

Repair Plans

For

USC Hampton Garage

Prepared For

University of South Carolina

by:

Chao & Associates, Inc.

Consulting Engineers

State Project No. H27-Z218
June 17, 2015



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DRAWING INDEX

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LOCATION MAP

SCALE: NTS



Location Map
Not to Scale



General Notes:

- Design Specifications: International Building Code (2012 Edition).
Design Loads:
Snow load: 10 PSF (ground)
Floor live load: 40 PSF
Dead load: Actual
Wind velocity: 115 MPH
Exposure category: B
- The construction falsework / shoring design (if any) is the responsibility of the Contractor. The design shall be performed by a Registered Engineer and shall be submitted for approval before commencing of the work.
- Where a detail is shown on structural drawings for one condition, it shall apply to all similar or like conditions, unless noted or shown otherwise on plans.
- All items shall be tightly anchored or attached square, plumb, and true, or in other planes and shapes as shown on the drawings. Joints shall be tight, even, and free of offsets. No field altering of any members will be allowed that will cause them not to be in accordance with the drawings and specifications, without written approval of the Project Engineer.
- The dimensions shown with a suffix "±" are approximate and shall be verified by the Contractor before fabrication.
- If the Contractor finds a difference between these drawings & existing conditions, or finds any other conditions which prohibit execution of the work as directed in these drawings, the Contractor shall notify the Engineer immediately.
- The owner shall employ a laboratory to perform the quality assurance, sampling, testing and/or inspection at his expense. Final selection of such laboratory shall be approved by the Engineer.
- Any revision/modification to the original design during the shop drawing process, the Contractor shall clearly cloud line all the changes and shall receive approval from the Engineer in writing before fabrication. Any costs associated with correcting the unapproved change shall be at the Contractor's expense.

Concrete:

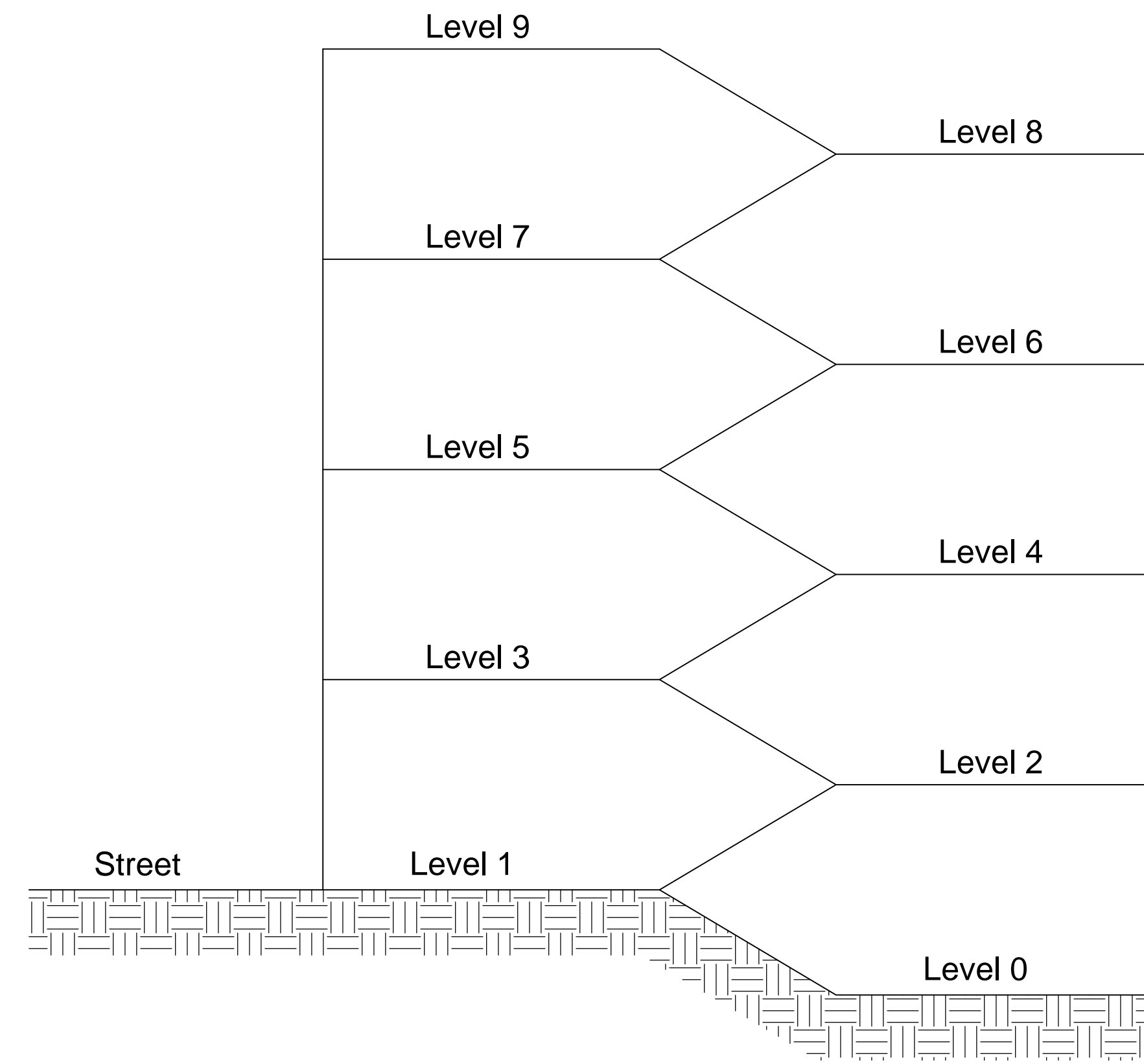
- Concrete: concrete minimum compressive strength at 28 days shall be 4,500 PSI.
- Reinforcement: all mild reinforcement bar shall be A615 grade 60 steel. All welded wire fabric shall conform to ASTM A185, grade 65. All welded wire fabric shall be in sheets and shall be supported on chairs.
- Bending dimensions & tolerances for reinforcing bar shall conform to current CRSI Manual of Standard Practice.
- Lap splices shall conform to the current CRSI Manual of Standard Practice unless otherwise noted.
- Horizontal construction joints to be scrubbed with a coarse wire brush at the approximate time of initial set to remove all laitance and to produce a roughened surface.
- Concrete work shall comply with ACI "Specifications for Structural Concrete" (ACI 301-10) and applicable provisions of ACI 318-11, keep a copy of ACI Field Reference Manual (ACI SP-15-10) Which includes ACI 301 and other ACI and ASTM references on the job.
- Detailing, fabricating, and placing of reinforcing steel and accessories shall be in accordance with ACI "Details and Detailing of Concrete Reinforcement" (ACI 315-99) and shall comply with (ACI 318-11) and with (ACI 301-10).
- The contractor shall select the testing laboratory & employ the laboratory at the contractor's expense to perform concrete strength testing per ACI 318-11. Final selection of testing laboratory shall be approved by engineer.

Structural and Miscellaneous Steel

- All structural and miscellaneous steel shall conform to the Fourteenth Edition of the AISC "Specification for Structural Steel Buildings" and all its supplements, and to the AISC "Code of Standard Practice for Steel Buildings and Bridges".
- All structural steel shall conform to ASTM A-36, FY=36,000 PSI unless otherwise noted.
- Steel W-Shapes shall conform to ASTM A992, FY=50,000 PSI.
- All rectangular or square steel HSS-Shapes shall conform to ASTM A500 grade B, FY=46,000 PSI. All round steel HSS-Shapes shall conform to ATSM A500 grade B, FY=42,000 PSI.
- All steel pipes shall conform to A-53 grade B, FY=35,000 PSI.
- All welded connections shall be done with E70XX electrodes with 3/16" min. material. All welding shall comply with AWS D1-1 structural welding code the latest edition.
- All bolts shall be Group A (A325), unless otherwise noted.
- The structural steel shall have one coat of anti-rust paint and one coat of finish paint of color determined by the owner. Prior to painting, all steel surfaces shall be prepared in accordance with SSPC-SP3. All paints shall be approved by the Owner/Architect prior to their use.
- Fabrication and assembly of bolted connections shall comply with applicable sections of AISC "Specification for Structural Joints using ASTM A325 or A490 bolts."
- No openings in beams shall be permitted without the written permission of the engineer.
- The use of a gas-cutting torch in the field for cutting holes or for correcting fabrication errors will not be permitted on structural framing members except w/ the written approval of the Engineer for each specification.
- An independent inspection agency shall be employed by the owner and approved by the engineer to inspect the structural steel in the field and verify that it conforms to the requirements of the contract documents.
- All structural steel shall be hot-dipped galvanized according to ASTM 123 where noted. All connections, hardware shall be hot-dipped galvanized according to ASTM 153. All galvanizing damaged by welding shall be repaired by Z.R.C. cold galvanizing paint.
- All new beams spanning more than 10' shall be braced in the middle of the span. Four 1/4" KWIK Bolts w/ 2" embedment shall be used to anchor the top flange to the exist. slab (two on each side of web @ 24" o.c.).

Metal Decking:

- Steel deck shall be installed in accordance with the latest S.D.I. and manufacturer's specifications unless otherwise noted.
- All metal deck shall be 1.5C 1-1/2" 20 gage galvanized decking as manufactured by Vulcraft, INC. or an approved equivalent.
- All welds and burn areas shall be cleaned and painted with an approved primer.
- Metal decking shall be fastened to supporting steel as follows unless otherwise noted.
Non-composite Floor Deck minimum fastening requirement:
Support - 5/8" puddle weld @ 12" o.c.
Sidelap - 5/8" puddle weld @ 12" o.c.
- Provide steel header frames for support of metal decking for all openings greater than 10" square.
- Provide continuous 18" wide x20 gage galvanized steel ridge and valley plates at high and low points of roof.
- Provide steel ledger angles at steel columns as required for support of metal decking.

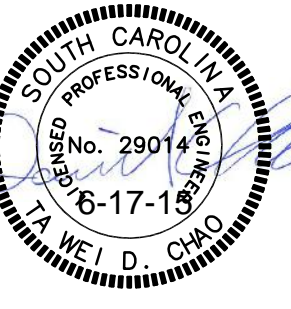


Elevation Plan



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USC Parking Garages Evaluation
General Notes
Prepared for:
The University of South Carolina

Drawn: TKS Checked: DC

Revised:

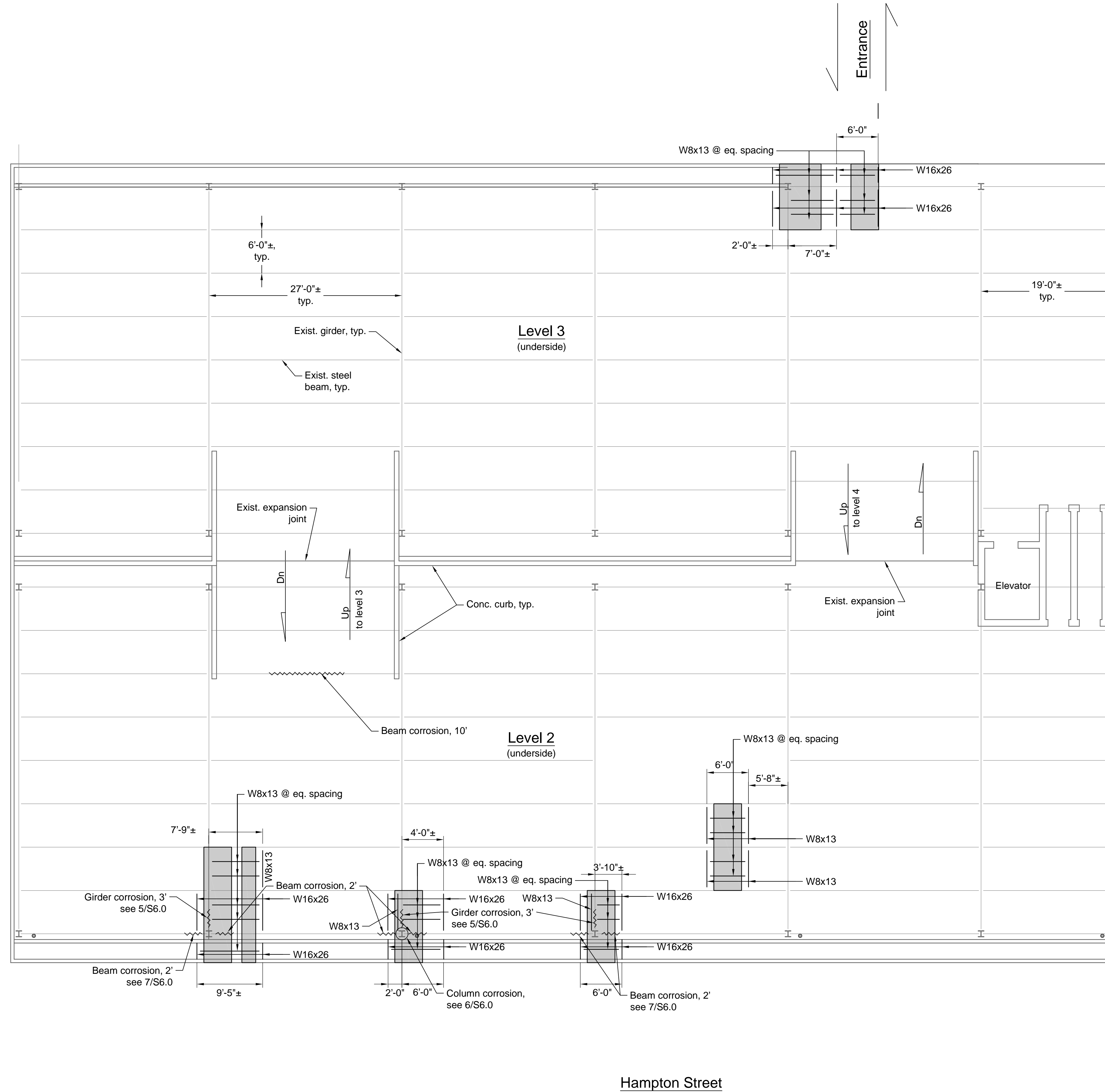
File: 393254S-Phase 1a.dwg Project No.: 393254F-15

S0.0

Sheet Number
June 17, 2015
Date

Drawing file: 393254S-Phase 1a.dwg Plotted: Jun 24, 2015 - 1:44pm

Henderson Street



- Denotes deck corrosion see 1/S6.1
- Denotes beam / girder corrosion, see 7/S6.0 or 5/S6.0
- Denotes column corrosion repair, see 6/S6.0

Hampton Street



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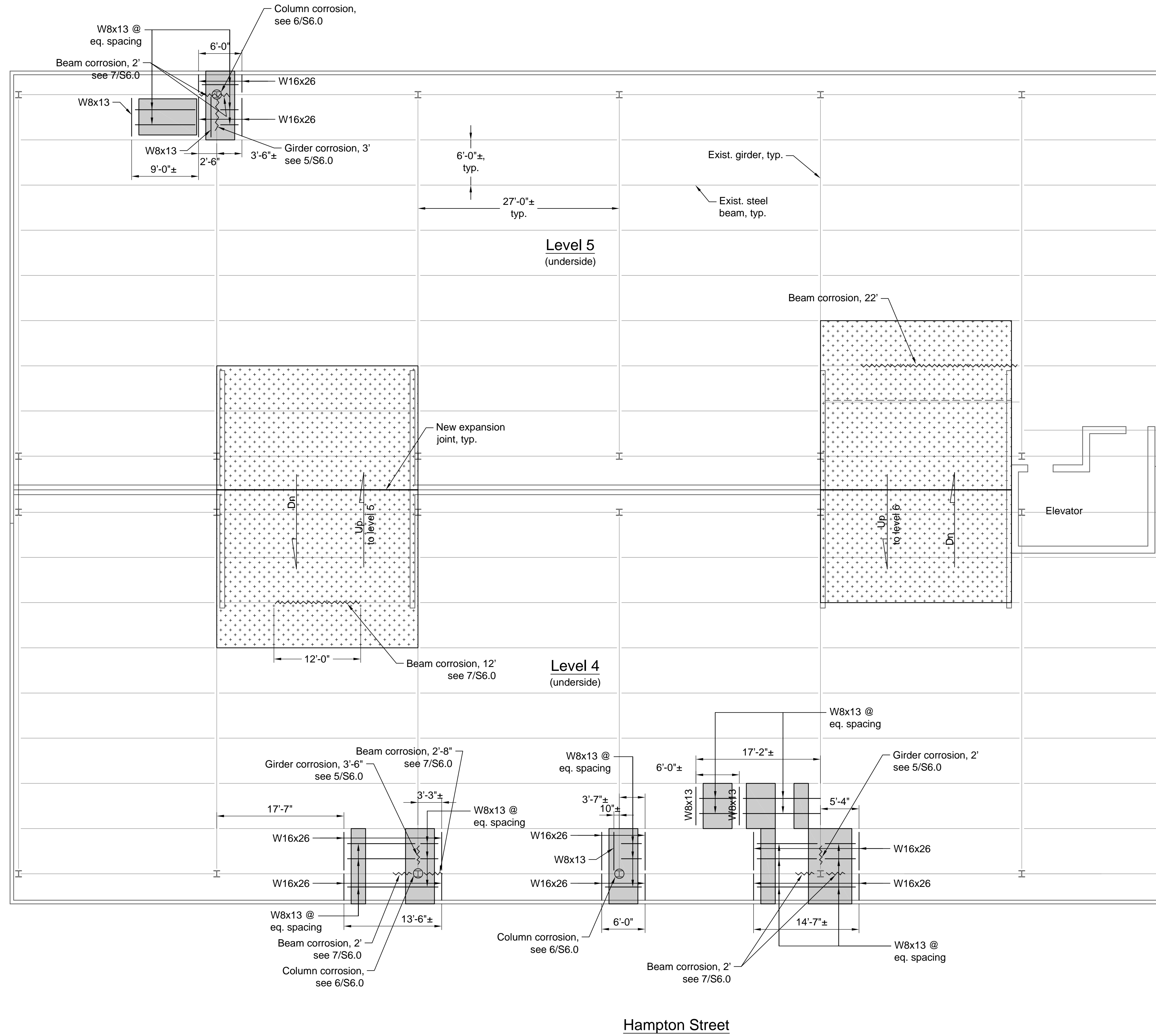
USC Parking Garages Evaluation
Level 2 & 3
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The University of South Carolina

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| File: 393254S-Phase 1a.dwg Project No.: 393254F-15 | |





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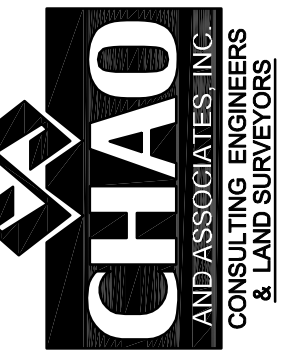
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Henderson Street

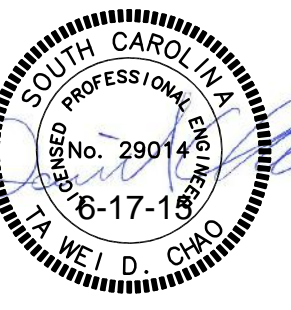


Hampton Street

-  Denotes deck corrosion see 1/S6.1
-  Ramp to be removed and replaced, see 5/S6.1
-  Denotes beam / girder corrosion, see 7/S6.0 or 5/S6.0
-  Denotes column corrosion repair, see 6/S6.0



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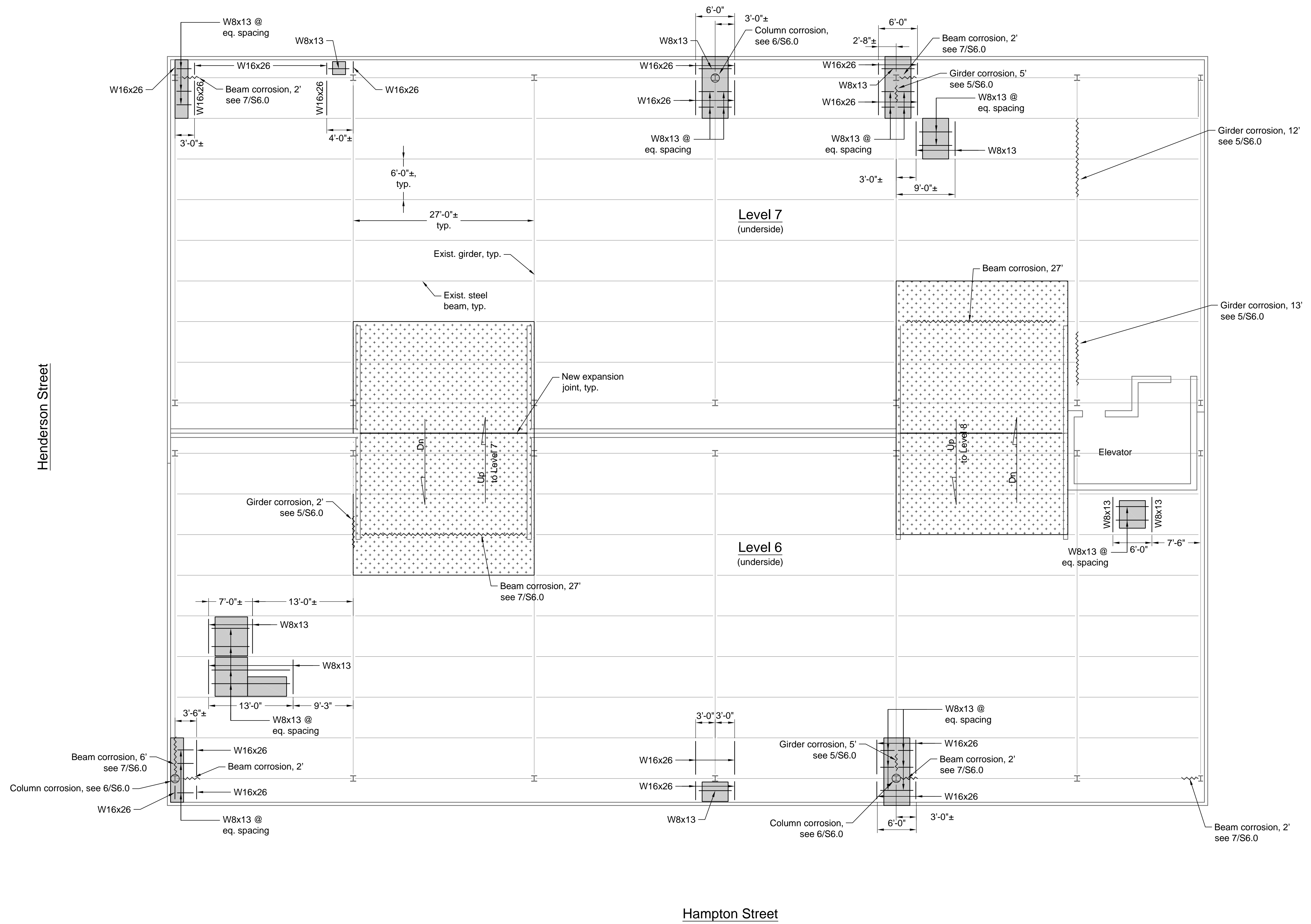
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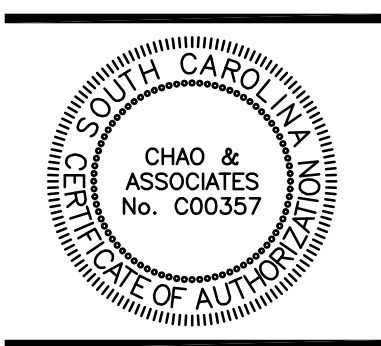
Henderson Street

Hampton Street

- Denotes deck corrosion see 1/S6.1
- ▣ Ramp to be removed and replaced, see 5/S6.1
- ~ Denotes beam / girder corrosion, see 7/S6.0 or 5/S6.0
- ⊙ Denotes column corrosion repair, see 6/S6.0



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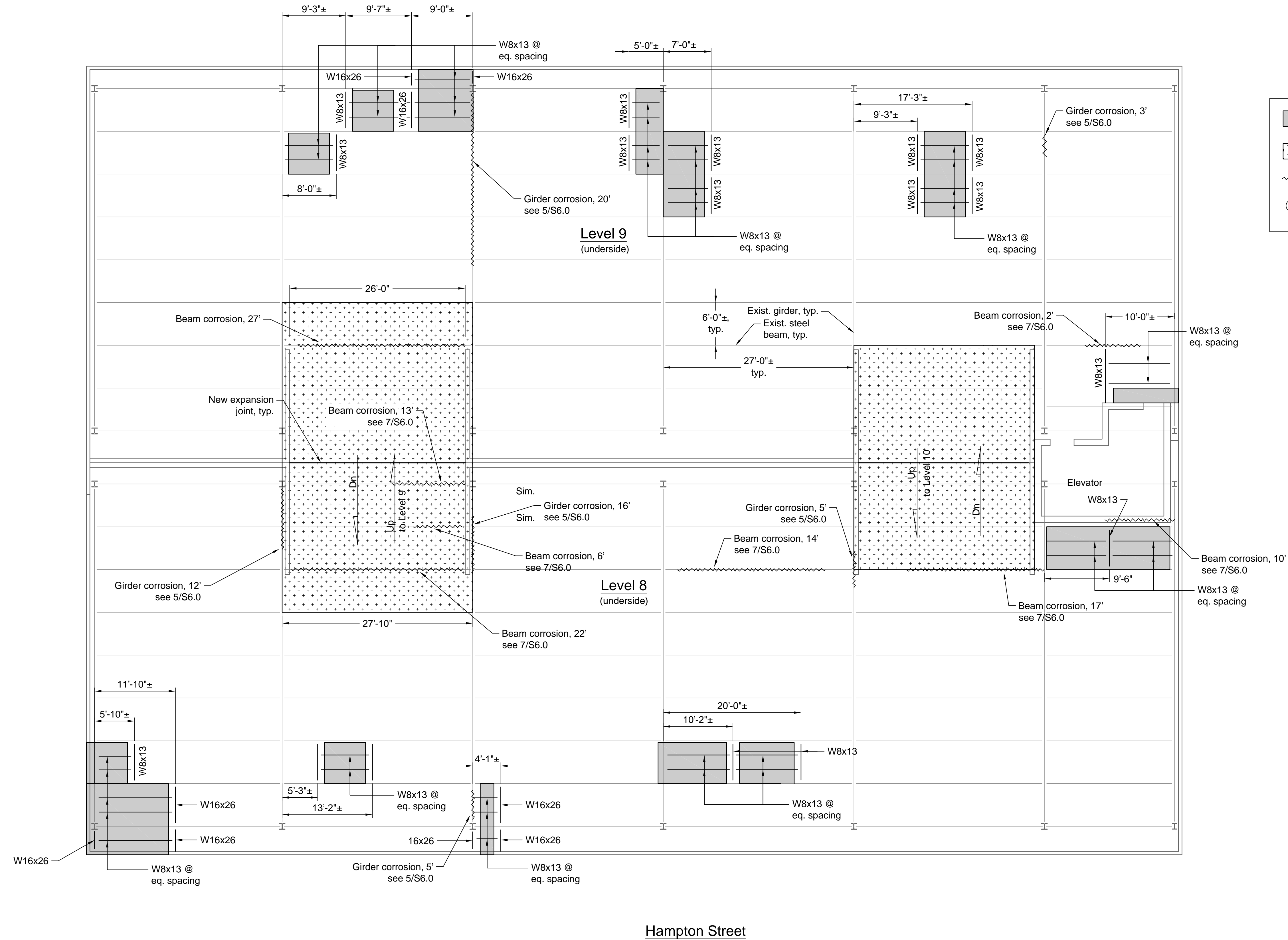
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S3.0
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Drawing file: 393254S-Phase 1a.dwg Plotted: Jun 24, 2015 - 1:44pm

Henderson Street



- Denotes deck corrosion see 1/S6.1
- Ramp to be removed and replaced, see 5/S6.1
- Denotes beam / girder corrosion, see 7/S6.0 or 5/S6.0
- Denotes column corrosion repair, see 6/S6.0

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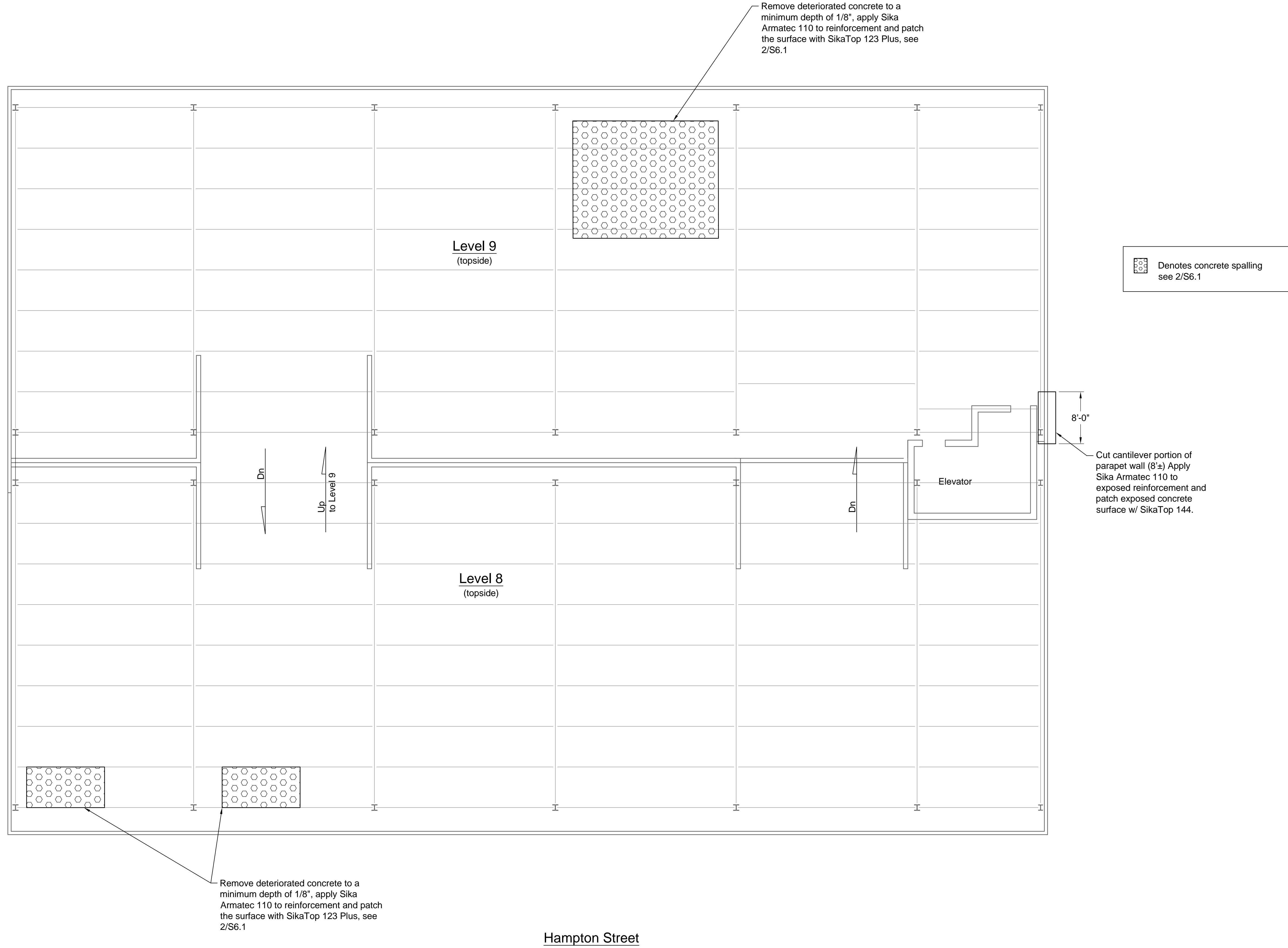


**USC Parking Garages Evaluation
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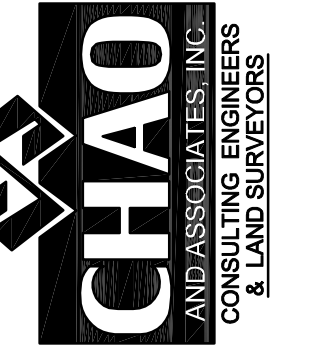
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S4.0
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Henderson Street

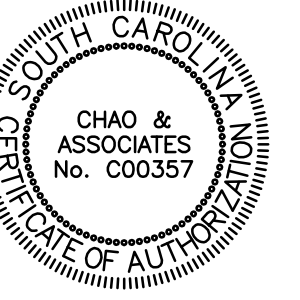


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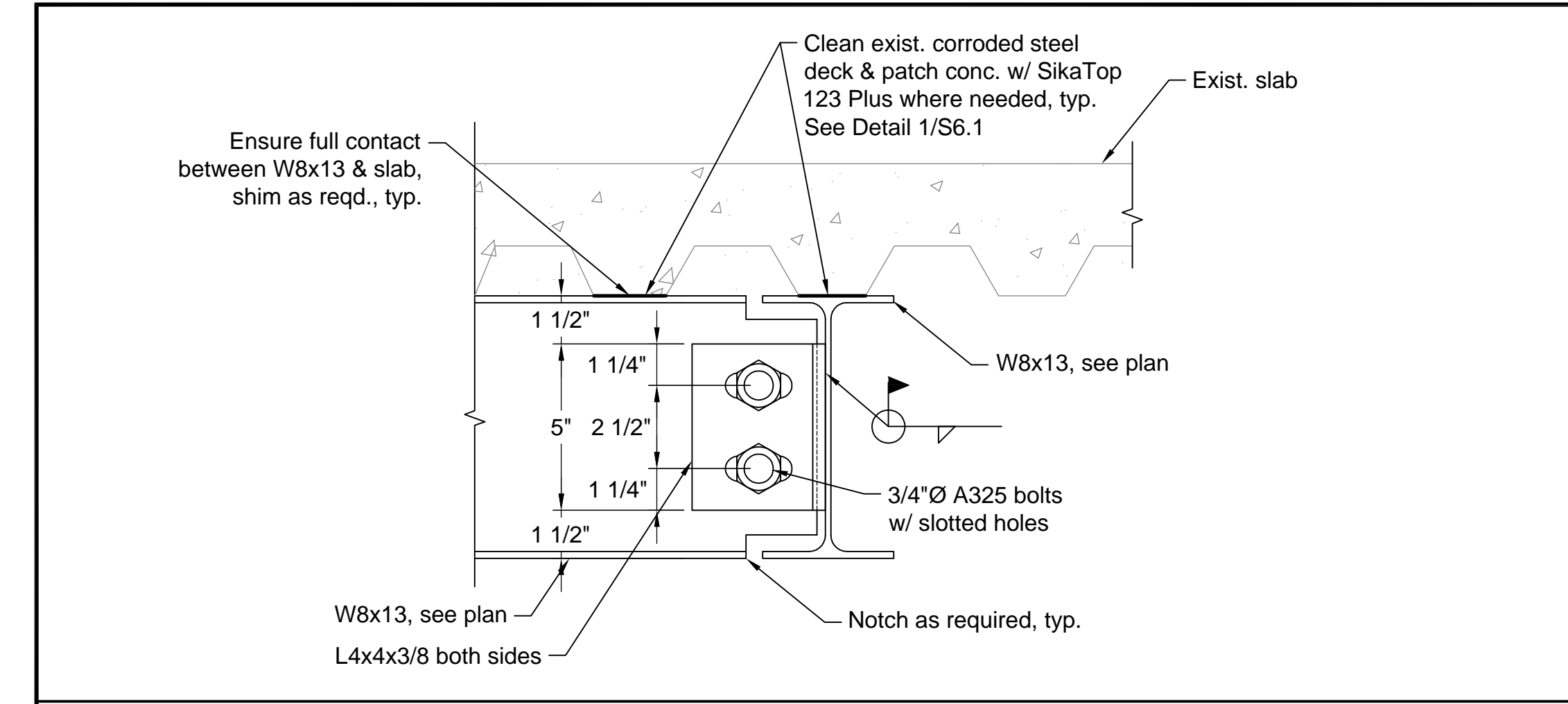
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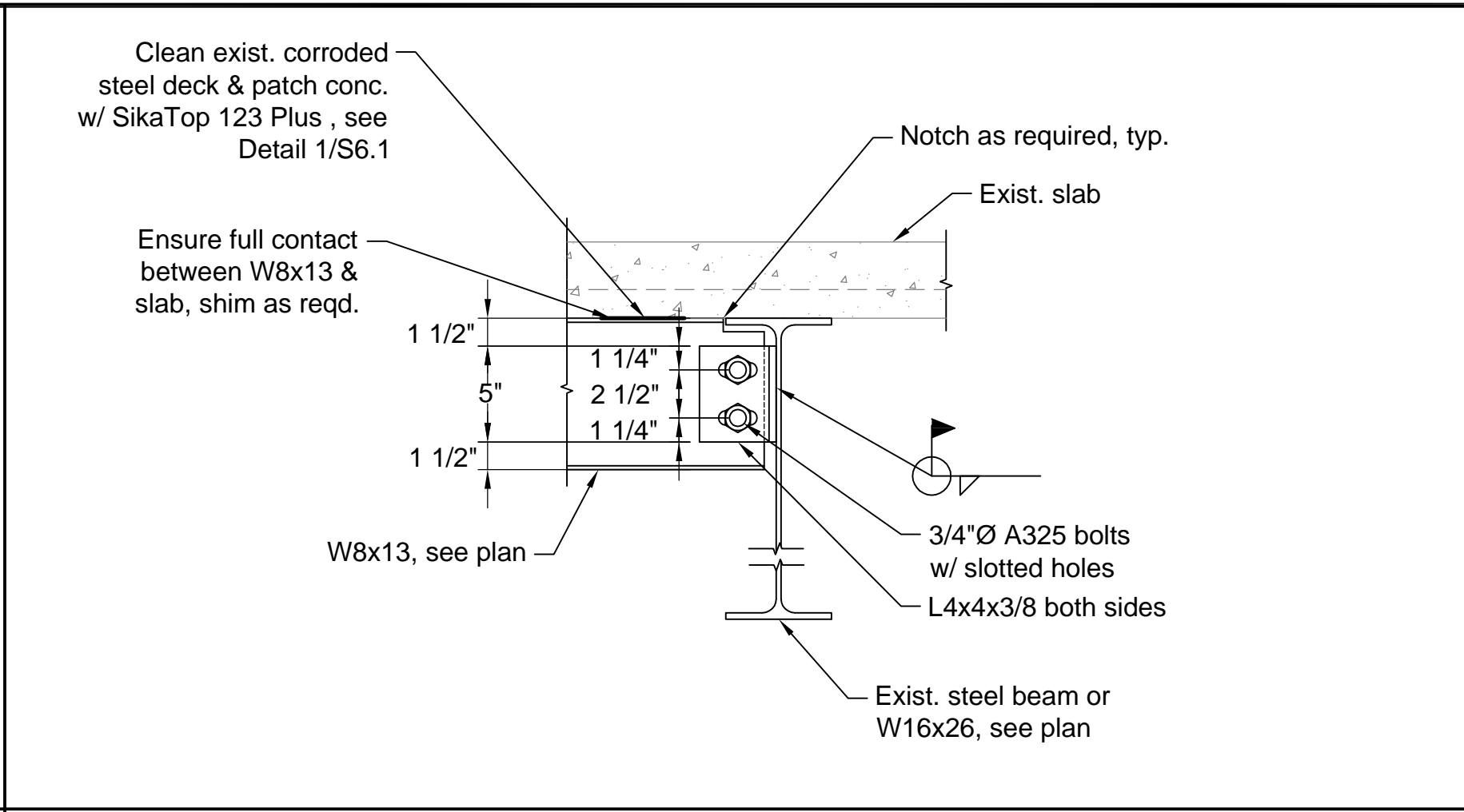
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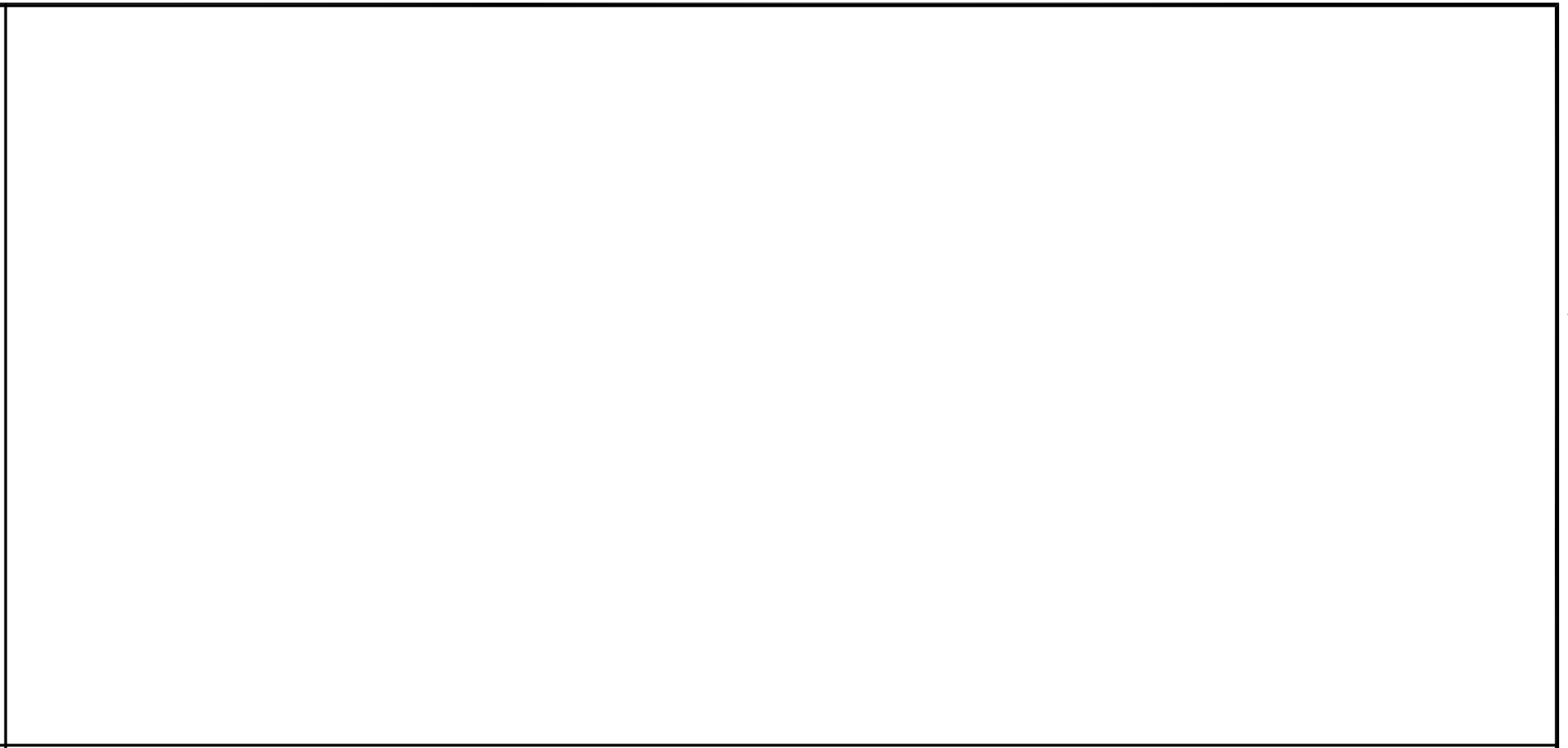
1 - Typical W8x13 Beam End Connection to W8x13

Scale: 3" = 1'-0"

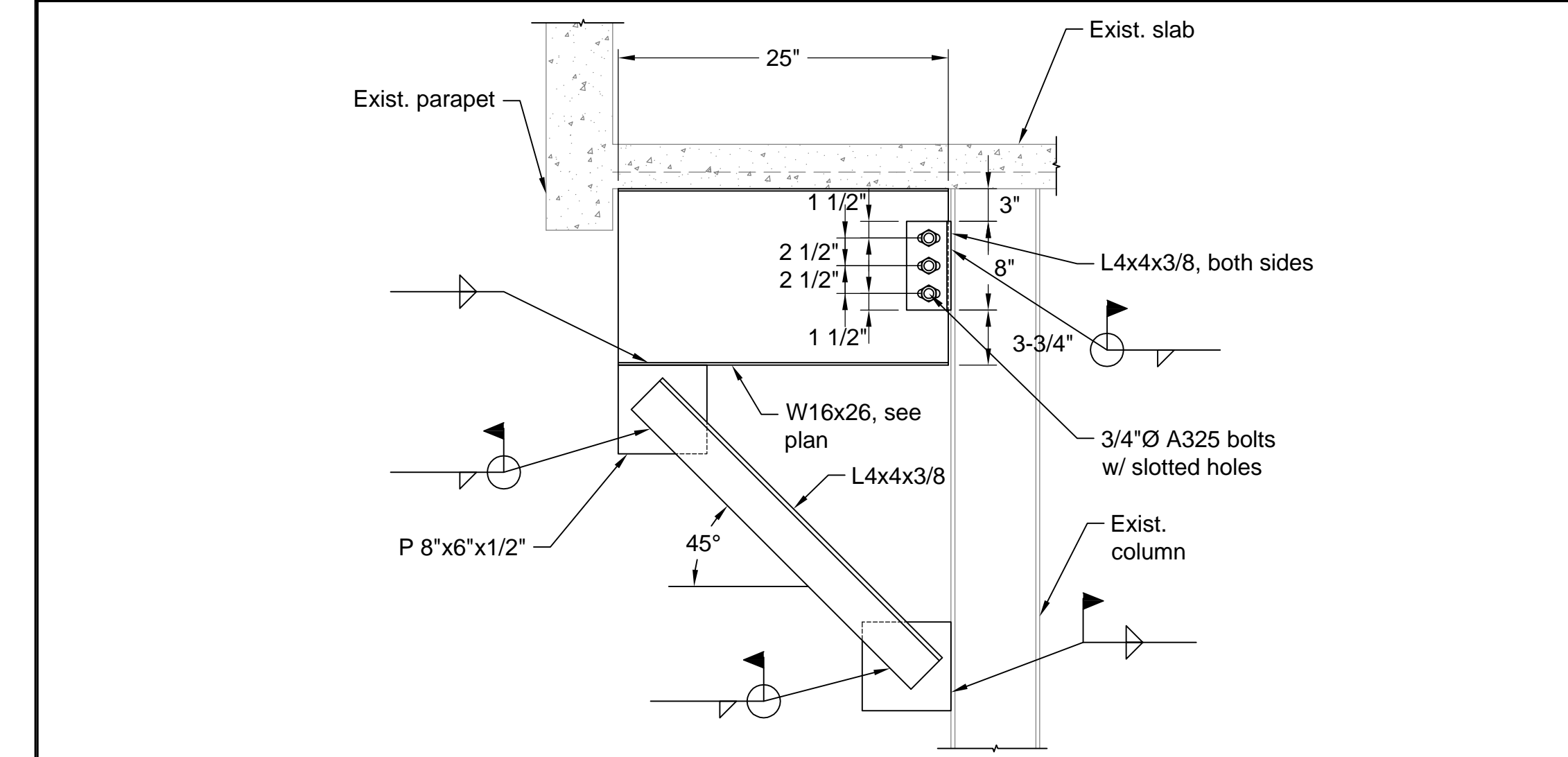


2 - Typ. W8x13 End Conn. to Exist. Beam or W16x26

Scale: 1-1/2" = 1'-0"

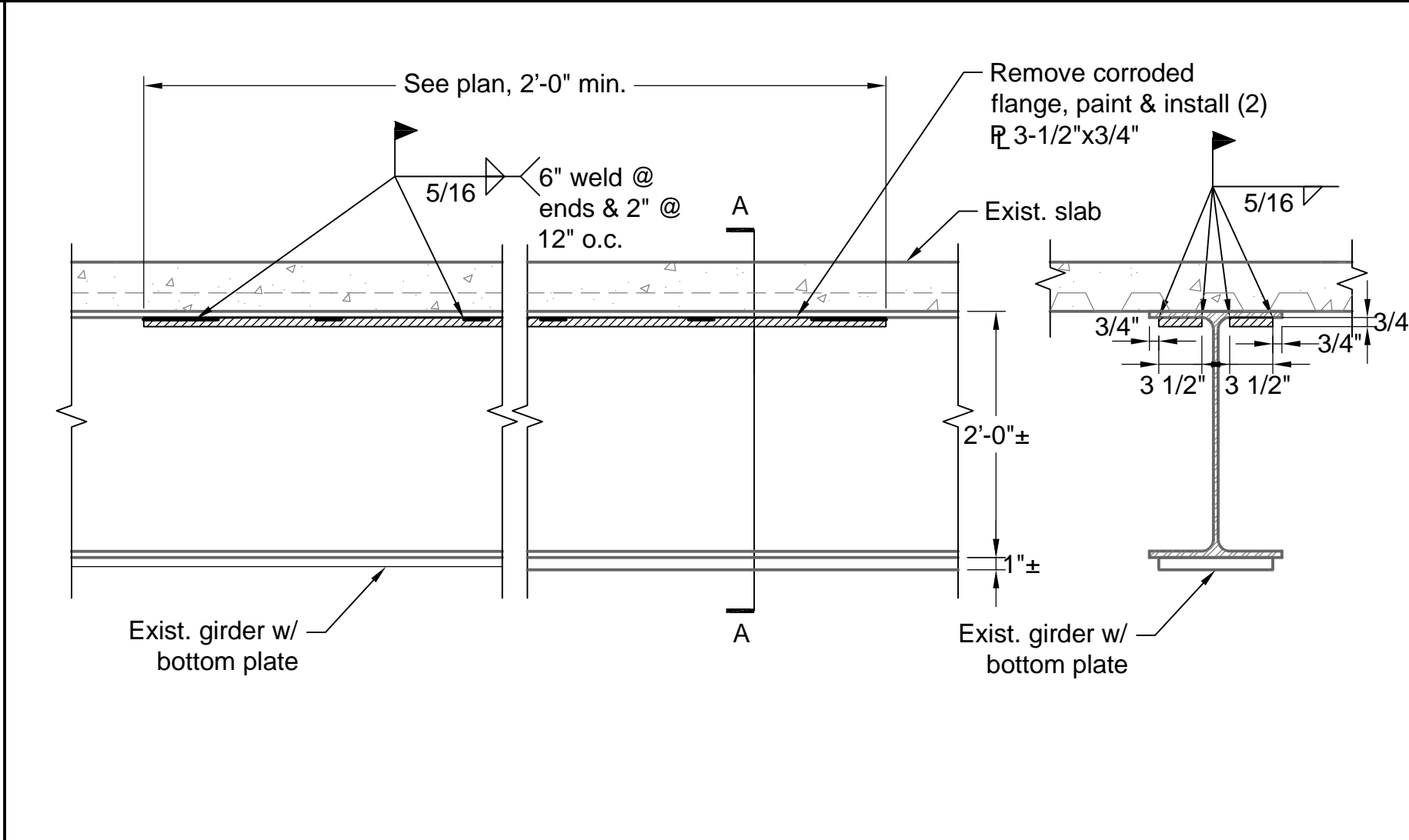


3 - Not used



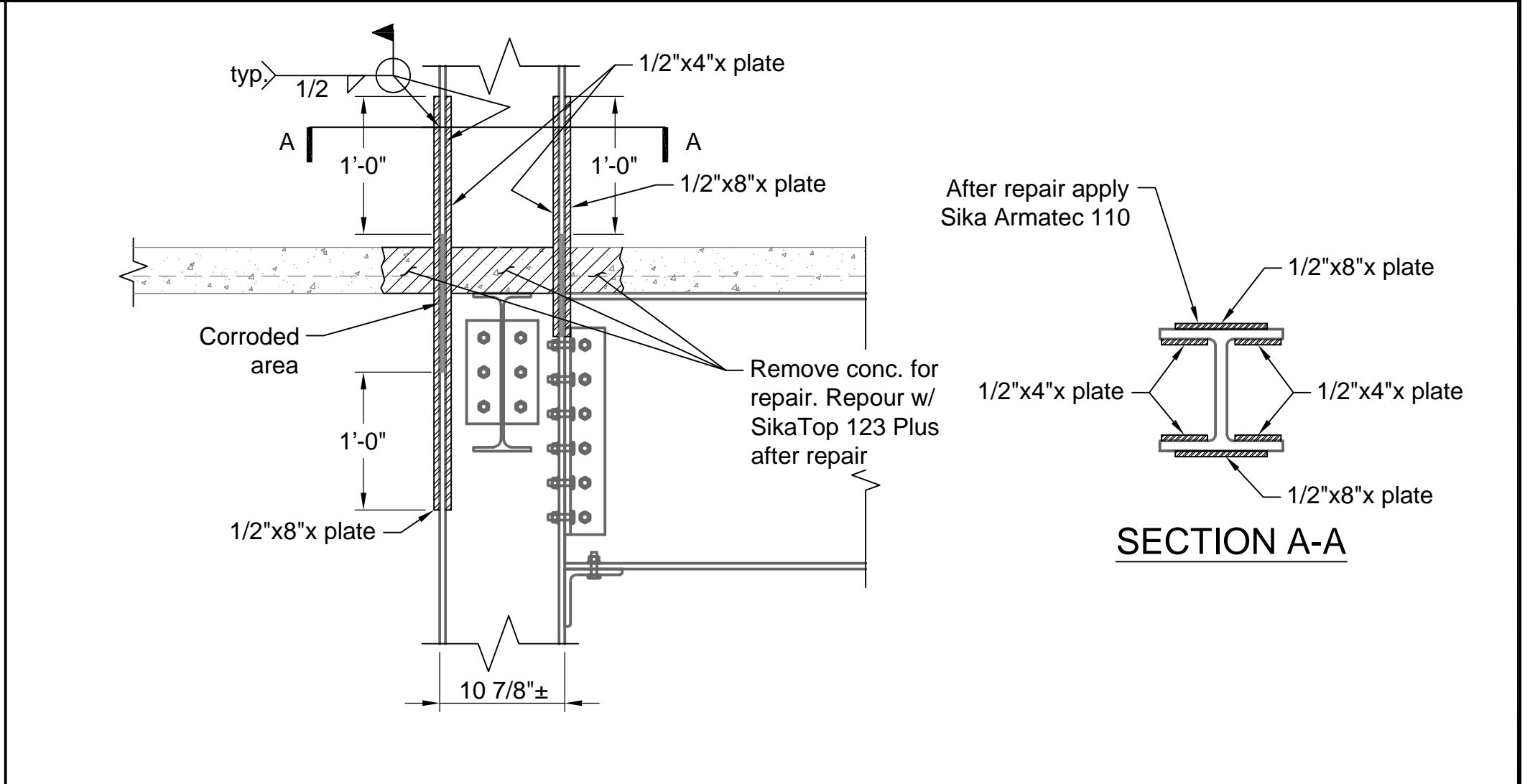
4 - Typical W16x26 Beam End Connection to Exist. Column

Scale: 1" = 1'-0"



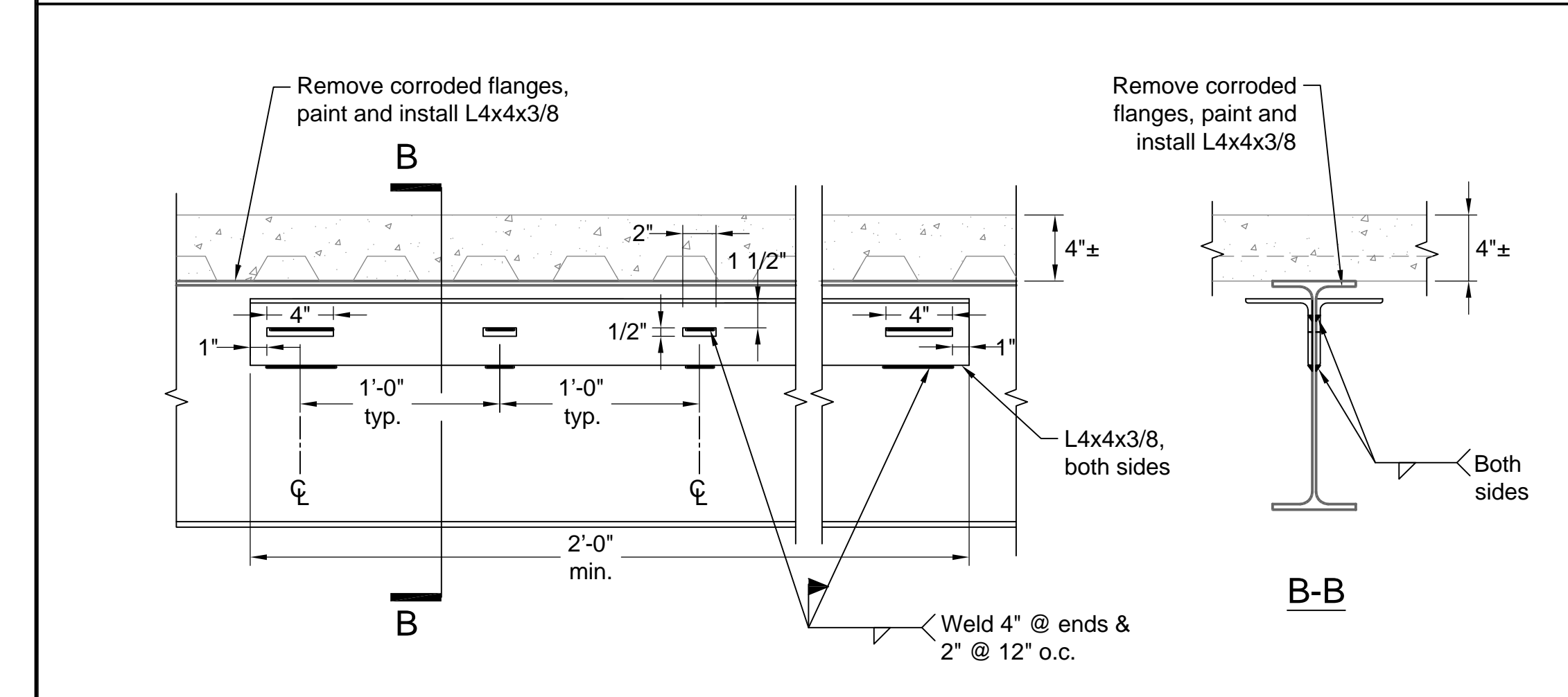
5 - Typical Girder Corrosion Repair

Scale: 1" = 1'-0"



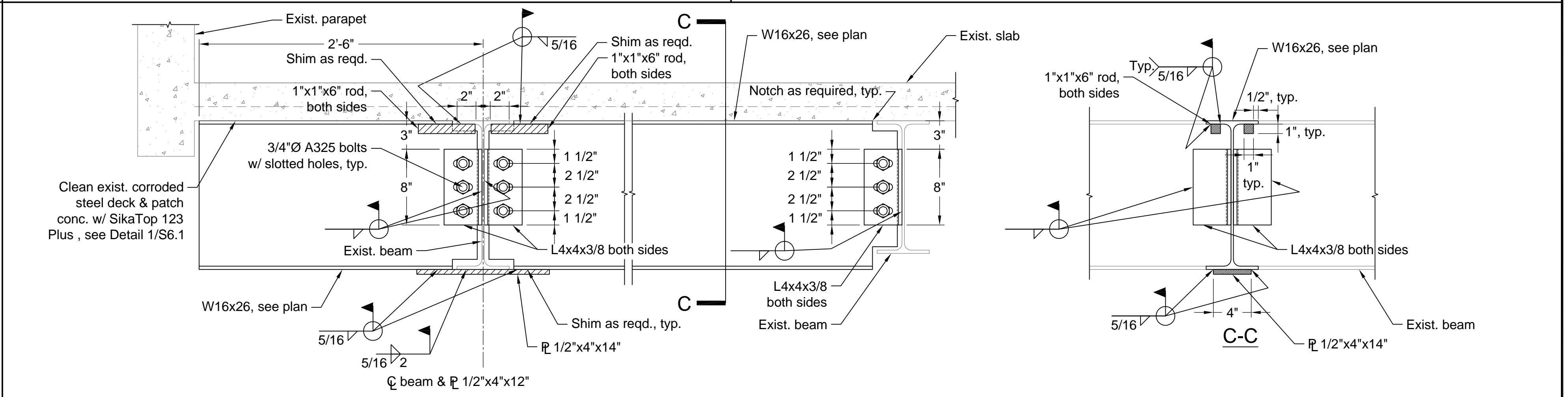
6 - Typical Column Corrosion Repair

Scale: 1" = 1'-0"



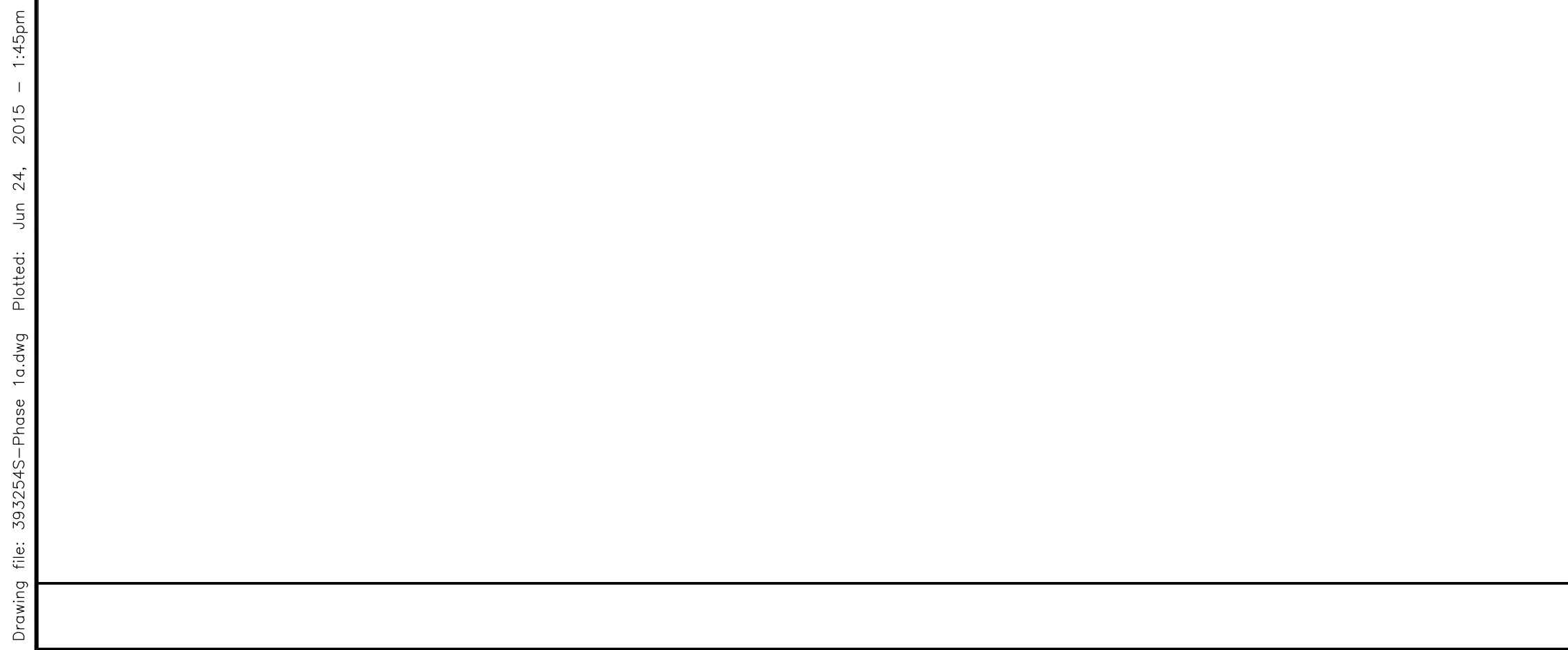
7 - Typical Beam Corrosion Repair

Scale: 1" = 1'-0"



8 - Typical W16x26 Beam End Connection to Exist. Beam

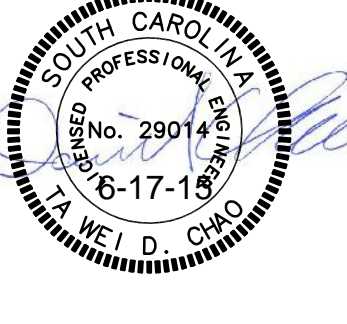
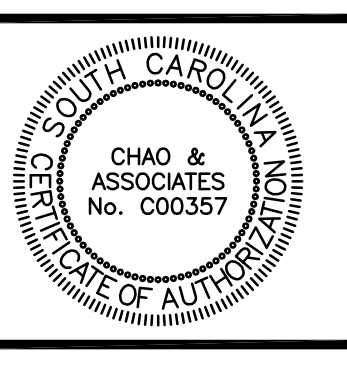
Scale: 1-1/2" = 1'-0"



Drawing file: 393254S-Phase 1a.dwg Plotted: Jun 24, 2015 - 1:45pm



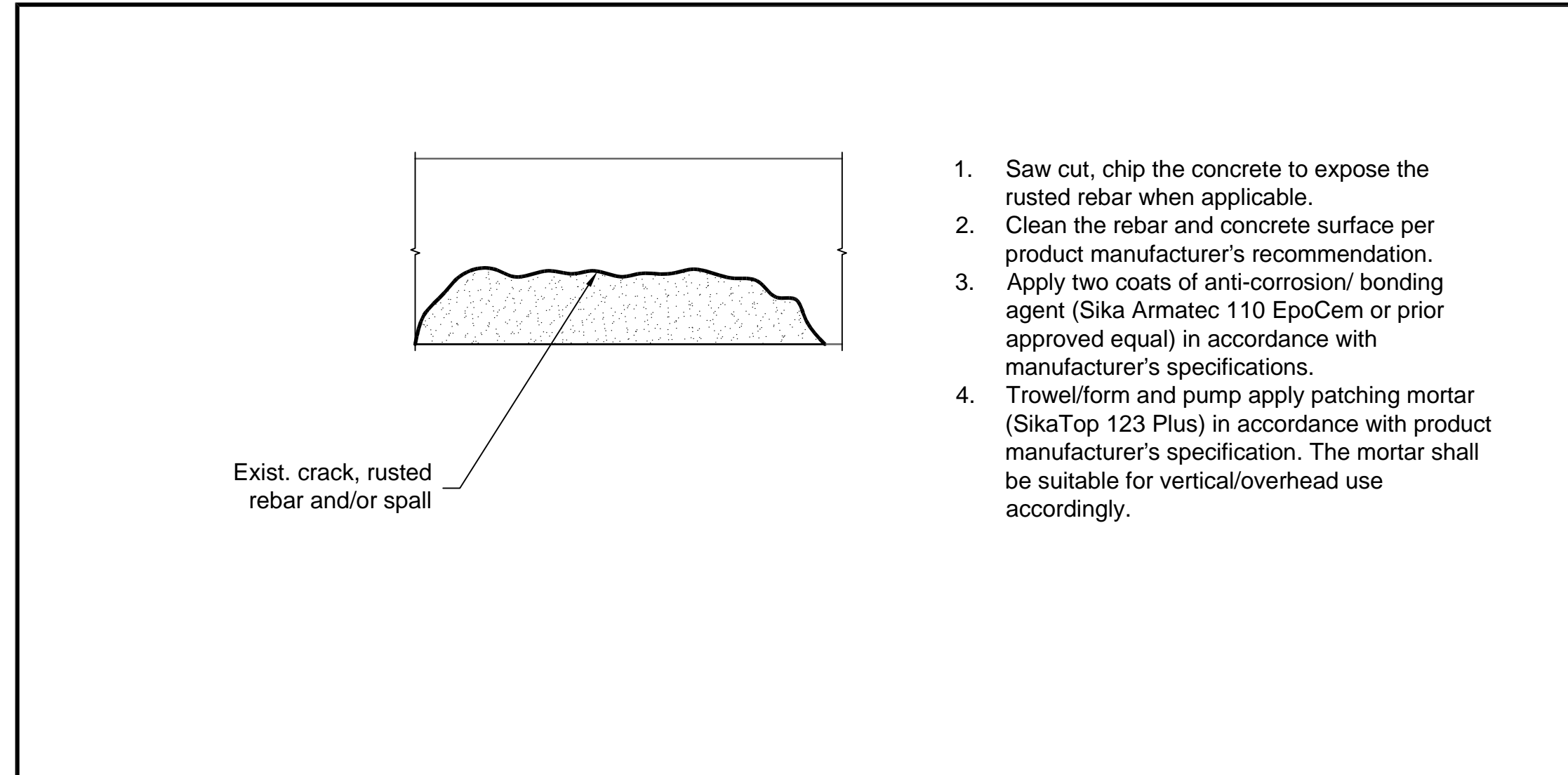
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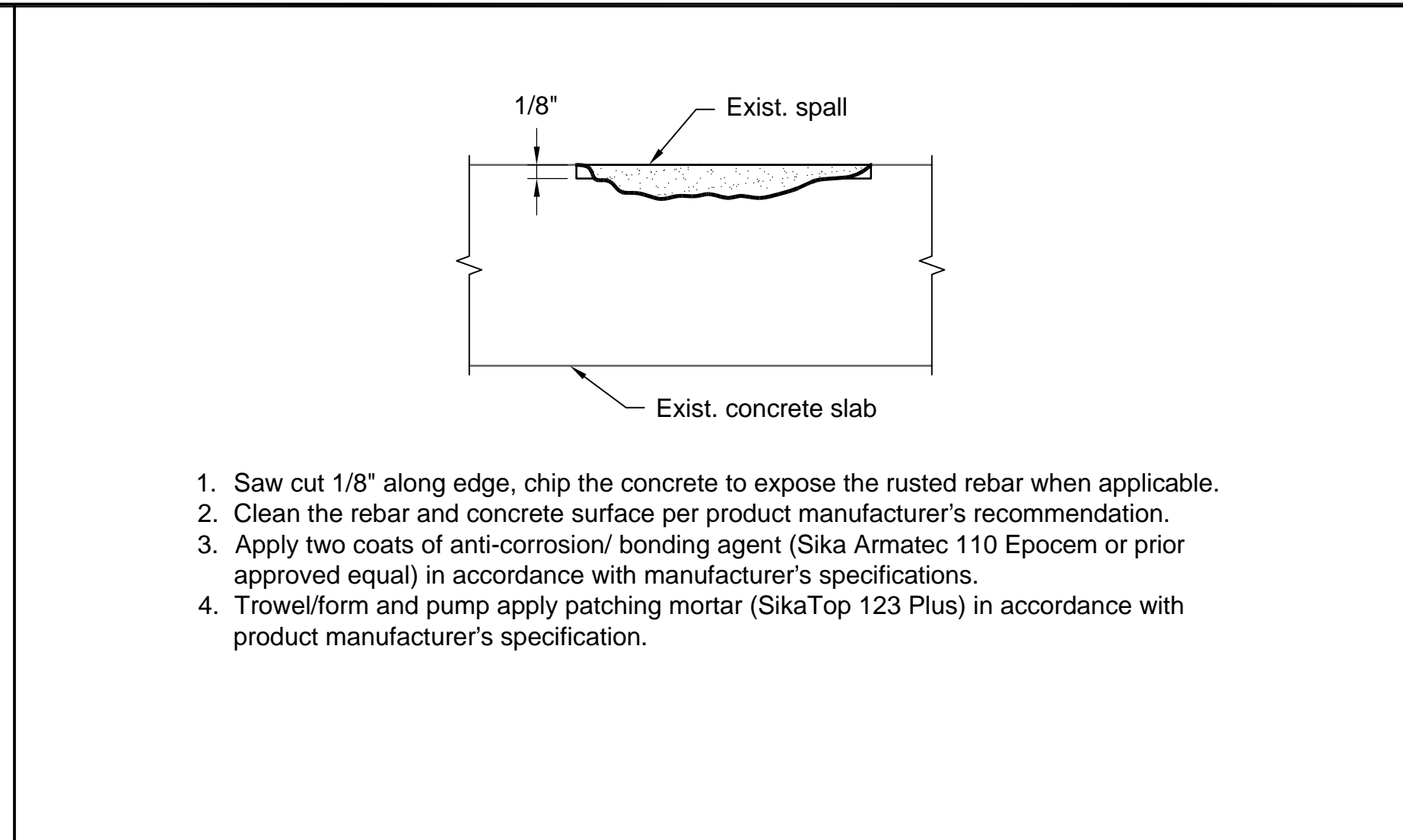
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 File: 393254S-Phase 1a.dwg Project No.: 393254F-15

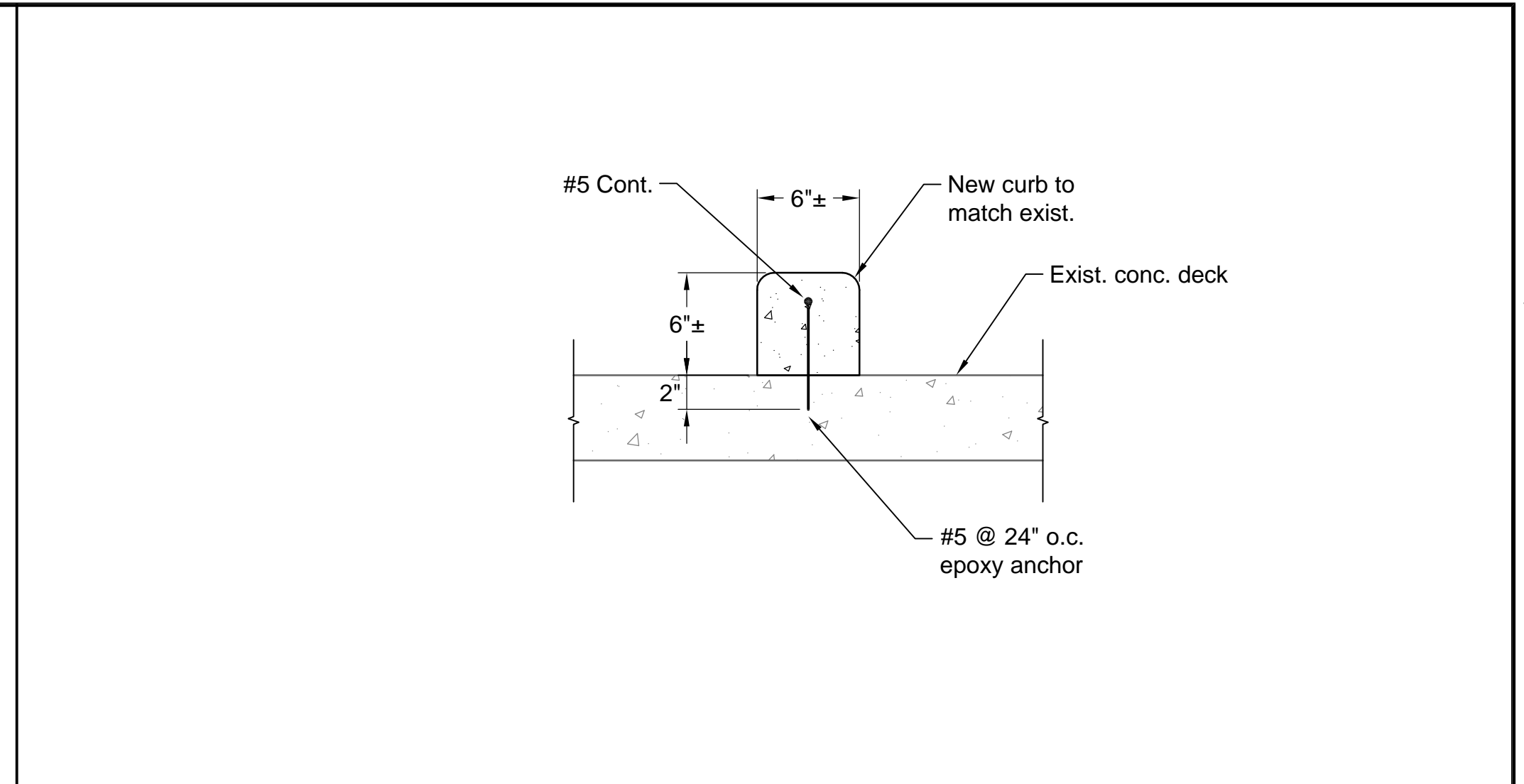
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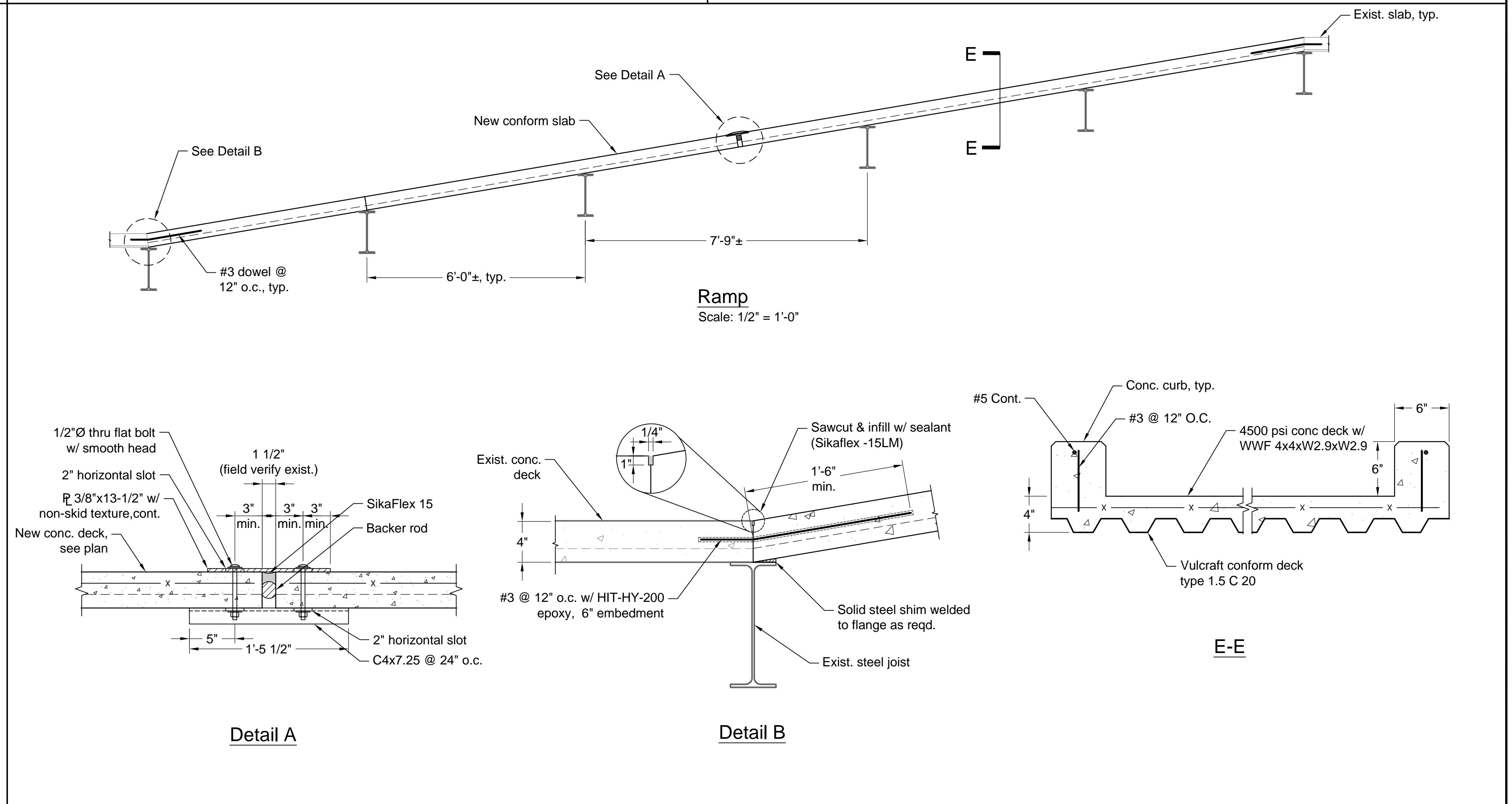
1 - Typical Overhead Crack/Spall Repair Scale: NTS



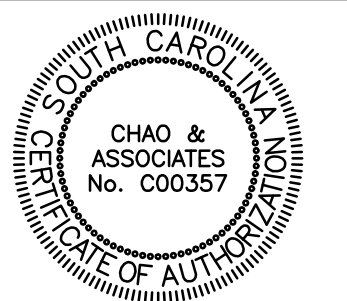
2 - Typical Horizontal/Slab Crack/Spall Repair Scale: NTS



3 - Curb Repair Detail Scale: NTS



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