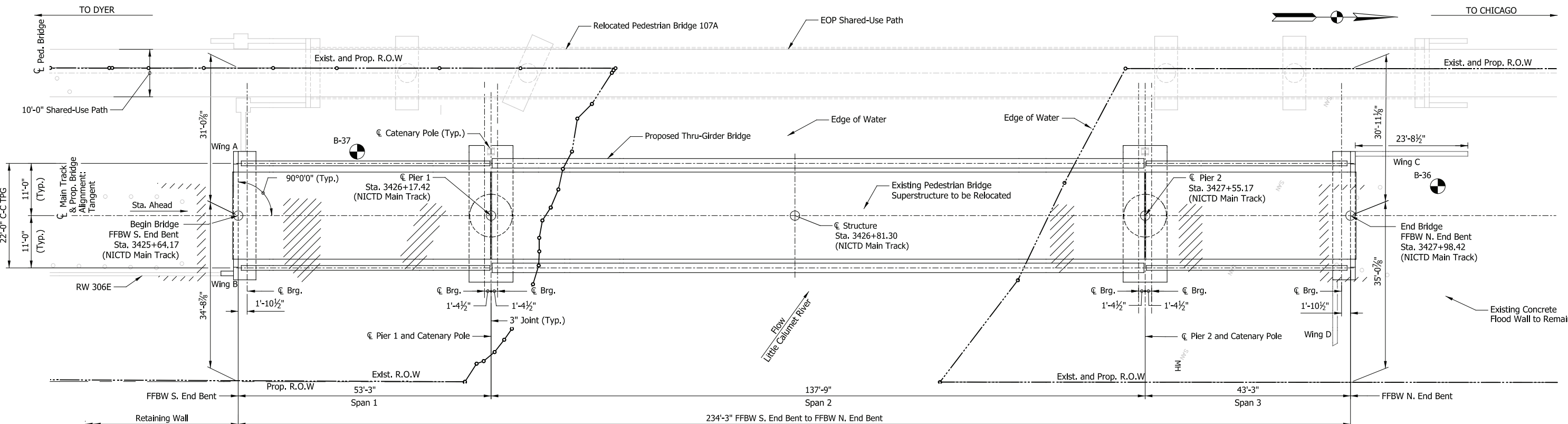




Appendix E. Engineering Drawings (Part 9 of 10)

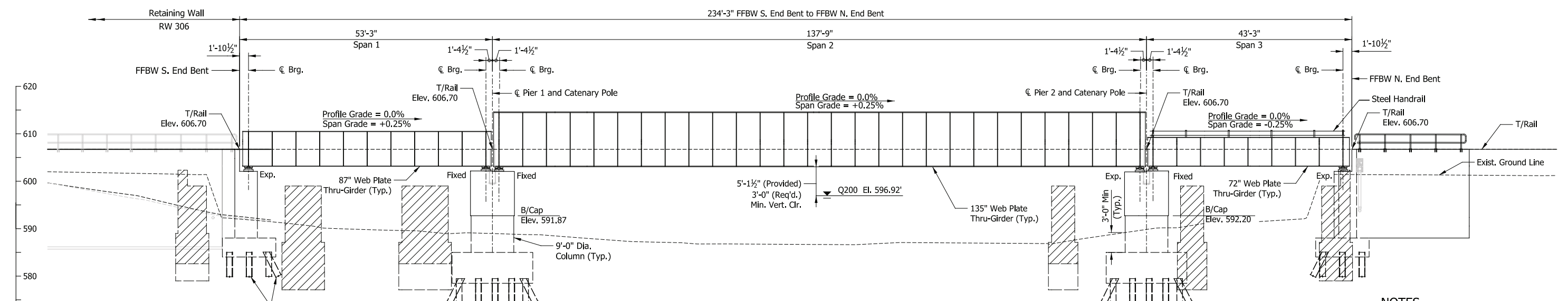


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PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Copper E-50 and Ballast Train Per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (At High End of Span)

DESIGN STRESS:
Steel: $f_y = 50,000$ psi (ASTM A 709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi

CONSTRUCTION DEPTH

| | |
|-----------------------|---------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min) | 6" |
| Waterproofing | 1" |
| Deck Plate | 5/8" |
| Depth of Floor Beam | 23 7/8" |
| Maintenance Clearance | 4" |
| Bottom Flange | 2" |
| | 51 7/8" |

SHEET INDEX

| | |
|----------|-------------------------------|
| BR107-01 | General Plan & Elevation |
| BR107-02 | Typical Details |
| BR107-03 | Substructure Details (1 of 2) |
| BR107-04 | Substructure Details (2 of 2) |
| BR107-05 | Framing Plan (1 of 2) |
| BR107-06 | Framing Plan (2 of 2) |

NOTES

- For track geometry, see Track Plans.
 - For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.
 - For Bridge 107A Drawings see sheets 109 to 112.
- Portions of existing substructure units to be removed to a minimum of 3' below existing ground. Remove entire substructure unit in conflict with proposed substructure unit or piles.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR107-01 OF BR107-06

| | |
|-----------|----------|
| DESIGNED: | DLZ-BAH |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
**BRIDGE 107 - NICTD OVER
LITTLE CALUMET RIVER
GENERAL PLAN & ELEVATION**

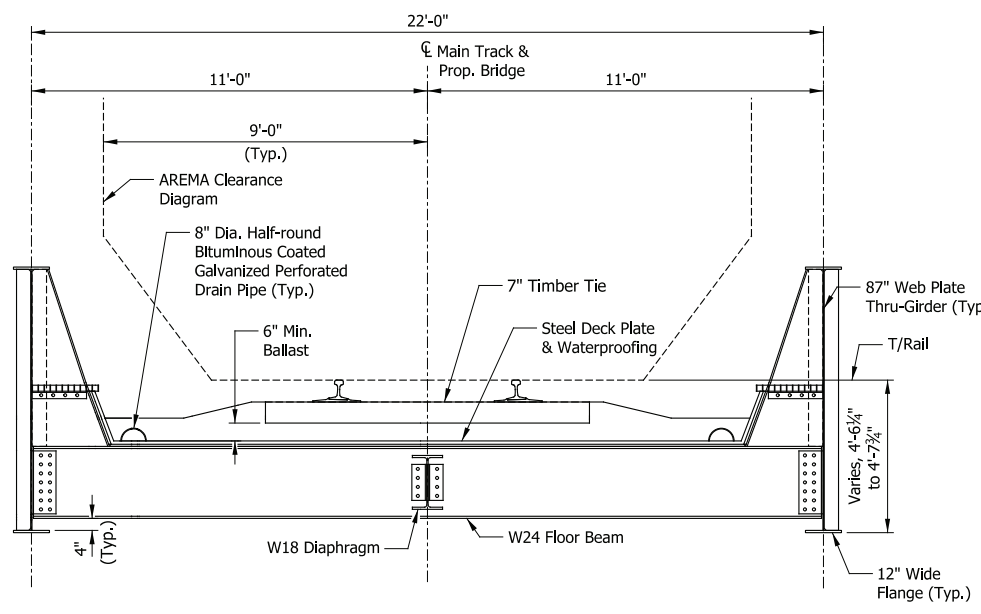
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| SCALE | AS NOTED | 103 OF 218 |

PLOT DATE: November 08, 2017 6:17:30 PM JMJIGUS

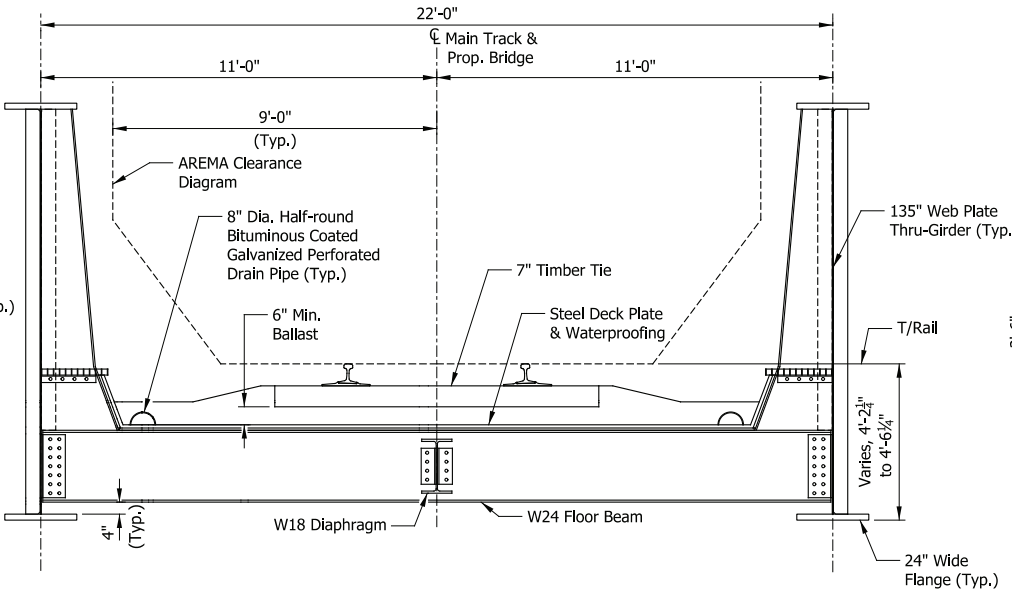


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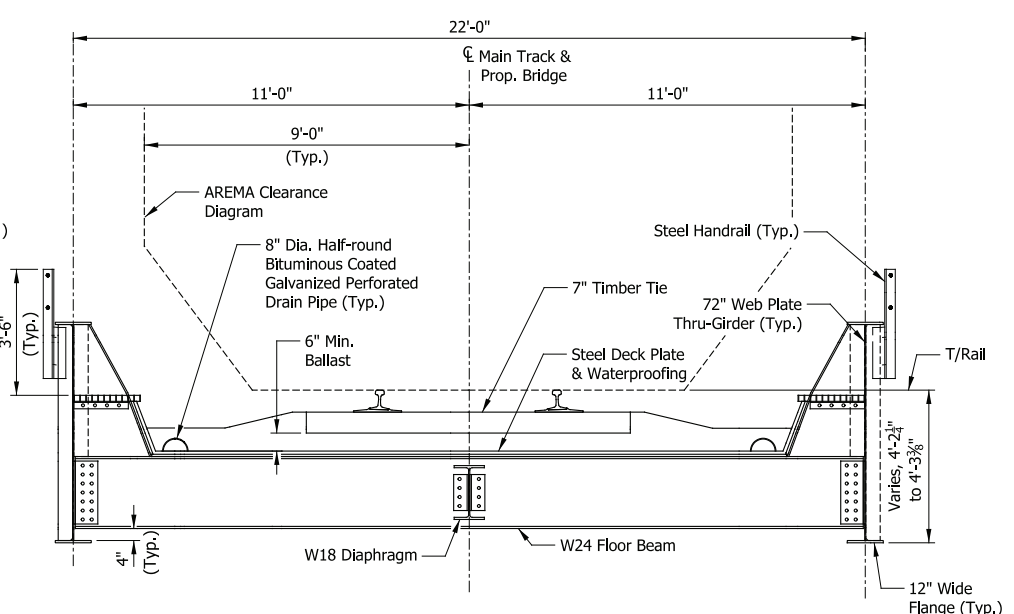




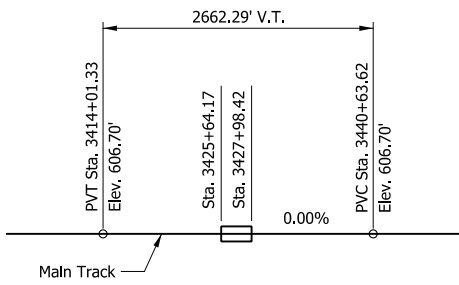
TYPICAL SECTION (SPAN 1)
Scale: 3/8" = 1'-0"



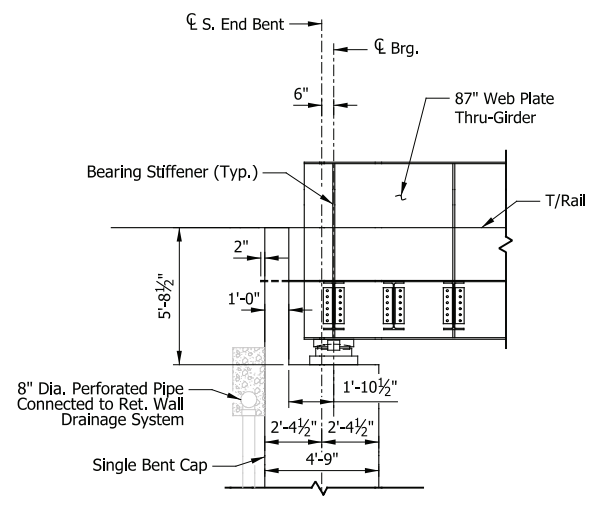
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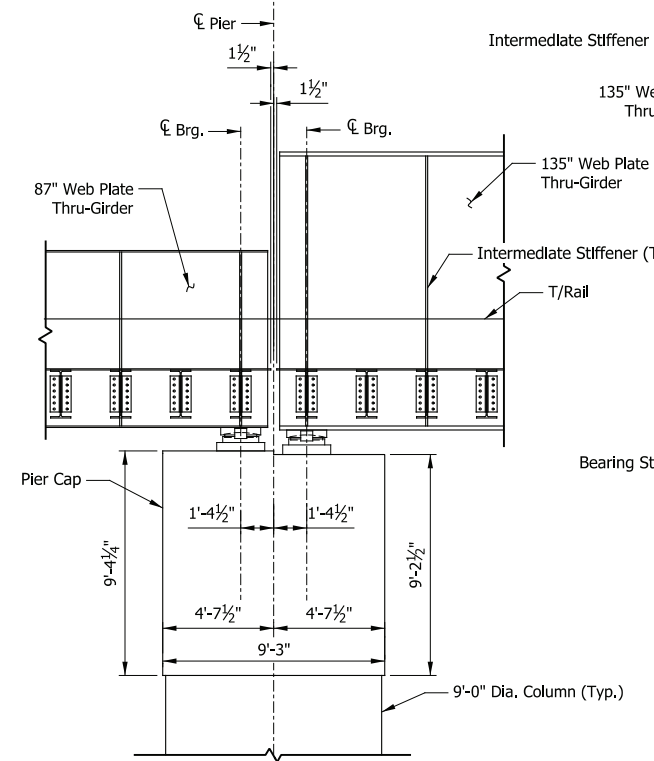
TYPICAL SECTION (SPAN 3)
Scale: 3/8" = 1'-0"



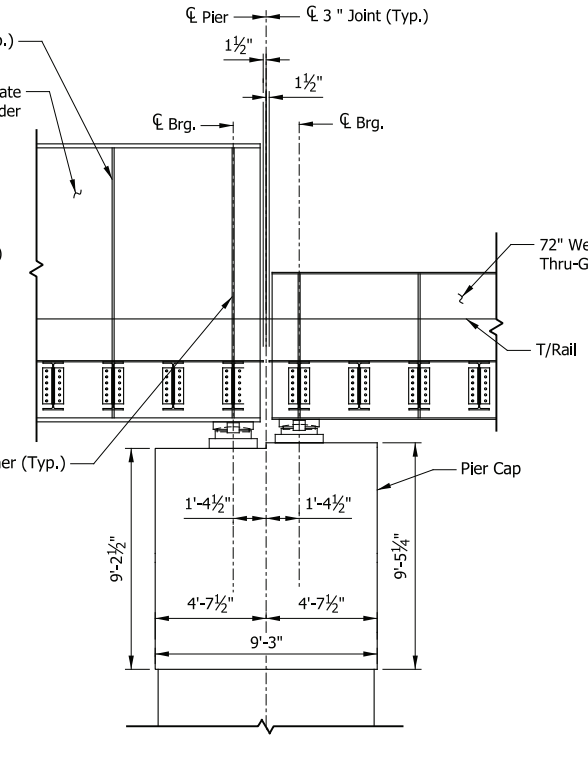
TOP OF RAIL PROFILE
Not to Scale



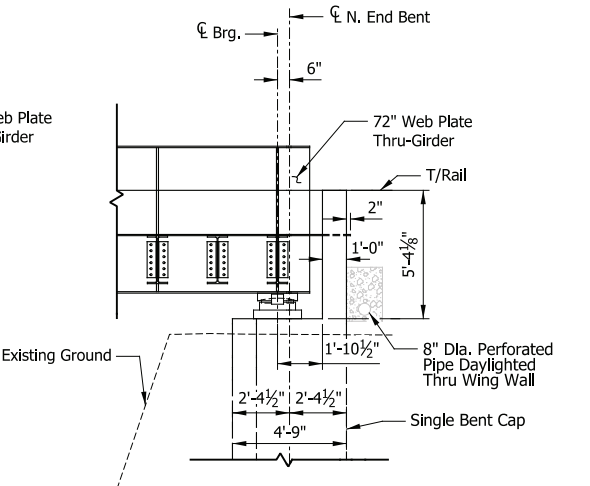
SECTION THRU S. END BENT
Scale: 1/4" = 1'-0"



SECTION THRU PIER 1
Scale: 1/4" = 1'-0"



SECTION THRU PIER 2
Scale: 1/4" = 1'-0"



SECTION THRU N. END BENT
Scale: 1/4" = 1'-0"

- NOTES**
1. Outfall from Drainage System to be routed and detailed similar to those provided for Retaining Wall Underdrains.

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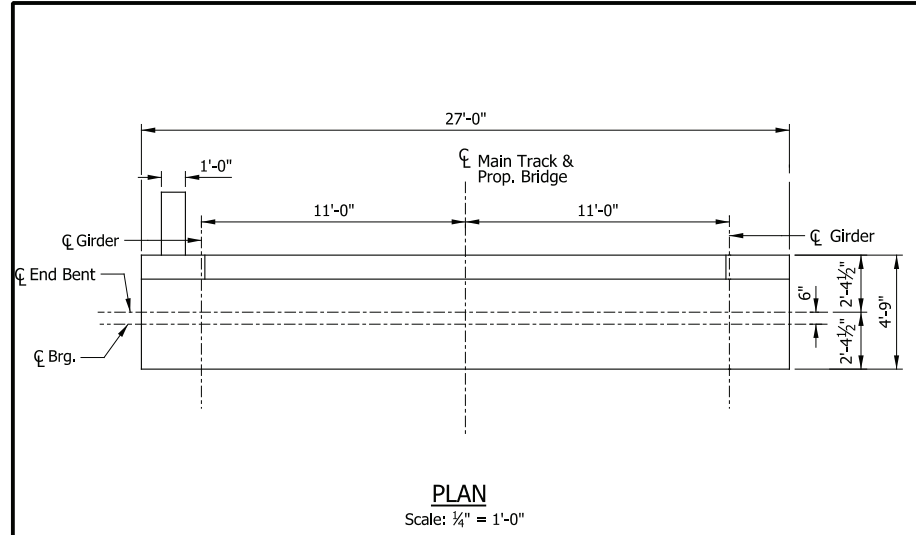
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| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR107-02 OF BR107-06

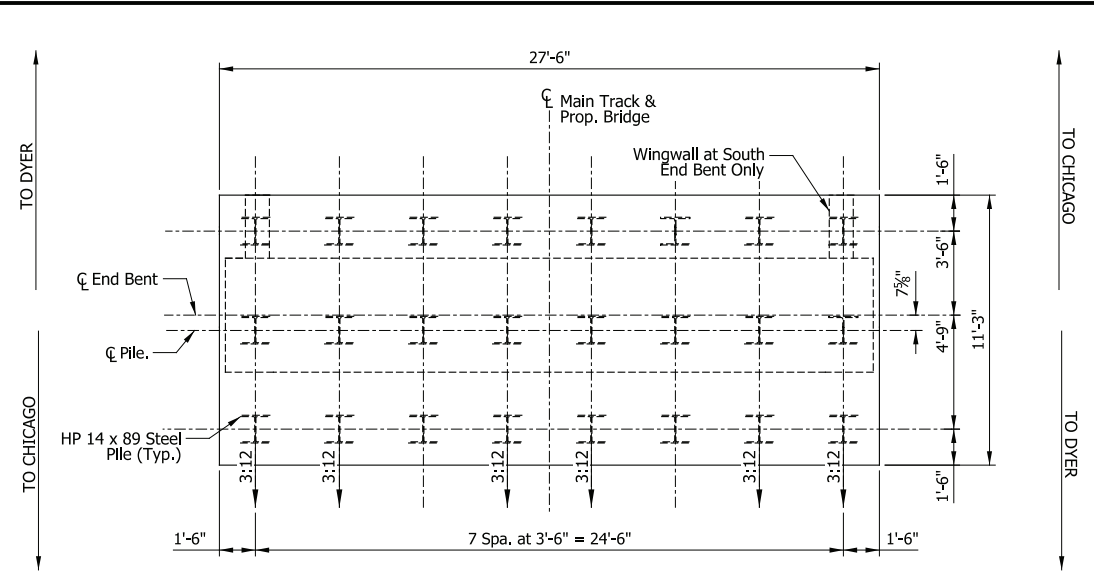
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 107 - NICTD OVER
LITTLE CALUMET RIVER
TYPICAL DETAILS**

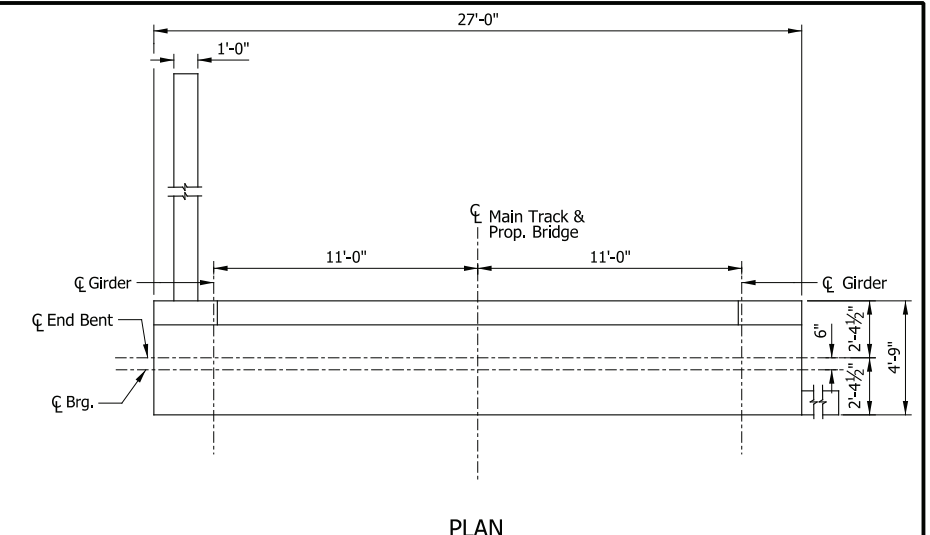
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| SCALE | AS NOTED | 104 OF 218 |



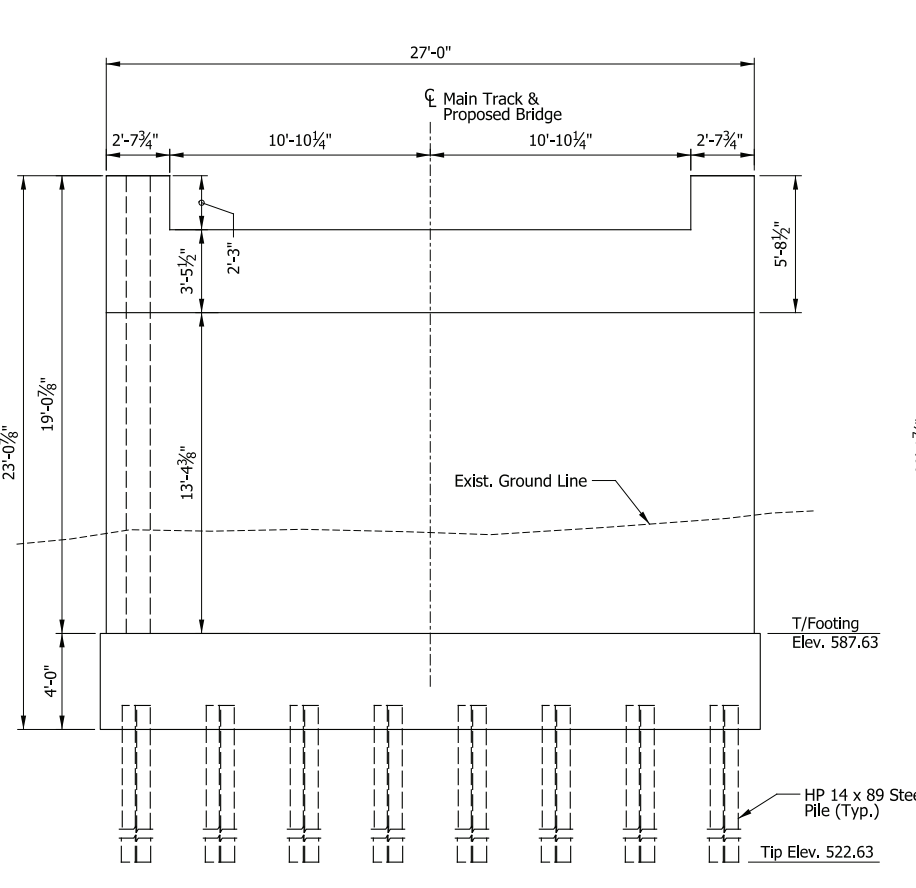
PLAN
Scale: 1/4" = 1'-0"



FOOTING PLAN (TYP.)
Scale: 1/4" = 1'-0"

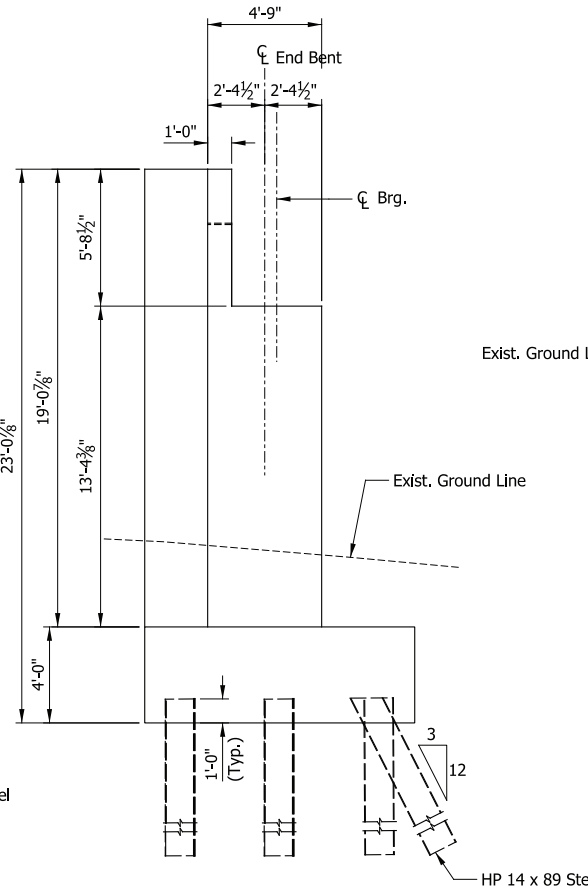


PLAN
Scale: 1/4" = 1'-0"

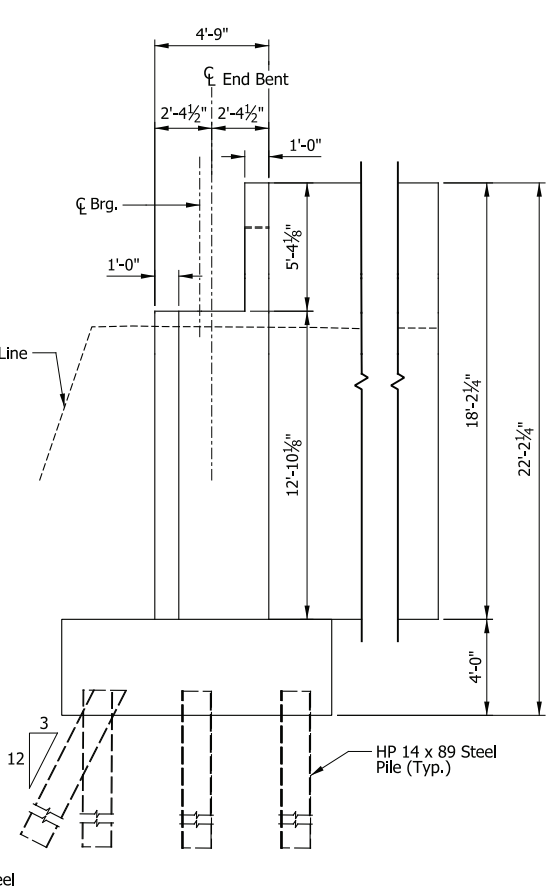


ELEVATION
Scale: 1/4" = 1'-0"

SOUTH END BENT

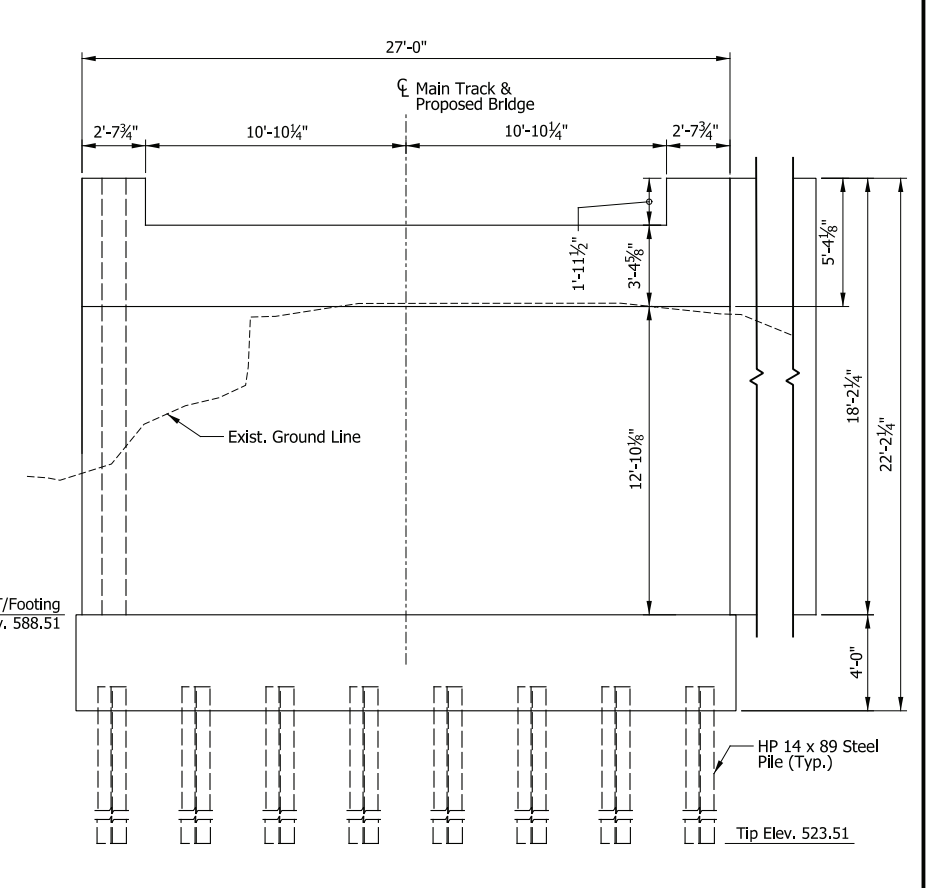


END VIEW
Scale: 1/4" = 1'-0"



END VIEW
Scale: 1/4" = 1'-0"

NORTH END BENT



ELEVATION
Scale: 1/4" = 1'-0"

PLOT DATE: November 08, 2017 6:17:37 PM JMWIGUS



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| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |

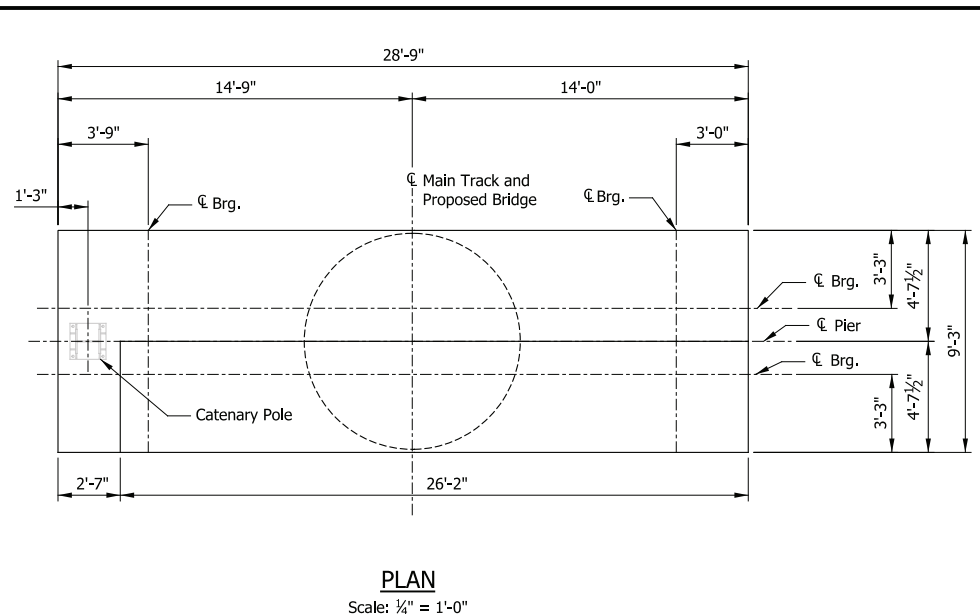
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR107-03 OF BR107-06

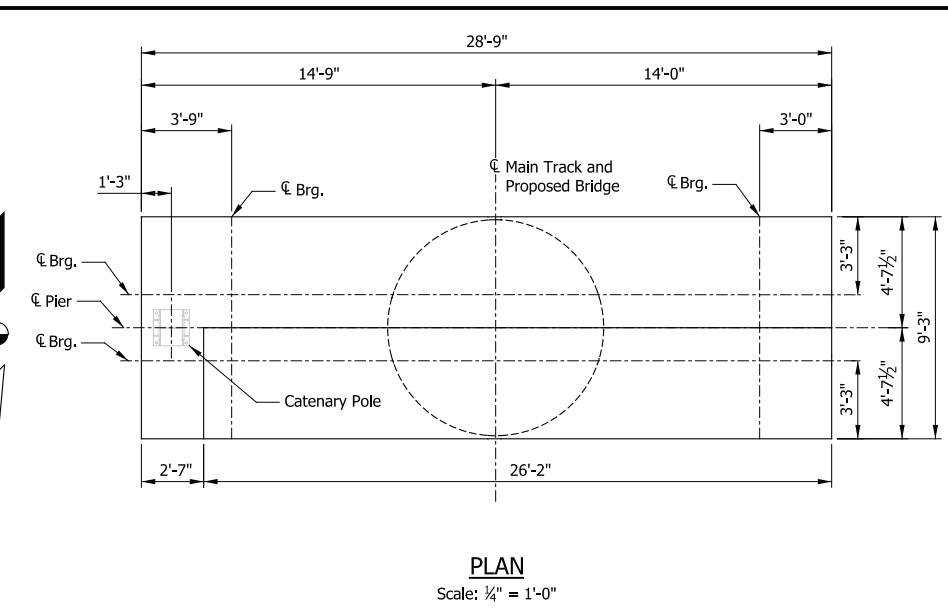
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 107 - NICTD OVER
LITTLE CALUMET RIVER
SUBSTRUCTURE DETAILS**

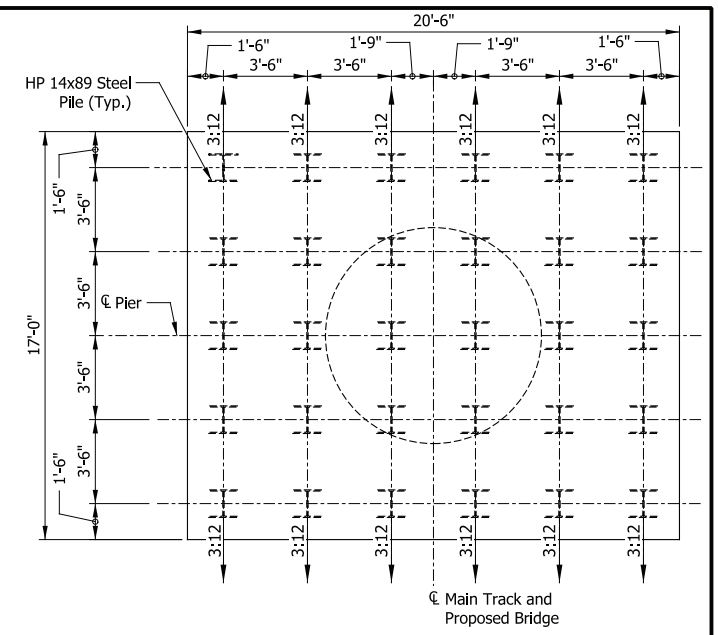
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| SCALE | AS NOTED | | |



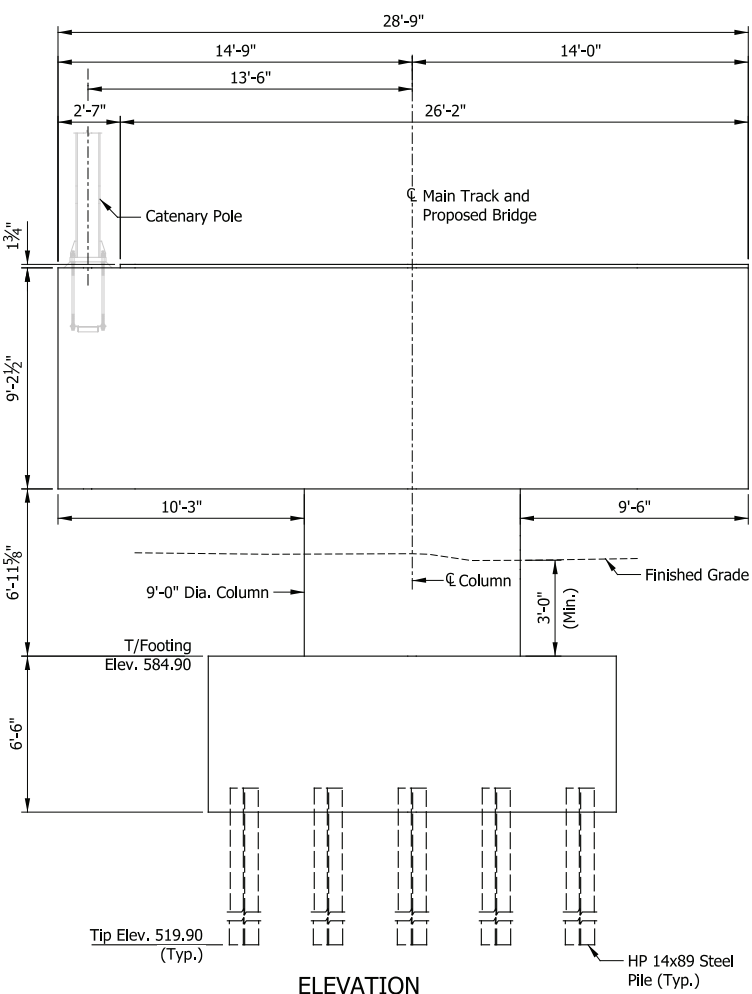
PLAN
Scale: 1/4" = 1'-0"



PLAN
Scale: 1/4" = 1'-0"

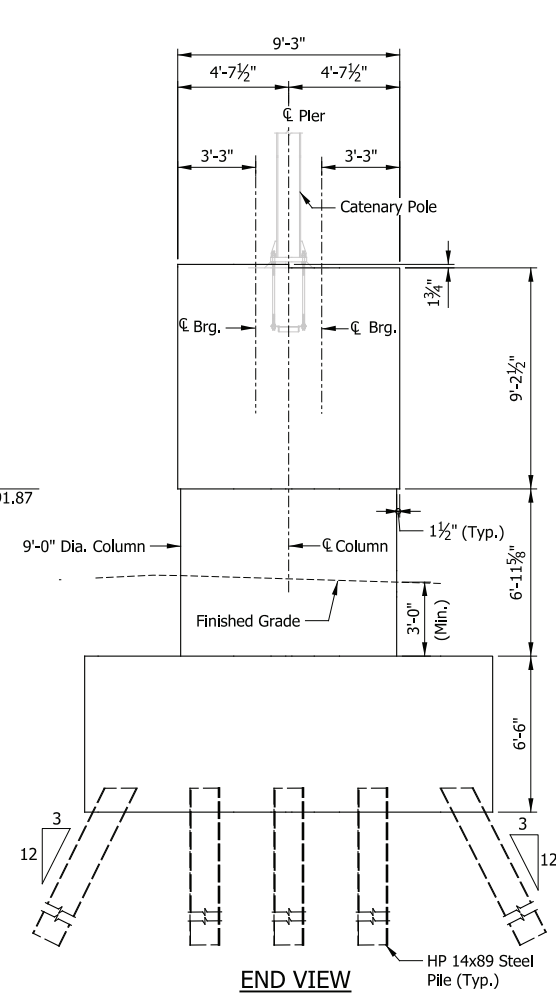


FOOTING PLAN (TYP.)
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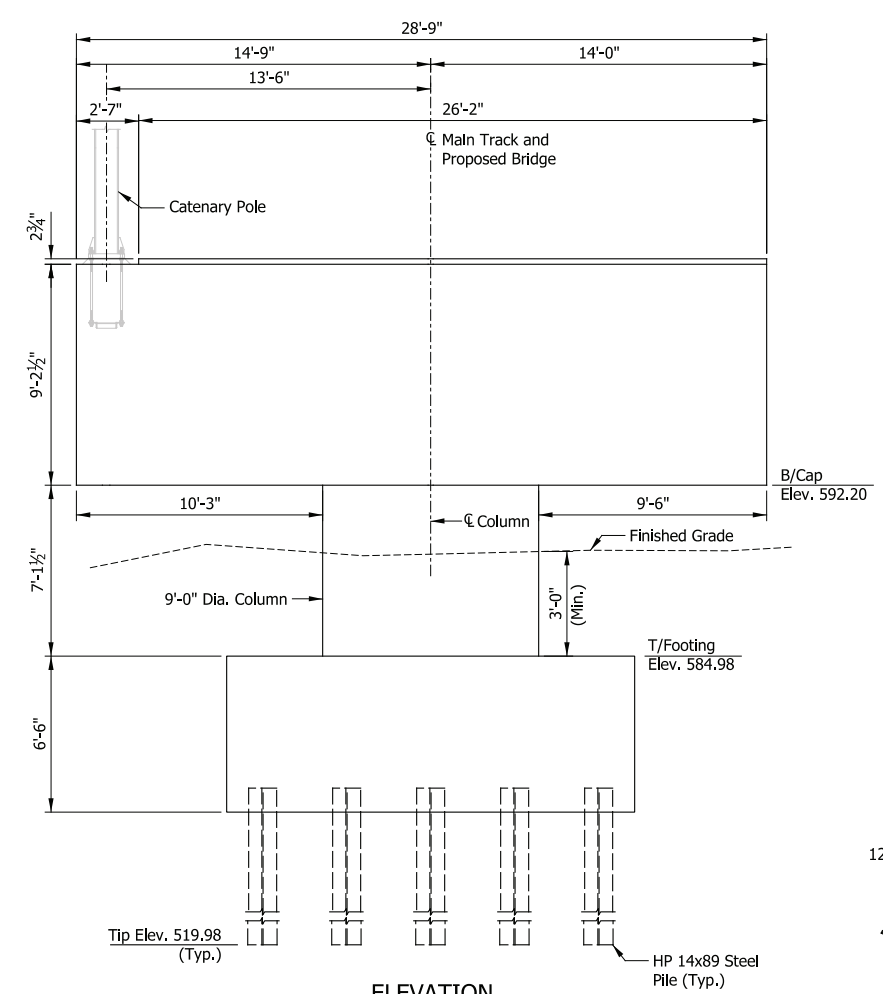


ELEVATION
Scale: 1/4" = 1'-0"

PIER 1

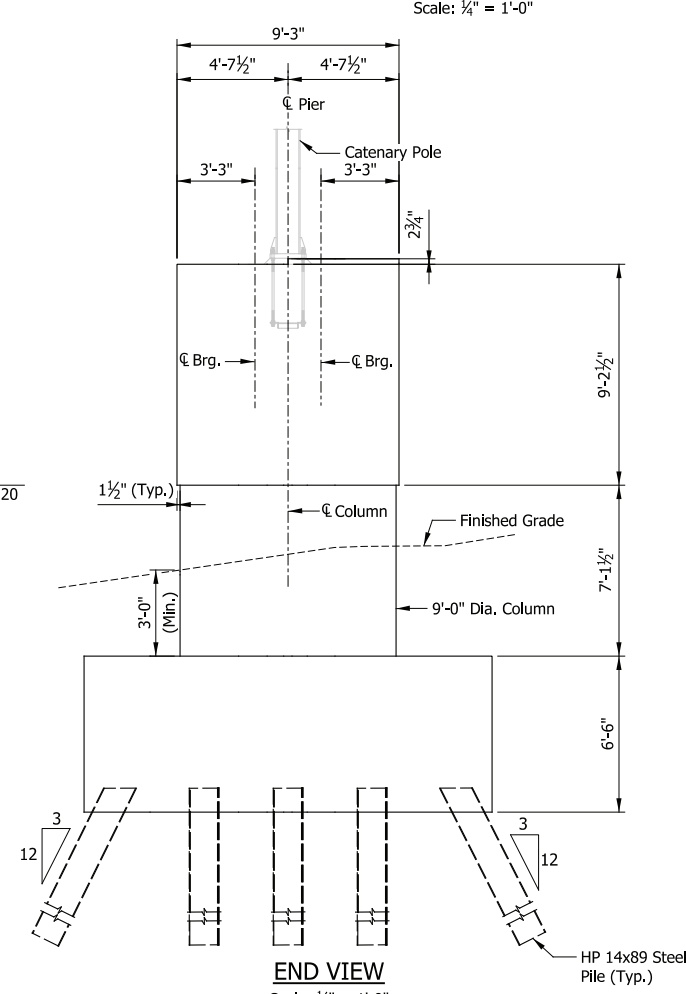


END VIEW
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

PIER 2



END VIEW
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR107-04 OF BR107-06

PLOT DATE: November 08, 2017 6:17:41 PM JMWIGUS

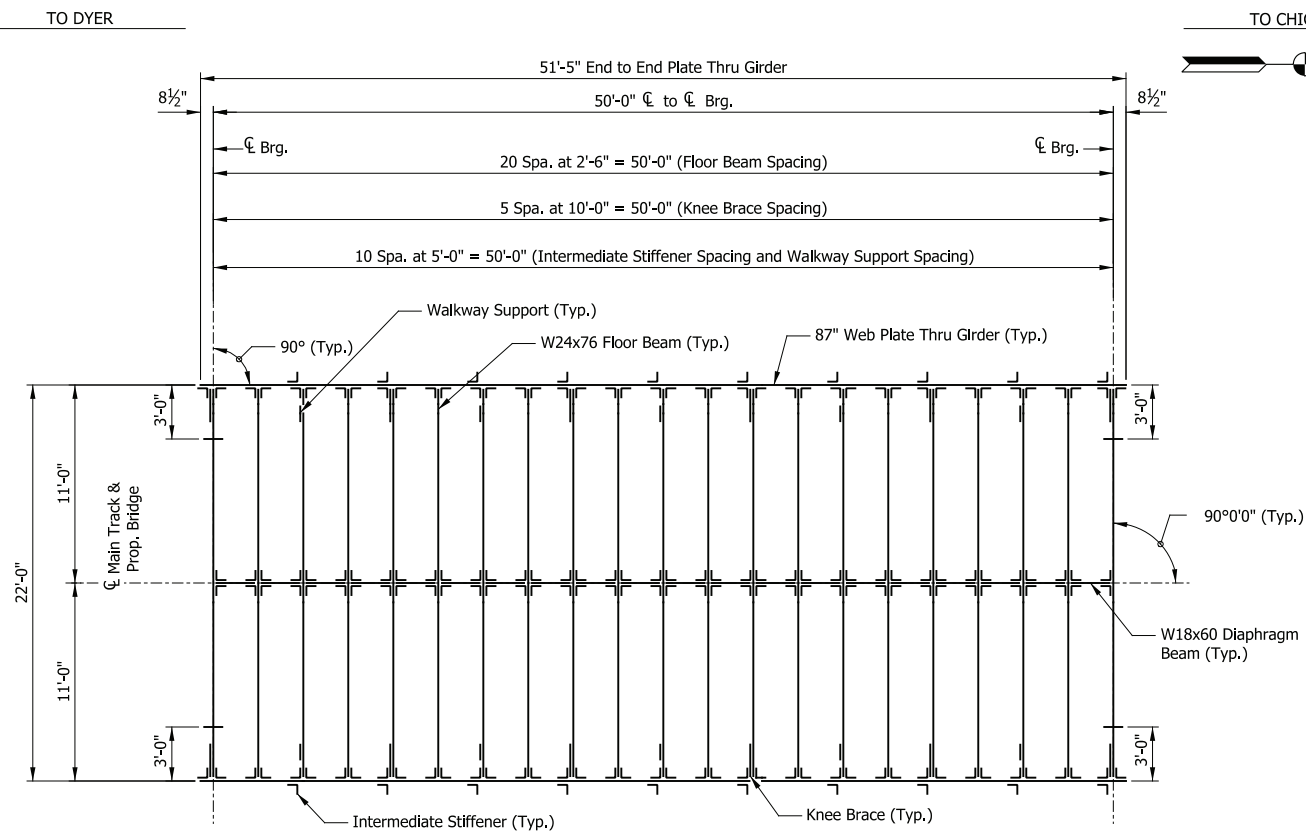


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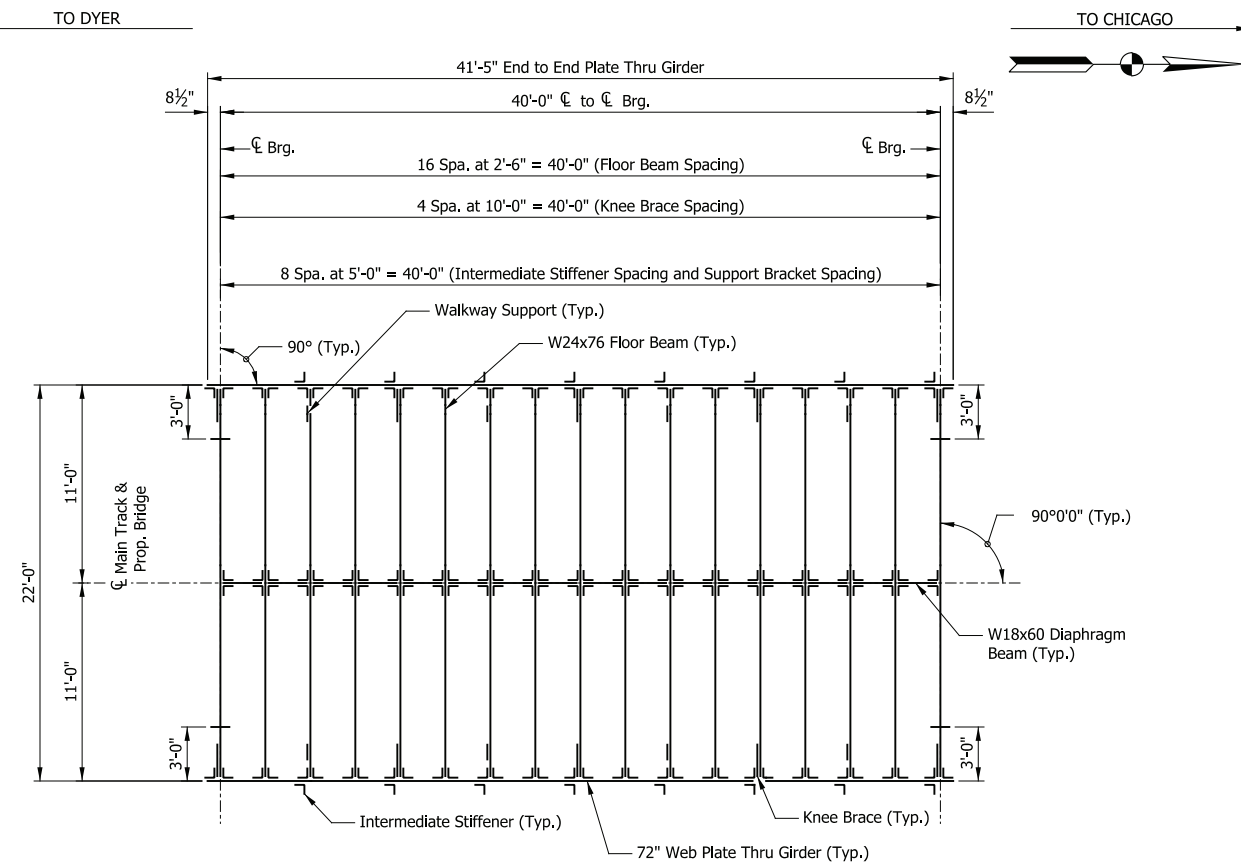


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| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |

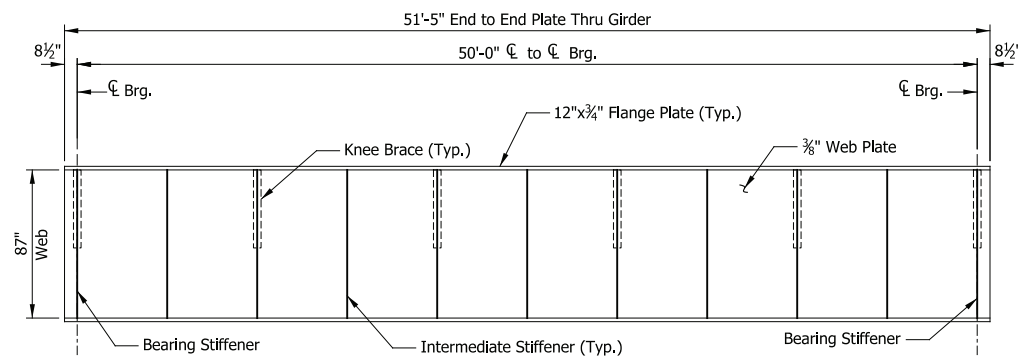
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | |
| BRIDGE 107 - NICTD OVER LITTLE CALUMET RIVER SUBSTRUCTURE DETAILS | |
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| SCALE | AS NOTED |
| SHEET | 106 OF 218 |



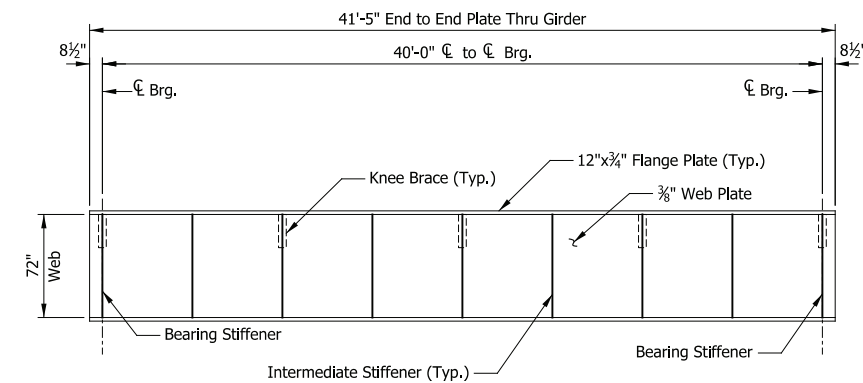
FRAMING PLAN (SPAN 1)
Scale: 3/16" = 1'-0"



FRAMING PLAN (SPAN 3)
Scale: 3/16" = 1'-0"



THRU GIRDER ELEVATION (SPAN 1)
Scale: 3/16" = 1'-0"



THRU GIRDER ELEVATION (SPAN 3)
Scale: 3/16" = 1'-0"

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| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR107-05 OF BR107-06

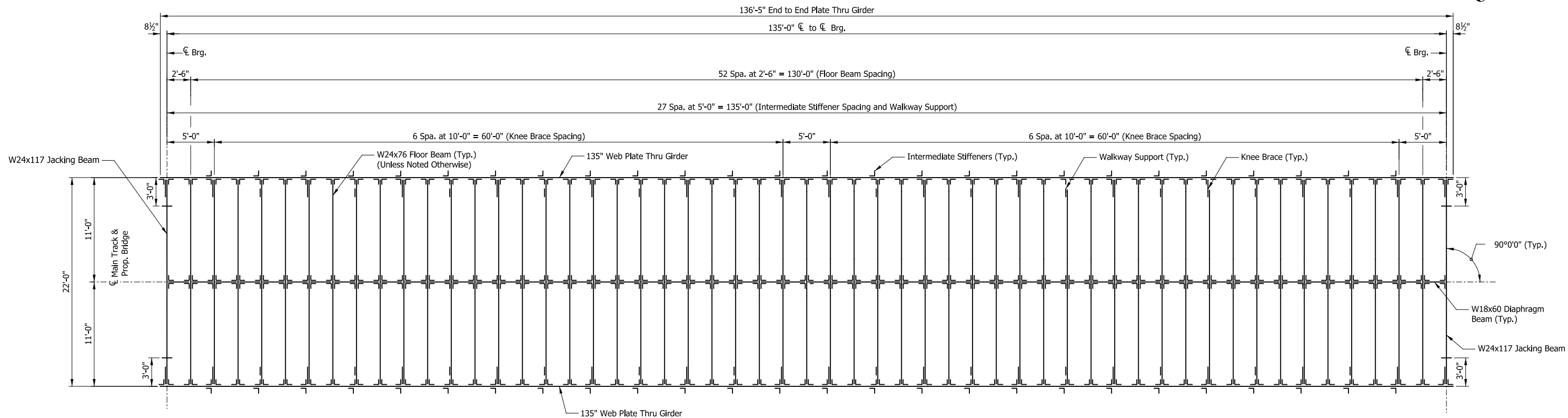
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 107 - NICTD OVER
LITTLE CALUMET RIVER
FRAMING PLAN**

| | | | |
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| FILENAME | SHT_WL_ST_BR107_FramPlan_01.dgn | SHEET | 107 OF 218 |
| SCALE | AS NOTED | | |

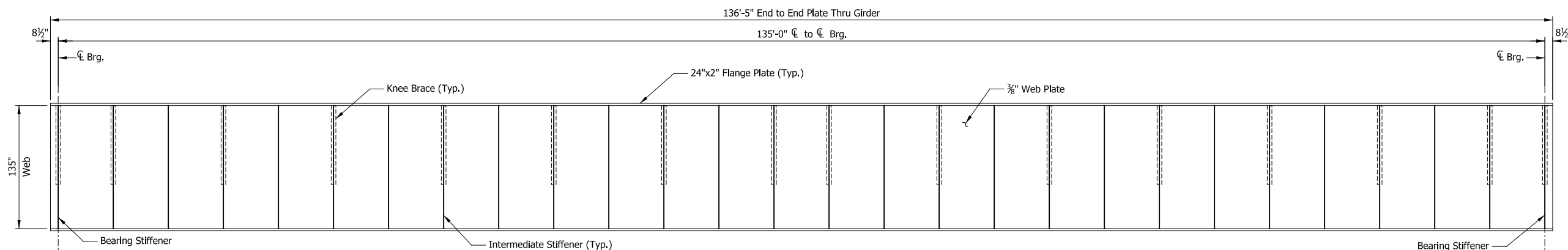
TO DYER

TO CHICAGO



FRAMING PLAN (SPAN 2)

Scale: 3/16" = 1'-0"



THRU GIRDER ELEVATION (SPAN 2)

Scale: 3/16" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR107-06 OF BR107-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 107 - NICTD OVER
LITTLE CALUMET RIVER
FRAMING PLAN**

FILENAME: SHT_WL_ST_BR107_FramPlan_02.dgn
SCALE: AS NOTED

SHEET **108 OF 218**

PLOT DATE: November 08, 2017 6:17:46 PM JMWIGUS



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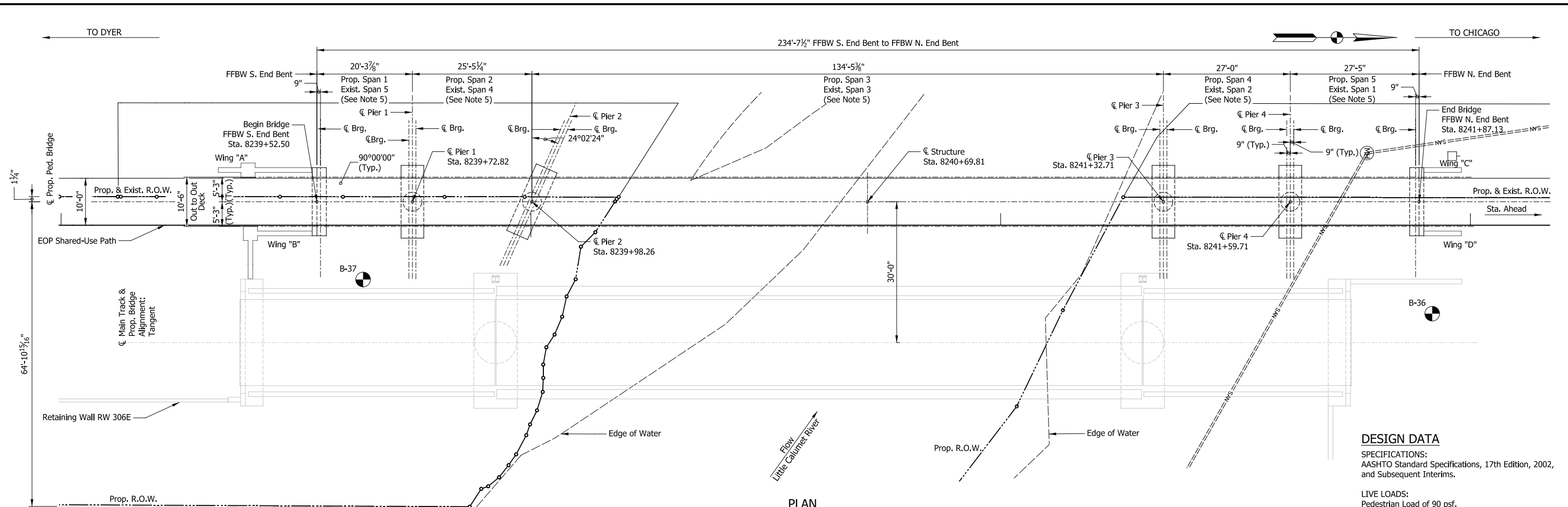


NORTHERN INDIANA COMMUTER
TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304



DYER TO HAMMOND, INDIANA

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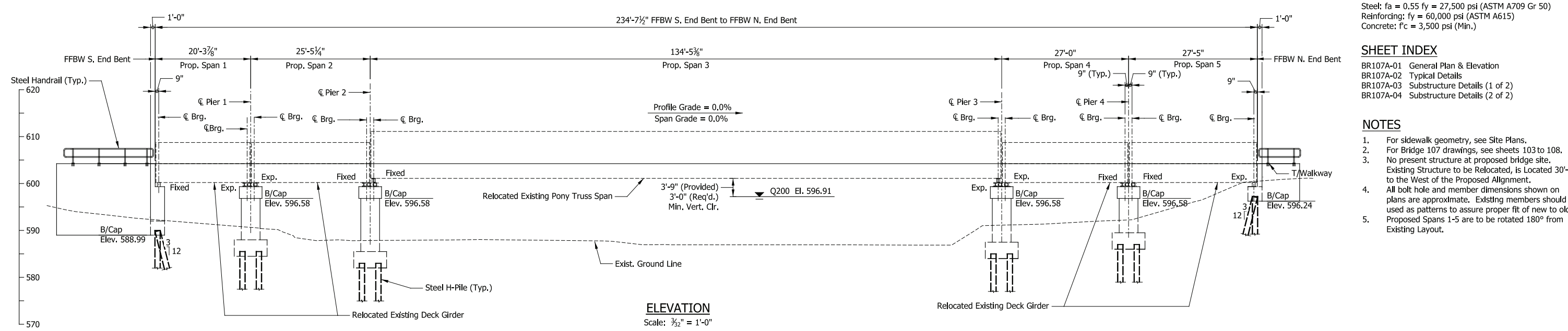
PLAN
Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
AASHTO Standard Specifications, 17th Edition, 2002, and Subsequent Interims.

LIVE LOADS:
Pedestrian Load of 90 psf.
Checked for 3/4 Ton Truck Loading.

ALLOWABLE DESIGN STRESSES:
Steel: $f_a = 0.55 f_y = 27,500$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 3,500$ psi (Min.)



ELEVATION
Scale: 3/32" = 1'-0"

SHEET INDEX

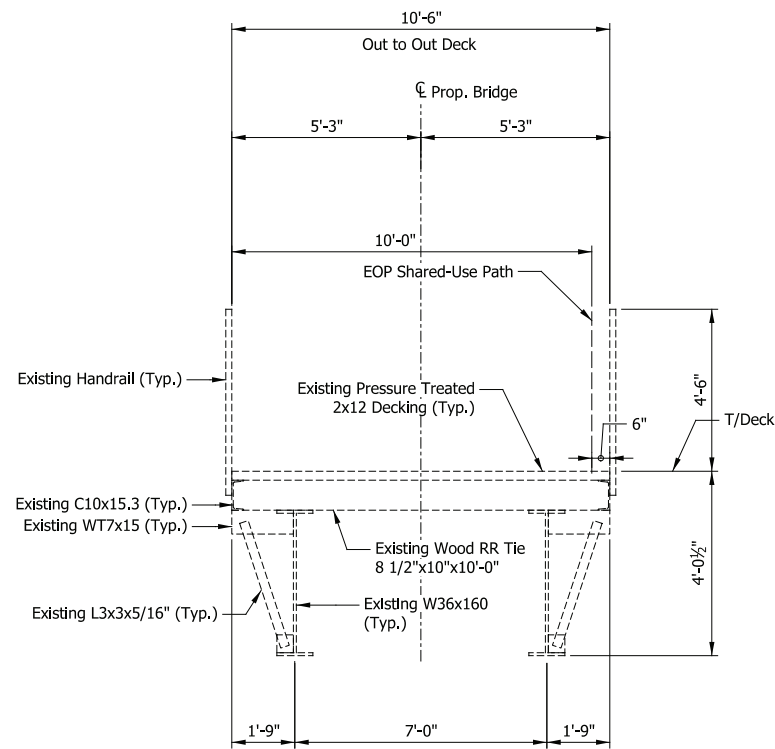
BR107A-01 General Plan & Elevation
BR107A-02 Typical Details
BR107A-03 Substructure Details (1 of 2)
BR107A-04 Substructure Details (2 of 2)

- NOTES**
- For sidewalk geometry, see Site Plans.
 - For Bridge 107 drawings, see sheets 103 to 108.
 - No present structure at proposed bridge site. Existing Structure to be Relocated, is Located 30'-0" to the West of the Proposed Alignment.
 - All bolt hole and member dimensions shown on plans are approximate. Existing members should be used as patterns to assure proper fit of new to old.
 - Proposed Spans 1-5 are to be rotated 180° from Existing Layout.

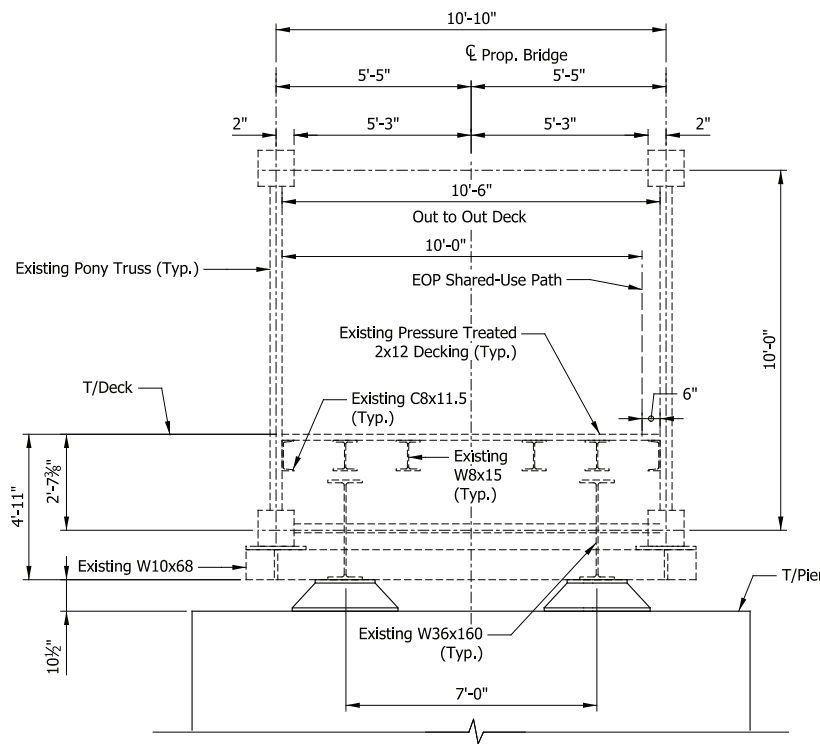
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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|---|--|---|------------------------------|---|---|
| HDR Engineering, Inc. 8550 W. Bryn Mawr Ave., Suite 900 Chicago, IL 60631 www.hdrinc.com | DLZ Indiana, LLC 2211 E. Jefferson Boulevard South Bend, IN 46615 www.dlz.com | NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT 33 East Highway 12 Chesterton, Indiana 46304 | DYER TO HAMMOND, INDIANA | DESIGNED: DLZ-TMB DRAWN: DLZ-CJS CHECKED: DLZ-WAT DATE: 07/21/17 | NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK BRIDGE 107A - PEDESTRIAN BRIDGE OVER LITTLE CALUMET RIVER GENERAL PLAN & ELEVATION |
| | | | | FILENAME: SHT_WL_ST_BR107A_GenPlan_01.dgn SCALE: AS NOTED | SHEET 109 OF 218 |

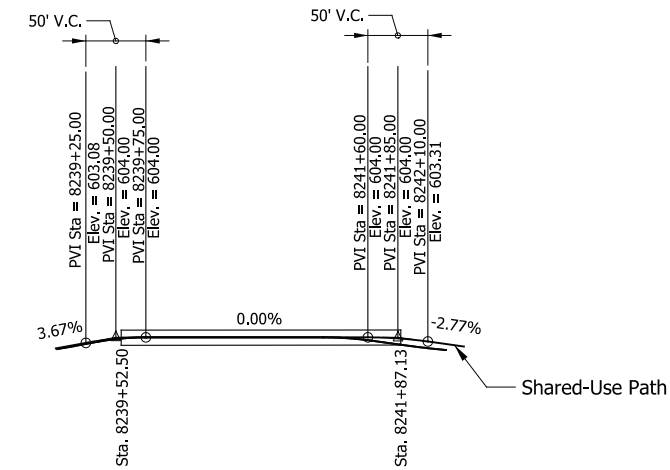
PLOT DATE: November 08, 2017 6:17:56 PM JMWIGUS



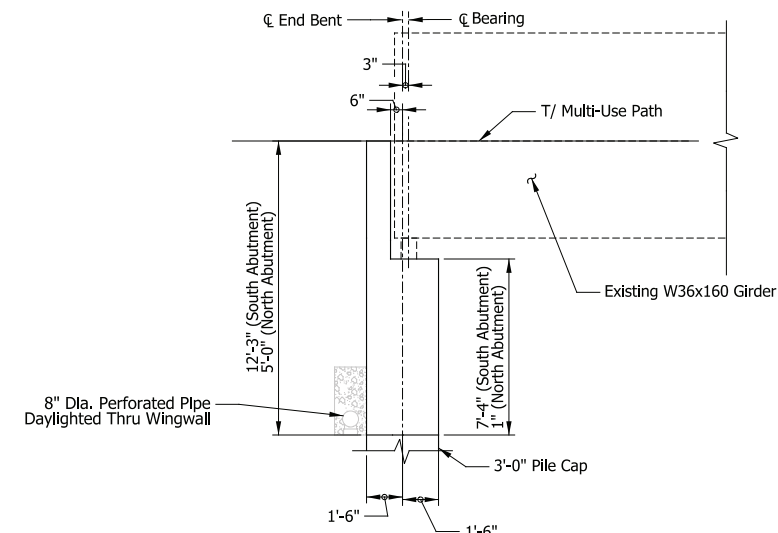
TYPICAL SECTION (SPANS 1, 2, 3 & 5)
 Scale: 3/8" = 1'-0"



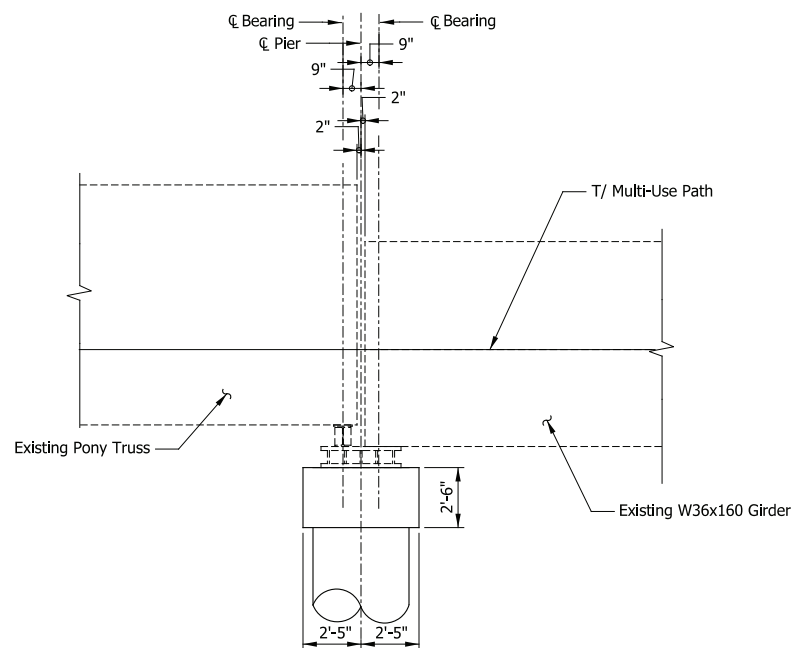
TYPICAL SECTION (MIDDLE SPAN)
 Scale: 3/8" = 1'-0"



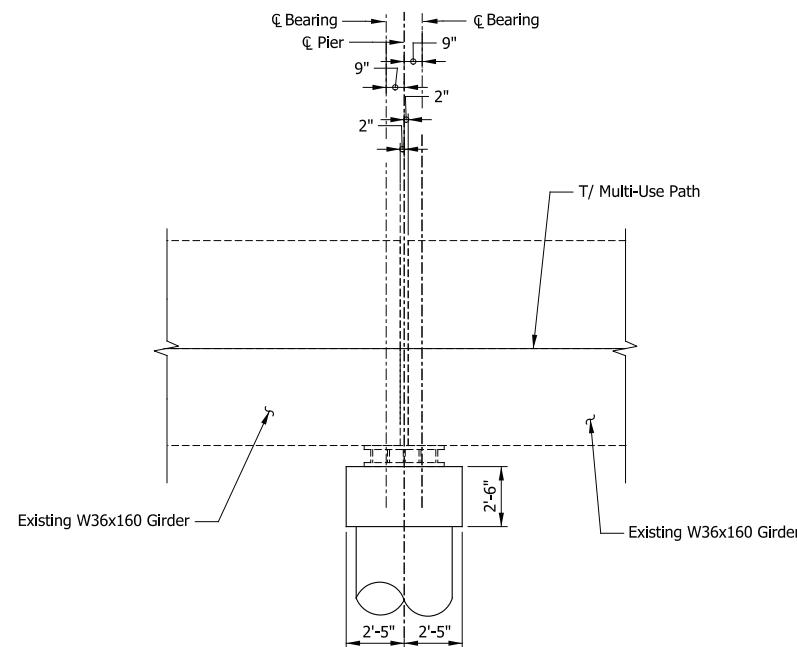
TOP OF SHARED-USE PATH PROFILE
 Not to Scale



SECTION THROUGH END BENT
 Scale: 1/4" = 1'-0"



SECTION THROUGH PIER 3
 Scale: 1/4" = 1'-0"



SECTION THROUGH PIER 4
 Scale: 1/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR107A-02 OF BR107A-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
 SINGLE TRACK
BRIDGE 107A - PEDESTRIAN BRIDGE OVER LITTLE CALUMET RIVER
TYPICAL DETAILS

| | | |
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| FILENAME | SHT_WL_ST_BR107A_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 110 OF 218 |

PLOT DATE: November 08, 2017 6:18:00 PM JMJIGUS



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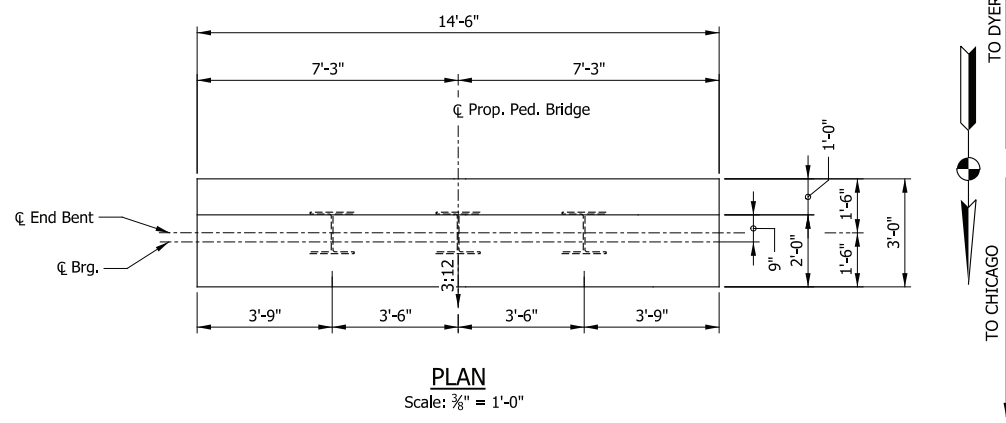


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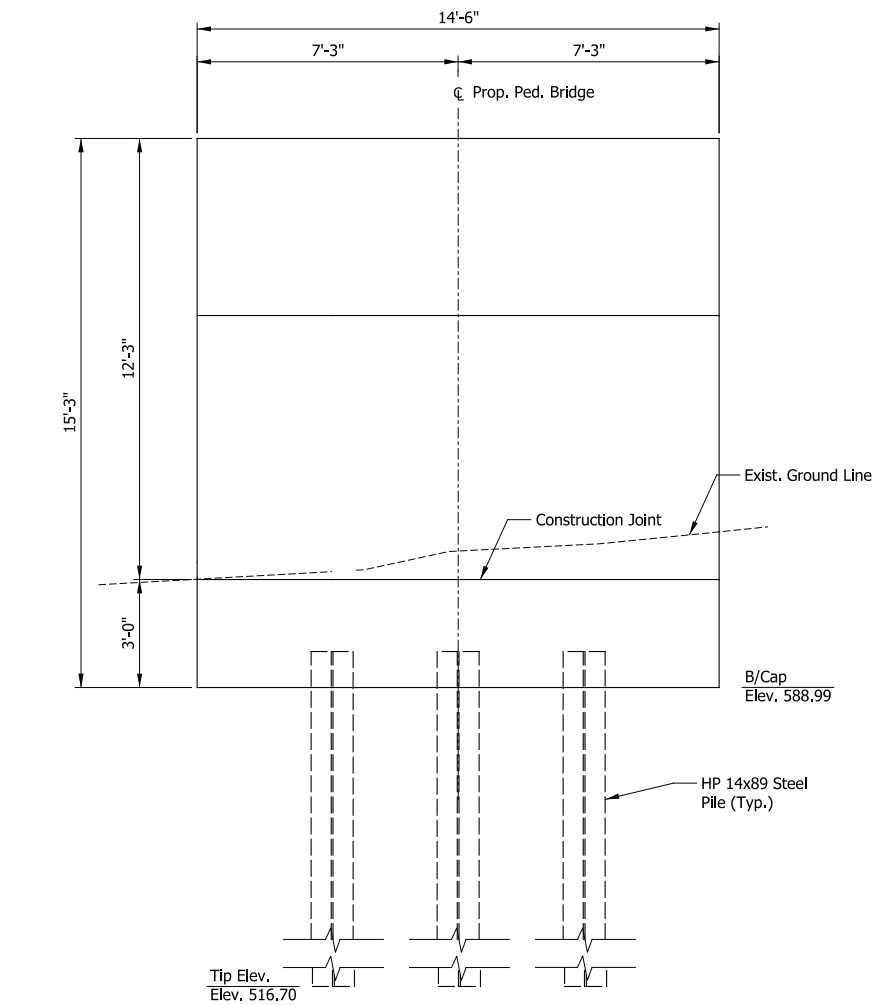


DYER TO HAMMOND, INDIANA

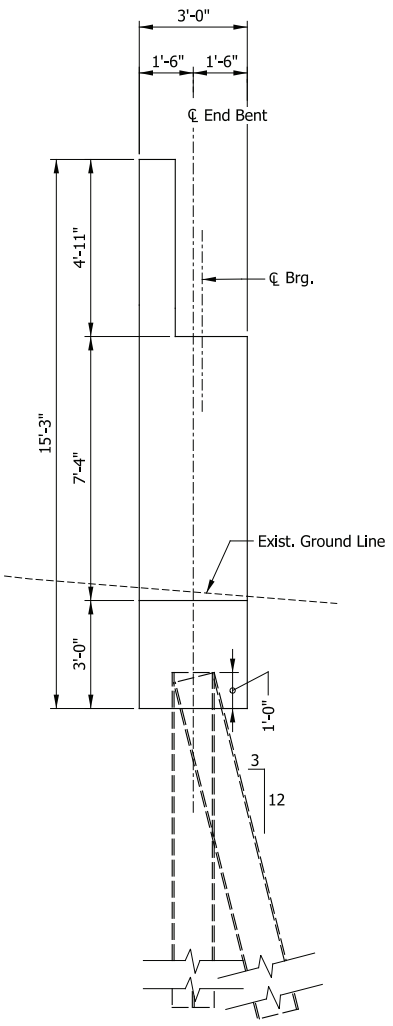
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|-----------|----------|
| DESIGNED: | DLZ-TMB |
| DRAWN: | DLZ-CJS |
| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |



PLAN
Scale: 3/8" = 1'-0"

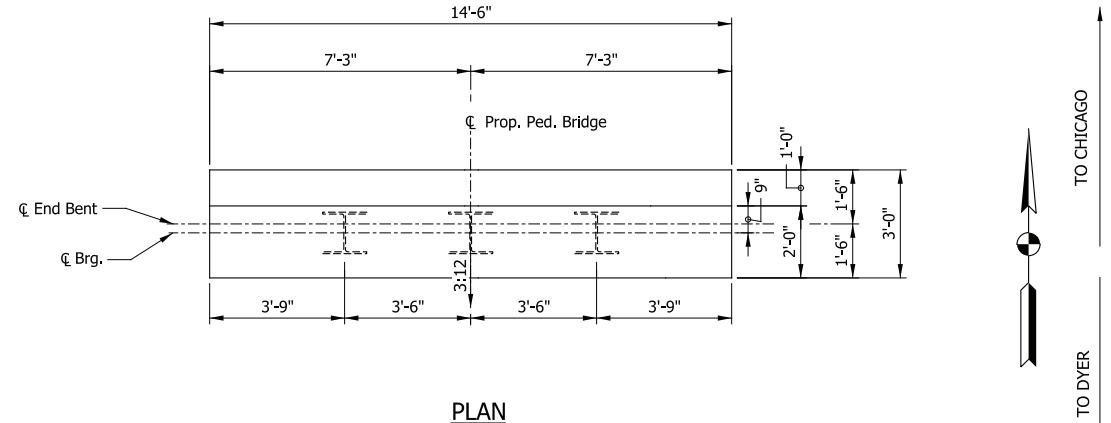


ELEVATION
Scale: 3/8" = 1'-0"

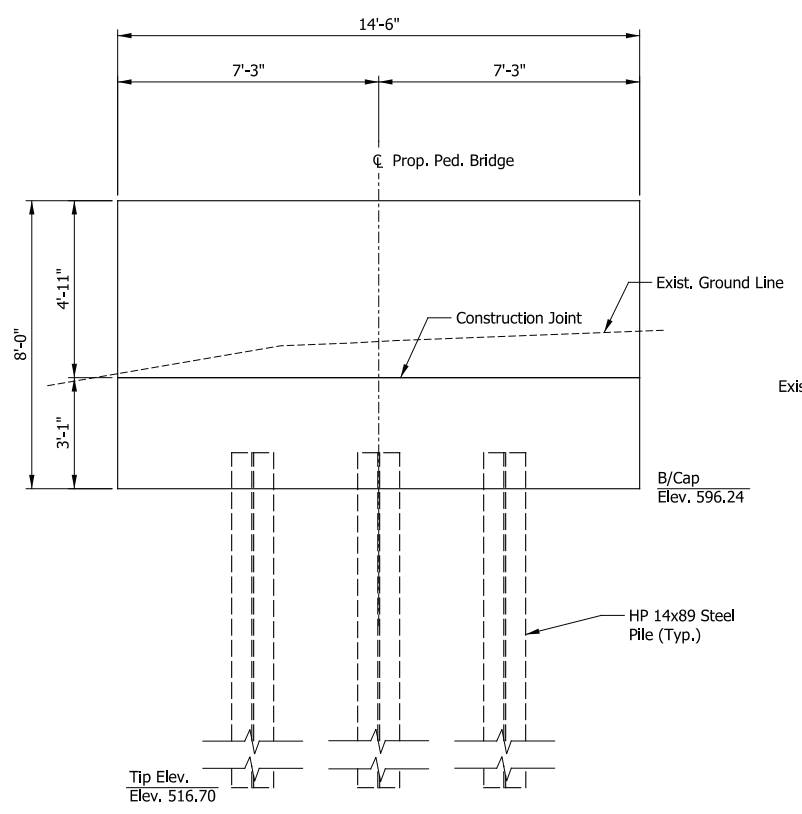


END VIEW
Scale: 3/8" = 1'-0"

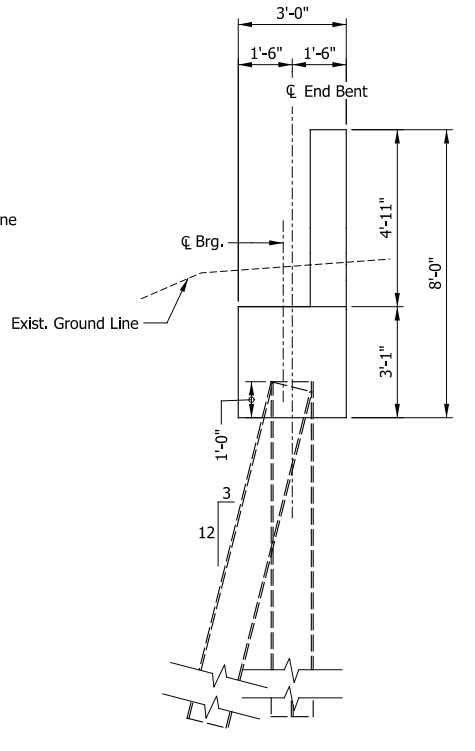
SOUTH END BENT



PLAN
Scale: 3/8" = 1'-0"



ELEVATION
Scale: 3/8" = 1'-0"



END VIEW
Scale: 3/8" = 1'-0"

NORTH END BENT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR107A-03 OF BR107A-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
**BRIDGE 107A - PEDESTRIAN BRIDGE OVER
LITTLE CALUMET RIVER
SUBSTRUCTURE DETAILS (1 OF 2)**

FILENAME: SHT_WL_ST_BR107A_SubstrDet_01.dgn SHEET: **111 OF 218**
SCALE: AS NOTED

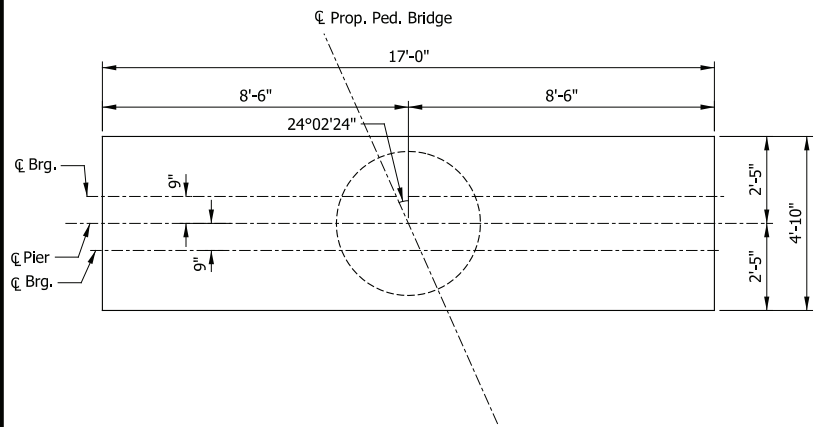
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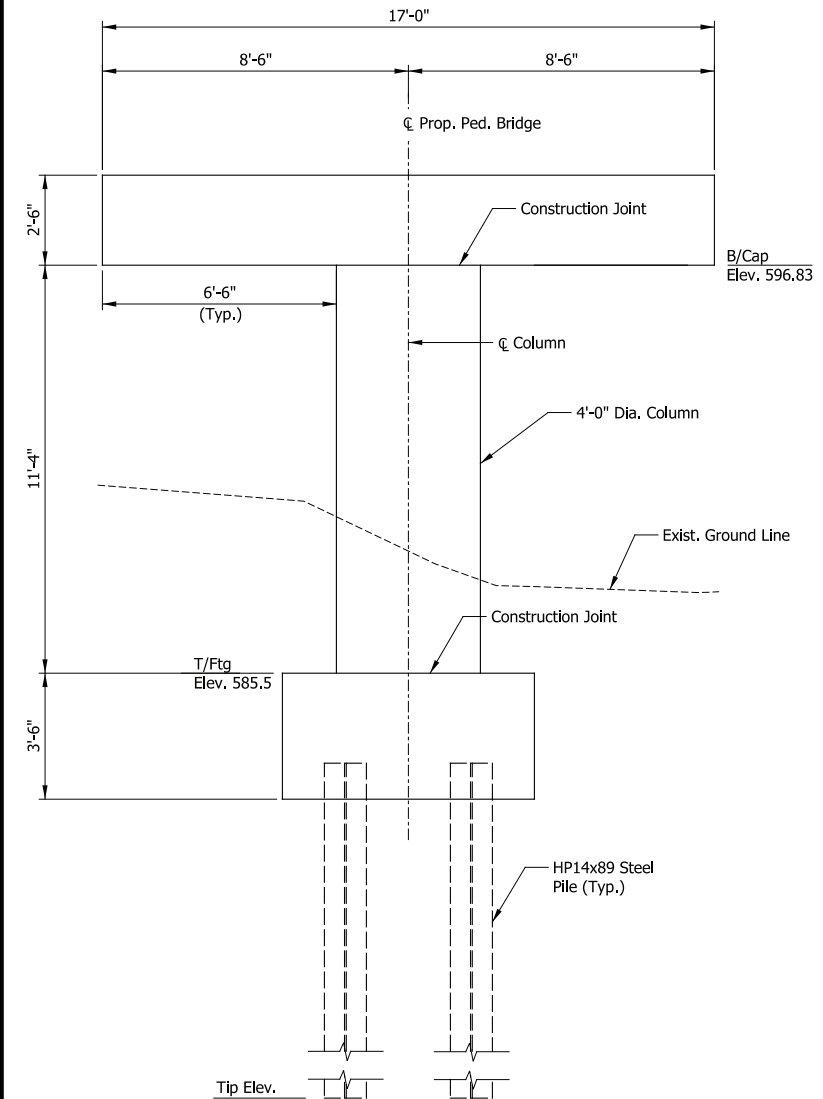
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| DRAWN: | DLZ-CJS |
| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |

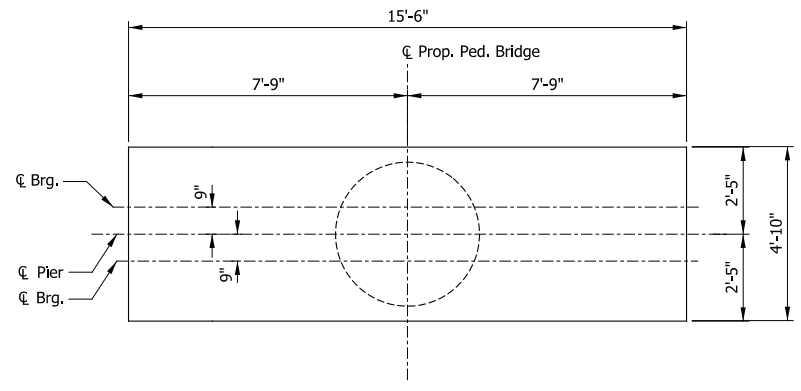
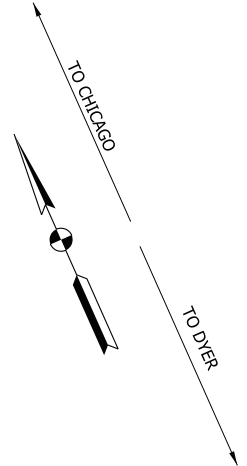


PLAN
Scale: 3/8" = 1'-0"

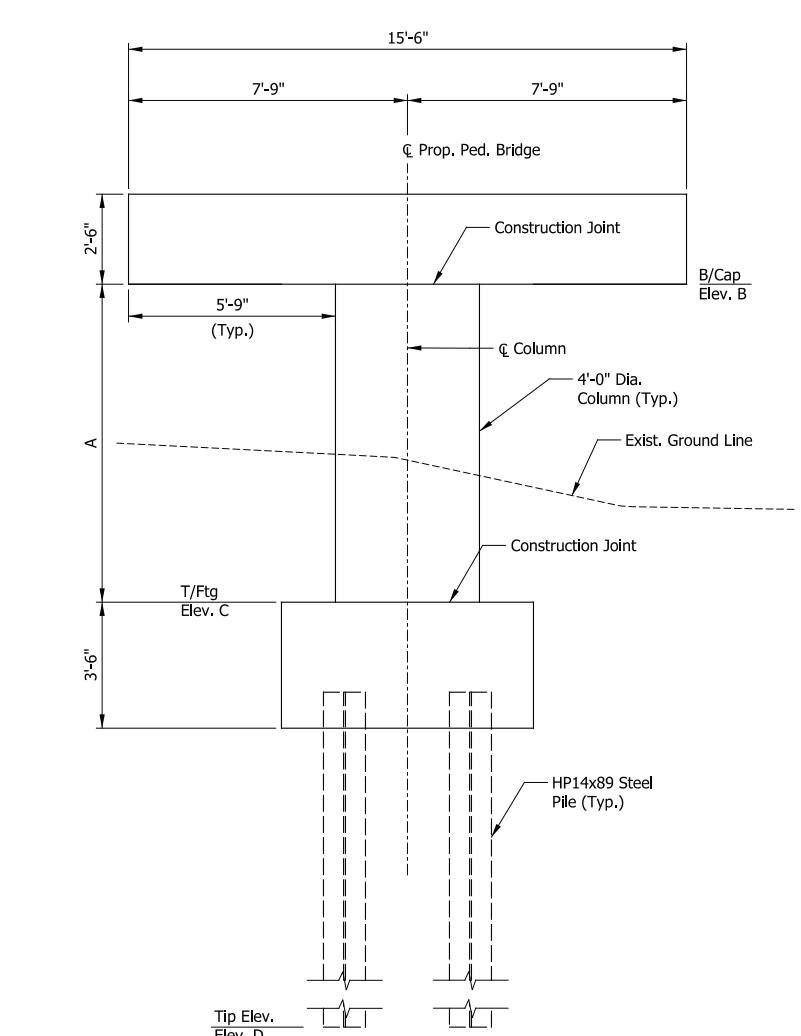


ELEVATION
Scale: 3/8" = 1'-0"

PIER 2

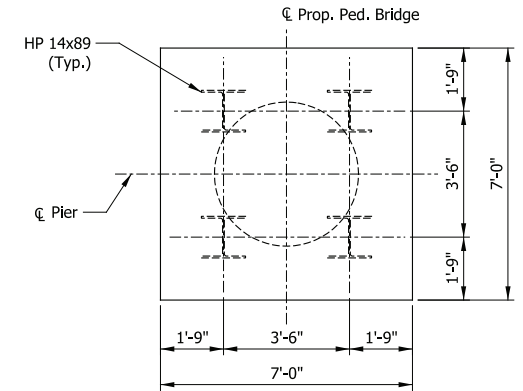


PLAN
Scale: 3/8" = 1'-0"

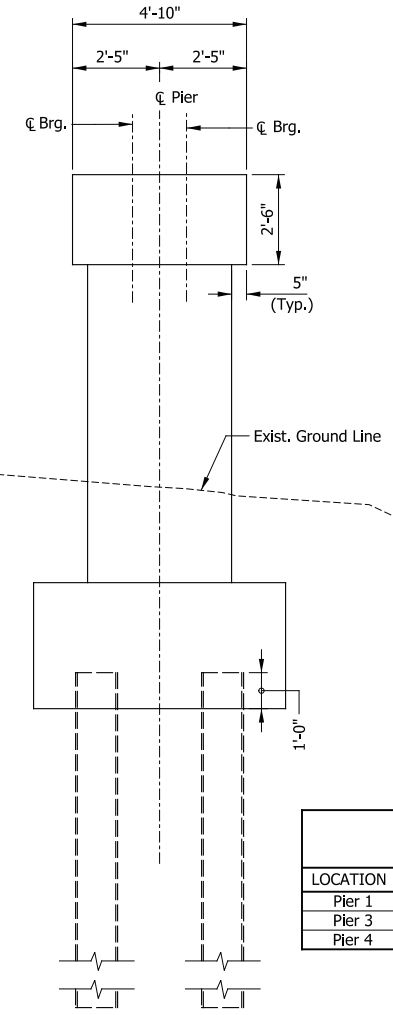


ELEVATION
Scale: 3/8" = 1'-0"

PIER 1, 3 & 4



FOOTING PLAN (TYP.)
Scale: 3/8" = 1'-0"



END VIEW
Scale: 3/8" = 1'-0"

| GEOMETRY TABLE | | | | |
|----------------|--------|---------|---------|---------|
| LOCATION | Dim. A | Elev. B | Elev. C | Elev. D |
| Pier 1 | 8'-10" | 596.83 | 588.00 | 516.70 |
| Pier 3 | 9'-4" | 596.83 | 587.50 | 516.70 |
| Pier 4 | 7'-4" | 596.83 | 589.50 | 516.70 |

PLOT DATE: November 08, 2017 6:18:05 PM JMWIGUS



| ISSUE | DATE | DESCRIPTION |
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| | |
|-----------|----------|
| DESIGNED: | DLZ-TMB |
| DRAWN: | DLZ-CJS |
| CHECKED: | DLZ-WAT |
| DATE: | 07/21/17 |

PRELIMINARY PLANS

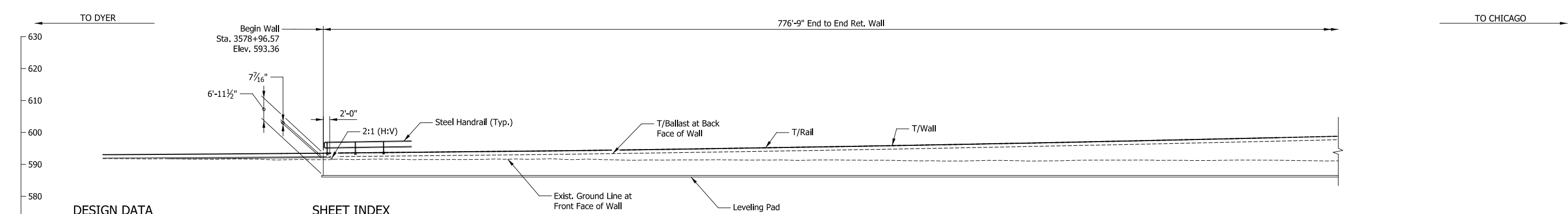
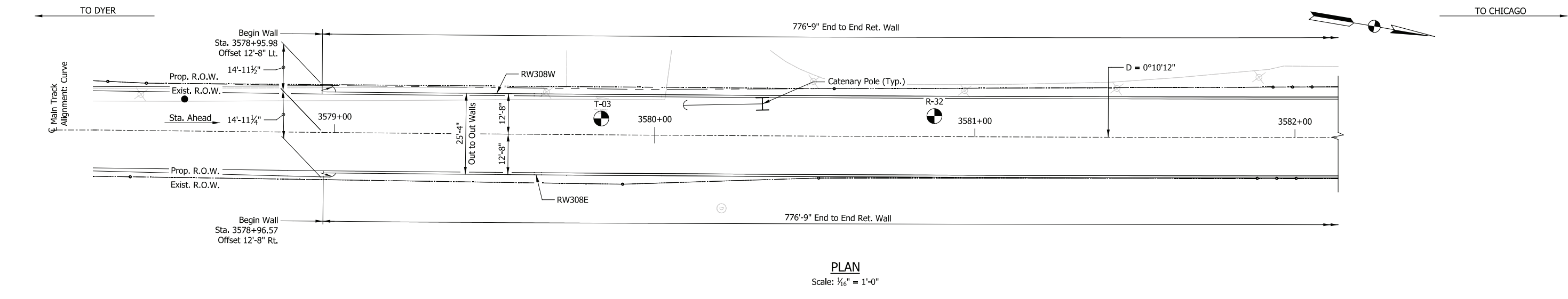
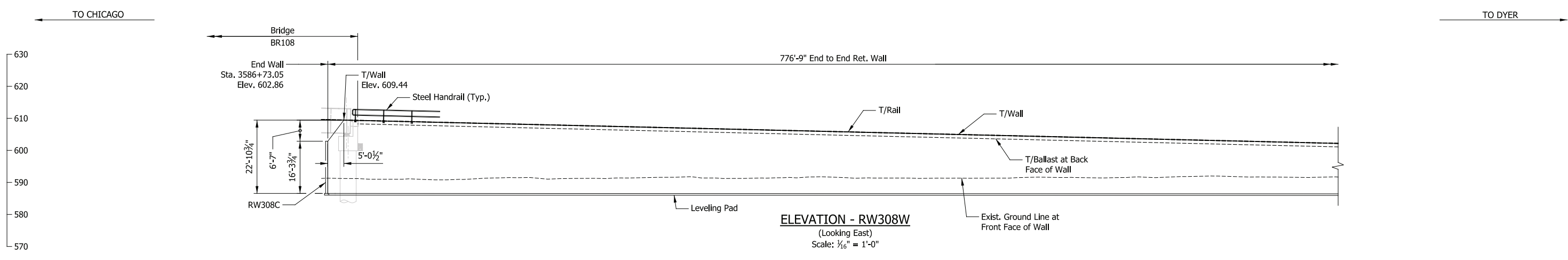
NOT FOR CONSTRUCTION

SERIES BR107A-04 OF BR107A-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 107A - PEDESTRIAN BRIDGE OVER
LITTLE CALUMET RIVER
SUBSTRUCTURE DETAILS (2 OF 2)**

| | | | |
|----------|-----------------------------------|-------|------------|
| FILENAME | SHT_WL_ST_BR107A_SubstrDet_02.dgn | SHEET | 112 OF 218 |
| SCALE | AS NOTED | | |



DESIGN DATA

SPECIFICATIONS:
 American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
 Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
 Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
 Reinforcing: $f_y = 60,000$ psi (ASTM A615)
 Concrete: $f_c = 4,000$ psi (Min.)

SHEET INDEX

| | |
|----------|-----------------------------------|
| RW308-01 | General Plan & Elevation (1 of 3) |
| RW308-02 | General Plan & Elevation (2 of 3) |
| RW308-03 | General Plan & Elevation (3 of 3) |
| RW308-04 | Typical Details |
| RW308-05 | Drainage Plan |
| RW308-06 | Drainage Details |

ELEVATION - RW308E

(Looking West)
 Scale: 1/16" = 1'-0"

NOTES

- For track geometry, see Track Plans.
- For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES RW308-01 OF RW308-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
 SINGLE TRACK

RETAINING WALLS 308W & 308E
GENERAL PLAN & ELEVATION (1 OF 3)

| | | | |
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| FILENAME | SHT_WL_ST_RW308_GenPlan_01.dgn | SHEET | 113 OF 218 |
| SCALE | AS NOTED | | |

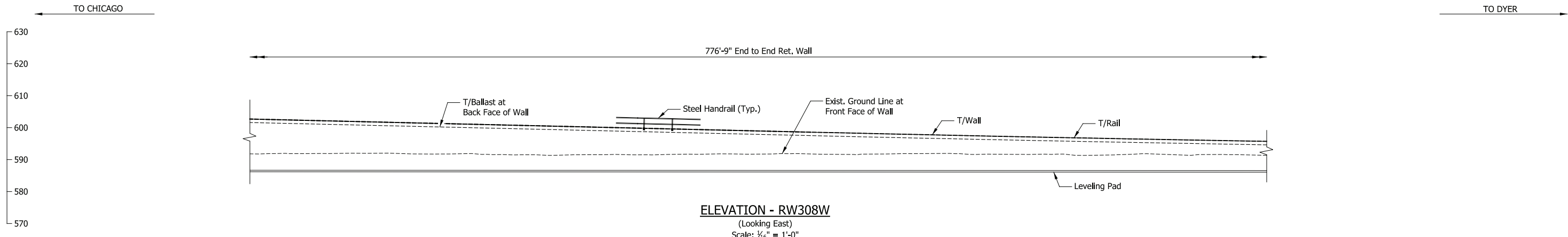
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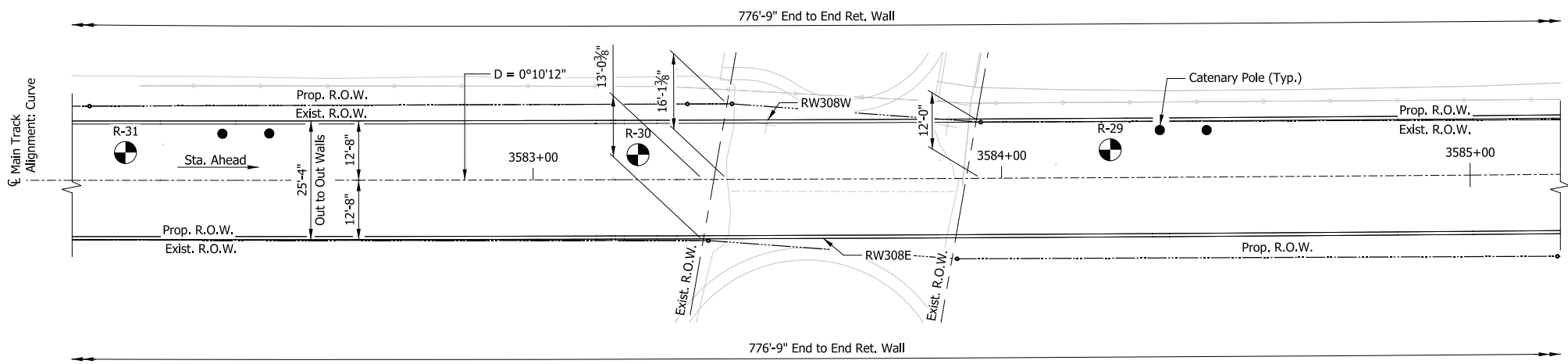
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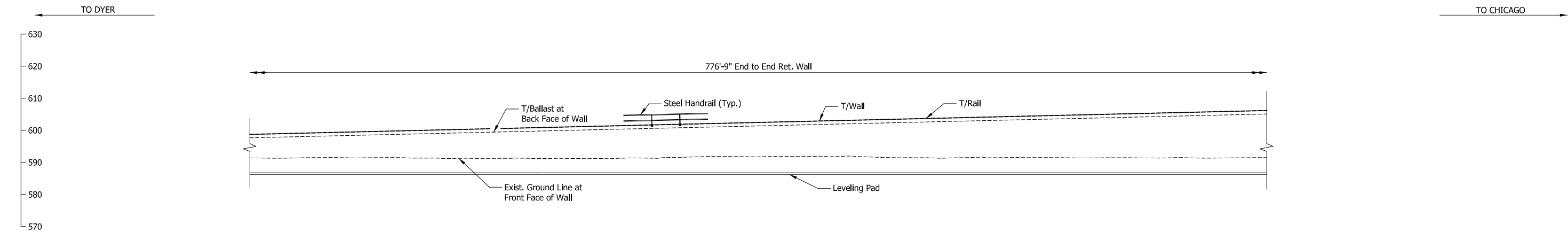
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|-----------|----------|
| DESIGNED: | LOCH-JLH |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EJG |
| DATE: | 07/21/17 |



ELEVATION - RW308W
(Looking East)
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



ELEVATION - RW308E
(Looking West)
Scale: 1/16" = 1'-0"

- NOTES**
1. For track geometry, see Track Plans.
 2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW308-02 OF RW308-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 308W & 308E
GENERAL PLAN & ELEVATION (2 OF 3)

| | | |
|----------|--------------------------------|-------------------|
| FILENAME | SHT_WL_ST_RW308_GenPlan_02.dgn | SHEET |
| SCALE | AS NOTED | 114 OF 218 |

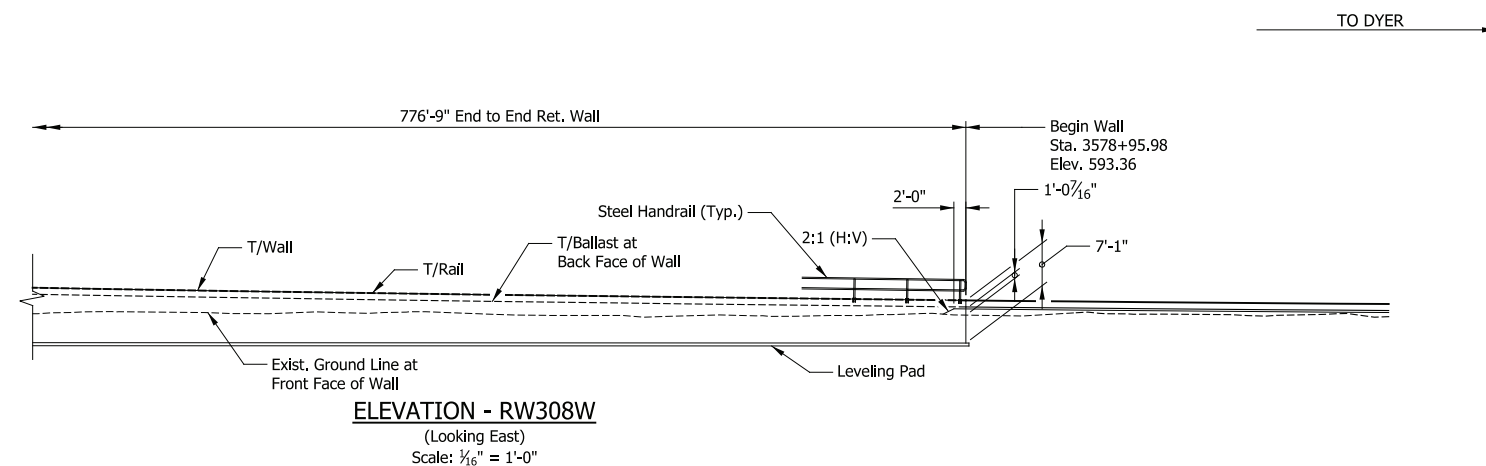
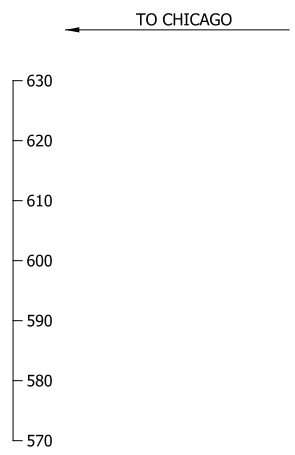
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| ISSUE | DATE | DESCRIPTION |
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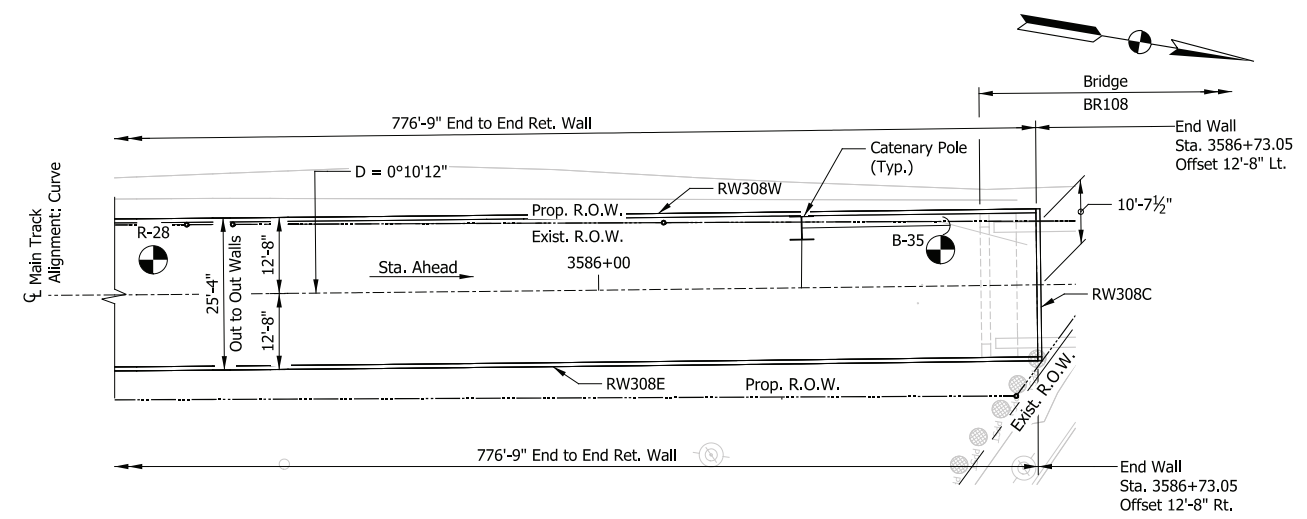
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|-----------|----------|
| DESIGNED: | LOCH-JLH |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EJG |
| DATE: | 07/21/17 |



ELEVATION - RW308W
(Looking East)
Scale: 1/16" = 1'-0"

TO DYER

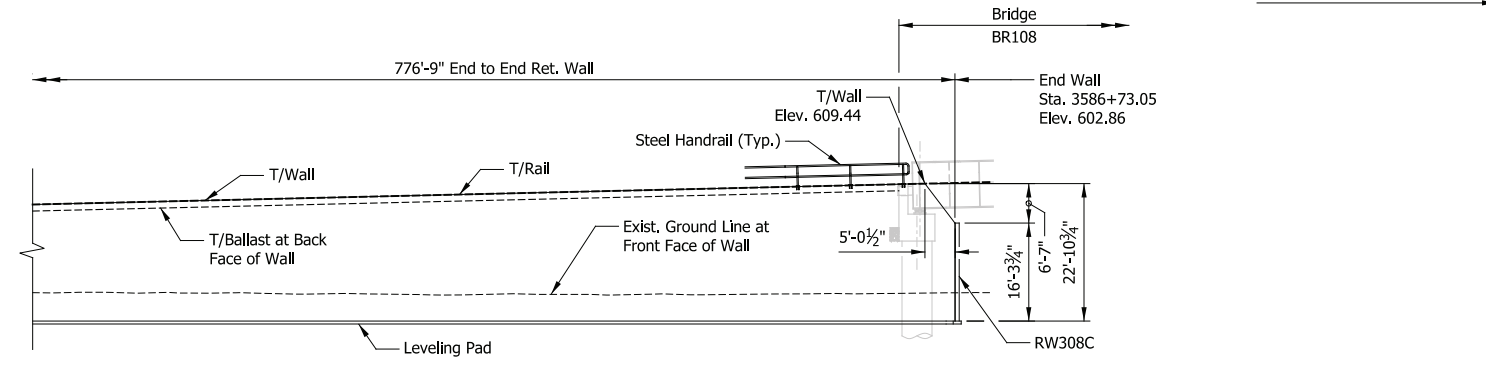
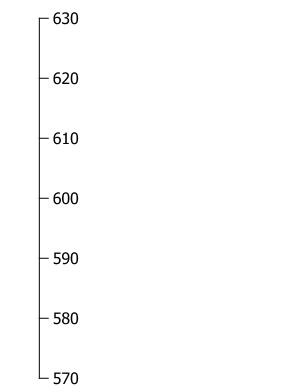
TO CHICAGO



PLAN
Scale: 1/16" = 1'-0"

TO DYER

TO CHICAGO



ELEVATION - RW308E
(Looking West)
Scale: 1/16" = 1'-0"

NOTES

1. For track geometry, see Track Plans.
2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES RW308-03 OF RW308-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 308W & 308E
GENERAL PLAN & ELEVATION (3 OF 3)

| | | | |
|----------|--------------------------------|-------|------------|
| FILENAME | SHT_WL_ST_RW308_GenPlan_03.dgn | SHEET | 115 OF 218 |
| SCALE | AS NOTED | | |

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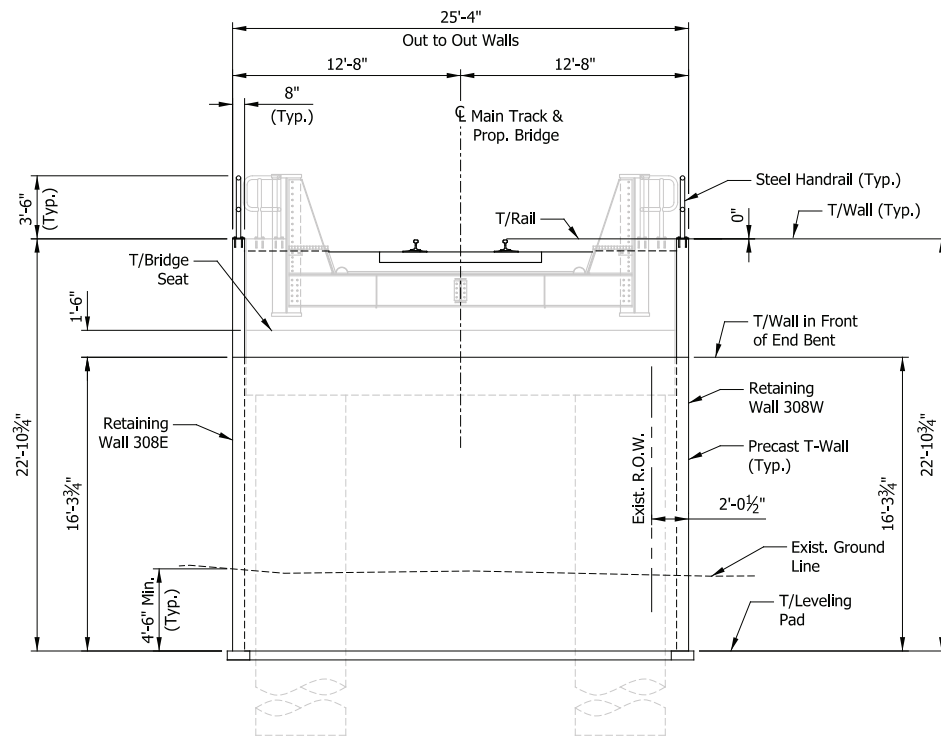
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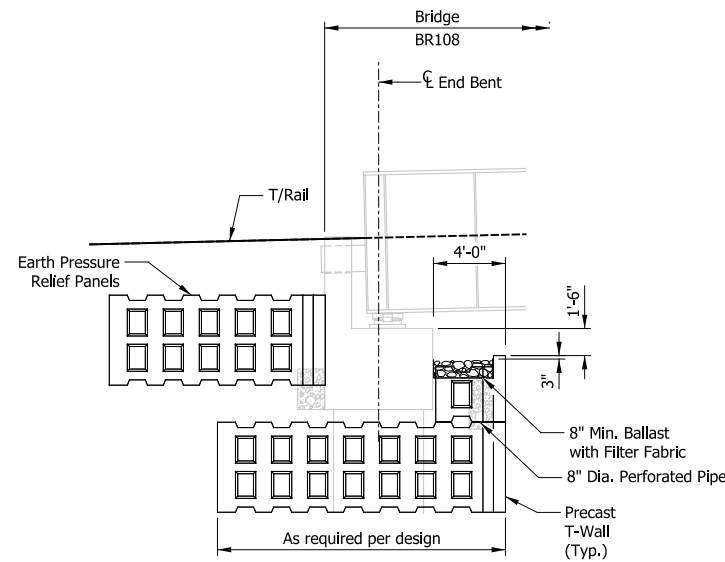
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TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE
CORRIDOR
DYER TO HAMMOND, INDIANA

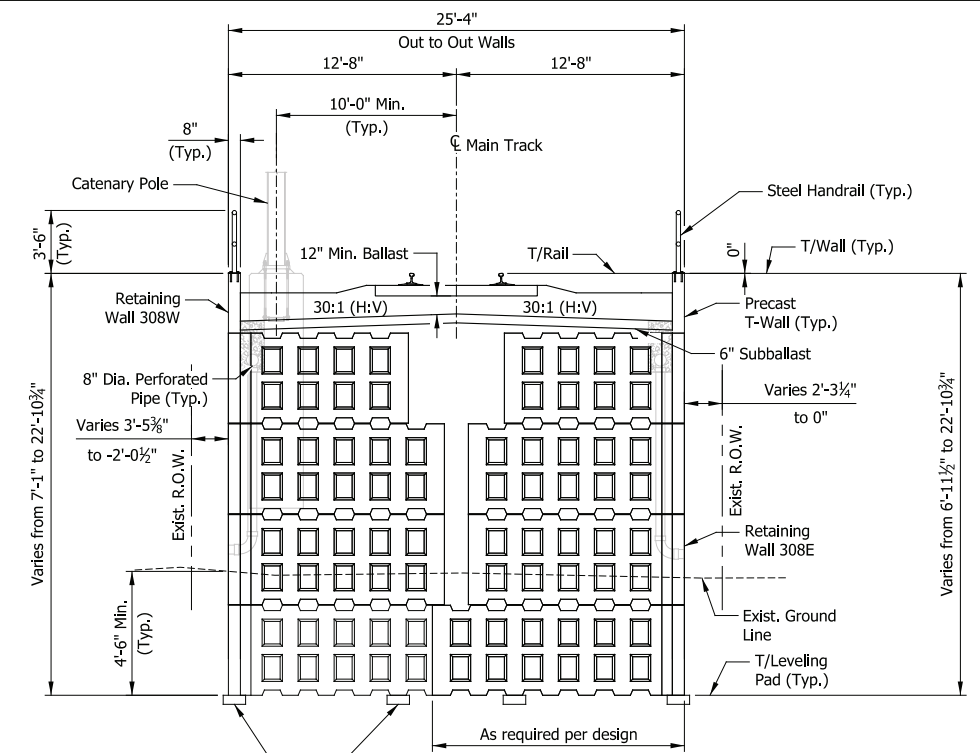
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| DATE: | 07/21/17 |



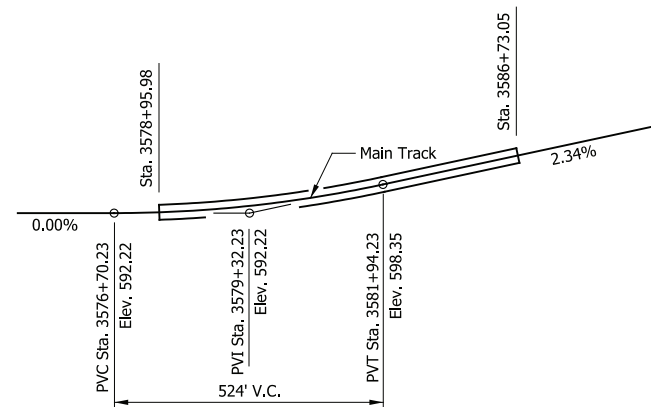
ELEVATION - RW308C
(Looking Downstation)
Scale: 3/16" = 1'-0"



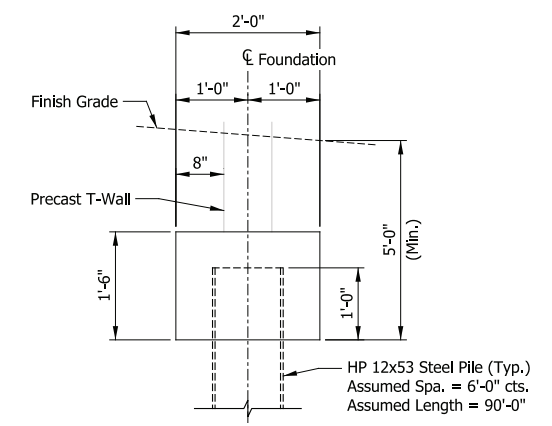
SECTION THRU END BENT (BR108)
Scale: 3/16" = 1'-0"



TYPICAL SECTION
(Looking Upstation)
Scale: 3/16" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale



ALTERNATIVE WALL FOUNDATION
Scale: 3/4" = 1'-0"

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DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | LOCH-JLH |
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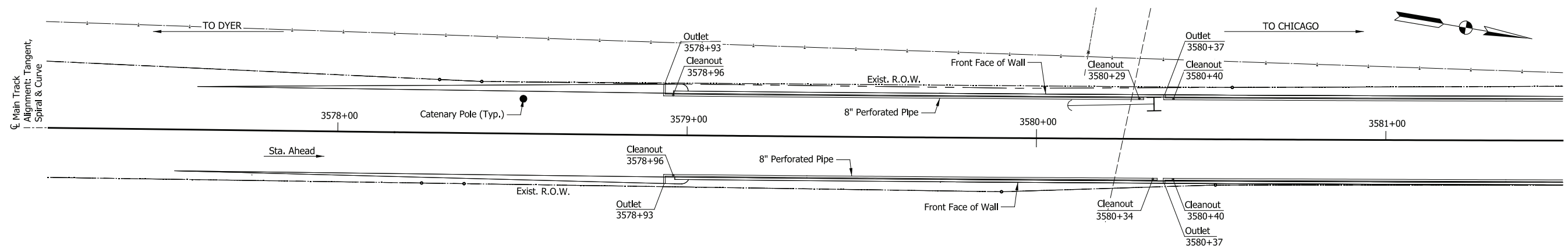
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES
RW308-04 OF RW308-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

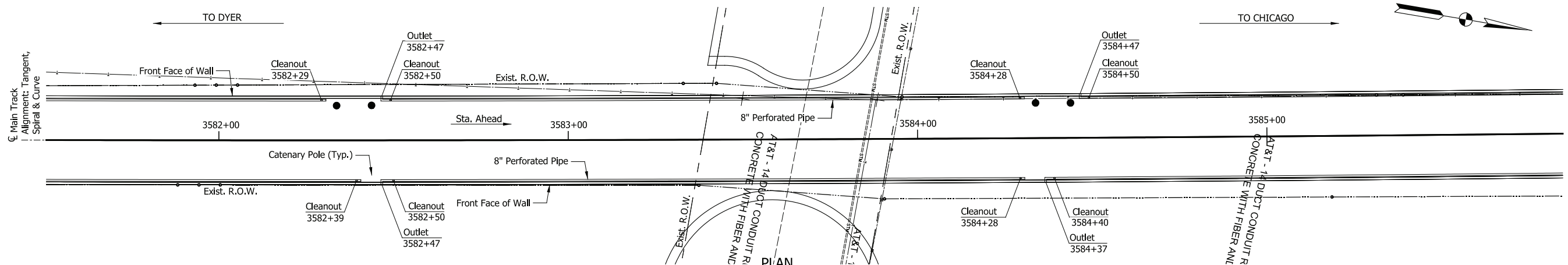
RETAINING WALLS 308W & 308E
TYPICAL DETAILS

| | | |
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| FILENAME | SHT_WL_ST_RW308_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 116 OF 218 |



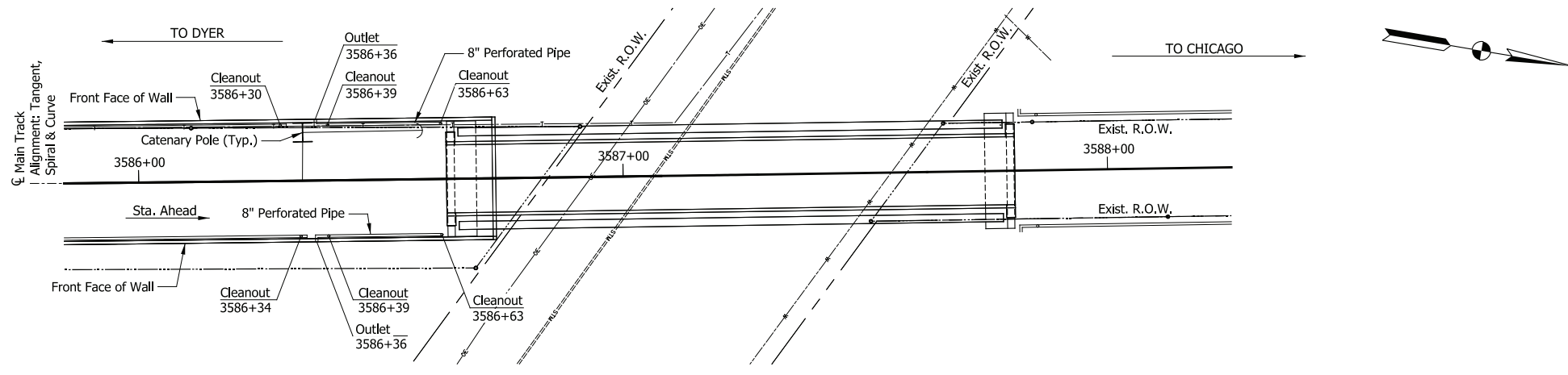
PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW308-05 OF RW308-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
RETAINING WALLS 308W & 308E
DRAINAGE PLAN
FILENAME: SHT_WL_ST_RW308_DrainPlan_01.dgn SHEET: **117 OF 218**
SCALE: AS NOTED

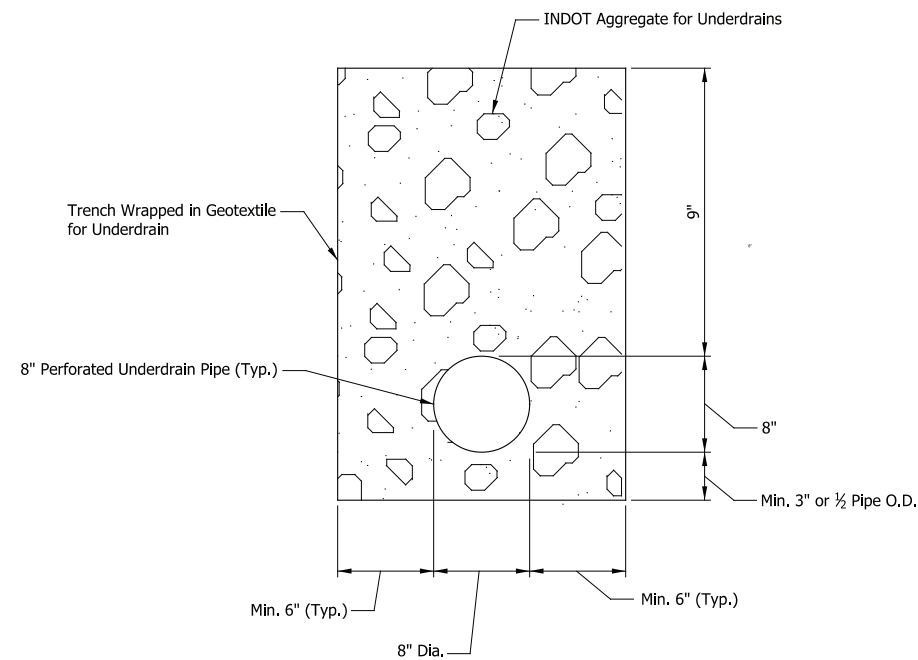
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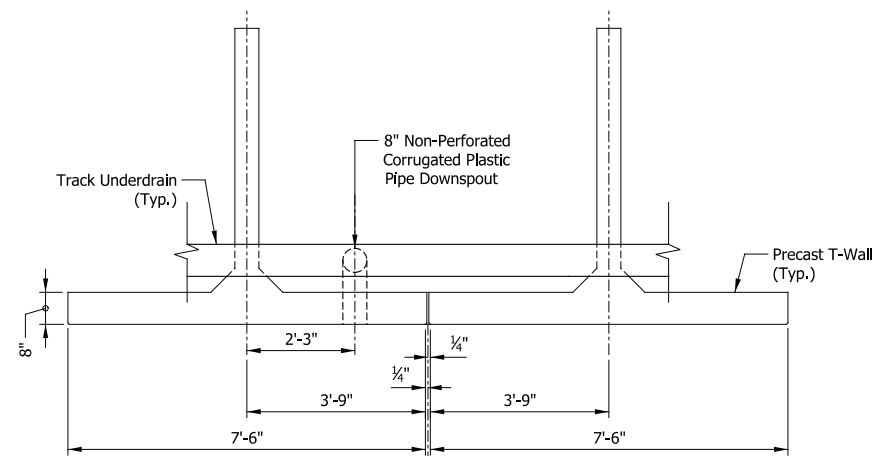
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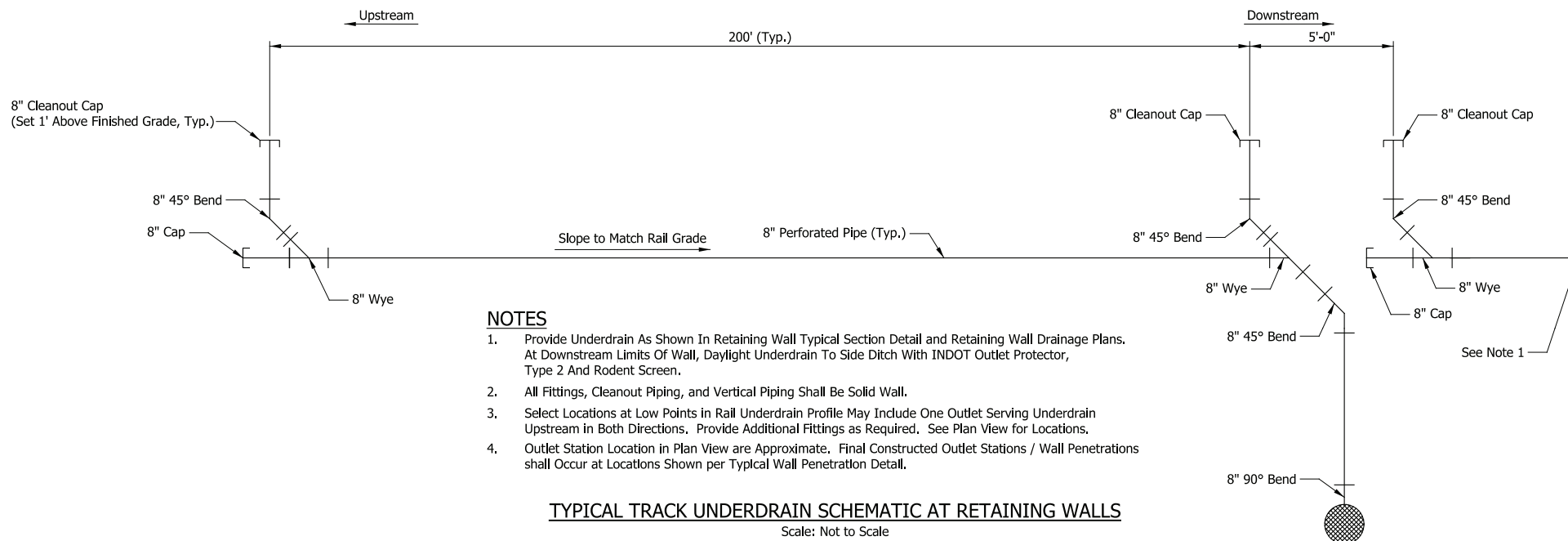
| | |
|-----------|----------|
| DESIGNED: | ASP-CAK |
| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |



TYPICAL UNDERDRAIN SECTION
Scale: 1/2" = 1'-0"



TYPICAL WALL PENETRATION DETAIL
Scale: 1/2" = 1'-0"



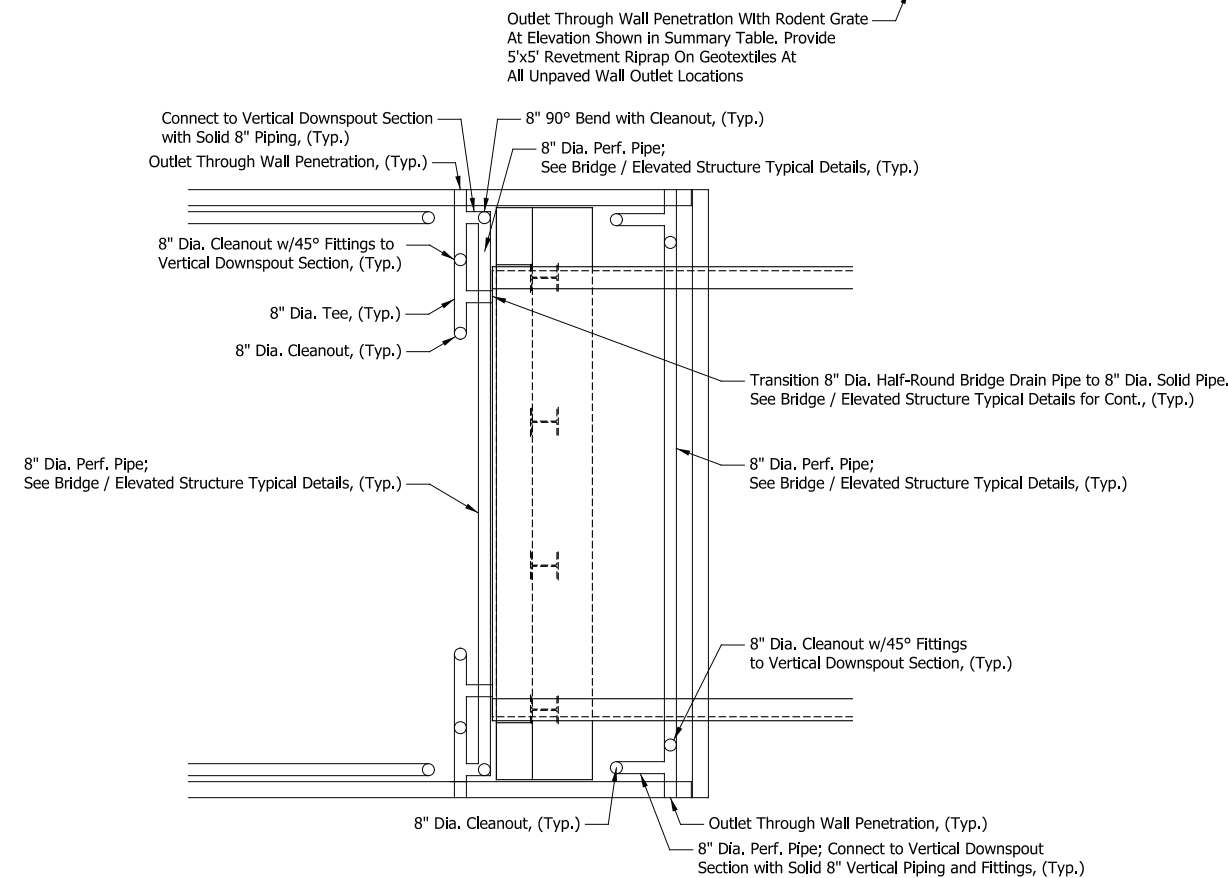
TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS
Scale: Not to Scale

NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

| Outlet Station | Outlet Invert | |
|----------------|---------------|-------|
| | Right | Left |
| 3578+93 | 590.1 | 591.4 |
| 3580+37 | 590.5 | 593.5 |
| 3582+47 | 591.1 | 593.3 |
| 3584+37 | 593.3 | |
| 3584+47 | | 593.6 |
| 3586+36 | 593.0 | 592.8 |

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE
Scale: Not to Scale

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW308-06 OF RW308-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 308W & 308E
DRAINAGE DETAILS

FILENAME: SHT_WL_ST_RW308_DrainDet_01.dgn SHEET: **118 OF 218**
SCALE: AS NOTED

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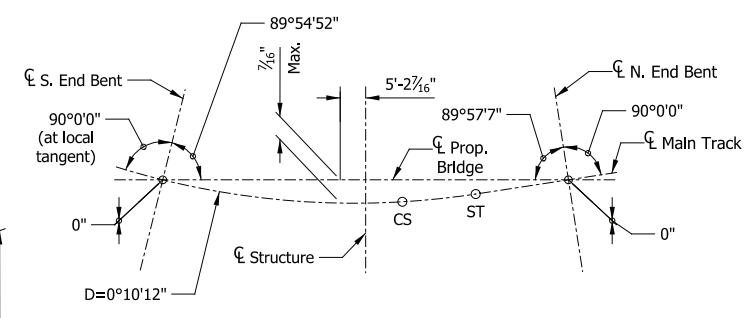
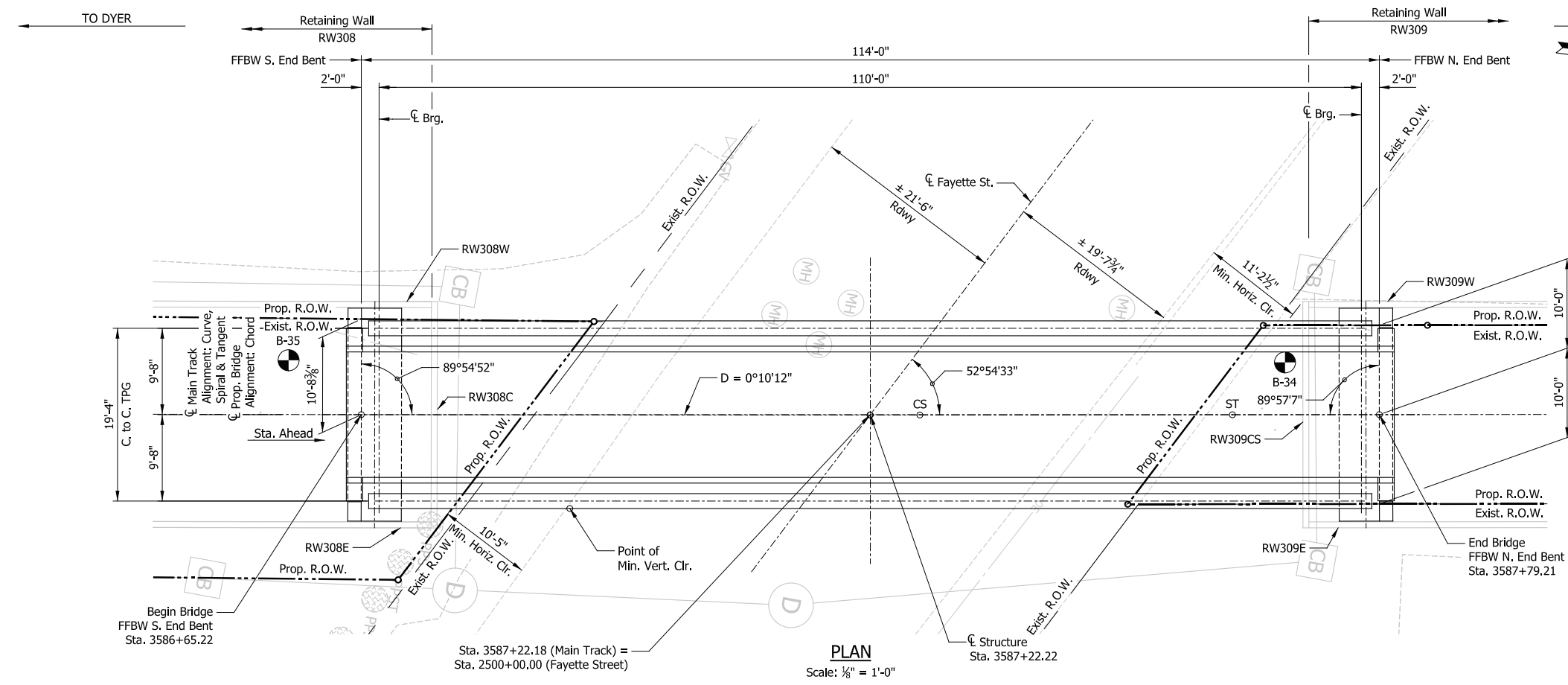


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DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | ASP-CAK |
| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |



LAYOUT SKETCH
Not to Scale

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (At High End of Span)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 4,000$ psi (Min.)

SHEET INDEX

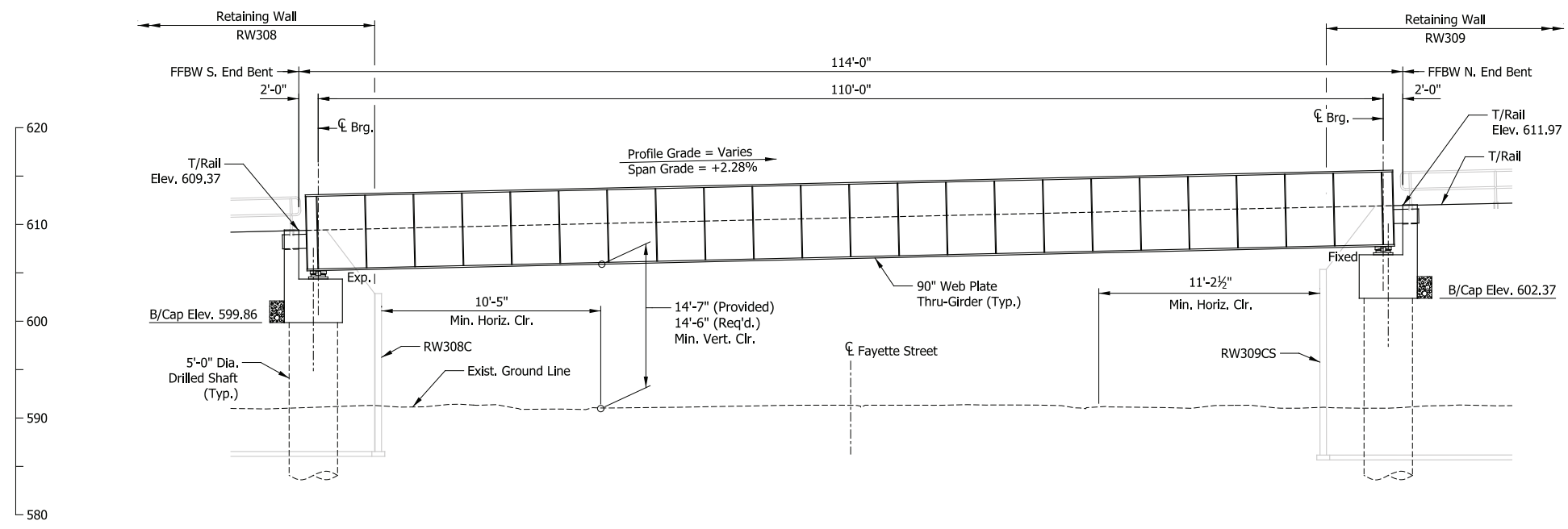
BR108-01 General Plan & Elevation
BR108-02 Typical Details
BR108-03 Substructure Details
BR108-04 Framing Plan

CONSTRUCTION DEPTH

| | |
|--------------------|---------|
| Rail (115 Lbs) | 6 3/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 6" |
| Waterproofing | 1" |
| Deck Plate | 3/4" |
| Floorbeam (W21x93) | 21 3/8" |
| Bracing | 4 1/8" |
| Bottom Flange | 2 1/4" |
| | 50 1/8" |

NOTES

1. For track geometry, see Track Plans.



ELEVATION
Scale: 1/8" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR108-01 OF BR108-04

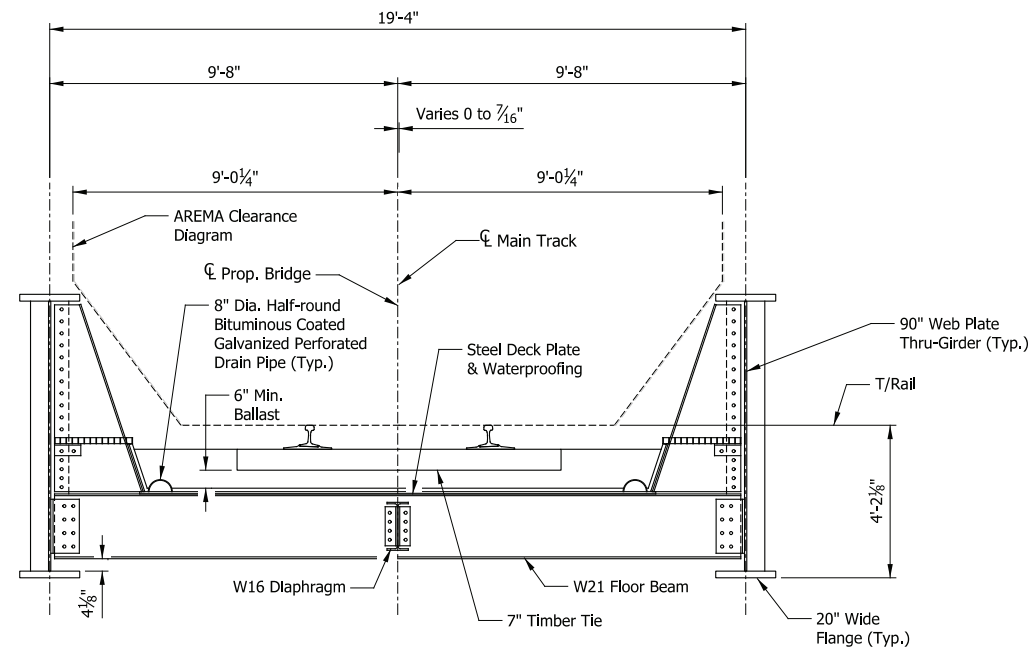
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| DESIGNED: | LOCH-EJG |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-JLH |
| DATE: | 07/21/17 |

| | | |
|--|--------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 108 - NICTD OVER FAYETTE STREET GENERAL PLAN & ELEVATION | | |
| FILENAME | SHT_WL_ST_BR108_GenPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 119 OF 218 |

PLOT DATE: November 08, 2017 6:18:50 PM JMJIGUS

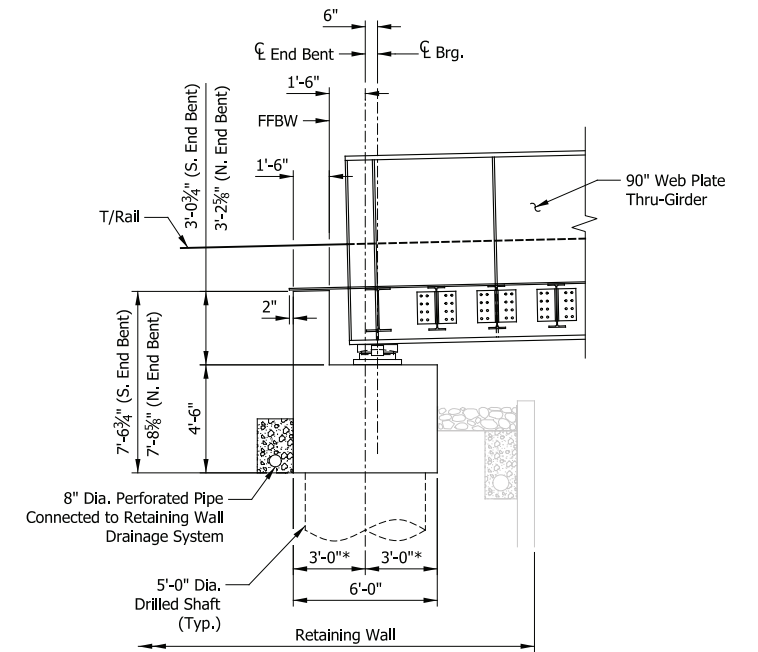


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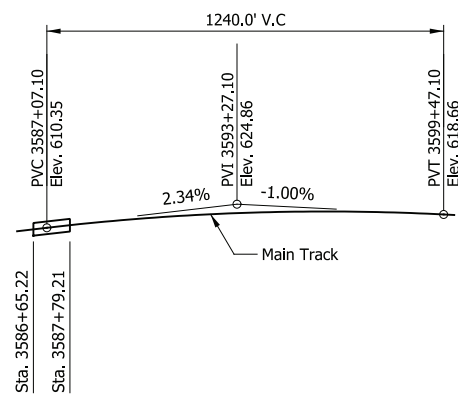
TYPICAL SECTION

Scale: 3/8" = 1'-0"



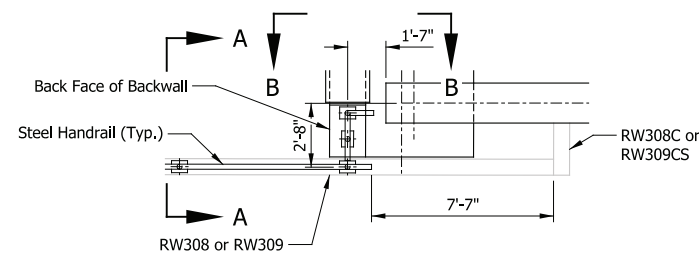
SECTION THRU END BENT

* at Right Angle
Scale: 1/4" = 1'-0"



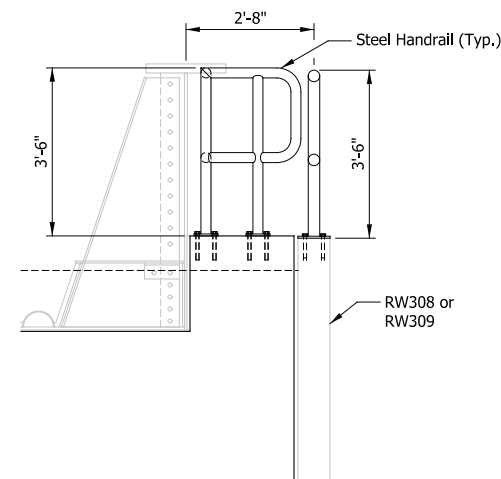
TOP OF RAIL PROFILE

Not to Scale



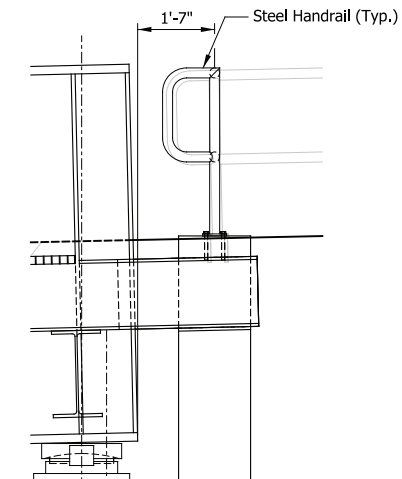
HANDRAIL LAYOUT AT BRIDGE CORNERS

Scale: 1/4" = 1'-0"



VIEW A-A

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



VIEW B-B

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

NOTES

1. Outfall from Drainage System to be routed and detailed similar to those provided for Retaining Wall Underdrains.

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DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | LOCH-EJG |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-JLH |
| DATE: | 07/21/17 |

PRELIMINARY PLANS

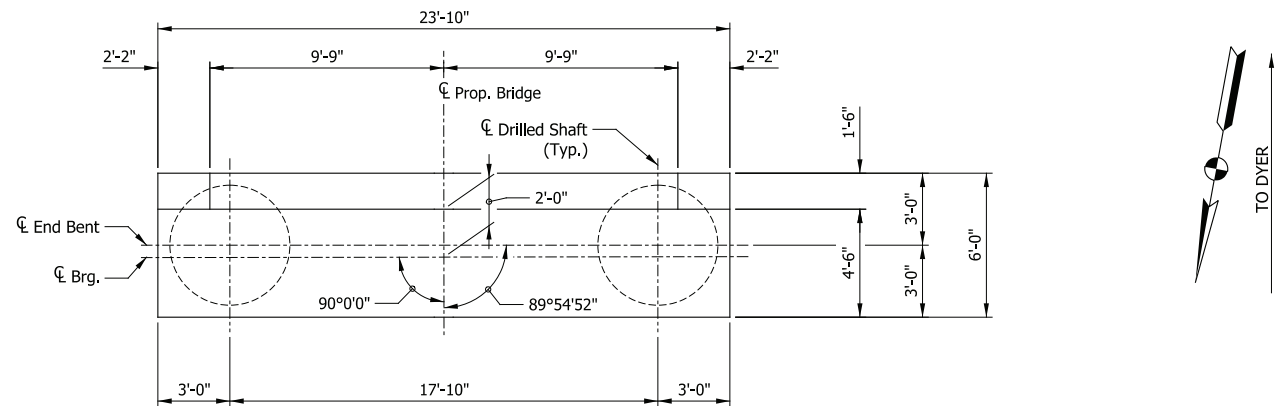
NOT FOR CONSTRUCTION

SERIES BR108-02 OF BR108-04

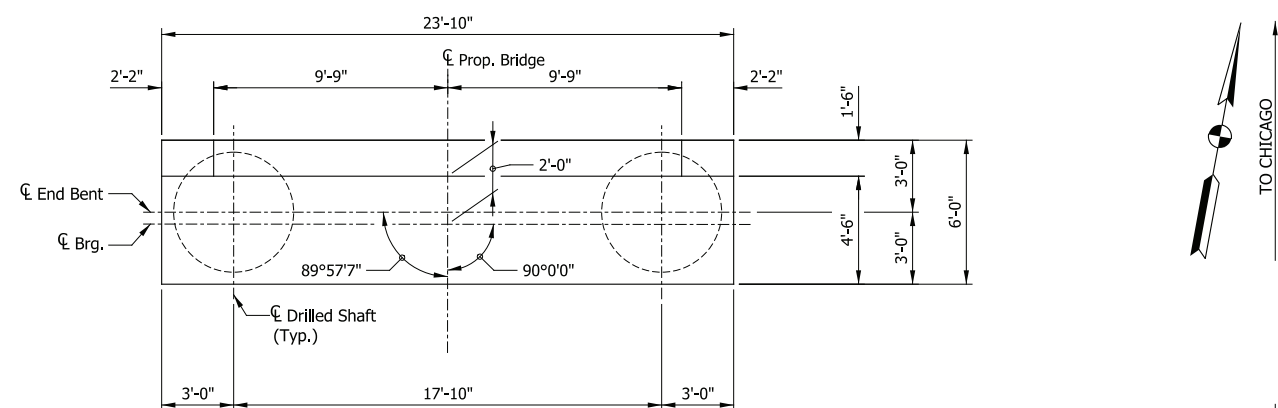
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 108 - NICTD OVER
FAYETTE STREET
TYPICAL DETAILS**

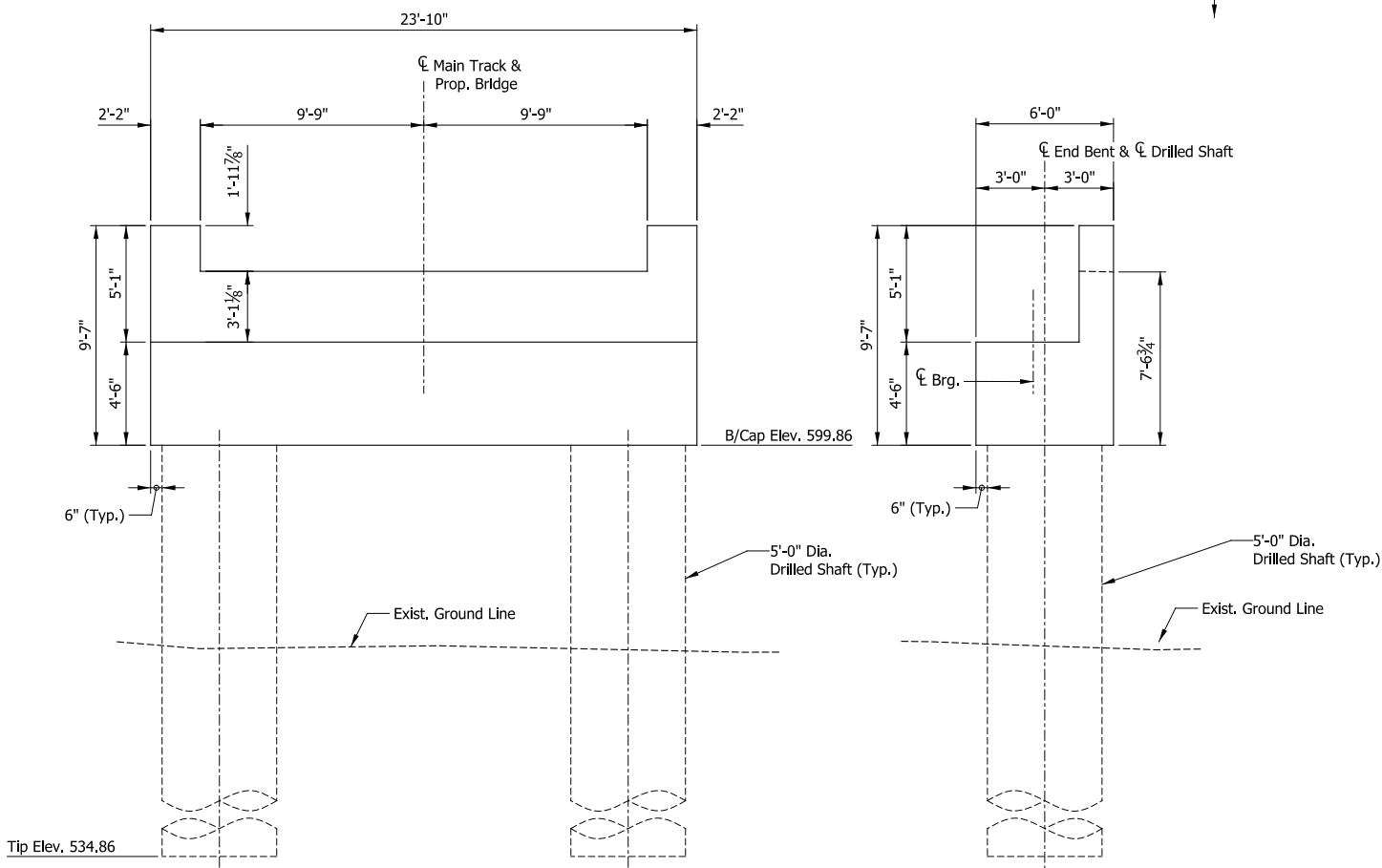
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| FILENAME | SHT_WL_ST_BR108_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 120 OF 218 |



PLAN
Scale: 1/4" = 1'-0"



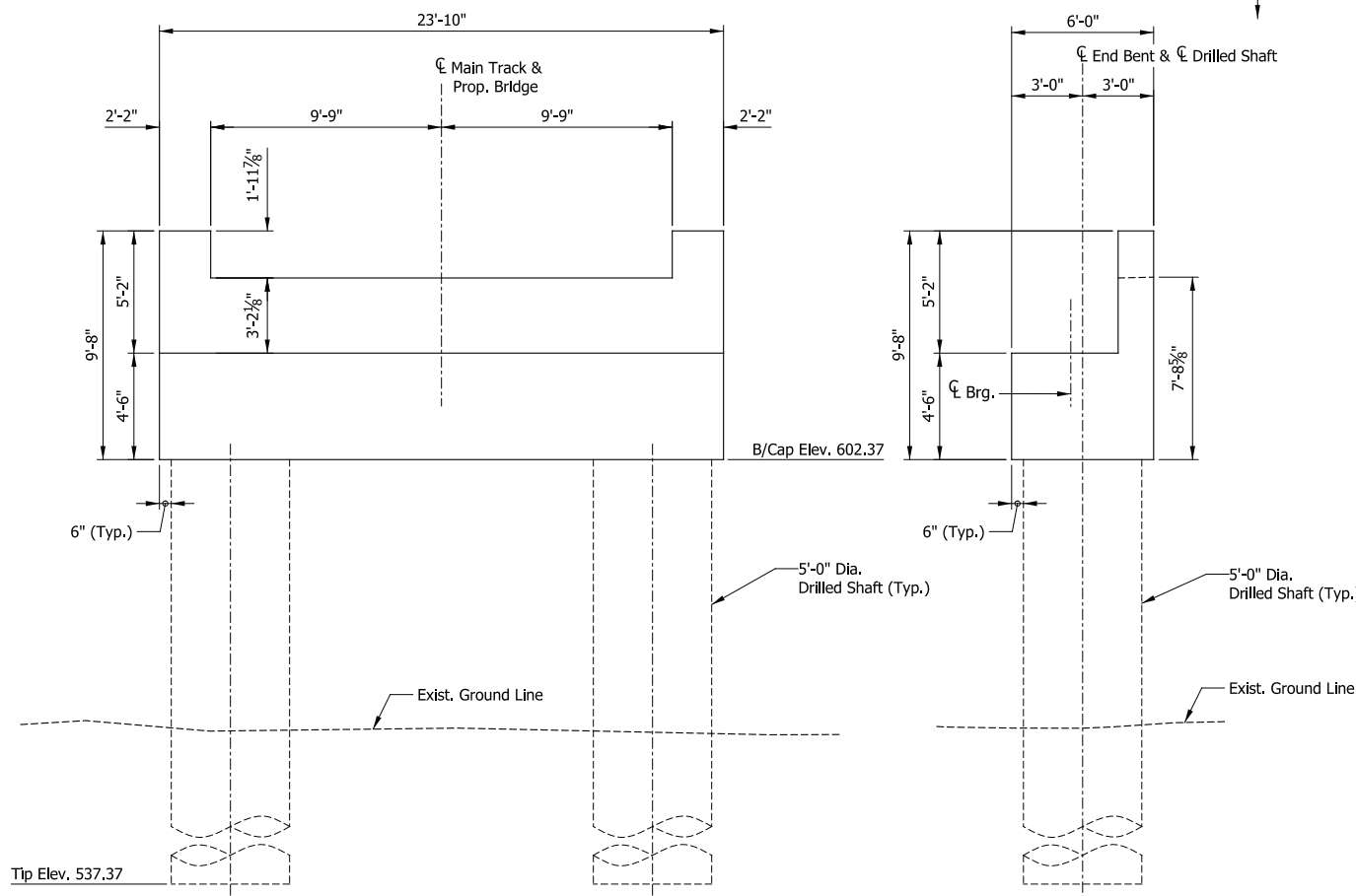
PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

SOUTH END BENT

END VIEW
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

NORTH END BENT

END VIEW
Scale: 1/4" = 1'-0"

PLOT DATE: November 08, 2017 6:19:02 PM JMWIGUS



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NORTHERN INDIANA COMMUTER
TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304



DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | LOCH-EJG |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-JLH |
| DATE: | 07/21/17 |

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR108-03 OF BR108-04

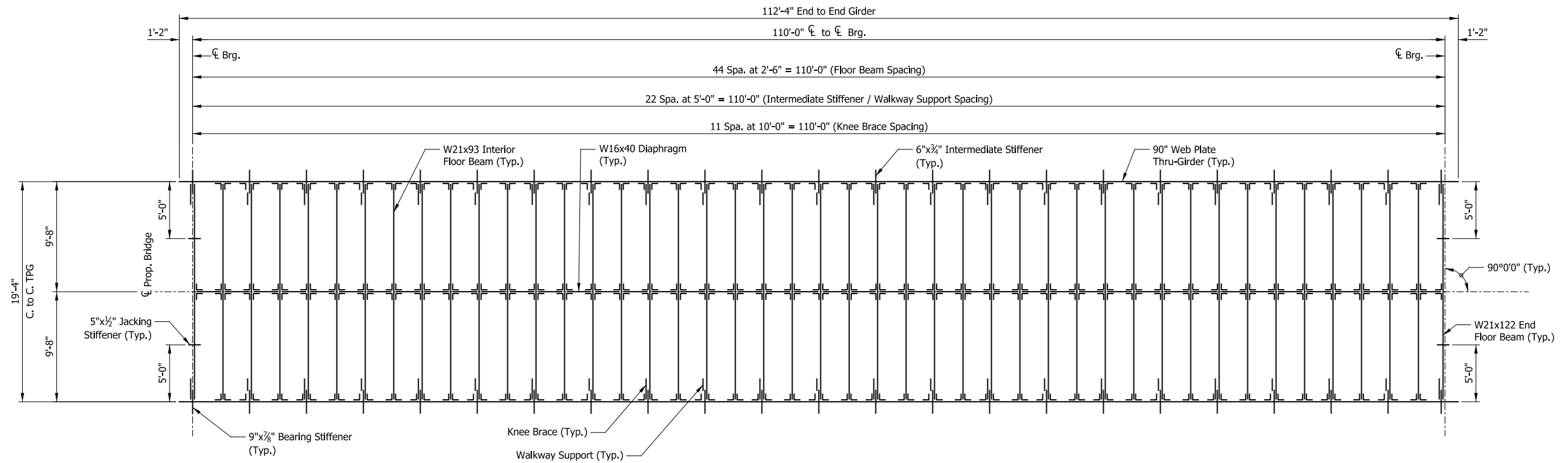
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 108 - NICTD OVER
FAYETTE STREET
SUBSTRUCTURE DETAILS**

| | | | |
|----------|----------------------------------|-------|------------|
| FILENAME | SHT_WL_ST_BR108_SubstrDet_01.dgn | SHEET | 121 OF 218 |
| SCALE | AS NOTED | | |

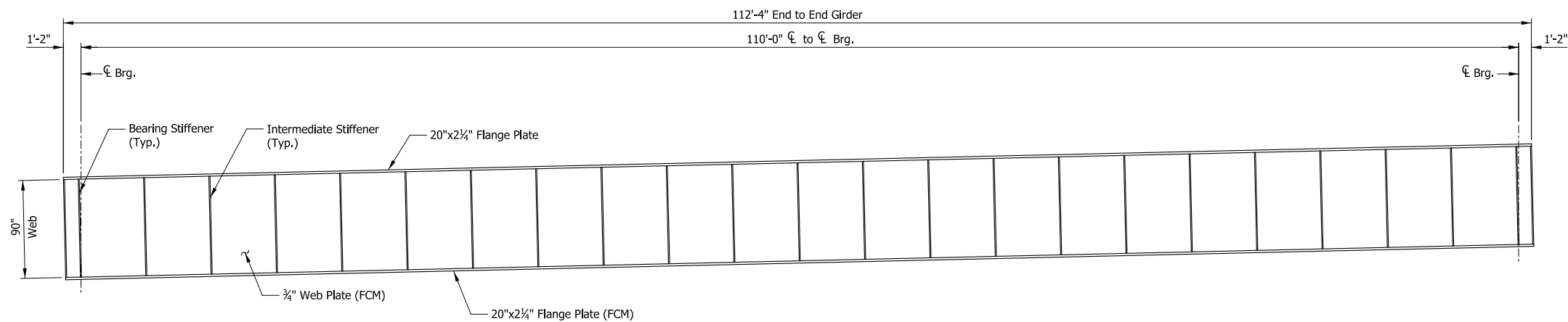
TO DYER

TO CHICAGO



FRAMING PLAN

Scale: 3/16" = 1'-0"



GIRDER EXTERIOR ELEVATION

Scale: 3/16" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR108-04 OF BR108-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 108 - NICTD OVER
FAYETTE STREET
FRAMING PLAN**

FILENAME SHT_WL_ST_BR108_FramPlan_01.dgn
SCALE AS NOTED

SHEET **122 OF 218**

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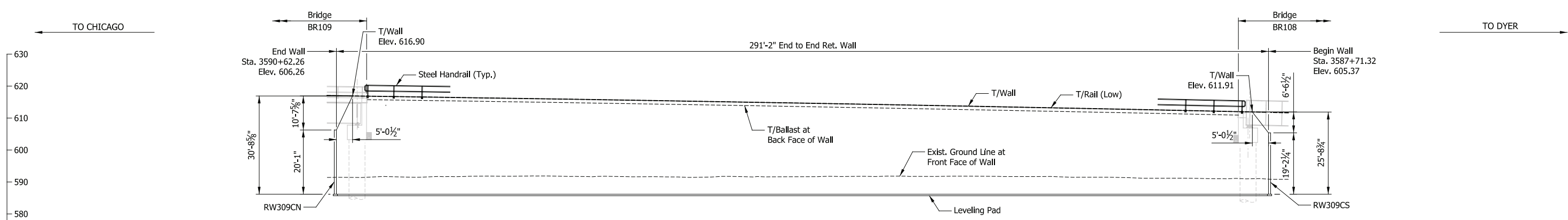


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Chesterton, Indiana 46304

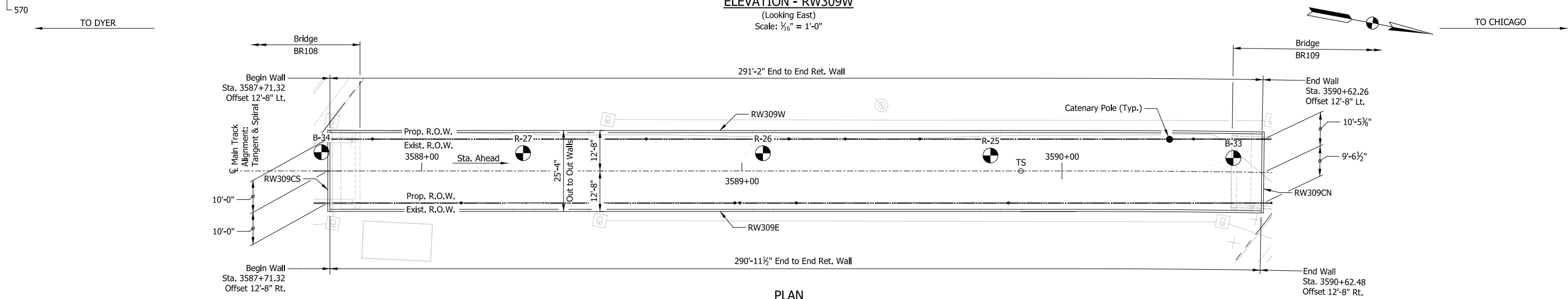


DYER TO HAMMOND, INDIANA

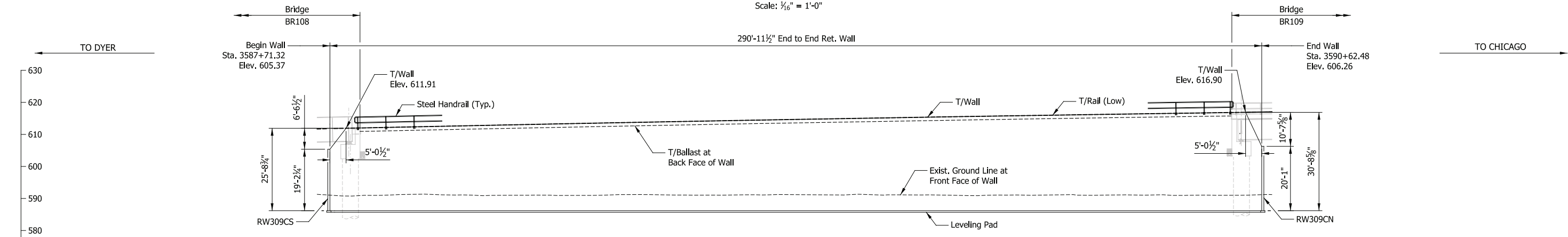
| | |
|-----------|----------|
| DESIGNED: | LOCH-EJG |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-JLH |
| DATE: | 07/21/17 |



ELEVATION - RW309W
(Looking East)
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



ELEVATION - RW309E
(Looking West)
Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

SHEET INDEX

RW309-01 General Plan & Elevation
RW309-02 Typical Details
RW309-03 Drainage Plan
RW309-04 Drainage Details

NOTES

- For track geometry, see Track Plans.
- For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW309-01 OF RW309-04

| | |
|-----------|----------|
| DESIGNED: | LOCH-JLH |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EIG |
| DATE: | 07/21/17 |

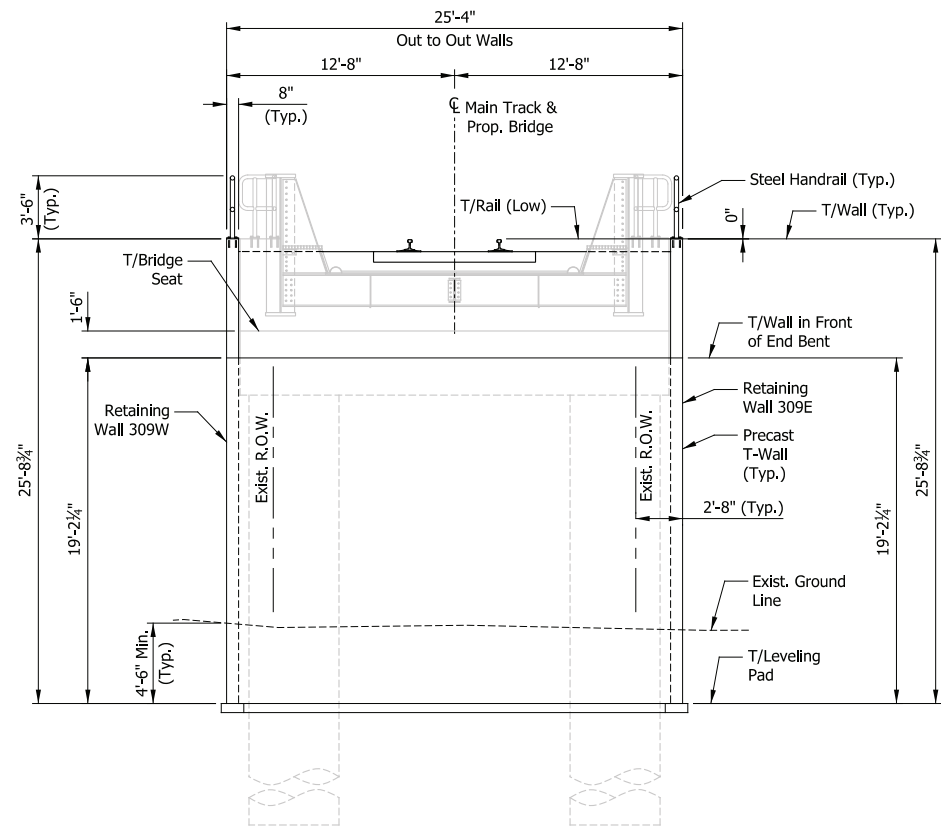
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | |
| RETAINING WALLS 309W & 309E | |
| GENERAL PLAN & ELEVATION | |
| FILENAME | SHT_WL_ST_RW309_GenPlan_01.dgn |
| SCALE | AS NOTED |
| SHEET | 123 OF 218 |

PLOT DATE: November 08, 2017 6:19:19 PM JMJIGUS

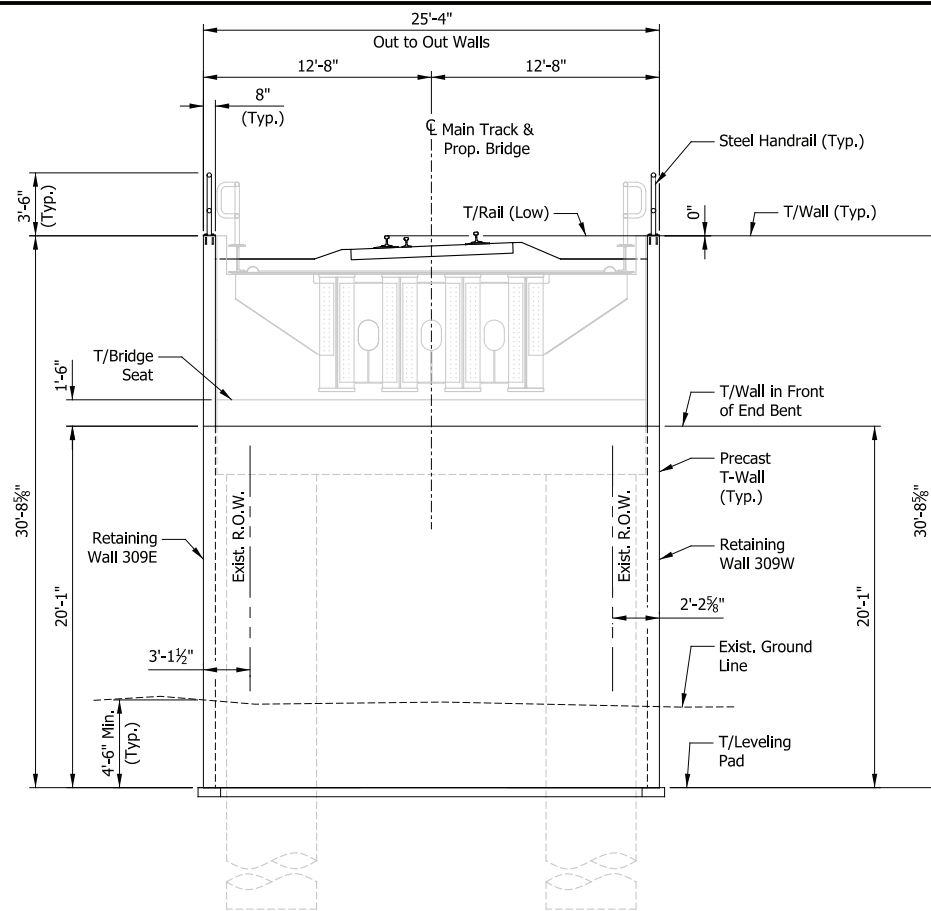


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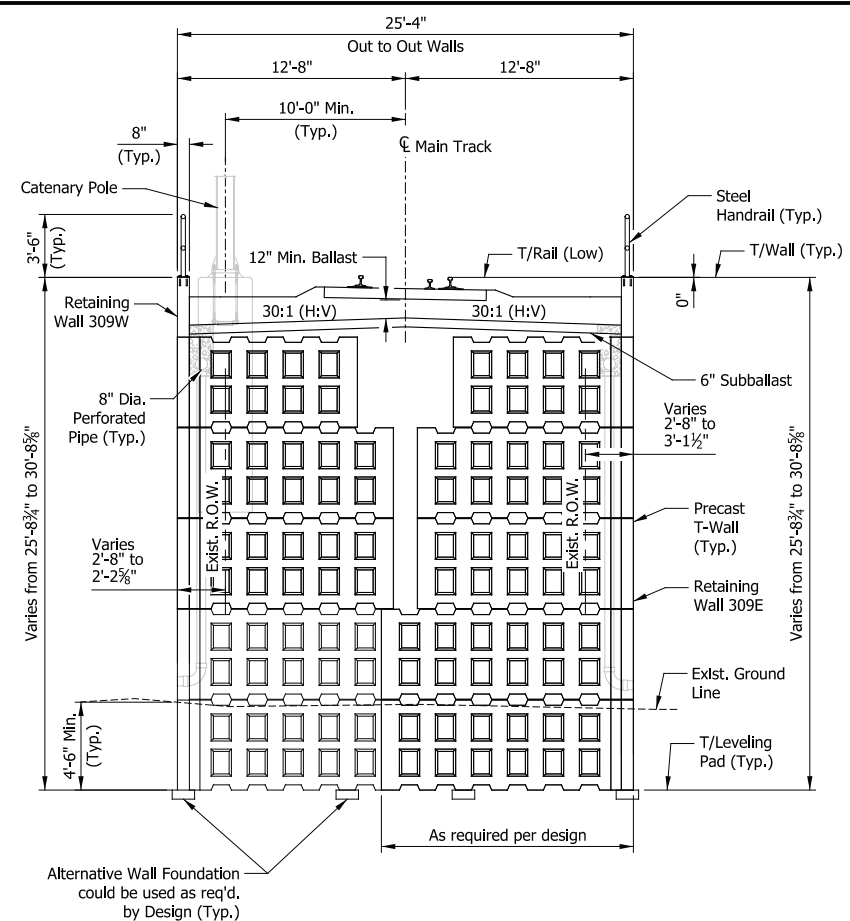




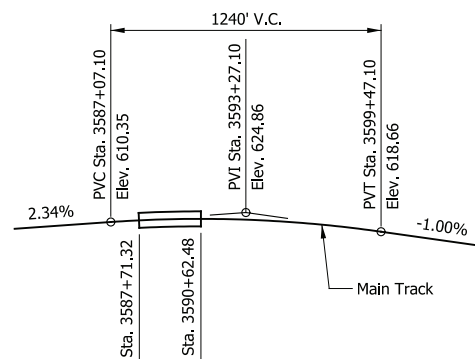
ELEVATION - RW309CS
(Looking Upstation)
Scale: 3/16" = 1'-0"



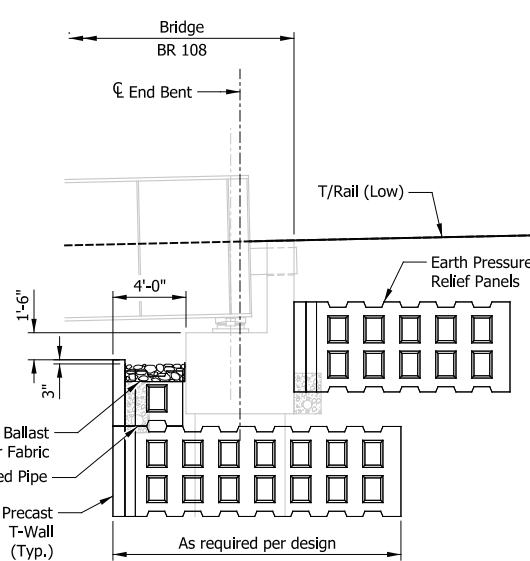
ELEVATION - RW309CN
(Looking Downstation)
Scale: 3/16" = 1'-0"



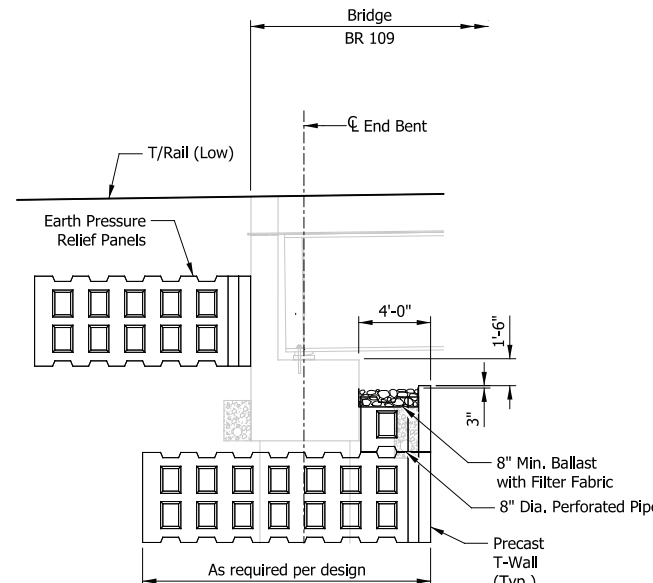
TYPICAL SECTION
(Looking Upstation)
Scale: 3/16" = 1'-0"



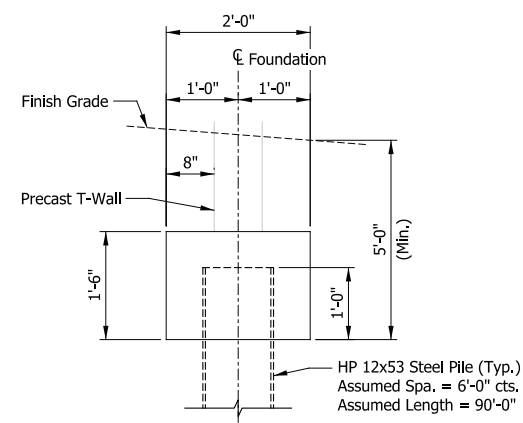
TOP OF RAIL PROFILE
Not to Scale



SECTION THRU END BENT (BR108)
Scale: 3/16" = 1'-0"



SECTION THRU END BENT (BR109)
Scale: 3/16" = 1'-0"



ALTERNATIVE WALL FOUNDATION
Scale: 3/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW309-02 OF RW309-04

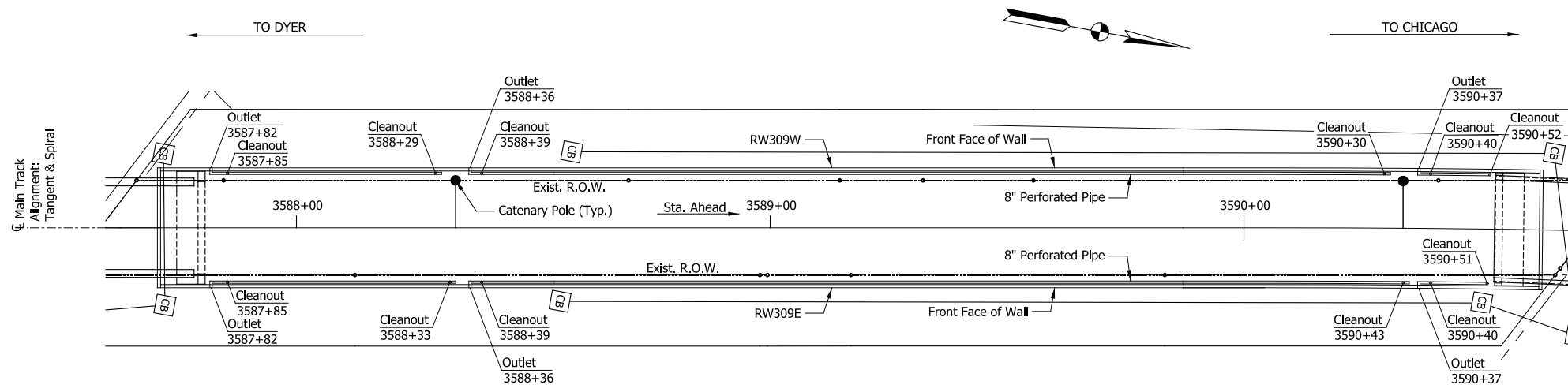
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
RETAINING WALLS 309W & 309E
TYPICAL DETAILS
FILENAME: SHT_WL_ST_RW309_TypDet_01.dgn SHEET: 124 OF 218
SCALE: AS NOTED

PLOT DATE: November 08, 2017 6:19:22 PM JMWIGUS



| | |
|-----------|----------|
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| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EJG |
| DATE: | 07/21/17 |

| ISSUE | DATE | DESCRIPTION |
|-------|------|-------------|
| | | |
| | | |
| | | |



PLAN
Scale: 1/8" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW309-03 OF RW309-04

| | |
|-----------|----------|
| DESIGNED: | ASP-CAK |
| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |

| | | |
|--|----------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| RETAINING WALLS 309W & 309E DRAINAGE PLAN | | |
| FILENAME | SHT_WL_ST_RW309_DrainPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 125 OF 218 |

PLOT DATE: November 08, 2017 6:19:31 PM JMJIGUS

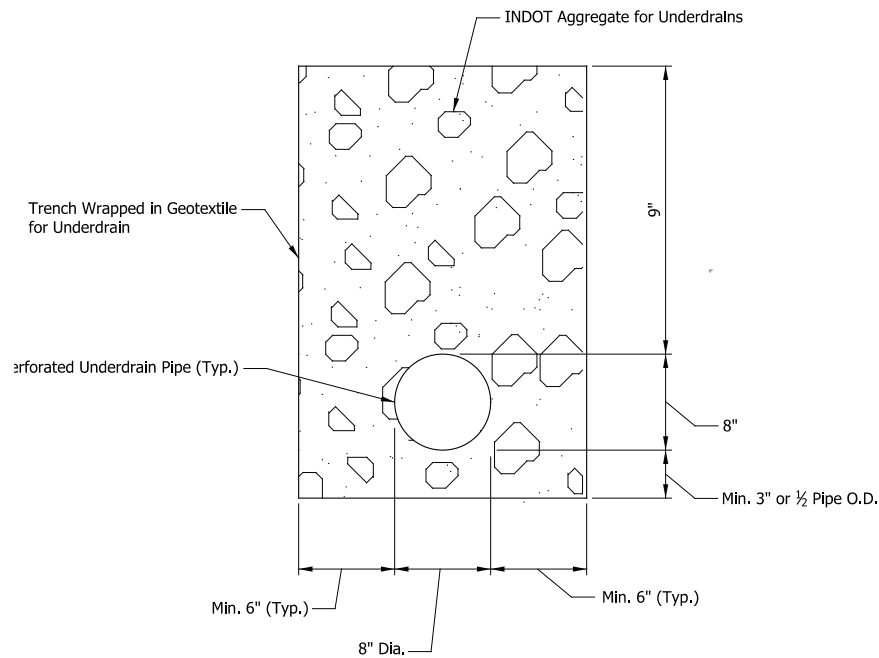
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AMERICAN STRUCTUREPOINT, Inc.
2809 Highway Ave., Suite B
Highland, IN 46322
www.structurepoint.com

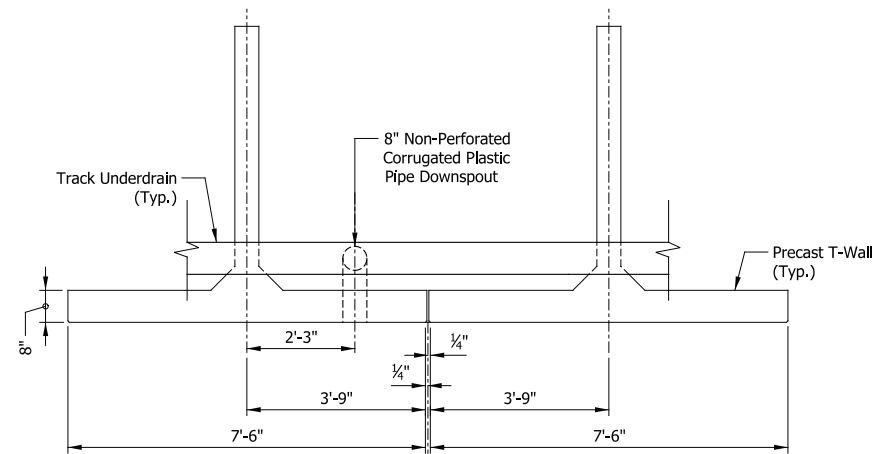
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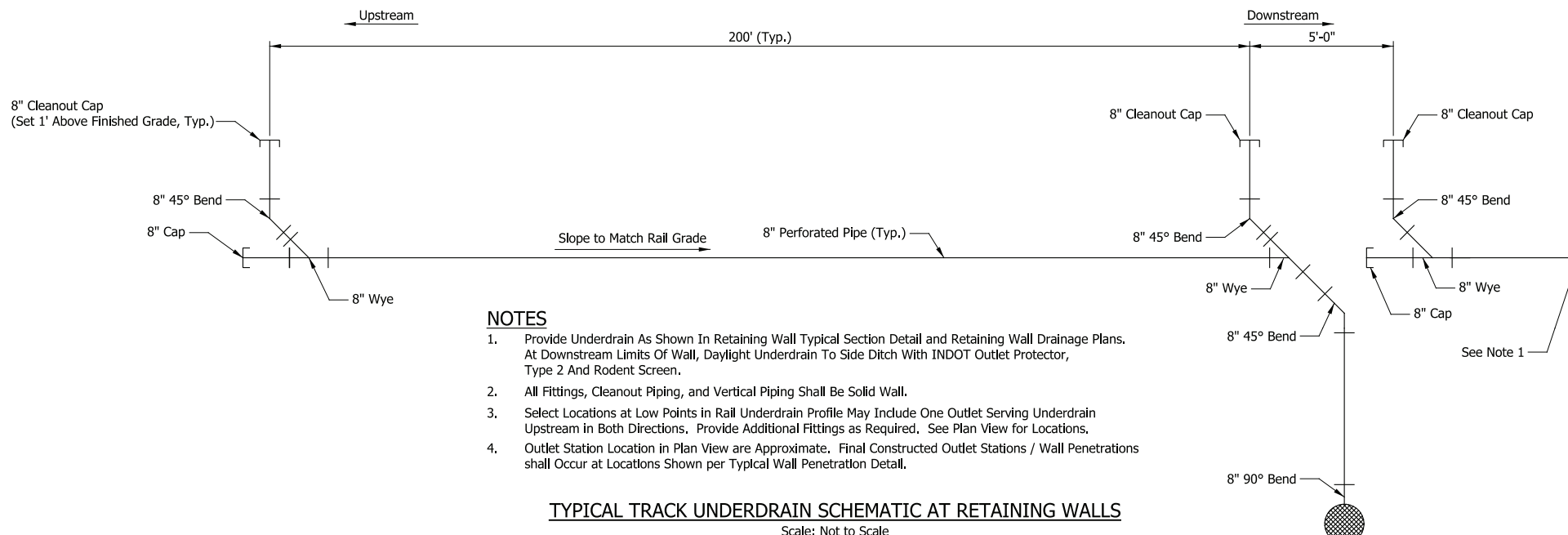
**WEST LAKE
CORRIDOR**
DYER TO HAMMOND, INDIANA



TYPICAL UNDERDRAIN SECTION
Scale: 1/2" = 1'-0"



TYPICAL WALL PENETRATION DETAIL
Scale: 1/2" = 1'-0"



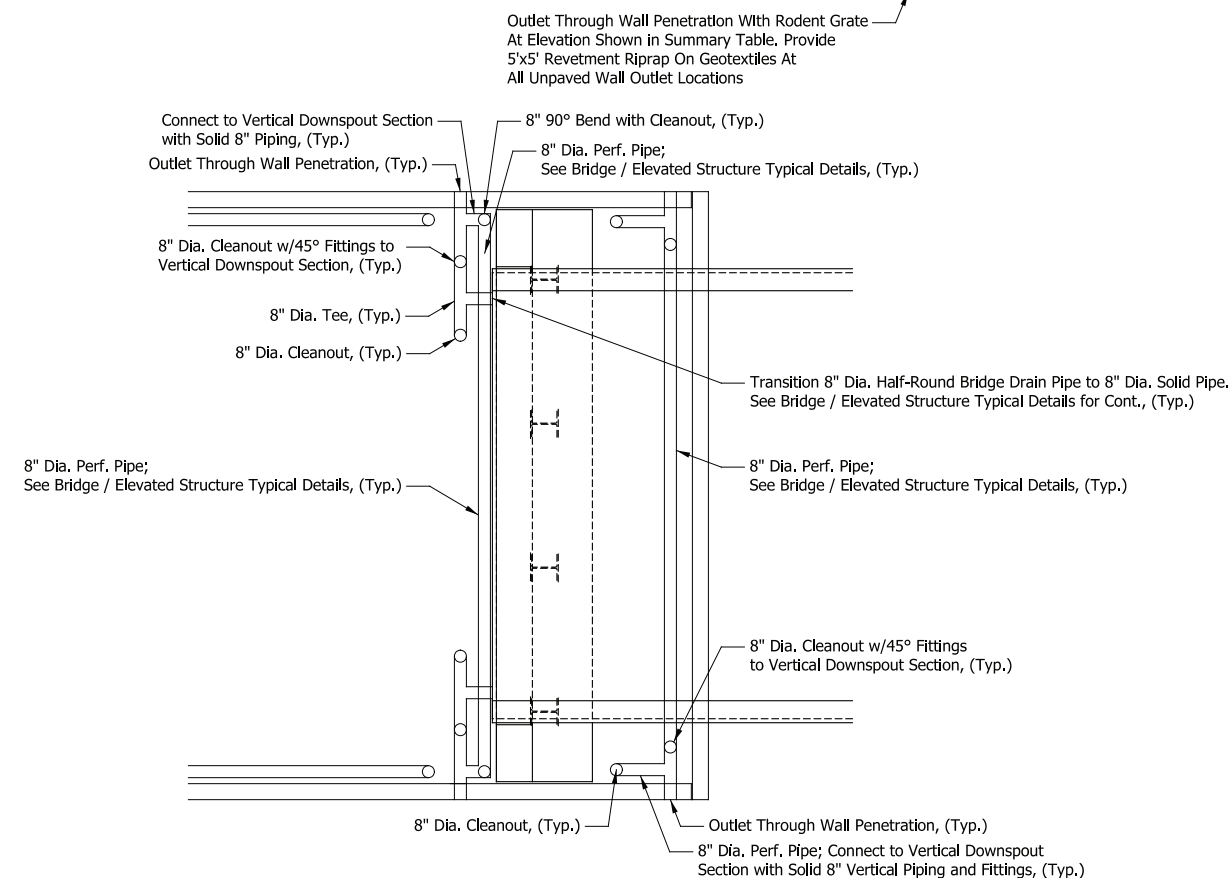
NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS
Scale: Not to Scale

| Outlet Station | Outlet Invert | |
|----------------|---------------|-------|
| | Right | Left |
| 3587+82 | 592.8 | 592.9 |
| 3588+36 | 593.0 | 593.6 |
| 3590+37 | 593.0 | 593.5 |

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE
Scale: Not to Scale

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW309-04 OF RW309-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK

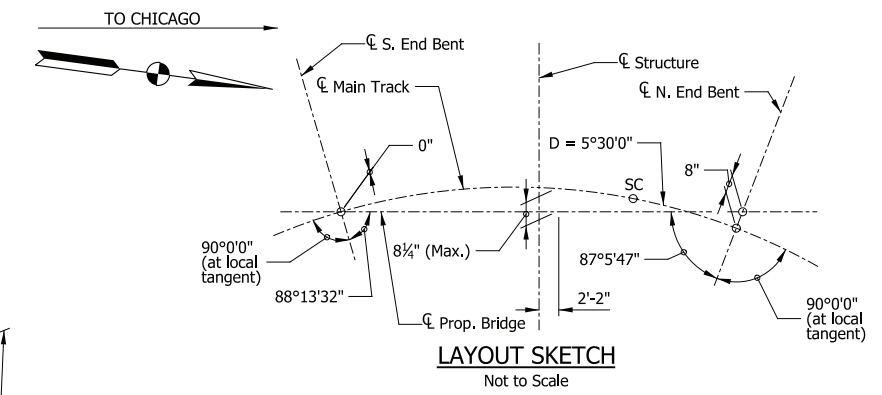
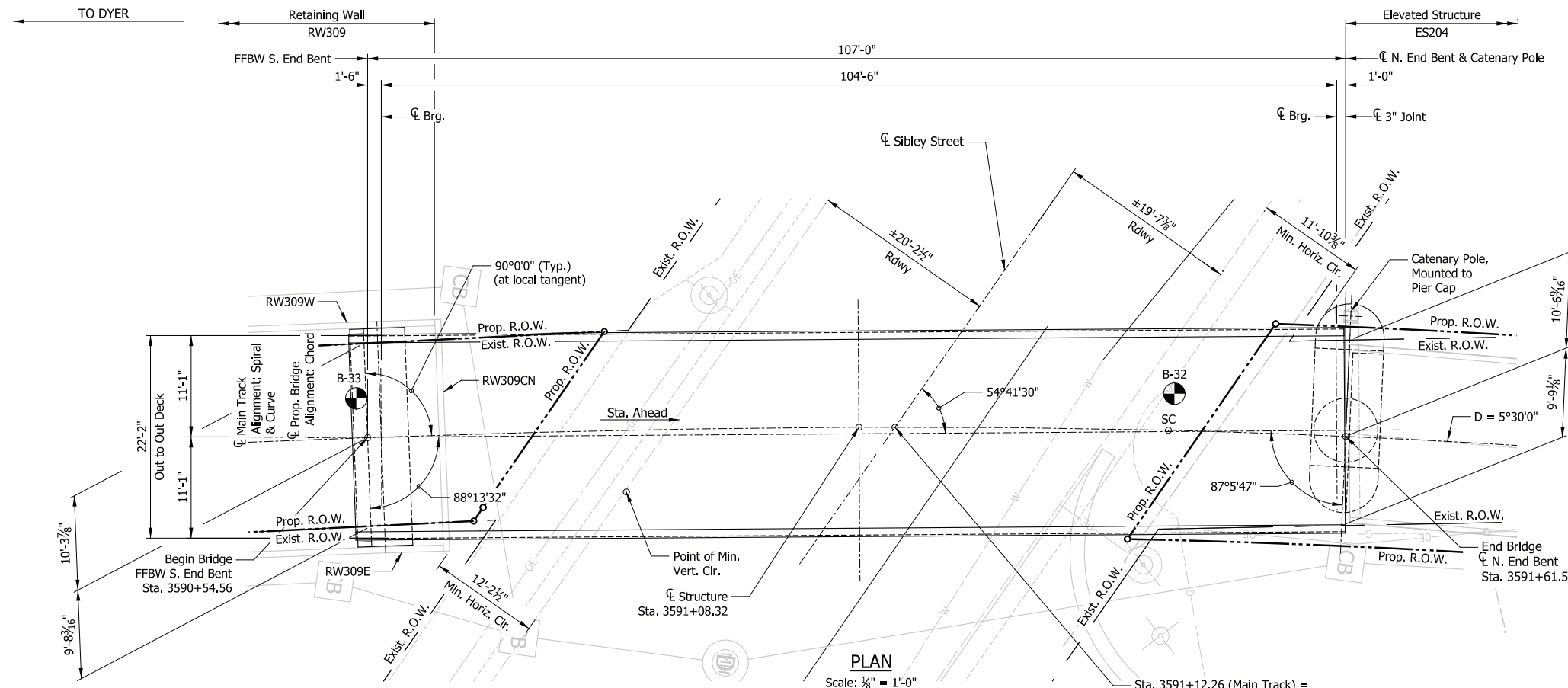
RETAINING WALLS 309W & 309E DRAINAGE DETAILS

FILENAME: SHT_WL_ST_RW309_DrainDet_01.dgn SHEET: 126 OF 218
SCALE: AS NOTED

PLOT DATE: November 08, 2017 6:19:34 PM JMWIGUS



| | |
|-----------|----------|
| DESIGNED: | ASP-CAK |
| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |



DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (At High End of Span, At Low Rail)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 4,000$ psi (Min.)

SHEET INDEX

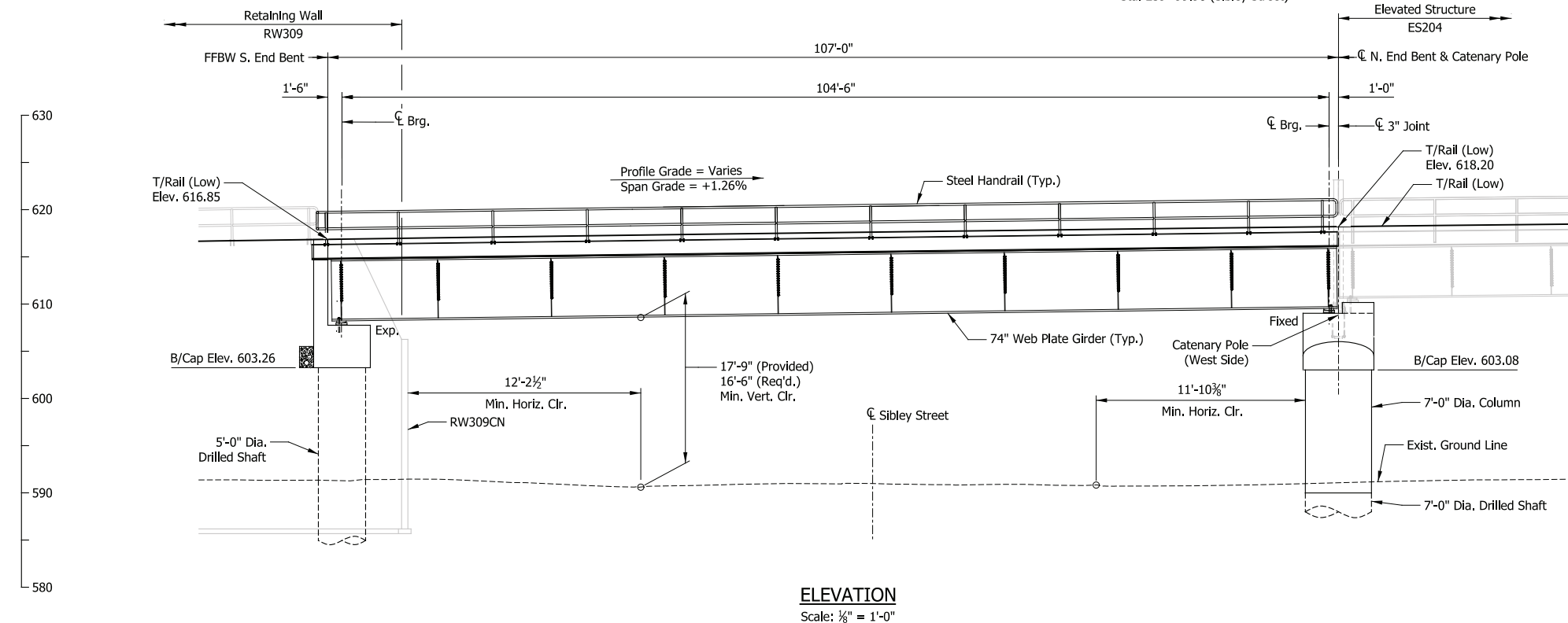
- BR109-01 General Plan & Elevation
- BR109-02 Typical Details
- BR109-03 Substructure Details (1 of 2)
- BR109-04 Substructure Details (2 of 2)
- BR109-05 Framing Plan

CONSTRUCTION DEPTH

| | |
|----------------|----------|
| Rail (115 Lbs) | 6 3/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (mln.) | 9" |
| Waterproofing | 1" |
| Deck Plate | 7/8" |
| Top Flange | 2 1/4" |
| Web | 74" |
| Bottom Flange | 2 3/4" |
| | 103 3/4" |

NOTES

1. For track geometry, see Track Plans.



PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES BR109-01 OF BR109-05

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 109 - NICTD OVER SIBLEY STREET
GENERAL PLAN & ELEVATION**

| | | |
|----------|--------------------------------|-------------------|
| FILENAME | SHT_WL_ST_BR109_GenPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 127 OF 218 |

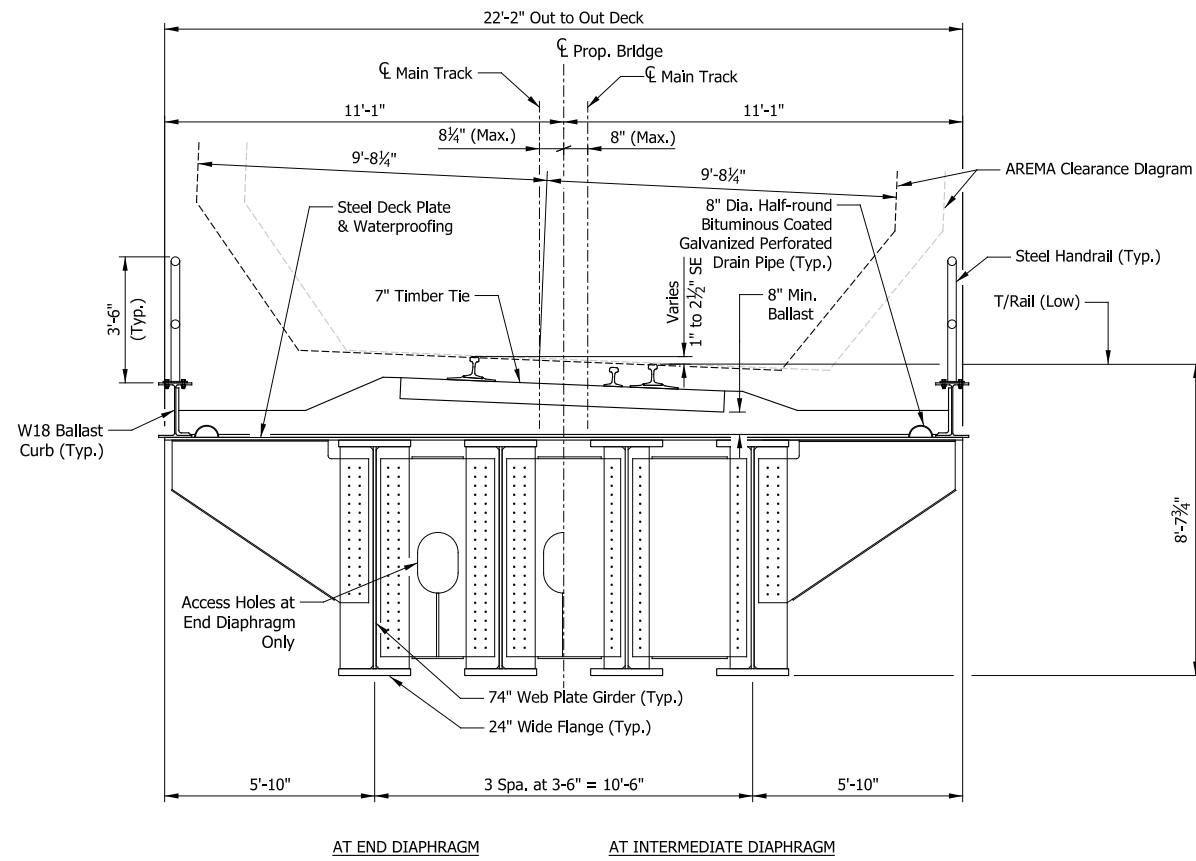
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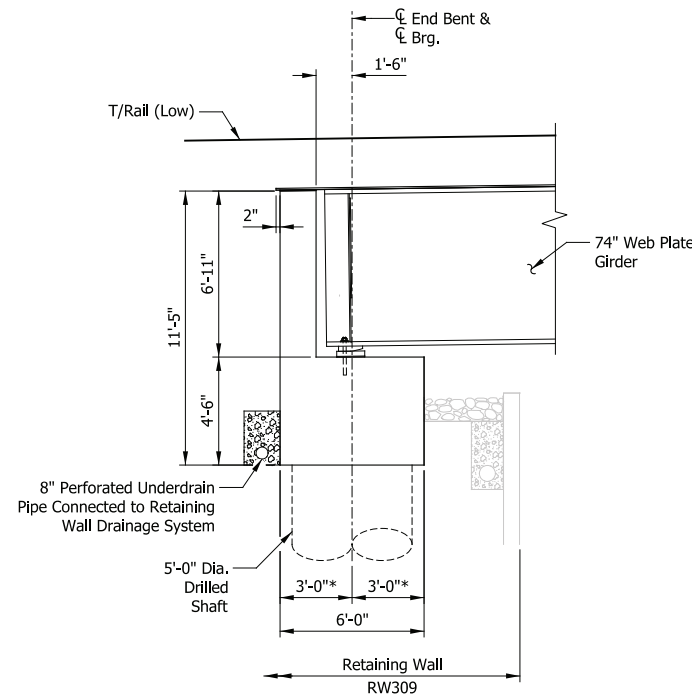


| | |
|-----------|----------|
| DESIGNED: | LOCH-JLH |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EIG |
| DATE: | 07/21/17 |



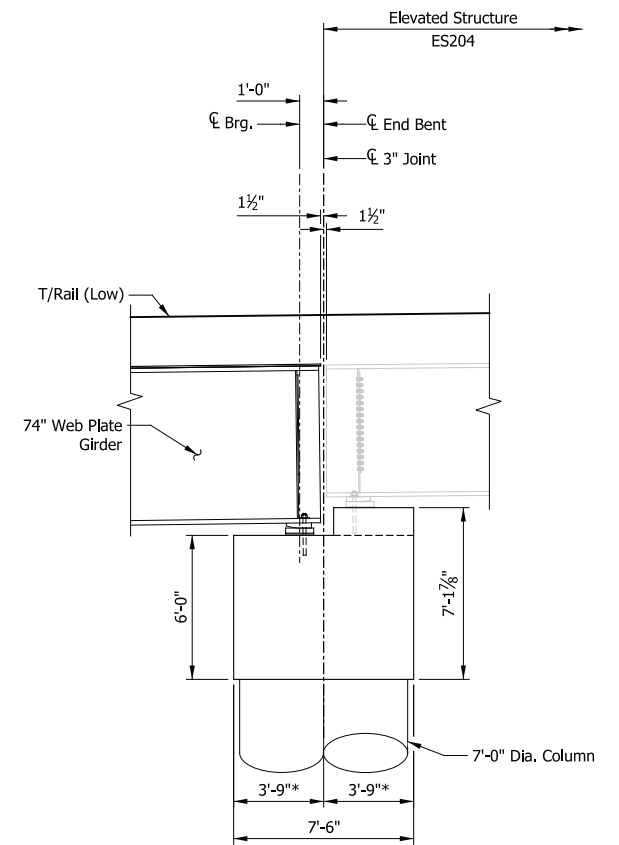
TYPICAL SECTION

Scale: 3/8" = 1'-0"



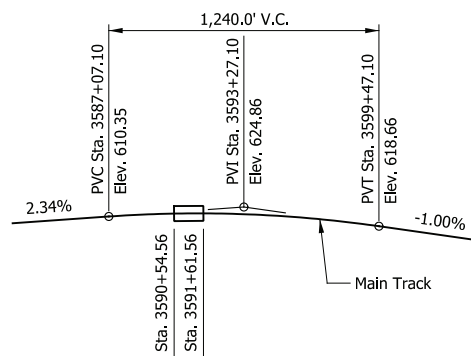
SECTION THRU S. END BENT

* at Right Angle
Scale: 1/4" = 1'-0"



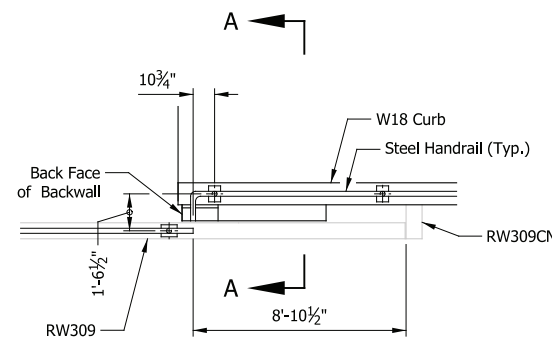
SECTION THRU N. END BENT

* at Right Angle
Scale: 1/4" = 1'-0"



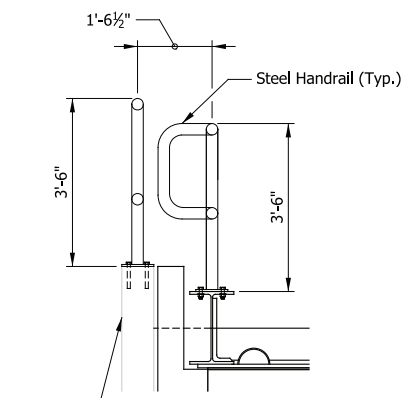
TOP OF RAIL PROFILE

Not to Scale



HANDRAIL LAYOUT AT BRIDGE SOUTH CORNERS

Scale: 1/4" = 1'-0"



VIEW A-A

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

NOTES

1. Outfall from Drainage System to be routed and detailed similar to those provided for Retaining Wall Underdrains.

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DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | LOCH-JLH |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EIG |
| DATE: | 07/21/17 |

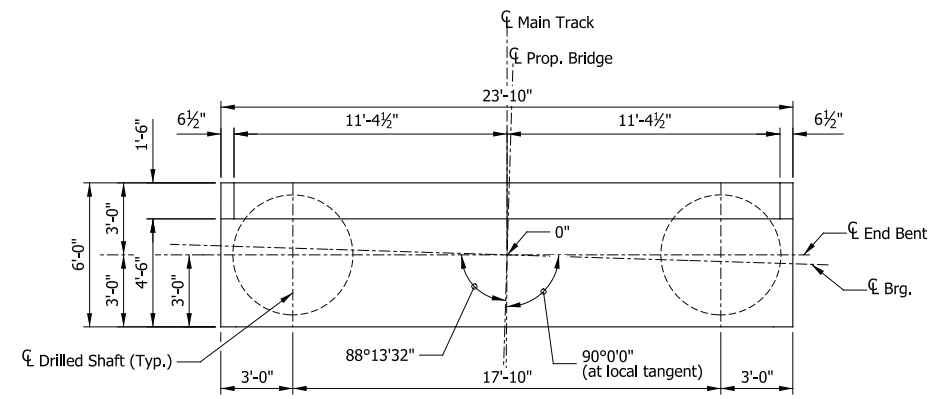
PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR109-02 OF BR109-05

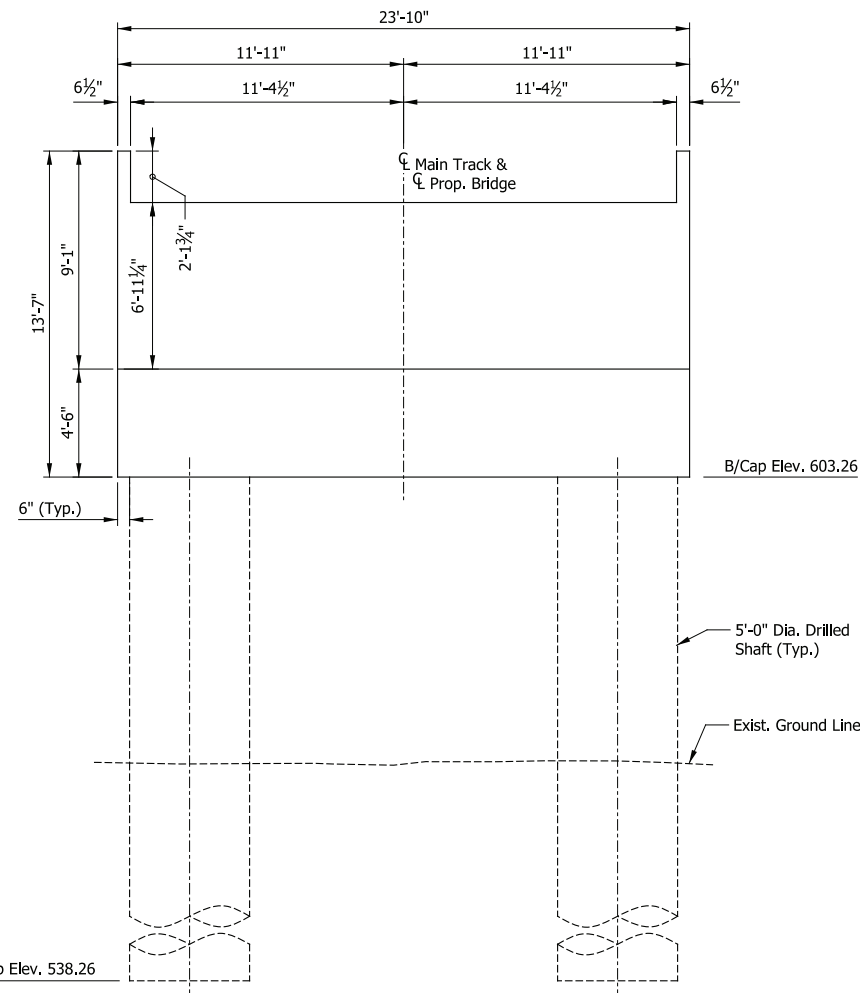
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
**BRIDGE 109 - NICTD OVER
SIBLEY STREET
TYPICAL DETAILS**

| | | |
|----------|-------------------------------|-------------------|
| FILENAME | SHT_WL_ST_BR109_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 128 OF 218 |



PLAN

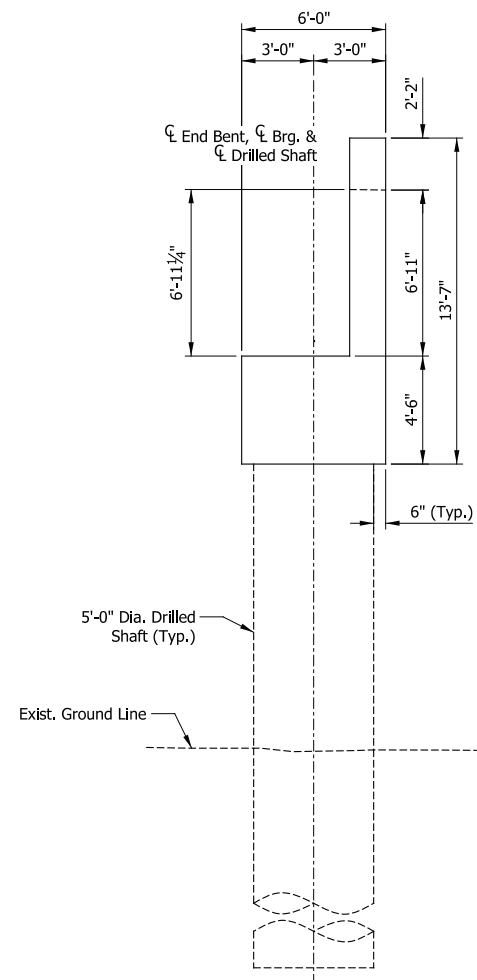
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ELEVATION

Scale: 1/4" = 1'-0"

SOUTH END BENT



END VIEW

Scale: 1/4" = 1'-0"

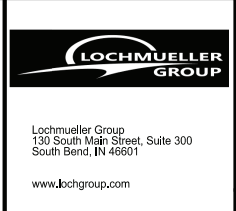
PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES BR109-03 OF BR109-05

| | |
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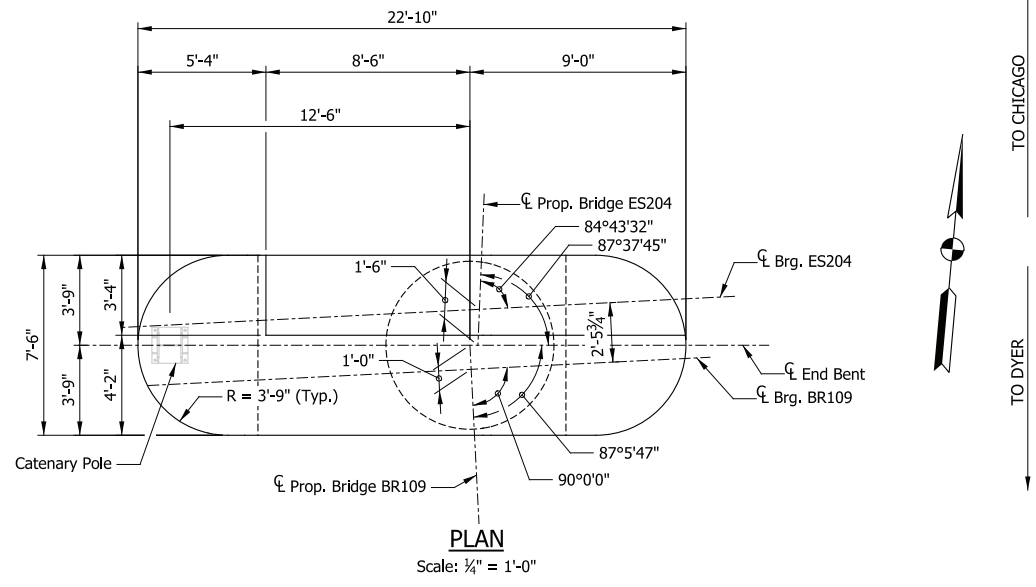
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 109 - NICTD OVER SIBLEY STREET SUBSTRUCTURE DETAILS (1 of 2) | | |
| FILENAME | SHT_WL_ST_BR109_SubstrDet_01.dgn | SHEET |
| SCALE | AS NOTED | 129 OF 218 |

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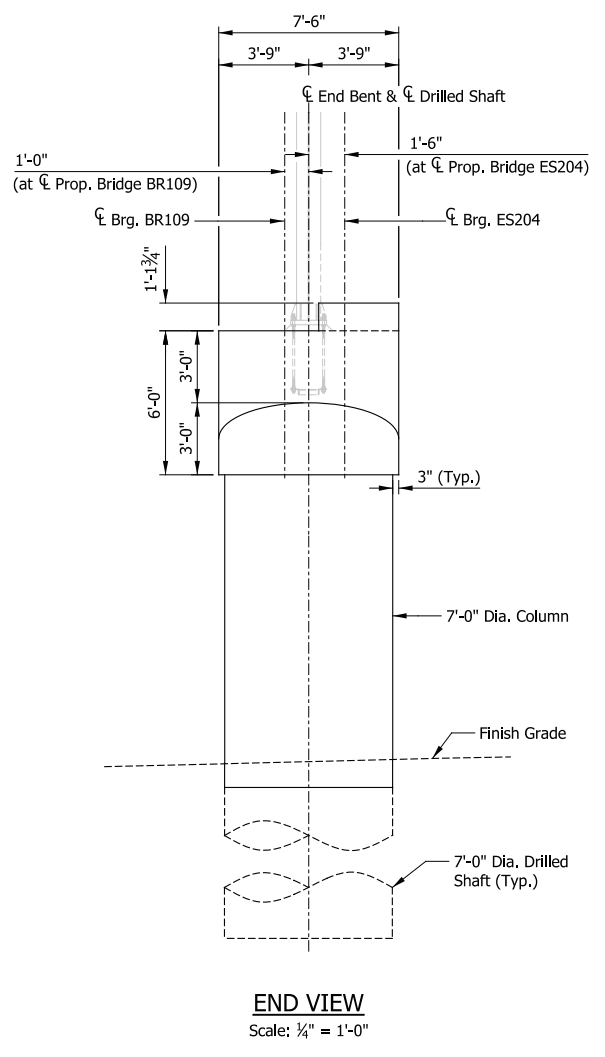
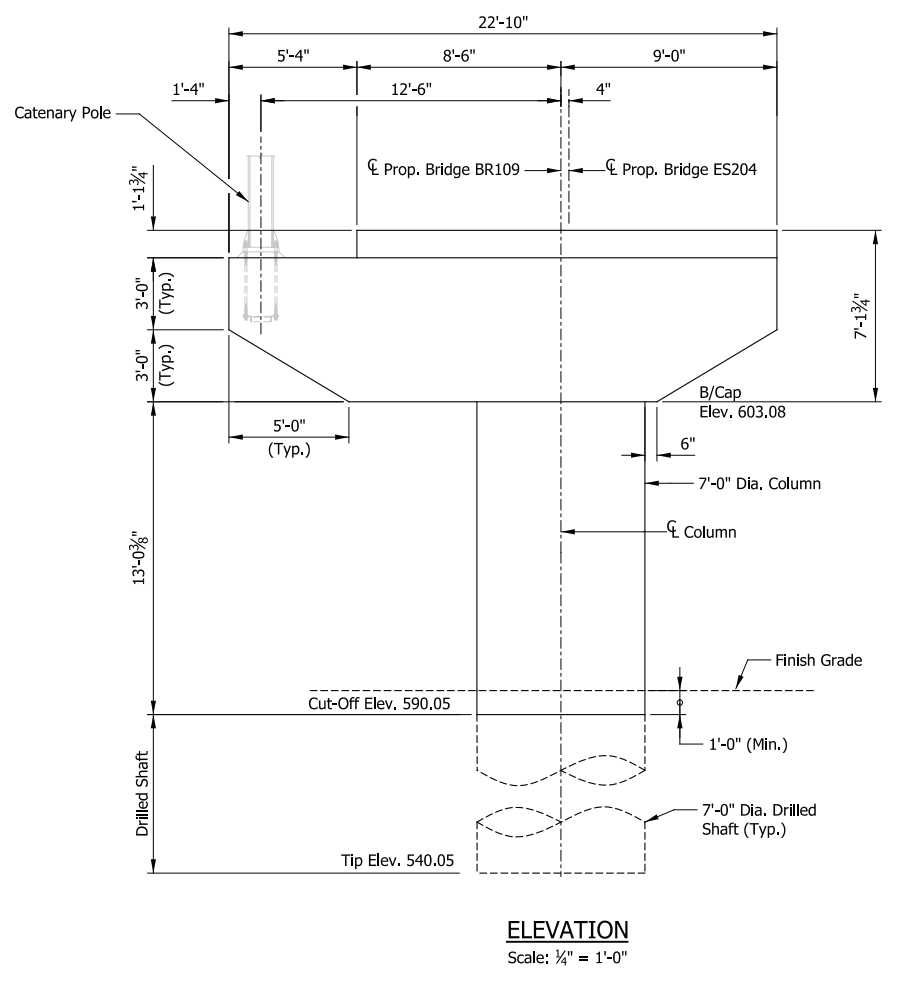


| ISSUE | DATE | DESCRIPTION |
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TO CHICAGO
TO DYER



NORTH END BENT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR109-04 OF BR109-05

PLOT DATE: November 08, 2017 6:20:00 PM JMWIGUS



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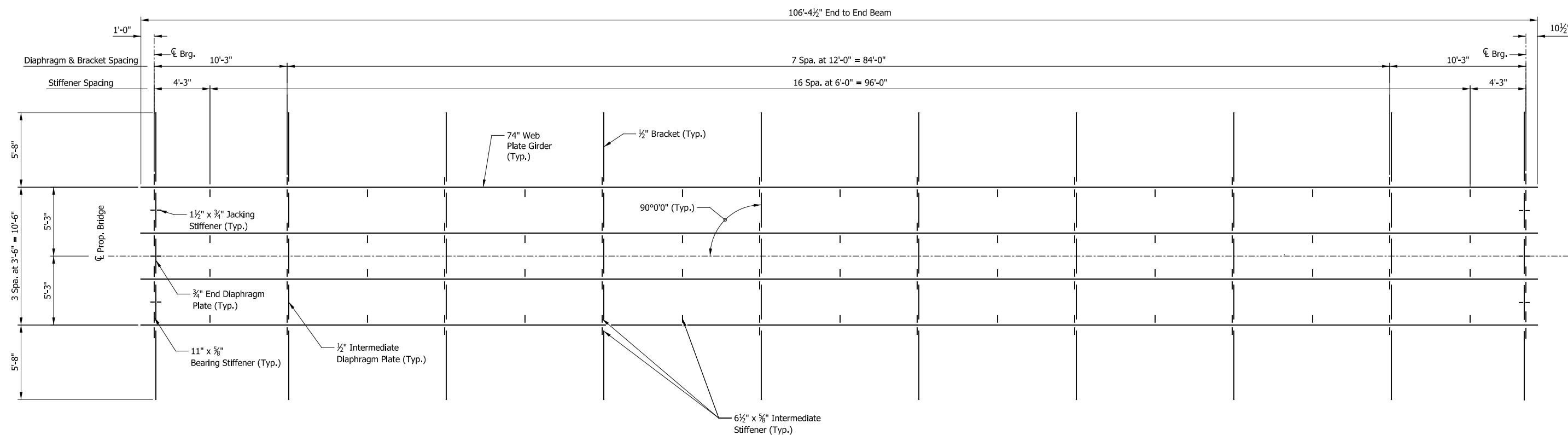


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|-----------|----------|
| DESIGNED: | LOCH-JLH |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EJG |
| DATE: | 07/21/17 |

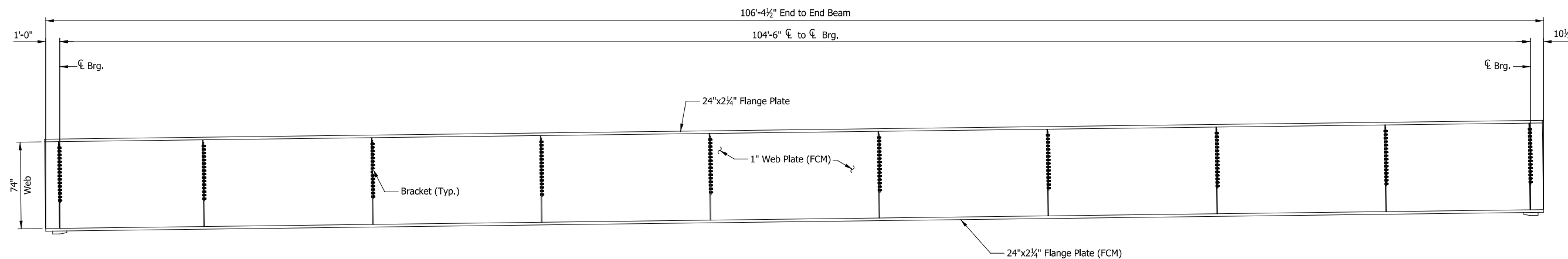
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 109 - NICTD OVER SIBLEY STREET SUBSTRUCTURE DETAILS (2 OF 2) | | |
| FILENAME | SHT_WL_ST_BR109_SubstrDet_02.dgn | SHEET |
| SCALE | AS NOTED | 130 OF 218 |

TO DYER

TO CHICAGO



FRAMING PLAN
Scale: 1/4" = 1'-0"



GIRDER EXTERIOR ELEVATION
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR109-05 OF BR109-05

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18

SINGLE TRACK

**BRIDGE 109 - NICTD OVER
SIBLEY STREET
FRAMING PLAN**

FILENAME: SHT_WL_ST_BR109_FramPlan_01.dgn
SCALE: AS NOTED

SHEET **131 OF 218**

PLOT DATE: November 08, 2017 6:20:03 PM JMGIGUS



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Lochmueller Group
130 South Main Street, Suite 300
South Bend, IN 46601
www.lochgroup.com

| ISSUE | DATE | DESCRIPTION |
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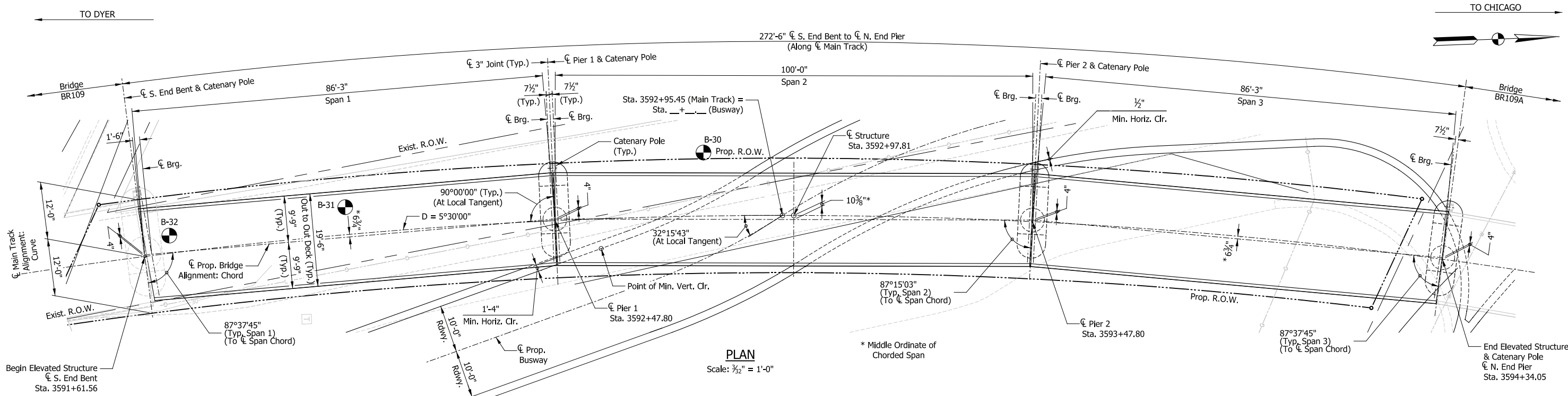


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TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

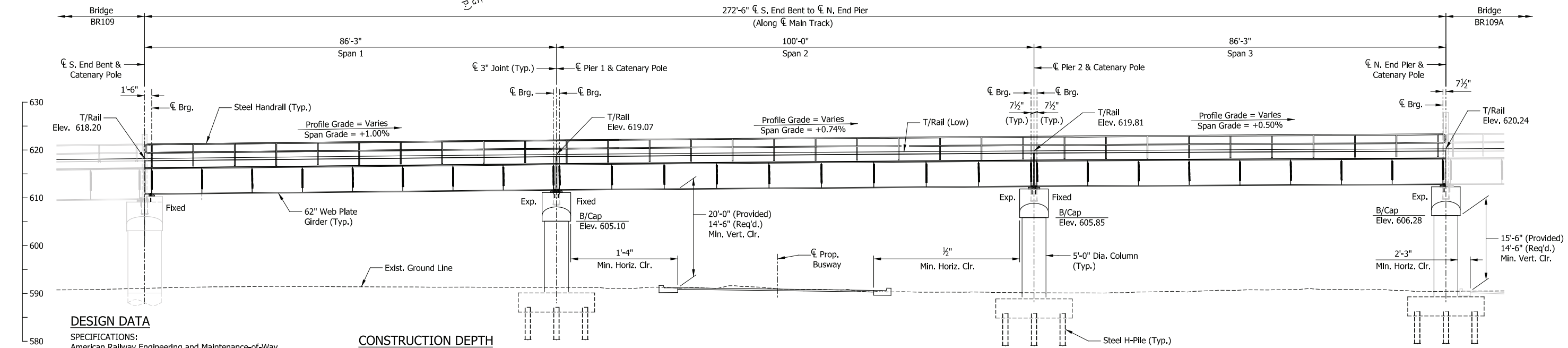


DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | LOCH-JLH |
| DRAWN: | LOCH-DJG |
| CHECKED: | LOCH-EJG |
| DATE: | 07/21/17 |



PLAN
Scale: 3/32" = 1'-0"



ELEVATION
Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span, at Low Rail)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

CONSTRUCTION DEPTH

| | |
|----------------|--------|
| Rail (115 Lbs) | 6 3/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 8" |
| Waterproofing | 1" |
| Deck Plate | 3/8" |
| Top Flange | 2" |
| Web | 62" |
| Bottom Flange | 2" |
| | 90" |

SHEET INDEX

| | |
|----------|--------------------------|
| ES204-01 | General Plan & Elevation |
| ES204-02 | Typical Details |
| ES204-03 | Substructure Details |
| ES204-04 | Framing Plan (1 of 3) |
| ES204-05 | Framing Plan (2 of 3) |
| ES204-06 | Framing Plan (3 of 3) |

NOTES

- For track geometry, see Track Plans.
- Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES204-01 OF ES204-06

| | |
|-----------|----------|
| DESIGNED: | HDR-JAL |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

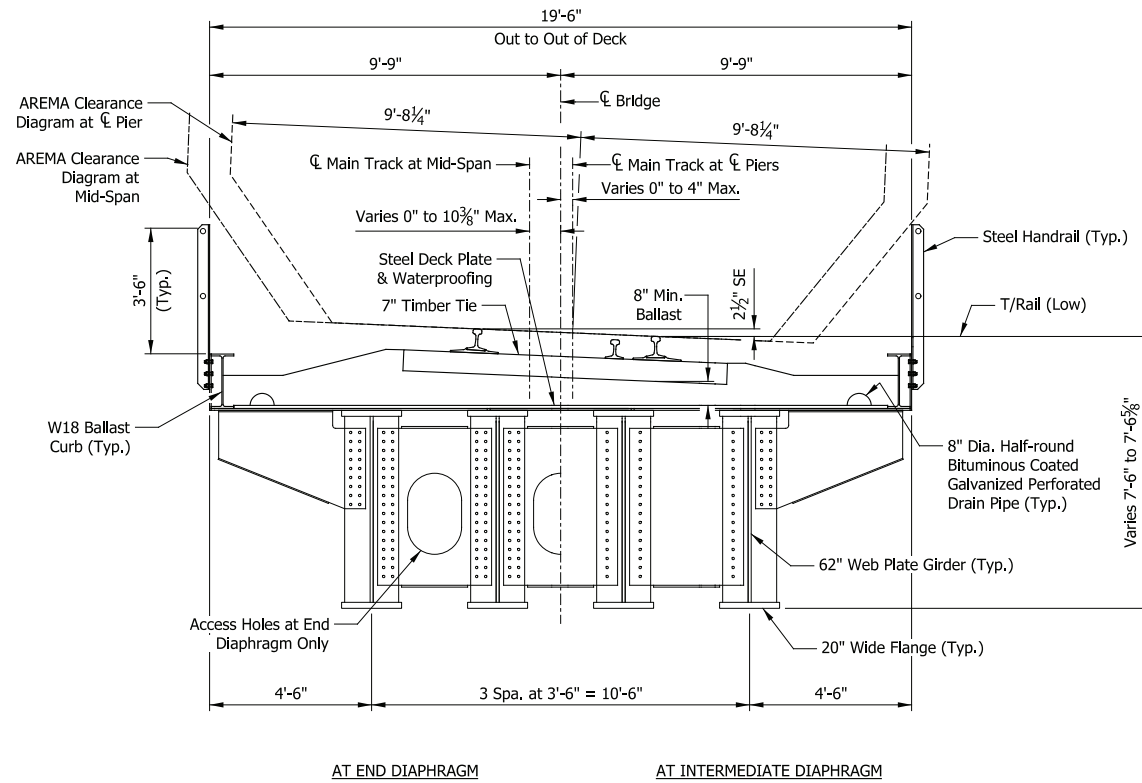
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 204 | | |
| GENERAL PLAN & ELEVATION | | |
| FILENAME | SHT_WL_ST_ES204_GenPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 132 OF 218 |

PLOT DATE: November 08, 2017 6:20:19 PM JMWIGUS

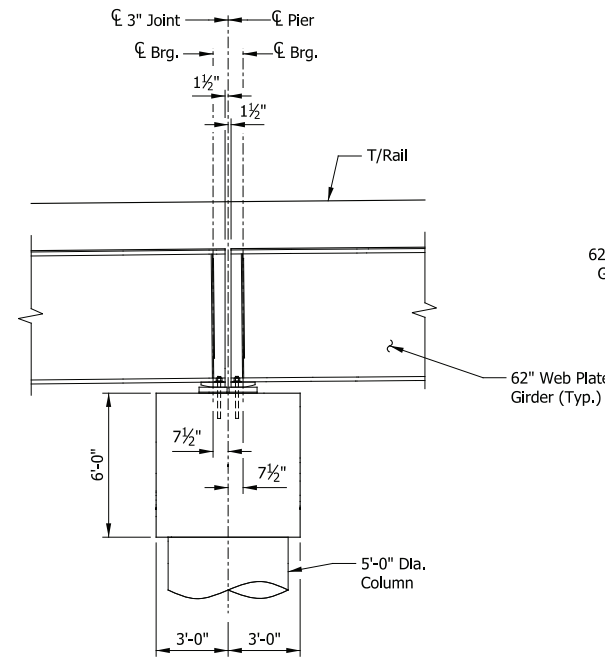


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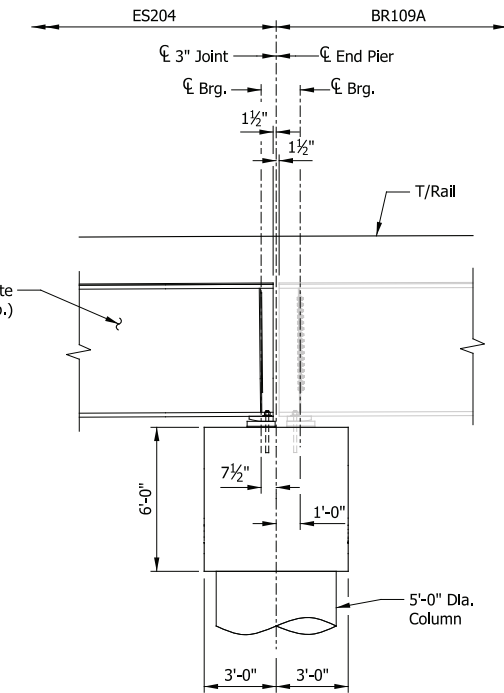




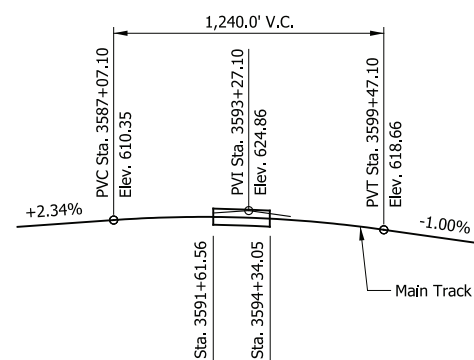
TYPICAL SECTION
Scale: 3/8" = 1'-0"



SECTION THRU PIERS 1 & 2
Scale: 1/4" = 1'-0"



SECTION THRU N. END PIER
Scale: 1/4" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

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|-----------|----------|
| DESIGNED: | HDR-JAL |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

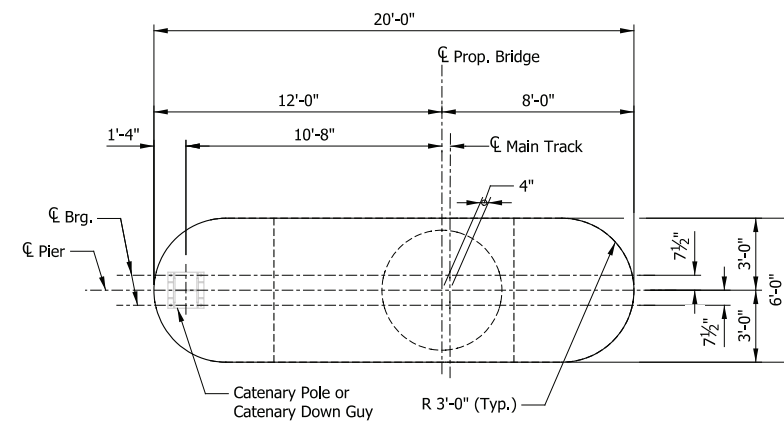
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES204-02 OF ES204-06

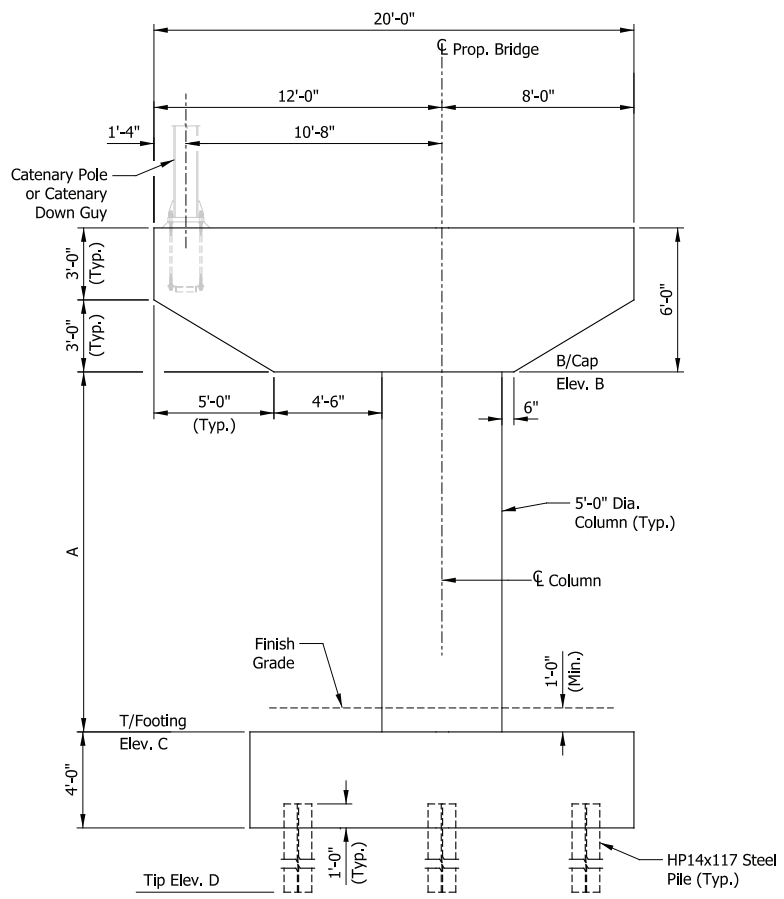
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 204
TYPICAL SECTION

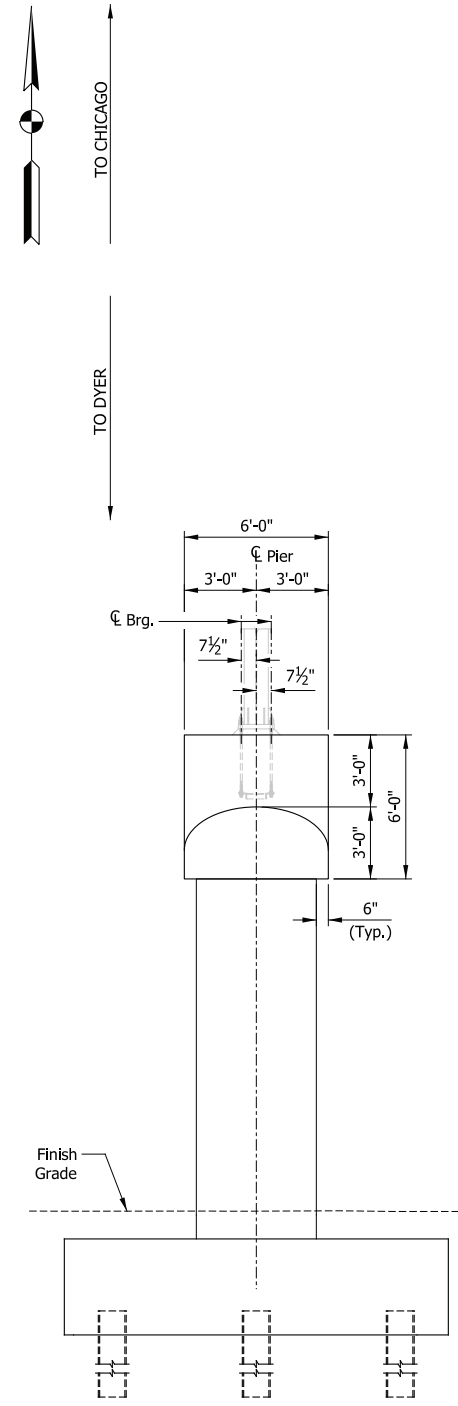
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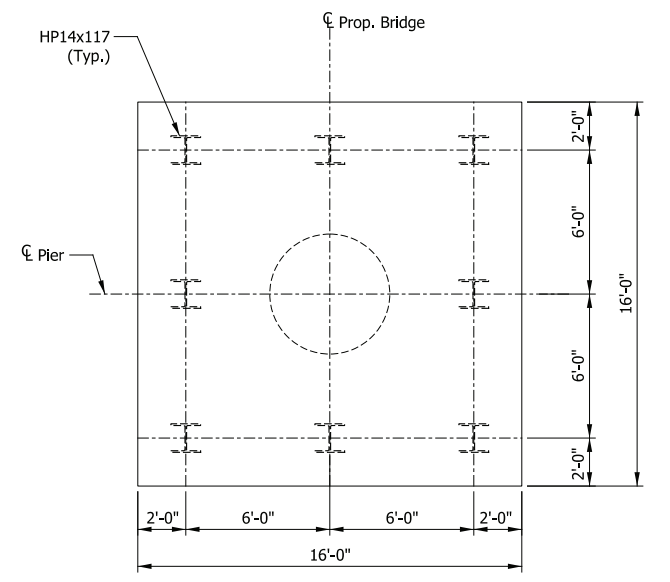
PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"



END VIEW
Scale: 1/4" = 1'-0"



FOOTING PLAN (TYP.)
Scale: 1/4" = 1'-0"

| GEOMETRY TABLE | | | | |
|----------------|--------|---------|---------|---------|
| LOCATION | Dim. A | Elev. B | Elev. C | Elev. D |
| Pier 1 | 15'-0" | 605.10 | 590.10 | 494.10 |
| Pier 2 | 17'-0" | 605.85 | 588.85 | 492.85 |
| N. End Pier | 17'-0" | 606.28 | 589.28 | 490.28 |

PIERS & N. END PIER
(N. End Pier Shown, Piers 1 & 2 Similar)

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|-----------|----------|
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| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES204-03 OF ES204-06

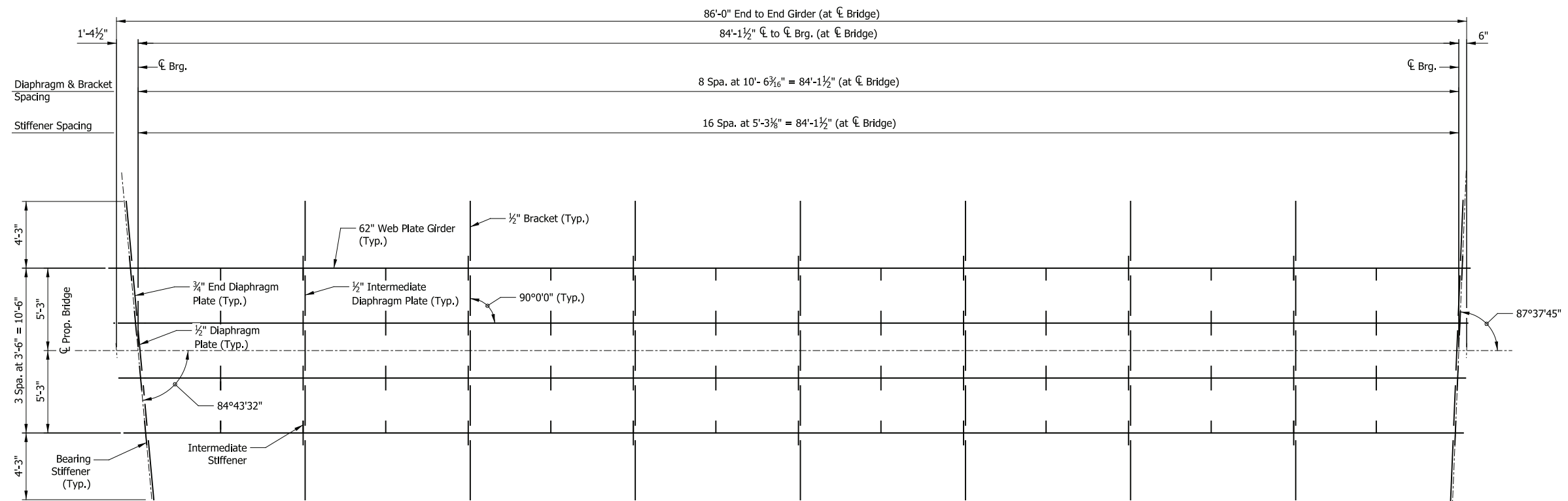
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 204
SUBSTRUCTURE DETAILS

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| SCALE | AS NOTED | 134 OF 218 |

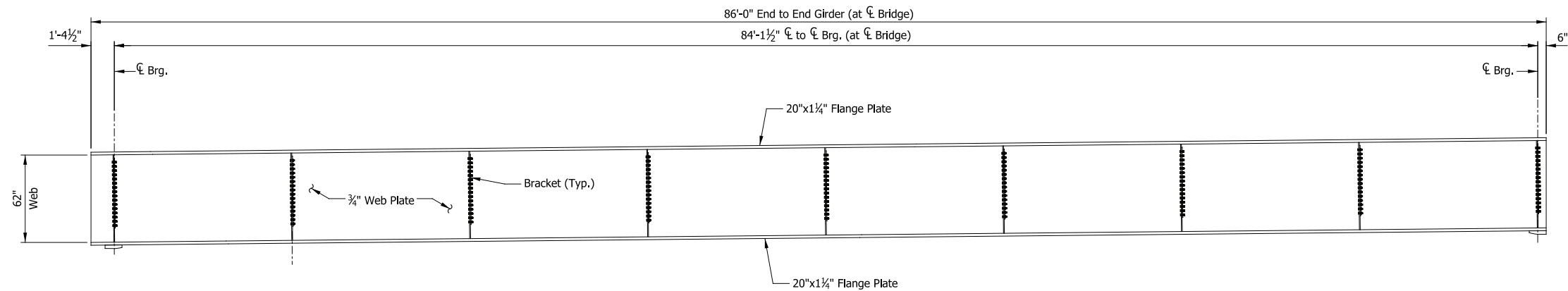
← TO DYER

→ TO CHICAGO



FRAMING PLAN

Span 1
Scale: 1/4" = 1'-0"



BEAM EXTERIOR ELEVATION

Span 1
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES204-04 OF ES204-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 204
FRAMING PLAN (1 OF 3)

FILENAME SHT_WL_ST_ES204_FramPlan_01.dgn
SCALE AS NOTED

SHEET **135 OF 218**

PLOT DATE: November 08, 2017 6:20:38 PM JMGIGUS



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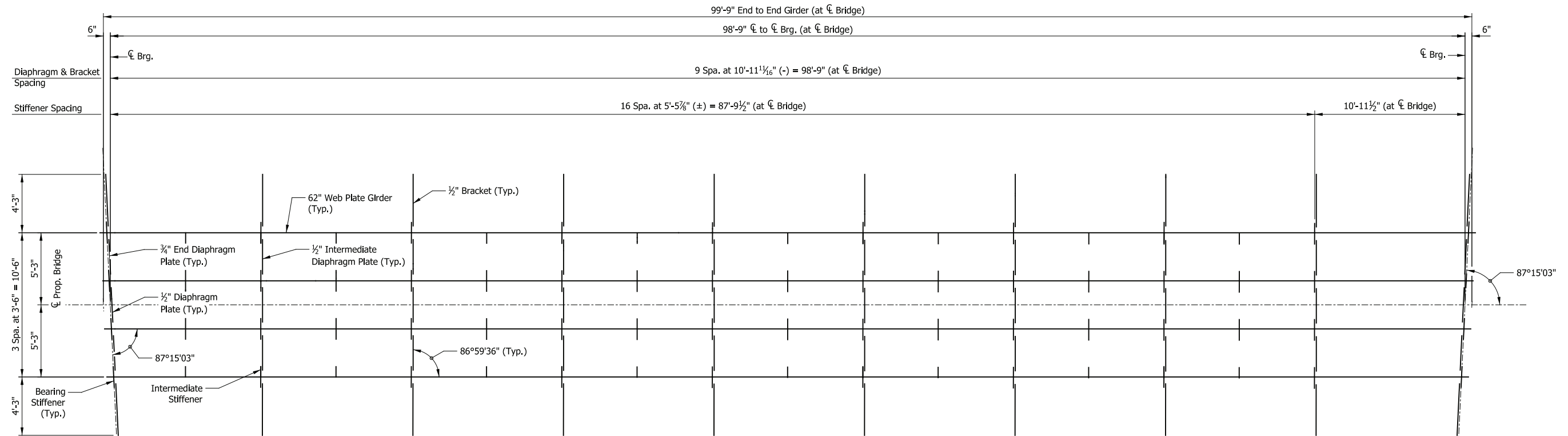
DYER TO HAMMOND, INDIANA

DESIGNED: HDR-JAL
DRAWN: HDR-JSR
CHECKED: HDR-DTM
DATE: 07/21/17

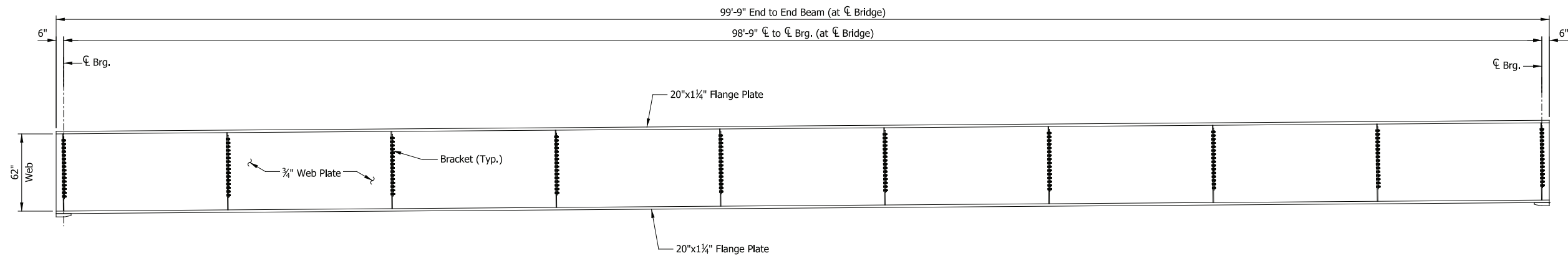
| ISSUE | DATE | DESCRIPTION |
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← TO DYER

→ TO CHICAGO



FRAMING PLAN
Span 2
Scale: 1/4" = 1'-0"



BEAM EXTERIOR ELEVATION
Span 2
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES204-05 OF ES204-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 204
FRAMING PLAN (2 OF 3)**

FILENAME SHT_WL_ST_ES204_FramPlan_02.dgn
SCALE AS NOTED

SHEET **136 OF 218**

PLOT DATE: November 08, 2017 6:20:41 PM JMJIGUS



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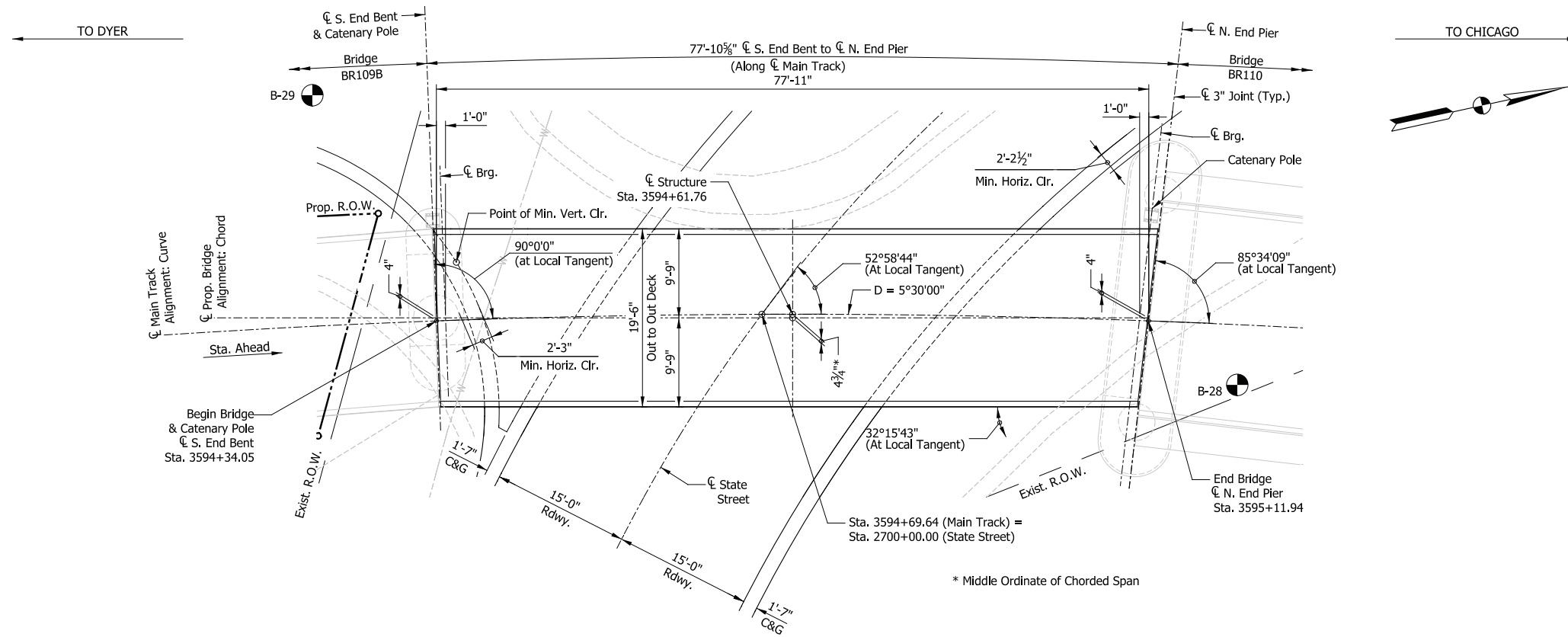


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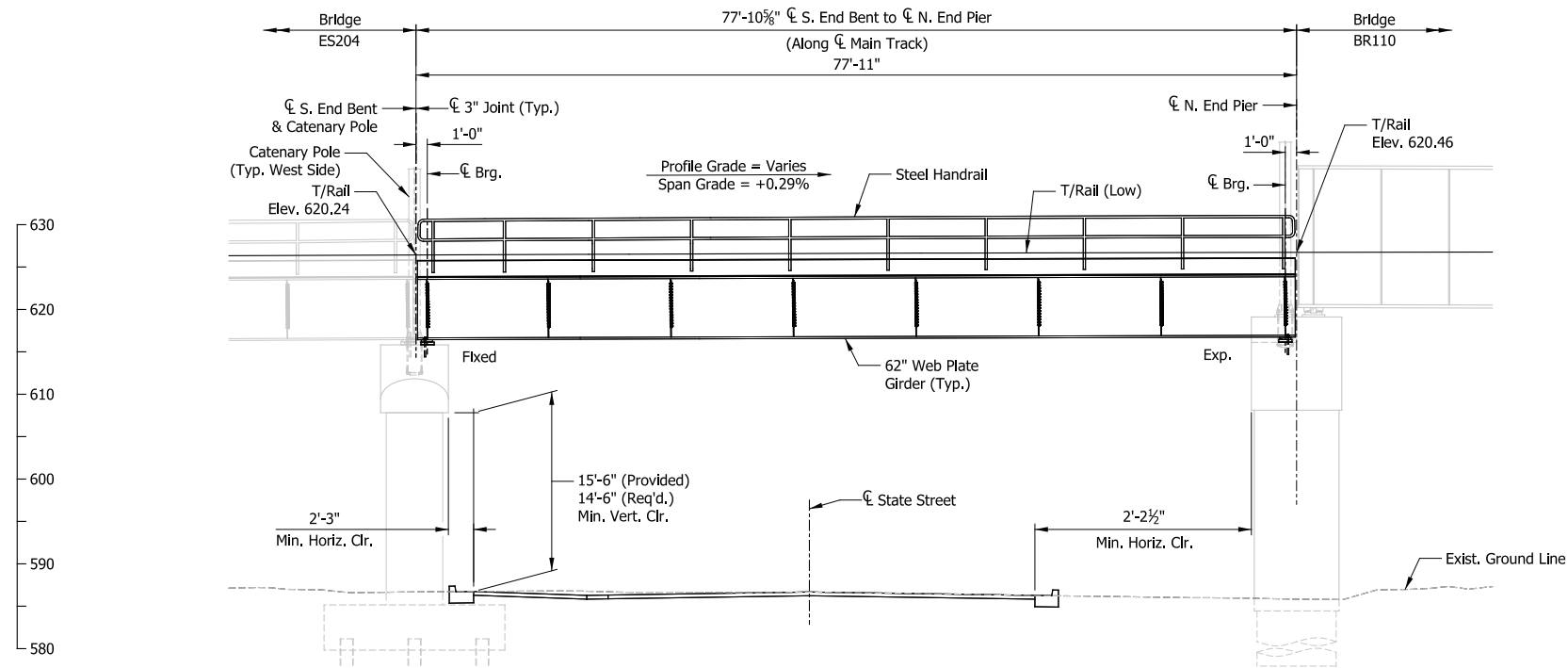


DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | HDR-JAL |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |



PLAN
Scale: 1/8" = 1'-0"



ELEVATION
Scale: 1/8" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span, at Low Rail)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 4,000$ psi (Min.)

SHEET INDEX

- BR109A-01 General Plan & Elevation
- BR109A-02 Typical Details
- BR109A-03 Framing Plan

CONSTRUCTION DEPTH

| | |
|----------------|--------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 8" |
| Waterproofing | 1" |
| Deck Plate | 5/8" |
| Top Flange | 1 1/4" |
| Web | 62" |
| Bottom Flange | 1 1/4" |
| 88 1/2" | |

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES BR109A-01 OF BR109A-03

| | |
|-----------|----------|
| DESIGNED: | HDR-LAG |
| DRAWN: | HDR-DRA |
| CHECKED: | HDR-XXX |
| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

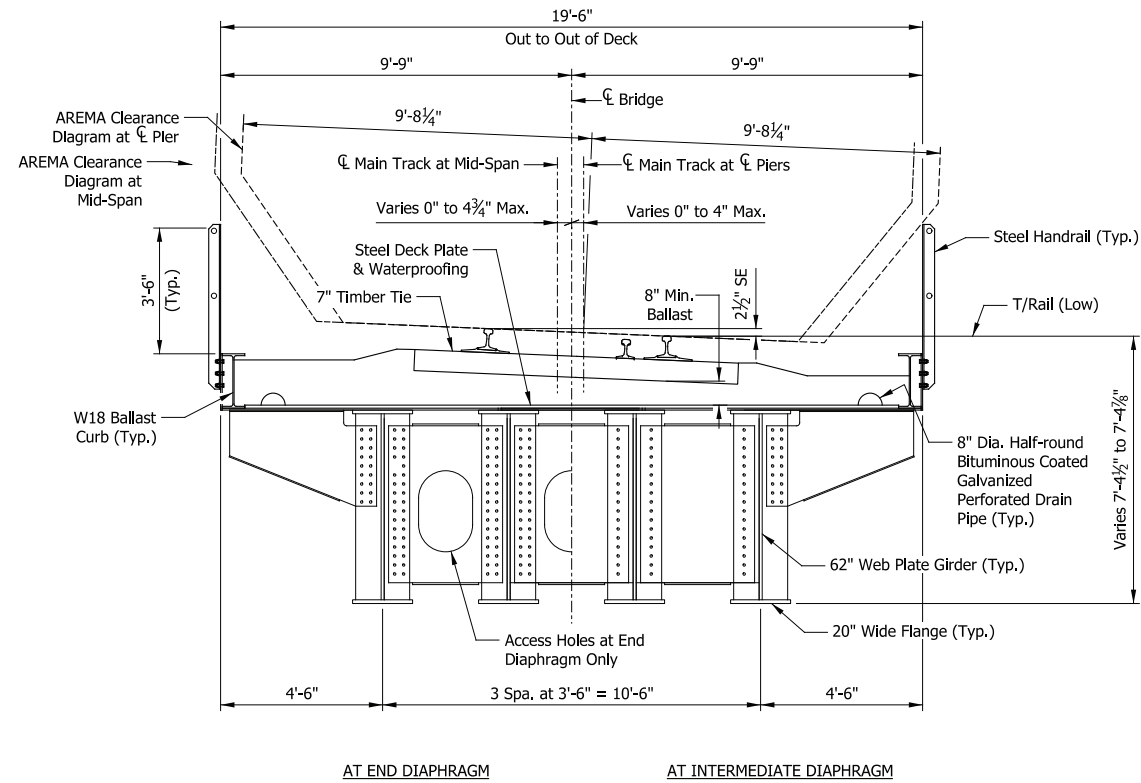
**BRIDGE 109A - NICTD OVER
STATE STREET
GENERAL PLAN & ELEVATION**

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| SCALE | AS NOTED | | |

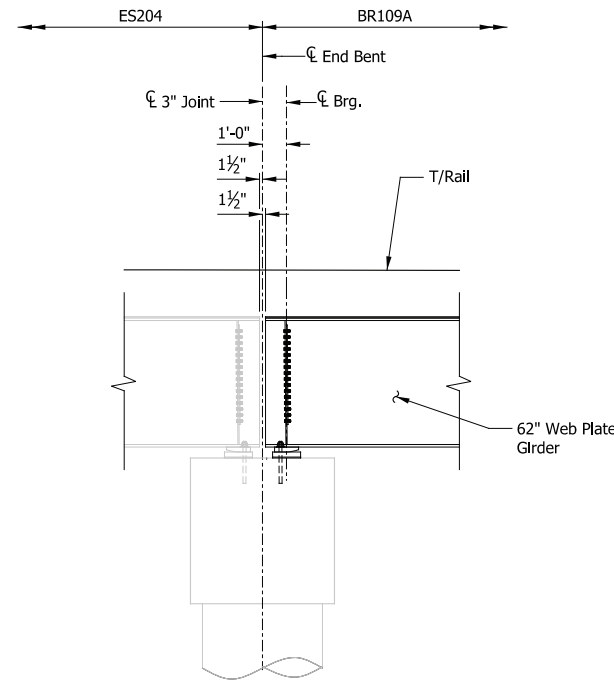
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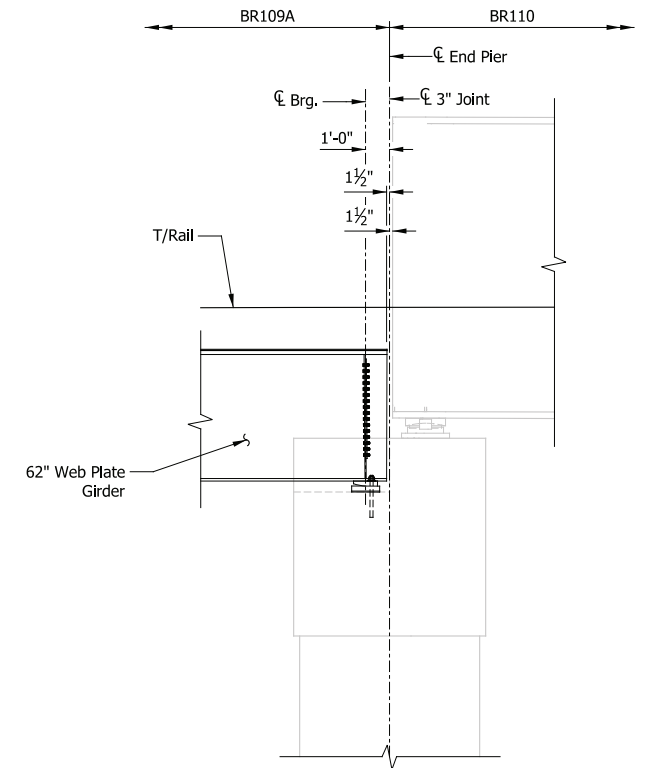
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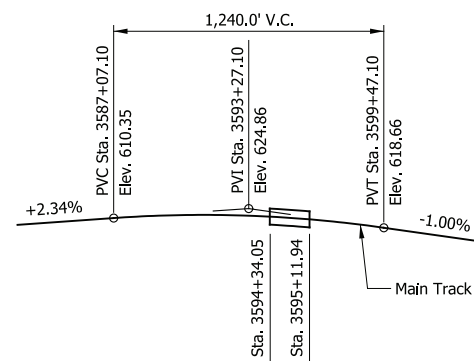
TYPICAL SECTION
Scale: 3/8" = 1'-0"



SECTION THRU SOUTH END BENT
Scale: 1/4" = 1'-0"



SECTION THRU NORTH END PIER
Scale: 1/4" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

PLOT DATE: November 08, 2017 6:21:04 PM JMWIGUS



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DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | HDR-LAG |
| DRAWN: | HDR-DRA |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

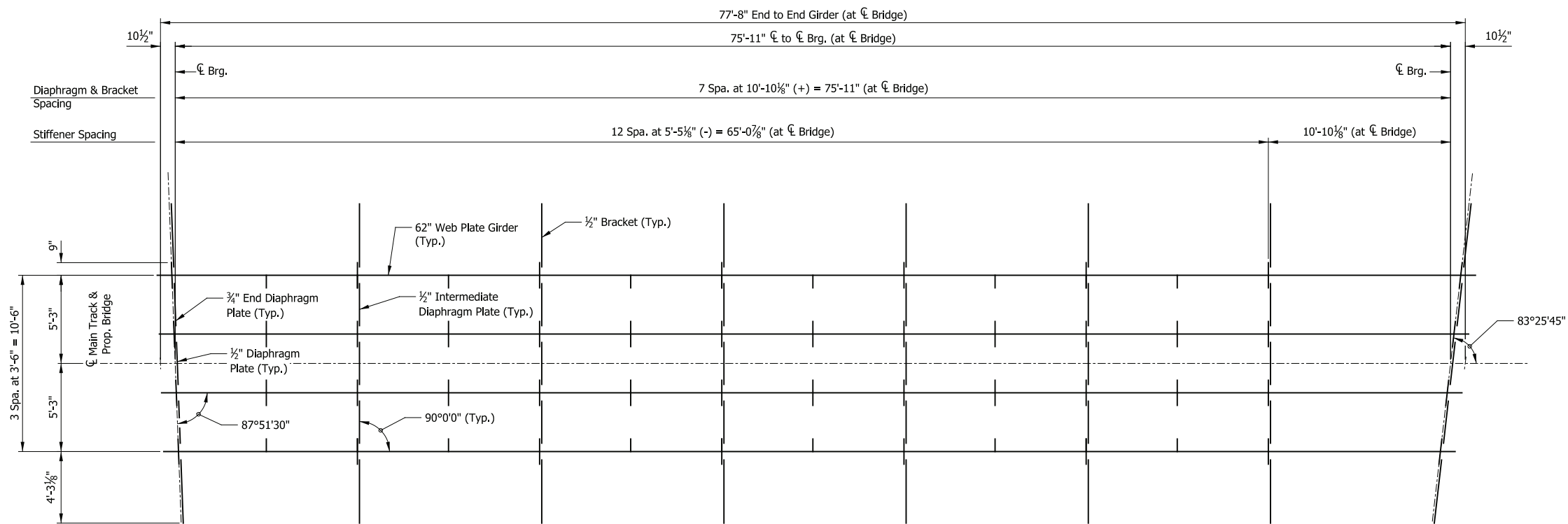
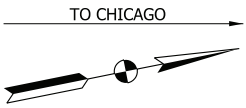
SERIES
BR109A-02 OF BR109A-03

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

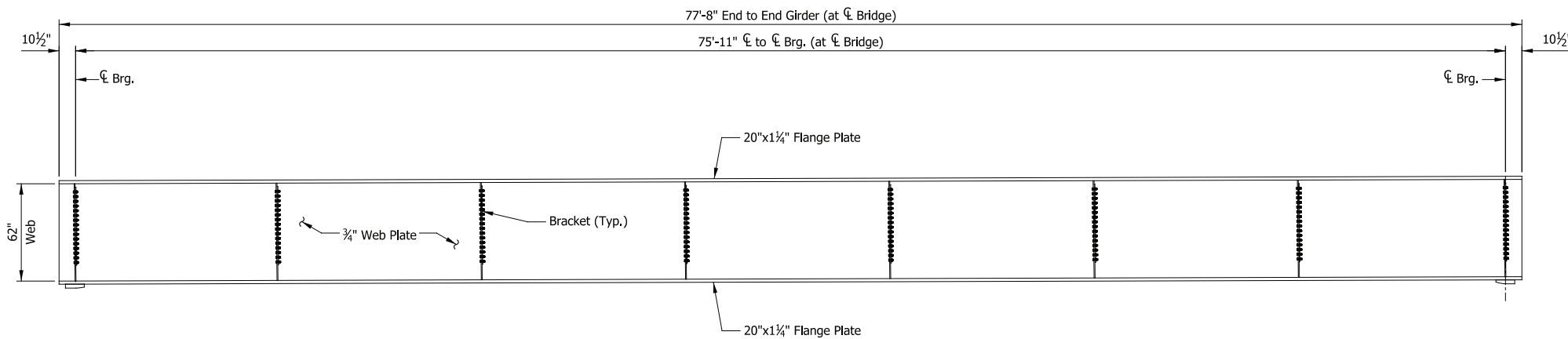
**BRIDGE 109A - NICTD OVER
STATE STREET
TYPICAL SECTION**

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| FILENAME | SHT_WL_ST_BR109A_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 139 OF 218 |

← TO DYER



FRAMING PLAN
Scale: 3/4" = 1'-0"



GIRDER EXTERIOR ELEVATION
Scale: 3/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR109A-03 OF BR109A-03

| | |
|-----------|----------|
| DESIGNED: | HDR-LAG |
| DRAWN: | HDR-DRA |
| CHECKED: | HDR-XXX |
| DATE: | 07/21/17 |

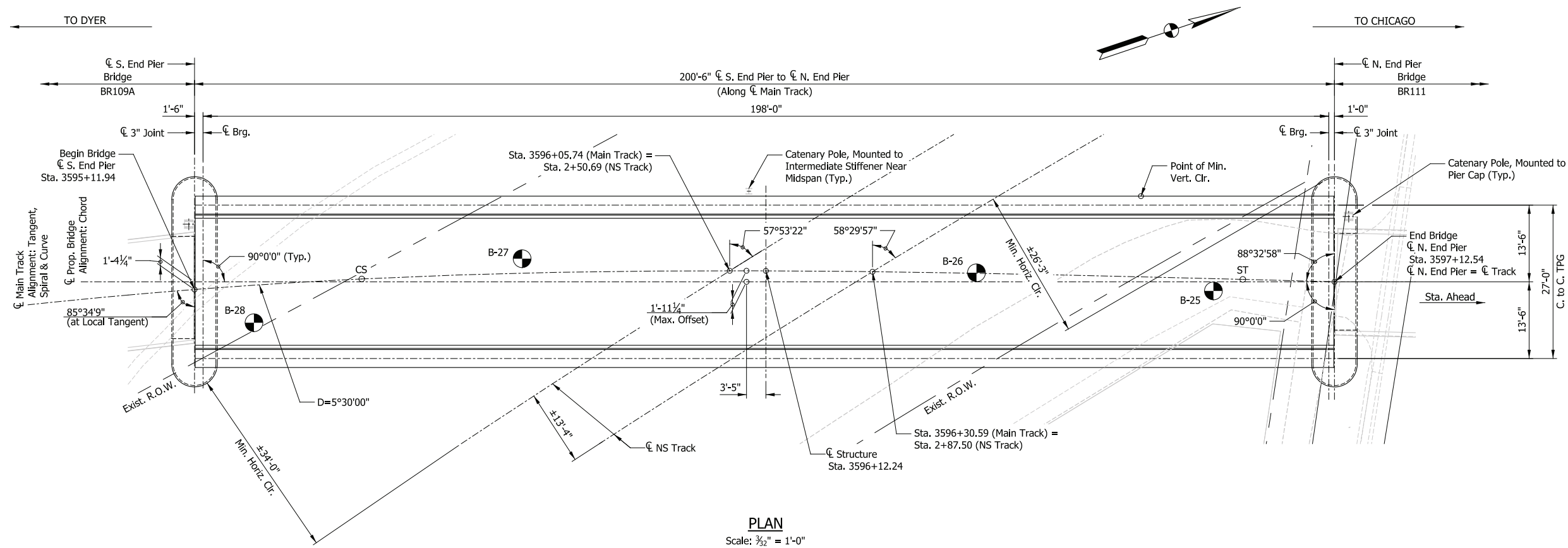
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 109A - NICTD OVER STATE STREET FRAMING PLAN | | |
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PLOT DATE: November 08, 2017 6:21:15 PM JMGIGUS

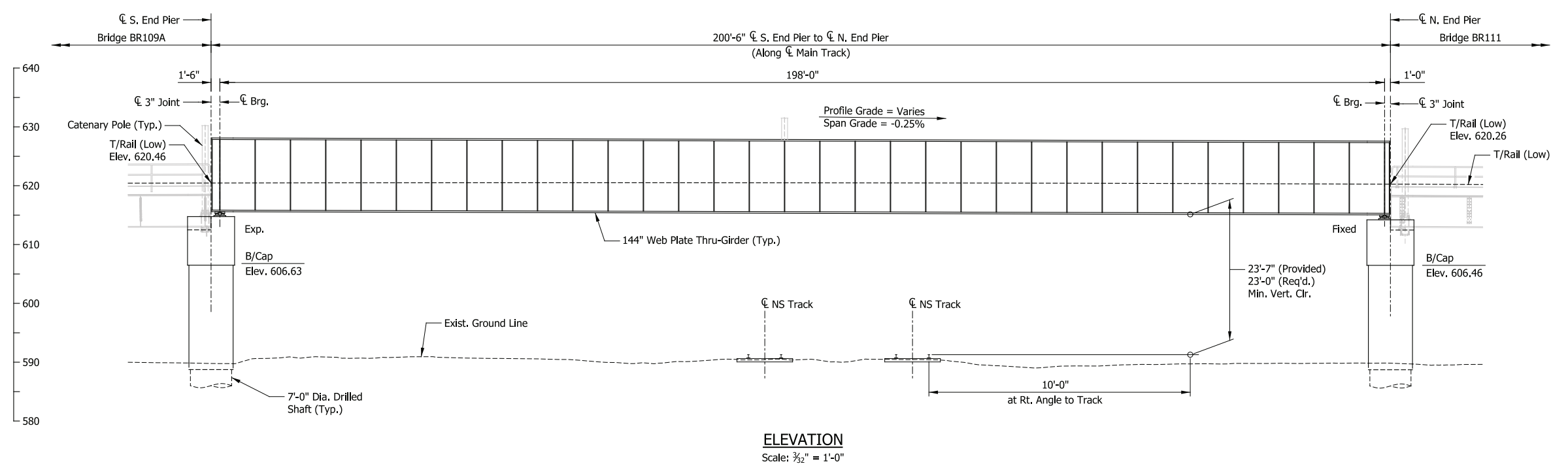


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PLAN
Scale: 1/2" = 1'-0"



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

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (at High End of Span, at Low Rail)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

SHEET INDEX

| | |
|----------|--------------------------|
| BR110-01 | General Plan & Elevation |
| BR110-02 | Typical Details |
| BR110-03 | Substructure Details |
| BR110-04 | Framing Plan |

CONSTRUCTION DEPTH

| | |
|----------------|---------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 6" |
| Waterproofing | 1" |
| Deck Plate | 3/4" |
| Floorbeam | 29 1/4" |
| Bracing | 4" |
| Bottom Flange | 3 1/4" |
| | 58 5/8" |

- NOTES**
- For track geometry, see Track Plans.
 - Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR110-01 OF BR110-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 110 - NICTD OVER NS RR

GENERAL PLAN & ELEVATION

| | | |
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| FILENAME | SHT_WL_ST_BR110_GenPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 141 OF 218 |

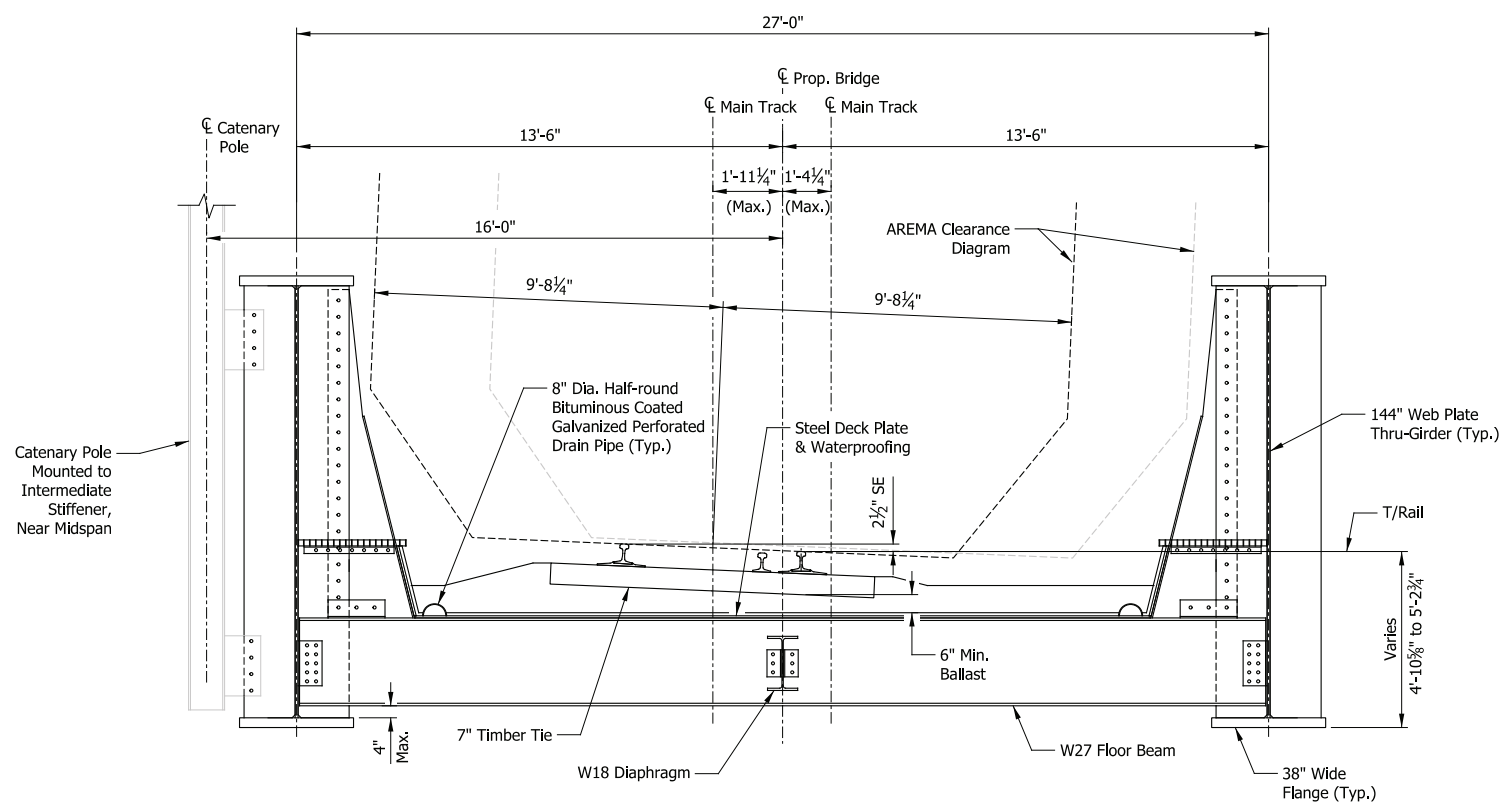
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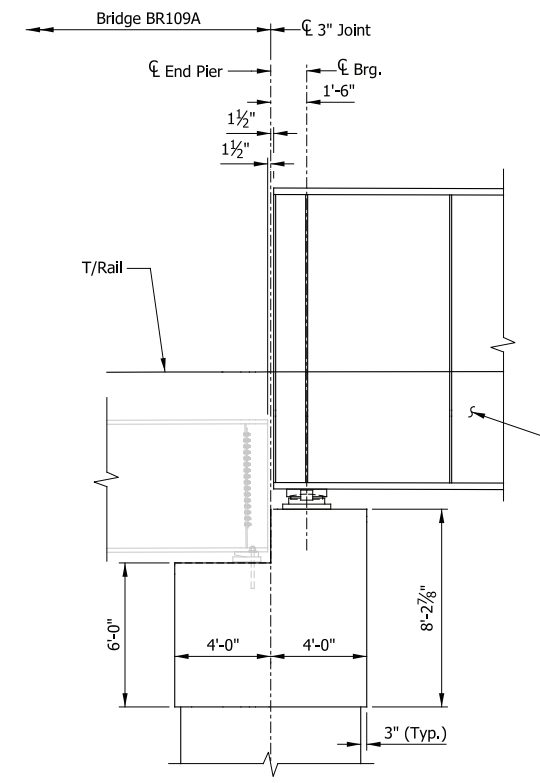
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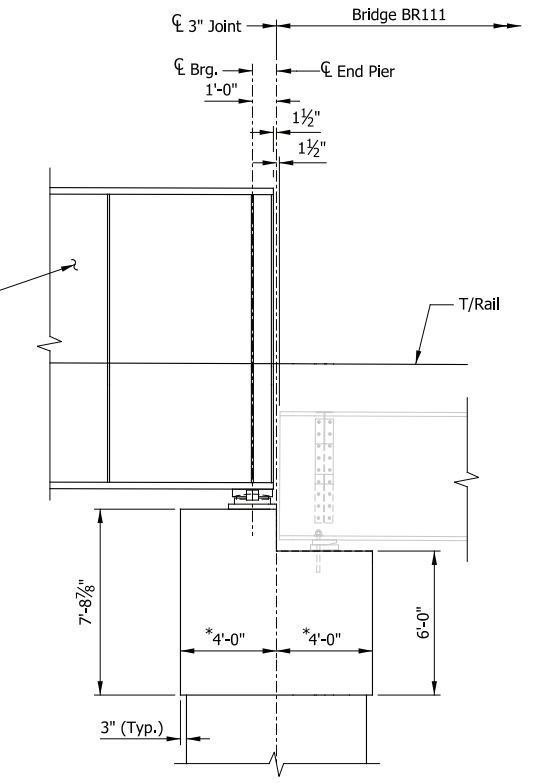
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| DRAWN: | HDR-JM |
| CHECKED: | HDR-JAL |
| DATE: | 07/21/17 |



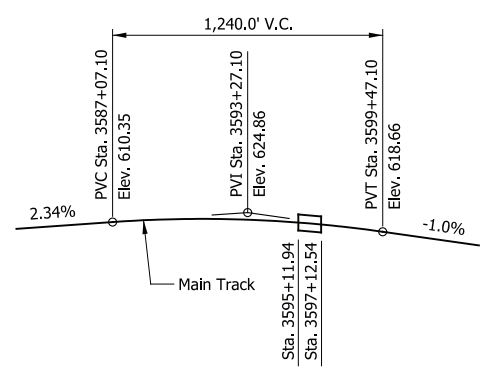
TYPICAL SECTION
Scale: 3/8" = 1'-0"



SECTION THRU S. END PIER
Scale: 1/4" = 1'-0"



SECTION THRU N. END PIER
* at Right Angle
Scale: 1/4" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR110-02 OF BR110-04

| | |
|-----------|----------|
| DESIGNED: | HDR-MAB |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-JAL |
| DATE: | 07/21/17 |

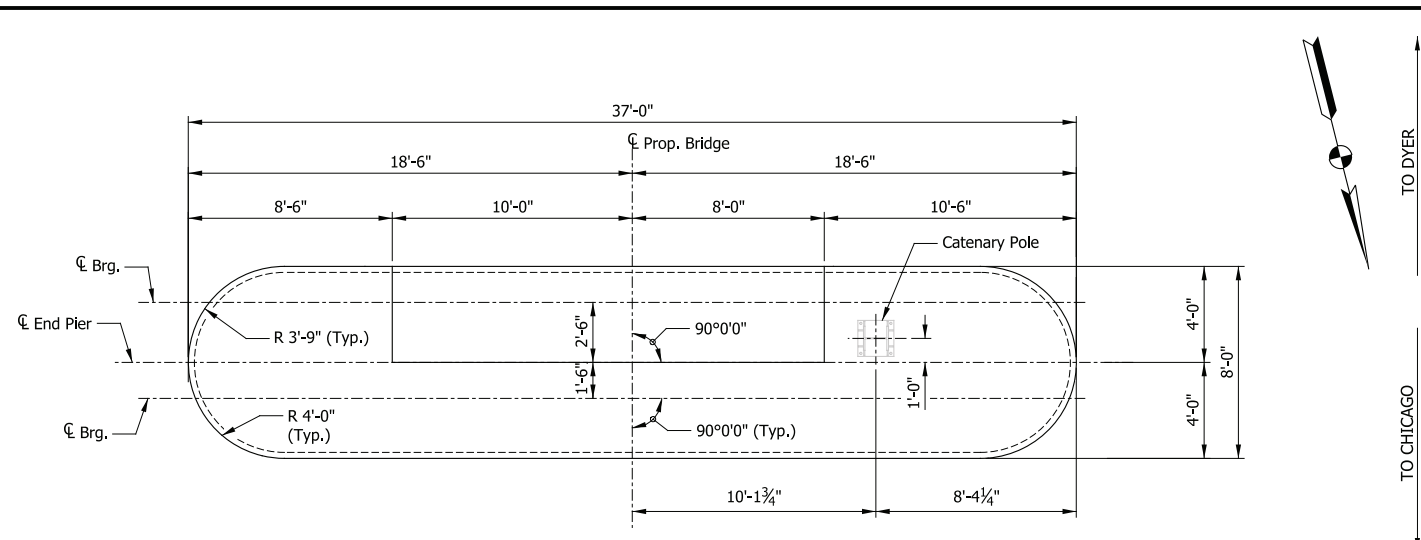
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 110 - NICTD OVER NS RR | | |
| TYPICAL DETAILS | | |
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| SCALE | AS NOTED | 142 OF 218 |

PLOT DATE: November 08, 2017 6:21:24 PM JMWIGUS

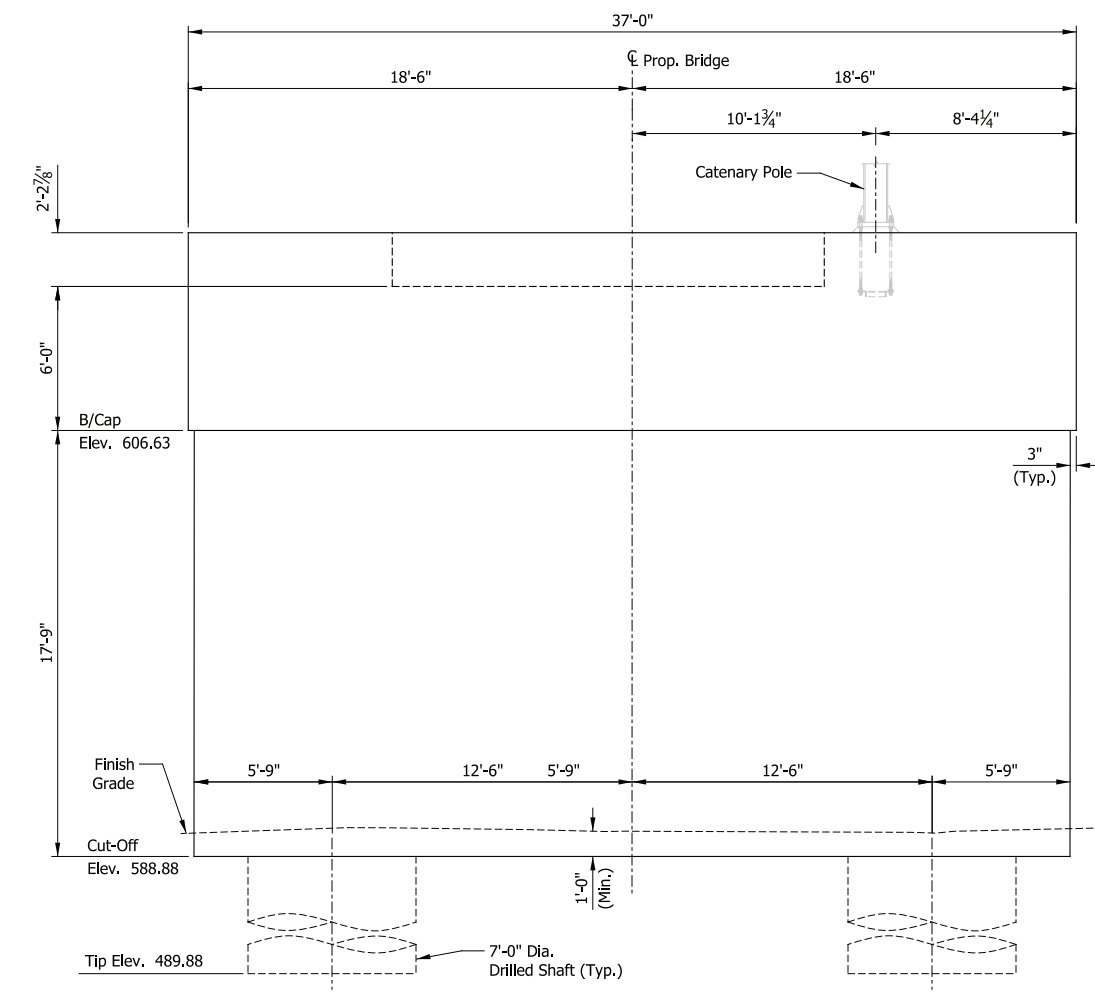


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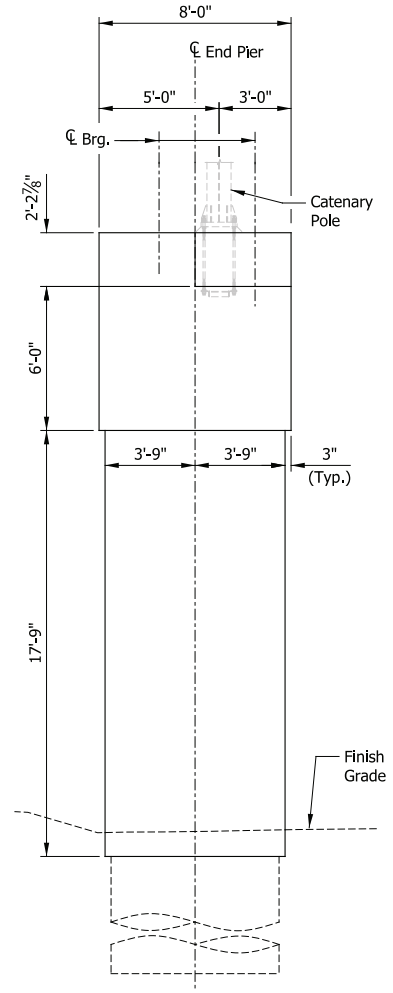


PLAN
Scale: 1/4" = 1'-0"

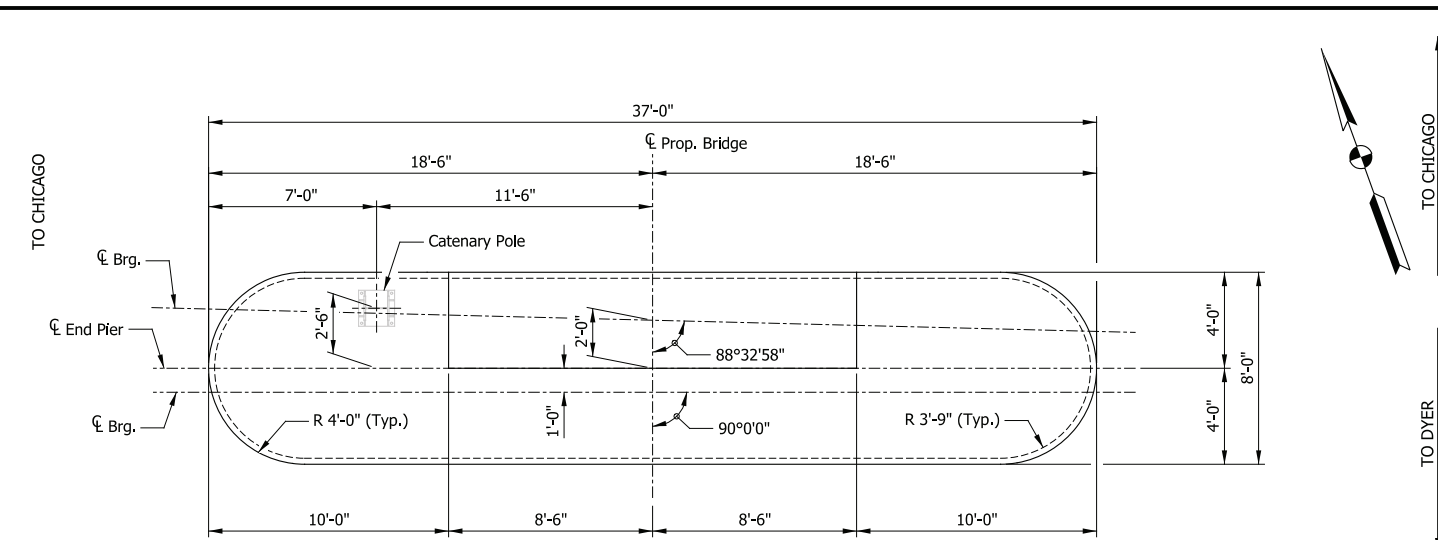


ELEVATION
Scale: 1/4" = 1'-0"

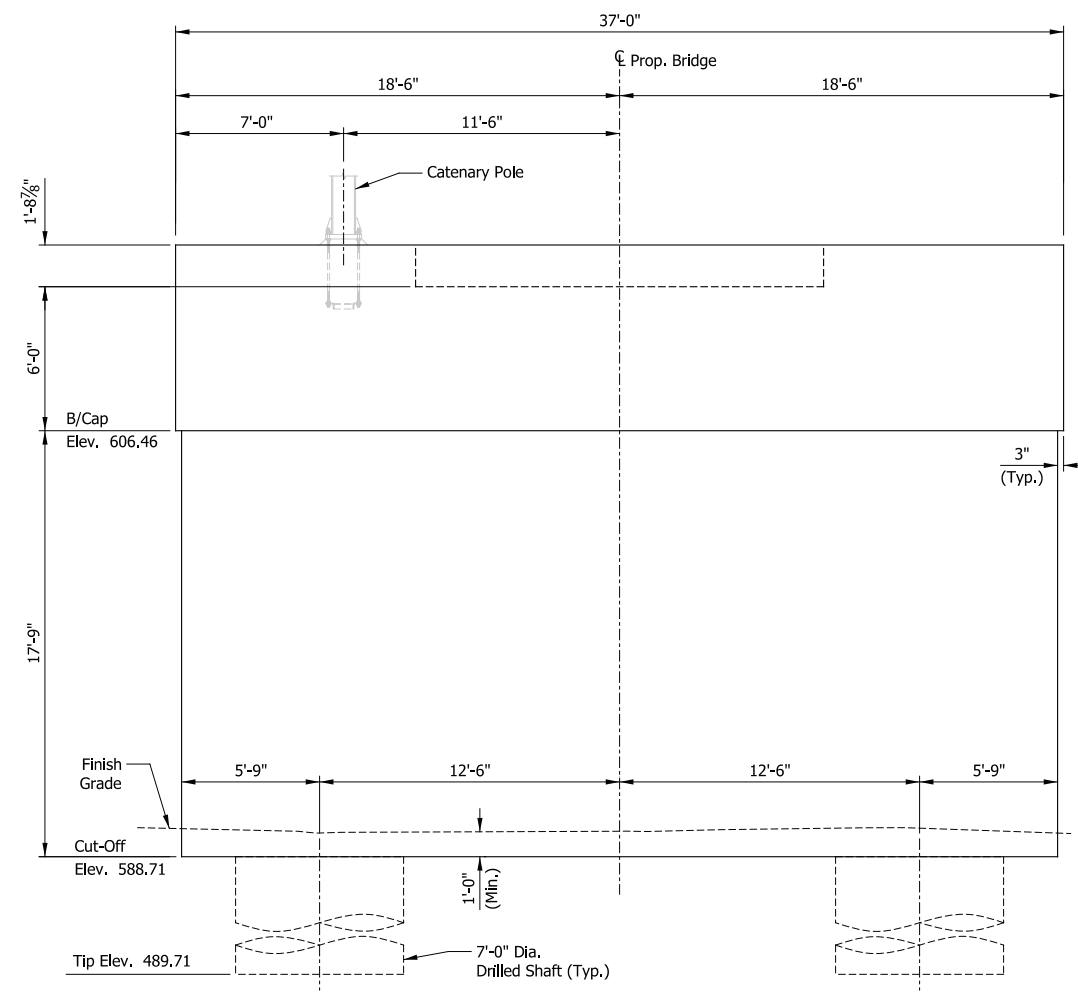
SOUTH END PIER



END VIEW
Scale: 1/4" = 1'-0"

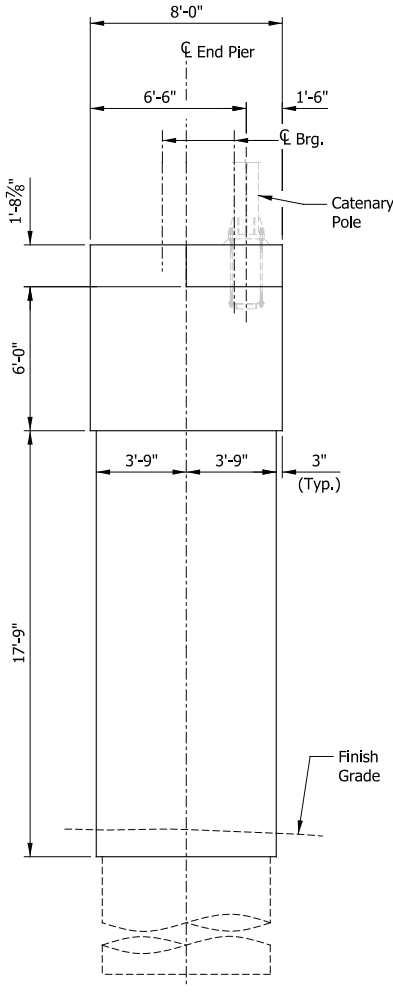


PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

NORTH END PIER



END VIEW
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR110-03 OF BR110-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
BRIDGE 110 - NICTD OVER NS RR
SUBSTRUCTURE DETAILS

FILENAME: SHT_WL_ST_BR110_SubstrDet_01.dgn SHEET: **143 OF 218**
SCALE: AS NOTED

PLOT DATE: November 08, 2017 6:21:27 PM JMWIGUS



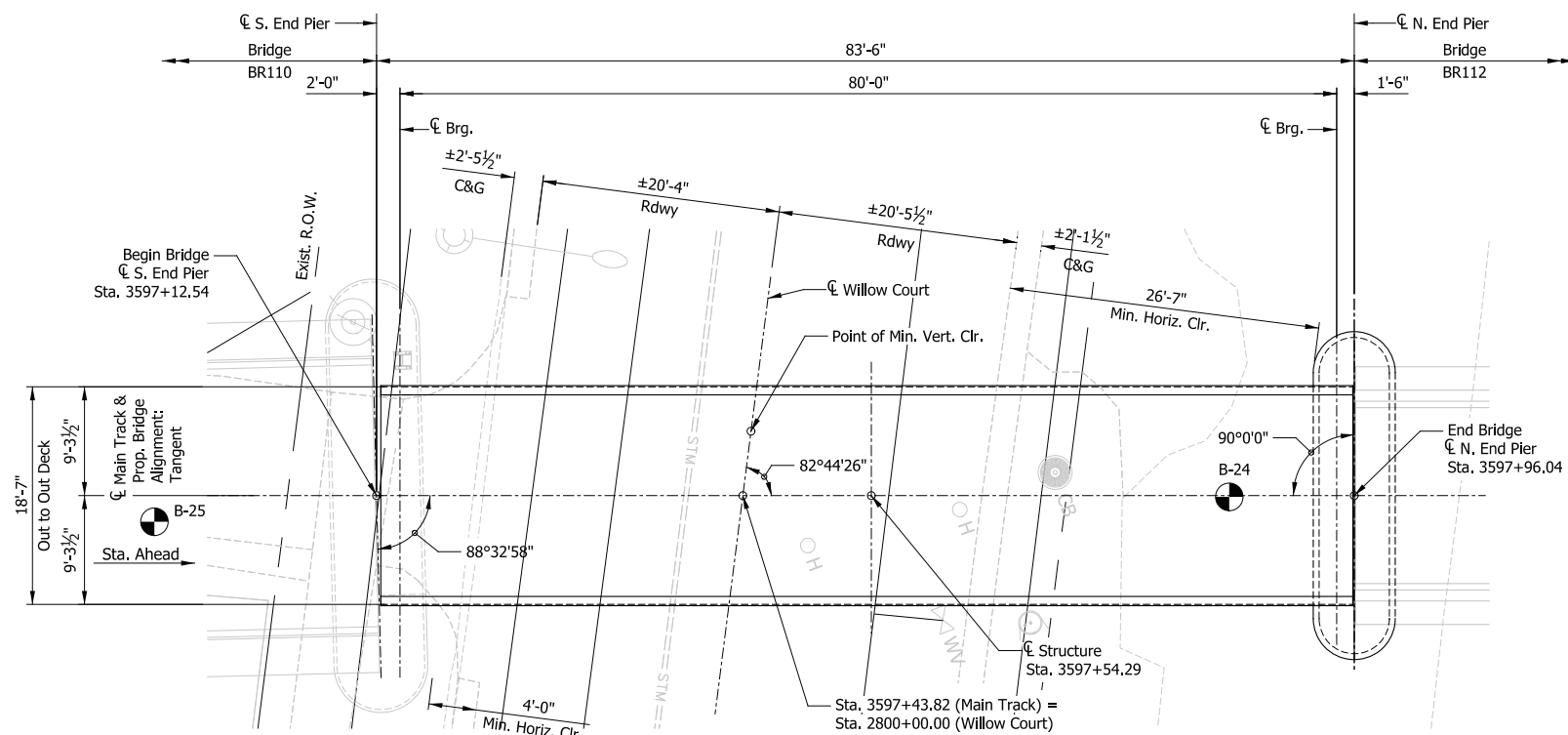
| ISSUE | DATE | DESCRIPTION |
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|-----------|----------|
| DESIGNED: | HDR-LG |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-JAL |
| DATE: | 07/21/17 |

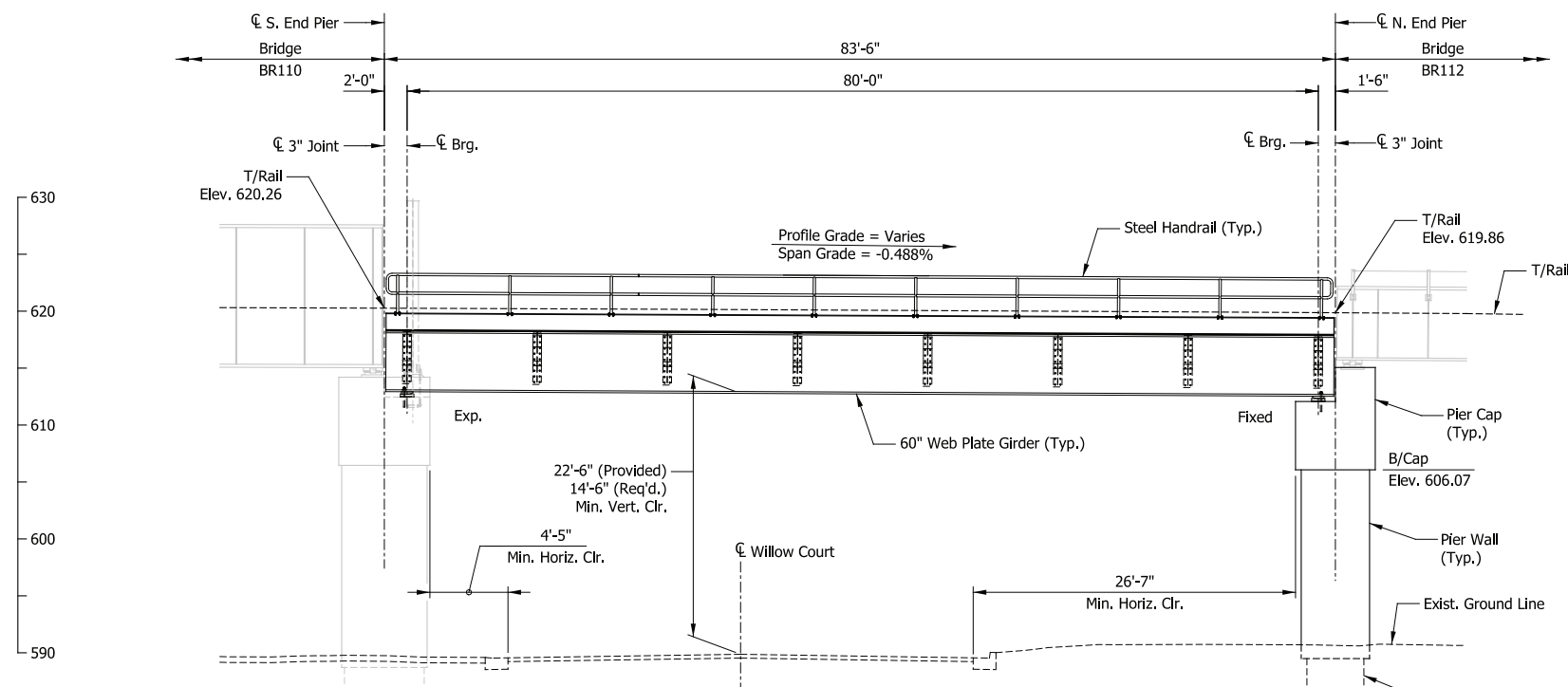
← TO DYER

→ TO CHICAGO



PLAN

Scale: 1/8" = 1'-0"



ELEVATION

Scale: 1/8" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 4,000$ psi (Min.)

SHEET INDEX

- BR111-01 General Plan & Elevation
- BR111-02 Typical Details
- BR111-03 Substructure Details
- BR111-04 Framing Plan

CONSTRUCTION DEPTH

| | |
|----------------|--------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 8" |
| Waterproofing | 1" |
| Deck Plate | 5/8" |
| Top Flange | 2" |
| Web | 60" |
| Bottom Flange | 2" |
| 88" | |

NOTES

1. For track geometry, see Track Plans.
2. Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR111-01 OF BR111-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
**BRIDGE 111 - NICTD OVER
WILLOW COURT
GENERAL PLAN & ELEVATION**

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| FILENAME | SHT_WL_ST_BR111_GenPlan_01.dgn |
| SCALE | AS NOTED |

SHEET **145 OF 218**

PLOT DATE: November 08, 2017 6:21:38 PM JMWIGUS



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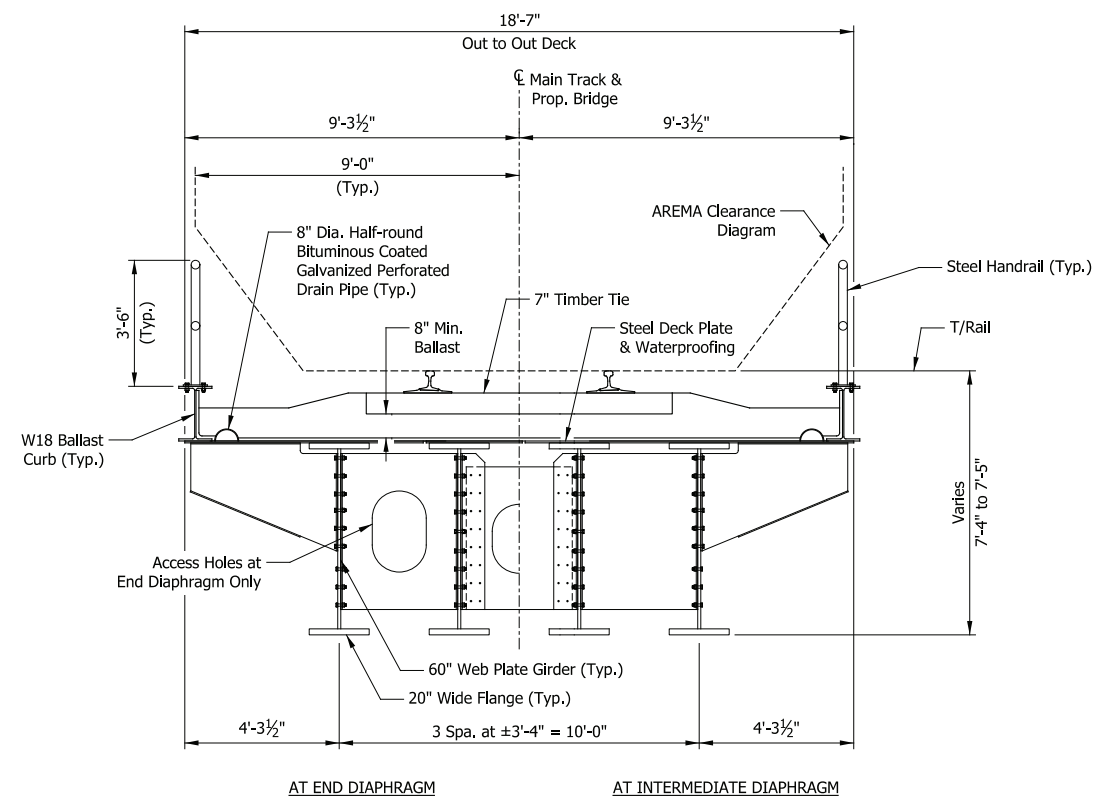


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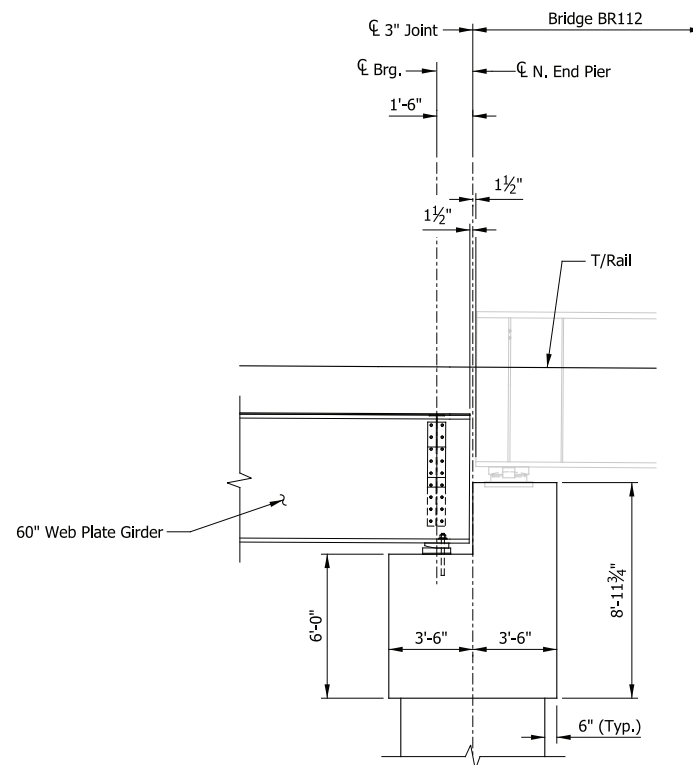


DYER TO HAMMOND, INDIANA

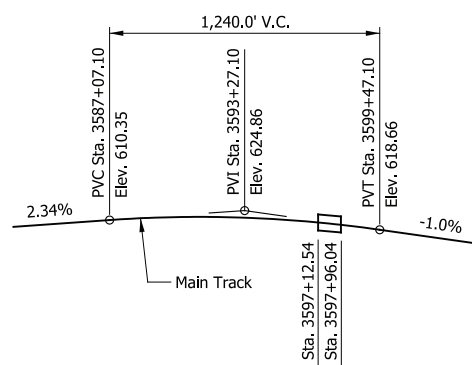
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| DESIGNED: | HDR-EJW |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-RVC |
| DATE: | 07/21/17 |



TYPICAL SECTION
Scale: 3/8" = 1'-0"



SECTION THRU N. END PIER
Scale: 1/4" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

PLOT DATE: November 08, 2017 6:21:43 PM JMWIGUS



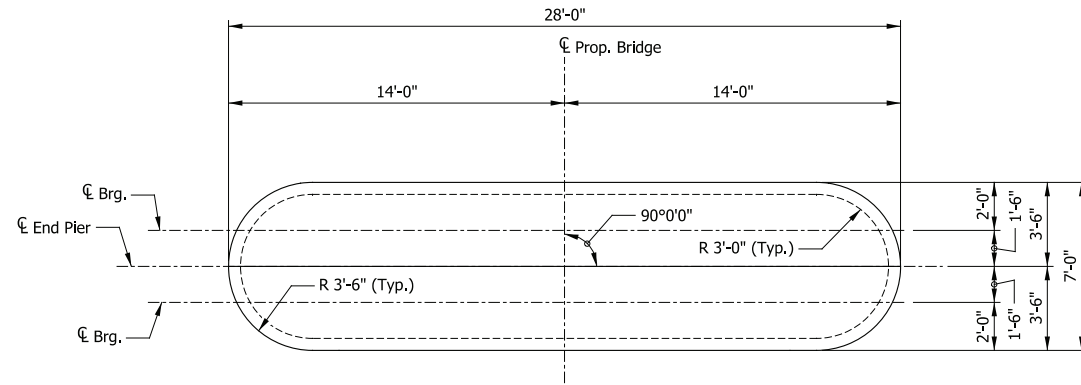
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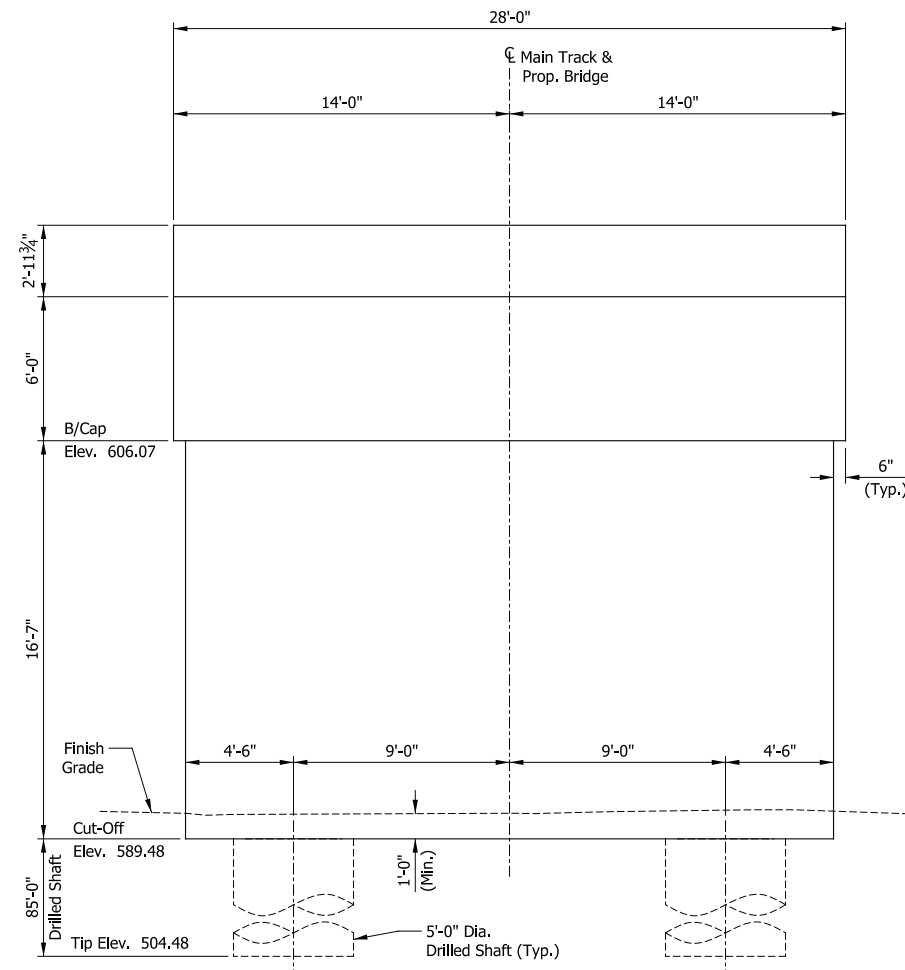
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| DESIGNED: | HDR-EJW |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-RVC |
| DATE: | 07/21/17 |

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|--|-------------------------------|
| PRELIMINARY PLANS | |
| NOT FOR CONSTRUCTION | |
| SERIES BR111-02 OF BR111-04 | |
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | |
| BRIDGE 111 - NICTD OVER WILLOW COURT TYPICAL DETAILS | |
| FILENAME | SHT_WL_ST_BR111_TypDet_01.dgn |
| SCALE | AS NOTED |
| SHEET 146 OF 218 | |



PLAN

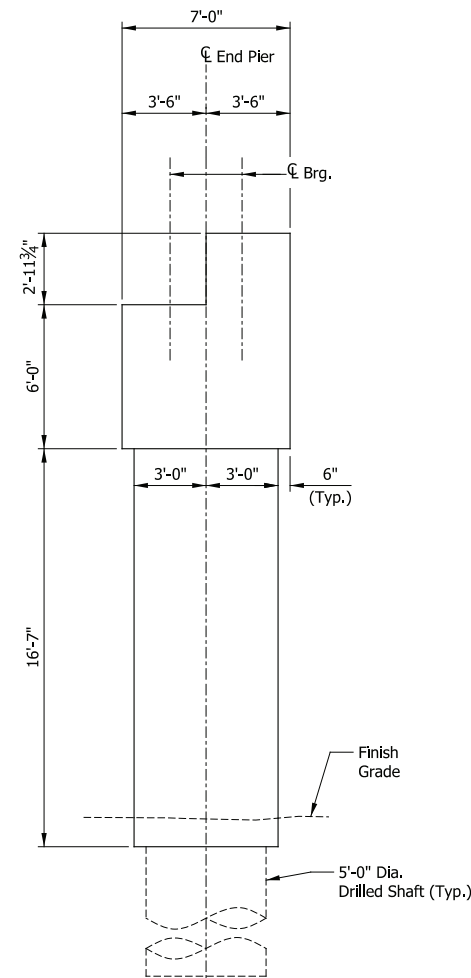
Scale: 1/4" = 1'-0"



ELEVATION

Scale: 1/4" = 1'-0"

NORTH END PIER



END VIEW

Scale: 1/4" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR111-03 OF BR111-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**BRIDGE 111 - NICTD OVER
WILLOW COURT
SUBSTRUCTURE DETAILS**

FILENAME SHT_WL_ST_BR111_SubstrDet_01.dgn
SCALE AS NOTED

SHEET **147 OF 218**

PLOT DATE: November 08, 2017 6:21:48 PM JMGIGUS



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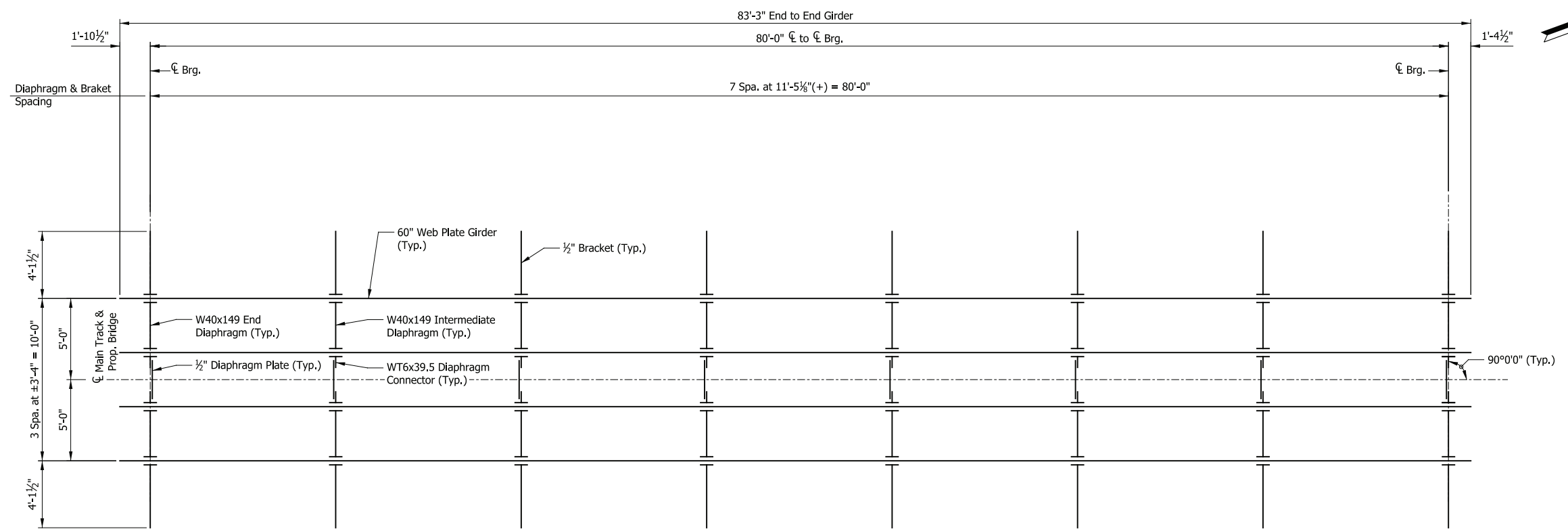
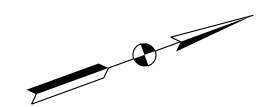


DYER TO HAMMOND, INDIANA

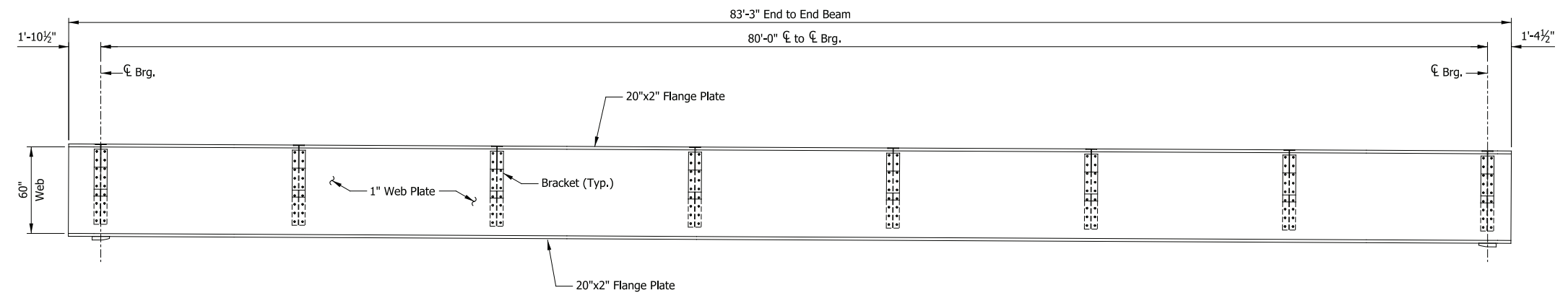
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| DESIGNED: | HDR-EJW |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-RVC |
| DATE: | 07/21/17 |

TO DYER

TO CHICAGO



FRAMING PLAN
Scale: 1/4" = 1'-0"



GIRDER EXTERIOR ELEVATION
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR111-04 OF BR111-04

| | |
|-----------|----------|
| DESIGNED: | HDR-EJW |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-RVC |
| DATE: | 07/21/17 |

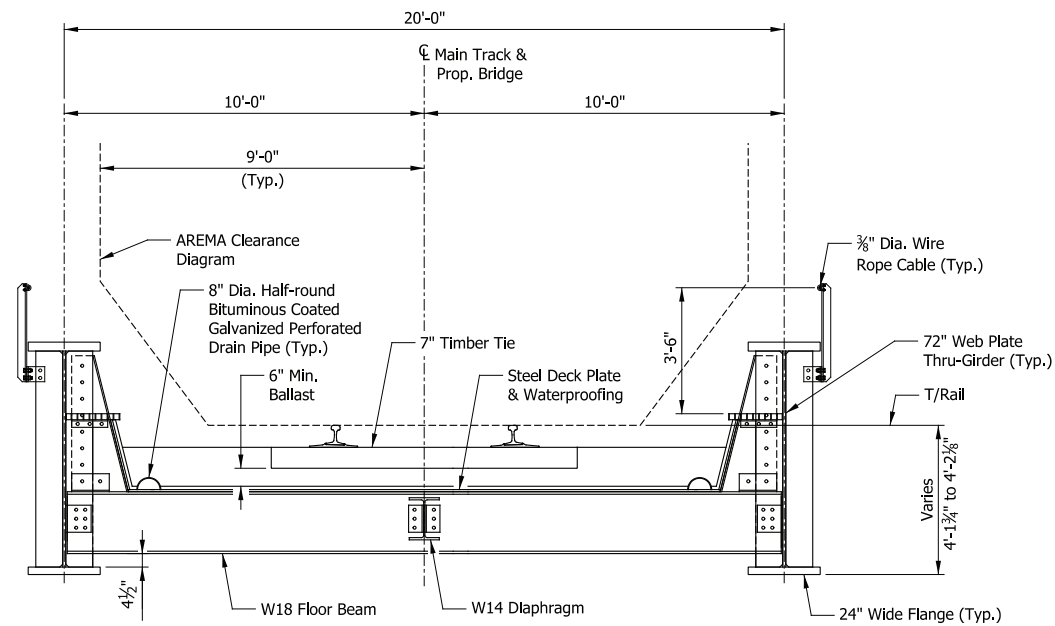
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|--|---------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 111 - NICTD OVER WILLOW COURT FRAMING PLAN | | |
| FILENAME | SHT_WL_ST_BR111_FramPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 148 OF 218 |

PLOT DATE: November 08, 2017 6:21:51 PM JMJIGUS



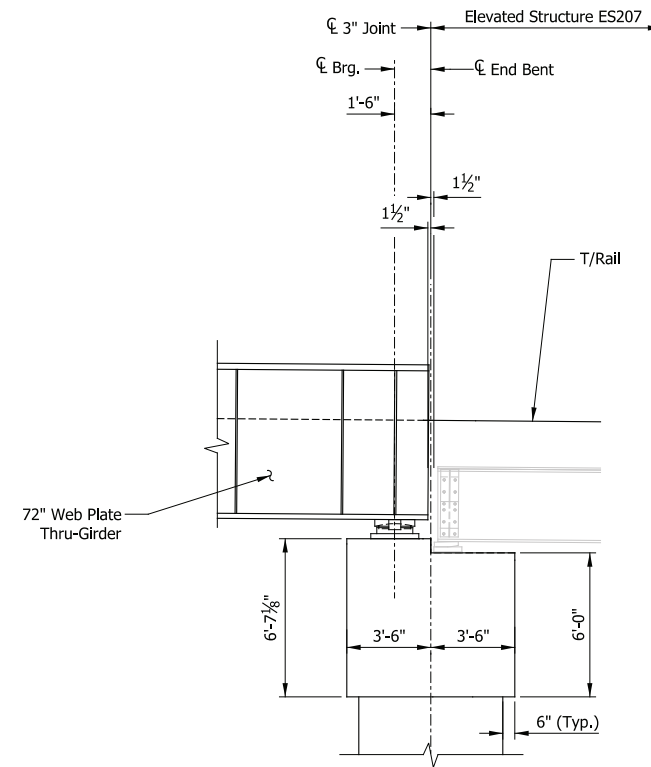
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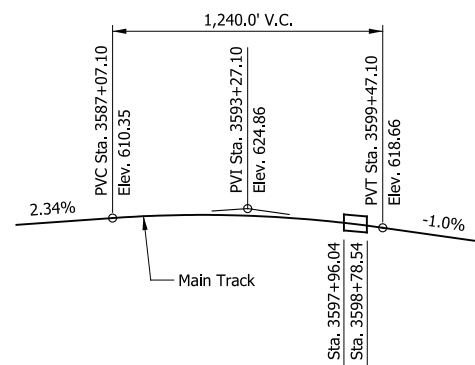
TYPICAL SECTION

Scale: 3/8" = 1'-0"



SECTION THRU END BENT

Scale: 1/4" = 1'-0"



TOP OF RAIL PROFILE

Not to Scale

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DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | HDR-EJW |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |
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PRELIMINARY PLANS

NOT FOR CONSTRUCTION

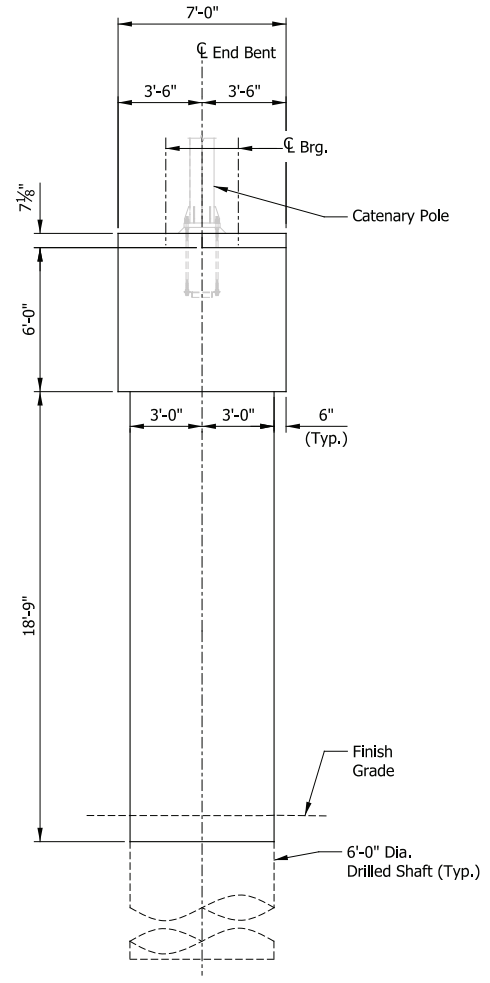
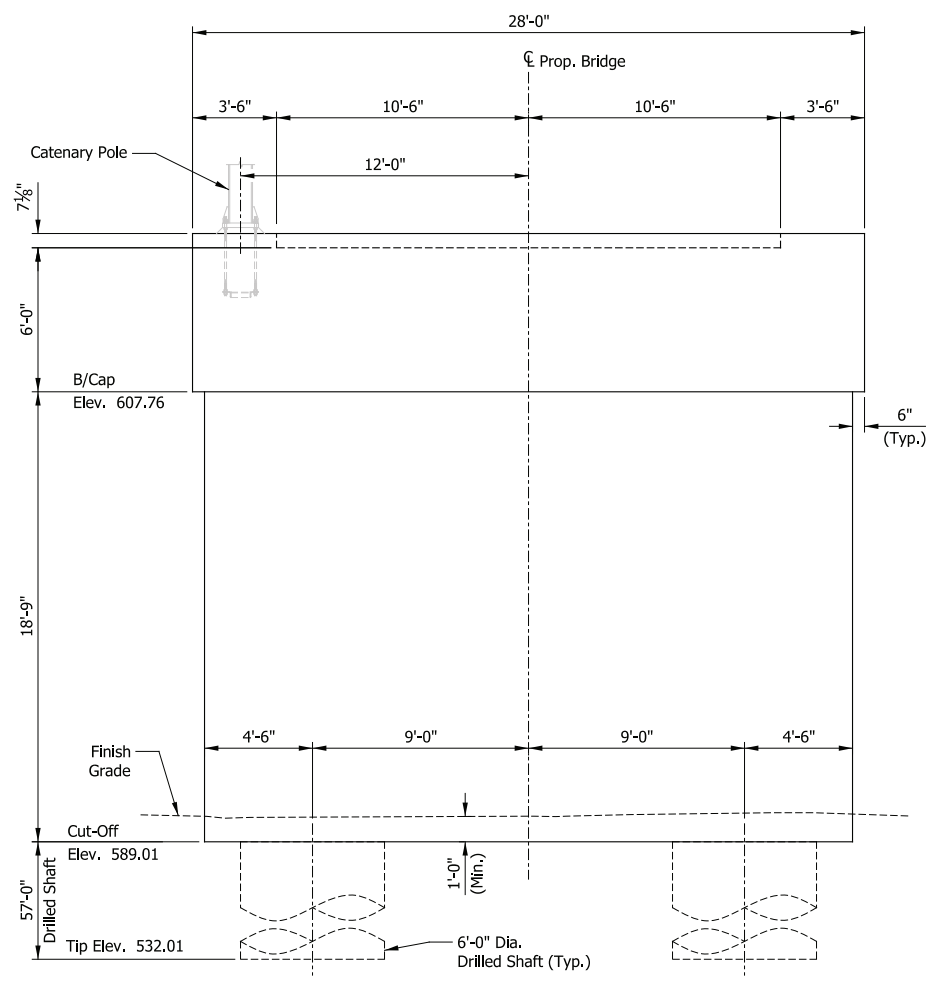
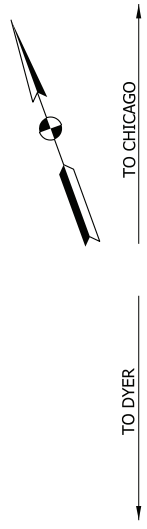
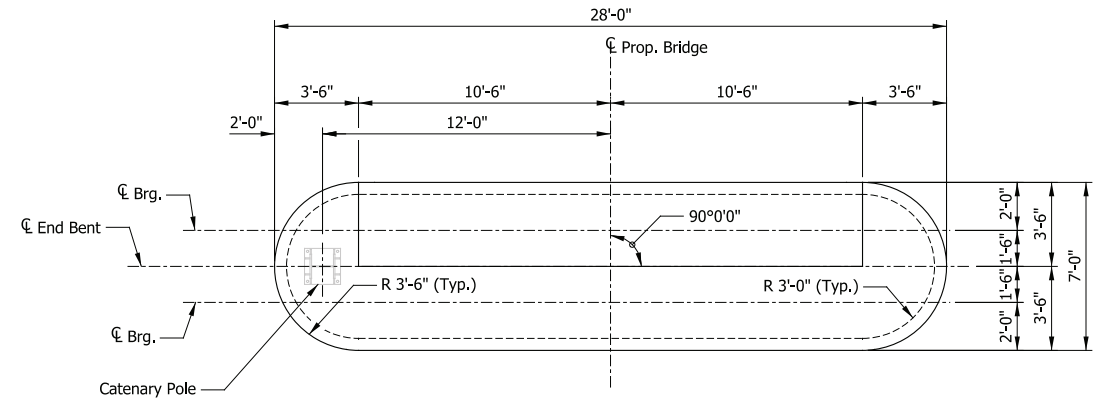
SERIES
BR112-02 OF BR112-04

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 112 - NICTD OVER IHB RR
TYPICAL DETAILS

| | |
|----------|-------------------------------|
| FILENAME | SHT_WL_ST_BR112_TypDet_01.dgn |
| SCALE | AS NOTED |

SHEET
150 OF 218



NORTH END BENT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR112-03 OF BR112-04

PLOT DATE: November 08, 2017 6:22:18 PM JMWIGUS

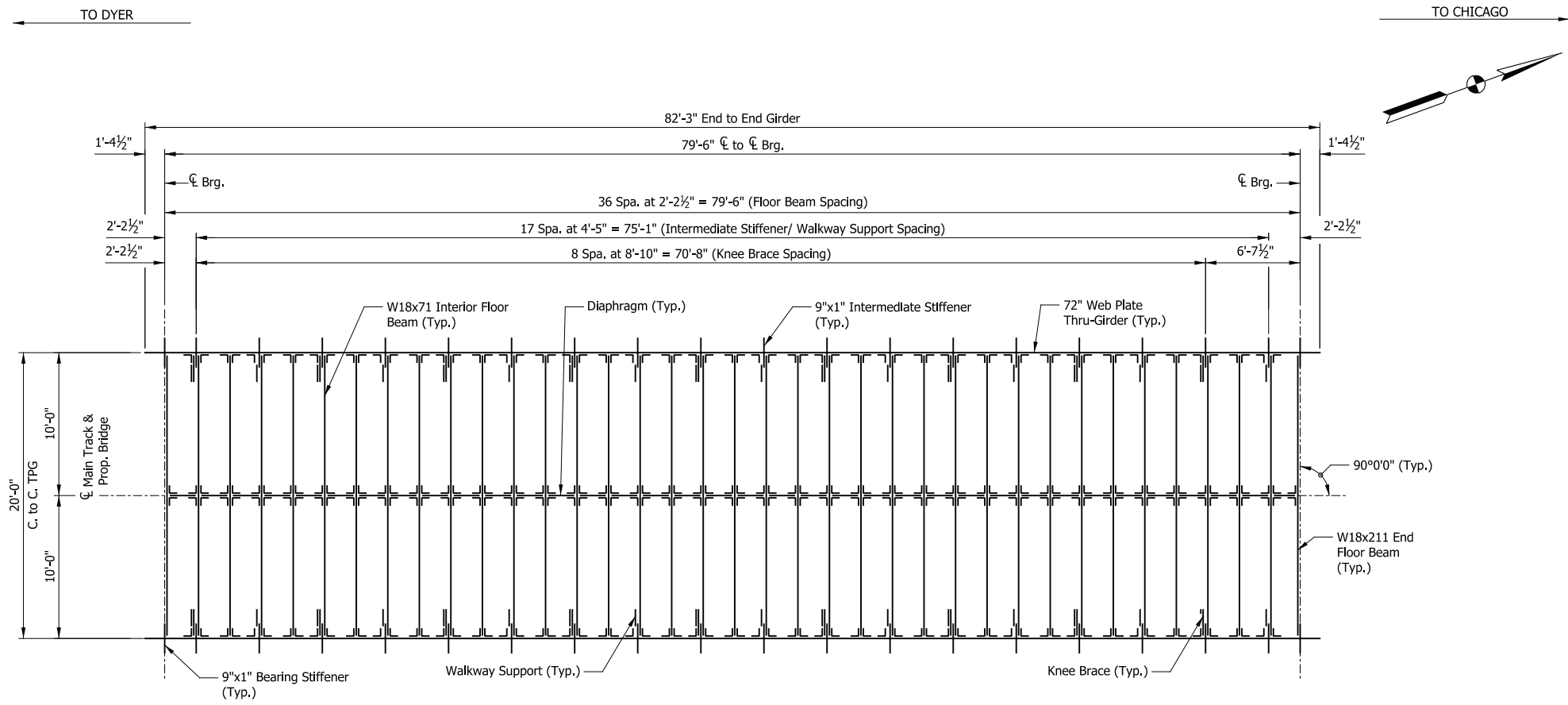


| ISSUE | DATE | DESCRIPTION |
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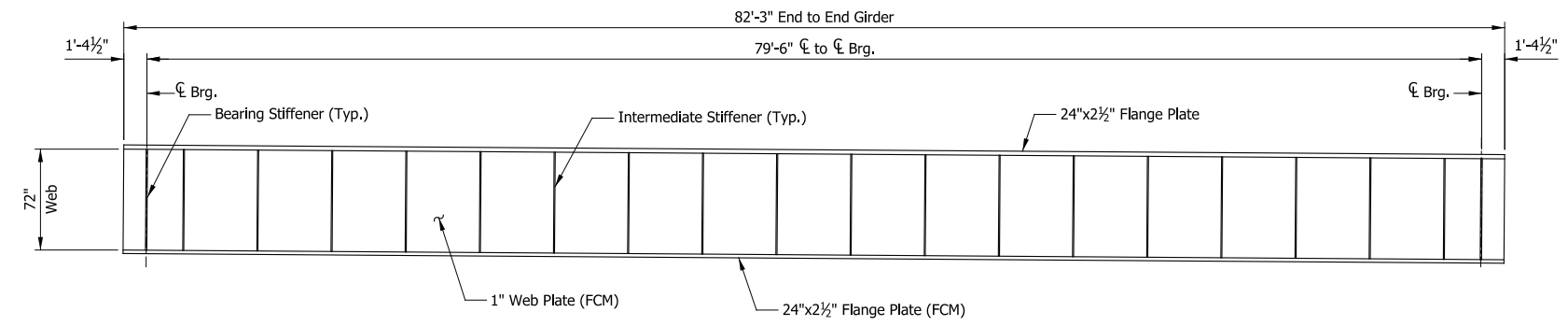


| | |
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| DESIGNED: | HDR-EJW |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

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|--|----------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 112 - NICTD OVER IHB RR SUBSTRUCTURE DETAILS | | |
| FILENAME | SHT_WL_ST_BR112_SubstrDet_01.dgn | SHEET |
| SCALE | AS NOTED | 151 OF 218 |



FRAMING PLAN
Scale: 3/16" = 1'-0"



GIRDER EXTERIOR ELEVATION
Scale: 3/16" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR112-04 OF BR112-04

| | |
|-----------|----------|
| DESIGNED: | HDR-EJW |
| DRAWN: | HDR-JM |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 112 - NICTD OVER IHB RR
FRAMING PLAN

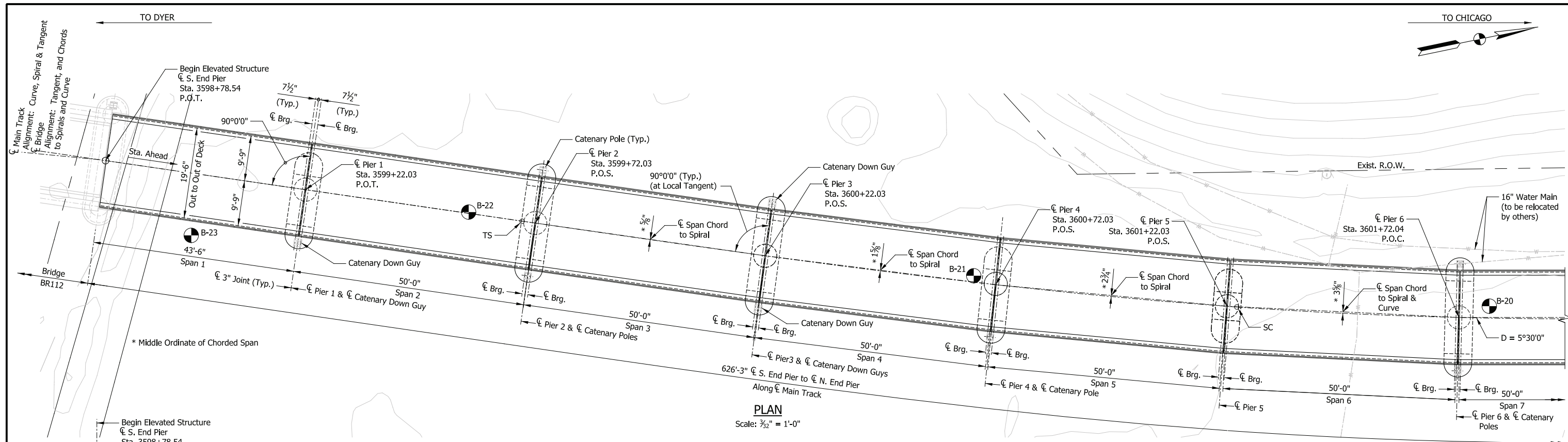
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|----------|---------------------------------|-------------------|
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| SCALE | AS NOTED | 152 OF 218 |

PLOT DATE: November 08, 2017 6:22:21 PM JMWIGUS

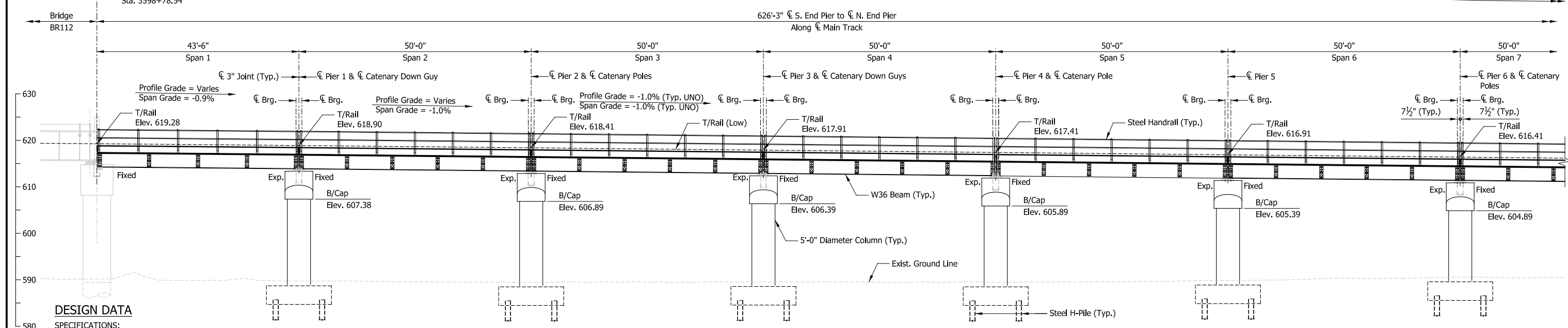


| ISSUE | DATE | DESCRIPTION |
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PLAN
Scale: 3/32" = 1'-0"



ELEVATION
Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span at Low Rail)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

CONSTRUCTION DEPTH

| | |
|----------------|---------|
| Rail (115 Lbs) | 6 3/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 8" |
| Waterproofing | 1" |
| Deck Plate | 1" |
| W36x182 Beam | 36 3/8" |
| | 60 3/4" |

SHEET INDEX

| | |
|----------|-----------------------------------|
| ES207-01 | General Plan & Elevation (1 of 2) |
| ES207-02 | General Plan & Elevation (2 of 2) |
| ES207-03 | Typical Details |
| ES207-04 | Substructure Details (1 of 3) |
| ES207-05 | Substructure Details (2 of 3) |
| ES207-06 | Substructure Details (3 of 3) |
| ES207-07 | Framing Plan (1 of 2) |
| ES207-08 | Framing Plan (2 of 2) |

NOTES

- For track geometry, see Track Plans.
- Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES207-01 OF ES207-08

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

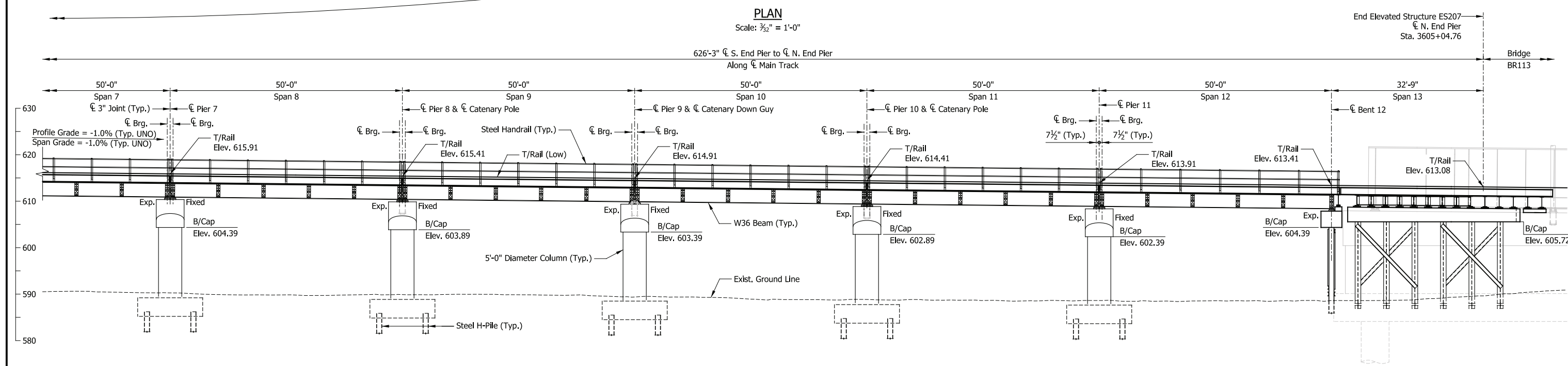
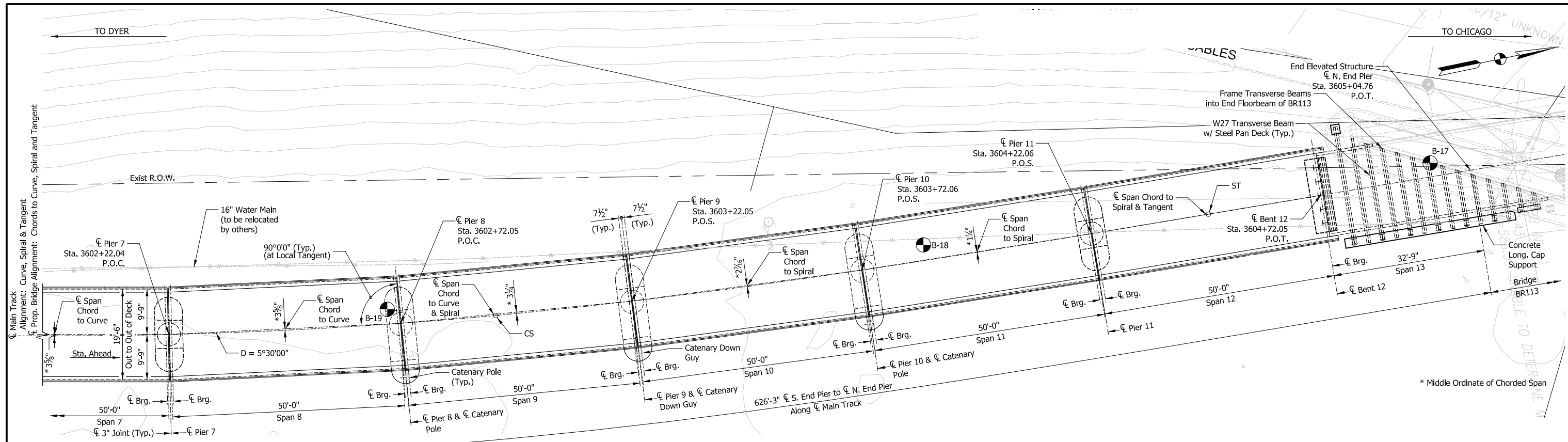
**ELEVATED STRUCTURE 207
GENERAL PLAN & ELEVATION (1 OF 2)**

| | | | |
|----------|----------------------------|-------|------------|
| FILENAME | SHT_WL_ST_ES207_GenPlan_01 | SHEET | 153 OF 218 |
| SCALE | AS NOTED | | |

PLOT DATE: November 08, 2017 6:22:27 PM JMJIGUS



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| DESIGNED: | HDR-PJG/DTM |
| DRAWN: | HDR-AEP |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |



NOTES

- For track geometry, see Track Plans.
- Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES ES207-02 OF ES207-08

| | | |
|--|----------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 207 | | |
| GENERAL PLAN & ELEVATION (2 OF 2) | | |
| FILENAME | SHT_WL_ST_ES207_GenPlan_02 | SHEET |
| SCALE | AS NOTED | 154 OF 218 |

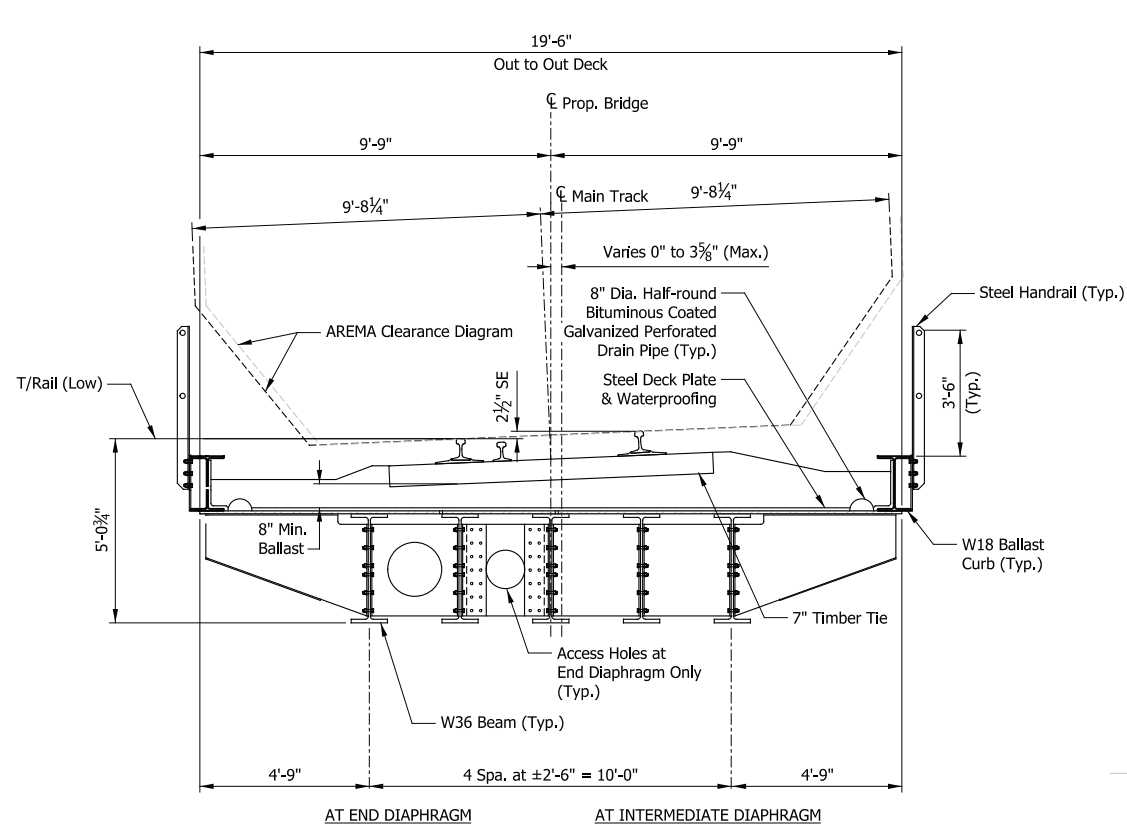
PLOT DATE: November 08, 2017 6:22:32 PM JMJIGUS



| ISSUE | DATE | DESCRIPTION |
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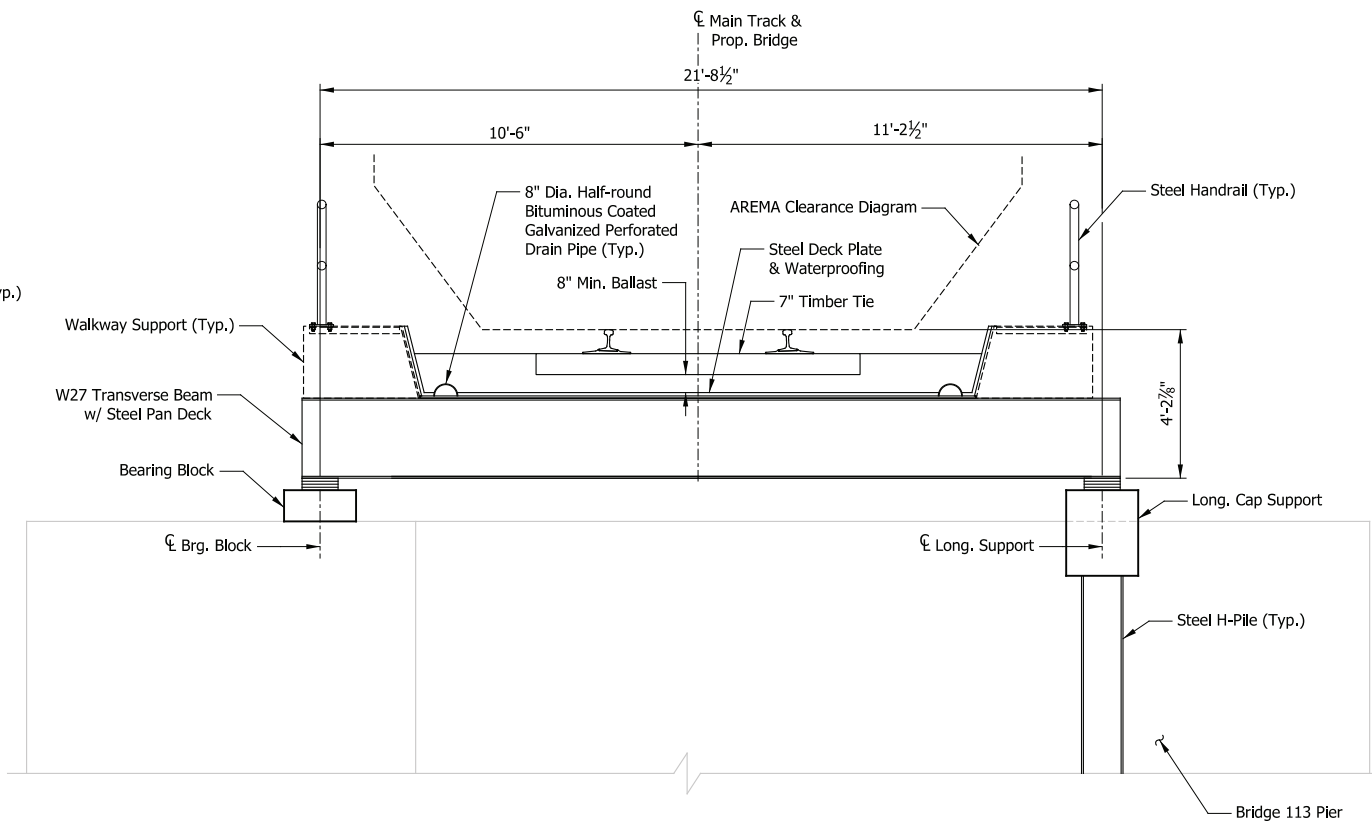


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| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |



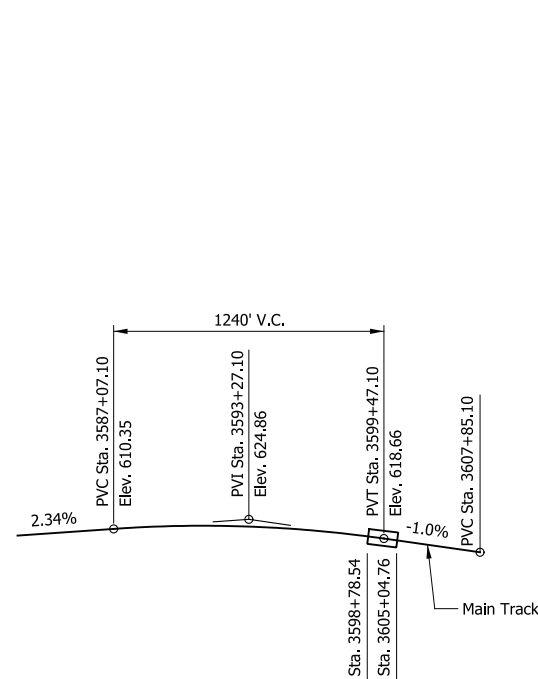
TYPICAL SPAN SECTION

Scale: 3/8" = 1'-0"



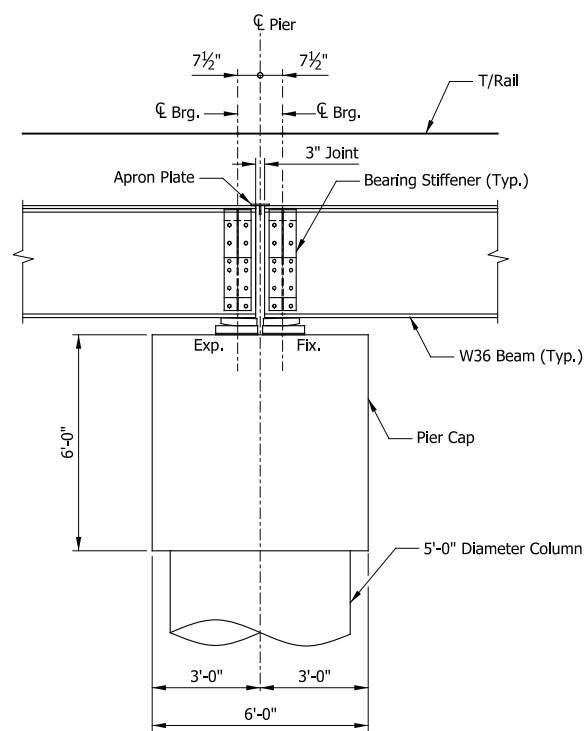
SECTION - TRANSVERSE STRUCTURE

Scale: 3/8" = 1'-0"



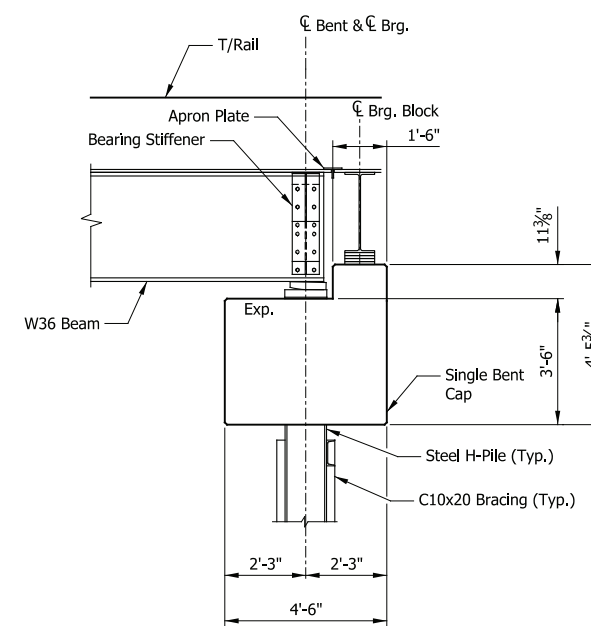
TOP OF RAIL PROFILE

Not to Scale



SECTION THRU PIERS 1 THRU 11

Scale: 3/8" = 1'-0"



SECTION THRU BENT 12

Scale: 3/8" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES207-03 OF ES207-08

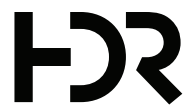
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 207
TYPICAL DETAILS

FILENAME SHT_WL_ST_ES207_TypDet_01
SCALE AS NOTED

SHEET 155 OF 218

PLOT DATE: November 08, 2017 6:22:35 PM JMWIGUS



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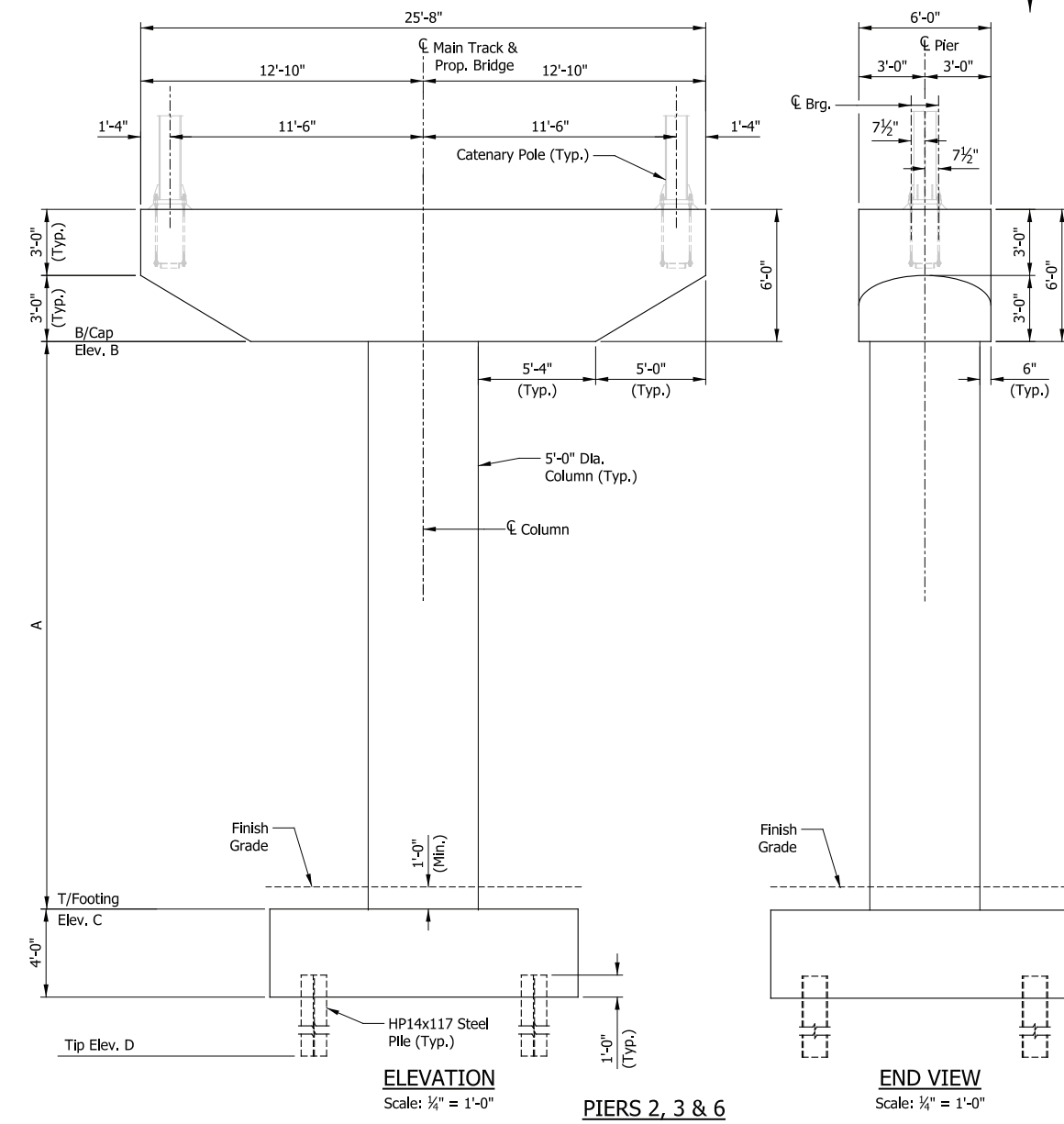
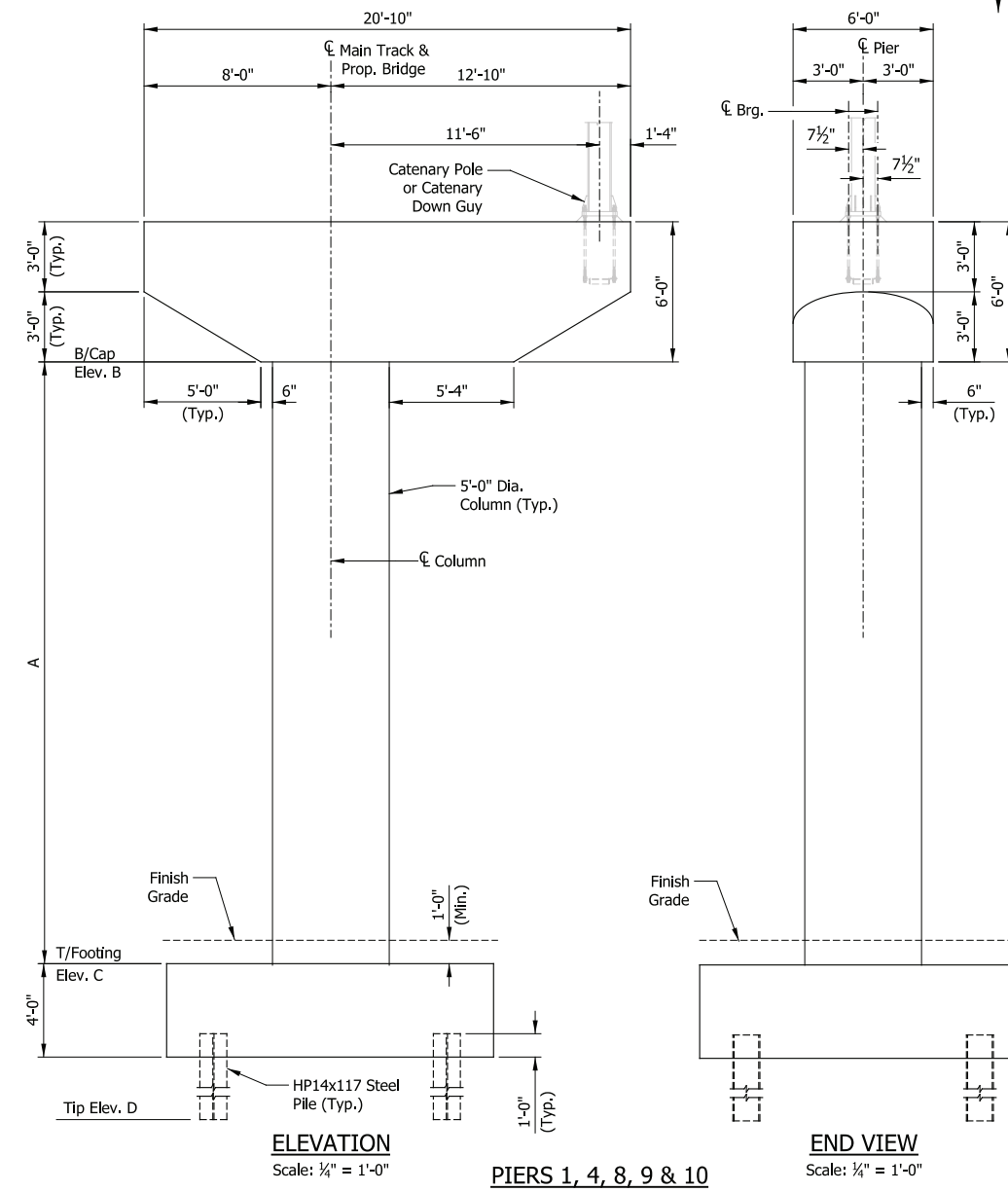
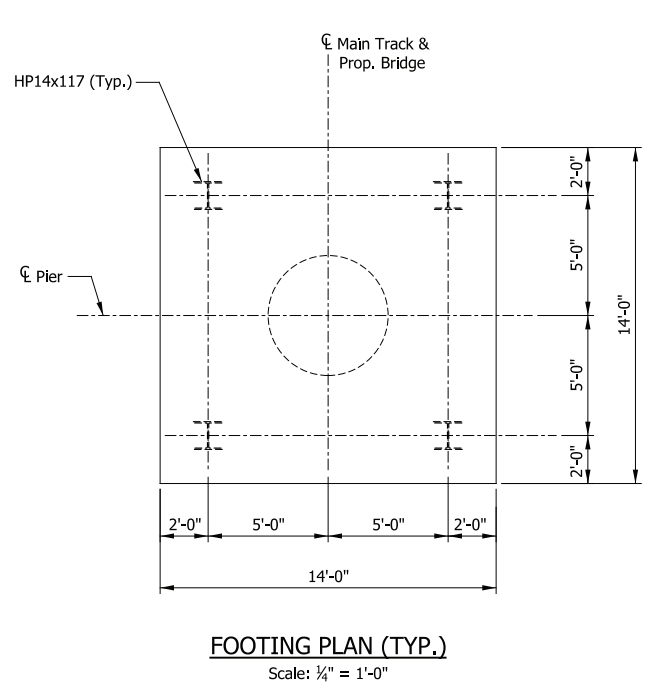
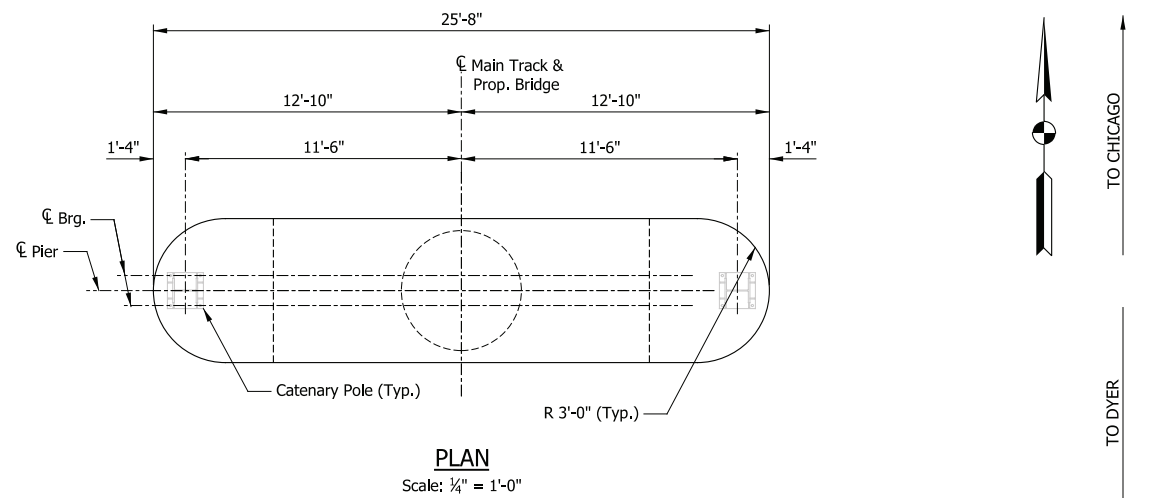
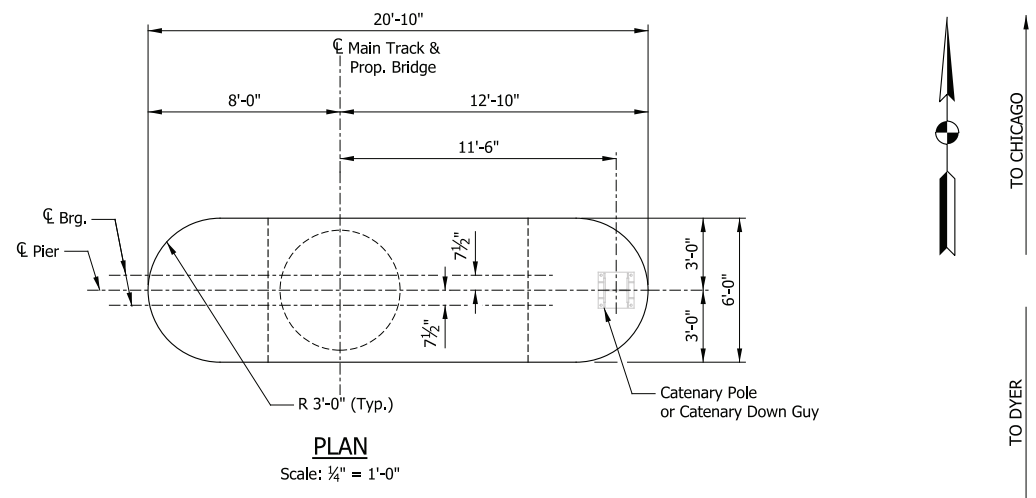
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33 East Highway 12
Chesterton, Indiana 46304



DYER TO HAMMOND, INDIANA

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DATE: 07/21/17

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| GEOMETRY TABLE | | | | |
|----------------|--------------------------------------|---------|---------|---------|
| LOCATION | Dim. A | Elev. B | Elev. C | Elev. D |
| Pier 1 | 16'-7 ³ / ₄ " | 607.38 | 590.73 | 507.73 |
| Pier 2 | 16'-4 ³ / ₈ " | 606.89 | 590.50 | 507.50 |
| Pier 3 | 15'-10" | 606.39 | 590.56 | 507.56 |
| Pier 4 | 15'-4 ¹ / ₂ " | 605.89 | 590.51 | 507.51 |
| Pier 6 | 13'-3 ³ / ₈ " | 604.89 | 591.57 | 508.57 |
| Pier 8 | 12'-11 ³ / ₈ " | 603.89 | 590.92 | 507.92 |
| Pier 9 | 13'-0" | 603.39 | 594.40 | 511.40 |
| Pier 10 | 13'-0 ³ / ₈ " | 602.89 | 589.86 | 506.86 |

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| DRAWN: | HDR-AEP |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

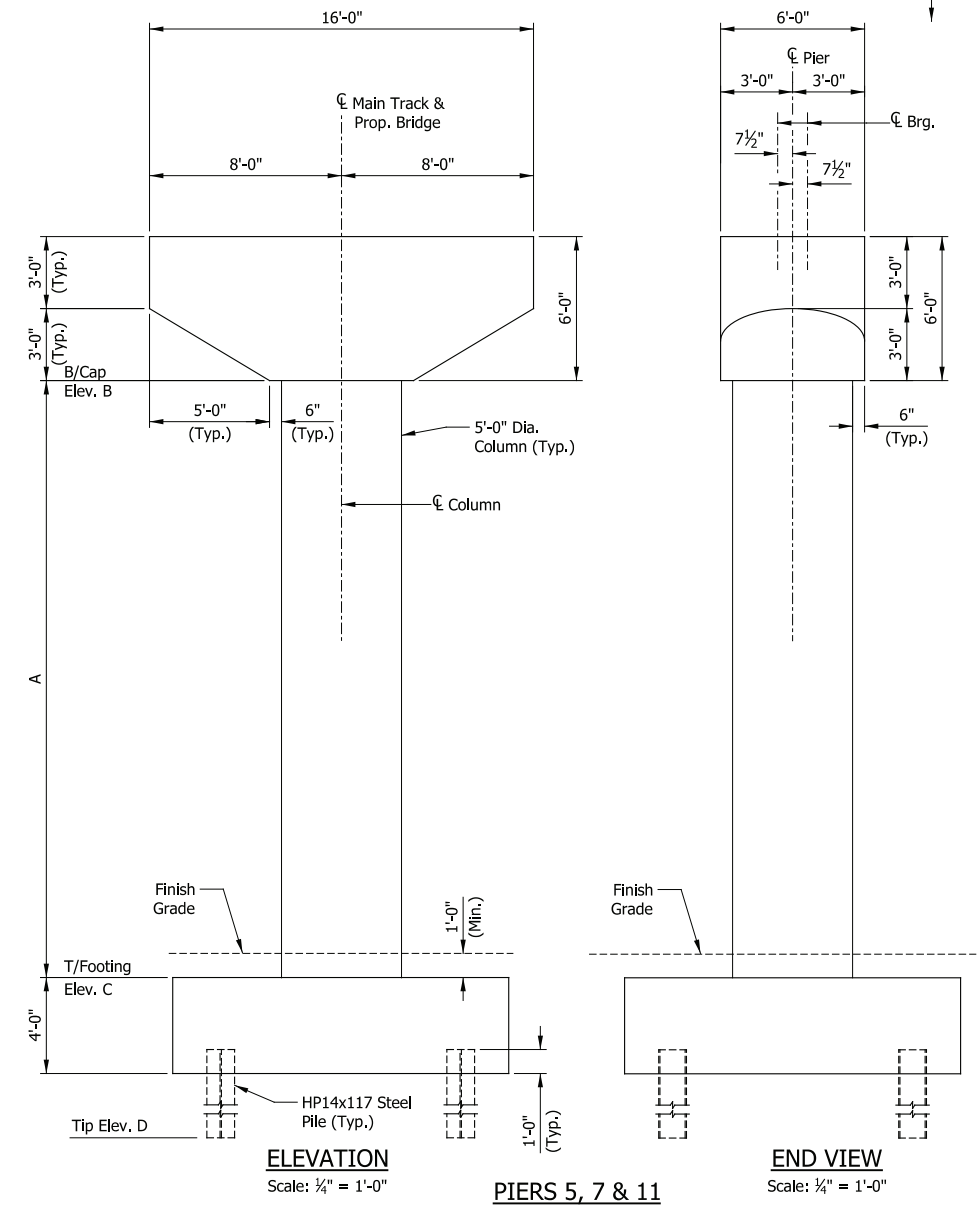
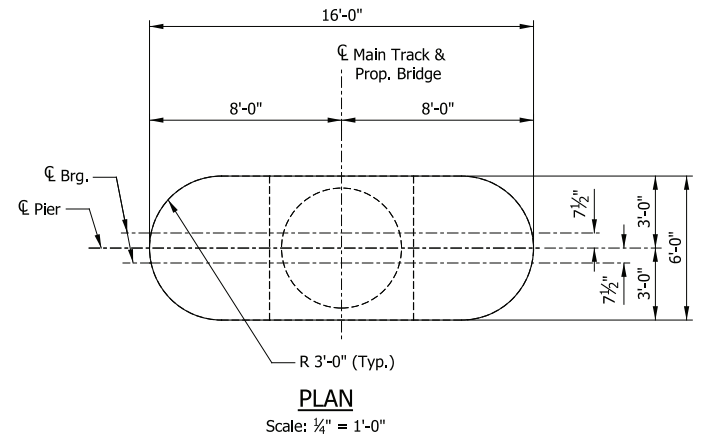
PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES207-04 OF ES207-08

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK

ELEVATED STRUCTURE 207
SUBSTRUCTURE DETAILS (1 OF 3)

| | | | |
|----------|------------------------------|-------|------------|
| FILENAME | SHT_WL_ST_ES207_SubstrDet_01 | SHEET | 156 OF 218 |
| SCALE | AS NOTED | | |

| GEOMETRY TABLE | | | | |
|----------------|-----------------------|---------|---------|---------|
| LOCATION | Dim. A | Elev. B | Elev. C | Elev. D |
| Pier 5 | 14'-6 $\frac{1}{4}$ " | 605.39 | 590.87 | 507.87 |
| Pier 7 | 13'-1 $\frac{3}{8}$ " | 604.39 | 591.28 | 508.28 |
| Pier 11 | 12'-9" | 602.39 | 589.64 | 506.64 |



PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES207-05 OF ES207-08

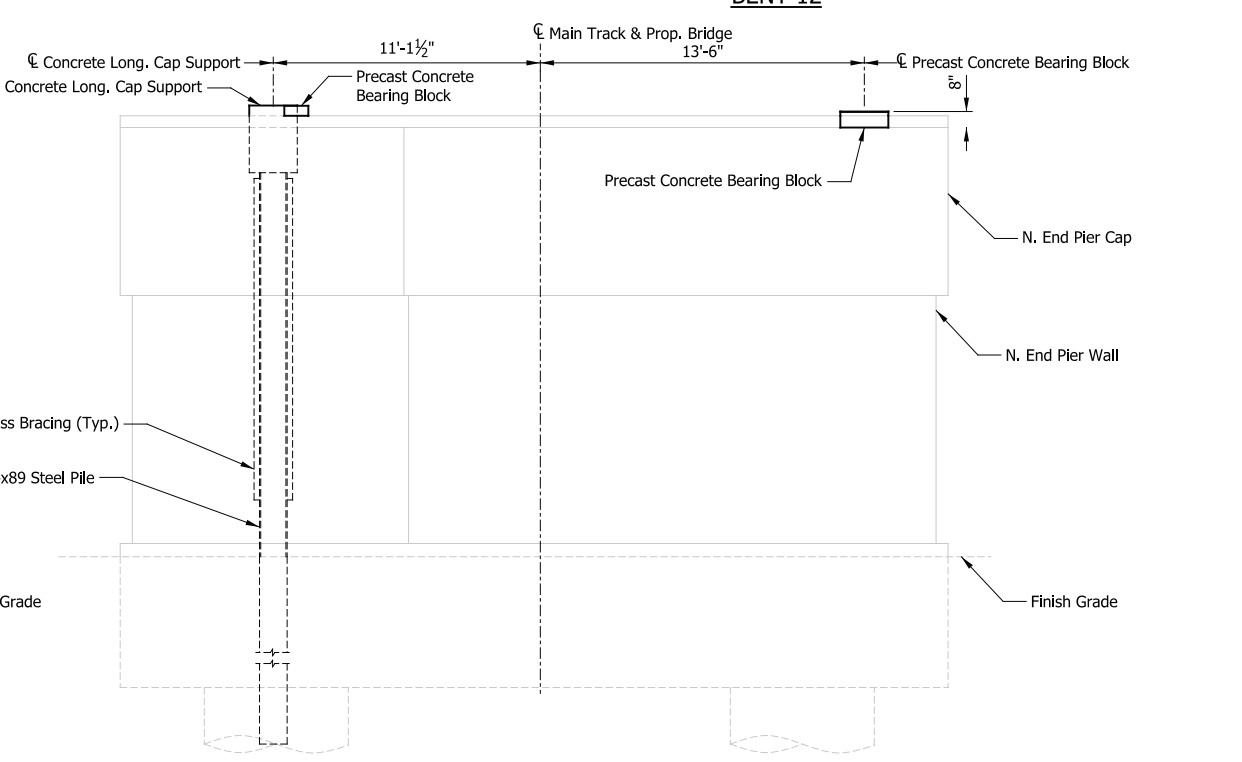
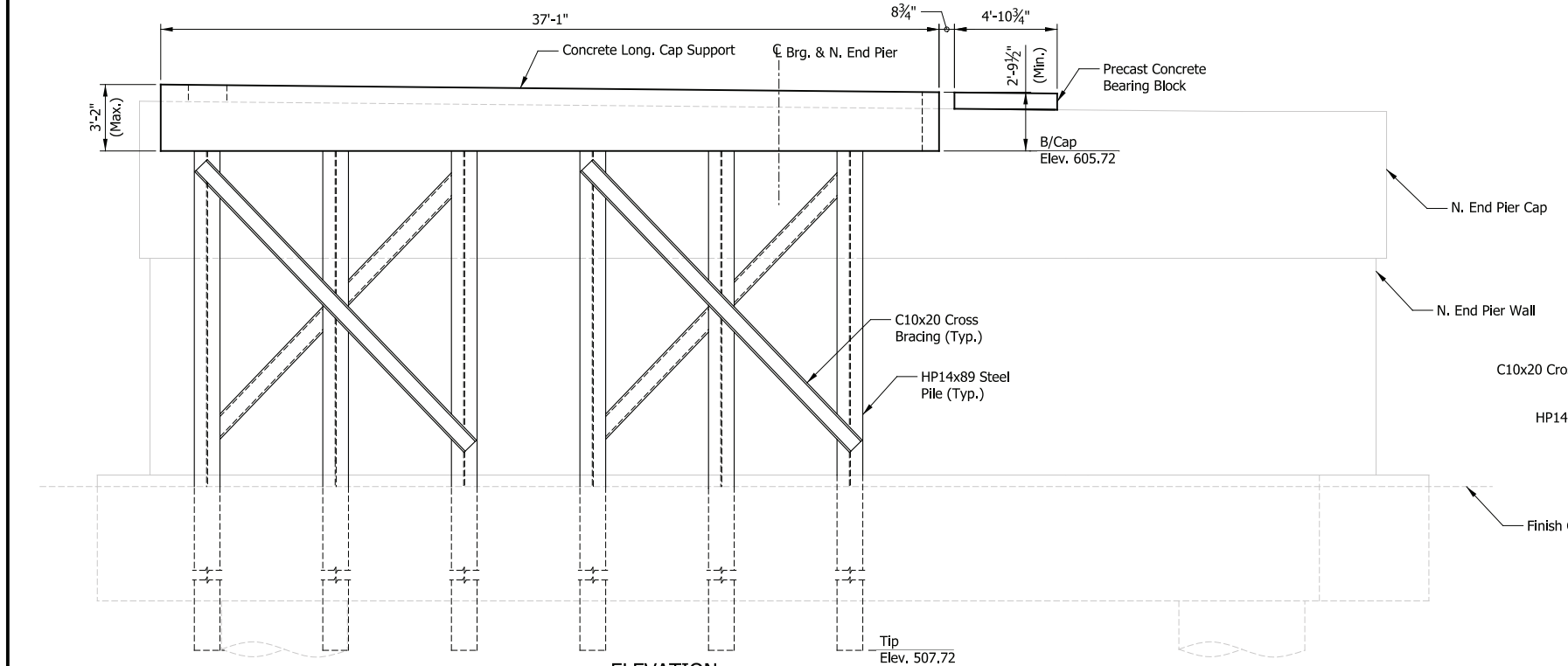
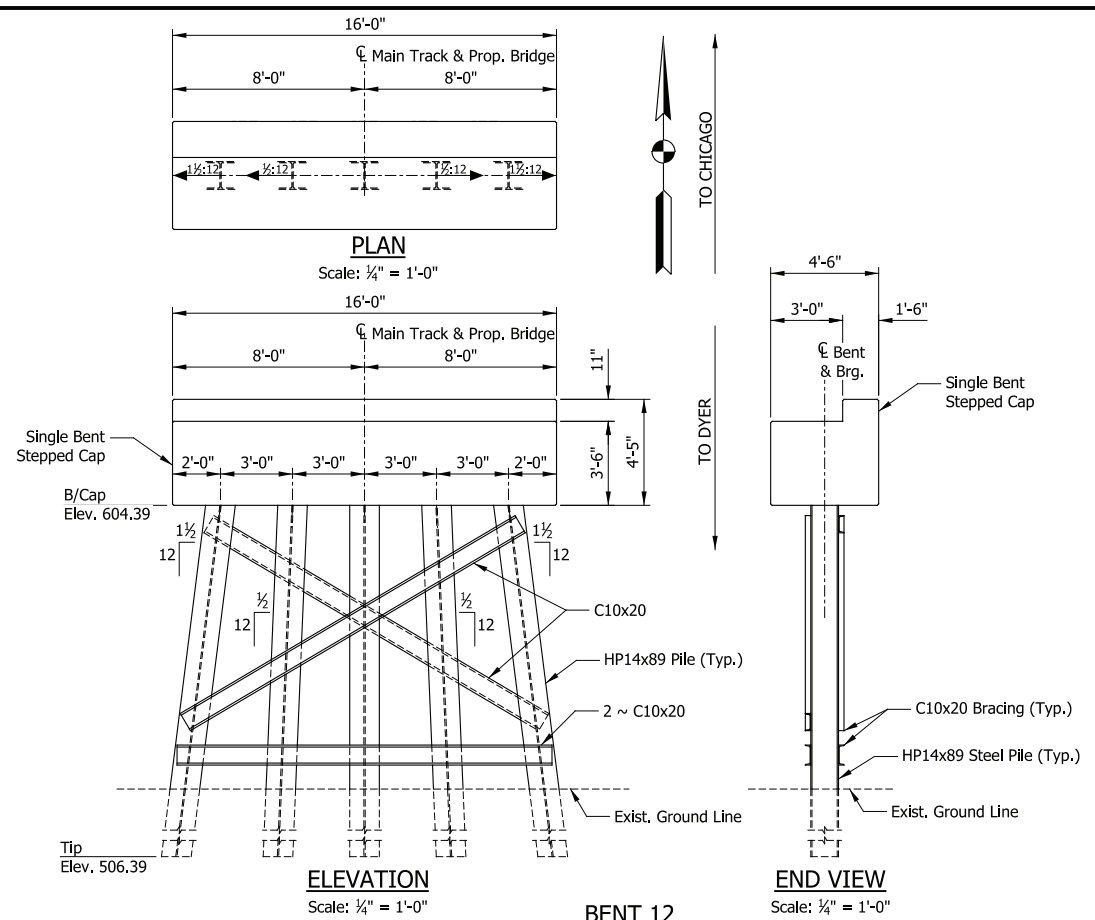
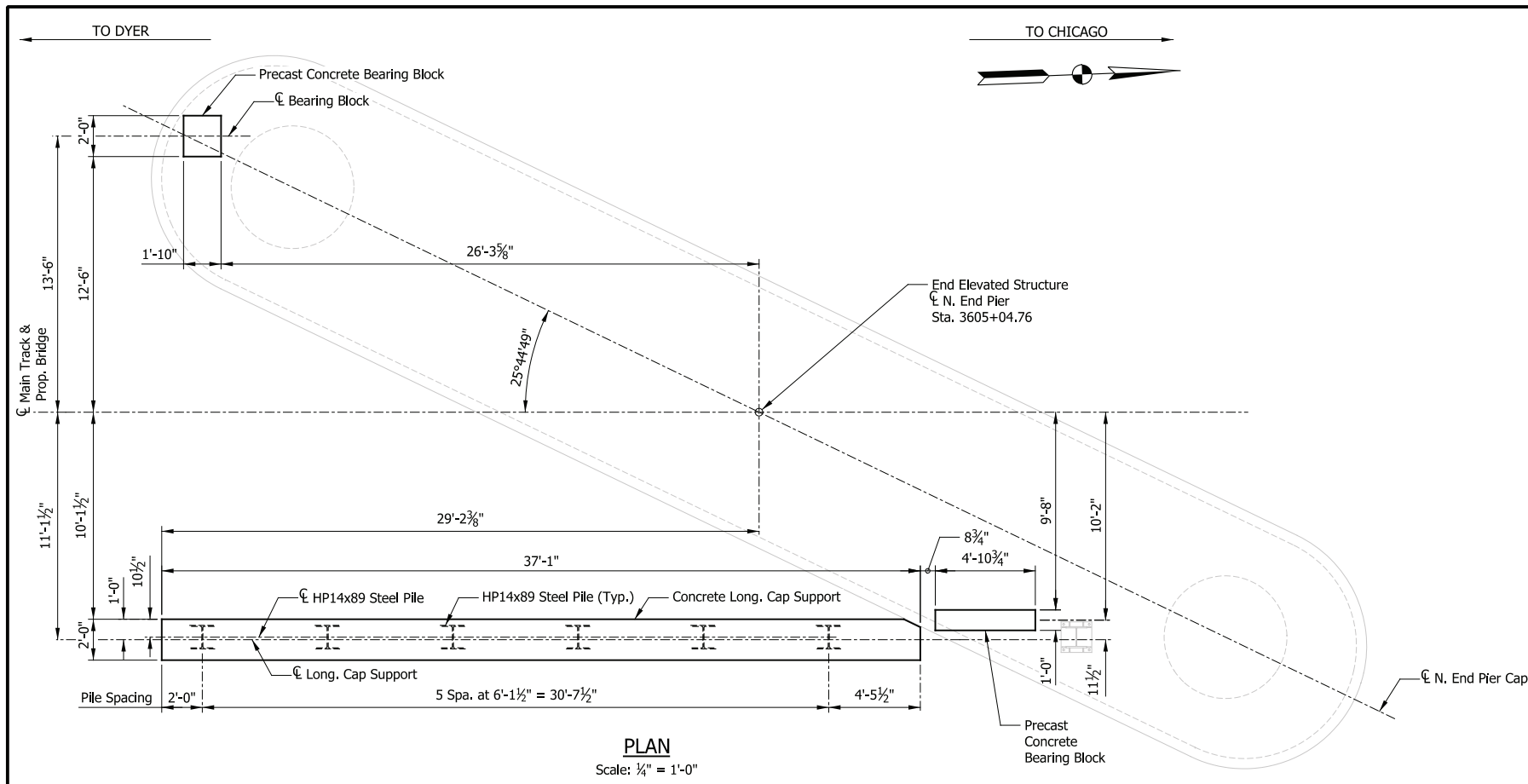
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| CHECKED: | HDR-DTM |
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 207 | | |
| SUBSTRUCTURE DETAILS (2 OF 3) | | |
| FILENAME | SHT_WL_ST_ES207_SubstrDet_02 | SHEET |
| SCALE | AS NOTED | 157 OF 218 |

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NOTE
Refer to BR113 Plans for Pier Detailing.

TRANSVERSE SPAN SUPPORT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES207-06 OF ES207-08

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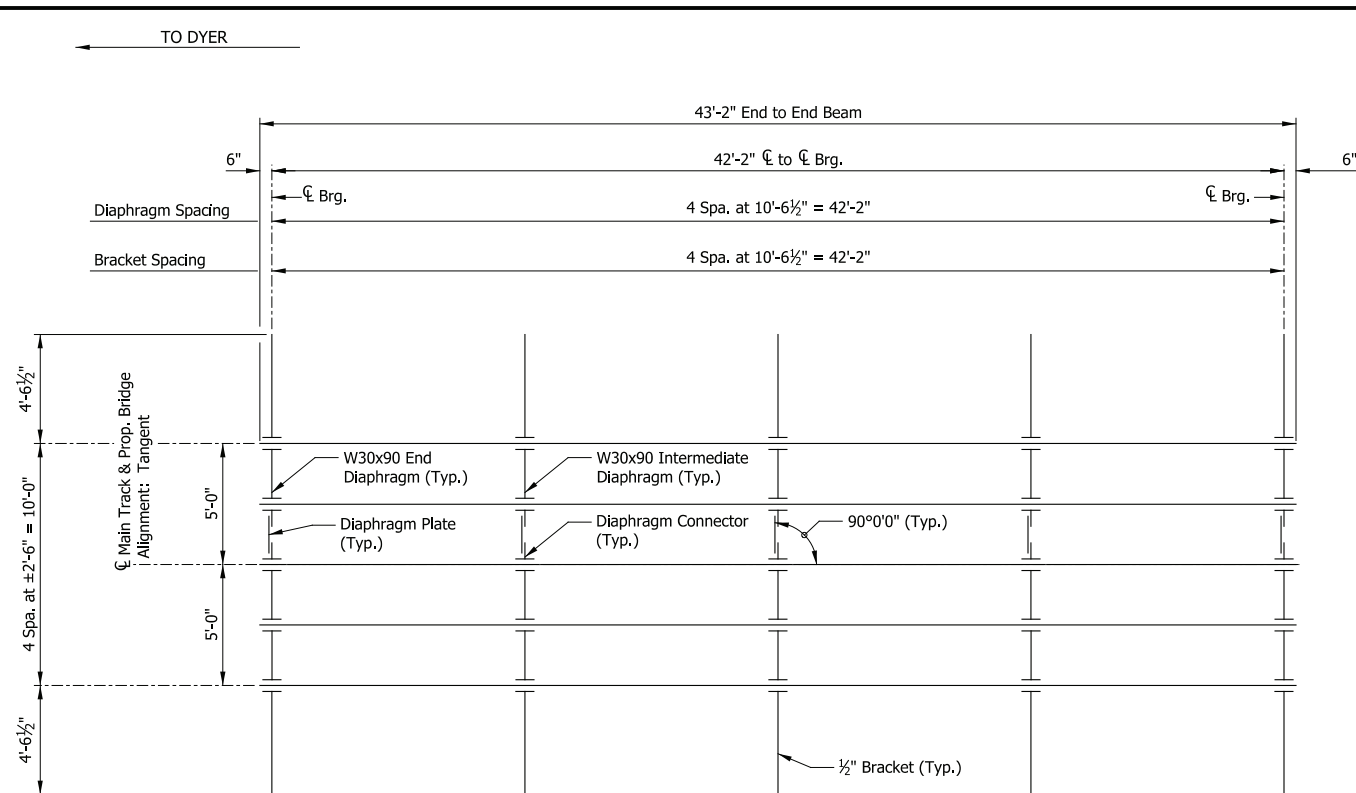


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| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

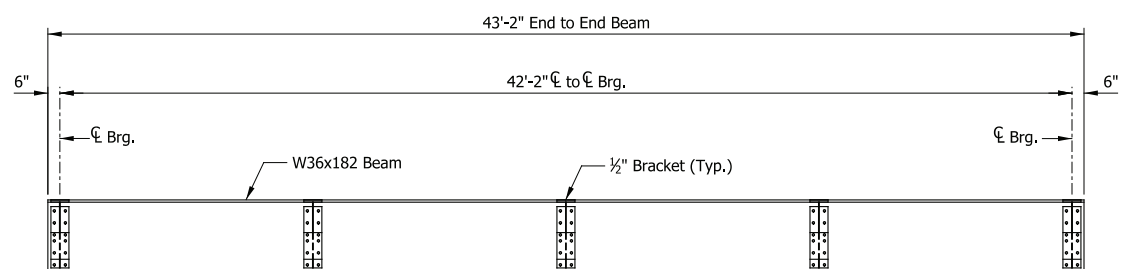
ELEVATED STRUCTURE 207
SUBSTRUCTURE DETAILS (3 OF 3)

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| FILENAME | SHT_WL_ST_ES207_SubstrDet_03 | SHEET |
| SCALE | AS NOTED | 158 OF 218 |



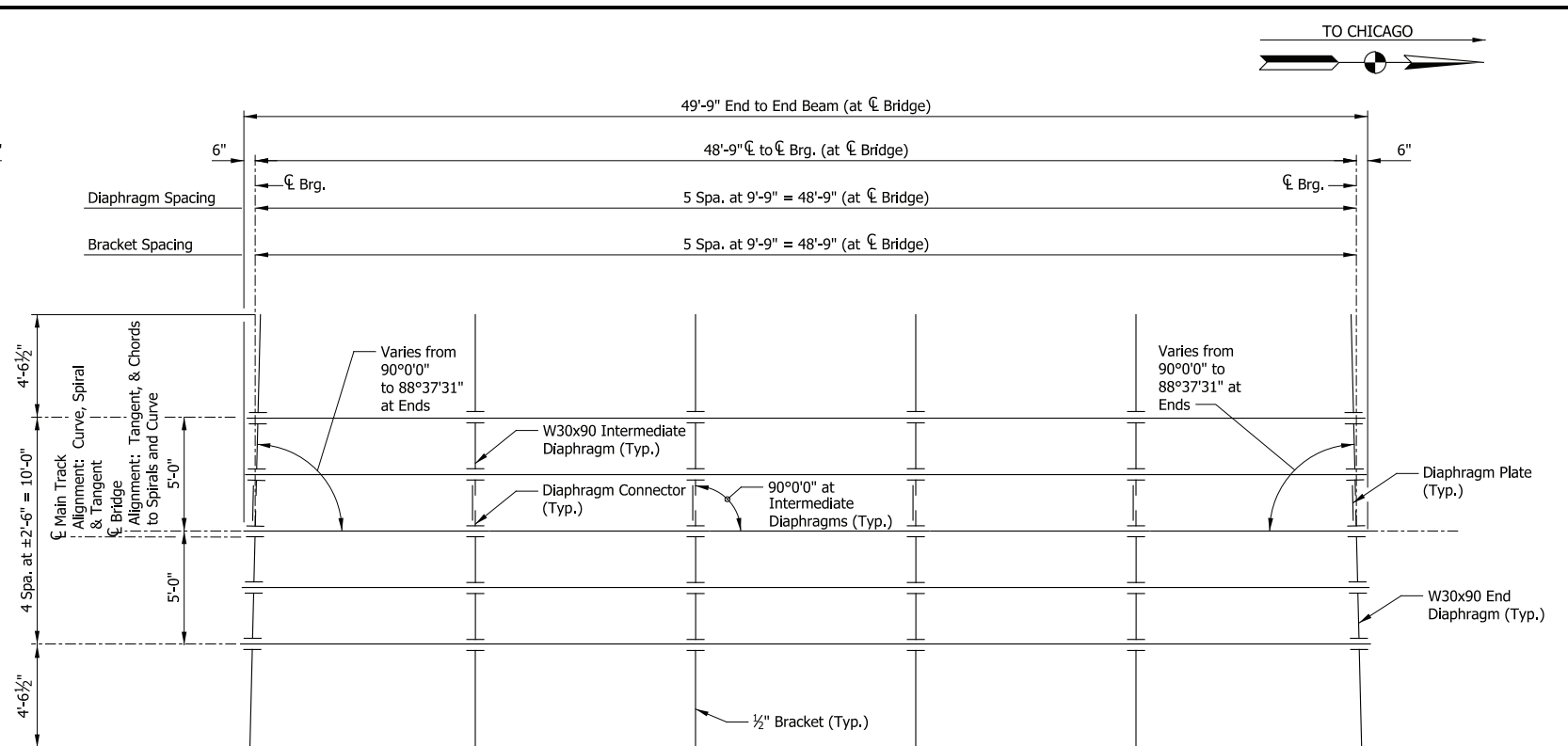
FRAMING PLAN

Span 1
Scale: 1/4" = 1'-0"



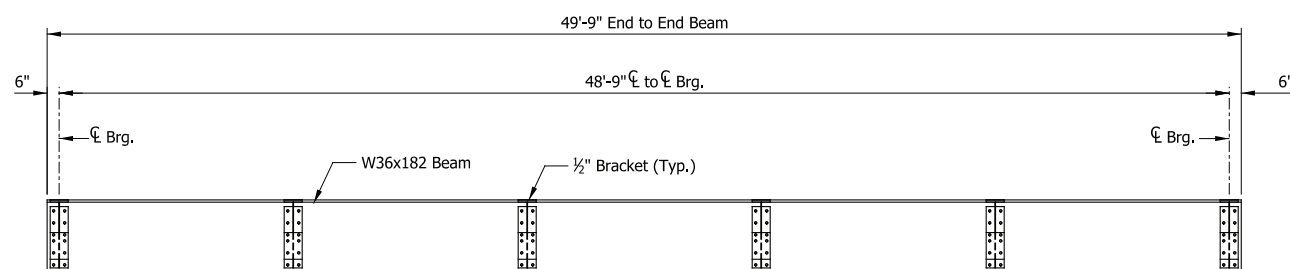
BEAM EXTERIOR ELEVATION

Span 1
Scale: 1/4" = 1'-0"



FRAMING PLAN

Spans 2 thru 11
Scale: 1/4" = 1'-0"



BEAM EXTERIOR ELEVATION

Spans 2 thru 11
Scale: 1/4" = 1'-0"

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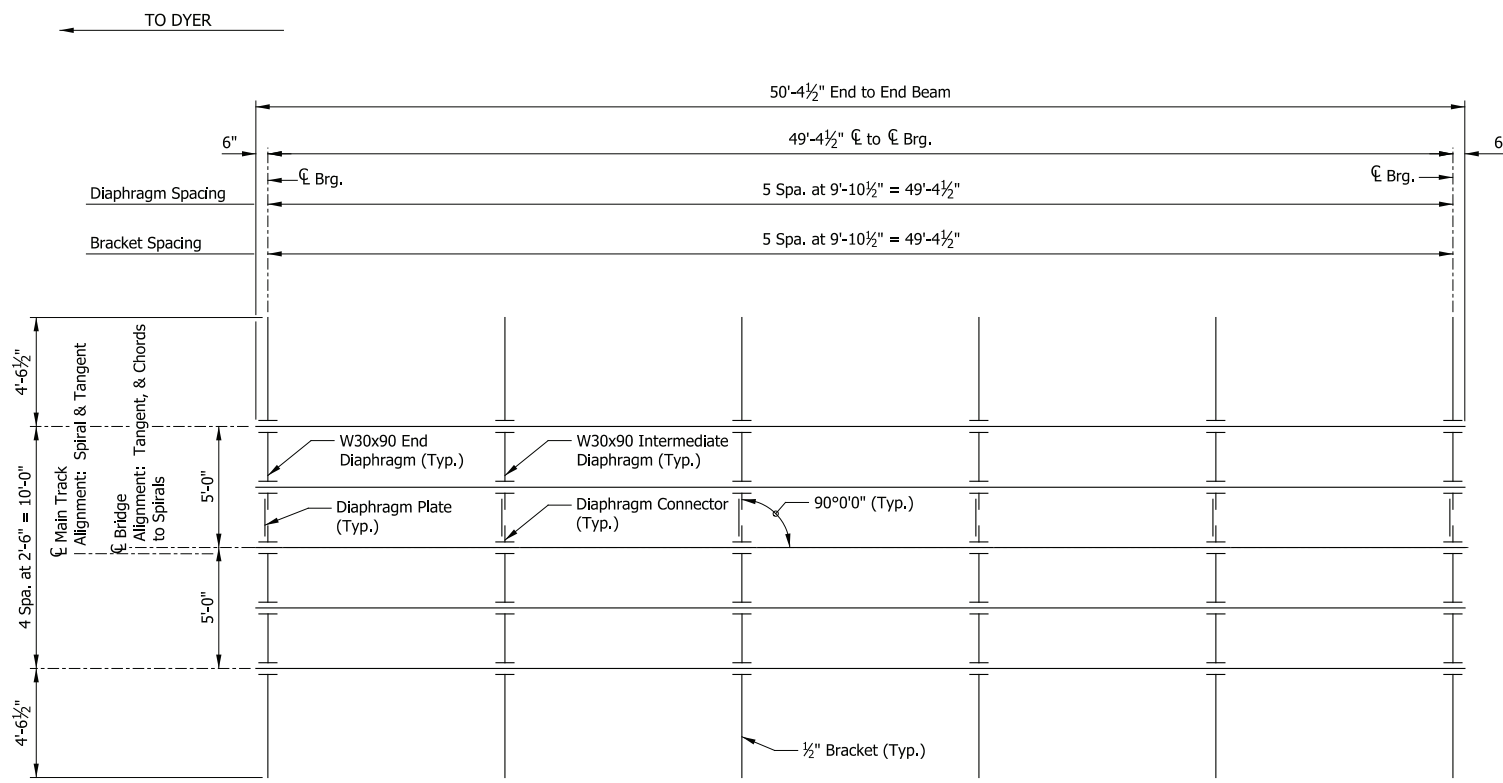
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES207-07 OF ES207-08

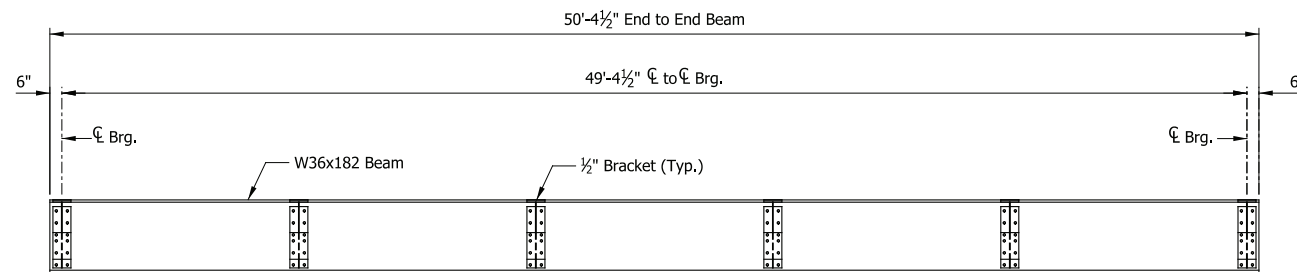
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 207
FRAMING PLAN (1 OF 2)

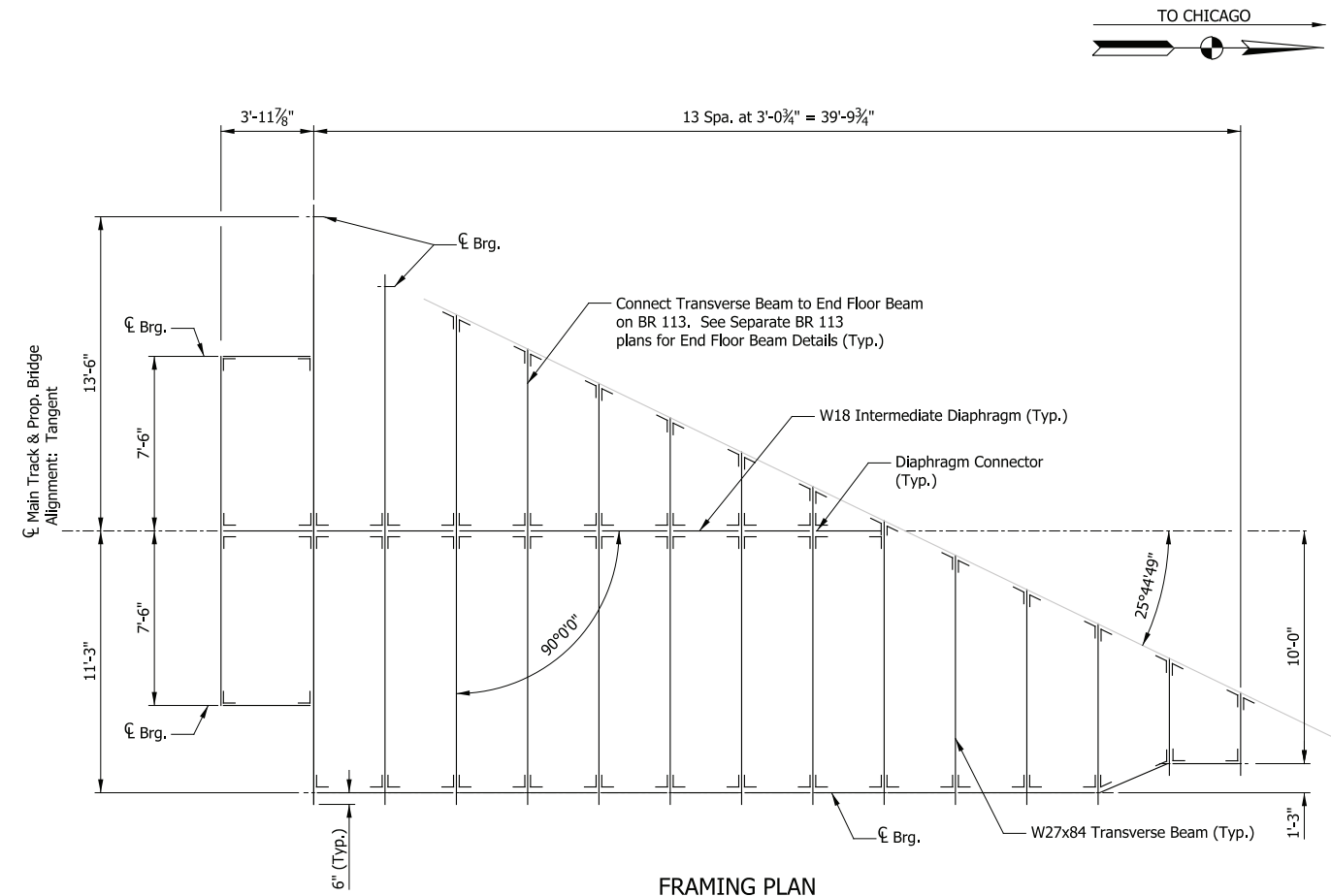
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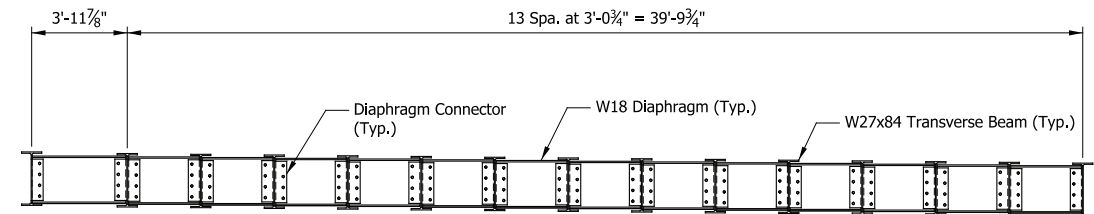
FRAMING PLAN
Span 12
Scale: 1/4" = 1'-0"



BEAM EXTERIOR ELEVATION
Span 12
Scale: 1/4" = 1'-0"



FRAMING PLAN
Transverse Span
Scale: 1/4" = 1'-0"



BEAM EXTERIOR ELEVATION
Transverse Span
Scale: 1/4" = 1'-0"

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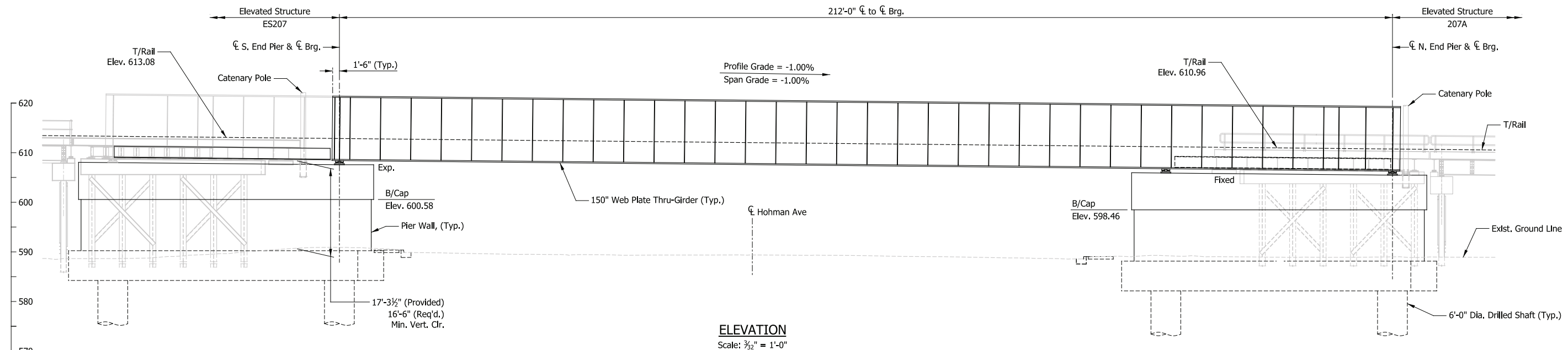
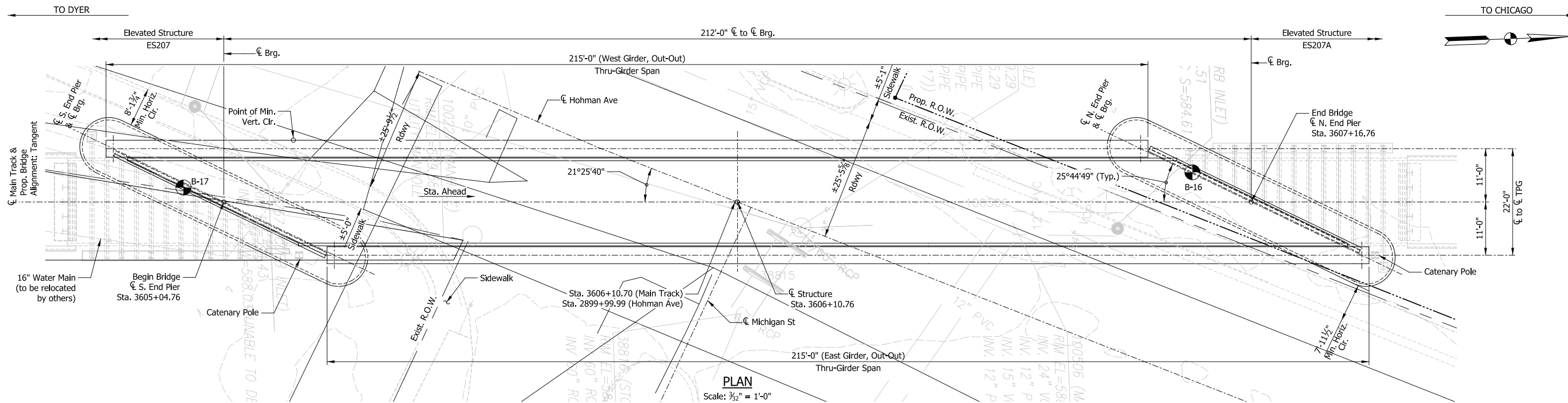
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PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES207-08 OF ES207-08

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 207
FRAMING PLAN (2 OF 2)

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| FILENAME | SHT_WL_ST_ES207_FramPlan_02 | SHEET |
| SCALE | AS NOTED | 160 OF 218 |



DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (at High End of Span)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

SHEET INDEX

| | |
|----------|-------------------------------|
| BR113-01 | General Plan & Elevation |
| BR113-02 | Typical Details |
| BR113-03 | Substructure Details (1 of 2) |
| BR113-04 | Substructure Details (2 of 2) |
| BR113-05 | Framing Plan (1 of 2) |
| BR113-06 | Framing Plan (2 of 2) |

CONSTRUCTION DEPTH

| | |
|----------------|---------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 6" |
| Waterproofing | 1" |
| Deck Plate | 3/4" |
| Floorbeam | 26 3/4" |
| Bracing | 1 3/8" |
| Bottom Flange | 3" |
| | 53 3/4" |

NOTES

- For track geometry, see Track Plans.
- Skew exceeds AREMA limit of 30 degrees. Special design considerations are required for final design.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR113-01 OF BR113-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 113 - NICTD OVER HOHMAN AVE

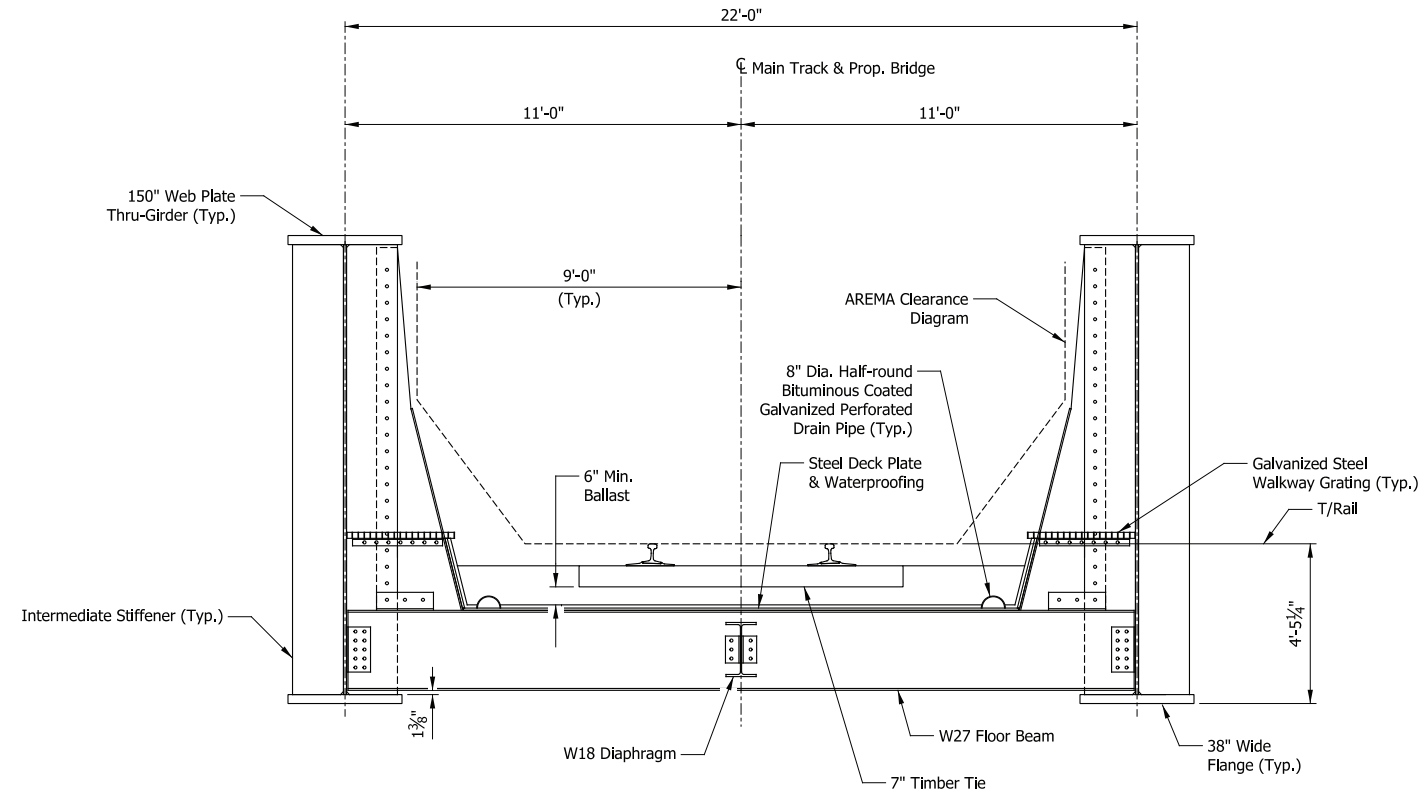
GENERAL PLAN & ELEVATION

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| SCALE | AS NOTED | | |

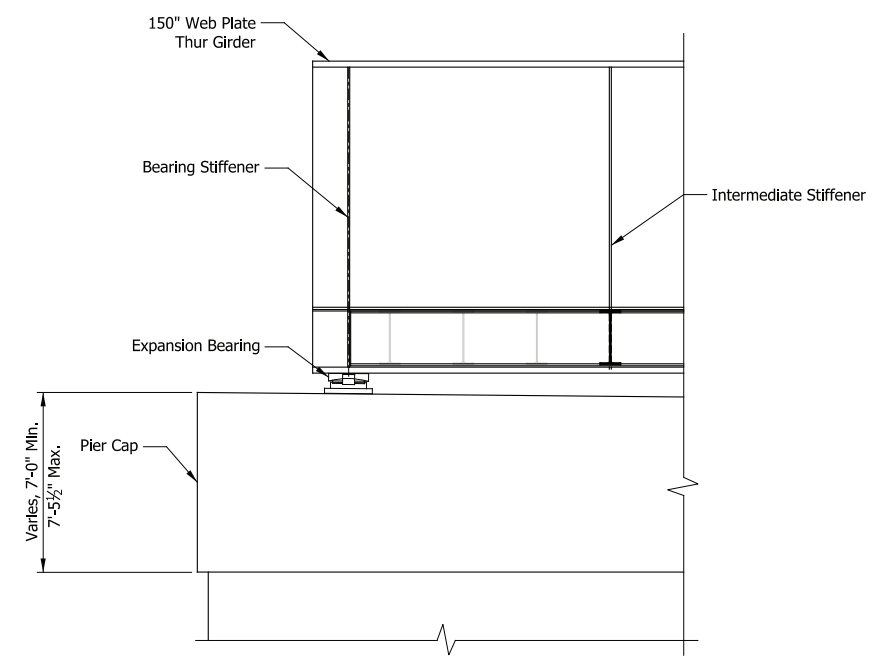
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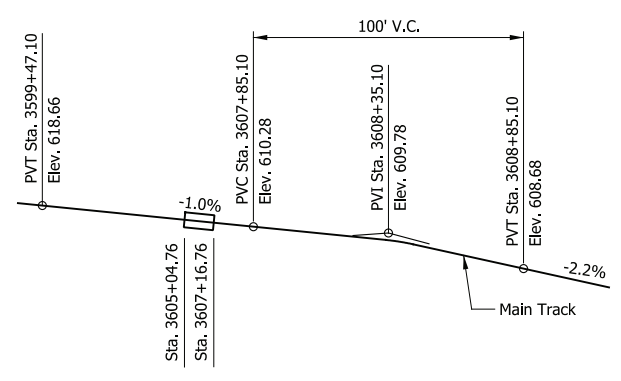
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TYPICAL SECTION
Scale: 3/8" = 1'-0"



SECTION THRU S. END PIER
N. End Pier Similar
Scale: 1/4" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

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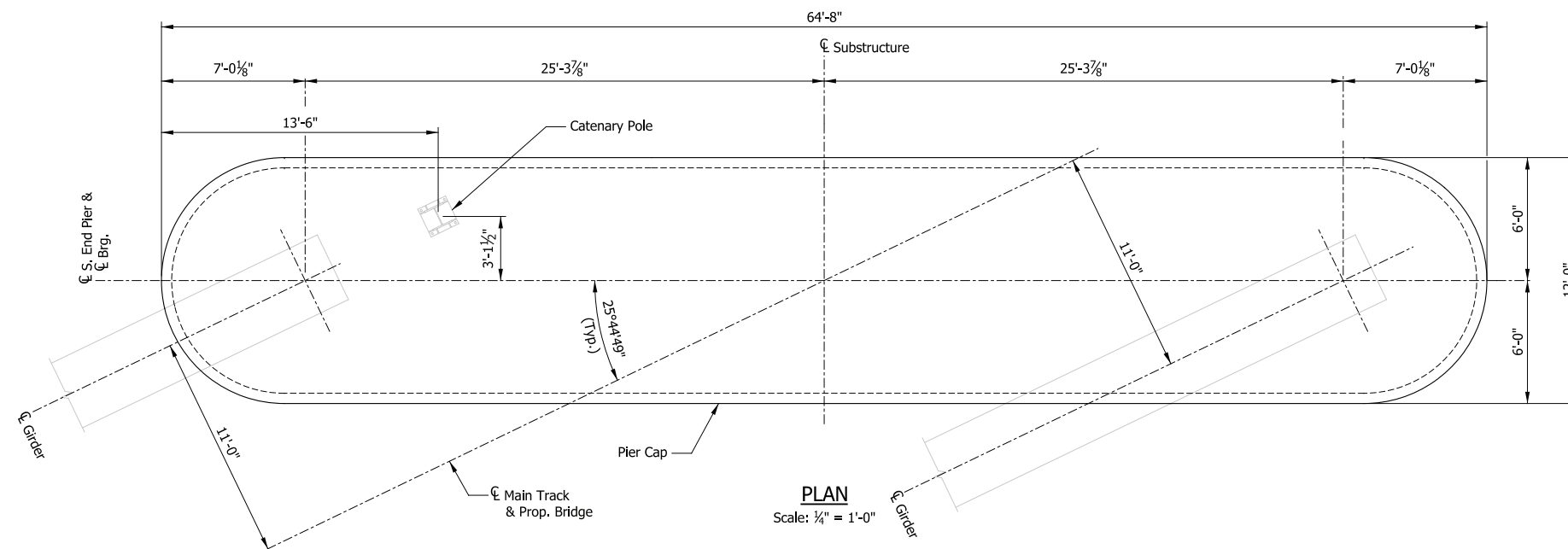
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PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR113-02 OF BR113-06

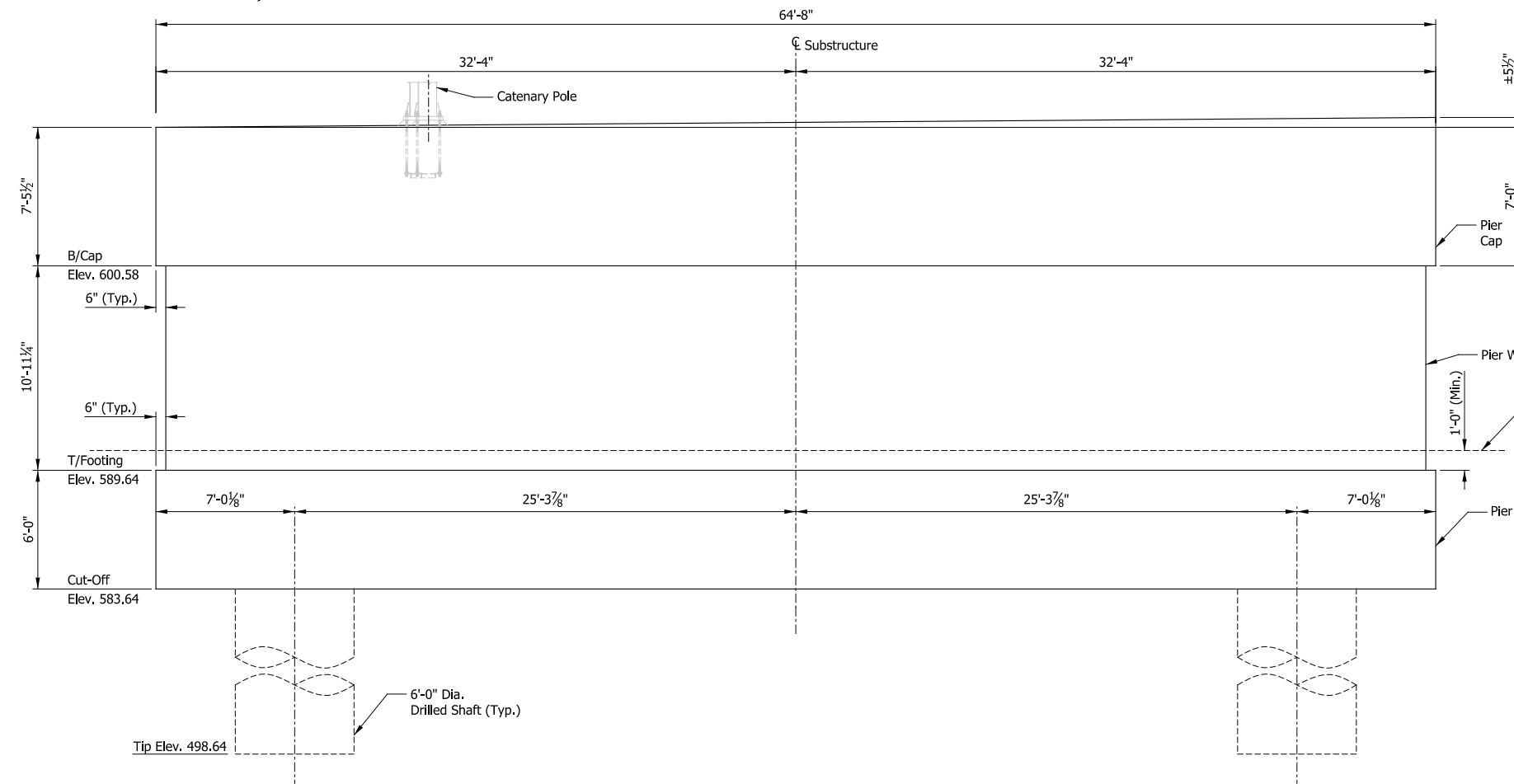
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 113 - NICTD OVER HOHMAN AVE
TYPICAL DETAILS

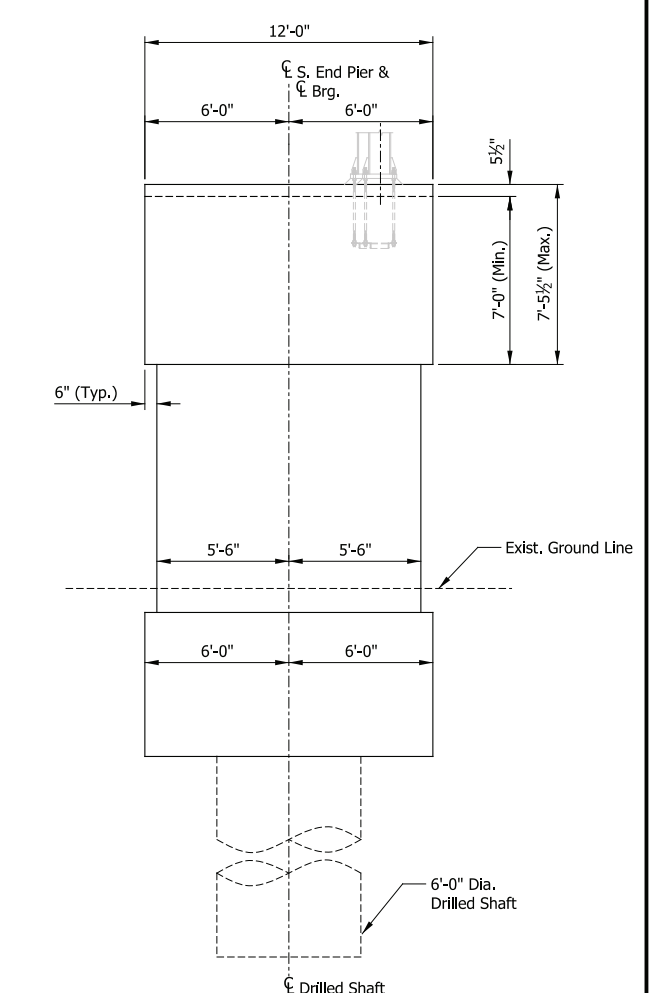
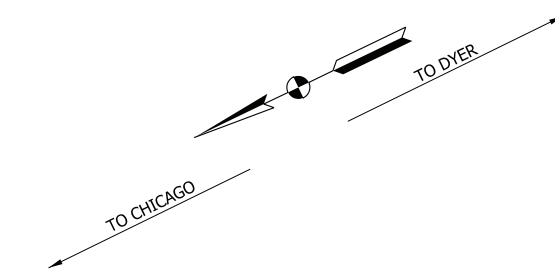
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PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"



END VIEW
Scale: 1/4" = 1'-0"

SOUTH END PIER

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR113-03 OF BR113-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
BRIDGE 113 - NICTD OVER HOHMAN AVE
SUBSTRUCTURE DETAILS (1 OF 2)

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| FILENAME | SHT_WL_ST_BR113_SubstrDet_01.dgn | SHEET | 163 OF 218 |
| SCALE | AS NOTED | | |

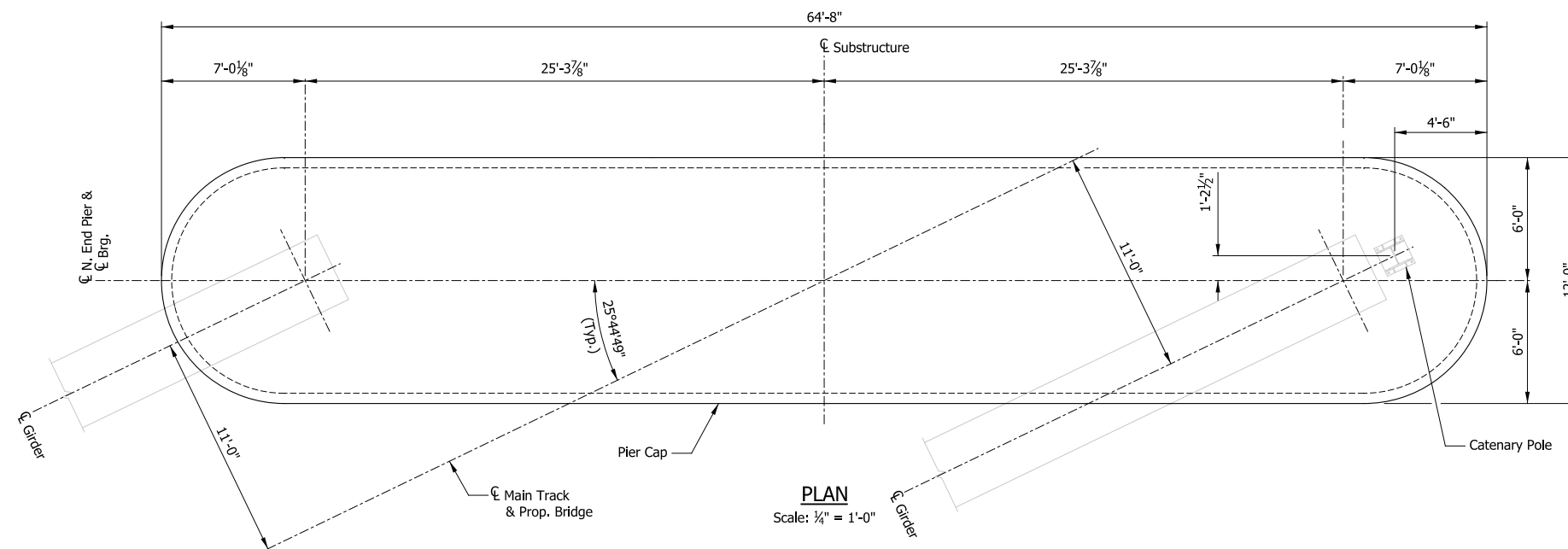
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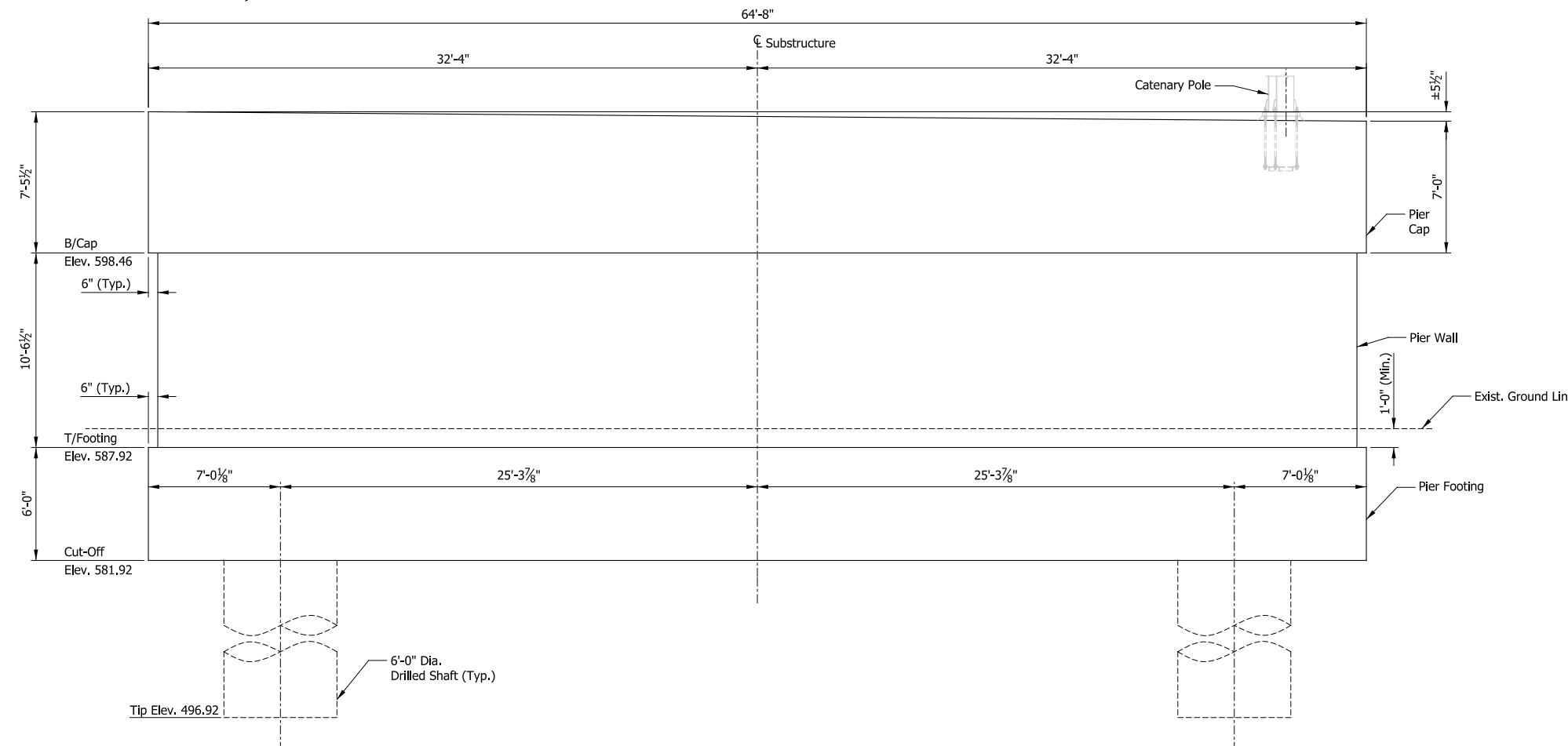
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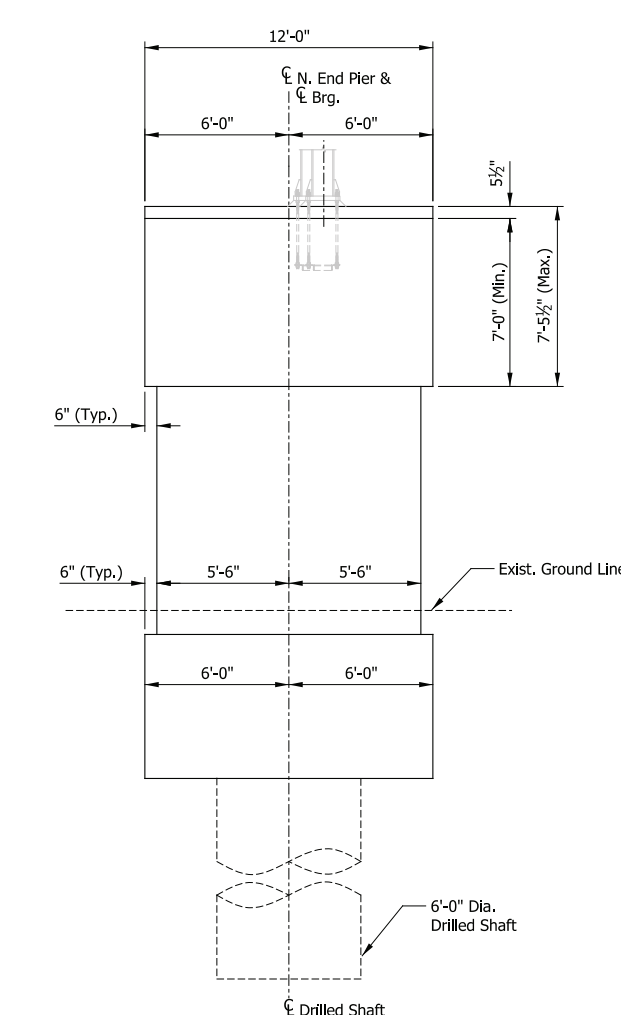
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| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |



PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"



END VIEW
Scale: 1/4" = 1'-0"

NORTH END PIER

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR113-04 OF BR113-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
BRIDGE 113 - NICTD OVER HOHMAN AVE
SUBSTRUCTURE DETAILS (2 OF 2)

FILENAME: SHT_WL_ST_BR113_SubstrDet_02.dgn SHEET: **164 OF 218**
SCALE: AS NOTED

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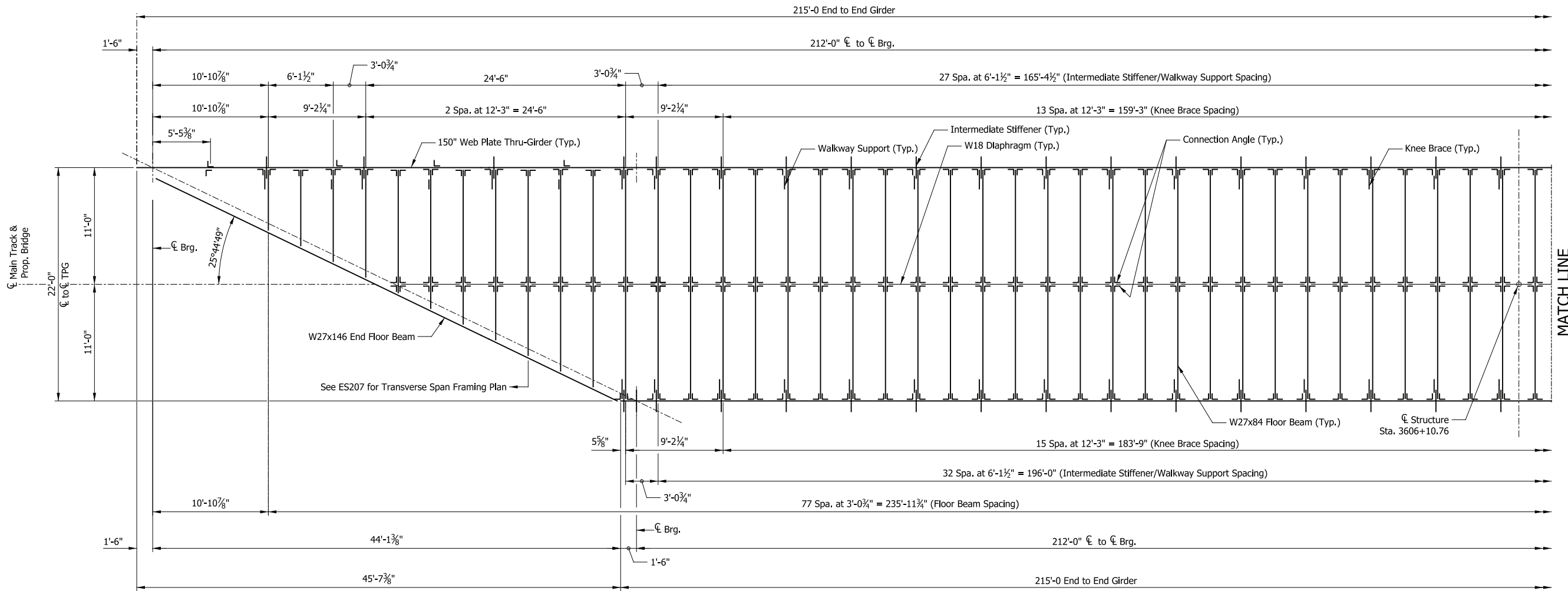
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| DATE: | 07/21/17 |

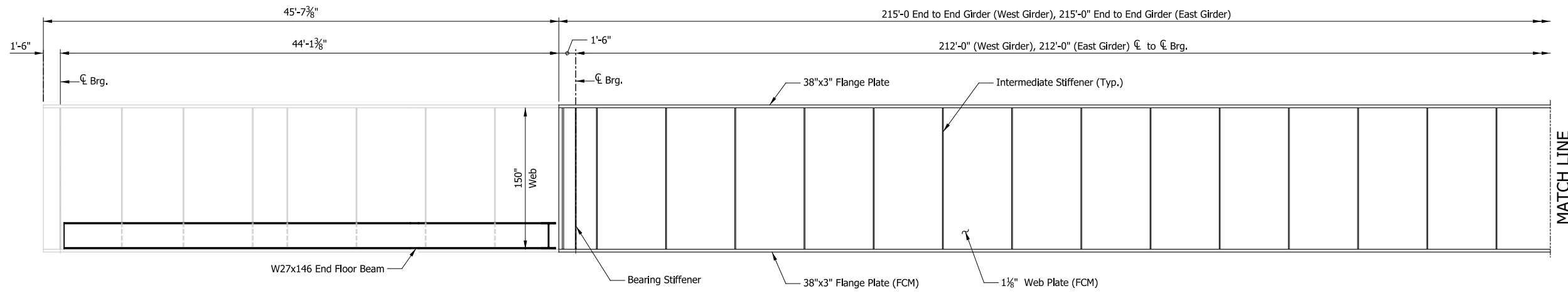
TO DYER

TO CHICAGO



FRAMING PLAN

Scale: 3/16" = 1'-0"



GIRDER EXTERIOR ELEVATION

Scale: 3/16" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR113-05 OF BR113-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK

**BRIDGE 113 - NICTD OVER HOHMAN AVE
FRAMING PLAN (1 OF 2)**

FILENAME SHT_WL_ST_BR113_FramPlan_01
SCALE AS NOTED

SHEET **165 OF 218**

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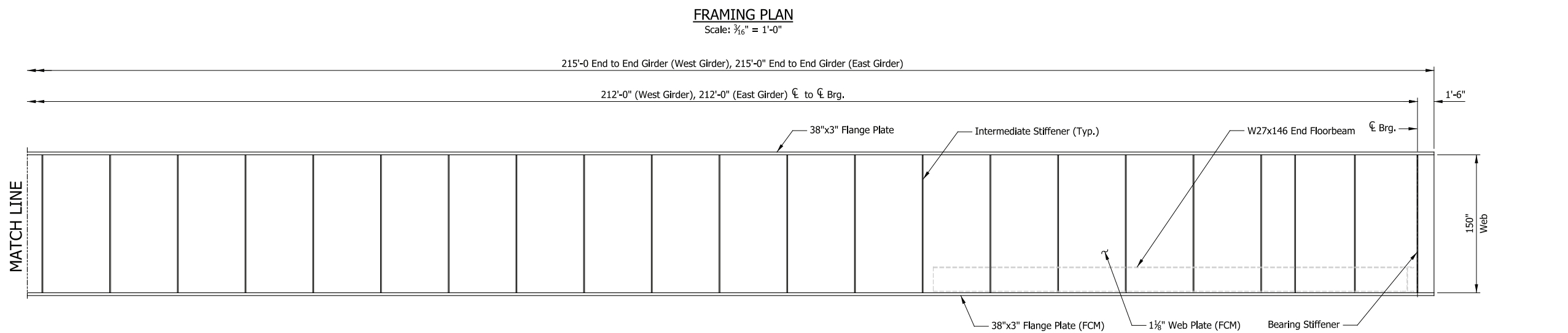
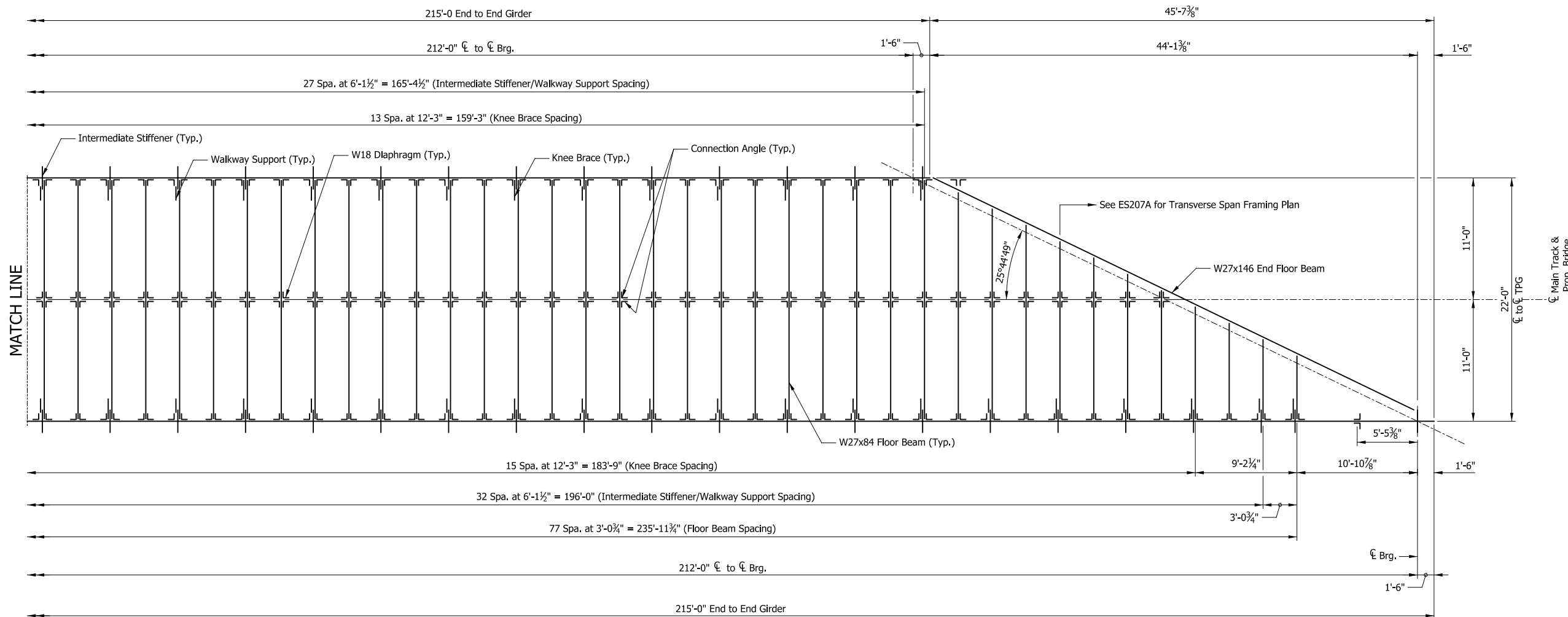
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| DATE: | 07/21/17 |

TO DYER

TO CHICAGO



PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR113-06 OF BR113-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
BRIDGE 113 - NICTD OVER HOHMAN AVE
FRAMING PLAN (2 OF 2)

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| FILENAME | SHT_WL_ST_BR113_FramPlan_02 | SHEET |
| SCALE | AS NOTED | 166 OF 218 |

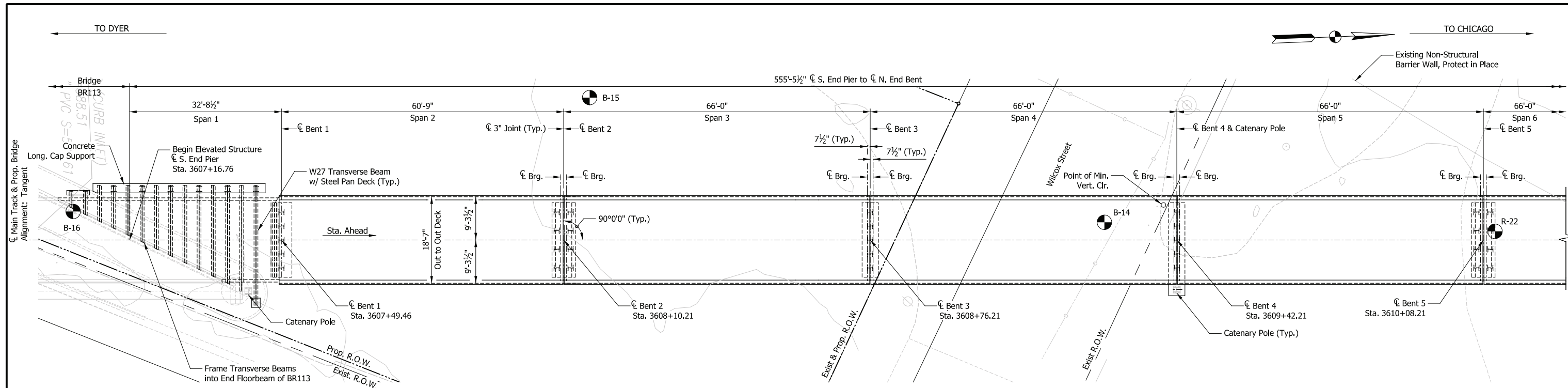
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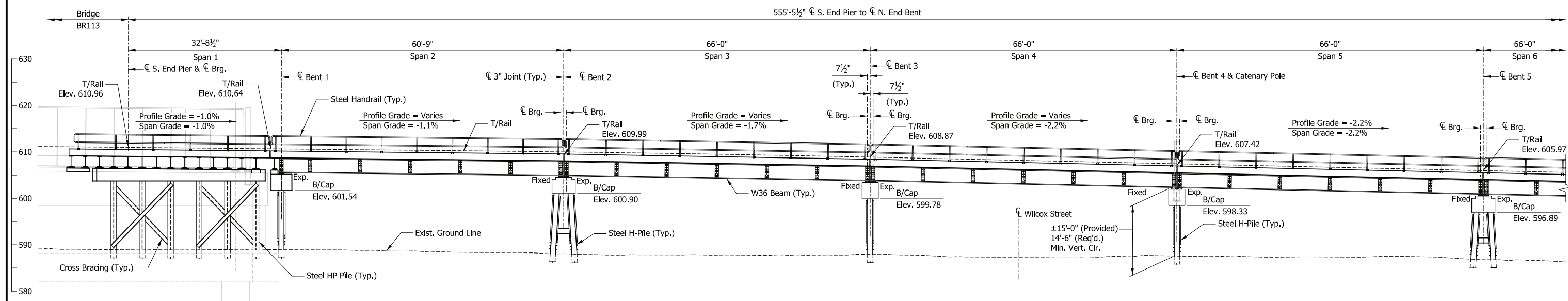
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| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |



PLAN
Scale: 3/32" = 1'-0"



ELEVATION
Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 21 inches (at High End of Span)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

CONSTRUCTION DEPTH

| | |
|----------------|---------|
| Rail (115 Lbs) | 6 3/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 8" |
| Waterproofing | 1" |
| Deck Plate | 3/8" |
| W36x330 Beam | 37 3/8" |

SHEET INDEX

| | |
|-----------|-----------------------------------|
| ES207A-01 | General Plan & Elevation (1 of 2) |
| ES207A-02 | General Plan & Elevation (2 of 2) |
| ES207A-03 | Typical Details |
| ES207A-04 | Substructure Details (1 of 4) |
| ES207A-05 | Substructure Details (2 of 4) |
| ES207A-06 | Substructure Details (3 of 4) |
| ES207A-07 | Substructure Details (4 of 4) |
| ES207A-08 | Framing Plan (1 of 3) |
| ES207A-09 | Framing Plan (2 of 3) |
| ES207A-10 | Framing Plan (3 of 3) |

NOTES

- For track geometry, see Track Plans.
- Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES ES207A-01 OF ES207A-09

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 207A
GENERAL PLAN & ELEVATION (1 OF 2)**

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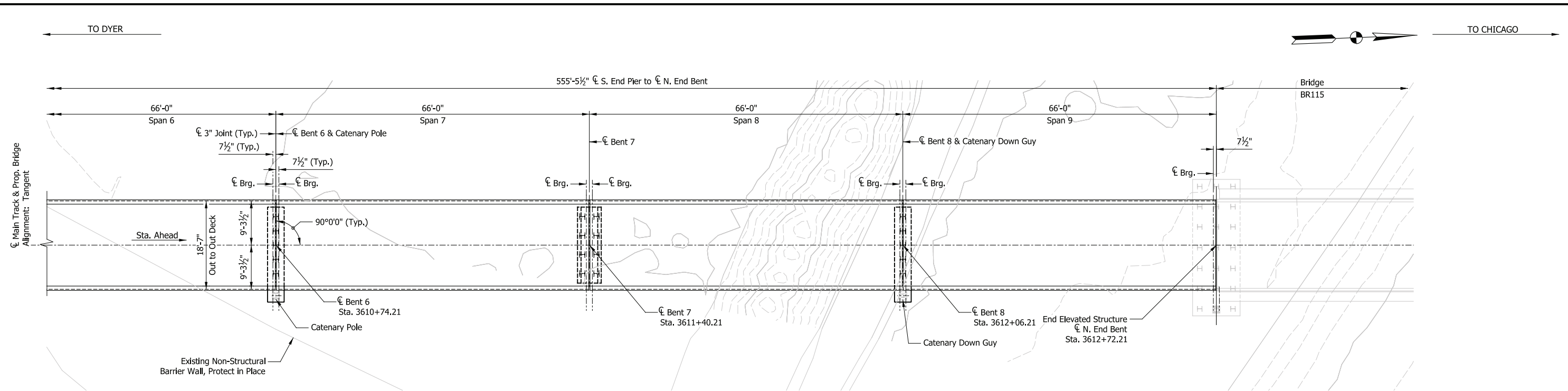


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TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

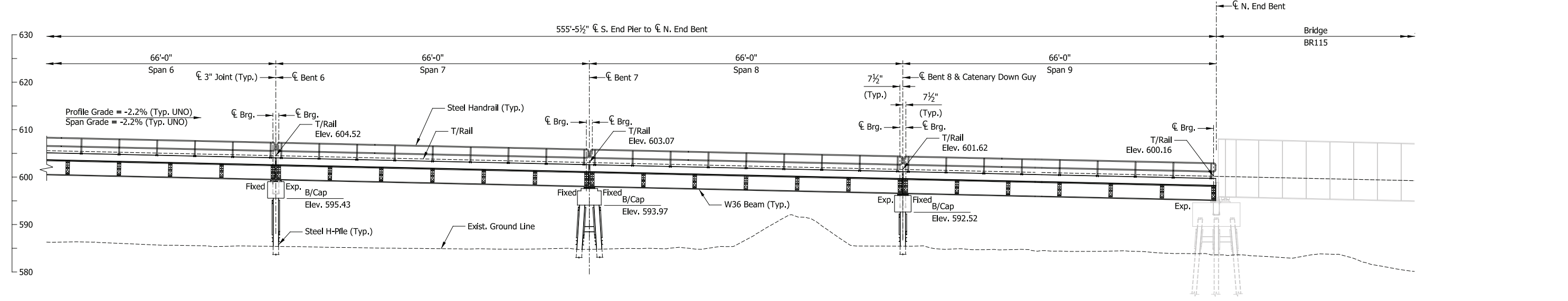


DYER TO HAMMOND, INDIANA

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| DRAWN: | HDR-AEP |
| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |



PLAN
Scale: 3/32" = 1'-0"



ELEVATION
Scale: 3/32" = 1'-0"

- NOTES**
- For track geometry, see Track Plans.
 - Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

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33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE
CORRIDOR
DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | HDR-PJG |
| DRAWN: | HDR-AEP |
| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |

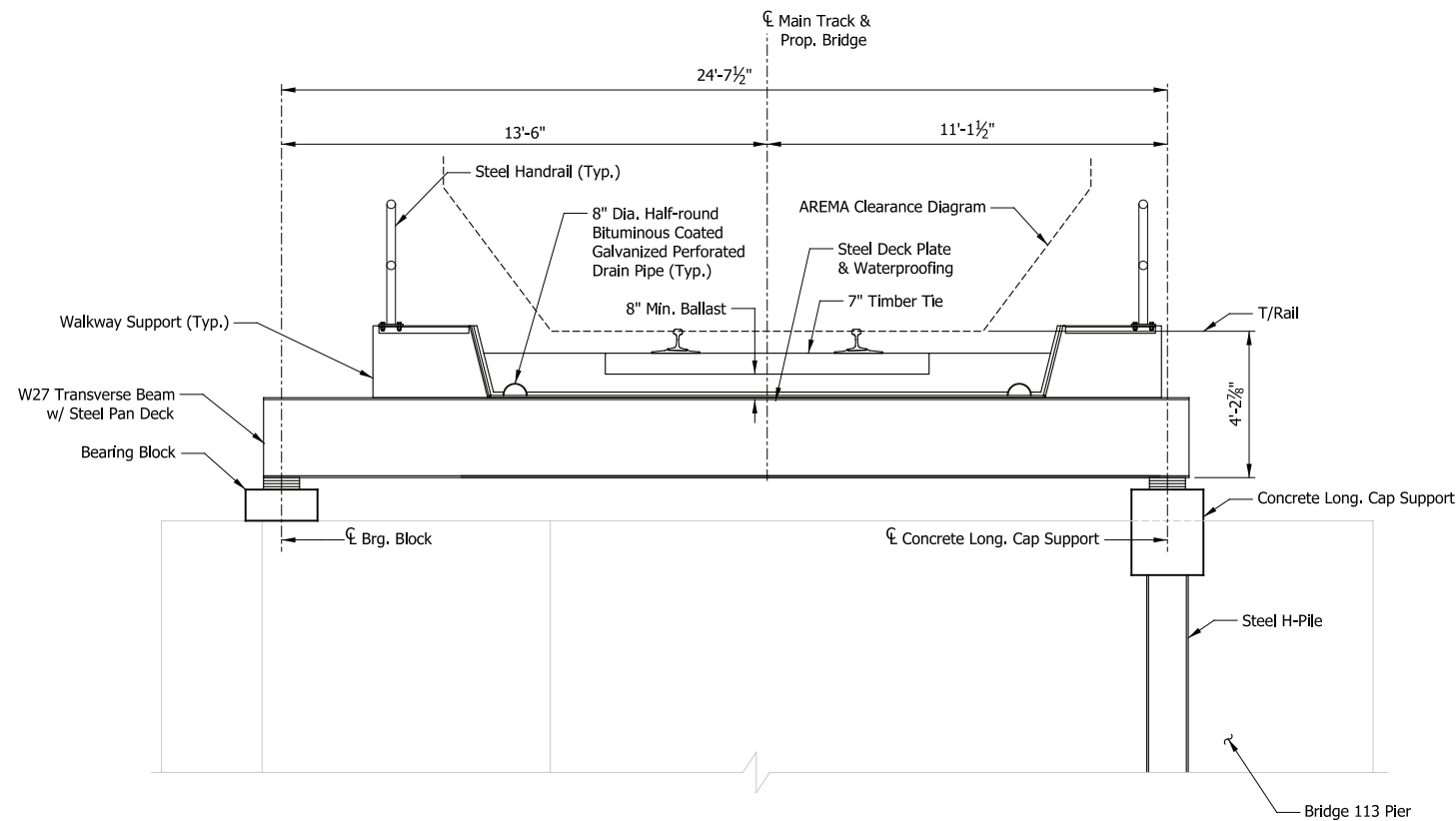
SHEET 168 OF 218

FILENAME: SHT_WL_ST_ES207A_GenPlan_02
SCALE: AS NOTED

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

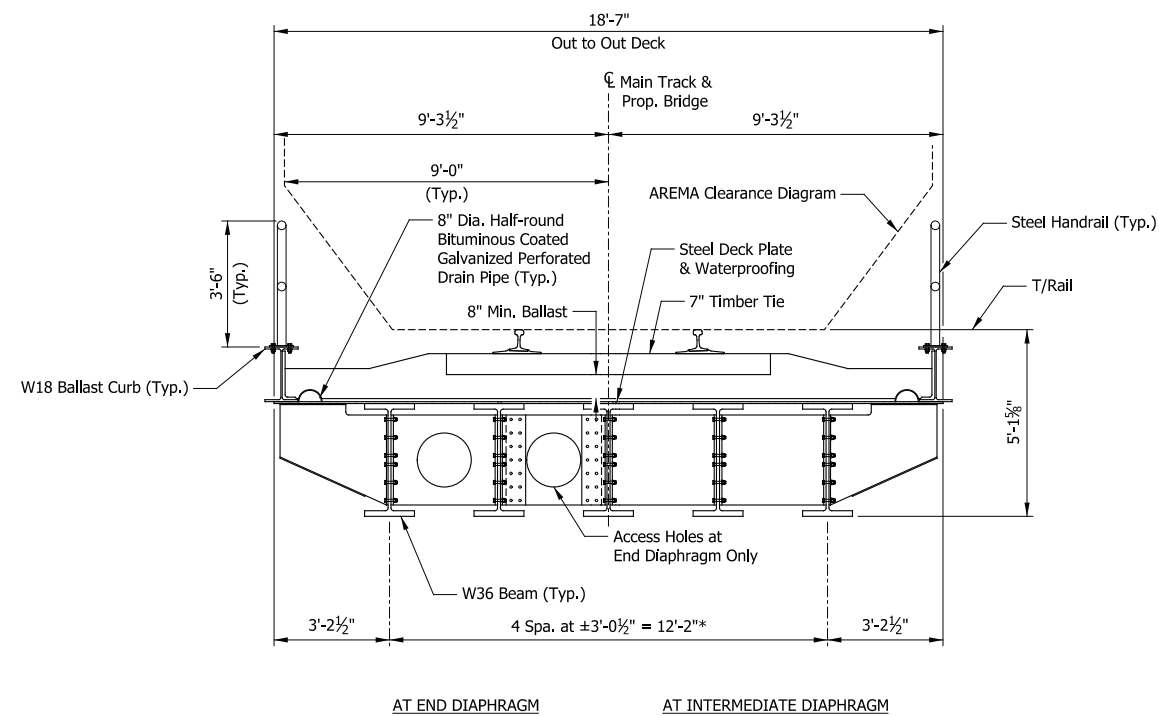
ELEVATED STRUCTURE 207A
GENERAL PLAN & ELEVATION (2 OF 2)

SERIES ES207A-02 OF ES207A-09



SECTION - TRANSVERSE STRUCTURE

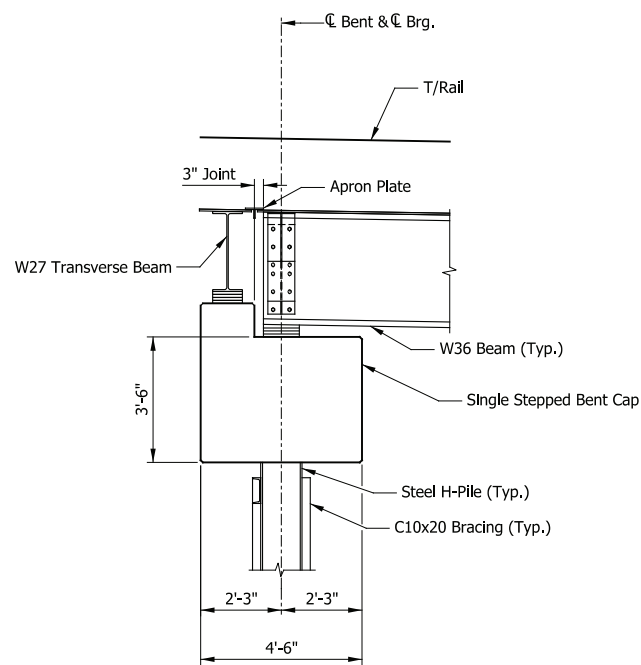
Scale: 3/8" = 1'-0"
Looking Back on Line



TYPICAL SPAN SECTION

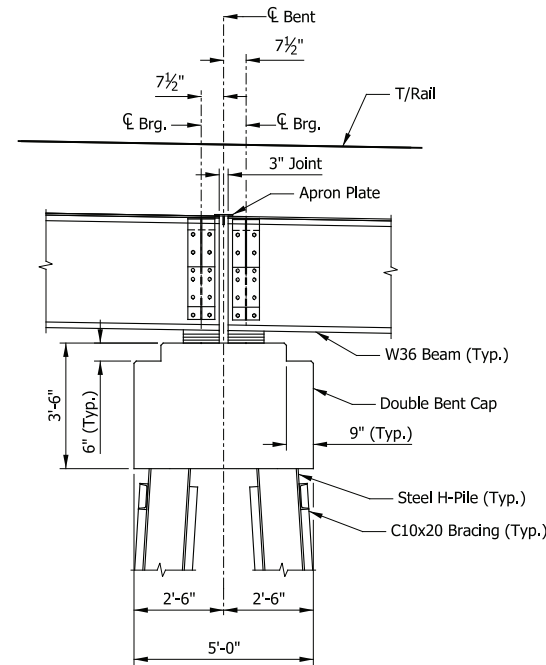
Scale: 3/8" = 1'-0"

* Due to out-to-out beam spacing greater than 10'-0", diaphragms shall be designed to adequately distribute load from the track evenly to each beam, in accordance with the AREMA Manual.



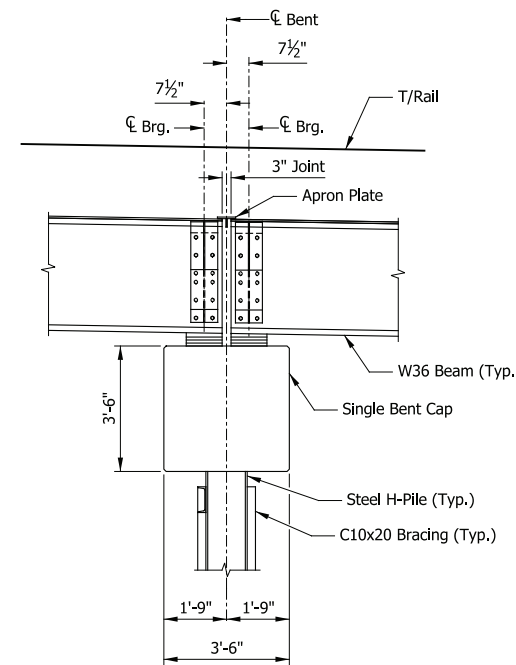
SECTION THRU BENT 1

Scale: 3/8" = 1'-0"



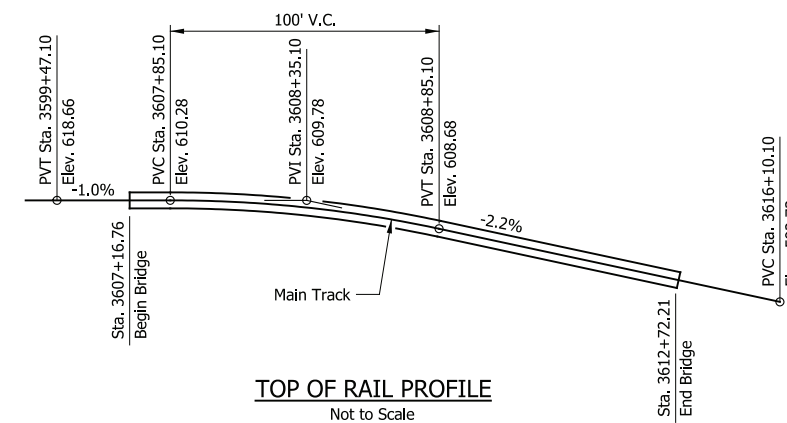
SECTION THRU DOUBLE BENT

Scale: 3/8" = 1'-0"



SECTION THRU SINGLE BENT

Scale: 3/8" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES207A-03 OF ES207A-09

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 207A
TYPICAL DETAILS

| | | |
|----------|----------------------------|-------------------|
| FILENAME | SHT_WL_ST_ES207A_TypDet_01 | SHEET |
| SCALE | AS NOTED | 169 OF 218 |

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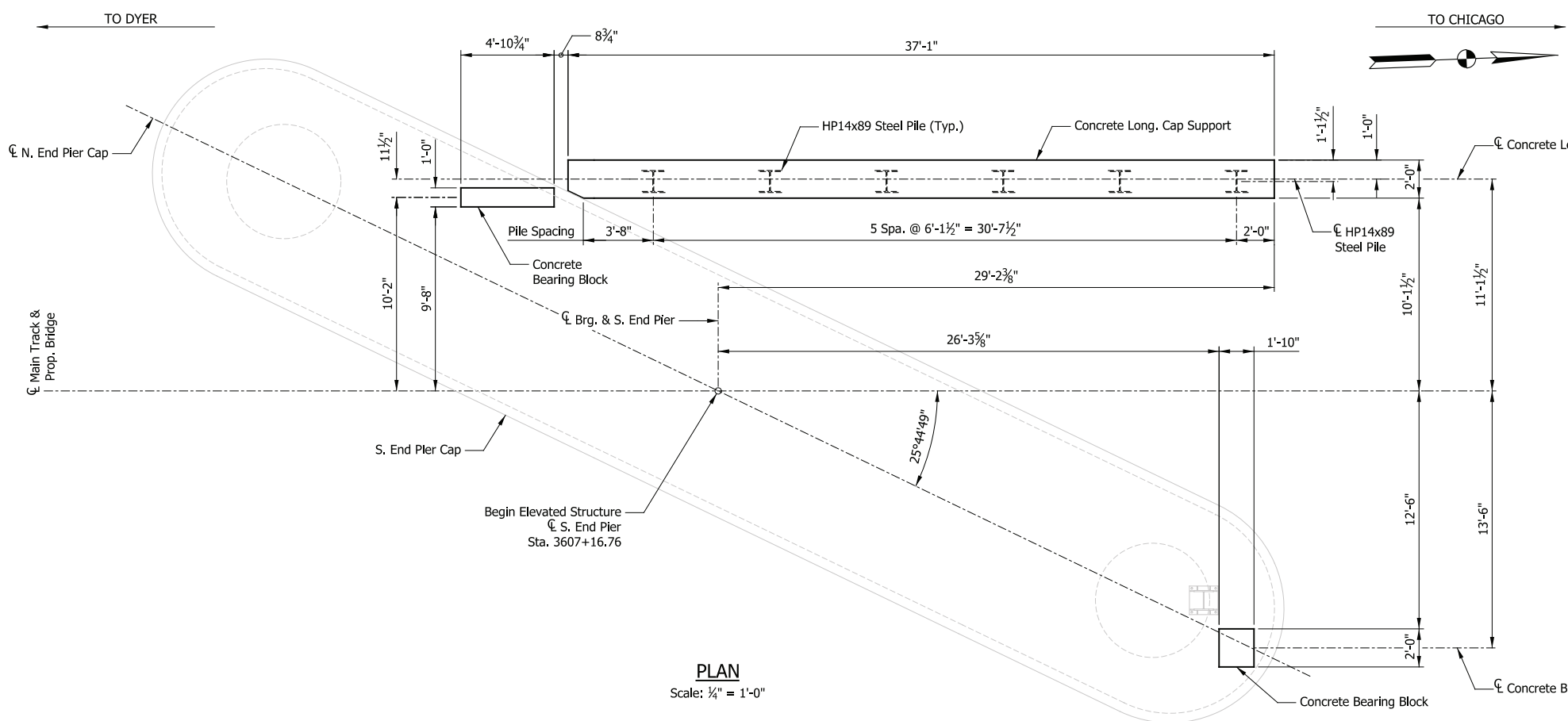
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TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304



DYER TO HAMMOND, INDIANA

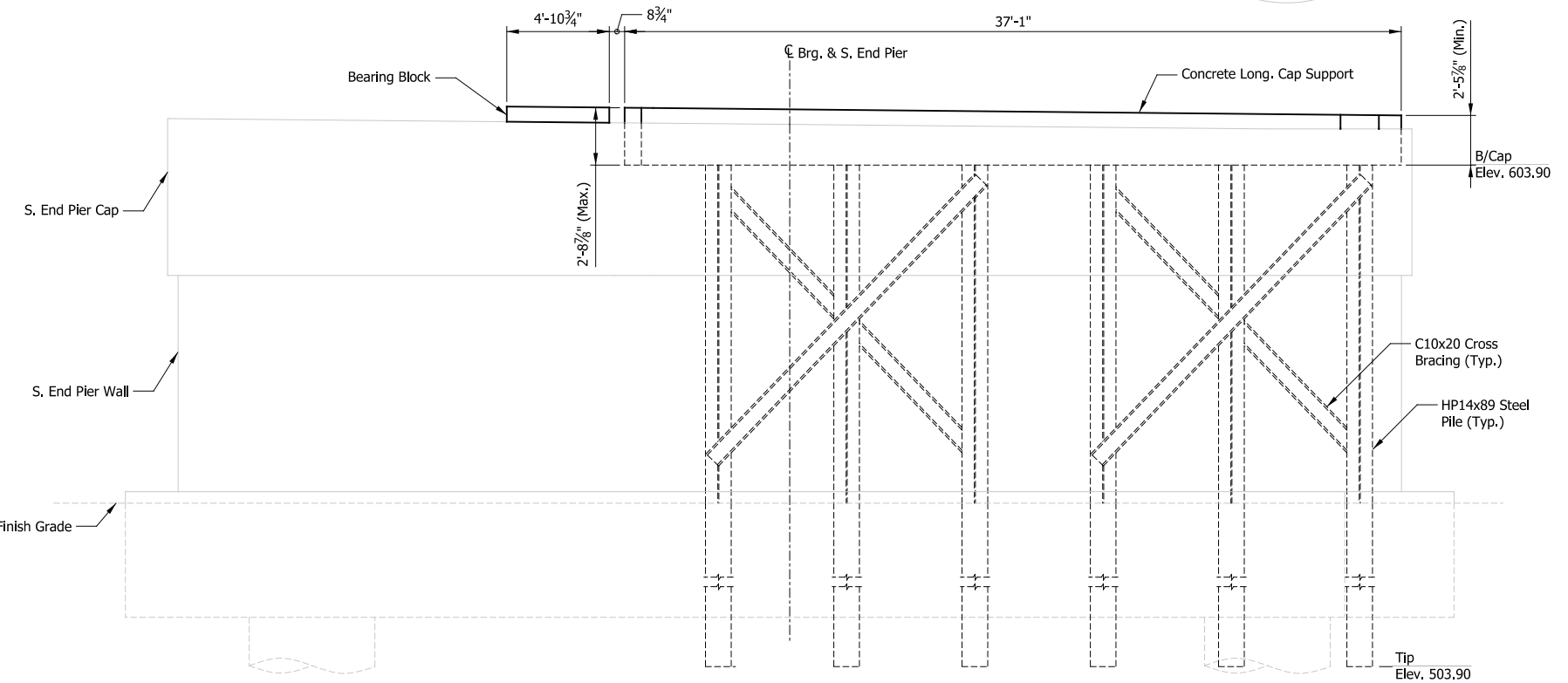
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| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |

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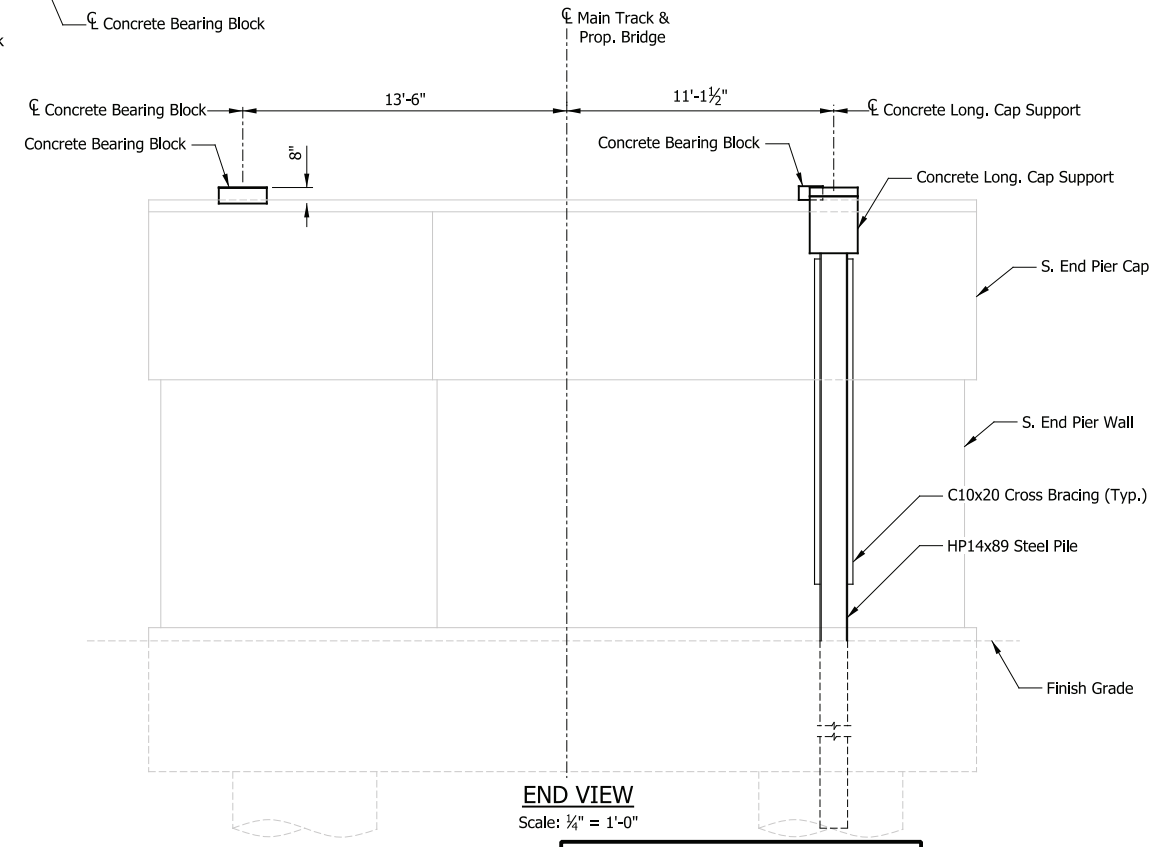


| GEOMETRY TABLE | | |
|-------------------------|--------|---------|
| LOCATION | Dim. A | Elev. B |
| Transverse Span Support | X'-X" | X |

PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"



END VIEW
Scale: 1/4" = 1'-0"

NOTE
Refer to BR113 Plans for Pier Detailing.

TRANSVERSE SPAN SUPPORT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES207A-04 OF ES207A-09

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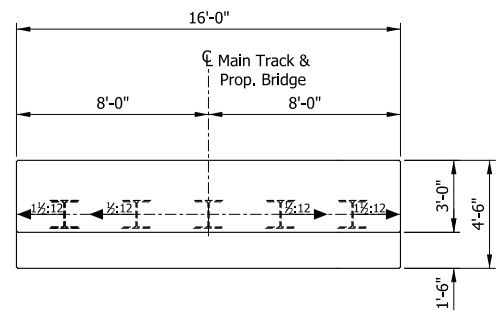
| ISSUE | DATE | DESCRIPTION |
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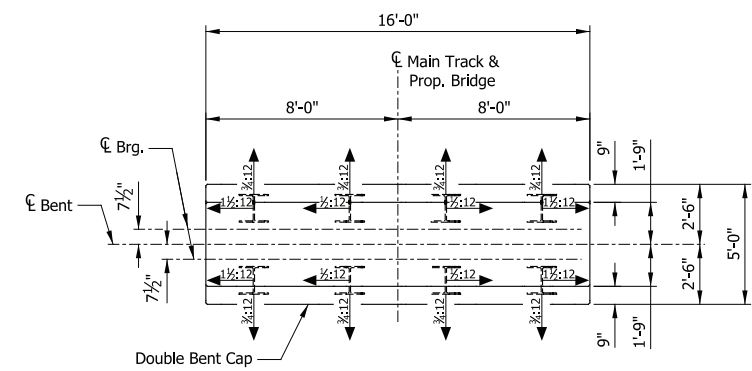
| | |
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| DESIGNED: | HDR-PJG |
| DRAWN: | HDR-AEP |
| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |

| | | |
|--|-------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 207A | | |
| SUBSTRUCTURE DETAILS (1 OF 3) | | |
| FILENAME | SHT_WL_ST_ES207A_SubstrDet_01 | SHEET |
| SCALE | AS NOTED | 170 OF 218 |

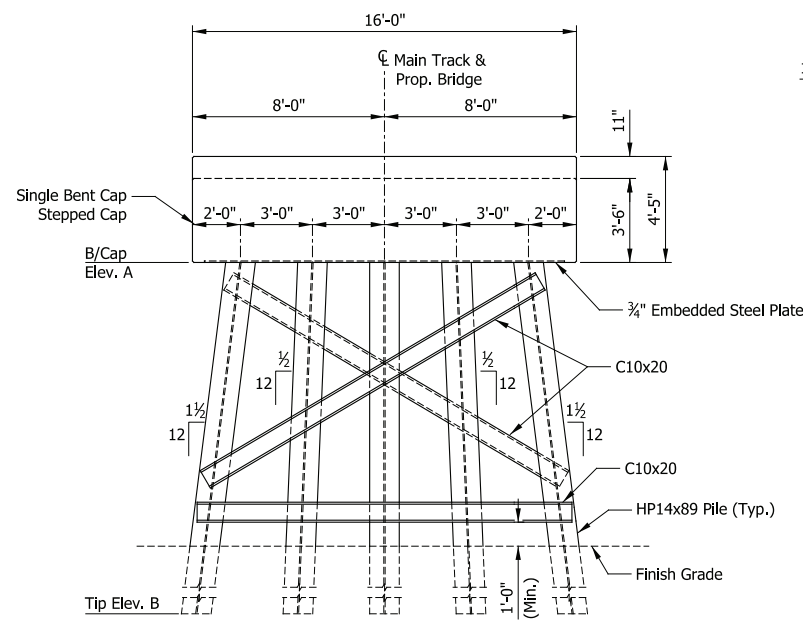
| GEOMETRY TABLE | | |
|----------------|---------|---------|
| LOCATION | Elev. A | Elev. B |
| Bent 1 | 601.54 | 506.54 |
| Bent 2 | 600.90 | 505.90 |
| Bent 5 | 596.89 | 501.89 |
| Bent 7 | 593.97 | 498.97 |



PLAN
Scale: 1/4" = 1'-0"
C10x20 Cross Bracing not Shown for Clarity

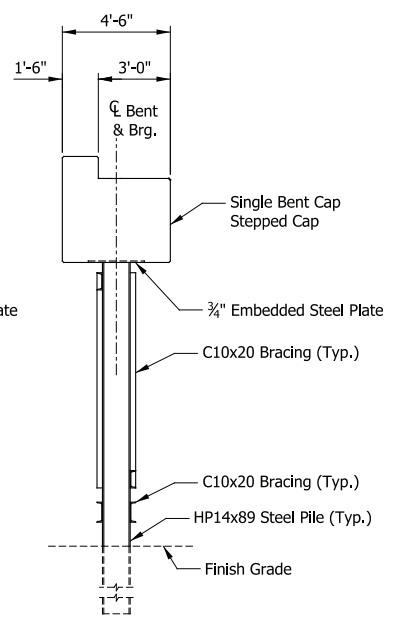


PLAN
Scale: 1/4" = 1'-0"
HP14x89 Struts and C10x20 Cross Bracing Not Shown for Clarity.

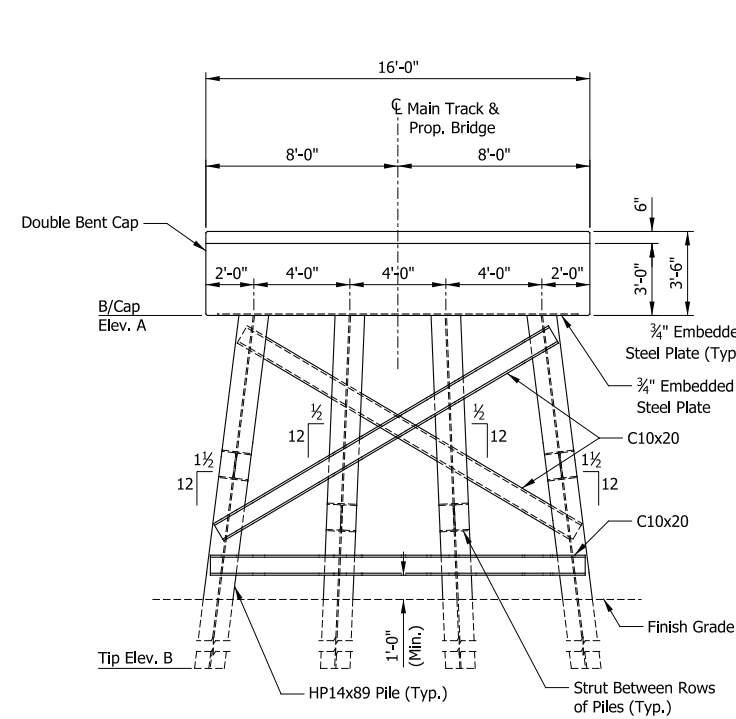


ELEVATION
Scale: 1/4" = 1'-0"

BENT 1

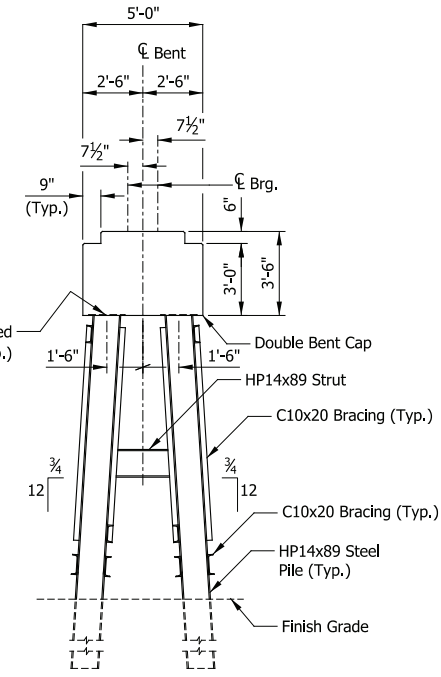


END VIEW
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

BENTS 2, 5 & 7



END VIEW
Scale: 1/4" = 1'-0"

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DYER TO HAMMOND, INDIANA

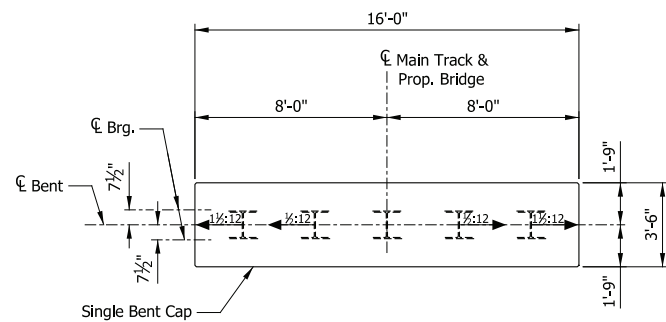
| | |
|-----------|----------|
| DESIGNED: | HDR-PJG |
| DRAWN: | HDR-AEP |
| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

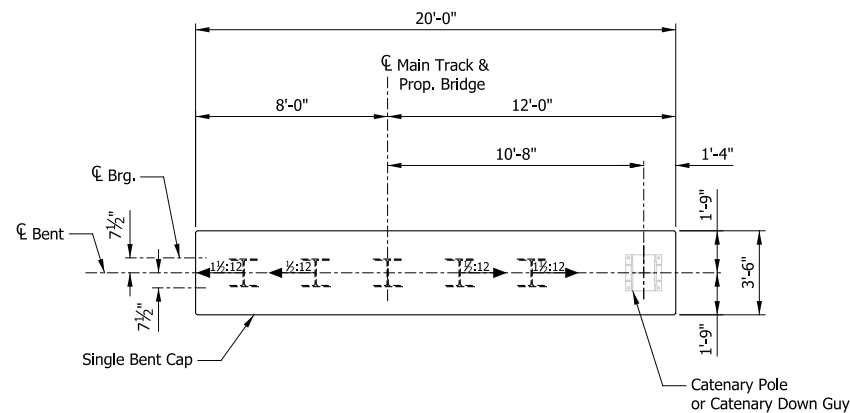
SERIES ES207A-05 OF ES207A-09

| | | |
|--|-------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 207A | | |
| SUBSTRUCTURE DETAILS (2 OF 3) | | |
| FILENAME | SHT_WL_ST_ES207A_SubstrDet_02 | SHEET |
| SCALE | AS NOTED | 171 OF 218 |

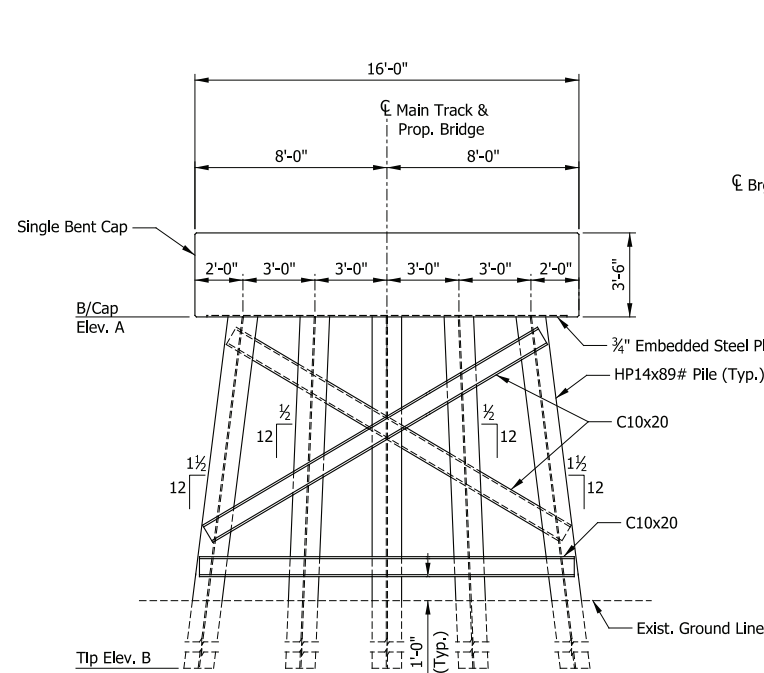
| GEOMETRY TABLE | | |
|----------------|---------|---------|
| LOCATION | Elev. A | Elev. B |
| Bent 3 | 599.78 | 504.78 |
| Bent 4 | 598.33 | 503.33 |
| Bent 6 | 595.43 | 500.43 |
| Bent 8 | 592.52 | 497.52 |



PLAN
Scale: 1/4" = 1'-0"

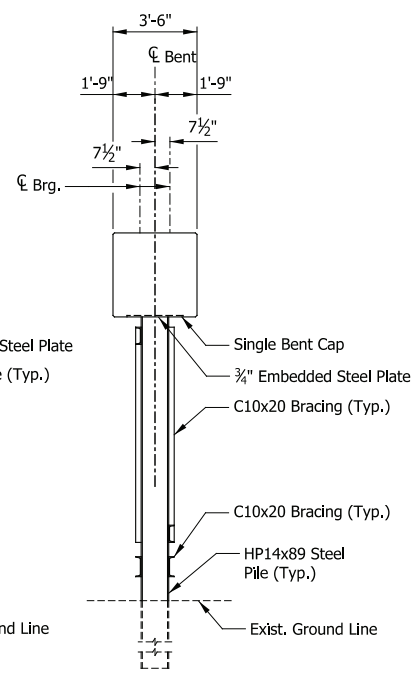


PLAN
Scale: 1/4" = 1'-0"

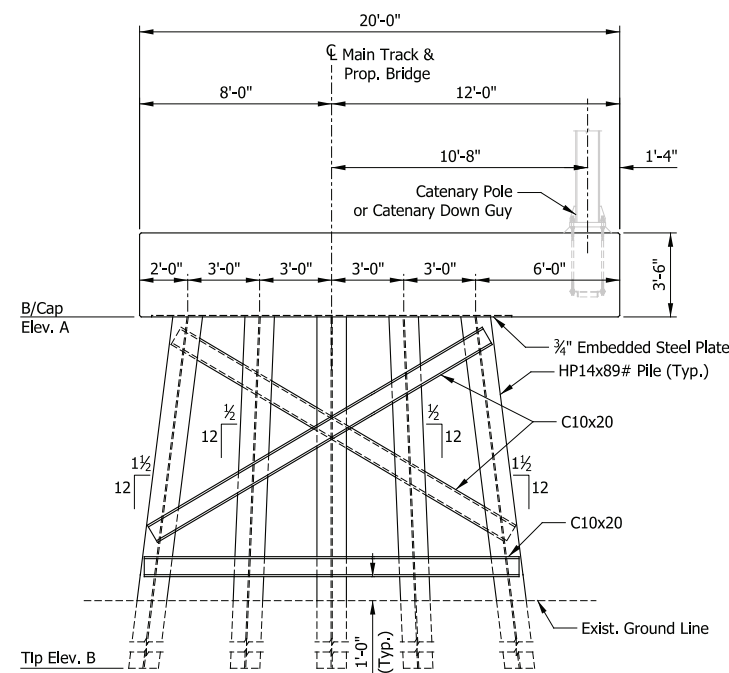


ELEVATION
Scale: 1/4" = 1'-0"

BENT 3

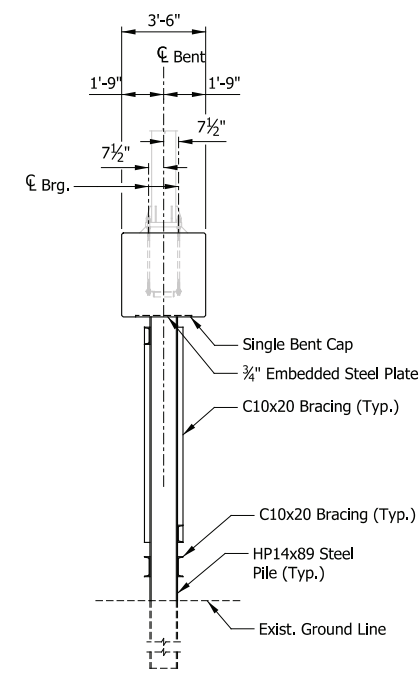


END VIEW
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

BENTS 4, 6 & 8



END VIEW
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES207A-06 OF ES207A-09

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 207A
SUBSTRUCTURE DETAILS (3 OF 3)**

| | | |
|----------|-------------------------------|-------------------|
| FILENAME | SHT_WL_ST_ES207A_SubstrDet_03 | SHEET |
| SCALE | AS NOTED | 172 OF 218 |

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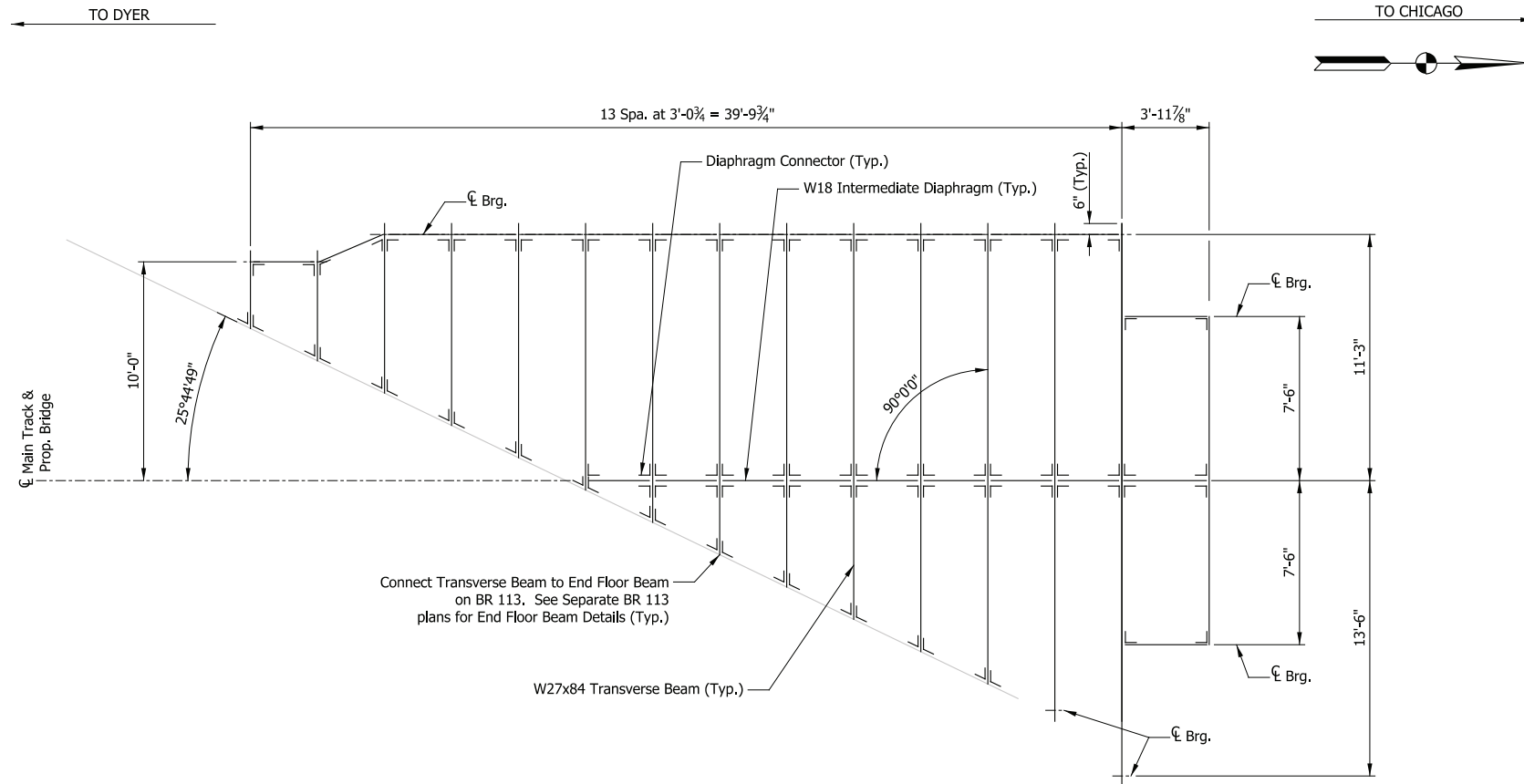
NORTHERN INDIANA COMMUTER
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33 East Highway 12
Chesterton, Indiana 46304



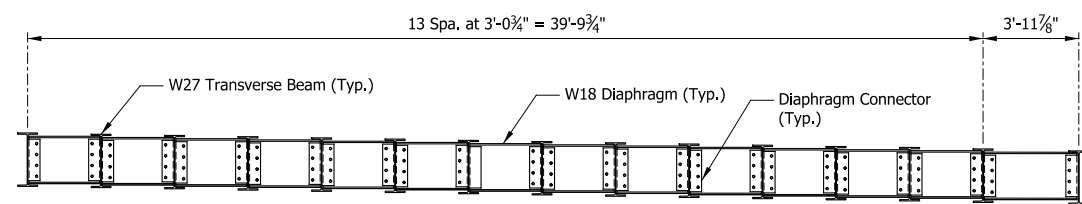
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FRAMING PLAN
 Transverse Span
 Scale: 3/4" = 1'-0"



BEAM EXTERIOR ELEVATION
 Transverse Span
 Scale: 3/4" = 1'-0"

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DYER TO HAMMOND, INDIANA

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| DATE: | 07/21/17 |
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PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES
 ES207A-07 OF ES207A-09

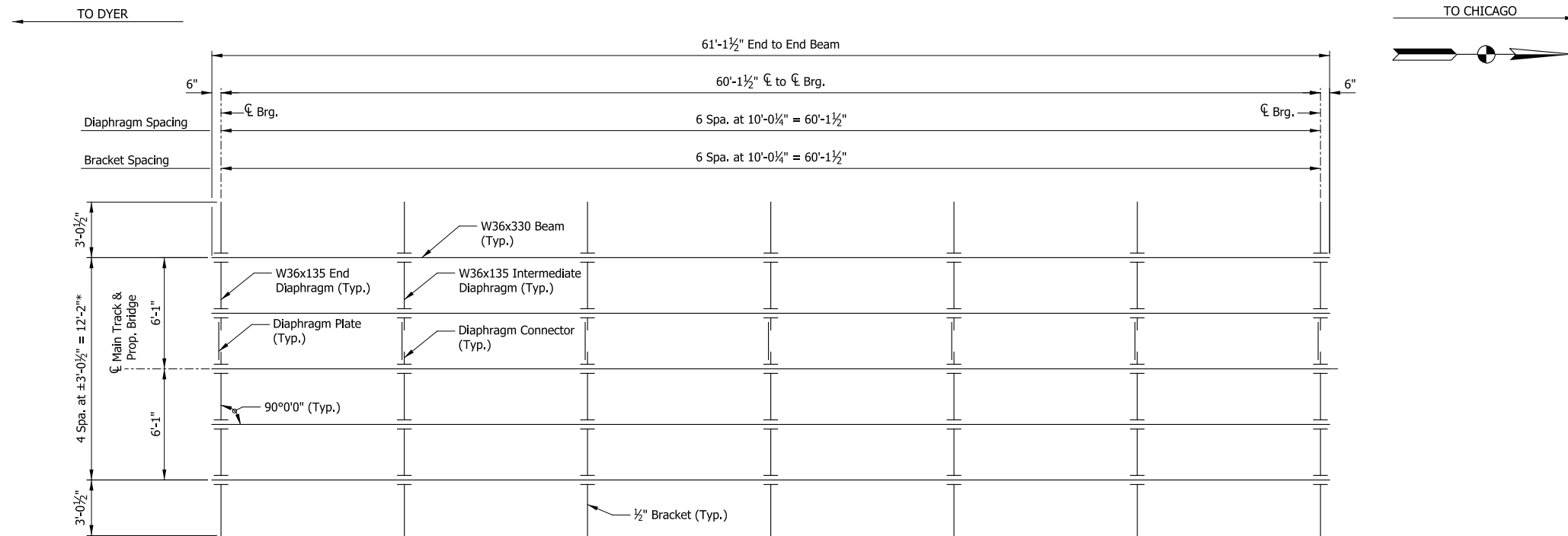
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
 SINGLE TRACK

ELEVATED STRUCTURE 207A
FRAMING PLAN (1 OF 3)

| | |
|----------|------------------------------|
| FILENAME | SHT_WL_ST_ES207A_FramPlan_01 |
| SCALE | AS NOTED |

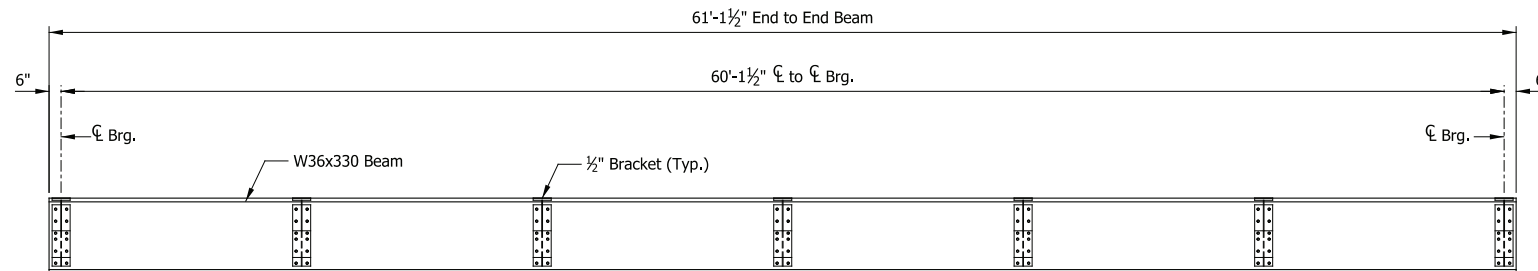
SHEET
173 OF 218

* Due to out-to-out beam spacing greater than 10'-0", diaphragms shall be designed to adequately distribute load from the track evenly to each beam, in accordance with the AREMA Manual.



FRAMING PLAN

Span 2
Scale: 1/4" = 1'-0"



BEAM EXTERIOR ELEVATION

Span 2
Scale: 1/4" = 1'-0"

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| DATE: | 07/21/17 |
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PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES207A-08 OF ES207A-09

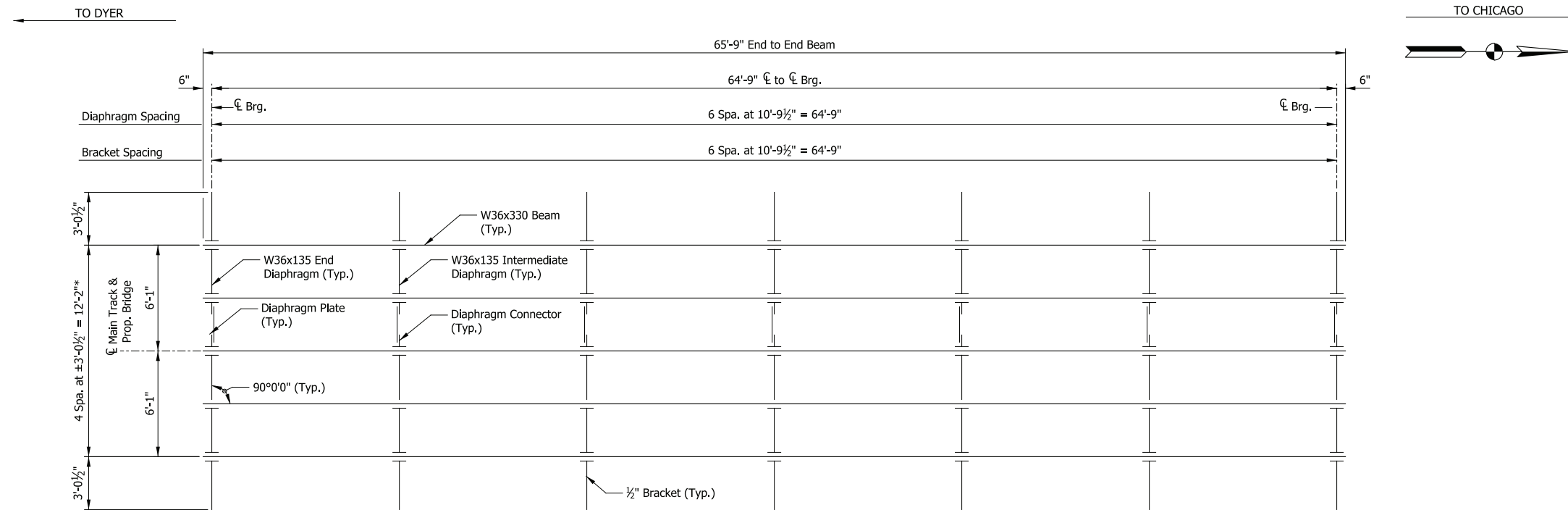
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 207A
FRAMING PLAN (2 OF 3)**

| | |
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| FILENAME | SHT_WL_ST_ES207A_FramPlan_02 |
| SCALE | AS NOTED |

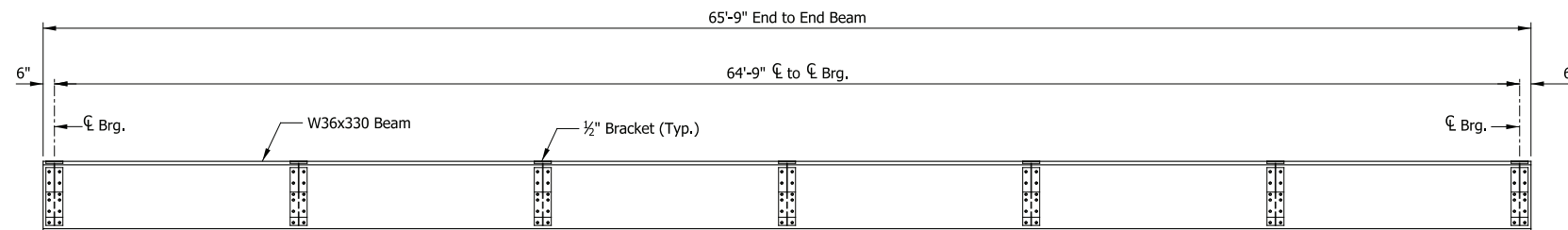
SHEET **174 OF 218**

* Due to out-to-out beam spacing greater than 10'-0", diaphragms shall be designed to adequately distribute load from the track evenly to each beam, in accordance with the AREMA Manual.



FRAMING PLAN

Spans 3 thru 9
Scale: 1/4" = 1'-0"



BEAM EXTERIOR ELEVATION

Spans 3 thru 9
Scale: 1/4" = 1'-0"

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33 East Highway 12
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DYER TO HAMMOND, INDIANA

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| DRAWN: | HDR-AEP |
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PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES207A-09 OF ES207A-09

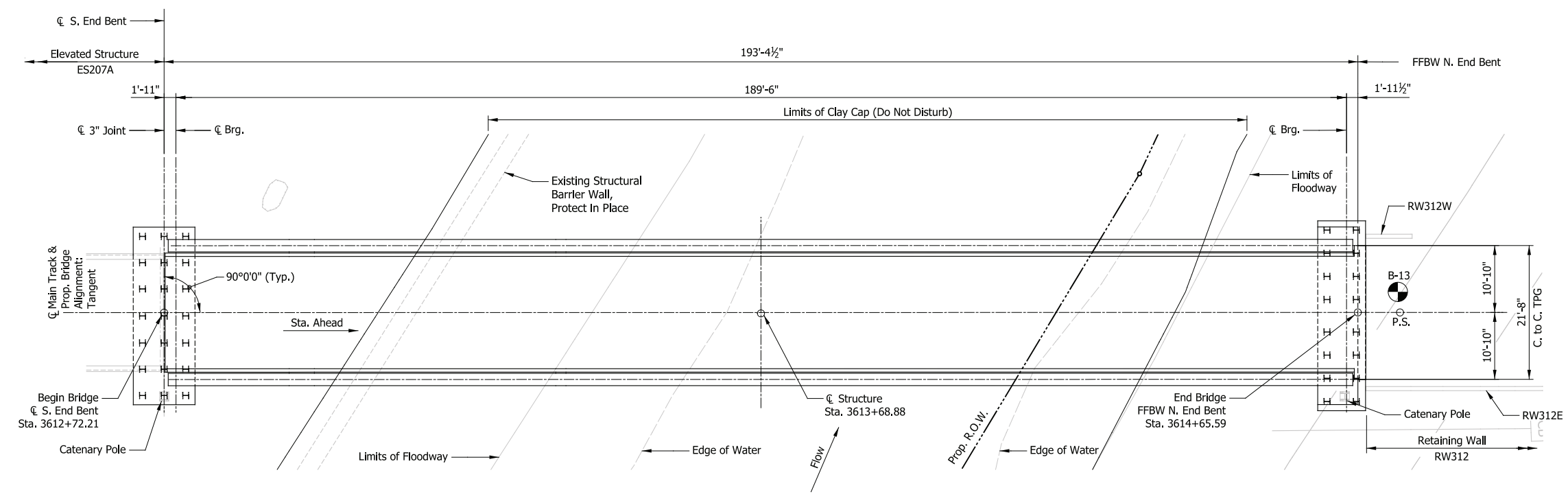
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 207A
FRAMING PLAN (3 OF 3)**

| | | |
|----------|------------------------------|-------------------|
| FILENAME | SHT_WL_ST_ES207A_FramPlan_03 | SHEET |
| SCALE | AS NOTED | 175 OF 218 |

TO DYER

TO CHICAGO



PLAN
Scale: 3/32" = 1'-0"

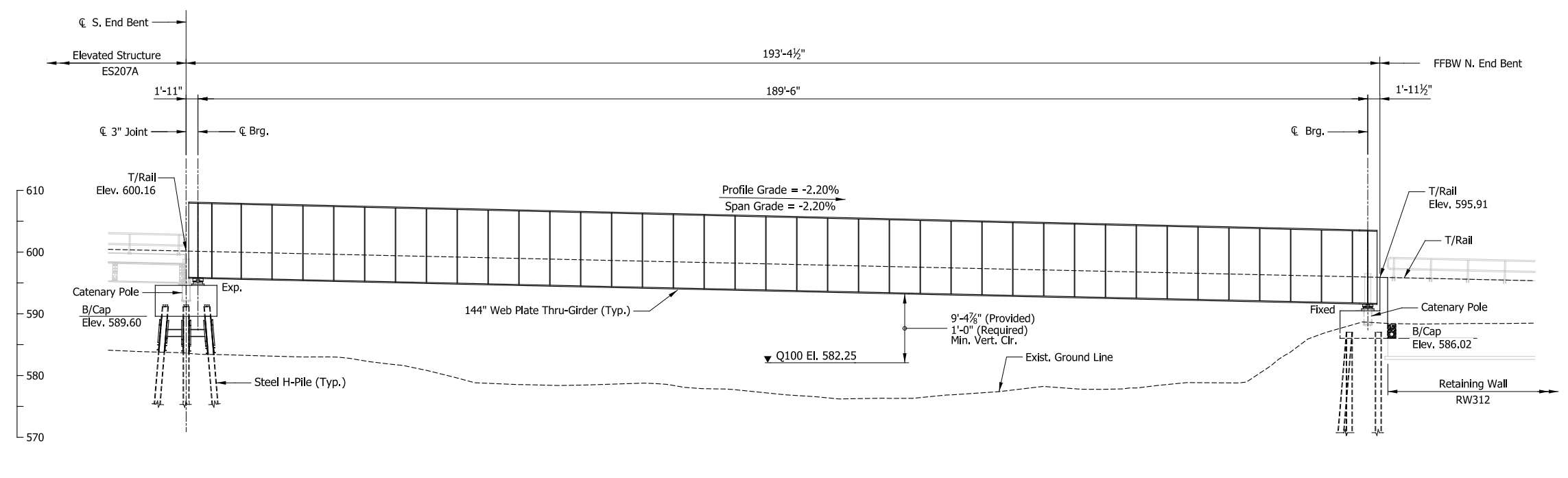
DESIGN DATA
 SPECIFICATIONS:
 American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.
 LIVE LOADS:
 Cooper E-50 and Ballast Train Per Structural Design Criteria
 DEAD LOADS:
 Maximum Ballast Depth = 19 Inches (at High End of Span)
 DESIGN STRESSES:
 Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
 Reinforcing: $f_y = 60,000$ psi (ASTM A615)
 Concrete: $f_c = 4,000$ psi (Min.)

SHEET INDEX
 BR115-01 General Plan & Elevation
 BR115-02 Typical Details
 BR115-03 Substructure Details (1 of 2)
 BR115-04 Substructure Details (2 of 2)
 BR115-05 Framing Plan

CONSTRUCTION DEPTH

| | |
|----------------|---------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 6" |
| Waterproofing | 1" |
| Deck Plate | 5/8" |
| Floor Beam | 23 3/4" |
| Bracing | 4" |
| Bottom Flange | 3" |
| | 52 3/4" |

NOTES
 1. For track geometry, see Track Plans.



ELEVATION
Scale: 3/32" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR115-01 OF BR115-05

| | |
|-----------|-----------|
| DESIGNED: | DLZ - LML |
| DRAWN: | DLZ - CJS |
| CHECKED: | DLZ - NTA |
| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
 SINGLE TRACK
BRIDGE 115 - NICTD OVER GRAND CALUMET RIVER
GENERAL PLAN & ELEVATION
 FILENAME: SHT_WL_ST_BR115_GenPlan_01.dgn SHEET: 176 OF 218
 SCALE: AS NOTED

PLOT DATE: November 08, 2017 6:24:29 PM JMWIGUS

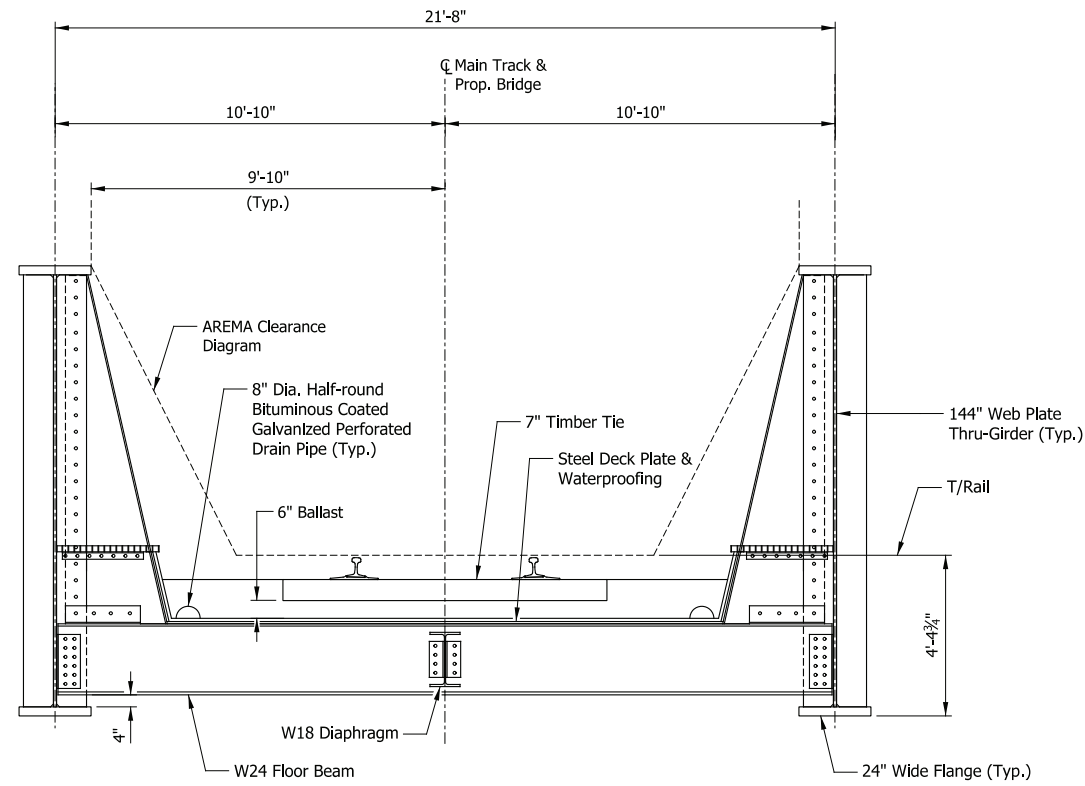
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DLZ
 DLZ Indiana, LLC
 2211 E. Jefferson Boulevard
 South Bend, IN 46615
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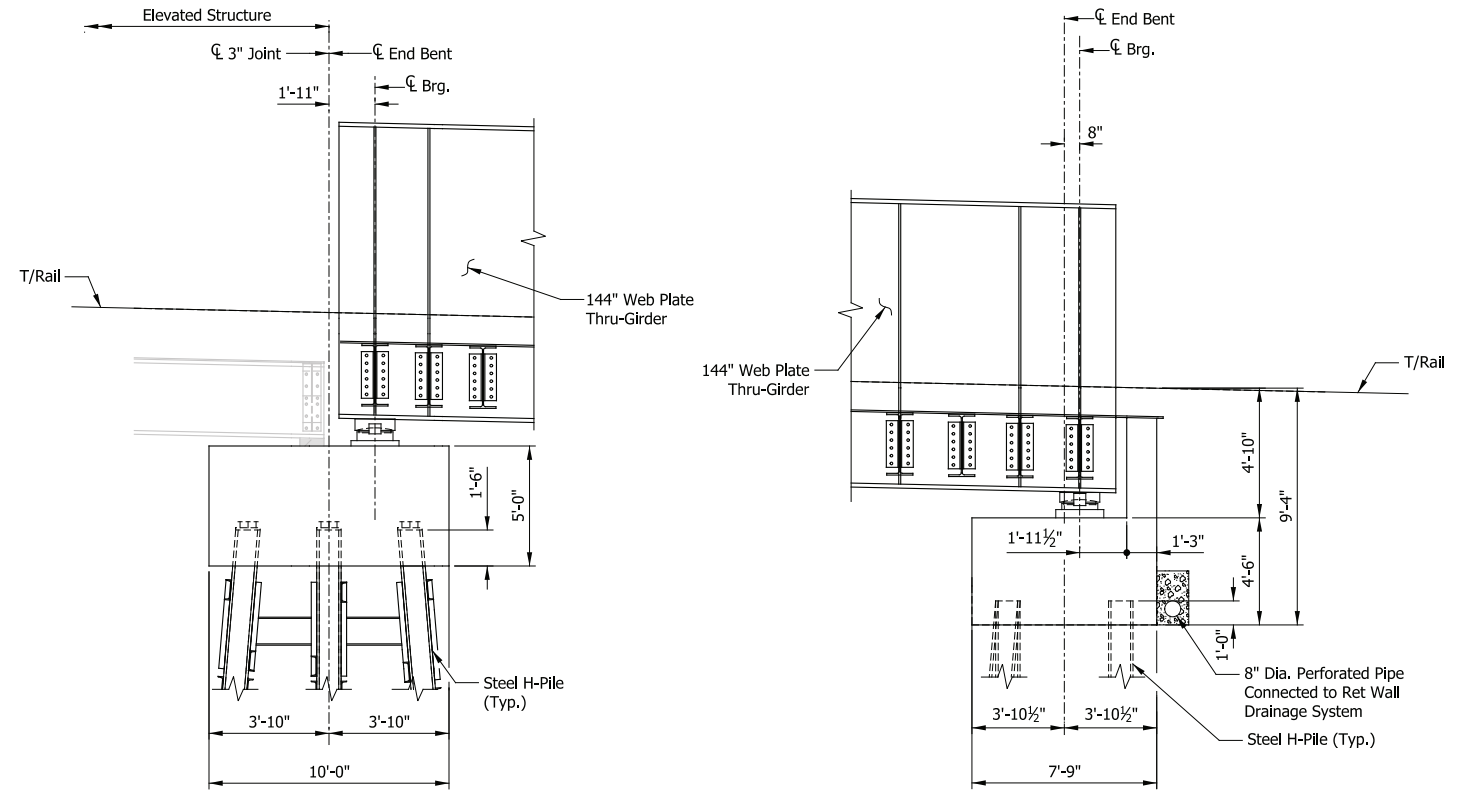
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NICTD
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WEST LAKE CORRIDOR
 DYER TO HAMMOND, INDIANA

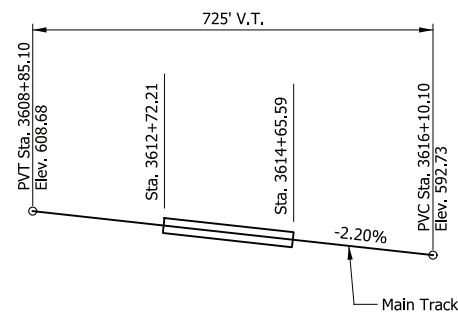


TYPICAL SECTION
Scale: 3/8" = 1'-0"

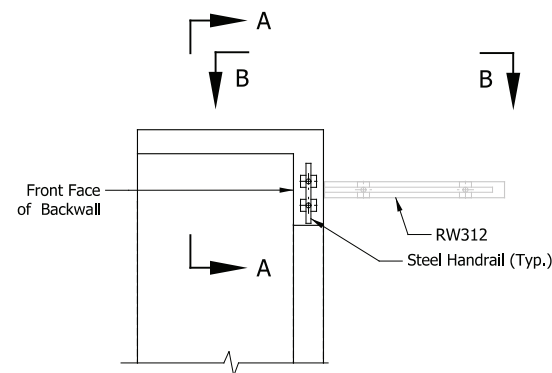


SECTION THRU S. END BENT
Scale: 1/4" = 1'-0"

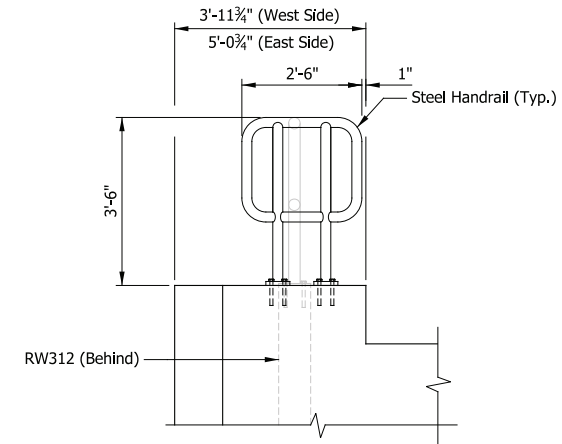
SECTION THRU N. END BENT
Scale: 1/4" = 1'-0"



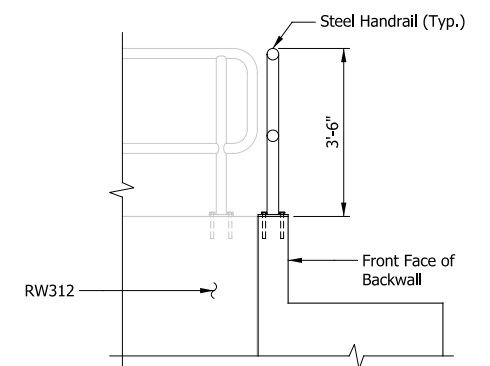
TOP OF RAIL PROFILE
Not to Scale



HANDRAIL LAYOUT AT NORTH BRIDGE CORNERS
(Shown at West Side, East Side Similar)
Scale: 1/4" = 1'-0"



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



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

NOTES:
Outfall from Drainage System to be Routed and Detailed Similar to Those Provided for Retaining Wall Underdrains.

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| DRAWN: | DLZ - CJS |
| CHECKED: | DLZ-NTA |
| DATE: | 07/21/17 |

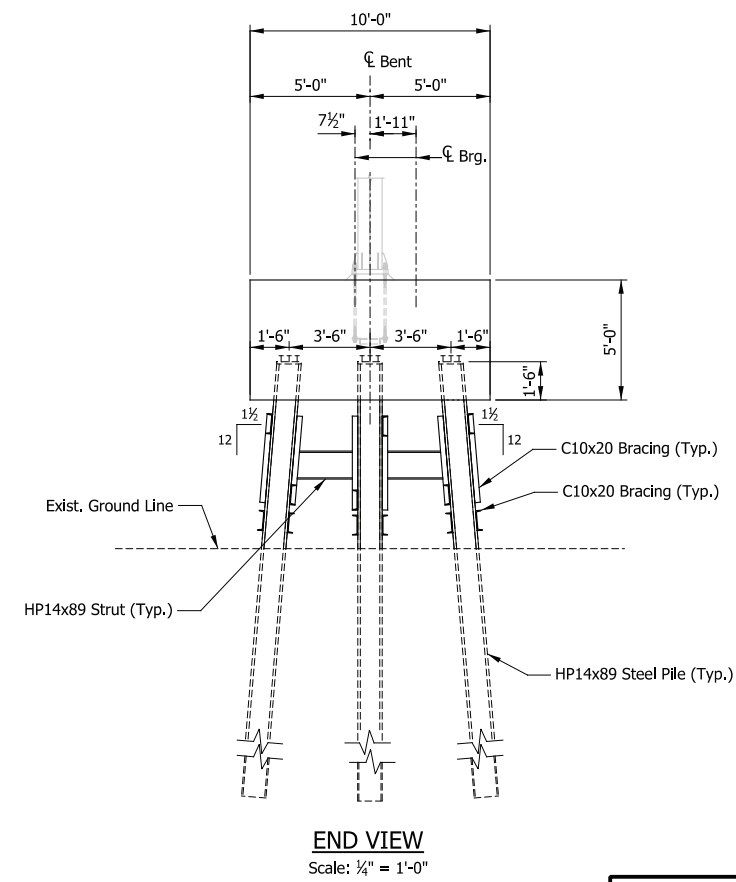
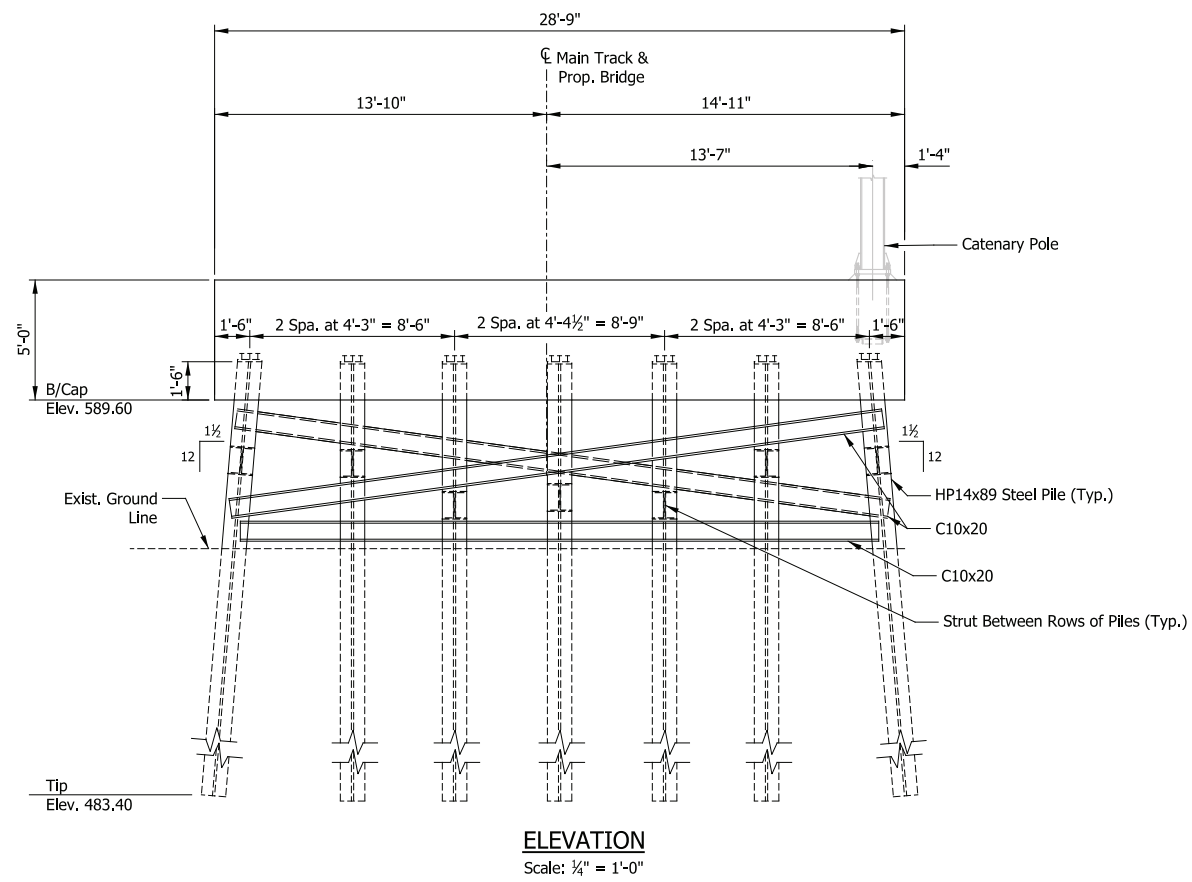
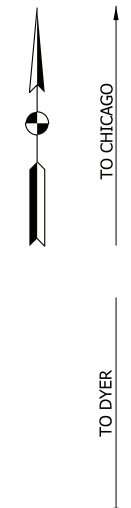
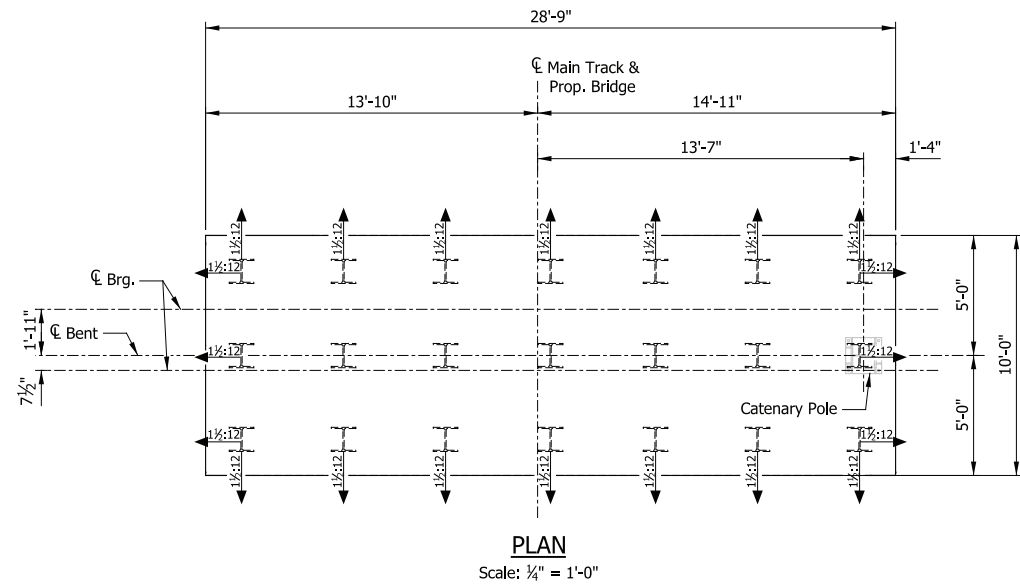
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR115-02 OF BR115-05

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 115 - NICTD OVER GRAND CALUMET RIVER
TYPICAL DETAILS

| | | |
|----------|-------------------------------|-------------------|
| FILENAME | SHT_WL_ST_BR115_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 177 OF 218 |



SOUTH END BENT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR115-03 OF BR115-05

| | |
|-----------|----------|
| DESIGNED: | DLZ-LML |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-NTA |
| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
BRIDGE 115 - NICTD OVER GRAND CALUMET RIVER
SUBSTRUCTURE DETAILS (1 OF 2)

| | | |
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| FILENAME | SHT_WL_ST_BR115_SubstrDet_01.dgn | SHEET |
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PLOT DATE: November 08, 2017 6:24:41 PM JMJIGUS

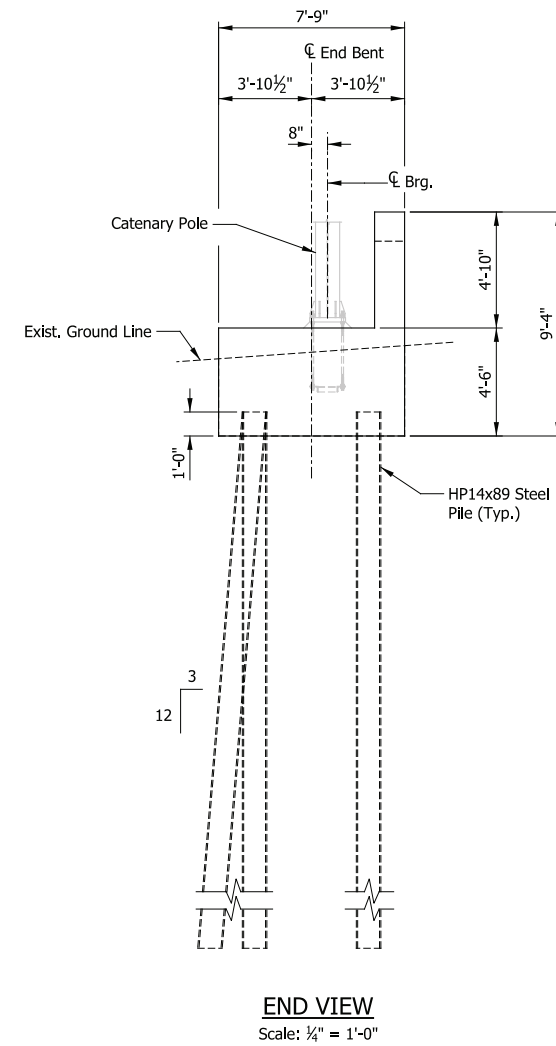
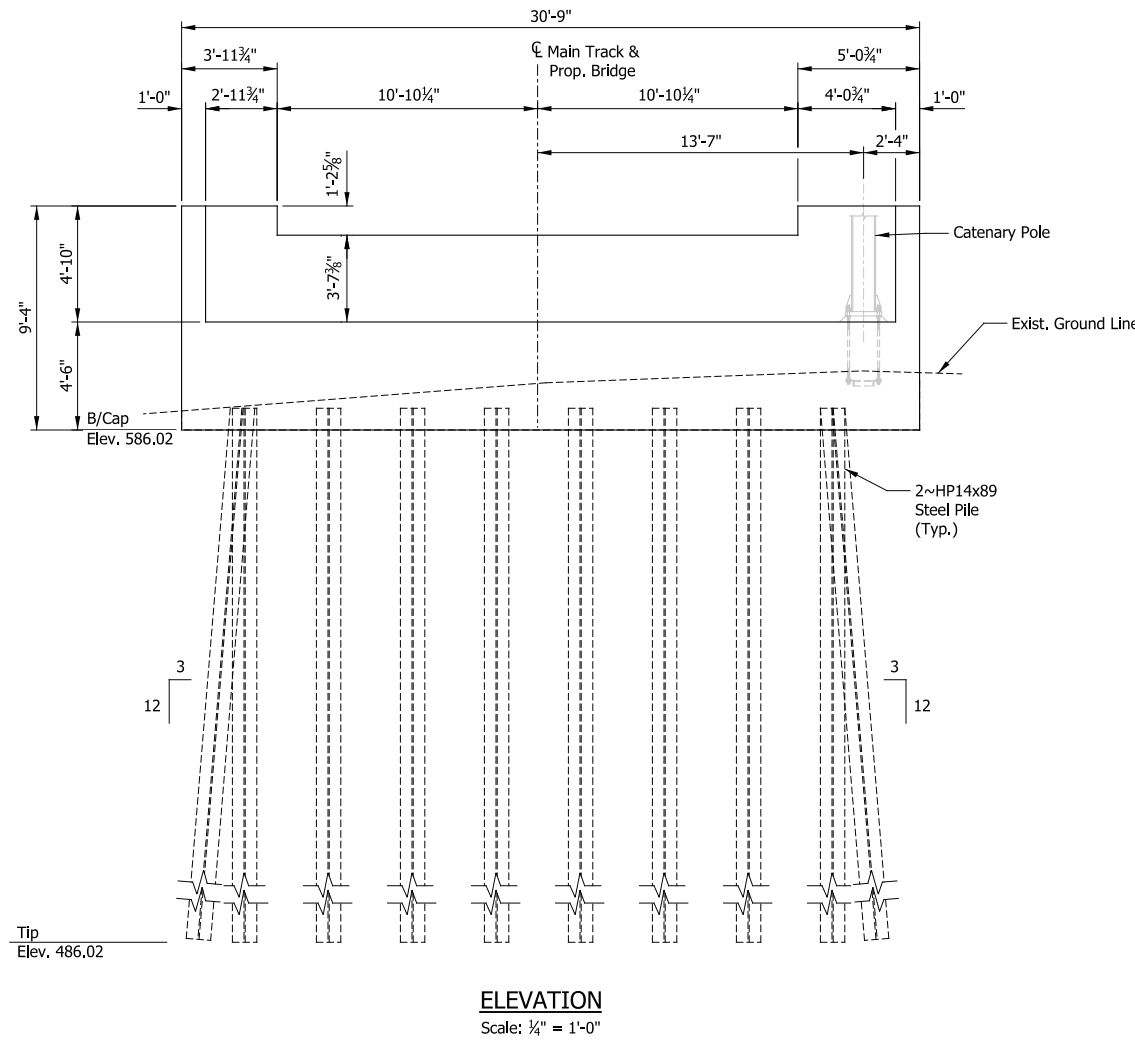
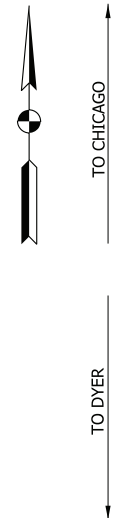
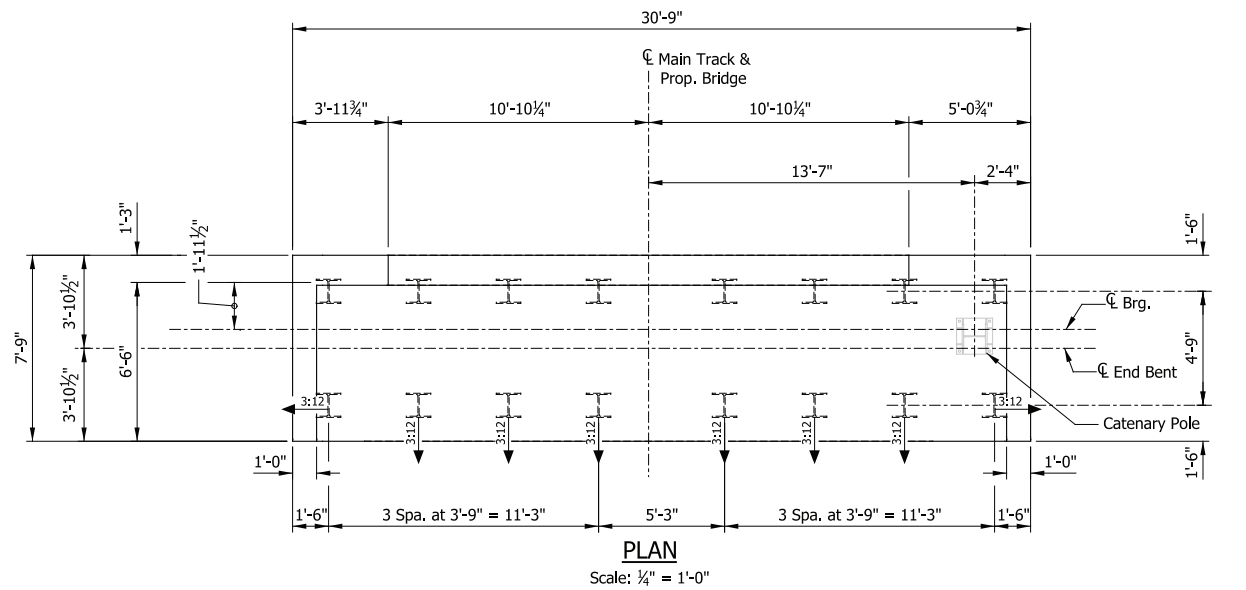
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Chicago, IL 60631
www.hdrinc.com

DLZ Indiana, LLC
2211 E. Jefferson Boulevard
South Bend, IN 46615
www.dlz.com

| ISSUE | DATE | DESCRIPTION |
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| | | |

NORTHERN INDIANA COMMUTER
TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

WEST LAKE CORRIDOR
DYER TO HAMMOND, INDIANA



NORTH END BENT

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR115-04 OF BR115-05

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

BRIDGE 115 - NICTD OVER GRAND CALUMET RIVER
SUBSTRUCTURE DETAILS (2 OF 2)

| | | | |
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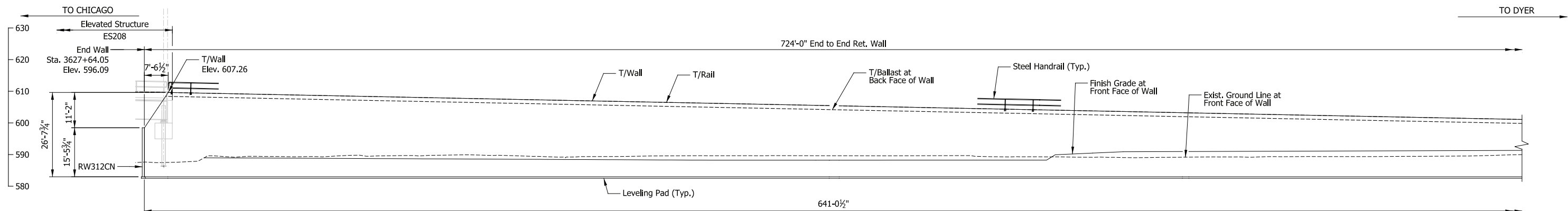
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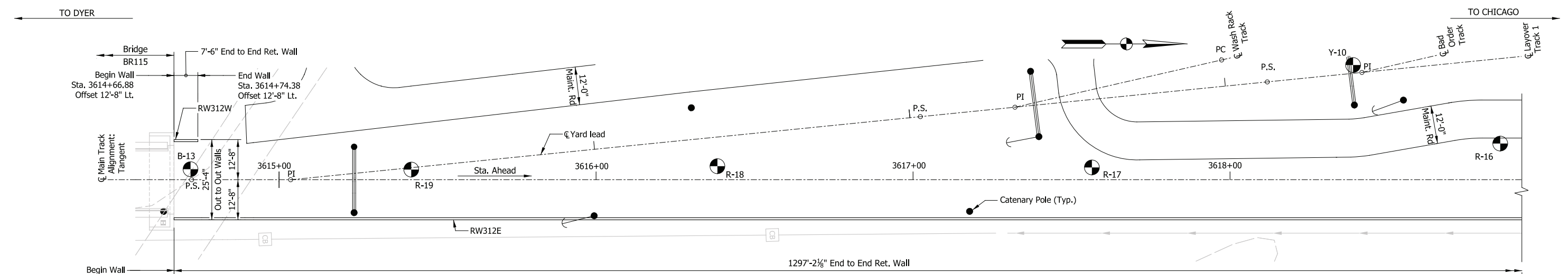
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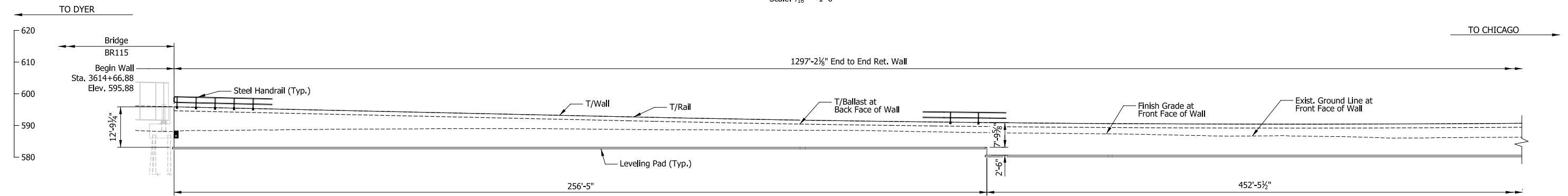
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|-----------|----------|
| DESIGNED: | DLZ: LML |
| DRAWN: | DLZ: JLM |
| CHECKED: | DLZ: NTA |
| DATE: | 07/21/17 |



ELEVATION - RW312W
(Looking East)
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



ELEVATION - RW312E
(Looking West)
Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 4,000$ psi (Min.)

SHEET INDEX

| | |
|----------|-----------------------------------|
| RW312-01 | General Plan & Elevation (1 of 3) |
| RW312-02 | General Plan & Elevation (2 of 3) |
| RW312-03 | General Plan & Elevation (3 of 3) |
| RW312-04 | Typical Details |
| RW312-05 | Drainage Plan |
| RW312-06 | Drainage Details |

NOTES

- For track geometry, see Track Plans.
- For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION SERIES RW312-01 OF RW312-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 312W & 312E
GENERAL PLAN & ELEVATION (1 OF 3)

| | | | |
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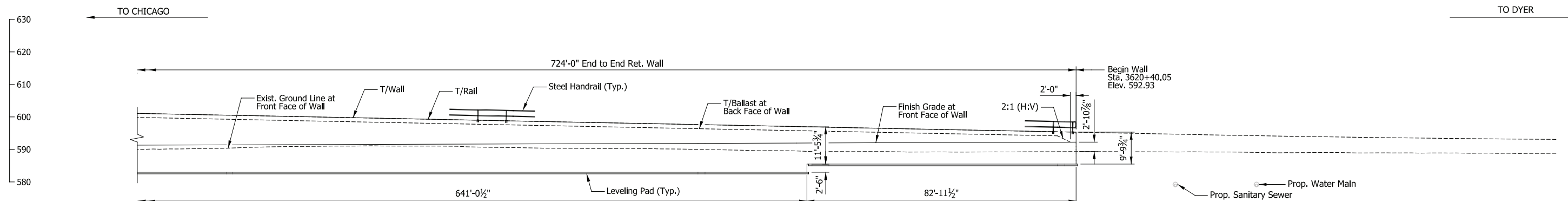
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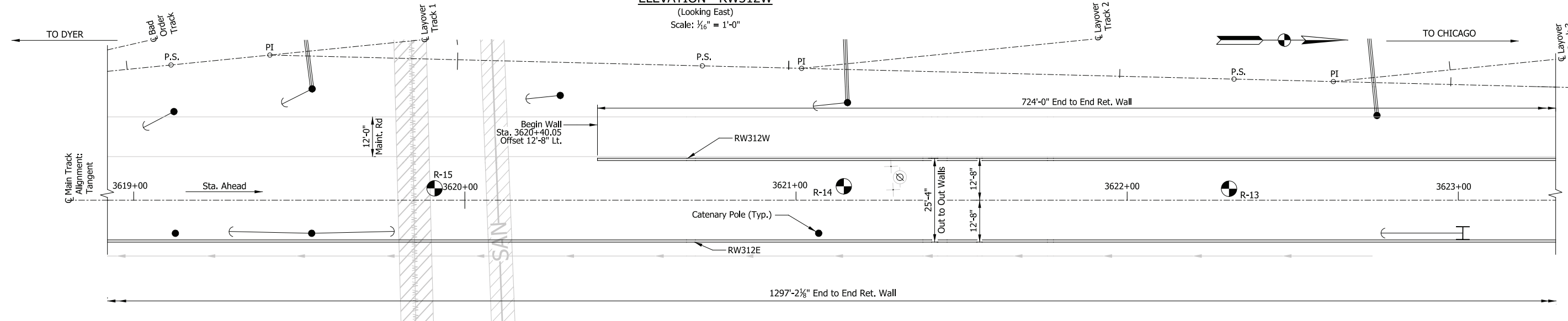
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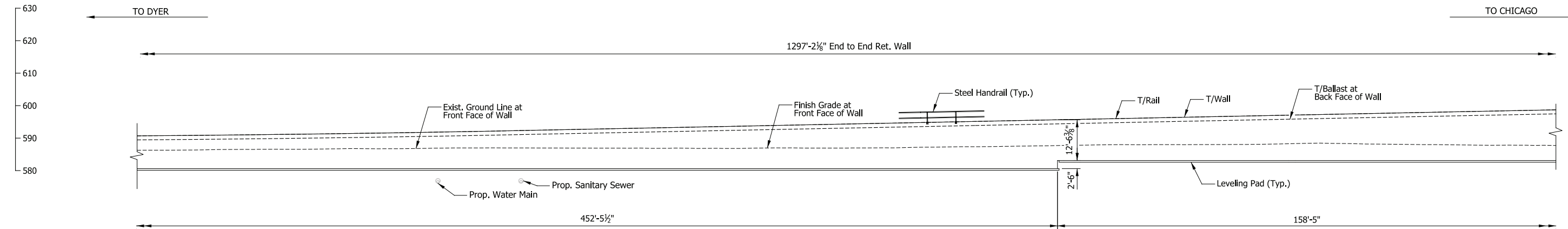
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| DESIGNED: | DLZ-JFM |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-CAG |
| DATE: | 07/21/17 |



ELEVATION - RW312W
(Looking East)
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



ELEVATION - RW312E
(Looking West)
Scale: 1/16" = 1'-0"

- NOTES**
1. For track geometry, see Track Plans.
 2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW312-02 OF RW312-06

| | |
|--|--------------------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | |
| RETAINING WALLS 312W & 312E | |
| GENERAL PLAN & ELEVATION (2 OF 3) | |
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| SCALE | AS NOTED |
| SHEET | 182 OF 218 |

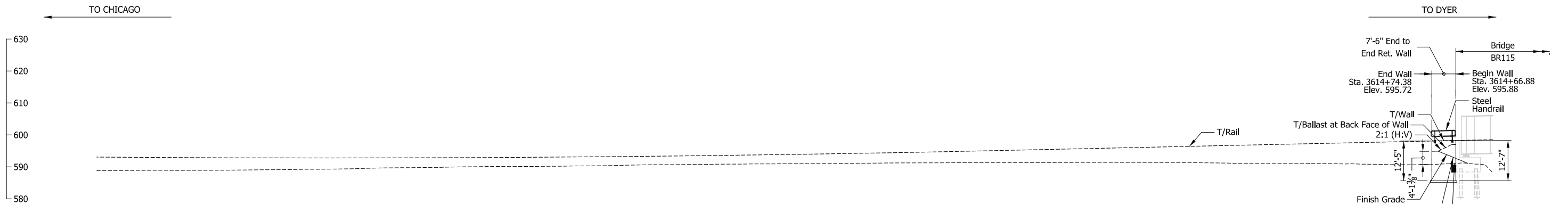
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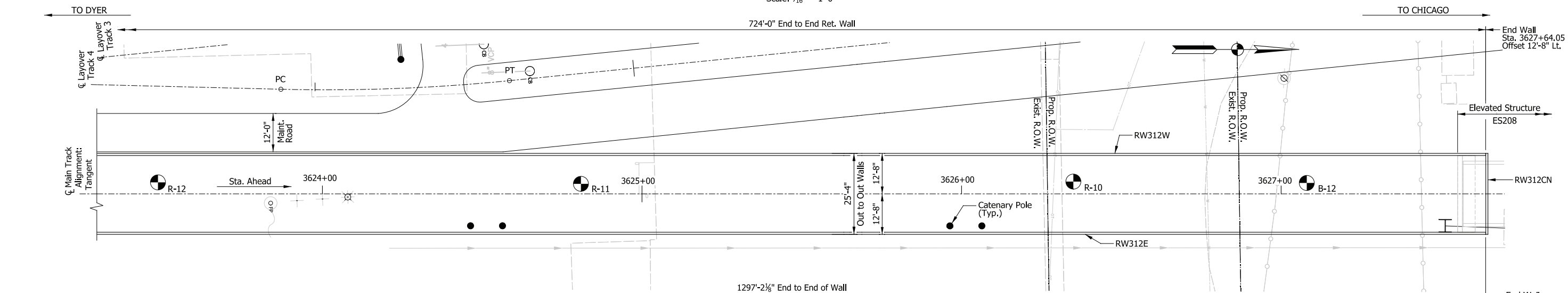
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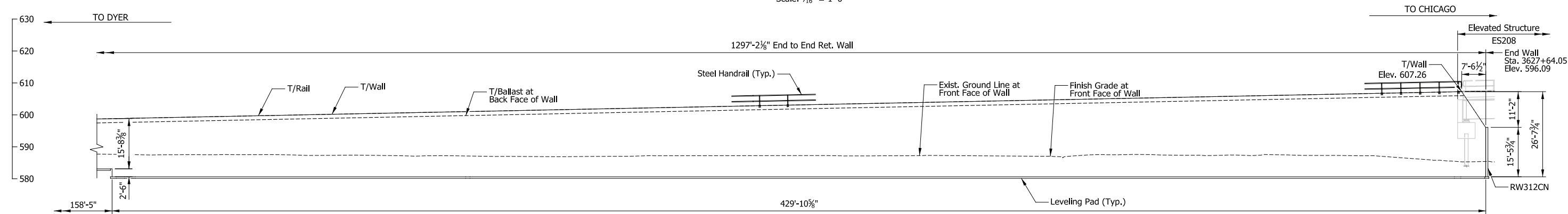
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|-----------|----------|
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| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-CAG |
| DATE: | 07/21/17 |



ELEVATION - RW312W
(Looking East)
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



ELEVATION - RW312E
(Looking West)
Scale: 1/16" = 1'-0"

- NOTES**
- For track geometry, see Track Plans.
 - For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW312-03 OF RW312-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
RETAINING WALLS 312W & 312E
GENERAL PLAN & ELEVATION (3 OF 3)

| | | | |
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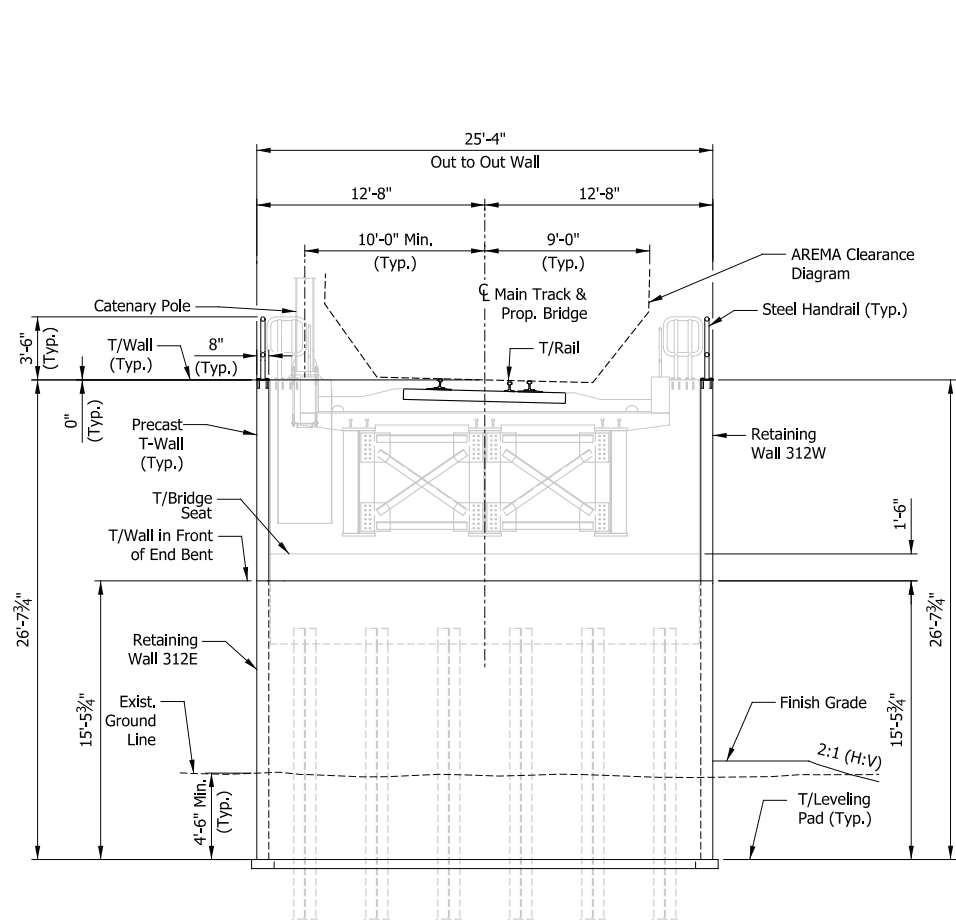
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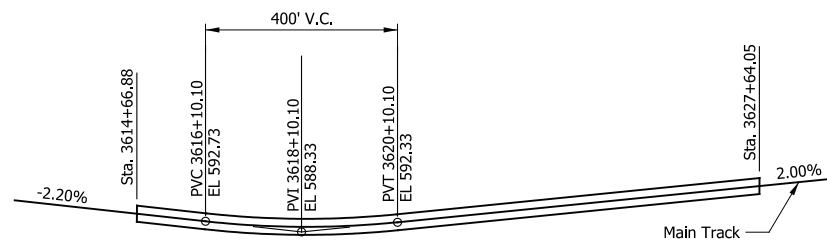
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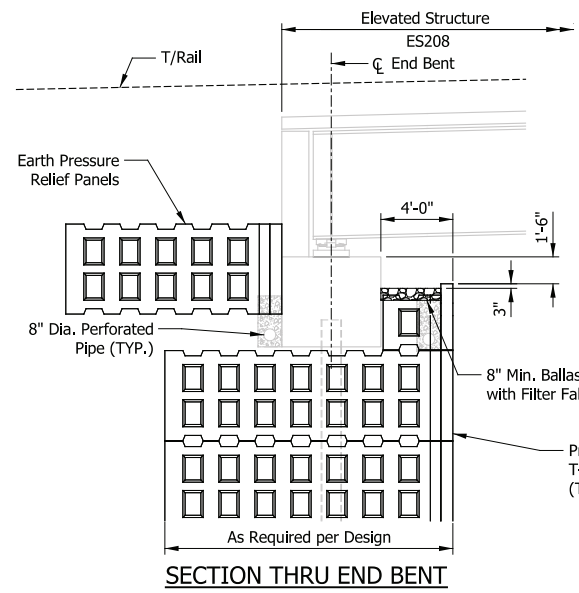
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| CHECKED: | DLZ-CAG |
| DATE: | 07/21/17 |



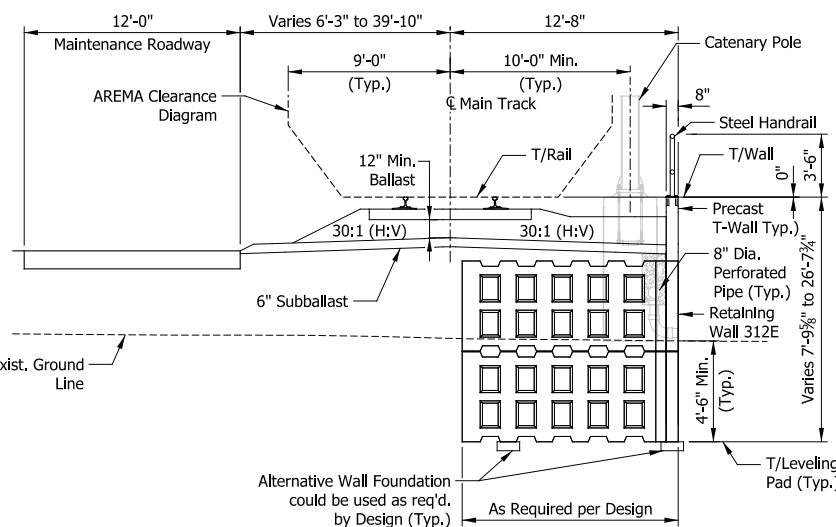
ELEVATION - RET. WALL 312CN
(Looking Downstation)
Scale: 3/16" = 1'-0"



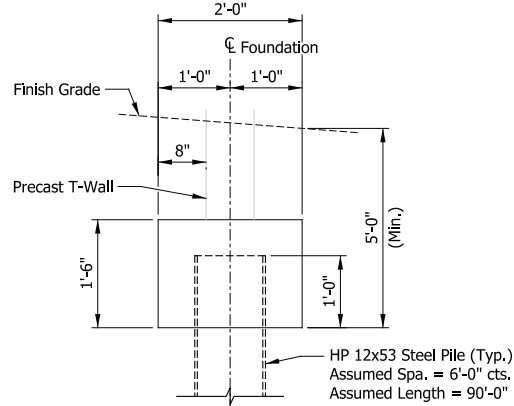
TOP OF RAIL PROFILE
Not to Scale



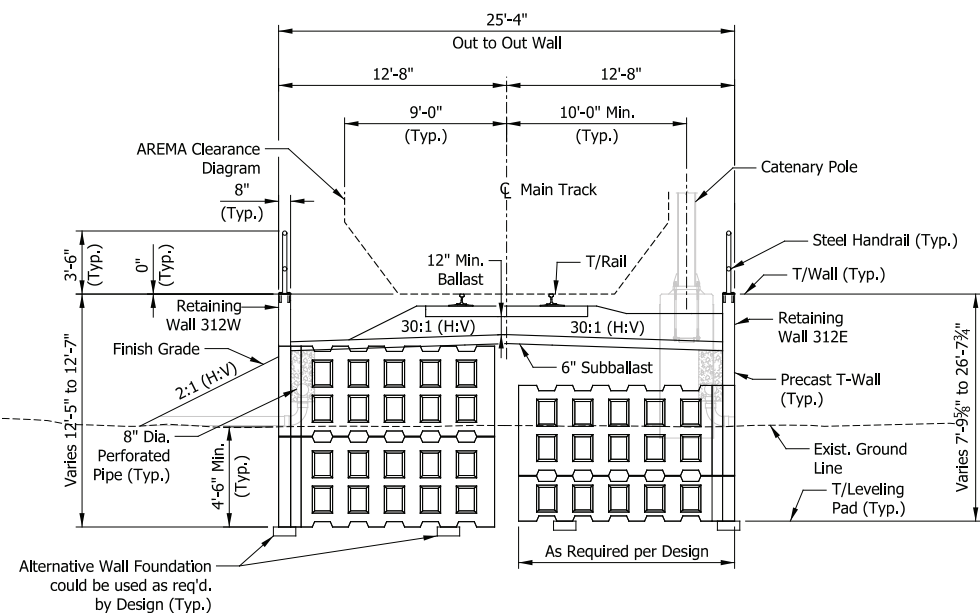
SECTION THRU END BENT
Scale: 3/16" = 1'-0"



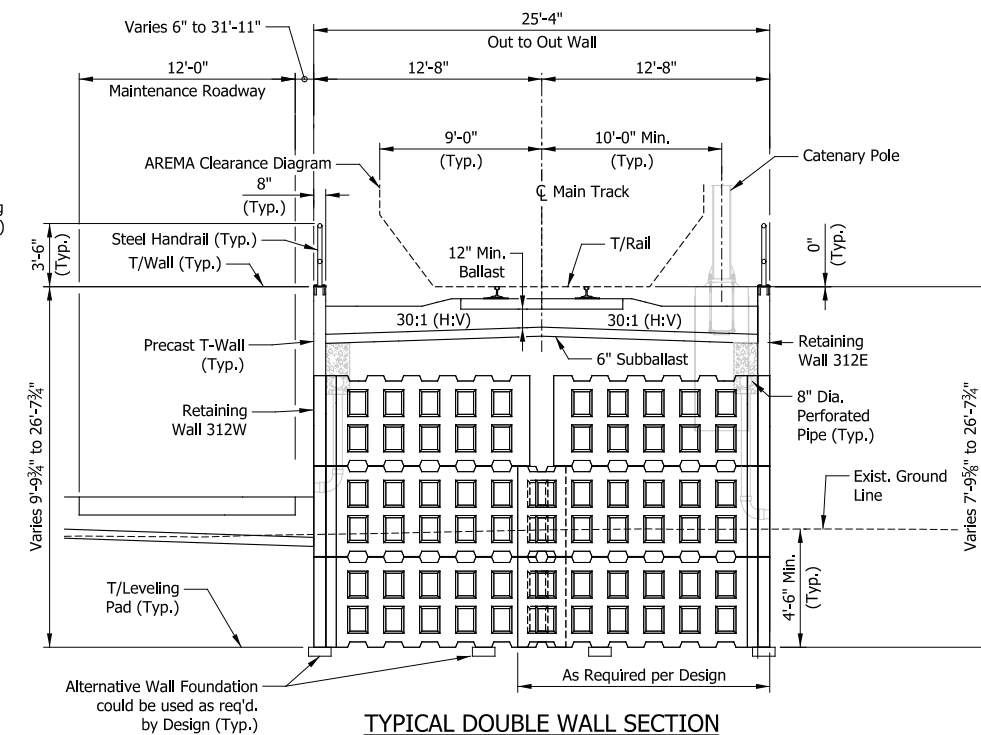
TYPICAL SINGLE WALL SECTION
(Looking Upstation)
Scale: 3/16" = 1'-0"



ALTERNATIVE WALL FOUNDATION
Scale: 3/4" = 1'-0"



TYPICAL SECTION NEAR BR115
(Looking Upstation)
Scale: 3/16" = 1'-0"



TYPICAL DOUBLE WALL SECTION
(Looking Upstation)
Scale: 3/16" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW312-04 OF RW312-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 312W & 312E
TYPICAL DETAILS

| | | |
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| FILENAME | SHT_WL_ST_RW312_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 184 OF 218 |

PLOT DATE: November 08, 2017 6:25:59 PM JMWIGUS



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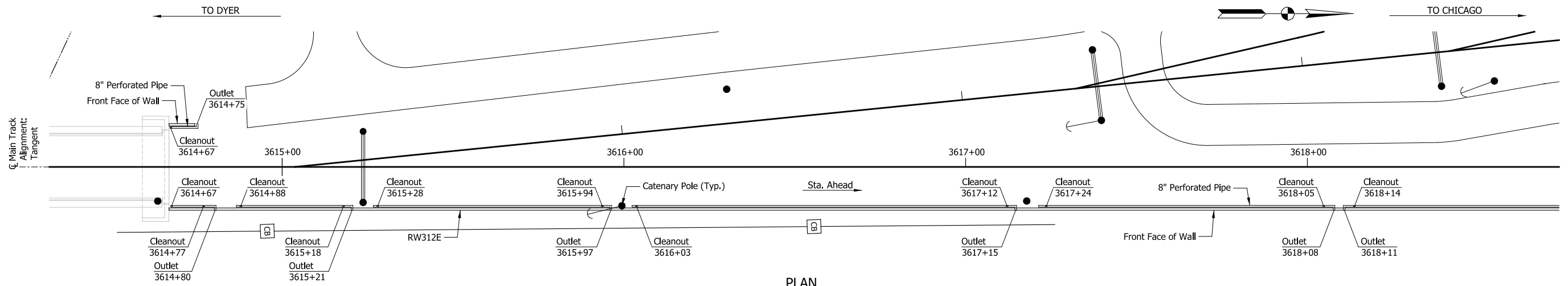


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TRANSPORTATION DISTRICT
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Chesterton, Indiana 46304

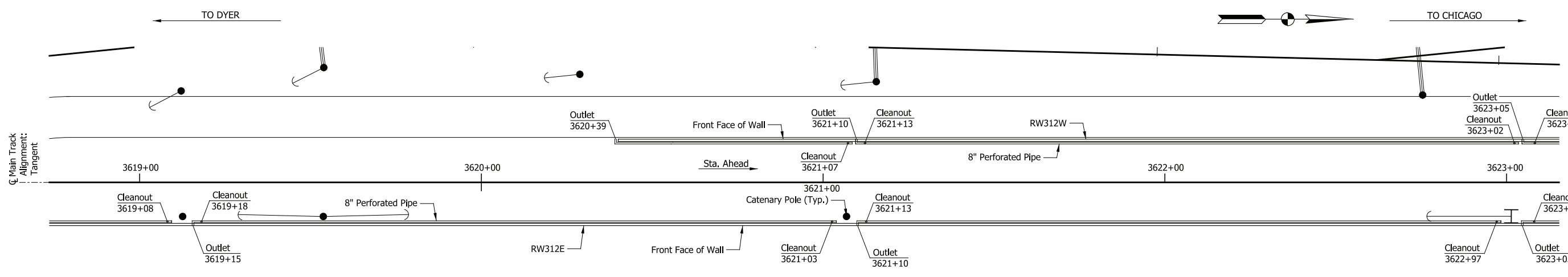


DYER TO HAMMOND, INDIANA

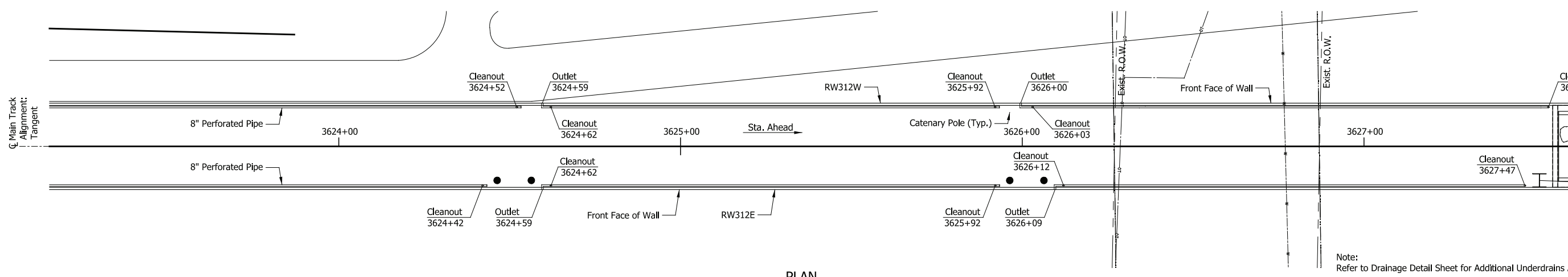
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|-----------|----------|
| DESIGNED: | DLZ-JFM |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-CAG |
| DATE: | 07/21/17 |



PLAN
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW312-05 OF RW312-06

| | |
|-----------|----------|
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| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |

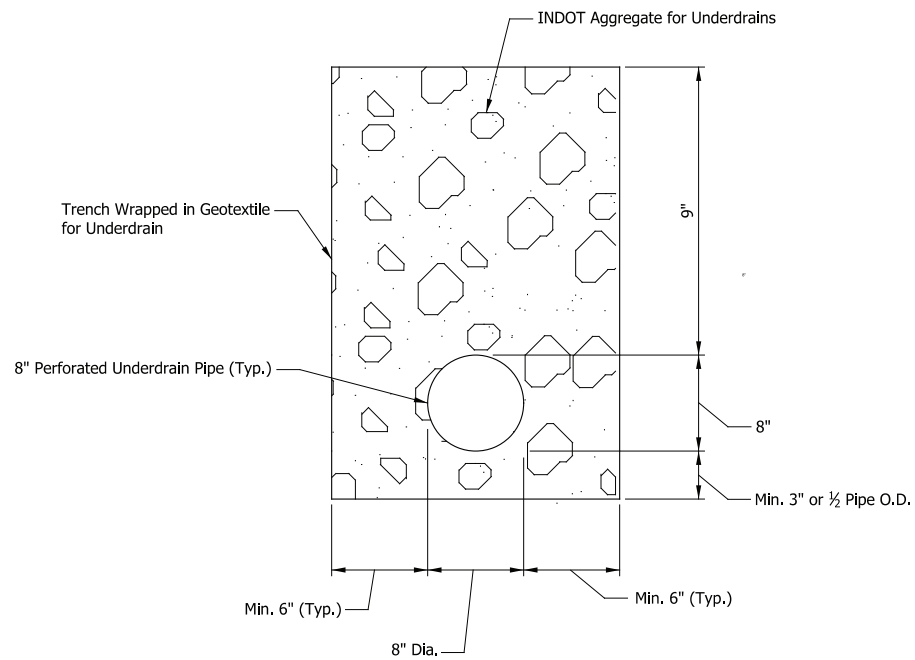
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|--|----------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| RETAINING WALLS 312W & 312E DRAINAGE PLAN | | |
| FILENAME | SHT_WL_ST_RW312_DrainPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 185 OF 218 |

PLOT DATE: November 08, 2017 6:26:24 PM JMJIGUS



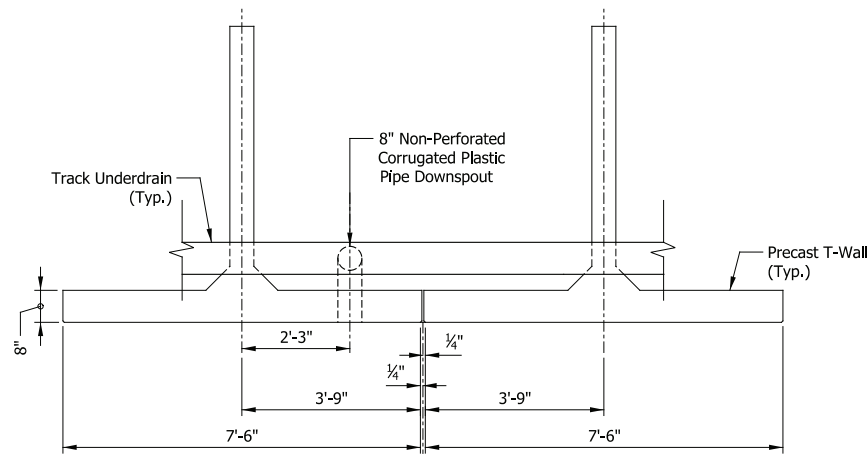
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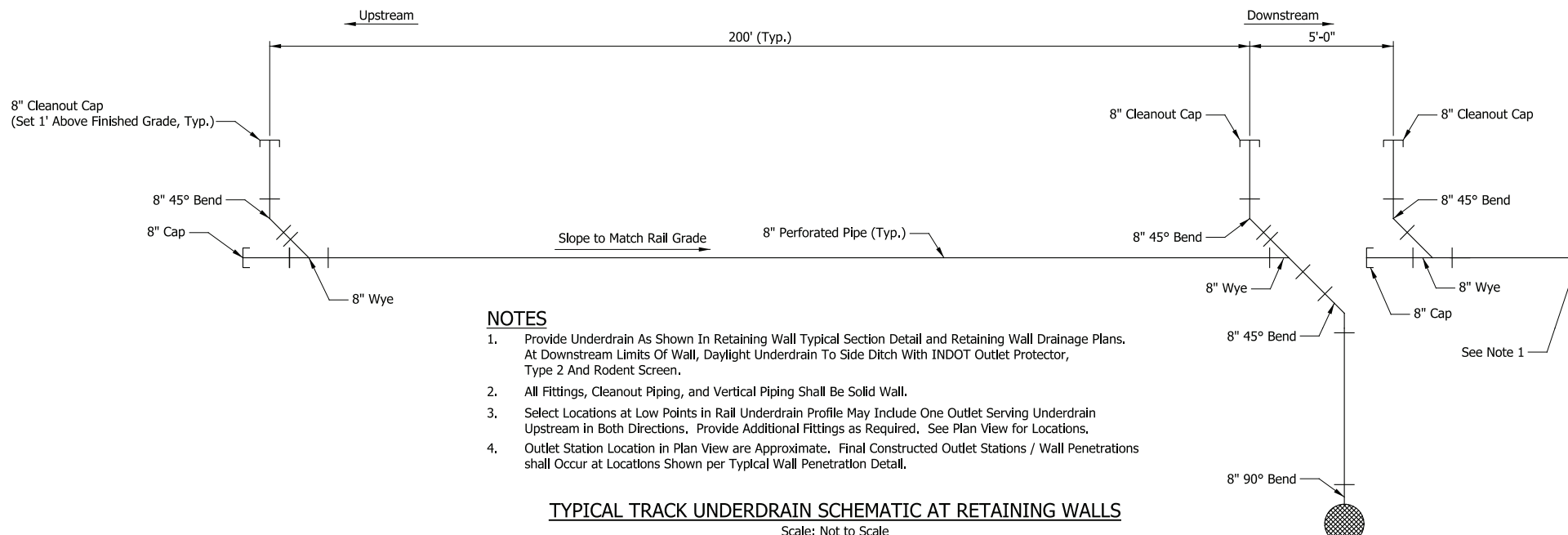
TYPICAL UNDERDRAIN SECTION

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



TYPICAL WALL PENETRATION DETAIL

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



NOTES

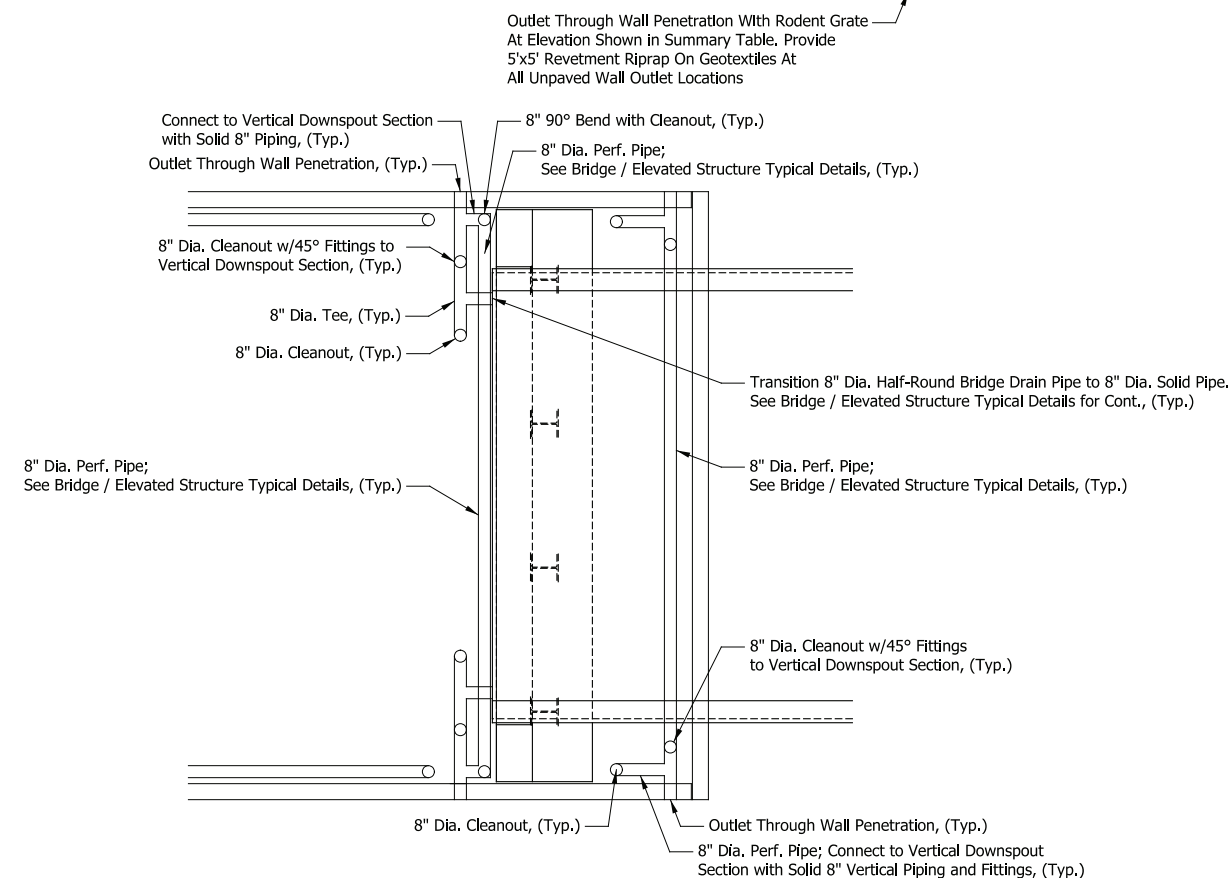
1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS

Scale: Not to Scale

| Outlet Station | Outlet Invert | |
|----------------|---------------|-------|
| | Right | Left |
| 3614+75 | | 590.4 |
| 3614+80 | 590.6 | |
| 3615+21 | 590.8 | |
| 3615+97 | 590.6 | |
| 3617+15 | 589.9 | |
| 3618+08 | 587.1 | |
| 3618+11 | 587.1 | |
| 3619+15 | 587.4 | |
| 3620+35 | | 589.0 |
| 3621+10 | 588.0 | 589.1 |
| 3623+05 | 588.5 | 589.5 |
| 3624+55 | 586.9 | 588.3 |
| 3626+00 | | 588.6 |
| 3626+05 | 586.5 | |

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE

Scale: Not to Scale

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW312-06 OF RW312-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK

RETAINING WALLS 312W & 312E DRAINAGE DETAILS

FILENAME: SHT_WL_ST_RW312_DrainDet_01.dgn SHEET: 186 OF 218
SCALE: AS NOTED

PLOT DATE: November 08, 2017 6:26:28 PM JMWIGUS



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Highland, IN 46322
www.structurepoint.com

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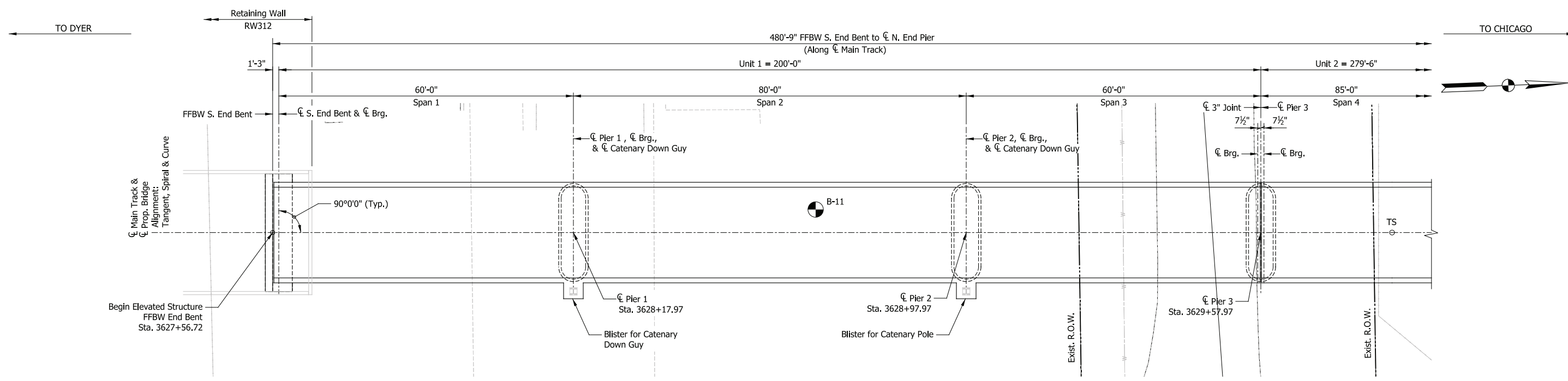


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33 East Highway 12
Chesterton, Indiana 46304

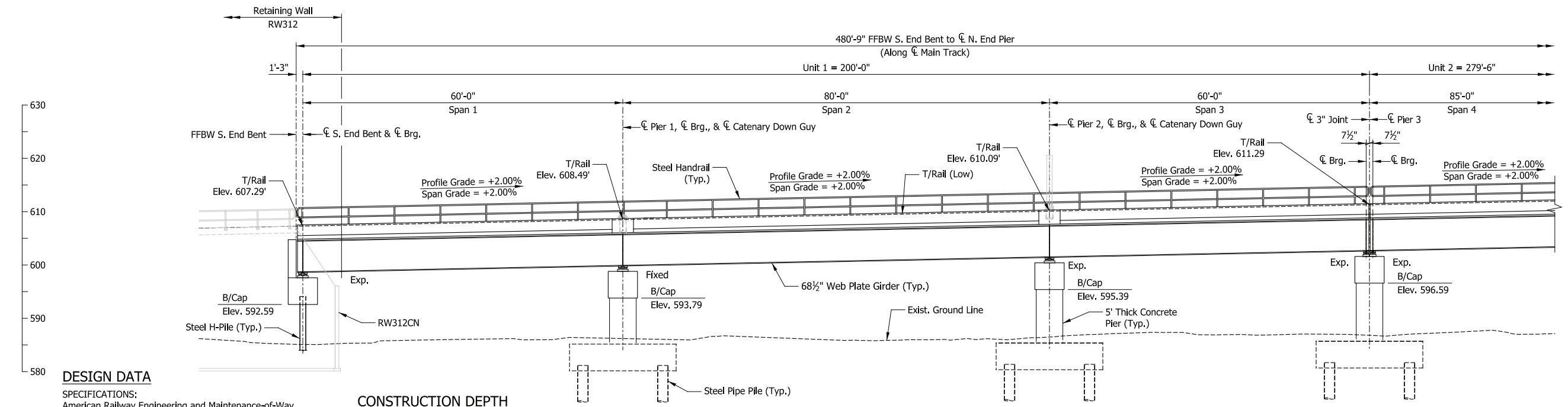


DYER TO HAMMOND, INDIANA

| | |
|-----------|----------|
| DESIGNED: | ASP-CAK |
| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |



PLAN
Scale: 3/32" = 1'-0"



ELEVATION
Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (at High End of Span, at Low Rail)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 4,000$ psi (Min.)

CONSTRUCTION DEPTH

| | |
|----------------|----------|
| Rail (115 Lbs) | 6 3/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 6" |
| Waterproofing | 1" |
| Deck | 8" |
| Haunch | 3" |
| Top Flange | 1 3/4" |
| Web | 68 1/2" |
| Bottom Flange | 1 3/4" |
| | 104 3/8" |

SHEET INDEX

| | |
|----------|-----------------------------------|
| ES208-01 | General Plan & Elevation (1 of 2) |
| ES208-02 | General Plan & Elevation (2 of 2) |
| ES208-03 | Typical Details |
| ES208-04 | Substructure Details |
| ES208-05 | Framing Plan (1 of 3) |
| ES208-06 | Framing Plan (2 of 3) |
| ES208-07 | Framing Plan (3 of 3) |

NOTES

- For track geometry, see Track Plans.
- Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES
ES208-01 OF ES208-07

| | |
|-----------|----------|
| DESIGNED: | HDR-DTM |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 208
GENERAL PLAN & ELEVATION (1 OF 2)

| | | |
|----------|--------------------------------|-------------------|
| FILENAME | SHT_WL_ST_ES208_GenPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 187 OF 218 |

PLOT DATE: November 08, 2017 6:26:48 PM JMWIGUS

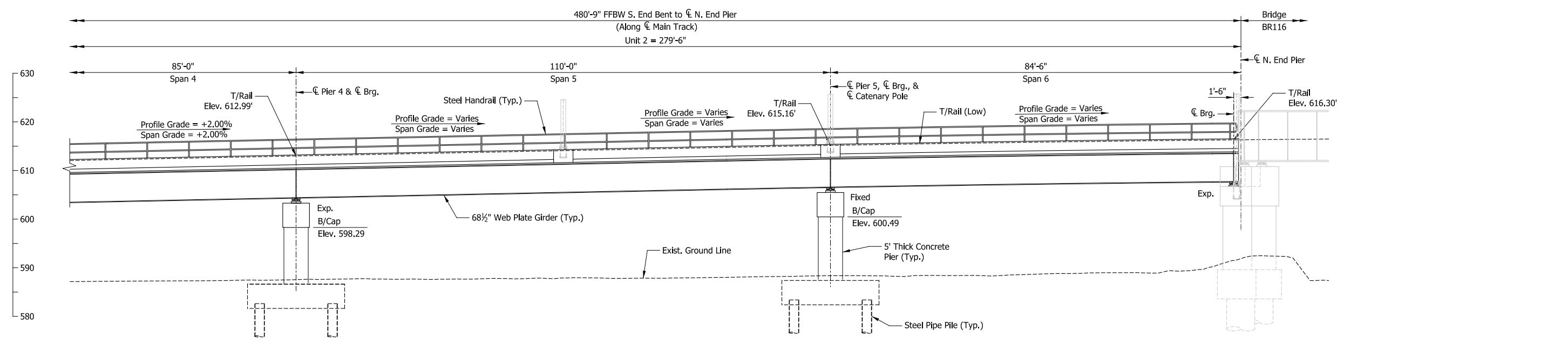
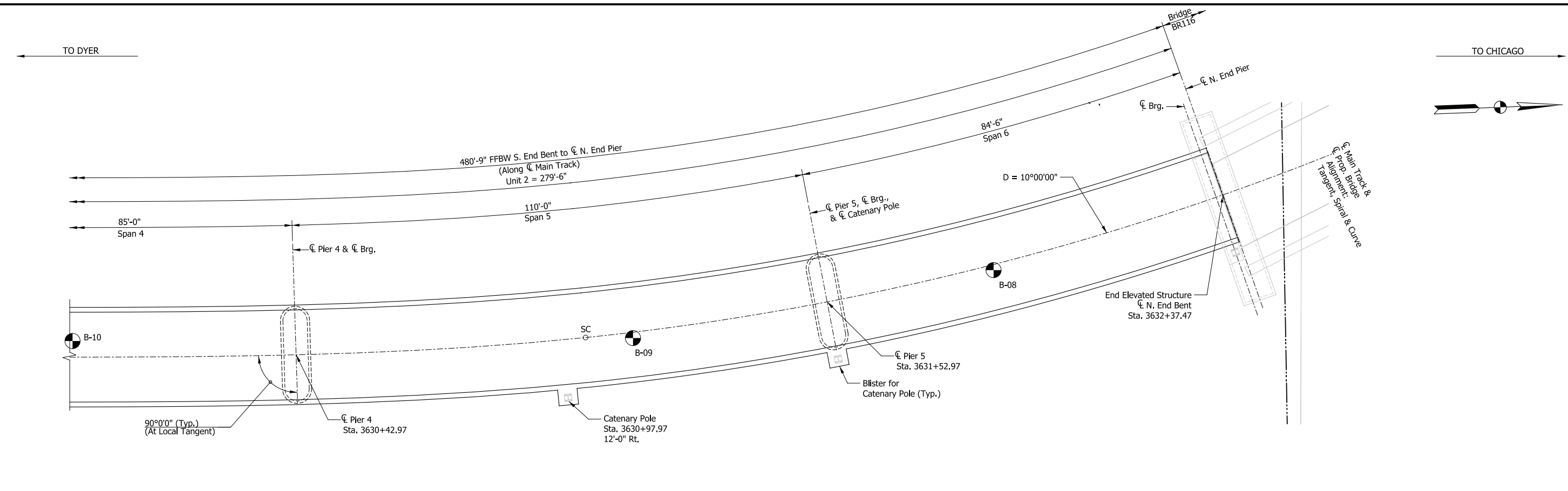


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TO DYER

TO CHICAGO



ELEVATION
Scale: 3/32" = 1'-0"

- NOTES**
- For track geometry, see Track Plans.
 - Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES208-02 OF ES208-07

| | |
|-----------|----------|
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| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
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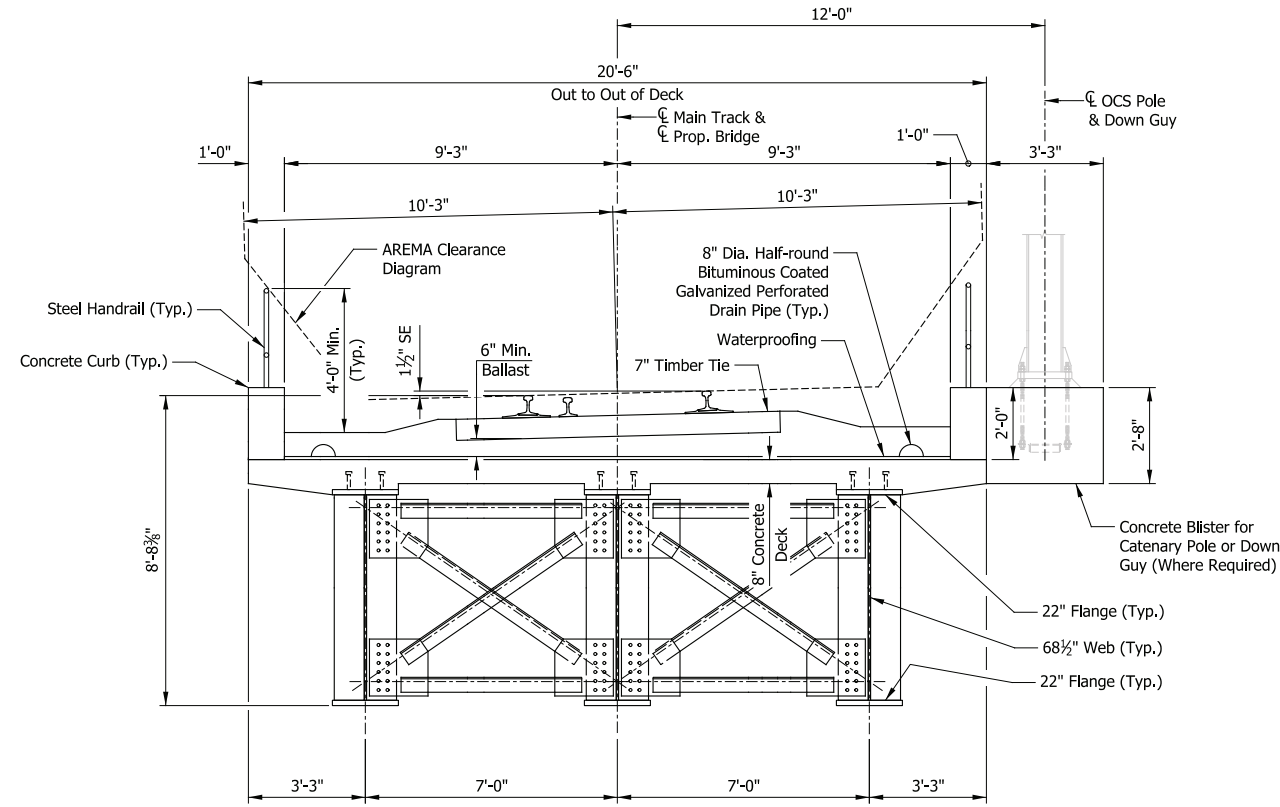
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 208 | | |
| GENERAL PLAN & ELEVATION (2 OF 2) | | |
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PLOT DATE: November 08, 2017 6:27:00 PM JMWIGUS

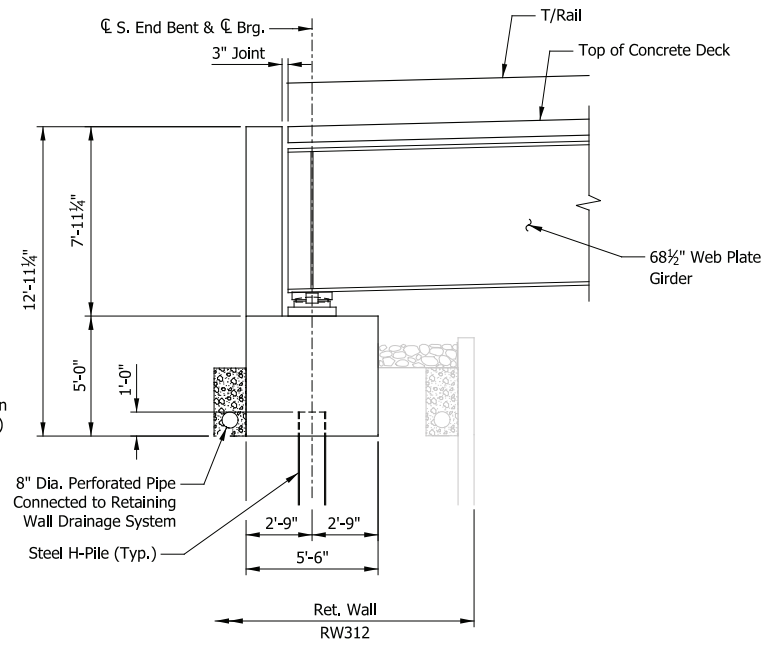


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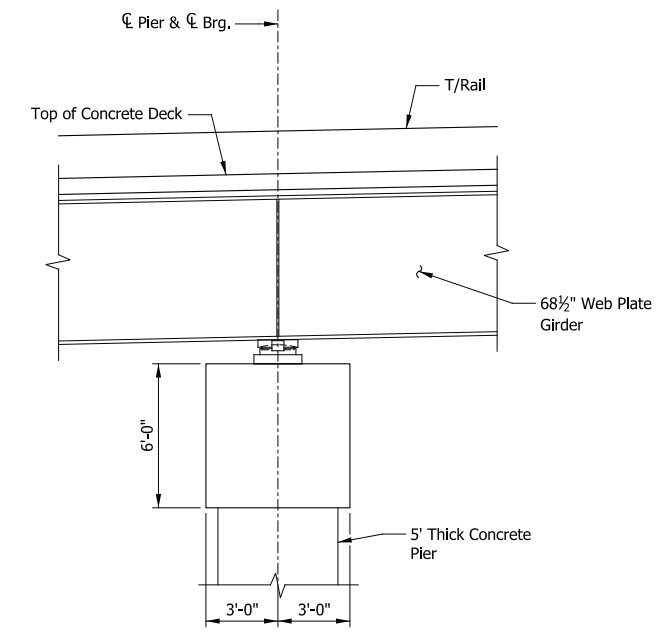




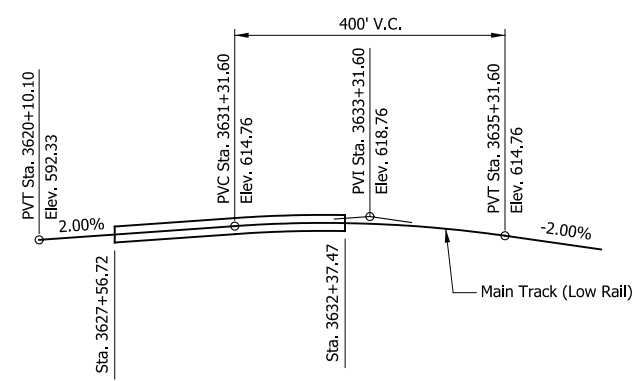
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Scale: 3/8" = 1'-0"



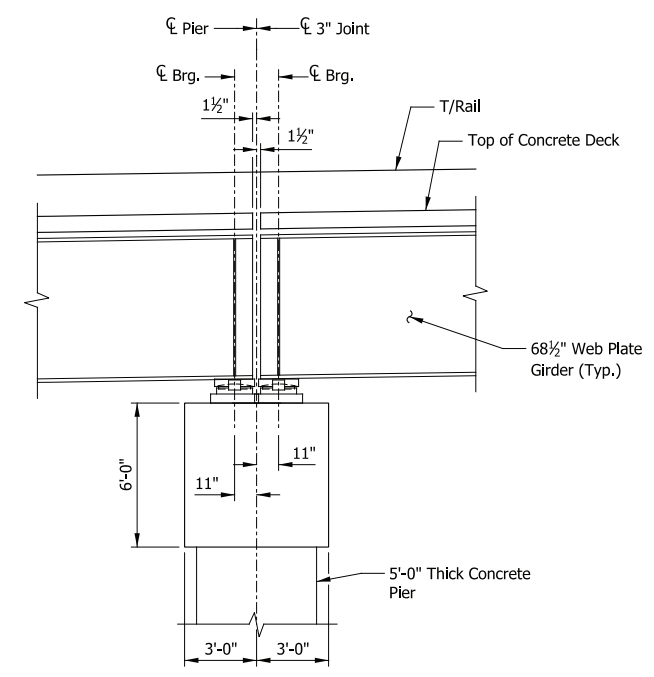
SECTION THRU S. END BENT
Scale: 1/4" = 1'-0"



SECTION THRU INTERMEDIATE UNIT PIER
Scale: 1/4" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale



SECTION THRU END UNIT PIER
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES208-03 OF ES208-07

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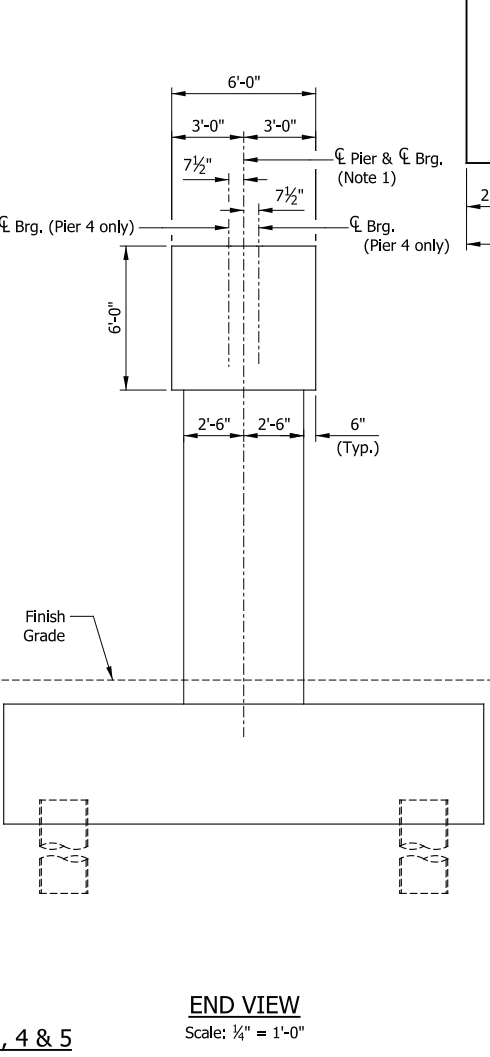
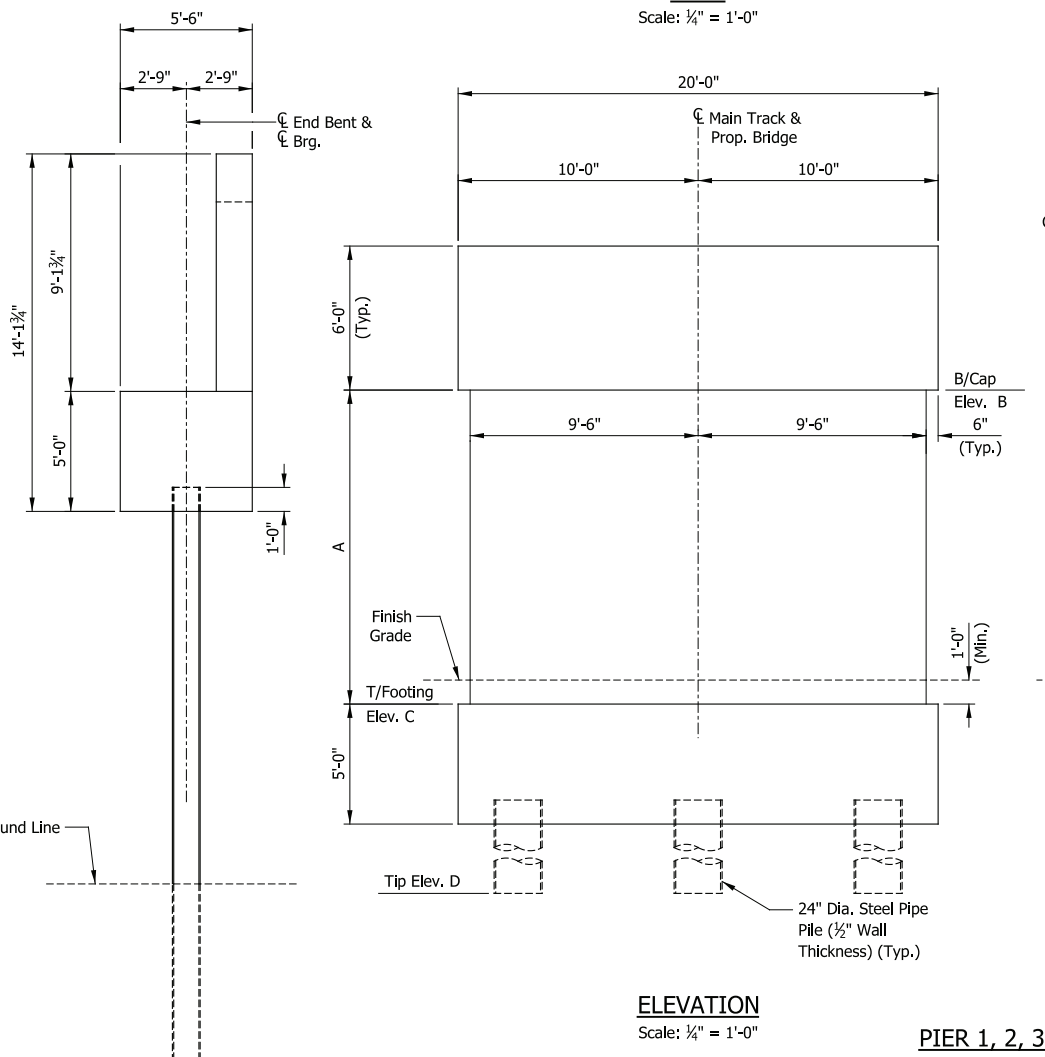
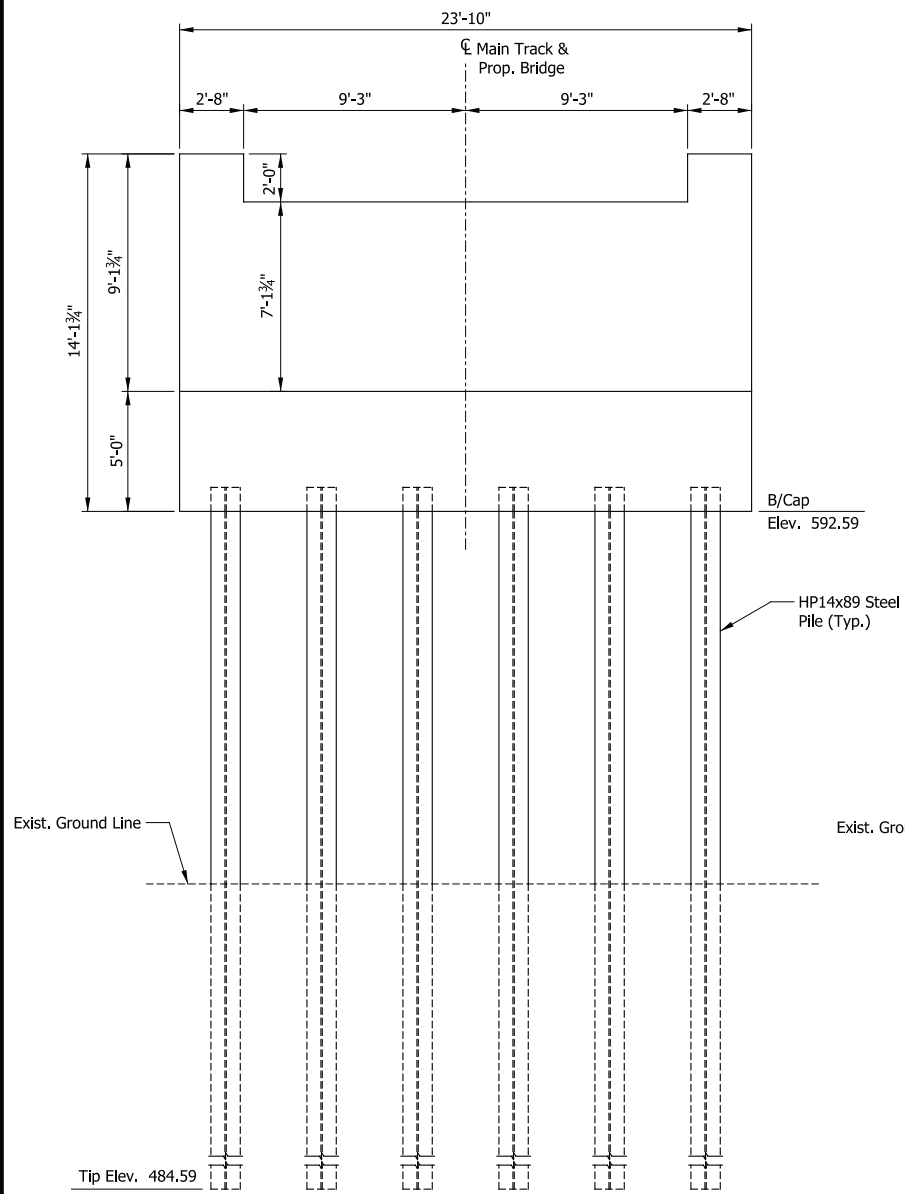
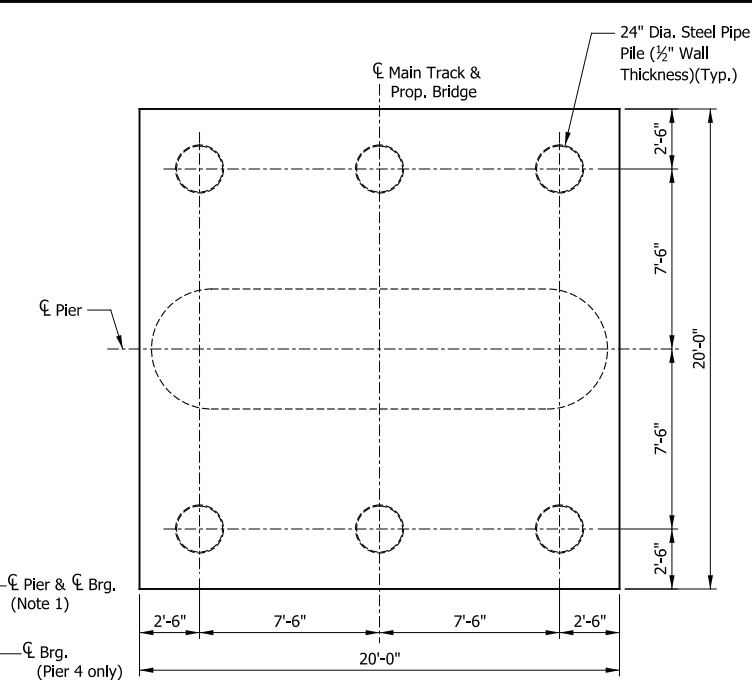
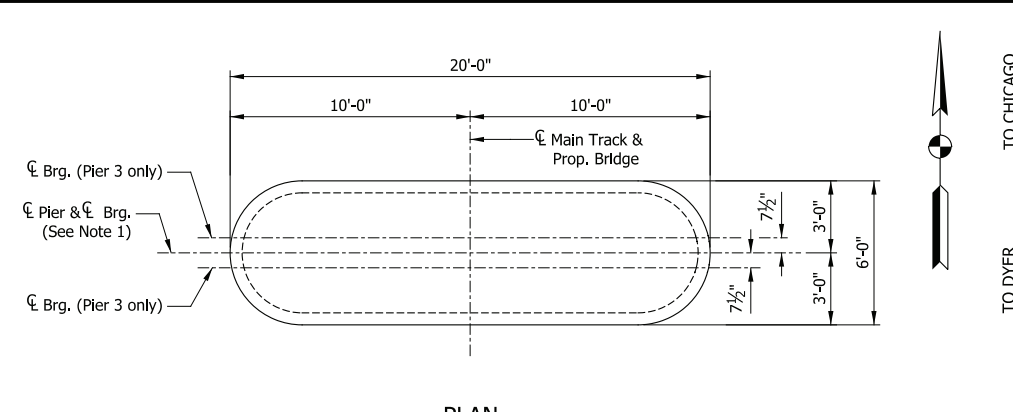
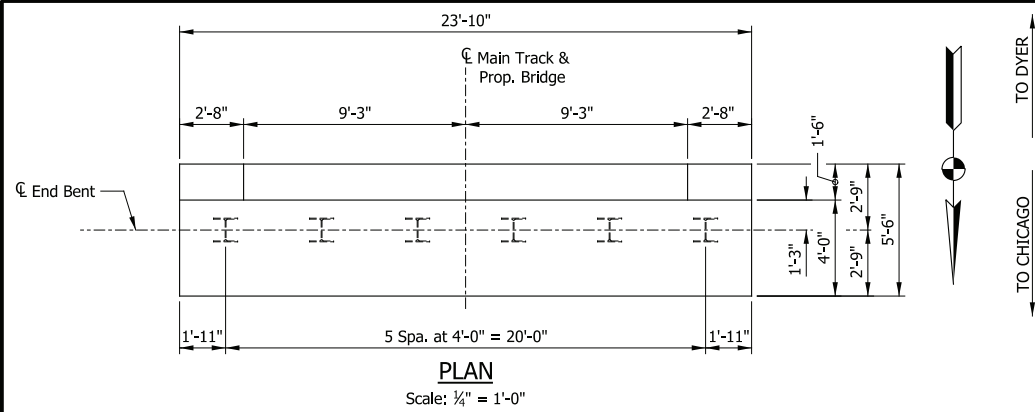


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| DATE: | 07/21/17 |

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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 208 | | |
| TYPICAL SECTION | | |
| FILENAME | SHT_WL_ST_ES208_TypDet_01.dgn | SHEET |
| SCALE | AS NOTED | 189 OF 218 |



| GEOMETRY TABLE | | | | |
|----------------|---------|---------|---------|---------|
| LOCATION | Dim. A | Elev. B | Elev. C | Elev. D |
| Pier 1 | 8'-8" | 593.79 | 585.12 | 492.12 |
| Pier 2 | 10'-0" | 595.39 | 585.39 | 492.39 |
| Pier 3 | 11'-0" | 596.59 | 585.59 | 492.59 |
| Pier 4 | 11'-10" | 598.29 | 586.46 | 493.46 |
| Pier 5 | 13'-1" | 600.47 | 587.39 | 494.39 |

- NOTES**
1. $\text{C}_{\text{Pier}} = \text{C}_{\text{Bearing}}$ on all Piers except Pier 4.

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| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

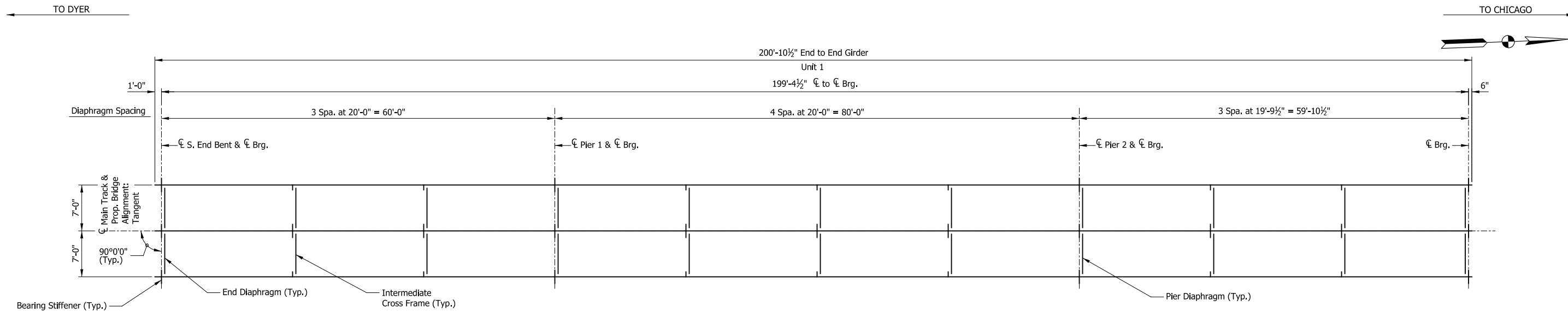
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES208-04 OF ES208-07

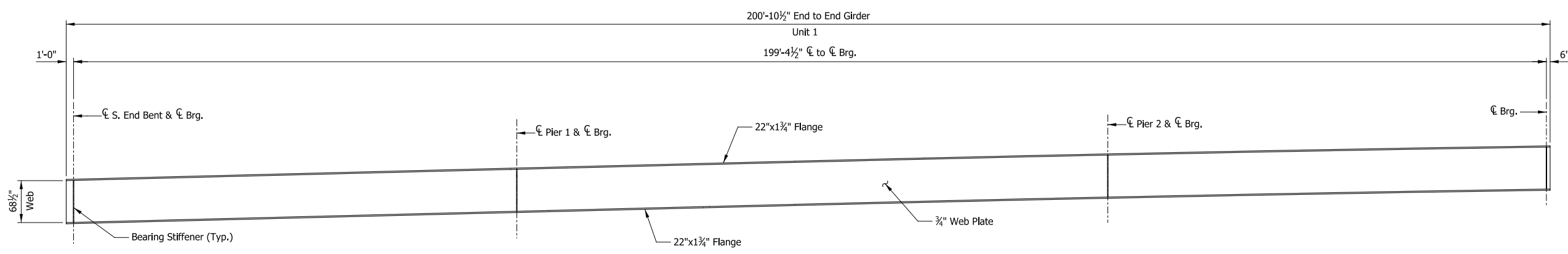
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 208
SUBSTRUCTURE DETAILS

| | | | |
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| FILENAME | SHT_WL_ST_ES208_SubstrDet_01.dgn | SHEET | 190 OF 218 |
| SCALE | AS NOTED | | |



PLAN
Scale: 1/8" = 1'-0"



ELEVATION
Scale: 1/8" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES208-05 OF ES208-07

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| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
ELEVATED STRUCTURE 208
FRAMING PLAN (1 OF 3)
FILENAME: SHT_WL_ST_ES208_FramPlan_01.dgn SHEET: 191 OF 218
SCALE: AS NOTED

PLOT DATE: November 08, 2017 6:27:27 PM JMWIGUS

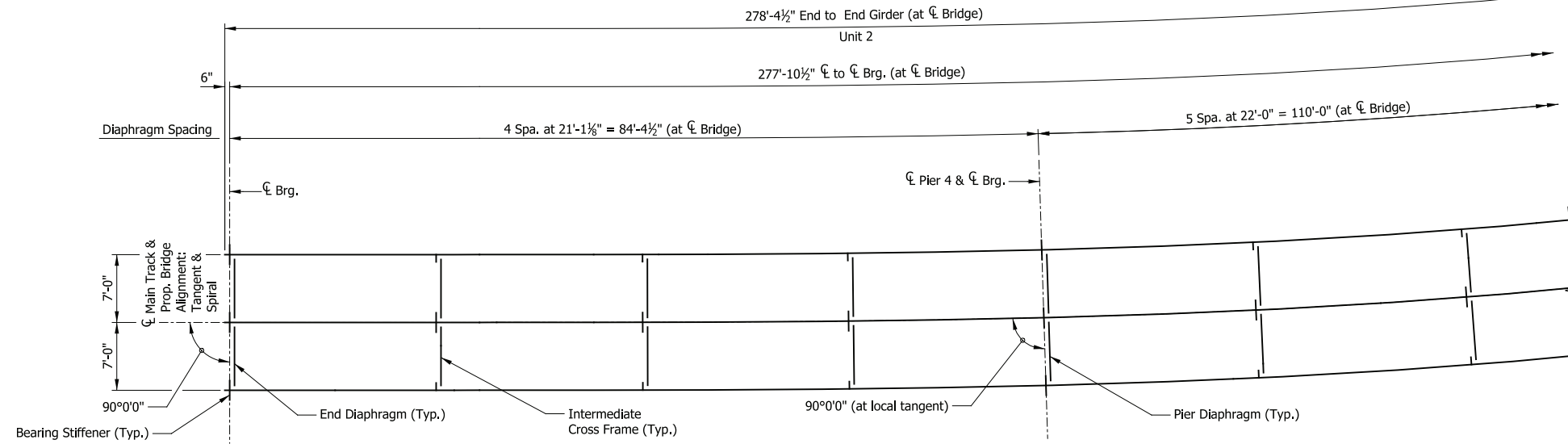


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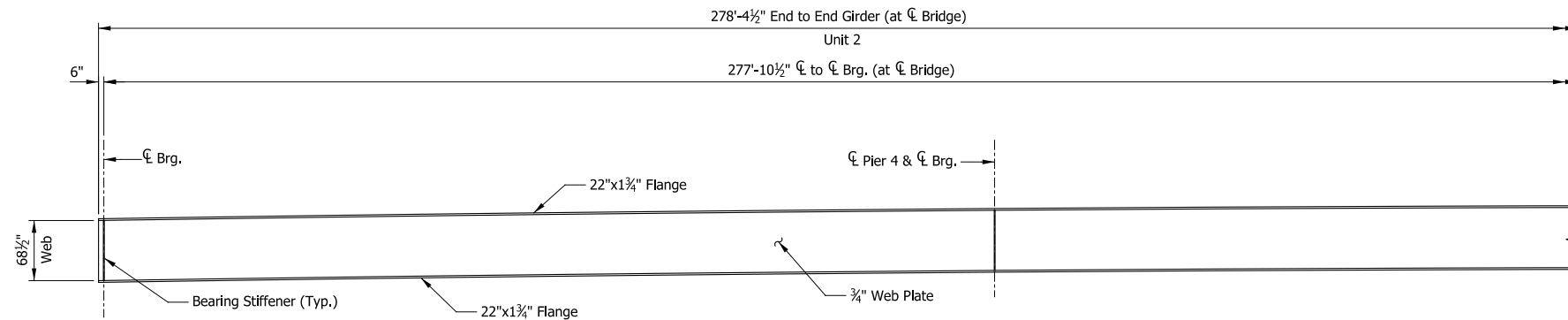


← TO DYER

→ TO CHICAGO



PLAN
Scale: 1/8" = 1'-0"



ELEVATION
Scale: 1/8" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES
ES208-06 OF ES208-07

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 208
FRAMING PLAN (2 OF 3)**

FILENAME: SHT_WL_ST_ES208_FramPlan_02.dgn
SCALE: AS NOTED

SHEET
192 OF 218

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Chicago, IL 60631
www.hdrinc.com

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NORTHERN INDIANA COMMUTER
TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

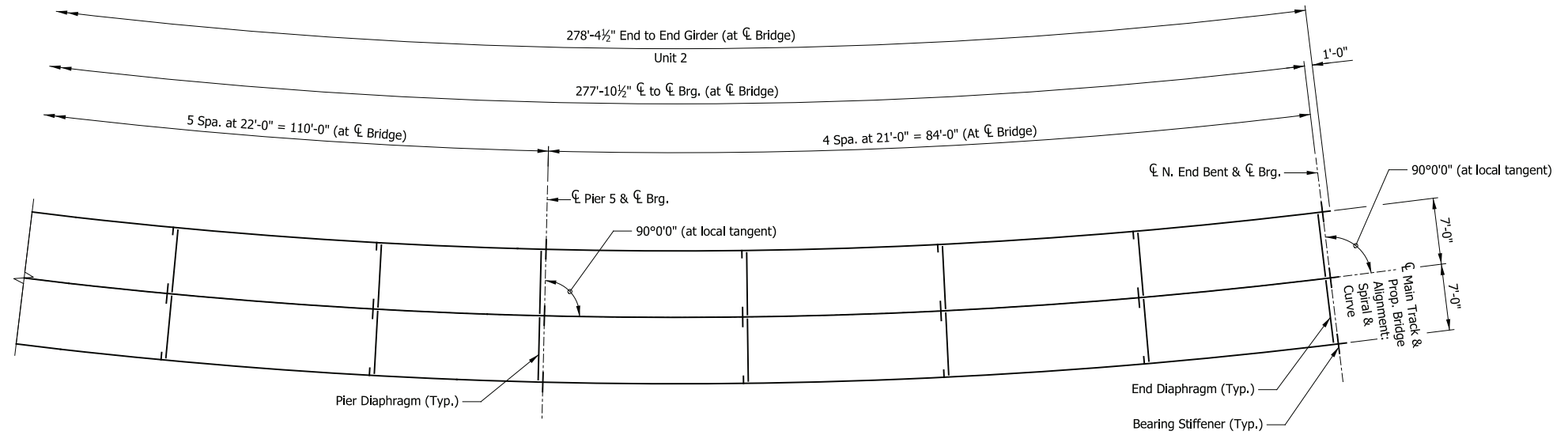


DYER TO HAMMOND, INDIANA

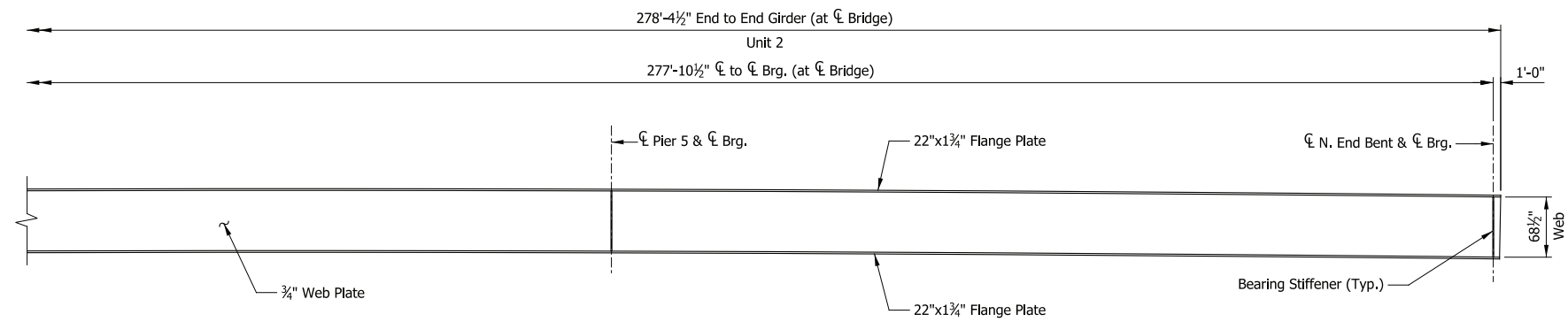
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| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |
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TO DYER

TO CHICAGO



PLAN
Scale: 1/8" = 1'-0"



ELEVATION
Scale: 1/8" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES208-07 OF ES208-07

| | |
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| DESIGNED: | HDR-DTM |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 208 | | |
| FRAMING PLAN (3 OF 3) | | |
| FILENAME | SHT_WL_ST_ES208_FramPlan_03.dgn | SHEET |
| SCALE | AS NOTED | 193 OF 218 |

PLOT DATE: November 08, 2017 6:27:52 PM JMWIGUS



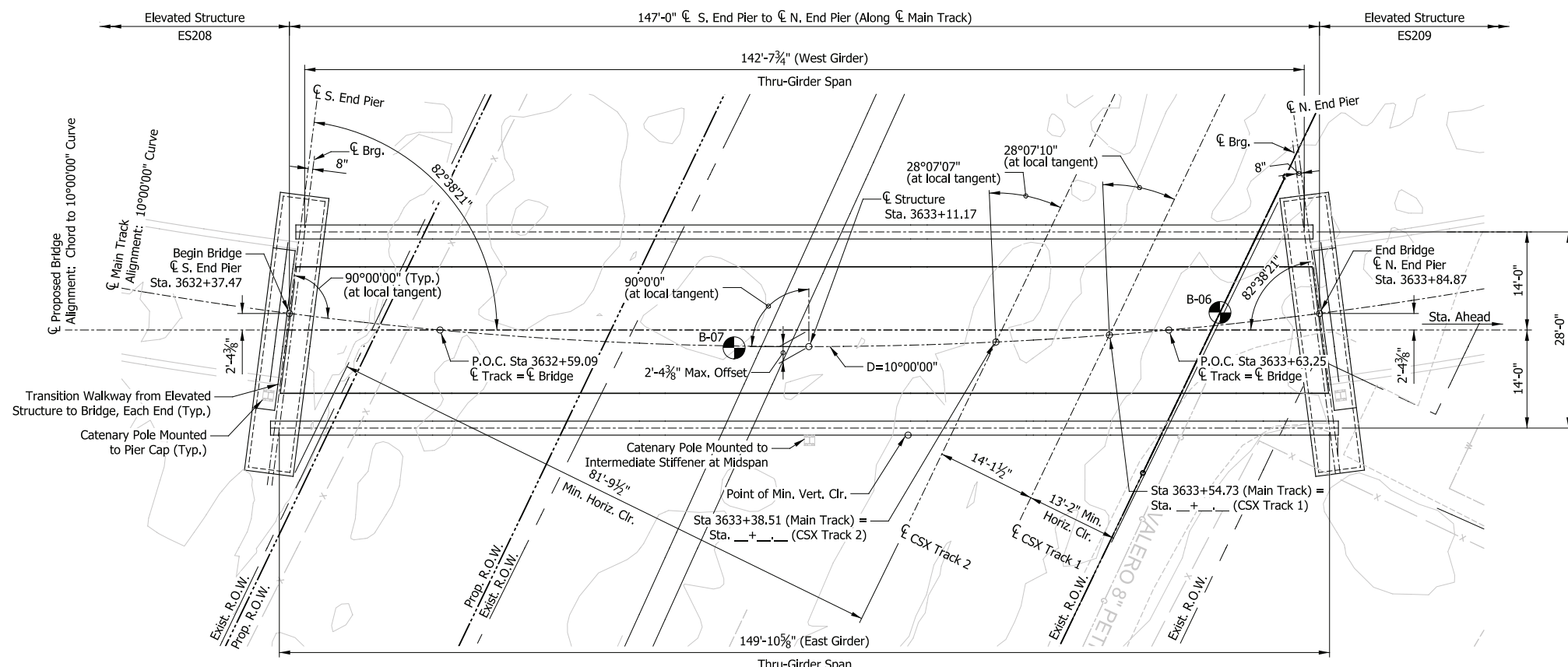
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DYER TO HAMMOND, INDIANA

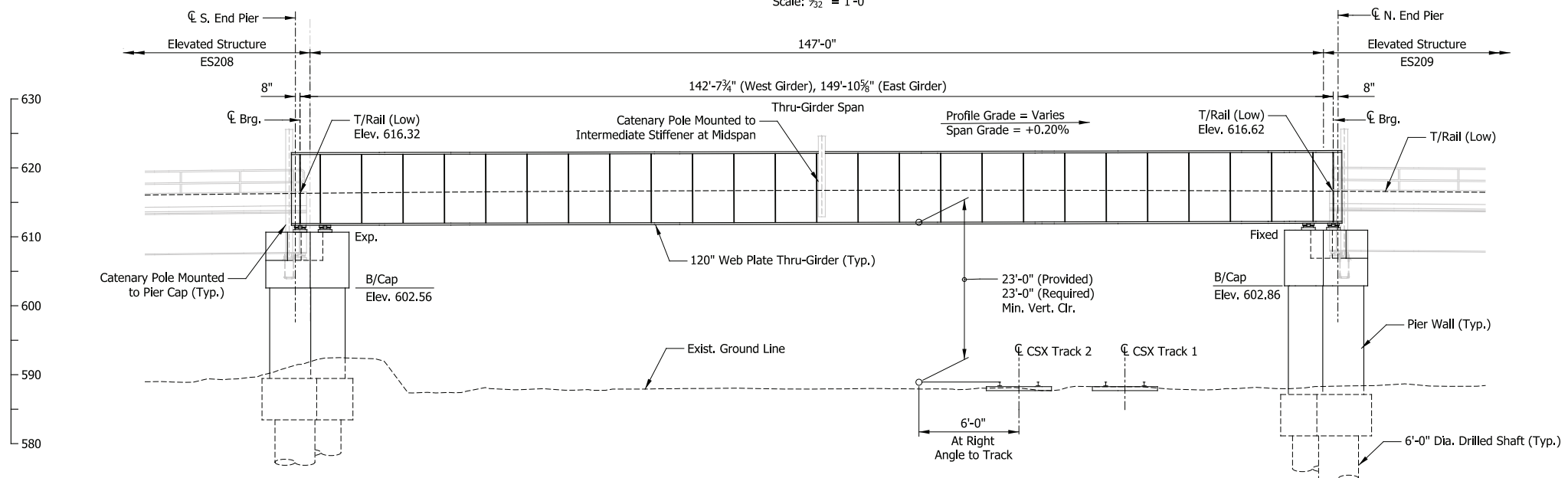
TO DYER

TO CHICAGO



PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train Per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (at High End of Span at Low Rail)

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

SHEET INDEX

- BR116-01 General Plan & Elevation
- BR116-02 Typical Details
- BR116-03 Substructure Details (1 of 2)
- BR116-04 Substructure Details (2 of 2)
- BR116-05 Framing Plan

CONSTRUCTION DEPTH

| | |
|----------------|---------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 6" |
| Waterproofing | 1" |
| Deck Plate | 3/4" |
| Floorbeam | 26 3/4" |
| Bracing | 4" |
| Bottom Flange | 3 1/4" |
| | 56 1/8" |

NOTES

1. For track geometry, see Track Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES BR116-01 OF BR116-05

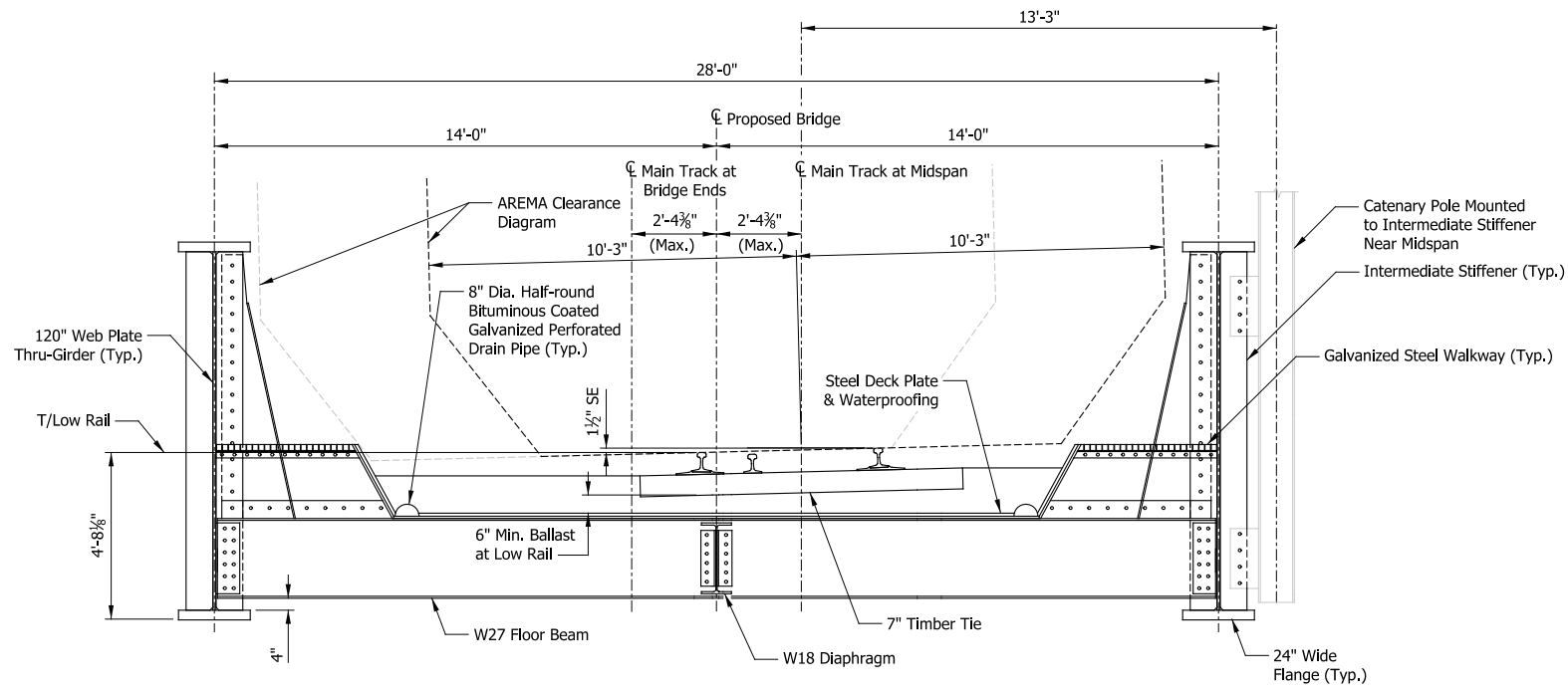
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
BRIDGE 116 - NICTD OVER CSX RR
GENERAL PLAN & ELEVATION

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| FILENAME | SHT_WL_ST_BR116_GenPlan_01 | SHEET |
| SCALE | AS NOTED | 194 OF 218 |

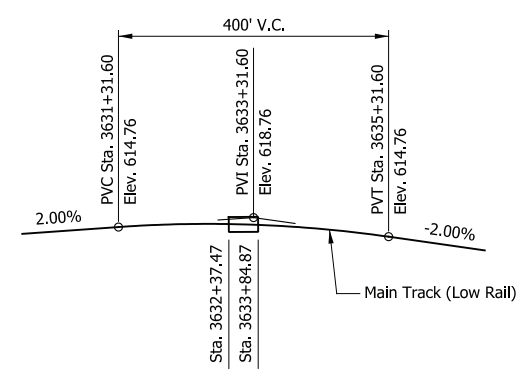
PLOT DATE: November 08, 2017 6:28:07 PM JMWIGUS



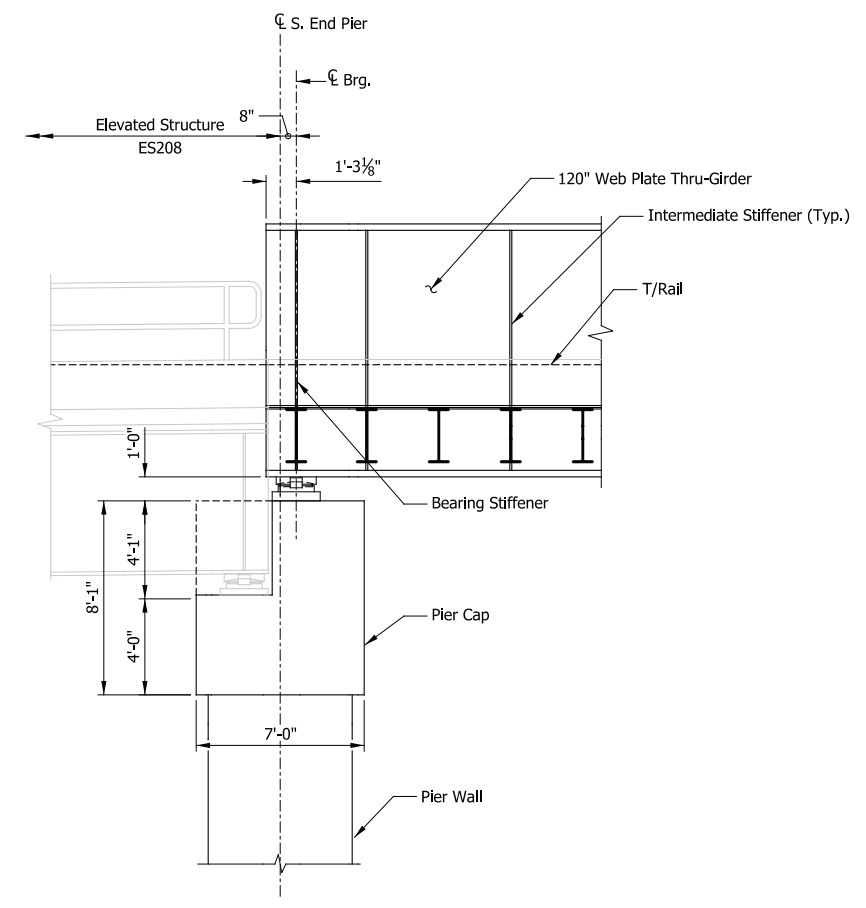
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| DRAWN: | HDR-AEP |
| CHECKED: | HDR-PJG |
| DATE: | 07/21/17 |



TYPICAL SECTION
Scale: 3/8" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale



SECTION THRU S. END PIER
Scale: 1/4" = 1'-0"
(N. End Pier Similar)

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR116-02 OF BR116-05

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| DESIGNED: | HDR-PJG |
| DRAWN: | HDR-AEP |
| CHECKED: | HDR-PJG |
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 116 - NICTD OVER CSX RR | | |
| TYPICAL DETAILS | | |
| FILENAME | SHT_WL_ST_BR116_TypDet_01 | SHEET |
| SCALE | AS NOTED | 195 OF 218 |

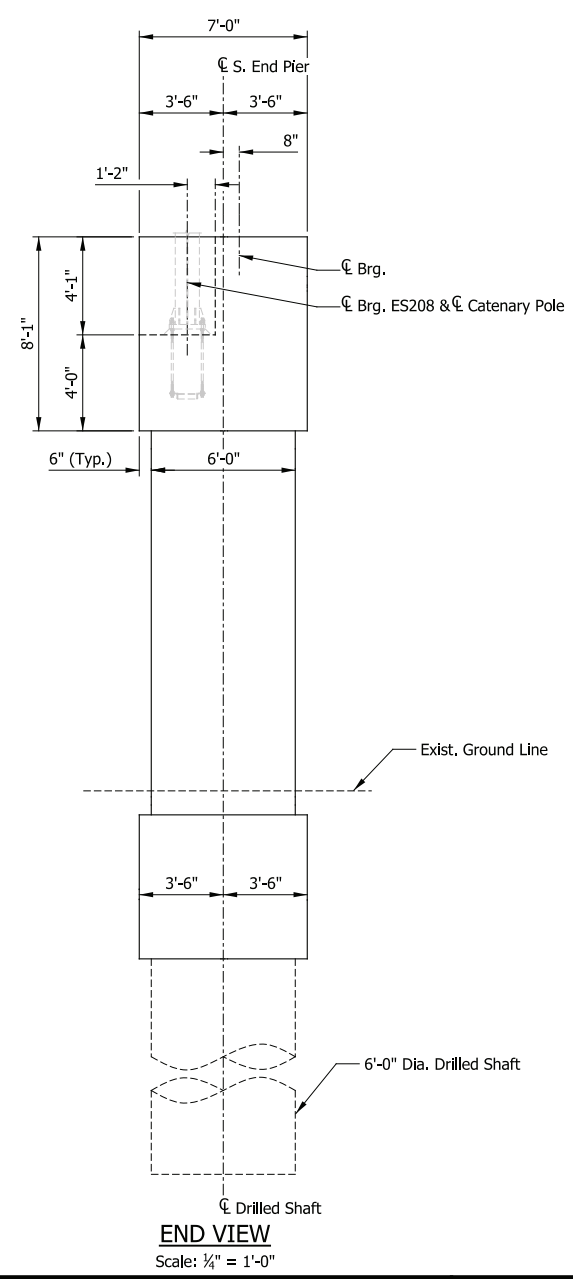
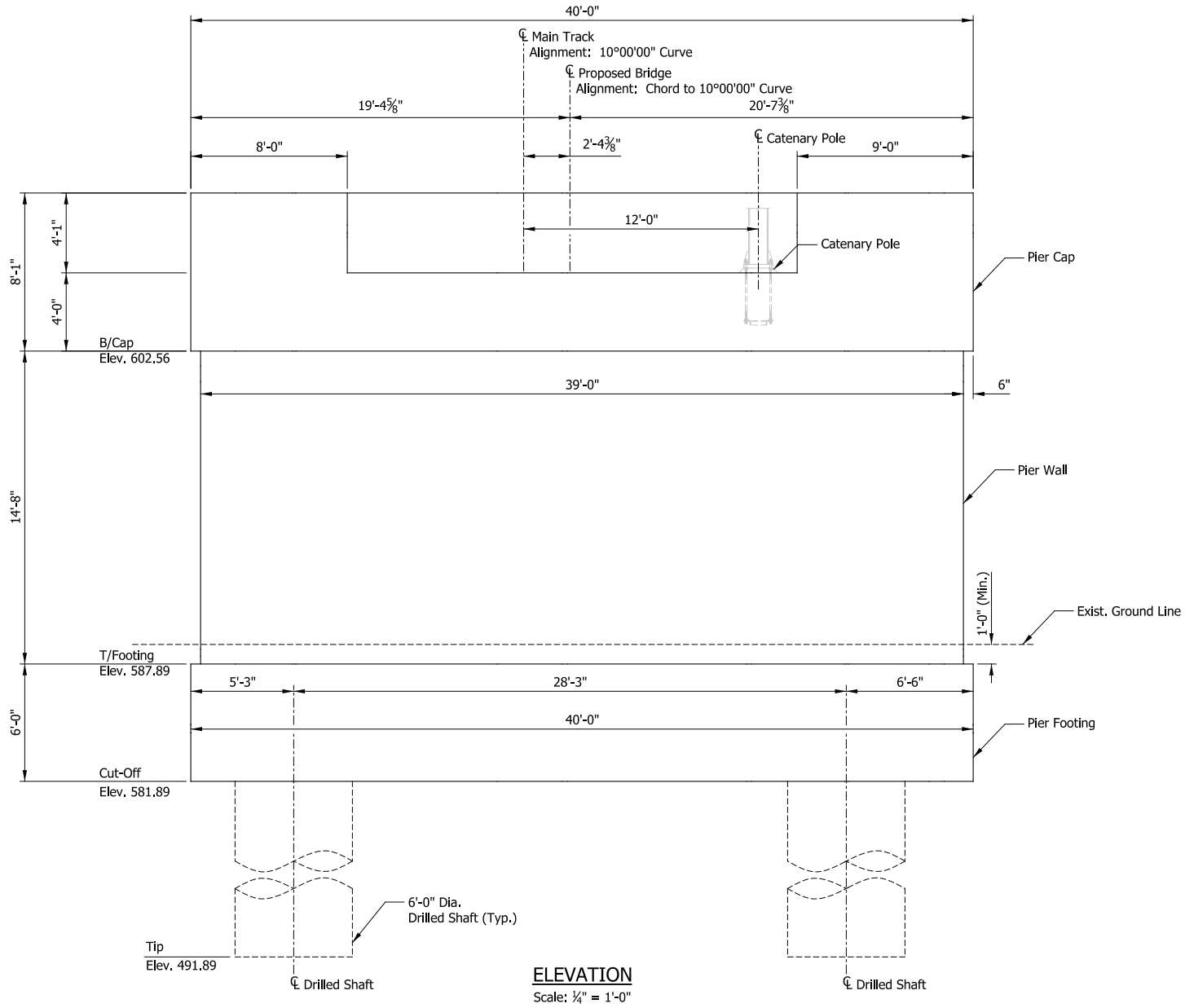
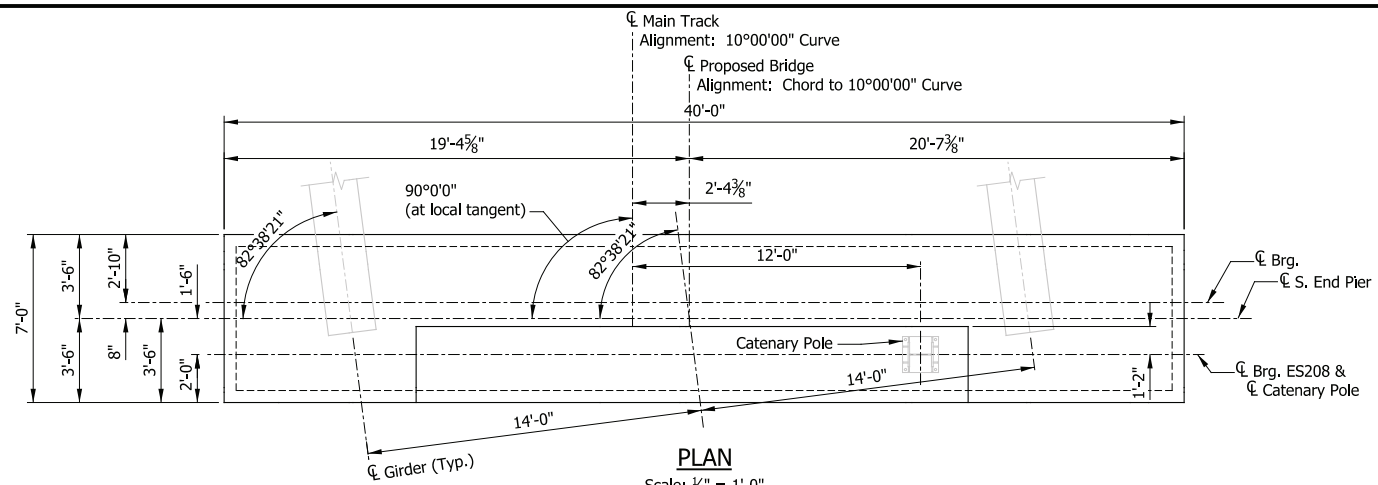
PLOT DATE: November 08, 2017 6:28:11 PM JMWIGUS



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PRELIMINARY PLANS
NOT FOR CONSTRUCTION

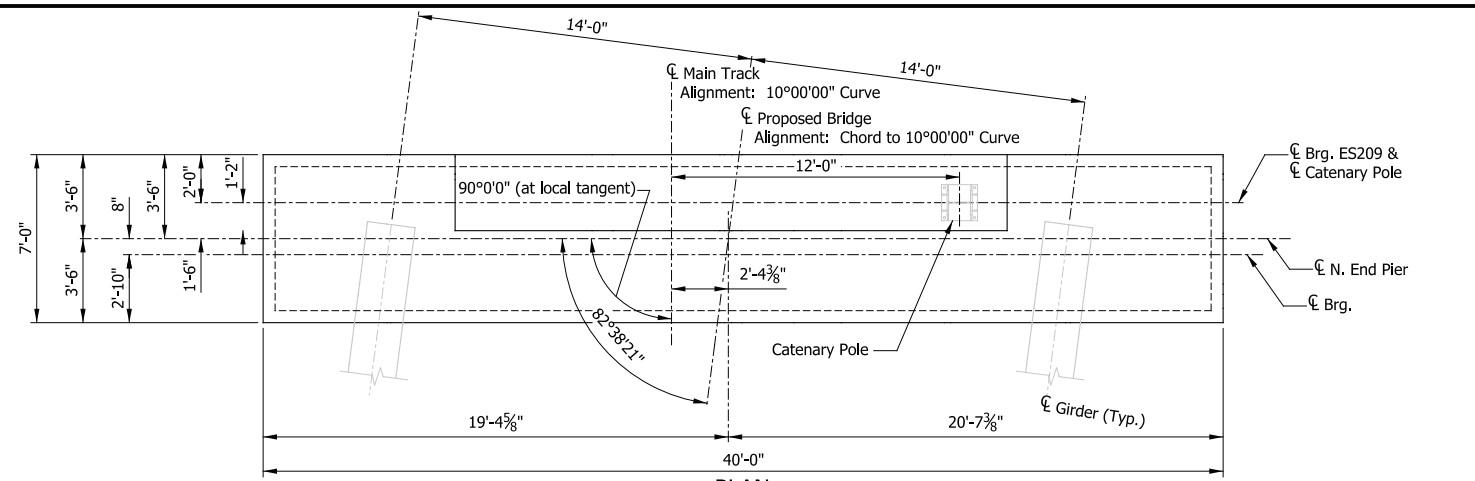
SERIES BR116-03 OF BR116-05

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| DATE: | 07/21/17 |

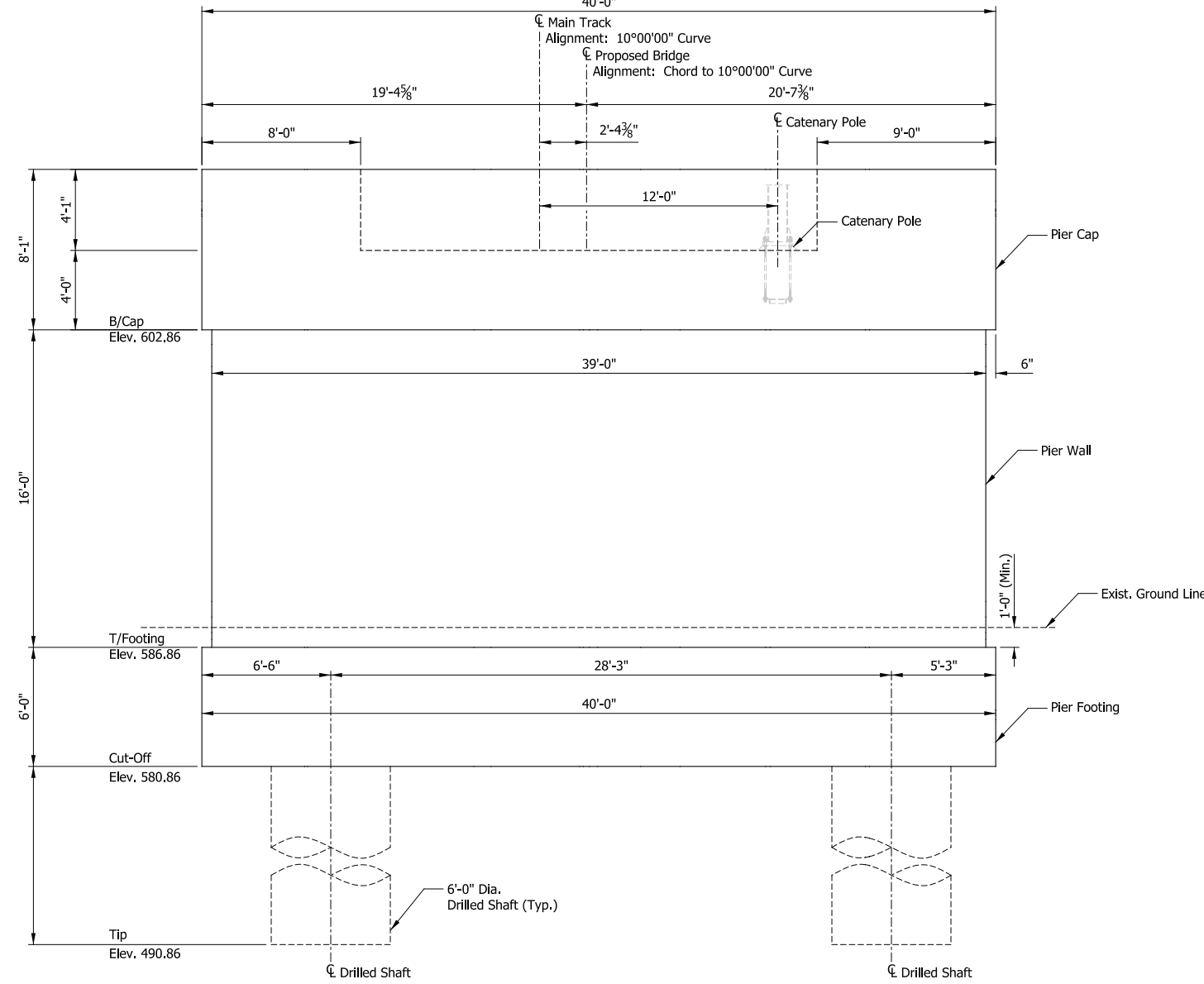
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 116 - NICTD OVER CSX RR SUBSTRUCTURE DETAILS (1 OF 2) | | |
| FILENAME | SHT_WL_ST_BR116_SubstrDet_01 | SHEET |
| SCALE | AS NOTED | 196 OF 218 |



| ISSUE | DATE | DESCRIPTION |
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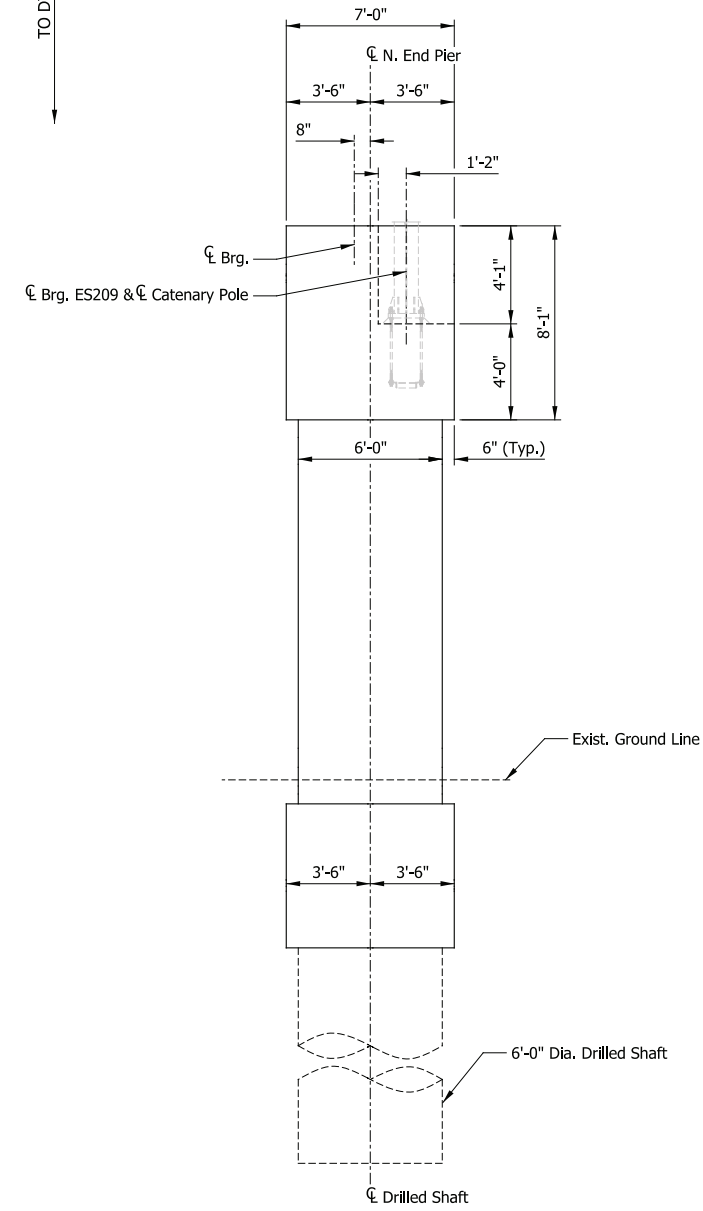


PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

N. END PIER



END VIEW
Scale: 1/4" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES BR116-04 OF BR116-05

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| DRAWN: | HDR-AEP |
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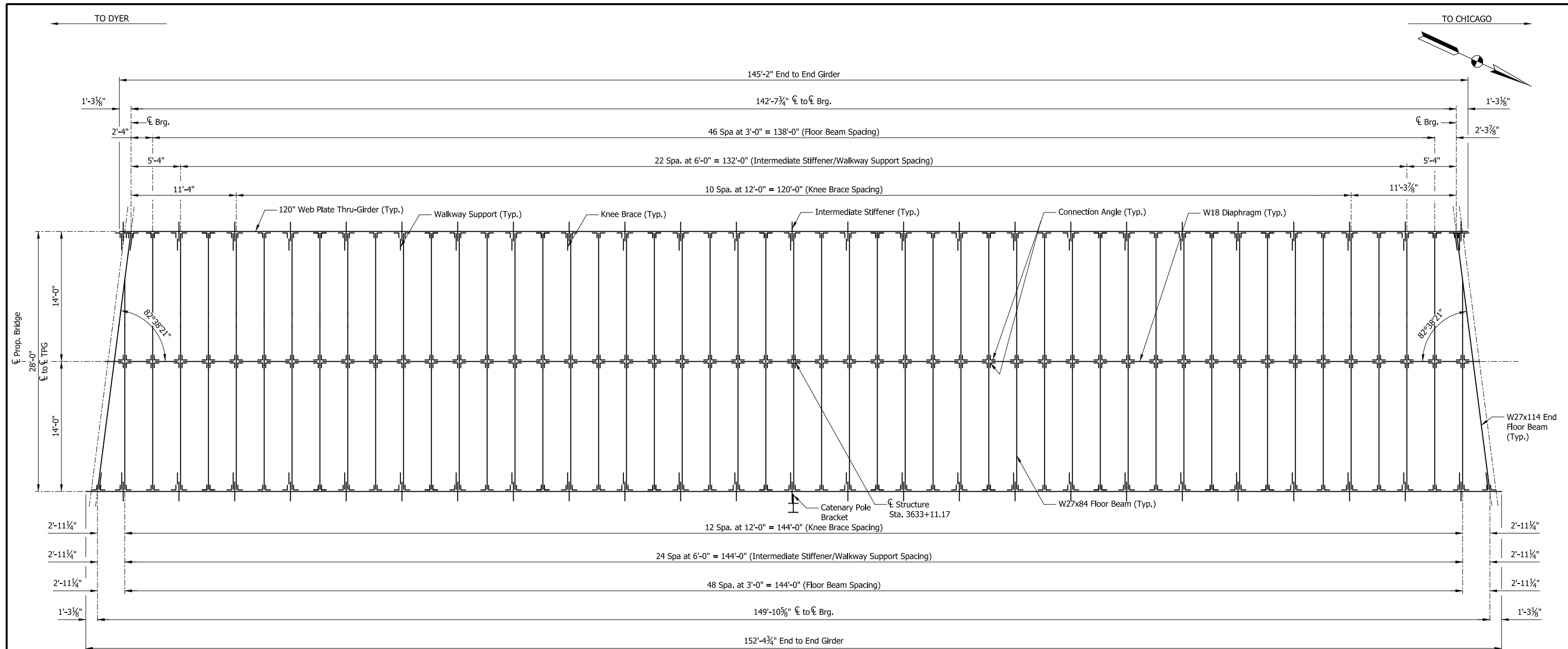
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| BRIDGE 116 - NICTD OVER CSX RR SUBSTRUCTURE DETAILS (2 OF 2) | | |
| FILENAME | SHT_WL_ST_BR116_SubstrDet_02 | SHEET |
| SCALE | AS NOTED | 197 OF 218 |

PLOT DATE: November 08, 2017 6:28:17 PM JMGJUS

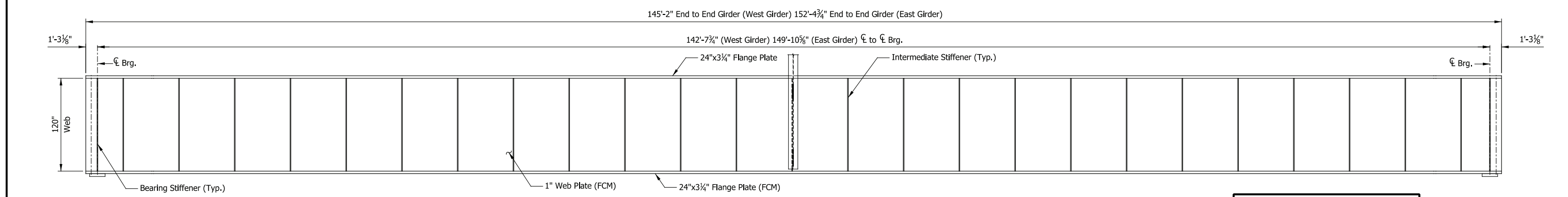


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FRAMING PLAN
Scale: 3/16" = 1'-0"



GIRDER EXTERIOR ELEVATION
Scale: 3/16" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES BR116-05 OF BR116-05

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NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK
BRIDGE 116 - NICTD OVER CSX RR
FRAMING PLAN

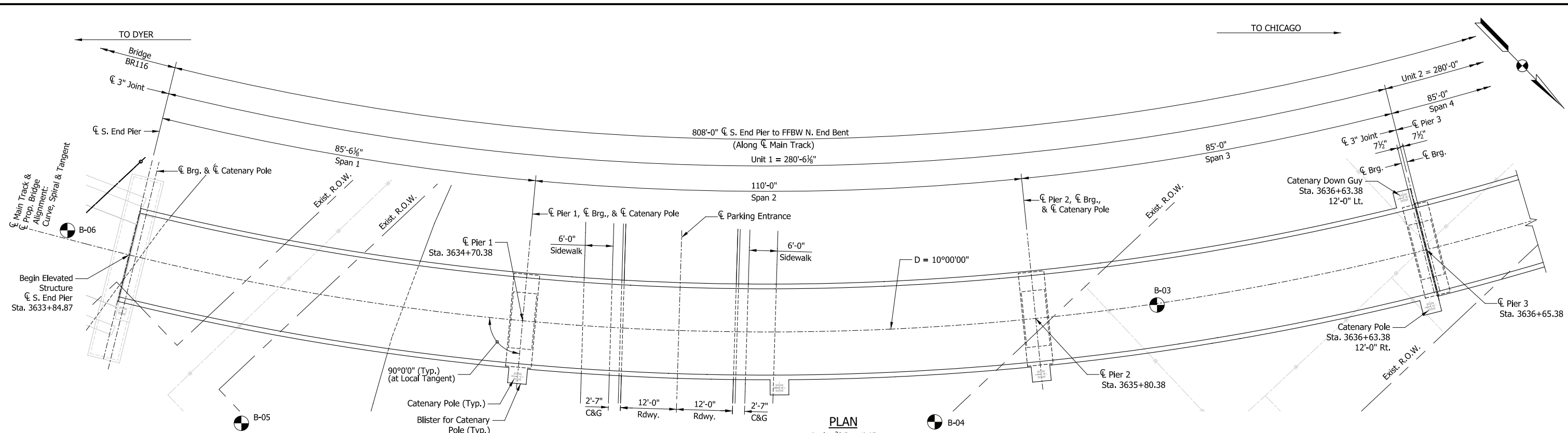
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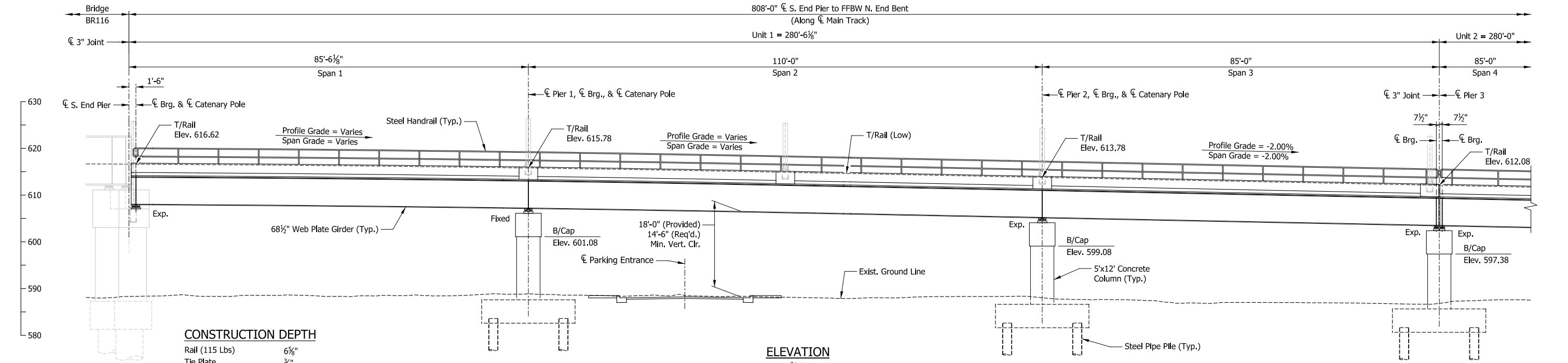


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PLAN
Scale: 3/32" = 1'-0"



ELEVATION
Scale: 3/32" = 1'-0"

CONSTRUCTION DEPTH

| | |
|----------------|----------|
| Rail (115 Lbs) | 6 5/8" |
| Tie Plate | 3/4" |
| Tie | 7" |
| Ballast (min.) | 6" |
| Waterproofing | 1" |
| Deck | 8" |
| Haunch | 3" |
| Top Flange | 1 3/4" |
| Web | 68 1/2" |
| Bottom Flange | 1 3/4" |
| | 104 3/8" |

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Ballast Depth = 19 inches (at High End of Span, at Low Rail)

SHEET INDEX

| | | | |
|----------|-----------------------------------|----------|-----------------------|
| ES209-01 | General Plan & Elevation (1 of 2) | ES209-08 | Framing Plan (1 of 6) |
| ES209-02 | General Plan & Elevation (2 of 3) | ES209-09 | Framing Plan (2 of 6) |
| ES209-03 | General Plan & Elevation (3 of 3) | ES209-10 | Framing Plan (3 of 6) |
| ES209-04 | Typical Details | ES209-11 | Framing Plan (4 of 6) |
| ES209-05 | Substructure Details (1 of 3) | ES209-12 | Framing Plan (5 of 6) |
| ES209-06 | Substructure Details (2 of 3) | ES209-13 | Framing Plan (6 of 6) |
| ES209-07 | Substructure Details (3 of 3) | | |

NOTES

- For track geometry, see Track Plans.
- Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES209-01 OF ES209-13

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NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 209
GENERAL PLAN & ELEVATION (1 OF 3)

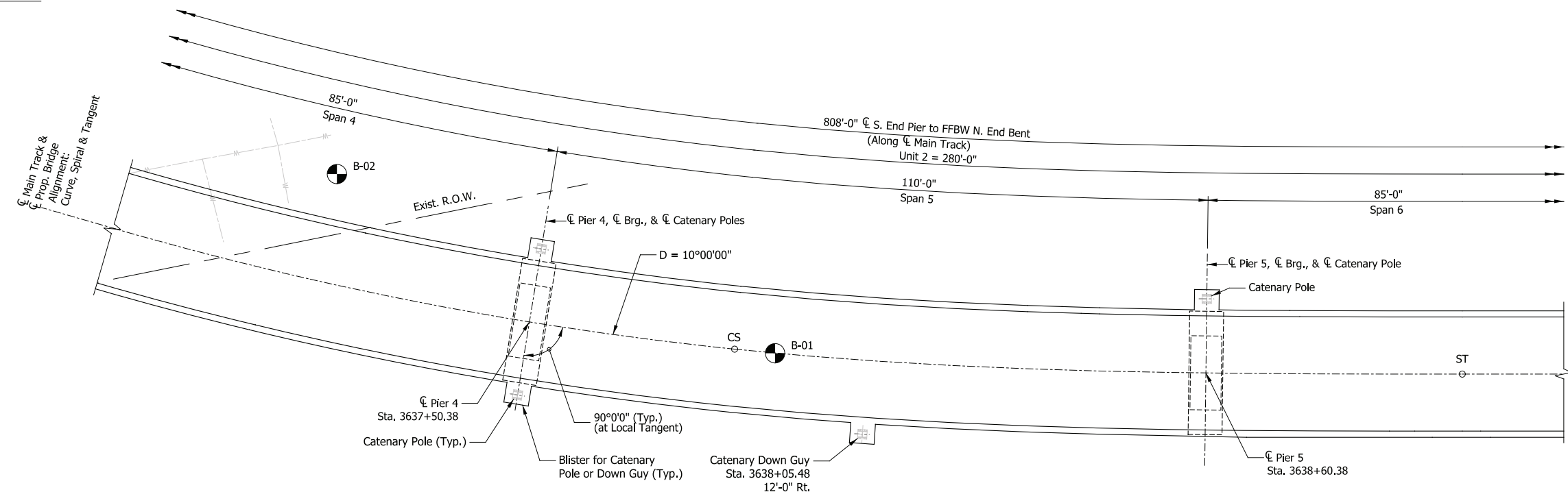
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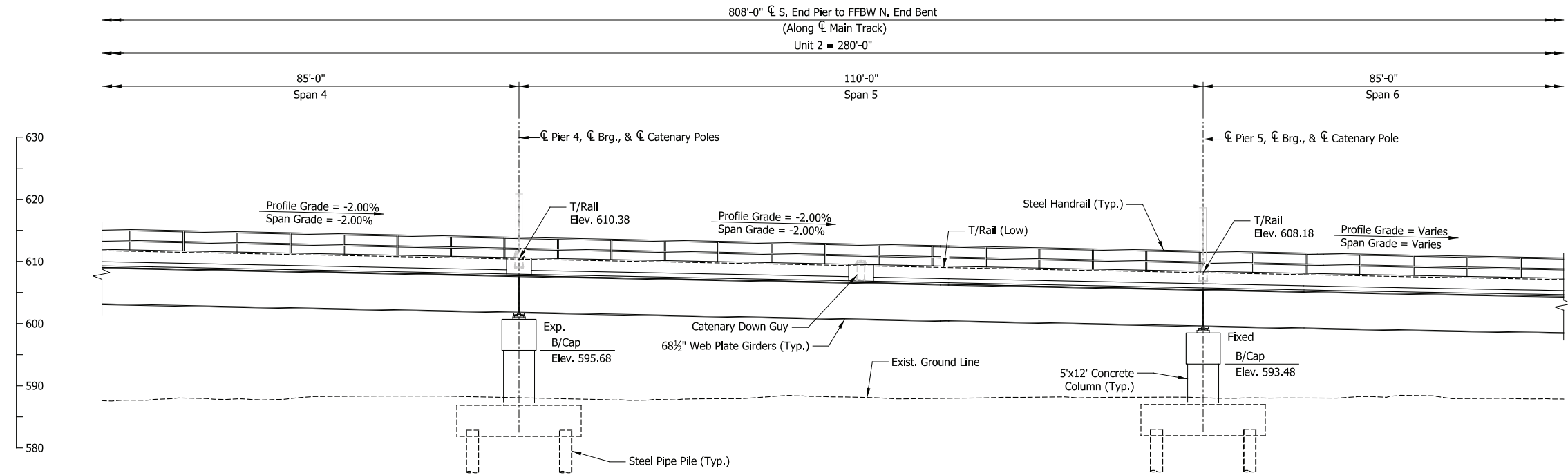
TO DYER

TO CHICAGO



PLAN

Scale: 3/32" = 1'-0"



ELEVATION

Scale: 3/32" = 1'-0"

NOTES

- 1. For track geometry, see Track Plans.
- 2. Downspouts not shown but required at all piers on side adjacent to low end of span.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES209-02 OF ES209-13

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK

ELEVATED STRUCTURE 209 GENERAL PLAN & ELEVATION (2 OF 3)

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| FILENAME | SHT_WL_ST_ES209_GenPlan_02.dgn | SHEET | 200 OF 218 |
| SCALE | AS NOTED | | |

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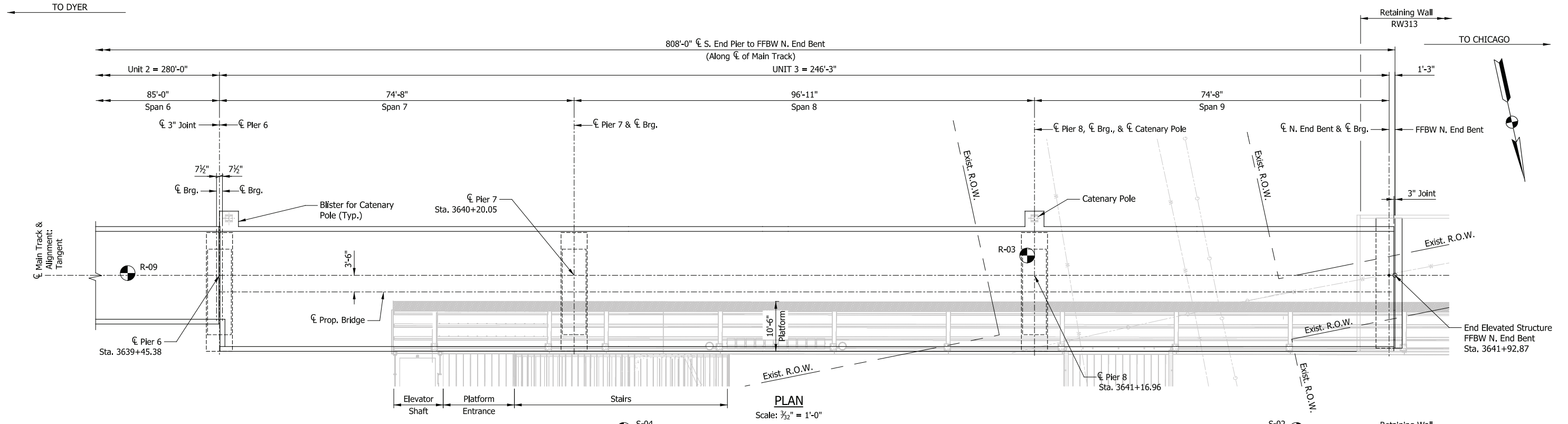
NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT 33 East Highway 12 Chesterton, Indiana 46304



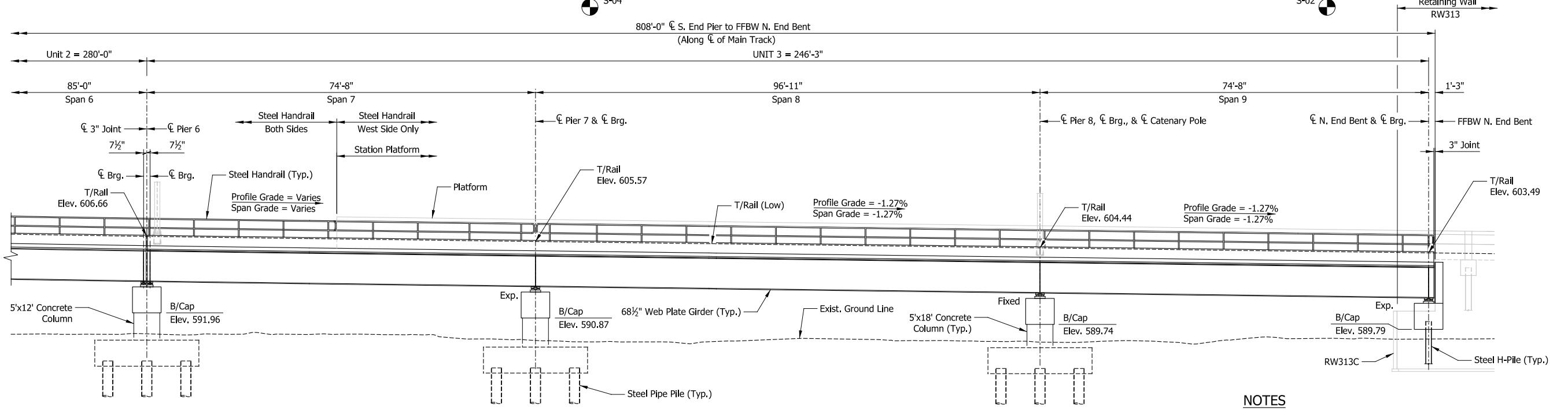
DYER TO HAMMOND, INDIANA

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| DRAWN: | HDR-JSR |
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PLAN
Scale: 3/32" = 1'-0"



ELEVATION
Scale: 3/32" = 1'-0"

- NOTES**
1. For track geometry, see Track Plans.
 2. Downspouts not shown but required at all piers on side adjacent to low end of span.
 3. Elevator shaft, platform entrance and stairs not shown in Elevation view for clarity.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES209-03 OF ES209-13

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 209
GENERAL PLAN & ELEVATION (3 OF 3)

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| FILENAME | SHT_WL_ST_ES209_GenPlan_03.dgn | SHEET | 201 OF 218 |
| SCALE | AS NOTED | | |

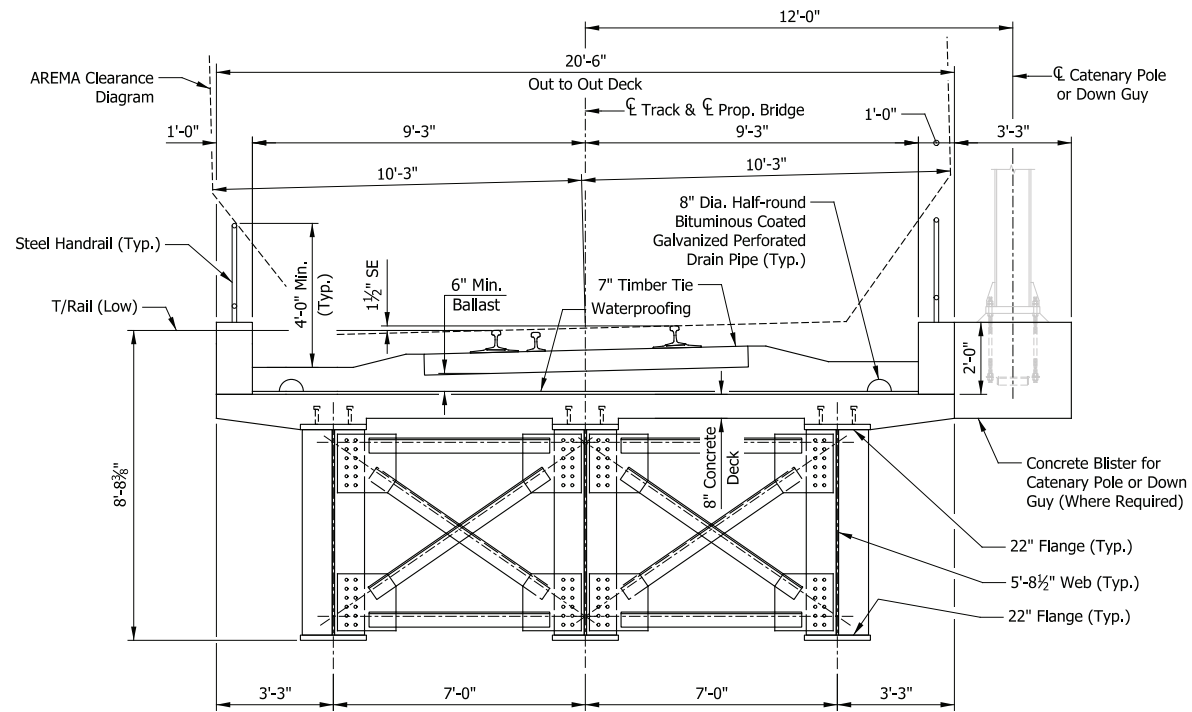
PLOT DATE: November 08, 2017 6:29:24 PM JMJIGUS



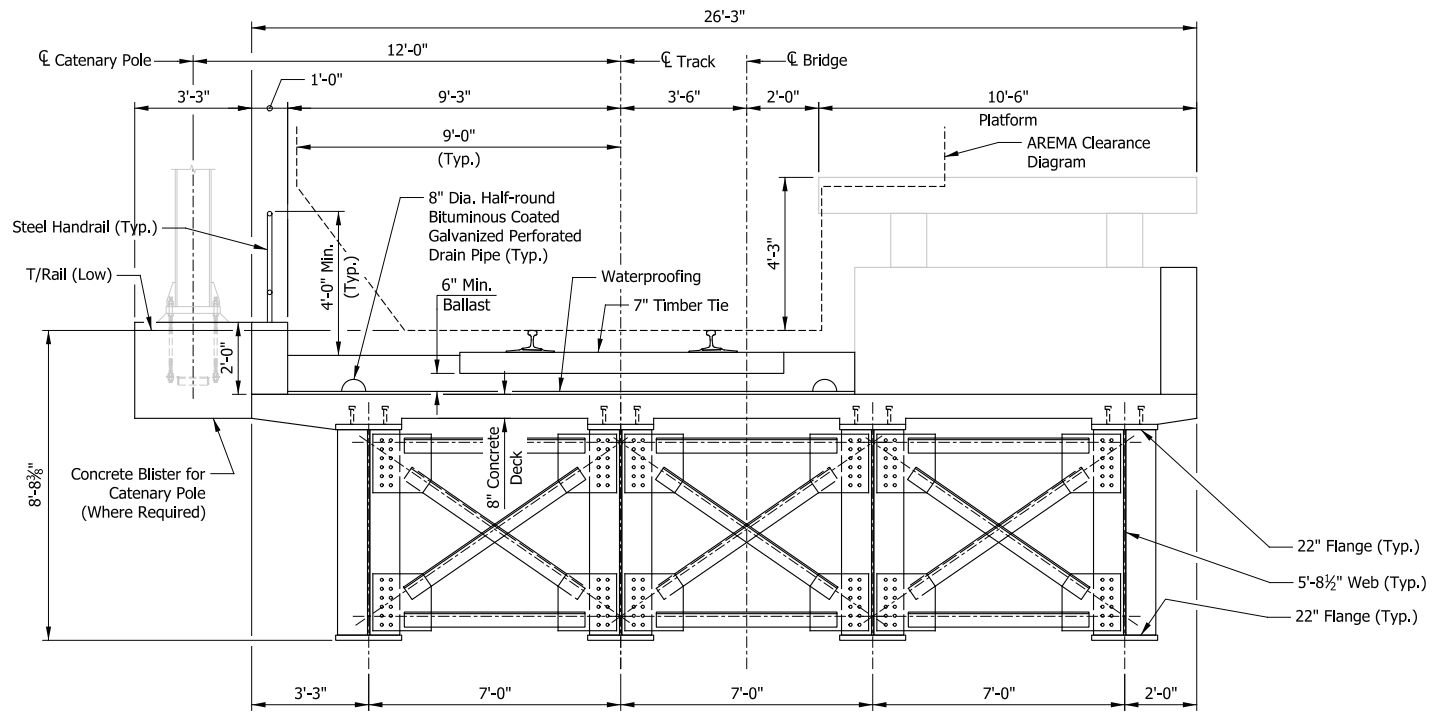
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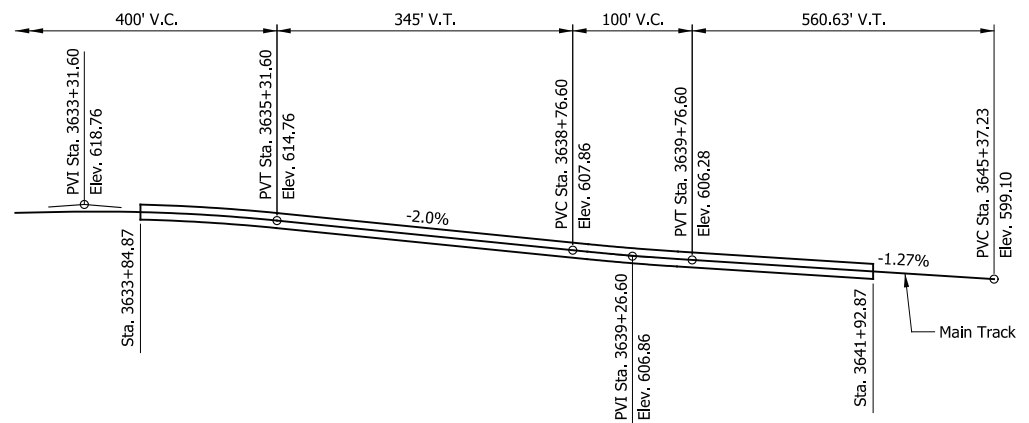
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| DESIGNED: | HDR-DTM |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |



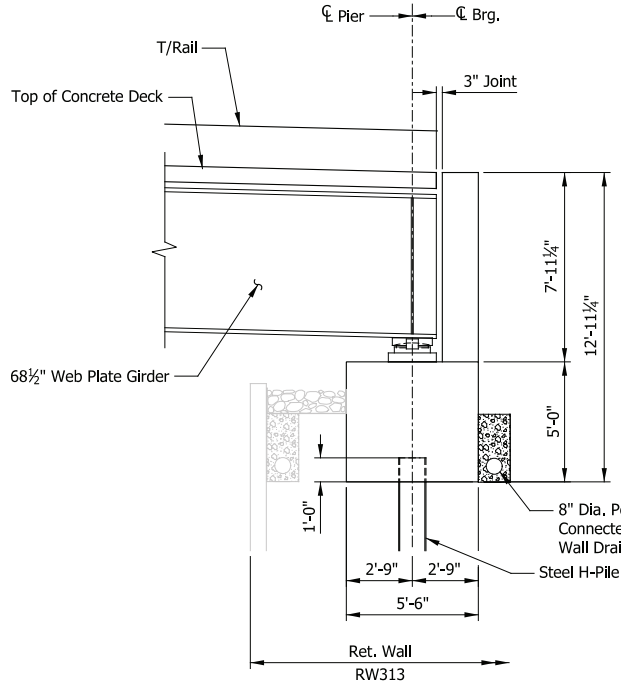
TYPICAL SECTION (UNITS 1 & 2)
 Scale: 3/8" = 1'-0"



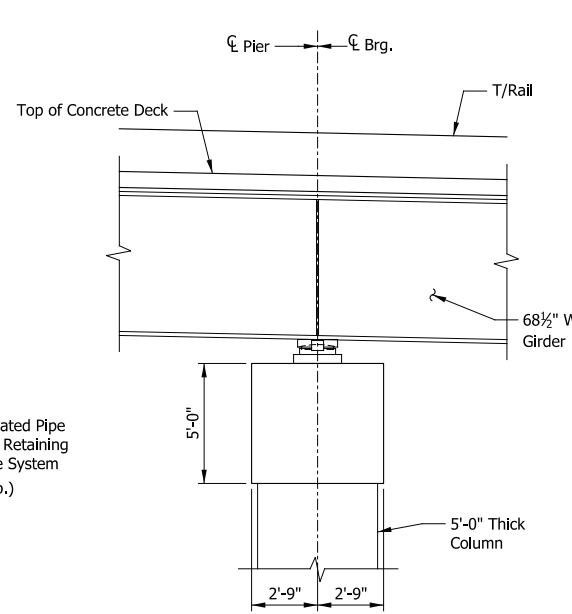
TYPICAL SECTION (UNIT 3)
 Scale: 3/8" = 1'-0"



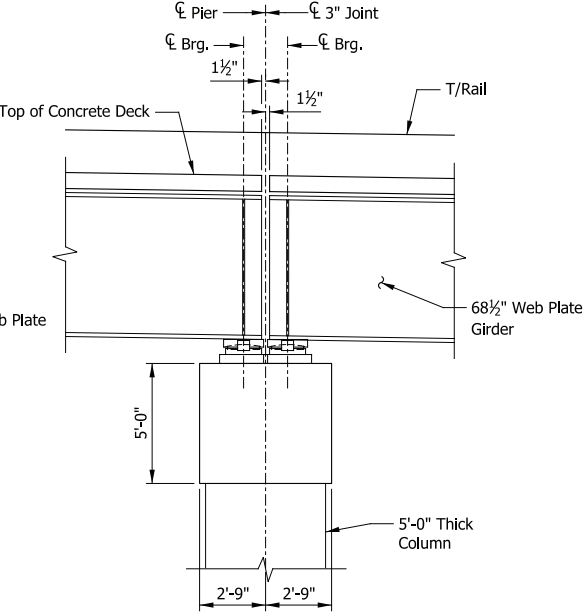
TOP OF RAIL PROFILE
 Not to Scale



SECTION THRU N. END BENT
 Scale: 1/4" = 1'-0"



SECTION THRU INTERMEDIATE UNIT PIER
 Scale: 1/4" = 1'-0"



SECTION THRU END UNIT PIER
 Scale: 1/4" = 1'-0"

PLOT DATE: November 08, 2017 6:29:30 PM JMWIGUS

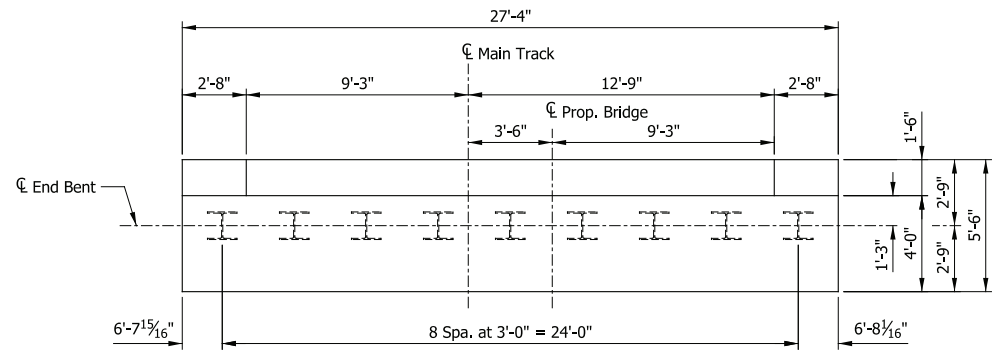


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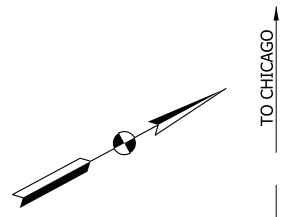
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| DESIGNED: | HDR-DTM |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES ES209-04 OF ES209-13
 NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
 SINGLE TRACK
ELEVATED STRUCTURE 209
TYPICAL SECTIONS
 FILENAME: SHT_WL_ST_ES209_TypDet_01.dgn SHEET: 202 OF 218
 SCALE: AS NOTED

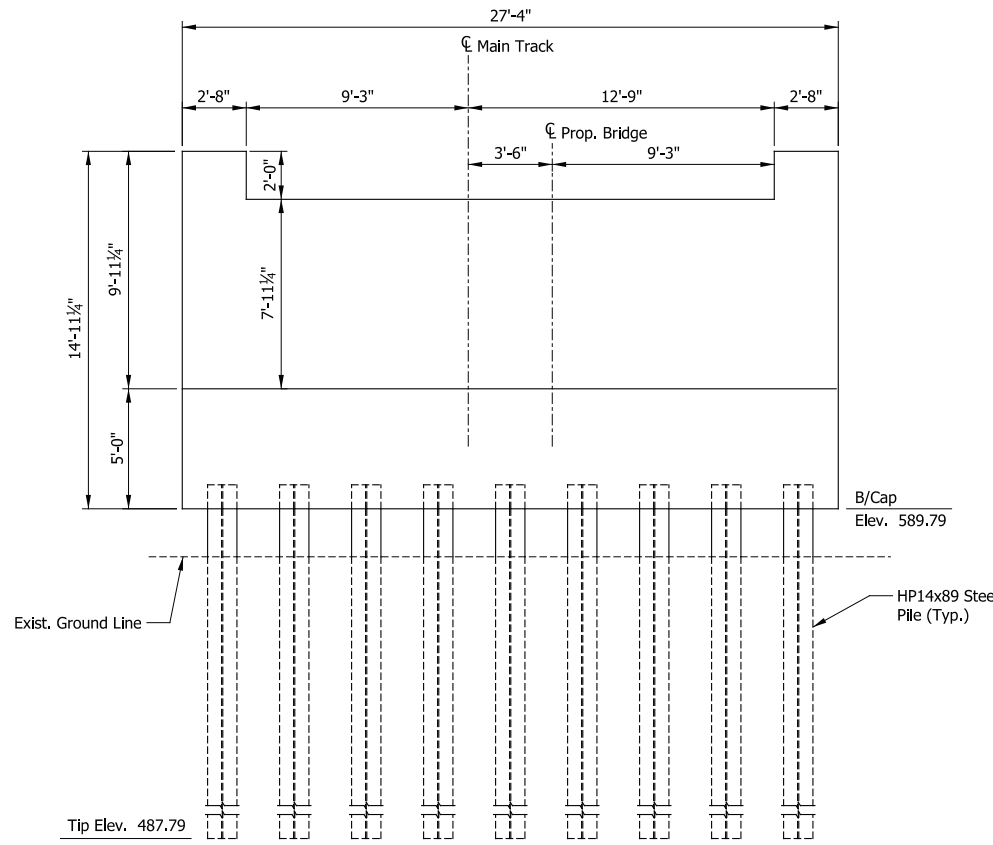


PLAN

Scale: 1/4" = 1'-0"



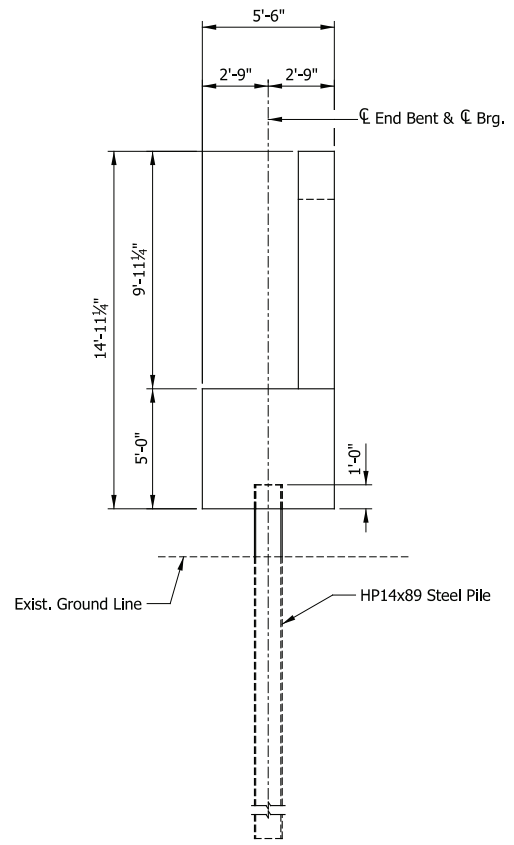
TO CHICAGO
TO DYER



ELEVATION

Scale: 1/4" = 1'-0"

NORTH END BENT



END VIEW

Scale: 1/4" = 1'-0"

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TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304



DYER TO HAMMOND, INDIANA

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| DESIGNED: | HDR-DTM |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-DTM |
| DATE: | 07/21/17 |
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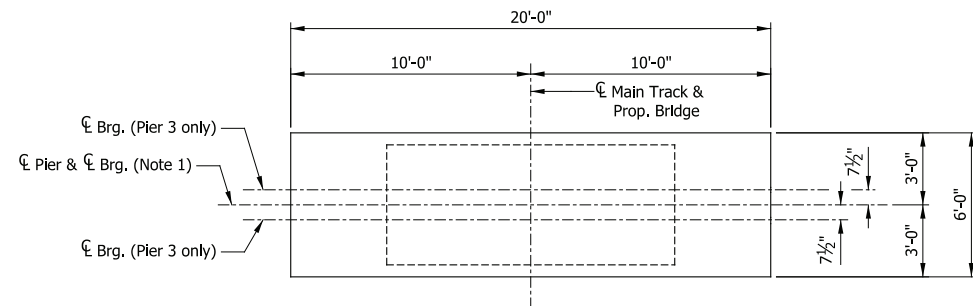
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES209-05 OF ES209-13

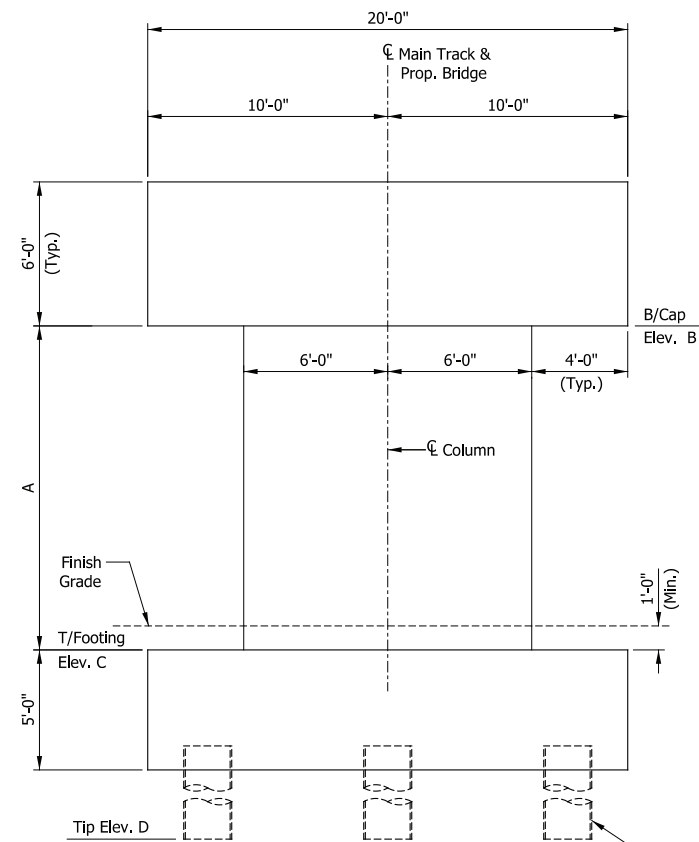
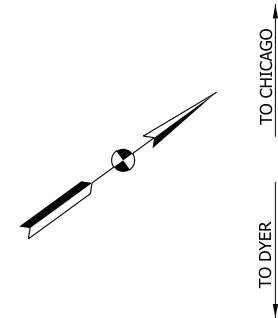
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 209
SUBSTRUCTURE DETAILS (1 OF 3)

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|----------|----------------------------------|-------|-------------------|
| FILENAME | SHT_WL_ST_ES209_SubstrDet_01.dgn | SHEET | 203 OF 218 |
| SCALE | AS NOTED | | |

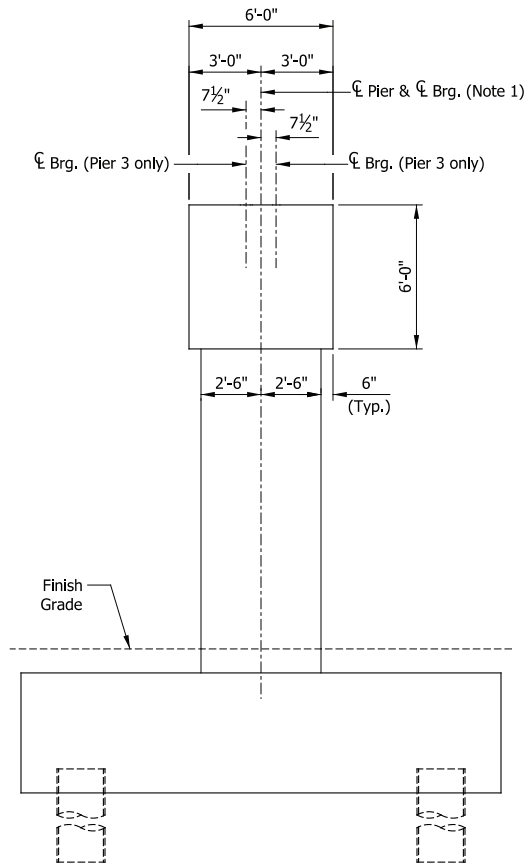


PLAN
Scale: 1/4" = 1'-0"

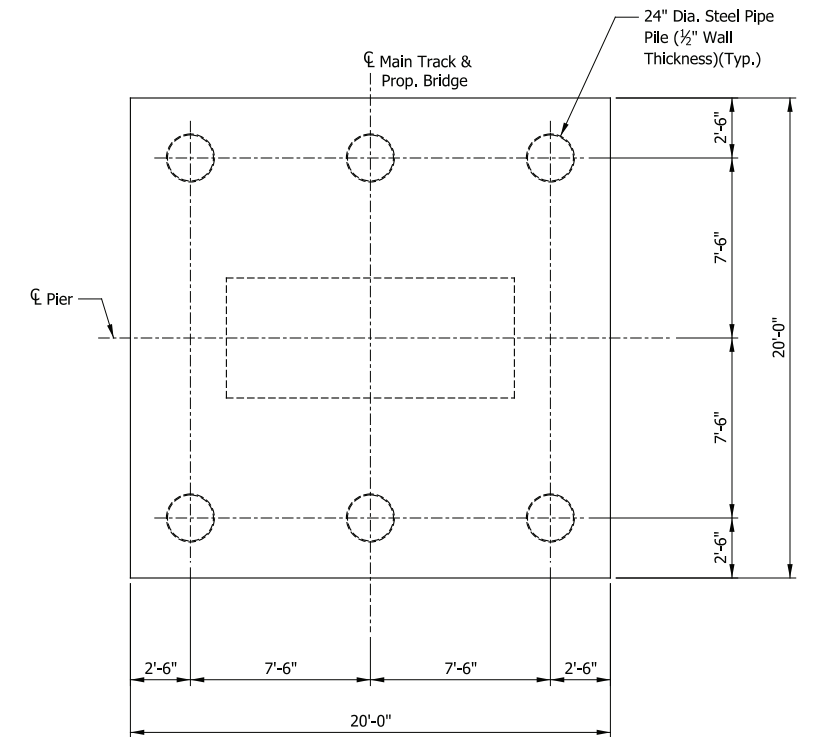


ELEVATION
Scale: 1/4" = 1'-0"

PIER 1, 2, 3, 4 & 5



END VIEW
Scale: 1/4" = 1'-0"



FOOTING PLAN (TYP.)
Scale: 1/4" = 1'-0"

| GEOMETRY TABLE | | | | |
|----------------|--------|---------|---------|---------|
| LOCATION | Dim. A | Elev. B | Elev. C | Elev. D |
| Pier 1 | 13'-6" | 601.08 | 587.58 | 484.58 |
| Pier 2 | 12'-6" | 599.08 | 586.58 | 483.58 |
| Pier 3 | 11'-9" | 597.38 | 585.63 | 482.63 |
| Pier 4 | 8'-10" | 595.68 | 586.85 | 483.85 |
| Pier 5 | 6'-6" | 593.48 | 586.98 | 483.98 |

NOTES

1. ϕ Pier = ϕ Bearing on all piers except Pier 3.

PLOT DATE: November 08, 2017 6:29:35 PM JMWIGUS



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| DATE: | 07/21/17 |

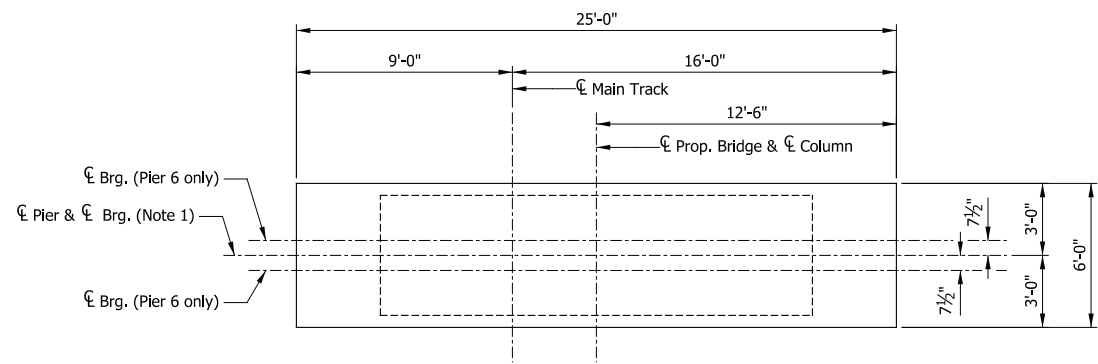
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES209-06 OF ES209-13

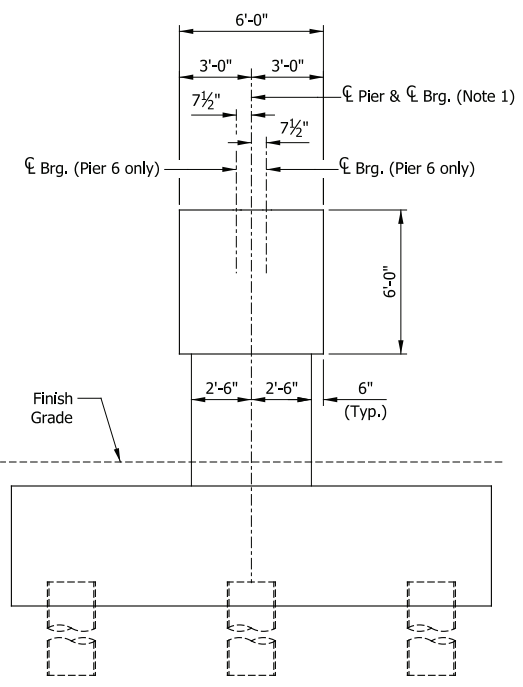
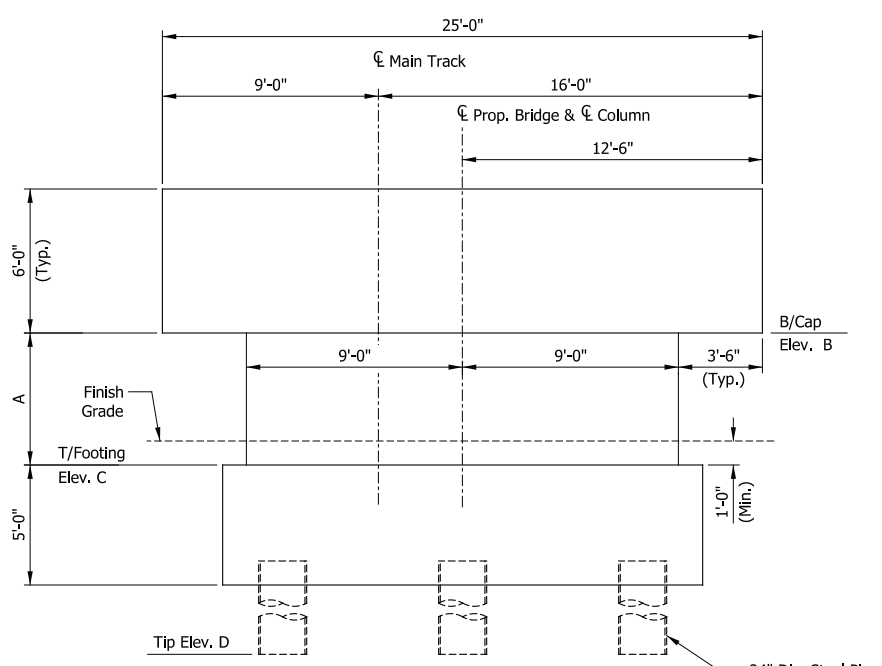
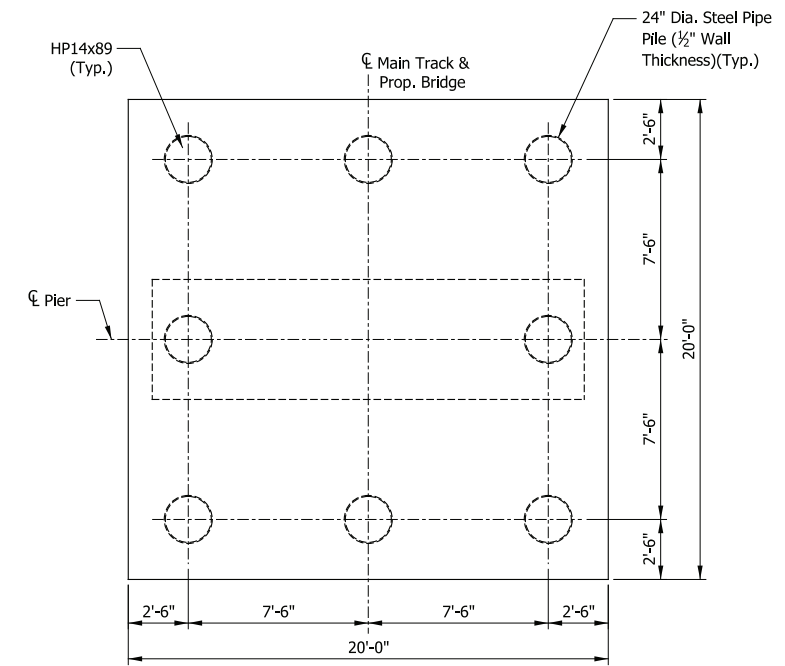
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 209
SUBSTRUCTURE DETAILS (2 OF 3)

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| FILENAME | SHT_WL_ST_ES209_SubstrDet_02.dgn | SHEET | 204 OF 218 |
| SCALE | AS NOTED | | |



TO CHICAGO
TO DYER



| GEOMETRY TABLE | | | | |
|----------------|--------|---------|---------|---------|
| LOCATION | Dim. A | Elev. B | Elev. C | Elev. D |
| Pier 6 | 5'-3" | 591.96 | 586.71 | 483.71 |
| Pier 7 | 5'-7" | 590.87 | 585.29 | 482.29 |
| Pier 8 | 4'-5" | 589.74 | 585.32 | 482.32 |

- NOTES**
1. ϕ Pier = ϕ Bearing on all piers except Pier 6.

PIER 6, 7 & 8

PLOT DATE: November 08, 2017 6:29:38 PM JMWIGUS



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PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES209-07 OF ES209-13

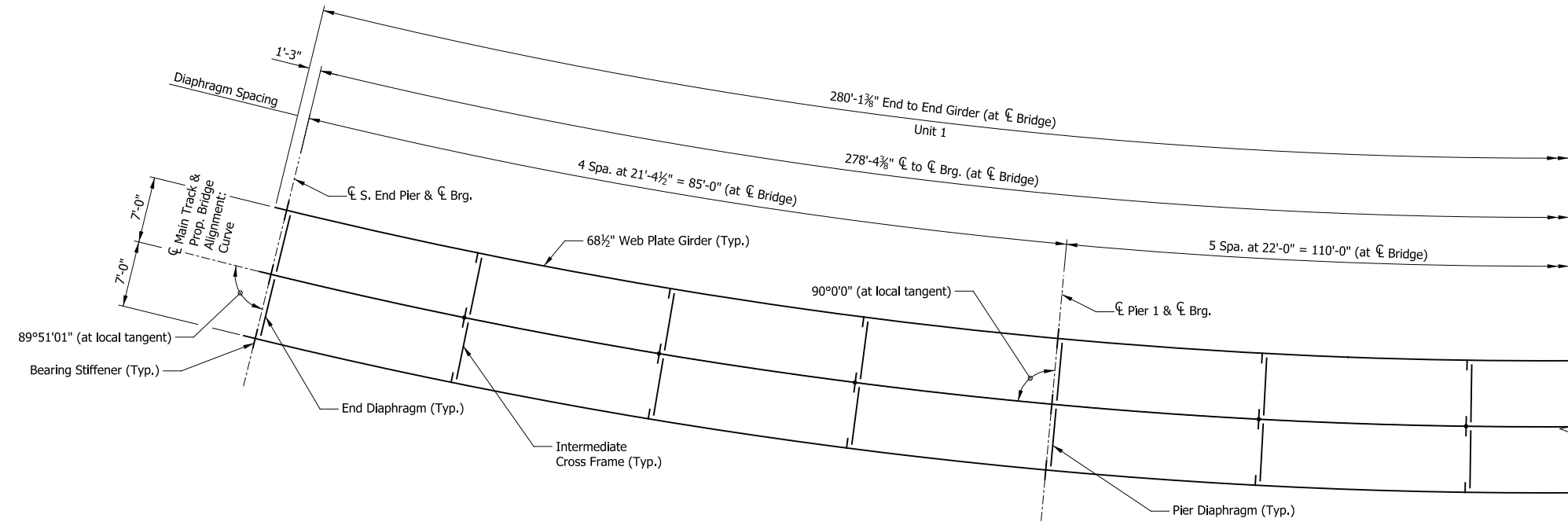
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 209
SUBSTRUCTURE DETAILS (3 OF 3)

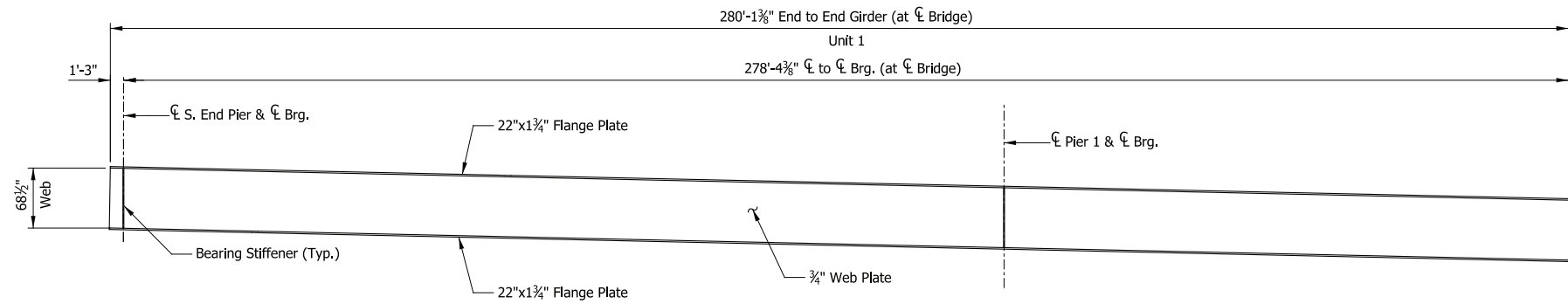
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| FILENAME | SHT_WL_ST_ES209_SubstrDet_03.dgn | SHEET | 205 OF 218 |
| SCALE | AS NOTED | | |

TO DYER

TO CHICAGO



PLAN
Scale: 1/8" = 1'-0"



ELEVATION
Scale: 1/8" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES209-08 OF ES209-13

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

ELEVATED STRUCTURE 209
FRAMING PLAN (1 OF 6)

FILENAME SHT_WL_ST_ES209_FramPlan_01.dgn
SCALE AS NOTED

SHEET 206 OF 218

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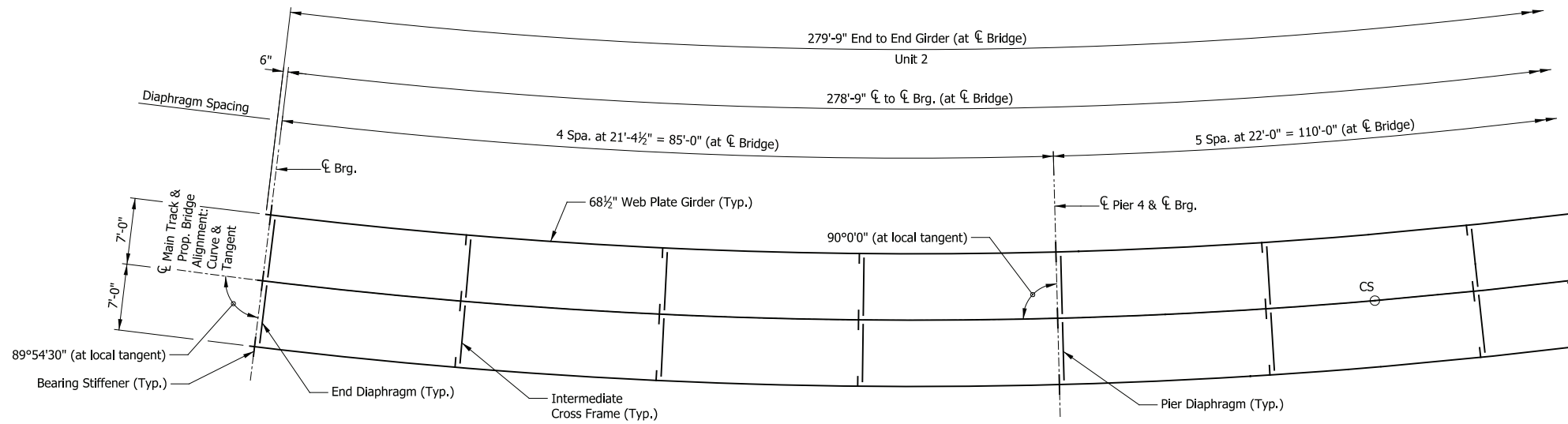


DYER TO HAMMOND, INDIANA

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| CHECKED: | HDR-JAL |
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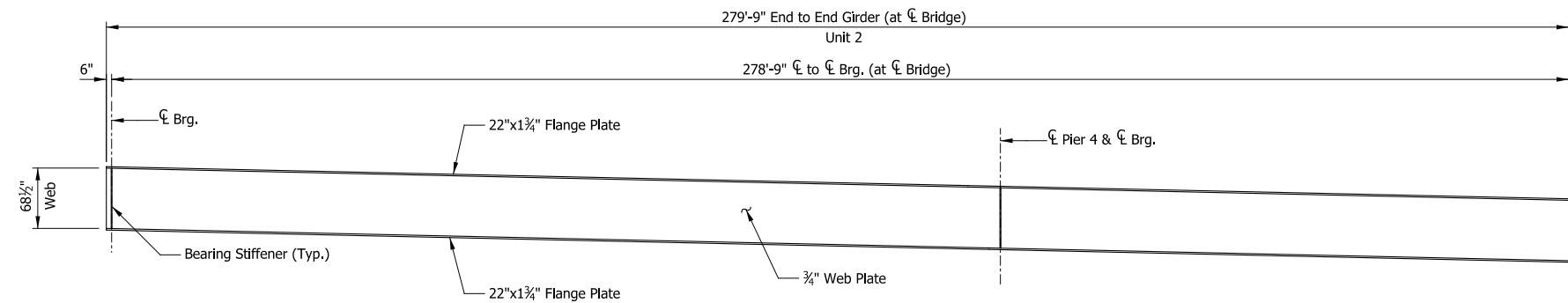
← TO DYER

→ TO CHICAGO



PLAN

Scale: 1/8" = 1'-0"



ELEVATION

Scale: 1/8" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES209-10 OF ES209-13

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 209
FRAMING PLAN (3 OF 6)**

FILENAME SHT_WL_ST_ES209_FramPlan_03.dgn
SCALE AS NOTED

SHEET **208 OF 218**

PLOT DATE: November 08, 2017 6:30:09 PM JMGIGUS



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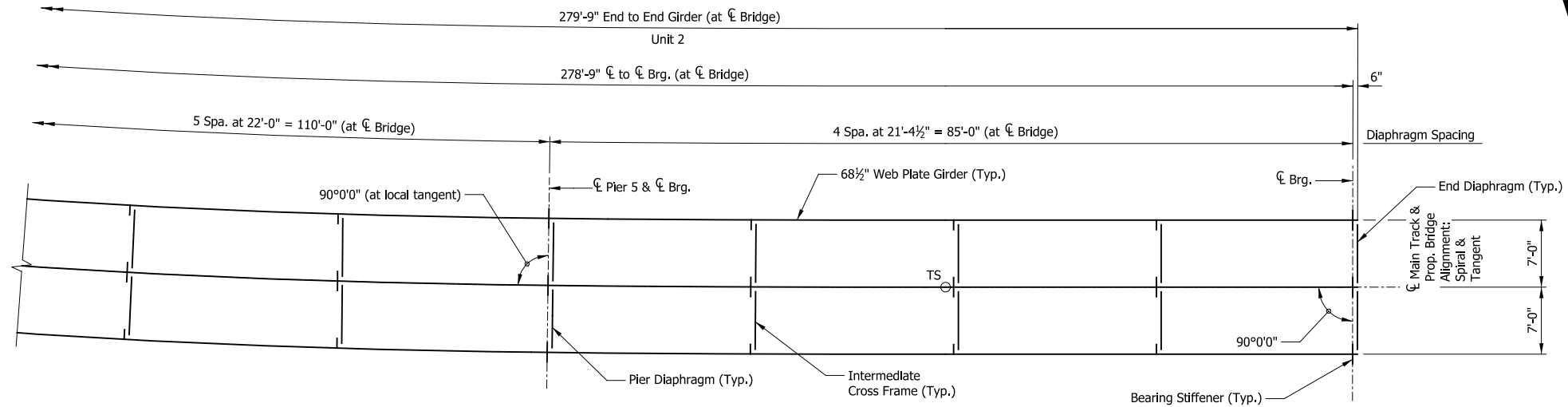


DYER TO HAMMOND, INDIANA

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| DESIGNED: | HDR-JAL |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-JAL |
| DATE: | 07/21/17 |
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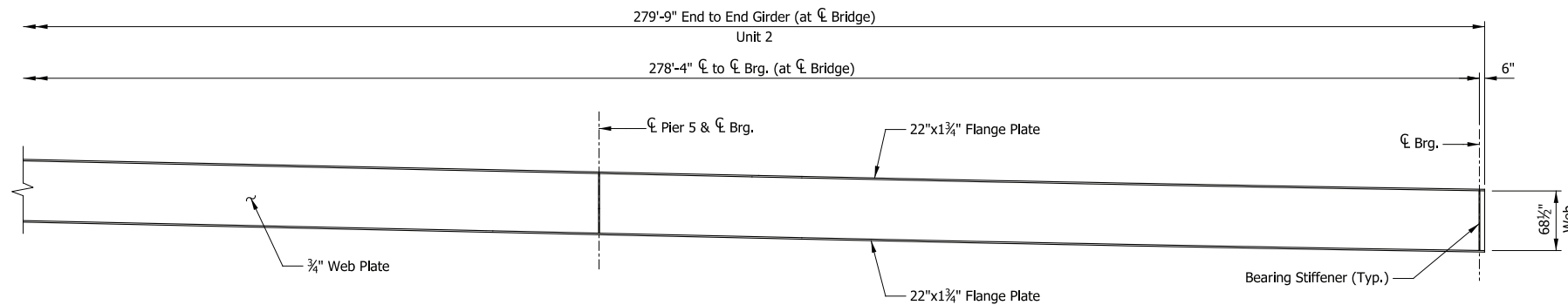
← TO DYER

→ TO CHICAGO



PLAN

Scale: 1/8" = 1'-0"



ELEVATION

Scale: 1/8" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES209-11 OF ES209-13

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 209
FRAMING PLAN (4 OF 6)**

FILENAME SHT_WL_ST_ES209_FramPlan_04.dgn
SCALE AS NOTED

SHEET **209 OF 218**

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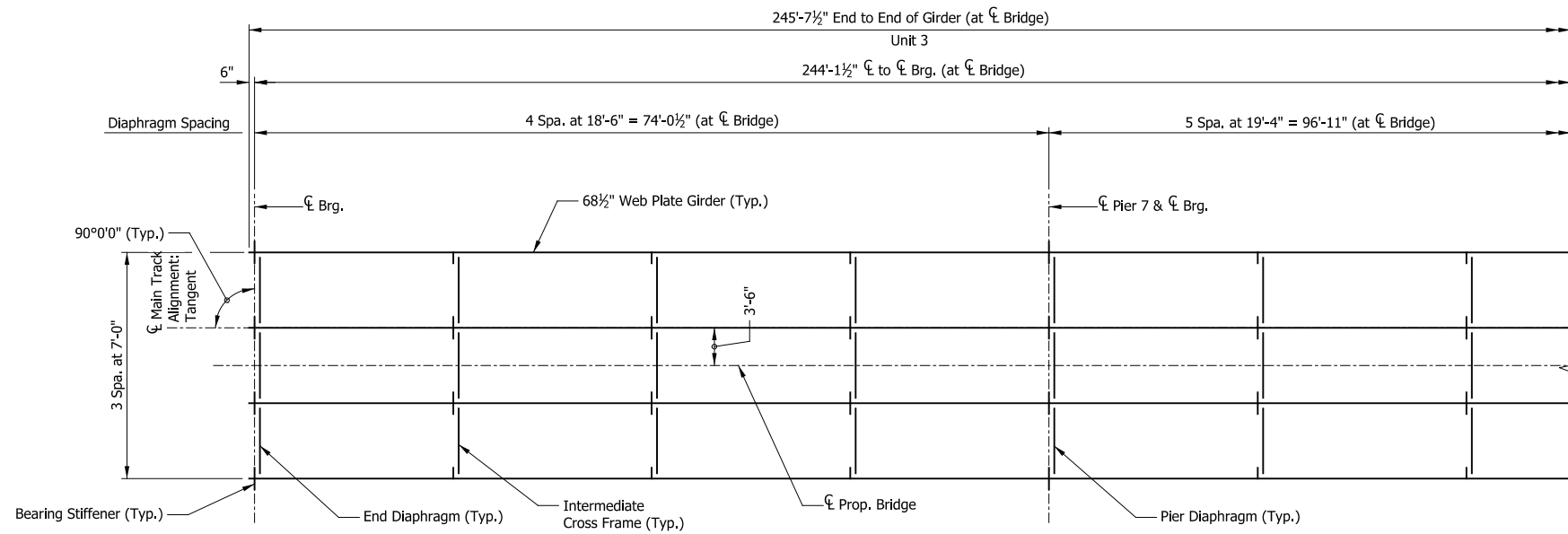


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| DRAWN: | HDR-JSR |
| CHECKED: | HDR-JAL |
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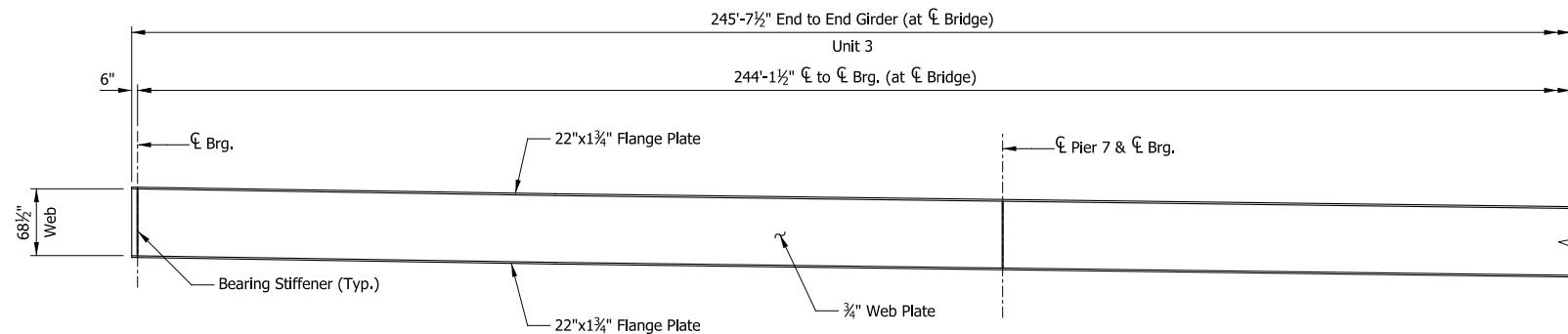
← TO DYER

→ TO CHICAGO



PLAN

Scale: 1/8" = 1'-0"



ELEVATION

Scale: 1/8" = 1'-0"

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES ES209-12 OF ES209-13

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**ELEVATED STRUCTURE 209
FRAMING PLAN (5 OF 6)**

FILENAME: SHT_WL_ST_ES209_FramPlan_05.dgn
SCALE: AS NOTED

SHEET **210 OF 218**

PLOT DATE: November 08, 2017 6:30:27 PM JMWIGUS



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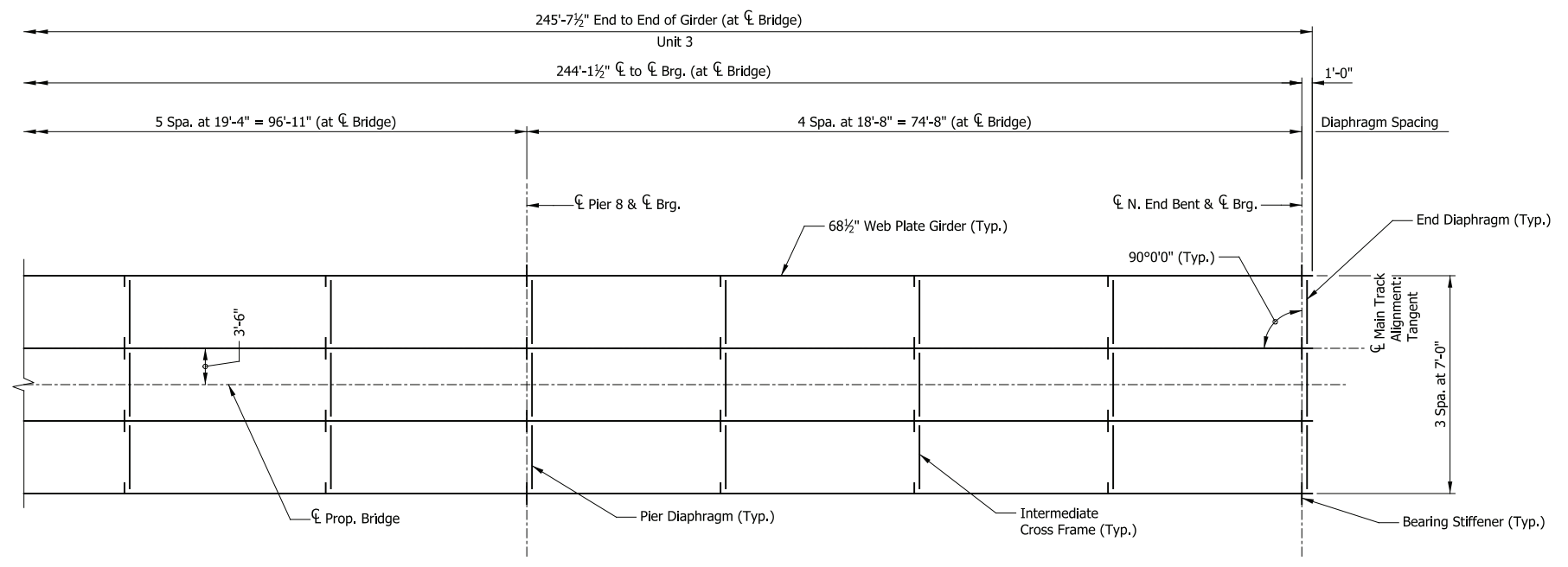


DYER TO HAMMOND, INDIANA

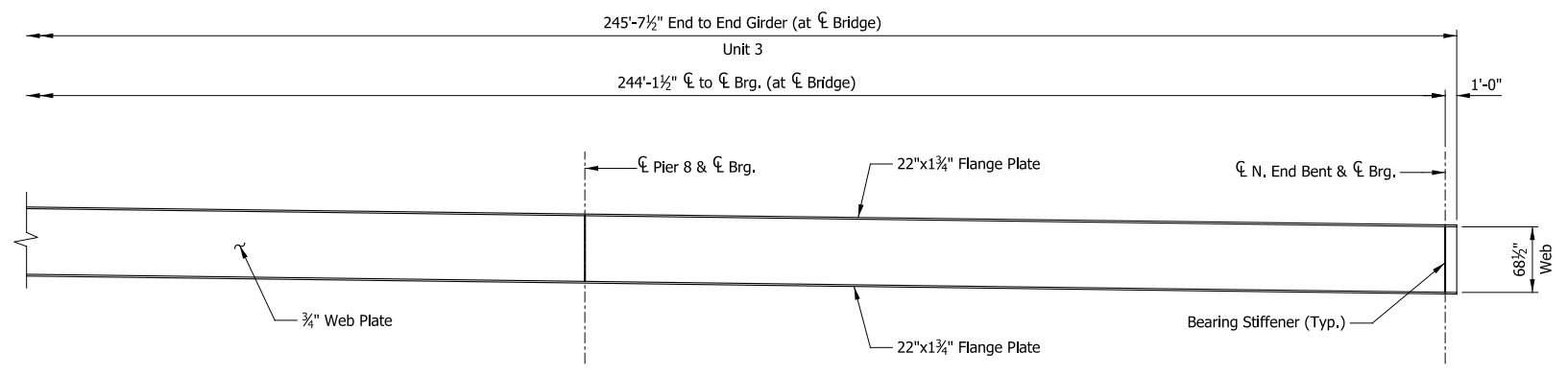
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| DESIGNED: | HDR-JAL |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-JAL |
| DATE: | 07/21/17 |

← TO DYER

→ TO CHICAGO



PLAN
Scale: ½" = 1'-0"



ELEVATION
Scale: ½" = 1'-0"

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES ES209-13 OF ES209-13

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| DESIGNED: | HDR-JAL |
| DRAWN: | HDR-JSR |
| CHECKED: | HDR-JAL |
| DATE: | 07/21/17 |

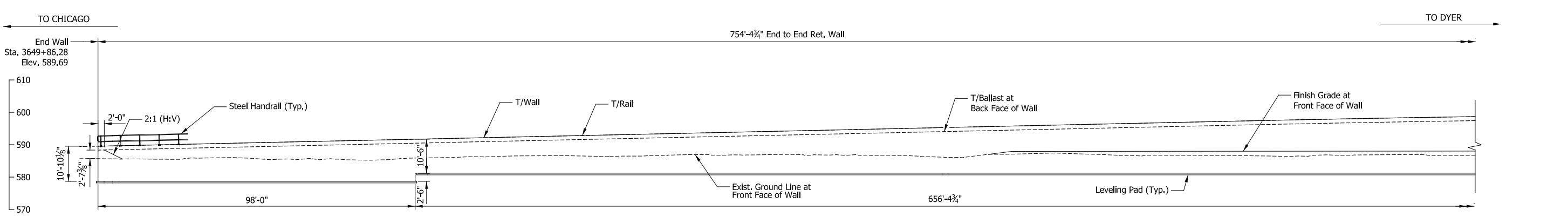
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| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| ELEVATED STRUCTURE 209 | | |
| FRAMING PLAN (6 OF 6) | | |
| FILENAME | SHT_WL_ST_ES209_FramPlan_06.dgn | SHEET |
| SCALE | AS NOTED | 211 OF 218 |

PLOT DATE: November 08, 2017 6:30:40 PM JMJIGUS

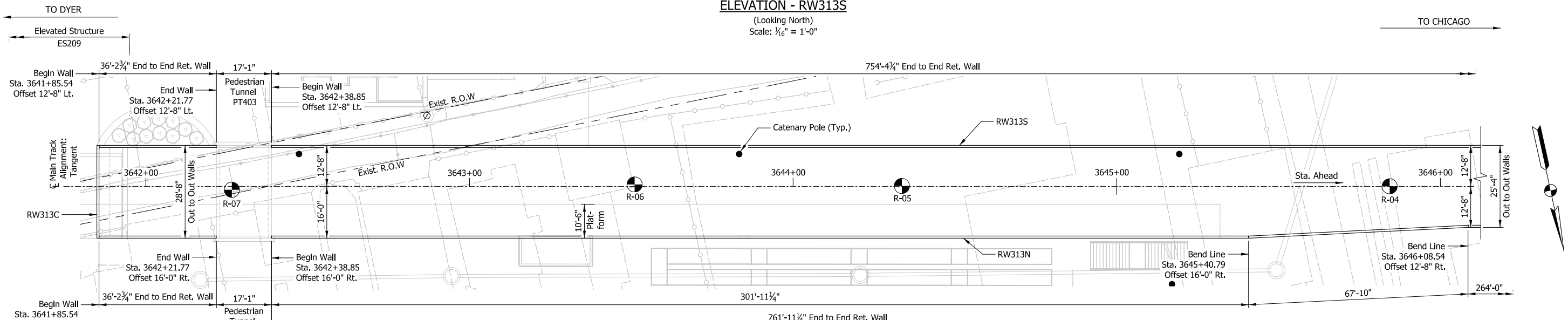


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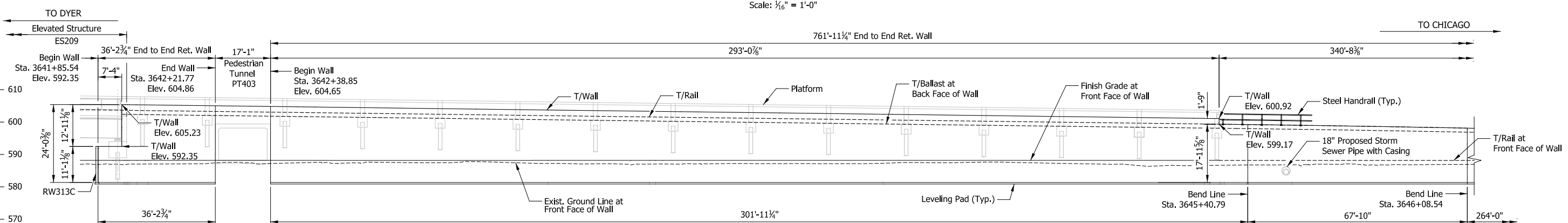




ELEVATION - RW313S
(Looking North)
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



ELEVATION - RW313N
(Looking South)
Scale: 1/16" = 1'-0"

DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f'_c = 4,000$ psi (Min.)

SHEET INDEX

| | |
|----------|-----------------------------------|
| RW313-01 | General Plan & Elevation (1 of 2) |
| RW313-02 | General Plan & Elevation (2 of 2) |
| RW313-03 | Typical Details (1 of 2) |
| RW313-04 | Typical Details (2 of 2) |
| RW313-05 | Drainage Plan |
| RW313-06 | Drainage Detail |

NOTES

- For track geometry, see Track Plans.
- For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES RW313-01 OF RW313-06

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| DESIGNED: | DLZ-BAH |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-JFM |
| DATE: | 07/21/17 |

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 313N & 313S

GENERAL PLAN & ELEVATION (1 OF 2)

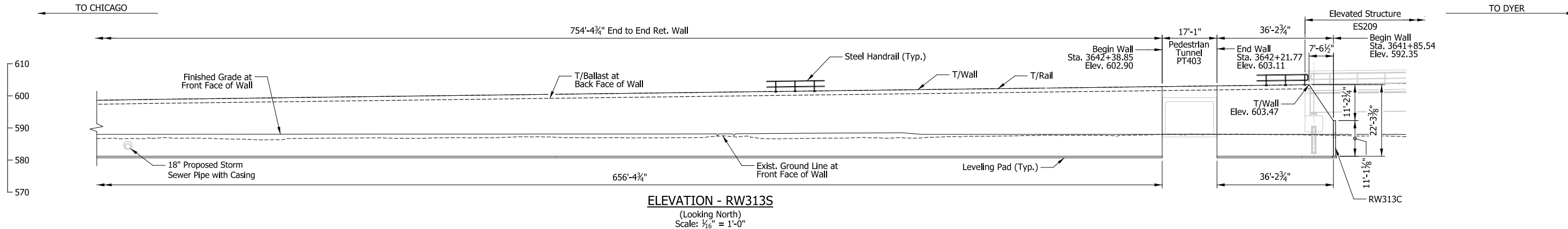
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| SCALE | AS NOTED | | |

PLOT DATE: November 08, 2017 6:30:53 PM JMWIGUS

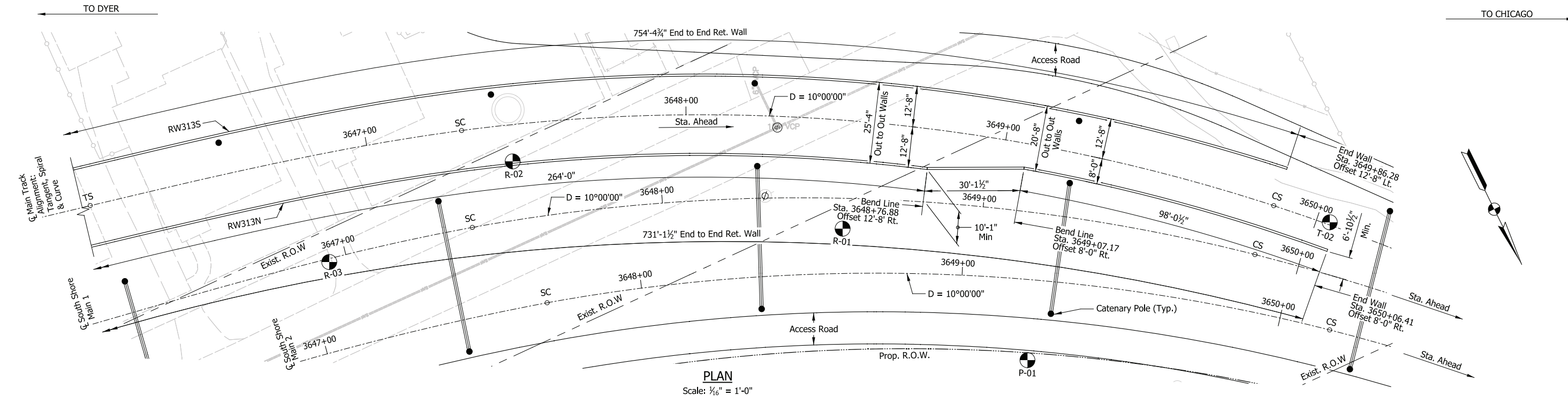


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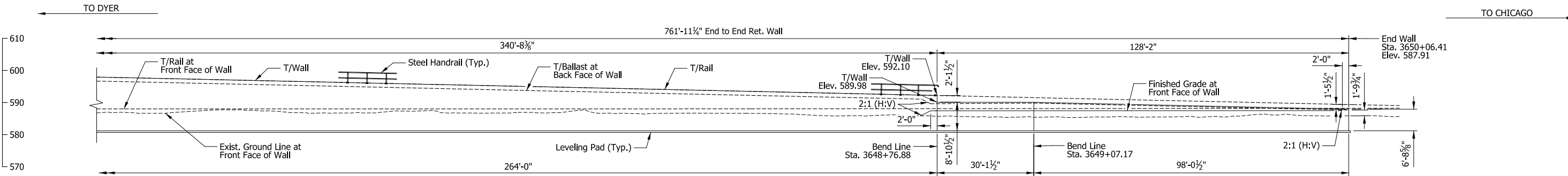




ELEVATION - RW313S
(Looking North)
Scale: 1/16" = 1'-0"



PLAN
Scale: 1/16" = 1'-0"



ELEVATION - RW313N
(Looking South)
Scale: 1/16" = 1'-0"

- NOTES**
1. For track geometry, see Track Plans.
 2. For clarity Catenary Poles and associated infrastructure not shown in elevation views. For details, see System Plans.

PLOT DATE: November 08, 2017 6:30:59 PM JMWIGUS



| ISSUE | DATE | DESCRIPTION |
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| DESIGNED: | DLZ-BAH |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-JFM |
| DATE: | 07/21/17 |

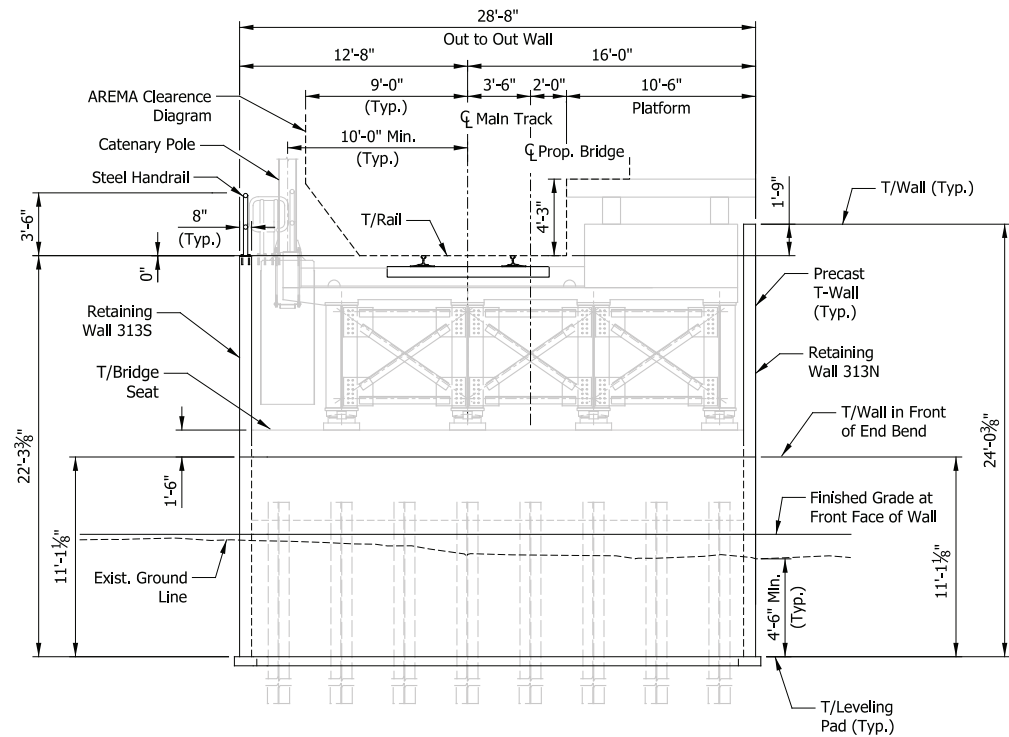
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW313-02 OF RW313-06

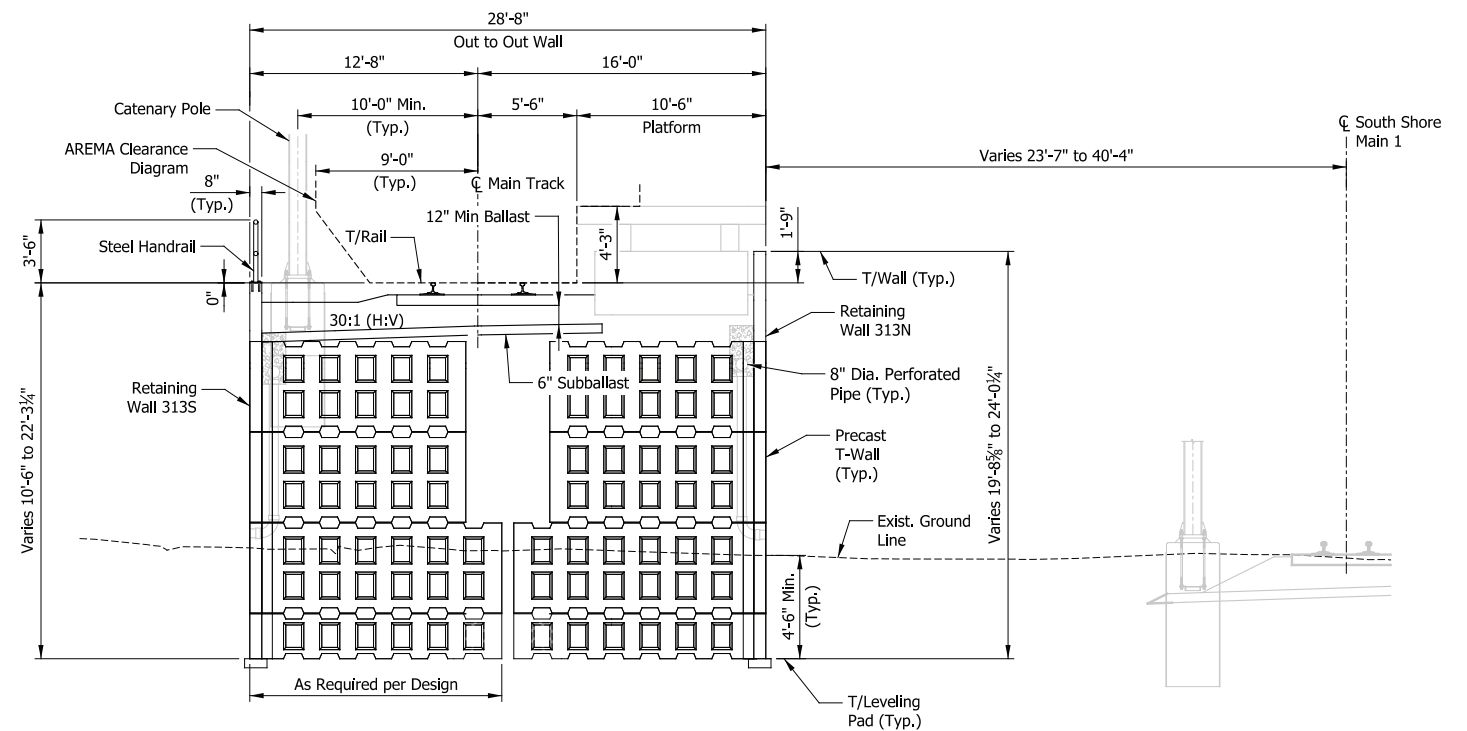
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 313N & 313S
GENERAL PLAN & ELEVATION (2 OF 2)

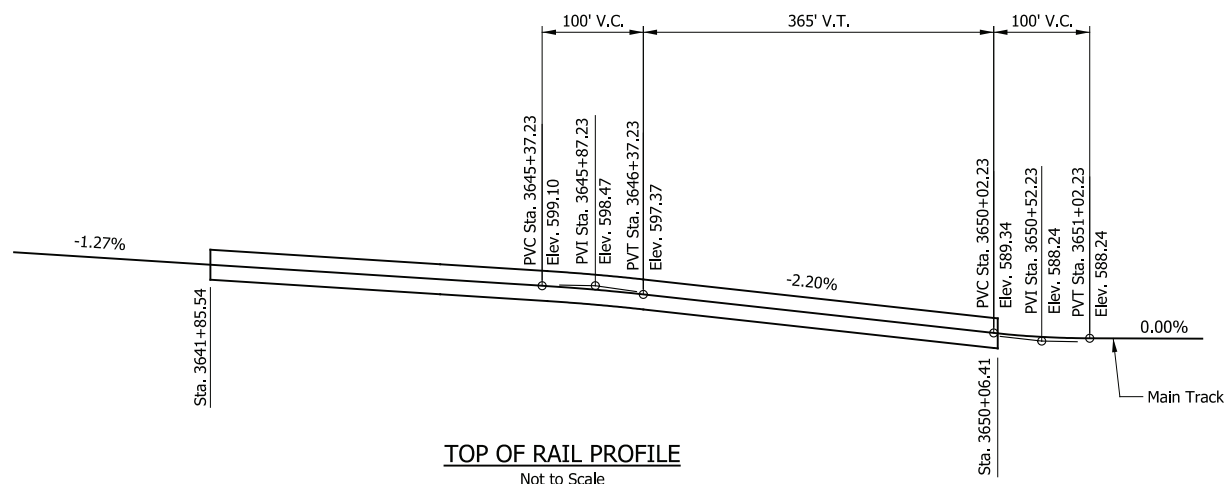
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| FILENAME | SHT_WL_ST_RW313_GenPlan_02.dgn | SHEET | 213 OF 218 |
| SCALE | AS NOTED | | |



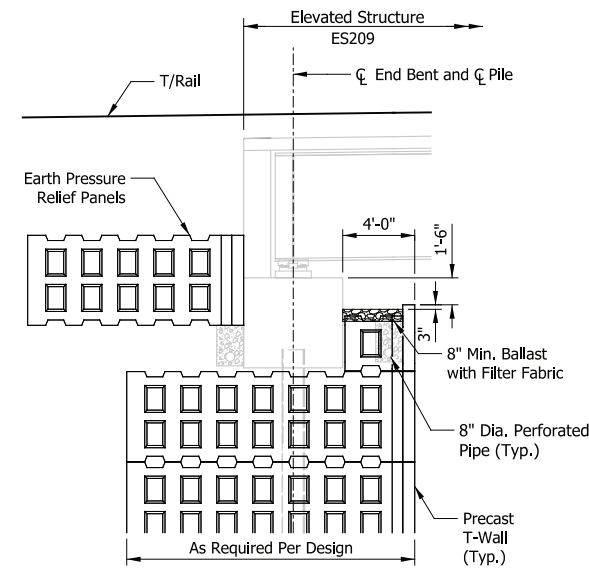
ELEVATION - RET. WALL 313C
(Looking Upstation)
Scale: 3/16" = 1'-0"



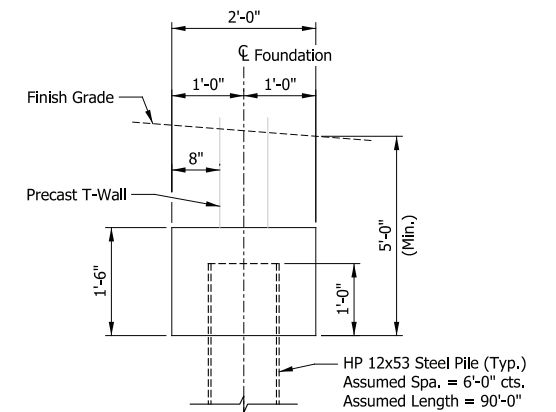
TYPICAL SECTION AT PLATFORM
(Looking Upstation)
Scale: 3/16" = 1'-0"



TOP OF RAIL PROFILE
Not to Scale



SECTION THRU END BENT
Scale: 3/16" = 1'-0"



ALTERNATIVE WALL FOUNDATION
Scale: 3/4" = 1'-0"

PLOT DATE: November 08, 2017 6:31:03 PM JMWIGUS



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|-----------|----------|
| DESIGNED: | DLZ-BAH |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-JFM |
| DATE: | 07/21/17 |

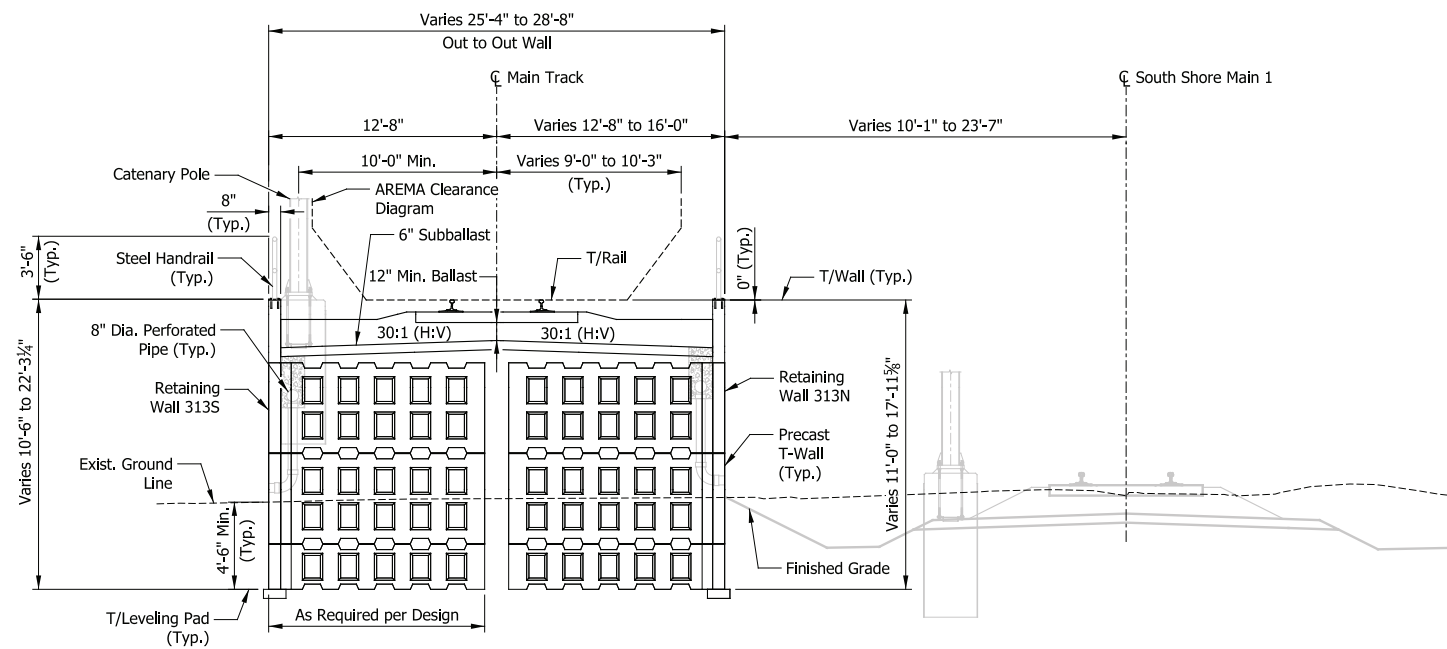
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW313-03 OF RW313-06

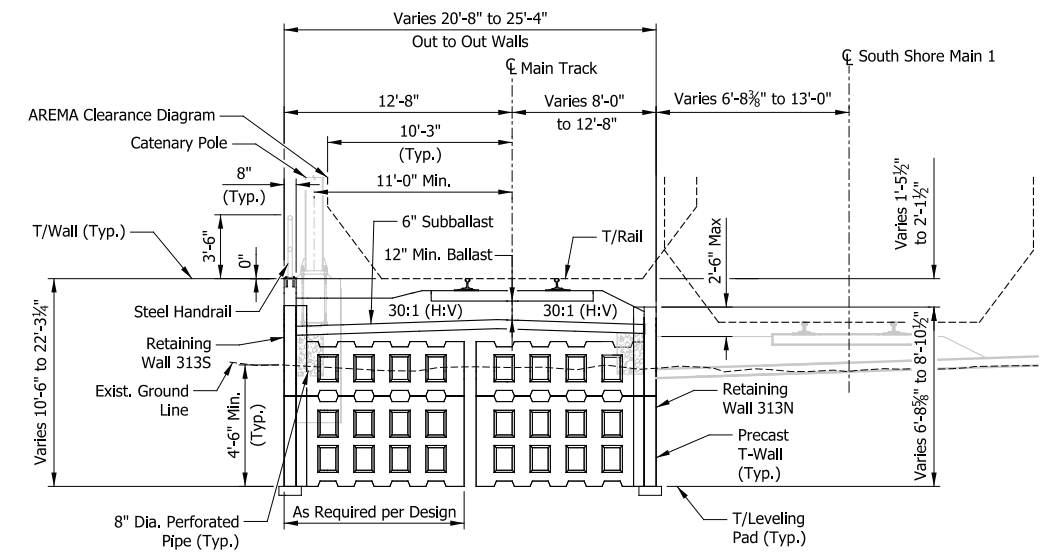
NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

RETAINING WALLS 313N & 313S
TYPICAL DETAILS (1 OF 2)

| | | | |
|----------|-------------------------------|-------|-------------------|
| FILENAME | SHT_WL_ST_RW313_TypDet_01.dgn | SHEET | 214 OF 218 |
| SCALE | AS NOTED | | |



TYPICAL SECTION WITH HANDRAILS BOTH SIDES
 (Looking Upstation)
 Scale: 3/16" = 1'-0"



TYPICAL SECTION WITH HANDRAIL ONE SIDE
 (Looking Upstation)
 Scale: 3/16" = 1'-0"

PLOT DATE: November 08, 2017 6:31:05 PM JMJIGUS



| ISSUE | DATE | DESCRIPTION |
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|-----------|----------|
| DESIGNED: | DLZ-BAH |
| DRAWN: | DLZ-JLM |
| CHECKED: | DLZ-JFM |
| DATE: | 07/21/17 |

PRELIMINARY PLANS

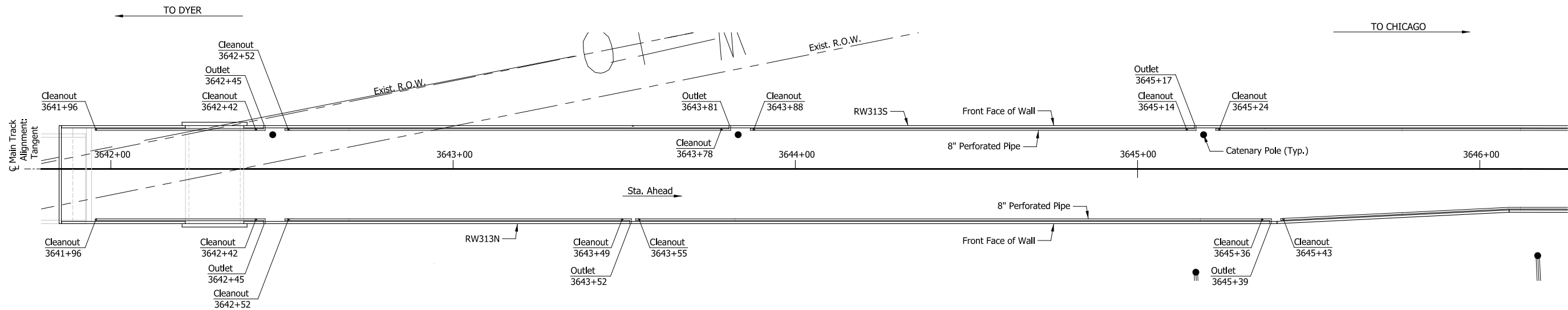
NOT FOR CONSTRUCTION

SERIES
RW313-04 OF RW313-06

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
 SINGLE TRACK

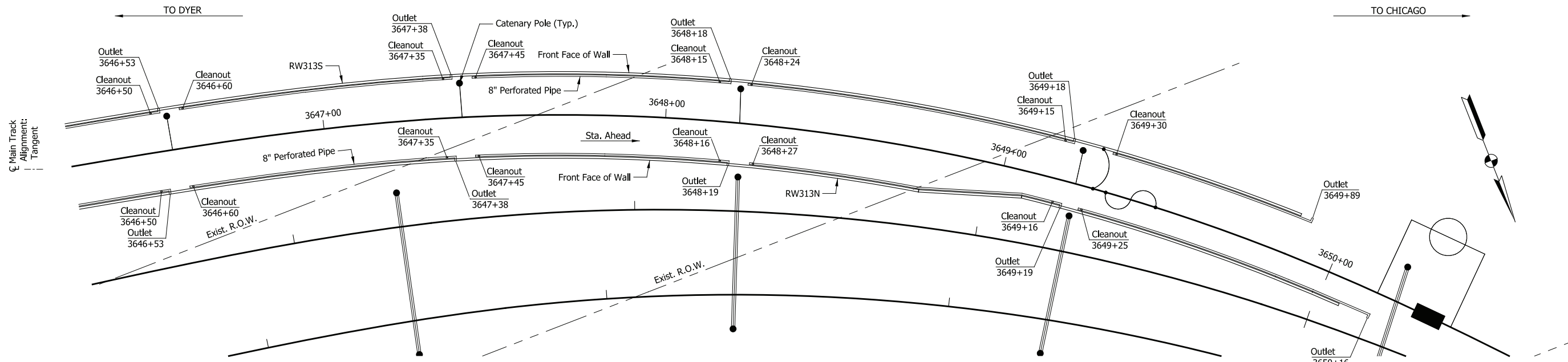
RETAINING WALLS 313N & 313S
TYPICAL DETAILS (2 OF 2)

| | | |
|----------|-------------------------------|-------------------|
| FILENAME | SHT_WL_ST_RW313_TypDet_02.dgn | SHEET |
| SCALE | AS NOTED | 215 OF 218 |



PLAN

Scale: 1/16" = 1'-0"



PLAN

Scale: 1/16" = 1'-0"

Note:
Refer to Drainage Detail Sheet for Additional Underdrains Adjacent to Bridge.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION SERIES RW313-05 OF RW313-06

| | |
|-----------|----------|
| DESIGNED: | ASP-CAK |
| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |

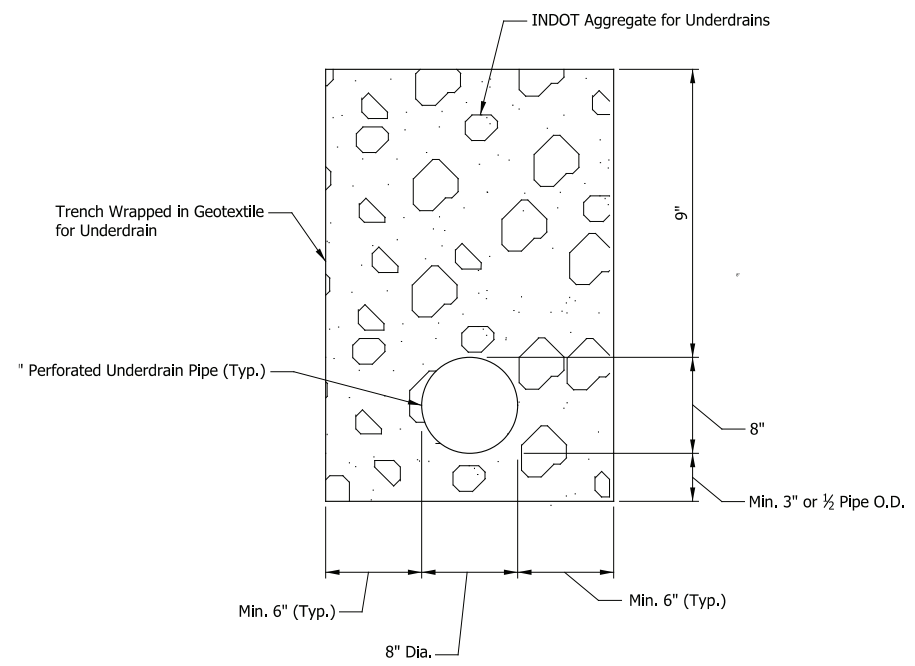
| | | |
|--|----------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| RETAINING WALLS 313N & 313S | | |
| DRAINAGE PLAN | | |
| FILENAME | SHT_WL_ST_RW313_DrainPlan_01.dgn | SHEET |
| SCALE | AS NOTED | 216 OF 218 |

PLOT DATE: November 08, 2017 6:31:20 PM JMWIGUS

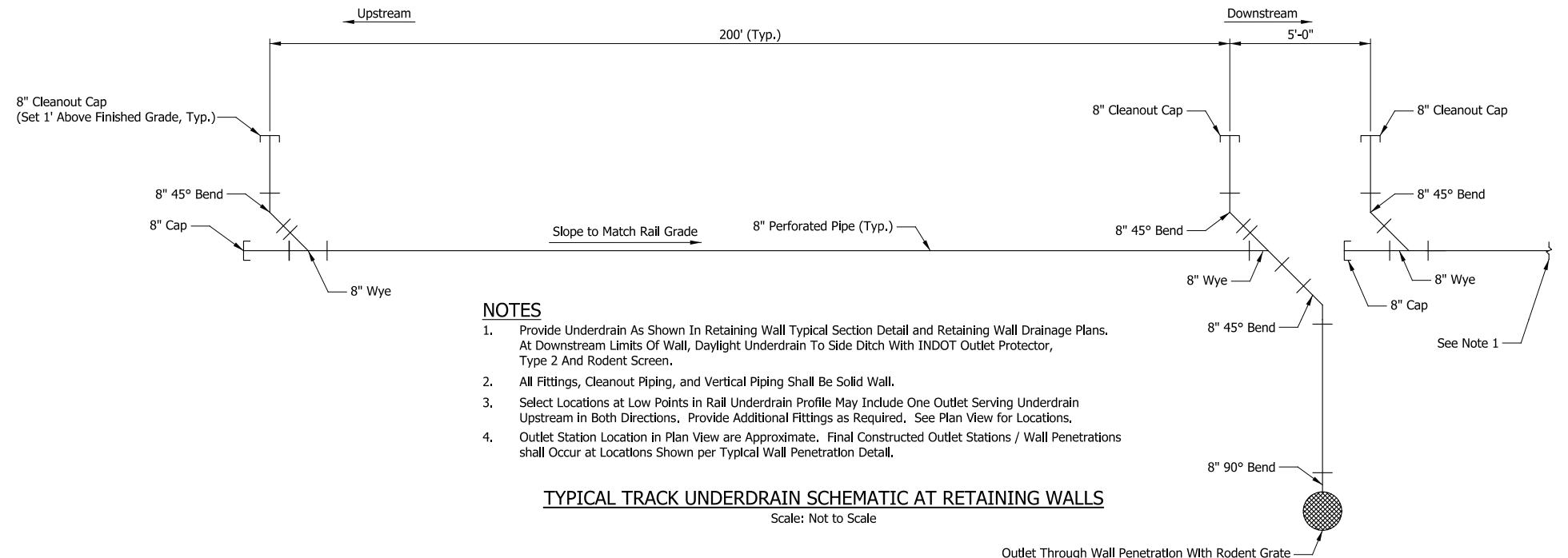


| ISSUE | DATE | DESCRIPTION |
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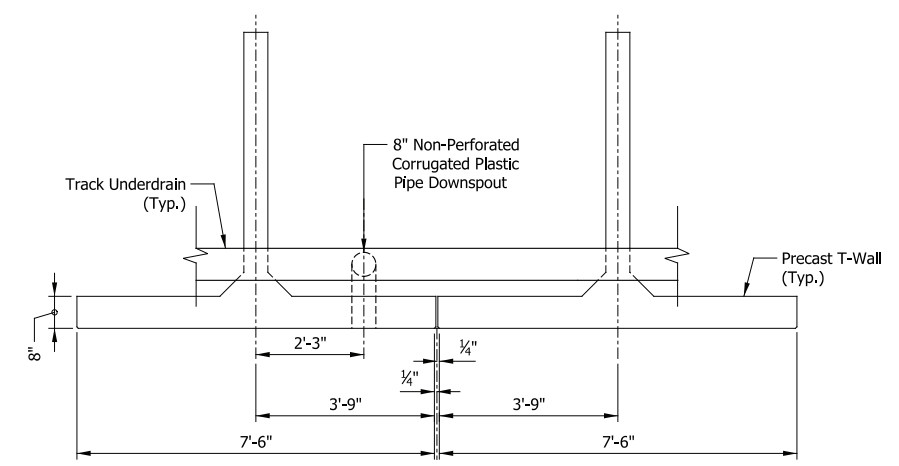
TYPICAL UNDERDRAIN SECTION
Scale: 1/2" = 1'-0"



NOTES

1. Provide Underdrain As Shown In Retaining Wall Typical Section Detail and Retaining Wall Drainage Plans. At Downstream Limits Of Wall, Daylight Underdrain To Side Ditch With INDOT Outlet Protector, Type 2 And Rodent Screen.
2. All Fittings, Cleanout Piping, and Vertical Piping Shall Be Solid Wall.
3. Select Locations at Low Points in Rail Underdrain Profile May Include One Outlet Serving Underdrain Upstream in Both Directions. Provide Additional Fittings as Required. See Plan View for Locations.
4. Outlet Station Location in Plan View are Approximate. Final Constructed Outlet Stations / Wall Penetrations shall Occur at Locations Shown per Typical Wall Penetration Detail.

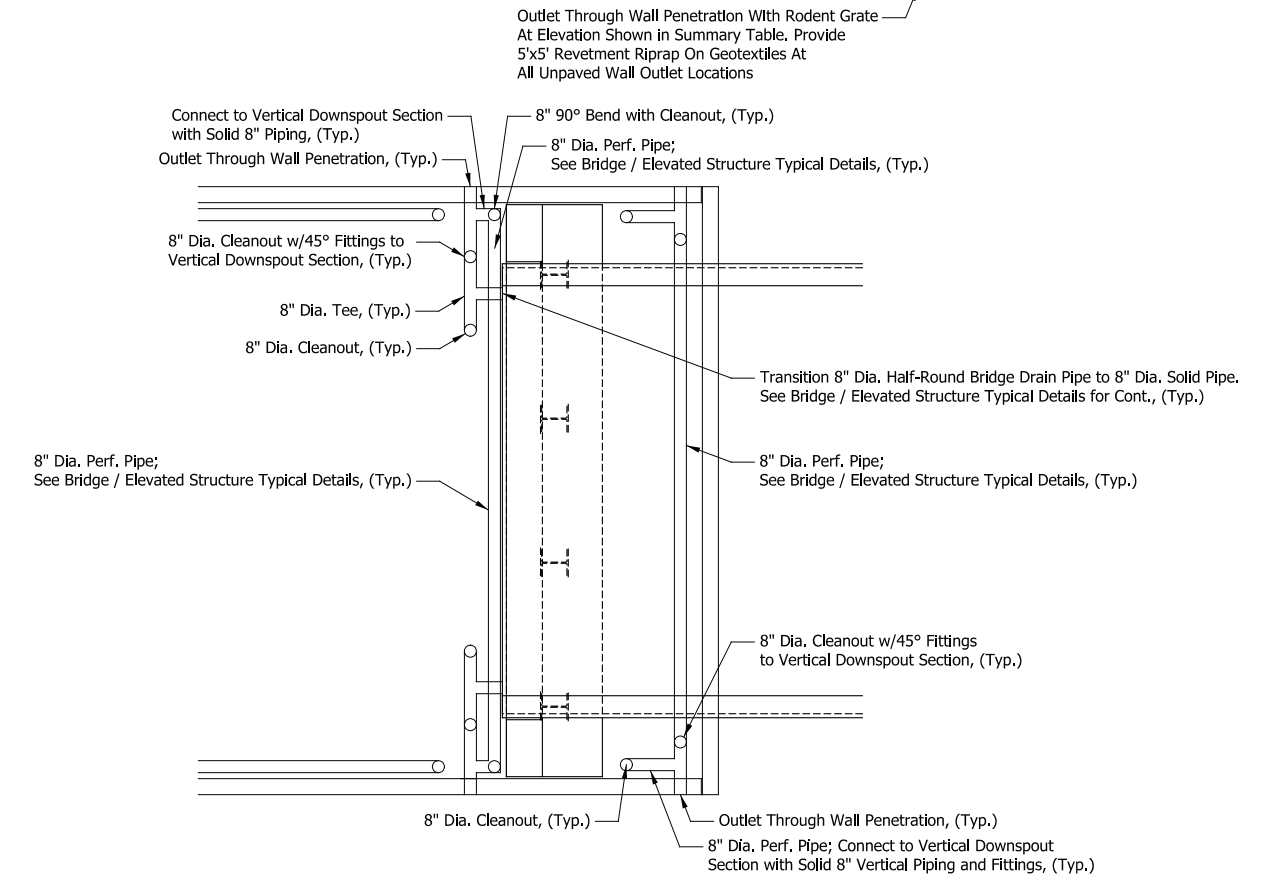
TYPICAL TRACK UNDERDRAIN SCHEMATIC AT RETAINING WALLS
Scale: Not to Scale



TYPICAL WALL PENETRATION DETAIL
Scale: 1/2" = 1'-0"

| Outlet Station | Outlet Invert | |
|----------------|---------------|-------|
| | Right | Left |
| 3642+45 | 589.2 | 589.8 |
| 3643+52 | 590.0 | |
| 3643+81 | | 589.1 |
| 3645+17 | | 588.4 |
| 3645+39 | 586.6 | |
| 3646+53 | 588.9 | 588.7 |
| 3647+38 | 588.7 | 588.4 |
| 3648+18 | | 590.0 |
| 3648+19 | 586.2 | |
| 3649+18 | | 587.2 |
| 3649+19 | 587.2 | |
| 3649+89 | | 587.5 |
| 3650+16 | 587.8 | |

UNDERDRAIN OUTLET ELEVATION SUMMARY TABLE



TYPICAL UNDERDRAIN PLAN DETAIL AT RETAINING WALL INTERFACE WITH BRIDGE OR ELEVATED STRUCTURE
Scale: Not to Scale

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

SERIES RW313-06 OF RW313-06

| | |
|-----------|----------|
| DESIGNED: | ASP-CAK |
| DRAWN: | ASP-CAK |
| CHECKED: | ASP-GAL |
| DATE: | 07/21/17 |

| | | |
|---|---------------------------------|-------------------|
| NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18 SINGLE TRACK | | |
| RETAINING WALLS 313N & 313S | | |
| DRAINAGE DETAILS | | |
| FILENAME | SHT_WL_ST_RW313_DrainDet_01.dgn | SHEET |
| SCALE | AS NOTED | 217 OF 218 |

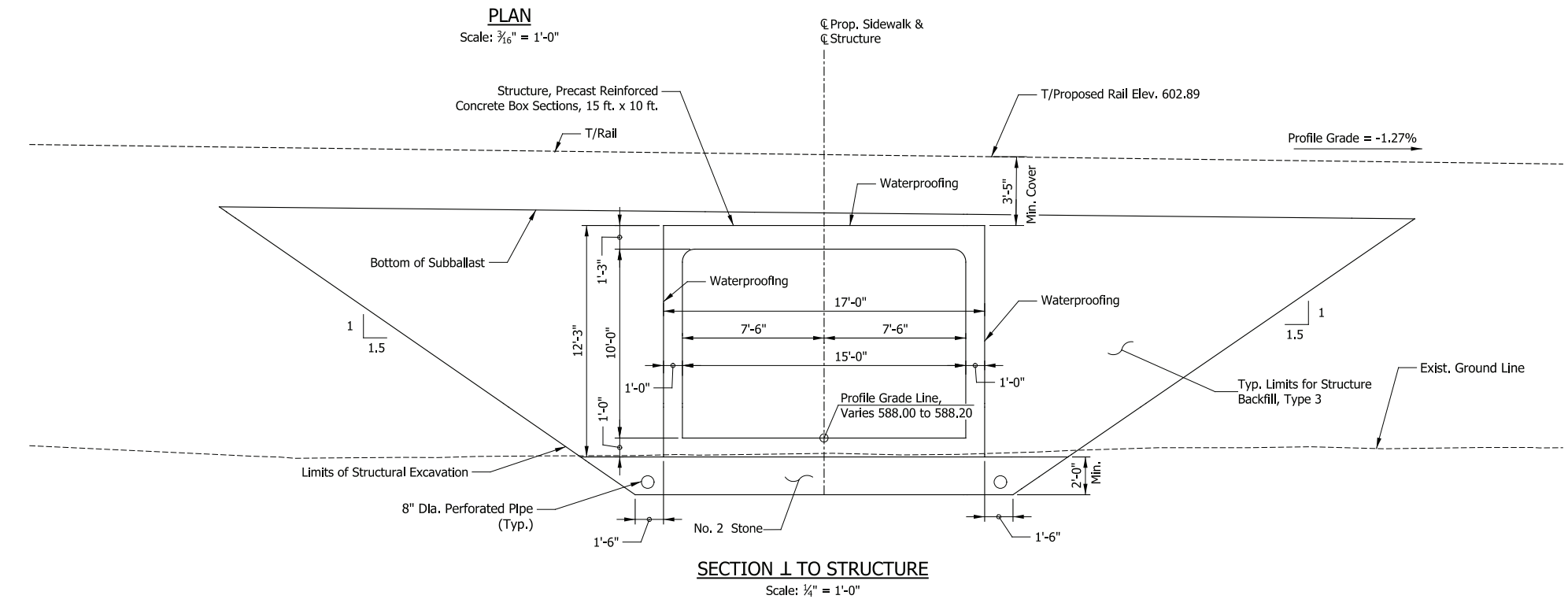
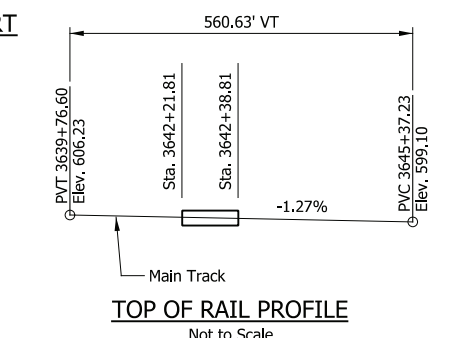
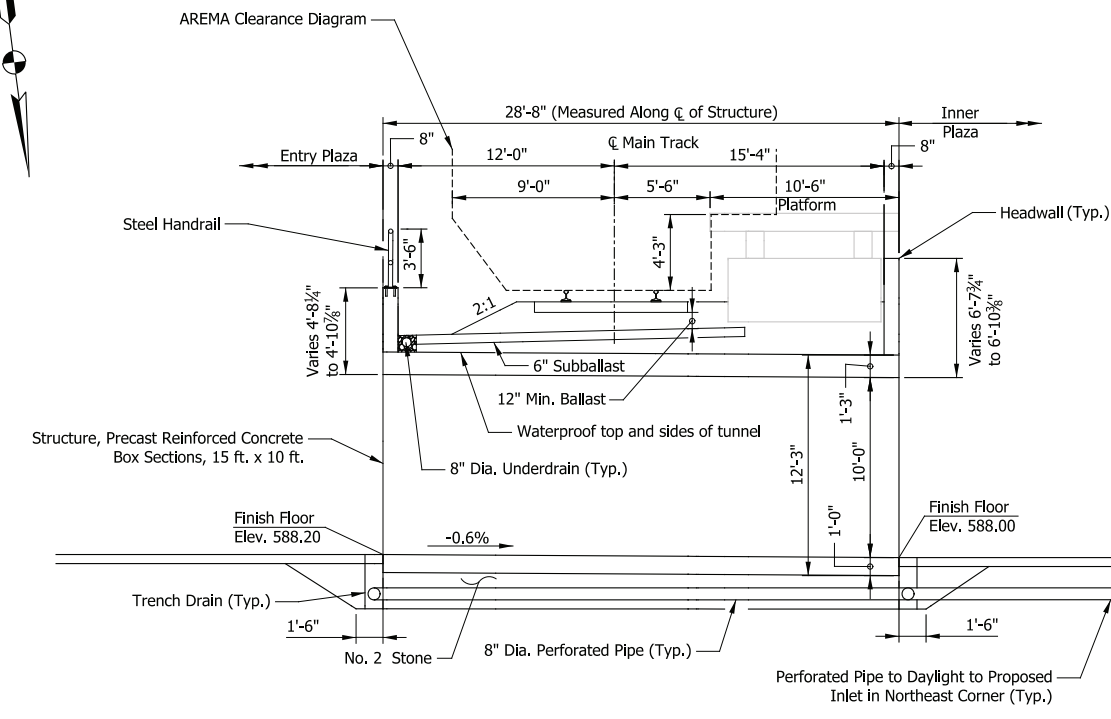
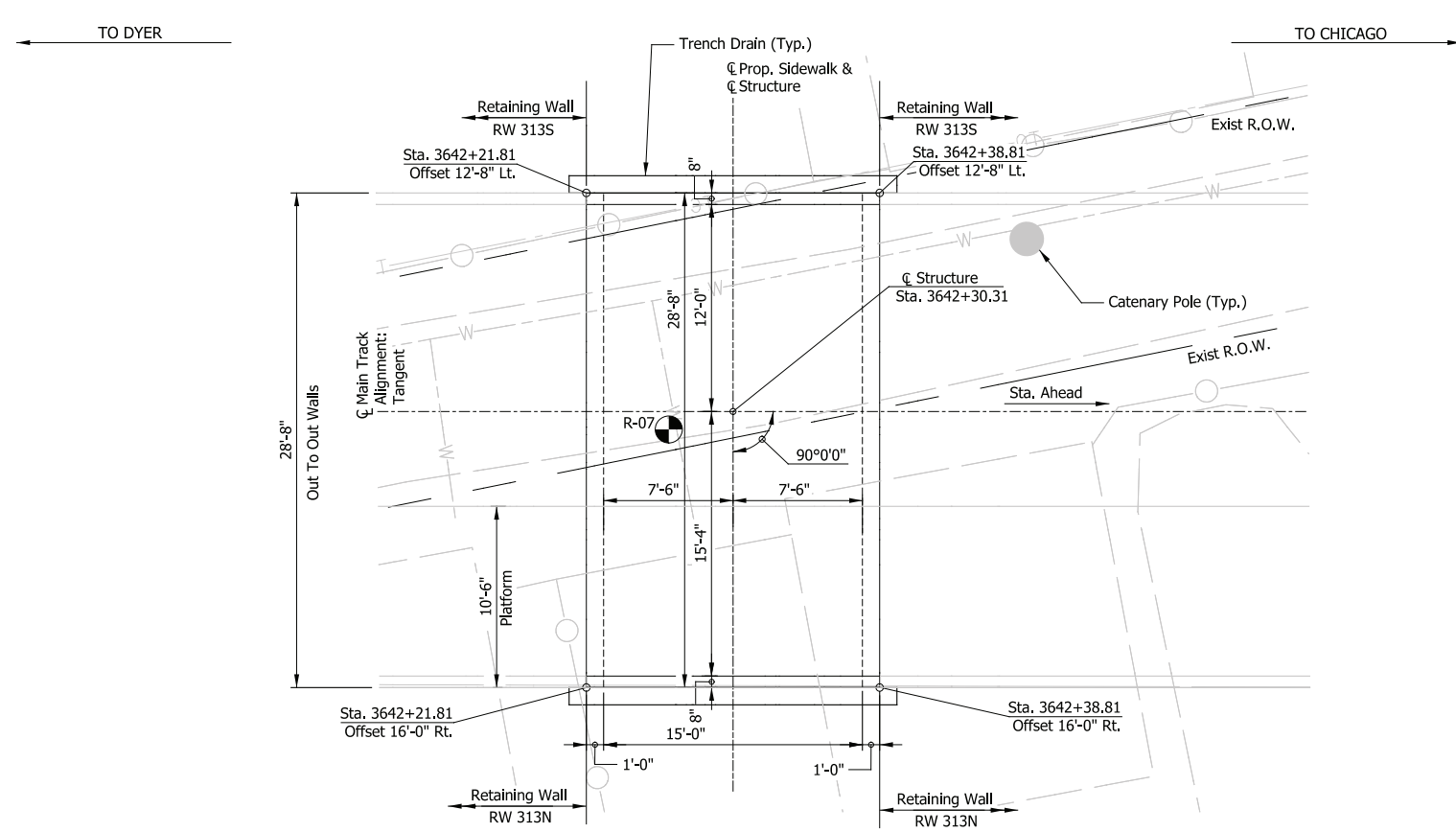
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DYER TO HAMMOND, INDIANA



DESIGN DATA

SPECIFICATIONS:
American Railway Engineering and Maintenance-of-Way Association (A.R.E.M.A.), Manual for Railway Engineering, 2016, Chapter 8 and 15.

LIVE LOADS:
Cooper E-50 and Ballast Train per Structural Design Criteria

DEAD LOADS:
Maximum Cover = 44 inches

DESIGN STRESSES:
Steel: $f_y = 50,000$ psi (ASTM A709 Gr 50)
Reinforcing: $f_y = 60,000$ psi (ASTM A615)
Concrete: $f_c = 4,000$ psi (Min.)

NOTES

1. For track geometry, see Track Plans

PRELIMINARY PLANS

NOT FOR CONSTRUCTION

SERIES PT403-01 OF PT403-01

NICTD - WEST LAKE CORRIDOR - MP WL 61.38 TO WL 69.18
SINGLE TRACK

**PEDESTRIAN TUNNEL 403
AT GATEWAY STATION
GENERAL PLAN & SECTIONS**

| | |
|-----------|--------------------------------|
| DESIGNED: | DLZ-TMB |
| DRAWN: | DLZ-TMB |
| CHECKED: | DLZ-MAK |
| DATE: | 07/21/17 |
| FILENAME: | SHT_WL_ST_PT403_GenPlan_01.dgn |
| SCALE: | AS NOTED |

SHEET **218 OF 218**

PLOT DATE: November 08, 2017 6:31:36 PM JMJIGUS

HDR

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www.hdrinc.com

DLZ

DLZ Indiana, LLC
2211 E. Jefferson Boulevard
South Bend, IN 46615
www.dlz.com

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NICTD

NORTHERN INDIANA COMMUTER
TRANSPORTATION DISTRICT
33 East Highway 12
Chesterton, Indiana 46304

**WEST LAKE
CORRIDOR**

DYER TO HAMMOND, INDIANA