



Q&A for
REQUEST FOR PROPOSALS
Construction Management Services
Mississippi Greenway: Trestle over I-70 (732A)
Gravois Greenway: Grants Trail over I-44 (732B)

SUBMITTAL DUE DATE: November 1, 2019

3:00 PM Central Standard Time

Questions & Answers

Q1. Are preliminary plans of the proposed improvements available for review to determine approximate scope of construction and services required?

A1. Yes, see attached.

Q2. Are plans / specs available for each of these projects?

A2. Yes, see A1 and attached.

Q3. What are the planned notice-to-proceed and completion dates for the construction of each of these projects?


A3. Bidding is planned for early 2020 and construction to begin after approval of a bid and notice to proceed, likely late winter. Construction timeline to be developed by design team and Construction Manager prior to bidding.

MISSISSIPPI GREENWAY: TRESTLE OVER 70 (732A)
SPECIFICATIONS AND PRE-FINAL DRAWINGS

JOB SPECIAL PROVISIONS TABLE OF CONTENTS

(Job Special Provisions shall prevail over General Provisions whenever in conflict therewith.)

A.	General	1
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	<p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65101 PHONE (888) 275-6636</p>
	<p>David Mason & Associates, Inc. 800 South Vandeventer Avenue St. Louis, Missouri 63110 Certificate of Authority: 001103 Consultant Phone # (314) 534-1030</p>
	<p>If a seal is present on this sheet, JSP's has been electronically sealed and dated.</p>
	<p>JOB NO. 2018267-00 St. Louis City, MO Date Prepared: 10/11/2018</p>
	<p>Only the following items of the Job Special Provisions (Bridge Repair) are authenticated by this seal: A, B, C.</p>

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

A. General

1.0 Description. This work shall consist of all material, labor and equipment necessary for demolition, removals, fabrication, and construction to the existing Great Rivers Greenway **Trestle Bridge Over I-70-I-44 in Downtown Saint Louis, Missouri**. Work shall include but is not limited to repairing spalled and delaminated concrete on concrete bents and at the underside of concrete deck, remove and revise expansion joints at Bents 2E, Pier 1, 2, 3, 4 and Bent 8E, and painting of existing steel bearings.

2.0 Materials. All material shall be in accordance with Division 1000, Material Details, except as noted specifically below.

3.0 Construction Requirements.

3.1 Description. This provision contains general construction requirements for this project.

3.2 Construction Requirements. Plans for the existing structure(s) will be available to the successful bidder as directed by the engineer.

3.3 Provisions shall be made to prevent any debris and materials from falling onto the roadway. Any debris and materials that falls below the bridge outside the limits mentioned previously and if determined necessary by the engineer, the debris shall be removed as approved by the engineer at the contractor's expense.

3.4 Any damage sustained to the remaining structure as a result of the contractor's operations shall be repaired or the material replaced as approved by the engineer at the contractor's expense.

3.5 Provisions shall be made to prevent damage to any existing utilities. Any damage sustained to the utilities as a result of the contractor's operations shall be the responsibility of the contractor. All costs of repair and disruption of service shall be as determined by the utility owners and as approved by the engineer.

4.0 Expansion Joints. Existing ballast to be removed to limits shown on plan set and reused, or placed new, after completion of work at the expansion joint locations. Existing mortar to be removed to limits shown on plan set, and after completion of work at the expansion joint placed new. Mortar shall slope to drain minimum of 1/4 inch vertical per 12 inch horizontal.

5.0 Graffiti Removal. Sacrificial graffiti protection system shall be applied in accordance with Section 1059 to the limits shown on the plan set.

6.0 Method of Measurement. No measurement will be made for general construction requirements as described above.

7.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for other items included in the contract.

B. Rapid Set Concrete Patching Material – Vertical and Overhead Repairs JSP-02-01

1.0 Description. This specification covers cementations concrete, polymer-modified concrete and polymer concrete that are suitable for repairing concrete surfaces on bridges or concrete structures, particularly under fast setting or special conditions. The repairs would involve vertical or overhead applications. The work shall consist of removing, furnishing, preparing, and placing materials at locations as shown on the plans or as directed by the engineer.

2.0 Material. All materials shall be in accordance with MoDOT specifications and as noted herein.

2.1 Aggregate For Extending Commercial Mixture. Coarse and fine aggregates shall be in accordance with [Sec 1005](#), except the requirements for gradation and percent passing the No. 200 sieve shall not apply. Coarse aggregate meeting Gradation E requirements shall be used for repairs greater than one inch (25 mm) in depth. Fine aggregate will be allowed for repairs less than one inch (25 mm). Aggregate specified, bagged, labeled and furnished by the rapid set concrete patching material manufacturer may also be used for mortar extension.

2.2 Material Applications. The contractor shall select and use the product most suitable for the work and field conditions in accordance with these specifications.

2.3 Curing. Rapid set concrete patching material shall be cured until the minimum compressive strength 1500 psi is attained using standard curing specifications, unless otherwise specified by the manufacturer.

2.4 Qualification and Project Acceptance.

2.4.1 Inspection. All materials shall be subject to inspection and sampling by the Engineer at the source of manufacture, intermediate shipping terminal or destination. The Engineer will be allowed free access to all facilities and records as required to conduct inspection and sampling.

2.4.2 Qualification. Prior to use, rapid set concrete patching materials need to be pre-approved.

2.4.2.1 Requested Information. The manufacturer shall submit with samples of the materials, a written request to the Engineer with the following information:

- (a) Brand name of the product.
- (b) Certification that the material meets this specification.
- (c) Certified test results from an independent laboratory showing compliance with this specification.
- (d) Specific preparation instructions of repair area.
- (e) Specific mixing, handling and curing instructions.
- (f) Application type (i.e., vertical or overhead).

2.5 Certification. The contractor shall supply a manufacturer's certification to the engineer for each lot of material furnished. The certification shall include the name of the manufacturer; a manufacturer certification statement that the material supplied is the same as that qualified and listing the date of qualification.

2.6 Acceptance. Acceptance of the material will be based on the use of a qualified product; the manufacturer's certification that the material supplied is the same as that approved and upon the results of such tests as may be performed by the engineer.

3.0 Mixture. Unless otherwise specified, rapid set concrete patching material shall be approved commercial mixtures meeting [Sections 3.1 – 3.1.3](#). Rapid set concrete patching materials shall be specifically designed for the application needed.

3.1 Commercial Mixtures. Rapid set concrete patching material in its sacked form and mixtures when properly prepared in accordance with the manufacturer's specifications, shall meet the minimum test requirements given in Table 1. Mixtures may be supplied, as required, as a patching mortar or as a patching mortar with aggregate extension. If the material is to be supplied with extender aggregate, this shall also pass the required tests in Table 1 using the maximum allowed amount of extender aggregate.

3.1.1 Mixture Requirements. Rapid set concrete patching material shall be single packaged dry mix requiring the addition of water or other liquid component just prior to mixing. The material shall not contain soluble chlorides as an ingredient of manufacture. The material shall be placed in accordance to the manufacturer's recommendations.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

Table 1 (English Unit)				
Physical Test Property	Specification	Requirement for cementitious concrete	Requirement for polymer-modified concrete	Requirement for polymer concrete
Bond Strength by Slant Shear	ASTM C882/C928 ²	min. 1000 psi @24hrs. & min. 1500 psi @ 7 days	n/a	min. 1000 psi @24hrs. & min. 1500 psi @ 7 days
Linear Coefficient of Thermal Expansion ¹ (for bagged mortar only, without extension aggregate)	ASTM C531	n/a	n/a	4 – 8 X 10-6 in/in/deg F
Resistance to Rapid Freezing & Thawing	AASHTO T161 or ASTM C666	80% min. using Procedure B ³ (300 Cycles)	80% min. using Procedure B ³ (300 Cycles)	n/a
Compressive Strength	AASHTO T22 or ASTM C39	1500 psi @ 3 hr. & 3000 psi @ 24 hr.	1500 psi @ 3 hr. & 3000 psi @ 24 hr.	n/a
Rapid Chloride Permeability	AASHTO T277 or ASTM C1202	1000 coulombs @ 28 days	1000 coulombs @ 28 days	1000 coulombs @ 28 days
Length Change	AASHTO T 160 or ASTM C157	In water Storage (+0.15) In air storage (-0.15)	In water storage (+0.15) In air storage (-0.15)	n/a
Color		gray	gray	gray

1 Not required for extended mixtures if the mortar passes this requirement

2 ASTM C882 shall be performed on non-water-based materials. ASTM C928 shall be performed on water-based materials.

3 Procedure A may be used in lieu of Procedure B

3.1.2 Construction Requirements. The manufacturer shall provide with the bagged mixture, specifications for the mixing procedure, amount and kind of liquid to be added, and the amount of aggregate extension allowed, if any. All mixing, handling and curing practices recommended by the manufacturer shall be followed and will be considered a part of these specifications.

3.2 Vertical Repair. A qualified rapid set concrete patching material approved for vertical use may be used when specified on the plans and as approved by the engineer. The contractor will

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

make field cylinders to verify the 1500 psi (10 MPa) minimum strength. The material shall adhere to the concrete surface without sagging.

3.3 Overhead Repair. A qualified rapid set concrete patching material approved for overhead use may be used when specified on the plans and as approved by the engineer. The material shall be placeable in layers of at least 1 inch on overhead applications without the use of formwork or anchoring devices. The material shall adhere to the concrete surface without sagging. The contractor will make field cylinders to verify the 1500 psi (10 MPa) minimum strength.

4.0 Construction Requirements.

4.1 Mixing. Rapid set concrete patching material shall be mixed and finished according to the manufacturer's recommendation.

4.2 Preparation of Repair Area. Deteriorated, damaged or defective concrete as shown on the plans, required by the specifications or as directed by the engineer, shall be removed. All exposed reinforcement shall be thoroughly cleaned as shown on the plans, required by the specifications or as directed by the engineer. Unless otherwise specified by the commercial mixture manufacturer, the existing surface shall be damp, and all free water shall be removed prior to placement of the required material.

4.3 Bonding Agent. A bonding agent may be used if recommended by the rapid set concrete patching material manufacturer.

5.0 Method of Measurement. No measurement will be made for rapid set concrete patching material.

6.0 Basis of Payment. Rapid set concrete patching material will be paid for at the contract unit price for Delaminated Concrete Deck Repair and will be considered full compensation for all labor, equipment and material to complete the described work.

C. Rapid Set Concrete Patching Material – Horizontal Repairs JSP-02-10

1.0 Description. This specification covers cementitious concrete, polymer-modified concrete and polymer concrete that are suitable for repairing concrete surfaces on bridges or roadways, particularly under fast setting or special conditions. The repairs would involve horizontal applications. The work shall consist of removing, furnishing, preparing, and placing materials at locations as shown on the plans or as directed by the engineer.

2.0 Material. All materials shall be in accordance with MoDOT specifications and as noted herein.

2.1 Aggregate For Extending Commercial Mixture. Coarse and fine aggregates shall be in accordance with [Sec 1005](#), except the requirements for gradation and percent passing the No. 200 sieve shall not apply. Coarse aggregate meeting Gradation E requirements shall be used for repairs greater than one inch (25 mm) in depth. Fine aggregate will be allowed for repairs less than one inch (25 mm). Aggregate specified, bagged, labeled and furnished by the rapid set concrete patching material manufacturer may also be used for mortar extension.

2.2 Material Applications. The contractor shall select and use the product most suitable for the work and field conditions in accordance with these specifications.

2.3 Curing. Rapid set concrete patching material shall be cured until the minimum compressive strength 3200 psi is attained using standard curing specifications, unless otherwise specified by the manufacturer.

2.4 Qualification and Project Acceptance.

2.4.1 Inspection. All materials shall be subject to inspection and sampling by the Engineer at the source of manufacture, intermediate shipping terminal or destination. The Engineer will be allowed free access to all facilities and records as required to conduct inspection and sampling.

2.4.2 Qualification. Prior to use, rapid set concrete patching material shall be qualified. In order to become qualified, a material shall have completed testing through AASHTO's National Transportation Product Evaluation Program (NTPEP). The manufacturer shall contact the AASHTO/NTPEP coordinator to obtain the testing location for the rapid setting concrete patching material.

2.4.2.1 Requested Information. The manufacturer shall submit with samples of the materials, a written request to Construction and Materials with the following information:

- (a) Brand name of the product.
- (b) Certification that the material meets this specification.
- (c) NTPEP test results showing compliance with this special provision.
- (d) Specific mixing, handling and curing instructions.
- (e) Application type (i.e., bridge or roadway).

2.5 Certification. The contractor shall supply a manufacturer's certification to the engineer for each lot of material furnished. The certification shall include the name of the manufacturer, a manufacturer certification statement that the material supplied is the same as that qualified and listing the date of qualification.

2.6 Acceptance. Acceptance of the material will be based on the use of a qualified or provisionally approved material, the manufacturer's certification that the material supplied is the same as that approved and upon the results of such tests as may be performed by the engineer.

3.0 Mixture. Unless otherwise specified, rapid set concrete patching material shall be approved commercial mixtures meeting [Sections 3.1 – 3.1.3](#) or deck repair cementitious mortar meeting [Section 3.2](#). Rapid set concrete patching materials shall be specifically designed for the application needed.

3.1 Commercial Mixtures. Rapid set concrete patching material in its sacked form and mixtures when properly prepared in accordance with the manufacturer's specifications, shall meet the minimum test requirements given in Table 1. Mixtures may be supplied, as required, as a patching mortar or as a patching mortar with aggregate extension. If the material is to be supplied with extender aggregate, this shall also pass the required tests in Table 1 using the maximum allowed amount of extender aggregate.

3.1.1 Mixture Requirements. Rapid set concrete patching material shall be single packaged dry mix requiring the addition of water or other liquid component just prior to mixing. The material shall be capable of ½ inch (13 mm) to full depth repair and require no bonding agent. The material shall not contain soluble chlorides as an ingredient of manufacture. The material shall be placed in accordance to the manufacturer's recommendations.

Table 1 (English Unit)				
Physical Test Property	Specification	Requirement for cementitious concrete	Requirement for polymer-modified concrete	Requirement for polymer concrete
Bond Strength by Slant Shear ¹	ASTM C882/C928 ³	min. 1000 psi @ 24hrs. & min. 1500 psi @ 7 days	n/a	min. 1000 psi @ 24hrs. & min. 1500 psi @ 7 days
Linear Coefficient of Thermal Expansion ^{1,2} (for bagged mortar only, without extension aggregate)	ASTM C531	n/a	n/a	4 – 8 X 10 ⁻⁶ in/in/deg F
Resistance to Rapid Freezing & Thawing ¹	AASHTO T161 or ASTM C666	80% min. using Procedure B ⁵ (300 Cycles)	80% min. using Procedure B ⁵ (300 Cycles)	n/a
Compressive Strength ¹	AASHTO T22 or ASTM C39	3200 psi @ 3 hr. & 4000 psi @ 7 days	3200 psi @ 3 hr. & 4000 psi @ 7 days	n/a
Rapid Chloride Permeability ¹	AASHTO T277 or ASTM C1202	<u>Bridge Decks</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days	<u>Bridge Deck</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days	<u>Bridge Deck</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days
Length Change ^{1, 4}	AASHTO T 160 or ASTM C157	In water Storage (+0.15) In air storage (-0.15)	In water storage (+0.15) In air storage (-0.15)	n/a
Color		gray	gray	gray

1 The commercial mix test values can be located in the AASHTO's National Transportation Product Evaluation Program (NTPEP) reports for Laboratory Evaluations of Rapid Set Concrete Patching Materials. Data for provisionally approved materials is located at the Construction and Materials Division.

2 Not required for extended mixtures if the mortar passes this requirement.

3 ASTM C882 shall be performed on non-water-based materials. ASTM C928 shall be performed on water-based materials.

4 As modified by ASTM C928.

5 Procedure A may be used in lieu of Procedure B

3.1.2 Construction Requirements. The manufacturer shall provide with the bagged mixture, specifications for the mixing procedure, amount and kind of liquid to be added, and the amount

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

of aggregate extension allowed, if any. All mixing, handling and curing practices recommended by the manufacturer shall be followed and will be considered a part of these specifications.

3.1.3 Removal from Qualified List. All mixtures shall be approved before use. Reoccurring failures of any mixture for any reason will be cause for removal from the qualified list.

3.2 Deck Repair Concrete. A qualified rapid set concrete patching material indicated for horizontal use and intended for patching concrete bridge decks may be used when specified on the plans and as approved by the engineer. If this option is selected, the contractor shall provide a trial mix to determine the total cure time needed to achieve a compressive strength of 3200 psi (22 MPa). Compressive specimens shall be prepared in accordance with current MoDOT test methods and cured to simulate actual field conditions. Testing of compressive specimens shall be performed by methods and at facilities acceptable to the engineer. The repaired deck shall not be opened to traffic until at least 4 hours after the last placement of deck repair concrete, the established cure time has elapsed and until such concrete has achieved a compressive strength of 3200 psi (22 MPa). A new trial mix may be required if the engineer determines the field conditions vary substantially from trial mix conditions. The Contractor will make field cylinders to verify the 3200 psi (22 MPa) minimum strength.

4.0 Construction Requirements.

4.1 Mixing. Rapid set concrete patching material shall be mixed and finished according to the manufacturer's recommendation.

4.2 Preparation of Repair Area. Deteriorated, damaged or defective concrete as shown on the plans, required by the specifications or as directed by the engineer, shall be removed. All exposed reinforcement shall be thoroughly cleaned as shown on the plans, required by the specifications or as directed by the engineer. Unless otherwise specified by the commercial mixture manufacturer, the existing surface shall be damp, and all free water shall be removed prior to placement of the required material.

4.3 Bonding Agent. A bonding agent may be used if recommended by the rapid set concrete patching material manufacturer.

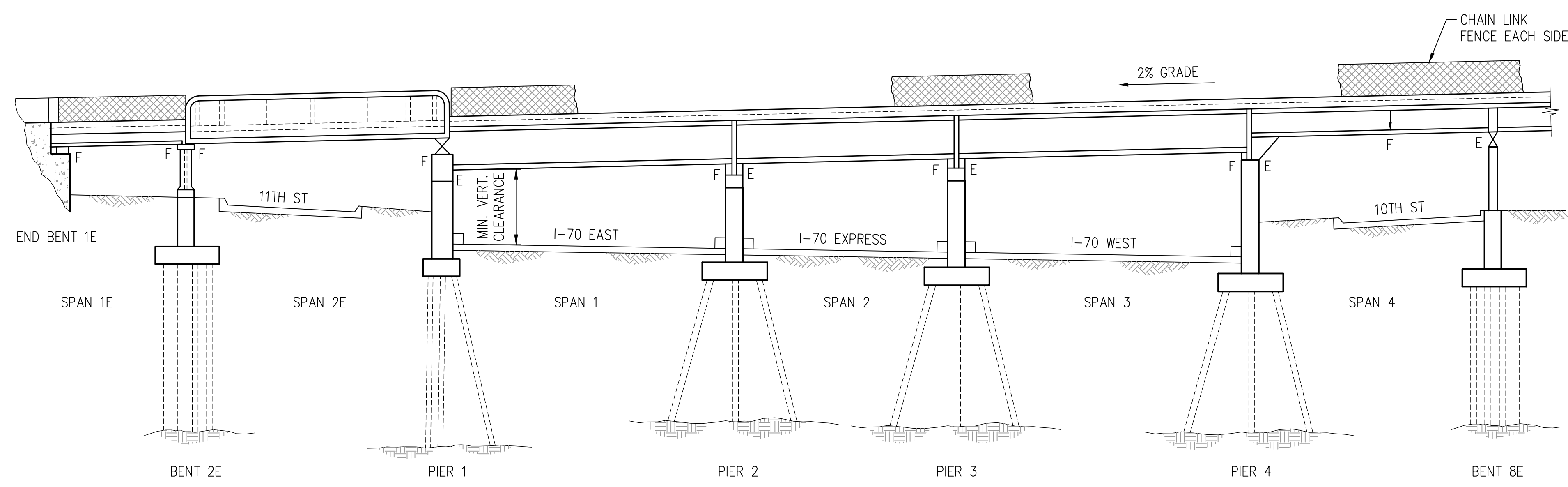
5.0 Method of Measurement. No measurement will be made for rapid set concrete patching material.

6.0 Basis of Payment. Rapid set concrete patching material will be paid for at the contract unit price for Delaminated Concrete Deck Repair and will be considered full compensation for all labor, equipment and material to complete the described work.

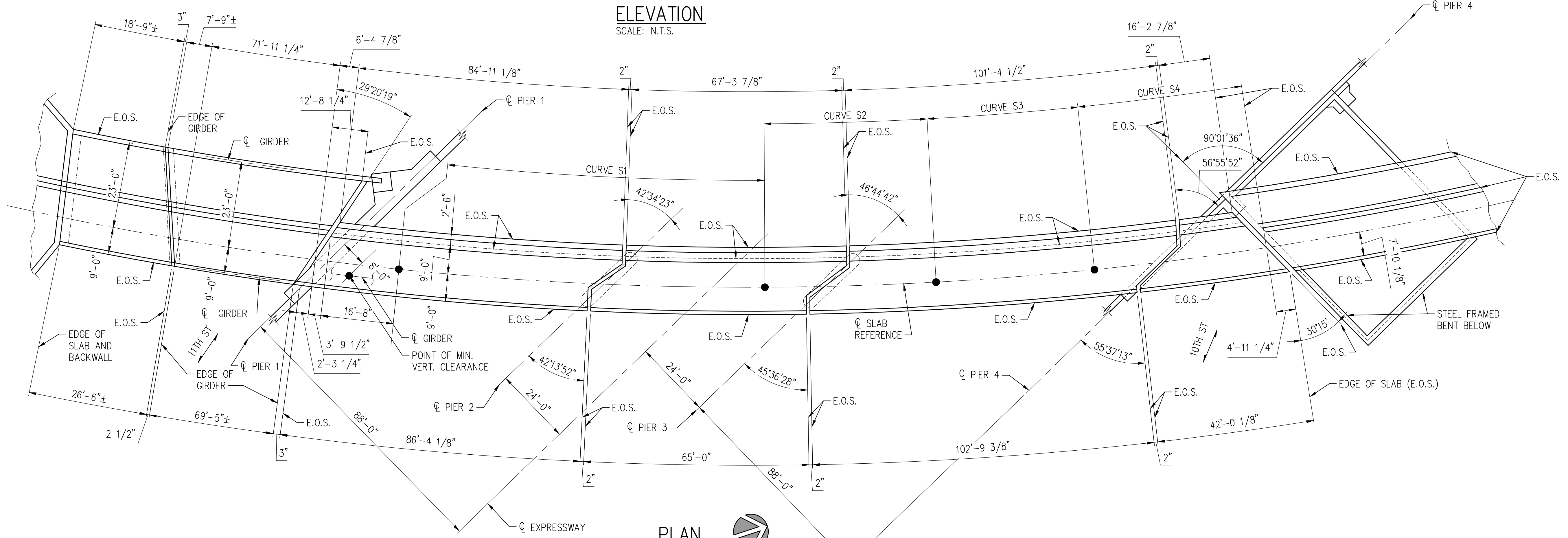
CURVE	Δ	RADIUS	*LENGTH
S1	5°00'00"	1342.06'	117.12'
S2	5°00'00"	580.14'	50.63'
S3	5°07'47"	580.14'	51.94'
S4	5°03'51"	580.14'	51.28'

*ARC LENGTH ALONG CENTER-LINE
SLAB REFERENCE

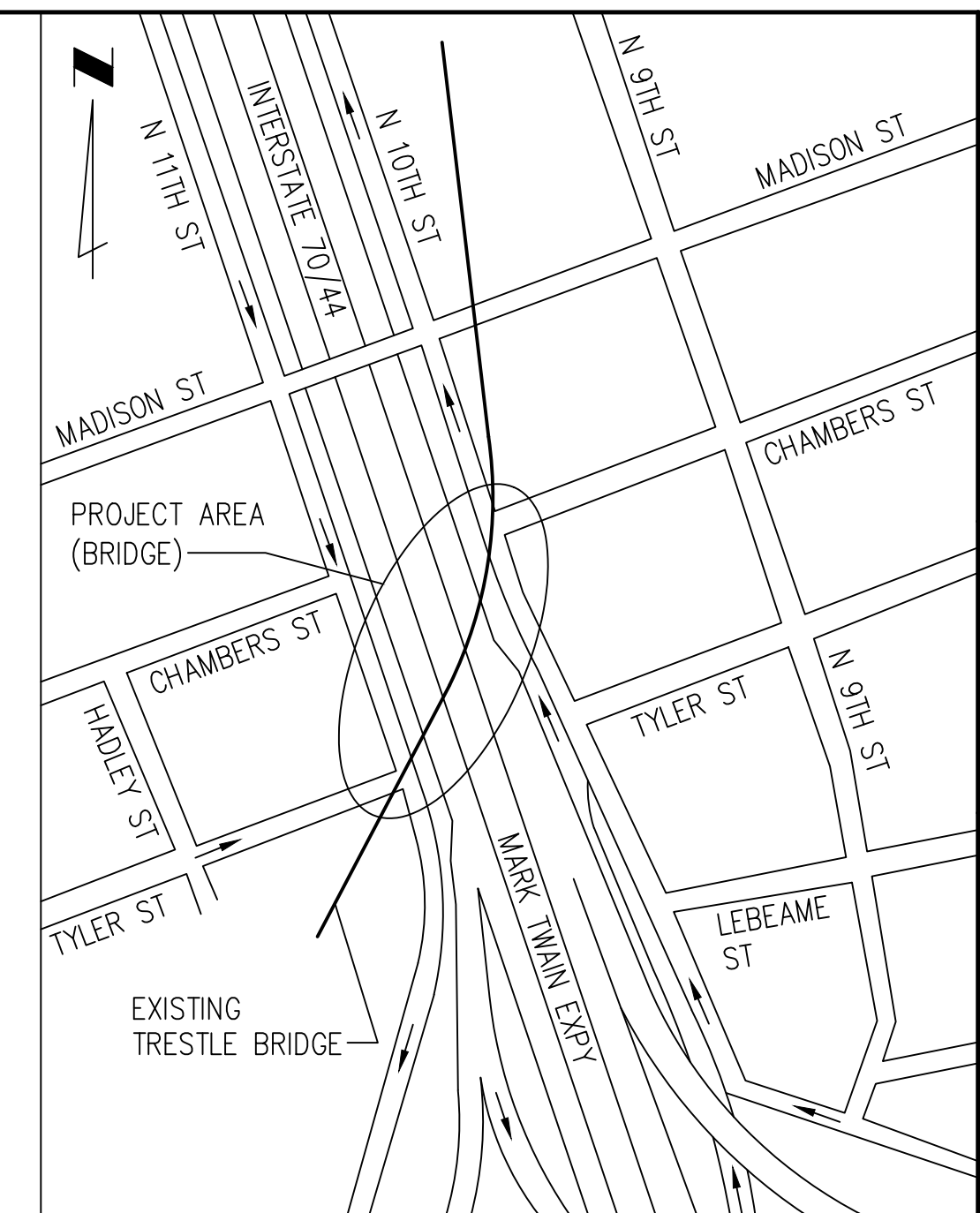
PARALLEL BOLTED PLATE GIRDER SPANS



ELEVATION
SCALE: N.T.S.



PLAN
SCALE: N.T.S.
NORTH



David Mason and Associates, Inc.
Missouri Certificate of Authority Number:
Engineer: 001103
Architect: 000620
Survey: 000336



**PEDESTRIAN TRESTLE BRIDGE
OVER I-70/I-44 EXPANSION
JOINT REPLACEMENT AND
CONCRETE REPAIRS**
ST. LOUIS, MISSOURI



Ronald L. Mackey, P.E. - Structural
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The seal(s) and signature(s) apply only to the document to which they are affixed, and expressly disclaim any responsibility for all other plans, specifications, estimates, reports or other documents or instruments relating to or parts of the Architectural or Engineering project.

No.	Description	Date

Sheet Title:
**PLAN AND
ELEVATION**

Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	

S1

GENERAL NOTES

SPECIFICATIONS:
 MISSOURI HIGHWAY COMMISSION (2018 STANDARD) AS MODIFIED AND SUPPLEMENTED BY THE 2018 SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN LOADING:
 H-10 W/O IMPACT

CONCRETE:
 1. CLASS B-1 CONCRETE (SUPERSTRUCTURE)_____fc = 4,000 PSI
 2. REINFORCING STEEL (GRADE 60) EPOXY (E)_____Fy = 60,000 PSI

STRUCTURAL STEEL:
 1. STEEL SHALL CONFORM TO THE FOLLOWING GRADES:
 STRUCTURAL CARBON STEEL (ASTM A709, GRADE 36)_____Fy = 36,000 PSI
 WELDING ELECTRODES_____E70XX

WELDING: ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT "AWS D1.5: BRIDGE WELDING CODE". QUALIFICATION OF WELDING OPERATORS WILL BE REQUIRED.

PAINTING: SEE MISSOURI STANDARD SPECIFICATIONS.

EXPANSION JOINT: FLAT PLATE
 1. PLAN DIMENSIONS ARE BASED ON INSTALLED AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE INCREASED OR DECREASED 1/8" FOR EACH 10°F FALL OR RISE IN TEMPERATURE AT INSTALLATION.
 2. MATERIAL FOR THE EXPANSION DEVICE SHALL BE ASTM A709 GRADE 36 STRUCTURAL STEEL. ANCHORS FOR THE EXPANSION DEVICE SHALL BE IN ACCORDANCE WITH SECTION 1037.
 3. STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE COATED WITH A MINIMUM OF TWO COATS OF INORGANIC ZINC PRIMER (5 MILS MINIMUM) OR GALVANIZED IN ACCORDANCE WITH ASTM A123.
 4. PAYMENT FOR FURNISHING, COATING OR GALVANIZING AND INSTALLING THE STRUCTURAL STEEL FOR THE EXPANSION DEVICE WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR EXPANSION DEVICE (FLAT PLATE) PER LINEAL FOOT.
 5. CONCRETE SHALL BE FORCED UNDER AND AROUND FLAT PLATE. PROPER CONSOLIDATION SHALL BE ACHIEVED BY LOCALIZED INTERNAL VIBRATION. FINISHING OF THE CONCRETE SHALL BE ACHIEVED BY HAND FINISHING WITHIN ONE FOOT OF THE EXPANSION DEVICE.
 6. EXPANSION DEVICE SHALL BE FABRICATED IN ONE SECTION. A COMPLETE JOINT PENETRATION GROOVE WELD SPLICE SHALL BE REQUIRED. WELDS SHALL BE GROUND FLUSH TO PROVIDE A SMOOTH SURFACE. THE EXPANSION DEVICE SHALL BE FABRICATED AND INSTALLED TO THE CROWN OR GRADE OF THE ROADWAY.
 7. COMPLETE JOINT PENETRATION WELDS UTILIZED IN THE FABRICATION OF THE EXPANSION DEVICE SHALL BE NON DESTRUCTIVELY TESTED BY AN APPROVED METHOD.

DIMENSIONS:
 DIMENSIONS AND DETAILS OF EXISTING STRUCTURES SHOWN ON THESE DRAWINGS ARE BASED ON PREVIOUS DRAWINGS AND ON FIELD MEASUREMENTS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL PERTINENT DIMENSIONS BY FIELD MEASUREMENT AND TO SUPPLY SUCH ADDITIONAL DIMENSIONS AND DETAILS AS REQUIRED FOR FABRICATION AND CONSTRUCTION.

DISPOSAL OF DEBRIS:
 ALL MATERIALS IN THE EXISTING STRUCTURE THAT IS TO BE DISCARDED OR REPLACED BY THE CONTRACTOR SHALL BECOME HIS PROPERTY AND SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF BY HIM.

MISCELLANEOUS:
 1. DO NOT SCALE THESE DRAWINGS, FOLLOW DIMENSIONS.
 2. REFERENCE EXISTING DRAWINGS FOR ANY INFORMATION NOT SHOWN.

ESTIMATED QUANTITIES NOTES:
 1. PAYMENT FOR FURNISHING AND PLACING MORTAR IS INCLUDED IN THE CONTRACT UNIT PRICE FOR CLASS B-1 CONCRETE (SUPERSTRUCTURE).
 2. PAYMENT FOR REMOVAL OF EXISTING MORTAR IS INCLUDED IN THE UNIT PRICE FOR REMOVAL OF EXPANSION JOINT.
 3. UNIT PRICE FOR JOINT FILLER SHALL BE INCLUDED IN THE UNIT PRICE FOR EXPANSION DEVICE (FLAT PLATE).
 4. CONTRACT UNIT PRICE OF "SACRIFICIAL GRAFFITI PROTECTION" TO INCLUDE FURNISHING AND APPLICATION OF GRAFFITI REMOVERS FOR PREPARATION OF SURFACE.
 5. CONCRETE UNIT PRICE FOR REPAIR AND REPLACE DECK DRAIN PIPE AT END BENT 1E TO INCLUDE PIPE CONNECTION CLAMPS AND ANCHORS AT END BENT WALL.

ESTIMATED QUANTITES

ITEM	UNIT	QUANTITY
FULL DEPTH REPAIR	SQFT	100
REMOVAL OF EXISTING EXPANSION JOINTS & ADJACENT CONCRETE	LF	70
EXPANSION DEVICE (FLAT PLATE)	LF	70
CLASS B-1 CONCRETE (SUPERSTRUCTURE)	CUYD	20
REINFORCING STEEL (EPOXY COATED)	LB	2300
CLEANING AND COATING EXISTING BEARINGS	EA	3
DELAMINATED CONCRETE DECK REPAIR	SQFT	625
SACRIFICIAL GRAFFITI PROTECTION SYSTEM	LS	1
CRUSHED STONE (B)	TON	58
WATERPROOFING MEMBRANE	SQYD	50
REPAIR AND REPLACE DECK DRAIN PIPE	EA	2



David Mason and Associates, Inc.
 Missouri Certificate of Authority Number:
 Engineer: 001103
 Architect: 000620
 Survey: 000336



**PEDESTRIAN TRESTLE BRIDGE
 OVER I-70/I-44 EXPANSION
 JOINT REPLACEMENT AND
 CONCRETE REPAIRS**
 ST. LOUIS, MISSOURI

Professional Seal:



Ronald L. Mackey, P.E. - Structural
 License No. - 22774

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No.	Description	Date

Sheet Title:
**GENERAL NOTES
 AND ESTIMATED
 QUANTITIES**

Date: 10/11/2018
 Project Number: 2018267-00
 Designed By: PMG
 Drawn By: RTL
 Checked By: RLM
 Sheet Number:

S2

INDEX OF DRAWINGS

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- S2 GENERAL NOTES AND ESTIMATED QUANTITIES
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- S4 PIER 1 PLAN AND ELEVATIONS
- S5 PIER 2 PLAN AND ELEVATIONS
- S6 PIER 3 PLAN AND ELEVATIONS
- S7 PIER 4 PLAN AND ELEVATIONS
- S8 ENLARGED PLANS – DEMOLITION
- S9 BENT 2E EXPANSION JOINT PLAN
- S10 PIER 1 EXPANSION JOINT PLAN
- S11 PIERS 2, 3, 4, AND 8E EXPANSION JOINT PLAN
- S12 SECTIONS AND DETAILS
- S13 SECTIONS AND DETAILS



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Missouri Certificate of Authority Number:
Engineer: 001103
Architect: 000620
Survey: 000336



PEDESTRIAN TRESTLE BRIDGE
OVER I-70/I-44 EXPANSION
JOINT REPLACEMENT AND
CONCRETE REPAIRS

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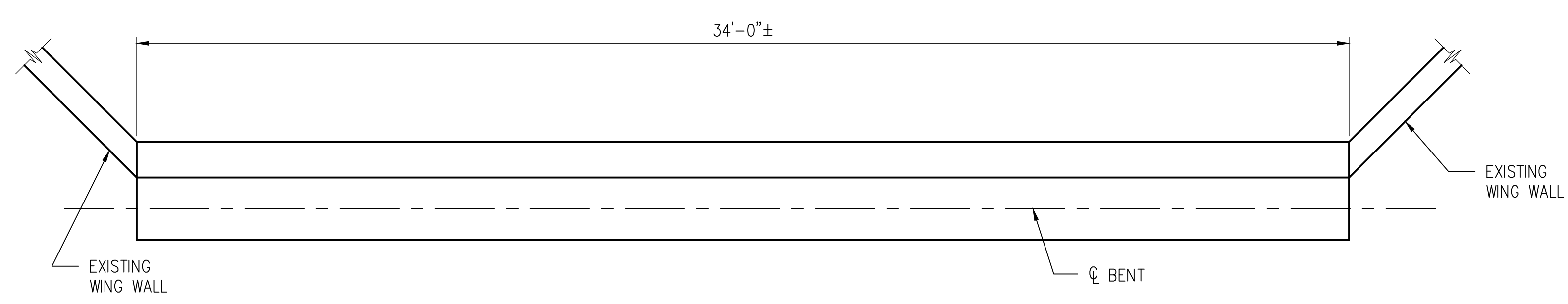
No.	Description	Date

Sheet Title:
**END BENT 1E
PLAN AND
ELEVATION**

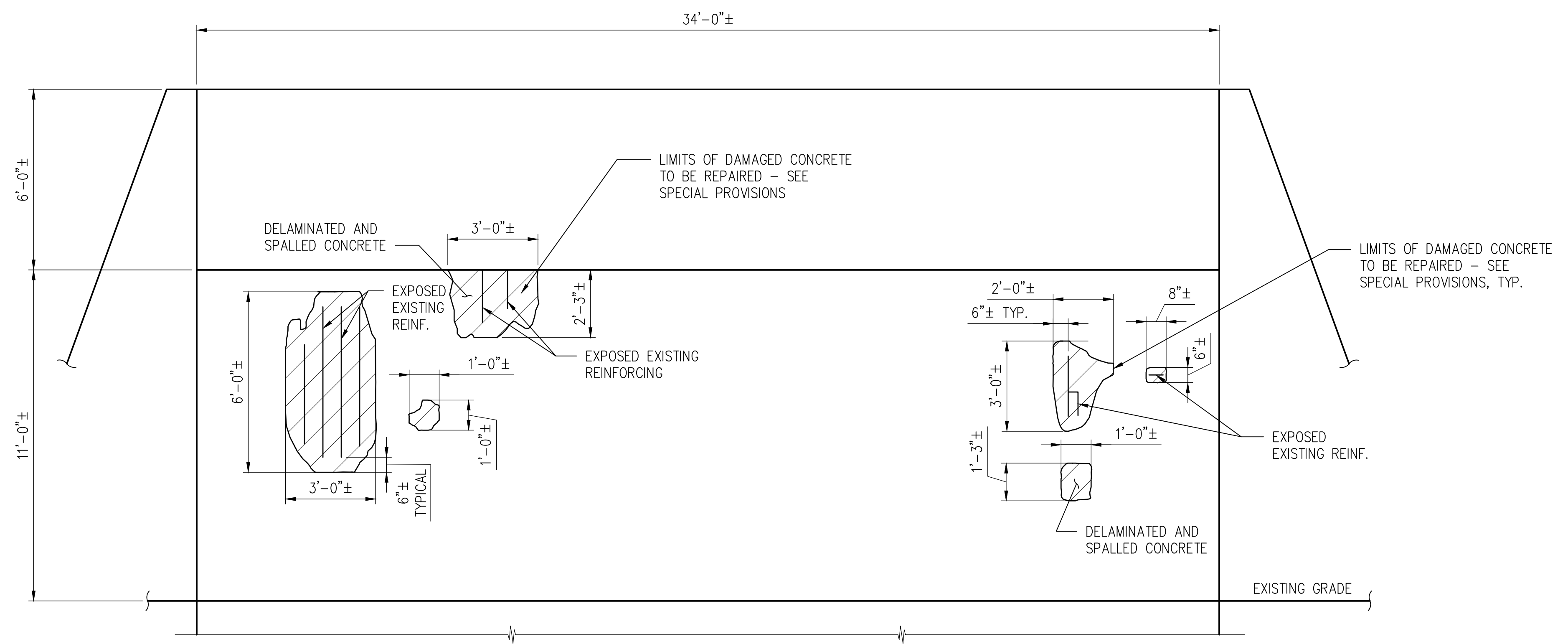
Date: 10/11/2018
Project Number: 2018267-00
Designed By: PMG
Drawn By: RTL
Checked By: RLM

Sheet Number:

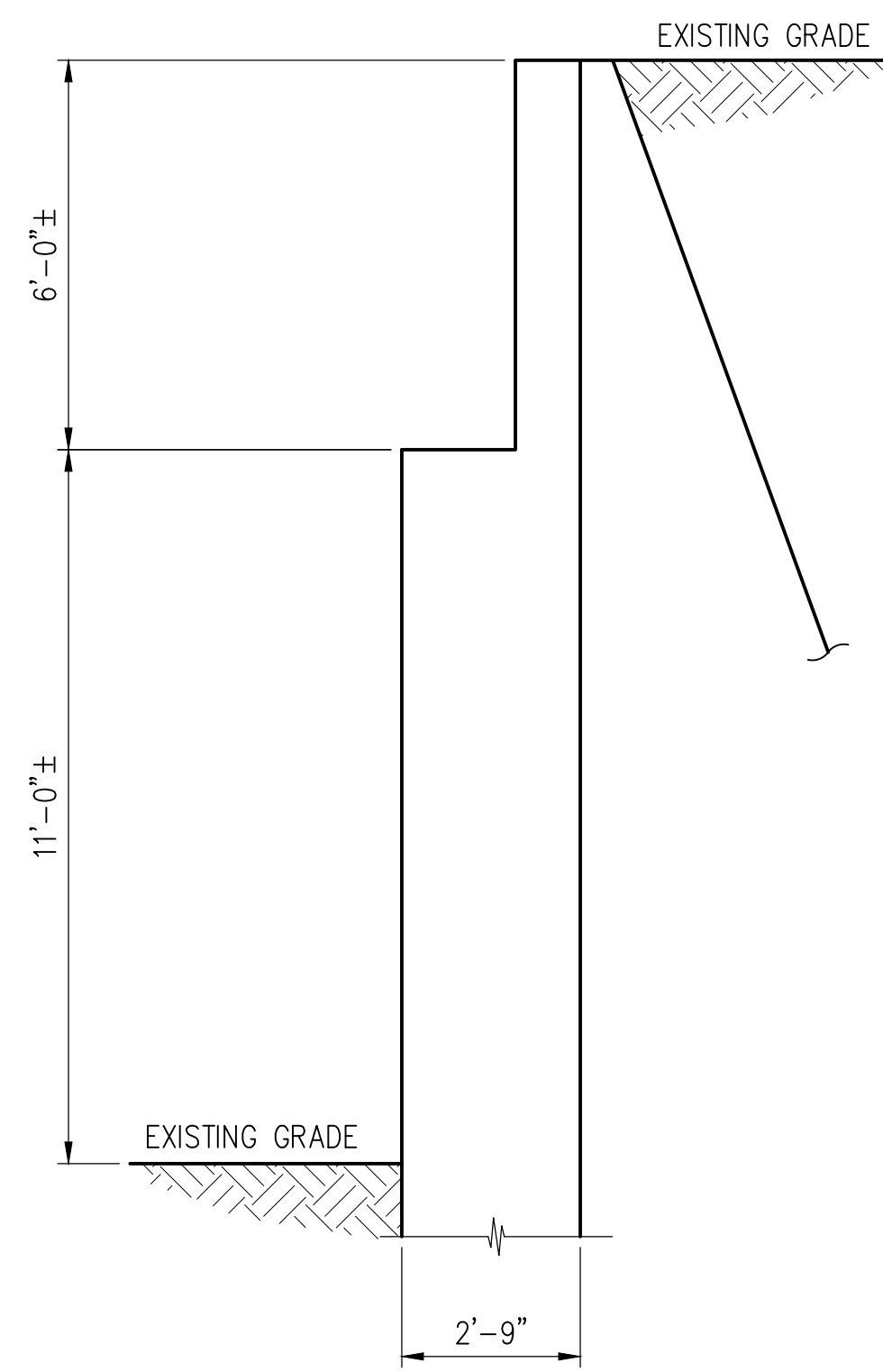
S3



END BENT 1E PLAN
SCALE: 3/8" = 1'-0"



NORTH ELEVATION
SCALE: 3/8" = 1'-0"



WEST ELEVATION
SCALE: 3/8" = 1'-0"

END ABUTMENT



800 South Vandeventer St. Louis, Missouri 63110

David Mason and Associates, Inc.
Missouri Certificate of Authority Number:
Engineer: 001103
Architect: 000620
Survey: 000336



GREAT RIVERS GREENWAY
6178 Delmar Boulevard
St. Louis, Missouri 63112

PEDESTRIAN TRESTLE BRIDGE
OVER I-70/I-44 EXPANSION
JOINT REPLACEMENT AND
CONCRETE REPAIRS

ST. LOUIS, MISSOURI

Professional Seal:



Ronald L. Mackey, P.E. - Structural
License No. - 22774

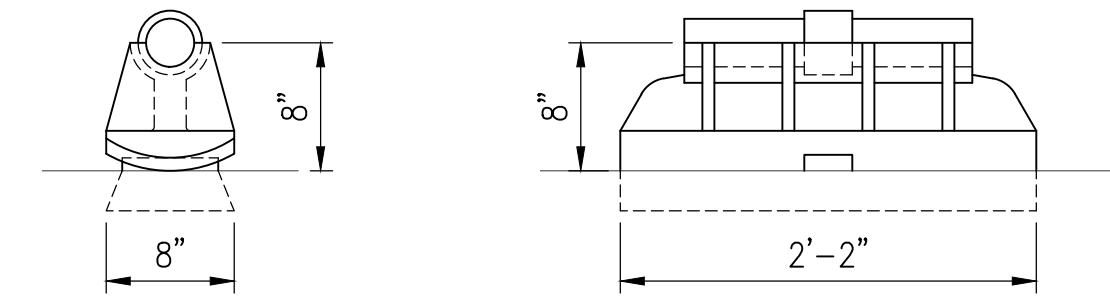
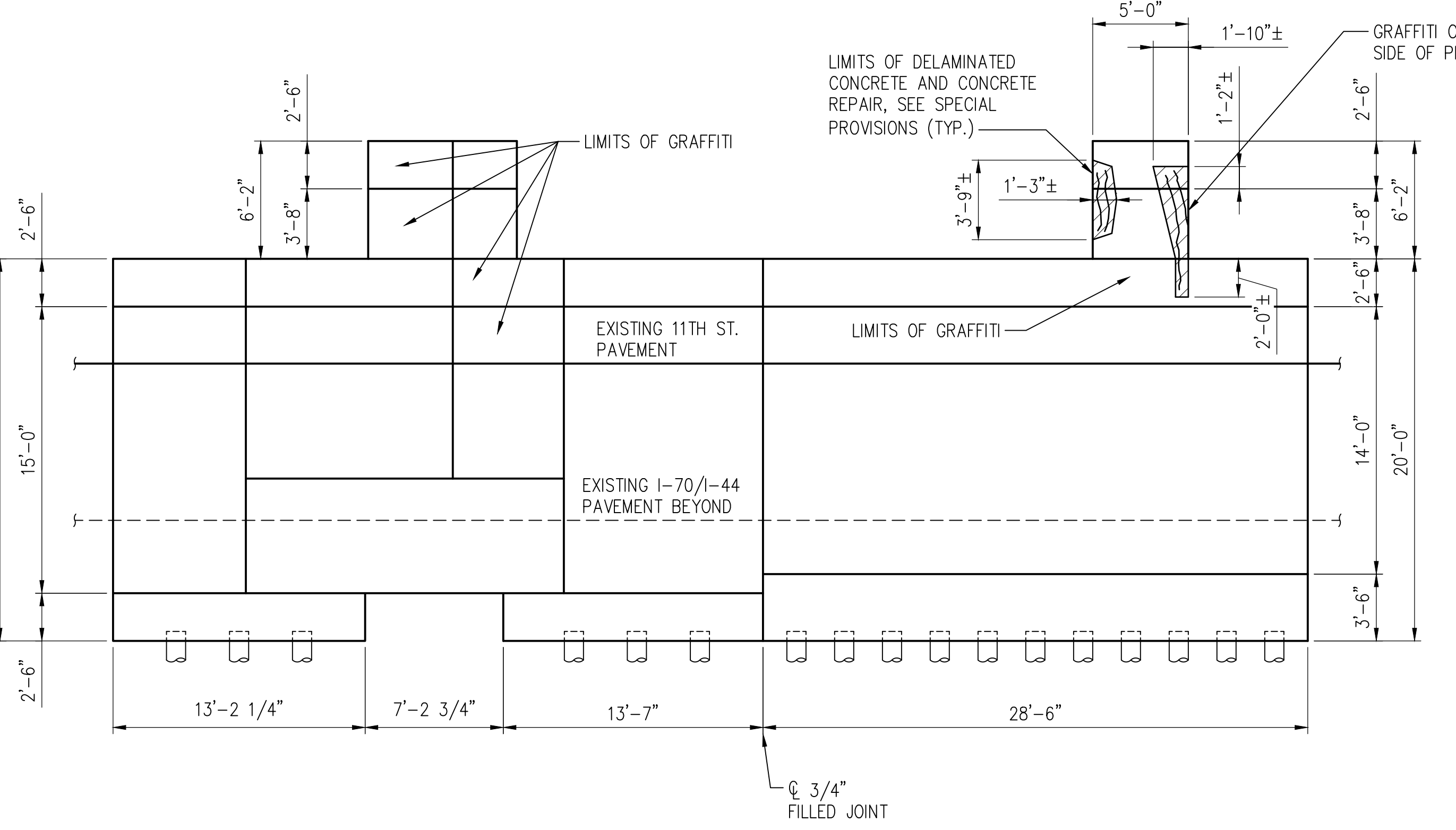
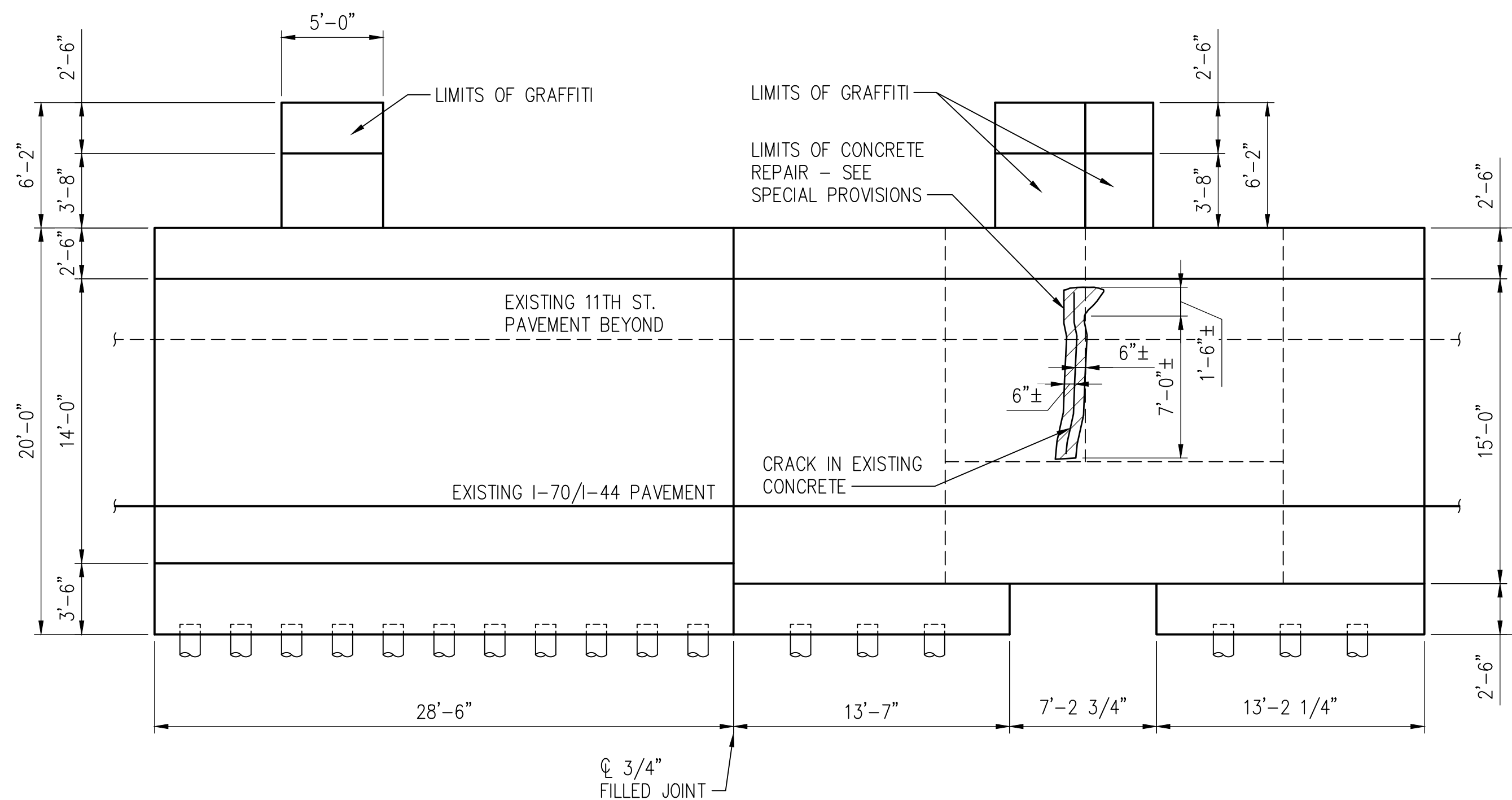
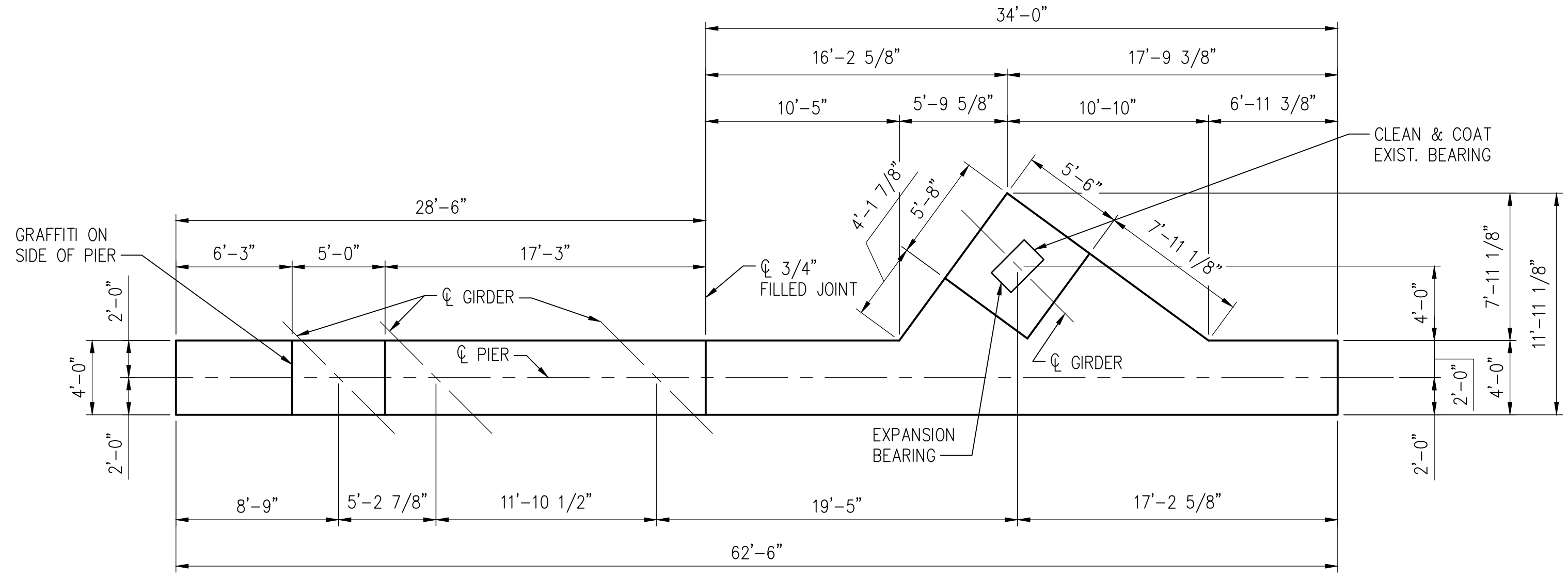
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No.	Description	Date

Sheet Title:
PIER 1 PLAN AND ELEVATIONS

Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	



Professional Seal:



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 License No. - 22774

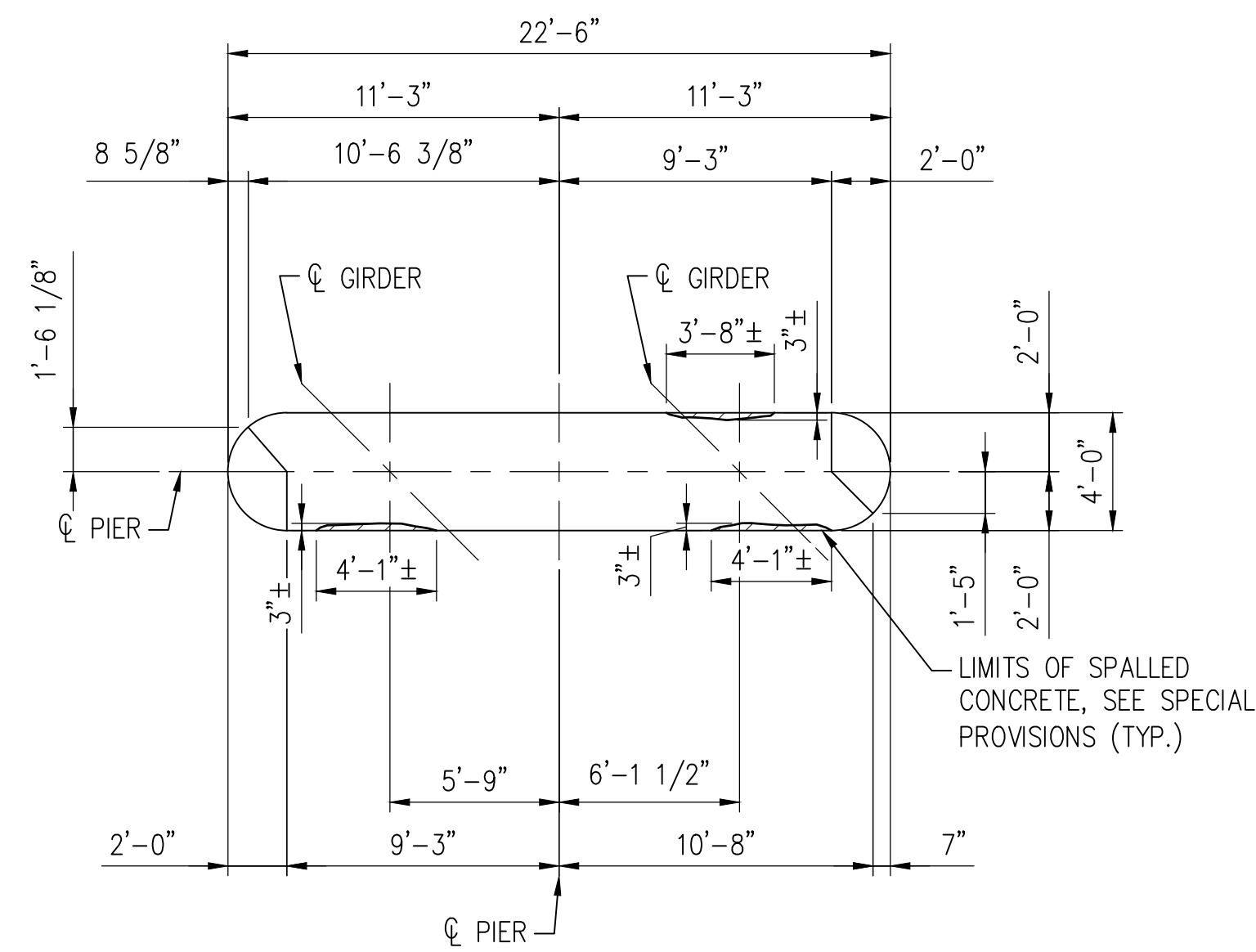
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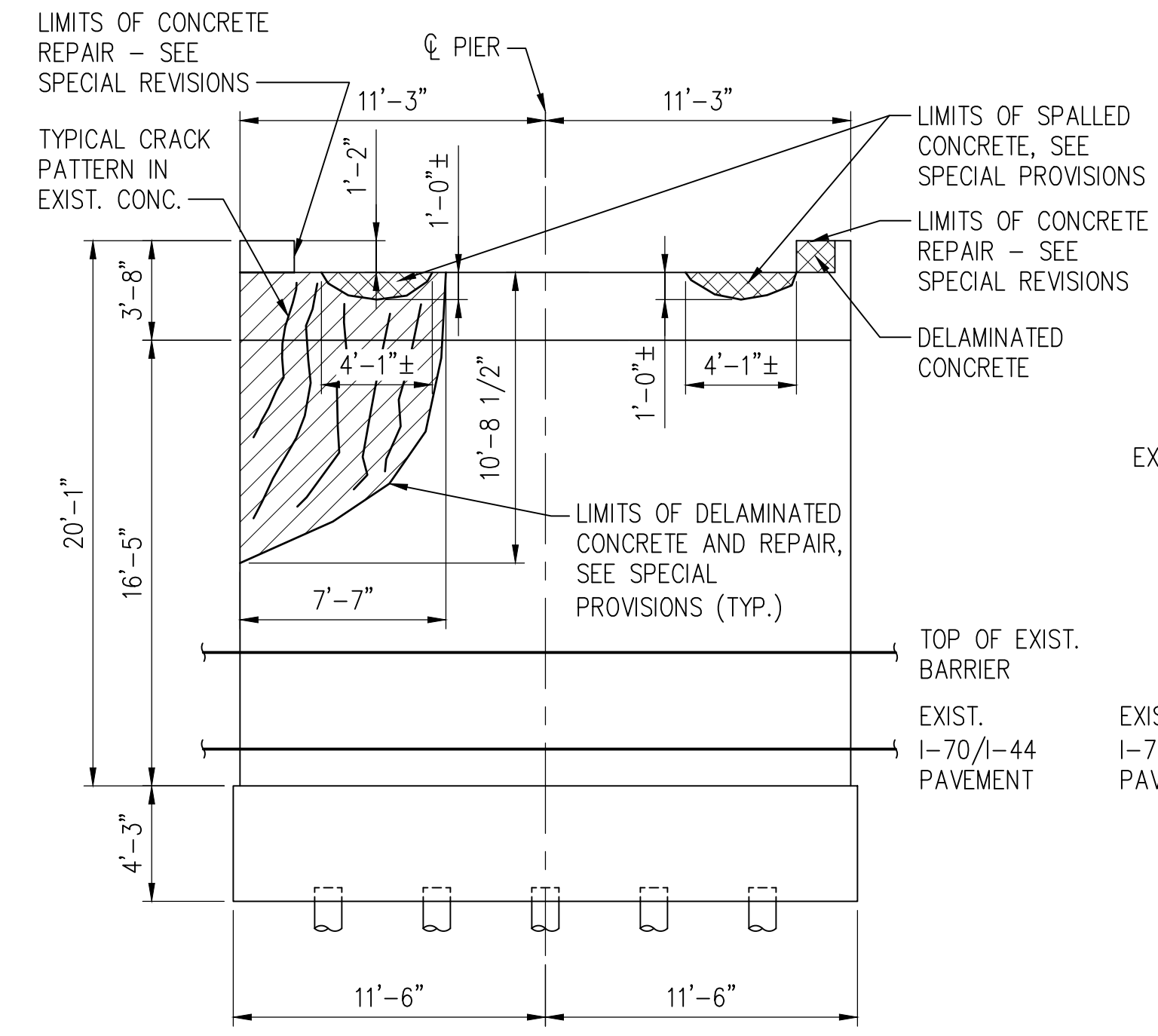
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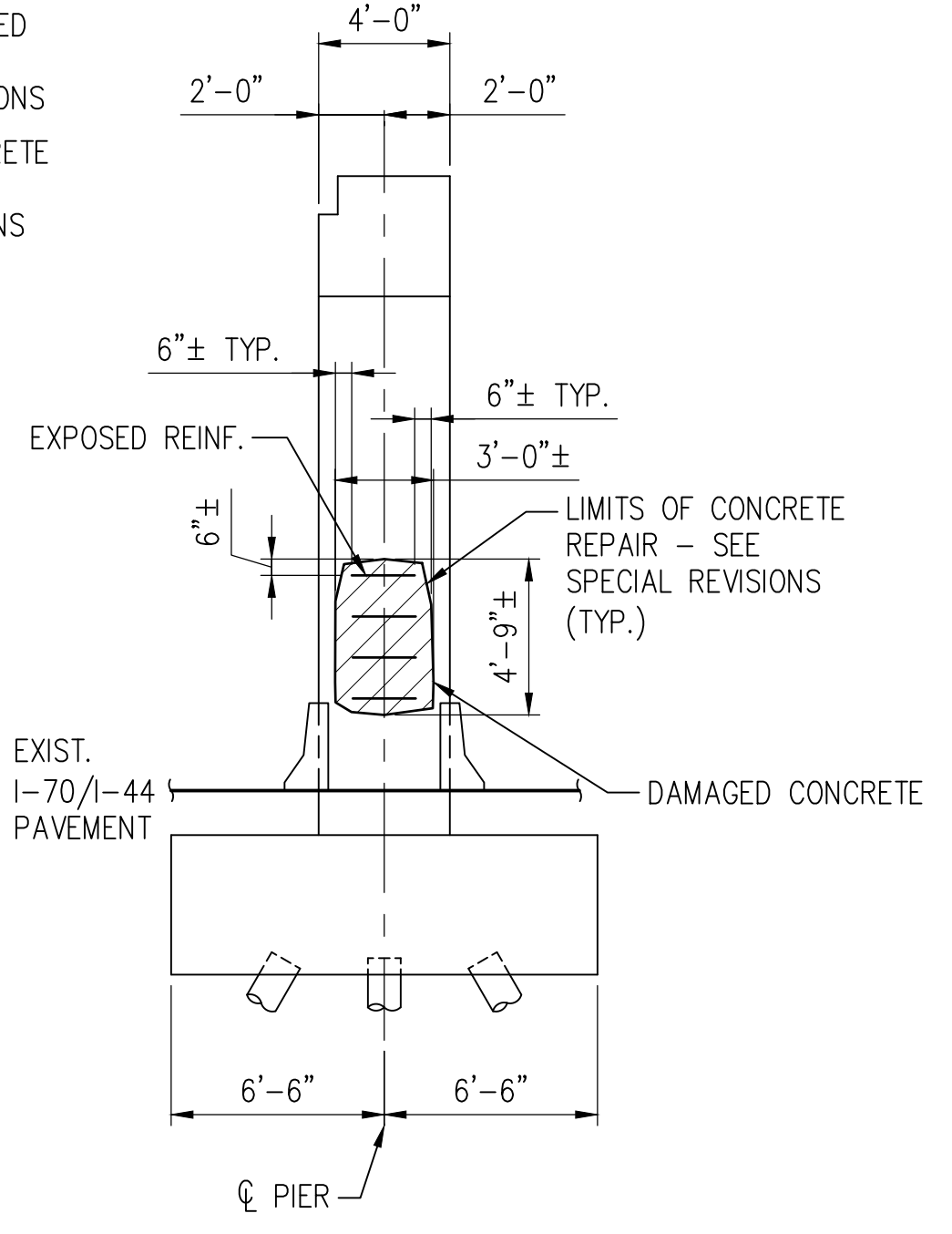
Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	



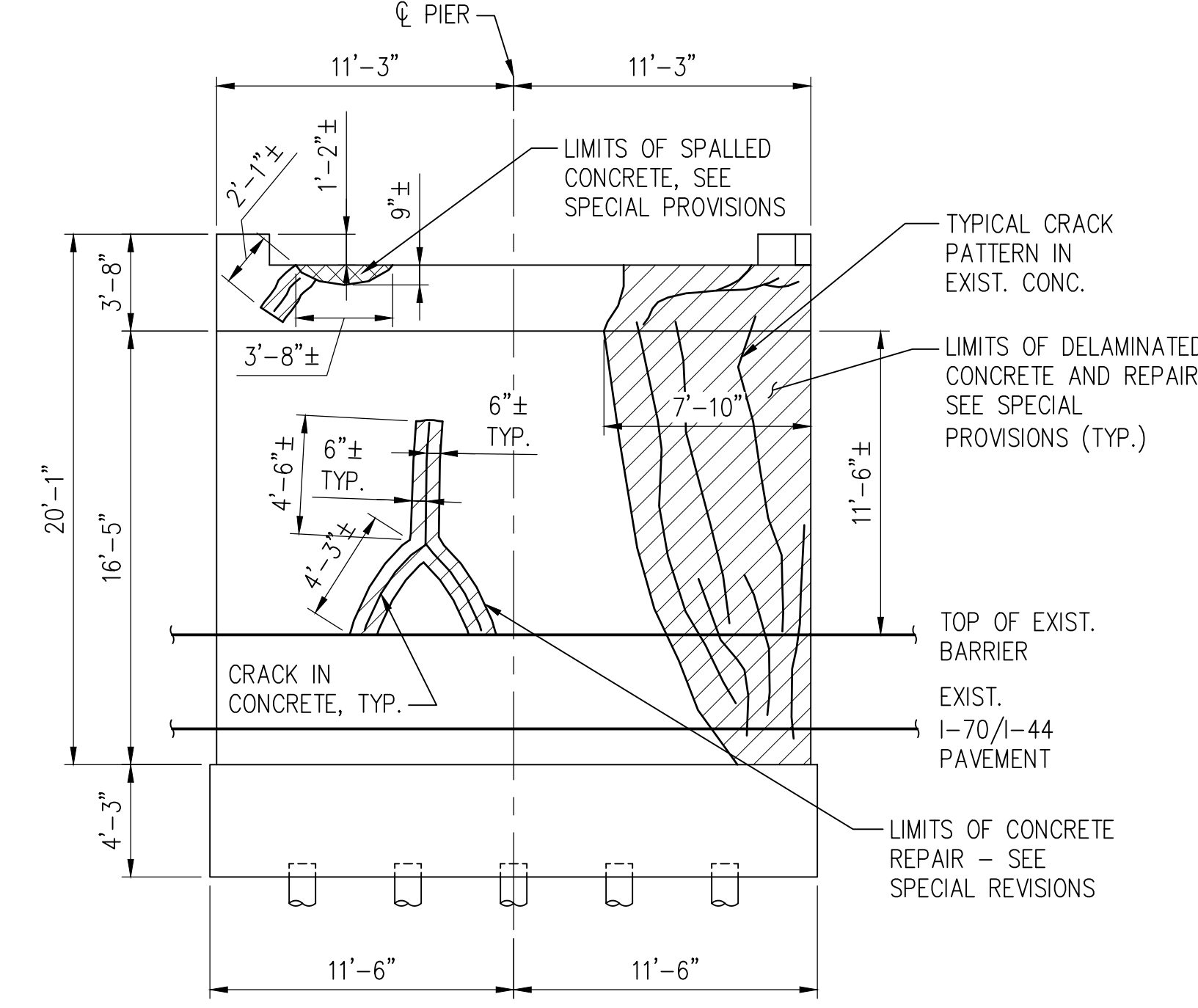
PIER 2 PLAN
 SCALE: 3/16" = 1'-0" NORTH



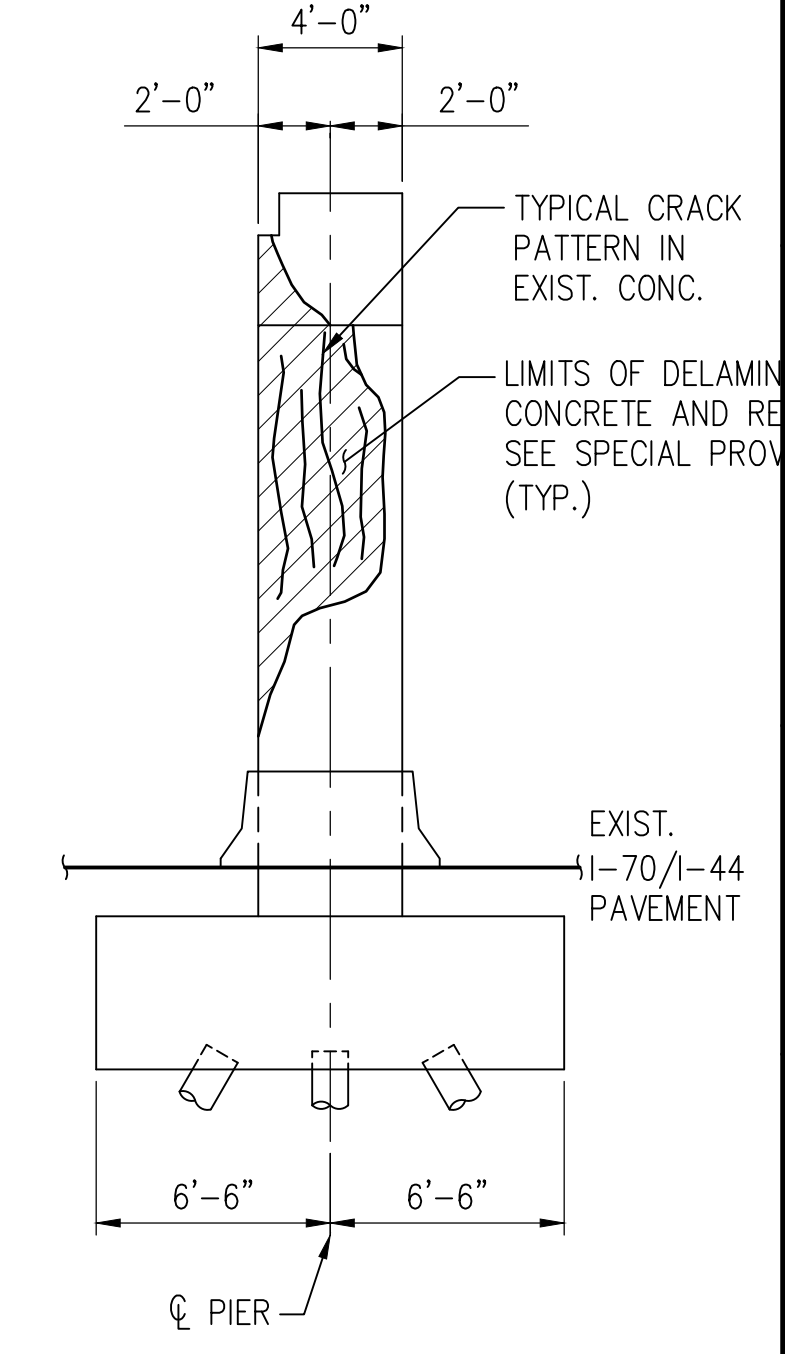
NORTH ELEVATION
 SCALE: 3/16" = 1'-0"



WEST ELEVATION
 SCALE: 3/16" = 1'-0"



SOUTH ELEVATION
 SCALE: 3/16" = 1'-0"



EAST ELEVATION
 SCALE: 3/16" = 1'-0"



800 South Vandeventer St. Louis, Missouri 63110

David Mason and Associates, Inc.
 Missouri Certificate of Authority Number:
 Engineer: 001103
 Architect: 000620
 Survey: 000336



PEDESTRIAN TRESTLE BRIDGE
 OVER I-70/I-44 EXPANSION
 JOINT REPLACEMENT AND
 CONCRETE REPAIRS

ST. LOUIS, MISSOURI

Professional Seal:



Ronald L. Mackey, P.E. - Structural
 License No. - 22774

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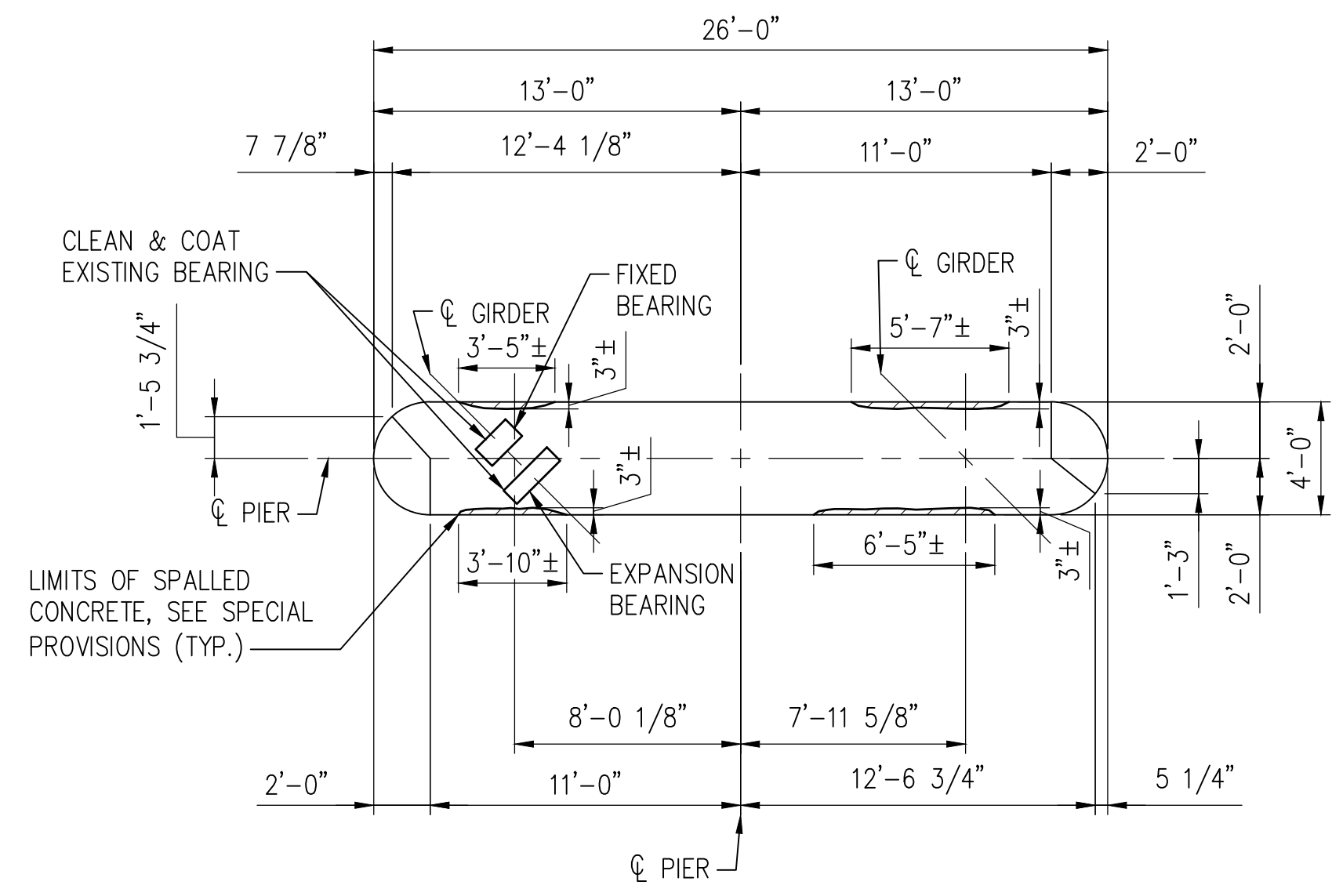
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No.	Description	Date

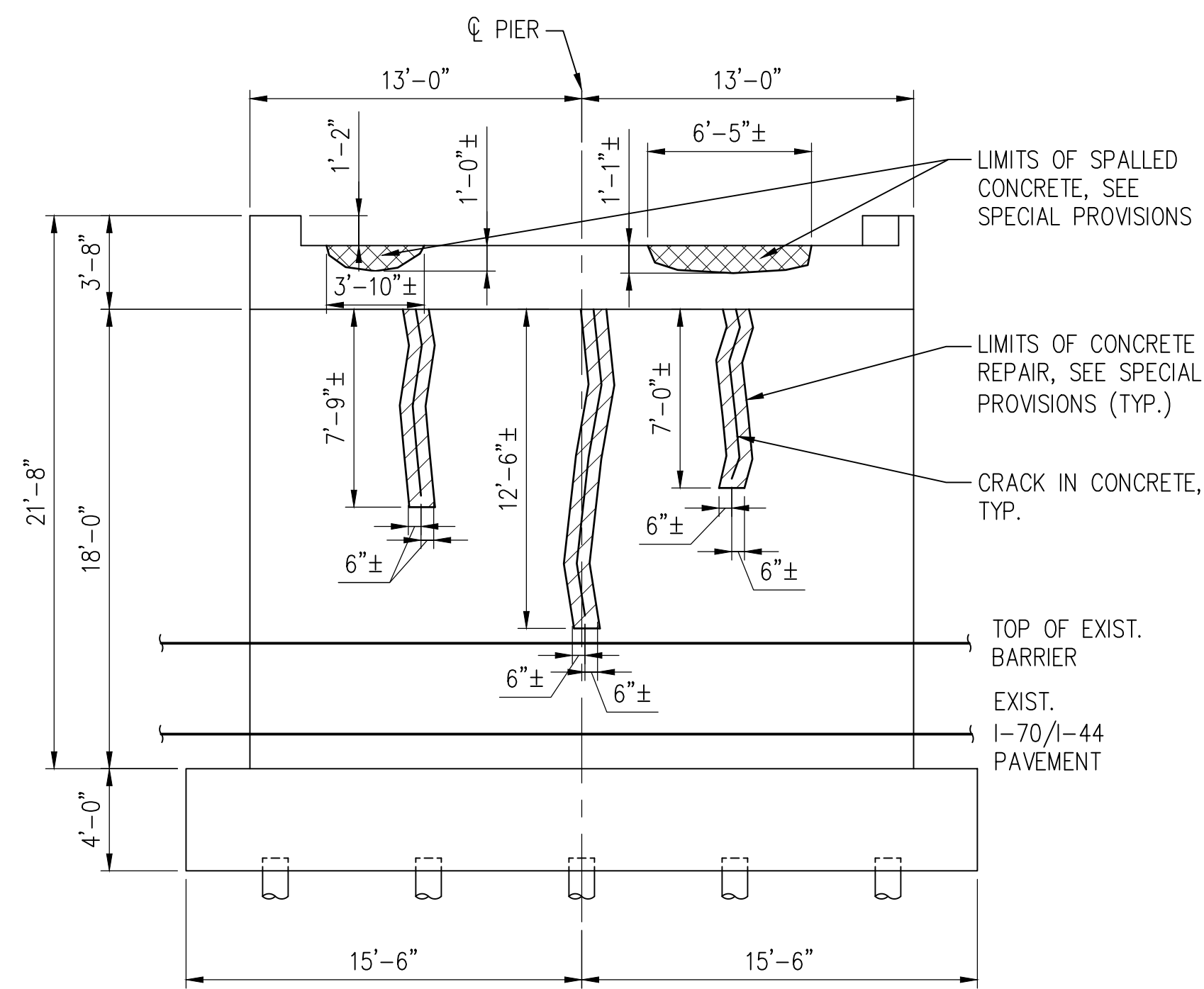
Sheet Title:
PIER 3 PLAN AND ELEVATIONS

Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	

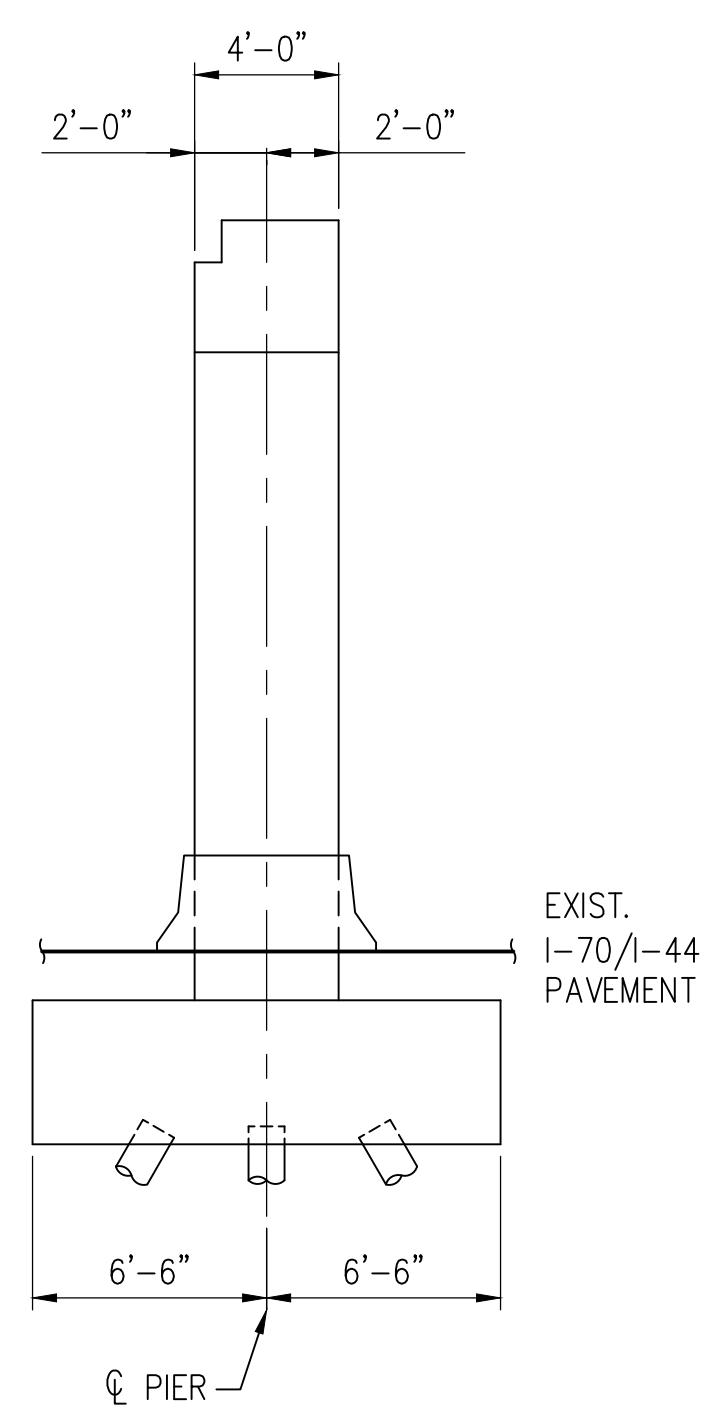
S6



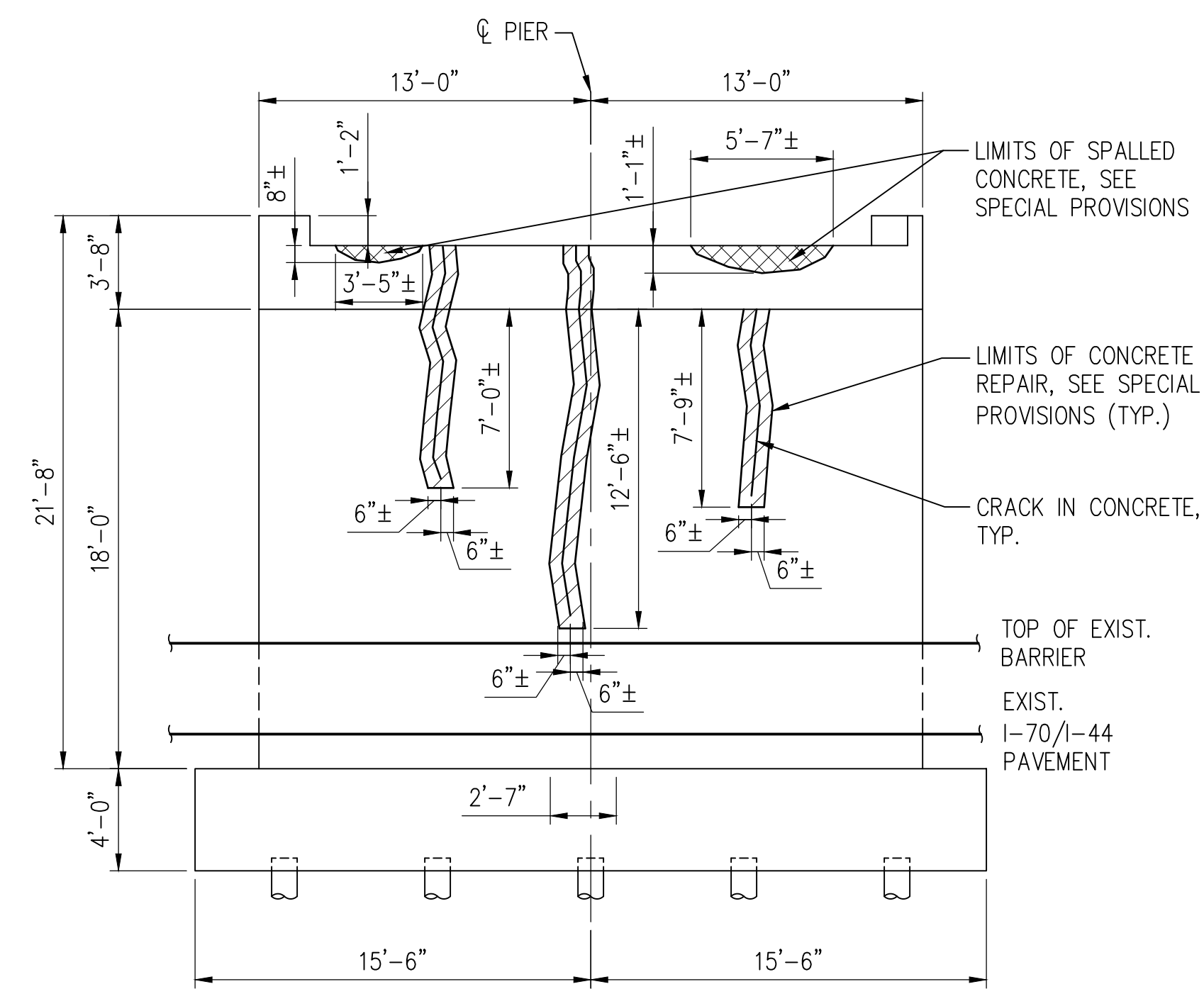
PIER 3 PLAN
 SCALE: 3/16" = 1'-0"



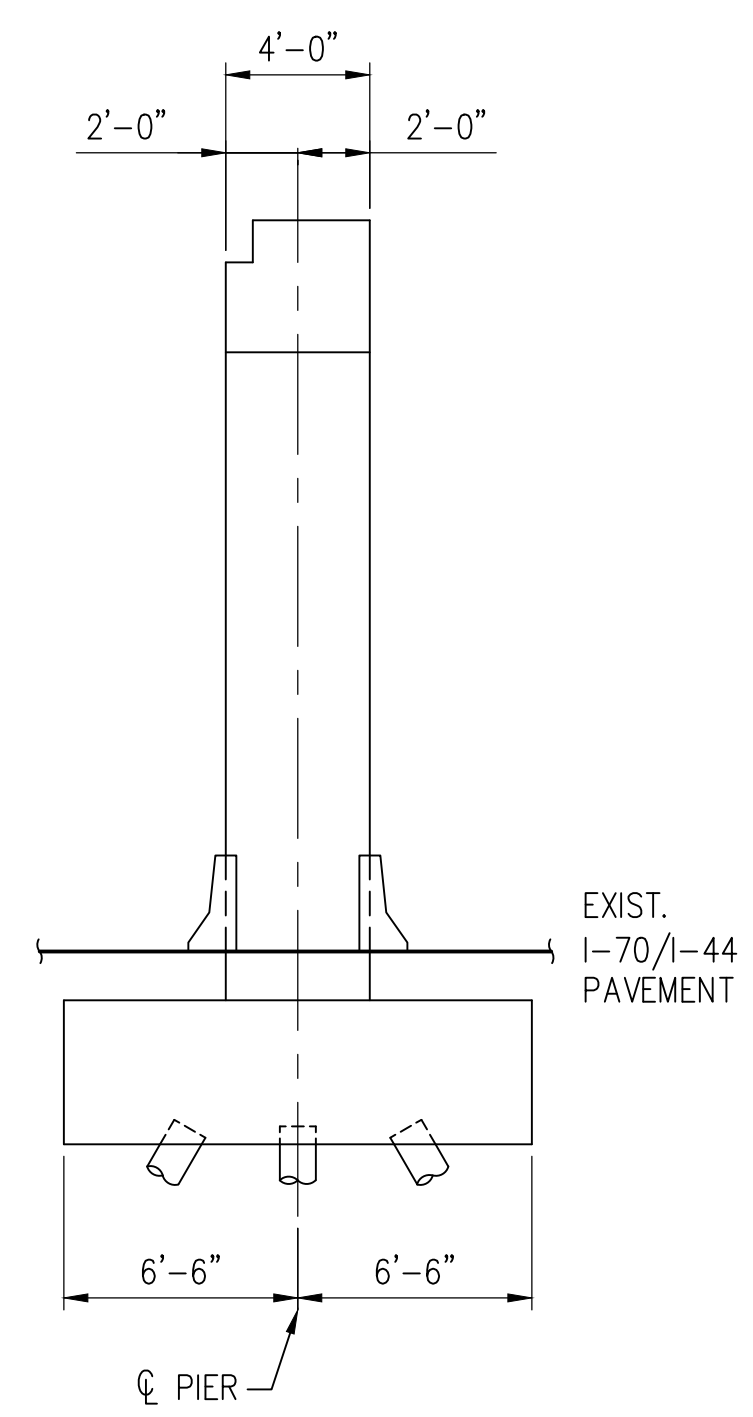
NORTH ELEVATION
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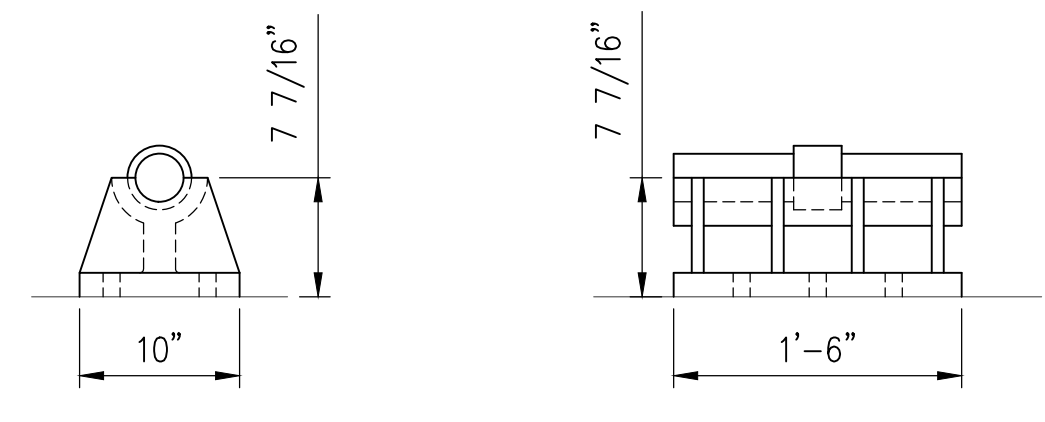
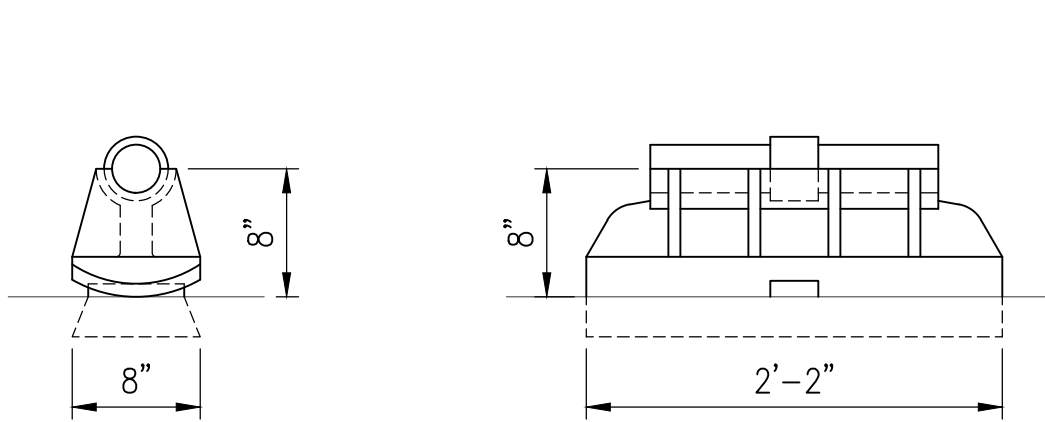
EAST ELEVATION
 SCALE: 3/16" = 1'-0"



SOUTH ELEVATION
 SCALE: 3/16" = 1'-0"



WEST ELEVATION
 SCALE: 3/16" = 1'-0"



EXPANSION BEARING
 SCALE: N.T.S.

FIXED BEARING
 SCALE: N.T.S.



800 South Vandeventer St. Louis, Missouri 63110

David Mason and Associates, Inc. Missouri Certificate of Authority Number: Engineer: 001103 Architect: 000620 Survey: 000336



PEDESTRIAN TRESTLE BRIDGE OVER I-70/I-44 EXPANSION JOINT REPLACEMENT AND CONCRETE REPAIRS

ST. LOUIS, MISSOURI

Professional Seal:



Ronald L. Mackey, P.E. - Structural License No. - 22774

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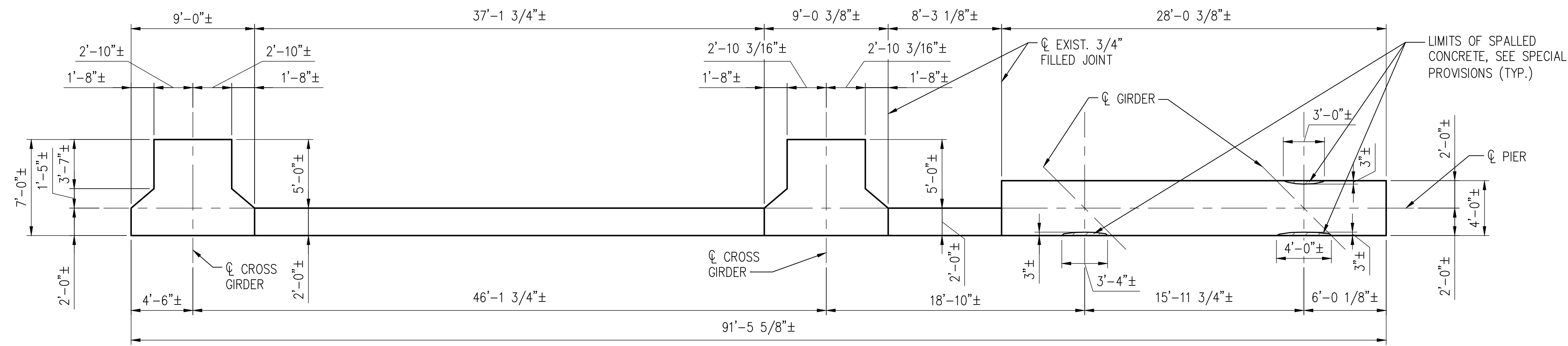
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Table with 3 columns: No., Description, Date

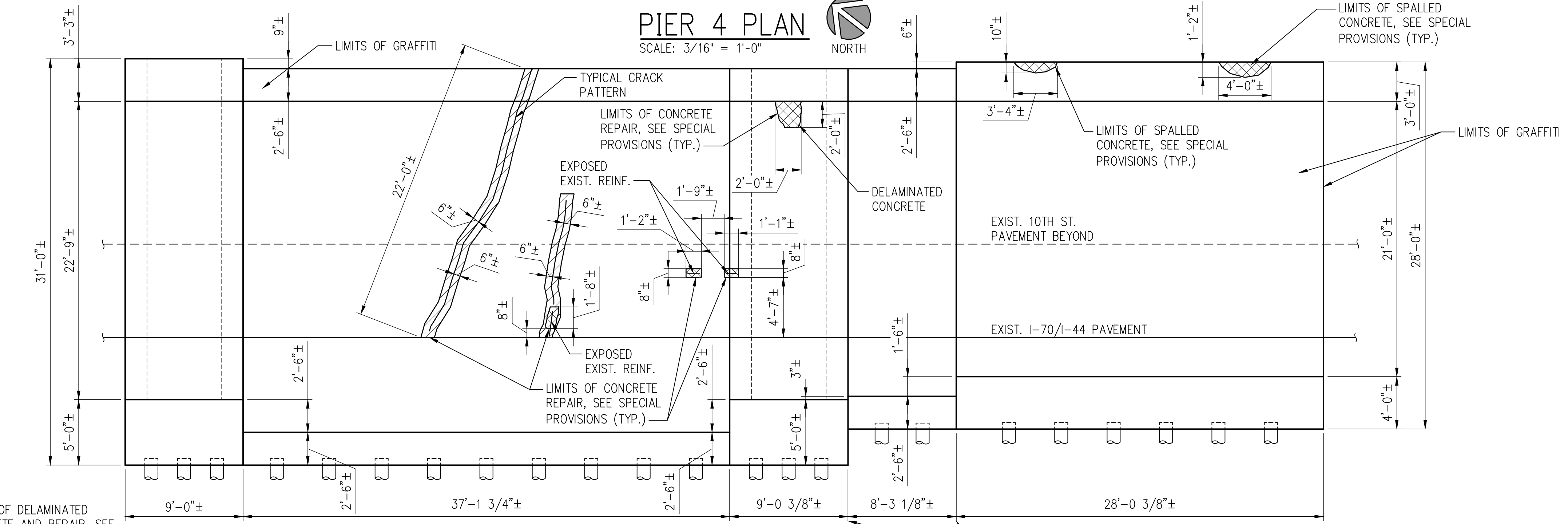
Sheet Title: PIER 4 PLAN AND ELEVATIONS

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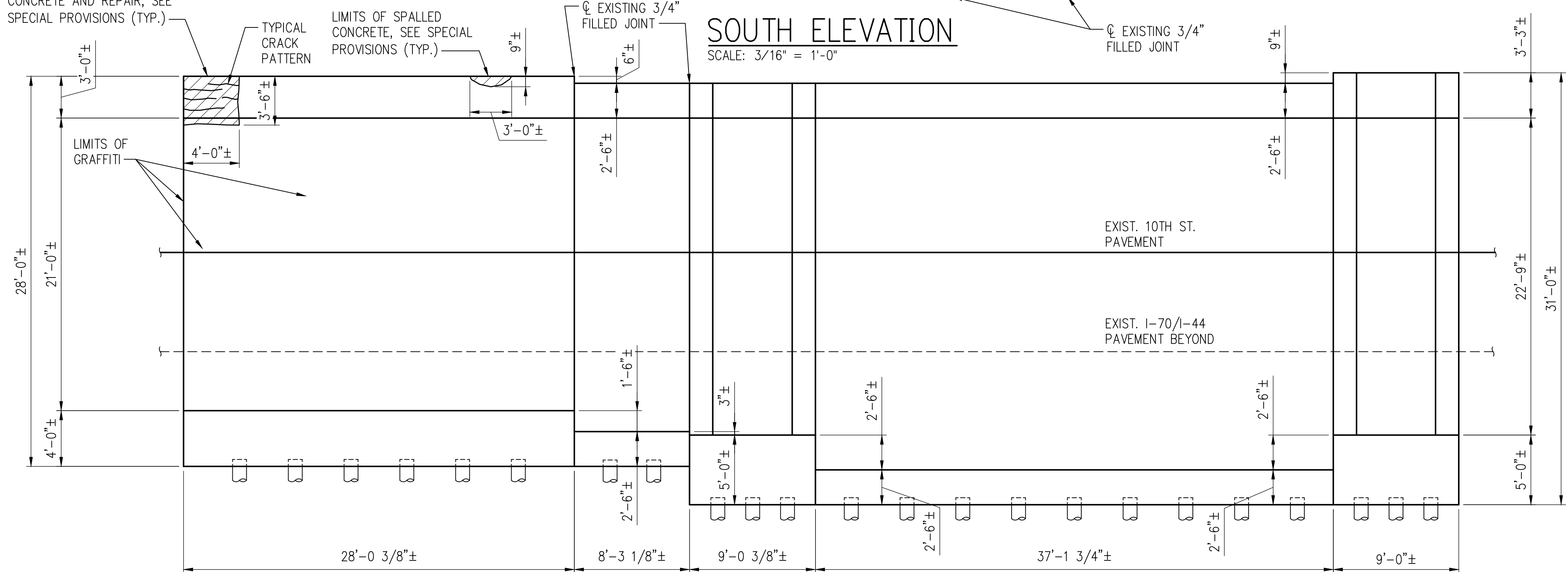
S7



PIER 4 PLAN SCALE: 3/16" = 1'-0"



SOUTH ELEVATION SCALE: 3/16" = 1'-0"



NORTH ELEVATION SCALE: 3/16" = 1'-0"

**PEDESTRIAN TRESTLE BRIDGE
 OVER I-70/I-44 EXPANSION
 JOINT REPLACEMENT AND
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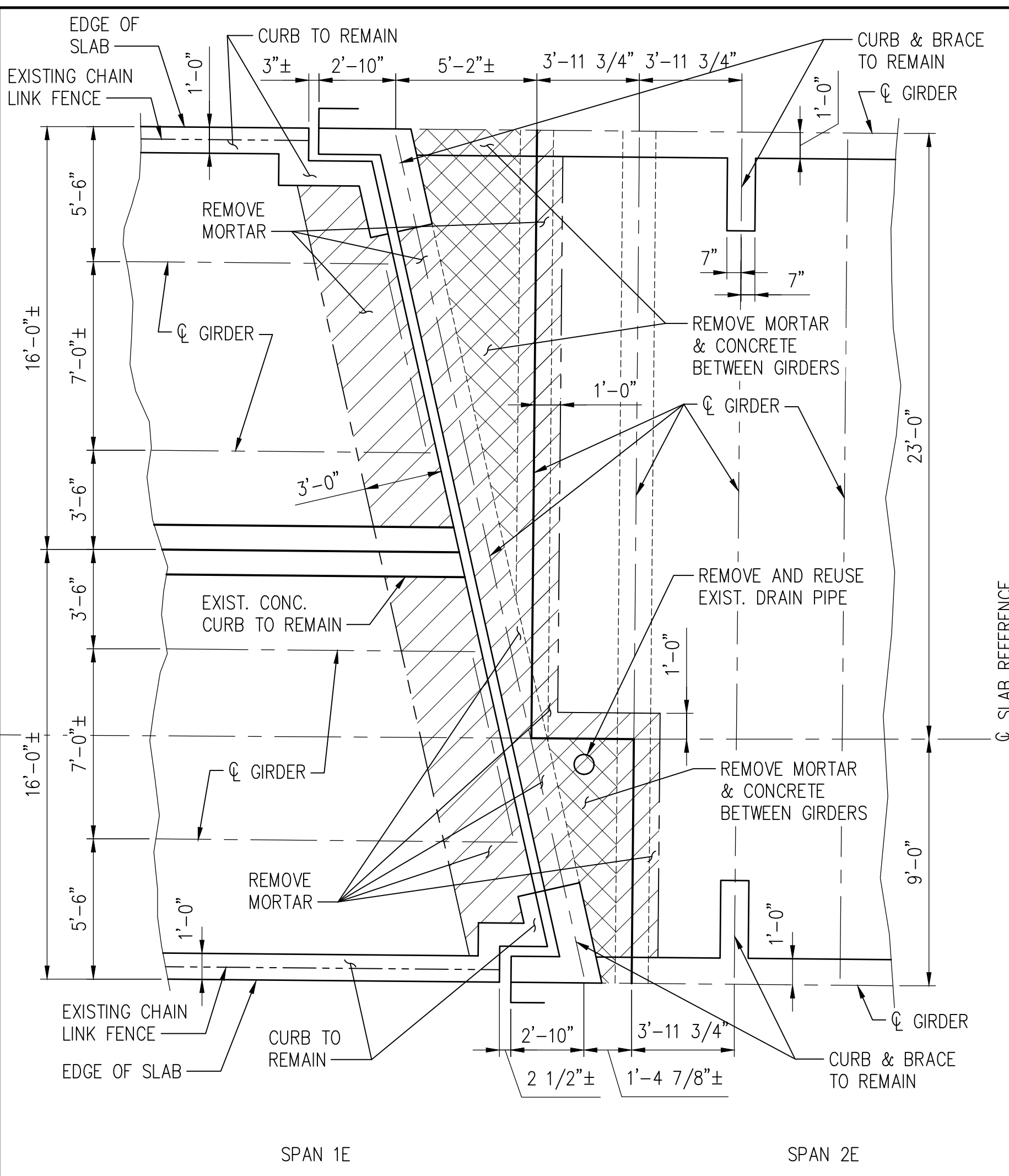
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No.	Description	Date

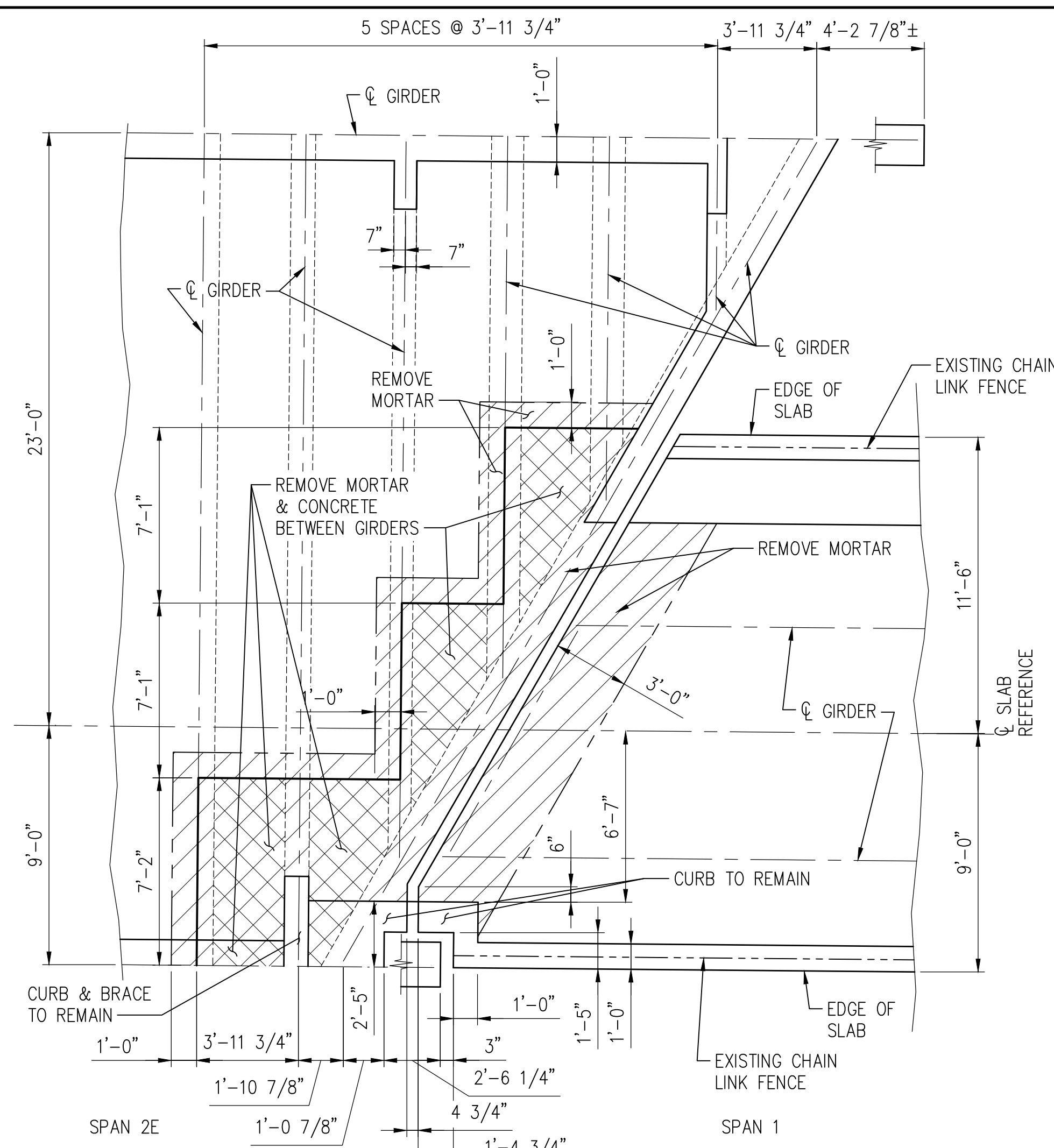
Sheet Title:
**ENLARGED
 PLANS -
 DEMOLITION**

Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	

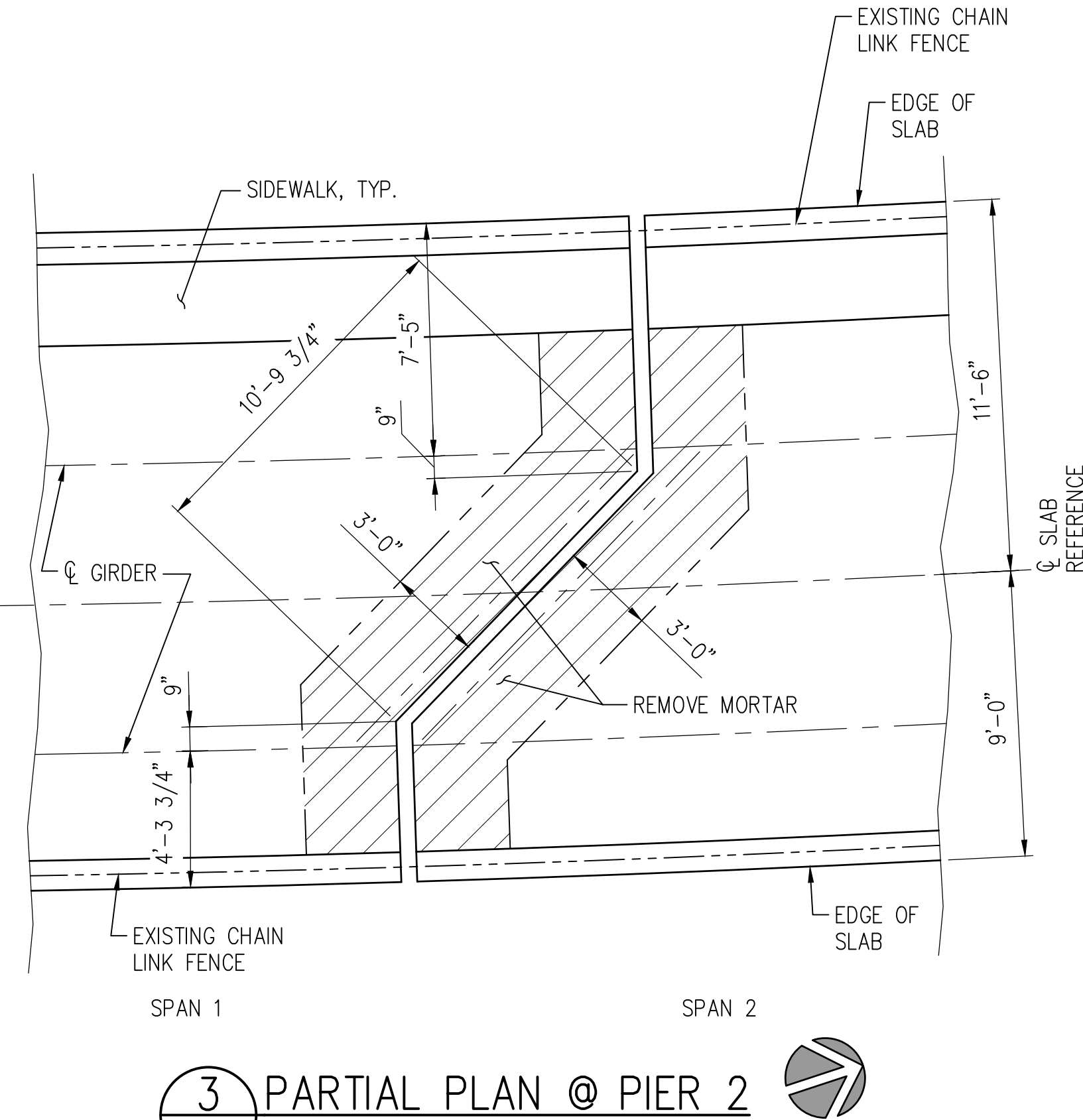
S8



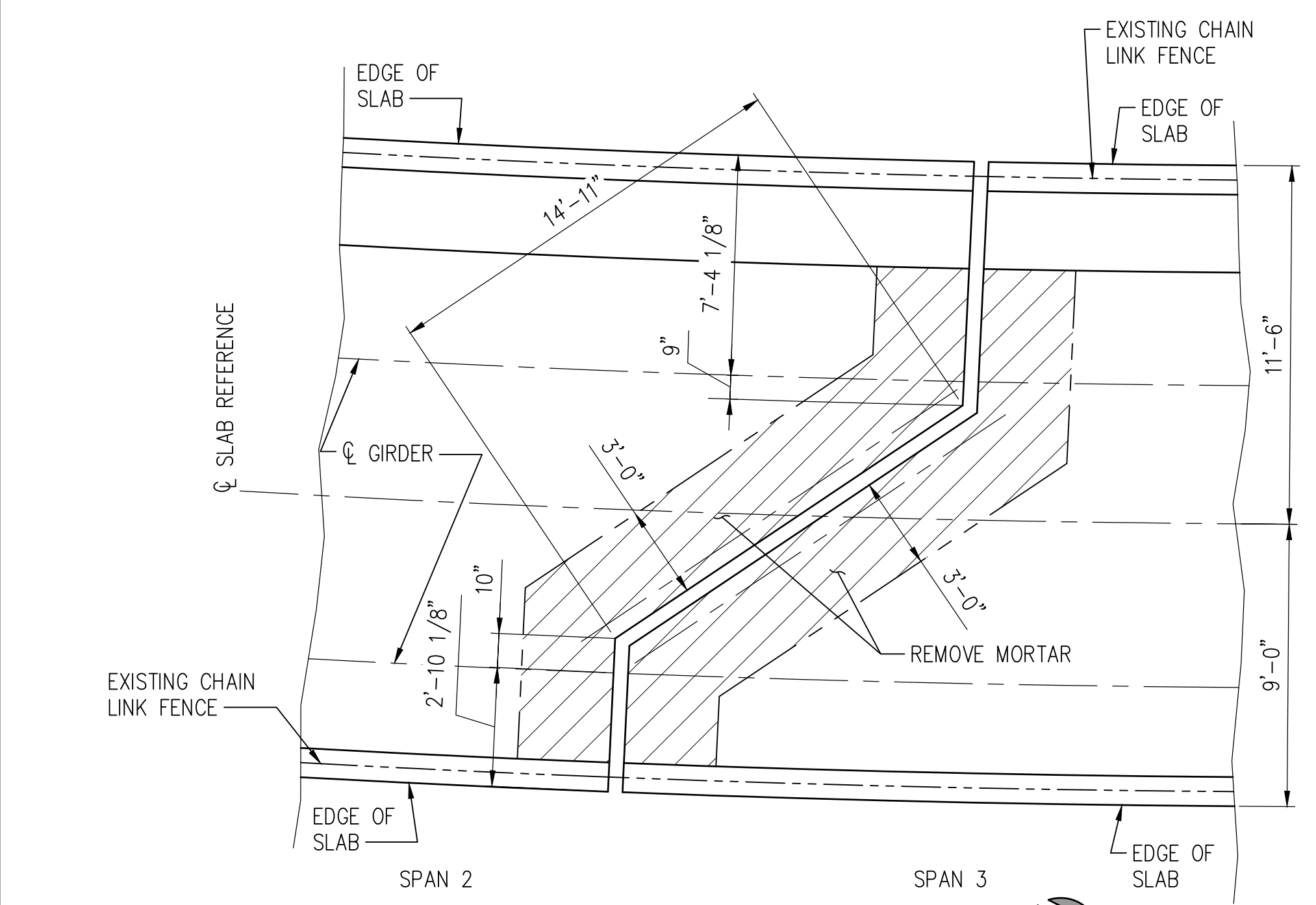
1 PARTIAL PLAN @ BENT 2E
 S8 SCALE: N.T.S.



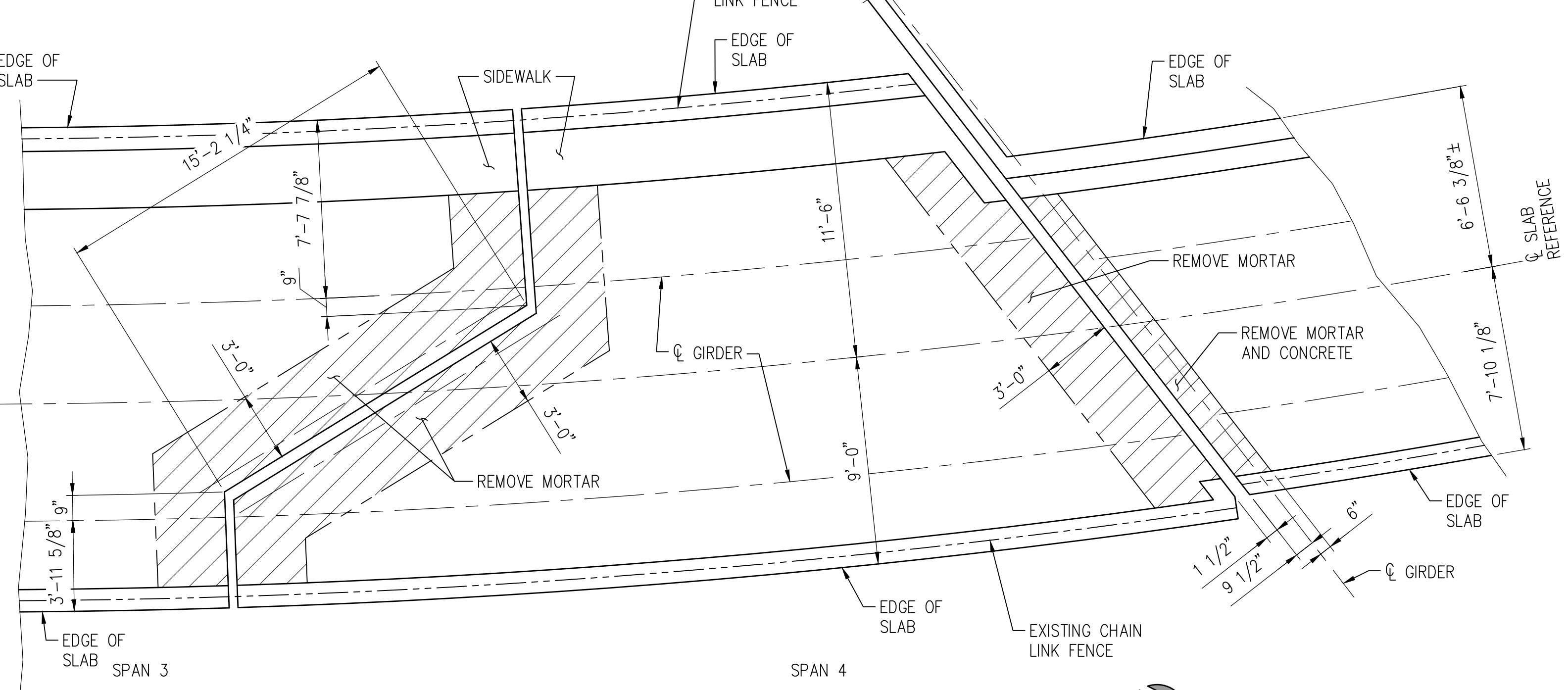
2 PARTIAL PLAN @ PIER 1
 S8 SCALE: N.T.S.



3 PARTIAL PLAN @ PIER 2
 S8 SCALE: N.T.S.



4 PARTIAL PLAN @ PIER 3
 S8 SCALE: N.T.S.



5 PARTIAL PLAN @ PIER 4 AND BENT 8E
 S8 SCALE: N.T.S.



**PEDESTRIAN TRESTLE BRIDGE
OVER I-70/I-44 EXPANSION
JOINT REPLACEMENT AND
CONCRETE REPAIRS**

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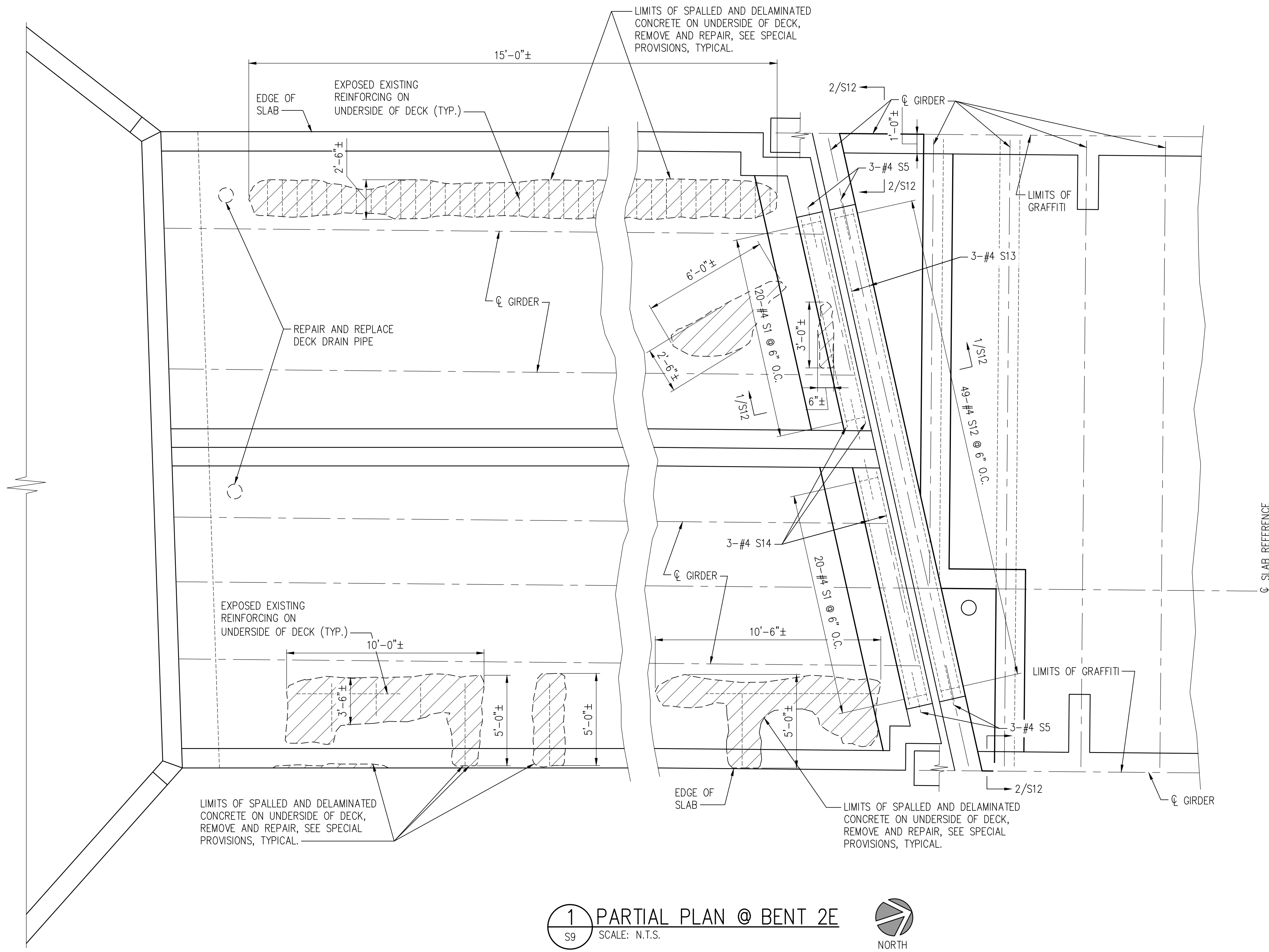
No.	Description	Date

Sheet Title:
**BENT 2E
EXPANSION
JOINT PLAN**

Date: 10/11/2018
Project Number: 2018267-00
Designed By: PMG
Drawn By: RTL
Checked By: RLM

Sheet Number:

S9



1 PARTIAL PLAN @ BENT 2E
S9 SCALE: N.T.S.





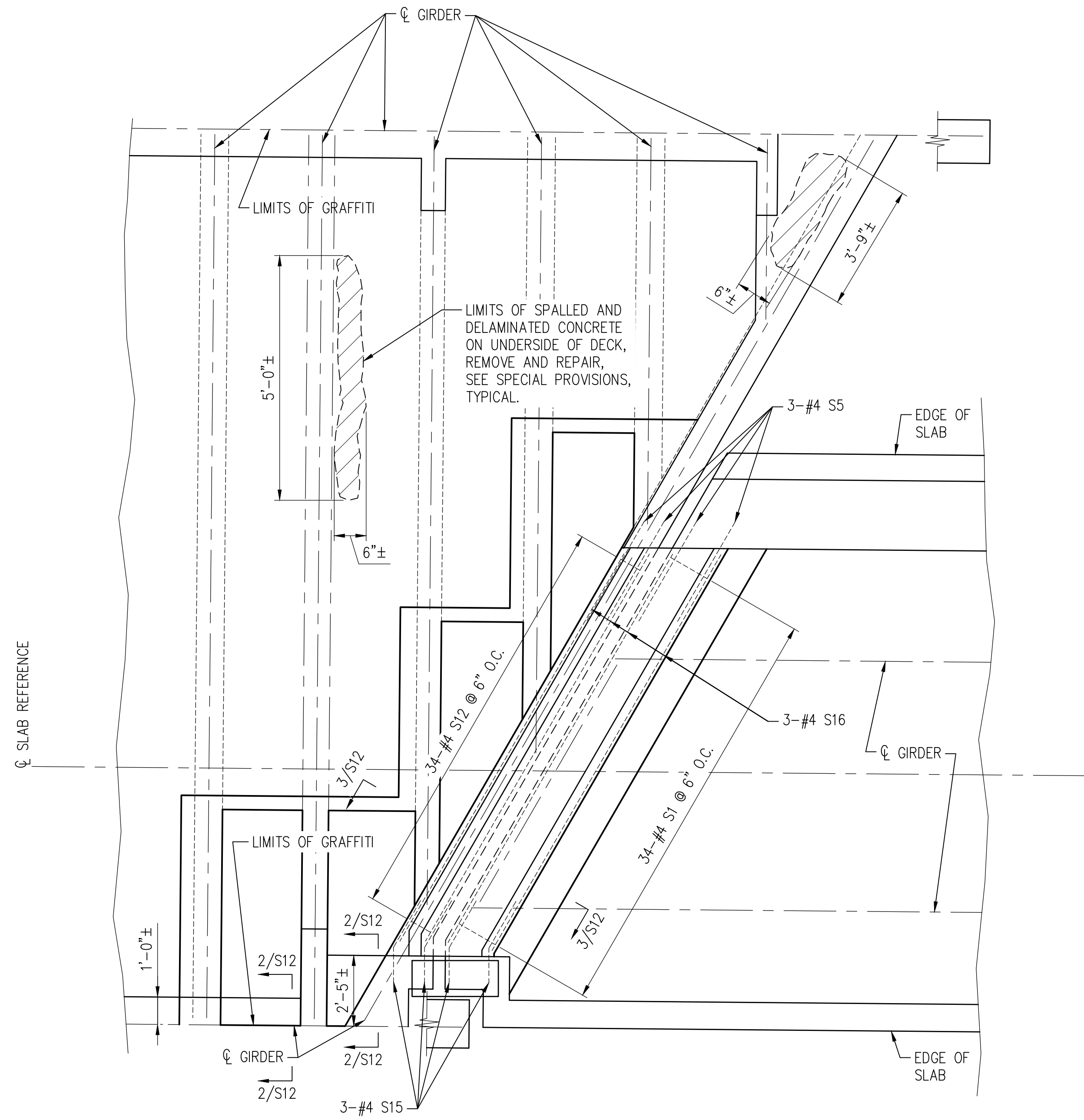
800 South Vandeventer St. Louis, Missouri 63110

David Mason and Associates, Inc. Missouri Certificate of Authority Number: Engineer: 001103 Architect: 000620 Survey: 000336

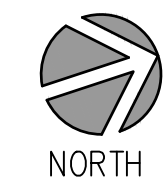


PEDESTRIAN TRESTLE BRIDGE OVER I-70/I-44 EXPANSION JOINT REPLACEMENT AND CONCRETE REPAIRS

ST. LOUIS, MISSOURI



2 PARTIAL PLAN @ PIER 1 SCALE: N.T.S.



Professional Seal: RONALD L. MACKEY REGISTERED PROFESSIONAL ENGINEER E-22774 License No. - 22774

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Table with 3 columns: No., Description, Date. It is currently empty.

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Date: 10/11/2018 Project Number: 2018267-00 Designed By: PMG Drawn By: RTL Checked By: RLM

Sheet Number: S10

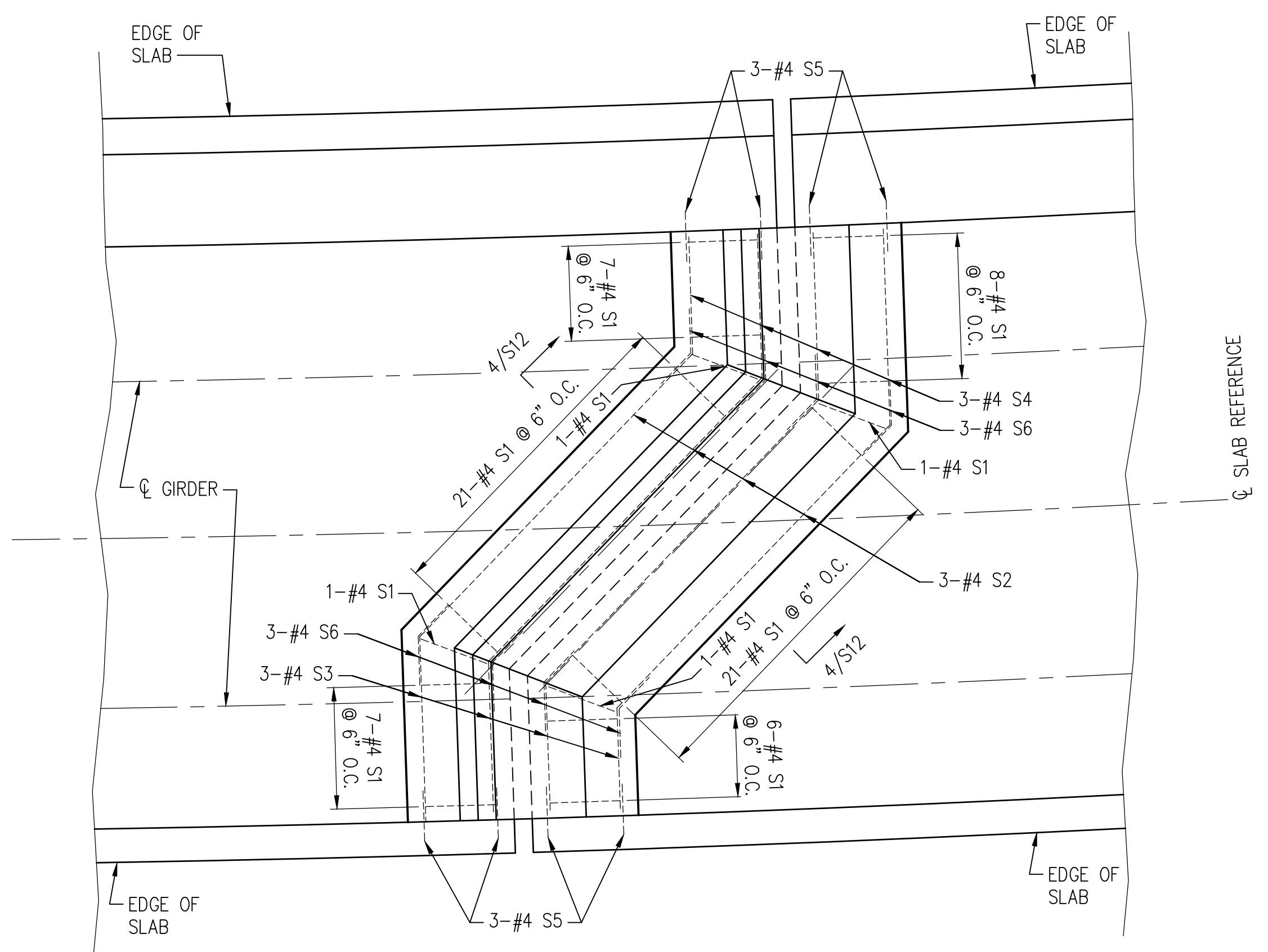


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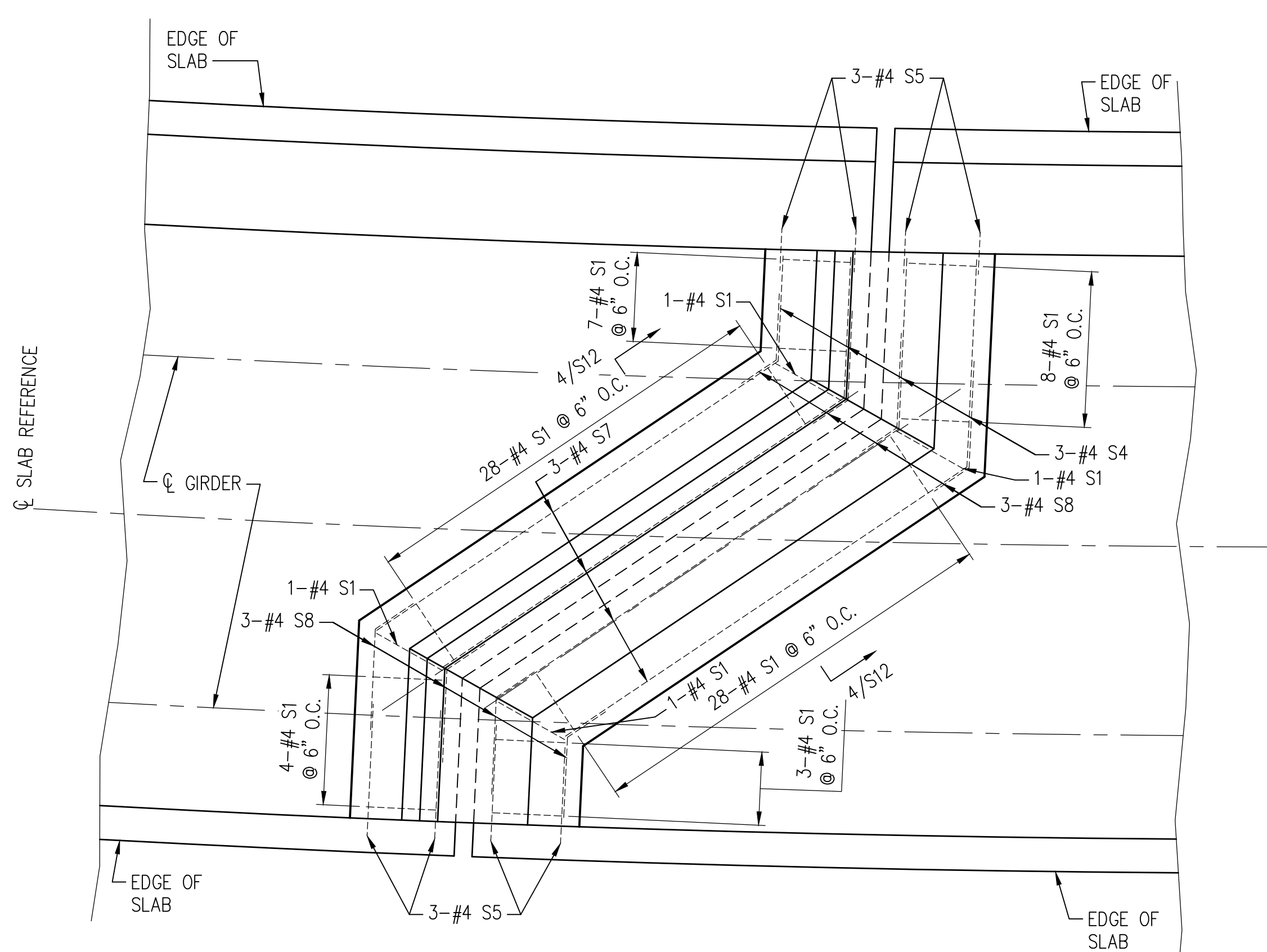
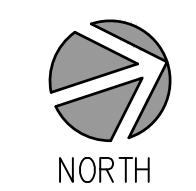
Sheet Title:
**PIERS 2, 3, 4, AND
 8E EXPANSION
 JOINT PLAN**

Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	

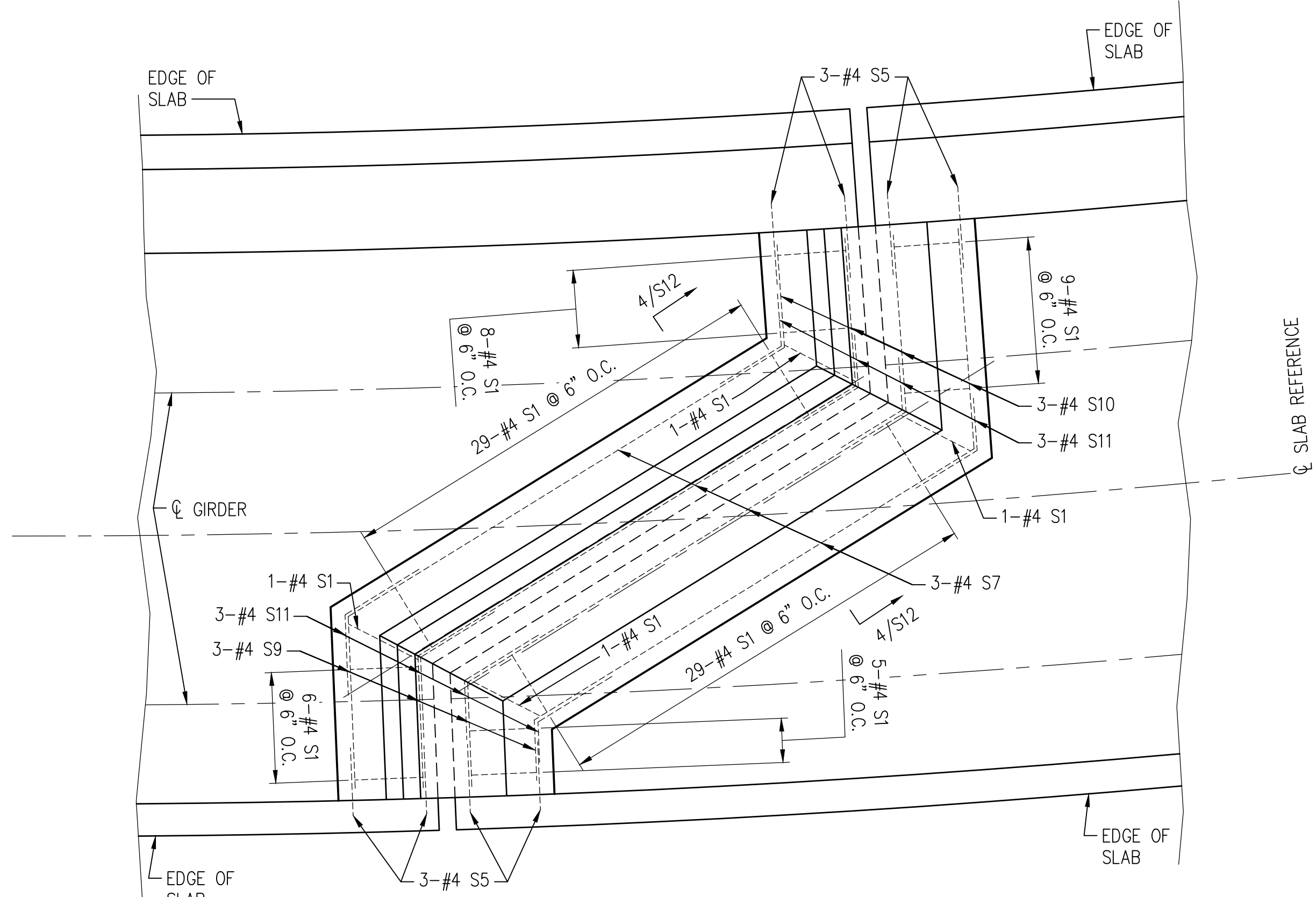
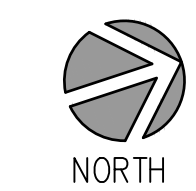
S11



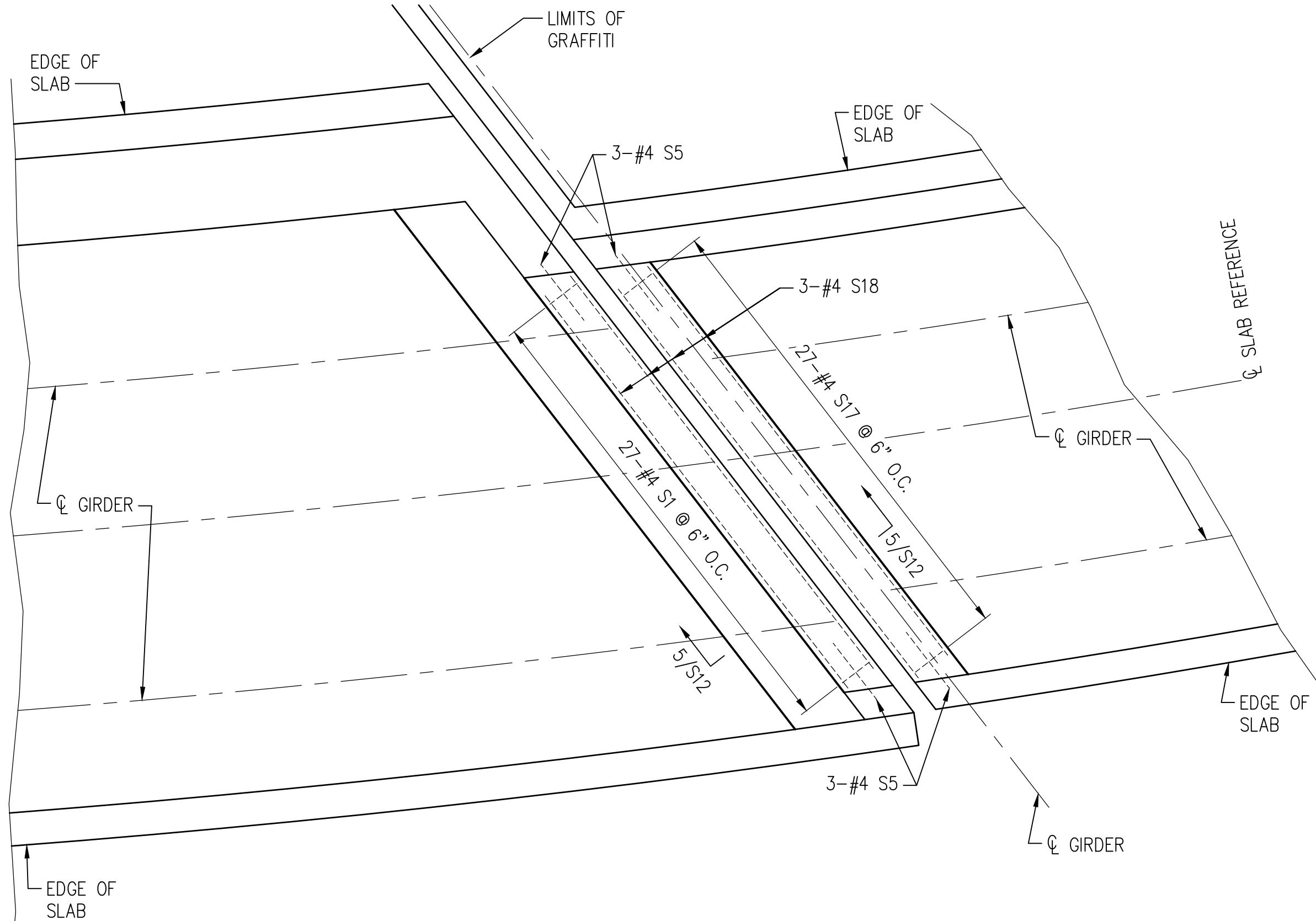
1 PARTIAL PLAN @ PIER 2
 S11 SCALE: N.T.S.



2 PARTIAL PLAN @ PIER 3
 S11 SCALE: N.T.S.



3 PARTIAL PLAN @ PIER 4
 S11 SCALE: N.T.S.



4 PARTIAL PLAN @ BENT 8E
 S11 SCALE: N.T.S.



**PEDESTRIAN TRESTLE BRIDGE
 OVER I-70/I-44 EXPANSION
 JOINT REPLACEMENT AND
 CONCRETE REPAIRS**

ST. LOUIS, MISSOURI

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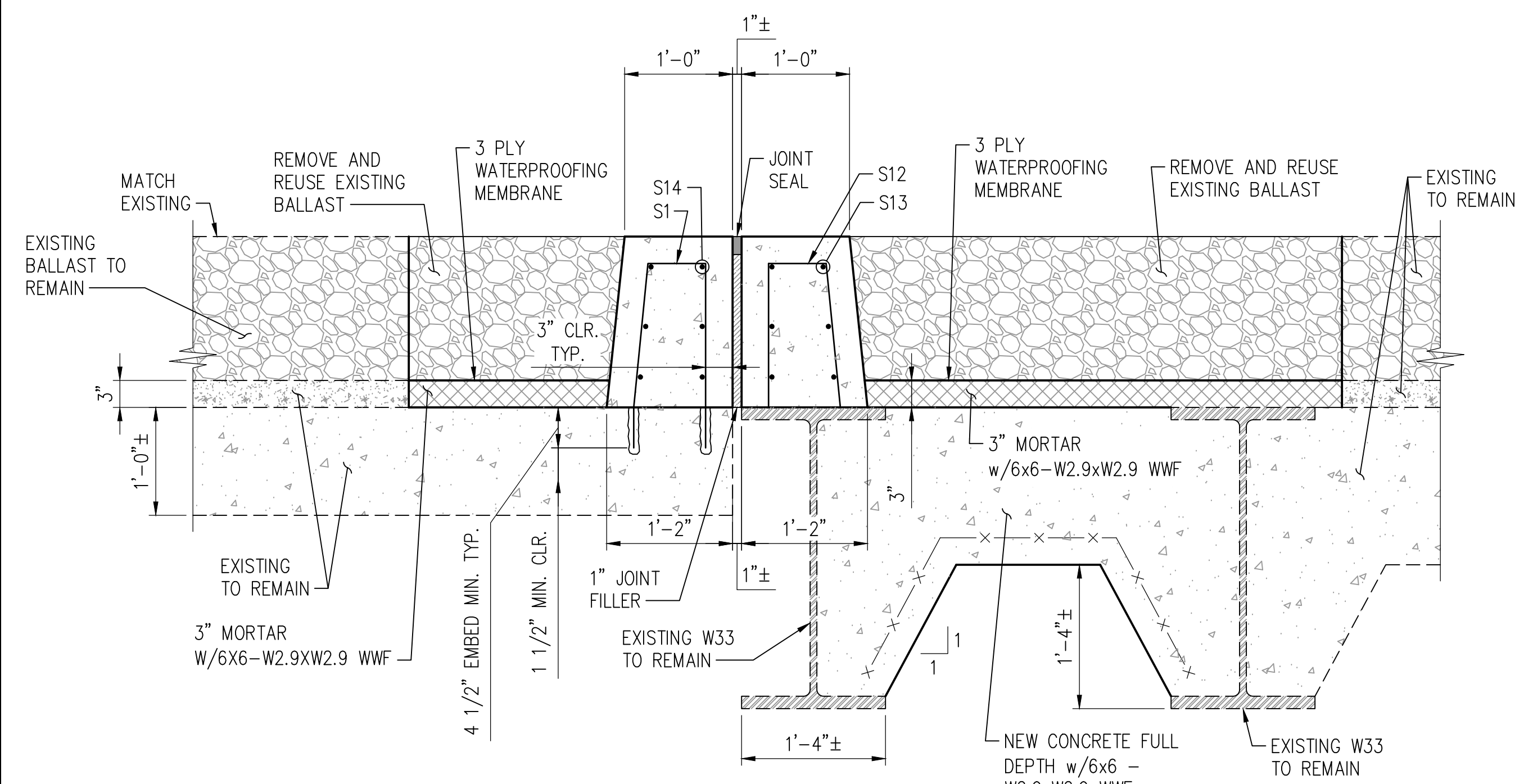
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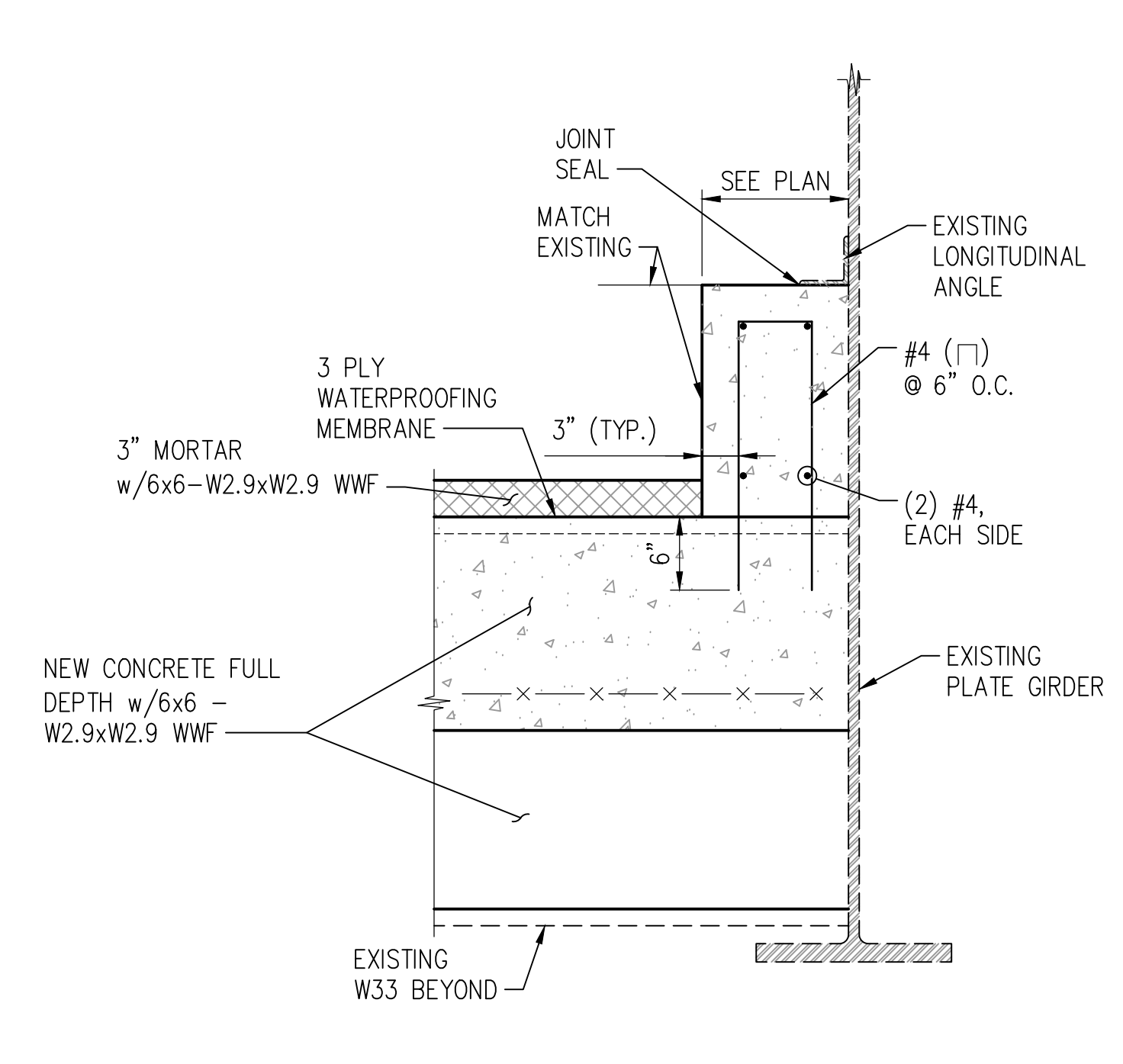
SECTIONS AND DETAILS

Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	

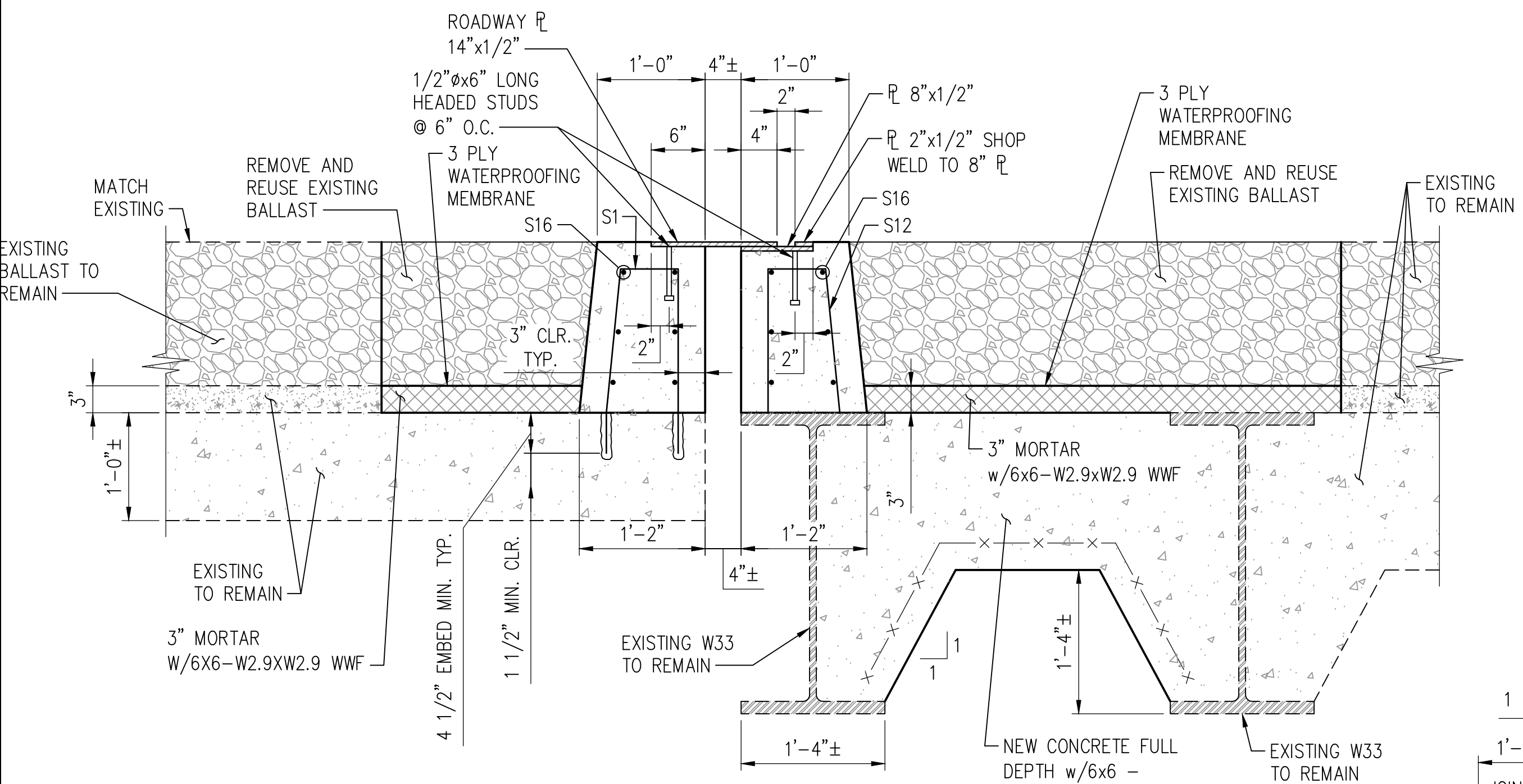
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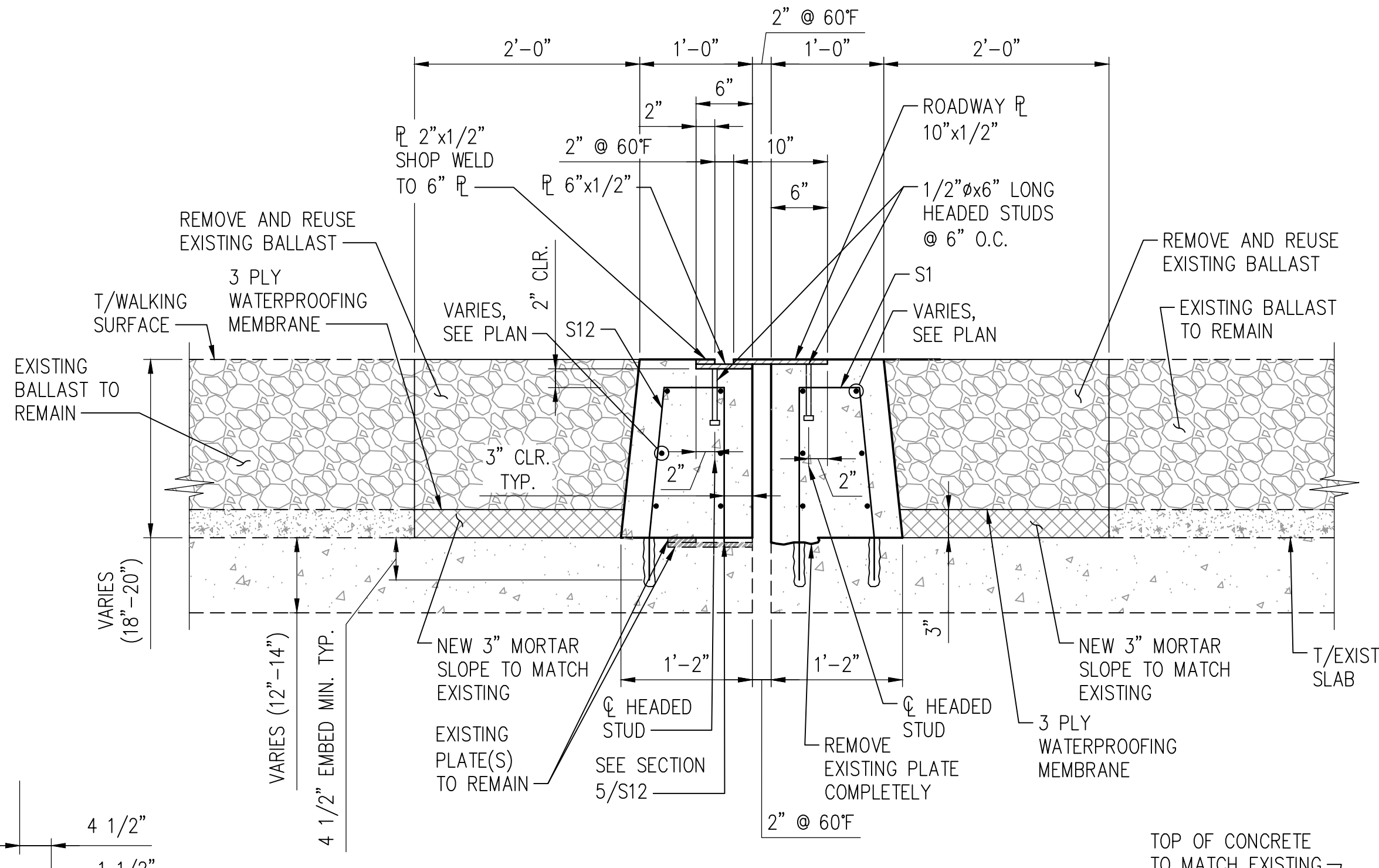
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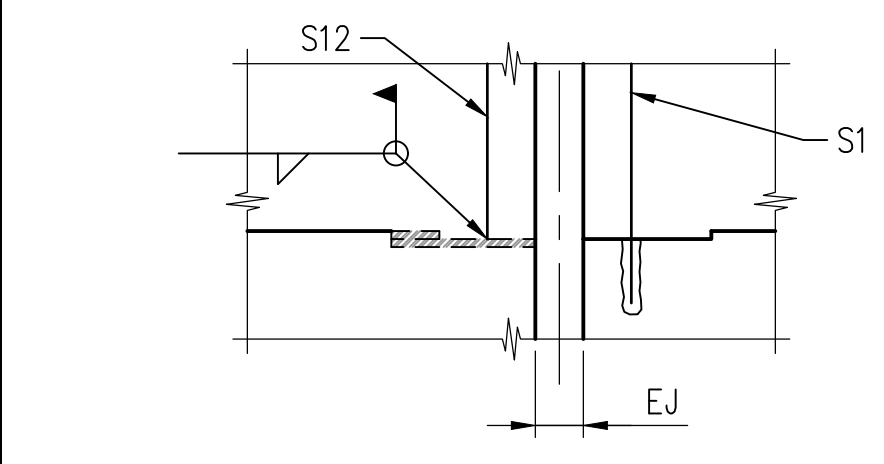
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 S12 SCALE: NTS



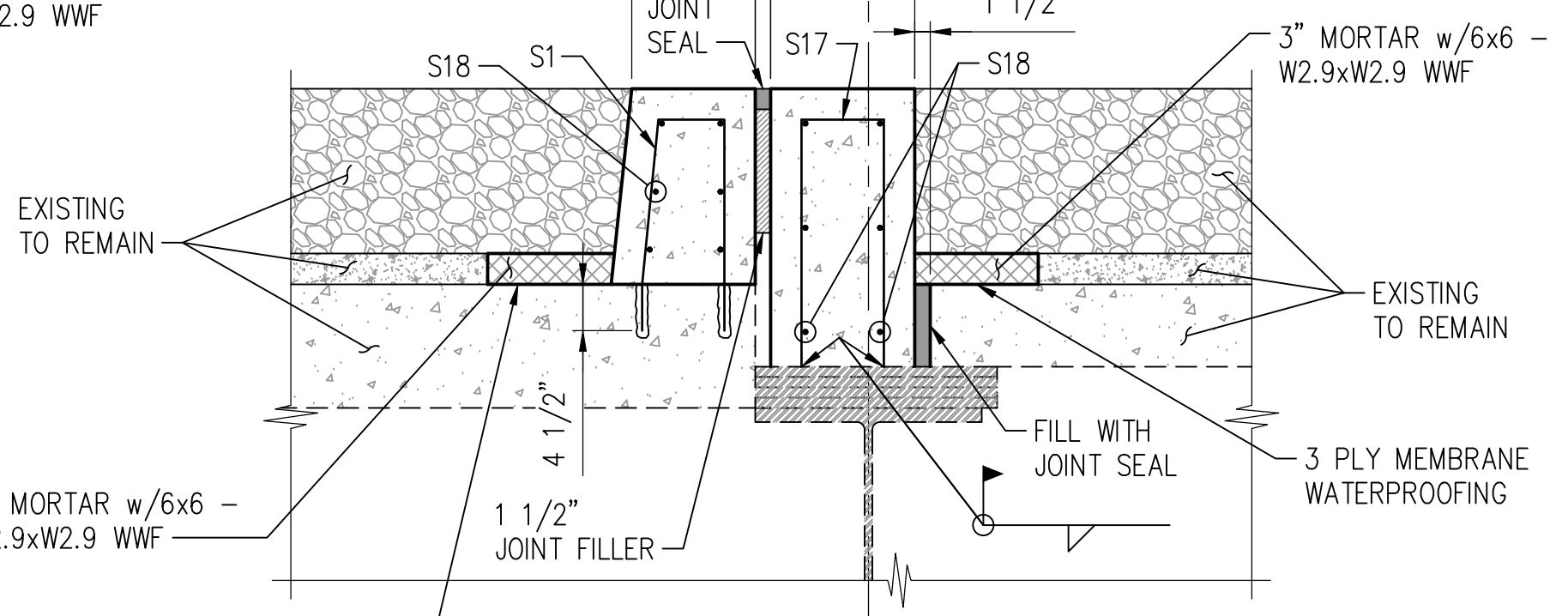
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 S12 SCALE: NTS



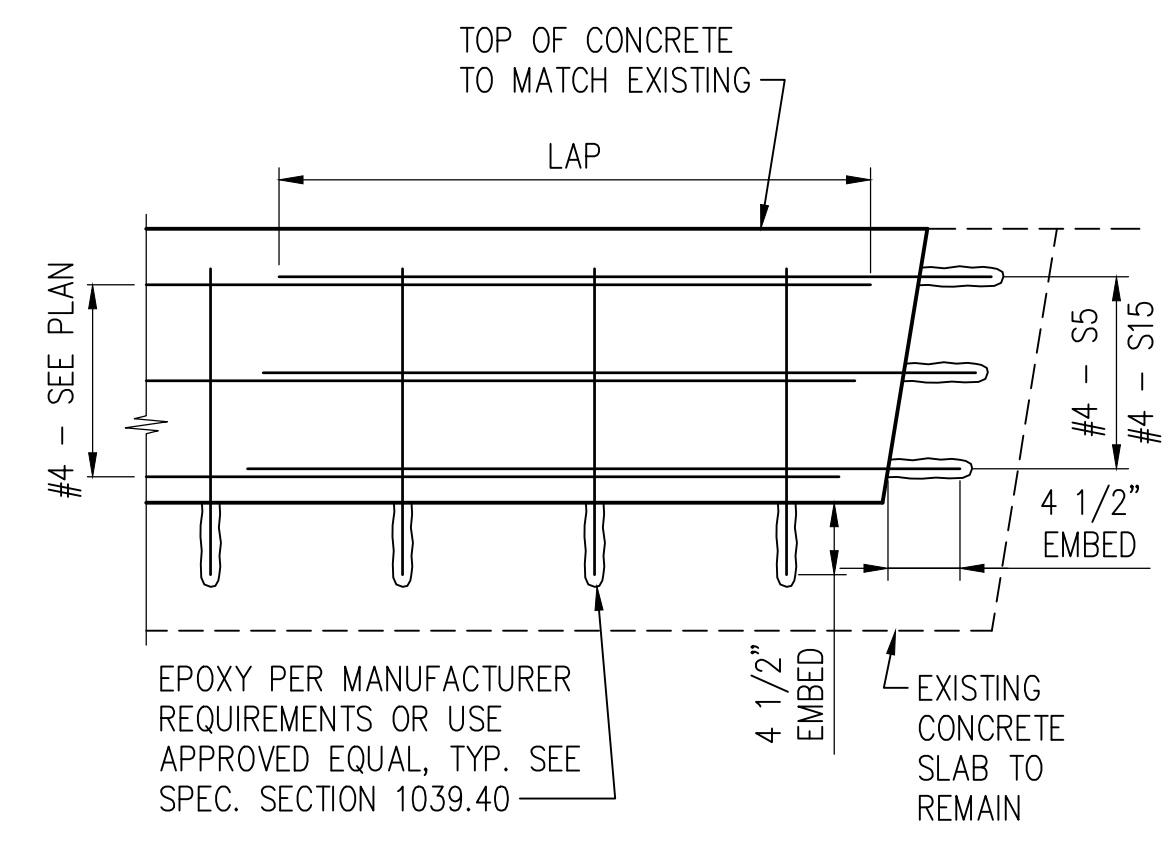
4 SECTION
 S12 SCALE: NTS



5 SECTION
 S12 SCALE: NTS



6 SECTION
 S12 SCALE: NTS



7 SECTION
 S12 SCALE: NTS



800 South Vandeventer St. Louis, Missouri 63110

David Mason and Associates, Inc.
 Missouri Certificate of Authority Number:
 Engineer: 001103
 Architect: 000620
 Survey: 000336



PEDESTRIAN TRESTLE BRIDGE
 OVER I-70/I-44 EXPANSION
 JOINT REPLACEMENT AND
 CONCRETE REPAIRS

ST. LOUIS, MISSOURI

Professional Seal:



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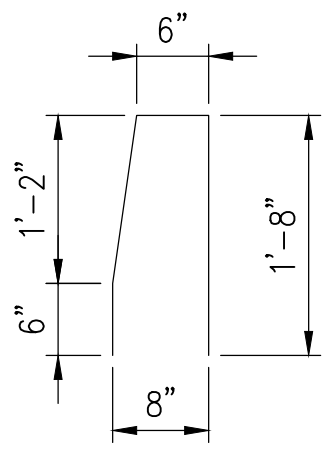
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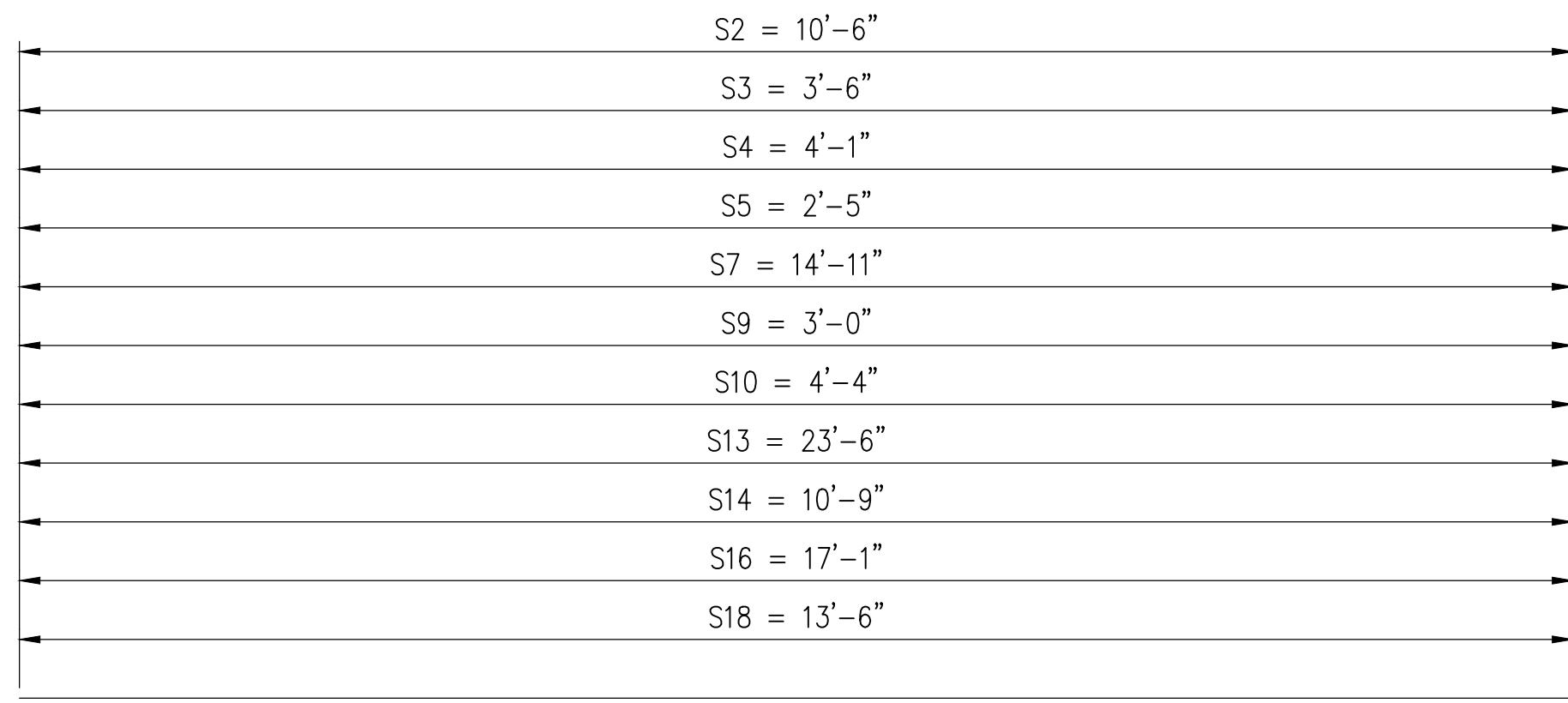
SECTIONS AND
 DETAILS

Date:	10/11/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	RTL
Checked By:	RLM
Sheet Number:	

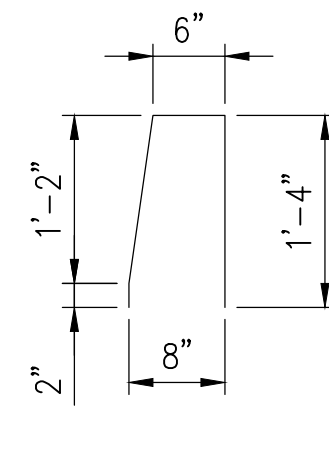
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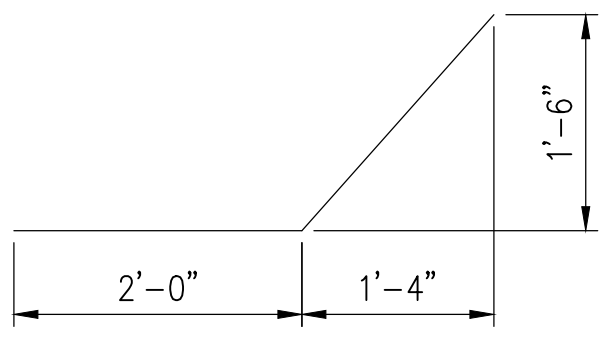
S1 (E)



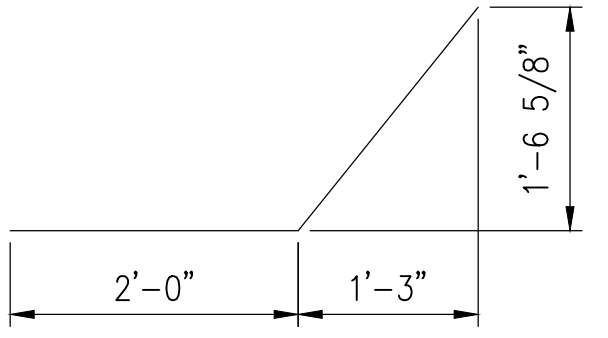
S2 - S5, S7, S9 - S10, S13 - S14, S16, S18 EPOXY (E)



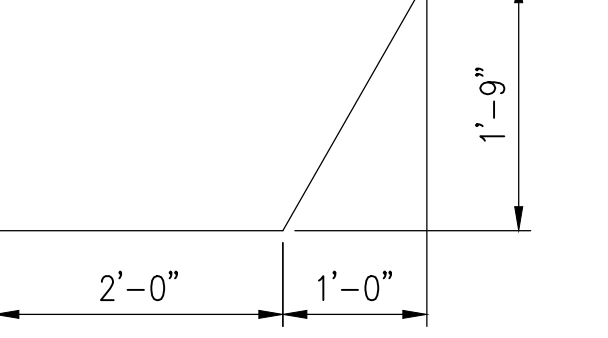
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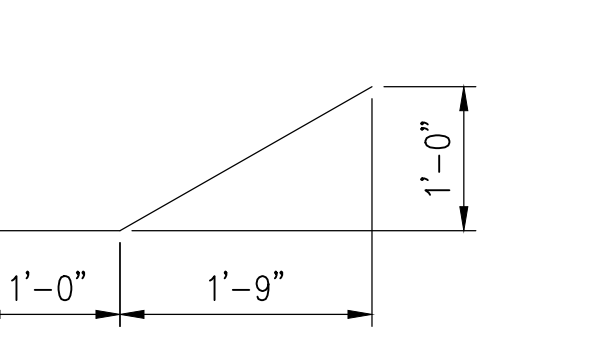
S6 (E)



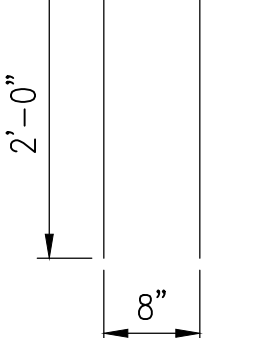
S8 (E)



S11 (E)



S15 (E)



S17 (E)

REINFORCING BAR DETAILS

GRAVOIS GREENWAY: GRANTS TRAIL OVER I-44 (732B)
SPECIFICATIONS AND PRE-FINAL DRAWINGS

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

JOB SPECIAL PROVISIONS TABLE OF CONTENTS

(Job Special Provisions shall prevail over General Provisions whenever in conflict therewith.)

A.	General	1
B.	Rapid Set Concrete Patching Material – Vertical and Overhead Repairs JSP-02-01	2
C.	Rapid Set Concrete Patching Material – Horizontal Repairs JSP-02-10	6
D.	Coldmilling and Asphalt Repair Requirements	10
E.	Damage to Existing Pavement	11
F.	Ornamental Pedestrian Fence Repair, Reuse, and Replacement	12

	<p>MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 W. CAPITOL AVE. JEFFERSON CITY, MO 65101 PHONE (888) 275-6636</p>
	<p>David Mason & Associates, Inc. 800 South Vandeventer Avenue St. Louis, Missouri 63110 Certificate of Authority: 001103 Consultant Phone # (314) 534-1030</p>
	<p>If a seal is present on this sheet, JSP's has been electronically sealed and dated.</p>
	<p>JOB NO. 2018267-00 St. Louis City, MO Date Prepared: 09/13/2018</p>
	<p>Only the following items of the Job Special Provisions (Bridge Repair) are authenticated by this seal: A, B, C, D, E, F.</p>

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

A. General

1.0 Description. This work shall consist of all material, labor and equipment necessary for demolition, removals, fabrication, and construction to the existing Great Rivers Greenway **Bridge Over I-44 in Kirkwood**. Work shall include but is not limited to repairing spalled and delaminated concrete, remove and revise expansion joints at bents 2 & 4, removal and replacement of soil slope protection at abutments, repainting exposed steel members, repairing deck drain downspout, removal and replacement of metal walkway plates and bolts at expansion joints.

2.0 Materials. All material shall be in accordance with Division 1000, Material Details, except as noted specifically below.

3.0 Construction Requirements.

3.1 Description. This provision contains general construction requirements for this project.

3.2 Construction Requirements. Plans for the existing structure(s) will be available to the successful bidder as directed by the engineer.

3.3 Provisions shall be made to prevent any debris and materials from falling onto the roadway. Any debris and materials that falls below the bridge outside the limits mentioned previously and if determined necessary by the engineer, the debris shall be removed as approved by the engineer at the contractor's expense.

3.4 Any damage sustained to the remaining structure as a result of the contractor's operations shall be repaired or the material replaced as approved by the engineer at the contractor's expense.

3.5 Provisions shall be made to prevent damage to any existing utilities. Any damage sustained to the utilities as a result of the contractor's operations shall be the responsibility of the contractor. All costs of repair and disruption of service shall be as determined by the utility owners and as approved by the engineer.

4.0 Sealing of Joints. Joints to be sealed after installation of bolts.....

5.0 Method of Measurement. No measurement will be made for general construction requirements as described above.

6.0 Basis of Payment. Payment for the above described work will be considered completely covered by the contract unit price for other items included in the contract.

B. Rapid Set Concrete Patching Material – Vertical and Overhead Repairs JSP-02-01

1.0 Description. This specification covers cementations concrete, polymer-modified concrete and polymer concrete that are suitable for repairing concrete surfaces on bridges or concrete structures, particularly under fast setting or special conditions. The repairs would involve vertical or overhead applications. The work shall consist of removing, furnishing, preparing, and placing materials at locations as shown on the plans or as directed by the engineer.

2.0 Material. All materials shall be in accordance with MoDOT specifications and as noted herein.

2.1 Aggregate For Extending Commercial Mixture. Coarse and fine aggregates shall be in accordance with [Sec 1005](#), except the requirements for gradation and percent passing the No. 200 sieve shall not apply. Coarse aggregate meeting Gradation E requirements shall be used for repairs greater than one inch (25 mm) in depth. Fine aggregate will be allowed for repairs less than one inch (25 mm). Aggregate specified, bagged, labeled and furnished by the rapid set concrete patching material manufacturer may also be used for mortar extension.

2.2 Material Applications. The contractor shall select and use the product most suitable for the work and field conditions in accordance with these specifications.

2.3 Curing. Rapid set concrete patching material shall be cured until the minimum compressive strength 1500 psi is attained using standard curing specifications, unless otherwise specified by the manufacturer.

2.4 Qualification and Project Acceptance.

2.4.1 Inspection. All materials shall be subject to inspection and sampling by the Engineer at the source of manufacture, intermediate shipping terminal or destination. The Engineer will be allowed free access to all facilities and records as required to conduct inspection and sampling.

2.4.2 Qualification. Prior to use, rapid set concrete patching materials need to be pre-approved.

2.4.2.1 Requested Information. The manufacturer shall submit with samples of the materials, a written request to the Engineer with the following information:

- (a) Brand name of the product.
- (b) Certification that the material meets this specification.
- (c) Certified test results from an independent laboratory showing compliance with this specification.
- (d) Specific preparation instructions of repair area.
- (e) Specific mixing, handling and curing instructions.

(f) Application type (i.e., vertical or overhead).

2.5 Certification. The contractor shall supply a manufacturer's certification to the engineer for each lot of material furnished. The certification shall include the name of the manufacturer; a manufacturer certification statement that the material supplied is the same as that qualified and listing the date of qualification.

2.6 Acceptance. Acceptance of the material will be based on the use of a qualified product; the manufacturer's certification that the material supplied is the same as that approved and upon the results of such tests as may be performed by the engineer.

3.0 Mixture. Unless otherwise specified, rapid set concrete patching material shall be approved commercial mixtures meeting [Sections 3.1 – 3.1.3.](#) Rapid set concrete patching materials shall be specifically designed for the application needed.

3.1 Commercial Mixtures. Rapid set concrete patching material in its sacked form and mixtures when properly prepared in accordance with the manufacturer's specifications, shall meet the minimum test requirements given in Table 1. Mixtures may be supplied, as required, as a patching mortar or as a patching mortar with aggregate extension. If the material is to be supplied with extender aggregate, this shall also pass the required tests in Table 1 using the maximum allowed amount of extender aggregate.

3.1.1 Mixture Requirements. Rapid set concrete patching material shall be single packaged dry mix requiring the addition of water or other liquid component just prior to mixing. The material shall not contain soluble chlorides as an ingredient of manufacture. The material shall be placed in accordance to the manufacturer's recommendations.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

Table 1 (English Unit)				
Physical Test Property	Specification	Requirement for cementitious concrete	Requirement for polymer-modified concrete	Requirement for polymer concrete
Bond Strength by Slant Shear	ASTM C882/C928 ²	min. 1000 psi @24hrs.& min. 1500 psi @ 7 days	n/a	min. 1000 psi @24hrs.& min. 1500 psi @ 7 days
Linear Coefficient of Thermal Expansion ¹ (for bagged mortar only, without extension aggregate)	ASTM C531	n/a	n/a	4 – 8 X 10 ⁻⁶ in/in/deg F
Resistance to Rapid Freezing & Thawing	AASHTO T161 or ASTM C666	80% min. using Procedure B ³ (300 Cycles)	80% min. using Procedure B ³ (300 Cycles)	n/a
Compressive Strength	AASHTO T22 or ASTM C39	1500 psi @ 3 hr & 3000 psi @ 24 hr	1500 psi @ 3 hr & 3000 psi @ 24 hr	n/a
Rapid Chloride Permeability	AASHTO T277 or ASTM C1202	1000 coulombs @ 28 days	1000 coulombs @ 28 days	1000 coulombs @ 28 days
Length Change	AASHTO T 160 or ASTM C157	In water Storage (+0.15) In air storage (-0.15)	In water storage (+0.15) In air storage (-0.15)	n/a
Color		gray	gray	gray

1 Not required for extended mixtures if the mortar passes this requirement

2 ASTM C882 shall be performed on non-water-based materials. ASTM C928 shall be performed on water-based materials.

3 Procedure A may be used in lieu of Procedure B

3.1.2 Construction Requirements. The manufacturer shall provide with the bagged mixture, specifications for the mixing procedure, amount and kind of liquid to be added, and the amount of aggregate extension allowed, if any. All mixing, handling and curing practices recommended by the manufacturer shall be followed and will be considered a part of these specifications.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

3.2 Vertical Repair.. A qualified rapid set concrete patching material approved for vertical use may be used when specified on the plans and as approved by the engineer. The contractor will make field cylinders to verify the 1500 psi (10 MPa) minimum strength. The material shall adhere to the concrete surface without sagging.

3.3 Overhead Repair. A qualified rapid set concrete patching material approved for overhead use may be used when specified on the plans and as approved by the engineer. The material shall be placeable in layers of at least 1 inch on overhead applications without the use of formwork or anchoring devices. The material shall adhere to the concrete surface without sagging. The contractor will make field cylinders to verify the 1500 psi (10 MPa) minimum strength.

4.0 Construction Requirements.

4.1 Mixing. Rapid set concrete patching material shall be mixed and finished according to the manufacturer's recommendation.

4.2 Preparation of Repair Area. Deteriorated, damaged or defective concrete as shown on the plans, required by the specifications or as directed by the engineer, shall be removed. All exposed reinforcement shall be thoroughly cleaned as shown on the plans, required by the specifications or as directed by the engineer. Unless otherwise specified by the commercial mixture manufacturer, the existing surface shall be damp and all free water shall be removed prior to placement of the required material.

4.3 Bonding Agent. A bonding agent may be used if recommended by the rapid set concrete patching material manufacturer.

5.0 Method of Measurement. No measurement will be made for rapid set concrete patching material.

6.0 Basis of Payment. Rapid set concrete patching material will be paid for at the contract unit price for Delaminated Concrete Deck Repair and will be considered full compensation for all labor, equipment and material to complete the described work.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

C. Rapid Set Concrete Patching Material – Horizontal Repairs JSP-02-10

1.0 Description. This specification covers cementitious concrete, polymer-modified concrete and polymer concrete that are suitable for repairing concrete surfaces on bridges or roadways, particularly under fast setting or special conditions. The repairs would involve horizontal applications. The work shall consist of removing, furnishing, preparing, and placing materials at locations as shown on the plans or as directed by the engineer.

2.0 Material. All materials shall be in accordance with MoDOT specifications and as noted herein.

2.1 Aggregate For Extending Commercial Mixture. Coarse and fine aggregates shall be in accordance with [Sec 1005](#), except the requirements for gradation and percent passing the No. 200 sieve shall not apply. Coarse aggregate meeting Gradation E requirements shall be used for repairs greater than one inch (25 mm) in depth. Fine aggregate will be allowed for repairs less than one inch (25 mm). Aggregate specified, bagged, labeled and furnished by the rapid set concrete patching material manufacturer may also be used for mortar extension.

2.2 Material Applications. The contractor shall select and use the product most suitable for the work and field conditions in accordance with these specifications.

2.3 Curing. Rapid set concrete patching material shall be cured until the minimum compressive strength 3200 psi is attained using standard curing specifications, unless otherwise specified by the manufacturer.

2.4 Qualification and Project Acceptance.

2.4.1 Inspection. All materials shall be subject to inspection and sampling by the Engineer at the source of manufacture, intermediate shipping terminal or destination. The Engineer will be allowed free access to all facilities and records as required to conduct inspection and sampling.

2.4.2 Qualification. Prior to use, rapid set concrete patching material shall be qualified. In order to become qualified, a material shall have completed testing through AASHTO's National Transportation Product Evaluation Program (NTPEP). The manufacturer shall contact the AASHTO/NTPEP coordinator to obtain the testing location for the rapid setting concrete patching material.

2.4.2.1 Requested Information. The manufacturer shall submit with samples of the materials, a written request to Construction and Materials with the following information:

- (a) Brand name of the product.
- (b) Certification that the material meets this specification.
- (c) NTPEP test results showing compliance with this special provision.
- (d) Specific mixing, handling and curing instructions.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

(e) Application type (i.e., bridge or roadway).

2.5 Certification. The contractor shall supply a manufacturer's certification to the engineer for each lot of material furnished. The certification shall include the name of the manufacturer, a manufacturer certification statement that the material supplied is the same as that qualified and listing the date of qualification.

2.6 Acceptance. Acceptance of the material will be based on the use of a qualified or provisionally approved material, the manufacturer's certification that the material supplied is the same as that approved and upon the results of such tests as may be performed by the engineer.

3.0 Mixture. Unless otherwise specified, rapid set concrete patching material shall be approved commercial mixtures meeting [Sections 3.1 – 3.1.3](#) or deck repair cementitious mortar meeting [Section 3.2](#). Rapid set concrete patching materials shall be specifically designed for the application needed.

3.1 Commercial Mixtures. Rapid set concrete patching material in its sacked form and mixtures when properly prepared in accordance with the manufacturer's specifications, shall meet the minimum test requirements given in Table 1. Mixtures may be supplied, as required, as a patching mortar or as a patching mortar with aggregate extension. If the material is to be supplied with extender aggregate, this shall also pass the required tests in Table 1 using the maximum allowed amount of extender aggregate.

3.1.1 Mixture Requirements. Rapid set concrete patching material shall be single packaged dry mix requiring the addition of water or other liquid component just prior to mixing. The material shall be capable of ½ inch (13 mm) to full depth repair and require no bonding agent. The material shall not contain soluble chlorides as an ingredient of manufacture. The material shall be placed in accordance to the manufacturer's recommendations.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

Table 1 (English Unit)				
Physical Test Property	Specification	Requirement for cementitious concrete	Requirement for polymer-modified concrete	Requirement for polymer concrete
Bond Strength by Slant Shear ¹	ASTM C882/C928 ³	min. 1000 psi @ 24hrs. & min. 1500 psi @ 7 days	n/a	min. 1000 psi @ 24hrs. & min. 1500 psi @ 7 days
Linear Coefficient of Thermal Expansion ^{1,2} (for bagged mortar only, without extension aggregate)	ASTM C531	n/a	n/a	4 – 8 X 10 ⁻⁶ in/in/deg F
Resistance to Rapid Freezing & Thawing ¹	AASHTO T161 or ASTM C666	80% min. using Procedure B ⁵ (300 Cycles)	80% min. using Procedure B ⁵ (300 Cycles)	n/a
Compressive Strength ¹	AASHTO T22 or ASTM C39	3200 psi @ 3 hr & 4000 psi @ 7 days	3200 psi @ 3 hr & 4000 psi @ 7 days	n/a
Rapid Chloride Permeability ¹	AASHTO T277 or ASTM C1202	<u>Bridge Decks</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days	<u>Bridge Deck</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days	<u>Bridge Deck</u> 1000 coulombs @ 28 days <u>Roadway</u> 2000 coulombs @ 28 days
Length Change ^{1, 4}	AASHTO T 160 or ASTM C157	In water Storage (+0.15) In air storage (-0.15)	In water storage (+0.15) In air storage (-0.15)	n/a
Color		gray	gray	gray

1 The commercial mix test values can be located in the AASHTO's National Transportation Product Evaluation Program (NTPEP) reports for Laboratory Evaluations of Rapid Set Concrete Patching Materials. Data for provisionally approved materials is located at the Construction and Materials Division.

2 Not required for extended mixtures if the mortar passes this requirement.

3 ASTM C882 shall be performed on non-water based materials. ASTM C928 shall be performed on water-based materials.

4 As modified by ASTM C928.

5 Procedure A may be used in lieu of Procedure B

3.1.2 Construction Requirements. The manufacturer shall provide with the bagged

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

mixture, specifications for the mixing procedure, amount and kind of liquid to be added, and the amount of aggregate extension allowed, if any. All mixing, handling and curing practices recommended by the manufacturer shall be followed and will be considered a part of these specifications.

3.1.3 Removal from Qualified List. All mixtures shall be approved before use. Reoccurring failures of any mixture for any reason will be cause for removal from the qualified list.

3.2 Deck Repair Concrete. A qualified rapid set concrete patching material indicated for horizontal use and intended for patching concrete bridge decks may be used when specified on the plans and as approved by the engineer. If this option is selected, the contractor shall provide a trial mix to determine the total cure time needed to achieve a compressive strength of 3200 psi (22 MPa). Compressive specimens shall be prepared in accordance with current MoDOT test methods and cured to simulate actual field conditions. Testing of compressive specimens shall be performed by methods and at facilities acceptable to the engineer. The repaired deck shall not be opened to traffic until at least 4 hours after the last placement of deck repair concrete, the established cure time has elapsed and until such concrete has achieved a compressive strength of 3200 psi (22 MPa). A new trial mix may be required if the engineer determines the field conditions vary substantially from trial mix conditions. The Contractor will make field cylinders to verify the 3200 psi (22 MPa) minimum strength.

4.0 Construction Requirements.

4.1 Mixing. Rapid set concrete patching material shall be mixed and finished according to the manufacturer's recommendation.

4.2 Preparation of Repair Area. Deteriorated, damaged or defective concrete as shown on the plans, required by the specifications or as directed by the engineer, shall be removed. All exposed reinforcement shall be thoroughly cleaned as shown on the plans, required by the specifications or as directed by the engineer. Unless otherwise specified by the commercial mixture manufacturer, the existing surface shall be damp and all free water shall be removed prior to placement of the required material.

4.3 Bonding Agent. A bonding agent may be used if recommended by the rapid set concrete patching material manufacturer.

5.0 Method of Measurement. No measurement will be made for rapid set concrete patching material.

6.0 Basis of Payment. Rapid set concrete patching material will be paid for at the contract unit price for Delaminated Concrete Deck Repair and will be considered full compensation for all labor, equipment and material to complete the described work.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

D. Coldmilling and Asphalt Repair Requirements

1.0 Description. This work shall consist of all labor, equipment, and materials necessary to repair existing asphalt pavement by coldmilling and resurfacing or resurfacing only as specified in the Job Order or as approved by the engineer.

1.1 All work shall comply with Sections 403 and 622 except as herein modified.

2.0 Materials. All material shall be in accordance with Division 1000, Material Details.

3.0 Construction Requirements.

3.1 Coldmilling. Coldmilling may be performed at the locations described in or as approved by the engineer. The contractor shall only coldmill an area for repair that can be filled back with bituminous material by the end of each working day. All coldmilled material from the project will become the property of the contractor. All or part of the coldmilled material from the routes may be stockpiled at locations designated by the engineer. Any material stockpiled shall become the property of the Contractor, unless other arrangements have been made with the engineer for temporary storage.

3.2 Asphalt Resurfacing. Shoulder mix and SP125 mixtures shall be placed in a maximum of 3-inch-thick lifts unless otherwise approved by the engineer. SP190 mixtures shall be placed in a maximum of 5-inch-thick lifts unless otherwise approved by the engineer. The engineer may require thinner lift placement if there is evidence of insufficient compaction. The bituminous material shall be from approved mixtures and have satisfactory performance history. QC/QA testing will not be required; the contractor will be responsible for their own QA.

3.2.1 Asphalt Mix Type. Typical mainline repair of 2 inch or less thickness may use PG64-22, PG70-22, or PG76-22 mixtures. If a job specifies a repair thickness greater than 3½ inches, the contractor may elect to place all lifts below the top 1¾ inch using a coarser mix than SP125. All mixtures shall be as designated unless otherwise approved by the engineer.

3.3 Additional or Reduced Work. If additional repair work is necessary beyond what is specified or the damage is not as extensive as originally viewed, the contractor shall contact the engineer for authorization to proceed with the additional or reduced work. The contractor shall note that with this authorization to proceed with additional or reduced work may change which unit bid item is used to calculate final payment depending on final repair quantities. Any work performed without authorization of the engineer shall be at the contractor's expense.

4.0 Method of Measurement. Final measurement of the completed repair area will not be made except for authorized changes during construction, or where appreciable errors are found in the quantity specified. Any revision or correction will be computed and added to or deducted from the quantity.

5.0 Basis of Payment. The accepted quantity of coldmilling and asphalt resurfacing meeting the required specifications will be paid for at the unit prices and items as mutually agreed upon by the engineer and contractor. No adjustments shall be made or calculated for smoothness, density, TSR, and PWL/QLA.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

E. Damage to Existing Pavement

1.0 Description. This work shall consist of repairing any damage to existing pavement, ramps and/or shoulders caused by contractor operations. This shall include damage caused either directly or indirectly by contractor operations, including but not be limited to, damage caused by the traffic during contractor operations.

2.0 Construction Requirements. Any cracking, gouging, or other damage to the existing pavement, ramps and/or shoulders, side roads, or entrances from general construction shall be repaired within twenty-four (24) hours of the time of damage at the contractor's expense. Repair of the damaged pavement, shoulders, side roads, or entrances shall be as determined by the engineer.

3.0 Method of Measurement. No measurement of damaged pavement, ramps or shoulder areas as described above shall be made.

4.0 Basis of Payment. No payment will be made for repairs to existing pavement, ramps and/or shoulders damaged by contractor operations.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

F. Ornamental Pedestrian Fence Repair, Reuse, and Replacement

1.0 Description. This work shall consist of all labor, equipment, and materials to remove, install, repair, and replace ornamental pedestrian fence and appurtenances as specified in the job order or as directed by the engineer. All work shall comply with Missouri Standard Specifications and Missouri Standard Plans except as herein modified.

2.0 Materials. All materials shall conform to Division 1000, Materials Details. All materials shall be new unless otherwise approved by the engineer or otherwise allowed by these specifications. All fence elements are to be powder coated with zinc enriched epoxy primer powder coat at 2-4 mils and ultra-polyester finish TGIC powder coat at 2-4 mils. Finish color is to be black.

Tubular steel shall meet ASTM1-92/A924M with minimum yield strength of 45 ksi.

U-channel steel shall meet ASTM A-653/A653M with a minimum yield strength of 50 ksi and G90 zinc coating (0.90 ounce/sq. foot).

The floor plate shall meet ASTM A709, Grade 36 and G90 zinc coating (0.90 ounce/sq. foot).

Security brackets are to be die cast of zinc per ASTM 886-83z 33521 and accommodate rail angle up to 30 degrees in any direction, have a minimum shear strength of 3,000 pounds, and a holding strength of 2,200 pounds for the security cover.

Post caps are to be cast aluminum, malleable iron, or formed steel.

All rivets shall have a minimum shear strength of 1,500 pounds and holding strength of 1,100 pounds.

Grout shall be in accordance with Sec. 1066.

2.1 All materials intended for use in this contract shall be stored in a dedicated location on the contractor's property and shall be inspected and approved by the engineer prior to use.

3.0 Construction Requirements.

3.1 Removal and Replacement of Individual Major Components. If the job designates a contract pay item that includes the term "remove and replace", the contractor shall remove the described existing component, material, hardware, or other appurtenance, in whole or in part, as designated or as directed by the engineer. The major components to be removed will be marked with paint or ribbon or other method convenient to the engineer.

3.1.1 The contractor shall furnish and install the described major replacement component and any incidental items necessary to provide a fully functional system. Replacement components designated may not be of the same size or material as those removed. Some items designated for replacement may be damaged and not reusable. Other items designated for replacement may not meet current standards and policies. The engineer will determine the actual items to be replaced. Unless otherwise directed by the engineer, the contractor shall reuse any

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

undamaged major components salvaged from the damaged fence system or appurtenances in order to provide a fully functional system. Minor components, such as nuts and bolts, may only be reused after inspection and approval by the engineer. Reused nuts and bolts shall only be used with salvaged major components. All new major components shall use new nuts, bolts, and other miscellaneous minor components.

3.2 Removal of Entire Fence System. If the engineer determines an existing ornamental pedestrian fence and related appurtenances have been severely damaged or the damaged system does not comply with current standards or policies, the fence system shall be removed as designated or as directed by the engineer.

3.2.1 Unless otherwise designated by the engineer for salvage, all materials removed shall become the property of the contractor and shall be removed from the right of way and properly disposed of.

3.3 Installation of New Ornamental Pedestrian Fence System. If the job designates a contract pay item for new ornamental pedestrian fence the contractor shall furnish and place the fence system complete in place. The new system shall be installed at the location designated by the engineer.

3.4 Realignment Posts. Line, end, corner, or pull posts which are out of alignment but otherwise undamaged will be designated for realignment. The contractor shall realign and plumb the designated posts. After realignment, any voids around the post shall be securely backfilled with grout or material approved by the engineer.

3.5 Replacing Posts. Existing posts that have sustained damage that does not allow reuse will be designated for replacement. Damaged posts which do not have an existing floor plate shall be cut off flush with the top of the wall or other structure and the embedded post abandoned in place unless the job order designates removal of the post. For locations with posts abandoned in place, the new post, floor plate, and anchoring system shall be placed in the same location as the removed damaged post or other location designated by the engineer.

3.6 Replacing Ornamental Pedestrian Fence Panel. Some existing ornamental pedestrian fence will only require the replacement of the panel. When the entire panel is being replaced, it will include the u-channel rail at the top and bottom of the panel, and pickets.

3.7 Additional Work. If additional major components or pay items beyond those specified in the job order are needed to properly perform the work, the contractor shall contact the engineer for authorization to proceed with the additional work. Any work performed without authorization of the engineer will be at the contractor's expense.

JOB SPECIAL PROVISIONS (BRIDGE REPAIR)

4.0 Method of Measurement.

4.1 Measurement of ornamental pedestrian fence removal will be made to the nearest foot from center of first post to center of last post.

4.2 Measurement of ornamental pedestrian fence will be made to the nearest foot from center of first post to center of last post.

4.3 Measurement of removed and replaced ornamental pedestrian fence repair components will be made per each.

5.0 Basis of Payment.

5.1 The accepted quantity of removed ornamental pedestrian fence will be paid for at the contract unit price for:

Remove Ornamental Pedestrian Fence	Lineal Foot
------------------------------------	-------------

5.1.1 Payment will be considered full compensation for all labor and equipment necessary to remove the fence system, including all fabric, posts, and hardware.

5.2 The accepted quantity of ornamental pedestrian fence will be paid for at the contract unit price for:

Ornamental Pedestrian Fence (Powder Coated)	Lineal Foot
---	-------------

5.2.1 Payment will be considered full compensation for all labor (including painting of powder coat) and equipment necessary to install the fence, including but not limited to 4" square posts (6' tall) with floor plate, u-channel rail, 1" square pickets, and anchoring system.

5.3 The accepted quantities of removed and replaced individual fence repair components will be paid for at the contract unit price for each of the pay items included in the contract. Payment will be considered full compensation for all labor, equipment, and material necessary to remove the existing component, furnish a new replacement component, and install the component. No direct payment will be made for removing or reinstalling any reused undamaged components necessary to provide a fully functional system.

5.4 The accepted quantity of realigned posts will be paid for at the contract unit price for:

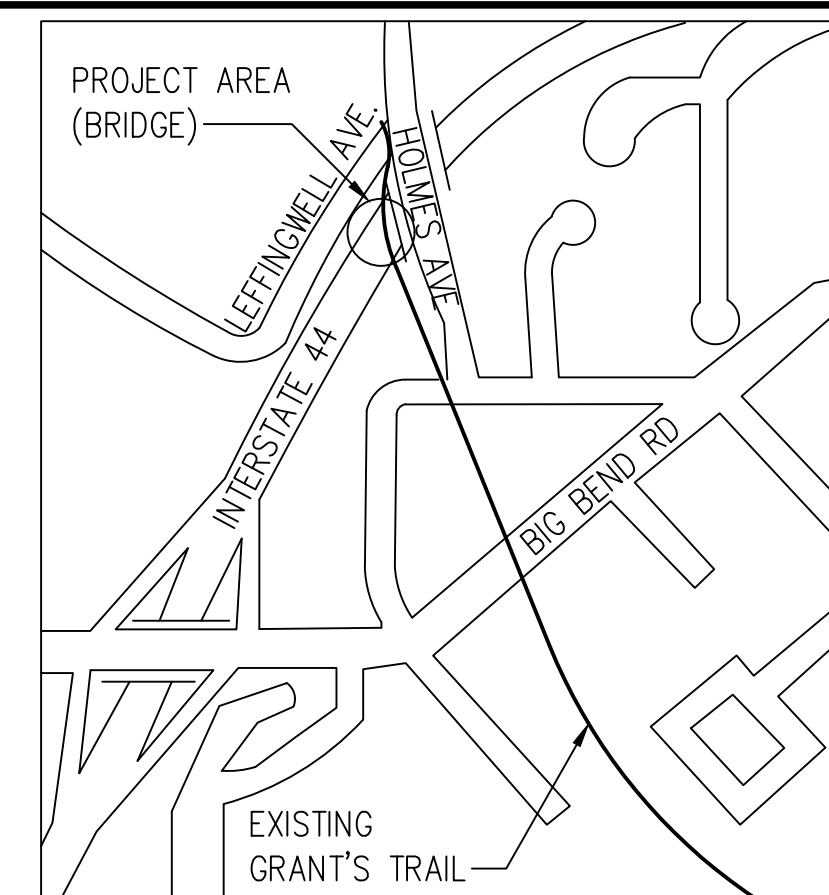
R&R 6' Fence/Light Post with Floor Plate (Powder Coated)	Each
R&R Ornamental Pedestrian Fence Panel (Powder Coated)	Each

5.4.1 Payment will be considered full compensation for all labor, equipment, luminaires, and material, including any grout (necessary to realign and plumb an existing post)

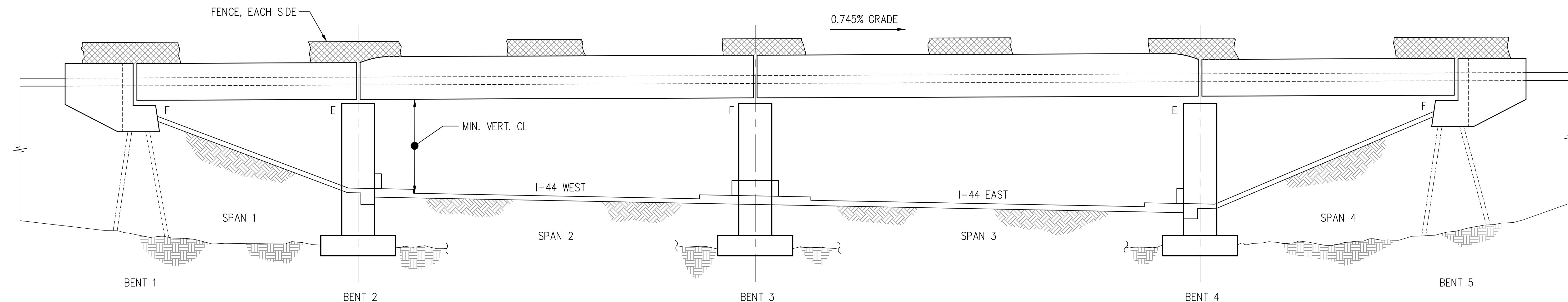
CURVE	△	RADIUS	*LENGTH
S1	4°47'42"	3337.74'	279.33'

*ARC LENGTH ALONG CENTER-LINE
MISSOURI PACIFIC RAILROAD

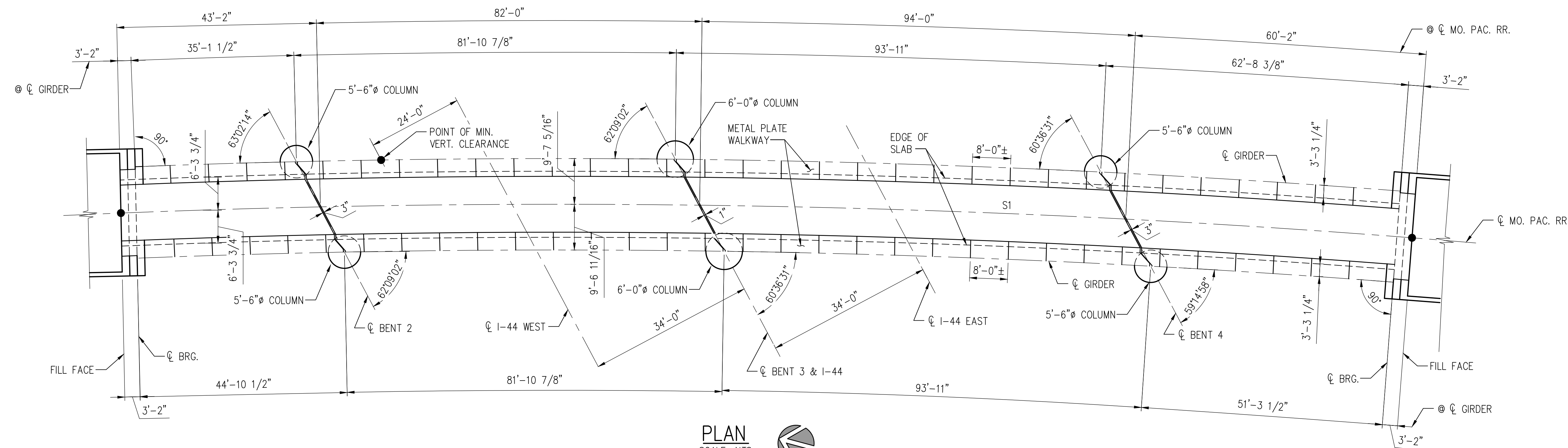
PARALLEL WELDED PLATE GIRDER SPANS



David Mason and Associates, Inc.
Missouri Certificate of Authority Number:
Engineer: 001103
Architect: 000620
Survey: 000336



ELEVATION
SCALE: NTS



PLAN
SCALE: NTS

**PEDESTRIAN BRIDGE OVER I-44
WALKWAY PLATE AND EXPANSION
JOINT REPLACEMENT AND
CONCRETE REPAIRS**

KIRKWOOD, MISSOURI

Professional Seal:



Ronald L. Mackey, P.E. - Structural
License No. - 22774

This document is only part of the total contract and/or construction document package. Other documents could contain information that may not be depicted here. The general contractor is responsible to provide all bidders with all information and documents pertaining to the complete scope of work.

The seal(s) and signature(s) apply only to the document to which they are affixed, and expressly disclaim any responsibility for all other plans, specifications, estimates, reports or other documents or instruments relating to or parts of the Architectural or Engineering project.

No.	Description	Date

Sheet Title:

**PLAN AND
ELEVATION**

Date:	09/13/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	JDR
Checked By:	RLM
Sheet Number:	

S1

GENERAL NOTES

SPECIFICATIONS:
MISSOURI HIGHWAY COMMISSION (2018 STANDARD) AS MODIFIED AND SUPPLEMENTED BY THE 2018 SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN LOADING:
H-10 W/O IMPACT

CONCRETE:
1. CLASS B-1 CONCRETE (SUPERSTRUCTURE) _____fc = 4,000 PSI
2. REINFORCING STEEL (GRADE 60) EPOXY (E) _____Fy = 60,000 PSI

STRUCTURAL STEEL:
1. STEEL SHALL CONFORM TO THE FOLLOWING GRADES:
STRUCTURAL CARBON STEEL (ASTM A709, GRADE 36) _____Fy = 36,000 PSI
WELDING ELECTRODES _____E70XX
BOLTS _____A325

CONNECTIONS:
1. FIELD CONNECTIONS, HIGH STRENGTH BOLTS 5/8"Ø ASTM A325, HEX NUT AND LOCK WASHER 13/16"Ø HOLES IN WALKWAY PLATE SUPPORTS AT STEEL CONNECTION.
2. FIELD CONNECTION, 5/8"Ø THREADED ROD, DRILLED AND EPOXY GROUDED, 4" MIN. EMBED AT STEEL TO CONCRETE CONNECTION, WALKWAY PLATES. EPOXY RESIN SHALL CONFORM TO SECTION 1039.40.
3. HIGH STRENGTH BOLTS AND THREADED RODS INCLUDED IN CONTRACT UNIT PRICE FOR REMOVE AND REPLACE STEEL WALKWAY PLATES AT EXPANSION JOINT, BENTS 2 AND 4.

EXPANSION JOINT: FLAT PLATE
1. PLAN DIMENSIONS ARE BASED ON INSTALLED AT 60°F. THE EXPANSION GAP AND OTHER DIMENSIONS SHALL BE INCREASED OR DECREASED 1/8" FOR EACH 10°F FALL OR RISE IN TEMPERATURE AT INSTALLATION.
2. MATERIAL FOR THE EXPANSION DEVICE SHALL BE ASTM A709 GRADE 36 STRUCTURAL STEEL. ANCHORS FOR THE EXPANSION DEVICE SHALL BE IN ACCORDANCE WITH SECTION 1037.
3. STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE COATED WITH A MINIMUM OF TWO COATS OF INORGANIC ZINC PRIMER (5 MILS MINIMUM) OR GALVANIZED IN ACCORDANCE WITH ASTM A123.
4. PAYMENT FOR FURNISHING, COATING OR GALVANIZING AND INSTALLING THE STRUCTURAL STEEL FOR THE EXPANSION DEVICE WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR EXPANSION DEVICE (FLAT PLATE) PER LINEAL FOOT.
5. CONCRETE SHALL BE FORCED UNDER AND AROUND FLAT PLATE. PROPER CONSOLIDATION SHALL BE ACHIEVED BY LOCALIZED INTERNAL VIBRATION. FINISHING OF THE CONCRETE SHALL BE ACHIEVED BY HAND FINISHING WITHIN ONE FOOT OF THE EXPANSION DEVICE.
6. EXPANSION DEVICE SHALL BE FABRICATED IN ONE SECTION. A COMPLETE JOINT PENETRATION GROOVE WELD SPLICE SHALL BE REQUIRED. WELDS SHALL BE GROUND FLUSH TO PROVIDE A SMOOTH SURFACE. THE EXPANSION DEVICE SHALL BE FABRICATED AND INSTALLED TO THE CROWN OR GRADE OF THE ROADWAY.
7. COMPLETE JOINT PENETRATION WELDS UTILIZED IN THE FABRICATION OF THE EXPANSION DEVICE SHALL BE NON DESTRUCTIVELY TESTED BY AN APPROVED METHOD.

MORTAR:
1. PAYMENT FOR FURNISHING AND PLACING MORTAR IS INCLUDED IN THE CONTRACT UNIT PRICE FOR CLASS B-1 CONCRETE (SUPERSTRUCTURE).

DIMENSIONS:
DIMENSIONS AND DETAILS OF EXISTING STRUCTURES SHOWN ON THESE DRAWINGS ARE BASED ON PREVIOUS DRAWINGS AND ON FIELD MEASUREMENTS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL PERTINENT DIMENSIONS BY FIELD MEASUREMENT AND TO SUPPLY SUCH ADDITIONAL DIMENSIONS AND DETAILS AS REQUIRED FOR FABRICATION AND CONSTRUCTION.

DISPOSAL OF DEBRIS:
ALL MATERIALS IN THE EXISTING STRUCTURE THAT IS TO BE DISCARDED OR REPLACED BY THE CONTRACTOR SHALL BECOME HIS PROPERTY AND SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF BY HIM.

MISCELLANEOUS:
1. DO NOT SCALE THESE DRAWINGS, FOLLOW DIMENSIONS.
2. REFERENCE EXISTING DRAWINGS FOR ANY INFORMATION NOT SHOWN.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
SLOPE PROTECTION	SQYD	730
REMOVE AND REPLACE STEEL WALKWAY PLATE(S) AT EXPANSION JOINT	LB	2,400
REMOVAL FOR CLASS C PAVEMENT	SQYD	32
FURNISHING AND PLACING BITUMINOUS MATERIAL FOR CLASS C PAVEMENT	TONS	2.5
REMOVAL OF EXISTING EXPANSION JOINTS AND ADJACENT CONCRETE	LF	26
CLASS B-1 CONCRETE (SUPERSTRUCTURE)	CUYD	6
REINFORCING STEEL (EPOXY COATED)	LB	675
EXPANSION DEVICE (FLAT PLATE)	LF	26
DELAMINATED CONCRETE DECK REPAIR	SQFT	100
SURFACE PREPARATION FOR RE-COATING STRUCTURAL STEEL	SQFT	24,950
INTERMEDIATE FIELD COAT (SYSTEM G) GRAY	SQFT	24,950
REMOVE AND REUSE ORNAMENTAL PEDESTRIAN FENCE (PWD. COATED)	LF	96
REPAIR DECK DRAIN PIPE	EA	1

INDEX OF DRAWINGS

- S1 PLAN AND ELEVATION
- S2 GENERAL NOTES AND ESTIMATED QUANTITIES
- S3 ENLARGED PLAN – CONCRETE DECK AND WALKWAY
- S4 EXPANSION JOINT DETAILS
- S5 SECTIONS AND DETAILS
- S6 ABUTMENTS SLOPE PROTECTION



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David Mason and Associates, Inc.
Missouri Certificate of Authority Number:
Engineer: 001103
Architect: 000620
Survey: 000336

Prepared For:



GREAT RIVERS GREENWAY
6178 Delmar Boulevard
St. Louis, Missouri 63112

**PEDESTRIAN BRIDGE OVER I-44
WALKWAY PLATE AND EXPANSION
JOINT REPLACEMENT AND
CONCRETE REPAIRS**

KIRKWOOD, MISSOURI

Professional Seal:



Ronald L. Mackey, P.E. - Structural
License No. - 22774

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No.	Description	Date

Sheet Title:
**GENERAL NOTES
AND ESTIMATED
QUANTITIES**

Date: 09/13/2018

Project Number: 2018267-00

Designed By: PMG

Drawn By: JDR

Checked By: RLM

Sheet Number:

S2

PEDESTRIAN BRIDGE OVER I-44
 WALKWAY PLATE AND EXPANSION
 JOINT REPLACEMENT AND
 CONCRETE REPAIRS
 KIRKWOOD, MISSOURI

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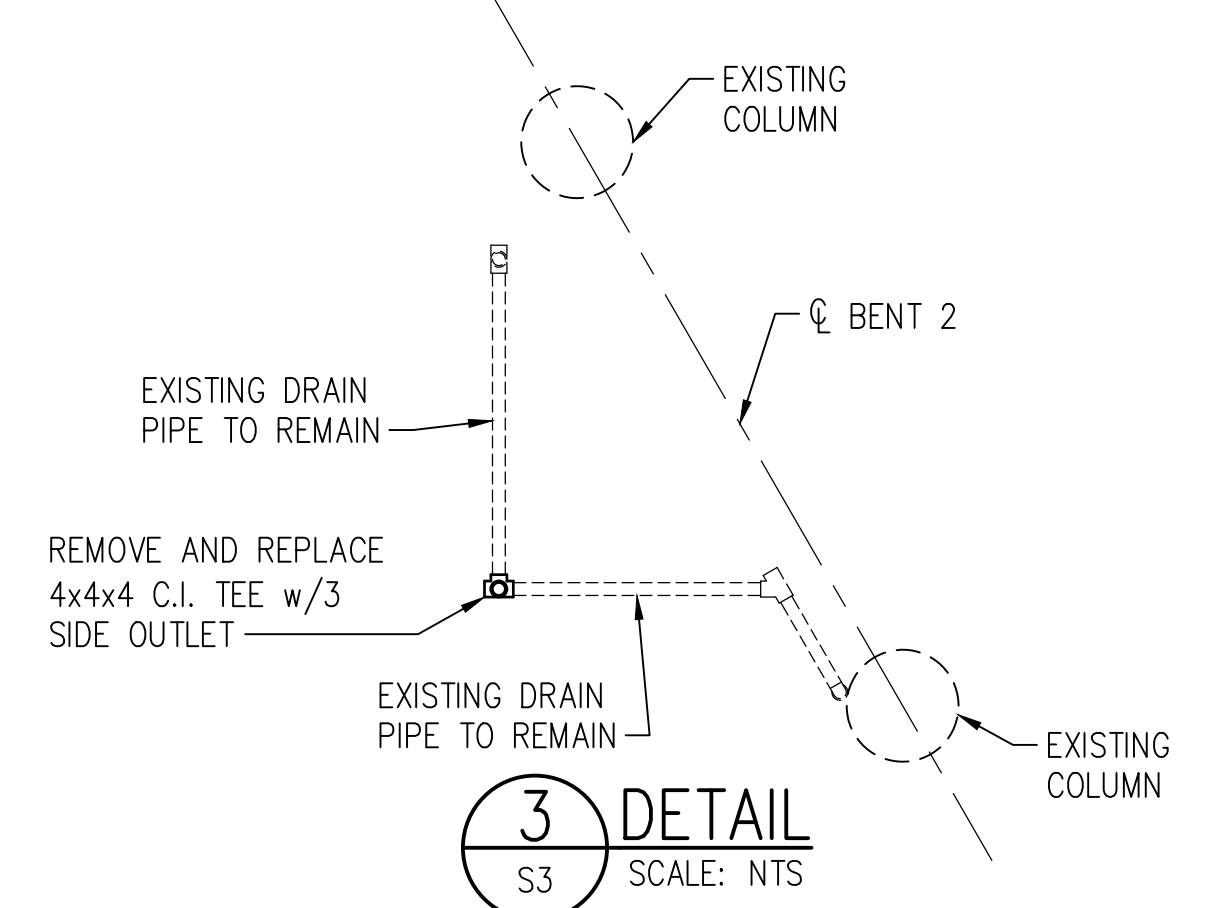
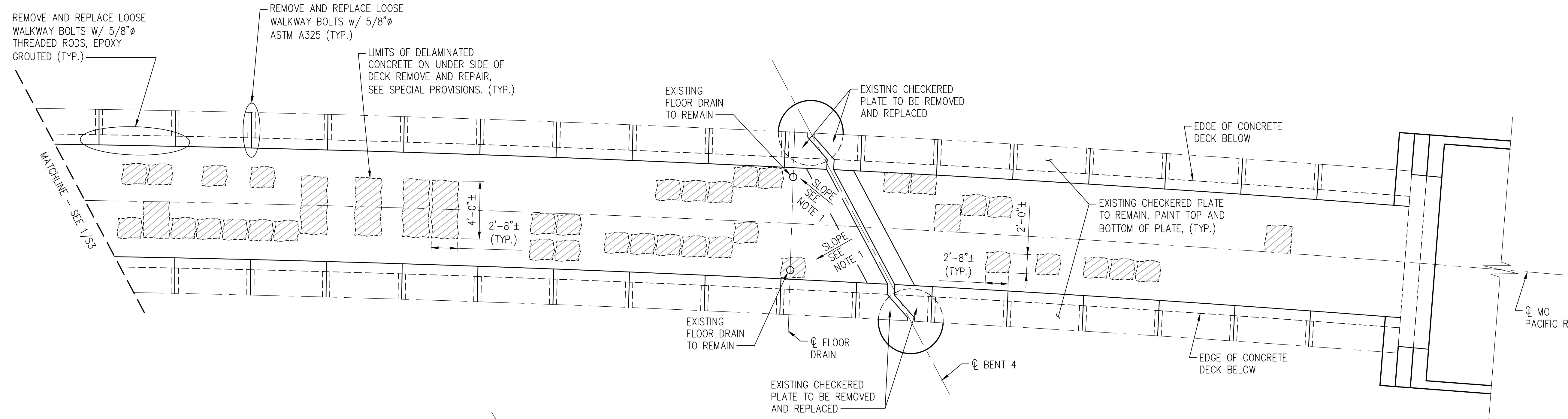
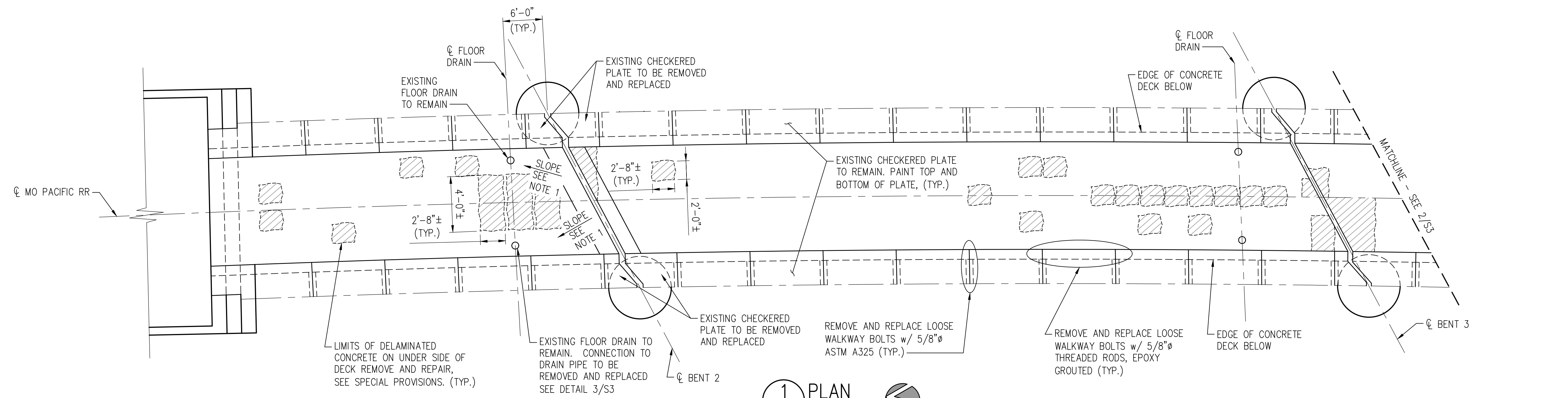
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No.	Description	Date

Sheet Title:
ENLARGED PLAN - CONCRETE DECK AND WALKWAY

Date: 09/13/2018
 Project Number: 2018267-00
 Designed By: PMG
 Drawn By: JDR
 Checked By: RLM
 Sheet Number:

S3



- NOTES:
- SLOPE MORTAR TO DRAIN.
 - AREA OF DELAMINATED CONCRETE TO BE CONFIRMED BY CONTRACTOR IN FIELD.



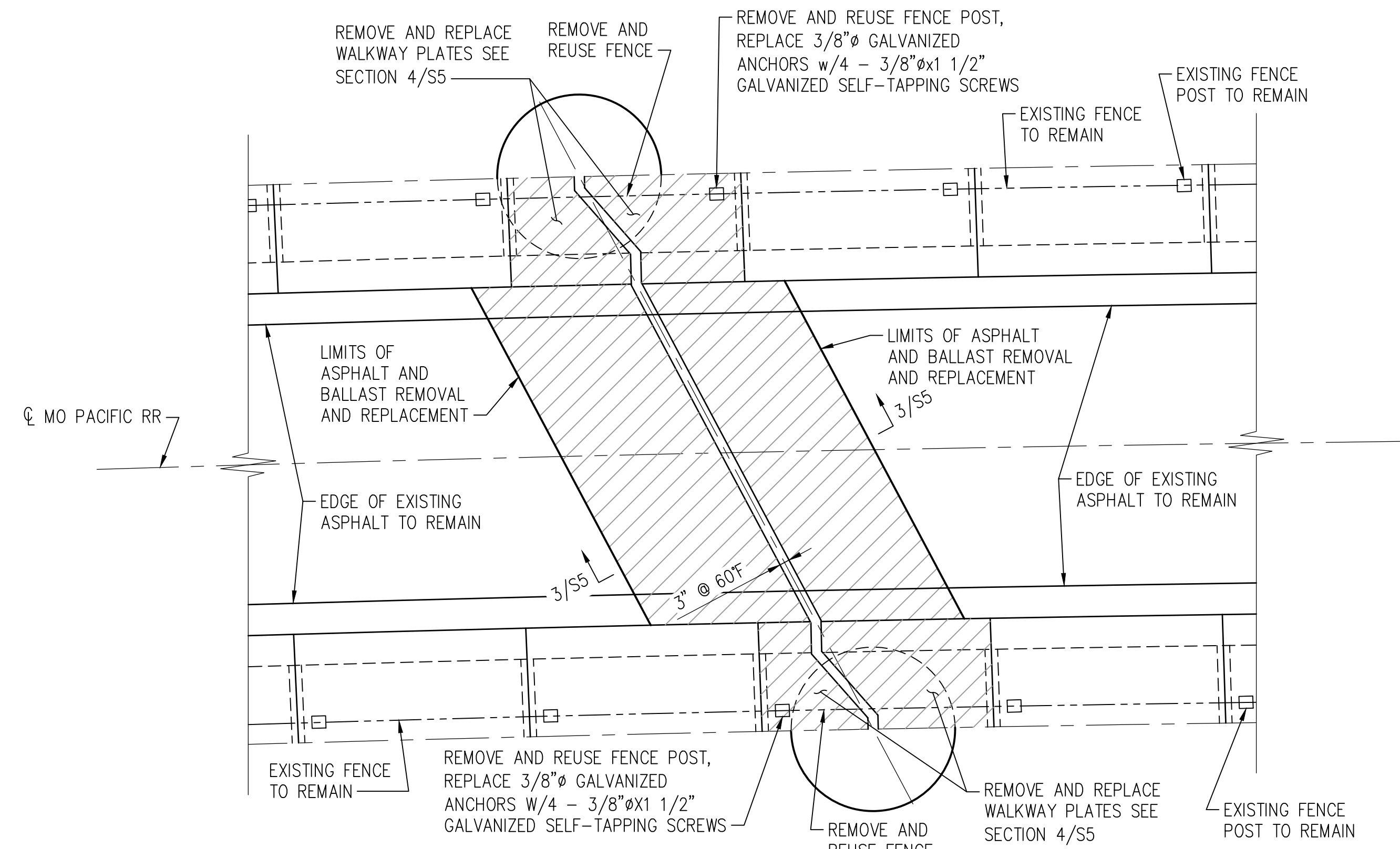
800 South Vandeventer St. Louis, Missouri 63110

David Mason and Associates, Inc. Missouri Certificate of Authority Number: Engineer: 001103 Architect: 000620 Survey: 000336

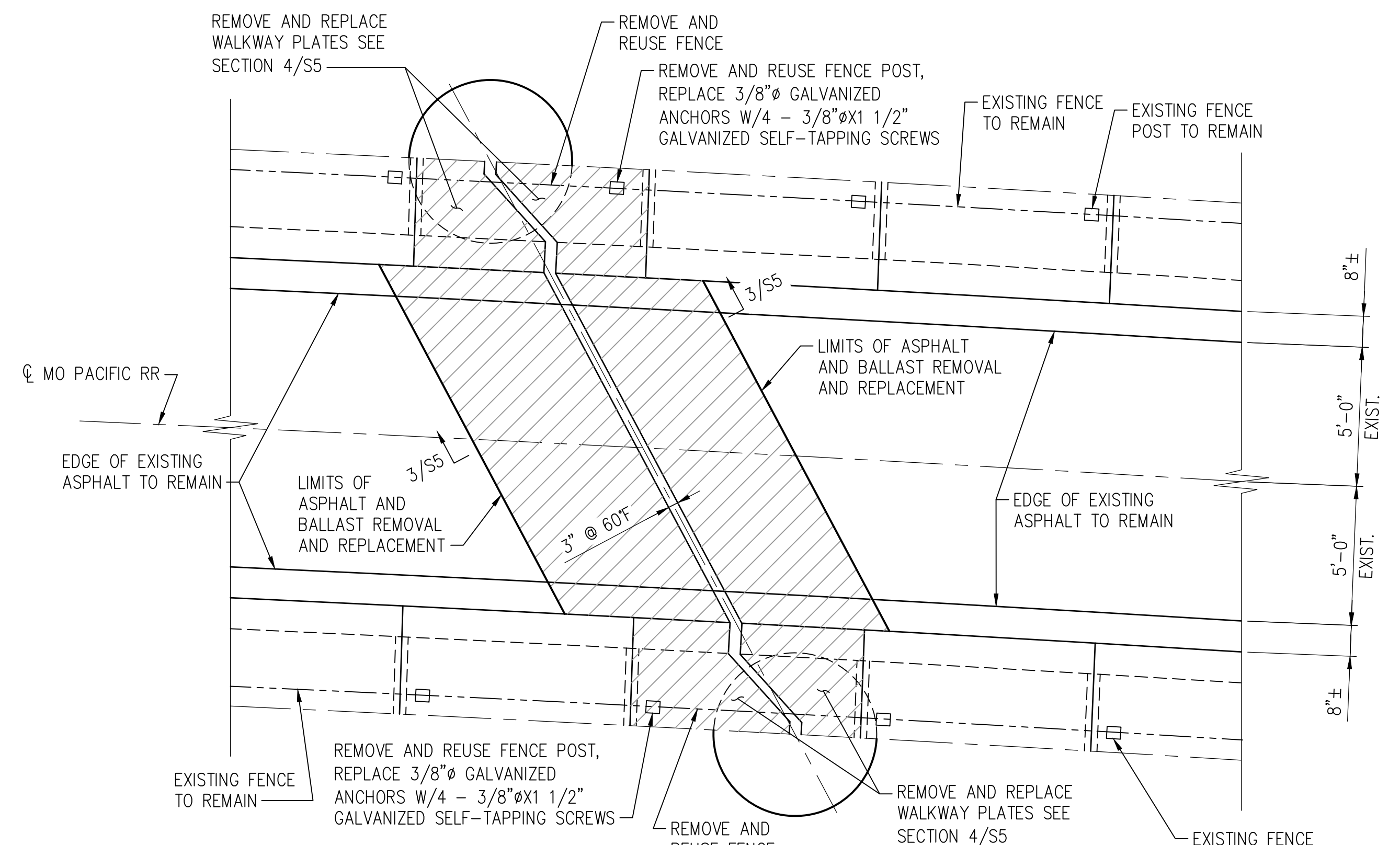


PEDESTRIAN BRIDGE OVER I-44 WALKWAY PLATE AND EXPANSION JOINT REPLACEMENT AND CONCRETE REPAIRS

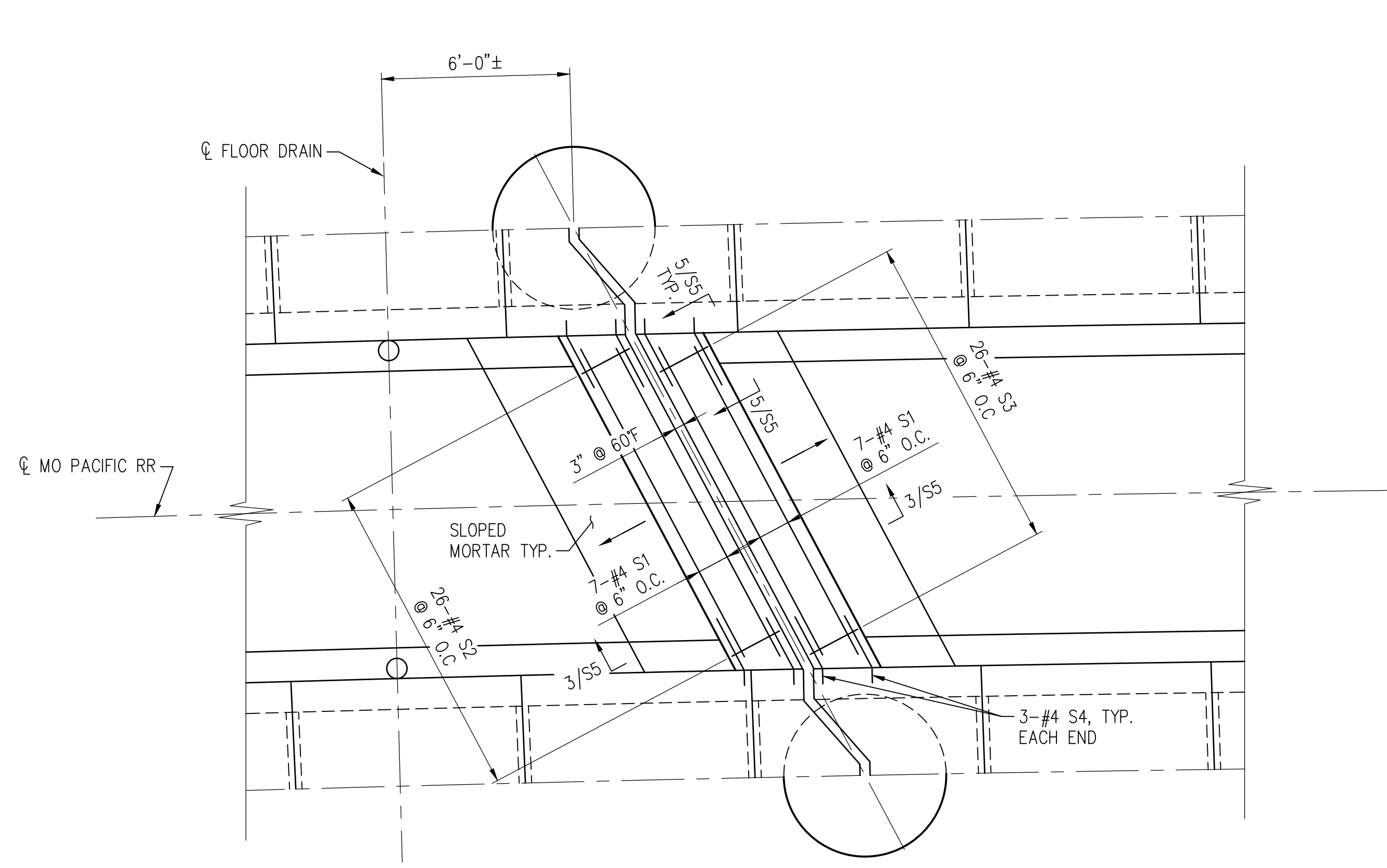
KIRKWOOD, MISSOURI



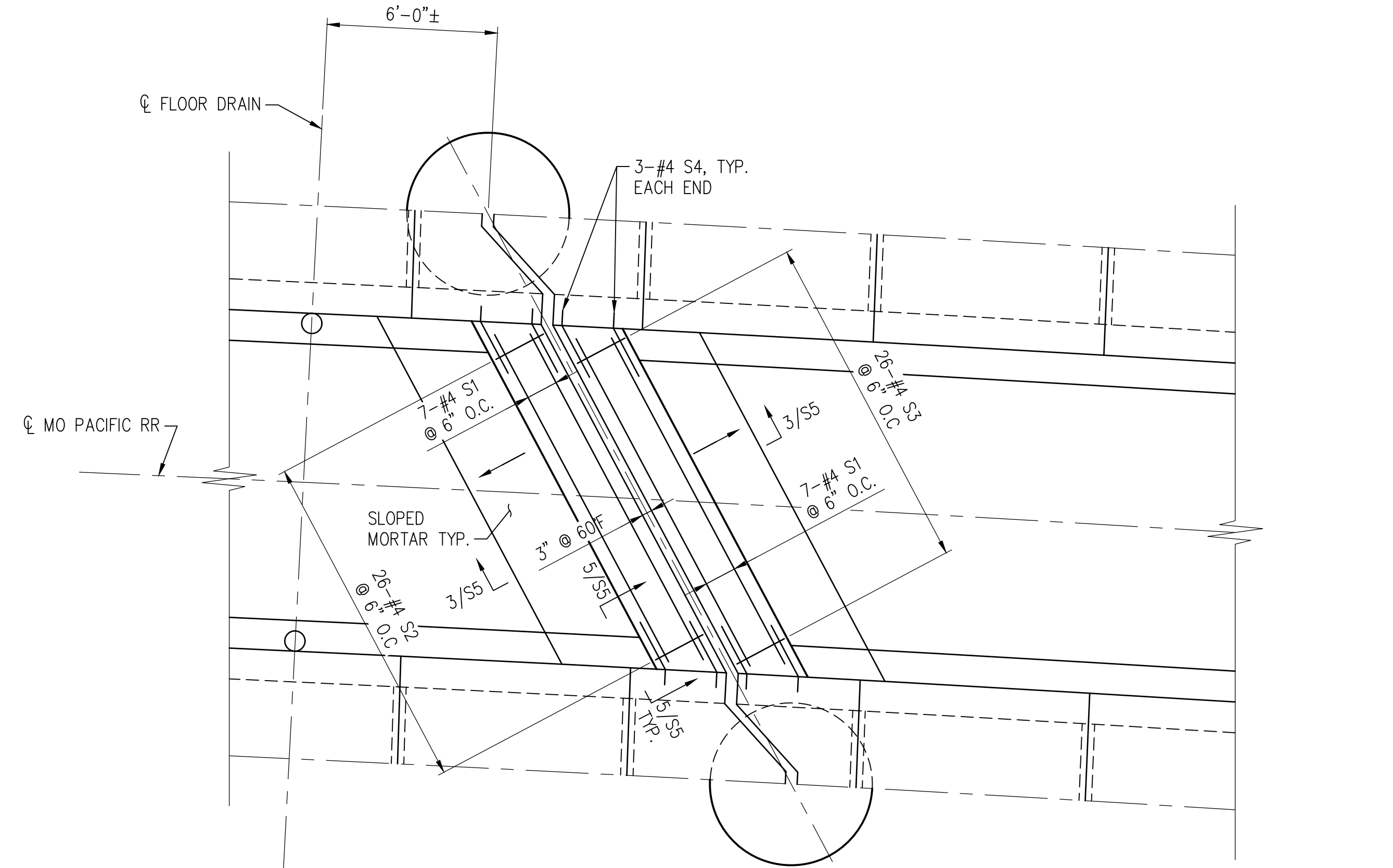
1 EXPANSION JOINT DEMO @ BENT 2 S4 SCALE: NTS



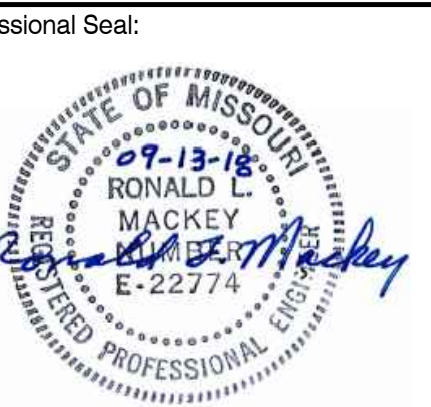
2 EXPANSION JOINT DEMO @ BENT 4 S4 SCALE: NTS



3 EXPANSION JOINT REPAIR @ BENT 2 S4 SCALE: NTS



4 EXPANSION JOINT REPAIR @ BENT 4 S4 SCALE: NTS



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Table with 3 columns: No., Description, Date. It is currently empty.

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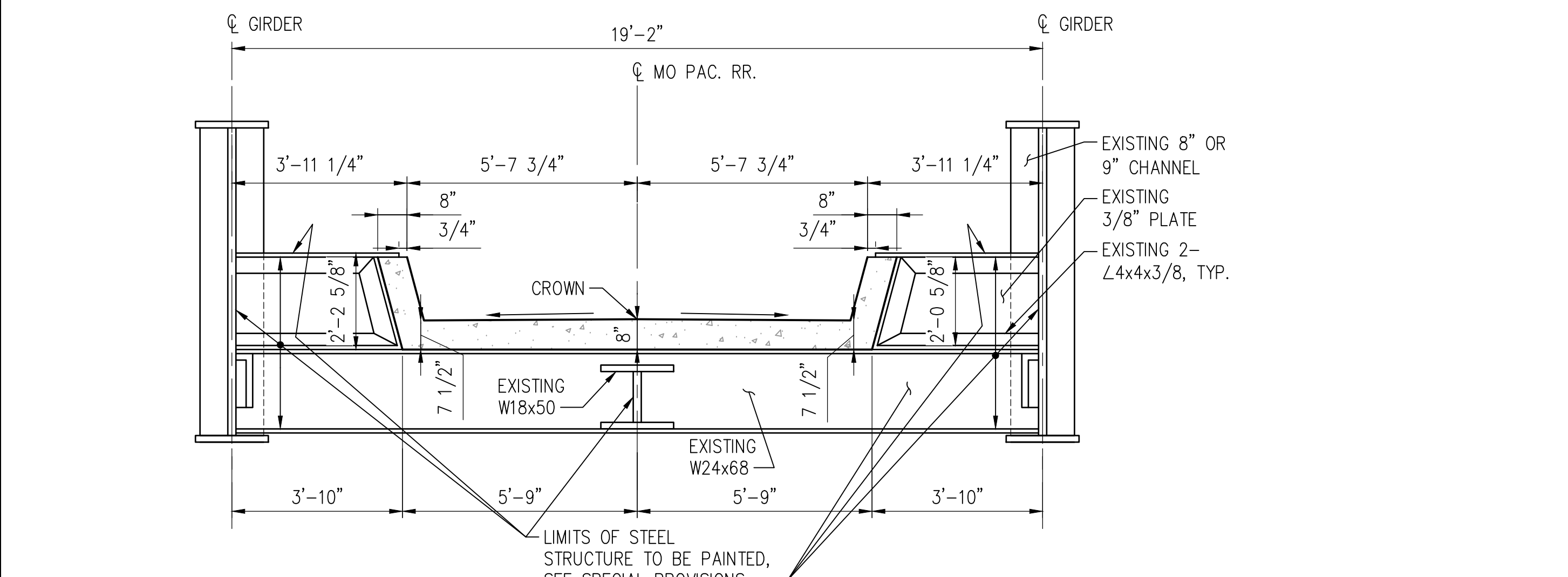
EXPANSION JOINT DETAILS

Date: 09/13/2018 Project Number: 2018267-00 Designed By: PMG Drawn By: JDR Checked By: RLM Sheet Number:

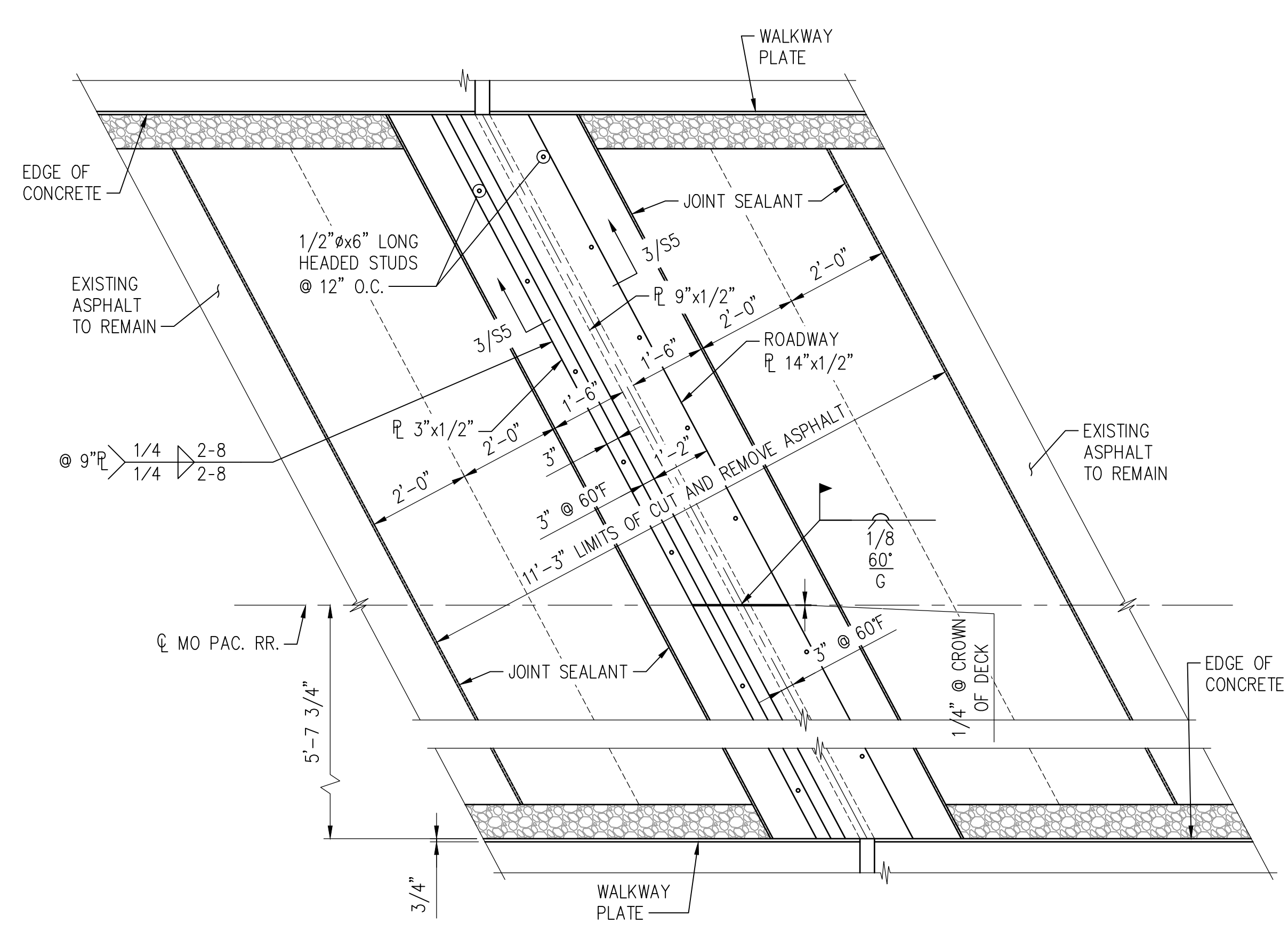
S4



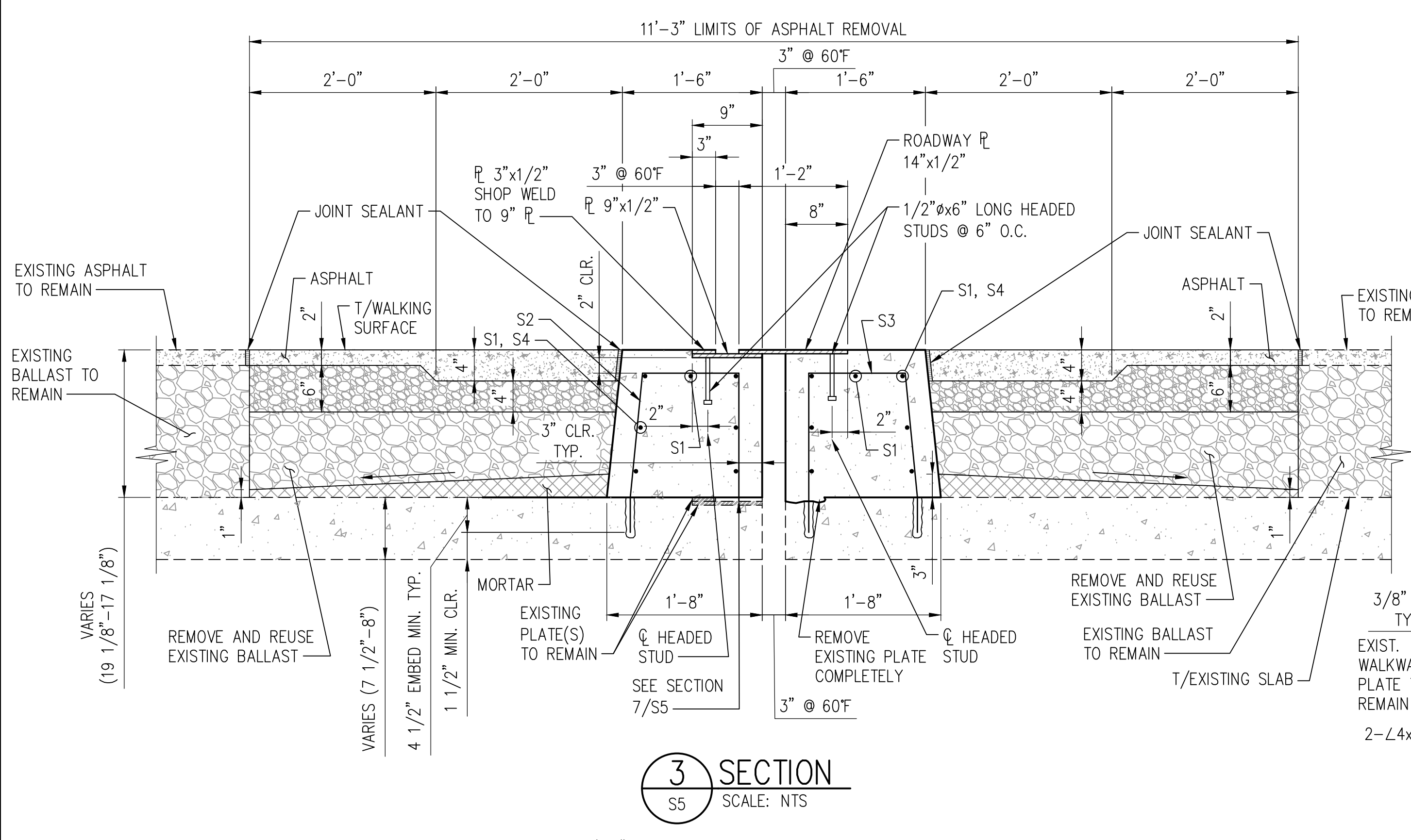
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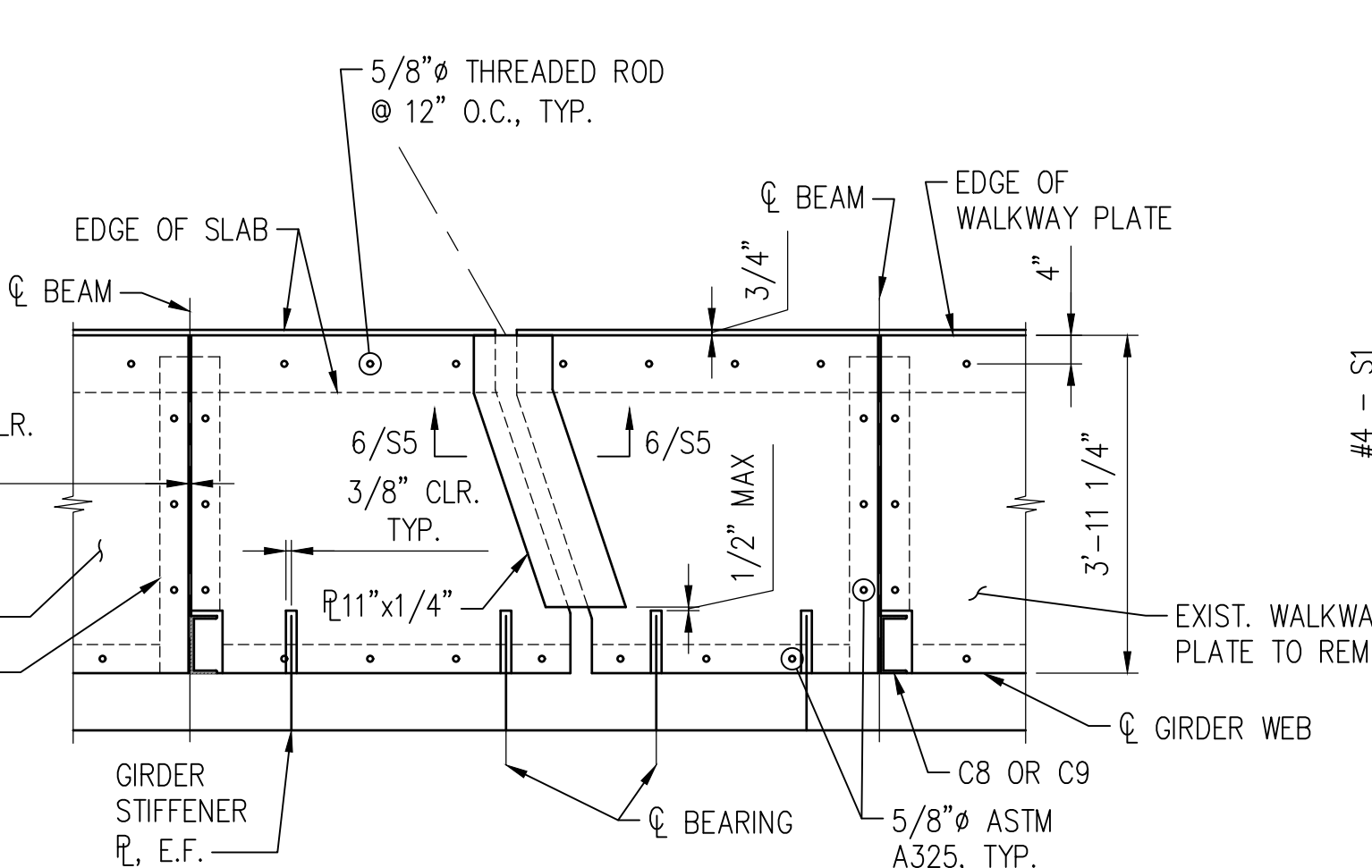
1 TYPICAL SECTION @ CHECKERED PLATE SUPPORT
 S5 SCALE: NTS



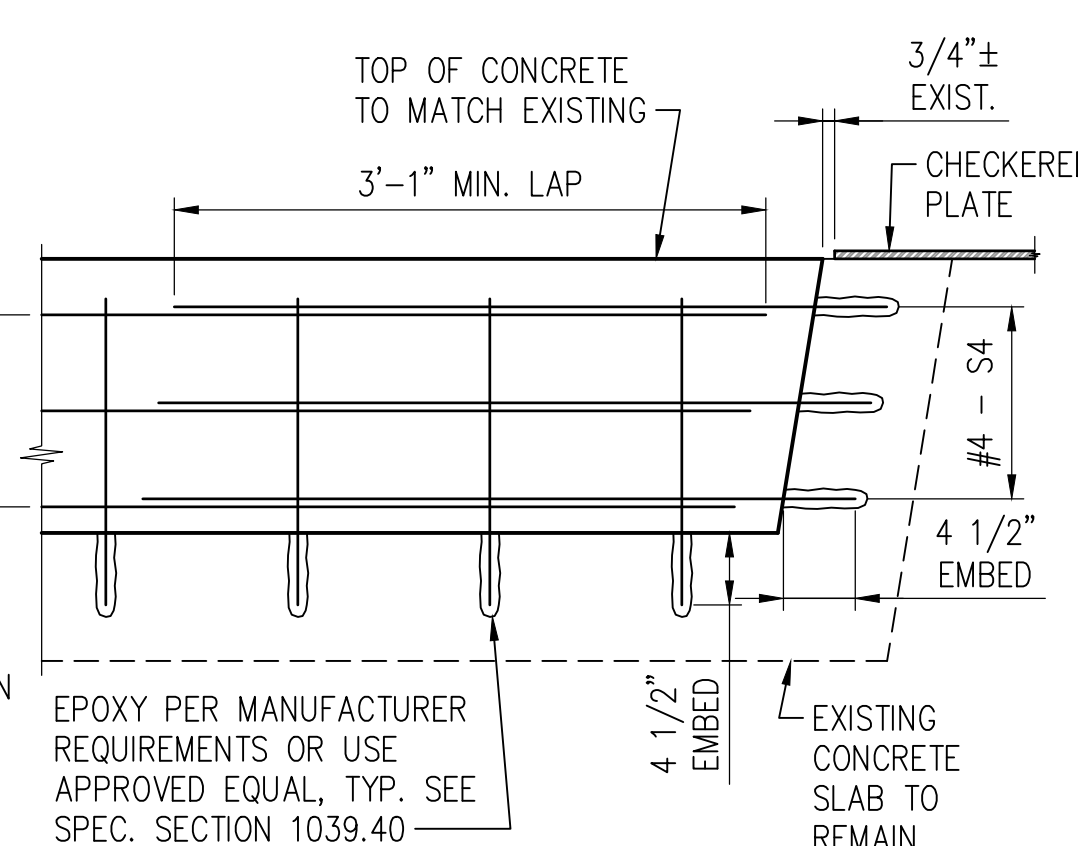
2 TYPICAL SECTION @ EXPANSION JOINT
 S5 SCALE: NTS (REF. SHEET S1, GENERAL NOTES, "EXPANSION JOINT")



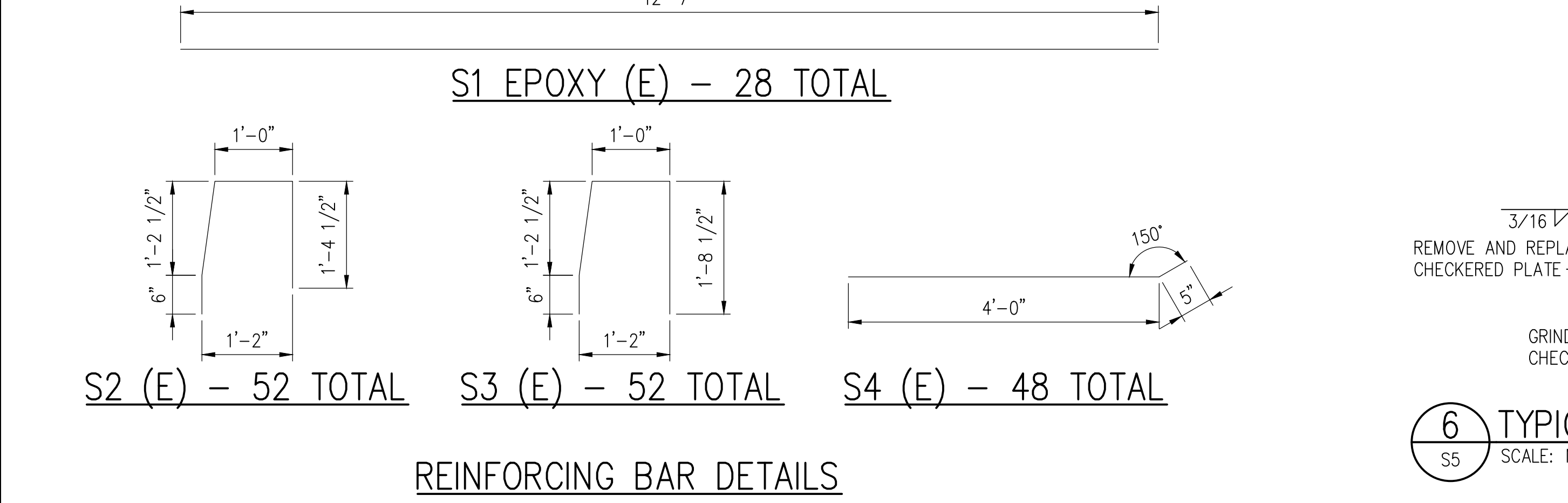
3 SECTION
 S5 SCALE: NTS



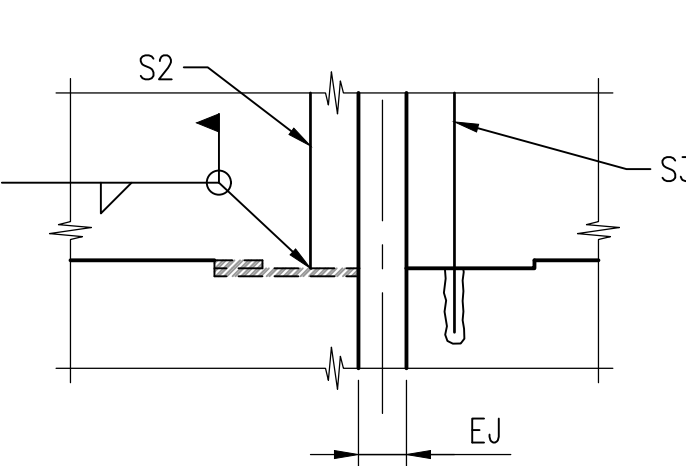
4 TYPICAL PLAN @ WALKWAY PLATE (BENT 2 AND 4)
 S5 SCALE: NTS



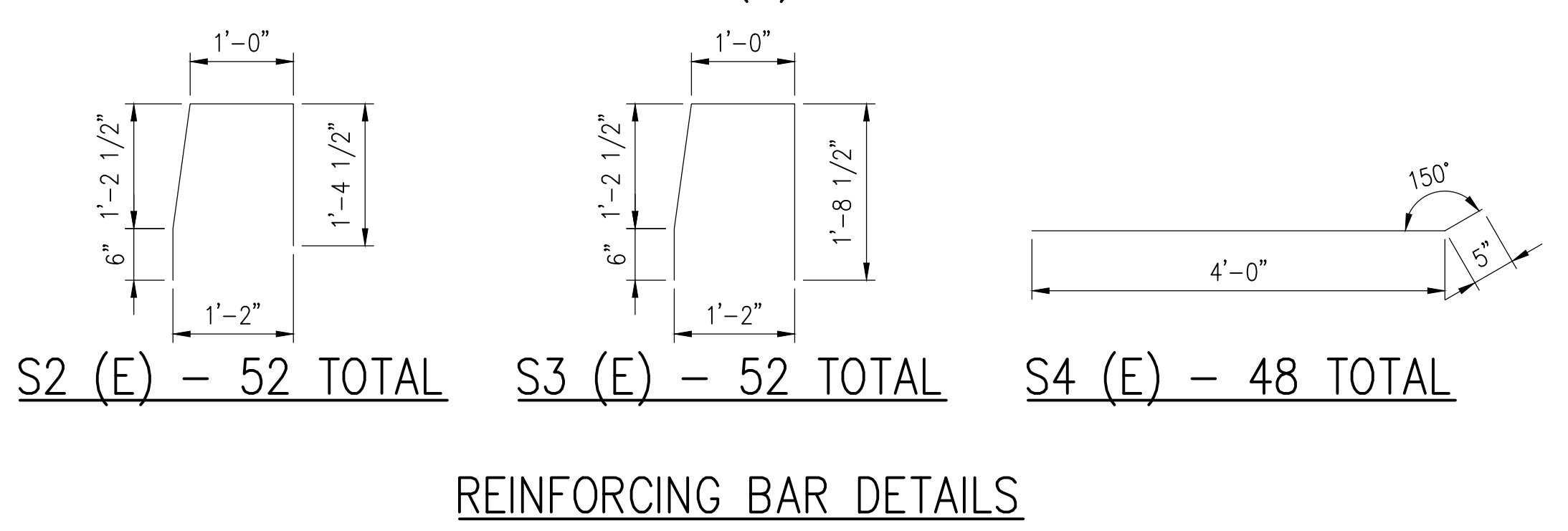
5 SECTION
 S5 SCALE: NTS



6 TYPICAL SECTION @ NEW WALKWAY PLATE
 S5 SCALE: NTS



7 SECTION
 S5 SCALE: NTS



S2 (E) - 52 TOTAL S3 (E) - 52 TOTAL S4 (E) - 48 TOTAL
 REINFORCING BAR DETAILS



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 Survey: 000336



**PEDESTRIAN BRIDGE OVER I-44
 WALKWAY PLATE AND EXPANSION
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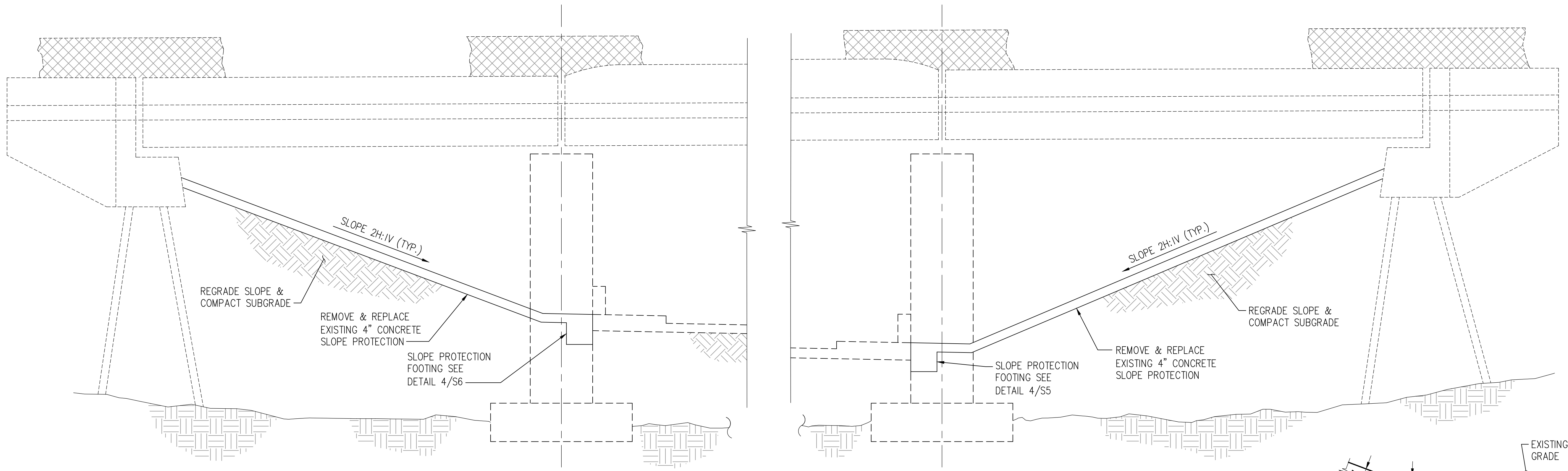
No.	Description	Date

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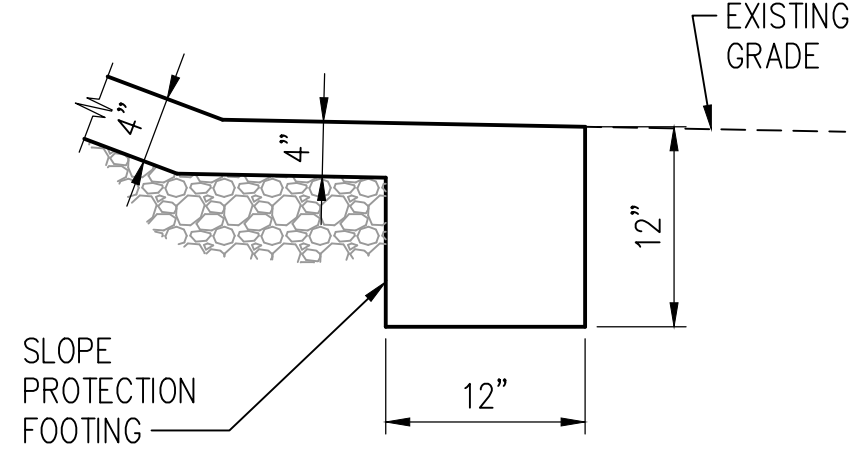
**ABUTMENTS
 SLOPE
 PROTECTION**

Date:	09/13/2018
Project Number:	2018267-00
Designed By:	PMG
Drawn By:	JDR
Checked By:	RLM
Sheet Number:	

S6

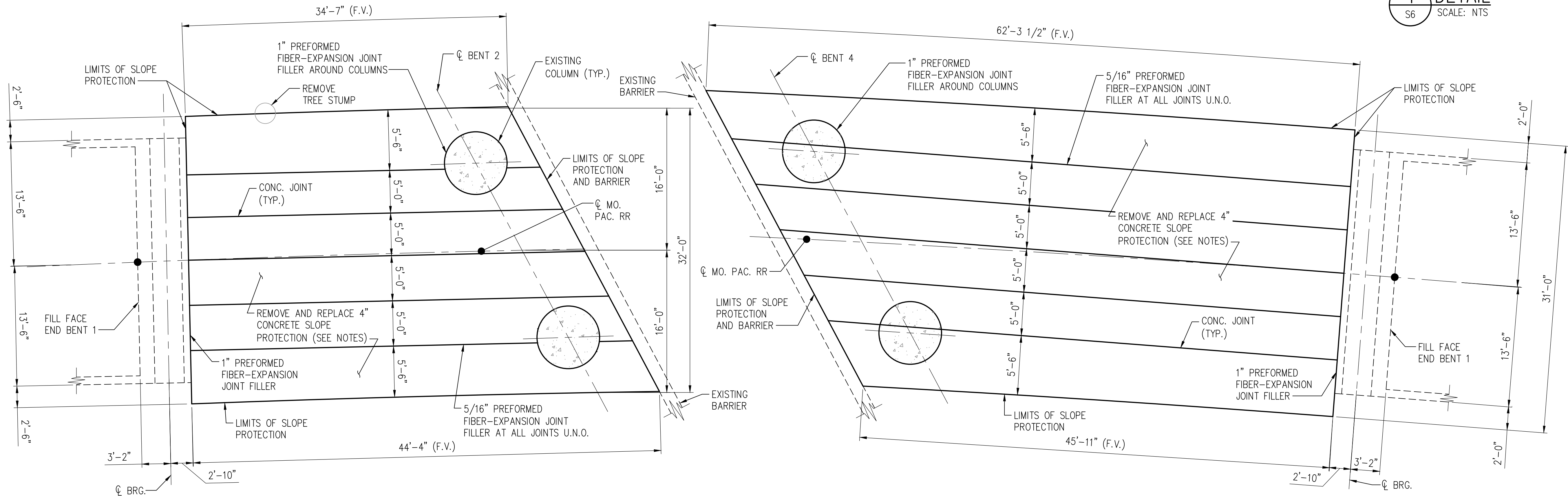


1 ELEVATION
 S6 SCALE: NTS



4 DETAIL
 S6 SCALE: NTS

- NOTES:**
- FOR PLAN AND ELEVATION SEE SHEET S1. FOR GENERAL NOTES AND QUANTITIES SEE SHEET S2.
 - REMOVE AND REPLACE 4" CONCRETE SLOPE PROTECTION AND FILL JOINTS WITH PREFORMED FIBER EXPANSION JOINT MATERIAL AS SPECIFIED ON THE PLANS.
 - PRIOR TO REPLACEMENT OF 4" CONCRETE SLOPE PROTECTION, REGRADE AND COMPACT SUBGRADE.
 - SLOPE 1/4" PER FOOT MINIMUM.
 - SLOPE PROTECTION SHALL BE PLACED IN CONTINUOUS PANELS FROM TOE OF THE SLOPE TO THE TOP OF THE SLOPE.
 - SLOPE PROTECTION SHALL FOLLOW THE CONTOUR OF THE FINAL ROADWAY FILL.
 - IF SLOPE PROTECTION FOOTING FALLS ON OR AROUND OTHER FOOTINGS, ONE LAYER OF 50# ROOFING FELT SHALL BE PLACED BETWEEN CONTACT SURFACES OF FOOTINGS.
 - SLOPE PROTECTION SHALL BE MADE CONTINUOUS BETWEEN STRUCTURES WHEN MEDIAN IS 60' OR LESS.
 - CONCRETE SLOPE PROTECTION SHALL BE FORMED AROUND ANY UNDISTURBED ROCK THAT IS PERMITTED TO REMAIN WITHIN THE SLOPE PROTECTION AREA.



2 SLOPE PROTECTION PLAN @ BENT 1
 S6 SCALE: NTS

3 SLOPE PROTECTION PLAN @ BENT 5
 S6 SCALE: NTS