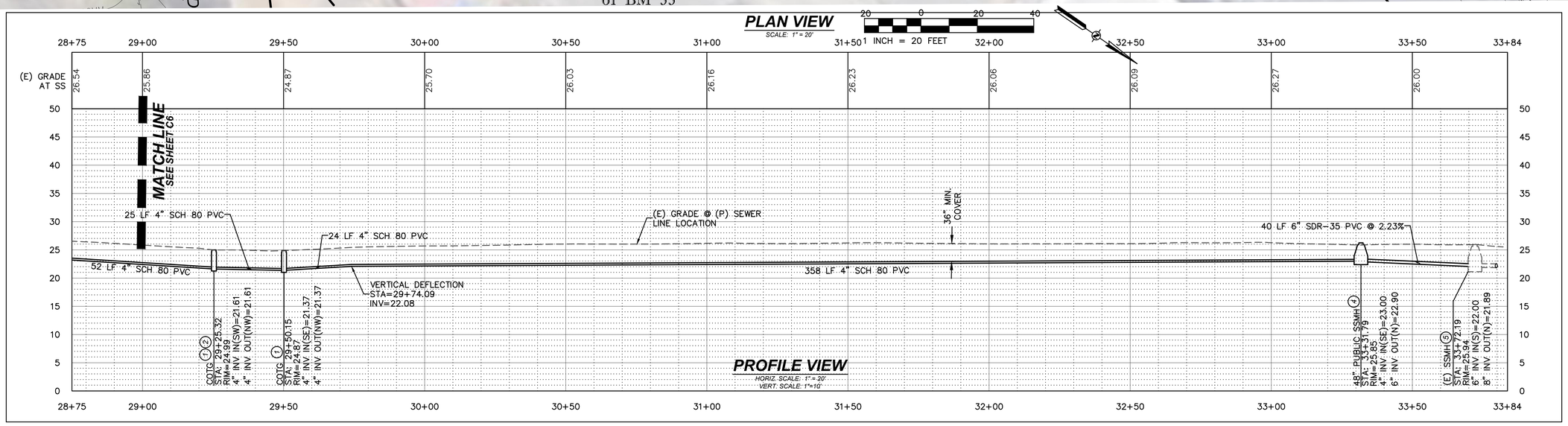
   - DEL PASO BLVD: 4" AC / 17"AB
   - RAILROAD DR: 4"AC / 8"AB

   SEWER INSTALLATION WITHIN CALTRAS R.O.W. SHALL BE DONE VIA DIRECTIONAL BORE AND REQUIRE NO PAVEMENT RESTORATION.
3. EXCEPT WITHIN CALTRANS R.O.W., FORCE MAIN SHALL BE INSTALLED WITH NO LESS THAN 36" OF COVER, MEASURED FROM TOP OF PIPE TO GROUND ELEVATION. SEWER IN CALTRANS R.O.W. SHALL BE INSTALLED WITH AT LEAST 42" OF COVER.
4. THERE SHALL BE NO TRENCHING WITHIN THE DRIPLINE OF TREES ON PROPERTY OWNED BY THE CITY OF SACRAMENTO.
5. RESTORE EXISTING STRIPING.





REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 25.808
DESCRIPTION
CITY BM: 297-FIA
HILTI NAIL ON WEST END OF RETAINING WALL AT NW CORNER OF DEL PASO BLVD. & RAILROAD DR. (NAVD 88 DATUM)

FIELD BOOK
SCALE
HORIZ. ____
VERT. ____

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY:	DCJ	DESIGNED BY:	RFE	CHECKED BY:	RFE
DATE	07/14/2023	R.C.E.	C040666	R.C.E. C040666	DATE 07/14/23

2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 | www.cwecorp.com

OFF-SITE IMPROVEMENT PLANS FOR
RIVERDALE RV PARK
PUBLIC SS FORCE MAIN EXTENSION
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA 95815

FORCE MAIN PLAN AND PROFILE
STA: 29+00 - 33+84 (END)

CPC#210042

P#

SHEET C7

8 OF 9

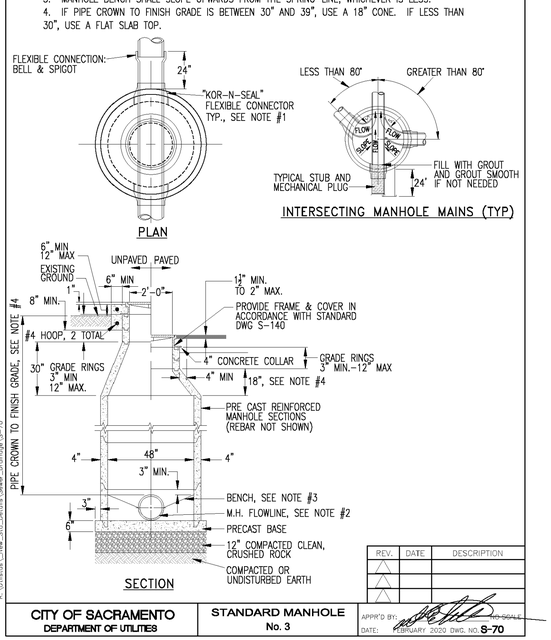
REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYNON No. C040666 Exp. 3-31-25 CIVIL STATE OF CALIFORNIA

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\Off-Site_C3-C7 Plan and Profile STATE PLANE.dwg Jul 14, 2023-04:43 pm

NOTES:

1. MANHOLES SHALL CONFIRM TO SECTION 25 OF THE STANDARD SPECIFICATIONS. ANY CONNECTIONS ABOVE MANHOLE BASE SHALL BE CORED AND INSTALLED WITH RESILIENT FLEXIBLE CONNECTION. AN ADDITIONAL FLEXIBLE CONNECTION SHALL BE PLACED 24" OUTSIDE BASE.
2. FLOWLINE MATERIAL FOR MAIN PIPE AND INTERSECTING MAINS UP TO 36" DIAMETER SHALL BE VITRIFIED CLAY. EXCEPTING PVC MAINS, IF MANHOLE BASE IS PRECAST CONCRETE, OR MANHOLE BASE IS PLACED OVER MAIN WHICH IS "LAID THROUGH", FLOWLINE MATERIAL SHALL BE SAME AS MAIN.
3. MANHOLE BENCH SHALL SLOPE UPWARDS FROM THE SPRING-LINE, WHICHEVER IS LESS.
4. IF PIPE CROWN TO FINISH GRADE IS BETWEEN 30" AND 39", USE A 18" CONE. IF LESS THAN 30", USE A FLAT SLAB TOP.



REV.	DATE	DESCRIPTION
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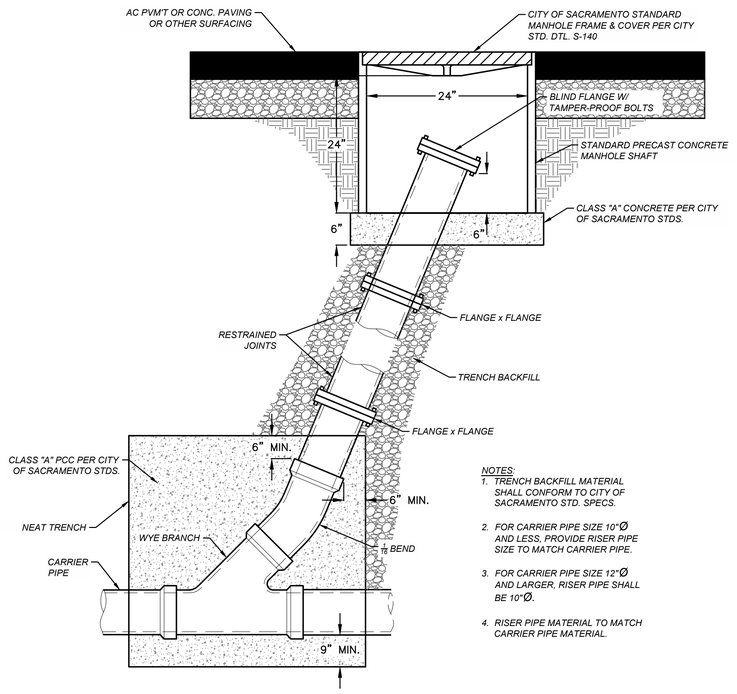
CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	STANDARD MANHOLE No. 3	APPR'D BY: [signature] NO SCALE DATE: FEBRUARY 2020 DWG. NO. S-70

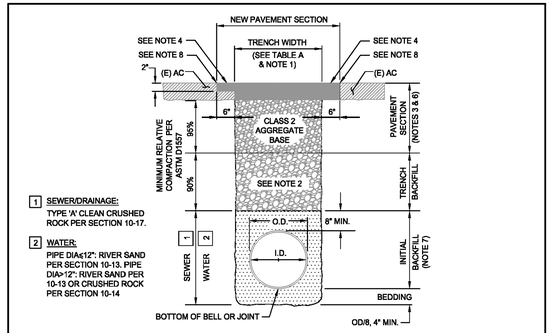


NOTES:
1. *TRENCH BACKFILL MATERIAL SHALL CONFORM TO CITY OF SACRAMENTO STD. SPECS.*
2. *FOR CARRIER PIPE SIZE 10"Ø AND LESS, PROVIDE RISER PIPE SIZE TO MATCH CARRIER PIPE.*
3. *FOR CARRIER PIPE SIZE 12"Ø AND LARGER, RISER PIPE SHALL BE 10"Ø.*
4. *RISER PIPE MATERIAL TO MATCH CARRIER PIPE MATERIAL.*

2 / -

SANITARY SEWER FORCE MAIN CLEANOUT

NOT TO SCALE



1 SEWER/DRAINAGE: TYPE 'A' CLEAN CRUSHED ROCK PER SECTION 10-17.

2 WATER: PIPE DIA≤12": RIVER SAND PER SECTION 10-13. PIPE DIA>12": RIVER SAND PER 10-13 OR CRUSHED ROCK PER SECTION 10-14

TYPICAL TRENCH SECTION

NOTES:

1. EXCAVATION, BACKFILL AND RE-PAVING OF TRENCHES SHALL CONFORM TO THE STANDARD SPECIFICATIONS UNLESS OTHERWISE INDICATED BY THE PLANS, PERMIT, SPECIAL PROVISIONS, OR THE ENGINEER.
2. TRENCH BACKFILL SHALL CONSIST OF CLASS 2 AGGREGATE BASE (AB) OR JOB EXCAVATED, NATIVE SOIL. NO ADDITIONAL COMPENSATION SHALL BE PAID FOR STOCKPILING, DRYING, WETTING OR PROCESSING THE NATIVE SOIL OR AB TO MEET THE MINIMUM STABILITY AND RELATIVE COMPACTION CRITERIA.
3. UNLESS OTHERWISE INDICATED IN THE SPECIAL PROVISIONS, THE NEW PERMANENT PAVEMENT SHALL CONFORM TO THE TYPE AND THICKNESS OF THE PAVEMENT REMOVED. IN NO CASE SHALL THE NEW PAVEMENT SECTION BE LESS THAN FOUR INCHES (4") OF AC ON TWELVE INCHES (12") OF CLASS 2 AGGREGATE BASE (AB).
4. EXISTING AC > 4" THICK: GRIND EXISTING AC 2" DEEP AND 6" WIDER THAN TRENCH ON BOTH SIDES. PLACE NEW AC.
5. EXISTING AC < 4" THICK: SAW CUT AND PLACE NEW AC 6" WIDER THAN TRENCH AS SHOWN ON BOTH SIDES.
6. NON-PAVEMENT AREAS: IN NON-PAVEMENT AREAS, THE PAVEMENT SECTION SHALL BE REPLACED WITH JOB EXCAVATED NATIVE SOIL OR OTHER APPROVED BACKFILL COMPACTED TO AT LEAST 90% RELATIVE COMPACTION PER ASTM D1557.
7. SHOVEL SLICE, TAMP, AND/OR VIBRATE MATERIAL UNDER AND AROUND THE PIPE TO A FIRM NON-YIELDING CONDITION TO SATISFACTION OF THE ENGINEER.
8. TWELVE INCH (12") WIDE FLASH COAT CENTERED BETWEEN THE TRENCH PAVEMENT AND THE EXISTING STREET PAVEMENT.

TABLE A

TRENCH WIDTHS			
PIPE TYPE	PIPE I.D.	MINIMUM DIMENSION	MAXIMUM DIMENSION(4)
RIGID(1)	≤12"	PIPE O.D. + 16"	PIPE O.D. + 24"
	>12"	PIPE O.D. + 20"	PIPE O.D. + 36"
FLEXIBLE(2)	ALL	PER ASTM D2321(3) OR THE PIPE MANUFACTURER'S RECOMMENDATIONS, WHICHEVER IS GREATER.	

(1) RIGID PIPE = RCP, VCP & DIP.

(2) FLEXIBLE PIPE = ALL PIPE OTHER THAN RIGID PIPE.

(3) ASTM D2321 STATES THAT THE MINIMUM TRENCH WIDTH SHALL BE EQUAL TO THE PIPE O.D. PLUS 16" OR THE PIPE O.D. TIMES 1.25 PLUS 12", WHICHEVER IS GREATER.

(4) IF THE MAXIMUM DIMENSION AT THE TOP OF THE PIPE IS EXCEEDED, CONTRACTOR SHALL PROVIDE STRONGER PIPE OR IMPROVED BEDDING AND BACKFILL CONDITIONS, AS APPROVED BY THE ENGINEER, TO MEET THE NEW LOADING.

REV.	DATE	DESCRIPTION
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CITY OF SACRAMENTO DEPARTMENT OF PUBLIC WORKS	BACKFILL AND RESURFACING IN PAVED AREAS	APPROVED BY: [signature] DATE: APRIL 2020 DWG. NO. T - 80

REGISTERED PROFESSIONAL ENGINEER — ROBERT F. EYICK — No. C040666 Exp. 3-31-25 — CIVIL — STATE OF CALIFORNIA

REVISIONS			
NO.	DESCRIPTION	DATE	BY

BENCH MARK — ELEV. 25.808
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CITY BM: 297-FIA
HILTI NAIL ON WEST END OF RETAINING WALL AT NW CORNER OF DEL PASO BLVD. & RAILROAD DR.
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FIELD BOOK

SCALE
HORIZ. ____
VERT. ____

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY: DCJ	DESIGNED BY: RFE	CHECKED BY: RFE
DATE 07/14/2023	R.C.E. C040666	R.C.E. C040666 DATE 07/14/23

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1501 NORTHGATE BOULEVARD
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DETAILS

CPC#210042

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SHEET
C8
9 OF 9

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PROJECT R15100 — RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

FLOODWAY MEMO

FOR

Riverdale Resort

1501 Northgate Boulevard
Sacramento, CA 95815
APN: 274-0120-010

Date: September 27, 2023
Updated: January 09, 2024

Prepared by:
CWE
2260 Douglas Blvd., Suite 160
Roseville, CA 95661
Ph 916-772-7800
CWE Project No. R15100

TABLE OF CONTENTS

1. PURPOSE OF MEMO

The purpose of this memo is to present the proposed project and its anticipated impact to the American River and American River Floodway (Floodway). This report is being prepared per the request of the Central Valley Flood Protection Board (CVFPB) so that they can review the anticipated impacts to the Floodway. It is understood that the Army Corps of Engineering (Corps) will also be reviewing the report for compliance with Corps requirements. It is our understanding that the CVFPB and Corps each have their own requirements regarding development in the Floodway and the purpose of this report is to demonstrate project compliance with those requirements.

2. PROJECT LOCATION

The main project site is located at 1501 Northgate Boulevard in Sacramento, Ca 95815. It is situated on the northeast side of the American River, almost two-miles upstream of the confluence of the American River and Sacramento River. The site is bounded to the southeast by Highway 160 and to the northeast, by Northgate Boulevard. It is located within a FEMA Zone AE Floodway per FEMA FIRM 06067C0176J, Dated June 16, 2015. Refer to the FIRM in Attachment F of this report. The main project site is located between cross-sections I and J of the FIRM and has a Base Flood Elevation (BFE) of approximately 37 – 38 feet (NAVD88).

Although the main project site is located at 1501 Northgate Blvd., an additional part of this project will involve offsite underground sewer construction. This will take place in Northgate Blvd., Del Paso Blvd. and Railroad Dr. With the exception of the construction within Railroad Dr., all of the area of roadway impacted by this development also is within Zone AE. Railroad Dr. is on the other side of a levee, putting it in a dotted Zone X, or an area protected by levees from 1% annual chance flood.

3. EXISTING SITE CONDITIONS

The existing project site is currently vacant. It is the location of the Riverdale Mobile Home Park (Park) and has fluctuated with the number of mobile homes over the years. The Park operates under the State of California Department of Housing and Community Development (HCD) permit number 34-0054-MP, which is a current permit, and allows for up to 80 sites on the property. See Attachment D for a copy of the permit. The property owners have been gradually reducing the number of mobile homes over the last 20 years or so and clearing out the property in preparation for a complete update and redevelopment, which is why the site is currently vacant with no permanent structures or mobile homes. Paved access roadways and mobile home unit pads still exist on the property. The main portion of the site is pretty flat, at an elevation of about 32 feet (NAVD88). The site slopes down, toward the river along the southwest side of the property until reaching the river bottom of about 6 feet (based on USGS Lidar). Extending northeasterly away from the project site, toward Northgate Blvd. and beyond, the existing terrain appears to dip lower than the elevation of the project site. The north-adjacent open space are between the project site

and Northgate Blvd. appears to dip up to two feet lower than the site, but north of Northgate Blvd., there appears to be a regional basin which appears to get as low as 12 feet, again based on available LIDAR data. North of the basin is the American River Bike Trail which increases in elevation, up to around 25 feet. North of the bike trail is another depressed area, potentially a wetlands which dips down to around 15 feet, and finally, north of the wetlands, is the main American River levee which looks have a top elevation of about 42 feet. Please see Attachment A for an exhibit showing the topography within the area.

4. PROJECT DESCRIPTION

The proposed project includes the redevelopment of Riverdale into an upscale RV park with 72 dedicated RV spaces. In addition to the RV spaces, the development will also include a new restroom and shower building as well as three trash enclosures, a check-in office, and a community building. The check-in office will be a mobile home unit. The community building will be three mobile home units placed together to function as one unit and will be placed on an elevated structure to be above the BFE. The restroom & shower building and the three trash enclosures are the only proposed permanent structures. The project will also install new asphalt and concrete pavement for circulation throughout the site. Fencing will be installed around the perimeter of the project site and will consist of either chainlink or wrought iron.

The other portion of this project includes the installation of about 2,300 lineal feet of public sewer forcemain from the project site to Railroad Dr. No nearby public sewer is available to serve the site and all sewering up to this point has been done with onsite septic. The nearest available public sewer is located in Railroad Dr., about 2,300 feet from the site. This new sewer line will be a force main and installed beneath existing roadway. A portion of the new sewer main will be installed in Del Paso Blvd. and there is a spot in Del Paso Blvd. that cuts through the previously mentioned levee. Seep image below for this section.

Figure 1: Del Paso Blvd. Levee Crossing

The sewer is proposed to cross the levee in this roadway. No portion of the levee will be affected by the installation of the new sewer line.

5. FLOODWAY BLOCKAGE ANALYSIS

This project has undergone extensive coordination with the CVFPB to determine what the project can and cannot do and what requirements CVFPB will be looking for on their review. Originally, the project site was going to be developed with mobile homes. This concept was presented to the CVFPB and was met with strong opposition due to concerns about floodway blockage and having homes placed within the floodway. The site was reevaluated and changed to develop as an RV park instead of mobile homes. The thought being that RVs could be moved in preparation of large-scale storms and flooding which would mitigate floodway blockage and get the residents and their belongings out of the floodway before inundation occurs.

Although the project switched form mobile homes to RVs, the CVFPB still has requirements for the development that need to be met. Based on our communication with Staff, as long as a development does not impede floodway blockage by more than 1%, it does not need a in-depth hydraulic analysis of floodway and said blockage. The blockage calculation is based on the 200-year water surface elevation which is 37.3 feet (NAVD88) at our project site. Another elevation to consider, as explained by the CVFPB, was the design water surface elevation of 1957 which is 36.3 feet NAVD88. This is likely the elevation that the Corps is most concerned with since it is what the levee was apparently originally designed for. Based on these data, we first went about evaluating the project to see if our development would, in both cases, fall below the 1% blockage threshold, thereby avoiding a requirement for the in-depth hydraulic analysis of the floodway.

In order to come up with floodway cross-sections for the blockage calculations, we downloaded Lidar data from the USGS website and converted into useable data compatible with AutoCAD Civil 3d. We then overlayed the proposed project site as well as aerial imagery to cut a cross section of the American River Floodway through our project site. The resulting flow areas for each of the two conditions previous mentioned were as follows:

- Floodway Cross-sectional area at 37.3 feet WSL = 38,644 square feet
    - Flow depth of approx. 5.5 – 6.0’ across project site
    - 1% flow blockage = 386 square feet
- Floodway Cross-sectional area at 36.3 feet WSL = 36,293 square feet
    - Flow depth of approx. 4.5 – 5.0’ across project site
    - 1% flow blockage = 363 square feet

Based on these findings, any evaluation of the floodway that resulted in a blockage of 386 square feet would require hydraulic analysis per CVFPB requirements or above 363 square feet would require hydraulic analysis per Corp requirements.

The critical sections to evaluate for blockage were across the restroom building, check-in building, community building, and the trash enclosures. The following areas are calculated perpendicular to flow of the river. Please refer to Attachment C for floodway sections at each of these points of interest:

1. Restroom Building
    a. Dimensions: 56' wide x 13.8' tall = 165 square feet
    b. Foundation: Set at finished grade

    The restroom building is located near the main entrance to the site. It is oriented such that the long side of the building (56-ft) is perpendicular to the flow of the river. The estimated cross-sectional flow blockage areas are as follows:

    200-year BFE WSL (37.3 ft): 297 sq. ft (0.77% blockage)

    1957 Design WSL (36.3 ft): 240 sq. ft (0.66% blockage)

2. North Trash Enclosure
    a. Dimension: 11.8' wide x 10' tall – 118 square feet
    b. Foundation: Set at finished grade

    There is one trash enclosure near the restroom building and two additional trash enclosures at the southeast end of the site. The estimated cross-sectional flow blockage areas are as follows:

    200-year BFE WSL (37.3 ft): 60 sq. ft. (0.16% blockage)

    1957 Design WSL (36.3 ft): 50 sq. ft (0.14% blockage)

3. Check In Building (repurposed mobile home)
    a. Dimensions: 56' wide x 12.5' tall = 700 square feet
    b. Foundation: Elevated 3' above finished grade – About 35 feet floor elevation

    The check-in building will be made from a prefabricated mobile home and set 36" above grade. It will be located at the entrance of the site to allow for new RV dwellers to check into the park. It will also serve as added security with a person stationed in the unit. The unit will be elevated above the ground by three feet, so it wouldn't block any flow until an elevation of about 35 feet. (Finished grade level will be at about 32 feet). Since the evaluation of flow is being considered at 37.3 feet msl and 36.3 feet msl, this would mean that the blockage in each case is only 2.3 feet and 1.3 feet respectively. Considering this, the estimated cross-sectional flow blockage areas are as follows:

    200-year BFE WSL (37.3 ft): 115 sq. ft (0.3% blockage)

    1957 Design WSL (36.3 ft): 60 sq. ft. (0.17% blockage)

4. Community Building
    a. Dimensions: 36' wide x 12.5' tall = 450 square feet
    b. Foundation: Set 24" above 200 Yr WSL – About 39.3 feet floor elevation

    The community building will be completely elevated about the BFE / 200 Yr WSL of 37.3 feet by 2-feet, thereby not creating any blockage within the flow areas. The platform upon which the building sits will be a pier-type structure to allow for water pass-thru. The only blockage would be from the columns upon which the elevated platform will be constructed. The estimate cross-sectional flow blockage areas are as follows:

    200-year BFE WSL (37.3 ft): 10.5 sq. ft (<0.1% blockage)

    1957 Design WSL (36.3 ft): 8 sq. ft (<0.1% blockage)

5. South Trash Enclosures
    a. Dimension: 38' wide x 10' tall – 380 square feet
    b. Foundation: Set at finished grade

    There are two trash enclosures side by side at the south end of the site. The estimated cross-sectional flow blockage areas are as follows:

    200-year BFE WSL (37.3 ft): 200 sq. ft (0.52% blockage)

    1957 Design WSL (36.3 ft) 162 sq. ft (0.45% blockage)

Please reference Attachments B and C for exhibits showing the overall Floodway Cross-Section as well as exhibits of the above blockages in relation to the evaluated floodway.

5. CONCLUSIONS

Based on the evaluation of the existing American River Floodway cross-section at the proposed project location using LIDAR, we were able to quantify the approximate area floodway at both the 200Yr BFE (37.3 feet) and at the 1957 WSL (36.3 feet).

- 200 Yr BFE (37.3 feet NAVD88) cross-section floodway area = 38,644 square feet
    - 1% flow blockage = 386 square feet

- 1957 WSD (36.3 feet NAVD88) cross-section floodway area = 36,293 square feet
    - 1% flow blockage = 363 square feet

Since RV's are not considered blockages to the floodway because they can be moved in the event of a flood, the only proposed permanent structures considered as being blockages to the floodway, and thus evaluated, were the Restroom Building, trash enclosures, Check-In building, and Community Building. The cross-sectional blockage flow of all of these structures is less than 1% of both the BFE flow area and the 1957 WSL flow area at each respective cross-section. It

follows that based on prior communication with the CVFPB, an in-depth hydraulic analysis will not be required for this project.

6. ATTACHMENTS

ATTACHMENT A ..... AREA MAP

ATTACHMENT B ..... EXISTING FLOODWAY CROSS SECTION

ATTACHMENT C ..... FLOW BLOCKAGE CROSS SECTIONS (TWO SHEETS)

ATTACHMENT D ..... HCD OPERATING PERMIT

ATTACHMENT E ..... SACRAMENTO EAST USGS QUAD MAP

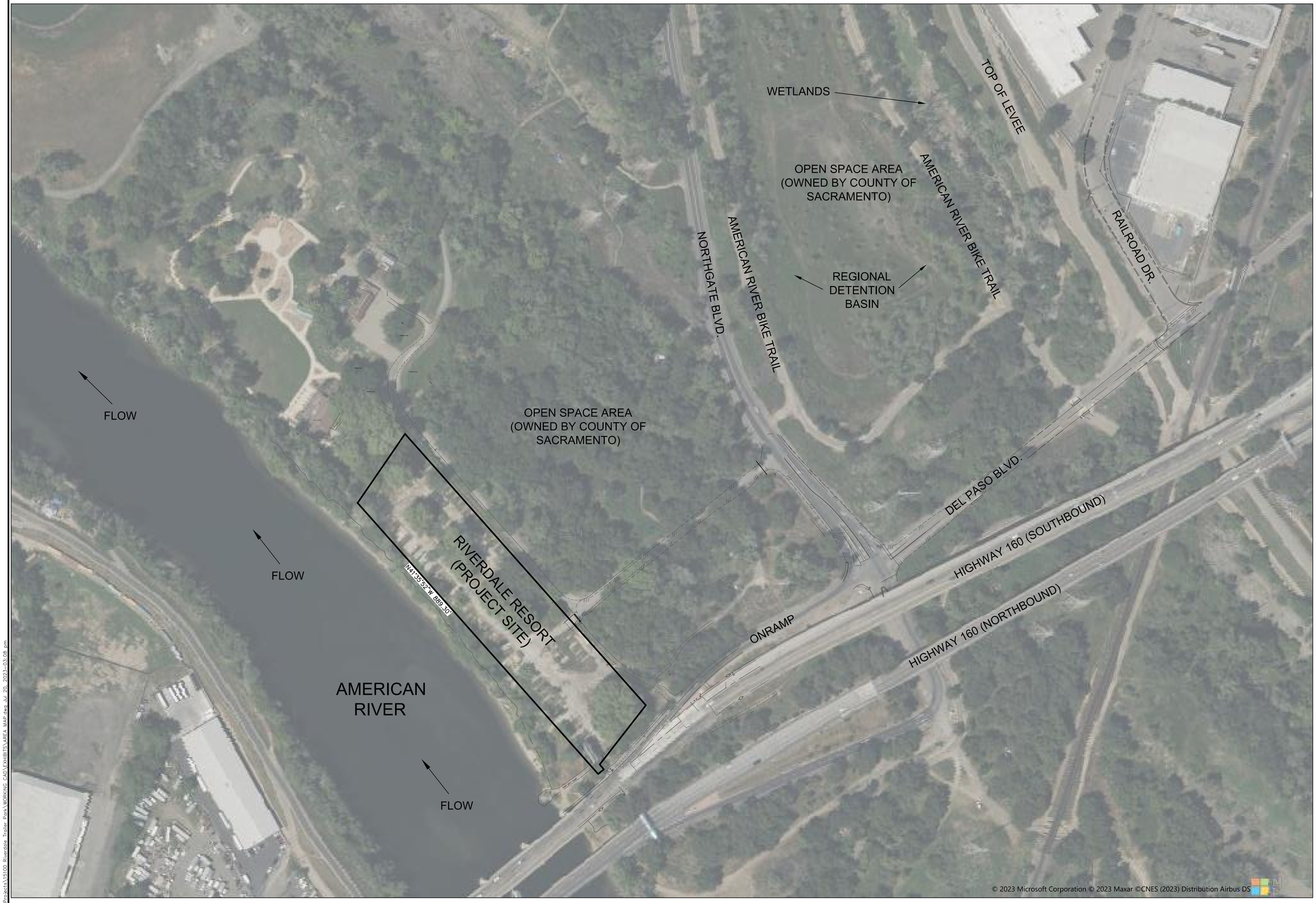
ATTACHMENT F ..... FEMA FIRM

ATTACHMENT G ..... CORRESPONDANCE WITH CVFPB

ATTACHMENT H ..... CORRESPONDANE WITH HCD

ATTACHMENT I ..... EMERGENCY PREPAREDNESS AND RESPONSE PLAN

ATTACHMENT A – AREA MAP



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ORIGINAL SCALE IS IN INCHES (0, 1, 2)

REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYRES CIVIL STATE OF CALIFORNIA

PRELIMINARY NOT FOR CONSTRUCTION

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PRIME WEST INVESTMENTS, INC.
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WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-795-5853

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

ATTACHMENT A: PROJECT AREA MAP

Drawing	Sheet
— of —	— of Total —

06-20-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

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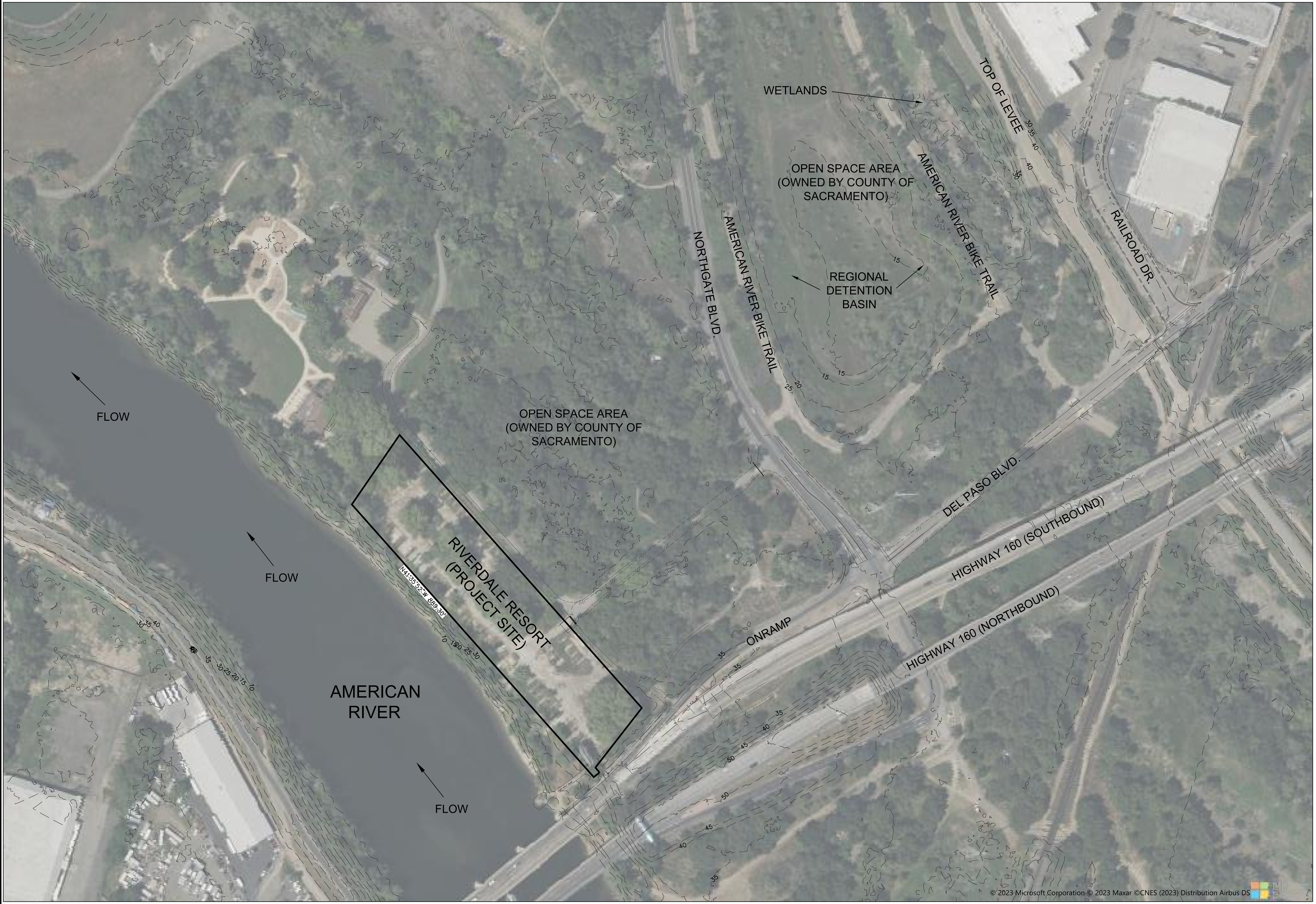

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REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYNCK CIVIL STATE OF CALIFORNIA
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RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

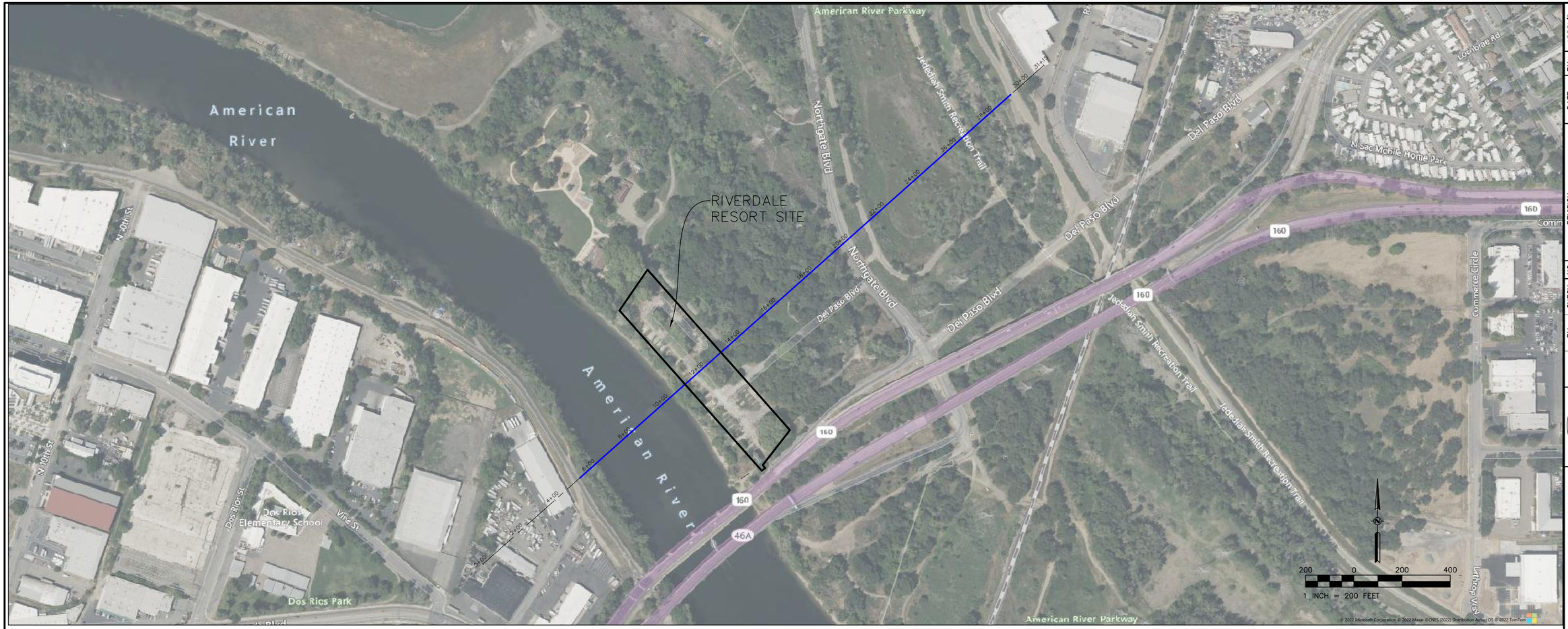
ATTACHMENT A: PROJECT AREA MAP

Drawing	Sheet
of	of Total

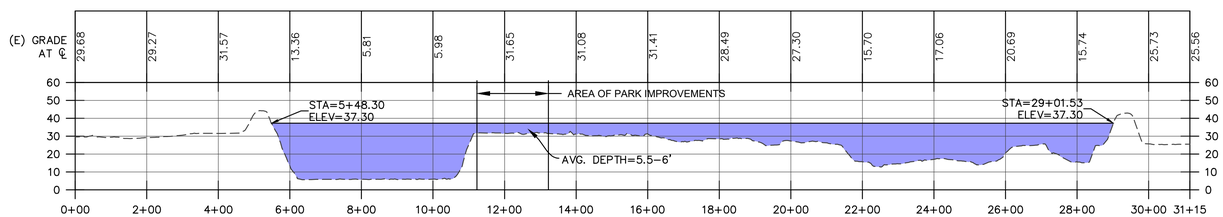
06-20-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

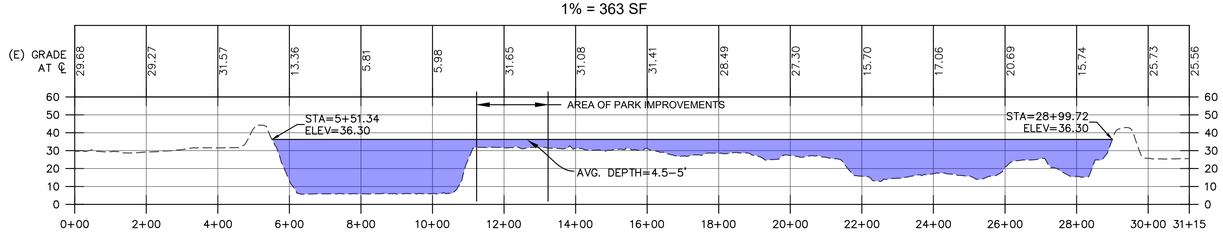
ATTACHMENT B – EXISTING FLOODWAY CROSS SECTION



FLOODWAY CROSS-SECTIONAL AREA AT WSL = 37.3 NAVD88 (200YR FLOOD)
38,644SF
1% = 386 SF



FLOODWAY CROSS-SECTIONAL AREA AT WSL = 36.3 NAVD88
36,293SF
1% = 363 SF



CROSS SECTIONS

HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"=40'

NO.	REVISION	DATE	BY	APPR'D

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QUANT.
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ORIGINAL SCALE IS IN INCHES 0 1 2

REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYRES CIVIL STATE OF CALIFORNIA

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CONTACT: LINDA FRAZIER
PHONE: 530-795-5853

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

ATTACHMENT A: EXISTING FLOODWAY CROSS SECTION

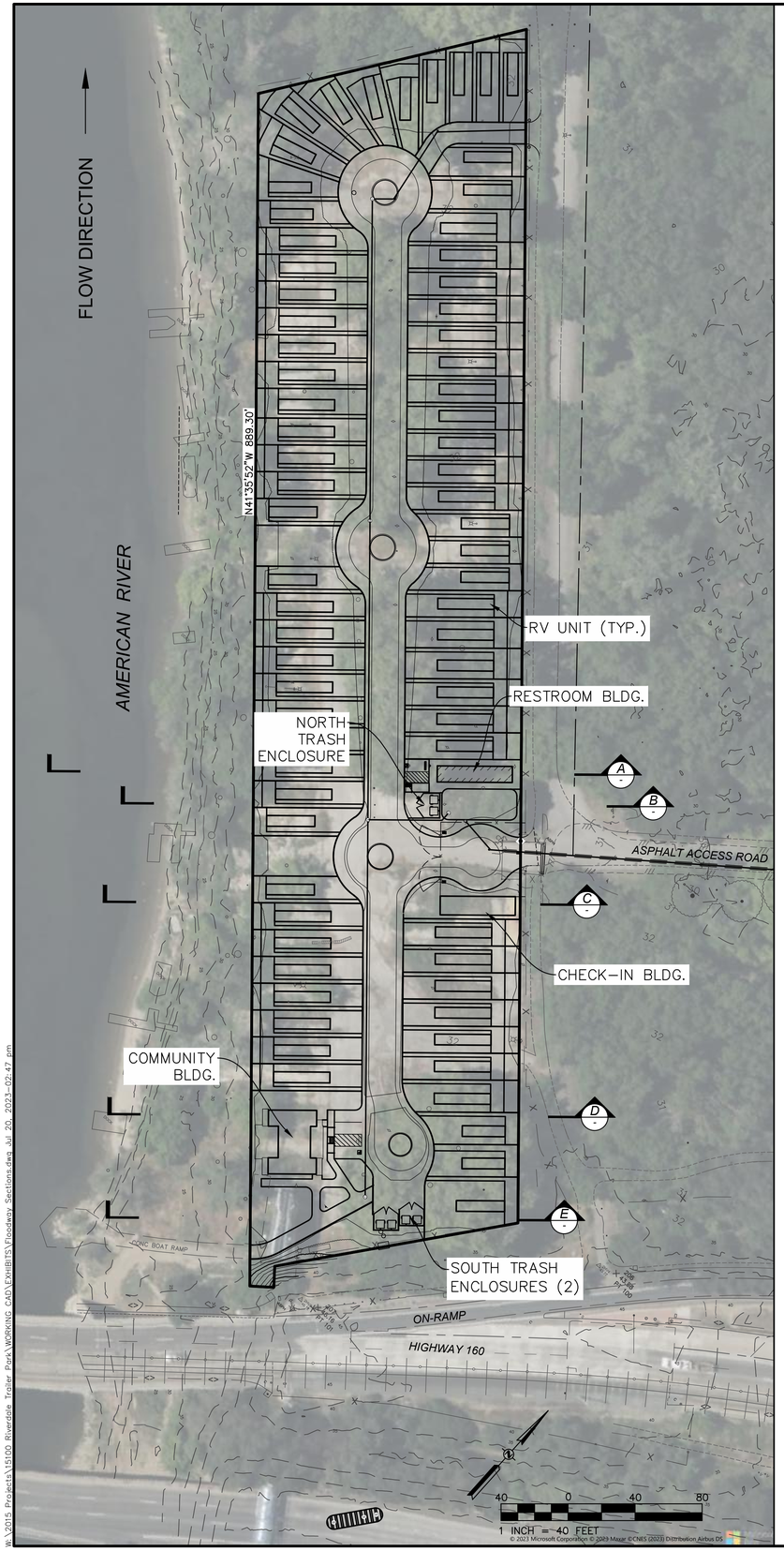
Drawing of | Sheet of Total

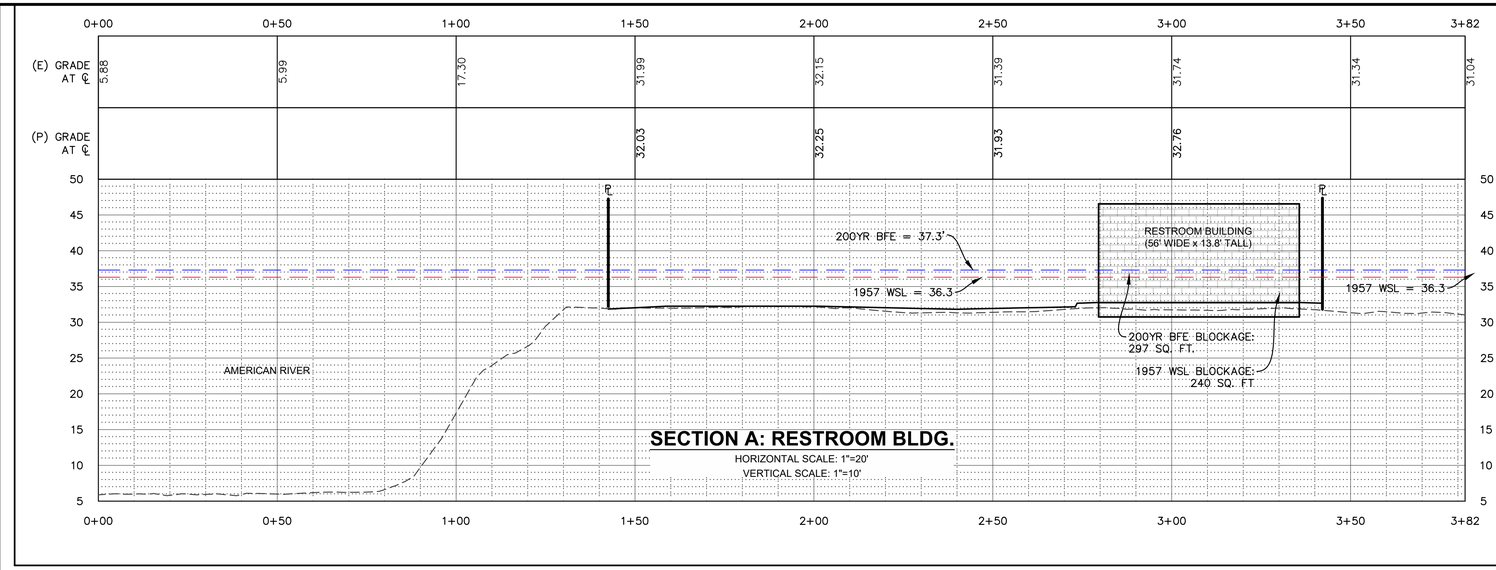
06-20-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\EXHIBITS\FLOOD EXHIBIT.dwg Jul 20, 2023–02:44 pm

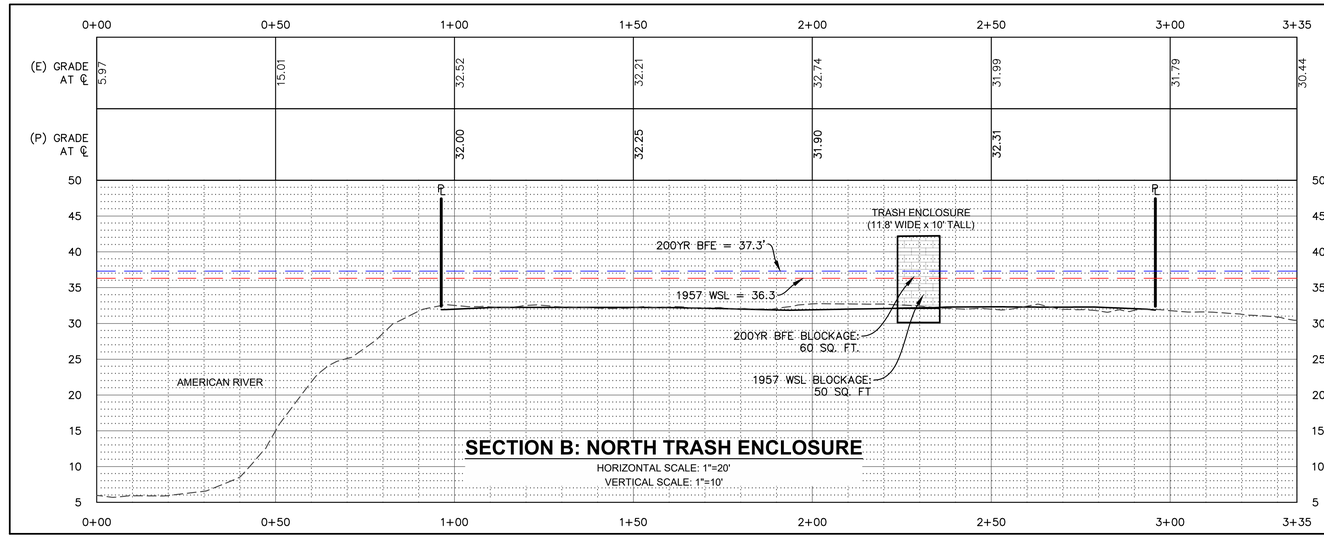
ATTACHMENT C – FLOW BLOCKAGE CROSS SECTIONS (TWO SHEETS)





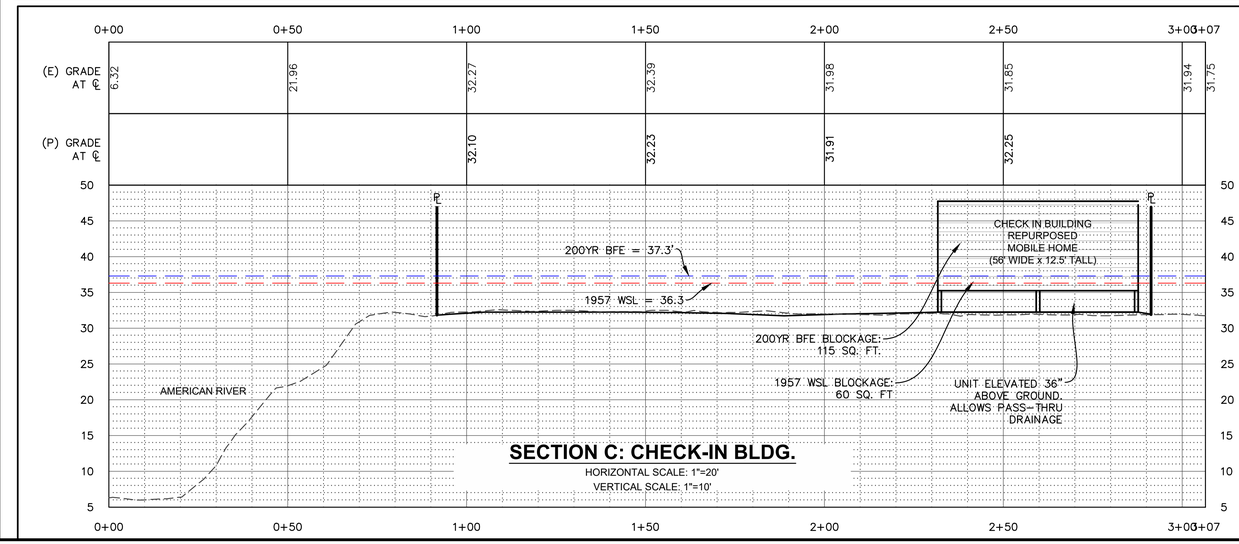
SECTION A: RESTROOM BLDG.

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'



SECTION B: NORTH TRASH ENCLOSURE

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'



SECTION C: CHECK-IN BLDG.

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

	DATE	BY	REVISION	NO.	APPR'D

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

ORIGINAL SCALE IS IN INCHES (0 1 2)

REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYRICH CIVIL STATE OF CALIFORNIA

PRELIMINARY NOT FOR CONSTRUCTION

2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 | www.RFEngineering.com
www.cwecorp.com

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-795-5853

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

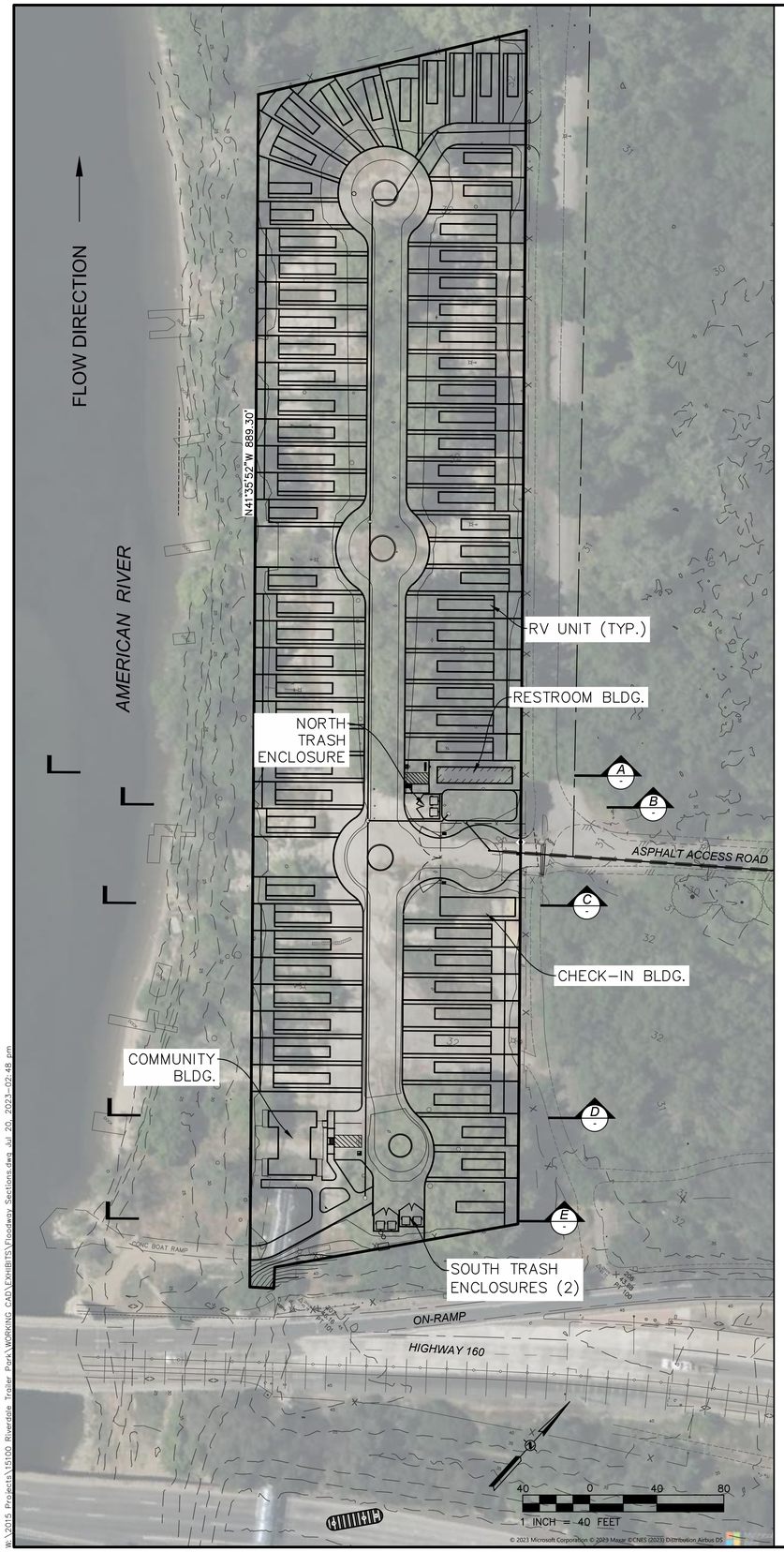
ATTACHMENT B: FLOW BLOCKAGE CROSS SECTIONS

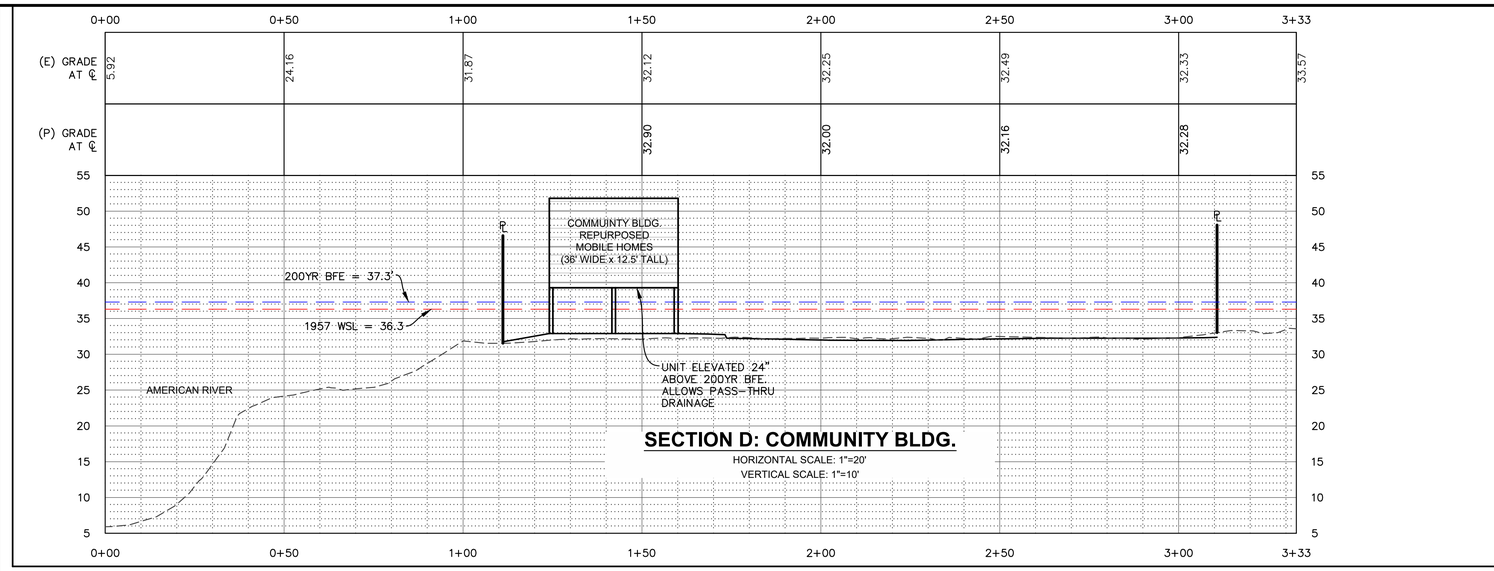
Drawing	Sheet
— of —	of Total

06-20-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD, SACRAMENTO, CA

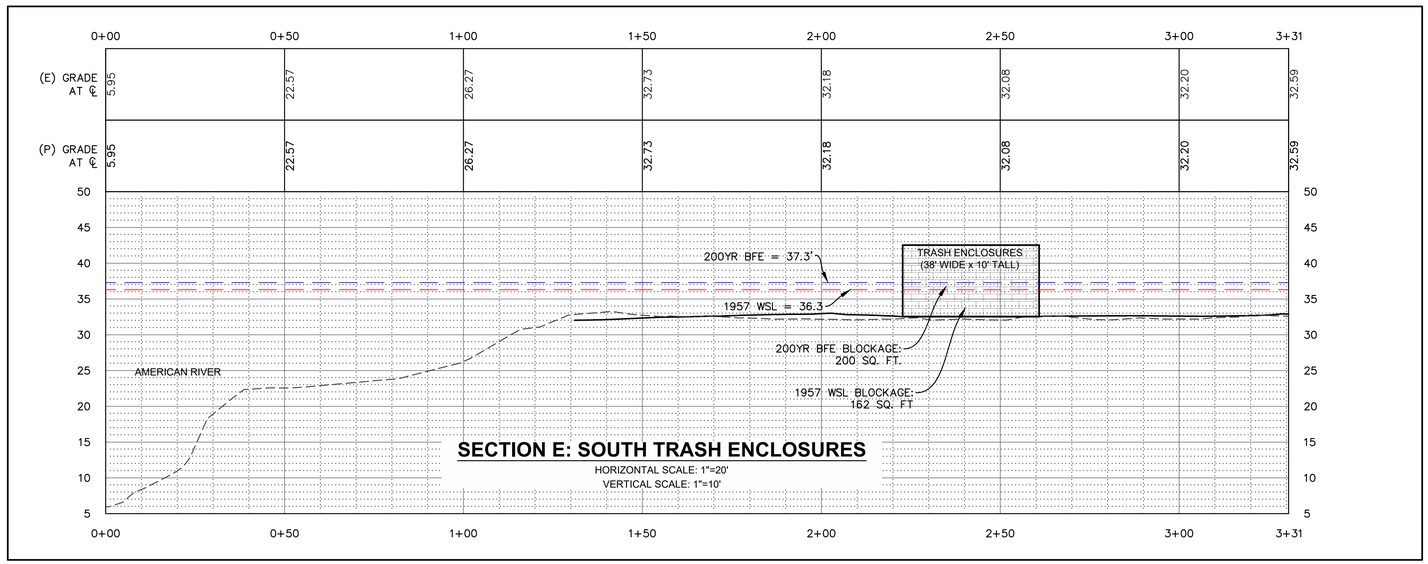
W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\EXHIBITS\Floodway Sections.dwg, Jul 20, 2023-02:47 pm





SECTION D: COMMUNITY BLDG.

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'



SECTION E: SOUTH TRASH ENCLOSURES

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'

	APPR'D
	BY
	DATE
	REVISION
	NO.

	BY	CHECK
DESIGN	TSM	RFE
DRAWN	TSM	RFE
QUANT.		

ORIGINAL SCALE IS IN INCHES (0 1 2)

REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYRES CIVIL STATE OF CALIFORNIA

PRELIMINARY NOT FOR CONSTRUCTION

CWE
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 | www.RFEengineering.com
www.cwecorp.com

PRIME WEST INVESTMENTS, INC.
P.O. BOX 987
WINTERS, CA 95694
CONTACT: LINDA FRAZIER
PHONE: 530-795-5853

RIVERDALE RESORT RV PARK
1501 NORTHGATE BOULEVARD
SACRAMENTO, CA.

ATTACHMENT B: FLOW BLOCKAGE CROSS SECTIONS

Drawing	Sheet
— of —	— of — Total

06-20-2023

PROJECT R15100 – RIVERDALE RESORT, 1501 NORTHGATE BLVD. SACRAMENTO, CA

W:\2015 Projects\15100 Riverdale Trailer Park\WORKING CAD\EXHIBITS\Floodway Sections.dwg Jul 20, 2023-02:48 pm

ATTACHMENT D – HCD OPERATING PERMIT

ANNUAL

PERMIT TO OPERATE

May 3, 2023

State of California
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF CODES AND STANDARDS

Park ID No.
34-0054-MP

Inc or Unc	Mobilehome Lots With Drains	Recreational Vehicle Lots With Drains	Lots Without Drains	Total Lots
	80	0	0	80

OPERATOR

PRIME WEST INVESTMENTS INC
ATTN LINDA FRAZIER
PO BOX 987
WINTERS, CA 95694

PARK NAME & ADDRESS

RIVERDALE MHP
1501 NORTHGATE BLVD
SACRAMENTO, CA 95815

CONDITIONAL USES

Cathodic Protection - March 21, 2017
Flood Plain - March 28, 2019
Emergency Preparedness Plan - April 12, 2011

Fire Hydrant System Status: Date of Construction - Exempt

50 AMP LOTS;

THIS PERMIT EXPIRES February 29, 2024

THIS PERMIT IS ISSUED IN ACCORDANCE WITH THE PROVISIONS OF THE CALIFORNIA HEALTH AND SAFETY CODE AND IS SUBJECT TO SUSPENSION OR REVOCATION AS PROVIDED THEREIN. THIS PERMIT IS NOT TRANSFERABLE. THE DEPARTMENT SHALL BE NOTIFIED WITHIN 30 DAYS OF ANY CHANGE OF NAME, OWNERSHIP OR OPERATOR.

P.O. Box 278180
Sacramento, CA 95827-8180
(916) 445-9471
From TDD Phones: 1-800-735-2929
From Voice Phones: 1-800-735-2922

POST IN A CONSPICUOUS PLACE

ATTACHMENT E – SACRAMENTO EAST USGS QUAD MAP

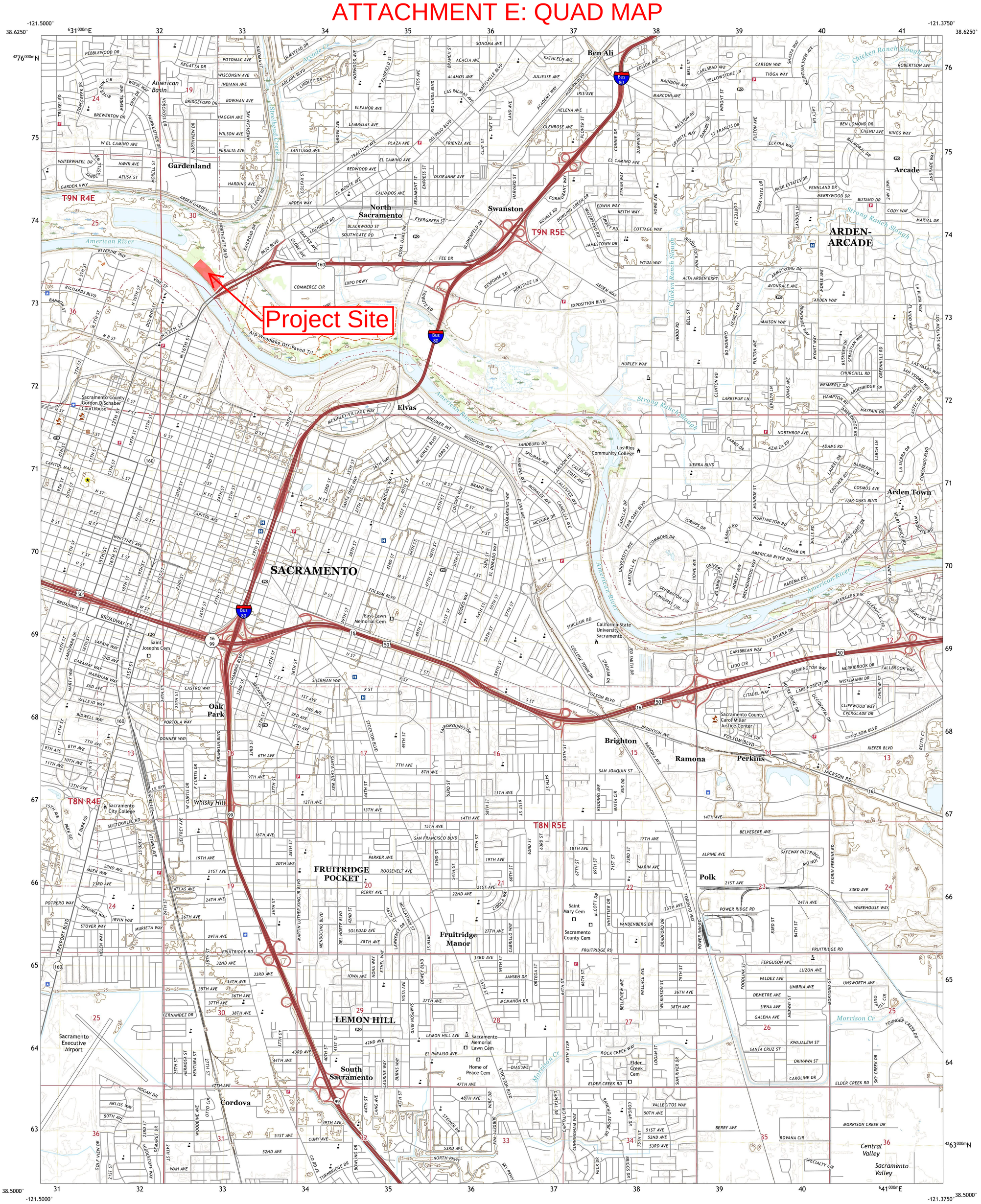
USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

SACRAMENTO EAST QUADRANGLE
CALIFORNIA - SACRAMENTO COUNTY
7.5-MINUTE SERIES

ATTACHMENT E: QUAD MAP



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 10S

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, June 2020 - June 2020
Roads..... U.S. Census Bureau, 2016 - 2021
Names.....GNIS, 1981 - 2021
Hydrography.....National Hydrography Dataset, 2003 - 2020
Contours.....National Elevation Dataset, 2013
Boundaries.....Multiple sources; see metadata file 2019 - 2021
Public Land Survey System.....BLM, 2020
Wetlands.....FWS National Wetlands Inventory 1984 - 1987

MN GN 13°27' 239 MILS 0°58' 17 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
FH
Grid Zone Designation
10S

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

CALIFORNIA
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Taylor Monument
2 Rio Linda
3 Citrus Heights
4 Sacramento West
5 Carmichael
6 Clarksburg
7 Florin
8 Elk Grove

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

SACRAMENTO EAST, CA
2021

NSN 7643016357580
NGA REF NO. USGSX24K39127

ATTACHMENT F – FEMA FIRM

ATTACHMENT F: FIRM MAP

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole–foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was California State Plane II zone (FIPSZONE 0402), The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC–3, #9202
1315 East–West Highway
Silver Spring, MD 20910–3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713–3242**, or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by the USDA National Agriculture Imagery Program (NAIP). This information was photogrammetrically compiled at a scale of 1:12,000 from aerial photography dated 2012.

This map may reflect more detailed or up to date stream channel configurations than those shown on the previous FIRM. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations and improved topographic data. The profile baselines depicted on this map represent the hydraulic modeling baselines that match the flood profiles and Floodway Data Tables if applicable, in the FIS report. As a result, the profile baselines may deviate significantly from the new base map channel representation and may appear outside of the floodplain.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de–annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

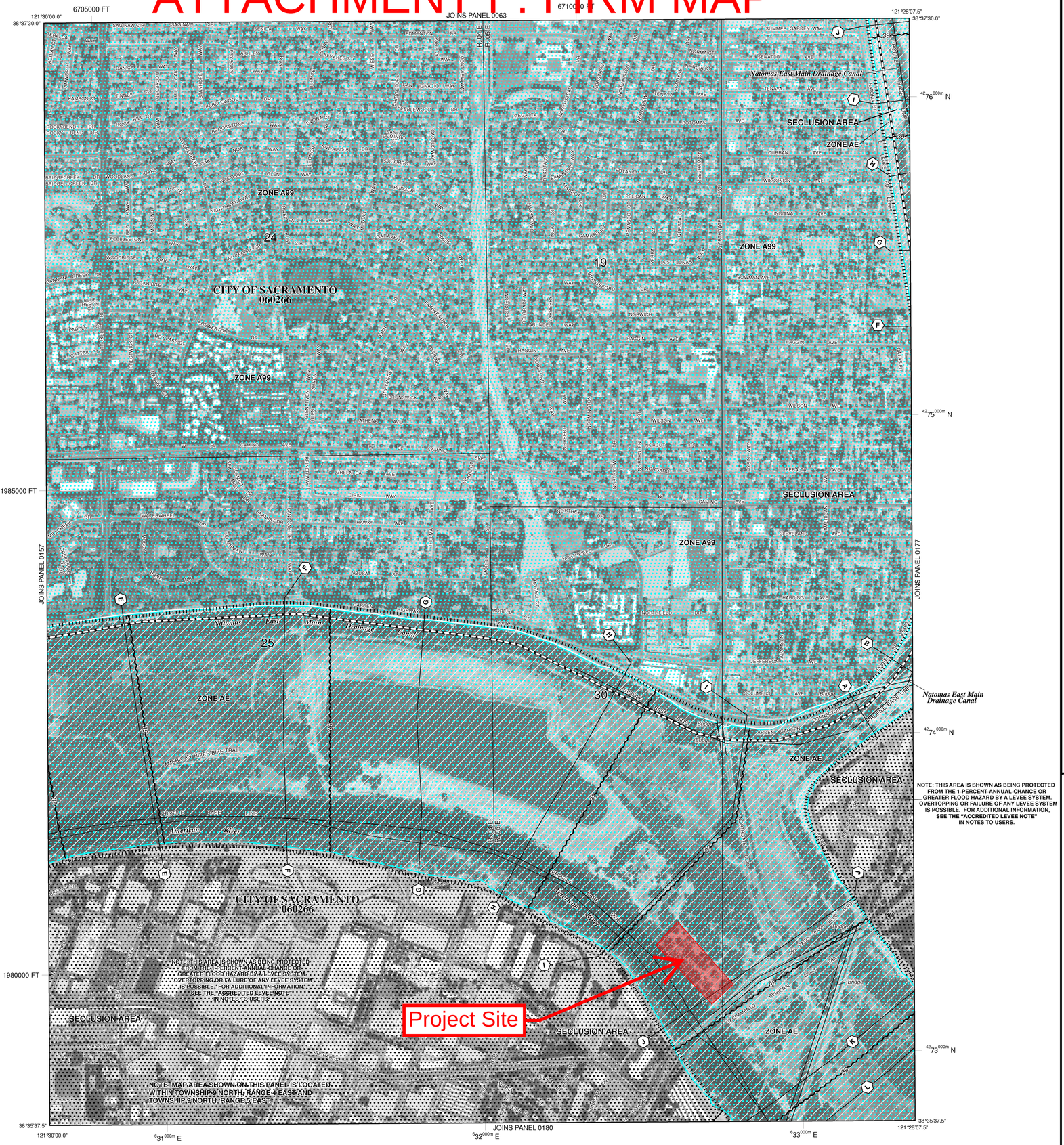
For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the **FEMA Map Service Center** website at http://msc.fema.gov. Available products may include previously issued Letters ofMap Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the **FEMA Map Service Center** website or by calling the FEMA Map Information eXchange.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1–percent–annual–chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

SECLUSION NOTE:

ATTENTION: THE LEVEES, DIKES, OR OTHER STRUCTURES INSIDE THIS BOUNDARY HAVE NOT BEEN SHOWN TO COMPLY WITH SECTION 65.10 OF THE NFIP REGULATIONS. AS SUCH, THIS FIRM PANEL WILL BE REVISED AT A LATER DATE TO UPDATE THE FLOOD HAZARD INFORMATION ASSOCIATED WITH THESE STRUCTURES. THE FLOOD HAZARD DATA SHOWN INSIDE THIS BOUNDARY (WHICH HAVE BEEN RE-PUBLISHED FROM THE AUGUST 16, 2012, FIRM FOR SACRAMENTO COUNTY, CALIFORNIA), SHOULD CONTINUE TO BE USED UNTIL THIS FIRM PANEL IS REVISED TO UPDATE THE FLOOD HAZARD INFORMATION IN THIS AREA.

Seclusion Area boundary



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referred to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 — 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 10
6000000 FT	5000-foot grid ticks: California State Plane coordinate system, II zone (FIPSZONE 0402), Lambert Conformal Conic
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 16, 2012

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
June 16, 2015 - to change zone designations and to incorporate previously issued Letters of Map Revision.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0176J

FIRM
FLOOD INSURANCE RATE MAP
SACRAMENTO COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 176 OF 705
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SACRAMENTO, CITY OF	060266	0176	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06067C0176J

MAP REVISED
JUNE 16, 2015

Federal Emergency Management Agency

ATTACHMENT G – CORRESPONDENCE WITH CVFPB

Tony McCreary (CWE)

From: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Sent: Friday, January 6, 2023 3:32 PM
To: Tony McCreary (CWE)
Cc: Bob Eynck (CWE); Lamb, Steven@CVFPB
Subject: RE: Riverdale Resort Hydraulic Analysis

***** CAUTION: THIS EMAIL IS FROM AN EXTERNAL (i.e. NON-CWE) SENDER. *****

Tony – I suggest latter, evaluate both elevations and submit your results upfront.

Regards,

Nate Kibret
Permitting Section
Central Valley Flood Protection Board
(916) 574-2646 direct
natnael.kibret@CVFlood.ca.gov

From: Tony McCreary (CWE) <amccreary@cwecorp.com>
Sent: Friday, January 6, 2023 3:24 PM
To: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Cc: Bob Eynck (CWE) <reynck@cwecorp.com>; Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Subject: RE: Riverdale Resort Hydraulic Analysis

Okay, so what do you suggest we do? Just evaluate using the 200-Yr and provide our findings to you which you'd then provide to the Corps and then wait and see if they comment or should we instead evaluate both elevations first and submit the findings of both of them to you up front?

Tony McCreary, PE, QSD
Project Manager
Please note: RFE Engineering has become CWE

Certified MBE and SBE
2260 Douglas Boulevard, Suite 160, Roseville, CA 95661
P (916) 772-7800 | F (916) 772-7804 | amccreary@cwecorp.com
www.cwecorp.com

Let's connect!

From: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Sent: Friday, January 6, 2023 3:17 PM
To: Tony McCreary (CWE) <amccreary@cwecorp.com>

Cc: Bob Eynck (CWE) <reynck@cwecorp.com>; Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Subject: RE: Riverdale Resort Hydraulic Analysis

***** CAUTION: THIS EMAIL IS FROM AN EXTERNAL (i.e. NON-CWE) SENDER. *****

Tony – Hydraulic analysis is only required for blockage over 1% , however, the Corps. would still look at the blockage calculation regardless of the results. The concern is that the wider 200-year cross section area might diminish the impact associated with the proposed improvements compared to the 1957 cross section area.

Regards,

Nate Kibret
Permitting Section
Central Valley Flood Protection Board
(916) 574-2646 direct
natnael.kibret@CVFlood.ca.gov

From: Tony McCreary (CWE) <amccreary@cwecorp.com>
Sent: Friday, January 6, 2023 3:06 PM
To: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Cc: Bob Eynck (CWE) <reynck@cwecorp.com>; Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Subject: RE: Riverdale Resort Hydraulic Analysis

Nate,

I am hoping that our cross sectional blockage is below the 1% threshold, so that we do not have to provide a hydraulic analysis. And based on your prior email, it seemed as though the cross section would be evaluated at the 200-Yr wsl. If we are below that 1% blockage given the 200-yr wsl, I was of the impression that there is no hydraulic analysis that would need to be done and so there would be nothing the Corps would need to look at.

Tony McCreary, PE, QSD
Project Manager
Please note: RFE Engineering has become CWE

Certified MBE and SBE
2260 Douglas Boulevard, Suite 160, Roseville, CA 95661
P (916) 772-7800 | F (916) 772-7804 | amccreary@cwecorp.com
www.cwecorp.com

Let's connect!

From: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Sent: Friday, January 6, 2023 2:56 PM
To: Tony McCreary (CWE) <amccreary@cwecorp.com>

Cc: Bob Eynck (CWE) <reynck@cwecorp.com>; Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Subject: RE: Riverdale Resort Hydraulic Analysis

***** CAUTION: THIS EMAIL IS FROM AN EXTERNAL (i.e. NON-CWE) SENDER. *****

Tony – I want to clarify that the Board will be reviewing the calculations based on the 200-year WSE since this is an urban levee. However, the levees were designed using the 1957 DWSE (approximately 36.3 feet NAVD 88) and the Corps. might require the analysis at this elevation. I recommend utilizing both elevations in your analysis. Please let me know if you have any questions or would like to discuss.

Regards,

Nate Kibret
Permitting Section
Central Valley Flood Protection Board
(916) 574-2646 direct
natnael.kibret@CVFlood.ca.gov

From: Tony McCreary (CWE) <amccreary@cwecorp.com>
Sent: Friday, January 6, 2023 2:22 PM
To: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Cc: Bob Eynck (CWE) <reynck@cwecorp.com>; Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Subject: RE: Riverdale Resort Hydraulic Analysis

Nate,

Thank you for getting back with me on those items.

Tony McCreary, PE, QSD
Project Manager
Please note: RFE Engineering has become CWE

Certified MBE and SBE
2260 Douglas Boulevard, Suite 160, Roseville, CA 95661
P (916) 772-7800 | F (916) 772-7804 | amccreary@cwecorp.com
www.cwecorp.com

Let's connect!

From: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Sent: Friday, January 6, 2023 2:17 PM
To: Tony McCreary (CWE) <amccreary@cwecorp.com>
Cc: Bob Eynck (CWE) <reynck@cwecorp.com>; Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Subject: RE: Riverdale Resort Hydraulic Analysis

***** CAUTION: THIS EMAIL IS FROM AN EXTERNAL (i.e. NON-CWE) SENDER. *****

Hello Tony – please see my responses below in red and let me know if you have additional questions.

Regards,

Nate Kibret
Permitting Section
Central Valley Flood Protection Board
(916) 574-2646 direct
natnael.kibret@CVFlood.ca.gov

From: Tony McCreary (CWE) <amccreary@cwecorp.com>
Sent: Thursday, January 5, 2023 4:46 PM
To: Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Cc: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>; Bob Eynck (CWE) <reynck@cwecorp.com>
Subject: RE: Riverdale Resort Hydraulic Analysis

Good afternoon Steve,

We are continuing to work on the Riverdale Resort project and I have some more questions regarding the hydraulic evaluation.

- From meeting notes on June 16, 2022, the river cross section that is evaluated to determine whether the proposed improvements will create a 1% or more blockage is based on entire cross section, from top of levee to top of levee, not any particular water surface elevation given a particular storm (e.g. 100 Yr WSL). Please confirm.
  The blockage calculation should be based on the 200-year water surface elevation which is approximately 37.3 feet (NAVD88) just upstream of your project site.
- It appears from the FEMA map that the site is in Zone AE and has a 100Yr BFE of 37-38 feet. Our past notes on this project mention that any habitable or communal permanent structure would need to have a finished floor elevation at least 1-foot above the BFE. Is this the correct information to base any permanent structure finished floor elevation on?
  Our regulations state the finished floor elevation of any habitable structure should be 2 feet above the 200-year water surface elevation.
- Are we to consider the RVs as a blockage of the river cross section? It seems like they would not be since the residents would be notified and could evacuate the Park in the event of a flood but I wanted to confirm.
  The RVs can be excluded from the calculation but we will need to understand how you will be monitoring flows/weather conditions to notify residents.

Thank you.

Tony McCreary, PE, QSD
Project Manager
Please note: RFE Engineering has become CWE

Certified MBE and SBE
2260 Douglas Boulevard, Suite 160, Roseville, CA 95661
P (916) 772-7800 | F (916) 772-7804 | amccreary@cwecorp.com

www.cwecorp.com

Let's connect!

From: Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Sent: Thursday, November 17, 2022 3:30 PM
To: Tony McCreary (CWE-RFE) <amccreary@cwecorp.com>
Cc: Kibret, Natnael@CVFPB <Natnael.Kibret@cvflood.ca.gov>
Subject: Re: Riverdale Resort Hydraulic Analysis

***** CAUTION: THIS EMAIL IS FROM AN EXTERNAL (i.e. NON-CWE) SENDER. *****

Tony,
If the blockage calculation at the most constrained floodway cross-section is 1% or greater in depth hydraulic analysis is required.

Steve Lamb, PE

Permitting Section Manager
Central Valley Flood Protection Board
(916) 820-7638 direct
steven.lamb@CVFlood.ca.gov

From: Tony McCreary (CWE-RFE) <amccreary@cwecorp.com>
Sent: Thursday, November 17, 2022 2:59:31 PM
To: Lamb, Steven@CVFPB <Steven.Lamb@cvflood.ca.gov>
Subject: Riverdale Resort Hydraulic Analysis

Good afternoon Steve,

When we had our meeting months ago to discuss Riverdale Resort upgrades, you mentioned that there are certain parameters that might preclude the project from being required to submit a complete hydraulic analysis of the American River floodway at our project site. Can you remind of what those parameters are?

Thank you.

Tony McCreary, PE
Project Manager
Please note: RFE Engineering has become CWE.
We will continue providing the same level of **quality, value, and customer service**, and now we have a larger team to help meet each project goal.

Certified SBE
2260 Douglas Boulevard, Suite 160, Roseville, CA 95661

ATTACHMENT H – CORRESPONDANCE WITH HCD

STATE OF CALIFORNIA - BUSINESS, CONSUMER SERVICES AND HOUSING AGENCY GAVIN NEWSOM, *Governor*

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF CODES AND STANDARDS
9342 Tech Center Drive, Suite 500, Sacramento, CA 95826
P.O. Box 277820, Sacramento, CA 95827-7820
(800) 952-8356 / TTY (800) 735-2929 / FAX (916) 263-3383
HCD Website: www.hcd.ca.gov

September 29, 2022

Linda Frazier
Riverdale MHP
1501 Northgate Blvd
Sacramento, CA 95815

Re: August 11, 2022 Meeting

Dear Linda Frazier:

The California Department of Housing and Community Development (HCD) has evaluated your request surrounding the requirements for a California Environmental Quality Act (CEQA), Public Resources Code Division 13, section 21000, associated with Riverdale MHP, park ID # 34-0054-MP, located at 1501 Northgate Blvd., Sacramento, CA 95815. Pursuant to Title 25 California Code of Regulations (T25 CCR) section 1032, the installation of or replacement of new manufactured homes, accessory structures, or any park related construction does not trigger the requirements of T25 CCR section 1032. Because Riverdale MHP is not enlarging or adding multi-family manufactured housing and has a current permit to operate with an existing use permit issued by the Authority Having Jurisdiction (AHJ), HCD will not be requiring poof of CEQA.

Please feel free to reach out with any further concerns.

Sincerely,

Matthew Weise

Matthew Weise
Administrator III

951-255-3569

ATTACHMENT I – EMERGENCY PREPAREDNESS AND RESPONSE PLAN

Riverdale Resort
Emergency Preparedness and Response

Occasionally a situation occurs that can potentially become deadly. Riverdale and its employees must be prepared to react in this situation. We must understand what we are to do to respond and mitigate the situation so that, to the extent of our ability, the least amount of damage occurs and no person is put in danger. The purpose of this document is to address various types of emergencies, always remembering the protection of human life is the most critical consideration.

Agencies and Resources Emergency Numbers

Emergency: 911
Sacramento Fire Dept./ Fire and Medical Emergencies: (916) 228-3000
City Office of Emergency Services: (916) 808-1300
City Operator: (916) 264-5011
County Office of Emergency Services: (916) 874-2291
Governor's Office of Emergency Services: (916) 262-1772
Dept of Water Resources Flood Notification: (916) 574-2619
Non Emergency Police Response: (916) 264-5471
Local Radio Frequencies: AM 1530 Public Radio FM 893
California Emergency Management Agency: (916) 845-8510 / (916) 845-8100
City Animal Care Services: (916) 808-7387
County Animal Care Services: (916) 368-7387 / (916) 875-5656

Employee Chain of Command (as available / on site)

1. Owner
2. General Manager
3. Assistant Manager
4. Security Personnel
5. Sales / Office Personnel

Employee Training

1. Each employee is given a copy of this document and asked to become familiar with it.
2. A copy of the Emergency Preparedness document will be kept in various places throughout the resort for employee reference.
3. All employees are given periodic orientations to remind them of emergency responses and to continually familiarize themselves as to the location of equipment, emergency shutoff valves, emergency gate locks, hoses, first aid kits, etc.

4. Personnel are always asked to make comments and suggestions for change to improve the response to any situation.

Reporting an Emergency Situation

1. Identify yourself and your location (Resort name, street address, phone number)
2. What is the nature of the incident
3. Who and how many are injured or in danger
4. When did the incident occur
5. Any difficulties noted as far as access

Possibility of Flooding within the Resort

1. The owner or employee on site will assume the Chain of Command.
2. If the Monitoring Notification is not available, Call the Dept. of Water Resources (916) 574-2619 to obtain the current water level at the I Street bridge and/or the H Street reading.
3. Request whether this is an alert or if they are expecting rising conditions.(The monitoring notification is generally at 5 ft below flood stage.)
4. Notify each current renter of the possibility of flood conditions either by phone or going physically to the unit. **(Speak to each renter)**
5. Ask each renter to make sure all belongings have been gathered and stowed in their rig.
6. Ask employees to check throughout the resort to make sure any loose items are stowed or secured.
7. Make sure employees are able to open the emergency gate and close any safety valves.
8. If it further appears there are rising conditions, again check with Water Resources for current water levels and conditions. If it appears that a flood may be imminent, ask each renter to move to a safer area out of the flood zone.. Give the renter a time frame based on the rising conditions.
    a. Do not allow renters to wait until the last minute to leave the park. Instruct the evacuation according to current water levels and common sense.
    b. Direct the renter as to which park exit to use (Main gate or emergency exit)
    c. Check to see if Northgate is still open, and if the railroad trestle is open.If Northgate has begun to flood, advise the renter they must use the Del Paso emergency exit that leads onto the bridge. It is too dangerous to drive through flood waters.
    d. Advise the renter they cannot block the Del Paso emergency exit ramp. It must be kept open for all who are leaving as well as for emergency vehicles.

Possibility of Other Disasters affecting the Park (Fires / Earthquakes)

1. The owner or employee on site will assume Chain of Command
2. Make a quick, visual assessment of the park for critical damages and/or personal injuries
3. All employees gather at the main gate for instruction.

4. Determine the location and status of each renter by physically going to their unit.
5. Locate all onsite employees and their status.
6. Call 911 to report any injuries. Administer first aid until emergency personnel arrive.
7. Gather renters into safe areas
8. Determine whether it would be safe and/or possible for renters to evacuate the area or whether they must stay on site until directed by fire and/or police emergency services.
9. Make sure all valves, switches are turned off as necessary to avoid further issues.
10. Gather any hoses, fire extinguishers, and other equipment that could be safely used to mitigate the situation.
11. If renters can safely evacuate the area, advise the renter as to the safest route to leave the area.

The following page shows the Evacuation Route to be used in the event of a disaster

American River Flood Control District

CA CVFPB Encroachment Permit – Union Pacific Railroad Bridge Section Replacement, American River South Levee

Staff Report

Discussion:

The Union Pacific Railroad submitted an application to replace the last wooden bridge section of the crossing on the American River. Previous sections of the bridge were replaced with concrete construction in 2006. The section to be replaced is approximately 200-feet long and connects to the American River South Levee. The bridge will be placed on driven piles in the floodway and augured and driven piles where the bridge is adjacent to the levee.

Key notes about the project:

- The piles placed adjacent to the levee will have pre-drilled holes done with an auger to a depth of 15-feet. The piles will be driven the last remaining 36-feet to get to resistant anchoring material.
- The annular space around the piles will be backfilled with 4000 psi concrete.
- All compaction around the abutment in the levee will be done to USACE levee compaction standards.
- The District's at-grade railroad crossing at this location will remain intact.

Recommendation:

The General Manager recommends that the Board of Trustees endorse the permit application for the Union Pacific Railroad Bridge Section Replacement.

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

Application No. _____
(For Office Use Only)

1. Description of proposed work being specific to include all items that will be covered under the issued permit.

Union Pacific Railroad (UPRR) proposes to replace the existing railroad bridge at Milepost (MP) 92.12 on the Martinez Subdivision in the City of Sacramento, Sacramento County, California. Please see additional details in Attachment 2.

2. Project Location: Sacramento County, in Section 32

Township: 09 North (N) (S), Range: 05 East (E) (W), M. D. B. & M.

Latitude: 38.58826 Longitude: -121.4504

Stream: American River , Levee : Yes Designated Floodway: N/A

APN: 001-0170-003-0000

3. Stephen Cheney of Union Pacific Railroad; 1400 Douglas St.
Name of Applicant / Land *Owner* Address

Omaha NE 68179 (402) 544-3227
City State Zip Code Telephone Number

slcheney@up.com
E-mail

4. Michael Clary of Jacobs Engineering Group, Inc.
Name of Applicant's Representative Company

Sacramento CA 95833 (510) 610-3007
City State Zip Code Telephone Number

michael.clary@jacobs.com
E-mail

5. Endorsement of the proposed project from the Local Maintaining Agency (LMA):

We, the Trustees of American River Flood Control District approve this plan, subject to the following conditions:
Name of LMA

☐ Conditions listed on back of this form ☐ Conditions Attached ☐ No Conditions

_____ Trustee _____ Date _____ Trustee _____ Date

_____ Trustee _____ Date _____ Trustee _____ Date

APPLICATION FOR A CENTRAL VALLEY FLOOD PROTECTION BOARD
ENCROACHMENT PERMIT

6. Names and addresses of adjacent property owners sharing a common boundary with the land upon which the contents of this application apply. If additional space is required, list names and addresses on back of the application form or an attached sheet.

Name	Address	Zip Code
City of Sacramento	915 I Street 5th floor, Sacramento, CA 95814	
County of Sacramento	10361 Rockingham Drive, Ste 100, Sacramento, CA 95827	

7. Has an environmental determination been made of the proposed work under the California Environmental Quality Act of 1970? ☑ Yes ☐ No ☐ Pending

If yes or pending, give the name and address of the lead agency and State Clearinghouse Number:

This project is Statutorily exempt under CEQA as a project "for the institution or increase of passenger or commuter services on rail or highway rights of way already in use." CEQA Section 2180(b) and 14 CCR Section 15275.

SCH No. N/A

8. When is the project scheduled for construction? April 2023 through October 2023

9. Please check exhibits accompanying this application.

A. ☑ Regional and vicinity maps showing the location of the proposed work.

B. ☑ Drawings showing plan view(s) of the proposed work to include map scale.

C. ☑ Drawings showing the cross section dimensions and elevations (vertical datum?) of levees, berms, stream banks, flood plain,

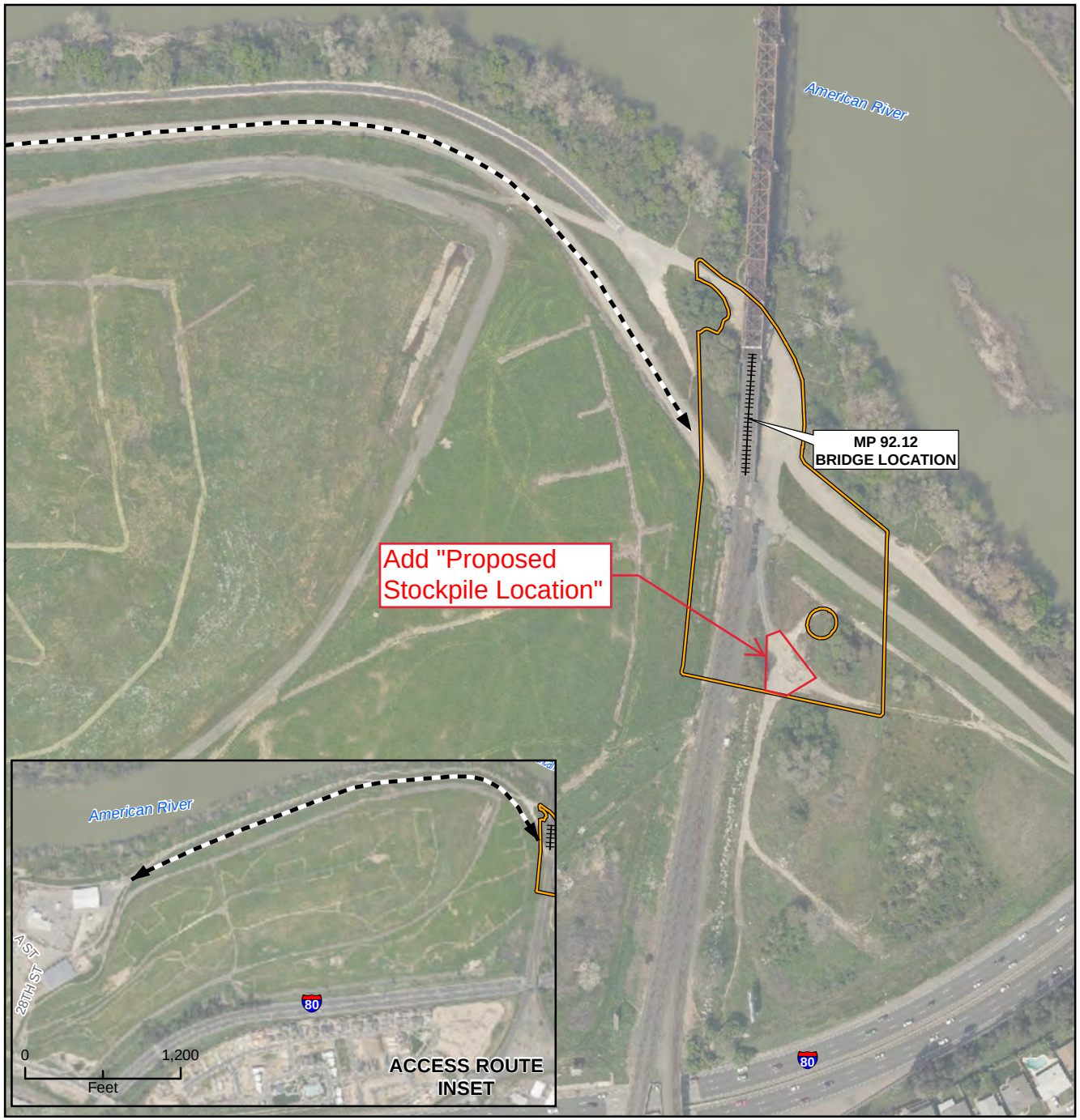
D. ☑ Drawings showing the profile elevations (vertical datum?) of levees, berms, flood plain, low flow, etc.

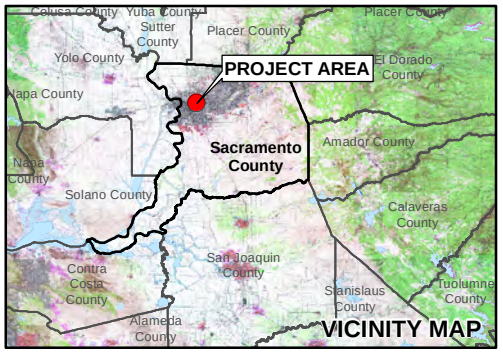
E. ☑ A minimum of four photographs depicting the project site.

Signature of Applicant Date

Include any additional information:

Please see additional information in Attachments 2-6





LEGEND

MP 92.12 BRIDGE LOCATION

ACCESS ROUTE

PROJECT AREA (3.38 ACRES)

NOTE:

SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY.

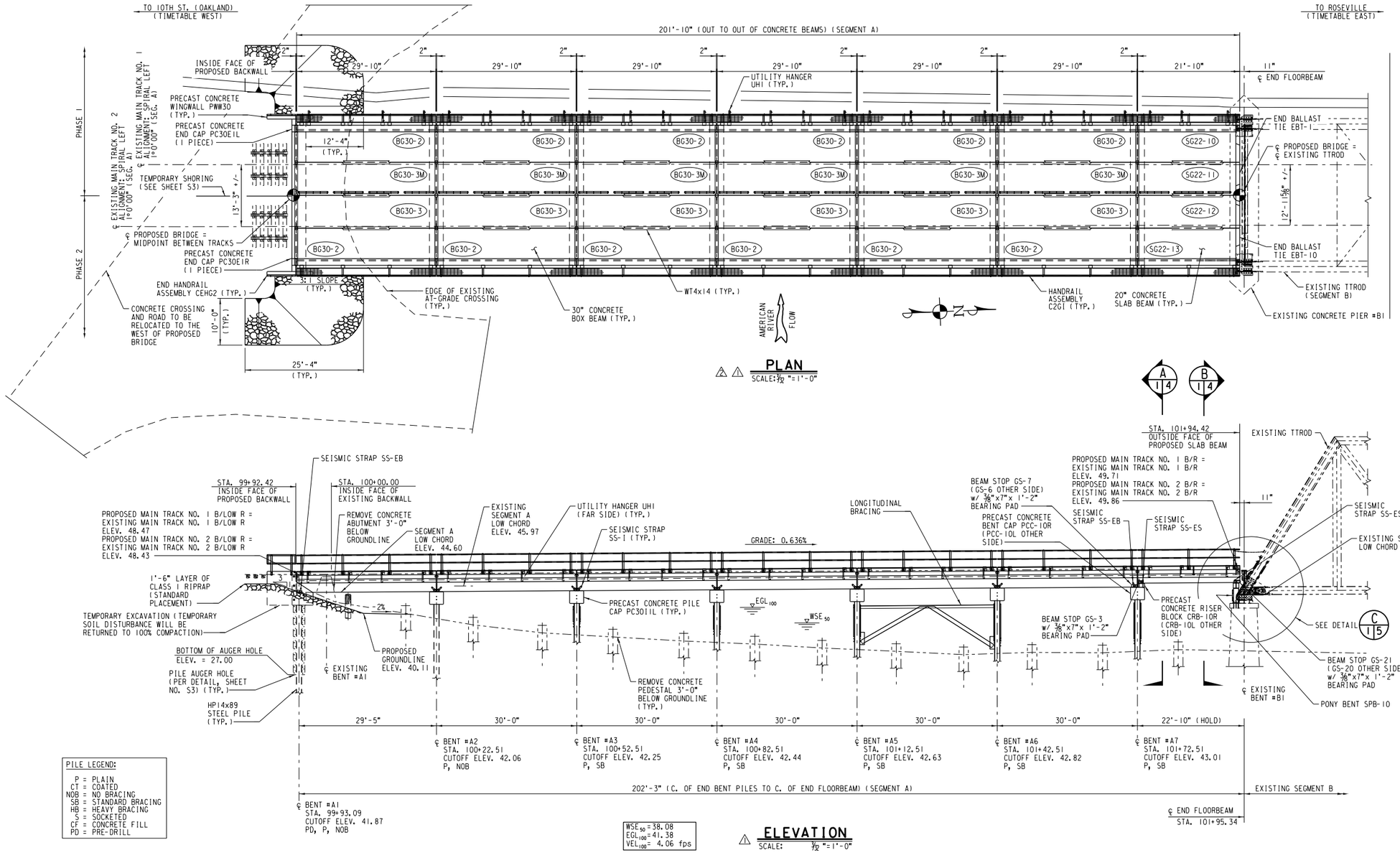
0 250 500
Feet

N

FIGURE 1
PROJECT AREA MAP

PROJECT DESCRIPTION
MP 92.12 BRIDGE PROJECT, MARTINEZ SUBDIVISION
UNION PACIFIC RAILROAD
SACRAMENTO COUNTY, CALIFORNIA

Jacobs



PILE LEGEND:

P = PLAIN
CT = COATED
NOB = NO BRACING
SB = STANDARD BRACING
HB = HEAVY BRACING
S = SOCKETED
CF = CONCRETE FILL
PD = PRE-DRILL

NOTE:

LOCATION OF UTILITIES IS APPROXIMATE. LOCATION SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. NOTIFY THE STATE OF CALIFORNIA "CALL BEFORE YOU DIG" 811 NUMBER, (800) 642-2444, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

KNOWN UTILITY CONTACT INFORMATION:

OWEST COMMUNICATIONS: 1-800-283-4237
KINDER MORGAN: 714-560-4411

F/O = FIBER OPTIC
GAS = GAS
UTIL = SIGNAL

LETTER SERIES
SHEET NO. CUT ON — SHEET NO. SHOWN ON

SECTION DESIGNATION

EST. WT. OF PRECAST CONCRETE
PIER CAP PCC-1OL = 18,900 LB. (9.5 TON)
PIER CAP PCC-1OR = 18,900 LB. (9.5 TON)
RISER BLOCK CRB-1OL = 3,130 LB. (1.6 TON)
RISER BLOCK CRB-1OR = 3,130 LB. (1.6 TON)

DRAWING SCHEDULE

SHEET NO.	PLAN NO.	DESCRIPTION	TYPE
S1	122544	GENERAL ARRANGEMENT	DESIGN
S2	122544	GENERAL NOTES AND BILL OF MATERIAL	DESIGN
S3	122544	PILE LAYOUT, PILE DRIVING DIAGRAMS & TEMPORARY SHORING	DESIGN
S4	122544	SECTIONS AND DETAILS (SHEET 1 OF 2)	DESIGN
S5	122544	SECTIONS AND DETAILS (SHEET 2 OF 2)	DESIGN
S6	122544	CLOSURE DETAILS	DESIGN
P1	122544	BEAM MODIFICATION DETAILS (SHEET 1 OF 2)	DESIGN
P2	122544	BEAM MODIFICATION DETAILS (SHEET 2 OF 2)	DESIGN
P3	122544	SLAB BEAM BALLAST DAM DETAILS	DESIGN
P4	122544	PRECAST CONCRETE PIER CAP DETAILS	DESIGN
P5	122544	CONCRETE RISER BLOCK CRB-10	DESIGN
F1	122544	STEEL PONY BENT SPB-10	DESIGN
M1	122544	NON-STANDARD MISCELLANEOUS STEEL DETAILS	DESIGN
T2	532100	GENERAL NOTES	STANDARD
T3	532100	GENERAL NOTES	STANDARD
A1	532100	CONSTRUCTION SEQUENCE (PHASE 1) & BEAM STOP INSTALLATION	STANDARD
A2	532100	CONSTRUCTION SEQUENCE (PHASE 1)	STANDARD
A3	532100	CONSTRUCTION SEQUENCE (PHASE 2)	STANDARD

DRAWING SCHEDULE (CONTINUED)

SHEET NO.	PLAN NO.	DESCRIPTION	TYPE
A4	532100	CONSTRUCTION SEQUENCE (PHASE 2)	STANDARD
A2	531100	STRUCTURE MARKER & NO TRESPASSING SIGN INSTALLATION DETAILS	STANDARD
B1	532100	30" CONCRETE BOX BEAM GENERAL ARRANGEMENT (PHASE 1)	STANDARD
B2	532100	30" CONCRETE BOX BEAM GENERAL ARRANGEMENT (PHASE 2)	STANDARD
B3	532100	30" CONCRETE BOX BEAM SECTIONS AND DETAILS (PHASE 1)	STANDARD
B4	532100	30" CONCRETE BOX BEAM SECTIONS AND DETAILS (PHASE 2)	STANDARD
B5	532100	30" CONCRETE BOX BEAM SPANS MISCELLANEOUS DETAILS	STANDARD
S1	532100	20" CONCRETE SLAB BEAM GENERAL ARRANGEMENT (PHASE 1)	STANDARD
S2	532100	20" CONCRETE SLAB BEAM GENERAL ARRANGEMENT (PHASE 2)	STANDARD
S3	532100	20" CONCRETE SLAB BEAM SECTIONS AND DETAILS (PHASE 1)	STANDARD
S4	532100	20" CONCRETE SLAB BEAM SECTIONS AND DETAILS (PHASE 2)	STANDARD
S5	532100	20" CONCRETE SLAB BEAM SPANS MISCELLANEOUS DETAILS	STANDARD
BR2	532131	TEMPORARY BALLAST RETAINER INSTALLATION DETAIL AND GEOMETRY TABLE	STANDARD
H1	531110	H-PILE INSTALLATION NOTES AND DETAILS	STANDARD
H2	531110	INTERIOR BENT H-PILE AND BRACING LAYOUT	STANDARD
H5	531110	LONGITUDINAL BRACING DETAILS	STANDARD
R1	531190	STANDARD RIPRAP PLACEMENT DETAILS	STANDARD

DRAWING SETS (MERGED)

SET NO.	PLAN NO.	DESCRIPTION	TYPE
1	122540	6 SPAN PCB REPLACEMENT (SEGMENT A)	STANDARD
2	S1 OF S1	PILE DRIVING SKETCHES - PARRALEL AND PERPINDICULAR	DESIGN
3	FIG. 2	6 SPAN PCB REPLACEMENT - POTHOLING PLAN	DESIGN

POSTCONSTRUCTION COMPLIANCE

Constructor in charge of construction to provide to the office of Senior Manager Structures Design as-built drawings confirming that the project was constructed in compliance with the plans and indicating any construction variances.

SIGNED

In Charge of Construction — Date

NO.	DATE	REVISIONS
3	10/27/2023	REVISED SHORING AND LEVEE DETAILS
2	04/28/2023	TEMPORARY SHORING DETAILS
1	12/07/2022	MISCELLANEOUS UPDATES

COMPLETION STATUS:
FINAL — STATUS — 04/20/2022 DATE

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER — 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY:	DRAWN/CHK BY:	UPRR ENGINEER:	SHT NO.:
NAS/BWB	NAS/BWB	DGW	S1 of S6

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 92.12, MARTINEZ SUB
6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE:
GENERAL ARRANGEMENT

FILE NAME: P:\DGN\mt209212_bca Rev 23.3.dgn

PLOTTED: 1/11/2024 11:16:35 AM

BILL OF MATERIAL

REQ'D	PHASE 1	PHASE 2	UNIT	DESCRIPTION	ITEM NO	ORDERED BY
12	6	6	EA	30" X 29'-10" PRESTRESSED CONCRETE BOX BEAM BG30-2, TYPE 2 W/ SLOPED CURB (PER STD. PLAN NO. 531130 SHTS. BB1, BB2, BB3, & CC1)	511-7890	MGR BRIDGE PROJECTS
6		6	EA	30" X 29'-10" PRESTRESSED CONCRETE BOX BEAM BG30-3, TYPE 2 W/O SLOPED CURB (PER STD. PLAN NO. 531130 SHTS. BB1-BB3)	511-7861	
6	6		EA	30" X 29'-10" PRESTRESSED CONCRETE BOX BEAM BG30-3M, TYPE 2 W/O CURB (PER DETAIL AND MATERIAL SCHEDULE, SHEET NO. S7, STD. DWG. 531130 SHT. BB1-BB3 AND 532131 SHT. BR1-BR2)	122544-1	
1	1		EA	20" X 21'-10" PRESTRESSED CONCRETE SLAB GIRDER SG22-10, TYPE 2 W/ SLOPED CURB (PER DETAIL AND MATERIAL SCHEDULE, SHEET NO. S7, SHEET NO. S8, SHEET NO. P1, AND STD. PLAN NO. 531130 SHTS. SB1, SB2, & CC1)	122544-2	
1	1		EA	20" X 21'-10" PRESTRESSED CONCRETE SLAB GIRDER SG22-11, TYPE 2 W/O SLOPED CURB (PER DETAIL AND MATERIAL SCHEDULE, SHEET NO. S7, SHEET NO. S8, SHEET NO. P1, AND STD. PLAN NO. 531130 SHTS. SB1, SB2, & CC1)	122544-3	
1		1	EA	20" X 21'-10" PRESTRESSED CONCRETE SLAB GIRDER SG22-12, TYPE 2 W/O SLOPED CURB (PER DETAIL AND MATERIAL SCHEDULE, SHEET NO. S7, SHEET NO. S8, SHEET NO. P1, AND STD. PLAN NO. 531130 SHTS. SB1, SB2, & CC1)	122544-4	
1		1	EA	20" X 21'-10" PRESTRESSED CONCRETE SLAB GIRDER SG22-13, TYPE 2 W/ SLOPED CURB (PER DETAIL AND MATERIAL SCHEDULE, SHEET NO. S7, SHEET NO. S8, SHEET NO. P1, AND STD. PLAN NO. 531130 SHTS. SB1, SB2, & CC1)	122544-5	
1	1		EA	PRECAST CONCRETE END CAP PC30E1L, LEFT 1 PIECE, FOR 30" CONCRETE BOX BEAMS (PER STD. PLAN NO. 532140, SHT. 1)	511-0017	
1		1	EA	PRECAST CONCRETE END CAP PC30E1R, RIGHT 1 PIECE, FOR 30" CONCRETE BOX BEAMS (PER STD. PLAN NO. 532140, SHT. 2)	511-0018	
2	1	1	EA	PRECAST CONCRETE WINGWALL PWW30 FOR 30" CONCRETE BOX BEAMS (PER STD. PLAN NO. 531140 SHT. 1)	511-0001	
10	5	5	EA	PRECAST CONCRETE INTERIOR CAP PC30I1L, LEFT, WITH BEARING PADS FOR BOX BEAMS (PER STD. PLAN NO. 532150, SHT. 1 & STD. PLAN NO. 532160, SHT. 1 & STD. PLAN NO. 532170, SHT. NO. 3)	511-0051	
1	1		EA	PRECAST CONCRETE PILE CAP PCC-10L W/ BEARING PADS FOR BOX BEAMS AND SLAB BEAMS (PER DETAILS AND SCHEDULE, SHEET NO. P2, STD. PLAN NO. 532150 SHT. 1 AND 532170 SHT. 3)	122544-6	
1		1	EA	PRECAST CONCRETE PILE CAP PCC-10R W/ BEARING PADS FOR BOX BEAMS AND SLAB BEAMS (PER DETAILS AND SCHEDULE, SHEET NO. P2, STD. PLAN NO. 532150 SHT. 1 AND 532170 SHT. 3)	122544-7	
42	42		EA	HP14X89 X 60'-0" STEEL PILE WITH POINTS (ASTM A572 GRADE 50, PLAIN)	510-7595	
42	42		EA	C8X11.5 X 15'-0" STEEL BRACING (ASTM A572 GR. 50, PLAIN)	247-6361	
24	24		EA	C10 X 15.3 X 20'-0" STEEL BRACING (ASTM A572 GR. 50, PLAIN)	247-6649	
6	6		EA	WT7 X 49.5 X 30'0" STRUT (ASTM A572 GRADE 50) (FIELD CUT TO LENGTH)	513-7020	
12	12		EA	PLATE P-1 (ASTM A572) (PER STD. PLAN NO. 530000 SHT NO. A1-A7)	513-7022	
12	12		EA	BRACKET B-1 (PER STD. PLAN NO. 531110 SHTS. H1-H6)	513-7024	
12	12		EA	PL ½ X 12 X 2'-8" (ASTM A572 GRADE 50) (PER STD. PLAN NO. 530000 SHTS. A1-A7)	513-7026	
48	48		EA	PL ½ X 4 X 0'-6" (ASTM A572 GRADE 50) (PER STD. PLAN NO. 530000 SHTS. A1-A7)	513-7028	
10	5	5	EA	INTERIOR BENT BEAM STOP GS-2 (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0595	
4	2	2	EA	END BENT BEAM STOP GS-3 (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0596	
2	1	1	EA	BEAM STOP GS-6 (PER STD. PLAN NO. 531180 SHTS 1-6)	510-0000	
2	1	1	EA	BEAM STOP GS-7 (PER STD. PLAN NO. 531180 SHTS 1-6)	510-0002	
5	5		EA	BEAM STOP GS-10 (PER STD. PLAN NO. 531180 SHTS 1-6)	510-0003	
4	4		EA	BEAM STOP GS-11 (PER STD. PLAN NO. 531180 SHTS 1-6)	510-0004	
20	10	10	EA	SEISMIC STRAP SS-1 (PER STD. PLAN NO. 531180 SHT. 1-6)	510-0601	
4	2	2	EA	SEISMIC STRAP SS-EB (PER STD. PLAN NO. 531180 SHT. 1-6)	510-0602	
4	2	2	EA	SEISMIC STRAP SS-ES (PER STD. PLAN NO. 531180 SHT. 1-6)	510-0603	
12	6	6	EA	HANDRAIL ASSEMBLY C2G1 FOR 29'-10" CONCRETE INTERIOR SPAN, W/ GRATING (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0564	
2	1	1	EA	HANDRAIL ASSEMBLY C2G1 FOR 21'-10" CONCRETE INTERIOR SPAN, W/ GRATING (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0532	
2	1	1	EA	END HANDRAIL ASSEMBLY CEHG2 FOR CONCRETE SPANS W/ GRATING (PER STD. PLAN NO. 531180, SHT. 4)	510-0108	
7		7	EA	DECK PLATE CDP1 (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0590	
7	7		EA	DECK PLATE CDP2 (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0591	
14	7	7	EA	DECK PLATE CDP3 (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0592	
14	7	7	EA	DECK PLATE CDP4 (PER STD. PLAN NO. 531180, SHTS. 1-6)	510-0593	
12	6	6	EA	INTERIOR DECK PLATE HOLD DOWN PLATE PL31, GALVANIZED (PER STD. PLAN NO. 531180 SHTS 1-6)	510-0005	
2	1	1	EA	END BENT DECK PLATE HOLD DOWN PLATE PL32, GALVANIZED (PER STD. PLAN NO. 531180 SHTS 1-6)	510-0006	
1	1		LOT	NON-STANDARD MISCELLANEOUS STEEL (PER SCHEDULE, SHEET NO. M1)	122544-8	
4	2	2	EA	PL 3/8X24X 10' (A36, PLAIN)	510-7650	
63	21	42	EA	WT4X14X 10'-0" (ASTM A36, GALVANIZED PER ASTM A123)	510-0124	
27	27		EA	UTILITY HANGER UH1 FOR CONCRETE BEAMS (PER DETAILS, STD. PLAN NO. 533180, SHT. 6 & NOTES, STD. PLAN NO. 531100, SHT. T3)	510-0123	
30	20	10	EA	⅜" X 7" X 0'-7" ELASTOMERIC BEARING PAD (50 DUROMETER)	510-3635	
12	8	4	EA	⅜" X 7" X 1'-2" ELASTOMERIC BEARING PAD (50 DUROMETER)	510-3637	
108	54	54	EA	½"X28" X 6'-4" PREMOLDED EXPANSION JOINT FILLER (PER ASTM D1751)	511-8213	
12	6	6	EA	½"X18" X 6'-4" PREMOLDED EXPANSION JOINT FILLER (PER ASTM D1751)	511-8212	
8	4	4	EA	G108 DOWEL BAR (#8 X 1-8", ASTM A615, GRADE 60)	512-2853	
1	1		EA	END BALLAST TIE EBT-1 (PER STD. DWG. 531130 SHT. BD1)	122544-9	
1		1	EA	END BALLAST TIE EBT-10 (PER DETAIL, SHEET NO. P3)	122544-10	
12	6	6	EA	½" DIA. EYEBOLT, 2" LONG SHANK WITH 1" I.D. EYE, PLAIN PATTERN GALVANIZED DROP FORGED STEEL (ASTM A489), WITH ZINC PLATED HEX NYLON INSERT LOCKNUT (ASTM A563) AND ZINC PLATED FLAT CIRCULAR WASHER (ASTM F436)	130-0370	
96	48	48	EA	RED HEAD EPCON C6+ 300Z EPOXY INJECTION CARTRIDGE, PART NO. C6P-30, USE GUNS D102(M) OR D202(P)	410-2148	

BILL OF MATERIAL (CON'T.)

REQ'D	PHASE 1	PHASE 2	UNIT	DESCRIPTION	ITEM NO	ORDERED BY
102	51	51	EA	HIGH FLOW MIXING NOZZLE FOR RED HEAD C6P-30 OR A7P-28, PART NO. S75, 7/8" HOLES MIN.	410-2149	MGR BRIDGE PROJECTS
2	1	1	QT.	ZRC COLD GALVANIZING COMPOUND OR APPROVED ALTERNATIVE	513-3960	↓
60	30	30	TON	RIPRAP, CLASS 1 (PER NOTES, STD. PLAN NO. 531190, SHT. R1 OR R2)	562-2764	CONSTRUCTOR
~~100~~	~~50~~	~~50~~	~~TON~~	~~SEALANT BALLAST (PER STD. DWG. 001OE)~~	~~562-5428~~	↓
1	1		LOT	AZ50-700 x 30'-0" TEMPORARY SHORING		
12	6	6	LIN. FT.	⅜" DIA. SAFETY CHAIN (5'-0" LENGTHS)		
6	3	3	EA	⅜" QUICK LINK FOR SAFETY CHAIN		
2	1	1	LOT	PL-400 CONSTRUCTION ADHESIVE FOR BEARING PADS (PER STD. PLAN NO. 532100 SHT. A1-A4)		
2	1	1	LOT	4,000 PSI NON-SHRINK CEMENTITIOUS GROUT		
2	1	1	LOT	4,000 PSI SELF-LEVELLING GROUT		
36	18	18	CU. YD.	SPECIAL LEVEE BACKFILL: COMPACTED SB-2 (ROADBASE MATERIAL) COMPACTED IN 6" LIFTS TO 95% MODIFIED PROCTOR		
12	6	6	CU. YD.	SPECIAL LEVEE: IMPERVIOUS CLAY CAP 2'-0" THICK, COMPACTED IN 6" LIFTS TO 95% MODIFIED PROCTOR		

⚠1 EST. WT. OF STEEL PILING = 224,280 LB.

BULK MATERIAL QUANTITIES ARE ESTIMATED.

DESIGN NOTES

1. In the event of a conflict between the design plans and the standards, the design plans shall control.

RIGHT-OF-WAY

1. 140'+/- left and 160'+/- right of existing Main Track No. 1 centerline.

LAYOUT

1. Stationing: Sta. 100+00.00, East face of West backwall of existing Main Track No. 1, Bridge No. 92.12.
2. Elevation Datum: NAVD88.
3. Temporary Benchmark:
   Elev. 48.64, top Southwest corner of West abutment, Bridge No. 92.12, 22.74' right of existing Main Track No. 1 Centerline, Sta. 100+00.00.

   Permanent Benchmark:
   Elev. 42.30, NGS benchmark W9, 25.40' right of existing Main Track No. 1 Centerline, Sta. 101+95.50.
4. Profile: No change in rail elevation.
5. Alignment: Spiral Left: 1°0'0" (Segment A), Tangent (Segment B).
6. Information used to prepare this drawing in addition to reference drawings:

   Location survey prepared by Olsson, dated 2/6/2020.

PILE DRIVING

⚠2 1. All HP14x89 piles shall be driven to 123 ton capacity. Estimated pile depth at tip to be Elev. -11.50.

DESIGN

1. The proposed superstructure and substructure have been designed in accordance with the AREMA Manual for Railway Engineering, Chapter 8: Concrete Structures and Foundations, except longitudinal load, which is designed per the 1996 AREA Manual for Railway Engineering.
2. This structure was designed for Cooper E80 Live Load plus impact with a 30" maximum total depth of ballast.
3. This drawing was prepared using 8" (min.) of ballast under timber ties.

WELL-COMPACTED FILL

⚠2 ⚠3 1. Using roadbase material SB-2, spread and place fill in 6" loose lifts and compact to greater than or equal to 95% of maximum density at moisture contents between -2 and 3 percent of optimum obtained from ASTM D698.

2. Fill shall be compacted using hand operated equipment such as vibrating plate or trench roller.

PROPOSED CONSTRUCTION SEQUENCE

ALL WORK TO BE PERFORMED BY CONSTRUCTOR, EXCEPT WHERE NOTED IN PARENTHESIS.

PHASE 1:

1. IN TRACK WINDOWS, ADJUST STRINGERS AS REQUIRED TO DRIVE ALL PILES FOR PROPOSED BENTS.
2. SET PHASE 1 AND PHASE 2 CAPS.
3. INSTALL TEMPORARY SHORING AND BALLAST RETAINERS BETWEEN PHASE 1 AND PHASE 2 CONSTRUCTION LIMITS AS SHOWN.
4. ROUTE ALL TRAFFIC TO MAIN TRACK NO. 2. (RAILROAD)
5. REMOVE PHASE 1 PORTION OF THE EXISTING BRIDGE.
6. PLACE PROPOSED PHASE 1 END CAP ASSEMBLY, RISER BLOCK, PONY BENT, SUPERSTRUCTURE AND BALLAST RETAINERS.
7. BACKFILL BEHIND END BENT AND PLACE RIPRAP.
8. INSTALL BALLAST, TIES, RAIL AND OTM FOR MAIN TRACK NO. 1. (RAILROAD)
9. PLACE MAIN TRACK NO. 1 BACK IN SERVICE. (RAILROAD)

PHASE 2:

1. CLOSE MAIN TRACK NO. 2 AND ROUTE ALL TRAFFIC TO MAIN TRACK NO. 1. (RAILROAD)
2. REMOVE PHASE 2 PORTION OF THE EXISTING BRIDGE.
3. PLACE PROPOSED PHASE 2 END CAP ASSEMBLY, RISER BLOCK, PONY BENT, AND SUPERSTRUCTURE.
4. BACKFILL BEHIND END BENT AND PLACE RIPRAP.
5. INSTALL BALLAST, TIES, RAIL AND OTM FOR MAIN TRACK NO. 2. (RAILROAD)
6. REMOVE TEMPORARY SHORING.
7. PLACE MAIN TRACK NO. 2 BACK IN SERVICE. (RAILROAD)
8. RESTORE AREA TO ORIGINAL CONDITION OR BETTER.

NO.	DATE	REVISIONS
3	10/27/2023	REVISED SHORING AND LEVEE DETAILS
2	04/28/2023	TEMPORARY SHORING DETAILS
1	12/07/2022	CHANGE PILES TO 60'-0"

COMPLETION STATUS: FINAL — STATUS — 04/20/2022 DATE

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	CE NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	S2 of S6

UNION PACIFIC RAILROAD

Office of Director Structures Design

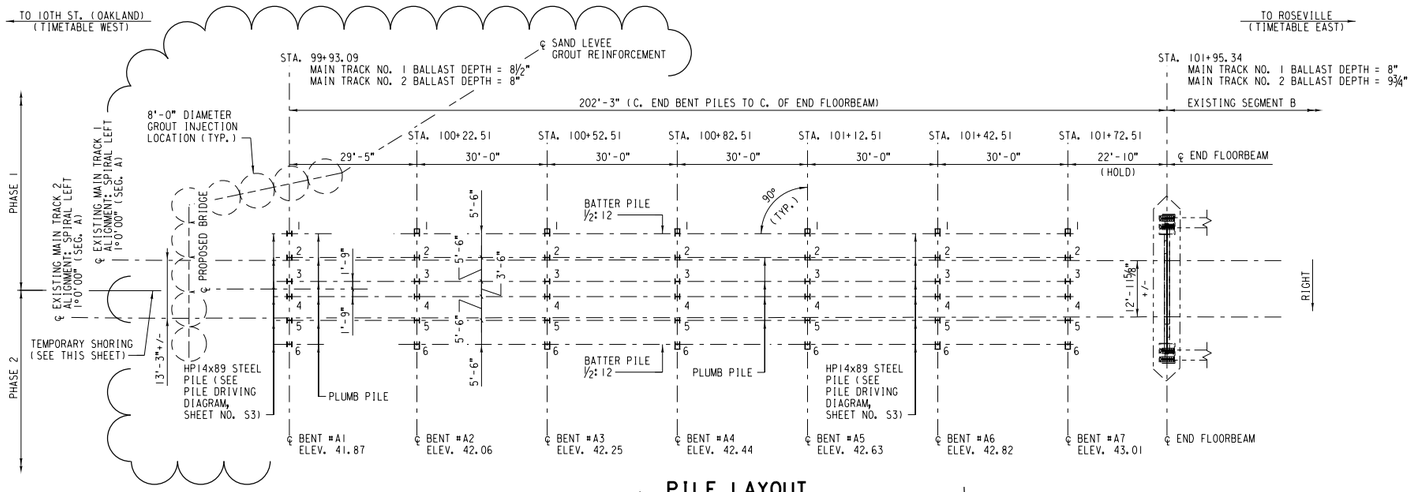
LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB

6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE: GENERAL NOTES AND BILL OF MATERIAL

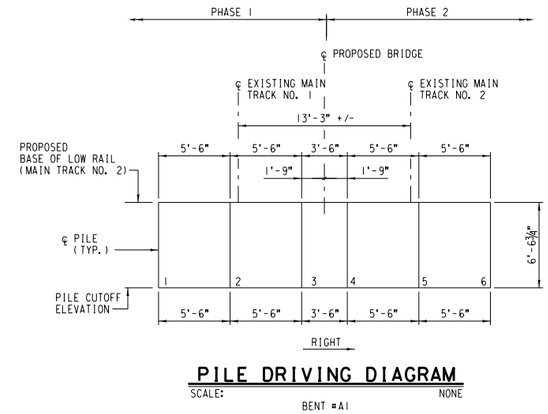
FILE NAME: P:\DGN\mt_092122.bca Rev 23.3.dgn

PLOTTED: 11/9/2023 4:25:21 PM



⚠2 PILE LAYOUT

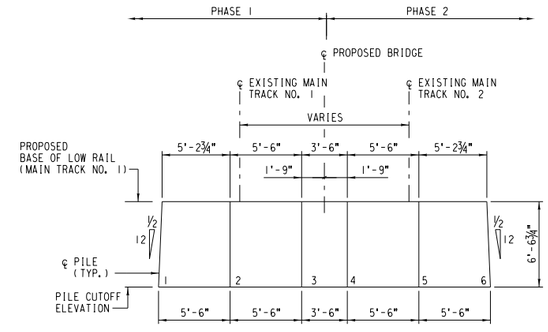
SCALE: 1/16"=1'-0"
AT PILE CUTOFF



PILE DRIVING DIAGRAM

SCALE: NONE

BENT =A1



PILE DRIVING DIAGRAM

SCALE: NONE

BENTS =A2 THRU =A7

NOTES:

1. DESIGN LOADS ARE BASED ON AREMA MANUAL FOR RAILWAY ENGINEERING, 2022, CHAPTER 8, CONCRETE STRUCTURES AND FOUNDATIONS.

   BNSF-UPRR GUIDELINES FOR RAILROAD GRADE SEPARATION PROJECTS, 12/7/2021, WITH THE FOLLOWING PROVISIONS:

   FREIGHT LIVE LOAD: COOPER E-80
   PASSENGER LIVELOAD: COOPER E-60

   FREIGHT F.S. = 1.3
   PASSENGER F.S. = 1.5

   DEFLECTION: ½" MAX.

2. STEEL SHEET PILING SHALL CONFORM TO ASTM A572, GRADE 50 (PLAIN).

3. SOIL PROPERTIES USED FOR DESIGN:

   "AMERICAN RIVER WATERSHED COMMON FEATURES GENERAL REEVALUATION REPORT, ATTACHMENT C, GEOTECHNICAL REPORT, DECEMBER 2015" USACOE, SACRAMENTO DISTRICT - TABLE F-2-1, PERMEABILITY AND STRENGTH SECTION FOR ANALYSIS.

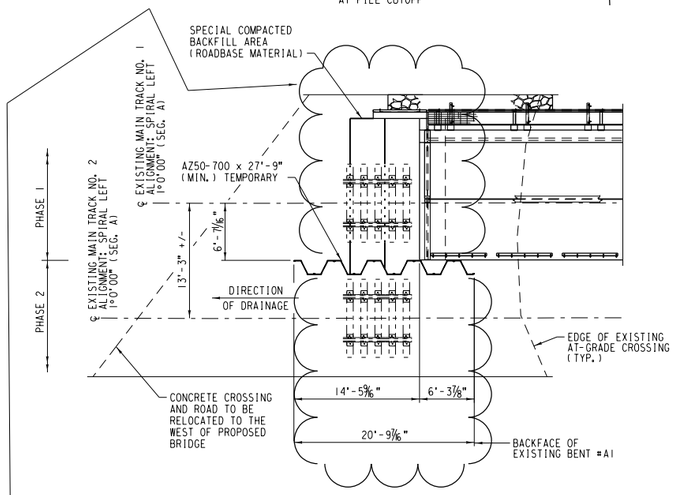
4. EACH SHEET PILE SHALL BE DRIVEN VERTICALLY PLUMB WITHIN A HORIZONTAL TOLERANCE OF 1% OF ANY VERTICAL LENGTH MEASURED ALONG THE PILE. CARE SHALL BE PROVIDED TO PREVENT AND CORRECT ANY TENDENCY OF PILES TO TWIST OR GET OUT OF PLUMB. PILES SHALL ALSO BE ALIGNED PROPERLY TO MAINTAIN A "NORMAL" DRIVING WIDTH.

5. TRIM SHEETS AS REQUIRED TO FIT AGAINST EXISTING ABUTMENT.

6. HANDRAIL AND WINGWALL BEYOND NOT SHOWN.

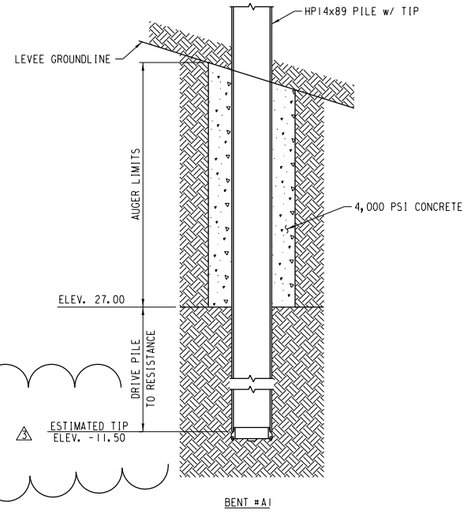
7. ⚠3 SPECIAL BACKFILL TO CONSIST OF 6" LIFTS OF SB-2 (ROADBASE MATERIAL) COMPACTED TO 95% MODIFIED PROCTOR IN THE LIMITS OF THE STEPPED EXCAVATION.

8. RESTORE 2'-0" THICK CLAY CAP IF IMPACTED. SPREAD AND PLACE FILL IN 6 INCH LOOSE LIFTS AND COMPACT TO GREATER THAN OR EQUAL TO 95% OF MAXIMUM DENSITY AT MOISTURE CONTENTS BETWEEN -2 AND 3 PERCENT OF OPTIMUM OBTAINED FROM ASTM D698.



⚠2 ⚠3 PLAN - TEMPORARY SHORING

SCALE: 1/8"=1'-0"



BENT =A1

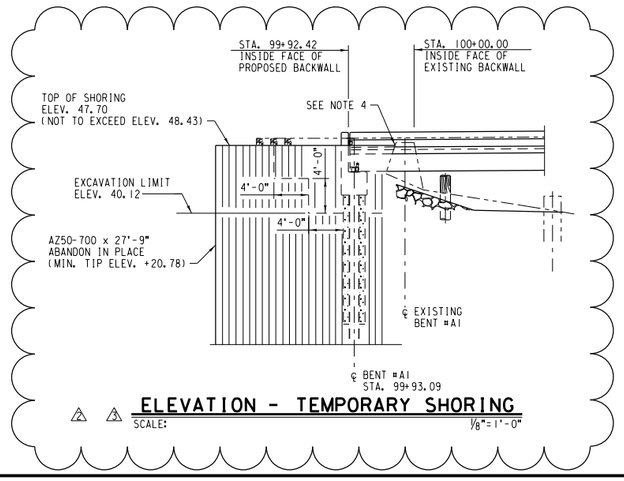
PILE AUGER HOLE DETAIL

SCALE: NO SCALE

EST. VOLUME OF CONCRETE = 0.9 CU. YD. PER 5' SOCKET DEPTH

PILE AUGER HOLE NOTES:

1. DEPTH OF PILE AUGER HOLE SHALL BE TO ELEV. 27.00.
2. PILING WITH TIP REINFORCEMENT SHALL BE PLACED INTO AUGERED HOLE AND DRIVEN TO RESISTANCE.
3. PILE SHALL BE ENCASED IN AUGERED HOLE WITH 4,000 PSI CONCRETE.



⚠2 ⚠3 ELEVATION - TEMPORARY SHORING

SCALE: 1/8"=1'-0"

NO.	DATE	REVISIONS
3	10/27/23	REVISED SHORING AND LEVEE DETAILS
2	04/28/2023	TEMPORARY SHORING DETAILS

COMPLETION STATUS:
FINAL (STATUS) 04/20/2022 (DATE)

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY: NAS/BWB
DRAWN/CHK BY: NAS/BWB
UPRR ENGINEER: DGW
SHT NO.: S3 of S6

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB
6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE: PILE LAYOUT, PILE DRIVING DIAGRAMS & TEMPORARY SHORING DETAILS

FILE NAME: P:\DGN\mb09212.bca Rev 2&3.dgn

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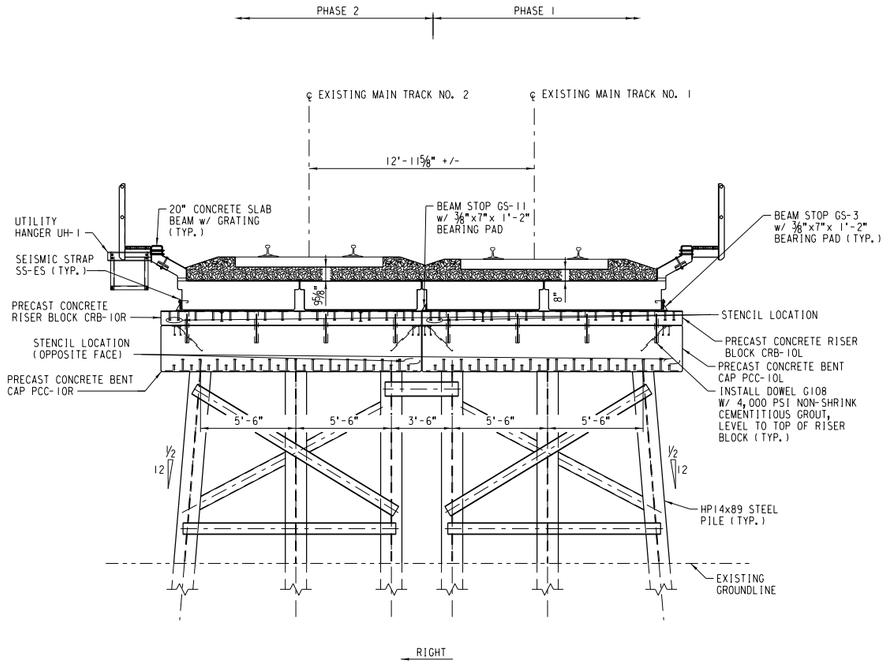
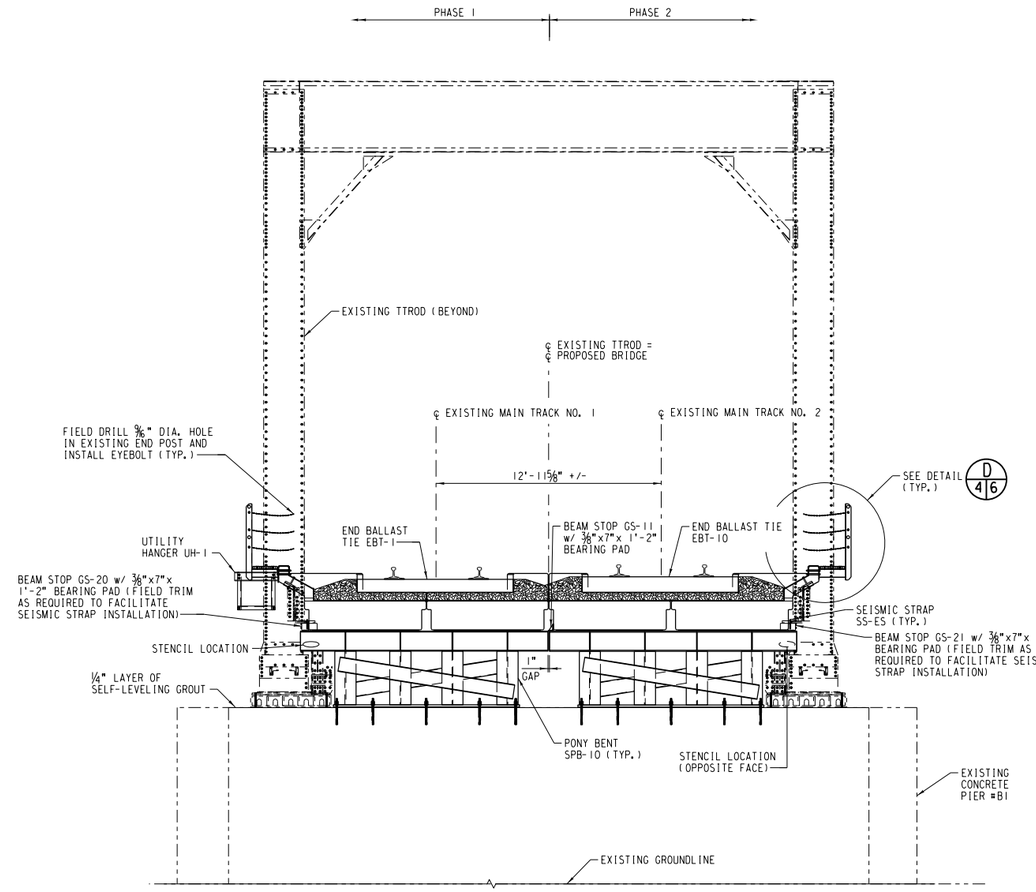


SECTION A
SCALE: ¼"=1'-0" 14



SECTION B
SCALE: ¼"=1'-0" 14

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 04/20/2022 (DATE)

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY: NAS/BWB
DRAWN/CHK BY: NAS/BWB
UPRR ENGINEER: DGW
SHT NO.: S4 of S6

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 92.12, MARTINEZ SUB
6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE:
SECTIONS AND DETAILS (SHEET 1 OF 2)

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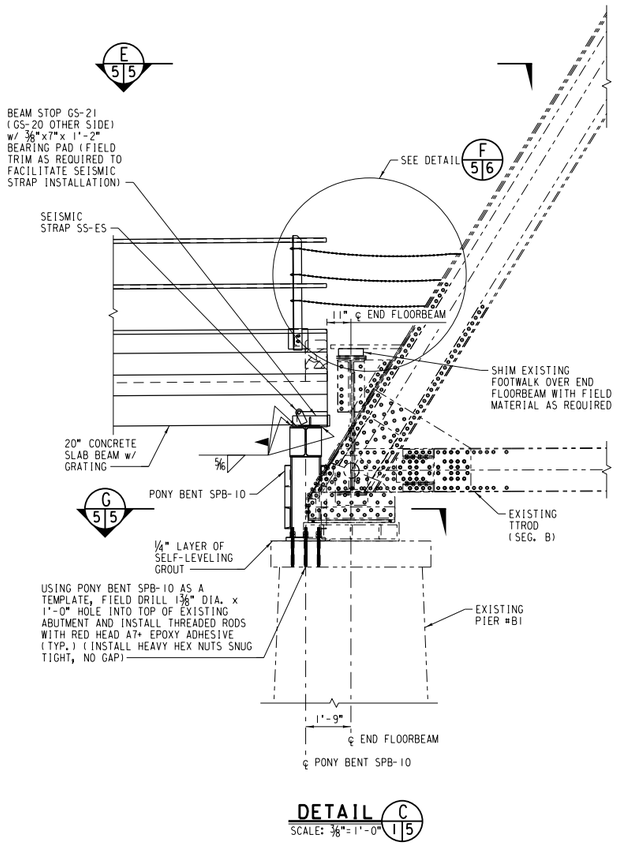
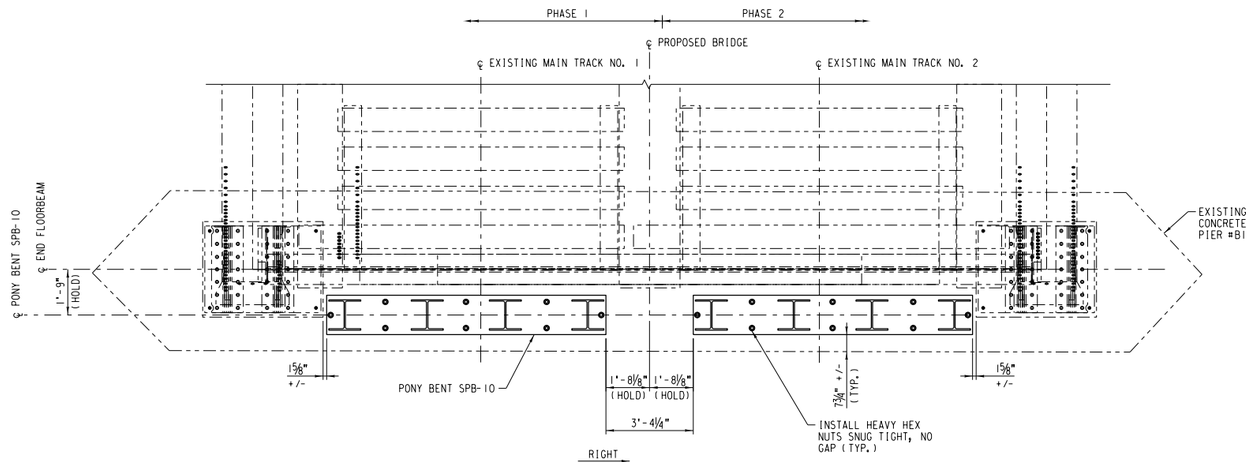
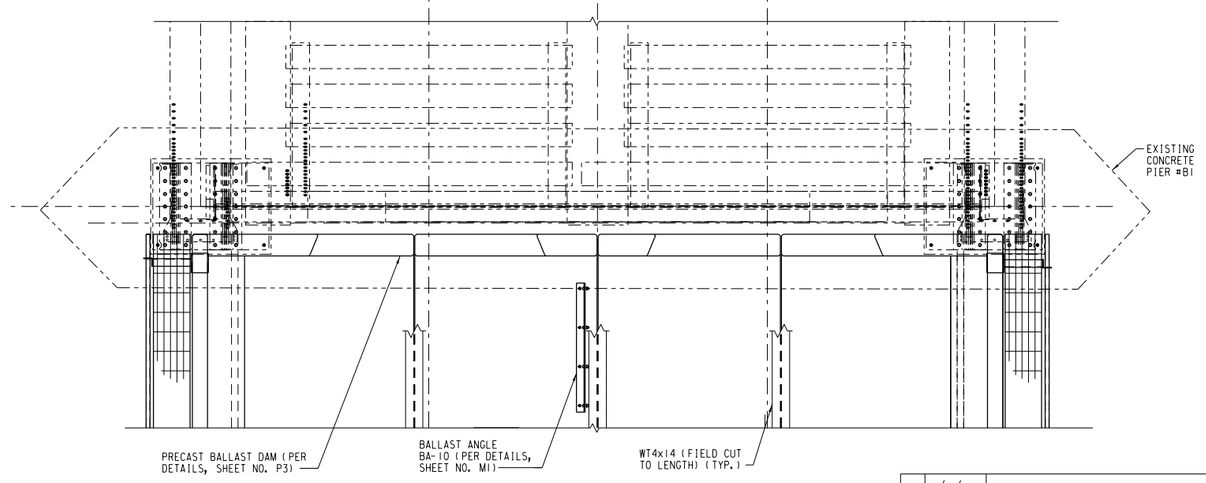


DETAIL C 1|5
SCALE: 3/8"=1'-0"



RIGHT
VIEW G 5|5
SCALE: 3/8"=1'-0"



RIGHT
VIEW E 5|5
SCALE: 3/8"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL — STATUS — 04/20/2022 DATE

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER — 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY: NAS/BWB	**UNION PACIFIC RAILROAD**
DRAWN/CHK BY: NAS/BWB	Office of Director Structures Design
UPRR ENGINEER: DGW	LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB 6 SPAN PCB & 1 SPAN PCS (20") x 202' REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)
SHT NO.: S5 of S6	SHEET TITLE: SECTIONS AND DETAILS (SHEET 2 OF 2)

FILE NAME: P:\DGN\mt209212_bca Rev 23.3.dgn

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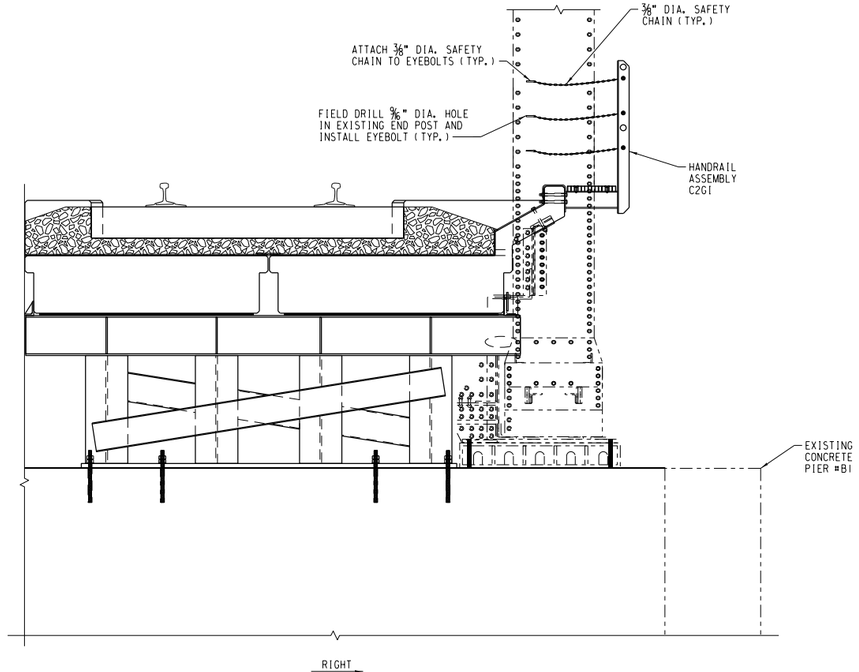
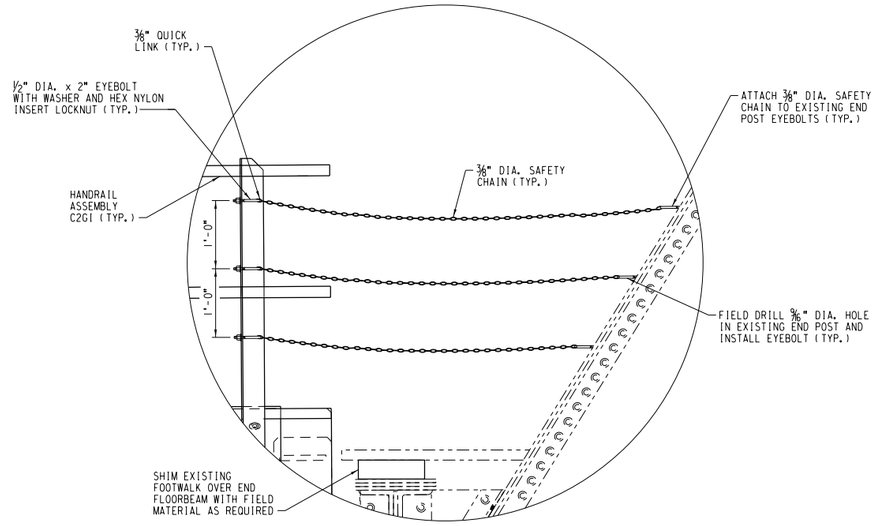


DETAIL D
SCALE: ½"=1'-0" 4|6



DETAIL F
SCALE: 1"=1'-0" 5|6

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:
FINAL (STATUS) 04/20/2022 (DATE)

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:
CONSULTANT ENGINEER 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	S6 of S6

UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 92.12, MARTINEZ SUB
6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE:
CLOSURE DETAILS

FILE NAME: P:\DGN\mt209212_bca Rev 23.3.dgn

PLOTTED: 10/30/2023 11:59:29 AM

MATERIAL SCHEDULE
(BOX BEAM MODIFICATION)

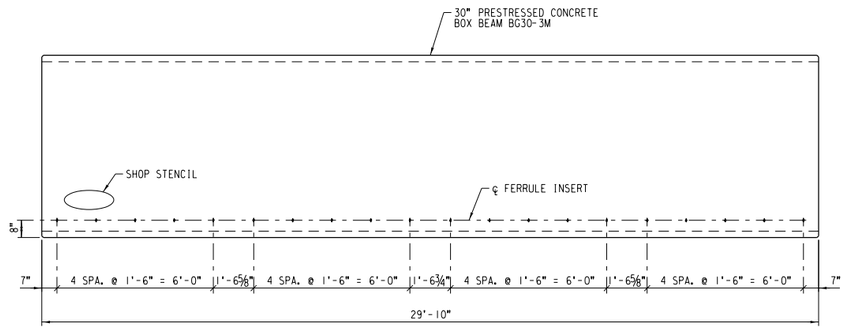
REQUIRED PER BG30-3M	UNIT	DESCRIPTION
20	EA.	FERRULE INSERTS DAYTON/RICHMOND TYPE F-57 NC FOR ¾" DIA. BOLT, ELECTRO-GALVANIZED OR APPROVED ALTERNATE.
4	EA.	BALLAST ANGLE BA-1 (LA1=6'-5", N=4) (PER STD. PLAN NO. 532131 SHT. BR1)
20	EA.	¾" DIA. x 2" ASTM A307 BOLT GRADE A HEX BOLT WITH FLAT CIRCULAR WASHER (ASTM F436) AND REGULAR SPRING LOCKWASHER (McMASTER CARR NO. 91102A036 OR APPROVED ALTERNATE), EACH COMPONENT HOT DIP OR MECHANICALLY ZINC COATED
20	EA.	¾" DIA. x 2½" A307 GRADE A HVY. HEX. BOLT, w/ FLAT CIRCULAR WASHER (F436), AND ELASTIC LOCKNUT (MIL-DTL-32258), EA. COMPONENT HOT DIP OR MECHANICALLY ZINC COATED

MATERIAL SCHEDULE
(SLAB BEAM MODIFICATION)

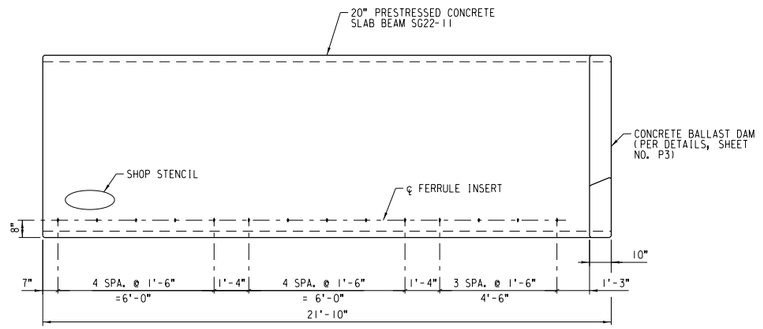
REQUIRED PER SG22-11	UNIT	DESCRIPTION
14	EA.	FERRULE INSERTS DAYTON/RICHMOND TYPE F-57 NC FOR ¾" DIA. BOLT, ELECTRO-GALVANIZED OR APPROVED ALTERNATE.
2	EA.	BALLAST ANGLE BA-1 (LA1=6'-5", N=4) (PER STD. PLAN NO. 532131 SHT. BR1)
1	EA.	BALLAST ANGLE BA-10 (LA1=4'-11", N=3) (PER DETAILS, SHEET NO. M1)
14	EA.	¾" DIA. x 2" ASTM A307 BOLT GRADE A HEX BOLT WITH FLAT CIRCULAR WASHER (ASTM F436) AND REGULAR SPRING LOCKWASHER (McMASTER CARR NO. 91102A036 OR APPROVED ALTERNATE), EACH COMPONENT HOT DIP OR MECHANICALLY ZINC COATED
14	EA.	¾" DIA. x 2½" A307 GRADE A HVY. HEX. BOLT, w/ FLAT CIRCULAR WASHER (F436), AND ELASTIC LOCKNUT (MIL-DTL-32258), EA. COMPONENT HOT DIP OR MECHANICALLY ZINC COATED

NOTE:

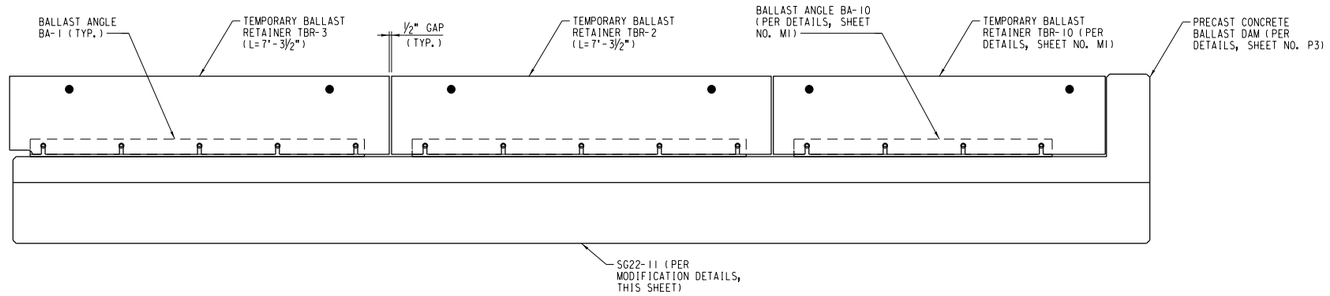
FOR DETAILS NOT SHOWN SEE STD. DWG. 532131.



BOX BEAM BG30-3M MODIFICATIONS
SCALE: 3/8"=1'-0"



SLAB BEAM SG22-11 MODIFICATIONS
SCALE: 3/8"=1'-0"



TEMPORARY BALLAST RETAINER INSTALLATION DETAIL - SG22-11
SCALE: ¾"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL (STATUS) 04/20/2022 (DATE)

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER 04/11/2022 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	P1 of P5

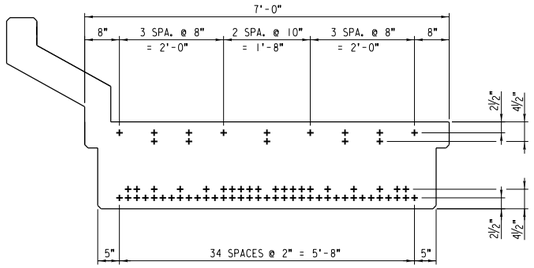
UNION PACIFIC RAILROAD
Office of Director Structures Design

LOCATION & DESCRIPTION:
BRIDGE 92.12, MARTINEZ SUB
6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE:
BEAM MODIFICATION DETAILS (SHEET 1 OF 2)

FILE NAME: P:\DGN\mt209212.bca Rev 23.3.dgn

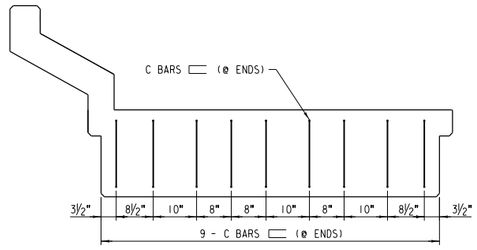
PLOTTED: 10/30/202312:00:47 PM



SLAB BEAM SG22 STRAND PATTERN

SCALE: ¾"=1'-0"

+(69-½" DIA. 270 KSI STRANDS)
f'c = 8.5 ksi, f'ci = 6 ksi



SLAB BEAM SG22 END REINFORCING MODIFICATION DETAIL

SCALE: ¾"=1'-0"

NOTES:

1. THIS MODIFICATION REPLACES 6 - C BARS ⊏ (@ ENDS).
2. OTHER SLAB BEAM REINFORCING NOT SHOWN FOR CLARITY.
3. MINIMALLY ADJUST LOCATIONS OF THESE BARS IF REQUIRED.

NOTES:

1. FOR DETAILS NOT SHOWN SEE STD. PLAN NO. 531130 SHEETS SB1-SB3.
2. STRAND PATTERN APPLIES TO SG22-10, SG22-11, SG22-12 AND SG22-13.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2022 DATE

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	P2 of P5

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB

6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE: BEAM MODIFICATION DETAILS (SHEET 2 OF 2)

FILE NAME: P:\DGN\mtz09212_bca Rev 23.1.dgn

PLOTTED: 10/30/2023 12:01:25 PM

NOTES:

1. VERTICAL BALLAST DAM REINFORCING CONNECTING TO THE BEAM CONCRETE SHALL BE CAST IN WITH THE BEAM. DRILLING AND DOWELING OF VERTICAL BARS INTO THE BEAM IS NOT PERMITTED.

2. BALLAST DAM REINFORCING CONNECTING TO THE CONCRETE CURB MAY BE CAST IN OR DRILLED AND DOWELED INTO THE CURB.

3. ESTIMATED WEIGHT OF PRECAST CONCRETE ADDED PER BEAM:

   SG22-10: 880 LB.
   SG22-11: 750 LB.
   SG22-12: 845 LB.
   SG22-13: 960 LB.

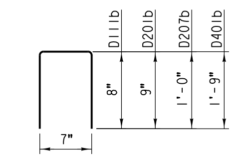
4. EF = EACH FACE

BALLAST DAM MATERIAL SCHEDULE

REQ'D. SG22-10	REQ'D. SG22-11	REQ'D. SG22-12	REQ'D. SG22-13	UNIT	DESCRIPTION
0.3	0.2	0.2	0.3	CU. YD.	4,000 PSI CONCRETE (PER NOTES, STD. PLAN NO. 531100 SHEET T3)
1	1	1	1	LOT	REINFORCING STEEL (PER NOTES, STD. PLAN NO. 531100 SHEET T3 AND SCHEDULE, SHEET NO. P3)

BENDING DIAGRAM

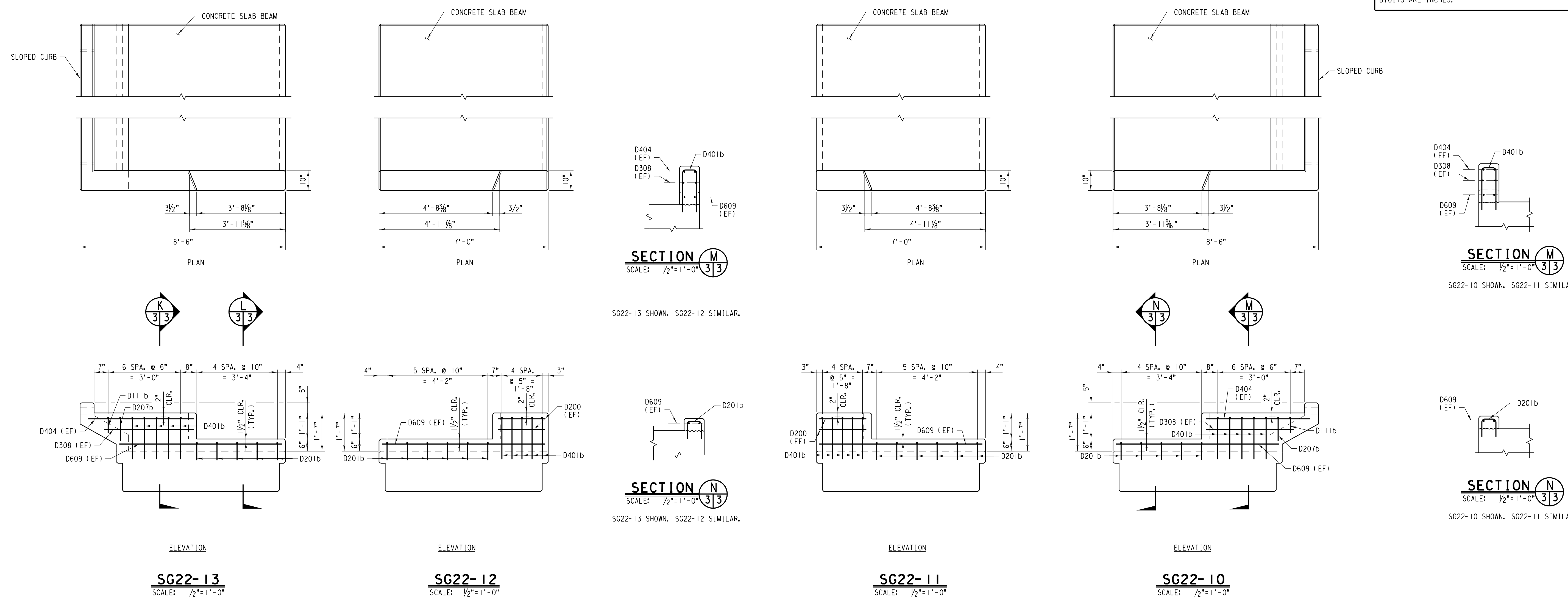
(DIMENSIONS ARE OUT TO OUT)



D111b, D201b, D207b, AND D401b

NOTE:

BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.



SG22-13

SCALE: 1/2"=1'-0"

REINFORCING SCHEDULE				
REQ'D.	MARK	SIZE	LENGTH	SHAPE
1	D111b	#5	1'-11"	⊓
5	D201b	#5	2'-1"	⊓
1	D207b	#5	2'-7"	⊓
2	D308	#5	3'-8"	—
5	D401b	#5	4'-1"	⊓
2	D404	#5	4'-4"	—
2	D609	#5	6'-9"	—

EST. WT. OF REINFORCING STEEL = 70 LB.

SG22-12

SCALE: 1/2"=1'-0"

REINFORCING SCHEDULE				
REQ'D.	MARK	SIZE	LENGTH	SHAPE
4	D200	#5	2'-0"	—
6	D201b	#5	2'-1"	⊓
5	D401b	#5	4'-1"	⊓
2	D609	#5	6'-9"	—

EST. WT. OF REINFORCING STEEL = 60 LB.

SG22-11

SCALE: 1/2"=1'-0"

REINFORCING SCHEDULE				
REQ'D.	MARK	SIZE	LENGTH	SHAPE
4	D200	#5	2'-0"	—
6	D201b	#5	2'-1"	⊓
5	D401b	#5	4'-1"	⊓
2	D609	#5	6'-9"	—

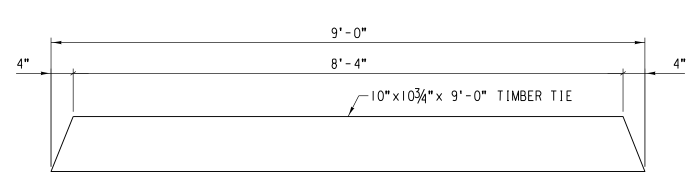
EST. WT. OF REINFORCING STEEL = 60 LB.

SG22-10

SCALE: 1/2"=1'-0"

REINFORCING SCHEDULE				
REQ'D.	MARK	SIZE	LENGTH	SHAPE
1	D111b	#5	1'-11"	⊓
5	D201b	#5	2'-1"	⊓
1	D207b	#5	2'-7"	⊓
2	D308	#5	3'-8"	—
5	D401b	#5	4'-1"	⊓
2	D404	#5	4'-4"	—
2	D609	#5	6'-9"	—

EST. WT. OF REINFORCING STEEL = 70 LB.



END BALLAST TIE EBT-10

SCALE: 3/4"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS: FINAL (STATUS) — 04/20/2022 (DATE)

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY: CONSULTANT ENGINEER — 04/11/2022 (DATE)

PROJECT ID: 114282 | WORK ORDER: 53010 | C E NUMBER: 122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

DSN/CHK BY: NAS/BWB
DRAWN/CHK BY: NAS/BWB
UPRR ENGINEER: DGW
SHT NO.: P3 of P5

UNION PACIFIC RAILROAD

Office of Director Structures Design

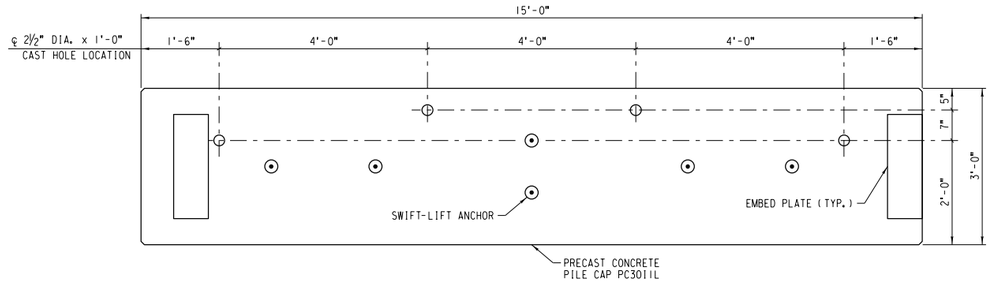
LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB

6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

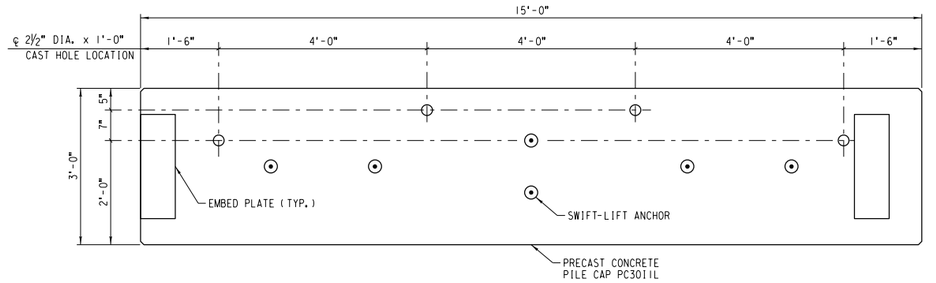
SHEET TITLE: SLAB GIRDER BALLAST DAM DETAILS

PLOTTED: 10/30/2023 12:03:31 PM

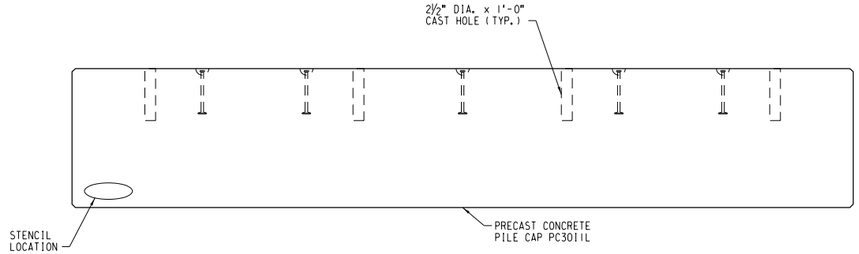
FILE NAME: P:\DGN\mtz09212_bca Rev 2&3.dgn



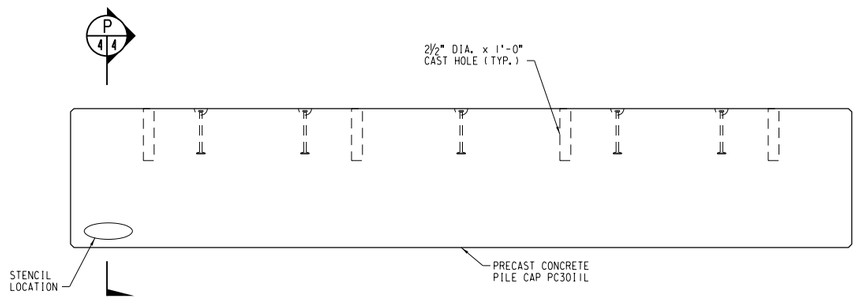
FRAMING - PLAN



FRAMING - PLAN



FRAMING - ELEVATION



FRAMING - ELEVATION

PRECAST CONCRETE BENT CAP PCC-10L

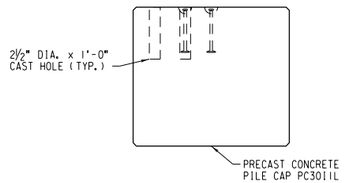
¾"=1'-0" SCALE:

EST. WT. = 18,900 LB. EA.

PRECAST CONCRETE BENT CAP PCC-10R

SCALE: ¾"=1'-0"

EST. WT. = 18,900 LB. EA.



SECTION P 4 4
SCALE: ¾"=1'-0"

PCC-10R SHOWN. PCC-10L SIMILAR.

NOTES:

1. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR EMBEDDED ITEMS AND CAST HOLES.
2. FOR REINFORCING AND DETAILS NOT SHOWN, SEE STD. PLAN NO. 532150, SHT. 1.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL (STATUS) 04/20/2022 (DATE)

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	P4 of P5

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB

6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE: PRECAST CONCRETE PIER CAP DETAILS

FILE NAME: P:\UDX\mtz09212.bca Rev 28.3.dgn

PLOTTED: 10/30/2023 12:04:48 PM

RISER BLOCK MATERIAL SCHEDULE

REQ'D. PER CRB-10R	REQ'D. PER CRB-10L	UNIT	DESCRIPTION
0.7	0.7	CU. YD.	4,000 PSI CONCRETE (PER NOTES, STD. PLAN NO. 531100 SHEET T3)
1	1	LOT	REINFORCING STEEL (PER NOTES, STD. PLAN NO. 531100 SHEET T3 AND SCHEDULE, SHEET NO. P5)
1	1	EA.	EMBED PLATE ½x17x 15'-0" (PER DETAIL, SHEET NO. P5)
2	2	EA.	8-TON SWIFT LIFT ANCHOR, L=6¾" (PER NOTES, STD. PLAN NO. 531100 SHEET T3 AND DETAIL SHEET NO. P5)
2	2	EA.	¾" x 10" x 6'-2" BEARING PAD, RANDOM ORIENTED FIBER MATERIAL (PER NOTES, STD. PLAN NO. 531100 SHEET T3)

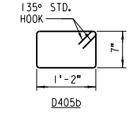
REINFORCING SCHEDULE

REQ'D. PER CRB-10R	REQ'D. PER CRB-10L	MARK	SIZE	LENGTH	SHAPE
16	16	D405b	#5	4'-5"	
6	6	D1408	#5	14'-8"	

EST. WT. OF REINFORCING STEEL = 170 LB. PER PIECE

BENDING DIAGRAM

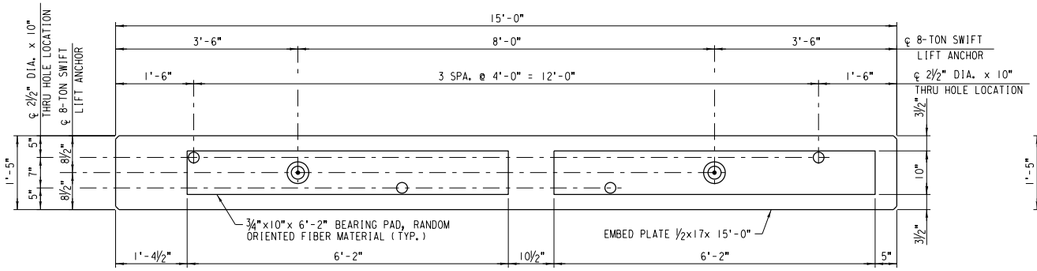
(DIMENSIONS ARE OUT TO OUT)



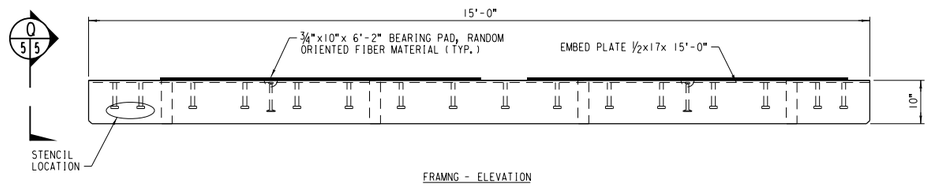
D405b

NOTE:

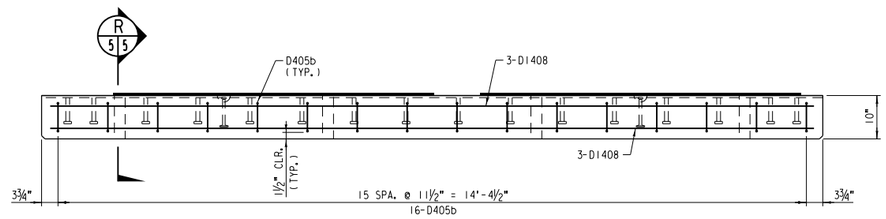
BAR DESIGNATIONS CONSIST OF BAR SIZE & LENGTH FOLLOWED BY THE LETTER "b" IF BENT. BAR SIZES ARE REPRESENTED BY THE LETTERS A THROUGH L CORRESPONDING TO BAR SIZE #2 THROUGH #18. BAR LENGTHS ARE GIVEN IN FEET AND INCHES; THE LAST TWO DIGITS ARE INCHES.



FRAMING - PLAN



FRAMNG - ELEVATION

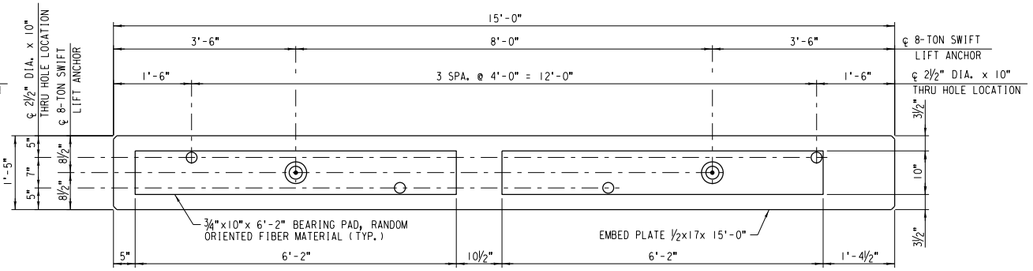


REINFORCING - ELEVATION

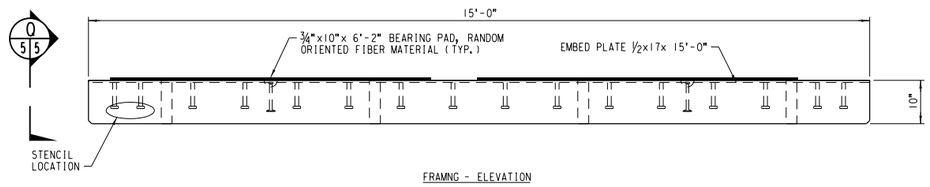
PRECAST CONCRETE RISER BLOCK CRB-10R

SCALE: ¾"=1'-0"

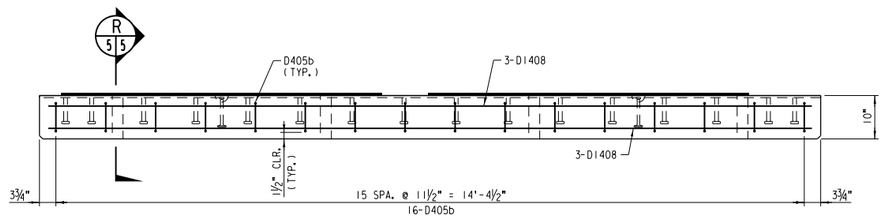
EST. WT. = 3,130 LB. EA.



FRAMING - PLAN



FRAMNG - ELEVATION

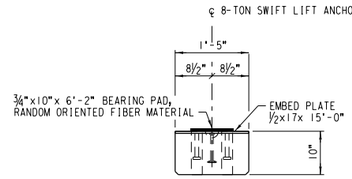


REINFORCING - ELEVATION

PRECAST CONCRETE RISER BLOCK CRB-10L

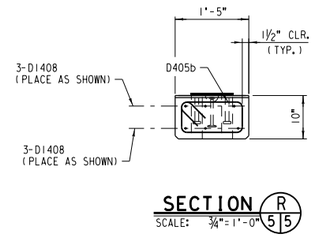
SCALE: ¾"=1'-0"

EST. WT. = 3,130 LB. EA.



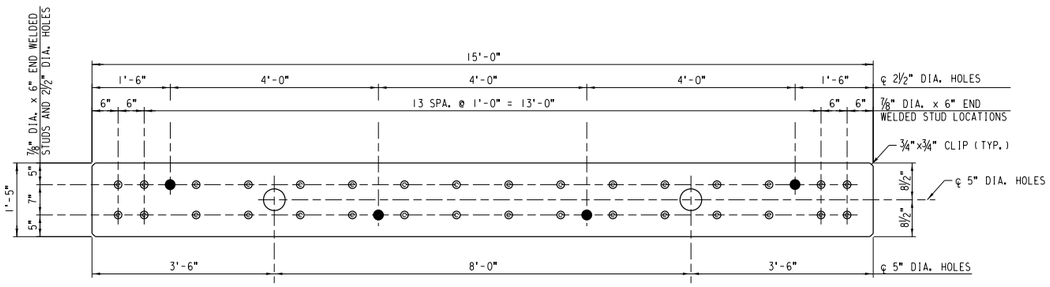
VIEW Q 5 5

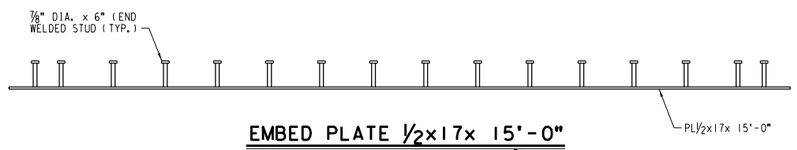
SCALE: ¾"=1'-0"



SECTION R 5 5

SCALE: ¾"=1'-0"

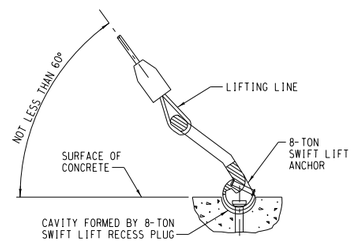




EMBED PLATE ½x17x 15'-0"

SCALE: ¾"=1'-0"

EST. WT. = 471 LB. EA.



LIFTING DETAIL

SCALE: NONE

NOTE:

8-TON SWIFT LIFT RECESS PLUGS, ANCHORS AND LIFTING EYES ARE AVAILABLE FROM DAYTON SUPERIOR CORP., 1125 BYERS ROAD, MIAMISBURG, OHIO 45342, TELEPHONE (937) 866-0711. THE MATERIALS FOR THIS LIFTING SYSTEM ARE NOT INCLUDED IN THE BILL OF MATERIAL BUT ARE TO BE ORDERED AS REQUIRED.

NOTES:

1. MINIMALLY ADJUST REINFORCING AS REQUIRED TO CLEAR EMBEDDED ITEMS.
2. FABRICATOR MAY PROPOSE ALTERNATE LIFTING SYSTEM IF PREFERRED. ALTERNATE SYSTEM SHALL BE EASILY AND QUICKLY REMOVABLE IN THE FIELD IF THERE IS PROJECTION ABOVE TOP OF EMBED PLATE.
3. ELASTOMERIC BEARING PADS SHALL BE BONDED TO STEEL WITH REMA TIPTOP SC2000 OR APPROVED ALTERNATE. APPLY PER MANUFACTURER RECOMMENDATIONS.
4. TOP STEEL SURFACE SHALL BE BLAST CLEANED TO SSPC-6, COMMERCIAL (SAND) BLAST CLEANING, PRIOR TO BONDING.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2022 DATE

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	P5 of P5

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB

6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE: CONCRETE RISER BLOCK CRB-10

FILE NAME: P:\DGN\mz090212.bca Rev 08.3.dgn

PLOTTED: 10/30/2023 12:06:06 PM

STRUCTURAL STEEL NOTES

All requirements shown on these drawings shall be accomplished as specified in the most current edition of the American Railway Engineering and Maintenance-of-Way Association (AREMA) Manual for Railway Engineering.

Material shall conform to the following requirements:

HP Shapes	ASTM A572
Stiffener Plates & Channels	ASTM A36 or Better
Base Plates	ASTM A36 or Better
Bearing Pads	Elastomeric Pad (50 Durometer)
Threaded Rods	ASTM F1554 Grade 36

PAINTING:

Structural steel shall not be painted.

WELDING:

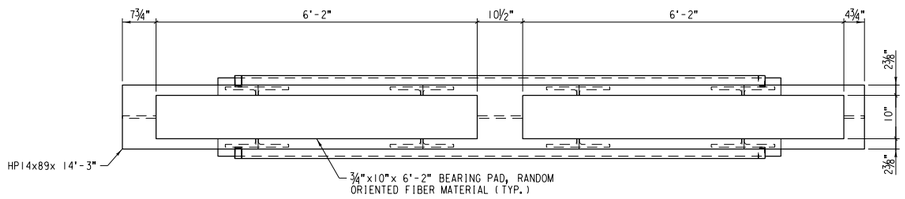
Welding shall be by the arc process per AREMA Manual for Railway Engineering and AWS D1.1 Structural Welding Code. Welding shall be performed by qualified welders.

MATERIAL SCHEDULE
(PER PONY BENT SPB-10)

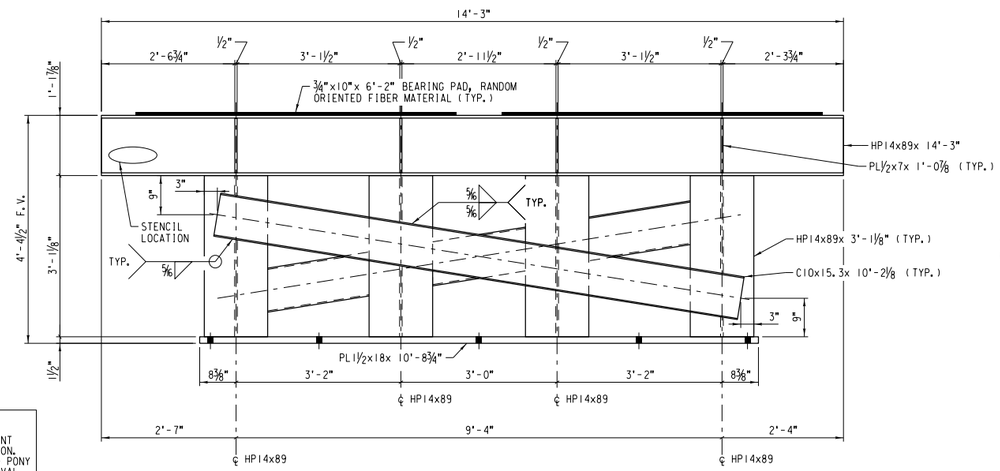
REQ'D	UNIT	DESCRIPTION
4	EA.	HP14x89 x 3'-1⅛" STEEL PILE (ASTM A572 GRADE 50, PLAIN)
1	EA.	HP14x89 x 14'-3" STEEL PILE (ASTM A572 GRADE 50, PLAIN)
2	EA.	C10x15.3 x 10'-2⅛" (ASTM A572 GRADE 50, PLAIN)
1	EA.	PL1½x18 x 10'-8¾" (A709, GRADE 50W)
2	EA.	¾" x 10" x 6'-2" BEARING PAD, RANDOM ORIENTED FIBER MATERIAL (PER NOTES, STD. PLAN NO. 53100 SHEET T3)
1	LOT	REMA SC2000 BONDING CEMENT OR APPROVED ALTERNATE
8	EA.	1¼" DIA. x 1'-6" ALL-THREAD ROD (ASTM F1554 GR. 36) WITH 2-HEAVY HEX NUTS (A563, LUBRICATED) AND FLAT CIRCULAR WASHER (F436)

NOTES:

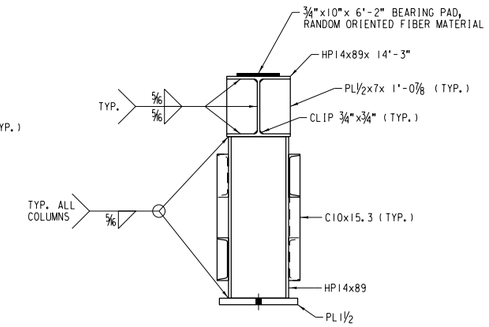
1. ELASTOMERIC BEARING PADS SHALL BE BONDED TO STEEL WITH REMA TIPTOP SC2000 OR APPROVED ALTERNATE. APPLY PER MANUFACTURER RECOMMENDATIONS.
2. TOP STEEL SURFACE SHALL BE BLAST CLEANED TO SSPC-6, COMMERCIAL (SAND) BLAST CLEANING, PRIOR TO BONDING.



PLAN



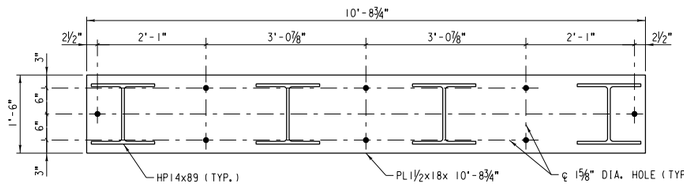
ELEVATION



END VIEW

NOTE:

CONSTRUCTOR SHALL FIELD VERIFY PONY BENT HEIGHT REQUIREMENTS PRIOR TO FABRICATION. SUBMIT FIELD MEASUREMENTS AND PROPOSED PONY BENT HEIGHTS TO THE RAILROAD FOR APPROVAL PRIOR TO FABRICATION.



BOTTOM PLAN

PONY BENT SPB-10

SCALE: ¾"=1'-0"

EST. WT. = 3,768 LB. EA.

NOTE:

F.V. = FIELD VERIFY

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL (STATUS) 04/20/2022 (DATE)

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER 04/11/2022 (DATE)

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

UNION PACIFIC

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	F1 of F1

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 92.12, MARTINEZ SUB

6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

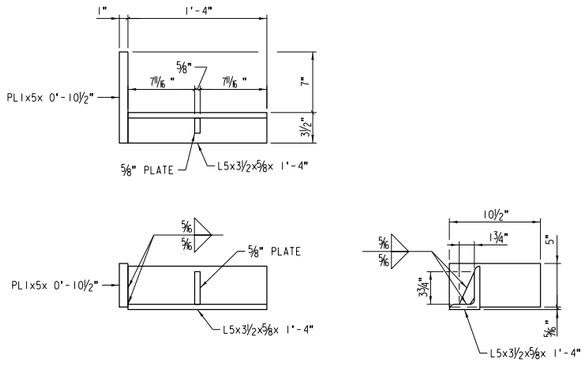
SHEET TITLE: STEEL PONY BENT SPB-10

FILE NAME: P:\DGN\mz092212.bca Rev. 28.3.dgn

PLOTTED: 10/30/2023 12:08:29 PM

NON-STANDARD MISCELLANEOUS STEEL SCHEDULE

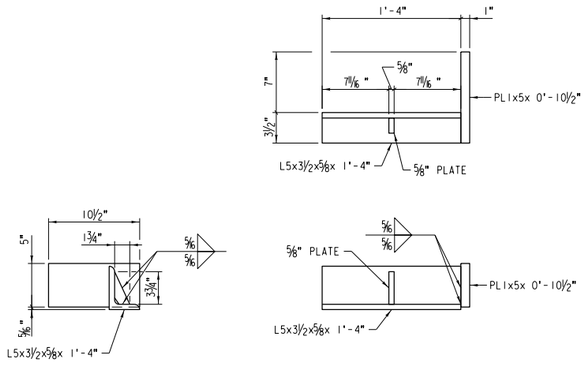
REQ'D.	UNIT	DESCRIPTION
1	EA.	BEAM STOP GS-20 (PER DETAILS, SHEET NO. M1)
1	EA.	BEAM STOP GS-21 (PER DETAILS, SHEET NO. M1)
1	EA.	TEMPORARY BALLAST RETAINER TBR-1 (L1 = 9'-2½") (PER NOTES AND DETAILS, STD. PLAN NO. 532131 SHEET BR1)
12	EA.	TEMPORARY BALLAST RETAINER TBR-2 (L2 = 7'-6") (PER NOTES AND DETAILS, STD. PLAN NO. 532131 SHEET BR1)
11	EA.	TEMPORARY BALLAST RETAINER TBR-3 (L3 = 7'-4¾") (PER NOTES AND DETAILS, STD. PLAN NO. 532131 SHEET BR1)
1	EA.	TEMPORARY BALLAST RETAINER TBR-2 (L2 = 7'-3½") (PER NOTES AND DETAILS, STD. PLAN NO. 532131 SHEET BR1)
1	EA.	TEMPORARY BALLAST RETAINER TBR-3 (L3 = 7'-3½") (PER NOTES AND DETAILS, STD. PLAN NO. 532131 SHEET BR1)
1	EA.	TEMPORARY BALLAST RETAINER TBR-10 (PER NOTES, STD. PLAN NO. 532131 SHEET BR1 AND DETAILS, SHEET NO. M1)



BEAM STOP GS-20

SCALE: 1½"=1'-0"

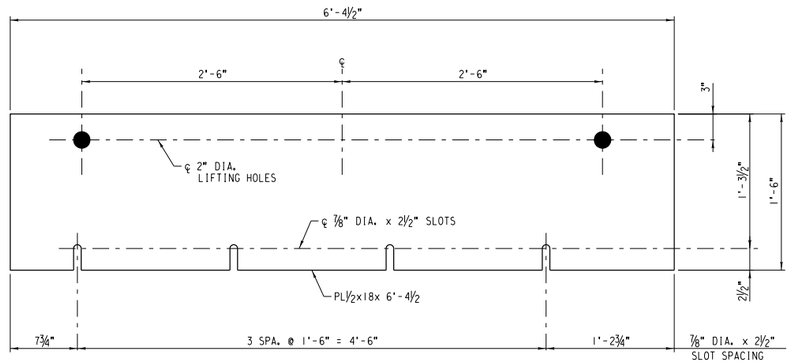
EST. WT. = 38.5 LB. EA.



BEAM STOP GS-21

SCALE: 1½"=1'-0"

EST. WT. = 38.5 LB. EA.

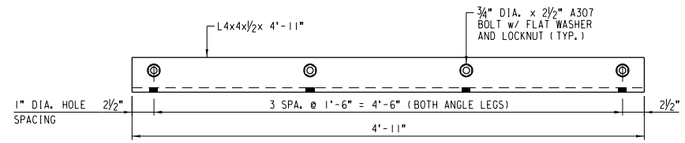


ELEVATION

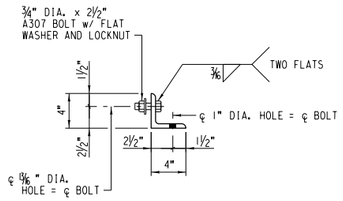
TEMPORARY BALLAST RETAINER TBR-10

SCALE: 1½"=1'-0"

EST. WT. = 196 LB. EA.



ELEVATION



SECTION

BALLAST ANGLE BA-10

SCALE: 1½"=1'-0"

EST. WT. = 63.0 LB. EA.

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL — STATUS — 04/20/2022 DATE

WILSON & COMPANY

APPROVED FOR UNION PACIFIC RAILROAD BY:

CONSULTANT ENGINEER — 04/11/2022 DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
114282	53010	122544

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

DSN/CHK BY:	NAS/BWB
DRAWN/CHK BY:	NAS/BWB
UPRR ENGINEER:	DGW
SHT NO.:	M1 of M1

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION:

BRIDGE 92.12, MARTINEZ SUB

6 SPAN PCB & 1 SPAN PCS (20") x 202'
REPLACING 14 SPAN TSTBD x 197' (SEGMENT A)

SHEET TITLE:

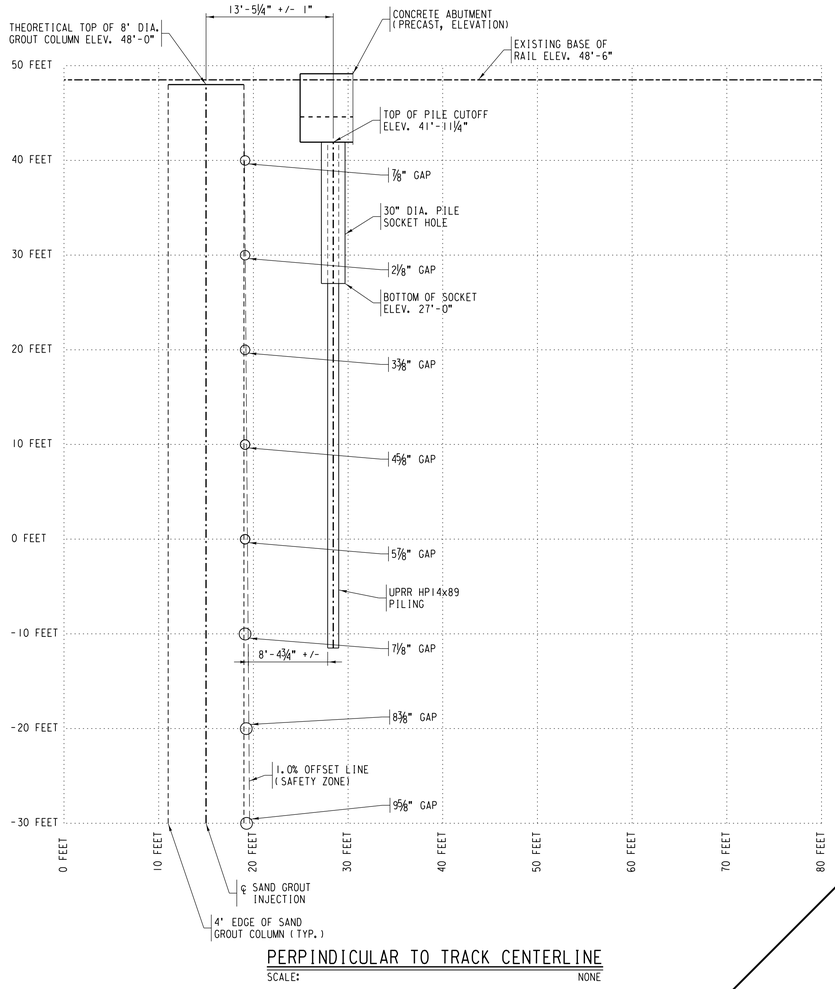
NON-STANDARD MISCELLANEOUS STEEL DETAILS

FILE NAME: P:\DGN\mt\092122_bca Rev 2&3.dgn

PLOTTED: 10/30/202312:09:35 PM

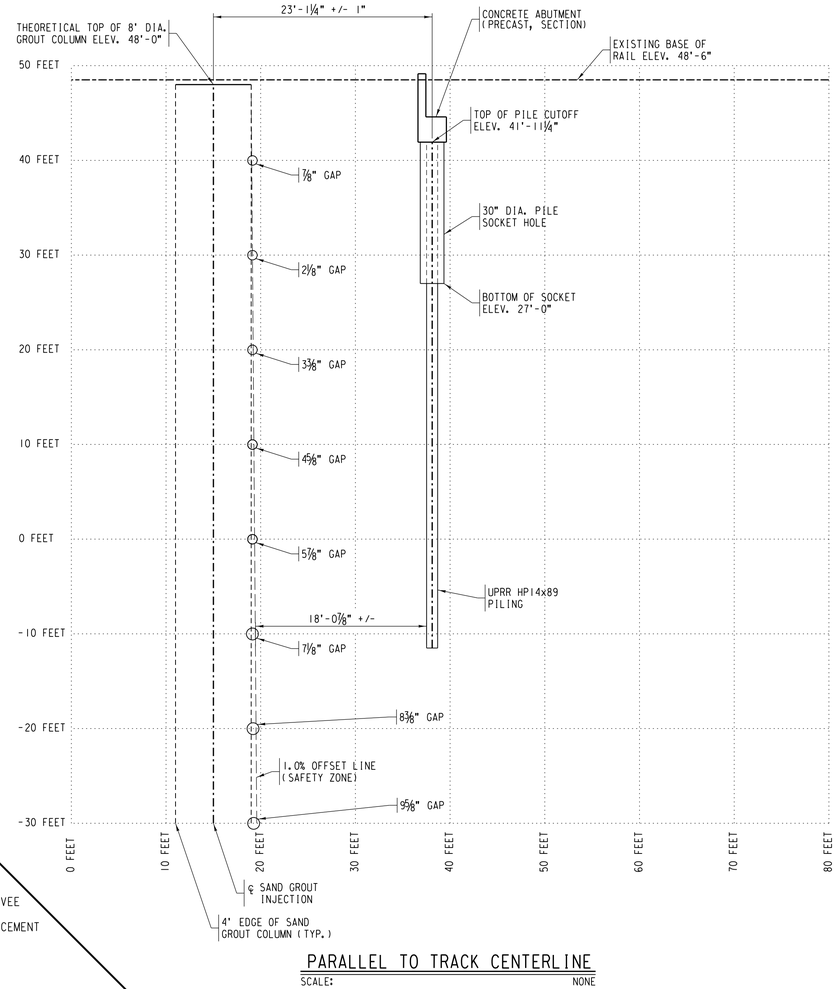
DESIGN SHEET

SHEET SIZE 22x34



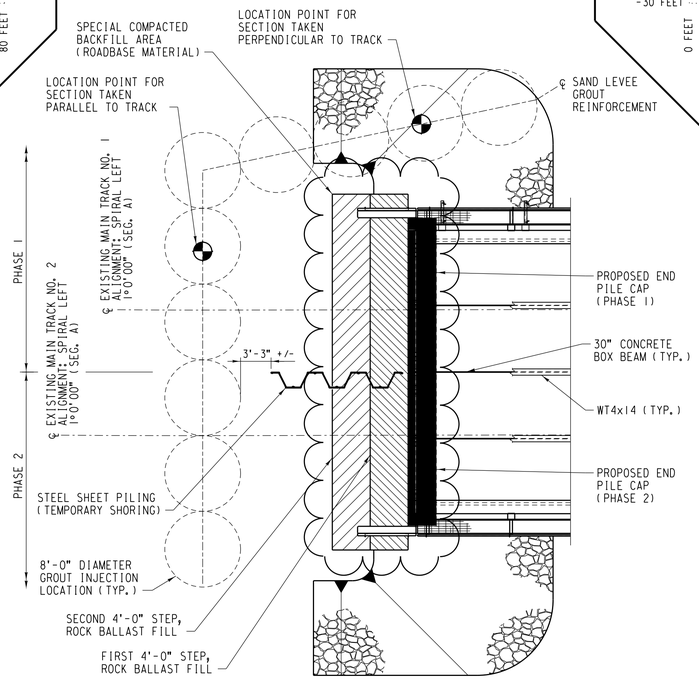
PERPINDICULAR TO TRACK CENTERLINE

SCALE: NONE



PARALLEL TO TRACK CENTERLINE

SCALE: NONE



PLAN AT ABUTMENT

SCALE: ⅛"=1'-0"

NO.	DATE	REVISIONS
	/ /	
	/ /	

COMPLETION STATUS:

FINAL (IFC) — STATUS — / / DATE

BUILDING AMERICA®

APPROVED FOR UNION PACIFIC RAILROAD BY:

PATRICK J. PROSOSKI — DESIGN ENGINEER OF RECORD — / / DATE

PROJECT ID:	WORK ORDER:	C E NUMBER:
--	53010	XXXXXX

LATITUDE: 38.58826°N LONGITUDE: 121.45040°W

DSN/CHK BY:	PGP/PGP
DRAWN/CHK BY:	KDM/PGP
UPRR ENGINEER:	PGP
SHT NO.:	S1 of S1

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 92.12 MARTINEZ SUB

PILE DRIVING SKETCHES - PARRALEL AND PERPINDICULAR TO MAIN LINE #1 CENTERLINE

SHEET TITLE: GENERAL ARRANGEMENT

FILE NAME: P:\martinez sub\92.12 (A-92.00)\CAD FILES\Martinez 092123 Sketches.dgn

PLOTTED: 11/9/2023 11:33:44 AM

TO ELVAS & 10TH ST (OAKLAND) (TIMETABLE WEST)

TO SWANSTON & ROSEVILLE (TIMETABLE EAST)

POTHOLING WILL BE PERFORMED WITH A HYDROVAC (USING WATER & VACUUM) AND AIR KNIFE SOIL VACUUM EXCAVATION TO A DEPTH NOT EXCEEDING 10 FT.

POTHOLES HOLES WILL BE BACKFILLED WITH BENTONITE - CEMENTATIOUS GROUT SLURRY TREMIE FROM THE BOTTOM OF THE HOLE UP.

FENCELINE

CENTERLINE LEVEE

LOCATION OF POTHOLING TO CONFIRM WALL LOCATION

PROPOSED ABUTMENT

TIE PROPOSED ELEVATIONS TO EXISTING ELEVATIONS

RAILROAD CROSSING TO REMAIN IN PLACE

CENTERLINE MANLINE 1 (ML1) TRACK

CENTERLINE MANLINE 2 (ML2) TRACK

APPROXIMATE EDGE OF JET GROUT CUTOFF WALL; 4.0' OFFSET FROM CENTERLINE, BASED ON USACE AS-BUILT PLANS

1.0' OFFSET FROM EDGE OF JET GROUT CUTOFF WALL (1% DEFLECTION)

APPROXIMATE CENTERLINE OF JET GROUT CUTOFF WALL BASED ON AS-BUILT PLANS

PROPOSED H-PILE

EXISTING PIERS TO BE REMOVED

APPROXIMATE TOE OF LEVEE

PROPOSED RIPRAP

BRIDGE 92.12

SEG. A: 7-SPAN, 202' LONG, CONCRETE BRIDGE REPLACING; AND COMBINE 14-SPAN, 197' LONG, TIMBER STRINGER TRESTLE - BALLAST DECK (TST-BD)

LEGEND

- EXISTING
- PROPOSED
- JET GROUT CUTOFF WALL
- POTHOLING TO CONFIRM WALL LOCATION

SCALE 0 5' 10'

NOTE: U.S. ARMY CORPS OF ENGINEERS AS-BUILT PLANS SCALED AND ROTATED WITHIN DRAWING

NO.	DATE	REVISIONS

olsson

DATE:	WORK ORDER:	SURVEY:
11/07/2023	53010	02/06/2020

LATITUDE: 38.58826° N LONGITUDE: 121.45040° W

DSN/CHK BY:	GVP, BJS
DRAWN/CHK BY:	GVP/BJS
UPRR ENGINEER:	DGW
FIGURE:	2

UNION PACIFIC RAILROAD

Office of Director Structures Design

LOCATION & DESCRIPTION: BRIDGE 92.12 MARTINEZ SUBDIVISION

6 SPAN PCB 7 1 SPAN PCS (20") X 202'
REPLACING 14 SPAN TSTBD X 197' (SEGMENT A)

SHEET TITLE: POTHOLING PLAN

HYDROLOGIC & HYDRAULIC EVALUATION

Bridge 92.12, Martinez Subdivision

Prepared for:

Union Pacific Railroad Company

Structures Design

Omaha, Nebraska

April 2022

Olsson Project No. 019-39260

CVFPB Encroachment Permit Application

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Olsson has conducted a hydrologic and hydraulic evaluation for UPRR Bridge 92.12 on the Martinez Subdivision. The bridge is situated within the City of Sacramento in Sacramento County, California. The purpose of this evaluation was to determine the hydraulic capacity of the existing structure and to make a recommendation for an appropriately sized replacement structure in compliance with UPRR's standard hydraulic design criteria and regulatory requirements. Results of this investigation and replacement recommendations are summarized below:

- The bridge is located along UPRR's mainline track running generally in a geographic north to south direction through the study area.

- UPRR Bridge 92.12 currently consists of a 13-Span, 197 ft long, Timber Stringer Trestle (Segment A); a 5-Span, 844 ft long, Through Truss Riveted (Segment B), a and a 47-Span, 1,402 ft long, Prestressed Concrete Box Girder (Segment C), for a total bridge length of 2,442 feet over the American River.

- The proposed replacement is only for Segment A, as Segments B and C are structurally adequate and will remain in place.

- Bridge 92.12 spans the main channel and overbank area of the American River. UPRR Bridge 92.12 is located within a FEMA and CVFPB designated floodway.

- The area in the vicinity of UPRR Bridge 92.12 is bordered by a system of federal levees used for flood protection. The project levees are located outside the existing abutments and was designed by the U.S. Army Corps of Engineers.

- According to USGS stream gage 11447000 located 2 miles upstream of Bridge 92.12 along the American River, the total drainage area is 1,936 square miles.

- UPRR Bridge 92.12 is located within a FEMA-designated Zone AE floodplain/floodway, special flood hazard areas subject to inundation by the 1% annual chance (100-year) flood, as shown on the Flood Insurance Rate Map (FIRM) for Sacramento County, California and Incorporated Areas (Map Number 06067 C 0180 J, effective date June 16, 2015).

- The design discharges for the 100-year event was taken directly from the FEMA FIS for Sacramento County at the mouth of the American River. The American River USACE Operation and Maintenance Manual (O&M) design flow is 180,000 cfs. The design discharges used in the analysis of UPRR Bridge 92.12 are $Q_{100} \approx 157{,}000$ cfs and $Q_{O\&M} \approx 180{,}000$ cfs.

- The hydraulic analysis was based on utilizing the effective HEC-RAS 4.1.0 model developed as part of the American River (AME) Hydraulic Model Development study and incorporating Olsson's bridge survey information (corrected-effective).

- The replacement structure along Segment A of Bridge 92.12, as selected by UPRR, consists of a 7 – Span, 202-ft long bridge replacing the existing 13 – Span, 197-ft long bridge. The proposed bridge will have an opening area of 46,344 ft², a slight decrease when compared to the existing bridge due to a lower low chord elevation.

- The proposed bridge replacement was designed such that it results in a "*adverse impact condition*" for both the 100-year and O&M runoff event.

The Hydrologic and Hydraulic Evaluation report should be read in its entirety, and an understanding of the findings and recommendations should not be based solely on this executive summary.

1. INTRODUCTION

The Union Pacific Railroad Company (UPRR) is proposing to replace Bridge 92.12, Martinez Subdivision, located with the City of Sacramento, in Sacramento County California. UPRR's track in the vicinity of Bridge 92.12 provides passenger commuter and freight services, with Bridge 92.12 crossing the main channel and overbank area of the American River.

The purpose of the proposed project is to replace the existing timber spans at UPRR Bridge 92.12 in compliance with UPRR's standard hydraulic design criteria and regulatory requirements including a "*no adverse impacts*" condition for the 100-year and O&M runoff events. The timber bents and spans are deteriorating and have nearly reached the end of their useful life and now require replacement. This report summarizes results of the hydrologic and hydraulic modeling and evaluations, leading to the decision on the replacement structure.

2. SITE DESCRIPTION

UPRR Bridge 92.12 is located on the Martinez Subdivision of the Roseville Division in Sacramento County, California. The bridge is located on a tangent section of Union Pacific Railroad (UPRR) track running generally in a north-south direction through the study area. The bridge serves UPRR's single mainline track through the site. More specifically, the bridge is located at latitude 38.58826^{o} N and longitude 121.45040^{o} W. Bridge 92.12 spans the main channel of the American River.

As observed during Olsson's 6 February 2020 site visit, the existing hydraulic structure at UPRR Bridge 92.12 consists of a 13-Span, 197 ft long, Timber Stringer Trestle (Segment A); a 5-Span, 844 ft long, Through Truss Riveted (Segment B), a and a 47-Span, 1,402 ft long, Prestressed Concrete Box Girder (Segment C), for a total bridge length of 2,442 feet over the American River. The area in the vicinity of UPRR Bridge 92.12 is bordered by a system of federal levees used for flood protection. The project levees are located outside the existing abutments and was designed by the U.S. Army Corps of Engineers. UPRR Bridge 92.12 is located within a FEMA and CVFPB designated floodway. The project levee is located just outside the existing geographic south abutment (TT West) along Segment A.

UPRR Bridge 92.12 is located within a FEMA-designated Zone AE floodplain/floodway, special flood hazard areas subject to inundation by the 1% annual chance (100-year) flood, as shown

on the Flood Insurance Rate Map (FIRM) for Sacramento County, California and Incorporated Areas (Map Number 06067 C 0180 J, effective date June 16, 2015).

A photolog showing current conditions at the site (February 2020 site visit) is included in Appendix C of this report.

3. HYDROLOGY

The area in the vicinity of UPRR Bridge 92.12 is bordered by a system of federal levees used for flood protection. UPRR Bridge 92.12 is currently located within the American River floodway. The project levee is located just outside the existing geographic south abutment (TT West).

According to USGS stream gage 11447000 located 2 miles upstream of Bridge 92.12 along the American River, the total drainage area is 1,936 square miles.

The design discharges for the 100-year event was taken directly from the FEMA FIS for Sacramento County at the mouth of the American River. The American River USACE Operation and Maintenance Manual (O&M) design flow is 180,000 cfs. The design discharges used in the analysis of UPRR Bridge 92.12 are $Q_{100} \approx 157{,}000$ cfs and $Q_{O\&M} \approx 180{,}000$ cfs.

4. HYDRAULIC DESIGN CRITERIA

The current criteria for hydraulic evaluation of UPRR bridges and culverts were used to determine the drainage capacity and adequacy of the existing structure(s) and to analyze proposed replacement structures. The hydraulic design criteria are as follows:

1. For all cases, the opening will be sized, if possible, so that the 50-year floodwater surface elevation (WSE) will be no higher than the crown of the culvert (top of opening) or the low chord of the bridge, whichever is applicable.

2. For all cases, the opening will be sized, if possible, so the 100-year floodwater energy grade line elevation (EGL) will not rise above the adjacent track subgrade elevation, which is generally estimated as two feet below the base of rail elevation at the lowest point in the cross section.

3. If the replacement structure is located in an urban or developed area, both the UPRR criteria and local flood flow criteria shall be evaluated, and the more conservative/ restrictive of the two shall be adopted in sizing the replacement structure.

4. If the existing bridge or culvert opening exceeds that required by the foregoing limits, a smaller section will be recommended using these limits.

5. If the existing bridge or culvert opening does not meet the hydraulic design criteria, a larger opening will be proposed. This enlargement will be lateral to the extent possible. If it is found that insufficient channel area exists to meet the criteria, even with the maximum widening, consideration will be given to adding relief structures on the overbank floodplain, raising the railroad grade, or other alternatives.

In addition to the above hydraulic design criteria, the replacement structure was designed in compliance with local, state, and federal regulatory requirements, including a "*no adverse impacts*" condition for the 100-year and O&M runoff events.

5. BRIDGE HYDRAULICS

The hydraulic modeling and analyses performed for this study was based on the survey of existing conditions for UPRR Bridge 92.12, and the surrounding floodplain. Survey information was compiled to represent plan and profile data along the track, the existing structure(s), adjacent levees, and surrounding waterway sections. Olsson's survey was based on NAVD 1988 datum.

The hydraulic analysis was based on utilizing the effective HEC-RAS 4.1.0 model developed as part of the American River (AME) Hydraulic Model Development study. After a review of the regulatory HEC-RAS geometry obtained from the model, the bridge geometry for UPRR Bridge 92.12 was found to be different than the actual bridge geometry surveyed by Olsson's on 6 February 2020. Specifically, the HEC-RAS regulatory model bridge geometry was updated based on the site survey of the bridge.

As such, a corrected effective geometry titled "CE_American_River" was created to represent the bridge geometry of UPRR Bridge 92.12 as surveyed by Olsson. Subsequently, the post project geometry "PP_American_RIver" incorporates the corrected effective geometry and UPRR's proposed replacement structure of UPRR Bridge 92.12. UPRR Bridge 92.12 is represented at HEC-RAS River Station 3.715 along the AME; R1 Reach.

The replacement structure along Segment A of Bridge 92.12, as selected by UPRR, consists of a 7 – Span, 202-ft long bridge replacing the existing 13 – Span, 197-ft long bridge. The proposed bridge will have an opening area of 46,344 ft², a slight decrease when compared to the existing bridge due to a lower low chord elevation.

Based on the hydrologic and hydraulic evaluation, the Corrected Effective WSE_{100} and $WSE_{O\&M}$ at the upstream face of the existing bridge were computed to be 40.95 ft and 42.21 ft (NAVD 1988). It is noted that the lowest low chord elevation of the existing bridge along Segment B is 44.01 ft, and the lowest base-of-rail elevation is 47.11 ft. The corresponding computed Post Project WSE_{100} and $WSE_{O\&M}$ associated with the proposed bridge are 40.95 ft and 42.20 ft respectively. The proposed low chord elevation is 44.65 ft. See Tables 1 and 2, which summarizes the Corrected Effective and Post Project Water Surface Elevations (WSE) for varying frequency events.

Table 1: 100-year WSE Summary - American River.

Cross Section	Frequency	WSE_{CE_AME}	WSE_{PP_AME}	Δ $WSE_{CE - PP}$
3.949	100-year	41.18	41.18	0.00
3.735	100-year	41.07	41.07	0.00
3.718	100-year	40.95	40.95	0.00
3.715	**UPRR Bridge 92.12: Martinez Subdivision**			
3.710	100-year	40.93	40.93	0.00
3.688	100-year	40.96	40.96	0.00
3.600	100-year	40.37	40.37	0.00
3.477	100-year	40.16	40.16	0.00

Table 2: O&M WSE Summary - American River.

Cross Section	Frequency	WSE_{CE_AME}	WSE_{PP_AME}	Δ $WSE_{CE - PP}$
3.949	O&M	42.47	42.46	-0.01
3.735	O&M	42.35	42.35	0.00
3.718	O&M	42.21	42.20	-0.01
3.715	**UPRR Bridge 92.12: Martinez Subdivision**			
3.710	O&M	42.18	42.18	0.00
3.688	O&M	42.22	42.22	0.00
3.600	O&M	41.60	41.60	0.00
3.477	O&M	41.36	41.36	0.00

The low chord elevation for the existing bridge along Segment A is 45.97 ft and the proposed low chord elevation along Segment A is 44.65 ft. It should be noted the lowest low chord is along Segment B over the channel is 44.01 ft. Table 3 below summarizes the amount of freeboard for the 100-year and O&M flood event.

Table 3: Freeboard - American River at UPRR Bridge 92.12 Martinez Subdivision.

Frequency	Existing Segment A Low Chord Elevation	Proposed Segment A Low Chord Elevation	Proposed WSE (ft)	Post Project Freeboard (ft)
100-year	45.97	44.65	40.95	+3.70
O&M	45.97	44.65	42.20	+2.45

The bridge has structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. The bridge pilings are designed to rely on friction for capacity; and as such, the pilings will not be subject to any flotation, buoyancy, lateral movement or collapse. All components below the base flood elevation shall be constructed with material and utility equipment resistant to flood damage. Overall, the design and methods of construction are in accordance with commonly accepted standard and practice within the design and construction communities.

The existing concrete piers and timber spans will be replaced/removed as part of the proposed project. The proposed h-piles required for the proposed bridge will be along the existing mainline track. The existing piers and footings will be removed to at least 3’ below natural ground line.

Figure 1 shows the upstream face profile of the existing and proposed bridges and relevant features/elevations.

6. SCOUR ANALYSIS

A scour analysis for existing and proposed conditions has been performed for the bridge replacement along Segment A. Copies of the HEC-RAS Hydraulic Design calculation reports and cross sections for both existing and proposed conditions are located within Appendix D.

The following information details the elements of the scour analysis computations. The HEC-18 equations within HEC-RAS were utilized for the scour analysis. The D_{50} utilized for the scour calculations was estimated based on soil properties observed during the site. The estimated scour calculated by HEC-RAS for the proposed conditions along Segment A is 4.7 ft. The existing bridge velocity is 4.35 ft/s, compared to the proposed bridge velocity of 4.34 ft/s.

7. LOCAL MAINTAINING AGENCY (LMA)

The American River Flood Control District (ARFCD) has jurisdiction over the American River project levee.

8. REFERENCES

FEMA, Flood Insurance Rate Map (FIRM) for Sacramento County, effective June 16th, 2015.

U.S. Army Corps of Engineers (USACE), January 2010. HEC-RAS River Analysis System. Version 4.1.0.

APPENDIX A

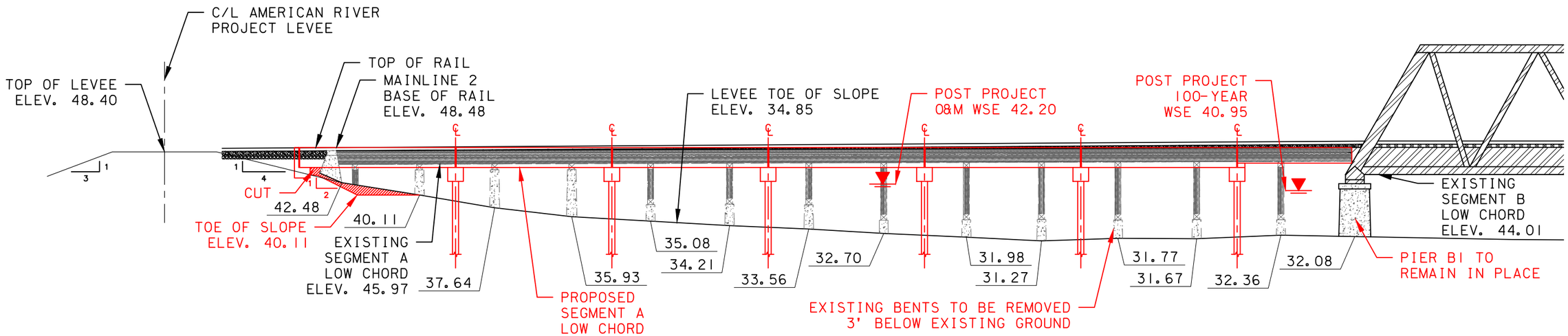
Figures

TO ELVAS &
10TH ST. (OAKLAND)
(TIMETABLE WEST)

TO SWANSTON &
ROSEVILLE
(TIMETABLE EAST)

BRIDGE 92.12 - MARTINEZ SUBDIVISION

PROPOSED: 7-SPAN, 202' LONG, CONCRETE BRIDGE REPLACING THE EXISTING 13-SPAN, 197' LONG, TIMBER BRIDGE



STA. 99+67.00 EXISTING C/L AMERICAN RIVER PROJECT LEVEE

STA. 99+93.34 PROPOSED INSIDE FACE ABUTMENT

STA. 100+00.00 EXISTING INSIDE FACE ABUTMENT
STA. 100+01.05 EXISTING GROUND INSIDE FACE ABUTMENT
STA. 100+03.60 EXISTING C/L BENT 1.1
STA. 100+04.00 PROPOSED TOE OF SLOPE

STA. 100+15.95 EXISTING C/L PIER A2

STA. 100+23.34 PROPOSED C/L BENT 2

STA. 100+30.36 EXISTING C/L PIER A3

STA. 100+45.16 EXISTING C/L PIER A4

STA. 100+53.34 PROPOSED C/L BENT 3

STA. 100+60.27 EXISTING C/L PIER A5

STA. 100+65.33 EXISTING TOE OF SLOPE

STA. 100+75.45 EXISTING C/L PIER A6

STA. 100+83.34 PROPOSED C/L BENT 4

STA. 100+90.64 EXISTING C/L PIER A7

STA. 101+05.03 EXISTING C/L PIER A8

STA. 101+13.34 PROPOSED C/L BENT 5

STA. 101+20.89 EXISTING C/L PIER A9

STA. 101+35.31 EXISTING C/L PIER A10

STA. 101+43.34 PROPOSED C/L BENT 6

STA. 101+49.97 EXISTING C/L PIER A11

STA. 101+65.08 EXISTING C/L PIER A12

STA. 101+73.34 PROPOSED C/L BENT 7

STA. 101+81.25 EXISTING C/L PIER A13

STA. 101+95.34 EXISTING C/L PIER B1

SCALE
0 10' 20'

AMERICAN RIVER
RM 3.7
NAVD 1988

PROJECT:	019-3926
DRAWN BY:	DRC
DATE:	04/11/2022

PROPOSED SEGMENT A BRIDGE ELEVATION

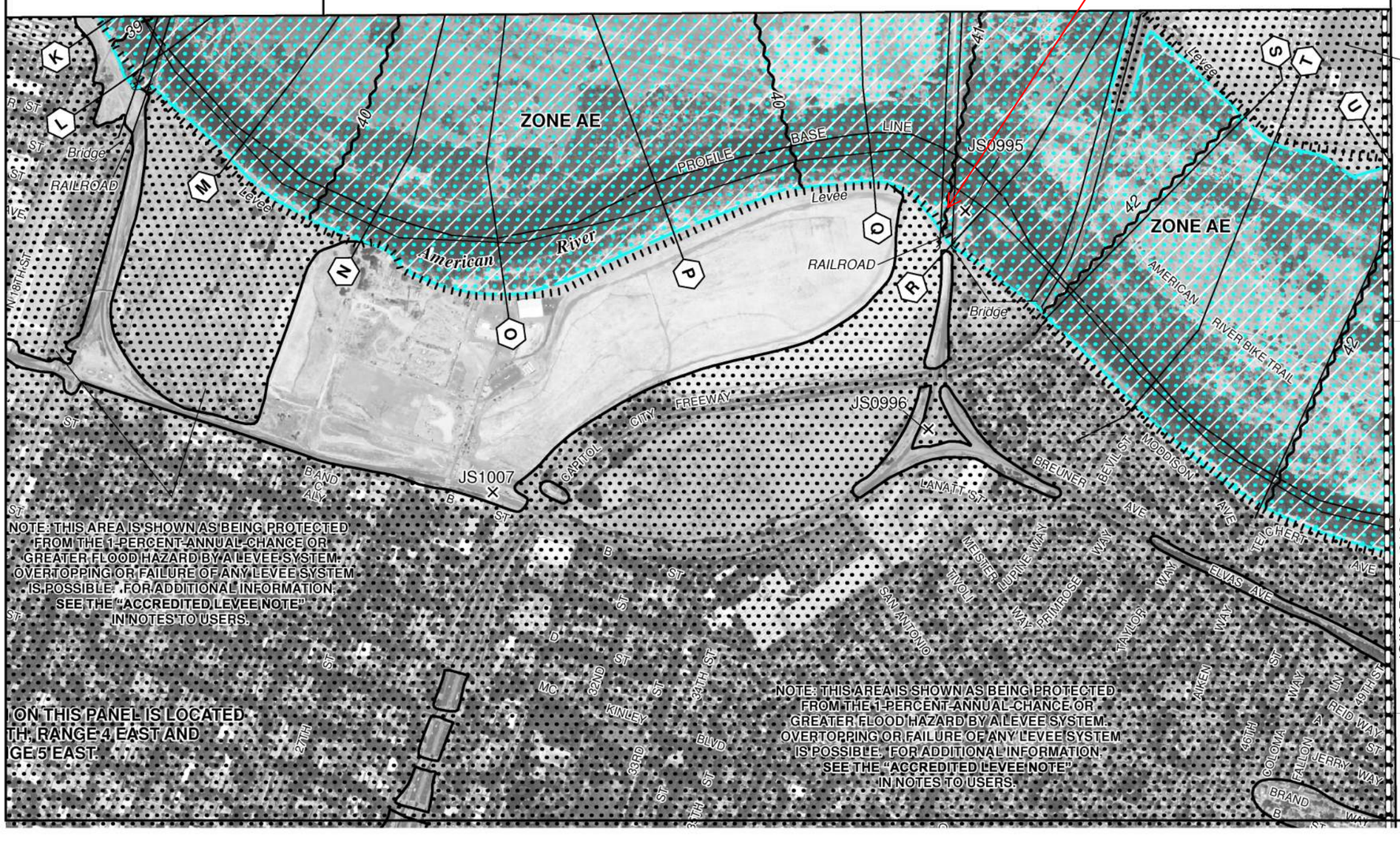
olsson
601 P Street, Suite 200
P.O. Box 84608
Lincoln, NE 68501-4608
TEL 402.474.6311
FAX 402.474.5160
www.olssonassociates.com

FIGURE
1

APPENDIX B

FEMA Flood Insurance Rate Map (FIRM)

Bridge 92.12
Martinez Sub



$^{42}73^{000m}$ N

$^{42}72^{000m}$ N

$^{42}71^{000m}$ N

NOTE: THIS AREA
FROM THE 1-P
GREATER FLOO
OVERTOPPING O
IS POSSIBLE.
SEE THE "
IN

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET METE

NFIP

PANEL 0180J

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

SACRAMENTO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

PANEL 180 OF 705

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SACRAMENTO, CITY OF	060266	0180	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06067C0180J

MAP REVISED
JUNE 16, 2015

Federal Emergency Management Agency

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 4

SACRAMENTO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CITRUS HEIGHTS, CITY OF	060765
ELK GROVE, CITY OF	060767
FOLSOM, CITY OF	060263
GALT, CITY OF	060264
ISLETON, CITY OF	060265
RANCHO CORDOVA, CITY OF	060772
SACRAMENTO, CITY OF	060266
SACRAMENTO COUNTY UNINCORPORATED AREAS	060262

FEMA

REVISED:

JULY 19, 2018

FLOOD INSURANCE STUDY NUMBER
06067CV001D

Version Number 2.3.3.0

Table 9: Levees

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Elk Grove, City of	Cosumnes River	*	City of Elk Grove	No	8235	*	06067C0315
		*	City of Elk Grove	No	8396	*	06067C0315
		*	City of Elk Grove	Yes	8236	*	06067C0315
	Laguna Creek West Drainage Outfall Channel	*	City of Elk Grove	Yes	8360	*	06067C0315
Rancho Cordova, City of	American River	*	*	No	8114	*	06067C0202 06067C0205
Sacramento, City of	American River	*	American River Flood Control District	Yes	8043	*	06067C0157 06067C0160 06067C0176 06067C0180
		*	American River Flood Control District	Yes	8134	*	06067C0176 06067C0177 06067C0180
		*	CA DWR	Yes	8254	*	06067C0183 06067C0184 06067C0195 06067C0205
		*	RD 1000	Yes	8052	*	06067C0157 06067C0176
	Arcade Creek	*	American River Flood Control District	Yes	8170	*	06067C0064 06067C0177
		*	American River Flood Control District	Yes	8171	*	06067C0064 06067C0177
	Dry Creek	*	American River Flood Control District	Yes	8325	*	06067C0061
	East Drainage Canal	*	City of Sacramento	No	8178	*	06067C0045 06067C0157
		*	City of Sacramento	No	8197	*	06067C0045

* Data Not Available

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharges (cfs)			
			10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
American River	At mouth	*	*	*	157,000	*
	Just Upstream of confluence with the Natomas Main Drainage East Channel	*	*	*	145,000	*
	At Greenback Lane	2,100	115,000	115,000	115,000	425,000
	At Nimbus Dam	1,890	*	*	180,000	*
Arcade Creek	*	40 33 18	2,900 2,800 1,800	4,280 4,100 2,650	5,000 4,700 3,100	6,750 6,250 4,800
Arcade Creek South Branch	*	26	350	740	950	1,440
Brooktree Creek	*	3.5	540	1,200	1,540	2,320
Carmichael Creek	*	32	362	837	1,045	1,650
Chicken Ranch Slough	*	41.3	550	860	1,030	1,380
Cosumnes River	At Twin Cities Road (Route 104)	820	*	*	70,600	*
Cosumnes River Above Dillard Road	At Dillard Road	536	34,200	66,800	82,900	125,000
Coyle Creek	*	1.6	365	720	920	1,360
Cripple Creek	*	10.0	960	1,460	1,720	2,680
Dry Creek	At mouth	116.0	*	*	9,600	*
	*	87.0	6,020	10,050	14,000	24,500

*Data Not Available

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	232	2,827	42,475	4.6	33.7	33.7	33.7	0.0
B	950	2,491	34,587	5.7	33.9	33.9	33.9	0.0
C	1,088	2,493	37,728	5.2	34.0	34.0	34.0	0.0
D	2,503	2,354	40,490	4.8	34.8	34.8	34.8	0.0
E	3,992	2,329	40,238	4.9	35.3	35.3	35.3	0.0
F	5,343	2,487	36,405	5.4	35.8	35.8	35.8	0.0
G	6,706	2,650	40,273	4.9	36.4	36.4	36.4	0.0
H	7,909	2,568	43,897	4.5	36.9	36.9	36.9	0.0
I	9,235	2,658	41,148	4.8	37.3	37.3	37.3	0.0
J	10,296	2,328	29,820	6.0	37.6	37.6	37.6	0.0
K	11,706	2,425	44,219	4.1	38.9	38.9	38.9	0.0
L	12,302	2,429	45,688	3.9	39.5	39.5	39.5	0.0
M	13,221	2,436	42,261	4.2	39.7	39.7	39.7	0.0
N	14,604	2,535	46,098	3.9	39.9	39.9	39.9	0.0
0	15,756	2,638	45,445	3.9	40.1	40.1	40.1	0.0
P	17,192	2,441	41,717	4.3	40.3	40.3	40.3	0.0
Q	19,061	2,331	34,168	5.3	40.6	40.6	40.6	0.0
R	20,312	2,019	39,438	4.5	41.2	41.2	41.2	0.0
S	21,368	1,987	39,141	4.6	41.6	41.6	41.6	0.0
T	22,334	2,492	41,635	4.3	41.9	41.9	41.9	0.0
U	23,544	3,119	40,266	4.5	42.3	42.3	42.3	0.0
V	24,832	3,190	49,878	3.6	42.9	42.9	42.9	0.0

[1]Feet above confluence with Sacramento River

TABLE 24

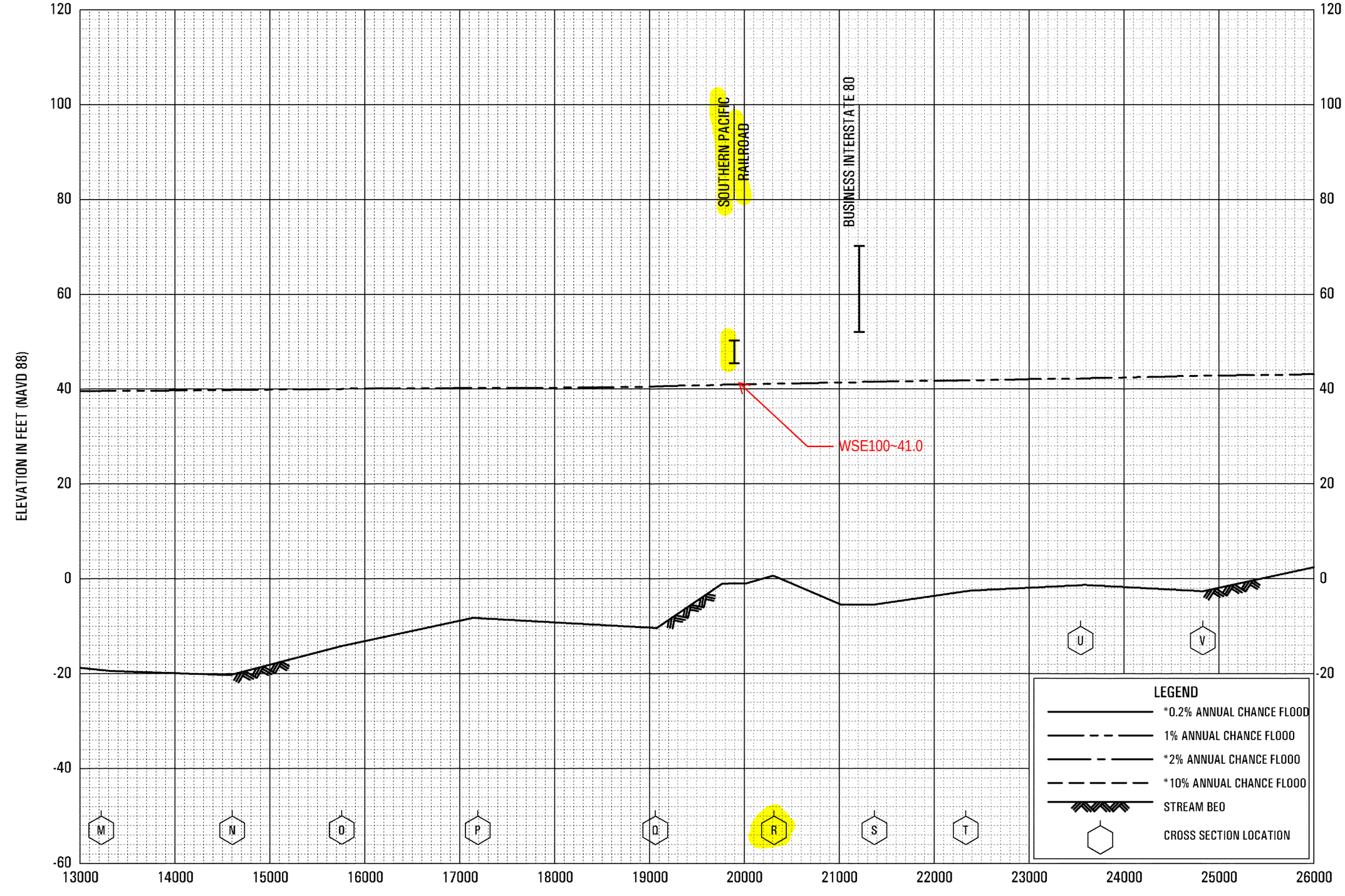
FEDERAL EMERGENCY MANAGEMENT AGENCY

SACRAMENTO COUNTY, CALIFORNIA

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: AMERICAN RIVER



FLOOD PROFILES

AMERICAN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SACRAMENTO COUNTY, CA

AND INCORPORATED AREAS

02P

APPENDIX C

Bridge Survey Photolog

UPRR BRIDGE SURVEY – PHOTOLOG

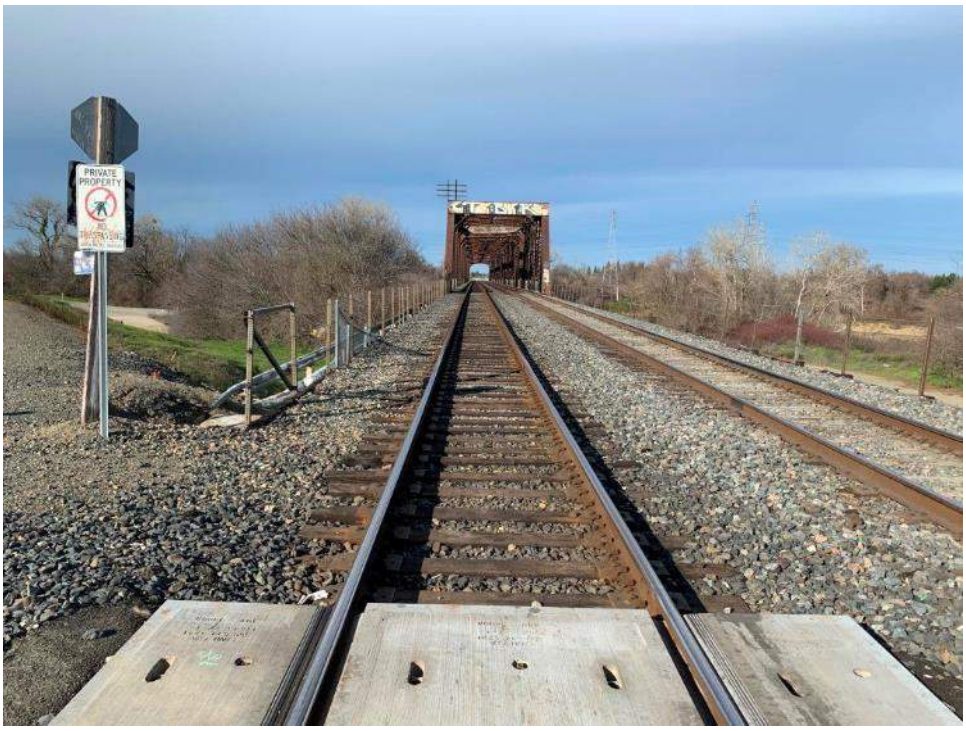


PHOTO 1: Top of Mainline 1 profile from near 92.12, looking TT East.

PHOTO 2: Top of Mainline 1 profile from 92.12, looking TT West.

UPRR BRIDGE SURVEY – PHOTOLOG

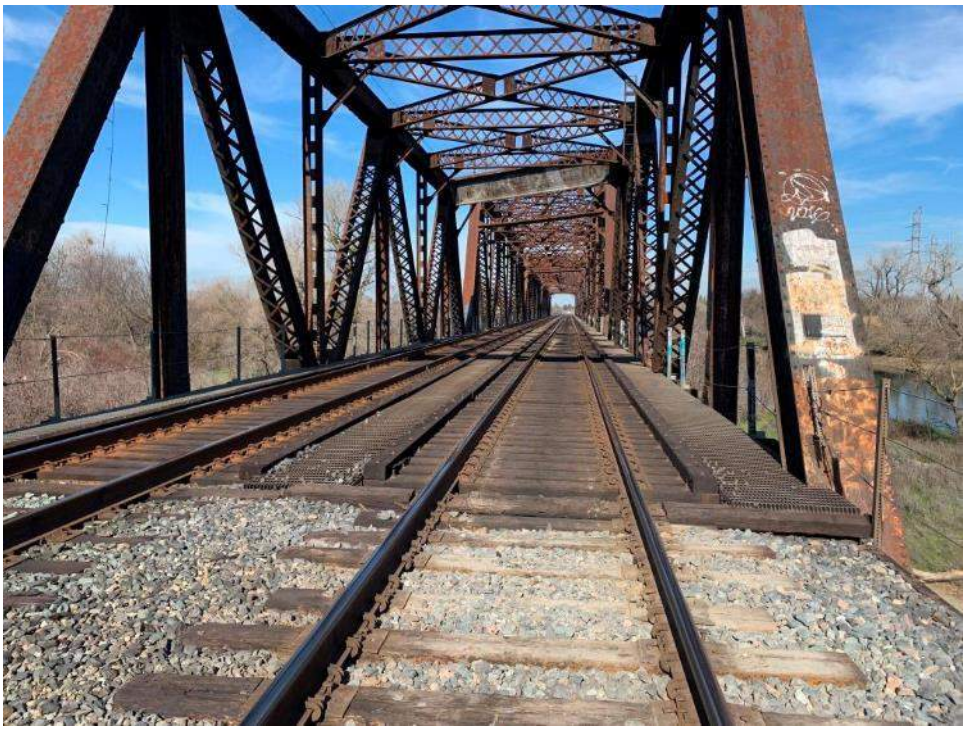


PHOTO 3: Top of Mainline 2 profile from Bridge 92.12, looking TT East.

PHOTO 4: Top of Mainline 2 profile from Bridge 92.12, looking TT West.

UPRR BRIDGE SURVEY – PHOTOLOG

PHOTO 5: View of upstream face of bridge Segment A, looking TT East.

PHOTO 6: View of upstream face of bridge Segment B, looking TT East.

UPRR BRIDGE SURVEY – PHOTOLOG

PHOTO 7: View of downstream face of Seg. A and fence, looking TT East.

PHOTO 8: View of upstream face of Seg. A and fence, looking TT East.

UPRR BRIDGE SURVEY – PHOTOLOG

PHOTO 9: View of upstream face of Seg. A, looking TT East.

PHOTO 10: View of upstream face of Seg. A, looking TT West.

UPRR BRIDGE SURVEY – PHOTOLOG

PHOTO 11: View of upstream face of Seg. A, looking TT East.

PHOTO 12: View of upstream face of Seg. A, looking TT East.

UPRR BRIDGE SURVEY – PHOTOLOG

PHOTO 23: View of Pier B1, looking TT North.

PHOTO 24: View of Pier B1, looking TT North.

UPRR BRIDGE SURVEY – PHOTOLOG

PHOTO 33: View of levee near TT West abutment, looking TT North.

PHOTO 34: View of levee near TT West abutment, looking TT South.

APPENDIX D

O&M and HEC-RAS Output Table

CORPS OF ENGINEERS

U.S. ARMY

Assumed NGVD 1929 Datum. Add 2.4' for NAVD 1988 Datum
Elev. 42.2 Design Project Flood

AMERICAN RIVER

Clairmont Drive; Ext. Susan Way; Ext. Arden Way; Upstream end south bank levee; West Ave low water crossing; Power line crossing; H Street Bridge; East end North Sacramento levee; Elvas Bridge; S.P.R.R. Bridge; W.P.R.R. Bridge; N.N. Bridge; 16th St. Bridge; Natomas Canal; Sacramento River

CHANNEL MILES

D.P.F.
152,000 cfs and 3 ft. freeboard
115,000 cfs and 5 ft. freeboard

66.0 63.0 61.4 152,000 15,000 59.5 52.4 51.3 49.6 152,000 48.5 47.1 46.8 44.5 42.8 41.5 41.2 40.8 41.8 39.8 37.0 36.8 35.0 34.5 115,000 180,000

EAST NATOMAS CANANL

Pleasant Grove Creek Canal

Jct. Natomas Cross Canal; Howsley Road; Fifield Road; Keys Road; Sankey Road; Elverta Bridge; Jct. Linda Creek Lower Manysville Road; S.P.R.R.; Absel Rd. extended; Meyers Rd extended; Ditch; Hahn Road; S.P.R.R.; Tule Road; County Road Bridge; Colusa Yolo County Line and Bridge; Section 13-14,T12N,R1W; Section 32-33 T12N, R1E; Drainage Canal Boundary R.D. 108 and 787; Begin paved levee road; Head Knights Landing Ridge Cut Outfall gates Sacramento River

Miles measured along project (east) levee

42.1 42.5 42.8 43.3 43.4 40.7 40.7 40.3 40.0 39.9 39.8 39.8 39.5 39.3 38.8 38.0 37.6 37.0 36.8 36.2 35.3 50.5 50.5 50.4 50.3 48.9 47.0 45.5 44.2 43.5 43.2 43.0 42.7 40.6 6,000 2,300 800 1,500 16,300 6,000 20,000

Silver Eagle Rd.; Arcade Creek; El Camino Ave.; Jct. American River

BACK LEVEE RECLAMATION DISTRICT NO. 108

SIMMERLY SLOUGH

Miles measured along east levee Reclamation District No. 10

146.6 134.8 127.0 121.18 110.6 105.8 100.7 95.7 92.8 91.2 89.0 86.2 85.0 83.8 83.2 82.8 81.6 80.2 79.4 77.8 77.4 75.2 72.6 71.0 68.6 67.4 65.6 62.0 60.0 57.6 56.2 53.0 45.6 41.9 41.5 81.3 81.3

Woodruff Lane; Ellis Avenue; W.P.R.R.; Feather River

W.P. INTERCEPTOR CHANNEL

CHANNEL MILES

61.2 61.0 61.0 5,000 10,000 61.2 61.0 60.8

Rumas School Road; W.P. Interceptor Channel; McCowan Road; Reed Creek; N. Dry Creek; Bear River

NORTH DRY CREEK

CHANNEL MILES

NATOMAS CROSS CANAL

Coon Creek Interceptor

40.4 48.7 48.1 48.0 46.7 44.8 43.7 43.3 42.6 42.4 42.1 42.0 41.7 41.5 41.4 41.3 41.2 41.2 5,000 12,000 16,000 22,000

W.P.R.R. Coon Creek; Markham Ravine; Auburn Ravine; Cobett Road Bridge; S.N.R.R. Jct. Natomas Cross Canal; El Centro Road; Sacramento River

CHANNEL MILES

SOUTH DRY CREEK

69.2 68.5 65.6 9,000

County Road; S.P.R.R. U.S.99E; Caitlin Road; Bear River

CHANNEL MILES

1928 LOW WATER CHANNEL MILES

Downstream end training wall Hallwood Blvd.; U.S.G.S. Gage Dantoni; Marysville Back levee; Simpson Lane; S.P.R.R.; D Street Bridge Marysville

96.9 95.5 95.0 92.3 90.3 84.9 81.4 80.9 80.3 80.0 79.3 120,000

Flood plane at main river channel

YUBA RIVER

All elevations are referred to U.S. Corps of Engineers Datum. Mean lower low water in Suisun Bay = 3.0 feet below mean sea level; i.e., 0.0 M.S.L. = 3.0 U.S.E.D.

MILES ALONG RT. LEVEE

39.2 37.3 Jct. Natomas East Canal

ARCADE CREEK

Rio Linda Blvd. 37.3 S.P.R.R. 3,300

MILES ALONG LT. LEVEE

40.0 40.0 39.3 15,000

Rio Linda Blvd.; Junction Natomas East Canal

LINDA CREEK

Right bank levee crown elevation
Left bank levee crown elevation
Right bank natural ground elevation
Left bank natural ground elevation
Channel bottom
Project design flood plane
50,000 Project design flow in cfs and limits

Revised: Aug. 1969, DFP American River to show 152,000 flow line H Street Bridge to MS.2 - KAF
Revised: June 1968, DFP American River to show 152,000 flow line above H Street Bridge - MSP
Revised: Sept 1962, Yuba River, American River PDF Plane corrected - LEB

HONCUT CREEK

98.4 93.5 91.5 91.5 91.2 25,000

W.P.R.R.; Hwy. 24; Feather River

CHANNEL MILES

FEATHER RIVER

Western Canal Dam; Sutter-Butte Canal Intake; Sutter-Butte Dam; Gridley Bridge; Cox Spillway; Mouth Honcut Creek; Section line 22 - 27, T16N,R3E; S.P.R.R. Simmerly Slough; 10th St. bridge U.S.99E Marysville - Yuba Bridge 28.47 – 28.58; Mouth Yuba River; Shanghi Bend; Starr Bend; Bear River; (washed out 1955) Nicolaus Bridge; East levee Sutter Bypass; Mouth Feather River

210,000 300,000 320,000

CHANNEL MILES SEE FILE NO. 4-13-11 — channel miles see file no. 4-13-94

BEAR RIVER

Section 2-3 T11N, R3E; S.P.R.R. Bridge and U.S. 99E; W.P. Interceptor; W.P.R.R.; S.N.R.R.; Rio Oso Bridge; Feather River

107.0 101.2 91.6 74.7 68.8 64.0 60.8 38.8 57.1 30,000 37,000 40,000

Caitlin Bridge; Mouth Dry Creek

CHANNEL MILES

See file No. 2-4-84-1

YANKEE SLOUGH

74.0 68.2 64.8 63.8 60.4 60.5 2,500

County Road Bridge; Pleasant Grove Road Bridge (Caitlin Road); Swanson Road Bridge; W.P.R.R. Bear River

CHANNEL MILES

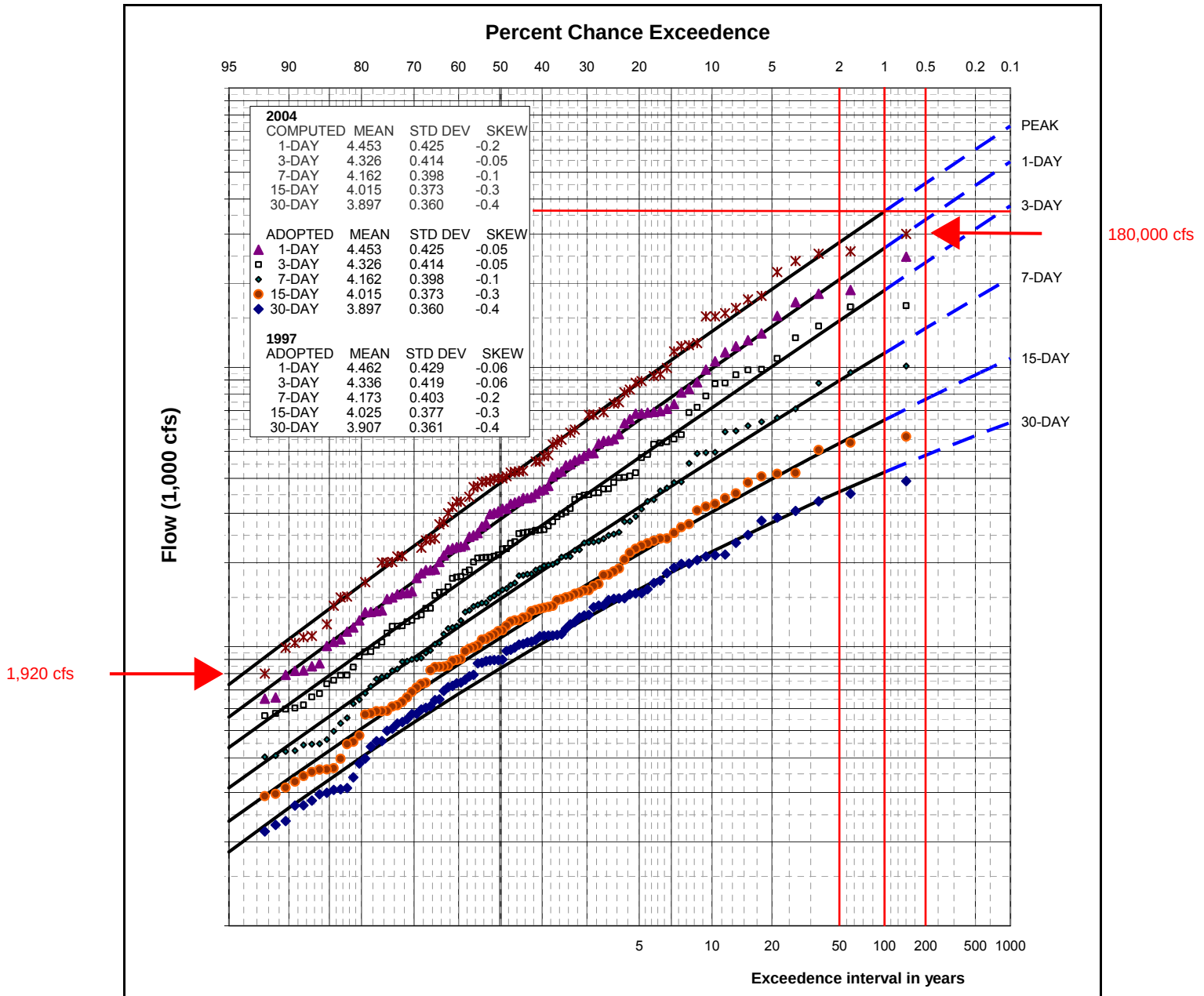
SACRAMENTO RIVER FLOOD CONTROL PROJECT
CALIFORNIA

LEVEE AND CHANNEL PROFILES

CORPS OF ENGINEERS, US ARMY
SACRAMENTO DISTRICT, SACRAMENTO, CALIFORNIA 15 MARCH 1957

File No. 50-10-3334

Sheets 4 Sheet No: 3



NOTES:

1. Adjusted USGS gage 11446500 to account for daily change in storage at upstream reservoirs (potential channel, out-of-channel, or storage losses neglected).
2. Median plotting positions.
3. Computed Probability
4. No adjustments for outliers.
4. Drainage area: 1,888 sq. mi.
5. Period of record: 1905-2004.

AMERICAN RIVER WATERSHED PROJECT
COMMON FEATURES
GENERAL REEVALUATION REPORT

RAIN FLOOD FREQUENCY CURVES
AMERICAN RIVER AT FAIR OAKS
UNREGULATED CONDITIONS

FIGURE A-2

National Water Information System: Web Interface

Click to hideNews Bulletins

- **Notice** - The USGS Water Resources Mission Area's priority is to maintain the safety and well-being of our communities, including providing critical situational awareness in times of flooding in all 50 U.S. states and additional territories. Our hydrologic monitoring stations continue to send data in near real-time to NWISWeb, and we are continuing critical water monitoring activities to protect life and property on a case-by-case basis. The health and safety of the public and our employees are our highest priorities, and we continue to follow guidance from the White House, the CDC, and state and local authorities.

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Peak Streamflow for the Nation

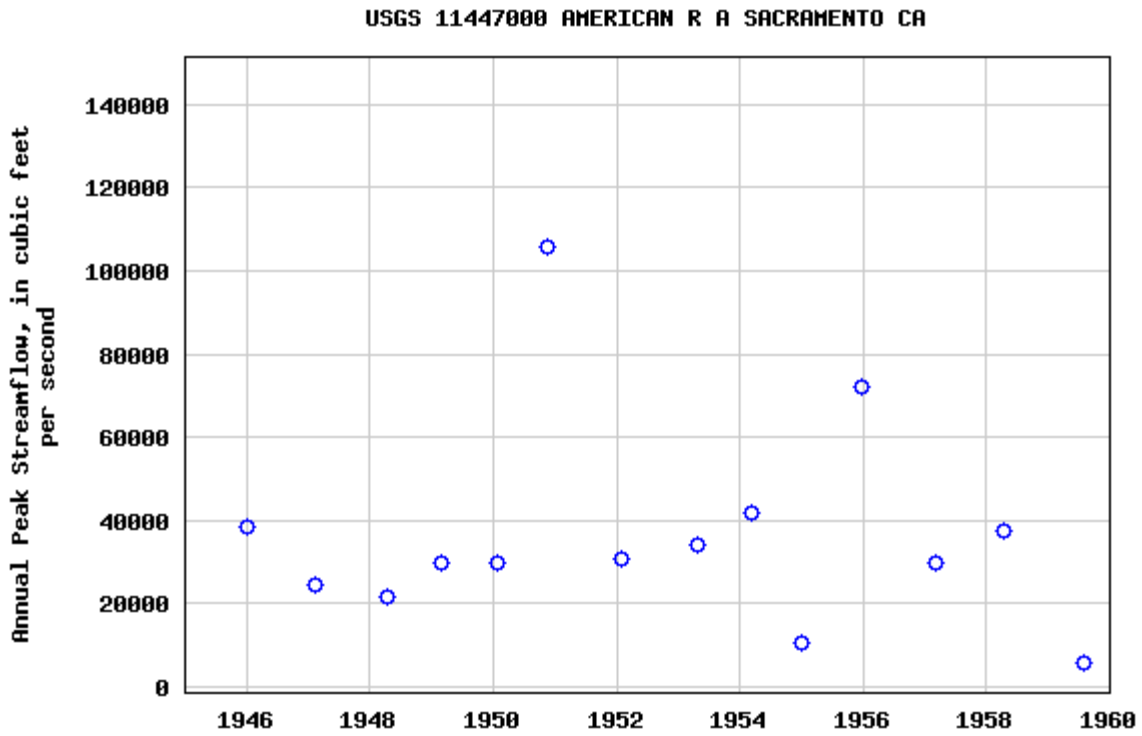
USGS 11447000 AMERICAN R A SACRAMENTO CA

Available data for this site: Surface-water: Peak streamflow | GO

Sacramento County, California
Hydrologic Unit Code 18020111
Latitude 38°34'05", Longitude 121°25'20" NAD27
Drainage area 1,936 square miles

Output formats

Table
Graph
Tab-separated file
peakfq (watstore) format
Reselect output format

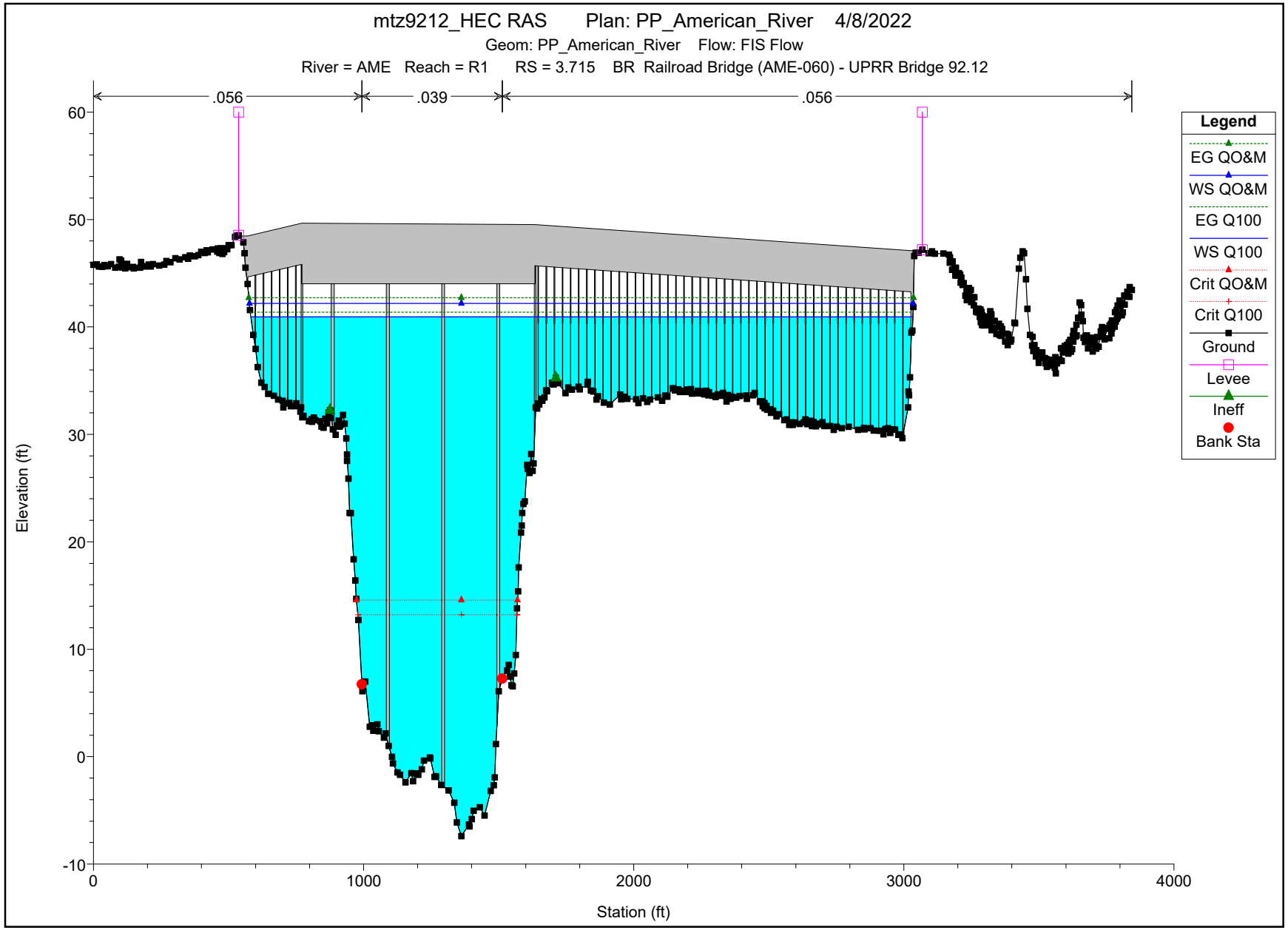


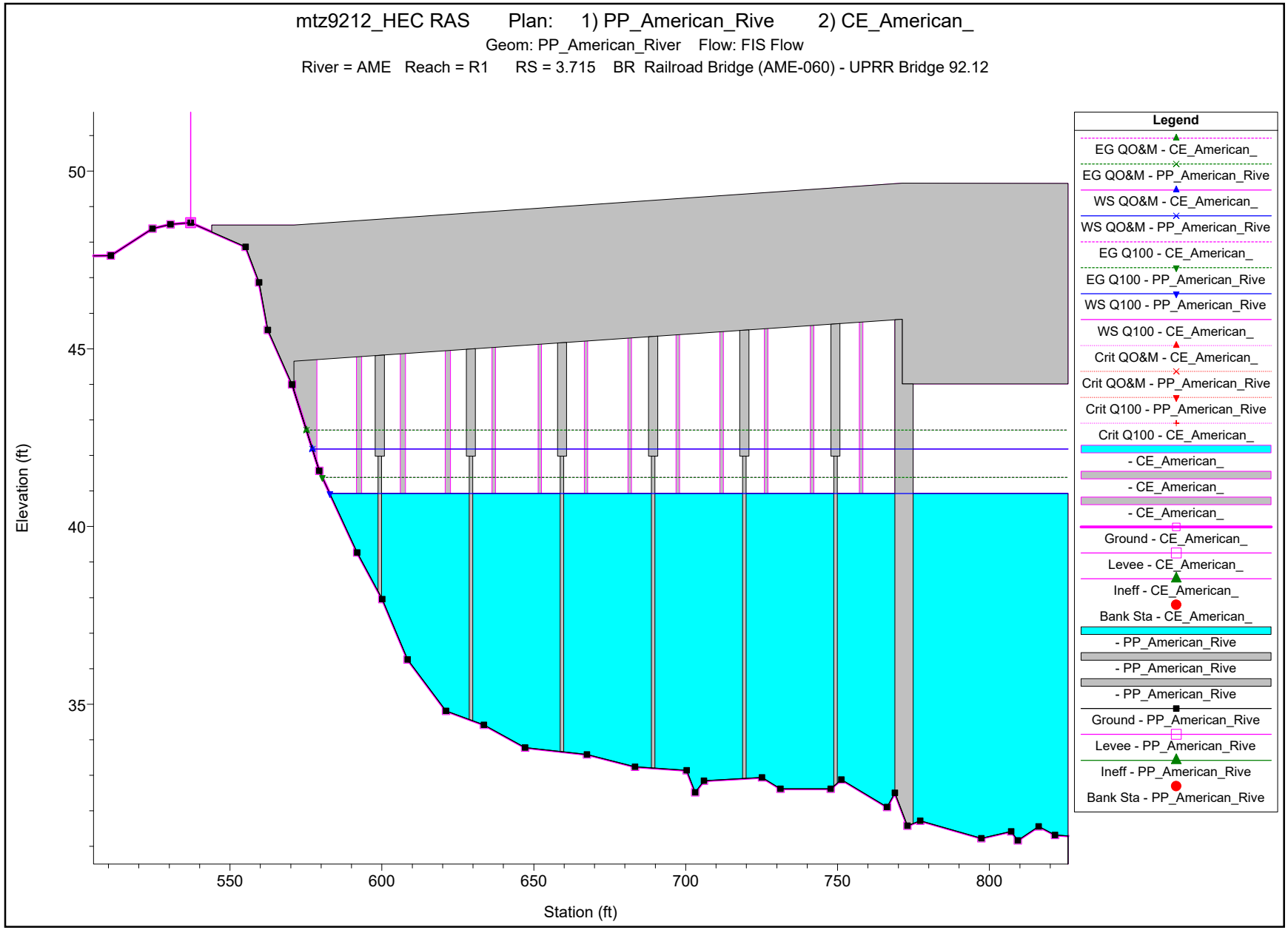
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Title: Surface Water for USA: Peak Streamflow
URL: https://nwis.waterdata.usgs.gov/nwis/peak?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-05-06 12:23:48 EDT
0.41 0.29 nadww01


mtz9212_HEC RAS Plan: PP_American_River 4/8/2022
Geom: PP_American_River Flow: FIS Flow
River = AME Reach = R1 RS = 3.715 BR Railroad Bridge (AME-060) - UPRR Bridge 92.12
.056
.039
.056
Legend
EG QO&M
WS QO&M
EG Q100
WS Q100
Crit QO&M
Crit Q100
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
60
50
40
30
20
10
0
-10
0
1000
2000
3000
4000
Station (ft)


mtz9212_HEC RAS Plan: 1) PP_American_Rive 2) CE_American_
Geom: PP_American_River Flow: FIS Flow
River = AME Reach = R1 RS = 3.715 BR Railroad Bridge (AME-060) - UPRR Bridge 92.12
Elevation (ft)
50
45
40
35
550
600
650
700
750
800
Station (ft)
Legend
EG QO&M - CE_American_
EG QO&M - PP_American_Rive
WS QO&M - CE_American_
WS QO&M - PP_American_Rive
EG Q100 - CE_American_
EG Q100 - PP_American_Rive
WS Q100 - PP_American_Rive
WS Q100 - CE_American_
Crit QO&M - CE_American_
Crit QO&M - PP_American_Rive
Crit Q100 - PP_American_Rive
Crit Q100 - CE_American_
- CE_American_
- CE_American_
- CE_American_
Ground - CE_American_
Levee - CE_American_
Ineff - CE_American_
Bank Sta - CE_American_
- PP_American_Rive
- PP_American_Rive
- PP_American_Rive
Ground - PP_American_Rive
Levee - PP_American_Rive
Ineff - PP_American_Rive
Bank Sta - PP_American_Rive

Plan: CE_American_ AME R1 RS: 3.715 Profile: Q100

E.G. US. (ft)	41.39	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	40.95	E.G. Elev (ft)	41.38	41.39
Q Total (cfs)	157000.00	W.S. Elev (ft)	40.93	40.93
Q Bridge (cfs)	157000.00	Crit W.S. (ft)	13.22	12.51
Q Weir (cfs)		Max Chl Dpth (ft)	48.32	49.46
Weir Sta Lft (ft)		Vel Total (ft/s)	4.07	4.07
Weir Sta Rgt (ft)		Flow Area (sq ft)	38596.05	38605.15
Weir Submerg		Froude # Chl	0.14	0.14
Weir Max Depth (ft)		Specif Force (cu ft)	584120.60	594638.20
Min El Weir Flow (ft)	47.12	Hydr Depth (ft)	17.28	17.41
Min El Prs (ft)	46.58	W.P. Total (ft)	3648.54	3631.49
Delta EG (ft)	0.04	Conv. Total (cfs)	9274208.0	9517225.0
Delta WS (ft)	0.02	Top Width (ft)	2234.00	2216.83
BR Open Area (sq ft)	46432.08	Frctn Loss (ft)		
BR Open Vel (ft/s)	4.07	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	0.19	0.18
Br Sel Method	Yarnell	Power Total (lb/ft s)	0.00	0.00

Plan: CE_American_ AME R1 RS: 3.715 Profile: QO&M

E.G. US. (ft)	42.71	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	42.21	E.G. Elev (ft)	42.71	42.72
Q Total (cfs)	180000.00	W.S. Elev (ft)	42.18	42.18
Q Bridge (cfs)	180000.00	Crit W.S. (ft)	14.58	13.89
Q Weir (cfs)		Max Chl Dpth (ft)	49.57	50.71
Weir Sta Lft (ft)		Vel Total (ft/s)	4.35	4.35
Weir Sta Rgt (ft)		Flow Area (sq ft)	41401.83	41388.96
Weir Submerg		Froude # Chl	0.15	0.15
Weir Max Depth (ft)		Specif Force (cu ft)	640133.60	650749.60
Min El Weir Flow (ft)	47.12	Hydr Depth (ft)	18.50	18.62
Min El Prs (ft)	46.58	W.P. Total (ft)	3813.45	3795.46
Delta EG (ft)	0.04	Conv. Total (cfs)	9882664.0	10130600.0
Delta WS (ft)	0.02	Top Width (ft)	2238.28	2222.62
BR Open Area (sq ft)	46432.08	Frctn Loss (ft)		
BR Open Vel (ft/s)	4.35	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	0.22	0.21
Br Sel Method	Yarnell	Power Total (lb/ft s)	0.00	0.00

Plan: PP_American_Rive AME R1 RS: 3.715 Profile: Q100

E.G. US. (ft)	41.38	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	40.95	E.G. Elev (ft)	41.38	41.38
Q Total (cfs)	157000.00	W.S. Elev (ft)	40.93	40.93
Q Bridge (cfs)	157000.00	Crit W.S. (ft)	13.22	12.51
Q Weir (cfs)		Max Chl Dpth (ft)	48.32	49.46
Weir Sta Lft (ft)		Vel Total (ft/s)	4.06	4.06
Weir Sta Rgt (ft)		Flow Area (sq ft)	38675.14	38687.36
Weir Submerg		Froude # Chl	0.14	0.14
Weir Max Depth (ft)		Specif Force (cu ft)	584381.90	594995.10
Min El Weir Flow (ft)	47.12	Hydr Depth (ft)	17.25	17.39
Min El Prs (ft)	45.83	W.P. Total (ft)	3574.72	3557.13
Delta EG (ft)	0.04	Conv. Total (cfs)	9296530.0	9543415.0
Delta WS (ft)	0.02	Top Width (ft)	2242.53	2224.80
BR Open Area (sq ft)	46343.63	Frctn Loss (ft)		
BR Open Vel (ft/s)	4.06	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	0.19	0.18
Br Sel Method	Yarnell	Power Total (lb/ft s)	0.00	0.00

Plan: PP_American_Rive AME R1 RS: 3.715 Profile: QO&M

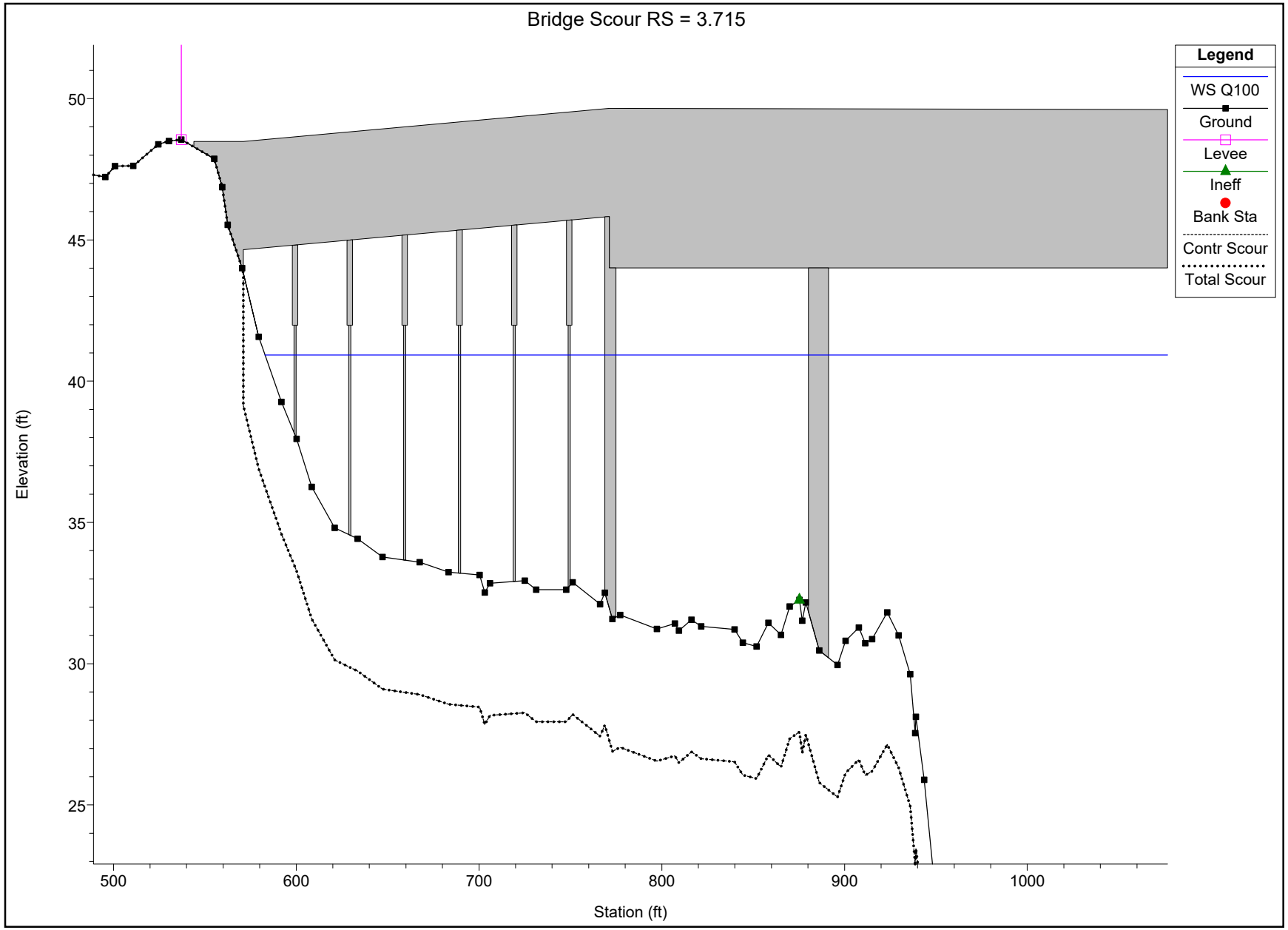
E.G. US. (ft)	42.70	Element	Inside BR US	Inside BR DS
W.S. US. (ft)	42.20	E.G. Elev (ft)	42.71	42.71
Q Total (cfs)	180000.00	W.S. Elev (ft)	42.18	42.18
Q Bridge (cfs)	180000.00	Crit W.S. (ft)	14.58	13.89
Q Weir (cfs)		Max Chl Dpth (ft)	49.57	50.71
Weir Sta Lft (ft)		Vel Total (ft/s)	4.34	4.34
Weir Sta Rgt (ft)		Flow Area (sq ft)	41489.66	41478.18
Weir Submerg		Froude # Chl	0.15	0.14
Weir Max Depth (ft)		Specif Force (cu ft)	640473.60	651187.90
Min El Weir Flow (ft)	47.12	Hydr Depth (ft)	18.54	18.70
Min El Prs (ft)	45.83	W.P. Total (ft)	3737.08	3717.07
Delta EG (ft)	0.04	Conv. Total (cfs)	9908692.0	10160130.0
Delta WS (ft)	0.02	Top Width (ft)	2237.29	2218.42
BR Open Area (sq ft)	46343.63	Frctn Loss (ft)		
BR Open Vel (ft/s)	4.34	C & E Loss (ft)		
Coef of Q		Shear Total (lb/sq ft)	0.23	0.22
Br Sel Method	Yarnell	Power Total (lb/ft s)	0.00	0.00

HEC-RAS River: AME Reach: R1 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
R1	4.006 AME-0660	Q100	CE_American_	157000.00	4.16	41.44	20.69	41.95	0.000260	6.78	36461.36	2603.25	0.20
R1	4.006 AME-0660	QO&M	PP_American_Rive	180000.00	4.16	42.79	22.20	43.36	0.000285	7.27	39020.64	2611.26	0.21
R1	4.006 AME-0660	QO&M	CE_American_	180000.00	4.16	42.79	22.20	43.36	0.000285	7.27	39022.05	2611.26	0.21
R1	3.992 AME-0650	Q100	PP_American_Rive	157000.00	0.80	41.46	18.52	41.91	0.000206	6.16	38009.46	1863.62	0.18
R1	3.992 AME-0650	Q100	CE_American_	157000.00	0.80	41.47	18.52	41.91	0.000206	6.16	38010.60	1863.62	0.18
R1	3.992 AME-0650	QO&M	PP_American_Rive	180000.00	0.80	42.81	19.94	43.32	0.000230	6.65	40519.47	1869.21	0.19
R1	3.992 AME-0650	QO&M	CE_American_	180000.00	0.80	42.81	19.94	43.32	0.000230	6.65	40520.86	1869.22	0.19
R1	3.989			Bridge									
R1	3.970 AME-0630	Q100	PP_American_Rive	157000.00	1.56	41.21	18.71	41.66	0.000208	6.09	37409.51	1821.40	0.18
R1	3.970 AME-0630	Q100	CE_American_	157000.00	1.56	41.21	18.71	41.66	0.000208	6.09	37410.66	1821.40	0.18
R1	3.970 AME-0630	QO&M	PP_American_Rive	180000.00	1.56	42.49	20.13	43.01	0.000233	6.59	39751.84	1827.71	0.19
R1	3.970 AME-0630	QO&M	CE_American_	180000.00	1.56	42.49	20.13	43.01	0.000233	6.59	39753.24	1827.71	0.19
R1	3.965			Lat Struct									
R1	3.96			Lat Struct									
R1	3.949 AME-0620	Q100	PP_American_Rive	157000.00	3.12	41.18	19.61	41.63	0.000219	6.14	37496.91	2647.35	0.18
R1	3.949 AME-0620	Q100	CE_American_	157000.00	3.12	41.18	19.61	41.63	0.000219	6.14	37498.12	2647.35	0.18
R1	3.949 AME-0620	QO&M	PP_American_Rive	180000.00	3.12	42.46	20.90	42.98	0.000244	6.63	39972.88	2654.39	0.19
R1	3.949 AME-0620	QO&M	CE_American_	180000.00	3.12	42.47	20.90	42.99	0.000244	6.63	39974.37	2654.39	0.19
R1	3.735 AME-0610	Q100	PP_American_Rive	157000.00	-3.54	41.07	14.10	41.41	0.000135	5.11	46026.58	2890.49	0.14
R1	3.735 AME-0610	Q100	CE_American_	157000.00	-3.54	41.07	14.10	41.41	0.000135	5.11	46028.46	2890.49	0.14
R1	3.735 AME-0610	QO&M	PP_American_Rive	180000.00	-3.54	42.35	15.26	42.73	0.000150	5.50	49728.55	2898.81	0.15
R1	3.735 AME-0610	QO&M	CE_American_	180000.00	-3.54	42.35	15.26	42.73	0.000150	5.50	49730.84	2898.81	0.15
R1	3.718 AME-0600	Q100	PP_American_Rive	157000.00	-7.39	40.95	12.76	41.38	0.000160	5.83	40809.05	2450.90	0.16
R1	3.718 AME-0600	Q100	CE_American_	157000.00	-7.39	40.95	12.76	41.39	0.000160	5.83	40810.67	2450.90	0.16
R1	3.718 AME-0600	QO&M	PP_American_Rive	180000.00	-7.39	42.20	14.06	42.70	0.000180	6.30	43898.00	2458.16	0.17
R1	3.718 AME-0600	QO&M	CE_American_	180000.00	-7.39	42.21	14.06	42.71	0.000180	6.30	43899.97	2458.16	0.17
R1	3.715			Bridge		UPRR Bridge 92.12 Martinez							
R1	3.710 AME-0580	Q100	PP_American_Rive	157000.00	-8.53	40.93	12.02	41.35	0.000149	5.62	40882.88	2462.54	0.15
R1	3.710 AME-0580	Q100	CE_American_	157000.00	-8.53	40.93	12.02	41.35	0.000149	5.62	40882.88	2462.54	0.15
R1	3.710 AME-0580	QO&M	PP_American_Rive	180000.00	-8.53	42.18	13.35	42.67	0.000169	6.10	44041.99	2568.15	0.16
R1	3.710 AME-0580	QO&M	CE_American_	180000.00	-8.53	42.18	13.35	42.67	0.000169	6.10	44041.99	2568.15	0.16
R1	3.702			Lat Struct									
R1	3.69			Lat Struct									
R1	3.688 AME-0570	Q100	PP_American_Rive	157000.00	-7.44	40.96	15.06	41.31	0.000157	5.68	47044.16	2707.25	0.16

HEC-RAS River: AME Reach: R1 (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
R1	3.688 AME-0570	Q100	CE_American_	157000.00	-7.44	40.96	15.06	41.31	0.000157	5.68	47044.16	2707.25	0.16
R1	3.688 AME-0570	QO&M	PP_American_Rive	180000.00	-7.44	42.22	16.48	42.62	0.000174	6.10	50477.80	2717.84	0.17
R1	3.688 AME-0570	QO&M	CE_American_	180000.00	-7.44	42.22	16.48	42.62	0.000174	6.10	50477.80	2717.84	0.17
R1	3.600 AME-0560	Q100	PP_American_Rive	157000.00	-6.87	40.37	21.26	41.16	0.000409	8.76	33480.40	2311.01	0.25
R1	3.600 AME-0560	Q100	CE_American_	157000.00	-6.87	40.37	21.26	41.16	0.000409	8.76	33480.40	2311.01	0.25
R1	3.600 AME-0560	QO&M	PP_American_Rive	180000.00	-6.87	41.60	22.38	42.45	0.000440	9.28	36326.00	2316.96	0.26
R1	3.600 AME-0560	QO&M	CE_American_	180000.00	-6.87	41.60	22.38	42.45	0.000440	9.28	36326.00	2316.96	0.26
R1	3.477 AME-0550	Q100	PP_American_Rive	157000.00	-12.35	40.16	16.15	40.91	0.000305	7.91	33804.06	2370.49	0.21
R1	3.477 AME-0550	Q100	CE_American_	157000.00	-12.35	40.16	16.15	40.91	0.000305	7.91	33804.06	2370.49	0.21
R1	3.477 AME-0550	QO&M	PP_American_Rive	180000.00	-12.35	41.36	17.93	42.19	0.000337	8.48	36638.57	2375.49	0.23
R1	3.477 AME-0550	QO&M	CE_American_	180000.00	-12.35	41.36	17.93	42.19	0.000337	8.48	36638.57	2375.49	0.23
R1	3.474			Lat Struct									
R1	3.473			Lat Struct									
R1	3.300 AME-0540	Q100	PP_American_Rive	157000.00	-7.60	40.01	16.39	40.60	0.000255	7.23	37108.98	2311.67	0.20
R1	3.300 AME-0540	Q100	CE_American_	157000.00	-7.60	40.01	16.39	40.60	0.000255	7.23	37108.98	2311.67	0.20
R1	3.300 AME-0540	QO&M	PP_American_Rive	180000.00	-7.60	41.18	17.67	41.84	0.000284	7.78	39816.70	2317.33	0.21
R1	3.300 AME-0540	QO&M	CE_American_	180000.00	-7.60	41.18	17.67	41.84	0.000284	7.78	39816.70	2317.33	0.21
R1	3.297			Lat Struct									
R1	3.090 AME-0530	Q100	PP_American_Rive	157000.00	-6.87	39.86	16.29	40.30	0.000204	6.31	41815.82	2477.06	0.18
R1	3.090 AME-0530	Q100	CE_American_	157000.00	-6.87	39.86	16.29	40.30	0.000204	6.31	41815.82	2477.06	0.18
R1	3.090 AME-0530	QO&M	PP_American_Rive	180000.00	-6.87	41.01	17.81	41.52	0.000228	6.81	44671.50	2482.03	0.19
R1	3.090 AME-0530	QO&M	CE_American_	180000.00	-6.87	41.01	17.81	41.52	0.000228	6.81	44671.50	2482.03	0.19
R1	3.086			Lat Struct									
R1	2.915 AME-0520	Q100	PP_American_Rive	157000.00	-11.55	39.79	10.91	40.14	0.000136	5.58	47673.63	2590.23	0.15
R1	2.915 AME-0520	Q100	CE_American_	157000.00	-11.55	39.79	10.91	40.14	0.000136	5.58	47673.63	2590.23	0.15
R1	2.915 AME-0520	QO&M	PP_American_Rive	180000.00	-11.55	40.93	12.44	41.33	0.000155	6.06	50629.73	2596.67	0.16
R1	2.915 AME-0520	QO&M	CE_American_	180000.00	-11.55	40.93	12.44	41.33	0.000155	6.06	50629.73	2596.67	0.16
R1	2.912			Lat Struct									
R1	2.911			Lat Struct									
R1	2.715 AME-0510	Q100	PP_American_Rive	157000.00	-13.17	39.62	12.19	39.99	0.000154	5.91	46075.01	2448.43	0.16
R1	2.715 AME-0510	Q100	CE_American_	157000.00	-13.17	39.62	12.19	39.99	0.000154	5.91	46075.01	2448.43	0.16
R1	2.715 AME-0510	QO&M	PP_American_Rive	180000.00	-13.17	40.74	13.85	41.17	0.000176	6.41	48811.05	2452.58	0.17
R1	2.715 AME-0510	QO&M	CE_American_	180000.00	-13.17	40.74	13.85	41.17	0.000176	6.41	48811.05	2452.58	0.17
R1	2.712			Lat Struct									


Bridge Scour RS = 3.715
Legend
WS Q100
Ground
Levee
Ineff
Bank Sta
Contr Scour
Total Scour
Elevation (ft)
50
45
40
35
30
25
500
600
700
800
900
1000
Station (ft)

Contraction Scour

		Left	Channel	Right
Input Data				
	Average Depth (ft):	8.70	39.25	9.34
	Approach Velocity (ft/s):	1.27	5.11	1.35
	Br Average Depth (ft):	10.35	42.58	10.19
	BR Opening Flow (cfs):	8193.22	124226.10	24580.63
	BR Top WD (ft):	386.84	486.85	1368.84
	Grain Size D50 (mm):	0.10	0.10	0.10
	Approach Flow (cfs):	4575.71	129334.80	23089.49
	Approach Top WD (ft):	414.35	645.24	1830.90
	K1 Coefficient:	0.690	0.690	0.690
Results				
	Scour Depth Ys (ft):	4.68	3.47	1.85
	Critical Velocity (ft/s):	1.11	1.43	1.12
	Equation:	Live	Live	Live

Pier Scour

All piers have the same scour depth

Input Data		
	Pier Shape:	Round nose
	Pier Width (ft):	1.17
	Grain Size D50 (mm):	0.10000
	Depth Upstream (ft):	42.41
	Velocity Upstream (ft/s):	5.83
	K1 Nose Shape:	1.00
	Pier Angle:	
	Pier Length (ft):	35.00
	K2 Angle Coef:	
	K3 Bed Cond Coef:	1.10
	Grain Size D90 (mm):	0.20000
	K4 Armouring Coef:	1.00
	Set K1 value to 1.0 because angle > 5 degrees	
Results		
	Scour Depth Ys (ft):	
	Froude #:	
	Equation:	CSU equation

Abutment Scour

		Left	Right
Input Data			
	Station at Toe (ft):	571.08	3026.42
	Toe Sta at appr (ft):	523.70	3104.43
	Abutment Length (ft):	414.35	1830.90
	Depth at Toe (ft):	-2.88	2.73
	K1 Shape Coef:	1.00 - Vertical abutment	
	Degree of Skew (degrees):	90.00	90.00
	K2 Skew Coef:	1.00	1.00
	Projected Length L' (ft):	414.35	1830.90
	Avg Depth Obstructed Ya (ft):	8.70	9.34
	Flow Obstructed Qe (cfs):	4575.71	23089.49
	Area Obstructed Ae (sq ft):	3605.91	17095.85
Results			
	Scour Depth Ys (ft):		10.84

Froude #:		0.16
Equation:	Default	HIRE

Combined Scour Depths

Pier Scour + Contraction Scour (ft):		
	Left Bank:	
	Channel:	
	Right Bank:	
Right abutment scour + contraction scour (ft):	12.70	

HYDROLOGIC & HYDRAULIC EVALUATION – UPRR BRIDGE 92.12: MARTINEZ SUBDIVISION

Sacramento, California

April 2022

Olsson Project No. 019-39260

American River Flood Control District

Resolution No. 2024-03

ESTABLISHING A SCHEDULE FOR THE TRANSITION OT BY-DISTRICT ELECTIONS PURSUANT TO CALIFORNIA ELECTIONS CODE SECTION 10650

WHEREAS, the Board of Trustees of American River Flood Control District ("ARFCD") are currently elected through an at-large election process, in which each Trustee is elected by all registered voters within the District; and

WHEREAS**,** Section 10650 of the California Elections Code authorizes the governing body of a special district to change by resolution to district-based elections without the need to put such a change to voters; and

WHEREAS, from 2019 through 2023, ARFCD performed public outreach and prepared draft maps in preparation for a transition to by-district elections pursuant to Sections 10650 and 10010; and

WHEREAS, pursuant to Resolution No. 2023-08 and in accordance with Elections Code Section 10010, ARFCD adopted a final map of the proposed districting divisions (attached hereto as Exhibit A) and identified a schedule for the transition of each division to a by-district election process; and

WHEREAS, the District Board of Trustees has determined that minor modifications to proposed schedule that will serve the best interest of ARFCD and be consistent with the California Voting Rights Act and applicable law.

NOW THEREFORE BE IT RESOLVED as follows:

1. The recitals set forth above are true and correct.

2. The map attached hereto as Exhibit A and previously adopted in Resolution No. 2023-08, is the American River Flood Control District By-District Election Map. The Clerk of the Board shall maintain a map of ARFCD showing the current boundaries and members of each voting district as they are established and may be amended from time to time by the Board of ARFCD.

3. Commencing with the November 5, 2024 election, the Trustees of the American River Flood Control District shall be elected in by-district elections. Consistent with the requirements of Election Code § 10426 and the American River Flood Control District Act, Trustees elected to a seat in a by-district election must be a registered voter in the district to which they are elected.

4. The transition to by-district elections will be conducted as follows:

    a. At the **November 2024** regular ARFCD election, a by-district election shall be conducted to select a Trustee for **Divisions** _ and _**,** respectively. Following the November 2024, general district election, Divisions _ and _ will continue with by-district elections on the normal American River Flood Control District general election cycle.

    b. At the **November 2026** regular ARFCD election, a by-district election shall be

conducted to select Trustee for **Divisions _, _,** and **_.** Following the November 2026 general district election, Divisions _, _, and _ will continue with by-district elections on the normal American River Flood Control District general election cycle.

3. Pursuant to Elections Code Section 10650, it is declared that this change in the method of electing Trustees of the American River Flood Control District is being made in furtherance of the California Voting Rights Act of 2001 (Election Code Sections 14025 *et seq*.)

4. If any provision of this Resolution or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the Resolution which can be given effect without the invalid provision or application and to this end the provisions of the Resolution are severable. The Board of Trustees hereby declares that it would have adopted this Resolution irrespective of the invalidity of any particular portion thereof.

6. The Clerk of the Board is hereby directed to file a certified copy of this Resolution with the Board of Supervisors and the County election official of the Couty of Sacramento.

PASSED AND ADOPTED this 8th day of March 2024 by the following vote:

AYE:
NAY:
ABSTAIN:
ABSENT:

ATTEST:

_____ _____

President
Board of Trustees

Secretary
Board of Trustees

General Manager's Meeting Summary
February 2024

2/1: Mead and Hunt Levee Penetrations meeting. I met with Steven Sullivan and Nancy Moricz from M&H to discuss levee pipe penetrations along the North Area Levees. M&H is performing the penetrations analysis for the SAFCA levee accreditation effort.

2/9: American River Flood Control District Board of Trustees meeting. The Board met in regular session. The agendized items consisted of a request to purchase a Canycom 25A Tracked Dumper from Pioneer Machinery and a discussion on re-visiting the elections timeline.

2/12: Mead and Hunt Levee Penetrations meeting. I met with Steven Sullivan and Nancy Moricz from M&H to continue discussion on levee pipe penetrations along the North Area Levees. I provided results from my pipe abandonment research and documents from the Central Valley Flood Protection Board encroachments database.

2/13: City of Sacramento Impact Team Coordination meeting. Interim Superintendent Kawamura and I met with staff from the City Impact Team to discuss our priorities for keeping levees free from encampments. I informed the team that our highest priority is to keep the levee crown roadways clear so that we can continue essential levee O&M and patrolling. Our second priority would be to clear specific camps within a planned project footprint such as high hazard tree removal or emergency levee repair. All other encampments fall into a third and more distant priority.

2/14: Mead and Hunt Levee Penetrations Site Visit. Interim Superintendent Diaz and I met with Chris Hirschmann from M&H to inspect specific levee pipe penetrations along the North Area Levees.

2/20: Meeting with Eric Grotenhuis from Page Design. I met with Eric Grotenhuis to discuss his company's capability to assist the District with printed and digital public outreach materials. The work would cover the Annual Newsletter, visual aids and materials for public events, and possibly an e-mail blast. I offered to schedule a subsequent meeting with Mr. Grotenhuis and the Public Outreach Committee.

2/23: Central Valley Flood Protection Board meeting. I attended this meeting to hear a presentation on the proposed Union Pacific Railroad Bridge Section Replacement for the American River Bridge in Sacramento. Staff from the CVFPB presented the history of past bridge work on this structure and the plan for replacing the last wooden section. UPRR staff and consultants were on hand to answer questions.

2/27: California CLASS Presentation. Office Manager Chapman and I met with representatives from the California Cooperative Liquid Assets Securities System to hear about their company's offering for public agency pooled investments. Their parent company has similar public trust advisor systems for numerous states throughout the United States. CA CLASS was initiated in California by the CSDA.

November 5, 2024 Election Timeline

Nomination period: July 15-August 9

Everything is done at the Voter Registration and Elections office
7000 65th Street, Suite A
Sacramento, CA 95823

Candidates are encouraged to file their candidacy papers in-person by appointment.
You can schedule an appointment online* or call (916) 875-6276

*https://sacramentocountyelections.as.me/schedule.php

Estimate Cost: $1,250 to be paid when statement is filed.
Statement: 200 words, 5 paragraphs.

Minimum Qualifications • Candidate shall be a registered voter of the district and be a resident of the district for at least 1 year preceding his or her appointment or election.
Requirements Nomination Signatures: 25 - 40 valid signatures
Items to be Filed • Media Sheet • Nomination Petitions • Code of Fair Campaign Practices - voluntary • Candidate Statement & estimated payment (if no statement, form must still be filed) • Ballot Designation Worksheet • Declaration of Candidacy • Statement that candidate will not withdraw before the election • Statement of Economic Interests • Campaign Disclosure Statements

Certification December 5
Take office, December 13th