BRIDGE SAFETY INSPECTION
STATE PROJECT NO. 170-2357

BRIDGE NO. 03190A

ROUTE 8 NB
OVER
ROUTE 8 SB, RIVERSIDE ST., & SUNNYSIDE AVE.

WATERBURY, CONNECTICUT

ROUTINE INSPECTION

October 9, 2006

P.E. Reviewer/Date: _____ 4/13/07

STATE OF CONNECTICUT
DANIEL L. COLAVECCHIO
NO. 18533
LICENSED
PROFESSIONAL ENGINEER

HAKS Reviewer/Date: _____

Prepared By: Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

Submitted By: HAKS

Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

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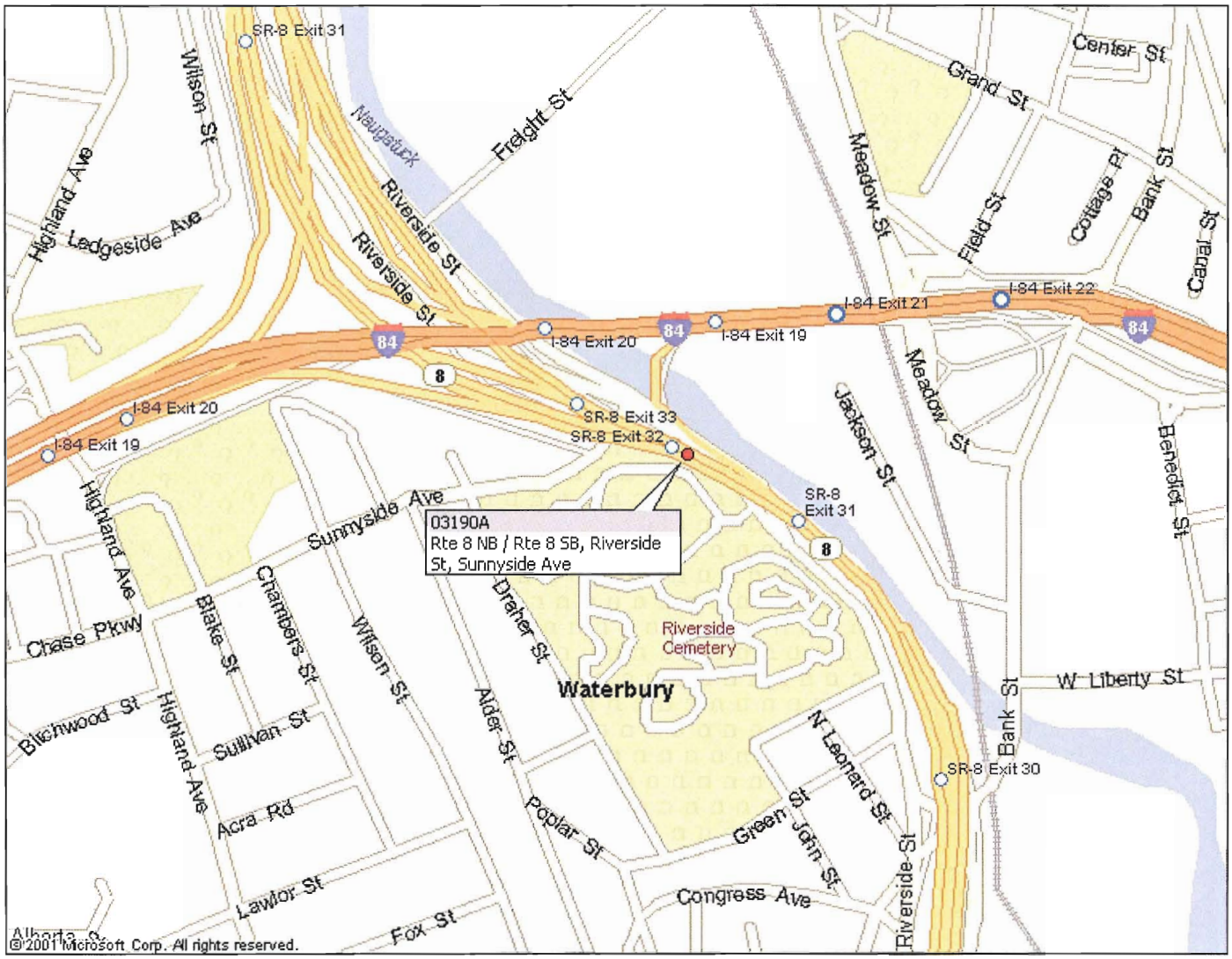
LOCATION MAP



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS

INSPECTION REPORT TRANSMITTAL FORM
FORM BRI-27, REV. 9/97

3

Structure No. 03190A Town: Waterbury

Inspectors: P. Goodwin, S. Watrous, C. Lewis, D. Shi, D. Colavecchio Date: 10/9/06

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EXECUTIVE SUMMARY

Bridge No. 03190A was built in 1966 and rehabilitated in 1991 and carries Route 8 Northbound over Route 8 Southbound, Riverside Street, and Sunnyside Avenue in the city of Waterbury, Connecticut. It is a thirty-six span bridge with an overall length of 2634 feet and a curb-to-curb width of 30 feet. The superstructure consists of fourteen girder-floorbeam-stringer spans and twenty-two multi-girder spans supporting a reinforced concrete deck with bituminous concrete overlay. Reinforced concrete abutments and piers support the superstructure. According to the information on file at Connecticut Department of Transportation the AASHTO HS-20 inventory rating is 35.3 tons and the operating rating is 58.7 tons.

A GPR survey of the bridge deck was performed by Infrasense, Inc. in January 2007 using single-polarization methodology. See Appendix A for further information. Ultrasonic testing of superstructure members was performed by JGI Eastern, Inc. in November 2006 on flange transition welds that previously showed indications. See Appendix B for further information. During this routine inspection performed in October 2006, the bridge was found to be in fair condition.

Deck

The concrete deck is in poor condition. Bituminous overlay has random transverse and longitudinal cracks up to ¼ inch wide. There are clogged scuppers in span 23, right shoulder (2) and span 24 left shoulder (1). Downspout on pier 19, north elevation is cracked between the upper and lower elbows. Under bridge luminaires in spans 13 and 18 are not working. Compression seals are separated from concrete headers at pier 33. Strip seal joint at piers 9 and 22 have torn glands. Random joints have spalls and hollow areas in concrete headers. The above items have not exhibited significant change since the last inspection. The following items have changed since last inspection and/or are new deficiencies found during this inspection:

- Bituminous concrete overlay has random potholes throughout up to 3 inches deep with isolated areas of exposed and torn membrane. There are also random hollow sounding areas with reflex cracking in the overlay up to 10 feet x 15 feet.
- The underside of deck has deterioration that consists mainly of transverse cracks and map cracks with efflorescence, isolated spalls with exposed rebar up to 3-foot diameter x 3 inches deep, hollow areas, and honeycombs with exposed rebar. The deck topside has areas of punky, damp concrete with a paste-like consistency where exposed at potholes. Areas of hollow sounding overlay indicate deck deterioration under the overlay.
- A Priority B maintenance memo was issued on October 30, 2006 to remove two areas of loose concrete over Route 8 SB. Maintenance forces responded and removed the loose concrete.
- Based on visual inspection of the deck, the underside has 20.4% total deterioration with a maximum of 61.8% in span 3 and a total of nine spans with deterioration greater than or equal to 25%.
- According to the GPR survey of the bridge deck, the overall deterioration is 19% with a maximum deterioration of 81% in span 32. Ten deck cores were collected. See Appendix A (GPR report) for more details.
- Scuppers in span 23 left shoulder, span 24 right shoulder, and span 26 right shoulder have been cleared since the previous inspection.

- Downspout on pier 12, north elevation has a 1 inch x 3/16 inch hole near the lower elbow.
- Spans 23-25 have random areas of water ponding in the shoulders due to improper grade/slope of overlay.
- Under bridge luminaire in span 9 has been repaired. Under bridge luminaire in span 11 is not working.
- Span 7 luminaire conduit is broken with exposed wires.
- Span 19, conduit for exit sign warning lights, elbow is missing cover plate, exposing wires.
- Saw and seal joint at the south abutment is cracked and deteriorated at random locations throughout. North abutment crack in seal has been partially resealed with a 15-foot x 1/8 inch crack remaining.
- Segmental joints have torn glands up to 12 feet long, missing sections of elastomeric rubber dams up to 3 feet long, and hollow areas up to 1 foot x 3 feet and spalls up to 6 inches x 3 inches x 1 inch deep in headers.
- Compression seals have new or further separation from the headers at piers 3, 4, 5, and 28. Concrete header at pier 33 has a 2-foot x 4-inch x 6-inch deep spall with a 3-inch diameter hole (full depth spall) through the header. An advance notification Priority C maintenance memo was issued on November 6, 2006 to patch the spall. No repairs were completed during the course of the inspection.
- Asphaltic plug joints have been installed at piers 31 and 34 since the last inspection. There are adhesion cracks in the asphaltic plug joints at piers 30 and 31.
- Active leakage was noted through joints at piers 24, 25, and 27. There is evidence of leakage through joints throughout.

Superstructure

The superstructure is in fair condition. The elastomeric bearings have random edge and corner gaps up to 3 inches deep. Curved sole plate fixed bearings have random areas of pack rust up to ½ inch between the sole and masonry plates with up to ¼ inch section loss to the underside of the sole plate. Longitudinal girders, cross girders, and floorbeams have random areas of painted over section loss and scattered areas of rust on top flanges at haunch spalls. Span 7, floorbeam 1 at girder 1 has a ¼ inch long crack in the web at the bottom flange cope with a drilled stop hole at the end of the crack. Span 11, stringers 1 and 2 at pier 11 cross girder have cracks up to 1-3/4 inch long in the web cope with drilled stop holes at the ends of the cracks. Neither crack has propagated since the previous inspection. The above items have not exhibited significant change since the last inspection. The following item is a new deficiency found during this inspection:

- Cross girder pot bearings are in the incorrect mode for the ambient temperature at the following locations:
  -Pier 6, column 2 for span 7 (longitudinal)
  -Pier 8, column 1 (longitudinal)
  -Pier 8, column 2 (transverse, fully contracted at 55°F)
  -Pier 15, column 2 for span 16 (longitudinal)
  -Pier 17, column 1 for span 17 (longitudinal)
  -Pier 17, column 2 for span 17 (transverse)
  -Pier 18, column 1 (transverse)

-Pier 23, column 1 for span 24 (longitudinal, extreme expansion at 50°F)

- Spans 1-6 and 23-36 rolled beam girders at the fascias have section loss on the bottom flange up to 18 inches long x full width x up to 3/8 inch with 1/8 inch loss of width and loss to the cover plate due to active leakage through the deck. Isolated girders have web loss at the ends up to 9 feet long x 6 inches high x 3/16 inch deep.
- Spans 7-17 and 20-22 plate girders (girder-floorbeam-stringer system) have random areas of bottom flange loss up to 2½ feet long x 4 inches wide x 3/16 inches deep on top and 2 feet long x 1 inch wide x 1/8 inch deep on bottom with up to ¼ inch loss of width due to active leakage through the deck.
- Span 24, north intermediate diaphragm at girder 1 has heavy rust and section loss with perforations and crack in the connection plate due to deck leakage.
- Connection bolts are broken or missing at the following locations:
  -Span 2, girder 4 at pier 2, bottom bolt in connection bracket to the cross girder (1)
  -Span 8, stringer 4 at pier 8, north connection angle (2)
  -Span 10, stringer 3 to floorbeam 1 (1)
  -Span 10, stringer 3 at pier 10, top flange (1)
  -Span 12, stringer 1 to floorbeam 1 (2)
  -Span 13, stringer 1 to floorbeam 1 (1)
  -Span 14, girder 2 splice at pier 13, bottom flange (1)
- There are random cracked, missing, and disconnected (poor fusion) welds throughout the structure and isolated cracked structural members with drilled stop holes. No propagation was noted. See crack schedule for locations and descriptions.
- Flange transition welds (girders and floorbeams) that had previously shown indications were ultrasonically tested. See Appendix B for details.

Substructure

The substructure is in satisfactory condition. Abutments have random vertical hairline cracks. The north abutment has two hollow areas, one each in the stem and seat, west of girder 4. Piers have random spalls, hollow areas, and cracks throughout the caps and columns. Pier 33 footing is exposed due to general slope erosion. The above items have not exhibited significant change since the last inspection. The following items have changed since last inspection and/or are new deficiencies found during this inspection:

- Abutment stems have random spalls up to 8.5 feet long x full height x 2 inches deep with exposed rebar, random hollow areas, vertical hairline cracks and a 1 foot x 1 foot area of mapcracking.
- Pier 3, south uplift anchorage is exposed due to a column spall up to 1 foot high with no section loss to visible portions of anchorage at top of column. The anchorage consists of three steel plate and angle vertical members embedded 8 feet deep in the column, connected by horizontal steel angle members at the bottom and 1½ feet from the top of the column with diagonal angle bracing.
- Pier 4 steel pier cap has random areas of peeling paint (interior & exterior) and 2-foot long x 4-inch high x 1/8 inch section loss to the north web, interior side at column 1.
- Concrete pier caps at piers 25-35 have hollow areas up to 3 feet x 3 feet, spalls up to 6½ feet x 10 inches x 2 feet with exposed rebar, and random cracks up to 1/16 inch wide.

Piers 33 & 34 caps have been repaired with concrete patches and vertical faces and underside have been painted with protective coating.

- Concrete pedestals have scattered hollow corners and spalls up to 10 inches x 6 inches x 8 inches. Pier 26 East, girder 7 pedestal spall undermines the bearing 1-inch x 1-inch at the corner.
- Pier columns have random cracks, areas of map cracks, hollow areas up to 5 feet x 7 feet, and spalls up to 5 feet x 3 feet x 3 inches with exposed rebar. Pier 3 has a 5½-foot x 4½-foot hollow area that is trapping water within the column and a 4-foot x 3-foot x 8-inch deep spall and hollow area around the cantilevered cap uplift anchorage, see note above for anchorage detail. Pier 26 east, south face, approximately 50% of the column surface is hollow.
- Pier 30, column 3 has a 7-foot x 3-foot x 2-foot deep sinkhole at the north face.

Approach Condition

The approaches are in good condition. The northeast metal beam railing has two disconnected posts. The above item has not exhibited significant change since the last inspection. The following item has changed since last inspection and/or are new deficiencies found during this inspection:

- The north approach has a 20-foot long transverse crack in the bituminous pavement that is open up to 1 inch wide.

Recommended repair:

Deck

1. Remove deteriorated concrete where exposed on topside and patch (¼ CY), install new waterproofing membrane (50 SF) and patch potholes (½ TON). Consideration should be given to resurfacing the bridge and installing a new membrane.
2. Seal cracks in the overlay (10,000 LF).
3. Remove deteriorated concrete and replace with full-depth patch in spans 2, 7, 29, 31-33, and 36 (8 CY) and remove deteriorated concrete and surface patch in remaining spans (¼ CY). Consideration should be given to replacing the deck.
4. Clear the clogged scuppers in span 23, right shoulder and span 24, left shoulder (3 EA).
5. Repair the damaged downspouts at pier 12, north elevation and pier 19, north elevation (12 LF).
6. Mill and resurface overlay with appropriate grade/slope in spans 23-25 shoulders (8 TONS).
7. Repair or replace broken and non-functioning underbridge luminaires in spans 11, 13, and 18 (3 EA).
8. Repair broken luminaire conduit in span 7 (1 EA).
9. Install cover on conduit elbow in span 19 (1 EA).
10. Seal the cracks at the south and north abutment joints (60 LF).
11. Replace separated and/or leaking compression seals at piers 3-5, 27, 28, and 33 (85 LF) or replace with asphaltic plug type joint.
12. Replace torn, separated, and/or leaking glands at piers 1, 2, 6, 9, 22, 24, and 25 (55 LF) and missing sections of elastomeric rubber dams at piers 2 and 6 (6 LF).
13. Seal adhesion cracks in asphaltic plug joints at piers 30 and 31 (11 LF).
14. Clean and patch deteriorated concrete headers at piers 3, 6, 9, 18, 19, 32, and 33 (1 CY).

Superstructure

1. Reset or replace misaligned pot bearings, see locations above (8 EA).
2. Spot clean and paint areas of rust and deterioration on superstructure (200 SF).
3. Replace missing connection bolts with 7/8-inch dia. high strength bolts (7 EA) and 1-inch dia. high strength bolts (2 EA).
4. Grind out cracked tack welds and touch-up paint (12 EA). Reweld the cracked or missing welds on the truss brace lower chords at cross girder to fascia girders and diaphragms and touch-up paint (22 EA).

Substructure

1. Remove deteriorated concrete and repair spalled and hollow areas in the abutments, pier caps and columns, and pedestals (3 CY).

Approach

1. Replace the damaged posts at the northeast metal beam rail (2 EA).
2. Seal cracks in the bituminous pavement (500 LF).

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58. DECK

REINFORCED CONCRETE DECK.
BITUMINOUS CONCRETE OVERLAY WITH WATERPROOFING MEMBRANE.

OVERALL RATING 4

See sheets 33-41 and photos 15-19.

DECK STR. CONDITION **4**

The deck underside has deterioration that consists mainly of transverse cracks and map cracks with efflorescence with isolated spalls with and without exposed rebar up to 3' dia x 3" deep (span 31), hollow areas up to 2½' x 2½' (span 34), and honeycomb with exposed rebar up to 3' x 3' x 1½"deep (span 3). Exposed rebar is covered with moderate to heavy rust with no notable section loss. Random girder haunches have been removed throughout the structure and there is active leakage through the deck haunches along fascia girders at isolated locations.

A Priority B maintenance memo was issued on October 30, 2006 to remove two areas of loose concrete over Route 8 SB. Maintenance forces responded and removed the loose concrete.

Deck topside is exposed at potholes in overlay. Where exposed, concrete is typically punky and damp with a paste-like consistency. The numerous hollow areas and areas of reflex cracks in the overlay give an indication of deck deterioration below the overlay. Random full depth patches have hairline cracks on the top surface.

Based on visual inspection of the deck, the underside has 20.4% total deterioration with a maximum of 61.8% in span 3 and a total of 9 spans with deterioration greater than or equal to 25%.

According to the GPR survey of the bridge deck, the overall deterioration is 19% with a maximum deterioration of 81% in span 32. The report shows the majority of deterioration is along curb lines and near span ends. See Appendix A (GPR report) for more details.

See sheets 33-41, 81-123, & 168-181 and photos 16 & 19-22.

CURBS **6**

Vertical granite block curbs. Span 1, east curb has a 4'L x 1/8" wide transverse crack. Isolated transverse cracks and plow scrapes throughout. East curb at pier 35 has two contact spalls up to 1' x 4" x 3" deep. Average curb reveal is 7 inches.

See sheets 33-41.

MEDIAN **N**

SIDEWALKS **6**

Safety walk. Isolated small spalls and hollow areas.

See sheets 33-41.

PARAPET **6**

Parapets inside face have scattered large hollow areas and spalls up to 8' x 2' x 2" deep with isolated rebar exposed throughout. Random vertical and transverse hairline cracks and light scale on top throughout.

See sheets 33-41 and photo 23.

RAILING **6**

Standard steel two-pipe railing on top of parapets. Peeling paint with light rust scattered throughout. Isolated rails are bent.

See sheets 33-41.

PAINT **N**

FENCE **N**

DRAINS **4**

There are fully clogged scupper drains in span 23 (2) right shoulder and span 24 left shoulder. Previously clogged scuppers have been cleared in span 23 left shoulder, span 24 right shoulder, and span 26 right shoulder. Random scupper grates have had a 2" to 3" section of vane flame cut. Downspout on the south abutment is missing the clean-out cover. Downspout on pier 12, north elevation has a 1" x 3/16" hole near the lower elbow. Downspout on pier 19, north elevation is cracked between the upper and lower elbows. Downspout on pier 26, north elevation has a bracket at the bottom with a broken bolt. Spans 23-25 have random areas of water ponding in the shoulders due to improper grade/slope of the overlay.

PVC weeps have no notable deficiencies.

See sheets 33-41 & 81-123 and photos 24 & 25

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58. DECK

REINFORCED CONCRETE DECK.
BITUMINOUS CONCRETE OVERLAY WITH WATERPROOFING MEMBRANE.

OVERALL RATING 4

LIGHTING STANDARD 6

Light standards on both parapets. Junction box covers are typically missing up to 15 of 16 screws, but covers are in place and not loose.

Underbridge luminaries. Span 7 luminaire conduit is broken with exposed wires. Span 9 broken luminaire has been repaired. Spans 11, 13 & 18 luminaires are not working with the cover broken in span 18.

Span 19, conduit for exit sign warning lights, elbow is missing cover plate, exposing wires.

See sheets 33-41 & 81-123 and photos 26-28.

UTILITIES TYPE/SIZE N

CONSTRUCTION JOINTS N

EXPANSION JOINTS 5

Saw and seal joints in overlay at both abutments. South abutment seal is failed at random locations throughout. North abutment crack in seal has been partially sealed, 15'L x 1/8" crack remains.

Segmental joints at piers 1, 2, 6, 17, 18, & 23-25. Joints at piers 1, 2, 6, & 24 have torn glands up to 12'L (pier 24). Joints at piers 2 & 6 are missing sections of elastomeric rubber dam up to 3'L (pier 2). Random joints have hollow areas in headers up to 1' x 3' (pier 6), and spalls in headers up to 6" x 3" x 1" deep (pier 18).

Compression seal joints at piers 3-5, 26-33, & 35. Joints at piers 3-5, 28, & 33 have seals separated from headers up to 6'L (pier 5). Random joints have spalls in headers up to 2' x 4" x 6" deep with a 3" dia. hole (full depth spall) through the header (pier 33), and hollow areas in headers up to 4' x 1' (pier 3). An advance notification Priority C maintenance memo was issued on November 6, 2006 to patch a spall in the span 33 deck joint header at pier 33. No repairs were completed during the course of the inspection.

Strip seal joints at piers 9, 12, 15, 19, & 22. Note that these strip seals were placed over existing finger joints (finger joints remain in place). Piers 9 & 22 joints have torn glands up to 2'L, pier 9 joint has a 12" x 6" x 1" deep spall in the header, piers 9 & 19 have small cracks and gouges in the steel extrusions from plow damage up to 4'L affected area, and pier 19 north header (at Bridge No. 03190C) has a 12"L x 1"W crack.

Asphaltic plug joints at piers 30 (west half), 31 (west half), & 34. The joints at piers 31 & 34 have been installed since the previous inspection. The joints over piers 30 & 31 have adhesion cracks up to 4'L.

There is active leakage or evidence of leakage through joints over piers 24, 25 & 27. There is evidence of leakage through joints throughout.

See sheets 33-41 and photos 29-38.

59. SUPERSTRUCTURE

STEEL MULTI-GIRDER IN SPANS 1-6, 18, 19, & 23-36.
STEEL GIRDER-FLOORBEAM-STRINGER IN SPANS 7-17 & 20-22.

OVERALL RATING 5

RATING

BEARING DEVICES 6

Elastomeric bearings at both abutments and piers 3-5 & 25-34. Span 6, girder 1 at pier 5 has a 1/8" edge gap between the elastomeric pad and masonry plate up to 3" deep along the front edge. Span 31, girders 1 & 3 bearings at pier 30 have 1/16" edge gaps to 1" deep along front between bottom flange and sole plate. Span 31, girder 9 bearing at pier 30, northwest corner of the pad is not in contact with the pedestal ¼" x ¼". Span 30, girder 2 bearing at pier 29 keeper plates are loose with the anchor bolt nuts backed off.

Pot bearings for cross girders at piers 1, 2, and 6-24. Pier 6, column 2 for span 7; pier 8, column 1; pier 17, column 1 for span 17 bearings are in contraction mode, longitudinally, at temperatures from 60°F-70°F. Pier 15, column 2 for span 16 and pier 23, column 1 for span 24 bearings are in expansion mode, longitudinally, at 40°F and 50°F, respectively. Pier 23 bearing is in extreme expansion mode. Pier 8, column 2 bearing is fully contracted, transversely, at 55°F. Pier 17, column 2 for span 17 and pier 18, column 1 bearings are in expansion mode, transversely, at 40°F.

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59. SUPERSTRUCTURE STEEL MULTI-GIRDER IN SPANS 1-6, 18, 19, & 23-36.
STEEL GIRDER-FLOORBEAM-STRINGER IN SPANS 7-17 & 20-22.

OVERALL RATING 5

Curved sole plate fixed bearings have random areas of pack rust up to ½" thick between the sole and masonry plates with up to ¼" section loss on the underside of the sole plate. Span 31, girder 2 bearing at pier 31 is missing the anchor bolt nuts on both sides.

See sheets 48-123 and photos 39-43.

STRINGERS 6

Rolled beam stringers in spans 7-17 and 20-22. Random stringers have bent flanges and webs at isolated areas. Span 11, stringers 1 & 2 at pier 11 have cracks up to 1-3/4" in the web cope with drilled stop holes, no propagation. Random stringer-floorbeam connections have gaps between the bevel plates and floorbeam top flange.

See sheets 88-102 & 105-107.

GIRDERS 5

Spans 1-6 & 23-36 are rolled beam multi-girder design. Random fascia girders have section loss on the bottom flange up to 18"L x FW x up to 3/8" deep with 1/8" loss of width and loss to the cover plate (span 5, girder 7 near midspan, 6.7% section loss at critical section) due to active leakage through the deck. Haunches are typically spalled along the top flange exposing the top flange which has heavy laminated rust (negligible section loss) along the exposed edges. Isolated areas of web loss at girder ends up to 9'L x 6"H x 3/16" deep (span 31, girder 7 at pier 30, 28.8% section loss at critical section).

Spans 7-17 & 20-22 plate girders (girder-floorbeam-stringer system). Random areas of bottom flange loss up to 2½'L x 4"W x 3/16" deep on top and 2'L x 1"W x 1/8" deep on bottom with up to ¼" loss of width (span 15, girder 1, approx. 10' from pier 14, 3.9% section loss) due to active leakage through the deck. Span 8, girder 1 top flange has full length x up to 2"W x up to 1/16" section loss.

Spans 18 & 19 welded plate multi-girder design. Fascia girders have random areas of section loss to the bottom flange up to 1/8" deep x 8"L x 3"W (1.5% section loss at critical section).

Welded plate cross girders at piers 1, 2, and 6-24. Cross girder bottom flanges have random pitting up to 1/8" throughout and isolated section loss up to 16"L x 6"W x 7/8" remaining (7/8" loss) (span 25 at pier 24) and isolated web loss near girder ends up to 3/16" x 10"H (span 19 at pier 19). Scattered web stiffeners have section loss at the bottom with isolated perforations. Bottom flange transition welds which previously showed indications were ultrasonically tested and showed no significant increase in size or length of indications at these locations, see "Welds-Cracks" below.

Span 24, north intermediate diaphragm at girder 1 has heavy rust with 1/8" section loss x 4"W x FH of the web and the vertical connection plate has section loss to knife edge remaining x FH with perforations and a crack due to leakage through the deck haunch. Random bearing stiffeners have section loss at the bottom up to 3/16" deep x FW x up to 8"H with isolated perforations.

See sheets 81-123, Appendix B, and photos 44-51.

FLOOR BEAMS 6

Welded plate girder floorbeams in spans 7-17 & 20-22. Isolated areas of pitting up to 1/16" on bottom flanges. Top flanges have random areas of laminated rust along edges with negligible section loss. Span 7, floorbeam 1 at girder 1 has a ¼"L crack in the web at the bottom flange cope. There is a drilled stop hole at the end of the crack and the crack has not propagated since the previous inspection. Bottom flange transition welds which previously showed indications were ultrasonically tested and showed no significant increase in size or length of indications at these locations, see "Welds-Cracks" below.

See sheets 88-102 & 105-107, Appendix B, and photo 54.

TRUSSES-GENERAL N

TRUSSES-PORTALS N

TRUSSES-BRACING N

PAINT 7

Isolated areas of failed coating with varying amounts of rust. The structure was painted in August, 1991.

RUST 5

See above items.

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59. SUPERSTRUCTURE STEEL MULTI-GIRDER IN SPANS 1-6, 18, 19, & 23-36.
STEEL GIRDER-FLOORBEAM-STRINGER IN SPANS 7-17 & 20-22.

OVERALL RATING 5

MACHINERY MOV SPAN	N	
RIVETS & BOLTS	6	Span 2, girder 4 at pier 2, bottom bolt in connection bracket to the cross girder is broken. Span 8, stringer 4 at pier 8, 2 of 4 bolts in the north connection angle are broken. Span 10, stringer 3 at pier 10, top flange is missing one bolt. Span 14, girder 2 splice at pier 13, bottom flange is missing one bolt. Stringer to floorbeam connection bolts are broken or missing at the following locations: -Span 10, stringer 3 at floorbeam 1 (1) -Span 12, stringer 1 at floorbeam 1 (2) -Span 13, stringer 1 at floorbeam 1 (1). Span 11, stringer 1 at floorbeam 1, one connection bolt is missing a nut. Span 18 cross girder at pier 17, west seismic retrofit has been reinstalled since the previous inspection. Span 19 cross girder at pier 19, east seismic retrofit is missing the cotter pins in the connection pins. See sheets 81-123 and photos 52, 53 & 55-57.
WELDS & CRACKS	6	Cross girder flange transition welds were ultrasonically tested at the following locations: span 10 at pier 9, bottom flange, west weld; span 23 at pier 23, bottom flange, west weld; and span 24 at pier 24, bottom flange, west weld (all locations showed indications previously). There were no significant changes since the previous testing (September 2002). Floorbeam flange transition welds were ultrasonically tested at the following locations: span 8, floorbeam 1, bottom flange, east weld; span 10, floorbeam 1, bottom flange, east weld; span 13, floorbeam 1, bottom flange, west weld; span 15, floorbeam 2, bottom flange, west weld; span 17, floorbeam 1, bottom flange, west weld; and span 20, floorbeam 2, bottom flange, east weld (all locations showed indications previously). There were no significant changes since the previous testing (September 2002). There are random cracked and missing diaphragm connection welds throughout. Cross girder to fascia girder diagonal truss braces at piers have random cracked, missing, and disconnected (poor fusion) welds at the bottom chord to girder connection. See crack schedule (sheets 124-126). Cross girder welds between web and bottom flange typically removed up to 12"L at bearings during prior lateral bracing or seismic retrofit rehabilitation. Random tack welds between stringer bevel plates and floorbeam top flanges and along girder web splice plate vertical edges are cracked. Span 24 at pier 24 vertical plate tack welds to top flange are cracked. See crack schedule (sheets 124-126). Span 7, floorbeam 1 at girder 1 has a ¼"L crack in the web at the bottom flange cope with a drilled stop hole at the end of the crack. Span 11, stringer 1 at pier 11 cross girder has a 1-3/4" crack in the web cope with a drilled stop hole at the end of the crack. Neither crack has propagated since the previous inspection. All partial length welded cover plates end welds (Category E) were checked 100% hands on. See sheets 81-126, Appendix B, and photos 58-61.
TIMBER DECAY	N	
CONCRETE CRACKING	N	
COLLISION DAMAGE	8	Span 18 cross girder at pier 17, west seismic retrofit has been repaired since the previous inspection.
MEMBER ALIGNMENT	7	Random bearings are not in the correct mode for ambient temperature. See "Bearing Devices" above. Random stringers have bent flanges.
DEFLECT. UNDER LOAD	N	(N) Normal (E) Excessive
VIBR. UNDER LOAD	N	(N) Normal (E) Excessive Span 15, floorbeam 2 has noticeable vibration under live load.

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 03190A **INSPECTION DATE:** 10/9/2006

59. SUPERSTRUCTURE STEEL MULTI-GIRDER IN SPANS 1-6, 18, 19, & 23-36.
STEEL GIRDER-FLOORBEAM-STRINGER IN SPANS 7-17 & 20-22.
OVERALL RATING 5

STAND PIPES	8	Stand pipes at piers 4, 13 & 22 have no notable deficiencies.
BARREL LADDERS	N	

ARE BARREL LADDERS OSHA COMPLIANT? NA

60. SUBSTRUCTURE REINFORCED CONCRETE ABUTMENTS AND PIERS WITH STEEL PIER CAPS AT PIERS 3-5.
OVERALL RATING 6

	RATING	
ABUTMENTS-STEM	6	The south abutment has one full height vertical crack under girder 5 and the north abutment has random vertical hairline cracks and a 1' x 1' hollow area in the seat west of girder 4 and a 3' x 1' hollow area on the stem. See sheets 127 & 128.
ABUTMENTS-BACKWALL	6	Isolated spalls up to 1½' x 1' x 4" deep. See sheets 127 & 128.
ABUTMENTS-FOOTINGS	N	Not visible.
ABUT.-SETTLEMENT	8	
ABUTMENTS-WINGWALLS	6	Random vertical hairline cracks with isolated efflorescence. Northwest wingwall has an 18" x 8" x 1" deep spall with exposed rebar and a 2'W x FH area of mapcracking with efflorescence and a 2' x 2' hollow area. The south abutment west cheekwall has a 3'H x 12"W x 6"D corner contact spall and the north abutment east cheekwall has two 8" x 5" x 1" deep spalls with exposed rebar on the inside face. See sheets 127 & 128.
PIERS/BENTS-CAPS	6	Piers 3-5 steel pier caps. Pier 3, south uplift anchorage is exposed due to a column spall up to 1'H with no section loss to visible portions of anchorage at top of column. The anchorage consists of three steel plate and angle vertical members embedded 8' deep in the column, connected by horizontal steel angle members at the bottom and 1½' from the top of the column with diagonal angle bracing. Pier 4 has random areas of peeling paint (interior & exterior) and 2'L x 4"H x 1/8" section loss to the north web, interior side at column 1 (non-critical area). Pier 5 bottom of bottom flange has up to 1/8" deep painted over pitting. Piers 25-35 concrete pier caps. Piers 33 & 34 caps have been repaired with concrete patches and vertical faces and underside have been painted with protective coating. Remaining pier caps have hollow areas up to 3' x 3' (pier 31), spalls up to 6½' x 10" x 2' (pier 31) with random spalls having exposed rebar, and random cracks up to 1/16" wide. Concrete pedestals have scattered hollow corners and spalls up to 10" x 6" x 8" in the pedestals. Pier 26 East, girder 7 pedestal spall undermines the bearing 1" x 1" at the corner. See sheets 129-167 and photos 62-65.
PIERS/BENTS-PILE BENT	N	
PIERS/BENTS-COLUMN	5	Pier columns have random cracks, areas of map cracks, hollow areas up to 5' x 7' (pier 26 east), and spalls up to 5' x 3' x 3" with random spalls having exposed rebar. Pier 3 has a 5½' x 4½' hollow area that is trapping water within the column and a 4' x 3' x 8" deep spall and hollow area around the cantilevered cap uplift anchorage. See "Piers/Bents Caps" above for anchorage details. Pier 26 east, south face, approximately 50% of the column surface is hollow. See sheets 129-167 and photos 66-68.
PIERS/BENTS-FOOTINGS	8	Pier 33 footing is exposed at the east side with no notable deficiencies.
PIERS/BENTS-SETTLEMent	8	

14A

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 03190A **INSPECTION DATE:** 10/9/2006

60. SUBSTRUCTURE — REINFORCED CONCRETE ABUTMENTS AND PIERS WITH STEEL PIER CAPS AT PIERS 3-5. — **OVERALL RATING** 6

EROSION-SCOUR	7	Erosion rated '7'. Pier 30, column 1, there is a 7'W x 3'L x 2'D sink hole at the north side of the column. Pier 33 footing is exposed. Scour not applicable.
CONCRETE CRACK-SPALL	6	See above items.
STEEL CORROSION	6	See "Piers/Bents Caps" above.
PAINT	7	See "Piers/Bents Caps" above.
TIMBER DECAY	N	
COLLISION DAMAGE	8	
DEBRIS	7	Random debris on pier caps.

61. CHANNEL & CHANNEL PROTECTION — **OVERALL RATING** N

62. CULVERTS & RETAINING WALL — **OVERALL RATING** N

APPROACH CONDITION — BITUMINOUS PAVEMENT. — **OVERALL RATING** 7

	RATING	
APPROACH SLAB	7	Not visible. Rating is based on approach pavement, see below.
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	7	Metal beam rail at southeast corner has a 10'L section with scrapes. Northeast railing has two disconnected posts. See sheets 33 & 41.
APPROACH PAVEMENT	7	Random transverse and longitudinal cracks. North approach has a 20'L x up to 1"W transverse crack. See sheets 33 & 41.
APPROACH EMBANKMENT	7	Minor erosion at the northeast embankment.

TRAFFIC SAFETY FEATURES:

BRIDGE RAILINGS	0	Parapets do not meet height requirement and have safety walks.
TRANSITIONS	0	Steel W-shape blockouts (southeast railing).
APPROACH GUARDRAILS	0	Steel W-shape blockouts (southeast railing).
APPR. GUARDRAIL ENDS	N	Continuous railings at all corners.

LOAD POSTING

SINGLE UNIT (TONS)		
HS (TONS)		
4 AXLE (TONS)		
3S2 (TONS)		
ADVANCE WARNING Y/N	N	
LEGIBILITY	N	
VISIBILITY/LOCATION	N	

14B

Connecticut Department of Transportation
Bridge Inspection Report BRI-18

BRIDGE #: 03190A **INSPECTION DATE:** 10/9/2006

MISC.

MIN VERT. UNDERCLR.	15'	3"	Pier 34 over Riverside St. SB left lane.
POSTED CLR. UNDER BRIDGE	'	"	
POSTED CLR. ON BRIDGE	'	"	
ADVANCE WARNING (Y/N)	No		
SPEED LIMIT (IF ANY)	45 MPH		
CHARACTER OF TRAFFIC			Heavy, mixed.

ADDITIONAL NOTES

-Bridge identification number is in good condition.
-The bridge is logged from south to north with girder 1 at the west fascia. This is consistent with the previous report and plans.
-33', 45', and 80' lifts were used to inspect the structure.
-BMM No. 03-010 items 1, 2, 3, 5a, 6, and 7c have not been addressed since the previous inspection. Items 7b and 9 have been removed because they are not deficiencies.

ADDITIONAL COMMENTS:

Inspectors' Signatures:

1) _____ Date: 04/13/07

2) _____ Date: 04/13/07

3) _____ Date: __/__/__

4) _____ Date: __/__/__

P.E. Signature: _____ Date: 04/13/07

P.E.#: 18533

Reviewed by: _____ CDOT Date: __/__/__

TIME AT SITE

Bridge No. 03190A

Proj. # 170-2357

Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

Sheet 15

Date: 10/9/06	Crew: PG, SW	
	Equipment Used: 43' Lift	
Time: 0930-1500	Police: N/A (Name/Time)	Flagman: N/A (Name/Time)
Work Done: Completed span 30 and 3/4 of span 31.		
Date: 10/10/06	Crew: PG, SW, CL	
	Equipment Used: 43' Lift, 30' Lift, Cube, Crash truck	
Time: 0830-1530	Police: Kulig #927 (Name/Time) 1030-1530	Flagman: N/A (Name/Time)
Work Done: Completed portions of spans 4-12.		
Date: 10/11/06	Crew: PG, SW	
	Equipment Used: 43' Lift, 30' Lift, Cube, Crash truck	
Time: 0830-1500	Police: Ingala #530 (Name/Time) 0830-1500	Flagman: N/A (Name/Time)
Work Done: Completed portions of spans 13-19.		
Date: 10/12/06	Crew: PG, SW, CL	
	Equipment Used: 43' Lift, 30' Lift, Cube, Crash truck	
Time: 0830-1500	Police: Orlowski #614 (Name/Time) 0830-1500	Flagman: N/A (Name/Time)
Work Done: Completed portions of spans 18-26.		
Date: 10/25/06	Crew: PG, SW	
	Equipment Used:	
Time: 0830-1400	Police: N/A (Name/Time)	Flagman: N/A (Name/Time)
Work Done: Top of deck inspection in spans 31-36. Inspected with Bridge 3191B.		

TIME AT SITE

Bridge No. 03190A

Proj. # 170-2357

Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

Sheet 15A

Date: 10/26/06	Crew: PG, SW	
	Equipment Used: 80' Manlift, Cube	
Time: 0845-1530	Police: (Waterbury) Maia #606 (Name/Time) 0900-1500	Flagman: N/A (Name/Time)
Work Done: Completed span 25 and parts of spans 23, 24, 26 & 27.		
Date: 11/3/06	Crew: PG, SW	
	Equipment Used: 80' Manlift, Cube	
Time: 0900-1500	Police: (Waterbury) Pizanskas #484 (Name/Time) 0900-1200	Flagman: N/A (Name/Time)
Work Done: Completed spans 27 & 31-33 and parts of spans 28, 29 & 34.		
Date: 11/6/06	Crew: PG, DS	
	Equipment Used: 43' Lift, Cube, Crash truck	
Time: 1100-1530	Police: Jacobi #1083 (Name/Time) 0830-1530	Flagman: N/A (Name/Time)
Work Done: Completed parts of spans 1-3 & 24. Inspeted with Bridge 3191B.		
Date: 11/7/06	Crew: PG, CL, DS	
	Equipment Used: 43' Lift, 36' Lift, 80' Manlift, Cube, 2 Crash trucks	
Time: 0830-1500	Police: Ardolino #919 (Name/Time) 0830-1500	Flagman: N/A (Name/Time)
Work Done: Completed spans 20-22 & 24. UT over Route 8 SB right lane.		
Inspected with Bridge 3191B.		
Date: 11/9/06	Crew: PG, CL, DS	
	Equipment Used: 43' Lift, 80' Manlift, Cube, Crash truck	
Time: 0830-1500	Police: Pfeiffer #635 (Name/Time) 0830-1500	Flagman: N/A (Name/Time)
Work Done: Completed spans 1-6 and part of span 7. UT over Route 8 SB left lane.		

TIME AT SITE

Bridge No. 03190A

Proj. # 170-2357

Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

Sheet 16

Date: 11/14/06	Crew: PG, CL	
	Equipment Used: 43' Lift, Cube	
Time: 1200-1500	Police: (Waterbury) Rivera #647 (Name/Time) 0900-1500	Flagman: N/A (Name/Time)
Work Done: Completed spans 34 & 35. Inspected with Bridge 3190D.		
Date: 11/15/06	Crew: PG, DC, DS	
	Equipment Used: Cube, Crash truck	
Time: 0830-1400	Police: Fienemann #0177 (Name/Time) 0830-1400	Flagman: N/A (Name/Time)
Work Done: Completed top of deck, right side. Inspected with Bridge 3190C.		
Date: 11/15/06 (Night)	Crew: DC, CL	
	Equipment Used: 43' Lift, 36' Lift, Cube, Crash truck	
Time: 2130-0530	Police: Sivori #469 (Name/Time) 2200-0530	Flagman: N/A (Name/Time)
Work Done: Completed parts of spans 7-11. Inspected with Bridge 3190C.		
Date: 11/17/06	Crew: PG, DS	
	Equipment Used: 43' Lift, Cube, Crash truck, air meter	
Time: 0900-1130	Police: N/A (Name/Time)	Flagman: N/A (Name/Time)
Work Done: Inspected inside of piers 4 & 5 cap box girders.		
Date: 11/20/06	Crew: PG, SW	
	Equipment Used: Cube, Crash truck	
Time: 0830-1200	Police: Picard #255 (Name/Time) 0830-1200	Flagman: N/A (Name/Time)
Work Done: Inspected top of deck, left side.		

TIME AT SITE

Bridge No. 03190A

Proj. # 170-2357

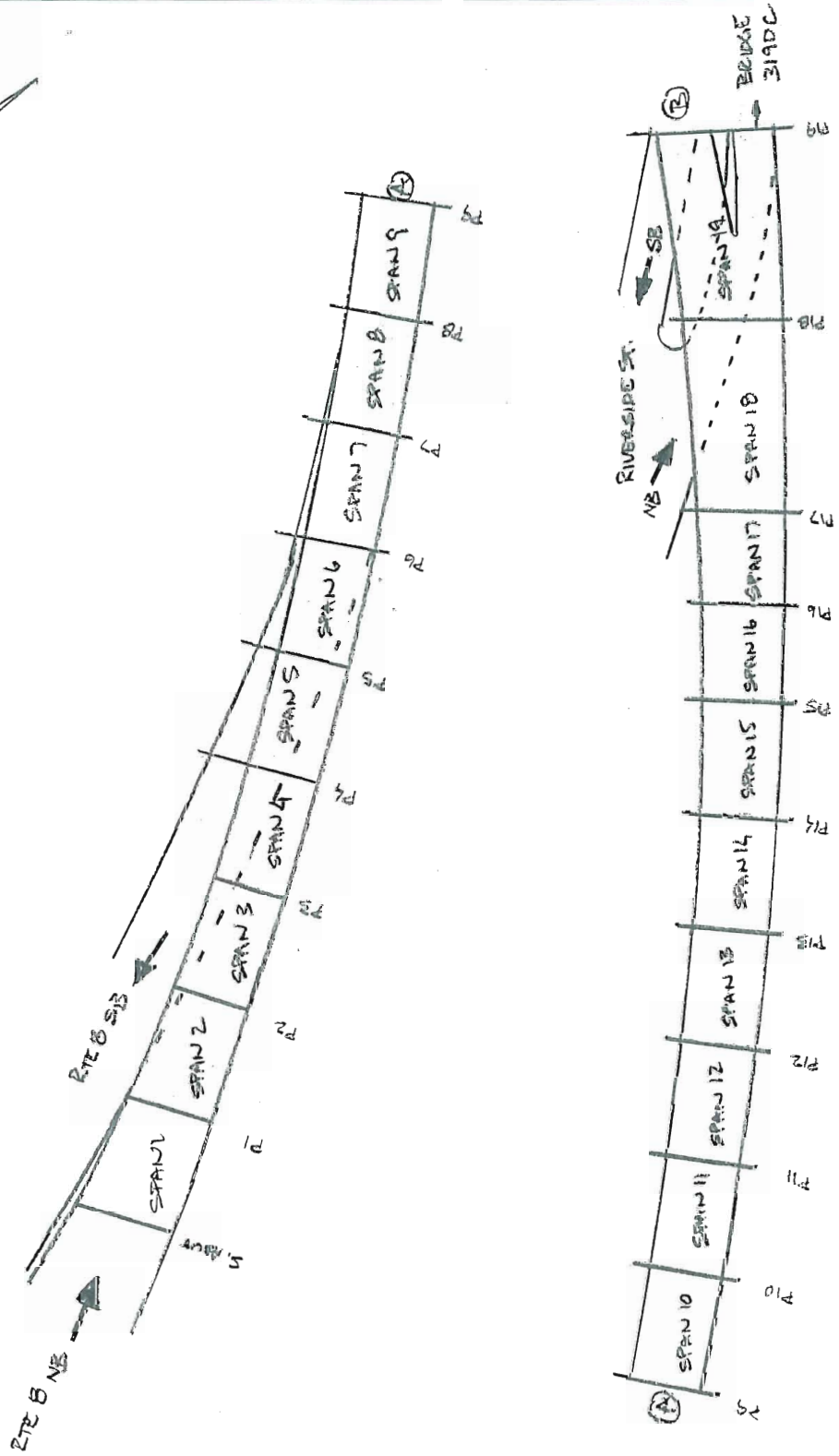
Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

Sheet 17

Date: 11/21/06	Crew: PG, SW, CL	
	Equipment Used: 43' Lift, 36' Lift, Cube, Crash truck	
Time: 0830-1500	Police: Tadiello #403 (Name/Time) 0830-1500	Flagman: N/A (Name/Time)
Work Done: Completed spans 7-19.		
Date: 11/24/06	Crew: PG, CL	
	Equipment Used: 43' Lift	
Time: 0900-1230	Police: N/A (Name/Time)	Flagman: N/A (Name/Time)
Work Done: Completed inspection of structure.		
Date:	Crew:	
	Equipment Used:	
Time:	Police: (Name/Time)	Flagman: (Name/Time)
Work Done:		
Date:	Crew:	
	Equipment Used:	
Time:	Police: (Name/Time)	Flagman: (Name/Time)
Work Done:		
Date:	Crew:	
	Equipment Used:	
Time:	Police: (Name/Time)	Flagman: (Name/Time)
Work Done:		

FIELD NOTES

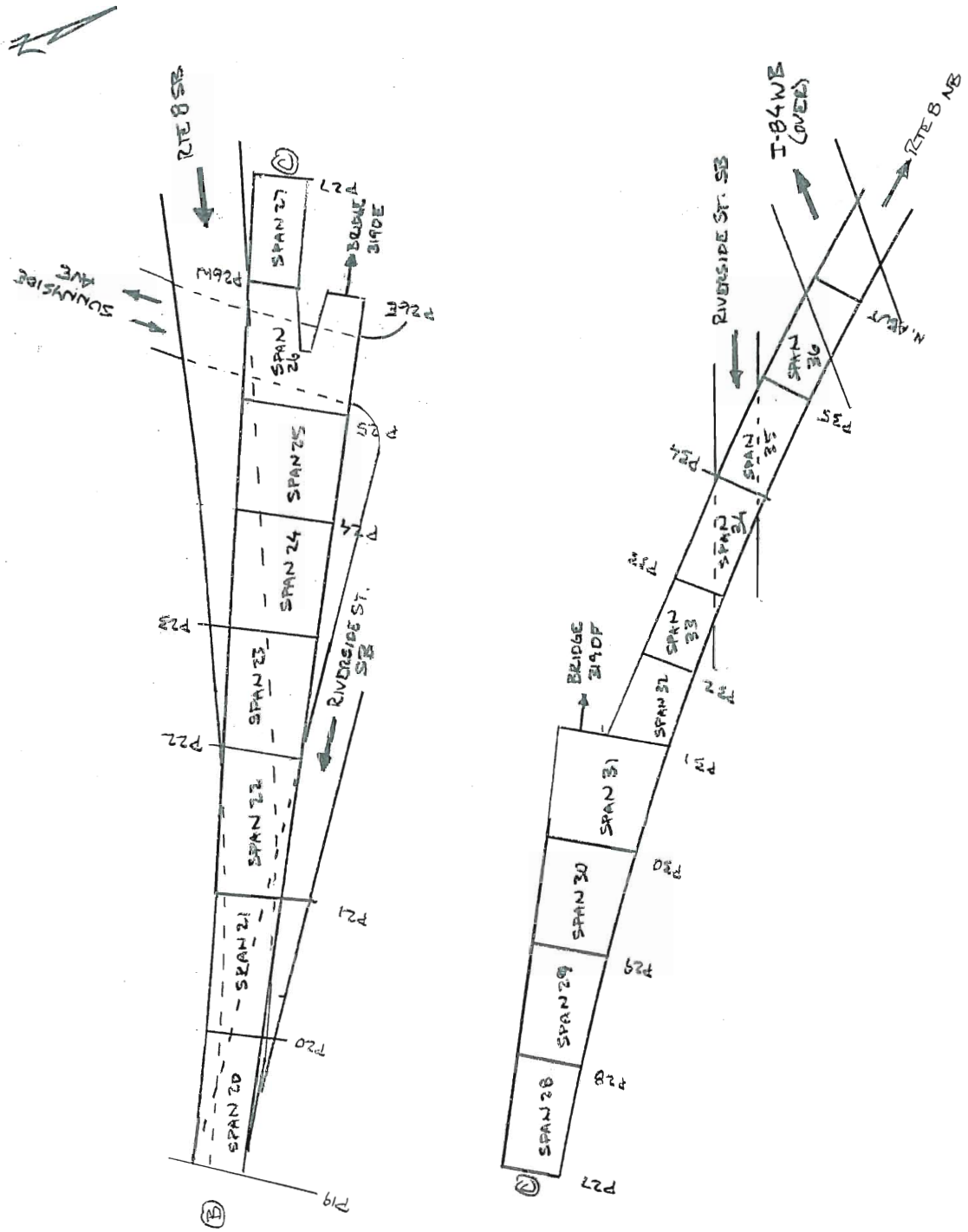
JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/9/06	SHEET 18
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL, DS, DLC



GENERAL PLAN - SPANS 1-19

FIELD NOTES

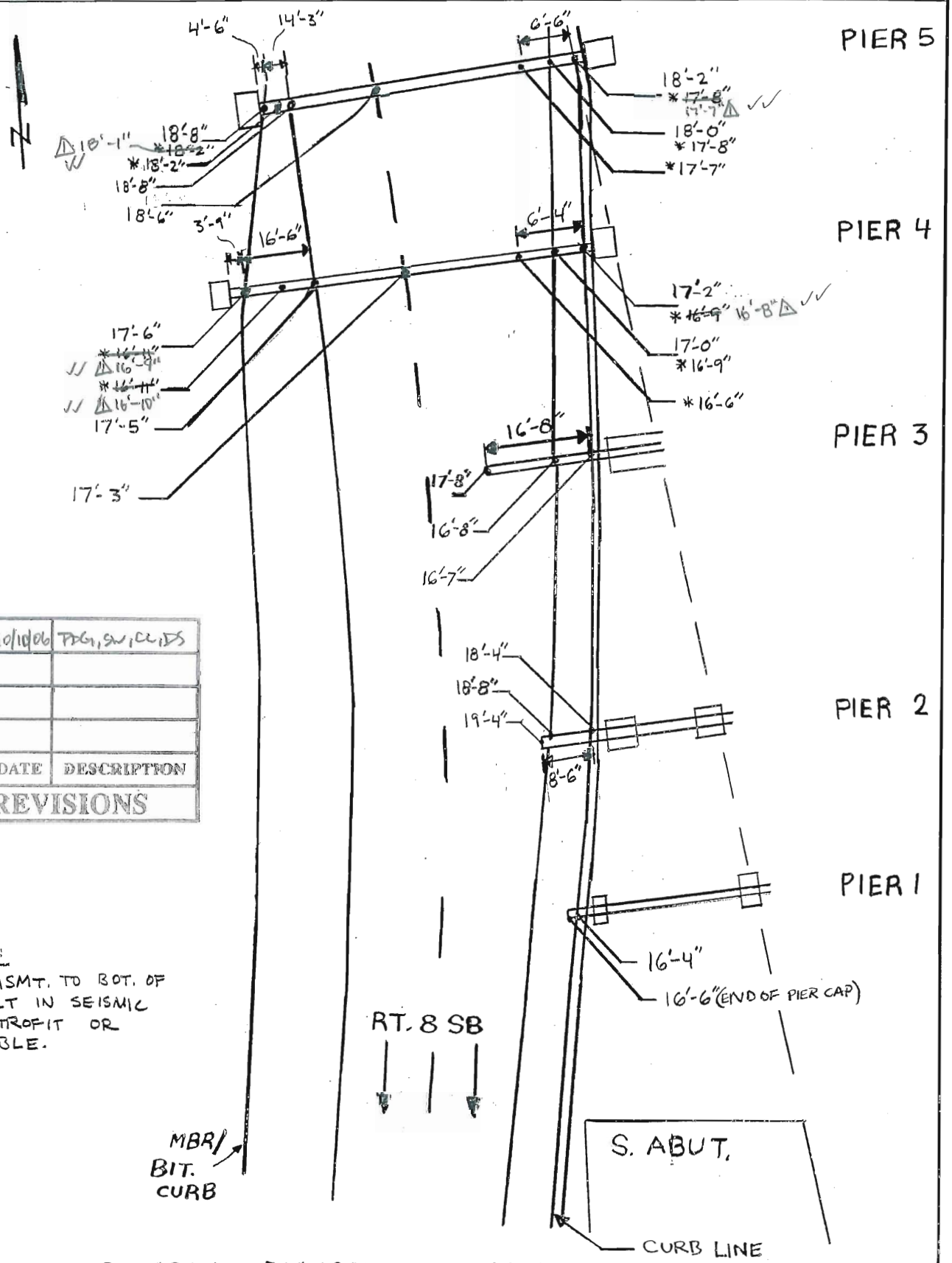
	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/9/06	SHEET 19
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL, DS, DLC	



GENERAL PLAN - SPANS 20-36

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 3190 A	
DATE 11/22/04	SHEET ~~7~~ 20	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, FM, PG, SW, CC, JW	



NO.	DATE	DESCRIPTION
1	10/10/06	TDG, SW, CC, DS

REVISIONS

NOTE:

* MSMT. TO BOT. OF BOLT IN SEISMIC RETROFIT OR CABLE.

CLEARANCE DIAGRAM SPANS 1-5

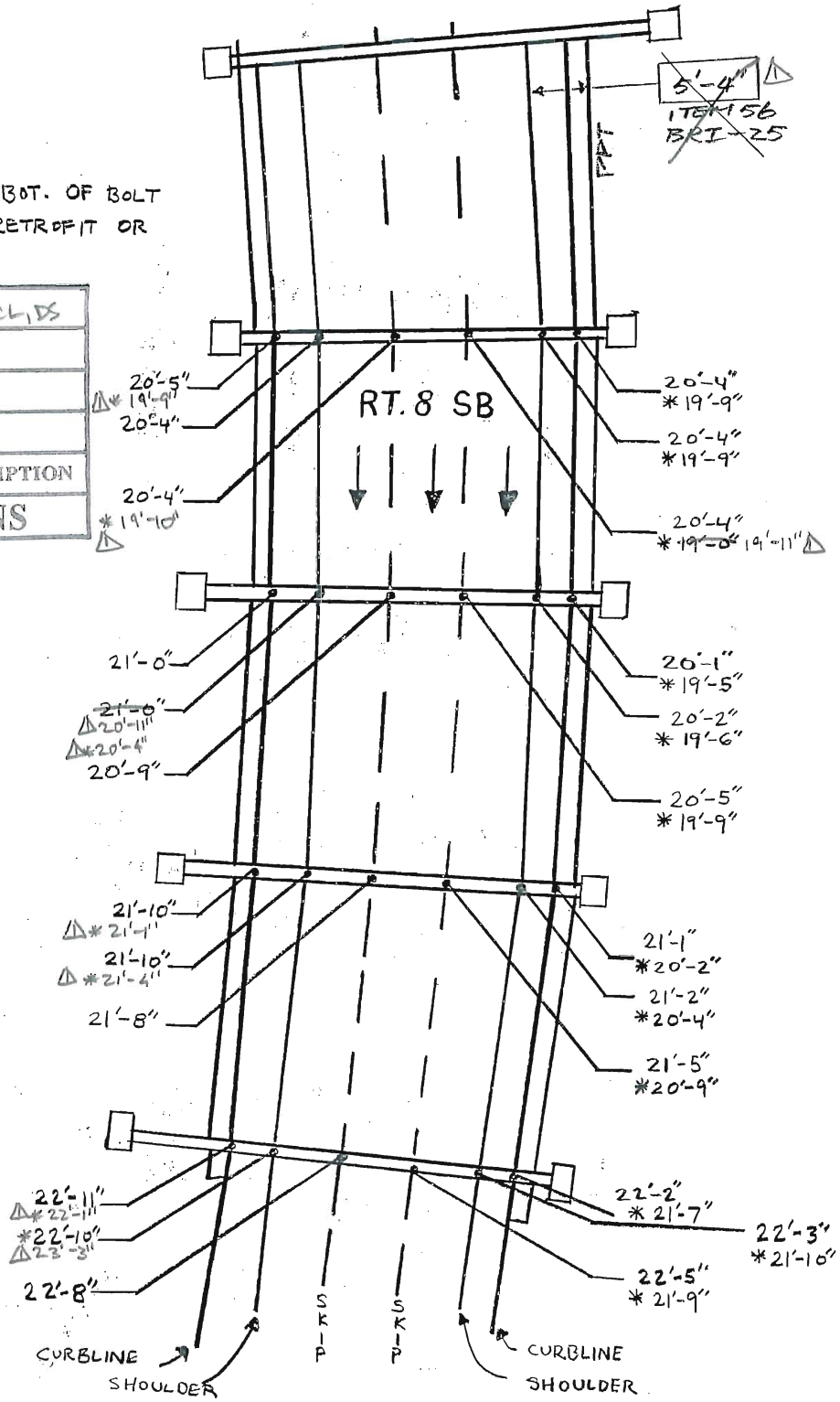
FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/22/04	SHEET ~~6~~ 21
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, FM, PG, SW, CC, JW	

NOTE:
* MSMT. TO BOT. OF BOLT IN SEISMIC RETROFIT OR CABLE.

NO.	DATE	DESCRIPTION
△	10/10/06	PG, SW, CL, DS

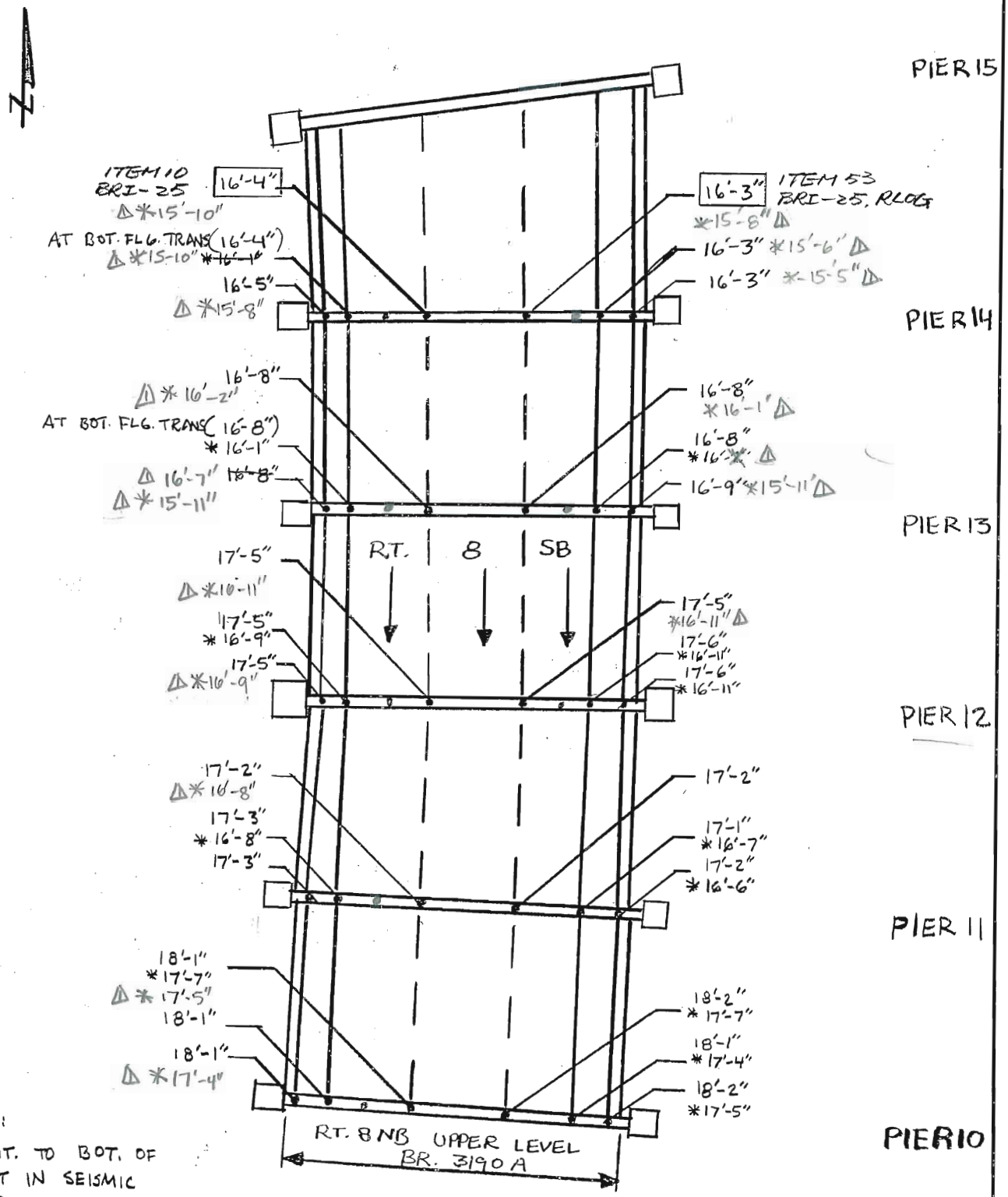
REVISIONS



CLEARANCE DIAGRAM SPANS 6-9

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~X~~ 22
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC	△ 10/15/06 FDG, SW, CL, DS

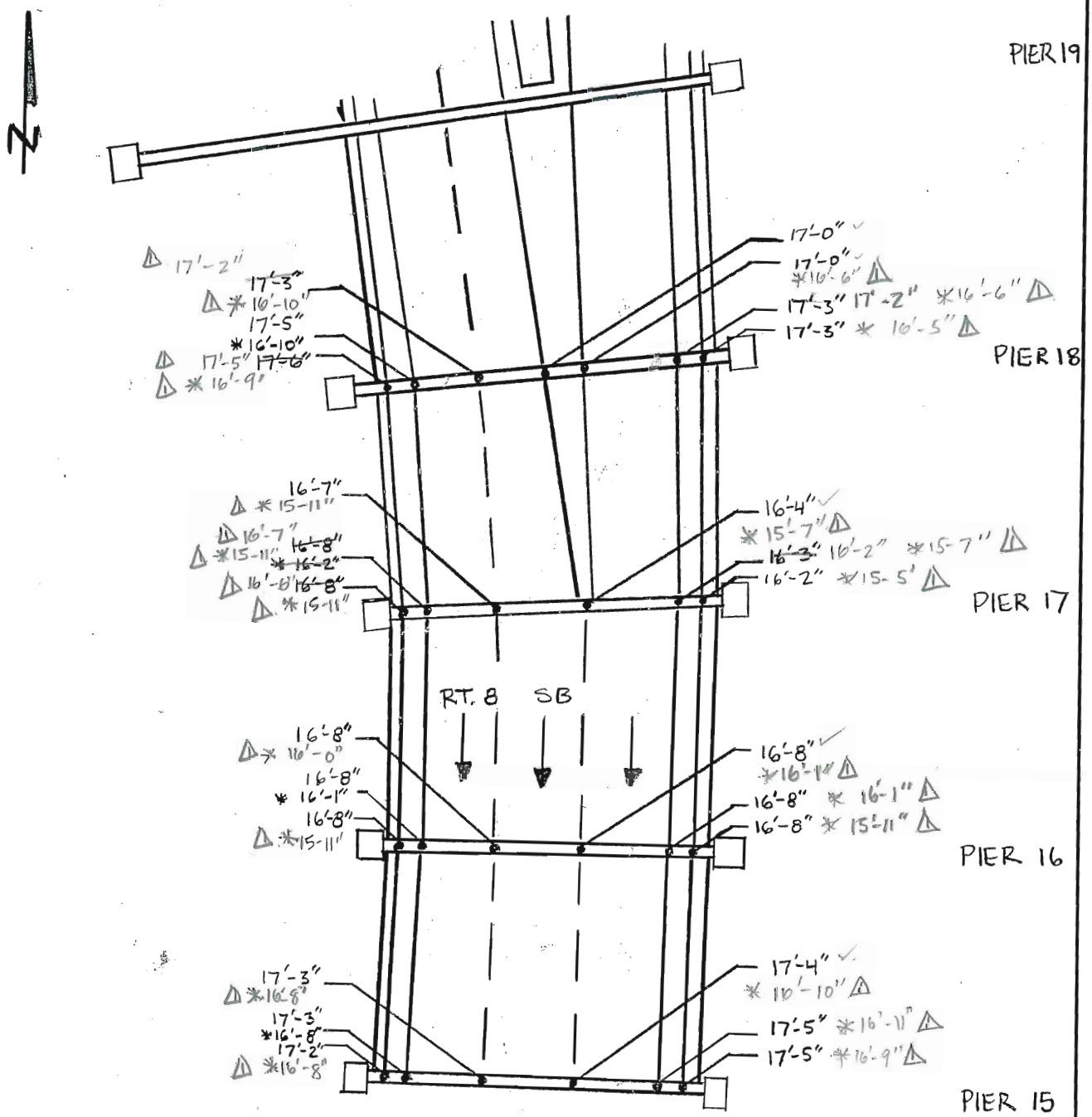


NOTE:
*MSMT. TO BOT. OF BOLT IN SEISMIC RETROFIT OR CABLE

CLEARANCE DIAGRAM SPANS 10-15

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~8~~ 23
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, MU, CC	



NOTE:
* MSMT. TO BOT. OF BOLT IN SEISMIC RETROFIT OR CABLE.

NO.	DATE	DESCRIPTION
1	10/11/06	RDG, SW, CL, DS

REVISIONS

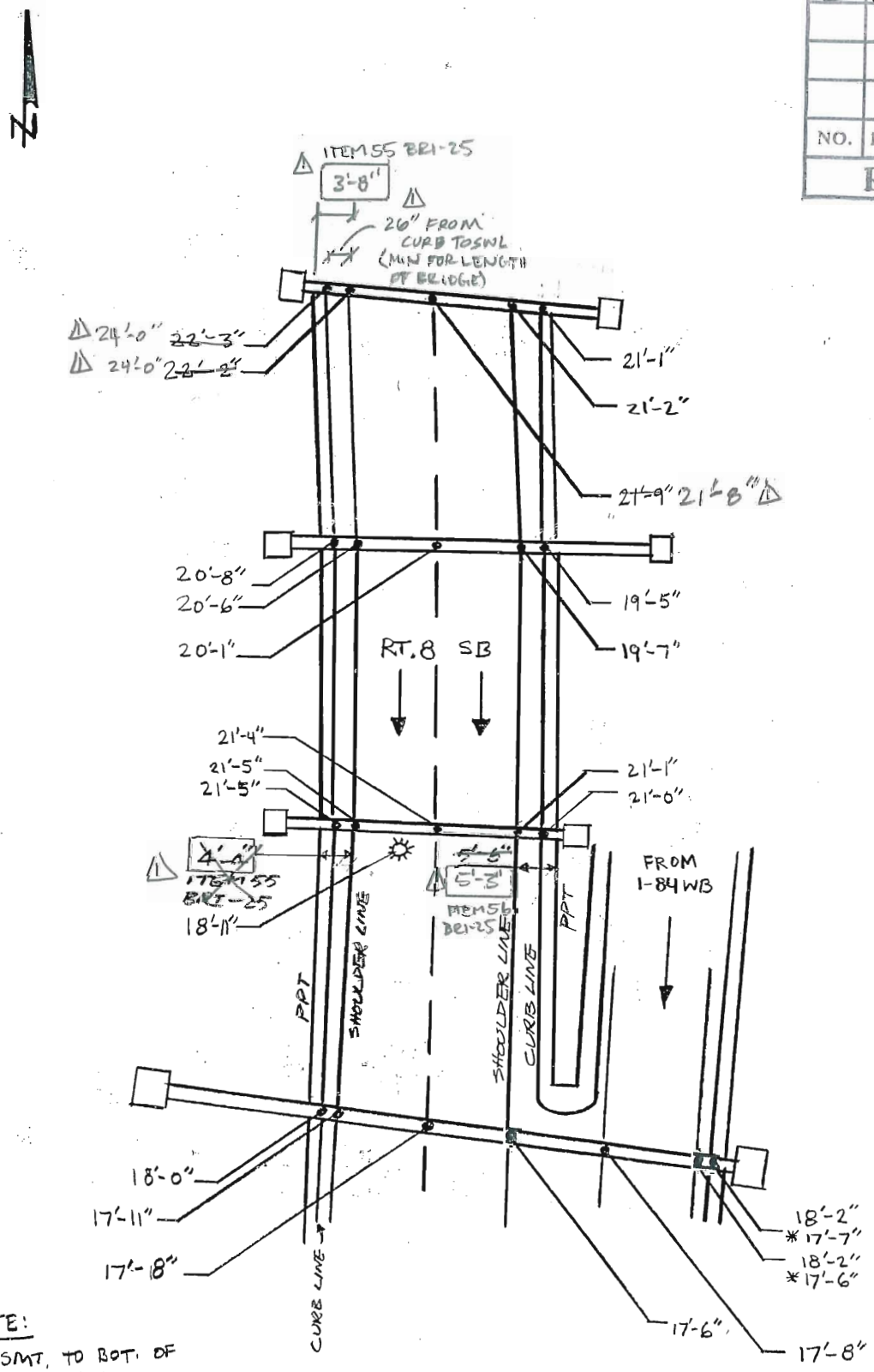
CLEARANCE DIAGRAM SPANS 15-19

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~X~~ 24
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC, SW	

NO.	DATE	DESCRIPTION
1	10/12/06	FM, SW, CL, DS

REVISIONS



NOTE:

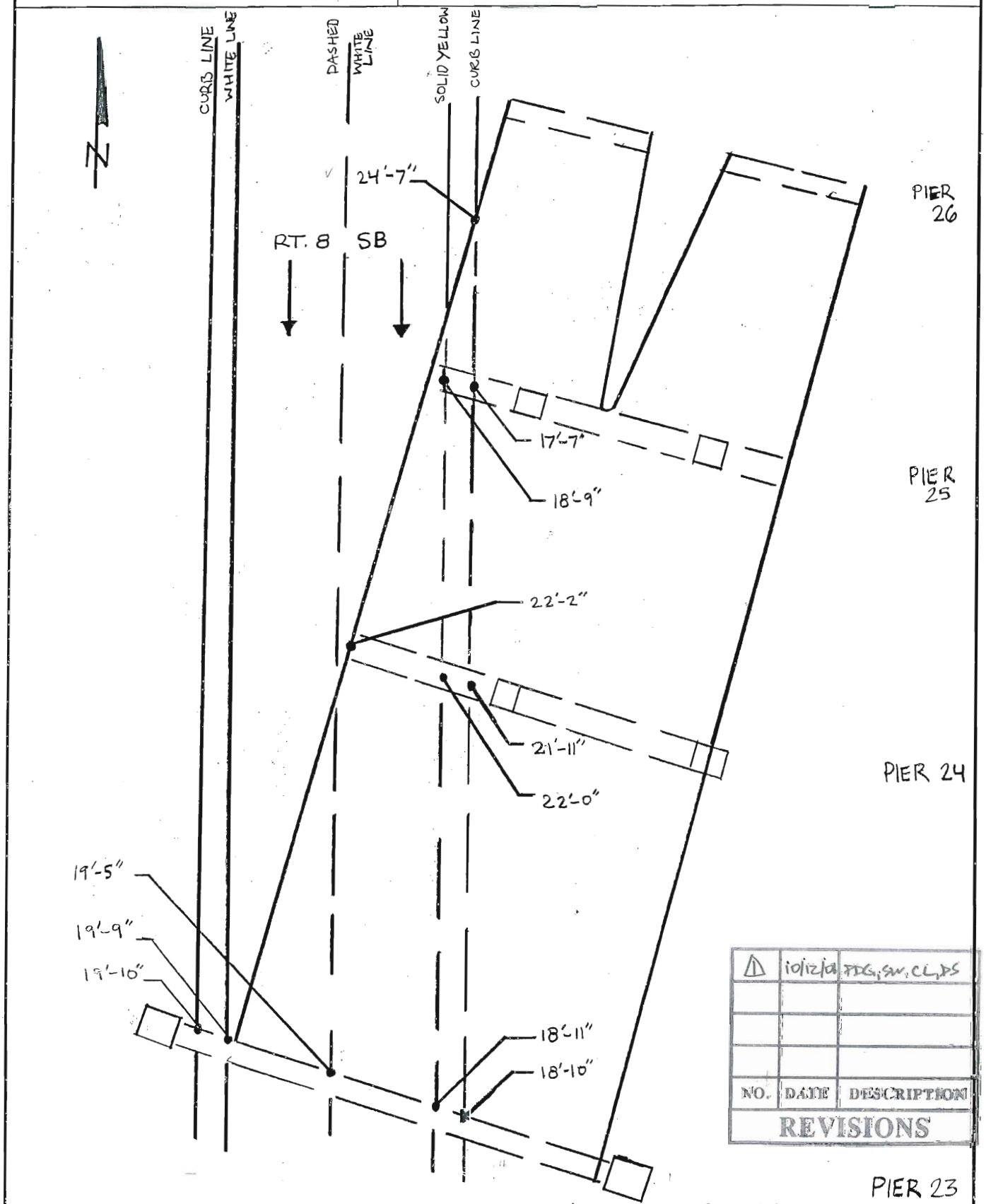
* MSMT. TO BOT. OF BOLT IN SEISMIC RETROFIT OR CABLE.

✲ UNDERDECK LIGHT

CLEARANCE DIAGRAM SPANS 20-22

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 12/13/04	SHEET ~~12~~ 25
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, JW, PG	



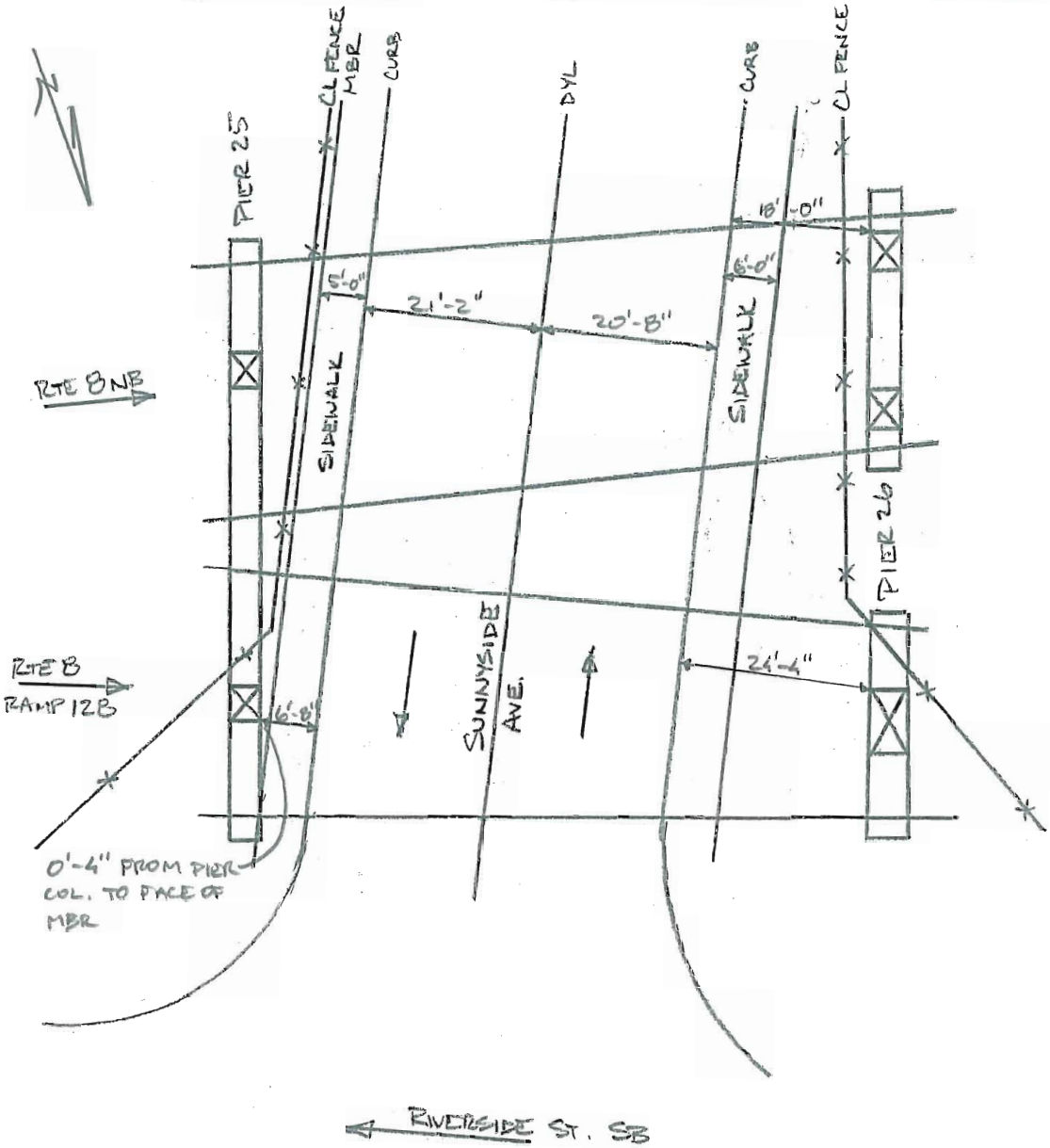
NO.	DATE	DESCRIPTION
1	10/12/04	PDG, SW, CL, DS

REVISIONS

CLEARANCE DIAGRAM UNDER BR 3190 A SPANS 24-26

FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/26/06	SHEET 26
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL, DS	



PIER COLUMN

NOTE: ALL VERTICAL CLEARANCES > 25'

CLEARANCE DIAGRAM - SPAN 26

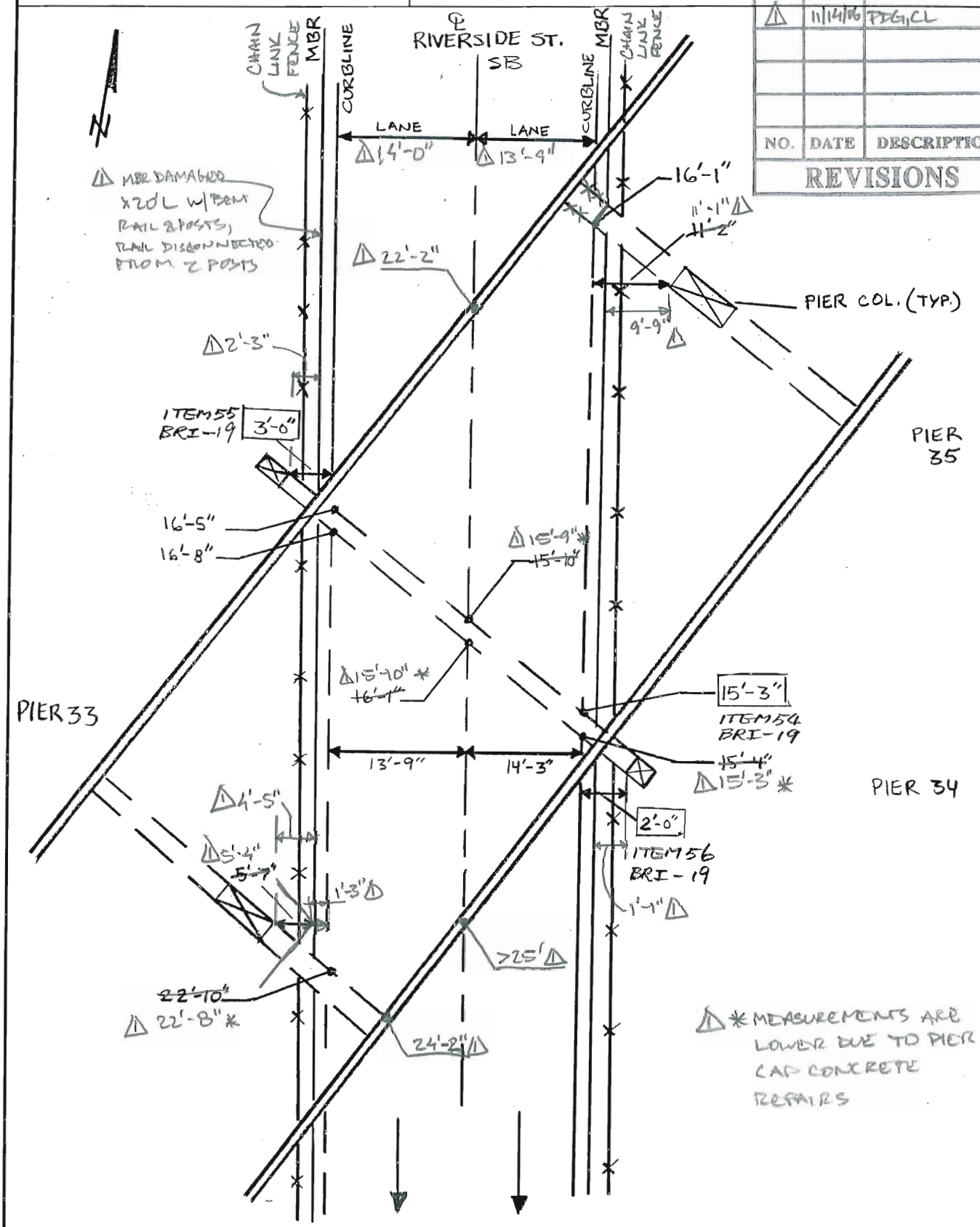
OVER SUNNYSIDE AVE.

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/23/04	SHEET ~~12~~ 27
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW CC, ML, JW	

NO.	DATE	DESCRIPTION
1	11/14/06	PDG, CL

REVISIONS



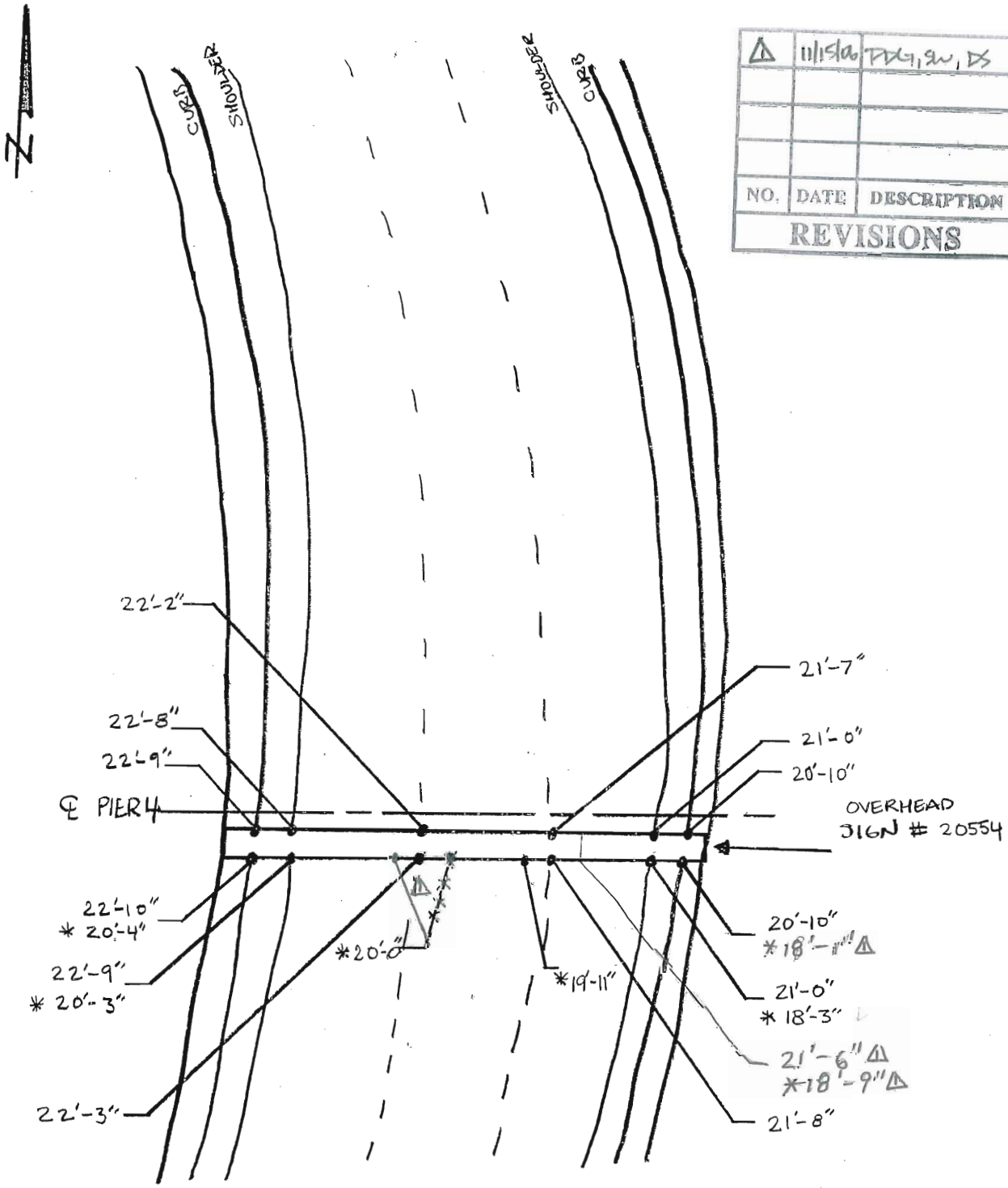
CLEARANCE DIAGRAM SPANS 34 + 35

FIELD NOTES

FIELD NOTES	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 12/8/04	SHEET ~~13~~ 28
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, JW	

NO.	DATE	DESCRIPTION
1	11/15/06	TXG, SW, DS

REVISIONS



NOTE:

* MSMT. TO BOT. OF SIGN PANEL.

SPAN 4 OVERHEAD CLEARANCES

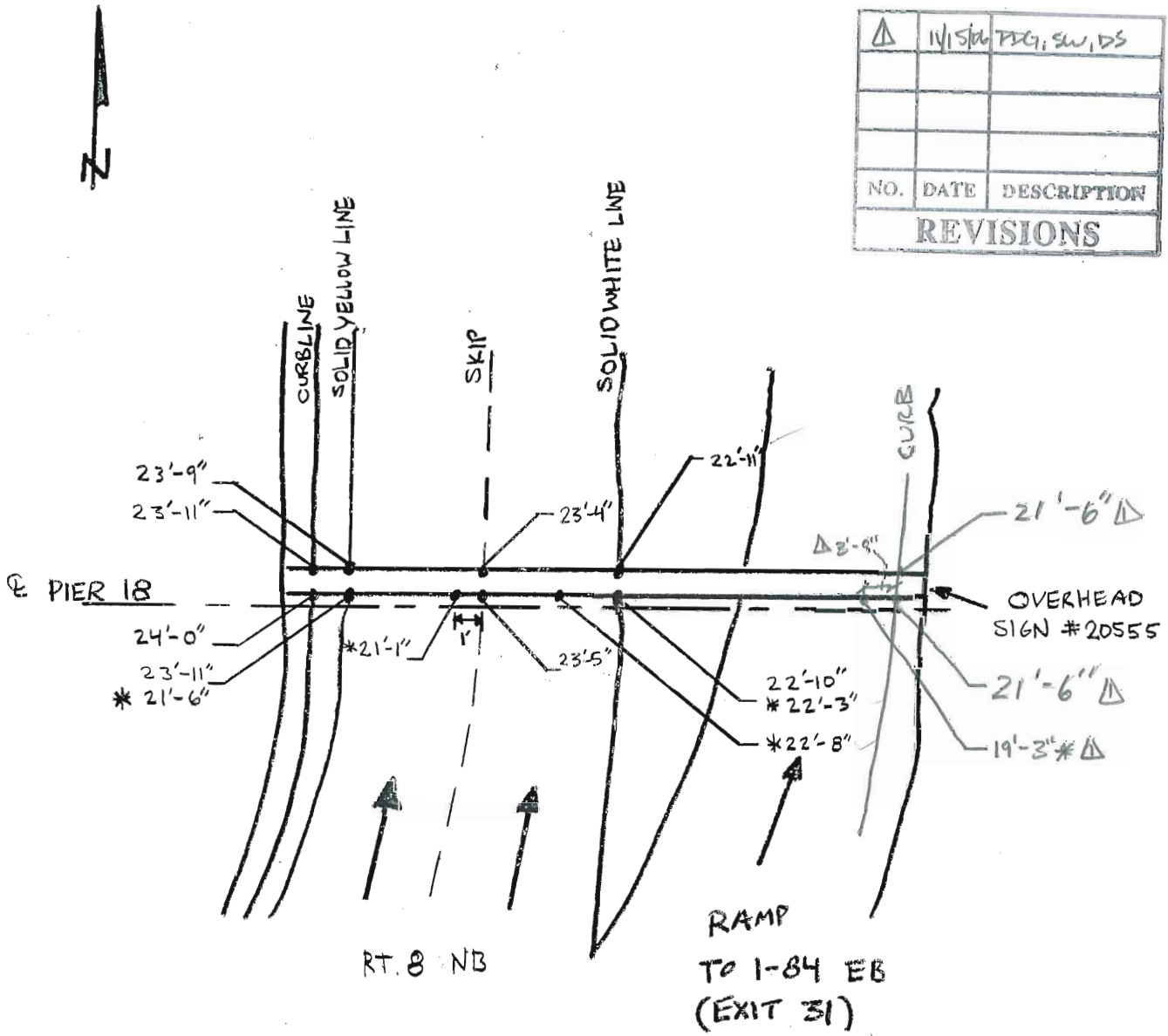
OVERHEAD SIGN #20554

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/18/04	SHEET ~~14~~ 29
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, EL, CC	

NO.	DATE	DESCRIPTION
1	11/15/04	PG, SW, DS

REVISIONS



NOTE:

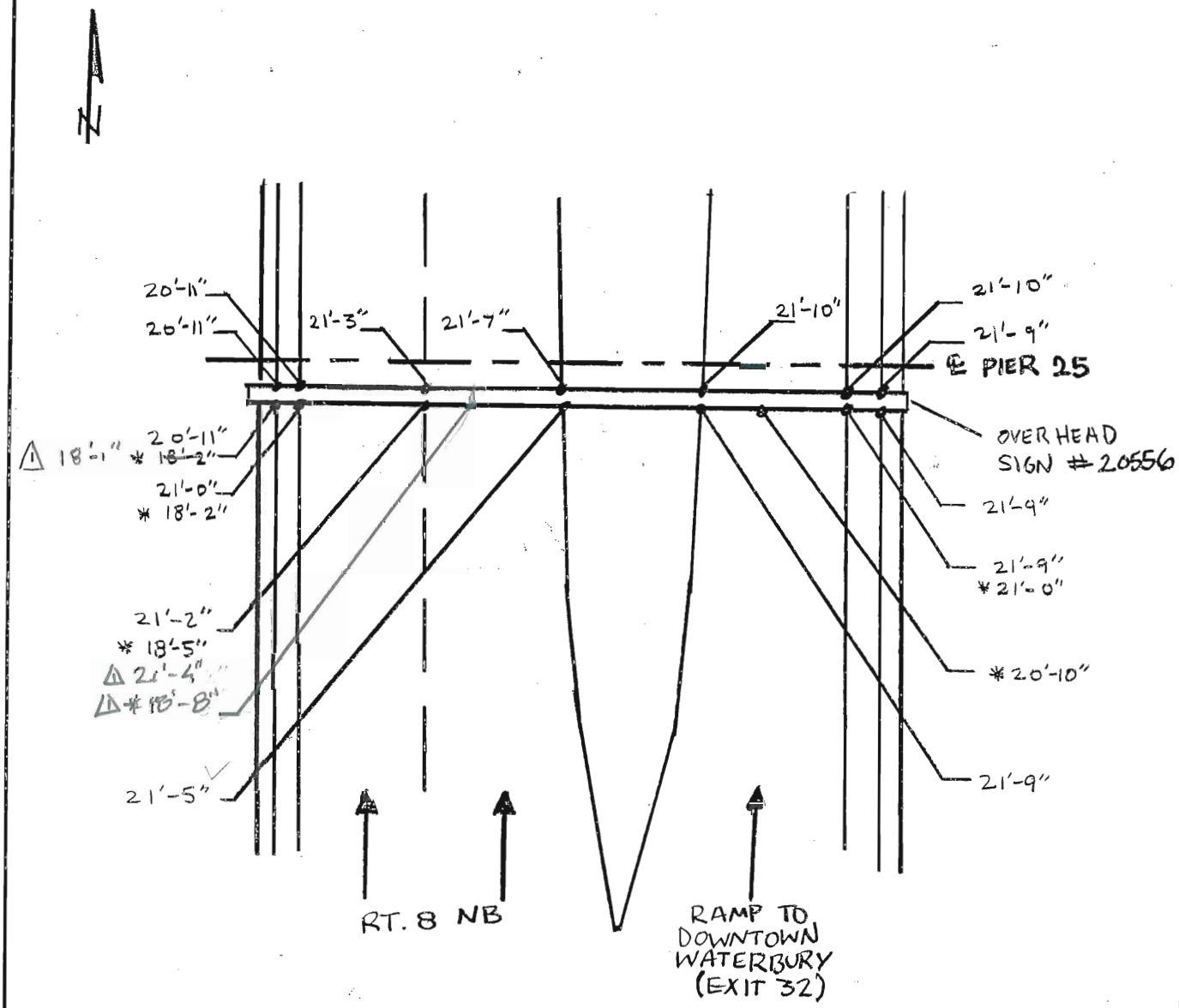
* MSMT. TO BOT. OF SIGN PANEL.

SPAN 19 OVERHEAD CLEARANCES

OVERHEAD SIGN # 20555

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/19/04	SHEET ~~15~~ 30
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, EL, SW, CC	



NOTE:

* MSMT. TO BOT. OF SIGN PANEL.

NO.	DATE	DESCRIPTION
△	11/15/06	PDG, SW, DS

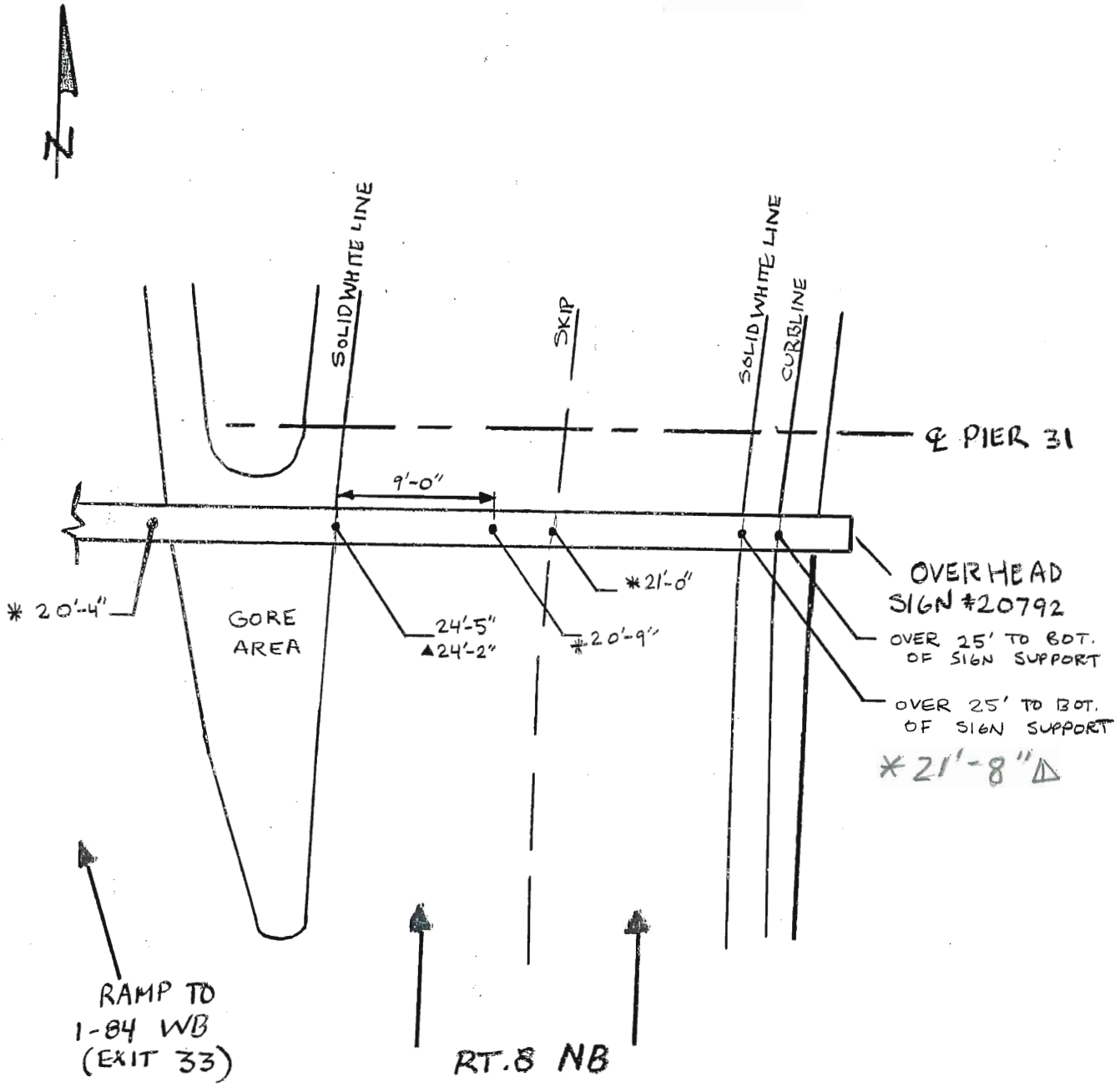
REVISIONS

SPAN 25 OVERHEAD CLEARANCES

OVERHEAD SIGN #20556

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/19/04	SHEET ~~12~~ 31
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG. SW, FM, CC	



NOTE:

* MSMT TO BOT. OF SIGN PANEL.

▲ MSMT. TO BOT. OF ~~SUPPORT GIRDER~~ SPLICE △

NO.	DATE	DESCRIPTION
△	11/15/06	PDG, DS, SW

REVISIONS

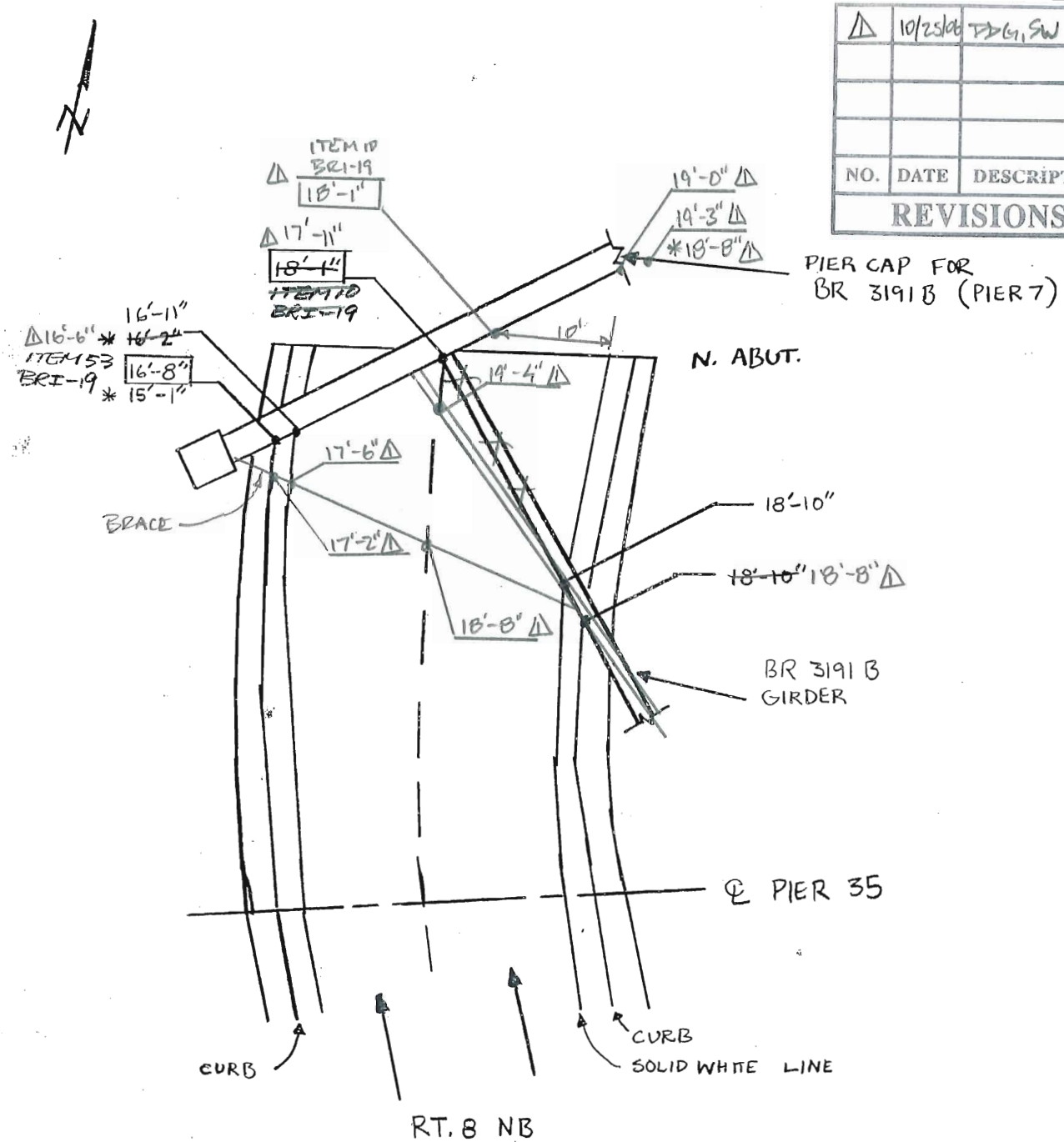
SPAN 31 OVERHEAD CLEARANCES

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 1/5/05	SHEET ~~17~~ 32
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, JW	

NO.	DATE	DESCRIPTION
1	10/25/06	TDG, SW

REVISIONS



NOTE:

* MSMT. TO BOT. OF BOLT IN SEISMIC RETROFIT OR CABLE.

SPAN 36 OVERHEAD CLEARANCES

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

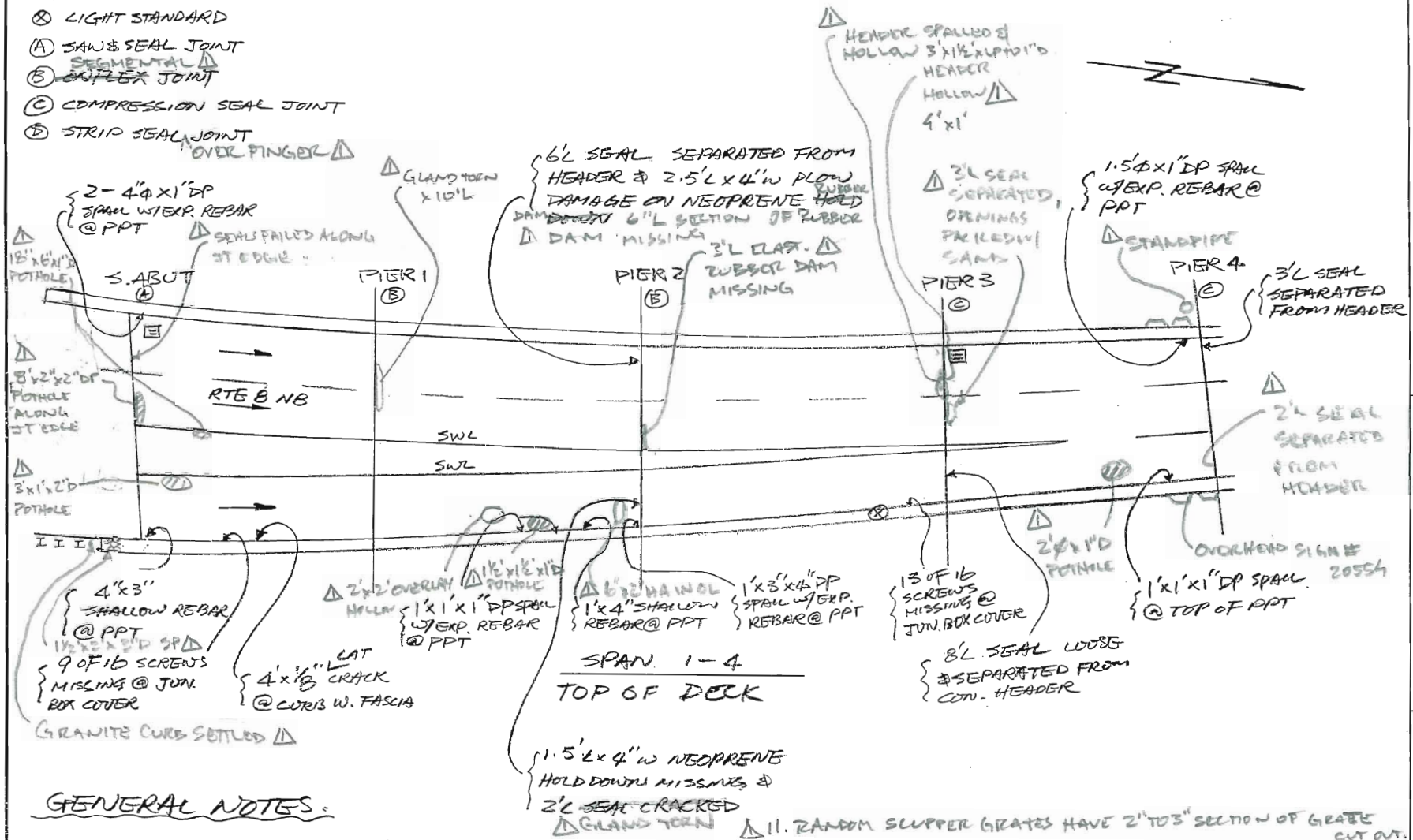
JOB NO. 0155 | BRIDGE NO. 03190A

DATE 11/18/04, 12/08/04 | SHEET ~~18~~ 33

CREW MC

11/15/06 TDG, SWDS

E SCUPPER
⊗ LIGHT STANDARD
(A) SAW & SEAL JOINT
(B) ~~DUPLEX~~ SEGMENTAL JOINT
(C) COMPRESSION SEAL JOINT
(D) STRIP SEAL JOINT OVER FINGER



GENERAL NOTES.

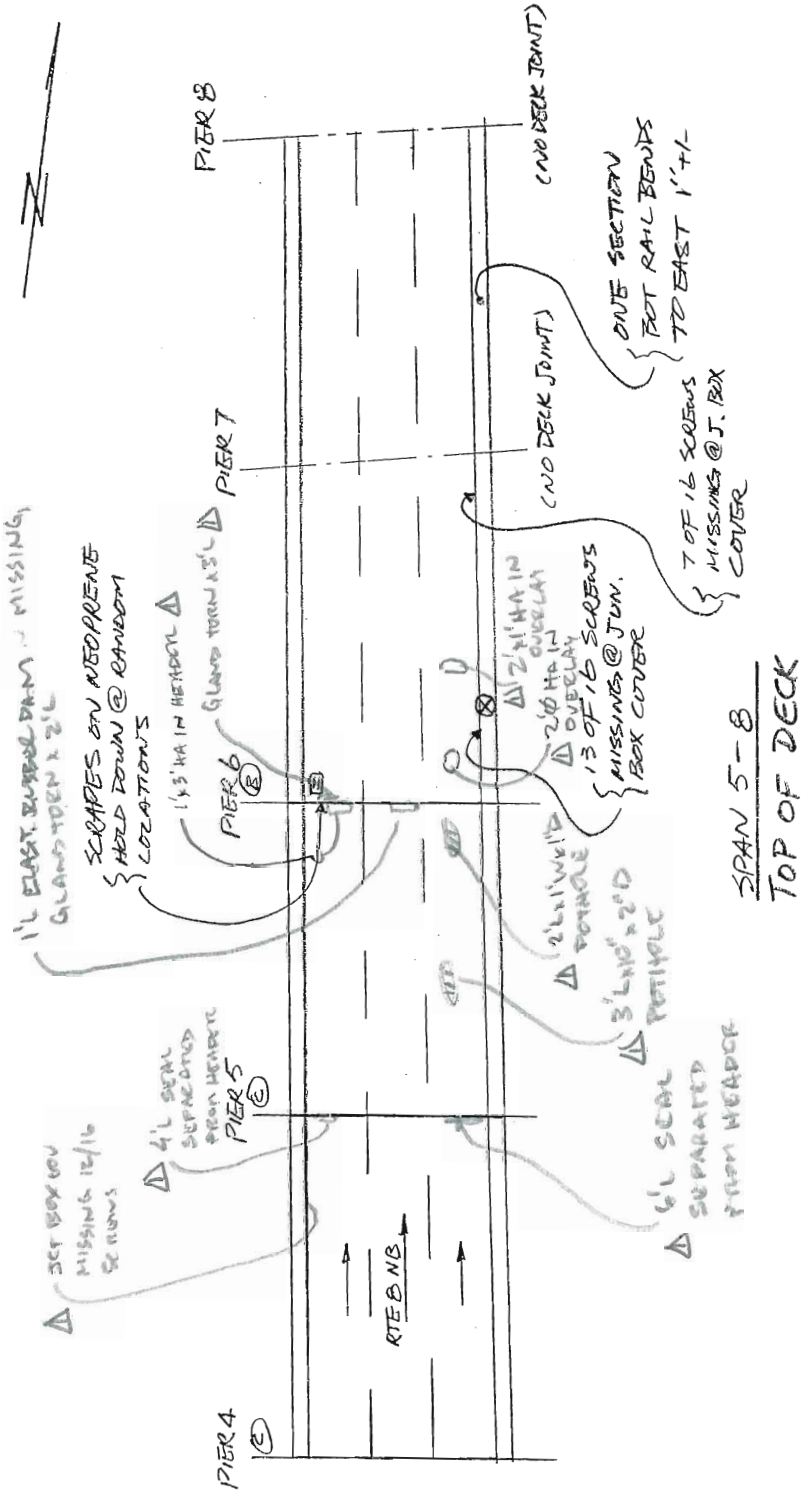
1. SHOULDER LINES NOT SHOWN.
2. ~~A FEW SMALL POTHOLES @ RANDOM LOCATIONS OF OVERLAY~~ POTHOLES ARE AS NOTED. MOST IN SHOULDERS. ISOLATED CRACKS UP TO ¼" WIDE.
3. ISOLATED SPALLS, HOLLOW AREAS & AREAS OF SHALLOW REBAR @ BOTH PARAPETS UNLESS OTHERWISE NOTED
4. CONCRETE HEADERS OF COMP JOINTS ARE COVERED W/ LT TO MOD SCALE. JOINTS FILLED W/ SAND WHERE SEALS SETTLED.
5. OVERHEAD SIGNS IN SPAN 4 NEAR PIER 4.
6. 10'L MBR W/ SCRAPES @ S. APPROACH SE CORNER.
7. RANDOM PATCHES ON OVERLAY THROUGHOUT. CONS. CRACKS HAVE BEEN SEALED SINCE LAST INSP.
8. CONCRETE PATCHES @ ISOLATED DECK JOINT HEADERS.
9. MINOR SPALLS & HOLLOW AREAS IN SAFETY WALKS THROUGHOUT.
10. LEFT SHOULDER OVERLAY IS HOLLOW UP TO 2'W THROUGHOUT
11. RANDOM SCUPPER GRATES HAVE 2" TO 3" SECTION OF GRATE CUT OUT.

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 03190A
	DATE 11/18/04 12/8/04	SHEET ~~19~~ 34
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML	

NO.	DATE	DESCRIPTION

REVISIONS



SPAN 5-8
TOP OF DECK

GENERAL NOTES

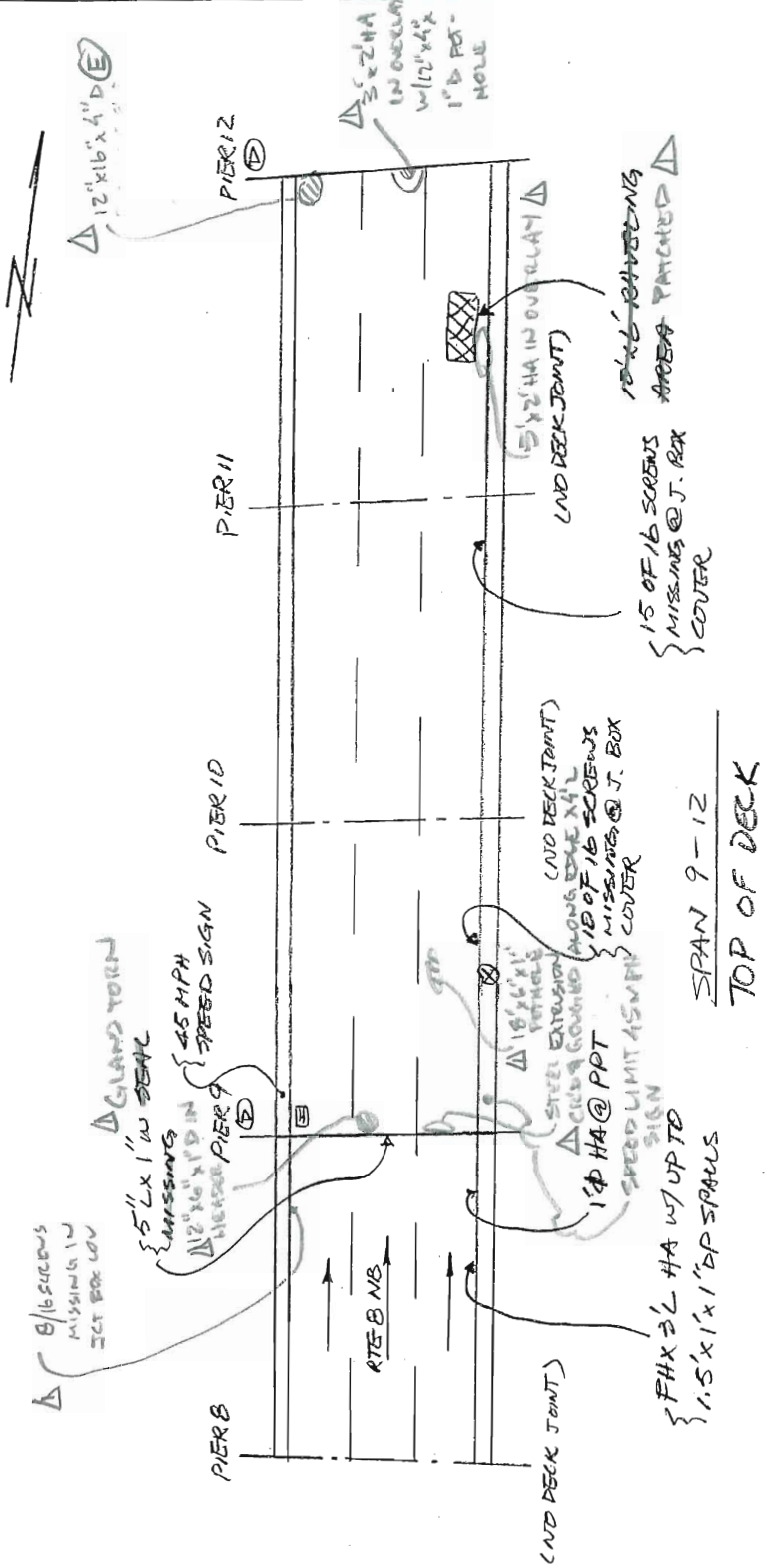
1. SEE NOTES & LEGEND IN SPAN 1-4.

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 03190A	
DATE 11/18/04 12/8/04	SHEET ~~20~~ 35	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW MR	

NO.	DATE	DESCRIPTION
1	11/15/06	PDGSW

REVISIONS



GENERAL NOTES

SEE NOTES & LEGEND IN SPAN 1-4.

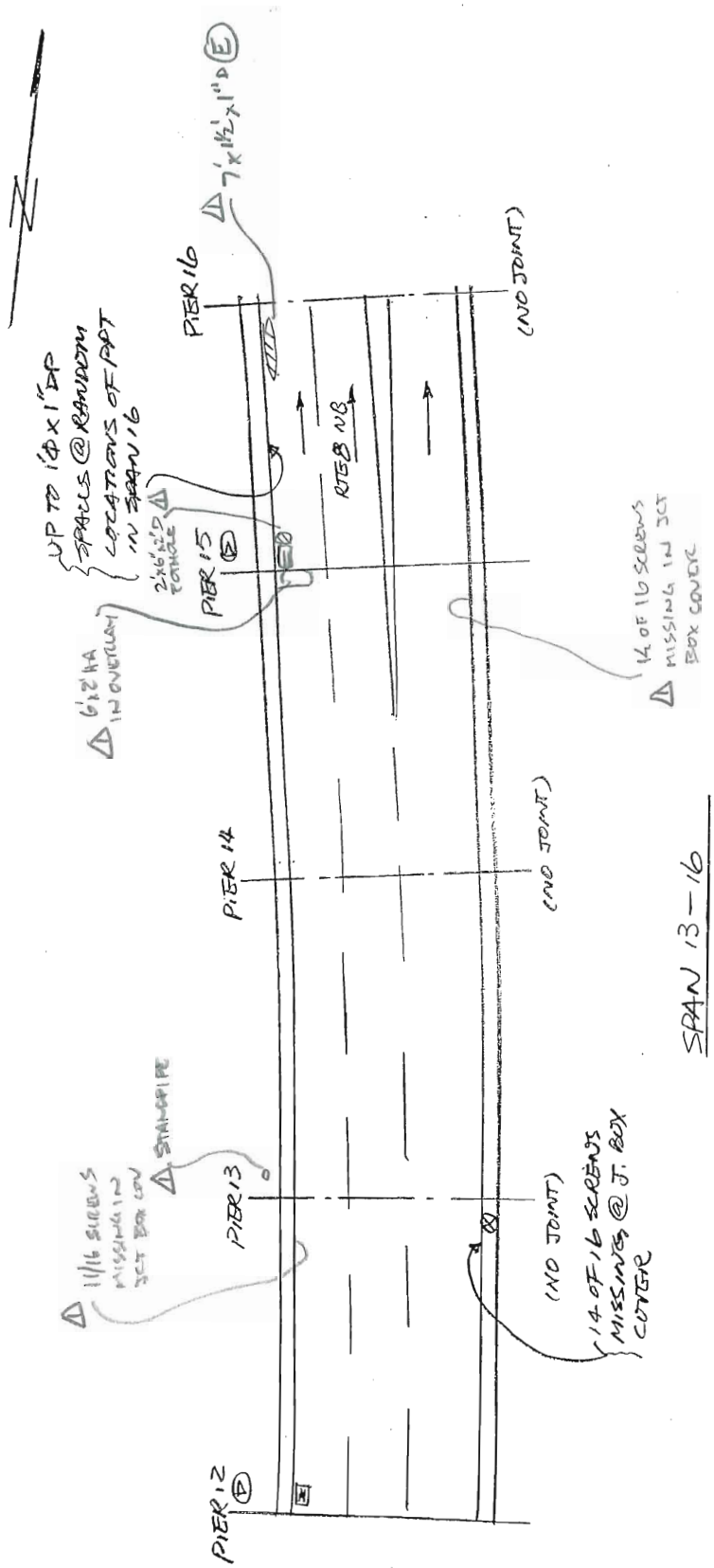
(E) POTHOLE W/ EXPOSED MEMBRANE DECK, CONC. DECK IS SOFT & RUBBERY

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 03190A	
DATE 11/8/04 12/8/04	SHEET ~~27~~ 36	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML	

NO.	DATE	DESCRIPTION
1	11/15/04	RPG, SW, DS

REVISIONS



SPAN 13–16
TOP OF DECK

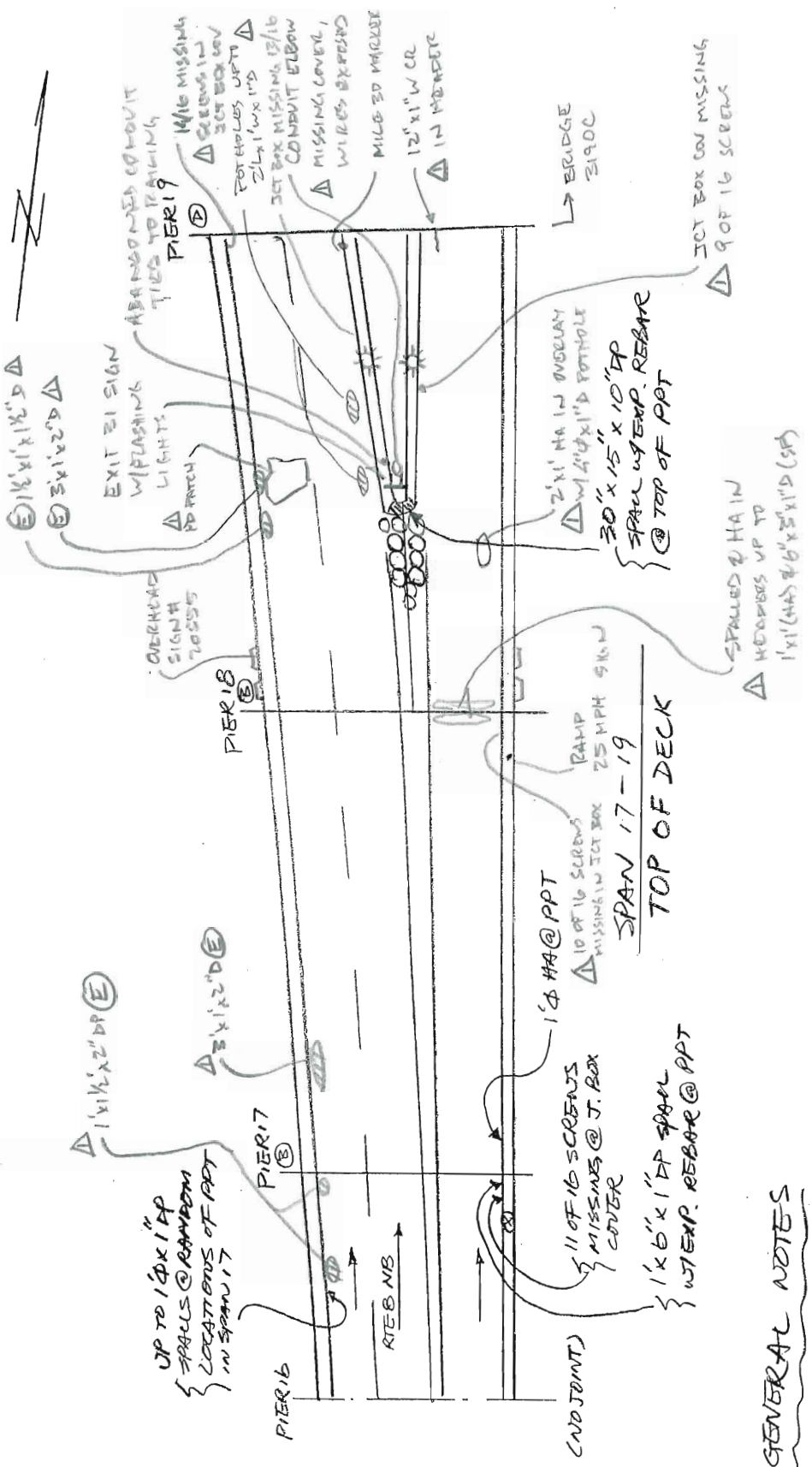
GENERAL NOTES

1. SEE NOTES & LEGEND IN SPAN 1–4.

(E) POTHOLE W/ EXPOSED MEMBRANE/DECK, CONC. DECK IS RUNKY & DAMP

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 03190A	
DATE 11/18/04 12/8/04	SHEET ~~22~~ 37	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML	

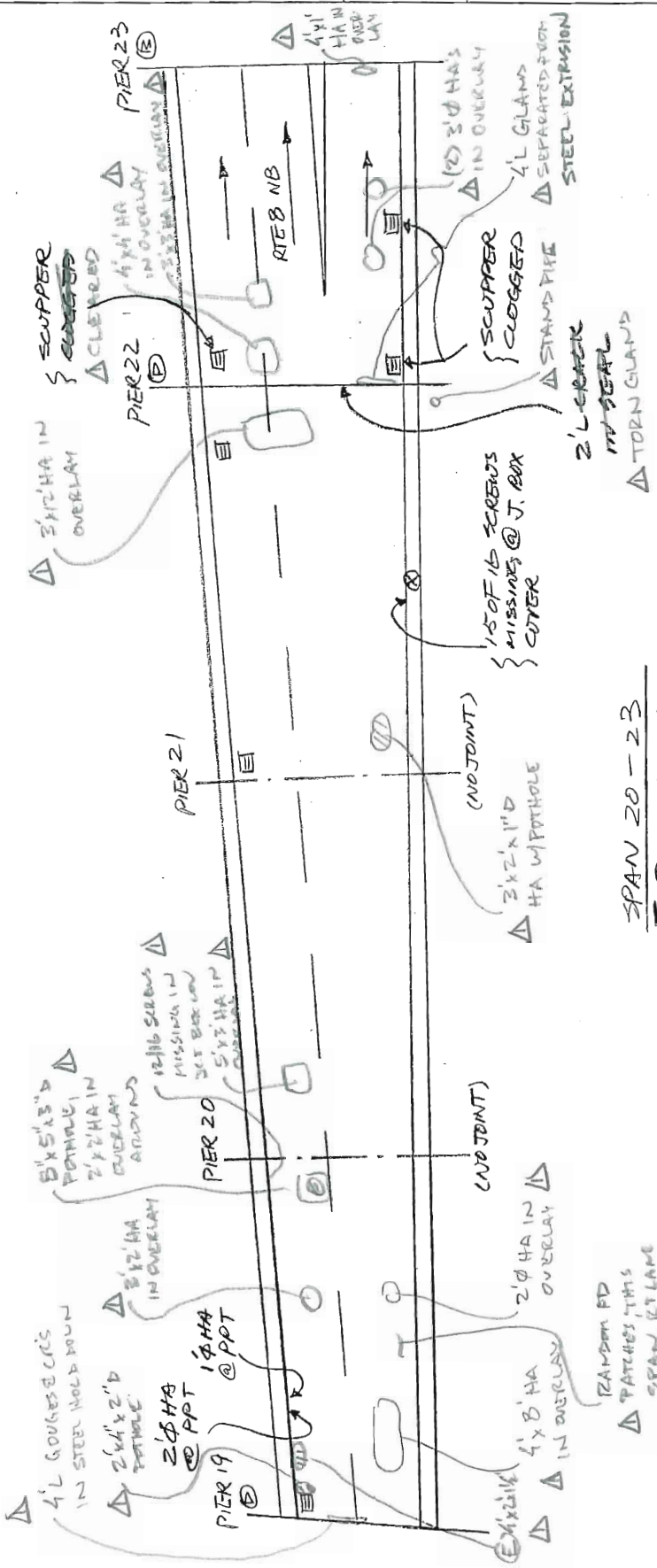


NO.	DATE	DESCRIPTION

REVISIONS

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 03190A	
DATE 11/18/04 12/8/04	SHEET ~~23~~ 38	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW MM	



NO.	DATE	DESCRIPTION
Δ	11/15/04	PDG, SW, DS

REVISIONS

GENERAL NOTES

1. SEE NOTES & LEGEND IN SPAN 1–4.
2. SP 23 WATER PONDING IN RT SHLD

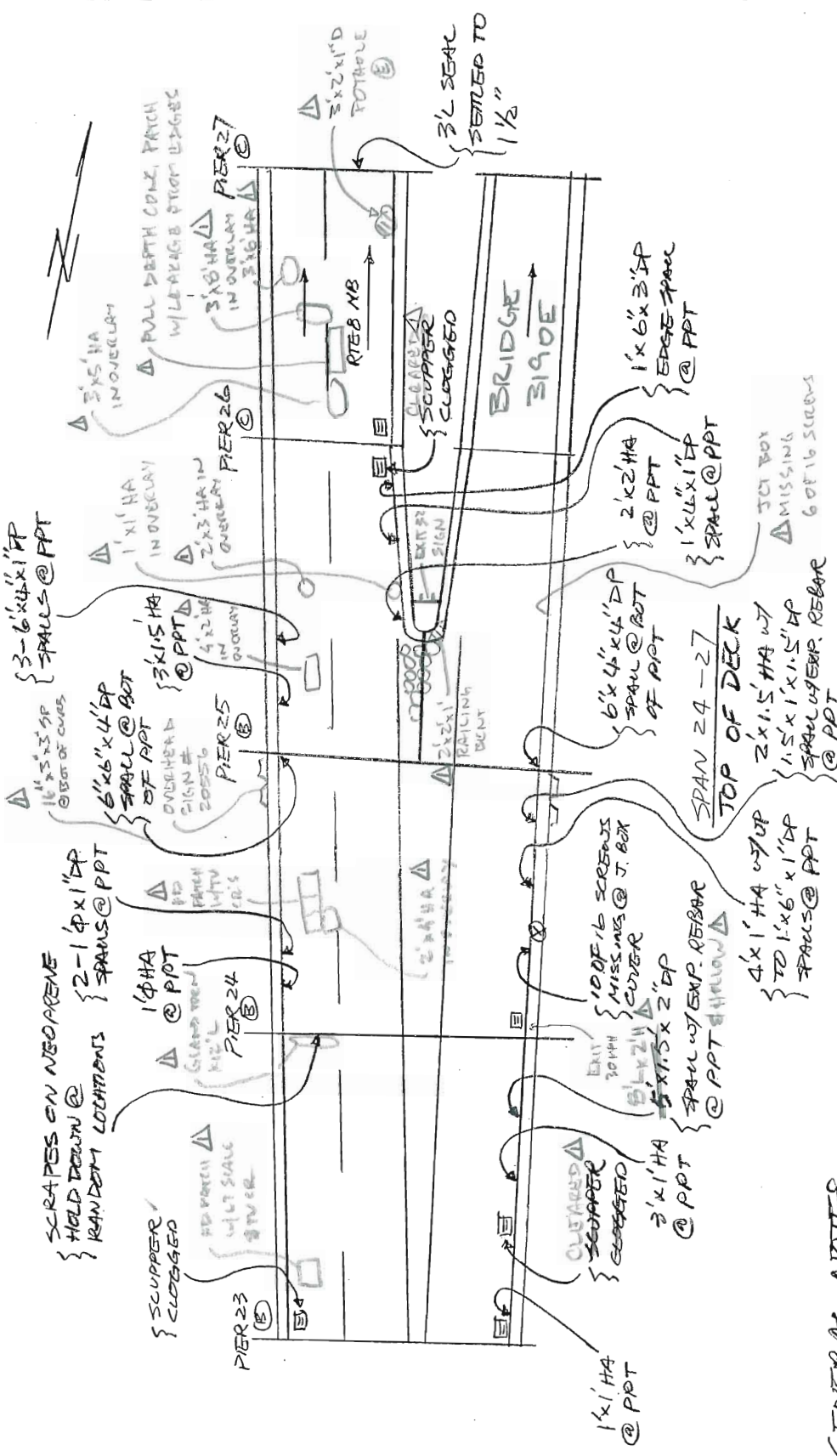
(E) POTHOLE W/EXP MEMBRANE/DECK, CONC. DECK IS PUNKY & DAMP

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 03190A	
DATE 11/18/04 12/8/04	SHEET ~~34~~ 39	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML	

NO.	DATE	DESCRIPTION
1	11/15/06	PPG, SW, DS

REVISIONS



GENERAL NOTES

1. SEE NOTES & LEGEND IN SPAN 1 – 4.
2. SPAN 24, P24. CONCRETE PATCH IN OFF LANE @ JOINT HEADER.
3. SPS 24 & 25 WATER POUNDING IN EXIT LANE AT SHLD & SPS 26 & 27 AT LN AT SHLD

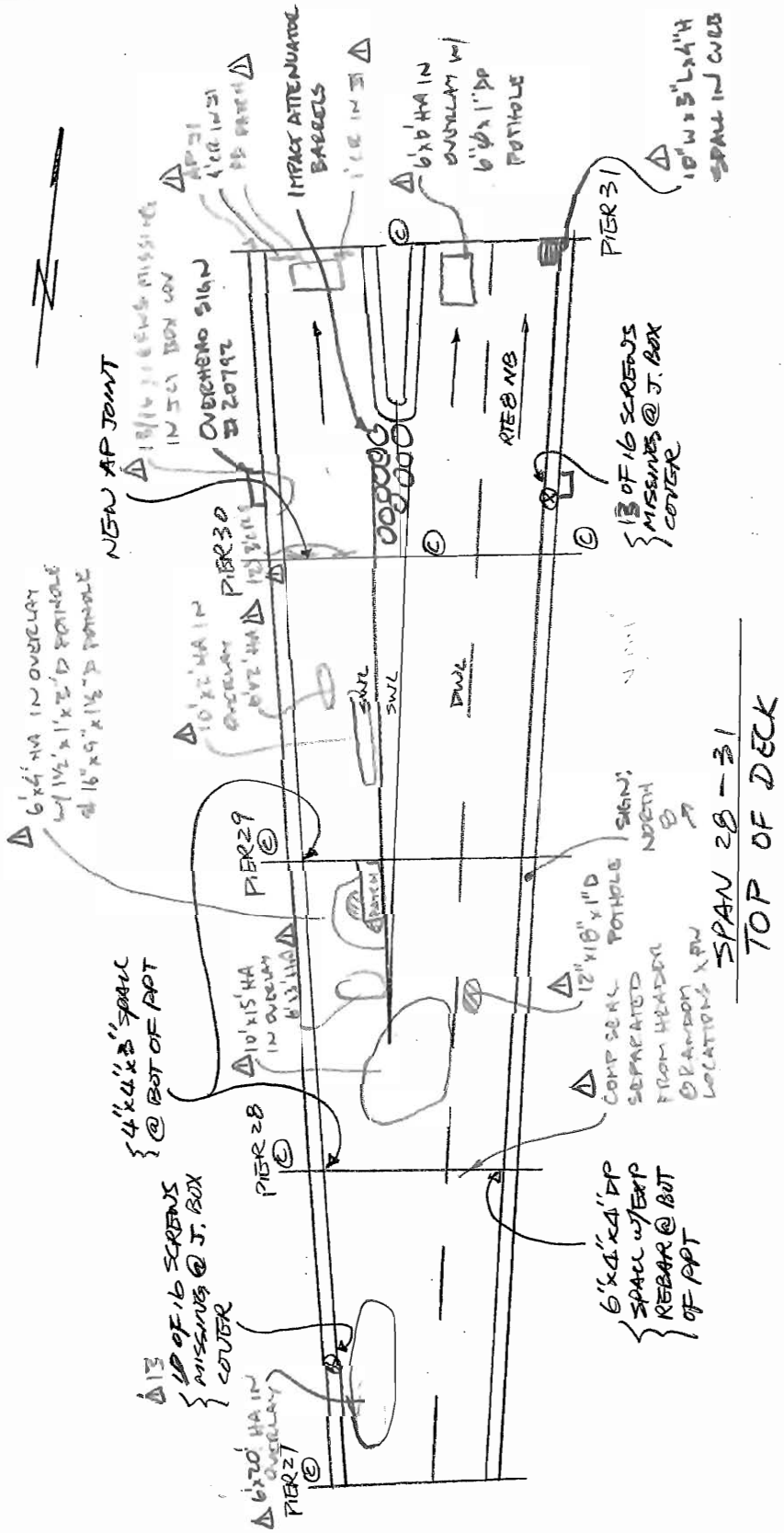
(E) POTHOLE W/ EXP MEMBRANE/DECK, CONC. DECK IS RUNNY & DAMP

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 03190A
	DATE 11/8/04 12/8/04	SHEET ~~25~~ 40
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW MM	

NO.	DATE	DESCRIPTION
1	11/15/06	PAGES 25 & 26

REVISIONS



GENERAL NOTES

1. SEE NOTES & LEGEND IN SPAN 1 - 4.

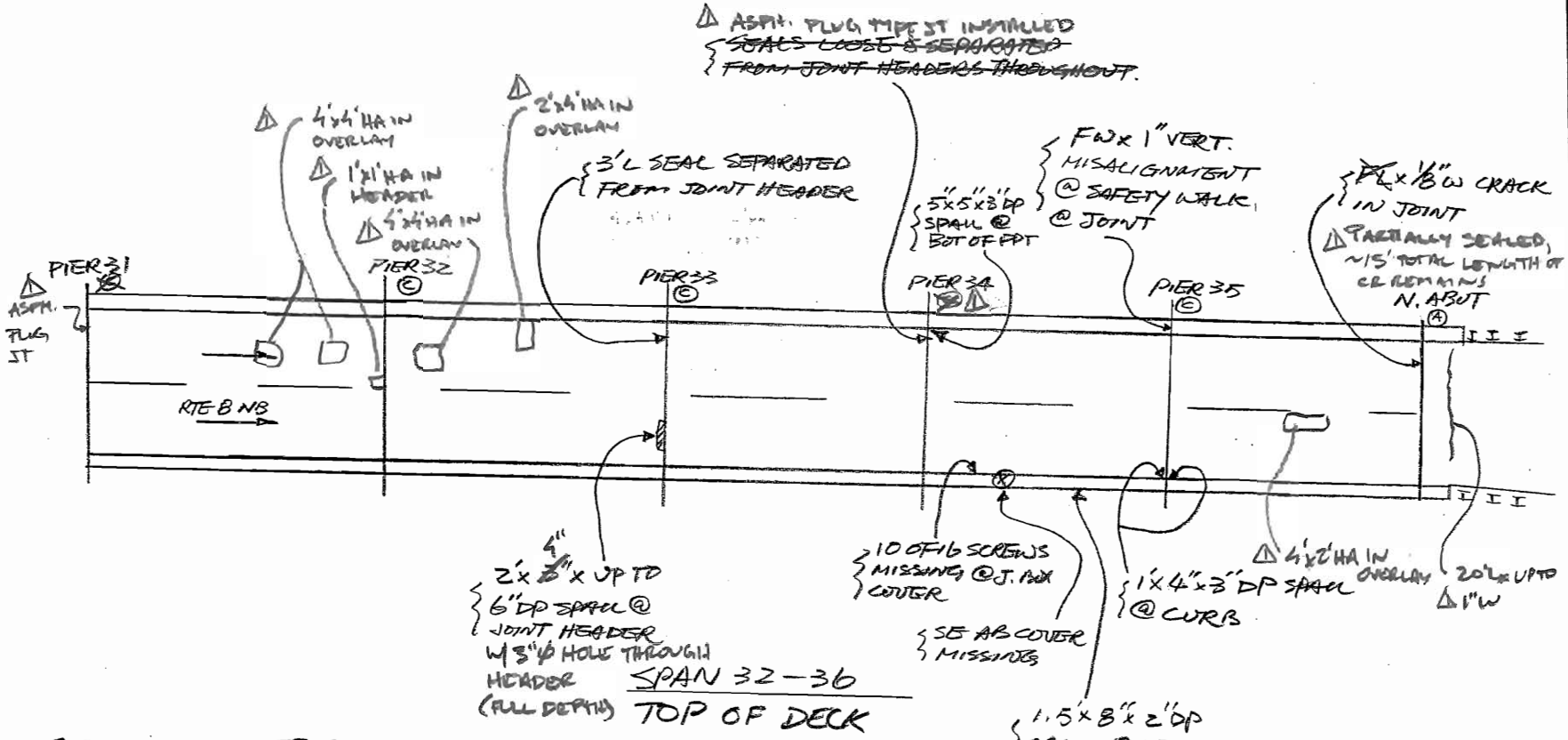
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155 | BRIDGE NO. 031904

DATE 11/18/04 12/13/04 | SHEET ~~32~~ 41

CREW ML



GENERAL NOTES

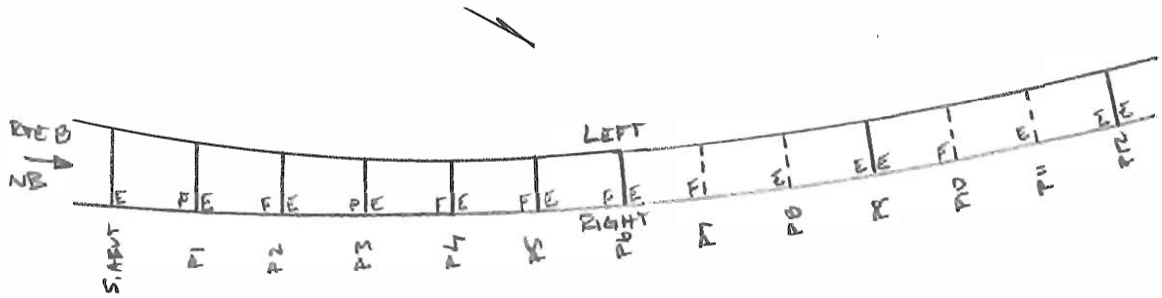
1. SEE NOTES & LEGEND IN SPAN 1-4.
2. NORTH APPROACH, TWO POSTS SEPARATED FROM MBR @ EAST SIDE.
3. LARGE PATCH IN N. APPRO. PAVEMENT W/ CRACKS.

NO.	DATE	DESCRIPTION
1	10/25/06	TDG, SW

REVISIONS

FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/15,20/06	SHEET 42
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, DS



LOCATION	WINTER MEASUREMENT < 50° F				SUMMER MEASUREMENT > 50° F				JOINT TYPE
	LEFT	RIGHT	TEMP	DATE	LEFT	RIGHT	TEMP	DATE	
S. ABUT	1 3/16		45°F	11/20/06		9/16	65°F	11/15/06	SAW & SEAL
PIER 1	1 1/4		↓	↓		1 5/16	↓	↓	(SEG.) GLAND
PIER 2	1		↓	↓		1 3/16	↓	↓	(SEG.) GLAND
PIER 3	1 7/16		↓	↓		1 5/16	↓	↓	COMP
PIER 4	1 1/2		↓	↓		1 7/16	↓	↓	COMP
PIER 5	1 7/16		↓	↓		1 5/16	↓	↓	COMP
PIER 6	1 13/16		↓	↓		2	↓	↓	(SEG.) GLAND
PIER 7	NO	JOINT			NO	JOINT			
PIER 8	NO	JOINT			NO	JOINT			
PIER 9	2 5/8		45°F	11/20/06		2 5/16	65°F	11/15/06	STRIP OVER FINGER
PIER 10	NO	JOINT			NO	JOINT			
PIER 11	NO	JOINT			NO	JOINT			
PIER 12	2 9/16		45°F	11/20/06		2 7/16	65°F	11/15/06	STRIP OVER FINGER

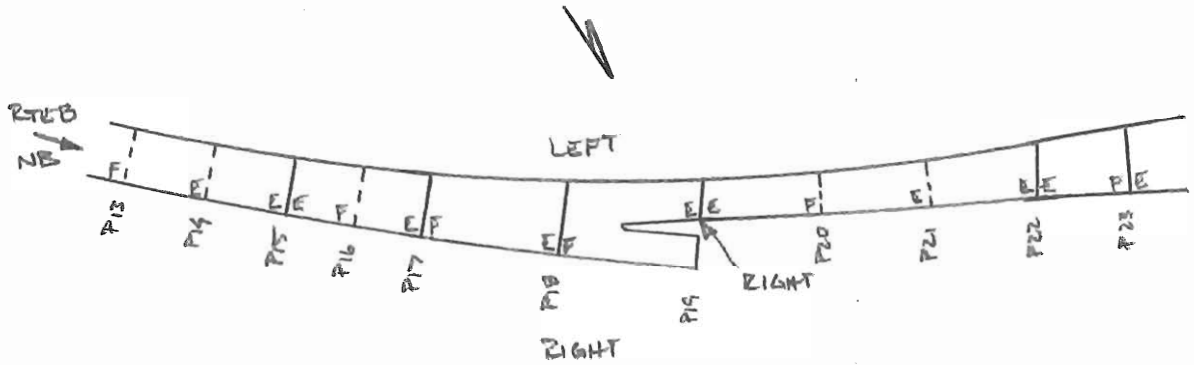
GENERAL NOTES

FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/15, 20/06	SHEET 43

PREPARED BY: Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

CREW PJG, SW, DS

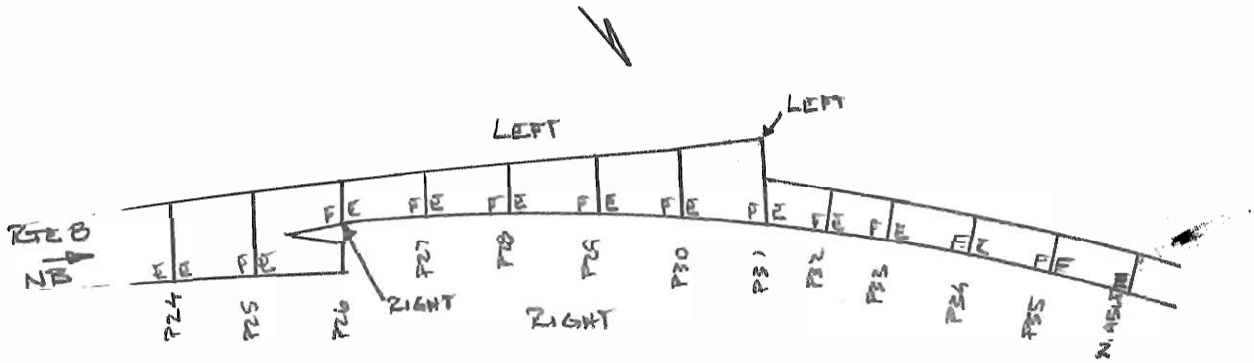


LOCATION	WINTER MEASUREMENT < 50° F LEFT	RIGHT	TEMP	DATE	SUMMER MEASUREMENT > 50° F LEFT	RIGHT	TEMP	DATE	JOINT TYPE
PIER 13	NO	JOINT			NO	JOINT			
PIER 14	NO	JOINT			NO	JOINT			
PIER 15	2 7/16		45°F	11/20/06		2 3/4	65°F	11/15/06	STRIP OVER FINGER
PIER 16	NO	JOINT			NO	JOINT			
PIER 17	2		45°F	11/20/06		1 13/16	65°F	11/15/06	(SEG.) GLAND
PIER 18	1 1/2		↓	↓		1 1/2	↓	↓	(SEG.) GLAND
PIER 19	2 11/16		↓	↓		2 11/16	↓	↓	STRIP OVER FINGER
PIER 20	NO	JOINT			NO	JOINT			
PIER 21	NO	JOINT			NO	JOINT			
PIER 22	2 3/16		45°F	11/20/06		2 1/8	65°F	11/15/06	STRIP OVER FINGER
PIER 23	1 7/16		45°F	11/20/06		1 1/2	65°F	11/15/06	(SEG.) GLAND

GENERAL NOTES

FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/25/06	SHEET 44
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW DJG, SW, DS



LOCATION	WINTER MEASUREMENT < 50° F LEFT	RIGHT	TEMP	DATE	SUMMER MEASUREMENT > 50° F LEFT	RIGHT	TEMP	DATE	JOINT TYPE
PIER 24	15/16		45°F	11/20/06		1 7/16	65°F	11/15/06	(SEG.) GLAND
PIER 25	13/16		↓	↓		1 9/16	↓	↓	(SEG.) GLAND
PIER 26	1 5/16		↓	↓		3/4	↓	↓	COMP
PIER 27	1 7/8		↓	↓		1 15/16	↓	↓	COMP
PIER 28	1 1/2		↓	↓		1 3/8	↓	↓	COMP
PIER 29	1 11/16		↓	↓		1 3/8	↓	↓	COMP
PIER 30	1 7/16	1 7/16	45°F	10/25/06					ASPH PLUG & COMP SEAL
PIER 31	1 7/8	1 15/16	↓	↓					COMP SEAL
PIER 32	1 5/16	1 1/4	↓	↓					COMP SEAL
PIER 33	1 1/2	1 1/4	↓	↓					COMP SEAL
PIER 34	1 1/16	1 1/4	↓	↓					ASPH PLUG
PIER 35	1 1/8	5/8	↓	↓					COMP SEAL
N. ABUT	15/16	2	↓	↓					SAW & SEAL

GENERAL NOTES

REGULAR INSPECTION [X]
Date: 10 / 25 / 06

SUMMER / WINTER JOINT MEASUREMENTS [ ]
Summer 20 __ __ Winter 20 __ __

JOINT MEASUREMENTS

Form BRI-17, Rev. 9/03

Measurements Taken By: SW

Measurements Reviewed By: PG

Bridge No.: 3190A Rte 8 NB over Rte SB, Riverside & Sunnyside **Town:** Waterbury

Deck Joint Location	Deck Joint Type[1]	Effect Span[2] (ft.)	Winter Measurements Temp °F	Winter Date: 12/8/04 Left (in.)	Winter Right (in.)	Summer Measurements Temp °F	Summer Date: 10/25/06 Left (in.)	Summer Right (in.)	Differential Movements Actual Left (in.)	Actual Right (in.)	by Formula	Comments	Difference Between Actual & Calc'd Mov't Left (in.)	Right (in.)
S. Abut L	S&S	70.0	50	1- 3/16		45	1- 3/16		0		0	Exp	0	
S. Abut R	S&S	70.0	50		10/16	65		9/16		- 1/16	- 1/16	Exp		-0
Pier 1 L	seg	72.0	50	1- 5/16		45	1- 4/16		- 1/16		0	Fix/Exp	1/16	
Pier 1 R	seg	72.0	50		1- 6/16	65		1- 5/16		- 1/16	- 1/16	Fix/Exp		-0
Pier 2 L	seg	71.0	50	15/16		45	1		1/16		0	Fix/Exp	- 1/16	
Pier 2 R	seg	71.0	50		1- 4/16	65		1- 3/16		- 1/16	- 1/16	Fix/Exp		-0
Pier 3 L	comp	71.0	50	1- 8/16		45	1- 7/16		- 1/16		0	Fix/Exp	1/16	
Pier 3 R	comp	71.0	50		1- 5/16	65		1- 5/16		0	- 1/16	Fix/Exp		- 1/16
Pier 4 L	comp	69.0	50	1- 8/16		45	1- 8/16		0		0	Fix/Exp	0	
Pier 4 R	comp	69.0	50		1- 6/16	65		1- 7/16		1/16	- 1/16	Fix/Exp		- 2/16
Pier 5 L	comp	69.0	50	1- 8/16		45	1- 7/16		- 1/16		0	Fix/Exp	1/16	
Pier 5 R	comp	69.0	50		1- 6/16	65		1- 5/16		- 1/16	- 1/16	Fix/Exp		-0
Pier 6 L	seg	69.0	50	1-12/16		45	1-13/16		1/16		0	Fix/Exp	- 1/16	
Pier 6 R	seg	69.0	50		2- 1/16	65		2		- 1/16	- 1/16	Fix/Exp		-0
Pier 7												Fix - No Joint		
Pier 8												Exp - No Joint		
Pier 9 L	s/f	207.0	50	2- 8/16		45	2-10/16		2/16		1/16	Exp/Exp	- 1/16	
Pier 9 R	s/f	207.0	50		2-11/16	65		2- 5/16	0	- 6/16	- 4/16	Exp/Exp		2/16
Pier 10												Fix - No Joint		
Pier 11												Exp - No Joint		

1. The "Deck Joint Type" should be "plug" for Asphaltic Plug joints, "strip" for Strip Seals, "seg." for Segmental Joints, etc.
2. The "Effective Span" is the length contributing to expansion at the joint. This should be 0 at fixed joints of single span bridges.

Reviewer's Comments: s/f = strip over finger

Summer / Winter Joint Measurements: (IF ADDING OR REMOVING, SEND A COPY OF THIS FORM TO SUPERVISOR FOR REVIEW/APPROVAL WITH REASONS FOR CHANGE INDICATED)

[ ] **ADD** TO SUMMER/WINTER LIST SUPERVISOR APPROVAL: _____

[ ] **REMOVE** FROM SUMMER/WINTER LIST MASTER LIST ENTRY: _____

REGULAR INSPECTION [X]
Date: 10/25/06

SUMMER / WINTER JOINT MEASUREMENTS [ ]
Summer 20 __ __ Winter 20 __ __

JOINT MEASUREMENTS

Form BRI-17, Rev. 9/03

Measurements Taken By: SW
Measurements Reviewed By: PG

Bridge No.: 3190A Rte 8 NB over Rte SB, Riverside & Sunnyside **Town:** Waterbury

Deck Joint Location	Deck Joint Type[1]	Effect Span[2] (ft.)	Winter Measurements Temp °F	Winter Date: 12/8/04 Left (in.)	Winter Right (in.)	Summer Measurements Temp °F	Summer Date: 10/25/06 Left (in.)	Summer Right (in.)	Differential Movements Actual Left (in.)	Actual Right (in.)	by Formula	Comments	Difference Between Actual & Calc'd Mov't Left (in.)	Right (in.)
Pier 12 L	s/f	206.0	50	2- 7/16		45	2- 9/16		2/16		1/16	Exp/Exp	- 1/16	
Pier 12 R	s/f	206.0	50		2-10/16	65		2- 7/16	0	- 3/16	- 4/16	Exp/Exp		- 1/16
Pier 13												Fix - No Joint		
Pier 14												Exp - No Joint		
Pier 15 L	s/f	195.0	50	2- 6/16		45	2- 7/16		1/16		1/16	Exp/Exp	0	
Pier 15R	s/f	195.0	50		3	65		2-12/16		- 4/16	- 4/16	Exp/Exp		0
Pier 16												Fix - No Joint		
Pier 17 L	seg	57.0	50	1-15/16		45	2		1/16		0	Exp/Fix	- 1/16	
Pier 17 R	seg	57.0	50		1-14/16	65		1-13/16		- 1/16	- 1/16	Exp/Fix		-0
Pier 18 L	seg	112.0	50	1- 6/16		45	1- 8/16		2/16		1/16	Exp/Fix	- 1/16	
Pier 18 R	seg	112.0	50		1-10/16	65		1- 8/16		- 2/16	- 2/16	Exp/Fix		-0
Pier 19 L	s/f	202.0	50	2-11/16		45	2-11/16		0		1/16	Exp/Exp	1/16	
Pier 19 R	s/f	202.0	50		2-12/16	65		2-11/16		- 1/16	- 4/16	Exp/Exp		- 3/16
Pier 20												Fix - No Joint		
Pier 21												Exp - No Joint		
Pier 22 L	s/f	258.0	50	2- 3/16		45	2- 3/16		0		2/16	Exp/Exp	2/16	
Pier 22 R	s/f	258.0	50		2- 8/16	65		2- 2/16		- 6/16	- 5/16	Exp/Exp		1/16
Pier 23L	seg	76.0	50	1- 7/16		45	1- 7/16		0		0	Fix/Exp	0	
Pier 23R	seg	76.0	50		1- 8/16	65		1- 8/16		0	- 1/16	Fix/Exp		- 1/16

1. The "Deck Joint Type" should be "plug" for Asphaltic Plug joints, "strip" for Strip Seals, "seg." for Segmental Joints, etc.
2. The "Effective Span" is the length contributing to expansion at the joint. This should be 0 at fixed joints of single span bridges.

Reviewer's Comments: s/f = strip over finger

Summer / Winter Joint Measurements: (IF ADDING OR REMOVING, SEND A COPY OF THIS FORM TO SUPERVISOR FOR REVIEW/APPROVAL WITH REASONS FOR CHANGE INDICATED)

[ ] **ADD** TO SUMMER/WINTER LIST SUPERVISOR APPROVAL: _____

[ ] **REMOVE** FROM SUMMER/WINTER LIST MASTER LIST ENTRY: _____

REGULAR INSPECTION [X]
Date: 10 / 26 / 06

SUMMER / WINTER JOINT MEASUREMENTS [ ]
Summer 20 __ __ Winter 20 __ __

JOINT MEASUREMENTS

Form BRI-17, Rev. 9/03

Measurements Taken By: SW
Measurements Reviewed By: PG

Bridge No.: 3190A Rte 8 NB over Rte SB, Riverside & Sunnyside **Town:** Waterbury

Deck Joint Location	Deck Joint Type[1]	Effect Span[2] (ft.)	Winter Measurements Temp °F	Winter Date: 12/8/04 Left (in.)	Winter Right (in.)	Summer Measurements Temp °F	Summer Date: 10/25/06 Left (in.)	Summer Right (in.)	Differential Movements Actual Left (in.)	Actual Right (in.)	by Formula	Comments	Difference Between Actual & Calc'd Mov't Left (in.)	Right (in.)
Pier 24L	seg	69.0	50	15/16		45	15/16		0		0	Exp	0	
Pier 24R	seg	69.0	50		1- 5/16	65		1- 3/16		- 2/16	- 1/16	Exp		1/16
Pier 25L	seg	78.0	50	13/16		45	13/16		0		0	Fix/Exp	0	
Pier 25R	seg	78.0	50		1- 9/16	65		1- 9/16		0	- 1/16	Fix/Exp		- 1/16
Pier 26L	comp	71.0	50	1- 4/16		45	1- 5/16		1/16		0	Fix/Exp	- 1/16	
Pier 26R	comp	71.0	50		13/16	65		12/16		- 1/16	- 1/16	Fix/Exp		-0
Pier 27L	comp	70.0	50	1-15/16		45	1-14/16		- 1/16		0	Fix/Exp	1/16	
Pier 27R	comp	70.0	50		1-15/16	65		1-15/16		0	- 1/16	Fix/Exp		- 1/16
Pier 28L	comp	70.0	50	1- 7/16		45	1- 8/16		1/16		0	Fix/Exp	- 1/16	
Pier 28R	comp	70.0	50		1- 7/16	65		1- 6/16		- 1/16	- 1/16	Fix/Exp		-0
Pier 29L	comp	70.0	50	1-10/16		45	1-11/16		1/16		0	Fix/Exp	- 1/16	
Pier 29R	comp	70.0	50		1- 6/16	65		1- 6/16		0	- 1/16	Fix/Exp		- 1/16
Pier 30	pl/co	71.0	50	1- 6/16	1- 7/16	45	1- 7/16	1- 7/16	1/16	0	0	Fix/Exp	- 1/16	0
Pier 31	comp	50.0	50	1-11/16	1-15/16	45	1-14/16	1-15/16	3/16	0	0	Fix/Exp	- 3/16	0
Pier 32	comp	51.0	50	1- 4/16	1- 4/16	45	1- 5/16	1- 4/16	1/16	0	0	Fix/Exp	- 1/16	0
Pier 33	comp	69.0	50	1- 9/16	1- 5/16	45	1- 8/16	1- 4/16	- 1/16	- 1/16	0	Fix/Exp	1/16	1/16
Pier 34	plug	69.0	50	1- 7/16	1- 1/16	45	1- 1/16	1- 4/16	- 6/16	3/16	0	Fix/Exp	6/16	- 3/16
Pier 35	comp	0.0	50	1- 1/16	10/16	45	1- 2/16	10/16	1/16	0	0	Fix/Fix	- 1/16	0
N Abut	S&S	68.0	50	15/16	2	45	15/16	2	0	0	0	Exp	0	0

1. The "Deck Joint Type" should be "plug" for Asphaltic Plug joints, "strip" for Strip Seals, "seg." for Segmental Joints, etc.
2. The "Effective Span" is the length contributing to expansion at the joint. This should be 0 at fixed joints of single span bridges.

Reviewer's Comments: s/f = strip over finger, pl/co = asphaltic plug & compression seal

Pier 34, joint was replaced since the previous inspection.

Summer / Winter Joint Measurements: (IF ADDING OR REMOVING, SEND A COPY OF THIS FORM TO SUPERVISOR FOR REVIEW/APPROVAL WITH REASONS FOR CHANGE INDICATED)

[ ] **ADD** TO SUMMER/WINTER LIST SUPERVISOR APPROVAL: _____

[ ] **REMOVE** FROM SUMMER/WINTER LIST MASTER LIST ENTRY: _____

FIELD NOTES

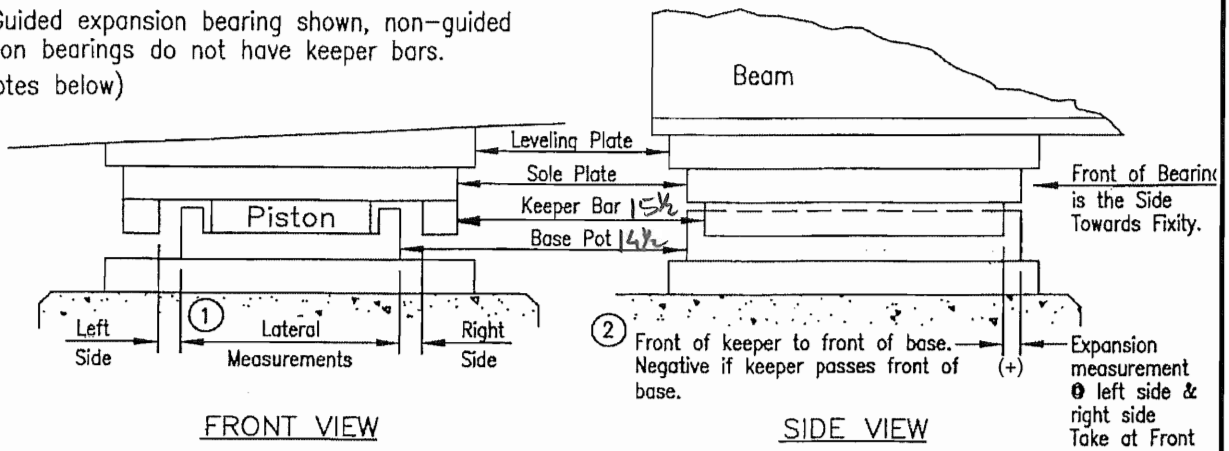
JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/9/06	SHEET 48
CREW PG, SW, CL	

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 1, PIER 1 Temperature = 65 °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	-11/16"	-7/16	W	1/4	0	F	E	

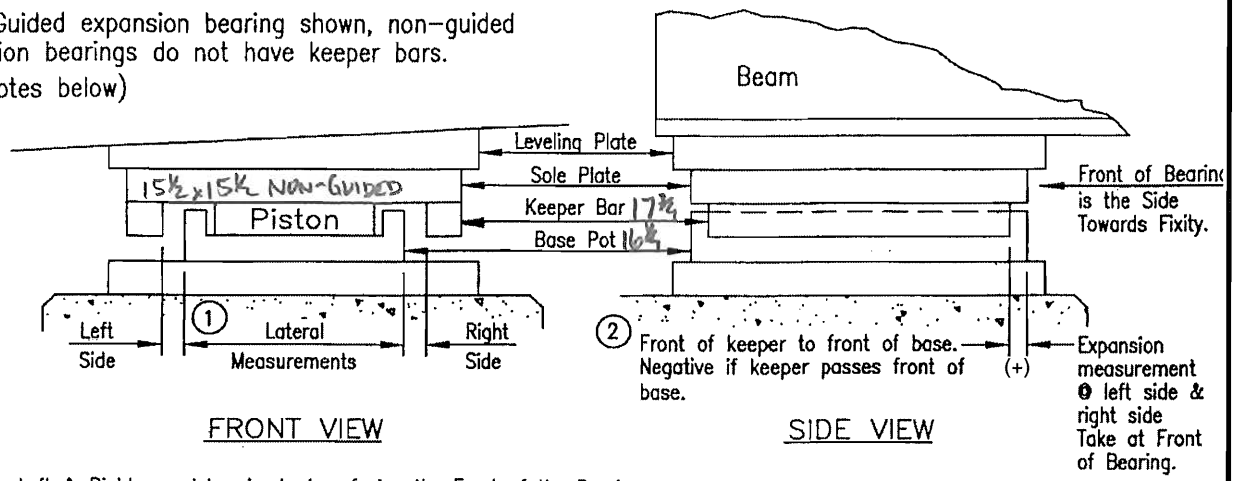
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 319DA
DATE 11/6/06	SHEET 49
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 2, PIER 1 Temperature = SEE BELOW F

COLUMN ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1	-11/16	-3/4	N	0	1/16	E	F	55°
C2	CENTER	1	W	1 9/16	1 15/16	E	E	NON-GUIDED 65°

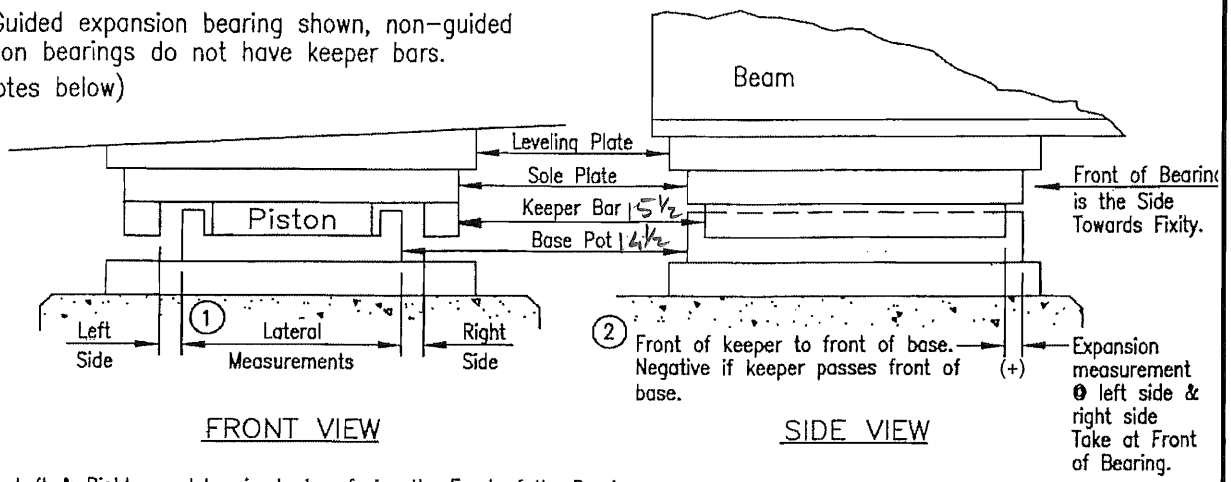
FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 11/9/06	SHEET 50
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 2, PIER 2 Temperature = 65 °F

Column ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	-3/8	-3/8	W	3/16	1/16	F	E	

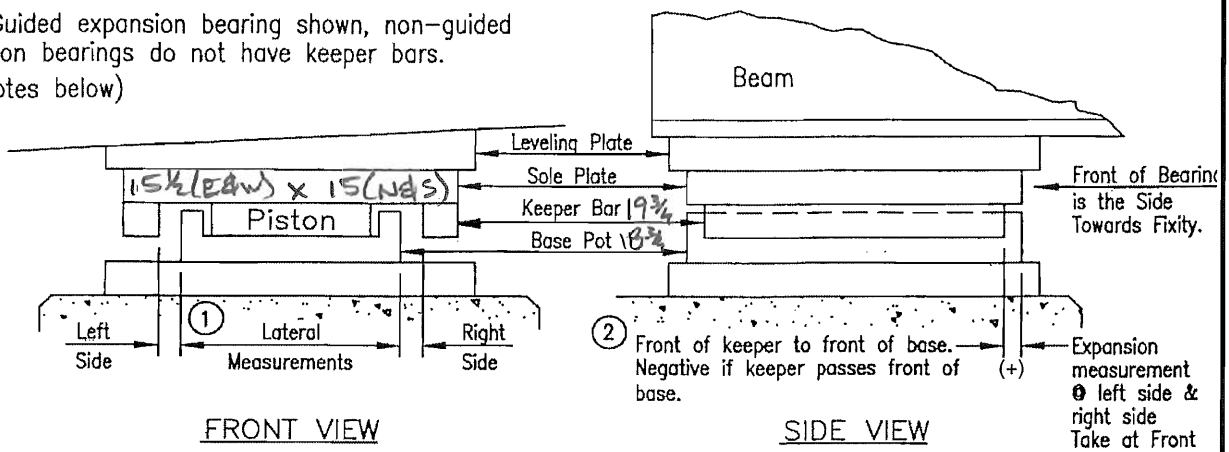
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/6/06	SHEET 51
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 3, PIER 2 Temperature = SEE BELOW °F

COLUMN ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-11/16	-13/16	N	1/16	3/16	E	F	55°
C2	CENTER	15/16	W	1 5/8	1 5/8	E	E	NON-GUIDED 65°

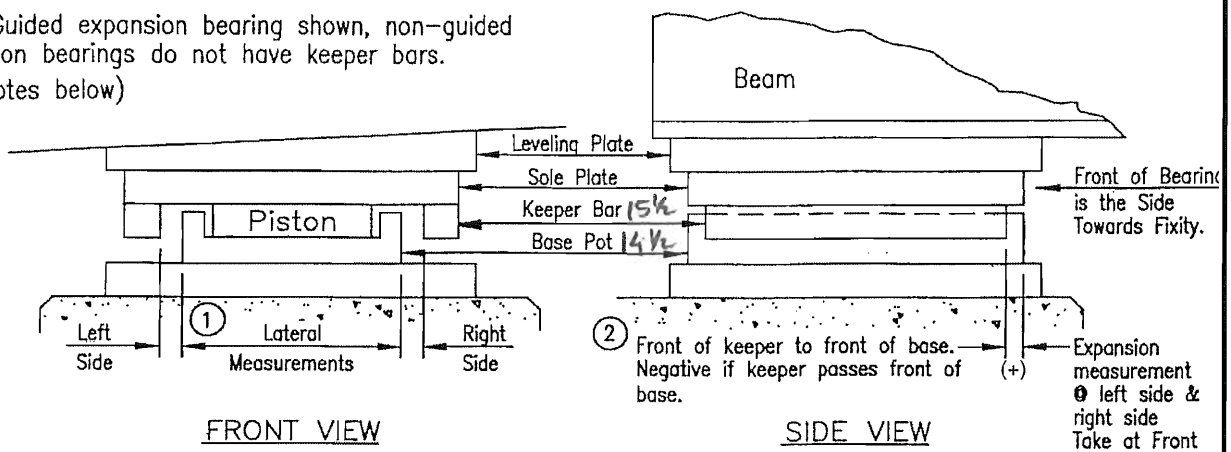
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/9/06	SHEET 52
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 6, PIER 6 Temperature = 65 °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	-7/16	-5/16	W	3/16	0	F	E	

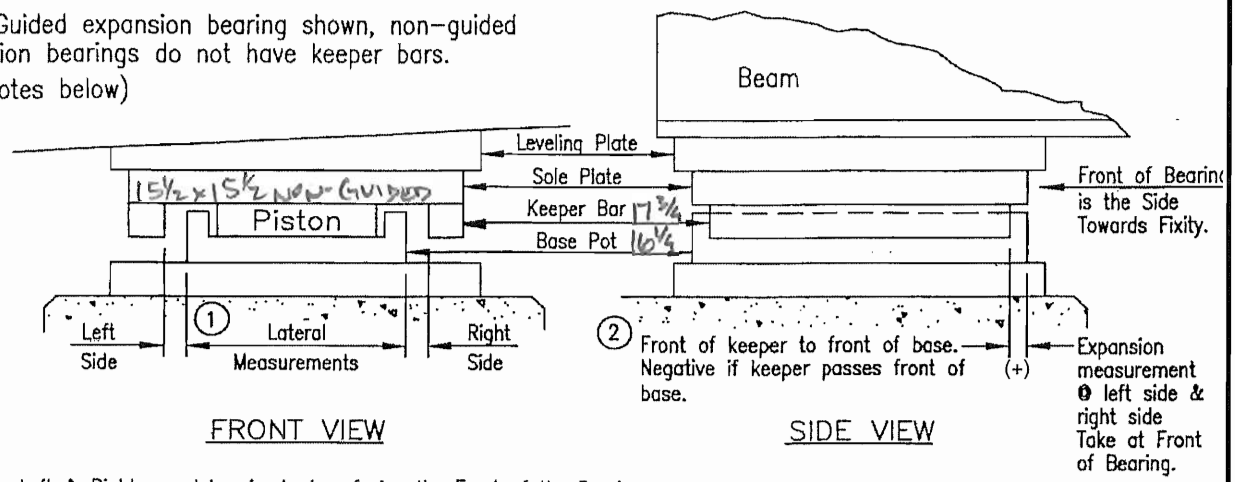
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/10/06	SHEET 53
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 7, PIER 6 Temperature = 65 °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-9/16	-11/16	N	1/8	1/8	E	F	
C2	CENTER	1 3/16	W	1 7/16	1 13/16	E	E	NON-GUIDED

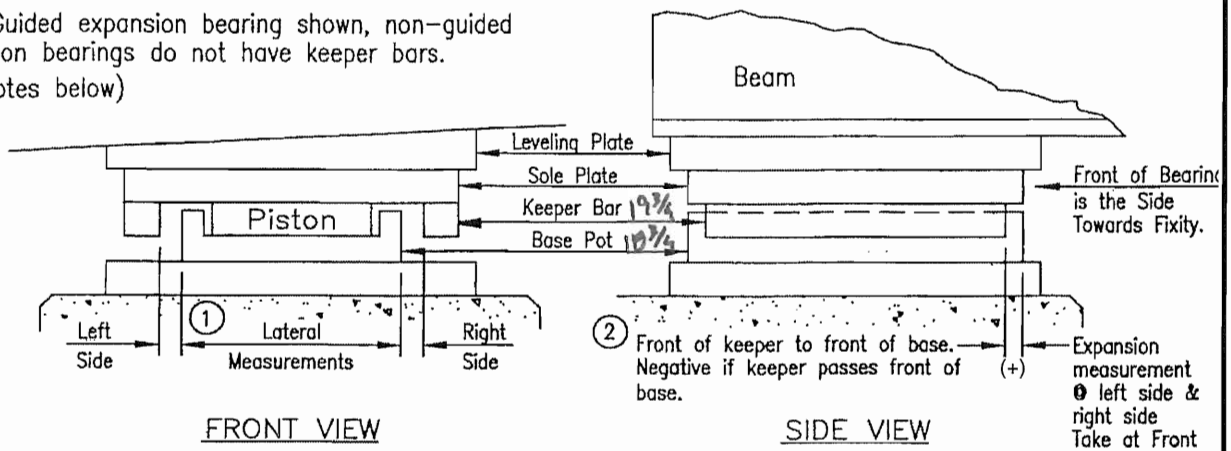
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 319DA	
DATE 11/15/06	SHEET 54	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



FRONT VIEW

SIDE VIEW

(1) –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

(2) –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 7 & 8 @ PIER 7 Temperature = 55°F

COLUMN ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	-7/16	-1/2	W	0	0	F	E	Heavy Debris on S. side

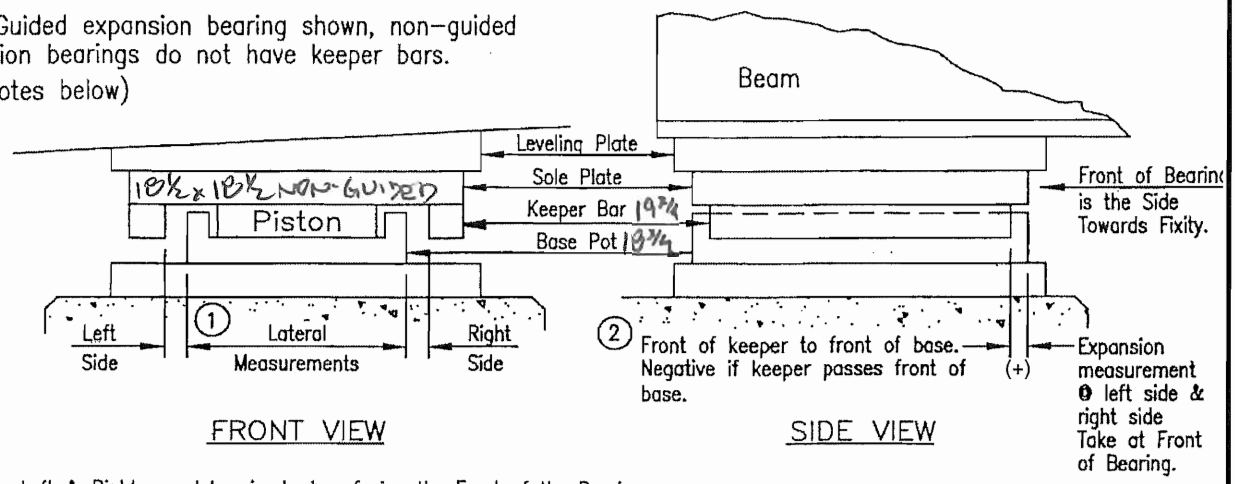
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/15/06	SHEET 55
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non–guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non–guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 8&9 @ PIER 8

Temperature = see BELOW °F

~~Beam~~ COLUMN	Expansion: Exp. Measurement L	Expansion: Exp. Measurement R	Expansion: Side of Brg. (N,S,E,W)	Lateral: Left	Lateral: Right	LONG. MVMT	TRANS. MVMT	Comments
C1	-15/16	-15/16	S	1/4	0	E	F	70°
C2	CENTER	13/16	W	2	1 7/16	E	E	NON-GUIDED Debris on S. SIDE 55°

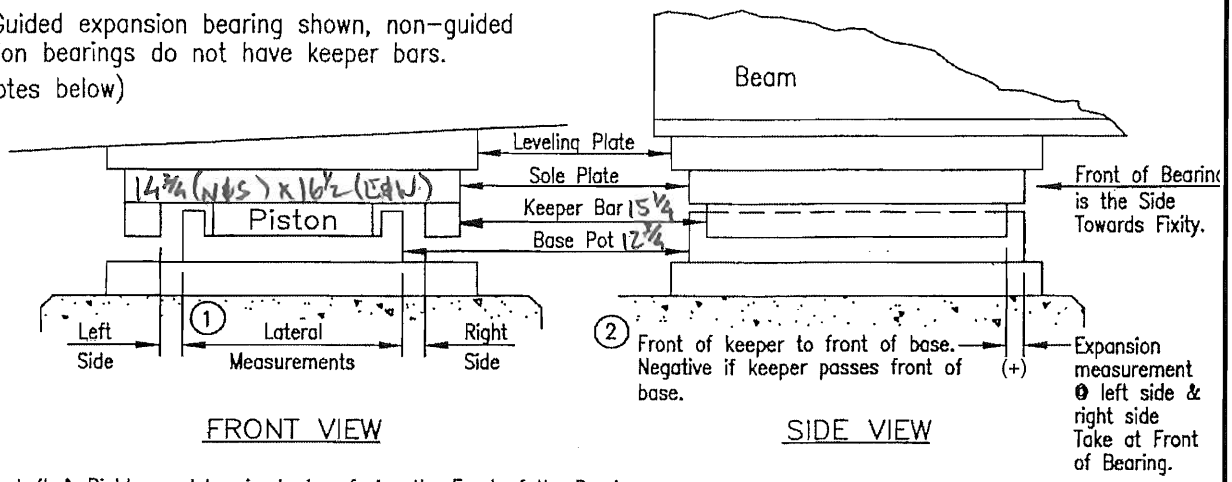
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/10/06	SHEET 56
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 9, PIER 9 Temperature = SEE BELOW °F

COLUMN ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-1	-1	S	0	1/16	E	F	65°
C2	CENTER	15/16	W	15/16	2 1/16	E	E	NON-GUIDED MOD. DEBRIS ON S. SIDE 55°

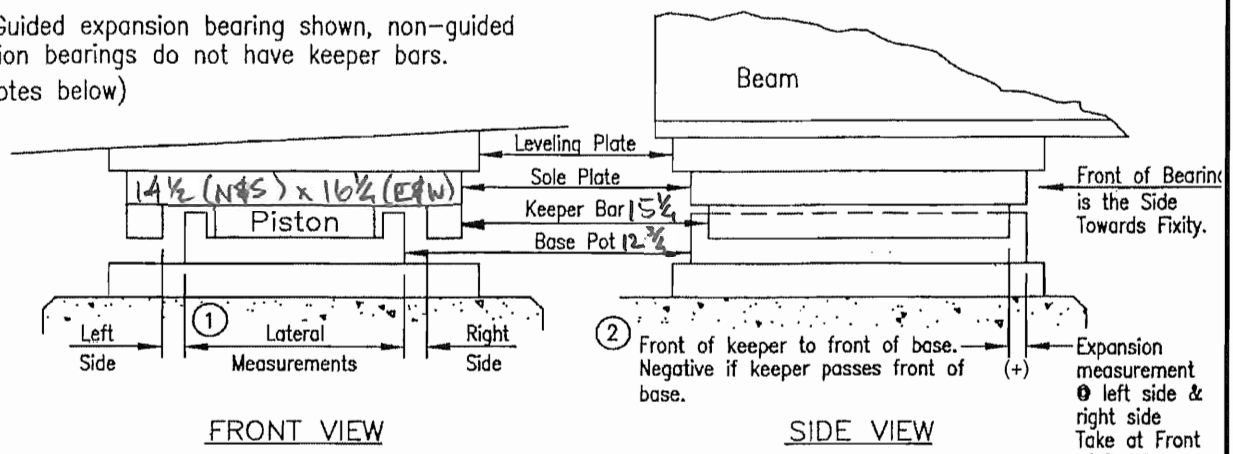
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 11/15/06	SHEET 57	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW DG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 10, PIER 9 Temperature = see BROWF

Column ~~Beam~~	Expansion			Lateral		Long. Mvmt	Trans. Mvmt	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1	-1 3/16	-1 3/16	N	0	1/16	E	F	70°
C2	CENTER	7/8	W	2	1 15/16	E	E	NON-GUIDED 55°

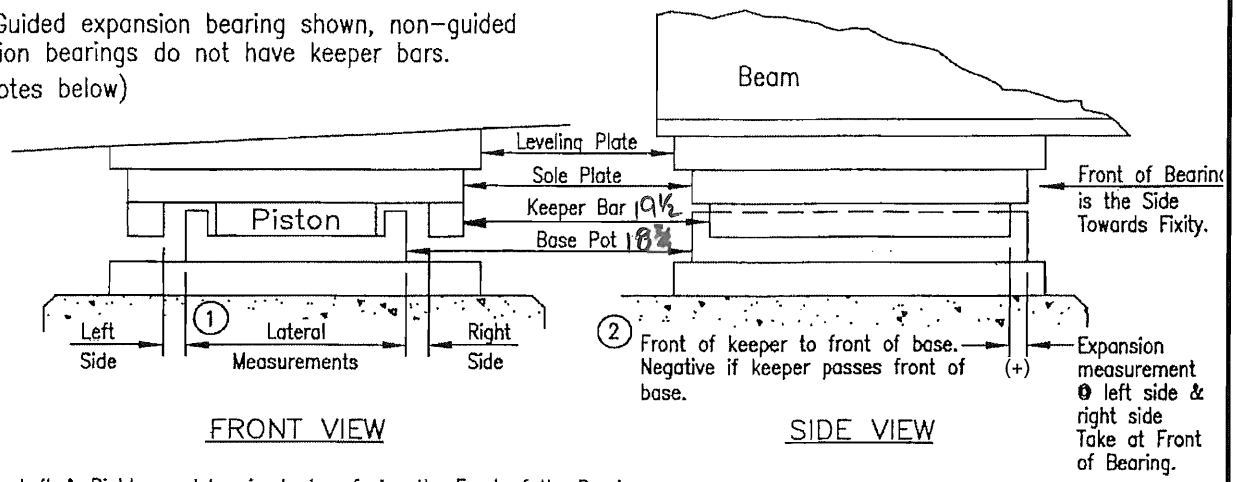
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/15/06	SHEET 58
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 10 & 11 @ PIER 10 Temperature = 55 °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	-11/16	-5/8	W	0	0	F	E	

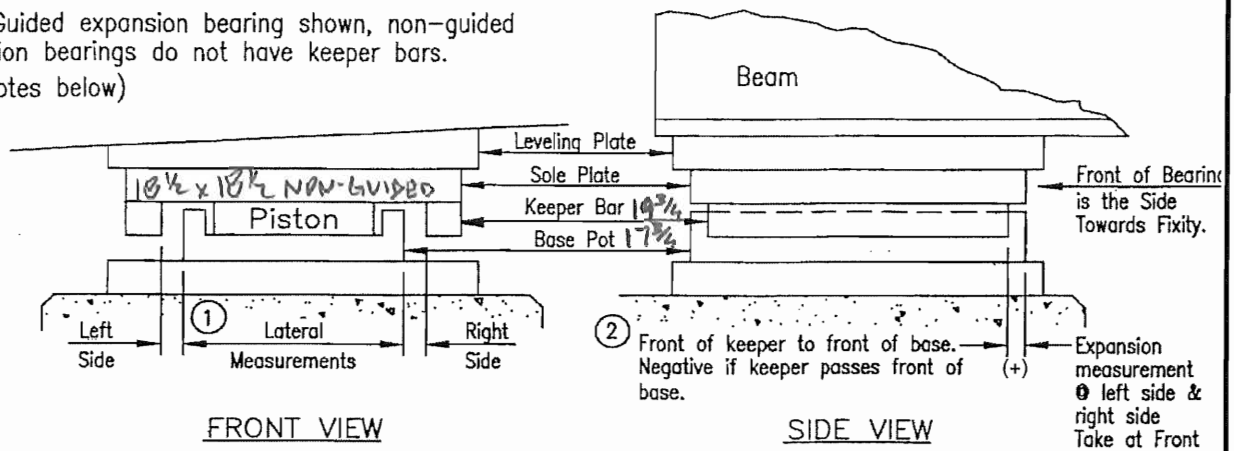
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/15/06	SHEET 59
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 11 & 12 @ PIER 11

Temperature = see BELOW °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-13/16	-15/16	S	0	1/8	E	F	70°
C2	CENTER	1 1/2	W	1 7/8	1 11/16	E	E	NON-GUIDED 55'

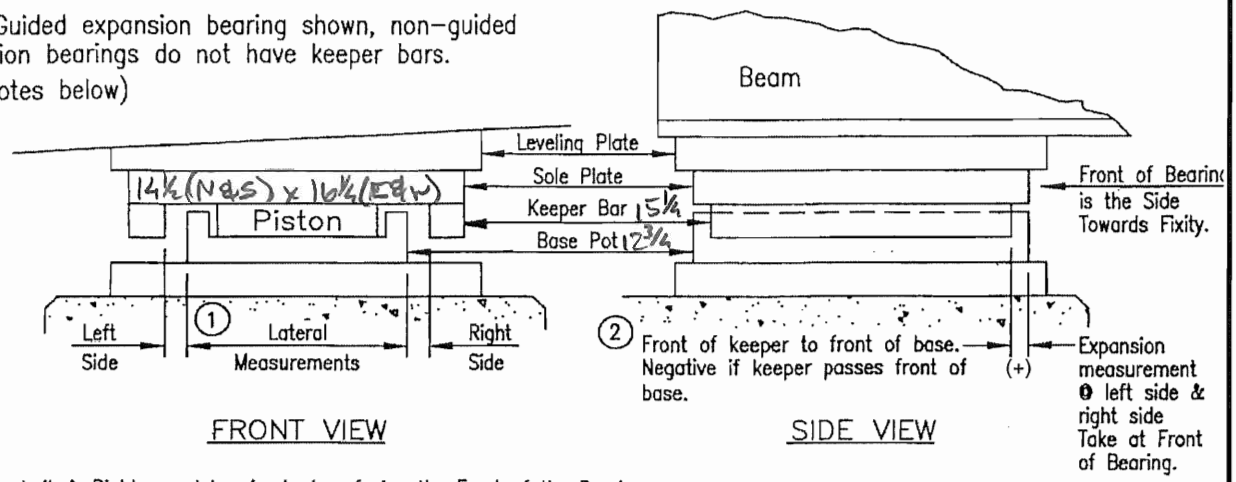
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 11/21/06	SHEET 60	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 12, PIER 12 Temperature = see below °F

Column ~~Beam~~	Expansion			Lateral		Long. Mvmt	Trans. Mvmt.	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1	-1	-1	S	0	0	E	F	70°
C2	CENTER	2	S	1 3/16	15/16	E	E	NON-GUIDED 45°

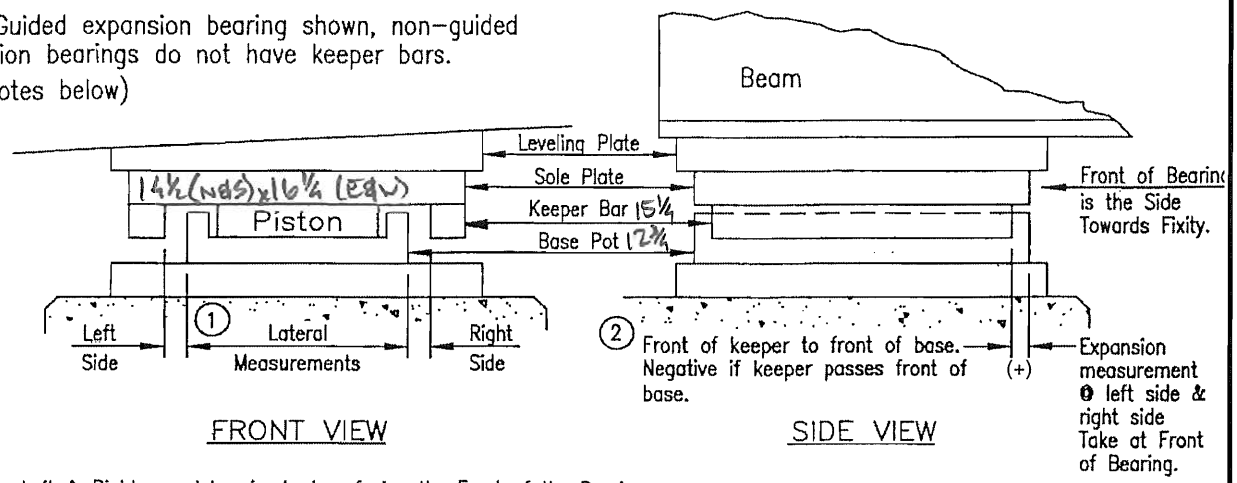
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/21/66	SHEET 61
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 13, PIER 12 Temperature = see BELOW °F

Column ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-1 5/16	-1 5/16	N	0	0	E	F	60°
C2	CENTER	2 3/16	N	1 5/16	1 3/16	E	E	NON-GUIDED 45°

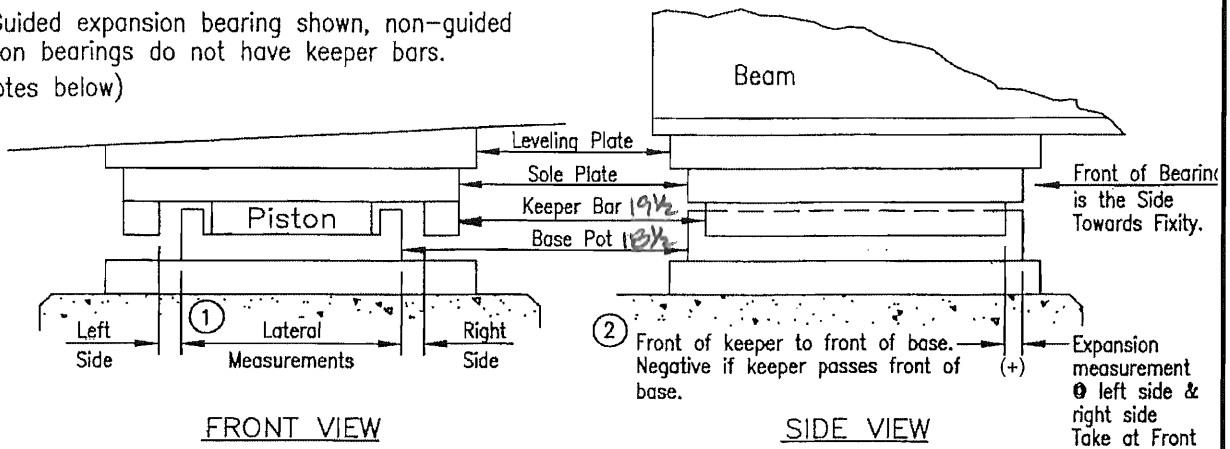
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 11/21/06	SHEET 62	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 13 & 14 @ PIER 13 Temperature = 45 °F

Column ~~Beam~~	Expansion			Lateral		Long. Mvmt	Trans. Mvmt	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	-3/8	-7/16	W	1/16	1/16	F	E	

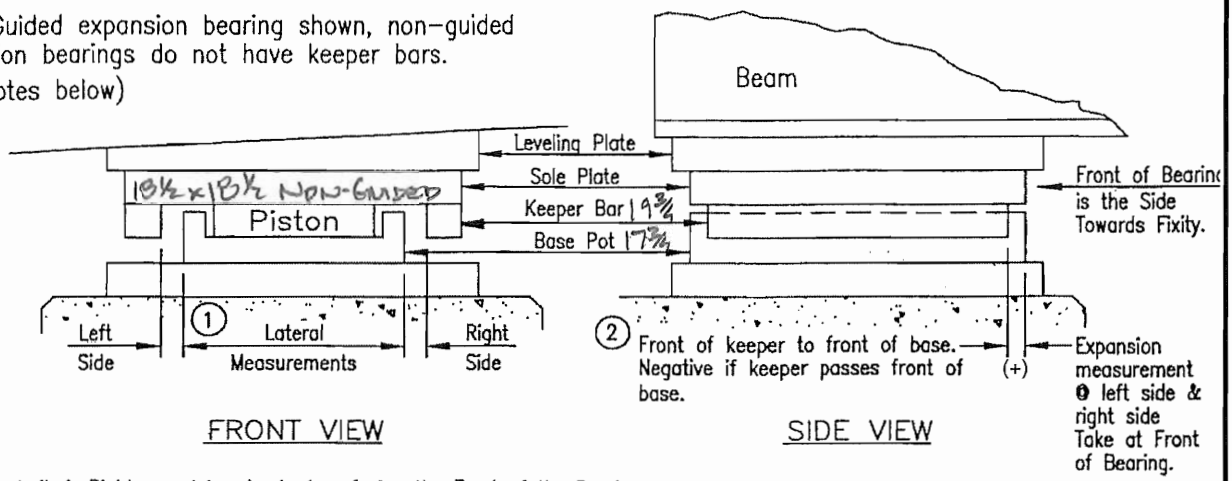
FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/11/06	SHEET 63
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 14 & 15 @ PIER 14 Temperature = see below °F

COLUMN ~~Beam~~	Expansion			Lateral		LONG MVMT	TRANS MVMT	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1	-3/8	-7/16	S	0	1/16	E	F	60°
C2	CENTER	15/8	W	1 11/16	1 11/16	E	E	NON-GUIDED 40°

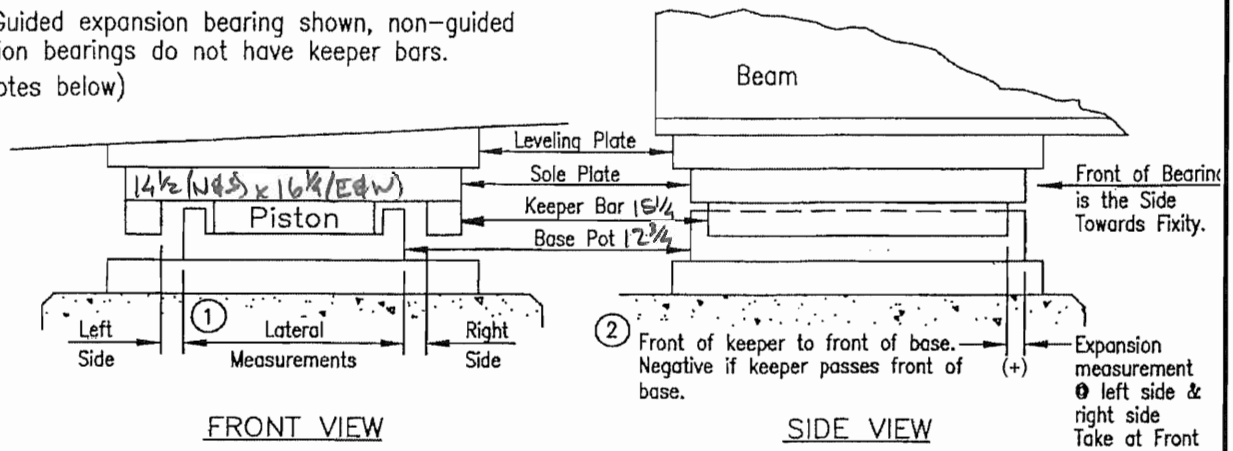
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 11/21/06	SHEET 64	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 15, PIER 15

Temperature = SEE BELOW °F

COLUMN Beam	Expansion			Lateral		LONG. MVMT	TRANS MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-7/16	-1/2	S	1/8	1/8	E	F	60°
C2	CENTER	1 15/16	W	13/16	2	E	E	NON-GUIDED 40°

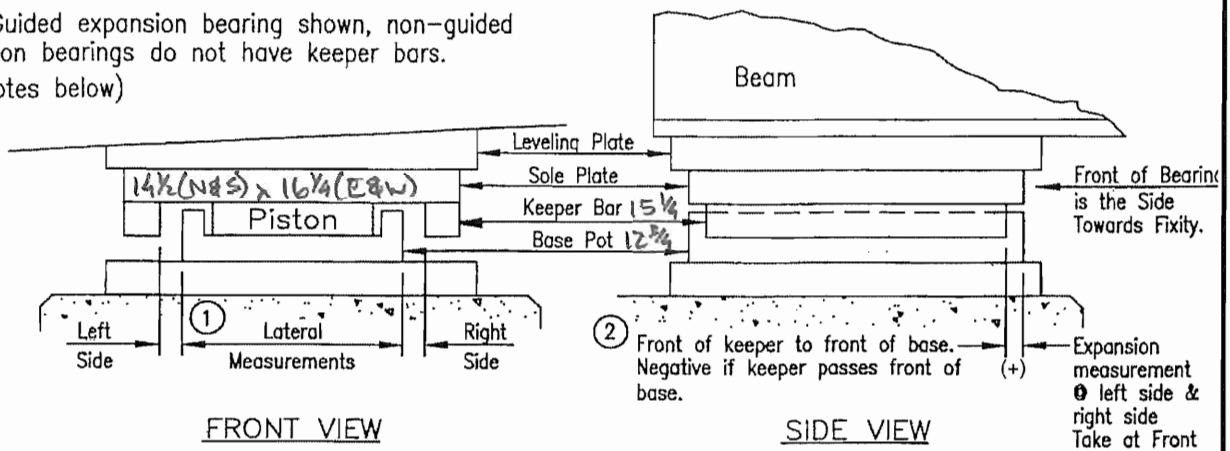
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/21/06	SHEET 65
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



FRONT VIEW

SIDE VIEW

1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 16, PIER 15

Temperature = see BELOW °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-1 9/16	-1 5/8	N	1/8	0	E	F	RIGHT TEFLON STRIP FALLING OUT 60°
C2	CENTER	3/4	W	2 3/8	2	E	E	NON-GUIDED 40°

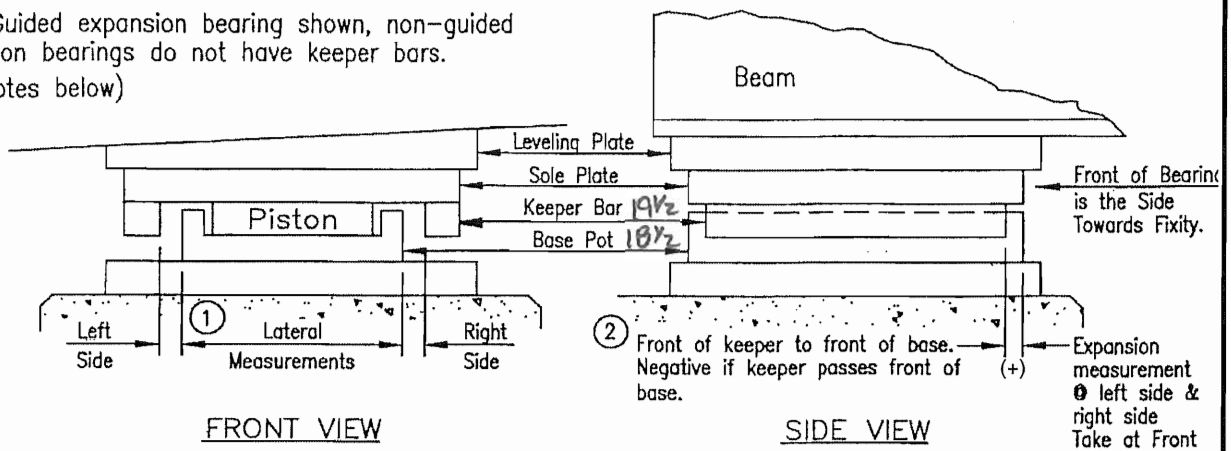
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/21/06	SHEET 66
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 16 & 17 @ PIER 16 Temperature = 40 °F

Column ~~Beam~~	Expansion			Lateral		Long. Mvmt	Trans. Mvmt	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	-9/16	-1/2	W	0	3/16	F	E	

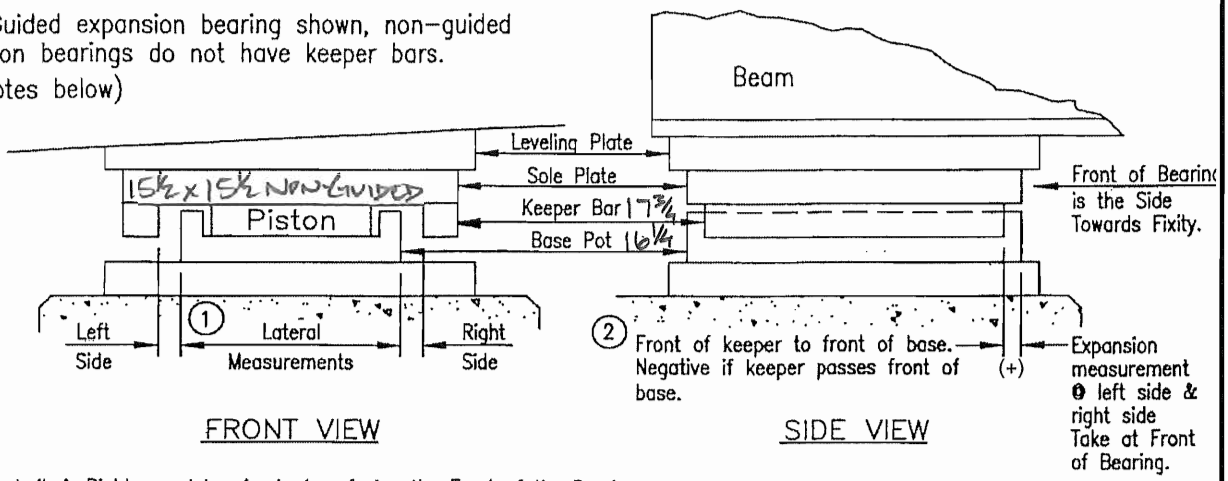
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/21/06	SHEET 67
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 17, PIER 17 Temperature = see 80°F

~~Beam~~ CAVMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-1 7/16	-1 7/16	S	1/4	0	E	F	60°
C2	CENTER	1 5/8	W	1 3/16	1 5/16	E	E	NON-GUIDED 40°

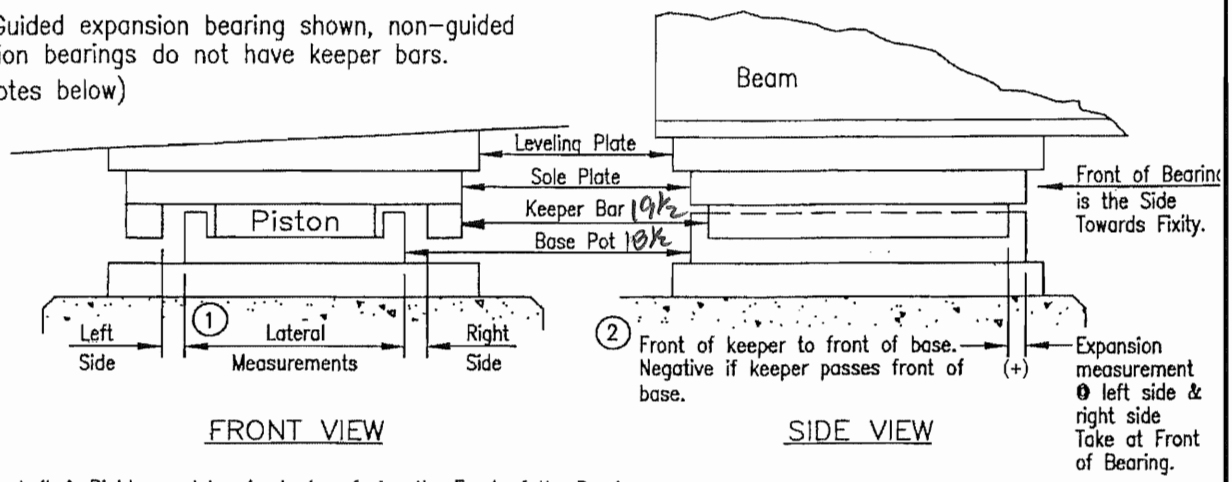
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 11/21/06	SHEET 68	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 18, PIER 17 Temperature = 40 °F

~~Beam~~ Column	Expansion			Lateral		Longi. Mvmt	Trans. Mvmt	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1	FIXED					F	F	
C2	-1/4	-3/16	W	1/8	0	F	E	

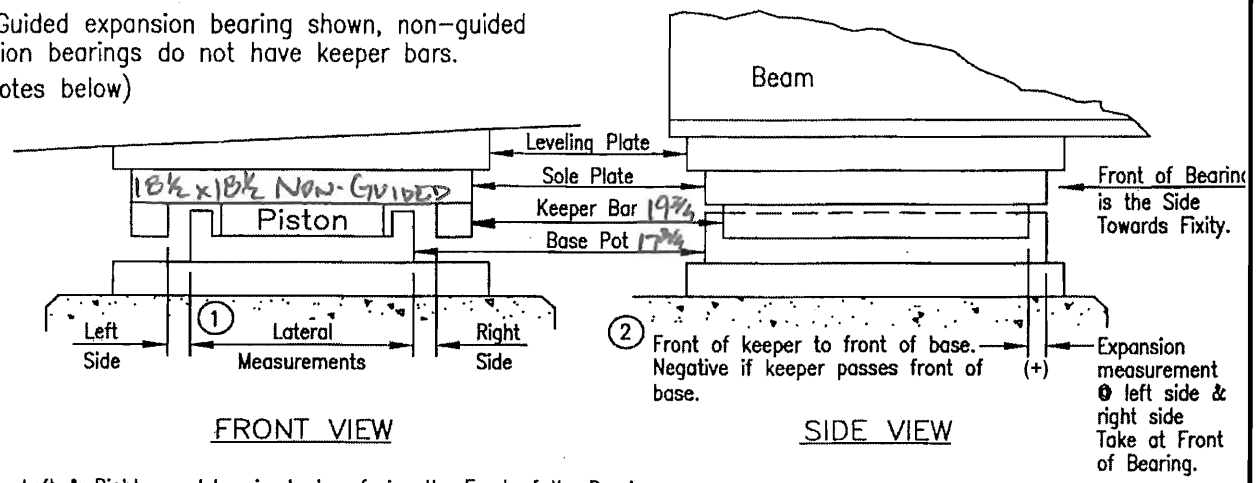
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/11/06	SHEET 69
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SN, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 18, PIER 18

Temperature = see BELOW F

COLUMN -Beam	Expansion			Lateral		LONG. MVMT	TRANS MVMT	Comments	
	Exp. Measurement		Side of Brg.	Left	Right				
	L	R	(N,S,E,W)						
C1	-5/8	-11/16	S	0	5/16	E	F	TEFLON STRIPS @ BOTH SIDES FALLING OUT	60°
C2	CENTER	15/16	W	1 3/4	1 9/16	E	E	NON-GUIDED	40°

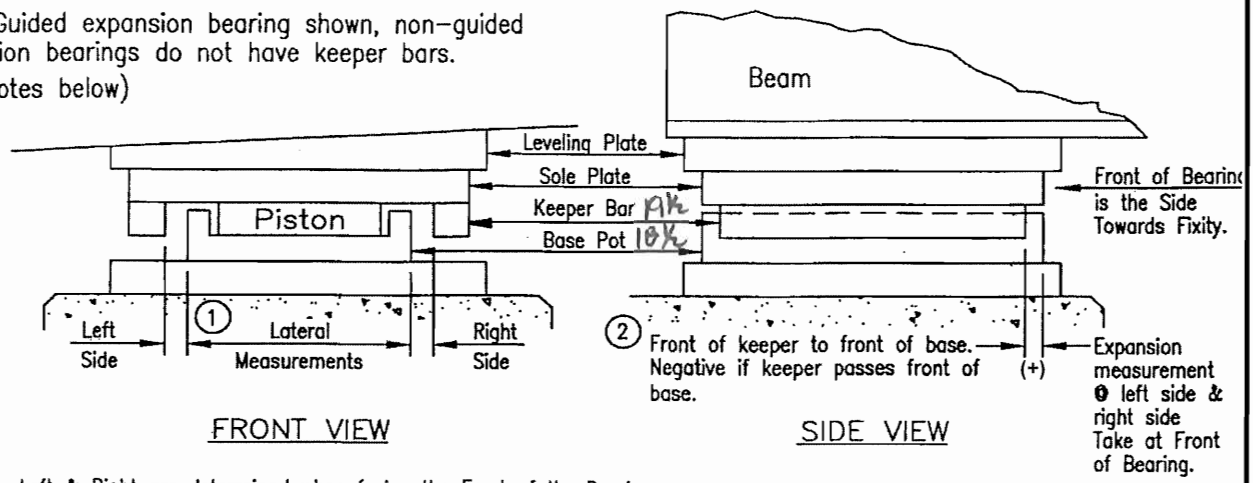
FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 11/21/06	SHEET 70
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 19 PIER 18 Temperature = 40 °F

Column ~~Beam~~	Expansion			Lateral		Longi. MVMT	Trans. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	FIXED					F	F	
C2	- 5/16	- 1/4	W	1/8	1/8	F	E	

FIELD NOTES

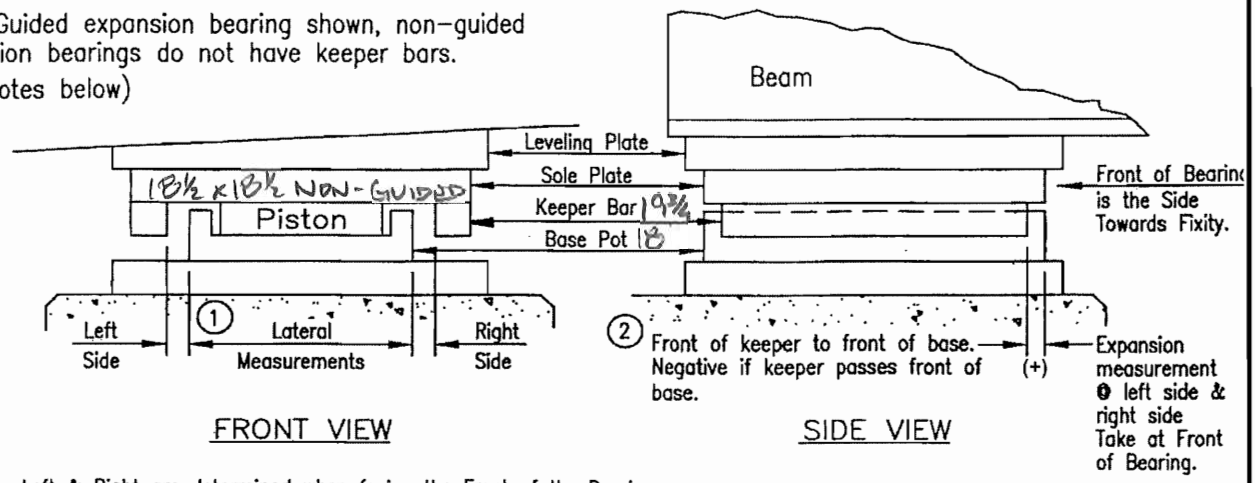
JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/21/06	SHEET 71
CREW PG, SW, CL	

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 19, PIER 19

Temperature = see BELOW

Column ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments	
	Exp. Measurement		Side of Brg.	Left	Right				
	L	R	(N,S,E,W)						
C1	– 13/16	– 3/4	S	1/8	1/8	E	F		60°
C2	CENTER	1 5/16	W	2 1/8	1 3/8	E	E	NON-GUIDED	40°

FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 11/21/06	SHEET 72
CREW PG, SW, CL	

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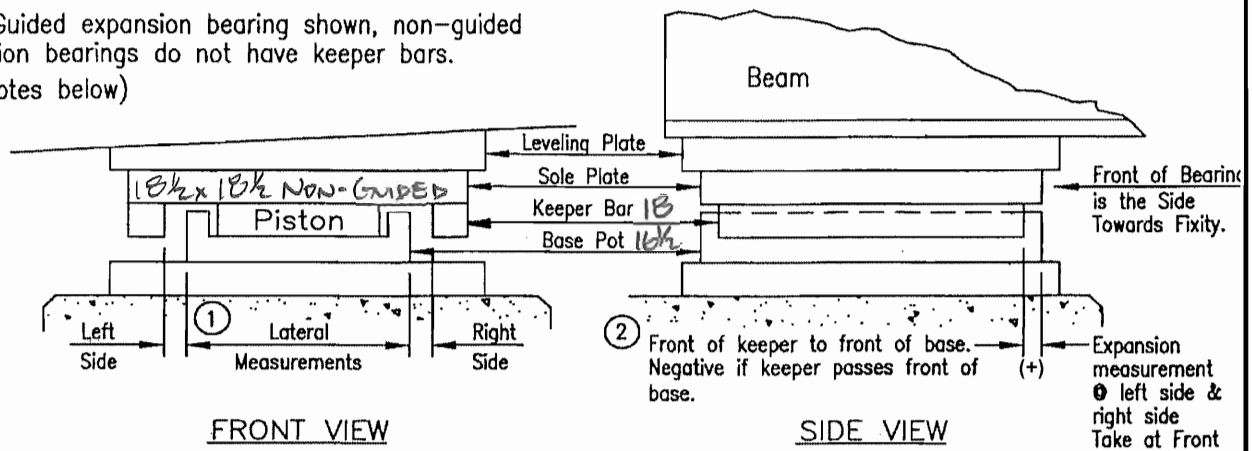
POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 20, PIER 19

Temperature = see ~~above~~

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments	
	Exp. Measurement		Side of Brg.						
	L	R	(N,S,E,W)	Left	Right				
C1	-1/2	-3/8	S	1/8	1/8	E	F		55°
C2	CENTER	1 11/16	W	1 7/16	1 7/8	E	E	NON-GUIDED	46°

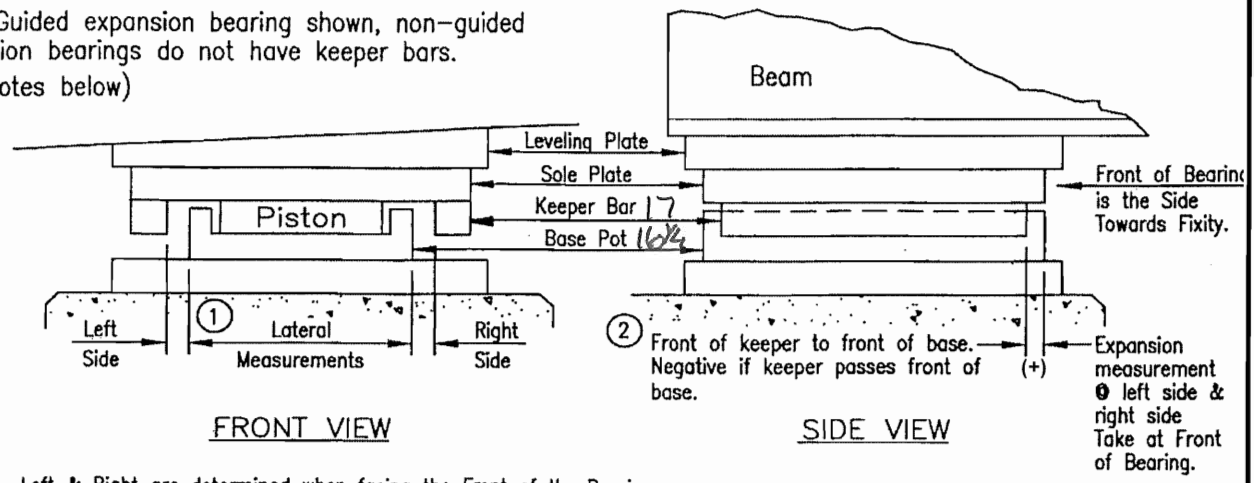
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 10/12/06	SHEET 73	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 20 & 21 @ PIER 20 Temperature = 60 °F

COLUMN ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1	FIXED					F	F	
C2	-7/16	-7/16	W	0	0	F	E	

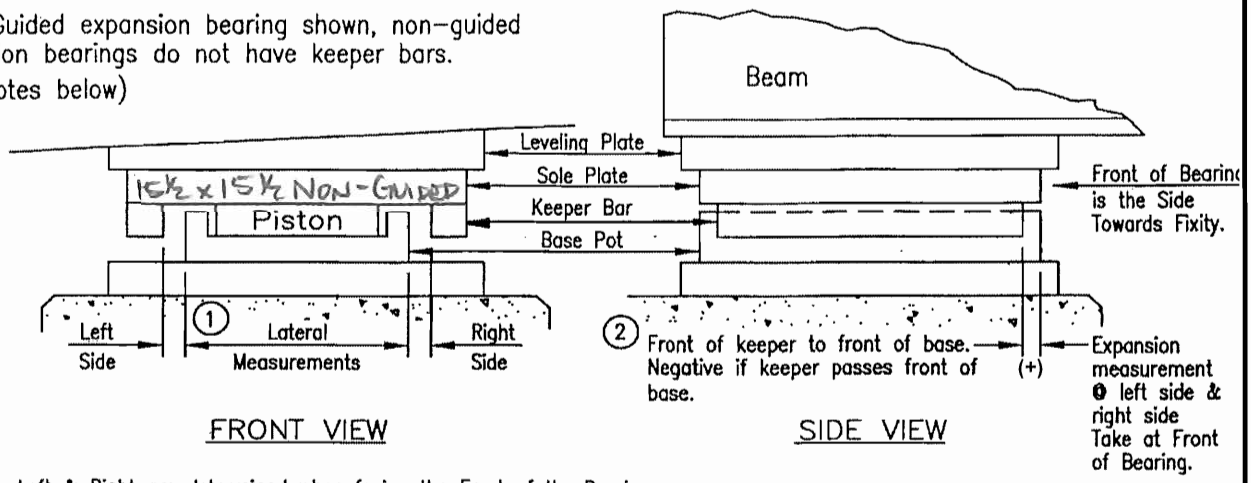
FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/11/06	SHEET 74
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW TG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPANS 21 & 22 @ PIER 21 Temperature = 60 °F

Column ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-7/16	-5/8	N	1/8	1/16	E	F	
C2						E	E	NON-GUIDED

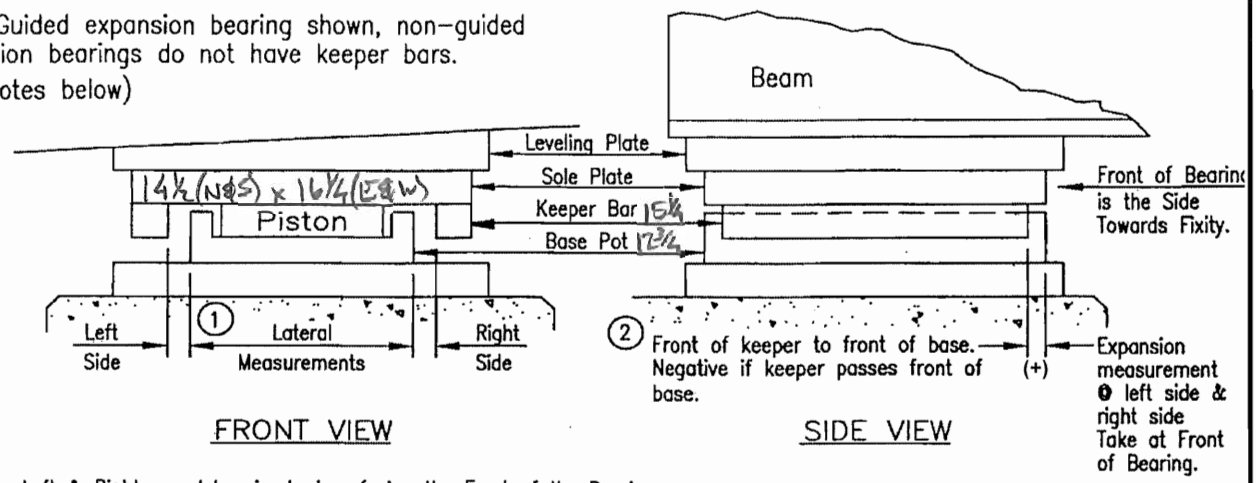
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/12/06	SHEET 75
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 22, PIER 22

Temperature = ~~BELOW~~ see F

COLUMN ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-1 1/8	-1	N	1/16	1/16	E	F	55°
C2	CENTER.	1 1/2	S	1 1/16	15/16	E	E	NON-GUIDED 65°

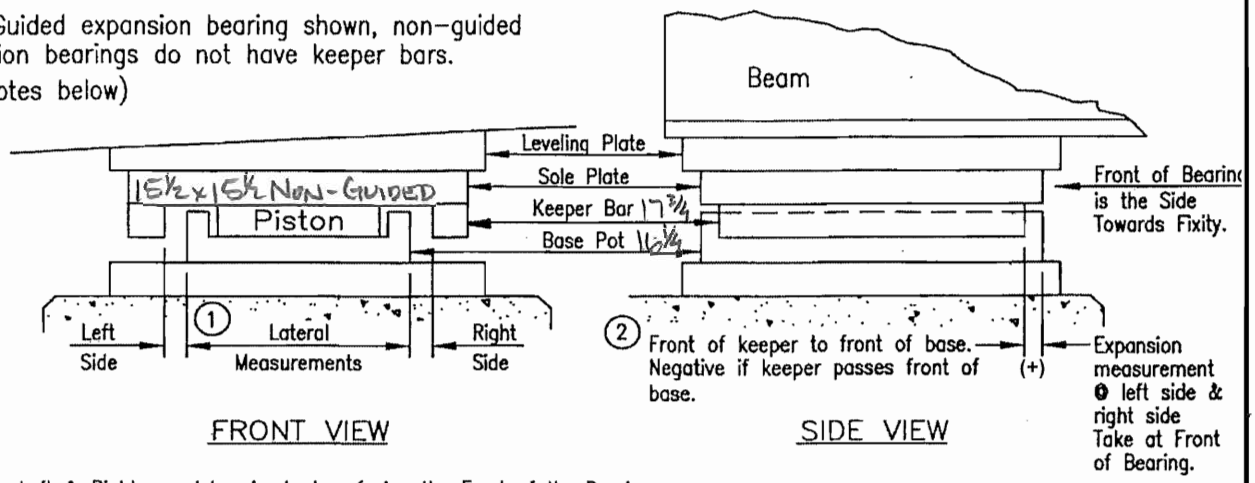
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 10/12/06	SHEET 76	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 23, PIER 22 Temperature = 65 °F

COLUMN ~~Beam~~	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1						E	E	
C2	CENTER	1 3/4	N	1 1/8	1 5/8	E	E	NON-GUIDED

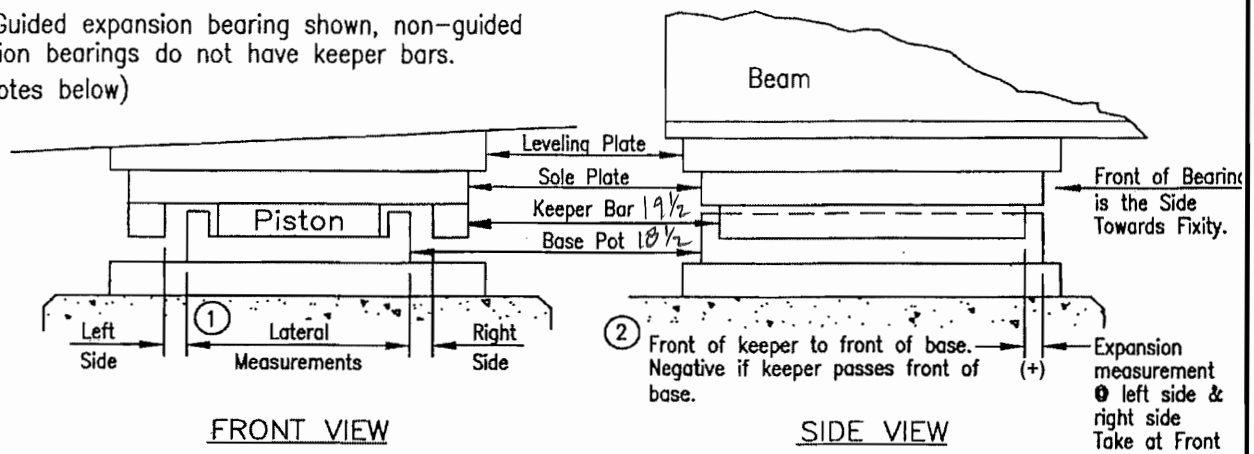
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/26/06	SHEET 77
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 23, PIER 23 Temperature = 50 °F

Column -Beam	Expansion: Exp. Measurement L	Expansion: Exp. Measurement R	Expansion: Side of Brg. (N,S,E,W)	Lateral: Left	Lateral: Right	LONG. MVMT	TRANS. MVMT	Comments
C1	FIXED					F	F	
C2	- 5/16	-5/8	W	1/16	1/16	F	E	

FIELD NOTES

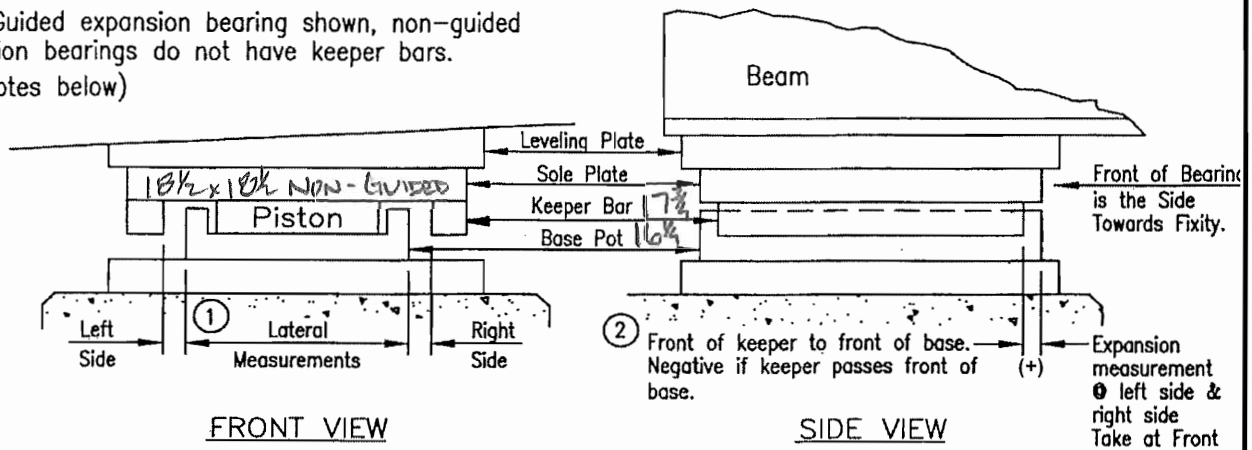
JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/26/06	SHEET 78
CREW PG, SW, CL	

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 24, PIER 23 Temperature = 50 °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-3/16	0	N	3/4	0	E	F	KEEPERS & SOLE PL OVERHANG BACK PL
C2	CENTER	1 5/8	W	1 13/16	1 11/16	E	E	NON-GUIDED

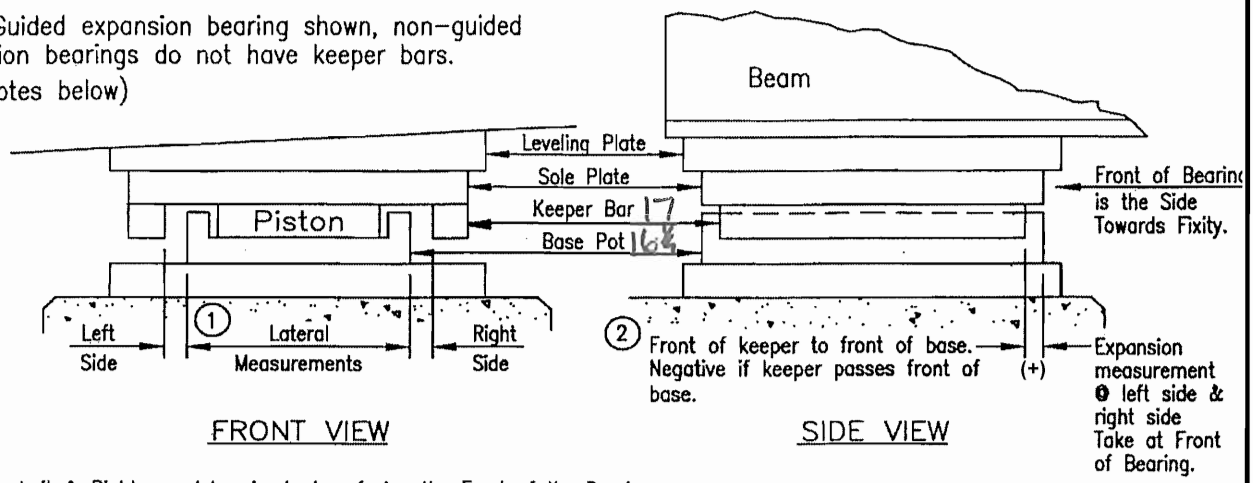
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A	
DATE 10/26/06	SHEET 79	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, CL	

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston @ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston @ center line of bearing.

Span No. & Substructure Unit = SPAN 24, PIER 24 Temperature = 50 °F

COLUMN -Beam	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.	Left	Right			
	L	R	(N,S,E,W)					
C1	FIXED					F	F	
C2	-9/16	-9/16	W	1/16	1/16	F	E	

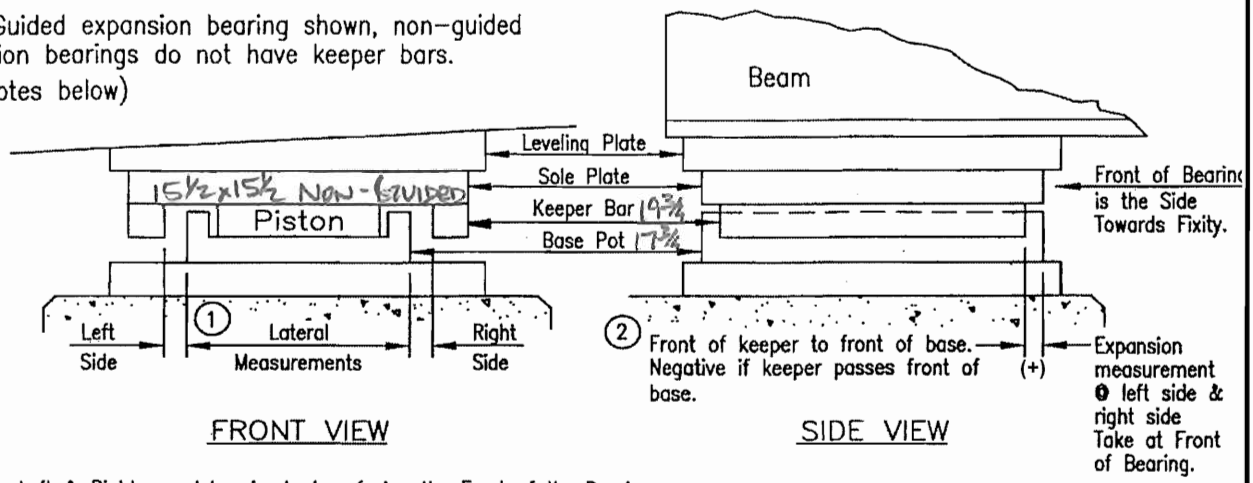
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/26/06	SHEET 80
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL

POT BEARING MEASUREMENTS

Form BRI-16, Rev. 9/97

Note: Guided expansion bearing shown, non-guided expansion bearings do not have keeper bars. (see notes below)



1 –Left & Right are determined when facing the Front of the Bearing.
–For non-guided bearings, measure from side of sole plate to side of piston ⊕ center line of piston.

2 –For non-guided bearings, measure expansion from front of sole plate to front of piston ⊕ center line of bearing.

Span No. & Substructure Unit = SPAN 25, PIER 24 Temperature = 50 °F

~~Beam~~ COLUMN	Expansion			Lateral		LONG. MVMT	TRANS. MVMT	Comments
	Exp. Measurement		Side of Brg.					
	L	R	(N,S,E,W)	Left	Right			
C1	-3/16	-3/4	N	1/8	1/8	E	F	LT RUST
C2	CENTER	1¼	W	2 1/16	1 5/16	E	E	

FIELD NOTES

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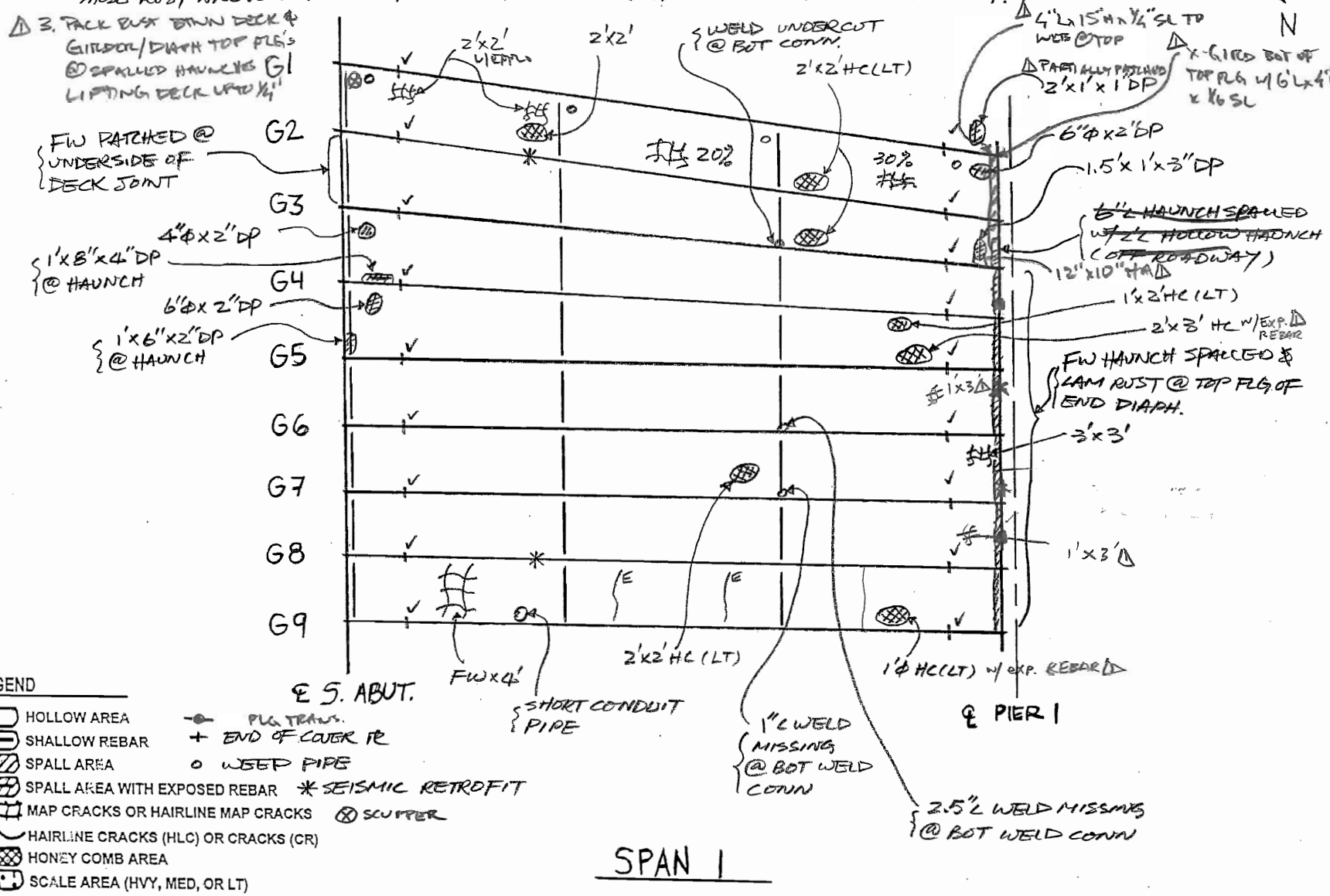
JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/29/00 | SHEET ~~2~~ 81

CREW MC, CC, JW | △ 11/6/00 PDG, SW, CLDS

GENERAL NOTES:

1. THE STRUCTURE REPAINTED IN 8/91.
2. LT TO MOD RUST BETW HAUNCH & GIRDER TOP FLG @ RANDOM LOCATIONS. LEAKAGE FROM SOME THOSE RUST AREAS ONTO TOP OF BOT FLG, STIFF & DIAPH CAUSED AREAS OF LAM RUST.
3. △ PACK RUST BTWN DECK & GIRDER/DIAPH TOP FLG'S @ SPALLED HAUNCHES G1 LIFTING DECK UP TO 1/4"
4. △ GIRDER TOP FLGS W/ UP TO 1/16" LOSS OF WIDTH @ EDGE ALONG HAUNCH SPALLS.
5. △ DIAG TRUSS BRACES @ PIERS MISSING END WELDS ON HORIZ. MEMBERS THROUGHOUT



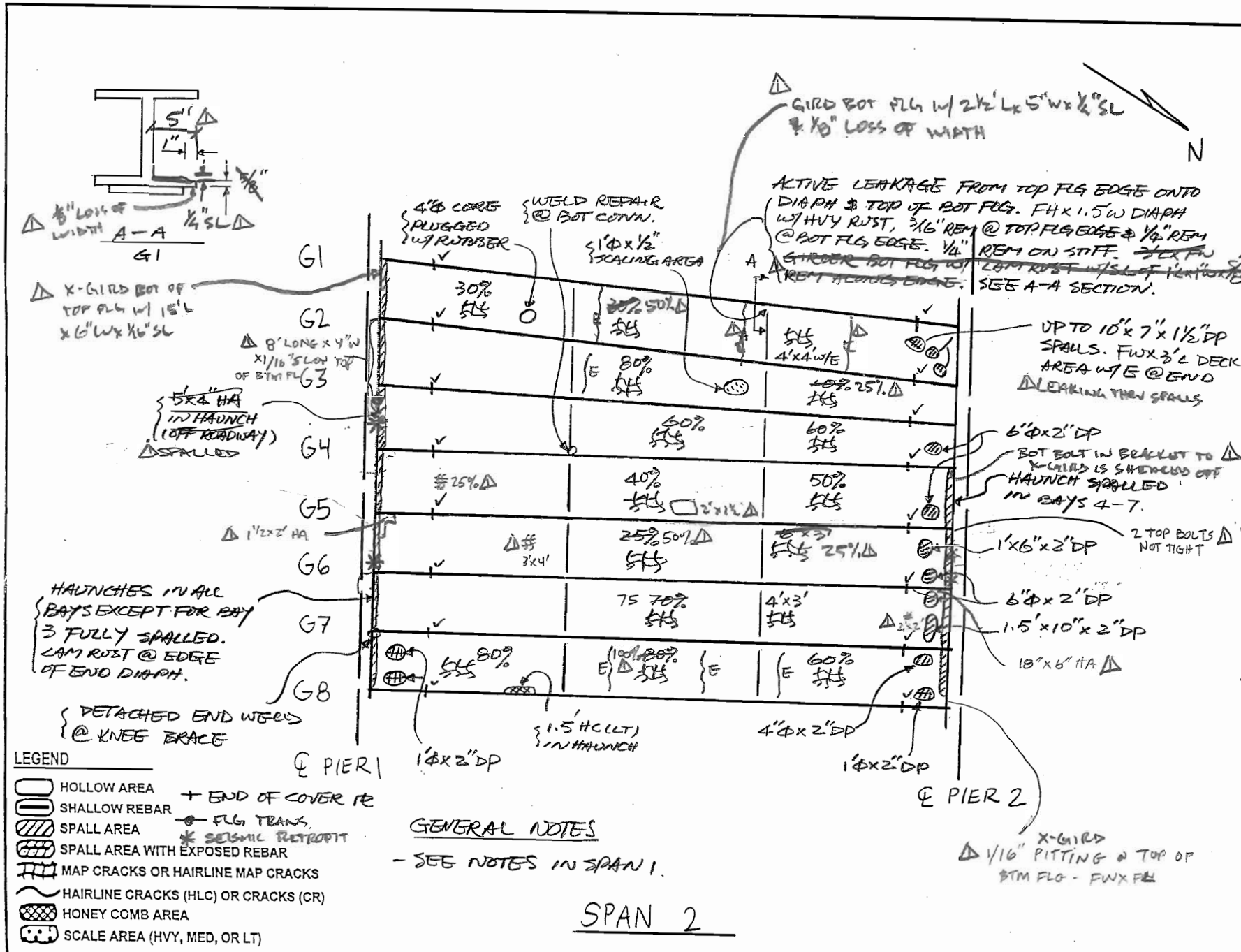
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)
- PLG TRANS.
- + END OF COVER PL
- o WEEP PIPE
- * SEISMIC RETROFIT
- ⊗ SCUPPER

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	DATE 11/29/04	CREW ML, CC, JW
BRIDGE NO. 3190 A	SHEET 32 of 82	11/6/06 PDG, SW, CL, DS



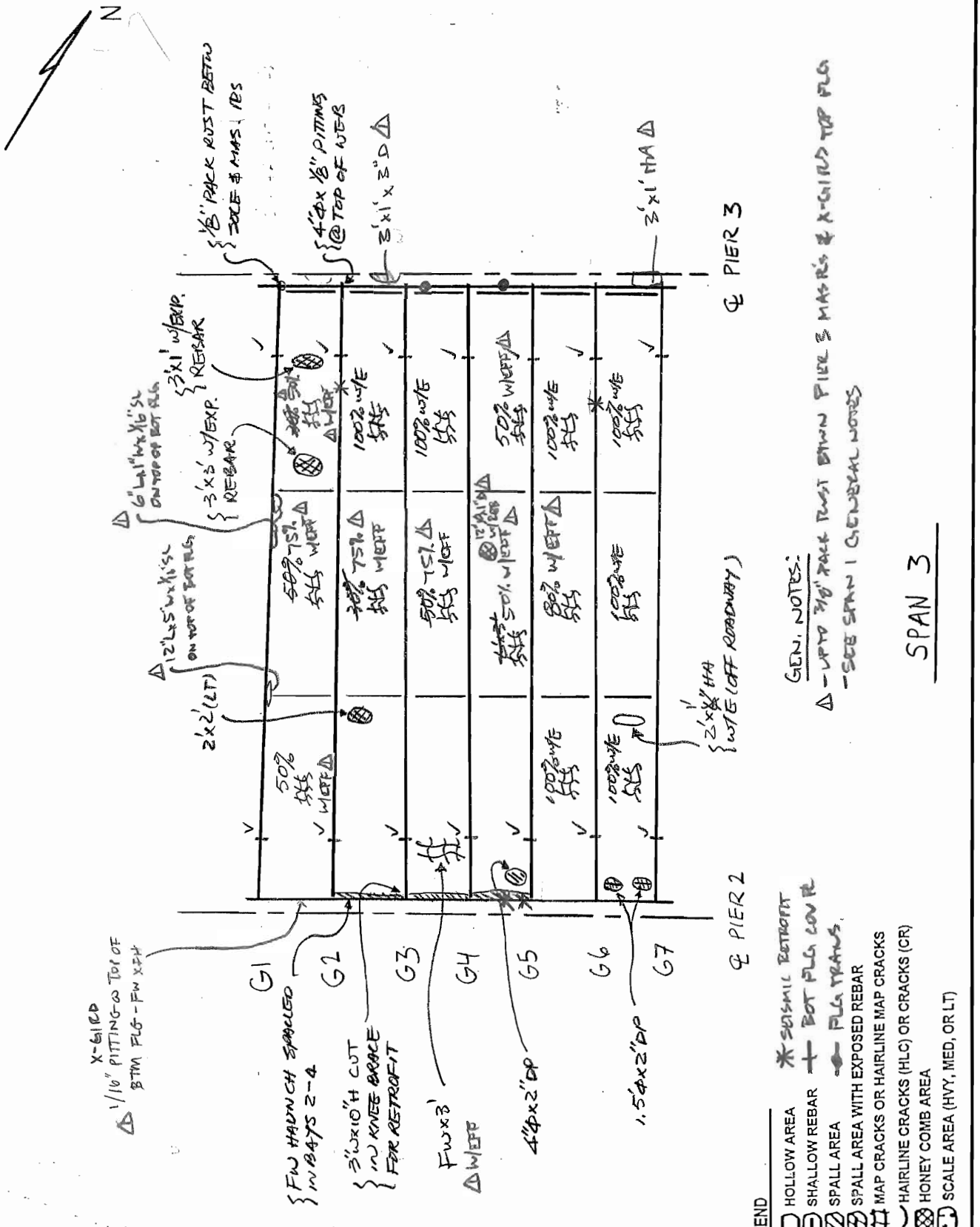
GENERAL NOTES

- SEE NOTES IN SPAN 1.

SPAN 2

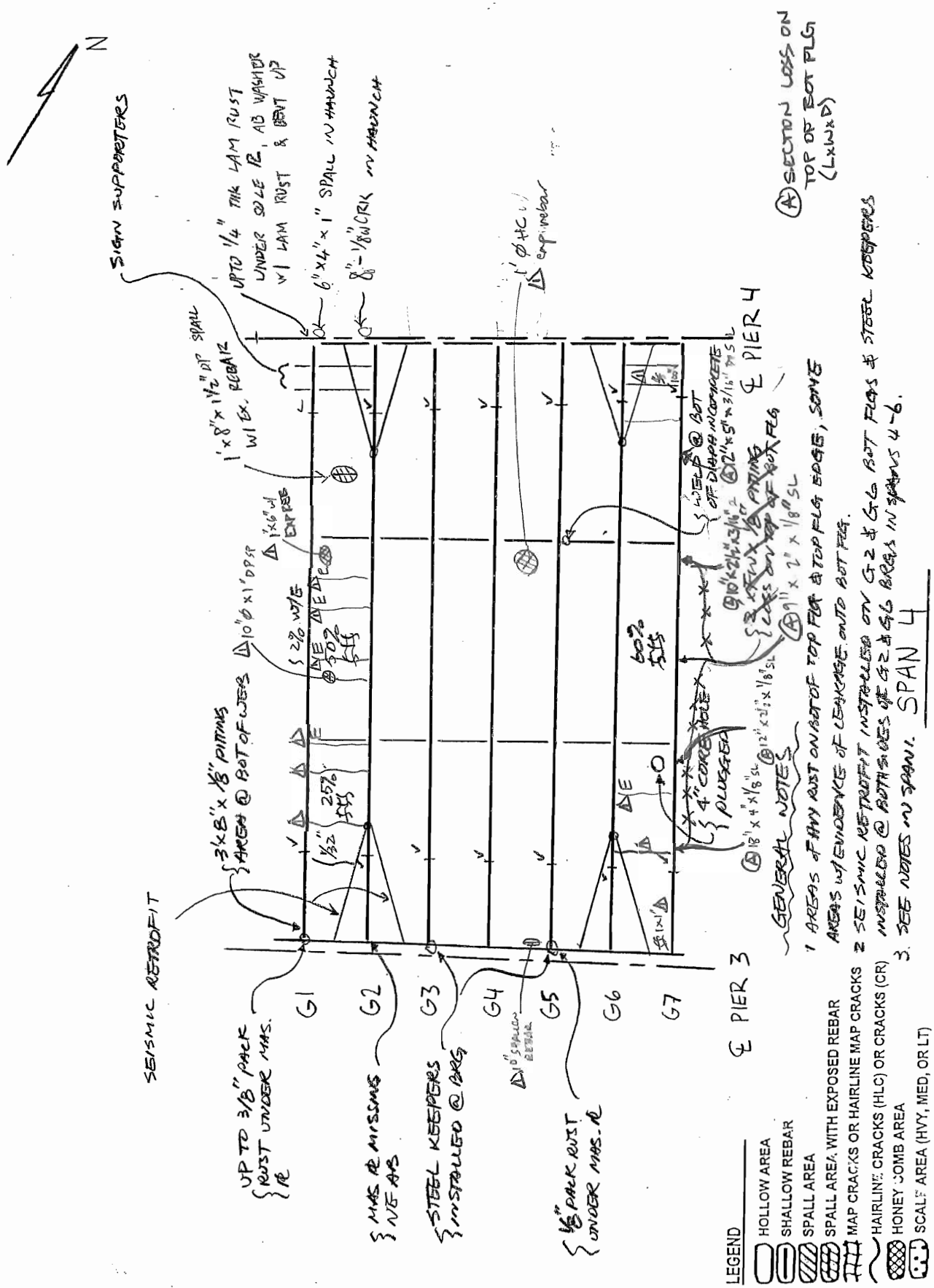
FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/29/04	SHEET ~~37~~ 83
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW MR, CC, JW	△ 11/6/06 PDG, SW, CL, DS



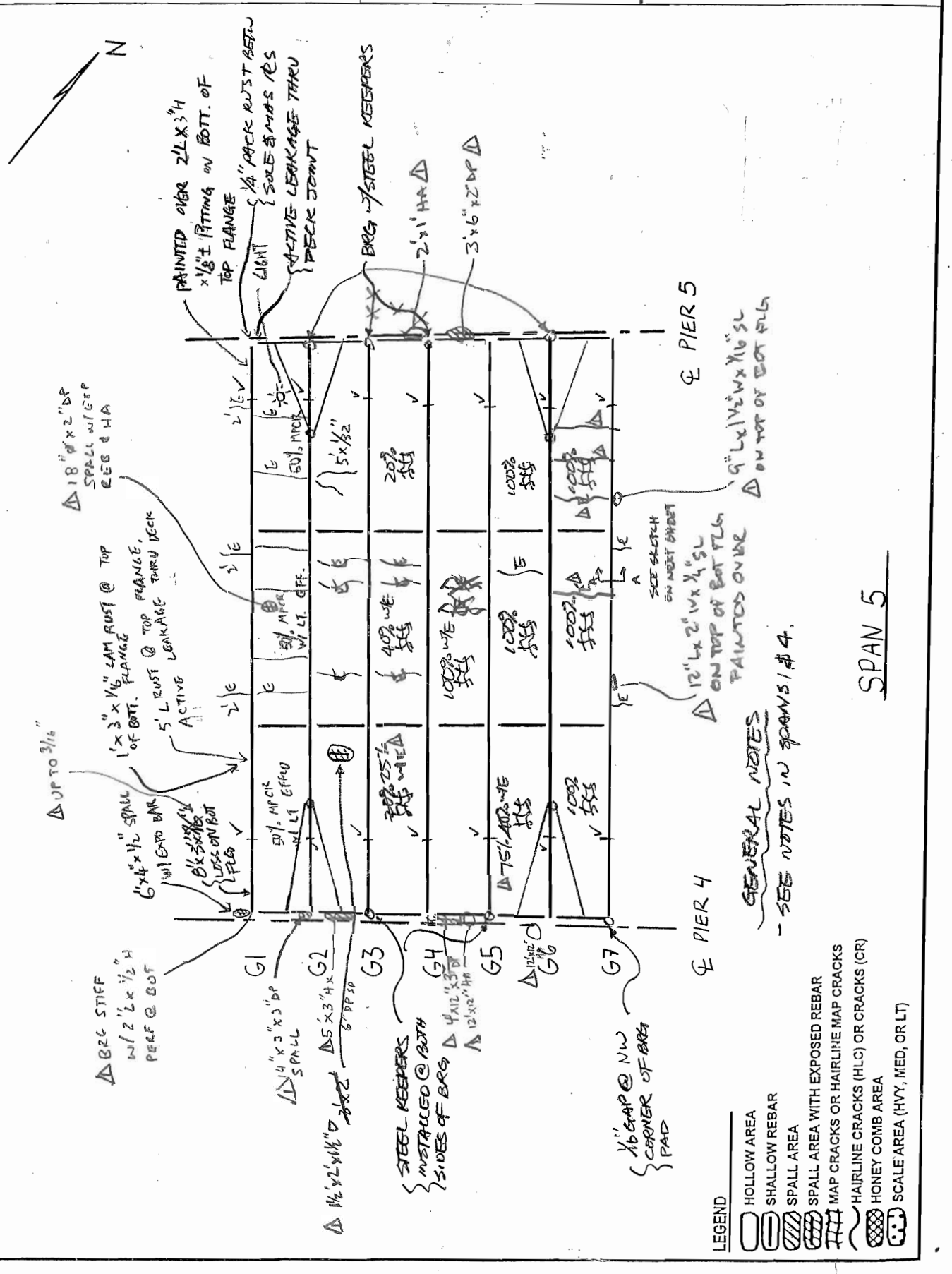
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET 38 84
	CREW CC, ML, FM, SW	△ 10/10/06 PDG, SW, CL, DS

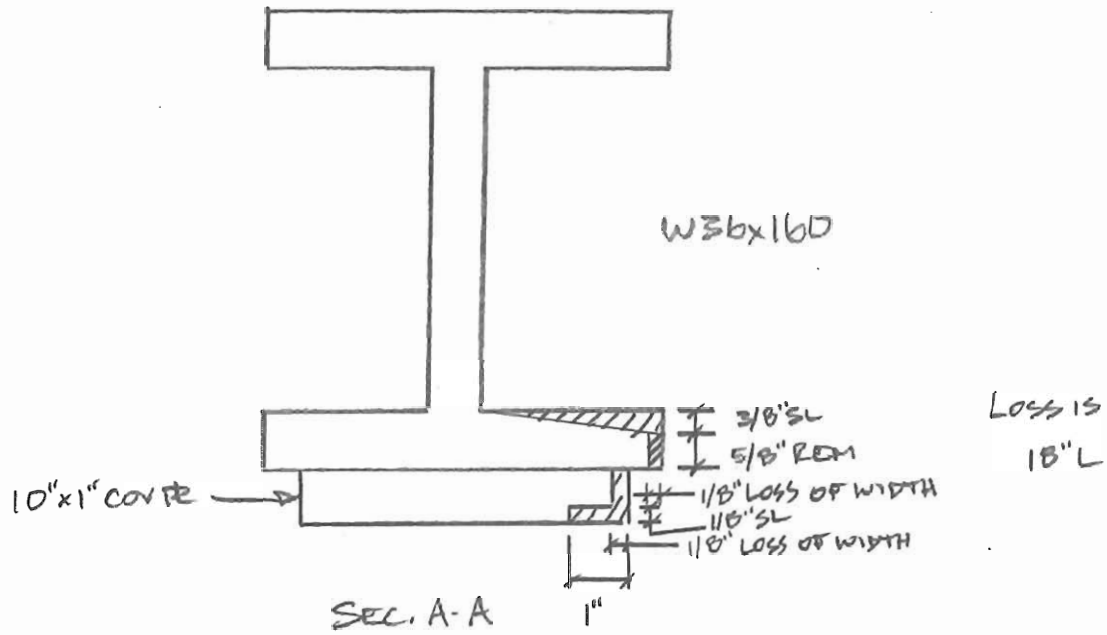


FIELD NOTES

JOB NO. 0155	BRIDGE NO. 3190 A	
DATE 11/15/04	SHEET 39 85	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW CC, MM, FM, SW	△ 10/10/06 PDG, SW, CL, DS



FIELD NOTES	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 11/9/06	SHEET 86
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL, DS	

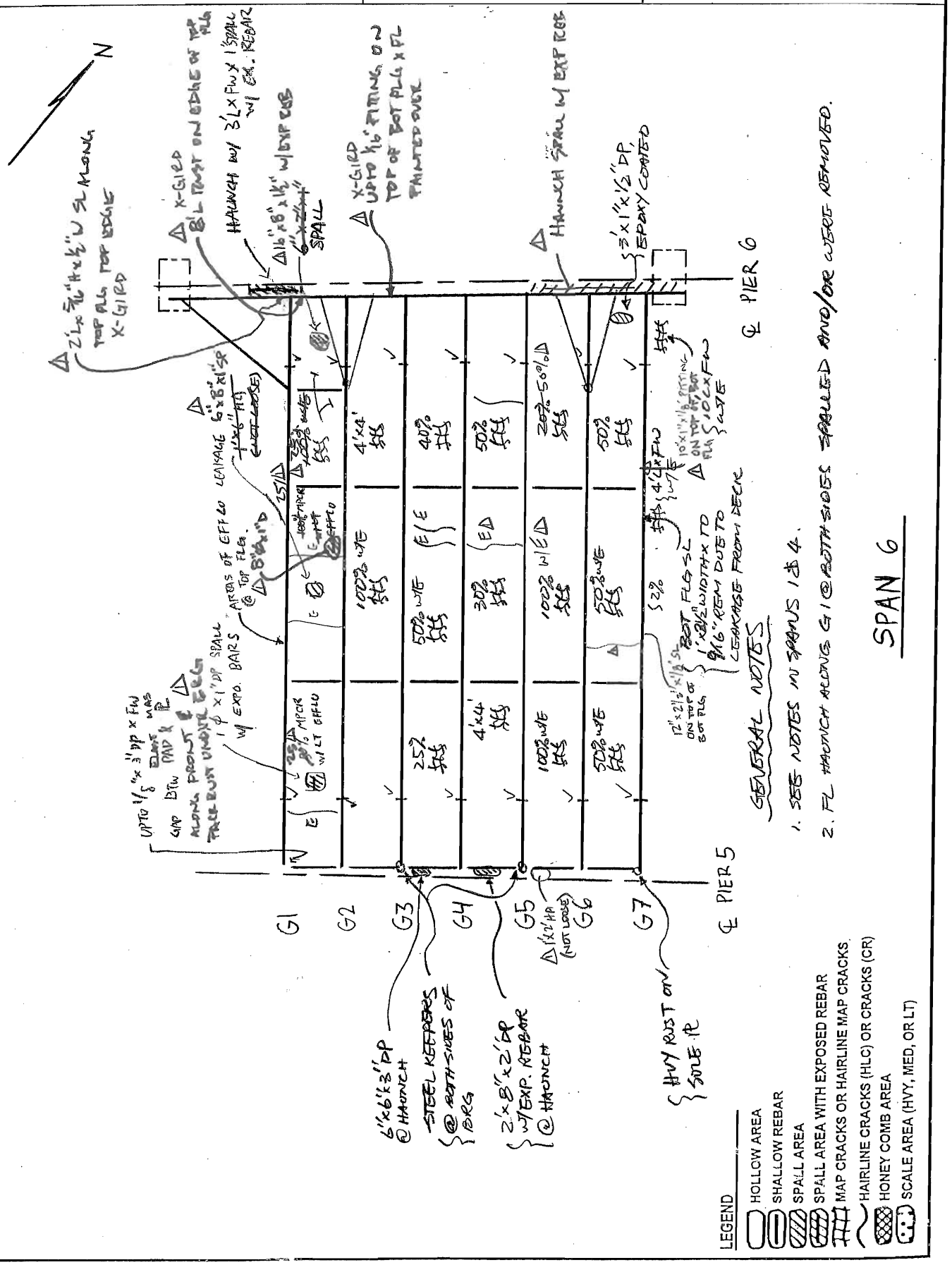


STAN 5, GIRDER 7 NEAR MIDSPAN

LOOKING NORTH

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~90~~ 87
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW CL, ML, FM, SW	△1 10/10/06 PDG, SW, CL, DS



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

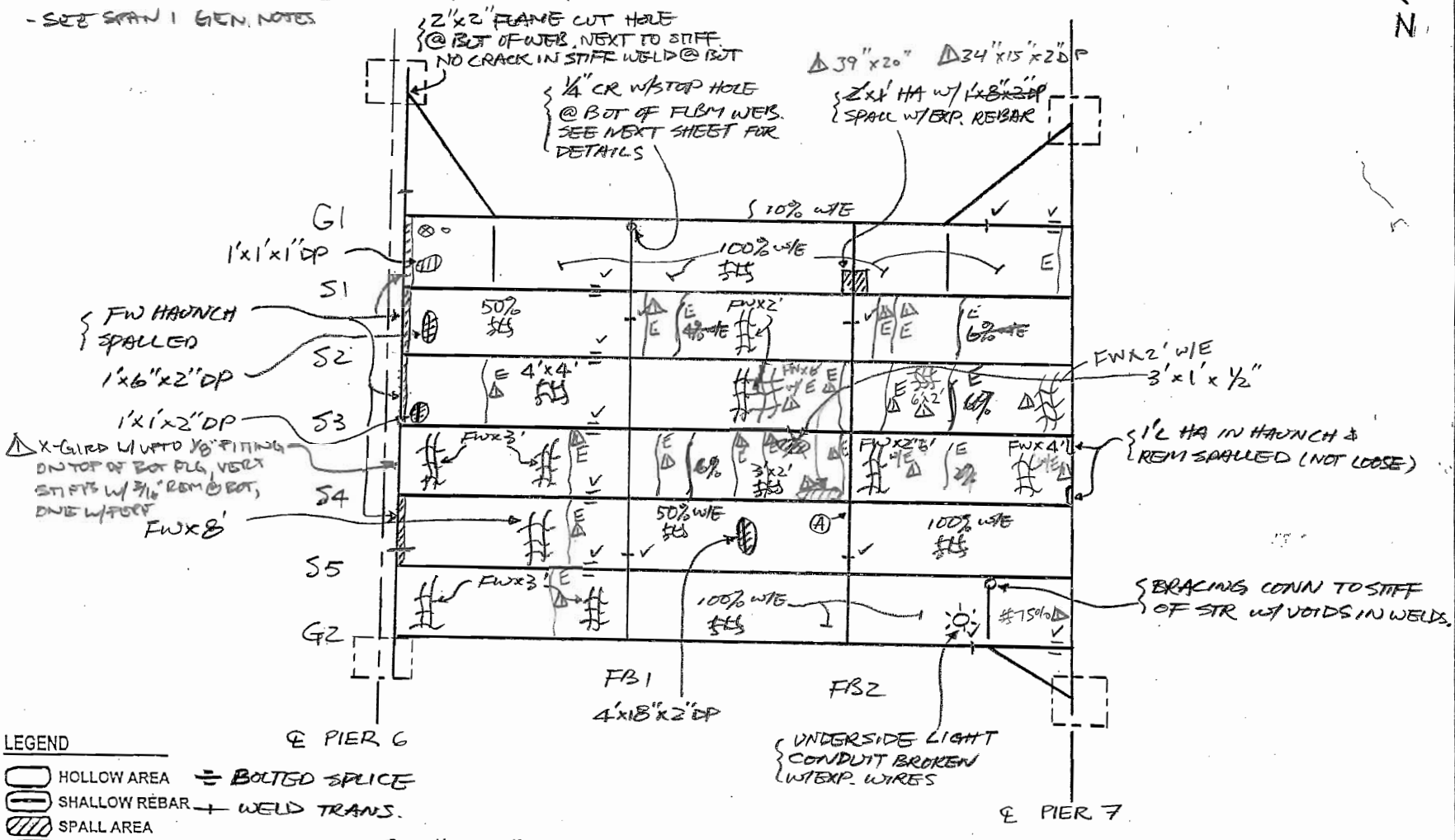
JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/15/04 | SHEET 88

CREW ML, CC, FM, SN | 10/10/06 TDG, SN, CL, DS

GENERAL NOTES

1. HAUNCHES ALONG FASCIA GIRDER TOP FLG SPALLED AND/OR WERE REMOVED. AREAS OF HVY RUST ON TOP FLG EDGES.
2. TACK WELDS ON GIRDER BOLTED SPLICE PL.
   - SEE SPAN 1 GEN. NOTES



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

= BOLTED SPLICE

+ WELD TRANS.

(A) 1"φ x 3/16" DP ROLLING DEFECT @ BOT FLG EDGE.

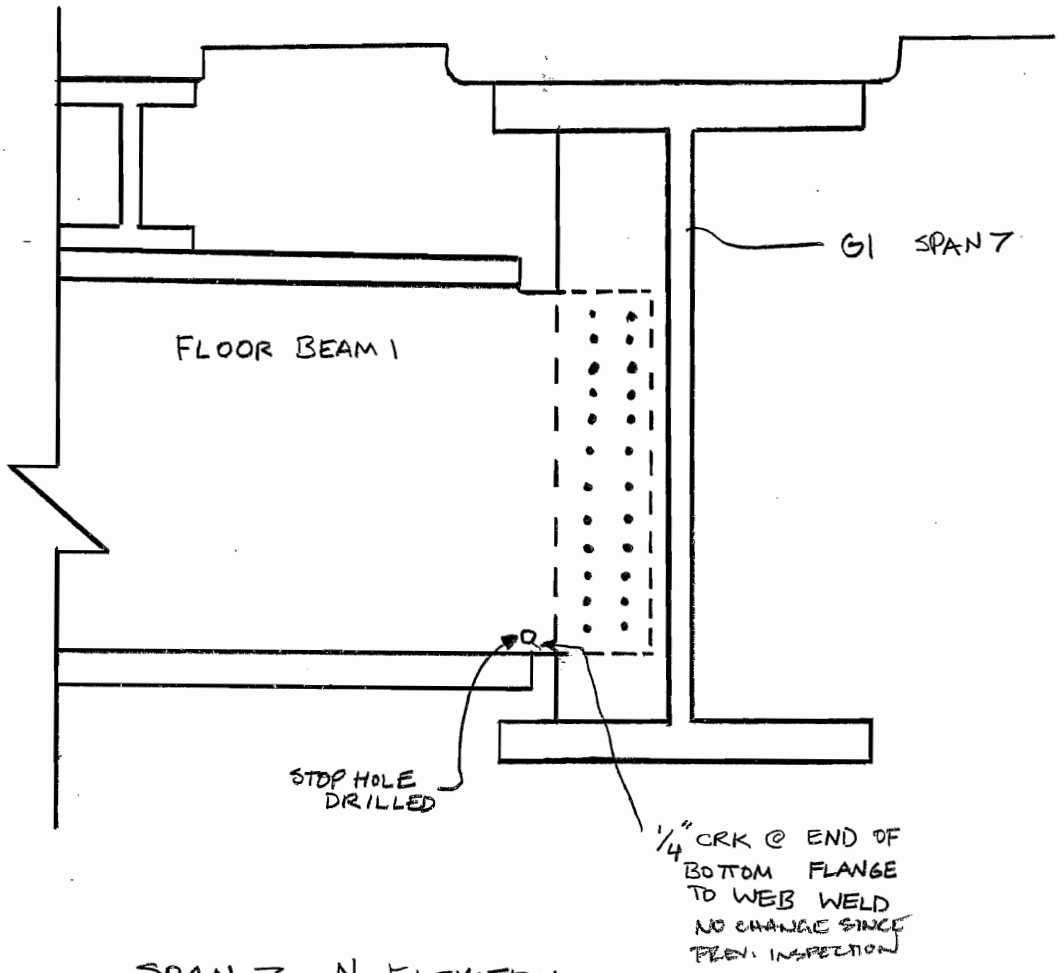
⊗ SCUPPER

o WEEP

SPAN 7

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~4~~ A 89
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC, FM, SW	



SPAN 7 N. ELEVATION

△1 NO CHANGE

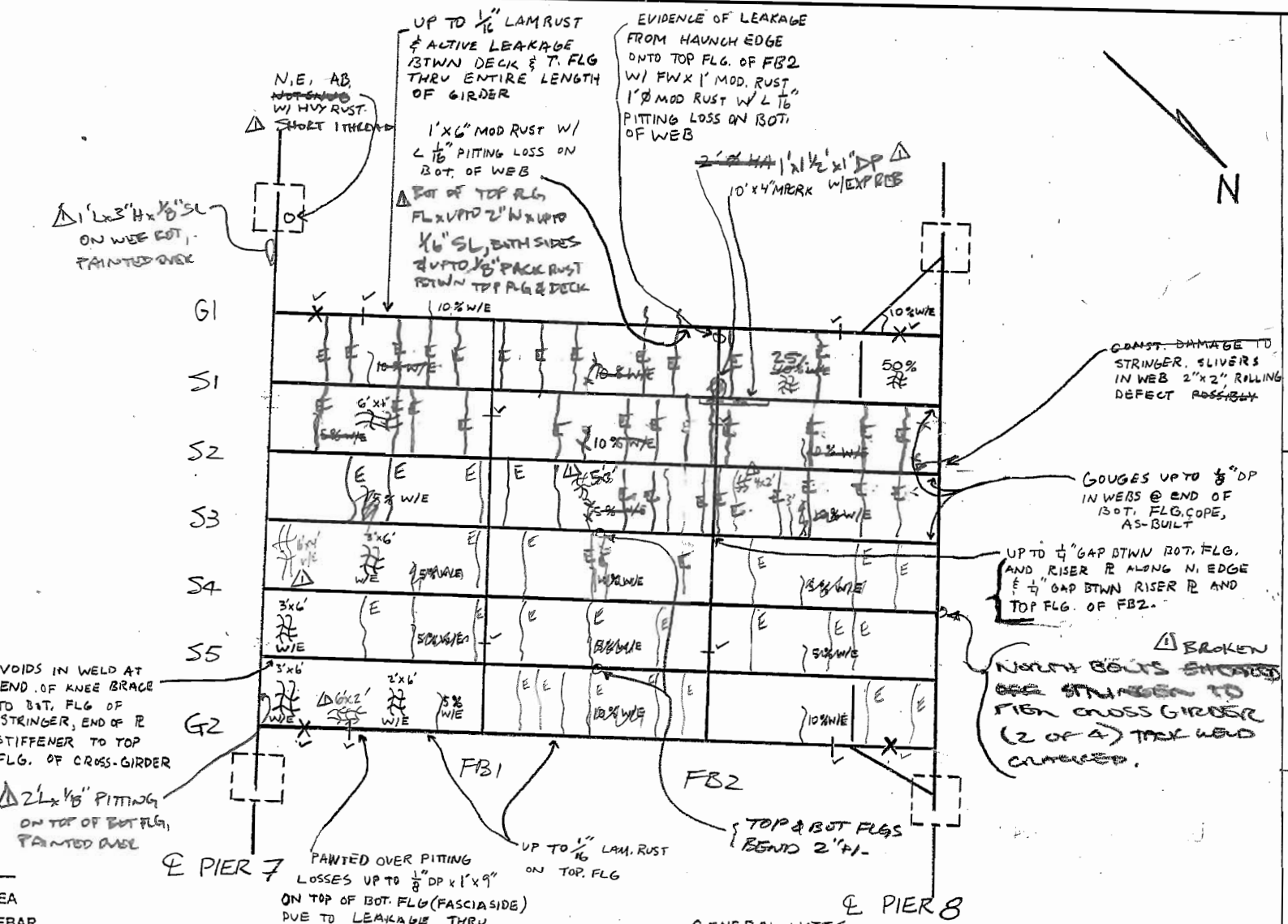
NO.	DATE	DESCRIPTION
△1	10/10/06	GCS PG, SW, CL

REVISIONS

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. — ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	DATE 11/15/04	CREW ML, CC, FM, SW
BRIDGE NO. 3190 A	SHEET ~~4~~ 90	△ 10/10/06 TPG, SW, CL, DS



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

+ WELD TRANS.

✳ BOLTED SPLICE

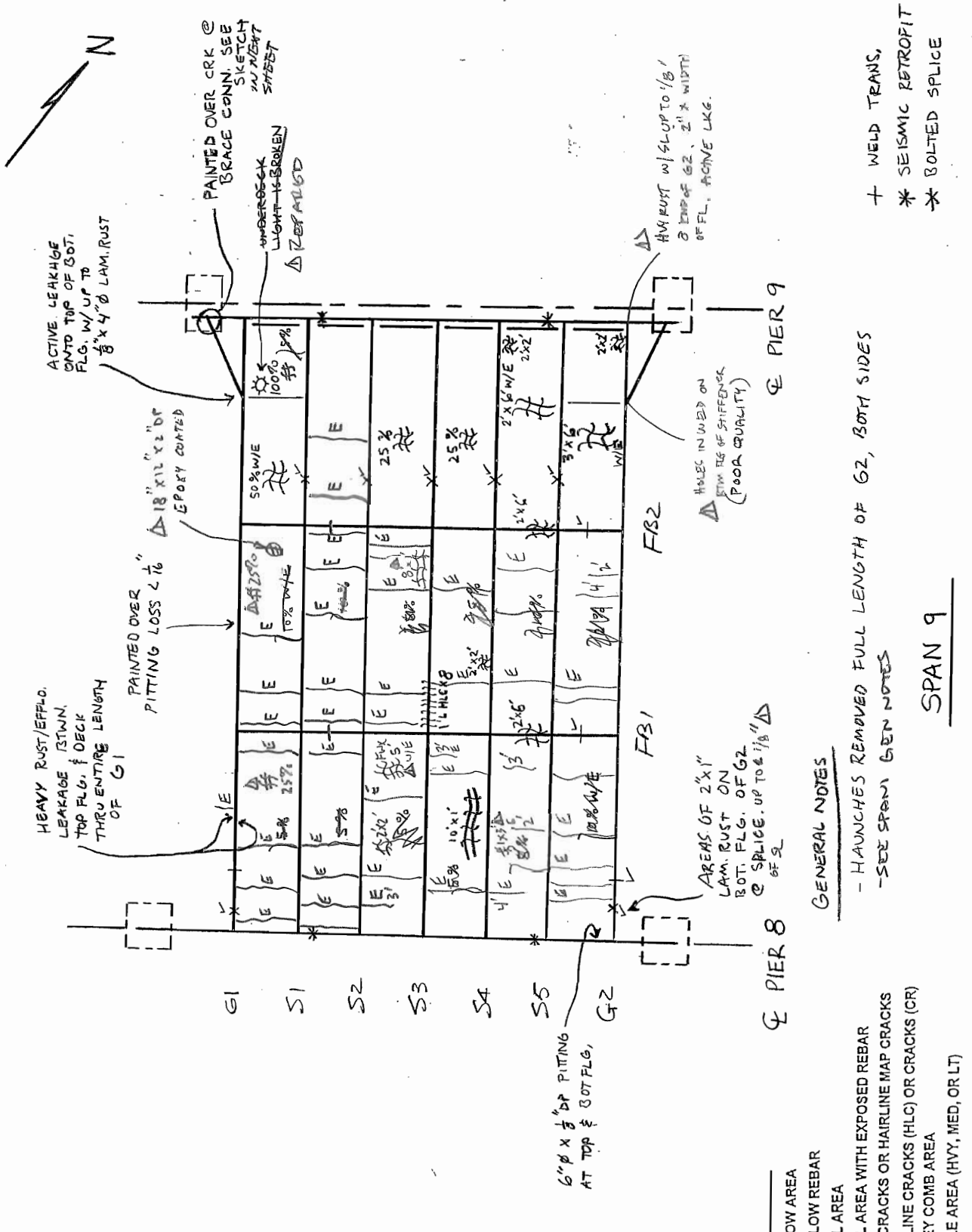
GENERAL NOTES

- SEE NOTES IN SPAN 7 & SP1
- STRINGERS 3, 4, AND 5 BOWED UP TO 2" PER 15' AT MIDSPAN

SPAN 8

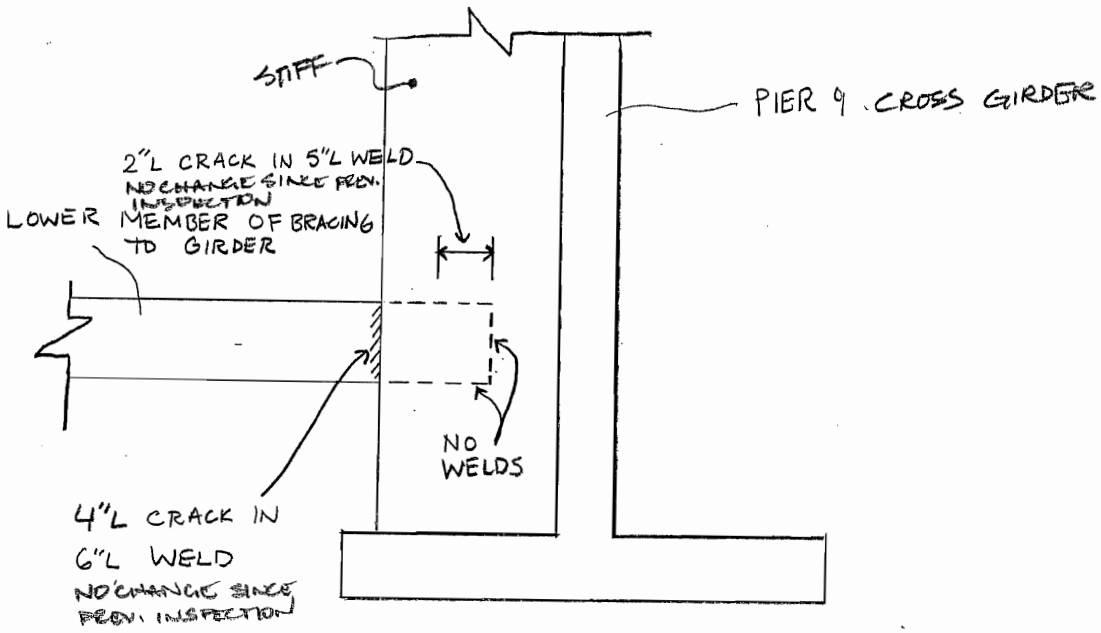
FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/22/04	SHEET ~~23~~ 91
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, JW	△ 10/10/06 PDG, SW, CL, DS



FIELD NOTES

JOB NO. 0155	BRIDGE NO. 3190 A	
DATE 11/22/04	SHEET ~~44~~ 92	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, JW	



1 NO CHANGE

SPAN 9, PIER 9 CAP GIRDER @ WEST COLUMN

SOUTH ELEVATION

NO.	DATE	DESCRIPTION
1	10/10/06	GCS PG, SW, CC

REVISIONS

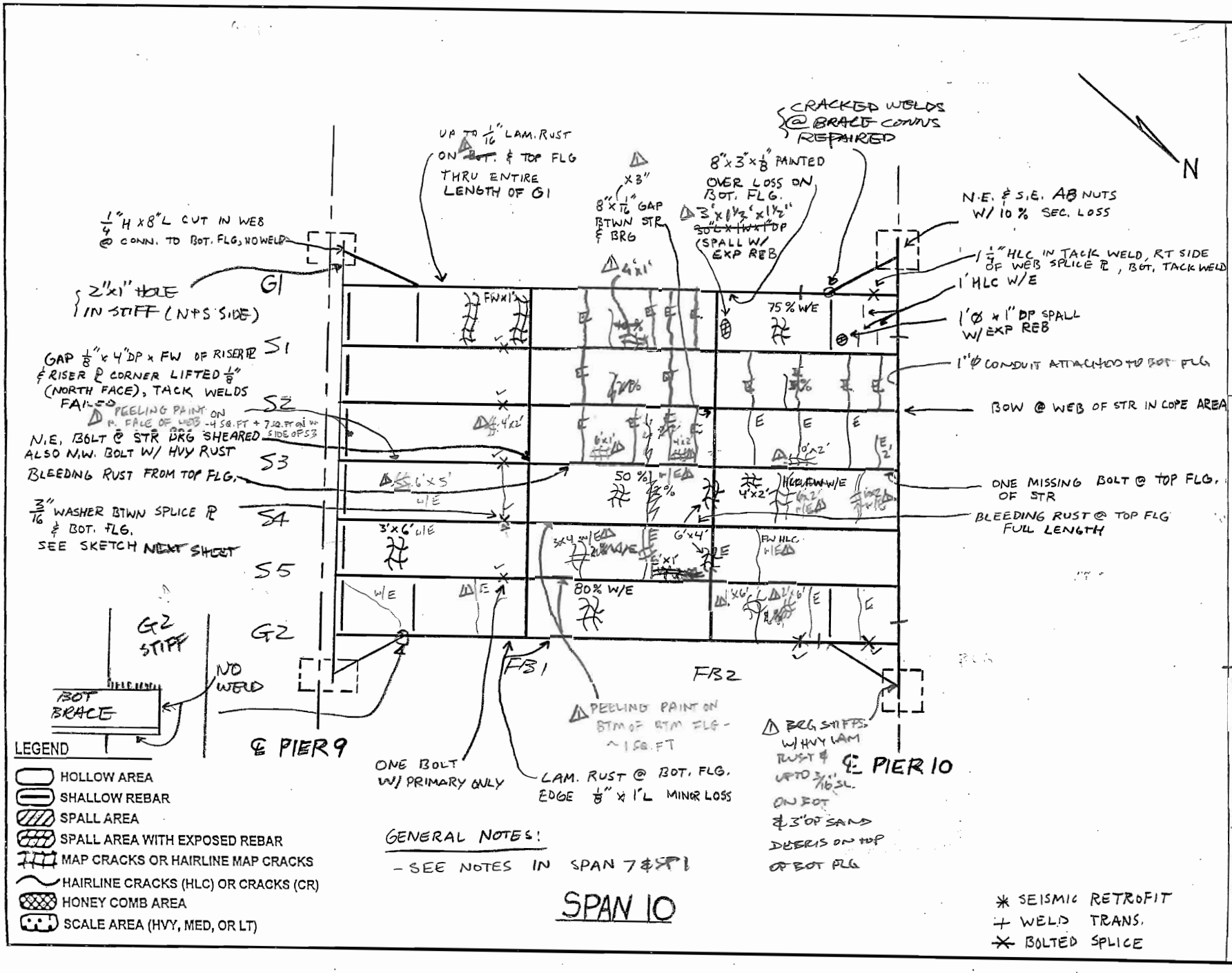
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155 | BRIDGE NO. 3190 A

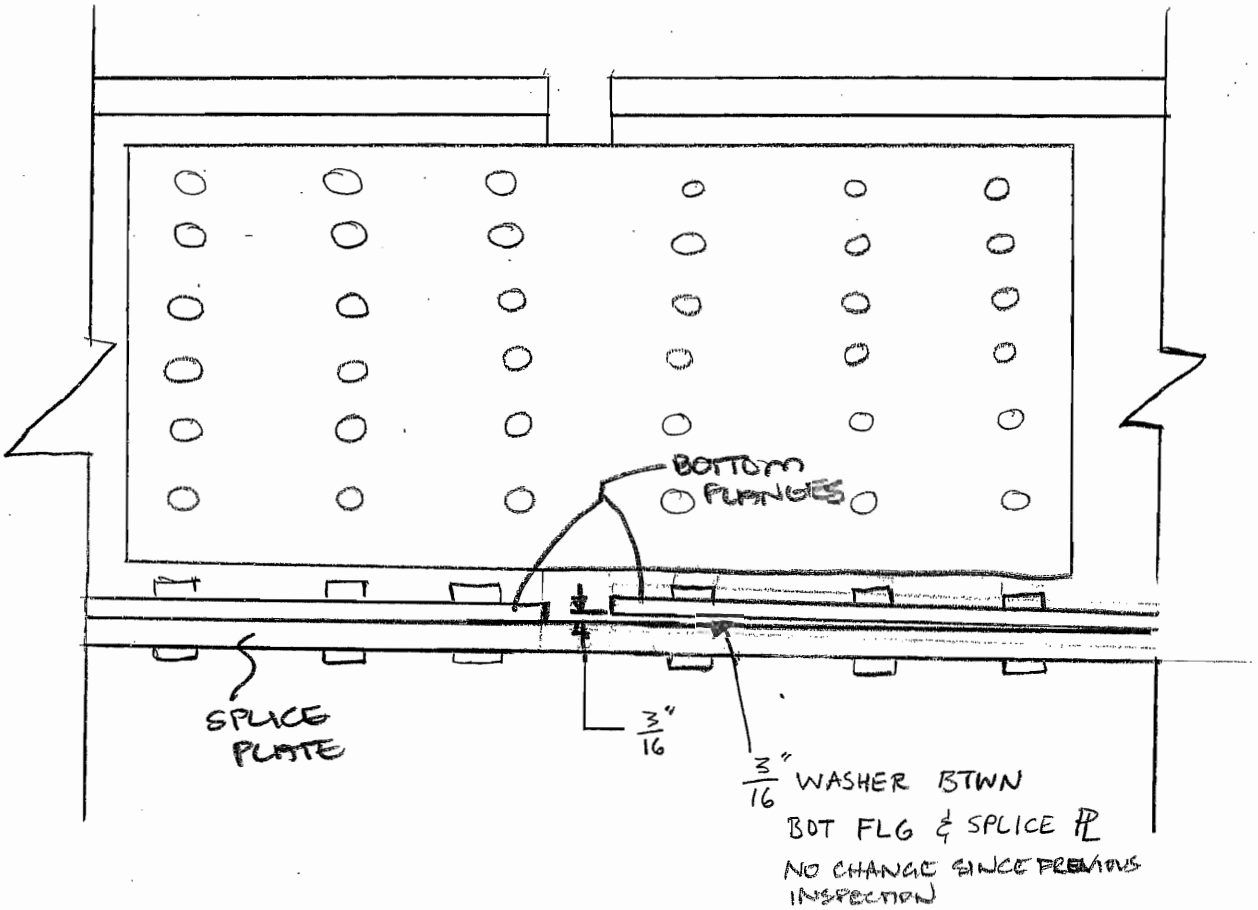
DATE 11/6/04 | SHEET ~~45~~ 93

CREW ML, CC | △ 10/17/06 TDG, SW, CL, DS



FIELD NOTES

JOB NO. 0155	BRIDGE NO. 3190 A	
DATE 11/16/04	SHEET ~~46~~ 94	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, JW, CC	



STRINGER 4 SPAN 10 @ SPLICE △ NO CHANGE

EAST ELEVATION

NO.	DATE	DESCRIPTION
△	10/10/06	DDG, SW, CL, DS

REVISIONS

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155 | BRIDGE NO. 3190 A

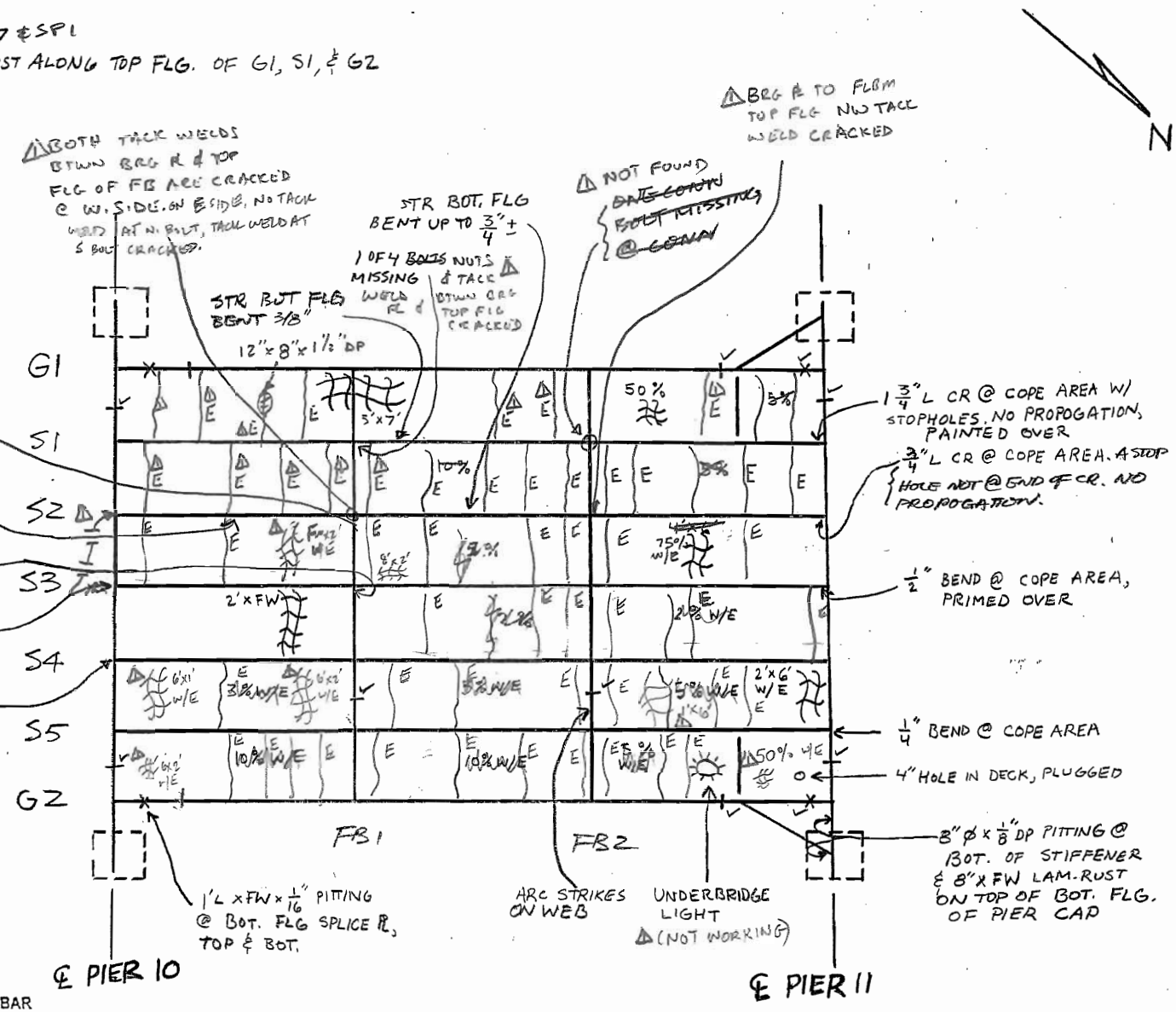
DATE 11/16/00 | SHEET 47/95

CREW ML, CC.

10/10/00 PDG, SW1 CL, DS

GENERAL NOTES:

- SEE SPAN 7 & SP1
- BLEEDING RUST ALONG TOP FLG. OF G1, S1, & G2



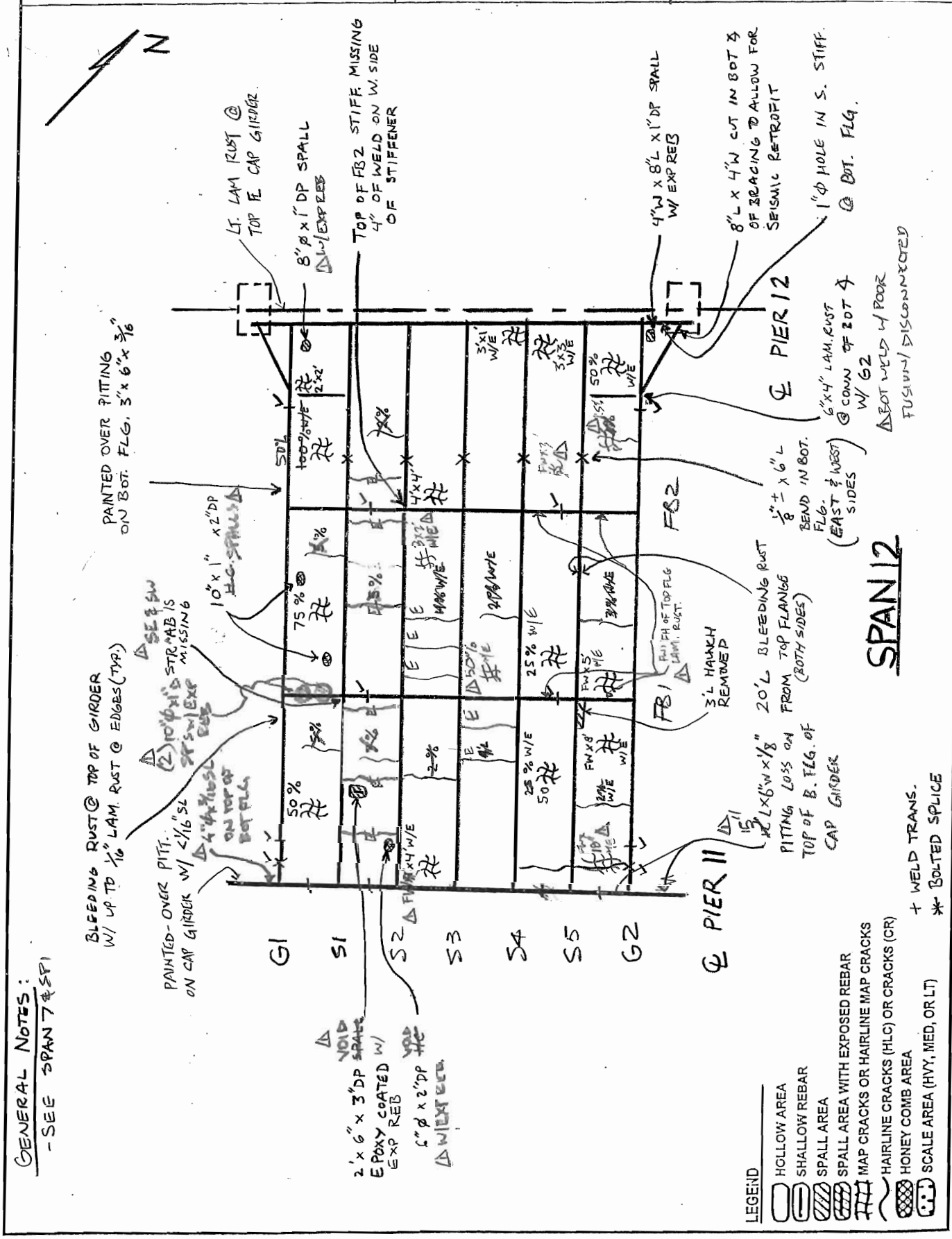
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

+ WELD TRANS.
✳ BOLTED SPLICE

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 3190 A
DATE 11/16/04	SHEET ~~48~~ 96
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW MK, CC	△ 10/10/06 TDG, SW, CLDS



GENERAL NOTES:
- SEE SPAN 7 & SP1

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

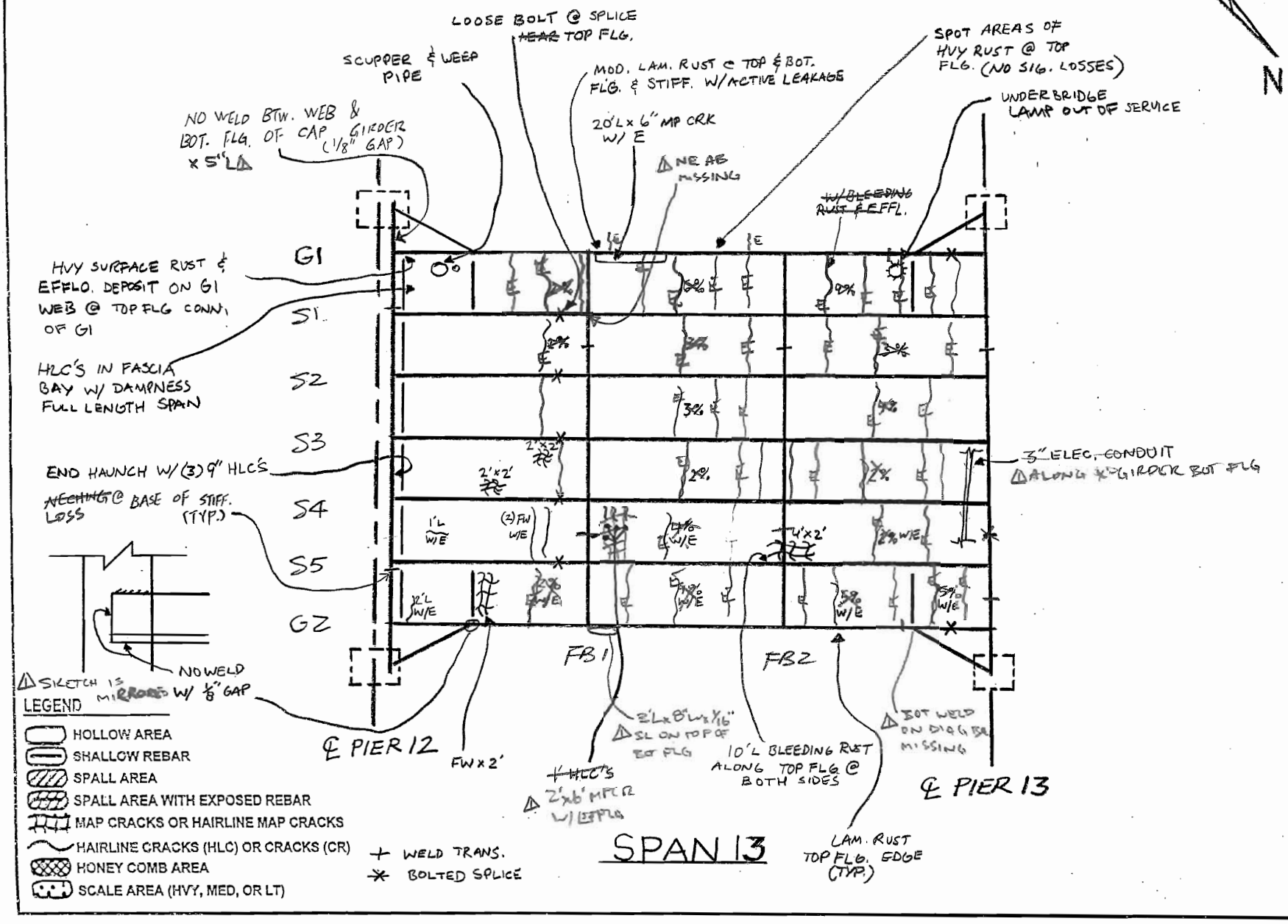
JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/21/04 | SHEET ~~44~~ 97

CREW ML, JW | △ 10/11/06 PDG, SW, CL, AS

GENERAL NOTES

- SEE SPAN 7 & SP1
- LT RUST ON FB1 & FB2 FLG.'S & WEB, STR FLG.'S



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155

DATE 11/19/04

CREW ML, CC

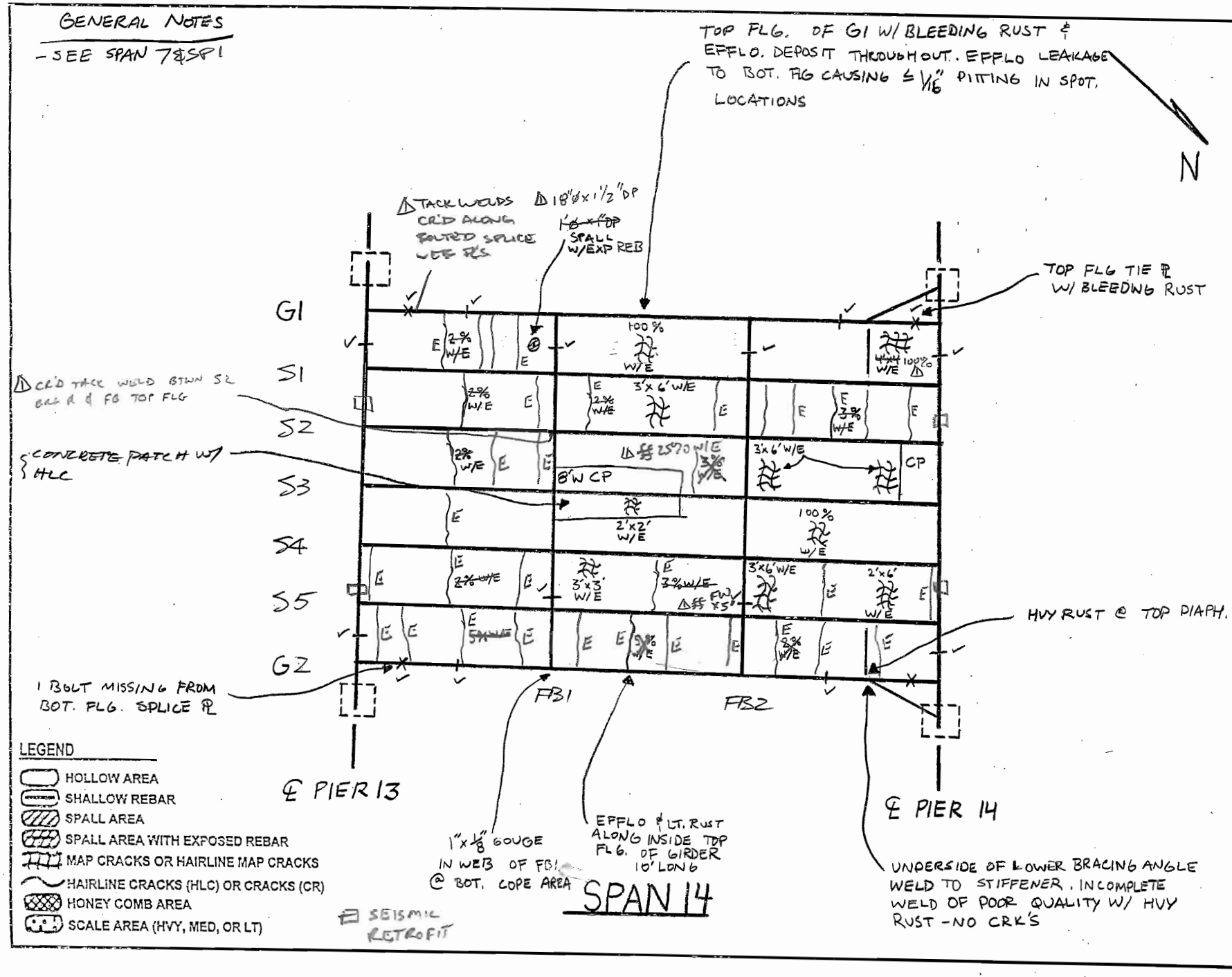
BRIDGE NO. 3190 A

SHEET 98

△ 10/11/06 TDG, SW, CL, DS

GENERAL NOTES

- SEE SPAN 7 & SP1



FIELD NOTES

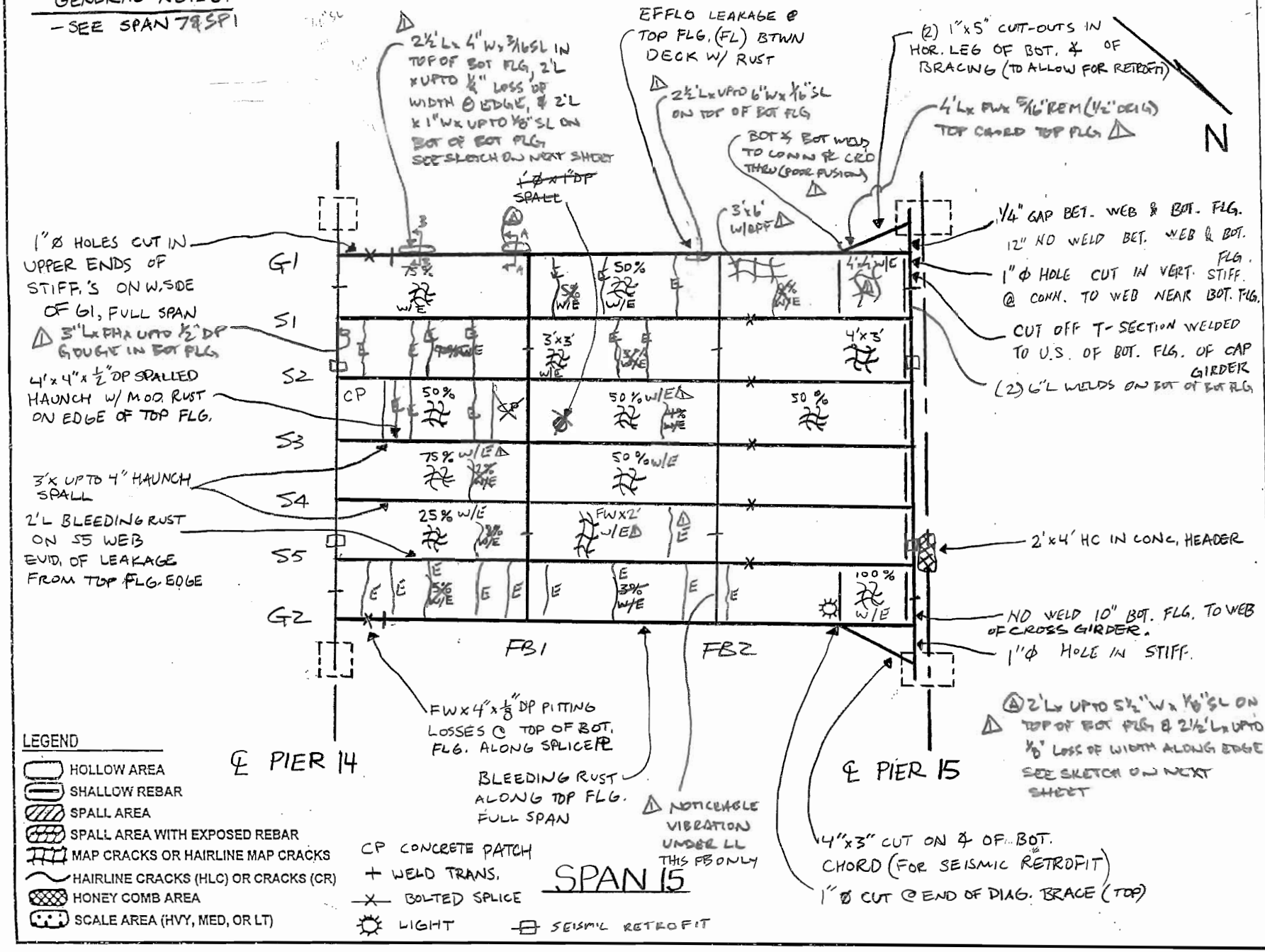
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155 | BRIDGE NO. 3190 A

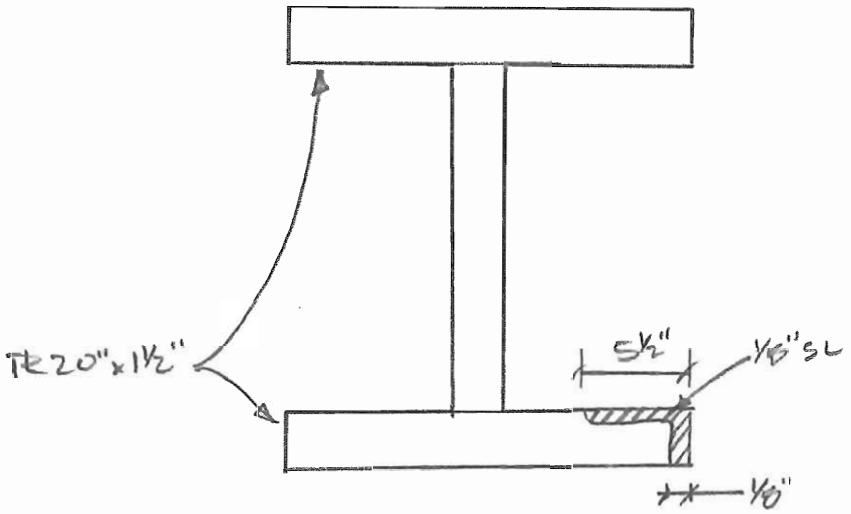
DATE 11/19/04 | SHEET 99

CREW M, CC | 10/11/06 RDG, SW, CLYDS

GENERAL NOTES:
- SEE SPAN 7 & SP1



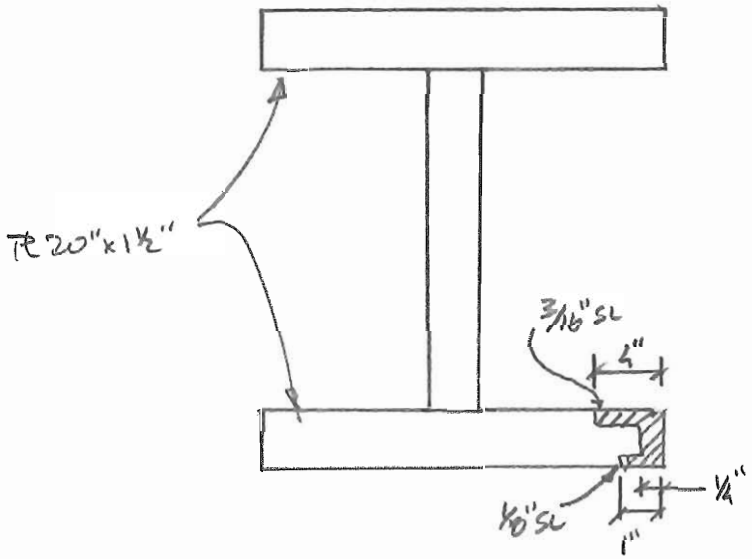
FIELD NOTES	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/11/06	SHEET 100
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW TDG, SW, CL	



SEC A-A

SPAN 15, GIRDER 1 @ FLOORBEAM 1

LOOKING SOUTH



SEC. B-B

SPAN 15, GIRDER 1 ~10' FROM PIER 14

LOOKING SOUTH

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155

DATE 11/19/04

CREW ML, CC

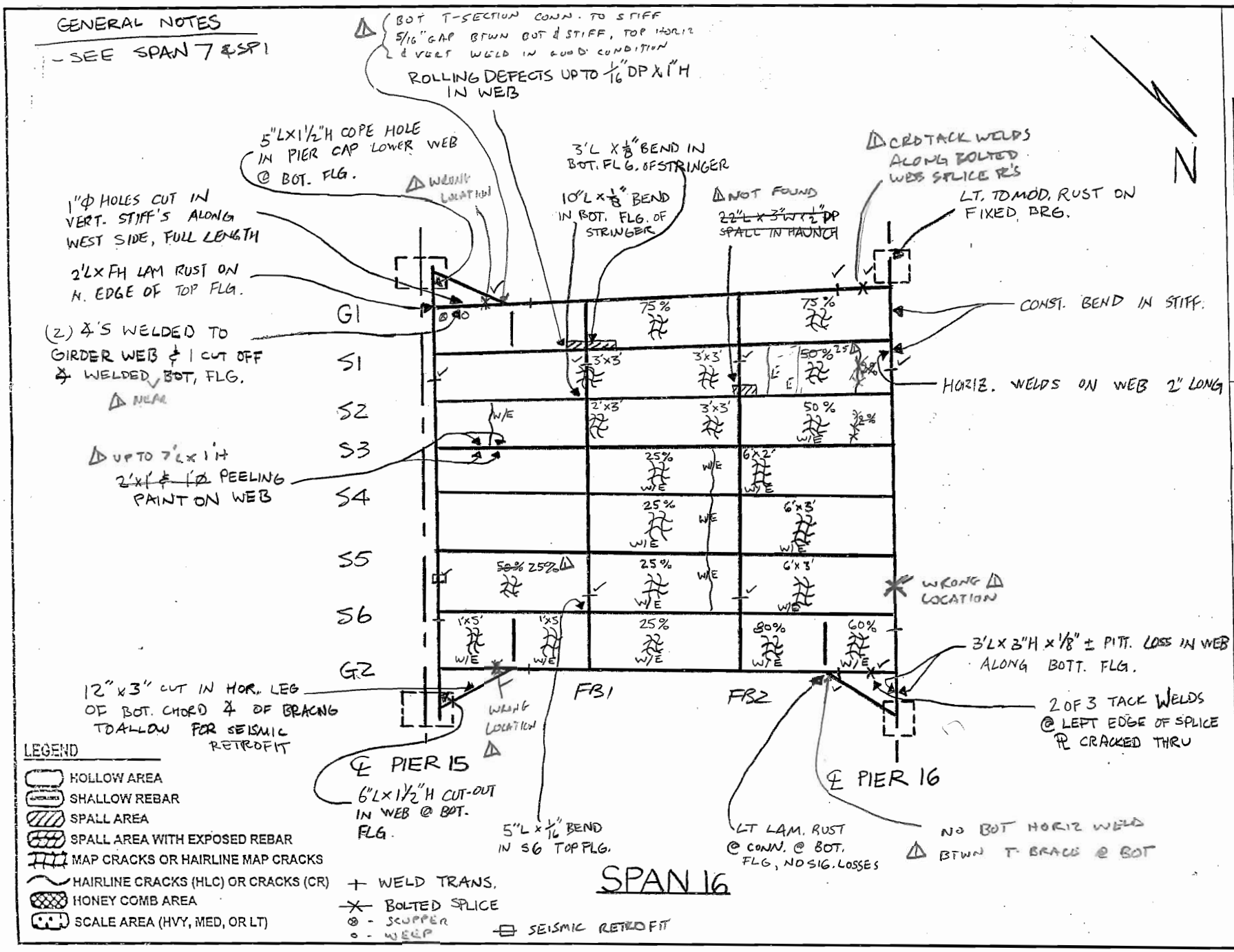
BRIDGE NO. 3190A

SHEET 5/2 101

1 10/11/06 TDG, SW, CL, DS

GENERAL NOTES

- SEE SPAN 7 & SP1



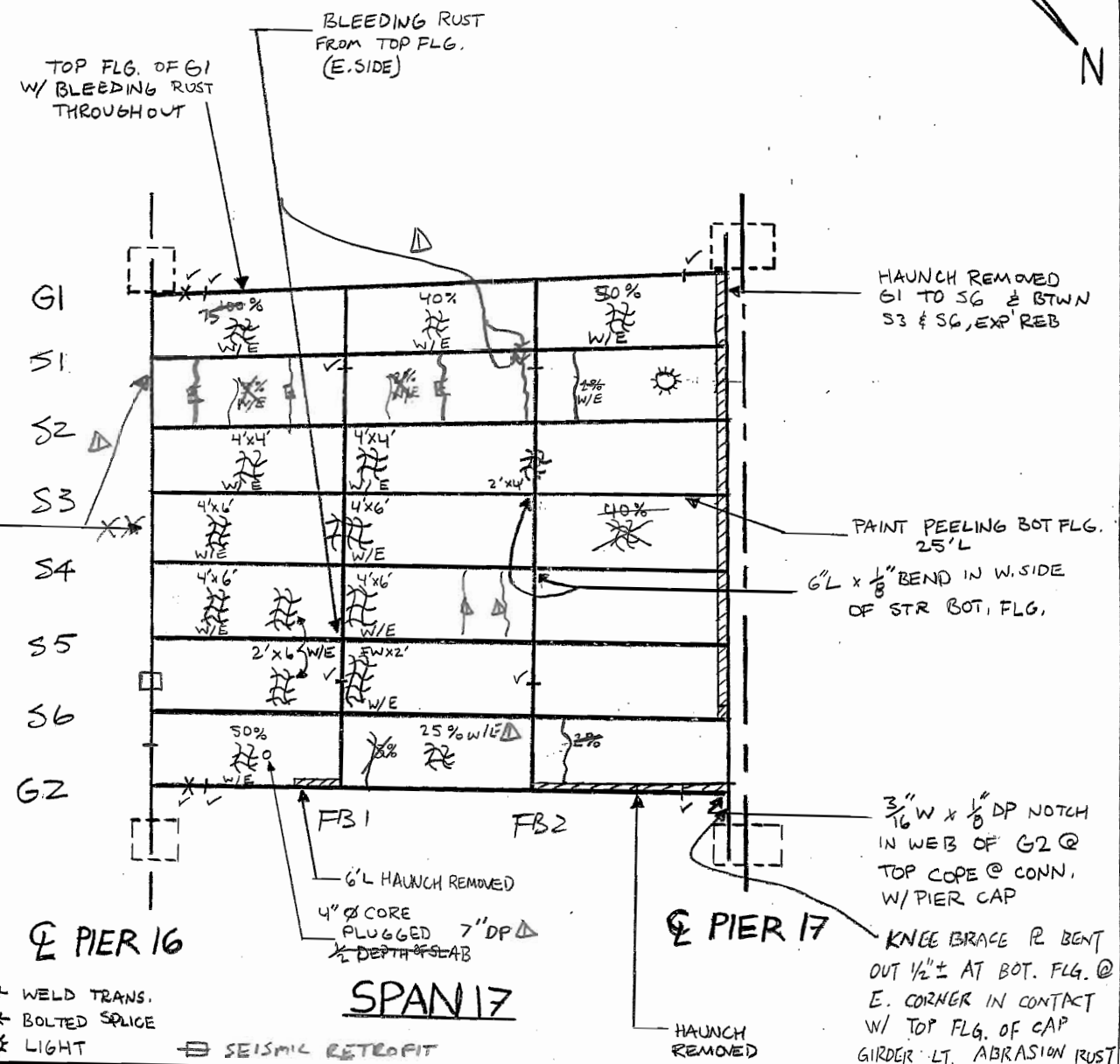
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	BRIDGE NO. 3190 A
DATE 11/19/04	SHEET 5/8 102
CREW ML, CC	10/11/06 TDG, SW, CL, DS

GENERAL NOTES

- SEE SPAN 7 & SP1



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)
- + WELD TRANS.
- BOLTED SPLICE
- LIGHT

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/19/04 | SHEET 103

CREW ML, CC, SW

10/11/06 PDG, SW, CL, DS

GENERAL NOTES

- SEE SPAN 7 & SP1
- FW x 3" x UPTO 1/4" PITT. @ BOT. OF STIFF. @ S. SIDE (TYP.)
- DIAPH TO STIFF WELDS ARE POOR QUALITY @ RANDOM LOCATIONS

PAINTED OVER HVY RUST IN WEB ≤ 1/16" & BOT. FLG. 1 1/2" REM DUE TO LEAKAGE FROM TOP FLG.

BLEEDING RUST & EFFLO. ALONG TOP FLG. THROUGHOUT DUE TO LEAKAGE THRU DECK

2'L x 1/8" DP PITTING LOSS ON BOT. FLG. PAINTED OVER

BOT. 4 OF X-BRACE WELD TO STIFF. NOT CONN. 2 MEMBERS

12"L x 1/4" H HOLE @ WEB BOT, NO WELD

NO BOLTED SPLICES THIS SPAN

18"L x 1/4" HOLE ALONG WEB BOT, NO WELD

NO BOLTED SPLICES THIS SPAN

PAINTED OVER PITT. LOSS UPTO 1/8" DP ON BOT. OF BOT. FLG. N. SIDE @ MANY LOC. BET G4-G7 UP TO 6" Φ

4"x4" TOP COR. OF WEB BENT OUT BY 1/4" ± NO I.R., BUILT THAT WAY

HVY RUST ON AB NUTS W/ DP TO 25% SEC LOSS

7/8" Φ DRILLED HOLE IN WEB BOT.

20'L x 10"W x 1/8" ± PITT. PAINTED ON BOT. OF BOT. FLG. W/ BLEEDING RUST

1"x3"x1/2" DP SPALL IN HAUNCH

4'L x FW x 3/16" PITT. ON CAP GIRDER BOT. OF BOT. FLG. & 2"H @ WEB

LT BLEEDING RUST @ WEB CONN. TO GAP GIRDER

SEISMIC RETROFIT

NECKING OF STIFF. NEAR BOT. FLG. & 1/4" PERF. @ BOT. OF STIFF.

1/4" PERF. @ BOT. OF STIFF.

10'L x UPTO 1/8" PITTING ON TOP OF BOT FLG

4' REMOVED

2'L ± x UPTO 1/8" DP PITT. BRACING LOSS ON TOP OF BOT. FLG. (S. SIDE ONLY)

NEOPRENE SHAVINGS @ BRG.

MISSING WELD ON BOT. "T" OF BRACING

FW WELD CR'D @ BOT. CONN.

UNDERDECK LIGHT NOT WORKING

4'L HAUNCH REMOVED

LIGHT COVER IS BROKEN

G1 G2 G3 G4 G5 G6 G7 G8

75% W/E | 50% W/E | 25% W/E | 50% W/E

25 60% W/E

25% W/E | 15% W/E

20% W/E | 25 40% W/E

25% W/E | 25%

10% W/E

100% W/E | 100% W/E | 35 50% W/E | 20'L | 10'L | 50% 40% W/E | 30% 100% W/E

℄ PIER 17

℄ PIER 18

N

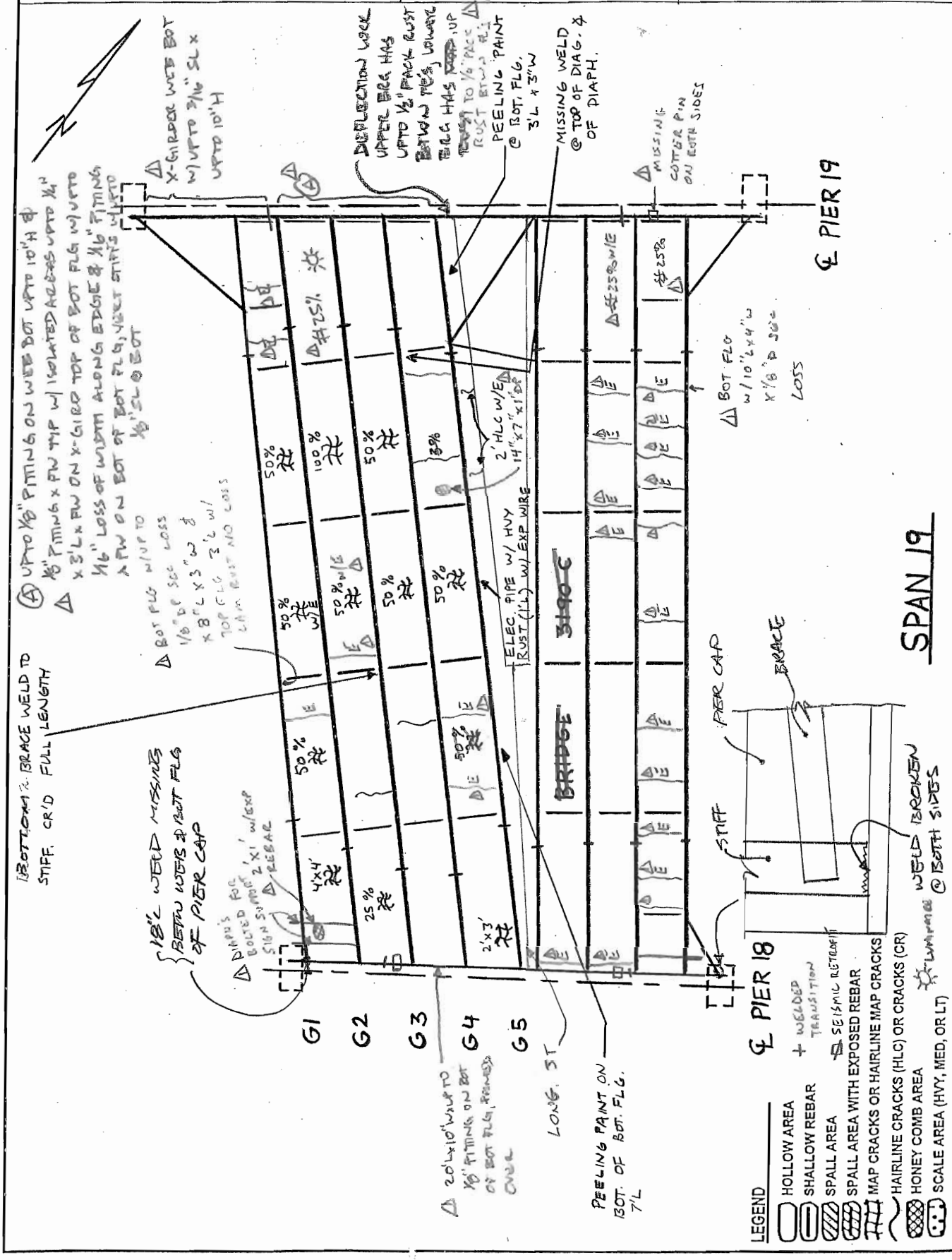
SPAN 18

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)
- SEISMIC RETROFIT
- WELD TRANS.
- ~~BOLTED SPLICE~~
- LIGHT

FIELD NOTES

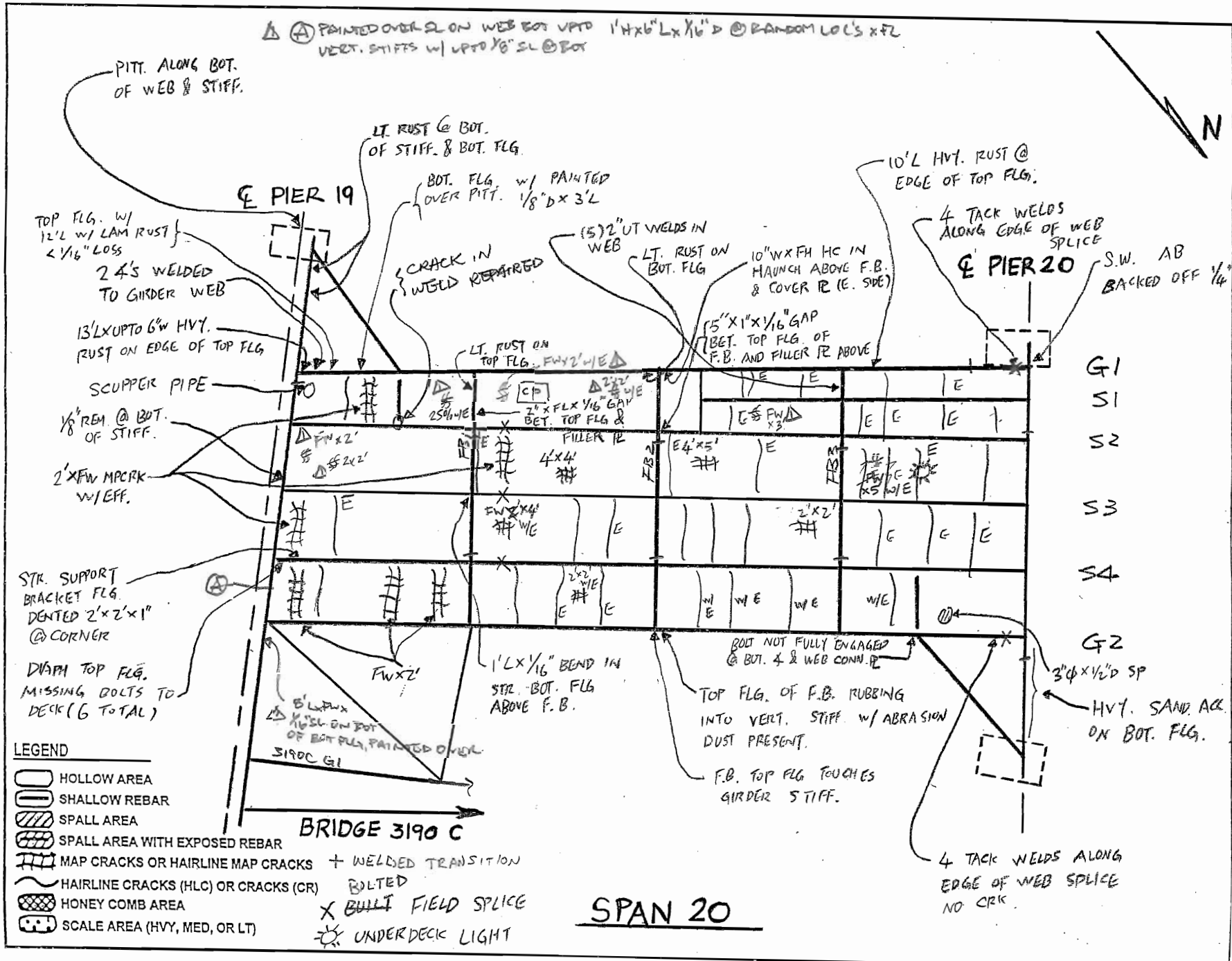
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/19/04	SHEET ~~55~~ 104
	CREW MM, CC, SW	Δ 10/11/06 TDG, SW, CL, DS



FIELD NOTES

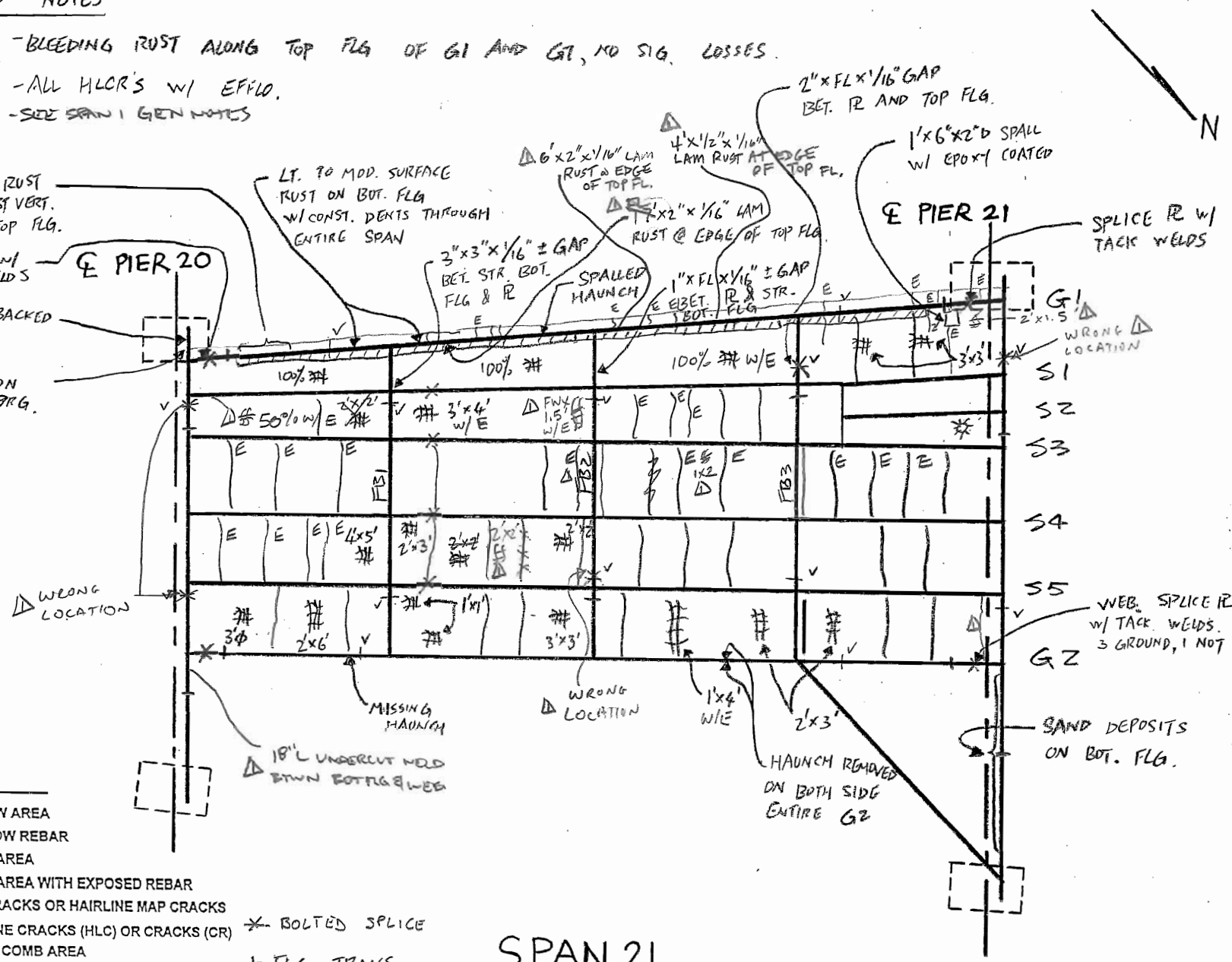
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	BRIDGE NO. 3190 A
DATE 11/15/07	SHEET 5 of 105
CREW FM, MC, CC, SW	10/12/08 [illegible]



GENERAL NOTES:

- BLEEDING RUST ALONG TOP FLG OF G1 AND G2, NO SIG. LOSSES.
- ALL HLCR'S W/ EFFLO.
- SEE SPAN 1 GEN NOTES



LEGEND

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- SCALE AREA (HVY, MED, OR LT)
- BOLTED SPLICE
- + FLG. TRANS (BOTH TOP & BOT. FOR F.B. & CAP GIRDER) @ G1 & G2

SPAN 21

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	DATE 11/15/04	BRIDGE NO. 3190 A
CREW MC, FM, SW, CC		SHEET 5 of 106

10/12/06 RPG, SW, CL, DS

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

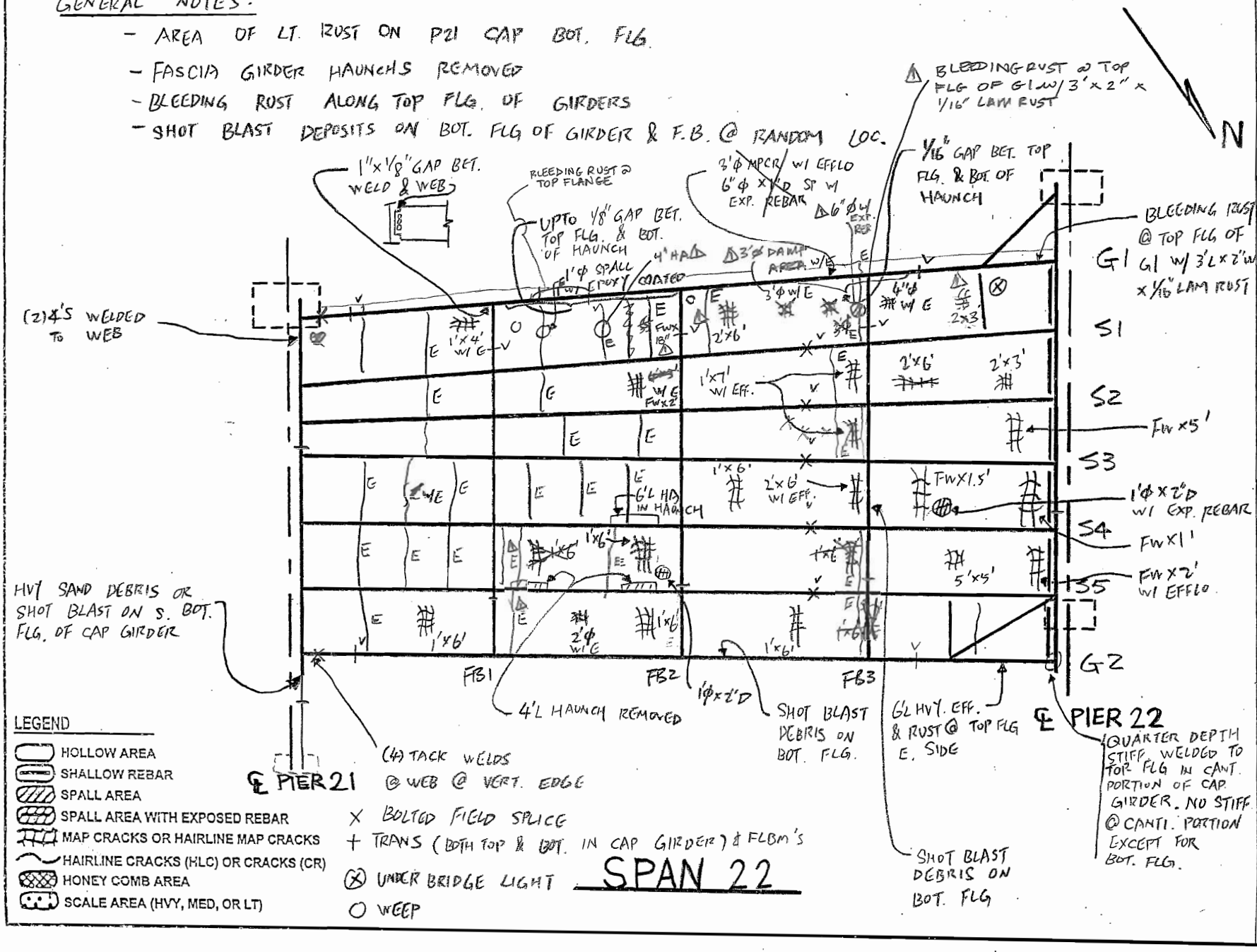
JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/15/04 | SHEET 5/8 107

CREW FM, MC, CC, SW | 10/12/06 FM, GM, CM, DS

GENERAL NOTES:

- AREA OF LT. RUST ON P21 CAP BOT. FLG.
- FASCIA GIRDER HAUNCHS REMOVED
- BLEEDING RUST ALONG TOP FLG. OF GIRDERS
- SHOT BLAST DEPOSITS ON BOT. FLG OF GIRDER & F.B. @ RANDOM LOC.



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

X BOLTED FIELD SPLICE

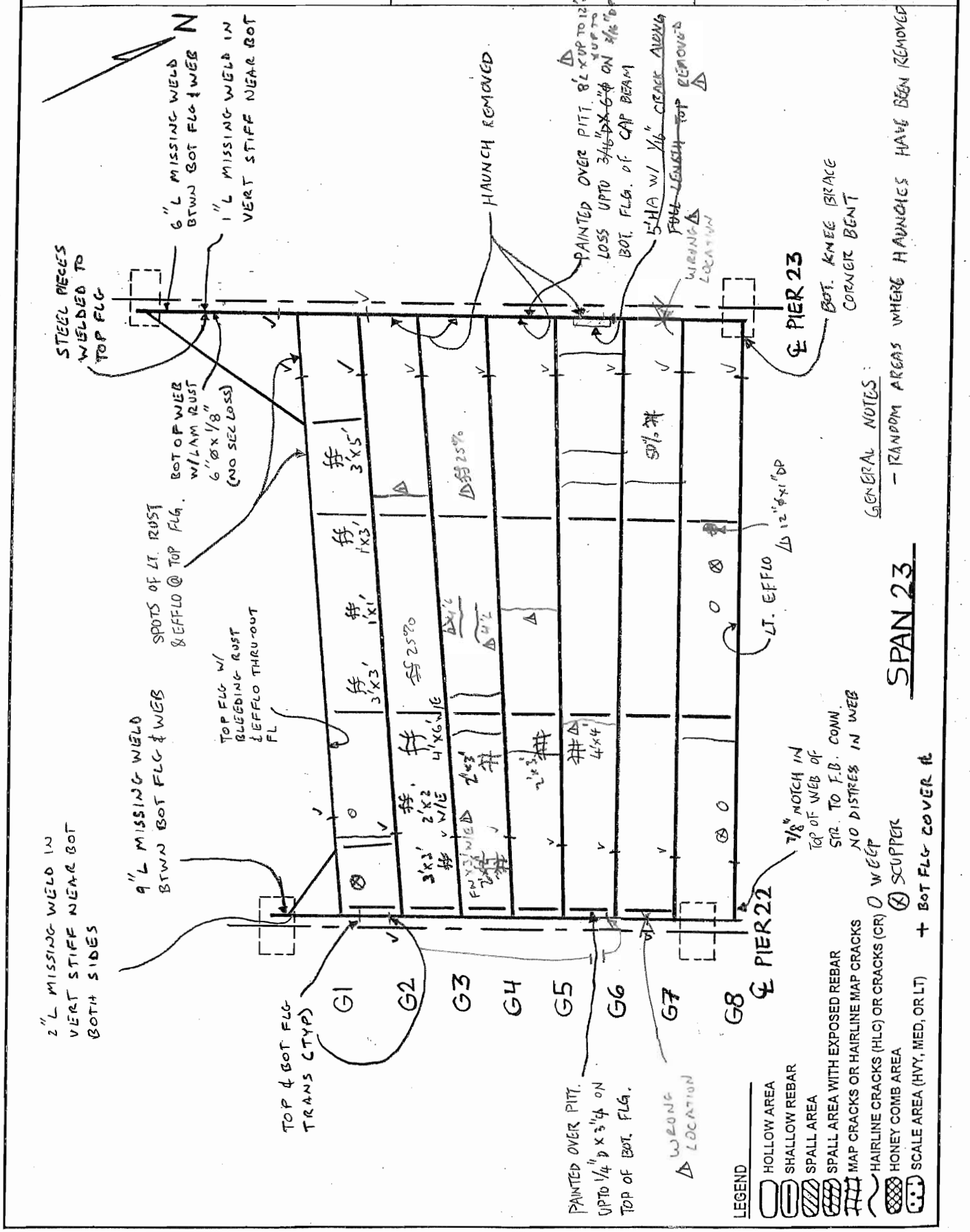
+ TRANS (BOTH TOP & BOT. IN CAP GIRDER) & FLBM'S

⊗ UNDER BRIDGE LIGHT

O WEEP

FIELD NOTES

JOB NO. 0155	BRIDGE NO. 3190 A	
DATE 11/15/04	SHEET ~~5~~ 108	
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, SW, ML, CC, PG	△ 10/12/06 TDG, SW, CL, DS



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. — ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

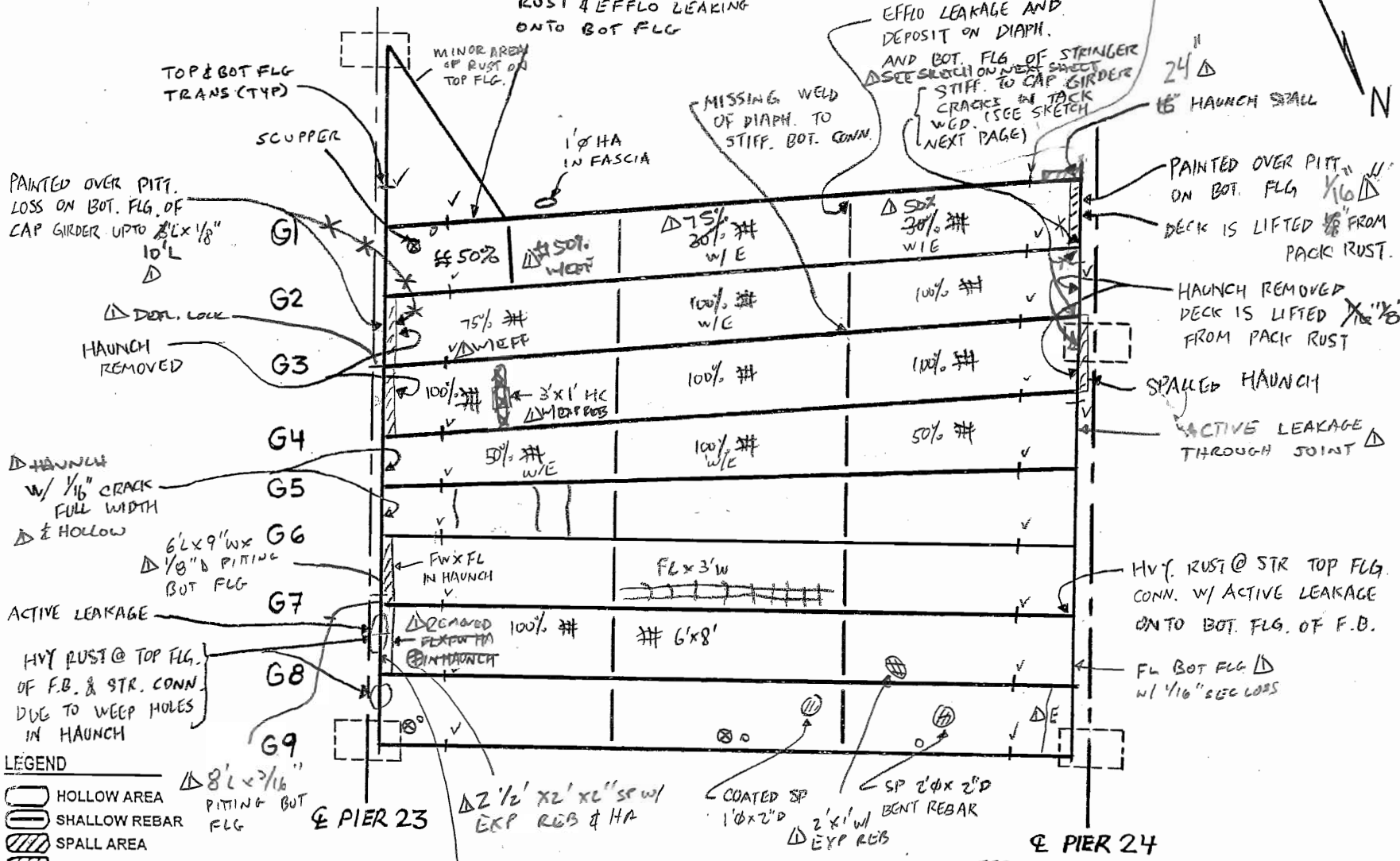
JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/15/04 | SHEET 109

CREW FM, SW, ML, GC, PG | 10/12/06 PG, SW, CL, DS, ML

△ BOTTOM OF DECK IS DAMP THROUGHOUT
AREAS OF L. SCALE (1/16" DP) < 1% TOTAL

△ GOUGE IN END OF COVER PL PAINTED OVER



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

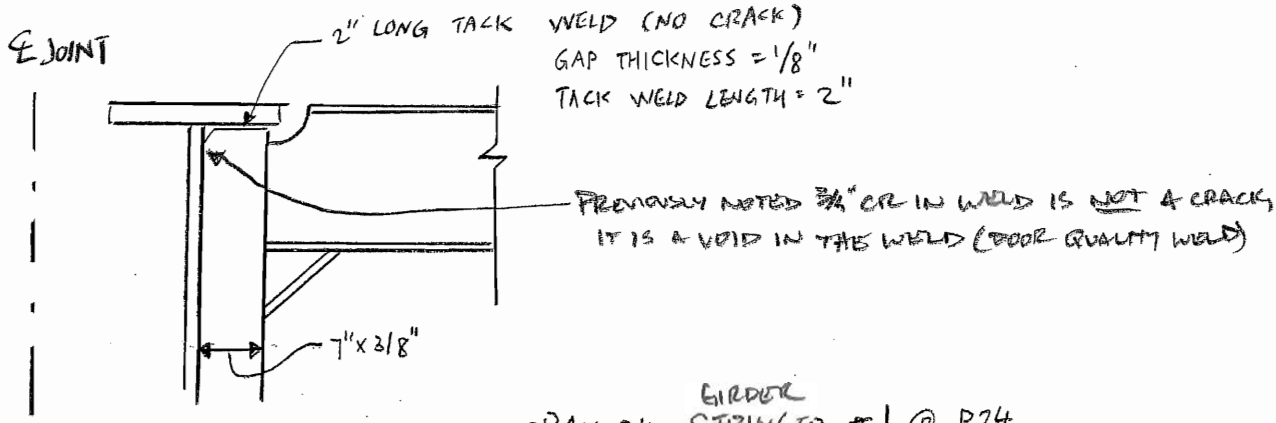
⊗ SCUPPER
O WEEP
+ = BOT FLG COVER PL

GENERAL NOTES:

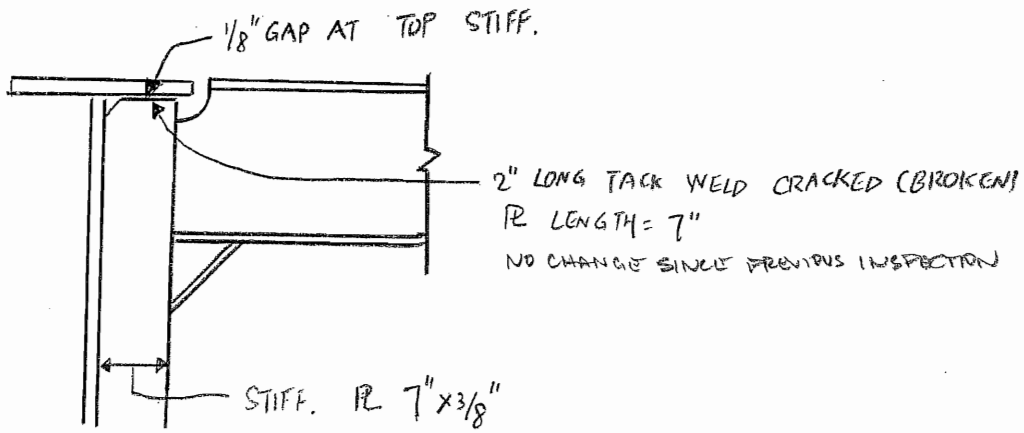
- HAUNCH REMOVED G2 & G3, HOLLOW w/ 1/16" CRK. G4 & G5
- DEFLEC LOCK W/ SEC. LOSS AND PERF. HOLES PAINTED OVER
- 1 3/8" REM. ON PAINTED OVER THIN. PL OF TRANS. WELD W/ JT SIDE (1 5/8" ORIG.)

FIELD NOTES

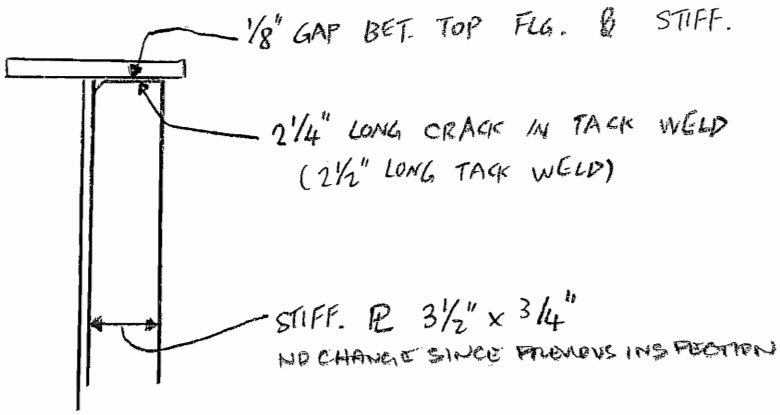
	JOB NO. 0155	BRIDGE NO. 3190A
	DATE 11/15/04	SHEET ~~61~~ 110
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, PG, SW, CL	



SPAN 24 ~~STRINGER~~ GIRDER #1 @ P24



SPAN 24 ~~STRINGER~~ GIRDER 3 @ P24



NO.	DATE	DESCRIPTION
1	10/12/06	GCS PG, DLC, SW, CL

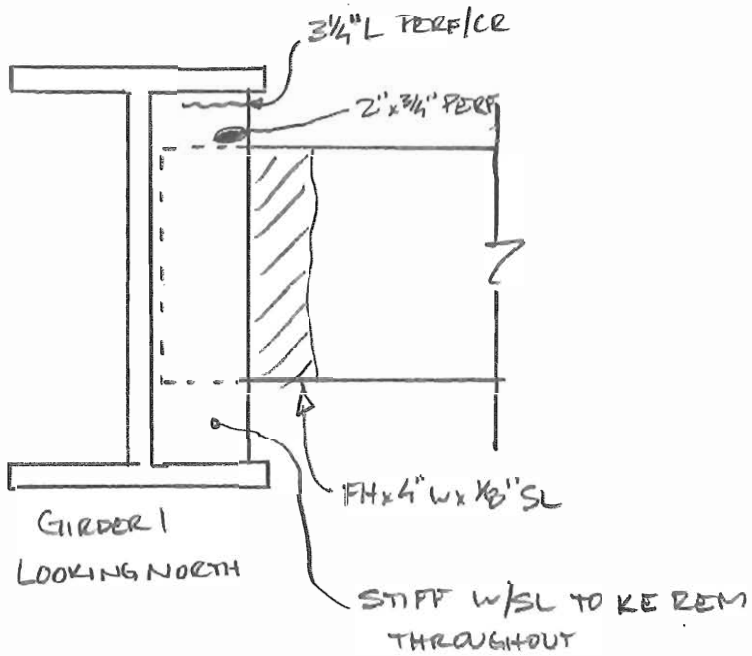
REVISIONS

1 NO CHANGES

SPAN 24 WEST BEARING STIFF. @ PIER 24 WEST COLUMN

CRACKS IN TACK WELDS TO TENSION FLANGE OF CAP GIRDER PIER 24 SPAN 24

FIELD NOTES	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 11/7/06	SHEET 111
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL	



NORTH INTERMEDIATE DIAPHRAGM @ GIRDER 1

SPAN 24

FIELD NOTES

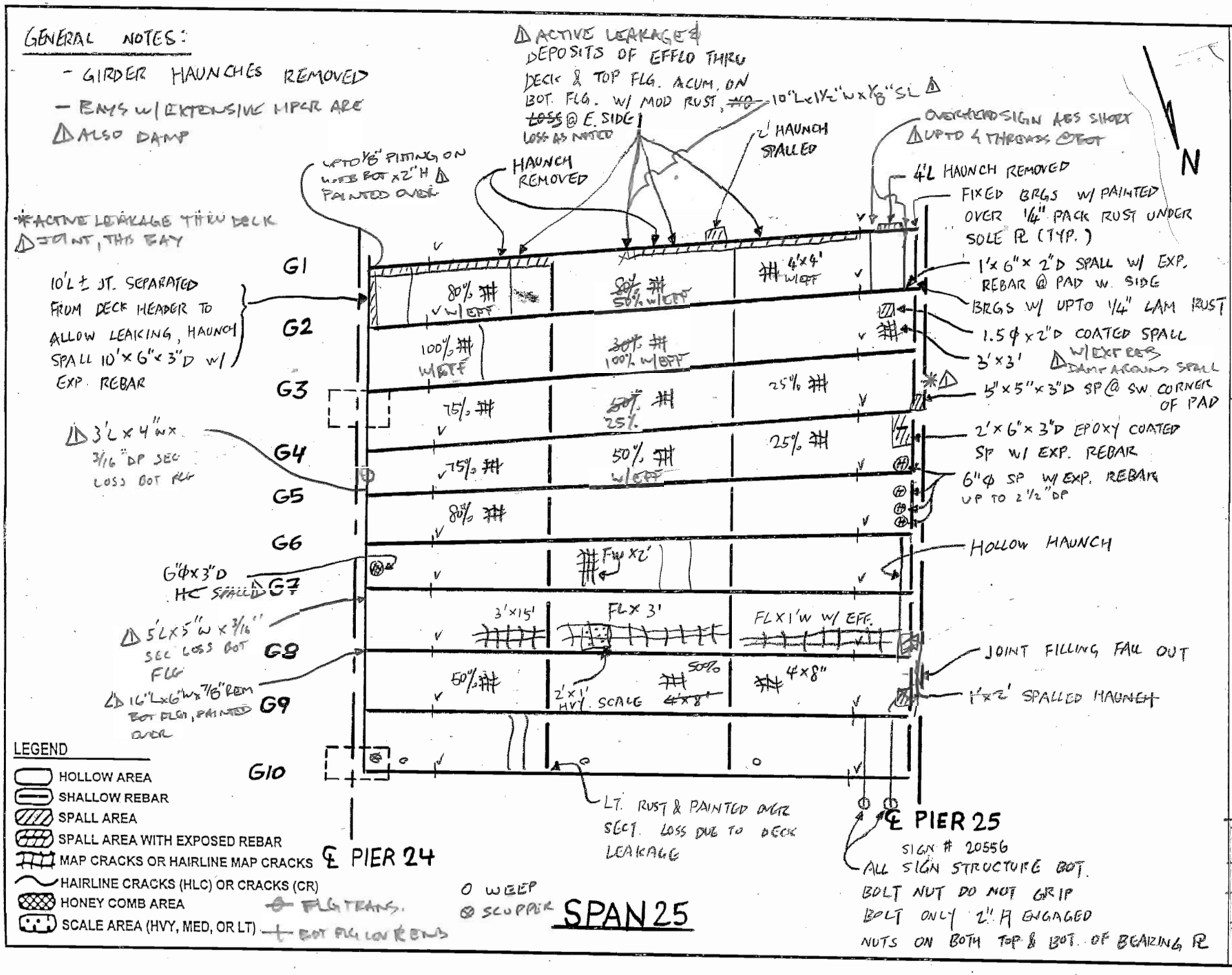
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155 | DATE 11/22/04 | BRIDGE NO. 3190A

CREW MC, FM, PG, SW, CC, JW | SHEET 1/2 | 10/12/06 PDG, SW, CL, AS

GENERAL NOTES:

- GIRDER HAUNCHES REMOVED
- BMS w/ EXTENSIVE MPCR ARE
- ⚠ ALSO DAMP



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

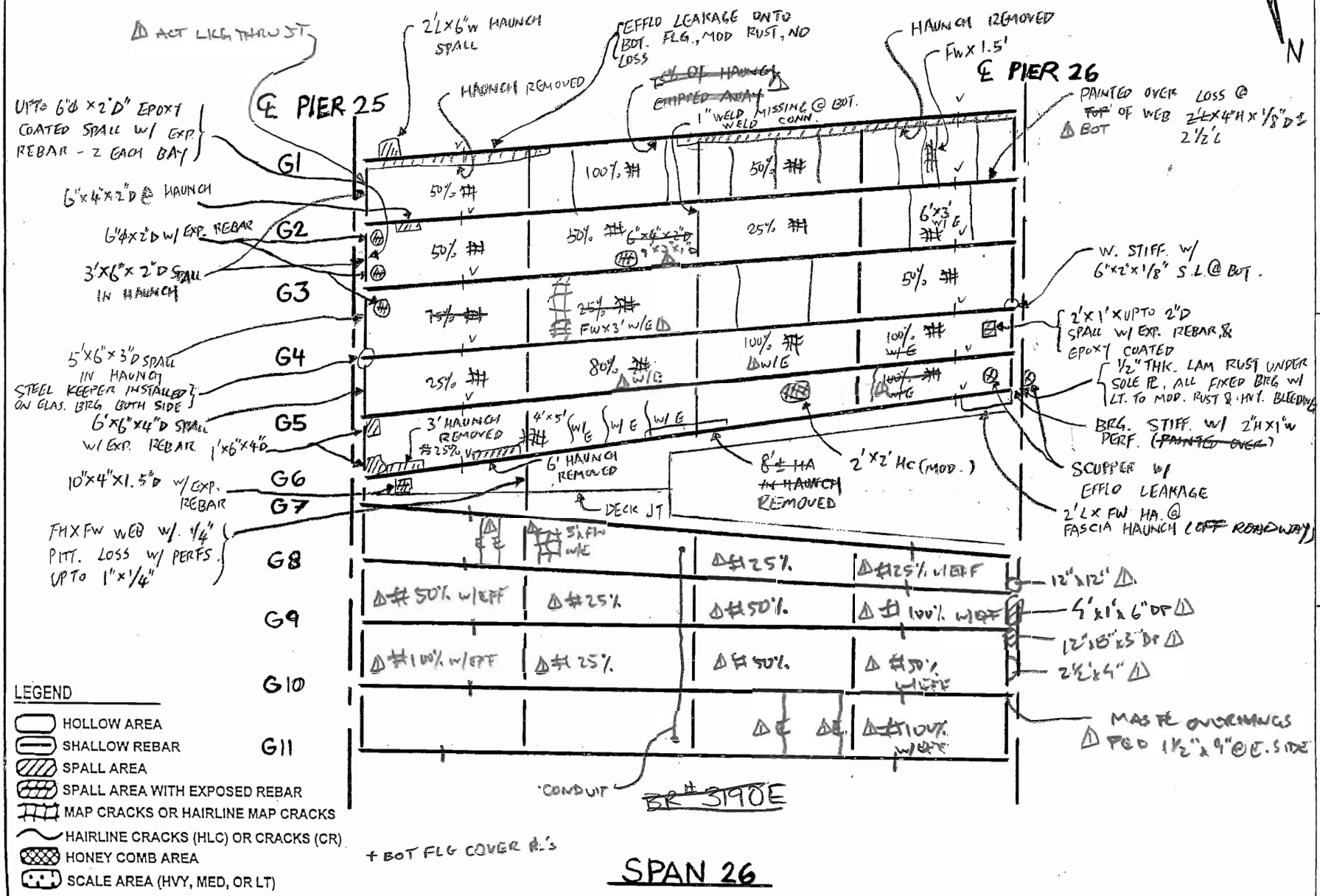
JOB NO. 0155 | BRIDGE NO. 3190A

DATE 11/30/06 | SHEET 113

CREW MC, CC | 10/26/06 PDG, SW

GENERAL NOTES:

- BEAM ENDS W/ UP TO 1/8" PITT. LOSS



LEGEND

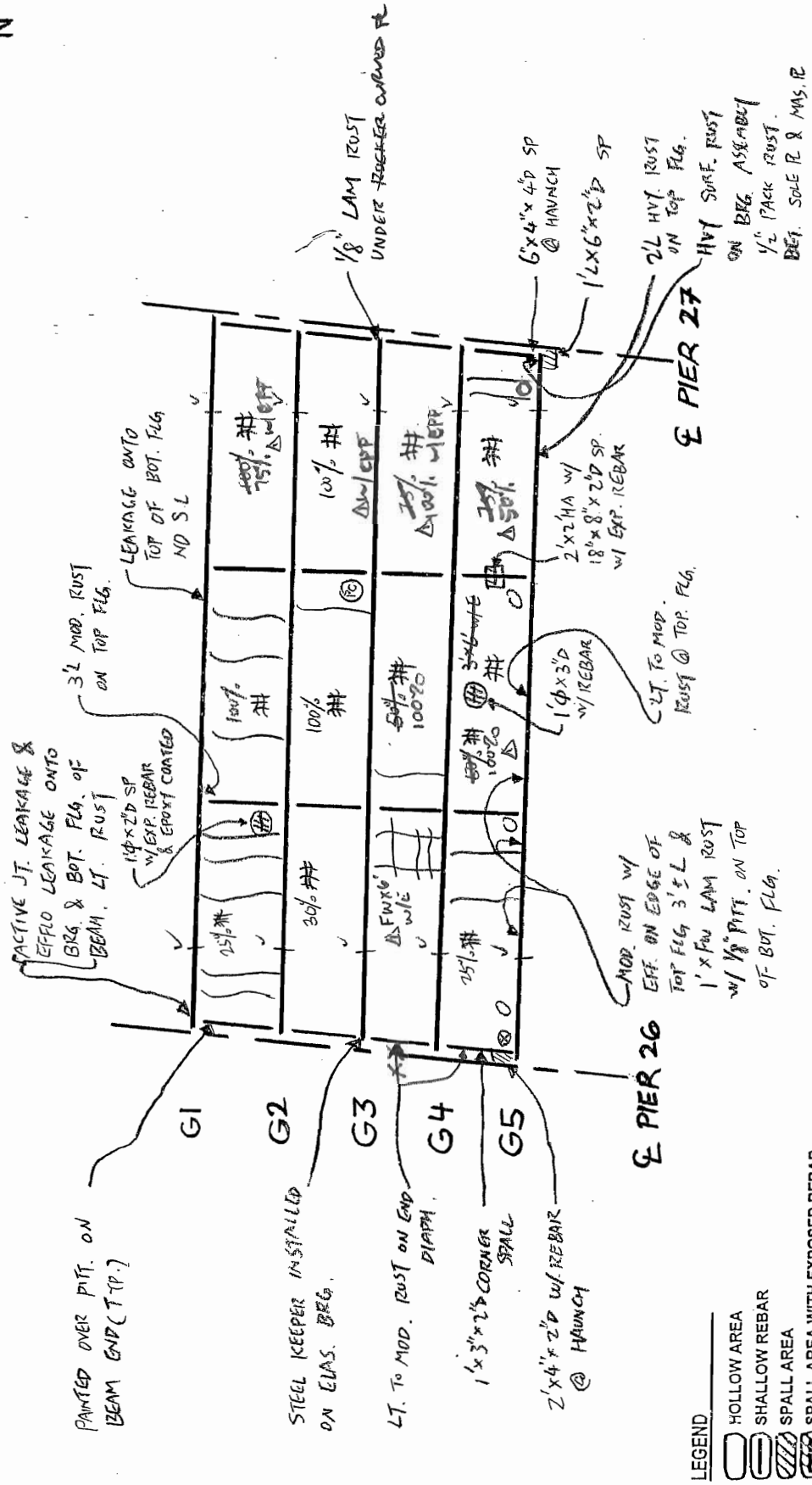
- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/30/04	SHEET 114 ~~6/4~~
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW MM, CC	△ 10/26/06 PDG, SW

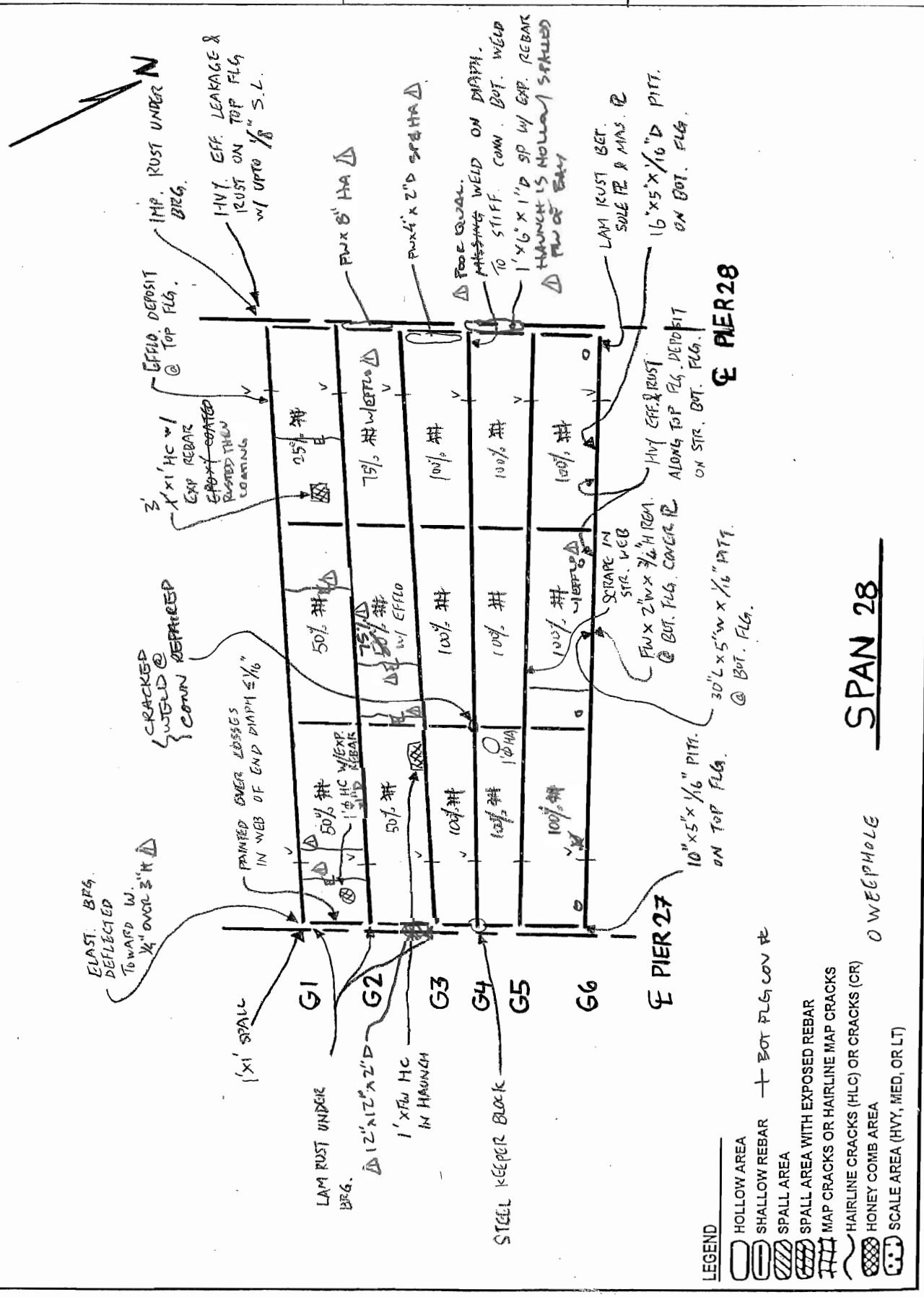
GENERAL NOTE:

- ALL HLC/RC W/ EFFLO.
- ALL MPC/RC W/ EFFLO.



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/29/04	SHEET 115 ~~65~~ 1
	CREW CC, JW, ML	△ 11/3/06 PDG, SW, CL



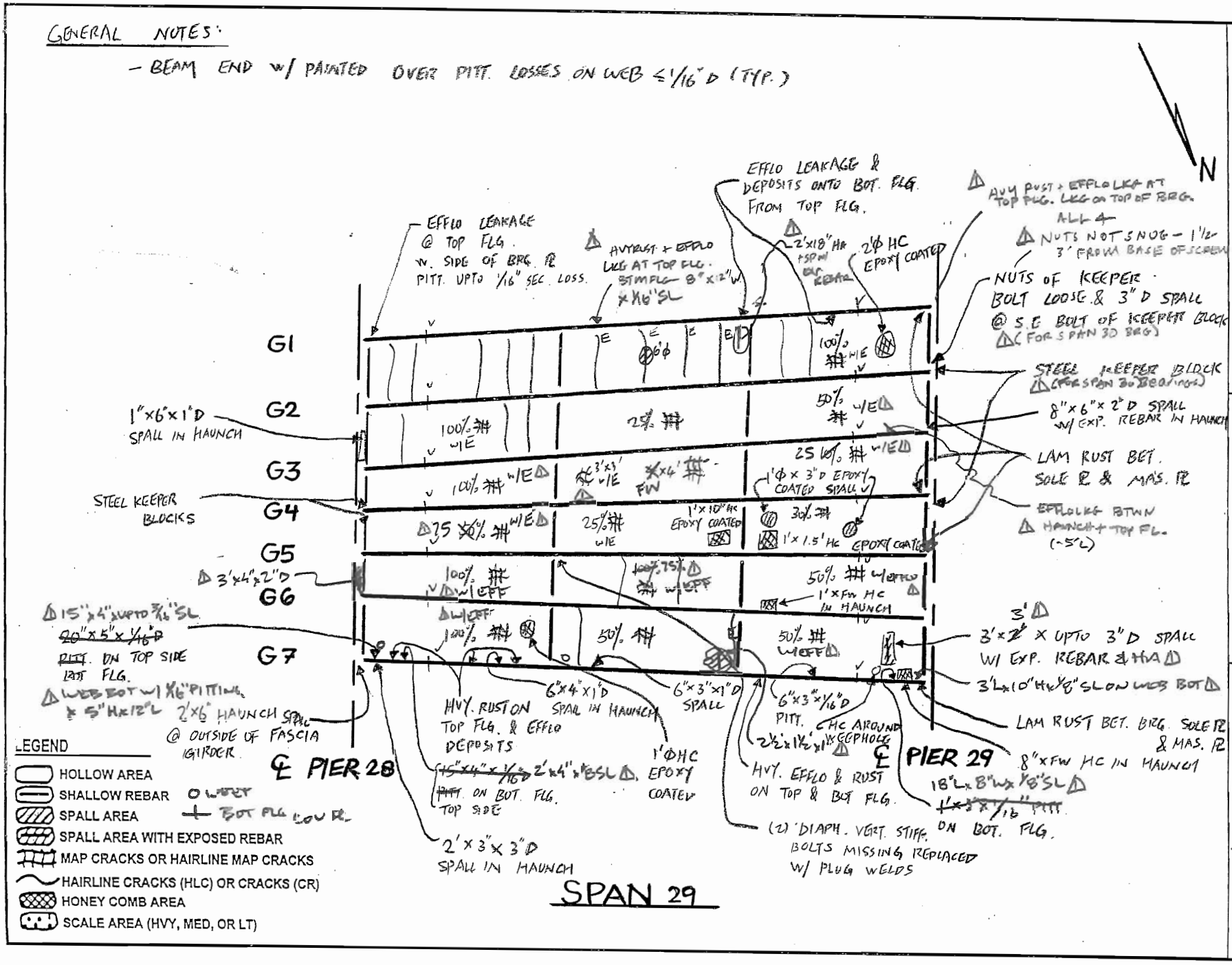
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	BRIDGE NO. 3190 A
DATE 11/29/04	SHEET 116
CREW CL, JW, ML	11/3/06 TDG, SW, CL

GENERAL NOTES:

- BEAM END w/ PAINTED OVER PITT. LOSSES ON WEB ≤ 1/16" D (TYP.)



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

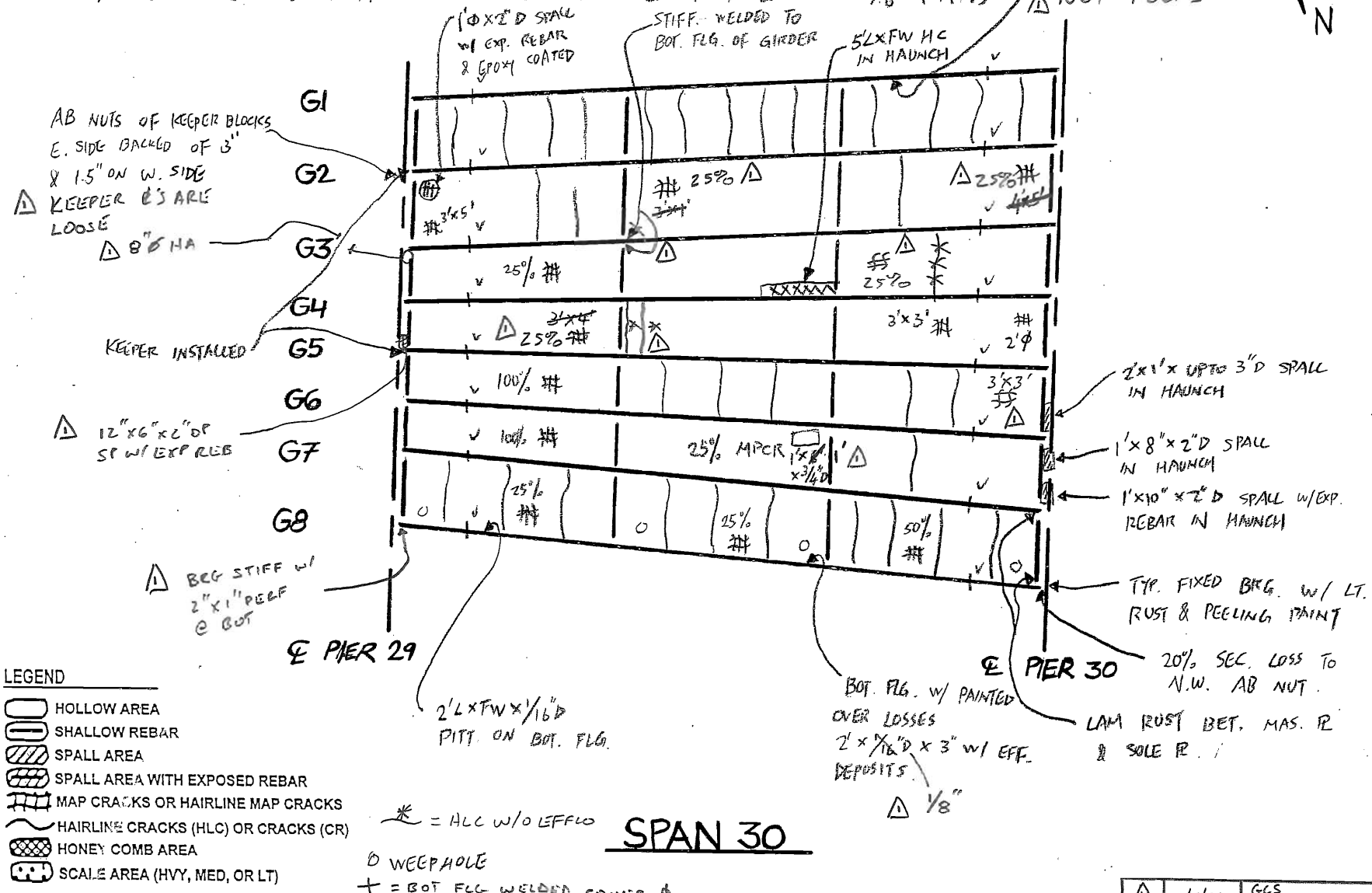
JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/24/04 | SHEET 117

CREW ML, CC, JW

GENERAL NOTES

- POOR QUALITY WELD @ BOT. OF DIAPH. TO STIFF. @ RANDOM LOCATIONS
- ~~ALL HLCRKS. W/ EFF~~
- ALL BEAM ENDS & BRG. STIFF. W/ PAINTED OVER PITT LOSSES ≤ 1/16" (TYP.)



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

✱ = HLC W/O EFFLO

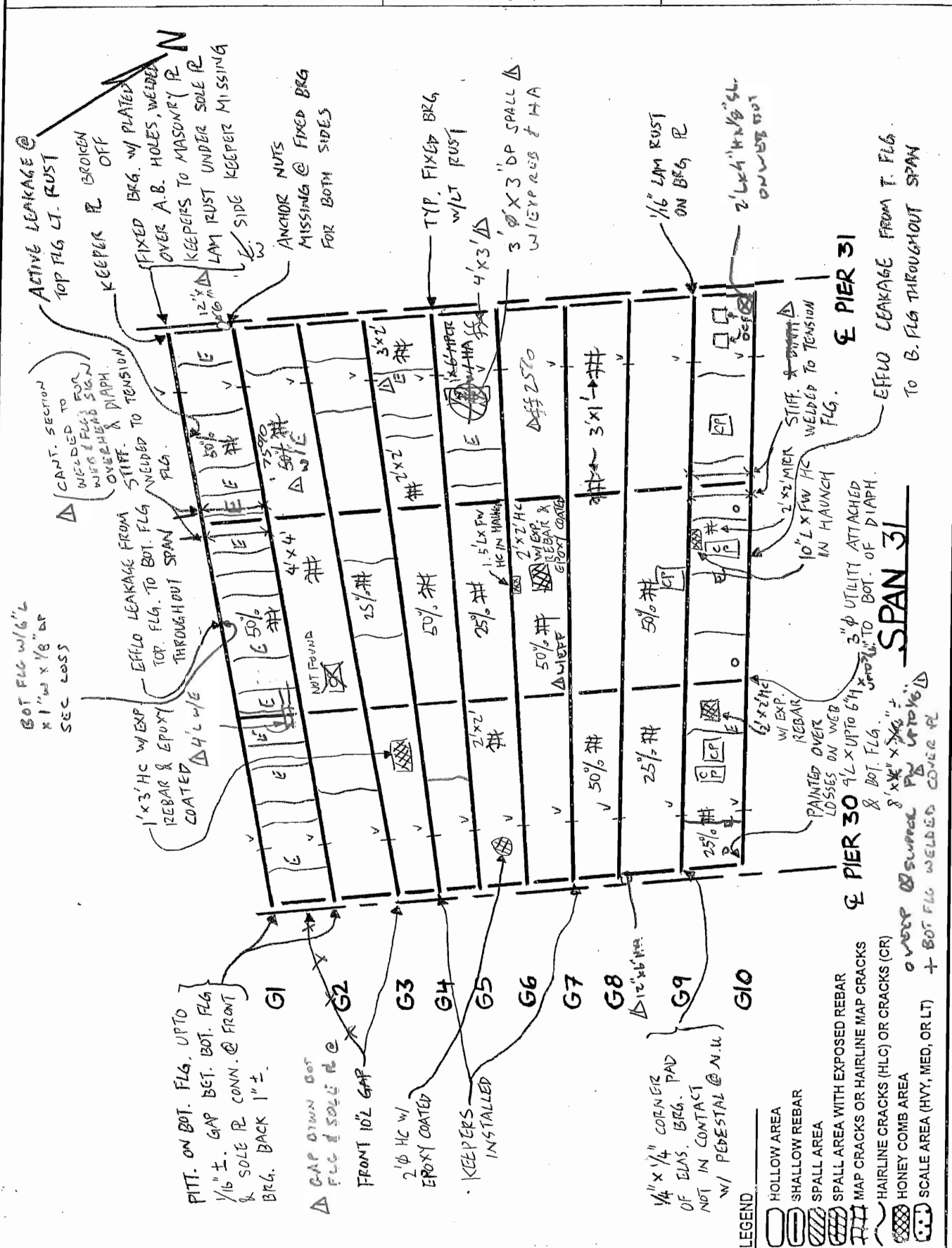
O WEEPHOLE

+ = BOT FLG WELDED COVER PL

1	10/9/06	GCS PG, SW

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/23/04	SHEET 118
	CREW ML, CC, JW	△ 11/3/06 PFG, SW, CL



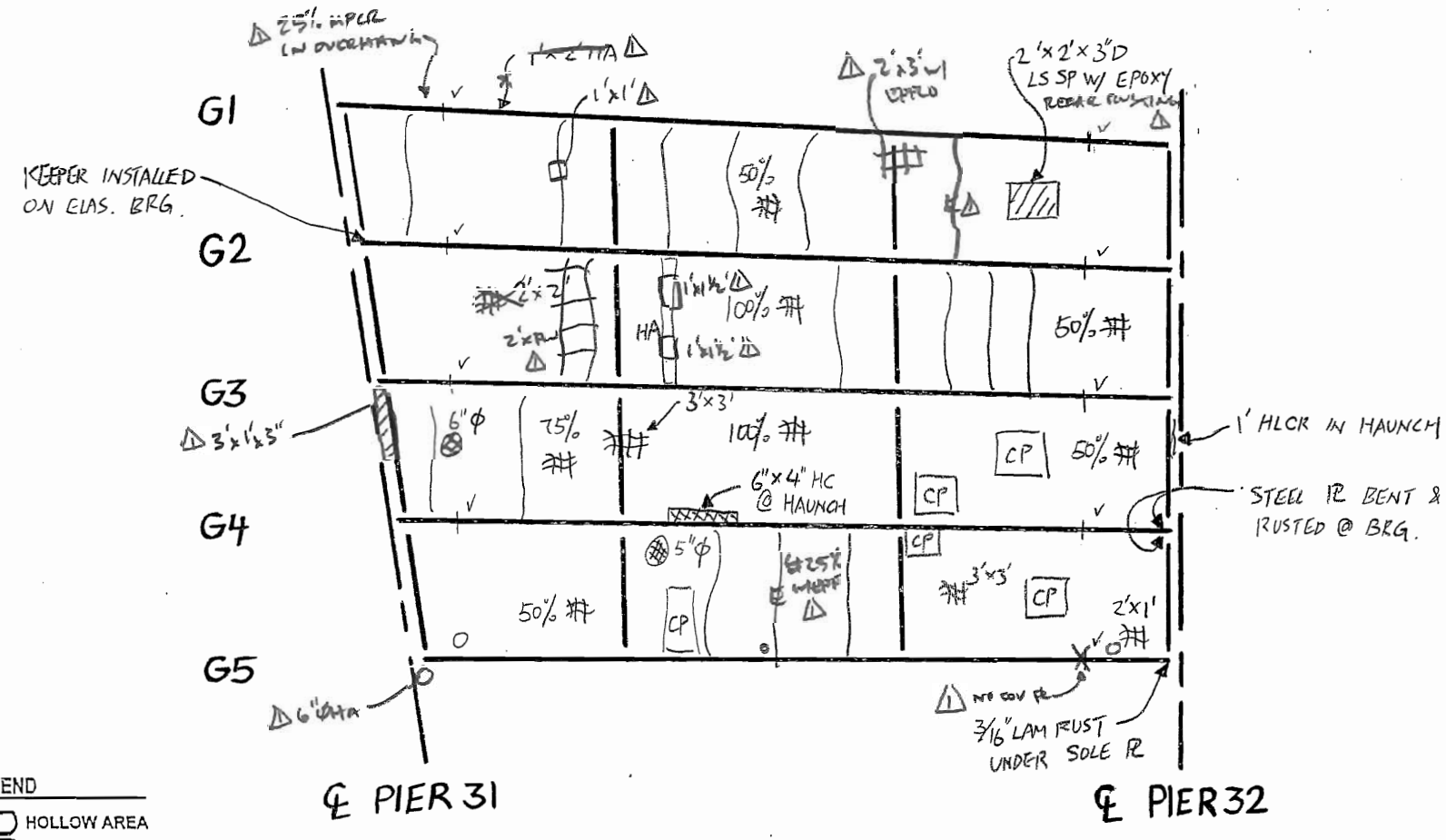
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	DATE 11/23/04	CREW ML, CC, JW
BRIDGE NO. 219OA	SHEET 119	11/3/06 TPG, JW, CL

GENERAL NOTES:

- END OF BEAMS W/ PAINTED OVER PITT. LOSSES ≤ 1/16" (TYP.)
- POOR QUALITY WELDS @ DIAPH. LOC'S @ STIFF. BOT.



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

O WEEPHOLE

SPAN 32

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

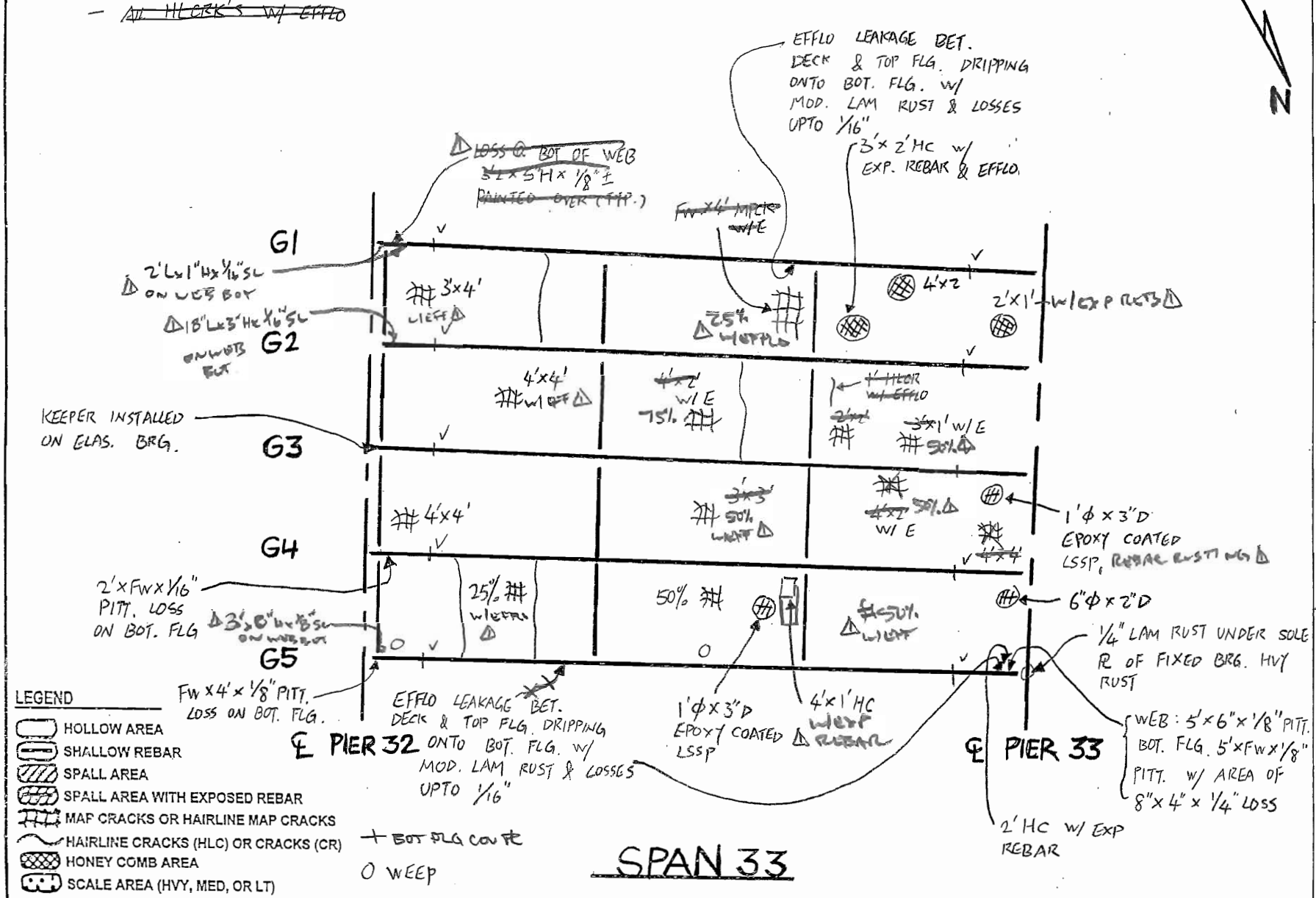
JOB NO. 0155 | BRIDGE NO. 3190A

DATE 11/23/04 | SHEET 120

CREW ML, CC, JW | 11/3/06 TDH, JW

GENERAL NOTES

- THERE ARE POOR QUALITY WELDS @ DIAPH. LOC'S (TYP)
- ~~ALL HLCRK'S W/ EFFLO~~



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

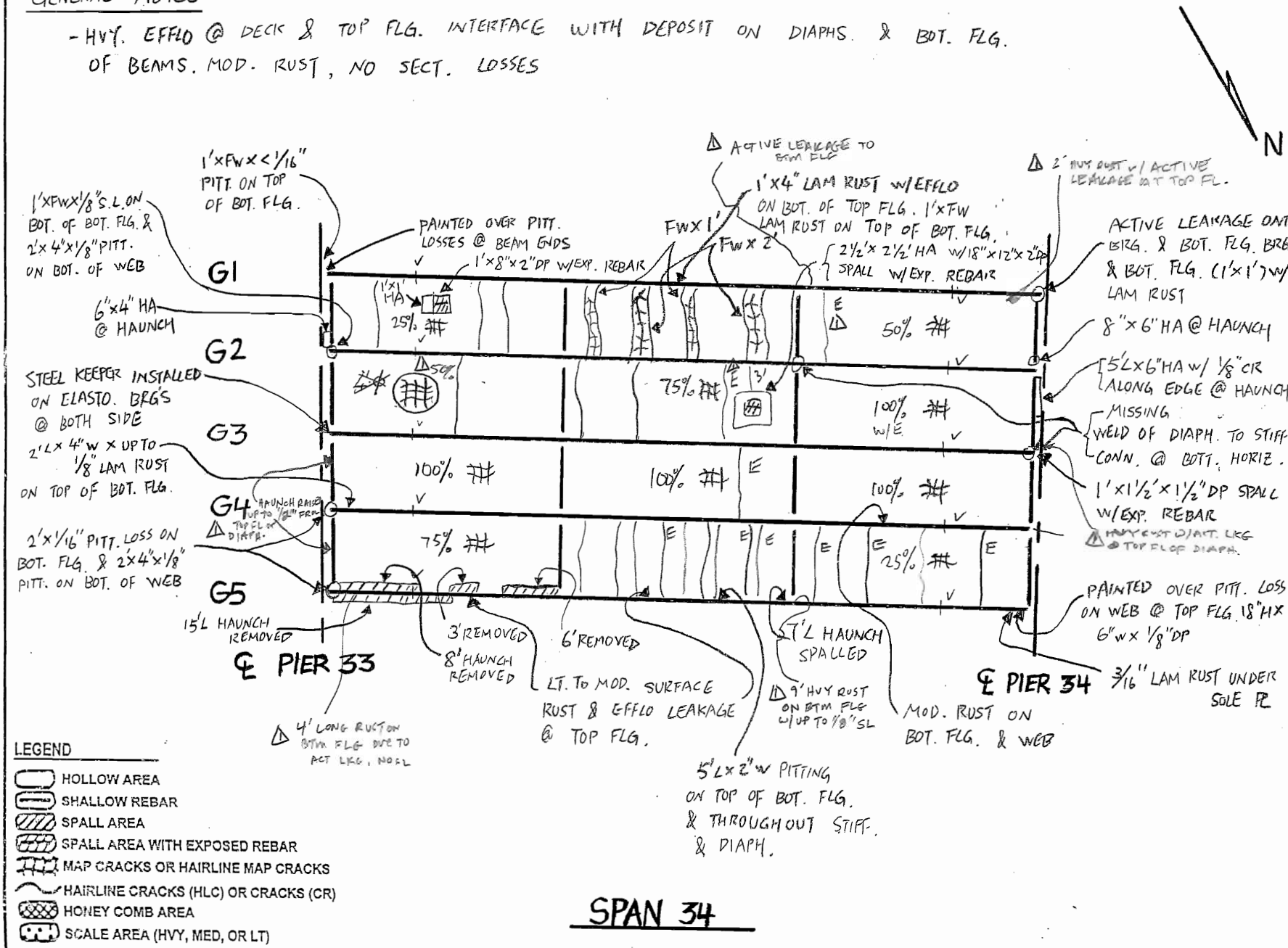
JOB NO. 0155 | BRIDGE NO. 3190 A

DATE 11/23/04 | SHEET 1/21

CREW ML, CC, JW | 11/3/06 RDG, SW, CL

GENERAL NOTES

- HVY. EFFLO @ DECK & TOP FLG. INTERFACE WITH DEPOSIT ON DIAPHS. & BOT. FLG. OF BEAMS. MOD. RUST, NO SECT. LOSSES



SPAN 34

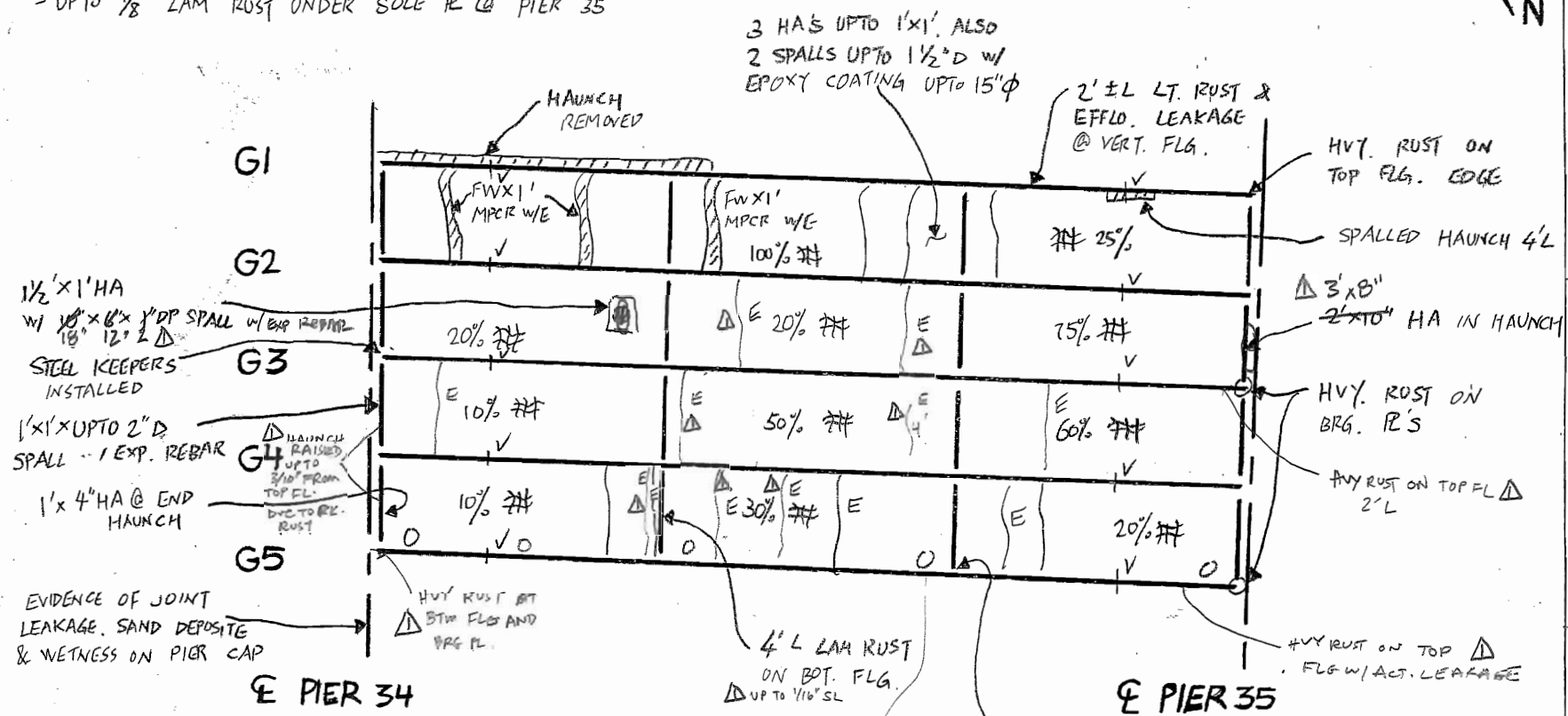
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

JOB NO. 0155	BRIDGE NO. 3190 A
DATE 1/5/05	SHEET 7 of 122
CREW ML, JW	11/14/06 PDG, CL

GENERAL NOTES:

- MOD. TO HVY. RUST BETW. TOP FLG. & HAUNCH ALONG FASCIA GIRDERS
- UPTO 1/16" PAINTED OVER PITTING LOSS ON BOT. FLG. 2'L x FW @ BEAM END
- POOR QUILITY WELDS @ DIAPH TO VERT. STIFF. CONN'S
- UPTO 1/8" LAM RUST UNDER SOLE PL @ PIER 35



LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

O WEEP

SPAN 35

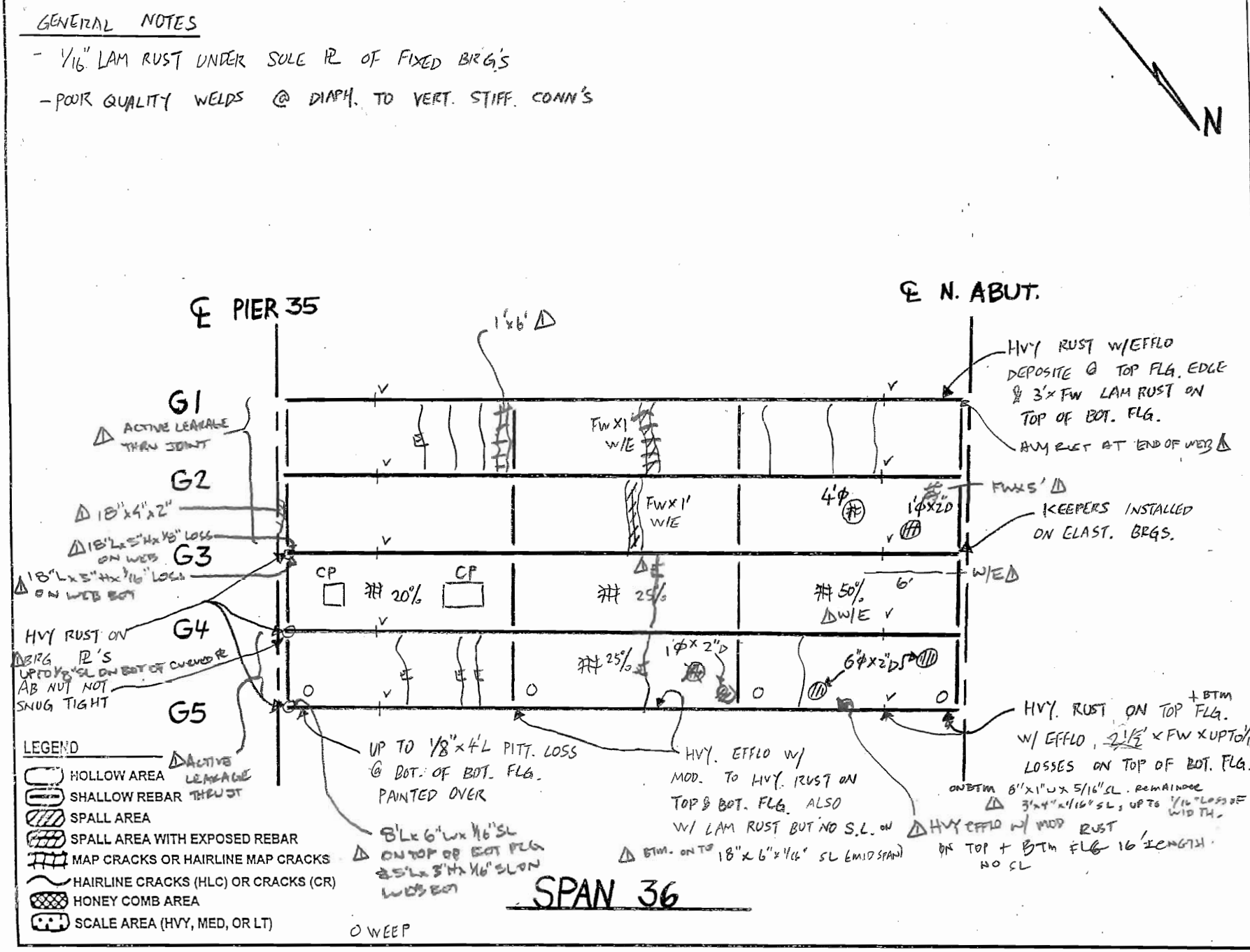
FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS · CONSULTANTS · CONSTRUCTION MANAGERS

JOB NO. 0155 | DATE 1/5/04 | CREW ML, JW | BRIDGE NO. 3190A | SHEET 123 | 11/21/06 TPG, CL

GENERAL NOTES

- 1/16" LAM RUST UNDER SOLE PL OF FIXED BRG'S
- POOR QUALITY WELDS @ DIAPH. TO VERT. STIFF. CONN'S



FIELD NOTES

FIELD NOTES	PROJ. NO. 170-2357	BRIDGE NO. 03190A
	DATE 10/9/06	SHEET 124
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW	

CRACK SCHEDULE

SPAN	MEMBER	DESCRIPTION	LENGTH
1	G6	2ND DIAPH FROM SOUTH, BOTTOM WELD MISSING	N/A
1	G7	2ND DIAPH FROM SOUTH, BOTTOM WELD MISSING	N/A
2	G7	KNEE BRACE WELD @ PIER 1 DETACHED	
4	G5	2ND DIAPH FROM SOUTH, BOT WELD INCOMPLETE	± 2"
9	PIER 9 X-GIRDER	DIAG TRUSS BRACE TO G1, BOT CHORD - TOP WELD CR'D VERTICAL WELD CR'D	2" 4"
10	G1	WEB SPLICE @ PIER 10, WEST SIDE TACK WELD CR'D	1¼"
10	G2	DIAG. TRUSS BRACE @ PIER 9, BOTTOM CHORD BOT WELD AND VERTICAL WELDS MISSING	N/A
11	S2	RISER PL TACK WELDS @ FB 1 (3)	3@±1"
11	S2	RISER PL TACK WELD @ FB 2	±1"
12	G2	DIAG TRUSS BRACE @ PIER 12, BOTTOM CHORD BOT WELD DISCONNECTED (POOR FUSION)	±10"
13	G2	DIAG. TRUSS BRACE @ PIER 12, BOTTOM CHORD BOT & VERT WELDS MISSING	N/A
13	G2	DIAG. TRUSS BRACE @ PIER 13, BOTTOM CHORD BOT WELD MISSING	N/A

Revision	Date	Crew	Company	Revision	Date	Crew	Company

FIELD NOTES

	PROJ. NO. 170- 2357	BRIDGE NO. 03190A
	DATE 10/9/06	SHEET 125
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW	

CRACK SCHEDULE

SPAN	MEMBER	DESCRIPTION	LENGTH
14	G2	DIAG TRUSS BRACE @ PIER 14, BOTTOM CHORD BOTTOM WELD INCOMPLETE, POOR QUALITY	N/A
14	S2	RISER PL TACK WELD @ FB 1	±1"
15	G1	DIAG TRUSS BRACE @ PIER 15, BOTTOM CHORD BOT WELD DISCONNECTED (POOR FUSION)	±10"
16	G2	DIAG TRUSS BRACE @ PIER 16, BOTTOM CHORD BOT WELD MISSING	N/A
16	G1	WEB SPLICE @ PIER 16, WEST SIDE TACK WELDS (3)	30±1"
16	G2	WEB SPLICE @ PIER 16, EAST SIDE TACK WELDS (2)	20±1"
18	G3	1ST DIAPH FROM NORTH, BOT & WELD W/ POOR FUSION	±4"
18	G8	DIAG TRUSS BRACE @ PIER 17, BOTTOM CHORD WELD MISSING	N/A
19	G3	2ND DIAPH FROM SOUTH, BOT & WELD CRACKED	±4"
19	PIER 18 X-GIRDER	EAST END STIFFENER @ DIAG TRUSS BRACE WELDS TO BOT PLG CRACKED, BOTH SIDES	±6"
24	G3	VERTICAL CONN PL @ PIER 24 TACK WELD TO TOP (TENSION) FLANGE OF X-GIRDER CRACKED	2"
24	G3	1ST DIAPH FROM NORTH, BOT WELD MISSING	N/A

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

FIELD NOTES

PROJ. NO. 170-2357	BRIDGE NO. 03190A
DATE 10/9/06	SHEET 126
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW

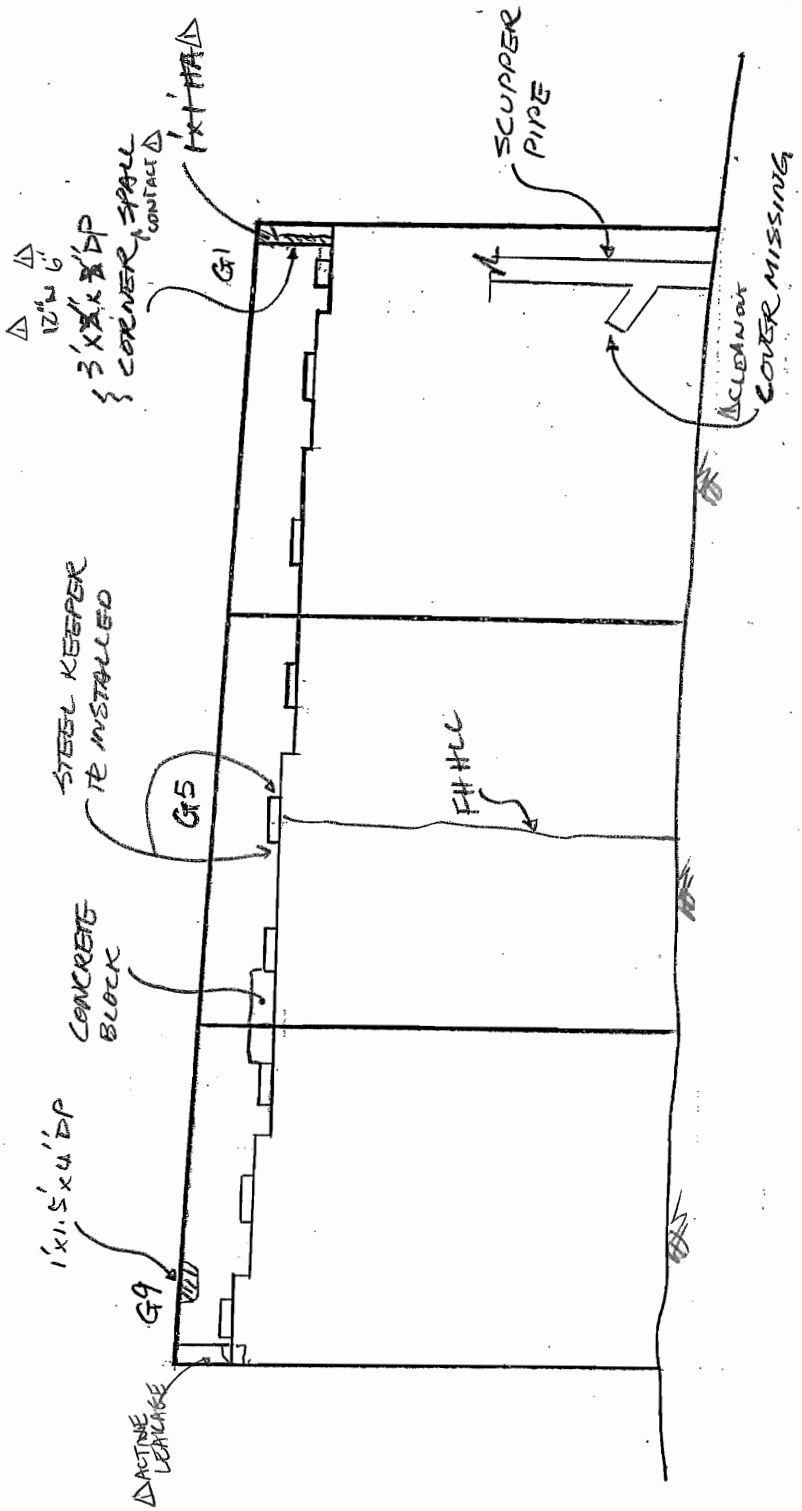
CRACK SCHEDULE

SPAN	MEMBER	DESCRIPTION	LENGTH
24	PIER 24 X-GIRDER	WEST BRG STIFF OVER COL. 1, S. SIDE WELD TO TOP PLG (TENSION) CRACKED	2¼"
24	G1	1ST DIAPH FROM NORTH, CONN TE W/ PERF/CR @ TOP	3¼"
34	G2	1ST DIAPH FROM NORTH, BOT WELD MISSING	N/A
34	G3	NORTH END DIAPH, BOT WELD MISSING	N/A
7	FB1	@ G1, CR IN WEB @ BOT PLG COPE W/ DRILLED STOP HOLE	¼"
11	S1	@ PIER 11, CR IN WEB COPE W/ DRILLED STOP HOLE	1¾"

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/29/04	SHEET ~~79~~ 127
	CREW ML, CC,	△ 11/3/06 PDG, CL, DS



GENERAL NOTES

1. CONCRETE PATCH (2'H +/-) ALONG BACKWALL TOP EDGE BETW G2-G8.
2. BOT OF STEM (8'H +/-) WAS COATED W/ RANDOM PEELING AREAS.
3. WINGWALLS HAVE NO NOTABLE DEFICIENCIES

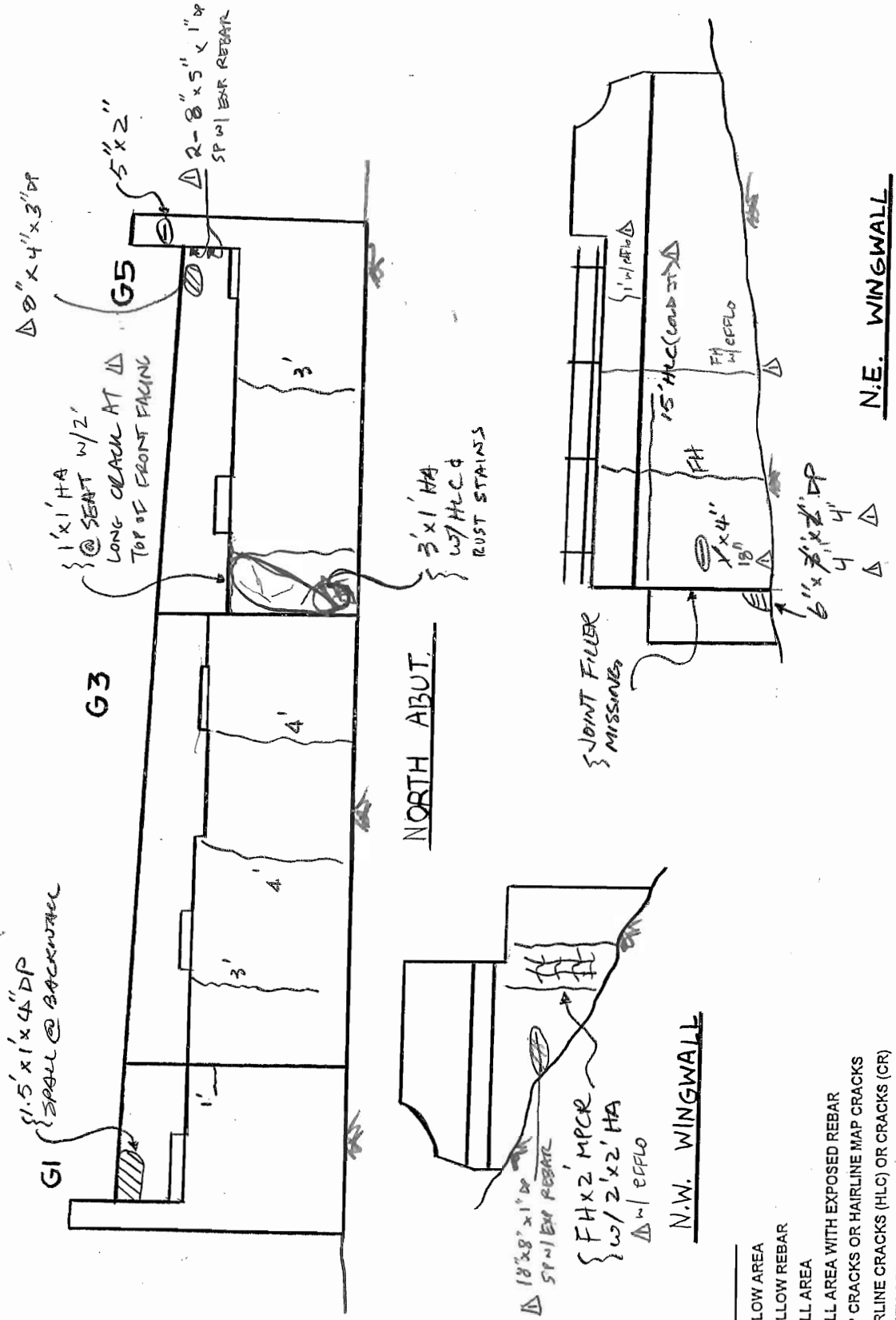
SOUTH ABUTMENT

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/23/04	SHEET ~~80~~ 128
	CREW ML, CC, JW	△ PDG, CL

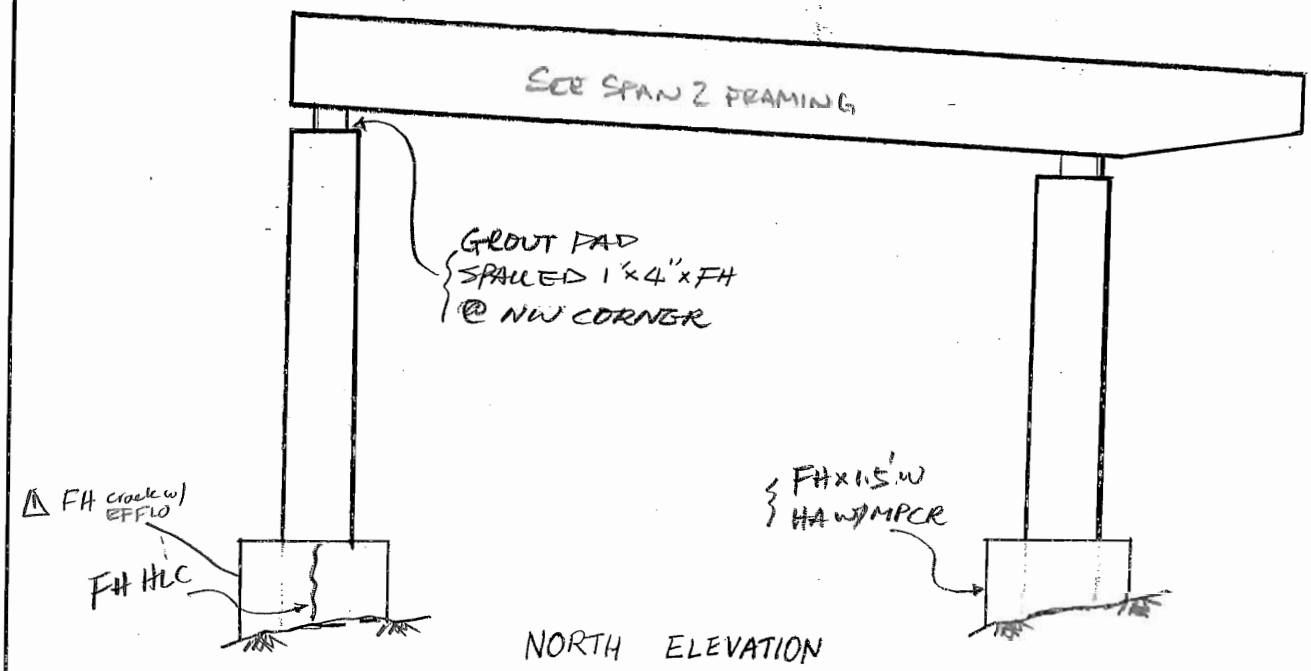


FIELD NOTES

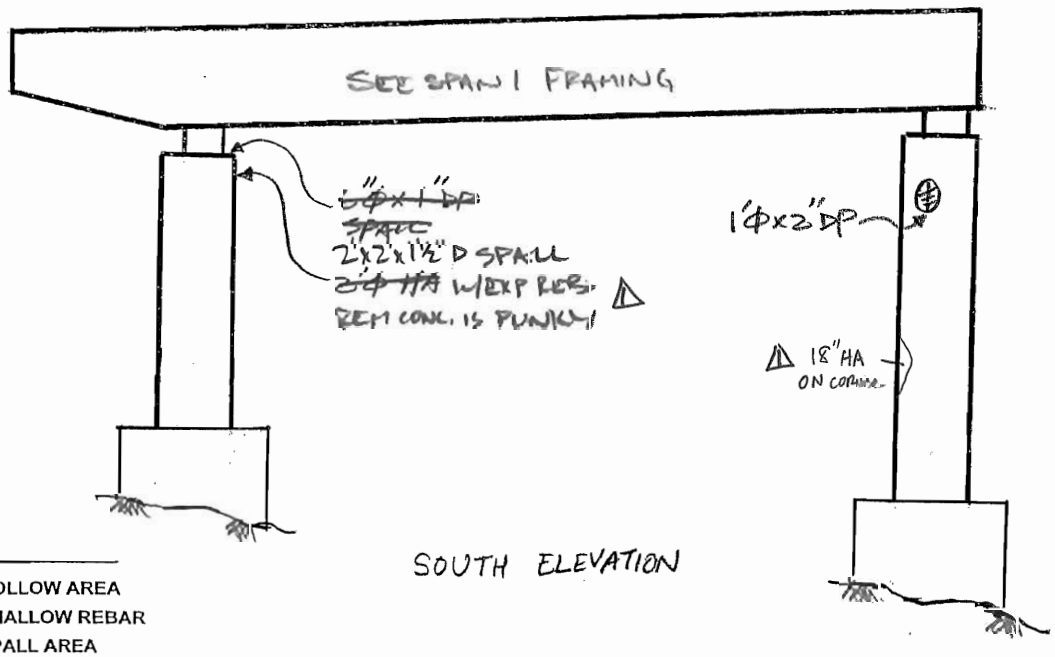
	JOB NO. 0155	BRIDGE NO. 3190A
	DATE 11/29/04	SHEET 8/1 129
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC, JW	△ PDG, CL, DS

GENERAL NOTES

1. SEISMIC RETROFIT INSTALLED @ BOTH COLUMNS.
2. UP TO 1/8" PAINTED OVER PITTING, LOSS AREAS @ ISOLATED LOCATIONS OF CAP GIRDER BOT FLG.
3. ~~STEEL CROSS GIRDERS THROUGH PIER 1 TO PIER 24.~~



NORTH ELEVATION



SOUTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

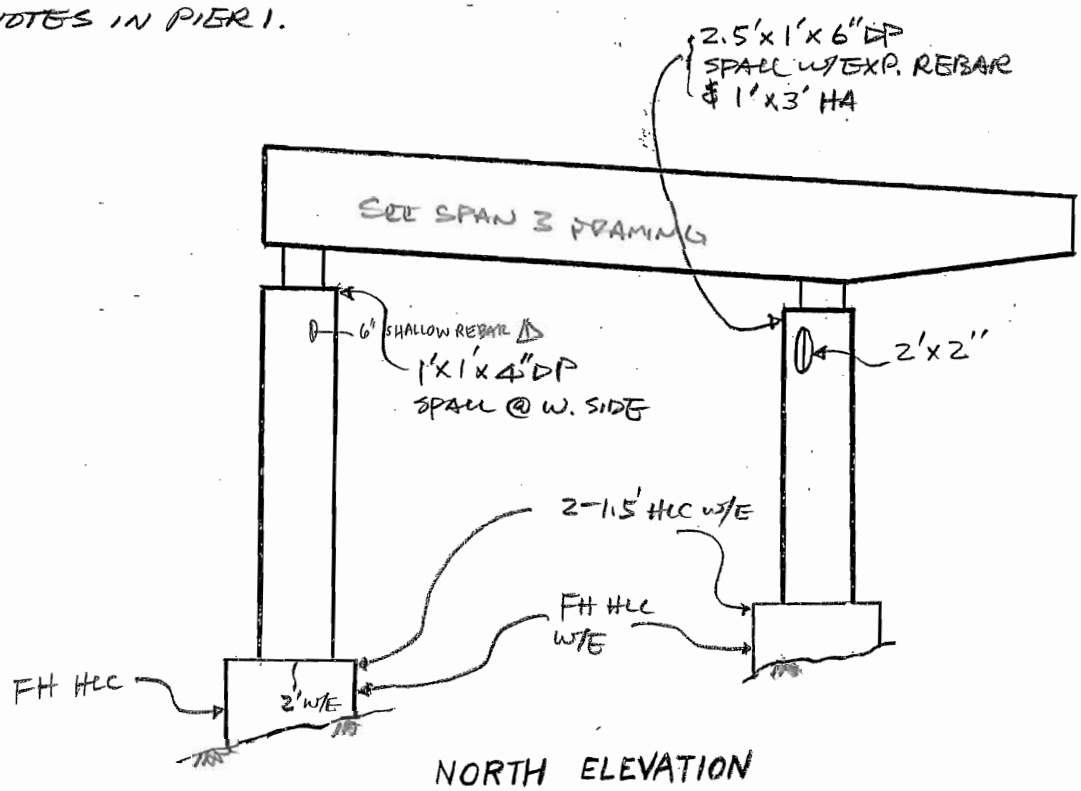
PIER 1

FIELD NOTES

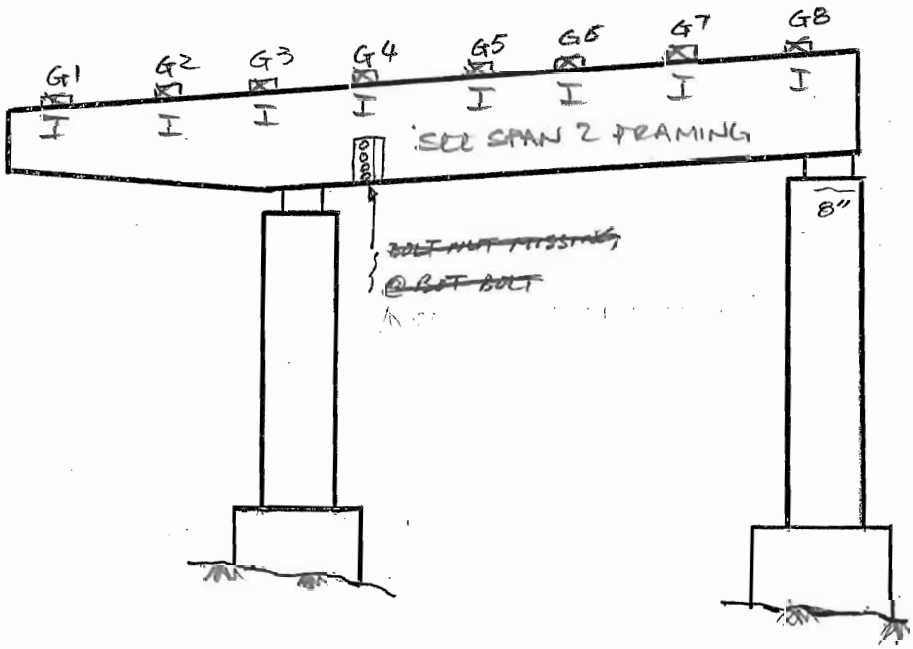
	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/29/04	SHEET BR 130
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC, JW	△ PDG, CL, DS

GENERAL NOTES

1. SEE NOTES IN PIER 1.



NORTH ELEVATION



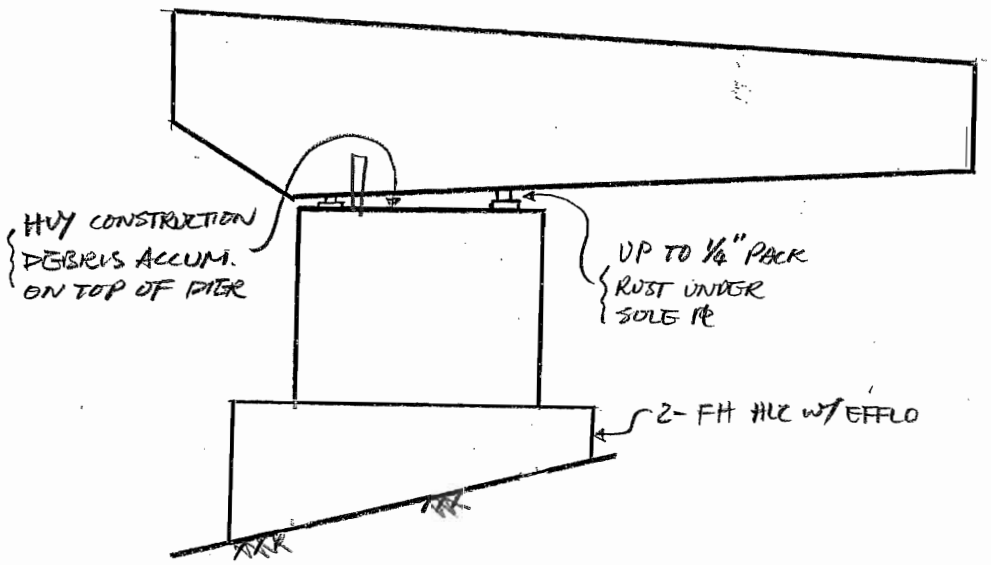
SOUTH ELEVATION

PIER 2

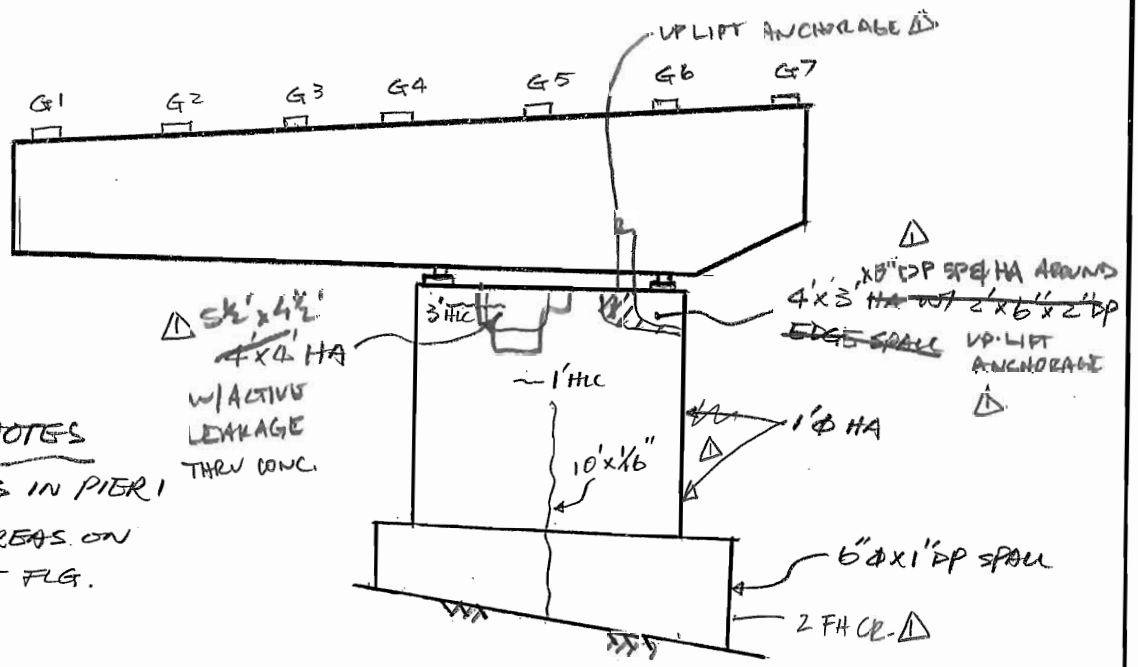
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/29/04	SHEET ~~EXB~~ 131
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC, JW	△ PDG, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

GENERAL NOTES

1. SEE NOTES IN PIER 1
2. CT RUST AREAS ON BOT OF BOT FLG.

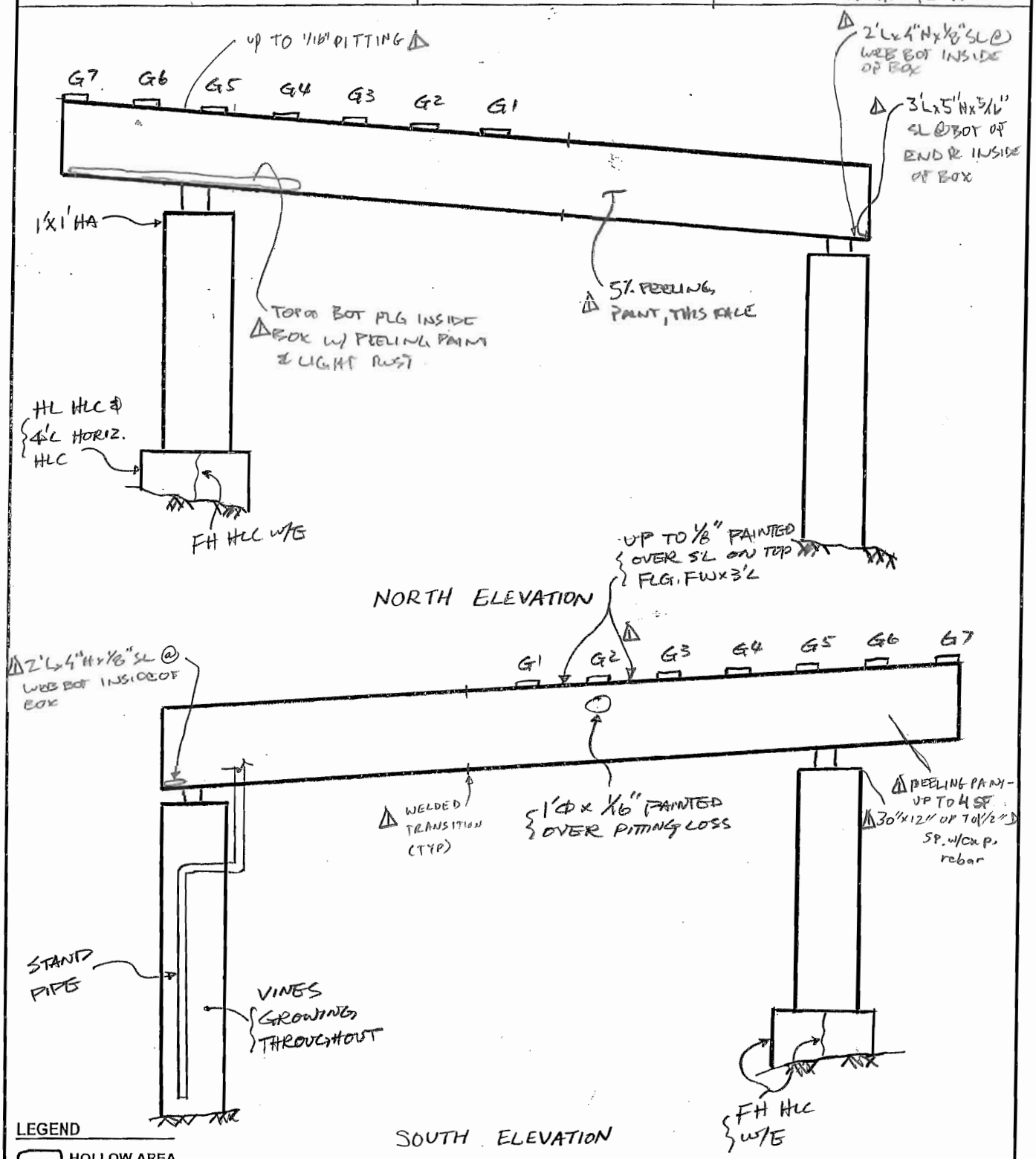
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 3

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/22/04	SHEET ~~87~~ 132
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, MM, SW	△1 10/10/06 RDG, SW, CL, DS



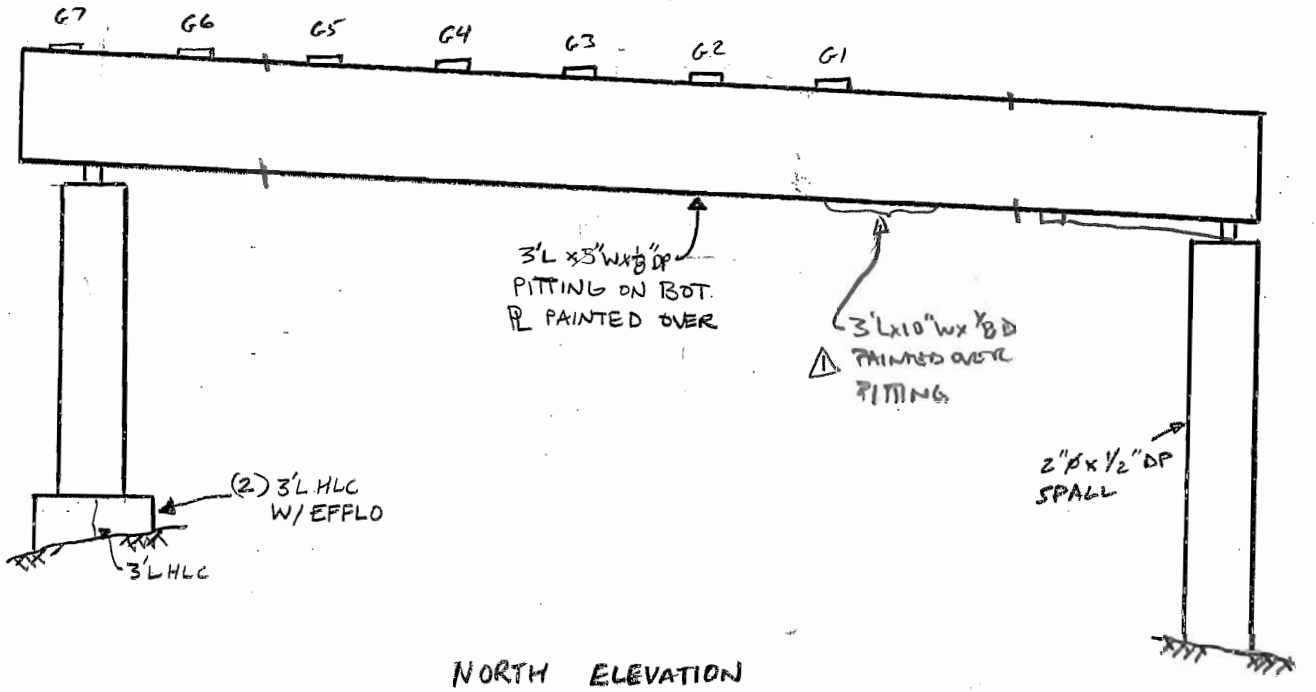
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

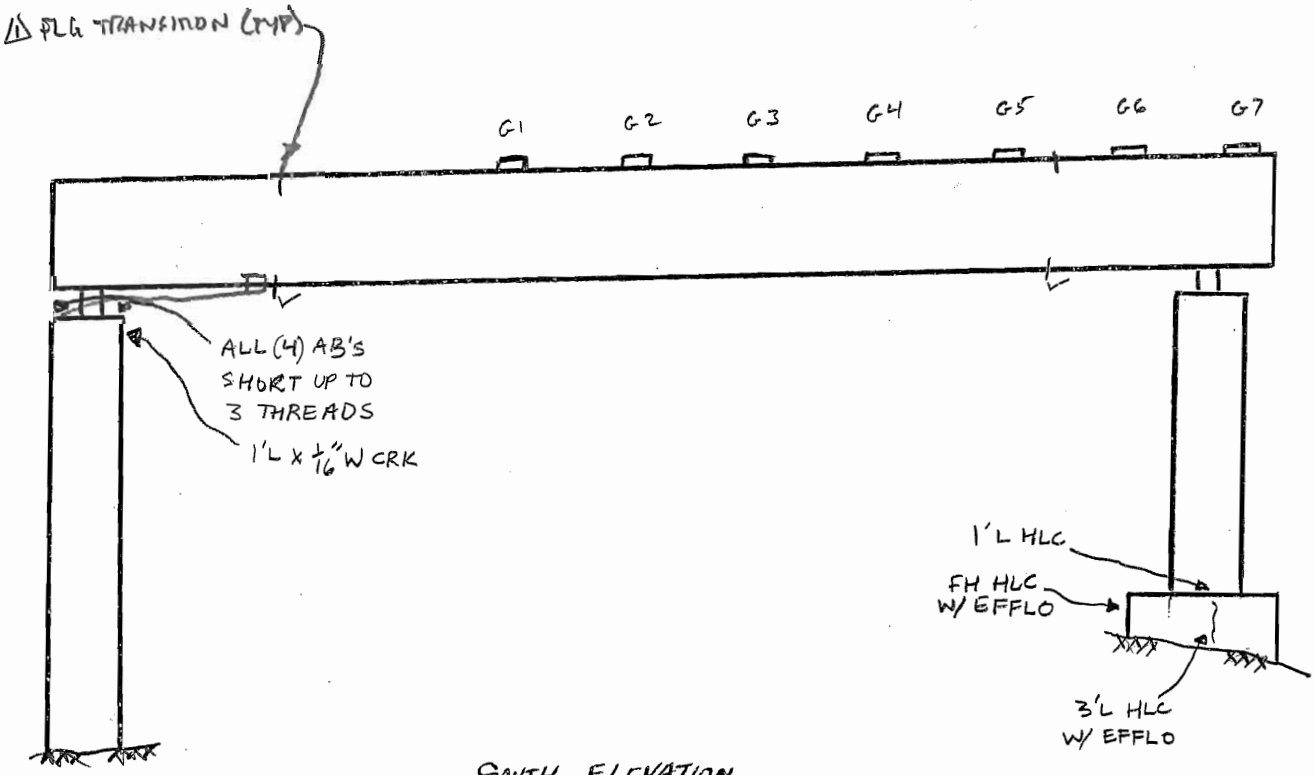
PIER 4

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~85~~ 133
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC, SW	⚠ 10/10/06 FM, SW, CL, DS



NORTH ELEVATION



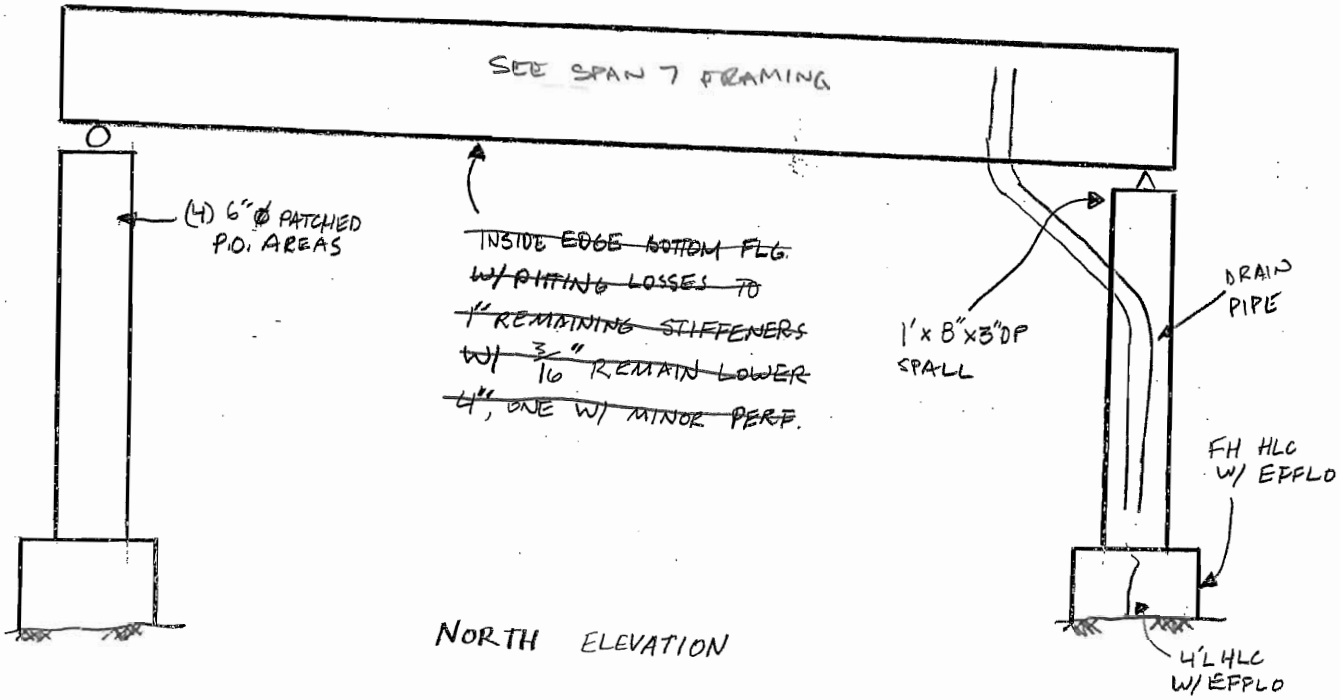
SOUTH ELEVATION

LEGEND

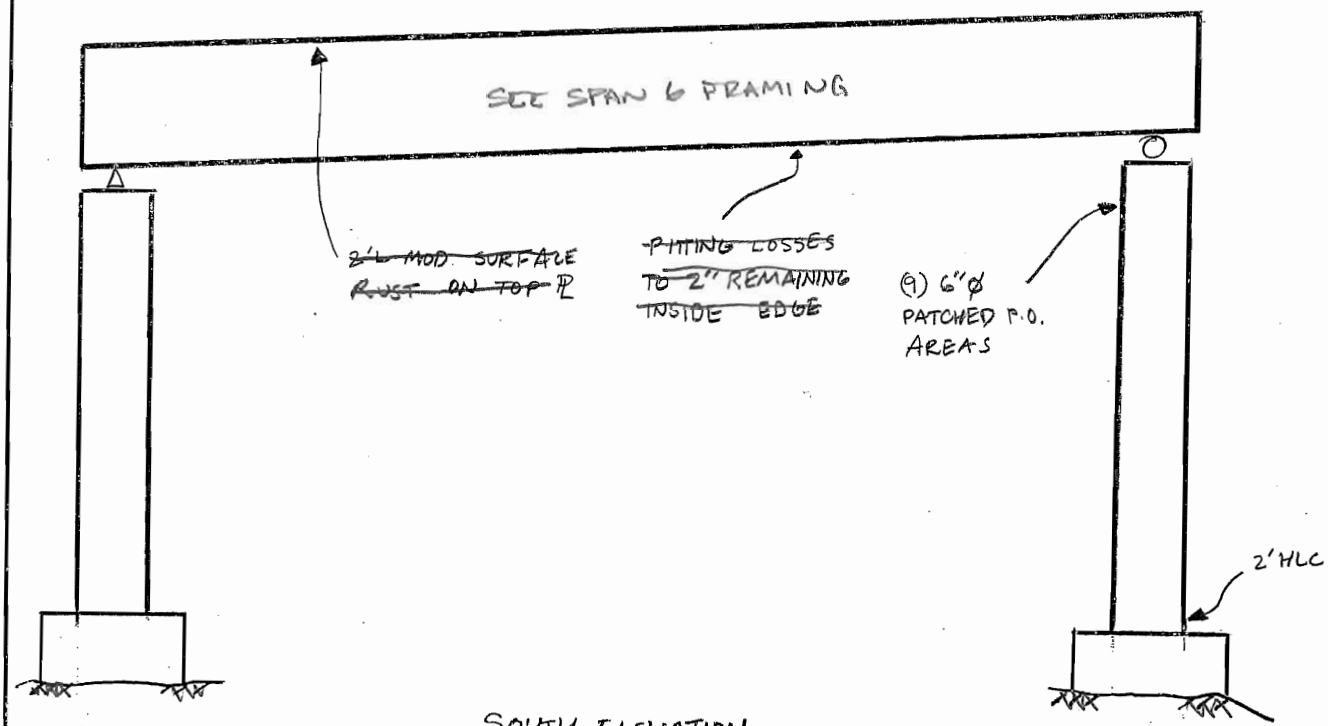
- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 5

FIELD NOTES	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~80~~ 134
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC, SW	△ 10/10/06 TDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

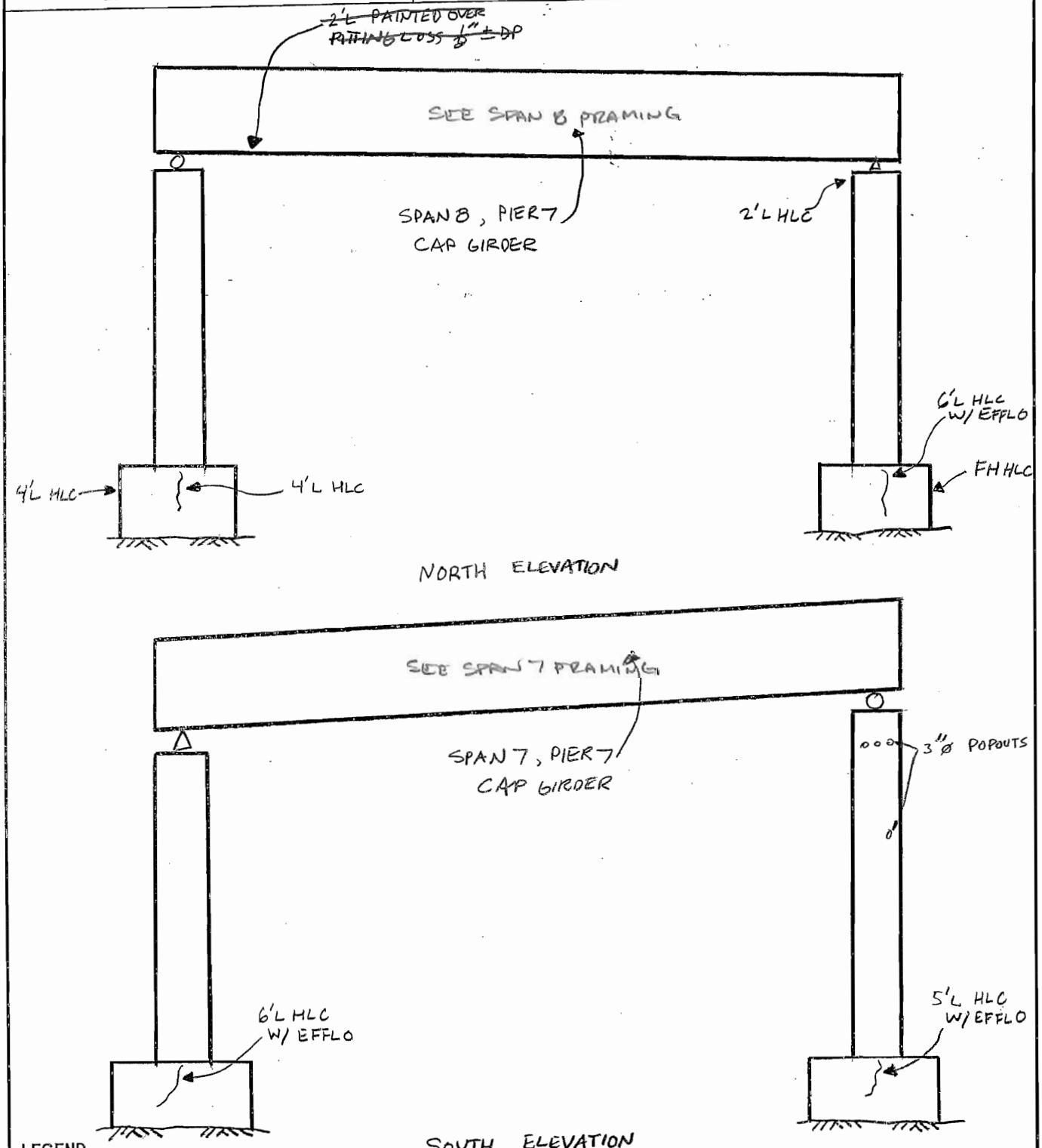
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 6

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~87~~ 135
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, SW, ML, CC	Δ 10/10/06 PDG, SW, CL, DS



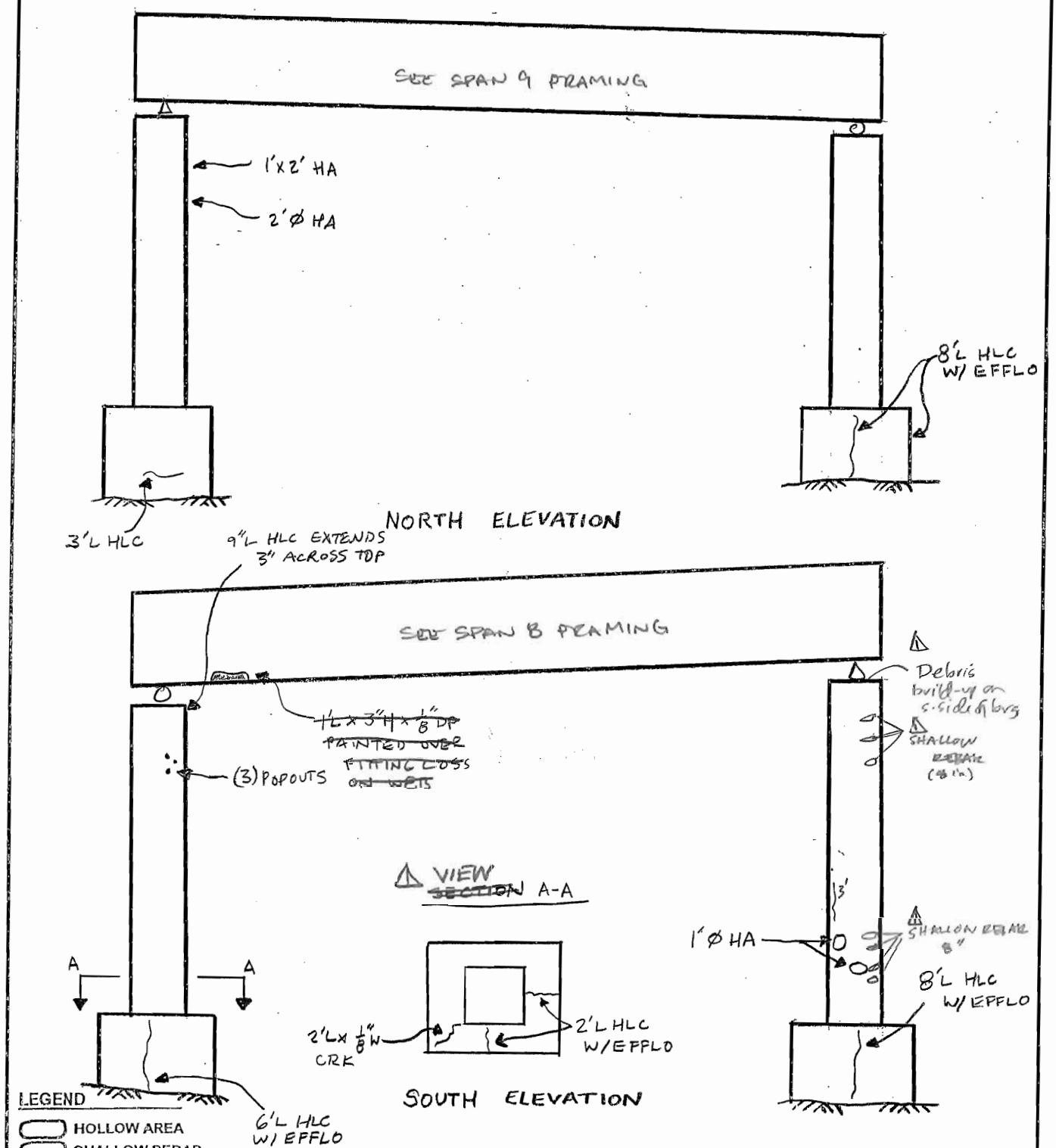
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 7

FIELD NOTES

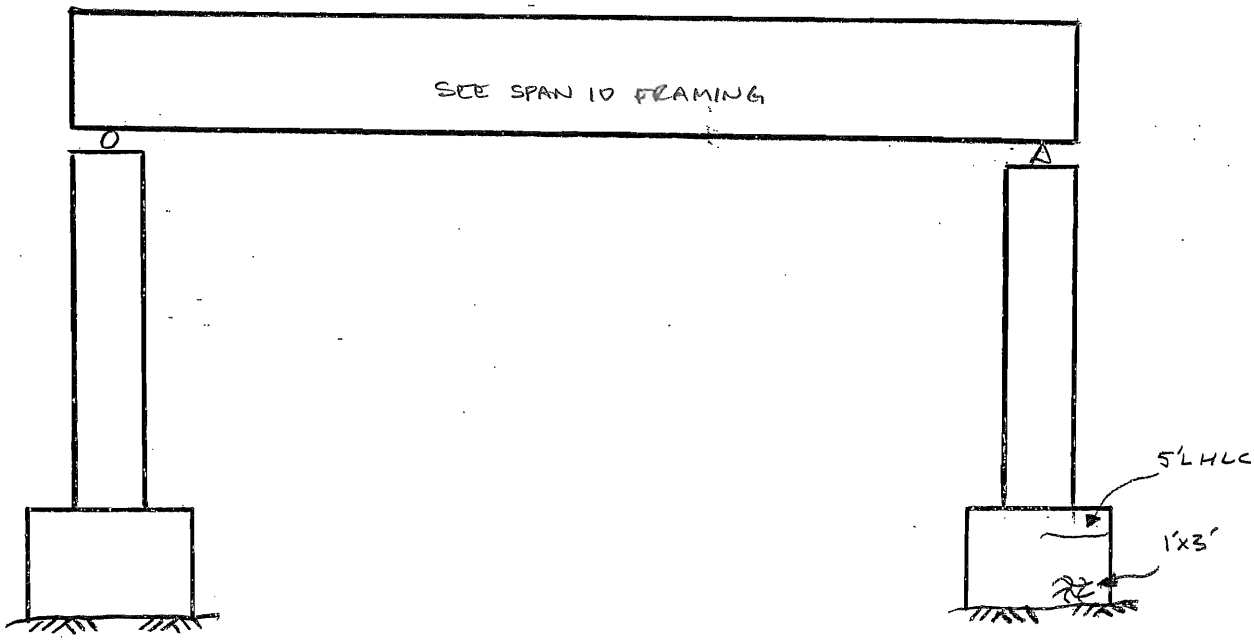
	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~28~~ 136
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC, SW	Δ 10/10/06 PDG, SW, CL, DS



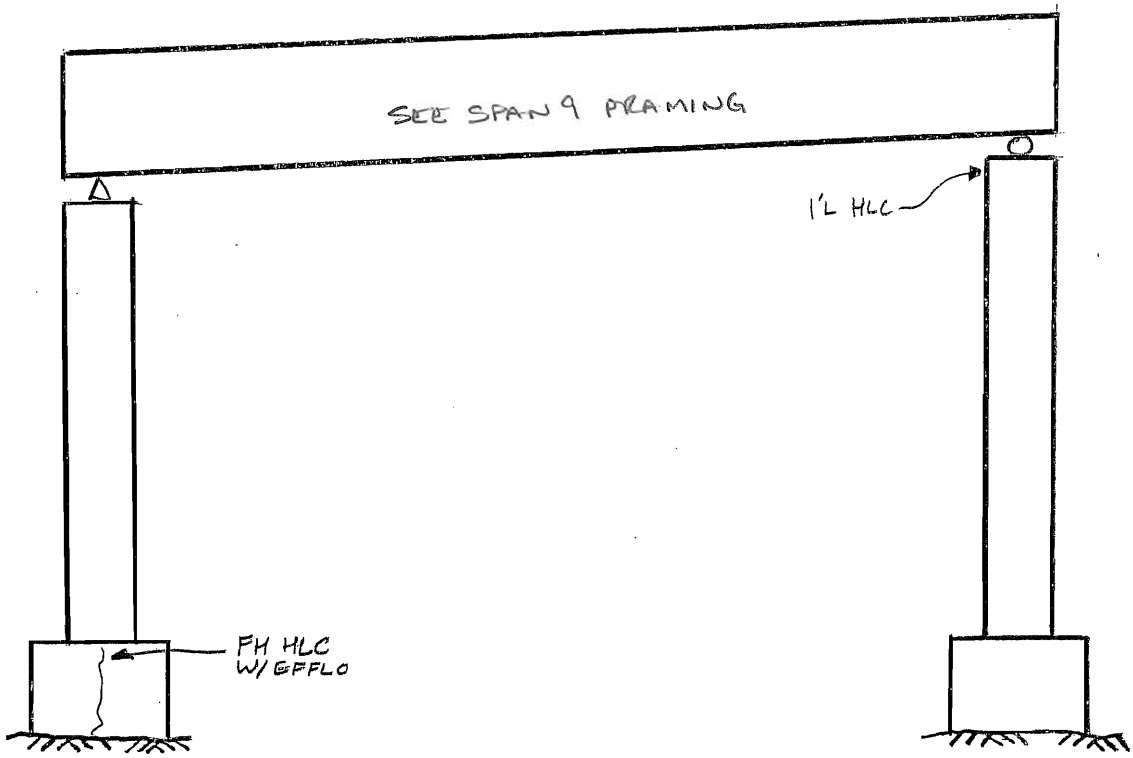
PIER 8

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/16/04	SHEET ~~8/9~~ 137
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, ML, CC, SW	△1 10/10/06 TDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

△1 NO CHANGES

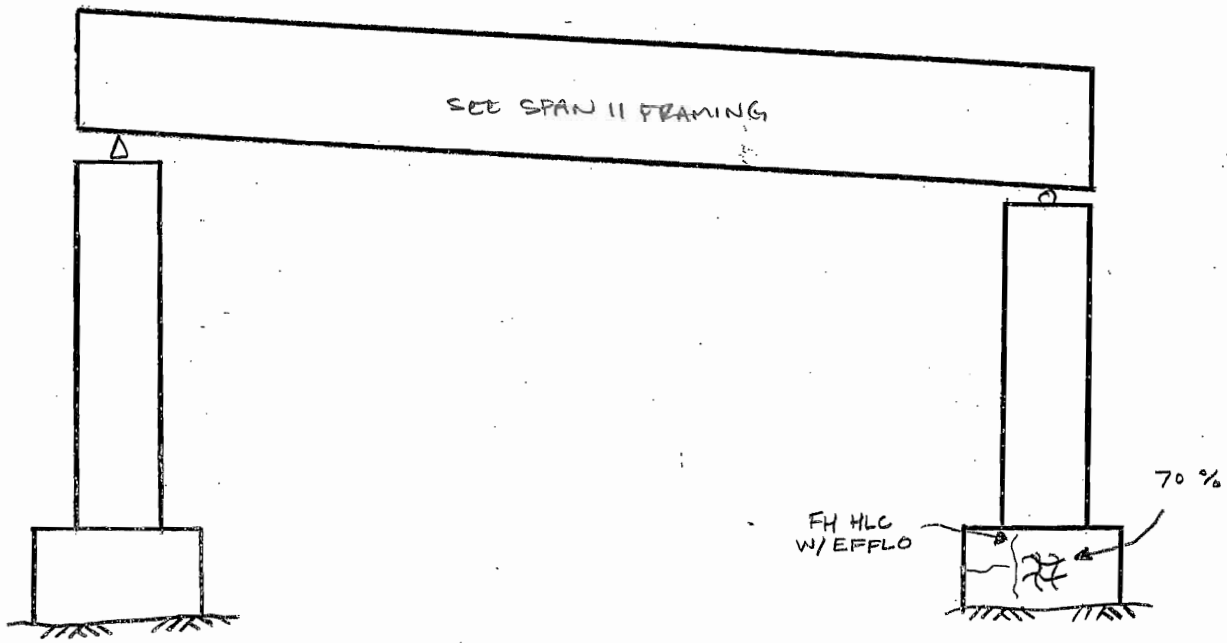
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

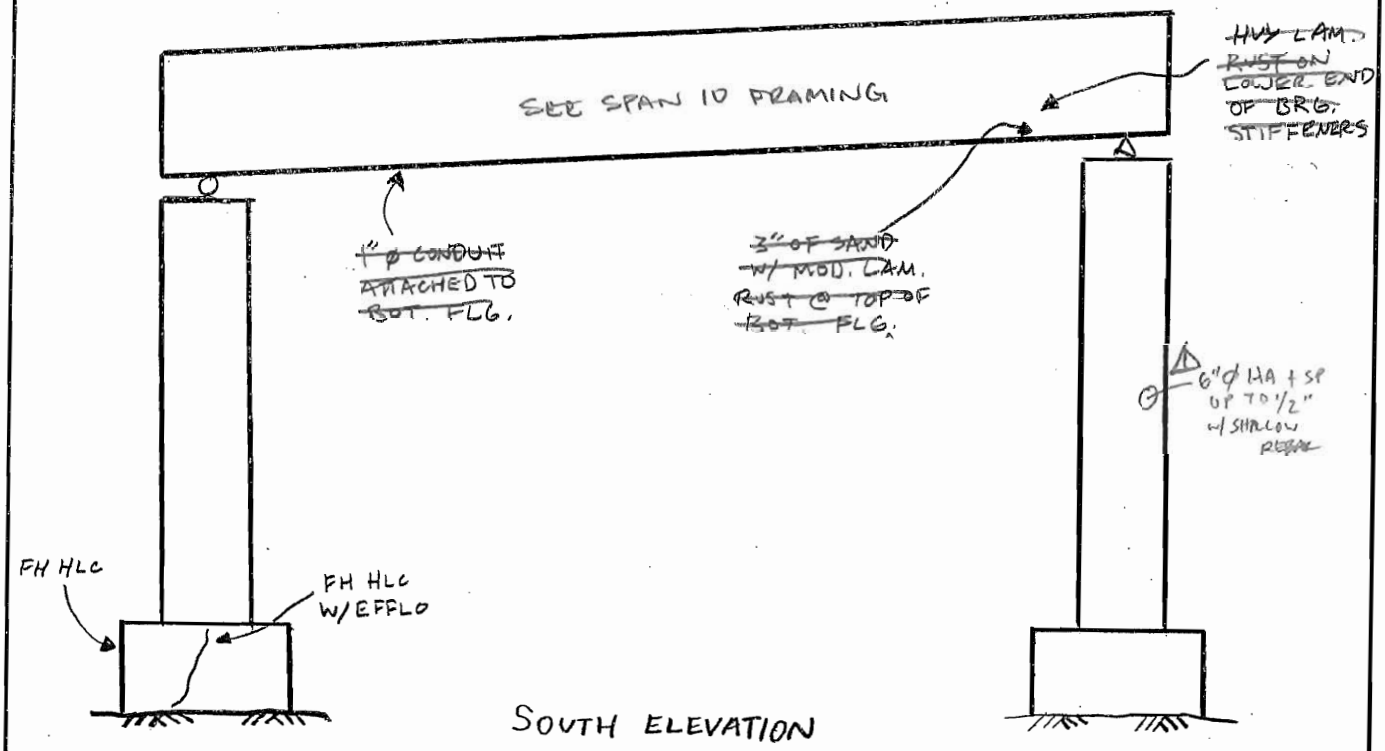
PIER 9

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/16/04	SHEET ~~9/10~~ 138
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, SW, ML, CC	△1 10/10/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

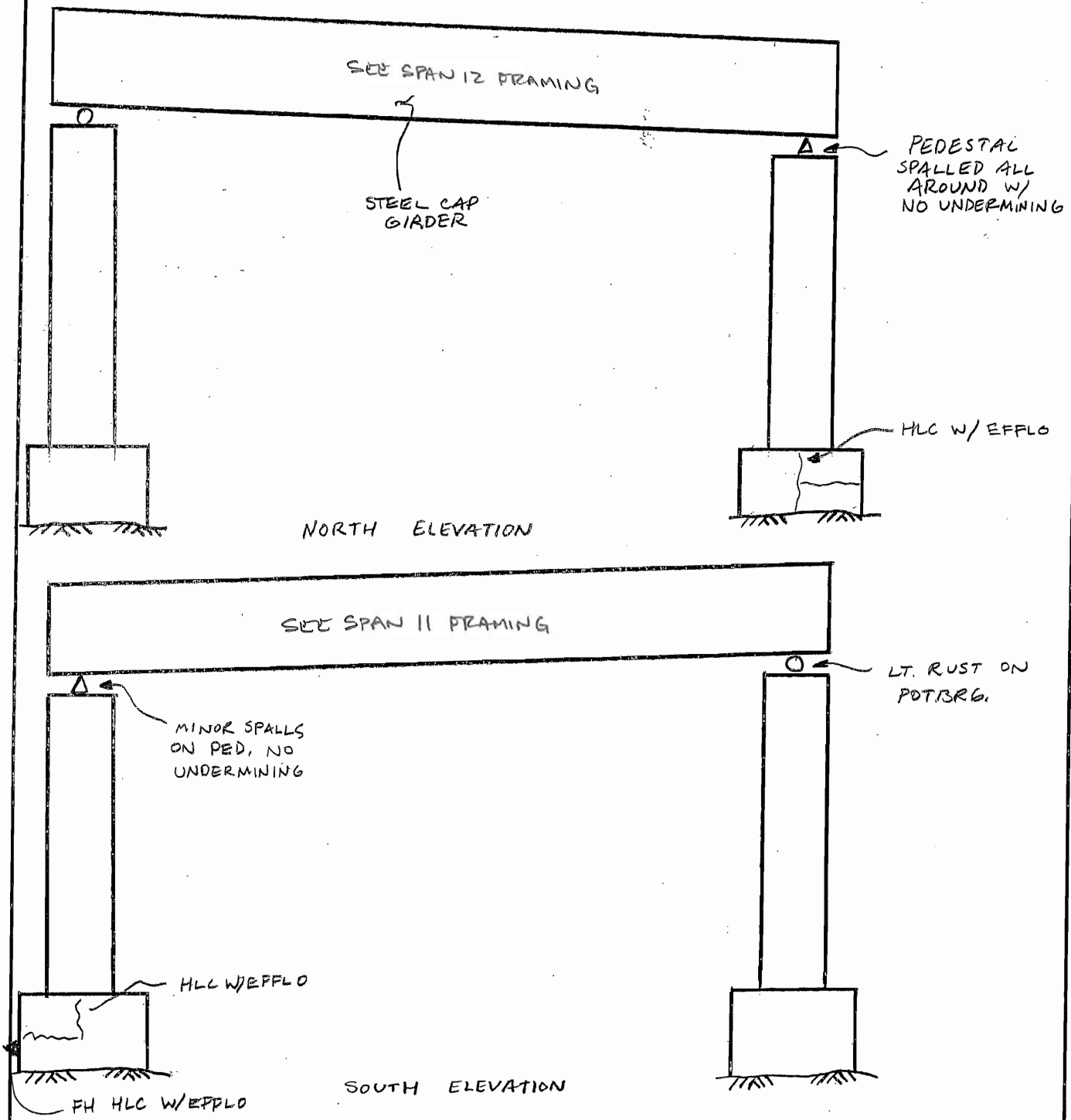
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 10

FIELD NOTES

FIELD NOTES	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/16/04	SHEET 9/X 139
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PG, ML, SW, CC	△1 10/10/06 PDG, SW, CL, DS



△1 NO CHANGES

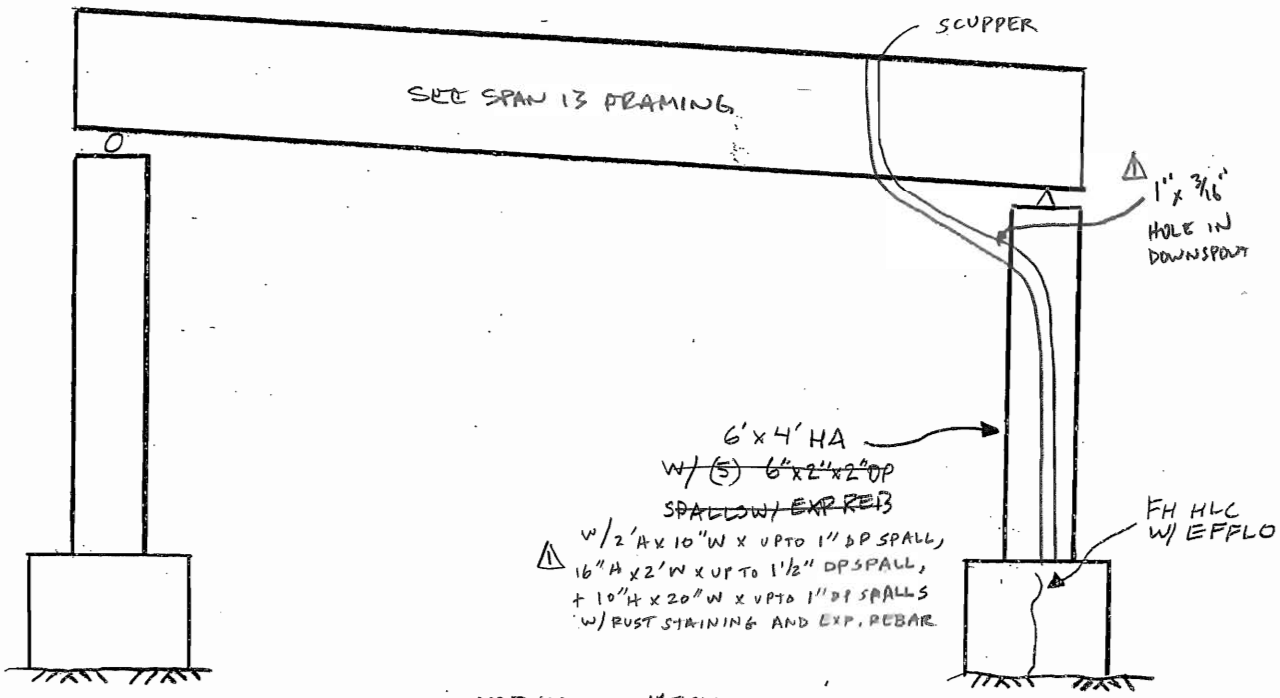
PIER 11

LEGEND

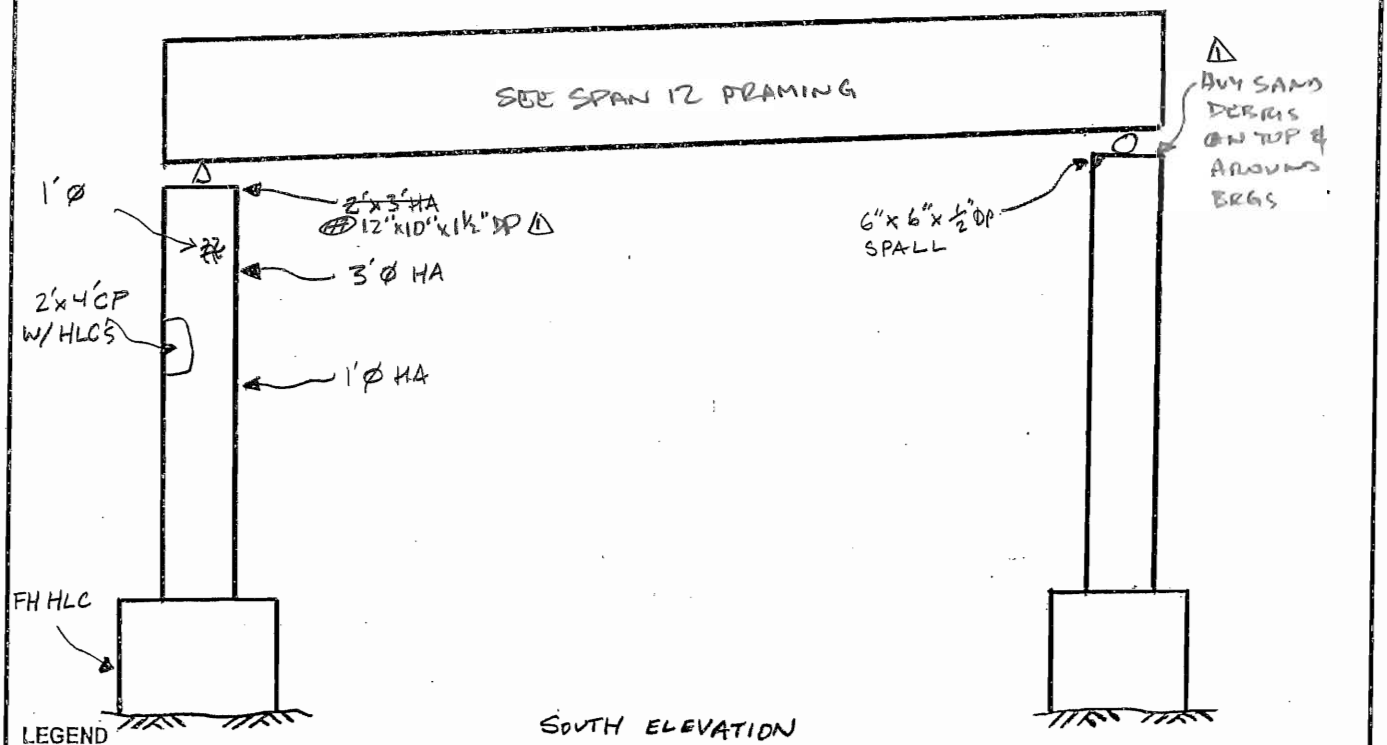
- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/16/04	SHEET ~~12~~ 14
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, CC, ML, SW	△1 10/10/06 TDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

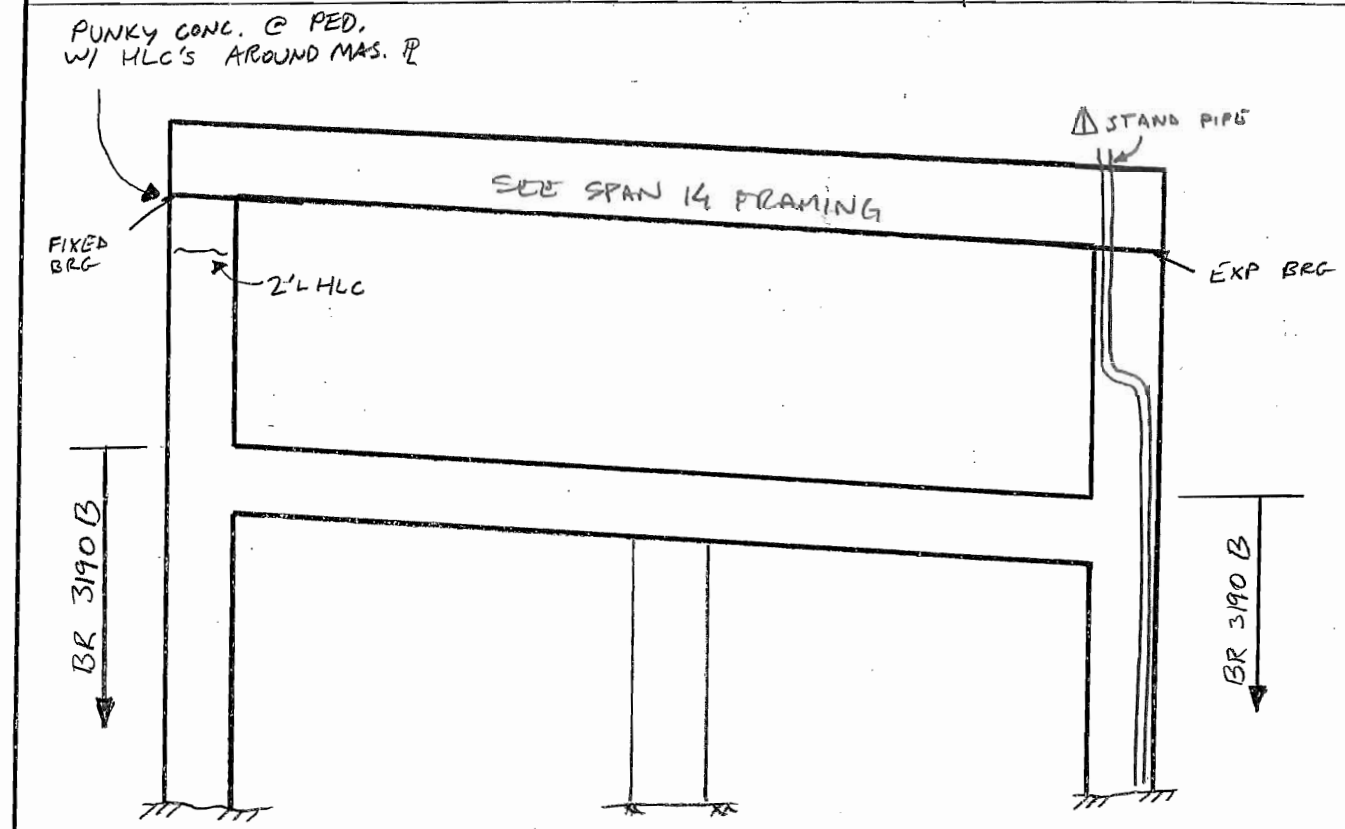
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

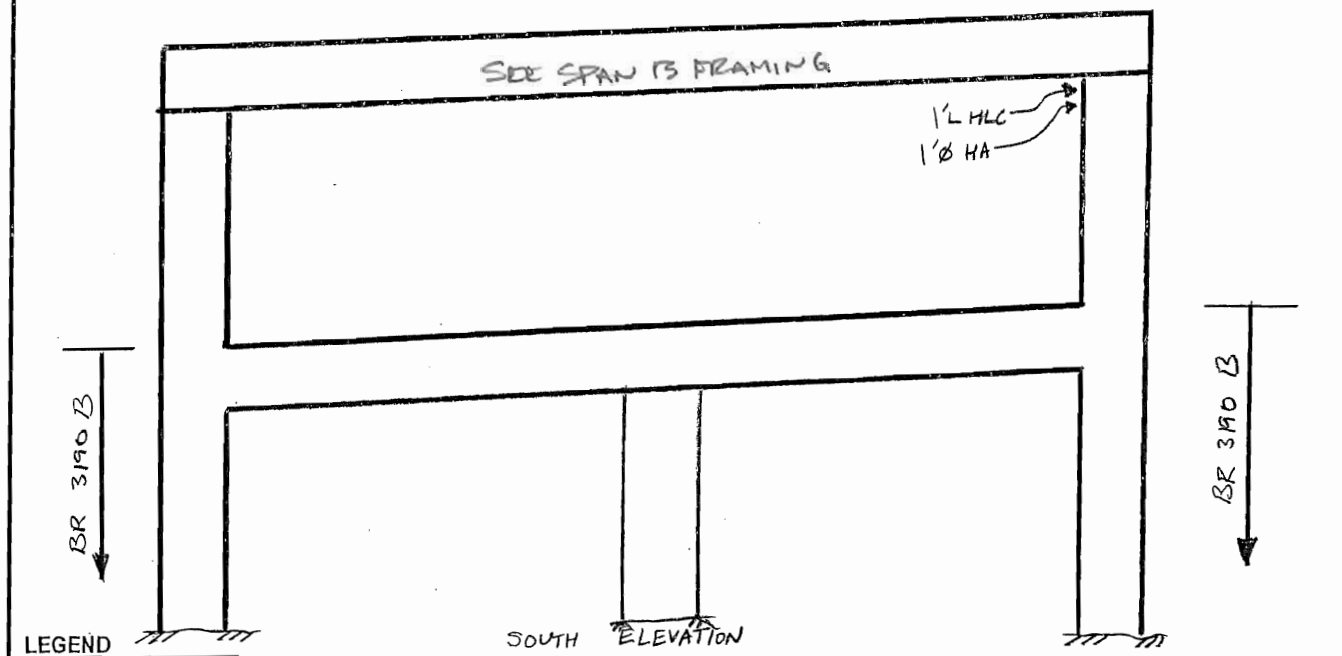
PIER 12

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET 9B 141
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC	△1 10/11/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

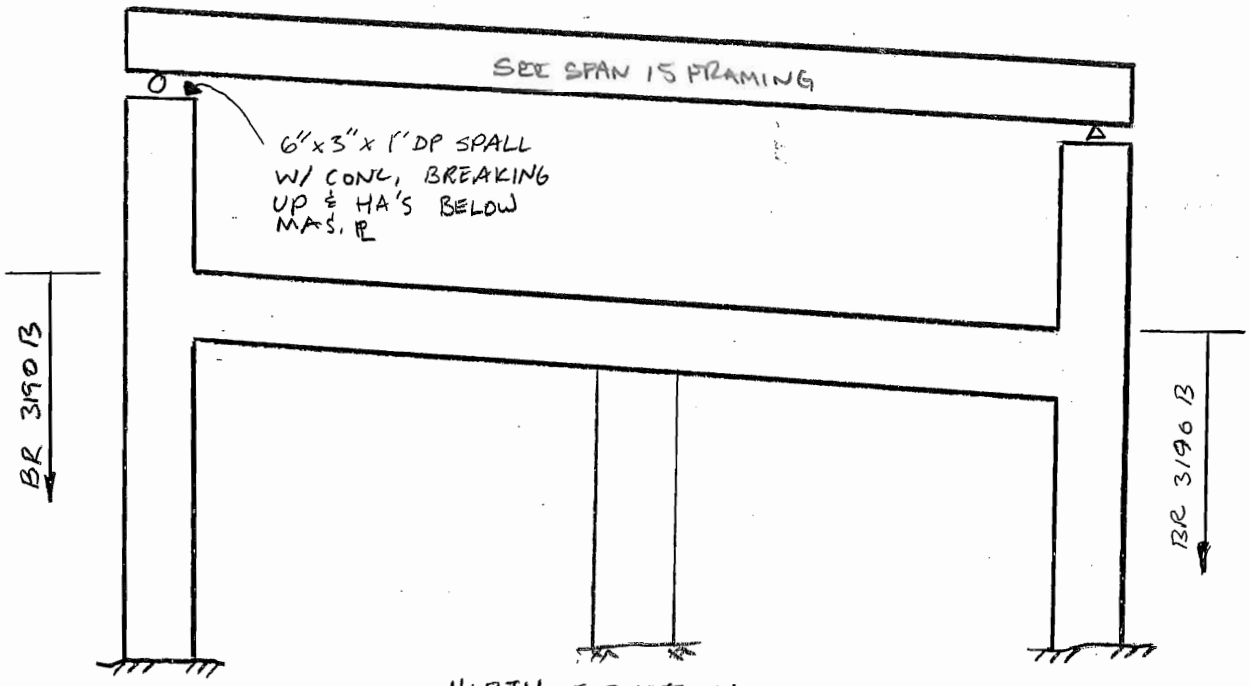
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

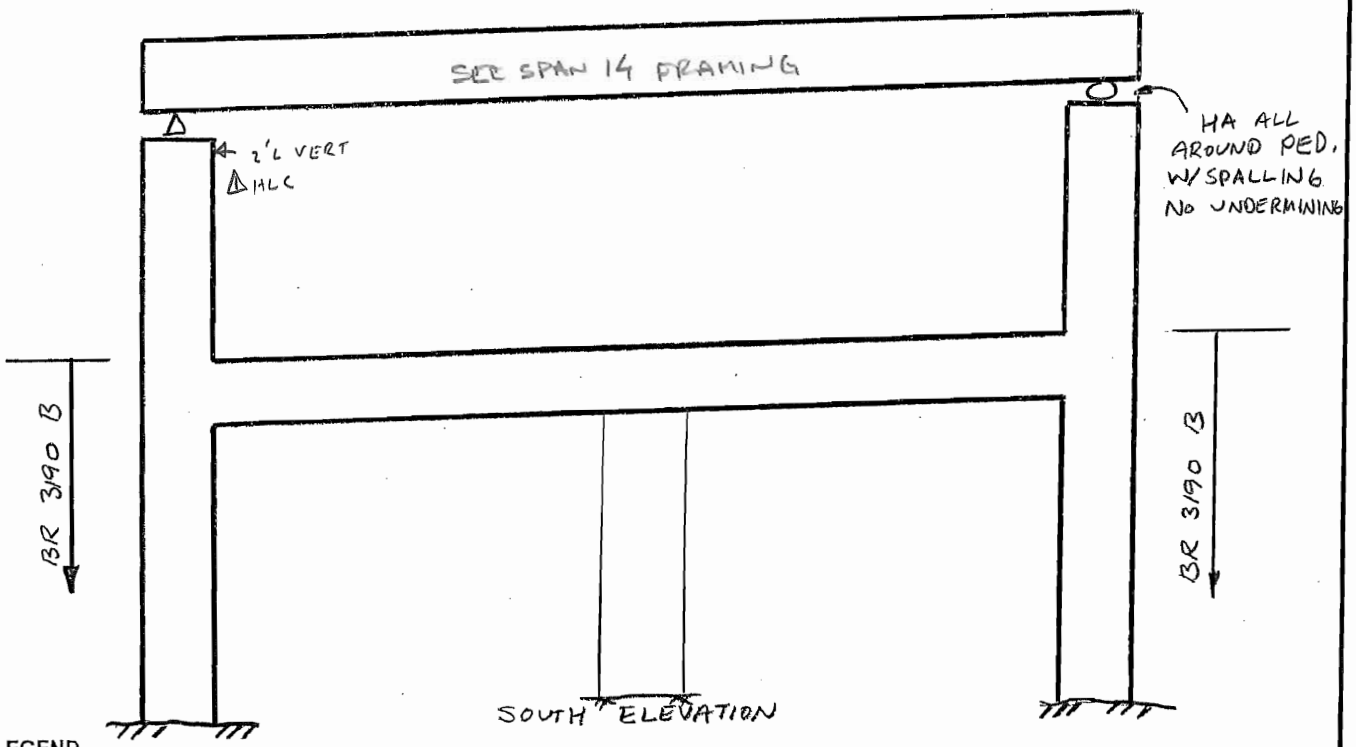
PIER 13

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~8~~ 142
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC	△1 10/11/06 PDG, SM, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

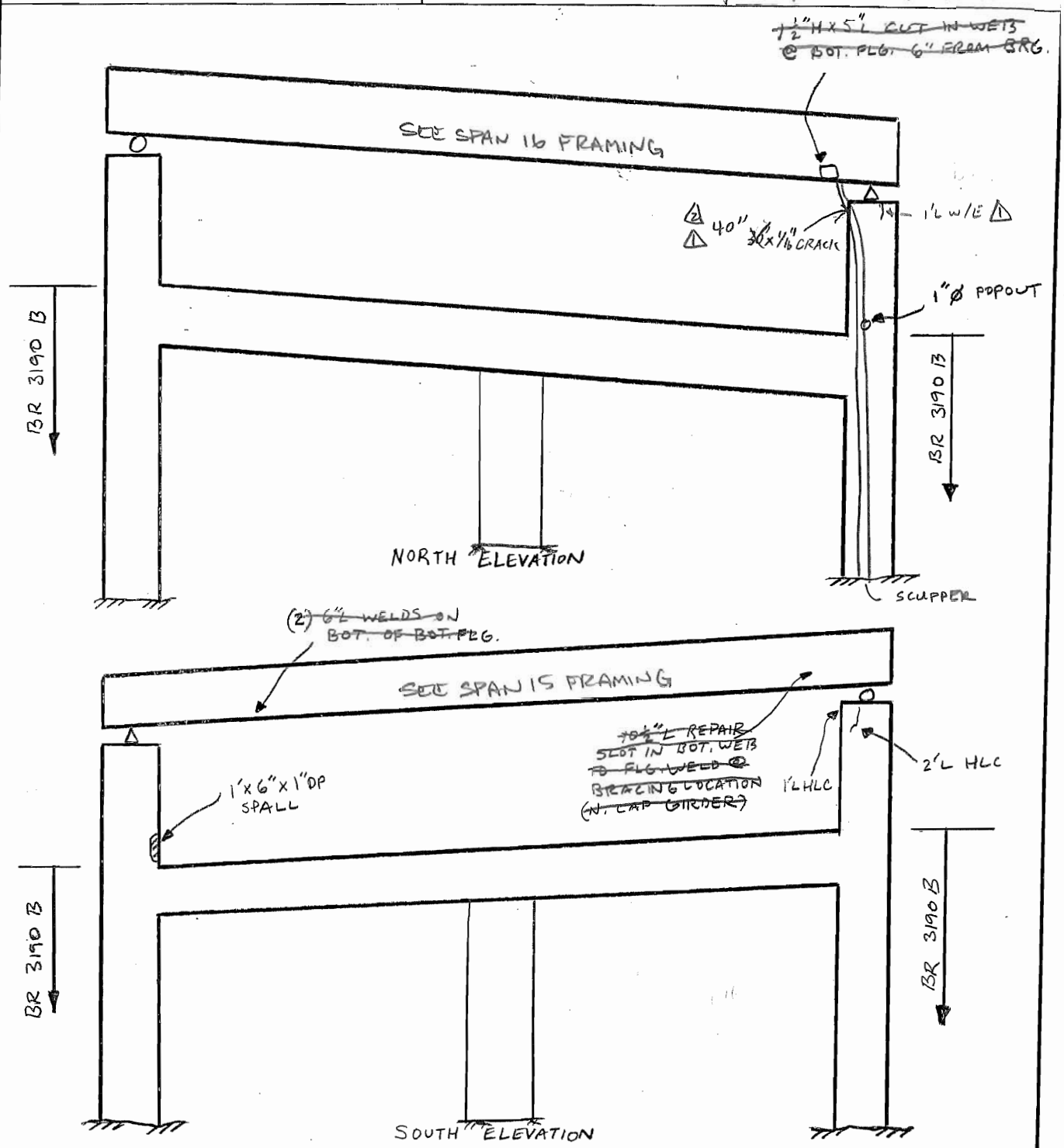
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 14

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~8/5~~ 143
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC	△ 10/11/06 PDG, SW, CL, DS



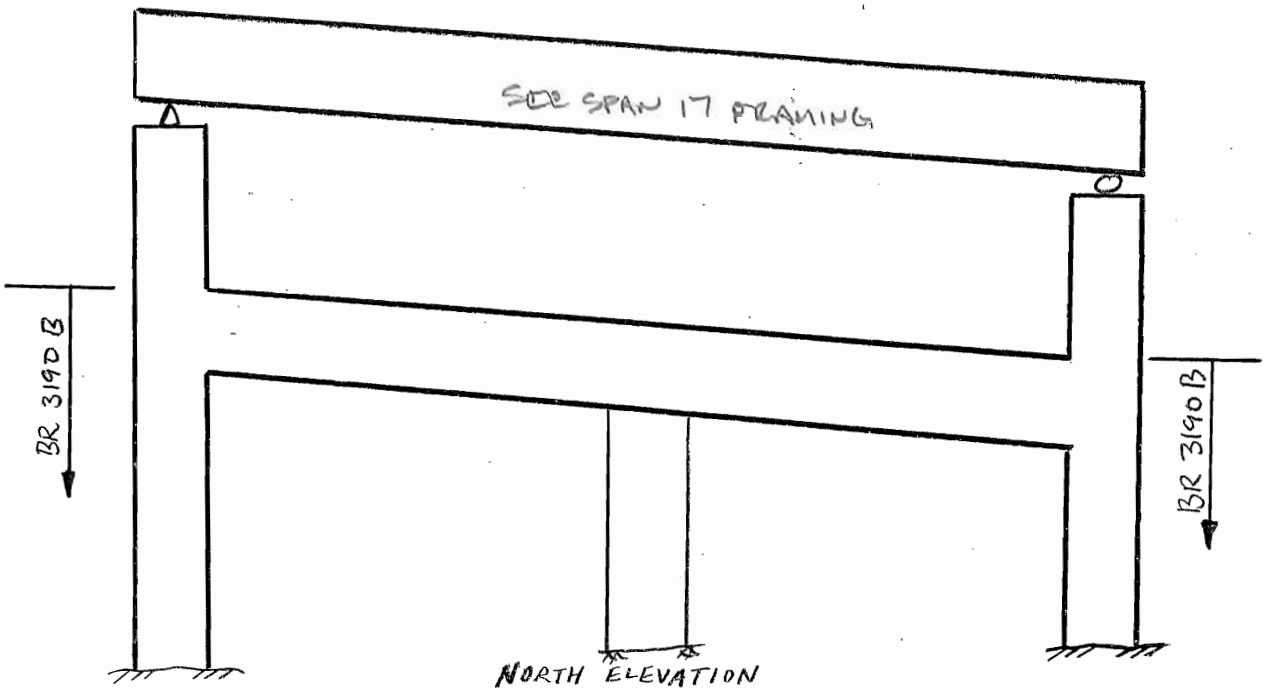
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

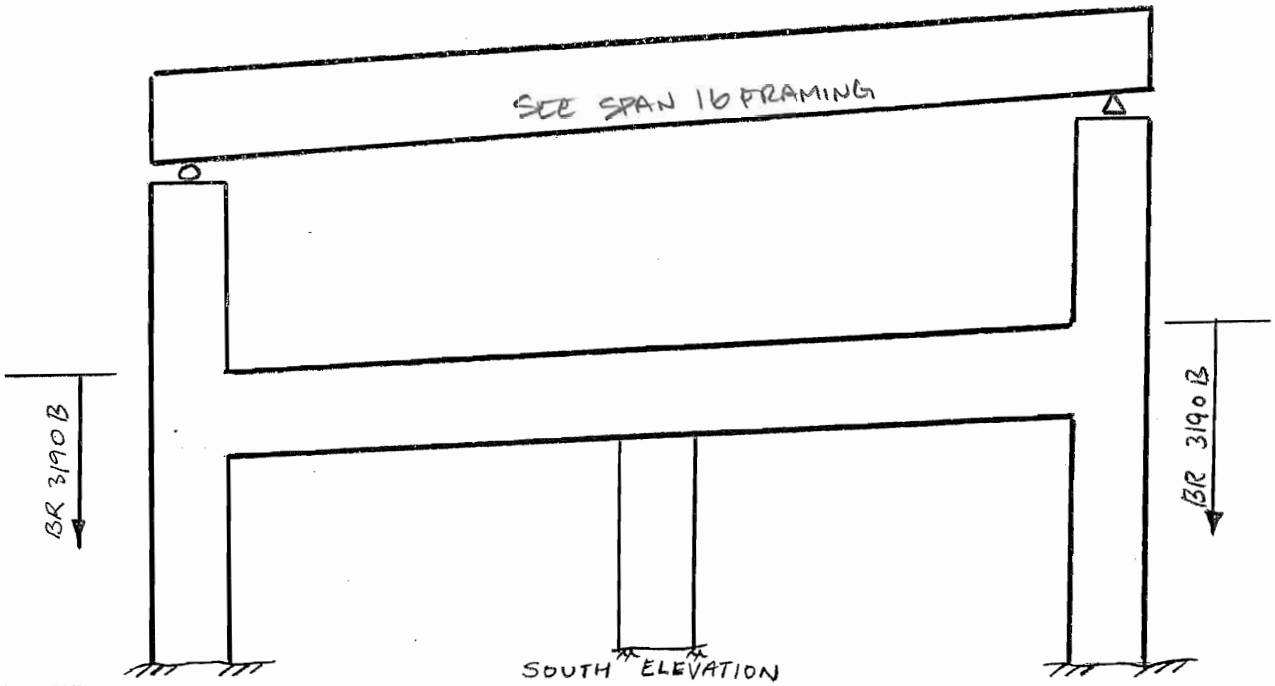
PIER 15

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~96~~ 144
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC	△1 10/11/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

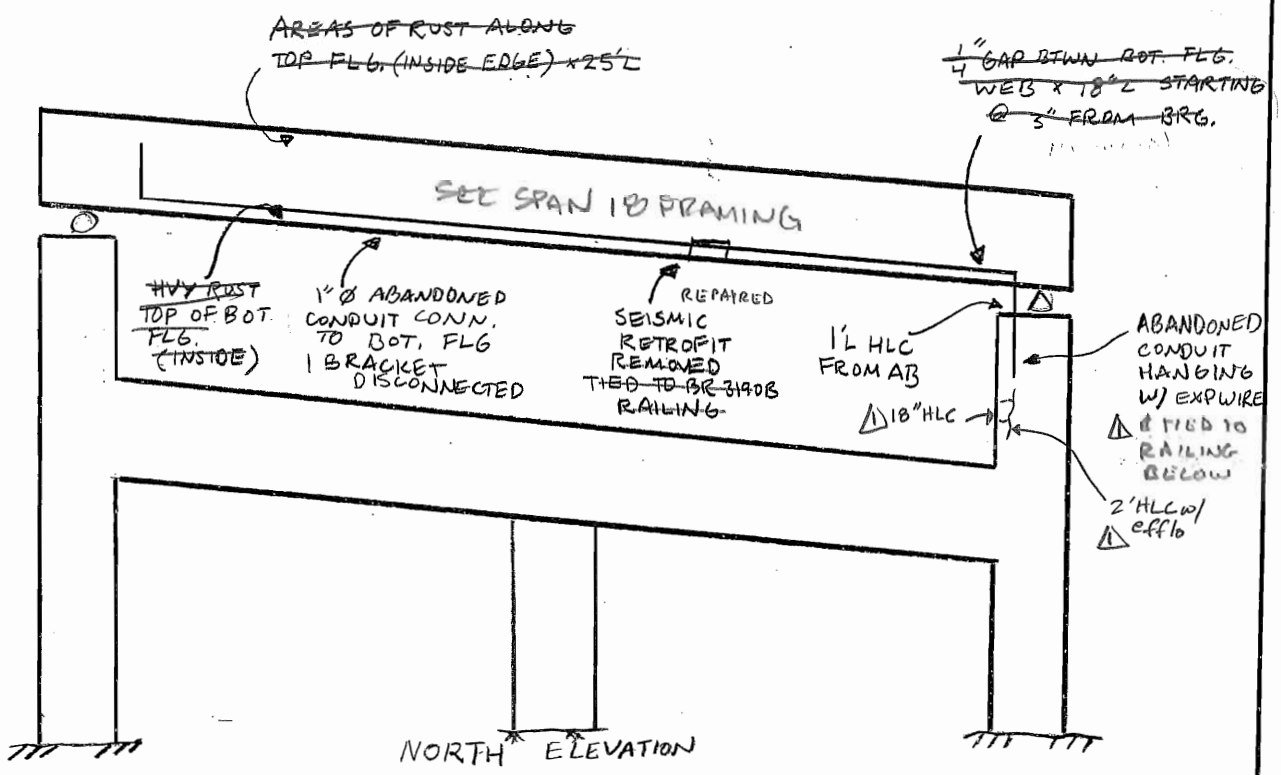
PIER 16

NO NOTABLE DEFICIENCIES

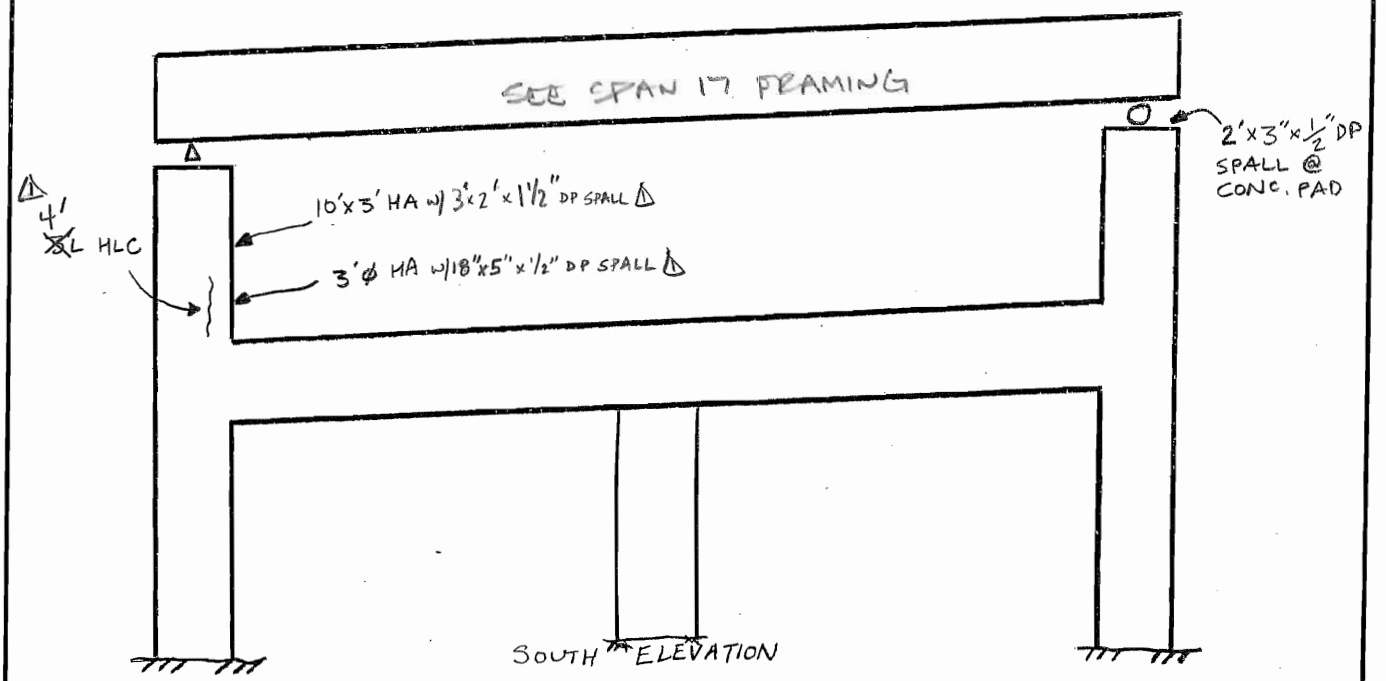
△1 NO CHANGES

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~97~~ 145
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC	△ 10/11/06 TDG, SM, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

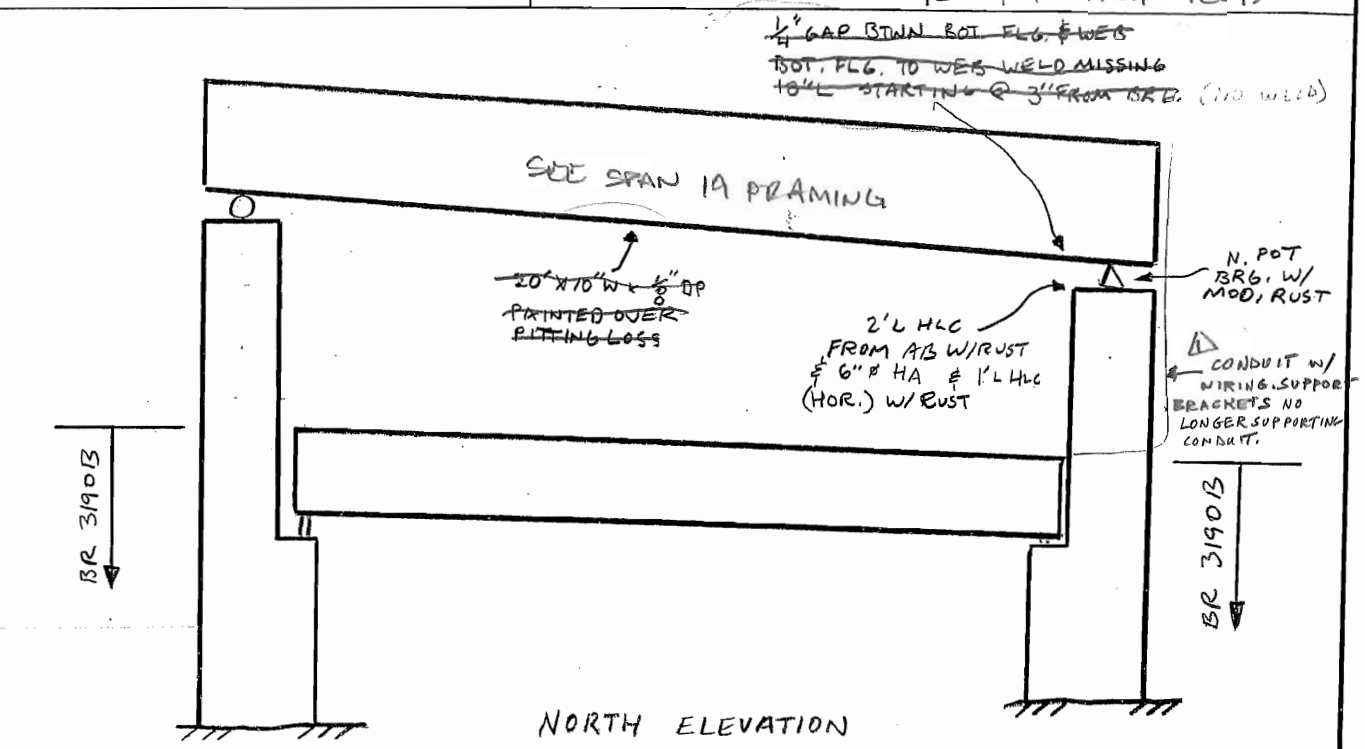
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

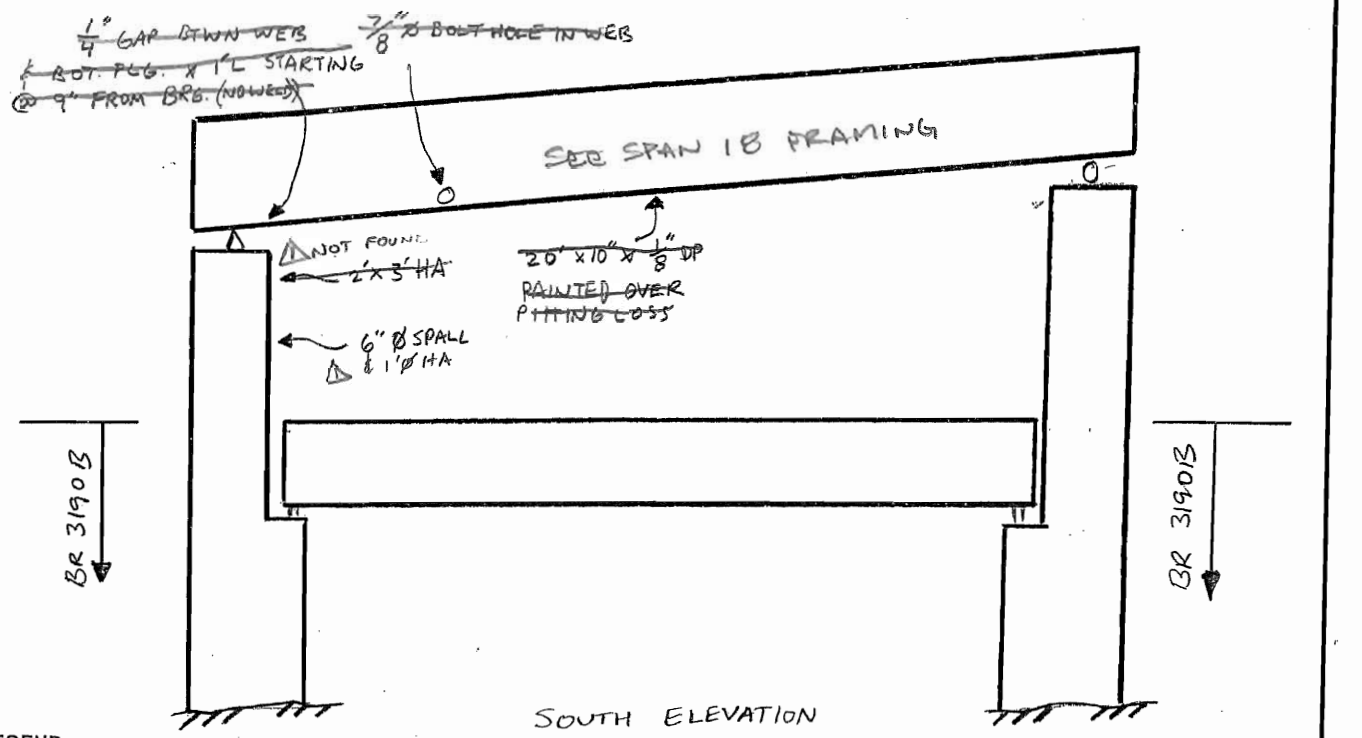
PIER 17

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~98~~ 146
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC	△ 10/11/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

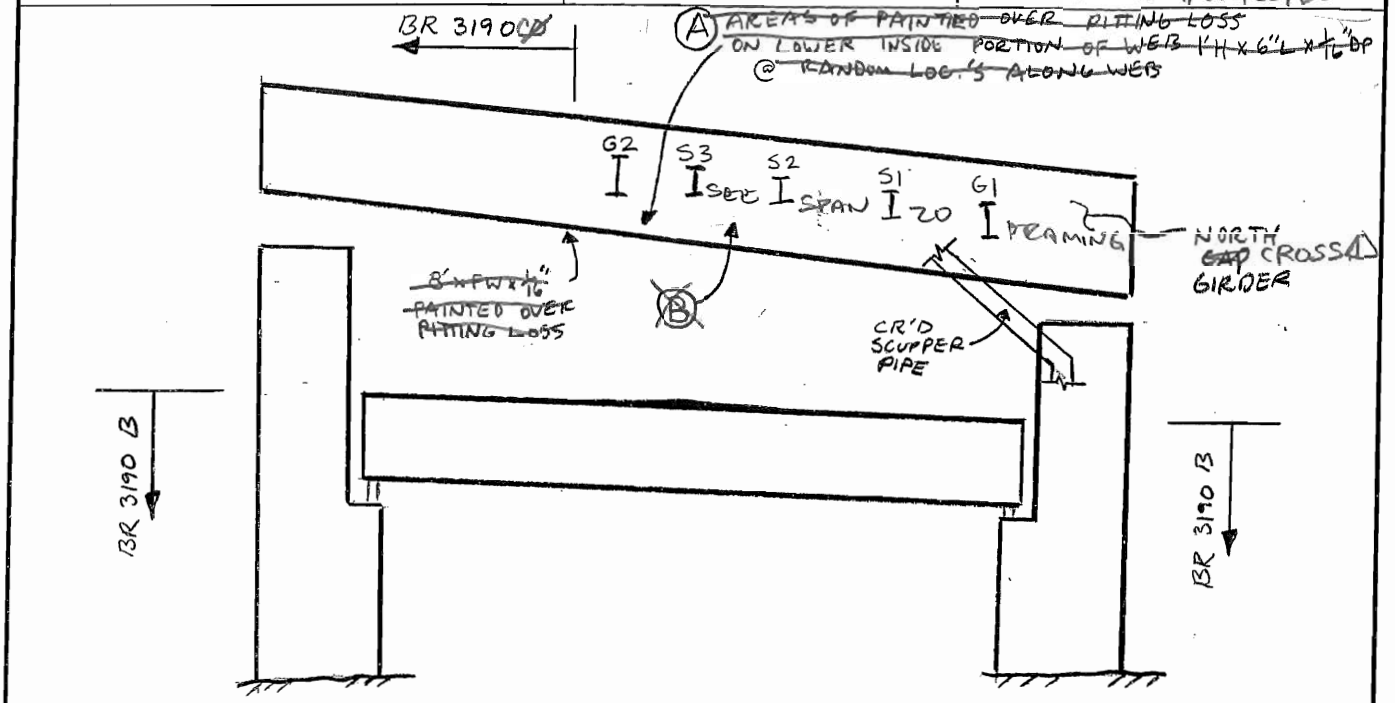
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

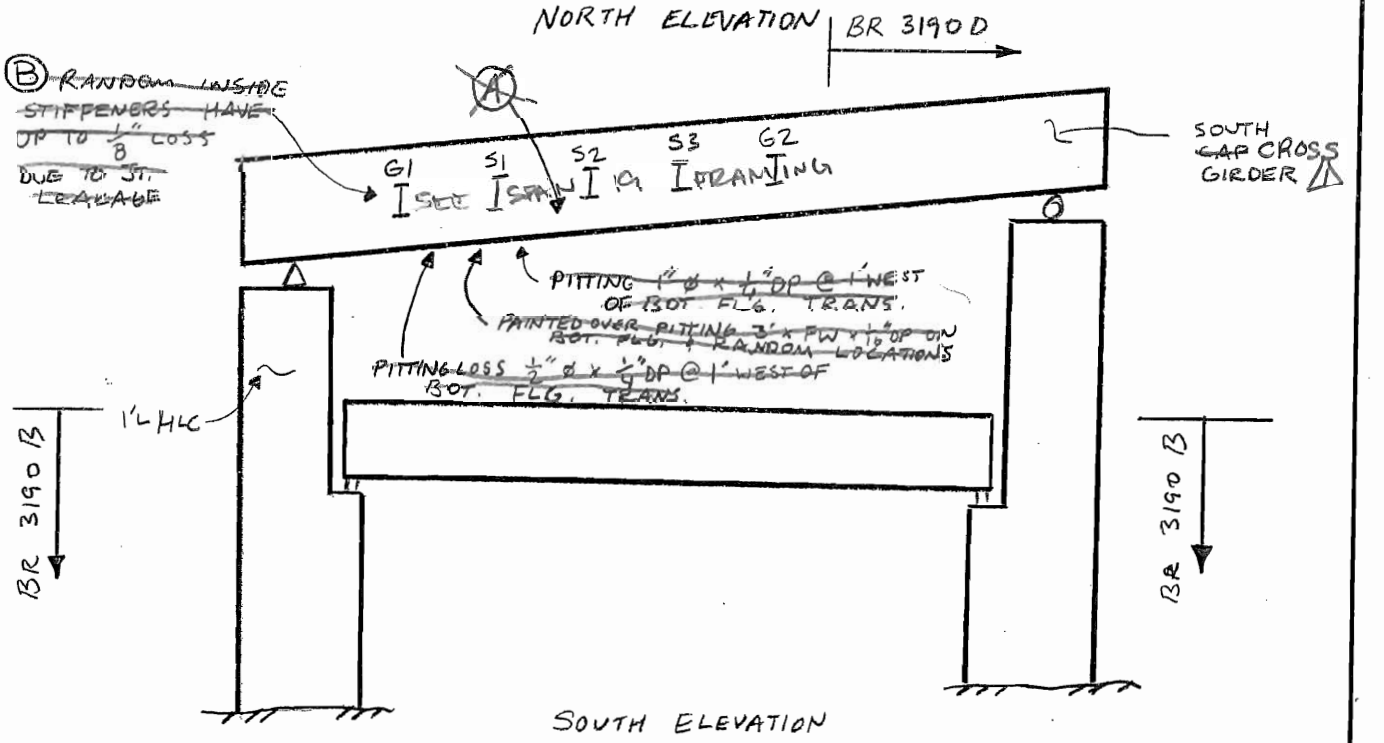
PIER 18

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~89~~ 147
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC	△1 10/12/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

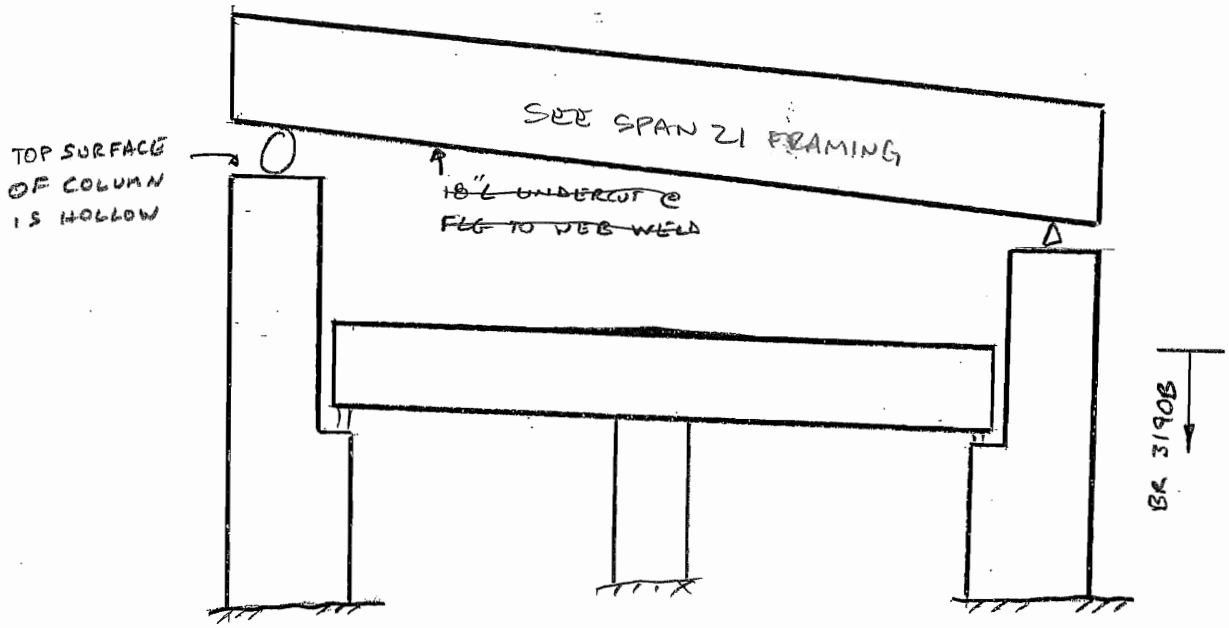
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

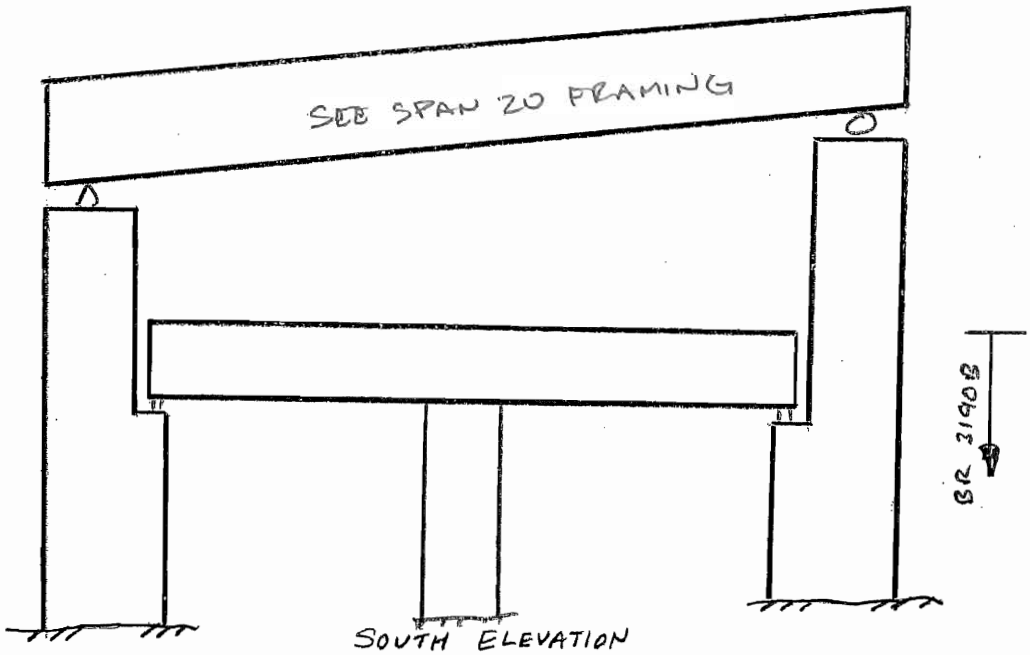
PIER 19

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/17/04	SHEET ~~100~~ 148
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC, SW	△1 10/12/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

△1 NO CHANGES

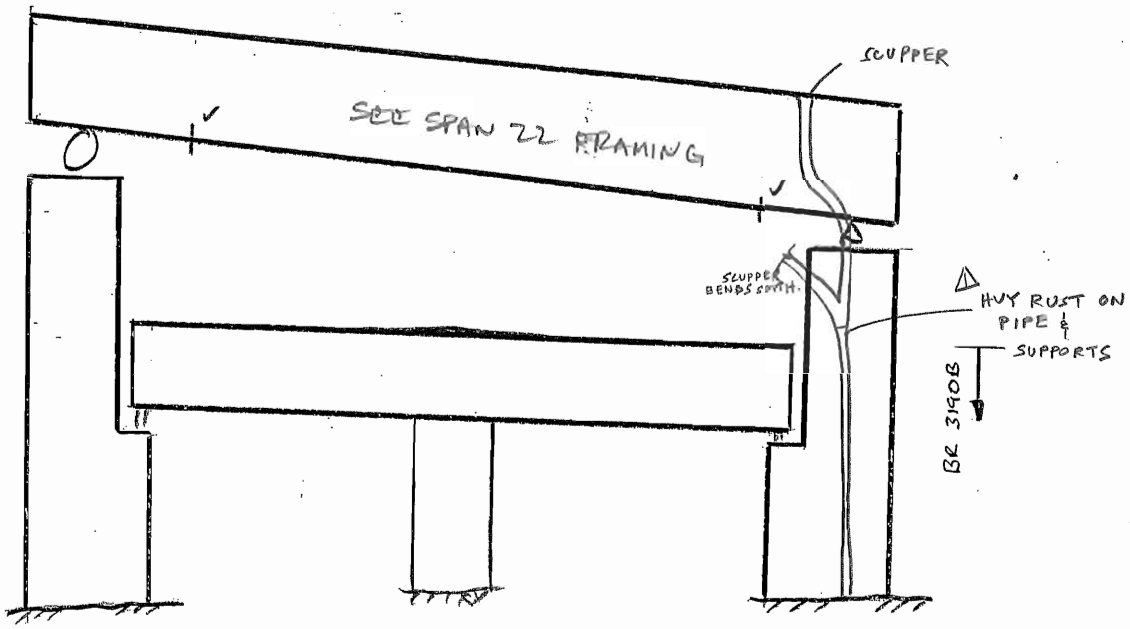
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

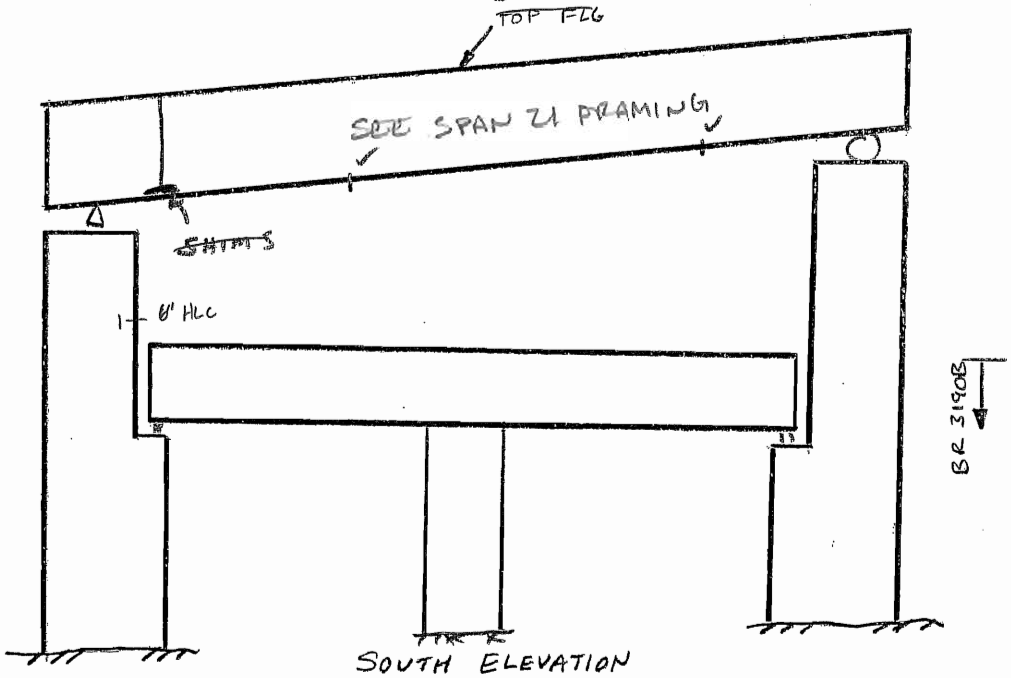
PIER 20

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~101~~ 149
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC, SW	△1 10/12/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

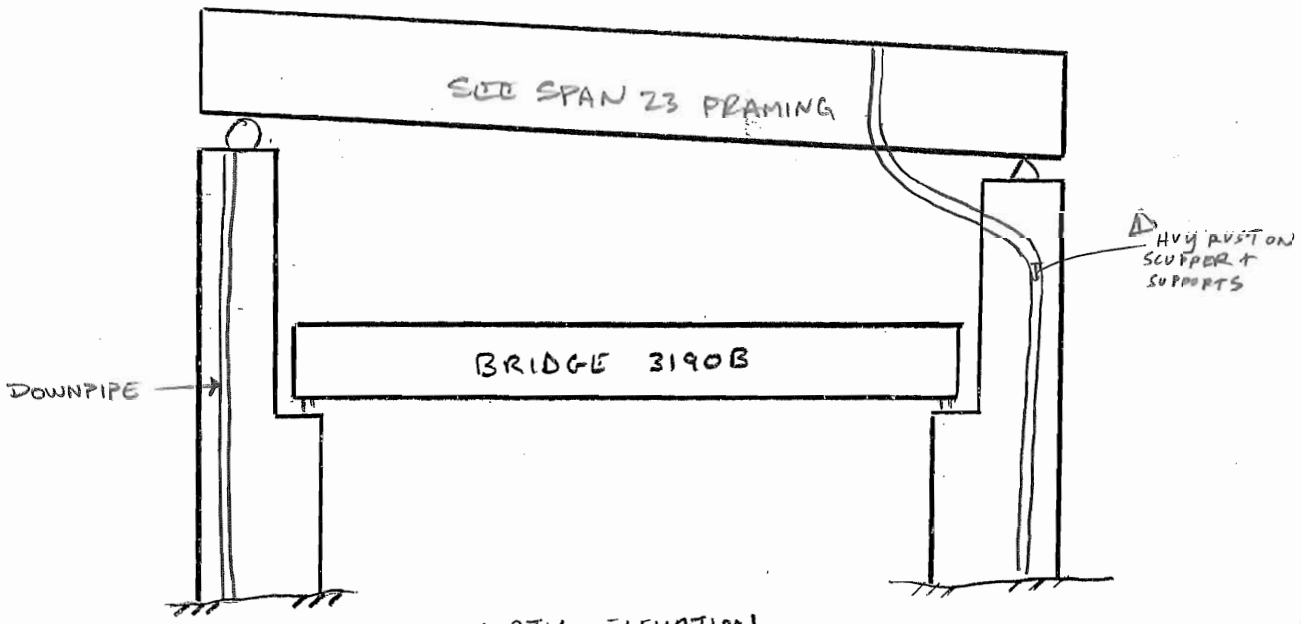
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

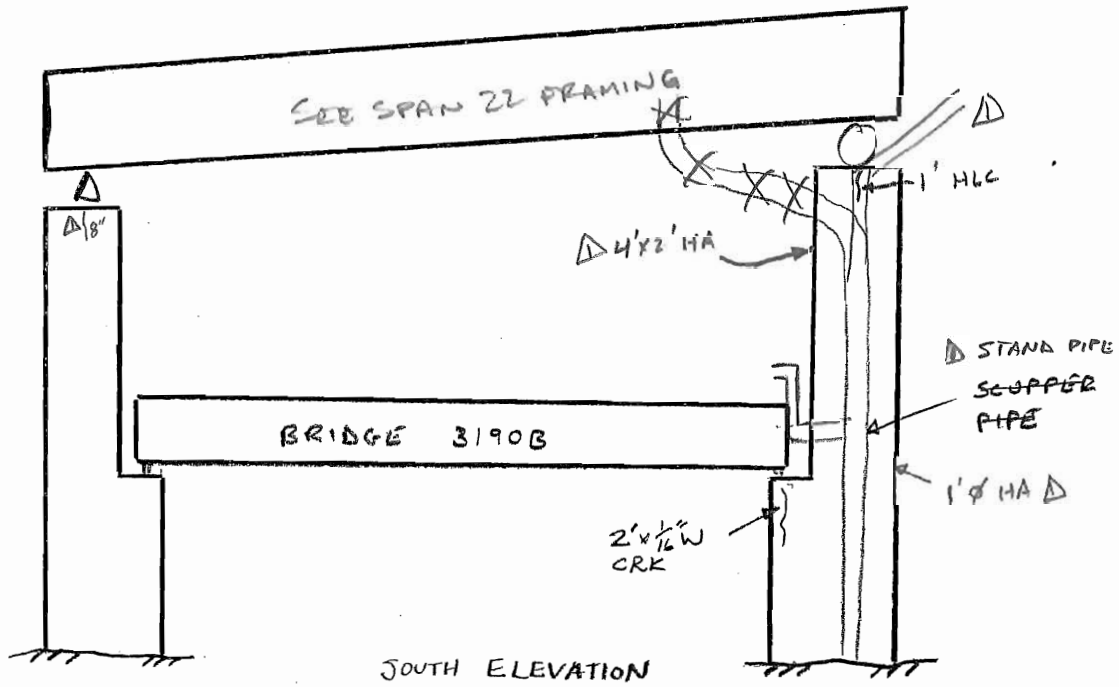
PIER 21

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~102~~ 150
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, SW, ML, CC	△1 10/12/06 FDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

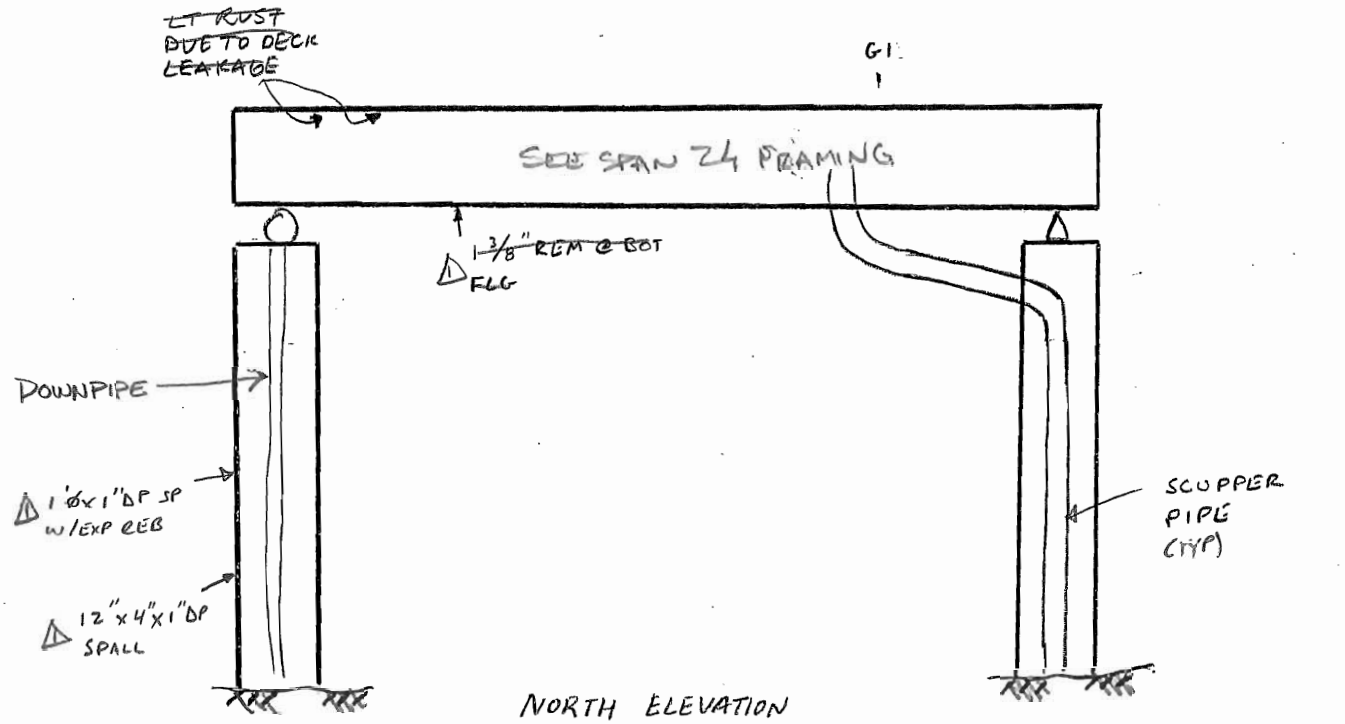
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

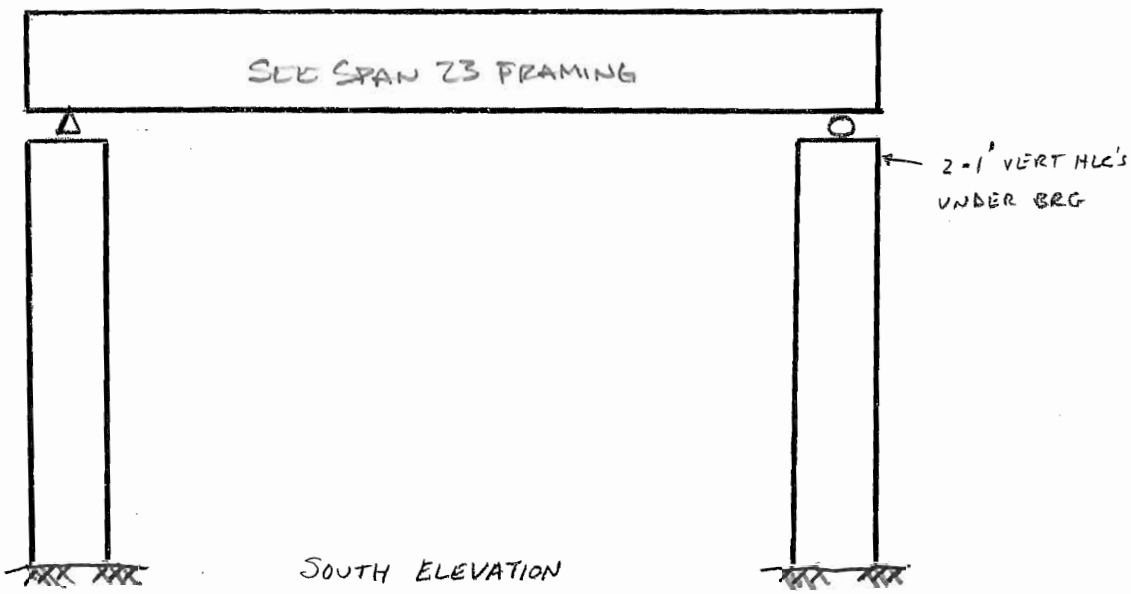
PIER 22

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190A ~~3090A~~
	DATE 11/15/04	SHEET ~~103~~ 151
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, SW, ML, CC	△ 10/12/06 PDG, SW, CL, DS



NORTH ELEVATION



SOUTH ELEVATION

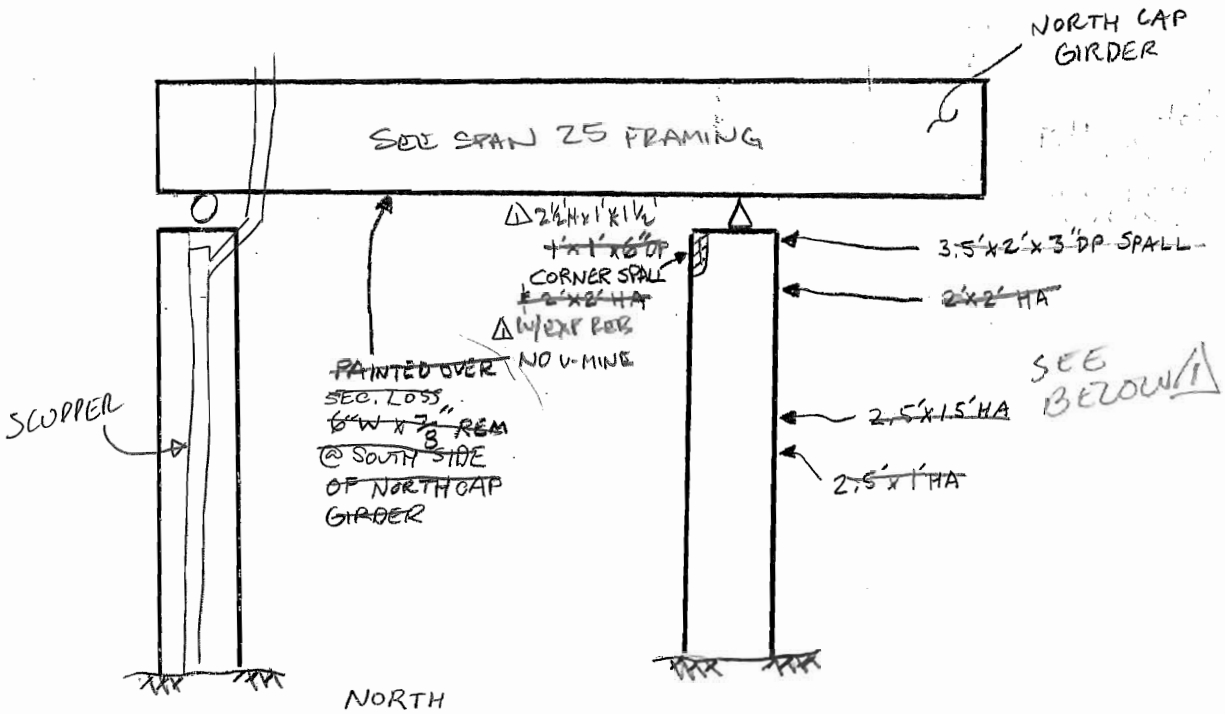
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

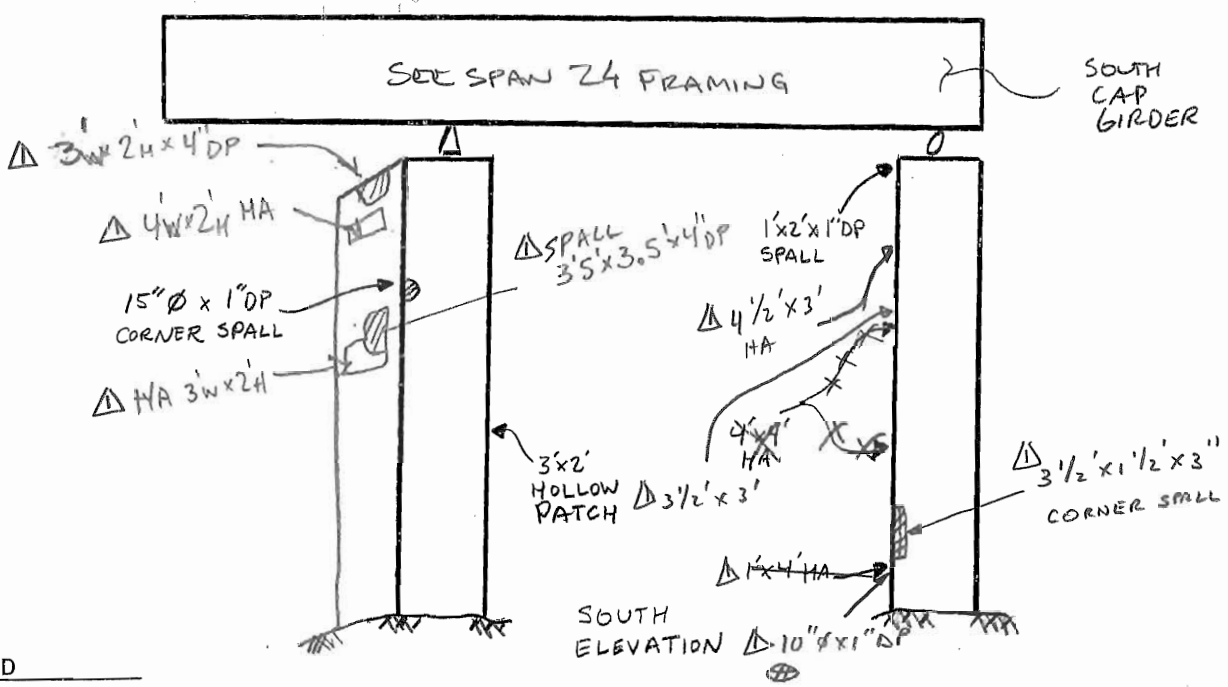
PIER 23

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/15/04	SHEET ~~104~~ 152
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FM, ML, CC, SW	△1 10/12/06 PDG, SW, CL, DS, DLC



NORTH ELEVATION



SOUTH ELEVATION

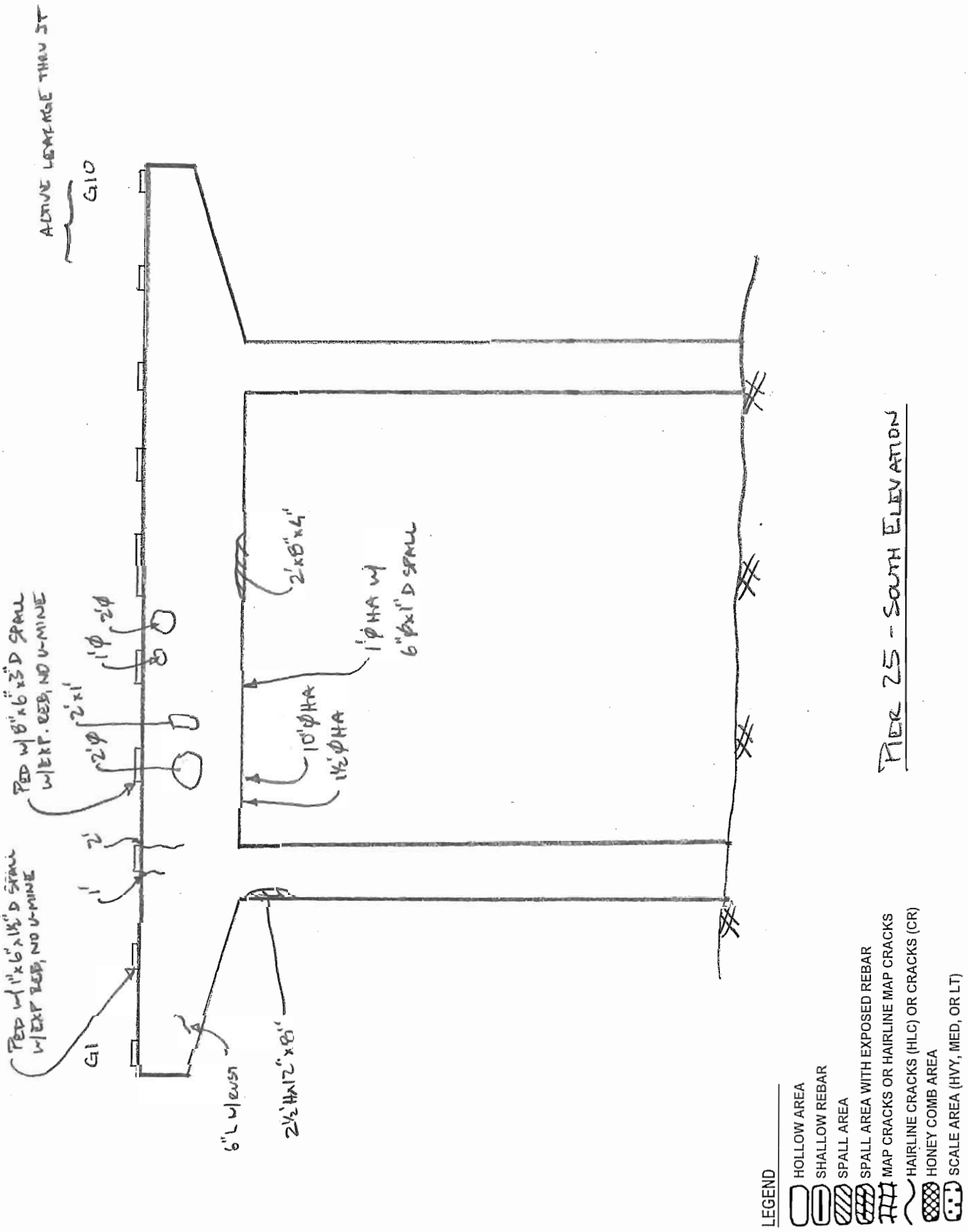
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 24

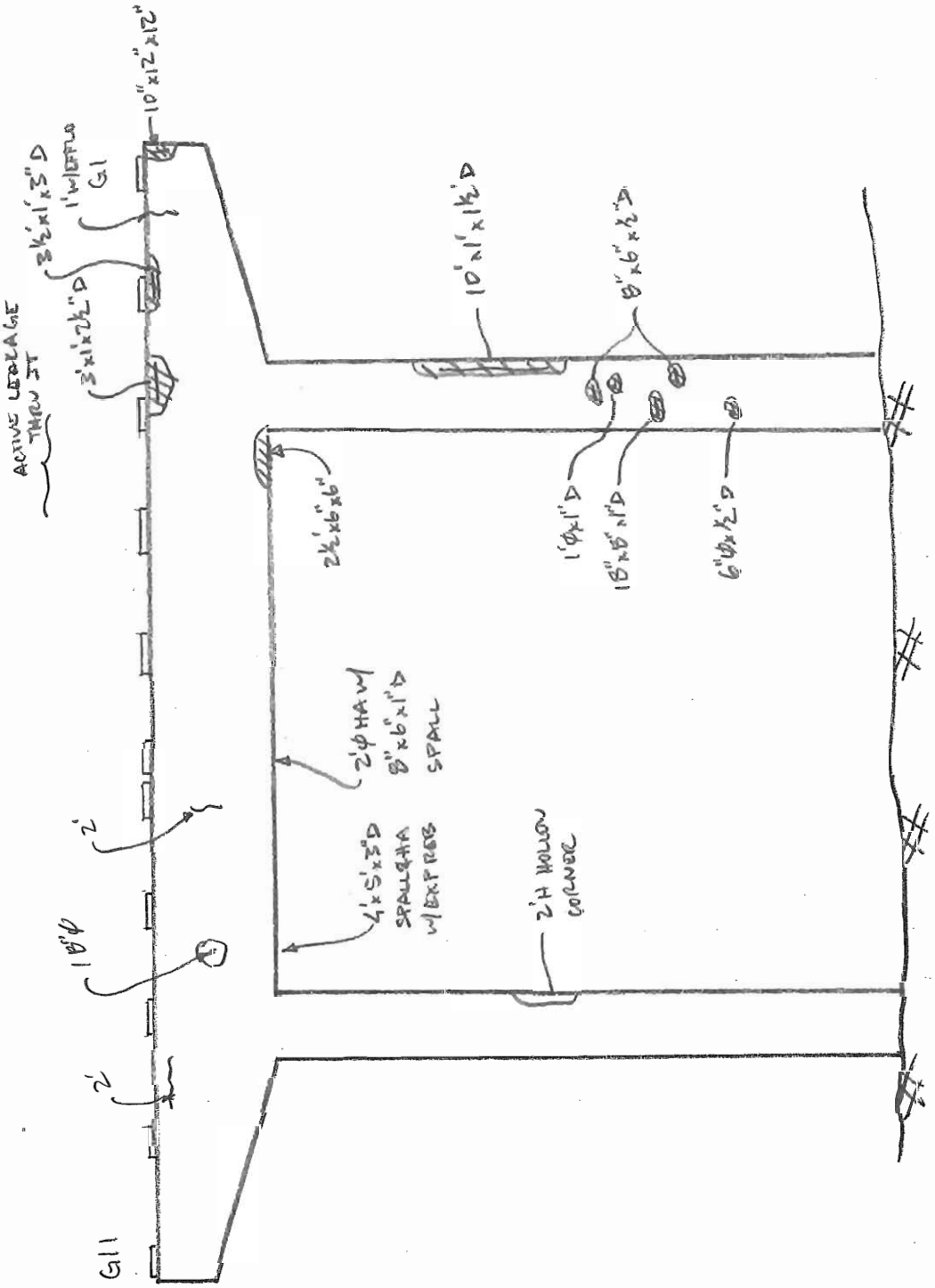
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 319DA
DATE 10/26/06	SHEET 153
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW TDG, SW, CL



FIELD NOTES

PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/26/06	SHEET 154
	CREW PDG, SM CL	



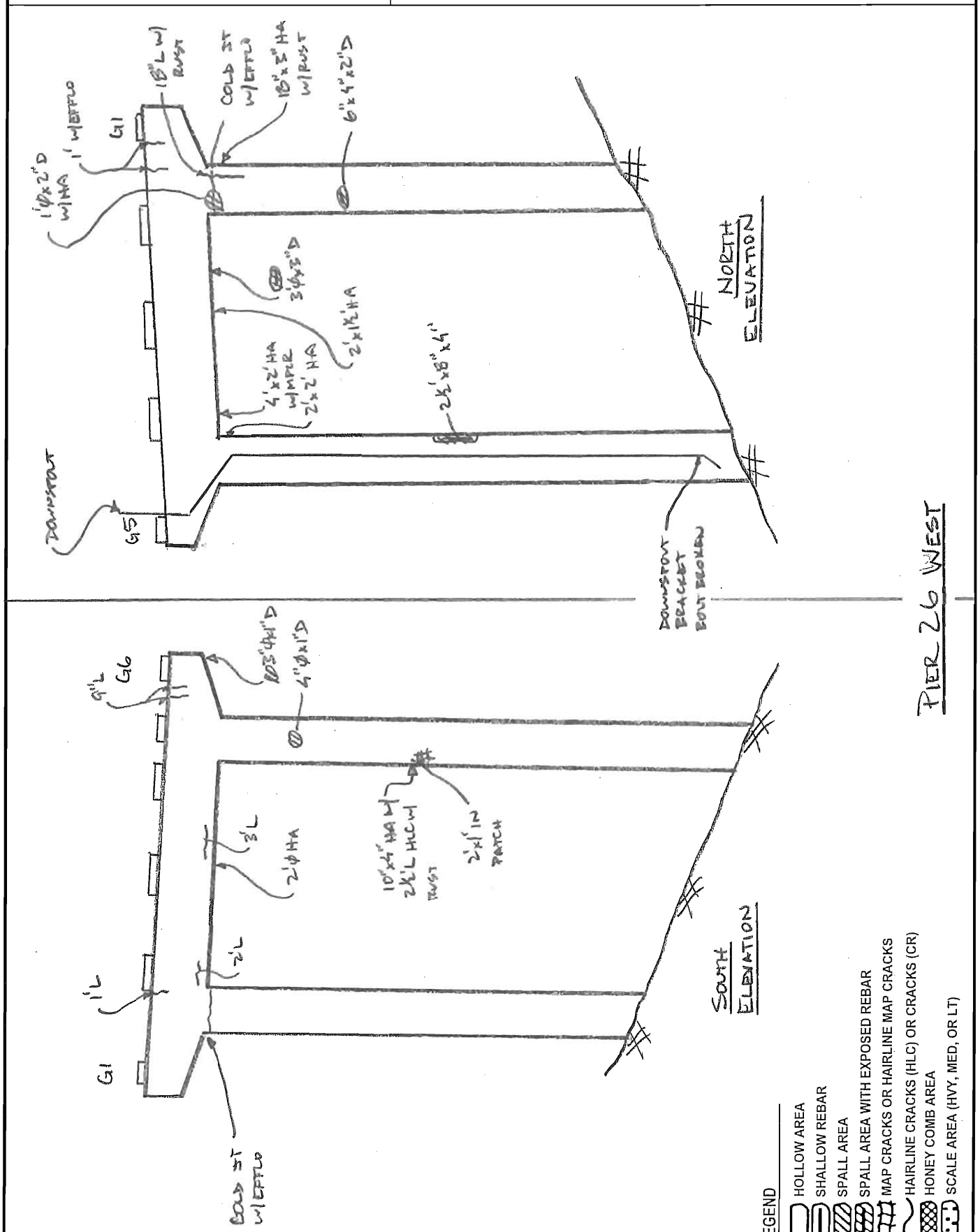
PIER 25 - NORTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

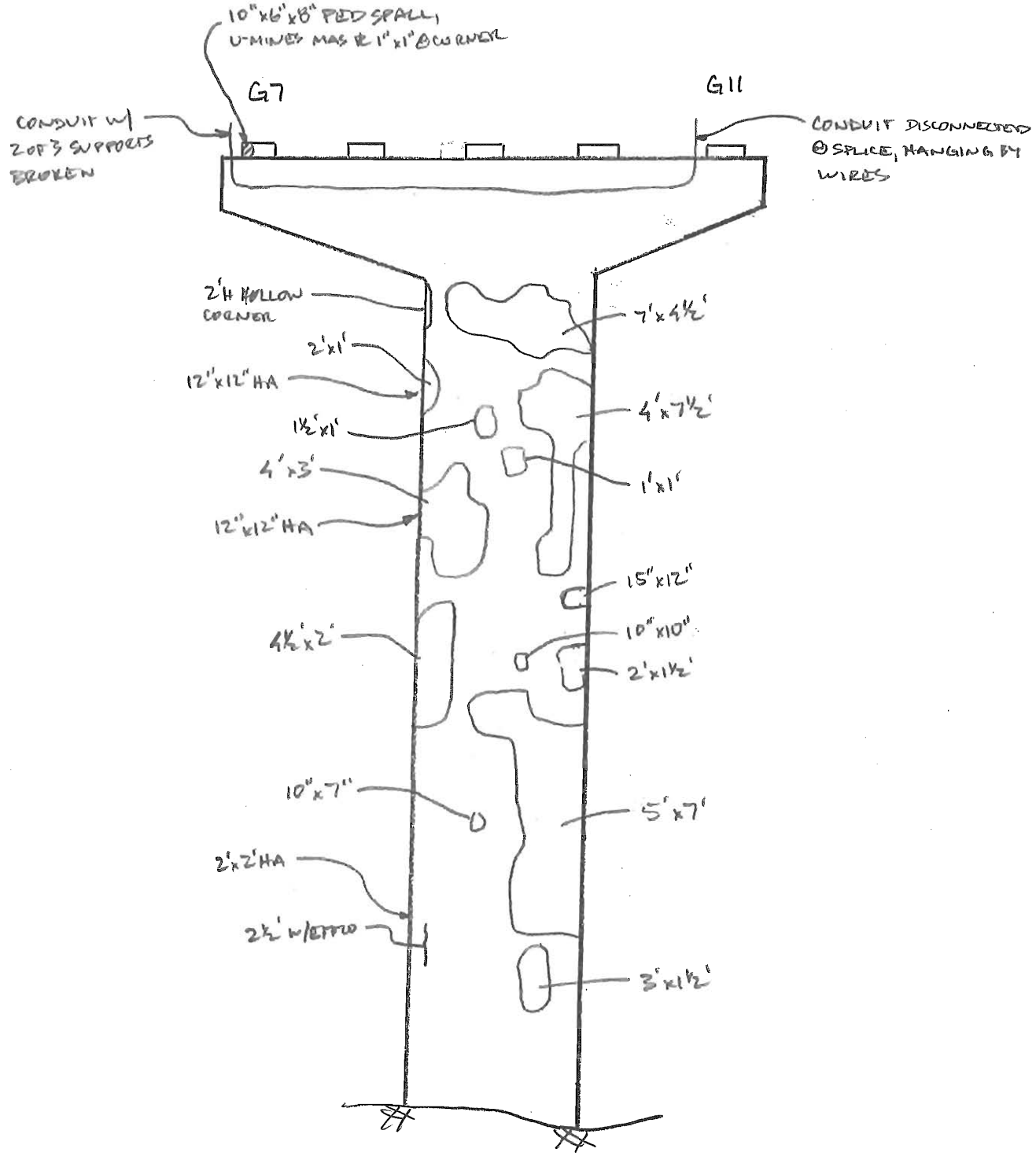
FIELD NOTES

JOB NO. 0156EXT	BRIDGE NO. 3190A
DATE 10/26/06	SHEET 155
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW



FIELD NOTES

FIELD NOTES	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/26/06	SHEET 156
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW	



PIER 26 EAST

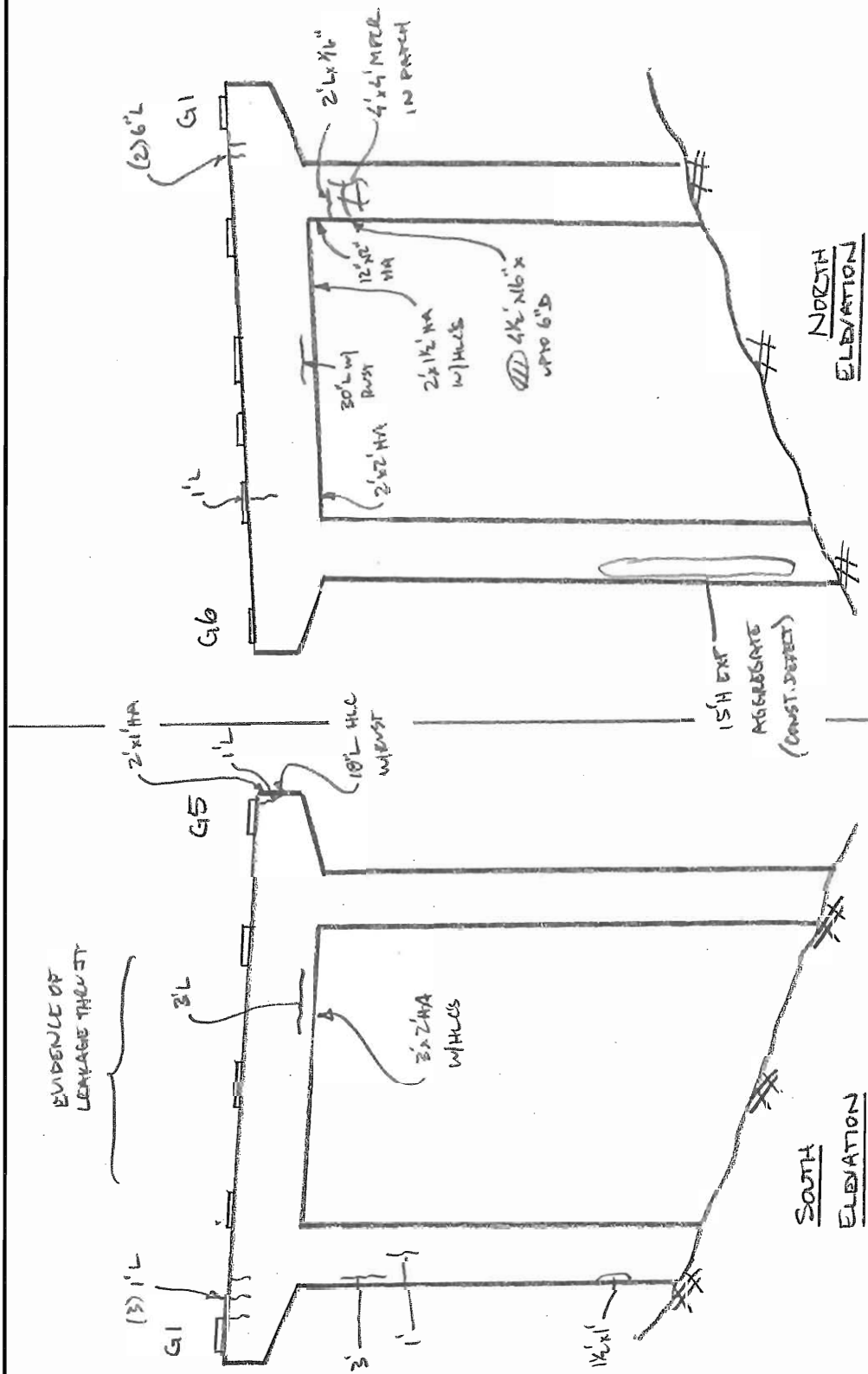
SOUTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 319DA
	DATE 10/26/06	SHEET 157
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW TDG, SW, CL	

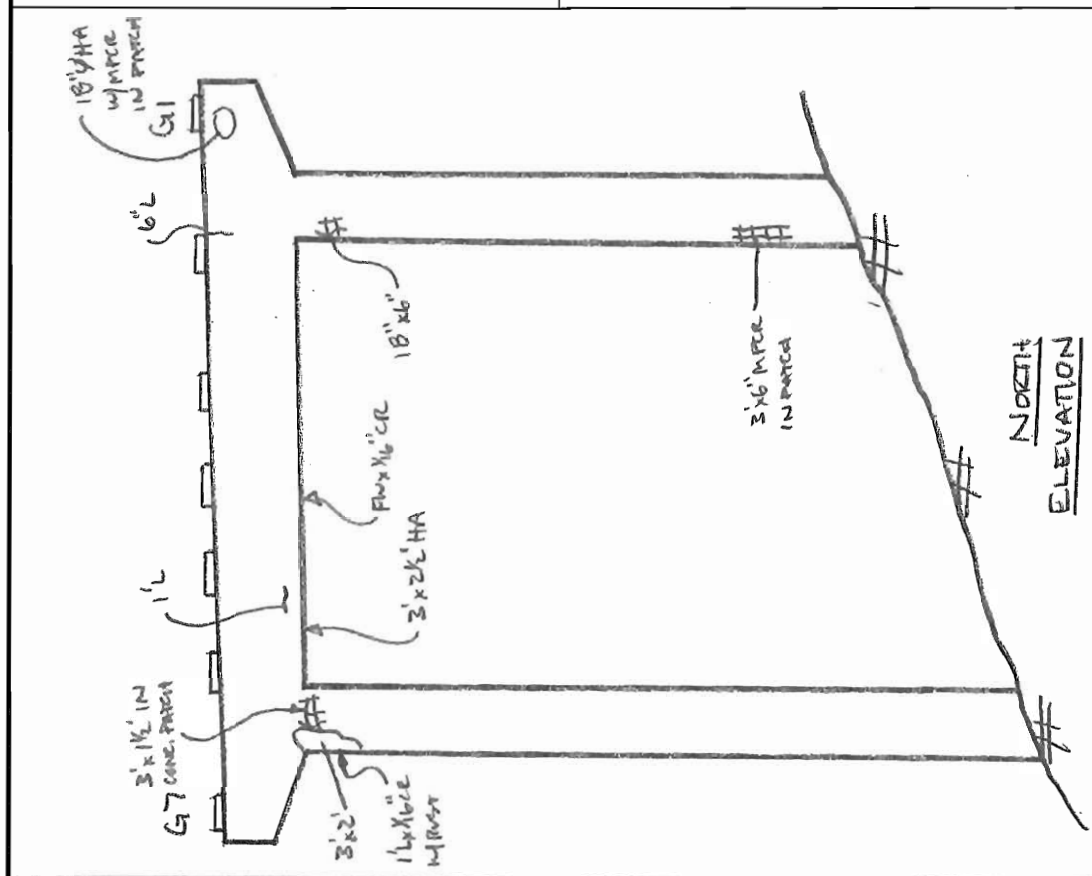


LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

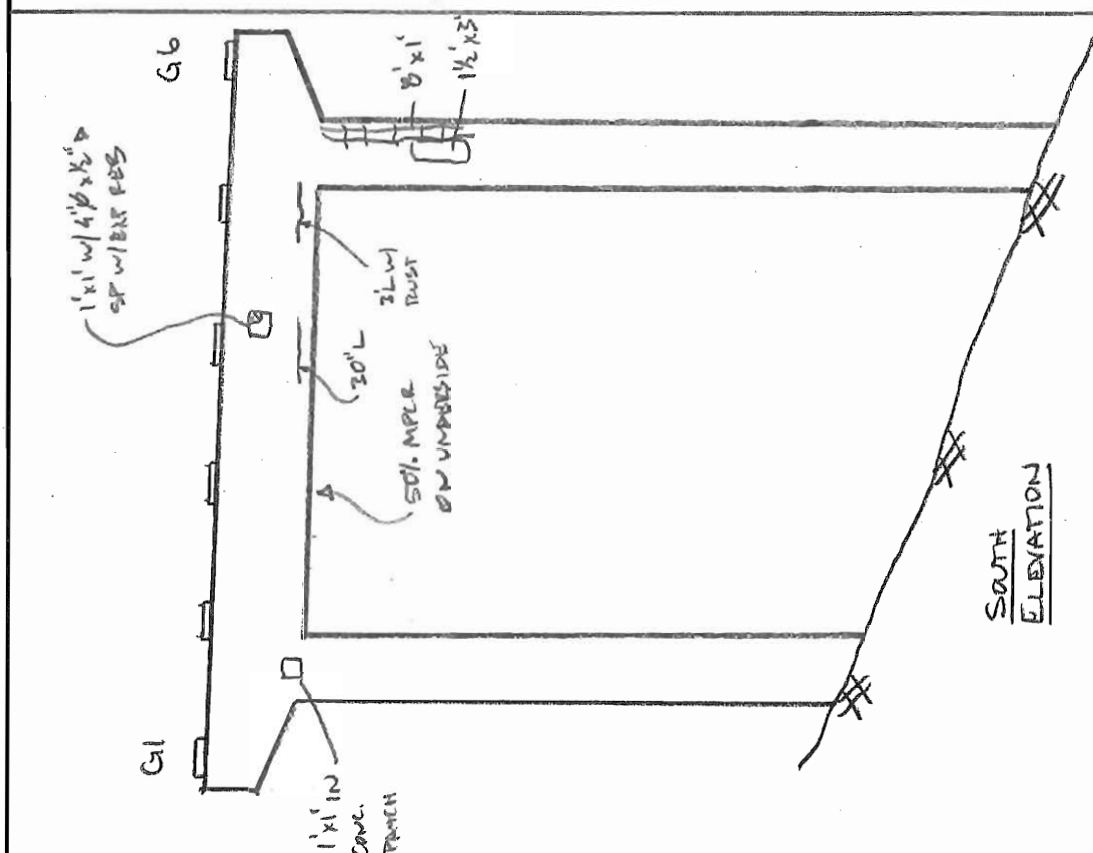
FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 11/3/06	SHEET 158
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW FDG, SW, CL	



NORTH ELEVATION

GENERAL NOTES:
- SEPARATION ALONG PATCH EDGES UP TO 1/16"



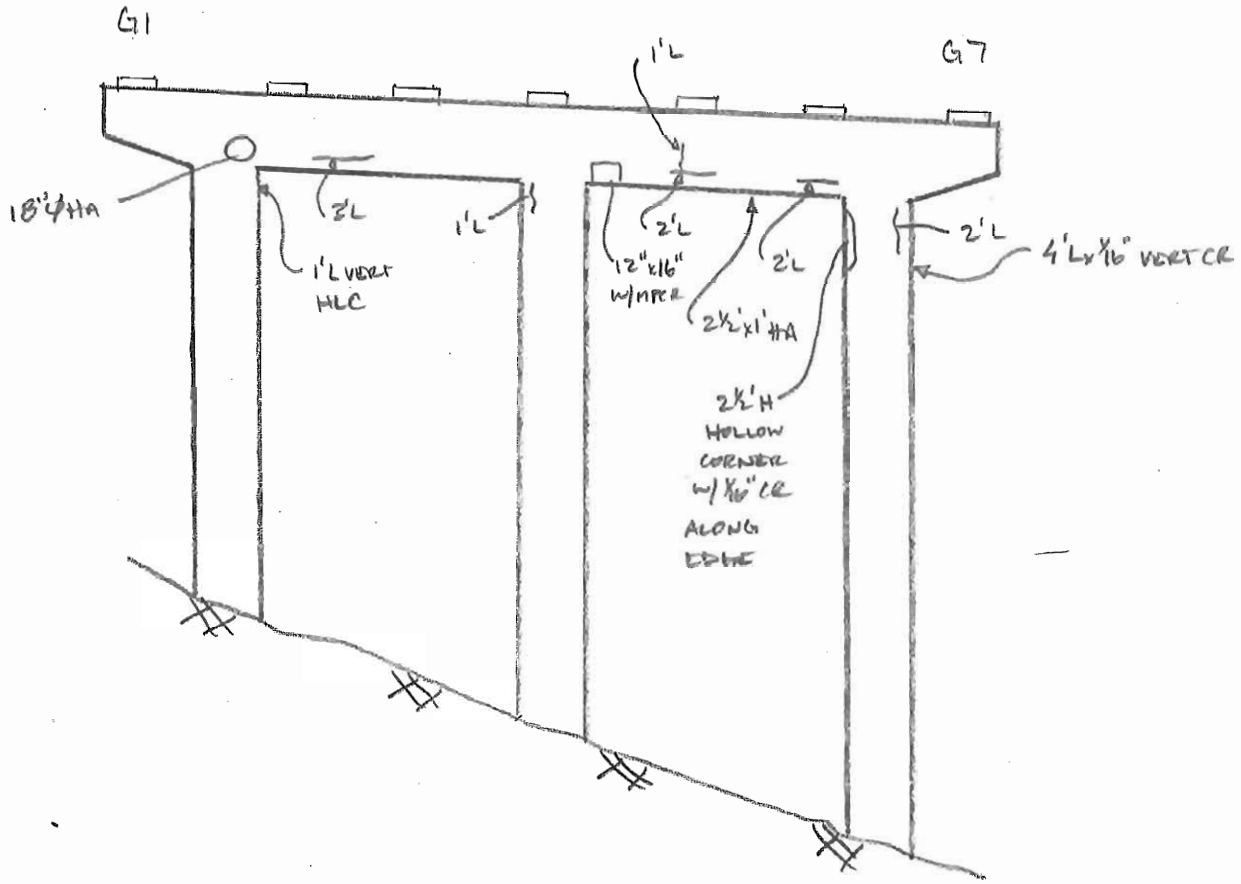
SOUTH ELEVATION

PIER 28

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 11/3/06	SHEET 159
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL	



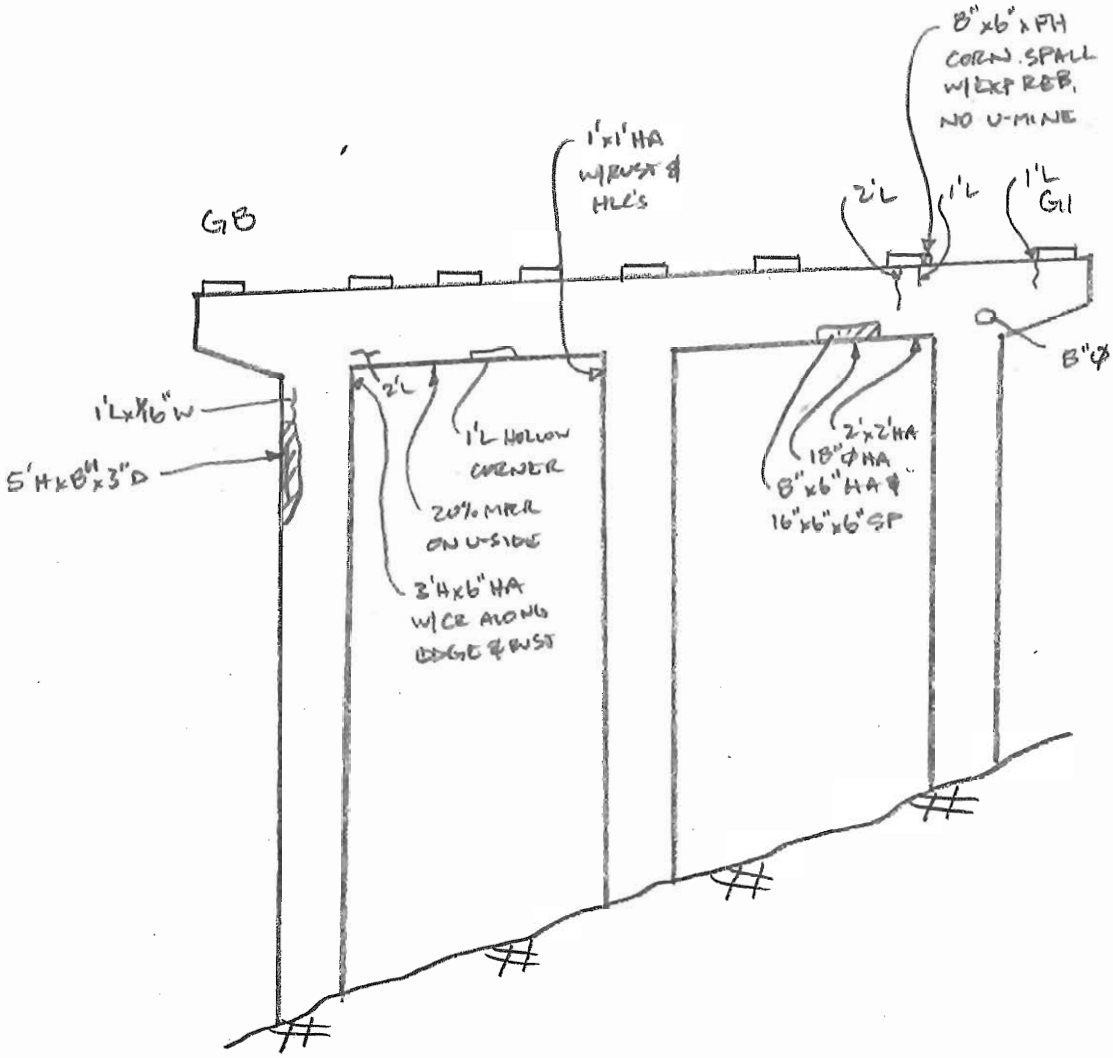
PIER 29 - SOUTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 11/3/06	SHEET 160
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL	



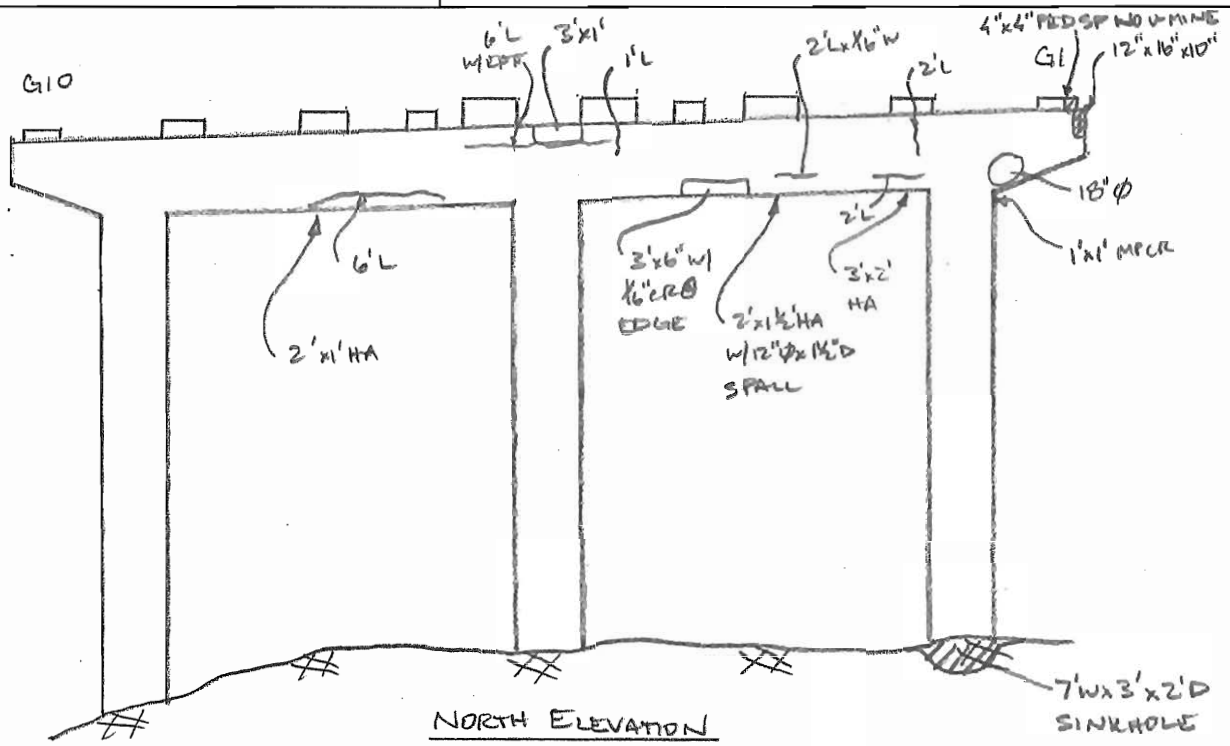
PIER 29 – NORTH ELEVATION

LEGEND

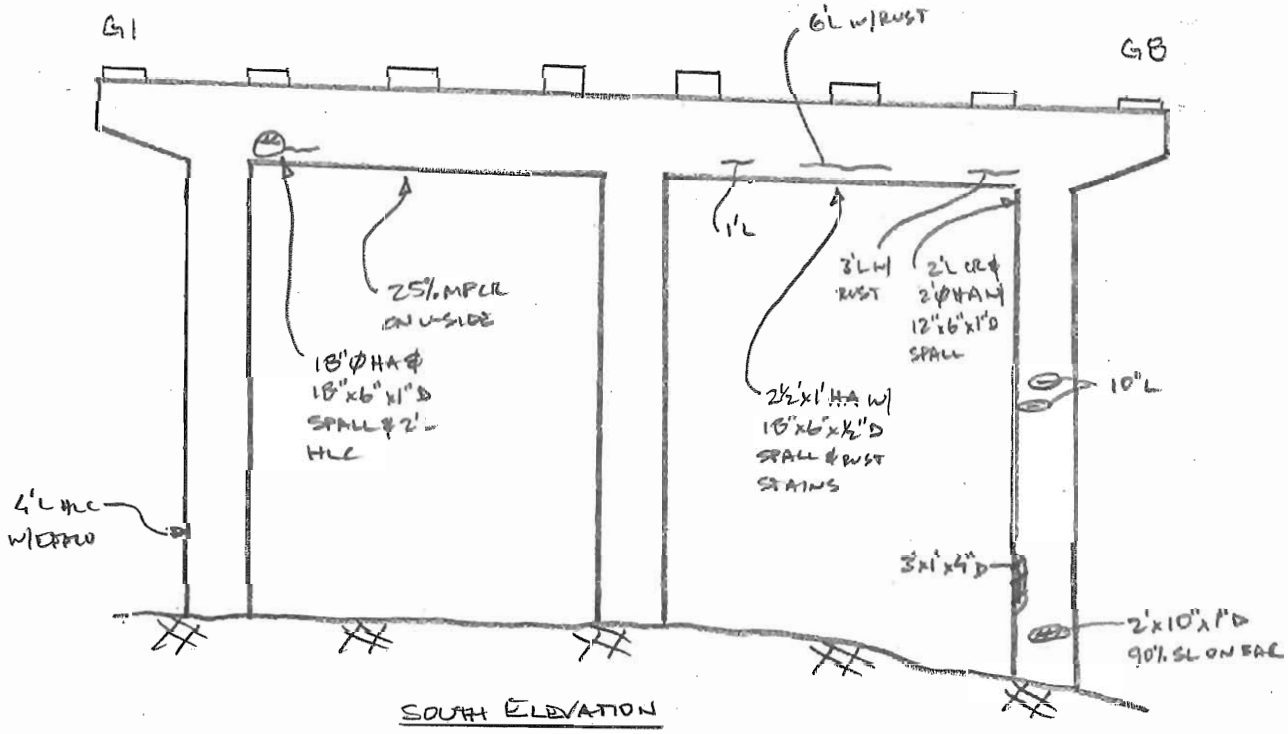
- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/9/06	SHEET 161
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW PDG, SW, CL	



NORTH ELEVATION



SOUTH ELEVATION

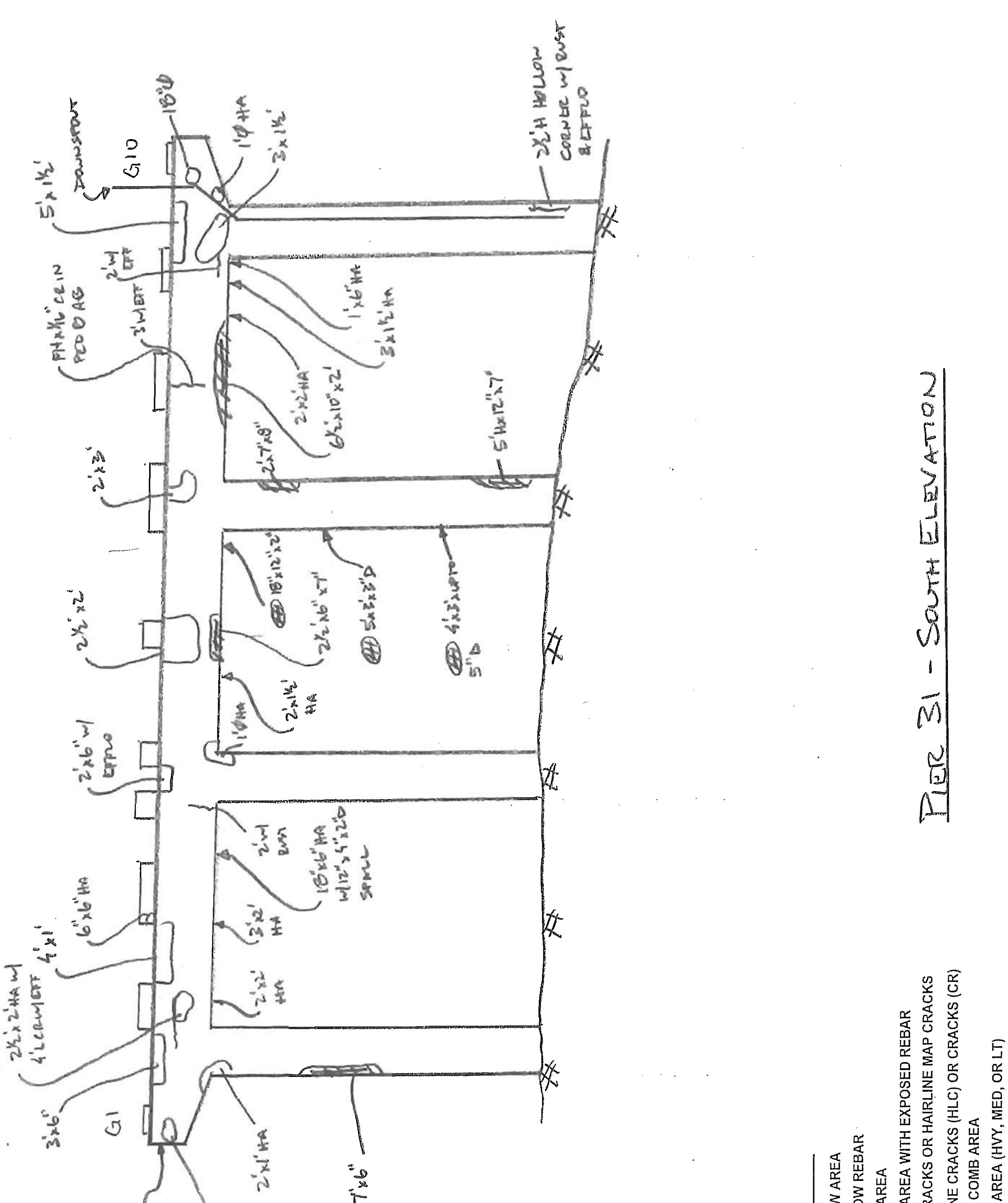
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 30

FIELD NOTES

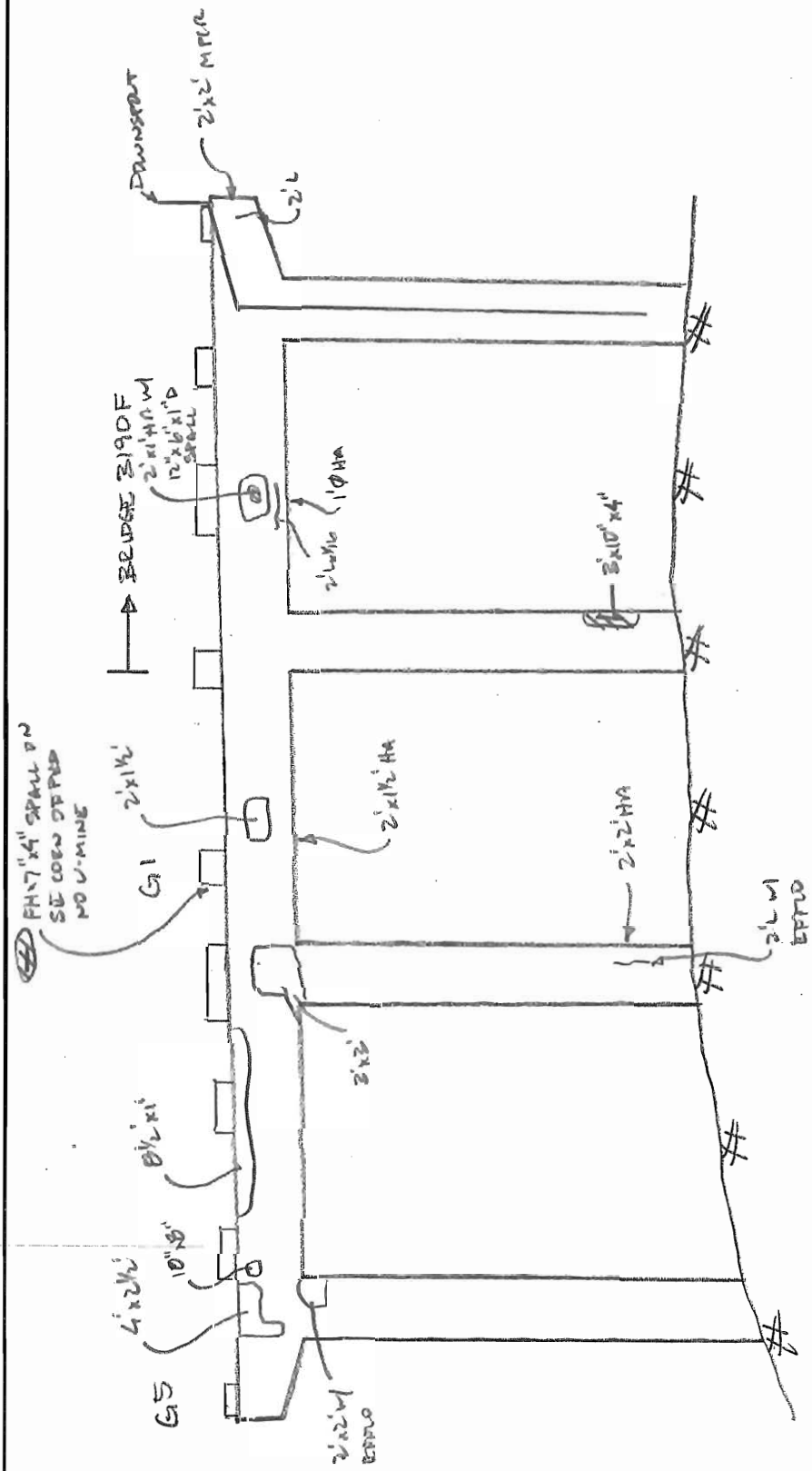
FIELD NOTES	JOB NO. 0156EXT	BRIDGE NO. 3190A
	DATE 10/9/06	SHEET 162
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW TDG1, SW, CL	



LEGEND
- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

FIELD NOTES

	JOB NO. 0156EXT	BRIDGE NO. 3190F
	DATE 10/9/06	SHEET 163
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW TDG, SW, CL	



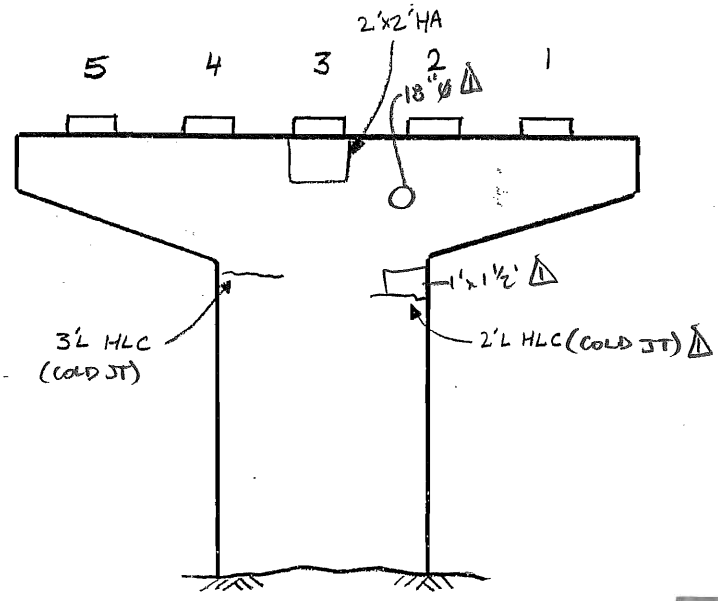
PIER 31 - NORTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

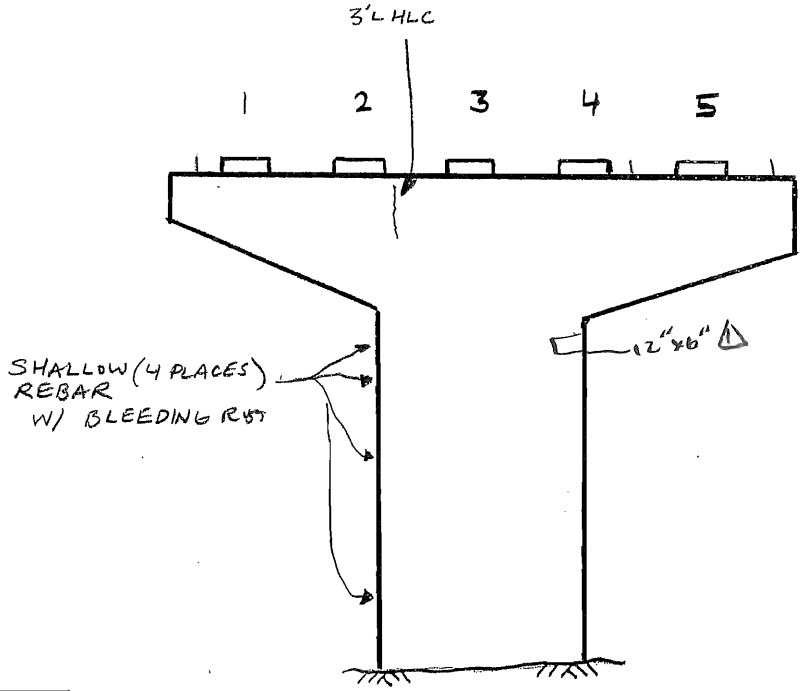
FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/24/04	SHEET ~~112~~ 164
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC, JW	



NORTH ELEVATION

△	11/3/06	PDG, SW, CL
NO.	DATE	DESCRIPTION
REVISIONS		



SOUTH ELEVATION

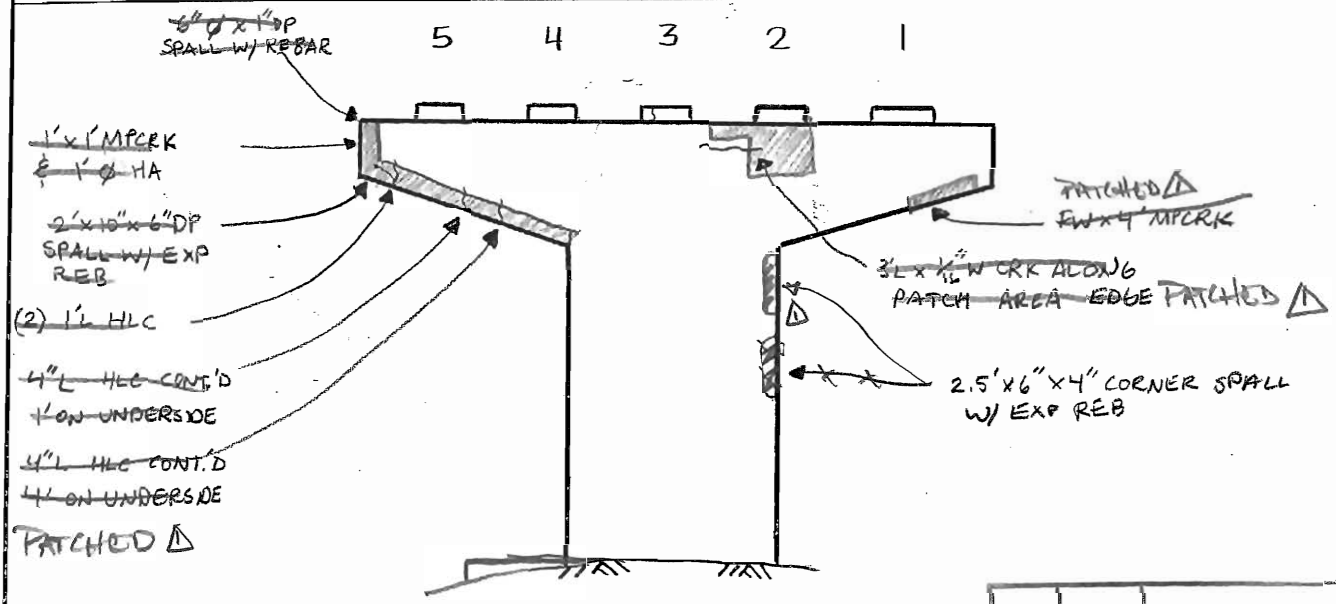
LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 32

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/23/04	SHEET ~~#3~~ 165
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC, JW	



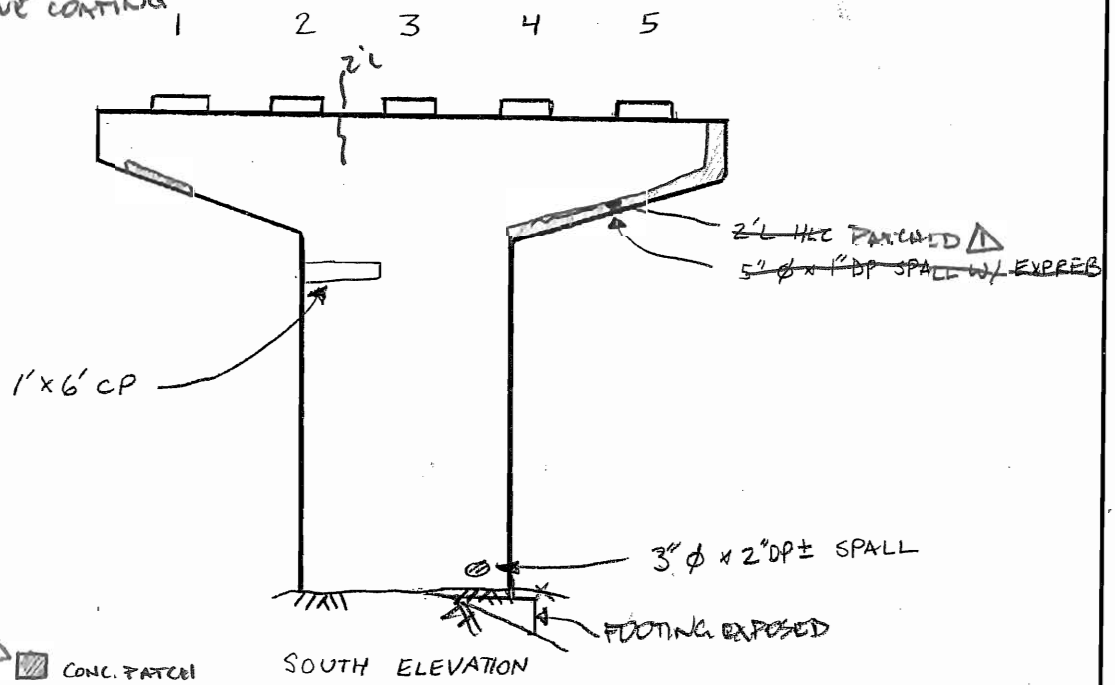
NORTH ELEVATION

NO.	DATE	DESCRIPTION
△	11/5/04	TDG, SWCL

REVISIONS

GENERAL NOTES:

- RUST STAINS ON PIERS FROM BEARINGS.
- △ PIER CAP VERTICAL FACES & UNDERSIDE PAINTED W/ PROTECTIVE COATING



SOUTH ELEVATION

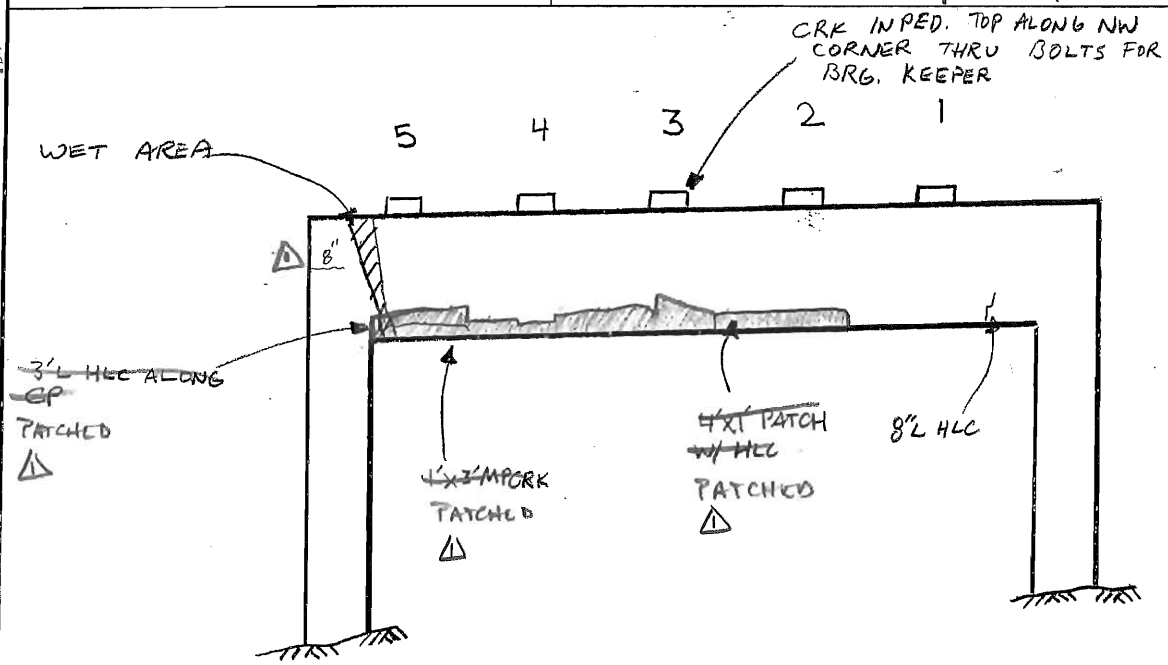
LEGEND

- HOLLOW AREA △ CONC. PATCH
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

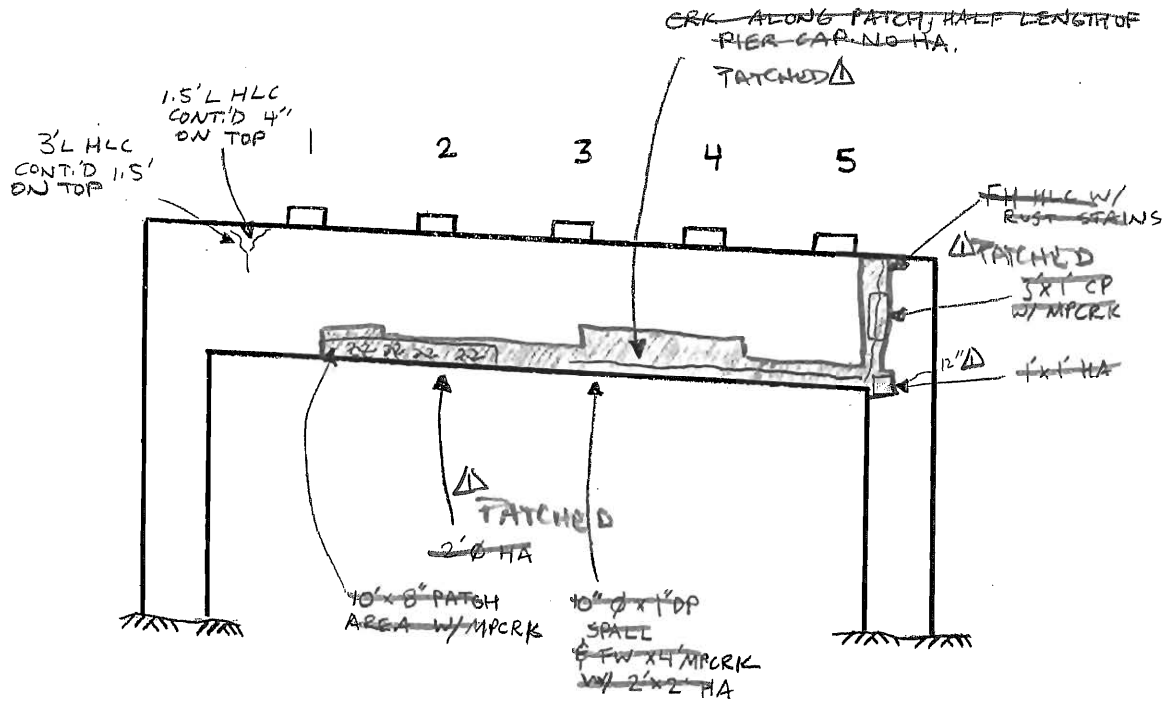
PIER 33

FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 11/23/04	SHEET ~~##~~ 166
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, CC, JW	△1 11/14/06 PDG, CL



NORTH ELEVATION



SOUTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PATCH △1

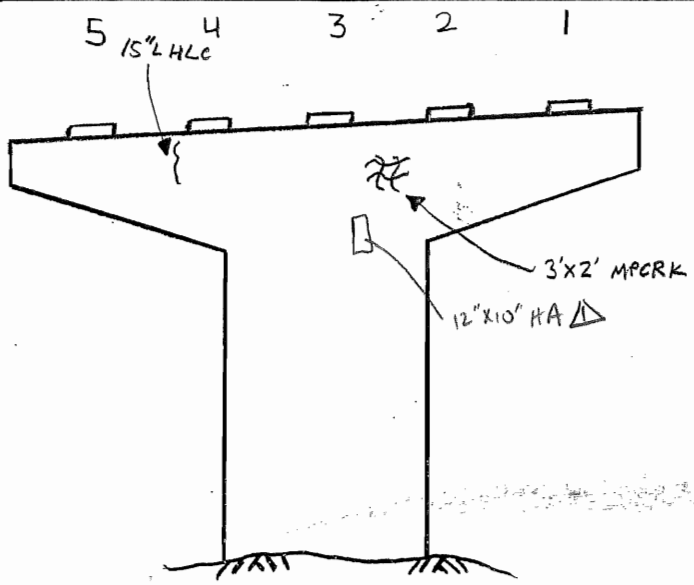
PIER 34

GENERAL NOTES:

△1 - PIER CAP VERTICAL FACES & UNDERSIDE PAINTED W/ PROTECTIVE COATING.

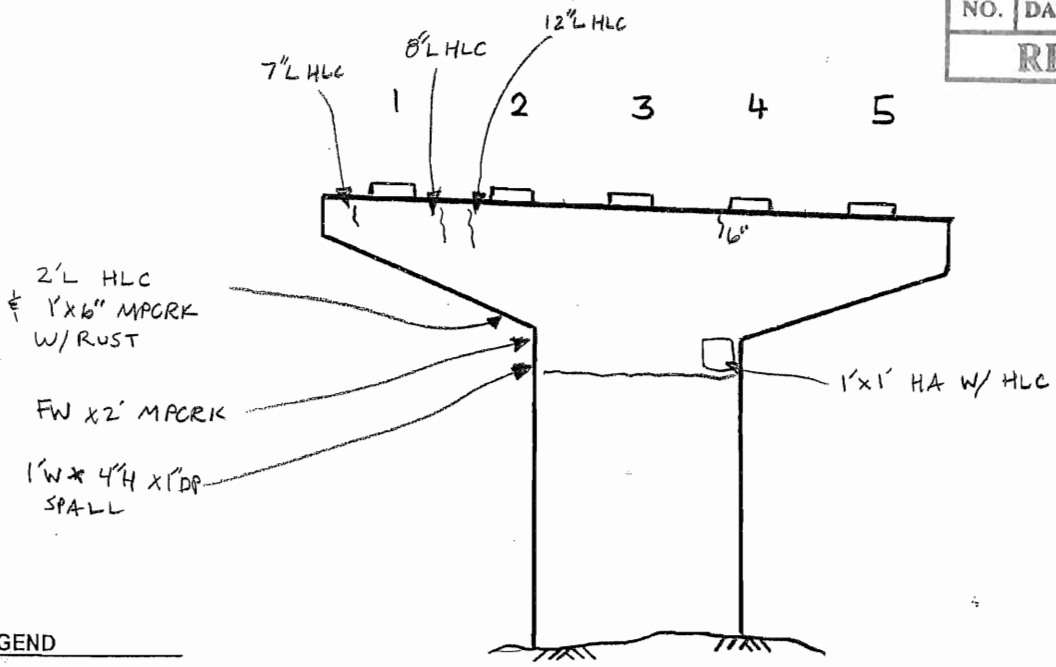
FIELD NOTES

FIELD NOTES	JOB NO. 0155	BRIDGE NO. 3190 A
	DATE 1/5/05	SHEET ~~145~~ 167
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW ML, JW	



NORTH ELEVATION

1	11/14/06	TDG, CL
NO.	DATE	DESCRIPTION
REVISIONS		



SOUTH ELEVATION

LEGEND

- HOLLOW AREA
- SHALLOW REBAR
- SPALL AREA
- SPALL AREA WITH EXPOSED REBAR
- MAP CRACKS OR HAIRLINE MAP CRACKS
- HAIRLINE CRACKS (HLC) OR CRACKS (CR)
- HONEY COMB AREA
- SCALE AREA (HVY, MED, OR LT)

PIER 35

Bridge No.: 03190A Date: 11/28/06 Prepared By: CL Checked By: DLC

CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	1	2	3	4	5	6	7	8	9	10	Total
Spalled and Delaminated Areas	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot: 5	Bot: 13	Bot: 12	Bot: 1	Bot: 16	Bot: 3	Bot: 17	Bot: 2	Bot: 2	Bot: 5	Bot: 75
Scale (Moderate to Severe Only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot:	Bot: 1	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 1
Cracks: w/Efflorescence (use 6 in. width x length)	Bot: 8	Bot: 25	Bot: 0	Bot: 18	Bot: 48	Bot: 21	Bot: 68	Bot: 225	Bot: 126	Bot: 83	Bot: 621
w/o Efflo. (use 3 in. width x length)	Bot: 2	Bot: 0	Bot: 0	Bot: 11	Bot: 11	Bot: 5	Bot: 2	Bot: 11	Bot: 15	Bot: 2	Bot: 57
Map Cracking: w/Efflorescence (use full area)	Bot: 8	Bot: 16	Bot: 2,109	Bot: 0	Bot: 571	Bot: 822	Bot: 1,058	Bot: 90	Bot: 153	Bot: 457	Bot: 5,284
w/o Efflo. (use 50% of area)	Bot: 53	Bot: 665	Bot: 0	Bot: 131	Bot: 485	Bot: 270	Bot: 201	Bot: 310	Bot: 203	Bot: 55	Bot: 2,371
Honeycombed Areas (only areas more than 1 1/2 in. deep)	Bot: 25	Bot: 0	Bot: 16	Bot: 1	Bot: 0	Bot: 0	Bot: 0	Bot: 0	Bot: 0	Bot: 0	Bot: 42
Total Span Area (Square Feet)	4,536	2,340	3,460	3,348	3,348	3,348	3,348	3,348	3,348	3,348	33,772
% Spalled and Delaminated on Top	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
% Deterioration on Bottom	2.21%	30.74%	61.76%	4.82%	33.78%	33.48%	40.19%	19.00%	14.88%	17.96%	25.02%

Bridge No.: 03190A Date: 11/28/06 Prepared By: CL Checked By: DLC

CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	11	12	13	14	15	16	17	18	19	20	Total
Spalled and Delaminated Areas	Top:	Top: 1	Top:	Top:	Top:	Top: 11	Top: 3	Top: 3	Top: 5	Top: 8	Top: 30
	Bot: 1	Bot: 3	Bot: 0	Bot: 2	Bot: 0	Bot: 0	Bot: 0	Bot: 0	Bot: 3	Bot: 0	Bot: 8
Scale (Moderate to Severe Only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 0
Cracks: w/Efflorescence (use 6 in. width x length)	Bot: 178	Bot: 43	Bot: 140	Bot: 100	Bot: 80	Bot: 20	Bot: 14	Bot: 0	Bot: 82	Bot: 75	Bot: 730
w/o Efflo. (use 3 in. width x length)	Bot: 11	Bot: 4	Bot: 16	Bot: 11	Bot: 4	Bot: 0	Bot: 7	Bot: 12	Bot: 10	Bot: 14	Bot: 87
Map Cracking: w/Efflorescence (use full area)	Bot: 274	Bot: 446	Bot: 12	Bot: 535	Bot: 667	Bot: 408	Bot: 546	Bot: 990	Bot: 219	Bot: 162	Bot: 4,256
w/o Efflo. (use 50% of area)	Bot: 79	Bot: 161	Bot: 15	Bot: 18	Bot: 93	Bot: 169	Bot: 4	Bot: 11	Bot: 409	Bot: 60	Bot: 1,020
Honeycombed Areas (only areas more than 1 1/2 in. deep)	Bot: 0	Bot: 0	Bot: 0	Bot: 0	Bot: 8	Bot: 0	Bot: 0	Bot: 0	Bot: 0	Bot: 0	Bot: 8
Total Span Area (Square Feet)	3,348	3,348	3,348	3,226	3,377	3,525	3,705	6,722	7,927	3,344	41,870
% Spalled and Delaminated on Top	0.00%	0.04%	0.00%	0.00%	0.00%	0.30%	0.08%	0.04%	0.06%	0.24%	0.07%
% Deterioration on Bottom	16.18%	19.60%	5.48%	20.62%	25.22%	16.91%	15.39%	15.06%	9.11%	9.29%	14.59%

Bridge No.: 03190A Date: 11/28/06 Prepared By: CL Checked By: DLC

CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	21	22	23	24	25	26	27	28	29	30	Total
Spalled and Delaminated Areas	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot: 0	Bot: 3	Bot: 1	Bot: 9	Bot: 4	Bot: 12	Bot: 1	Bot: 11	Bot: 17	Bot: 3	Bot: 60
Scale (Moderate to Severe Only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot:	Bot:	Bot:	Bot:	Bot: 2	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 2
Cracks: w/Efflorescence (use 6 in. width x length)	Bot: 75	Bot: 104	Bot: 0	Bot: 4	Bot: 0	Bot: 23	Bot: 0	Bot: 15	Bot: 19	Bot: 6	Bot: 246
w/o Efflo. (use 3 in. width x length)	Bot: 54	Bot: 10	Bot: 24	Bot: 4	Bot: 16	Bot: 26	Bot: 29	Bot: 4	Bot: 24	Bot: 64	Bot: 256
Map Cracking: w/Efflorescence (use full area)	Bot: 234	Bot: 61	Bot: 46	Bot: 840	Bot: 733	Bot: 807	Bot: 561	Bot: 447	Bot: 1,394	Bot: 0	Bot: 5,123
w/o Efflo. (use 50% of area)	Bot: 162	Bot: 82	Bot: 123	Bot: 615	Bot: 389	Bot: 454	Bot: 518	Bot: 748	Bot: 106	Bot: 333	Bot: 3,529
Honeycombed Areas (only areas more than 1 1/2 in. deep)	Bot: 0	Bot: 0	Bot: 0	Bot: 5	Bot: 0	Bot: 4	Bot: 0	Bot: 4	Bot: 0	Bot: 0	Bot: 13
Total Span Area (Square Feet)	3,656	4,290	4,231	4,732	4,788	5,376	2,606	2,809	3,285	3,920	39,694
% Spalled and Delaminated on Top	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
% Deterioration on Bottom	14.32%	6.05%	4.59%	31.21%	23.91%	24.64%	42.56%	43.76%	47.50%	10.36%	23.25%

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CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	31	32	33	34	35	36					Total
Spalled and Delaminated Areas	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot: 7	Bot: 11	Bot: 2	Bot: 7	Bot: 5	Bot: 2	Bot:	Bot:	Bot:	Bot:	Bot: 34
Scale (Moderate to Severe Only)	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 0
Cracks: w/Efflorescence (use 6 in. width x length)	Bot: 58	Bot: 8	Bot: 0	Bot: 35	Bot: 45	Bot: 19	Bot:	Bot:	Bot:	Bot:	Bot: 164
w/o Efflo. (use 3 in. width x length)	Bot: 39	Bot: 27	Bot: 8	Bot: 26	Bot: 10	Bot: 12	Bot:	Bot:	Bot:	Bot:	Bot: 122
Map Cracking: w/Efflorescence (use full area)	Bot: 213	Bot: 42	Bot: 475	Bot: 184	Bot: 16	Bot: 100	Bot:	Bot:	Bot:	Bot:	Bot: 1,029
w/o Efflo. (use 50% of area)	Bot: 336	Bot: 355	Bot: 8	Bot: 570	Bot: 385	Bot: 76	Bot:	Bot:	Bot:	Bot:	Bot: 1,731
Honeycombed Areas (only areas more than 1 1/2 in. deep)	Bot: 4	Bot: 1	Bot: 20	Bot: 0	Bot: 0	Bot: 8	Bot:	Bot:	Bot:	Bot:	Bot: 33
Total Span Area (Square Feet)	4,815	1,896	2,538	2,468	2,468	2,468					16,652
% Spalled and Delaminated on Top	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%					0.00%
% Deterioration on Bottom	13.65%	23.45%	20.19%	33.34%	18.63%	8.72%					18.69%

Bridge No.: 03190A Date: 11/28/06 Prepared By: CL Checked By: DLC

CONCRETE DETERIORATION WORKSHEET

Form BRI-10, Rev. 9/01

	Deterioration By Span - In Square Feet										
	Span Number										
Deterioration Type	1-10	11-20	21-30	31-36							Total
Spalled and Delaminated Areas	Top: 0	Top: 30	Top: 0	Top: 0	Top:	Top:	Top:	Top:	Top:	Top:	Top: 30
	Bot: 75	Bot: 8	Bot: 60	Bot: 34	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 176
Scale (Moderate to Severe Only)	Top: 0	Top: 0	Top: 0	Top: 0	Top:	Top:	Top:	Top:	Top:	Top:	Top: 0
	Bot: 1	Bot: 0	Bot: 2	Bot: 0	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 3
Cracks: w/Efflorescence (use 6 in. width x length)	Bot: 621	Bot: 730	Bot: 246	Bot: 164	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 1,762
w/o Efflo. (use 3 in. width x length)	Bot: 57	Bot: 87	Bot: 256	Bot: 122	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 522
Map Cracking: w/Efflorescence (use full area)	Bot: 5,284	Bot: 4,256	Bot: 5,123	Bot: 1,029	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 15,692
w/o Efflo. (use 50% of area)	Bot: 2,371	Bot: 1,020	Bot: 3,529	Bot: 1,731	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 8,651
Honeycombed Areas (only areas more than 1 1/2 in. deep)	Bot: 42	Bot: 8	Bot: 13	Bot: 33	Bot:	Bot:	Bot:	Bot:	Bot:	Bot:	Bot: 96
Total Span Area (Square Feet)	33,772	41,870	39,694	16,652							131,987
% Spalled and Delaminated on Top	0.00%	0.07%	0.00%	0.00%							0.02%
% Deterioration on Bottom	25.02%	14.59%	23.25%	18.69%							20.38%

Span 1

Spalls: 4.8

SE = 2 x 8. = 16

S 8'

SSE 4 + 4 = 8

SS .2(17)(7.2) + .3(17)(7.2) + 3 + 9 + 3 + 7.2(4) = 105

4 + 4 + 4 + 2 + 6 + 4 + .8 = 24.8

A = (3(23.5)+1.5)(70.2) - 1/2 [(3(23.5)+1.5)(14.4) = 4536

Span 2

3(.5) + 4(.2) + .5 + 1.2 + .1 + .8 + 3 + 2(.8) + 3 = 12.5

SE 6(7.2) + 7 = 50.2

S 0

SSE 16

SS .3(24.5)(7.2) + .5(23)(7.2) + .8(23)(6) + .25(24.5)(5.5) + 279.8
.6(23)(6) + .6(24.5)(5.5) + 2.4(24.5)(7.2) + ~~.4(23)(7.2)~~ +
~~.5(23)(7.2)~~ + 12 + ~~.75(23)(7.2)~~ + 12 + ~~23(7.2)~~ ~~= 1329.7~~
2.65(23)(7.2) = 1329.7

0

0.8

A = (72)(55.8) - 1/2(72)(6.2) = 3794.4

Span 3

11.6

SE 0

S 0

SSE .5(24.5)(8.1) + .75(23)(7.7) + .5(24.5)(7.3) + .75(23)(7.7) +
24.5(7.3) + 7.1(3) + 5.5(24.5)(7.1) + 3.05(23)(7.1) = 2109.2

4 + 9 + 3 = 16

SS 0

Scale 0

A = 72(49.6) - 1/2(72)(3.1) = 3459.6

Span 4

1.1

SE 5(7.1) = 35.5

S 6(7.1) = 42.6

SSE 0

SS .25(24.5)(7.1) + 1.1(23)(7.1) + 1 + 5.25(7.1) = 261.4

1.3

A = 72(46.5) = 3348

Span 5

$= 16$

S^E $12(7.1) + 5(2) = 95.2$

S $5(7.1) + 5 + 4 = 44.5$

M^E $1.5(24.5)(7.1) + 1.9(23)(7.1) = 571.2$

M $3.7(24.5)(7.1) + 2(23)(7.1) = 970.2$

0

$A =$ 3348

Span 6

$2 + .8 + .3 + .3 = 3.4$

S^E $6(7.1) = 42.6$

S $2(7.1) + 2(2) = 18.2$

M^E $1.75(7.1)(24.5) + 3(7.1)(23) + 4(2) + 10(2) = 822$

M $2.4(7.1)(24.5) + 16 + 16 + .55(23)(7.1) = 539.3$

0

$A =$ 3348

Span 7

16.9

S^E $17(7.1) + 8(2) = 136.7$

S 7.1

M^E $72(7.1) + 7.1(6) + 7.1(2) + 7.1(4) + 7.1(6) + 1.5(23)(7.1)$
$+ 24.5(7.1) = 1057.9$

M $1.25(24.5)(7.1) + 16 + 42.6 + 7.1(8) + 42.6 + 14.2 + 12 = 401.6$

0

$A =$ 3348

Span 8

1.5

S^E $61(7.1) + 8(2) = 449.1$

S $5(7.1) + 3 + 4 = 42.5$

M^E 90

M $.375(24.5)(7.1) + 6 + 15 + 8 + 10(.3) = 619.1$

0

$A =$ 3348

Span 9

$\Theta = 1.5$

$S^E = 34(7.1) + 2 + 3 + 4 + 2 = 252.4$

$S = 6(7.1) + 8 + 3 + 4 + 2 = 59.6$

$\mathcal{M}^E = .5(24.5)(7.1) + 7.1(5) + 12 + 18 = 152.5$

$\mathcal{M} = 1.75(24.5)(7.1) + .25(23)(7.1) + 4 + 8 + 4 + 10 + 3 + 12 + 12$
$+ 4 + 4 = 406.2$

Φ 0

$A = 3348$

Span 10

$\Theta = 4.5 + .8 = 5.3$

$S^E = 21(7.1) + 3 + 2 + 11 = 165.1$

$S = 7.1$

$\mathcal{M}^E = .75(24.5)(7.1) + 1.3(23)(7.1) + 30 + 18 + 12 + 6 + 24$
$+ 12 + 12 = 456.7$

$\mathcal{M} = 7.1(2) + 4 + 8 + 6 + 8 + 20 + 8 + 24 + 6 + 12 = 110.2$

Φ 0

$A = 3348$

Span 11

$\Theta = .7$

$S^E = 50(7.1) = 355$

$S = 6(7.1) = 42.6$

$\mathcal{M}^E = 1.25(7.1)(24.5) + 12 + 12 + 6 + 12 + 14.2 = 273.6$

$\mathcal{M} = 35 + .5(24.5)(7.1) + 16 + 14.2 + 6 = 158.2$

Φ 0

$A = 3348$

Span 12

$\Theta = 2(.6) + .1 + .1 + .3 + 1 + .2 + .4 = 3.1$

$S^E = 12(7.1) = 85.2$

$S = 14.2$

$\mathcal{M}^E = 7.1(4) + (24.5)(7.1) + + 7.1(9.5) + 7.1(5) + .75(23)(7.1)$
$+ 6 + 3 + 9 = 445.8$

$\mathcal{M} = .5(24.5)(7.1) + .75(13.5)(7.1) + .75(23)(7.1) + 4 + 16 + 7.1(3)$
$= 322.6$

Φ 0

$A = 3348$

Span 13

$\emptyset = 0$

$S^E = 38(7.2) + 4 + 3 = 280.6$

$S = 9(7.2) = 64.8$

$\cancel{SS}^E = 12$

$\cancel{SS} = 4 + 4 + 8 + 14.2 = 30.2$

$\cancel{\emptyset} = 0$

$A = 3348$

Span 14

$\emptyset = 1.8$

$S^E = 18(7.1) + (7.15)(5) + 2(7.2) + 3(7.25) = 199.7$

$S = 4(7.15) + 2(7.25) = 43.1$

$\cancel{SS}^E = (7.2)(23) + 7.25(9) + (18)(3) + .25(7.2)(23) + 4 + 9$
$+ 18 + 12 + (7.2)(23) = \cancel{1561.6}\ 534.8$

$\cancel{SS} = 36$

$\cancel{\emptyset} = 0$

$A = (69)(46.5) + \frac{1}{2}(69)(.5) = 3225.8$

Span 15

$\emptyset = 0$

$S^E = 7(7.38) + 5(7.55) + 10(7.1) = 160.4$

$S = 2(7.38) = 14.8$

$\cancel{SS}^E = .75(23)(7.38) + 23(7.55) + 9 + 18 + 16 + 1.5(23)(7.1)$
$+ 7.1(2) + 9(7.1) = 667.$

$\cancel{SS} = 12 + .5(7.38)(23) + .5(7.72)(23) = 185.7$

$\cancel{\emptyset} = 8$

$A = (70.5)(47.1) + \frac{1}{2}(70.5)(1.6) = 3377$

Span 16

$\emptyset\ 0$

$S^E = 6 + 6.2 + 2(6.4) + 2(7.2) = 39.4$

$S = 0$

$\cancel{SS}^E = .5(6.4)(23) + 12 + .25(23)(6.2) + .75(7.1)(23)$
$+ 10 + 36 + .8(14)(7.1) + .6(9)(7.1) = 407.6$

$\cancel{SS} = .75(6.2)(23) + 6.4(24.5) + 33 + .25(7.1)(23) = 337.6$

$\cancel{\emptyset} = 0$

$A = (70.5)(48.7) + .5(70.5)(2.6) = 3525$

Span 17

$\varnothing = 0$

$\varsigma^e = 13.2 + 6.8 + 7 = 27$

$\varsigma = 6.8 + 3(7.1) = 28.1$

$\mathcal{F}^e = .75(6.6)(23) + 16 + 24 + .4(6.8)(23) + 16 + 24 + .5(7)(23)$
$+ 48 + 24 + 14.2 + .75(7.1)(23) = 545.6$

$\mathcal{F} = 8$

$\circledast = 0$

$A = (70.5)(51.3) + .5(70.5)(2.5) = 3704.8$

Span 18

$\varnothing = 0$

$\varsigma^e = 0$

$\varsigma = 7.9 + 7.7 + 7.5 + 2(7.9) + 8.1 = 47$

$\mathcal{F}^e = 1.25(7.3)(24) + .7(7.5)(22.5) + .25(7.7)(22.5) + .25(7.9)(22.5)$
$+ .5(8.1)(24) + 1.1(7.25)(24) + .75(7.55)(22.5) + .5(13)(8.5)$
$+ 11(8.5) = 989.6$

$\mathcal{F} = (7.85)(22.5)(.25) = 44.2$

$\circledast = 0$

$A = (115.5)(54) + .5(115.5)(8.4) = 6722.1$

Span 19

$\varnothing = 2.7$

$\varsigma^e = 2(6.6) + 7.7 + 7.4 + 2(7.7) + 4 + 15(7.7) = 163.2$

$\varsigma = 7.7(2) + 2(7) + 2(7.7) = 38.8$

$\mathcal{F}^e = (7.35)(23.5) + .25(7.7)(24) = 218.9$

$\mathcal{F} = 10 + 6 + .25(8.1)(20) + 7.7(23.5) + 7.35(23.5) + 2(7)(23.5)$
$+ .25(6.6)(22) + 16 + .25(11)(7.7) = 818.7$

$\circledast$ 0

$A = (117)(62.75) + .5(117)(10) = 7926.8$

Span 20

$\varnothing = 0.1$

$\varsigma^e = 3(3.9) + 4 + 3(4.8) + 15(8) = 150.1$

$\varsigma = 6.6 + 2(3.9) + 5(8) = 54.4$

$\mathcal{F}^e = .25(22)(6.6) + 6.6(2) + 4 + 8(5) + 32 + 32 + 4 = 161.5$

$\mathcal{F} = 4.3(3) + 20 + 16 + 4 + 16 + 4 + 48 = 120.9$

$\circledast$ 0

$A = 92(37.8) - 1/2(89)(3) = 3344.1$

Span 21

$\emptyset$ 0

$S^e = 8(2) + 8 + 3(7) + 13(8) = 149$

$S = 4(2) + 4 + 2(8) + 2(7) + 5.7 + 21(8) = 215.7$

$\mathcal{S}^e = 6.5(22.4) + 5.5(22.4)(.5) + 12 + 7(1.5) + 4 = 233.7$

$\mathcal{S} = 4.5(22.4) + 5.5(22.4) + 18 + 3 + 2 + 20 + 14 +$
$7 + 12 + 2 + 9 + 12 = 323$

$\emptyset$ 0

$A = (89.6)(37) + .5(89.6)(7.6) = 3655.7$

Span 22

$\emptyset = 2.6$

$S^e = 21(8) + 2(2) + 5 + 3(5.8) + 2(7) = 208.4$

$S = 4(8) + 4 + 5 = 41$

$\mathcal{S}^e = 4 + 6(2) + 14 + 12 + 16 + 3.1 = 61.1$

$\mathcal{S} = 8(1.5) + 12 + 6 + 18 + 40 + 20 + 6 + 6 + 25 + 6 + 6 + 6$
$= 163$

$\emptyset = 0$

50.2

$A = (90.5)(44.6) + .5(90.5)(5.6) = 4289.7$

Span 23

$\emptyset = .8$

$S^e = 0$

$S = 4(7.5) + 4(6.9) + 8 + 7.3 + 3(8) = 96.9$

$\mathcal{S}^e = 4 + 24 + 6.1(3) = 46.3$

$\mathcal{S} = 13 + 15 + 9 + .25(7.5)(24.3) + .25(25.8)(8)$
$+ 6 + 6 + 16 + .5(7.5)(25.8) = 245.4$

$\emptyset = 0$

$A = (75.9)(52.4) + .5(75.9)(6.7) = 4231.4$

Span 24

$\emptyset = 8.9$

$S^e = 7.5$

$S = 3(5.7) = 17.1$

$\mathcal{S}^e = .5(11.3)(7.5) + 1.75(24.3)(7.5) + 1.25(7.5)(25.8)$
$+ .5(25.8)(5.7) + 24.3(6.7) + \cancel{24.3(3)}) = 339.5$

$\mathcal{S} = .5(14.5)(7.5) + 3(25.8)(7.5) + 24.3(7.5) + .5(25.8)(7.7)$
$+ 24.3(3) + 25.8(7.5) + 48 = 1230.9$

$\emptyset = 5$

$A = (75.9)(59.1) + .5(75.9)(6.5) = 4732.4$

Span 25

$\ominus = 3.9$

$S^e = 0$

$S = 6(7.5) + 2(6.5) + 7.5 = 65.5$

$M^e = 1.8(23.75)(7.5) + 1.8(7.5)(22.25) + .5(6.5)(22.25) + 16 + 23.75 = 733$

$M = 9 + (23.75)(7.5) + .25(22.25)(7.5) + 1.55(23.75)(5.9)$
$+ .25(23.75)(7.2) + 6.5(2) + 45 + 22.25(3) + .5(23.75)(7.5)$
$+ (22.25)(7.5)(.5) + 2.7 = 778.7$

$\oplus$ 0

$A = (69.75)(65.8) + \frac{1}{2}(69.75)(5.7) = 4788.3$

$\odot = 2$

Span 26

$\ominus = 11.5$

$S^e = 3(6) + 2(6) + 2(7.5) = 45$

$S = 13(7.5) + 5 = 102.5$

$M^e = 18 + 22.5 + (19)(.8)(6) + 19(5.5) + 6.5(5) + .5(19.75)(6.3)$
$+ 7.5(19.75) + 1.25(19.75)(4.3) + 1.5(19.75)(7.5) = 807.4$

$M = 1.5(19.75)7.5) + 2.75(19)(7.5) + 7.5(1.5) + 19.75(5) + .5(19.75)(6.6)$
$+ 20 + .25(5.6)(19) + .75(5)(19) = 907.1$

$\oplus = 4$

$A = (77.5)(71.6) + .5(77.5)(2.4) - 40(8) - 2(1/2)(40)(3.5)$
$= 5375.75$

Span 27

$\ominus = 1.3$

$S^e = 0$

$S = 13(8.25) + 7.5 = 114.8$

$M^e = 2.75(22.75)(8.25) + 7.5(6) = 561.1$

$M = .8(24.75)(8.25) + 3(24)(8.25) + 24(7.7) + .5(22.75)(8.25)$
$= 1036$

$\oplus$ 0

$A = (71.5)(35.9) + .5(71.5)(1.1) = 2603.2$

Span 28

$\ominus$ 11

$S^e = 4 \times 7.7 = 30.8$

$S = 2(7.7) = 15.4$

$M^e = 1.75(23)(7.7) + .75(23.75)(7.7) = 447.1$

$M = 3.25(23.75)(7.7) + 2(23.75)(5.5) + 2(23)(6.4) + 2(23.75)(7.3) = 1496.7$

$\oplus = 3.8$

$A = 70.5(37.1) + .5(70.5)(5.5) = 2809.4$

Span 29

$\varnothing = 16.9$

$S^e = 5 \times 7.7 = 38.5$

$S = 11 \times 7.7 + 2(6.5) = 97.7$

$\mathcal{S}^e = 4(7.7)(23.75) + 2.75(23.75)(5.7) + 23(6.5) + 9 + .75(23.75)(7.4)$

$= 1394.1$

$\mathcal{S} = .75(23)(7.7) + 6.5(4) + .3(7.4)(23.75) = 211.6$

$\oplus = 0$

$A = (70.5)(42.7) + .5(70.5)(7.8) = 3285.3$

Span 30

$\varnothing = 2.6$

$S^e = 2(6.3) = 12.6$

$S = 26(8.25) + 3(6.7) + 3(7.6) = 257.4$

$\mathcal{S}^e = 0$

$\mathcal{S} = 15 + 1(23.75)(8.25) + 2.5(23.75)(5.9) + .25(6.7)(23)$

$+ .25(23.75)(7.6) + 9 + 3.1 + 9 = 666$

$\oplus = 0$

$A = (70.5)(50.4) + .5(70.5)(10.4) = 3920$

Span 31

$\varnothing = 7.1$

$S^e = 12(7.7) + 8 + 2(7.6) = 115.6$

$S = 13(7.7) + 5.7 + 2(6.6) + 5(7.6) = 157$

$\mathcal{S}^e = .75(23.75)(7.7) + .5(6.6)(23) = 213$

$\mathcal{S} = (23.75)(7.7) + 23(7.7) + 16 + .50(23.75)(5.7) + 4$

$+ 23(6.6) + 23.75(7.6)(.25) + 6 + 12 + 10 = 672.6$

$\oplus = 4$

$A = 70.5(61.8) + .5(70.5)(13) = 4815.15$

Span 32

$\varnothing = 11.2$

$S^e = 16.5$

$S = 4(8.7) + 6(8.4) + 3(8.1) = 109.5$

$\mathcal{S}^e = 6 + .25(17)(8.4) = 41.7$

$\mathcal{S} = 13.1 + 2.5(17)(8.4) + 19.75(8.1) + 11 + 9 + 8.7 \times 2$

$+ .75(8.7)(15) + .5(8.7)(14) = 710$

$\oplus = .7$

$A = (36)(50) + .5(48)(4) = 1896$

Span 33

$\ominus = 1.8$

$S^e = 0$

$S = 4(7.9) = 31.6$

$\cancel{S}^e = 1.75(17.75)(7.9) + 16 + 12 + 1.5(17)(7.9) = 474.8$

$\cancel{S} = 16$

$\oplus = 6 + 8 + 2 + 4 = 20$

$A = (70.5)(36) = 2538$

Span 34

$\ominus = 1.\cancel{63} + 6.25 = \cancel{6.4}\ 7.3$

$S^e = 9 \times 7.75 = 69.8$

$S = 13 \times 7.75 + 3 = 103.8$

$\cancel{S}^e = 23.75(7.75) = 184.1$

$\cancel{S} = 4.25(23.75)(7.75) + 1.75(23)(7.75) + 7.75(6) = 1140.7$

$\oplus = 0$

$A = (70.5)(35) = 2467.5$

Span 35

$\ominus = 3 + 1.5 = 4.5$

$S^e = 11(7.75) + 4 = 89.3$

$S = 5(7.75) = 38.8$

$\cancel{S}^e = 15.5$

$\cancel{S} = 2.25(7.75)(23.75) + 2(7.75)(23) = 770.6$

$\oplus = 0$

$A = 2467.5$

Span 36

$\ominus = 2$

$S^e = 4(7.75) + 6 = 37$

$S = 6(7.75) = 46.5$

$\cancel{S}^e = 7.75 + .5(7.75)(23.75) = 99.8$

$\cancel{S} = 6 + 23.75(7.75)(.2) + .5(23)(7.75) + 12.5 + 7.75(5) = 151.1$

$\oplus = 7.75$

$A = 2467.5$

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 3190A Date 10/9/06

Town: WATERBURY Photographer: SW

Carried / Crossed: RTE 8 NB / RTE 8SB, RIVERSIDE ST & SUNNYSIDE AVE

Film Frame #	Image Description
CAM 1 1	SP 31 G2 @ P31 N. AB NUT MISSING
2	SP 31 BTWN G5 & G6 NEAR P31 DECK W/ SP W/ EXP REB
3	P31 C3 W. FACE W/ SPALLS & EXP REB
4	SP 31 G1 @ P31 W. SIDE KEEPER NOT WELDED TO MAS PL
5	SP 31 G1 @ MIDSPAN E. SIDE BOT FLG W/ SEC LOSS
6	P30 C1 N. SIDE SINKHOLE
7	SP30 G8 @ P29 E BRG STIFF W/ PURF @ BOT
8	SP 30 G2 @ P29 KEEPER PL IS LOOSE & AB NUTS BACKED OFF
9	SP6 G1 @ P5 GAP BTWN BLAST PAD & MAS PL
10	SP6 X-GIRD @ P6 W OF G1 TOP FLG LOSS
11	SP8 G1 @ PB 2 TOP FLG W/ RUST & PL
12	SP8 BTWN G1 & S1 @ PB 2 SPALL IN DECK
13	SP10 P9 CAP GIRDER @ C1 GAP @ BOT OF WEB & HOLE IN VERT STIFF
14	SP12 BTWN S1 & 2 NEAR P11 VOID IN DECK W/ EXP REB
15	SP12 S1 @ PB1 MISSING AB
16	SP13 S1 S. OF PB1 TOP FLG SPLICE W. SIDE BOLT NOT SNUG
17	SP15 G1 BOT FLG ~10' FROM P14 PAINTED OVER SL
18	SP15 G1 BOT FLG BTWN P14 & PB1 W. SIDE PAINTED OVER SL
19, 20	SP15 X-GIRD @ P15 N. SIDE NEAR S2 GOUGE IN BOT FLG
21	SP15 TRUSSBRACE FROM P15 TO G1 CRD WELD @ BOT CHORD TO G1 CONN PL
22	SP19 X-GIRD @ P19 N. SIDE BTWN G2 & G4 BOT FLG PITTING
23	" " " BTWN PA COL 1 & G1 WEB PITTING
~~24~~	~~P26 EAST, S. BLOW POT UNDER G1 SPALLED U-MINE REB~~
~~25~~	~~SP29 U-SIDE NEAR MIDSPAN BAY 6~~

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 3190A

Date 10/12/06

Town: WATERBURY

Photographer: PG, DLC

Carried / Crossed: RTE 8 NB / RTE 8SB, RIVERSIDE ST & SUNNYSIDE AVE

Film Frame #	Image Description
24	SP 25 @ P25 BTWN G3&4 ACTIVE LKG THRU JT
25	SP 25 G1 E. SIDE @ MIDSPAN SL TO BOT FLG
26	TYP U-SIDE MULTI-GIRDER SP 26 LKG N.
27	TYP U-SIDE GFS SP 22 LKG. S.
28	W. ELEV SPS 25-30
29	Pier 24 S Cap btwn G2+3 top-flg Pack rust btwn
	steel & Conc. lifting deck. Gap w/ tack weld @ top
	flg @ Stiff. Note: Transition
30	SP 24 G1 N. End Cover PL w/ Painted over Gouge
31	E. ELEV SPS 31-36
32	N. APPROACH
33	BRIDGE FROM N. APPROACH
34	JT @ N. ABUT LKG EAST
35	JT @ P24 LKG EAST NEW ASPH PLUG INSTALLED
36	JT @ P25 LKG WEST TYP SCALLE IN HEADERS
37, 38	JT @ P24 RT TRAVEL LANE SPALL IN HEADER W/ HOLE THROUGH DECK
39	PIER 25 N. SIDE COL 1
40	P25 N. SIDE GAP BTWN G2&G4
41	SP 26 @ P26 G6 BRG W/ PACK RUST BTWN PL'S
42	SP 24 @ P22 CROSS GIRDER BOT FLG W/ PITTING
43	SP 24 BAY 2 @ P23 TOP FLG CROSS GIRDER SEC LOSS
44	P26 EAST, S. ELEV PED UNDER G7 SPALLED & U-MINES BRG
45	SP 29 U-SIDE NEAR MIDSPAN BAYL

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 3190A

Date

Town: WATERBURY

Photographer:

Carried / Crossed: RTE 8 NB / RTE 8 SB, RIVERSIDE ST & SUNNYSIDE AVE

Film Frame #	Image Description
46	SP 2&4 BAY NORTH INT. DIAPH @ G1 STIFF CRK'D @ TOP & PERF @ TOP OF DIAPH
47	SP1 G1 @ S. ABUT PAINTED DATE
48	SP2 G4 @ P2 X-GIRD BOT BRACKET BOLT SHEARED OFF
49	SP2 G1 @ N. INT DIAPH S & TO BOT PLG & DIAPH
50	P3 S. ELEV NEAR TOP HA W/ ACTIVE LEAKAGE FROM HA
51	P3 S. ELEV @ E. END SP & HA AROUND UPLIFT ANCHORAGE
52	SP 3 G5 @ P3 PACK RUST BTWN MAS & X-GIRD TOP PLG
53	SP1 BTWN G6 + G7 @ P1, DECK LIFTED 1/4" DUE TO PACK RUST
54	SP2 BTWN G5 + G6, P2, 2 TOP BOLTS NOT TIGHT
55	SP5 G7 NEAR MIDSPAN E. SIDE BOT PLG LOSS
56	JT OVER P19 LKG WEST
57	BIN
58	Spans 26-31, E Elev.
59	~~S. APPROACH RELIEF JT?~~ JT OVER S. ABUT LKG WEST
60	JT OVER P1 LKG WEST
63	JT OVER P2 LKG WEST NEOPRENE HEADERS MISSING
61	S. APPROACH
62	BRIDGE FROM S. APPROACH
64	JT OVER P3 ON RAMP LANE SEAL SEPARATED FROM HEADER
65	" " " RT LANE SEAL SEPARATED FROM HEADER & PACKED W/ SAND
66	SP's 5 & 6 MP TOP OF DECK
67	JT OVER P4 LKG WEST
68	JT OVER P5 RT EXIT LN SEAL SEPARATED FROM HEADER
69	JT OVER P6 RT LN NEOPRENE MISSING, GLAND TORN

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 3190A Date 11/15

Town: WATERBURY Photographer: PDG, CL

Carried / Crossed: RTE 8 NB / RTE 8 SB, RIVERSIDE ST. & SUNNYSIDE AVE

Film Frame #	Image Description
70	JT OVER P9 RT LN GLAND TORN, HEADER SPALLED
71	" " RT EXIT LN STEEL HOLD DOWN CRIDE GOUGED
72	SP 12 RT EXIT LN PATCHES NOTE HOLLOW OVERLAY IN SHLD
73	JT OVER P18 HEADER SPALLS & HA'S
74	JT OVER P19 S. HEADER IN EXIT LN CR IN HEADER
75	SP 19 @ SPLIT CONDUIT ELBOW MISSING COVER, WIRES EXPOSED NOTE: ABANDONED CONDUIT TIED TO RAILING
76	SP 23 SE SCUPPER CLOGGED
77	SP 23 NE SCUPPER CLOGGED NOTE: GRATE MISSING 2"L SECTION
78	SP 23 RT EXIT LN HA'S IN OVERLAY W/ REFLEX CR'S
79	SP 24 EAST PPT NEAR P24 SPALLED & HOLLOW
80	SP 24 WATER PONDING IN RT EXIT RT SHLD
81	N. APPROACH
82	Sp 8, RUST AROUND WELD ON G2 @ PIER 8
83	SP9, G2 @ CROSS GIRDER @ Pier 9, RST ON TOP FLG
84	SP10, DIAPH BTWN S5+G2, NO BOLTS IN TOP FL OR WELDS
85	SP10, P10, HVY RUST W/SL ON BTM BRACE
86	P4 CAP TYP INSIDE LKG EAST
87	P4 CAP @ W END SL 90 BUT OF WEB & END R
88	JT OVER P1 GLAND TORN IN LT & RT LANES
89	JT OVER P3 HEADER SPALLED & HOLLOW W/ BIT PATCHES
90	SP 9 OVERLAY TYP CRACKS IN OVERLAY
91	SP 12 @ P12 LT SHLD POTHOLE IN OVERLAY & SPALL IN DECK
92	SP16 @ P16 LT SHLD POTHOLE W/ EXP MEMBRANE
93	SP20 NEAR P20 LT LN POTHOLE

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 3190A

Date 11/20

Town: WATERBURY

Photographer: PDG

Carried / Crossed: RTE 8 NB / RTE 8 SB, RIVERSIDE ST. & SUNNY SIDE AVE

Film Frame #	Image Description
94	SP 25 LT LN POTHOLES/HA
95	JT OVER P30 IN LT EXT IN CR IN AP JT
96	SP 19 @ P19 E. SEISMIC RETROFIT MISSING 2 COTTER PINS
97	SP 19 @ P18 STIFF OF OUTSIDE BRACE WELD CR'D @ BOTH SIDES ON BOT @ C2
99	SP 18 BTWN G7 & G8 NEAR P18 LIGHT COVER IS BROKEN
98	SP 16 NEAR P16 G2 @ OUTSIDE BRACE BOT HORIZ WELD MISSING
100	SP 14 NEAR P13 G2 BOLTED SPLICE MISSING 1 BOLT @ BOT FLG
101	Spans 18-20 W. ELEV.
102	SP 11-17 W. ELEV
103	SP 7-10 - W. ELEV
104	SP 1-4 W. ELEV.
105	SP 5-6 W. ELEV
106	P34, N. ELEV PIER CAP HAS CONC. REPAIRS

PHOTO LOG

Form BRI-13, Rev. 9/97

Bridge Information System

Image Inventory

Bridge No. 3190A Date 10/10/06

Town: WATERBURY Photographer: SW

Carried / Crossed: RTE 8 NB / RTE 8SB, RIVERSIDE ST & SUNNYSIDE AVE

CAMERA 2

Film Frame #	Image Description
1	BIN
2	SP 5 BTWN G1 & G2 NEAR MIDSPAN NA & SP. W/EXP REB
3	SP 5 G1 @ P5 PACK RUST BTWN BRG PL'S
4	SP 7 BTWN G1 & S1 @ FB2 DECK W/NA & SPALL
5	SAME AS PHOTO 2
6	SP9 BTWN G1 & G2 NEAR P9 LIGHT UNDERDECK IS BROKEN
7	SP 9 @ P9 CAP GIRDER @ C1 BOT LAT BRACE MEMBER TOP HORIZ WELD CRACKED
8	SP9 @ P9 " " " " " " VERT WELD CRACKED
9	SP11 S1 @ P11 CAP GIRDER WEB COPED AREA W/CR & STOP HOLE NO CHANGE
10	SP11 S2 @ FB 2 BRG PL TO TOP FLG OF FLBM NW TACK WELD CR'D
11	SP11 S1 @ FB 1 " " " " " " " SE " " " MISSING LAB NUT
12	SP 14 G1 W. SIDE @ S. BOLTED SPLICE CR'D TACK WELD ALONG WEB PL
13	PHOTO 6 LIGHT WAS REPAIRED
14	SP 16 NEAR P15 @ G1 LAT BRACE @ BOT CONN TO STIFF W/GAP
15	PHOTO 14 SHOWING WIDER ↔
16	SP 18 P17 CAP GIRDER @ C1 BOT OF WEB TO BOT FLG MISSING WELD
17	" " " @ C1 ABANDONED CONDUIT W/EXP WIRES TIED TO RAILING
18	SP 18 P17 CAP GIRDER WEST SEISMIC RETROFIT REPAIRED
19	SP 18 G4 W. SIDE @ 1ST DIAPH FROM N. BOT & HORIZ WELD NOT CONN TO STIFF
20	SP 17 LOOKING S U/S OF DECK
21	PIER 18 BTWN CAP GIRDERS LOOKING EAST DECK UNDER JOINT IS SPALLED
	ON SP 18 SIDE & RUST BTWN TOP FLG & DECK ON SP 19 SIDE
22	PIER 19 DEFLECTION LOOK LOWER BRG HAS PACK RUST BTWN PL'S
23	PIER 23 " " SP 24 SIDE WEB PL HAS PITTING & PERFS

PHOTO LOG

Form BRI-13, Rev. 9/97

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Bridge Information System

Image Inventory

Bridge No. 3190A Date _____

Town: _____ Photographer: _____

Carried / Crossed: _____

Film Frame #	Image Description CAMERA #2
24	Sp 24, pier 23, pot bearing
25	SP 12, TOP FLGFBI BTWN S4 FS5, LAM. RUST
26	typ. underside of Deck. Spans 13-16
27	SP13 NEAR P12 DIAG. BR MISSING, BOX WELD @ G2
28	SP 12 NEAR P12 DIAG BR BOX WELD @ G2 W/ POOR FUSION/DISCONNECTED

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #1:
Description: Bridge identification number.

Photo #2:
Description: South approach from bridge.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #3:
Description: Bridge from south approach.

Photo #4:
Description: Bridge from north approach.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #5:
Description: North approach from bridge.

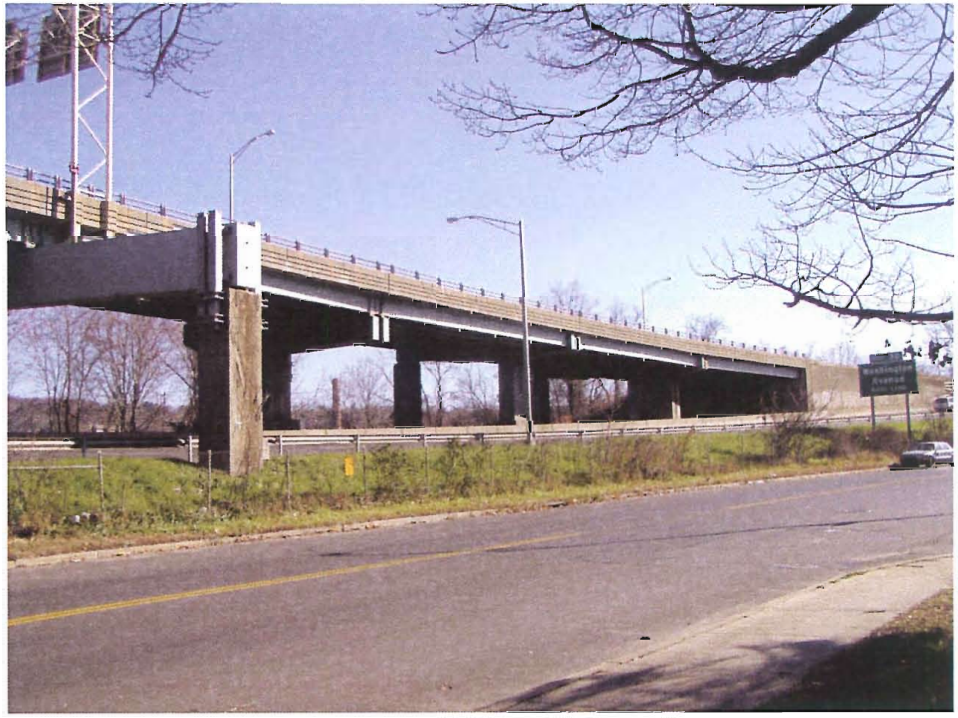

Photo #6:
Description: West elevation, spans 1-4.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #7:
Description: West elevation, spans 5 & 6.

Photo #8:
Description: West elevation, spans 7-10. Note: Inventory structure is the upper deck.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

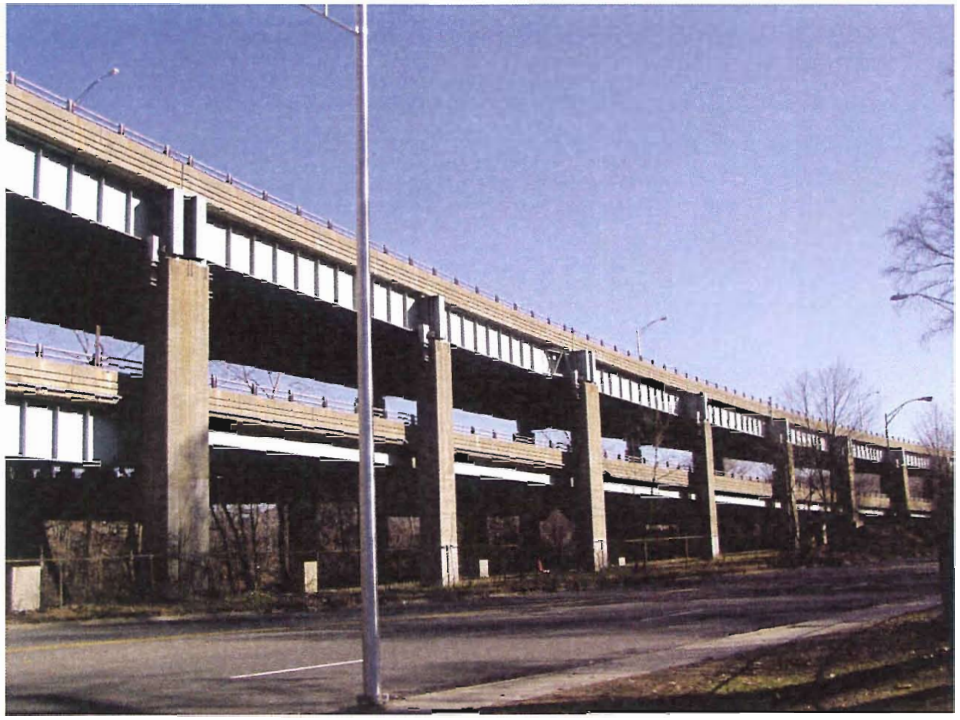

Photo #9:
Description: West elevation, spans 11-17. Note: Inventory structure is the upper deck.

Photo #10:
Description: West elevation, spans 18-20. Note: Inventory structure is the upper deck.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #11:
Description: West elevation, spans 23-30.

Photo #12:
Description: East elevation, spans 31-36. Note: Inventory structure is the middle bridge.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #13:
Description: Typical underside of deck, girder-floorbeam-stringer design, spans 13-16. Spans 7-12, 17 and 20-22 are similar.

Photo #14:
Description: Typical underside of deck, multi-girder design, span 26. Spans 1-6, 23-25 and 27-36.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #15:
Description: Spans 5 & 6 looking north. Typical top of deck.

Photo #16:
Description: Span 12 at pier 12, left (west) shoulder. Pothole in overlay with exposed and deteriorated deck. Note: Deck concrete is punky. Note: Area corresponds with deterioration shown in attached GPR report.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #17:
Description: Span 16 at pier 16, left (west) shoulder. Pothole in overlay with exposed membrane. Note: Concrete under membrane is punky. Note: Area corresponds with deterioration shown in attached GPR report.

Photo #18:
Description: Span 23, right exit lane near midspan. Overlay has hollow areas with reflex cracking. Note: Area corresponds with deterioration shown in attached GPR report.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #19:
Description: Span 29, left exit lane. Potholes and hollow areas in overlay around full depth patch. Note: Area corresponds with deterioration shown in attached GPR report.

Photo #20:
Description: Span 12 between stringers 1 & 2 near pier 11. Void in deck with exposed rebar. Rebar is rusting through epoxy repair coating.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

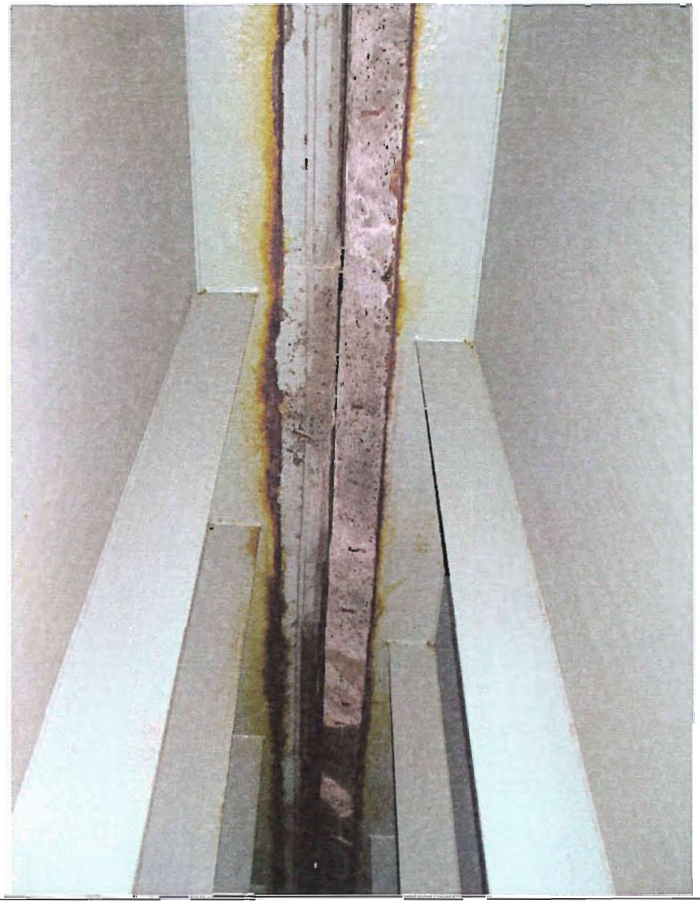

Photo #21:
Description: Deck joint at pier 18 between cross girders. Deck is spalled. Note: cross girder top flanges have heavy rust along edge.

Photo #22:
Description: Span 24, bay 2 at pier 23. Deck has a spall with exposed rusted rebar. Note: Cross girder top flange section loss.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #23:
Description: Span 24 near pier 24. East parapet has spalled and hollow areas.

Photo #24:
Description: Span 23 scupper in right (east) shoulder, north end. Scupper is clogged with debris. Note: scupper grate has a section missing from one of the vanes.

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Bridge No.	3190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #25:
Description: Span 24, right exit lane. Water is ponding in the right (east) shoulder.

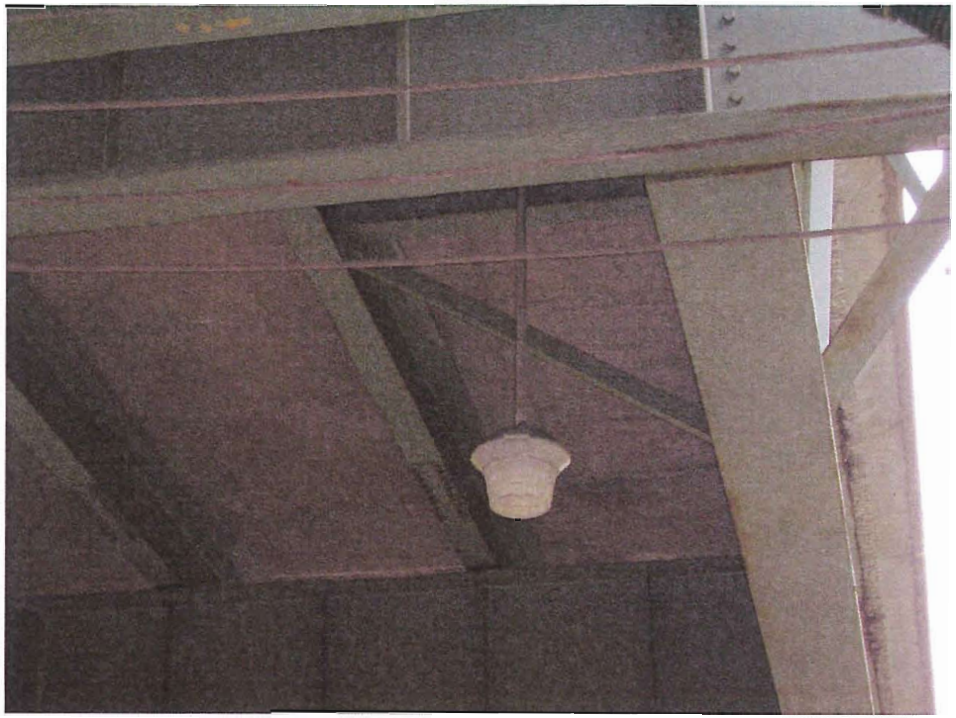

Photo #26:
Description: Span 9 between girder 1 and stringer 1 near pier 9. Broken underbridge luminaire was repaired by ConnDOT maintenance forces during the inspection.

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Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

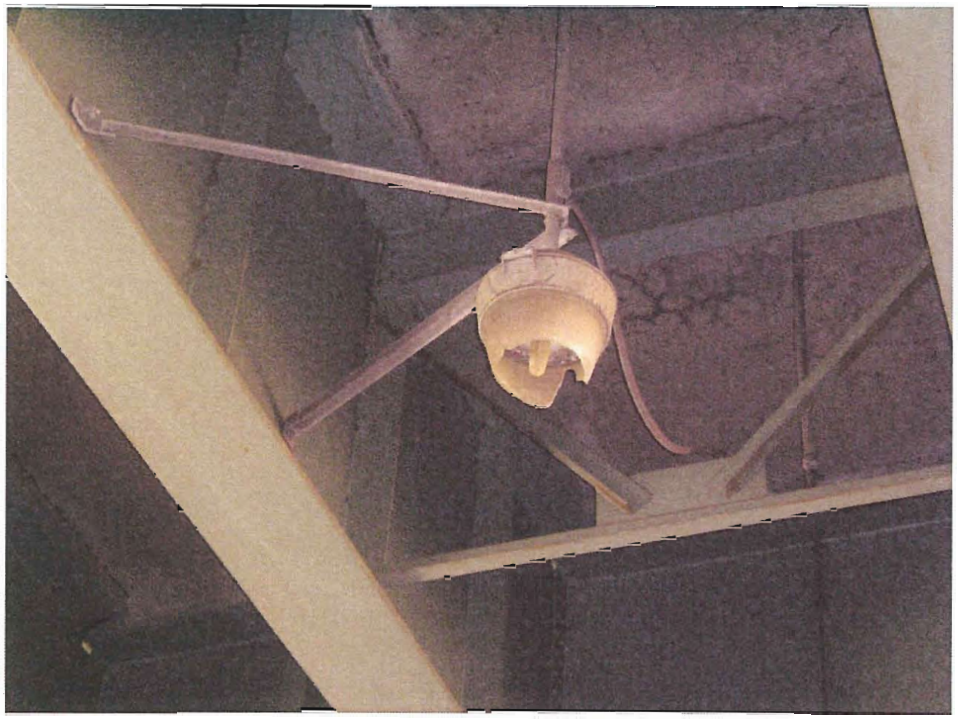

Photo #27:
Description: Span 18 between girders 7 & 8. Underbridge luminaire cover is broken.

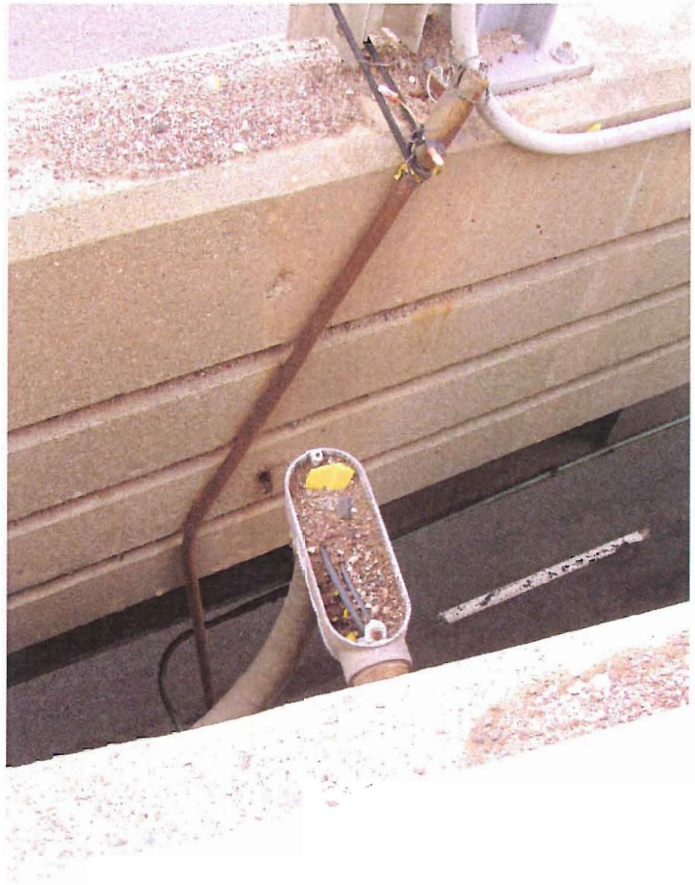

Photo #28:
Description: Span 19 at exit split. Exit sign warning lights conduit elbow is missing cover, has exposed wires and is filled with debris.
Note: Loose abandoned conduit is tied to parapet railing.

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Photo #29:
Description: Expansion joint at south abutment. Overlay is breaking apart along joint with potholes exposing deck end.

Photo #30:
Description: Joint over pier 2 looking west. Sections of elastomeric rubber dam missing with metal reinforcement broken and shifted (not loose). Note: gland is torn at these locations.

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Photo #31:
Description: Joint over pier 3. Compression seal is separated from concrete header.

Photo #32:
Description: Joint over pier 6. Section of elastomeric rubber dam is missing and gland is torn and loose.

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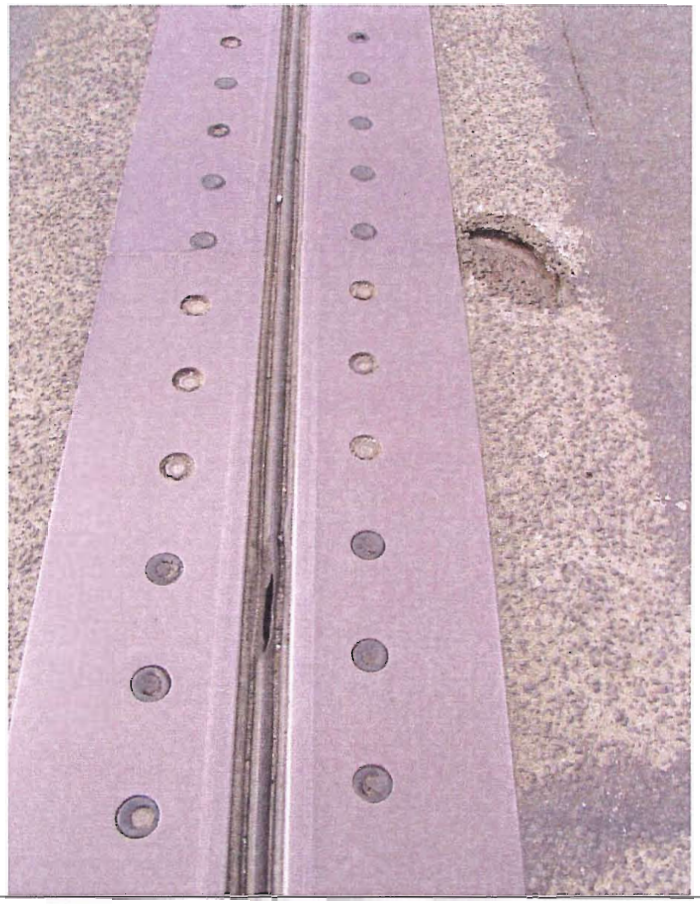

Photo #33:
Description: Joint over pier 9. Gland is torn and header is spalled.

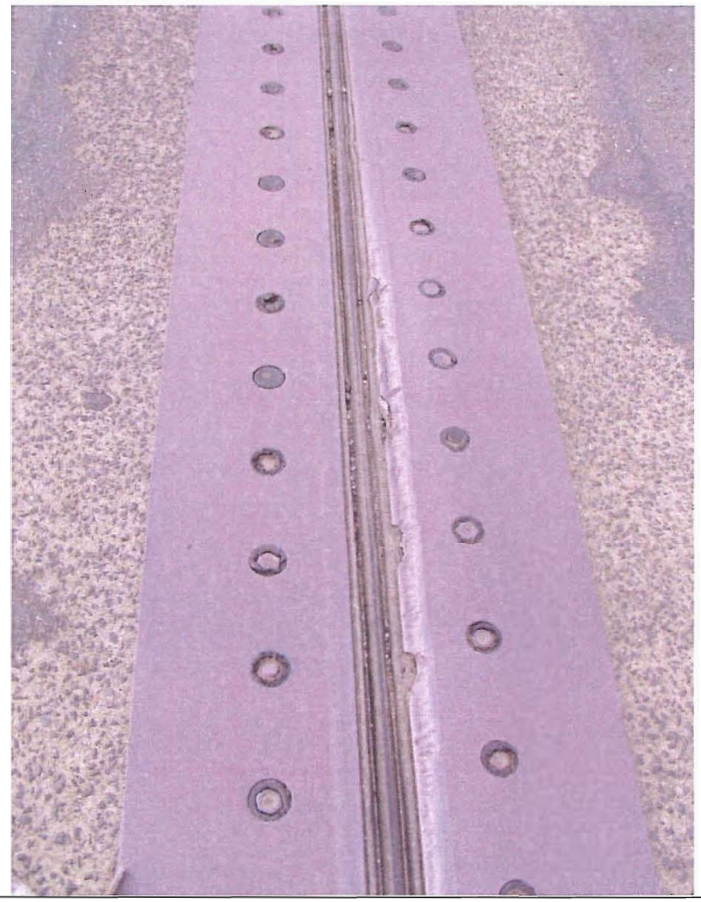

Photo #34:
Description: Joint over pier 9. Steel extrusion is gouged and cracked along gland.

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Feature Crossed:	Route 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

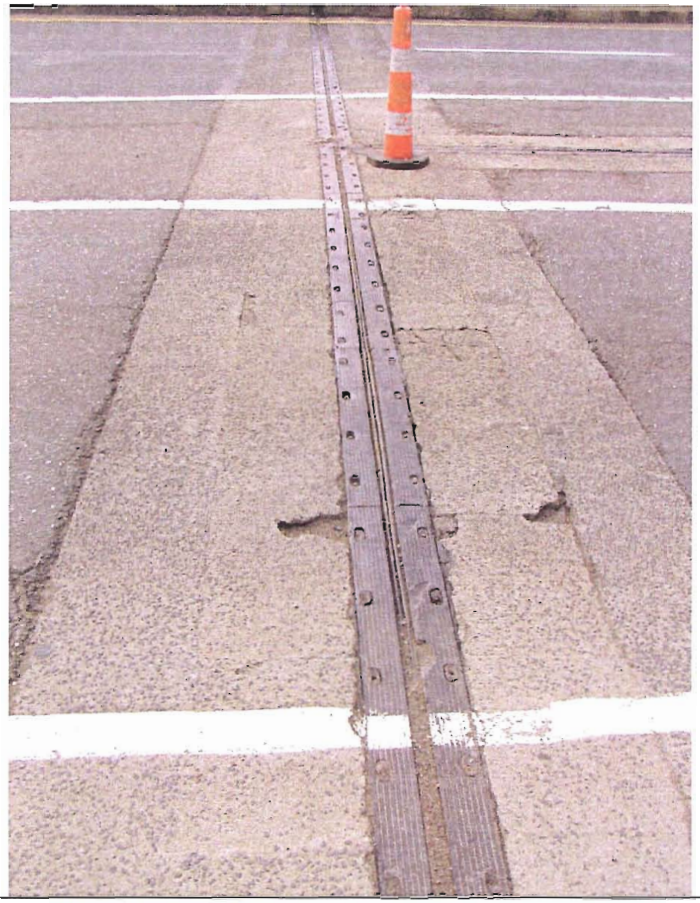

Photo #35:
Description: Joint over pier 18. Header has spalled and hollow areas.

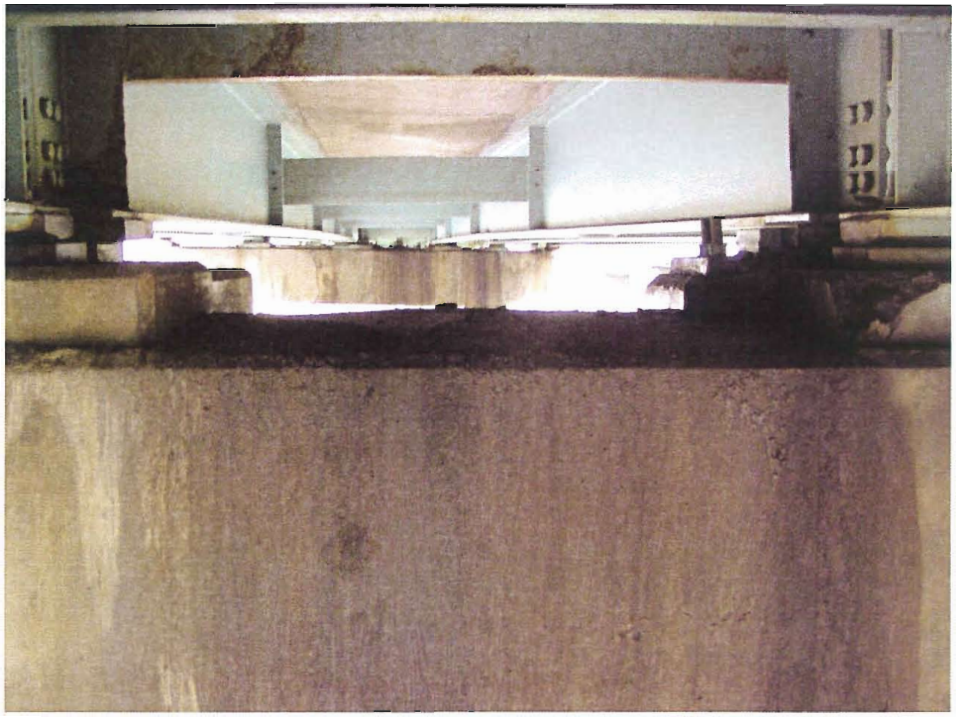

Photo #36:
Description: Joint over pier 25, between girders 3 & 4. Active leakage through joint.

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Photo #37:
Description: Joint over pier 33. Full depth spall in header. Compression seal is loose at this location.

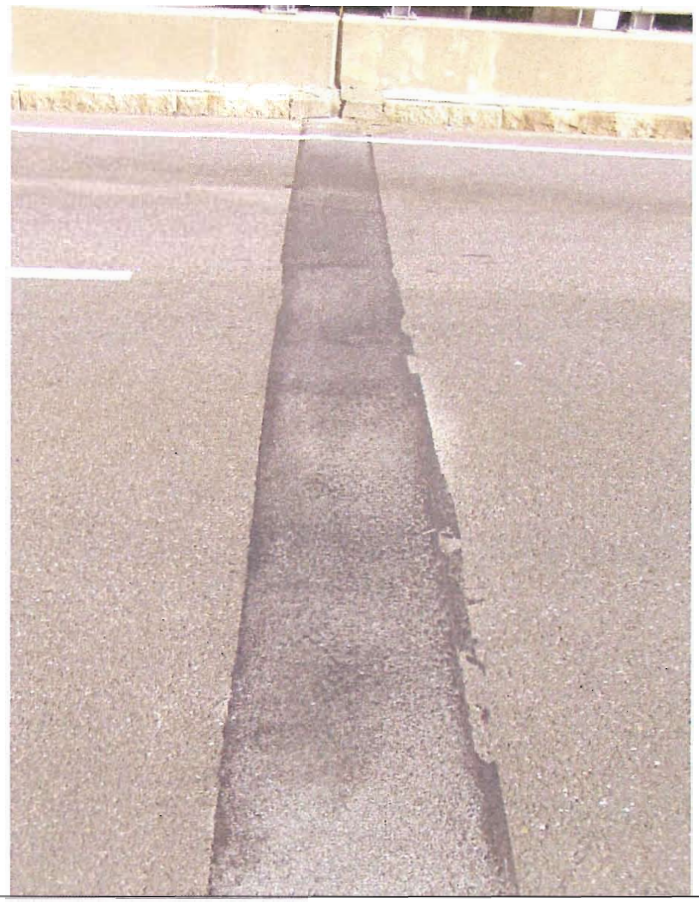

Photo #38:
Description: Joint over pier 34. Asphaltic plug expansion joint installed since last inspection.

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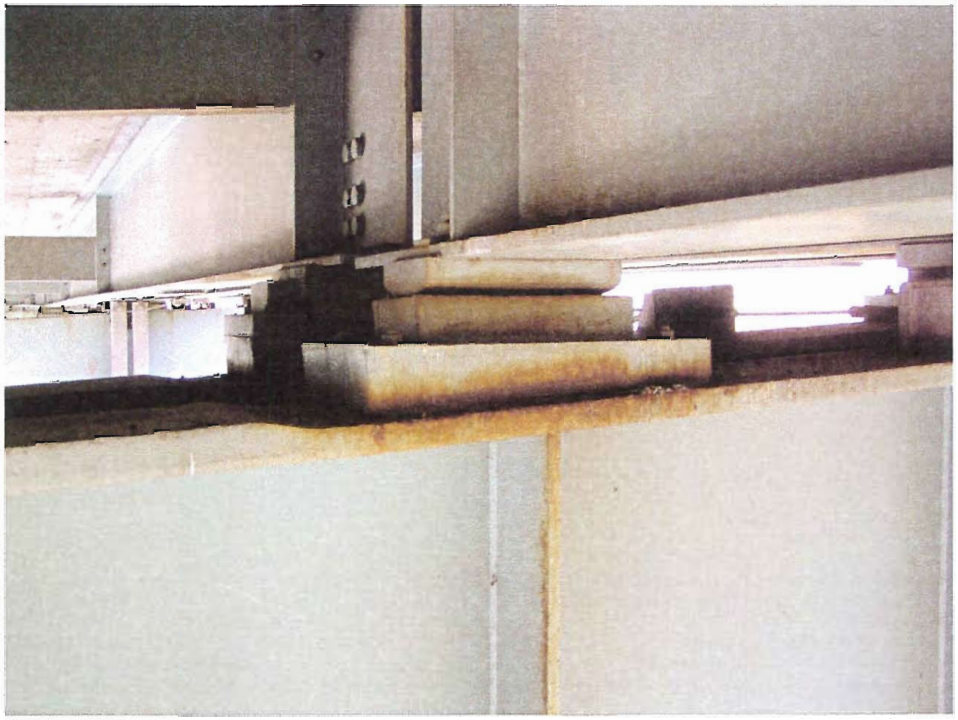

Photo #39:
Description: Span 3, girder 5 at pier 3. Pack rust between masonry plate and cap girder top flange.

Photo #40:
Description: Span 6, girder 1 at pier 5. Edge gap between elastomeric pad and masonry plate.

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Photo #41:
Description: Span 5, girder 1 at pier 5. Pack rust between sole and masonry plates.

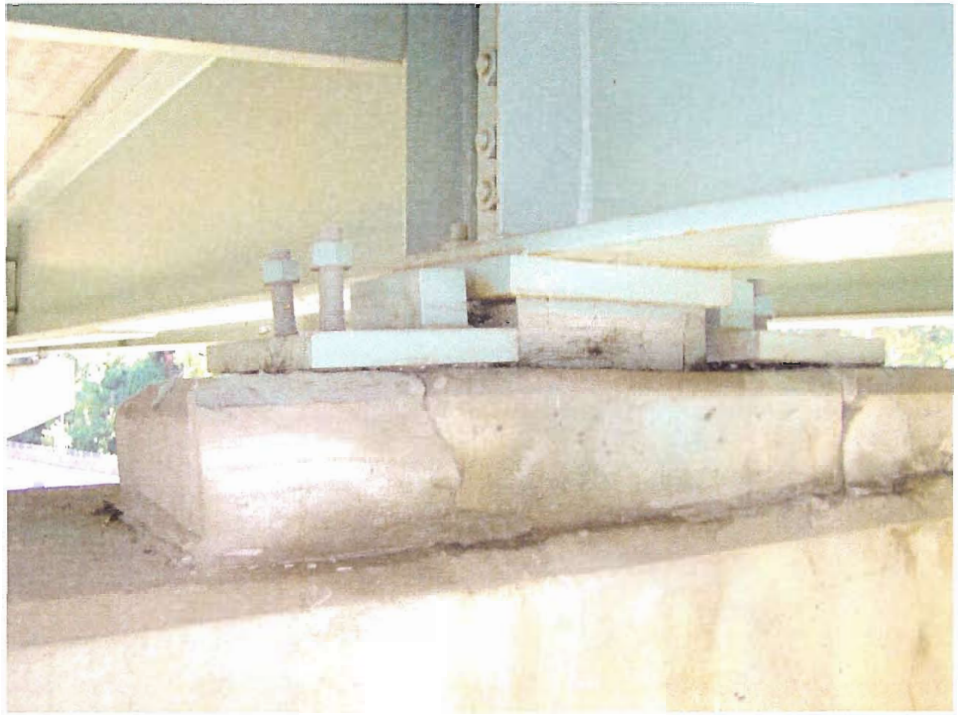

Photo #42:
Description: Span 30, girder 2 at pier 29. Keeper plate is loose with anchor bolt nuts backed off.

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Photo #43:
Description: Span 31, girder 2 at pier 31. North anchor bolt nut is missing.

Photo #44:
Description: Span 5, girder 7 near midspan, east side. Bottom flange has section loss due to active leakage through the deck at the haunch.

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Photo #45:
Description: Span 24, north intermediate diaphragm at girder 1. Connection plate is cracked at the top at an area of section loss and has a perforation at the top of the diaphragm. Diaphragm has heavy rust with section loss. Note: active leakage through deck haunch with efflorescence stalactites.

Photo #46:
Description: Span 30, girder 8 at pier 29. Bearing stiffner has a perforation at the bottom.

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Photo #47:
Description: Span 8, girder 1 at floorbeam 2. Top flange is rusted for the full length at the haunch spall (typical).

Photo #48:
Description: Span 10, cross girder at pier 9. No weld between girder web and bottom flange with gap and hole in vertical stiffener (as-built condition).

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Photo #49:
Description: Span 19 cross girder at pier 19, north side between column 1 and girder 1. Painted over section loss to girder web.

Photo #50:
Description: Span 24 cross girder at pier 24. Painted over pitting on girder bottom flange.

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Photo #51:
Description: Span 24 cross girder at pier 24 between girders 2 & 3. Pack rust between girder top flange and deck lifting deck off girder. Note: tack weld between vertical stiffener and top flange.

Photo #52:
Description: Span 18 cross girder at pier 17. West seismic retrofit has been repaired since the previous inspection.

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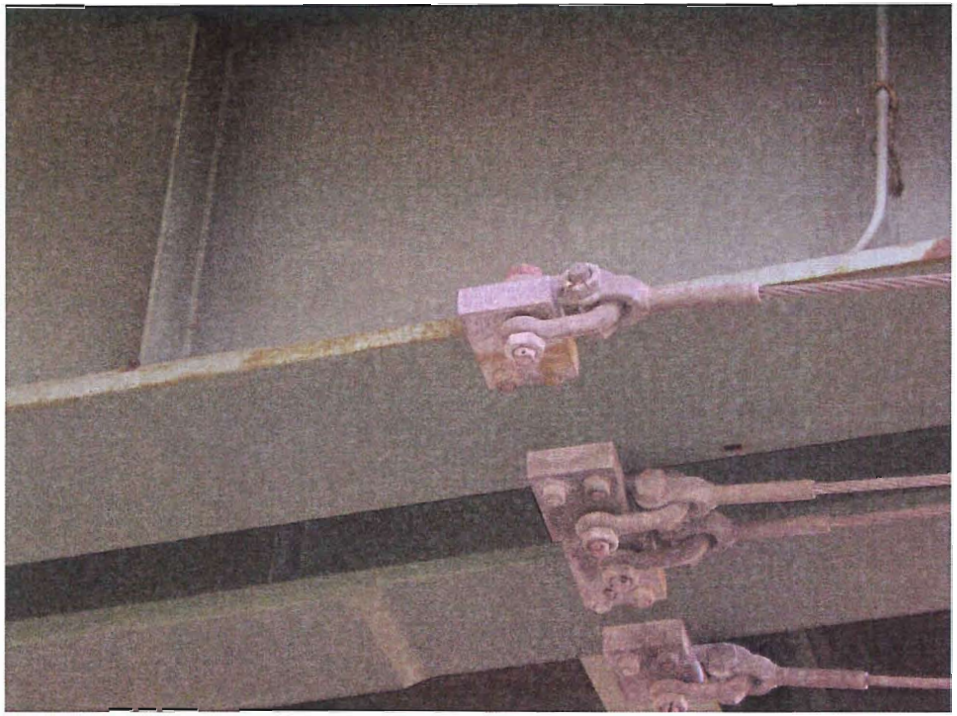

Photo #53:
Description: Span 19 cross girder at pier 19. East seismic retrofit is missing cotter pins.

Photo #54:
Description: Span 12, floorbeam 1 between stringers 4 & 5. Top flange has laminated rust and peeling paint.

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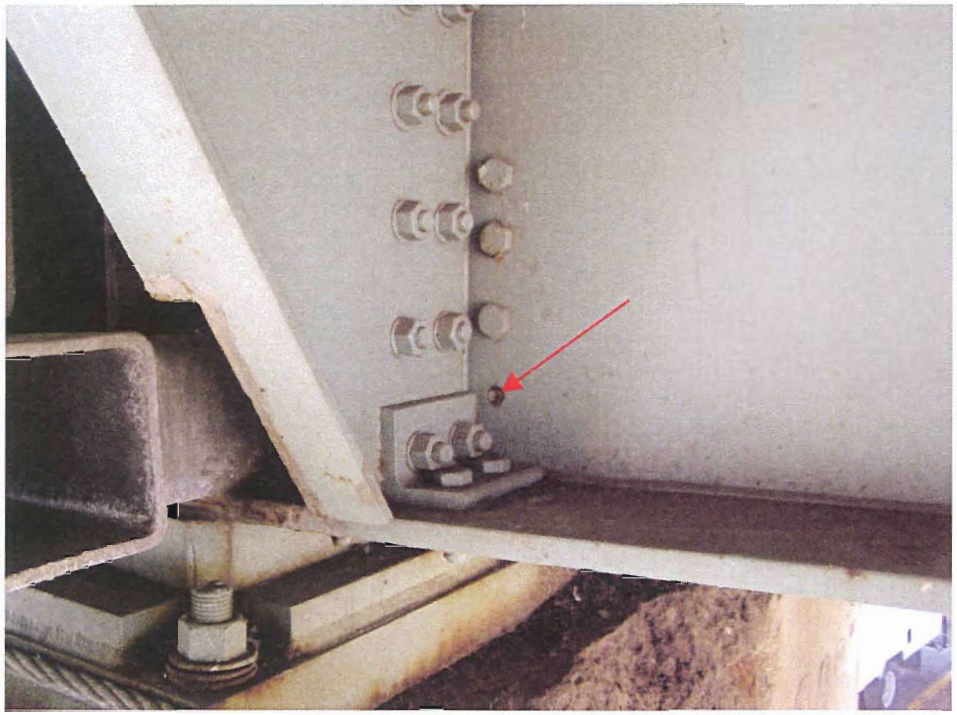

Photo #55:
Description: Span 2, girder 4 at pier 2 cross girder. Bottom bracket bolt is broken.

Photo #56:
Description: Span 12, stringer 1 at floorbeam 1. Broken connection bolt.

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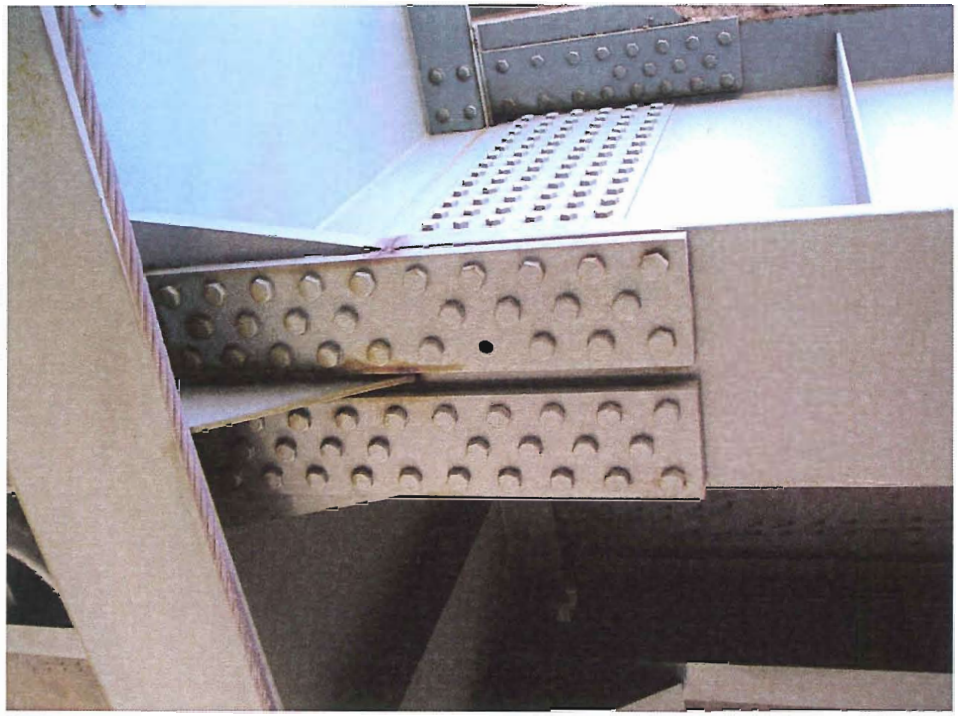

Photo #57:
Description: Span 14, girder 2 at pier 13 cross girder. Bottom flange is missing 1 bolt at splice.

Photo #58:
Description: Span 11, stringer 1 at pier 11 cross girder. Crack at web cope with drilled stop hole.

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Photo #59:
Description: Span 9 cross girder at pier 9. Bottom brace member at column 1 has a crack in the vertical weld.

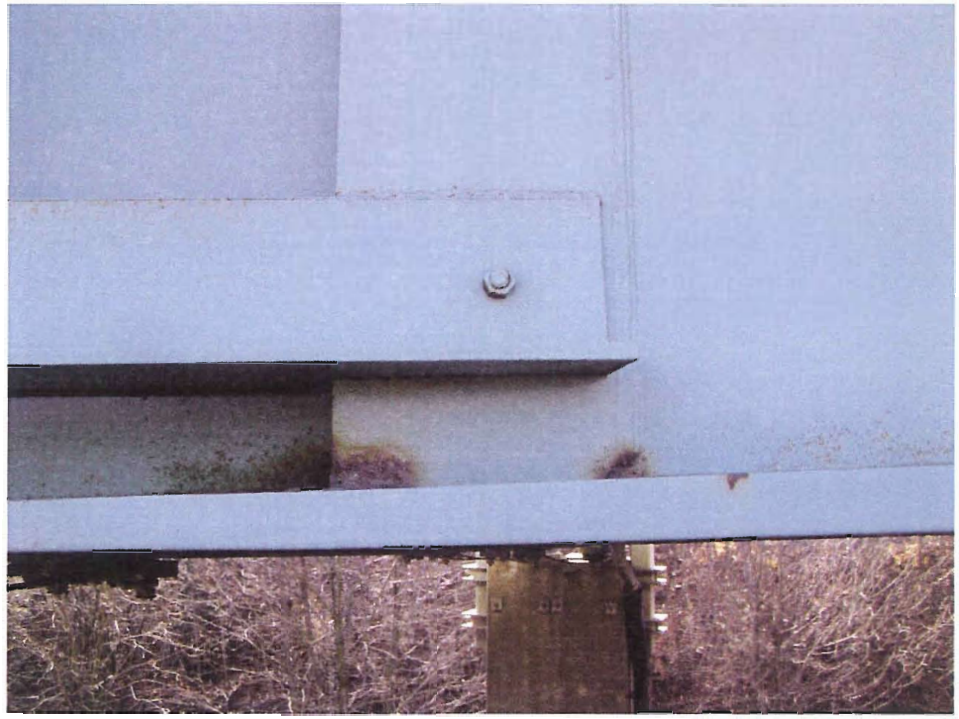

Photo #60:
Description: Span 13, girder 2 near pier 12. Bottom brace member missing bottom weld.

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Photo #61:
Description: Span 15, girder 1 near pier 15. Bottom brace member weld at bottom is cracked through.

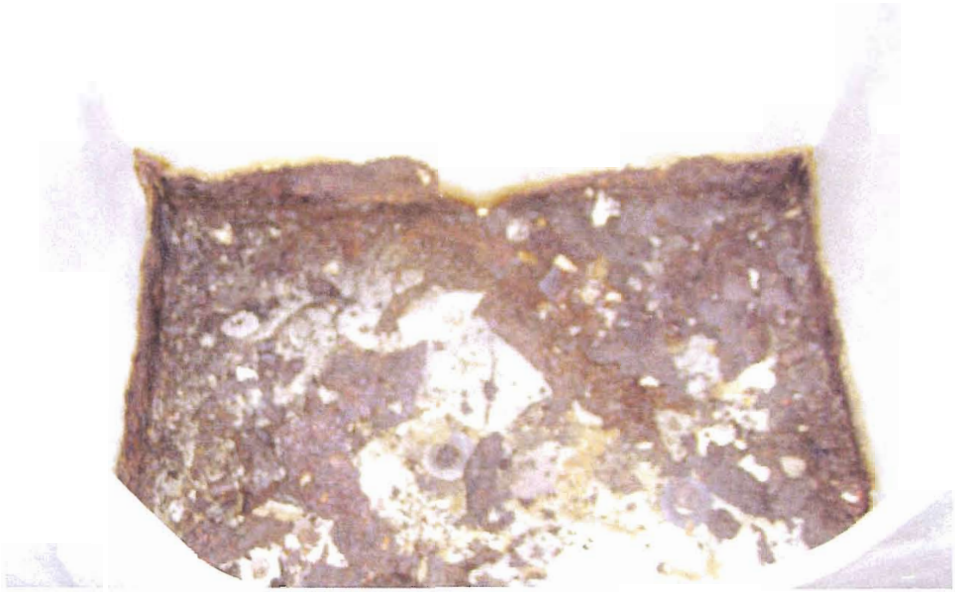

Photo #62:
Description: Pier 4 steel pier cap. West end has section loss to web and end plates on the interior of the cap. Note: heavy laminated rust on bottom flange.

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Photo #63:
Description: Pier 25, north side between girders 2 & 4. Spalls in pier cap.

Photo #64:
Description: Pier 26 east, south side. Pedestal spall under girder 7 undermines corner of masonry plate.

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Photo #65:
Description: Pier 34, north elevation. Pier cap has been concrete repaired.

Photo #66:
Description: Pier 3 south elevation near top. Hollow area in column with active leakage from the hollow area.

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Photo #67:
Description: Pier 3, south elevation at east end. Spall and hollow area around uplift anchorage.

Photo #68:
Description: Pier 31, column 3. Large spalls with exposed rebar on column.

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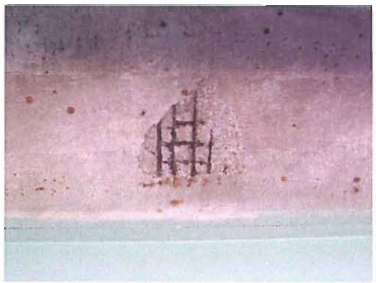
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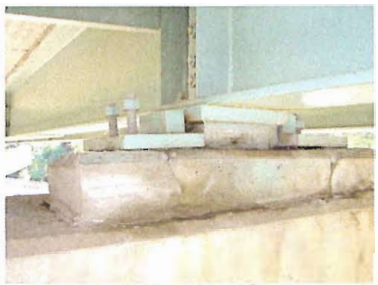
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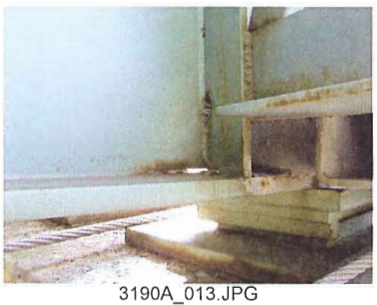
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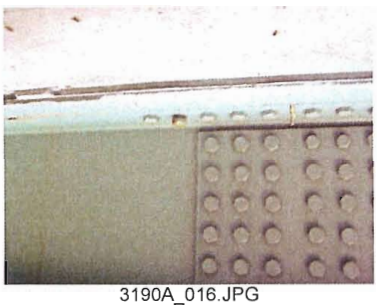
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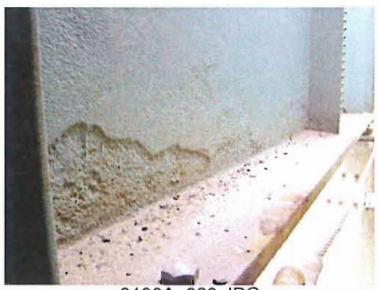
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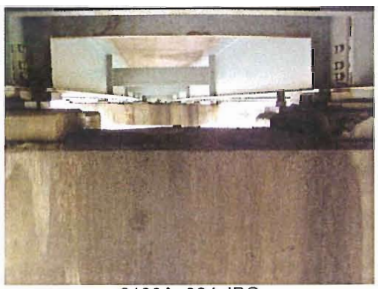
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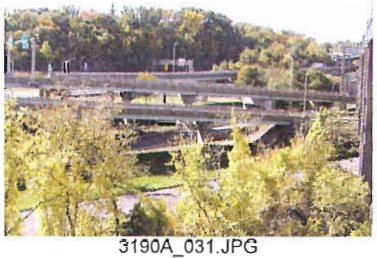
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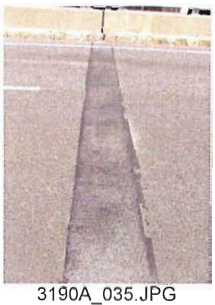
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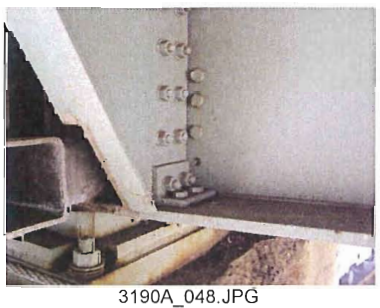
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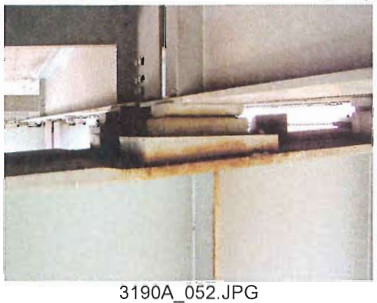
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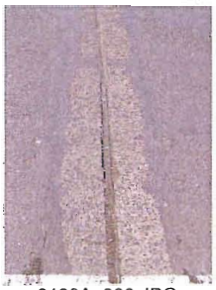
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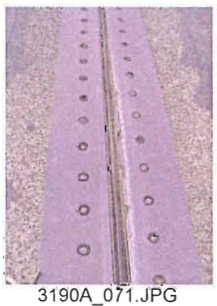
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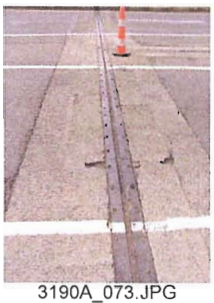
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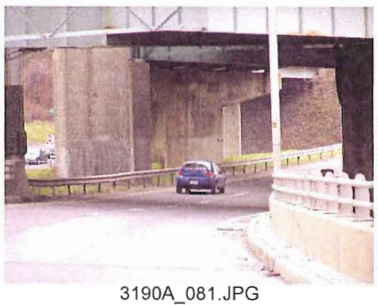
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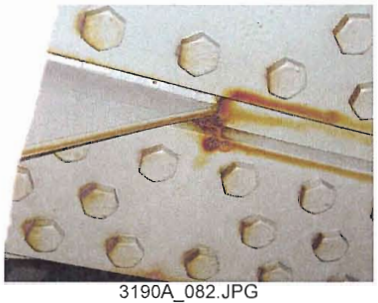
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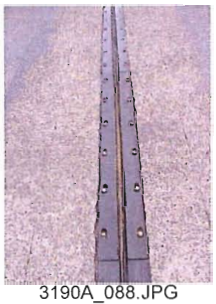
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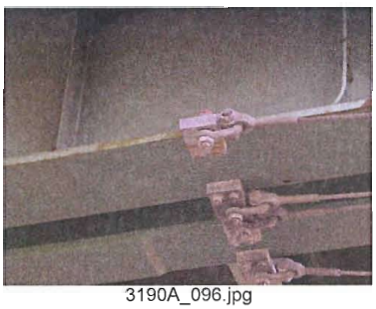
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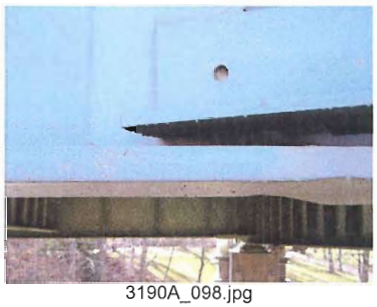
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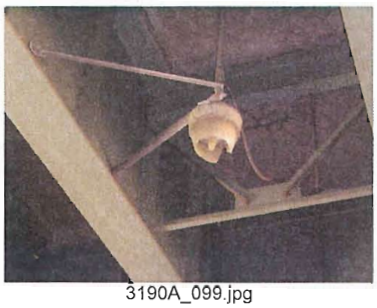
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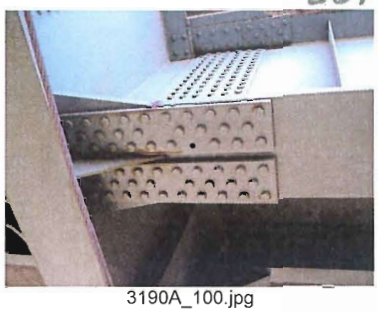
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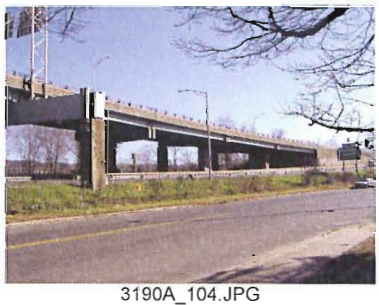
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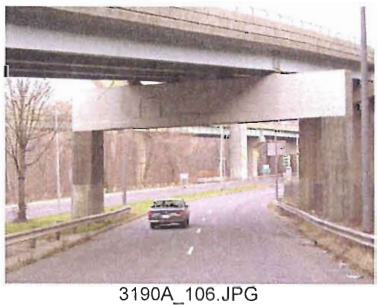
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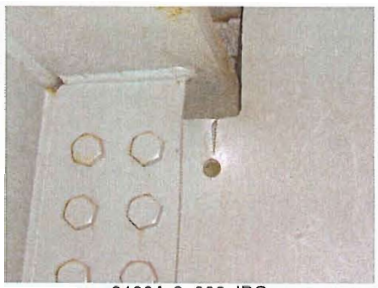
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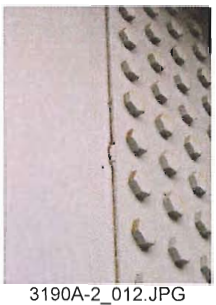
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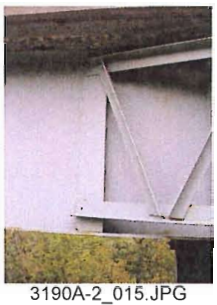
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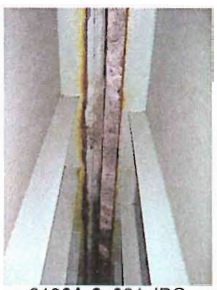
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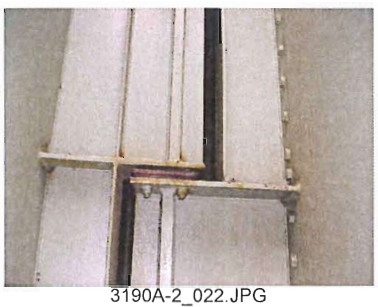
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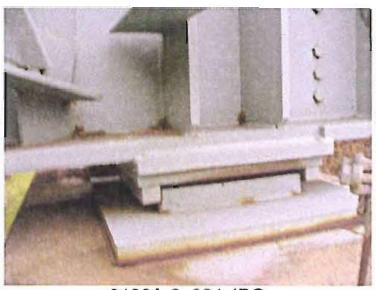
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APPENDIX A

GROUND PENETRATING RADAR REPORT

INFRASENSE, Inc.

Ground Penetrating Radar (GPR) Bridge Deck Inspection

Bridge No. 03190A

Route 8 NB over Route 8 SB, Riverside Street & Sunnyside Avenue
Waterbury, Connecticut

Inspection Report

submitted to

HAKS Engineers, P.C.
Centerpoint Executive Park
306 Industrial Park Road, Suite 201
Middletown, CT 06457

by

INFRASENSE, Inc.
14 Kensington Road
Arlington, MA 02476

March 19, 2007

1. BRIDGE DATA

Bridge No. 03190A:

Route 8 NB over Route 8 SB, Riverside Street & Sunnyside Avenue, Waterbury, Connecticut

Deck Area: 130,165 S.F.

Structure Type: Steel Multi-Girder approach spans, Girder/Floorbeam/Stringer main spans

Structure Length: 2,634 feet

Number of Spans: 36

Curb to Curb (Bridge Roadway) width: 42.0 feet in spans 1-17, Start width 49.0 feet and end width 53.5 feet in spans 18 & 19, Start width 52.0 feet and end width 66.0 feet in spans 20-26, Start width 30.5 feet and end width 68.0 feet in spans 27-31 & 30.0 feet in spans 32-36

Out to Out Deck width: 47.5 feet in spans 1-17, Start width 54.5 feet and end width 59.0 feet in spans 18 & 19, Start width 57.5 feet and end width 71.5 feet in spans 20-26, Start width 36.0 feet and end width 73.5 feet in spans 27-31 & 35.5 feet in spans 32-36

Deck Thickness: 7.25 inches

Overlay: Approximately 2 to 3 inches bituminous overlay with waterproofing membrane

Number of travel lanes carried by bridge: 2 lanes in span 20-22 & 32-36 and 3 lanes in spans 1-19 & 23-31.

2. DESCRIPTION OF GROUND PENETRATING RADAR (GPR) SURVEY

2.1 Background

Ground penetrating radar operates by transmitting short pulses of electromagnetic energy into the pavement using an antenna attached to a survey vehicle. These pulses are reflected back to the antenna with an arrival time and amplitude that is related to the location and nature of dielectric discontinuities in the material (air/asphalt or asphalt/concrete, reinforcing steel, etc). The reflected energy is captured and may be displayed on an oscilloscope to form a series of pulses that are referred to as the radar signal. The signal contains a record of the properties and thicknesses of the layers within the deck, as shown schematically in Figure 1.

Bridge deck deterioration can be inferred from changes in the dielectric properties and attenuation of the GPR signal in concrete (see Maser and Roddis, 1990; SHRP C-101, ASTM D 6087-05). GPR was originally developed for overlaid decks, since access to the structural concrete surface via other traditional methods is limited. The concepts have been shown to work equally well on non-overlaid decks. The variation of the dielectric constant of the deck concrete is used as one measure of deterioration (Maser, 1990). The attenuation (loss of signal strength) of the radar signal, as measured from the top rebar reflection and/or the bottom of the deck, is used as a measure of concrete delamination. This is because contaminated and delaminated concrete will cause the GPR signal to dissipate and lose strength as it travels through the deck and reflects back from the rebar and the bottom.

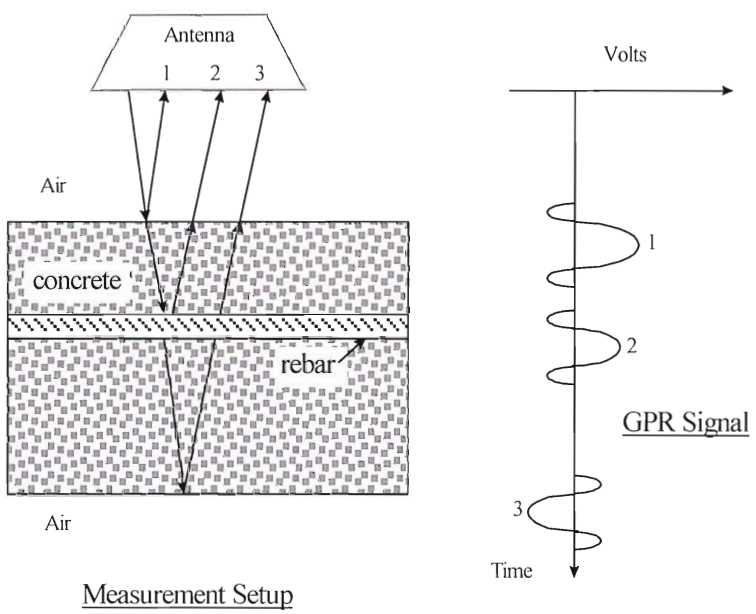


Figure 1 – Structure of the GPR Signal for Concrete Bridge Decks

2.2 Data Collection

The data on this project was collected on January 11 and 12, 2007. The weather conditions were clear, with temperatures in the low 30's °F. The GPR equipment used for this inspection project is a dual 1 GHz horn antenna system manufactured by GSSI, Inc. of Salem, NH, and is shown in Figure 2. The survey vehicle is equipped with an electronic distance-measuring instrument (DMI) mounted to the rear wheel of the survey van, providing continuous distance data as the GPR data is collected. The data collection and recording is controlled by the SIR-20 GPR system operated from within the survey vehicle. The antennas are mounted to the vehicle via a rectangular mounting bar, so that the lateral position of each antenna can be varied. This arrangement enables the GPR survey to cover the full width of the deck without straddling lanes.

Using this system, the GPR data is collected with a series of longitudinal passes, each at fixed offset from the curb, at a collection rate of 4 scans per linear foot. The overall objective of the survey layout is to generate passes at 3-foot transverse spacing from curb to curb. The actual location of each pass is determined approximately by visual reference using lane markers and other visual reference points. Data collection for each pass is initiated about 200 feet before the vehicle reached the actual start of the deck.

The GPR survey is carried at speeds up to 45 mph. Data is digitized and stored to hard disk as the survey progressed. The DMI distance data is continuously recorded into each GPR record, so that each GPR data scan has an associated distance.

Horn Antennas

Figure 2 – GPR Survey Vehicle

2.3 GPR Data Analysis

The bridge deck analysis is carried out with Infrasense's proprietary software *win*DECAR® using the following steps:

(1) Identification of the deck limits and major joints in each radar file, and check of the radar distance measurement against the known length and other features within the deck;

(2) Identification of features (top rebar, bottom of deck) that appear as dielectric discontinuities in the GPR data (see example data, Figure 3);

(3) Setup of the analysis for all of the passes for a given deck, computation of concrete dielectric constant, (rebar depth, and AC thickness, if applicable), and concrete attenuation; and

(4) Map the results and calculate quantities

The analyzed GPR data is presented in the form of contour plots. The attenuation is used as the measure of deterioration, and the potential areas of deteriorated concrete are identified by a threshold, which is calculated from the data.

Figure 3 below shows a sample of raw GPR data from an asphalt-overlaid bridge deck. The data has been compressed and preprocessed for removal of the concrete surface reflection. The significant boundaries appearing in the data are labeled in the figure. The figure represents a cross section through the deck, where the time axis is equivalent to depth.

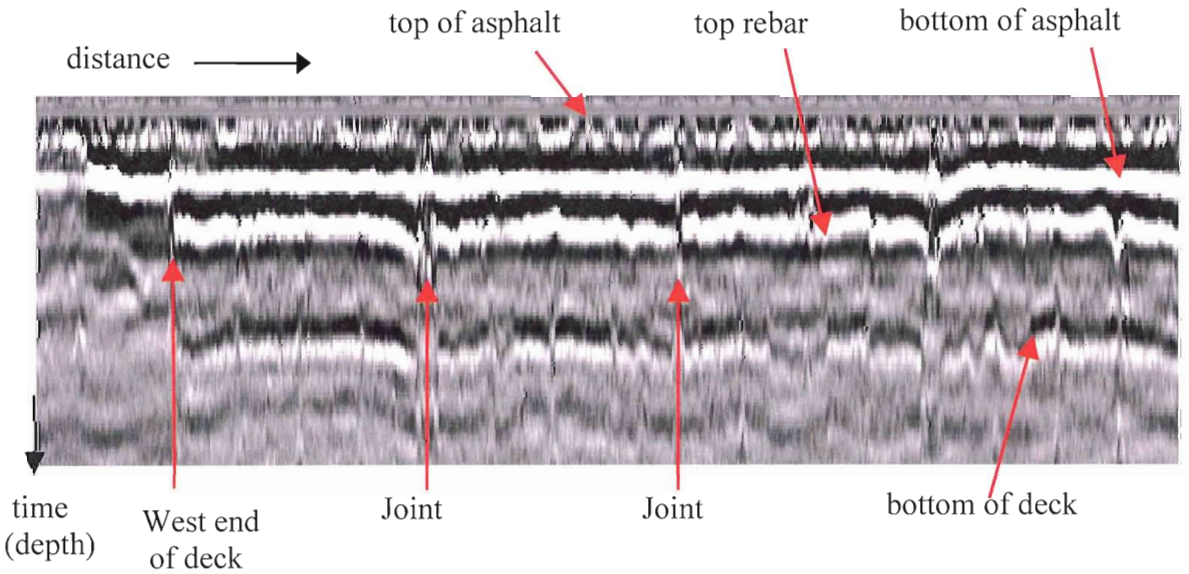


Figure 3 – GPR Data Sample

The calculated deterioration quantities per span are presented in tabular form in Attachment A. The plan view deck deterioration maps are presented in Attachment B.

For decks where cores were extracted, the core information was used to calibrate the final GPR results

2.4 DECK CORING

Coring was carried out on Tuesday, February 13, 2007. The coring was carried out by MT Materials Testing of Wallingford, CT under Infrasense supervision, with lane closures provided by E-L Engineering Support Services of Rocky Hill, CT. Ten cores were taken, at locations determined from both the preliminary GPR output and underside condition maps. The location of the cores is shown in Table 1.

All cores were 3 inches in diameter and drilled to a depth of 8 inches from the surface. Since the AC overlay was approximately 3 inches thick, this coring depth provided 5 inches of penetration into the concrete (just above the lower mat of reinforcement). The concrete specimens were removed, labeled and saved for subsequent inspection. As time allowed, observations of the interior of the core hole were made. After coring, each hole was filled with rapid set grout up to the level of the concrete and then cold patch was added to be flush with the deck surface.

Table 1 summarizes the core information and conditions, and Figure 4 shows a photograph of the coring process. Photographs of the cores are shown in Attachment C.

Table 1 – Summary of Core Data for Bridge 03190A

CORE NO.	STATION	SPAN NO.	OFFSET FROM WEST CURB (FT)	SELECTION CRITERIA	OBSERVED CORE CONDITION
A1	280+84	1	4	Shows on GPR, 30% map cracking underside	intact
A2	283+98	6	3	Shows on GPR, 25% effl. cracks underneath	delaminated
A3	284+93	7	10	Shows on GPR, 25% effl. cracks underneath	delaminated
A4	285+86	8	7	Nothing on GPR, 50% effl. cracking underside	intact; small piece of surface concrete came off with overlay
A5	286+48	9	3	Shows in GPR, nothing on underside	intact
A6	287+21	10	6	Nothing on GPR, 75% effl. cracking underside	intact
A7	287+71	11	7	Nothing on GPR, map cracking underside	intact
A8	288+67	12	3	Shows on GPR, 50% effl. Cracking underside	delaminated
A9	290+11	14	3	Shows on GPR, 100% map cracking underside	delaminated
A10	290+76	15	3	Shows on GPR, effl. Cracking underside	concrete disintegrated

Figure 4 – Coring on Bridge 03190A

3. REFERENCES

ASTM "Standard Test Method for Evaluating Asphalt-Covered Concrete Bridge Decks Using Ground Penetrating Radar" Designation D 6087-05, ASTM International, West Conshohocken, PA. 2005.

AASHTO "Standard Test Method for Evaluating Asphalt-Covered Concrete Bridge Decks using Pulsed Radar", AASHTO Provisional Standard, Designation TP36, 1993.

Maser, K.R. and Rawson, A. "Network Bridge Deck Surveys Using High Speed Radar: Case Studies of 44 Decks." Transportation Research Record No. 1347. Transportation Research Board. National Research Council, 1992.

Maser, K.R. "Bridge Deck Condition Surveys Using Radar: Case Studies Of 28 New England Decks. Transportation Research Record No. 1304", Transportation Research Board. National Research Council, 1991.

Maser, K.R. "New Technology for Bridge Deck Assessment", Phase I and II Final Report prepared for the New England Transportation Consortium, Center for Transportation Studies, Massachusetts Institute of Technology, Cambridge, Massachusetts, 1990.

Maser, K.R., and Roddis, W.M.K "Principles of Radar and Thermography for Bridge Deck Assessment", ASCE Journal of Transportation Engineering, Vol. 116, No. 5, Sept/Oct, 1990.

SHRP C-101. "Condition Evaluation of Concrete Bridges Relative to Reinforcement Corrosion – Volume 3: Method of Evaluating the Condition of Asphalt-Covered Decks" Strategic Highway Research Program Report SHRP-S-325, Washington, D.C., 1993.

ATTACHMENT A

Bridge 03190A

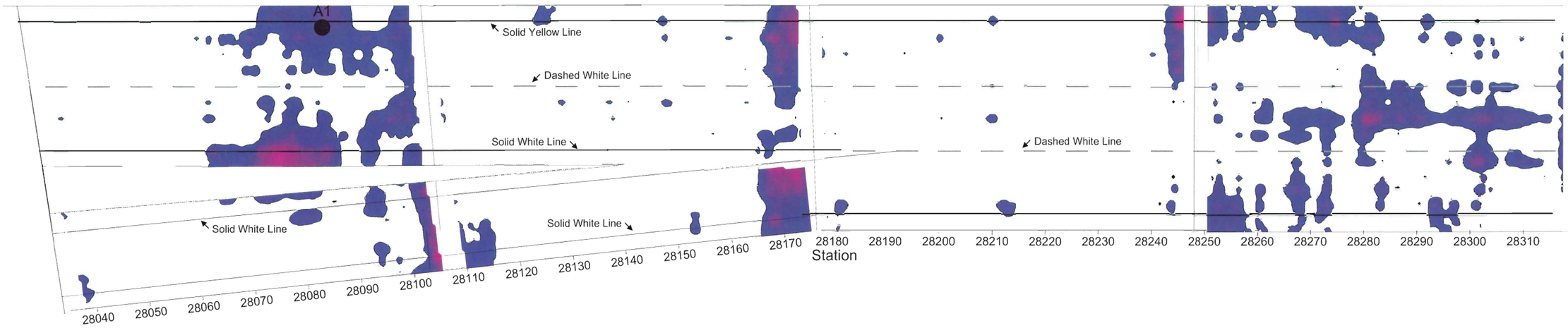
Table of Deterioration Percentages by Span

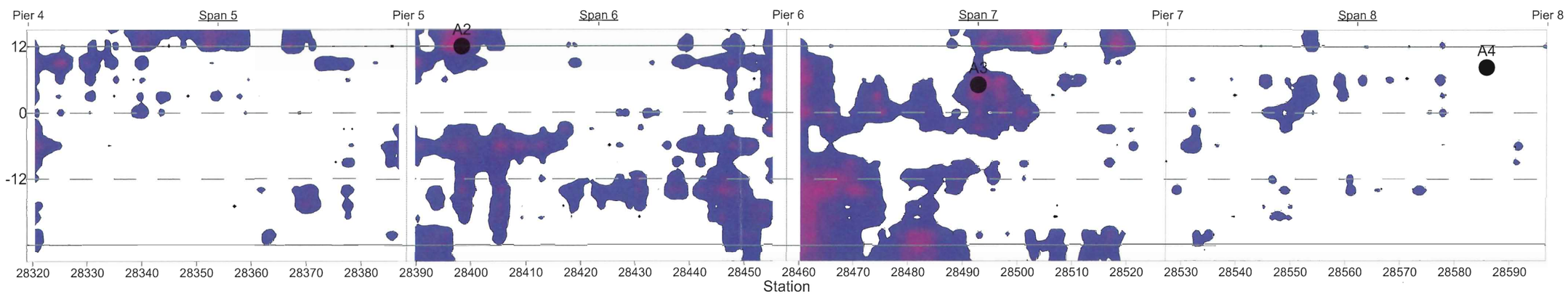
SPAN NO.	FROM	TO	% DETERIORATED
1	S.Abut	Pier 1	23%
2	Pier 1	Pier 2	10%
3	Pier 2	Pier 3	3%
4	Pier 3	Pier 4	27%
5	Pier 4	Pier 5	11%
6	Pier 5	Pier 6	30%
7	Pier 6	Pier 7	37%
8	Pier 7	Pier 8	5%
9	Pier 8	Pier 9	10%
10	Pier 9	Pier 10	2%
11	Pier 10	Pier 11	1%
12	Pier 11	Pier 12	20%
13	Pier 12	Pier 13	2%
14	Pier 13	Pier 14	17%
15	Pier 14	Pier 15	7%
16	Pier 15	Pier 16	15%
17	Pier 16	Pier 17	11%
18	Pier 17	Pier 18	11%
19	Pier 18	Pier 19	7%
20	Pier 19	Pier 20	20%
21	Pier 20	Pier 21	9%
22	Pier 21	Pier 22	5%
23	Pier 22	Pier 23	10%
24	Pier 23	Pier 24	55%
25	Pier 24	Pier 25	43%
26	Pier 25	Pier 26	8%
27	Pier 26	Pier 27	7%
28	Pier 27	Pier 28	21%
29	Pier 28	Pier 29	21%
30	Pier 29	Pier 30	7%
31	Pier 30	Pier 31	11%
32	**Pier 31**	**Pier 32**	**81%**
33	Pier 32	Pier 33	57%
34	Pier 33	Pier 34	20%
35	Pier 34	Pier 35	22%
36	Pier 35	N. Abut	42%
Overall Deterioration			**19%**

ATTACHMENT B

Bridge 03190A

Deck Deterioration Maps





● = core

= conditions not detectable

Indication of Deck Deterioration

Severity --->

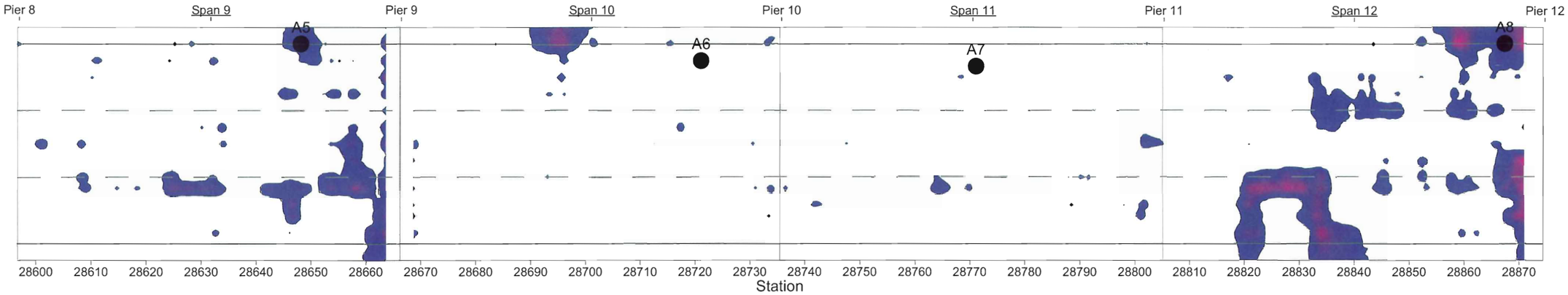
Ground Pentrating Radar
Deck Condition Evaluation

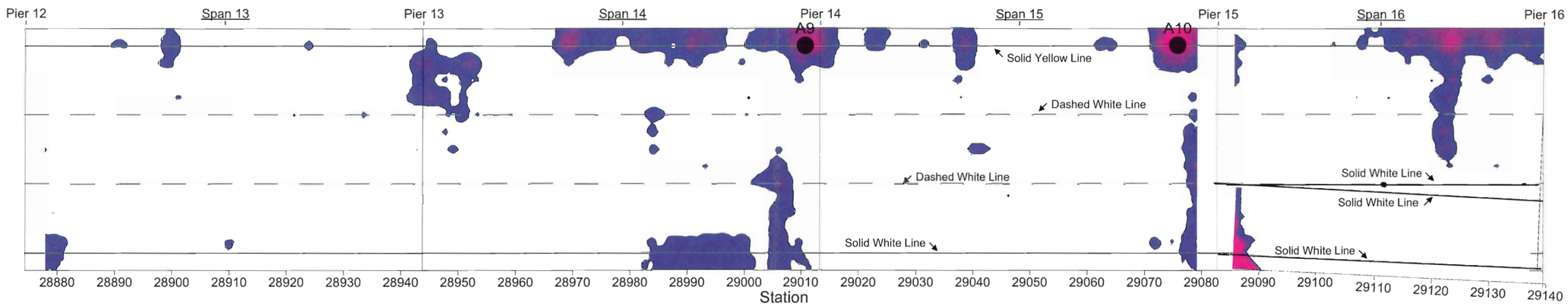
Bridge 03190A: Rt.8 NB

Analyzed by: LAM Date: 02/28/07
Checked by: KRM Date: 03/02/07

INFRASENSE, Inc.

Sheet: 1 of 5





● = core

= conditions not detectable

Indication of Deck Deterioration

Severity --->

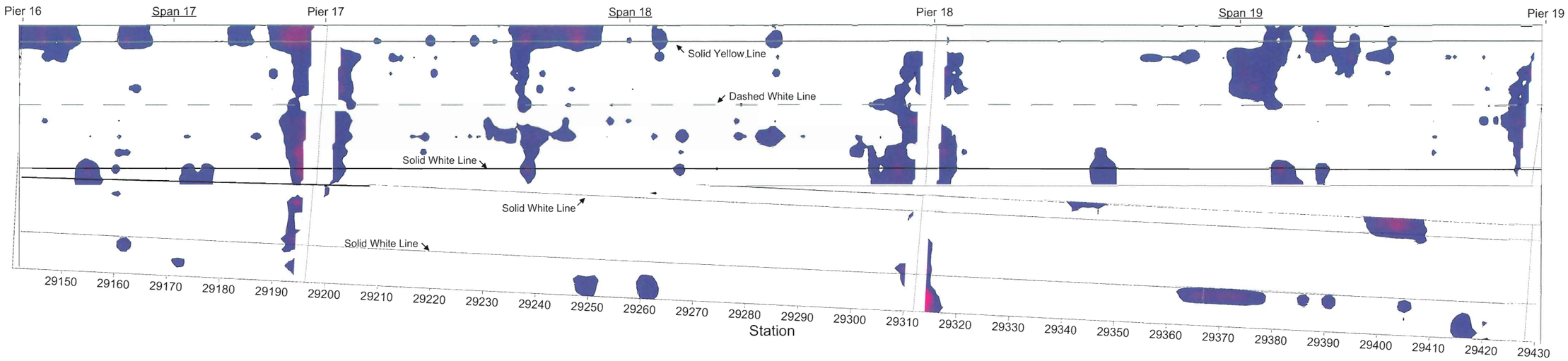
Ground Pentrating Radar
Deck Condition Evaluation

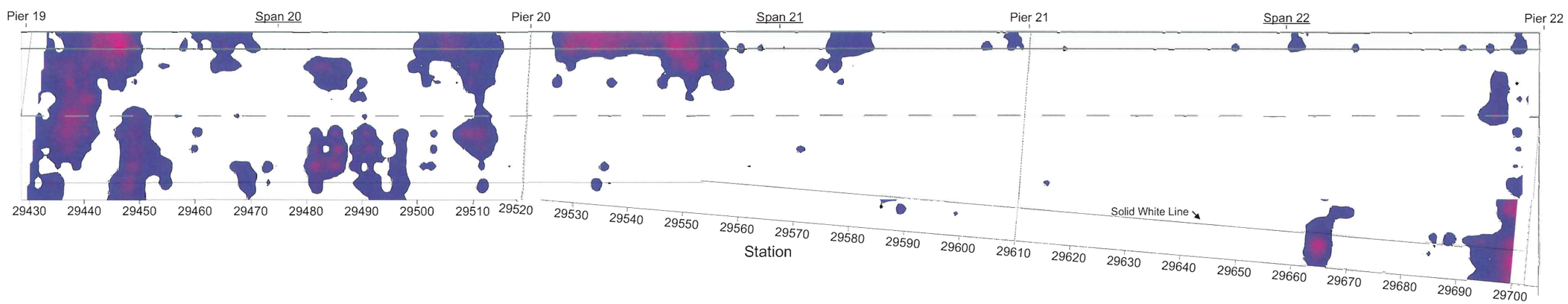
Bridge 03190A: Rt. 8 NB

Analyzed by: LAM Date: 02/28/07
Checked by: KRM Date: 03/02/07

INFRASENSE, Inc.

Sheet: 2 of 5





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Indication of Deck Deterioration

Severity --->

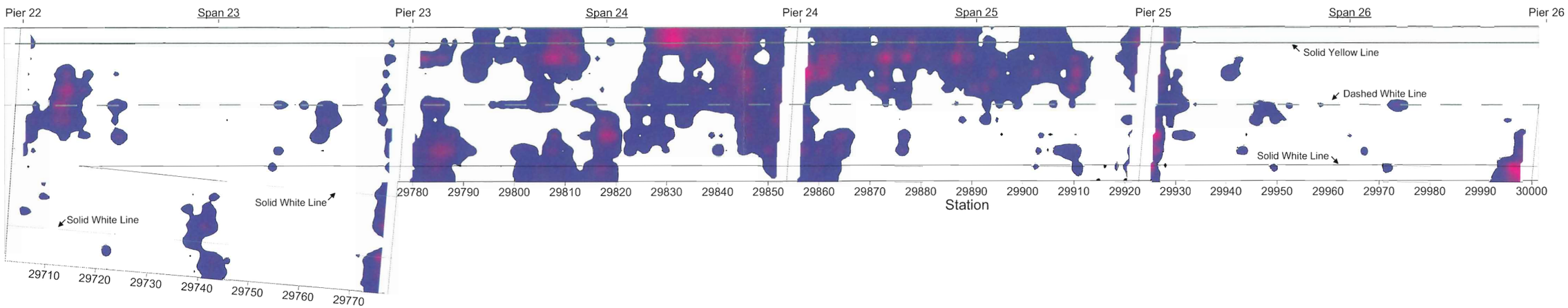
Ground Pentrating Radar
Deck Condition Evaluation

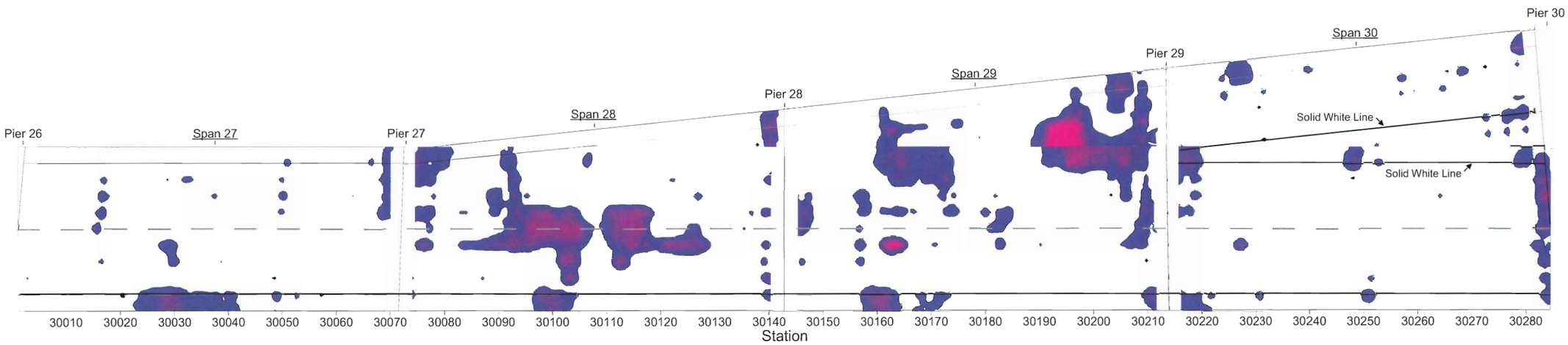
Bridge 03190A: Rt. 8 NB

Analyzed by: LAM Date: 02/28/07
Checked by: KRM Date: 03/02/07

INFRASENSE, Inc.

Sheet: 3 of 5





= conditions not detectable

Indication of Deck Deterioration

Severity --->

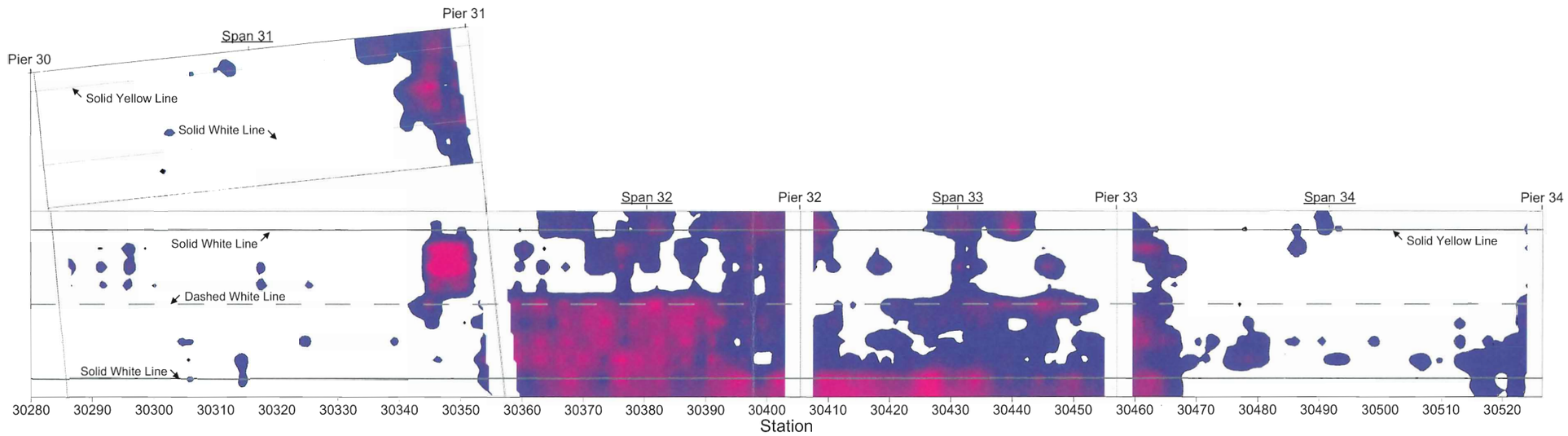
Ground Pentrating Radar
Deck Condition Evaluation

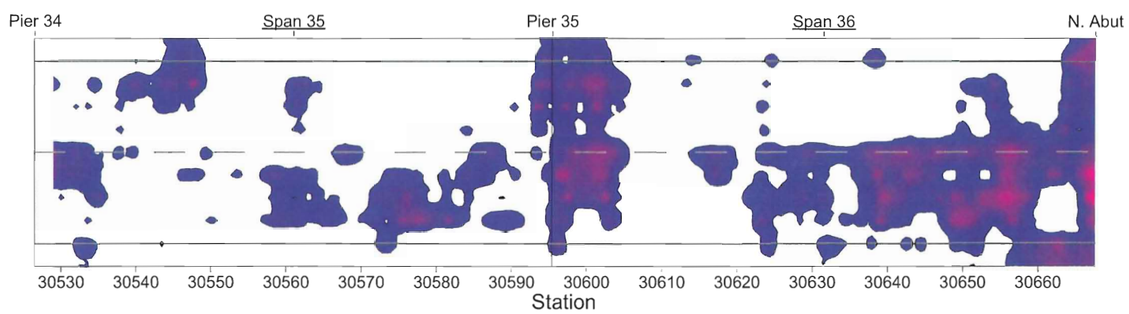
Bridge 03190A: Rt. 8 NB

Analyzed by: LAM Date: 02/28/07
Checked by: KRM Date: 03/02/07

INFRASENSE, Inc.

Sheet: 4 of 5





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Indication of Deck Deterioration

Severity --->

Ground Pentrating Radar
Deck Condition Evaluation

Bridge 03190A: Rt. 8 NB

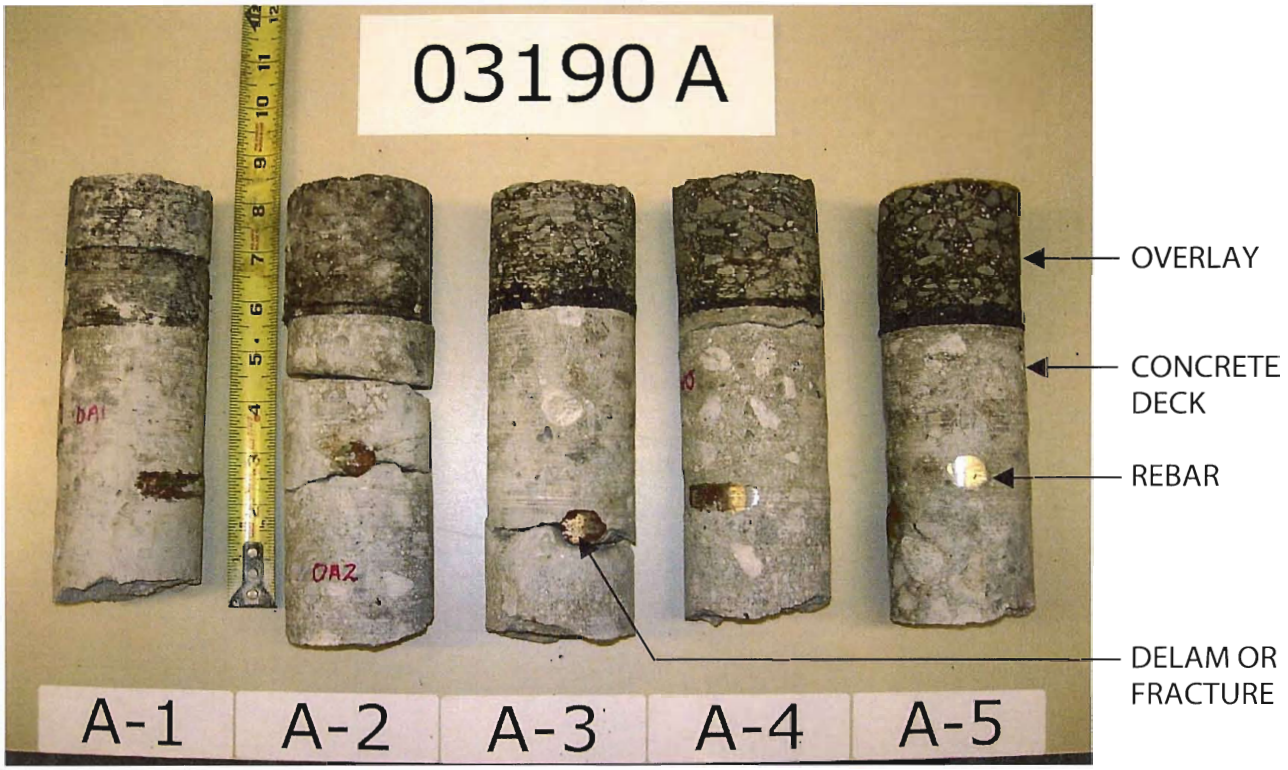
Analyzed by: LAM Date: 02/28/07
Checked by: KRM Date: 03/02/07

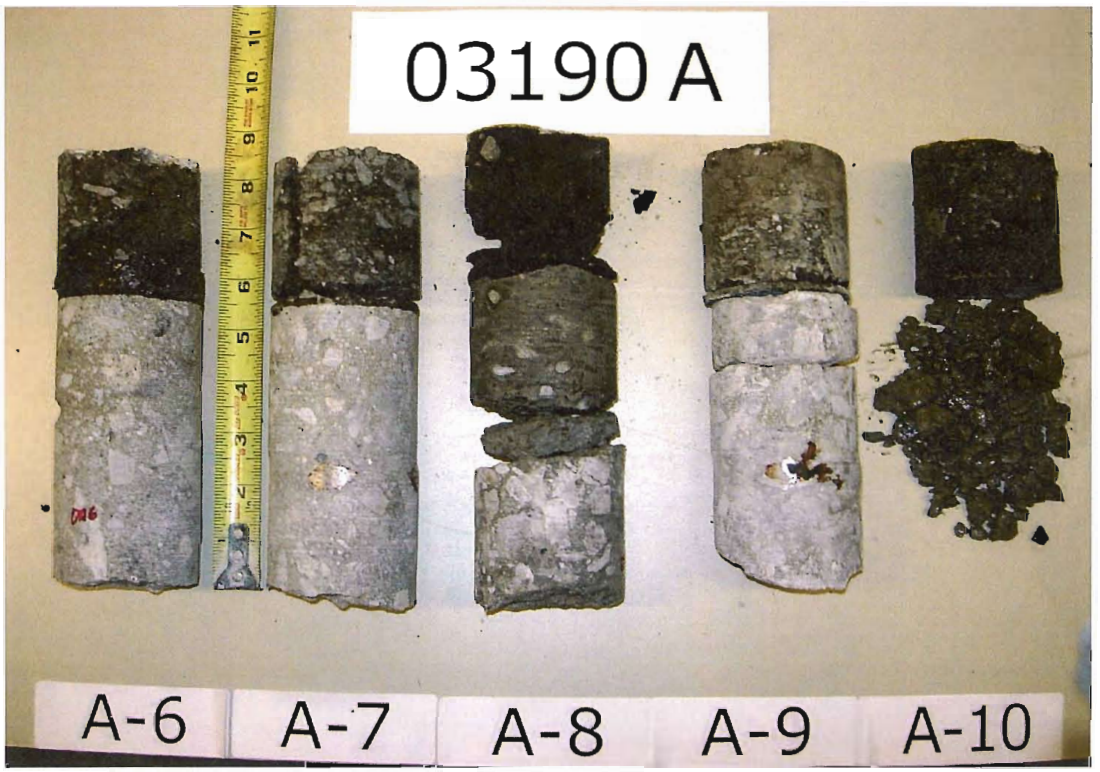
INFRASENSE, Inc.

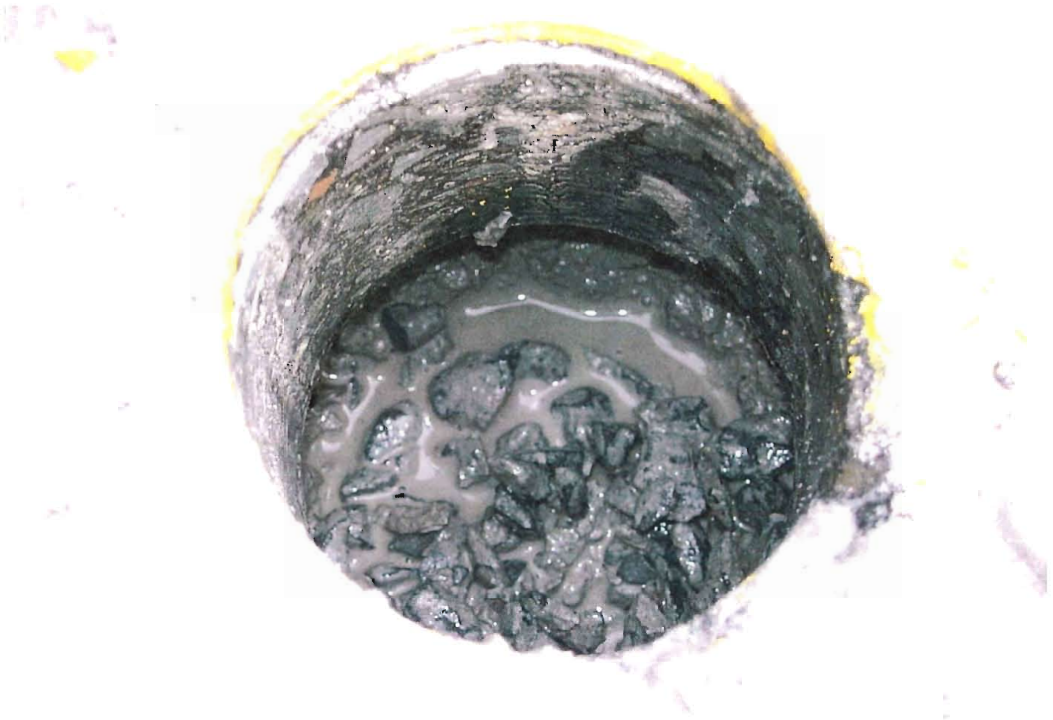
Sheet: 5 of 5

ATTACHMENT C

Bridge 03190A — Core Photos







In-hole Photo at Core A-10 Showing Disintegrated Concrete Below AC Layer

APPENDIX B

ULTRASONIC TESTING REPORT

EASTERN, Inc.

FIELD REPORT

Project:	**CONNDOT Overhead Sign & Bridge Inspections Route 8/84 Bridge Inspection Waterbury, CT**	Client:	Haks Engineers P.C.
		Contractor:	N/A
Project No.:	06453C	Weather:	clear
Date:	November 7, 2006	Technician:	Jim Carrano, Level II

Purpose: To perform an ultrasonic testing of welds.

JGI Activities:

This writer performed ultrasonic testing of welds at bridge No. 03190A. These welds were selected due to previous discontinuities/indications detected during inspections performed in prior years by others. The welds were ultrasonically tested to the AWS Specification for Cyclically Loaded Connections, Table 6.3.

There were no increases in size or length of the previously reported discontinuities or indications.

Reviewed by: KJB Date: 11/18/06

DENSITY TEST RESULTS:	☐ COMPLY	☐ DO NOT COMPLY WITH SPECIFICATIONS	
	☐ NOT COMPLETE	☒ NOT APPLICABLE	
DEVIATION REPORT:	☐ ATTACHED	☒ NOT ATTACHED	☐ AMENDED AND ATTACHED
OBSERVED CONSTRUCTION:	☐ COMPLIES	☐ DOES NOT COMPLY WITH SPECIFICATIONS	
	☐ NOT COMPLETE	☒ NOT APPLICABLE	

The information stated on this report may not be reproduced except in its entirety without the express written consent of JGI EASTERN, Inc. Use of the NVLAP designation does not represent endorsement by the NIST or NVLAP. Reports are relevant only to items tested and no other attribution may be made.

EASTERN, Inc.

114 Woodlawn Road
Berlin, CT 06037
(860) 829-1725
Fax (860) 829-1745

15 Holly Street, Unit 105
Scarborough, ME 04070
(207) 396-5374
Fax (207) 396-5394
www.jgieastern.com

77 Sundial Avenue, Suite 401W
Manchester, NH 03109
(603) 647-9700
Fax (603) 647-4432

NDT ULTRASONIC TESTING REPORT

Project: Connecticut DOT Overhead Sign & Bridge Inspections Rt.8/84
Contractor:
Sub-Contractor:
Client: Haks Engineers, P.C.
Date: 11/7/2006
Project No.: 06453C
Weather: clear

Testing Parameters:

1. Connection Type: Moment: Splice: X Other:
2. Transducer Angle: 70
3. Unit Type: USN 60
4. From Face A/B
5. Reference Level: 45.00 6. Leg: 1 & 2

Bridge 03190A

Bridge 03190A Location	Flange	Resulting Condition
Pier 23, Span 23, Cap Girder	Bottom	Winthin Specifications
Pier 16, Span 17, Floor Beam 1	Bottom	Class D
Pier 15, Span 15, Floor Beam 2	Bottom	Class D
Pier 12, Span 13, Floor Beam 1	Bottom	Class D
Pier 9, Span 10, Cap Girder	Bottom	Winthin Specifications

Material Parameters:

Welding Process: N/A Thickness: 1 1/4, 1 3/8
Weld Joint: N/A Backing: N/A

Manufacturer or Contractor: N/A

Remarks:

Technician: Jim Carrano, Level II

Reviewed by: [signature] Date: 11/18/06

The information contained in this report may not be reproduced except in its entirety without the express written consent of JGI EASTERN, Inc. Reports are relevant only to the items tested and may not be attributed to other work. Testing was perfored in general accordance with the stated ASTM test method.

JGI EASTERN, Inc.

FIELD REPORT

Project:	**CONNDOT Overhead Sign & Bridge Inspections Route 8/84 Bridge Inspection Waterbury, CT**	Client:	Haks Engineers P.C.
		Contractor:	N/A
Project No.:	06453C	Weather:	clear
Date:	November 9, 2006	Technician:	Jim Carrano, Level II

Purpose: To perform an ultrasonic testing of welds.

JGI Activities:

This writer performed ultrasonic testing of welds at bridge No. 03190A. These welds were selected due to previous discontinuities/indications from prior year inspections by others. The welds were ultrasonically tested to the AWS Specification for Cyclically Loaded Connections, Table 6.3.

There were no increases in size or length of the previously reported discontinuities or indications.

Reviewed by: KJB Date: 11/18/06

DENSITY TEST RESULTS:	☐ COMPLY	☐ DO NOT COMPLY WITH SPECIFICATIONS	
	☐ NOT COMPLETE	☒ NOT APPLICABLE	
DEVIATION REPORT:	☐ ATTACHED	☒ NOT ATTACHED	☐ AMENDED AND ATTACHED
OBSERVED CONSTRUCTION:	☐ COMPLIES	☐ DOES NOT COMPLY WITH SPECIFICATIONS	
	☐ NOT COMPLETE	☒ NOT APPLICABLE	

The information stated on this report may not be reproduced except in its entirety without the express written consent of JGI EASTERN, Inc. Use of the NVLAP designation does not represent endorsement by the NIST or NVLAP. Reports are relevant only to items tested and no other attribution may be made.

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www.jgieastern.com

77 Sundial Avenue, Suite 401W
Manchester, NH 03109
(603) 647-9700
Fax (603) 647-4432

NDT ULTRASONIC TESTING REPORT

Project: Connecticut DOT Overhead Sign & Bridge Inspections Rt.8/84
Contractor:
Sub-Contractor:
Client: Haks Engineers, P.C.
Date: 11/9/2006
Project No.: 06453C
Weather: clear

Testing Parameters:
1. Connection Type: Moment: Splice: X Other:
2. Transducer Angle: 70
3. Unit Type: USN 60
4. From Face A/B
5. Reference Level: 45.00 6. Leg: 1 & 2

Bridge 03190A

Bridge 03190A Location	Flange	Resulting Condition
Pier 24, Span 24, Cap Girder	Top	Class D
Pier 20, Span 20, Floor Beam 2	Bottom	Class D
Pier 10, Span 10, Floor Beam 1	Bottom	Class D
Pier 8, Span 8, Floor Beam 1	Bottom	Within Specifications

Material Parameters:
Welding Process: N/A
Thickness: 1 1/4, 1 3/8
Weld Joint: N/A
Backing: N/A

Manufacturer or Contractor: N/A

Remarks:

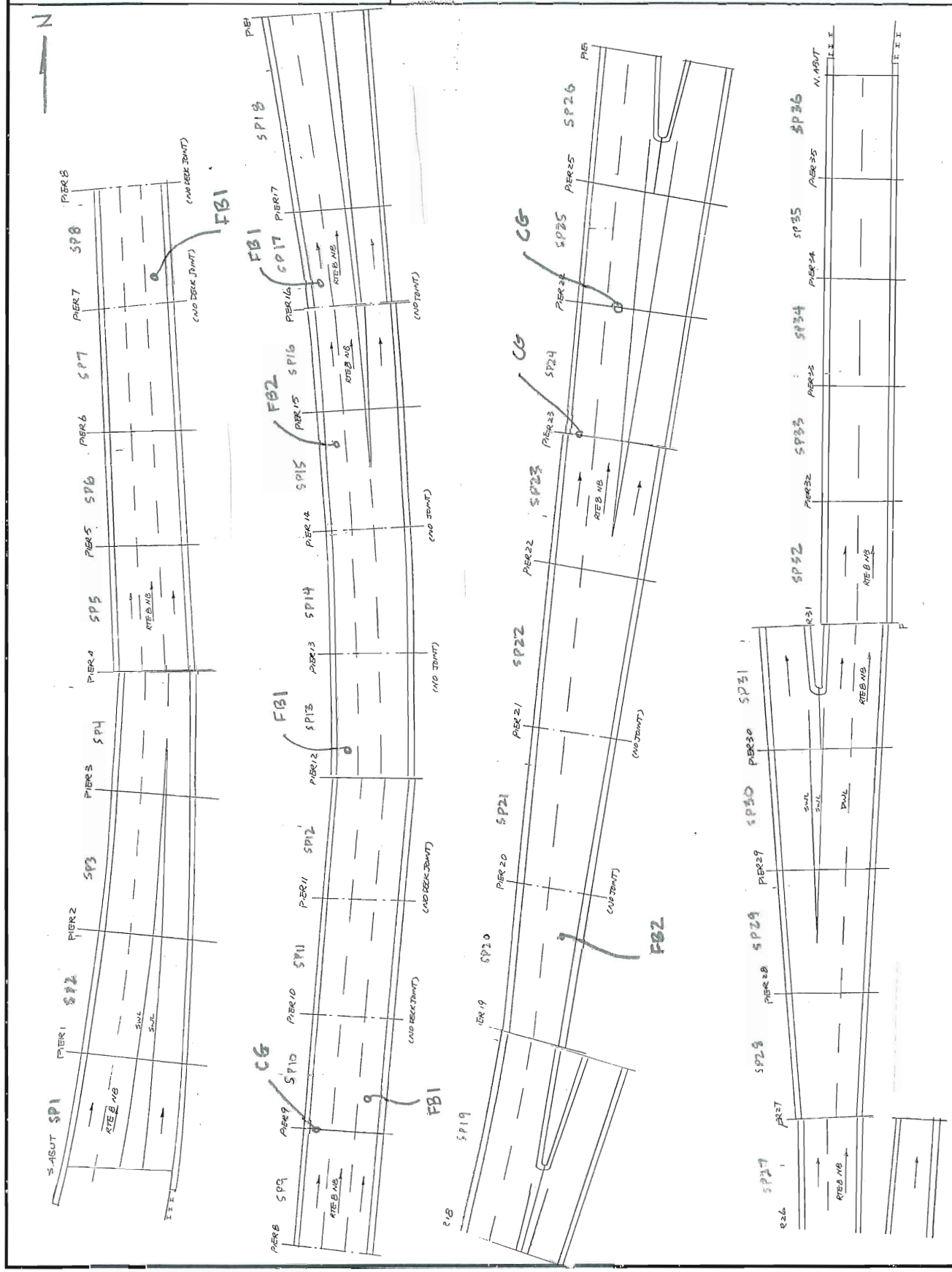
Technician: Jim Carrano, Level II

Reviewed by: [illegible] Date: 11/18/06

The information contained in this report may not be reproduced except in its entirety without the express written consent of JGI EASTERN, Inc. Reports are relevant only to the items tested and may not be attributed to other work. Testing was perfored in general accordance with the stated ASTM test method.

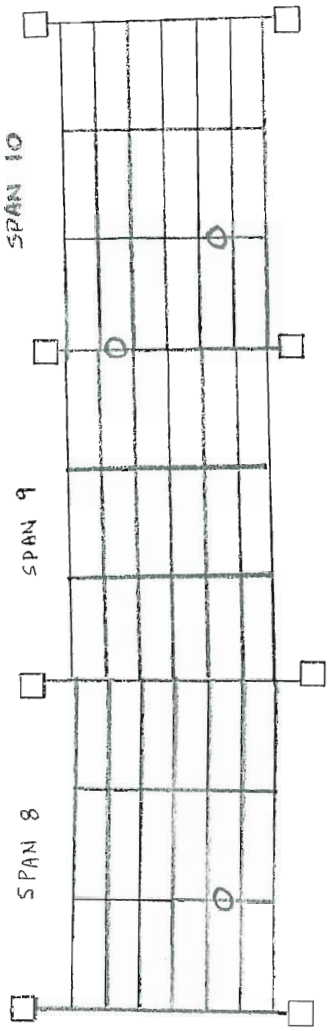
FIELD NOTES

	JOB NO. 0155	BRIDGE NO. 3190A
	DATE	SHEET
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW	



FIELD NOTES

	PROJ. NO. 170-2357	BRIDGE NO. 3190A
	DATE	SHEET
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW	



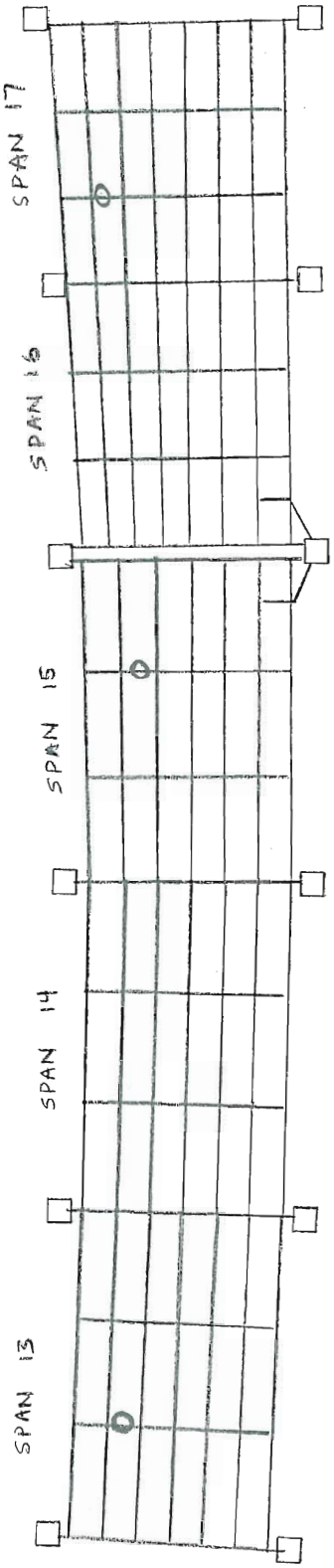
O TESTING LOCATION ON BOTTOM FLANGE TRANSITION WELD

ULTRASONIC TESTING

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

FIELD NOTES

	PROJ. NO. 170-2357	BRIDGE NO. 3190A
	DATE	SHEET
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW	



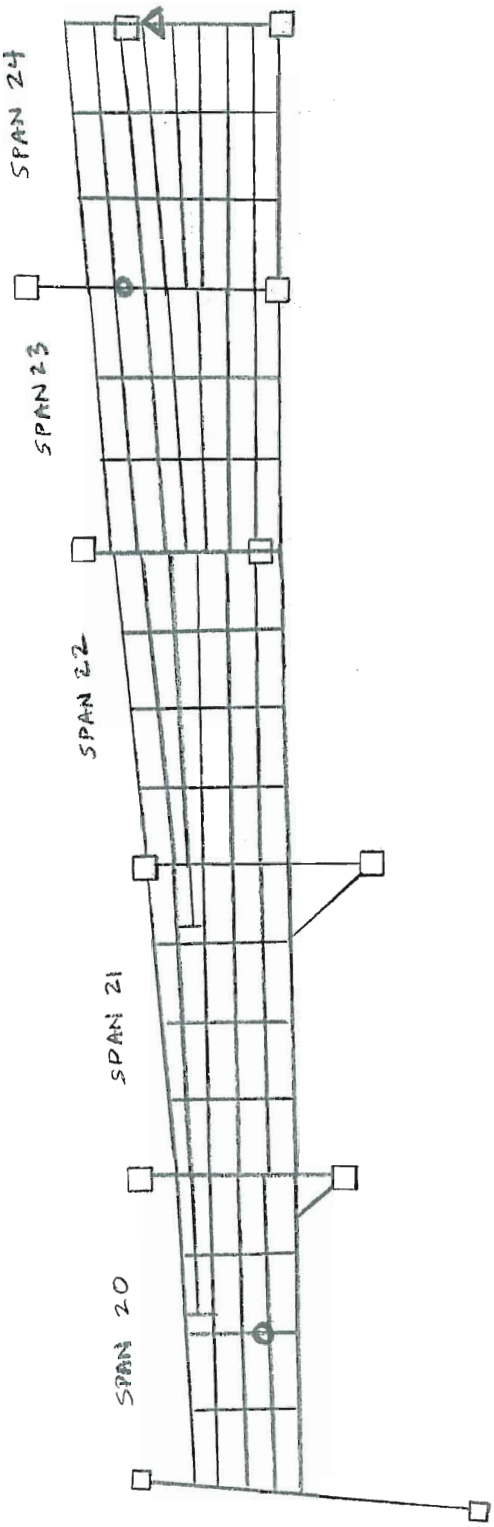
O TESTING LOCATION ON BOTTOM FLANGE TRANSITION WELD

ULTRASONIC TESTING

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

FIELD NOTES

FIELD NOTES	PROJ. NO. 170-2357	BRIDGE NO. 3190A
	DATE	SHEET
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW	



O TESTING LOCATION ON BOTTOM FLANGE TRANSITION WELD

Δ TESTING LOCATION ON TOP FLG WELD

ULTRASONIC TESTING

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

HAKS FIELD NOTES	BRIDGE NO. 03190A	DATE :
	CREW :	SHEET

BR.03190A- ULTRASONIC TESTING

LOCATION	PIER #	SPAN #	RTE 8 SB	COMPONENT	TF/BF	N/E/S/W
1	8	8	LT LANE	FB1	BTM. FLG.	E
2	9	10	RT LANE	CG	BTM. FLG.	W
3	10	10	LT LANE	FB1	BTM. FLG.	E
4	12	13	RT LANE	GB1	BTM. FLG.	W
5	15	15	RT LANE	FB2	BTM. FLG.	W
6	16	17	RT LANE	FB1	BTM. FLG.	W
7	20	20	LT LANE	FB2	BTM. FLG.	E
8	23	23	RT LANE	CG	BTM. FLG.	W
9	24	24	LT LANE	CG	TOP FLG.	W

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NDE EXAMINATION REPORT / AWS ULTRASONIC

FORM 22-2 (REV. 1)

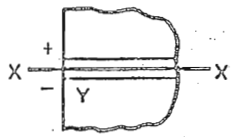
PAGE 40 of 15

Client LICHTENSTEIN A.G. Project C.T. BRIDGE # 031901A

Facility QC Control No. 46F7710 Technique No. 46F7710

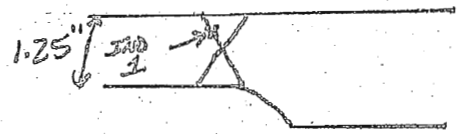
Item Description TRANSITION WELDS

Project # 1919 C.T. BRIDGE # 031901A Report no.



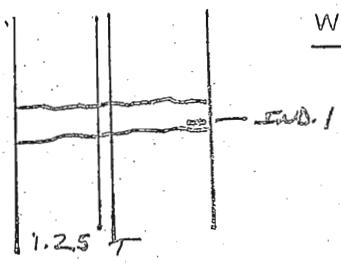
Weld Identification PIER 8 SPAN 8 FLOOR BEAM 1 BF EAST WELD
Material thickness SEE BELOW
Weld joint AWS BUTT
Welding process N/A
Quality requirements — section no. TRANSION
Remarks

WELD GEOMETRY



PLAN VIEW

WELD LOCATION



weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Distance: From X	Distance: From Y	Discontinuity elevation	Remarks
	1	70	A	1	60	46	1	+13	3/4"	1.5"	.500"	-.25"	15 5/4"	CLASS D	REPORTABLE
		2002			NO	CHANGE	SINCE	(1999)	INSPECTION						
NO	discontinuity's							detected							

U.T. Operator & Lab Location	U.T. Interpretation By & Lab Location	Date
Alan Smith L-III	Alan Smith L-III	3-10-99

MQS

NDE EXAMINATION REPORT / AWS ULTRASONIC

FORM 22-2 (REV. 1)

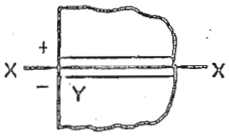
PAGE 50 of 15

Client LICHTENSTEIN A-G. Project CT. BRIDGE # 031901A

Facility QC Control No. 46F7710 Technique No. 46F7710

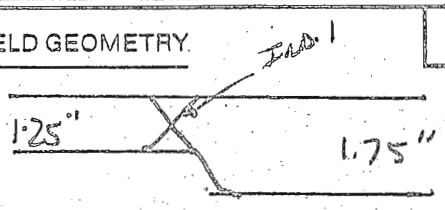
Item Description TRANSITION WELDS

Project # 1919 CT. BRIDGE # 031901A Report no.

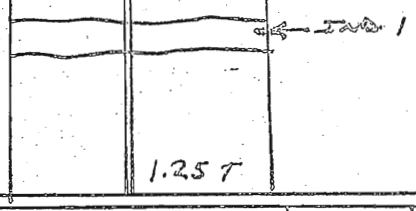


Weld identification ARG 9 SPAN 10 CAP GIRDER BF WEST WELD
Material thickness SEE BELOW
Weld joint AWS N/A BUTT
Welding process N/A
Quality requirements — section no. TENSION
Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATION

weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Distance: From X	Distance: From Y	Discontinuity elevation	Remarks
	1	70	A	1	59	46	6	+7	7/8"	4.2"	3/8"	4.2"	11 1/8"	CLASS A	RETEST
		2002			NO	CHANGE	SINCE	(1999)	INSPECTION						
11/7/06				NO	discontinuity				detected						

U.T. Operator & Lab Location: Alan Smith L-III

U.T. Interpretation By & Lab Location: Alan Smith L-III

Date: 3-10-99

MQS

NDE EXAMINATION REPORT / AWS ULTRASONIC

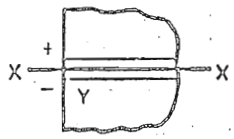
FORM 22-2 (REV. 1)

Client LICHTENSTEIN A-G. Project CT. BRIDGE # 03190

Facility QC Control No. 46F7710 Technique No. 46F7710

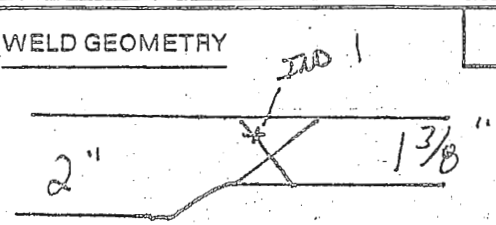
Item Description TRANSITION WELDS

Project # 1919 CT. BRIDGE # 03190A Report no.

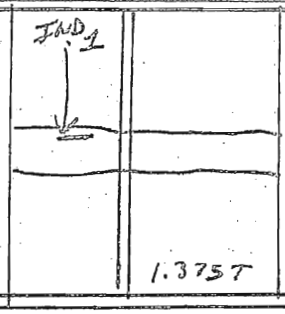


Weld identification BER 10 SPAN 10 FROM BEAM 1 OF EAST WELL
Material thickness SEE BELOW
Weld joint AWS BUTT
Welding process M/A
Quality requirements — section no. TRANSION
Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATI

weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Distance: From X	Distance: From Y	Discontinuity elevation	Remarks
	1	70	A	1	52	46	2	74	1 1/4"	1.75"	.600"	+.2"	4 3/4"	CLASS A	RETEST
	2002	NO CHANGE SINCE (1999) INSPECTION													
11/7/06	CLASS D discontinuity detected														

U.T. Operator & Lab Location	U.T. Interpretation By & Lab Location	Date
Alan Smith L-III	Alan Smith	3-10-99

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NDE EXAMINATION REPORT/ AWS ULTRASONIC

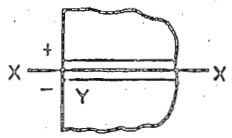
FORM 22-2 (REV. 1)

Client LICHTENSTEIN A-G. Project C.T. BRIDGE # 031901A

Facility QC Control No. 46F7710 Technique No. 46F7710

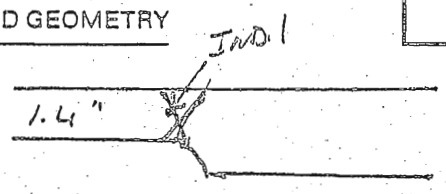
Item Description TRANSITION WELDS

Project # 1919 C.T. BRIDGE # 031901A Report no.

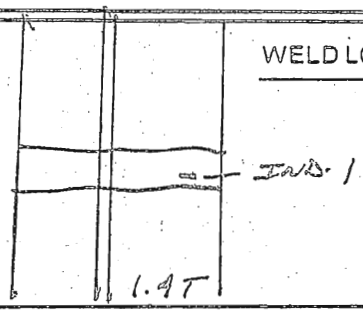


Weld Identification PIER 12 SPAN 13 FOOR BEAM 1 BF WEST WELD
Material thickness SEE BELOW
Weld joint AWS BUTT
Welding process N/A
Quality requirements — section no. TEXAS DOT
Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATION

weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Discontinuity: Distance From X	Discontinuity: Distance From Y	Discontinuity elevation	Remarks
	1	70	B	1	62	45	4	+13	1"	3.1"	.400"	7.377"	13"	CLASS D	REPAIRABLE
		2012			NO	CHANGE	SINCE	(1999)	INSPECTION						
No significant change since the last inspection of record 11/7/06															

U.T. Operator & Lab Location	U.T. Interpretation By & Lab Location	Date
Alan Smith L-III	Alan Smith L-III	3-10-99

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NDE EXAMINATION REPORT / AWS ULTRASONIC

FORM 22-2 (REV. 1)

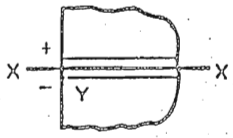
PAGE 8 OF 15

Client LICHTENSTEIN A-G. Project C.T. BRIDGE # 031901A

Facility QC Control No. 46F7710 Technique No. 46F7710

Item Description TRANSITION WELDS

Project # 1919 C.T. BRIDGE # 031901A Report no.



Weld identification PIER 15 SPAN 15 FLOOR BEAM 2 BF WEST WEB

Material thickness SEE BELOW

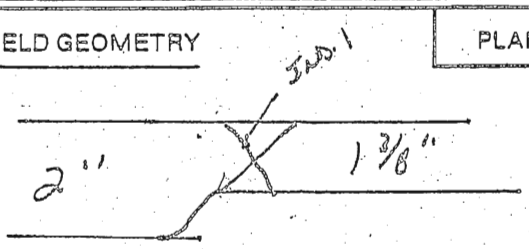
Weld joint AWS BUTT

Welding process N/A

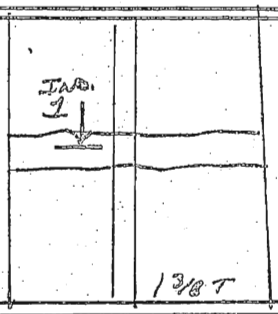
Quality requirements — section no. TENSION

Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATION

weld number	Indication number	Transducer angle	From Face	Leg	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Distance: From X	Distance: From Y	Discontinuity elevation	Remarks
	1	70	A	1	59	49	0	+10	2 1/8"	1"	.342"	+.25"	3 3/4"	Class C	REJECT
	2002	NO CHANGE	SINCE	(1999)	INSPECTION										
Class D discontinuity detected 11/7/06															

U.T. Operator & Lab Location: Alan Smith L-III

U.T. Interpretation By & Lab Location: Alan Smith L-III

Date: 3-10-99

MQS

NDE EXAMINATION REPORT / AWS ULTRASONIC

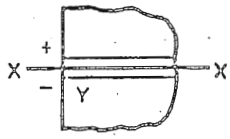
FORM 22-2 (REV. 1)

Client LICHTENSTEIN A.G. Project CT. BRIDGE # 031909

Facility QC Control No. 46F7710 Technique No. 46F7710

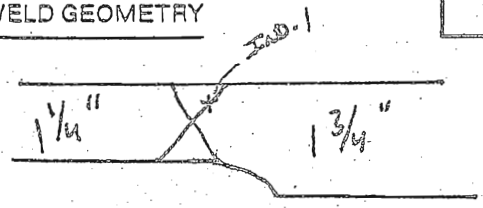
Item Description TRANSITION WELDS

Project # 1919 CT. BRIDGE # 031909 Report no.

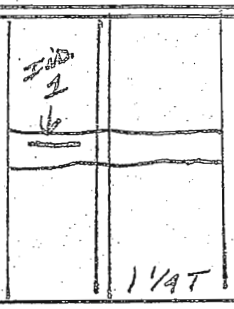


Weld Identification PIER 16 SPAN 17 FLOOR BEAM 1 BF WEST WELD
Material thickness SEE BELOW
Weld joint AWS BUTT
Welding process MA
Quality requirements — section no. TRANSDUCER
Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATION

weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Distance: From X	Distance: From Y	Discontinuity elevation	Remarks
	1	70	A	1	63	49	0	+14	4"	1.1"	.375"	+.250"	1 1/2"	Class D	Recordable
	2002	NO CHANGE SINCE (1999) INSPECTION													
NO Significant Change Since the last inspection															

U.T. Operator & Lab Location: Alan Smith L-III

U.T. Interpretation By & Lab Location: [signature] L-III

Date: 3-10-99

MQS

NDE EXAMINATION REPORT/ AWS ULTRASONIC

FORM 22-2 (REV. 1)

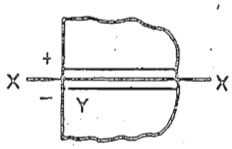
PAGE 1 OF 15

Client LICHTENSTEIN A-G. Project C.T. BRIDGE # 031901A

Facility QC Control No. 46F7710 Technique No. 46F7710

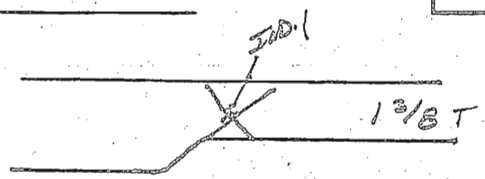
Item Description TRANSITION WELDS

Project # 1919 C.T. BRIDGE # 031901A Report no.

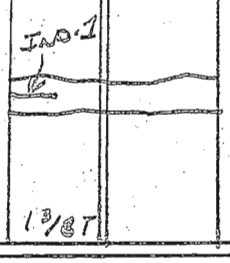


Weld Identification PIER 20 SPAN 20 FLOOR BEAM 2 BF EAST WELD
Material thickness SEE BELOW
Weld joint AWS BUTT
Welding process N/A
Quality requirements — section no. TENSION
Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATION

weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Discontinuity: Distance From X	Discontinuity: Distance From Y	Discontinuity elevation	Remarks
	1	70	A	1	63	51	1	+11	2.5"	1.4"	.470"	+.100"	0	CLASS A	REJECT
					IND. IN	AWT	WELD	MORE	SENSITIVE	ACTUAL	RESULT	IS	+7		
		2002	NO	CHANGE	SINCE	(1999)	INSPECTION								
4/9/06			Class	D	discontinuity	detected.									

U.T. Operator & Lab Location: Alan Smith L-III

U.T. Interpretation By & Lab Location: [illegible]

Date: 3-10-99

MQS

NDE EXAMINATION REPORT / AWS ULTRASONIC

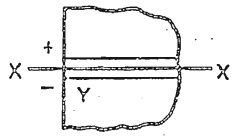
FORM 22-2 (REV. 1)

Client LICHTENSTEIN A.G. Project C.T. BRIDGE # 03190A

Facility QC Control No. 46F7710 Technique No. 46F7710

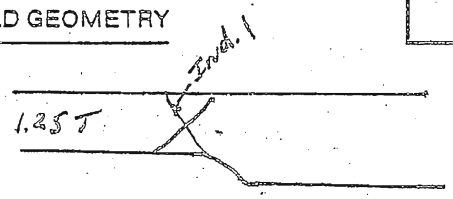
Item Description TRANSITION WELDS

Project # 1919 C.T. BRIDGE # 03190A Report no.

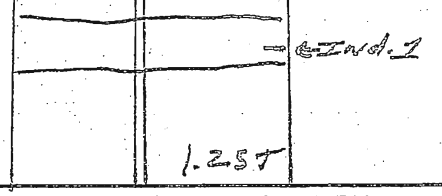


Weld identification PIER 23 SPAN 23 CAP GIRDER BF WEST WELD
Material thickness SEE BELOW
Weld joint AWS BUTT
Welding process N/A
Quality requirements — section no. TENSION
Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATION

weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Discontinuity: Distance From X	Discontinuity: Distance From Y	Discontinuity elevation	Remarks
	1	70	B	1	66	51	6	+10	3/4"	4.0"	.120"	-.340"	19 1/4"	CLASS C	REJECT
		2002			NO	CHANGE	SINCE	(1999)	INSPECTION						
	NO	discontinuity's				found			11/9/06						

U.T. Operator & Lab Location: Alan Smith L-III

U.T. Interpretation By & Lab Location: L-III

Date: 3-10-99

MQS

NDE EXAMINATION REPORT / AWS ULTRASONIC

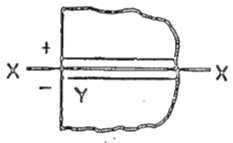
FORM 22-2 (REV. 1)

Client LICHTENSTEIN A.G. Project C.T. BRIDGE # 03190A

Facility QC Control No. 46F7710 Technique No. 46F7710

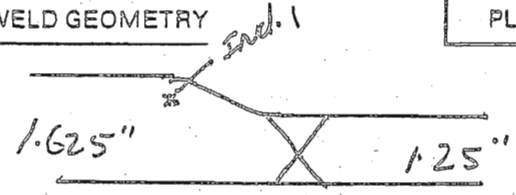
Item Description TRANSITION WELDS

Project # 1919 CT. BRIDGE # 03190A Report no.

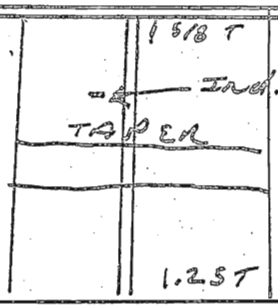


Weld Identification PIER 24 SPAN 24 CAP GIRDER TE WEST WELD
Material thickness SEE BELOW
Weld joint AWS BUTT
Welding process MA
Quality requirements — section no. TENSION
Remarks

WELD GEOMETRY



PLAN VIEW



WELD LOCATION

weld number	Indication number	Transducer angle	From Face	Leg°	Decibels: Indication level a	Decibels: Reference level b	Decibels: Attenuation factor c	Decibels: Indication rating d	Discontinuity: Length	Discontinuity: Angular distance (sound path)	Discontinuity: Depth from "A" surface	Distance: From AWS	Distance: From Y	Discontinuity elevation	Remarks
	1	70	A	2	67	51	8	+8	1 1/8"	1.475"	~~+2.5"~~	~~3 7/8"~~	3 7/8"	Line C	REJECT
											1.475"	+2.5"			
					SEEN WITH			0°	STRAIGHT	BEAM	NOT IN	IDENTICAL			
		2002	NO	CHANGE		SINCE		(1992)	INSPECTION						
11/9/06			CLASS	D	discontinuity				detected						

U.T. Operator & Lab Location: Alan Smith L-III

U.T. Interpretation By & Lab Location: L-III

Date: 3-10-99

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

MEMORANDUM

subject: **BMM No. 06-469**
Bridge No. 03190A
Rte 8 NB over Rte 8 SB, Riverside St., Sunnyside Ave.
Waterbury

date: November 6, 2006

to: Michael W. Lonergan
Acting Transportation Maintenance Administrator
Bureau of Engineering and Highway Operations

from: Sandra A. Dumas
Transportation Supervising Engineer
Bridge Safety and Evaluation
Bureau of Engineering and Highway Operations

During our current inspection of the subject structure, the following deficiency was found:

1. Span 33 deck joint header at pier 33 has a 2' x 4" x 6" deep spall along the joint seal with a 3" x 3" hole through the deck in the right travel lane. See attached photos.

Please direct persons under your jurisdiction to:

1. Clean and patch the spall (1 CF).

This item is considered **Priority C.**

The inspection is still ongoing, but advance notice is being given prior to the start of the winter season. Additional items may be forwarded with copies of the approved inspection report.

All repairs shall be performed utilizing appropriate, approved materials and tried and proven methods unless otherwise specified.

If you have any questions concerning this matter, please contact me at (860) 594-2072. Please notify this office when the work has been completed.

Attachment

Paul D. Goodwin/pdg

cc: Joseph J. Obara
Robert P. Zaffetti – Sandra A. Dumas – Karen M. Riemer
HAKS Engineers – Garg Consulting

Span 33 joint header at pier 33. Spall in header with hole through deck.

Span 33 joint header at pier 33. Spall in header in Route 8 NB center of right travel lane.

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

MEMORANDUM

subject: **BMM No. 06-387**
Bridge No. 03190A
Rte 8 NB over Rte 8 SB, Riverside St. & Sunnyside Ave.
Waterbury

date: October 30, 2006

to: Mr. Michael W. Lonergan
Acting Transportation Maintenance Administrator
Bureau of Engineering
and Highway Operations

from: Robert P. Zaffetti
Manager of Bridge Safety and Evaluation
Bureau of Engineering
and Highway Operations

This memorandum is a follow-up to a telephone conversation on October 10, 2006 between David Hiscox of your staff and Karen Riemer of Bridge Safety and Evaluation, concerning the following deficiency and recommendation for the subject structure:

1. There are areas of loose concrete over Route 8 SB in Span 5, bay 1 near midspan and Span 10, bay 1 over floorbeam 2.

Please direct persons under your jurisdiction to:

1. Remove loose concrete (1 CF).

This item is considered **Priority B**.

This inspection is currently in progress. **Maintenance forces responded and removed the loose concrete from the above noted locations. Another area of loose concrete was discovered and removed while the maintenance forces were on-site.** Additional items may be forwarded with the final inspection report.

All repairs shall be performed utilizing appropriate, approved materials and tried and proven methods unless otherwise specified.

If you have any questions concerning this matter, please contact Sandra A. Dumas at (860) 594-2072. Please contact me when this work has been completed.

Paul D. Goodwin/pdg/mam

cc: Arthur W. Gruhn – Richard T. Jankovich
James H. Norman
Joseph J. Obara
Robert P. Zaffetti – Sandra A. Dumas – Karen M. Riemer
Joseph E. Chilstrom, FHWA
HAKS Engineers – Garg

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

MEMORANDUM

subject: **BMM No.**
Bridge No. 03190A
Rte 8 NB over Rte 8 SB, Riverside St., Sunnyside Ave.
Waterbury

date:

to: Mr. Charles A. Drda
Transportation Maintenance Director
Bureau of Engineering
and Highway Operations

from: Sandra A. Dumas
Transportation Supervising Engineer
Bridge Safety and Evaluation
Bureau of Engineering
and Highway Operations

Attached are two copies of our most recent inspection report for the subject structure. The following deficiencies were found:

1. There are clogged scuppers in span 23, right shoulder (2) and span 24 left shoulder (1).
2. This item supersedes BMM 03-010 Item 6. Connection bolts are broken or missing at the following locations:
   -Span 2, girder 4 at pier 2, bottom bolt in connection bracket to the cross girder (1)
   -Span 8, stringer 4 at pier 8, north connection angle (2)
   -Span 10, stringer 3 to floorbeam 1 (1)
   -Span 10, stringer 3 at pier 10, top flange (1)
   -Span 12, stringer 1 to floorbeam 1 (2)
   -Span 13, stringer 1 to floorbeam 1 (1)
   -Span 14, girder 2 splice at pier 13, bottom flange (1)
3. The deck topside has areas of punky, damp concrete where exposed at potholes in spans 12, 16-20, and 27.
4. The deck underside has spalled and hollow (not over traffic) areas corresponding to severe deterioration areas in the GPR survey at the following locations:
   -Span 2 at pier 2
   -Span 7 at random locations
   -Span 24 at random locations
   -Span 25 at pier 25
   -Span 26 at pier 25
   -Span 29 at random locations
   -Span 31 at pier 31
   -Span 32 at random locations
   -Span 33 at random locations
   -Span 34 at pier 33
   -Span 36 at random locations
5. There are broken/non-functioning underbridge luminaires in spans 11, 13, and 18.
6. Compression seals are separated from headers and/or leaking at piers 3-5, 27, 28, and 33. Gland joints are torn, separated, and/or leaking at piers 1, 2, 6, 9, 22, 24, and 25.
7. This item supersedes BMM 03-010 Items 5a and 7c. There are random cracked, missing, and disconnected (poor fusion) welds throughout the structure. See attached crack schedule for locations and descriptions.

8. Pier columns at the following locations have large spall with exposed rebar and hollow areas:
   -Pier 3, south elevation
   -Pier 24, column 1, all sides
   -Pier 25, column 1, north elevation
   -Pier 26 east, south elevation
   -Pier 31, column 3, all sides
9. Downspout on pier 19, north elevation is cracked between the upper and lower elbows. Downspout on pier 12, north elevation has a 1 inch x 3/16 inch hole near the lower elbow.
10. This item supersedes BMM 03-010 Item 3. Concrete headers have spalls, hollow areas, and cracks at piers 3, 6, 9, 18, 19, 32, and 33.
11. There are random areas of active corrosion with section loss on superstructure members throughout the structure.

Please direct persons under your jurisdiction to:

1. Clear the clogged scuppers (3 EA).
2. Replace missing connection bolts with 7/8-inch dia. high strength bolts (7 EA) and 1-inch dia. high strength bolts (2 EA).
3. Remove deteriorated concrete and patch (¼ CY), install new waterproofing membrane (50 SF) and patch potholes (½ TON).
4. Remove deteriorated concrete and replace with full-depth patch in spans 2, 7, 29, 31-33, and 36 (8 CY) and remove deteriorated concrete and surface patch in remaining spans (¼ CY).
5. Repair or replace the broken luminaires (3 EA).
6. Repair or replace the compression seals and glands (140 LF).
7. Grind out cracked tack welds (12 EA) and reweld cracked or missing welds on the truss brace lower chords and diaphragms (22 EA).
8. Clean and patch deteriorated pier columns (3 CY).
9. Repair or replace the damaged downspouts (12 LF).
10. Clean and patch the concrete headers (1 CY).
11. Spot clean and paint areas of rust and deterioration (200 SF).

Items 1 & 2 above should be considered Priority C. Items 3-8 should be considered Priority D. Items 9-11 should be considered Priority E. There may be other deficiencies which are considered routine maintenance and should be corrected.

The attached inspection report also notes that the following items were issued under a previous BMM and have not been addressed.

BMM No.	Item
03-010	2. The segmental gland joints at piers 2 and 6 have torn and missing sections of elastomeric rubber dams (Priority E).

Bridge Safety and Evaluation believes that these repairs are structurally important and should be addressed.

All repairs shall be performed utilizing appropriate, approved materials and tried and proven methods unless otherwise specified.

If you have any questions concerning this matter, please contact me at (860) 594-2072. Please notify this office when the work has been completed.

Attachments

Paul D. Goodwin/pdg

cc: Joseph J. Obara
Robert P. Zaffetti – Sandra A. Dumas – Karen M. Riemer
HAKS Engineers – Garg Consulting Services, Inc.
Team

FIELD NOTES

FIELD NOTES	PROJ. NO. 170-2357	BRIDGE NO. 03190A
	DATE	SHEET ~~#24~~ 4/8
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW	

CRACK SCHEDULE

SPAN	MEMBER	DESCRIPTION	LENGTH
1	G6	2ND DIAPH FROM SOUTH, BOTTOM WELD MISSING	N/A
1	G7	2ND DIAPH FROM SOUTH, BOTTOM WELD MISSING	N/A
2	G7	KNEE BRACE WELD @ PIER 1 DETACHED	
4	G5	2ND DIAPH FROM SOUTH, BOT WELD INCOMPLETE	± 2"
9	PIER 9 X-GIRDER	DIAG TRUSS BRACE TO G1, BOT CHORD - TOP WELD CR'D VERTICAL WELD CR'D	2" 4"
10	G1	WEB SPLICE @ PIER 10, WEST SIDE TACK WELD CR'D	1¼"
10	G2	DIAG. TRUSS BRACE @ PIER 9, BOTTOM CHORD BOT WELD AND VERTICAL WELDS MISSING	N/A
11	S2	RISER PL TACK WELDS @ FB 1 (3)	3@±1"
11	S2	RISER PL TACK WELD @ FB 2	± 1"
12	G2	DIAG. TRUSS BRACE @ PIER 12, BOTTOM CHORD BOT WELD DISCONNECTED (POOR FUSION)	± 10"
13	G2	DIAG. TRUSS BRACE @ PIER 12, BOTTOM CHORD BOT & VERT WELDS MISSING	N/A
13	G2	DIAG. TRUSS BRACE @ PIER 13, BOTTOM CHORD BOT WELD MISSING	N/A

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

FIELD NOTES

FIELD NOTES	PROJ. NO. 170- 2357	BRIDGE NO. 03190A
	DATE	SHEET ~~125~~ 5/8
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW	

CRACK SCHEDULE

SPAN	MEMBER	DESCRIPTION	LENGTH
14	G2	DIAG TRUSS BRACE @ PIER 14, BOTTOM CHORD BOTTOM WELD INCOMPLETE, POOR QUALITY	N/A
14	S2	RISER PL TACK WELD @ FB 1	±1"
15	G1	DIAG TRUSS BRACE @ PIER 15, BOTTOM CHORD BOT WELD DISCONNECTED (POOR FUSION)	±10"
16	G2	DIAG TRUSS BRACE @ PIER 16, BOTTOM CHORD BOT WELD MISSING	N/A
16	G1	WEB SPLICE @ PIER 16, WEST SIDE TACK WELDS (3)	30±1"
16	G2	WEB SPLICE @ PIER 16, EAST SIDE TACK WELDS (2)	20±1"
18	G3	1ST DIAPH FROM NORTH, BOT & WELD W/ POOR FUSION	±4"
18	G8	DIAG TRUSS BRACE @ PIER 17, BOTTOM CHORD WELD MISSING	N/A
19	G3	2ND DIAPH FROM SOUTH, BOT & WELD CRACKED	±4"
19	PIER 18 X-GIRDER	EAST END STIFFENER @ DIAG TRUSS BRACE WELDS TO BOT FLG CRACKED, BOTH SIDES	±6"
24	G3	VERTICAL CONN PL @ PIER 24 TACK WELD TO TOP (TENSION) FLANGE OF X-GIRDER CRACKED	2"
24	G3	1ST DIAPH FROM NORTH, BOT WELD MISSING	N/A

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

FIELD NOTES

PROJ. NO. 170-2357	BRIDGE NO. 03190A
DATE	SHEET ~~126~~ 6/8
PREPARED BY: Garg Consulting Services, Inc. ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS	CREW

CRACK SCHEDULE

SPAN	MEMBER	DESCRIPTION	LENGTH
24	PIER 24 X-GIRDER	WEST BRG STIFF OVER COL. 1, S. SIDE WELD TO TOP PLG (TENSION) CRACKED	2 1/4"
~~24~~	~~G1~~	~~1ST DIAPH FROM NORTH, CONN TO W/ PLATE/CLEAT~~ CR ON SECONDARY MEMBER DUE TO SECTION LOSS, NO REPAIR REQUIRED	~~3 1/4"~~
34	G2	1ST DIAPH FROM NORTH, BOT WELD MISSING	N/A
34	G3	NORTH END DIAPH, BOT WELD MISSING	N/A
~~7~~	~~FB1~~	~~G1, CR IN WEB @ BOT PLG COPE W/ DRILLED STOP HOLE~~ STOP HOLE DRILLED	~~1/4"~~
~~11~~	~~S1~~	~~PIER 11, CR IN WEB COPE W/ DRILLED STOP HOLE~~ STOP HOLE DRILLED	~~1 3/4"~~

Revision	Date	Crew	Company	Revision	Date	Crew	Company
Revision	Date	Crew	Company	Revision	Date	Crew	Company

Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

Bridge No.	03190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Rte 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

Photo #1:
Description: Span 29, deck underside near midspan next to girder 6. Spall with exposed rebar.

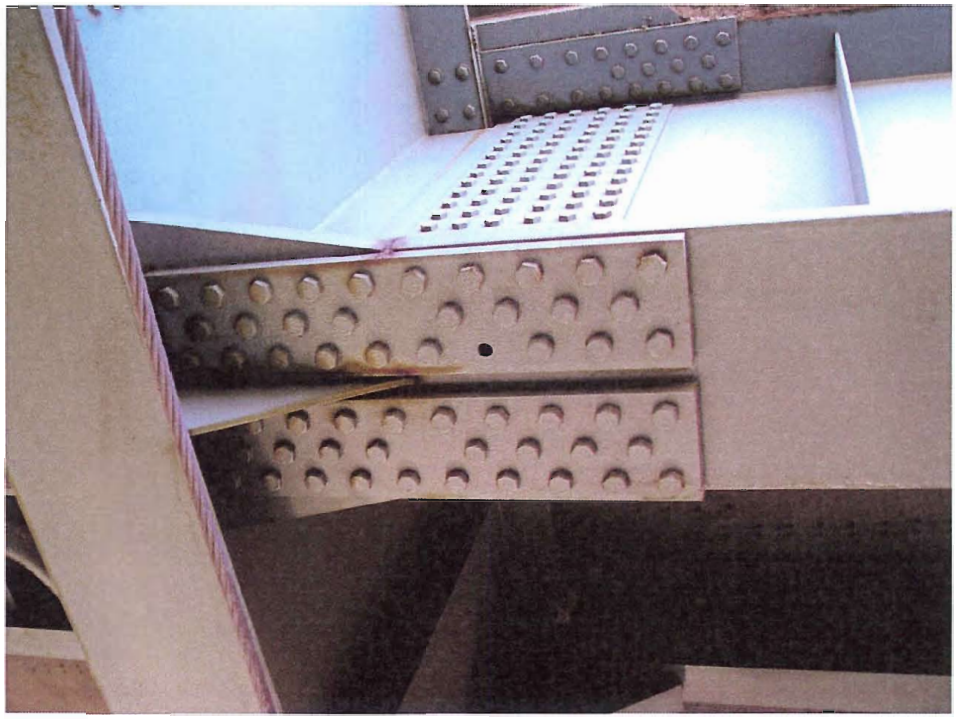


Photo #2:
Description: Span 14 near pier 13. Girder 2 bolted splice is missing 1 bolt in bottom flange.

Garg Consulting Services, Inc.
ENGINEERS • CONSULTANTS • CONSTRUCTION MANAGERS

Bridge No.	03190A	**Town:**	Waterbury	**Inspected by:**	P. Goodwin
Feature Carried:	Route 8 NB			**Inspected by:**	S. Watrous
Feature Crossed:	Rte 8 SB, Riverside St., and Sunnyside Ave.			**Date Inspected:**	10/9/06

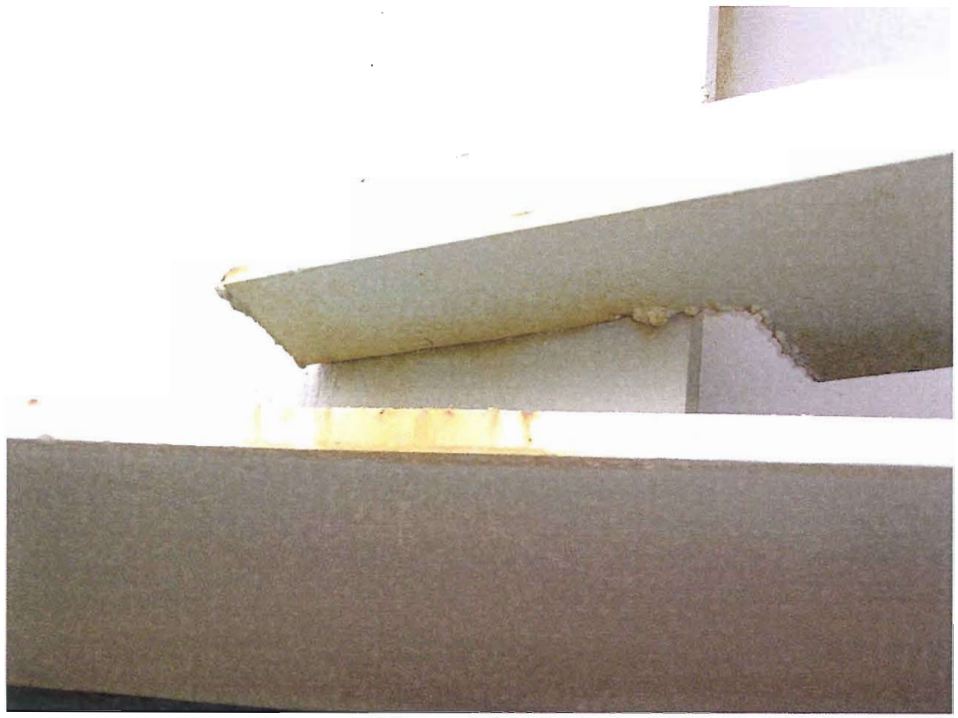


Photo #3:
Description: Span 16 near pier 15, truss brace at girder 1. Bottom chord is missing weld to vertical connection plate.

Photo #4:
Description: Pier 31, column 3. Large spalls with exposed rebar.

CONNECTICUT DEPARTMENT OF TRANSPORTATION
FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS
INSPECTION DATA SHEET

Form BRI12, Rev 9/97

Bridge No: 03190A

Year Built: 1966

Fracture Critical Inspection Date: 10/09/06

FC Insp Freq: 24 Months **FC Type Code:** J

Town: Waterbury

ADT: 28,350 Year of ADT: 2005

Facility Carried: Route 8 Northbound

Structure Type: 302 % Truck: 8

Feature Intersected: Route 8 SB, Riverside St., & Sunnyside Ave.

Access Equipment Needed: 45' Lift and 80' Manlift

Traffic Control Required: Route 8 Southbound Lane closures and local road lane closures

Reference to Plans: Projects 151-92 and 151-246

MEMBER/DETAIL TYPE # A

Member/Detail Type: One or two girder system

[X] Fracture Critical

Fatigue Category: B Steel Type: A-36

[ ] Fatigue Prone

Description: Welded plate cross girders at piers 1,2,& 6-24.

Inspection Procedure: 100% hands on.

MEMBER/DETAIL TYPE # A

Member/Detail Type: Two girder system

[X] Fracture Critical

Fatigue Category: B Steel Type: A-36

[ ] Fatigue Prone

Description: Girders in Girder-Floorbeam-Stringer system in spans 7-17 & 20-22.

Inspection Procedure: 100% hands on.

CONNECTICUT DEPARTMENT OF TRANSPORTATION
FRACTURE CRITICAL MEMBERS/FATIGUE PRONE DETAILS
INSPECTION DATA SHEET

Form BRI12, Rev 9/97

MEMBER/DETAIL TYPE # O

Member/Detail Type: super/sub integral framing details

[X] Fracture Critical

Fatigue Category: B Steel Type: A-36

[ ] Fatigue Prone

Description: Floorbeams in Girder-Floorbeam-Stringer system in spans 7-17 & 20-22.

Inspection Procedure: 100% hands on.

MEMBER/DETAIL TYPE # C

Member/Detail Type: Steel bent caps sustaining tensile stresses

[X] Fracture Critical

Fatigue Category: B Steel Type: A-36

[ ] Fatigue Prone

Description: Pier 3 steel pier cap (cantilevered)

Inspection Procedure: 100% hands on.

MEMBER/DETAIL TYPE # G

Member/Detail Type: Single cell steel box girders

[X] Fracture Critical

Fatigue Category: B Steel Type: A-36

[ ] Fatigue Prone

Description: Piers 4 & 5 box girder pier caps.

Inspection Procedure: 100% hands on.

MEMBER/DETAIL TYPE # M

Member/Detail Type: Partial length welded cover plates

[ ] Fracture Critical

Fatigue Category: E Steel Type: A-36

[X] Fatigue Prone

Description: Girder bottom flange partial length welded cover plate ends in spans 1-6 & 23-36.

Inspection Procedure: 100% hands on.

Bridge Number **03190A**

Inspected By: P. GOODWIN & S. WATROUS

Sufficiency Rating 75.72

Previous Inspection Date 11/15/2004

BS&E Received ☐ Data Entry By:

Copies Made ☐ Data Entry Date:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFETY & EVALUATION

STRUCTURE EVALUATION

SHEET 1 OF 2 FORM BRI-19 REV 10/00

SHEET_____ OF_____ (INSP. REPORT)

90) Inspection Date	Inspection Team	91) Frequency	Class
100906	25 25	24	03

Indepth Insp	Deck Survey	Access	Flagman
11/15/2004	1/11/07	24 24	0 00

CRITICAL FEATURE INSPECTIONS

	Type	Frequency	Team	Date	
Fracture:	J 5	24 24	20 25	11/15/2004	10/9/06
Uwater:					
Special:					

RED FLAG

IDENTIFICATION

Bridge Name

Town Name WATERBURY Town Code 80070

5) Inventory Route:

A) Record Type 1 D) Route Number 00008

B) Signing Prefix 3 State Highway E) Directional Suffix 1 North

C) Level of Service 1 Mainline

6) Feature Intersected RTE 8, RIVERSIDE STREET

7) Facility Carried ROUTE 8 NORTHBOUND

9) Location ROUTE 8 SOUTH OF I-84

11) Milepoint 29.69 Miles

16) Latitude 41 deg 32 min 48.00 sec deg min sec

17) Longitude 73 deg 2 min 42.00 sec deg min sec

98) Border Bridge:

A) State Code B) Percent Responsibility %

C) Border Town Name

99) Border Bridge Structure No

STRUCTURE TYPE AND MATERIAL

43) Structure Type, Main:

A) Material 3 Steel B) Design Type 2 Stringer/Multi-beam

44) Structure Type, Approach:

A) Material 0 Other B) Design Type 0 Other

45) Number of Spans, Main Unit 36

46) Number of Approach Spans 0

107) Deck Structure Type 1 Concrete Cast-in-Place

108) Wearing Surface/Protective System:

A) Type of Wearing Surface 6 Bituminous

B) Type of Membrane 2 Preformed Fabric

C) Type of Deck Protection 0 None

AGE AND SERVICE

27) Year Built 1966 106) Year Reconstructed 0000 1991

42) Type of Service:

A) On 6 Overpass structure B) Under 1 HIGHWAY

28) Number of Lanes:

A) On 2 B) Under 5 06

29) Average Daily Traffic 28950 28350 Half ADT?: Yes Y

109) Percent Truck 8 %

30) Year of ADT 2003 2005

19) Bypass, Detour Length 0 miles

GEOMETRIC DATA

48) Length of Max Span 115 ft

49) Structure Length 2634 ft

50) Curb or Sidewalk Widths:

A) Left 1.5 ft B) Right 1.5 ft

51) Brg Rdwy width,curb-curb 30.0 ft

52) Deck Width, Out-Out 35.5 ft

32) Approach Roadway Width 30 ft

33) Bridge Median 0 No Median

Deck Area 130165 sqft 131987 sq

34) Skew Angle 99 deg

35) Structure Flared 1

10)Inv. Rte. Min. Vert Clearance 18 ft 1 in

47) Log Inv. Rte. Total Horiz Clr.: 30.0 ft

47) RLog Inv. Rte. Total Horiz. Clr.: ft

53) Min Vert Clearance Over Bridge 16 ft 8 in

54) Min Vert Under Clearance H Ref 15 ft 3 in Ref

55) Min Lat Under Clearance on Right H Ref 3.0 ft Ref

56) Min Lat Under Clearance on Left 2.0 ft

BRIDGE COMMENTS

STRUCTURE EVALUATION

SHEET 2 OF 2 FORM BRI-19 REV 10/00

SHEET_____ OF_____ (INSP. REPORT

Bridge Number	03190A	NBIS Length	
Town Name	WATERBURY	Yes	2634
Facility Carried	ROUTE 8 NORTHBOUND		
Feature Crossed	RTE 8, RIVERSIDE STREET		

Inspected By: P. GOODWIN & S. WATTONS

CLASSIFICATION

112) NBIS Bridge Length	Yes	
104) Highway System	1	On System
26) Functional Class	12	Urban Principal Arterial - Other
100) Defense Highway	1	Defense Highway
101) Parallel Structure	N	No parallel structure exists
102) Direction of Traffic	1	1-way traffic
103) Temporary Structure		
110) Designated National Network	1	On national network
20) Toll	3	On Free Road
21) Maintain	1	State Highway Agency
22) Owner	1	State Highway Agency
Report Class	S	STATE
37) Historical Significance	5	Bridge is not eligible for National Register

WATERWAY

DrainageBasinCode		
38) Navigation Control		No navigation control on waterway
39) Navigation Vert Clr.		40) Navigation Horiz Clr.
116) Vert-Lift Brg Nav Min		
111) Pier Abutment Protection		

PROPOSED IMPROVEMENTS

75A) Type of Work Proposed		Replacement - incidental widening
75B) Work Done By		Work done by contract
76) Length of Struct. Improvement	0	ft
94) Bridge Improvement Cost	$ 0	
95) Roadway Improvement Cost	$ 0	
96) Total Project Cost	$ 0	
97) Year of Improvement Cost Est.		
114) Future ADT	0	115) Year Future ADT
List No. No	Project No.	Advertised

POSTED SIGNS & UTILITIES

Other Posted Signs 1					
Other Posted Signs 2					
Actual P.L. Single Unit Truck	tons		Actual P.L. 4Axle Truck	tons	
Rec. P.L. Single Unit Truck	tons		Rec. P.L. 4Axle Truck	tons	
Actual P.L. Semi-TrailerTruck	tons		Actual P.L. 3S2 Truck	tons	
Rec. P.L. Semi-TrailerTruck	tons		Rec. P.L. 3S2 Truck	tons	
Rec. P.L. All Vehicles	tons		Actual P.L. All Vehicles	tons	
Posted Vert Clearance On Bridge	ft	in		ft	in
Posted Vert UnderClearance	ft	in		ft	in
Posted Speed Limit	45 mph				mph
Utility					

LOAD RATING AND POSTING

31) Design Load	5	Evaluation Code	L	
63) Operating Rating Type	1	Year of Evaluation	1998	
64) Operating Rating	58.7	70) Bridge Posting	5	
65) Inventory Rating Type	1	41) Structure Status	A	A
66) Inventory Rating	35.3	Open, no restriction		

CONDITION

		Rating	By
58) Deck	5	4	DJC
59) Superstructure	6	5	DJC
60) Substructure	6	6	DJC
61) Channel & Chan. Protection	N	N	DJC
62) Culverts	N	N	DJC

APPRAISALS

		Rating	By
67) Structure Evaluation	6	5	DJC
68) Deck Geometry	4	4	DJC
69) Under Clear Vert & Horiz	3	3	DJC
71) Waterway Adequacy	N	N	DJC
72) Approach Rdwy Alignment	6	6	DJC
113) Scour Critical			

Items 58 Thru 72 Checked By: DJC

36) Traffic Safety Features:

A) Bridge Railings	0	0
B) Transitions	1	0
C) Approach Guardrail	1	0
D) Approach Guardrail End	1	N

STEEL BLOCKOUTS USED

– ALL RAILINGS ARE CONTINUOUS

OTHER FEATURES

Fence Required	No		Barrel Ladder	No N
Fence Present	No	N	Stand Pipes	Yes Y
Fence Height	0.0 ft	ft	Cat Walks	No N
Fence Type	Solid Panel		Movable Inspection System	No N
Fence Material	Aluminum		Loose Concrete Checked?	Yes Y
Fence Top Type	Vertical			

INSPECTION COMMENTS

Proposed Next Indepth Insp Year	2014
Senior	consultant
Supervisor	consultant

REVIEWED BY D.J. Colavecchio PE# 18533 Date 4/13/07

BRIDGE NUMBER	TOWN NAME	NBIS BRG LGTH	
03190A	WATERBURY	Yes	2634
FACILITY CARRIED	FEATURE CROSSED		
ROUTE 8 NORTHBOUN	RTE 8, RIVERSIDE STREET		

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
DIVISION OF BRIDGE SAFETY EVALUATION

INVENTORY ROUTE UNDER STRUCTURE EVALUATION

FORM BRI-25 REV 10/00

INSPECTED BY: P. GOODWIN
S. WATROUS

REVIEWED BY: D. Clavecchio DATE: 4/13/07

SHEET_____ OF_____ (INSP. REPORT)

IDENTIFICATION

DESCRIPTION:

5) INVENTORY ROUTE:

A) RECORD TYPE	2	
B) ROUTE SIGNING PREFIX	3	State Highway
C) DESIGNATED LEVEL OF SERVICE	1	Mainline
D) ROUTE NO.	00008	
11) MILE POINT (INV.RTE)	29.77	

AGE & SERVICE

+ 28B) NUMBER OF INV.ROUTE LANES	2	
* 29) ADT (INV. RTE)	28950	28350
* 109) TRUCK ADT % (INV.RTE)	8	
* 30) YEAR OF ADT (INV. RTE)	2003	2005
* 41) INV ROUTE OPERATIONAL STATUS	A	Open, no restriction A
19) BYPASS DETOUR LENGTH	1	Miles

GEOMETRIC DATA

+ 10) INV. RTE. MIN. VERT. CLEARANCE	16 ft 4 in	ft in
+ 47) LOG INV. RTE. TOTAL HORIZ CLR.	~~30~~ ft	-- . - ft
+ 47) RLOG INV. RTE. TOTAL HORIZ CLR.	30 ft	. ft
+ LOG MIN VERT CLR OVER INV ROUTE	ft in	ft in
+ RLOG MIN VERT CLR OVER INV ROUTE	16 ft 3 in	ft in
+ 55) MIN LAT UNDERCLR ON RIGHT	H 4.3 ft	H 03.6 ft
+ 56) MIN LAT UNDERCLR ON LEFT	5.3 ft	05.2 ft

CLASSIFICATION

26) INV. RTE. FUNCT CLASSIFICATION	12	Urban Principal Arterial -
100) DEFENSE HIGHWAY DESIGNATION	1	Defense Highway 0
** 102) DIRECTION OF TRAFFIC	1	1-way traffic
104) HIGHWAY SYSTEM OF INV. ROUTE	1	On System
110) DESIGNATED NATIONAL NETWORK	1	On national network

POSTED SIGNS

+ POSTED VERT. CLR UNDER BRIDGE 0 ft 0 in ft in

COMMENTS:

* FILL OUT ON EVERY INSPECTION 29, 109, 30, 41

\+ VERIFY EVERY INSPECTION 28B, 10, 47, 53, 55, 56 & POSTED VERT CLEARANCE UNDER THE BRIDGE

** MUST BE FILLED OUT OR VERIFIED ON THE FIRST INSPECTION MADE BASED ON THE NEW FHWA GUIDE 102

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 03190A Agency ID: 03190A Sufficiency Rating: 0

IDENTIFICATION

State 1: 09 Connecticut Struc Num 8: 03190A
Facility Carried 7: ROUTE 8 NORTHBOUND Location 9: ROUTE 8 SOUTH OF I-84
Rte.(On/Under)5A: Route On Structure Rte. Signing Prefix 5B: 3 State Hwy
Level of Service 5C: 1 Mainline Rte. Number 5D: 00008
Directional Suffix 5E: 1 North % Responsibility : 0
SHD District 2: 04 County Code 3: New Haven
Place Code 4: WATERBURY Mile Post 11: 29.600 mi
Feature Intersected 6: RTE 8, RIVERSIDE STREET
Latitude 16: 41d 32' 48" Longitude 17: 073d 02' 42"
Border Bridge Code 98: Unknown (P)
Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months Inspection Date 90: 10/9/2006 Next Inspection: 10/09/2008
FC Frequency 92A: 24 months FC Inspection Date 93A: 10/9/2006 Next FC Inspection: 10/9/2008
UW Frequency 92B: NA UW Inspection Date 93B: NA Next UW Inspection: NA
SI Frequency 92C: NA SI Date 93C: NA Next SI: NA
Element Frequency: 24 months Element Inspection Date: 10/09/2006 Next Elem. Insp. Due: 10/09/2008

CLASSIFICATION

Defense Highway 100: 1 STRAHNET hwy Parallel Structure 101: No || bridge exists
Direction of Traffic 102: 1 1-way traffic Temporary Structure 103: Unknown (NBI)
Highway System 104: 1 On the NHS NBIS Length 112: Long Enough
Toll Facility 20: 3 On free road Functional Class 26: 12 Urban Fwy/Expwy
Historical Significance 37: 5 Not eligible for NRHP
Owner 22: 1 State Highway Agency
Custodian 21: 1 State Highway Agency

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 36
Main Span Material/Design 43A/B:
3 Steel 02 Stringer/Girder
Deck Type 107: 1 Concrete-Cast-in-Place
Wearing Surface 108A: 6 Bituminous
Membrane 108B: 2 Preformed Fabric
Deck Protection 108C: None

CONDITION

Deck 58: 5 Fair Super 59: 5 Fair Sub 60: 6 Satisfactory
Culvert 62: N N/A (NBI) Channel/Channel Protection 61: N N/A (NBI)

LOAD RATING AND POSTING

Inventory Rating Method 65: 2 AS Allowable Stres Operating Rating Method 63: 2 AS Allowable Stress
Inventory Rating 66: HS25.4 Operating Rating 64: HS36.9
Design Load 31: 5 MS 18 (HS 20) Posting 70: 5 At/Above Legal Loads
Posting status 41: A Open, no restriction

AGE AND SERVICE

Year Built 27: 1966 Year Reconstructed 106: 1991
Type of Service on 42A: 6 2d level interchg
Type of Service under 42B: 1 Highway
Lanes on 28A: 2 Lanes Under 28B: 2 Detour Length 19: 0.0 mi
ADT 29: 28,350 Truck ADT 109: 8 % Year of ADT 30: 2005

APPRAISAL

Bridge Rail 36A: 0 Substandard Approach Rail 36C: 0 Substandard
Transition 36B: 0 Substandard Approach Rail Ends 36D: N N/A or not required
Str. Evaluation 67: 6 Deck Geometry 68: 4 Tolerable
Underclearance, Vertical and Horizontal 69: 3 Intolerable - Correct
Waterway Adequacy 71: N Not applicable Approach Alignment 72: 6 Equal Min Criteria
Scour Critical 113: N Not Over Waterway

GEOMETRIC DATA

Length Max Span 48: 115.0 ft Structure Length 49: 2,633.9 ft
Curb/Sdwlk Wdth L 50A: 1.5 ft Curb/Sidewalk Width R 50B: 1.5 ft
Width Curb to Curb 51: 30.0 ft Width Out to Out 52: 35.5 ft
Approach Roadway Width 32: (w/ shoulders) 30.0 ft Median 33: 0 No median
Deck Area: 131,988. sq. ft
Skew 34: 99.00 ° Structure Flared 35: 1 Yes, flared
Minimum Vertical Clearance Over Bridge 53: 16.7 ft
Minimum Vertical Underclearance Reference 54A: H Hwy beneath struct
Minimum Vertical Underclearance 54B: 15.2 ft
Minimum Lateral Underclearance Reference R 55A: H Hwy beneath struct
Minimum Lateral Undrclearance R 55: 3.0 ft
Minimum Lateral Undrclearance L 56: 2.0 ft

PROPOSED IMPROVEMENTS

Bridge Cost 94: $ 1,000 Type of Work 75: 38 Other Structural
Roadway Cost 95: $ 1,000 Length of Improvment 76: 0.3 ft
Total Cost 96: $ 2,000 Future ADT 114: 13,775
Year of Cost Estimate 97: 2000 Year of Future ADT 115: 2019

NAVIGATION DATA

Navigation Control 38: N NA-no waterway
Vertical Clearance 39: 0.0 ft Horizontal Clearance 40: 0.0 ft
Pier Protection 111: Not Applicable (P) Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
0	14/3	P Conc Deck/AC Ovly	(SF)	131,988	0 %	0	100 %	131,988	0 %	0	0 %	0	0 %	0
0	107/3	Paint Stl Opn Girder	(LF)	15,563	87 %	13,498	3 %	481	10 %	1,528	0 %	56	0 %	0
0	113/3	Paint Stl Stringer	(LF)	4,858	97 %	4,709	3 %	149	0 %	0	0 %	0	0 %	0
0	152/3	Paint Stl Floor Beam	(LF)	1,297	95 %	1,235	1 %	9	3 %	40	1 %	13	0 %	0
0	205/3	R/Conc Column	(EA)	70	70 %	49	23 %	16	7 %	5	0 %	0	0 %	0
0	215/3	R/Conc Abutment	(LF)	101	87 %	88	12 %	12	1 %	1	0 %	0	0 %	0

Structure Inventory and Appraisal Sheet (English Units)

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
0	231/3	Paint Stl Cap	(LF)	234	100 %	234	0 %	0	0 %	0	0 %	0	0 %	0
0	234/3	R/Conc Cap	(LF)	512	74 %	380	19 %	99	6 %	33	0 %	0	0 %	0
0	300/3	Strip Seal Exp Joint	(LF)	648	93 %	605	2 %	11	5 %	32	0 %	0	0 %	0
0	301/3	Pourable Joint Seal	(LF)	88	17 %	15	17 %	15	66 %	58	0 %	0	0 %	0
0	302/3	Compressn Joint Seal	(LF)	420	85 %	355	8 %	34	7 %	31	0 %	0	0 %	0
0	305/3	Asphaltic Plug Joint	(LF)	81	86 %	70	14 %	11	0 %	0	0 %	0	0 %	0
0	310/3	Elastomeric Bearing	(EA)	102	95 %	97	5 %	5	0 %	0	0 %	0	0 %	0
0	313/3	Fixed Bearing	(EA)	110	99 %	109	0 %	0	1 %	1	0 %	0	0 %	0
0	314/3	Pot Bearing	(EA)	54	85 %	46	0 %	0	15 %	8	0 %	0	0 %	0
0	321/3	R/Conc Approach Slab	(EA)	2	0 %	0	100 %	2	0 %	0	0 %	0	0 %	0
0	331/3	Conc Bridge Railing	(LF)	5,472	99 %	5,405	1 %	67	0 %	0	0 %	0	0 %	0
0	356/3	Steel Fatigue SmFlag	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
0	359/3	Soffit Smart Flag	(EA)	1	0 %	0	0 %	0	0 %	0	100 %	1	0 %	0
0	363/3	Section Loss SmFlag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
0	370/3	deck drainage system	(LF)	691	99 %	683	1 %	8	0 %	0	0 %	0	0 %	0
0	371/3	Free Fall Pipes, Scu	(EA)	17	82 %	14	18 %	3	0 %	0	0 %	0	0 %	0