

# STATE OF OHIO

## DEPARTMENT OF TRANSPORTATION

# HAN-SR15/CR180-19.56/00.21

### JACKSON TOWNSHIP HANCOCK COUNTY

**FEDERAL PROJECT NUMBER**

E200 (476)

**RAILROAD INVOLVEMENT**

NONE

**PROJECT DESCRIPTION**

THE PROJECT CONSISTS OF ELIMINATING THE EXISTING CR 180 AT-GRADE INTERSECTION WITH SR 15 BY CONSTRUCTING A GRADE SEPARATION USING AN OVERPASS BRIDGE.

PROJECT LENGTH = 0.42 MILES.

**EARTH DISTURBED AREAS**

PROJECT EARTH DISTURBED AREA: 8.3 ACRES  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 5.2 ACRES  
NOTICE OF INTENT EARTH DISTURBED AREA: 13.5 ACRES

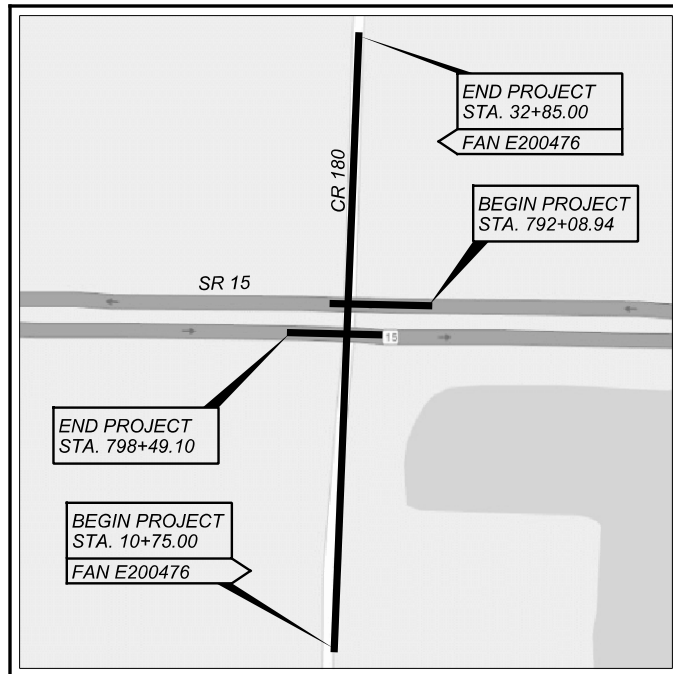
**LIMITED ACCESS**

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC ON SR 15 AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY, OR FREEWAY, BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

**2019 SPECIFICATIONS**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF SR 15, EXCEPT AS NOTED ON SHEET 11, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES. THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF CR 180 AND DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 18. THE MAKING OF THIS IMPROVEMENT WILL REQUIRE PARTIAL CLOSING TO TRAFFIC OF CR 8 BY PERMITTING RIGHT TURN ONLY MOVEMENTS AT THE INTERSECTION WITH SR 15.



**LOCATION MAP**

LATITUDE: 40° 59' 10" LONGITUDE: 83° 36' 45"



|                         |       |
|-------------------------|-------|
| PORTION TO BE IMPROVED  | ----- |
| INTERSTATE HIGHWAY      | ===== |
| FEDERAL ROUTES          | ===== |
| STATE ROUTES            | ===== |
| COUNTY & TOWNSHIP ROADS | ===== |
| OTHER ROADS             | ----- |

**DESIGN DESIGNATION**

|                                   | <b>SR 15</b>             | <b>CR 180</b>         |
|-----------------------------------|--------------------------|-----------------------|
| CURRENT ADT (2022)                | 16,500                   | 1,762                 |
| DESIGN YEAR ADT (2042)            | 20,000                   | 1,937                 |
| DESIGN HOURLY VOLUME (2042)       | 2,400                    | 213                   |
| DIRECTIONAL DISTRIBUTION          | 58%                      | 55%                   |
| TRUCKS (24 HOUR B&C)              | 34%                      | 2.2%                  |
| DESIGN SPEED                      | 70 MPH                   | 55 MPH                |
| LEGAL SPEED                       | 65 MPH                   | 55 MPH                |
| DESIGN FUNCTIONAL CLASSIFICATION: | RURAL PRINCIPAL ARTERIAL | RURAL MINOR COLLECTOR |

NHS PROJECT ----- YES

**DESIGN EXCEPTIONS**

| DESIGN FEATURE        | APPROVAL DATE | SHEET NUMBER |
|-----------------------|---------------|--------------|
| GRADED SHOULDER WIDTH | 04-26-22      | 5            |

**ADA DESIGN WAIVERS**

NONE REQUIRED

UNDERGROUND UTILITIES  
Contact Two Working Days  
Before You Dig

**OHIO811.org**  
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764  
(Non members must be called directly)

PLAN PREPARED BY:

**REL RICHLAND ENGINEERING LTD**  
A WALLACEPANCHERGROUP COMPANY

29 NORTH PARK STREET  
MANSFIELD OHIO 44902  
PHONE: (419) 524-0074  
www.wallacepancher.com

ENGINEER'S SEAL:

SIGNED: *Patrick Schwan*  
DATE: 10-11-2022

STATE OF OHIO  
REGISTERED PROFESSIONAL ENGINEER  
PATRICK SCHWAN  
61571

**INDEX OF SHEETS:**

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| STANDARD CONSTRUCTION DRAWINGS |         |          |         |           |         |          |         |           |         | SUPPLEMENTAL SPECIFICATIONS | SPECIAL PROVISIONS |
|--------------------------------|---------|----------|---------|-----------|---------|----------|---------|-----------|---------|-----------------------------|--------------------|
| BP-3.1                         | 1-21-22 | F-2.1    | 7-20-18 | MH-3      | 7-16-21 | RM-1.1   | 1-15-21 | AS-1-15   | 7-17-15 | 800-2019 SEE PROPOSAL       |                    |
| BP-3.2                         | 1-18-19 | F-3.4    | 7-19-13 |           |         | RM-4.2   | 4-17-20 | AS-2-15   | 1-18-19 | 832                         | 7-15-22            |
| BP-4.1                         | 7-19-13 |          |         | MT-95.30  | 7-19-19 |          |         | GSD-1-19  | 1-15-21 | 840                         | 4-15-22            |
| BP-9.1                         | 1-18-19 | HL-50.11 | 1-16-15 | MT-95.40  | 1-17-20 | TC-61.30 | 7-19-19 | SBR-1-20  | 7-17-20 | 845                         | 4-20-18            |
|                                |         |          |         | MT-95.45  | 1-17-20 | TC-65.10 | 1-17-14 | SICD-1-21 | 1-21-22 | 902                         | 7-19-19            |
| CB-2-2ABC                      | 7-15-22 | HW-2.1   | 7-20-18 | MT-95.50  | 7-21-17 | TC-65.11 | 7-15-22 | SICD-2-14 | 1-15-21 |                             |                    |
| CB-3A                          | 7-16-21 | HW-2.2   | 7-20-18 | MT-97.10  | 4-19-19 |          |         | VPF-1-90  | 7-20-18 |                             |                    |
| CB-5                           | 7-16-21 |          |         | MT-99.20  | 4-19-19 |          |         |           |         |                             |                    |
| CB-8                           | 7-16-21 | MGS-1.1  | 7-16-21 | MT-99.60  | 7-15-16 |          |         |           |         |                             |                    |
|                                |         | MGS-2.1  | 1-19-18 | MT-101.60 | 1-17-20 |          |         |           |         |                             |                    |
| DM-1.1                         | 7-17-20 | MGS-3.1  | 1-19-18 | MT-101.70 | 1-17-20 |          |         |           |         |                             |                    |
| DM-1.2                         | 7-16-21 | MGS-4.2  | 7-19-13 | MT-101.75 | 1-17-20 |          |         |           |         |                             |                    |
| DM-4.1                         | 7-17-20 | MGS-5.2  | 7-15-16 | MT-101.90 | 7-17-20 |          |         |           |         |                             |                    |
| DM-4.3                         | 1-15-16 | MGS-5.3  | 7-15-16 | MT-103.10 | 1-21-22 |          |         |           |         |                             |                    |
| DM-4.4                         | 1-15-16 | MGS-6.2  | 7-19-19 |           |         |          |         |           |         |                             |                    |

|   |          |                              |
|---|----------|------------------------------|
| 1 | 12/27/22 | REVISE EARTH DISTURBED AREAS |
| 3 | 01/09/23 | ADDED SS845                  |

APPROVED: *Christy A. Hughes*  
DATE: 10/13/2022, DISTRICT DEPUTY DIRECTOR

APPROVED: \_\_\_\_\_  
DATE: \_\_\_\_\_, DIRECTOR, DEPARTMENT OF TRANSPORTATION

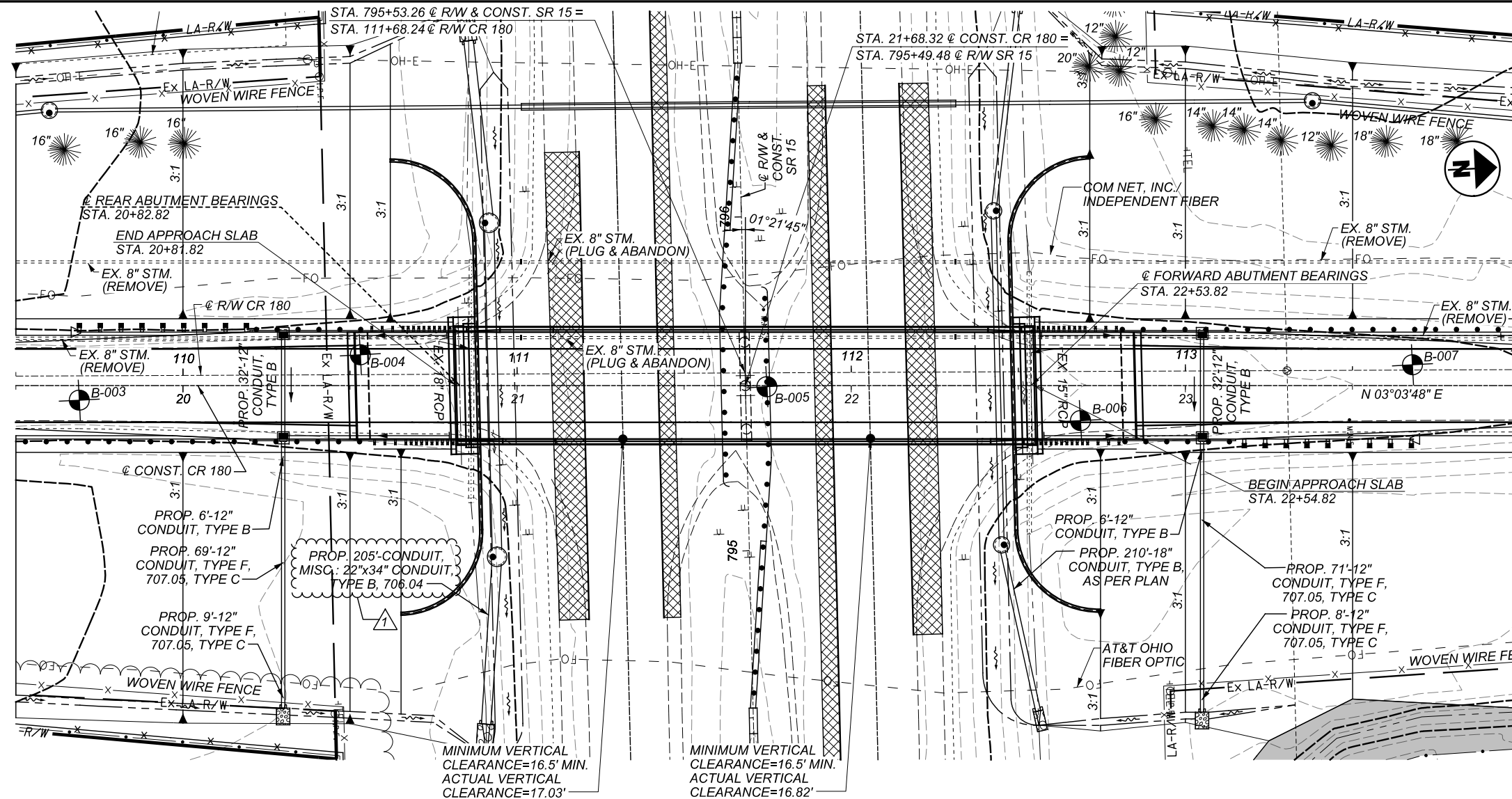
TITLE SHEET

DESIGN AGENCY



|            |             |
|------------|-------------|
| DESIGNER   | ALP         |
| REVIEWER   | PRS 4-21-22 |
| PROJECT ID | 111379      |
| SHEET      | TOTAL       |
| 1          | 149         |

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**BENCHMARK DATA**

|            |           |       |         |        |         |     |
|------------|-----------|-------|---------|--------|---------|-----|
| BM #1 STA. | 9+46.57,  | ELEV. | 807.20, | OFFSET | 22.75', | LT. |
| BM #2 STA. | 15+08.02, | ELEV. | 802.37, | OFFSET | 46.53', | LT. |
| BM #3 STA. | 18+36.83, | ELEV. | 801.78, | OFFSET | 46.51', | LT. |
| BM #4 STA. | 25+67.43, | ELEV. | 796.83, | OFFSET | 54.60', | LT. |
| BM #5 STA. | 29+82.44, | ELEV. | 795.66, | OFFSET | 35.49', | LT. |
| BM #6 STA. | 34+35.26, | ELEV. | 796.26, | OFFSET | 14.82', | LT. |

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEETS 42, 44, 48, & 50 OF 149.

**NOTES**

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

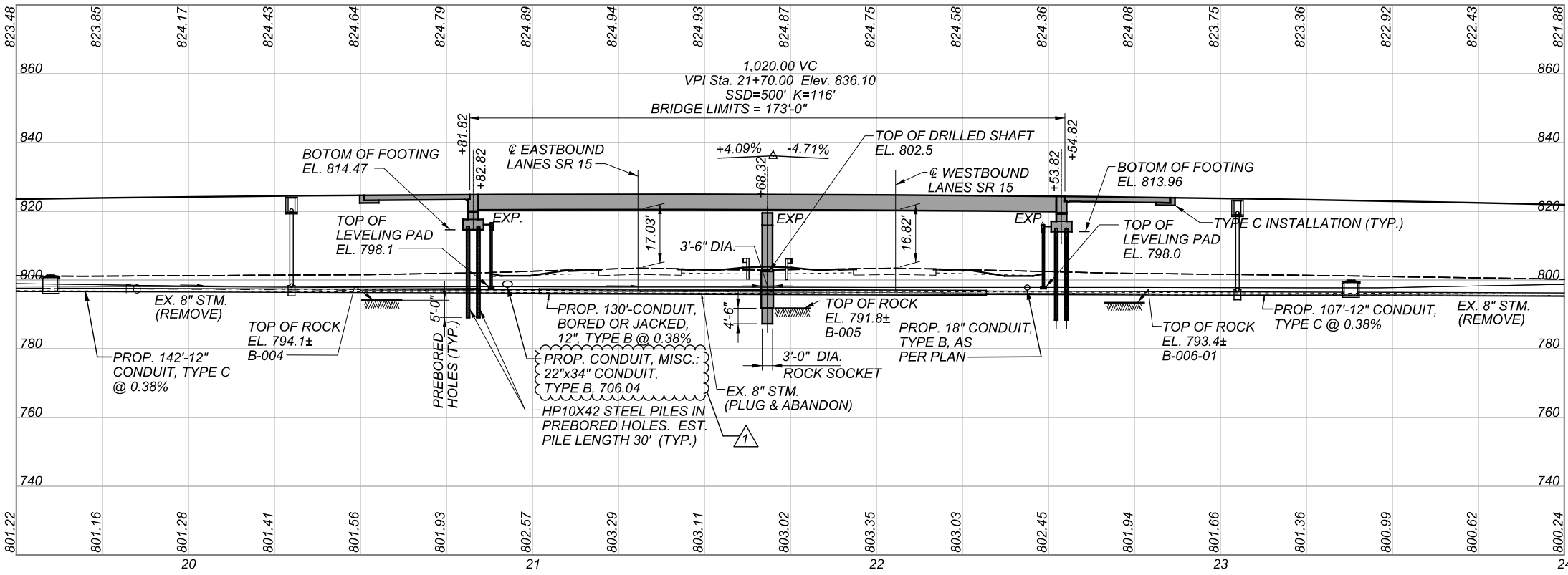
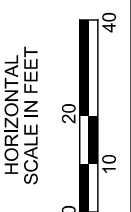
**DESIGN TRAFFIC:**

2022 ADT = 1,762      2022 ADTT = 39  
 2042 ADT = 1,937      2042 ADTT = 43  
 DIRECTIONAL DISTRIBUTION = 55%

**LEGEND**

- ◆ PROJECT BORING LOCATION
- ▨ PLANING AND RESURFACING
- INCLUDE AREA IN ITEM 201 - CLEARING AND GRUBBING
- 16'-6" REQUIRED MINIMUM VERTICAL CLEARANCE
- 16.82' WESTBOUND LANES SR 15 - ACTUAL MINIMUM VERTICAL CLEARANCE
- 17.03' EASTBOUND LANES SR 15 - ACTUAL MINIMUM VERTICAL CLEARANCE

**SITE PLAN**  
**BRIDGE NO. HAN-CR180-00.21**  
**OVER STATE ROUTE 15**



|   |          |                        |
|---|----------|------------------------|
| 1 | 11/4/22  | REVISE DESCRIPTION     |
| 3 | 01/09/23 | ADDED METALIZED OPTION |

**PROPOSED STRUCTURE**

TYPE: NEW CONTINUOUS ROLLED GIRDER (GALVANIZED ASTM A709, GRADE 50, OR METALIZED) WITH CONCRETE DECK, NEW MODIFIED SEMI-INTEGRAL ABUTMENTS ON BEARING PILES, MSE WALLS, AND CONCRETE PIER ON DRILLED SHAFTS

SPANS: 2 SPANS @ 85'-6" C/C BEARINGS  
 ROADWAY: 32'-0" TOE/TOE PARAPET  
 LOADING: HL93 AND 60 PSF FUTURE WEARING SURFACE  
 SKEW: 01°21'45" RF  
 WEARING SURFACE: 1" MONOLITHIC  
 APPROACH SLABS: 30'-0" LONG (AS-1-15, AS-2-15)  
 ALIGNMENT: TANGENT  
 CROWN: 0.016 FT/FT  
 DECK AREA: 7754.56 SF

COORDINATES: LATITUDE 40°59'10"  
 LONGITUDE 83°36'45"

|                  |           |
|------------------|-----------|
| SFN              | 3200845   |
| DESIGN AGENCY    |           |
| DESIGNER/CHECKER | BLN / dht |
| REVIEWER         | DLR       |
| PROJECT ID       | 111379    |
| SUBSET           | 1 / 23    |
| SHEET            | 95 / 149  |

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**REFER TO STANDARD BRIDGE DRAWINGS**

- AS-1-15 (REVISED 7-17-2015)
- AS-2-15 (REVISED 1-18-2019)
- GSD-1-19 (REVISED 1-15-2021)
- SBR-1-20 (REVISED 7-17-2020)
- SICD-1-21 (DATED 1-21-2022)
- SICD-2-14 (REVISED 1-15-2021)
- VPF-1-90 (REVISED 7-20-2018)

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

- SS800 (SEE PROPOSAL) SS840 (DATED 4-15-2022)
- SS832 (DATED 10-19-2018) SS845 (DATED 4-20-2018)

**DESIGN SPECIFICATIONS**

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 9TH EDITION 2020, AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

**OPERATIONAL IMPORTANCE**

A LOAD MODIFIER OF 1.0 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

**DESIGN LOADING**

HL-93, FUTURE WEARING SURFACE (FWS) OF 0.060 KIP/FT<sup>2</sup>

**DESIGN DATA**

CONCRETE, CLASS QC2 - (SUPERSTRUCTURE)  
COMPRESSIVE STRENGTH 4.5 KSI

CONCRETE, CLASS QC1 - (SUBSTRUCTURE, COPING, AND LEVELING PAD) COMPRESSIVE STRENGTH 4.0 KSI

CONCRETE, CLASS QC5 - (DRILLED SHAFTS)  
1/2" MAX. AGGREGATE SIZE - COMPRESSIVE STRENGTH 4.5 KSI

REINFORCING STEEL - ASTM A615 OR A996, GRADE 60,  
MINIMUM YIELD STRENGTH 60 KSI

STRUCTURAL STEEL - (GALVANIZED OR METALIZED)  
ASTM A709 GRADE 50 - YIELD STRENGTH 50 KSI

STEEL H-PILES -  
ASTM A572 - YIELD STRENGTH 50 KSI

**DECK PROTECTION METHOD**

EPOXY COATED REINFORCING STEEL  
2 1/2" CONCRETE COVER  
CONCRETE CLASS QC2

**MONOLITHIC WEARING SURFACE**

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

**PROPOSED BRIDGE WORK**

THE PROPOSED WORK CONSISTS OF CONSTRUCTING THE PROPOSED BRIDGE.

**DECK PLACEMENT DESIGN ASSUMPTIONS**

THE FOLLOWING ASSUMPTIONS OF CONSTRUCTION MEANS AND METHODS WERE MADE FOR THE ANALYSIS AND DESIGN OF THE SUPERSTRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE FALSEWORK SUPPORT SYSTEM WITHIN THESE PARAMETERS AND WILL ASSUME RESPONSIBILITY FOR SUPERSTRUCTURE ANALYSIS FOR DEVIATION FROM THESE DESIGN ASSUMPTIONS.

AN EIGHT WHEEL FINISHING MACHINE WITH A MINIMUM WHEEL LOAD OF 2.2 KIPS.

A MINIMUM OUT-TO-OUT WHEEL SPACING AT EACH END OF THE MACHINE OF 103 INCHES.

A MAXIMUM SPACING OF OVERHANG FALSEWORK BRACKETS OF 48 INCHES.

A MAXIMUM DISTANCE FROM THE CENTERLINE OF THE FASCIA GIRDER TO THE FACE OF THE SAFETY HANDRAIL OF 65 INCHES.

**UTILITY LINES**

ALL EXPENSES INVOLVED IN RELOCATION OF THE AFFECTED UTILITY LINE(S) SHALL BE BORNE BY THE UTILITY (OR UTILITIES). THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

**ROCK-SOCKETED DRILLED SHAFTS**

THE MAXIMUM FACTORED LOAD TO BE SUPPORTED BY EACH DRILLED SHAFT IS 980 KIPS AT THE PIER. THIS LOAD IS RESISTED BY TIP RESISTANCE. AT THE PIERS, TIP RESISTANCE IS 1340 KIPS.

**ITEM 203 - EMBANKMENT, AS PER PLAN**

ALL FILL MATERIAL FOR CONSTRUCTION OF THE APPROACH EMBANKMENT SHALL BE PLACED IN 6 INCH MAXIMUM LIFTS

**ITEM 507 - STEEL PILES HP10X42, FURNISHED, AS PER PLAN**

THIS WORK CONSISTS OF FURNISHING AND PLACING STEEL PILES INTO PREBORED HOLES. PLACE EACH PILE VERTICALLY WITHIN THE HOLE SO IT IS NOT INCLINED MORE THAN ONE INCH BETWEEN THE TOP AND BOTTOM. SUPPORT THE PILE SO THAT IT DOES NOT MOVE DURING PLACEMENT OF BACKFILL MATERIAL.

THE TOTAL FACTORED LOAD IS 120 KIPS PER PILE FOR THE REAR ABUTMENT PILES AND 120 KIPS PER PILE FOR THE FORWARD ABUTMENT PILES.

REAR ABUTMENT PILES:  
10 - HP10 X 42 PILES, 35 FEET LONG, ORDER LENGTH (PILES 1-10)

FORWARD ABUTMENT PILES:  
10 - HP10 X 42 PILES, 35 FEET LONG, ORDER LENGTH (PILES 11-20)

**PILE SPLICES:** IN LIEU OF USING THE FULL PENETRATION BUTT WELDS SPECIFIED IN CMS 507.09 TO SPLICE STEEL H-PILES, THE CONTRACTOR MAY USE A MANUFACTURED H-PILE SPLICER. FURNISH SPLICERS FROM THE FOLLOWING MANUFACTURER:

ASSOCIATED PILE AND FITTING CORPORATION  
8 WOOD HOLLOW RD. PLAZA 1  
PARSIPPANY, NEW JERSEY 07054

INSTALL AND WELD THE SPLICER TO THE PILE SECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN ASSEMBLY PROCEDURE SUPPLIED TO THE ENGINEER BEFORE THE WELDING IS PERFORMED.

**ITEM 507 - PREBORED HOLES, AS PER PLAN**

PREBORE HOLES AT THE REAR ABUTMENT TO AN ELEVATION OF 789.1 OR 5 FEET INTO ROCK AND AT THE FORWARD ABUTMENT TO AN ELEVATION OF 788.4 OR 5 FEET INTO ROCK, WHICHEVER IS DEEPER. PROVIDE A HOLE DIAMETER OF 14 INCH MINIMUM AND 16 INCH MAXIMUM. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING AN OPEN HOLE. PLACE THE H-PILES AT THE ABUTMENTS IN PREBORED HOLES, WITHOUT DRIVING THE PILES AND FILL THE VOID BETWEEN THE PILES AND THE PREBORED HOLES WITH CLASS QC MISC. CONCRETE UP TO THE BOTTOM OF MSE WALL FOUNDATION PREPARATION ELEVATION, AFTER PILE INSTALLATION. THE CLASS QC MISC. CONCRETE SHALL BE INCLUDED FOR PAYMENT WITH ITEM 507 - PREBORED HOLES, AS PER PLAN. INSTALL PILE SLEEVES AROUND THE ABUTMENT PILES FROM THE BOTTOM OF FOUNDATION PREPARATION ELEVATION UP TO THE BOTTOM OF PILE CAP BEFORE CONSTRUCTING THE MSE WALL. PAYMENT FOR THE PILE SLEEVING WILL BE INCLUDED IN PAYMENT UNDER ITEM 840 - MECHANICALLY STABILIZED EARTH WALL.

**ITEM 512 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN**

SEALING OF CONCRETE SURFACES (EPOXY-URETHANE) SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE CONCRETE PARAPET AND MSE WALL AS SHOWN ON THE PLANS. SEAL MSE WALL, PARAPETS, AND EXPOSED SURFACES OF THE ABUTMENTS WITH AN EPOXY-URETHANE SEALER MATCHING FEDERAL COLOR STANDARD 27769, GENERAL / LIGHT NEUTRAL.

|   |         |                          |
|---|---------|--------------------------|
| 3 | 1/09/23 | ADDED SS845 (METALIZING) |
|   |         |                          |
|   |         |                          |

DUE TO THE RECENT SUPPLY SHORTAGES, THE DEPARTMENT HAS BEEN MADE AWARE OF DIFFICULTIES THAT SUPPLIERS ARE HAVING IN OBTAINING THE NECESSARY MATERIALS FOR EPOXY. ON THIS PROJECT THE CONTRACTOR CAN USE TRADITIONAL EPOXY-URETHANE SEALERS APPROVED ON THE QPL OR SELECT AN APPROVED NOISE BARRIER SEALER FROM THE LIST BELOW.

| ODOT APPROVED NOISE BARRIER SEALERS   |   |
|---|---|
| SUPPLIERS   | DRAWINGS & NOTES  |
| TAMMSCOAT FINE ODOT<br>TAMMIS INDUSTRIES COMPANY/EUCLID CHEMICAL<br>19215 REDWOOD ROAD<br>CLEVELAND, OH 44110<br>800-321-7628<br>INFO@EUCLIDCHEMICAL.COM  | APPLICATION DRY FILM THICKNESS 20 MILS<br>SMOOTH SURFACE RATE OF 50 SF/GAL<br>TEXTURED SURFACE (ASHLAR STONE) RATE OF 40 SF/GAL<br>TEXTURED SURFACE (3/4 FLUTED) RATE OF 25 SF/GAL  |
| BRIDGE COTE XL-70 W/SILANE (FINE TEXTURED)<br>BY TEX COTE OR BRIDGE COTE<br>XL-70 BY TEX-COTE<br>TEXTURED COATING OF AMERICA<br>4101 RAVENSWOOD ROAD<br>SUITE 218<br>FORT LAUDERDALE, FL 33312-5371<br>954-581-0771 | APPLICATION DRY FILM THICKNESS 15 MILS<br>SMOOTH SURFACE RATE OF 50 SF/GAL<br>TEXTURED SURFACE (ASHLAR STONE) RATE OF 40 SF/GAL<br>TEXTURED SURFACE (3/4 FLUTED) RATE OF 25 SF/GAL  |
| TEXTURED DOT BY CHEMMASTERS<br>300 EDWARDS ST.<br>MADISON, OH 44057<br>800-486-7866   | APPLICATION DRY FILM THICKNESS 15 MILS (380 MICROMETERS)<br>SMOOTH SURFACE RATE OF 50 SF/GAL<br>TEXTURED SURFACE (ASHLAR STONE) RATE OF 40 SF/GAL<br>TEXTURED SURFACE (3/4 FLUTED) RATE OF 25 SF/GAL  |
| SHERWIN WILLIAMS<br>809 GUNPOWDER DRIVE<br>LEXINGTON, KY 40509<br>DERRICK CASTLE, PROJECT DEVELOPMENT<br>MANAGER BRIDGE AND HIGHWAY<br>913-481-0612<br>DERRICK.CASTLE@SHERWIN.COM                                   | B97W160 SMOOTH TEXTURE<br>APPLICATION DRY FILM THICKNESS 10-15 MILS DFT<br>SMOOTH SURFACE RATE OF 60-90 SF/GAL<br>TEXTURED SURFACE (ASHLAR STONE) RATE OF 45-75 SF/GAL<br>TEXTURED SURFACE (3/4 FLUTED) RATE OF 15-25 SF/GAL<br>APPROVED ON 6/15/17 |

IF AN ODOT APPROVED NOISE BARRIER SEALER IS CHOSEN, FOLLOW THE SURFACE PREPARATION REQUIREMENTS LISTED UNDER C&MS 512 FOR EPOXY URETHANE SEALERS AND APPLY AT THE DRY FILM THICKNESS SHOWN ABOVE. ALL OTHER REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

**ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN (SHOP GALVANIZING)**

**1.0 DESCRIPTION**

IN ADDITION TO THE REQUIREMENTS OF CONSTRUCTION AND MATERIAL SPECIFICATION 513, THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS AND EQUIPMENT TO CLEAN AND GALVANIZE ALL STRUCTURAL STEEL SURFACES, AS SPECIFIED HEREIN. THE GALVANIZED COATING SYSTEM MAY BE APPLIED BY A GALVANIZER NOT QUALIFIED AS A FABRICATION SHOP UNDER CONSTRUCTION AND MATERIAL SPECIFICATION 513, BUT THE APPROVED FABRICATOR OF THE STRUCTURAL STEEL SHALL BE RESPONSIBLE FOR THE QUALITY OF THE APPLIED GALVANIZED COATING SYSTEM AND ANY REPAIRS, RE-FABRICATING, ADDITIONAL LAYDOWNS REQUIRED TO ASSURE THE FABRICATED STEEL MEETS ALL REQUIREMENTS OF THIS SPECIFICATION. SECTIONS 513.27 AND 513.28 SHALL NOT APPLY.

THIS ITEM SHALL ALSO INCLUDE GALVANIZING, PER 711.02, OF ALL NUTS, WASHERS, BOLTS, ANCHOR BOLTS.

SHEAR STUDS SHALL BE INSTALLED AS PER SECTION 513.22.

**2.0 PRE-FABRICATION MEETING**

IN ADDITION TO THE PRE-FABRICATION MEETING REQUIREMENTS UNDER 513.07, BOTH THE FABRICATOR'S QUALITY CONTROL SPECIALIST, (QCS) AND GALVANIZER'S QCS COATING APPLICATOR SHALL BE PRESENT AND DISCUSS METHODS OF OPERATION, QUALITY CONTROL, INCLUDING REPAIRS, TRANSPORTATION, ERECTION METHODS TO ACCOMPLISH ALL PHASES OF THE PREPARATION AND COATING WORK REQUIRED BY THIS SPECIFICATION.

**3.0 QUALITY CONTROL**

**3.1 QUALITY CONTROL SPECIALIST**

THE GALVANIZER'S QCS (QUALITY CONTROL SPECIALIST) REQUIRED UNDER 514, IS RESPONSIBLE FOR ALL QUALITY CONTROL REQUIREMENTS OF THIS SPECIFICATION. THE QCS SHALL HAVE THE TESTING EQUIPMENT SPECIFIED IN 514.05

**3.2 QUALITY CONTROL POINTS (QCP)**

QUALITY CONTROL POINTS (QCP) ARE POINTS IN TIME WHEN ONE PHASE OF THE WORK IS COMPLETE AND READY FOR INSPECTION BY THE FABRICATOR'S QCS AND THE DEPARTMENT'S QA REPRESENTATIVE. THE NEXT OPERATIONAL STEP MUST NOT PROCEED UNLESS THE QCP HAS BEEN ACCEPTED OR QA INSPECTION WAIVED BY THE DEPARTMENT'S QA REPRESENTATIVE. AT THESE POINTS THE FABRICATOR MUST AFFORD ACCESS TO INSPECT ALL AFFECTED SURFACES. IF INSPECTION INDICATES A DEFICIENCY, THAT PHASE OF THE WORK MUST BE CORRECTED IN ACCORDANCE WITH THESE SPECIFICATIONS PRIOR TO BEGINNING THE NEXT PHASE OF WORK. DISCOVERY OF DEFECTIVE WORK OR MATERIAL AFTER A QUALITY CONTROL POINT IS PAST OR FAILURE OF THE FINAL PRODUCT BEFORE FINAL ACCEPTANCE, MUST NOT IN ANY WAY PREVENT REJECTION OR OBLIGATE THE DEPARTMENT TO FINAL ACCEPTANCE.

**QUALITY CONTROL POINTS**

**QUALITY CONTROL POINTS (QCP) PURPOSE**

- A. SOLVENT CLEANING REMOVE ASPHALTIC CEMENT, OIL, GREASE, SALT, DIRT, ETC.
- B. GRINDING EDGES REMOVE SHARP CORNERS PER AWS.
- C. ABRASIVE BLASTING BLAST SURFACES, INCLUDING REPAIR FINS, TEARS, SLIVERS OR SHARP EDGES.
- D. GALVANIZING CHECK COATING THICKNESS
- E. FAYING SURFACE CLEANING CHECK FAYING SURFACE ROUGHNESS. CHECK BOLT HOLE CLEARANCE. CHECK FOR OTHER FIELD CONNECTIONS UNIFORM COATING THICKNESS.
- F. SECOND LAY DOWN CHECK SWEEP AND CAMBER TOLERANCES OF EACH STRUCTURAL MEMBER.
- G. FIELD REPAIR OF DAMAGE AREAS CHECK FOR DAMAGE AREAS AFTER ERECTION OF STRUCTURE. PERFORM DAMAGE REPAIRS
- H. FINAL REVIEW CLEAN STRUCTURE AS PER QCP#1. VISUALLY INSPECT SYSTEM FOR ACCEPTANCE.

**A. SOLVENT CLEANING (QCP #1)**

THE STEEL MUST BE SOLVENT CLEANED WHERE NECESSARY TO REMOVE ALL TRACES OF ASPHALTIC CEMENT, OIL, GREASE, DIESEL FUEL DEPOSITS, AND OTHER SOLUBLE CONTAMINANTS PER SSPC-SP 1 SOLVENT CLEANING. UNDER NO CIRCUMSTANCES MUST ANY ABRASIVE BLASTING BE DONE TO AREAS WITH ASPHALTIC CEMENT, OIL, GREASE, OR DIESEL FUEL DEPOSITS. STEEL MUST BE ALLOWED TO DRY BEFORE BLAST CLEANING BEGINS. THE GALVANIZER'S QCS SHALL INSPECT AND DOCUMENT THAT THE CLEANING CONFORMS TO SSPC-SP1 AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

**B. GRINDING EDGES (QCP #2)**

ALL CORNERS OF THERMALLY CUT OR SHEARED EDGES MUST HAVE A 1/16 INCH RADIUS OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE. THERMALLY CUT MATERIAL THICKER THAN 1 1/2 INCH MUST HAVE THE SIDES GROUND TO REMOVE THE HEAT EFFECTED ZONE, AS NECESSARY TO ACHIEVE THE SPECIFIED SURFACE CLEANING. THE GALVANIZER'S QCS MUST VISUALLY INSPECT AND DOCUMENT THAT THE GRINDING CONFORMS TO THIS SPECIFICATION AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

**C. ABRASIVE BLASTING (QCP #3)**

BEAMS AND GIRDERS MUST BE PREPARED BY THE FABRICATOR TO STEEL STRUCTURES PAINTING COUNCIL (SSPC) GRADE SIX (6) COMMERCIAL BLAST CLEANING PRIOR TO GALVANIZING. ALL MATERIAL MUST BE FREE OF PAINT MARKS. SECONDARY ANGLE, PLATES, BARS AND SHAPES NEED NOT BE BLAST CLEANED.

ABRASIVES MUST ALSO BE CHECKED FOR OIL CONTAMINATION BEFORE USE. A SMALL SAMPLE OF ABRASIVES MUST BE ADDED TO ORDINARY TAP WATER. ANY DETECTION OF AN OIL FILM ON THE SURFACE OF THE WATER MUST BE CAUSE FOR REJECTION. THE GALVANIZER'S QCS MUST PERFORM AND RECORD THIS TEST AT THE START OF EACH SHIFT.

ALL FINS, TEARS, SLIVERS AND BURRED OR SHARP EDGES THAT ARE PRESENT ON ANY STEEL MEMBER OR THAT APPEAR AFTER THE BLASTING OPERATION MUST BE CONDITIONED PER ASTM A6. WELDING REPAIRS MUST ONLY BE PERFORMED BY THE 513 FABRICATOR.

THE GALVANIZER'S QCS MUST VISUALLY INSPECT AND DOCUMENT THAT THE BLAST CONFORMS TO SSPC-SP6, THAT ALL CONDITIONING IS PERFORMED PER ASTM A6, AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

**D. GALVANIZING (QCP #4)**

GALVANIZED PER 711.02 AND THIS SPECIFICATION. COATING THICKNESS MUST BE A MINIMUM OF 4 MILS MEASURED AS SPECIFIED.

MATERIAL MUST BE FREE OF IMPERFECTIONS OR DEPRESSIONS CAUSED BY MATERIAL HANDLING. THE FABRICATOR, GALVANIZER AND ERECTOR MUST USE LIFTING CLAMPS OR SOFTENERS FOR HANDLING. PRIOR TO GALVANIZING, SURFACE IMPERFECTIONS MAY BE REPAIRED BY THE FABRICATOR IN CONFORMANCE WITH ASTM A6. IMPERFECTIONS GREATER THAN THE LIMITS ALLOWED BY ASTM A6 MUST BE DOCUMENTED. REPAIR OR REPLACEMENT OF THIS MEMBER WILL BE AT THE DISCRETION OF THE DEPARTMENT.

GENERAL NOTES  
BRIDGE NO. HAN-CR180-00.21  
OVER STATE ROUTE 15

|               |         |
|---------------|---------|
| SFN           | 3200845 |
| DESIGN AGENCY |         |
| DESIGNER      | BLN     |
| CHECKER       | dht     |
| REVIEWER      | DLR     |
| PROJECT ID    | 111379  |
| SUBSET        | 2       |
| TOTAL         | 23      |
| SHEET         | 96      |
| TOTAL         | 149     |

HAN-SR15/CR180-19.56/00.21

ALL DAMAGED GALVANIZING MUST BE REPAIRED IN ACCORDANCE WITH 711.02.

DOCUMENTATION OF COATING THICKNESS MUST BE PERFORMED BY THE GALVANIZER'S QCS. THE GALVANIZER'S QCS MUST RECORD THE GAGE READINGS AND PROVIDE A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

**E. FAYING SURFACE CLEANING (QCP #5)**

AREAS OF FIELD CONNECTIONS MUST HAVE A UNIFORM GALVANIZED COATING THICKNESS FREE OF LOCAL EXCESSIVE ROUGHNESS WHICH WOULD PREVENT SPLICE PLATES, BEARINGS OR OTHER FIELD CONNECTIONS FROM MAKING INTIMATE CONTACT.

FAYING SURFACES OF THE BOLTED SPLICES MUST BE ROUGHENED IN THE SHOP AFTER GALVANIZING BY HAND WIRE BRUSHING. POWER WIRE BRUSHING IS NOT PERMITTED. ALL FIELD SPLICE BOLT HOLES MUST BE FREE OF ZINC BUILD UP. AFTER GALVANIZING, CLEAN EACH HOLE AS NECESSARY SO THAT A DRIFT PIN 1/16" LESS THAN THE DIAMETER OF THAT HOLE CAN BE FULLY INSERTED. CONSIDERATION WILL BE GIVEN TO OTHER METHODS OF TREATING THE FAYING SURFACES AND BOLT HOLES IF A WRITTEN REQUEST IS SUBMITTED TO THE OFFICE OF MATERIAL MANAGEMENT (OMM) IN ACCORDANCE WITH CMS 108.05.

INSPECTION OF THE ROUGHENING OF THE FAYING SURFACES AND CHECKING OF HOLES WITH DRIFT PINS MUST BE PERFORMED BY THE GALVANIZER'S QCS. ACCEPTANCE OF THE FAYING SURFACES AND HOLES SHALL BE DOCUMENTED BY THE GALVANIZER'S QCS.

**F. SECOND LAY DOWN (QCP # 6)**

AFTER GALVANIZING, MATERIALS MUST BE PLACED IN A SECOND SHOP ASSEMBLY PER CMS SECTION 513.24 TO CHECK ALIGNMENT OF HOLES, SWEEP AND CAMBER AGAINST THE FABRICATORS ORIGINAL RECORDED LAY DOWN DIMENSIONS. THIS SHOP ASSEMBLY MAY BE PERFORMED AT THE GALVANIZER'S FACILITY, BY THE FABRICATORS PERSONNEL, IF APPROVED BY THE OFFICE OF MATERIAL MANAGEMENT (OMM). THE SECOND LAY DOWN MAY BE WAIVED BY THE OMM IF THE FABRICATOR RECORDS INDIVIDUAL BEAM CAMBERS AND SWEEPS DURING THE FIRST LAY DOWN, AND THE NEW INDIVIDUAL BEAM CAMBERS AND SWEEPS, AFTER GALVANIZING, COMPARED TO THE FIRST LAY DOWN ARE WITHIN THE FOLLOWING TOLERANCES:

BEARING POINTS AFTER GALVANIZING MUST BE WITHIN +/- 1/8 INCH [3.2 MM] OF THE APPROVED SHOP DRAWING LAY DOWN.

CAMBER POINTS AFTER GALVANIZING MUST BE + 1/4 INCH [6 MM] OR - 0 INCH FROM THE FIRST LAY DOWN.

SWEEP POINTS AFTER GALVANIZING MUST BE +/- 3/8 INCH [9 MM] FROM THE FIRST LAY DOWN.

INDIVIDUAL BEAMS THAT EXCEED THE LISTED TOLERANCES MUST BE PLACED WITH AT LEAST TWO ADJACENT BEAMS IN LAY DOWN FOR CHECKING AGAINST THE RECORDED SHOP ASSEMBLY RECORDS PER 513.24. DOCUMENTATION OF THE SECOND LAY DOWN OR INDIVIDUAL MEMBER CAMBERS MUST BE RECORDED BY THE FABRICATORS QCS OR GALVANIZER'S QCS PER 513.24.

**G. FIELD REPAIR OF DAMAGED AREAS (QCP #7)**

MATERIAL MUST BE FREE OF IMPERFECTIONS OR DEPRESSIONS CAUSED BY MATERIAL HANDLING. THE CONTRACTOR MUST USE LIFTING CLAMPS OR SOFTENERS FOR HANDLING. IMPERFECTIONS MAY BE REPAIRED BY GRINDING AS ALLOWED BY ASTM A6 BY THE CONTRACTOR. IMPERFECTIONS THAT ARE GREATER THAN THE GRINDING LIMITS ALLOWED BY ASTM A6 MUST BE DOCUMENTED. REPAIR OR REPLACEMENT OF THIS MEMBER WILL BE AT THE DISCRETION OF THE OMM.

ALL DAMAGED GALVANIZING MUST BE REPAIRED IN ACCORDANCE WITH 711.02.

DAMAGED GALVANIZING WHICH WILL BE INACCESSIBLE FOR REPAIR AFTER ERECTION MUST BE REPAIRED PRIOR TO ERECTION.

IN ORDER TO MINIMIZE DAMAGE TO THE GALVANIZED STEEL, CONCRETE SPLATTER AND FORM LEAKAGE MUST BE WASHED FROM THE SURFACE OF THE STEEL SHORTLY AFTER THE CONCRETE IS PLACED AND BEFORE IT IS DRY. IF THE CONCRETE DRIES, IT MUST BE REMOVED.

TEMPORARY ATTACHMENTS, SUPPORTS FOR SCAFFOLDING AND FINISHING MACHINE OR FORMS MUST NOT DAMAGE THE COATING SYSTEM. IN PARTICULAR, SUFFICIENT SIZE SUPPORT PADS MUST BE USED ON THE FASCIAS WHERE BRACING IS USED.

DOCUMENTATION OF GALVANIZING REPAIRS MUST BE PERFORMED BY THE GALVANIZER'S QCS BY A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

**H. FINAL REVIEW (QCP # 8)**

AFTER THE ERECTION WORK HAS BEEN COMPLETED, INCLUDING ALL CONNECTIONS AND THE APPROVED REPAIR OF ANY DAMAGED BEAMS, GIRDERS OR OTHER STEEL MEMBERS, AND THE DECK HAS BEEN PLACED, THE CONTRACTOR AND ENGINEER MUST INSPECT THE STRUCTURE FOR DAMAGED COATING. (QCP #8). DAMAGED AREAS MUST BE REPAIRED BY QCP #7. AT THE COMPLETION OF CONSTRUCTION, THE GALVANIZING MUST BE UNDAMAGED AND THE SURFACES FREE FROM GREASE, OIL, CHALK MARKS, PAINT, CONCRETE SPLATTER OR OTHER SILAGE. SUCH SILAGE WILL BE REMOVED BY SOLVENT CLEANING PER SPC-SP1(QCP #1)

DOCUMENTATION OF FINAL REVIEW MUST BE PERFORMED BY THE GALVANIZER'S QCS BY A COVER LETTER LISTING EACH MAIN MEMBER INSPECTED.

**4.0 TESTING EQUIPMENT**

THE FABRICATOR MUST PROVIDE THE GALVANIZER'S QCS INSPECTOR THE FOLLOWING TESTING EQUIPMENT IN GOOD WORKING ORDER FOR THE DURATION OF THE PROJECT. ONE (POSITECTOR 2000 OR 6000, QUANIX 2200, OR ELCOMETER A345FB1) AND THE CALIBRATION PLATES, 38-200 MM AND 250-625 MM [1.5 -8 MILS AND 10-25 MILS] AS PER THE NBS CALIBRATION STANDARDS IN ACCORDANCE WITH ASTM D-1186.

**5.0 COATING THICKNESS**

GALVANIZED THICKNESS MUST BE DETERMINED BY USE OF TYPE 2 MAGNETIC GAGE IN ACCORDANCE WITH THE FOLLOWING: FIVE SEPARATE SPOT MEASUREMENTS MUST BE MADE, SPACED EVENLY OVER ONE (1) RANDOMLY SELECTED, 100 SQUARE FEET [9 SQUARE METERS] OF SURFACE AREA ON EACH STRUCTURAL MEMBER. THREE GAGE READINGS MUST BE MADE FOR EACH SPOT MEASUREMENT. THE PROBE MUST BE MOVED A DISTANCE OF 1 TO 3 INCHES [25 TO 75 MM] FOR EACH NEW GAGE READING. ANY UNUSUALLY HIGH OR LOW GAGE READING THAT CANNOT BE REPEATED CONSISTENTLY MUST BE DISCARDED. THE AVERAGE (MEAN) OF THE 3 GAGE READINGS MUST BE USED AS THE SPOT MEASUREMENT. THE AVERAGE OF FIVE SPOT MEASUREMENTS FOR EACH SUCH 100 SQUARE FOOT [9 SQUARE METER] AREA MUST NOT BE LESS THAN THE SPECIFIED THICKNESS. NO SINGLE SPOT MEASUREMENT IN ANY 100 SQUARE FOOT [9 SQUARE METER] AREA MUST BE LESS THAN 80% OF THE SPECIFIED MINIMUM THICKNESS. ANY ONE OF 3 READINGS WHICH ARE AVERAGED TO PRODUCE EACH SPOT MEASUREMENT, MAY UNDER-RUN OR OVER-RUN BY A GREATER AMOUNT. THE 5 SPOT MEASUREMENTS MUST BE MADE FOR ONE(1) RANDOMLY SELECTED, 100 SQUARE FEET [9 SQUARE METER] OF AREA ON EACH STRUCTURAL MEMBER. ALL SPLICE MATERIAL AND SECONDARY MEMBERS MUST HAVE AT LEAST ONE SPOT MEASURED ON EACH PIECE. THE PROBE MUST BE MOVED SO THAT ONE READING IS TAKEN AT EACH END AND MIDDLE OF THE PIECE FOR A TOTAL OF THREE READINGS.

THE GALVANIZER'S QCS MUST INSPECT AND PROVIDE DOCUMENTATION OF ACTUAL DATA, THE GALVANIZED THICKNESS CHECKS WERE PERFORMED PER SPECIFICATION, AND THE COATING THICKNESS MEETS SPECIFICATION REQUIREMENTS.

**6.0 HANDLING AND SHIPPING**

REASONABLE CARE MUST BE EXERCISED IN HANDLING THE GALVANIZED STEEL DURING SHIPPING, ERECTION, AND SUBSEQUENT CONSTRUCTION OF THE BRIDGE. THE STEEL MUST BE INSULATED FROM THE BINDING CHAINS BY SOFTENERS. HOOKS AND SLINGS USED TO HOIST STEEL MUST BE PADDED. DIAPHRAGMS AND SIMILAR PIECES MUST BE SPACED IN SUCH A WAY THAT NO RUBBING WILL OCCUR DURING SHIPMENT THAT MAY DAMAGE THE GALVANIZING. THE STEEL MUST BE STORED ON PALLETS AT THE JOB SITE, OR BY OTHER MEANS, SO THAT IT DOES NOT REST ON THE GROUND OR SO THAT COMPONENTS DO NOT FALL OR REST ON EACH OTHER.

**7.0 SAFETY REQUIREMENTS AND PRECAUTIONS**

THE CONTRACTOR MUST MEET THE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), IN ADDITION TO THE SCAFFOLDING REQUIREMENTS BELOW.

THE CONTRACTOR IS REQUIRED TO MEET THE APPLICABLE SAFETY REQUIREMENTS OF THE OHIO INDUSTRIAL COMMISSION IN ADDITION TO THE SCAFFOLDING REQUIREMENTS SPECIFIED BELOW.

**8.0 SCAFFOLDING**

RUBBER ROLLERS, OR OTHER PROTECTIVE DEVICES MEETING THE APPROVAL OF THE ENGINEER, MUST BE USED ON SCAFFOLD FASTENINGS. METAL ROLLERS OR CLAMPS AND OTHER TYPES OF FASTENINGS WHICH WILL MAR OR DAMAGE COATED SURFACES MUST NOT BE USED.

**9.0 INSPECTION ACCESS FOR FIELD REPAIR**

IN ADDITION TO THE REQUIREMENT OF 105.10, THE CONTRACTOR MUST FURNISH, ERECT, AND MOVE SCAFFOLDING AND OTHER APPROPRIATE EQUIPMENT, TO PERMIT THE INSPECTOR THE OPPORTUNITY TO INSPECT (CLOSELY OBSERVE), ALL AFFECTED SURFACES. THIS OPPORTUNITY MUST BE PROVIDED TO THE INSPECTOR DURING ALL PHASES OF THE WORK AND CONTINUE FOR A PERIOD OF AT LEAST TEN (10) WORKING DAYS AFTER THE TOUCH-UP WORK HAS BEEN COMPLETED. WHEN SCAFFOLDING IS USED, IT MUST BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS. WHEN SCAFFOLDING, OR THE HANGERS ATTACHED TO THE SCAFFOLDING ARE SUPPORTED BY HORIZONTAL WIRE ROPES, OR WHEN SCAFFOLDING IS PLACED DIRECTLY UNDER THE SURFACE TO BE PAINTED, THE FOLLOWING REQUIREMENTS MUST BE COMPLIED WITH:

WHEN SCAFFOLDING IS SUSPENDED 43" [1100 MM] OR MORE BELOW THE COATED SURFACE TO BE REPAIRED, TWO ROWS OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF THE SCAFFOLDING. ONE ROW OF GUARDRAIL MUST BE PLACED AT 42" [1050 MM] ABOVE THE SCAFFOLDING AND THE OTHER ROW AT 20" [500 MM] ABOVE THE SCAFFOLDING.

WHEN THE SCAFFOLDING IS SUSPENDED AT LEAST 21" [530 MM], BUT LESS THAN 43" [1100 MM] BELOW THE COATED SURFACE TO BE REPAIRED, A ROW OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF THE SCAFFOLDING AT 20" [500 MM] ABOVE THE SCAFFOLDING.

TWO ROWS OF GUARDRAIL MUST BE PLACED ON ALL SIDES OF SCAFFOLDING NOT PREVIOUSLY MENTIONED. THE ROWS OF GUARDRAIL MUST BE PLACED AT 42" [1050 MM] AND 20" [500 MM] ABOVE SCAFFOLDING, AS PREVIOUSLY MENTIONED.

ALL SCAFFOLDING MUST BE AT LEAST 24" [610 MM] WIDE WHEN GUARDRAIL IS USED AND 28" [710 MM] WIDE WHEN THE SCAFFOLDING IS SUSPENDED LESS THAN 21" [530 MM] BELOW THE COATED SURFACE TO BE REPAIRED AND GUARDRAIL IS NOT USED. IF TWO OR MORE SCAFFOLDING ARE LAID PARALLEL TO ACHIEVE THE PROPER WIDTH, THEY MUST BE RIGIDLY ATTACHED TO EACH OTHER TO PRECLUDE ANY DIFFERENTIAL MOVEMENT.

ALL GUARDRAILS MUST BE CONSTRUCTED AS A SUBSTANTIAL BARRIER WHICH IS SECURELY FASTENED IN PLACE AND IS FREE FROM PROTRUDING OBJECTS SUCH AS NAILS, SCREWS AND BOLTS. THERE MUST BE AN OPENING IN THE GUARDRAIL, PROPERLY LOCATED, TO ALLOW THE INSPECTOR ACCESS ONTO THE SCAFFOLDING.

THE RAILS AND UPRIGHTS MUST BE EITHER METAL OR WOOD. IF PIPE RAILING IS USED, THE RAILING MUST HAVE A NOMINAL DIAMETER OF NO LESS THAN ONE AND ONE HALF INCHES. IF STRUCTURAL STEEL RAILING IS USED, THE RAILS MUST BE 2 X 2 X 3/8 INCH [50 X 50 X 10 MM] STEEL ANGLES OR OTHER METAL SHAPES OF EQUAL OR GREATER STRENGTH. IF WOOD RAILING IS USED, THE RAILING MUST BE 2 X 4 INCH [50 X 100 MM] (NOMINAL) STOCK. ALL UPRIGHTS MUST BE SPACED AT NO MORE THAN 8 FEET [2.4 M] ON CENTER. IF WOOD UPRIGHTS ARE USED, THE UPRIGHTS MUST BE 2 X 4 INCHES [50 X 100 MM] (NOMINAL) STOCK.

WHEN THE SURFACE TO BE INSPECTED IS MORE THAN 15 FEET [4.6 M] ABOVE THE GROUND OR WATER, AND THE SCAFFOLDING IS SUPPORTED FROM THE STRUCTURE BEING PAINTED, THE CONTRACTOR MUST PROVIDE THE INSPECTOR WITH A SAFETY BELT AND LIFELINE. THE LIFELINE MUST NOT ALLOW A FALL GREATER THAN 6 FEET [2 M]. THE CONTRACTOR MUST PROVIDE A METHOD OF ATTACHING THE LIFELINE TO THE STRUCTURE INDEPENDENT OF THE SCAFFOLDING, CABLES, OR BRACKETS SUPPORTING THE SCAFFOLDING.

WHEN SCAFFOLDING IS MORE THAN TWO AND ONE HALF FEET [0.75 M] ABOVE THE GROUND, THE CONTRACTOR MUST PROVIDE A LADDER FOR ACCESS ONTO THE SCAFFOLDING. THE LADDER AND ANY EQUIPMENT USED TO ATTACH THE LADDER TO THE STRUCTURE MUST BE CAPABLE OF SUPPORTING 250 POUNDS [115 KG] WITH A SAFETY FACTOR OF AT LEAST FOUR (4). ALL RUNGS, STEPS, CLEATS, OR TREADS MUST HAVE UNIFORM SPACING AND MUST NOT EXCEED 12" [305 MM] ON CENTER. AT LEAST ONE SIDE RAIL MUST EXTEND AT LEAST 36" [915 MM] ABOVE THE LANDING NEAR THE TOP OF THE LADDER.

AN ADDITIONAL LANDING MUST BE REQUIRED WHEN THE DISTANCE FROM THE LADDER TO THE POINT WHERE THE SCAFFOLDING MAY BE ACCESSED, EXCEEDS 12" [305 MM]. THE LANDING MUST BE A MINIMUM OF AT LEAST 24" [610 MM] WIDE AND 24" [610 MM] LONG. IT MUST ALSO BE OF ADEQUATE SIZE AND SHAPE SO THAT THE DISTANCE FROM THE LANDING TO THE POINT WHERE THE SCAFFOLDING IS ACCESSED DOES NOT EXCEED 12" [305 MM]. THE LANDING MUST BE RIGID AND FIRMLY ATTACHED TO THE LADDER; HOWEVER, IT MUST NOT BE SUPPORTED BY THE LADDER. THE SCAFFOLDING MUST BE CAPABLE OF SUPPORTING A MINIMUM OF 1000 LBS [455 KG].

IN ADDITION TO THE AFOREMENTIONED REQUIREMENTS, THE CONTRACTOR IS STILL RESPONSIBLE TO OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES, REGULATIONS, ORDERS AND DECREES.

THE CONTRACTOR MUST FURNISH ALL NECESSARY TRAFFIC CONTROL TO PERMIT INSPECTION DURING AND AFTER ALL PHASES OF THE PROJECT

**10.0 PROTECTION OF PERSONS AND PROPERTY**

THE CONTRACTOR MUST INSTALL AND MAINTAIN SUITABLE SHIELDS OR ENCLOSURES TO PREVENT DAMAGE TO ADJACENT BUILDINGS, PARKED CARS, TRUCKS, BOATS, OR VEHICLES TRAVELING ON, OVER, OR UNDER STRUCTURES HAVING GALVANIZED REPAIRS. THEY MUST BE SUITABLY ANCHORED AND REINFORCED TO PREVENT INTERFERING WITH NORMAL TRAFFIC OPERATIONS IN THE OPEN LANES. PAYMENT FOR THE SHIELDS MUST BE INCLUDED AS INCIDENTAL TO THE APPLICABLE FIELD COATING OPERATION. WORK MUST BE SUSPENDED WHEN DAMAGE TO ADJACENT BUILDINGS, MOTOR VEHICLES, BOATS, OR OTHER PROPERTY IS OCCURRING.

WHEN OR WHERE ANY DIRECT OR INDIRECT DAMAGE OR INJURY IS DONE TO PUBLIC OR PRIVATE PROPERTY, THE CONTRACTOR MUST RESTORE, AT HIS OWN EXPENSE, SUCH PROPERTY, TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE OR INJURY WAS DONE.

**11.0 POLLUTION CONTROL**

THE CONTRACTOR MUST TAKE ALL NECESSARY PRECAUTIONS TO COMPLY WITH POLLUTION CONTROL LAWS, RULES OR REGULATIONS OF FEDERAL, STATE OR LOCAL AGENCIES.

**12.0 METHOD OF MEASUREMENT**

THE COST OF ALL LABOR, MATERIALS, EQUIPMENT NECESSARY TO GALVANIZE AND TO FABRICATE THE STRUCTURAL STEEL IN ACCORDANCE WITH 513 AND PERFORM ANY NECESSARY FIELD REPAIR SHALL BE INCLUDED IN THIS 513, AS PER PLAN ITEM.

**13.0 BASIS OF PAYMENT**

PAYMENT WILL BE MADE AT THE CONTRACT PRICE FOR THE ITEM 513, STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN (SHOP GALVANIZING).

**ITEM 513 - STRUCTURAL STEEL MEMBERS, LEVEL 2, AS PER PLAN (SHOP METALIZING)**

THIS ITEM CONSISTS OF SHOP METALIZING THE STRUCTURAL STEEL MEMBERS PER SS845 WITH THE FOLLOWING EXCEPTIONS: THE METALIZING SURFACE SEALING REQUIREMENTS OF THIS SPECIFICATION ARE NOT REQUIRED FOR THIS PROJECT. THE OPTION TO GALVANIZE BEARINGS, CROSS FRAMES, OR DIAPHRAGMS IN THIS METALIZED BEAM STRUCTURE ARE NOT ALLOWED (TYPE 1 GALVANIZED BOLTS SHALL BE USED IN ALL CONNECTIONS).

**ITEM 513 - WELDED STUD SHEAR CONNECTORS, AS PER PLAN**

THE STEEL SUPERSTRUCTURE OF THIS BRIDGE SHALL BE GALVANIZED (OR METALIZED). STUD SHEAR CONNECTORS MAY BE INSTALLED IN THE SHOP OR MAY BE INSTALLED IN THE FIELD. STUDS SHALL BE 5" LONG x 7/8" DIAMETER.

IF STUDS ARE SHOP INSTALLED, WELD THE STUD SHEAR CONNECTORS TO THE TOP OF EACH BEAM IN ACCORDANCE WITH CMS 513.22 AND THEN GALVANIZE (OR METALIZE) EACH BEAM ALONG WITH ITS ATTACHED STUDS. ONCE STUDS ARE WELDED TO BEAMS, THEY BECOME A TRIPPING HAZARD FOR WORKERS. PROVIDE FALL PROTECTION ACCORDING TO OSHA STANDARDS FOR ALL WORKERS WHO NEED TO WALK ALONG THE TOP OF THE BEAM.

IF STUDS ARE FIELD INSTALLED, FOLLOW CMS 513.22 AND REMOVE THE GALVANIZED (OR METALIZED) COATING BY GRINDING AT EACH STUD LOCATION PRIOR TO WELDING THE STUD TO THE TOP OF THE BEAM.

ALL RELEVANT PORTIONS OF CMS 513 SHALL APPLY TO THIS ITEM. PAYMENT FOR THE ABOVE WORK (EXCEPT FOR GALVANIZING OR METALIZING) SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 513 - WELDED STUD SHEAR CONNECTORS, AS PER PLAN AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO INSTALL ALL STUD SHEAR CONNECTORS AND TO PROVIDE FALL PROTECTION ACCORDING TO OSHA STANDARDS.

|   |         |                                |
|---|---------|--------------------------------|
| 3 | 1/09/23 | ADDED ITEM 513 METALIZING NOTE |
|   |         |                                |
|   |         |                                |

GENERAL NOTES  
BRIDGE NO. HAN-CR180-00.21  
OVER STATE ROUTE 15

|               |         |
|---------------|---------|
| SFN           | 3200845 |
| DESIGN AGENCY |         |
| DESIGNER      | BLN     |
| CHECKER       | dht     |
| REVIEWER      | DLR     |
| PROJECT ID    | 111379  |
| SUBSET        | TOTAL   |
| 3             | 23      |
| SHEET         | TOTAL   |
| 97            | 149     |

ESTIMATED QUANTITIES

CALCULATED RWC DATED 09-2021  
 CHECKED dht DATED 09-2021

| ITEM | ITEM EXT. | TOTAL (01/NHS/08) | UNIT | DESCRIPTION   | SUPERSTR. | ABUTS. | PIER  | MSE WALL | GEN'L | SEE SHEET   |
|------|-----------|-------------------|------|---|-----------|--------|-------|----------|-------|-------------|
| 203  | 20001     | 2,689             | CY   | EMBANKMENT, AS PER PLAN   |           |        |       |          | 2,689 | 2/23        |
| 203  | 35110     | 331               | CY   | GRANULAR MATERIAL, TYPE B   |           |        |       | 331      |       |             |
| 203  | 35120     | 215               | CY   | GRANULAR MATERIAL, TYPE C   |           |        |       | 215      |       |             |
| 503  | 21300     | LS                |      | UNCLASSIFIED EXCAVATION   |           |        |       |          | LS    |             |
| 507  | 00101     | 700               | FT   | STEEL PILES HP10X42, FURNISHED, AS PER PLAN   |           | 700    |       |          |       | 2/23        |
| 507  | 92201     | 195               | FT   | PREBORED HOLES, AS PER PLAN   |           | 195    |       |          |       | 2/23        |
| 509  | 10000     | 80,946            | LB   | EPOXY COATED REINFORCING STEEL  | 64,890    | 7,131  | 8,925 |          |       |             |
| 509  | 30020     | 5,280             | FT   | NO. 4 GFRP DEFORMED BARS  | 5,280     |        |       |          |       |             |
| 511  | 33500     | 2                 | EACH | SEMI-INTEGRAL DIAPHRAGM GUIDE   |           | 2      |       |          |       |             |
| 511  | 34446     | 213               | CY   | CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK  | 213       |        |       |          |       |             |
| 511  | 34450     | 51                | CY   | CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK (PARAPET)  | 51        |        |       |          |       |             |
| 511  | 41010     | 24                | CY   | CLASS QC1 CONCRETE, PIER ABOVE FOOTINGS   |           |        | 24    |          |       |             |
| 511  | 43510     | 85                | CY   | CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING  |           | 85     |       |          |       |             |
| 512  | 10101     | 1,053             | SY   | SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN  | 392       | 57     | 79    | 525      |       | 2/23        |
| 513  | 20001     | 2,484             | EACH | WELDED STUD SHEAR CONNECTORS, AS PER PLAN   | 2,484     |        |       |          |       | 3/23        |
| 516  | 10010     | 66                | FT   | ARMORLESS PREFORMED JOINT SEAL  |           |        |       |          | 66    |             |
| 516  | 13600     | 61                | SF   | 1" PREFORMED EXPANSION JOINT FILLER   |           | 61     |       |          |       |             |
| 516  | 13900     | 62                | SF   | 2" PREFORMED EXPANSION JOINT FILLER   |           | 62     |       |          |       |             |
| 516  | 14020     | 113               | FT   | SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL   |           | 113    |       |          |       |             |
| 516  | 44100     | 6                 | EACH | ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2.483" x 12" x 20" PAD AND 2" x 13" x 21" PLATE)                               | 6         |        |       |          |       |             |
| 516  | 44100     | 12                | EACH | ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (2.483" x 10" x 15" PAD, 2-1.5" x 11" x 17" STEEL PLATES AND HP10 x 42 SECTION) | 12        |        |       |          |       |             |
| 518  | 21200     | 36                | CY   | POROUS BACKFILL WITH GEOTEXTILE FABRIC  |           | 36     |       |          |       |             |
| 518  | 40000     | 81                | FT   | 6" PERFORATED CORRUGATED PLASTIC PIPE   |           | 81     |       |          |       |             |
| 518  | 40010     | 139               | FT   | 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS   |           | 139    |       |          |       |             |
| 524  | 94704     | 14                | FT   | DRILLED SHAFTS, 36" DIAMETER, INTO BEDROCK  |           |        | 14    |          |       |             |
| 524  | 94802     | 33                | FT   | DRILLED SHAFTS, 42" DIAMETER, ABOVE BEDROCK   |           |        | 33    |          |       |             |
| 526  | 30000     | 220               | SY   | REINFORCED CONCRETE APPROACH SLABS (T=17")  |           |        |       |          | 220   |             |
| 526  | 90030     | 66                | FT   | TYPE C INSTALLATION   |           |        |       |          | 66    |             |
| 607  | 39900     | 270               | FT   | VANDAL PROTECTION FENCE, 6' STRAIGHT, COATED FABRIC   | 270       |        |       |          |       |             |
| 840  | 20000     | 6,042             | SF   | MECHANICALLY STABILIZED EARTH WALL  |           |        |       | 6,042    |       |             |
| 840  | 21000     | 797               | CY   | WALL EXCAVATION   |           |        |       | 797      |       |             |
| 840  | 22000     | 645               | SY   | FOUNDATION PREPARATION  |           |        |       | 645      |       |             |
| 840  | 23000     | 3,996             | CY   | SELECT GRANULAR BACKFILL  |           |        |       | 3,996    |       |             |
| 840  | 25010     | 660               | FT   | 6" DRAINAGE PIPE, PERFORATED  |           |        |       | 660      |       |             |
| 840  | 25020     | 195               | FT   | 6" DRAINAGE PIPE, NON-PERFORATED  |           |        |       | 195      |       |             |
| 840  | 26000     | 371               | FT   | CONCRETE COPING   |           |        |       | 371      |       |             |
| 840  | 27000     | 5                 | DAY  | ON-SITE ASSISTANCE  |           |        |       | 5        |       |             |
| 840  | 28000     | LS                |      | SGB INSPECTION AND COMPACTION TESTING   |           |        |       | LS       |       |             |
| 513  | 10241     | 281,000           | LB   | <b>GALVANIZED STEEL OPTION A</b><br>STRUCTURAL STEEL MEMBERS, AS PER PLAN (SHOP GALVANIZING)  | 281,000   |        |       |          |       | 2/23 & 3/23 |
| 513  | 10241     | 281,000           | LB   | <b>METALIZED STEEL OPTION B</b><br>STRUCTURAL STEEL MEMBERS, AS PER PLAN (SHOP METALIZING)  | 281,000   |        |       |          |       | 3/23        |

|   |         |                               |
|---|---------|-------------------------------|
| 2 | 1/04/23 | ADDED ITEM 516 QUANTITY       |
| 3 | 1/09/23 | ADDED METALIZING & SPLIT CODE |

HAN-SR15/CR180-19.56/00.21

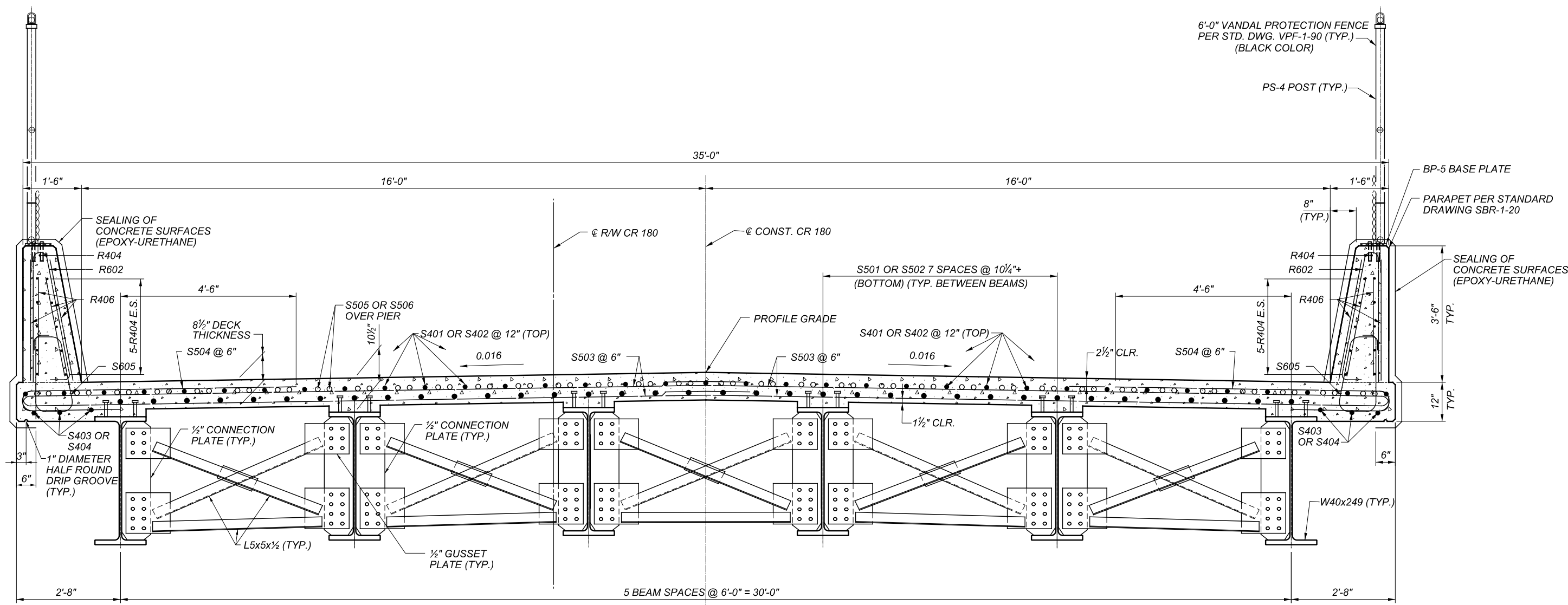
ESTIMATED QUANTITIES  
 BRIDGE NO. HAN-CR180-00.21  
 OVER STATE ROUTE 15

SFN 3200845  
 DESIGN AGENCY



|            |         |
|------------|---------|
| DESIGNER   | CHECKER |
| BLN        | dht     |
| REVIEWER   | DLR     |
| PROJECT ID | 111379  |
| SUBSET     | TOTAL   |
| 4          | 23      |
| SHEET      | TOTAL   |
| 98         | 149     |

HAN-SR15/CR180-19.56/00.21



TRANSVERSE SECTION

NOTES

**HIGH STRENGTH CROSS FRAME BOLTS:** SHALL BE 1" DIAMETER GRADE A325 ASTM F3125, TYPE 1

**DECK SLAB CONCRETE QUANTITY:** THE ESTIMATED QUANTITY OF DECK SLAB CONCRETE IS BASED ON THE CONSTANT DECK SLAB THICKNESS PLUS THE DECK OVERHANG AND THE SEMI-INTEGRAL BLOCK BELOW THE DECK ELEVATION, AS SHOWN, PLUS THE QUANTITY OF CONCRETE THAT FORMS EACH BEAM/GIRDER HAUNCH. THE ESTIMATE ASSUMES A CONSTANT HAUNCH THICKNESS OF 3.42 INCHES AND A HAUNCH WIDTH EQUAL TO THE TOP FLANGE WIDTH. DEVIATE FROM THIS HAUNCH THICKNESS AS NECESSARY TO PLACE THE DECK SURFACE AT THE PROPOSED FINISHED GRADE. THE HAUNCH THICKNESS WAS MEASURED AT THE CENTERLINE OF THE BEAM/GIRDER, FROM THE SURFACE OF THE DECK TO THE BOTTOM OF THE TOP FLANGE MINUS THE DECK SLAB THICKNESS. THE AREA OF ALL EMBEDDED STEEL PLATES HAS BEEN DEDUCTED FROM THE HAUNCH QUANTITY IN ACCORDANCE WITH 511.13

**GALVANIZED STEEL:** ALL STEEL BEAMS, DIAPHRAGMS AND BOLTS SHALL BE GALVANIZED AFTER CUTTING, BENDING, AND WELDING ACCORDING TO 711.02 AND ASTM A123. INCREASE STANDARD DRAWING DIAPHRAGM AND CONNECTION PLATE HOLE DIAMETERS BY 1/16" TO ACCOUNT FOR THE GALVANIZING. AT THE DISCRETION OF THE ENGINEER, REPLACE, RE-GALVANIZE, OR REPAIR DAMAGED GALVANIZED MATERIAL. IF A REPAIR IS AUTHORIZED, PERFORM WORK ACCORDING TO THE ASTM A780 EXCEPT THE DEPARTMENT WILL NOT ALLOW AEROSOL SPRAY APPLICATIONS OF PAINTS CONTAINING ZINC.

**METALIZED STEEL:** ALL STEEL SHALL BE METALIZED AFTER CUTTING, BENDING AND WELDING PER SS845. NO INCREASE IN BOLT HOLE SIZE IS REQUIRED FOR METALIZING.

**REINFORCING STEEL SPLICE LENGTHS:** SHALL BE 1'-10" FOR #4 BARS AND 2'-3" FOR #5 BARS.

**SEE STANDARD DRAWING GSD-1-19:** FOR CROSS FRAME DETAILS NOT SHOWN.

|               |         |   |
|---------------|---------|---|
| $\triangle$ 3 | 1/09/23 | ADDED METALIZED STEEL NOTE - EDIT HOLE SIZE |
|               |         |   |
|               |         |   |

TRANSVERSE SECTION  
BRIDGE NO. HAN-CR180-00.21  
OVER STATE ROUTE 15

SFN  
3200845

DESIGN AGENCY



DESIGNER/CHECKER  
BLN dht

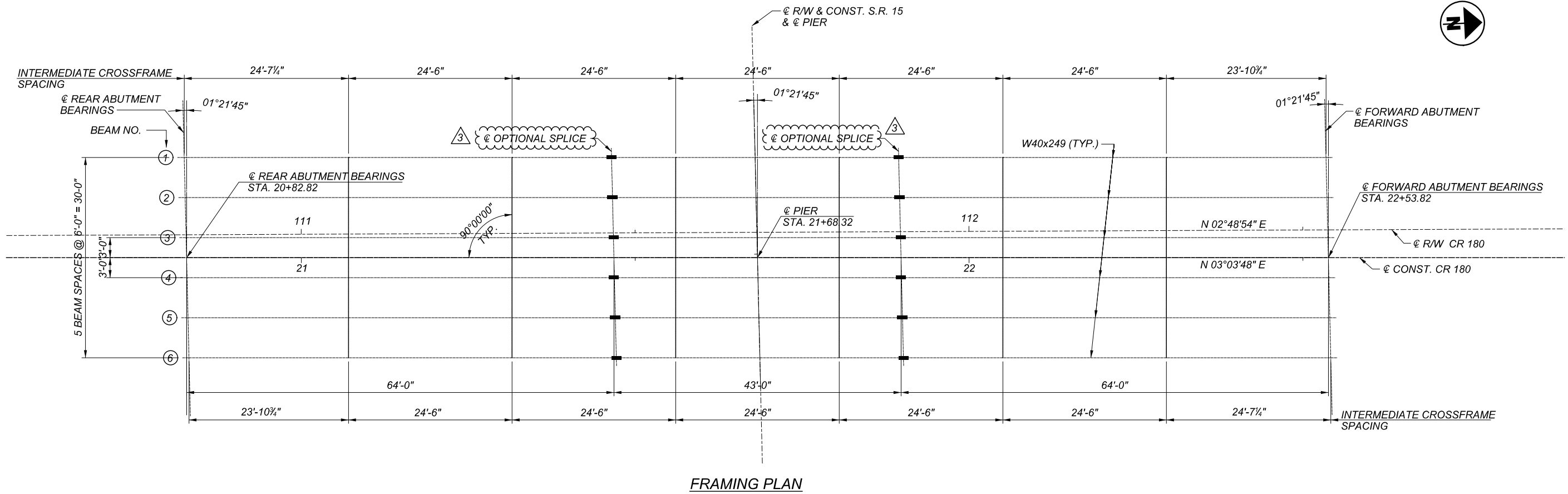
REVIEWER  
DLR

PROJECT ID  
111379

SUBSET TOTAL  
11 23

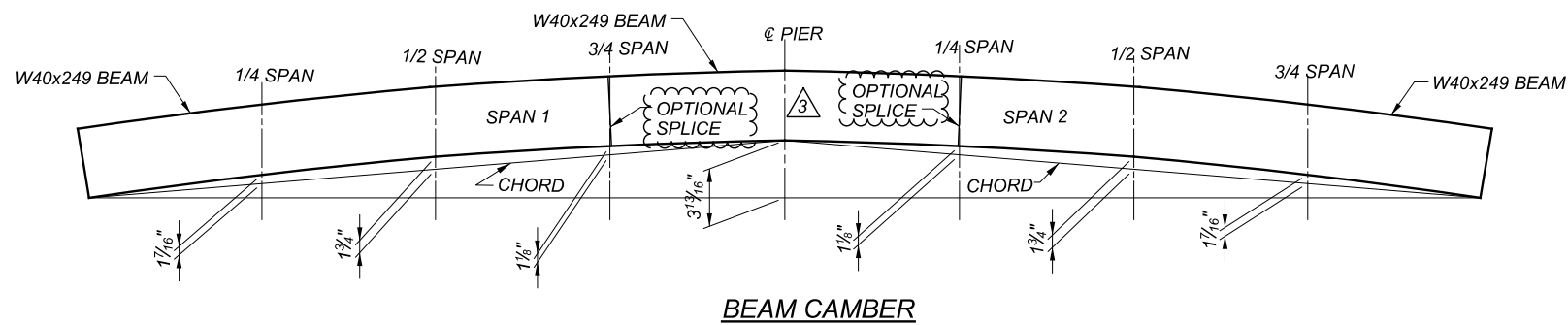
SHEET TOTAL  
105 149

HAN-SR15/CR180-19.56/00.21



FRAMING PLAN

| STRUCTURAL STEEL DEFLECTION & CAMBER   |         |        |                 |                 |        |         |
|--|---------|--------|-----------------|-----------------|--------|---------|
|  | SPAN 1  |        |                 | SPAN 2          |        |         |
|  | 1/4 PT  | 1/2 PT | 3/4 - SPLICE PT | 1/4 - SPLICE PT | 1/2 PT | 3/4 PT  |
| DEFLECTION DUE TO WEIGHT OF STEEL      | 3/16"   | 3/16"  | 1/8"            | 1/8"            | 3/16"  | 3/16"   |
| DEFLECTION DUE TO REMAINING DEAD LOAD  | 9/16"   | 5/8"   | 5/16"           | 5/16"           | 5/8"   | 9/16"   |
| ADJUSTMENT REQUIRED FOR VERTICAL CURVE | 11/16"  | 15/16" | 11/16"          | 11/16"          | 15/16" | 11/16"  |
| REQUIRED SHOP CAMBER                   | 1 7/16" | 1 3/4" | 1 1/8"          | 1 1/8"          | 1 3/4" | 1 7/16" |



BEAM CAMBER

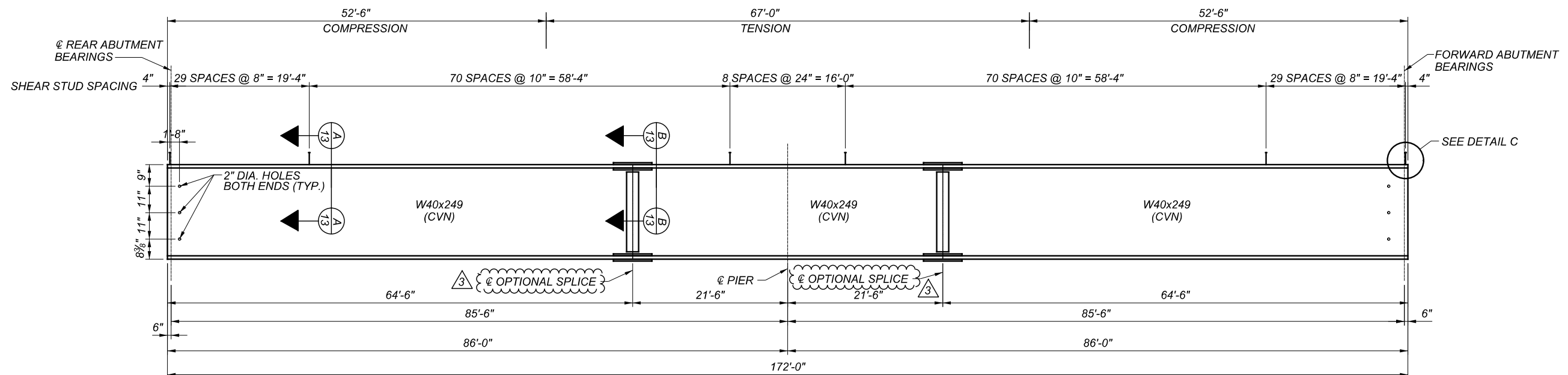
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| 3 | 1/05/23 | CHANGED SPLICE TO OPTIONAL |
|   |         |                            |
|   |         |                            |

NOTES

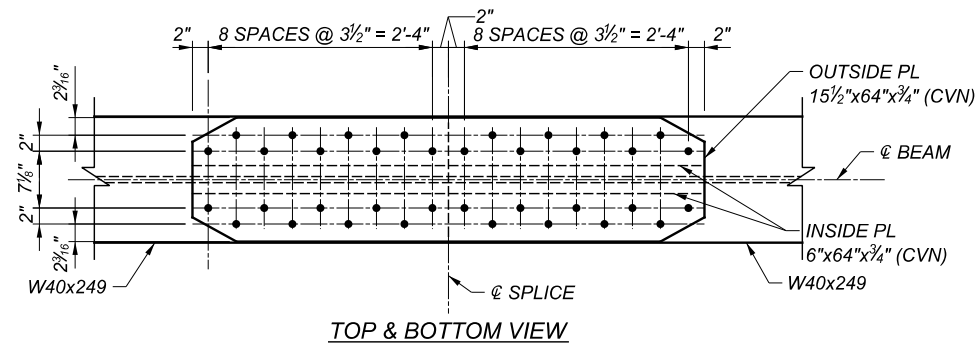
TRANSVERSE SECTION SEE SHEET 11/23  
 BEAM ELEVATION SEE SHEET 13/23

FRAMING PLAN  
 BRIDGE NO. HAN-CR180-00.21  
 OVER STATE ROUTE 15

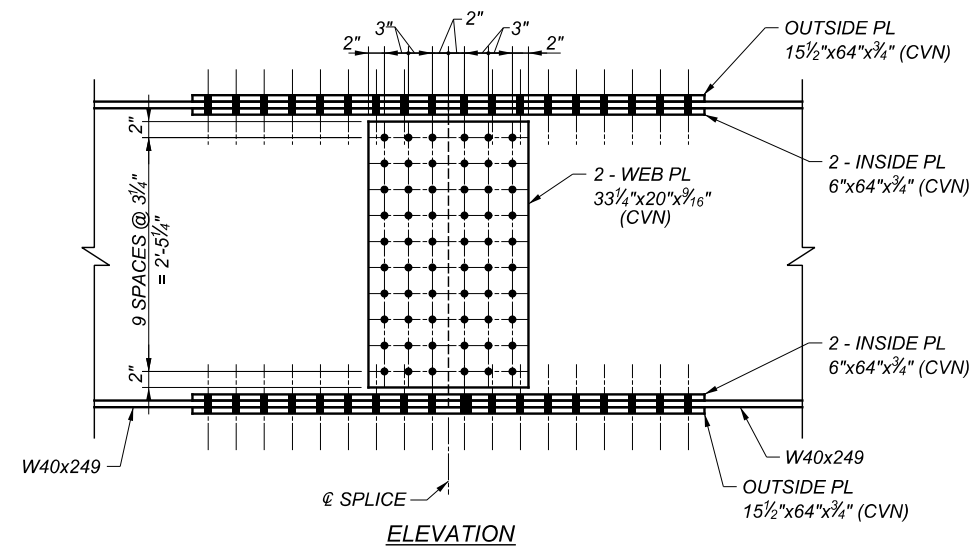
|               |         |
|---------------|---------|
| SFN           | 3200845 |
| DESIGN AGENCY | REI     |
| DESIGNER      | BLN     |
| CHECKER       | dht     |
| REVIEWER      | DLR     |
| PROJECT ID    | 111379  |
| SUBSET        | 12      |
| TOTAL         | 23      |
| SHEET         | 106     |
| TOTAL         | 149     |



BEAM ELEVATION

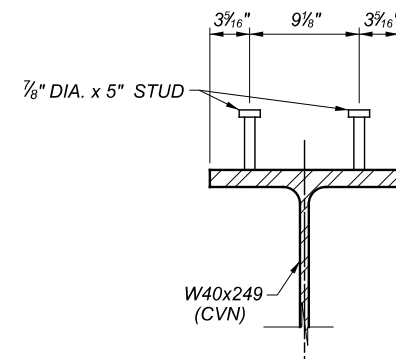


TOP & BOTTOM VIEW

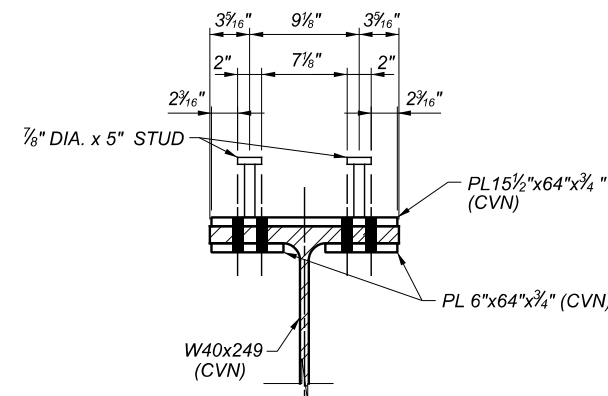


ELEVATION

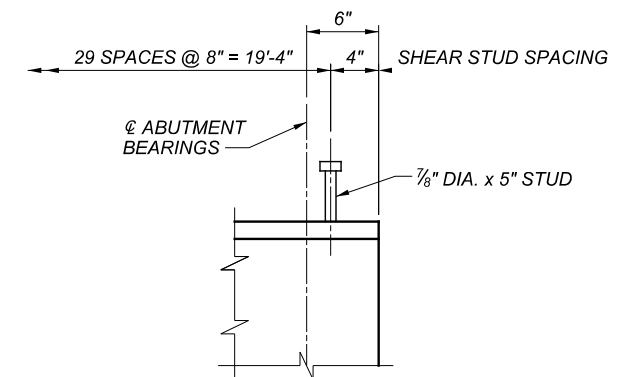
SPLICE DETAILS



SECTION A-A



SECTION B-B



DETAIL C

NOTES

WELD ATTACHMENT

DO NOT WELD ANYTHING, INCLUDING ATTACHMENT OF SUPPORTS FOR A CONCRETE DECK FINISHING MACHINE, TO ANY AREAS OF THE GALVANIZED OR METALIZED BEAMS. THIS WOULD CAUSE UNACCEPTABLE DAMAGE TO THE GALVANIZED OR METALIZED COATING. NO QUALITY TOUCH-UP SYSTEM IS AVAILABLE TO HANDLE THE REPAIRS REQUIRED.

HIGH STRENGTH BOLTS

HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE 1" DIAMETER A325, ASTM F3125 TYPE 1, UNLESS OTHERWISE NOTED. BOLT HOLES SHALL BE 1 3/16" DIAMETER TO ACCOUNT FOR GALVANIZING. 1/8" DIAMETER HOLES CAN BE USED FOR METALIZED MEMBERS.

WELDED STUDS AT GIRDER SPLICE PLATE: ADJUST STUD SPACING TO MISS SPLICE PLATE EDGES AND BOLTS AS NEEDED.

CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN), FURNISH MATERIAL THAT MEETS THE MINIMUM NOTCH TOUGHNESS REQUIREMENTS OF C&MS 711.01.

|   |         |   |
|---|---------|---|
| 3 | 1/05/23 | ADDED OPTIONAL SPLICE - ADDED METALIZING OPTION |
|   |         |   |
|   |         |   |

