

*NOTE:
€ TEMPORARY CABLE TIE SUPPLIED W/ BRIDGE UNITS. REMOVE AFTER GROUT REACHES 2,000 PSI COMPRESSIVE STRENGTH.

FOR APPROVAL

DESIGNED BY:		DATE	DESCRIPTION	ENG
PRETEK GROUP P.O. BOX 351 BELLBROOK, OH 45305 800.241.0925		7		
		6		
		5		
		4		
		3		
		2		
		1	2/28/24 REV PER COLEMAN & ASSOC. ARCHITECT SHT 1	JJC

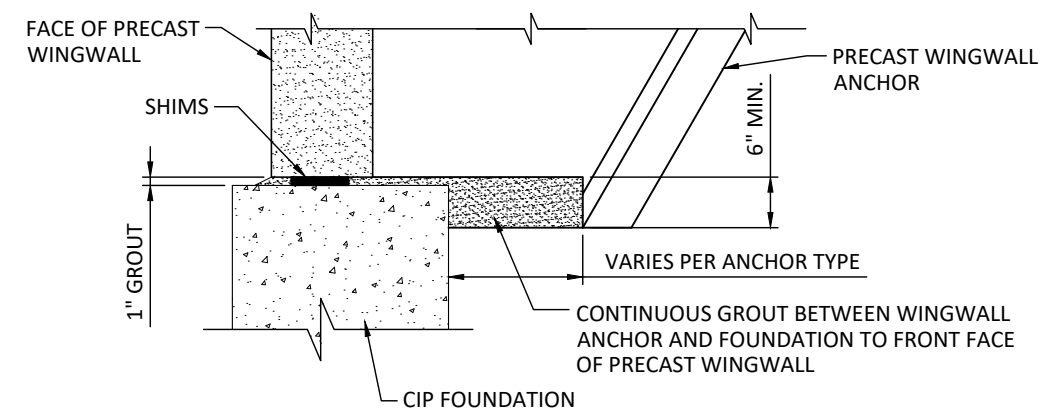
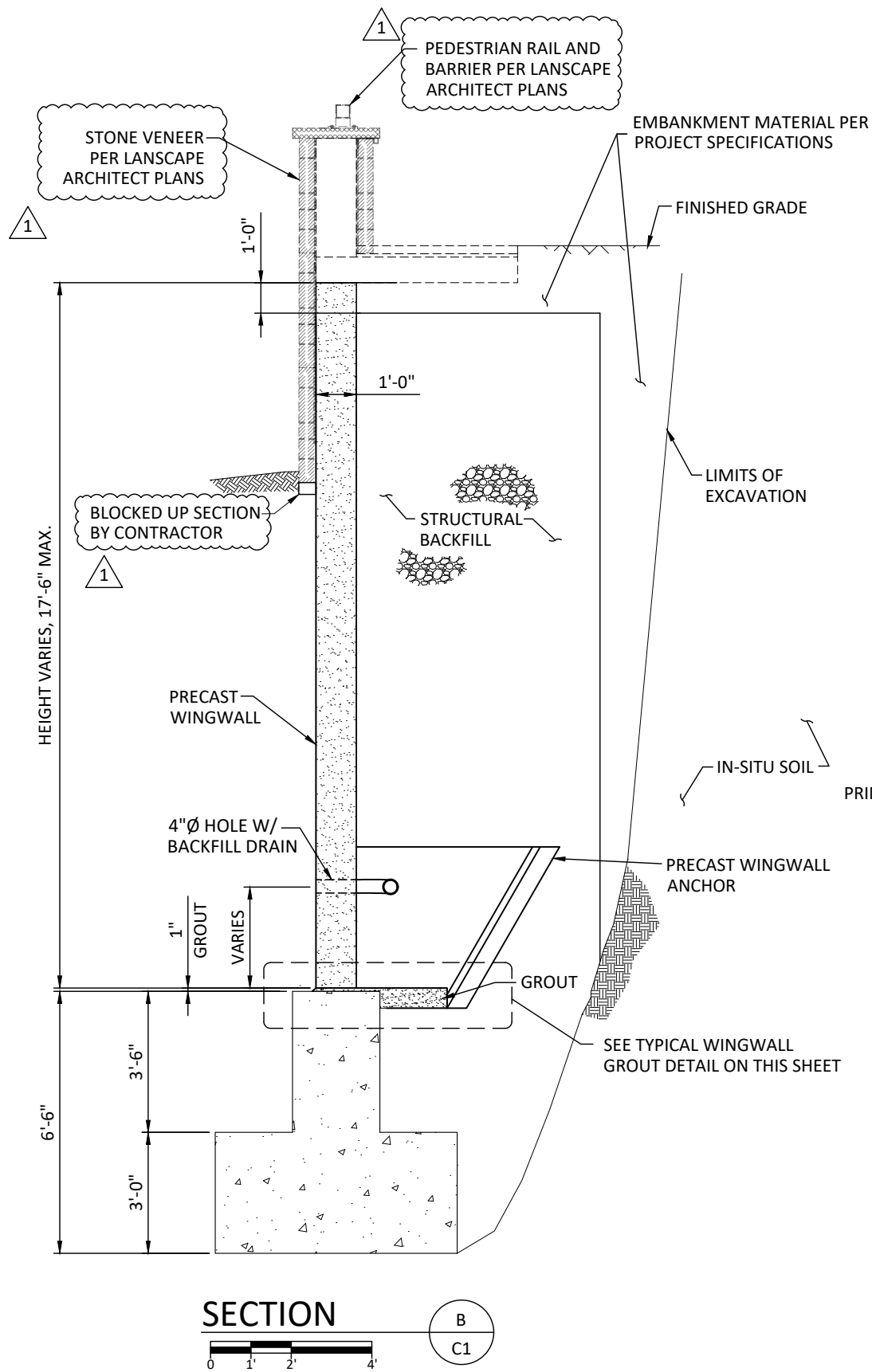
LOCALE: NEW BRAUNFELS

STATE: TX

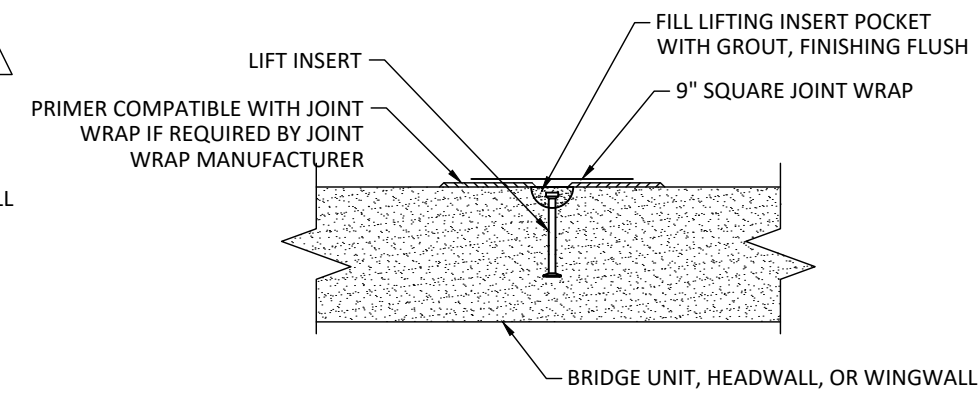
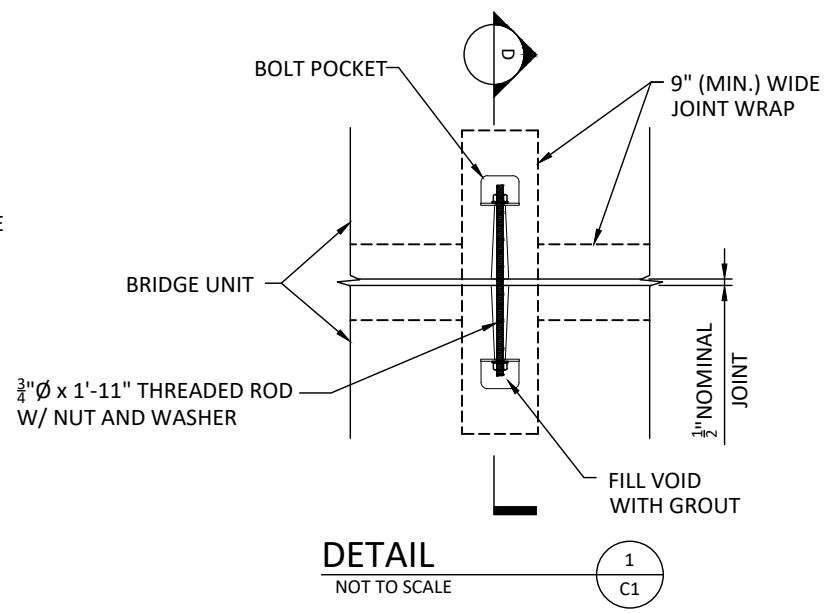
WORD PARKWAY PHASE 3 BRIDGE

PROVIDED BY:		PROJECT NUMBER: 23-338
SFC BRIDGE SYSTEMS A Division of Speed Fab-Crete 1150 E. KENNEDALE PARKWAY KENNEDALE, TX 76060 214.717.1773 WWW.SPEEDFAB-CRETE.COM		DATE: 11/9/2023
		DESIGNED BY: JJV
JEFF HARWELL DIVISION MANAGER jharwell@sfcbridge.com SFC BRIDGE SYSTEMS A DIVISION OF SPEED FAB-CRETE CORP. P.O. BOX 15580 FORT WORTH, TX 76119 214.717.1773		DRAWN BY: NJS
		CHECKED BY: JJV

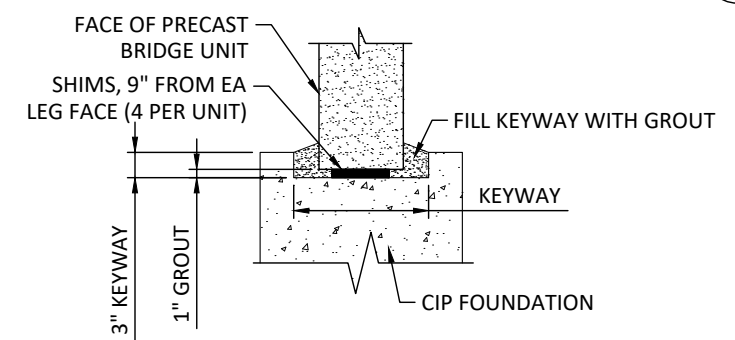
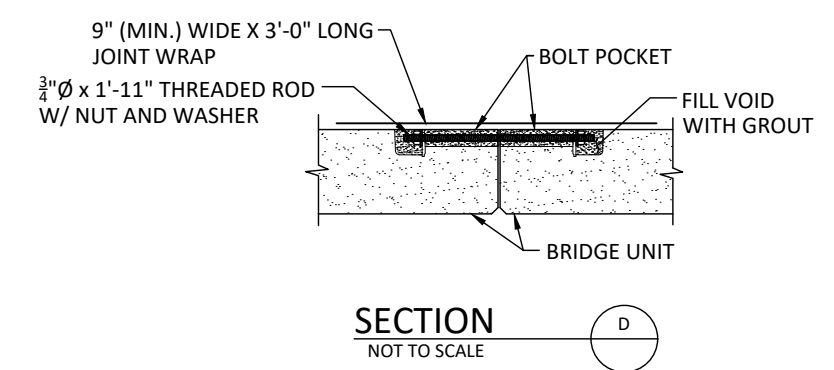
C2



WINGWALL GROUT DETAIL
NOT TO SCALE



TYPICAL LIFT POINT SEALING DETAIL
NOT TO SCALE



UNIT GROUT DETAIL
NOT TO SCALE

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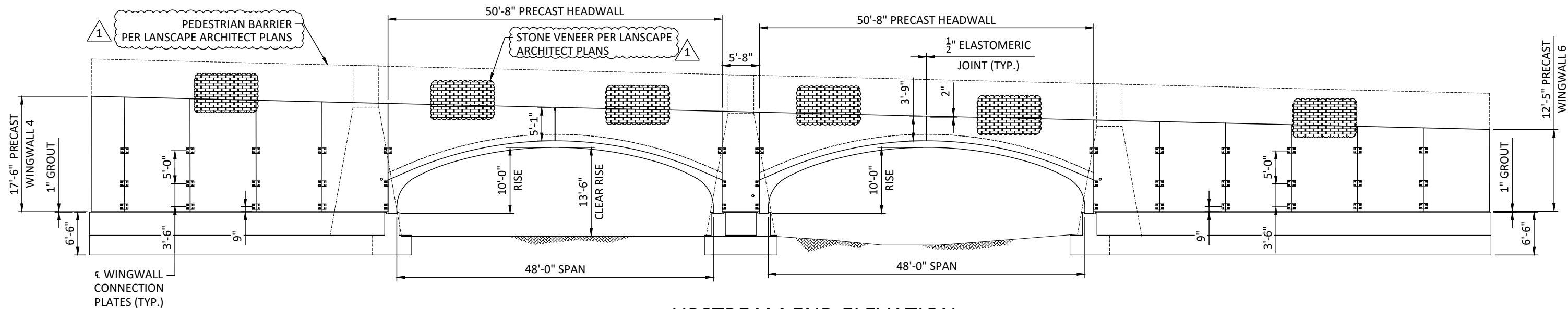
STATE: TX

PROVIDED BY:
SFC BRIDGE SYSTEMS
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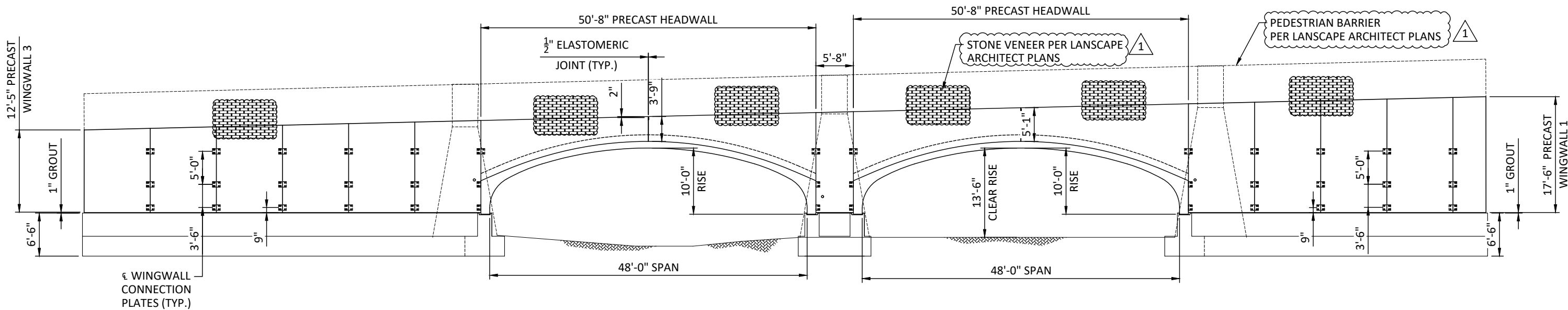
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3



UPSTREAM END ELEVATION



DOWNSTREAM END ELEVATION



FOR APPROVAL

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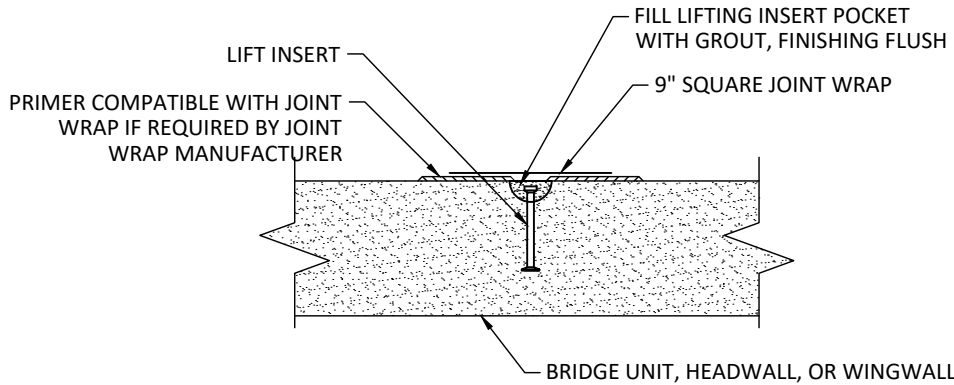
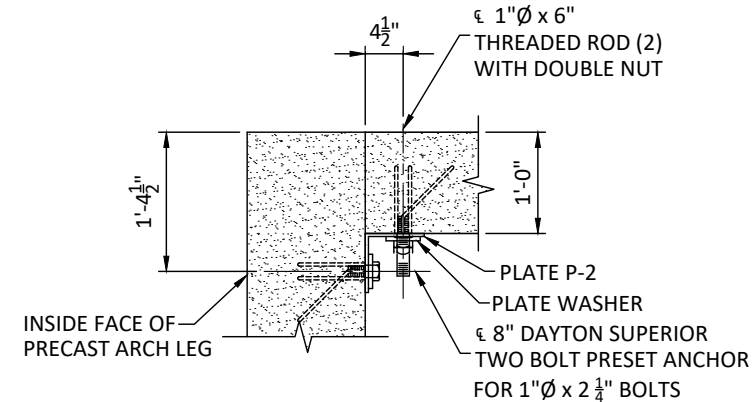
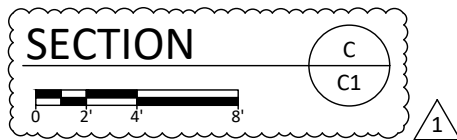
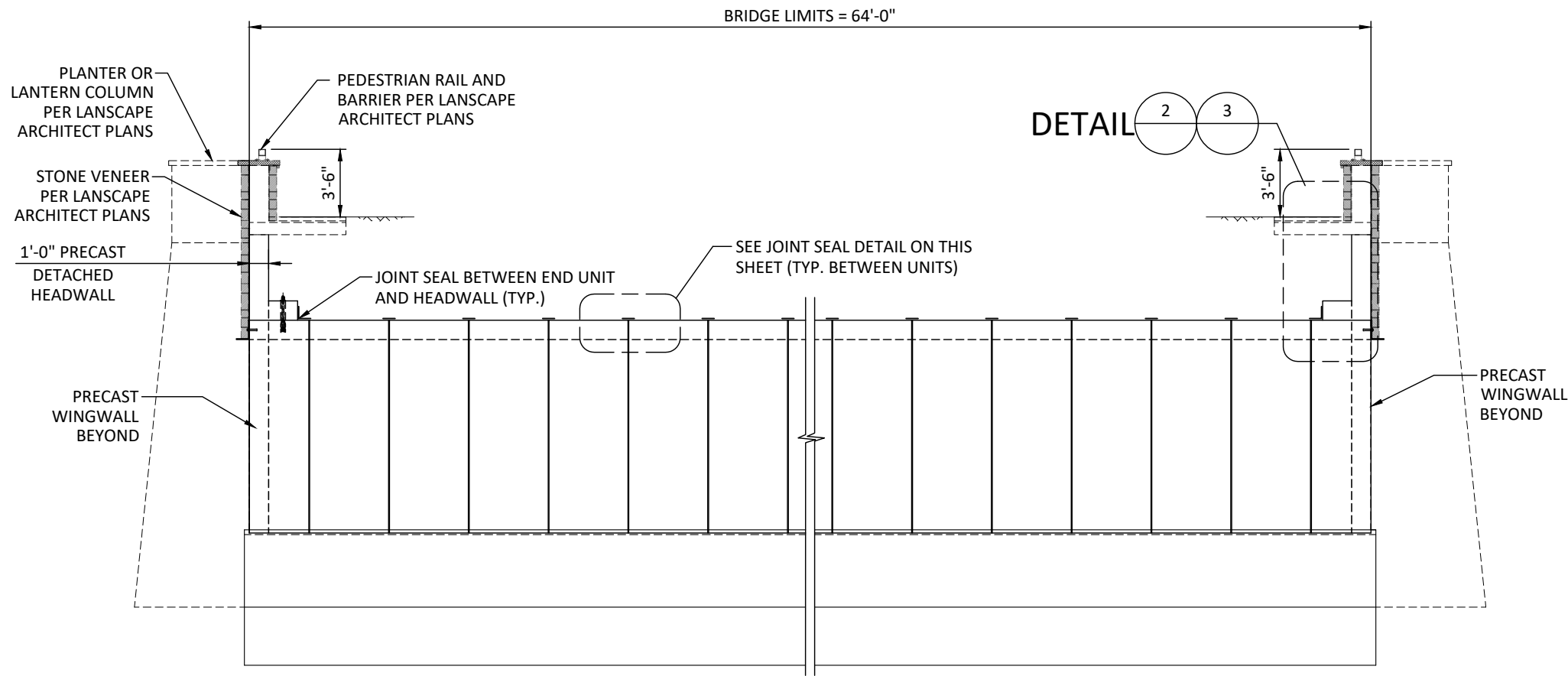
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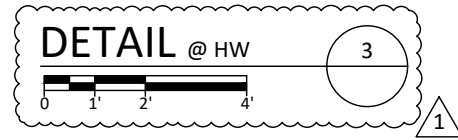
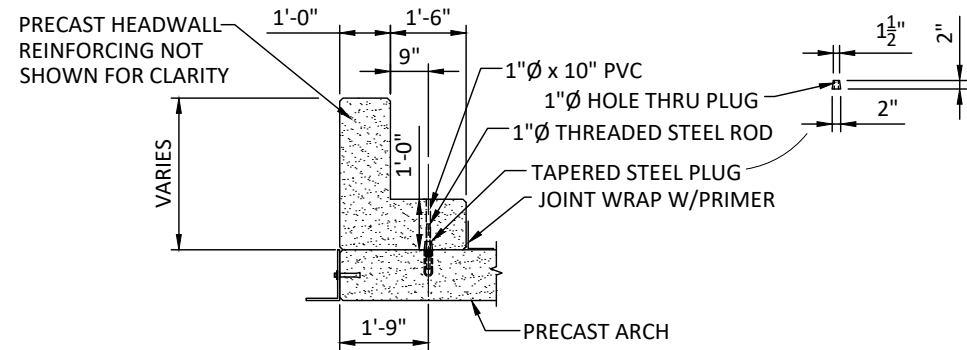
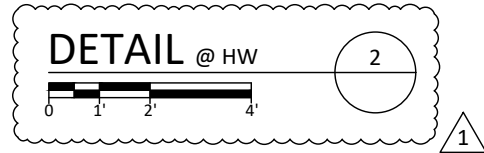
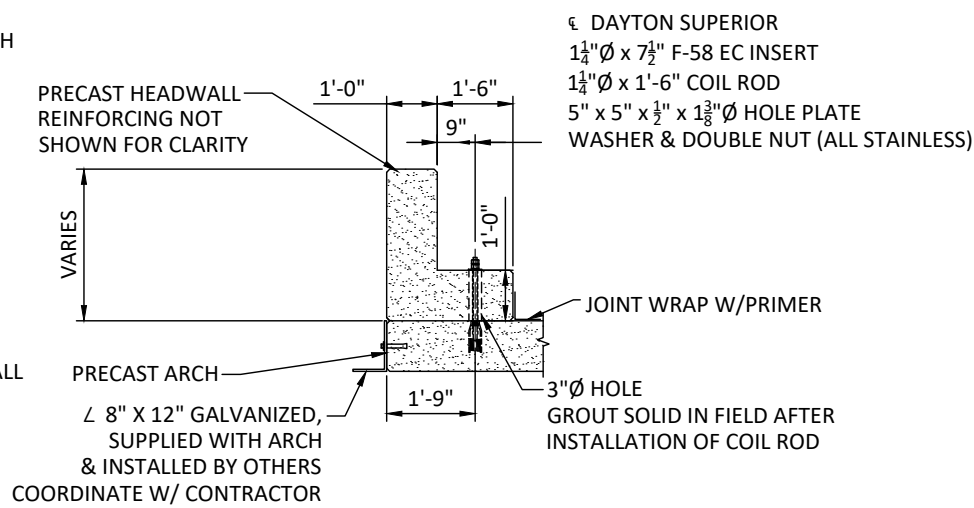
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C4



TYPICAL LIFT POINT SEALING DETAIL
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WORD PARKWAY PHASE 3 BRIDGE

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5

SPECIFICATIONS FOR THE MANUFACTURE AND DESIGN OF PRECAST THREE SIDED ARCH STRUCTURES, WINGWALLS AND HEADWALLS

1. DESCRIPTION

THESE SPECIFICATIONS ARE FOR A PRECAST THREE SIDED ARCH STRUCTURE, HEADWALLS AND WINGWALLS. PRECAST PIECES SHALL CONFORM TO ASTM C1504-16.

2. DESIGN

THE PRECAST UNITS ARE DESIGNED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS "LRFD BRIDGE DESIGN SPECIFICATIONS", NINTH EDITION AND INTERIM SPECIFICATIONS TO DATE.

CONSTRUCTION EQUIPMENT HEAVIER THAN A D-4 DOZER IS NOT ALLOWED OVER THE ARCH STRUCTURE UNTIL BACKFILL IS PLACED TO AT LEAST 1' DEPTH OVER THE TOP OF THE ARCH. AT NO TIME SHALL HEAVY CONSTRUCTION OR BACKFILLING EQUIPMENT IN EXCESS OF 8 TONS BE PERMITTED OVER THE STRUCTURE OR WITHIN 3' OF ANY STRUCTURAL ELEMENT WITHOUT AT LEAST 2' OF COVER OVER THE STRUCTURE UNLESS THE STRUCTURE IS DESIGNED FOR LESS COVER. EQUIPMENT WITH AXLE WEIGHT OR TOTAL WEIGHT GREATER THAN THE DESIGN LOAD SHALL NOT BE OPERATED ON THE STRUCTURE WITHOUT WRITTEN APPROVAL FROM PRETEK GROUP.

3. MATERIALS - STEEL REINFORCEMENT AND HARDWARE

FERRULE LOOP AND EXPANDED COIL INSERTS SHALL BE AS MANUFACTURED BY DAYTON SUPERIOR CORPORATION OR EQUAL. STAINLESS STEEL INSERTS, RODS, NUTS AND WASHERS SHALL BE SAE 304. STRUCTURAL CONNECTIONS FOR ARCH UNIT PLATES AND PLATE WASHERS SHALL CONFORM TO ASTM A709, GRADE 36, GALVANIZED IN CONFORMANCE WITH ASTM A123. STEEL BOLTS, THREADED RODS AND NUTS FOR ARCH UNIT CONNECTION SHALL CONFORM TO ASTM A325. THREADED ITEMS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM B633, SERVICE CONDITION 1. OTHER ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

4. PRECAST ELEMENTS

STORAGE OF UNITS SHOULD BE IN A MANNER THAT PREVENTS ANY DAMAGE OR CRACKING AND IN A FASHION APPROVED BY THE ENGINEER

5. QUALITY ASSURANCE

THE PRECAST PLANT SHALL BE CERTIFIED BY THE NATIONAL PRECAST CONCRETE ASSOCIATION'S PLANT CERTIFICATION PROGRAM, PRECAST/PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION OR AMERICAN CONCRETE PIPE ASSOCIATION CERTIFIED PLANT DURING PRODUCTION OF ALL PRECAST ELEMENTS.

THE OWNER OR OWNER'S AGENT MAY INSPECT THE MATERIAL, MANUFACTURE AND FINISHED PRECAST ELEMENTS AT THEIR DISCRETION.

6. PERMISSIBLE VARIATIONS

WINGWALL AND HEADWALL ARE TO BE MANUFACTURED SO THAT THE LENGTH, HEIGHT AND THICKNESS DOES NOT VARY MORE THAN 1/2" FROM WHAT IS SHOWN ON THE SHOP DRAWINGS. WINGWALL ANCHOR LENGTH LONGER THAN THAT SHOWN ON THE SHOP DRAWINGS SHALL NOT BE CAUSE FOR REJECTION.

THE MAXIMUM PERMISSIBLE JOINT WIDTH AT ANY LOCATION SHALL BE 3/4"

7. WORKMANSHIP AND FINISH

PRECAST ELEMENTS ARE TO HAVE A SMOOTH STEEL FORM OR TROWELED SURFACE. THE ENDS OF BRIDGE UNITS SHALL BE NORMAL TO THE WALLS AND CENTERLINE OF THE ARCH. THE PRECAST ELEMENTS SHALL BE FREE OF ANY SUBSTANTIAL FRACTURE OR BLEMISH.

8. MARKING

IN ADDITION TO MARKINGS DESCRIBED IN ASTM C1504 AND/OR PROJECT SPECIFICATIONS, THE PIECE MARK SHOWN IN THE SHOP DRAWINGS SHALL BE INCLUDED.

ACCEPTABLE BACKFILL MATERIAL IN ZONE A		
SPAN	FILL HEIGHT	MATERIAL IN ZONE A
≤ 24'-0"	< 12'-0"	A1, A2, A3
≤ 24'-0"	≥ 12'-0"	A1, A3
> 24'-0"	ALL	A1, A3

TABLE 1 - ACCEPTABLE BACKFILL

9. CONSTRUCTION

THE BRIDGE UNITS AND WINGWALLS SHALL BE INSTALLED ON CAST IN PLACE FOUNDATIONS PER THE PLANS. THE PROJECT ENGINEER SHALL VERIFY THAT THE FOUNDATION SUBGRADE IS IN COMPLIANCE WITH THE GEOTECHNICAL REPORT FOR THE PROJECT.

THE FOOTINGS SHALL HAVE A SMOOTH FLOAT FINISH WITH A MINIMUM COMPRESSIVE STRENGTH AS SPECIFIED IN THE DESIGN NOTES. THE SURFACE OF THE FOUNDATION SHALL NOT VARY BY MORE THAN 1/4" WHEN MEASURED WITH A 10 FOOT STRAIGHT EDGE. THE FOOTINGS SHALL HAVE REACHED A MINIMUM OF 2,000 PSI BEFORE INSTALLATION OF ANY PRECAST ELEMENTS. FOUNDATION DIMENSION SHALL MATCH THOSE THAT ARE SHOWN ON THE PLANS.

PRECAST ELEMENTS SHALL BE INSTALLED AS SHOWN ON THE PLANS AND SPECIAL CARE SHALL BE TAKEN TO VERIFY THAT ELEMENTS ARE PLACED TO FOLLOW THE DESIGNATED CENTERLINE OF THE STRUCTURE. BRIDGE STRUCTURES AND WINGWALLS ARE TO BE PLACED ON MASONITE SHIMS TO ALLOW A MINIMUM OF 1/2" CLEARANCE BETWEEN BOTTOM OF PRECAST ELEMENT AND TOP OF FOOTING. GAP TO BE FILLED WITH CEMENT GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI. GROUT TO BE COMPOSED OF PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF ONE PART PORTLAND CEMENT AND THREE PARTS SAND BY VOLUME.

BUTT JOINTS BETWEEN BRIDGE UNITS SHALL BE COVERED WITH A 7/8" X 1 3/8" (1" NOMINAL) BUTYL ROPE AND A 9" (MINIMUM) WIDE STRIP OF JOINT WRAP. BUTYL ROPE SHALL BE CONSEAL (CS-101) OR EQUAL, AND WRAP SHALL BE CONSEAL (CS-212) OR EQUAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE APPLIED ON EACH SIDE OF THE BUTT JOINT ON A CLEAN SURFACE IF REQUIRED BY JOINT WRAP MANUFACTURER. JOINT PROTECTION SHALL EXTEND FROM BOTTOM OF ONE LEG, UP OVER ARCH AND DOWN OPPOSITE LEG (EXCEPT AT PIERS OF MULTIPLE-CELL ARCHES). ANY LAPS SHALL HAVE 6" OF OVERLAP AND HAVE OVERLAP RUNNING DOWN HILL.

LIFT HOLES ARE TO BE FILLED, PRIMED AND COVERED WITH JOINT WRAP. EDGES ALONG HEADWALL COLLAR AND TOP OF BRIDGE UNIT TO BE COVERED WITH JOINT WRAP INSTALLED PER MANUFACTURERS RECOMMENDATIONS. HEADWALLS THAT ARE CAST INTEGRAL WITH A BRIDGE UNIT REQUIRES NO TYPE OF JOINT PROTECTION.

JOINTS BETWEEN WINGWALL SECTIONS AND JOINTS BETWEEN A WINGWALL AND BRIDGE UNIT SHALL BE SEALED WITH EITHER A 2' WIDE STRIP OF FILTER FABRIC OR 9" WIDE (MINIMUM) JOINT WRAP.

BACKFILL IS DEFINED AS ALL REPLACED EXCAVATION AND NEW EMBANKMENT MATERIAL THAT IS ADJACENT TO THE THREE SIDED STRUCTURE, WINGWALLS AND HEADWALLS. BACKFILL MATERIAL WITHIN STRUCTURAL BACKFILL ZONE (BACKFILL ZONE A), MUST MEET THE AASHTO MATERIAL REQUIREMENTS ON THIS SHEET.

ALL BACKFILL IN ZONE A IS TO BE COMPACTED TO A MINIMUM DENSITY OF 95% STANDARD PROCTOR PER AASHTO T-99.


SPECIAL CARE IS TO BE TAKEN DURING BACKFILLING TO PROTECT THE PLACEMENT OF JOINT WRAP OR ANY WATERPROOFING MATERIAL.

MECHANICAL TAMPERS OR APPROVED COMPACTING EQUIPMENT NOT EXCEEDING 1 TON SHALL BE USED ON ALL BACKFILL MATERIAL THAT IS DIRECTLY ADJACENT TO THE STRUCTURAL ELEMENTS AND OVER THE TOP OF THE STRUCTURE UNTIL THERE IS AT LEAST 1' OF COVER OVER THE TOP. BACKFILL MATERIAL IN STRUCTURAL BACKFILL ZONE SHALL BE PLACED IN 8" LIFTS (MAXIMUM) BEFORE BEING COMPACTED. AT NO TIME SHALL HEAVY CONSTRUCTION OR BACKFILLING EQUIPMENT IN EXCESS OF 8 TON BE PERMITTED OVER THE STRUCTURE OR WITHIN 3' OF ANY STRUCTURAL ELEMENT WITHOUT AT LEAST 2' OF COVER OVER THE STRUCTURE UNLESS THE STRUCTURE IS DESIGNED FOR LESS COVER.

DURING BACKFILLING, AT NO TIME SHALL THERE BE MORE THAN 24" DIFFERENCE BETWEEN BACKFILL HEIGHT ON EACH SIDE OF THE CULVERT

BACKFILL DESCRIPTION					
AASHTO GROUP CLASSIFICATION	A-1a	A-1b	A-2-4	A-2-5	A3
TYPICAL USCS MATERIALS	GW, GP, SP	GM, SW, SP, SM	GM, SM, ML, SP, GP	SC, GC, GM	SP, SM, SW
PERCENT PASSING #10	50 MAX.				
PERCENT PASSING #40	30 MAX.	50 MAX.			51 MIN.
PERCENT PASSING #200	15 MAX.	25 MAX.	35 MAX.	35 MAX.	10 MAX.
CHARACTERISTICS OF FRACTION PASSING #40, LIQUID LIMIT			40 MAX.	41 MIN.	
CHARACTERISTIC OF FRACTION PASSING #40, PLASTICITY INDEX	6 MAX.	6 MAX.	10 MAX.	10 MAX.	
DESCRIPTION OF MATERIAL	MOSTLY GRAVEL WITH SOME SANDS AND FINES	GRAVELLY SAND OR GRADED SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY OR CLAYEY GRAVEL AND SAND	FINE SAND

FOR APPROVAL

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