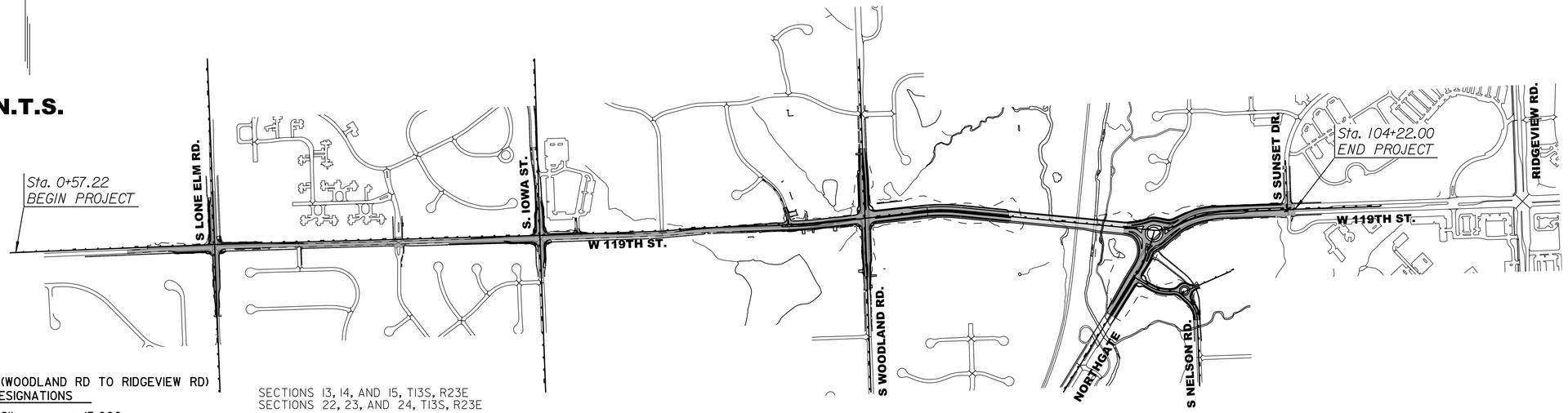
119th STREET
WOODLAND ROAD TO NORTHGATE STREET

THE CITY OF OLATHE, KANSAS
CITY PN 3–C–024–21
CARS PROJECT NO. 320001382

VOLUME (4 OF 4)

N.T.S.



SECTIONS 13, 14, AND 15, T13S, R23E
SECTIONS 22, 23, AND 24, T13S, R23E

119TH ST (WOODLAND RD TO RIDGEVIEW RD)
DESIGN DESIGNATIONS

AADT (2021)	= 15,000
AADT (2045)	= 30,000
DHV (2045)	= 3,500
D	= 55/45
T	= 2%
V	= 50 MPH (15 MPH ROUNDABOUT)
Access Ctrl.	= NONE
CLEAR ZONE	= 24'

119TH ST (WEST OF WOODLAND RD)
DESIGN DESIGNATIONS

AADT (2021)	= 6,000
AADT (2045)	= 14,500
DHV (2045)	= 1,400
D	= 60/40
T	= 3%
V	= 50 MPH
Access Ctrl.	= NONE
CLEAR ZONE	= 24'

WOODLAND RD (NORTH OF 119TH ST)
DESIGN DESIGNATIONS

AADT (2021)	= 6,000
AADT (2045)	= 16,000
DHV (2045)	= 1,400
D	= 50/50
T	= 3%
V	= 50 MPH
Access Ctrl.	= NONE
CLEAR ZONE	= 24'

LONE ELM RD (NORTH OF 119TH ST)
DESIGN DESIGNATIONS

AADT (2021)	= 9,000
AADT (2045)	= 12,000
DHV (2045)	= 1,100
D	= 60/40
T	= 2%
V	= 50 MPH
Access Ctrl.	= NONE
CLEAR ZONE	= 24'

NORTHGATE ST
DESIGN DESIGNATIONS

AADT (2021)	= 10,000
AADT (2045)	= 21,000
DHV (2045)	= 2,700
D	= 55/45
T	= 2%
V	= 50 MPH (XX MPH ROUNDABOUT)
Access Ctrl.	= NONE
CLEAR ZONE	= 24'

EXCEPTIONS:
35 MPH Merge Taper and Acceleration Lane lengths for Southbound Northgate from Eastbound 119th Street

NELSON RD
DESIGN DESIGNATIONS

AADT (2021)	= 2,000
AADT (2045)	= 6,000
DHV (2045)	= 800
D	= 55/45
T	= 2%
V	= 40 MPH (XX MPH ROUNDABOUT)
Access Ctrl.	= NONE
CLEAR ZONE	= 16'

IOWA ST (SOUTH OF 119TH ST)
DESIGN DESIGNATIONS

AADT (2021)	= 4,000
AADT (2045)	= 7,000
DHV (2045)	= 700
D	= 65/35
T	= 2%
V	= 40 MPH
Access Ctrl.	= NONE
CLEAR ZONE	= 16'

Project appears to conform to Johnson County CARS program requirements

Scott Karaglorgas, P.E. Date
Johnson County Public Works

APPROVED BY:
The City of Olathe, Kansas

Nate Baldwin, P.E. Date

GROSS LENGTH OF PROJECT	13,807.10 FT.
NET LENGTH OF PROJECT	13,807.10 FT.
NET LENGTH OF BRIDGES	854.00 FT.
NET LENGTH OF ROAD	12,953.10 FT.

Note:
The information shown in these plans concerning the type and location of underground utilities is not guaranteed to be accurate or all inclusive. The Contractor is responsible for contacting all utility companies for field location of all underground utility lines prior to any excavation and for making his/her own verification as to the type and location of underground utilities as may be necessary to avoid damage thereto. The Contractor shall pothole and survey all utility crossings prior to construction of any portion of storm sewer, underdrains, conduit, water/sewer lines & laterals, and any other subsurface element of the project. This Survey information shall be forwarded to the Engineer for review. The Contractor shall not begin construction on any subsurface element on the project without the approval of the Engineer. Utility coordination and potholing/surveying shall be subsidiary to other bid items. Utilities damaged due to the negligence of the Contractor to obtain the exact utility locations shall be repaired or replaced at the Contractor's expense.

Drawn By : MGEHL Plotted : 08-29-24
File : c:\pwworking\central01\d3157531\V3-119th_Title-V4.dgn

SHEET NO. 463 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By

Title Sheet
119th Street

INDEX OF BRIDGE DRAWINGS

Sheet No.	Drawing	Sheet No.	Drawing	Sheet No.	Drawing	Sheet No.	Drawing
482	Index of Bridge Drawings	535	Deck Plan - Unit 1 (1 of 2)	585	Pier No. 3 (2 of 2)	640	Corral Rail Details (3 of 5)
483	General Notes (1 of 2)	536	Deck Plan - Unit 1 (2 of 2)	586	Pier No. 4 (1 of 2)	641	Corral Rail Details (4 of 5)
484	General Notes (2 of 2)	537	Deck Plan - Unit 2 (1 of 3)	587	Pier No. 4 (2 of 2)	642	Corral Rail Details (5 of 5)
485	Westbound Summary of Bridge Quantities	538	Deck Plan - Unit 2 (2 of 3)	588	Pier No. 5 (1 of 2)	643	Wingwall Barrier
486	Eastbound Summary of Bridge Quantities	539	Deck Plan - Unit 2 (3 of 3)	589	Pier No. 5 (2 of 2)	644	Expansion Joint Details (1 of 4)
487	Contour Map	540	Typical Section	590	Pier No. 6 (1 of 2)	645	Expansion Joint Details (2 of 4)
488	Grading Plan (1 of 2)	541	Deck Drains and Drainage Details	591	Pier No. 6 (2 of 2)	646	Expansion Joint Details (3 of 4)
489	Grading Plan (2 of 2)	542	Sidewalk Curb and Drainage Details	592	Pier No. 7 (1 of 2)	647	Expansion Joint Details (4 of 4)
		543	Elastomeric Bearing Devices	593	Pier No. 7 (2 of 2)	648	Street Lighting Foundation Blister Details
	Westbound Bridge Sheets	544	Pavement Elevations and Camber (1 of 2)	594	Framing Plan (1 of 3)	649	Bridge Conduit Plan
490	Construction Layout (1 of 2)	545	Pavement Elevations and Camber (2 of 2)	595	Framing Plan (2 of 3)	650	Handrail Details (1 of 8)
491	Construction Layout (2 of 2)	546	Bottom of Deck Elevations	596	Framing Plan (3 of 3)	651	Handrail Details (2 of 8)
492	Engineering Geology (1 of 2)	547	Haunch Diagram	597	Framing Details - NU63 & NU70	652	Handrail Details (3 of 8)
493	Engineering Geology (2 of 2)	548	Corral Rail Details (1 of 4)	598	Intermediate Diaphragm Details	653	Handrail Details (4 of 8)
494	Abutment No. 1 (1 of 3)	549	Corral Rail Details (2 of 4)	599	NU63 Beam Details - Span 1	654	Handrail Details (5 of 8)
495	Abutment No. 1 (2 of 3)	550	Corral Rail Details (3 of 4)	600	NU63 Beam Details - Span 2	655	Handrail Details (6 of 8)
496	Abutment No. 1 (3 of 3)	551	Corral Rail Details (4 of 4)	601	NU63 Beam Details - Span 3 Beam A	656	Handrail Details (7 of 8)
497	Abutment No. 2 (1 of 3)	552	Wingwall Barrier	602	NU63 Beam Details - Span 3 Beam B	bre-fe8	Handrail Details (8 of 8)
498	Abutment No. 2 (2 of 3)	553	Expansion Joint Details (1 of 3)	603	NU63 Beam Details - Span 3 Beam C	657	Bill of Reinforcing (1 of 4)
499	Abutment No. 2 (3 of 3)	554	Expansion Joint Details (2 of 3)	604	NU63 Beam Details - Span 3 Beam D	658	Bill of Reinforcing (2 of 4)
500	Abutment Aggregate Drain	555	Expansion Joint Details (3 of 3)	605	NU63 Beam Details - Span 3 Beam E	659	Bill of Reinforcing (3 of 4)
501	Slope Drain	556	Street Lighting Foundation Blister Details	606	NU63 Beam Details - Span 4	660	Bill of Reinforcing (4 of 4)
502	Pier No. 1 (1 of 2)	557	Bridge Conduit Plan	607	NU70 Beam Details - Span 5		
503	Pier No. 1 (2 of 2)	558	Handrail Details (1 of 7)	608	NU70 Beam Details - Span 6 Beam A		
504	Pier No. 2 (1 of 2)	559	Handrail Details (2 of 7)	609	NU70 Beam Details - Span 6 Beam B		
505	Pier No. 2 (2 of 2)	560	Handrail Details (3 of 7)	610	NU70 Beam Details - Span 6 Beam C		
506	Pier No. 3 (1 of 2)	561	Handrail Details (4 of 7)	611	NU70 Beam Details - Span 6 Beam D		
507	Pier No. 3 (2 of 2)	562	Handrail Details (5 of 7)	612	NU70 Beam Details - Span 6 Beam E	661	Aesthetic Treatment
508	Pier No. 4 & 5 (1 of 2)	563	Handrail Details (6 of 7)	613	NU70 Beam Details - Span 7	662	MSE Wall Plan and Profile
509	Pier No. 4 & 5 (2 of 2)	564	Handrail Details (7 of 7)	614	NU70 Beam Details - Span 8	663	MSE Wall Details
510	Pier No. 6 (1 of 2)	565	Bill of Reinforcing (1 of 3)	615	Standard NU63 Prestressed Beam Details	664	Berm and Slope Protection
511	Pier No. 6 (2 of 2)	566	Bill of Reinforcing (2 of 3)	616	Standard NU70 Prestressed Beam Details	665	Bridge Excavation
512	Pier No. 7 (1 of 2)	567	Bill of Reinforcing (3 of 3)	617	Pier Diaphragm Details (Pier No. 1 & 2)	666	Railroad Clearance and Track Protections
513	Pier No. 7 (2 of 2)			618	Pier Diaphragm Details (Pier No. 3)	667	Standard Pile Details
514	Framing Plan (1 of 3)			619	Pier Diaphragm Details (Pier No. 4)	668	Supports and Spacers
515	Framing Plan (2 of 3)			620	Pier Diaphragm Details (Pier No. 5)		
516	Framing Plan (3 of 3)			621	Pier Diaphragm Details (Pier No. 6)		
517	NU63 Beam Details - Span 1		Eastbound Bridge Sheets	622	Pier Diaphragm Details (Pier No. 7)		
518	NU63 Beam Details - Span 2	568	Construction Layout (1 of 2)	623	Deck Plan - Unit 1 (1 of 2)		
519	NU63 Beam Details - Span 3 Beam A	569	Construction Layout (2 of 2)	624	Deck Plan - Unit 1 (2 of 2)		
520	NU63 Beam Details - Span 3 Beam B	570	Engineering Geology (1 of 2)	625	Deck Plan - Unit 2 (1 of 5)		
521	NU63 Beam Details - Span 3 Beam C	571	Engineering Geology (2 of 2)	626	Deck Plan - Unit 2 (2 of 5)		
522	NU63 Beam Details - Span 3 Beam D	572	Abutment No. 1 (1 of 3)	627	Deck Plan - Unit 2 (3 of 5)		
523	NU63 Beam Details - Span 4	573	Abutment No. 1 (2 of 3)	628	Deck Plan - Unit 2 (4 of 5)		
524	NU70 Beam Details - Span 5	574	Abutment No. 1 (3 of 3)	629	Deck Plan - Unit 2 (5 of 5)		
525	NU63 Beam Details - Span 6	575	Abutment No. 2 (1 of 3)	630	Typical Section		
526	NU63 Beam Details - Span 7	576	Abutment No. 2 (2 of 3)	631	Deck Drains and Drainage Details		
527	NU63 Beam Details - Span 8	577	Abutment No. 2 (3 of 3)	632	Sidewalk Curb and Drainage Details		
528	Standard NU63 Prestressed Beam Details	578	Abutment Aggregate Drain	633	Elastomeric Bearing Devices		
529	Standard NU70 Prestressed Beam Details	579	Slope Drain	634	Pavement Elevations and Camber (1 of 2)		
530	Pier Diaphragm Details (Pier No. 1 & 2)	580	Pier No. 1 (1 of 2)	635	Pavement Elevations and Camber (2 of 2)		
531	Pier Diaphragm Details (Pier No. 3)	581	Pier No. 1 (2 of 2)	636	Bottom of Deck Elevations		
532	Pier Diaphragm Details (Pier No. 4 & 5)	582	Pier No. 2 (1 of 2)	637	Haunch Diagram		
533	Pier Diaphragm Details (Pier No. 6)	583	Pier No. 2 (2 of 2)	638	Corral Rail Details (1 of 5)		
534	Pier Diaphragm Details (Pier No. 7)	584	Pier No. 3 (1 of 2)	639	Corral Rail Details (2 of 5)		

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

SHEET NO. 482 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.

119th Street
INDEX OF BRIDGE DRAWINGS

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_Br_Index.dgn

DESIGN DATA

CONSTRUCTION SPECIFICATIONS:
Kansas Department of Transportation, Standard Specifications for State Road and Bridge Construction, 2015 Edition, and Special Provisions.

DESIGN SPECIFICATIONS:
AASHTO LRFD Bridge Design Specifications, 2020 Edition.

DESIGN LOADING:

Live Load	HL-93
Dead Load	Design Dead Load includes an allowance of 15 psf for future wearing surface

UNIT STRESSES:

Concrete (Grade 3.0)	f'c = 3.0 ksi
Concrete (Grade 4.0)	f'c = 4.0 ksi
Concrete (Grade 4.0) (AE)	f'c = 4.0 ksi
Concrete (Grade 4.0) (AE) (SA) (MPC)	f'c = 4.0 ksi
Prestressed Beam Concrete	f'c = 9.0 ksi
Reinforcing Steel (Grade 60)	fy = 60 ksi
Prestressed Strand	0.6"Ø Grade 270 uncoated 7-wire, low-relaxation strands.

GEOLOGY REPORT: The geotechnical information shown on the plans is the best information available. A copy of the Bridge Geotechnical Engineering Report can be found in the Project Specifications. This report is for information only.

CONCRETE: Superstructure concrete is bid as Concrete (Grade 4.0) (AE) (SA). Substructure concrete is bid as Concrete (Grade 4.0) (AE). The Contractor may use Concrete (Grade 4.0) in the abutments below the construction joint. Bevel all exposed edges of all concrete with a 3/4" triangular molding, except as otherwise noted on the plans.

PRESTRESSED BEAM CONCRETE: Use air entrained concrete with select coarse aggregate as specified in the Special Provisions. The release strength and 28 day strength requirements shall be as noted on the plans. Submit mix designs to the Engineer for approval.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60. Spiral bars may meet the requirements of either ASTM A615 (Gr. 40 or 60) or AASHTO M 32, and are included in the bid item "Reinforcing Steel (Gr. 60)". Where non-coated bars come in contact with epoxy coated bars, they need not be coated.

DECK PROTECTIVE SYSTEM: Epoxy coat all reinforcing steel in the deck slab, sidewalk curb and bridge rails.

BRIDGE DECK GROOVING: After the bridge deck has cured, transversely groove deck in accordance with KDOT Specifications. All grooving will be perpendicular to the centerline of the bridge.

BRIDGE EXCAVATION: Elevation 944.0 shall designate the Excavation Boundary Plan of Class I and Class II. Excavation: Class I above the plane, Class II below the plane. See the Bridge Excavation sheet for the limits of pay excavation.

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling.

PILING: Drive Westbound Abutment No. 1 piling, except the two northernmost piles, and Eastbound Abutment No. 1 piling to bear upon limestone. Pile points are required at Westbound and Eastbound Abutment No. 1 driven piles. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling. Drive piling to the Pile Driving Formula Load:

Westbound Abutment No. 1 94 Tons
Eastbound Abutment No. 1 96 Tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of the Pile Driving Formula Driving Load. At any location where problems are experienced, pile damage is suspected, or the Pile Driving Formula Load occurs significantly above the design pile tip elevation, the Engineer may request that the Pile Driving Analyzer (PDA) equipment be used. All steel piles will be Grade 50.

GENERAL NOTES

PRE-DRILLED PILE HOLES: Westbound and Eastbound Abutment No. 2 steel piles shall be pre-drilled to a minimum of 5 feet into competent limestone at approximate elevation of 941.5. The bottom of the excavation shall be cleaned of loose material and water before placing the pile and concrete. The pile shall be tapped or dropped into place to make sure that the pile is seated in the bedrock formation. After pile placement, the pre-drilled holes shall be backfilled with concrete (Grade 3.0) from the bottom of the pre-drilled holes to the top of the sound rock or a minimum of 5 feet. The upper 15 feet below top of casing shall remain empty, while the remaining portion (area between concrete and upper 15 feet) of the pre-drilled pile holes should be backfilled with 3/8-inch pea gravel. If competent limestone is encountered above the estimated elevation, additional pre-drilling beyond 5 feet into competent limestone may be required to ensure there is enough length for the upper 15 feet below top of casing to remain empty.

The two northernmost piles at Westbound Abutment No. 1 shall be pre-drilled a minimum of 5 feet into competent limestone at approximate elevation of 966.1. The bottom of the excavation shall be cleaned of loose material and water before placing the pile and concrete. The pile shall be tapped or dropped into place to make sure the pile is seated in the bedrock formation. After pile placement, the pre-drilled holes shall be backfilled with concrete (Grade 3.0) from the bottom of the pre-drilled holes to the top of the sound rock and a minimum of 5 feet. The hole shall be backfilled with 3/8-inch pea gravel.

PIER BEAM CONSTRUCTION: Cure the columns as required by the KDOT Specifications before beginning the pier beam construction (placing resteel or formwork). Do not drill and grout bolts or other devices into the columns used for falsework support unless shown on the plans. Cure the columns as required by the KDOT Specifications before placing pier beam concrete. Do not remove falsework used to support the pier beam until the pier beam concrete has cured as required by the KDOT Specifications. Do not set girders or beams on the pier beam until after the falsework is removed or the pier beam concrete has 0.75f'c strength as tested.

COLUMN CONSTRUCTION: Cure the drilled shaft footing as required by the KDOT Specifications before beginning the column construction (placing resteel or formwork). Do not place cast-in-place shear bolts, coil inserts or other devices used as falsework support into he column without the approval of the Engineer. Do not remove the column formwork without the approval of the Engineer. Curing shall continue after the formwork is removed by the KDOT Specifications.

CAST STEEL PILE POINTS: Pile points are required for all piles at Westbound Abutment No. 1, except the two northernmost piles, and all piles at Eastbound Abutment No. 1 to minimize damage to the pile as it contact the Plattsburg Limestone Formation. The pile point shall be a one piece unit of cast steel. Weld the cast steel pile point to the pile as specified by the manufacturer. See KDOT Specifications for the pile point requirements.

PILE SPLICE LOCATION: Pile splice locations and weld testing criteria will follow the "Standard Pile Details" Sheet at the abutments.

DRILLED SHAFTS: Construct the drilled shafts using the cased method. A permanent casing is required. All excavation, concrete, reinforcing steel, pipes for Sonic Testing, casings, labor, and incidentals necessary to complete the shaft as shown on the details and as directed by KDOT Specifications shall be included in the bid item "Drilled Shafts (60")" or "Drilled Shafts (72")". Use Concrete (Grade 4.0) in the drilled shaft. In no case shall the bottom of the drilled shaft be placed higher than the elevation shown unless otherwise directed by the Engineer.

Drill an Investigative Core Hole at the locations shown on the plans. See KDOT Specifications.

If the location of the top of the shaft is such that the casing cannot be overtopped to remove concrete impurities, provide extra casing length to over-pour the concrete in the shaft and chip back to the plan elevation of the top of the shaft.

If the permanent casing is to be corrugated metal pipe (CMP) then it will be galvanized.

PERMANENT CASING: See KDOT Specifications.

SONIC TESTING: Equip all drilled shafts with piping to allow sonic testing to be done. Install pipes at locations shown on the plans. All wet pours will be tested. Also, the Engineer has the option to require sonic, non-destructive, integrity testing at any location of concern. Sonic testing shall be paid for at the unit price set for "Sonic Test" (Drilled Shaft) (Set Price). If the sonic testing indicates defective concrete in the shaft, the Engineer will measure the first sonic test for payment, and the Contractor is responsible for subsequent sonic testing of that shaft. Report test results directly to Engineer. No work will be done above the top of drilled shaft without the approval of the Engineer.

BACKFILL COMPACTION: Compact backfill at the abutments.

SLOPE PROTECTION: Place Slope Protection (Aggregate) at Westbound & Eastbound Abutment No. 1 and Slope Protection (Riprap Stone) at Westbound & Eastbound Abutment No. 2 and at the Backwater Channel to the limits and thickness shown on the plans or as directed by the Engineer. Use Light 24" Riprap Stone as described in Division 1100 at Eastbound and Westbound Abutment No. 2. Use Light 18" Riprap Stone as described in Division 1100 at the Backwater Channel.

BEDDING FOR SLOPE PROTECTION: Place Bedding for Slope Protection to the limits and thickness shown on the plans or as directed by the Engineer. Bedding shall meet the requirements of Stone for Filter Course (Type III) per KDOT Specifications.

ABUTMENT AGGREGATE DRAIN: See the General Notes on the "Abutment Aggregate Drain" sheet.

BRIDGE BACKWALL PROTECTION SYSTEM: See the General Notes on the "Abutment Aggregate Drain" sheet.

CAMBER: Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for prestress camber, concrete dead load deflection and, if necessary, vertical curvature. After the prestressed beams are erected measure the camber in the field by taking a profile of each beam. Correct any variation between the actual camber and concrete dead load deflection shown in the plans by varying the depth of the concrete fillets over the beam so that the finished floor is constructed to the theoretical grade. The minimum depth of the slab over the beam shall be 8 1/2 inches. Prior to shipping, the camber shall be no greater than the design camber +1/2". The design camber is equal to the 50 day camber shown in the plans.

The theoretical amount of concrete required for the fillets is 69.5 C.Y. for the Westbound Bridge and 83.9 C.Y. for the Eastbound Bridge. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

CONCRETE PLACING SEQUENCE: The sequence of placing concrete in the slab shall be as shown, or the Contractor may submit an alternate placing sequence for review. Submit the alternate placing sequence to the Engineer at the Preconstruction Conference. Include the proposed rate of concrete placement in C.Y./hour, the plant capacity, placement direction, construction joint location, a description of the equipment used in placing the concrete, proposed admixtures, and the quantity of concrete in each placing segment. Any additional cost for the Contractor's alternate plan of placing concrete, including admixtures, shall be at the Contractor's expense and shall be considered subsidiary to the bid item "Concrete (Grade 4.0) (AE) (SA) (MPC)". Approval of the Contractor's alternate sequence is required prior to placement of concrete in the deck. Place and hand vibrate all concrete for the pier diaphragms and the abutments above the construction joint to the bottom of the deck just prior to the normal paving train operations. Do this work in a manner to avoid a cold joint in either the abutments or in the diaphragms.

SUBSTRUCTURE WATERPROOFING MEMBRANE: Apply a Substructure Waterproofing Membrane, in accordance with KDOT Specifications, to the top of the Westbound and Eastbound Pier No. 3 capbeam after the bearings are set and the beams are erected. Apply the membrane within the limits shown on the plans to drain the bridge seat and the areas around the bearings. Apply the membrane to the limits shown on the plans to the pier diaphragms. Repair any damage done to the membrane while the bridge is under construction. All work shall be directed and approved by the Engineer.

ERECTION ELEVATION CHECKS: After the abutment and pier concrete has cured and before setting any prestressed concrete beams, present verification to the Engineer that the elevations at the bearings match plan elevation (± 1/4").

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_Br_Gen_Notes1.dgn

SHEET NO. 483 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

By	Description	Date	Rev.
.		.	.
.		.	.
.		.	.

119th Street
GENERAL NOTES (1 OF 2)

GENERAL NOTES

ERECTION PLANS: This is a Category B Structure. Submit detailed Erection Plans to the Engineer at least 4 weeks before beginning the erection process. Portions of the submitted details shall bear the seal of a licensed Professional Engineer. Identify, on the Erection Plans, the Erection Supervisor required by KDOT Specifications. No structural erection work will begin without approved erection plans.

CONSTRUCTION LOADS: Limited traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

CONSTRUCTION JOINTS: The construction joints shown are optional with the Contractor. If used, place the construction joints only at locations shown or at locations approved by the Engineer.

OPTIONAL PERMANENT STEEL DECK FORMS: At the Contractor's option, an approved permanent steel deck form may be used in place of conventional wood forms. Use Type I steel deck forms conforming to ASTM A446. Support hangers shall be a non welded system. Do not weld to any flange. The pay quantity of the concrete slab shall be computed from the nominal slab dimension with no allowance for corrugations. No direct payment will be made for deck forms or any additional concrete. Permanent steel deck forms shall be used inside the girders (non exposed area) only.

Corrugations of permanent steel deck forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for beam loading.

TEMPERATURE: The design temperature for all dimensions is 60°F.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

DIMENSIONS: All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

RAILROAD PROTECTION: Execute the work in such a manner and take any precautions necessary to prohibit broken concrete and other debris from falling on and damaging the rails, ties, ballast or other railroad property. As much as possible, do the work so as not to interfere with the normal use of the tracks. BNSF Railroad and the Engineer shall approve the methods of protection proposed by the Contractor before any work begins.

Any shoring system that impacts the Railroad operations and/or supports Railroad embankment shall be designed and constructed per the Railroad Temporary Shoring requirements.

All demolition within the Railroad right-of-way and/or demolition that may impact the Railroad tracks or operations shall comply with the Railroad demolition requirements.

Erection over the Railroad right-of-way shall be designed to cause no interruption to all Railroad operations.

The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.

The proposed grade separation project shall not change the quantity and/or characteristics of the flow in the Railroad ditches and/or drainage structures.

The contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.

For Railroad coordination please refer to the Railroad's Coordination Requirements as part of the Specifications or Special Provisions of the project.

Temporary Construction Clearances shall include clearances for falsework.

All permanent clearances shall be verified before project closeout.

CONCRETE MASONRY COATING: Exposed concrete faces designated in the plans will be coated with an approved pigmented sealer within the limits as detailed in the plans. All proposed and existing surfaces to be coated shall be prepared with a light brush sandblast prior to application. A non-petroleum base form release agent shall be used on formed surfaces to be coated. Use of curing compound on surfaces to be coated is prohibited. All labor, materials and incidentals required to perform this work shall be paid for as "Concrete Masonry Coating" in accordance with the KDOT Specifications.

SHEET NO. 484 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

By	Description	Date	Rev.
.		.	.
.		.	.
.		.	.

119th Street
GENERAL NOTES (2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_Br_Gen_Notes2.dgn

SUMMARY OF QUANTITIES

	Excavation		Concrete		Reinforcing Steel													
	Class I Cu.Yds.	Class II Cu.Yds.	(Grade 4.0) (AE) Cu. Yds.	(Grade 4.0) (AE) (SA) (MPC) Cu. Yds.	(Grade 60) (Epoxy Coated) Lbs.	(Grade 60) Lbs.	Piles (Steel) (HP14X89) Lin. Ft.	Cased Pile Lin. Ft.	Pre-Drilled Pile Holes Lin. Ft.	Cast Steel Pile Points Each	Drilled Shaft (60")(Cased) Lin. Ft.	Drilled Shaft (72")(Cased) Lin. Ft.	Core Hole (Investigative) Lin. Ft.	Sonic Test (Drilled Shaft) (Set Price) Each	Prestressed Concrete Beam (NU63) Lin. Ft.	Prestressed Concrete Beam (NU70) Lin. Ft.	Bearing (Steel Reinforced Elastomeric) Each	Bridge Handrail (Metal) (Special) Lin. Ft.
Abutment No. 1	131.3	-	22.5	*	*	1,949	197.0	-	57.6	5	-	-	-	-	-	-	-	-
Pier No. 1	16.8	-	62.9	-	288	9,871	-	-	-	-	48.0	-	22.0	-	-	-	-	-
Pier No. 2	-	-	89.1	-	288	14,580	-	-	-	-	78.0	-	32.0	-	-	-	-	-
Pier No. 3	-	2.8	93.7	-	3354	12,222	-	-	-	-	84.0	-	34.0	-	-	-	8	-
Pier No. 4	18.9	3.2	111.5	-	288	17,731	-	-	-	-	-	87.0	35.0	-	-	-	-	-
Pier No. 5	9.5	-	103.8	-	288	16,346	-	-	-	-	-	88.5	36.0	-	-	-	-	-
Pier No. 6	-	-	79.6	-	288	12,943	-	-	-	-	72.0	-	30.0	-	-	-	-	-
Pier No. 7	-	2.8	75.2	-	-	12,223	-	-	-	-	72.0	-	30.0	-	-	-	8	-
Abutment No. 2	98.3	-	21.2	*	*	1,821	-	259.0	236.3	-	-	-	-	-	-	-	-	-
Substr. Total	274.8	8.8	659.5	-	4,794	99,686	197.0	259.0	293.9	5	354.0	175.5	219.0	1	-	-	-	-
Superstr. Total	-	-	-	1410.9	408,764	-	-	-	-	-	-	-	-	-	2912.5	516.0	16	895.5
Total	275	9	659.5	1410.9	413,560	99,690	197	259	294	5	354	176	219	1	2913	516	16	896

SUMMARY OF QUANTITIES

	Bridge Handrail (Metal) (Ped.) Lin. Ft.	Bridge Handrail (Metal) (RR) Lin. Ft.	Abutment Aggregate Drain Cu. Yds.	Bridge Backwall Protection System Sq. Yds.	Substructure Waterproofing Membrane Sq. Yds.	Bridge Drainage System Lump Sum	Bridge Deck Grooving Sq. Yds.	Electric Conduit (2.0") (Non-Metallic) Lin. Ft.	Slope Drain (Stone) Lin. Ft.	Slope Protection (Aggregate) Cu. Yds.	Slope Protection (Riprap Stone) Cu. Yds.	Bedding for Slope Protection Cu. Yds.	Expansion Device (Sliding Plate) Lin. Ft.	Simulated Stone Masonry Stain Sq. Yds.	Concrete Masonry Coating Sq. Yds.
Abutment No. 1	-	-	37.2	48.1	-	-	-	-	108.2	339	-	-	-	-	-
Pier No. 1	-	-	-	-	8.7	-	-	-	-	-	-	-	-	-	-
Pier No. 2	-	-	-	-	8.7	-	-	-	-	-	-	-	-	-	-
Pier No. 3	-	-	-	-	55.0	-	-	-	-	-	354	177	-	-	-
Pier No. 4	-	-	-	-	9.4	-	-	-	-	-	-	-	-	-	-
Pier No. 5	-	-	-	-	9.4	-	-	-	-	-	-	-	-	-	-
Pier No. 6	-	-	-	-	7.9	-	-	-	-	-	-	-	-	-	-
Pier No. 7	-	-	-	-	8.6	-	-	-	-	-	-	-	-	-	-
Abutment No. 2	-	-	34.9	45.2	-	-	-	-	71.1	-	667	267	-	-	-
Substr. Total	-	-	72.1	93.3	107.7	-	-	-	179.3	339	1021	444	-	-	-
Superstr. Total	901.7	316.0	-	-	-	Lump Sum	2173.1	822.5	-	-	-	-	33.3	452.3	507.5
Total	902	316	72	93	108	Lump Sum	2173	823	179	339	1021	444	33	452	508

LRFD DESIGN FOUNDATION LOADS:

	Loading	Factored Load (tons)	Factored Resistance (tons)
Abutment No. 1 Piles	Strength I	94	326
Pier No. 1 Drilled Shafts	Strength I	569	1,162
Pier No. 2 Drilled Shafts	Strength I	596	1,804
Pier No. 3 Drilled Shafts	Strength I	526	2,751
Pier No. 4 Drilled Shafts	Strength I	783	3,657
Pier No. 5 Drilled Shafts	Strength I	783	3,657
Pier No. 6 Drilled Shafts	Strength I	527	2,229
Pier No. 7 Drilled Shafts	Strength I	527	2,229
Abutment No. 2 Piles	Strength I	86	164

LRFR RATING FACTORS		
Truck \ Rating Level	Inventory	Operating
HL-93 Loading	1.28	1.66
2018 Manual for Bridge Evaluation		

LFD RATING FACTORS		
Truck \ Rating Level	Inventory	Operating
HS-20 Truck (36T)	1.12	1.88
Type H.E.T. (110T)		
2018 Manual for Bridge Evaluation		

* Quantities are included in the superstructure total quantity.

A geotechnical resistance (phi) factor of 0.50 was used for steel piling.
A geotechnical resistance (phi) factor for Base Resistance of 0.50 was used for drilled shafts.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_BrWB_Quantities.dgn

SHEET NO. 485 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.

119th Street - Westbound
SUMMARY OF BRIDGE QUANTITIES

SUMMARY OF QUANTITIES

	Excavation		Concrete		Reinforcing Steel												
	Class I Cu.Yds.	Class II Cu.Yds.	(Grade 4.0) (AE) Cu. Yds.	(Grade 4.0) (AE) (SA) (MPC) Cu. Yds.	(Grade 60) (Epoxy Coated) Lbs.	(Grade 60) Lbs.	Piles (Steel) (HP14X89) Lin. Ft.	Cased Pile Lin. Ft.	Pre-Drilled Pile Holes Lin. Ft.	Cast Steel Pile Points Each	Drilled Shaft (60")(Cased) Lin. Ft.	Drilled Shaft (72")(Cased) Lin. Ft.	Core Hole (Investigative) Lin. Ft.	Sonic Test (Drilled Shaft) (Set Price) Each	Prestressed Concrete Beam (NU63) Lin. Ft.	Prestressed Concrete Beam (NU70) Lin. Ft.	Bearing (Steel Reinforced Elastomeric) Each	Bridge Handrail (Metal) (Special) Lin. Ft.
Abutment No. 1	141.3	-	24.9	*	*	2,172	216.0	-	-	8	-	-	-	-	-	-	-	-
Pier No. 1	16.8	-	67.1	-	324	10,227	-	-	-	-	48.0	-	25.0	-	-	-	-	-
Pier No. 2	5.6	-	93.8	-	324	14,883	-	-	-	-	78.0	-	33.0	-	-	-	-	-
Pier No. 3	-	-	97.1	-	3,688	12,217	-	-	-	-	84.0	-	31.3	-	-	-	10	-
Pier No. 4	-	3.2	115.5	-	372	19,260	-	-	-	-	-	87.0	34.5	-	-	-	-	-
Pier No. 5	7.5	-	105.8	-	372	16,332	-	-	-	-	-	91.5	38.0	-	-	-	-	-
Pier No. 6	7.5	3.7	110.1	-	421	17,709	-	-	-	-	108.0	-	33.0	-	-	-	-	-
Pier No. 7	5.6	3.7	103.9	-	-	16,757	-	-	-	-	108.0	-	33.0	-	-	-	10	-
Abutment No. 2	136.1	-	29.6	*	*	2,677	-	324.0	306.0	-	-	-	-	-	-	-	-	-
Substr. Total	320.4	10.6	747.8	-	5,501	112,234	216.0	324.0	306.0	8	426.0	178.5	227.8	1	-	-	-	-
Superstr. Total	-	-	-	1656.5	499,816	-	-	-	-	-	-	-	-	-	2101.1	2086.6	20	870.1
Total	320	11	747.8	1656.5	505,320	112,230	216	324	306	8	426	179	228	1	2101	2087	20	870

SUMMARY OF QUANTITIES

	Bridge Handrail (Metal) (Ped.) Lin. Ft.	Bridge Handrail (Metal) (RR) Lin. Ft.	Abutment Aggregate Drain Cu. Yds.	Bridge Backwall Protection System Sq. Yds.	Substructure Waterproofing Membrane Sq. Yds.	Bridge Drainage System Lump Sum	Bridge Deck Grooving Sq. Yds.	Electric Conduit (2.0") (Non-Metallic) Lin. Ft.	Electric Conduit (3.0") (Non-Metallic) Lin. Ft.	Slope Drain (Stone) Lin. Ft.	Slope Protection (Aggregate) Cu. Yds.	Slope Protection (Riprap Stone) Cu. Yds.	Bedding for Slope Protection Cu. Yds.	Expansion Device (Sliding Plate) Lin. Ft.	Simulated Stone Masonry Stain Sq. Yds.	Concrete Masonry Coating Sq. Yds.
Abutment No. 1	-	-	44.2	52.1	-	-	-	-	-	74.0	394	-	-	-	-	-
Pier No. 1	-	-	-	-	8.3	-	-	-	-	-	-	-	-	-	-	-
Pier No. 2	-	-	-	-	8.3	-	-	-	-	-	-	-	-	-	-	-
Pier No. 3	-	-	-	-	57.8	-	-	-	-	-	-	192	96	-	-	-
Pier No. 4	-	-	-	-	8.6	-	-	-	-	-	-	-	-	-	-	-
Pier No. 5	-	-	-	-	8.6	-	-	-	-	-	-	-	-	-	-	-
Pier No. 6	-	-	-	-	8.7	-	-	-	-	-	-	-	-	-	-	-
Pier No. 7	-	-	-	-	8.7	-	-	-	-	-	-	-	-	-	-	-
Abutment No. 2	-	-	48.6	64.5	-	-	-	-	-	128.0	-	906	362	-	-	-
Substr. Total	-	-	92.8	116.6	109.0	-	-	-	-	202.0	394	1098	458	-	-	-
Superstr. Total	868.0	316.0	-	-	-	Lump Sum	2452.6	1666.5	844.0	-	-	-	-	38.3	444.7	496.5
Total	868	316	93	117	109	Lump Sum	2453	1667	844	202	394	1098	458	38	445	497

LRFD DESIGN FOUNDATION LOADS:

	Loading	Factored Load (tons)	Factored Resistance (tons)
Abutment No. 1 Piles	Strength I	96	326
Pier No. 1 Drilled Shafts	Strength I	569	1,162
Pier No. 2 Drilled Shafts	Strength I	596	1,804
Pier No. 3 Drilled Shafts	Strength I	526	2,751
Pier No. 4 Drilled Shafts	Strength I	783	3,657
Pier No. 5 Drilled Shafts	Strength I	783	3,657
Pier No. 6 Drilled Shafts	Strength I	527	2,229
Pier No. 7 Drilled Shafts	Strength I	527	2,229
Abutment No. 2 Piles	Strength I	106	173

A geotechnical resistance (phi) factor of 0.50 was used for steel piling.
A geotechnical resistance (phi) factor for Base Resistance of 0.50 was used for drilled shafts.

LRFR RATING FACTORS		
Truck \ Rating Level	Inventory	Operating
HL-93 Loading	1.17	1.71
2018 Manual for Bridge Evaluation		

LFD RATING FACTORS		
Truck \ Rating Level	Inventory	Operating
HS-20 Truck (36T)	1.11	1.86
Type H.E.T. (110T)		
2018 Manual for Bridge Evaluation		

* Quantities are included in the superstructure total quantity.

SHEET NO. 486 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS

By	Description	Date	Rev.
.	.	.	.

119th Street - Eastbound
SUMMARY OF BRIDGE QUANTITIES

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_BrEB_Quantities.dgn

Sta. 85+55.95, Const. WB
100' - 115' - 104' - 115' - 130' - 110' - 90' - 90'
Prestressed Concrete Beam, Continuous (PBMC)
26'-8" Roadway, Variable Skew

SW 1/4 Sec. 13-13-23

Scale: 1" = 50'-0"
Contour Interval = 1'

BNSF RR R/W
FEMA Zone AE
FEMA Zone X
℄ Future BNSF Track
℄ Exist. BNSF Mainline Track 1
℄ Exist. BNSF Mainline Track 2
℄ Future BNSF Track
BNSF RR R/W
℄ Mill Creek
16 City of Olathe
23 BNSF Railway Company
24 Johnson County
26 Johnson County
Waterline Relocation, See Water Main Replacement Plans
℄ Exist. Mill Creek Tributary M Backwater Area
℄ Prop. Mill Creek Tributary M Backwater Area
79'±
20'
20'
15'-11"±
66'±
Exist. 10' Utility Esmt.
Exist. 20' Water Esmt.
Exist. 30" Transmission Waterline
Limits of Slope Protection (Riprap)
Const. Limits
WB 119th St. Bridge
Prop. Perm. Crossing Esmt.
15' Prop. U/E
℄ Brg. Abut. No. 1
Var.
2:1
℄ Pier No. 1
℄ Pier No. 2
℄ Pier No. 3
℄ Pier No. 4
℄ Pier No. 5
℄ Pier No. 6
℄ Pier No. 7
℄ Brg. Abut. No. 2
28 City of Olathe
23 BNSF Railway Company
Sec. Line
Prop. R/W
Exist. 10' Comm. Esmt.
80+00
81
82
83
84
85+00
86
87
88
89
90+00
91
93
BNSF Milepost 23.62±
S84°30'38"E
℄ 119th St.
℄ Brg. Abut. No. 1
℄ Pier No. 1
℄ Pier No. 2
℄ Pier No. 3
℄ Pier No. 4
℄ Pier No. 5
℄ Pier No. 6
℄ Pier No. 7
℄ Brg. Abut. No. 2
10' Prop. U/E
Increasing Milepost
Const. Limits
Prop. Perm. Crossing Esmt.
21 Alan Sundell Trustee 12015 S Woodland Rd.
Prop. Road & Bridge Esmt.
Limits of Slope Protection (Aggregate)
EB 119th St. Bridge
Exist. Sanitary Sewer
Limits of Slope Protection (Riprap)
Prop. Perm. Crossing Esmt.
Exist. Sanitary Sewer
℄ Gary L. Haller Trail
27 Johnson County
FEMA Floodway
FEMA Zone AE
FEMA Zone X
Const. Limits
FEMA Floodway
FEMA Zone AE
FEMA Zone X
M.S.E. Retaining Wall
Exist. R/W
FEMA Zone X
℄ Northgate St.
℄ 119th St.
℄ Brg. Abut. No. 2
℄ Pier No. 7
℄ Pier No. 6
℄ Pier No. 5
℄ Pier No. 4
℄ Pier No. 3
℄ Pier No. 2
℄ Pier No. 1
℄ Brg. Abut. No. 1
℄ Northgate St.
PC +46.94
PT 98.98
PT 98.98
PC 210+00
211
209
Sta. 85+55.95, Const. EB
100' - 115' - 104' - 115' - 130' - 110' - 90' - 90'
Prestressed Concrete Beam, Continuous PMBC)
Variable Roadway, Variable Skew

PLAN

NW 1/4 Sec. 24-13-23

UTILITY OWNERS

OW — 30" Transmission Waterline - City of Olathe Water/Sewer
JCW — Sanitary - Johnson County Wastewater
AT&T-T — AT&T Transmission

RAILROAD DATA	
Subdivision	Emporia
Line Segment	7100
Mile Post	23.62±
Latitude	38.9125
Longitude	-94.8097

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_Br_ContourMap.dgn

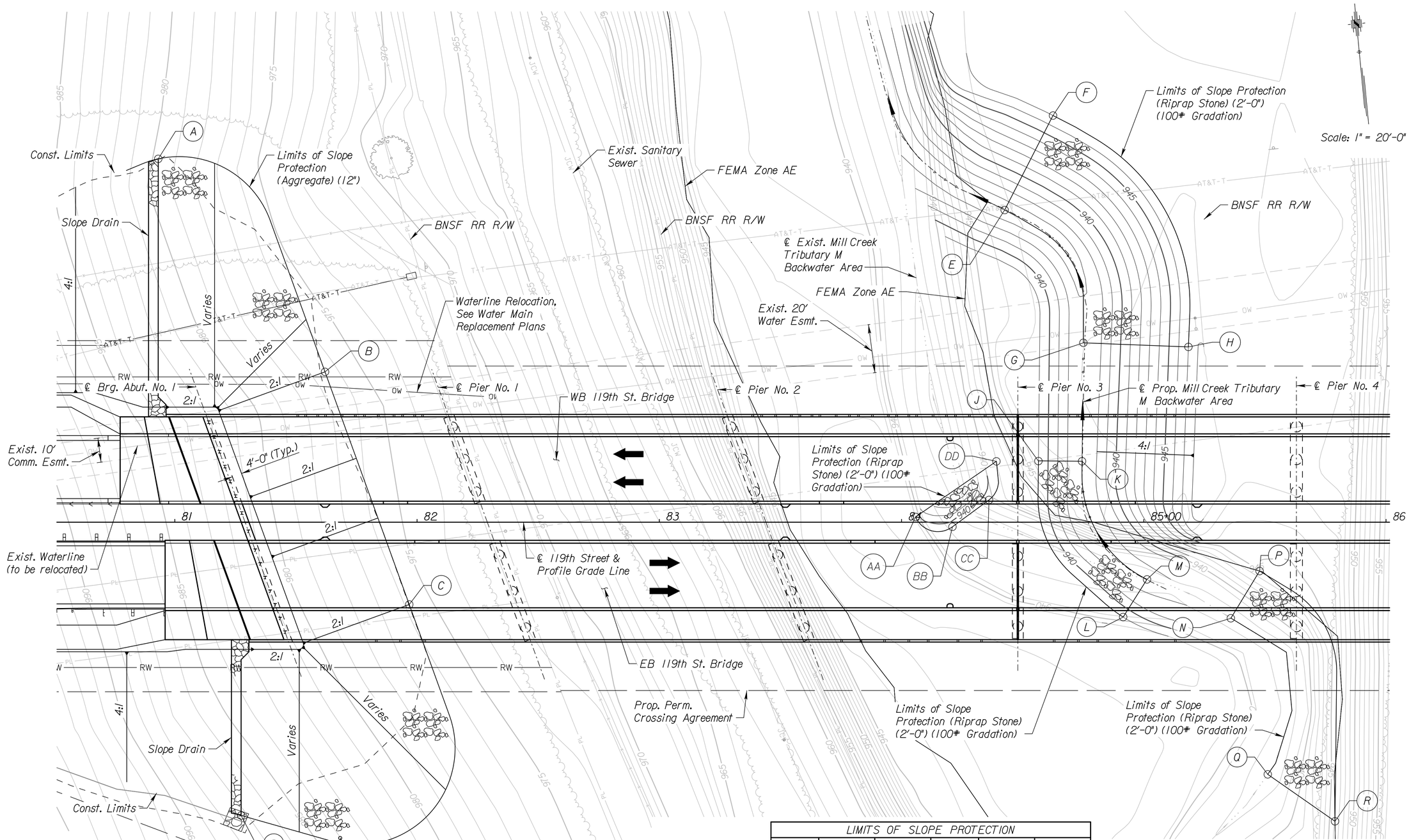
SHEET NO. 487 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

By	Description	Date	Rev.
. . .			
. . .			
. . .			

119th Street
CONTOUR MAP



GRADING PLAN

TOE DETAIL
(2'-0" Slope Protection)

LIMITS OF SLOPE PROTECTION					
Point	Station	Offset	Point	Station	Offset
A	80+93.15	150.0' Lt.	L	84+91.47	39.1' Rt.
B	81+62.00	62.1' Lt.	M	85+01.28	23.6' Rt.
C	81+96.78	33.9' Rt.	N	85+35.92	39.5' Rt.
D	81+27.36	121.1' Rt.	P	85+47.78	20.2' Rt.
E	84+42.55	128.9' Lt.	Q	85+51.16	104.1' Rt.
F	84+62.51	167.9' Lt.	R	85+78.92	123.6' Rt.
G	84+75.06	74.1' Lt.	AA	84+05.78	2.2' Lt.
H	85+18.41	72.4' Lt.	BB	84+21.01	1.9' Rt.
J	84+56.49	25.3' Lt.	CC	84+32.89	6.8' Lt.
K	84+74.50	25.2' Lt.	DD	84+39.13	25.1' Lt.

Notes:
Erosion Control Blanket shall be placed within proposed grading of Mill Creek Tributary M Backwater Area where permanent slope protection is not present, during and following construction until vegetation is established.

For Westbound Construction Layout, See Sh. No. 490- 491

For Eastbound Construction Layout, See Sh. No. 568- 569

SHEET NO. 488 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street
GRADING PLAN (1 of 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_Br_GradingPlan1.dgn

Exist. 20' Water Esmt.
Exist. Waterline
℄ Mill Creek
BNSF RR R/W
Concrete Lined Ditch (See Rdwy. Plans)
Limits of Trail Improvements (See Rdwy. Plans)
Limit of Slope Protection (Riprap Stone) (2'-6") (200# Gradation)
Const. Limits
Slope Drain
Limit of Slope Protection (Riprap Stone) (2'-6") (200# Gradation)
℄ Pier No. 5
WB 119th St. Bridge
℄ Pier No. 6
℄ Pier No. 7
℄ Brg. Abut. No. 2
Scale: 1" = 20'-0"
℄ 119th Street & Profile Grade Line
Varies
Front Face of MSE Wall
Front Face of Abutment
EB 119th St. Bridge
Prop. Perm. Crossing Agreement
FEMA Floodway
FEMA Zone X
Exist. Sanitary Sewer
FEMA Flood Zone AE
Limit of Slope Protection (Riprap Stone) (2'-6") (200# Gradation)
Exist. R/W
FEMA Zone X
Limit of Slope Protection (Riprap Stone) (2'-6") (200# Gradation)
FEMA Zone AE
℄ Gary L. Haller Trail
Slope Drain
Agg. Drain Outlet Pipe
FEMA Floodway
Const. Limits

GRADING PLAN

Slope Protection (Riprap Stone) (200# Gradation)
Streambed Elev.
6"±
3'-0"±
1.5
Varies
3'-0" (Min.)

TOE DETAIL
(2'-6" Slope Protection)

Notes:
For Westbound Construction Limits, See Sh. No. 490-491

For Eastbound Construction Limits, See Sh. No. 568-569

For MSE Wall Plan, Profile & Details, See Sh. No. 322-325

LIMITS OF SLOPE PROTECTION					
Point	Station	Offset	Point	Station	Offset
S	90+02.75	112.1' Lt.	V	89+25.21	61.5' Rt.
T	89+72.50	95.9' Lt.	W	89+72.50	151.2' Rt.
U	89+18.18	44.5' Lt.	X	90+02.75	182.0' Rt.

SHEET NO. 489 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

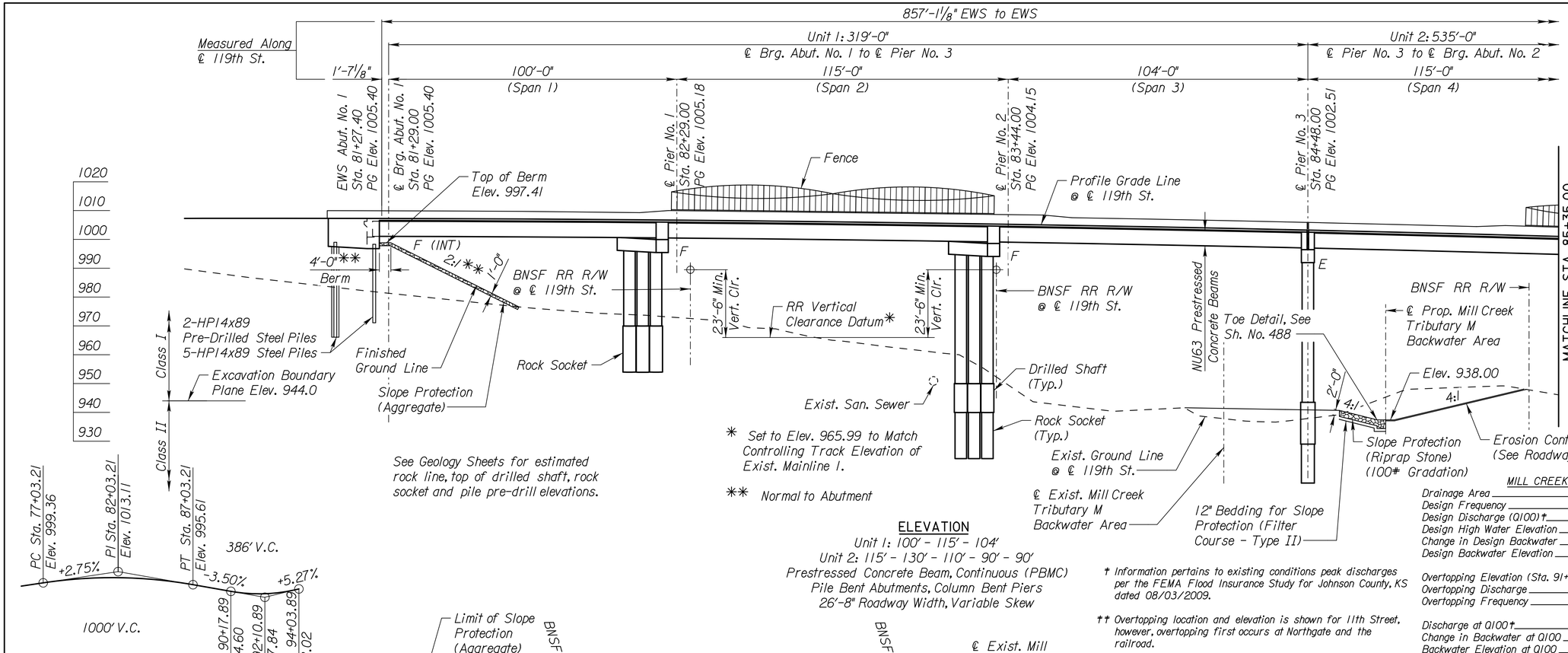
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street
GRADING PLAN (2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d3141141\119th_Br_GradingPlan2.dgn



ELEVATION

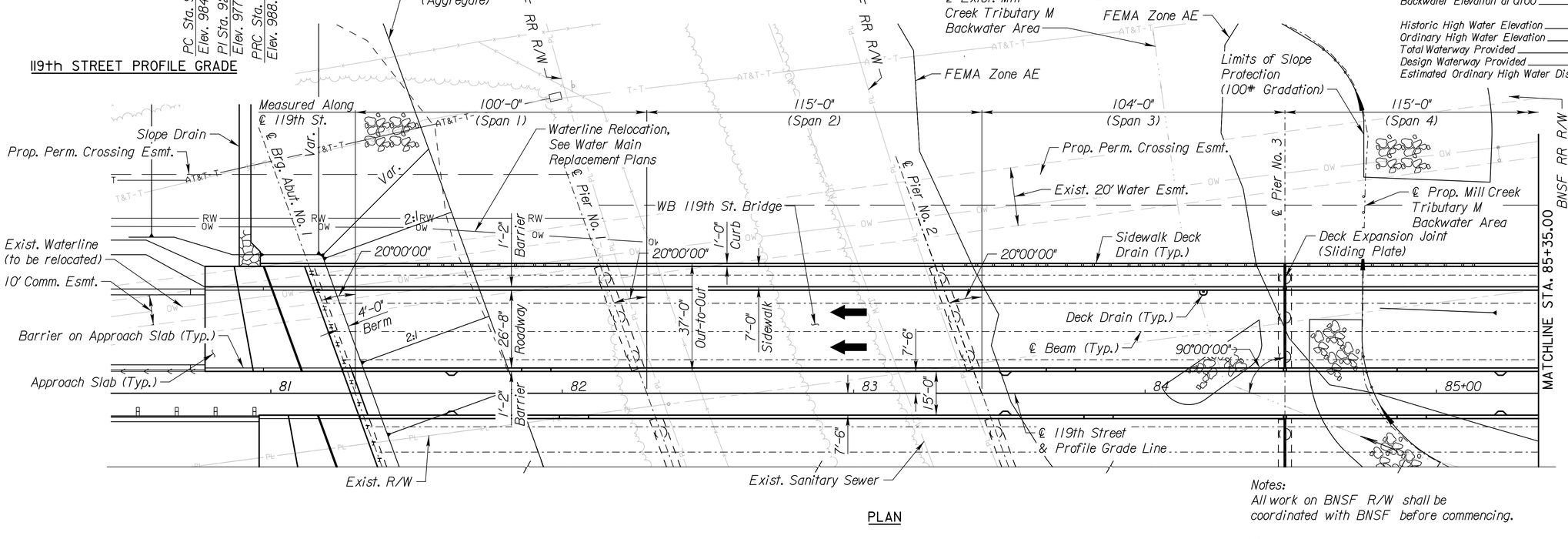
Unit 1: 100' - 115' - 104'
Unit 2: 115' - 130' - 110' - 90' - 90'
Prestressed Concrete Beam, Continuous (PBMC)
Pile Bent Abutments, Column Bent Piers
26'-8" Roadway Width, Variable Skew

† Information pertains to existing conditions peak discharges per the FEMA Flood Insurance Study for Johnson County, KS dated 08/03/2009.

†† Overtopping location and elevation is shown for 11th Street, however, overtopping first occurs at Northgate and the railroad.

MILL CREEK DRAINAGE DATA

Drainage Area	5.74	Sq. Mi.
Design Frequency	100	Years
Design Discharge (Q100)†	9,090	cfs
Design High Water Elevation	953.04	Ft.
Change in Design Backwater	0	Ft.
Design Backwater Elevation	953.04	Ft.
Overtopping Elevation (Sta. 91+50)††	980.7	Ft.
Overtopping Discharge	N/A	cfs
Overtopping Frequency	>500	Years
Discharge at Q100†	9,090	cfs
Change in Backwater at Q100	0	Ft.
Backwater Elevation at Q100	953.04	Ft.
Historic High Water Elevation	N/A	Ft.
Ordinary High Water Elevation	942.5	Ft.
Total Waterway Provided	12,390	Sq. Ft.
Design Waterway Provided	2,624	Sq. Ft.
Estimated Ordinary High Water Discharge	700	cfs



PLAN

Notes:
All work on BNSF R/W shall be coordinated with BNSF before commencing.

For limits of Slope Protection, see Grading Plan Sheets.

B.M. #486 Standard 2" Dome Top Aluminum
51.78' Lt. ℄ 119th Street Sta. 52+49.99 Elev. 1002.38

B.M. #109 "D" at Top/Center of Front Face of Curb Inlet
21.12' Rt. ℄ Woodland Road Sta. 124+63.76 Elev. 975.13

Elevations shown are to the NAVD88 vertical datum.

SHEET NO. 490 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound CONSTRUCTION LAYOUT (10F 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Conlay1.dgn

857'-11⅛" EWS to EWS
Unit 2: 535'-0"
℄ Pier No. 3 to ℄ Brg. Abut. No. 2
Measured Along ℄ 119th St.

115'-0" (Span 4) | 130'-0" (Span 5) | 110'-0" (Span 6) | 90'-0" (Span 7) | 90'-0" (Span 8) | 1'-6"

℄ Pier No. 4 Sta. 85+63.00 PG Elev. 999.90
℄ Future BNSF Track
℄ Future BNSF Track
℄ Exist. BNSF Mainline Track 1
℄ Exist. BNSF Mainline Track 2
℄ Pier No. 5 Sta. 86+93.00 PG Elev. 995.96
Fence
Profile Grade Line @ ℄ 119th St.
℄ Pier No. 6 Sta. 88+03.00 PG Elev. 992.12
℄ Pier No. 7 Sta. 88+93.00 PG Elev. 988.97
℄ Brg. Abut. No. 2 Sta. 89+83.00 PG Elev. 985.82
EWS Abut. No. 2 Sta. 89+84.50 PG Elev. 985.77

1020 1010 1000 990 980 970 960 950 940 930

MATCHLINE STA. 85+35.00

F F F E

℄ Future Access Road
25'-9" Min. Vert. Clr.
25'-2" Min. Vert. Clr.
25'-8" Min. Vert. Clr.
25'-1" Min. Vert. Clr.
BNSF RR R/W
℄ Future Access Road
℄ Mill Creek
D.H.W. Elev. 953.04
O.H.W. Elev. 942.50
NU63 Prestressed Concrete Beams (Typ. U.N.O.)
℄ Gary L. Haller Trail
Elev. 944.0
M.S.E. Retaining Wall
F (INT)
2%
Gutter
Top of Berm Elev. 976.19
36"ø CMP Sleeve
10:1
Var.
2'-6"
4'-0" Berm
7-HP14x89 Pre-Drilled Steel Piles
Excavation Boundary Plane Elev. 944.0
Class I
Class II

27'-0" | 37'-10"± | 20'-0" | 15'-11"± | 20'-0" | 27'-0" | 31'-7"± | 16'-0"±

℄ Exist. Access Road
Streambed Elev. 934.3
Exist. San. Sewer
Exist. Ground Line @ ℄ 119th St.
Elev. 942.9
Proposed Ground Line
Drilled Shaft (Typ.)
Rock Socket (Typ.)
Toe Detail, See Sh. No. 489
Slope Protection (Riprap Stone) (200# Gradation)
12" Bedding for Slope Protection (Filter Course - Type II)

Future RR Ground Line and Embankment (Typ.)

See Geology Sheets for estimated rock line, top of drilled shaft, rock socket and pile pre-drill elevations.

ELEVATION

Unit 1: 100' - 115' - 104'
Unit 2: 115' - 130' - 110' - 90' - 90'
Prestressed Concrete Beam, Continuous (PBMC)
Pile Bent Abutments, Column Bent Piers
26'-8" Roadway Width, Variable Skew

✳ Top of Drilled Shaft is 22.5' Below Top of Tie at Pier No. 4 and 22' Below Top of Tie at Pier No. 5

† NU70 Prestressed Concrete Beams

℄ Future Access Road
℄ Future BNSF Track
℄ Exist. BNSF Mainline Track 1
℄ Exist. BNSF Mainline Track 2
℄ Future BNSF Track
℄ Exist. AccessRoad
℄ Future Access Road
FEMA Zone AE
FEMA Floodway
FEMA Zone X
BNSF RR R/W
Exist. Sanitary Sewer
20' Exist. Water Esmt.
Exist. Waterline
℄ Mill Creek
5+00
Limits of Trail Improvements (See Rdwy. Plans)
Slope Protection (Riprap Stone) (200# Gradation)

20'-0" | 15'-11"± | 20'-0"

115'-0" (Span 4) | 130'-0" (Span 5) | 110'-0" (Span 6) | 90'-0" (Span 7) | 90'-0" (Span 8)

℄ Pier No. 4
Prop. Perm. Crossing Esmt.
℄ Pier No. 5
Sec. Line
℄ Pier No. 6
℄ Gary L. Haller Trail
℄ Pier No. 7
Measured Along ℄ 119th St.
℄ Brg. Abut. No. 2
Slope Drain
M.S.E. Retaining Wall

℄ Beam A
WB 119th St. Bridge
Point of Min. Vert. Clr.
1'-0" Curb
1'-2" Barrier
0+00
RW
Sidewalk Deck Drain (Typ.)
℄ Beam (Typ.)
3'-6" Gutter
Scale: 1" = 20'-0"

MATCHLINE STA. 85+35.00

38'-2"± (To RR R/W) | 37'-10"± Horiz. Clr. | 31'-7"± Horiz. Clr. | 31'-9"±

Increasing Milepost
7'-0" Sidewalk
26'-8" Roadway
37'-0" Out-to-Out
4'-0" Berm
Deck Drain (Typ.)
Barrier on Approach Slab (Typ.)
Approach Slab (Typ.)

90°00'00" | 7'-6" | 7'-6" | 86 | 87 | 88 | 89 | 90+00 | 8'-0"

15'-0"
1'-2" Barrier
℄ 119th Street & Profile Grade Line
BNSF MP 23.62±
FEMA Floodway
FEMA Zone AE
FEMA Zone X

PLAN

Notes:
All work on BNSF R/W shall be coordinated with BNSF before commencing.

For limits of Slope Protection, see Grading Plan Sheets.

B.M. #108 "D" at Top/Center of Front Face of Curb Inlet 38.82' Lt. ℄ Northgate Street Sta. 205+01.80 Elev. 956.80	B.M. #107 "D" at Top/Center of Front Face of Curb Inlet 81.06' Lt. ℄ 119th Street Sta. 103+74.65 Elev. 998.26	Elevations shown are to the NAVD88 vertical datum.

SHEET NO. 491 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

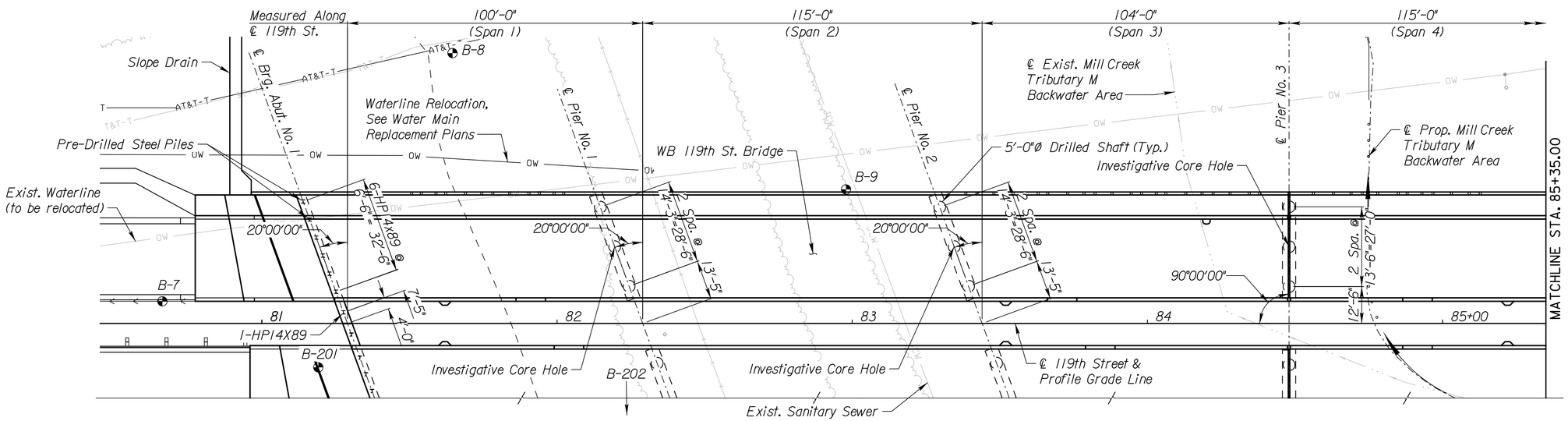
10450 Holmes Road Suite 800 Kansas City, MO 64131-3471 816-360-2700 Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

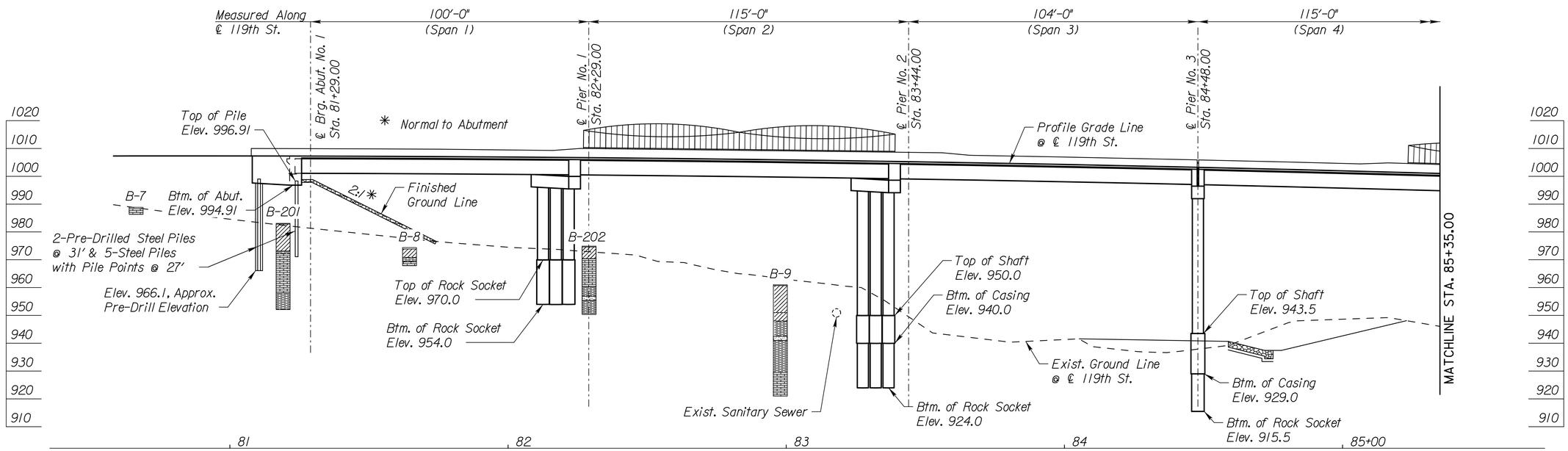
119th Street - Westbound
CONSTRUCTION LAYOUT (2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Conlay2.dgn



Scale: 1" = 20'-0"

FOOTING LAYOUT



GEOLOGIC PROFILE

Notes:
For Piling, Pre-Drilling, Investigative Core Hole and Drilled Shaft notes, see General Notes on Sheet No. 483 .

Boring log information can be found in the Project Specifications.

For Grading Plan, See Sh. No. 488 - 489

STANDARD GEOLOGIC SYMBOLS

CLAY SHALE LIMESTONE SANDSTONE

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Eng_Geo1.dgn

SHEET NO.	TOTAL SHEETS
492	781

YEAR 2024

PROJECT NO. 3-C-024-21

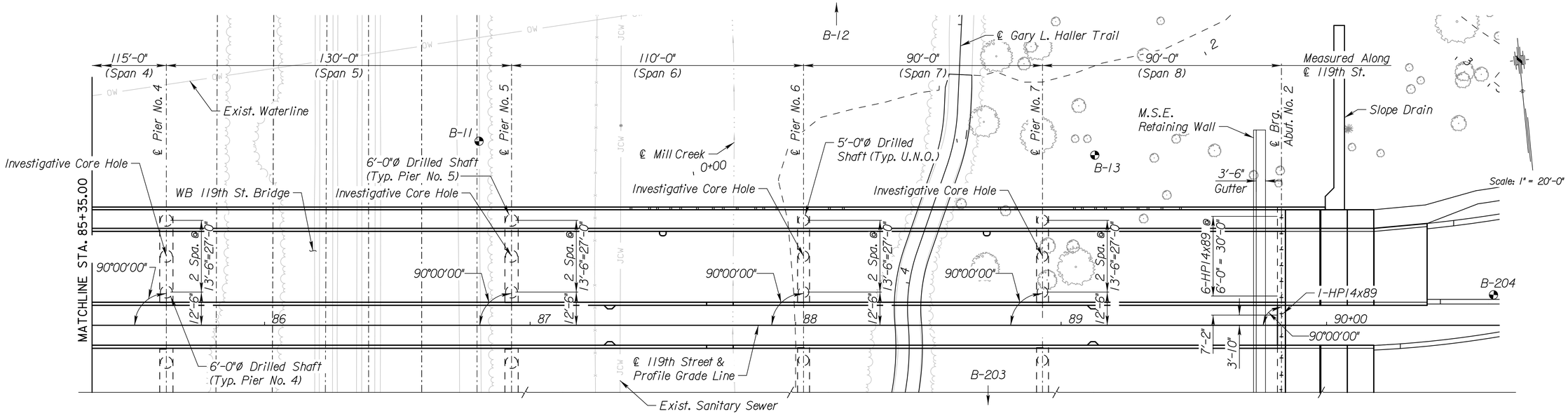
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
ENGINEERING GEOLOGY (1 OF 2)



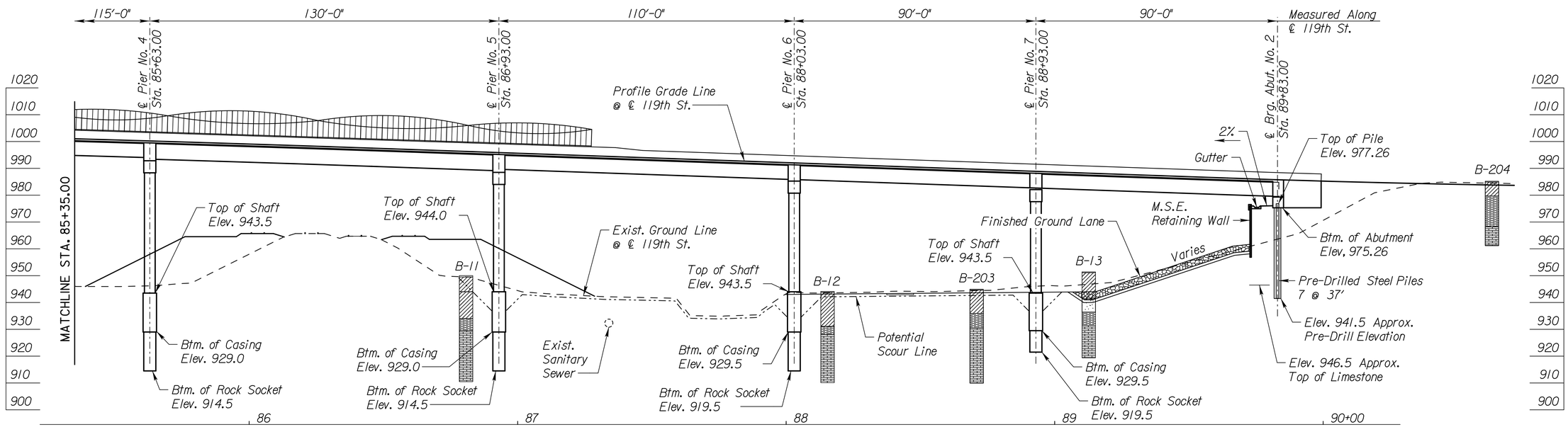
FOOTING LAYOUT

Notes:
For Piling, Pre-Drilling, Investigative Core Hole and Drilled Shaft notes, see General Notes on Sheet No. 483 .

Boring log information can be found in the Project Specifications.

For Grading Plan, See Sh. No. 488- 489

For M.S.E. Retaining Wall Plan, Profile, and Details, See Sh. No. 662-663



GEOLOGIC PROFILE

STANDARD GEOLOGIC SYMBOLS

CLAY SHALE LIMESTONE SANDSTONE

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Eng_Geo2.dgn

SHEET NO. 493 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

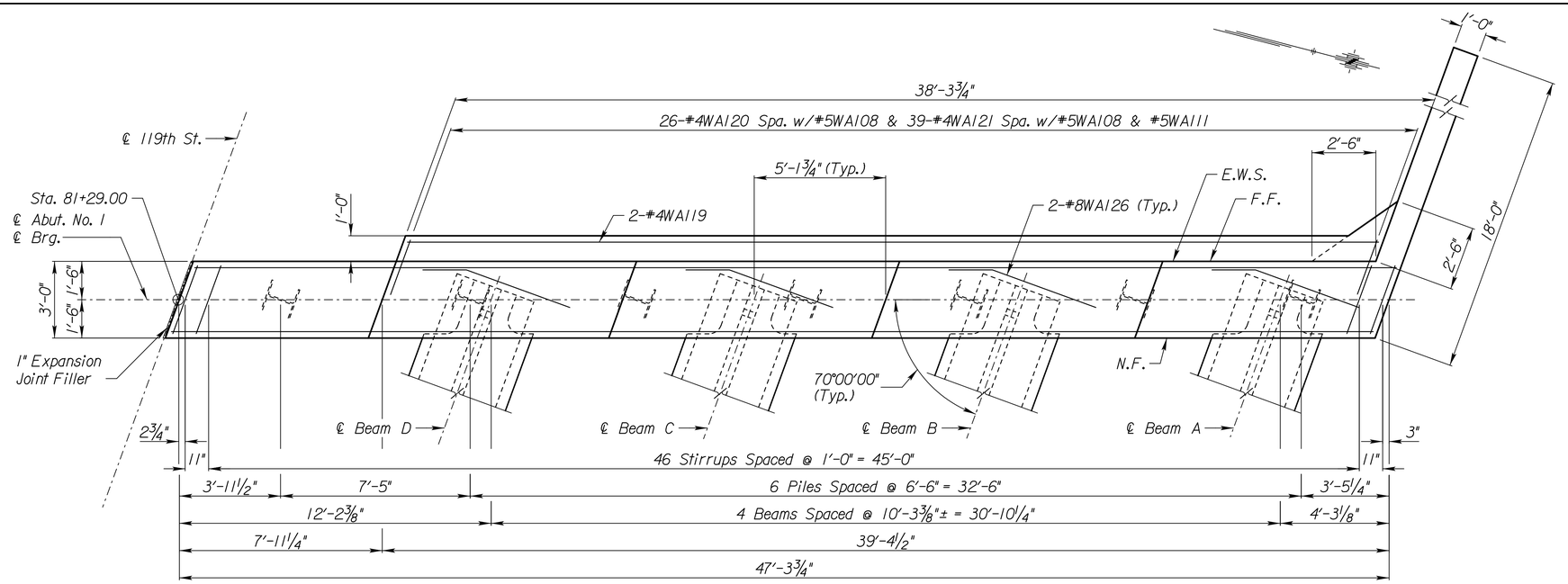
CITY OF OLATHE, KS

OLATHE KANSAS

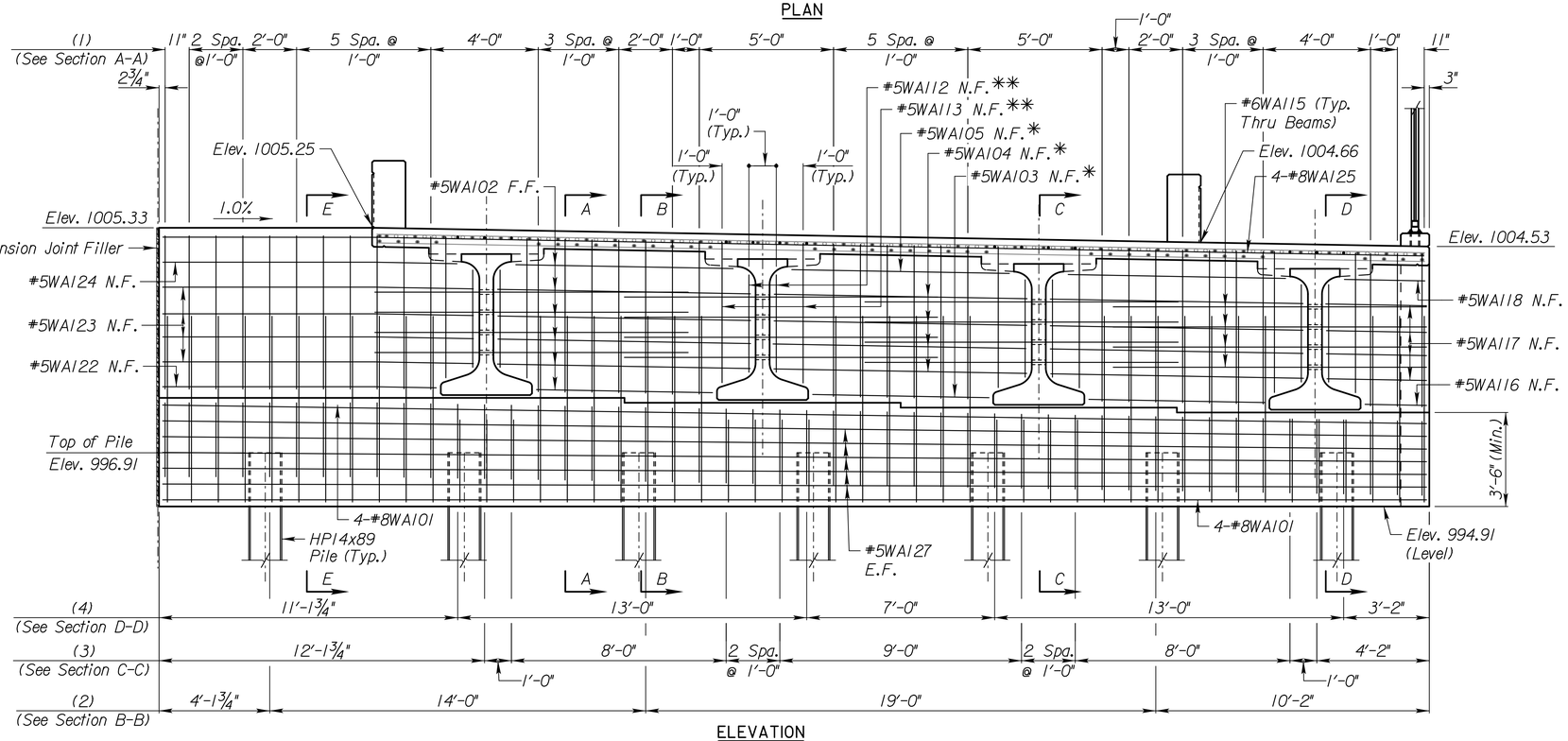
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
ENGINEERING GEOLOGY (2 OF 2)

Beam Seat Elevations	
Beam	Elevation
A	998.41
B	998.59
C	998.79
D	998.98



PLAN



ELEVATION
(Looking Back Station)
(WA126 Strand Tie Bars not shown for clarity)

(1) 31-#5WA106, 31-#5WA107 & 31-#5WA108 Spaced as Shown
(2) 3-#5WA107, 3-#5WA108 & 6-#5WA109 Spaced as Shown
(3) 10-#5WA107, 10-#5WA110 & 10-#5WA111 Spaced as Shown
(4) 4-#5WA107, 4-#5WA109, 4-#5WA111 & 4-#5WA114 Spaced as Shown

ABUTMENT PILE LOADING
(Tons/Pile)

Strength I	Service I	Phi
94	70	0.5

Notes:
All Elevations Given at ℄ Abutment
Horizontal Dimensions are along ℄ Abutment.
For Sections, and Plan of Bearing Pads, see Sh. No. 495
For Abutment Wingwall Details, see Sh. No. 496

E.W.S = End of Wearing Surface
E.F. = Each Face
F.F. = Far Face
N.F. = Near Face
* Typ. Between Beams
** Typ. at Beams

SHEET NO. 494 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

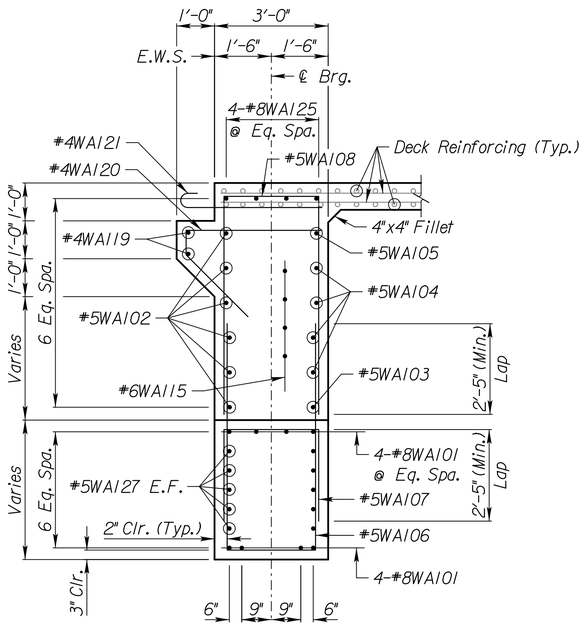
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS
OLATHE KANSAS

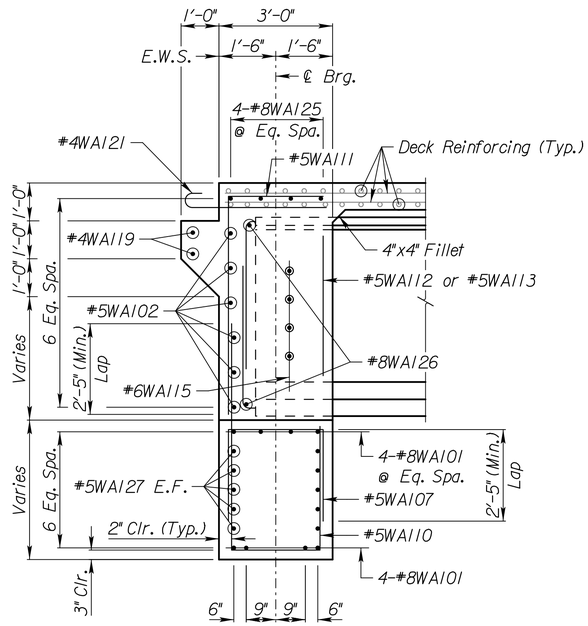
Rev.	Date	Description	By
. . .	. . .	. . .	. . .

119th Street - Westbound
ABUTMENT NO. 1 (1 OF 3)

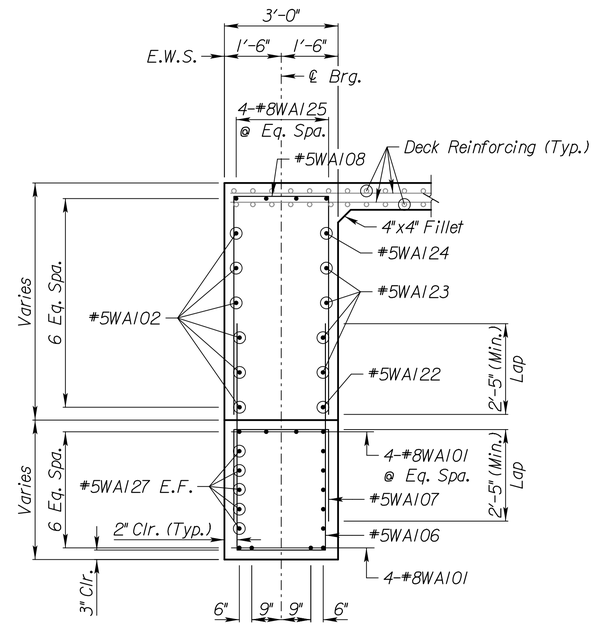
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Abut1-1.dgn



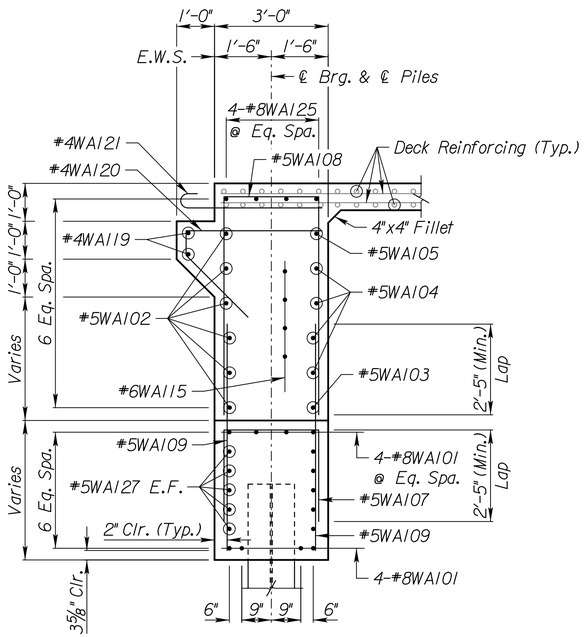
SECTION A-A



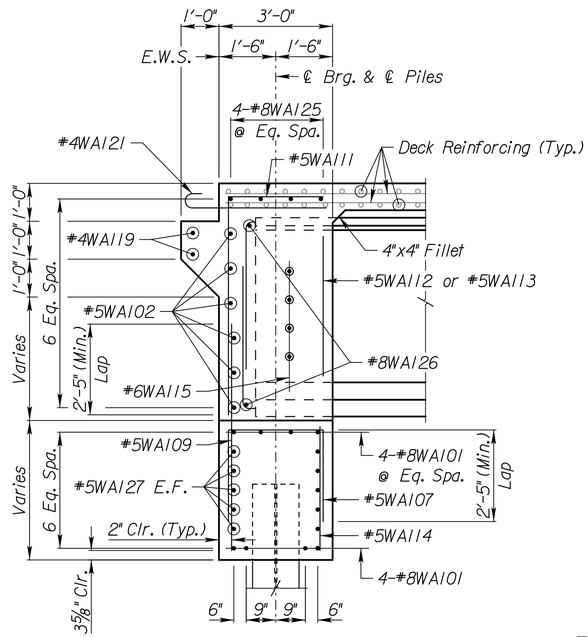
SECTION C-C



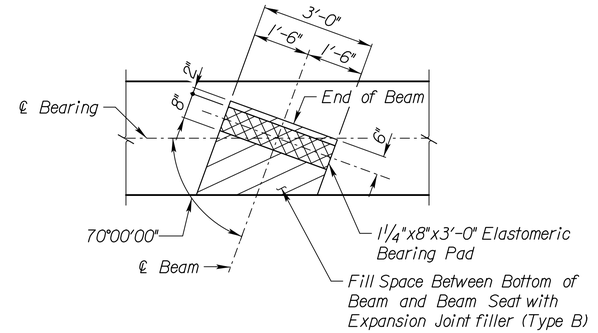
SECTION E-E



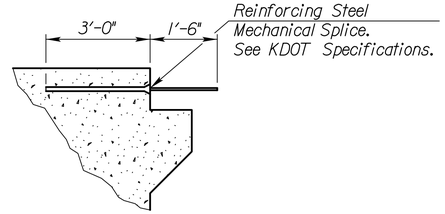
SECTION B-B



SECTION D-D



PLAN OF BEARING PADS



APPROACH SLAB TIE BAR OPTION

The Contractor has the option (at no additional cost to the State) of substituting a mechanically spliced reinforcing bar for any or all of the cast-in-place approach slab tie bars.

Notes:

For location of Sections A-A, B-B, C-C, D-D and E-E see Sh. No. 494 .

For Elastomeric Bearing Pad Details, see Sh. No. 543 .

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Abut1-2.dgn

SHEET NO. 495 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

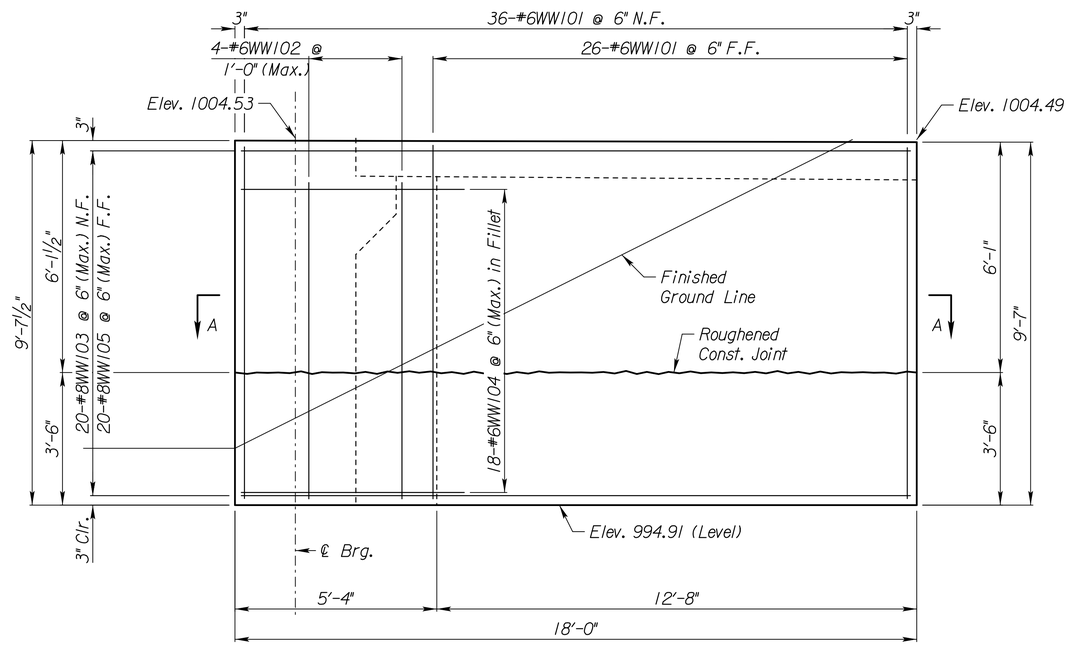
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

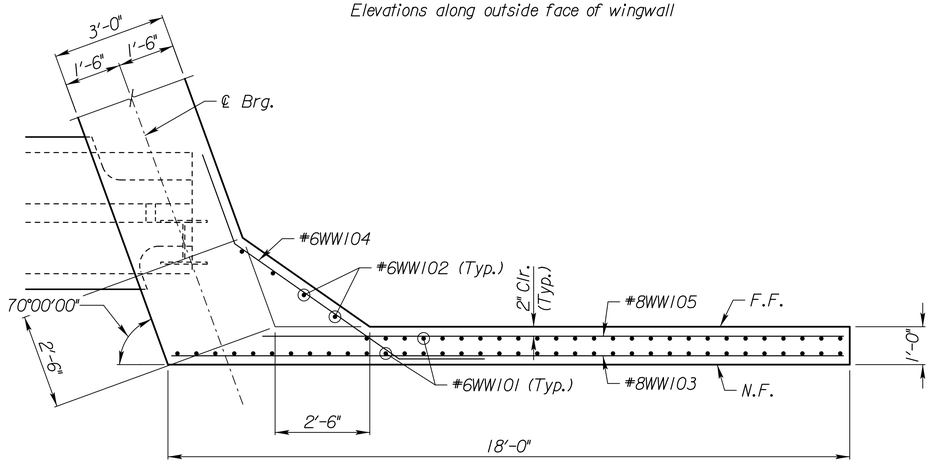
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
ABUTMENT NO. 1 (2 OF 3)



WINGWALL ELEVATION

Elevations along outside face of wingwall



SECTION A-A

F.F. = Far Face
N.F. = Near Face

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Abut1-3.dgn

SHEET NO.	TOTAL SHEETS
496	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

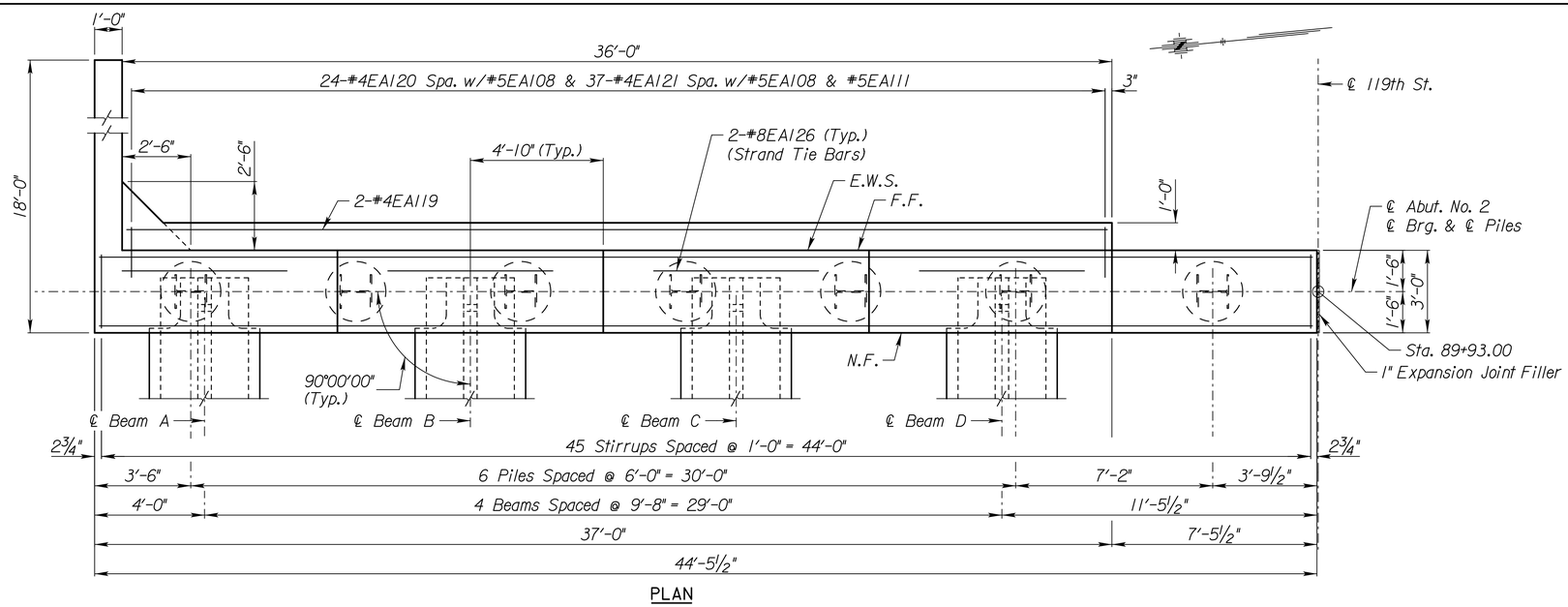
CITY OF OLATHE, KS

OLATHE KANSAS

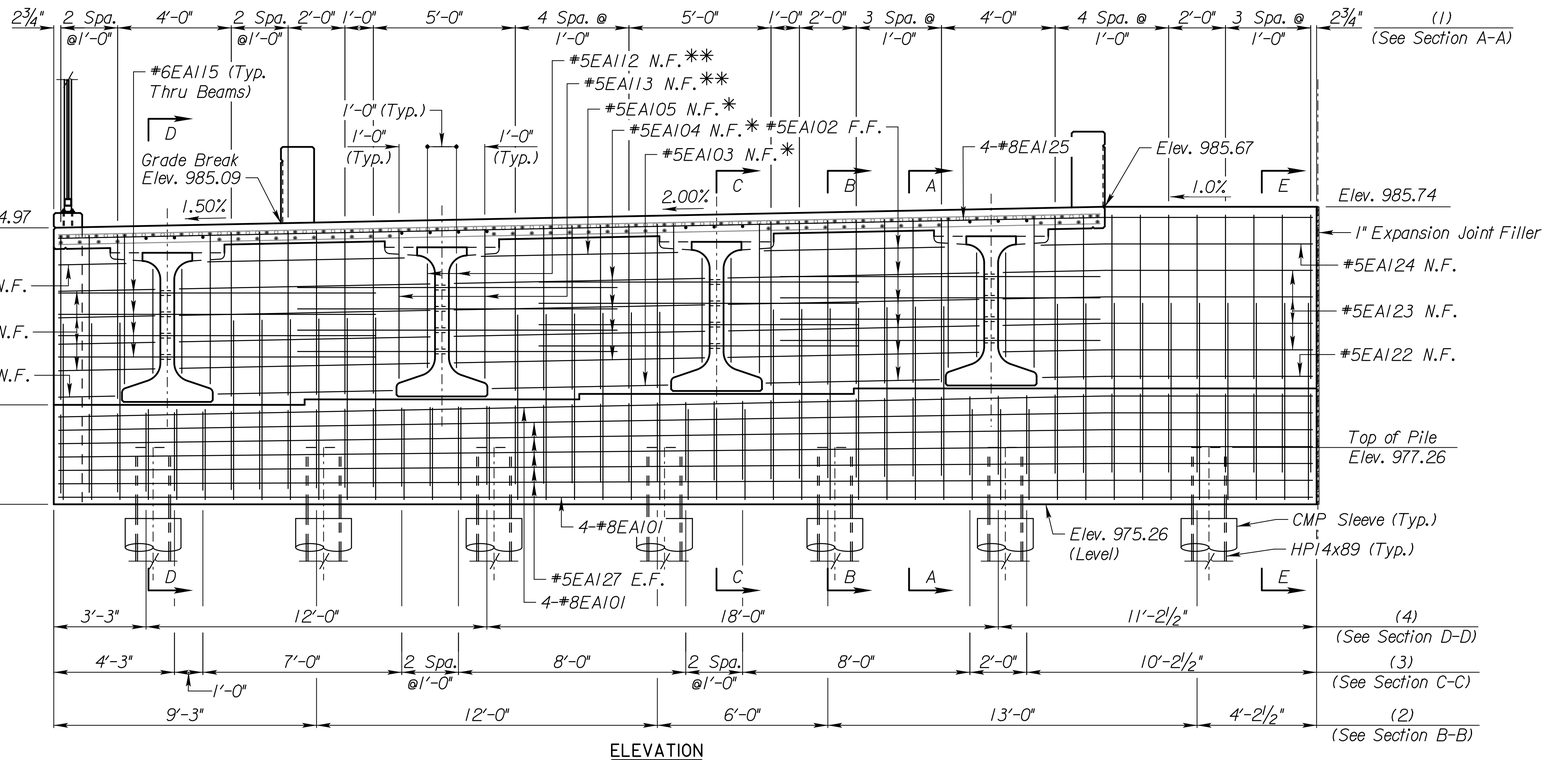
By	Description	Date	Rev.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
ABUTMENT NO. 1 (3 OF 3)

Beam Seat Elevations	
Beam	Elevation
A	978.76
B	978.93
C	979.13
D	979.32



PLAN



ELEVATION

(Looking Ahead Station)

(EA126 Strand Tie Bars not shown for clarity)

(1) 28-#5EA106, 28-#5EA107 & 28-#5EA108 Spaced as Shown
(2) 4-#5EA107, 4-#5EA108 & 8-#5EA109 Spaced as Shown
(3) 10-#5EA107, 10-#5EA110 & 10-#5EA111 Spaced as Shown
(4) 3-#5EA107, 3-#5EA109, 3-#5EA111 & 3-#5EA114 Spaced as Shown

ABUTMENT PILE LOADING

(Tons/Pile)

Strength I	Service I	Phi
86	63	0.5

Notes:
All Elevations Given at ℄Abutment
Horizontal Dimensions are along ℄Abutment.
For Sections, and Plan of Bearing Pads, see Sh. No. 498
For Abutment Wingwall Details, see Sh. No. 499

E.W.S. = End of Wearing Surface
E.F. = Each Face
F.F. = Far Face
N.F. = Near Face
** Typ. Between Beams*
*** Typ. at Beams*

SHEET NO. 497 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

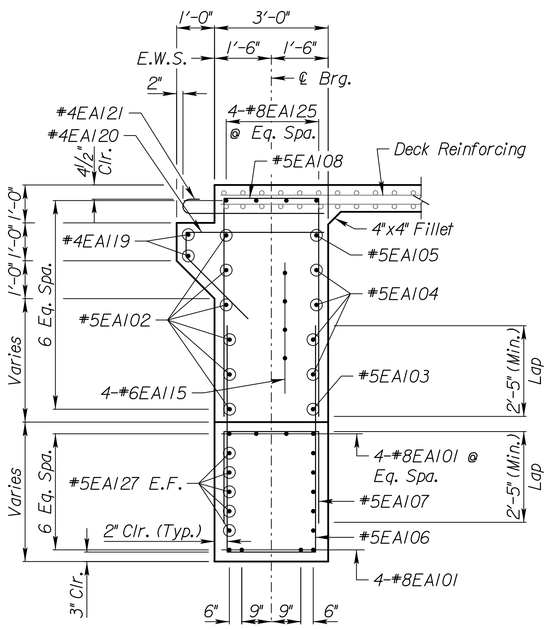
CITY OF OLATHE, KS

OLATHE KANSAS

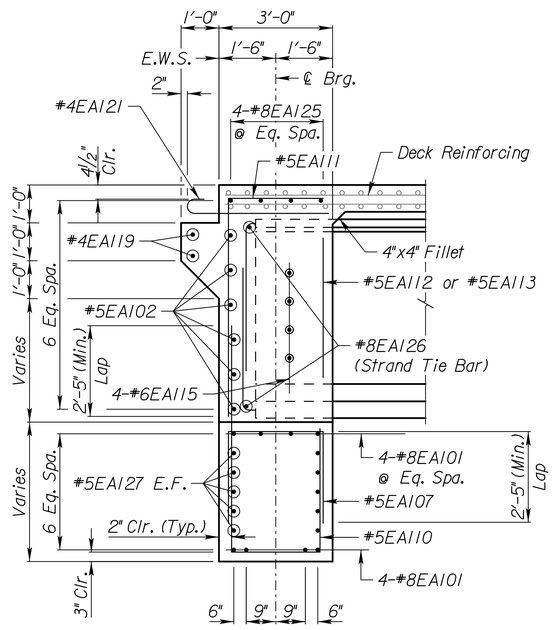
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
ABUTMENT NO. 2 (1 OF 3)

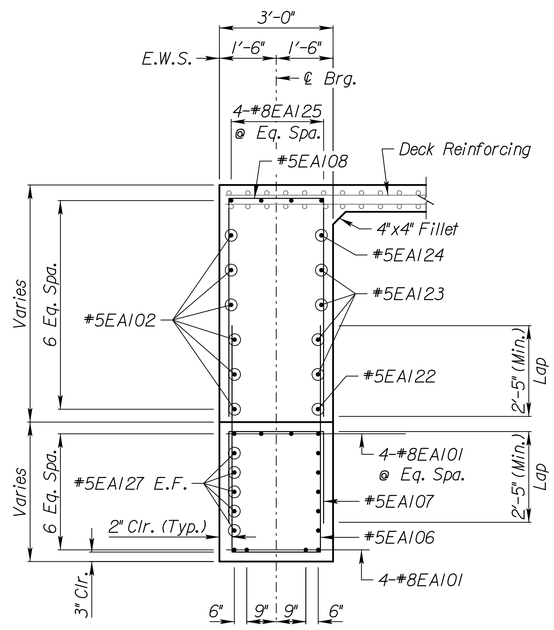
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Abut2-1.dgn



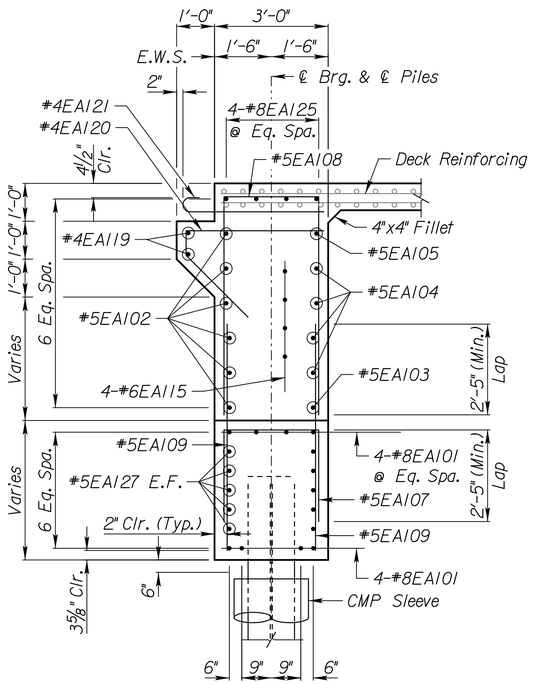
SECTION A-A



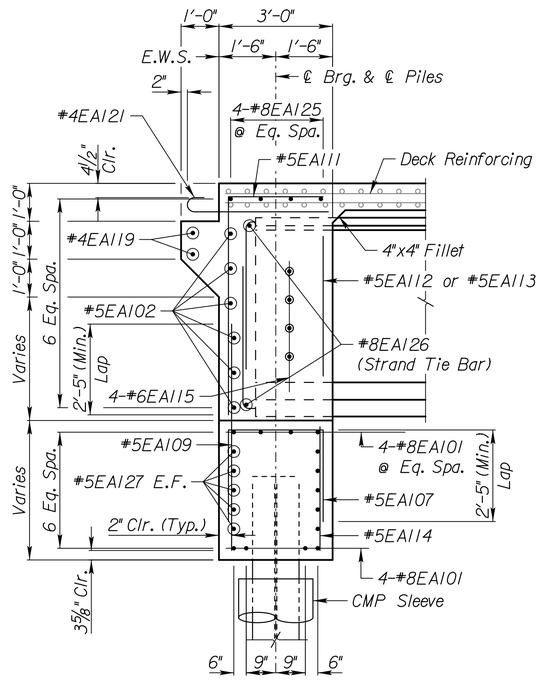
SECTION C-C



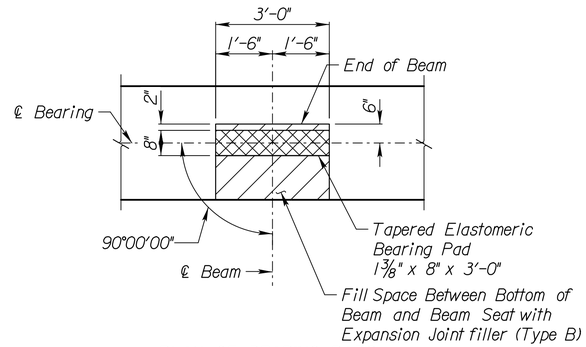
SECTION E-E



SECTION B-B

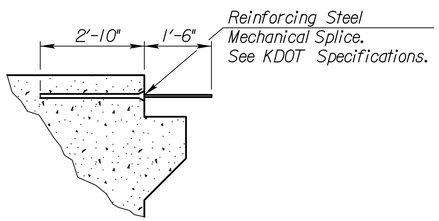


SECTION D-D



PLAN OF BEARING PADS

(For Elastomeric Bearing Pad Details, See Sh. No. 543



APPROACH SLAB TIE BAR OPTION

The Contractor has the option (at no additional cost to the City) of substituting a mechanically spliced reinforcing bar for any or all of the cast-in-place approach slab tie bars.

Notes:

For location of Sections A-A, B-B, C-C, D-D and E-E see Sh. No. 497 .

For Elastomeric Bearing Pad Details, see Sh. No. 543 .

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Abut2-2.dgn

SHEET NO.	TOTAL SHEETS
498	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

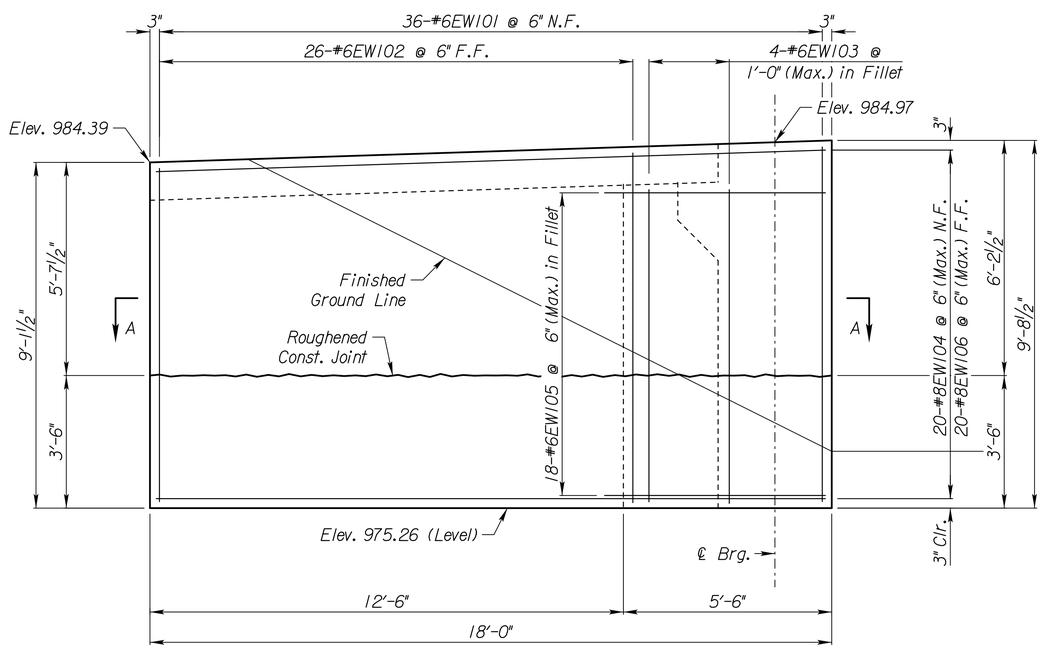
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

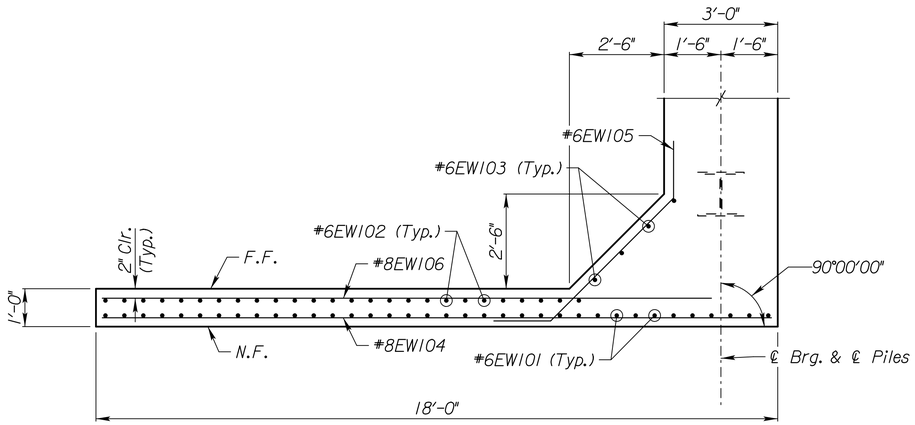
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
ABUTMENT NO. 2 (2 OF 3)



NORTH WINGWALL ELEVATION

Elevations along outside face of wingwall



SECTION A-A

F.F. = Far Face
N.F. = Near Face

SHEET NO.	TOTAL SHEETS
499	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

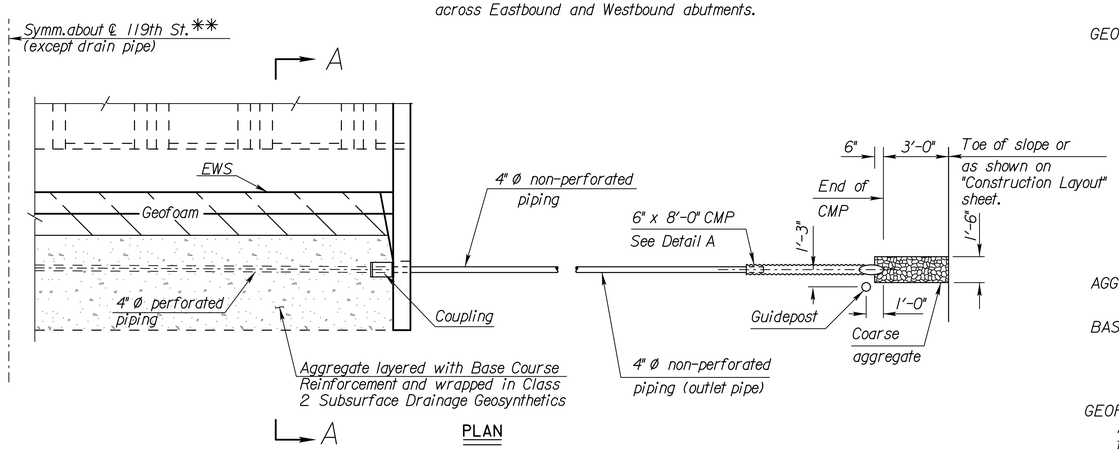
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

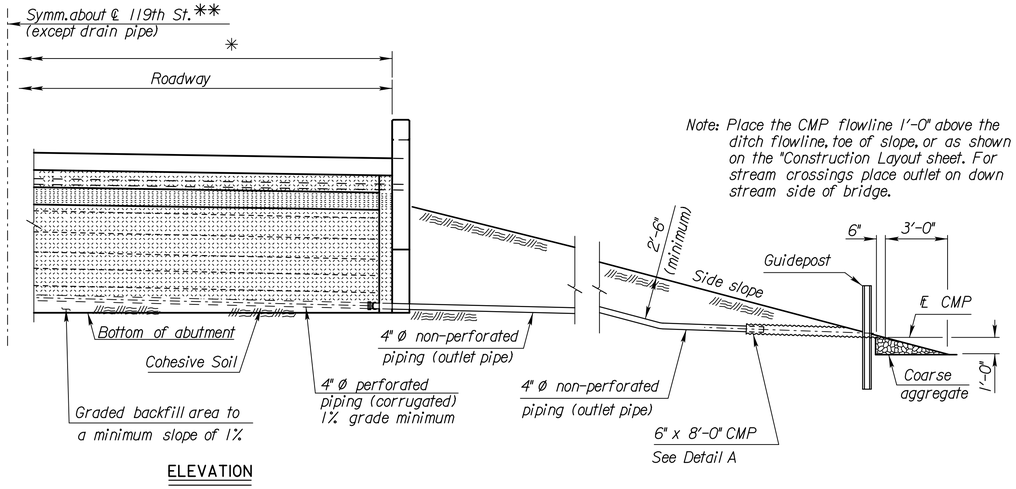
119th Street - Westbound
ABUTMENT NO. 2 (3 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Abut2-3.dgn

** Backwall protection shall be continuous across Eastbound and Westbound abutments.



PLAN



ELEVATION

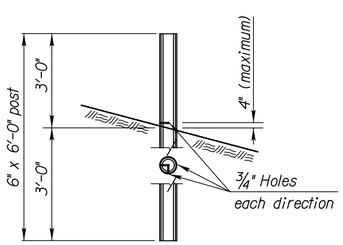
Note: Place the CMP flowline 1'-0" above the ditch flowline, toe of slope, or as shown on the "Construction Layout sheet. For stream crossings place outlet on down stream side of bridge.

GUIDE POST

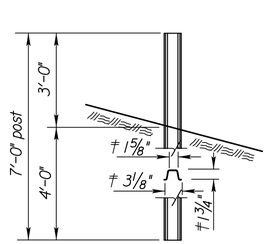
Notes:

Wood Guide Posts: Apply a preservative treatment conforming to the KDOT Specifications to the posts. Use only one type of preservative treatment on a project. Apply two coats of aluminum paint to the top 18" of the posts. Apply one coat of International Orange paint to the top 12" of the posts. City forces will apply reflectorized material.

Metal Guide Posts: Posts shall conform to the KDOT Specifications. Posts shall have a galvanized or baked enamel coating. Apply one coat of International Orange paint to the top 12" of the posts.



Wood Guide Post Option
(6" Ø x 6'-0")



Metal Guide Post Option
7'-0" at 3.0 lbs/ft.
flanged channel

± Nominal dimension.

GENERAL NOTES

GEOSYNTHETICS: Use material that complies with KDOT Specification Section 1710 Class 2 subsurface drainage fabric. Place the Class 2 subsurface drainage fabric on graded and compacted material shaped as shown. Allow for enough material so that the top can be overlapped and the end folded to completely enclose the aggregate drain. Place the perforated drain pipe and couple to non-perforated pipe as shown. Allow the non-perforated pipe to pass through a hole carefully cut in fabric. Place aggregate within fabric to just leave the top of the pipe visible. Verify the slope of the pipe, that it is not damaged or displaced and that the couplers are firmly coupled. Continue to backfill to the elevation and shape shown. Lap the top of the fabric a minimum of 3'-0", fold and wrap the ends to enclose the drainage materials. Secure the folds and wraps by sewing or approved methods.

AGGREGATE: Use aggregates that complies with KDOT Specifications for SB-1 or SB-2.

BASE COURSE REINFORCEMENT: Use "Base Course Reinforcement" that complies with KDOT Specification Division 1700 or approved material. Place this material in uniform layers without gaps or sags per the manufacturer's recommendations.

GEOFOAM: Use "Geofoam" that complies with ASTM D6817 EPS 12. Acceptance according to Type "C" certification. Bond this material to the back wall protection using materials recommended by the manufacturer.

SOIL CAP: The soil will have a Unified Soil Classification of CL or ML according to ASTM D2487. Compact to Type A, MR-90.

PIPE: Place perforated pipe within the limits and use non-perforated pipe outside the limits of the Abutment Aggregate Drain.

ABUTMENT AGGREGATE DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation Sheet. Backfill, compact & grade the cohesive soil to the limits shown. Place the bridge backwall protection, geofoam, geotextile, perforated pipe, alternating layers of aggregate and base course reinforcement as shown. Place the outlet pipe, the CMP, and the backfill. Guide post and coarse aggregate are subsidiary to this bid item. Guide post and coarse aggregate are not required if the CMP empties onto Slope Protection. Enclose the entire Abutment Aggregate Drain with the geotextile

BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protective System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage done at no charge to the state.

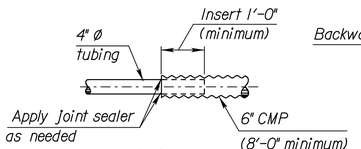
Compact the abutment backfill. See the KDOT Specifications.

Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

Fit the CMP end section with 1/4" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer. Place Coarse aggregate at the outlet end as shown.

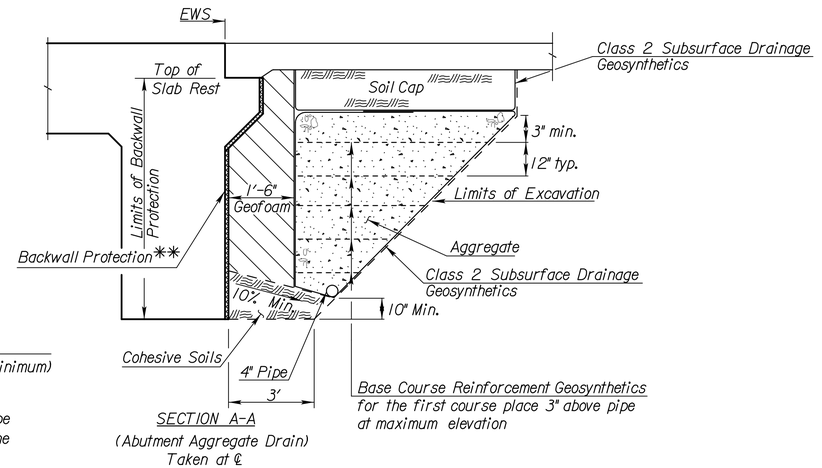
COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown. Backfill this area with a cohesive type of soil. The soil will have a Unified Soil Classification of CL, CH, ML or MH according to ASTM D2487 Classification System with a minimum plasticity index of 13. Compact the material to Type A, MR-90 specifications. If the plasticity index cannot be met add and mix Bentonite, to the soil prior to placement and compaction so that the PI≥ 13.

* Limits of Bridge Backwall Protection System & Geofoam



DETAIL A

Note: The 1'-0" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing.



SECTION A-A
(Abutment Aggregate Drain)
Taken at ℄

SUMMARY OF QUANTITIES (2 Abutments)	
Abutment Aggregate Drain	72.1 Cu. Yds.
Bridge Backwall Protection System	93.3 Sq. Yds.
Items subsidiary to Abutment Aggregate Drain	
4" Ø Perforated Pipe	90.0 Lin. Ft.
4" Ø Outlet Pipe	175.0 Lin. Ft.
6" Ø CMP	16.0 Lin. Ft.
Guide Post	0 Each
Soil Cap	85.1 Cu. Yds.
Geosynthetics (Class 2 Subsurface Drainage)	454.0 Sq. Yds.
Geosynthetics (Base Course Reinforcement)	129.6 Sq. Yds.
Geofoam	34.0 Cu. Yds.

SHEET NO. 500 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

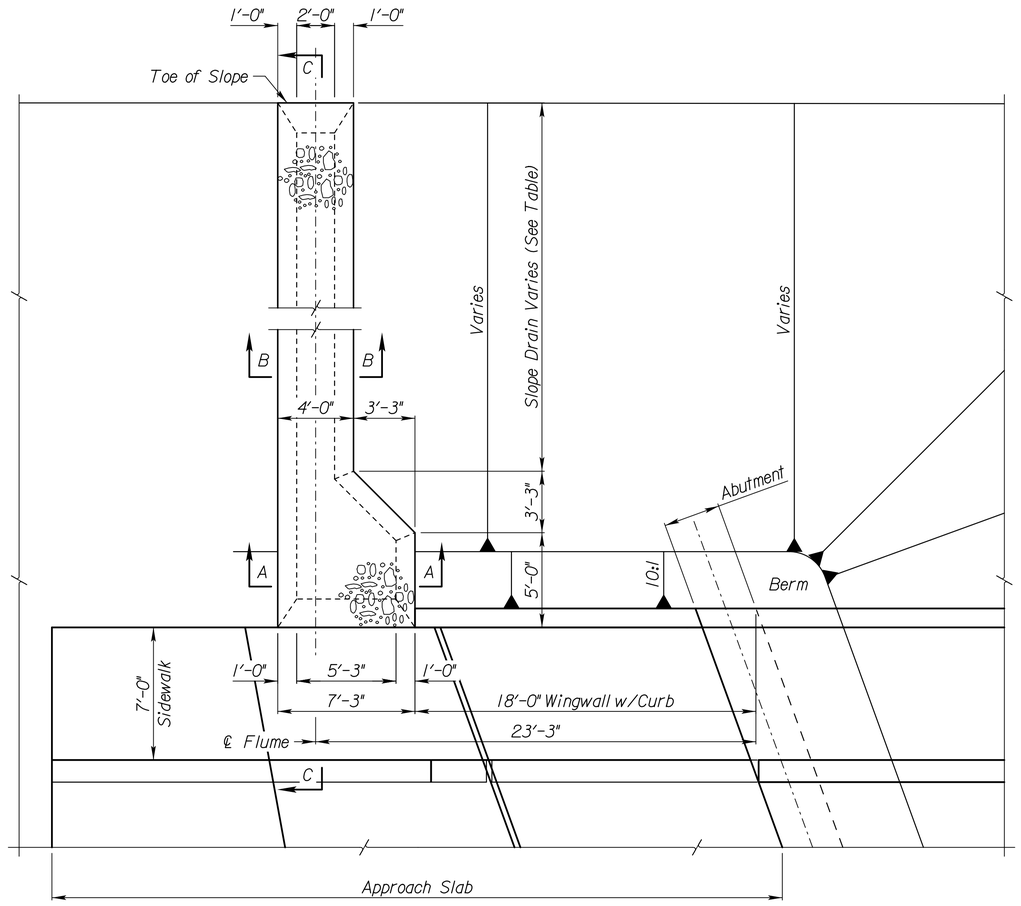
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
ABUTMENT AGGREGATE DRAIN

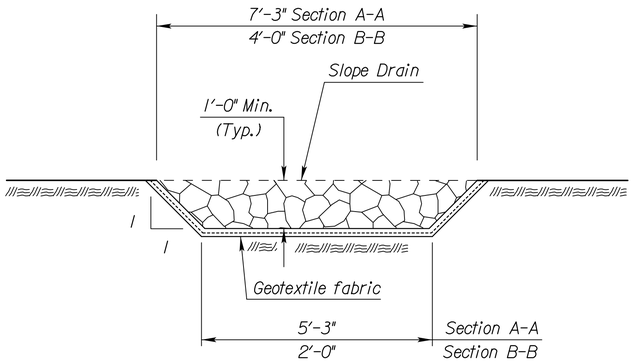
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Abut_Drain.dgn



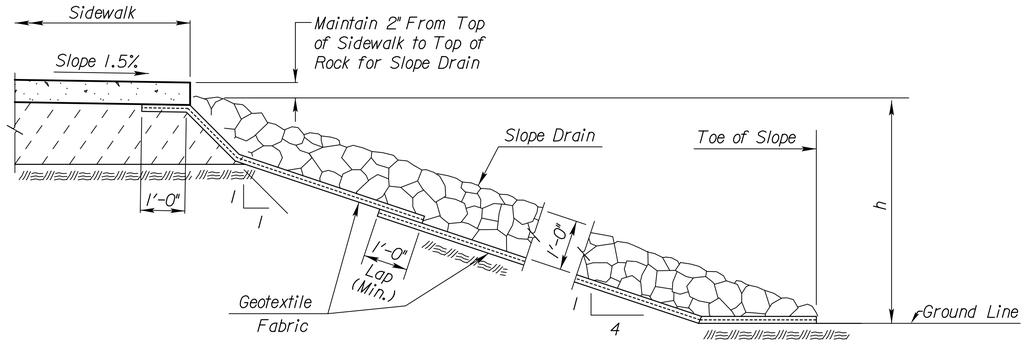
Note: Slope dimensions shown are along slope.

PLAN

Abutment No. 1 Shown, Abutment No. 2 Similar



SECTION A-A, SECTION B-B



SECTION C-C

GENERAL NOTES

Limits of "Slope Drain (Stone)" are as shown on this sheet. Limits may be adjusted as needed at the direction of the Engineer to match ground elevations found at the site.

Gradation and aggregate for the "Slope Drain (Stone)" shall meet the requirements of stone for Aggregate Ditch Lining and have a D_{50} of 4" unless otherwise noted on the Plans.

Excavation and grading for placement of Slope Drain and all work and material to install geotextile fabric shall be subsidiary to "Slope Drain (Stone)".

Slope Drain shall be underlain with geotextile fabric. Fabric damaged or displaced during construction shall be replaced at no cost to The City. Fabric shall be installed and secured as recommended by the fabric manufacturer. One (1) copy of the fabric manufacturer's installation procedure shall be submitted to the Engineer. The installation procedure shall show details of the splices, overlaps, and pin layout. Minimum overlap of geotextile shall be 1'-0". Fabric shall be anchored along edges and splices at a maximum of 3'-0" centers with staples or pins (w/washers). Interior area of fabric shall be pinned or stapled as recommended by the manufacturer but not more than 5'-0" centers. Pins or staples shall be a minimum of 1'-0" in length. Geotextile fabric shall meet the requirements of KDOT Specifications.

The Contractor shall place the rock from the bottom to the top of the slope. Place the rock in a manner which produces a reasonably well graded mass of rock without segregation of the material sizes. Placement, measurement, and payment shall conform to KDOT Specifications for "Slope Drain (Stone)".

SLOPE DRAIN	
Location	*Dimension h (ft.)*
Abut. #1	*26*
Abut. #2	*18*

SUMMARY OF QUANTITIES		
Item	*Abut. No. 1*	*Abut. No. 2*
Slope Drain (Stone) (Lin. Ft.)	*108*	*71*
Items subsidiary to Slope Drain (Stone)		
Geotextile Fabric (Sq. Yds.)	*51*	*35*

SHEET NO. 501 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

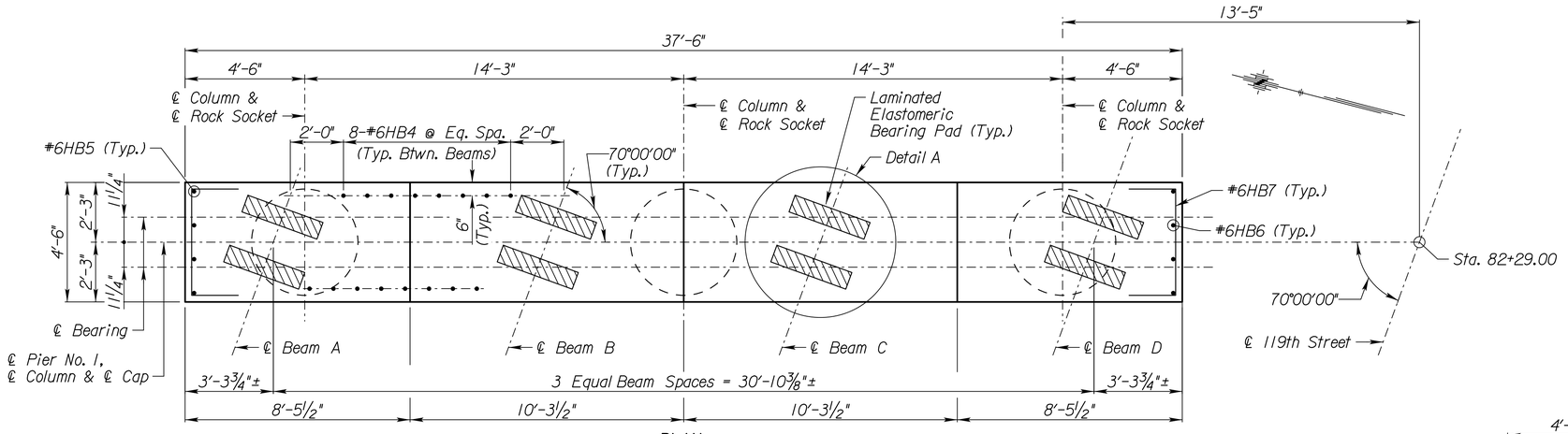
CITY OF OLATHE, KS

OLATHE KANSAS

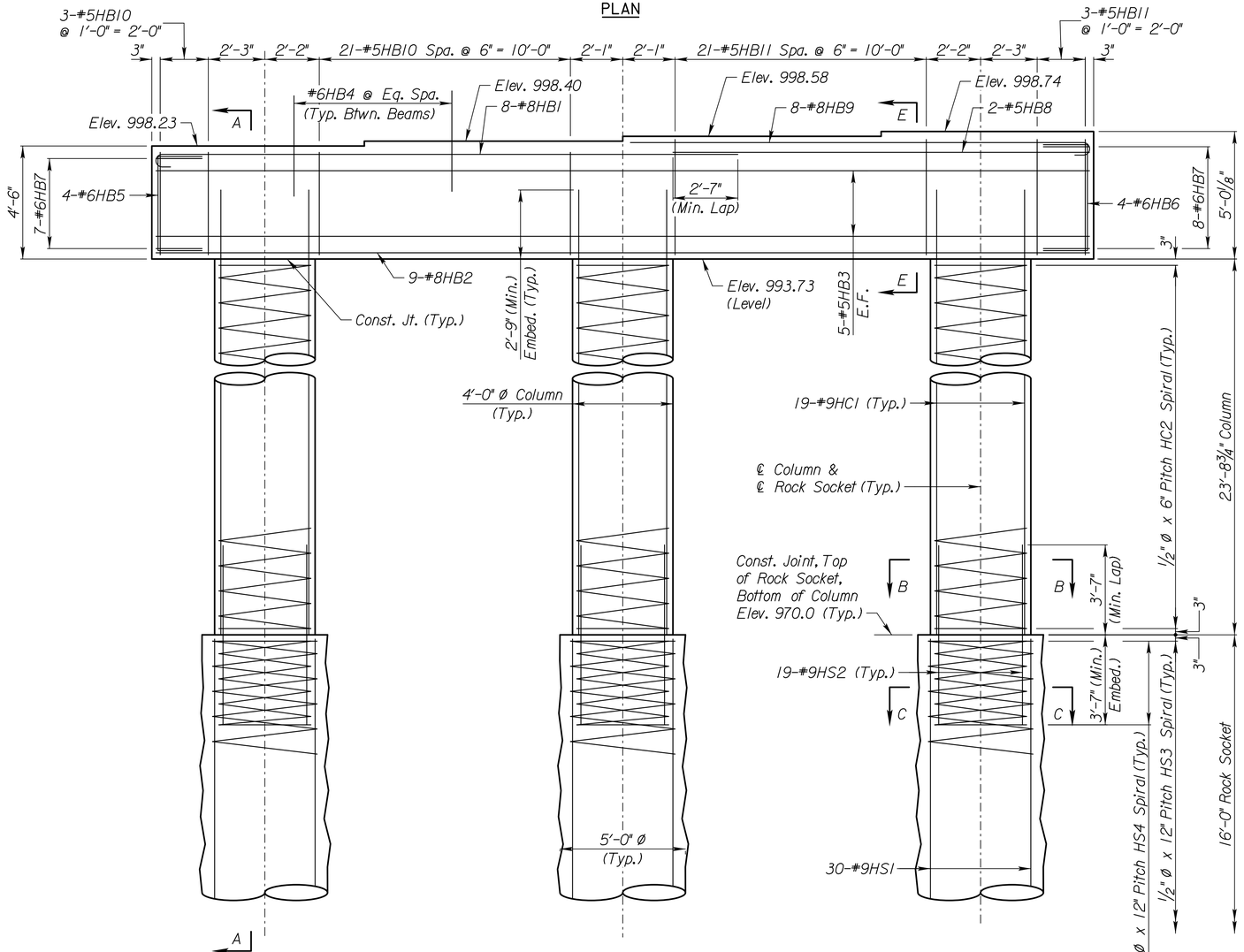
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
SLOPE DRAIN

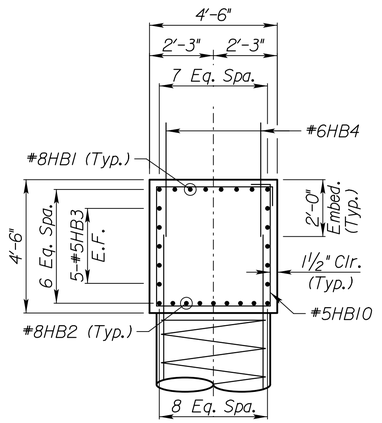
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_SlopeDrain.dgn

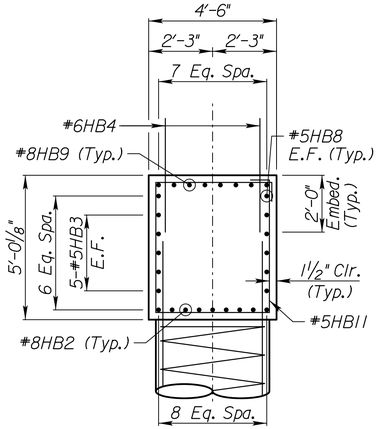


PLAN

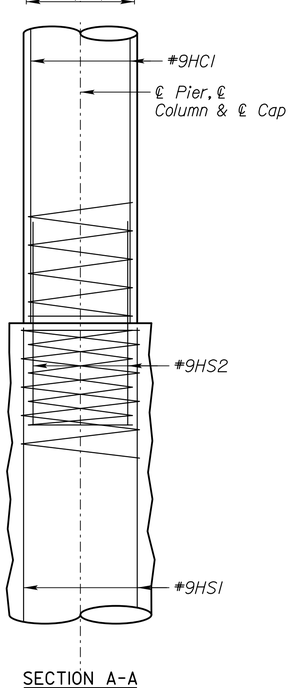


ELEVATION





SECTION E-E



SECTION A-A

Notes:
For Sections B-B, C-C and Detail A, See Sh. No. 503

For Rock Socket Details, See Sh. No. 503

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

Max. Factored Design Drilled Shaft Load (Strength I) = 569 tons/shaft
Factored Drilled Shaft resistance = 1,162 tons/shaft

SHEET NO.	TOTAL SHEETS
502	781

YEAR 2024

PROJECT NO. 3-C-024-21

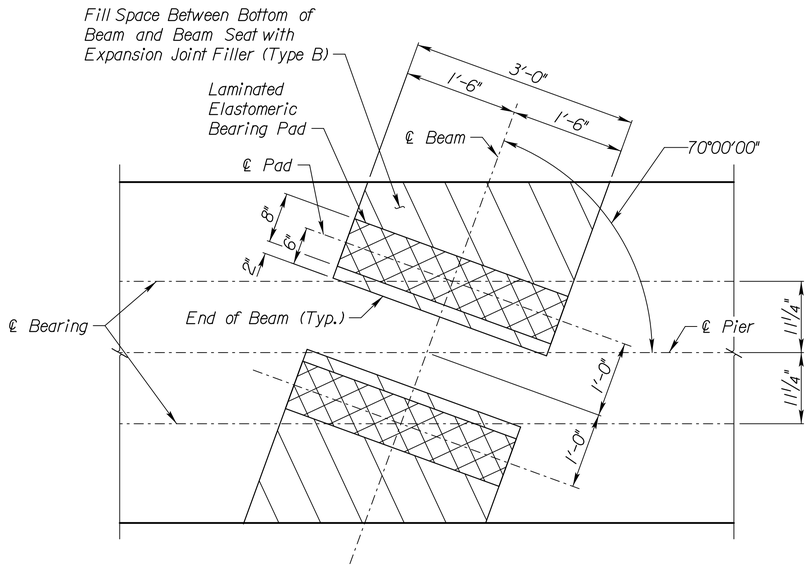
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

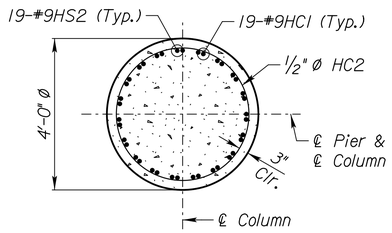
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 1 DETAILS
(1 OF 2)

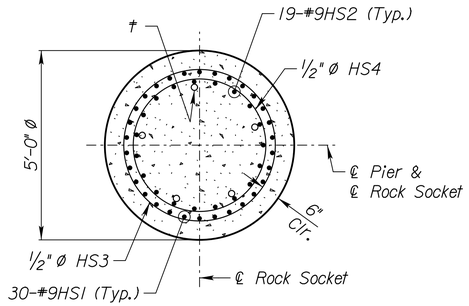
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P1-1.dgn



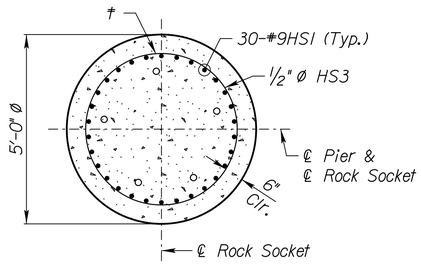
DETAIL A



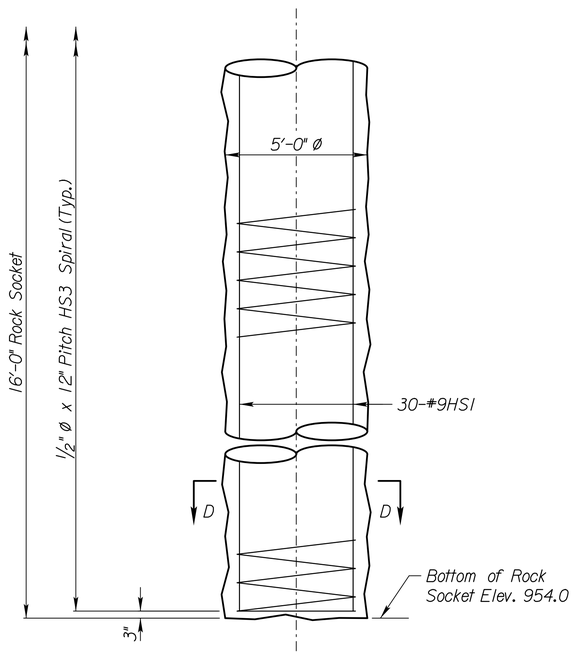
SECTION B-B



SECTION C-C



SECTION D-D



ROCK SOCKET DETAIL

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C and Detail A, See Sh. No. 502

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P1-2.dgn

SHEET NO.	TOTAL SHEETS
503	781

YEAR 2024

PROJECT NO. 3-C-024-21

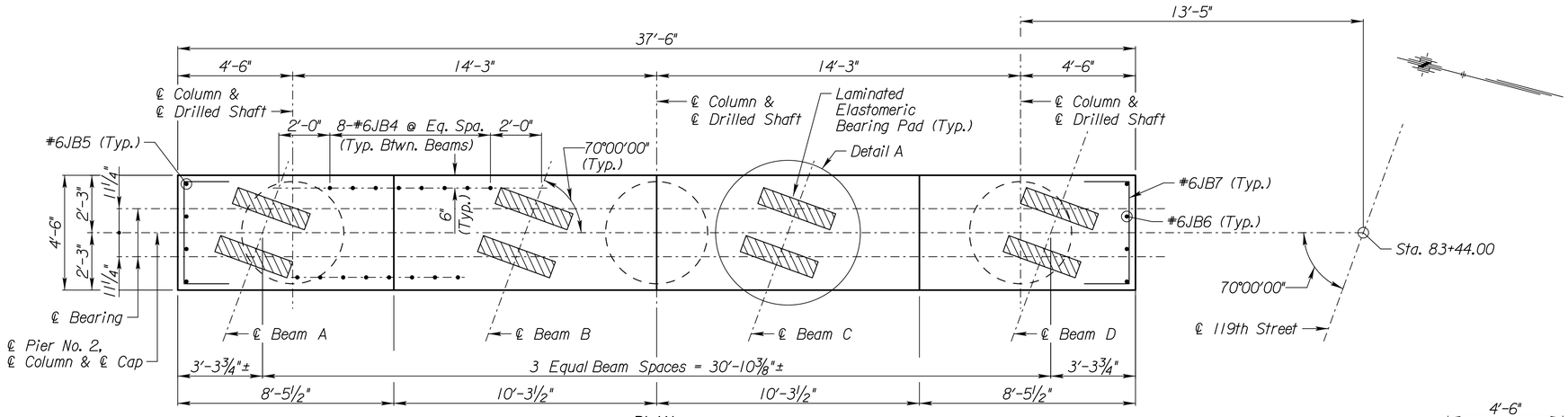
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 1 DETAILS
(2 OF 2)



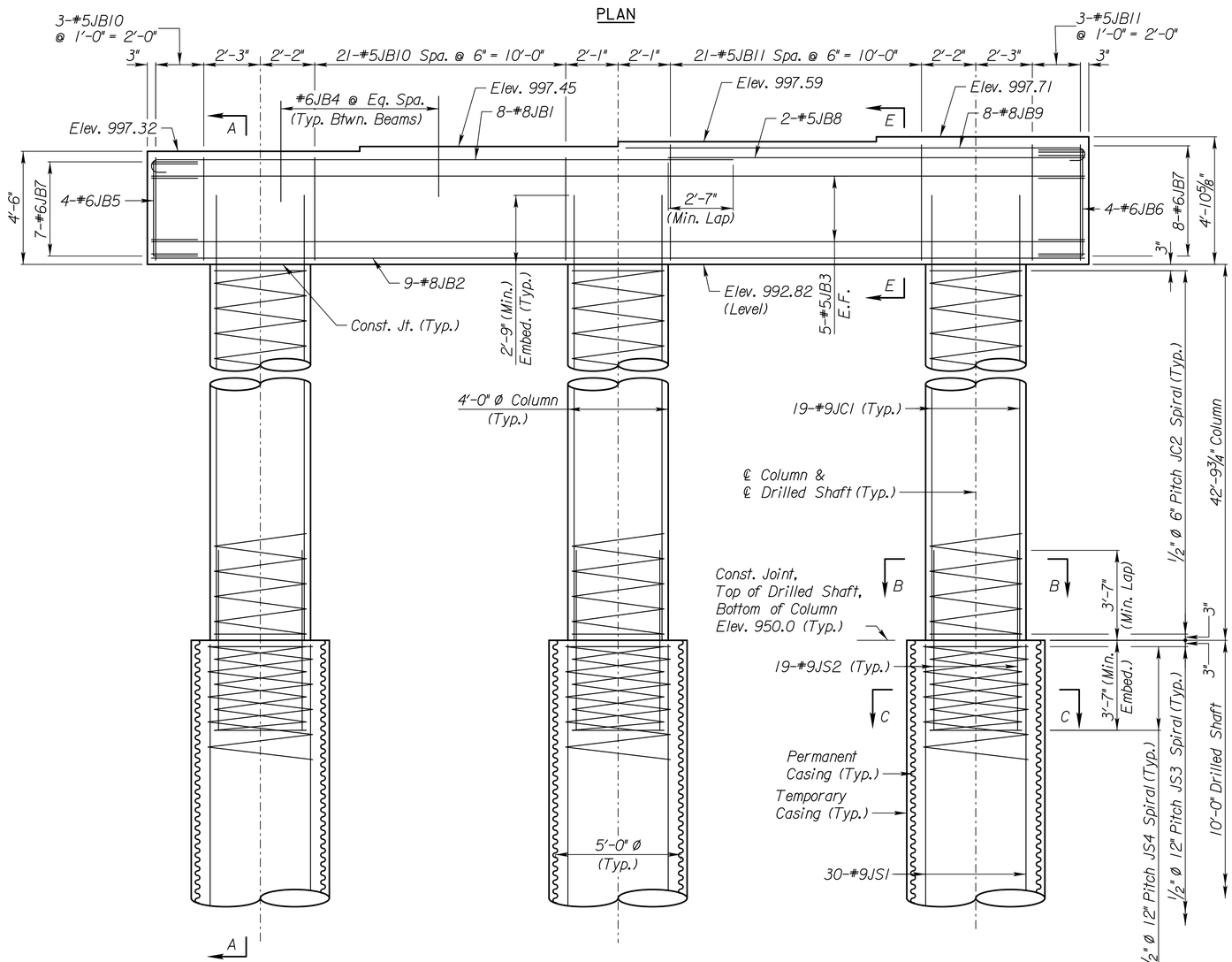
Notes:
For Sections B-B, C-C and Detail A, See Sh. No. 505

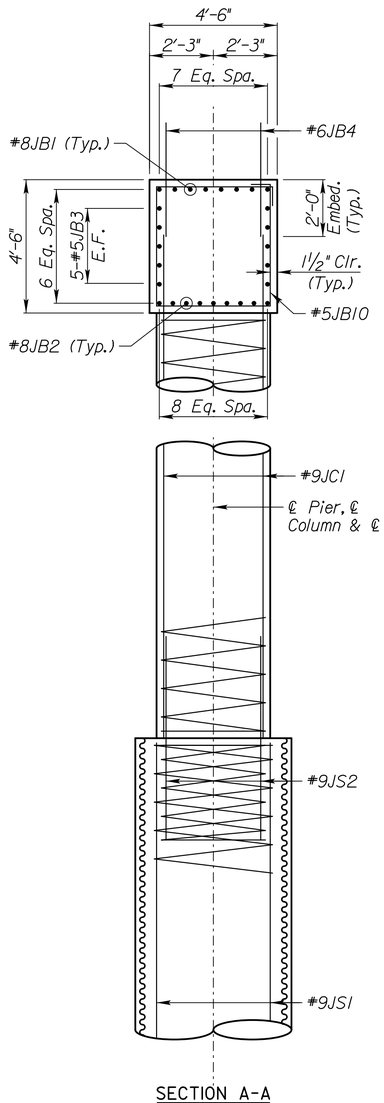
For Rock Socket Details, See Sh. No. 505

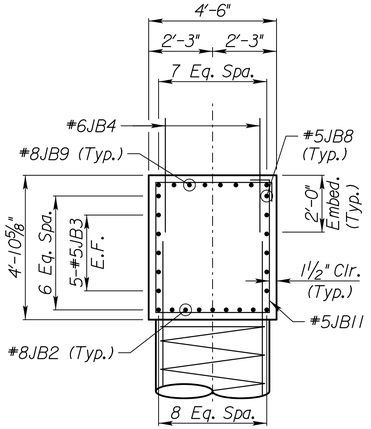
For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

Max. Factored Design Drilled Shaft Load (Strength I) = 596 tons/shaft
Factored Drilled Shaft resistance = 1,804 tons/shaft

PLAN







SECTION E-E

SHEET NO.	TOTAL SHEETS
504	781

YEAR 2024

PROJECT NO. 3-C-024-21

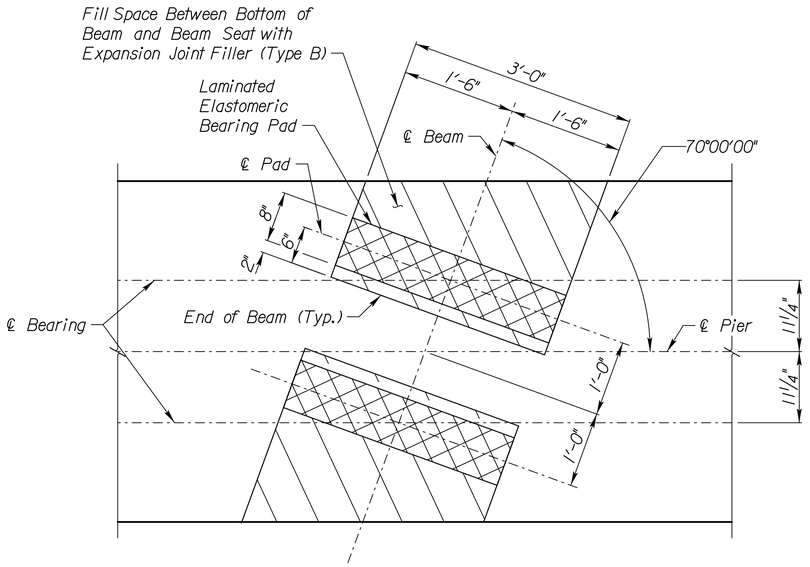
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

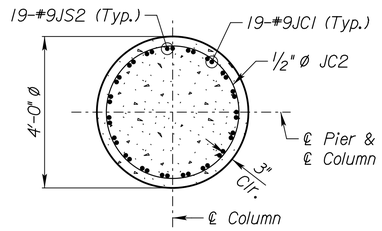
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 2 DETAILS
(1 OF 2)

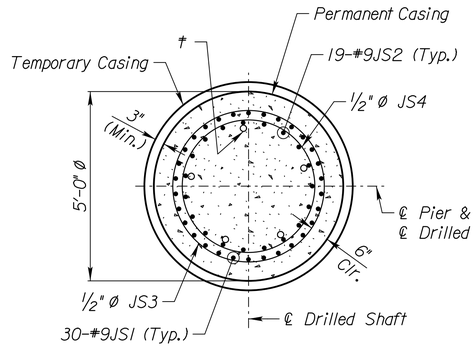
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P2-1.dgn



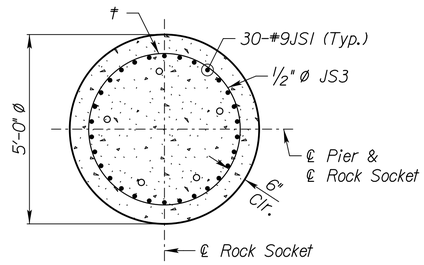
DETAIL A



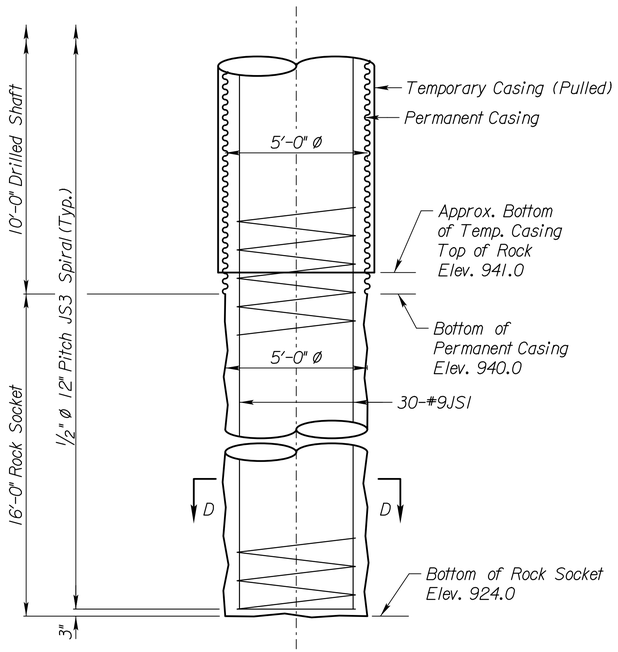
SECTION B-B



SECTION C-C



SECTION D-D



ROCK SOCKET DETAIL

Notes:
#5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C and Detail A, See Sh. No. 504

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P2-2.dgn

SHEET NO. 505 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

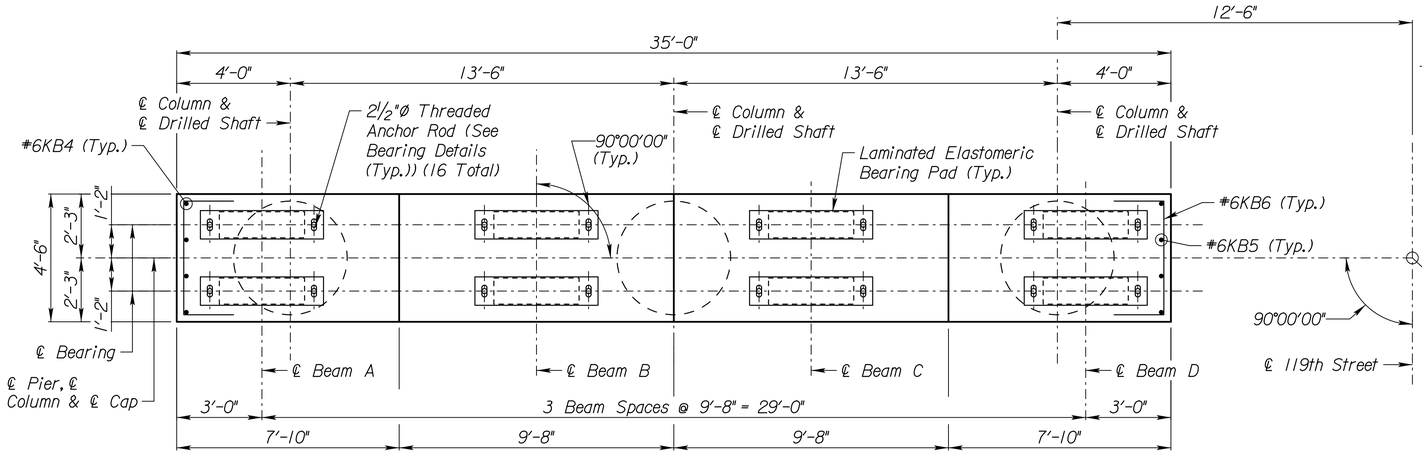
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS

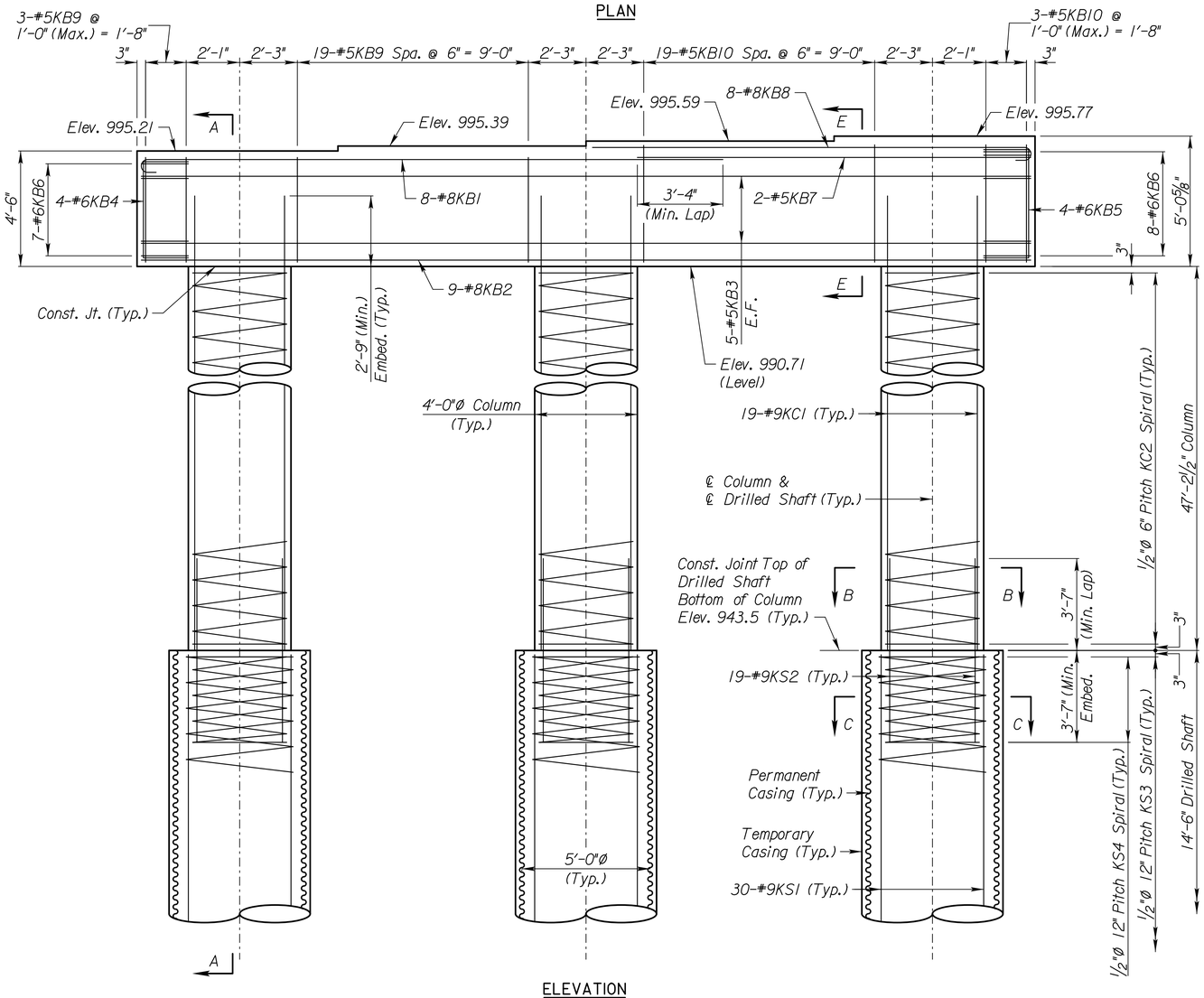
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 2 DETAILS
(2 OF 2)



PLAN



ELEVATION

Notes:
For Sections B-B and C-C, See Sh. No. 507

For Rock Socket Details, See Sh. No. 507

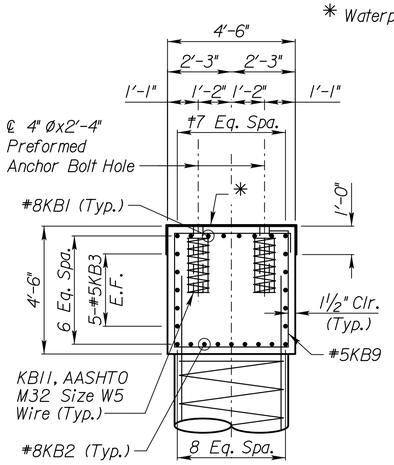
For additional Anchor Rod and Formed Hole Details, See Sh. No. 543

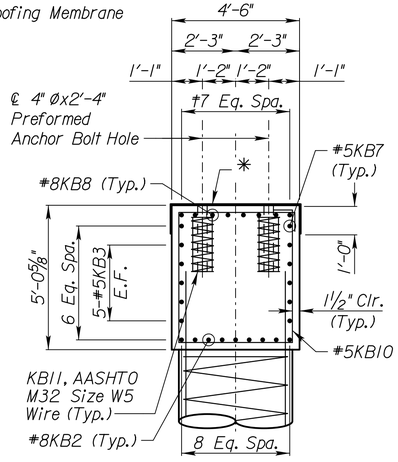
For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

Max. Factored Design Drilled Shaft Load (Strength I) = 526 tons/shaft
Factored Drilled Shaft resistance = 2,751 tons/shaft

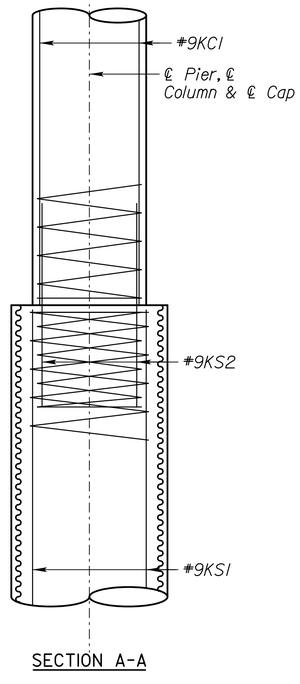
† Adjust Spacing as needed to Maintain ½" Clear to Anchor Bolt Hole

✳ Waterproofing Membrane





SECTION E-E



SECTION A-A

SHEET NO.	TOTAL SHEETS
506	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

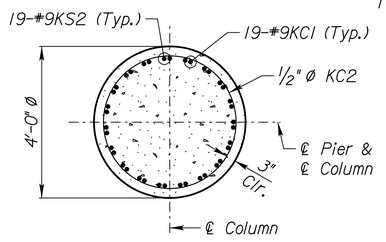
CITY OF OLATHE, KS

OLATHE KANSAS

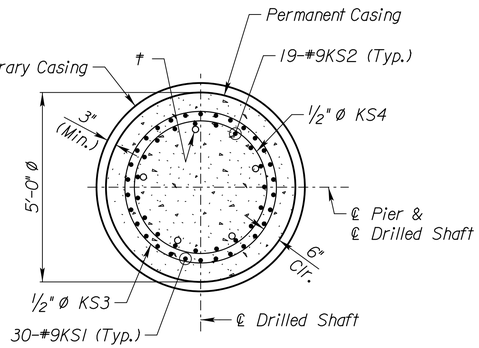
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 3 DETAILS
(1 OF 2)

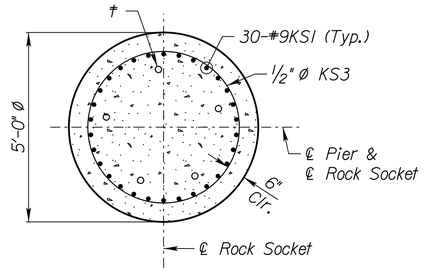
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P3-1.dgn



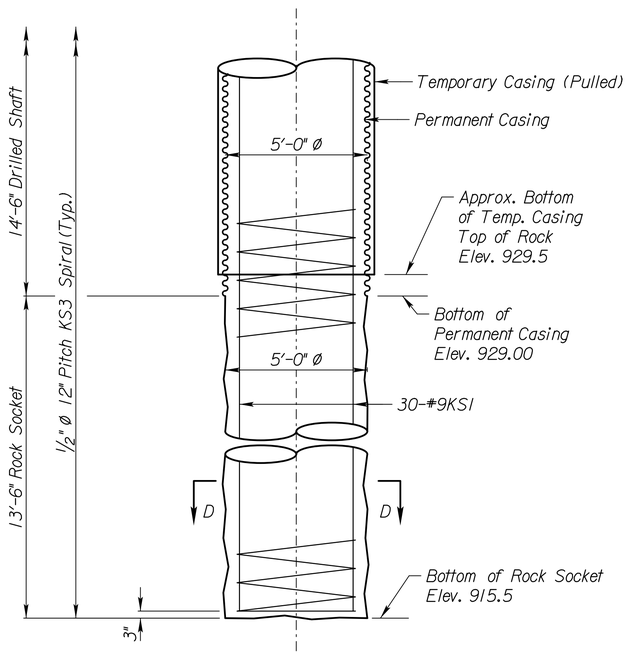
SECTION B-B



SECTION C-C



SECTION D-D



ROCK SOCKET DETAIL

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B and C-C, See Sh. No. 506

SHEET NO.	TOTAL SHEETS
507	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

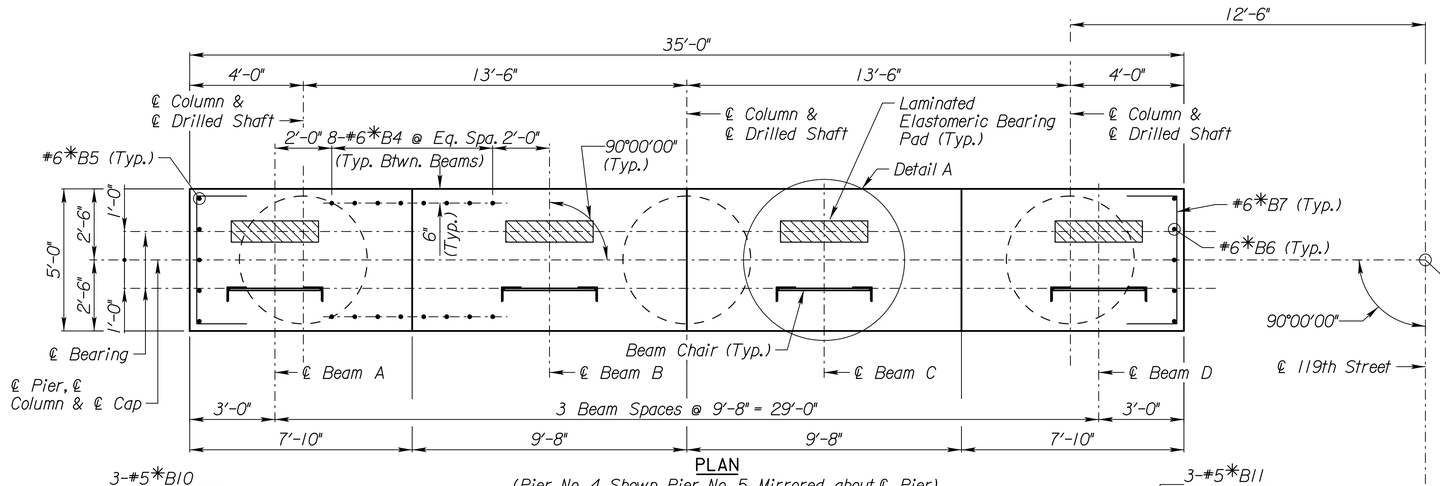
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

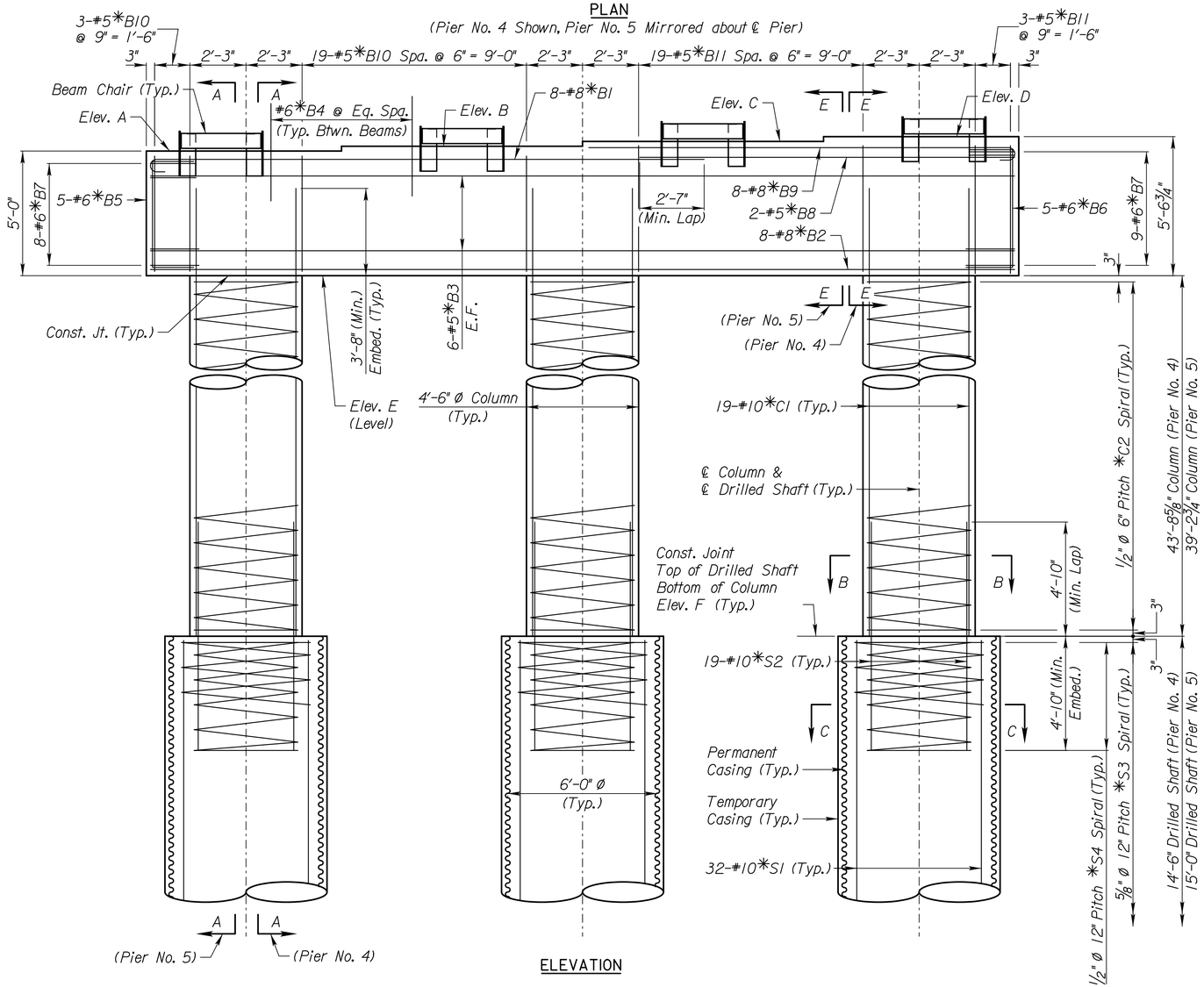
119th Street - Westbound
PIER NO. 3 DETAILS
(2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P3-2.dgn

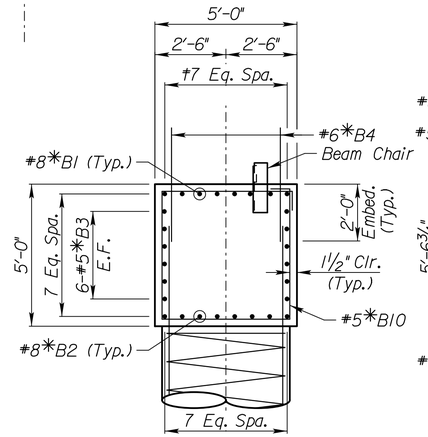


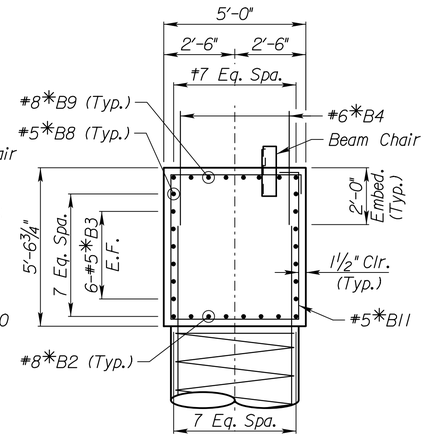
PLAN

(Pier No. 4 Shown, Pier No. 5 Mirrored about ℄ Pier)

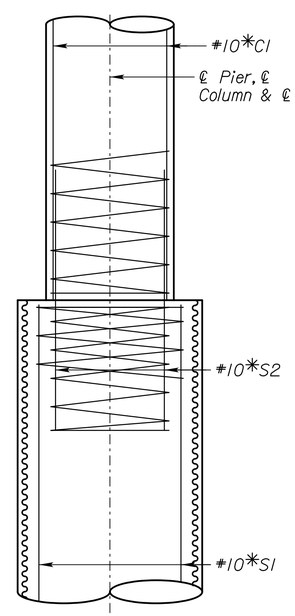


ELEVATION





SECTION E-E



SECTION A-A

TABLE OF VARIABLES		
Location	Pier No. 4	Pier No. 5
Elev. A	992.22	988.23
Elev. B	992.40	988.41
Elev. C	992.59	988.61
Elev. D	992.78	988.79
Elev. E	987.22	983.23
Elev. F	943.5	944.0
Elev. G	929.5	929.5
Elev. H	929.0	929.0
Elev. J	914.5	914.5
Station K	85+63.00	86+93.00
*Barmark	L	M

Notes:
For Sections B-B, C-C and Detail A, See Sh. No. 509

For Beam Chair Details, See Sh. No. 509

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

For Rock Socket Details, See Sh. No. 509

Max. Factored Design Drilled Shaft Load (Strength I) = 783 tons/shaft
Factored Drilled Shaft Resistance = 3,657 tons/shaft

Adjust top of cap and stirrup reinforcement spacing to accomodate beam chair.

† Adjust Spacing to Maintain ½" Clear to Beam Chairs

SHEET NO. 508 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

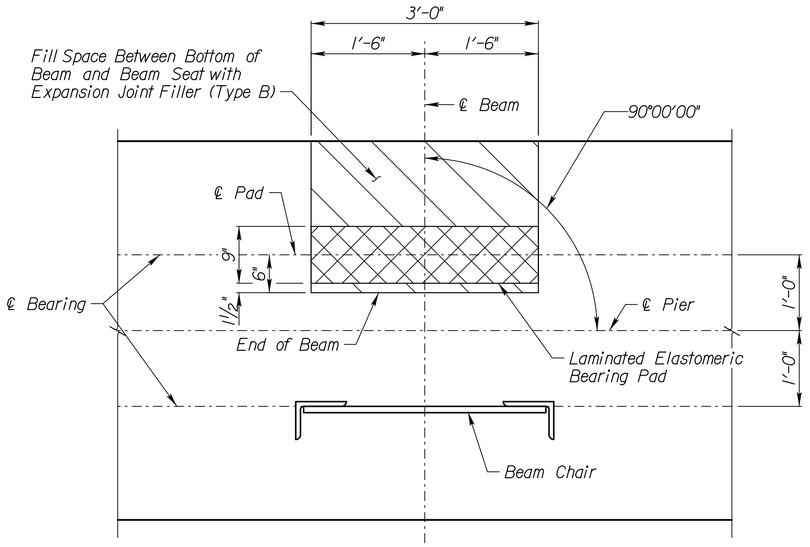
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS
OLATHE KANSAS

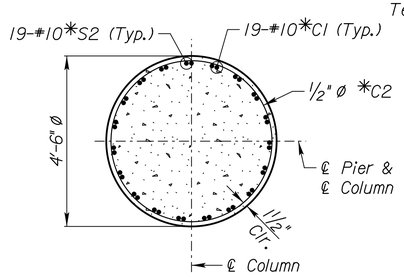
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIERS NO. 4 & 5 DETAILS
(1 OF 2)

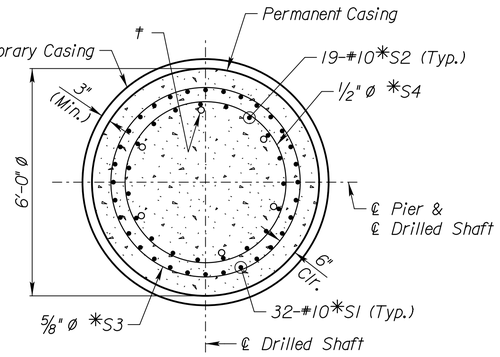
Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P4&5-1.dgn



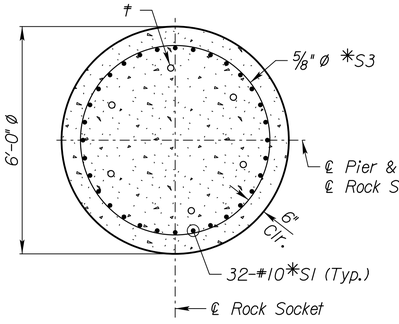
DETAIL A



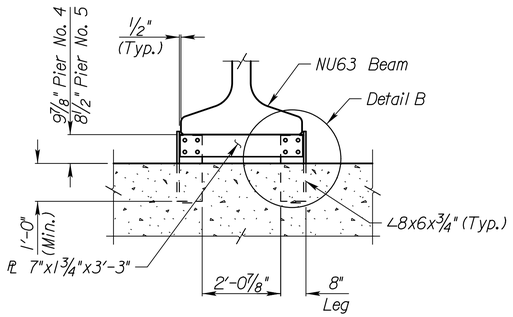
SECTION B-B



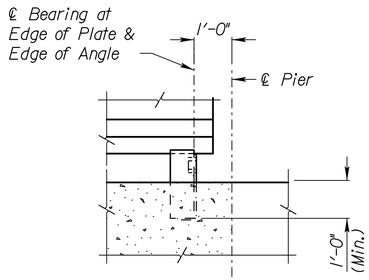
SECTION C-C



SECTION D-D

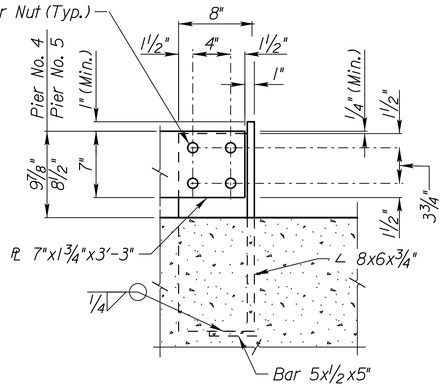


BEAM CHAIR ELEVATION

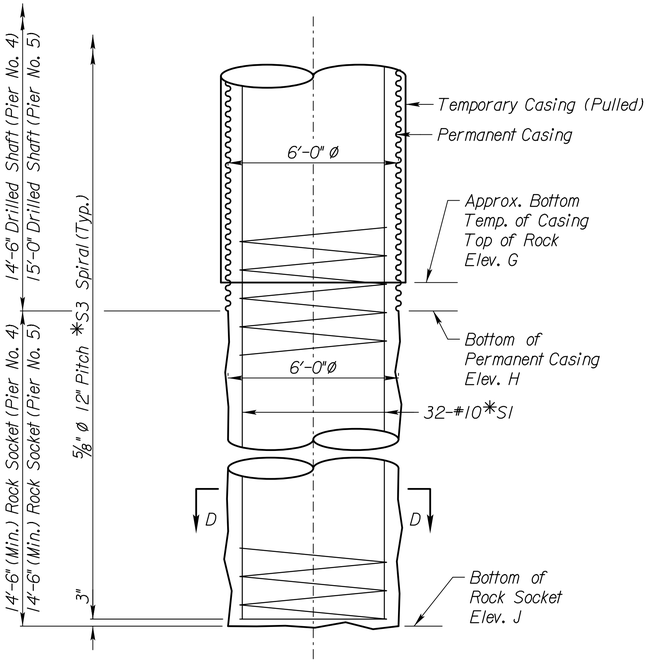


BEAM CHAIR SIDE ELEVATION

BEAM CHAIR DETAILS (ALL BEAMS)



DETAIL B



ROCK SOCKET DETAIL

Beam Chair Notes:
All Beam Chair materials including bolts, nuts, and washers shall be galvanized.

Fabricated Structural steel shall be ASTM A709 Grade 36 except as noted.

Payment for furnishing and installing Beam Chairs will be completely covered by the unit price of Prestressed Concrete Beams.

Shop Drawing will not be required for Beam Chairs.

Notes:
†6-2" ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Table of Variables, Sections B-B, C-C and Detail A, See Sh. No. 508

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

SHEET NO. 509 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIERS NO. 4 & 5 DETAILS
(2 OF 2)

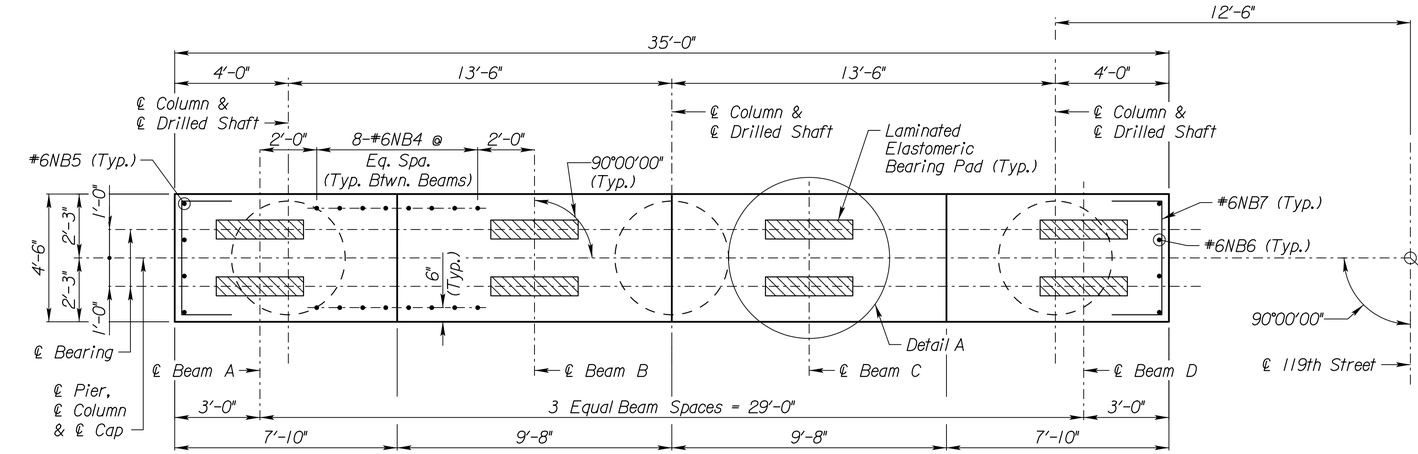
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P4&5-2.dgn

Notes:
For Sections B-B, C-C and Detail A, See Sh. No. 511

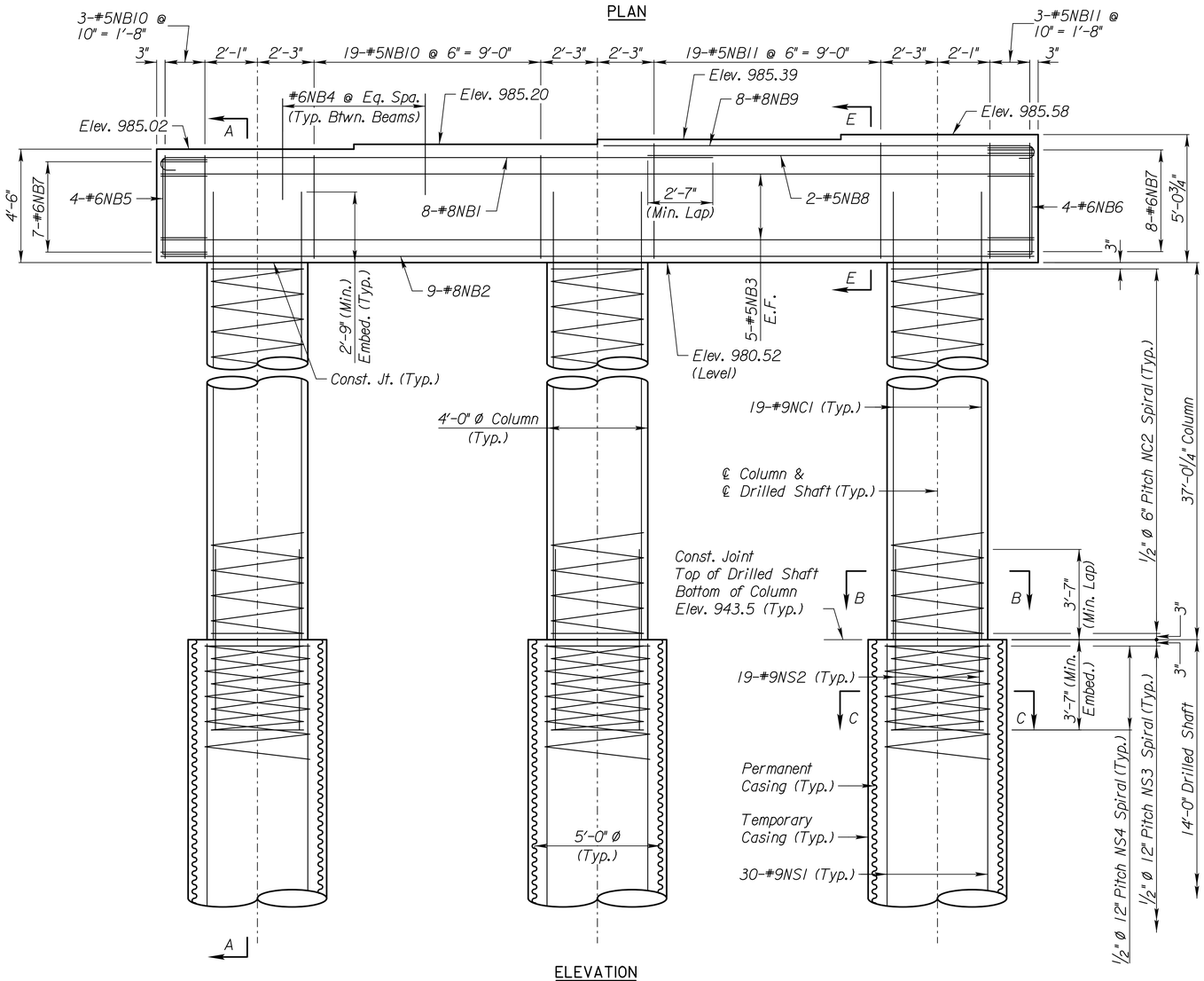
For Rock Socket Details, See Sh. No. 511

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

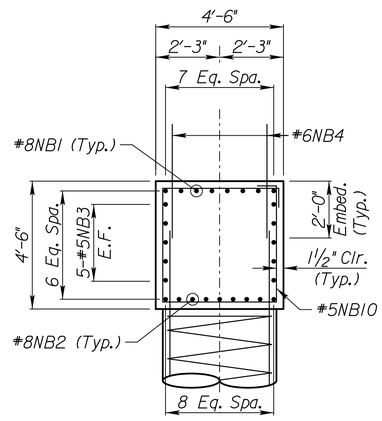
Max. Factored Design Drilled Shaft Load (Strength I) = 527 tons/shaft
Factored Drilled Shaft resistance = 2,229 tons/shaft



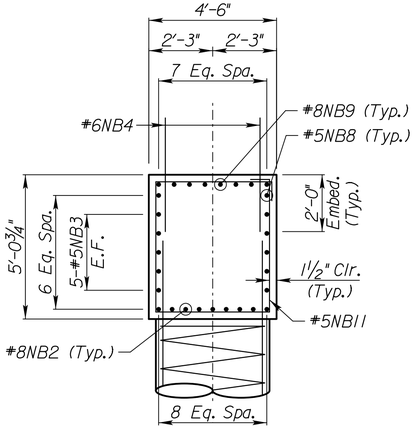
PLAN



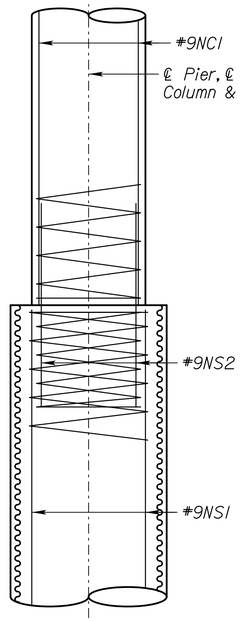
ELEVATION



SECTION E-E



SECTION E-E



SECTION A-A

SHEET NO.	TOTAL SHEETS
510	781

YEAR 2024

PROJECT NO. 3-C-024-21

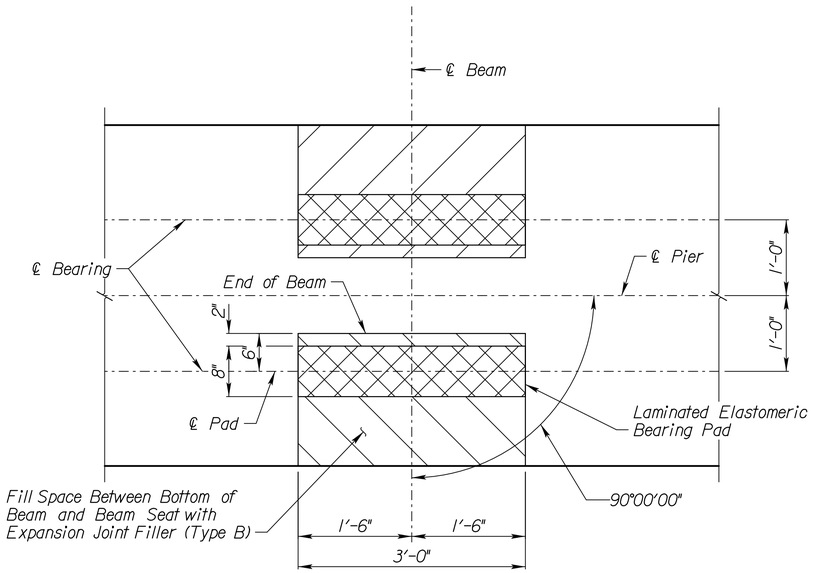
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

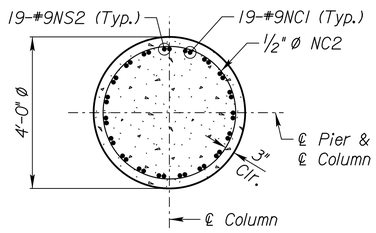
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 6 DETAILS
(1 OF 2)

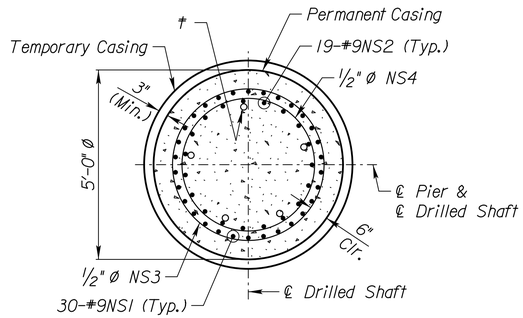
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P6-1.dgn



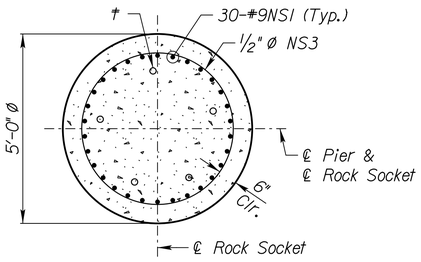
DETAIL A



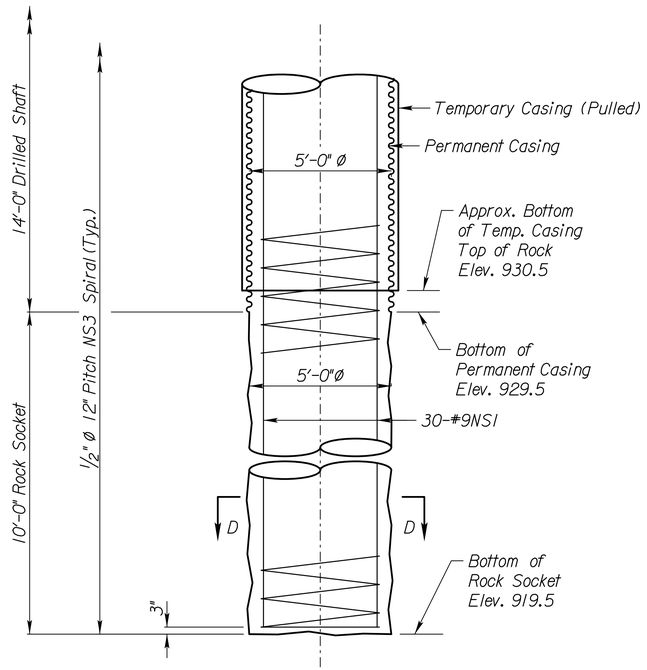
SECTION B-B



SECTION C-C



SECTION D-D



ROCK SOCKET DETAIL

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C and Detail A, See Sh. No. 510

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

SHEET NO.	TOTAL SHEETS
511	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

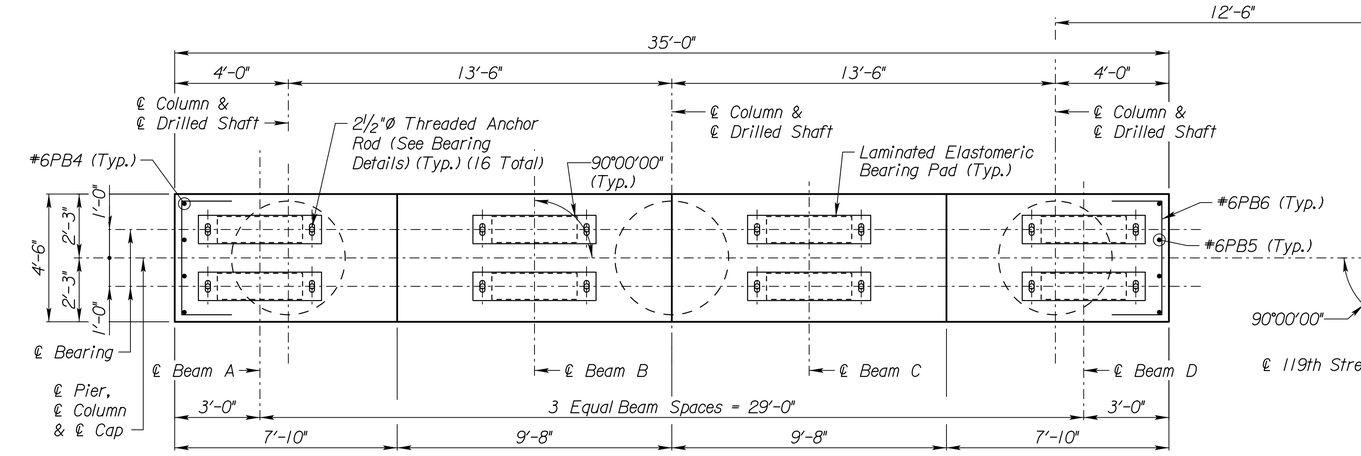
CITY OF OLATHE, KS

OLATHE KANSAS

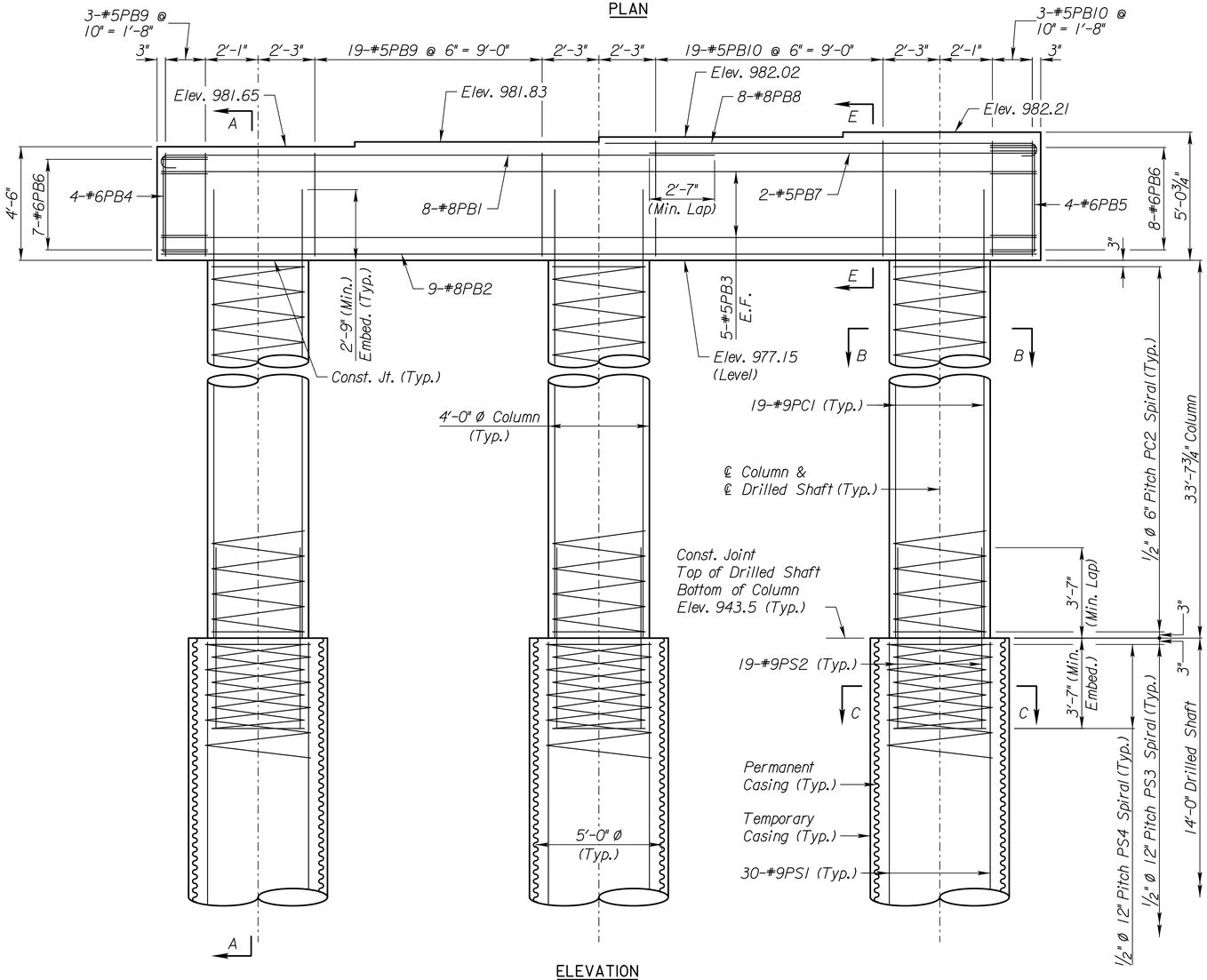
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 6 DETAILS
(2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P6-2.dgn

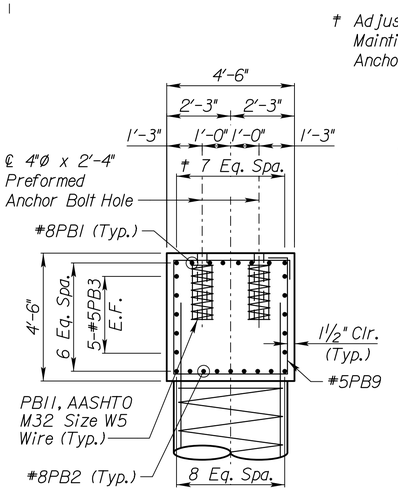


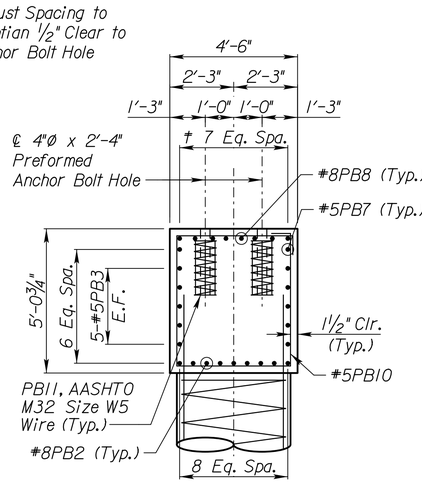
PLAN



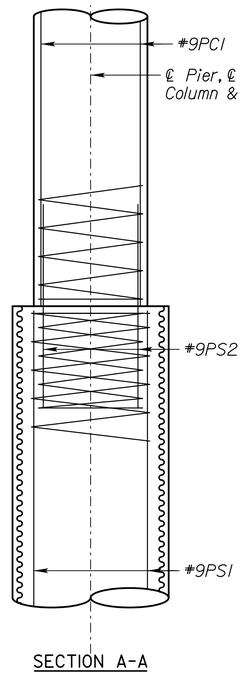
ELEVATION

† Adjust Spacing to Maintian ½" Clear to Anchor Bolt Hole





SECTION E-E



SECTION A-A

Notes:
For Sections B-B and C-C, See Sh. No. 513

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 543

For Rock Socket Details, See Sh. No. 513

For additional Anchor Rod and Formed Hole Details, See Sh. No. 543

Max. Factored Design Drilled Shaft Load (Strength I) = 527 tons/shaft
Factored Drilled Shaft resistance = 2,229 tons/shaft

SHEET NO.	TOTAL SHEETS
512	781

YEAR 2024

PROJECT NO. 3-C-024-21

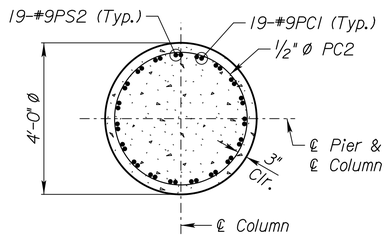
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

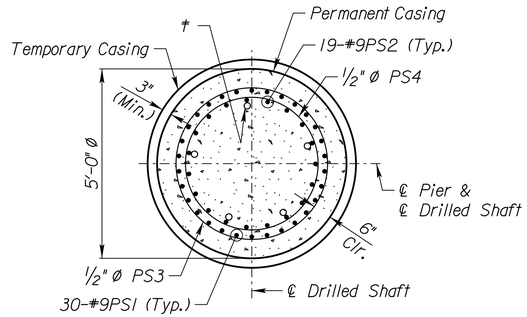
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER NO. 7 DETAILS
(1 OF 2)

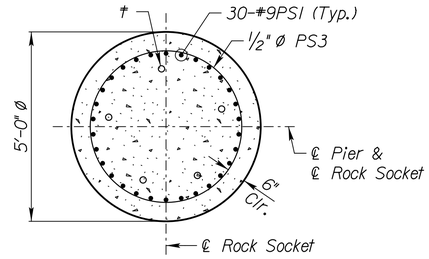
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P7-1.dgn



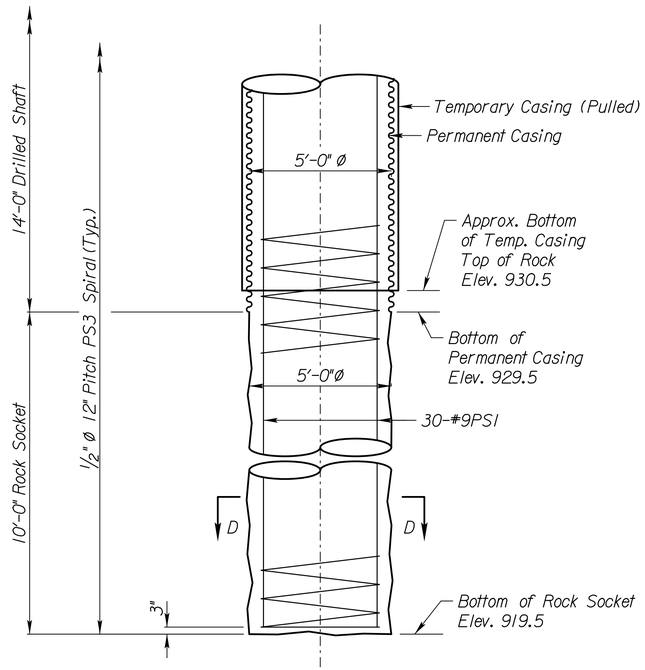
SECTION B-B



SECTION C-C



SECTION D-D



ROCK SOCKET DETAIL

Notes:
#5-2" ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B and C-C, See Sh. No. 512

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_P7-2.dgn

SHEET NO. 513 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

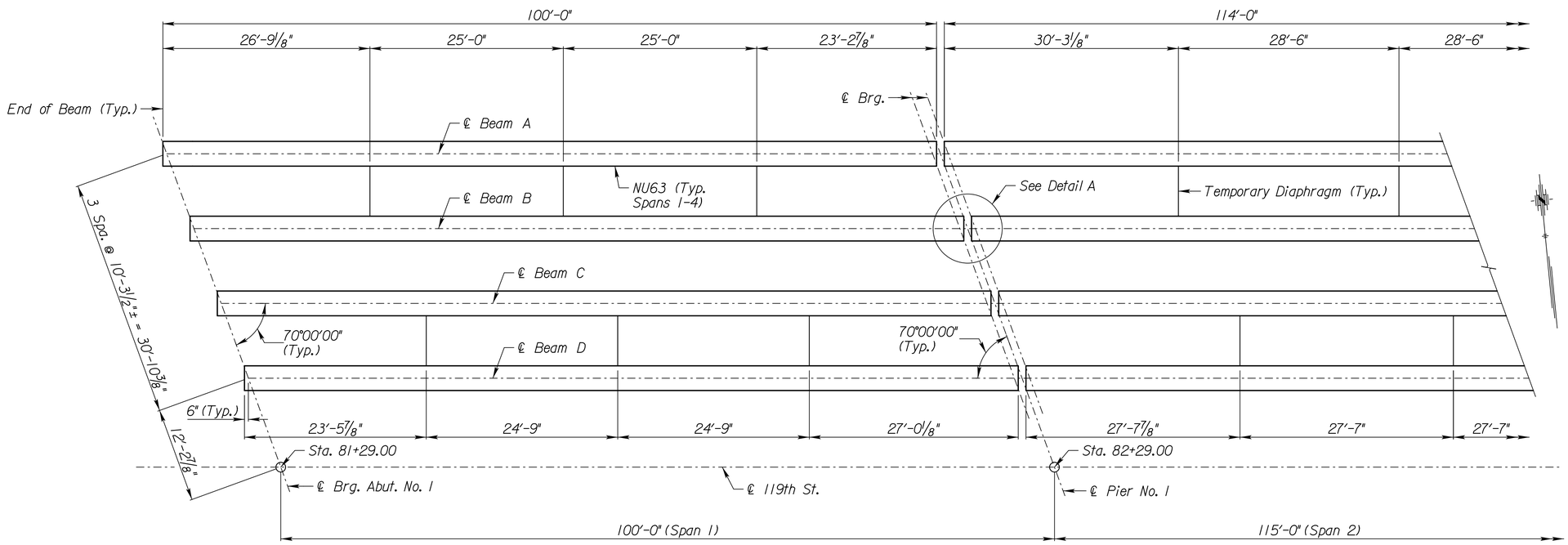
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

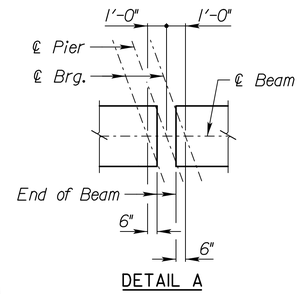
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

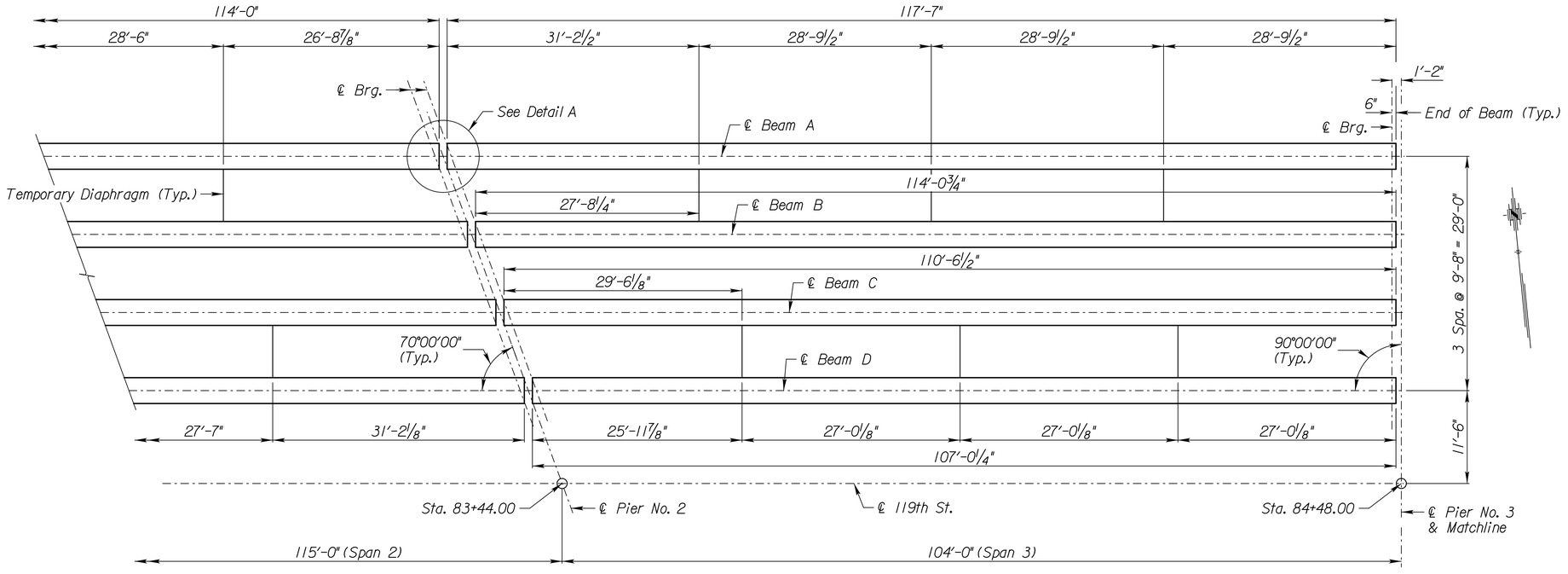
119th Street - Westbound
PIER NO. 7 DETAILS
(2 OF 2)



FRAMING PLAN - UNIT 1



DETAIL A



FRAMING PLAN - UNIT 1 CONT.

SHEET NO.	TOTAL SHEETS
514	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

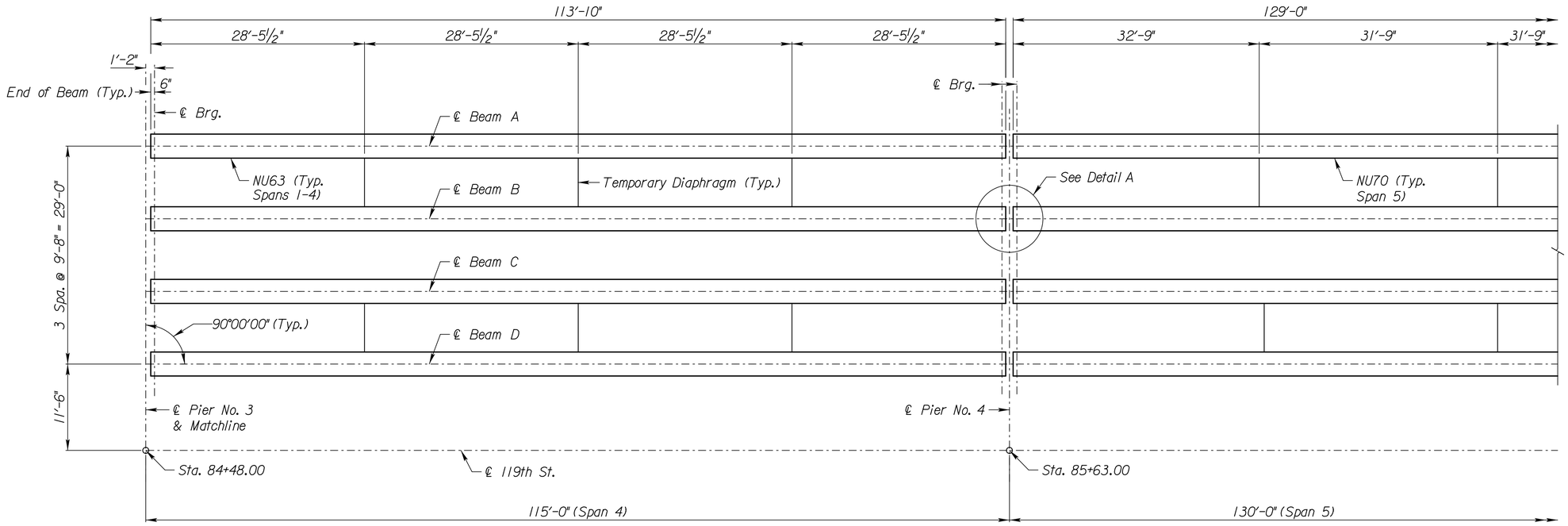
CITY OF OLATHE, KS

OLATHE KANSAS

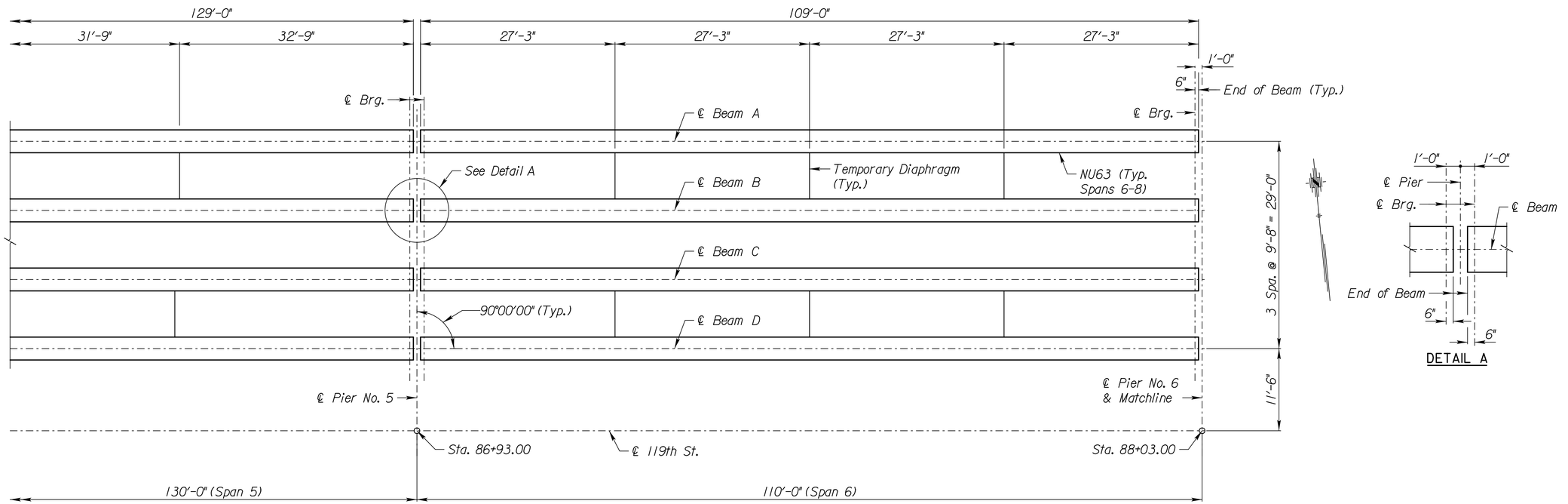
By	Description	Date	Rev.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
FRAMING PLAN (1OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Frame1.dgn



FRAMING PLAN - UNIT 2



FRAMING PLAN - UNIT 2 CONT.

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Frame2.dgn

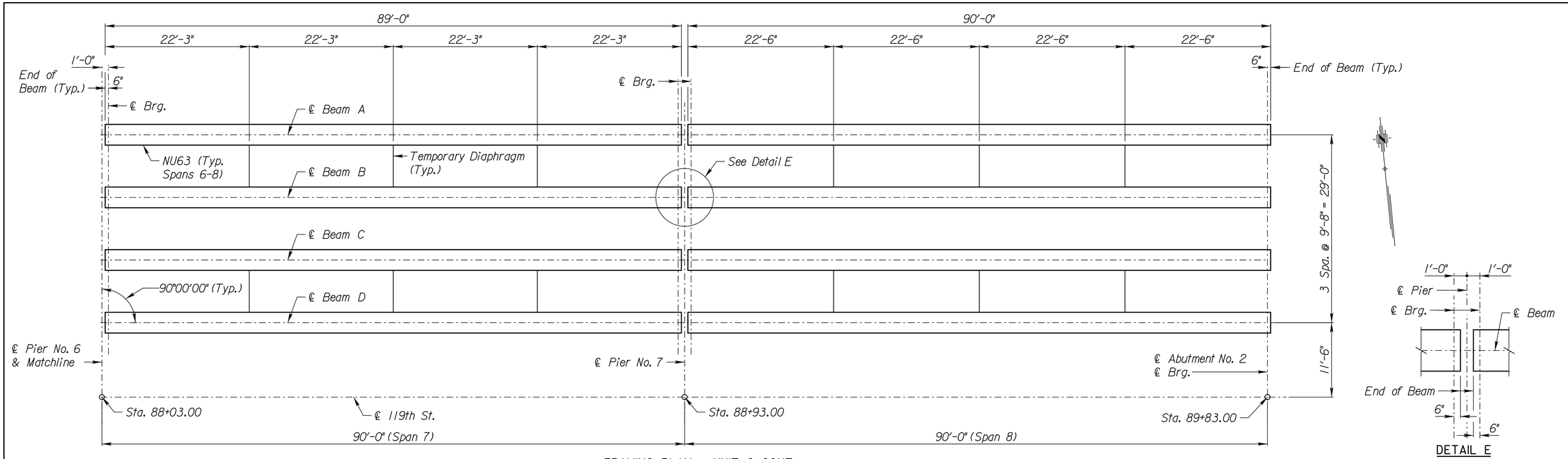
SHEET NO. 515 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS

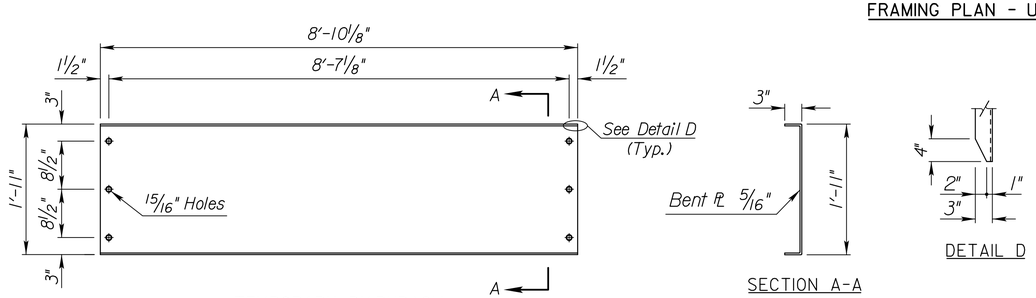
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
FRAMING PLAN (2 OF 3)



FRAMING PLAN - UNIT 2 CONT.

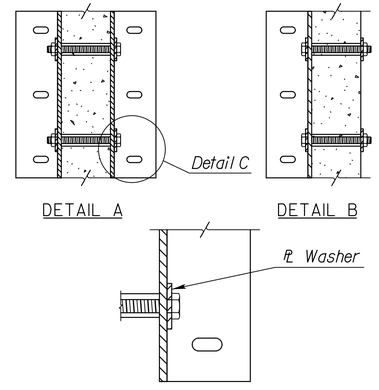
DETAIL E



TEMPORARY DIAPHRAGM
(or equivalent)
(NU63 & NU70)

SECTION A-A

DETAIL D



DETAIL A

DETAIL B

DETAIL C

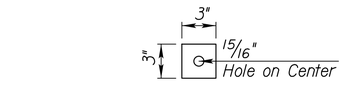


PLATE WASHER

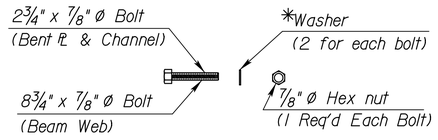
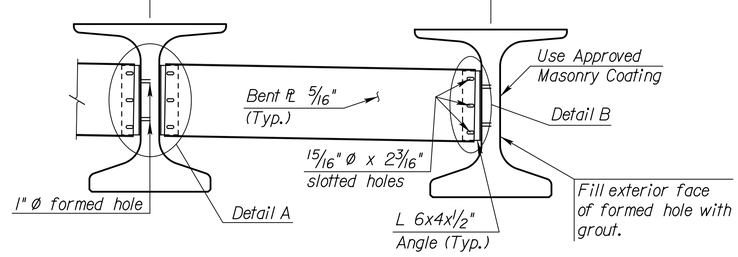
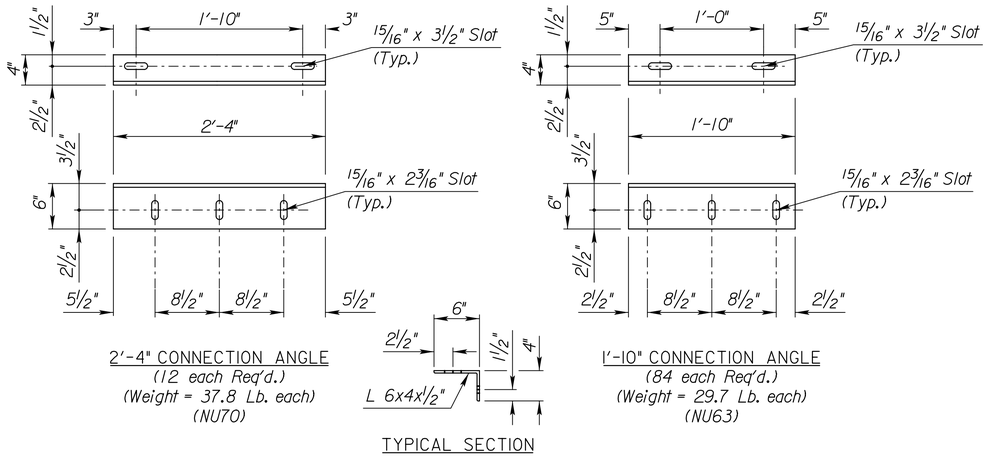


*Plate washers required for slotted holes.

FASTENER DETAILS



ELEVATION OF TEMPORARY DIAPHRAGMS
(NU63 & NU70)



2'-4" CONNECTION ANGLE
(12 each Req'd.)
(Weight = 37.8 Lb. each)
(NU70)

TYPICAL SECTION

1'-10" CONNECTION ANGLE
(84 each Req'd.)
(Weight = 29.7 Lb. each)
(NU63)

CONNECTION ANGLE DETAILS
(or equivalent)

TEMPORARY DIAPHRAGMS: Use ASTM A709 Gr. 36 steel for all angles and bent plates for temporary diaphragms. All bolts, nuts, and washers for fasteners shall conform to the heavy hex structural requirements of ASTM F3125 Gr. A325, Type 1. Galvanize the angles, bolts, nuts, and washers in accordance with the KDOT Specifications. Use hardened steel washers over any oversized holes. Use 5/16" plate washers over any slotted holes along with hardened washers under all turned elements. Use the turn-of-the-nut tightening method. DTI's are not required. Install the temporary diaphragms, as shown in the details, prior to placing any superstructure concrete. Leave the temporary diaphragms in place until the concrete diaphragms and deck have cured. Remove the angles from the beams and fill the holes in the prestressed beams with an approved epoxy grout. The bent plate diaphragms, angles, nuts, bolts, and washers shall remain the property of the Contractor. Submit shop drawings of the temporary diaphragms to the KDOT Bridge Section for review and approval. The material, equipment, and labor necessary for the installation of the temporary diaphragms, including filling the bolt holes, shall not be paid for directly, but shall be subsidiary to the bid item "Prestressed Concrete Beams".

SHEET NO. 516 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

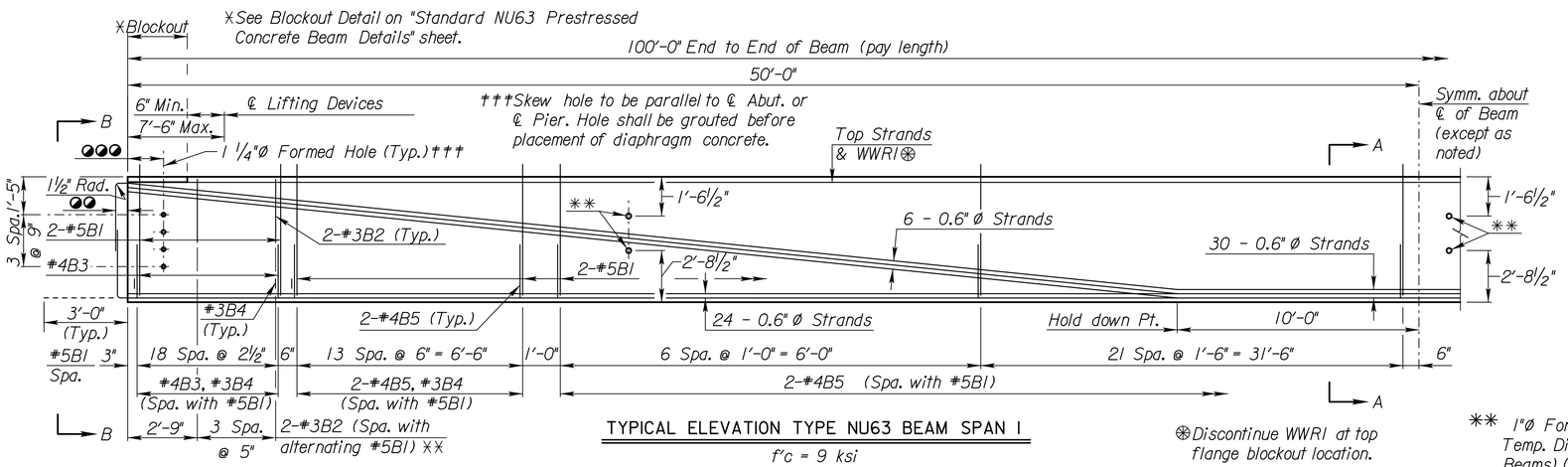
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
FRAMING PLAN (3 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Frame3.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 1

f'c = 9 ksi
f'ci = 7.5 ksi

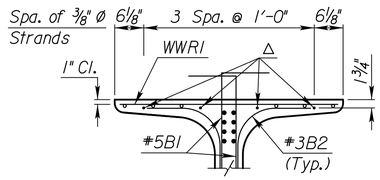
⁂⁂Spacing of #3B2 bar @ Abutment End.

◒◒ 4" @ Abutment No. 1
8" @ Pier No. 1

◒◒◒ 1'-2¼" @ Abutment No. 1
1'-7¼" @ Pier No. 1

⊛Discontinue WWRI at top flange blockout location.

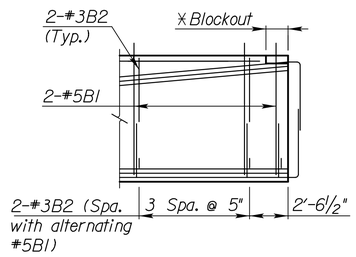
** 1"Ø Formed Hole for Temp. Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



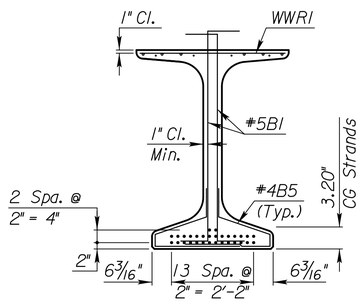
TOP FLANGE DETAIL††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

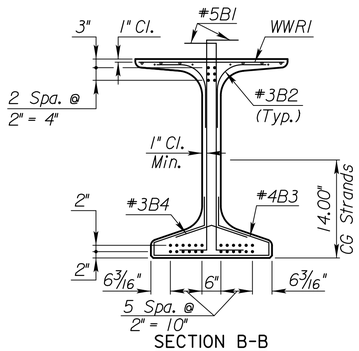
††Check flange for Overhang Bracket loads where applicable.



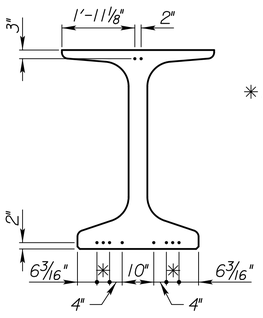
ELEVATION PIER NO. 1 END
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



⁂ 2 Spa. @ 2"

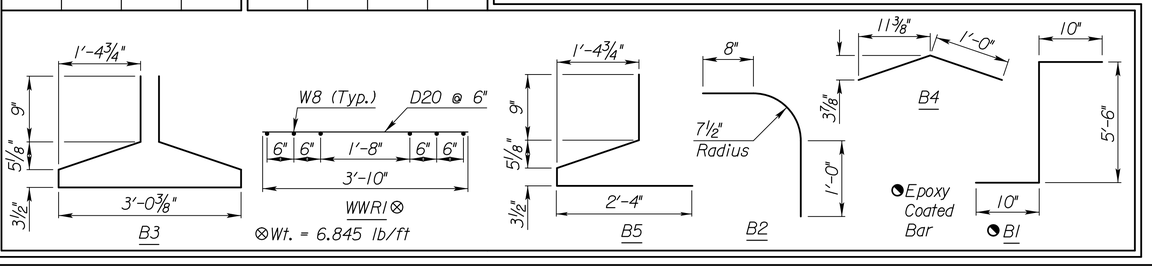
STRAND EXTENSION DETAIL

⁂Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

BILL OF REINFORCING STEEL							
100'-0" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	4'-1"	B2	16	#3	2'-8"
				B4	66	#3	2'-0"
				B3	38	#4	7'-8"
				B5	168	#4	4'-8"
				◔ BI	244	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 7.5 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.03 kips per strand = 30.19 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (100'-0")	Lin.Ft.	400
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 100'-0" beam)	Cu.Yds.	20.9
Approx. Wt. per 100'-0" beam	Tons	42.3
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	12,252
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	7,295
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,136
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	2,638
Laminated Elastomeric Brg. pads	Each	8
1" Formed Holes	Each	24
Lifting devices	Each	16
Bearing plates (⁂ x 1'-4" x 3'-0⅜")	Each	8
1¼" Formed Holes	Each	32

SHEET NO. 517 TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

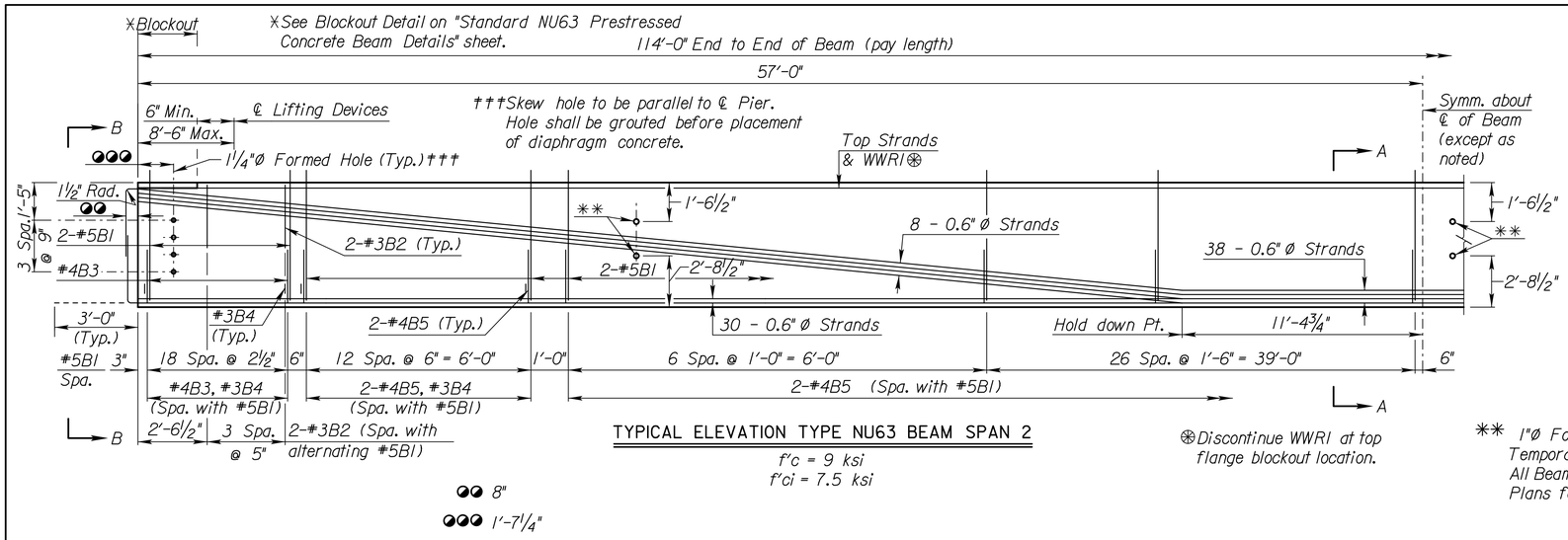
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 1

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_BD_S1.dgn

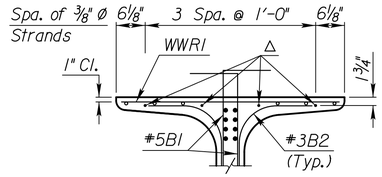


TYPICAL ELEVATION TYPE NU63 BEAM SPAN 2

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWRI at top flange blockout location.

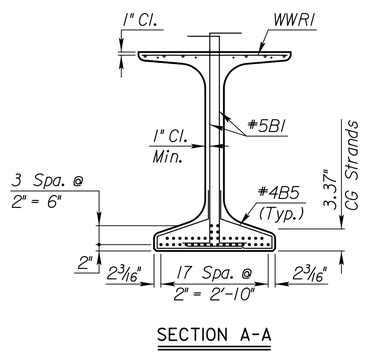
** 1"Ø Formed Hole for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



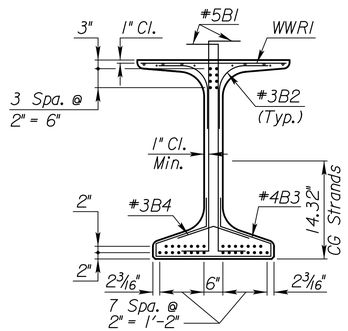
TOP FLANGE DETAIL††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

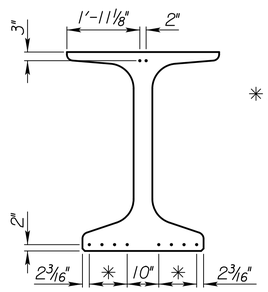
††Check flange for Overhang Bracket loads where applicable.



SECTION A-A



SECTION B-B



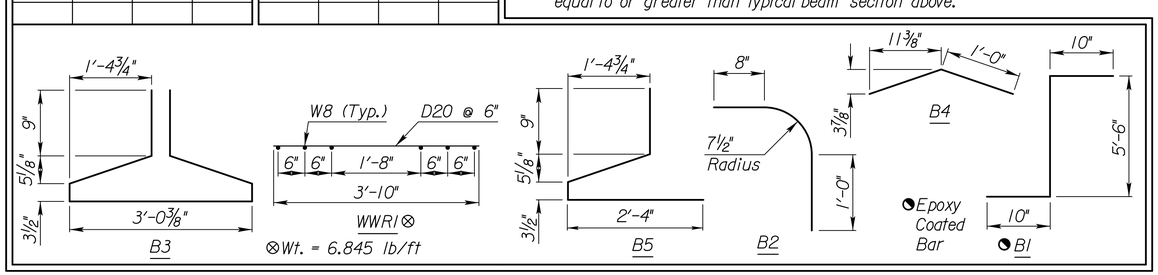
STRAND EXTENSION DETAIL

✳ 3 Spa. @ 4"

BILL OF REINFORCING STEEL							
114'-0" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	4'-1"	B2	16	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔BI	260	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧓Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 8.5 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.26 kips per strand = 34.06 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (114'-0")	Lin.Ft.	456
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 114'-0" beam)	Cu.Yds.	23.8
Approx. Wt. per 114'-0" beam	Tons	48.2
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	17,581
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	7,774
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,329
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	3,027
Laminated Elastomeric Brg. pads	Each	8
1" Formed Holes	Each	24
Lifting devices	Each	16
Bearing plates (⧓ x 1'-4" x 3'-0⅜")	Each	8
1¼" Formed Holes	Each	32

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_BD_S2.dgn

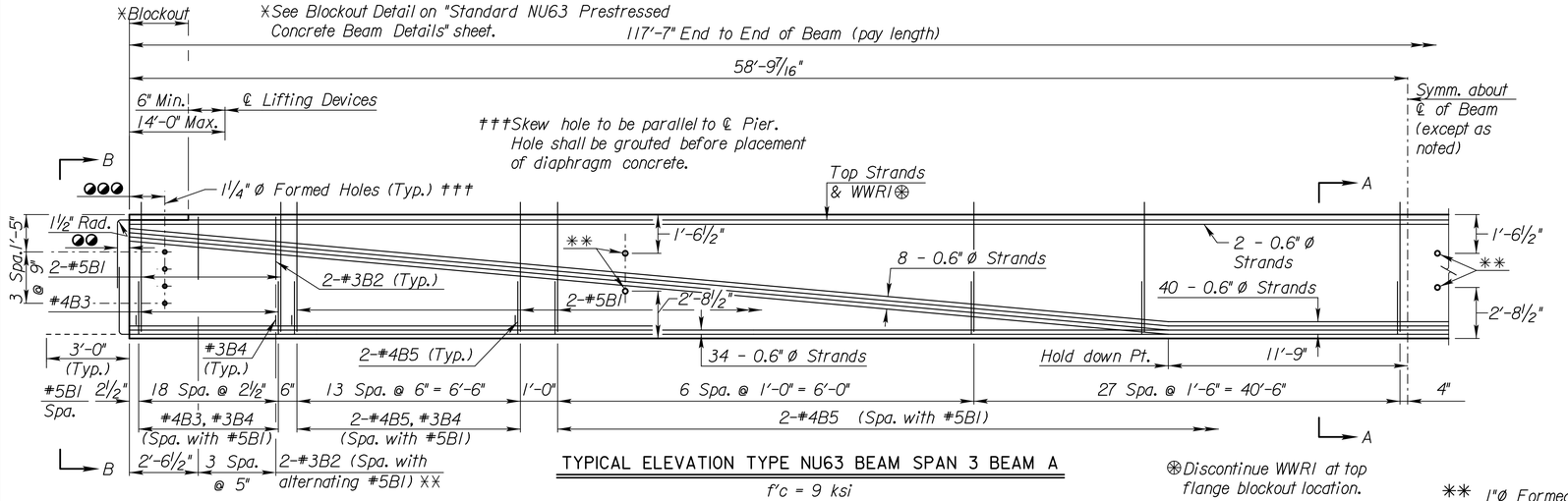
SHEET NO. 518 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 2



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM A

f'c = 9 ksi
f'ci = 7.5 ksi

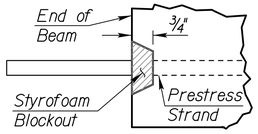
⁂⁂Spacing of #3B2 bar @ Pier No. 2

◕◕8" @ Pier No. 2
See Beam Ends at Expansion Joints @ Pier No. 3

◕◕◕1'-7 1/4" @ Pier No. 2
3 3/4" @ Pier No. 3

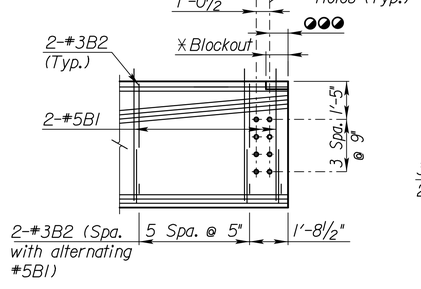
⊛Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Hole for Temporary Diaphragms (See Framing Plans for Locations)



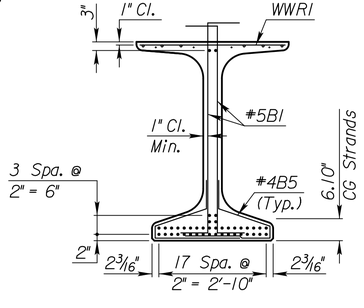
1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS

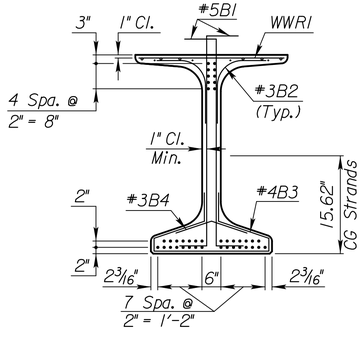


ELEVATION PIER NO. 3 END

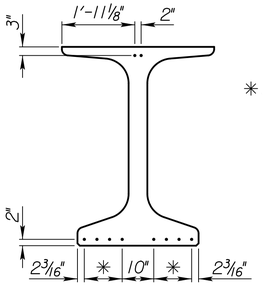
(Spacing of #3B2 bar)



SECTION A-A

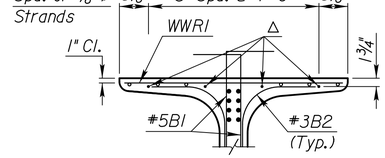


SECTION B-B



STRAND EXTENSION DETAIL

* 3 Spa. @ 4"

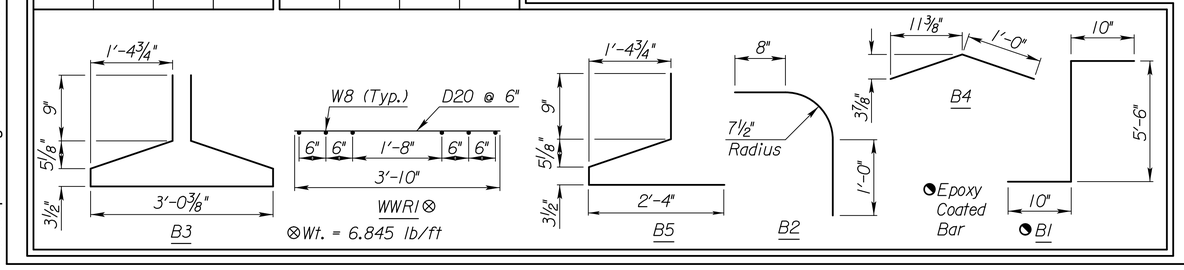


TOP FLANGE DETAIL††

△ 3/8" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

††Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL							
117'-6 3/4" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	66	#3	2'-0"
				B3	38	#4	7'-8"
				B5	192	#4	4'-8"
				◔BI	268	#5	7'-2"



†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.

⧓ Use 3/4" ℄ when field welding will occur, otherwise use 1/2" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 14 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 3.97 kips per strand = 31.77 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (117'-7")	Lin.Ft.	118
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 117'-7" beam)	Cu.Yds.	24.5
Approx. Wt. per 117'-6 3/4" beam	Tons	49.7
0.6" Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	4,971
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	2,003
Reinforcing steel (fy=60,000 PSI)	Lbs.	863
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	783
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	8
Lifting devices	Each	4
Bearing plates (⧓ x 1'-4" x 3'-0 3/8")	Each	2
2"Ø Formed Holes	Each	8
1 1/4"Ø Formed Holes	Each	4

SHEET NO. 519 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

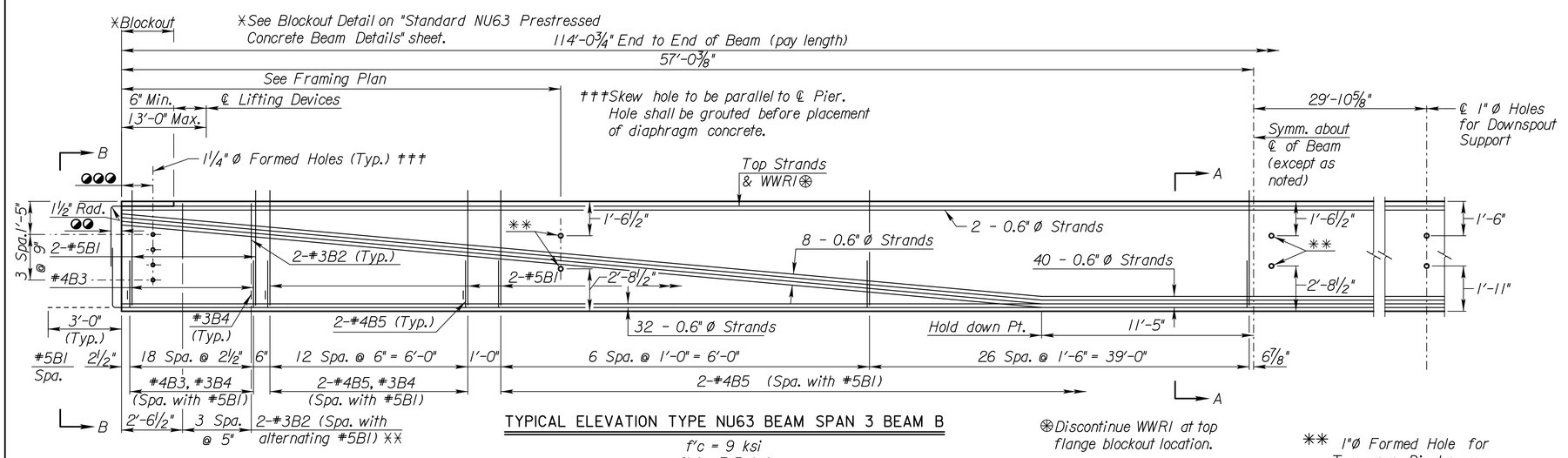
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
. . .	. . .	. . .	. . .

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 3 BEAM A

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_BD_S3A.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM B

f'c = 9 ksi
f'ci = 7.5 ksi

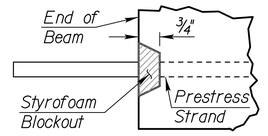
⁂Spacing of #3B2 bar @ Pier No. 2.

●● 8" @ Pier No. 2
See Beam End at Expansion Joints @ Pier No. 3

●●● 1'-7¼" @ Pier No. 2
3¾" @ Pier No. 3

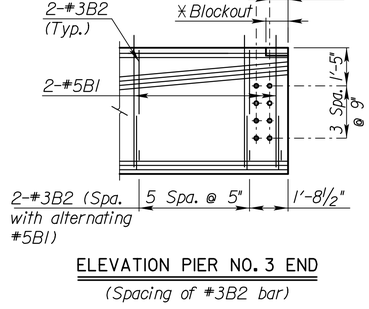
⊛Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Hole for Temporary Diaphragms (See Framing Plans for Locations)

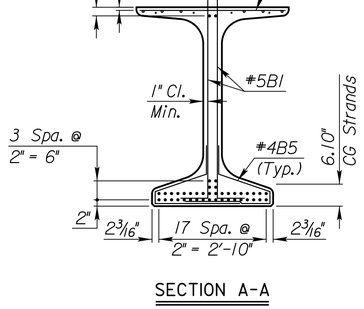


1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

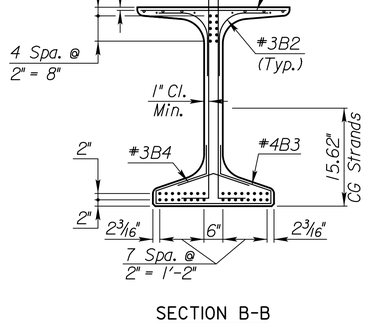
BEAM ENDS AT EXPANSION JOINTS



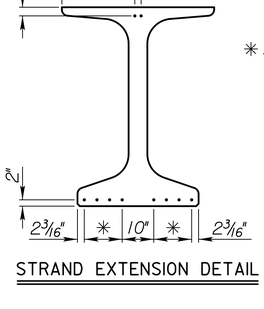
ELEVATION PIER NO. 3 END
(Spacing of #3B2 bar)



SECTION A-A

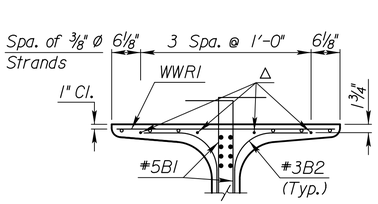


SECTION B-B



⁂ 3 Spa. @ 4"

STRAND EXTENSION DETAIL



TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

††Check flange for Overhang Bracket loads where applicable.

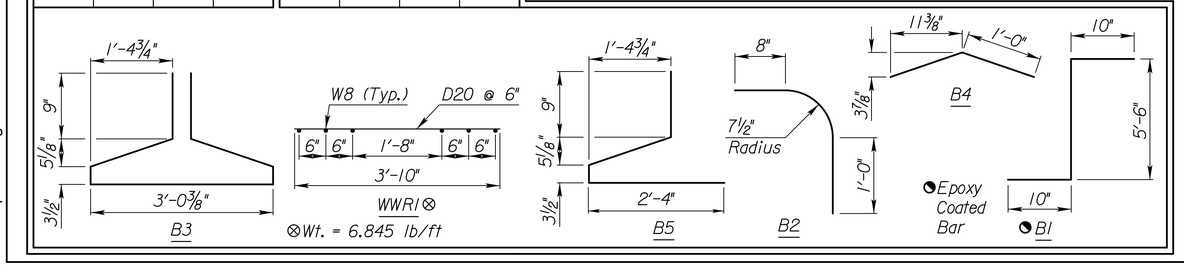
BILL OF REINFORCING STEEL
114'-0¾" Beam (1 Listed-1 Reqd.)

Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔BI	260	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧓Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Spacing of #3B2 bar @ Abutment End.

⁂⁂ Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 13 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.09 kips per strand = 32.74 kips total.

BILL OF MATERIAL

Item	Unit	Quantity
Prestressed Concrete Beams (NU63) Interior Spans (114'-0¾")	Lin.Ft.	114
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 114'-0¾" beam)	Cu.Yds.	23.8
Approx. Wt. per 114'-0¾" beam	Tons	48.2
0.6" Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	4,824
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,943
Reinforcing steel (fy=60,000 PSI)	Lbs.	836
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	759
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	6
Lifting devices	Each	4
Bearing plates (⧓ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
1¼" Formed Holes	Each	4

SHEET NO. 520 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

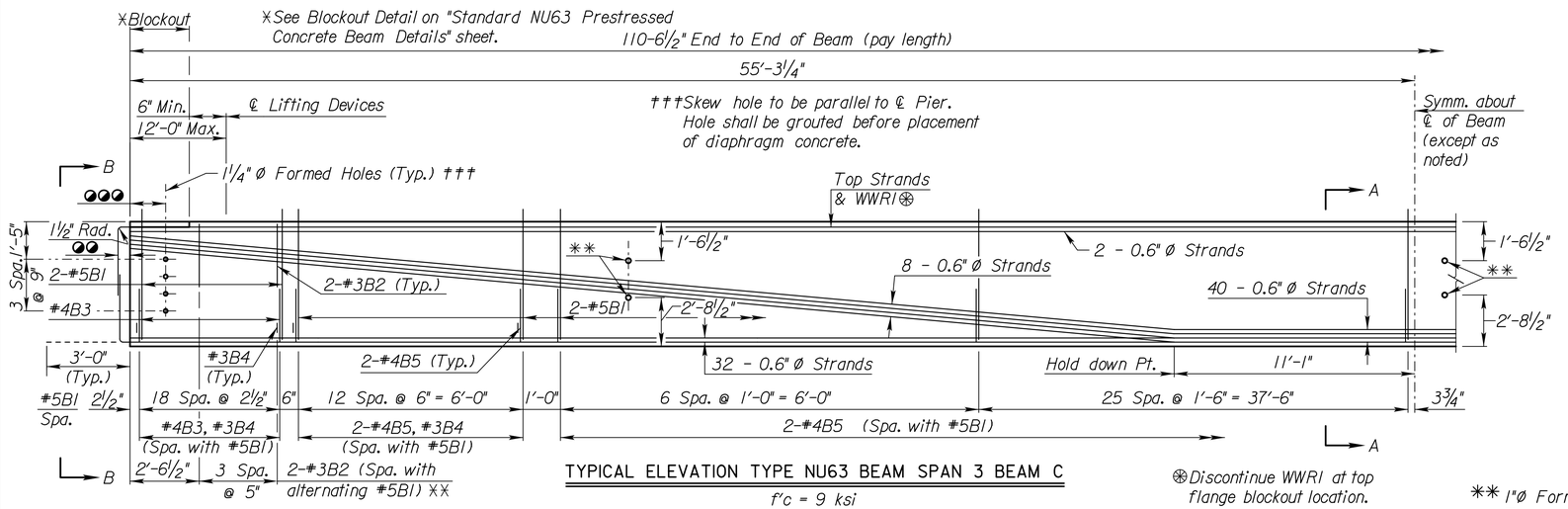
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
. . .	. . .	. . .	. . .

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 3 BEAM B

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_BD_S3B.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM C

f'c = 9 ksi
f'ci = 7.5 ksi

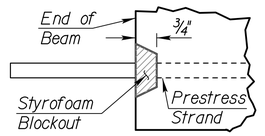
℄℄ Spacing of #3B2 bar @ Pier No. 2 End.

●●● 8" @ Pier No. 2
See Beam End at Expansion Joints @ Pier No. 3

●●● 1'-7¼" @ Pier No. 2
3¾" @ Pier No. 3

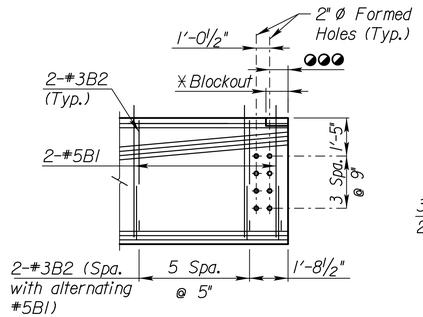
⊛ Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Hole for Temporary Diaphragms (See Framing Plans for Locations)



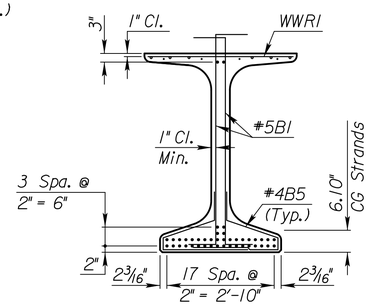
1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS

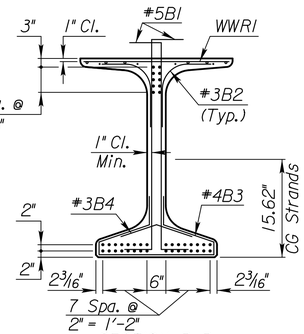


ELEVATION PIER NO. 3 END

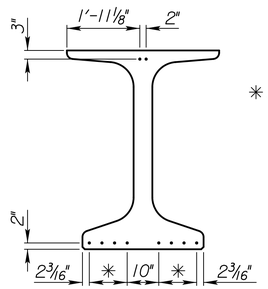
(Spacing of #3B2 bar)



SECTION A-A

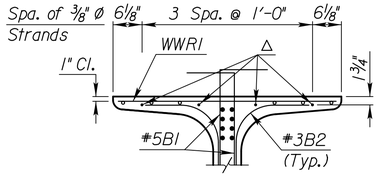


SECTION B-B



STRAND EXTENSION DETAIL

✳ 3 Spa. @ 4"



TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

†† Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL

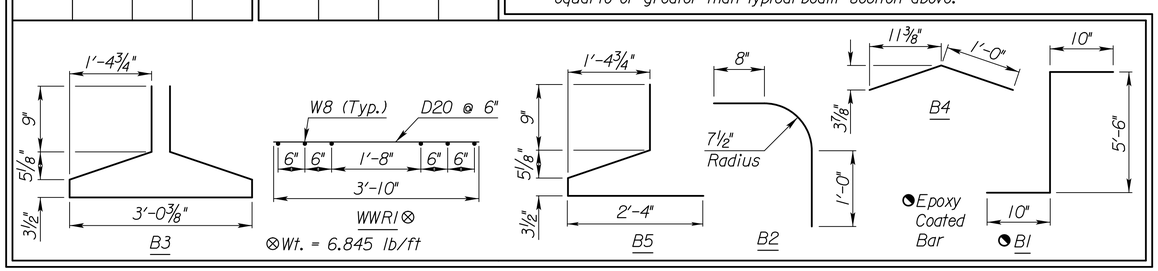
110'-6½" Beam (1 Listed-1 Reqd.)

Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	180	#4	4'-8"
				◔ BI	256	#5	7'-2"

† WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧖ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 12 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.22 kips per strand = 33.78 kips total.

BILL OF MATERIAL

Item	Unit	Quantity
Prestressed Concrete Beams (NU63) Interior Spans (110'-6½")	Lin.Ft.	111
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 110'-6½" beam)	Cu.Yds.	23.1
Approx. Wt. per 110'-6½" beam	Tons	46.7
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	4,676
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,914
Reinforcing steel (fy=60,000 PSI)	Lbs.	824
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	735
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	6
Lifting devices	Each	4
Bearing plates (⧖ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
1¼" Formed Holes	Each	4

SHEET NO. 521 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

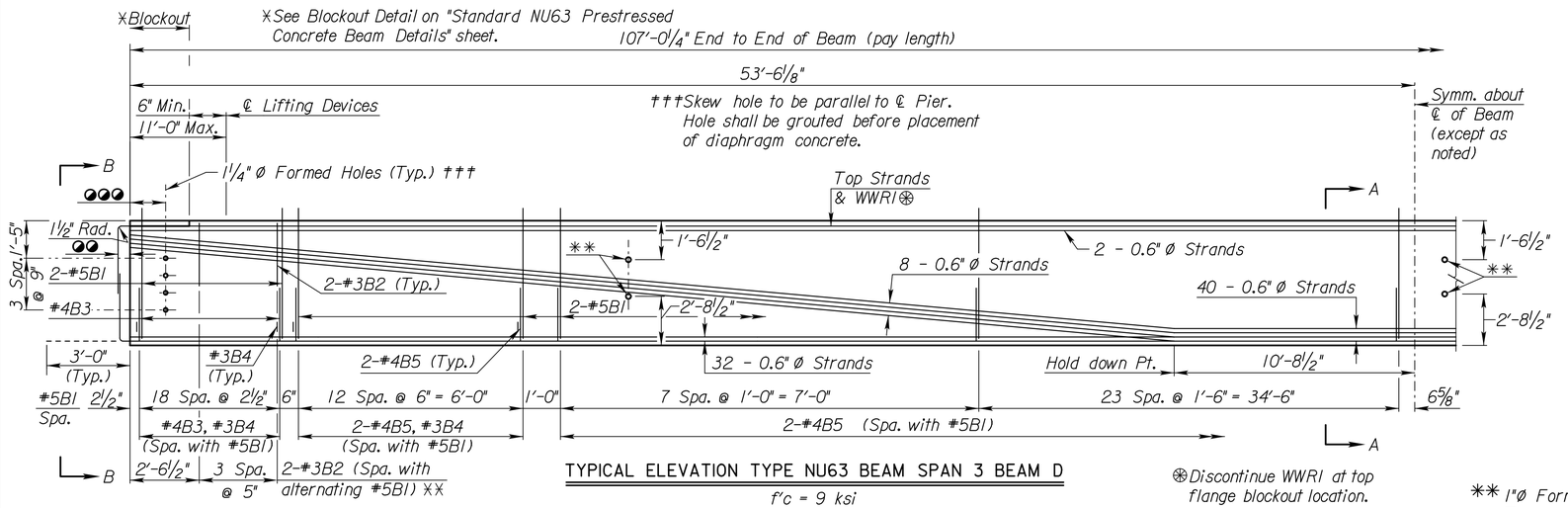
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 3 BEAM C

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_BD_S3C.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM D

f'c = 9 ksi
f'ci = 7.5 ksi

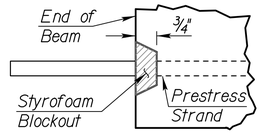
⁜⁜Spacing of #3B2 bar @ Pier No. 2.

●● 8" @ Pier No. 2
See Beam End at Expansion Joints @ Pier No. 3

●●● 1'-7 1/4" @ Pier No. 2
3 3/4" @ Pier No. 3

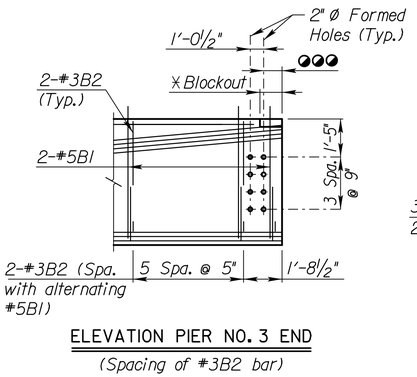
⊛Discontinue WWRI at top flange blockout location.

✱✱ 1"Ø Formed Hole for Temporary Diaphragms (See Framing Plans for Locations)

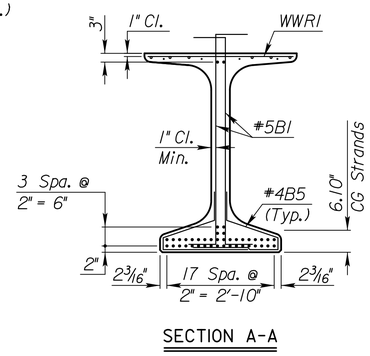


1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

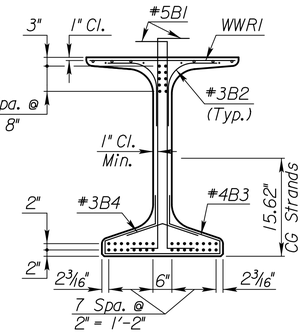
BEAM ENDS AT EXPANSION JOINTS



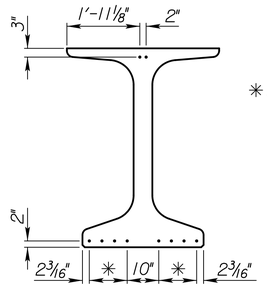
ELEVATION PIER NO. 3 END
(Spacing of #3B2 bar)



SECTION A-A

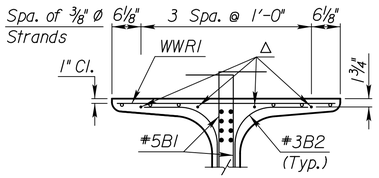


SECTION B-B



✱ 3 Spa. @ 4"

STRAND EXTENSION DETAIL

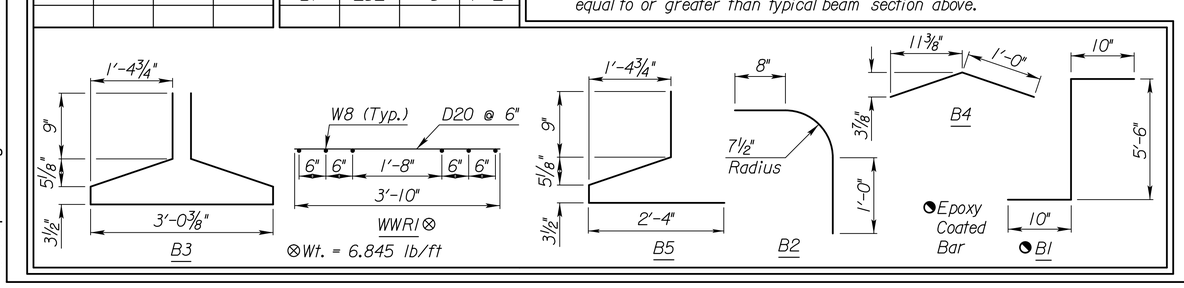


TOP FLANGE DETAIL ††

△ 3/8" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

††Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL							
107'-0 1/4" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	176	#4	4'-8"
				◔B1	252	#5	7'-2"



†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.

⧓Use 3/4" ℄ when field welding will occur, otherwise use 1/2" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 11 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.36 kips per strand = 34.88 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) End Spans (107'-0 1/4")	Lin.Ft.	107
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 107'-0 1/4" beam)	Cu.Yds.	22.3
Approx. Wt. per 107'-0 1/4" beam	Tons	45.2
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	4,528
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,884
Reinforcing steel (fy=60,000 PSI)	Lbs.	811
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	711
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	6
Lifting devices	Each	4
Bearing plates (⧓ x 1'-4" x 3'-0 3/8")	Each	2
2" Formed Holes	Each	8
1 1/4" Formed Holes	Each	4

Drawn By : MGEHL
File : c:\pwworking\central01\d2525841119th_BrWB_BD_S3D.dgn
Plotted : 08-28-24

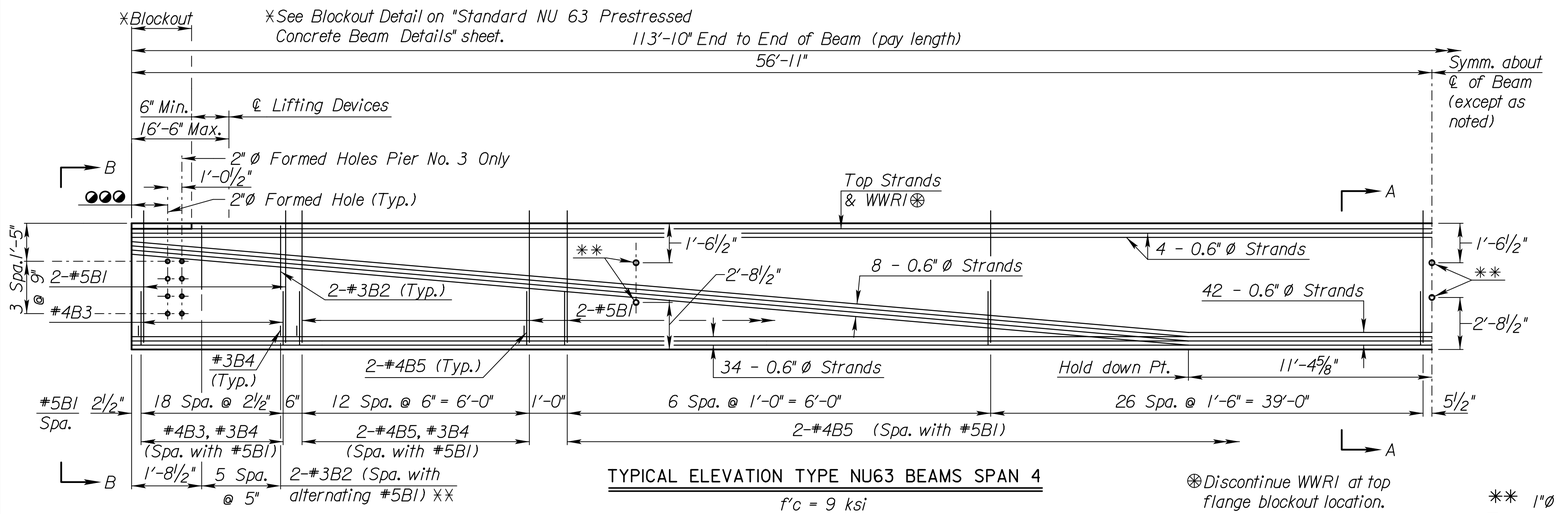
SHEET NO. 522 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 3 BEAM D



TYPICAL ELEVATION TYPE NU63 BEAMS SPAN 4

f'c = 9 ksi
f'ci = 7.5 ksi

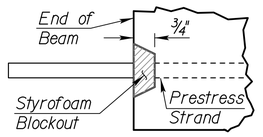
⁜⁜Spacing of #3B2 bar @ Pier No. 3.

◐◐ See Beam End at Expansion Joints @ Pier No. 3 8" @ Pier No. 4

◐◐◐ 3¾" @ Pier No. 3 1'-7¼" @ Pier No. 4

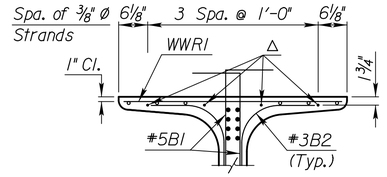
⊛Discontinue WWRI at top flange blockout location.

✳✳ 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

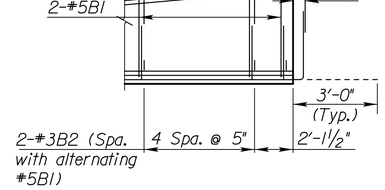
BEAM ENDS AT EXPANSION JOINTS



TOP FLANGE DETAIL††

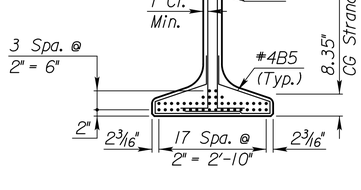
△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

††Check flange for Overhang Bracket loads where applicable.

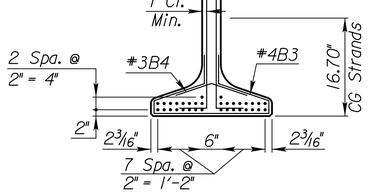


ELEVATION PIER NO. 4 END

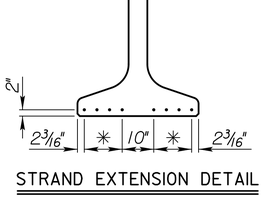
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



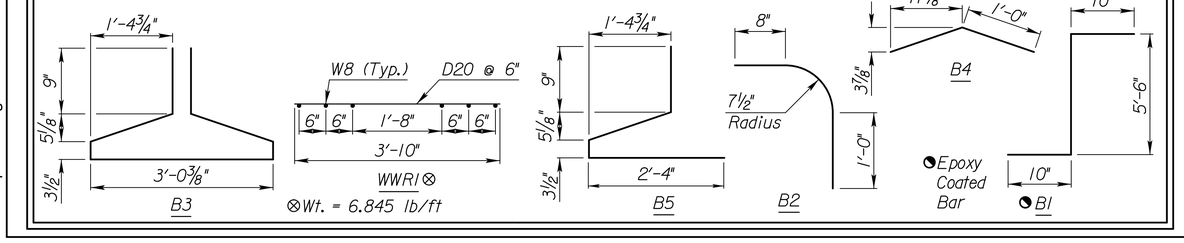
STRAND EXTENSION DETAIL

✳ 3 Spa. @ 4"

BILL OF REINFORCING STEEL							
113'-10" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	22	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔BI	260	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧓Use ¾" ℄

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 16.5 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 3.94 kips per strand = 31.51 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) End Spans (113'-10")	Lin.Ft.	455
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 113'-10" beam)	Cu.Yds.	23.7
Approx. Wt. per 113'-10" beam	Tons	48.1
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	21,076
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	7,774
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,353
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	3,028
Laminated Elastomeric Brg. pads	Each	4
1" Formed Holes	Each	24
Lifting devices	Each	16
Bearing plates (⧓ x 1'-4" x 3'-0⅜")	Each	8
2" Formed Holes	Each	32

SHEET NO. 523 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

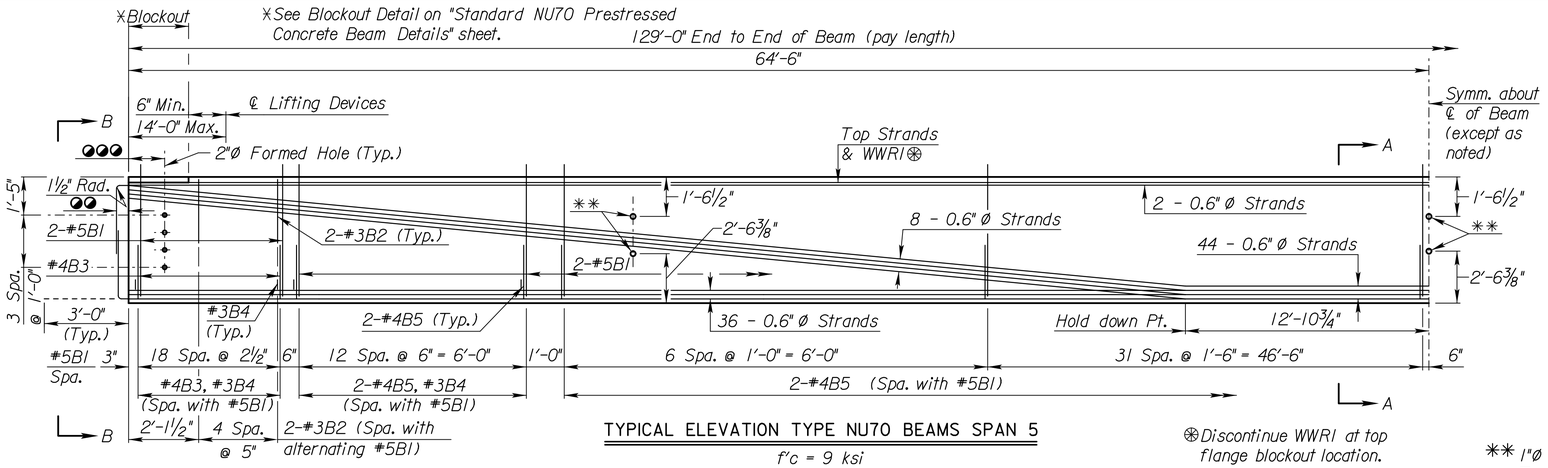
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 4

Drawn By : MGEHL
File : c:\pwworking\central01\d2525841\119th_BrWB_BD_S4.dgn
Plotted : 08-28-24

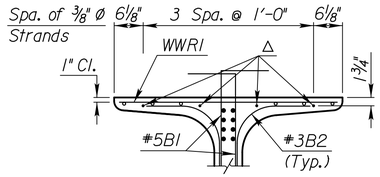


TYPICAL ELEVATION TYPE NU70 BEAMS SPAN 5

f'c = 9 ksi
f'ci = 7.5 ksi

⊛ Discontinue WWR1 at top flange blockout location.

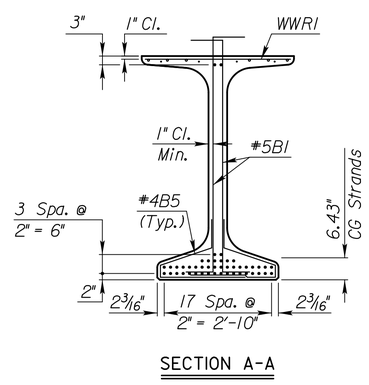
** 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



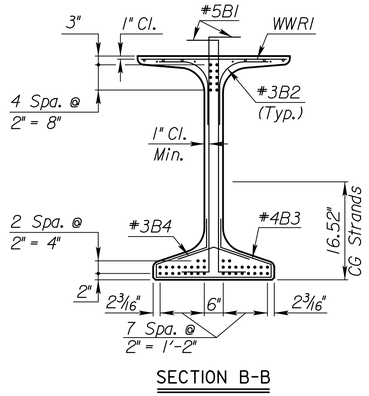
TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

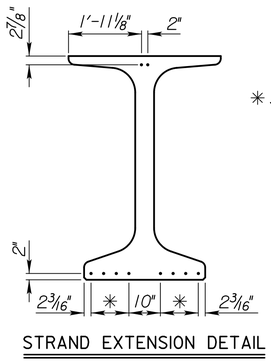
†† Check flange for Overhang Bracket loads where applicable.



SECTION A-A



SECTION B-B



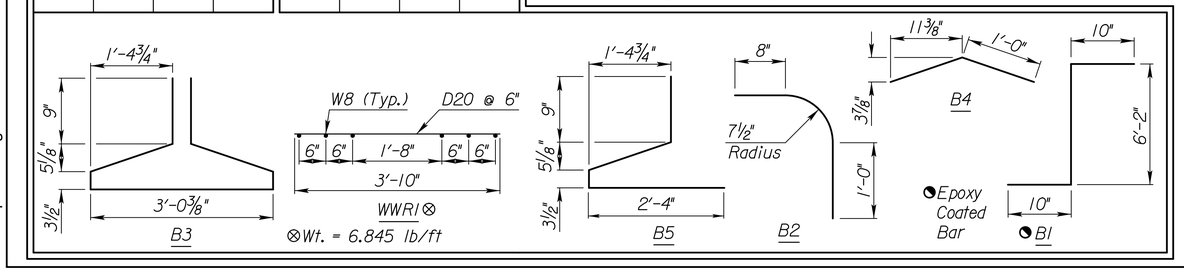
✳ 3 Spa. @ 4"

STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
129'-0" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	204	#4	4'-8"
				◔ B1	280	#5	7'-10"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧓ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 14 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.20 kips per strand = 33.57 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (129'-0")	Lin.Ft.	516
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 129'-0" beam)	Cu.Yds.	28.5
Approx. Wt. per 129'-0" beam	Tons	57.6
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	23,990
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	9,151
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,594
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	3,432
Laminated Elastomeric Brg. pads	Each	8
1" Formed Holes	Each	24
Lifting devices	Each	16
Bearing plates (⧓ x 1'-4" x 3'-0⅜")	Each	8
2" Formed Holes	Each	32

SHEET NO. 524 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

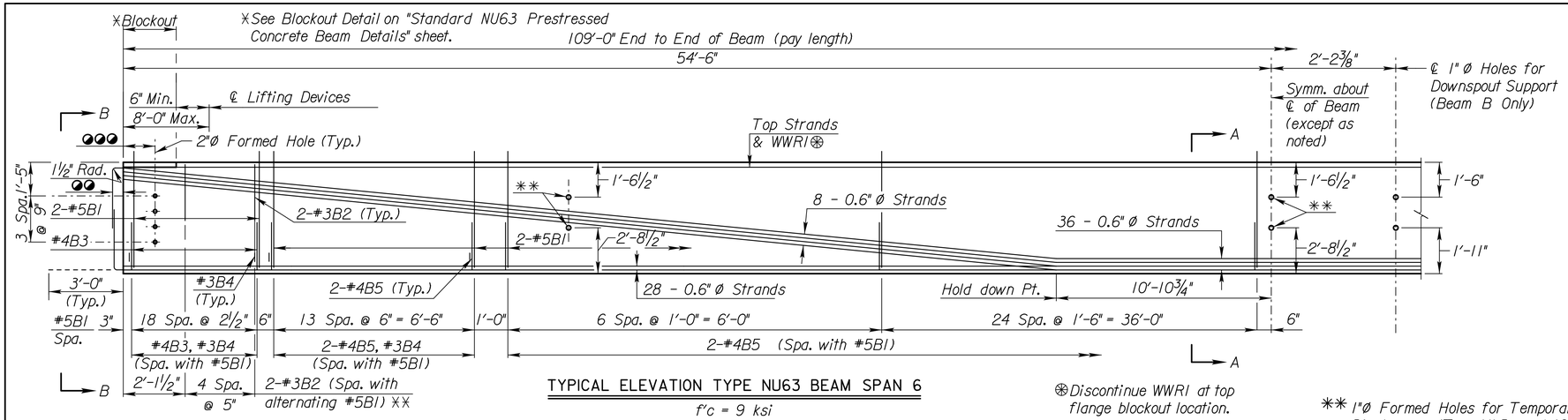
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU70 BEAM DETAILS
SPAN 5

Drawn By : MGEHL
File : c:\pwworking\central01\d2525841\119th_BrWB_BD_S5.dgn
Plotted : 08-28-24



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 6

f'c = 9 ksi
f'ci = 7.5 ksi

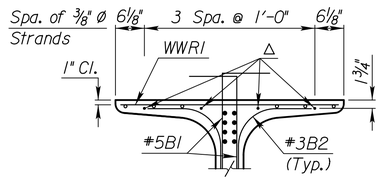
⊠⊠Spacing of #3B2 bar @ Pier No. 5 End.

●● 8" @ Piers No. 5 & 6

●●● 1'-7 1/4" @ Pier No. 5
1'-4 3/4" @ Pier No. 6

⊛Discontinue WWRI at top flange blockout location.

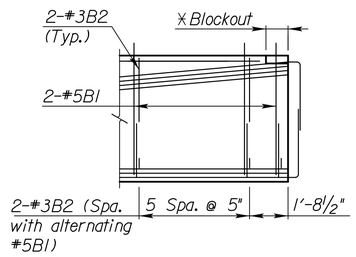
** 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



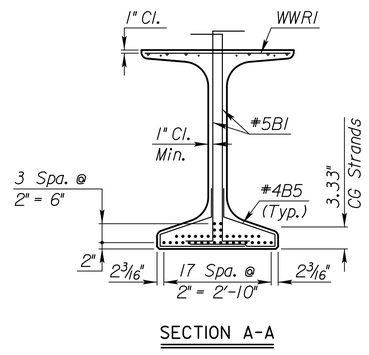
TOP FLANGE DETAIL ††

△ 3/8" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

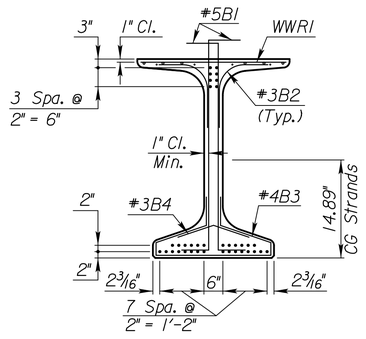
††Check flange for Overhang Bracket loads where applicable.



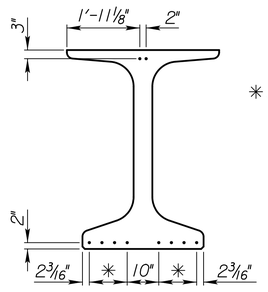
ELEVATION PIER NO. 6 END
(Spacing of #3B2 bar)



SECTION A-A



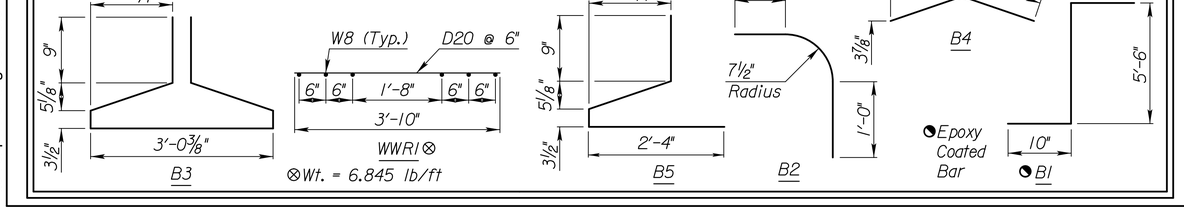
SECTION B-B



✳ 3 Spa. @ 4"

STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
109'-0" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	22	#3	2'-8"
				B4	66	#3	2'-0"
				B3	38	#4	7'-8"
				B5	180	#4	4'-8"
				◔ BI	256	#5	7'-2"



†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL As						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.

⊠Use 3/4" ℄

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 8 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.45 kips per strand = 35.60 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) End Spans (109'-0")	Lin.Ft.	436
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 109'-0" beam)	Cu.Yds.	22.7
Approx. Wt. per 109'-0" beam	Tons	46.1
0.6" Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	15,950
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	7,654
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,309
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	2,891
Laminated Elastomeric Brg. pads	Each	4
1" Formed Holes	Each	26
Lifting devices	Each	16
Bearing plates (⊠ x 1'-4" x 3'-0 3/8")	Each	8
2" Formed Holes	Each	32

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_BD_S6.dgn

SHEET NO. 525 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

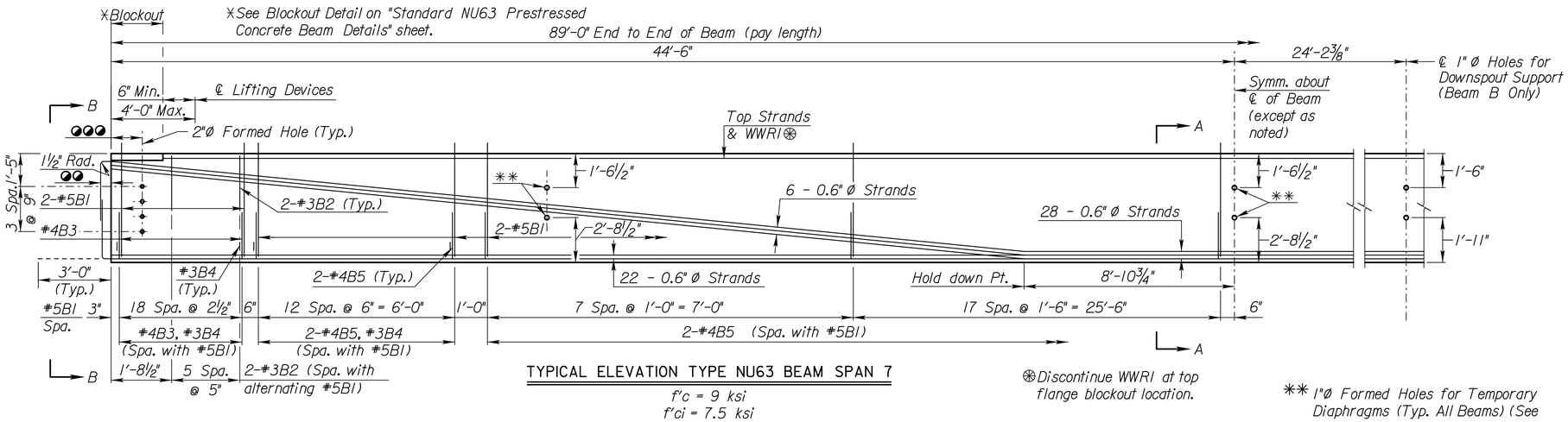
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 6

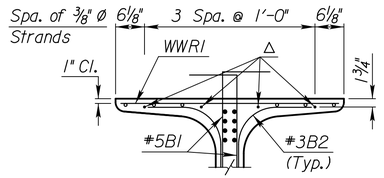


TYPICAL ELEVATION TYPE NU63 BEAM SPAN 7

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWR1 at top flange blockout location.

** 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



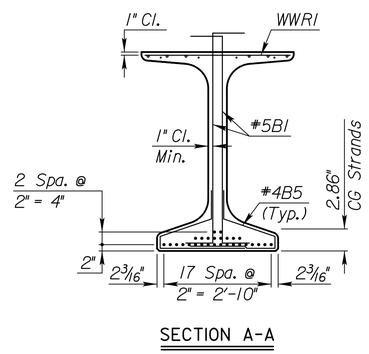
TOP FLANGE DETAIL ††

△ 3/8" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

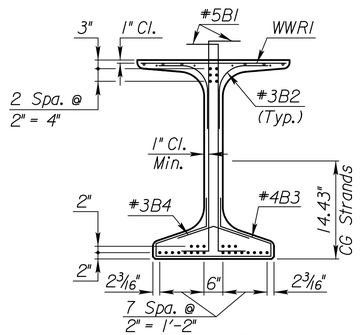
†† Check flange for Overhang Bracket loads where applicable.

◕◕ 8" @ Piers No. 6 & 7

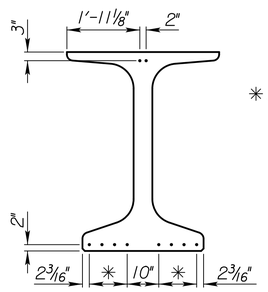
◕◕◕ 1'-4 3/4" @ Piers No. 6 & 7



SECTION A-A



SECTION B-B



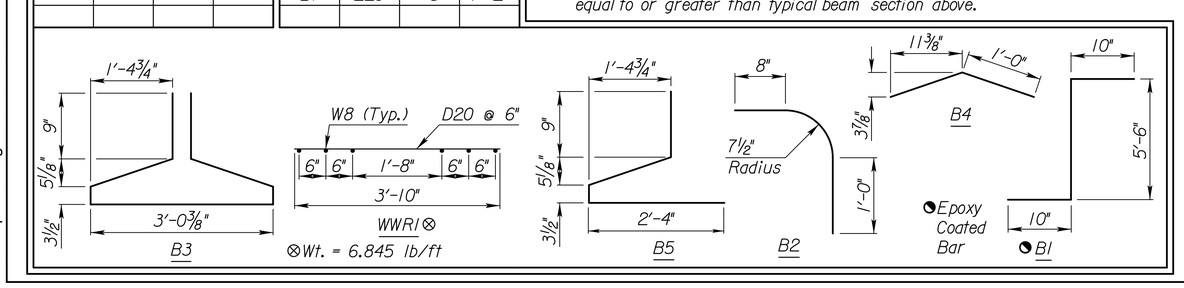
STRAND EXTENSION DETAIL

✳ 3 Spa. @ 4"

BILL OF REINFORCING STEEL							
89'-0" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	24	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	152	#4	4'-8"
				◔ B1	228	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use 3/4" ℄ when field welding will occur, otherwise use 1/2" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 4.5 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.64 kips per strand = 33.86 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) End Spans (89'-0")	Lin.Ft.	356
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 89'-0" beam)	Cu.Yds.	18.6
Approx. Wt. per 89'-0" beam	Tons	37.6
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	10,222
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	6,817
Reinforcing steel (fy=60,000 PSI)	Lbs.	2,962
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	2,350
Laminated Elastomeric Brg. pads	Each	8
1" Formed Holes	Each	26
Lifting devices	Each	16
Bearing plates (⊠ x 1'-4" x 3'-0 3/8")	Each	8
2" Formed Holes	Each	32

SHEET NO. 526 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

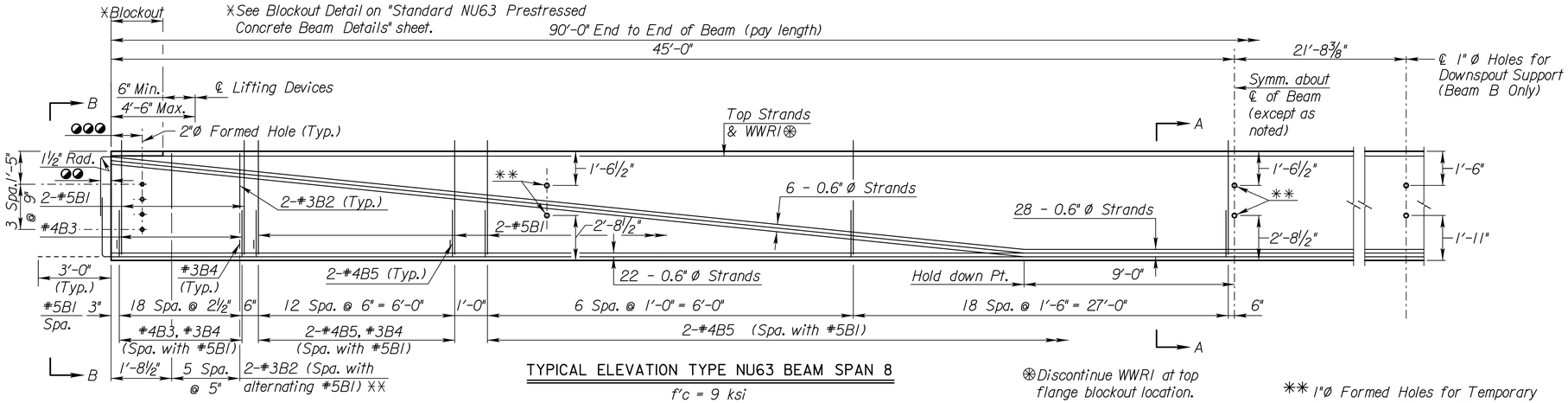
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 7

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_BD_S7.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 8

f'c = 9 ksi
f'ci = 7.5 ksi

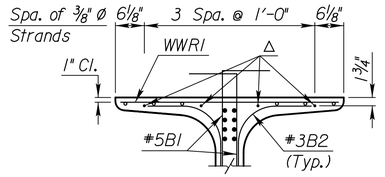
⁑⁑ Spacing of #3B2 bar @ Pier No. 7 End.

◕◕ 4" @ Abutment No. 2
8" @ Pier No. 7

◕◕◕ 1'-4 3/4" @ Pier No. 7
1'-2 1/4" @ Abutment No. 2

⊛ Discontinue WWR1 at top flange blockout location.

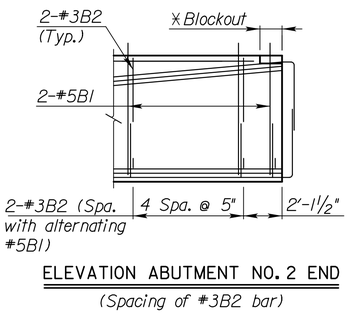
⁑⁑ 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



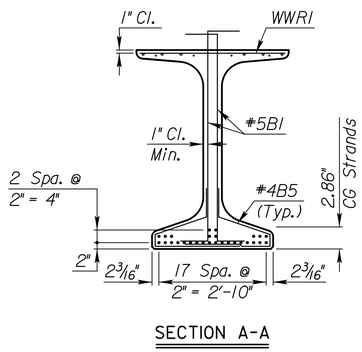
TOP FLANGE DETAIL ††

△ 3/8" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

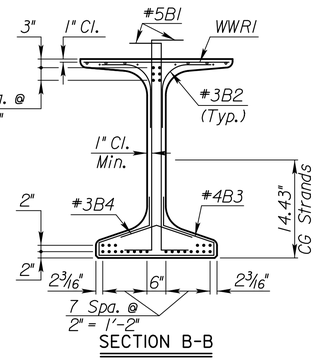
†† Check flange for Overhang Bracket loads where applicable.



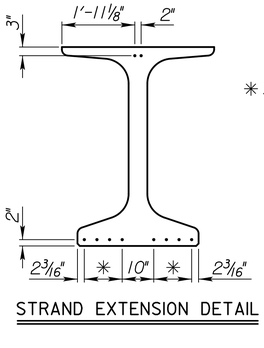
ELEVATION ABUTMENT NO. 2 END
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



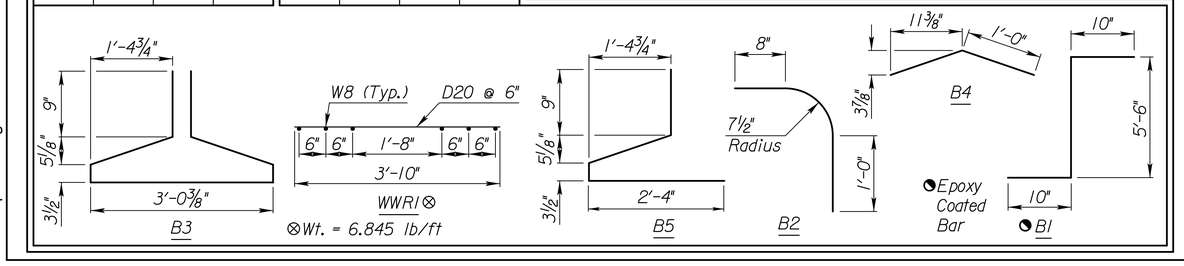
✳ 3 Spa. @ 4"

STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
90'-0" Beam (1 Listed-4 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	22	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	152	#4	4'-8"
				◔ B1	228	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧓ Use 3/4" ℄ when field welding will occur, otherwise use 1/2" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 4.5 feet from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.58 kips per strand = 33.49 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) End Spans (90'-0")	Lin.Ft.	360
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 90'-0" beam)	Cu.Yds.	18.8
Approx. Wt. per 90'-0" beam	Tons	38.0
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	10,333
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	6,817
Reinforcing steel (fy=60,000 PSI)	Lbs.	2,954
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	2,371
Laminated Elastomeric Brg. pads	Each	8
1" Formed Holes	Each	26
Lifting devices	Each	16
Bearing plates (⧓ x 1'-4" x 3'-0 3/8")	Each	8
2" Formed Holes	Each	32

SHEET NO. 527 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

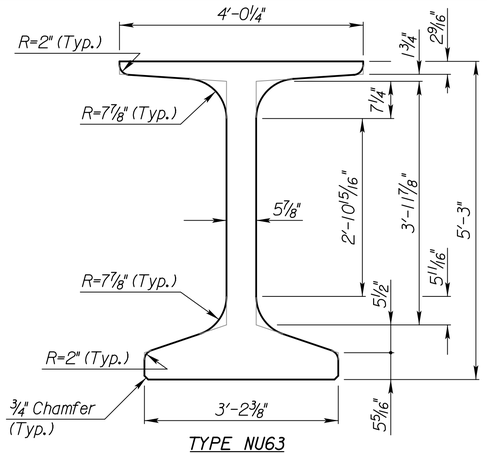
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By

119th Street - Westbound
NU63 BEAM DETAILS
SPAN 8

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_BD_S8.dgn



TYPE NU63

Area	811.0	In.²
IcG	458,709	In.⁴
Y Bot	28.41	In.
Vol./Surf. Area	3.07	In.
Wt./Ft.	845	Lbs

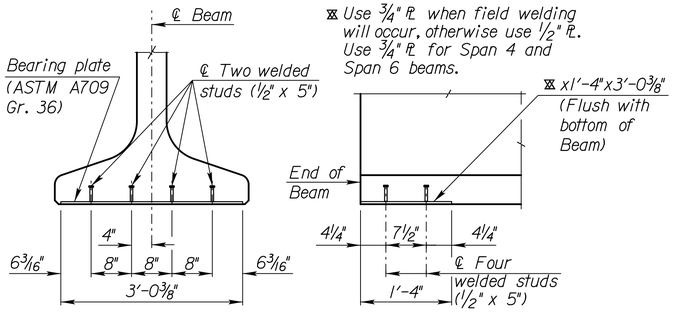
TYPICAL BEAM SECTION

(Dimensions and properties are converted from metric fabrication forms.)

✳ Prior to shipping, the camber shall be no greater than the design camber ±½". The design camber is equal to the 50 day camber shown in the plans.

◔◔ At expansion joint locations coat beam with approved epoxy substructure waterproofing membrane.

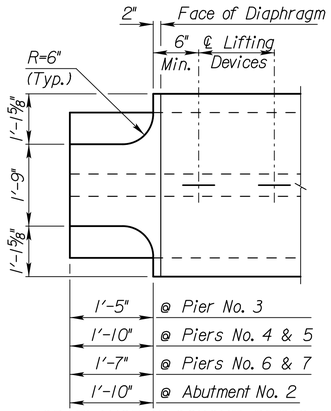
◔ At bridge deck drain locations coat beam with approved epoxy substructure waterproofing membrane.



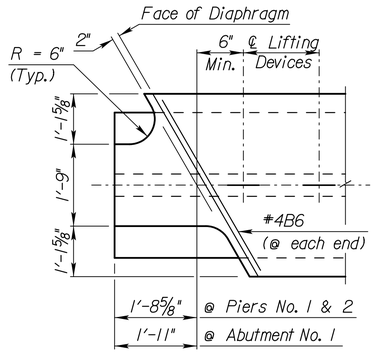
End View — Side View

BEARING PLATE DETAILS

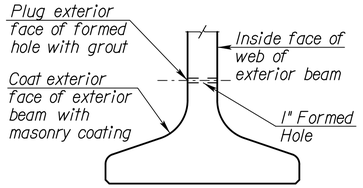
Note:
Stud welding will be in accordance with the latest edition of AWS D1.1.
Use plate conforming to the requirements of ASTM A709 Grade 36. The stud anchors will be made of material as specified for Shear Connector Studs in the KDOT Specifications.
The exposed surface of the bearing plates shall be galvanized.
All work and material to install the bearing plates shall be subsidiary to the bid item "Prestressed Concrete Beam".



TOP FLANGE BLOCKOUT DETAIL AT NORMAL ABUTMENT AND PIERS



TOP FLANGE BLOCKOUT DETAIL AT SKEWED ABUTMENT AND PIERS



DETAIL OF FORMED HOLE(S)

(See Beam Detail sheet for locations)

GENERAL NOTES

Fabricate the precast prestressed beams in accordance with the KDOT Specifications. Submit shop drawings in accordance with the KDOT Specifications.

Use air entrained concrete. The KDOT Materials Section shall approve the mix design. Unless otherwise shown on the plans, f'c = 9,000 psi and f'c at release = 7,500 psi.

Use reinforcing steel conforming to the requirements of ASTM A615, Grade 60. The reinforcing steel shown shall be uncoated unless otherwise indicated. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Use 0.60" nominal diameter (unless otherwise indicated), uncoated, seven-wire, low relaxation prestressing tendons conforming to the requirements of ASTM A416, Grade 270.

Use bolts having an ultimate strength 50% in excess of the manufacturer's safe load. All items (except the tendons) cast-in or inserted in prestressed beams shall be epoxy coated or galvanized. Show Formed Holes on shop drawings. All bolts, nuts and washers shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Show on the shop drawings any hardware, holes or other appurtenances that are required to be incorporated into the girder to construct the girder or for any temporary works needed to construct the bridge (e.g. safety railing pockets).

After beams are in the final position, remove lifting devices. See "Lifting Device" detail below. Removal of the lifting devices, coating and grouting shall be subsidiary to the bid item: "Prestressed Concrete Beams".

Use elastomeric bearing pads conforming to the KDOT Specifications. Bearing pads and Type B expansion joint material shall be subsidiary to the bid item, "Prestressed Concrete Beams".

The beam lengths shown on the design plans are net lengths measured horizontally along the beam centerline. The beam manufacturer shall make necessary allowances for grade, and for shortening due to elastic shortening, creep and shrinkage.

The beams shall reasonably conform to the lines and dimensions shown on the design plans and be within the tolerances specified in the latest edition of Prestressed Concrete Institute's, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products", except as modified by this sheet or the KDOT Specifications.

Apply an initial force of 1,000 to 3,000 pounds to each strand to take up any slack in the cables. Unless otherwise noted on the plans, apply a force of 43,900 pounds to each strand. Stress harped strands to a magnitude such that they are tensioned to 43,900 pounds after they are in position.

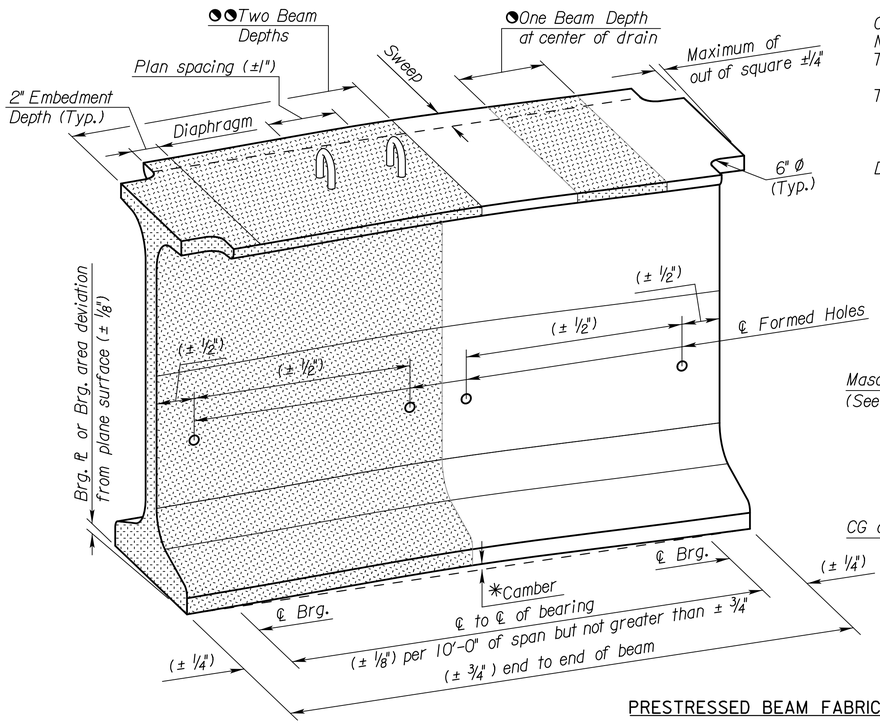
The center portion of the girder top flange shall be rough finished by scarifying the surface transversely with a wire brush or stiff broom and no laitance shall remain on the surface. The outside 9" on each side of the top flange shall be steel troweled to a smooth finish and a bond breaker shall be applied to this region only. Bond breaker shall be 30# roofing felt. Secure roofing felt to the top flange with an adhesive approved by the Engineer.

Fill trapped air holes and surface voids on the exterior face of the exterior beams with an approved concrete masonry coating. This work shall conform to KDOT Specifications. This work shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Detension strands in a sequence which minimizes lateral eccentricity. Show the method and sequence of strand release on the shop drawings. Use extreme care when lifting, handling, storing and transporting beams. Use the lifting system shown or an alternate system approved by the Engineer. Keep the beam in an upright position at all times. Support the beam on bearing points positioned directly below the designated lifting points or designated bearing points.

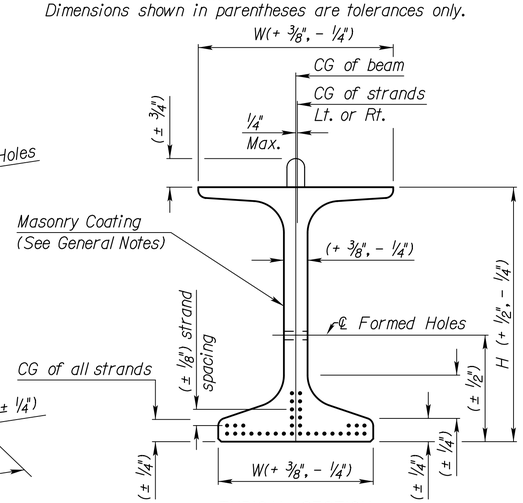
Do not place the bridge slab before the beams are 28 days old. Pour diaphragms as detailed in the bridge plans.

Stencil with paint the following information on the webs approximately 5'-0" from one end of the beam: date of concrete placement, date of strand release, and beam mark.



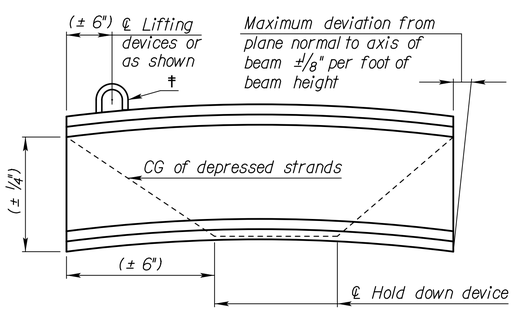
PRESTRESSED BEAM FABRICATION TOLERANCES

CG = Center of Gravity
Note:
Tolerance for sweep is ⅛" per 10'-0" of span but not greater than 1".
Tolerance for camber is 1" maximum variation in camber between adjacent beams; and ±⅛" per 10'-0" of span deviation from the specified camber but not greater than ±1" deviation.
Dimensions shown in parentheses are tolerances only.

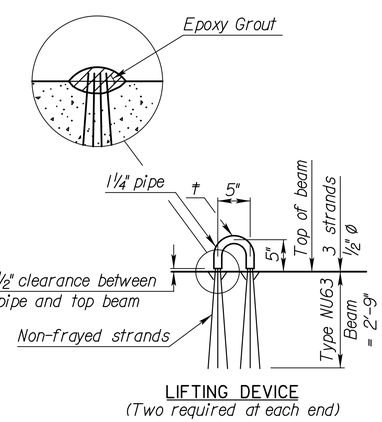


TYPICAL SECTION

† Remove lifting device within ½" from top of beam. Coat area with approved epoxy bonding agent. Completely cover remaining exposed strands and fill depressions adjacent to strands with approved epoxy grout.



ELEVATION



LIFTING DEVICE

(Two required at each end)
(Fabricator to verify)

SHEET NO. 528 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

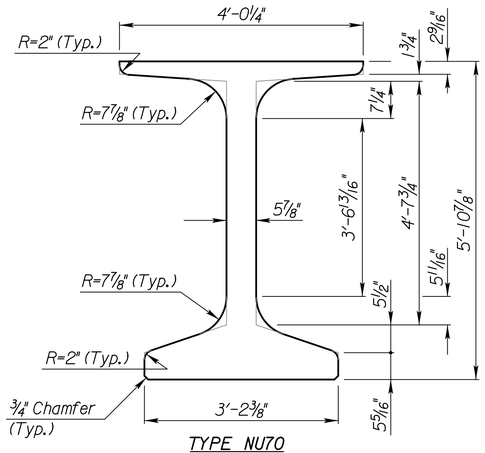
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
STANDARD NU63 PRESTRESSED CONCRETE BEAM DETAILS

Drawn By : MGEHL
File : c:\pwworking\central01\d2525841119th_BrWB_NU63.dgn
Plotted : 08-28-24



TYPE NU70

Area	857.5	In.²
IcG	611,624	In.⁴
Y Bot	32.02	In.
Vol./Surf. Area	3.06	In.
Wt./Ft.	893	Lbs

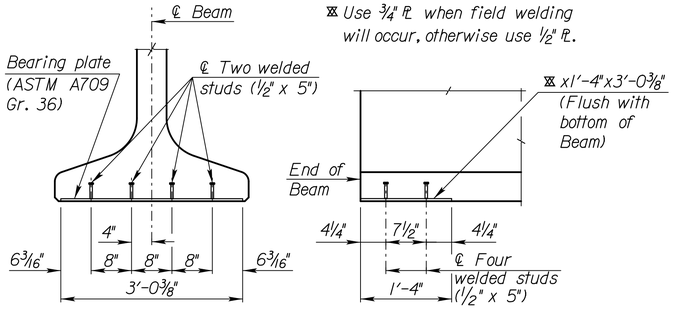
TYPICAL BEAM SECTION

(Dimensions and properties are converted from metric fabrication forms.)

✳ Prior to shipping, the camber shall be no greater than the design camber +½". The design camber is equal to the 50 day camber shown in the plans.

◔◔ At expansion joint locations coat beam with approved epoxy substructure waterproofing membrane.

◔ At bridge deck drain locations coat beam with approved epoxy substructure waterproofing membrane.

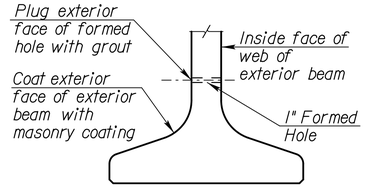


⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

⊠ x1'-4"x3'-0⅜" (Flush with bottom of Beam)

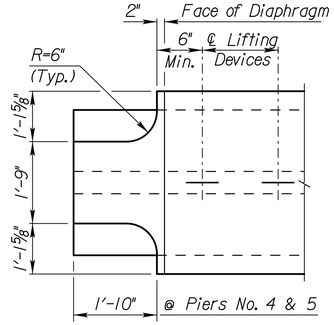
BEARING PLATE DETAILS

Note:
Stud welding will be in accordance with the latest edition of AWS D1.1.
Use plate conforming to the requirements of ASTM A709 Grade 36. The stud anchors will be made of material as specified for Shear Connector Studs in the KDOT Specifications.
The exposed surface of the bearing plates shall be galvanized.
All work and material to install the bearing plates shall be subsidiary to the bid item "Prestressed Concrete Beam".



DETAIL OF FORMED HOLE(S)

(See Beam Detail sheet for locations)



TOP FLANGE BLOCKOUT DETAIL

GENERAL NOTES

Fabricate the precast prestressed beams in accordance with the KDOT Specifications. Submit shop drawings in accordance with the KDOT Specifications.

Use air entrained concrete. The KDOT Materials Section shall approve the mix design. Unless otherwise shown on the plans, f'c = 9,000 psi and f'c at release = 7,500 psi.

Use reinforcing steel conforming to the requirements of ASTM A615, Grade 60. The reinforcing steel shown shall be uncoated unless otherwise indicated. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Use 0.60" nominal diameter (unless otherwise indicated), uncoated, seven-wire, low relaxation prestressing tendons conforming to the requirements of ASTM A416, Grade 270.

Use bolts having an ultimate strength 50% in excess of the manufacturer's safe load. All items (except the tendons) cast-in or inserted in prestressed beams shall be epoxy coated or galvanized. Show Formed Holes on shop drawings. All bolts, nuts and washers shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Show on the shop drawings any hardware, holes or other appurtenances that are required to be incorporated into the girder to construct the girder or for any temporary works needed to construct the bridge (e.g. safety railing pockets).

After beams are in the final position, remove lifting devices. See "Lifting Device" detail below. Removal of the lifting devices, coating and grouting shall be subsidiary to the bid item: "Prestressed Concrete Beams".

Use elastomeric bearing pads conforming to the KDOT Specifications. Bearing pads and Type B expansion joint material shall be subsidiary to the bid item, "Prestressed Concrete Beams".

The beam lengths shown on the design plans are net lengths measured horizontally along the beam centerline. The beam manufacturer shall make necessary allowances for grade, and for shortening due to elastic shortening, creep and shrinkage.

The beams shall reasonably conform to the lines and dimensions shown on the design plans and be within the tolerances specified in the latest edition of Prestressed Concrete Institute's, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products", except as modified by this sheet or the KDOT Specifications.

Apply an initial force of 1,000 to 3,000 pounds to each strand to take up any slack in the cables. Unless otherwise noted on the plans, apply a force of 43,900 pounds to each strand. Stress harped strands to a magnitude such that they are tensioned to 43,900 pounds after they are in position.

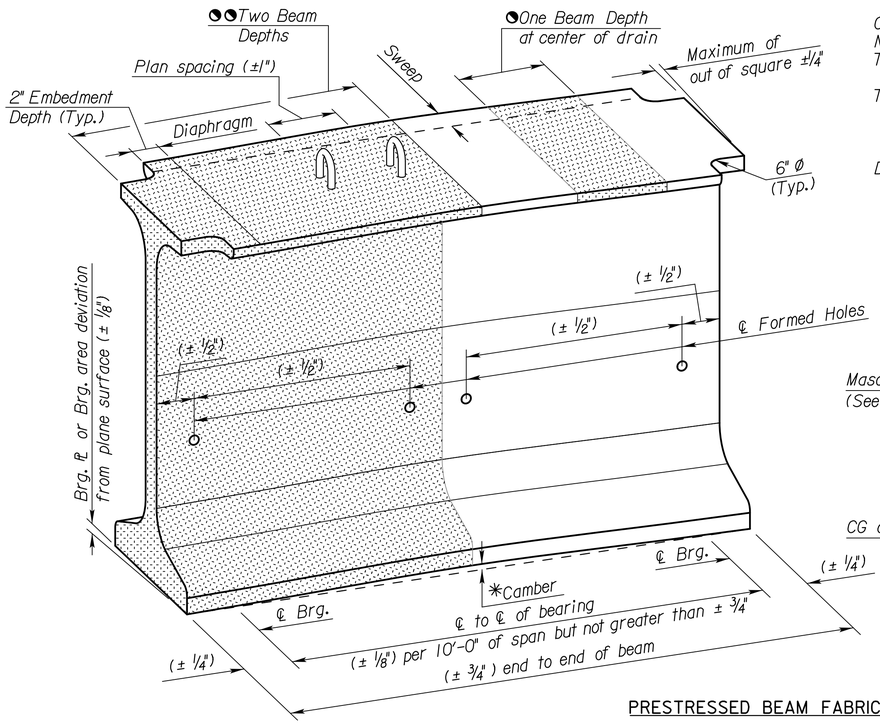
The center portion of the girder top flange shall be rough finished by scarifying the surface transversely with a wire brush or stiff broom and no laitance shall remain on the surface. The outside 9" on each side of the top flange shall be steel troweled to a smooth finish and a bond breaker shall be applied to this region only. Bond breaker shall be 30# roofing felt. Secure roofing felt to the top flange with an adhesive approved by the Engineer.

Fill trapped air holes and surface voids on the exterior face of the exterior beams with an approved concrete masonry coating. This work shall conform to KDOT Specifications. This work shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Detension strands in a sequence which minimizes lateral eccentricity. Show the method and sequence of strand release on the shop drawings. Use extreme care when lifting, handling, storing and transporting beams. Use the lifting system shown or an alternate system approved by the Engineer. Keep the beam in an upright position at all times. Support the beam on bearing points positioned directly below the designated lifting points or designated bearing points.

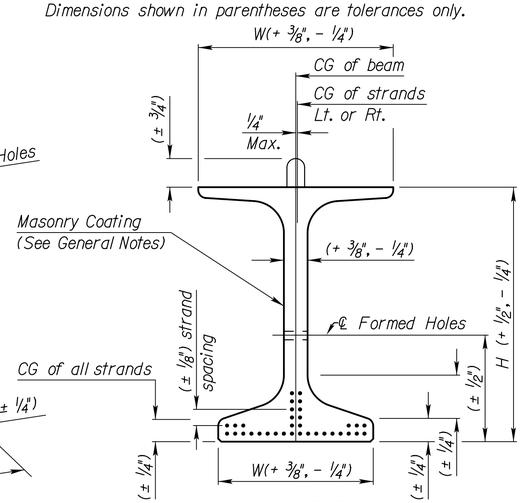
Do not place the bridge slab before the beams are 28 days old. Pour diaphragms as detailed in the bridge plans.

Stencil with paint the following information on the webs approximately 5'-0" from one end of the beam: date of concrete placement, date of strand release, and beam mark.



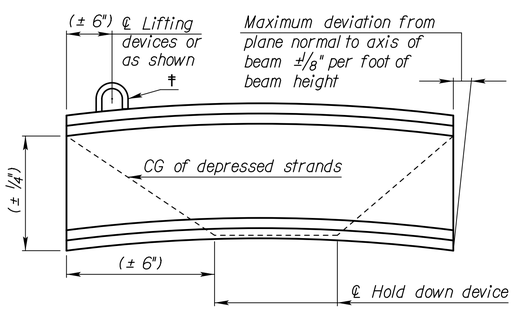
PRESTRESSED BEAM FABRICATION TOLERANCES

CG = Center of Gravity
Note:
Tolerance for sweep is ⅛" per 10'-0" of span but not greater than 1".
Tolerance for camber is 1" maximum variation in camber between adjacent beams; and ±⅛" per 10'-0" of span deviation from the specified camber but not greater than ±1" deviation.
Dimensions shown in parentheses are tolerances only.

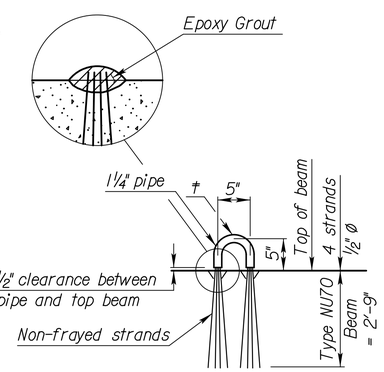


TYPICAL SECTION

† Remove lifting device within ½" from top of beam. Coat area with approved epoxy bonding agent. Completely cover remaining exposed strands and fill depressions adjacent to strands with approved epoxy grout.



ELEVATION



LIFTING DEVICE

(Two required at each end)
(Fabricator to verify)

SHEET NO.	TOTAL SHEETS
529	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

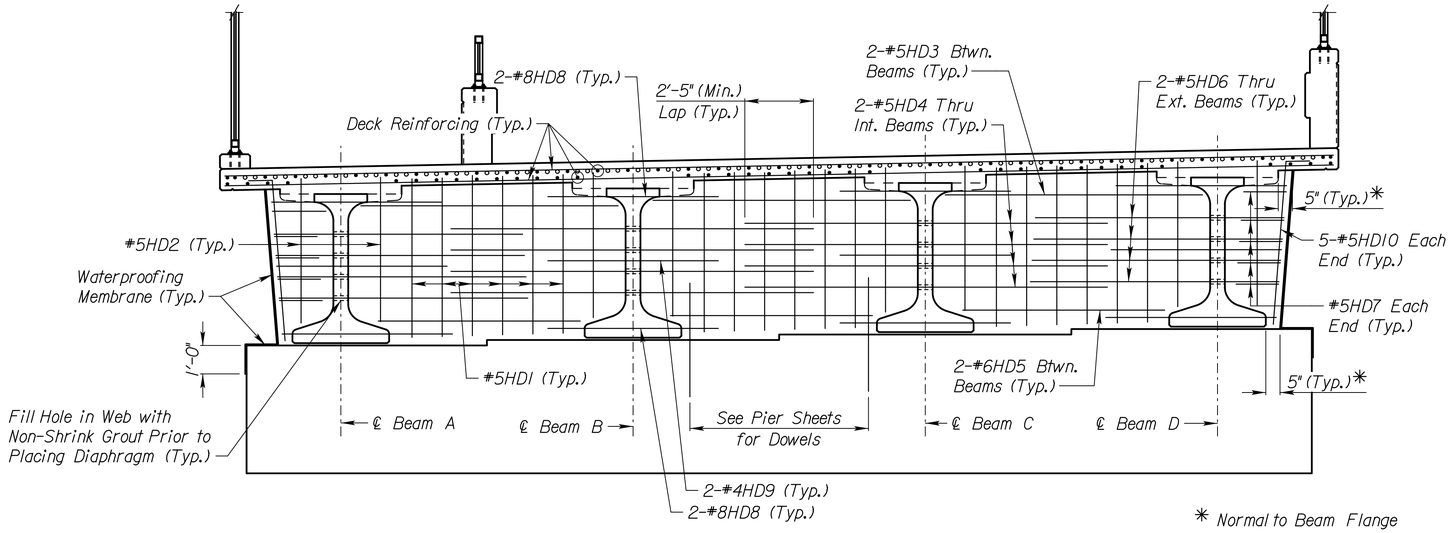
CITY OF OLATHE, KS

OLATHE KANSAS

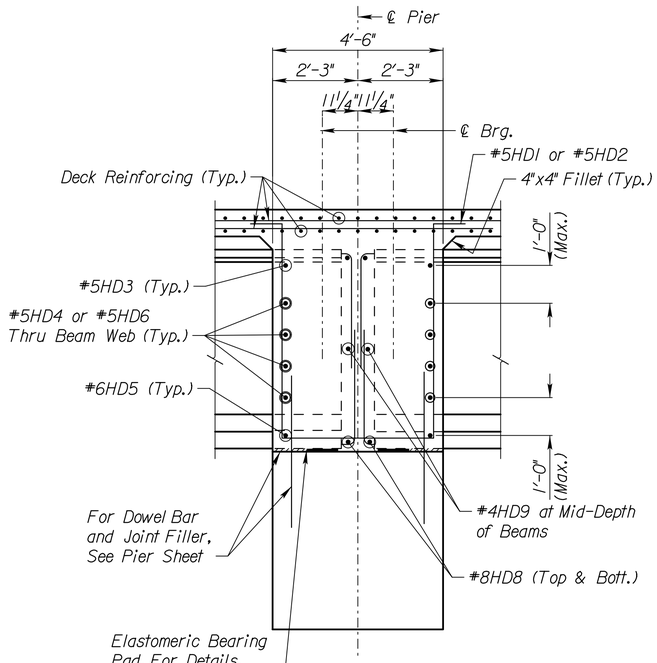
By	Description	Date	Rev.
. . .		. . .	. . .
. . .		. . .	. . .
. . .		. . .	. . .

119th Street - Westbound
STANDARD NU70 PRESTRESSED CONCRETE BEAM DETAILS

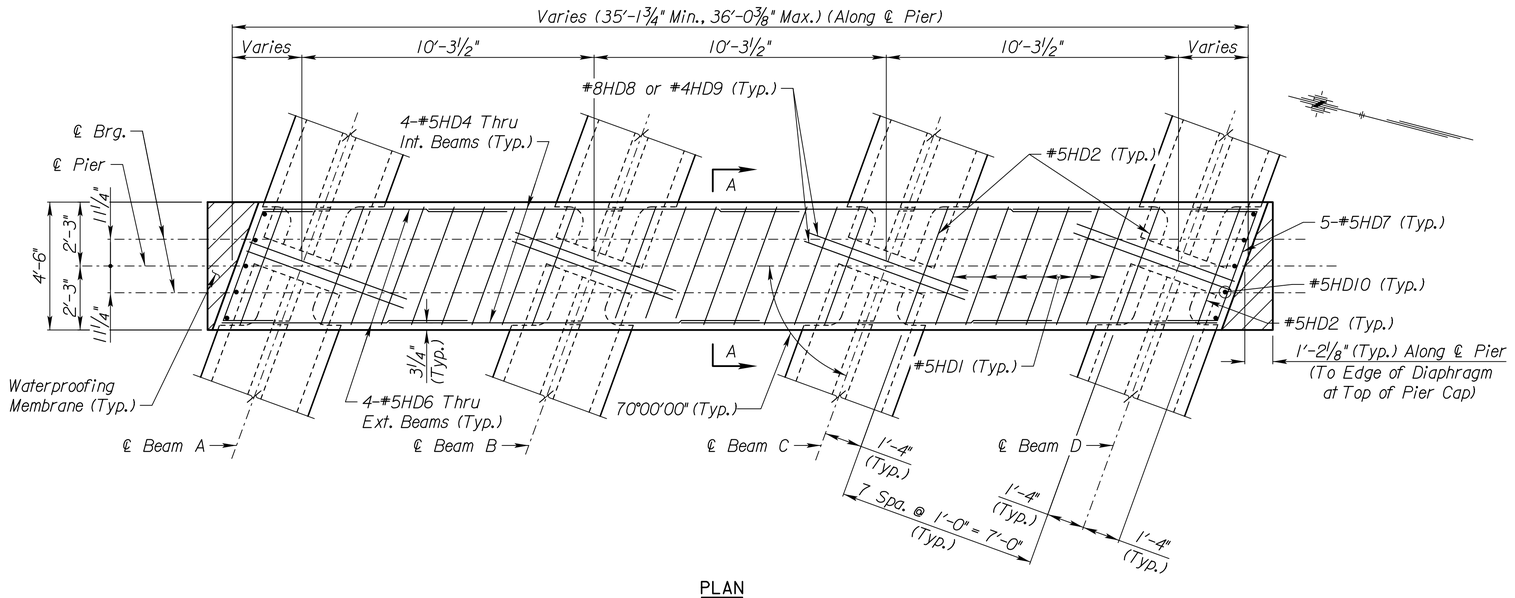
Drawn By : MGEHL
File : c:\pwworking\central01\d2525841119th_BrWB_NU70.dgn
Plotted : 08-28-24



ELEVATION



SECTION A-A



PLAN

Notes:

Diaphragm concrete and reinforcing steel is included in the superstructure quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

SHEET NO.	TOTAL SHEETS
530	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

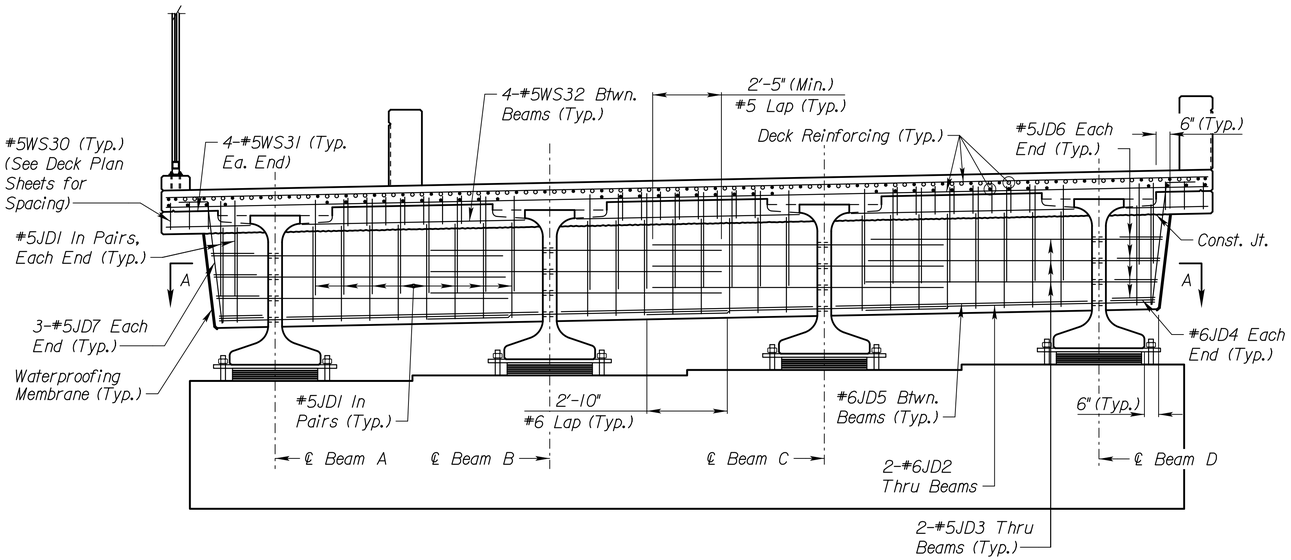
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

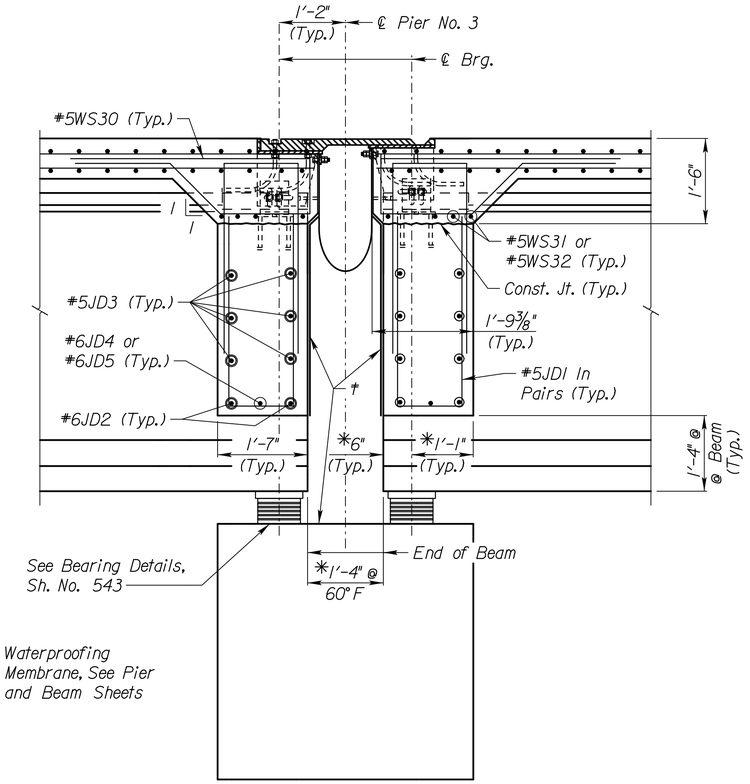
119th Street - Westbound
PIER DIAPHRAGM DETAILS
PIERS NO.1 & 2

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_PierDiaph1&2.dgn



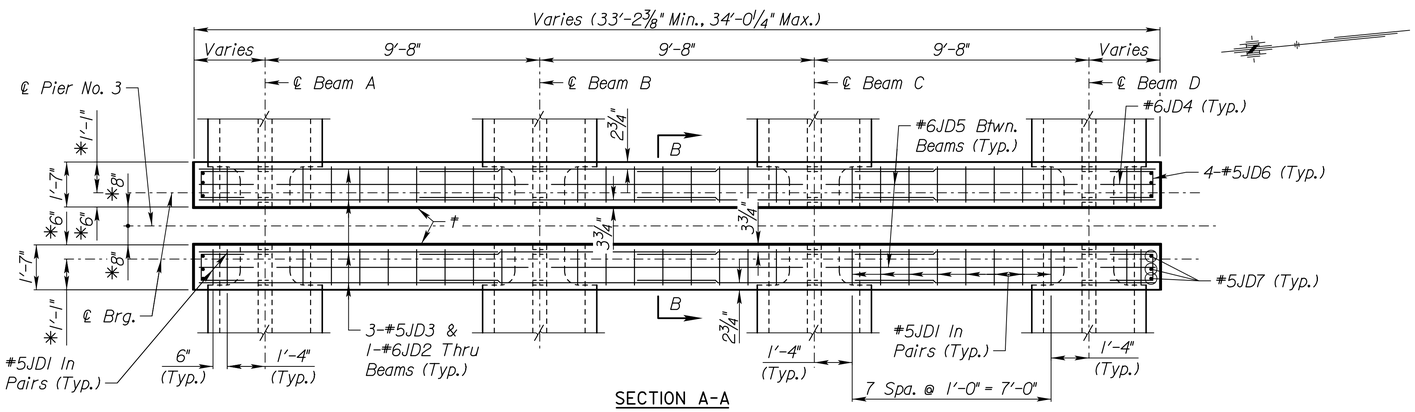
ELEVATION

Unit 1 Side of Pier No. 3 Shown
(Unit 2 Side Similar)



† Waterproofing Membrane, See Pier and Beam Sheets

SECTION B-B



SECTION A-A

* Indicates Dimension shown at 60° F

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

SHEET NO.	TOTAL SHEETS
531	781

YEAR 2024

PROJECT NO. 3-C-024-21

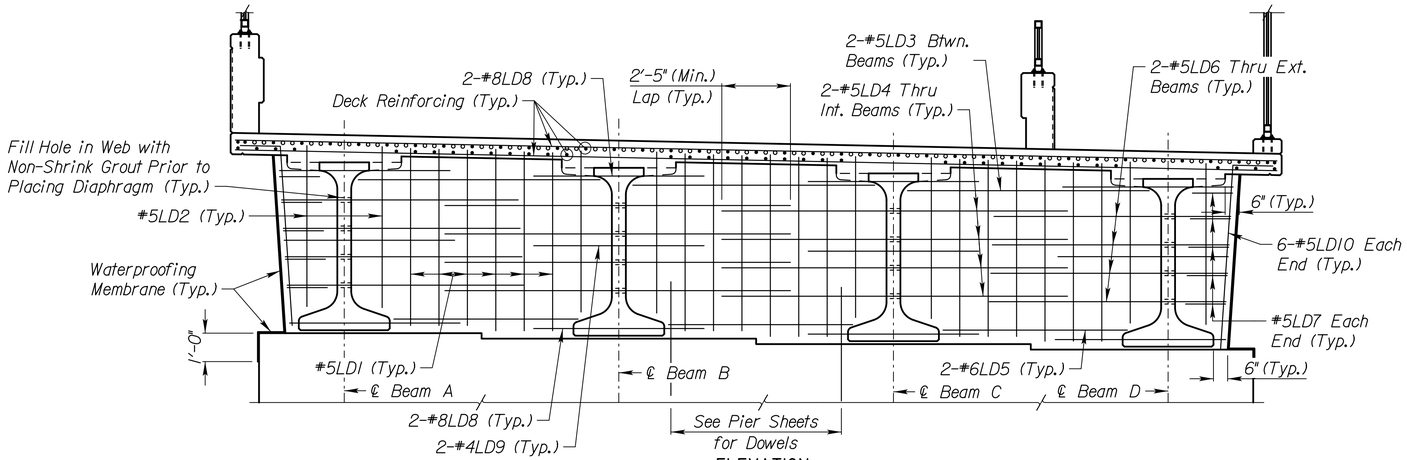
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

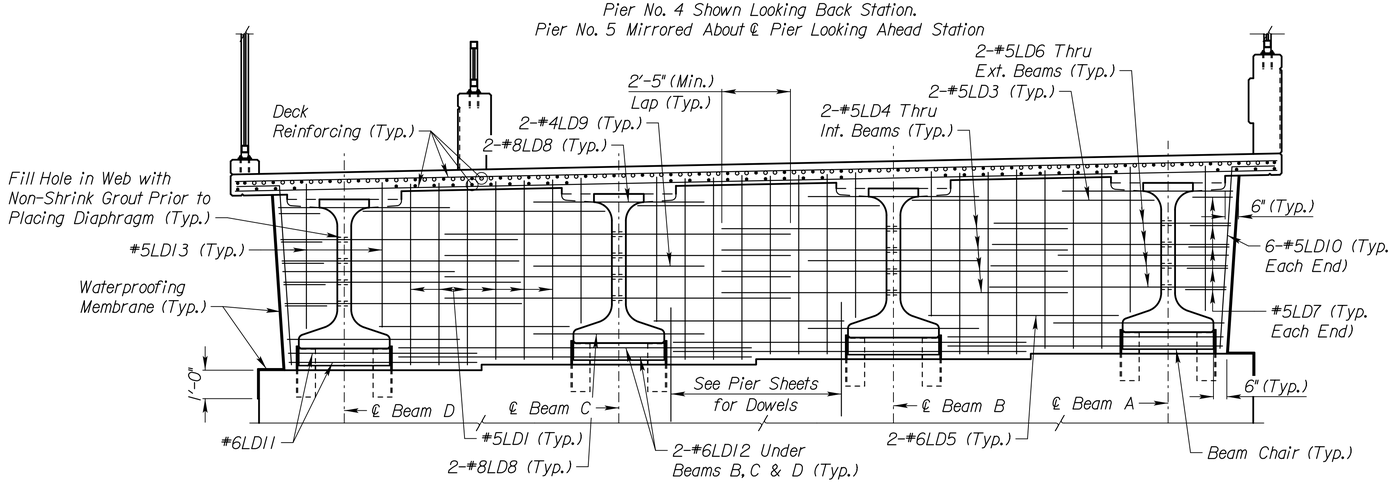
119th Street - Westbound
PIER DIAPHRAGM DETAILS
PIER NO. 3

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_PierDiaph3.dgn



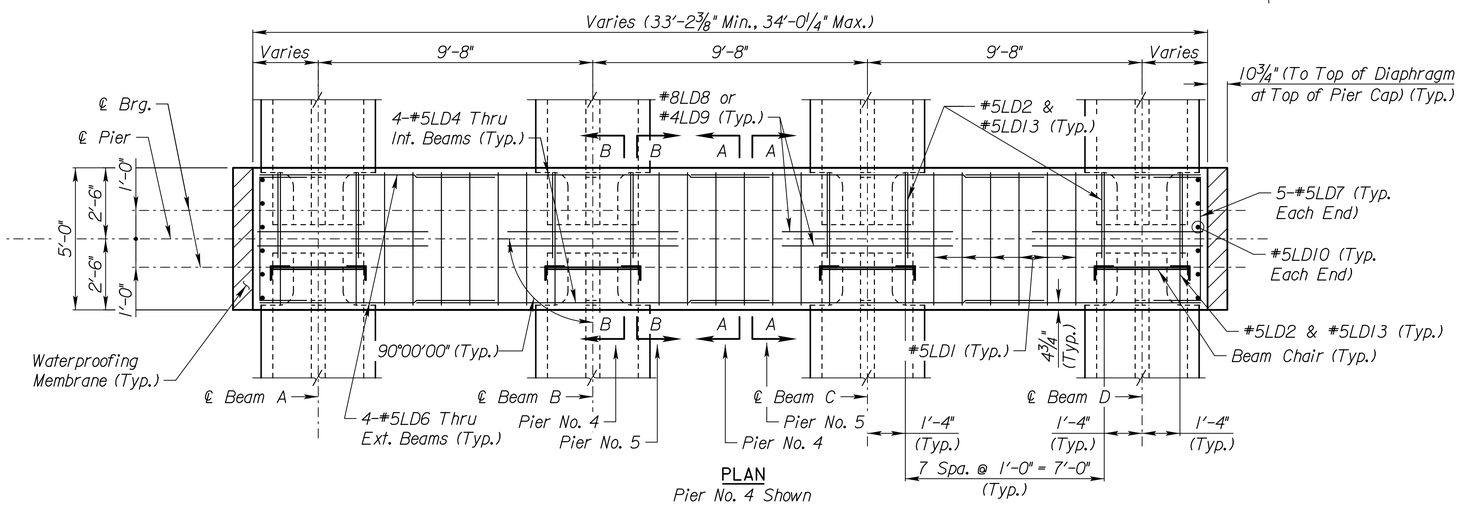
ELEVATION

Pier No. 4 Shown Looking Back Station.
Pier No. 5 Mirrored About ℄ Pier Looking Ahead Station



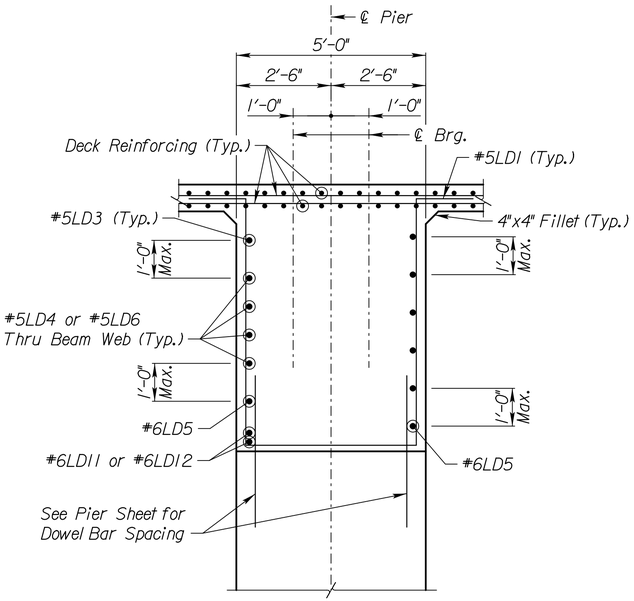
ELEVATION

Pier No. 5 Shown Looking Ahead Station, Pier No. 4 Mirrored about ℄ Pier looking Ahead Station

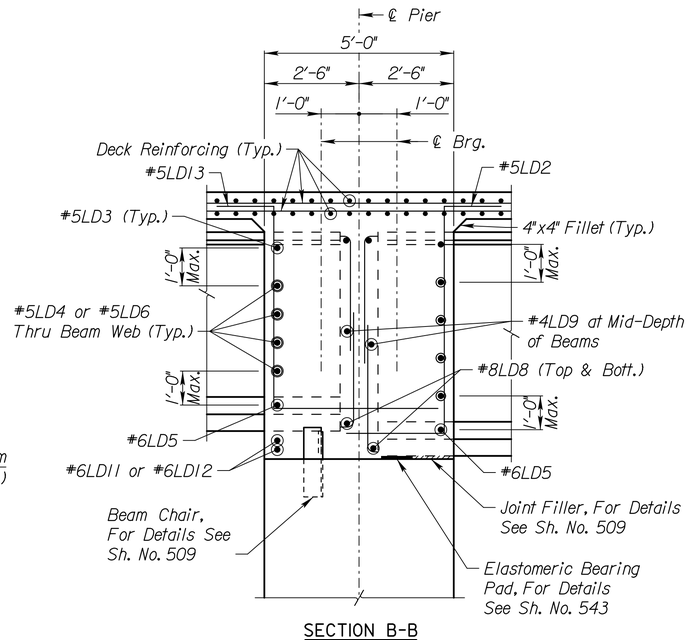


PLAN

Pier No. 4 Shown
Pier No. 5 Mirrored about ℄ Pier



SECTION A-A



SECTION B-B

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

U.N.O. denotes Unless Noted Otherwise.

SHEET NO.	TOTAL SHEETS
532	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

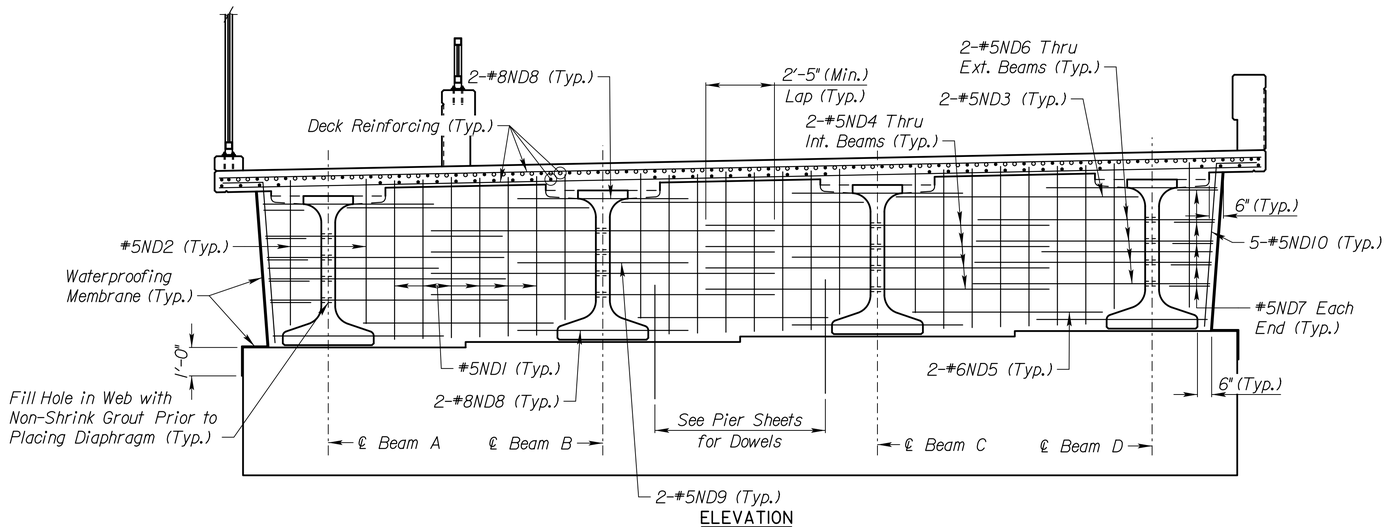
CITY OF OLATHE, KS

OLATHE KANSAS

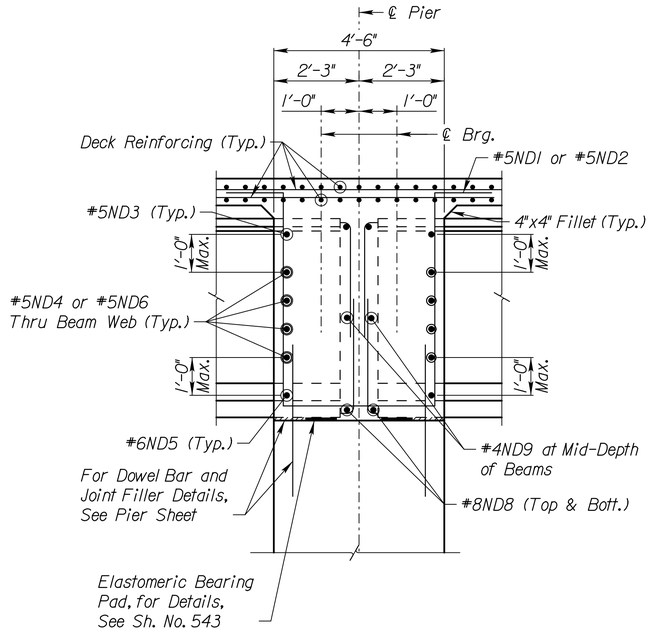
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER DIAPHRAGM DETAILS
PIERS NO. 4 & 5

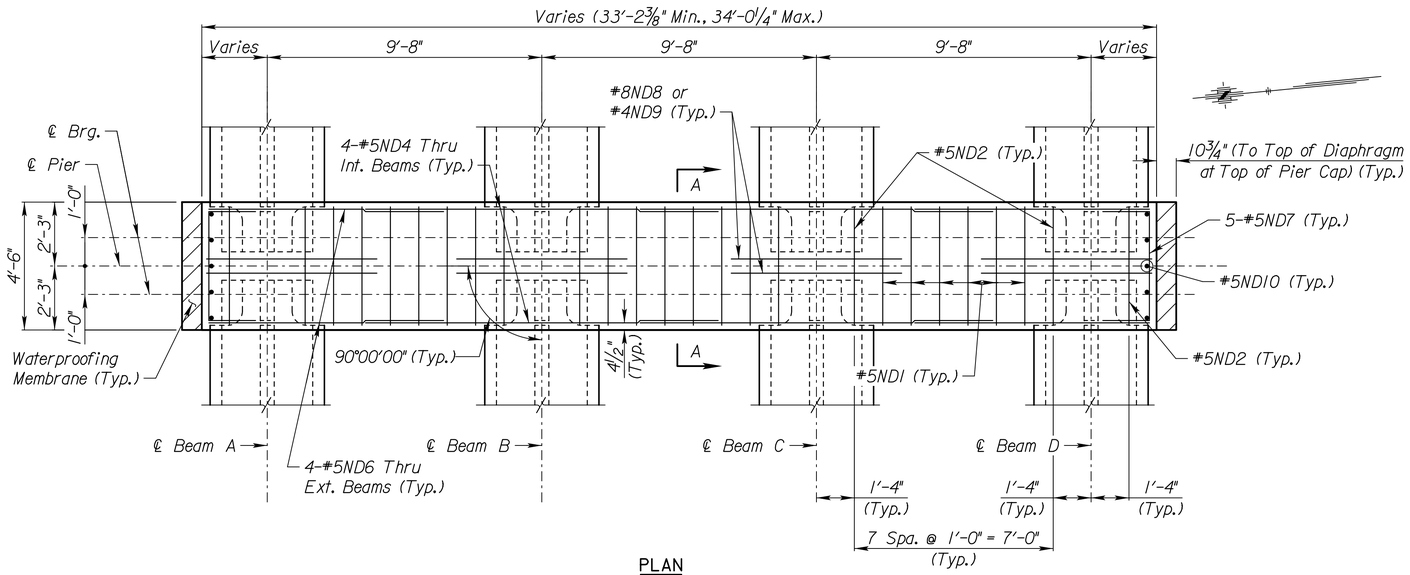
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_PierDiaph4&5.dgn



ELEVATION



SECTION A-A



PLAN

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

SHEET NO.	TOTAL SHEETS
533	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

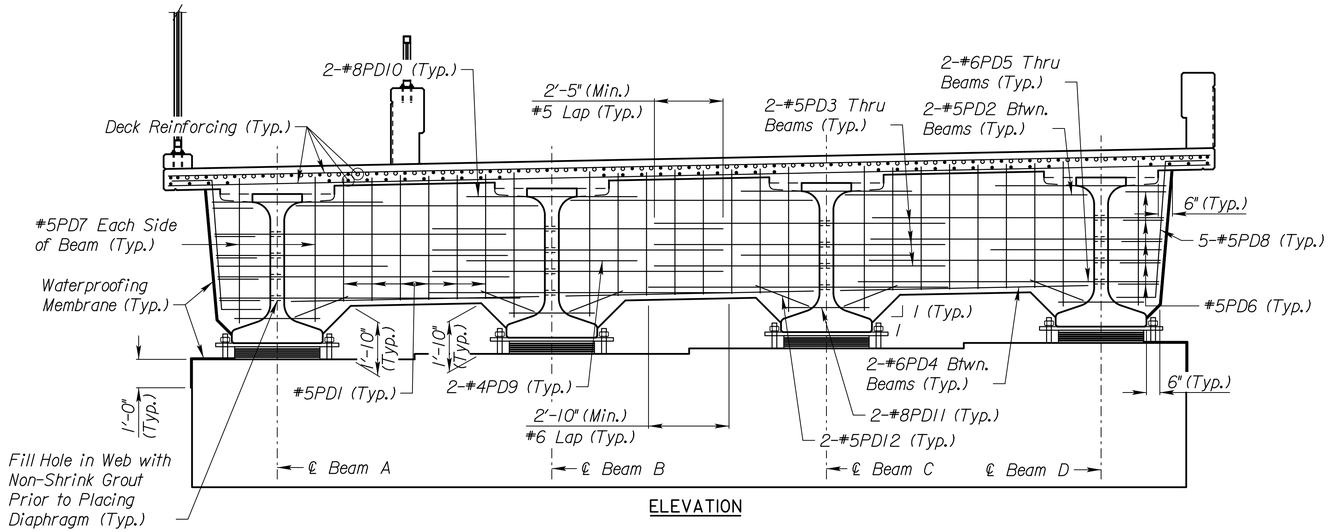
CITY OF OLATHE, KS

OLATHE KANSAS

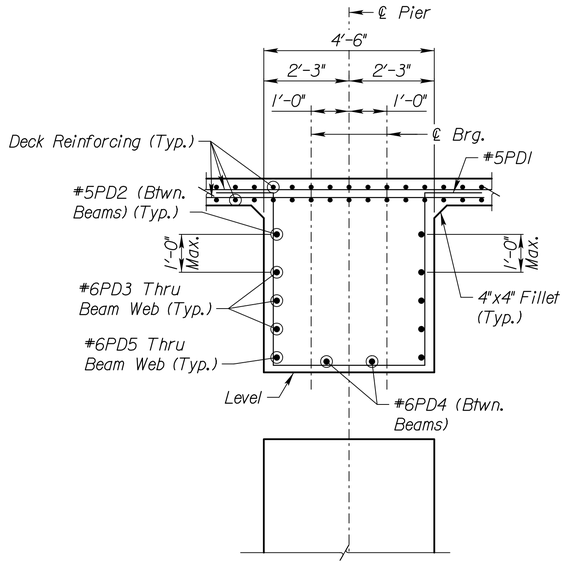
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PIER DIAPHRAGM DETAILS
PIER NO. 6

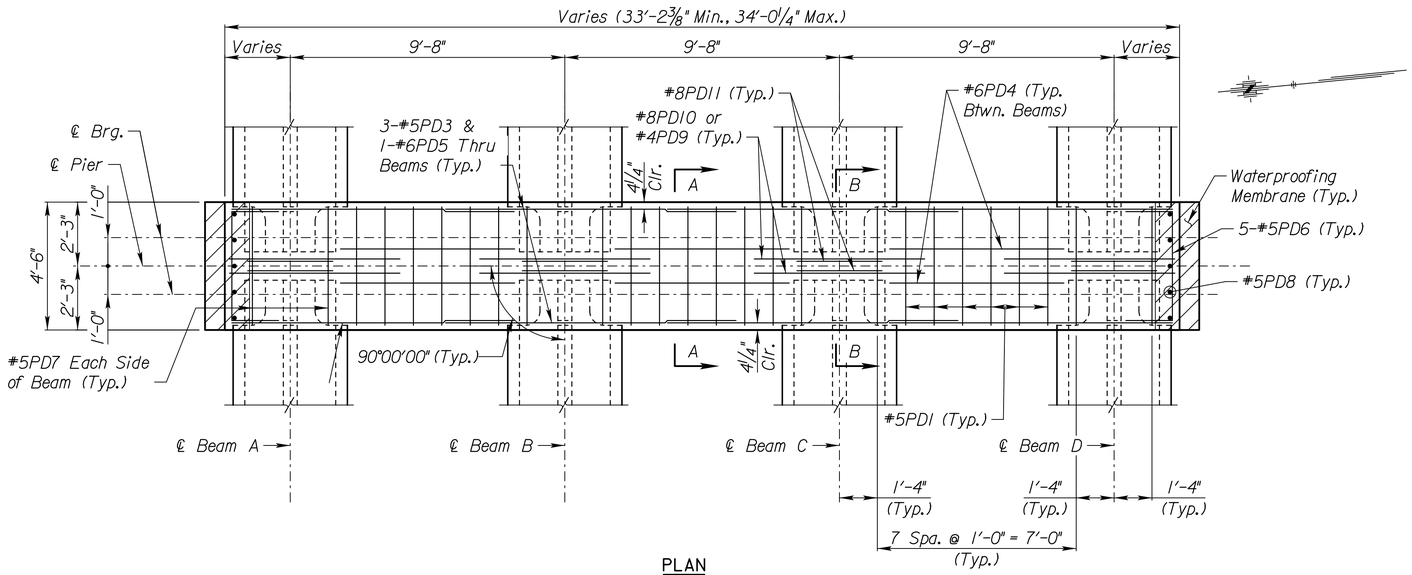
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_PierDiaph6.dgn



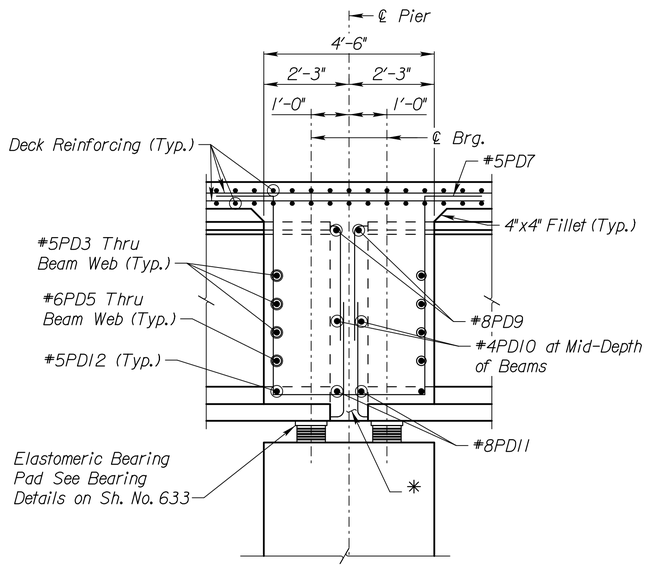
ELEVATION



SECTION A-A



PLAN



SECTION B-B

* *Haunch at 1:1 (H:V) to Top of Flange. Continuity is Achieved by Placing Diaphragm Concrete to Bottom of Beam Flanges Btwn. Beam Ends (Typ.)*

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

SHEET NO.	TOTAL SHEETS
534	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

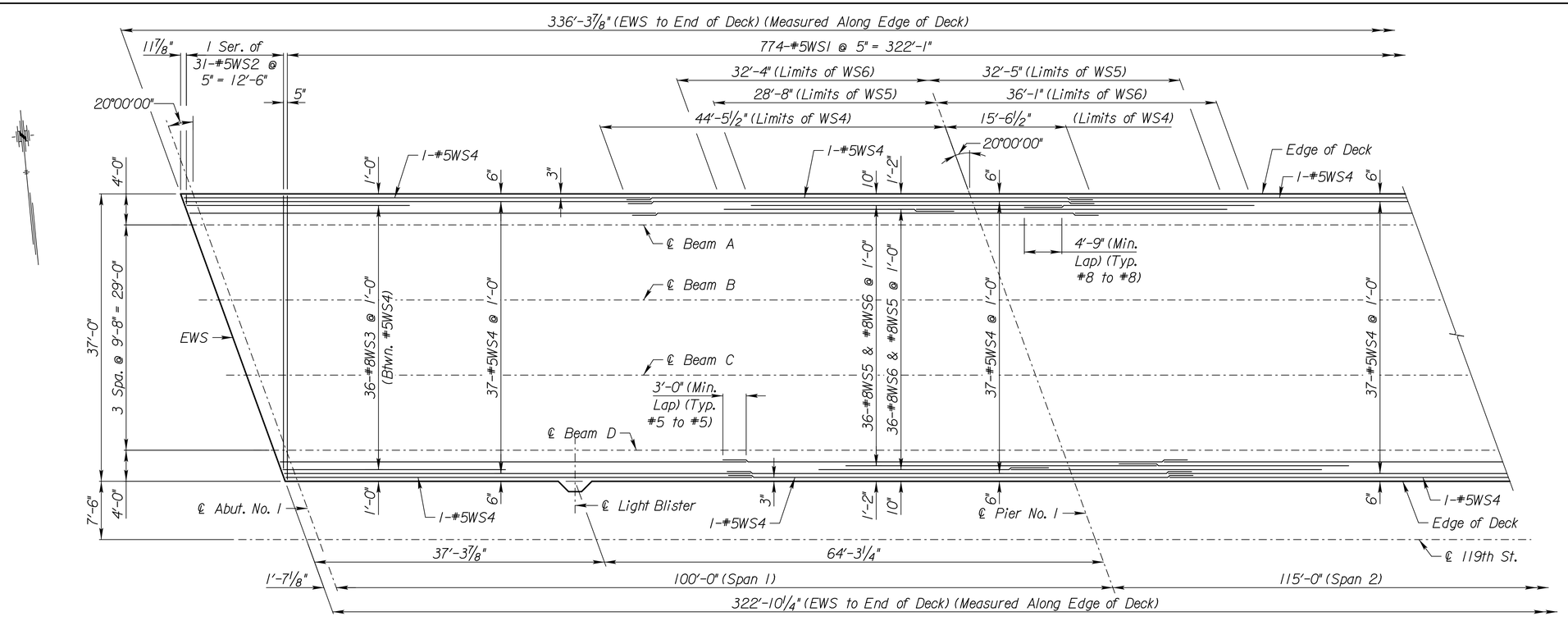
CITY OF OLATHE, KS

OLATHE KANSAS

By	Description	Date	Rev.
. . .			
. . .			
. . .			

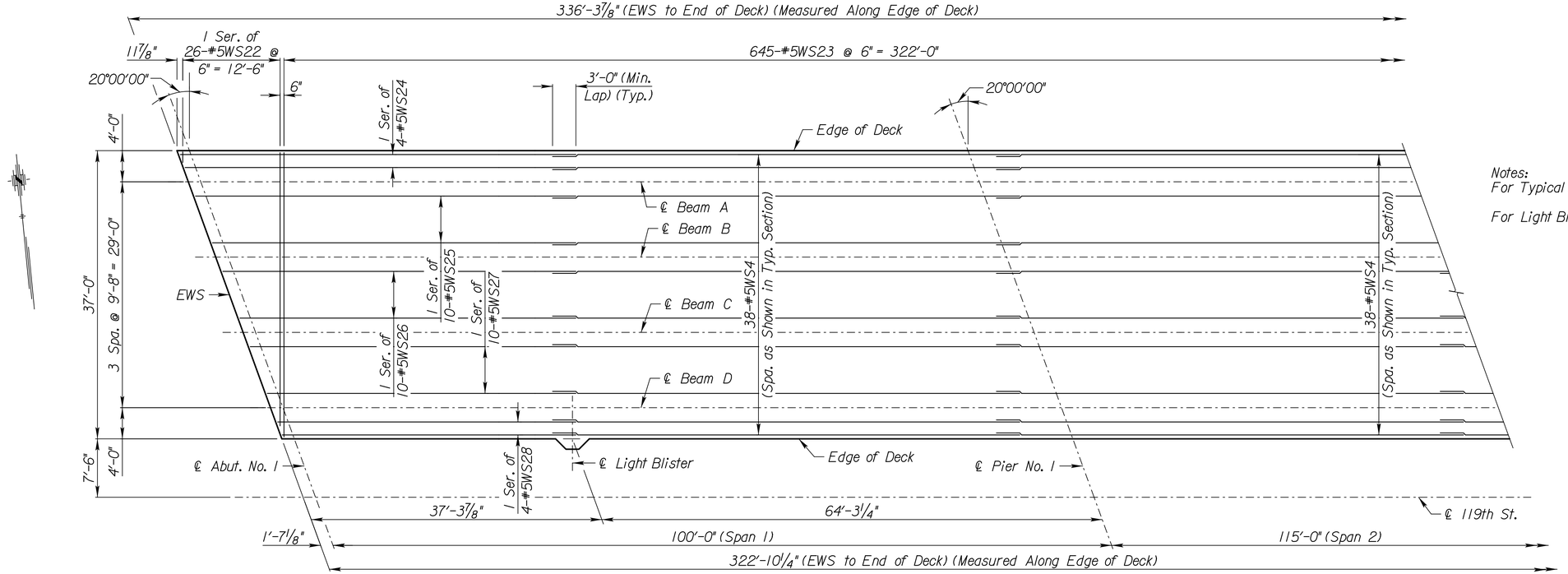
119th Street - Westbound
PIER DIAPHRAGM DETAILS
PIER NO. 7

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_PierDiaph7.dgn



DECK PLAN UNIT 1

(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT 1

(Showing Reinforcement in Bottom of Deck)

Notes:
For Typical Section, See Sh. No. 540

For Light Blister Details, See Sh. No. 556

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Deck1_1.dgn

SHEET NO.	TOTAL SHEETS
535	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

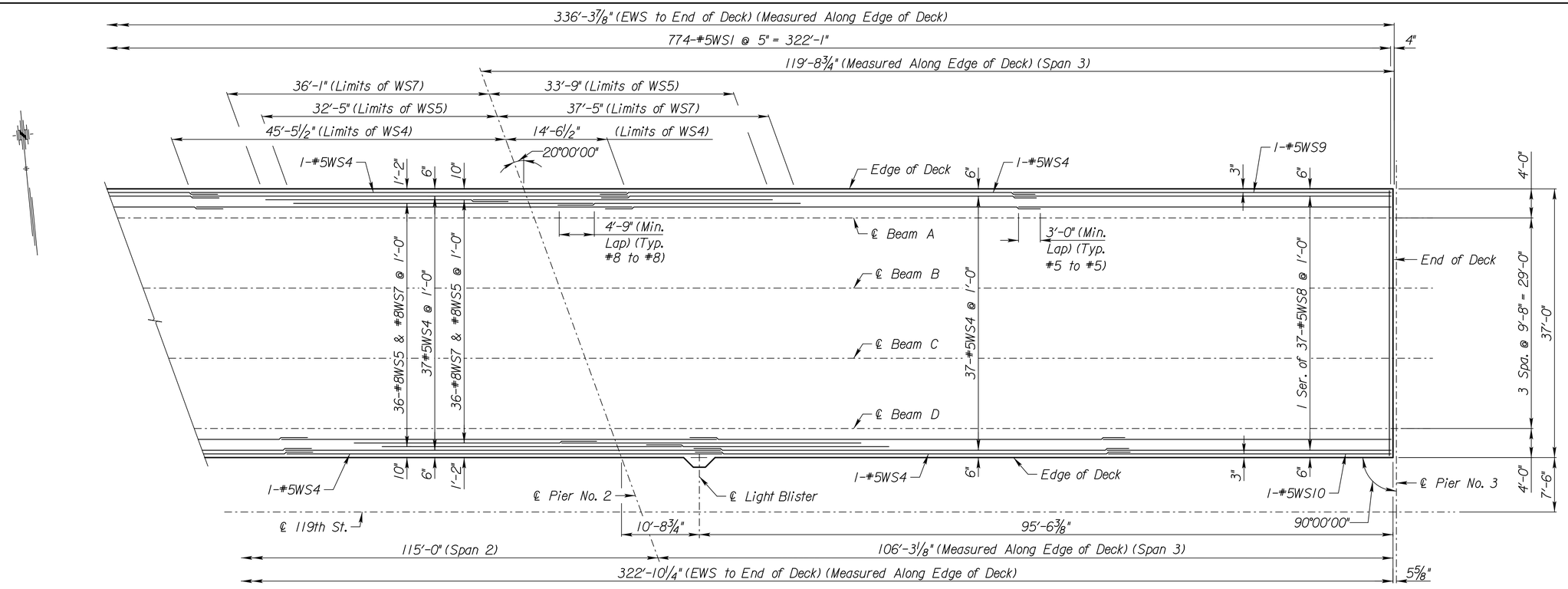
HDR Engineering, Inc.

CITY OF OLATHE, KS

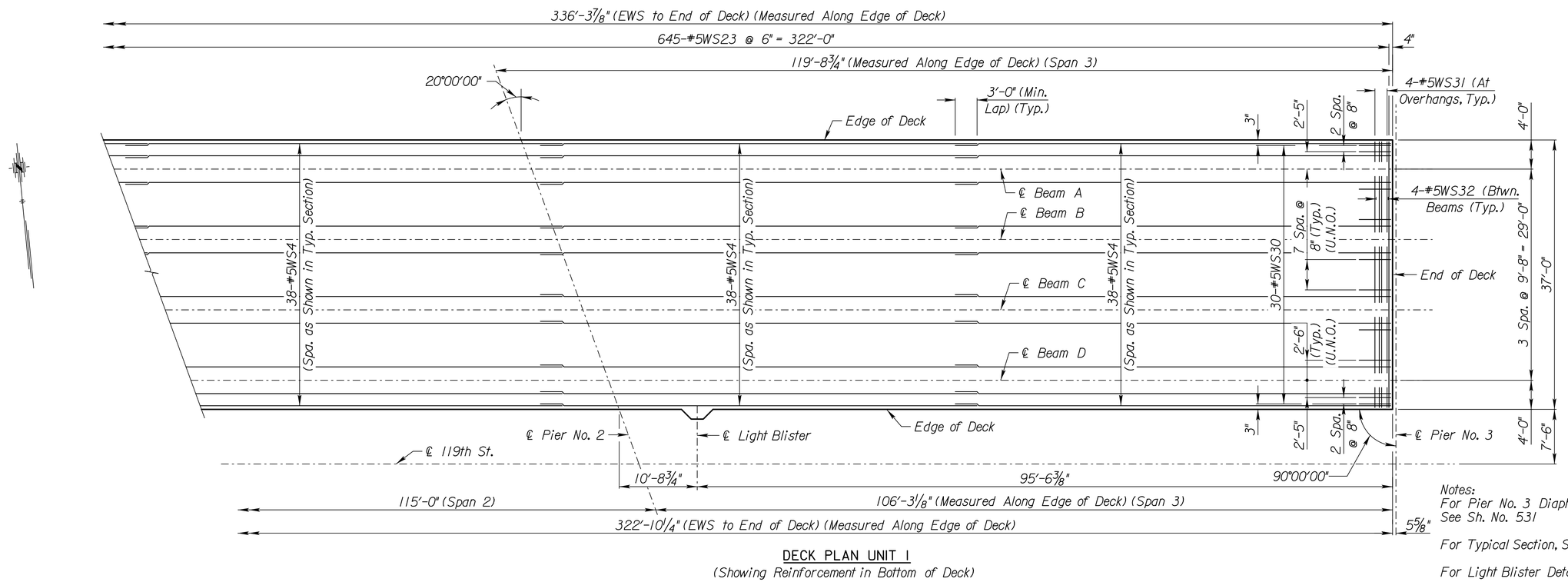
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
DECK PLAN UNIT 1 (1 OF 2)



DECK PLAN UNIT 1
(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT 1
(Showing Reinforcement in Bottom of Deck)

Notes:
For Pier No. 3 Diaphragm Details, See Sh. No. 531

For Typical Section, See Sh. No. 540

For Light Blister Details, See Sh. No. 556

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Deck1_2.dgn

SHEET NO.	TOTAL SHEETS
536	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

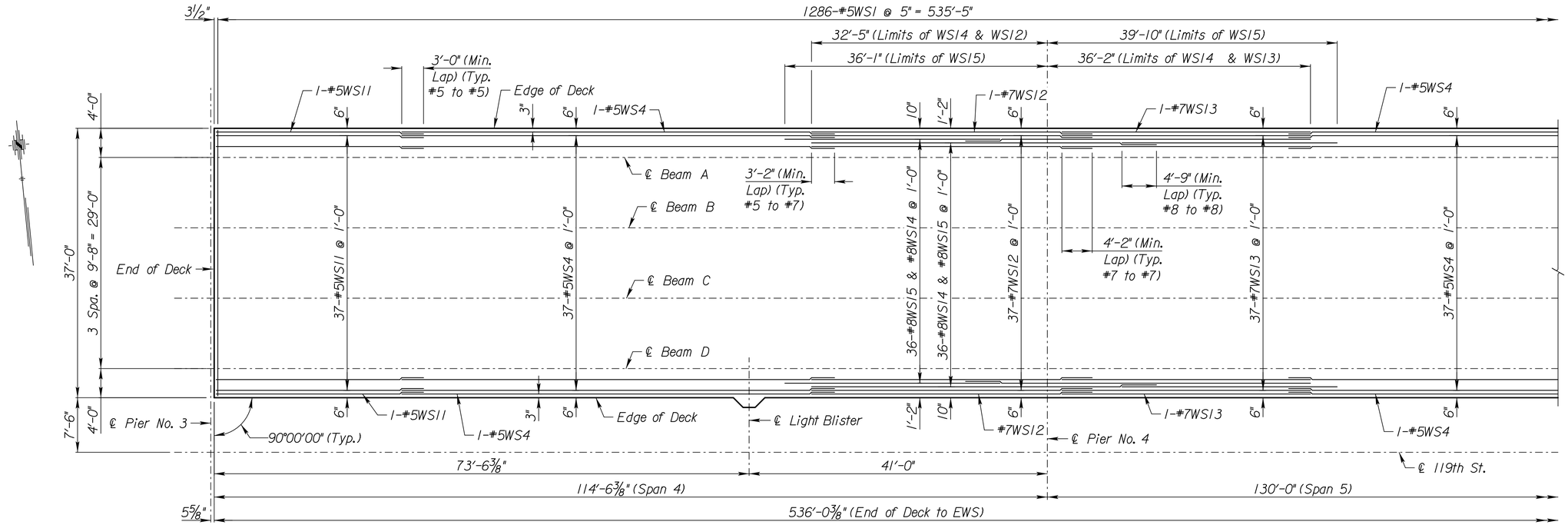
HDR Engineering, Inc.

CITY OF OLATHE, KS

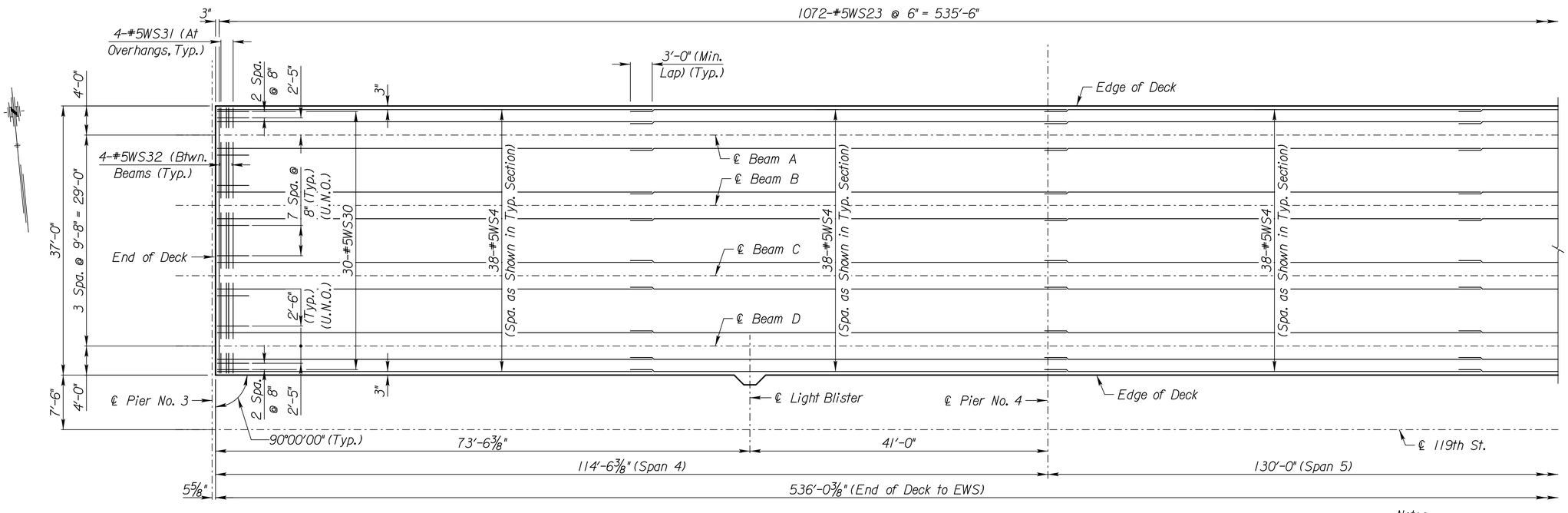
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
DECK PLAN UNIT 1 (2 OF 2)



DECK PLAN UNIT 2
(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT 2
(Showing Reinforcement in Bottom of Deck)

Notes:
For Pier No. 3 Diaphragm Details, See Sh. No. 531

For Typical Section, See Sh. No. 540

For Light Blister Details, See Sh. No. 556

SHEET NO.	TOTAL SHEETS
537	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

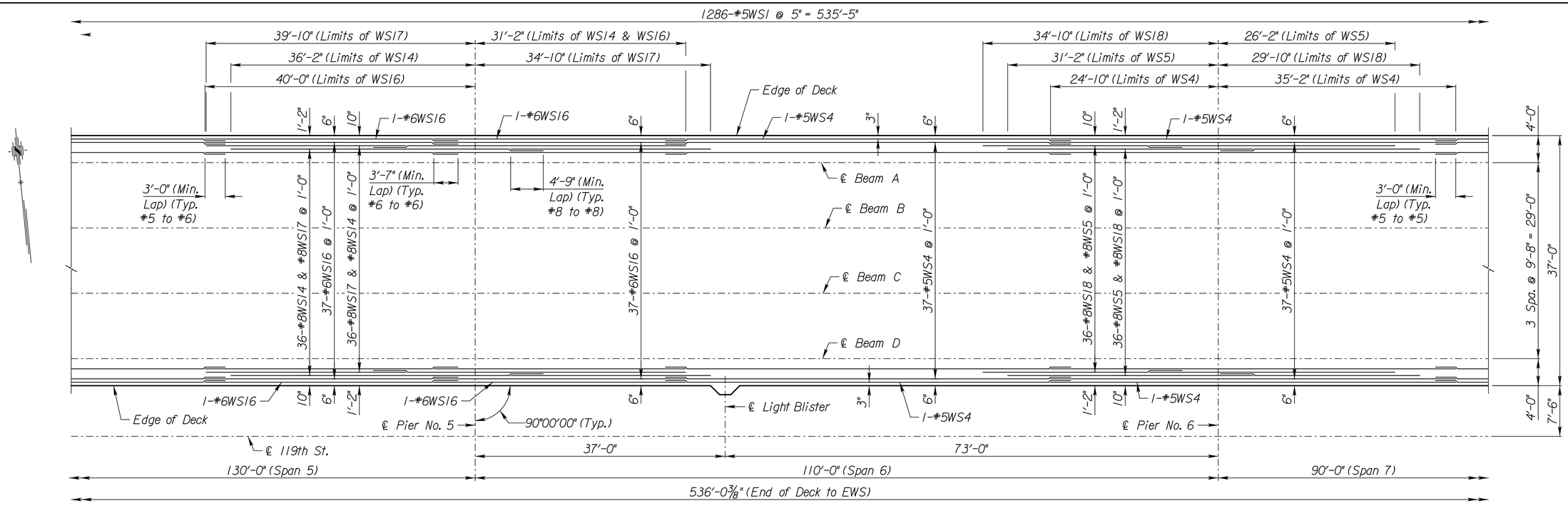
CITY OF OLATHE, KS

OLATHE KANSAS

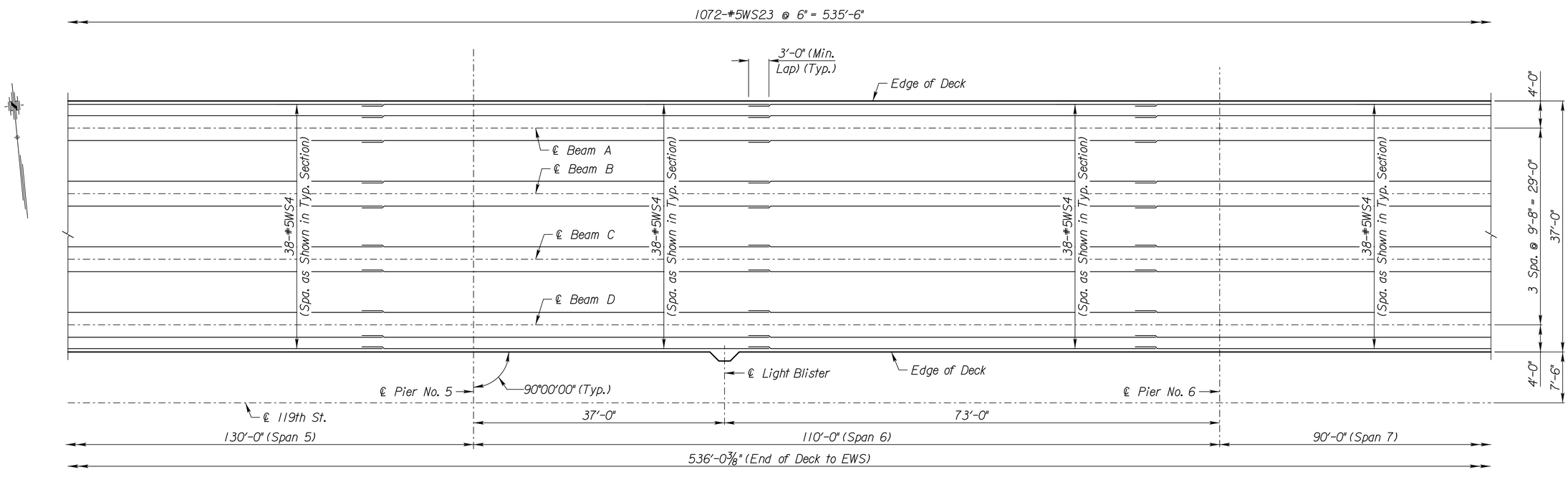
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
DECK PLAN UNIT 2 (1 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Deck2_1.dgn



DECK PLAN UNIT 2
(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT 2
(Showing Reinforcement in Bottom of Deck)

Notes:
For Typical Section, See Sh. No. 540

For Light Blister Details, See Sh. No. 556

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Deck2_2.dgn

SHEET NO.	TOTAL SHEETS
538	781

YEAR 2024

PROJECT NO. 3-C-024-21

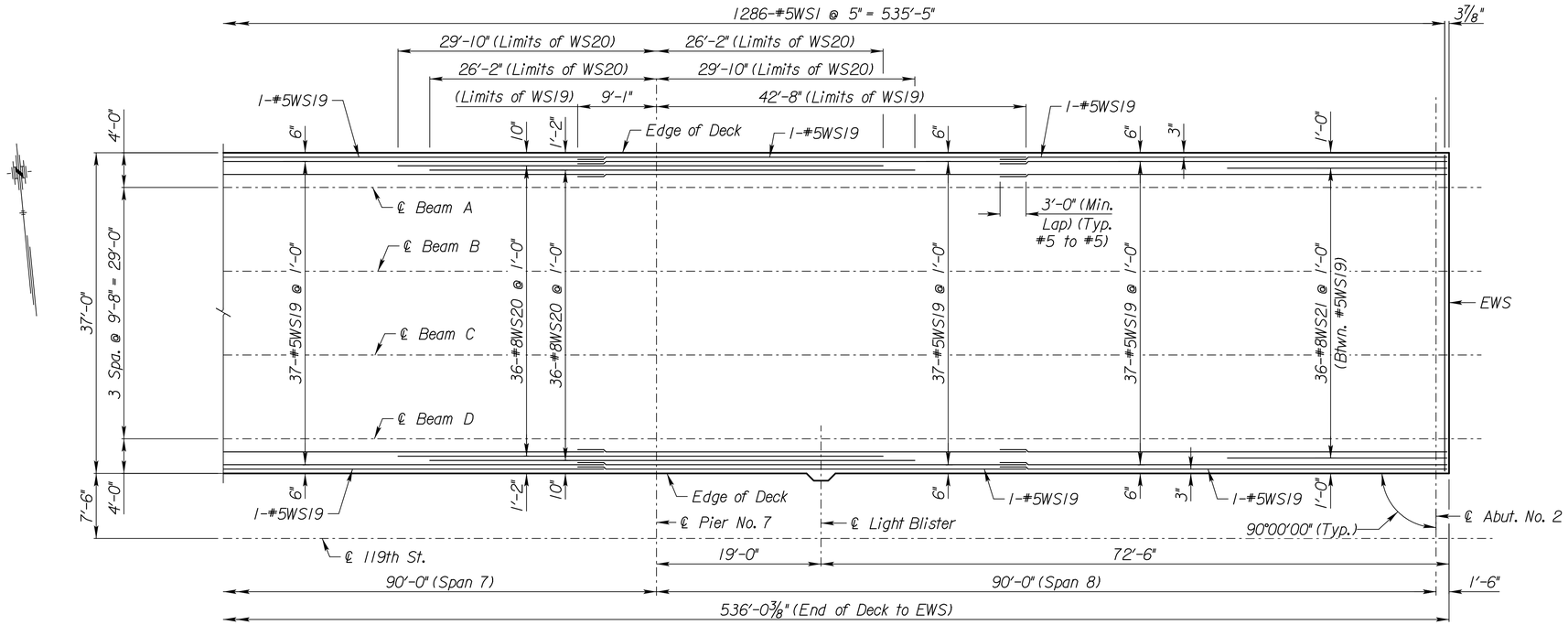
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

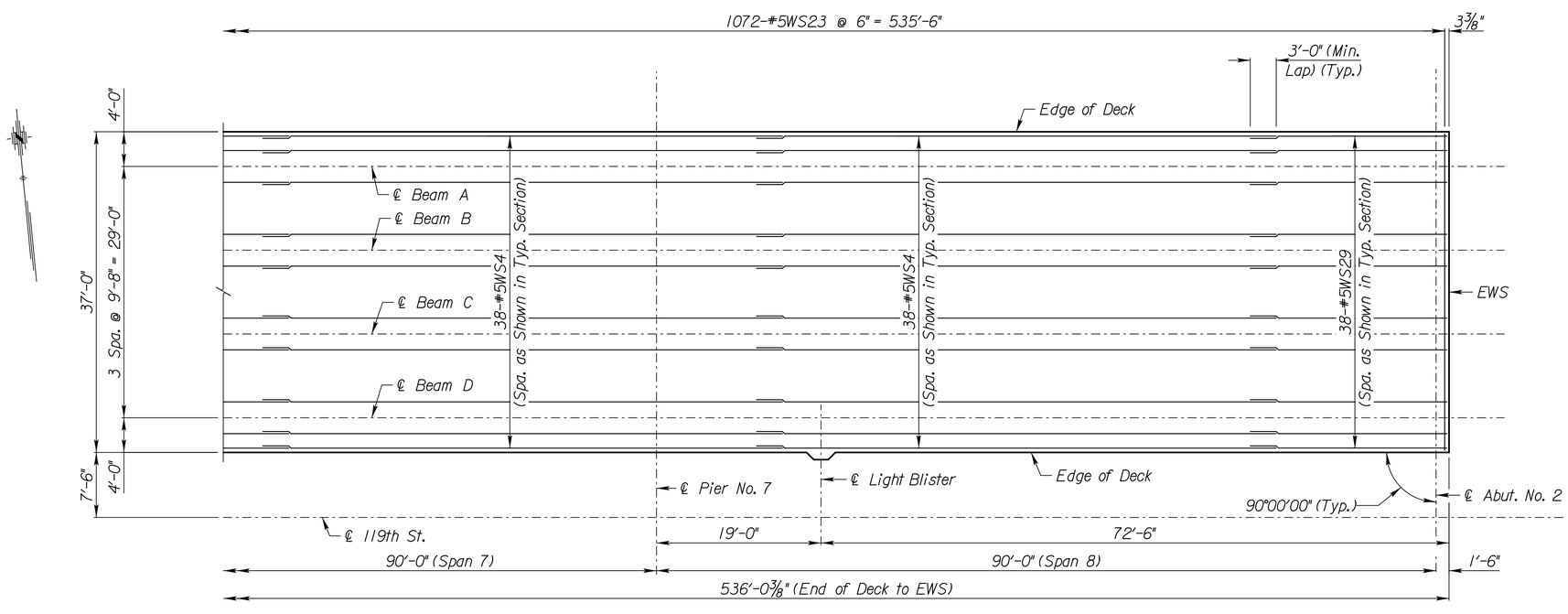
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
DECK PLAN UNIT 2 (2 OF 3)



DECK PLAN UNIT 2
(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT 2
(Showing Reinforcement in Bottom of Deck)

Notes:
For Typical Section, See Sh. No. 540

For Light Blister Details, See Sh. No. 556

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Deck2-3.dgn

SHEET NO.	TOTAL SHEETS
539	781

YEAR 2024

PROJECT NO. 3-C-024-21

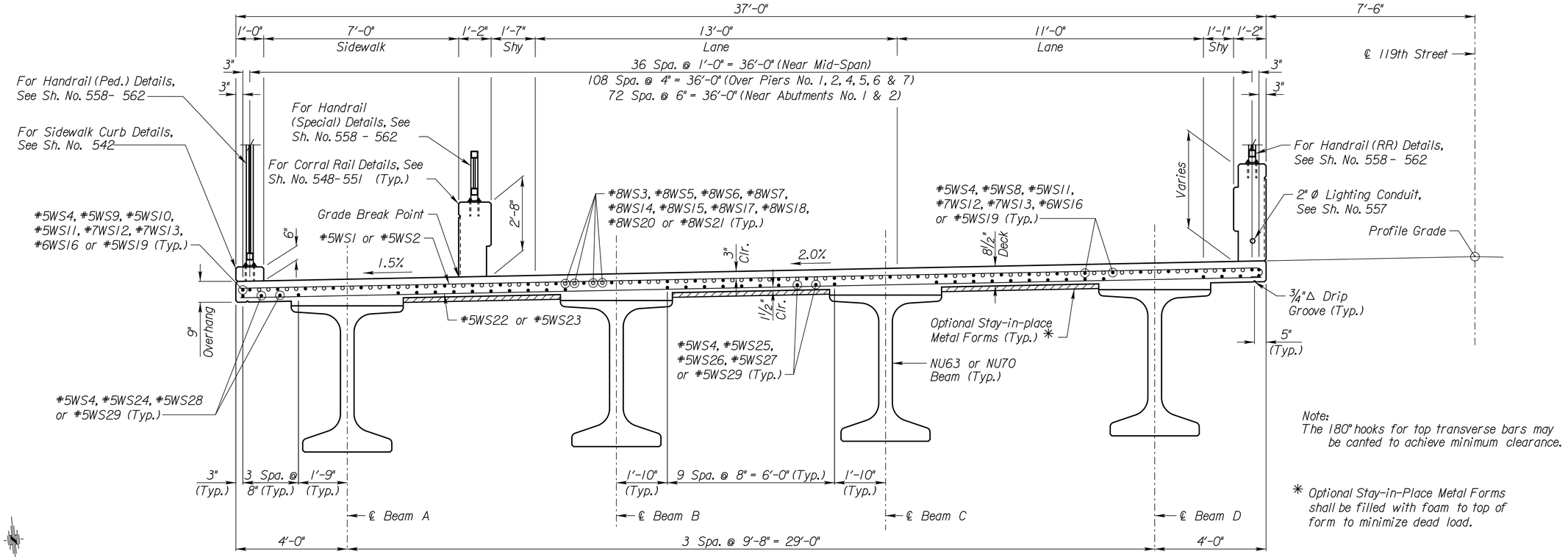
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

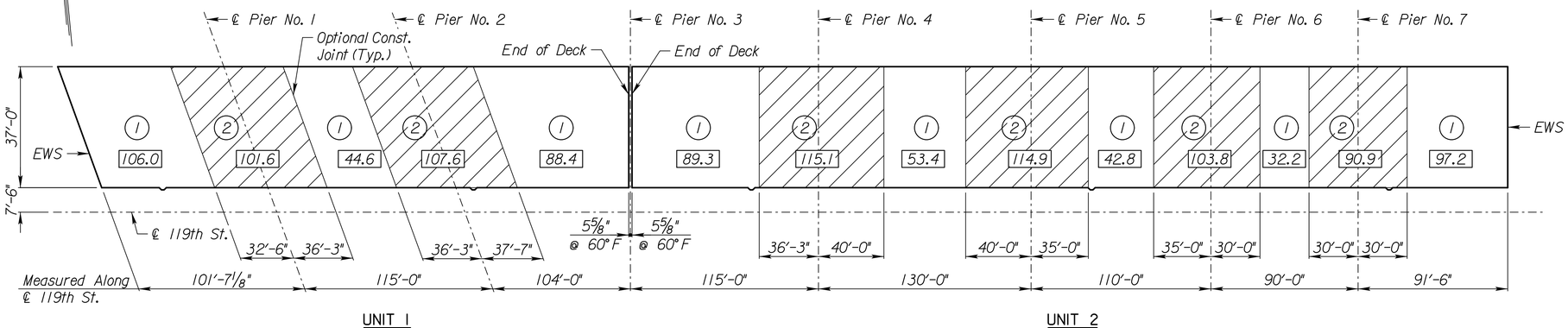
119th Street - Westbound
DECK PLAN UNIT 2 (3 OF 3)



TYPICAL SECTION

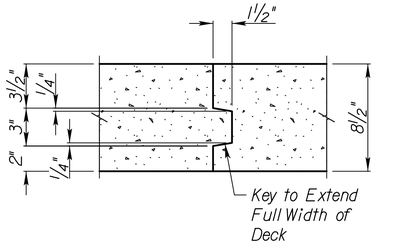
Note:
The 180° hooks for top transverse bars may be canted to achieve minimum clearance.

* Optional Stay-in-Place Metal Forms shall be filled with foam to top of form to minimize dead load.



UNIT 1 UNIT 2

CONCRETE PLACING SEQUENCE DIAGRAM



TRANSVERSE CONSTRUCTION JOINT DETAIL

Notes:
1. (1) Circled numbers indicate placing sequence. Segmental, combined or continuous pours are allowed by an approved alternate placing sequence. Any discontinuous pour must stop at a construction joint short of a pier. See General Notes, Sheet No. 483 for "Concrete Placing Sequence" note.
2. The Contractor may place the corral rail continuously from one end of the unit to the other.
3. [xxx.x] Boxed numbers indicate quantity (cu. yds.) of Concrete (Grade 4.0) (AE) (SA) (MPC) required to pour deck, including fillets, pier diaphragms and abutments above the construction joint (for information only).

Notes:
Place construction joints only at locations shown or at locations approved by the Engineer.

For Framing Plan, see Sh. No. 514 - 516

For Pier Diaphragm Details, see Sh. No. 530 - 534

For Drainage Details, see Sh. No. 541 - 542

For Beam Camber and Concrete Haunch Detail, see Sh. No. 544 - 547

For Expansion Joint Details, see Sh. No. 553- 555

SHEET NO. 540 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

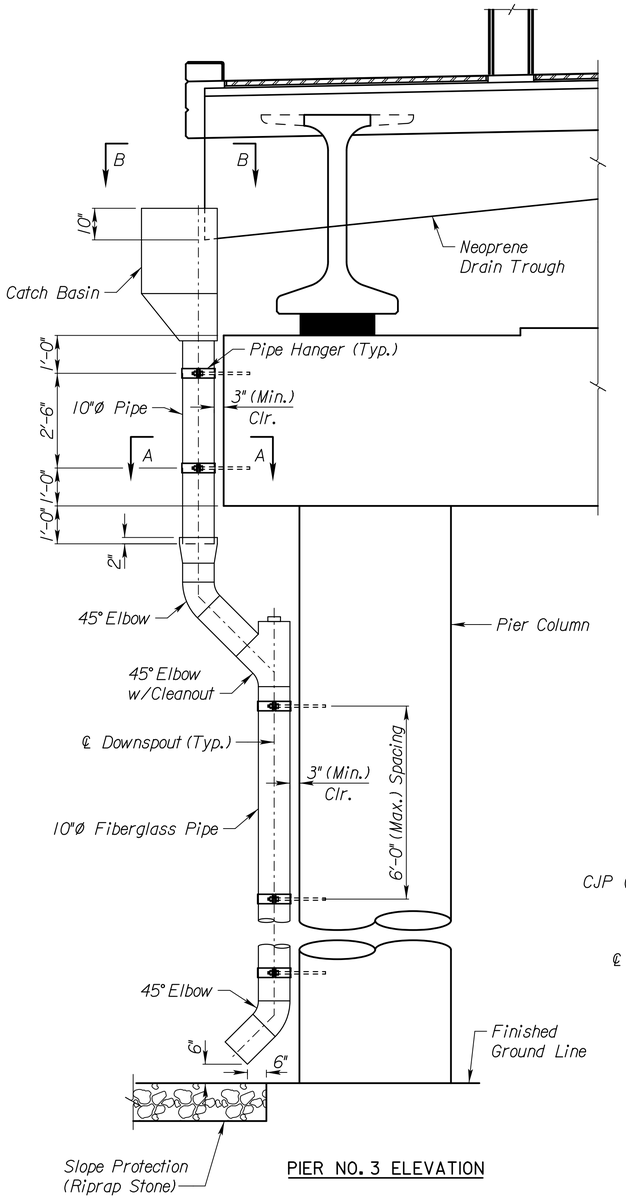
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

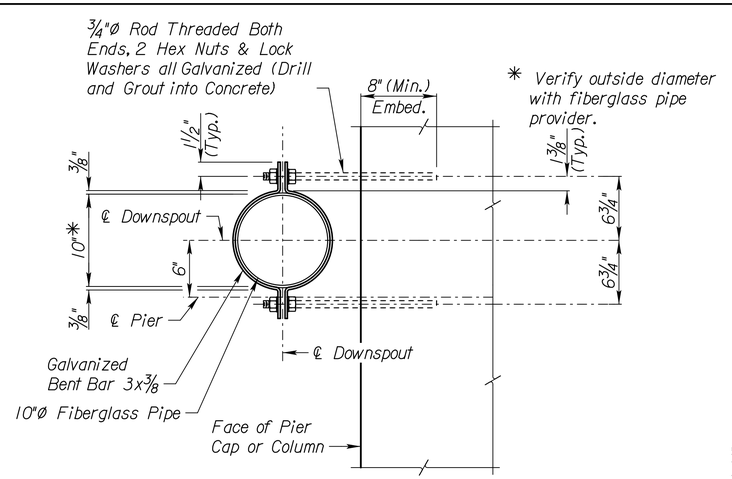
Rev.	Date	Description	By

119th Street - Westbound
TYPICAL SECTION

Drawn By : MGEHL
File : c:\pwworking\central01\d2525841\119th_BrWB_Typsec.dgn
Plotted : 08-28-24



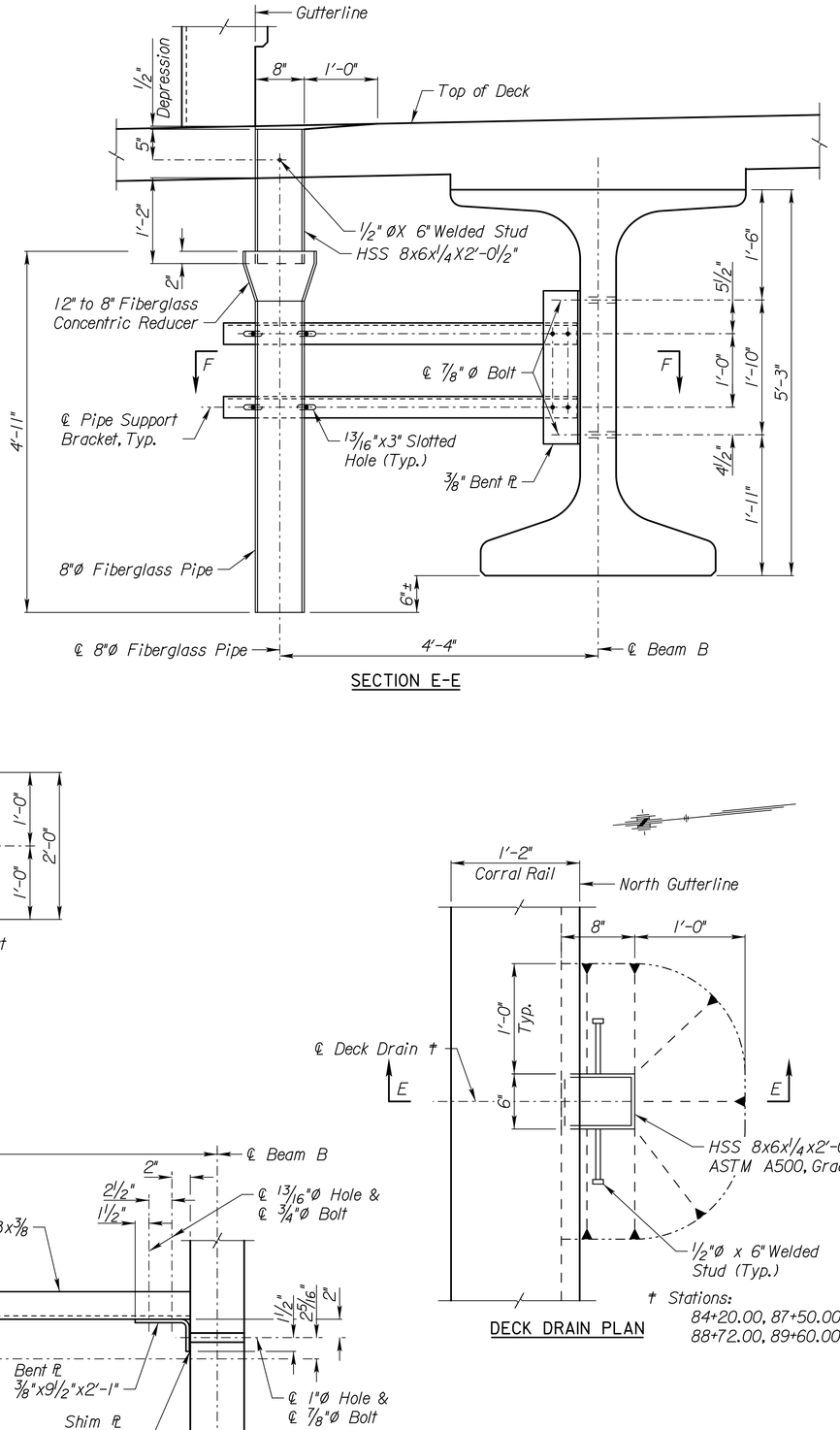
PIER NO. 3 ELEVATION



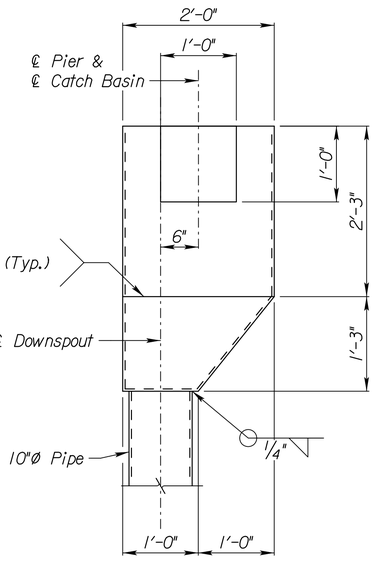
SECTION A-A

(Pipe Hanger)

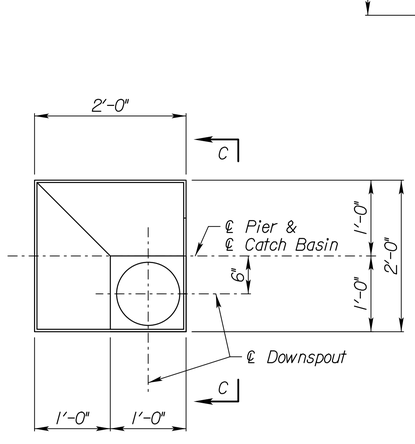
Note:
The Contractor shall not damage existing reinforcing steel during installation of the threaded rods. Use a pacometer prior to drilling to locate and mark reinforcing steel.



SECTION E-E



VIEW C-C



VIEW B-B

DECK DRAIN PLAN

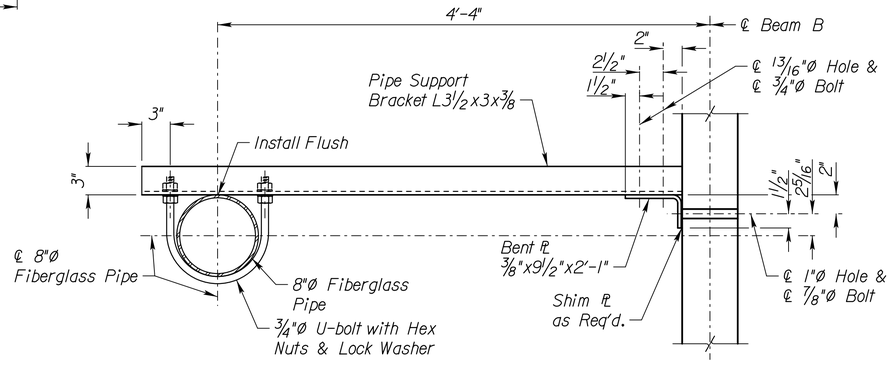
Notes:

The bid item "Bridge Drainage System - Lump Sum" shall include all labor, material and incidentals necessary to construct the bridge drainage system as shown on the plans. Included shall all deck drains, piping, fittings and support brackets. Shop drawings shall be submitted for approval. See KDOT Specifications.

All material for deck drains, pipe hangers and pipe supports shall conform to the requirements of ASTM A709 (Gr. 36), except steel tubing shall conform to ASTM A500, Grade B requirements. Bolts and nuts shall conform to the requirements of ASTM A307. The deck drains, pipe hangers, pipe supports and catch basin shall be galvanized after fabrication in accordance with ASTM A123.

Fiberglass pipe fittings shall conform to ASTM D 2996 RTRP. The pigmented fiberglass shall be a grey color to match the concrete. All connections of fiberglass pipes and fittings shall be made with adhesive bonded joints or other approved methods.

Use 5/16" thick steel plates for the Catch Basins.



SECTION F-F

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Drain_Details1.dgn

SHEET NO.	TOTAL SHEETS
541	781

YEAR 2024

PROJECT NO. 3-C-024-21

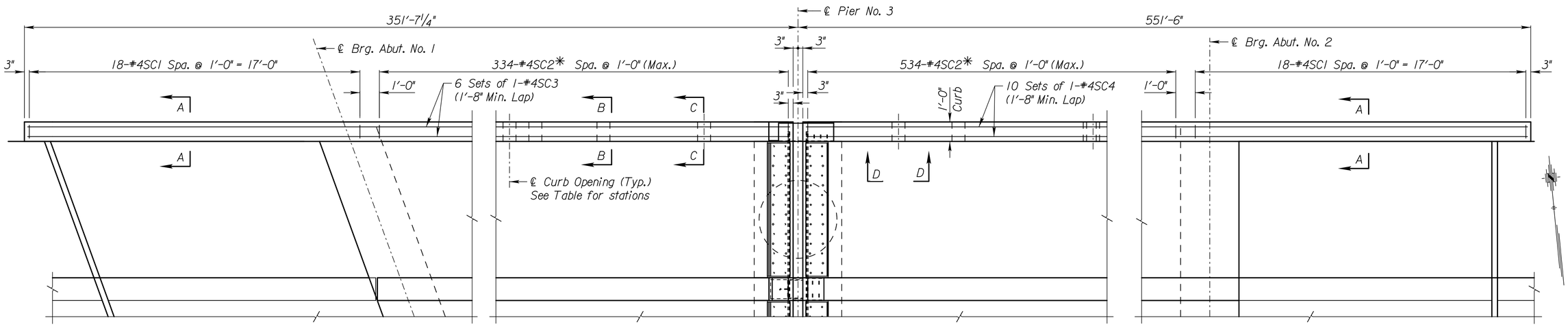
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

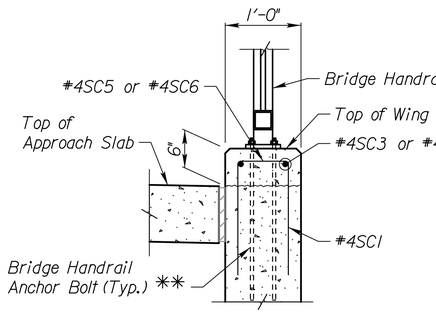
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
DECK DRAINS AND DRAINAGE DETAILS

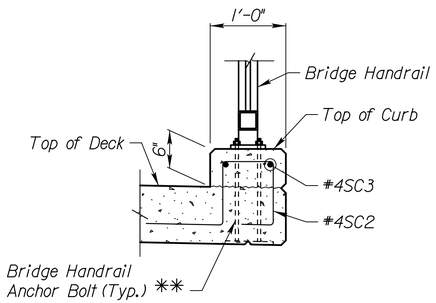


* Adjust spacing as required to maintain 2" min. clear to curb openings and fence anchor bolts.

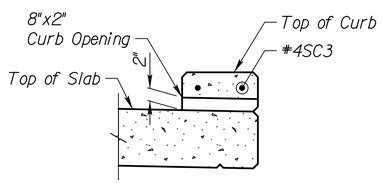
PART PLAN WESTBOUND SIDEWALK CURB



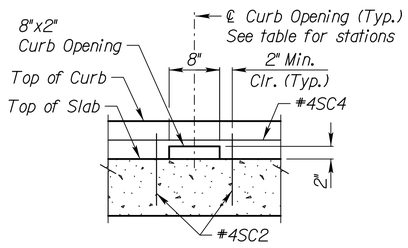
SECTION A-A



SECTION B-B



SECTION C-C



ELEVATION D-D

** See Fence Details for Anchor Bolt Details.

WESTBOUND SIDEWALK DRAIN LOCATIONS						
Station	Station	Station	Station	Station	Station	Station
81+50.75	82+02.25	83+88.00	84+56.25	85+12.75	87+88.00	89+23.00
81+54.00	83+38.50	83+94.50	84+63.00	87+38.00	87+93.00	89+29.00
81+59.00	83+42.25	83+98.00	84+69.00	87+45.00	88+12.75	89+32.75
81+62.25	83+48.00	84+03.00	84+72.75	87+48.00	88+18.00	89+38.00
81+69.00	83+54.50	84+06.25	84+78.00	87+53.00	88+25.00	89+45.00
81+74.50	83+58.00	84+13.00	84+85.00	87+56.75	88+76.75	89+48.00
81+78.25	83+63.00	84+18.50	84+88.00	87+63.00	88+83.00	89+53.00
81+84.00	83+66.25	84+22.25	84+93.00	87+69.00	89+05.00	
81+90.50	83+73.00	84+28.00	84+96.75	87+72.75	89+08.00	
81+94.00	83+78.50	84+34.50	85+03.00	87+78.00	89+13.00	
81+99.00	83+82.25	84+38.00	85+09.00	87+85.00	89+16.75	

SHEET NO. 542 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

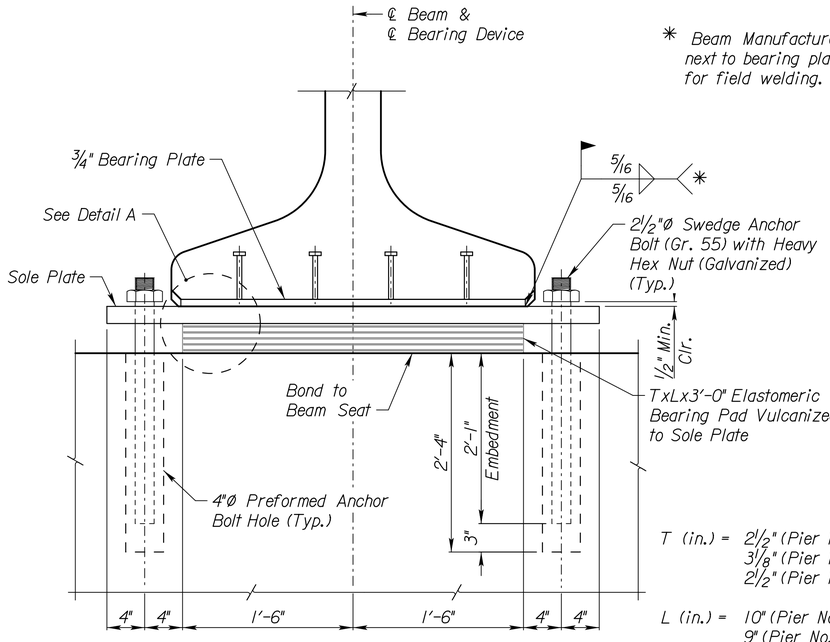
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

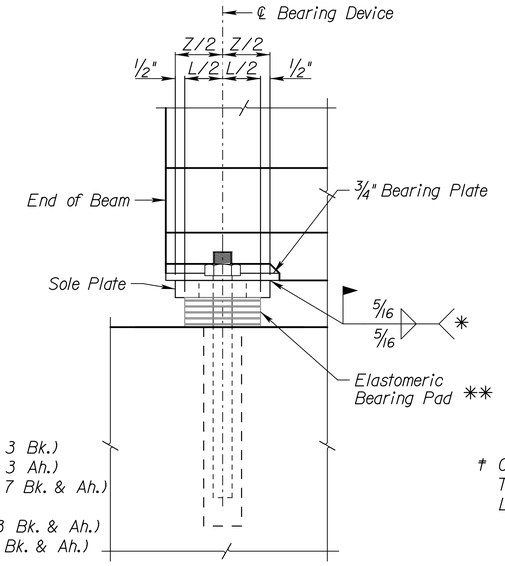
119th Street - Westbound
SIDEWALK CURB AND
DRAINAGE DETAILS

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_SW_Curb_Drain.dgn



ELEVATION

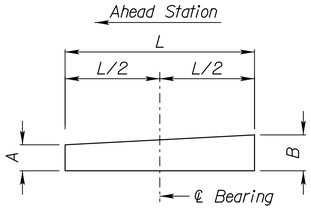
* Beam Manufacturer to block-out area next to bearing plate to allow access for field welding.



T (in.) = 2 1/2" (Pier No. 3 Bk.)
3 1/8" (Pier No. 3 Ah.)
2 1/2" (Pier No. 7 Bk. & Ah.)

L (in.) = 10" (Pier No. 3 Bk. & Ah.)
9" (Pier No. 7 Bk. & Ah.)

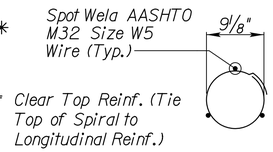
SIDE VIEW



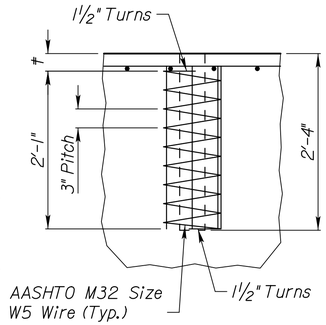
SOLE PLATE DETAIL

A = 1 3/8" (Pier No. 3 Bk.)
1 3/8" (Pier No. 3 Ah.)
1 5/16" (Pier No. 7 Bk. & Ah.)

B = 1 5/8" (Pier No. 3 Bk.)
1 5/8" (Pier No. 3 Ah.)
1 11/16" (Pier No. 7 Bk. & Ah.)

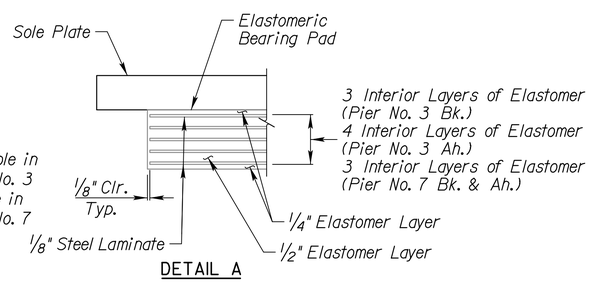


† Clear Top Reinf. (Tie Top of Spiral to Longitudinal Reinf.)



ANCHOR BOLT WELL & SPIRAL REINF. DETAIL

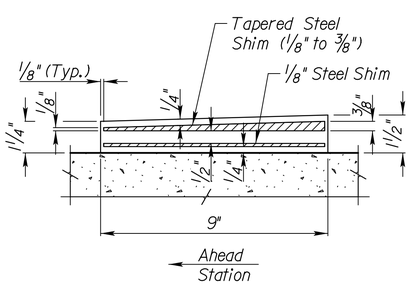
PLAN



DETAIL A

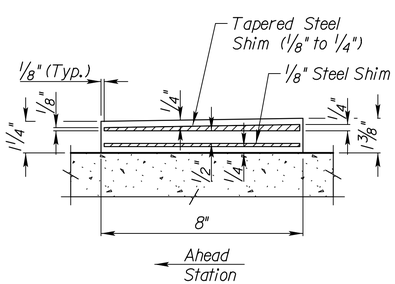
STEEL REINFORCED ELASTOMERIC BEARING DEVICE

(at Expansion Piers No. 3 & 7)



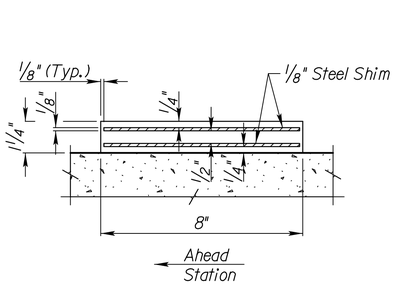
SECTION OF BEARING PADS AT PIER NO. 4 AHEAD, PIER NO. 5 BACK

(4 Required at Pier No. 4, 4 Required at Pier No. 5)



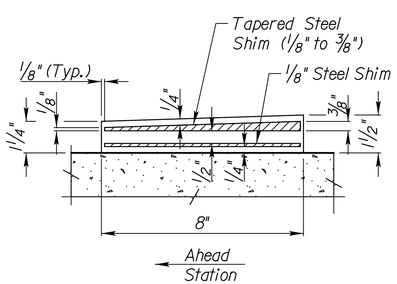
SECTION OF BEARING PADS AT PIER NO. 2 AHEAD

(4 Required at Pier No. 2)



SECTION OF BEARING PADS AT ABUT. NO. 1, PIER NO. 1, PIER NO. 2 BACK

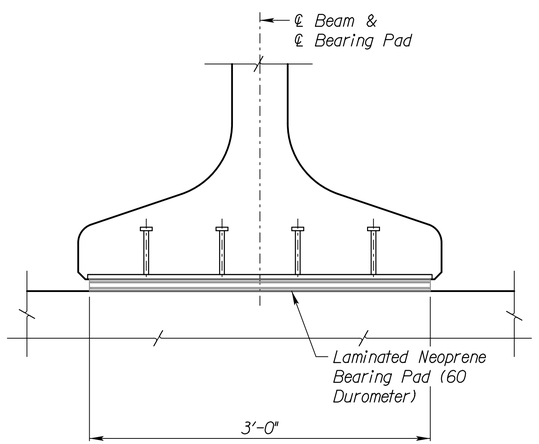
(4 Required at Abut. No. 1, 8 Required at Pier No. 1, 4 Required at Pier No. 2)



SECTION OF BEARING PADS AT PIER NO. 6, ABUT. NO. 2

(8 Required at Pier No. 6, 4 Required at Abut. No. 2)

Note:
Pier No. 4 Bk. and Per No. 5 Ah. require Beam Chairs. See Pier Details Sheets for Beam Chair Details.



LAMINATED BEARING PAD

Notes:

Laminated elastomeric bearing pads for the Fixed Piers No. 1, 2, 4, 5 & 6 and Abuts. No. 1 & 2 shall be subsidiary to the bid item "Prestressed Concrete Beam (NU63)" or "Prestressed Concrete Beam (NU70)".

Steel Reinforced Elastomeric Bearing Device Notes:

Bearings were designed using the provisions of Method A of the AASHTO Specifications. Bearing devices at Piers No. 3 & 7 shall be fabricated with an elastomer satisfying:
-Shore A Durometer hardness of 60.
-Low Temperature Grade 3 requirements.
-Type A certification for elastomeric bearing device acceptance is required.
-Include design method and all material properties on shop details.

Elastomeric Bearing Device shall be factory bonded to the steel sole plate by a vulcanization process. The steel sole plate and swedge anchor bolts are subsidiary to the bid item, "Bearing (Steel Reinforced Elastomeric)" and shall be furnished by the bearing device fabricator. Place the reinforcing bars below the bearing devices to clear the anchor bolts.

Anchor bolts will adhere to KDOT Standard Specification Section 1600 (Grade 55) with the following exception. The threads may be rolled or cut. Anchor bolts shall be installed as shown on the plans. When setting the anchor bolts, the Contractor shall use an approved non-shrink grout. The grout shall be applied so that the wells are completely filled. Anchor bolts shall meet the requirements of KDOT Specifications Section 1615 for Swedged Anchor Bolts, made from ASTM M314 Gr. 55. Anchor bolts shall be furnished with heavy hex nuts and washers, and shall be galvanized according to the specification. Center Anchor Bolt in Slotted Hole at 60° F. Bearing device position shall be adjusted 1/8" for each 10° fall or rise in temperature at installation. Sole plates shall conform to ASTM A709, Grade 50 steel. All exposed surfaces of the bearing plate and sole plate shall be painted with an inorganic zinc primer. Repair painted surfaces damaged by welding operations.

Preform 4" Ø holes using only corrugated polyethylene tubing (Type C) at the locations shown. When temperatures are expected to go below freezing, seal the preformed holes or fill them with a propylene glycol-based antifreeze to prevent expansion damage. The holes will be free of water, antifreeze or foreign materials at the time of grouting the anchor bolts. The polyethylene tubing may remain in-place. Trim the tubing flush with the top of concrete. This work shall be subsidiary to Concrete (Grade 4.0).

SHEET NO. 543 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.

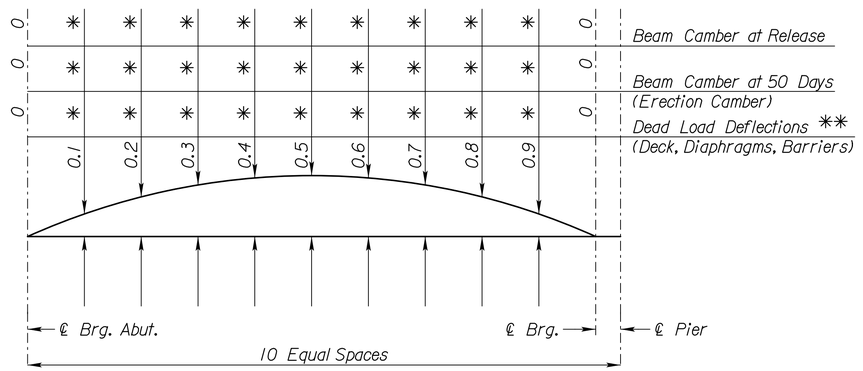
119th Street - Westbound
ELASTOMERIC BEARING DEVICES

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Bearing1.dgn

Final Pavement Elevations

Location	Unit 1																					
	Beam A						Beam B						Beam C						Beam D					
	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection
℄ Brg. Abut. No. 1	81+14.26	-40.50	1004.59	0.00	0.00	0.00	81+17.78	-30.83	1004.77	0.00	0.00	0.00	81+21.30	-21.17	1004.97	0.00	0.00	0.00	81+24.81	-11.50	1005.17	0.00	0.00	0.00
1.1L	81+24.16	-40.50	1004.61	0.04	0.07	0.03	81+27.68	-30.83	1004.79	0.04	0.07	0.03	81+31.20	-21.17	1004.98	0.04	0.07	0.03	81+34.71	-11.50	1005.18	0.04	0.07	0.03
1.2L	81+34.06	-40.50	1004.62	0.07	0.12	0.05	81+37.58	-30.83	1004.79	0.07	0.12	0.06	81+41.10	-21.17	1004.99	0.07	0.12	0.06	81+44.61	-11.50	1005.18	0.07	0.12	0.05
1.3L	81+43.96	-40.50	1004.62	0.09	0.17	0.07	81+47.48	-30.83	1004.79	0.09	0.17	0.08	81+51.00	-21.17	1004.99	0.09	0.17	0.08	81+54.51	-11.50	1005.18	0.09	0.17	0.07
1.4L	81+53.86	-40.50	1004.62	0.11	0.19	0.08	81+57.38	-30.83	1004.79	0.11	0.19	0.09	81+60.90	-21.17	1004.98	0.11	0.19	0.09	81+64.41	-11.50	1005.17	0.11	0.19	0.08
1.5L	81+63.76	-40.50	1004.61	0.11	0.20	0.09	81+67.28	-30.83	1004.78	0.11	0.20	0.09	81+70.80	-21.17	1004.96	0.11	0.20	0.09	81+74.31	-11.50	1005.15	0.11	0.20	0.09
1.6L	81+73.66	-40.50	1004.59	0.11	0.19	0.08	81+77.18	-30.83	1004.76	0.11	0.19	0.09	81+80.70	-21.17	1004.94	0.11	0.19	0.09	81+84.21	-11.50	1005.13	0.11	0.19	0.08
1.7L	81+83.56	-40.50	1004.57	0.09	0.17	0.07	81+87.08	-30.83	1004.73	0.09	0.17	0.08	81+90.60	-21.17	1004.92	0.09	0.17	0.08	81+94.11	-11.50	1005.10	0.09	0.17	0.07
1.8L	81+93.46	-40.50	1004.54	0.07	0.12	0.05	81+96.98	-30.83	1004.70	0.07	0.12	0.06	82+00.50	-21.17	1004.88	0.07	0.12	0.06	82+04.01	-11.50	1005.06	0.07	0.12	0.05
1.9L	82+03.36	-40.50	1004.51	0.04	0.07	0.03	82+06.88	-30.83	1004.67	0.04	0.07	0.03	82+10.40	-21.17	1004.85	0.04	0.07	0.03	82+13.91	-11.50	1005.02	0.04	0.07	0.03
℄ Bk. Brg. Pier No. 1	82+13.26	-40.50	1004.47	0.00	0.00	0.00	82+16.78	-30.83	1004.62	0.00	0.00	0.00	82+20.30	-21.17	1004.80	0.00	0.00	0.00	82+23.81	-11.50	1004.98	0.00	0.00	0.00
℄ Pier No. 1	82+14.26	-40.50	1004.46	0.00	0.00	0.00	82+17.78	-30.83	1004.62	0.00	0.00	0.00	82+21.30	-21.17	1004.80	0.00	0.00	0.00	82+24.81	-11.50	1004.97	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 1	82+15.26	-40.50	1004.46	0.00	0.00	0.00	82+18.78	-30.83	1004.62	0.00	0.00	0.00	82+22.30	-21.17	1004.79	0.00	0.00	0.00	82+25.81	-11.50	1004.97	0.00	0.00	0.00
2.1L	82+26.56	-40.50	1004.40	0.06	0.11	0.05	82+30.08	-30.83	1004.56	0.06	0.11	0.05	82+33.60	-21.17	1004.73	0.06	0.11	0.05	82+37.11	-11.50	1004.90	0.06	0.11	0.05
2.2L	82+37.86	-40.50	1004.34	0.11	0.19	0.09	82+41.38	-30.83	1004.49	0.11	0.19	0.10	82+44.90	-21.17	1004.66	0.11	0.19	0.10	82+48.41	-11.50	1004.83	0.11	0.19	0.09
2.3L	82+49.16	-40.50	1004.27	0.15	0.26	0.12	82+52.68	-30.83	1004.42	0.15	0.26	0.13	82+56.20	-21.17	1004.59	0.15	0.26	0.13	82+59.71	-11.50	1004.76	0.15	0.26	0.12
2.4L	82+60.46	-40.50	1004.19	0.17	0.30	0.14	82+63.98	-30.83	1004.34	0.17	0.30	0.15	82+67.50	-21.17	1004.50	0.17	0.30	0.15	82+71.01	-11.50	1004.67	0.17	0.30	0.14
2.5L	82+71.76	-40.50	1004.10	0.18	0.31	0.15	82+75.28	-30.83	1004.25	0.18	0.31	0.16	82+78.80	-21.17	1004.41	0.18	0.31	0.16	82+82.31	-11.50	1004.58	0.18	0.31	0.15
2.6L	82+83.06	-40.50	1004.01	0.17	0.30	0.14	82+86.58	-30.83	1004.15	0.17	0.30	0.15	82+90.10	-21.17	1004.31	0.17	0.30	0.15	82+93.61	-11.50	1004.47	0.17	0.30	0.14
2.7L	82+94.36	-40.50	1003.91	0.15	0.26	0.12	82+97.88	-30.83	1004.05	0.15	0.26	0.13	83+01.40	-21.17	1004.21	0.15	0.26	0.13	83+04.91	-11.50	1004.36	0.15	0.26	0.12
2.8L	83+05.66	-40.50	1003.80	0.11	0.19	0.09	83+09.18	-30.83	1003.93	0.11	0.19	0.10	83+12.70	-21.17	1004.09	0.11	0.19	0.10	83+16.21	-11.50	1004.25	0.11	0.19	0.09
2.9L	83+16.96	-40.50	1003.68	0.06	0.11	0.05	83+20.48	-30.83	1003.81	0.06	0.11	0.05	83+24.00	-21.17	1003.97	0.06	0.11	0.05	83+27.51	-11.50	1004.12	0.06	0.11	0.05
℄ Bk. Brg. Pier No. 2	83+28.26	-40.50	1003.55	0.00	0.00	0.00	83+31.78	-30.83	1003.68	0.00	0.00	0.00	83+35.30	-21.17	1003.83	0.00	0.00	0.00	83+38.81	-11.50	1003.98	0.00	0.00	0.00
℄ Pier No. 2	83+29.26	-40.50	1003.54	0.00	0.00	0.00	83+32.78	-30.83	1003.67	0.00	0.00	0.00	83+36.30	-21.17	1003.82	0.00	0.00	0.00	83+39.81	-11.50	1003.97	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 2	83+30.26	-40.50	1003.53	0.00	0.00	0.00	83+33.78	-30.83	1003.66	0.00	0.00	0.00	83+37.30	-21.17	1003.81	0.00	0.00	0.00	83+40.81	-11.50	1003.96	0.00	0.00	0.00
3.1L	83+41.92	-40.50	1003.39	0.06	0.11	0.05	83+45.08	-30.83	1003.52	0.06	0.11	0.05	83+48.25	-21.17	1003.67	0.06	0.10	0.04	83+51.42	-11.50	1003.83	0.06	0.10	0.04
3.2L	83+53.57	-40.50	1003.24	0.11	0.19	0.10	83+56.39	-30.83	1003.37	0.11	0.19	0.09	83+59.20	-21.17	1003.53	0.11	0.18	0.08	83+62.02	-11.50	1003.68	0.10	0.18	0.07
3.3L	83+65.23	-40.50	1003.08	0.15	0.26	0.13	83+67.69	-30.83	1003.22	0.14	0.25	0.13	83+70.16	-21.17	1003.38	0.14	0.24	0.11	83+72.62	-11.50	1003.54	0.14	0.24	0.10
3.4L	83+76.89	-40.50	1002.91	0.17	0.30	0.16	83+79.00	-30.83	1003.06	0.17	0.29	0.15	83+81.11	-21.17	1003.22	0.16	0.28	0.13	83+83.22	-11.50	1003.38	0.16	0.27	0.11
3.5L	83+88.55	-40.50	1002.74	0.18	0.31	0.16	83+90.31	-30.83	1002.89	0.17	0.30	0.16	83+92.06	-21.17	1003.05	0.17	0.29	0.14	83+93.82	-11.50	1003.22	0.16	0.29	0.12
3.6L	84+00.20	-40.50	1002.56	0.17	0.30	0.16	84+01.61	-30.83	1002.71	0.17	0.29	0.15	84+03.02	-21.17	1002.88	0.16	0.28	0.14	84+04.43	-11.50	1003.05	0.16	0.27	0.11
3.7L	84+11.86	-40.50	1002.37	0.15	0.26	0.13	84+12.92	-30.83	1002.52	0.14	0.25	0.13	84+13.97	-21.17	1002.70	0.14	0.24	0.12	84+15.03	-11.50	1002.87	0.14	0.24	0.10
3.8L	84+23.52	-40.50	1002.17	0.11	0.19	0.10	84+24.22	-30.83	1002.33	0.11	0.19	0.09	84+24.93	-21.17	1002.51	0.11	0.18	0.08	84+25.63	-11.50	1002.69	0.10	0.18	0.07
3.9L	84+35.18	-40.50	1001.96	0.06	0.11	0.05	84+35.53	-30.83	1002.12	0.06	0.11	0.05	84+35.88	-21.17	1002.31	0.06	0.10	0.04	84+36.23	-11.50	1002.50	0.06	0.10	0.04
℄ Bk. Brg. Pier No. 3	84+46.83	-40.50	1001.74	0.00	0.00	0.00	84+46.83	-30.83	1001.91	0.00	0.00	0.00	84+46.83	-21.17	1002.11	0.00	0.00	0.00	84+46.83	-11.50	1002.30	0.00	0.00	0.00
℄ Pier No. 3	84+48.00	-40.50	1001.72	0.00	0.00	0.00	84+48.00	-30.83	1001.89	0.00	0.00	0.00	84+48.00	-21.17	1002.08	0.00	0.00	0.00	84+48.00	-11.50	1002.28	0.00	0.00	0.00

CAMBER: Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for prestress camber, concrete dead load deflection and, if necessary, vertical curvature. After the prestressed beams are erected measure the camber in the field by taking a profile of each beam. Correct any variation between the actual camber and concrete dead load deflection shown in the plans by varying the depth of the concrete fillets over the beam so that the finished floor is constructed to the theoretical grade. The minimum depth of the slab over the beam shall be $8\frac{1}{2}$ inches. The design camber is equal to the 50 day camber shown in the plans.



BEAM CAMBER AND DEAD LOAD DEFLECTION
(Given in feet)

Note:
Pavement elevations are taken at tenth points along ℄ Beam and measured between ℄ Brg. of Abutments & ℄ Brg. of Piers. For location of beams, See Framing Plans.

* See Table

** Dead Load Deflections are downwward

Note:
For Typical Section, see Sh. No. 540.

For Haunch Diagram, see Sh. No. 547.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_PaveElev1.dgn

SHEET NO. 544 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PAVEMENT ELEVATIONS
AND CAMBER (1 OF 2)

Final Pavement Elevations

Unit 2

Location	Beam A						Beam B						Beam C						Beam D					
	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection
℄ Pier No. 3	84+48.00	-40.50	1001.72	0.00	0.00	0.00	84+48.00	-30.83	1001.89	0.00	0.00	0.00	84+48.00	-21.17	1002.08	0.00	0.00	0.00	84+48.00	-11.50	1002.28	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 3	84+49.17	-40.50	1001.70	0.00	0.00	0.00	84+49.17	-30.83	1001.87	0.00	0.00	0.00	84+49.17	-21.17	1002.06	0.00	0.00	0.00	84+49.17	-11.50	1002.26	0.00	0.00	0.00
4.1L	84+60.45	-40.50	1001.48	0.06	0.10	0.05	84+60.45	-30.83	1001.65	0.06	0.10	0.05	84+60.45	-21.17	1001.84	0.06	0.10	0.05	84+60.45	-11.50	1002.04	0.06	0.10	0.05
4.2L	84+71.73	-40.50	1001.25	0.11	0.19	0.09	84+71.73	-30.83	1001.42	0.11	0.19	0.10	84+71.73	-21.17	1001.61	0.11	0.19	0.10	84+71.73	-11.50	1001.81	0.11	0.19	0.09
4.3L	84+83.02	-40.50	1001.01	0.14	0.25	0.12	84+83.02	-30.83	1001.19	0.14	0.25	0.13	84+83.02	-21.17	1001.38	0.14	0.25	0.13	84+83.02	-11.50	1001.57	0.14	0.25	0.12
4.4L	84+94.30	-40.50	1000.77	0.16	0.28	0.14	84+94.30	-30.83	1000.94	0.16	0.28	0.15	84+94.30	-21.17	1001.14	0.16	0.28	0.15	84+94.30	-11.50	1001.33	0.16	0.28	0.14
4.5L	85+05.58	-40.50	1000.52	0.17	0.29	0.15	85+05.58	-30.83	1000.69	0.17	0.29	0.16	85+05.58	-21.17	1000.88	0.17	0.29	0.16	85+05.58	-11.50	1001.08	0.17	0.29	0.15
4.6L	85+16.87	-40.50	1000.26	0.16	0.28	0.14	85+16.87	-30.83	1000.43	0.16	0.28	0.15	85+16.87	-21.17	1000.62	0.16	0.28	0.15	85+16.87	-11.50	1000.82	0.16	0.28	0.14
4.7L	85+28.15	-40.50	999.99	0.14	0.25	0.12	85+28.15	-30.83	1000.16	0.14	0.25	0.13	85+28.15	-21.17	1000.36	0.14	0.25	0.13	85+28.15	-11.50	1000.55	0.14	0.25	0.12
4.8L	85+39.43	-40.50	999.71	0.11	0.19	0.09	85+39.43	-30.83	999.89	0.11	0.19	0.09	85+39.43	-21.17	1000.08	0.11	0.19	0.09	85+39.43	-11.50	1000.27	0.11	0.19	0.09
4.9L	85+50.72	-40.50	999.43	0.06	0.10	0.05	85+50.72	-30.83	999.60	0.06	0.10	0.05	85+50.72	-21.17	999.80	0.06	0.10	0.05	85+50.72	-11.50	999.99	0.06	0.10	0.05
℄ Bk. Brg. Pier No. 4	85+62.00	-40.50	999.14	0.00	0.00	0.00	85+62.00	-30.83	999.31	0.00	0.00	0.00	85+62.00	-21.17	999.51	0.00	0.00	0.00	85+62.00	-11.50	999.70	0.00	0.00	0.00
℄ Pier No. 4	85+63.00	-40.50	999.11	0.00	0.00	0.00	85+63.00	-30.83	999.29	0.00	0.00	0.00	85+63.00	-21.17	999.48	0.00	0.00	0.00	85+63.00	-11.50	999.67	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 4	85+64.00	-40.50	999.09	0.00	0.00	0.00	85+64.00	-30.83	999.26	0.00	0.00	0.00	85+64.00	-21.17	999.45	0.00	0.00	0.00	85+64.00	-11.50	999.65	0.00	0.00	0.00
5.1L	85+76.80	-40.50	998.75	0.07	0.13	0.06	85+76.80	-30.83	998.92	0.07	0.13	0.06	85+76.80	-21.17	999.11	0.07	0.13	0.06	85+76.80	-11.50	999.31	0.07	0.13	0.06
5.2L	85+89.60	-40.50	998.39	0.13	0.22	0.11	85+89.60	-30.83	998.57	0.13	0.22	0.12	85+89.60	-21.17	998.76	0.13	0.22	0.12	85+89.60	-11.50	998.95	0.13	0.22	0.11
5.3L	86+02.40	-40.50	998.03	0.17	0.29	0.15	86+02.40	-30.83	998.20	0.17	0.29	0.16	86+02.40	-21.17	998.40	0.17	0.29	0.16	86+02.40	-11.50	998.59	0.17	0.29	0.15
5.4L	86+15.20	-40.50	997.66	0.19	0.34	0.17	86+15.20	-30.83	997.83	0.19	0.34	0.19	86+15.20	-21.17	998.03	0.19	0.34	0.19	86+15.20	-11.50	998.22	0.19	0.34	0.17
5.5L	86+28.00	-40.50	997.28	0.20	0.35	0.18	86+28.00	-30.83	997.45	0.20	0.35	0.20	86+28.00	-21.17	997.64	0.20	0.35	0.20	86+28.00	-11.50	997.84	0.20	0.35	0.18
5.6L	86+40.80	-40.50	996.88	0.19	0.34	0.17	86+40.80	-30.83	997.06	0.19	0.34	0.19	86+40.80	-21.17	997.25	0.19	0.34	0.19	86+40.80	-11.50	997.44	0.19	0.34	0.17
5.7L	86+53.60	-40.50	996.48	0.17	0.29	0.15	86+53.60	-30.83	996.65	0.17	0.29	0.16	86+53.60	-21.17	996.85	0.17	0.29	0.16	86+53.60	-11.50	997.04	0.17	0.29	0.15
5.8L	86+66.40	-40.50	996.07	0.13	0.22	0.11	86+66.40	-30.83	996.24	0.13	0.22	0.12	86+66.40	-21.17	996.43	0.13	0.22	0.12	86+66.40	-11.50	996.63	0.13	0.22	0.11
5.9L	86+79.20	-40.50	995.64	0.07	0.13	0.06	86+79.20	-30.83	995.82	0.07	0.13	0.06	86+79.20	-21.17	996.01	0.07	0.13	0.06	86+79.20	-11.50	996.20	0.07	0.13	0.06
℄ Bk. Brg. Pier No. 5	86+92.00	-40.50	995.21	0.00	0.00	0.00	86+92.00	-30.83	995.38	0.00	0.00	0.00	86+92.00	-21.17	995.58	0.00	0.00	0.00	86+92.00	-11.50	995.77	0.00	0.00	0.00
℄ Pier No. 5	86+93.00	-40.50	995.17	0.00	0.00	0.00	86+93.00	-30.83	995.35	0.00	0.00	0.00	86+93.00	-21.17	995.54	0.00	0.00	0.00	86+93.00	-11.50	995.73	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 5	86+94.00	-40.50	995.14	0.00	0.00	0.00	86+94.00	-30.83	995.31	0.00	0.00	0.00	86+94.00	-21.17	995.51	0.00	0.00	0.00	86+94.00	-11.50	995.70	0.00	0.00	0.00
6.1L	87+04.80	-40.50	994.76	0.05	0.10	0.04	87+04.80	-30.83	994.94	0.05	0.10	0.04	87+04.80	-21.17	995.13	0.05	0.10	0.04	87+04.80	-11.50	995.32	0.05	0.10	0.04
6.2L	87+15.60	-40.50	994.39	0.10	0.17	0.07	87+15.60	-30.83	994.56	0.10	0.17	0.08	87+15.60	-21.17	994.75	0.10	0.17	0.08	87+15.60	-11.50	994.95	0.10	0.17	0.07
6.3L	87+26.40	-40.50	994.01	0.13	0.23	0.10	87+26.40	-30.83	994.18	0.13	0.23	0.11	87+26.40	-21.17	994.38	0.13	0.23	0.11	87+26.40	-11.50	994.57	0.13	0.23	0.10
6.4L	87+37.20	-40.50	993.63	0.15	0.26	0.12	87+37.20	-30.83	993.80	0.15	0.26	0.13	87+37.20	-21.17	994.00	0.15	0.26	0.13	87+37.20	-11.50	994.19	0.15	0.26	0.12
6.5L	87+48.00	-40.50	993.25	0.16	0.27	0.13	87+48.00	-30.83	993.43	0.16	0.27	0.14	87+48.00	-21.17	993.62	0.16	0.27	0.14	87+48.00	-11.50	993.81	0.16	0.27	0.13
6.6L	87+58.80	-40.50	992.87	0.15	0.26	0.12	87+58.80	-30.83	993.05	0.15	0.26	0.13	87+58.80	-21.17	993.24	0.15	0.26	0.13	87+58.80	-11.50	993.43	0.15	0.26	0.12
6.7L	87+69.60	-40.50	992.50	0.13	0.23	0.10	87+69.60	-30.83	992.67	0.13	0.23	0.11	87+69.60	-21.17	992.86	0.13	0.23	0.11	87+69.60	-11.50	993.06	0.13	0.23	0.10
6.8L	87+80.40	-40.50	992.12	0.10	0.17	0.07	87+80.40	-30.83	992.29	0.10	0.17	0.08	87+80.40	-21.17	992.49	0.10	0.17	0.08	87+80.40	-11.50	992.68	0.10	0.17	0.07
6.9L	87+91.20	-40.50	991.74	0.05	0.10	0.04	87+91.20	-30.83	991.91	0.05	0.10	0.04	87+91.20	-21.17	992.11	0.05	0.10	0.04	87+91.20	-11.50	992.30	0.05	0.10	0.04
℄ Bk. Brg. Pier No. 6	88+02.00	-40.50	991.36	0.00	0.00	0.00	88+02.00	-30.83	991.54	0.00	0.00	0.00	88+02.00	-21.17	991.73	0.00	0.00	0.00	88+02.00	-11.50	991.92	0.00	0.00	0.00
℄ Pier No. 6	88+03.00	-40.50	991.33	0.00	0.00	0.00	88+03.00	-30.83	991.50	0.00	0.00	0.00	88+03.00	-21.17	991.69	0.00	0.00	0.00	88+03.00	-11.50	991.89	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 6	88+04.00	-40.50	991.29	0.00	0.00	0.00	88+04.00	-30.83	991.47	0.00	0.00	0.00	88+04.00	-21.17	991.66	0.00	0.00	0.00	88+04.00	-11.50	991.85	0.00	0.00	0.00
7.1L	88+12.80	-40.50	990.98	0.03	0.06	0.02	88+12.80	-30.83	991.16	0.03	0.06	0.02	88+12.80	-21.17	991.35	0.03	0.06	0.02	88+12.80	-11.50	991.54	0.03	0.06	0.02
7.2L	88+21.60	-40.50	990.68	0.06	0.10	0.03	88+21.60	-30.83	990.85	0.06	0.10	0.03	88+21.60	-21.17	991.04	0.06	0.10	0.03	88+21.60	-11.50	991.24	0.06	0.10	0.03
7.3L	88+30.40	-40.50	990.37	0.08	0.13	0.04	88+30.40	-30.83	990.54	0.08	0.13	0.05	88+30.40	-21.17	990.74	0.08	0.13	0.05	88+30.40	-11.50	990.93	0.08	0.13	0.04
7.4L	88+39.20	-40.50	990.06	0.09	0.15	0.05	88+39.20	-30.83	990.23	0.09	0.15	0.06	88+39.20	-21.17	990.43	0.09	0.15	0.06	88+39.20	-11.50	990.62	0.09	0.15	0.05
7.5L	88+48.00	-40.50	989.75	0.09	0.16	0.05	88+48.00	-30.83	989.93	0.09	0.16	0.06	88+48.00	-21.17	990.12	0.09	0.16	0.06	88+48.00	-11.50	990.31	0.09	0.16	0.05
7.6L	88+56.80	-40.50	989.44	0.09	0.15	0.05	88+56.80	-30.83	989.62	0.09	0.15	0.06	88+56.80	-21.17	989.81	0.09	0.15	0.06	88+56.80	-11.50	990.00	0.09	0.15	0.05
7.7L	88+65.60	-40.50	989.14	0.08	0.13	0.04	88+65.60	-30.83	989.31	0.08	0.13	0.05	88+65.60	-21.17	989.50	0.08	0.13	0.05	88+65.60	-11.50	989.70	0.08	0.13	0.04
7.8L	88+74.40	-40.50	988.83	0.06	0.10	0.03	88+74.40	-30.83	989.00	0.06	0.10	0.03	88+74.40	-21.17	989.20	0.06	0.10	0.03	88+74.40	-11.50	989.39	0.06	0.10	0.03
7.9L	88+83.20	-40.50	988.52	0.03	0.06	0.02	88+83.20	-30.83	988.69	0.03	0.06	0.02	88+83.20	-21.17	988.89	0.03	0.06	0.02	88+83.20	-11.50	989.08	0.03	0.06	0.02
℄ Bk. Brg. Pier No. 7	88+92.00	-40.50	988.21	0.00	0.00	0.00	88+92.00	-30.83	988.39	0.00	0.00	0.00	88+92.00	-21.17	988.58	0.00	0.00	0.00	88+92.00	-11.50	988.77	0.00	0.00	0.00
℄ Pier No. 7	88+93.00	-40.50	988.18	0.00	0.00	0.00	88+93.00	-30.83	988.35	0.00	0.00	0.00	88+93.00	-21.17	988.54	0.00	0.00	0.00	88+93.00	-11.50	988.74	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 7	88+94.00	-40.50	988.14	0.00	0.00	0.00	88+94.00	-30.83	988.32	0.00	0.00	0.00	88+94.00	-21.17	988.51	0.00	0.00	0.00	88+94.00	-11.50	988.70	0.00	0.00	0.00
8.1L	89+02.90	-40.50	987.83	0.03	0.06	0.02	89+02.90	-30.83	988.00	0.03	0.06	0.02	89+02.90	-21.17	988.20	0.03	0.06	0.02	89+02.90	-11.50	988.39	0.03	0.06	0.02
8.2L	89+11.80	-40.50	987.52	0.06	0.10	0.03	89+11.80	-30.83	987.69	0.06	0.10	0.04	89+11.80	-21.17	987.89	0.06	0.10	0.04	89+11.80	-11.50	988.08	0.06	0.10	0.03
8.3L	89+20.70	-40.50	987.21	0.08	0.14	0.05	89+20.70	-30.83	987.38	0.08	0.14	0.05	89+20.70	-21.17	987.58	0.08	0.14	0.05	89+20.70	-11.50	987.77	0.08	0.14	0.05
8.4L	89+29.60	-40.50	986.90	0.09	0.16	0.05	89+29.60	-30.83	987.07	0.09	0.16	0.06	89+29.60	-21.17	987.26	0.09	0.16	0.06	89+29.60	-11.50	987.46	0.09	0.16	0.05
8.5L	89+38.50	-40.50	986.59	0.09	0.16	0.06	89+38.50	-30.83	986.76	0.09	0.16	0.06	89+38.50	-21.17	986.95	0.09	0.16	0.06	89+38.50	-11.50	987.15	0.09	0.16	0.06
8.6L	89+47.40	-40.50	986.27	0.09	0.16	0.05	89+47.40	-30.83	986.45	0.09	0.16	0.06	89+47.40	-21.17	986.64	0.09	0.16	0.06	89+47.40	-11.50	986.83	0.09	0.16	0.05
8.7L	89+56.30	-40.50	985.96	0.08	0.14	0.05	89+56.30	-30.83	986.14	0.08	0.14	0.05	89+56.30	-21.17	986.33	0.08	0.14	0.05	89+56.30	-11.50	986.52	0.08	0.14	0.05
8.8L	89+65.20	-40.50	985.65	0.06	0.10	0.03	89+65.20	-30.83	985.82	0.06	0.10	0.04	89+65.20	-21.17	986.02	0.06	0.10	0.04	89+65.20	-11.50	986.21	0.06	0.10	0.03
8.9L	89+74.10	-40.50	985.34	0.03	0.06	0.02	89+74.10	-30.83	985.51	0.03	0.06	0.02	89+74.10	-21.17	985.71	0.03	0.06	0.02	89+74.10	-11.50	985.90	0.03	0.06	0.02
℄ Brg. Abut. No. 2	89+83.00	-40.50	985.03	0.00	0.00	0.00	89+83.00	-30.83	985.20	0.00	0.00	0.00	89+83.00	-21.17	985.39	0.00	0.00	0.00	89+83.00	-11.50	985.59	0.00	0.00	0.00

Note:
For camber notes and Beam Camber and Dead Load Deflection diagram, see Sh. No. 544

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_PaveElev2.dgn

SHEET NO. 545 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
PAVEMENT ELEVATIONS
AND CAMBER (2 OF 2)

Bottom of Deck Elevations								
Location	Unit 1							
	Beam A		Beam B		Beam C		Beam D	
	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
℄ Brg. Abut. No. 1	81+14.26	1003.89	81+17.78	1004.06	81+21.30	1004.26	81+24.81	1004.46
1.1L	81+24.16	1003.93	81+27.68	1004.11	81+31.20	1004.30	81+34.71	1004.50
1.2L	81+34.06	1003.96	81+37.58	1004.14	81+41.10	1004.33	81+44.61	1004.52
1.3L	81+43.96	1003.98	81+47.48	1004.16	81+51.00	1004.35	81+54.51	1004.54
1.4L	81+53.86	1003.99	81+57.38	1004.17	81+60.90	1004.36	81+64.41	1004.54
1.5L	81+63.76	1003.99	81+67.28	1004.16	81+70.80	1004.35	81+74.31	1004.53
1.6L	81+73.66	1003.97	81+77.18	1004.14	81+80.70	1004.32	81+84.21	1004.50
1.7L	81+83.56	1003.93	81+87.08	1004.10	81+90.60	1004.28	81+94.11	1004.46
1.8L	81+93.46	1003.88	81+96.98	1004.05	82+00.50	1004.23	82+04.01	1004.41
1.9L	82+03.36	1003.83	82+06.88	1003.99	82+10.40	1004.17	82+13.91	1004.34
℄ Bk. Brg. Pier No. 1	82+13.26	1003.76	82+16.78	1003.92	82+20.30	1004.09	82+23.81	1004.27
℄ Pier No. 1	82+14.26	1003.75	82+17.78	1003.91	82+21.30	1004.09	82+24.81	1004.26
℄ Ahd. Brg. Pier No. 1	82+15.26	1003.75	82+18.78	1003.91	82+22.30	1004.08	82+25.81	1004.26
2.1L	82+26.56	1003.74	82+30.08	1003.90	82+33.60	1004.07	82+37.11	1004.24
2.2L	82+37.86	1003.72	82+41.38	1003.88	82+44.90	1004.05	82+48.41	1004.21
2.3L	82+49.16	1003.68	82+52.68	1003.84	82+56.20	1004.01	82+59.71	1004.17
2.4L	82+60.46	1003.62	82+63.98	1003.78	82+67.50	1003.95	82+71.01	1004.10
2.5L	82+71.76	1003.55	82+75.28	1003.70	82+78.80	1003.87	82+82.31	1004.02
2.6L	82+83.06	1003.44	82+86.58	1003.60	82+90.10	1003.76	82+93.61	1003.91
2.7L	82+94.36	1003.32	82+97.88	1003.47	83+01.40	1003.63	83+04.91	1003.78
2.8L	83+05.66	1003.17	83+09.18	1003.32	83+12.70	1003.48	83+16.21	1003.62
2.9L	83+16.96	1003.01	83+20.48	1003.15	83+24.00	1003.31	83+27.51	1003.46
℄ Bk. Brg. Pier No. 2	83+28.26	1002.84	83+31.78	1002.97	83+35.30	1003.13	83+38.81	1003.28
℄ Pier No. 2	83+29.26	1002.83	83+32.78	1002.96	83+36.30	1003.11	83+39.81	1003.26
℄ Ahd. Brg. Pier No. 2	83+30.26	1002.82	83+33.78	1002.95	83+37.30	1003.10	83+40.81	1003.25
3.1L	83+41.92	1002.73	83+45.08	1002.86	83+48.25	1003.01	83+51.42	1003.15
3.2L	83+53.57	1002.63	83+56.39	1002.76	83+59.20	1002.90	83+62.02	1003.04
3.3L	83+65.23	1002.50	83+67.69	1002.64	83+70.16	1002.78	83+72.62	1002.92
3.4L	83+76.89	1002.36	83+79.00	1002.50	83+81.11	1002.64	83+83.22	1002.78
3.5L	83+88.55	1002.19	83+90.31	1002.34	83+92.06	1002.49	83+93.82	1002.63
3.6L	84+00.20	1002.00	84+01.61	1002.15	84+03.02	1002.30	84+04.43	1002.45
3.7L	84+11.86	1001.79	84+12.92	1001.94	84+13.97	1002.10	84+15.03	1002.26
3.8L	84+23.52	1001.55	84+24.22	1001.71	84+24.93	1001.88	84+25.63	1002.05
3.9L	84+35.18	1001.30	84+35.53	1001.46	84+35.88	1001.65	84+36.23	1001.82
℄ Bk. Brg. Pier No. 3	84+46.83	1001.03	84+46.83	1001.20	84+46.83	1001.40	84+46.83	1001.59
℄ Pier No. 3	84+48.00	1001.01	84+48.00	1001.18	84+48.00	1001.38	84+48.00	1001.57

Bottom of Deck Elevations								
Location	Unit 2							
	Beam A		Beam B		Beam C		Beam D	
	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
℄ Pier No. 3	84+48.00	1001.01	84+48.00	1001.18	84+48.00	1001.38	84+48.00	1001.57
℄ Ahd. Brg. Pier No. 3	84+49.17	1000.99	84+49.17	1001.16	84+49.17	1001.35	84+49.17	1001.55
4.1L	84+60.45	1000.81	84+60.45	1000.99	84+60.45	1001.18	84+60.45	1001.37
4.2L	84+71.73	1000.63	84+71.73	1000.81	84+71.73	1001.00	84+71.73	1001.19
4.3L	84+83.02	1000.42	84+83.02	1000.61	84+83.02	1000.80	84+83.02	1000.98
4.4L	84+94.30	1000.20	84+94.30	1000.39	84+94.30	1000.58	84+94.30	1000.76
4.5L	85+05.58	999.96	85+05.58	1000.14	85+05.58	1000.34	85+05.58	1000.52
4.6L	85+16.87	999.69	85+16.87	999.88	85+16.87	1000.07	85+16.87	1000.25
4.7L	85+28.15	999.40	85+28.15	999.58	85+28.15	999.78	85+28.15	999.96
4.8L	85+39.43	999.09	85+39.43	999.27	85+39.43	999.47	85+39.43	999.65
4.9L	85+50.72	998.77	85+50.72	998.95	85+50.72	999.14	85+50.72	999.33
℄ Bk. Brg. Pier No. 4	85+62.00	998.43	85+62.00	998.60	85+62.00	998.80	85+62.00	998.99
℄ Pier No. 4	85+63.00	998.40	85+63.00	998.58	85+63.00	998.77	85+63.00	998.96
℄ Ahd. Brg. Pier No. 4	85+64.00	998.38	85+64.00	998.55	85+64.00	998.75	85+64.00	998.94
5.1L	85+76.80	998.09	85+76.80	998.27	85+76.80	998.46	85+76.80	998.65
5.2L	85+89.60	997.79	85+89.60	997.97	85+89.60	998.17	85+89.60	998.35
5.3L	86+02.40	997.47	86+02.40	997.65	86+02.40	997.85	86+02.40	998.03
5.4L	86+15.20	997.12	86+15.20	997.31	86+15.20	997.50	86+15.20	997.68
5.5L	86+28.00	996.75	86+28.00	996.94	86+28.00	997.13	86+28.00	997.31
5.6L	86+40.80	996.35	86+40.80	996.53	86+40.80	996.73	86+40.80	996.91
5.7L	86+53.60	995.92	86+53.60	996.10	86+53.60	996.30	86+53.60	996.48
5.8L	86+66.40	995.46	86+66.40	995.65	86+66.40	995.84	86+66.40	996.02
5.9L	86+79.20	994.99	86+79.20	995.17	86+79.20	995.36	86+79.20	995.55
℄ Bk. Brg. Pier No. 5	86+92.00	994.50	86+92.00	994.67	86+92.00	994.87	86+92.00	995.06
℄ Pier No. 5	86+93.00	994.47	86+93.00	994.64	86+93.00	994.83	86+93.00	995.03
℄ Ahd. Brg. Pier No. 5	86+94.00	994.43	86+94.00	994.60	86+94.00	994.80	86+94.00	994.99
6.1L	87+04.80	994.09	87+04.80	994.27	87+04.80	994.46	87+04.80	994.65
6.2L	87+15.60	993.75	87+15.60	993.93	87+15.60	994.12	87+15.60	994.31
6.3L	87+26.40	993.40	87+26.40	993.58	87+26.40	993.78	87+26.40	993.96
6.4L	87+37.20	993.04	87+37.20	993.22	87+37.20	993.42	87+37.20	993.60
6.5L	87+48.00	992.67	87+48.00	992.85	87+48.00	993.05	87+48.00	993.23
6.6L	87+58.80	992.28	87+58.80	992.47	87+58.80	992.66	87+58.80	992.84
6.7L	87+69.60	991.89	87+69.60	992.07	87+69.60	992.26	87+69.60	992.45
6.8L	87+80.40	991.48	87+80.40	991.66	87+80.40	991.86	87+80.40	992.04
6.9L	87+91.20	991.07	87+91.20	991.25	87+91.20	991.44	87+91.20	991.63
℄ Bk. Brg. Pier No. 6	88+02.00	990.65	88+02.00	990.83	88+02.00	991.02	88+02.00	991.21
℄ Pier No. 6	88+03.00	990.62	88+03.00	990.79	88+03.00	990.99	88+03.00	991.18
℄ Ahd. Brg. Pier No. 6	88+04.00	990.58	88+04.00	990.76	88+04.00	990.95	88+04.00	991.14
7.1L	88+12.80	990.29	88+12.80	990.47	88+12.80	990.66	88+12.80	990.85
7.2L	88+21.60	990.00	88+21.60	990.18	88+21.60	990.37	88+21.60	990.56
7.3L	88+30.40	989.70	88+30.40	989.88	88+30.40	990.07	88+30.40	990.26
7.4L	88+39.20	989.40	88+39.20	989.58	88+39.20	989.77	88+39.20	989.96
7.5L	88+48.00	989.10	88+48.00	989.28	88+48.00	989.47	88+48.00	989.66
7.6L	88+56.80	988.79	88+56.80	988.96	88+56.80	989.16	88+56.80	989.35
7.7L	88+65.60	988.47	88+65.60	988.65	88+65.60	988.84	88+65.60	989.03
7.8L	88+74.40	988.15	88+74.40	988.33	88+74.40	988.52	88+74.40	988.71
7.9L	88+83.20	987.83	88+83.20	988.00	88+83.20	988.20	88+83.20	988.39
℄ Bk. Brg. Pier No. 7	88+92.00	987.50	88+92.00	987.68	88+92.00	987.87	88+92.00	988.06
℄ Pier No. 7	88+93.00	987.47	88+93.00	987.64	88+93.00	987.84	88+93.00	988.03
℄ Ahd. Brg. Pier No. 7	88+94.00	987.43	88+94.00	987.61	88+94.00	987.80	88+94.00	987.99
8.1L	89+02.90	987.14	89+02.90	987.31	89+02.90	987.51	89+02.90	987.70
8.2L	89+11.80	986.84	89+11.80	987.02	89+11.80	987.21	89+11.80	987.40
8.3L	89+20.70	986.55	89+20.70	986.72	89+20.70	986.92	89+20.70	987.11
8.4L	89+29.60	986.24	89+29.60	986.42	89+29.60	986.61	89+29.60	986.80
8.5L	89+38.50	985.93	89+38.50	986.11	89+38.50	986.31	89+38.50	986.49
8.6L	89+47.40	985.62	89+47.40	985.80	89+47.40	985.99	89+47.40	986.18
8.7L	89+56.30	985.30	89+56.30	985.48	89+56.30	985.67	89+56.30	985.86
8.8L	89+65.20	984.97	89+65.20	985.15	89+65.20	985.34	89+65.20	985.53
8.9L	89+74.10	984.65	89+74.10	984.82	89+74.10	985.02	89+74.10	985.21
℄ Brg. Abut. No. 2	89+83.00	984.32	89+83.00	984.49	89+83.00	984.69	89+83.00	984.88

Note:
Elevation values included were calculated as follow:
Final Pavement Elevation - Deck Thickness + Dead Load Deflection.

For Final Pavement Elevations and Dead Load Deflections, see Sh. No. 544 545.

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_BottDeck1.dgn

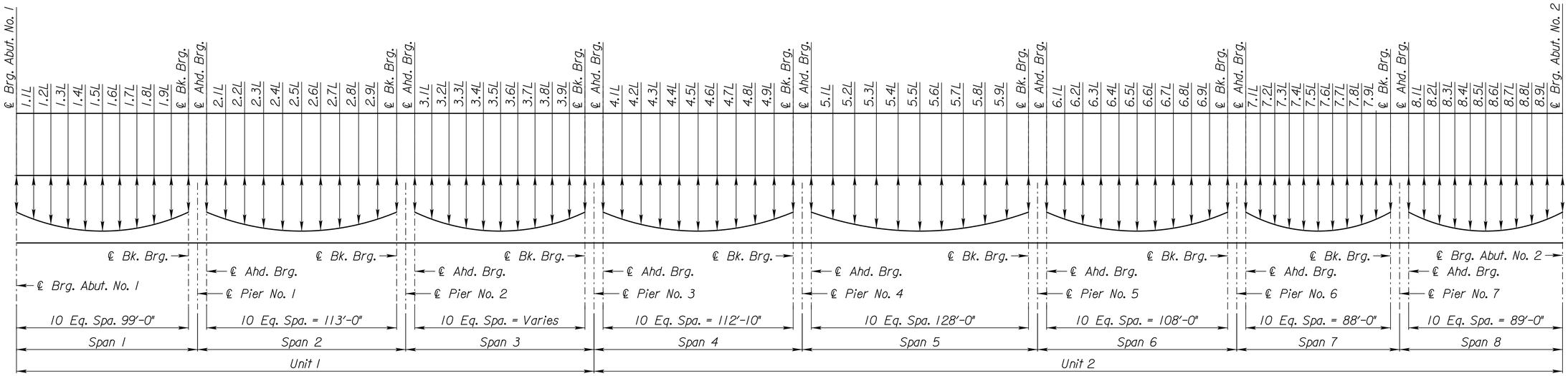
SHEET NO. 546 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
BOTTOM OF DECK ELEVATIONS

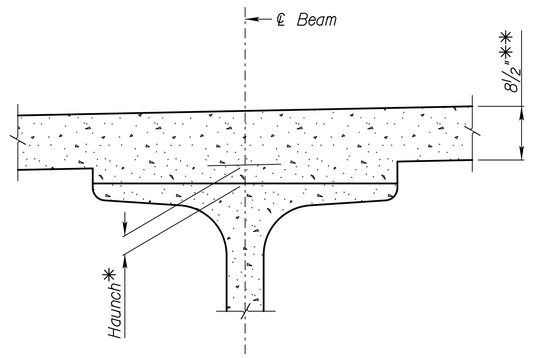


HAUNCH DIAGRAM

HAUNCH (INCHES)				
Location	Unit 1			
	Beam A	Beam B	Beam C	Beam D
℄ Brg. Abut. No. 1	1 1/2	1 7/16	1 7/16	1 1/2
1.1L	1 3/8	1 5/16	1 5/16	1 3/8
1.2L	1 1/4	1 1/4	1 1/4	1 1/4
1.3L	1 1/4	1 3/16	1 3/16	1 1/4
1.4L	1 1/4	1 1/4	1 1/4	1 1/4
1.5L	1 1/4	1 1/4	1 1/4	1 1/4
1.6L	1 5/16	1 5/16	1 5/16	1 5/16
1.7L	1 7/16	1 3/8	1 7/16	1 3/8
1.8L	1 9/16	1 1/2	1 1/2	1 9/16
1.9L	1 3/4	1 11/16	1 11/16	1 3/4
℄ Bk. Brg. Pier No. 1	2	1 15/16	1 15/16	2
℄ Pier No. 1				
℄ Ahd. Brg. Pier No. 1	1 15/16	1 13/16	1 13/16	1 15/16
2.1L	1 1/2	1 7/16	1 7/16	1 9/16
2.2L	1 5/16	1 5/16	1 1/4	1 3/8
2.3L	1 1/8	1 3/16	1 3/16	1 5/16
2.4L	1	1 1/8	1 1/8	1 1/4
2.5L	1	1 1/8	1 1/8	1 1/4
2.6L	1	1 3/16	1 3/16	1 5/16
2.7L	1 1/8	1 1/4	1 1/4	1 1/2
2.8L	1 1/4	1 7/16	1 7/16	1 11/16
2.9L	1 1/2	1 11/16	1 5/8	2
℄ Bk. Brg. Pier No. 2	1 15/16	2 1/16	2 1/16	2 7/16
℄ Pier No. 2				
℄ Ahd. Brg. Pier No. 2	1 9/16	1 5/8	1 13/16	2 1/8
3.1L	1 3/8	1 7/16	1 9/16	1 3/4
3.2L	1 3/8	1 3/8	1 7/16	1 9/16
3.3L	1 3/8	1 3/8	1 3/8	1 7/16
3.4L	1 7/16	1 7/16	1 3/8	1 3/8
3.5L	1 9/16	1 1/2	1 7/16	1 7/16
3.6L	1 11/16	1 5/8	1 9/16	1 9/16
3.7L	1 7/8	1 3/4	1 3/4	1 13/16
3.8L	2 1/16	2	1 15/16	2 1/16
3.9L	2 5/16	2 1/4	2 1/4	2 1/2
℄ Bk. Brg. Pier No. 3	2 11/16	2 5/8	2 11/16	3
℄ Pier No. 3				

HAUNCH (INCHES)				
Location	Unit 2			
	Beam A	Beam B	Beam C	Beam D
℄ Pier No. 3				
℄ Ahd. Brg. Pier No. 3	1 11/16	1 9/16	1 9/16	1 11/16
4.1L	1 3/8	1 5/16	1 5/16	1 3/8
4.2L	1 3/16	1 1/8	1 1/8	1 3/16
4.3L	1 1/8	1 1/16	1 1/16	1 1/8
4.4L	1	1	1	1
4.5L	1	1	1	1
4.6L	1	1	1	1
4.7L	1 1/16	1 1/16	1 1/16	1 1/16
4.8L	1 3/16	1 1/8	1 1/8	1 3/16
4.9L	1 3/8	1 1/4	1 1/4	1 3/8
℄ Bk. Brg. Pier No. 4	1 11/16	1 9/16	1 9/16	1 11/16
℄ Pier No. 4				
℄ Ahd. Brg. Pier No. 4	1 3/4	1 9/16	1 9/16	1 3/4
5.1L	1 1/2	1 3/8	1 3/8	1 1/2
5.2L	1 7/16	1 5/16	1 5/16	1 7/16
5.3L	1 7/16	1 7/16	1 7/16	1 7/16
5.4L	1 1/2	1 1/2	1 1/2	1 1/2
5.5L	1 5/8	1 5/8	1 5/8	1 5/8
5.6L	1 3/4	1 3/4	1 3/4	1 3/4
5.7L	1 15/16	1 7/8	1 7/8	1 15/16
5.8L	2 3/16	2 1/8	2 1/8	2 3/16
5.9L	2 1/2	2 3/8	2 3/8	2 1/2
℄ Bk. Brg. Pier No. 5	3	2 13/16	2 13/16	3
℄ Pier No. 5				
℄ Ahd. Brg. Pier No. 5	2 15/16	2 13/16	2 13/16	2 15/16
6.1L	2 1/4	2 1/8	2 1/8	2 1/4
6.2L	1 3/4	1 11/16	1 11/16	1 3/4
6.3L	1 3/8	1 3/8	1 3/8	1 3/8
6.4L	1 3/16	1 3/16	1 3/16	1 3/16
6.5L	1 1/8	1 1/8	1 1/8	1 1/8
6.6L	1 1/4	1 1/4	1 1/4	1 1/4
6.7L	1 1/2	1 7/16	1 7/16	1 1/2
6.8L	1 7/8	1 13/16	1 13/16	1 7/8
6.9L	2 7/16	2 5/16	2 5/16	2 7/16
℄ Bk. Brg. Pier No. 6	3 3/16	3 1/16	3 1/16	3 3/16
℄ Pier No. 6				

HAUNCH (INCHES)				
Location	Unit 2 Continued			
	Beam A	Beam B	Beam C	Beam D
℄ Pier No. 6				
℄ Ahd. Brg. Pier No. 6	2 3/8	2 5/16	2 5/16	2 3/8
7.1L	1 15/16	1 15/16	1 15/16	1 15/16
7.2L	1 11/16	1 5/8	1 5/8	1 11/16
7.3L	1 1/2	1 1/2	1 1/2	1 1/2
7.4L	1 3/8	1 3/8	1 3/8	1 3/8
7.5L	1 7/16	1 7/16	1 7/16	1 7/16
7.6L	1 9/16	1 9/16	1 9/16	1 9/16
7.7L	1 13/16	1 13/16	1 13/16	1 13/16
7.8L	2 3/16	2 3/16	2 3/16	2 3/16
7.9L	2 11/16	2 5/8	2 5/8	2 11/16
℄ Bk. Brg. Pier No. 7	3 1/4	3 3/16	3 3/16	3 1/4
℄ Pier No. 7				
℄ Ahd. Brg. Pier No. 7	2 3/8	2 5/16	2 5/16	2 3/8
8.1L	1 7/8	1 13/16	1 13/16	1 7/8
8.2L	1 1/2	1 7/16	1 7/16	1 1/2
8.3L	1 3/16	1 3/16	1 3/16	1 3/16
8.4L	1 1/16	1 1/16	1 1/16	1 1/16
8.5L	1	1	1	1
8.6L	1 1/16	1 1/16	1 1/16	1 1/16
8.7L	1 1/4	1 3/16	1 3/16	1 1/4
8.8L	1 1/2	1 7/16	1 7/16	1 1/2
8.9L	1 7/8	1 13/16	1 13/16	1 7/8
℄ Brg. Abut. No. 2	2 3/8	2 5/16	2 5/16	2 3/8



CONCRETE HAUNCH DETAIL

* See Haunch Diagrams for Theoretical Haunch

** 9" at Overhangs

Notes:
The theoretical amount of concrete required for the fillets is 69.5 C.Y. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

For Typical Section, see Sh. No. 540.

For Camber and Dead Load Deflections, see Sh. No. 544- 545 .

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_Haunch.dgn

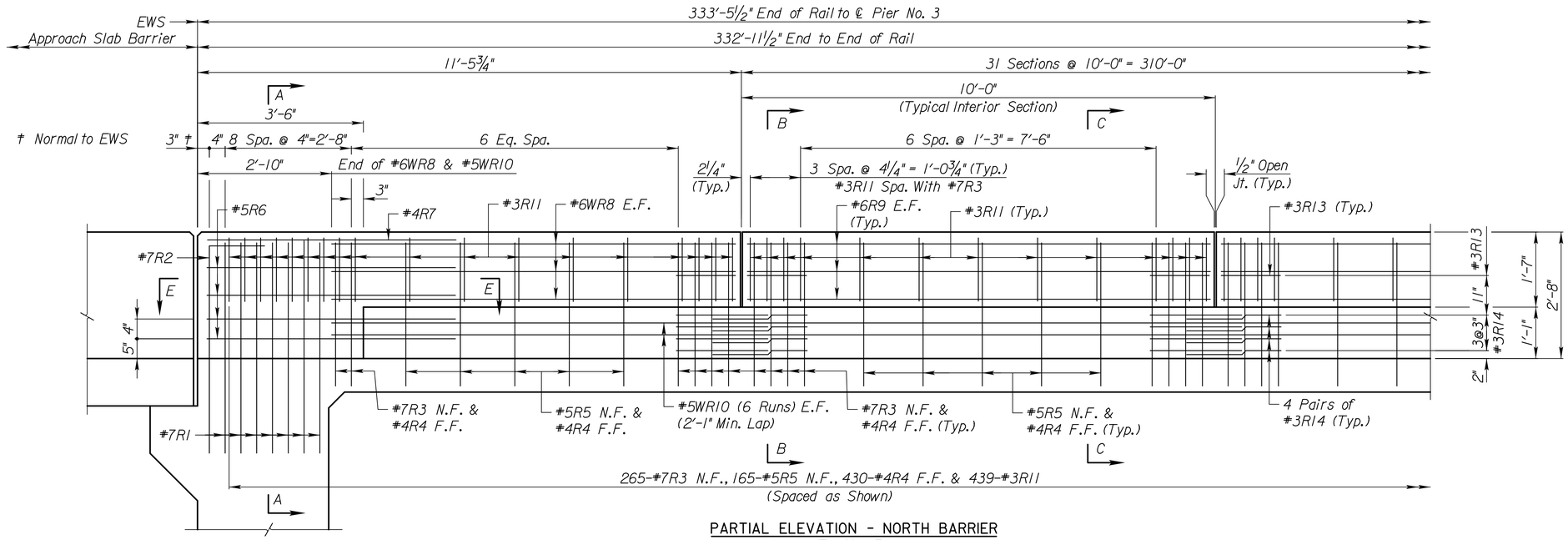
SHEET NO. 547 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

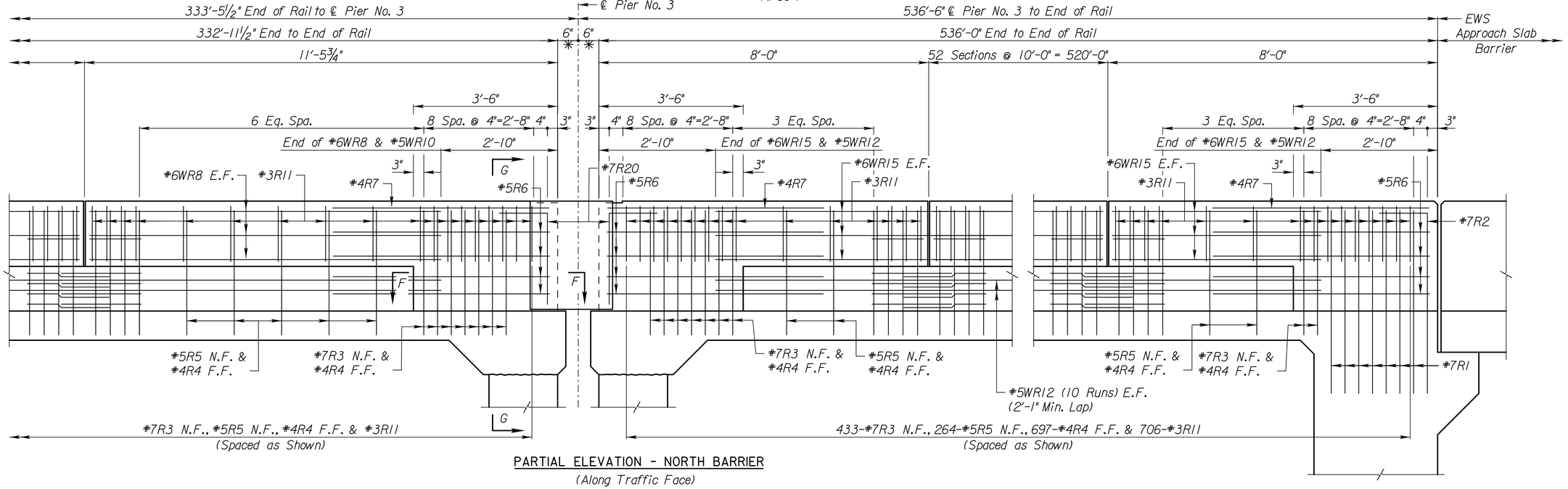
By	Description	Date	Rev.

119th Street - Westbound
HAUNCH DIAGRAMS



PARTIAL ELEVATION - NORTH BARRIER
(Along Traffic Face)

* At 60° F



PARTIAL ELEVATION - NORTH BARRIER
(Along Traffic Face)

Notes:

All longitudinal dimensions are measured along traffic face of Bridge Rail for North Barrier.

For Section A-A, B-B, C-C, E-E, F-F and G-G, see Sh. No. 551.

Adjust reinforcement to avoid conflict with handrail anchor bolt locations. See Sh. No.

For additional information on Concrete Form Liner and Pigmented Stain Treatments, see Sh. No. 661.

E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.

SHEET NO. 548 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

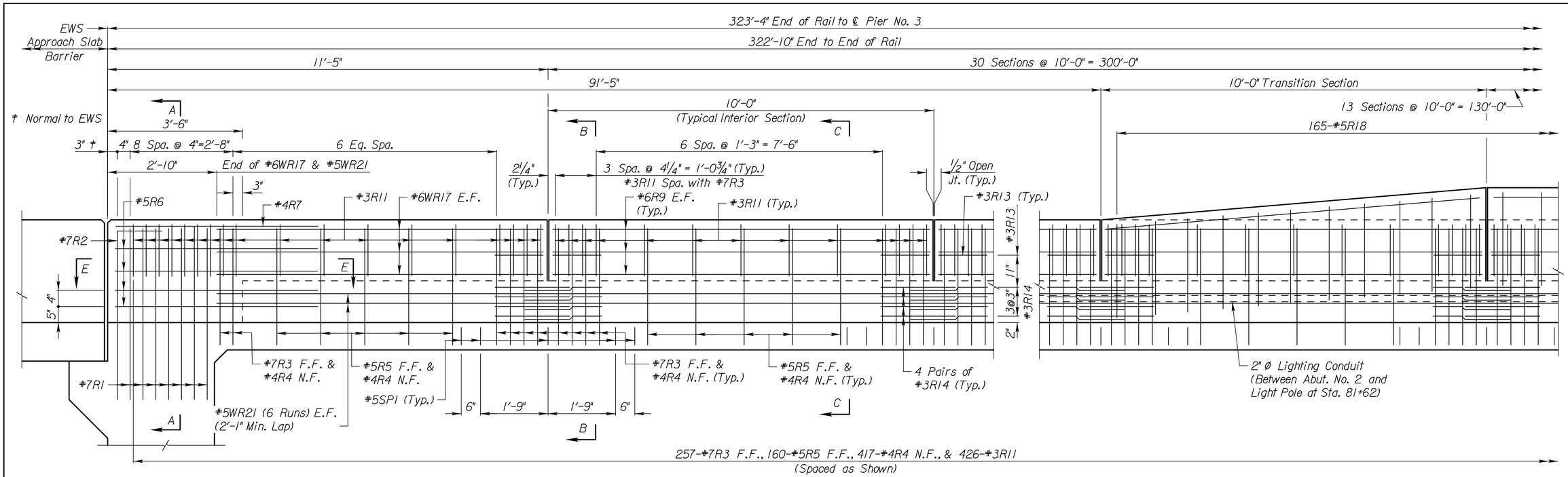
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

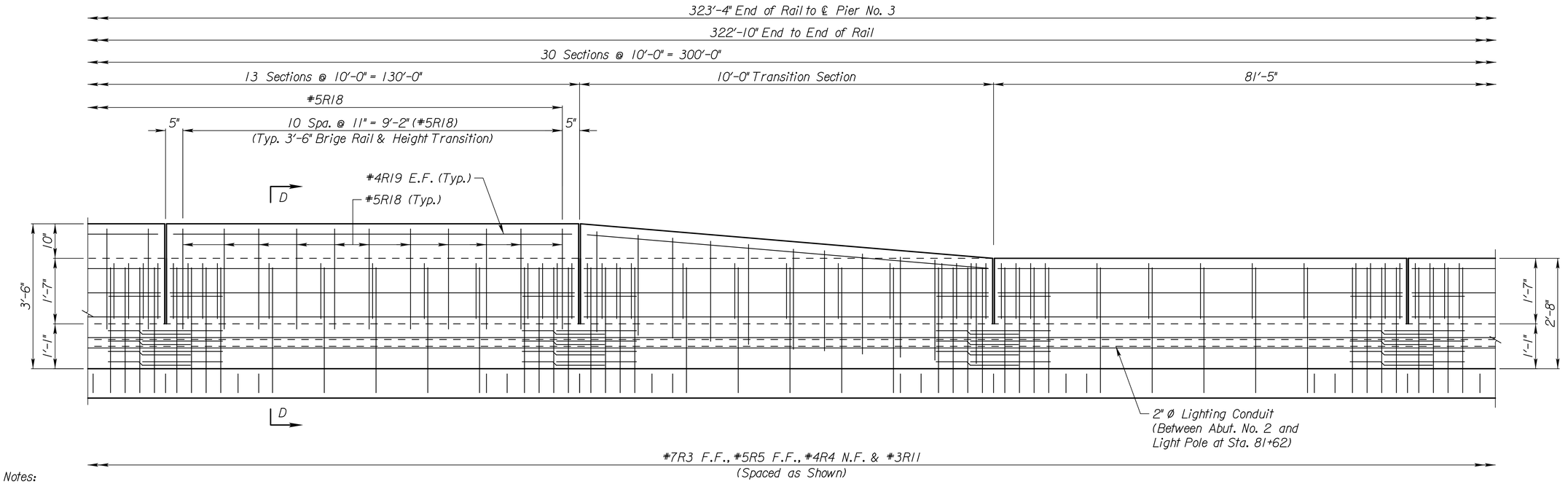
Rev.	Date	Description	By
.	.	.	.

119th Street - Westbound
CORRAL RAIL DETAILS (10F 4)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_corral1.dgn



PARTIAL ELEVATION - SOUTH BARRIER
(Along Outside Face)



PARTIAL ELEVATION - SOUTH BARRIER
(Along Outside Face)

Notes:

All longitudinal dimensions are measured along outside face of Bridge Rail for South Barrier.

For Section A-A, B-B, C-C, D-D and E-E, see Sh. No. 551.

Adjust reinforcement to avoid conflict with fence anchor bolt locations. See Sh. No.

For additional information on Concrete Form Liner and Pigmented Stain Treatments, see Sh. No. 661.

E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.

SHEET NO.	TOTAL SHEETS
549	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

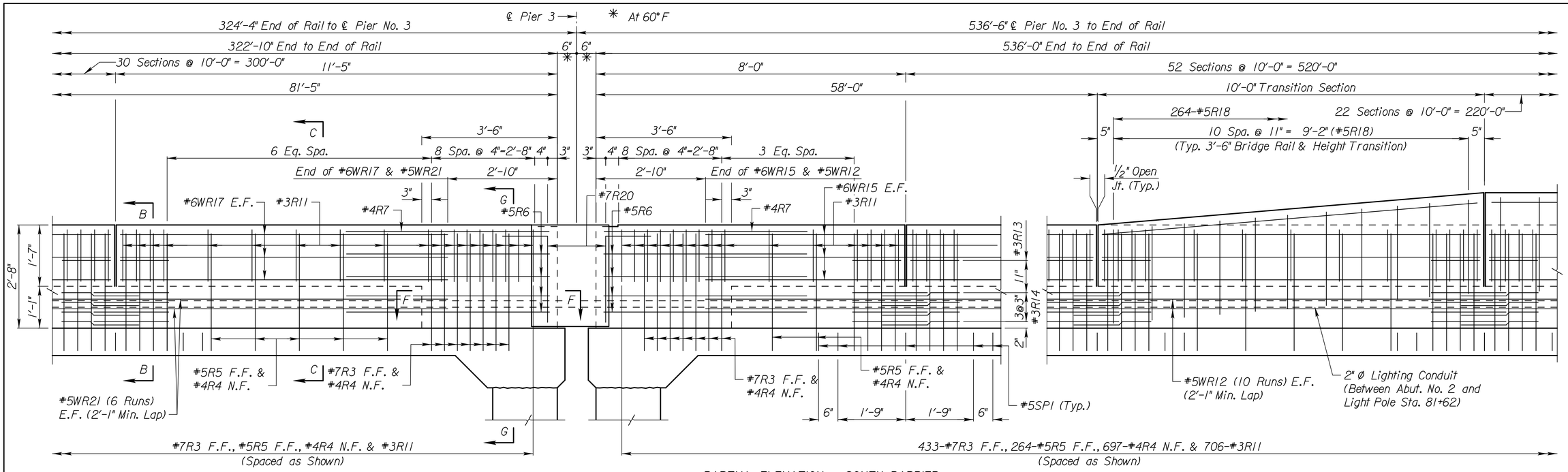
CITY OF OLATHE, KS

OLATHE KANSAS

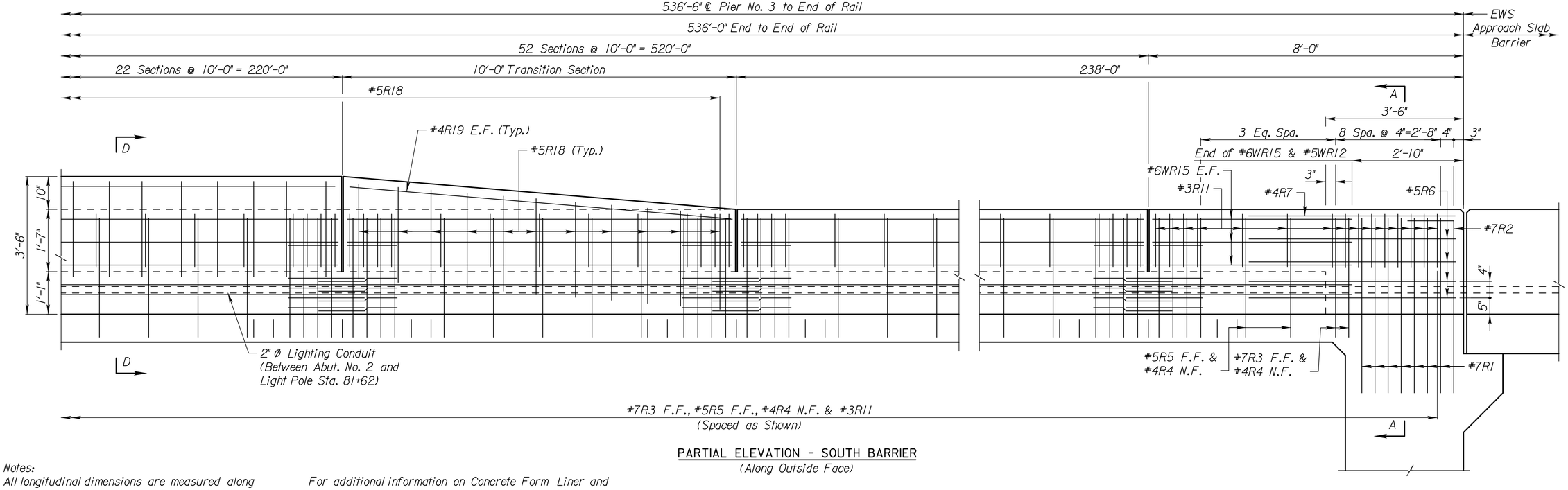
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
CORRAL RAIL DETAILS (2 OF 4)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_corral2.dgn



PARTIAL ELEVATION - SOUTH BARRIER
(Along Outside Face)



PARTIAL ELEVATION - SOUTH BARRIER
(Along Outside Face)

Notes:

All longitudinal dimensions are measured along outside face of Bridge Rail for South Barrier.

For Section A-A, B-B, C-C, D-D, F-F and G-G, see Sh. No. 551

Adjust reinforcement to avoid conflict with fence anchor bolt locations. See Sh. No. .

For additional information on Concrete Form Liner and Pigmented Stain Treatments, see Sh. No. 661.

E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_corral3.dgn

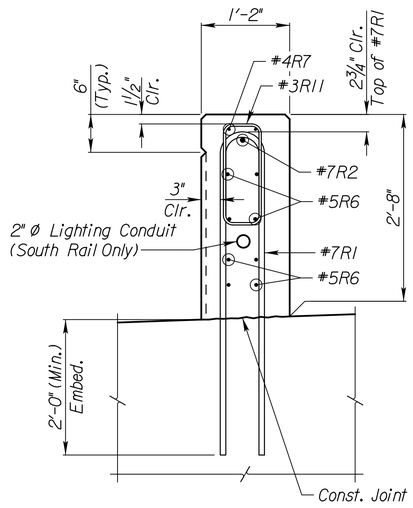
SHEET NO. 550 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

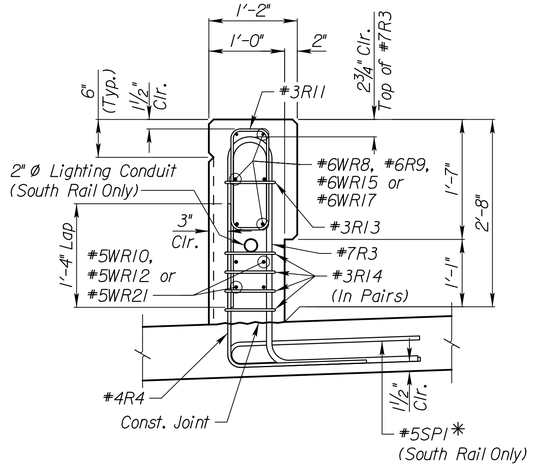
CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
CORRAL RAIL DETAILS (3 OF 4)

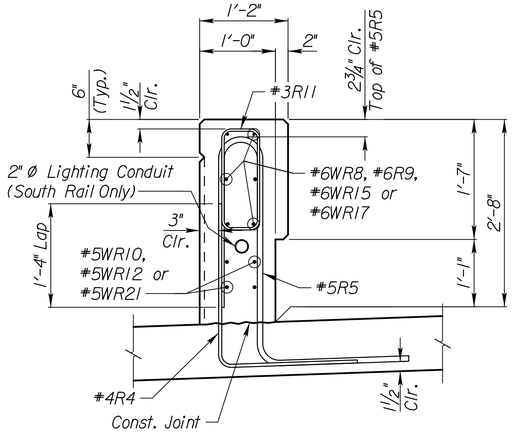


SECTION A-A
(North Rail Shown, South Rail Similar)

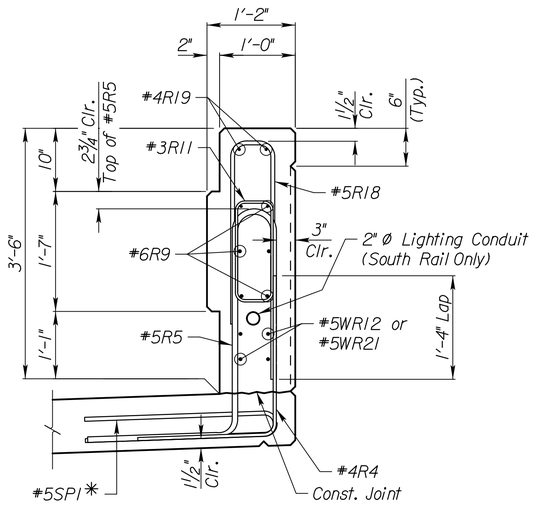


SECTION B-B
(North Rail Shown, South Rail Similar)

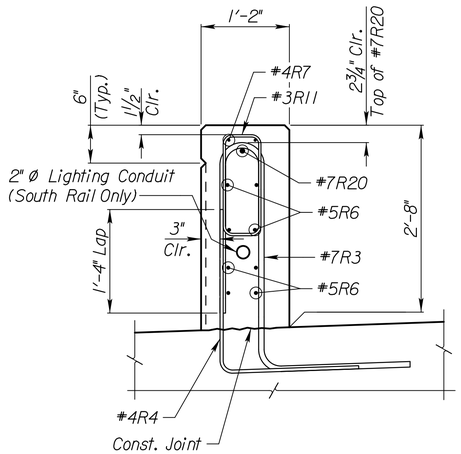
* The hook may be canted to provide clearance and/or fit between reinforcing steel.



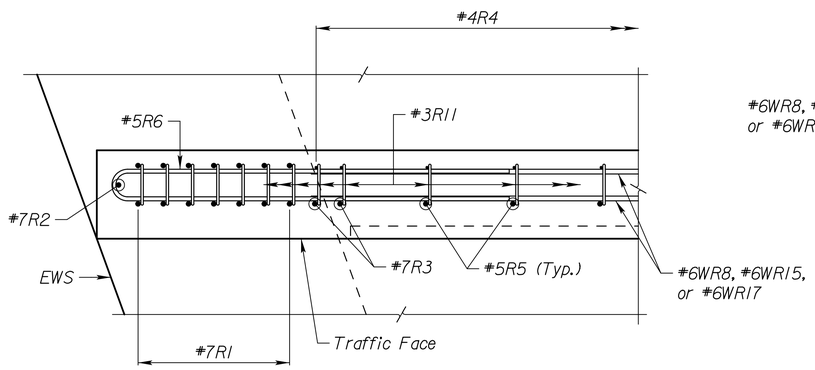
SECTION C-C
(North Rail Shown, South Rail Similar)



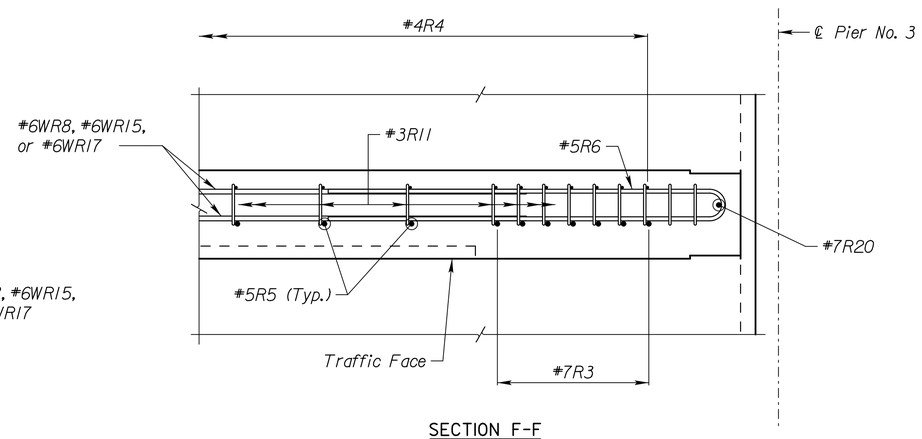
SECTION D-D
(South Rail Only)



SECTION G-G
(North Rail Shown, South Rail Similar)



SECTION E-E
(North Rail at Abut. No. 1 Shown, Other Abut. Locations Similar)



SECTION F-F
(North Rail Shown, Other Locations Similar)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_corral4.dgn

SHEET NO.	TOTAL SHEETS
551	781

YEAR 2024

PROJECT NO. 3-C-024-21

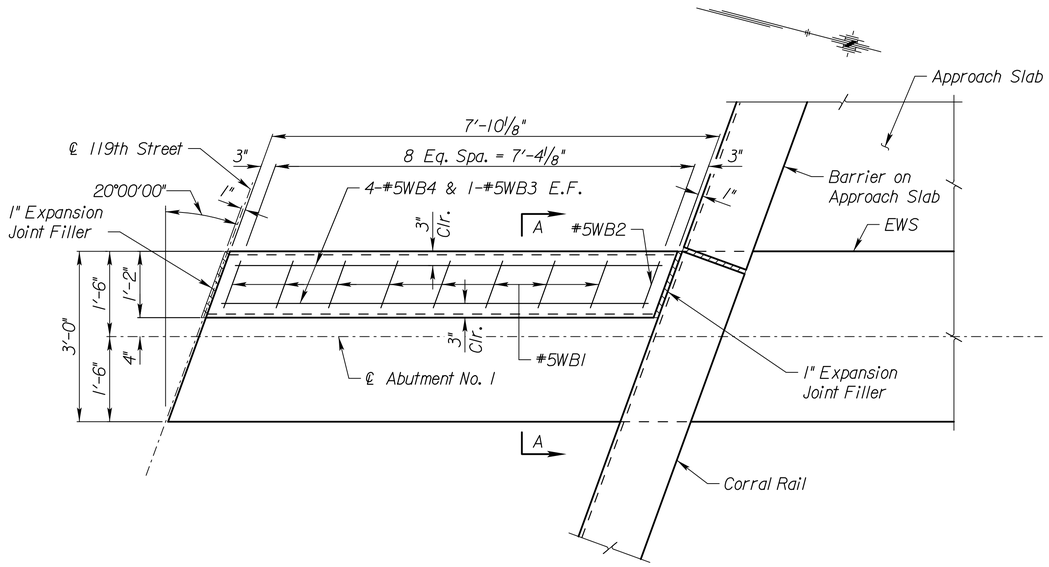
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

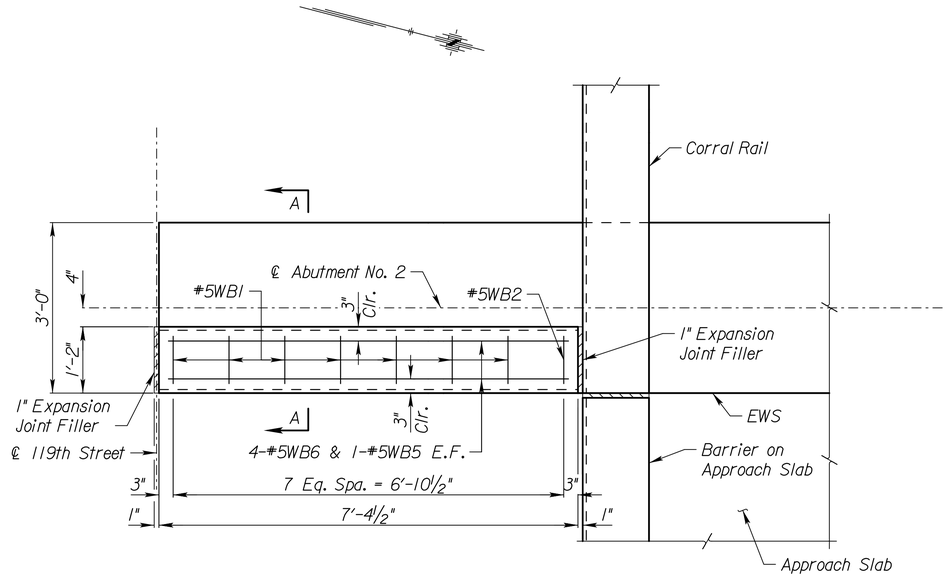
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

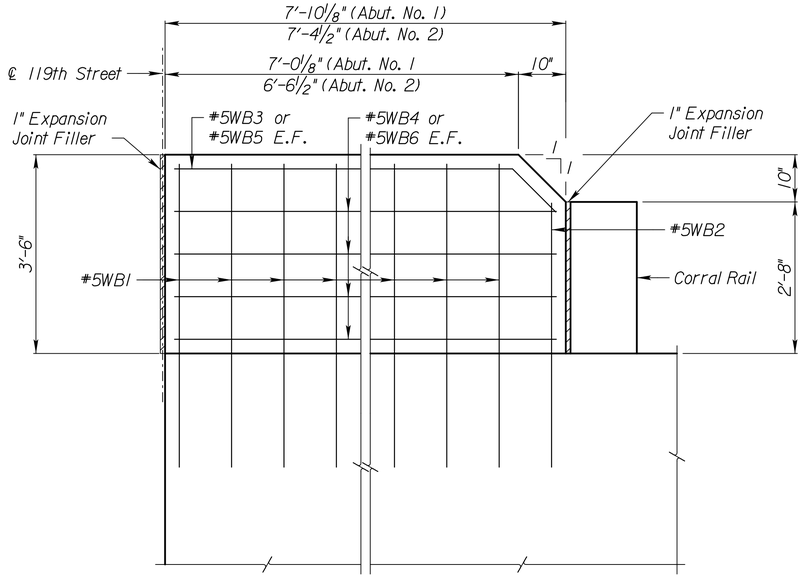
119th Street - Westbound CORRAL RAIL DETAILS (4 OF 4)



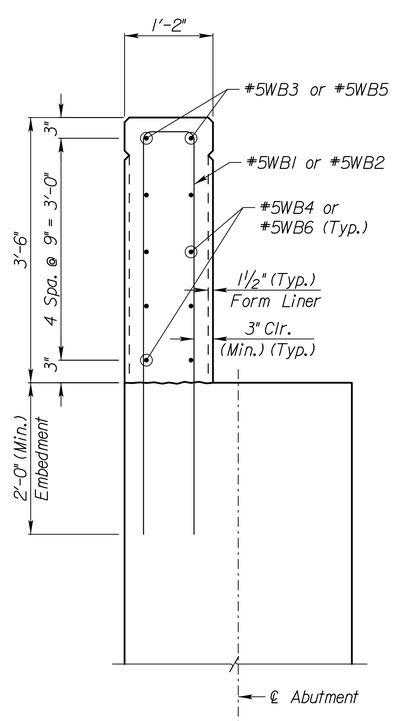
PLAN AT ABUTMENT NO. 1



PLAN AT ABUTMENT NO. 2



ELEVATION



SECTION A-A

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

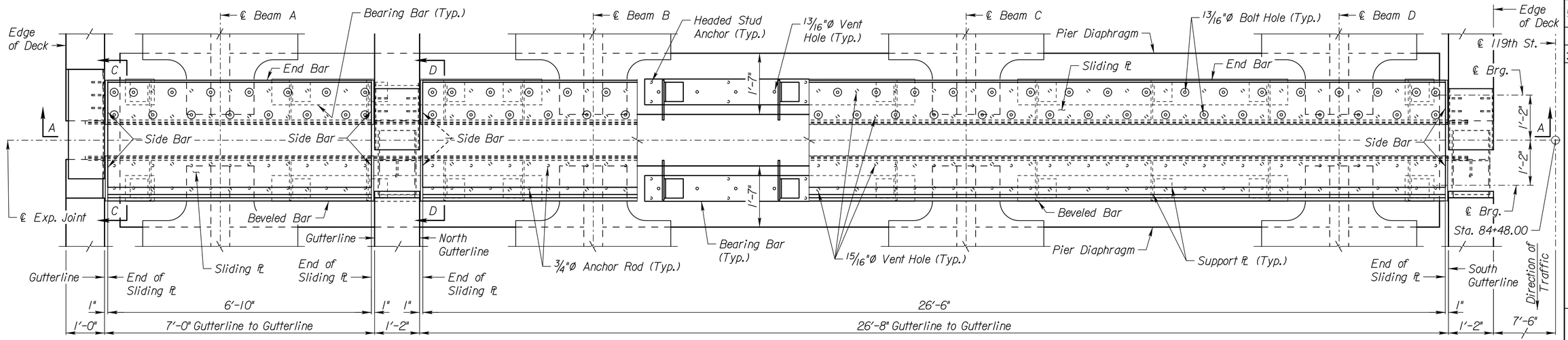
119th Street - Westbound WINGWALL BARRIER

SHEET NO.	TOTAL SHEETS
552	781

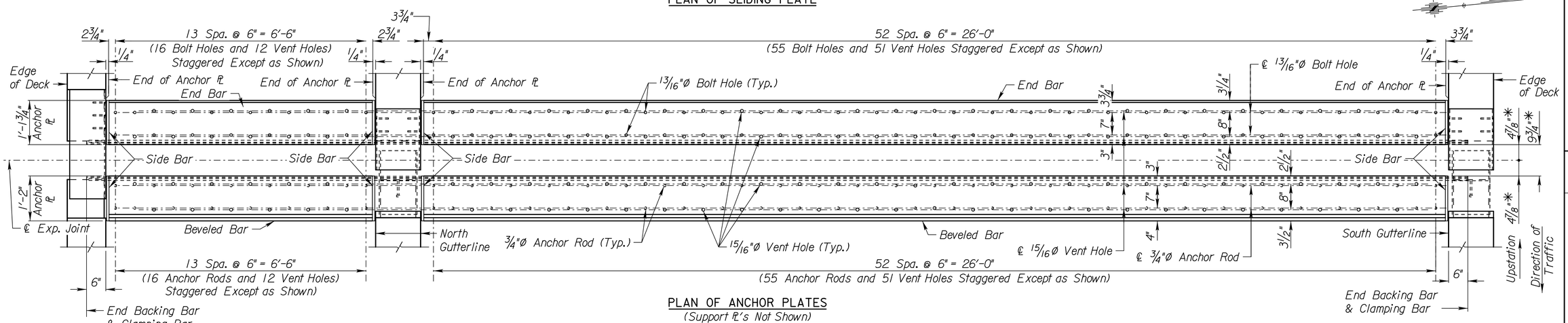
YEAR 2024

PROJECT NO. 3-C-024-21

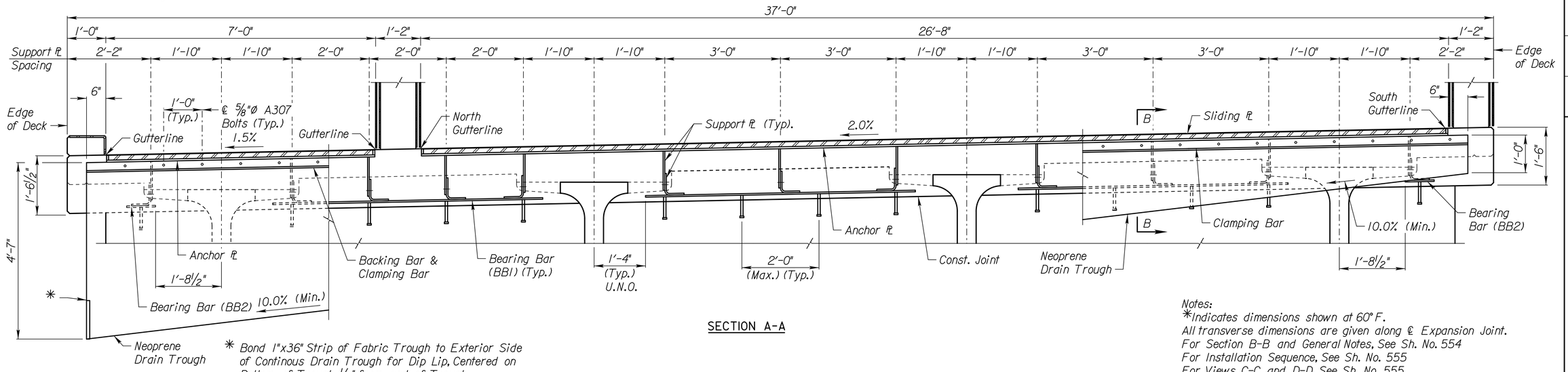
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_WingRail.dgn



PLAN OF SLIDING PLATE



PLAN OF ANCHOR PLATES
(Support Pl's Not Shown)



SECTION A-A

* Bond 1"x36" Strip of Fabric Trough to Exterior Side of Continous Drain Trough for Dip Lip, Centered on Bottom of Trough, 1/2" from end of Trough

Notes:
*Indicates dimensions shown at 60° F.
All transverse dimensions are given along ℄ Expansion Joint.
For Section B-B and General Notes, See Sh. No. 554
For Installation Sequence, See Sh. No. 555
For Views C-C and D-D, See Sh. No. 555

SHEET NO. 553 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

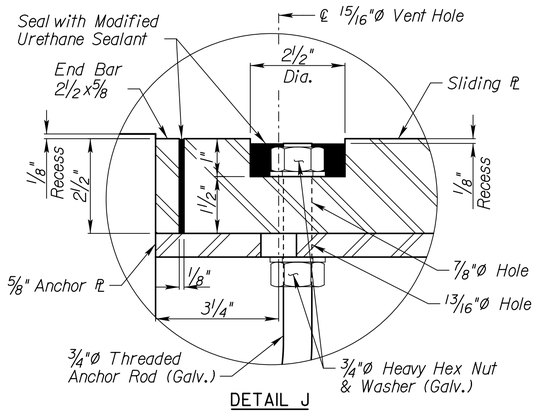
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS

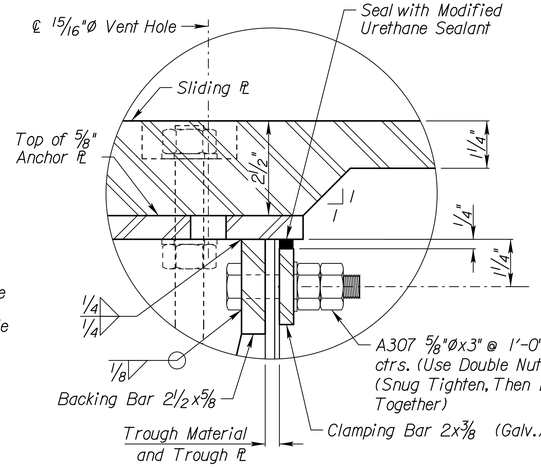
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
EXPANSION JOINT DETAILS (1 OF 3)

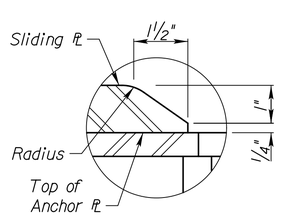
Plotted : 08-28-24
Drawn By : MGEHL
File : c:\pwworking\central01\d2525841\119th_BrWB_ExpJt1.dgn



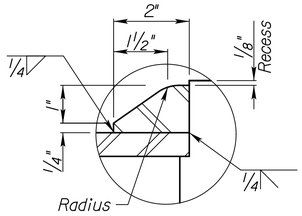
DETAIL J



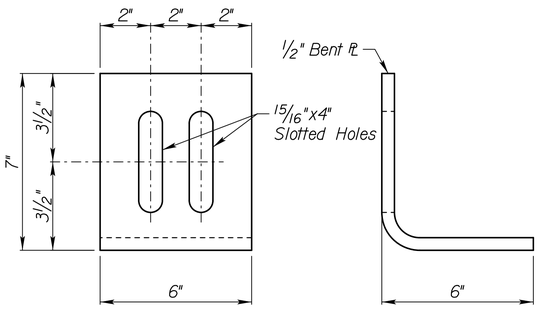
DETAIL H



DETAIL G



DETAIL F



BENT SUPPORT PLATE

GENERAL NOTES

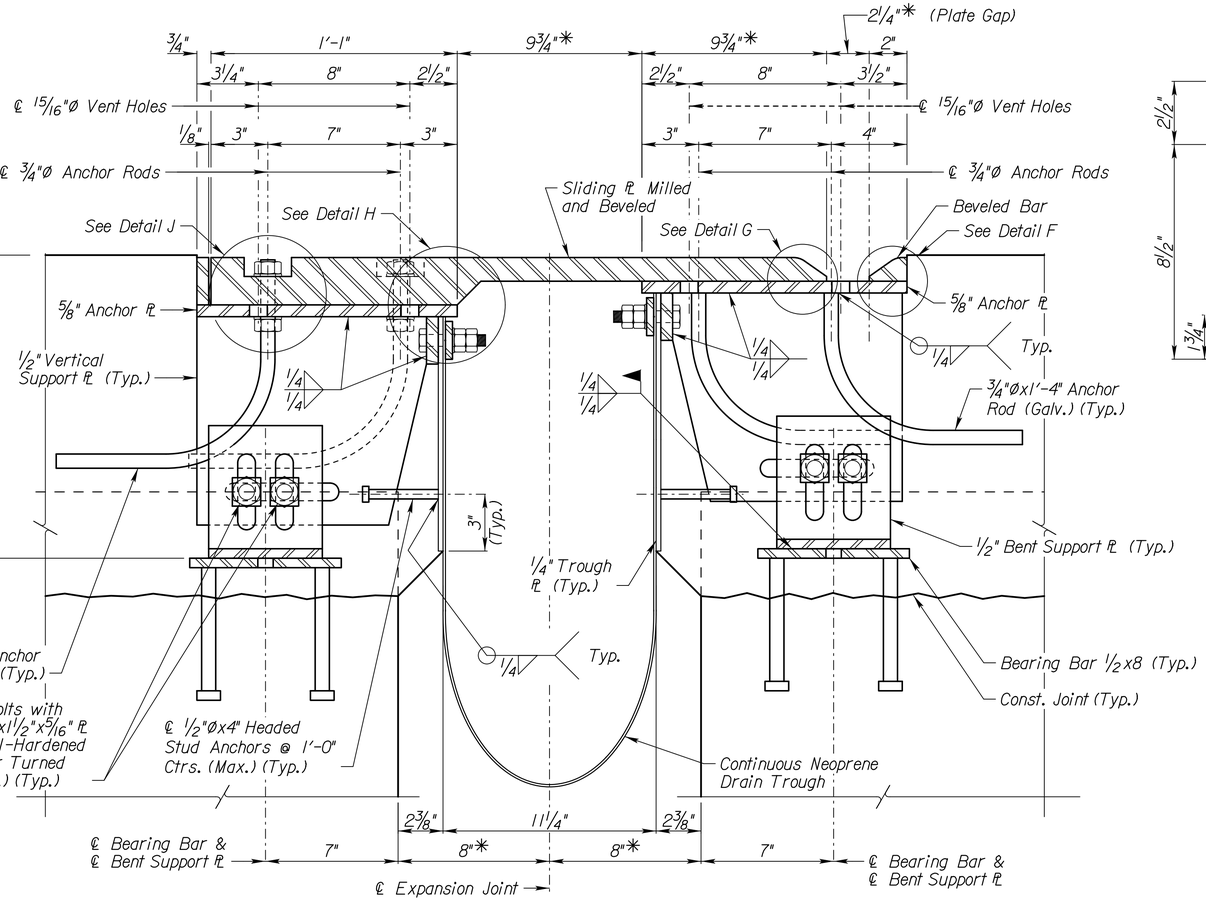
All material and labor shall be paid for by the bid item "Expansion Device (Sliding Plate)" unless noted otherwise. All steel plates and bars shall be ASTM A709 Grade 36 steel, except sliding plate shall be AASHTO M270 Grade 50 (T3). No weathering steel is allowed.

Anchor rods shall meet the requirements of AASHTO M314 with 55 ksi yield strength. The threads may be rolled or cut. Torque anchor rod nuts to 110 ft./lbs. minimum. Tighten the high-strength bolts (used to align the device) using the turn-of-the-nut method. Use special plate washers over the slotted holes in the bent support and the vertical support plates. Use a hardened washer under the turned element of the fastener.

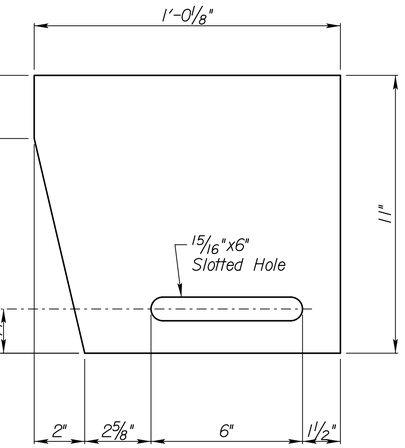
Galvanize all structural steel after fabrication except the bent support plates and bearing bars. Shop paint the bent support plates and bearing bars with an approved inorganic zinc primer to a nominal dry film thickness of 3 mil. Galvanize in accordance with ASTM A123. Galvanize the barrier plate assemblies after fabrication.

Galvanize all anchor rods, headed stud anchors, bolts, threaded rods and nuts shall meet AASHTO requirements. Ship the galvanized bolts and threaded rods together in the same shipping container in a plastic bag to protect the lubricants. Show proper manufacturer's marking on bolts and threaded rods. Bolts and threaded rods with improper bolt markings will be rejected.

The fabric material for the trough shall meet the requirements of KDOT Specifications. Supply the trough in one continuous piece from end to end. On the exterior side of the continuous trough, provide a stiffening strip at outlet end as shown on Sheet "Expansion Joint Details (1 of 3)".

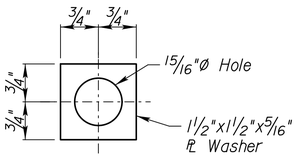


SECTION B-B

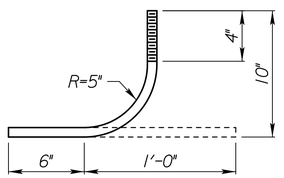


VERTICAL SUPPORT PLATE

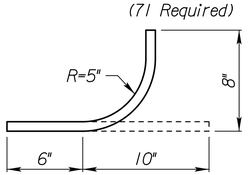
BEARING BAR



SPECIAL WASHER



THREADED ANCHOR ROD
(Galv. ¾"x1'-6")
(71 Required)



ANCHOR ROD
(Galv. ¾"x1'-4")
(71 Required)

Notes:
* Indicates dimensions shown at 60° F.

For location of Section B-B, see Sh. No. 553.

For Installation Sequence see Sh. No. 554.

PLATE GAP								
Temp. F°	30	40	50	60	70	80	90	100
Gap	3 3/8"	3"	2 5/8"	2 1/4"	1 7/8"	1 1/2"	1 1/8"	3/4"

ANCHOR UNIT GAP								
Temp. F°	30	40	50	60	70	80	90	100
Gap	10 7/8"	10 1/2"	10 1/8"	9 3/4"	9 3/8"	9"	8 5/8"	8 1/4"

SHEET NO. 554 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

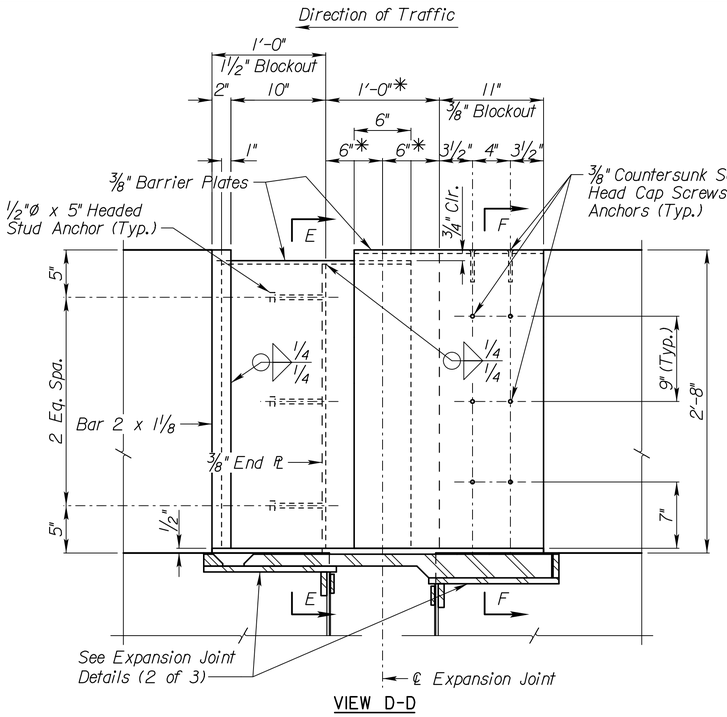
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

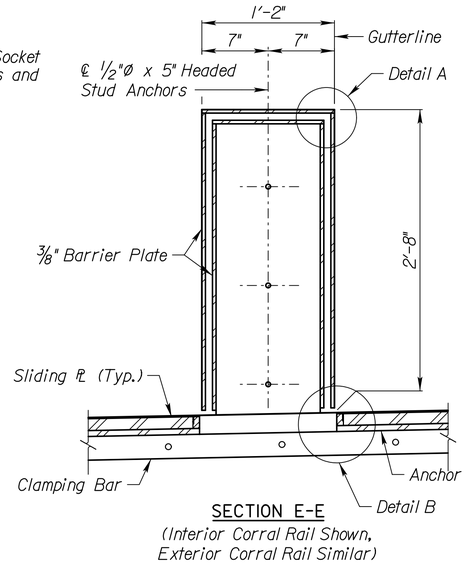
Rev.	Date	Description	By
. . .	. . .	. . .	. . .

119th Street - Westbound
EXPANSION JOINT DETAILS (2 OF 3)

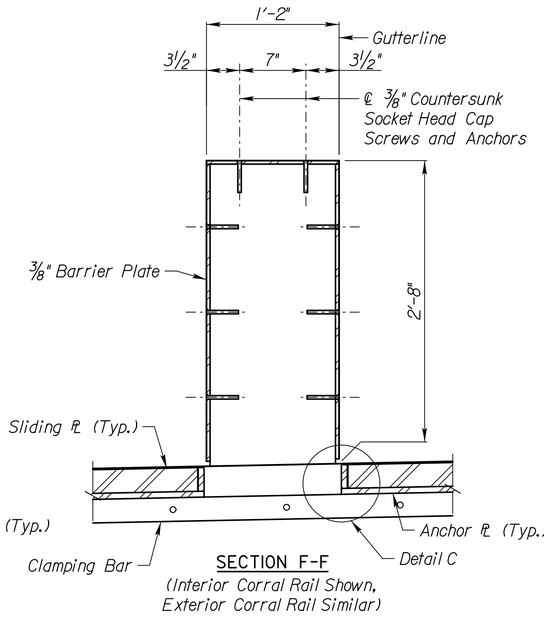
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841119th_BrWB_ExpJt2.dgn



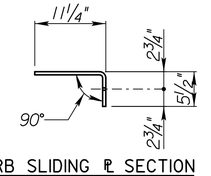
VIEW D-D



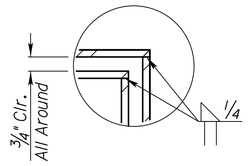
SECTION E-E
(Interior Corral Rail Shown, Exterior Corral Rail Similar)



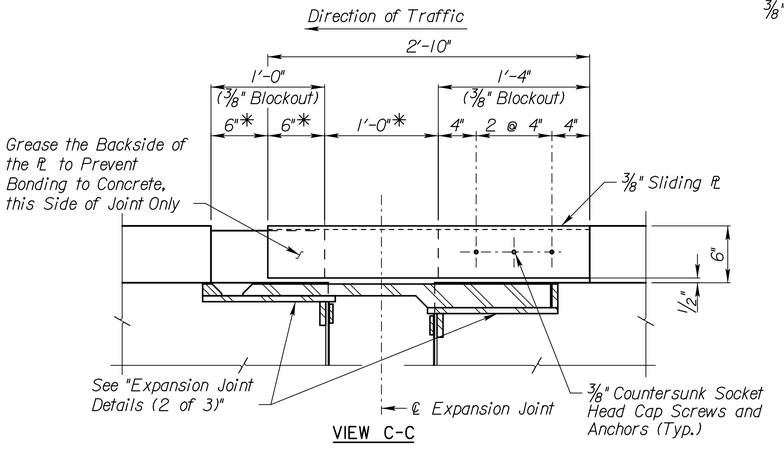
SECTION F-F
(Interior Corral Rail Shown, Exterior Corral Rail Similar)



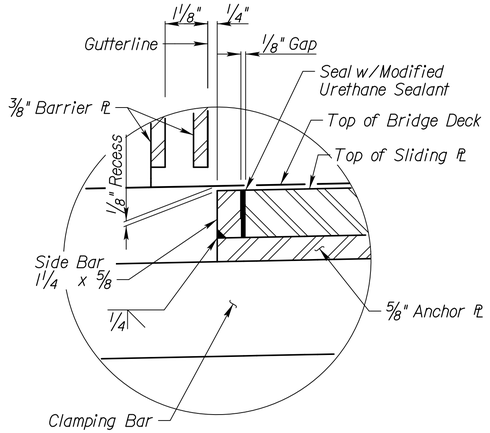
CURB SLIDING ℄ SECTION
⅜"x1'-4¾"x2'-10" Bent Plate (1 Required)



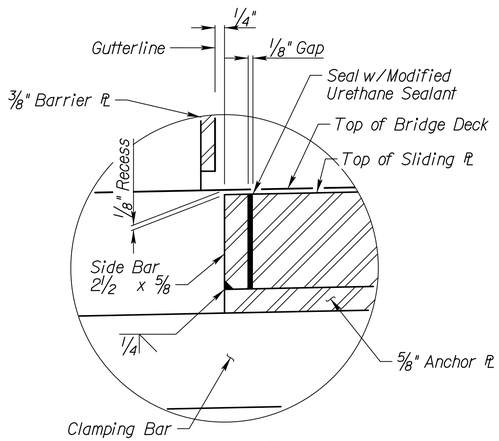
DETAIL A



VIEW C-C



DETAIL B



DETAIL C

SUGGESTED EXPANSION JOINT INSTALLATION SEQUENCE

1. *Concrete for the pier diaphragm shall be placed to the construction joint with the bearing bar installed at the proper location. The concrete shall cure a minimum of 3 days prior to installing the anchor units.*
2. *Bring the anchor units, with sliding plate bolted in place, to proper grade and alignment. Set the top surface of the sliding plate parallel to the roadway slope. Check the scribe lines for proper alignment.*
3. *Position the bent support plates against the vertical support plates on both anchor units and clamp the bent support plates to the top of bearing bar. Weld the bent support plates to the top of bearing bar.*
4. *Adjust the expansion joint gap based on the average ambient air temperature during the previous 24 hours. Tighten the bolts (using the turn-of-the-nut method) connecting the bent support plates to the vertical support plates.*
5. *Remove the sliding plate and place the concrete for the Unit 1 side. Thoroughly vibrate and compact the concrete around the anchor unit until concrete comes through the vent holes and no voids exist under the anchor unit. Allow concrete to cure a minimum of 3 hours before continuing installation.*
6. *Re-align the anchor unit on the Unit 2 side to proper alignment and grade with the sliding plate in place. Tighten the bolts (using the turn-of-the-nut method) connecting the support angles to the vertical support plates.*
7. *Remove the sliding plate and place concrete around the Unit 2 side anchor unit. Again, thoroughly vibrate and compact the concrete around the anchor unit until concrete comes through the vent holes and no voids exist under the anchor unit.*
8. *Three days after concrete placement the Engineer will check for voids and loose bolts by sounding the anchor plate. Fill any voids by drilling through the anchor plate and pumping in an approved epoxy mortar at a minimum of 75 PSI. This work will be subsidiary to the bid item "Expansion Device (Sliding Plate)".*
9. *Install the fabric trough and the sliding plate according to KDOT Specifications. Coat all threads of anchor rods and nuts with beeswax just prior to installation and tightening.*
10. *After installation of the sliding plate, the Engineer shall inspect the plate for alignment. Any portion of the sliding plate that the Engineer determines is misaligned, so that it my be struck by a snow plow, shall be ground as directed by the Engineer. This work will be subsidiary to the bid item "Expansion Device (Sliding Plate)".*
11. *Clean the trough of all foreign material after the completion of all superstructure work.*

Notes:
✳ *Indicates dimensions shown at 60°F. See Sh. No. 554 for Temperature Gap Correction Tables.*

Align and install barrier plates prior to placement of barrier concrete.

For location of Views C-C and D-D, See Sh. No. 553.

SHEET NO. 555 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

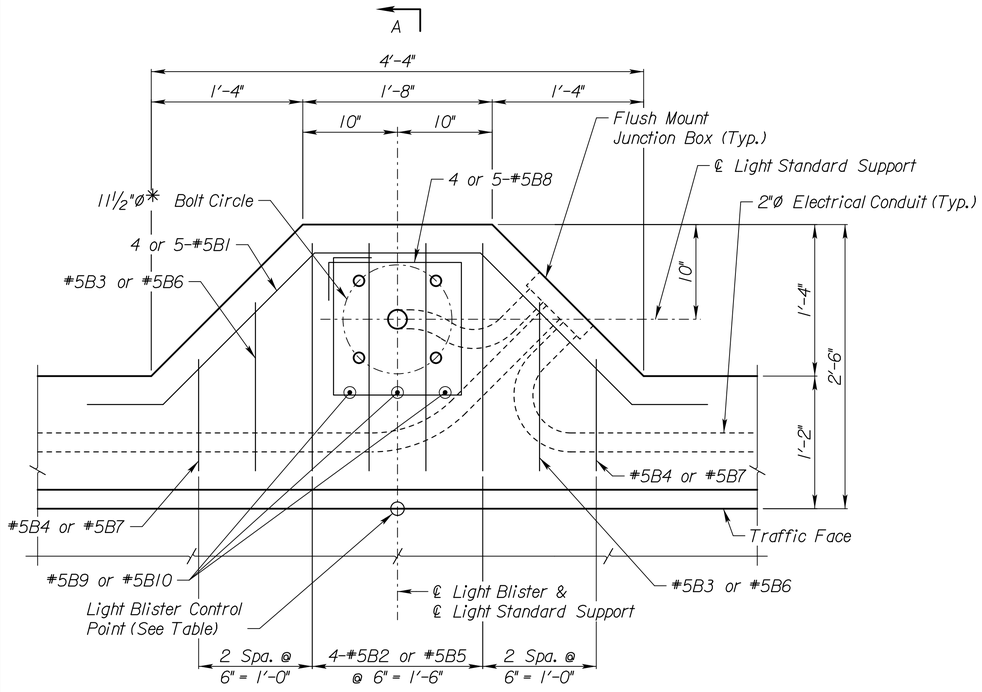
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

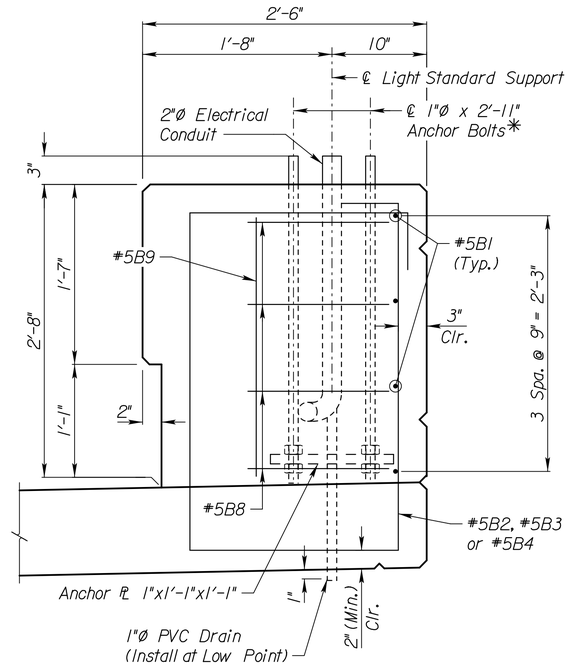
119th Street - Westbound
EXPANSION JOINT DETAILS (3 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_ExpJt3.dgn



LIGHT BLISTER PLAN

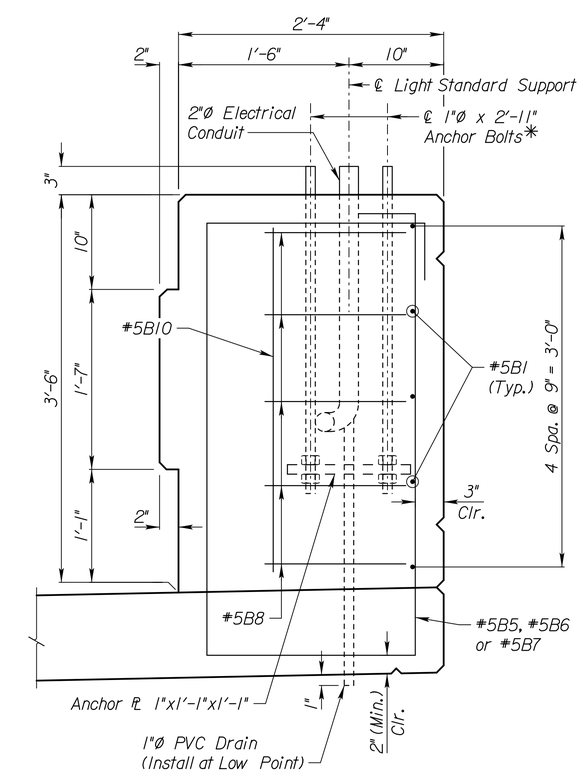
(Barrier Rail Reinforcing Not Shown, Reinforcement may be Shifted to Avoid Conflict with Anchor ℄)



SECTION A-A

At 32" Barrier Rail

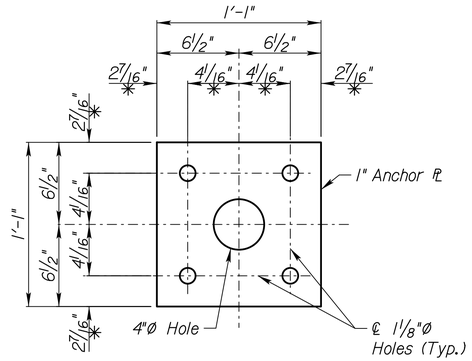
(Barrier Rail and Deck Reinforcing Not Shown)



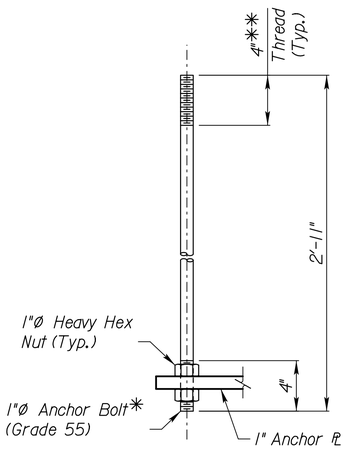
SECTION A-A

At 42" Barrier Rail

(Barrier Rail and Deck Reinforcing Not Shown)



ANCHOR ℄ DETAIL



ANCHOR BOLT DETAIL

(4 Required per Light Blister)

***Provide only Rolled Threads*

LIGHT BLISTER LOCATIONS			
Station	Offset	Side	Barrier Height
81+62.00	8.67'	Lt.	32"
83+52.00	8.67'	Lt.	42"
85+22.00	8.67'	Lt.	42"
87+30.00	8.67'	Lt.	42"
89+12.00	8.67'	Lt.	32"

Notes:

**Confirm bolt circle diameter as well as the size, type and length of anchor bolts with the light standard manufacturer before placing concrete for barrier rail.*

All conduit cast in the barrier rail shall be PVC or HDPE and bear the U.L. Label.

All fittings used with PVC or HDPE conduit shall be PVC or HDPE, no metallic fittings are acceptable.

Conduit bends, elbows and offsets shall be accurately formed.

Anchor bolts for lighting standards shall be material and dimensions shown in the plans.

Structural steel for anchor plates shall be ASTM A709 (Grade 36.)

Anchor bolt assembly shall be galvanized according to the requirements of ASTM A153.

Conduit drains, couplings, anchor bolt assemblies and all other hardware and miscellaneous fittings required for the installation of the conduit system will be subsidiary to the bid item "Electric Conduit (2.0") (Non-metallic).

SHEET NO. 556 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

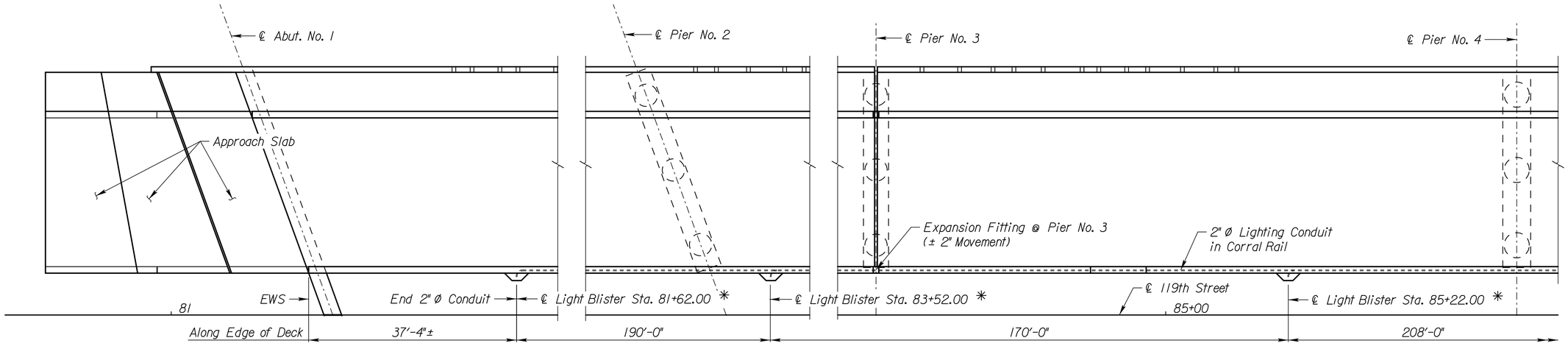
CITY OF OLATHE, KS

OLATHE KANSAS

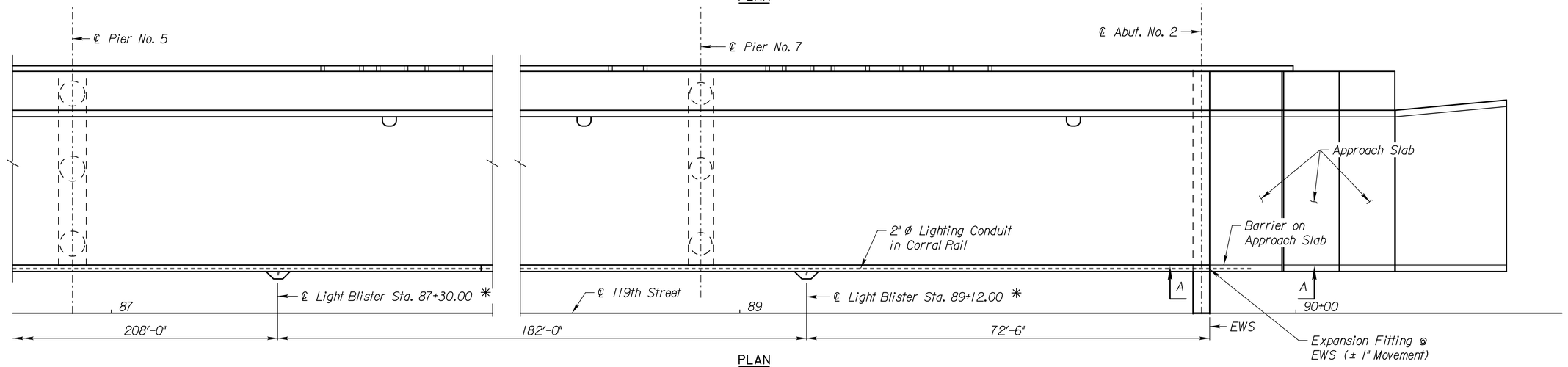
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
STREET LIGHTING FOUNDATION
BLISTER DETAILS

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_LBlister.dgn

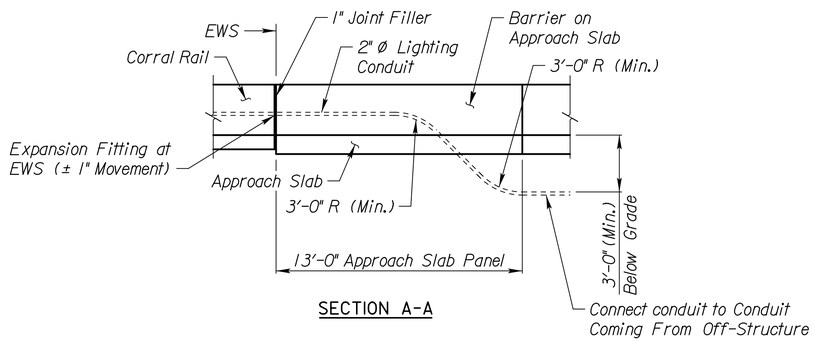


PLAN

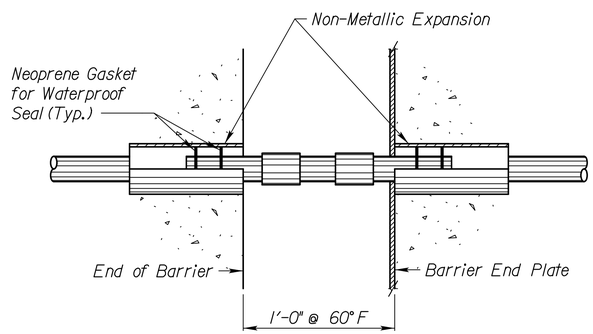


PLAN

* Optional Junction Box should be flush mounted at each location. Contractor to show adequate pulls in order to opt out of using junction boxes. Must be approved by the Engineer. For Light Blister and Junction Box Details, see Sh. No. 556.



SECTION A-A



EXPANSION FITTING AT PIER NO. 3

(5" Maximum Movement per Fitting)
Temperature Adjustment per 10°F = 3/8"±

SHEET NO.	TOTAL SHEETS
557	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

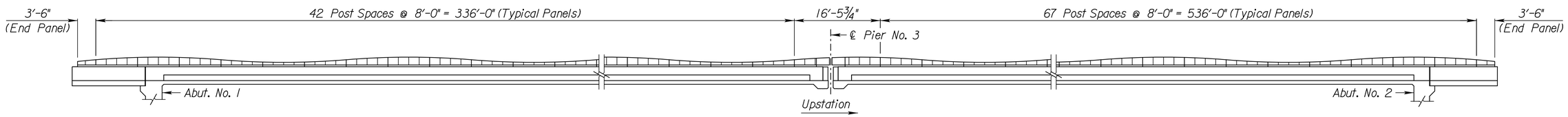
CITY OF OLATHE, KS

OLATHE KANSAS

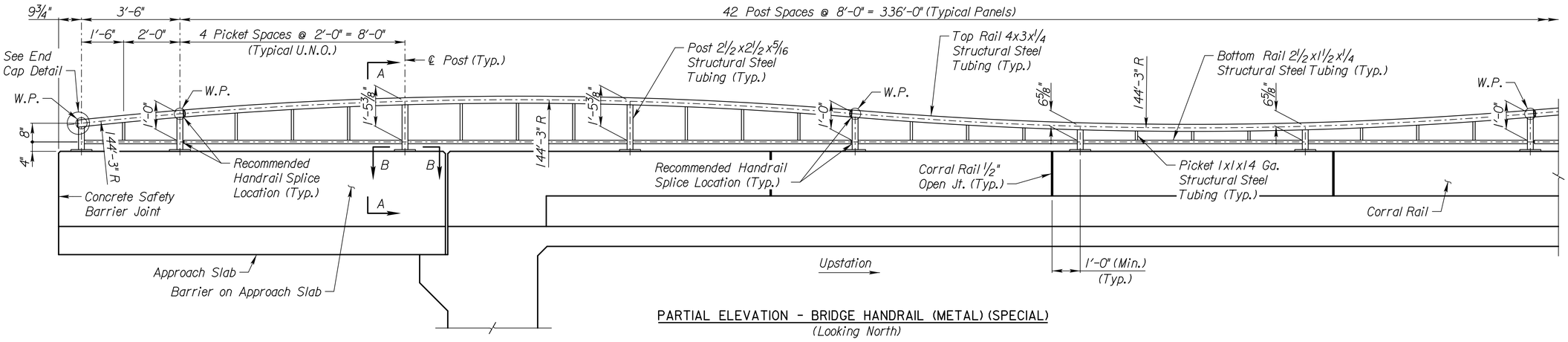
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
BRIDGE CONDUIT PLAN

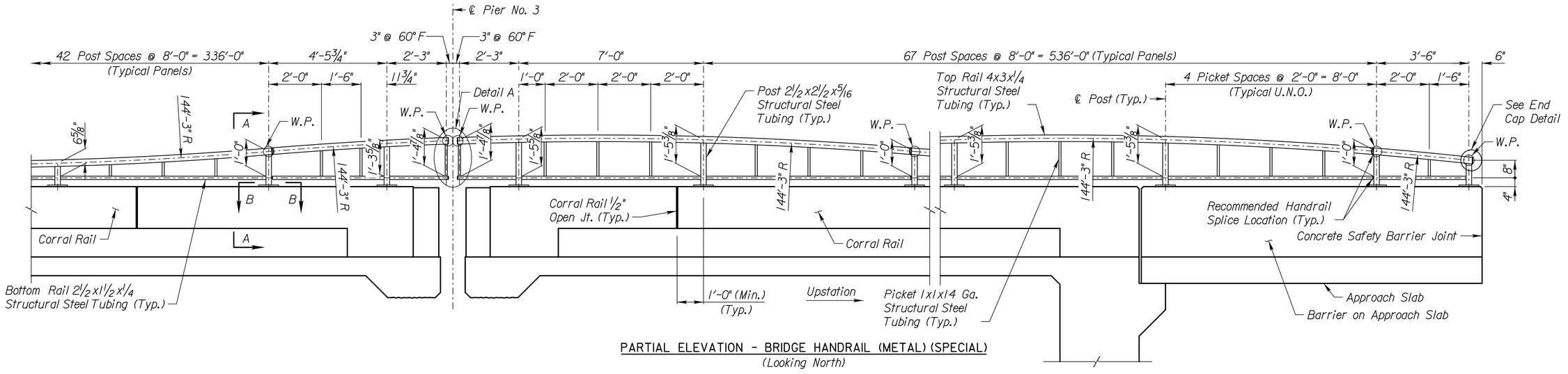
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_Conduit.dgn



KEY ELEVATION - BRIDGE HANDRAIL (METAL) (SPECIAL)
(Looking North)



PARTIAL ELEVATION - BRIDGE HANDRAIL (METAL) (SPECIAL)
(Looking North)



PARTIAL ELEVATION - BRIDGE HANDRAIL (METAL) (SPECIAL)
(Looking North)

Notes:
For Sections A-A & B-B, End Cap Detail and Detail A, see Sh. No. 559
W.P. = Work Point
U.N.O. = Unless Noted Otherwise

SHEET NO.	TOTAL SHEETS
558	781

YEAR 2024
PROJECT NO. 3-C-024-21

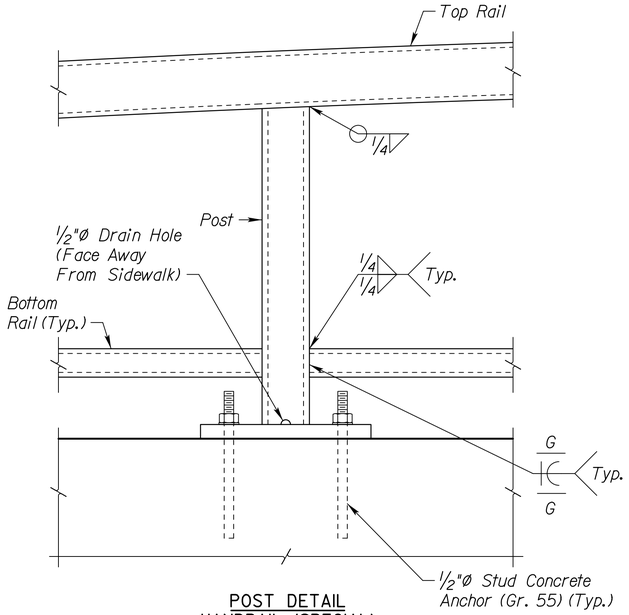
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS
OLATHE KANSAS

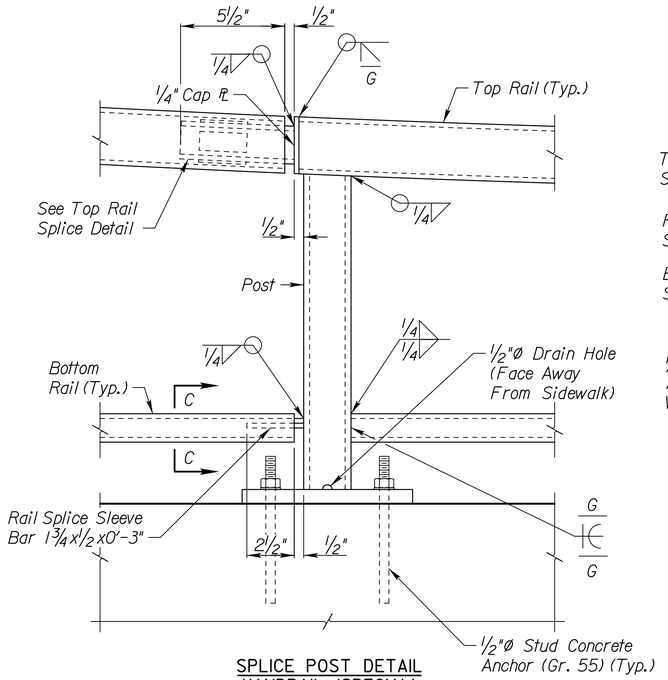
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
BRIDGE HANDRAIL (SPECIAL)
DETAILS (1 OF 2)

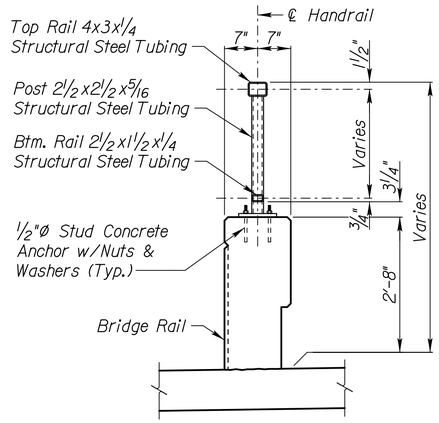
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_fence1.dgn



POST DETAIL
HANDRAIL (SPECIAL)



SPLICE POST DETAIL
HANDRAIL (SPECIAL)



SECTION A-A
(Pickets Not Shown)

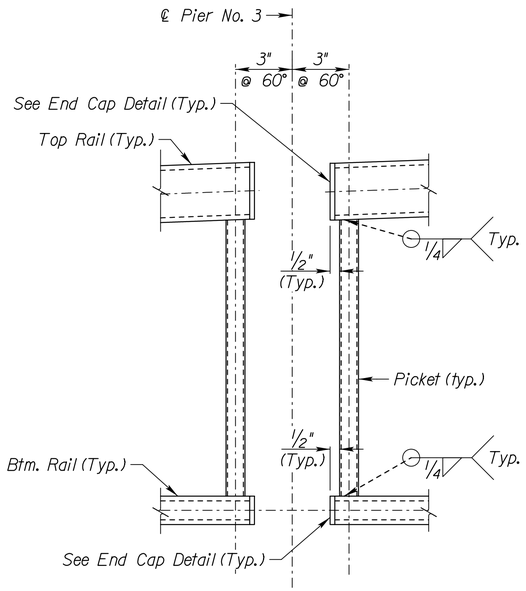
BRIDGE HANDRAIL (METAL)(SPECIAL): Structural tubing shall conform to ASTM A500, Grade B. Base plates, spacer bars and bottom rail splice sleeve bars shall conform to ASTM A709 (Grade 36). Anchor bolts shall conform to KDOT Specification Section 1600 (Grade 55) with the following exception: the threads may be rolled or cut.

Galvanize and paint all rails, posts, pickets and base plates after fabrication. Galvanize in accordance with the requirements of ASTM 123. The paint system shall be as described in Section 1806 of the KDOT Standard Specifications. The finish coat shall be a water-borne acrylic. Color of the finish coat shall be black. After preparing surfaces of the partially weathered galvanized steel, as described in ASTM D6386, apply to all the galvanized materials a two-component, 98 percent polymeric epoxy, amido-amine primer tie coat of approximately 1-2 mils in thickness prior to application of the finish coat. Follow the manufacturer's recommendation for the application and cure time.

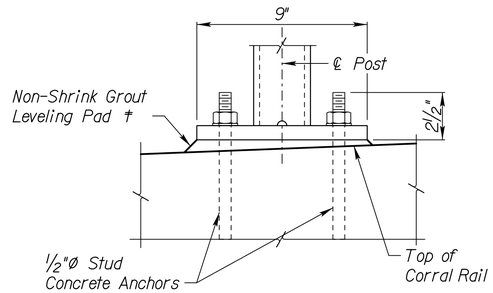
Construct bridge handrail according to Section 721 of the KDOT Standard Specifications. Set all posts and pickets vertical, both in and out of plane of the handrail. Shims may be used between concrete and base plate of steel post. Fabricate handrail in lengths to include a minimum of 2 posts. Splice details shown are recommended locations. Splice locations shall be provided to help facilitate erection in the field. Field welding is not permitted.

Anchor bolt embedment depth shall conform to manufacturer's recommendations for the specific anchor system for embedment into 4,000 psi concrete and a minimum factored load of 3,000 lbs per anchor bolt. Tensile resistance of the anchors shall be determined in accordance with AASHTO LRFD Specifications. Concrete anchor breakout and pullout resistance shall be determined with the strength design provisions of ACI 318-11, Appendix D. The Contractor shall submit verification from the anchor system manufacturer that the anchor system is adequate to resist the specified factored load.

All material, labor, splices, shims and installation shall be paid for under bid item "Bridge Handrail (Metal) (Special)". The handrail is to be bid on a linear basis measured from end to end of handrail. The Contractor shall submit shop drawings to the Engineer for approval prior to fabrication.

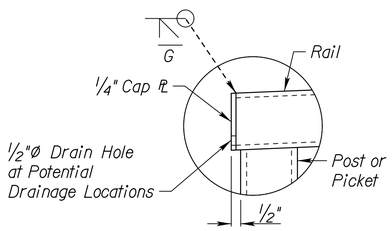


DETAIL A

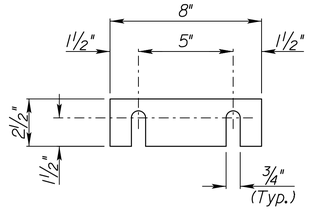


LEVELING PAD DETAIL

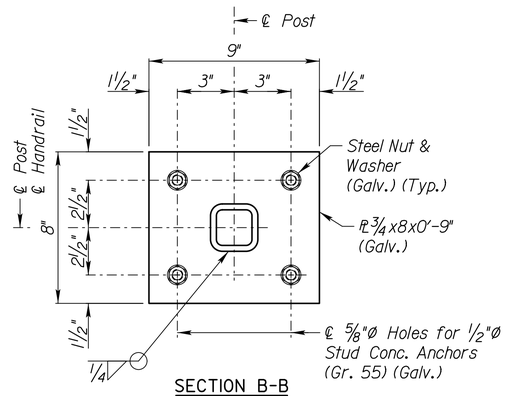
† At the Contractor's option, a grouted leveling pad may be used in lieu of the steel shims to erect the posts vertical and shall have a minimum thickness of 1/4". The leveling pad shall be of a non-shrink grout as approved by the Engineer. The grout shall be mixed, applied and cured according to the manufacturer's recommendations. Grout shall not extend above bottom of the base plate.



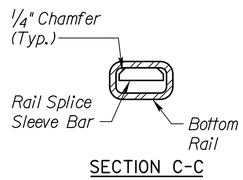
END CAP DETAIL



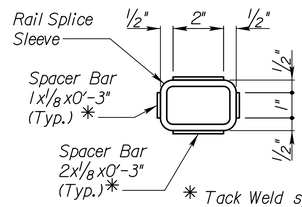
SHIM DETAIL
Provide 3-1/16" galv. steel shims for each post as req'd.



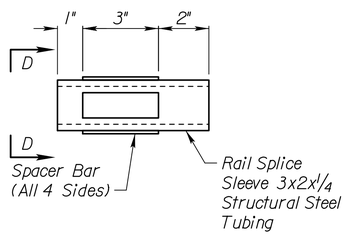
SECTION B-B



SECTION C-C



VIEW D-D



ELEVATION

TOP RAIL SPLICE SLEEVE DETAIL

Notes:
For Sections A-A & B-B and Detail A Locations, see Sh. No. 558

SHEET NO.	TOTAL SHEETS
559	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

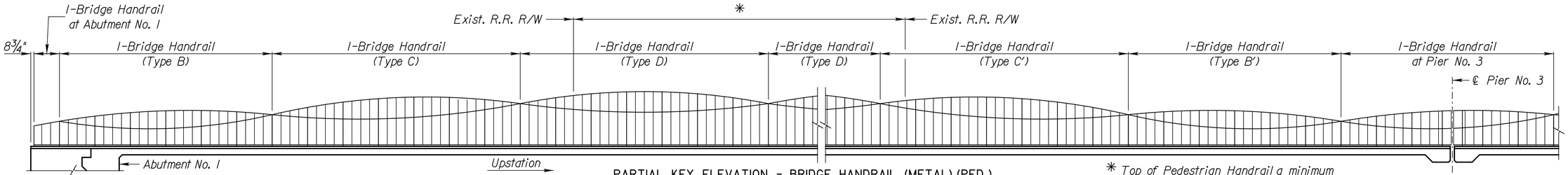
CITY OF OLATHE, KS

OLATHE KANSAS

By	Description	Date	Rev.
. . .			
. . .			
. . .			

119th Street - Westbound
BRIDGE HANDRAIL (SPECIAL)
DETAILS (2 OF 2)

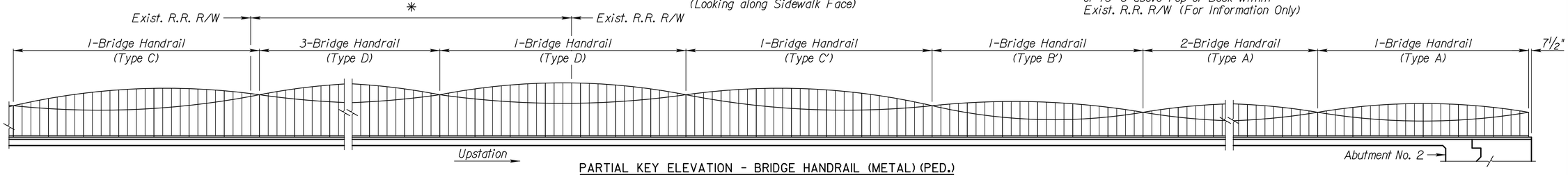
Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_fence2.dgn



PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (PED.)

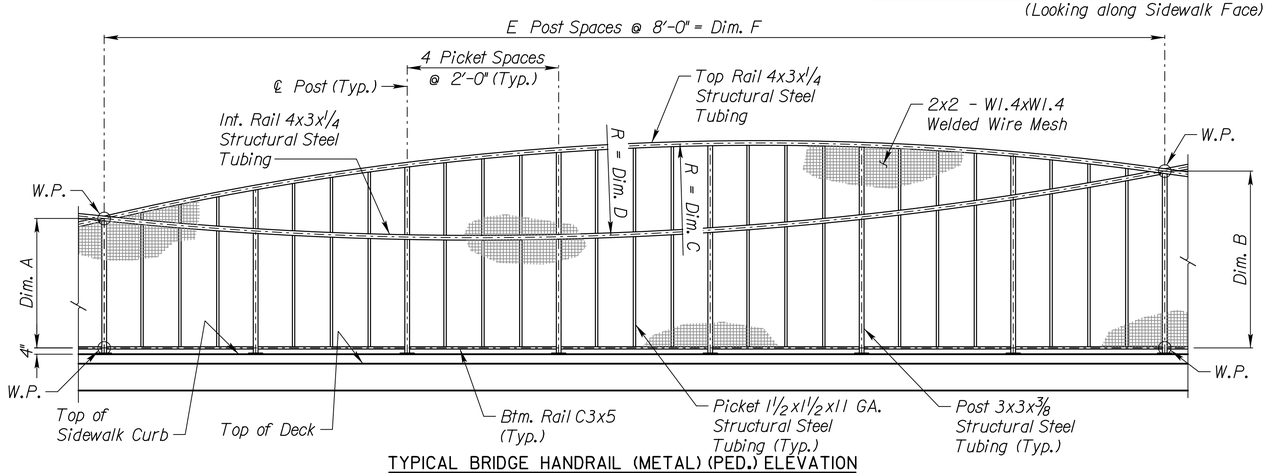
(Looking along Sidewalk Face)

* Top of Pedestrian Handrail a minimum of 10'-0" above Top of Deck within Exist. R.R. R/W (For Information Only)



PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (PED.)

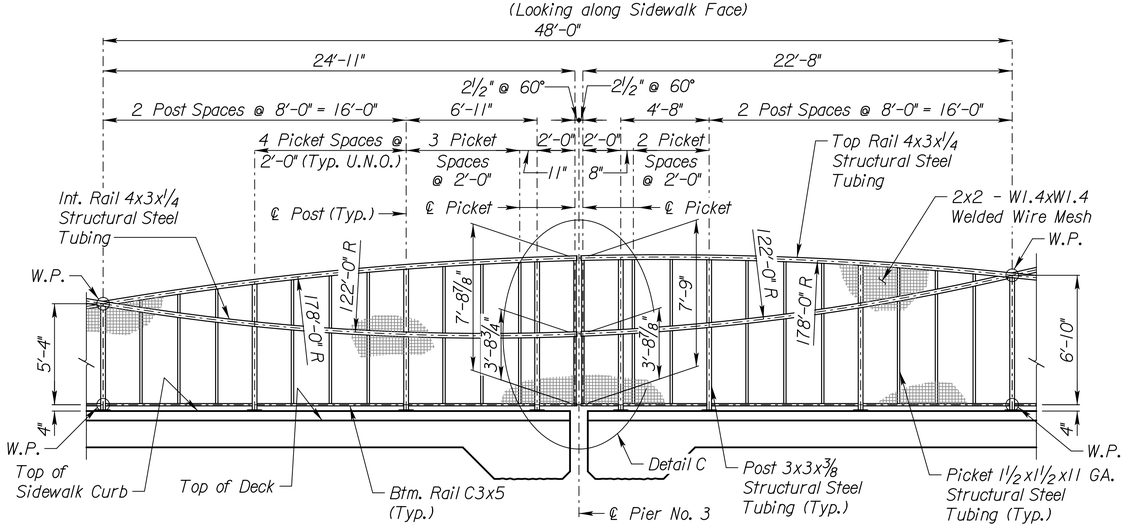
(Looking along Sidewalk Face)



TYPICAL BRIDGE HANDRAIL (METAL) (PED.) ELEVATION

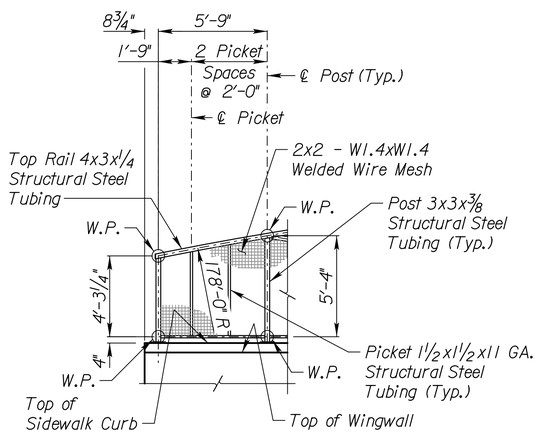
(Looking along Sidewalk Face)

TABLE OF VARIABLES							
Handrail Type	No. Req'd.	Dim. A	Dim. B	Dim. C	Dim. D	E	Dim. F
A	3	5'-4"	5'-4"	145'-0"	145'-0"	6	48'-0"
B	1	5'-4"	6'-10"	178'-0"	122'-0"	6	48'-0"
B'	2	6'-10"	5'-4"	178'-0"	122'-0"	6	48'-0"
C	2	6'-10"	9'-4"	153'-0"	190'-0"	7	56'-0"
C'	2	9'-4"	6'-10"	153'-0"	190'-0"	7	56'-0"
D	6	9'-4"	9'-4"	146'-0"	201'-0"	7	56'-0"



BRIDGE HANDRAIL (METAL) (PED.) ELEVATION AT PIER NO. 3

(Looking along Sidewalk Face)



BRIDGE HANDRAIL ELEVATION ABUTMENT NO. 1

(Looking along Sidewalk Face)

Notes:
For Detail C, see Sh. No. 562

SHEET NO. 560 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

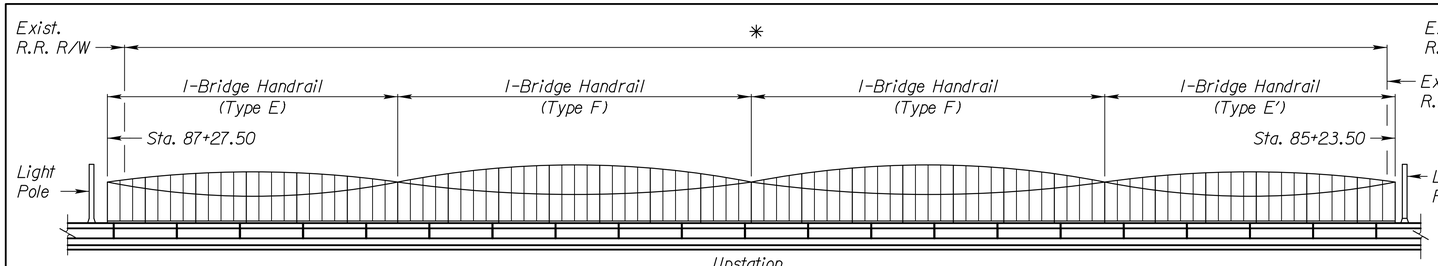
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

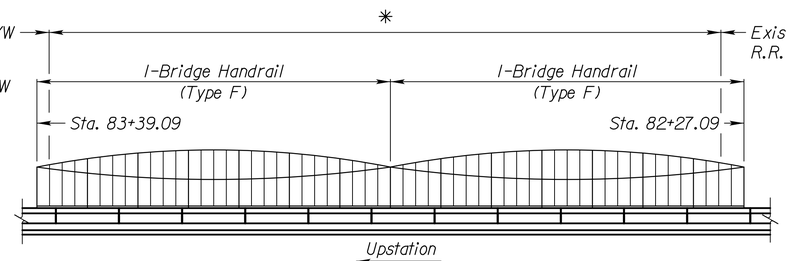
119th Street - Westbound
BRIDGE HANDRAIL (PED.) DETAILS

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_fence3.dgn

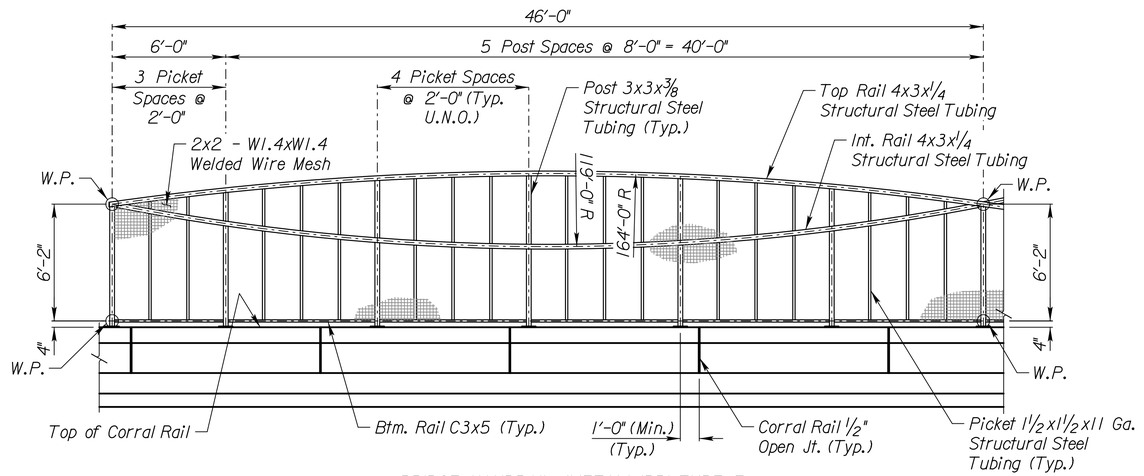


PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (RR)
(Looking at Traffic Face)

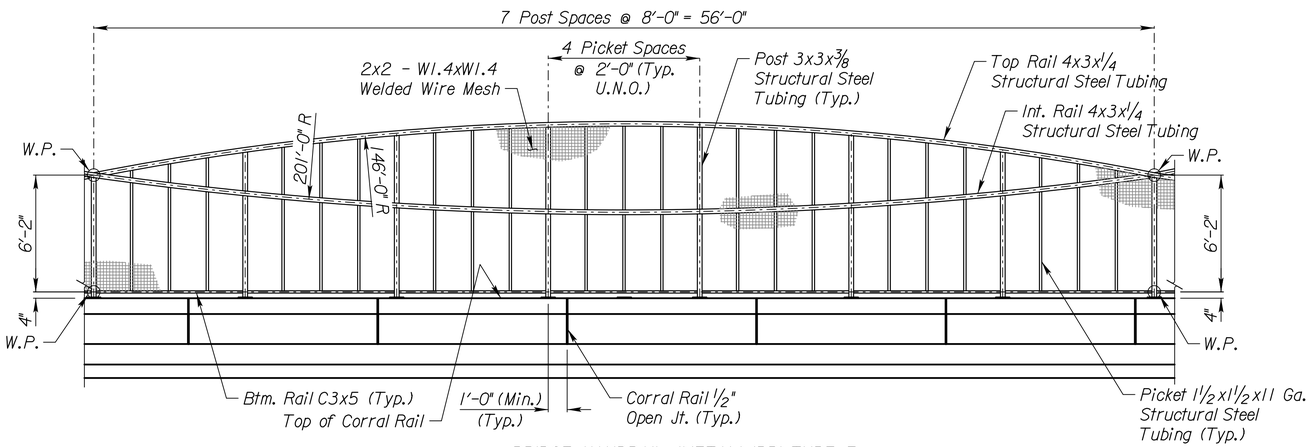
* *Top of Pedestrian Handrail a minimum of 10'-0" above Top of Deck within Exist. R.R. R/W (For Information Only)*



PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (RR)
(Looking at Traffic Face)



BRIDGE HANDRAIL (METAL) (RR) TYPE E
(Type E Shown, Type E' Opposite)
(Looking at Traffic Face)



BRIDGE HANDRAIL (METAL) (RR) TYPE F
(Looking at Traffic Face)

BRIDGE HANDRAIL (METAL)(PED.) AND BRIDGE HANDRAIL (METAL)(RR): Structural tubing shall conform to ASTM A500, Grade B. Base plates, spacer bars, bottom rail channels and bottom rail splice sleeve bars shall conform to ASTM A709 (Grade 36). Anchor bolts shall conform to KDOT Specification Section 1600 (Grade 105) with the following exception: the threads may be rolled or cut.

Galvanize and paint all rails, posts, pickets, welded wire mesh, and base plates after fabrication. Galvanize in accordance with the requirements of ASTM 123. The paint system shall be as described in Section 1806 of the KDOT Standard Specifications. The finish coat shall be a water-borne acrylic. Color of the finish coat shall be black. After preparing surfaces of the partially weathered galvanized steel, apply a two-component, 98 percent polymeric epoxy, amido-amine primer tie coat of approximately 1-2 mils in thickness prior to application of the finish coat. Follow the manufacturer's recommendation for the application and cure time.

Wire reinforcing mesh shall be electrically welded and shall be composed of 2x2 - W1.4xW1.4 welded wire mesh. Welded wire mesh shall be welded to the frame no less than one time per foot along edges and pickets. See Welded Wire Mesh Attachment Detail, Sh. No. 563.

Construct bridge handrail according to Section 721 of the KDOT Standard Specifications. Set all posts and pickets vertical, both in and out of plane of the handrail. Set welded wire mesh level and align vertically between top and bottom panels. Shims may be used between concrete and base plate of steel post. Fabricate handrail in lengths to include a minimum of 2 posts. Splice details shown are recommended locations. Splice locations shall be provided to help facilitate erection in the field. Field welding is not permitted.

Anchor bolt embedment depth shall conform to manufacturer's recommendations for the specific anchor system for embedment into 4,000 psi concrete and a minimum factored load of 15,000 lbs per anchor bolt. Tensile resistance of the anchors shall be determined in accordance with AASHTO LRFD Specifications. Concrete anchor breakout and pullout resistance shall be determined with the strength design provisions of ACI 318-11, Appendix D. The Contractor shall submit verification from the anchor system manufacturer that the anchor system is adequate to resist the specified factored load.

All material, labor, splices, shims and installation shall be paid for under bid item "Bridge Handrail (Metal) (Ped.)" and "Bridge Handrail (Metal) (RR)". The handrail is to be bid on a linear basis measured from end to end of handrail. The Contractor shall submit shop drawings to the Engineer for approval prior to fabrication.

SHEET NO. 561 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

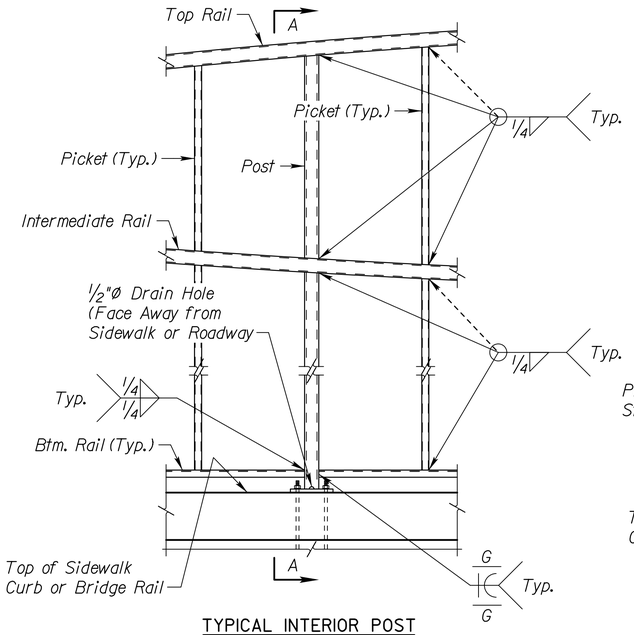
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS

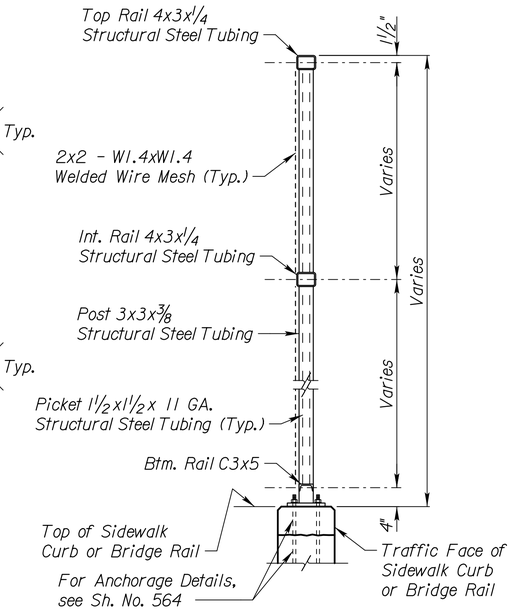
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
BRIDGE HANDRAIL (RR) DETAILS

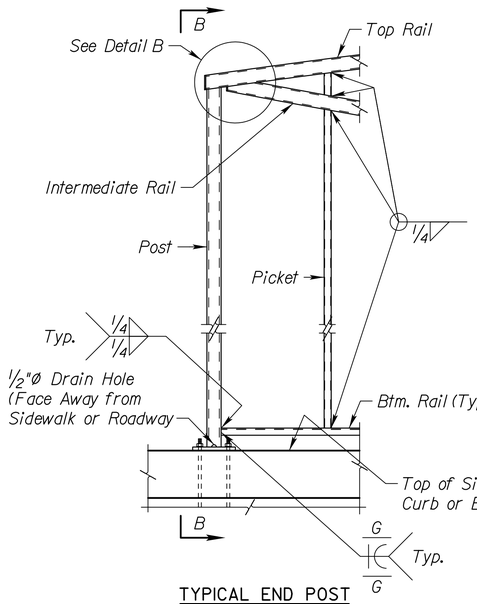
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_fence4.dgn



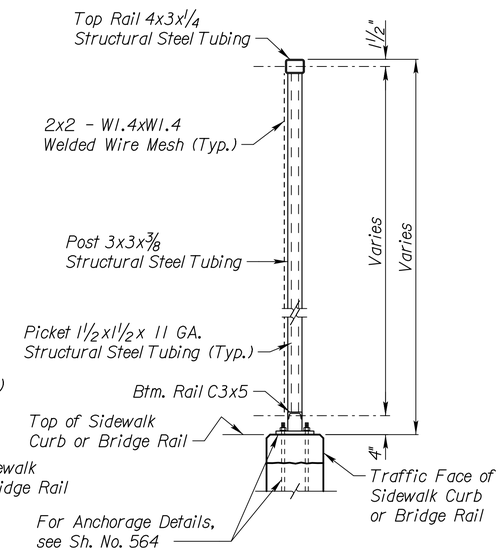
TYPICAL INTERIOR POST



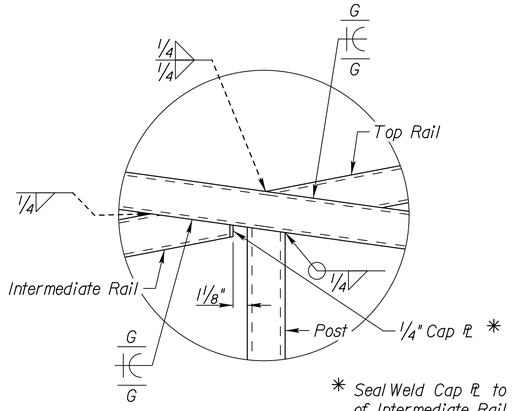
SECTION A-A



TYPICAL END POST

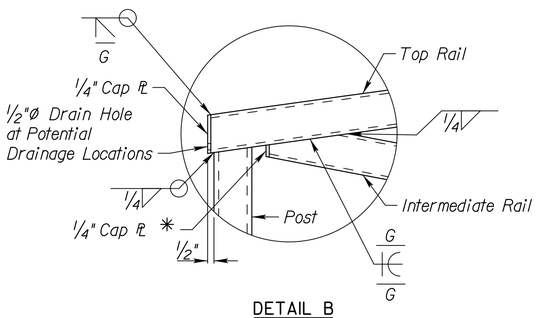


SECTION B-B

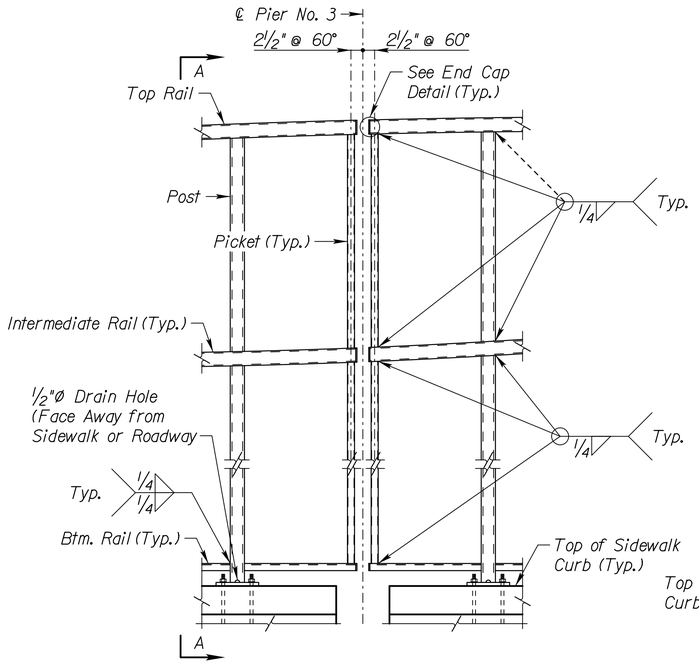


* Seal Weld Cap PL to End of Intermediate Rail and Bottom of Top Rail

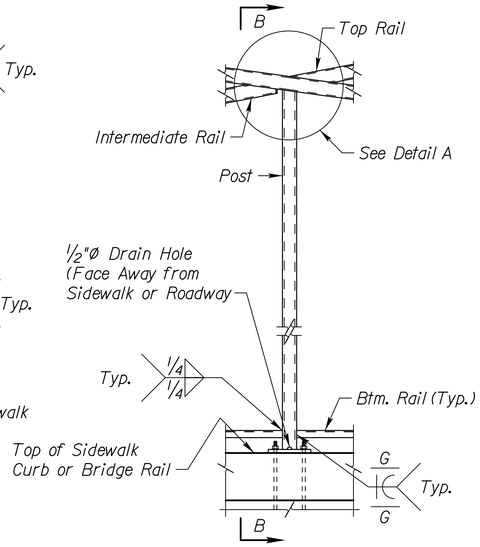
DETAIL A



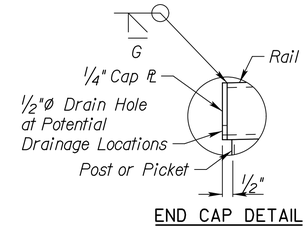
DETAIL B



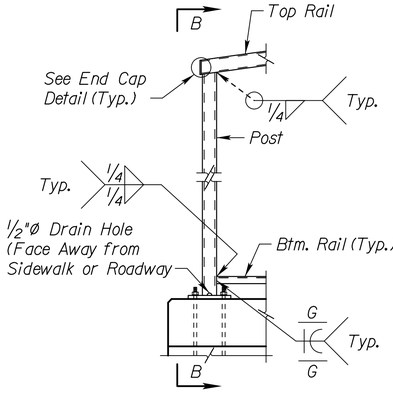
DETAIL C



TYPICAL POST AT W.P.



END CAP DETAIL



HANDRAIL DETAIL AT ABUTMENT NO. 1

Note:
For location of Detail C, see Sh. No. 560

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_fence5.dgn

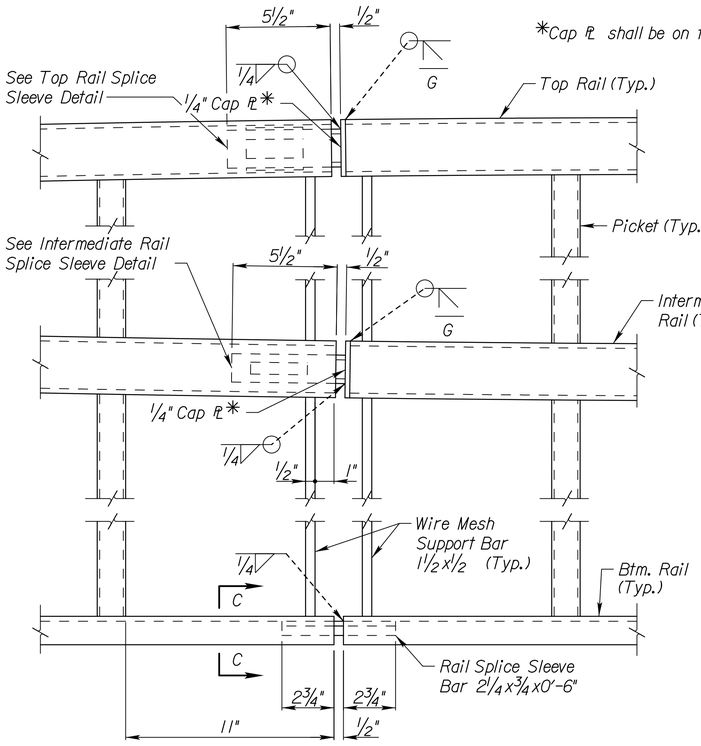
SHEET NO. 562 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

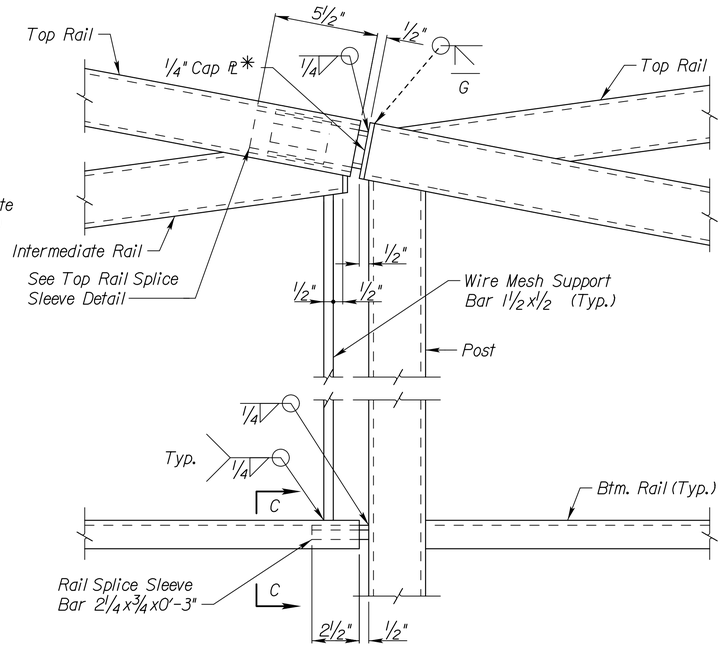
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
MISC. HANDRAIL (PED.) & (RR)
DETAILS (1 OF 3)

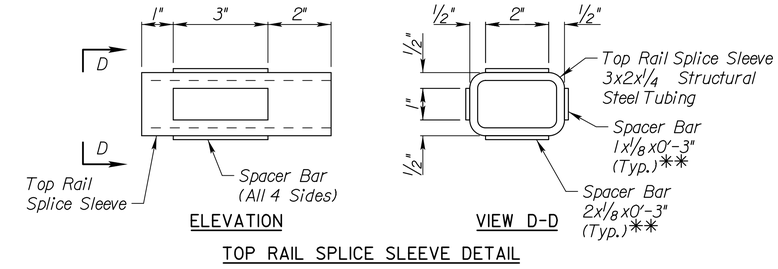


BETWEEN POSTS

*Cap ℄ shall be on the downhill side of the splice.

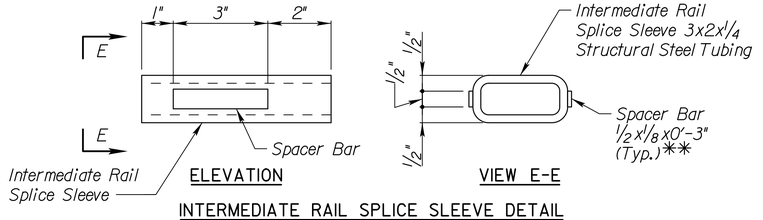


AT POST

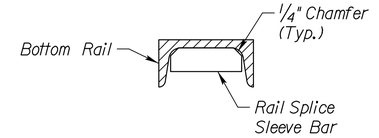


TOP RAIL SPLICE SLEEVE DETAIL

**Tack weld spacer bar to rail sleeve

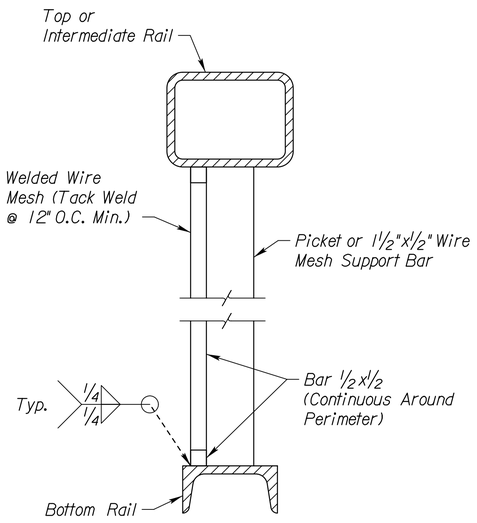


INTERMEDIATE RAIL SPLICE SLEEVE DETAIL



SECTION C-C

RECOMMENDED HANDRAIL SPLICE DETAILS



WELDED WIRE MESH ATTACHMENT DETAIL

SHEET NO.	TOTAL SHEETS
563	781

YEAR 2024

PROJECT NO. 3-C-024-21

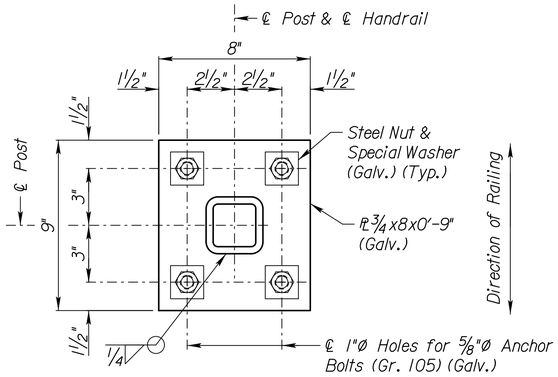
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

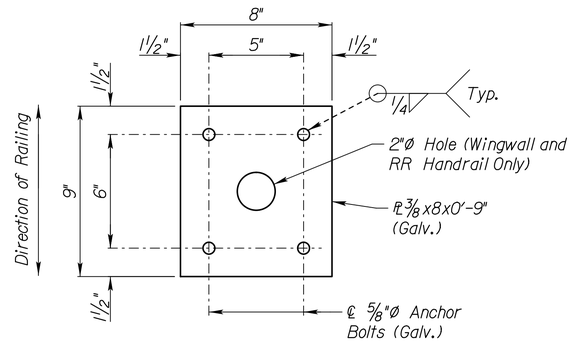
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
MISC. BRIDGE HANDRAIL (PED.) & (RR)
DETAILS (2 OF 3)

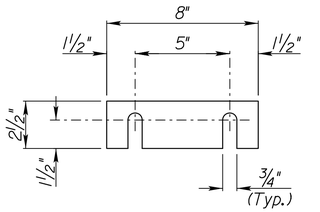
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_fence6.dgn



PLAN AT SIDEWALK CURB, SIDEWALK CURB OVER WINGWALL AND BRIDGE RAIL

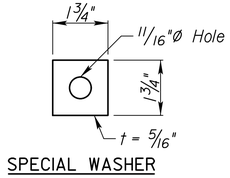


ANCHOR PLATE

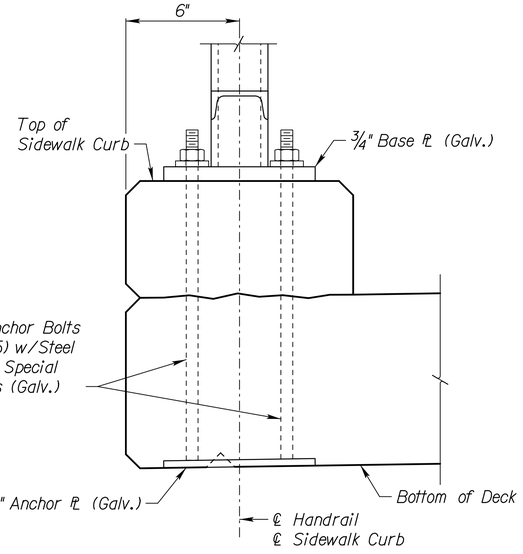


SHIM DETAIL

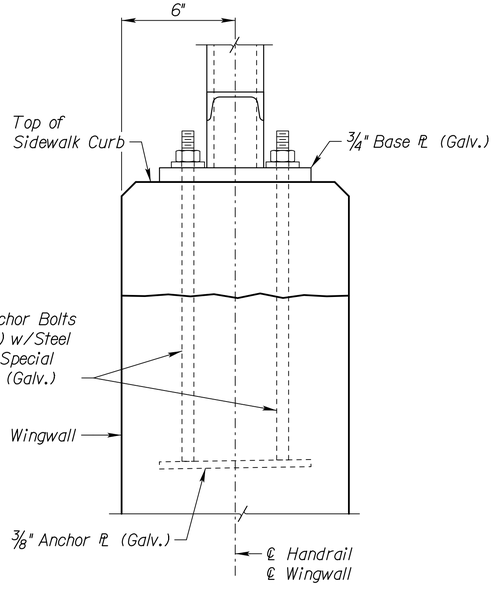
Provide 3-1/16" Galv. Steel Shims for Each Post as Req'd.



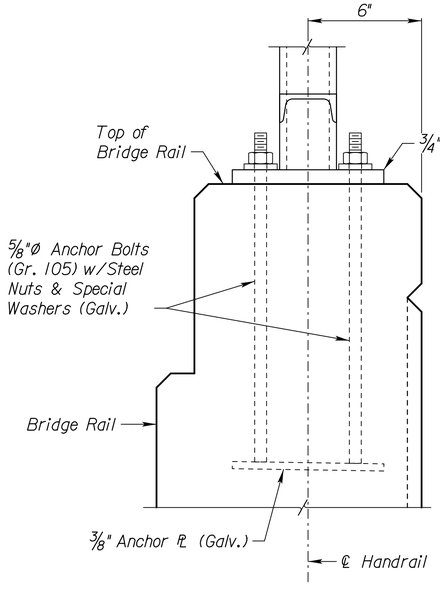
SPECIAL WASHER



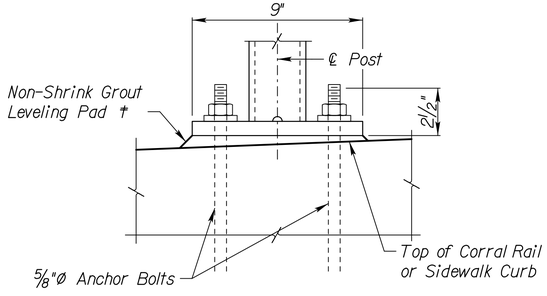
SECTION AT SIDEWALK CURB



SECTION AT SIDEWALK CURB OVER WINGWALL



SECTION AT BRIDGE RAIL



LEVELING PAD DETAIL

† *At the Contractor's option, a grouted leveling pad may be used in lieu of the steel shims to erect the posts vertical and shall have a minimum thickness of ¼". The leveling pad shall be of a non-shrink grout as approved by the Engineer. The grout shall be mixed, applied and cured according to the manufacturer's recommendations. Grout shall not extend above bottom of the base plate.*

SHEET NO. 564 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

OLATHE KANSAS

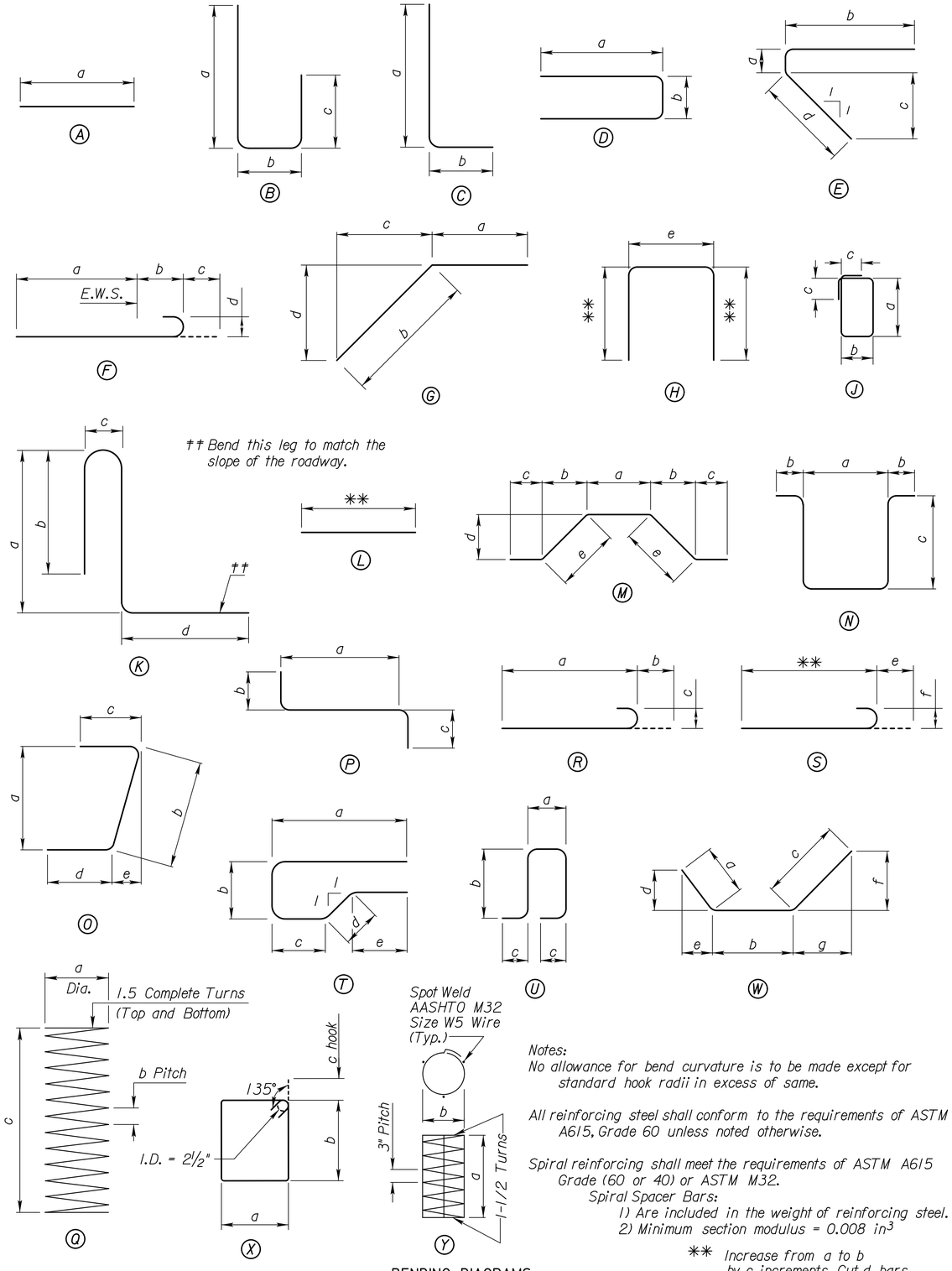
By	Description	Date	Rev.

119th Street - Westbound
MISC. BRIDGE HANDRAIL (PED.) & (RR)
DETAILS (3 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_fence7.dgn

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Abutment No. 1		WA101	8	A	8	47'-0"	47'-0"						
	†	WA102	6	A	5	47'-0"	47'-0"						
	†	WA103	3	A	5	6'-7"	6'-7"						
	†	WA104	12	A	5	9'-6"	9'-6"						
	†	WA105	3	A	5	7'-4"	7'-4"						
	†	WA106	31	D	5	16'-0"	6'-7"	2'-10"					
		WA107	48	D	5	8'-10"	3'-0"	2'-10"					
	†	WA108	34	D	5	14'-2"	5'-8"	2'-10"					
	†	WA109	10	A	5	6'-7"	6'-7"						
	†	WA110	10	B	5	12'-6"	6'-7"	2'-10"	3'-1"				
	†	WA111	14	C	5	8'-6"	5'-8"	2'-10"					
	†	WA112	8	A	5	3'-7"	3'-7"						
	†	WA113	8	A	5	4'-0"	4'-0"						
		WA114	4	A	5	3'-1"	3'-1"						
	†	WA115	16	A	6	12'-0"	12'-0"						
	†	WA116	1	A	5	2'-4"	2'-4"						
	†	WA117	4	A	5	3'-9"	3'-9"						
	†	WA118	1	A	5	2'-7"	2'-7"						
	†	WA119	2	A	4	38'-0"	38'-0"						
	†	WA120	26	E	4	7'-11"	9"	3'-11"	2'-3 5/8"	3'-3"			
	†	WA121	39	F	4	4'-7"	3'-2"	10"	7"	5"			
	†	WA122	1	A	5	10'-1"	10'-1"						
	†	WA123	4	A	5	11'-7"	11'-7"						
	†	WA124	1	A	5	10'-8"	10'-8"						
	†	WA125	4	A	8	47'-0"	47'-0"						
	†	WA126	8	G	8	6'-0"	1'-5"	4'-7"	4'-3 5/8"	1'-6 3/4"			
		WA127	10	A	5	47'-0"	47'-0"						
	†	WW101	62	A	6	9'-2"	9'-2"						
	†	WW102	4	A	6	8'-2"	8'-2"						
	†	WW103	20	A	8	17'-9"	17'-9"						
	†	WW104	18	W	6	9'-7"	2'-2"	5'-3"	2'-2"	1'-2 7/8"	1'-9 1/4"	1'-2 7/8"	1'-9 1/4"
	†	WW105	20	A	8	16'-3"	16'-3"						
Abutment No. 2		EA101	8	A	8	44'-2"	44'-2"						
	†	EA102	6	A	5	44'-2"	44'-2"						
	†	EA103	3	A	5	6'-2"	6'-2"						
	†	EA104	12	A	5	8'-11"	8'-11"						
	†	EA105	3	A	5	6'-11"	6'-11"						
	†	EA106	28	D	5	15'-10"	6'-7"	2'-8"					
		EA107	45	D	5	8'-8"	3'-0"	2'-8"					
	†	EA108	32	D	5	14'-2"	5'-9"	2'-8"					
	†	EA109	11	A	5	6'-7"	6'-7"						
	†	EA110	10	B	5	12'-4"	6'-7"	2'-8"	3'-1"				
	†	EA111	13	C	5	8'-5"	5'-9"	2'-8"					
	†	EA112	8	A	5	3'-7"	3'-7"						
	†	EA113	8	A	5	4'-0"	4'-0"						
		EA114	3	A	5	3'-1"	3'-1"						
	†	EA115	16	A	6	11'-5"	11'-5"						
	†	EA116	1	A	5	2'-1"	2'-1"						
	†	EA117	4	A	5	3'-6"	3'-6"						
	†	EA118	1	A	5	2'-6"	2'-6"						
	†	EA119	2	A	4	35'-9"	35'-9"						
	†	EA120	24	E	4	7'-9"	9"	3'-9"	2'-3 5/8"	3'-3"			
	†	EA121	37	F	4	4'-5"	3'-0"	10"	7"	5"			
	†	EA122	1	A	5	9'-7"	9'-7"						
	†	EA123	4	A	5	10'-11"	10'-11"						
	†	EA124	1	A	5	9'-11"	9'-11"						
	†	EA125	4	A	8	44'-2"	44'-2"						
	†	EA126	8	A	8	6'-0"	6'-0"						
		EA127	10	A	5	44'-2"	44'-2"						
	†	EW101	36	L	6	VARIES	8'-9"	9'-2"	1/4"	6			
	†	EW102	26	L	6	VARIES	8'-9"	9'-0"	1/4"	2			
	†	EW103	4	A	6	8'-2"	8'-2"						



†† Bend this leg to match the slope of the roadway.

BENDING DIAGRAMS

(All dimensions are out to out of bars.)

Notes:
No allowance for bend curvature is to be made except for standard hook radii in excess of same.

All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60 unless noted otherwise.

Spiral reinforcing shall meet the requirements of ASTM A615 Grade (60 or 40) or ASTM M32.
Spiral Spacer Bars:
1) Are included in the weight of reinforcing steel.
2) Minimum section modulus = 0.008 in^3

** Increase from a to b by c increments. Cut d bars to length. Each set has d bars.

SHEET NO. 565 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
BILL OF REINFORCING STEEL
(1 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_BillofReinf1.dgn

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
(Cont'd.)	†	EW104	20	A	8	17'-9"	17'-9"						
	†	EW105	18	W	6	8'-10"	2'-2"	4'-6"	2'-2"	1'-6 3/8"	1'-6 3/8"	1'-6 3/8"	1'-6 3/8"
	†	EW106	20	A	8	16'-1"	16'-1"						
Pier No. 1		HB1	8	R	8	24'-2"	23'-3"	11"	8"				
		HB2	9	A	8	37'-3"	37'-3"						
		HB3	10	A	5	37'-3"	37'-3"						
	†	HB4	48	A	6	4'-0"	4'-0"						
		HB5	4	D	6	7'-9"	1'-10"	4'-1"					
		HB6	4	D	6	8'-2"	1'-10"	4'-6"					
		HB7	15	D	6	7'-9"	1'-10"	4'-1"					
		HB8	2	A	5	16'-7"	16'-7"						
		HB9	8	R	8	19'-5"	18'-6"	11"	8"				
		HB10	24	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		HB11	24	X	5	18'-7"	4'-3"	4'-7"	5 1/2"				
		HC1	57	A	9	26'-6"	26'-6"						
		HC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	23'-2"				
		HS1	90	A	9	15'-7"	15'-7"						
		HS2	57	A	9	7'-2"	7'-2"						
		HS3	3	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	15'-6"				
		HS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Pier No. 2		JB1	8	R	8	24'-2"	23'-3"	11"	8"				
		JB2	9	A	8	37'-3"	37'-3"						
		JB3	10	A	5	37'-3"	37'-3"						
	†	JB4	48	A	6	4'-0"	4'-0"						
		JB5	4	D	6	7'-9"	1'-10"	4'-1"					
		JB6	4	D	6	8'-1"	1'-10"	4'-5"					
		JB7	15	D	6	7'-9"	1'-10"	4'-1"					
		JB8	2	A	5	16'-7"	16'-7"						
		JB9	8	R	8	19'-5"	18'-6"	11"	8"				
		JB10	24	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		JB11	24	X	5	18'-5"	4'-3"	4'-6"	5 1/2"				
		JC1	57	A	9	45'-7"	45'-7"						
		JC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	42'-3"				
		JS1	90	A	9	25'-7"	25'-7"						
		JS2	57	A	9	7'-2"	7'-2"						
		JS3	3	Q	1/2"Ø	SPIRAL	4'-0"	12"	25'-6"				
		JS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Pier No. 3	†	KB1	8	R	8	23'-9"	22'-10"	11"	8"				
	†	KB2	9	A	8	34'-9"	34'-9"						
	†	KB3	10	A	5	34'-9"	34'-9"						
	†	KB4	4	D	6	7'-9"	1'-10"	4'-1"					
	†	KB5	4	D	6	8'-2"	1'-10"	4'-6"					
	†	KB6	15	D	6	7'-9"	1'-10"	4'-1"					
	†	KB7	2	A	5	15'-3	15'-3						
	†	KB8	8	R	8	18'-2"	17'-3"	11"	8"				
	†	KB9	22	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
	†	KB10	22	X	5	18'-7"	4'-3"	4'-7"	5 1/2"				
	†	KB11	16	U	W5	SPIRAL	2'-1"	9 1/8"					
		KC1	57	A	9	49'-11"	49'-11"						
		KC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	46'-8"				
		KS1	90	A	9	27'-7"	27'-7"						
		KS2	57	A	9	7'-2"	7'-2"						
		KS3	3	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	27'-6"				
		KS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Pier No. 4		LB1	8	R	8	22'-11"	22'-0"	11"	8"				
		LB2	8	A	8	34'-9"	34'-9"						
		LB3	12	A	5	34'-9"	34'-9"						
	†	LB4	48	A	6	4'-0"	4'-0"						
		LB5	5	D	6	8'-3"	1'-10"	4'-7"					
		LB6	5	D	6	8'-8"	1'-10"	5'-0"					
		LB7	17	D	6	8'-3"	1'-10"	4'-7"					

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Pier No. 4 (Cont'd.)		LB8	2	A	5	15'-4"	15'-4"						
		LB9	8	R	8	18'-2"	17'-3"	11"	8"				
		LB10	22	X	5	19'-11"	4'-9"	4'-9"	5 1/2"				
		LB11	22	X	5	20'-8"	4'-9"	5'-1"	5 1/2"				
		LC1	57	A	10	47'-3"	47'-3"						
		LC2	3	Q	1/2"Ø	SPIRAL	4'-3"	6"	43'-2"				
		LS1	96	A	10	28'-7"	28'-7"						
		LS2	57	A	10	9'-8"	9'-8"						
		LS3	3	Q	5/8"Ø	SPIRAL	5'-0"	1'-0"	28'-6"				
		LS4	3	Q	1/2"Ø	SPIRAL	4'-3"	1'-0"	4'-7"				
Pier No. 5		MB1	8	R	8	22'-11"	22'-0"	11"	8"				
		MB2	8	A	8	34'-9"	34'-9"						
		MB3	12	A	5	34'-9"	34'-9"						
	†	MB4	48	A	6	4'-0"	4'-0"						
		MB5	5	D	6	8'-3"	1'-10"	4'-7"					
		MB6	5	D	6	8'-8"	1'-10"	5'-0"					
		MB7	17	D	6	8'-3"	1'-10"	4'-7"					
		MB8	2	A	5	15'-4"	15'-4"						
		MB9	8	R	8	18'-2"	17'-3"	11"	8"				
		MB10	22	X	5	19'-11"	4'-9"	4'-9"	5 1/2"				
		MB11	22	X	5	20'-8"	4'-9"	5'-1"	5 1/2"				
		MC1	57	A	10	42'-9"	42'-9"						
		MC2	3	Q	1/2"Ø	SPIRAL	4'-3"	6"	38'-8"				
		MS1	96	A	10	29'-1"	29'-1"						
		MS2	57	A	10	9'-8"	9'-8"						
		MS3	3	Q	5/8"Ø	SPIRAL	5'-0"	1'-0"	29'-0"				
		MS4	3	Q	1/2"Ø	SPIRAL	4'-3"	1'-0"	4'-7"				
Pier No. 6		NB1	8	R	8	22'-11"	22'-0"	11"	8"				
		NB2	9	A	8	34'-9"	34'-9"						
		NB3	10	A	5	34'-9"	34'-9"						
	†	NB4	48	A	6	4'-0"	4'-0"						
		NB5	4	D	6	7'-9"	1'-10"	4'-1"					
		NB6	4	D	6	8'-2"	1'-10"	4'-6"					
		NB7	15	D	6	7'-9"	1'-10"	4'-1"					
		NB8	2	A	5	15'-4"	15'-4"						
		NB9	8	R	8	18'-2"	17'-3"	11"	8"				
		NB10	22	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		NB11	22	X	5	18'-7"	4'-3"	4'-7"	5 1/2"				
		NC1	57	A	9	39'-10"	39'-10"						
		NC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	36'-6"				
		NS1	90	A	9	21'-7"	21'-7"						
		NS2	57	A	9	7'-2"	7'-2"						
		NS3	3	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	21'-6"				
		NS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Pier No. 7		PB1	8	R	8	22'-11"	22'-0"	11"	8"				
		PB2	9	A	8	34'-9"	34'-9"						
		PB3	10	A	5	34'-9"	34'-9"						
		PB4	4	D	6	7'-9"	1'-10"	4'-1"					
		PB5	4	D	6	8'-2"	1'-10"	4'-6"					
		PB6	15	D	6	7'-9"	1'-10"	4'-1"					
		PB7	2	A	5	15'-4"	15'-4"						
		PB8	8	R	8	18'-2"	17'-3"	11"	8"				
		PB9	22	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		PB10	22	X	5	18'-7"	4'-3"	4'-7"	5 1/2"				
		PB11	16	U	W5	SPIRAL	2'-1"	9 1/8"					
		PC1	57	A	9	36'-5"	36'-5"						
		PC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	33'-1"				
		PS1	90	A	9	23'-7"	23'-7"						
		PS2	57	A	9	7'-2"	7'-2"						
		PS3	3	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	23'-6"				
		PS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				

Bars with prefix "HS", "JS", "KS", "LS", "MS", "NS", & "PS" are not included with the weight of reinforcing steel for payment. they are listed here for information only.

Note:
For bending diagrams and reinforcing notes, See Sh. No. 565

SHEET NO. 566 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
BILL OF REINFORCING STEEL
(2 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_BillofReinf2.dgn

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Piers No. 1 & 2 Diaphragm	†	HD1	36	N	5	17'-7"	4'-5"	10"	5'-9"				
	†	HD2	16	N	5	16'-3"	4'-5"	10"	5'-1"				
	†	HD3	12	A	5	8'-9"	8'-9"						
	†	HD4	32	A	5	12'-10"	12'-10"						
	†	HD5	12	A	6	6'-8"	6'-8"						
	†	HD6	32	A	5	8'-9"	8'-9"						
	†	HD7	20	0	5	7'-2"	3'-11 1/2"	4'-2 1/2"	1'-6"	1'-6"	1'-5 1/4"		
	†	HD8	32	A	8	6'-0"	6'-0"						
	†	HD9	16	A	4	6'-0'	6'-0"						
	†	HD10	20	C	5	6'-7"	5'-9"	10"					
Pier No. 3 Diaphragm	†	JD1	112	D	5	7'-11"	3'-4"	1'-3"					
	†	JD2	16	A	6	10'-6"	10'-6"						
	†	JD3	48	A	5	10'-3"	10'-3'						
	†	JD4	4	A	6	1'-6"	1'-6"						
	†	JD5	6	A	6	8'-10"	8'-10"						
	†	JD6	16	D	5	4'-2"	1'-6"	1'-2"					
	†	JD7	12	C	5	5'-1"	4'-3"	10"					
Piers No. 4 & 5 Diaphragm	†	LD1	36	N	5	19'-1"	4'-5"	10"	6'-6"				
	†	LD2	16	P	5	8'-7"	5'-7"	10"	2'-2"				
	†	LD3	12	A	5	8'-4"	8'-4"						
	†	LD4	32	A	5	12'-2"	12'-2"						
	†	LD5	12	A	6	6'-2"	6'-2"						
	†	LD6	32	A	5	8'-5"	8'-5"						
	†	LD7	20	D	5	7'-5"	1'-6"	4'-5"					
	†	LD8	32	A	8	6'-0"	6'-0"						
	†	LD9	8	A	4	6'-0"	6'-0"						
	†	LD10	24	C	5	7'-3"	6'-5"	10"					
	†	LD11	4	A	6	6'-7"	6'-7"						
	†	LD12	12	A	6	12'-7"	12'-7"						
	†	LD13	16	P	5	10'-1"	4'-10"	10"	4'-5"				
Pier No. 6 Diaphragm	†	ND1	18	N	5	17'-4"	3'-11"	10"	5'-9"				
	†	ND2	8	N	5	15'-9"	3'-11"	10"	5'-1"				
	†	ND3	6	A	5	8'-3"	8'-3"						
	†	ND4	16	A	5	12'-2"	12'-2"						
	†	ND5	6	A	6	6'-2"	6'-2"						
	†	ND6	16	A	5	8'-6"	8'-6"						
	†	ND7	10	D	5	6'-10"	1'-6"	3'-10"					
	†	ND8	16	A	8	6'-0"	6'-0"						
	†	ND9	8	A	4	6'-0"	6'-0"						
	†	ND10	10	C	5	6'-7"	5'-9"	10"					
Pier No. 7 Diaphragm	†	PD1	18	N	5	14'-4"	4'-0"	10"	4'-4"				
	†	PD2	6	A	6	8'-3"	8'-3"						
	†	PD3	24	A	5	10'-3"	10'-3"						
	†	PD4	6	A	6	8'-10"	8'-10"						
	†	PD5	8	A	6	10'-7"	10'-7"						
	†	PD6	10	D	5	7'-0"	1'-6"	4'-0"					
	†	PD7	8	N	5	15'-8"	4'-0"	10"	5'-0"				
	†	PD8	10	P	5	6'-6"	4'-10"	10"	10"				
	†	PD9	8	A	4	6'-0"	6'-0"						
	†	PD10	8	A	8	6'-0"	6'-0"						
	†	PD11	8	A	8	3'-2"	3'-2"						
	†	PD12	12	A	5	2'-0"	2'-0"						
Deck	†	WS1	2060	R	5	37'-4"	36'-9"	7"	5"				
	†	WS2	31	L	5	VARIES	2'-2"	36'-6 1/2"	1'-1 3/4"	1			
	†	WS3	36	A	8	28'-8"	28'-8"						
	†	WS4	883	A	5	60'-0"	60'-0"						
	†	WS5	216	A	8	40'-0"	40'-0"						
	†	WS6	72	A	8	29'-6"	29'-6"						
	†	WS7	72	A	8	34'-7"	34'-7"						
	†	WS8	37	L	5	VARIES	37'-10"	50'-11 1/2"	4 3/8"	1			
	†	WS9	1	A	5	51'-0"	51'-0"						
	†	WS10	1	A	5	37'-9"	37'-9"						
	†	WS11	39	A	5	28'-2"	28'-2"						

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Deck (Cont'd.)	†	WS12	39	A	7	38'-7"	38'-7"						
	†	WS13	39	A	7	34'-2"	34'-2"						
	†	WS14	144	A	8	45'-4"	45'-4"						
	†	WS15	72	A	8	31'-8"	31'-8"						
	†	WS16	78	A	6	37'-5"	37'-5"						
	†	WS17	72	A	8	30'-5"	30'-5"						
	†	WS18	72	A	8	25'-9"	25'-9"						
	†	WS19	117	A	5	51'-9"	51'-9"						
	†	WS20	72	A	8	56'-0"	56'-0"						
	†	WS21	36	A	8	26'-2"	26'-2"						
	†	WS22	26	L	5	VARIES	2'-2"	36'-6 1/2"	1'-4 1/2"	1			
	†	WS23	1717	A	5	36'-9"	36'-9"						
	†	WS24	4	L	5	VARIES	50'-3"	51'-0"	3"	1			
	†	WS25	10	L	5	VARIES	46'-10"	49'-1"	3"	1			
	†	WS26	10	L	5	VARIES	43'-3"	45'-6"	3"	1			
	†	WS27	10	L	5	VARIES	39'-9"	42'-0"	3"	1			
	†	WS28	4	L	5	VARIES	37'-9"	38'-6"	3"	1			
	†	WS29	38	A	5	22'-10"	22'-10"						
	†	WS30	60	T	5	10'-5"	4'-7"	11"	1'-7"	1'-1"	2'-3"		
	†	WS31	16	A	5	2'-10"	2'-10"						
	†	WS32	24	A	5	7'-7"	7'-7"						
Sidewalk Curb	†	SC1	36	D	4	3'-9"	1'-6"	9"					
	†	SC2	868	U	4	4'-1"	9"	1'-0"	8"				
	†	SC3	12	A	4	59'-11"	59'-11"						
	†	SC4	20	A	4	56'-8"	56'-8"						
Corral Rail	†	R1	28	K	7	9'-3"	4'-6"	4'-6"	7"				
	†	R2	4	C	7	5'-7"	4'-5"	1'-2"					
	†	R3	1388	K	7	7'-7"	3'-0"	2'-3"	7"	2'-0"			
	†	R4	2241	C	4	4'-0"	2'-2"	1'-10"					
	†	R5	853	K	5	7'-7"	3'-0"	2'-3"	7"	2'-0"			
	†	R6	32	K	5	10'-8"	5'-3"	5'-3"	5"				
	†	R7	8	K	4	10'-8"	5'-3"	5'-3"	4"				
	†	WR8	12	A	6	8'-7"	8'-7"						
	†	R9	990	A	6	9'-8"	9'-8"						
	†	WR10	24	A	5	56'-4"	56'-4"						
	†	R11	2277	J	3	4'-4"	1'-4"	6"	4"				
	†	WR12	80	A	5	54'-11"	54'-11"						
	†	R13	338	J	3	4'-6"	1'-3"	8"	4"				
	†	R14	1352	D	3	4'-6"	1'-11"	8"					
	†	WR15	24	A	6	5'-1"	5'-1"						
	†	WR17	12	A	6	8'-6"	8'-6"						
	†	R18	528	D	5	6'-7"	3'-0"	7"					
	†	R19	94	A	4	9'-8"	9'-8"						
	†	R20	4	C	7	3'-4"	2'-2"	1'-2"					
	†	WR21	24	A	5	56'-4"	56'-4"						
	†	SP1	420	D	5	4'-5"	2'-0"	4 1/2"					
Wingwall Barrier	†	WB1	15	D	5	11'-4"	5'-4"	8"					
	†	WB2	2	D	5	9'-10"	4'-7"	8"					
	†	WB3	2	G	5	7'-11"	6'-9 3/4"	1'-1 1/4"	9 3/8"	9 3/8"			
	†	WB4	8	A	5	7'-7"	7'-7"						
	†	WB5	2	G	5	7'-4"	6'-3"	1'-1"	9 1/4"	9 1/4"			
	†	WB6	8	A	5	7'-1"	7'-1"						
Light Blister	†	B1	23	M	5	6'-6"	1'-5"	1'-4"	8"	1'-4"	1'-10 1/2"		
	†	B2	8	J	5	10'-10"	3'-1"	1'-10"	6"				
	†	B3	4	J	5	9'-10"	3'-1"	1'-4"	6"				
	†	B4	4	J	5	8'-10"	3'-1"	10"	6"				
	†	B5	12	J	5	12'-6"	3'-11"	1'-10"	6"				
	†	B6	6	J	5	11'-6"	3'-11"	1'-4"	6"				
	†	B7	6	J	5	10'-6"	3'-11"	10"	6"				
	†	B8	23	J	5	5'-8"	1'-2"	1'-2"	6"				
	†	B9	6	A	5	2'-4"	2'-4"						
	†	B10	9	A	5	3'-2"	3'-2"						

Note: For bending diagrams and reinforcing notes, See Sh. No. 565

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525841\119th_BrWB_BillofReinf3.dgn

SHEET NO. 567 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

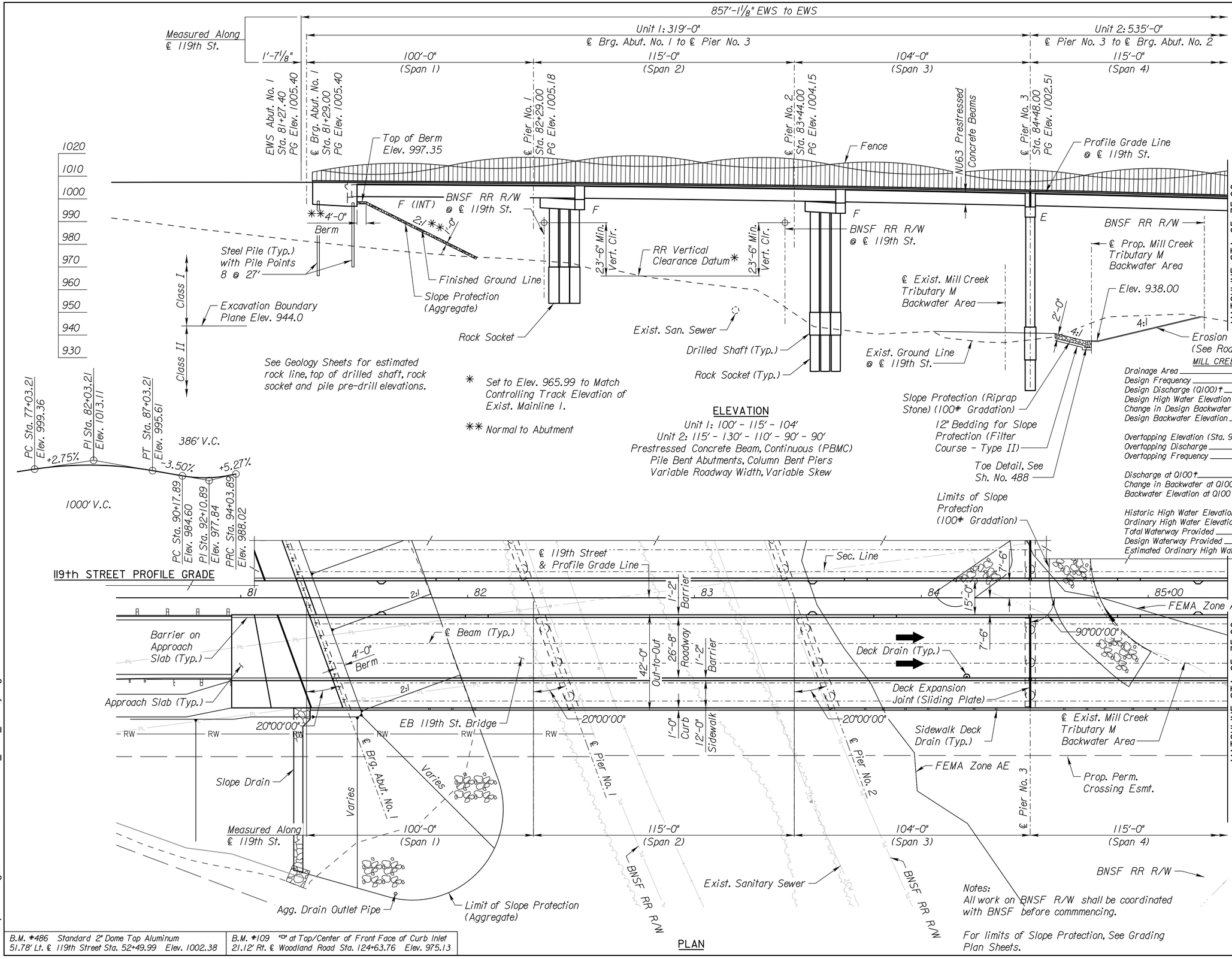
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Westbound
BILL OF REINFORCING STEEL
(3 OF 3)



MILL CREEK DRAINAGE DATA

Drainage Area	5.74	Sq. Mi.
Design Frequency	100	Years
Design Discharge (Q100)†	9,090	cfs
Design High Water Elevation	953.04	Ft.
Change in Design Backwater	0	Ft.
Design Backwater Elevation	953.04	Ft.
Overtopping Elevation (Sta. 91+50)††	980.7	Ft.
Overtopping Discharge	N/A	cfs
Overtopping Frequency	>500	Years
Discharge at Q100†	9,090	cfs
Change in Backwater at Q100	0	Ft.
Backwater Elevation at Q100	953.04	Ft.
Historic High Water Elevation	N/A	Ft.
Ordinary High Water Elevation	942.5	Ft.
Total Waterway Provided	12,390	Sq. Ft.
Design Waterway Provided	2,624	Sq. Ft.
Estimated Ordinary High Water Discharge	700	cfs

† Information pertains to existing conditions peak discharges per the FEMA Flood Insurance Study for Johnson County, KS dated 08/03/2009.

†† Overtopping location and elevation is shown for 11th Street, however, overtopping first occurs at Northgate and the railroad.

B.M. #486 Standard 2" Dome Top Aluminum
51.78' Lt. ℄ 119th Street Sta. 52+49.99 Elev. 1002.38

B.M. #109 "D" at Top/Center of Front Face of Curb Inlet
21.12' Rt. ℄ Woodland Road Sta. 124+63.76 Elev. 975.13

Elevations shown are to the NAVD88 vertical datum.

SHEET NO. 568 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS
OLATHE KANSAS

By	Description	Date	Rev.
. . .		. . .	. . .

119th Street - Eastbound
CONSTRUCTION LAYOUT (10F 2)

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Conlay1.dgn

857'-11⅛" EWS to EWS

Unit 2: 535'-0"

℄ Pier No. 3 to ℄ Brg. Abut. No. 2

Measured Along ℄ 119th St.

115'-0" (Span 4)	130'-0" (Span 5)	110'-0" (Span 6)	90'-0" (Span 7)	90'-0" (Span 8)	1'-6"

℄ Pier No. 4 Sta. 85+63.00 PG Elev. 999.90

℄ Pier No. 5 Sta. 86+93.00 PG Elev. 995.96

℄ Pier No. 6 Sta. 88+03.00 PG Elev. 992.12

℄ Pier No. 7 Sta. 88+93.00 PG Elev. 988.97

℄ Brg. Abut. No. 2 Sta. 89+83.00 PG Elev. 985.82

EWS Abut. No. 2 Sta. 89+84.50 PG Elev. 985.77

1020 1010 1000 990 980 970 960 950 940 930 920 910 900

MATCHLINE STA. 85+35.00

℄ Future BNSF Track

℄ Future BNSF Track

℄ Exist. BNSF Mainline Track 1

℄ Exist. BNSF Mainline Track 2

Fence

Profile Grade Line @ ℄ 119th St.

Gutter

2%

Top of Berm Elev. 976.19

†† F

℄ Future Access Road

25'-2" Min. Vert. Clr.

24'-6" Min. Vert. Clr.

25'-1" Min. Vert. Clr.

24'-5" Min. Vert. Clr.

BNSF RR R/W

℄ Future Access Road

℄ Mill Creek

D.H.W. Elev. 953.04

O.H.W. Elev. 942.50

Exist. Ground Line @ ℄ 119th St.

Elev. 944.0

M.S.E. Retaining Wall

F (INT)

E

9-HP14x89 Pre-Drilled Steel Piles

36"Ø CMP Sleeve

10:1

Var.

4'-0" Berm

℄ Gary L. Haller Trail

27'-0"

27'-0"

37'-6"±

20'-0"

15'-11"±

20'-0"

31'-7"±

℄ Exist. Access Road

16'-0"±

Streambed Elev. 934.3

Elev. 942.9

Proposed Ground Line

Drilled Shaft (Typ.)

Rock Socket (Typ.)

Toe Detail, See Sh. No. 489

Slope Protection (Riprap Stone) (200# Gradation)

12" Bedding for Slope Protection (Filter Course - Type II)

Excavation Boundary Plane Elev. 944.0

Class I

Class II

Future RR Ground Line and Embankment (Typ.)

Exist. San. Sewer

ELEVATION

Unit 1: 100' - 115' - 104'

Unit 2: 115' - 130' - 110' - 90' - 90'

Prestressed Concrete Beam, Continuous (PBMC)

Pile Bent Abutments, Column Bent Piers

Variable Roadway Width, Variable Skew

* Top of Drilled Shaft is 22.5' Below Top of Tie at Pier No. 4 and 21' Below Top of Tie at Pier No. 5

† NU70 Prestressed Concrete Beams

†† NU63 Prestressed Concrete Beams

See Geology Sheets for estimated rock line, top of drilled shaft, rock socket and pile pre-drill elevations.

Notes:
All work on BNSF R/W shall be coordinated with BNSF before commencing.

For limits of Slope Protection, see Grading Plan sheets.

Scale: 1" = 20'-0"

BNSF MP 23.62±

℄ 119th Street & Profile Grade Line

M.S.E. Retaining Wall

86 87 88 89 90+00

90°00'00"

15'-0" Roadway

7'-6"

26'-8"

1'-2" Barrier

Increasing Milepost

42'-0" Out-to-Out

38'-2"±

37'-6"±

(To RR R/W)

Horiz. Clr.

31'-7"± Horiz. Clr.

31'-8"±

℄ Beam (Typ.)

54'-0" Out-to-Out

38'-8" Roadway

Deck Drain (Typ.)

4'-0" Berm

8'-0"

Barrier on Approach Slab (Typ.)

Approach Slab (Typ.)

Prop. Perm. Crossing Esmt.

12'-0" Sidewalk

1'-0" Curb

Point of Min. Vert. Clr.

℄ Beam E

Edge of Deck Pl Sta. 86+93.00

Edge of Deck Pl Sta. 88+03.00

Sidewalk Deck Drain (Typ.)

EB 119th St. Bridge

Slope Drain

FEMA Zone X

Exist. Sanitary Sewer

℄ Pier No. 4

℄ Pier No. 5

℄ Pier No. 6

℄ Pier No. 7

℄ Brg. Abut. No. 2

115'-0" (Span 4)

130'-0" (Span 5)

110'-0" (Span 6)

90'-0" (Span 7)

90'-0" (Span 8)

Measured Along ℄ 119th St.

FEMA Zone X

Exist. R/W

FEMA Zone AE

3'-6" Gutter

FEMA Floodway

20'-0"

15'-11"±

20'-0"

℄ Exist. Access Road

FEMA Zone AE

FEMA Floodway

℄ Future Access Road

℄ Future Access Road

℄ Future BNSF Track

℄ Exist. BNSF Mainline Track 1

℄ Exist. BNSF Mainline Track 2

℄ Future BNSF Track

BNSF RR R/W

℄ Mill Creek

℄ Gary L. Haller Trail

Slope Protection (Riprap Stone) (200# Gradation)

Limits of Trail Improvements (See Rdwy. Plans)

Agg. Drain Outlet Pipe

00+00

PLAN

B.M. #108 "D" at Top/Center of Front Face of Curb Inlet 38.82' Lt. ℄ Northgate Street Sta. 205+01.80 Elev. 956.80

B.M. #107 "D" at Top/Center of Front Face of Curb Inlet 81.06' Lt. ℄ 119th Street Sta. 103+74.65 Elev. 998.26

Elevations shown are to the NAVD88 vertical datum.

Drawn By : MGEHL
Plotted :08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Conlay2.dgn

SHEET NO.	TOTAL SHEETS
569	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

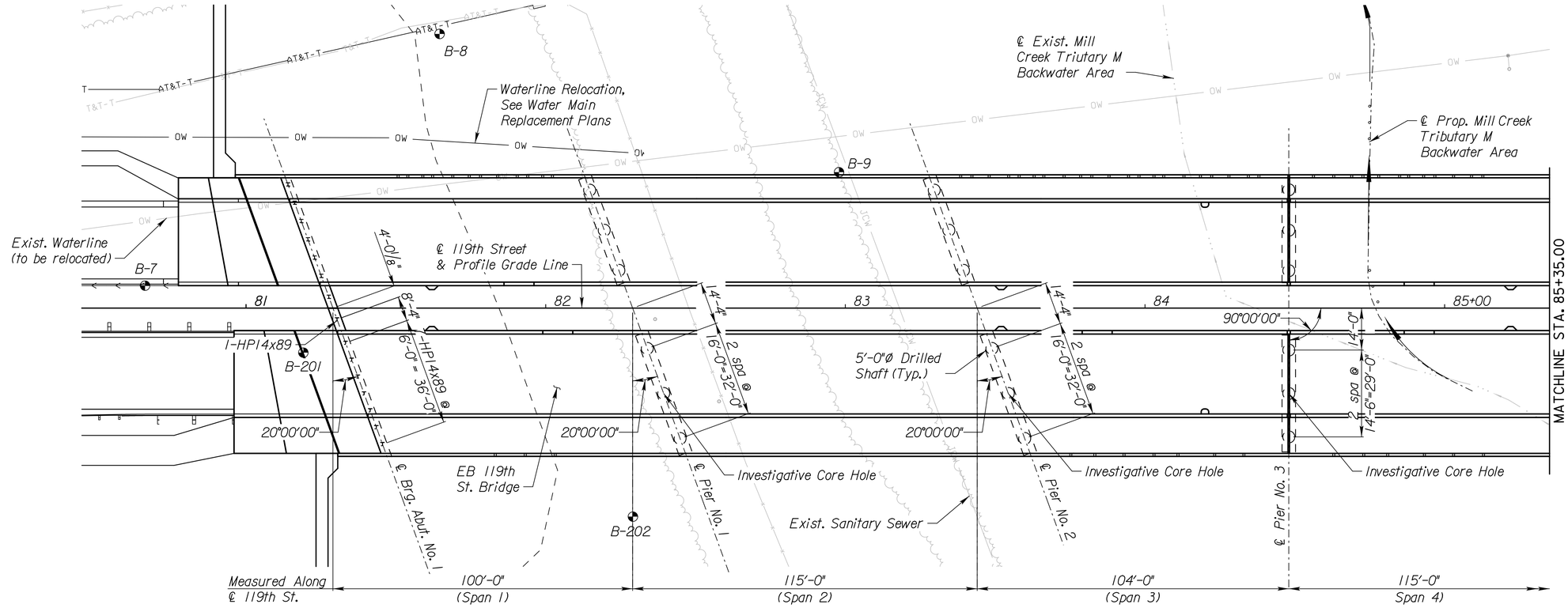
HDR Engineering, Inc.

CITY OF OLATHE, KS

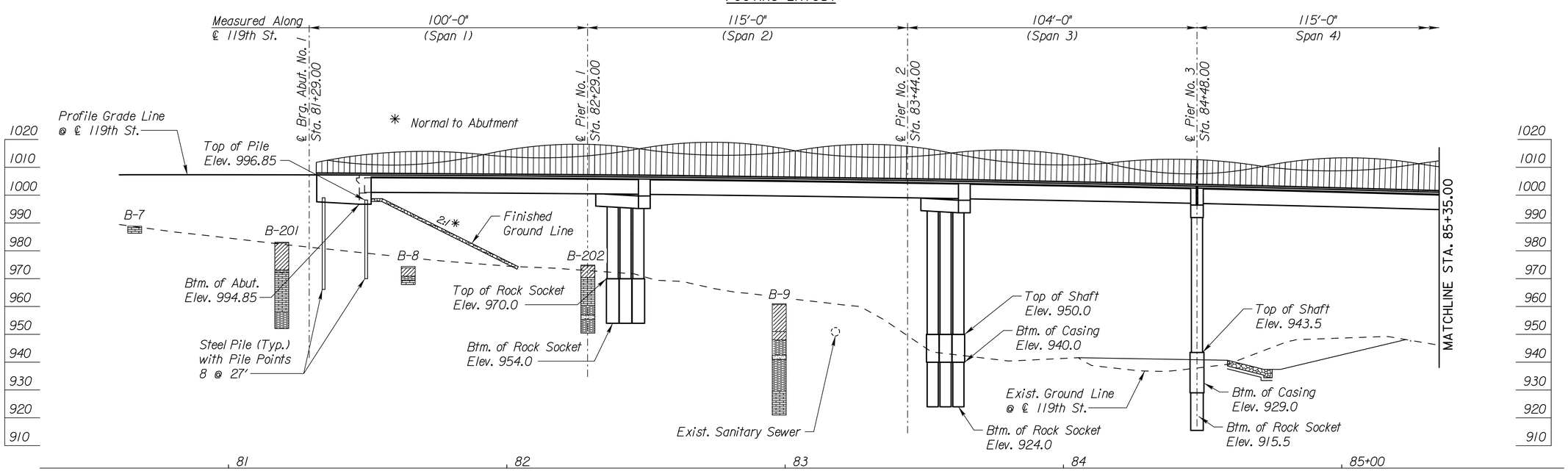
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound CONSTRUCTION LAYOUT (2 OF 2)



FOOTING LAYOUT



GEOLOGIC PROFILE

Scale: 1" = 20'-0"

STANDARD GEOLOGIC SYMBOLS

CLAY SHALE LIMESTONE SANDSTONE

Notes:
For Piling, Pre-Drilling, Investigative Core Hole and Drilled Shaft notes, see General Notes on Sh. No. 483 .

Boring log information can be found in the Project Specifications.

For Grading Plan, See Sh. No. 488-489

SHEET NO.	TOTAL SHEETS
570	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

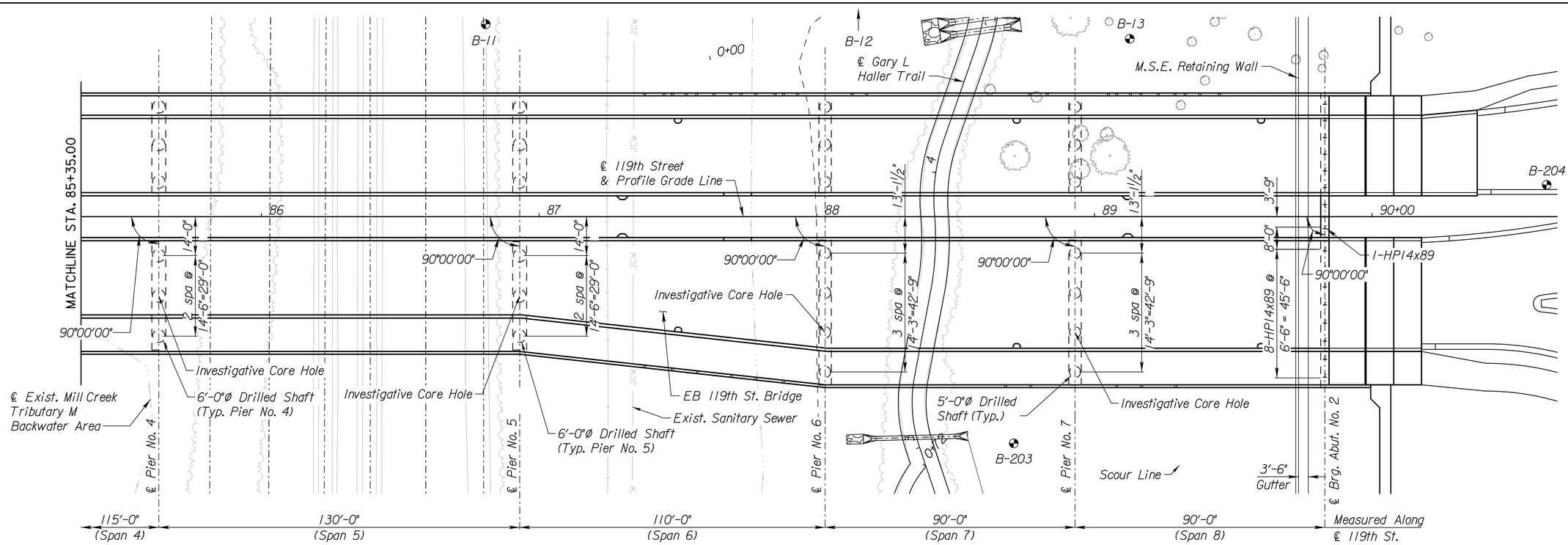
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
ENGINEERING GEOLOGY (1 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Eng_Geo1.dgn



FOOTING LAYOUT

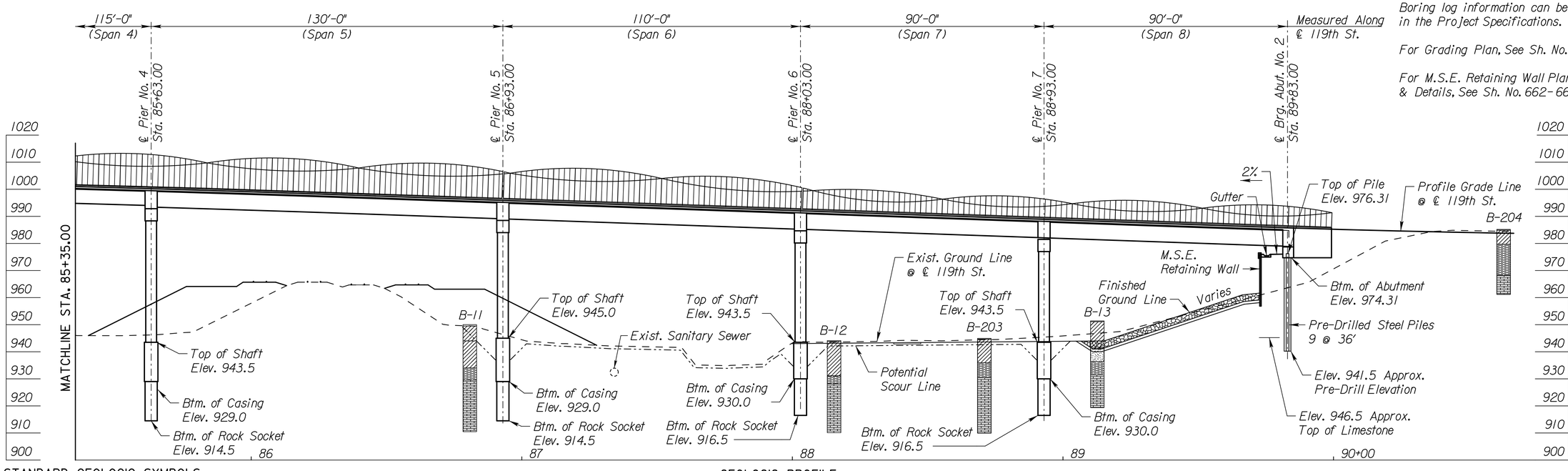
Scale: 1" = 20'-0"

Notes:
For Piling, Pre-Drilling, Investigative Core Hole and Drilled Shaft notes, see General Notes on Sh. No. 483.

Boring log information can be found in the Project Specifications.

For Grading Plan, See Sh. No. 488-489

For M.S.E. Retaining Wall Plan, Profile & Details, See Sh. No. 662-663



STANDARD GEOLOGIC SYMBOLS

CLAY SHALE LIMESTONE SANDSTONE

GEOLOGIC PROFILE

By	Description	Date	Rev.

SHEET NO. 571 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

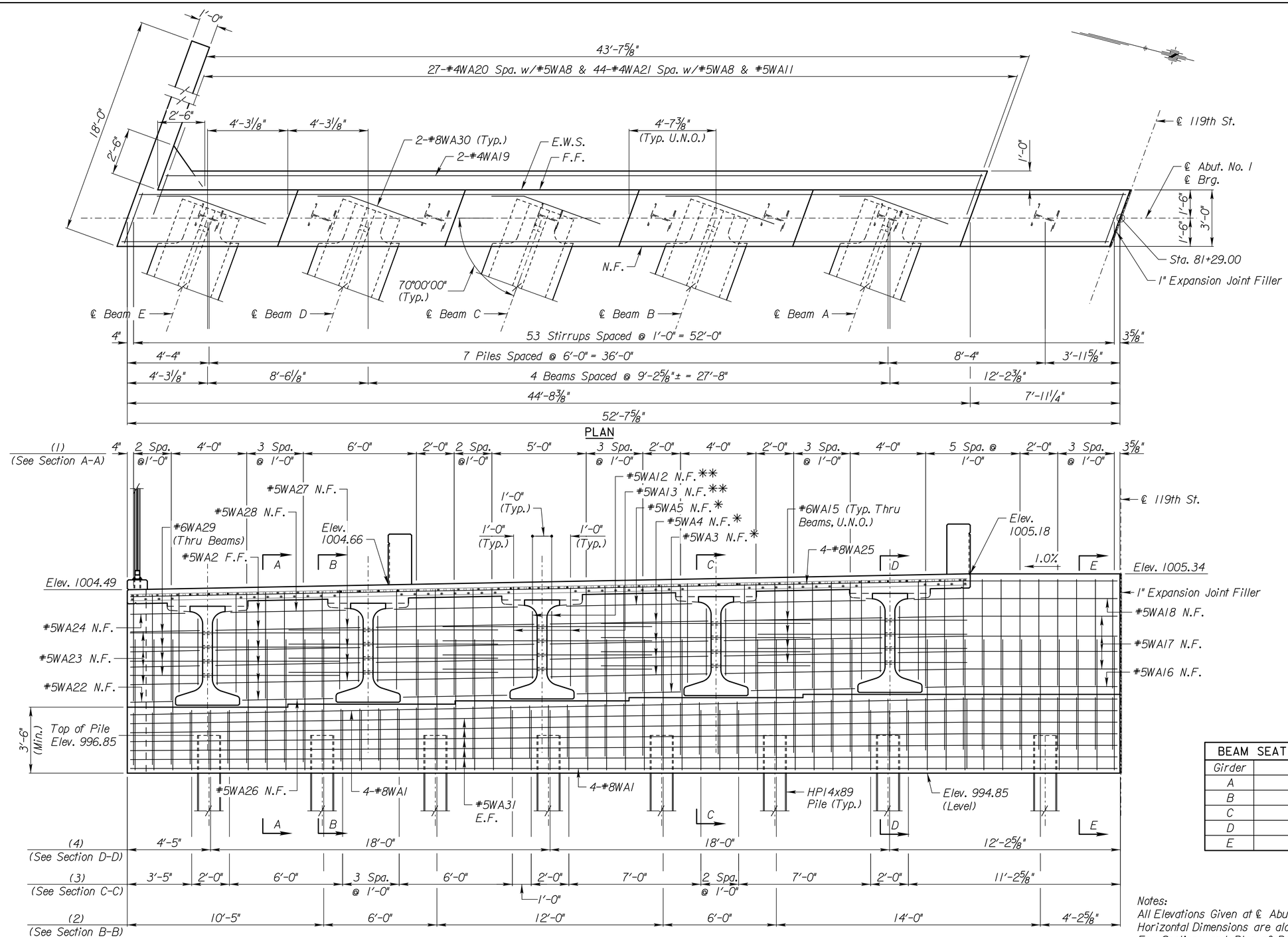
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

119th Street - Eastbound
ENGINEERING GEOLOGY (2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Eng_Geo 2.dgn



ELEVATION
(Looking Back Station)
(WA30 Strand Tie Bars not shown for clarity)

BEAM SEAT ELEVATIONS	
Girder	Elevation
A	998.98
B	998.82
C	998.65
D	998.48
E	998.35

Notes:
All Elevations Given at ℄ Abutment
Horizontal Dimensions are along ℄ Abutment.
For Sections, and Plan of Bearing Pads, see Sh. No. 573
For Abutment Wingwall Details, see Sh. No. 574

E.W.S = End of Wearing Surface
E.F. = Each Face
F.F. = Far Face
N.F. = Near Face
* Typ. Between Beams U.N.O.
** Typ. at Beams

(1) 31-#5WA6, 31-#5WA7 & 31-#5WA8 Spaced as Shown
(2) 5-#5WA7, 5-#5WA8 & 10-#5WA9 Spaced as Shown
(3) 14-#5WA7, 14-#5WA10 & 14-#5WA11 Spaced as Shown
(4) 3-#5WA7, 3-#5WA9, 3-#5WA11 & 3-#5WA14 Spaced as Shown

ABUTMENT PILE LOADING
(Tons/Pile)

Strength I	Service I	Phi
96	71	0.5

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_Abut1-1.dgn
Plotted : 08-28-24

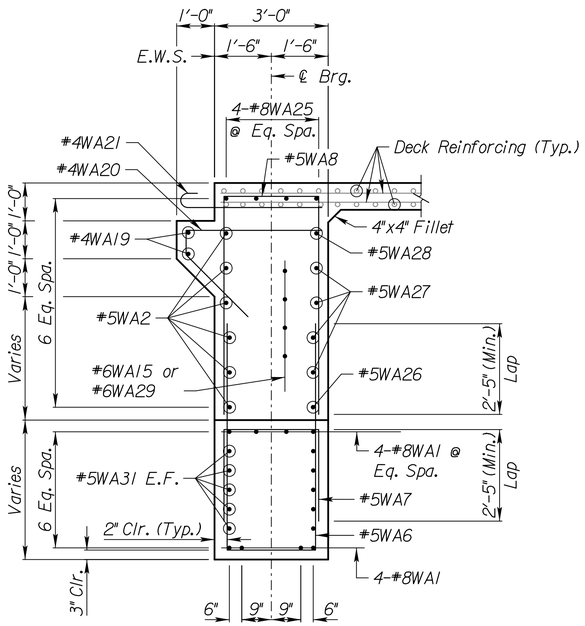
SHEET NO. 572 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

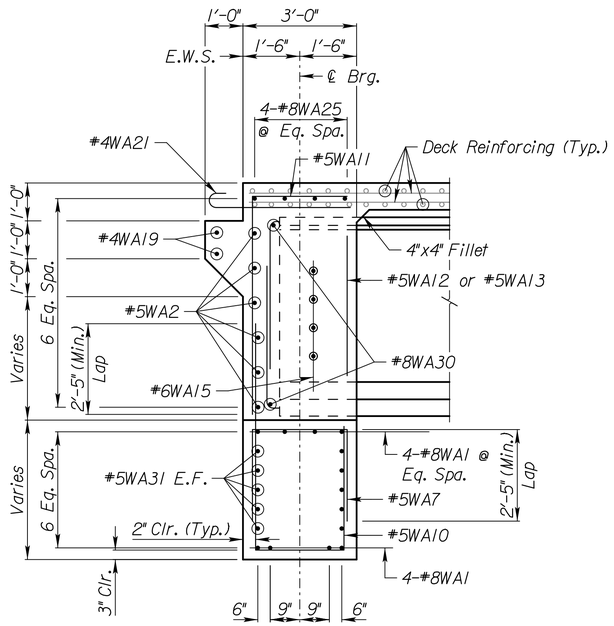
CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

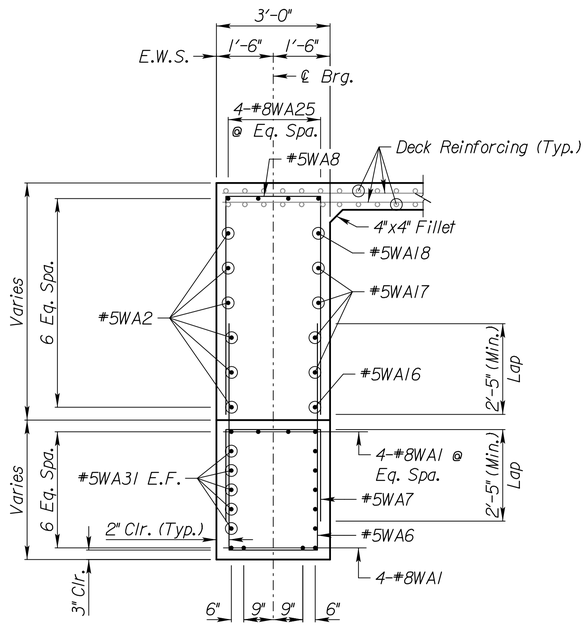
119th Street - Eastbound
ABUTMENT NO. 1 (1 OF 3)



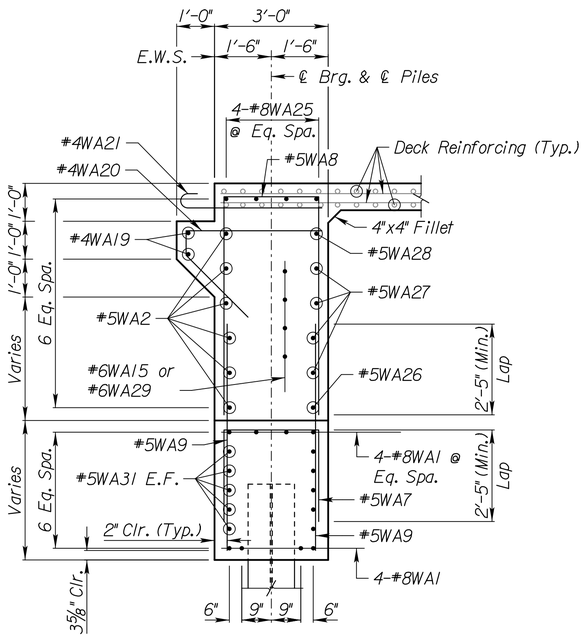
SECTION A-A



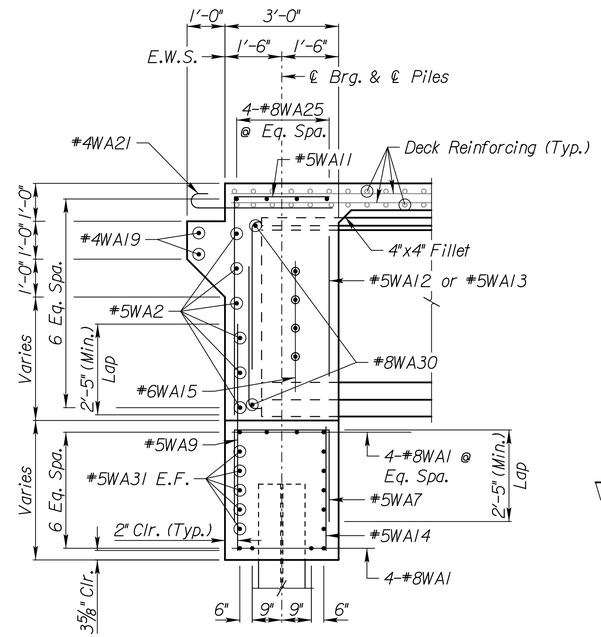
SECTION C-C



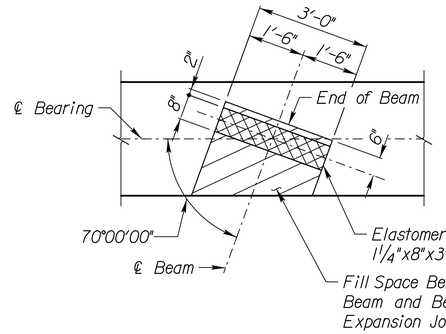
SECTION E-E



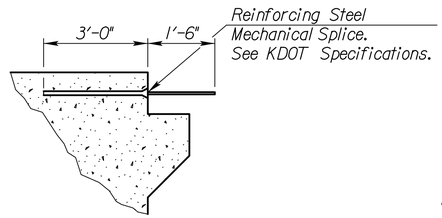
SECTION B-B



SECTION D-D



PLAN OF BEARING PADS



APPROACH SLAB TIE BAR OPTION

The Contractor has the option (at no additional cost to the State) of substituting a mechanically spliced reinforcing bar for any or all of the cast-in-place approach slab tie bars.

Notes:

For location of Sections A-A, B-B, C-C, D-D and E-E see Sh. No. 572 .

For Elastomeric Bearing Pad Details, see Sh. No. 633 .

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Abut1-2.dgn

SHEET NO.	TOTAL SHEETS
573	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

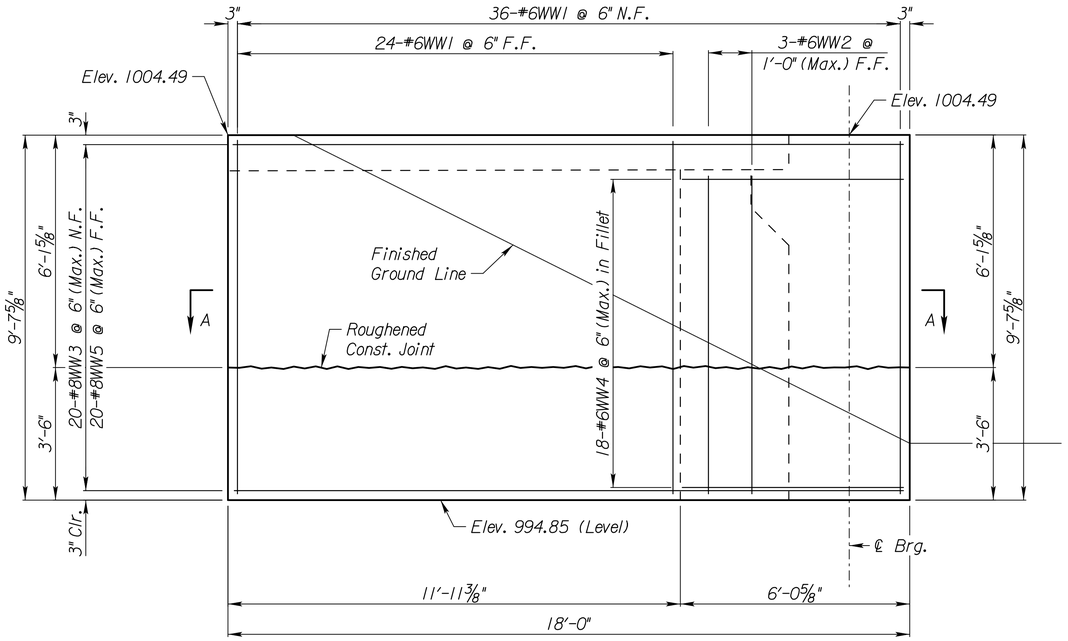
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

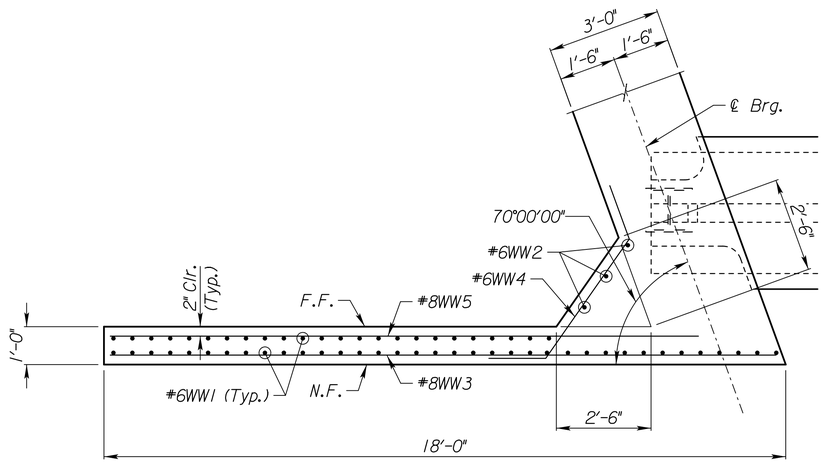
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
ABUTMENT NO. 1 (2 OF 3)



WINGWALL ELEVATION

Elevations along outside face of wingwall



SECTION A-A

F.F. = Far Face
N.F. = Near Face

SHEET NO.	TOTAL SHEETS
574	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

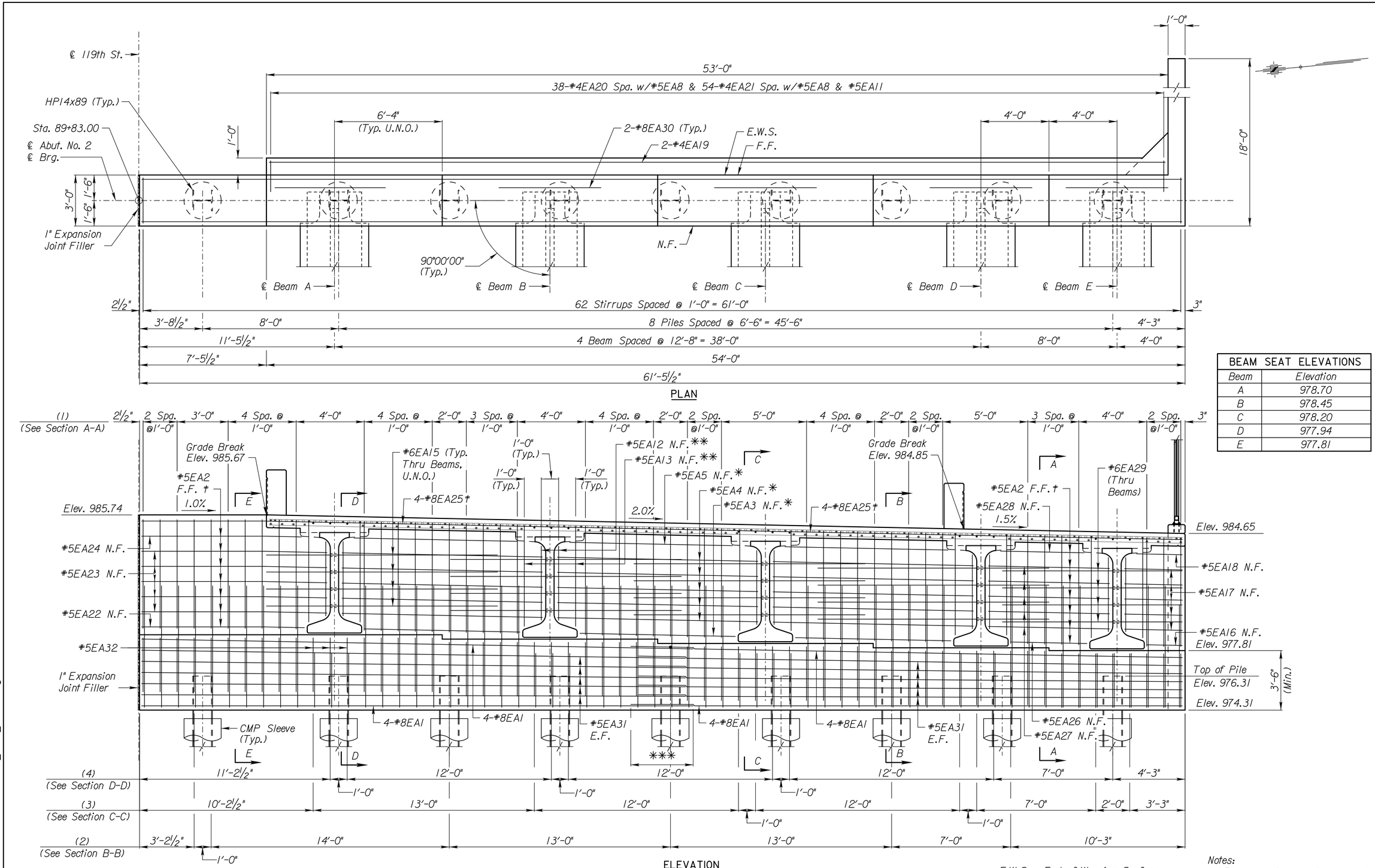
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
ABUTMENT NO. 1 (3 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Abut1-3.dgn



BEAM SEAT ELEVATIONS	
Beam	Elevation
A	978.70
B	978.45
C	978.20
D	977.94
E	977.81

(1) 40-#5EA6, 40-#5EA7 & 40-#5EA8 Spaced as Shown
(2) 6-#5EA7, 6-#5EA8 & 12-#5EA9 Spaced as Shown
(3) 7-#5EA7, 8-#5EA10, 8-#5EA11 & 1-#5EA32 Spaced as Shown
(4) 6-#5EA7, 8-#5EA9, 8-#5EA11, 8-#5EA14 & 2-#5EA32 Spaced as Shown

*** Bar Laps
#5 Bars = 2'-5"
#6 Bars = 2'-10"
#8 Bars = 4'-11"

ABUTMENT PILE LOADING
(Tons/Pile)

Strength I	Service I	Phi
106	79	0.5

E.W.S. = End of Wearing Surface
E.F. = Each Face
F.F. = Far Face
N.F. = Near Face
* Typ. Between Beams U.N.O.
** Typ. at Beams
† Laps not shown for clarity

Notes:
All Elevations Given at ℄ Abutment
Horizontal Dimensions are along ℄ Abutment.
For Sections, and Plan of Bearing Pads, see Sh. No. 576
For Abutment Wingwall Details, see Sh. No. 577

SHEET NO. 575 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

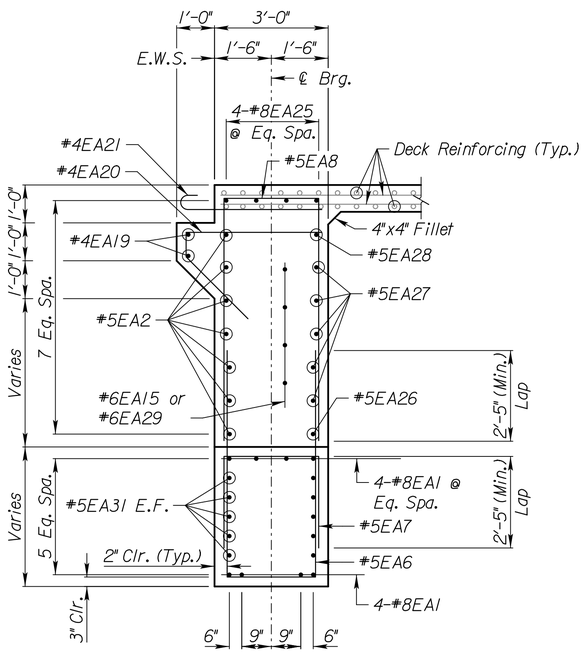
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS
OLATHE KANSAS

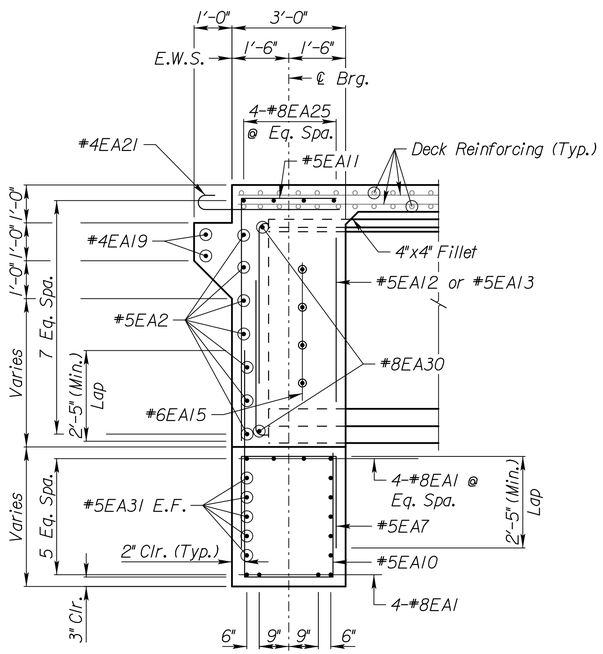
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
ABUTMENT NO. 2 (1 OF 3)

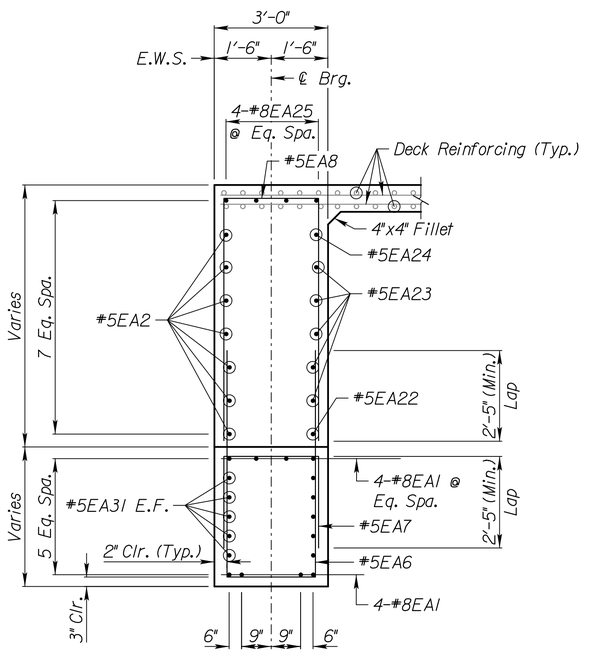
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Abut2-1.dgn



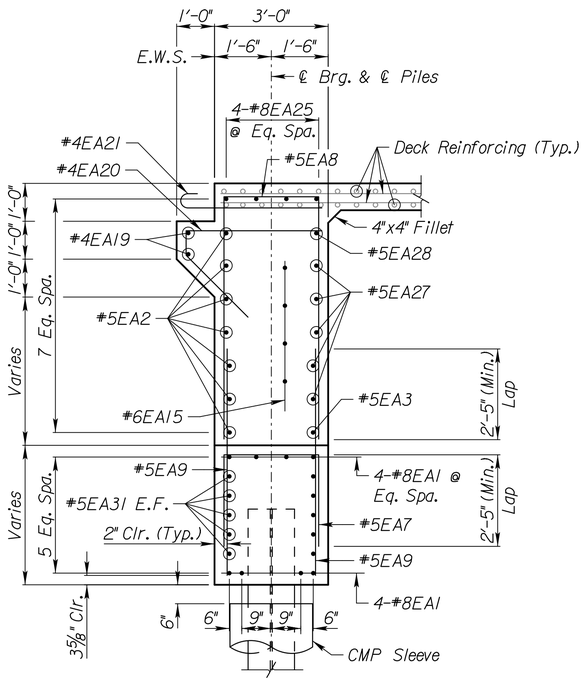
SECTION A-A



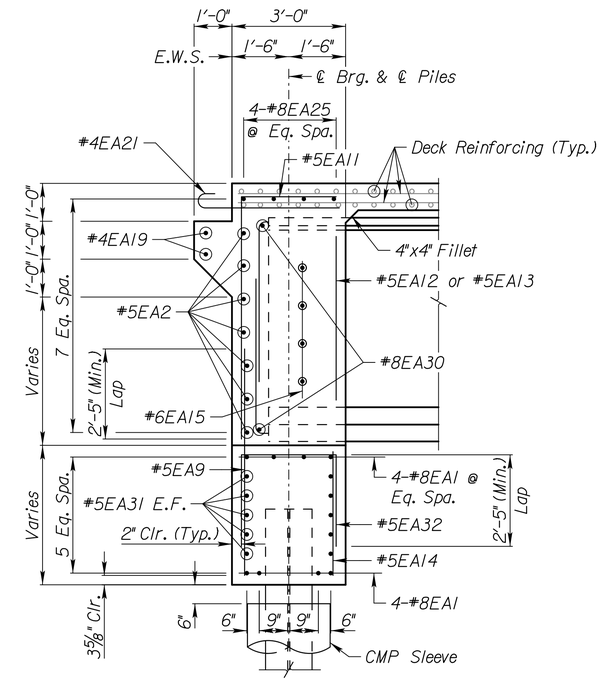
SECTION C-C



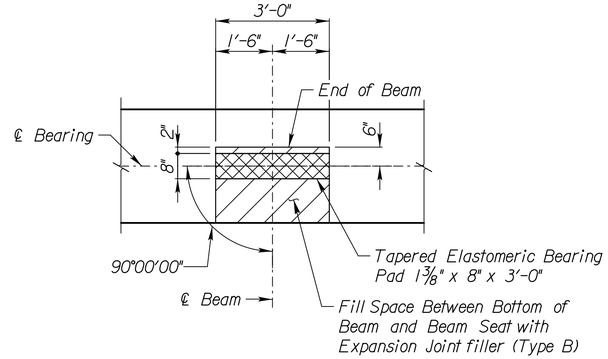
SECTION E-E



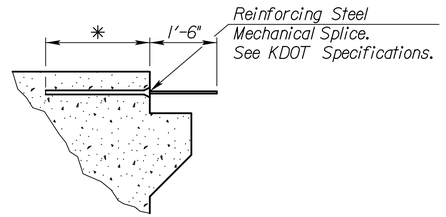
SECTION B-B



SECTION D-D



PLAN OF BEARING PADS



APPROACH SLAB TIE BAR OPTION

The Contractor has the option (at no additional cost to the State) of substituting a mechanically spliced reinforcing bar for any or all of the cast-in-place approach slab tie bars.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Abut2-2.dgn

SHEET NO.	TOTAL SHEETS
576	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

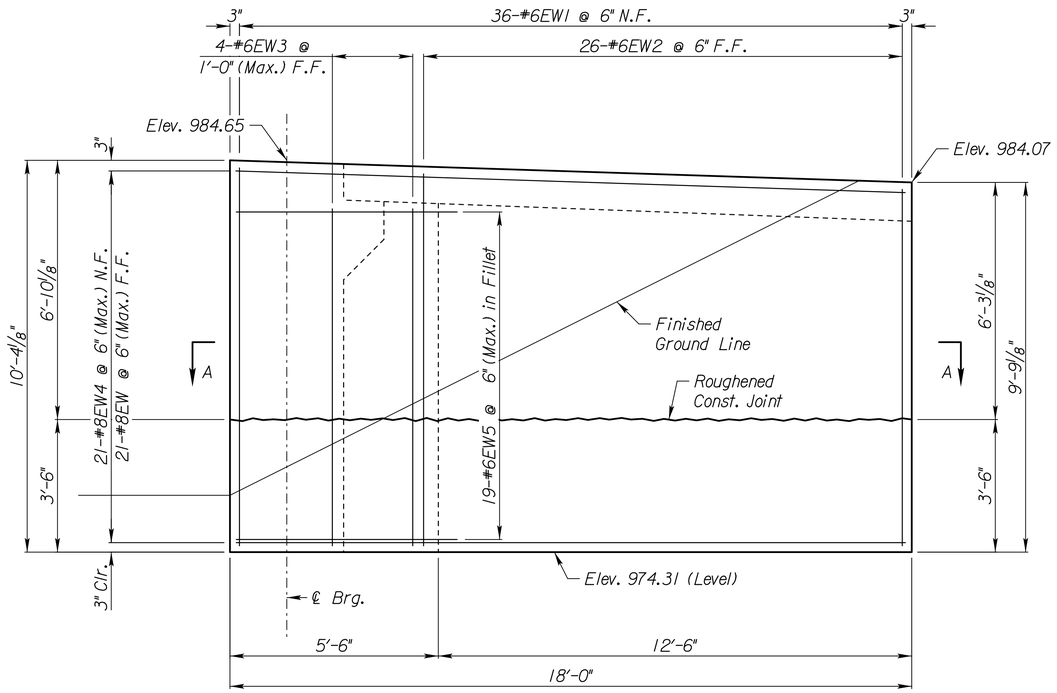
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

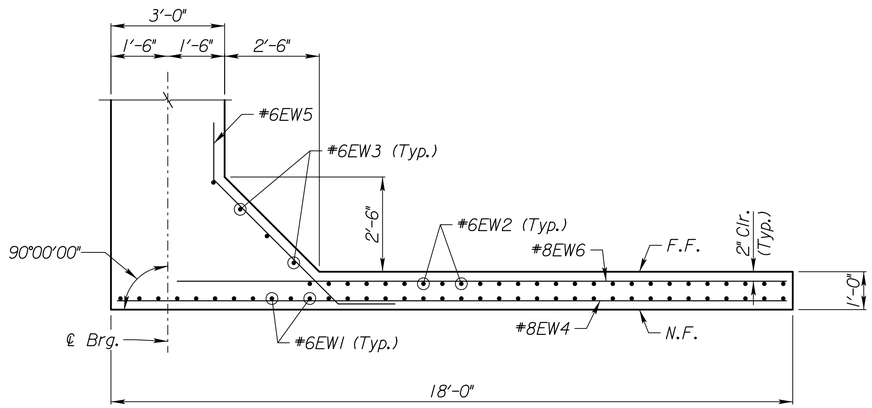
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
ABUTMENT NO. 2 (2 OF 3)



SOUTH WINGWALL ELEVATION

Elevations along outside face of wingwall



SECTION A-A

F.F. = Far Face
N.F. = Near Face

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Abut2-3.dgn

SHEET NO.	TOTAL SHEETS
577	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

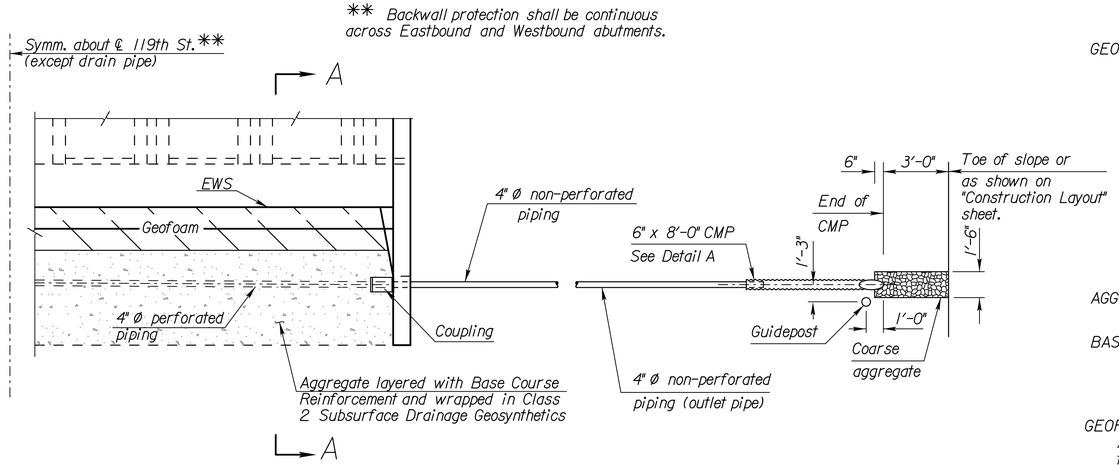
HDR Engineering, Inc.

CITY OF OLATHE, KS

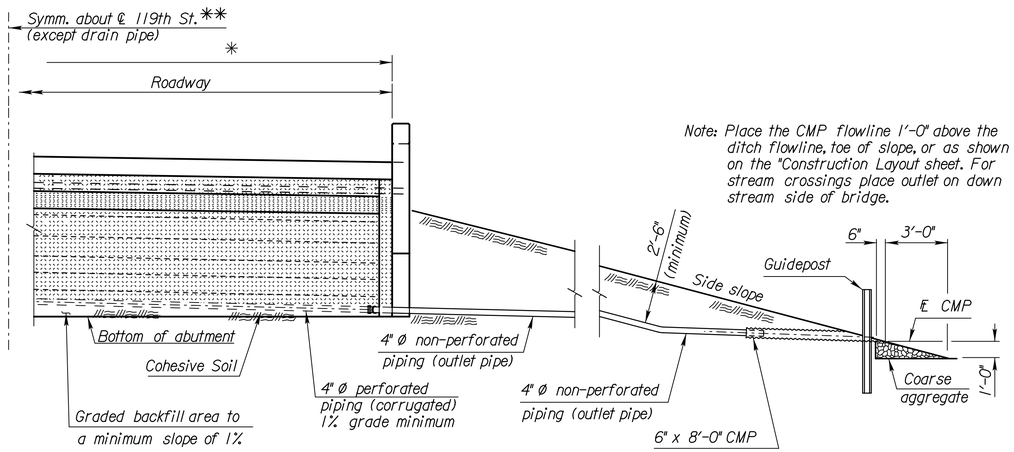
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
ABUTMENT NO. 2 (3 OF 3)



PLAN



Note: Place the CMP flowline 1'-0" above the ditch flowline, toe of slope, or as shown on the "Construction Layout sheet. For stream crossings place outlet on down stream side of bridge.

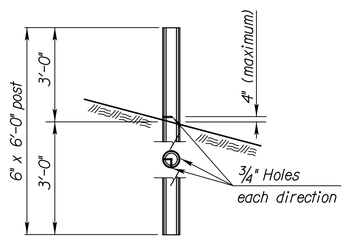
ELEVATION

GUIDE POST

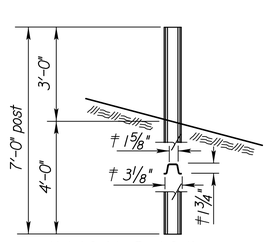
Notes:

Wood Guide Posts: Apply a preservative treatment conforming to the KDOT Specifications to the posts. Use only one type of preservative treatment on a project. Apply two coats of aluminum paint to the top 18" of the posts. Apply one coat of International Orange paint to the top 12" of the posts. City forces will apply reflectorized material.

Metal Guide Posts: Posts shall conform to the KDOT Specifications. Posts shall have a galvanized or baked enamel coating. Apply one coat of International Orange paint to the top 12" of the posts.



Wood Guide Post Option (6" Ø x 6'-0")



Metal Guide Post Option 7'-0" at 3.0 lbs/ft. flanged channel

† Nominal dimension.

GENERAL NOTES

GEOSYNTHETICS: Use material that complies with KDOT Specification Section 1710 Class 2 subsurface drainage fabric. Place the Class 2 subsurface drainage fabric on graded and compacted material shaped as shown. Allow for enough material so that the top can be overlapped and the end folded to completely enclose the aggregate drain. Place the perforated drain pipe and couple to non-perforated pipe as shown. Allow the non-perforated pipe to pass through a hole carefully cut in fabric. Place aggregate within fabric to just leave the top of the pipe visible. Verify the slope of the pipe, that it is not damaged or displaced and that the couplers are firmly coupled. Continue to backfill to the elevation and shape shown. Lap the top of the fabric a minimum of 3'-0", fold and wrap the ends to enclose the drainage materials. Secure the folds and wraps by sewing or approved methods.

AGGREGATE: Use aggregates that complies with KDOT Specifications for SB-1 or SB-2.

BASE COURSE REINFORCEMENT: Use "Base Course Reinforcement" that complies with KDOT Specification Division 1700 or approved material. Place this material in uniform layers without gaps or sags per the manufacturer's recommendations.

GEOFOAM: Use "Geofoam" that complies with ASTM D6817 EPS 12. Acceptance according to Type "C" certification. Bond this material to the back wall protection using materials recommended by the manufacturer.

SOIL CAP: The soil will have a Unified Soil Classification of CL or ML according to ASTM D2487. Compact to Type A, MR-90.

PIPE: Place perforated pipe within the limits and use non-perforated pipe outside the limits of the Abutment Aggregate Drain.

ABUTMENT AGGREGATE DRAIN: The Bridge Contractor shall excavate to the limits shown on the Bridge Excavation Sheet. Backfill, compact & grade the cohesive soil to the limits shown. Place the bridge backwall protection, geofoam, geotextile, perforated pipe, alternating layers of aggregate and base course reinforcement as shown. Place the outlet pipe, the CMP, and the backfill. Guide post and coarse aggregate are subsidiary to this bid item. Guide post and coarse aggregate are not required if the CMP empties onto Slope Protection. Enclose the entire Abutment Aggregate Drain with the geotextile

BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protective System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage done at no charge to the state.

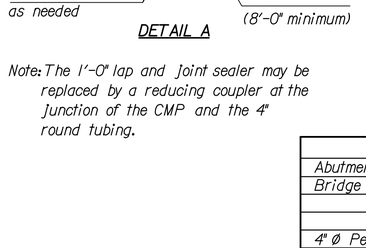
Compact the abutment backfill. See the KDOT Specifications.

Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

Fit the CMP end section with 1/4" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer. Place Coarse aggregate at the outlet end as shown.

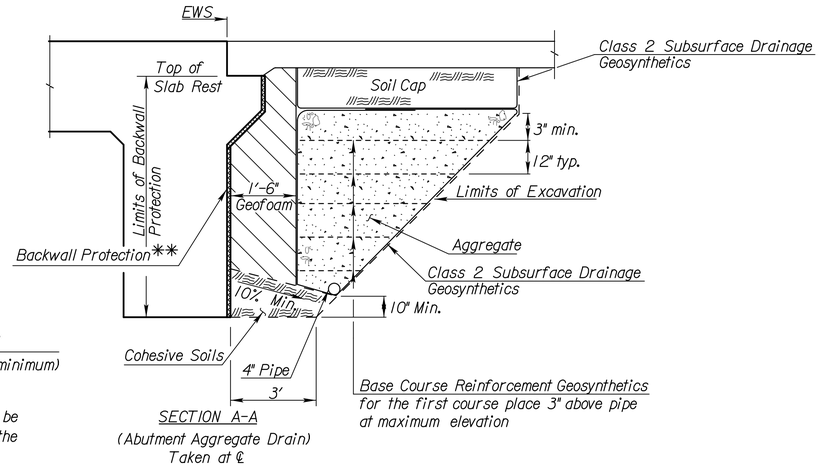
COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown. Backfill this area with a cohesive type of soil. The soil will have a Unified Soil Classification of CL, CH, ML or MH according to ASTM D2487 Classification System with a minimum plasticity index of 13. Compact the material to Type A, MR-90 specifications. If the plasticity index cannot be met add and mix Bentonite, to the soil prior to placement and compaction so that the PI≥ 13.

* Limits of Bridge Backwall Protection System & Geofoam



DETAIL A

Note: The 1'-0" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing.



SECTION A-A
(Abutment Aggregate Drain)
Taken at ℄

SUMMARY OF QUANTITIES (2 Abutments)	
Abutment Aggregate Drain	92.8 Cu. Yds.
Bridge Backwall Protection System	116.6 Sq. Yds.
Items subsidiary to Abutment Aggregate Drain	
4" Ø Perforated Pipe	112.0 Lin. Ft.
4" Ø Outlet Pipe	193.5 Lin. Ft.
6" Ø CMP	16.0 Lin. Ft.
Guide Post	2 Each
Soil Cap	109.0 Cu. Yds.
Geosynthetics (Class 2 Subsurface Drainage)	574.8 Sq. Yds.
Geosynthetics (Base Course Reinforcement)	166.6 Sq. Yds.
Geofoam	43.6 Cu. Yds.

SHEET NO.	TOTAL SHEETS
578	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

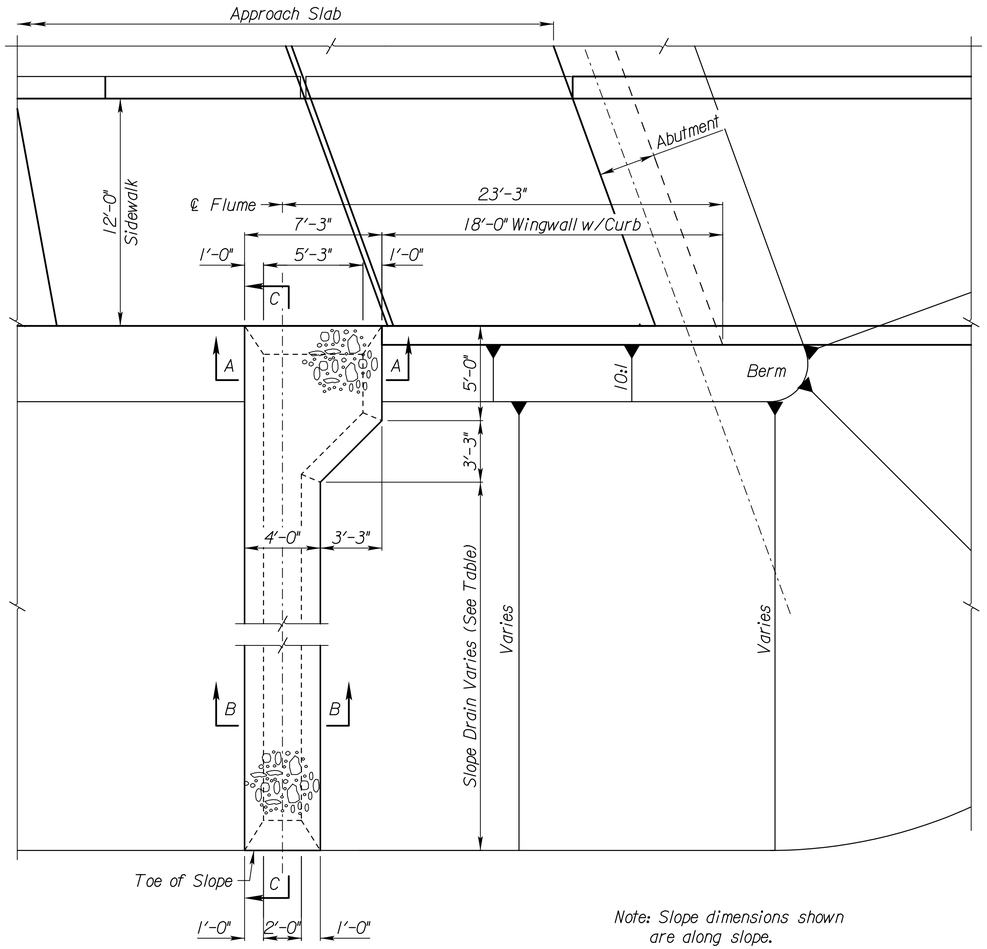
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
ABUTMENT AGGREGATE DRAIN

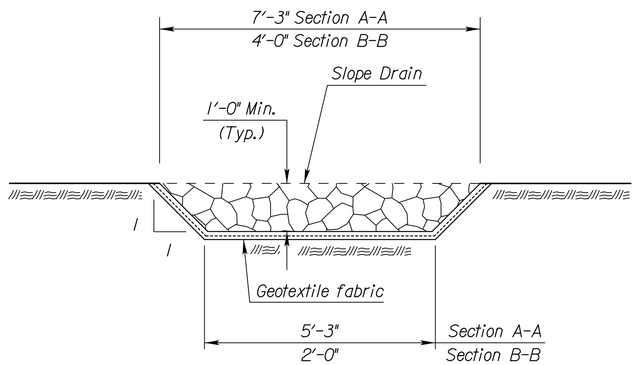
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Abut_Drain.dgn



Note: Slope dimensions shown are along slope.

PLAN

Abutment No. 1 Shown, Abutment No. 2 Similar



SECTION A-A, SECTION B-B

GENERAL NOTES

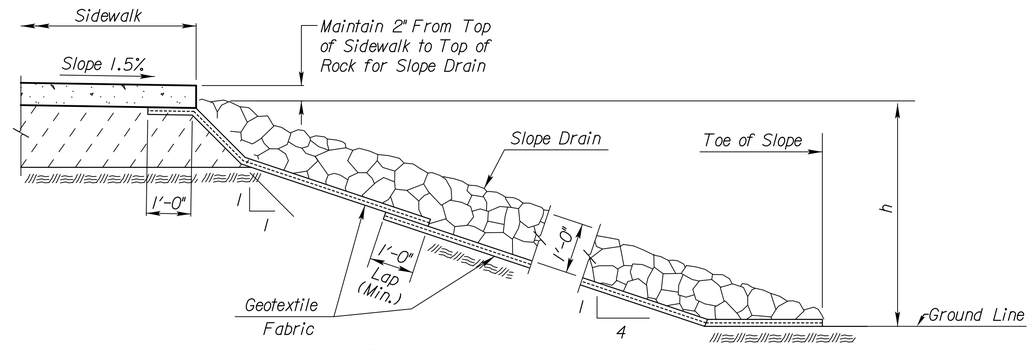
Limits of "Slope Drain (Stone)" are as shown on this sheet. Limits may be adjusted as needed at the direction of the Engineer to match ground elevations found at the site.

Gradation and aggregate for the "Slope Drain (Stone)" shall meet the requirements of stone for Aggregate Ditch Lining and have a D_{50} of 4" unless otherwise noted on the Plans.

Excavation and grading for placement of Slope Drain and all work and material to install geotextile fabric shall be subsidiary to "Slope Drain (Stone)".

Slope Drain shall be underlain with geotextile fabric. Fabric damaged or displaced during construction shall be replaced at no cost to The City. Fabric shall be installed and secured as recommended by the fabric manufacturer. One (1) copy of the fabric manufacturer's installation procedure shall be submitted to the Engineer. The installation procedure shall show details of the splices, overlaps, and pin layout. Minimum overlap of geotextile shall be 1'-0". Fabric shall be anchored along edges and splices at a maximum of 3'-0" centers with staples or pins (w/washers). Interior area of fabric shall be pinned or stapled as recommended by the manufacturer but not more than 5'-0" centers. Pins or staples shall be a minimum of 1'-0" in length. Geotextile fabric shall meet the requirements of KDOT Specifications.

The Contractor shall place the rock from the bottom to the top of the slope. Place the rock in a manner which produces a reasonably well graded mass of rock without segregation of the material sizes. Placement, measurement, and payment shall conform to KDOT Specifications for "Slope Drain (Stone)".



SECTION C-C

SLOPE DRAIN	
Location	*Dimension h (ft.)*
Abut. #1	*18*
Abut. #2	*30*

SUMMARY OF QUANTITIES		
Item	*Abut. No. 1*	*Abut. No. 2*
Slope Drain (Stone) (Lin. Ft.	*74*	*128*
Items subsidiary to Slope Drain (Stone)		
Geotextile Fabric (Sq. Yds.)	*36*	*60*

SHEET NO. 579 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
SLOPE DRAIN

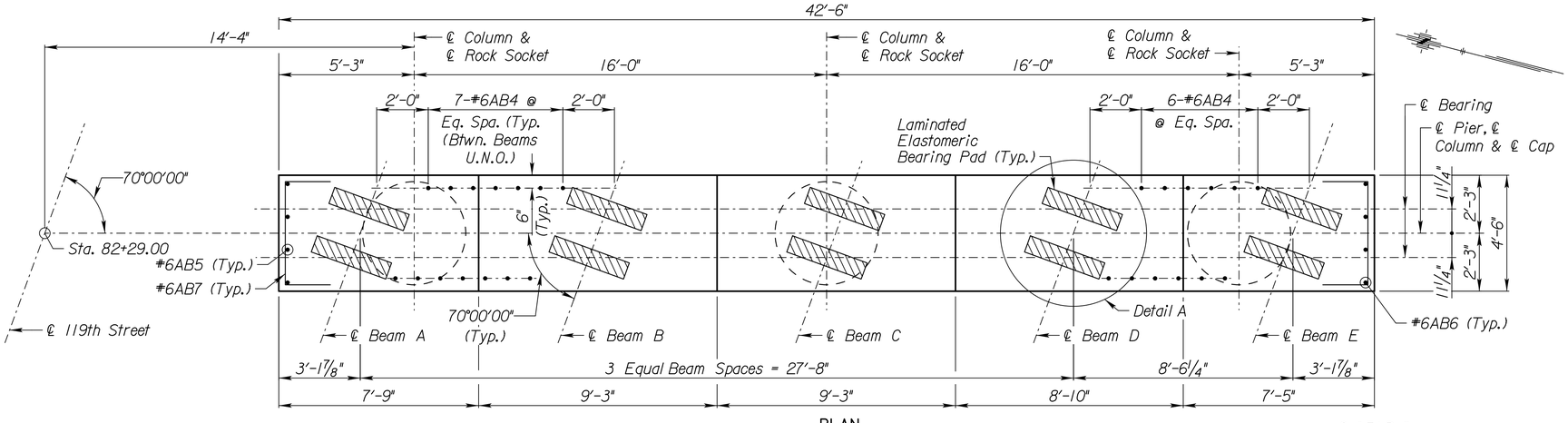
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_SlopeDrain.dgn

Notes:
For Sections B-B, C-C, E-E and Detail A, See Sh. No. 581

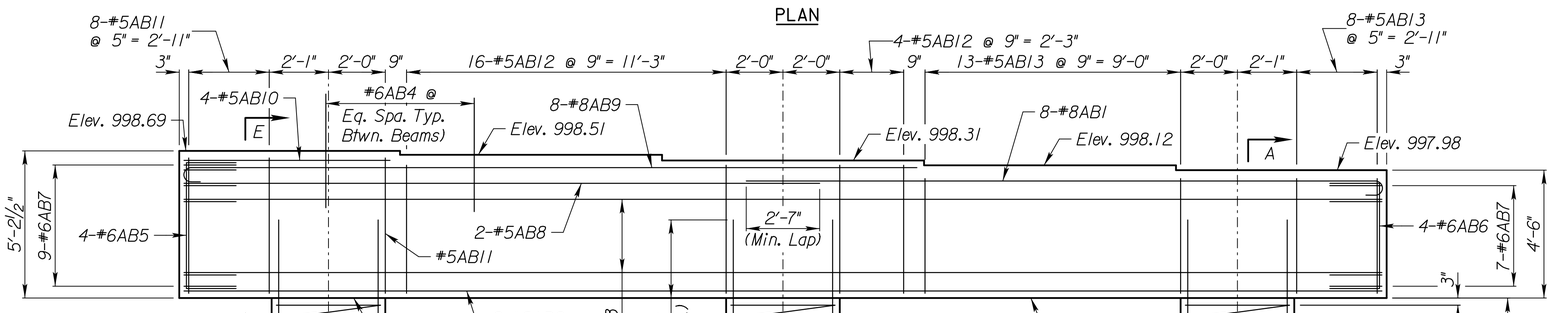
For Rock Socket Details, See Sh. No. 581

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

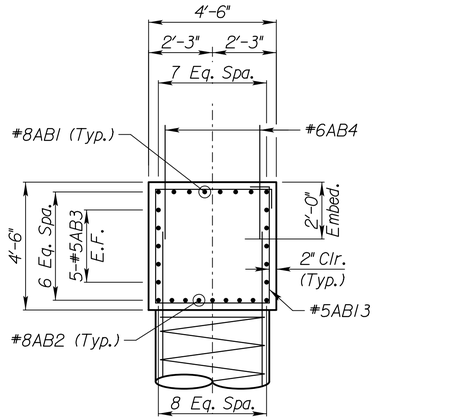
Max. Factored Design Drilled Shaft Load (Strength I) = 605 tons/shaft
Factored Drilled Shaft resistance = 1,162 tons/shaft

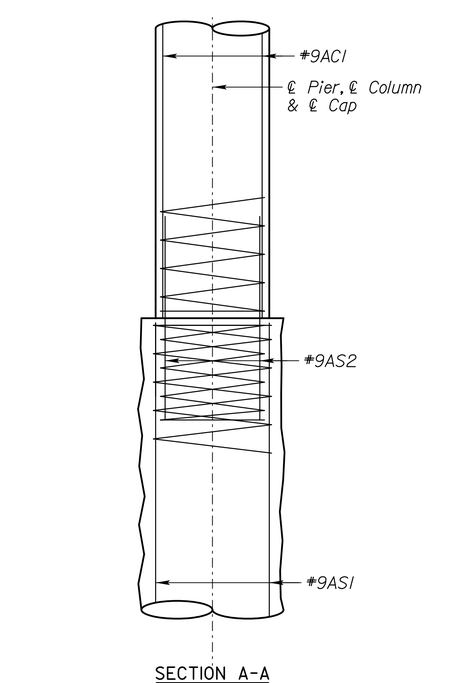


PLAN



ELEVATION





SECTION A-A

SHEET NO.	TOTAL SHEETS
580	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

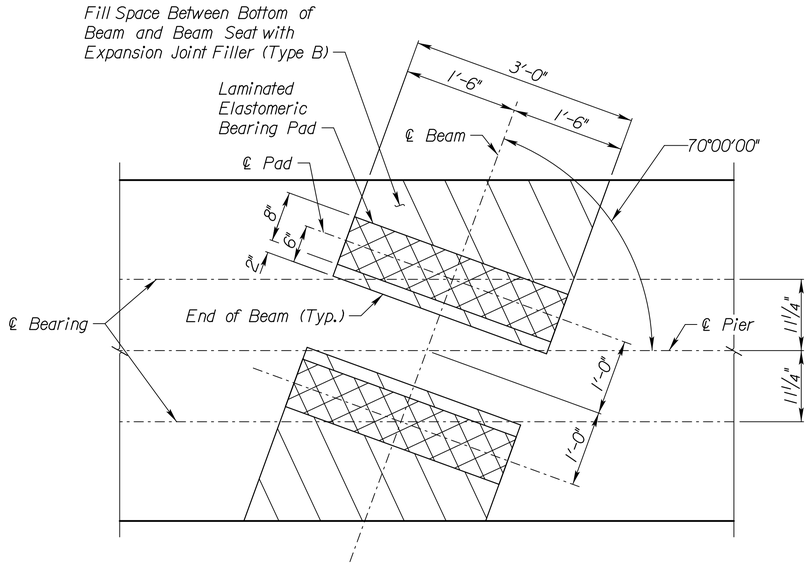
CITY OF OLATHE, KS

OLATHE KANSAS

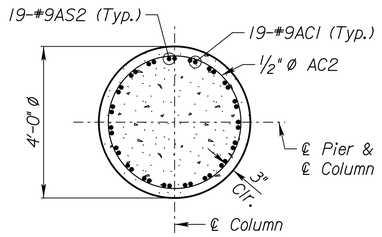
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 1 DETAILS
(1 OF 2)

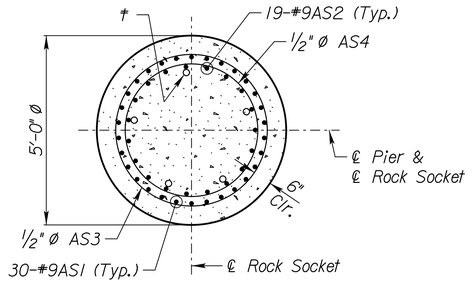
Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_P1-1.dgn
Plotted : 08-28-24



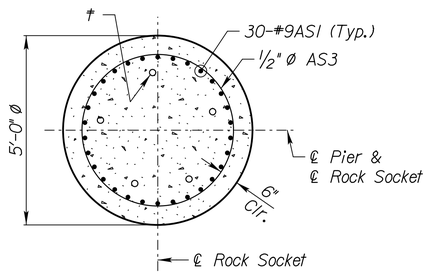
DETAIL A



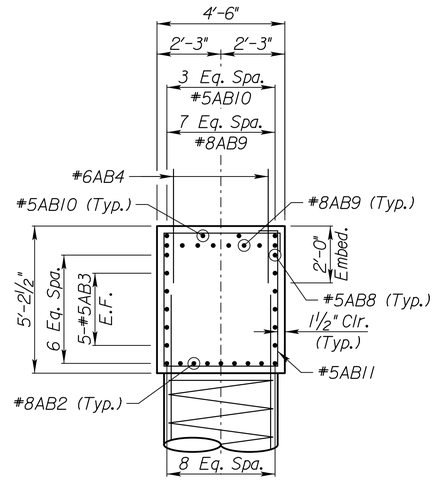
SECTION B-B



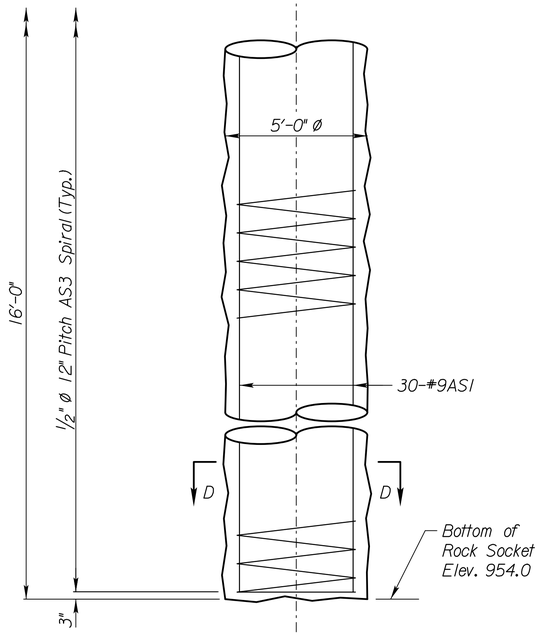
SECTION C-C



SECTION D-D



SECTION E-E



ROCK SOCKET DETAIL

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C. E-E and Detail A, See Sh. No. 580

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

SHEET NO.	TOTAL SHEETS
581	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 1 DETAILS
(2 OF 2)

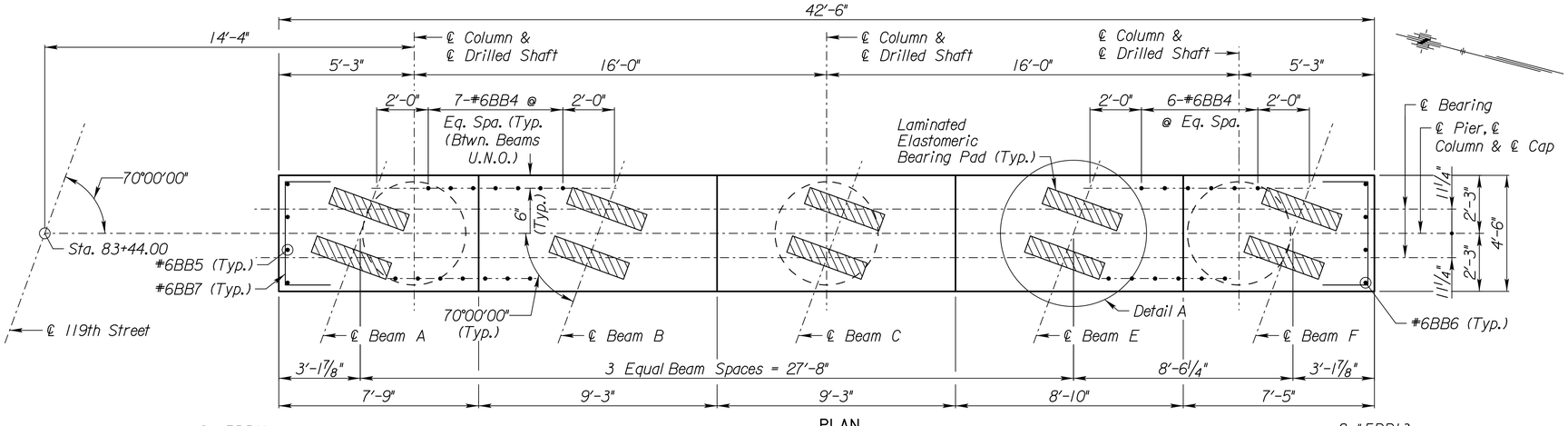
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P1-2.dgn

Notes:
For Sections B-B, C-C, E-E and Detail A, See Sh. No. 583

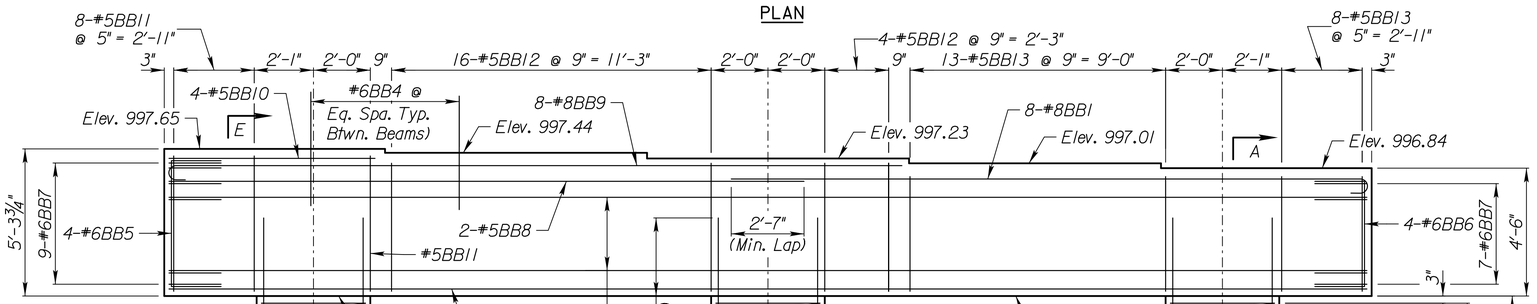
For Rock Socket Details, See Sh. No. 583

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

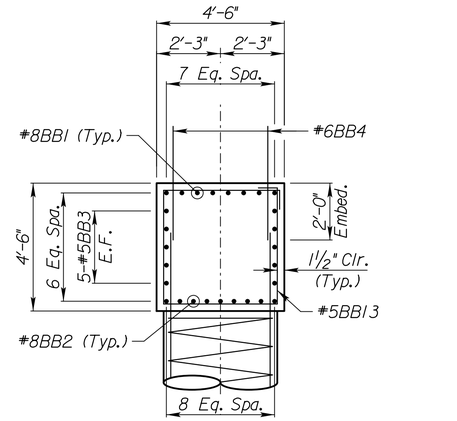
Max. Factored Design Drilled Shaft Load (Strength I) = 613 tons/shaft
Factored Drilled Shaft resistance = 1,804 tons/shaft

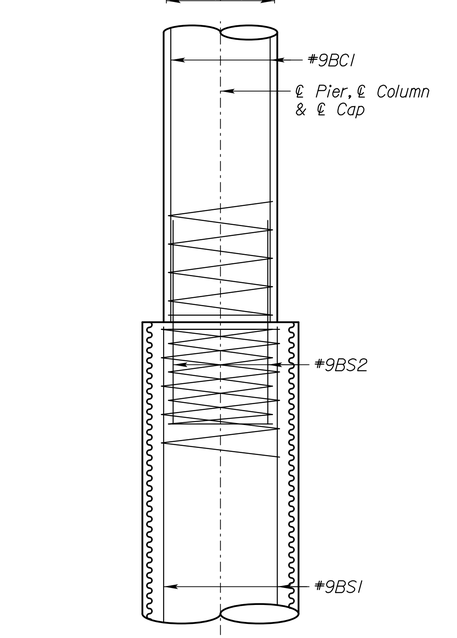


PLAN



ELEVATION





SECTION A-A

SHEET NO.	TOTAL SHEETS
582	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

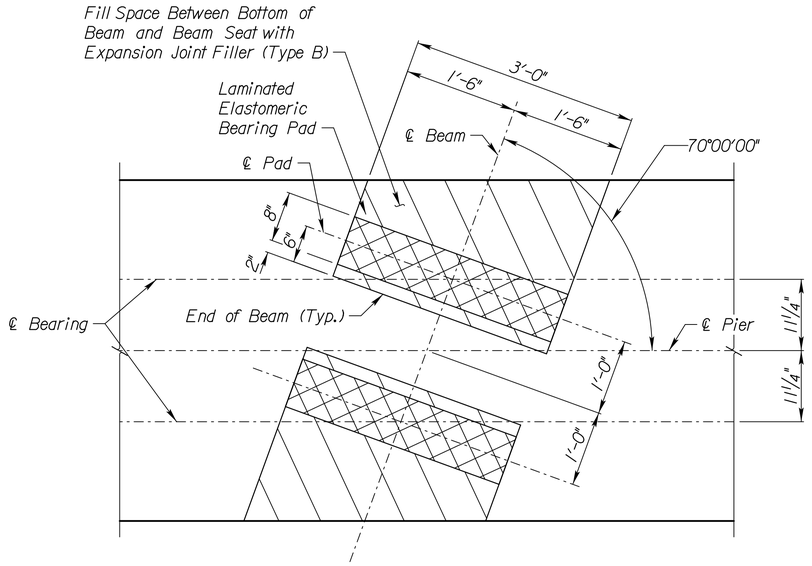
CITY OF OLATHE, KS

OLATHE KANSAS

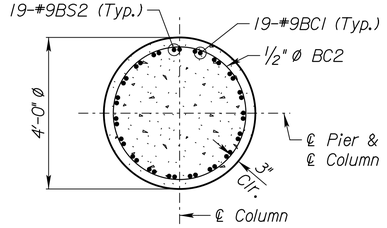
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 2 DETAILS
(1OF 2)

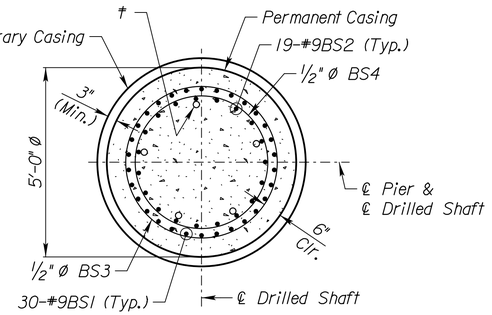
Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_P2-1.dgn
Plotted : 08-28-24



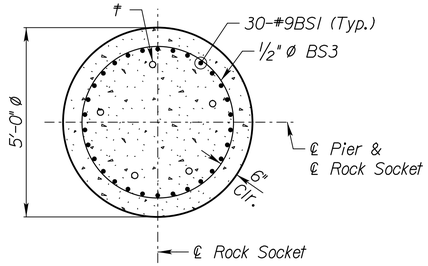
DETAIL A



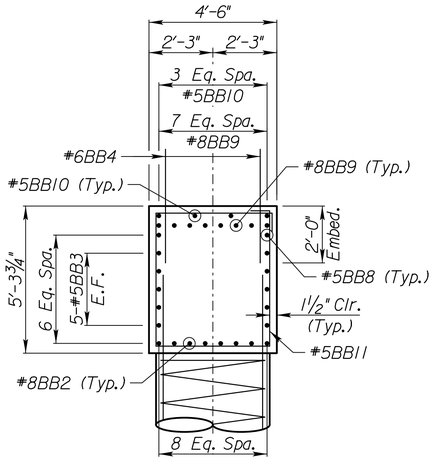
SECTION B-B



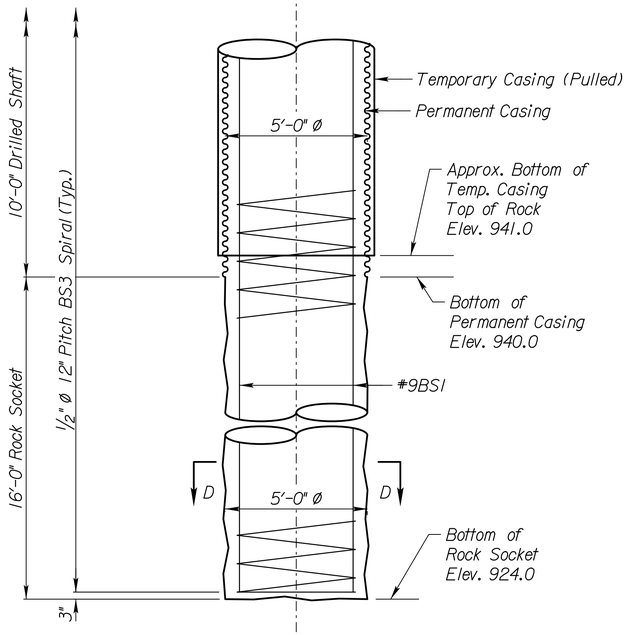
SECTION C-C



SECTION D-D



SECTION E-E



ROCK SOCKET DETAIL

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C, E-E and Detail A, See Sh. No. 582

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

SHEET NO. 583 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

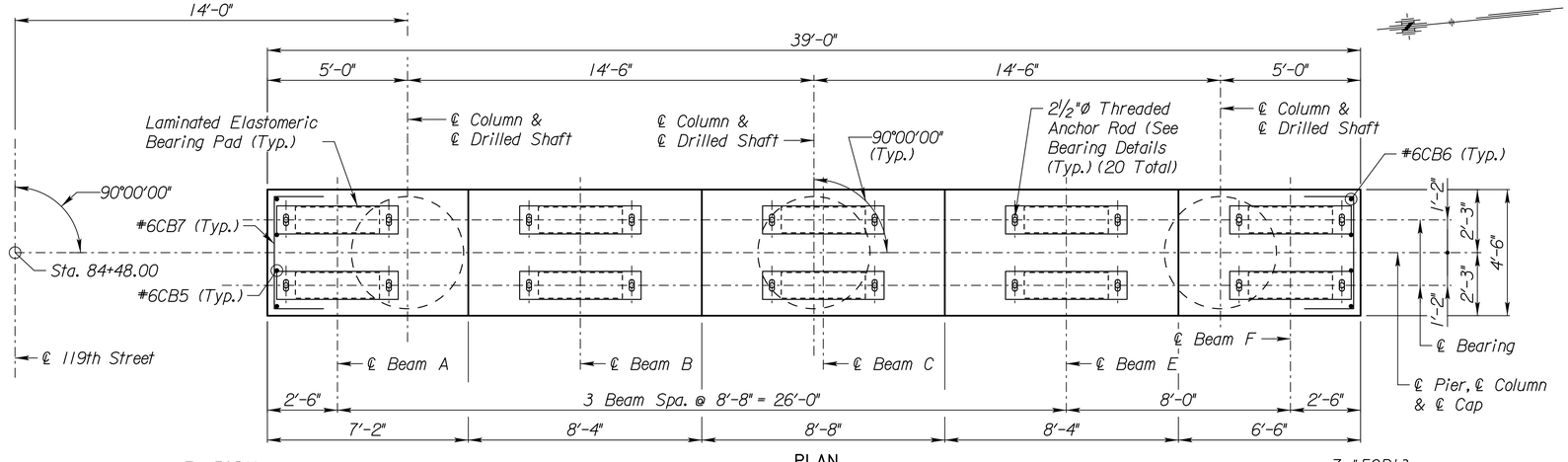
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

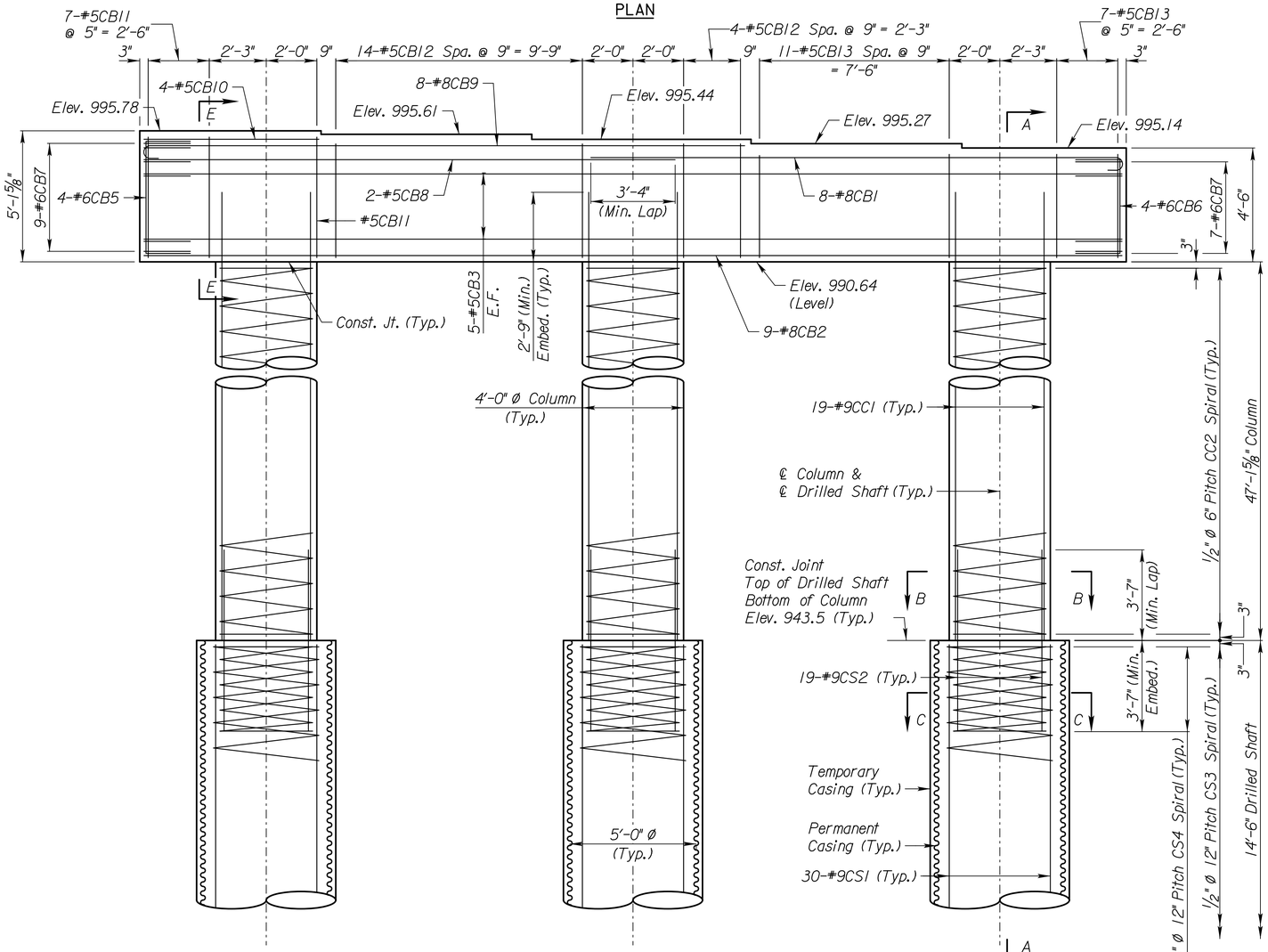
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 2 DETAILS
(2 OF 2)

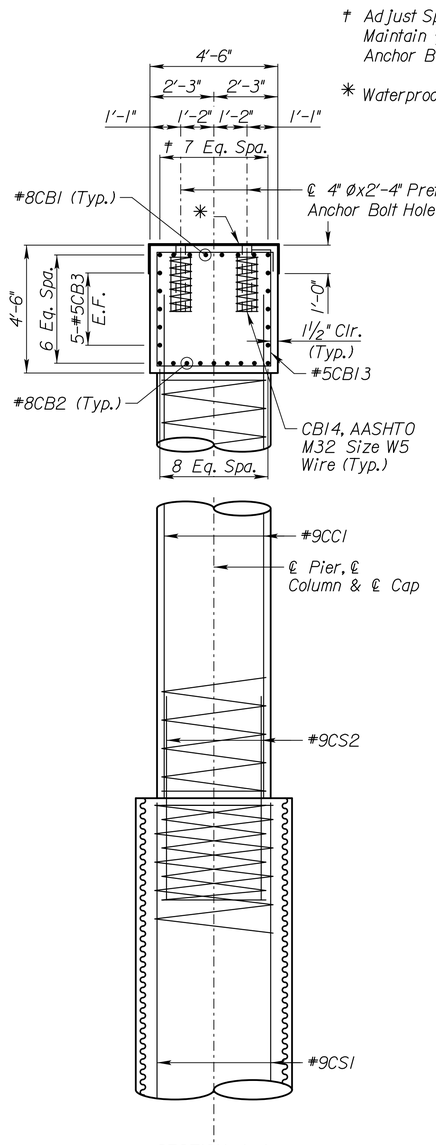
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P2-2.dgn



PLAN



ELEVATION



SECTION A-A

Notes:
For Sections B-B, C-C and E-E, See Sh. No. 585

For Rock Socket Details, See Sh. No. 585

For additional Anchor Rod and Formed Hole Details, See Sh. No. 633

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

Max. Factored Design Drilled Shaft Load (Strength I) = 532 tons/shaft
Factored Drilled Shaft resistance = 2,750 tons/shaft

SHEET NO.	TOTAL SHEETS
584	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

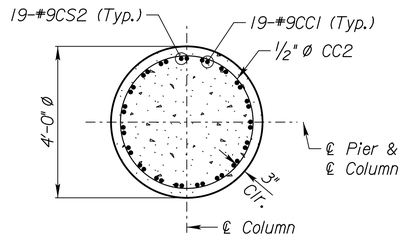
CITY OF OLATHE, KS

OLATHE KANSAS

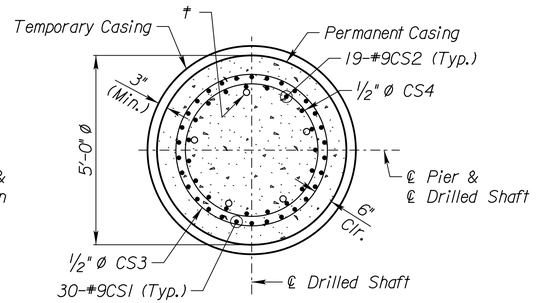
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO.3 DETAILS
(1OF 2)

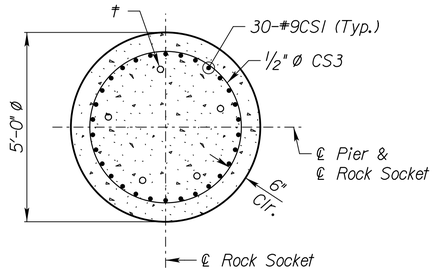
Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P3-1.dgn



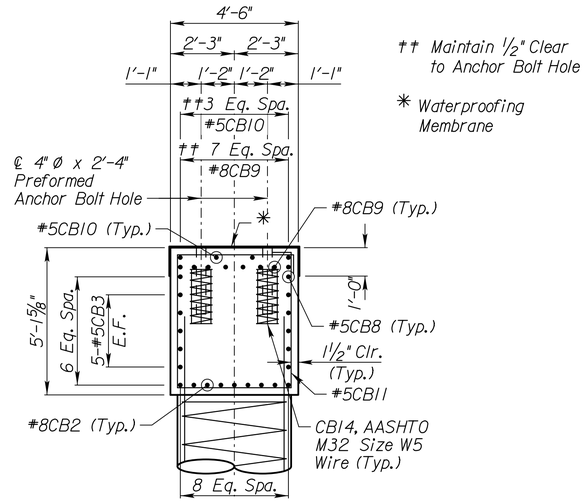
SECTION B-B



SECTION C-C



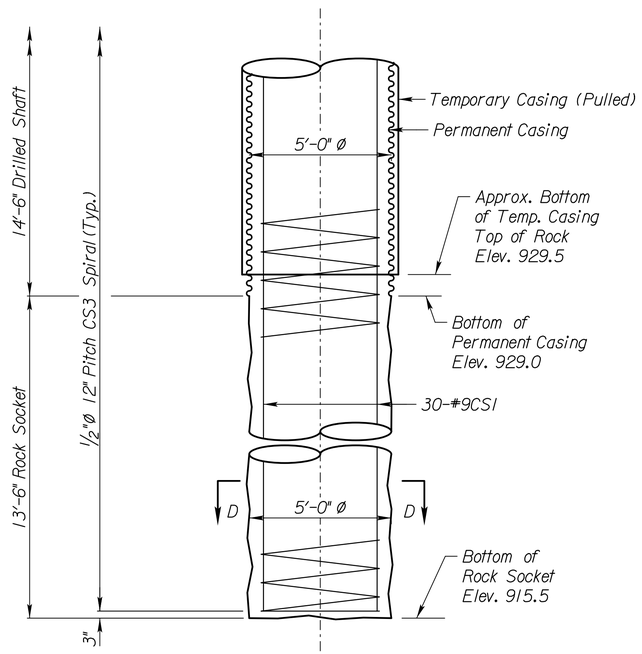
SECTION D-D



†† Maintain ½" Clear to Anchor Bolt Hole

* Waterproofing Membrane

SECTION E-E



ROCK SOCKET DETAIL

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C and E-E, See Sh. No. 584

For additional Anchor Rod and Formed Hole Details, See Sh. No. 633

SHEET NO.	TOTAL SHEETS
585	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

HDR Engineering, Inc.

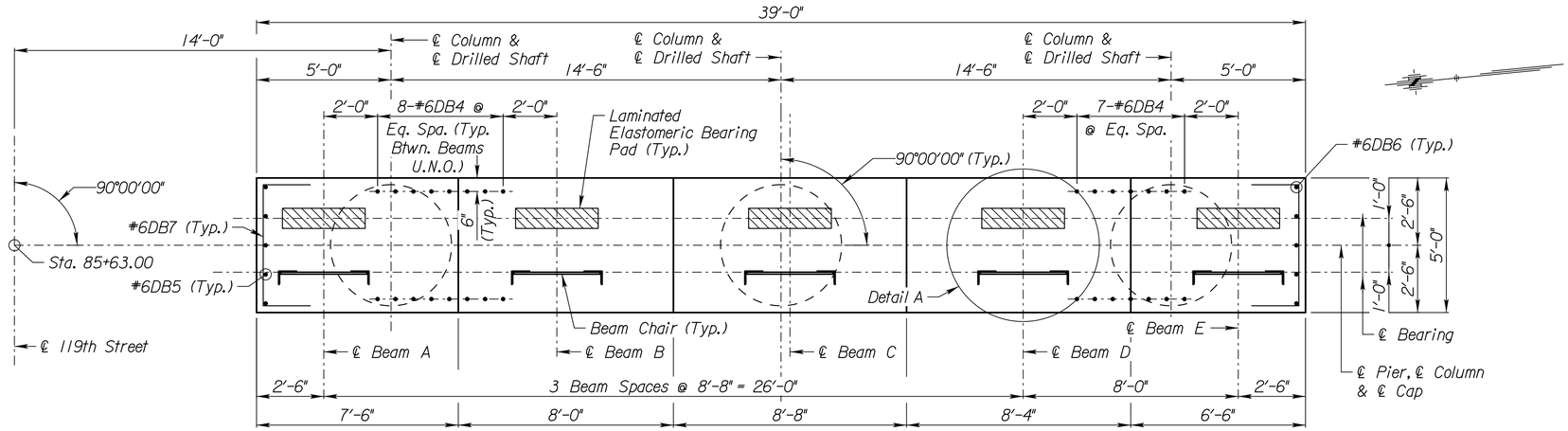
CITY OF OLATHE, KS

OLATHE KANSAS

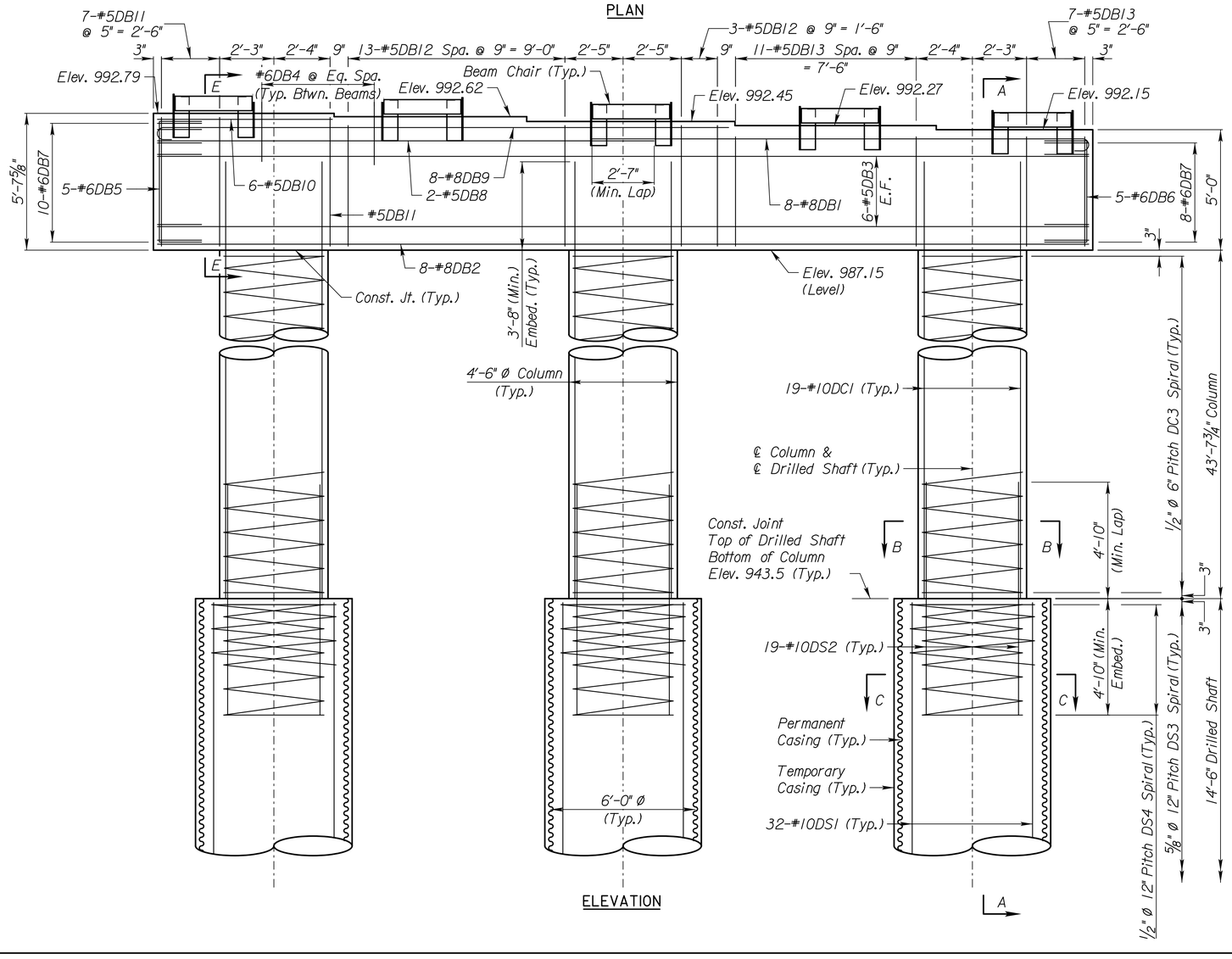
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 3 DETAILS
(2 OF 2)

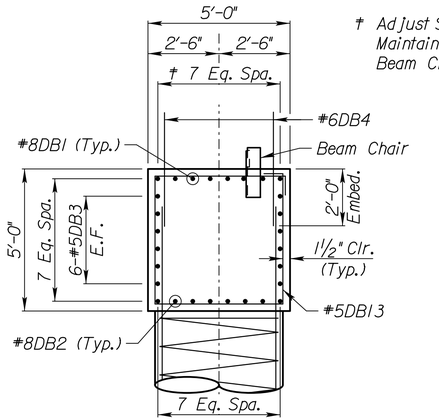
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P3-2.dgn



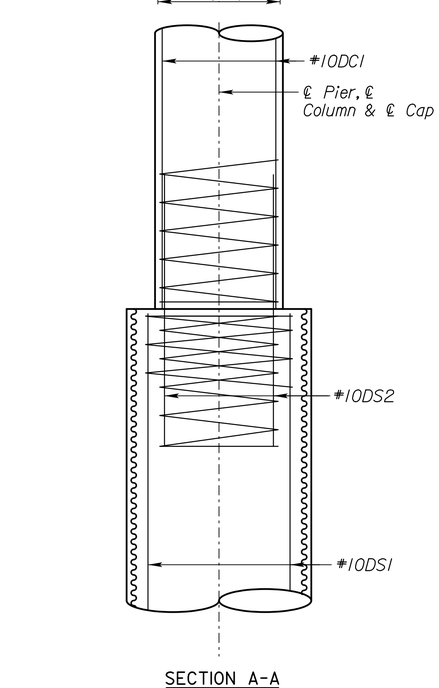
PLAN



ELEVATION



† Adjust Spacing to Maintain ½" Clear to Beam Chairs



SECTION A-A

Notes:
For Sections B-B, C-C, E-E and Detail A, See Sh. No. 587

For Beam Chair Details, See Sh. No. 587

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

For Rock Socket Details, See Sh. No. 587

Max. Factored Design Drilled Shaft Load (Strength I) = 824 tons/shaft
Factored Drilled Shaft Resistance = 3,657 tons/shaft

Adjust top of cap and stirrup reinforcement spacing to accomodate beam chair.

SHEET NO.	TOTAL SHEETS
586	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

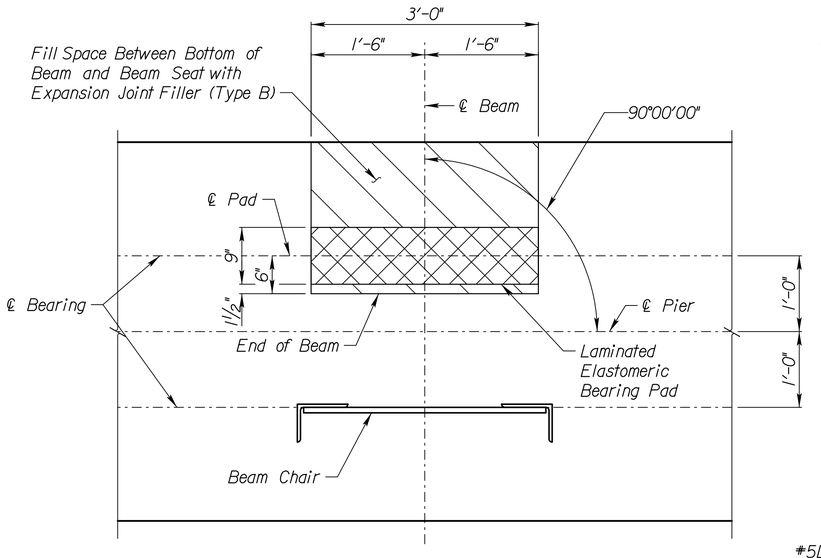
CITY OF OLATHE, KS

OLATHE KANSAS

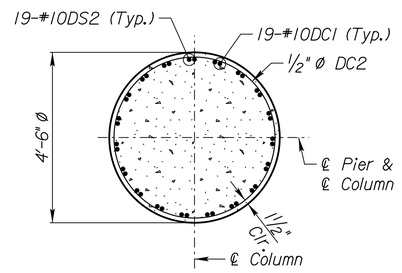
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 4 DETAILS
(1 OF 2)

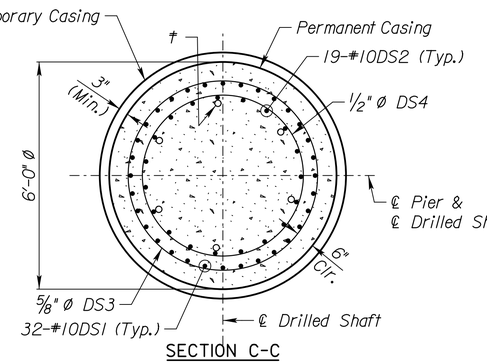
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P4-1.dgn



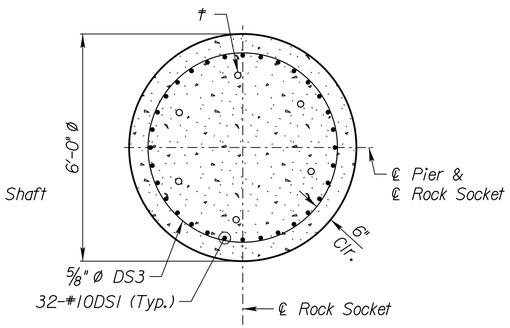
DETAIL A



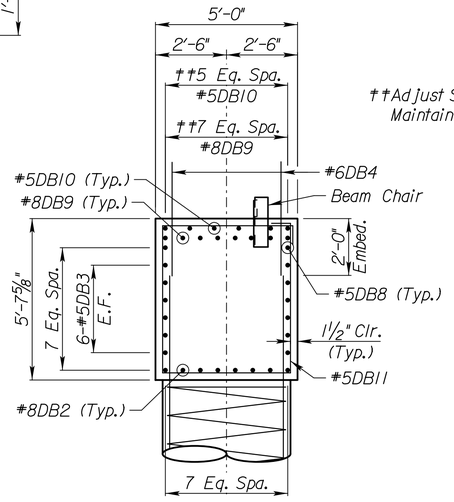
SECTION B-B



SECTION C-C



SECTION D-D



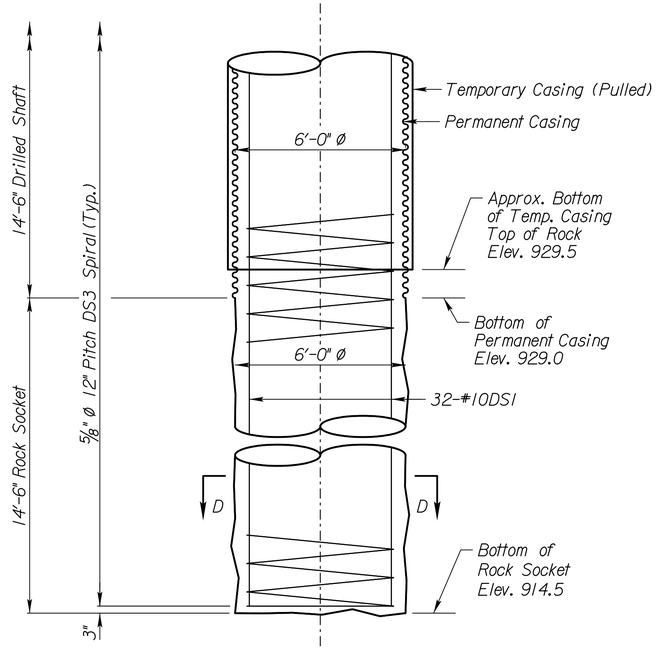
SECTION E-E

††Adjust Spacing to Maintain ½" Beam Chair

Notes:
†6-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C, E-E and Detail A, See Sh. No. 586

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633



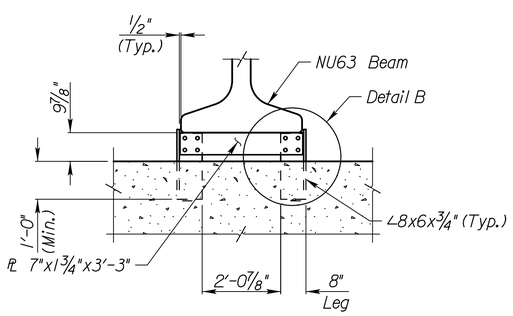
ROCK SOCKET DETAIL

Beam Chair Notes:
All Beam Chair materials including bolts, nuts, and washers shall be galvanized.

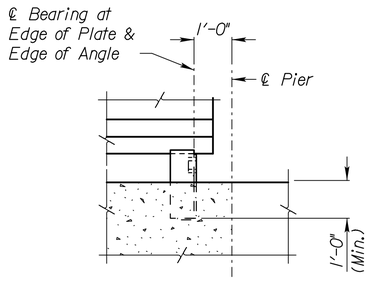
Fabricated Structural steel shall be ASTM A709 Grade 36 except as noted.

Payment for furnishing and installing Beam Chairs will be completely covered by the unit price of Prestressed Concrete Beam.

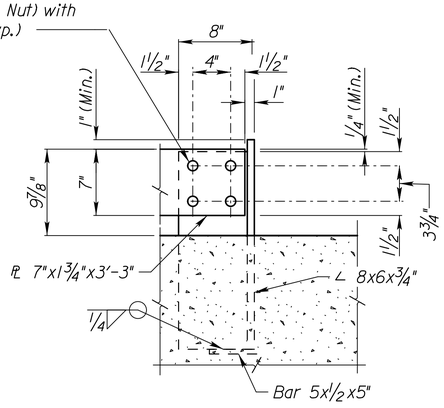
Shop Drawing will not be required for Beam Chairs.



BEAM CHAIR ELEVATION



BEAM CHAIR SIDE ELEVATION



DETAIL B

BEAM CHAIR DETAILS (ALL BEAMS)

SHEET NO.	TOTAL SHEETS
587	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 4 DETAILS
(2 OF 2)

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P4-2.dgn

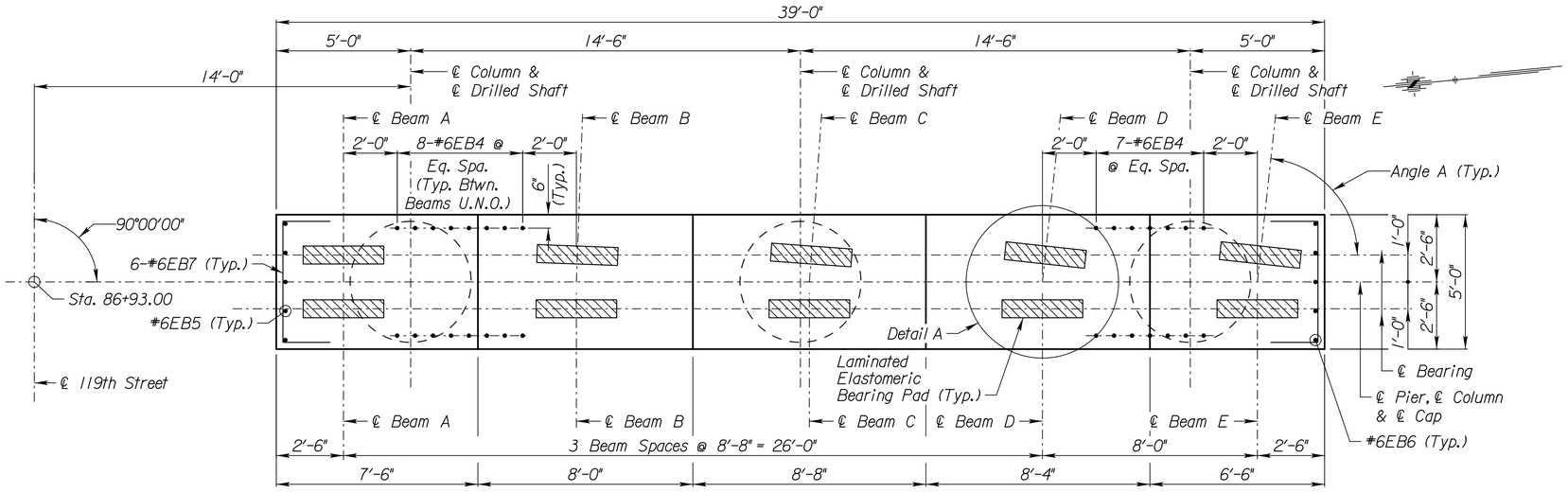
TABLE OF ANGLE A		
	SPAN 5	SPAN 6
Beam A	90°00'00"	90°00'00"
Beam B	90°00'00"	87°55'03"
Beam C	90°00'00"	85°50'25"
Beam D	90°00'00"	83°46'27"
Beam E	90°00'00"	83°46'27"

Notes:
For Sections B-B, C-C, E-E and Detail A, See Sh. No. 587

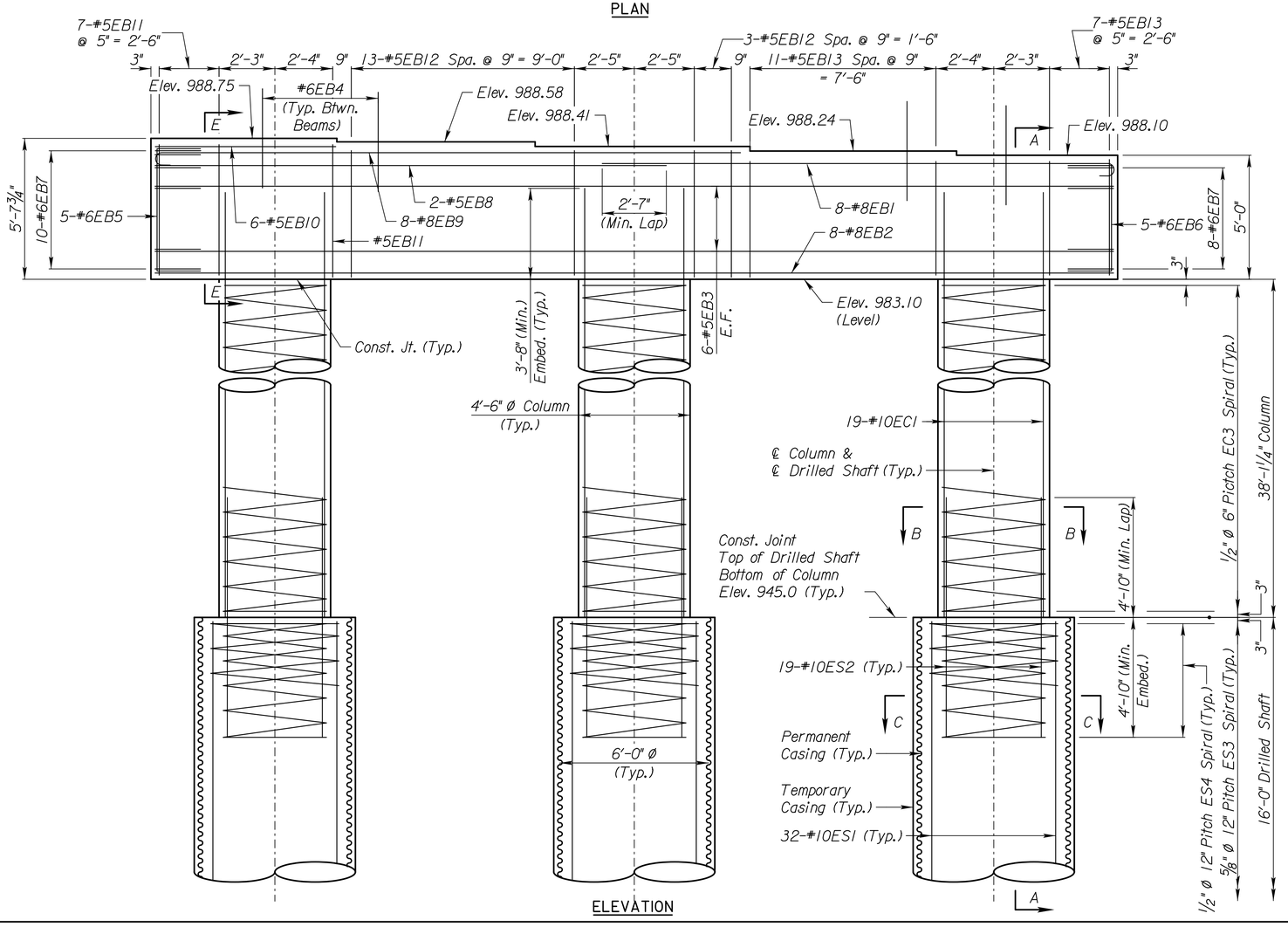
For Rock Socket Details, See Sh. No. 587

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

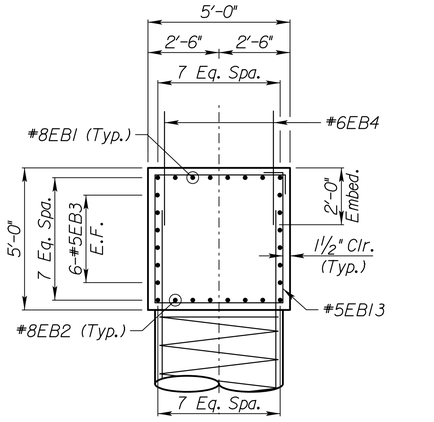
Max. Factored Design Drilled Shaft Load (Strength I) = 824 tons/shaft
Factored Drilled Shaft resistance = 3,657 tons/shaft

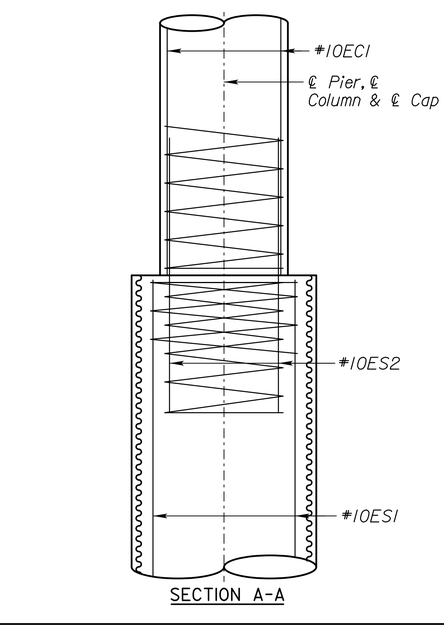


PLAN



ELEVATION





SECTION A-A

SHEET NO.	TOTAL SHEETS
588	781

YEAR 2024
PROJECT NO. 3-C-024-21

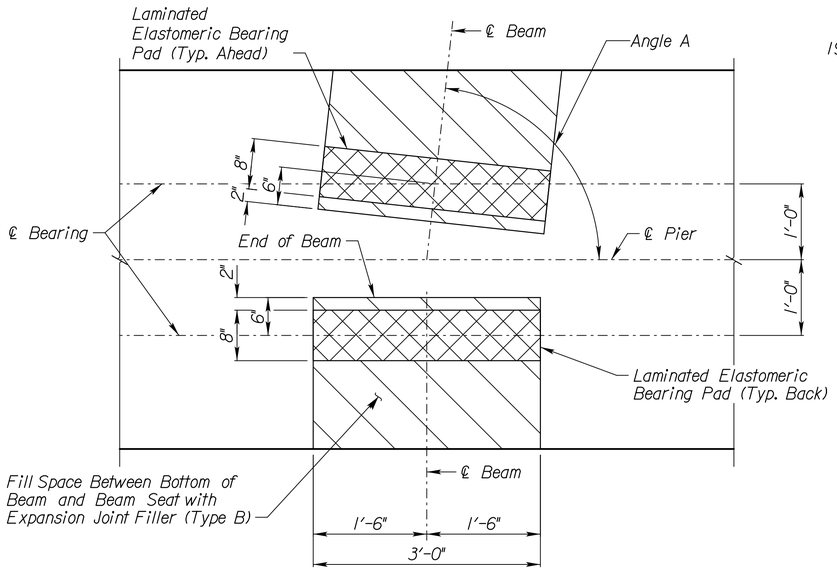
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

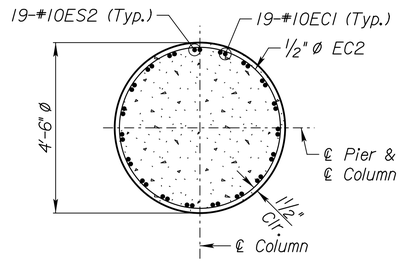
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 5 DETAILS
(1 OF 2)

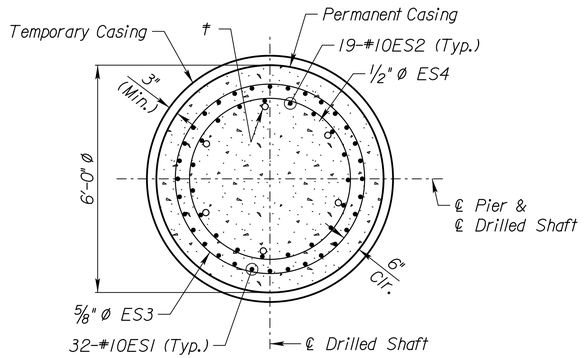
Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P5-1.dgn



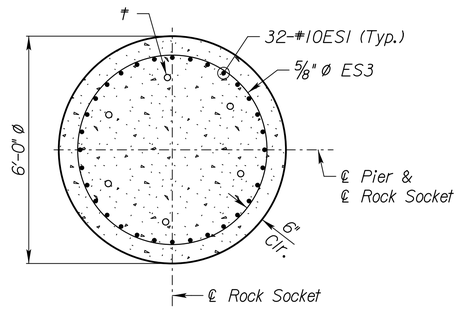
DETAIL A



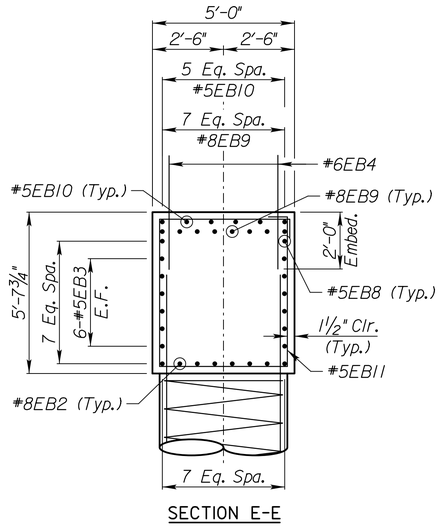
SECTION B-B



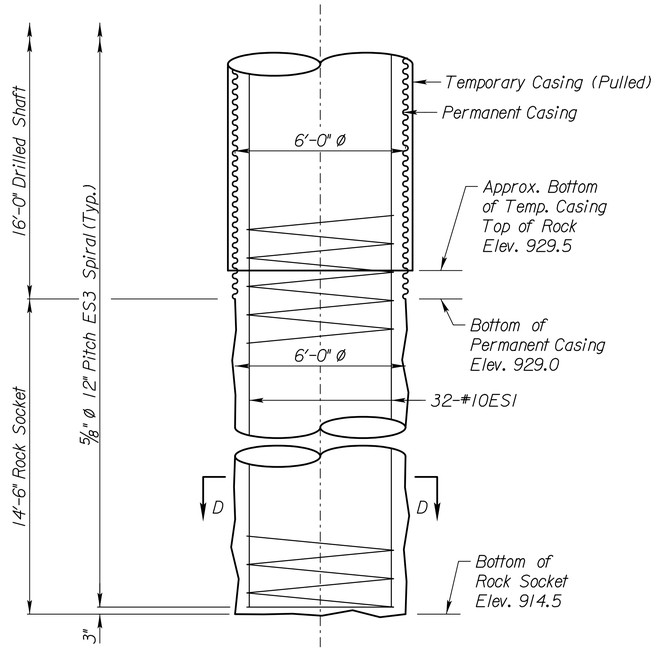
SECTION C-C



SECTION D-D



SECTION E-E



ROCK SOCKET DETAIL

Notes:
#6-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C, E-E and Detail A, See Sh. No. bre-5-1

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

SHEET NO.	TOTAL SHEETS
589	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

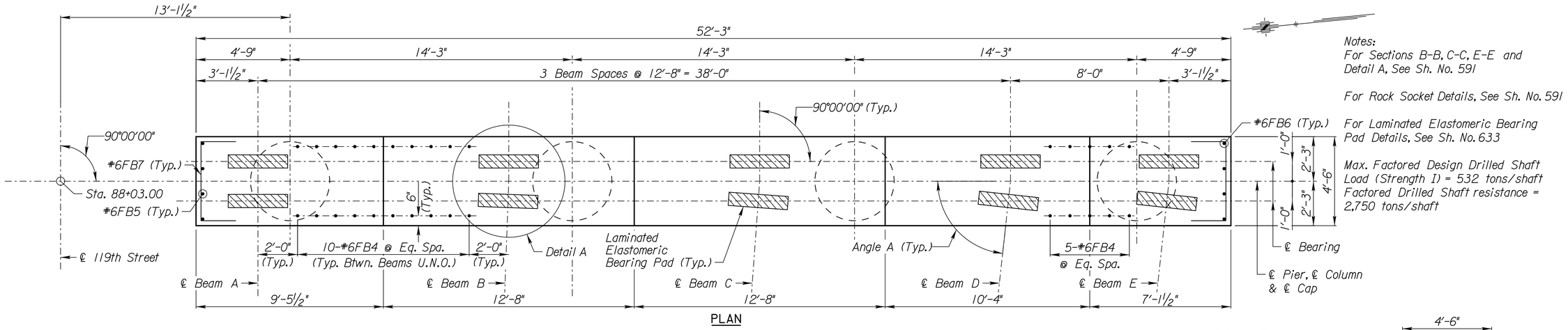
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 5 DETAILS
(2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P5-2.dgn



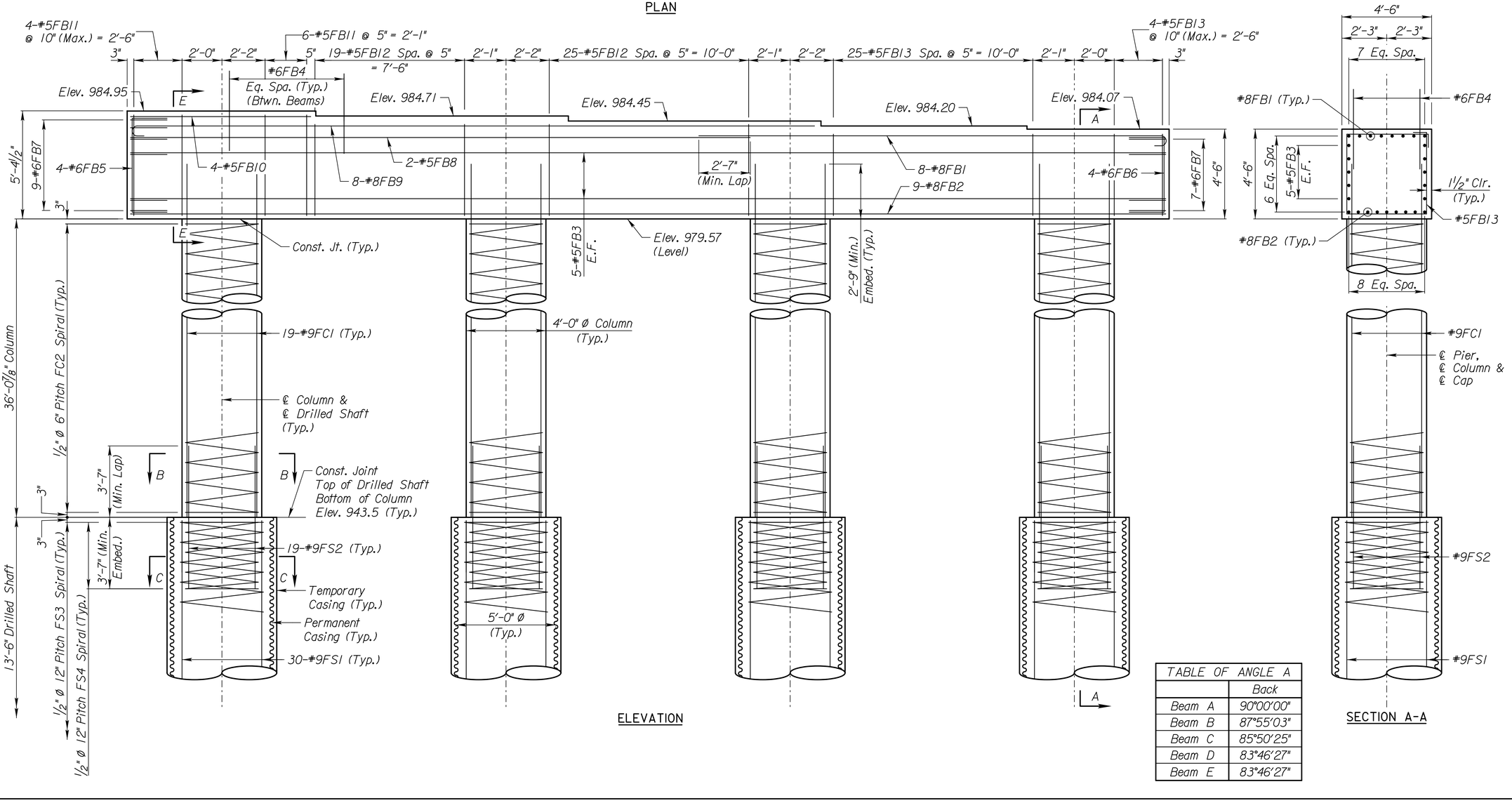
PLAN

Notes:
For Sections B-B, C-C, E-E and Detail A, See Sh. No. 591

For Rock Socket Details, See Sh. No. 591

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

Max. Factored Design Drilled Shaft Load (Strength I) = 532 tons/shaft
Factored Drilled Shaft resistance = 2,750 tons/shaft



ELEVATION

SECTION A-A

TABLE OF ANGLE A	
	Back
Beam A	90°00'00"
Beam B	87°55'03"
Beam C	85°50'25"
Beam D	83°46'27"
Beam E	83°46'27"

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

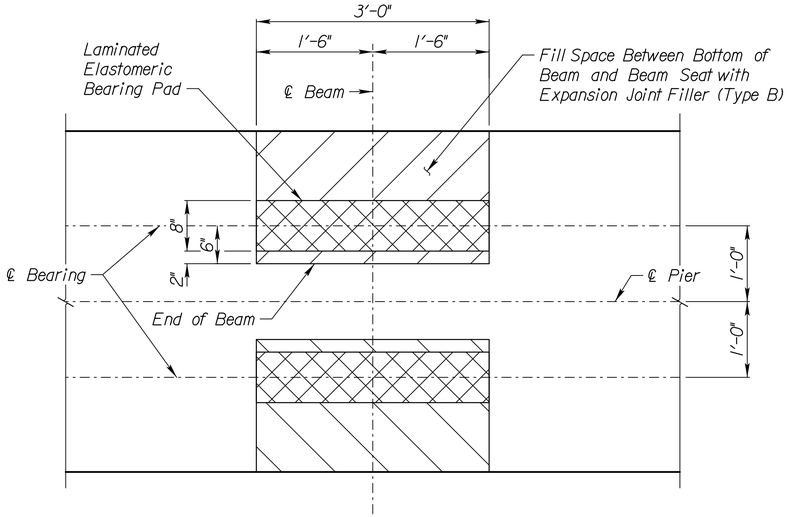
SHEET NO. 590 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

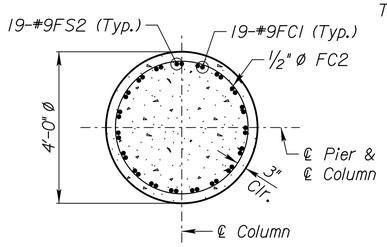
CITY OF OLATHE, KS

119th Street - Eastbound
PIER NO. 6 DETAILS
(1 OF 2)

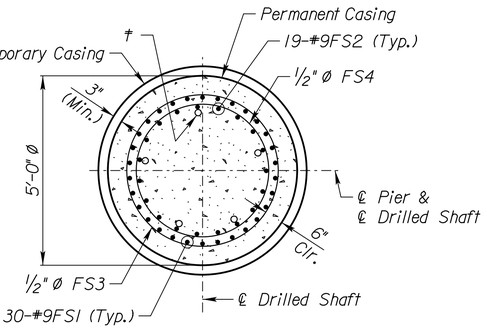
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P6-1.dgn



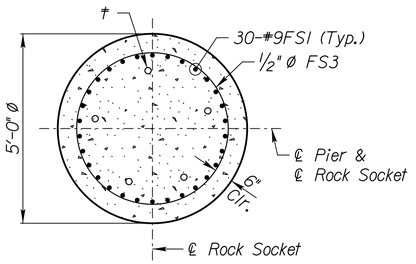
DETAIL A



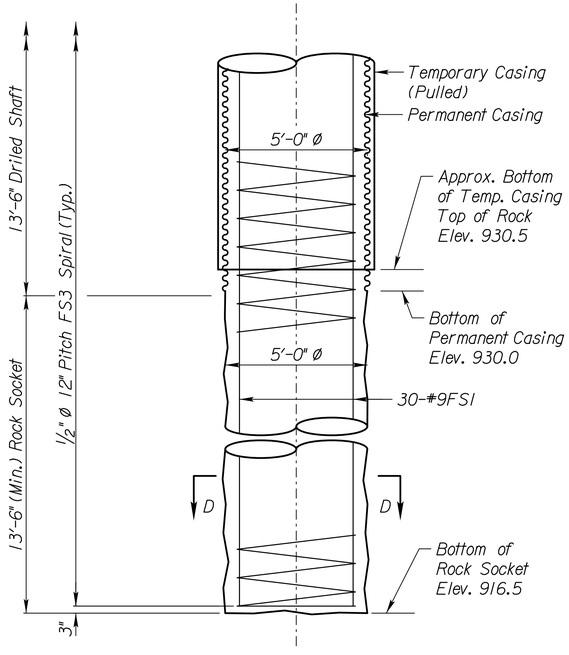
SECTION B-B



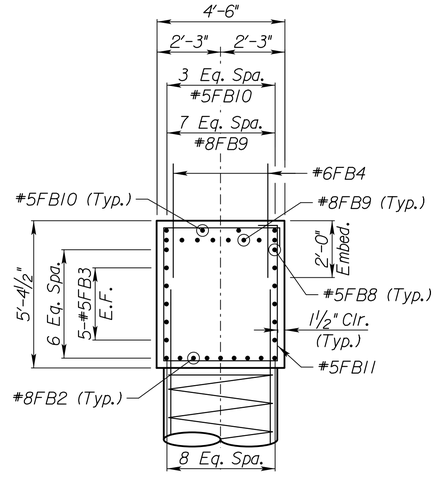
SECTION C-C



SECTION D-D



ROCK SOCKET DETAIL



SECTION E-E

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C, E-E and Detail A, See Sh. No. 590

For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P6-2.dgn

SHEET NO. 591 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO.6 DETAILS
(2 OF 2)

Notes:
For Sections B-B, C-C and E-E, See Sh. No. 593

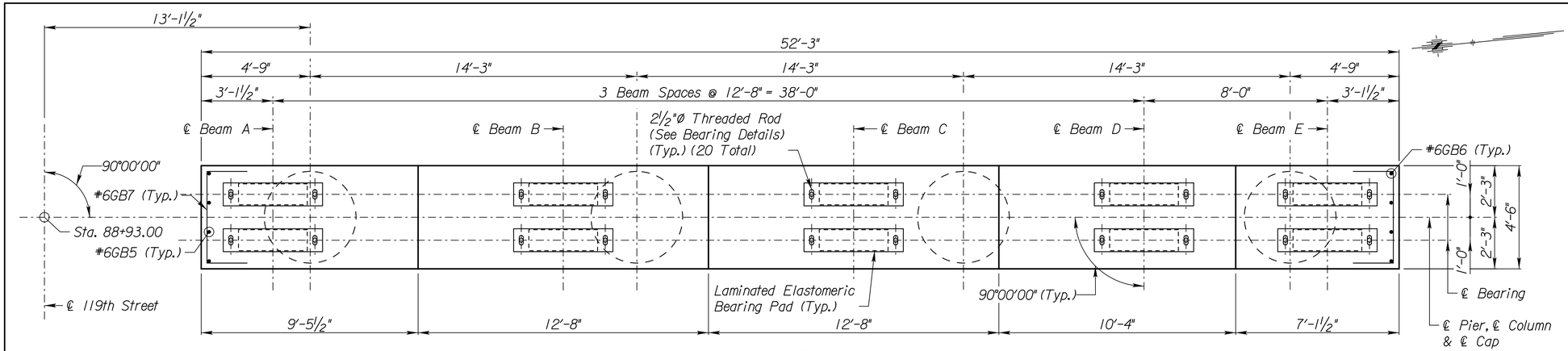
For Rock Socket Details, See Sh. No. 593

For additional Anchor Rod and Formed Hole Details, See Sh. No. 633

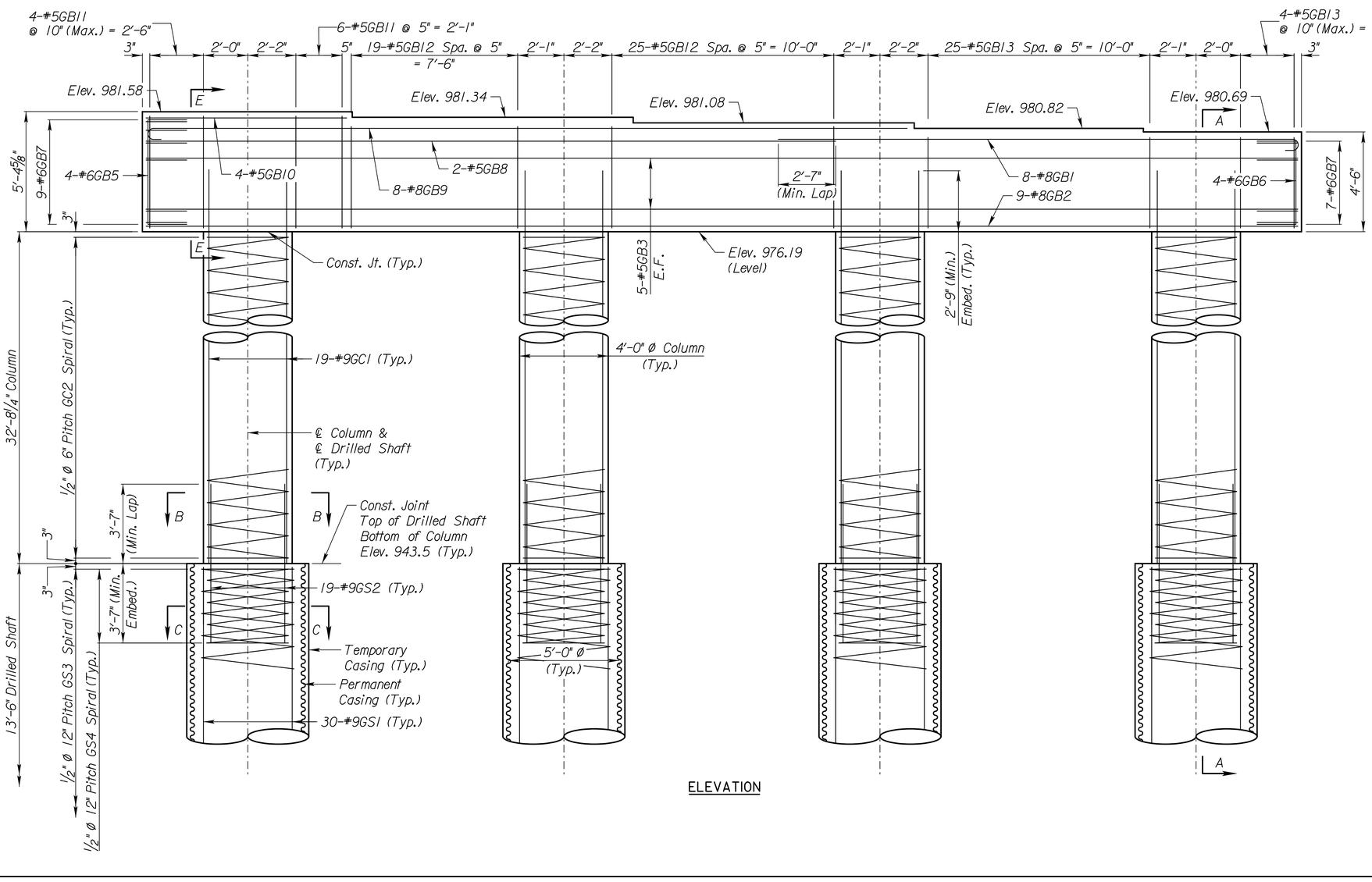
For Laminated Elastomeric Bearing Pad Details, See Sh. No. 633

Max. Factored Design Drilled Shaft Load (Strength I) = 532 tons/shaft
Factored Drilled Shaft resistance = 2,750 tons/shaft

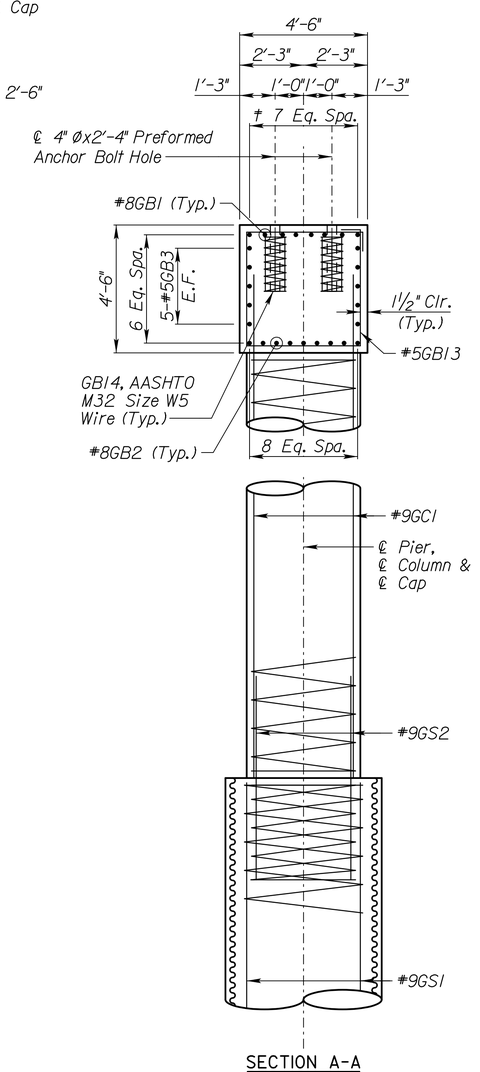
† Adjust Spacing to Maintain ½" Clear to Anchor Bolt Hole



PLAN



ELEVATION



SECTION A-A

SHEET NO. 592 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

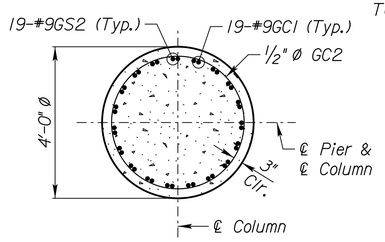
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

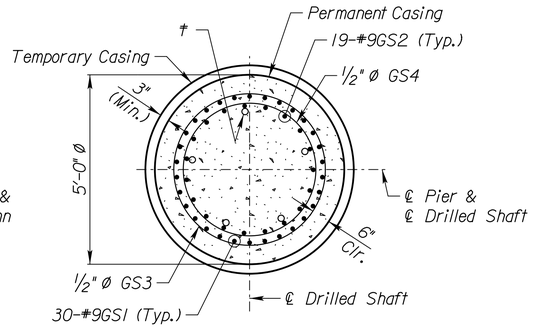
No.	Description	Date	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 7 DETAILS
(1OF 2)

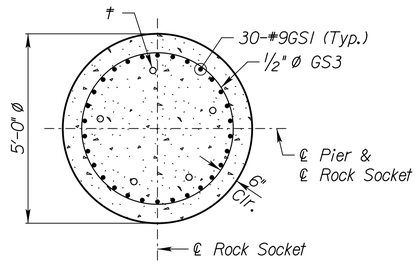
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P7-1.dgn



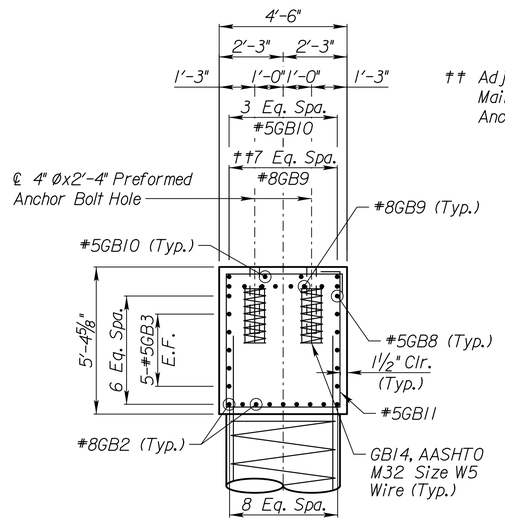
SECTION B-B



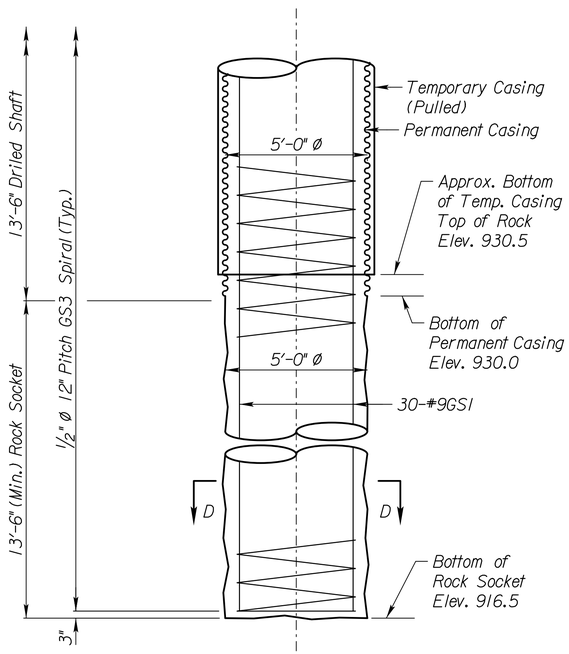
SECTION C-C



SECTION D-D



SECTION E-E



ROCK SOCKET DETAIL

Notes:
†5-2" Ø steel pipes. Tie securely to reinforcing cage, spaced as shown (extend 1'-0" above top of shaft).

For location of Sections B-B, C-C and E-E, See Sh. No. 592

For additional Anchor Rod and Formed Hole Details, See Sh. No. 633

SHEET NO.	TOTAL SHEETS
593	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

HDR Engineering, Inc.

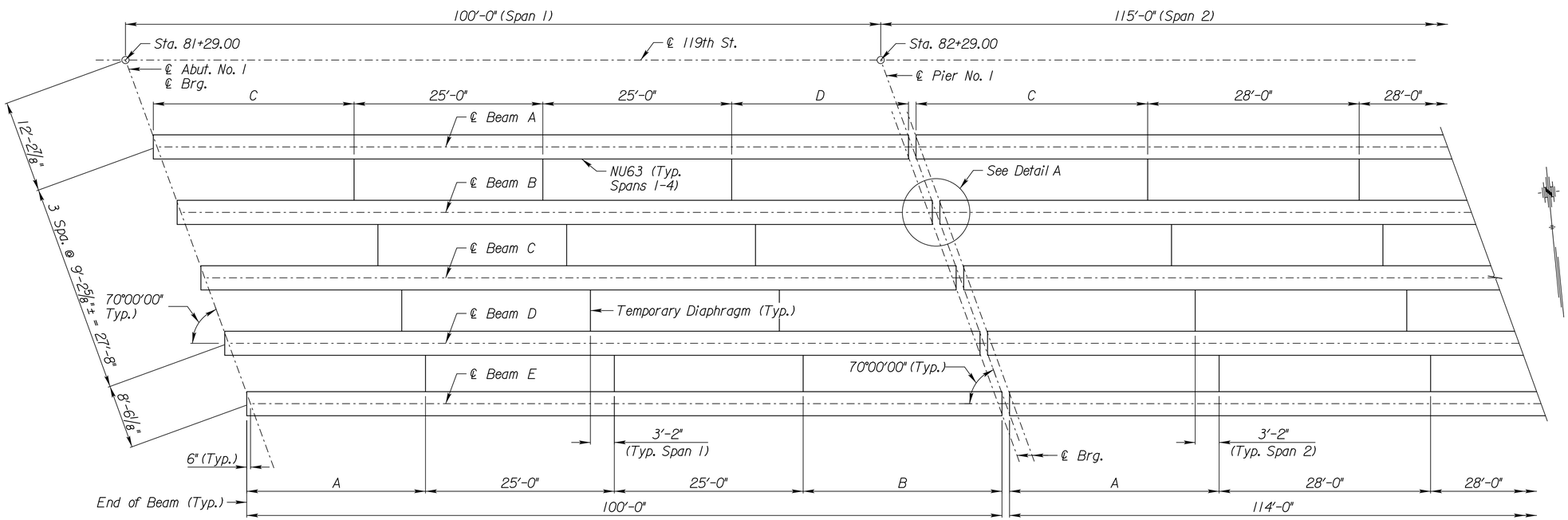
CITY OF OLATHE, KS

OLATHE KANSAS

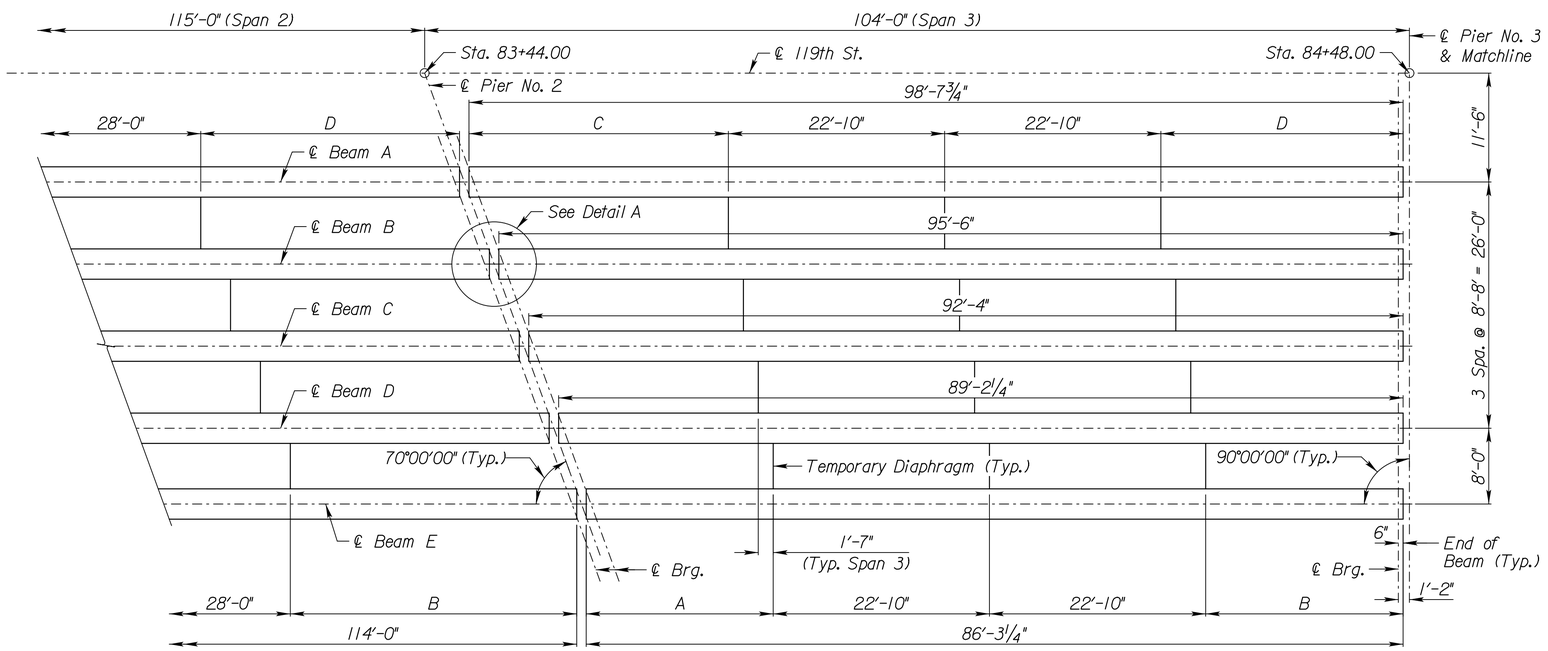
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER NO. 7 DETAILS
(2 OF 2)

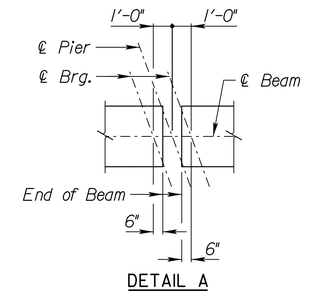
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_P7-2.dgn



FRAMING PLAN - UNIT 1



FRAMING PLAN - UNIT 1 CONT.



DETAIL A

TEMPORARY DIAPHRAGM LOCATIONS					
Span	Beam	Dimension			
		A	B	C	D
1	A	-	-	26'-7"	23'-5"
	B	23'-5"	26'-7"	26'-7"	23'-5"
	C	23'-5"	26'-7"	26'-7"	23'-5"
	D	23'-5"	26'-7"	26'-7"	23'-5"
	E	23'-8"	26'-4"	-	-
2	A	-	-	30'-7"	27'-5"
	B	27'-5"	30'-7"	30'-7"	27'-5"
	C	27'-5"	30'-7"	30'-7"	27'-5"
	D	27'-5"	30'-7"	30'-7"	27'-5"
	E	27'-8"	30'-4"	-	-
3	A	-	-	27'-4 3/4"	25'-7"
	B	24'-3"	25'-7"	25'-10"	24'-0"
	C	22'-8"	24'-0"	24'-3"	22'-5"
	D	21'-1 1/4"	22'-5"	22'-8 1/4"	20'-10"
	E	19'-9 1/4"	20'-10"	-	-

SHEET NO. 594 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

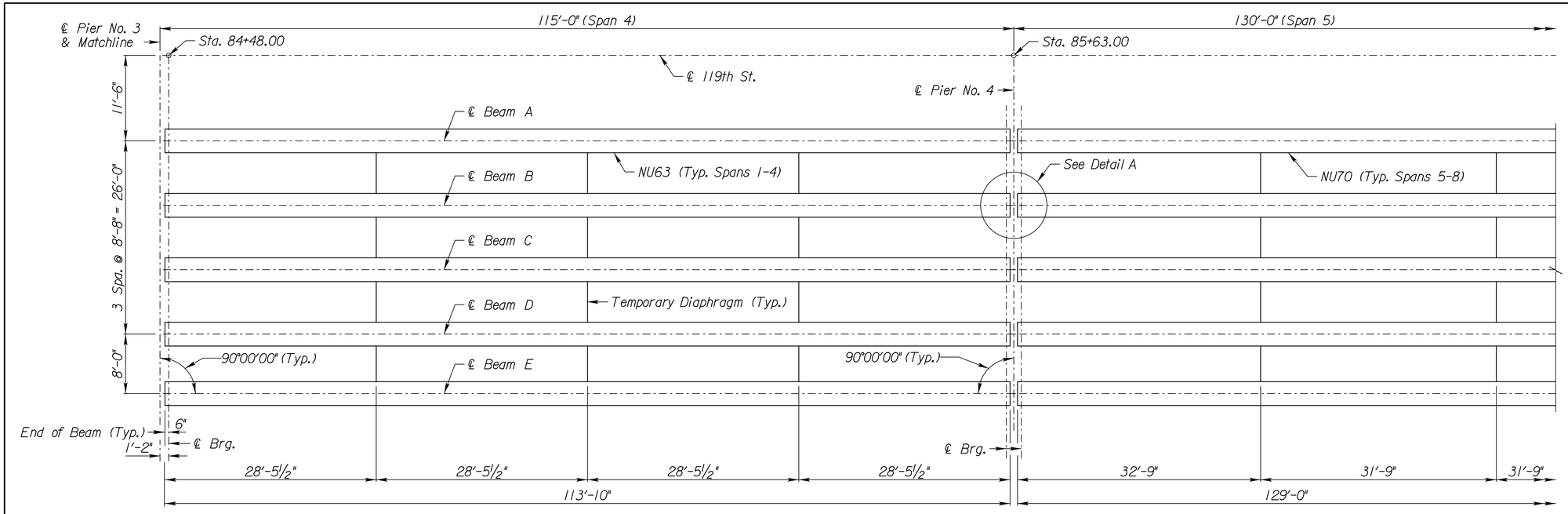
CITY OF OLATHE, KS

OLATHE KANSAS

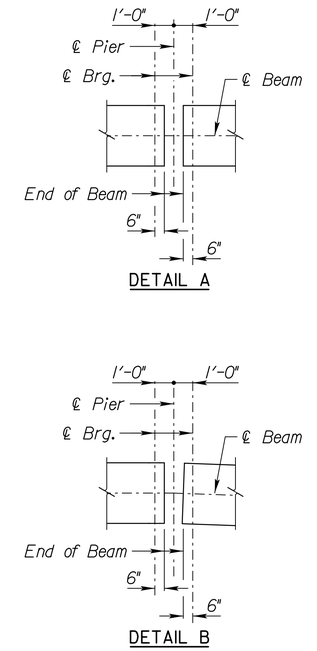
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

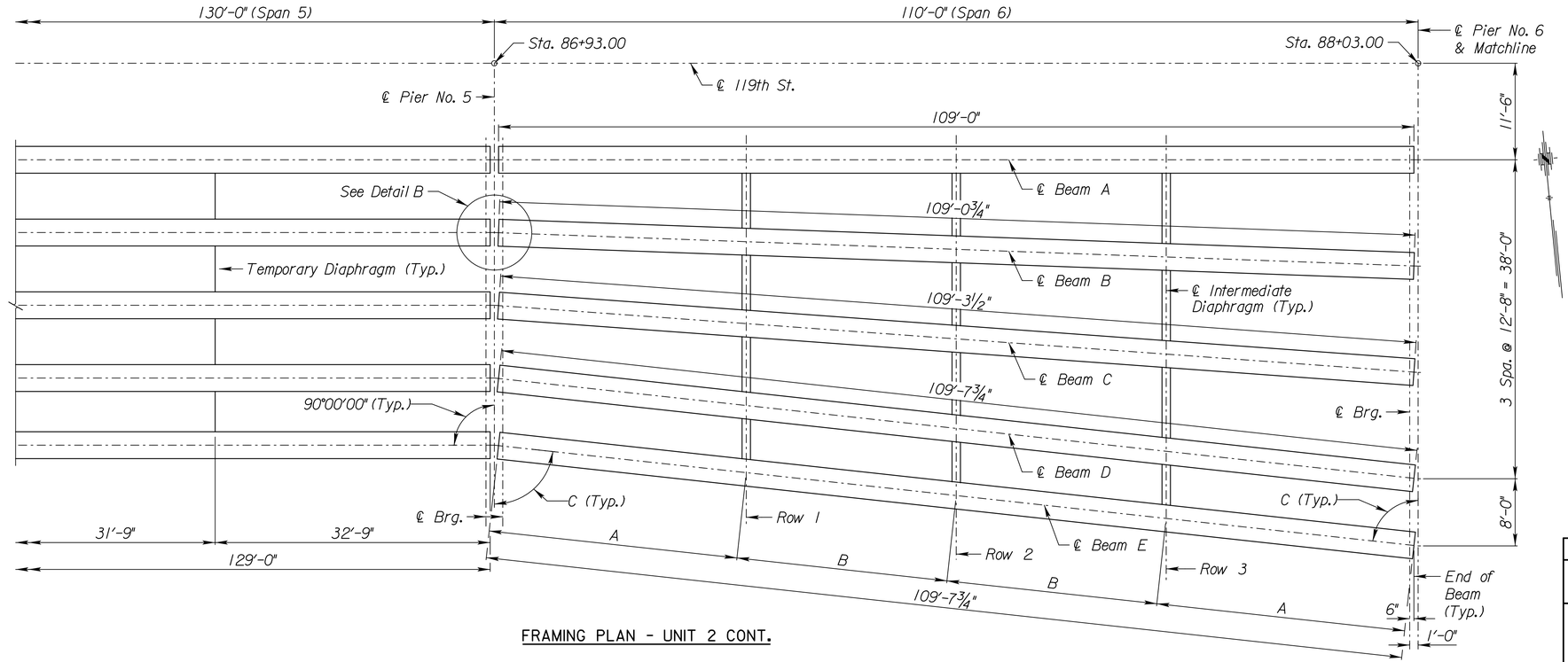
119th Street - Eastbound
FRAMING PLAN (1OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Frame1.dgn



FRAMING PLAN - UNIT 2





FRAMING PLAN - UNIT 2 CONT.

Note:
For Intermediate Diaphragm Details, See Sh. No. 598

INTERMEDIATE DIAPHRAGM LOCATIONS				
Span	Girder	Dimension		
		A✳	B✳	C
6	A	29′-6"	25′-0"	90°00′00"
	B	29′-6 1/8"	25′-0 1/4"	87°55′03"
	C	29′-7"	25′-0 3/4"	85°50′25"
	D	29′-8 1/8"	25′-1 3/4"	83°46′27"
	E	29′-8 1/8"	25′-1 3/4"	83°46′27"

✳Measured along Beam to ℄ Diaphragm

SHEET NO. 595 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

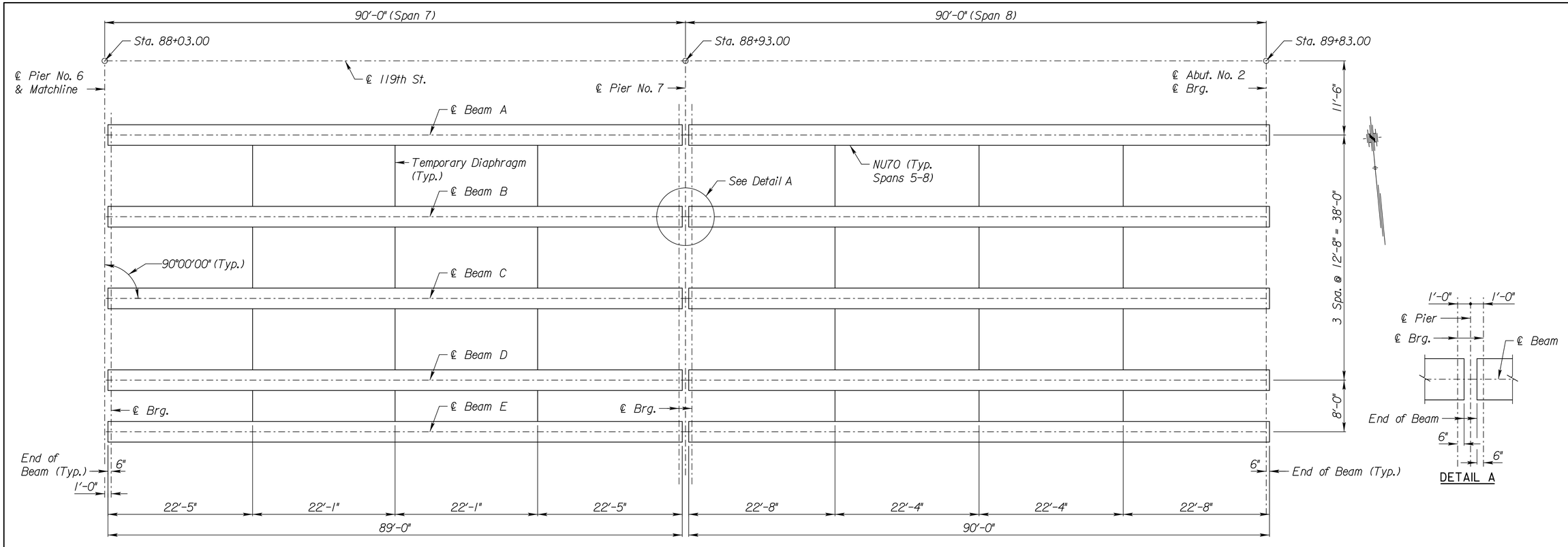
CITY OF OLATHE, KS

OLATHE KANSAS

By	Description	Date	Rev.
. . .		. . .	. . .
. . .		. . .	. . .

119th Street - Eastbound
FRAMING PLAN (2 OF 3)

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Frame2.dgn



FRAMING PLAN - UNIT 2 CONT.

FRAMING PLAN - UNIT 2 CONT.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Frame3.dgn

SHEET NO. 596 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

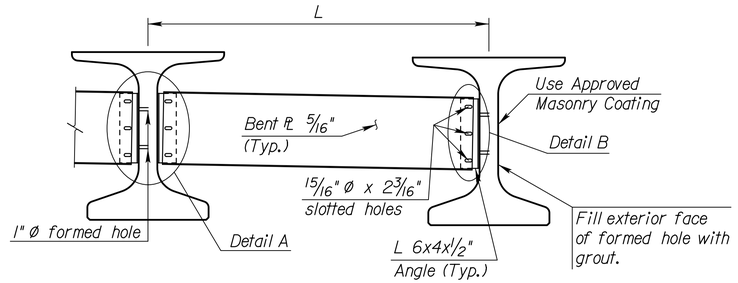
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

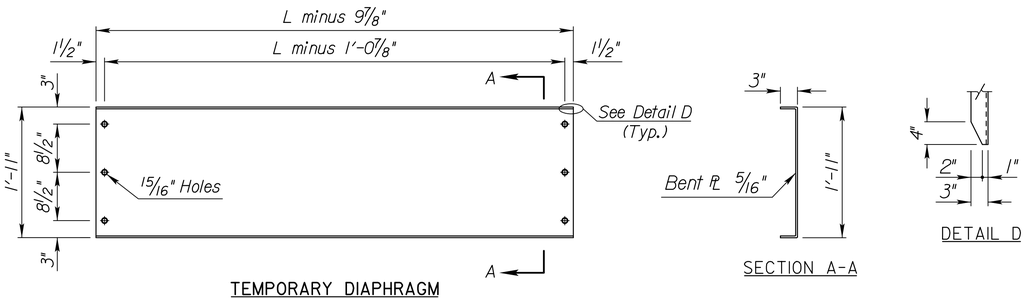
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
FRAMING PLAN (3 OF 3)



Typ. Interior Beams Typical Bay Typ. Exterior Beams

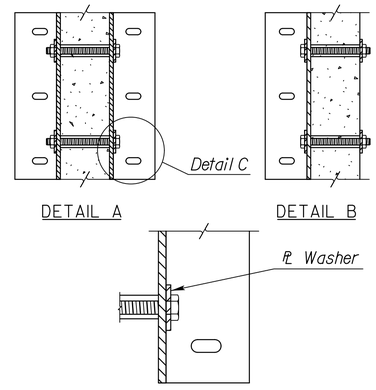
ELEVATION OF TEMPORARY DIAPHRAGMS
(NU63 & NU70)



TEMPORARY DIAPHRAGM
(or equivalent)
(NU63 & NU70)

SECTION A-A

DETAIL D

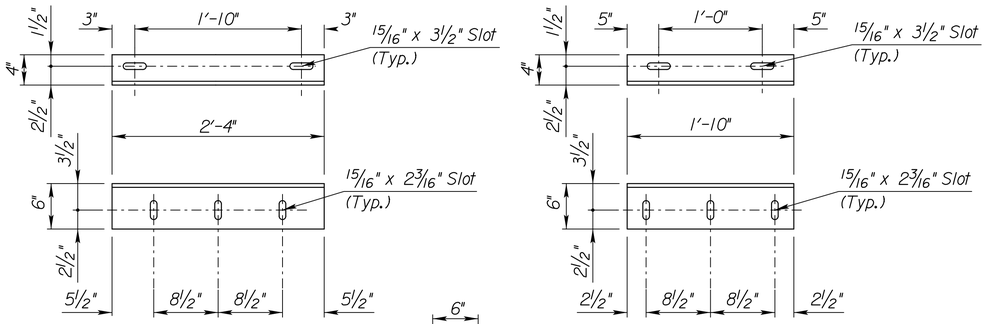


DETAIL A DETAIL B

DETAIL C

TEMPORARY DIAPHRAGMS: Use ASTM A709 Gr. 36 steel for all angles and bent plates for temporary diaphragms. All bolts, nuts, and washers for fasteners shall conform to the heavy hex structural requirements of ASTM F3125 Gr. A325, Type 1. Galvanize the angles, bolts, nuts, and washers in accordance with the KDOT Specifications. Use hardened steel washers over any oversized holes. Use 5/16" plate washers over any slotted holes along with hardened washers under all turned elements. Use the turn-of-the-nut tightening method. DTI's are not required. Install the temporary diaphragms, as shown in the details, prior to placing any superstructure concrete. Leave the temporary diaphragms in place until the concrete diaphragms and deck have cured. Remove the angles from the beams and fill the holes in the prestressed beams with an approved epoxy grout. The bent plate diaphragms, angles, nuts, bolts, and washers shall remain the property of the Contractor. Submit shop drawings of the temporary diaphragms to the KDOT Bridge Section for review and approval. The material, equipment, and labor necessary for the installation of the temporary diaphragms, including filling the bolt holes, shall not be paid for directly, but shall be subsidiary to the bid item "Prestressed Concrete Beams".

TEMPORARY DIAPHRAGM DIMENSIONS			
Spans 1 thru 5		Spans 7 and 8	
Bay	L Dim.	Bay	L Dim.
A-B	8'-8"	A-B	12'-8"
B-C	8'-8"	B-C	12'-8"
C-D	8'-8"	C-D	12'-8"
D-E	8'-0"	D-E	8'-0"



2'-4" CONNECTION ANGLE
(72 each Req'd.)
(Weight = 37.8 Lb. each)
(NU70)

TYPICAL SECTION

1'-10" CONNECTION ANGLE
(96 each Req'd.)
(Weight = 29.7 Lb. each)
(NU63)

CONNECTION ANGLE DETAILS
(or equivalent)



PLATE WASHER

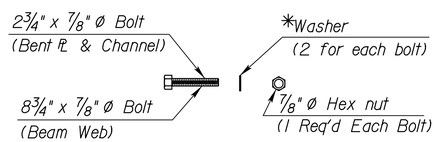


*Plate washers required for slotted holes.

FASTENER DETAILS

Note:
For location of Temporary Diaphragms, See Sh. No. 594-596

SHEET NO.	TOTAL SHEETS
597	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

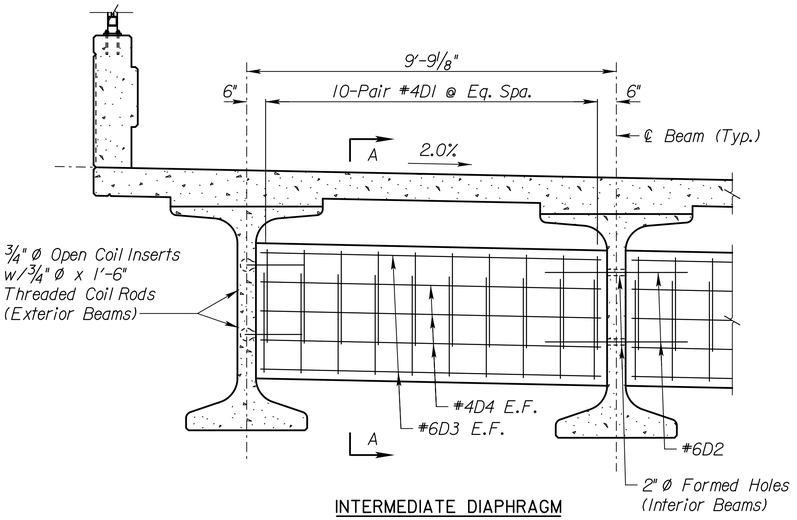
CITY OF OLATHE, KS

OLATHE KANSAS

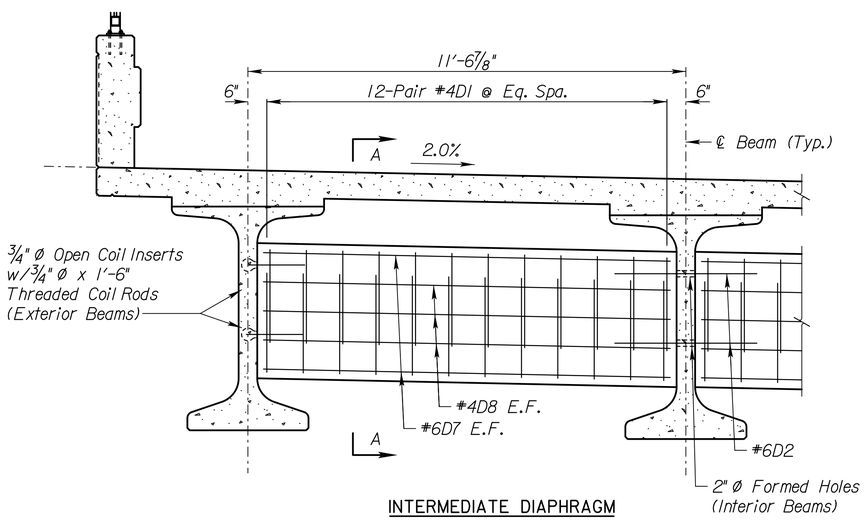
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
FRAMING DETAILS - NU63 & NU70

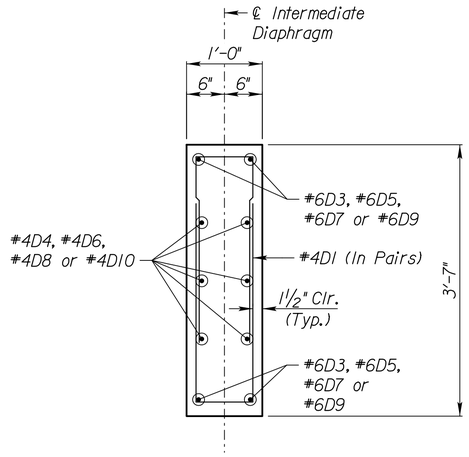
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_FrameDet.dgn



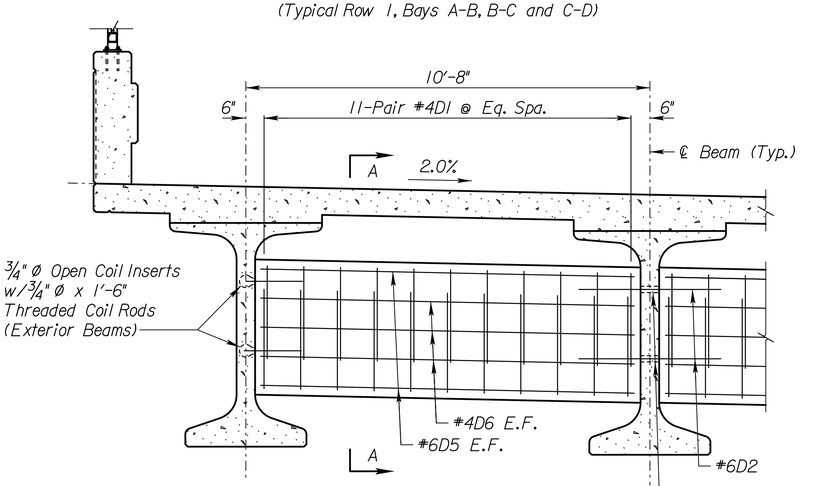
INTERMEDIATE DIAPHRAGM
(Typical Row 1, Bays A-B, B-C and C-D)



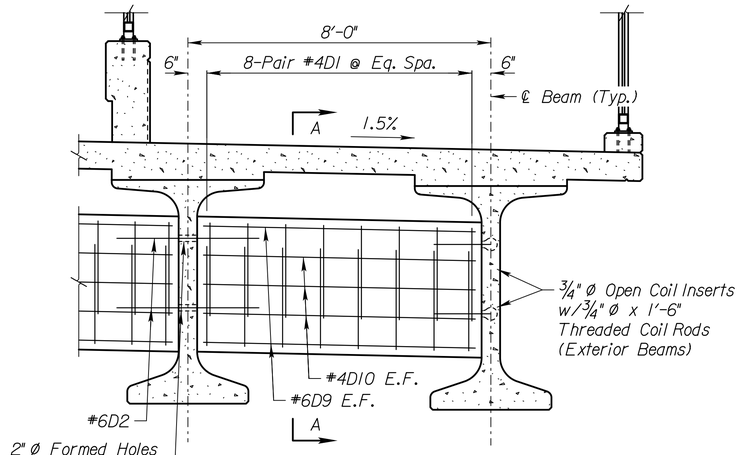
INTERMEDIATE DIAPHRAGM
(Typical Row 3, Bays A-B, B-C and C-D)



SECTION A-A



INTERMEDIATE DIAPHRAGM
(Typical Row 2, Bays A-B, B-C and C-D)



INTERMEDIATE DIAPHRAGM
(Typical Rows 1, 2 & 3, Bay D-E)

Note:
For location of Intermediate Diaphragms, See Sh. No. 595

SHEET NO.	TOTAL SHEETS
598	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

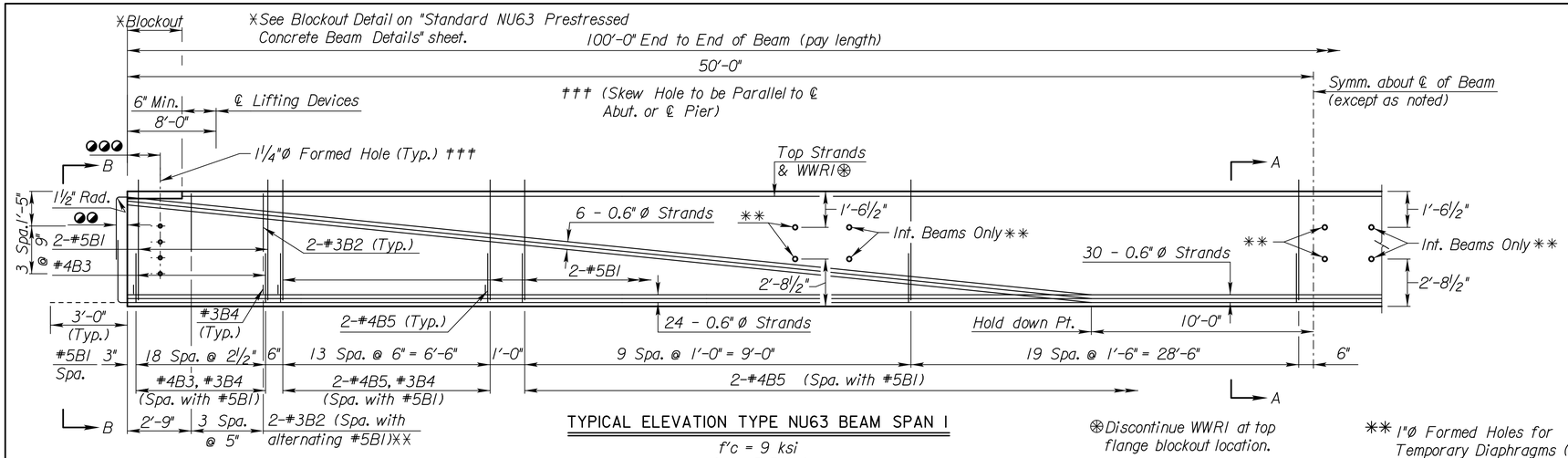
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
INTERMEDIATE DIAPHRAGM DETAILS

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_IntDiaph.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 1

f'c = 9 ksi
f'ci = 7.5 ksi

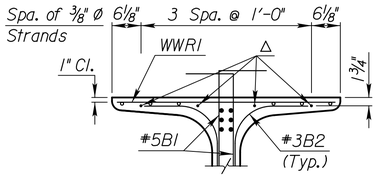
⊛ Discontinue WWR1 at top flange blockout location.

** 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)

XX Spacing of #3B2 bar @ Abutment End.

◕◕ 4" @ Abutment No. 1
8" @ Pier No. 1

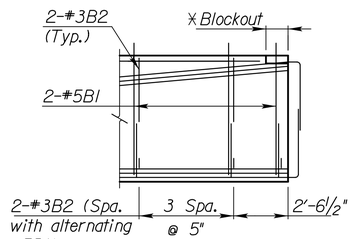
◕◕◕ 1'-2¼" @ Abutment No. 1
1'-7¼" @ Pier No. 1



TOP FLANGE DETAIL ††

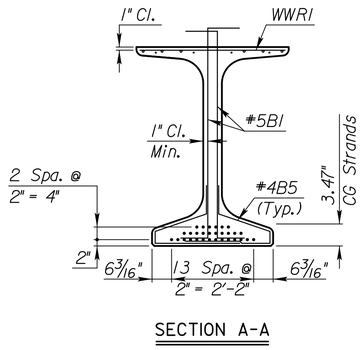
△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

†† Check flange for Overhang Bracket loads where applicable.

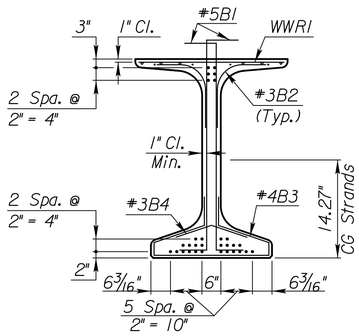


ELEVATION PIER NO. 1 END

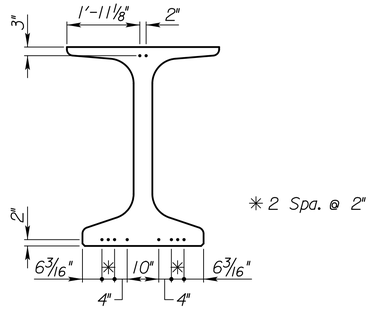
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL

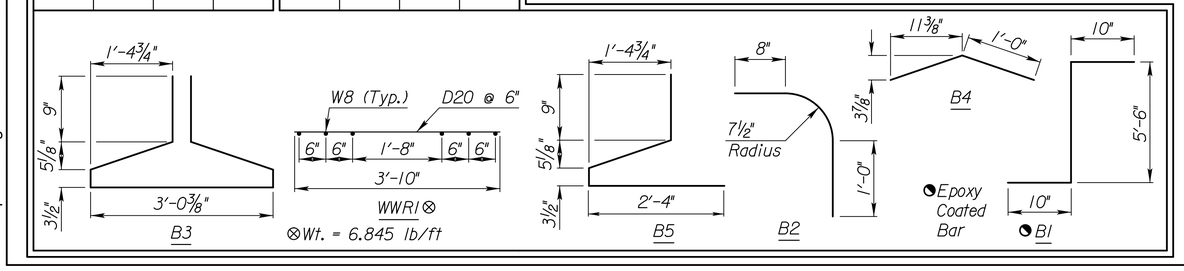
100'-0" Beam (1 Listed-5 Reqd.)

Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	4'-1"	B2	16	#3	2'-8"
				B4	66	#3	2'-0"
				B3	38	#4	7'-8"
				B5	172	#4	4'-8"
				◔ B1	248	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 8'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.03 kips per strand = 30.19 kips total.

BILL OF MATERIAL

Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (100'-0")	Lin.Ft.	500
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 100'-0" beam)	Cu.Yds.	20.9
Approx. Wt. per 100'-0" beam	Tons	42.3
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	15,315
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	9,269
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,982
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	3,298
Laminated Elastomeric Brg. pads	Each	10
1" Formed Holes	Each	48
Lifting devices	Each	20
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	10
1¼" Formed Holes	Each	40

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844119th_BrEB_BD_S1.dgn

SHEET NO. 599 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

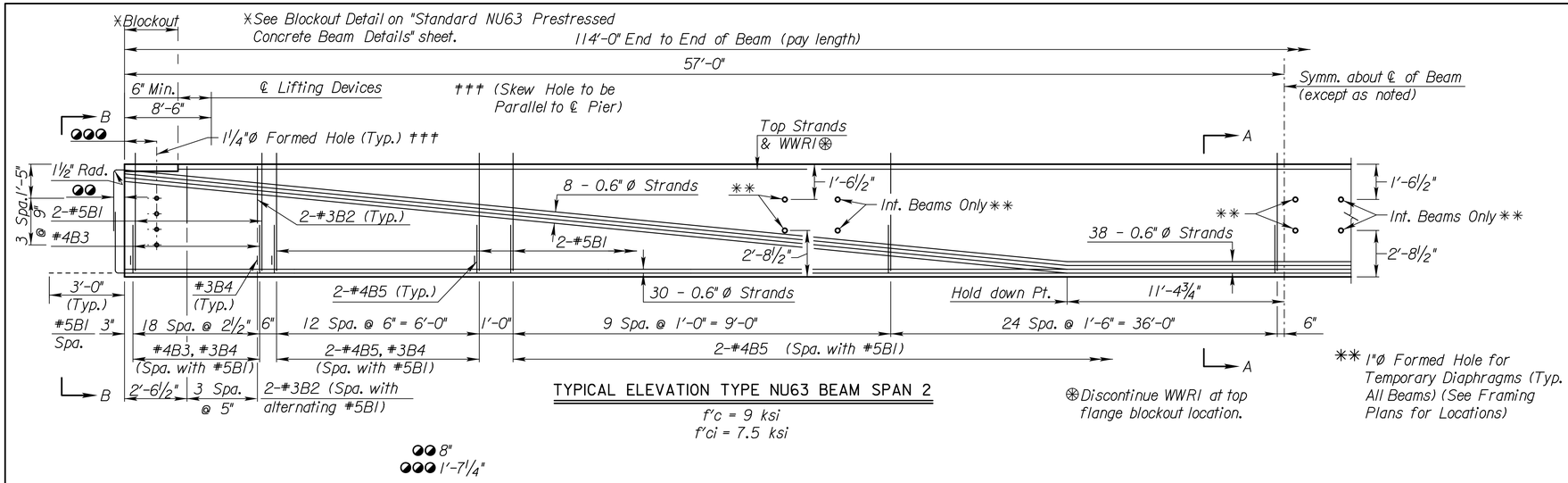
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 1

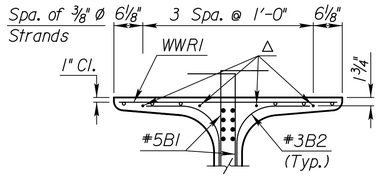


TYPICAL ELEVATION TYPE NU63 BEAM SPAN 2

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWRI at top flange blockout location.

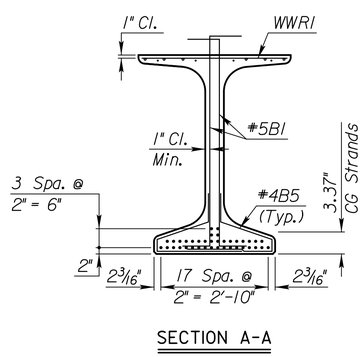
** 1"Ø Formed Hole for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



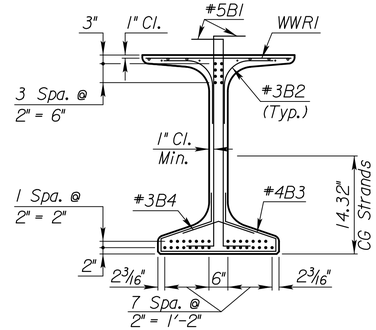
TOP FLANGE DETAIL††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

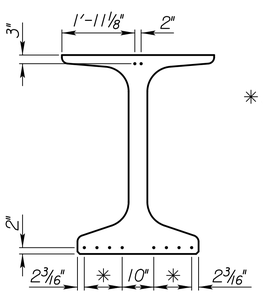
††Check flange for Overhang Bracket loads where applicable.



SECTION A-A



SECTION B-B



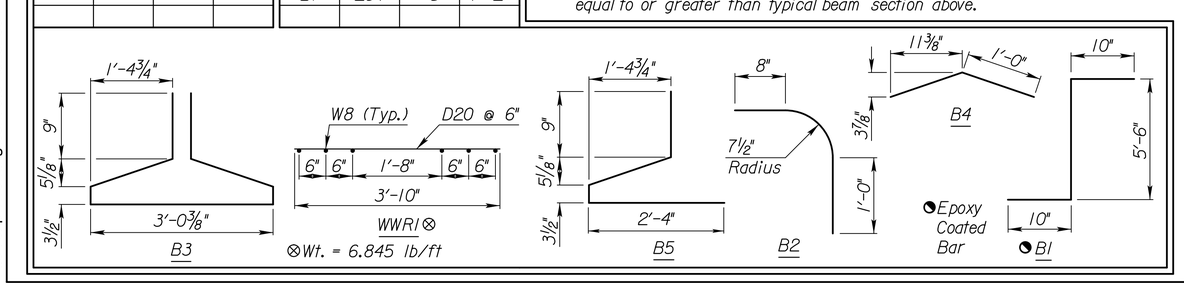
✳ 3 Spa. @ 4"

STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
114'-0" Beam (1 Listed-5 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	4'-1"	B2	16	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	188	#4	4'-8"
				◔BI	264	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧓Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 8'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.26 kips per strand = 34.06 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (114'-0")	Lin.Ft.	570
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 114'-0" beam)	Cu.Yds.	23.8
Approx. Wt. per 114'-0" beam	Tons	48.2
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	21,976
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	9,867
Reinforcing steel (fy=60,000 PSI)	Lbs.	4,224
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	3,783
Laminated Elastomeric Brg. pads	Each	10
1" Formed Holes	Each	48
Lifting devices	Each	20
Bearing plates (⧓ x 1'-4" x 3'-0⅜")	Each	10
1¼" Formed Holes	Each	40

SHEET NO. 600 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

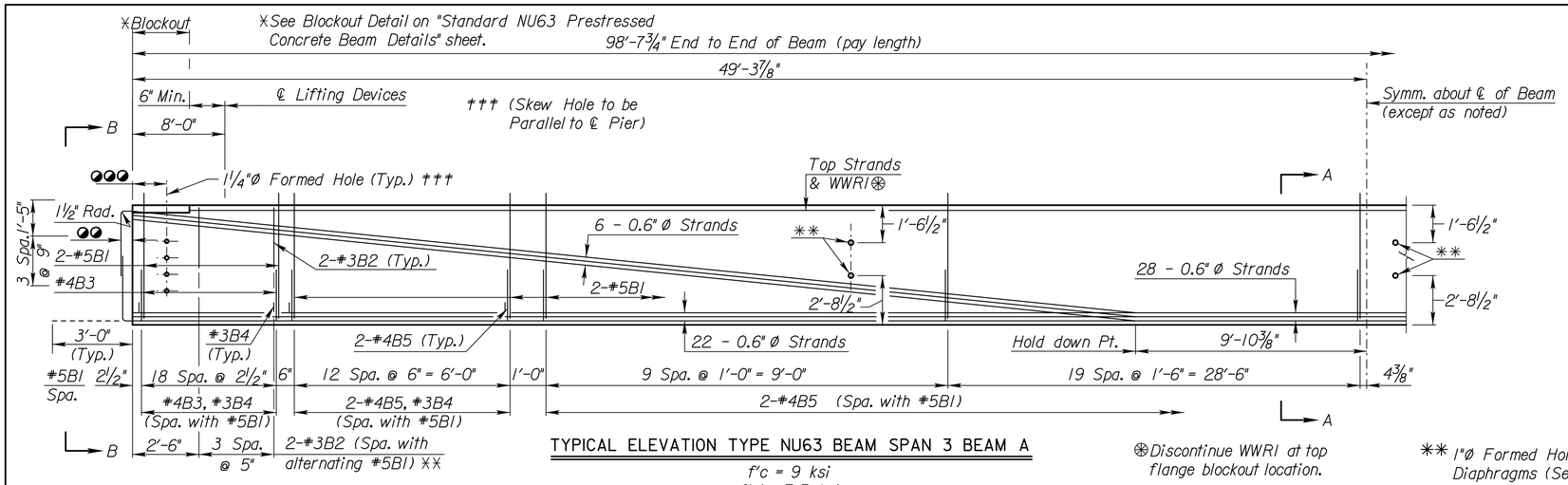
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 2

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844119th_BrEB_BD_S2.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM A

f'c = 9 ksi
f'ci = 7.5 ksi

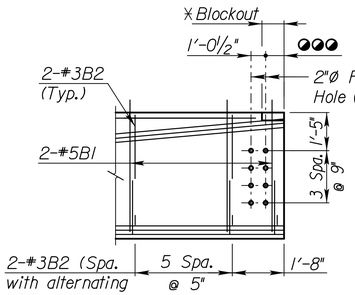
⊛ Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Hole for Temporary Diaphragms (See Framing Plans for Locations)

†† Spacing of #3B2 bar @ Pier No. 2.

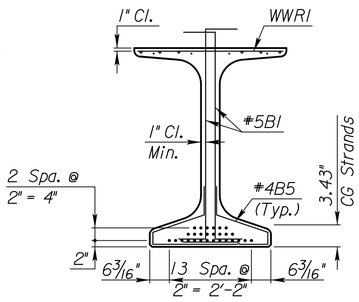
●● 8" @ Pier No. 2
See Beam Ends at Expansion Joints @ Pier No. 3

●●● 1'-6¾" @ Pier No. 2
3¾" @ Pier No. 3

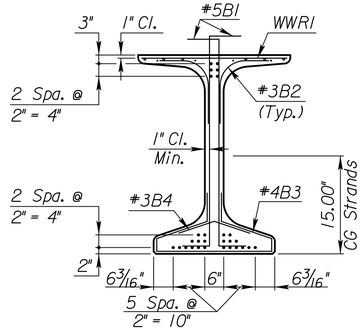


ELEVATION PIER NO. 3 END

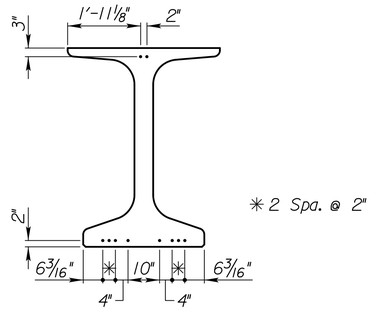
(Spacing of #3B2 bar and holes for diaphragm)



SECTION A-A

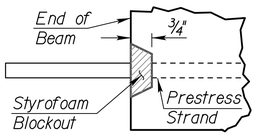


SECTION B-B



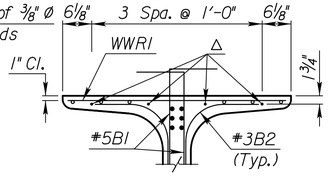
STRAND EXTENSION DETAIL

✳ 2 Spa. @ 2"



1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS



TOP FLANGE DETAIL ††

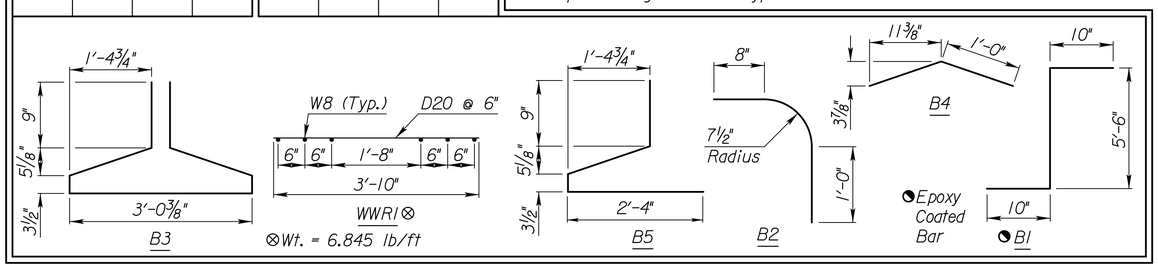
△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

†† Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL							
98'-7¾" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	168	#4	4'-8"
				◔ B1	244	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 8'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.10 kips per strand = 30.59 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (98'-7¾")	Lin.Ft.	99
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 98'-7¾" beam)	Cu.Yds.	20.6
Approx. Wt. per 98'-7¾" beam	Tons	41.7
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	2,825
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,824
Reinforcing steel (fy=60,000 PSI)	Lbs.	806
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	654
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	6
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
1¼" Formed Holes	Each	4

SHEET NO. 601 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

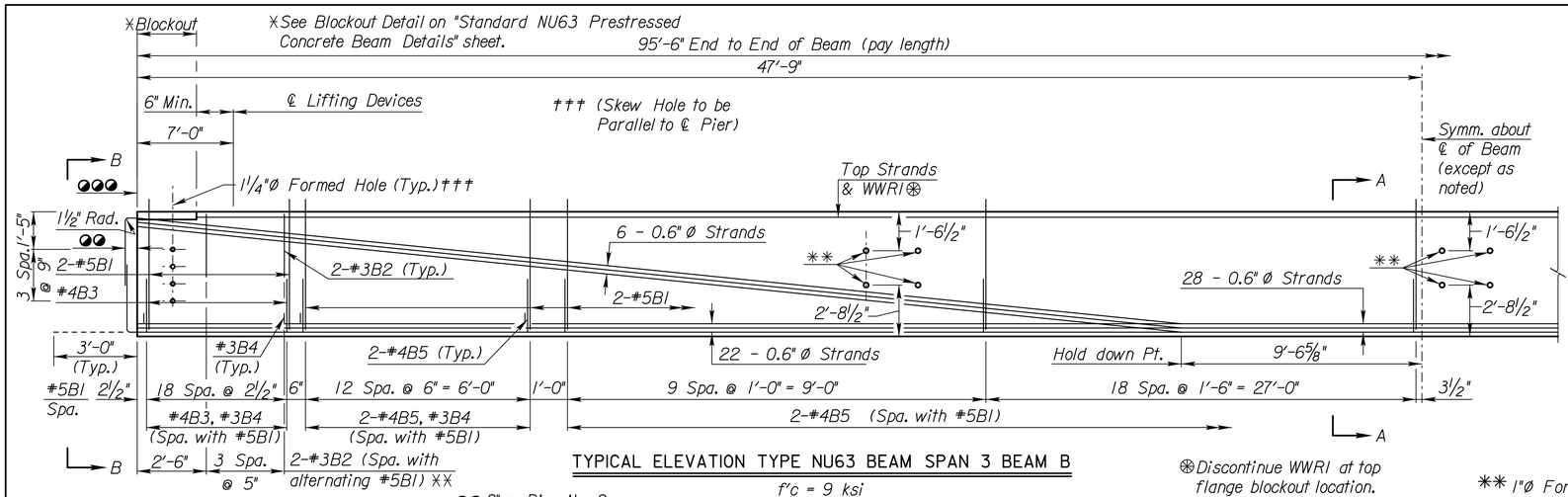
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 3 BEAM A

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844119th_BrEB_BD_S3BA.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM B

f'c = 9 ksi
f'ci = 7.5 ksi

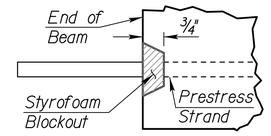
⊛Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Hole for Temporary Diaphragms (See Framing Plans for Locations)

⊼⊼ Spacing of #3B2 bar @ Pier No. 2.

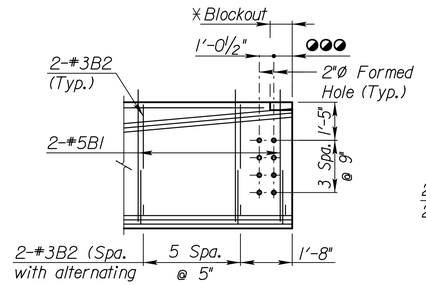
◔◔ 8" @ Pier No. 2
See Beam Ends at Expansion Joints @ Pier No. 3

◔◔◔ 1'-6¾" @ Pier No. 2
3¾" @ Pier No. 3



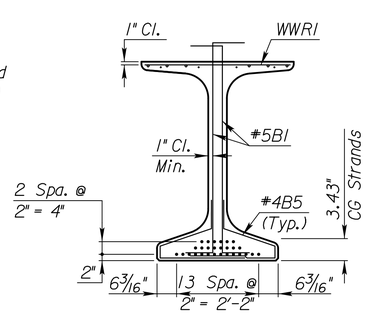
1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS

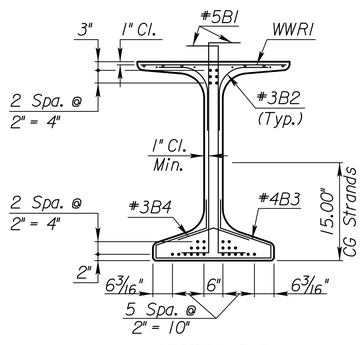


ELEVATION PIER NO. 3 END

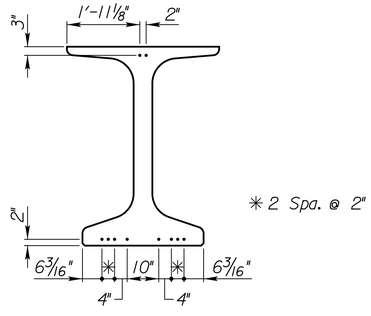
(Spacing of #3B2 bar and holes for diaphragm)



SECTION A-A

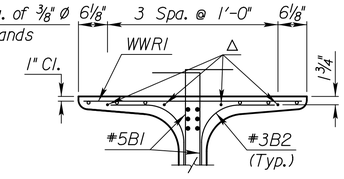


SECTION B-B



STRAND EXTENSION DETAIL

✳ 2 Spa. @ 2"



TOP FLANGE DETAIL††

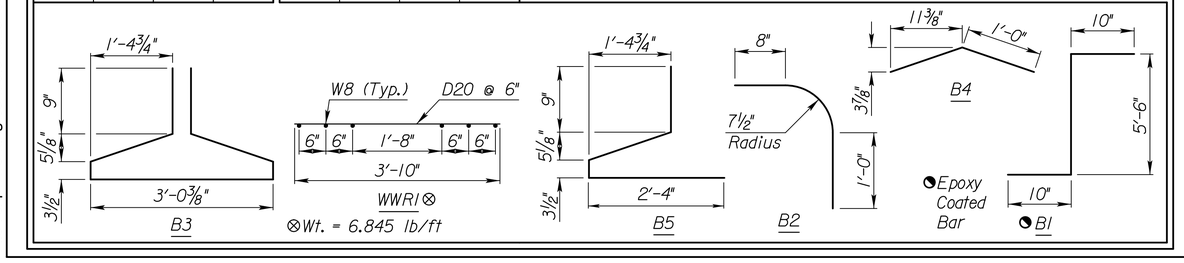
△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

††Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL							
95'-6" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	164	#4	4'-8"
				◔BI	240	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 7'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.27 kips per strand = 31.59 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (95'-6")	Lin.Ft.	96
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 95'-6" beam)	Cu.Yds.	19.9
Approx. Wt. per 95'-6" beam	Tons	40.3
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	2,737
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,794
Reinforcing steel (fy=60,000 PSI)	Lbs.	794
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	632
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	14
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
1¼" Formed Holes	Each	4

SHEET NO. 602 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

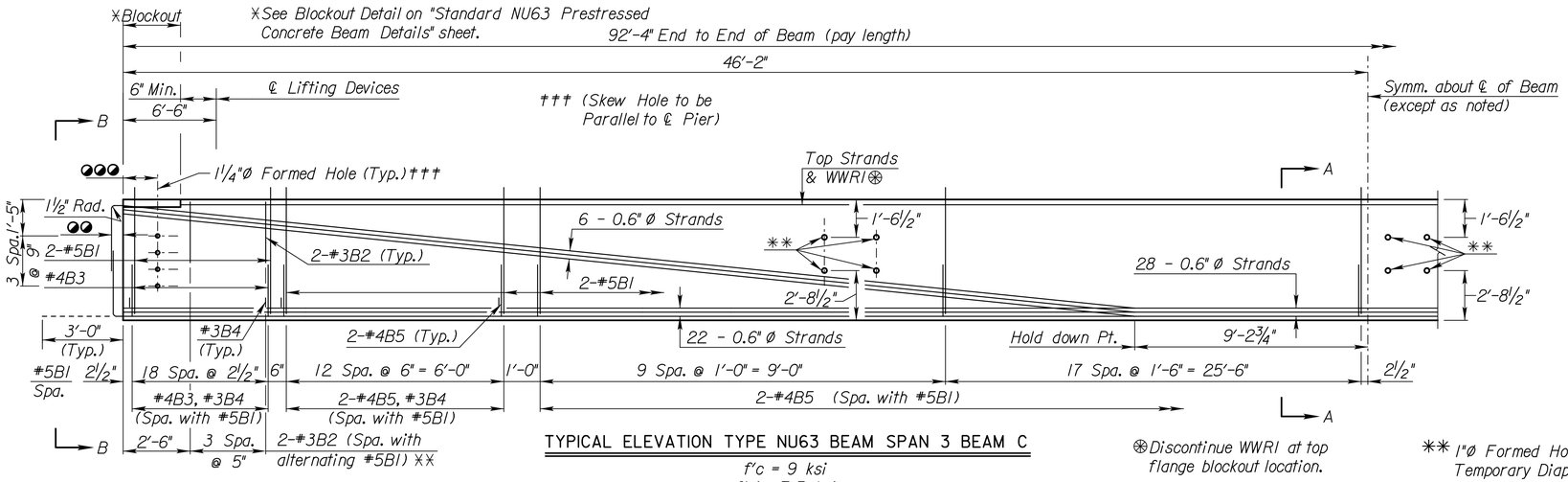
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 3 BEAM B

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844119th_BrEB_BD_S3BB.dgn



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM C

f'c = 9 ksi
f'ci = 7.5 ksi

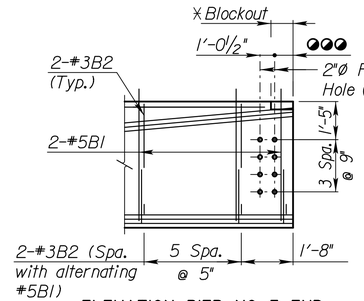
⊛ Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Holes for Temporary Diaphragms (See Framing Plans for Locations)

†† Spacing of #3B2 bar @ Pier No. 2.

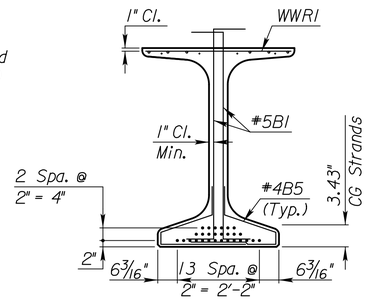
◕◕ 8" @ Pier No. 2
See Beam Ends at Expansion Joints @ Pier No. 3

◕◕◕ 1'-6¾" @ Pier No. 2
3¾" @ Pier No. 3

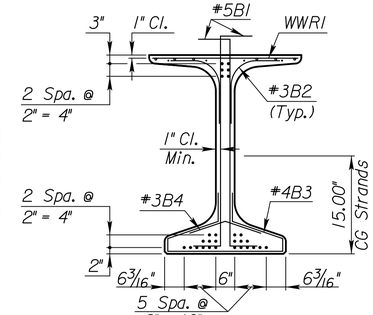


ELEVATION PIER NO. 3 END

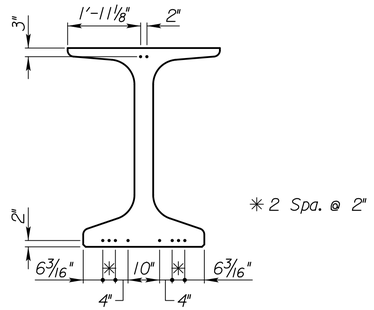
(Spacing of #3B2 bar and holes for diaphragm)



SECTION A-A

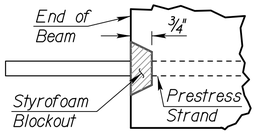


SECTION B-B



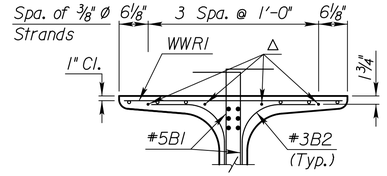
STRAND EXTENSION DETAIL

✳ 2 Spa. @ 2"



1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS



TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

†† Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL

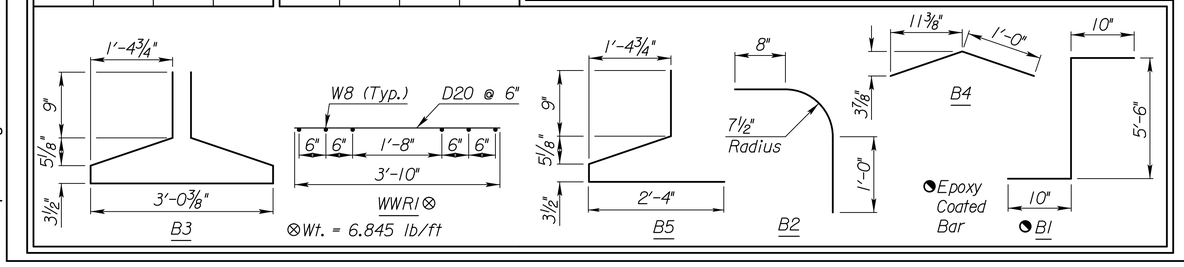
92'-4" Beam (1 Listed-1 Reqd.)

Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	160	#4	4'-8"
				◔ BI	236	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 6'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.44 kips per strand = 32.65 kips total.

BILL OF MATERIAL

Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (92'-4")	Lin.Ft.	92
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 92'-4' beam)	Cu.Yds.	19.3
Approx. Wt. per 92'-4" beam	Tons	39.0
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	2,649
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,764
Reinforcing steel (fy=60,000 PSI)	Lbs.	781
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	611
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	12
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
1¼" Formed Holes	Each	4

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

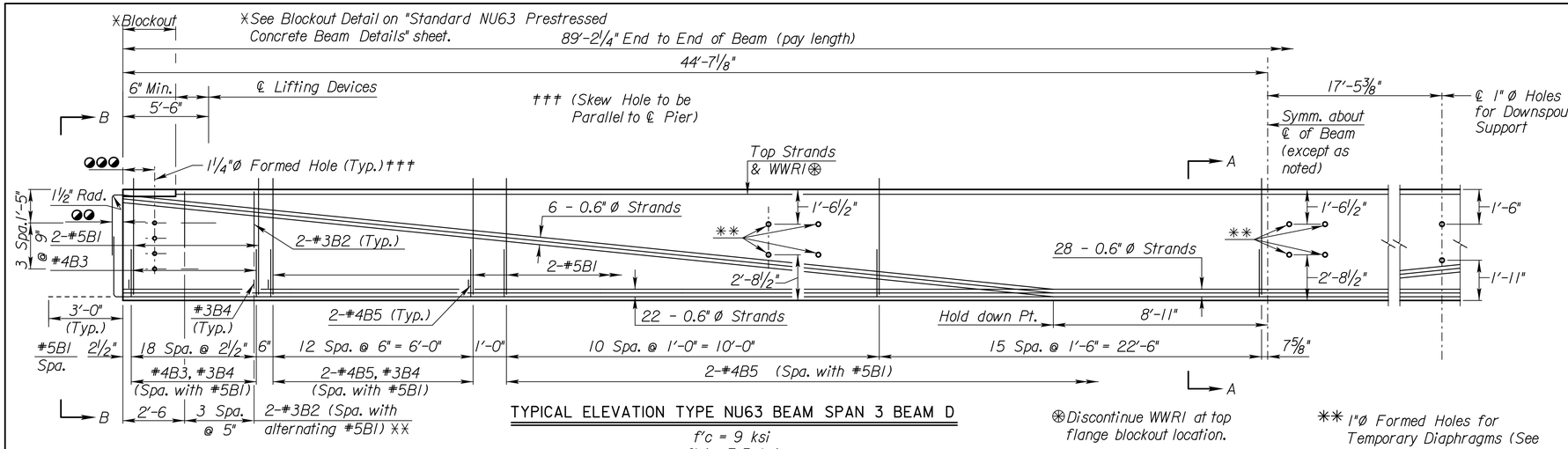
SHEET NO. 603 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 3 BEAM C

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844119th_BrEB_BD_S3BC.dgn
Plotted : 08-28-24

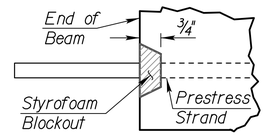


TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM D

f'c = 9 ksi
f'ci = 7.5 ksi

⊛ Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Holes for Temporary Diaphragms (See Framing Plans for Locations)



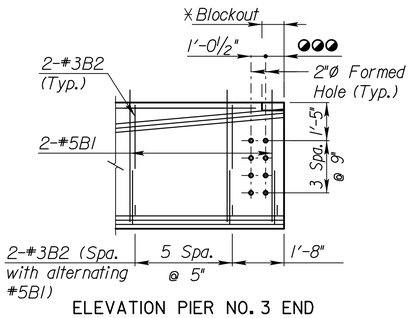
1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS

⁑⁑ Spacing of #3B2 bar @ Pier No. 2.

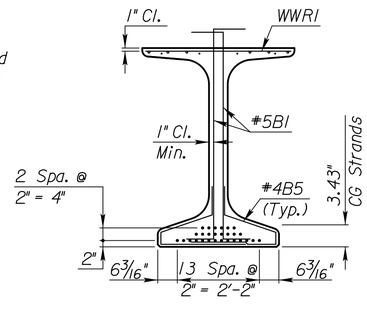
●● 8" @ Pier No. 2
See Beam Ends at Expansion Joints @ Pier No. 3

●●● 1'-6¾" @ Pier No. 2
3¾" @ Pier No. 3

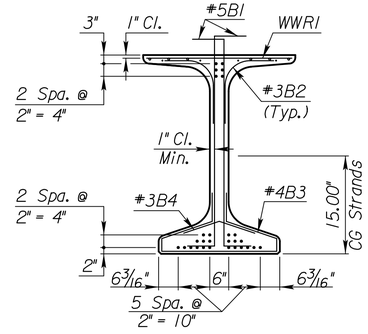


ELEVATION PIER NO. 3 END

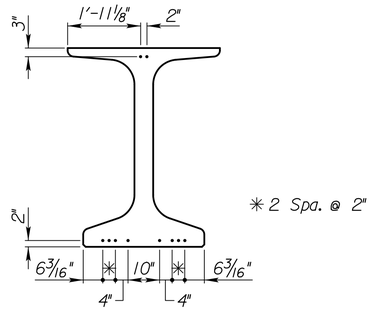
(Spacing of #3B2 bar and holes for diaphragm)



SECTION A-A

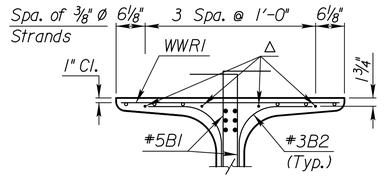


SECTION B-B



STRAND EXTENSION DETAIL

✳ 2 Spa. @ 2"

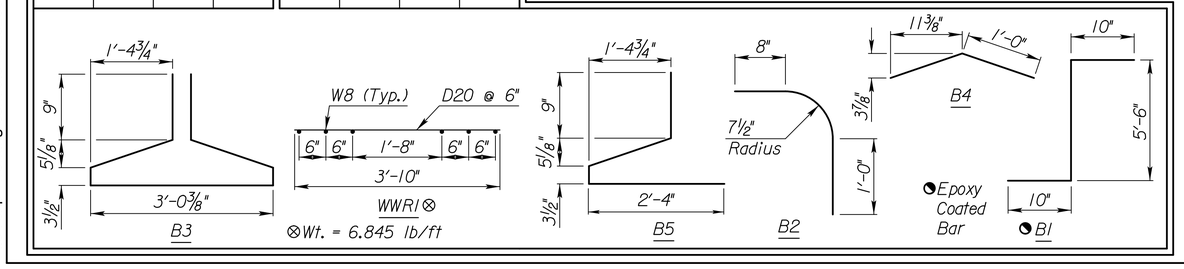


TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

†† Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL							
89'-2¼" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	156	#4	4'-8"
				◔ BI	232	#5	7'-2"



†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.

⊠ Use ¾" ℔ when field welding will occur, otherwise use ½" ℔.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 5'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.63 kips per strand = 33.79 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (89'-2¼")	Lin.Ft.	89
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 89'-2¼" beam)	Cu.Yds.	18.6
Approx. Wt. per 89'-2¼" beam	Tons	37.7
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	2,561
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,734
Reinforcing steel (fy=60,000 PSI)	Lbs.	769
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	589
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	12
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
1¼" Formed Holes	Each	4

SHEET NO. 604 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

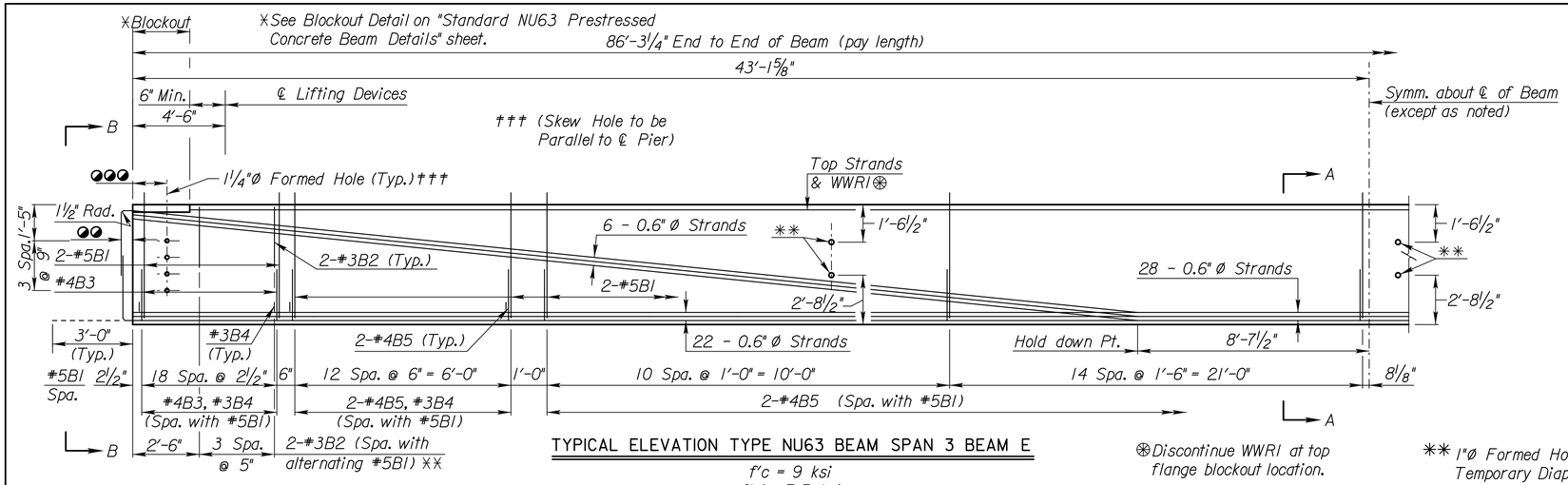
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 3 BEAM D

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S3BD.dgn

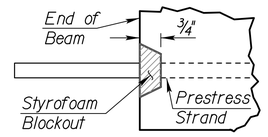


TYPICAL ELEVATION TYPE NU63 BEAM SPAN 3 BEAM E

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Holes for Temporary Diaphragms (See Framing Plans for Locations)



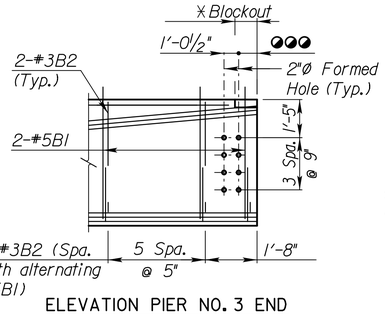
1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS

⁜⁜ Spacing of #3B2 bar @ Pier No. 2.

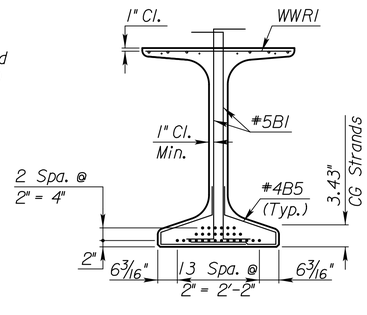
●● 8" @ Pier No. 2
See Beam Ends at Expansion Joints @ Pier No. 3

●●● 1'-6¾" @ Pier No. 2
3¾" @ Pier No. 3

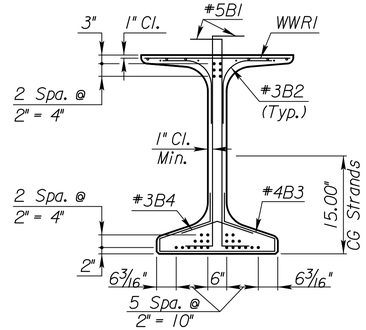


ELEVATION PIER NO. 3 END

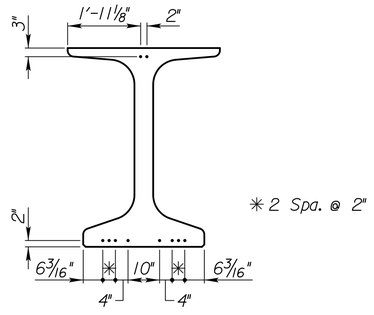
(Spacing of #3B2 bar and holes for diaphragm)



SECTION A-A

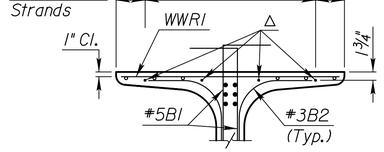


SECTION B-B



⁜ 2 Spa. @ 2"

STRAND EXTENSION DETAIL



TOP FLANGE DETAIL††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

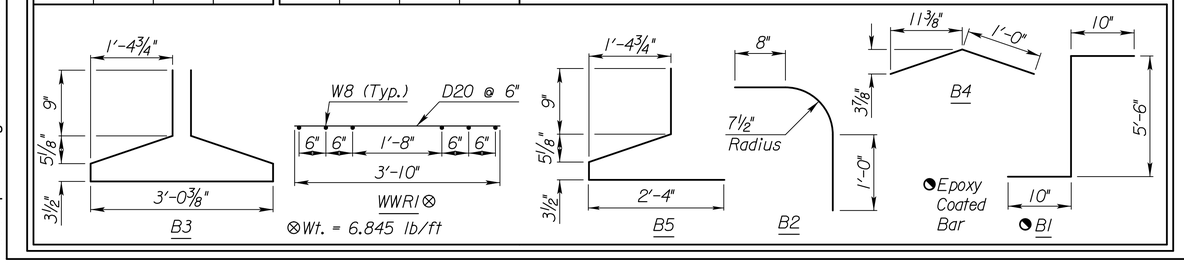
†† Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL							
86'-3¼" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	1	#4	4'-1"	B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	152	#4	4'-8"
				◔BI	228	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 4'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 5.82 kips per strand = 34.91 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (86'-3¼")	Lin.Ft.	86
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 86'-3¼" beam)	Cu.Yds.	18.0
Approx. Wt. per 86'-3¼" beam	Tons	36.4
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	2,479
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	1,704
Reinforcing steel (fy=60,000 PSI)	Lbs.	756
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	569
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	6
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
1¼" Formed Holes	Each	4

SHEET NO. 605 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

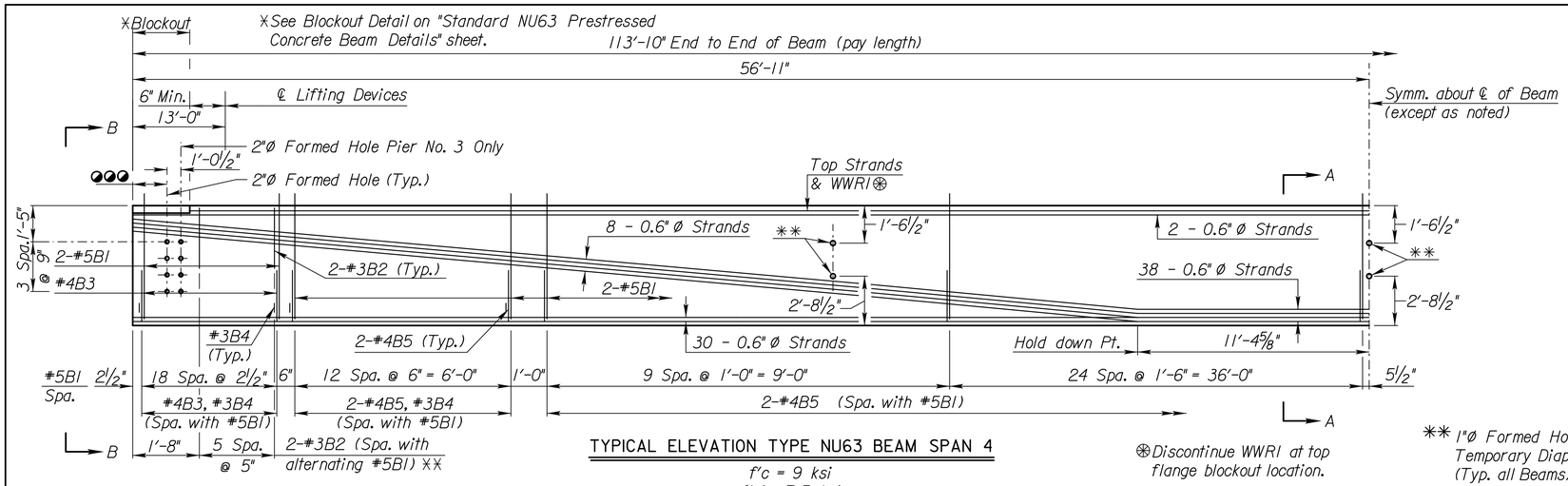
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 3 BEAM E

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S3BE.dgn
Plotted : 08-28-24



TYPICAL ELEVATION TYPE NU63 BEAM SPAN 4

f'c = 9 ksi
f'ci = 7.5 ksi

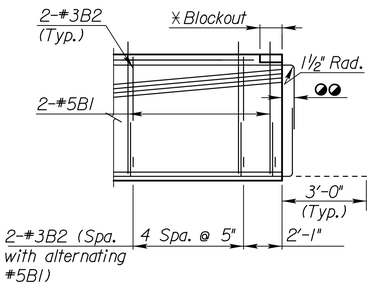
⊛ Discontinue WWRI at top flange blockout location.

** 1"ø Formed Holes for Temporary Diaphragms (Typ. all Beams) (See Framing Plans for Locations)

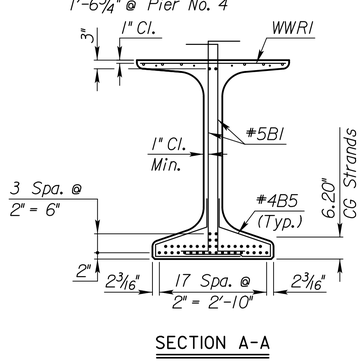
XX Spacing of #3B2 bar @ Pier No. 3.

◕◕ See Beam End at Expansion Joints @ Pier No. 3
8" @ Pier No. 4

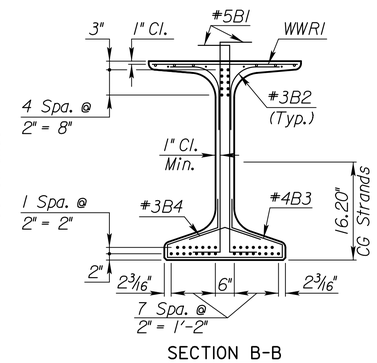
◕◕◕ 3¾" @ Pier No. 3
1'-6¾" @ Pier No. 4



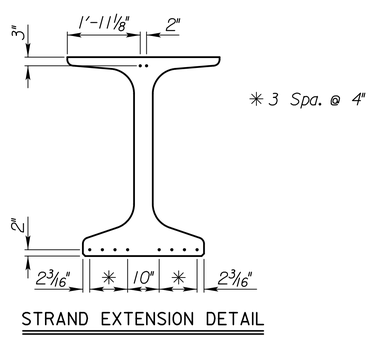
ELEVATION PIER NO. 4 END
(Spacing of #3B2 bar)



SECTION A-A

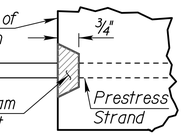


SECTION B-B



STRAND EXTENSION DETAIL

* 3 Spa. @ 4"



1. Cut strands 9" from the end of the beam.
2. Remove Styrofoam blockout.
3. Cut strands 1/2" deep in blockout with angle grinder.
4. Clean affected area.
5. Fill blockout area with approved epoxy grout.
6. After the grout has cured, according to the manufacturer's recommendation, grind entire face of beam to provide a smooth surface.
7. After waiting 28 days, clean the entire surface of beam end and apply an approved (epoxy-epoxy) Substructure Waterproofing Membrane.

BEAM ENDS AT EXPANSION JOINTS

TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

†† Check flange for Overhang Bracket loads where applicable.

BILL OF REINFORCING STEEL

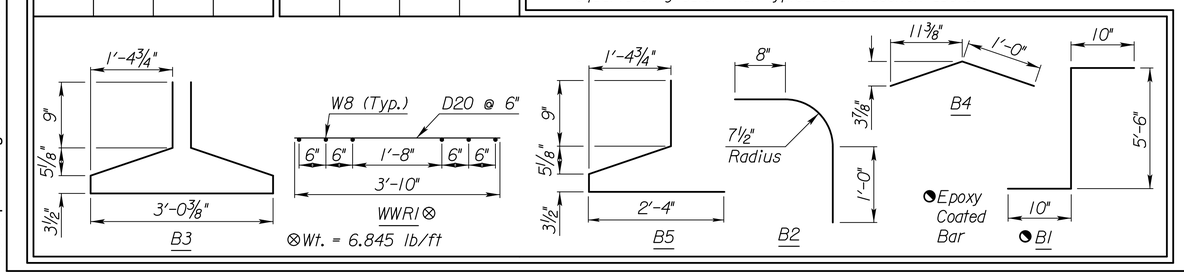
113'-10" Beam (1 Listed-5 Reqd.)

Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	22	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	188	#4	4'-8"
				◔ BI	264	#5	7'-2"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 13'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.10 kips per strand = 32.81 kips total.

BILL OF MATERIAL

Item	Unit	Quantity
Prestressed Concrete Beams (NU63) (113'-10")	Lin.Ft.	569
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 113'-10" beam)	Cu.Yds.	23.7
Approx. Wt. per 113'-10" beam	Tons	48.1
0.6"ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	23,081
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	9,867
Reinforcing steel (fy=60,000 PSI)	Lbs.	4,254
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	3,785
Laminated Elastomeric Brg. pads	Each	5
1" Formed Holes	Each	30
Lifting devices	Each	20
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	10
2" Formed Holes	Each	40

SHEET NO. 606 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

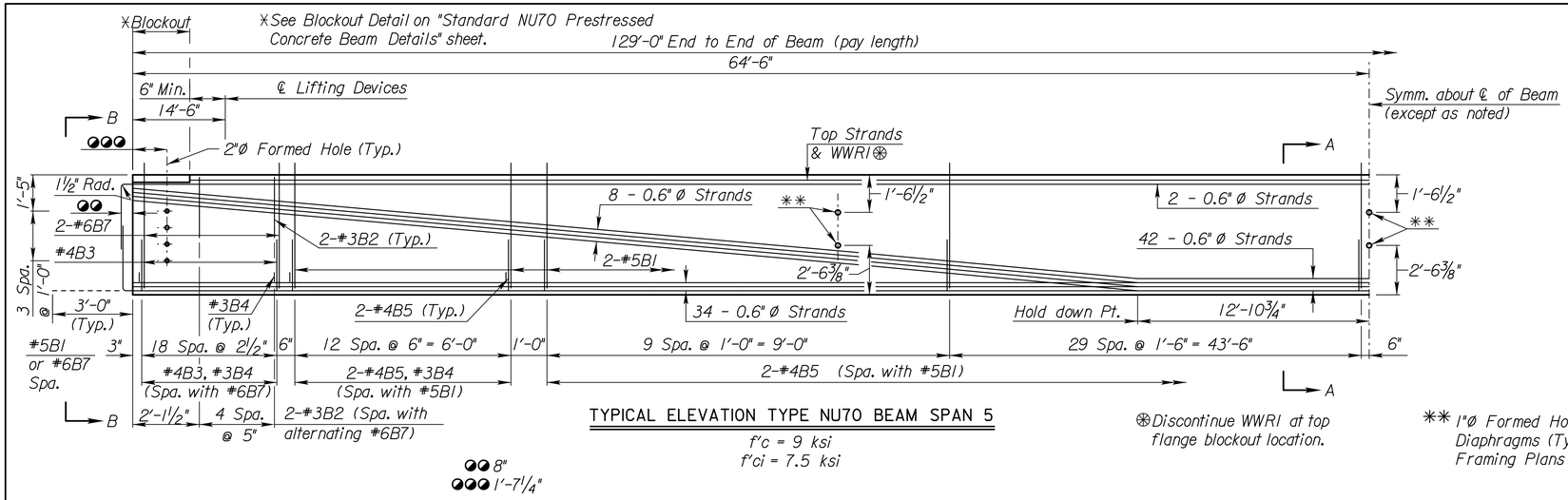
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
. . .	. . .	. . .	. . .

119th Street - Eastbound
NU63 BEAM DETAILS
SPAN 4

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S4.dgn

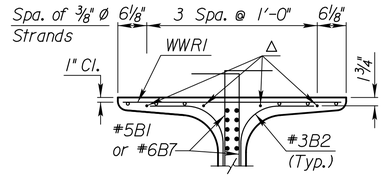


TYPICAL ELEVATION TYPE NU70 BEAM SPAN 5

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWR1 at top flange blockout location.

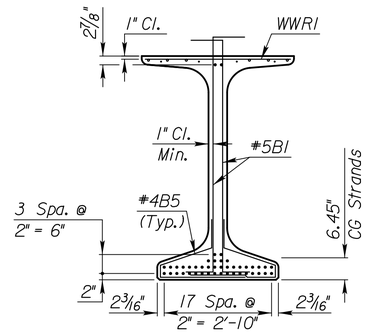
✱✱ 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



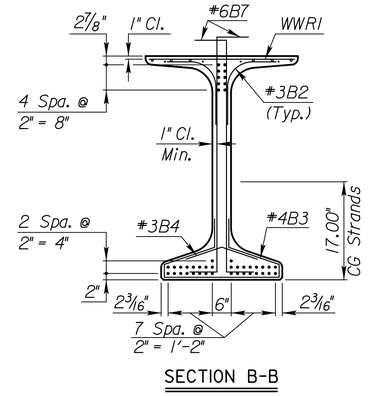
TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

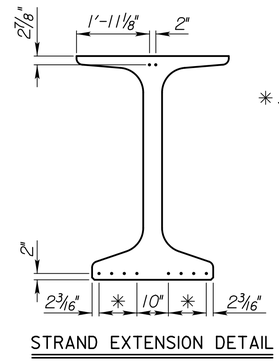
††Check flange for Overhang Bracket loads where applicable.



SECTION A-A



SECTION B-B



✱ 3 Spa. @ 4"

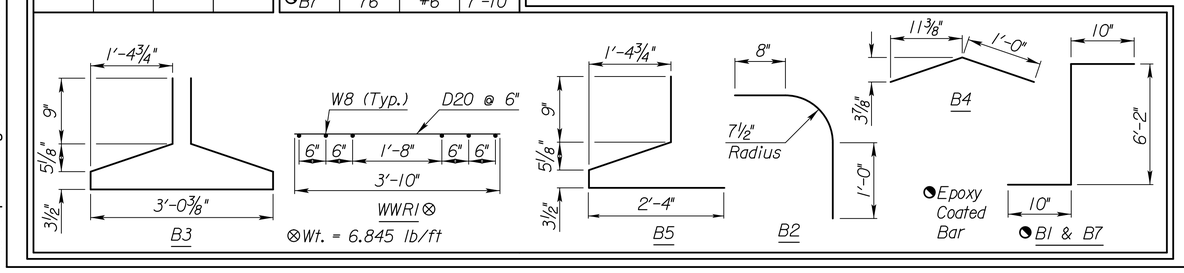
STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
129'-0" Beam (1 Listed-5 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	20	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	208	#4	4'-8"
				◔ B1	208	#5	7'-10"
				◔ B7	76	#6	7'-10"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 14'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 4.20 kips per strand = 33.57 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (129'-0")	Lin.Ft.	645
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 129'-0" beam)	Cu.Yds.	28.5
Approx. Wt. per 129'-0" beam	Tons	57.6
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	28,698
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	12,968
Reinforcing steel (fy=60,000 PSI)	Lbs.	4,555
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	4,290
Laminated Elastomeric Brg. pads	Each	10
1" Formed Holes	Each	30
Lifting devices	Each	20
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	10
2" Formed Holes	Each	40

SHEET NO. 607 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

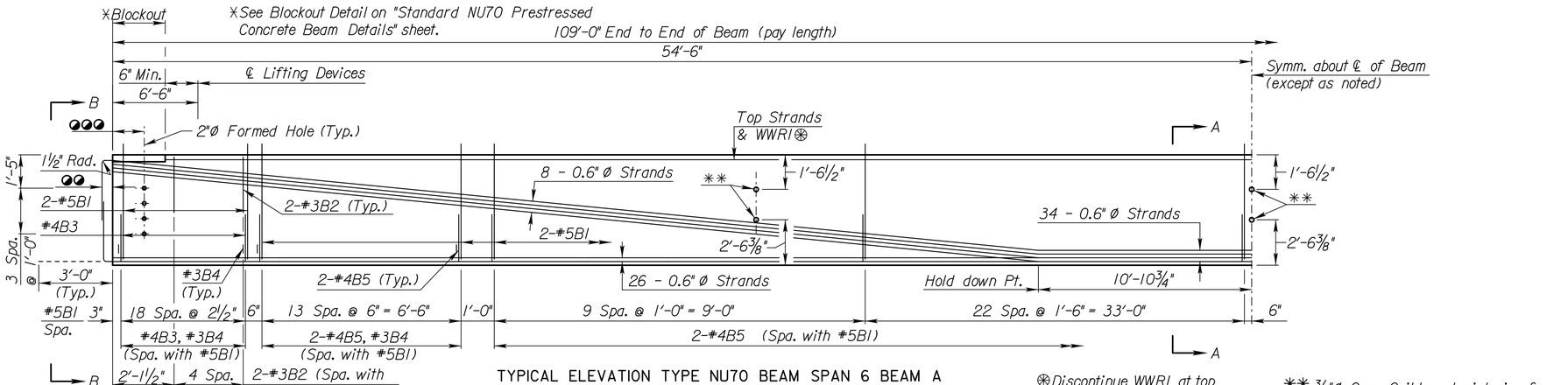
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 5

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S5.dgn

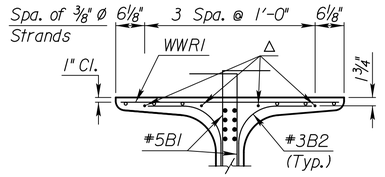


TYPICAL ELEVATION TYPE NU70 BEAM SPAN 6 BEAM A

f'c = 9 ksi
f'ci = 7.5 ksi

⊛ Discontinue WWR1 at top flange blockout location.

⁑⁑ ¾"Ø Open Coil Inserts interior face (See Framing Plans for Locations)

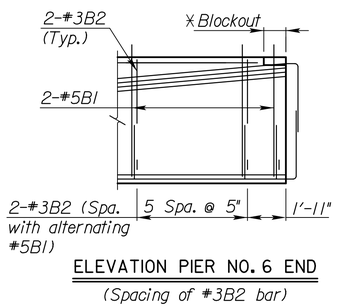


TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

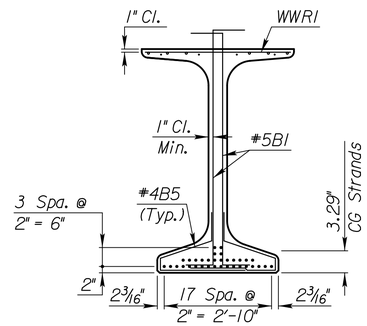
†† Check flange for Overhang Bracket loads where applicable.

⁑⁑ Spacing of #3B2 bar @ Pier No. 5

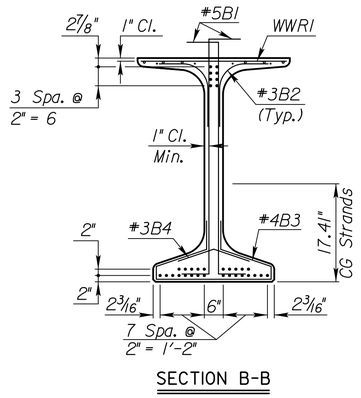


ELEVATION PIER NO. 6 END

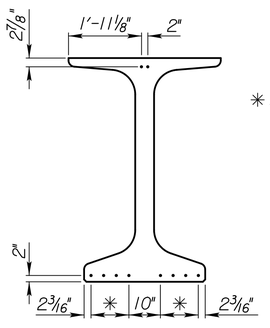
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



⁂ 3 Spa. @ 4"

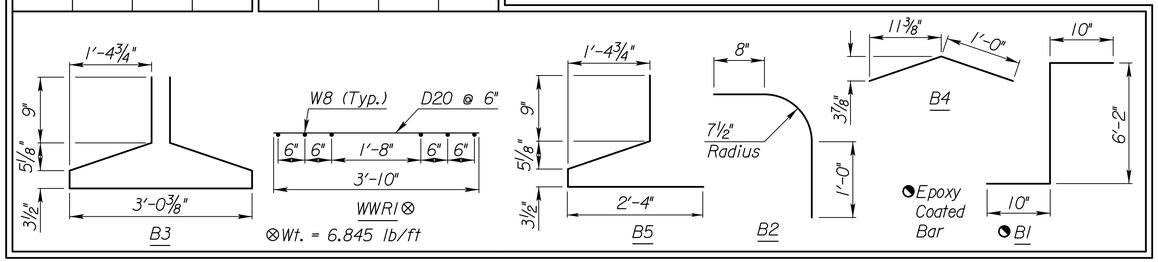
STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
109'-0" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	22	#3	2'-8"
				B4	66	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔ B1	260	#5	7'-10"

† WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⧓ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 6'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 5.13 kips per strand = 41.02 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (109'-0")	Lin.Ft.	109
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 109'-0" beam)	Cu.Yds.	24.0
Approx. Wt. per 109'-0" beam	Tons	48.7
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	3,771
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	2,124
Reinforcing steel (fy=60,000 PSI)	Lbs.	840
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	723
Laminated Elastomeric Brg. pads	Each	1
Lifting devices	Each	4
Bearing plates (⧓ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
¾"Ø Open Coil Inserts	Each	6
¾"Ø x 1'-6" Threaded Coil Rods	Each	6

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844119th_BrEB_BD_S6BA.dgn

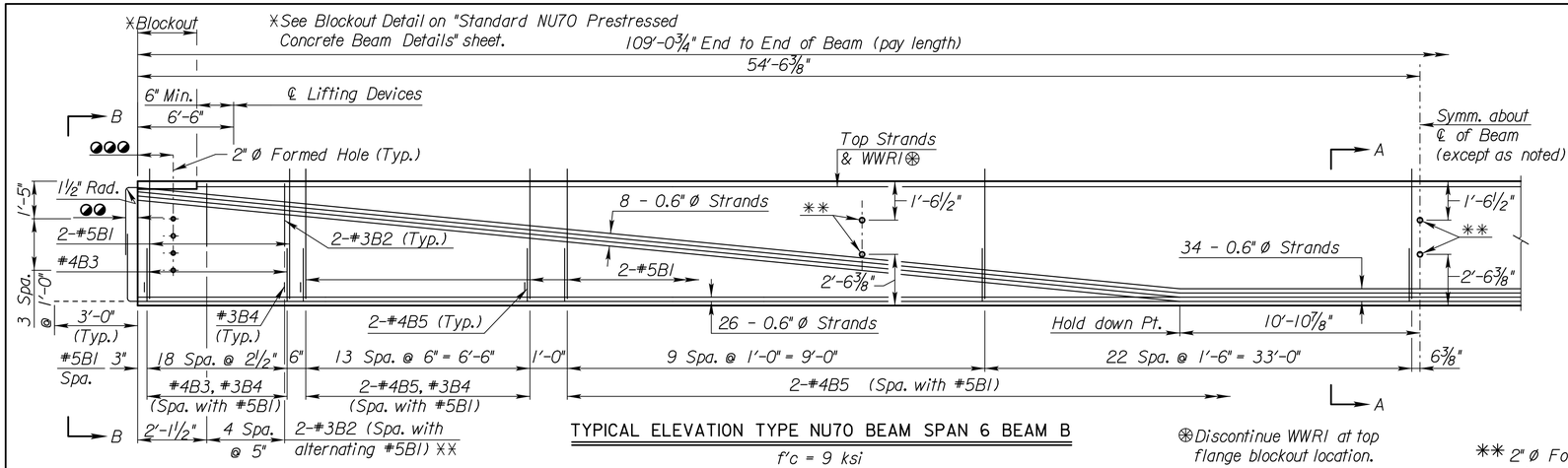
SHEET NO. 608 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 6 BEAM A



TYPICAL ELEVATION TYPE NU70 BEAM SPAN 6 BEAM B

f'c = 9 ksi
f'ci = 7.5 ksi

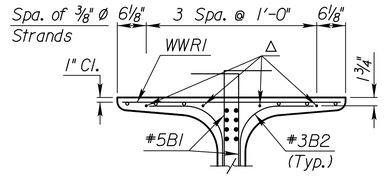
⊛Discontinue WWR1 at top flange blockout location.

** 2" Ø Formed Holes for Intermediate Diaphragms (See Framing Plans for Locations)

◕◕ 8"

◕◕◕ 1'-7¼" @ Pier No. 5
1'-4¾" @ Pier No. 6

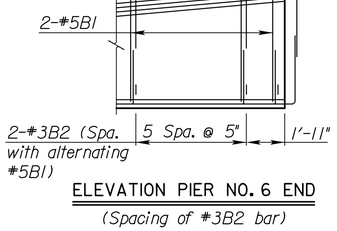
⊼⊼ Spacing of #3B2 bar @ Pier No. 5



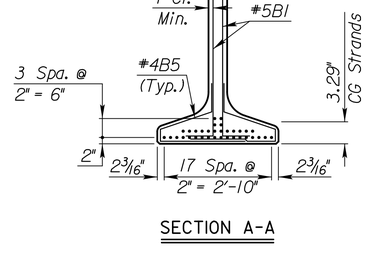
TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

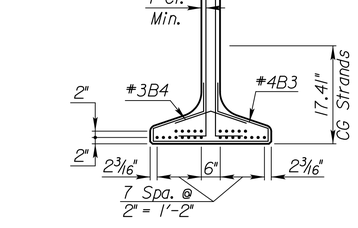
†† Check flange for Overhang Bracket loads where applicable.



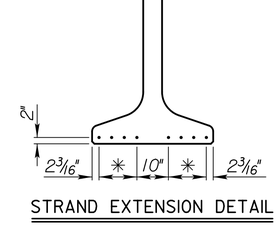
ELEVATION PIER NO. 6 END
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



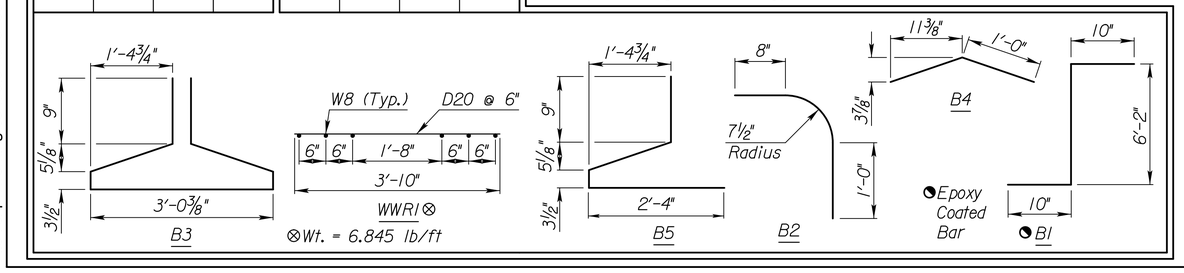
STRAND EXTENSION DETAIL

✳ 3 Spa. @ 4"

BILL OF REINFORCING STEEL							
109'-0¾" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	3'-10"	B2	22	#3	2'-8"
				B4	66	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔B1	260	#5	7'-10"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 6'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 5.13 kips per strand = 41.02 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (109'-0¾")	Lin.Ft.	109
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 109'-0¾" beam)	Cu.Yds.	24.1
Approx. Wt. per 109'-0¾" beam	Tons	48.7
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	3,773
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	2,124
Reinforcing steel (fy=60,000 PSI)	Lbs.	840
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	723
Laminated Elastomeric Brg. pads	Each	1
1" Formed Holes	Each	2
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	14

SHEET NO.	TOTAL SHEETS
609	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

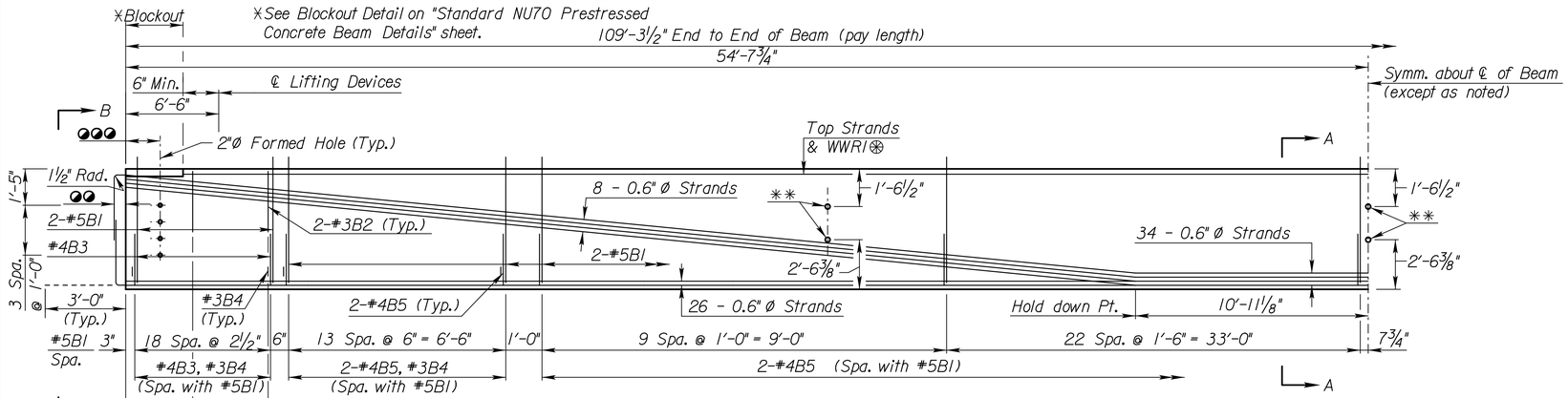
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 6 BEAM B

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S6BB.dgn

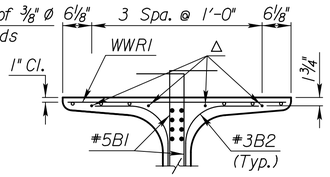


TYPICAL ELEVATION TYPE NU70 BEAM SPAN 6 BEAM C

f'c = 9 ksi
f'ci = 7.5 ksi

⊛ Discontinue WWR1 at top flange blockout location.

⁂ 2" Ø Formed Holes for Intermediate Diaphragms (See Framing Plans for Locations)



TOP FLANGE DETAIL ††

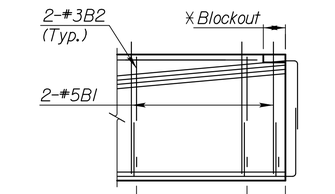
△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

†† Check flange for Overhang Bracket loads where applicable.

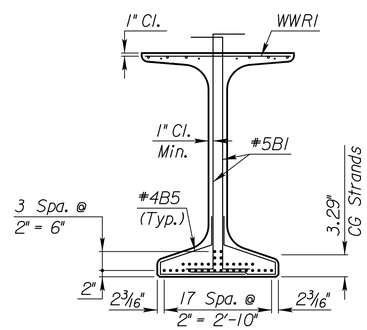
⁑⁑ Spacing of #3B2 bar @ Pier No. 5

●●● 1'-7¼" @ Pier No. 5
1'-4¾" @ Pier No. 6

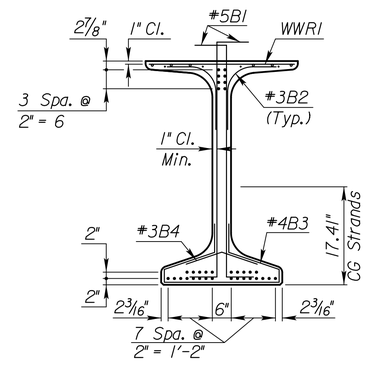
●● 8"



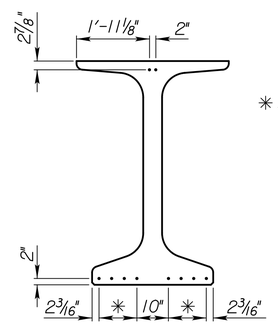
ELEVATION PIER NO. 6 END
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



⁂ 3 Spa. @ 4"

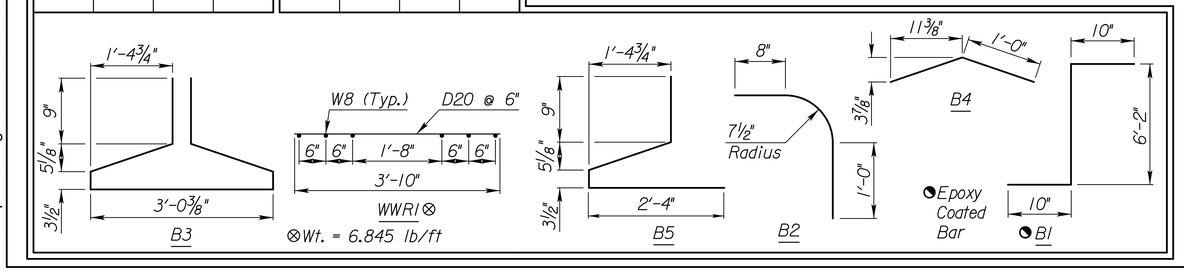
STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
109'-3½" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	3'-10"	B2	22	#3	2'-8"
				B4	66	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔ B1	260	#5	7'-10"

† WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 6'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 5.13 kips per strand = 41.02 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (109'-3½")	Lin.Ft.	109
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 109'-3½" beam)	Cu.Yds.	24.1
Approx. Wt. per 109'-3½" beam	Tons	48.8
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	3,780
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	2,124
Reinforcing steel (fy=60,000 PSI)	Lbs.	840
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	725
Laminated Elastomeric Brg. pads	Each	1
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	14

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S6BC.dgn

SHEET NO.	TOTAL SHEETS
610	781

YEAR 2024

PROJECT NO. 3-C-024-21

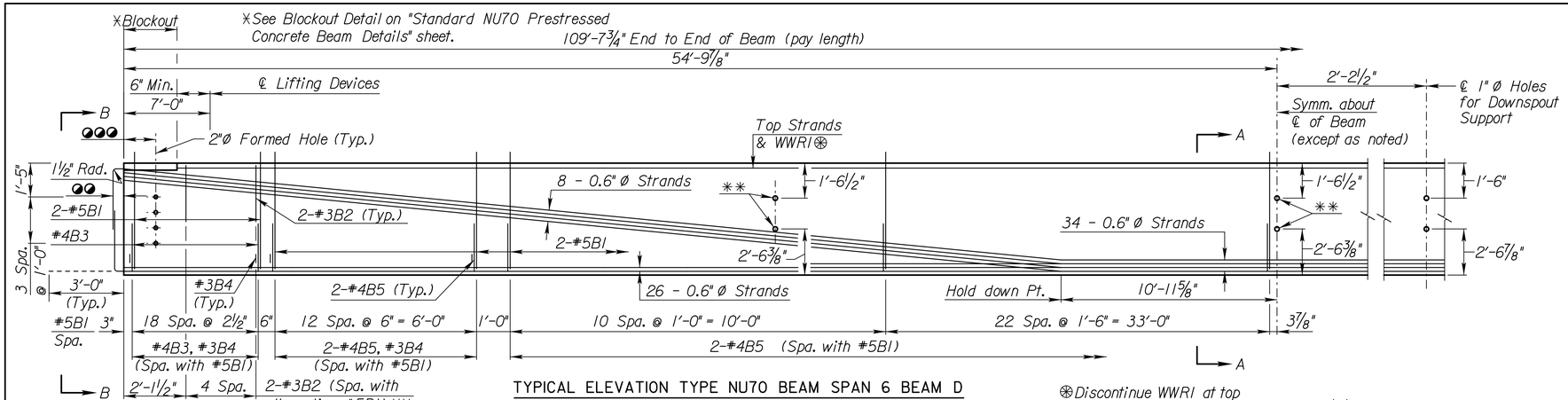
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 6 BEAM C



TYPICAL ELEVATION TYPE NU70 BEAM SPAN 6 BEAM D

f'c = 9 ksi
f'ci = 7.5 ksi

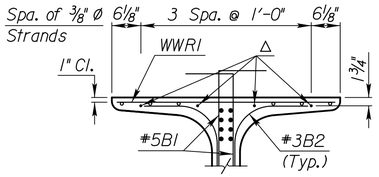
◒◒ 8"

◒◒◒ 1'-7¼" @ Pier No. 5
1'-4¾" @ Pier No. 6

XX Spacing of #3B2 bar @ Pier No. 5

⊛ Discontinue WWR1 at top flange blockout location.

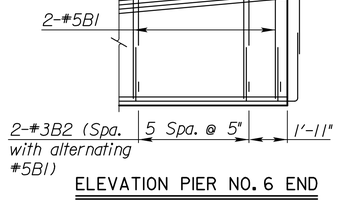
** 2" Ø Formed Holes for Intermediate Diaphragms (See Framing Plans for Locations)



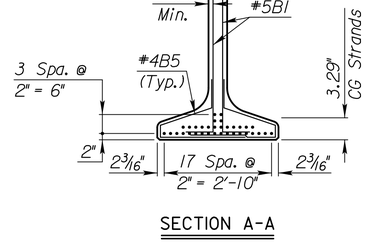
TOP FLANGE DETAIL ††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

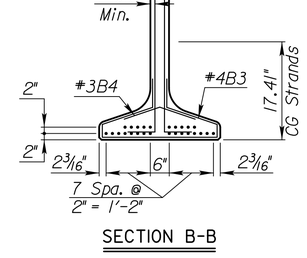
†† Check flange for Overhang Bracket loads where applicable.



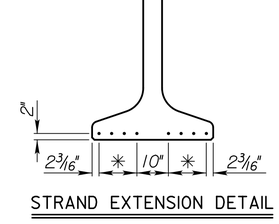
ELEVATION PIER NO. 6 END
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



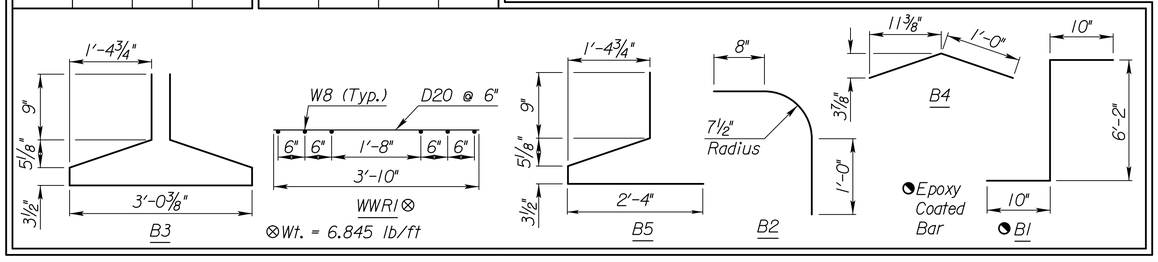
✳ 3 Spa. @ 4"

STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
106'-7¾" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	3'-10"	B2	22	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔ B1	260	#5	7'-10"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 7'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 5.13 kips per strand = 41.02 kips total.

⧓ Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (109'-7¾")	Lin.Ft.	110
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 109'-7¾" beam)	Cu.Yds.	24.2
Approx. Wt. per 109'-7¾" beam	Tons	49.0
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	3,793
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	2,124
Reinforcing steel (fy=60,000 PSI)	Lbs.	838
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	727
Laminated Elastomeric Brg. pads	Each	1
Lifting devices	Each	4
Bearing plates (⧓ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	14

SHEET NO.	TOTAL SHEETS
611	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

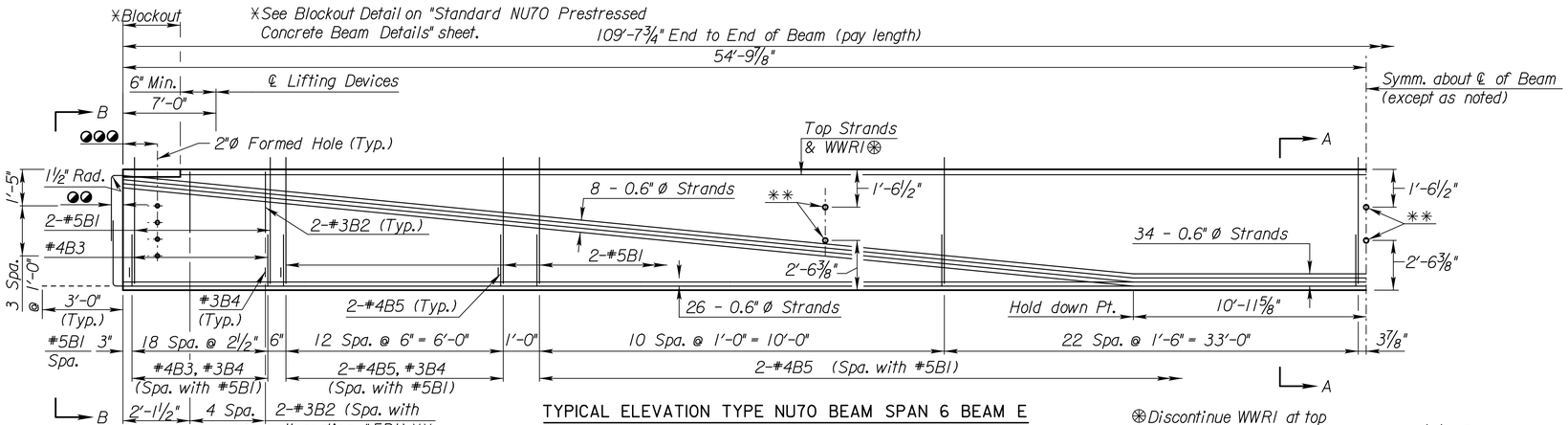
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 6 BEAM D

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S6BD.dgn

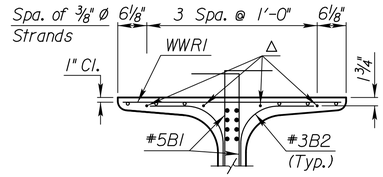


TYPICAL ELEVATION TYPE NU70 BEAM SPAN 6 BEAM E

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWR1 at top flange blockout location.

** ¾"Ø Open Coil Inserts interior face (See Framing Plans for Locations)

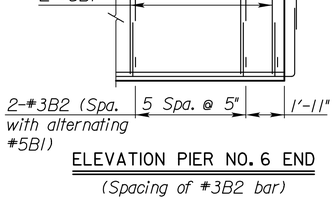


TOP FLANGE DETAIL ††

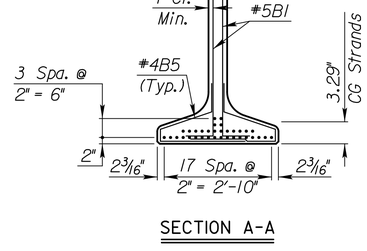
△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

††Check flange for Overhang Bracket loads where applicable.

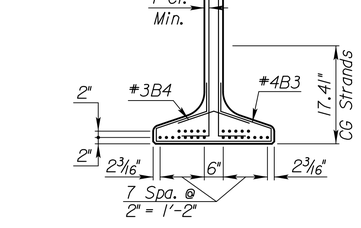
⁜⁜Spacing of #3B2 bar @ Pier No. 5



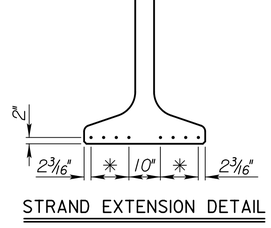
ELEVATION PIER NO. 6 END
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



STRAND EXTENSION DETAIL

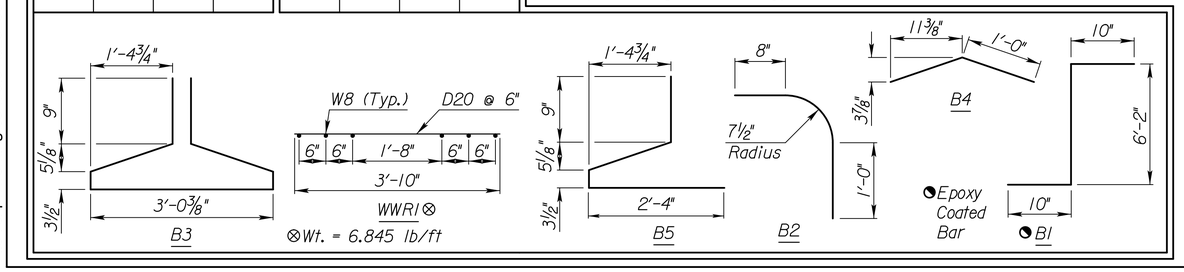
⁜ 3 Spa. @ 4"

BILL OF REINFORCING STEEL							
109'-7¾" Beam (1 Listed-1 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
B6	2	#4	3'-10"	B2	22	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	184	#4	4'-8"
				◔B1	260	#5	7'-10"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S

Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 7'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 8 strands at 5.13 kips per strand = 41.02 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (109'-7¾")	Lin.Ft.	110
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 109'-7¾" beam)	Cu.Yds.	24.2
Approx. Wt. per 109'-7¾ beam	Tons	49.0
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	3,792
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	2,124
Reinforcing steel (fy=60,000 PSI)	Lbs.	838
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	727
Laminated Elastomeric Brg. pads	Each	1
Lifting devices	Each	4
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	2
2" Formed Holes	Each	8
¾"Ø Open Coil Inserts	Each	6
¾"Ø x 1'-6" Threaded Coil Rods	Each	6

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S6BE.dgn
Plotted : 08-28-24

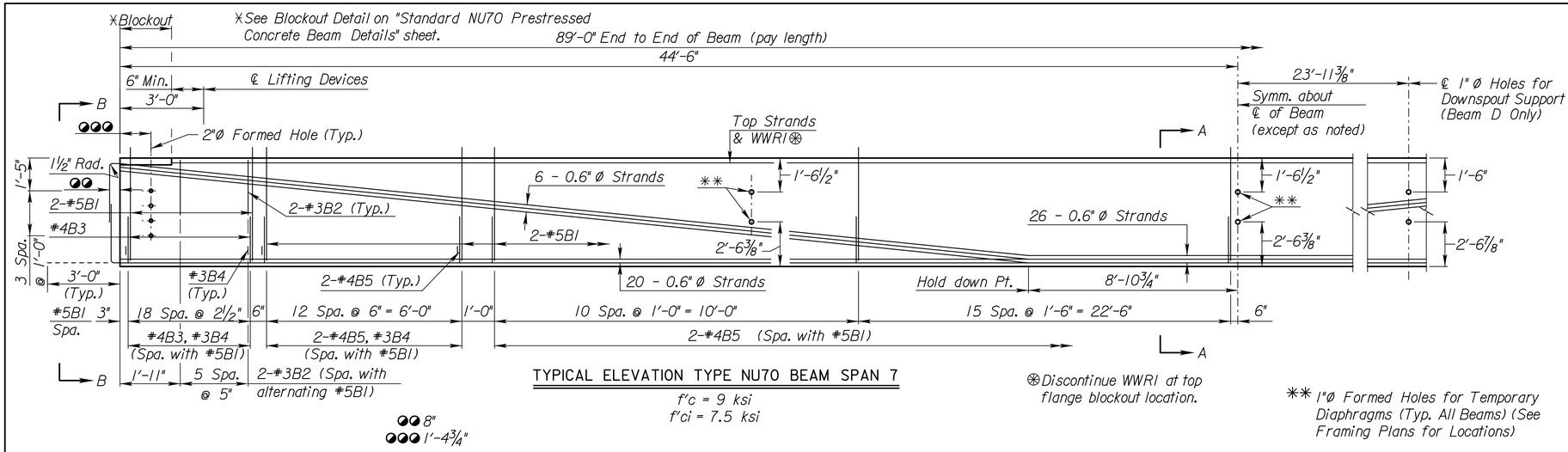
SHEET NO. 612 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 6 BEAM E

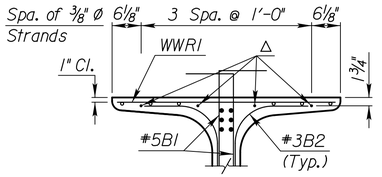


TYPICAL ELEVATION TYPE NU70 BEAM SPAN 7

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWR1 at top flange blockout location.

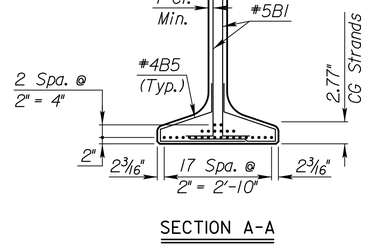
** 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



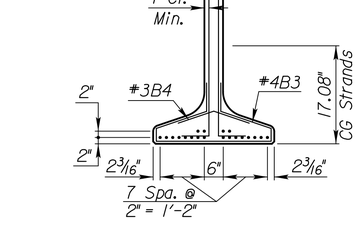
TOP FLANGE DETAIL††

△ ⅜" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

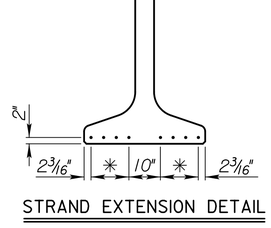
††Check flange for Overhang Bracket loads where applicable.



SECTION A-A



SECTION B-B



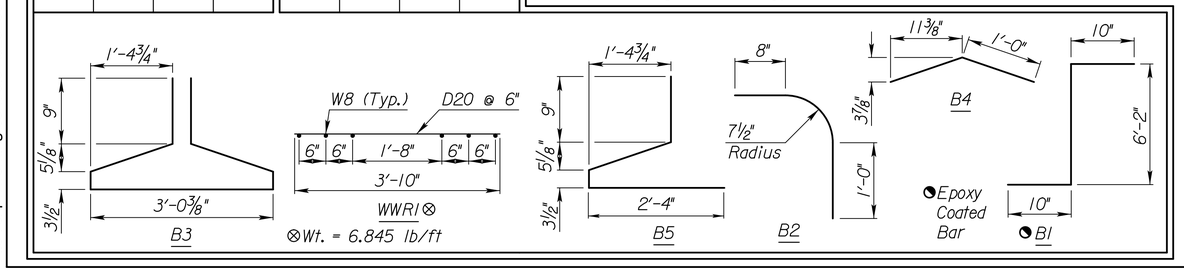
✳ 3 Spa. @ 4"

STRAND EXTENSION DETAIL

BILL OF REINFORCING STEEL							
89'-0" Beam (1 Listed-5 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	24	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	156	#4	4'-8"
				◔ B1	232	#5	7'-10"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠Use ¾" ℄ when field welding will occur, otherwise use ½" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 3'-0" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 6.46 kips per strand = 38.78 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (89'-0")	Lin.Ft.	445
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 89'-0" beam)	Cu.Yds.	19.6
Approx. Wt. per 89'-0" beam	Tons	39.7
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	11,892
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	9,477
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,765
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	2,938
Laminated Elastomeric Brg. pads	Each	10
1" Formed Holes	Each	32
Lifting devices	Each	20
Bearing plates (⊠ x 1'-4" x 3'-0⅜")	Each	10
2" Formed Holes	Each	40

SHEET NO. 613 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

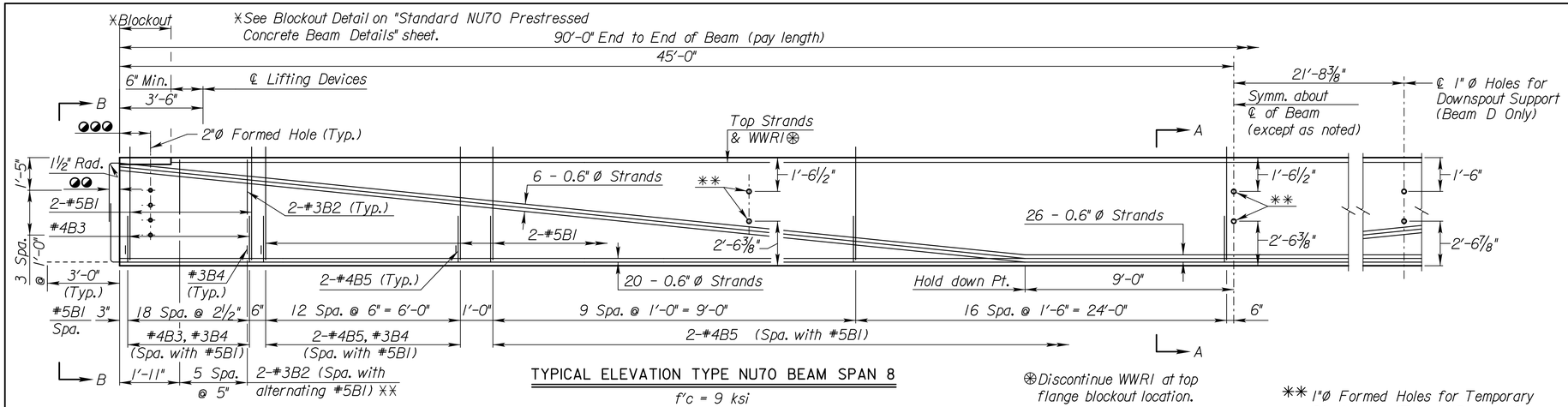
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 7

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S7.dgn
Plotted : 08-28-24

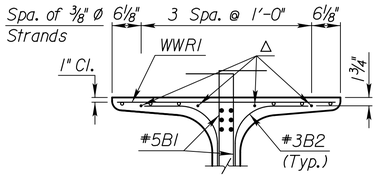


TYPICAL ELEVATION TYPE NU70 BEAM SPAN 8

f'c = 9 ksi
f'ci = 7.5 ksi

⊛Discontinue WWRI at top flange blockout location.

** 1"Ø Formed Holes for Temporary Diaphragms (Typ. All Beams) (See Framing Plans for Locations)



TOP FLANGE DETAIL ††

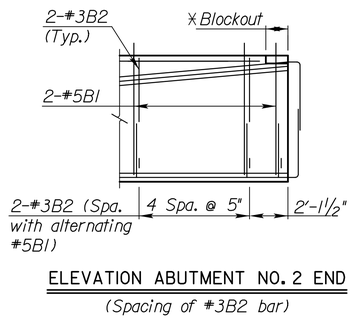
△ 3/8" Dia. reinforcement support strands (required). Tension to 2.0 kips/strand and place symmetrical about ℄ beam. May be moved laterally in pairs to maintain symmetry.

††Check flange for Overhang Bracket loads where applicable.

●● 8" @ Pier No. 7
4" @ Abutment No. 2

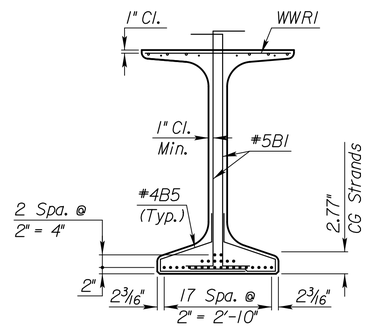
●●● 1'-4 3/4" @ Pier No. 7
1'-2 1/4" @ Abutment No. 2

⊼⊼ Spacing of #3B2 bar @ Pier No. 7

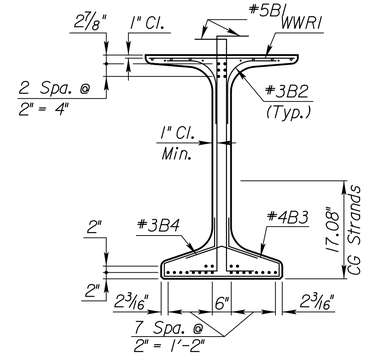


ELEVATION ABUTMENT NO. 2 END

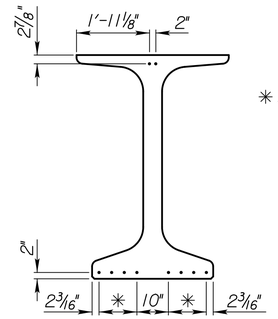
(Spacing of #3B2 bar)



SECTION A-A



SECTION B-B



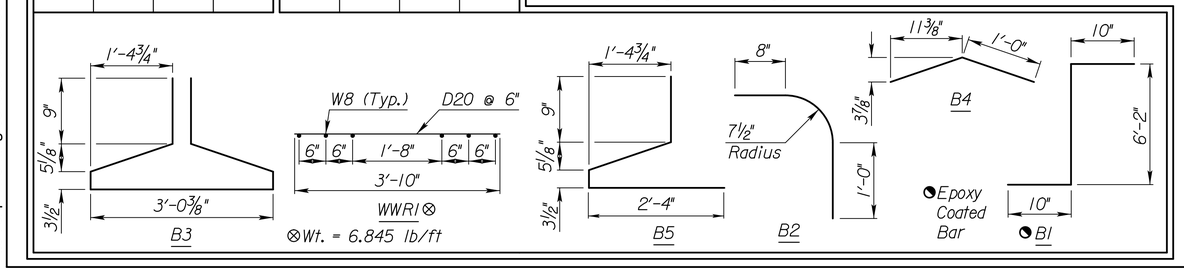
STRAND EXTENSION DETAIL

✳ 3 Spa. @ 4"

BILL OF REINFORCING STEEL							
90'-0" Beam (1 Listed-5 Reqd.)							
Straight bars				Bent bars			
Mark	No.	Size	Length	Mark	No.	Size	Length
				B2	22	#3	2'-8"
				B4	64	#3	2'-0"
				B3	38	#4	7'-8"
				B5	156	#4	4'-8"
				◔ B1	232	#5	7'-10"

†WELDED WIRE REINFORCEMENT EQUIVALENT STEEL A_S						
Size	3"	6"	9"	12"	15"	18"
#3	0.440	0.220	0.147	0.110	0.088	0.073
#4	0.800	0.400	0.267	0.200	0.160	0.133
#5	1.234	0.617	0.411	0.308	0.247	0.206
#6	1.761	0.880	0.587	0.440	0.352	0.293

† If Welded Wire Reinforcement (WWR) is used in-lieu of reinforcing steel bars shown on this sheet, the spacing of wires for the WWR shall be equal to or less than the vertical bars shown in the typical beam section above. The equivalent A_S for the WWR shall be equal to or greater than typical beam section above.



⊠Use 3/4" ℄ when field welding will occur, otherwise use 1/2" ℄.

Note: Extend 10 strands 3'-0" beyond the end of the beam. Strands not shown shall be cut flush with the end of the beam. See "Strand Extension Details."

Note: During transportation and construction only, support beams on bearing points a maximum of 3'-6" from the beam end. The Fabricator shall show the proposed support locations on the shop drawings.

Note: The hold down force at the harp points for 6 strands at 6.39 kips per strand = 38.36 kips total.

BILL OF MATERIAL		
Item	Unit	Quantity
Prestressed Concrete Beams (NU70) (90'-0")	Lin.Ft.	450
The following quantities are given for information only and shall not be paid for directly but shall be made subsidiary to the bid item "Prestressed Concrete Beams"		
Beam concrete (f'c= 9000 PSI) (per 90'-0" beam)	Cu.Yds.	19.8
Approx. Wt. per 90'-0" beam	Tons	40.2
0.6"Ø Prestressing strand (270 KSI low relaxation fy= 243 KSI)	Lin.Ft.	12,022
Epoxy reinforcing steel (fy=60,000 PSI)	Lbs.	9,477
Reinforcing steel (fy=60,000 PSI)	Lbs.	3,755
Welded Wire Reinforcement (fy=70,000 PSI)	Lbs.	2,963
Laminated Elastomeric Brg. pads	Each	10
1" Formed Holes	Each	32
Lifting devices	Each	20
Bearing plates (⊠ x 1'-4" x 3'-0 3/8")	Each	10
2" Formed Holes	Each	40

SHEET NO. 614 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

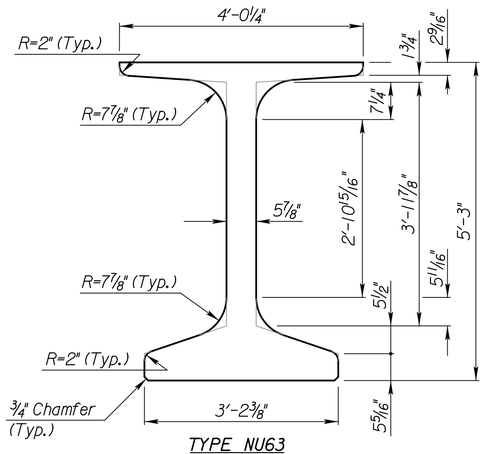
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
NU70 BEAM DETAILS
SPAN 8

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BD_S8.dgn



TYPE NU63

Area	811.0	In.^{2}
IcG	458,709	In.^{4}
Y Bot	28.41	In.
Vol./Surf. Area	3.07	In.
Wt./Ft.	845	Lbs

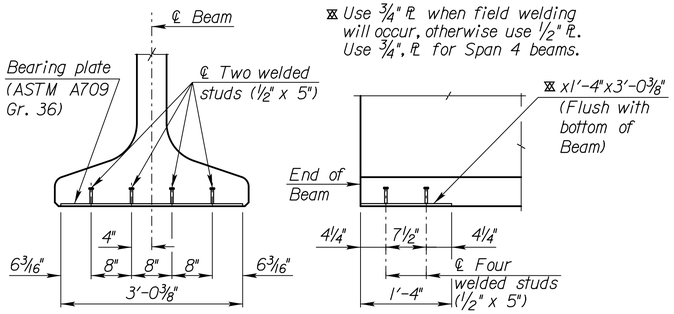
TYPICAL BEAM SECTION

(Dimensions and properties are converted from metric fabrication forms.)

✳ Prior to shipping, the camber shall be no greater than the design camber +1/2". The design camber is equal to the 50 day camber shown in the plans.

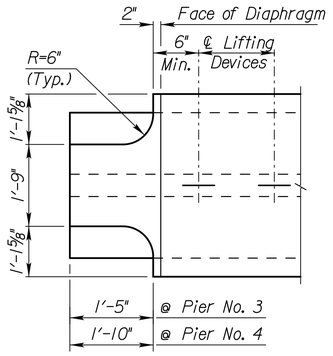
◔◔ At expansion joint locations coat beam with approved epoxy substructure waterproofing membrane.

◔ At bridge deck drain locations coat beam with approved epoxy substructure waterproofing membrane.

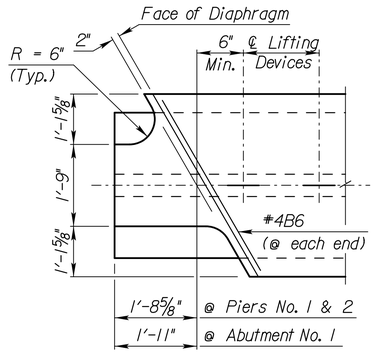


BEARING PLATE DETAILS

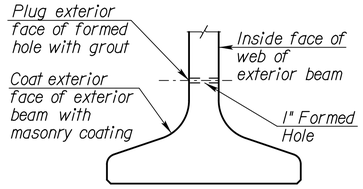
Note:
Stud welding will be in accordance with the latest edition of AWS D1.1.
Use plate conforming to the requirements of ASTM A709 Grade 36. The stud anchors will be made of material as specified for Shear Connector Studs in the KDOT Specifications.
The exposed surface of the bearing plates shall be galvanized.
All work and material to install the bearing plates shall be subsidiary to the bid item "Prestressed Concrete Beam".



TOP FLANGE BLOCKOUT DETAIL AT NORMAL ABUTMENT AND PIERS



TOP FLANGE BLOCKOUT DETAIL AT SKEWED ABUTMENT AND PIERS



DETAIL OF FORMED HOLE(S)

(See Beam Detail sheet for locations)

GENERAL NOTES

Fabricate the precast prestressed beams in accordance with the KDOT Specifications. Submit shop drawings in accordance with the KDOT Specifications.

Use air entrained concrete. The KDOT Materials Section shall approve the mix design. Unless otherwise shown on the plans, f'c = 9,000 psi and f'c at release = 7,500 psi.

Use reinforcing steel conforming to the requirements of ASTM A615, Grade 60. The reinforcing steel shown shall be uncoated unless otherwise indicated. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Use 0.60" nominal diameter (unless otherwise indicated), uncoated, seven-wire, low relaxation prestressing tendons conforming to the requirements of ASTM A416, Grade 270.

Use bolts having an ultimate strength 50% in excess of the manufacturer's safe load. All items (except the tendons) cast-in or inserted in prestressed beams shall be epoxy coated or galvanized. Show Formed Holes on shop drawings. All bolts, nuts and washers shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Show on the shop drawings any hardware, holes or other appurtenances that are required to be incorporated into the girder to construct the girder or for any temporary works needed to construct the bridge (e.g. safety railing pockets).

After beams are in the final position, remove lifting devices. See "Lifting Device" detail below. Removal of the lifting devices, coating and grouting shall be subsidiary to the bid item: "Prestressed Concrete Beams".

Use elastomeric bearing pads conforming to the KDOT Specifications. Bearing pads and Type B expansion joint material shall be subsidiary to the bid item, "Prestressed Concrete Beams".

The beam lengths shown on the design plans are net lengths measured horizontally along the beam centerline. The beam manufacturer shall make necessary allowances for grade, and for shortening due to elastic shortening, creep and shrinkage.

The beams shall reasonably conform to the lines and dimensions shown on the design plans and be within the tolerances specified in the latest edition of Prestressed Concrete Institute's, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products", except as modified by this sheet or the KDOT Specifications.

Apply an initial force of 1,000 to 3,000 pounds to each strand to take up any slack in the cables. Unless otherwise noted on the plans, apply a force of 43,900 pounds to each strand. Stress harped strands to a magnitude such that they are tensioned to 43,900 pounds after they are in position.

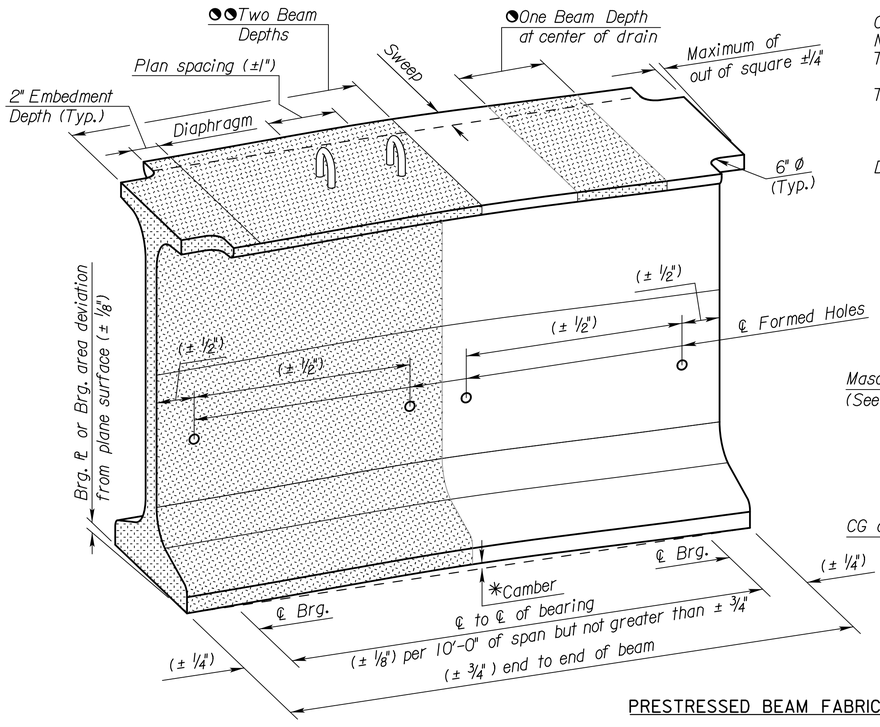
The center portion of the girder top flange shall be rough finished by scarifying the surface transversely with a wire brush or stiff broom and no laitance shall remain on the surface. The outside 9" on each side of the top flange shall be steel troweled to a smooth finish and a bond breaker shall be applied to this region only. Bond breaker shall be 30# roofing felt. Secure roofing felt to the top flange with an adhesive approved by the Engineer.

Fill trapped air holes and surface voids on the exterior face of the exterior beams with an approved concrete masonry coating. This work shall conform to KDOT Specifications. This work shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Detension strands in a sequence which minimizes lateral eccentricity. Show the method and sequence of strand release on the shop drawings. Use extreme care when lifting, handling, storing and transporting beams. Use the lifting system shown or an alternate system approved by the Engineer. Keep the beam in an upright position at all times. Support the beam on bearing points positioned directly below the designated lifting points or designated bearing points.

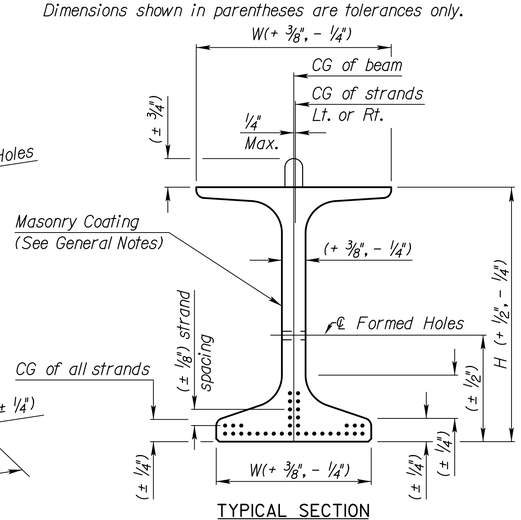
Do not place the bridge slab before the beams are 28 days old. Pour diaphragms as detailed in the bridge plans.

Stencil with paint the following information on the webs approximately 5'-0" from one end of the beam: date of concrete placement, date of strand release, and beam mark.



CG = Center of Gravity

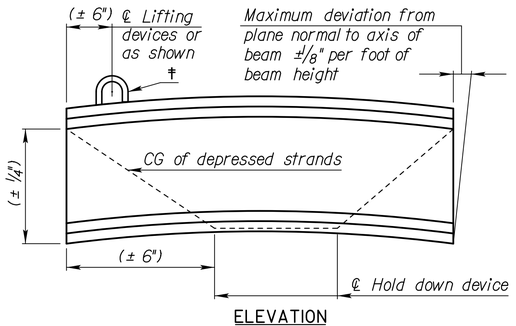
Note:
Tolerance for sweep is 1/8" per 10'-0" of span but not greater than 1".
Tolerance for camber is 1" maximum variation in camber between adjacent beams; and ±1/8" per 10'-0" of span deviation from the specified camber but not greater than ±1" deviation.
Dimensions shown in parentheses are tolerances only.



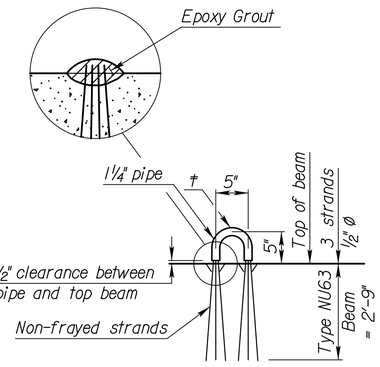
TYPICAL SECTION

PRESTRESSED BEAM FABRICATION TOLERANCES

† Remove lifting device within 1/2" from top of beam. Coat area with approved epoxy bonding agent. Completely cover remaining exposed strands and fill depressions adjacent to strands with approved epoxy grout.



ELEVATION



LIFTING DEVICE

(Two required at each end)

(Fabricator to verify)

SHEET NO.	TOTAL SHEETS
615	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

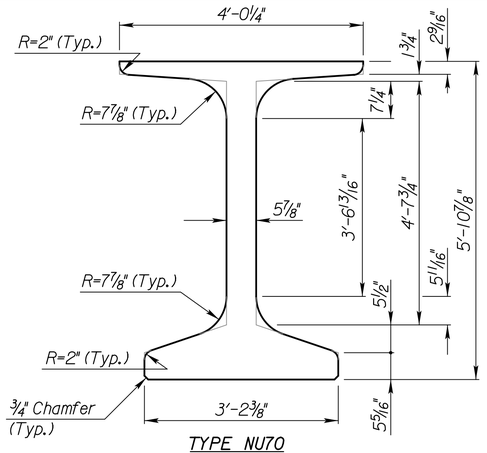
CITY OF OLATHE, KS

OLATHE KANSAS

By	Description	Date	Rev.

119th Street - Eastbound
STANDARD NU63 PRESTRESSED CONCRETE BEAM DETAILS

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_NU63.dgn



TYPE NU70

Area	857.5	In.^{2}
IcG	611,624	In.^{4}
Y Bot	32.02	In.
Vol./Surf. Area	3.06	In.
Wt./Ft.	893	Lbs

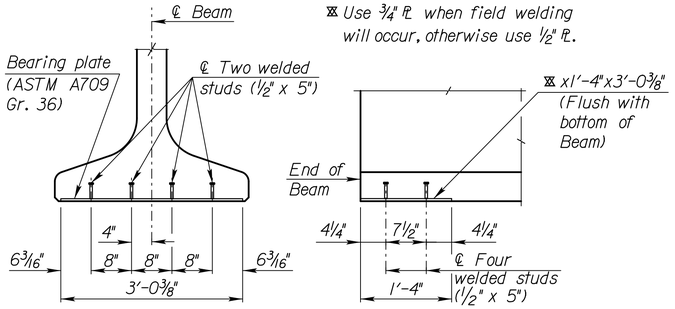
TYPICAL BEAM SECTION

(Dimensions and properties are converted from metric fabrication forms.)

✳ Prior to shipping, the camber shall be no greater than the design camber $+\frac{1}{2}$". The design camber is equal to the 50 day camber shown in the plans.

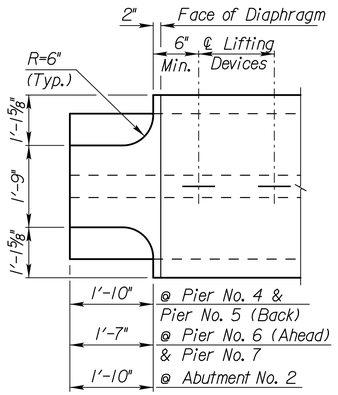
◔◔ At expansion joint locations coat beam with approved epoxy substructure waterproofing membrane.

◔ At bridge deck drain locations coat beam with approved epoxy substructure waterproofing membrane.

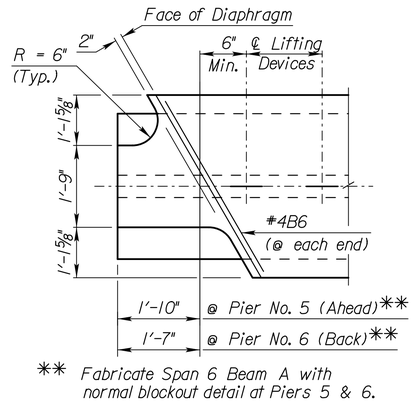


BEARING PLATE DETAILS

Note:
Stud welding will be in accordance with the latest edition of AWS D1.1.
Use plate conforming to the requirements of ASTM A709 Grade 36. The stud anchors will be made of material as specified for Shear Connector Studs in the KDOT Specifications.
The exposed surface of the bearing plates shall be galvanized.
All work and material to install the bearing plates shall be subsidiary to the bid item "Prestressed Concrete Beam".

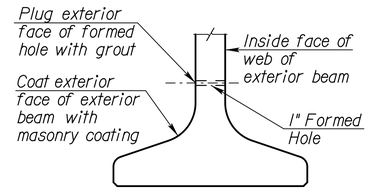


TOP FLANGE BLOCKOUT DETAIL AT NORMAL ABUTMENT AND PIERS



** Fabricate Span 6 Beam A with normal blockout detail at Piers 5 & 6.

TOP FLANGE BLOCKOUT DETAIL AT SKEWED ABUTMENT AND PIERS



DETAIL OF FORMED HOLE(S)

(See Beam Detail sheet for locations)

GENERAL NOTES

Fabricate the precast prestressed beams in accordance with the KDOT Specifications. Submit shop drawings in accordance with the KDOT Specifications.

Use air entrained concrete. The KDOT Materials Section shall approve the mix design. Unless otherwise shown on the plans, f'c = 9,000 psi and f'c at release = 7,500 psi.

Use reinforcing steel conforming to the requirements of ASTM A615, Grade 60. The reinforcing steel shown shall be uncoated unless otherwise indicated. Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

Use 0.60" nominal diameter (unless otherwise indicated), uncoated, seven-wire, low relaxation prestressing tendons conforming to the requirements of ASTM A416, Grade 270.

Use bolts having an ultimate strength 50% in excess of the manufacturer's safe load. All items (except the tendons) cast-in or inserted in prestressed beams shall be epoxy coated or galvanized. Show Formed Holes on shop drawings. All bolts, nuts and washers shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Show on the shop drawings any hardware, holes or other appurtenances that are required to be incorporated into the girder to construct the girder or for any temporary works needed to construct the bridge (e.g. safety railing pockets).

After beams are in the final position, remove lifting devices. See "Lifting Device" detail below. Removal of the lifting devices, coating and grouting shall be subsidiary to the bid item: "Prestressed Concrete Beams".

Use elastomeric bearing pads conforming to the KDOT Specifications. Bearing pads and Type B expansion joint material shall be subsidiary to the bid item, "Prestressed Concrete Beams".

The beam lengths shown on the design plans are net lengths measured horizontally along the beam centerline. The beam manufacturer shall make necessary allowances for grade, and for shortening due to elastic shortening, creep and shrinkage.

The beams shall reasonably conform to the lines and dimensions shown on the design plans and be within the tolerances specified in the latest edition of Prestressed Concrete Institute's, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products", except as modified by this sheet or the KDOT Specifications.

Apply an initial force of 1,000 to 3,000 pounds to each strand to take up any slack in the cables. Unless otherwise noted on the plans, apply a force of 43,900 pounds to each strand. Stress harped strands to a magnitude such that they are tensioned to 43,900 pounds after they are in position.

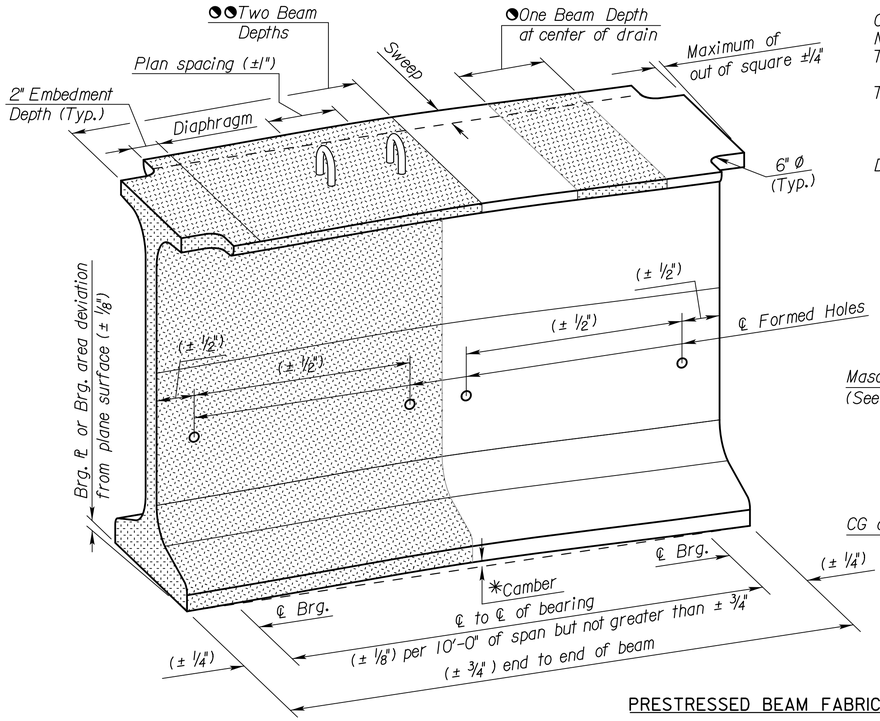
The center portion of the girder top flange shall be rough finished by scarifying the surface transversely with a wire brush or stiff broom and no laitance shall remain on the surface. The outside 9" on each side of the top flange shall be steel troweled to a smooth finish and a bond breaker shall be applied to this region only. Bond breaker shall be 30# roofing felt. Secure roofing felt to the top flange with an adhesive approved by the Engineer.

Fill trapped air holes and surface voids on the exterior face of the exterior beams with an approved concrete masonry coating. This work shall conform to KDOT Specifications. This work shall be subsidiary to the bid item, "Prestressed Concrete Beams".

Detension strands in a sequence which minimizes lateral eccentricity. Show the method and sequence of strand release on the shop drawings. Use extreme care when lifting, handling, storing and transporting beams. Use the lifting system shown or an alternate system approved by the Engineer. Keep the beam in an upright position at all times. Support the beam on bearing points positioned directly below the designated lifting points or designated bearing points.

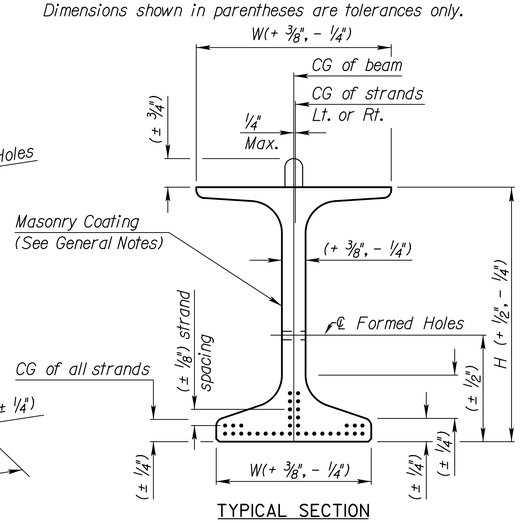
Do not place the bridge slab before the beams are 28 days old. Pour diaphragms as detailed in the bridge plans.

Stencil with paint the following information on the webs approximately 5'-0" from one end of the beam: date of concrete placement, date of strand release, and beam mark.



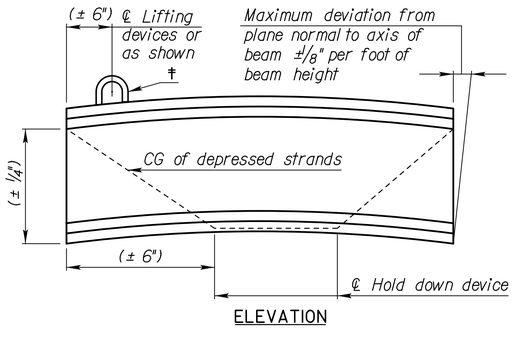
PRESTRESSED BEAM FABRICATION TOLERANCES

CG = Center of Gravity
Note:
Tolerance for sweep is 1/8" per 10'-0" of span but not greater than 1".
Tolerance for camber is 1" maximum variation in camber between adjacent beams; and ±1/8" per 10'-0" of span deviation from the specified camber but not greater than ±1" deviation.
Dimensions shown in parentheses are tolerances only.

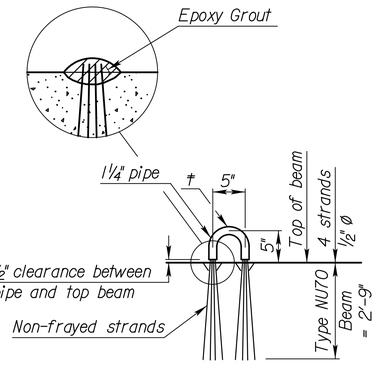


TYPICAL SECTION

† Remove lifting device within 1/2" from top of beam. Coat area with approved epoxy bonding agent. Completely cover remaining exposed strands and fill depressions adjacent to strands with approved epoxy grout.



ELEVATION



LIFTING DEVICE

(Two required at each end)
(Fabricator to verify)

SHEET NO.	TOTAL SHEETS
616	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

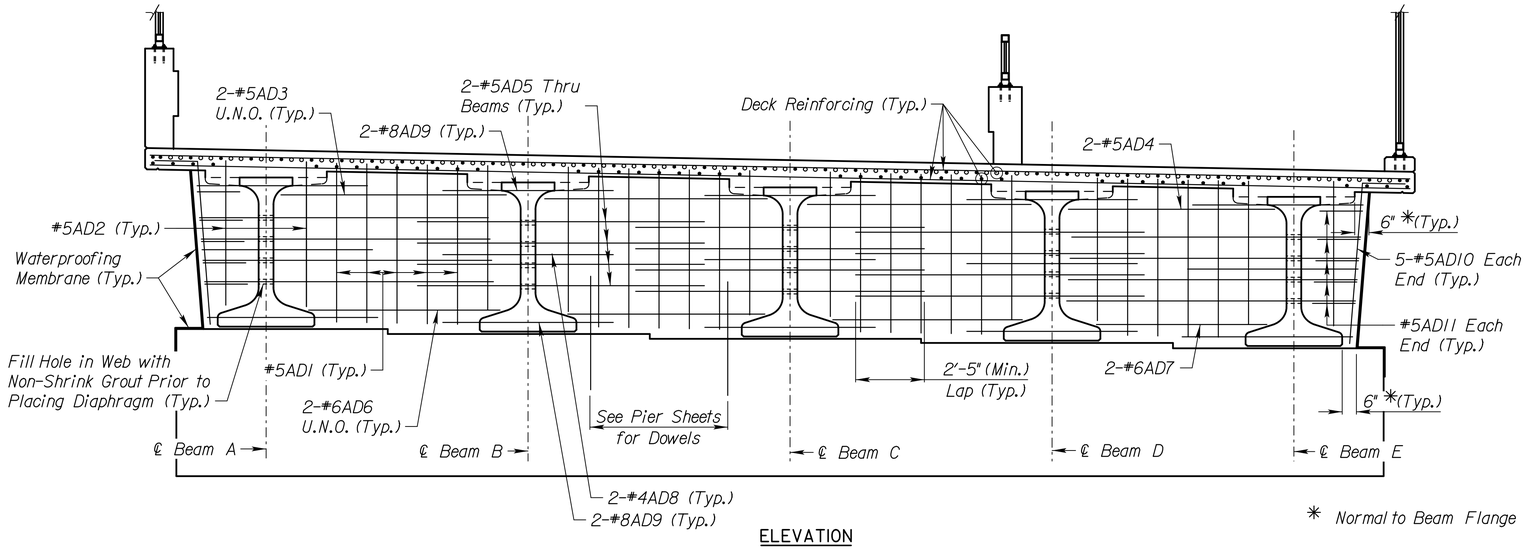
CITY OF OLATHE, KS

OLATHE KANSAS

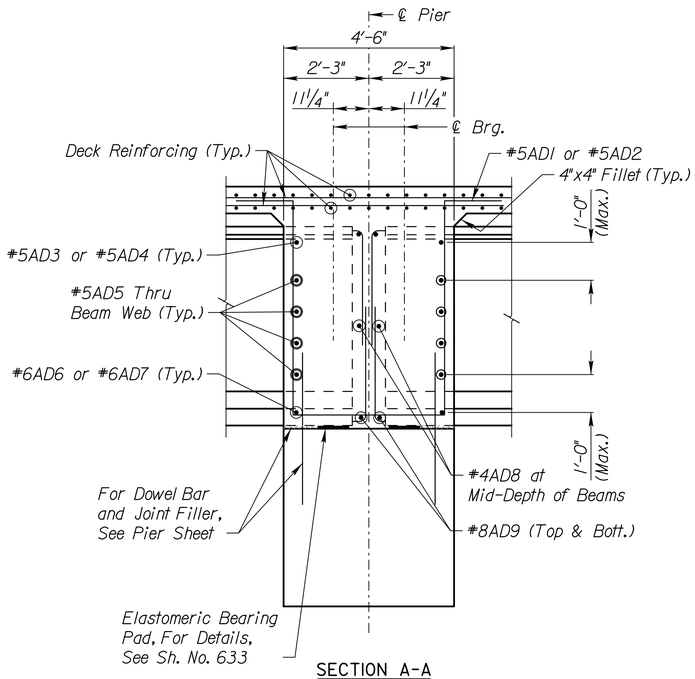
By	Description	Date	Rev.
. . .			
. . .			
. . .			

119th Street - Eastbound
STANDARD NU70 PRESTRESSED CONCRETE BEAM DETAILS

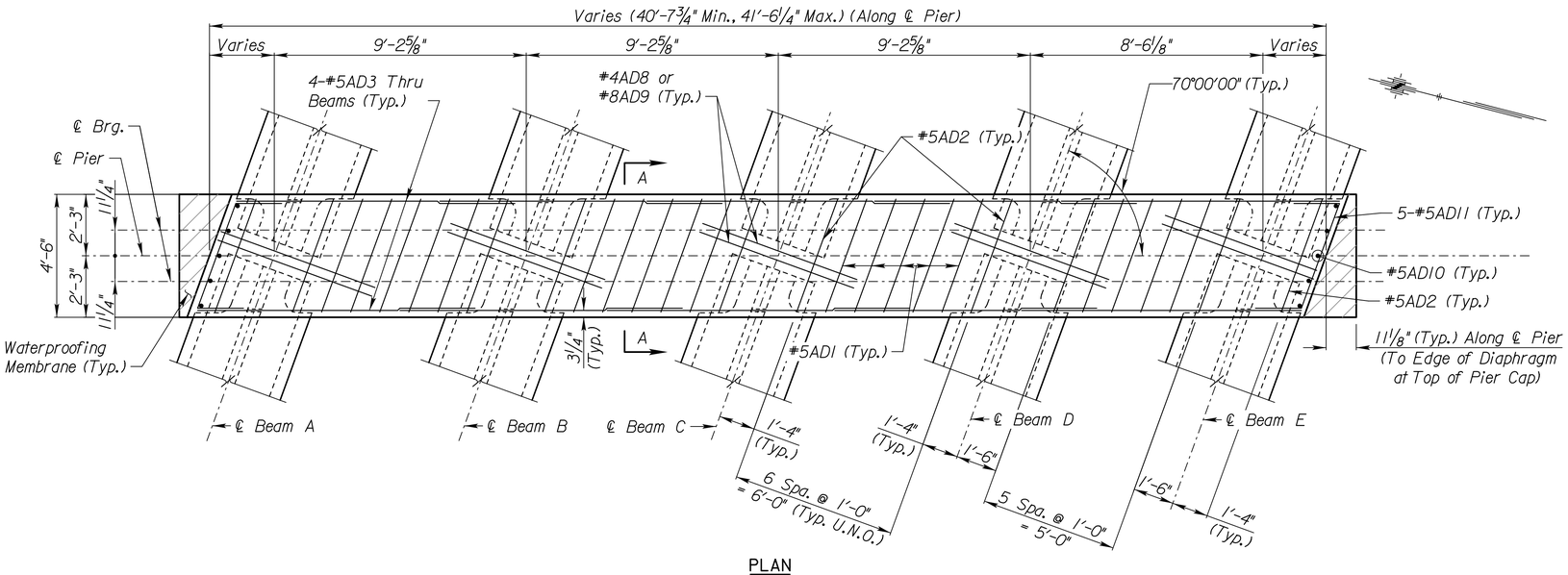
Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_NU70.dgn
Plotted : 08-28-24



ELEVATION



SECTION A-A



PLAN

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

U.N.O. denotes Unless Noted Otherwise.

SHEET NO.	TOTAL SHEETS
617	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

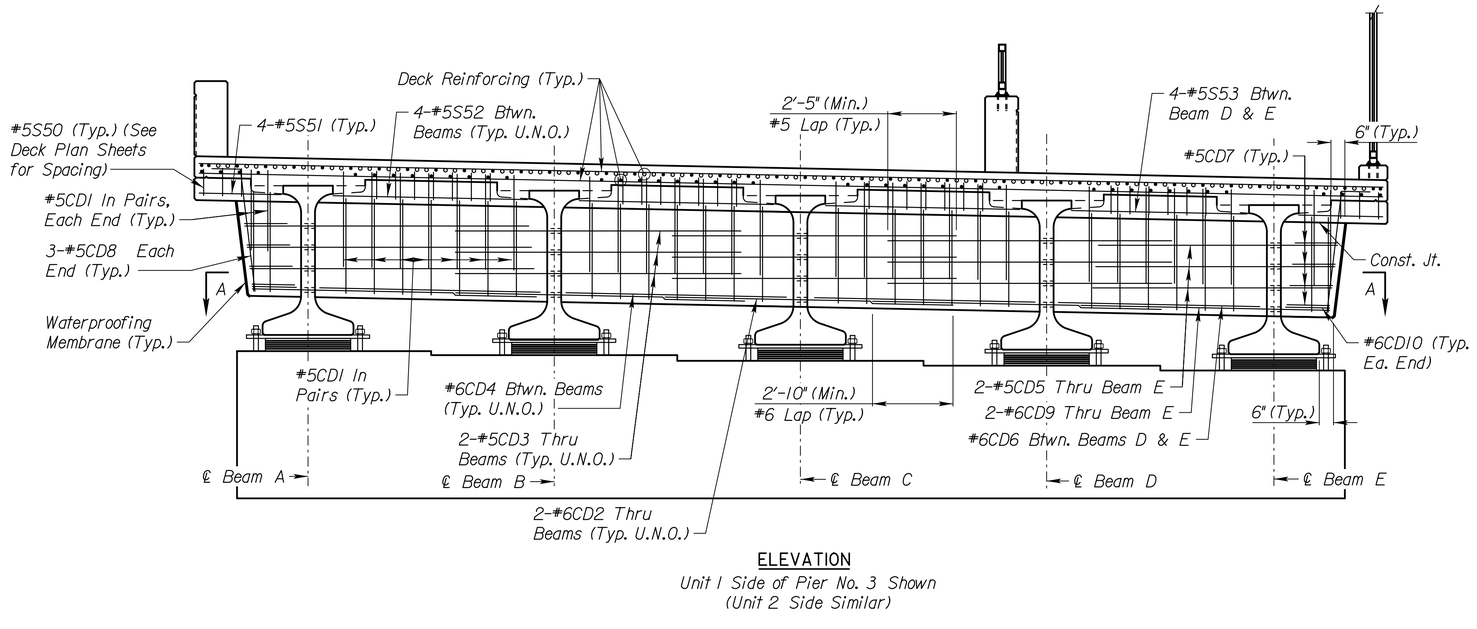
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

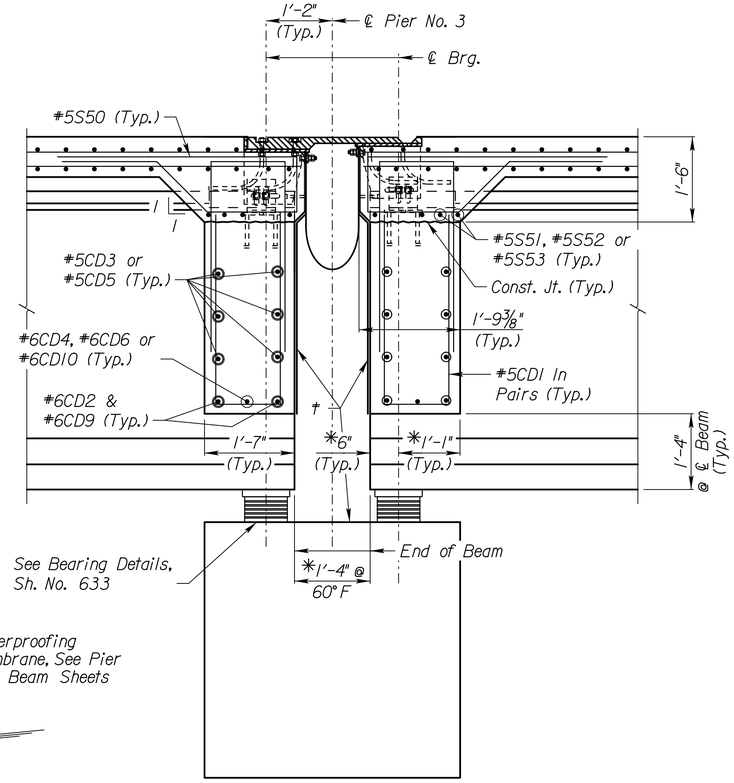
119th Street - Eastbound
PIER DIAPHRAGM DETAILS
PIERS NO.1 & 2

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PierDiaph1&2.dgn



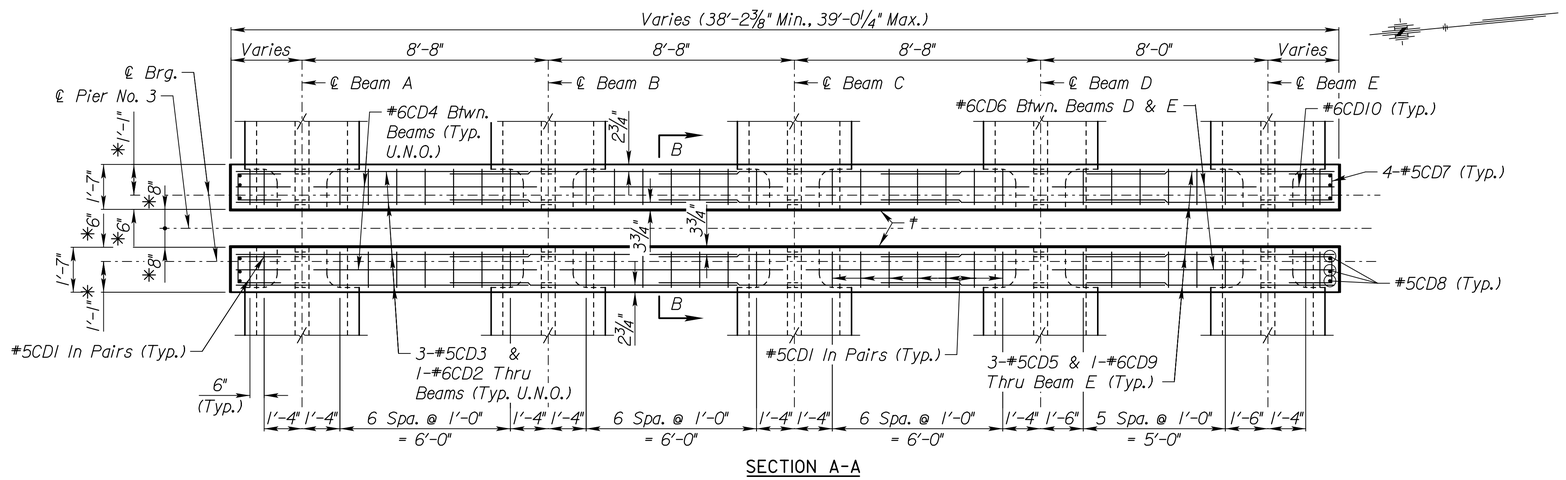
ELEVATION

Unit 1 Side of Pier No. 3 Shown (Unit 2 Side Similar)



† Waterproofing Membrane, See Pier and Beam Sheets

SECTION B-B



SECTION A-A

* Indicates Dimension at 60° F

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

SHEET NO.	TOTAL SHEETS
618	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

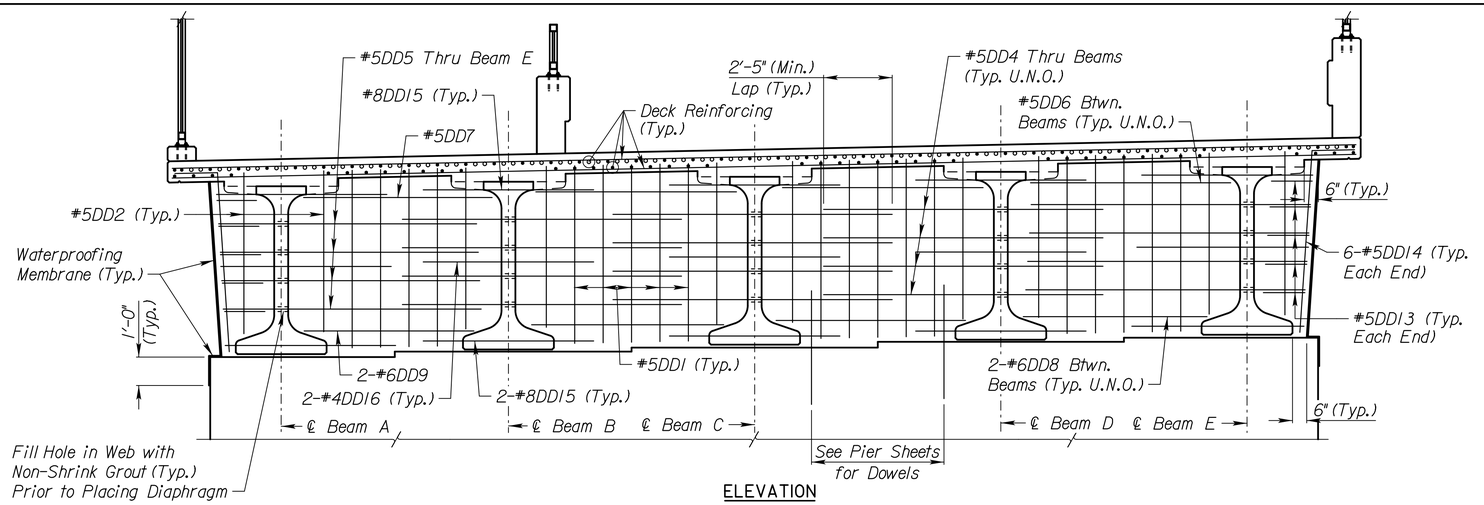
CITY OF OLATHE, KS

OLATHE KANSAS

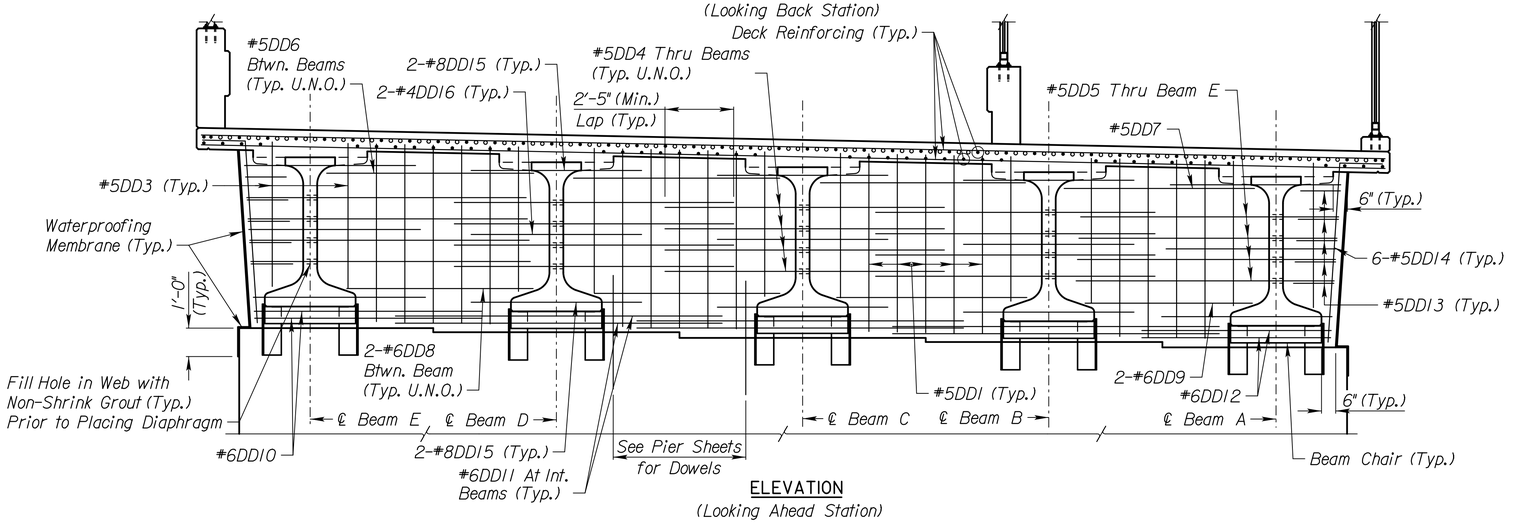
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER DIAPHRAGM DETAILS
PIER NO. 3

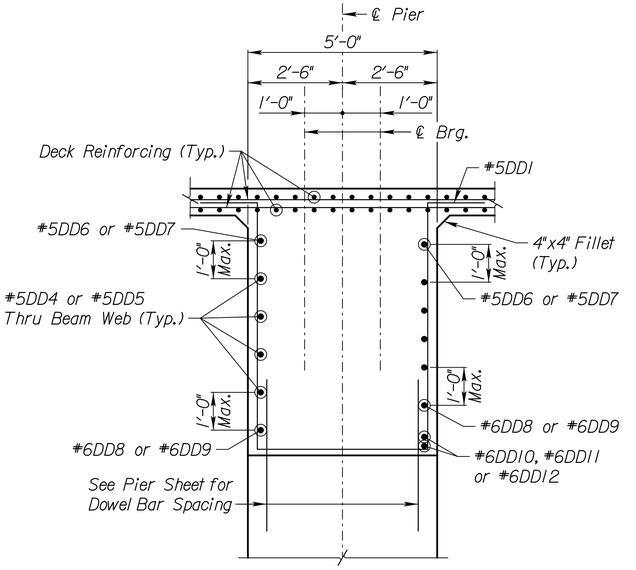
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PierDiaph3.dgn



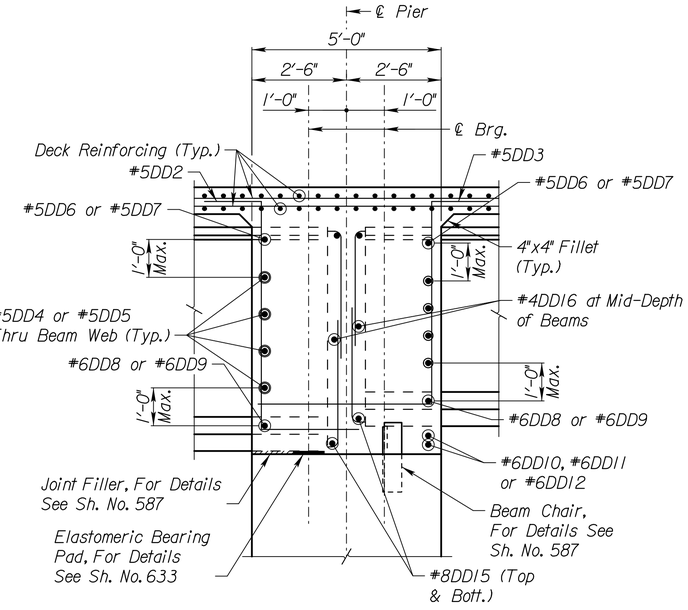
ELEVATION
(Looking Back Station)



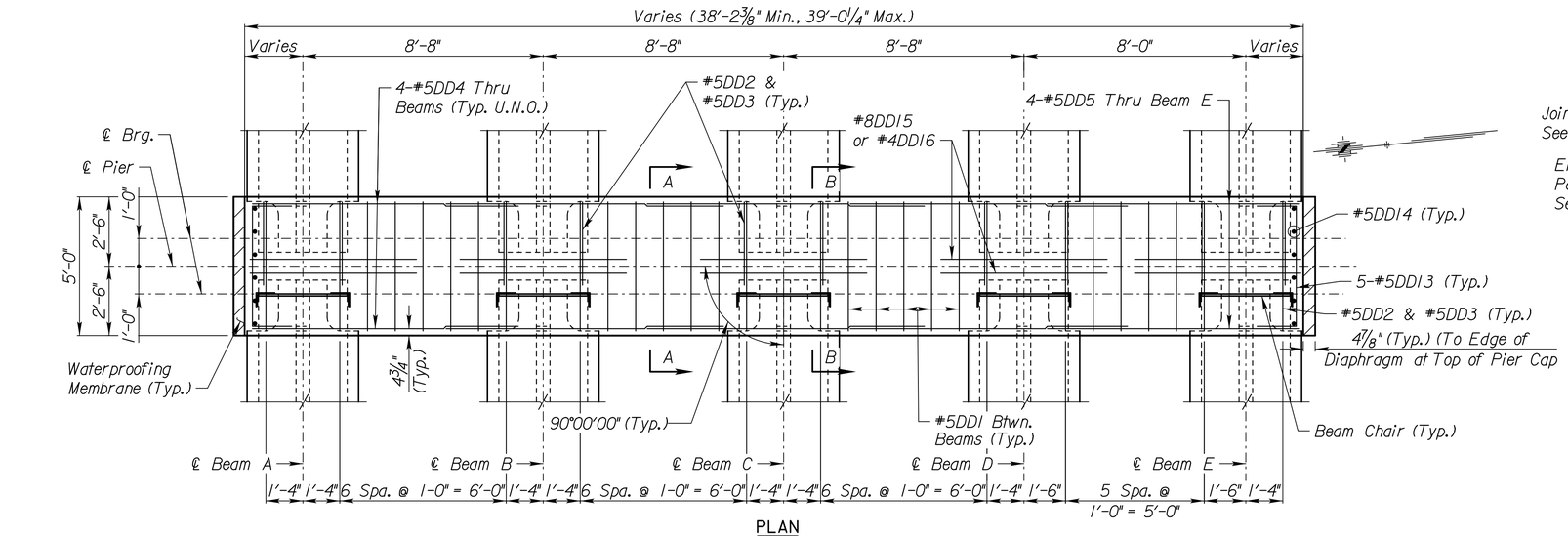
ELEVATION
(Looking Ahead Station)



SECTION A-A



SECTION B-B



PLAN

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

U.N.O. denotes Unless Noted Otherwise.

For beam chair details see Sheet No. 587.

SHEET NO.	TOTAL SHEETS
619	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

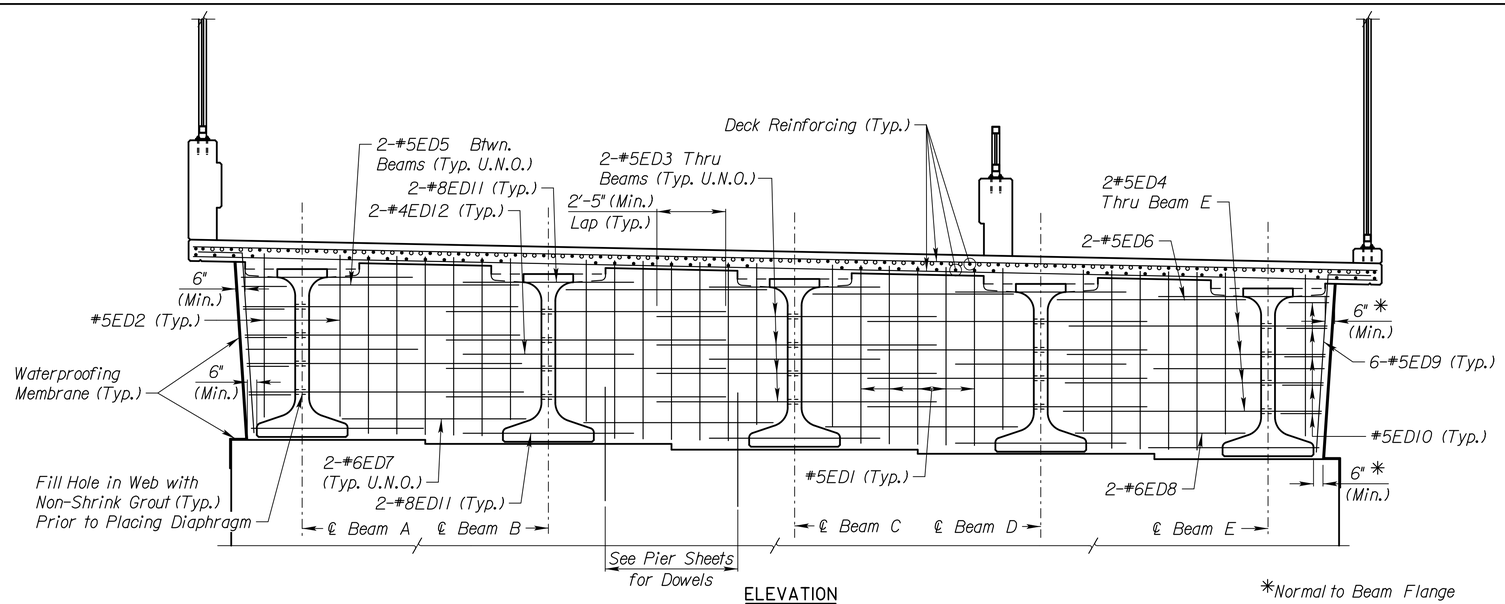
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

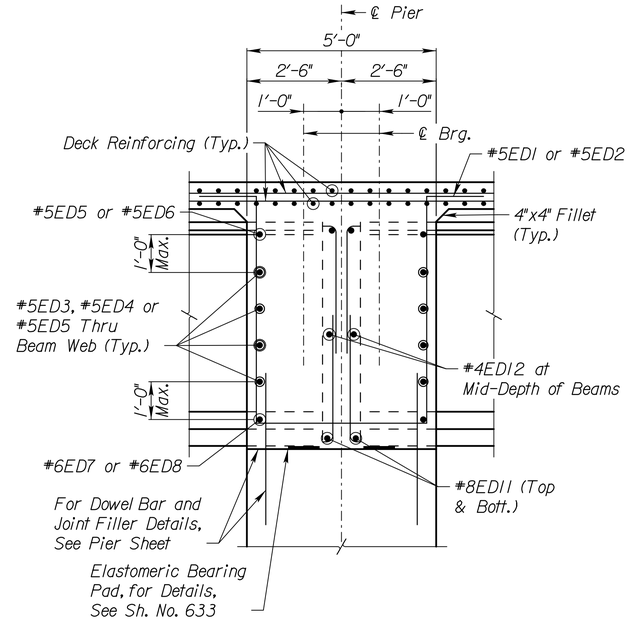
119th Street - Eastbound
PIER DIAPHRAGM DETAILS
PIER NO. 4

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PierDiaph4.dgn

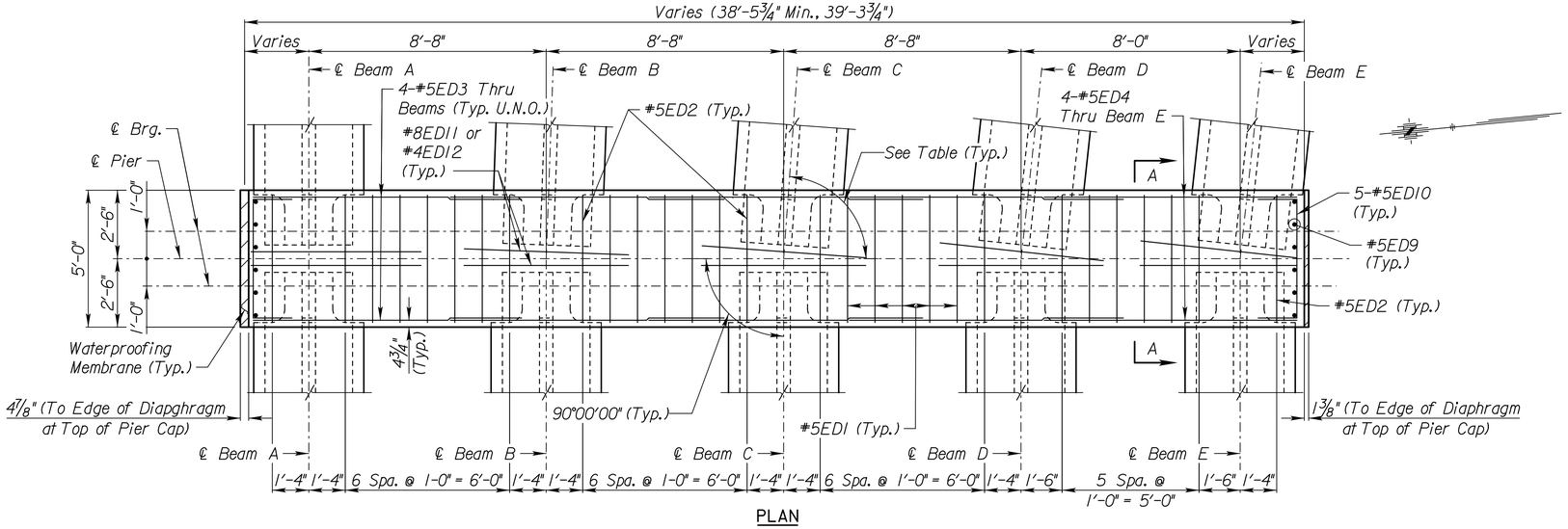


ELEVATION

*Normal to Beam Flange



SECTION A-A



PLAN

BEAM ANGLES	
Beam	Angle
A	90°00'00"
B	87°55'03"
C	85°50'25"
D	83°46'27"
E	83°46'27"

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

U.N.O. denotes Unless Noted Otherwise.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PierDiaph5.dgn

SHEET NO.	TOTAL SHEETS
620	781

YEAR 2024

PROJECT NO. 3-C-024-21

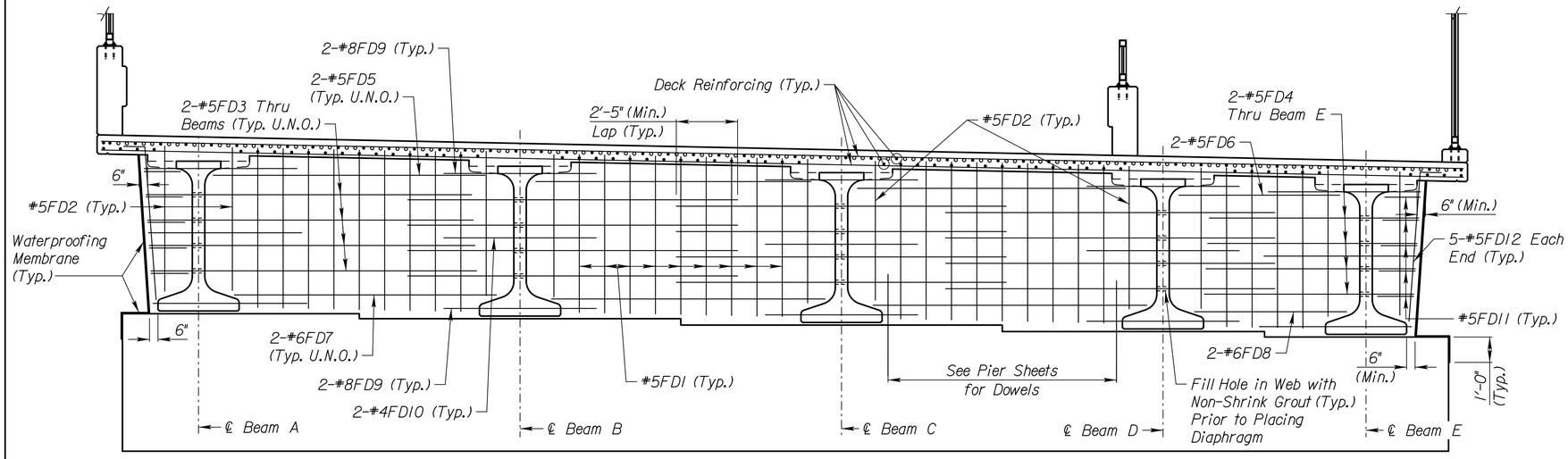
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

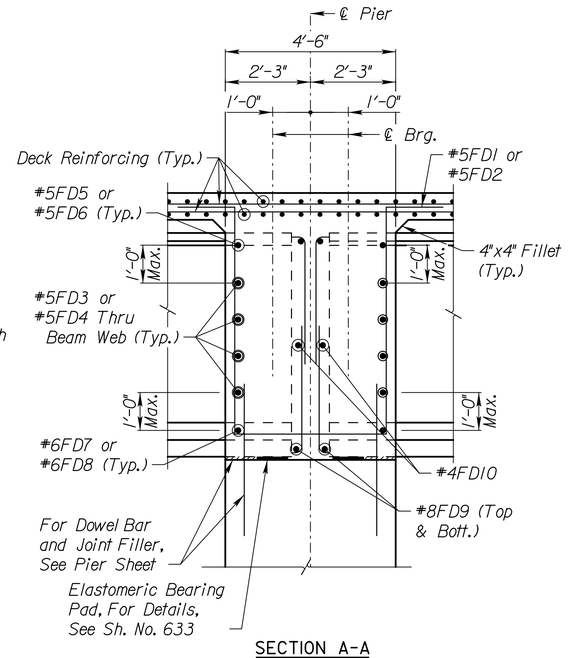
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER DIAPHRAGM DETAILS
PIER NO. 5

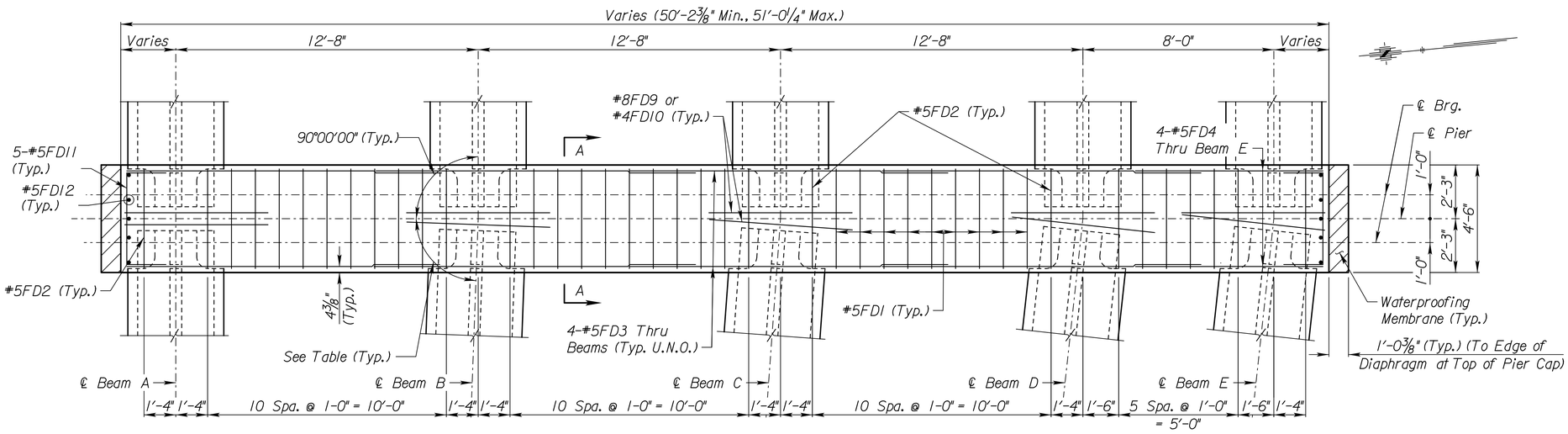


ELEVATION



SECTION A-A

BEAM ANGLES	
Beam	Angle
A	90°00'00"
B	87°55'03"
C	85°50'25"
D	83°46'27"
E	83°46'27"



PLAN

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

U.N.O. denotes Unless Noted Otherwise.

SHEET NO.	TOTAL SHEETS
621	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

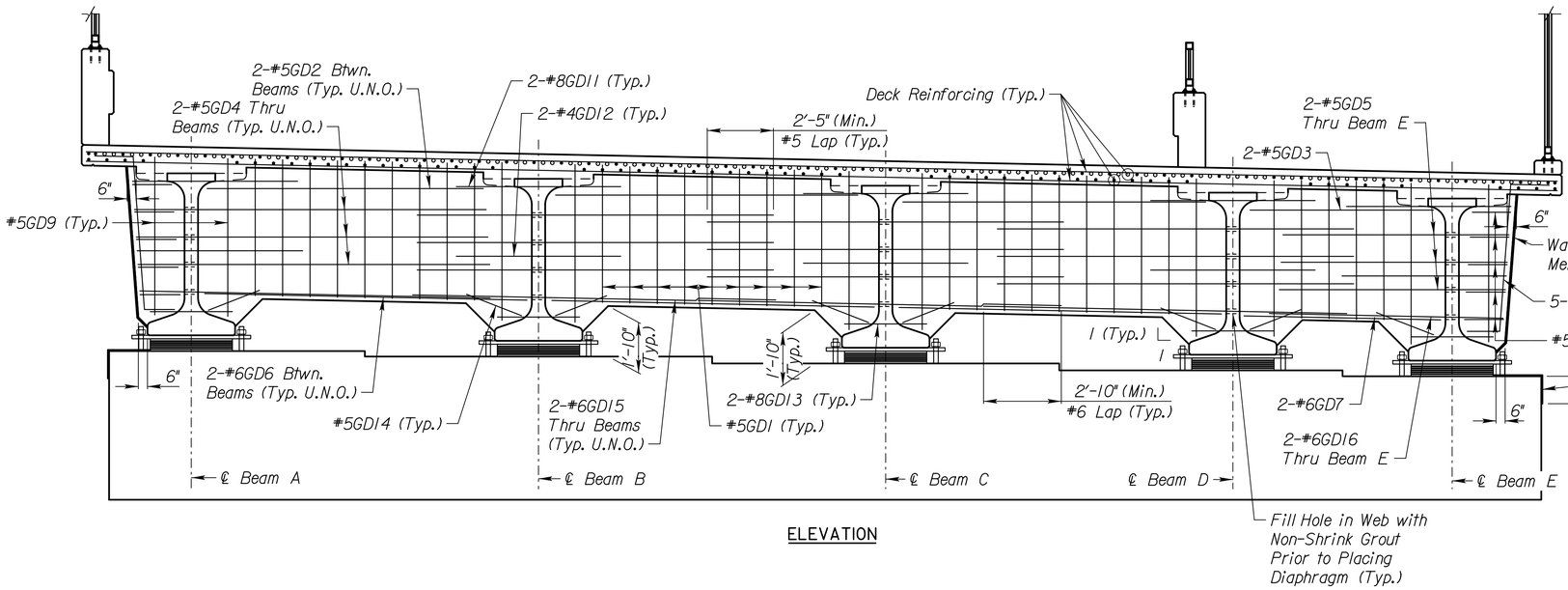
CITY OF OLATHE, KS

OLATHE KANSAS

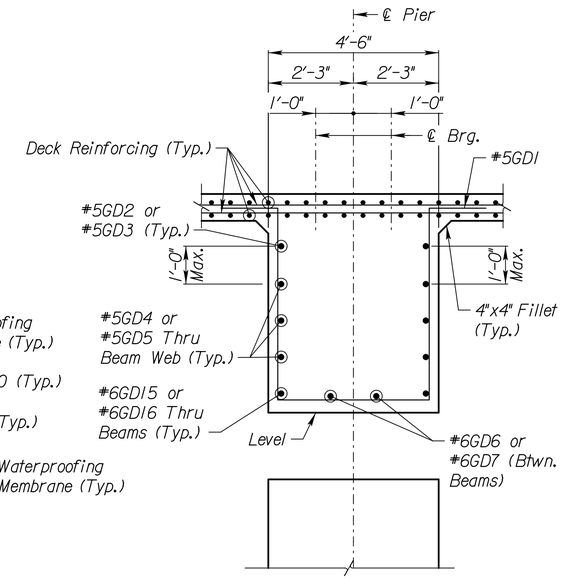
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PIER DIAPHRAGM DETAILS
PIER NO. 6

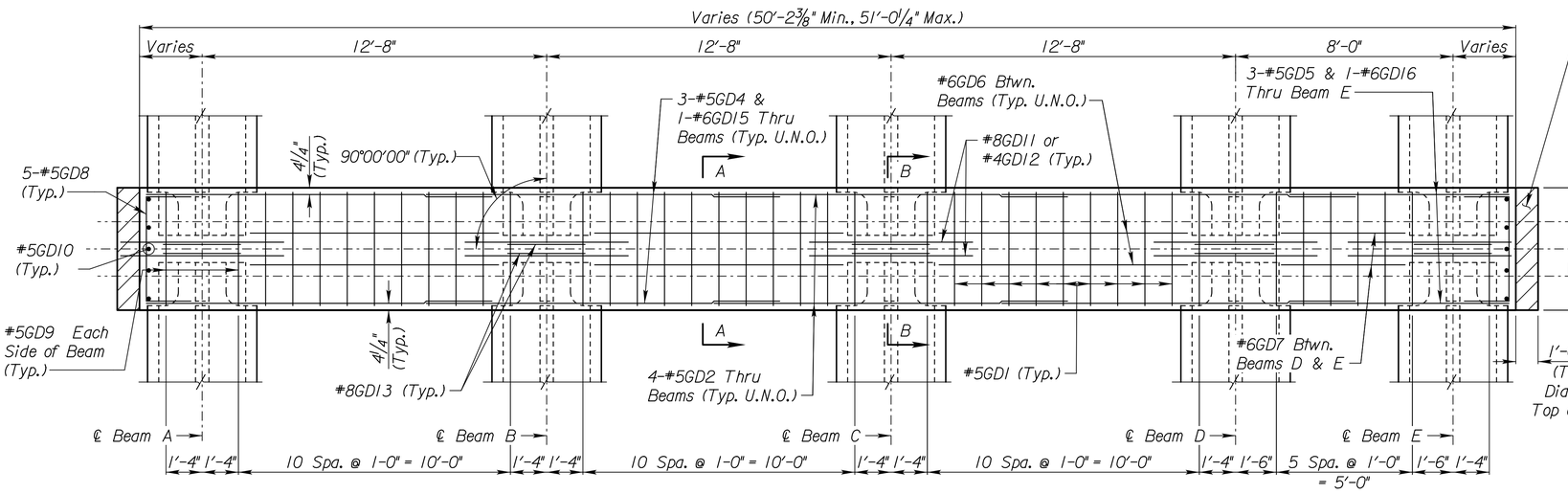
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PierDiaph6.dgn



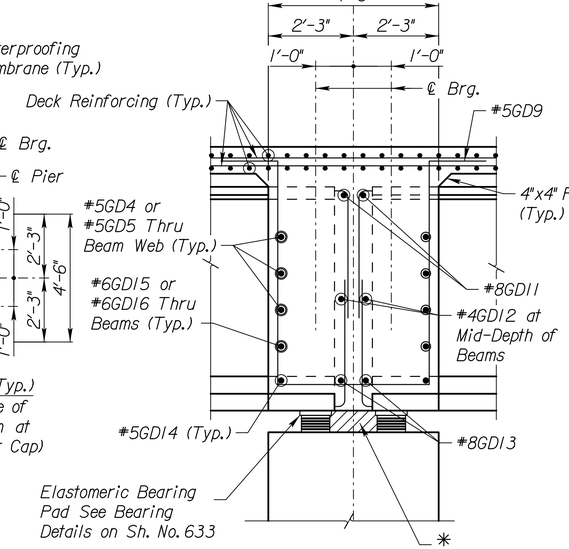
ELEVATION



SECTION A-A



PLAN



SECTION B-B

Notes:
Diaphragm concrete and reinforcing steel is included in the Superstructure Quantities. All reinforcing steel shall be epoxy coated.

See Framing Plan for Beam Layout.

U.N.O. denotes Unless Noted Otherwise.

* Haunch at 1:1 (H:V) to Top of Flange. Continuity is Achieved by Placing Diaphragm Concrete to Bottom of Beam Flanges Btwn. Beam Ends (Typ.)

SHEET NO. 622 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

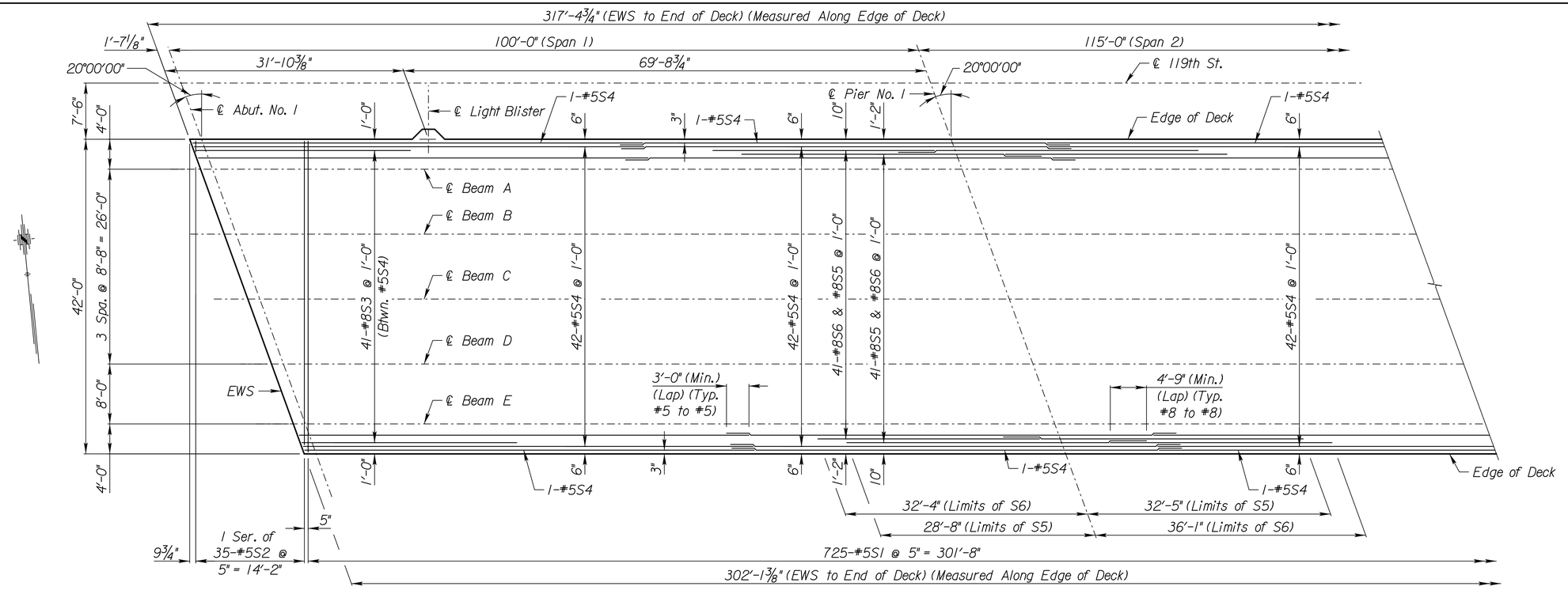
CITY OF OLATHE, KS

OLATHE KANSAS

By	Description	Date	Rev.
. . .		. . .	. . .
. . .		. . .	. . .

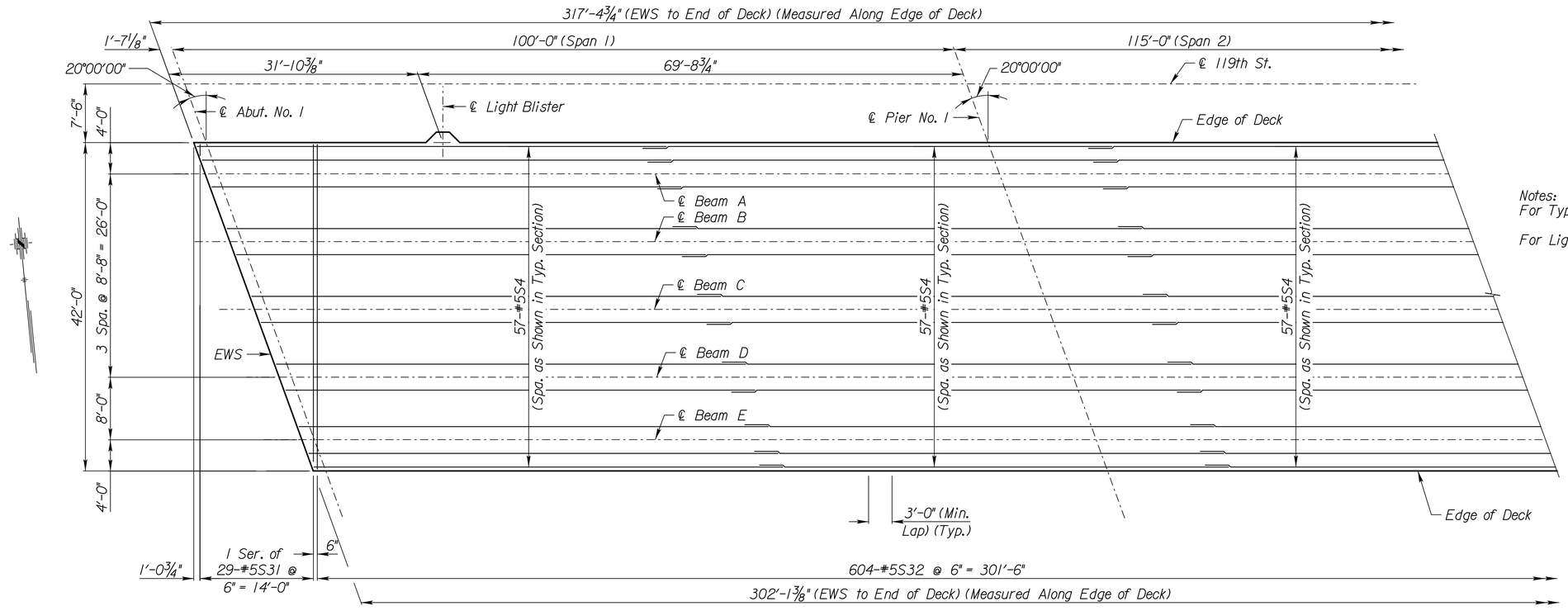
119th Street - Eastbound
PIER DIAPHRAGM DETAILS
PIER NO. 7

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PierDiaph7.dgn



DECK PLAN UNIT 1

(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT 1

(Showing Reinforcement in Bottom of Deck)

Notes:
For Typical Section, See Sh. No. 630

For Light Blister Details, See Sh. No. 648.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Deck1_1.dgn

SHEET NO.	TOTAL SHEETS
623	781

YEAR 2024

PROJECT NO. 3-C-024-21

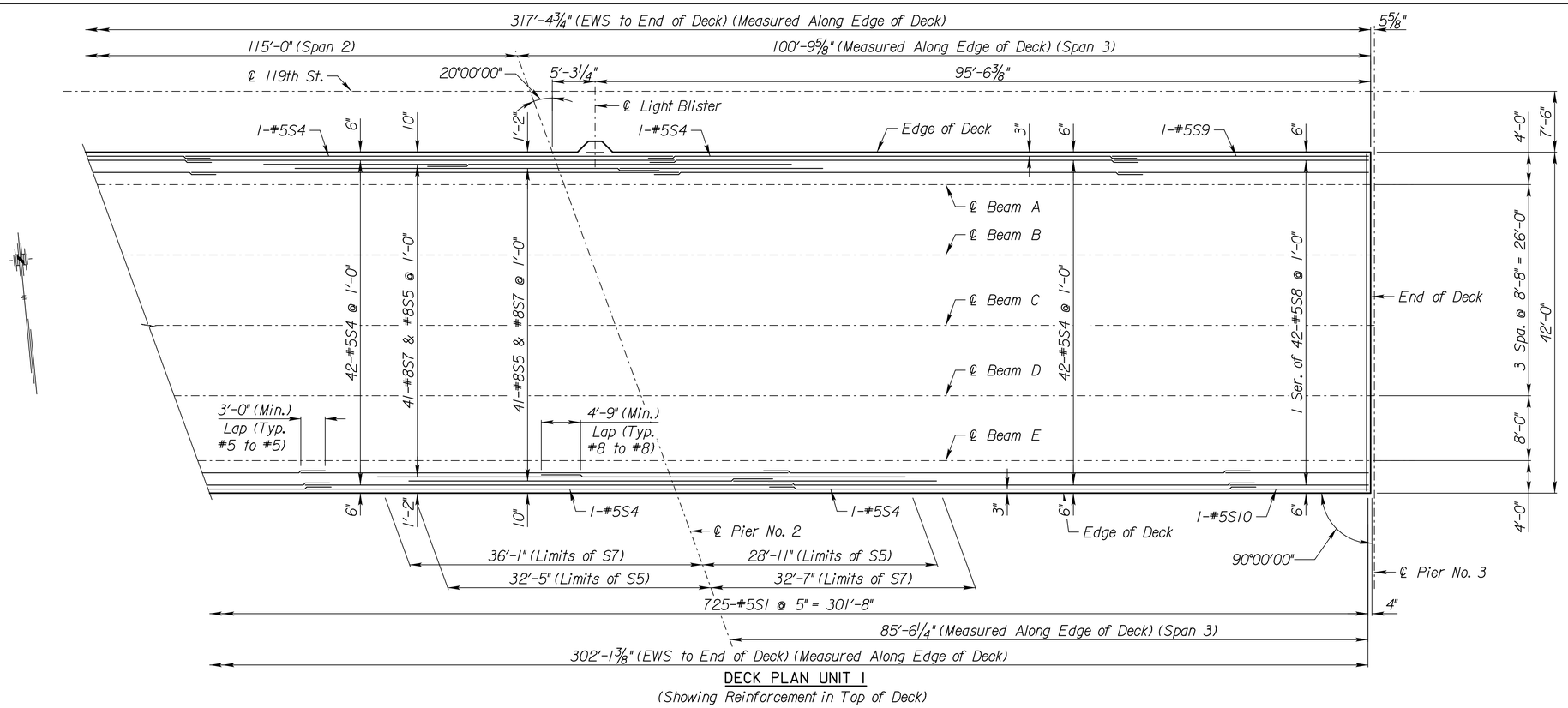
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

OLATHE KANSAS

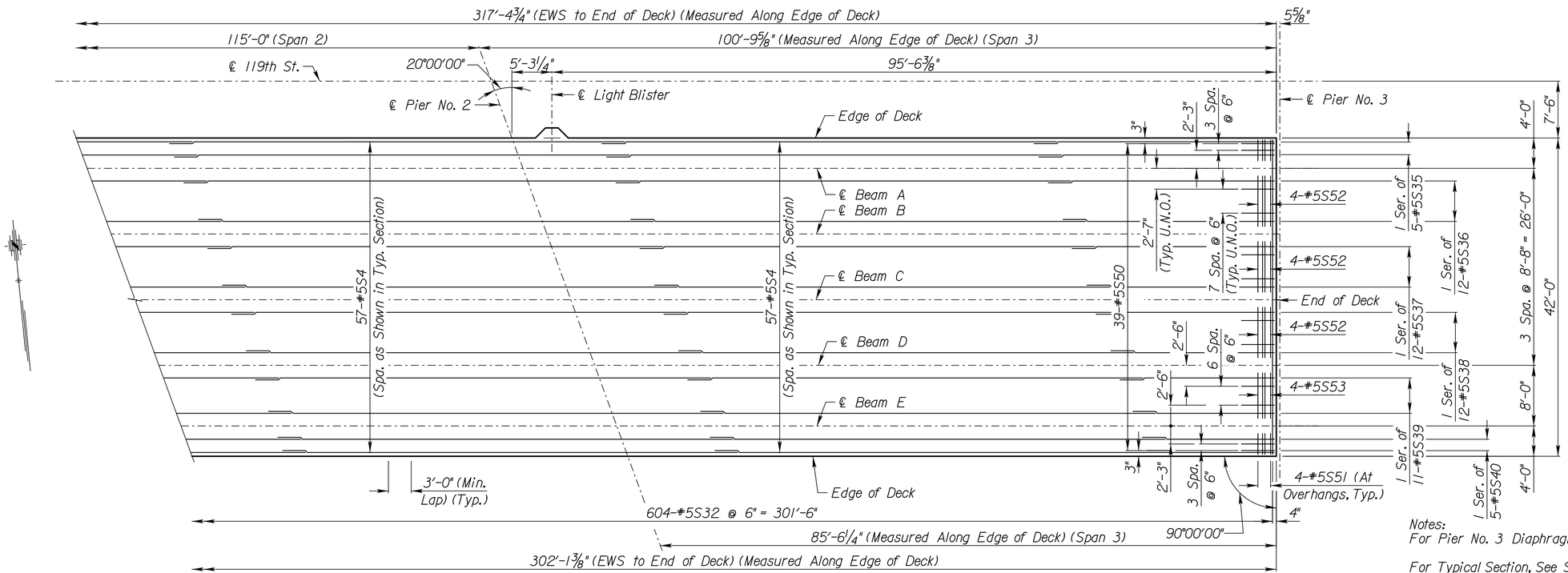
By	Description	Date	Rev.

119th Street - Eastbound
DECK PLAN UNIT 1 (1 OF 2)



DECK PLAN UNIT I

(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT I

(Showing Reinforcement in Bottom of Deck)

Notes:

For Pier No. 3 Diaphragms, See Sh. No. 618

For Typical Section, See Sh. No. 630

For Light Blister Details, See Sh. No. 648

Drawn By : MGEHL Plotted : 08-28-24

File : c:\pwworking\central01\d2525844\119th_BrEB_Deck1_2.dgn

SHEET NO. 624 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

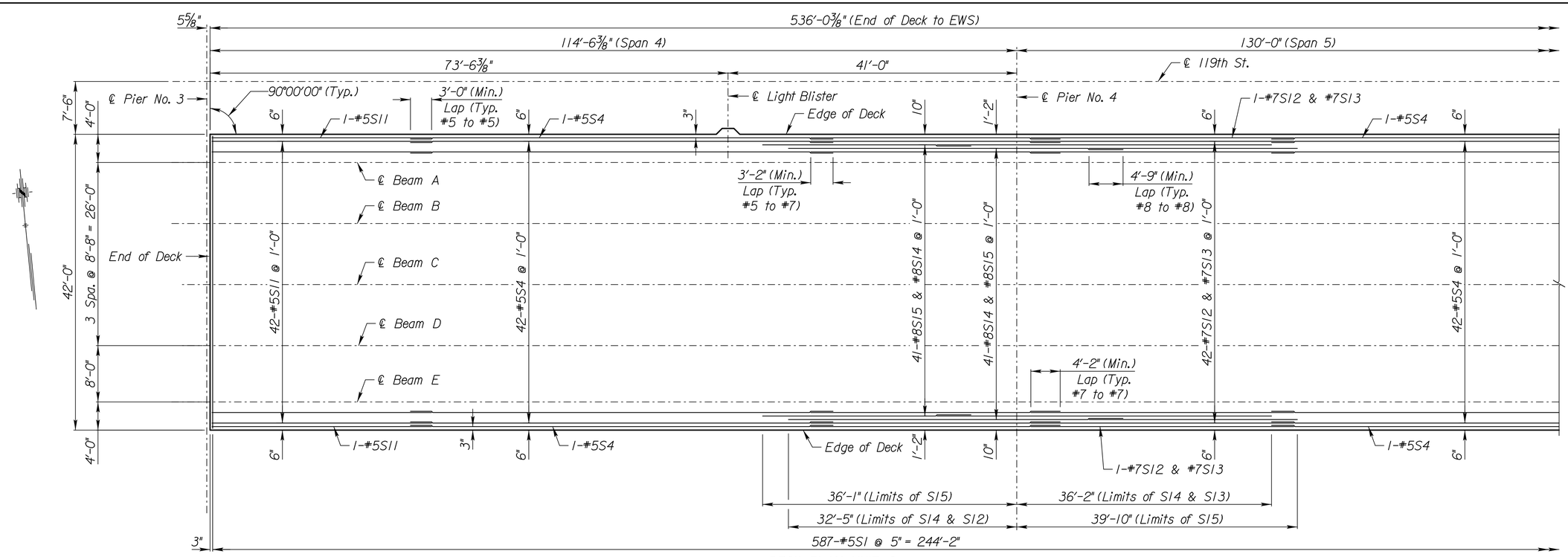
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS

OLATHE KANSAS

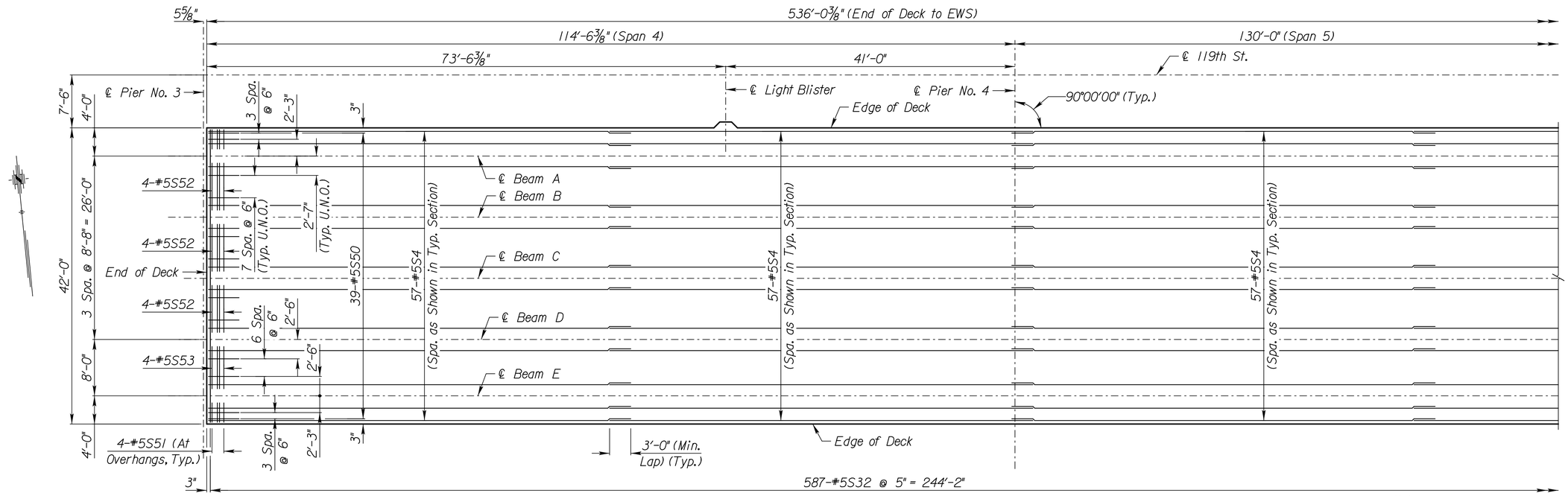
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
DECK PLAN UNIT 1 (2 OF 2)



DECK PLAN UNIT 2

(Showing Reinforcement in Top of Deck)



DECK PLAN UNIT 2

(Showing Reinforcement in Bottom of Deck)

Notes:

For Pier No. 3 Diaphragm, See Sh. No. 618

For Typical Section, See Sh. No. 630

For Light Blister Details, See Sh. No. 648

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Deck2_1.dgn

SHEET NO.	TOTAL SHEETS
625	781

YEAR 2024

PROJECT NO. 3-C-024-21

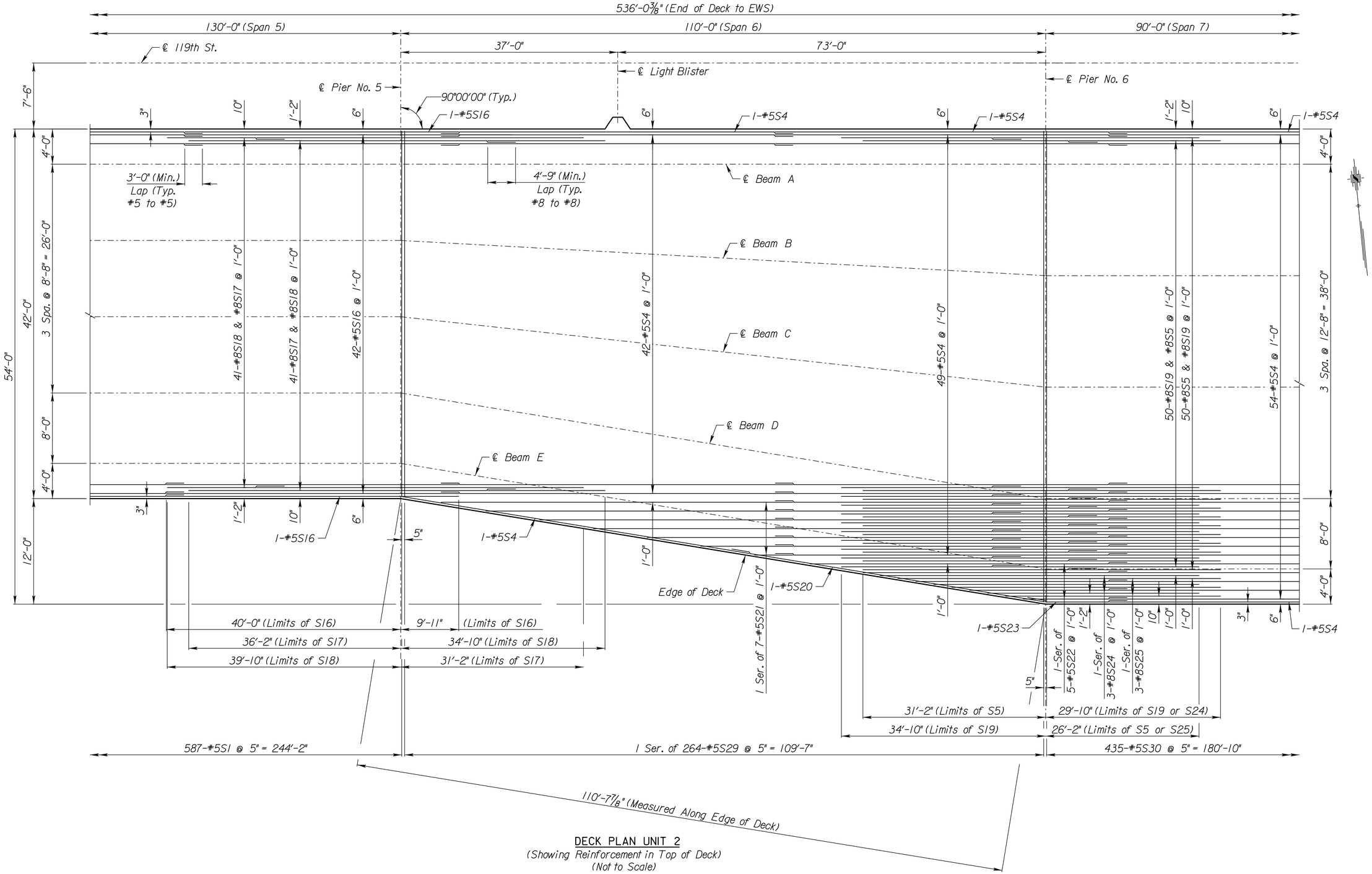
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
DECK PLAN UNIT 2 (10F 5)



DECK PLAN UNIT 2
(Showing Reinforcement in Top of Deck)
(Not to Scale)

Notes:
For Typical Section, See Sh. No. 630

For Light Blister Details, See Sh. No. 648

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Deck2_2.dgn

SHEET NO.	TOTAL SHEETS
626	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

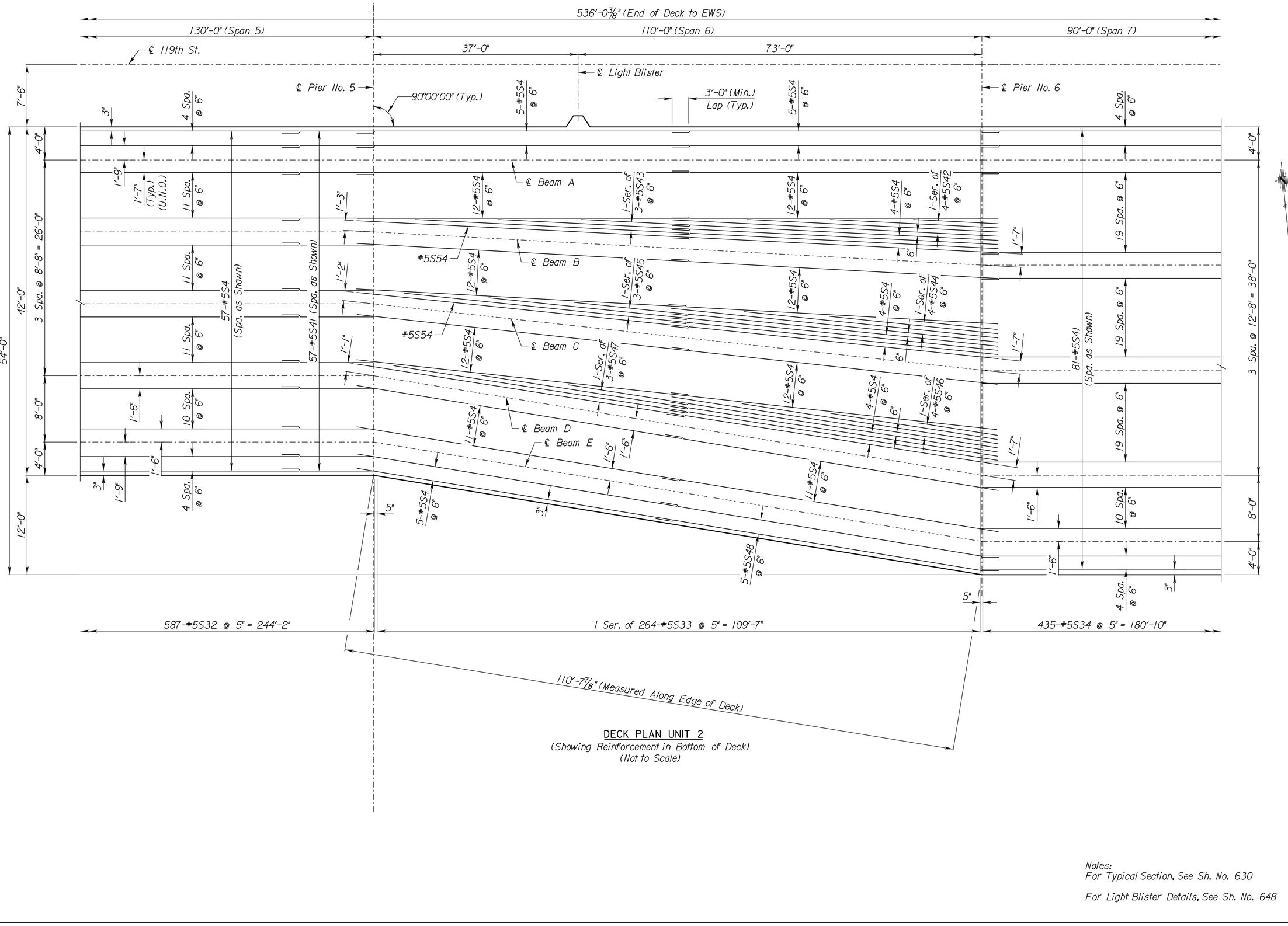
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
DECK PLAN UNIT 2 (2 OF 5)



DECK PLAN UNIT 2
(Showing Reinforcement in Bottom of Deck)
(Not to Scale)

Notes:
For Typical Section, See Sh. No. 630

For Light Blister Details, See Sh. No. 648

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Deck2_3.dgn

SHEET NO.	TOTAL SHEETS
627	781

YEAR 2024

PROJECT NO. 3-C-024-21

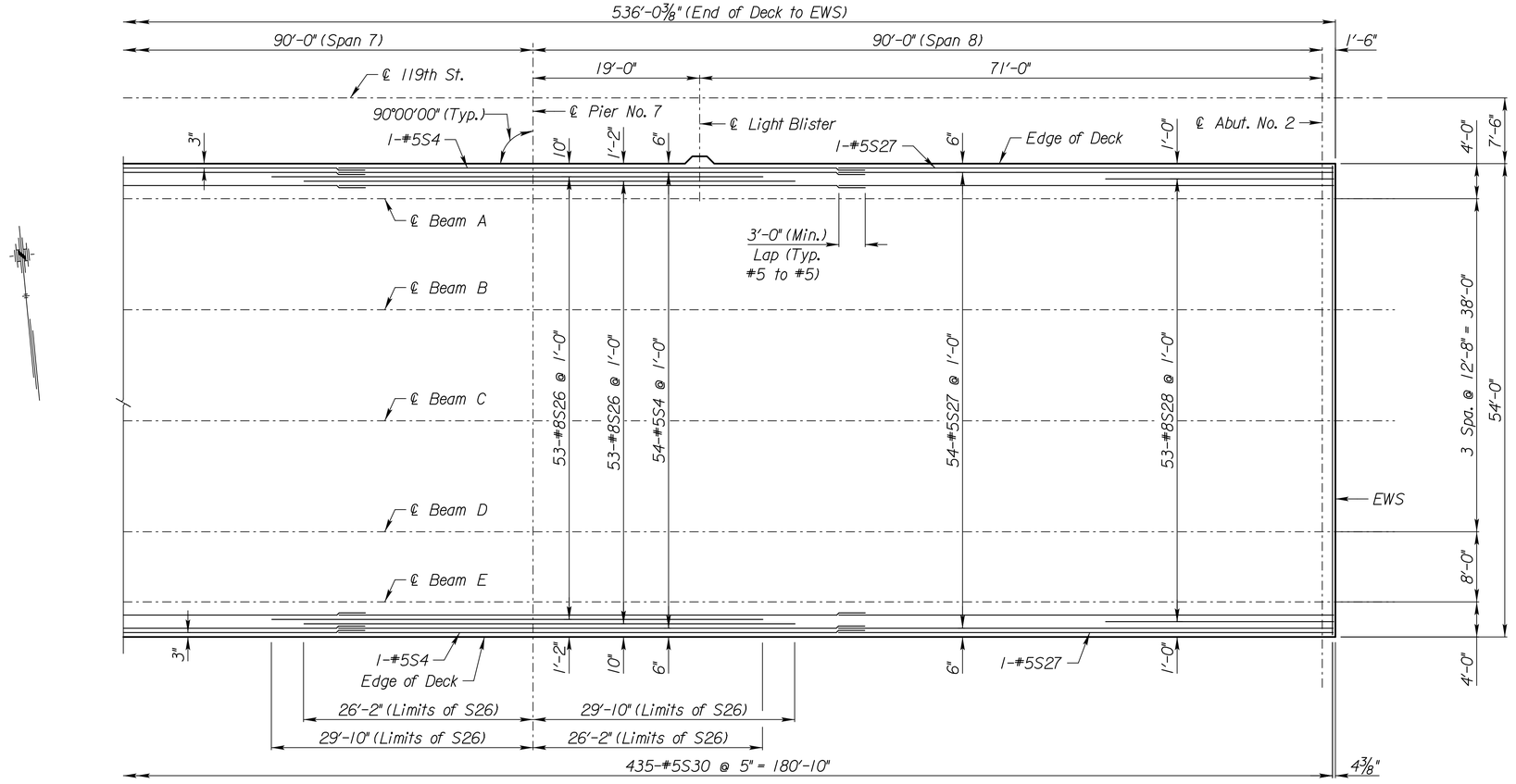
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
DECK PLAN UNIT 2 (3 OF 5)



DECK PLAN UNIT 2

(Showing Reinforcement in Top of Deck)

Notes:
For Typical Section, See Sh. No. 630

For Light Blister Details, See Sh. No. 648

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Deck2_4.dgn

SHEET NO.	TOTAL SHEETS
628	781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

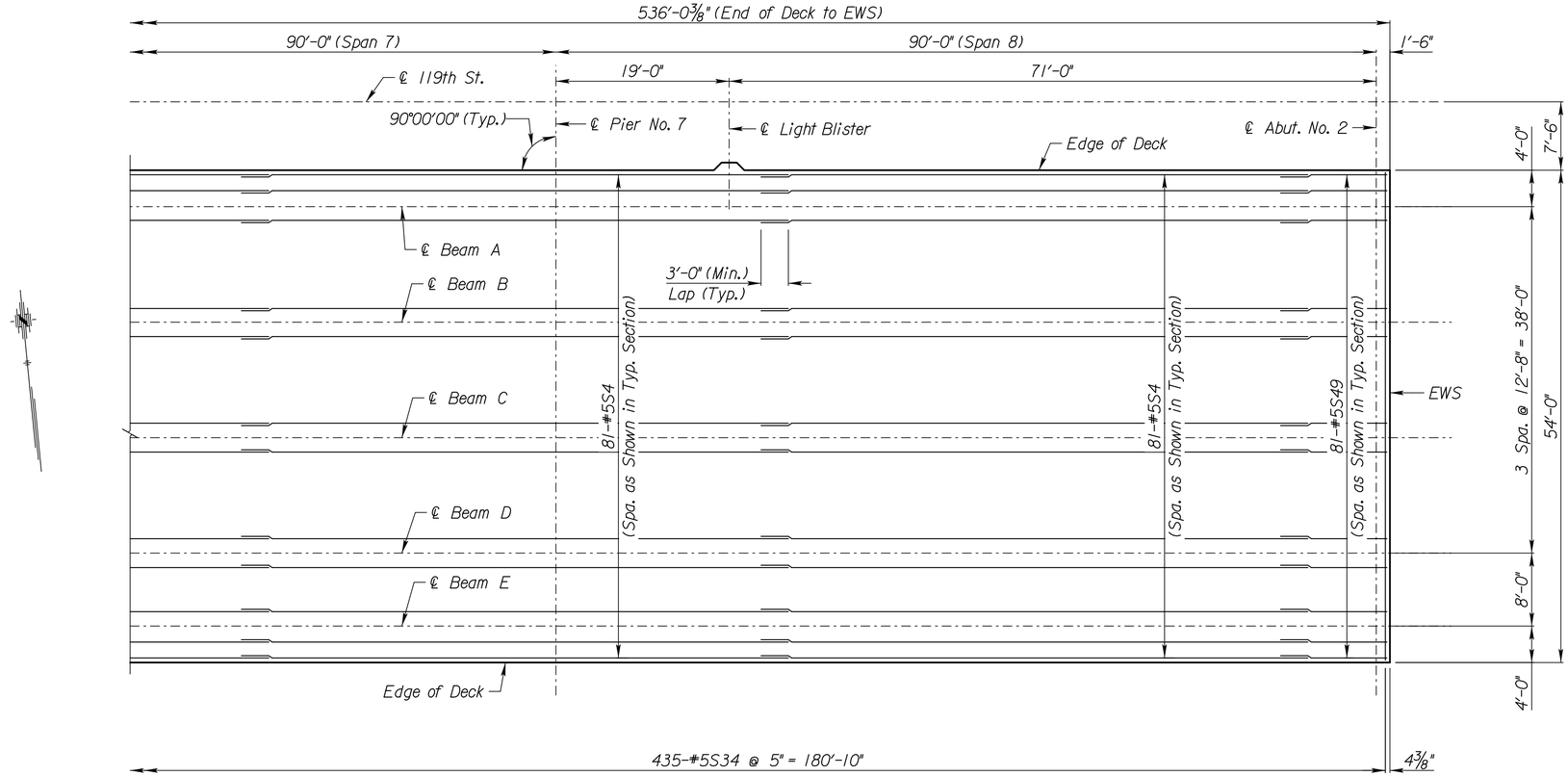
HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

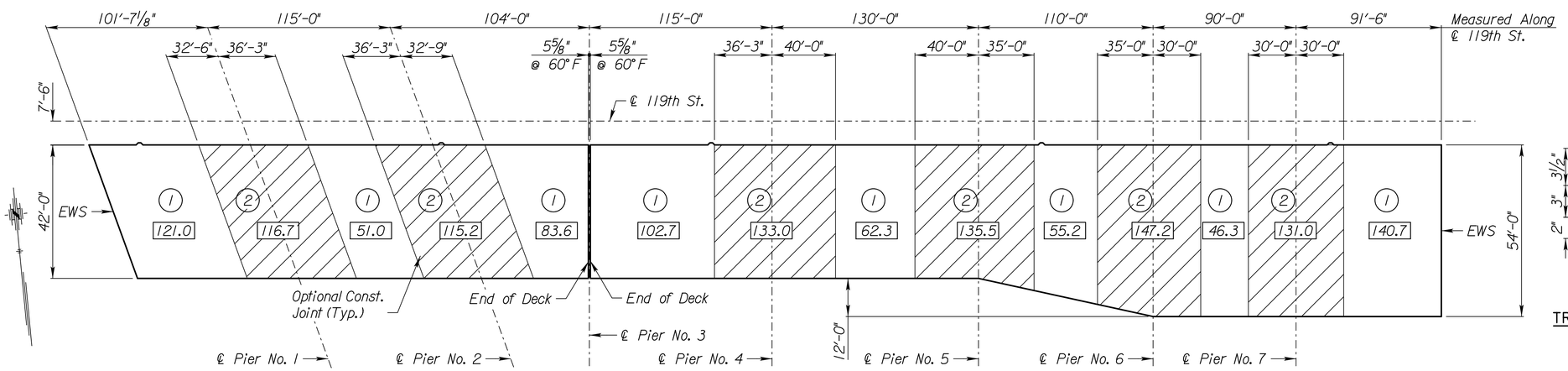
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
DECK PLAN UNIT 2 (4 OF 5)



DECK PLAN UNIT 2

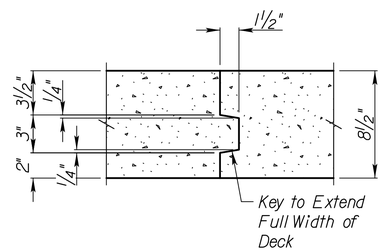
(Showing Reinforcement in Bottom of Deck)



UNIT 1

UNIT 2

CONCRETE PLACING SEQUENCE DIAGRAM



TRANSVERSE CONSTRUCTION JOINT DETAIL

Notes:

1. (1) *Circled numbers indicate placing sequence. Segmental, combined or continuous pours are allowed by an approved alternate placing sequence. Any discontinuous pour must stop at a construction joint short of a pier. See General Notes, Sheet No. 483 for "Concrete Placing Sequence" note.*

2. *The Contractor may place the corral rail continuously from one end of the unit to the other.*

3. [xxx.x] *Boxed numbers indicate quantity (cu. yds.) of Concrete (Grade 4.0) (AE) (SA) (MPC) required to pour deck, including fillets, pier diaphragms and abutments above the construction joint (for information only).*

Notes:
Place construction joints only at locations shown or at locations approved by the Engineer.
For Framing Plan, See Sh. No. 594-596
For Pier Diaphragm Details, See Sh. No. 617 - 622
For Drainage Details, See Sh. No. 631 -632
For Typical Section, See Sh. No. 630
For Beam Camber and Concrete Haunch Detail, see Sh. No. 634-637
For Expansion Joint Details, See Sh. No. 644- 647

SHEET NO. 629 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

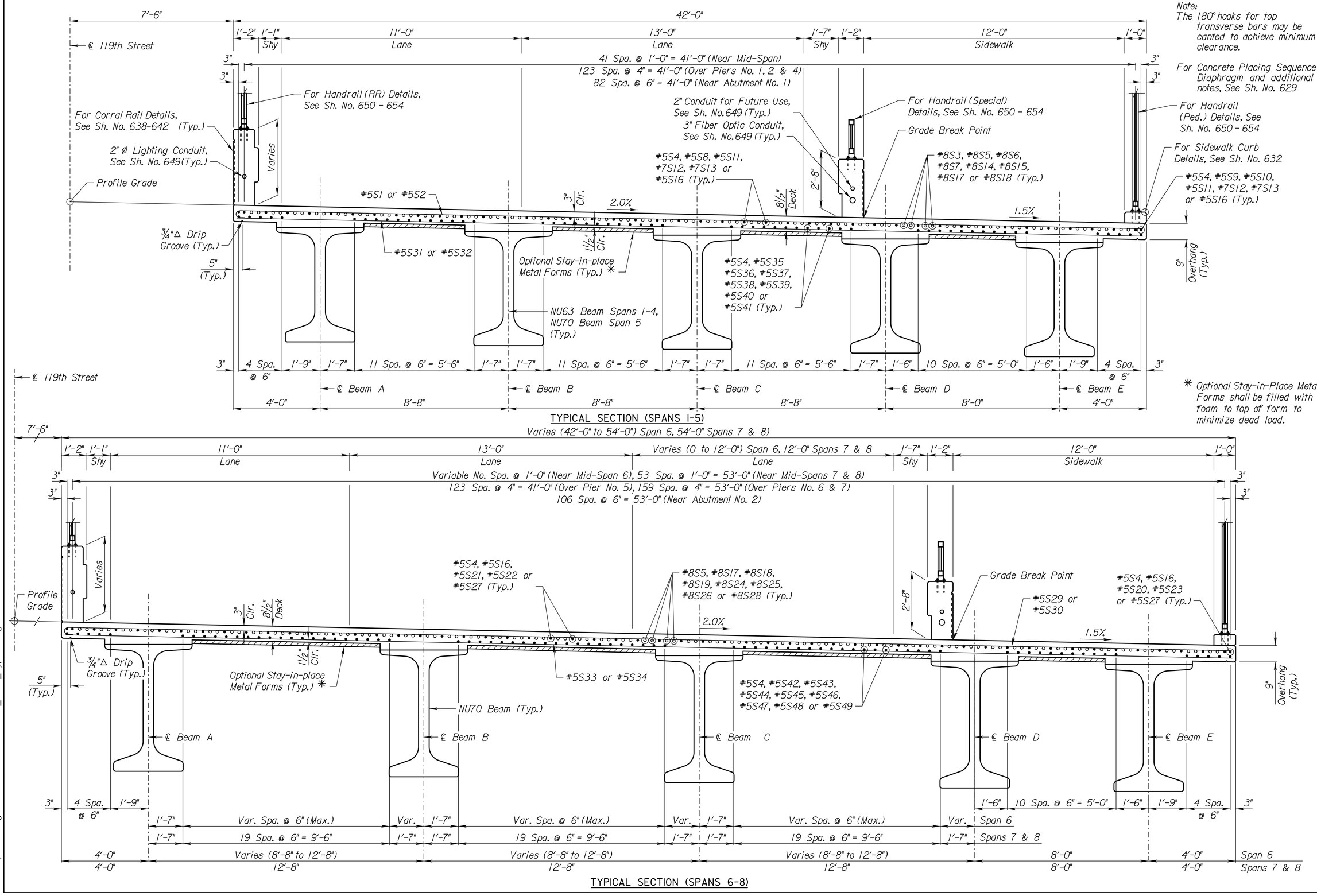
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
DECK PLAN UNIT 2 (5 OF 5)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Deck2_5.dgn



TYPICAL SECTION (SPANS 1-5)

Varies (42'-0" to 54'-0") Span 6, 54'-0" Spans 7 & 8

TYPICAL SECTION (SPANS 6-8)

Note:
The 180° hooks for top transverse bars may be canted to achieve minimum clearance.

For Concrete Placing Sequence Diaphragm and additional notes, See Sh. No. 629

* Optional Stay-in-Place Metal Forms shall be filled with foam to top of form to minimize dead load.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Typsec1.dgn

SHEET NO.	TOTAL SHEETS
630	781

YEAR 2024

PROJECT NO. 3-C-024-21

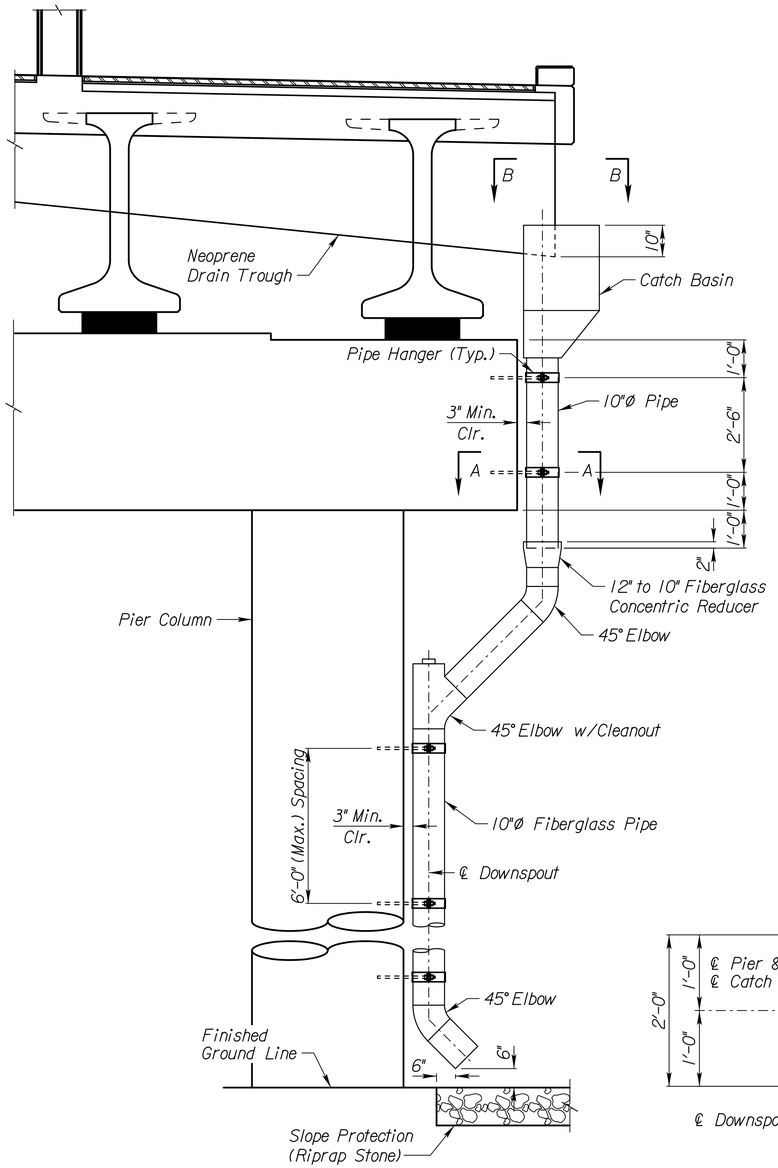
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

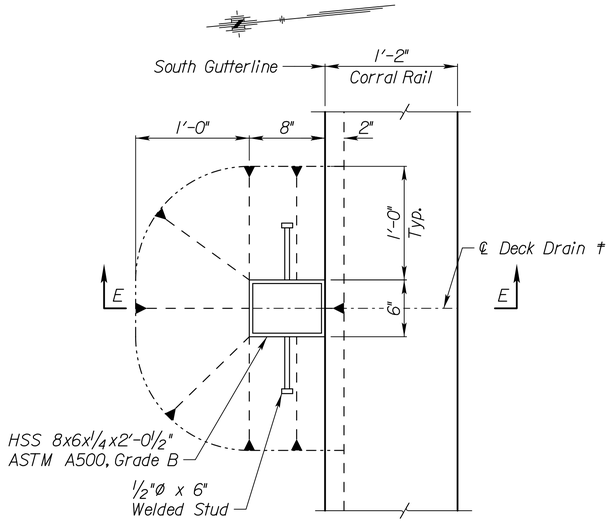
OLATHE KANSAS

Rev.	Date	Description	By
. . .	. . .	. . .	. . .

119th Street - Eastbound TYPICAL SECTIONS

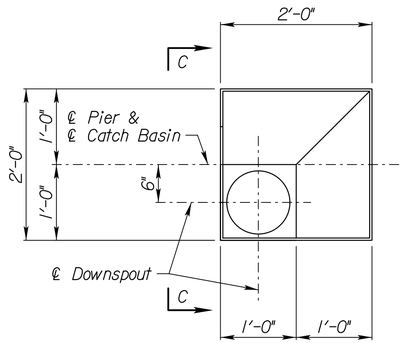


PIER NO. 3 ELEVATION
(Looking Ahead Station)

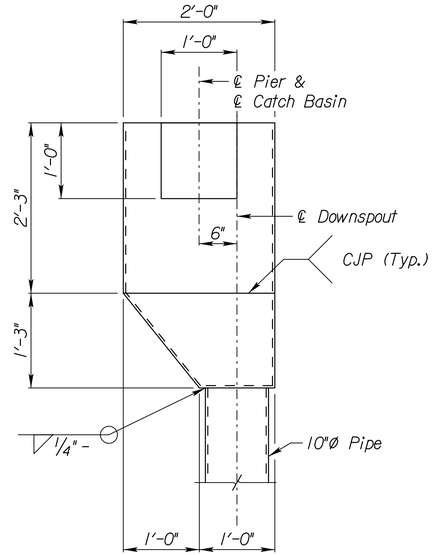


DECK DRAIN PLAN

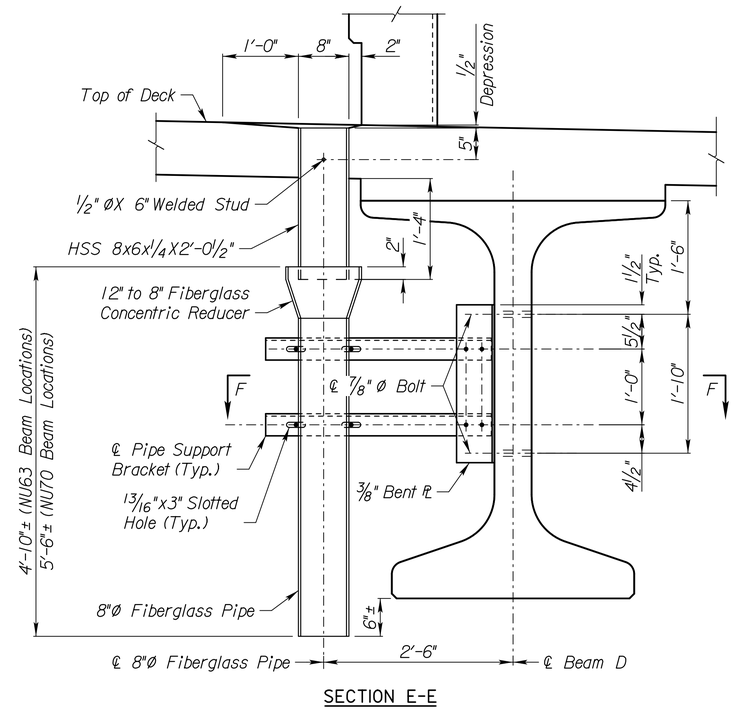
† Stations:
84+20.00, 87+50.00,
88+72.00, 89+60.00



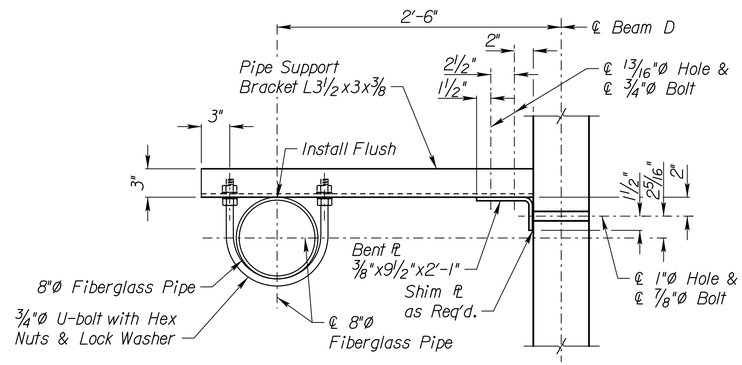
VIEW B-B



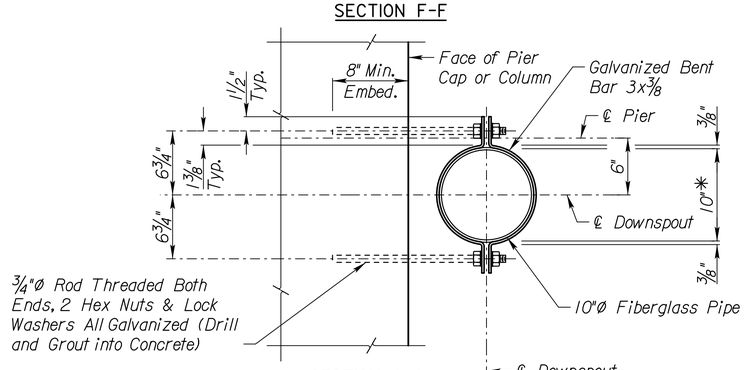
VIEW C-C



SECTION E-E



SECTION F-F



SECTION A-A
(Pipe Hanger)

Notes:
The bid item "Bridge Drainage System - Lump Sum" shall include all labor, material and incidentals necessary to construct the bridge drainage system as shown on the plans. Included shall all deck drains, piping, fittings and support brackets. Shop drawings shall be submitted for approval. See KDOT Specifications.

All material for deck drains, pipe hangers and pipe supports shall conform to the requirements of ASTM A709 (Gr. 36), except steel tubing shall conform to ASTM A500, Grade B requirements. Bolts and nuts shall conform to the requirements of ASTM A307. The deck drains, pipe hangers, pipe supports and catch basin shall be galvanized after fabrication in accordance with ASTM A123.

Fiberglass pipe fittings shall conform to ASTM D 2996 RTRP. The pigmented fiberglass shall be a grey color to match the concrete. All connections of fiberglass pipes and fittings shall be made with adhesive bonded joints or other approved methods.

Use 5/16" thick steel plates for the Catch Basins.

Note:
The Contractor shall not damage existing reinforcing steel during installation of the threaded rods. Use a pacometer prior to drilling to locate and mark reinforcing steel.

* *Verify outside diameter with fiberglass pipe provider.*

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_Drain_Details1.dgn
Plotted : 08-28-24

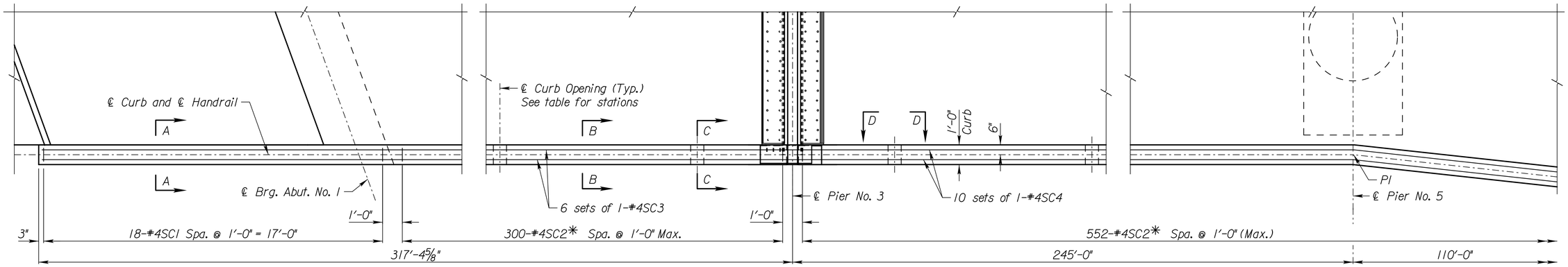
SHEET NO. 631 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

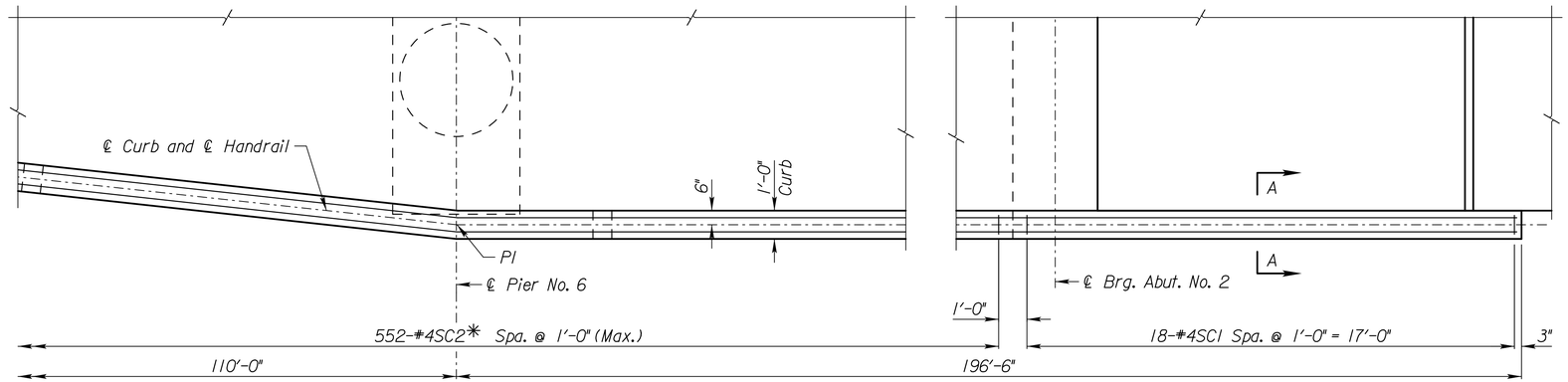
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

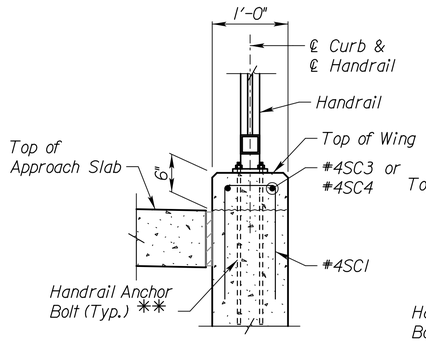
119th Street - Eastbound
DECK DRAINS AND DRAINAGE DETAILS



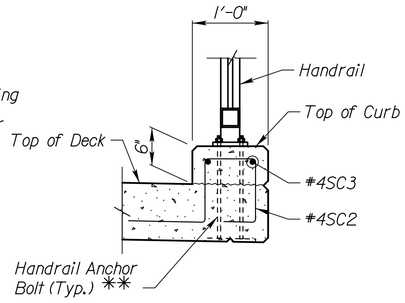


PART PLAN EASTBOUND SIDEWALK CURB

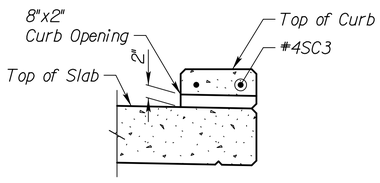
✳Adjust spacing around drain locations to provide 2" Min. clear for Reinforcing and Anchor Bolts for bridge railing.



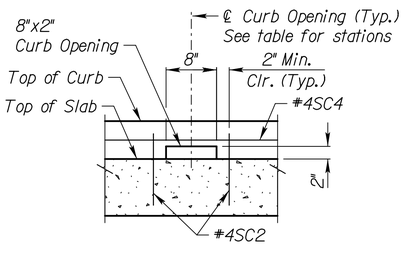
SECTION A-A



SECTION B-B



SECTION C-C



ELEVATION D-D

✳✳ See Handrail Details for Anchor Bolt Details.

EASTBOUND SIDEWALK DRAIN LOCATIONS			
Station	Station	Station	Station
83+75.25	84+33.00	85+13.00	87+88.00
83+83.25	84+63.00	87+38.00	88+68.00
83+93.00	84+73.00	87+48.00	88+77.00
84+03.00	84+81.00	87+57.00	89+08.00
84+11.00	84+93.25	87+69.25	89+17.00
84+23.25	85+03.00	87+78.00	89+29.25

SHEET NO. 632 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

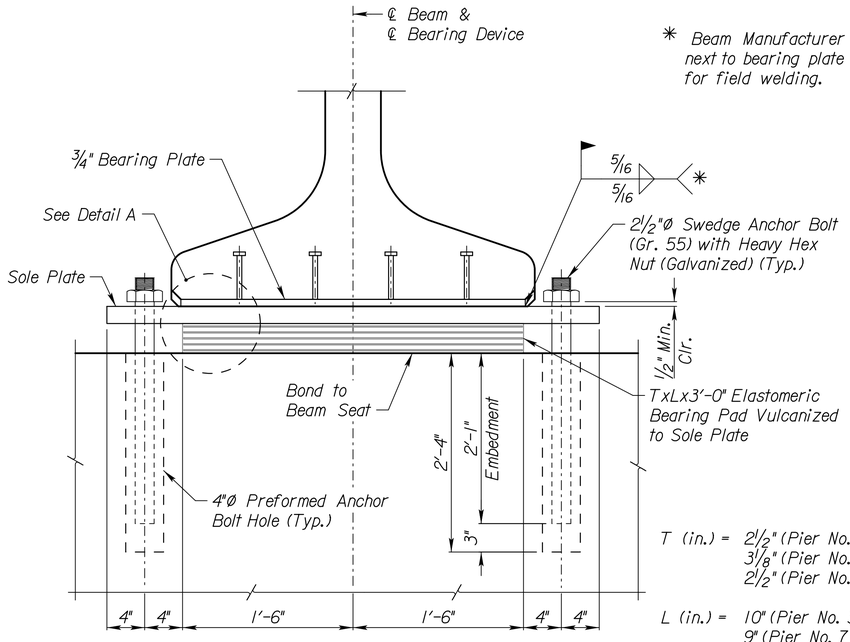
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

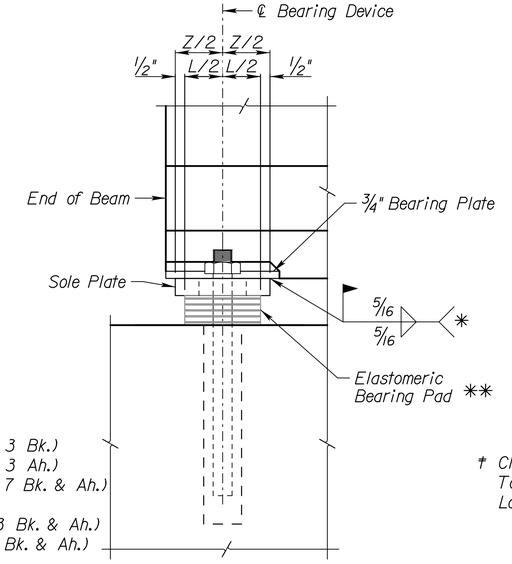
119th Street - Eastbound
SIDEWALK CURB AND
DRAINAGE DETAILS

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_SW_Curb_Drain.dgn
Plotted : 08-28-24



ELEVATION

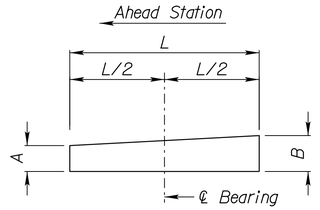
* Beam Manufacturer to block-out area next to bearing plate to allow access for field welding.



T (in.) = 2 1/2" (Pier No. 3 Bk.)
3 1/8" (Pier No. 3 Ah.)
2 1/2" (Pier No. 7 Bk. & Ah.)

L (in.) = 10" (Pier No. 3 Bk. & Ah.)
9" (Pier No. 7 Bk. & Ah.)

SIDE VIEW

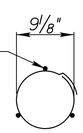


SOLE PLATE DETAIL

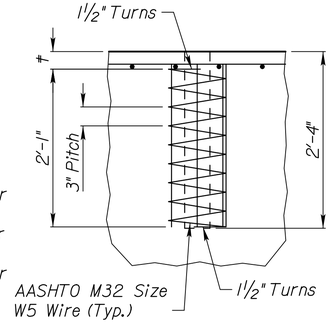
A = 1 3/8" (Pier No. 3 Bk. & Ah.)
1 5/16" (Pier No. 7 Bk. & Ah.)

B = 1 5/8" (Pier No. 3 Bk. & Ah.)
1 11/16" (Pier No. 7 Bk. & Ah.)

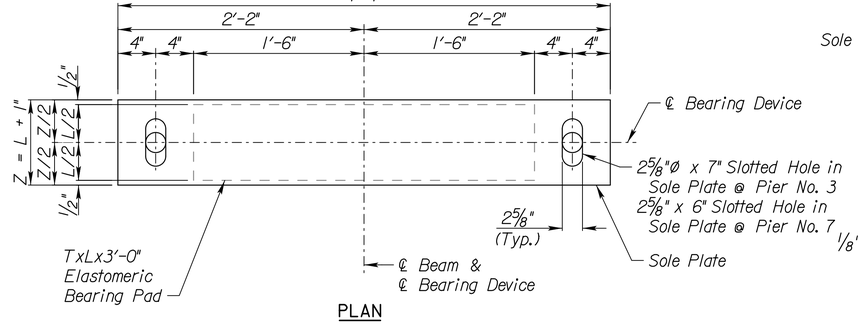
Spot Weld AASHTO M32 Size W5 Wire (Typ.)



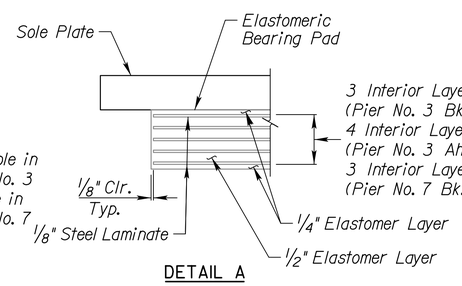
† Clear Top Reinf. (Tie Top of Spiral to Longitudinal Reinf.)



ANCHOR BOLT WELL & SPIRAL REINF. DETAIL

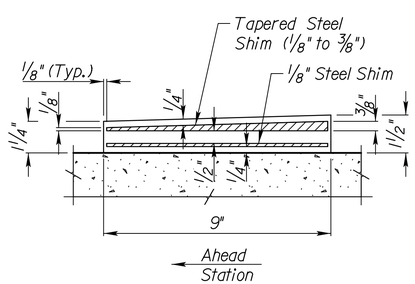


PLAN



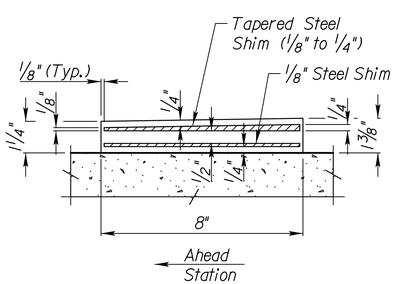
DETAIL A

STEEL REINFORCED ELASTOMERIC BEARING DEVICE
(at Expansion Piers No. 3 & 7)

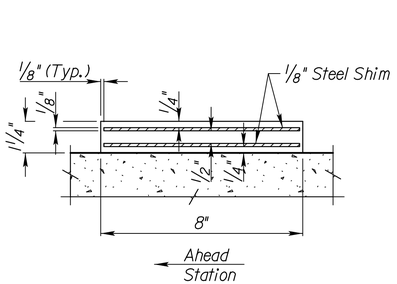


SECTION OF BEARING PADS AT PIER NO. 4 AHEAD
(5 Required at Pier No. 4)

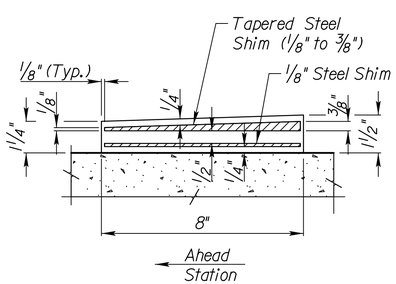
Note:
Pier No. 4 Bk. requires Beam Chairs. See Pier No. 4 for Beam Chair Details.



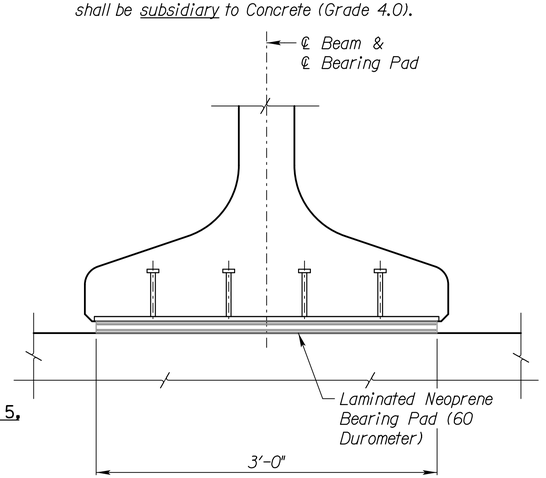
SECTION OF BEARING PADS AT PIER NO. 2 AHEAD
(5 Required at Pier No. 2)



SECTION OF BEARING PADS AT ABUT. NO. 1, PIER NO. 1, PIER NO. 2 BACK
(5 Required at Abut. No. 1, 10 Required at Pier No. 1, 5 Required at Pier No. 2)



SECTION OF BEARING PADS AT PIER NO. 5, PIER NO. 6, ABUT. NO. 2
(10 Required at Pier No. 5, 10 Required at Pier No. 6, 5 Required at Abut. No. 2)



LAMINATED BEARING PAD

Notes:

Laminated elastomeric bearing pads for the Fixed Piers No. 1, 2, 4, 5 & 6 and Abuts. No. 1 & 2 shall be subsidiary to the bid item "Prestressed Concrete Beam (NU63)" or "Prestressed Concrete Beam (NU70)".

Steel Reinforced Elastomeric Bearing Device Notes:

Bearings were designed using the provisions of Method A of the AASHTO Specifications. Bearing devices at Piers No. 3 & 7 shall be fabricated with an elastomer satisfying:
-Shore A Durometer hardness of 60.
-Low Temperature Grade 3 requirements.
-Type A certification for elastomeric bearing device acceptance is required.
-Include design method and all material properties on shop details.

Elastomeric Bearing Device shall be factory bonded to the steel sole plate by a vulcanization process. The steel sole plate and swedge anchor bolts are subsidiary to the bid item, "Bearing (Steel Reinforced Elastomeric)" and shall be furnished by the bearing device fabricator. Place the reinforcing bars below the bearing devices to clear the anchor bolts.

Anchor bolts will adhere to KDOT Standard Specification Section 1600 (Grade 55) with the following exception. The threads may be rolled or cut. Anchor bolts shall be installed as shown on the plans. When setting the anchor bolts, the Contractor shall use an approved non-shrink grout. The grout shall be applied so that the wells are completely filled. Anchor bolts shall meet the requirements of KDOT Specifications Section 1615 for Swedged Anchor Bolts, made from ASTM M314 Gr. 55. Anchor bolts shall be furnished with heavy hex nuts and washers, and shall be galvanized according to the specification. Center Anchor Bolt in Slotted Hole at 60° F. Bearing device position shall be adjusted 1/8" for each 10° fall or rise in temperature at installation. Sole plates shall conform to ASTM A709, Grade 50 steel. All exposed surfaces of the bearing plate and sole plate shall be painted with an inorganic zinc primer. Repair painted surfaces damaged by welding operations.

Preform 4" Ø holes using only corrugated polyethylene tubing (Type C) at the locations shown. When temperatures are expected to go below freezing, seal the preformed holes or fill them with a propylene glycol-based antifreeze to prevent expansion damage. The holes will be free of water, antifreeze or foreign materials at the time of grouting the anchor bolts. The polyethylene tubing may remain in-place. Trim the tubing flush with the top of concrete. This work shall be subsidiary to Concrete (Grade 4.0).

SHEET NO. 633 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.

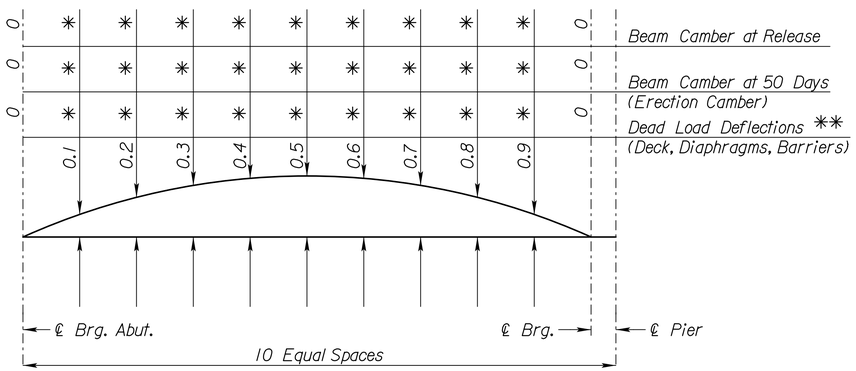
119th Street - Eastbound
ELASTOMERIC BEARING DEVICES

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Bearing1.dgn

Final Pavement Elevations

Location	Unit 1																											
	Beam A						Beam B						Beam C						Beam D						Beam E					
	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection
℄ Brg. Abut. No. 1	81+33.19	11.50	1005.18	0.00	0.00	0.00	81+36.34	20.17	1005.01	0.00	0.00	0.00	81+39.49	28.83	1004.83	0.00	0.00	0.00	81+42.65	37.50	1004.67	0.00	0.00	0.00	81+45.56	45.50	1004.55	0.00	0.00	0.00
1.1L	81+43.09	11.50	1005.18	0.04	0.07	0.02	81+46.24	20.17	1005.01	0.04	0.07	0.03	81+49.39	28.83	1004.83	0.04	0.07	0.03	81+52.55	37.50	1004.66	0.04	0.07	0.03	81+55.46	45.50	1004.54	0.04	0.07	0.02
1.2L	81+52.99	11.50	1005.18	0.07	0.12	0.05	81+56.14	20.17	1005.00	0.07	0.12	0.05	81+59.29	28.83	1004.83	0.07	0.12	0.05	81+62.45	37.50	1004.65	0.07	0.12	0.05	81+65.36	45.50	1004.53	0.07	0.12	0.05
1.3L	81+62.89	11.50	1005.17	0.09	0.16	0.07	81+66.04	20.17	1004.99	0.09	0.16	0.07	81+69.19	28.83	1004.81	0.09	0.16	0.07	81+72.35	37.50	1004.64	0.09	0.16	0.07	81+75.26	45.50	1004.51	0.09	0.16	0.06
1.4L	81+72.79	11.50	1005.15	0.11	0.19	0.08	81+75.94	20.17	1004.97	0.11	0.19	0.08	81+79.09	28.83	1004.79	0.11	0.19	0.08	81+82.25	37.50	1004.62	0.11	0.19	0.08	81+85.16	45.50	1004.49	0.11	0.19	0.07
1.5L	81+82.69	11.50	1005.13	0.11	0.19	0.08	81+85.84	20.17	1004.95	0.11	0.19	0.08	81+88.99	28.83	1004.77	0.11	0.19	0.08	81+92.15	37.50	1004.59	0.11	0.19	0.08	81+95.06	45.50	1004.46	0.11	0.19	0.08
1.6L	81+92.59	11.50	1005.10	0.11	0.19	0.08	81+95.74	20.17	1004.92	0.11	0.19	0.08	81+98.89	28.83	1004.74	0.11	0.19	0.08	82+02.05	37.50	1004.56	0.11	0.19	0.08	82+04.96	45.50	1004.43	0.11	0.19	0.07
1.7L	82+02.49	11.50	1005.07	0.09	0.16	0.07	82+05.64	20.17	1004.89	0.09	0.16	0.07	82+08.79	28.83	1004.70	0.09	0.16	0.07	82+11.95	37.50	1004.52	0.09	0.16	0.07	82+14.86	45.50	1004.39	0.09	0.16	0.06
1.8L	82+12.39	11.50	1005.03	0.07	0.12	0.05	82+15.54	20.17	1004.84	0.07	0.12	0.05	82+18.69	28.83	1004.66	0.07	0.12	0.05	82+21.85	37.50	1004.47	0.07	0.12	0.05	82+24.76	45.50	1004.34	0.07	0.12	0.05
1.9L	82+22.29	11.50	1004.99	0.04	0.07	0.02	82+25.44	20.17	1004.80	0.04	0.07	0.03	82+28.59	28.83	1004.61	0.04	0.07	0.03	82+31.75	37.50	1004.42	0.04	0.07	0.03	82+34.66	45.50	1004.28	0.04	0.07	0.02
℄ Bk. Brg. Pier No. 1	82+32.19	11.50	1004.93	0.00	0.00	0.00	82+35.34	20.17	1004.74	0.00	0.00	0.00	82+38.49	28.83	1004.55	0.00	0.00	0.00	82+41.65	37.50	1004.36	0.00	0.00	0.00	82+44.56	45.50	1004.22	0.00	0.00	0.00
℄ Pier No. 1	82+33.19	11.50	1004.93	0.00	0.00	0.00	82+36.34	20.17	1004.74	0.00	0.00	0.00	82+39.49	28.83	1004.54	0.00	0.00	0.00	82+42.65	37.50	1004.36	0.00	0.00	0.00	82+45.56	45.50	1004.22	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 1	82+34.19	11.50	1004.92	0.00	0.00	0.00	82+37.34	20.17	1004.73	0.00	0.00	0.00	82+40.49	28.83	1004.54	0.00	0.00	0.00	82+43.65	37.50	1004.35	0.00	0.00	0.00	82+46.56	45.50	1004.21	0.00	0.00	0.00
2.1L	82+45.49	11.50	1004.85	0.06	0.11	0.04	82+48.64	20.17	1004.66	0.06	0.11	0.04	82+51.79	28.83	1004.47	0.06	0.11	0.04	82+54.95	37.50	1004.28	0.06	0.11	0.04	82+57.86	45.50	1004.13	0.06	0.11	0.04
2.2L	82+56.79	11.50	1004.78	0.11	0.19	0.08	82+59.94	20.17	1004.58	0.11	0.19	0.09	82+63.09	28.83	1004.38	0.11	0.19	0.09	82+66.25	37.50	1004.19	0.11	0.19	0.09	82+69.16	45.50	1004.05	0.11	0.19	0.08
2.3L	82+68.09	11.50	1004.69	0.15	0.26	0.11	82+71.24	20.17	1004.50	0.15	0.26	0.12	82+74.39	28.83	1004.30	0.15	0.26	0.12	82+77.55	37.50	1004.10	0.15	0.26	0.12	82+80.46	45.50	1003.96	0.15	0.26	0.11
2.4L	82+79.39	11.50	1004.60	0.17	0.30	0.13	82+82.54	20.17	1004.40	0.17	0.30	0.14	82+85.69	28.83	1004.20	0.17	0.30	0.14	82+88.85	37.50	1004.00	0.17	0.30	0.14	82+91.76	45.50	1003.86	0.17	0.30	0.13
2.5L	82+90.69	11.50	1004.50	0.18	0.31	0.14	82+93.84	20.17	1004.30	0.18	0.31	0.15	82+96.99	28.83	1004.09	0.18	0.31	0.15	83+00.15	37.50	1003.90	0.18	0.31	0.15	83+03.06	45.50	1003.75	0.18	0.31	0.14
2.6L	83+01.99	11.50	1004.39	0.17	0.30	0.13	83+05.14	20.17	1004.19	0.17	0.30	0.14	83+08.29	28.83	1003.98	0.17	0.30	0.14	83+11.45	37.50	1003.78	0.17	0.30	0.14	83+14.36	45.50	1003.63	0.17	0.30	0.13
2.7L	83+13.29	11.50	1004.28	0.15	0.26	0.11	83+16.44	20.17	1004.07	0.15	0.26	0.12	83+19.59	28.83	1003.86	0.15	0.26	0.12	83+22.75	37.50	1003.66	0.15	0.26	0.12	83+25.66	45.50	1003.51	0.15	0.26	0.11
2.8L	83+24.59	11.50	1004.15	0.11	0.19	0.08	83+27.74	20.17	1003.94	0.11	0.19	0.09	83+30.89	28.83	1003.73	0.11	0.19	0.09	83+34.05	37.50	1003.53	0.11	0.19	0.09	83+36.96	45.50	1003.37	0.11	0.19	0.08
2.9L	83+35.89	11.50	1004.02	0.06	0.11	0.04	83+39.04	20.17	1003.81	0.06	0.11	0.04	83+42.19	28.83	1003.60	0.06	0.11	0.04	83+45.35	37.50	1003.39	0.06	0.11	0.04	83+48.26	45.50	1003.23	0.06	0.11	0.04
℄ Bk. Brg. Pier No. 2	83+47.19	11.50	1003.88	0.00	0.00	0.00	83+50.34	20.17	1003.67	0.00	0.00	0.00	83+53.49	28.83	1003.45	0.00	0.00	0.00	83+56.65	37.50	1003.24	0.00	0.00	0.00	83+59.56	45.50	1003.08	0.00	0.00	0.00
℄ Pier No. 2	83+48.19	11.50	1003.87	0.00	0.00	0.00	83+51.34	20.17	1003.65	0.00	0.00	0.00	83+54.49	28.83	1003.44	0.00	0.00	0.00	83+57.65	37.50	1003.23	0.00	0.00	0.00	83+60.56	45.50	1003.07	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 2	83+49.19	11.50	1003.85	0.00	0.00	0.00	83+52.34	20.17	1003.64	0.00	0.00	0.00	83+55.49	28.83	1003.43	0.00	0.00	0.00	83+58.65	37.50	1003.22	0.00	0.00	0.00	83+61.56	45.50	1003.06	0.00	0.00	0.00
3.1L	83+58.95	11.50	1003.73	0.03	0.06	0.02	83+61.79	20.17	1003.51	0.03	0.06	0.02	83+64.63	28.83	1003.30	0.03	0.06	0.02	83+67.47	37.50	1003.09	0.03	0.06	0.02	83+70.09	45.50	1002.94	0.03	0.05	0.01
3.2L	83+68.72	11.50	1003.59	0.06	0.11	0.04	83+71.24	20.17	1003.38	0.06	0.10	0.04	83+73.76	28.83	1003.17	0.06	0.10	0.04	83+76.29	37.50	1002.97	0.06	0.10	0.04	83+78.62	45.50	1002.81	0.05	0.09	0.03
3.3L	83+78.48	11.50	1003.45	0.08	0.14	0.06	83+80.69	20.17	1003.25	0.08	0.14	0.06	83+82.90	28.83	1003.04	0.08	0.13	0.05	83+85.10	37.50	1002.84	0.08	0.13	0.05	83+87.14	45.50	1002.69	0.07	0.12	0.04
3.4L	83+88.24	11.50	1003.30	0.09	0.16	0.07	83+90.14	20.17	1003.10	0.09	0.16	0.07	83+92.03	28.83	1002.90	0.09	0.16	0.06	83+93.92	37.50	1002.70	0.09	0.16	0.06	83+95.67	45.50	1002.55	0.08	0.14	0.04
3.5L	83+98.01	11.50	1003.15	0.10	0.17	0.08	83+99.59	20.17	1002.95	0.10	0.17	0.07	84+01.16	28.83	1002.75	0.09	0.16	0.06	84+02.74	37.50	1002.56	0.09	0.16	0.06	84+04.20	45.50	1002.42	0.09	0.15	0.05
3.6L	84+07.77	11.50	1002.99	0.09	0.16	0.07	84+09.04	20.17	1002.80	0.09	0.16	0.07	84+10.30	28.83	1002.60	0.09	0.16	0.06	84+11.56	37.50	1002.42	0.09	0.16	0.06	84+12.72	45.50	1002.28	0.08	0.14	0.04
3.7L	84+17.54	11.50	1002.83	0.08	0.14	0.06	84+18.49	20.17	1002.64	0.08	0.14	0.06	84+19.43	28.83	1002.45	0.08	0.13	0.05	84+20.38	37.50	1002.26	0.08	0.13	0.05	84+21.25	45.50	1002.13	0.07	0.12	0.04
3.8L	84+27.30	11.50	1002.66	0.06	0.11	0.04	84+27.93	20.17	1002.47	0.06	0.10	0.04	84+28.57	28.83	1002.29	0.06	0.10	0.04	84+29.20	37.50	1002.11	0.06	0.10	0.04	84+29.78	45.50	1001.98	0.05	0.09	0.03
3.9L	84+37.07	11.50	1002.48	0.03	0.06	0.02	84+37.38	20.17	1002.30	0.03	0.06	0.02	84+37.70	28.83	1002.12	0.03	0.06	0.02	84+38.01	37.50	1001.95	0.03	0.06	0.02	84+38.31	45.50	1001.82	0.03	0.05	0.01
℄ Bk. Brg. Pier No. 3	84+46.83	11.50	1002.30	0.00	0.00	0.00	84+46.83	20.17	1002.13	0.00	0.00	0.00	84+46.83	28.83	1001.95	0.00	0.00	0.00	84+46.83	37.50	1001.78	0.00	0.00	0.00	84+46.83	45.50	1001.66	0.00	0.00	0.00
℄ Pier No. 3	84+48.00	11.50	1002.28	0.00	0.00	0.00	84+48.00	20.17	1002.10	0.00	0.00	0.00	84+48.00	28.83	1001.93	0.00	0.00	0.00	84+48.00	37.50	1001.76	0.00	0.00	0.00	84+48.00	45.50	1001.64	0.00	0.00	0.00

CAMBER: Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for prestress camber, concrete dead load deflection and, if necessary, vertical curvature. After the prestressed beams are erected measure the camber in the field by taking a profile of each beam. Correct any variation between the actual camber and concrete dead load deflection shown in the plans by varying the depth of the concrete fillets over the beams so that the finish floor is constructed to the theoretical grade. The minimum depth of the slab over the beam shall be 8½ inches. Prior to shipping the camber shall be no greater than the design camber + ½". The design camber is equal to the 50 day camber shown in the plans.



BEAM CAMBER AND DEAD LOAD DEFLECTION
(Given in feet)

Note:
Pavement elevations are taken at tenth points along ℄ Beam and measured between ℄ Brg. of Abutments & ℄ Brg. of Piers. For location of beams, See Framing Plans.

* See Table

** Dead Load Deflections are downward

Note:
For Typical Section, see Sh. No. 630.

For Haunch Diagram, see Sh. No. 637.

SHEET NO. 634 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
PAVEMENT ELEVATIONS
AND CAMBER (1 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PaveElev1.dgn

Final Pavement Elevations

Location	Unit 2																											
	Beam A						Beam B						Beam C						Beam D						Beam E			
	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection	Station	Offset	Elevation	Release Camber	50 Day Camber	Dead Load Deflection
℄ Pier No. 3	84+48.00	11.50	1002.28	0.00	0.00	0.00	84+48.00	20.17	1002.10	0.00	0.00	0.00	84+48.00	28.83	1001.93	0.00	0.00	0.00	84+48.00	37.50	1001.76	0.00	0.00	0.00	84+48.00	45.50	1001.64	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 3	84+49.17	11.50	1002.26	0.00	0.00	0.00	84+49.17	20.17	1002.08	0.00	0.00	0.00	84+49.17	28.83	1001.91	0.00	0.00	0.00	84+49.17	37.50	1001.74	0.00	0.00	0.00	84+49.17	45.50	1001.62	0.00	0.00	0.00
4.1L	84+60.45	11.50	1002.04	0.06	0.10	0.04	84+60.45	20.17	1001.86	0.06	0.10	0.04	84+60.45	28.83	1001.69	0.06	0.10	0.04	84+60.45	37.50	1001.52	0.06	0.10	0.04	84+60.45	45.50	1001.40	0.06	0.10	0.04
4.2L	84+71.73	11.50	1001.81	0.10	0.17	0.08	84+71.73	20.17	1001.63	0.10	0.17	0.09	84+71.73	28.83	1001.46	0.10	0.17	0.09	84+71.73	37.50	1001.29	0.10	0.17	0.08	84+71.73	45.50	1001.17	0.10	0.17	0.08
4.3L	84+83.02	11.50	1001.57	0.13	0.23	0.11	84+83.02	20.17	1001.40	0.13	0.23	0.12	84+83.02	28.83	1001.23	0.13	0.23	0.12	84+83.02	37.50	1001.06	0.13	0.23	0.11	84+83.02	45.50	1000.94	0.13	0.23	0.11
4.4L	84+94.30	11.50	1001.33	0.15	0.26	0.13	84+94.30	20.17	1001.16	0.15	0.26	0.14	84+94.30	28.83	1000.98	0.15	0.26	0.14	84+94.30	37.50	1000.81	0.15	0.26	0.13	84+94.30	45.50	1000.69	0.15	0.26	0.13
4.5L	85+05.58	11.50	1001.08	0.16	0.28	0.14	85+05.58	20.17	1000.90	0.16	0.28	0.14	85+05.58	28.83	1000.73	0.16	0.28	0.14	85+05.58	37.50	1000.56	0.16	0.28	0.14	85+05.58	45.50	1000.44	0.16	0.28	0.13
4.6L	85+16.87	11.50	1000.82	0.15	0.26	0.13	85+16.87	20.17	1000.64	0.15	0.26	0.14	85+16.87	28.83	1000.47	0.15	0.26	0.14	85+16.87	37.50	1000.30	0.15	0.26	0.13	85+16.87	45.50	1000.18	0.15	0.26	0.13
4.7L	85+28.15	11.50	1000.55	0.13	0.23	0.11	85+28.15	20.17	1000.38	0.13	0.23	0.12	85+28.15	28.83	1000.20	0.13	0.23	0.12	85+28.15	37.50	1000.03	0.13	0.23	0.11	85+28.15	45.50	999.91	0.13	0.23	0.11
4.8L	85+39.43	11.50	1000.27	0.10	0.17	0.08	85+39.43	20.17	1000.10	0.10	0.17	0.09	85+39.43	28.83	999.93	0.10	0.17	0.09	85+39.43	37.50	999.76	0.10	0.17	0.08	85+39.43	45.50	999.64	0.10	0.17	0.08
4.9L	85+50.72	11.50	999.99	0.06	0.10	0.04	85+50.72	20.17	999.82	0.06	0.10	0.04	85+50.72	28.83	999.64	0.06	0.10	0.04	85+50.72	37.50	999.48	0.06	0.10	0.04	85+50.72	45.50	999.36	0.06	0.10	0.04
℄ Bk. Brg. Pier No. 4	85+62.00	11.50	999.70	0.00	0.00	0.00	85+62.00	20.17	999.53	0.00	0.00	0.00	85+62.00	28.83	999.35	0.00	0.00	0.00	85+62.00	37.50	999.18	0.00	0.00	0.00	85+62.00	45.50	999.06	0.00	0.00	0.00
℄ Pier No. 4	85+63.00	11.50	999.67	0.00	0.00	0.00	85+63.00	20.17	999.50	0.00	0.00	0.00	85+63.00	28.83	999.33	0.00	0.00	0.00	85+63.00	37.50	999.16	0.00	0.00	0.00	85+63.00	45.50	999.04	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 4	85+64.00	11.50	999.65	0.00	0.00	0.00	85+64.00	20.17	999.47	0.00	0.00	0.00	85+64.00	28.83	999.30	0.00	0.00	0.00	85+64.00	37.50	999.13	0.00	0.00	0.00	85+64.00	45.50	999.01	0.00	0.00	0.00
5.1L	85+76.80	11.50	999.31	0.07	0.12	0.05	85+76.80	20.17	999.13	0.07	0.12	0.05	85+76.80	28.83	998.96	0.07	0.12	0.05	85+76.80	37.50	998.79	0.07	0.12	0.05	85+76.80	45.50	998.67	0.07	0.12	0.05
5.2L	85+89.60	11.50	998.95	0.12	0.21	0.10	85+89.60	20.17	998.78	0.12	0.21	0.10	85+89.60	28.83	998.61	0.12	0.21	0.10	85+89.60	37.50	998.44	0.12	0.21	0.10	85+89.60	45.50	998.32	0.12	0.21	0.10
5.3L	86+02.40	11.50	998.59	0.15	0.27	0.14	86+02.40	20.17	998.42	0.15	0.27	0.14	86+02.40	28.83	998.24	0.15	0.27	0.14	86+02.40	37.50	998.08	0.15	0.27	0.14	86+02.40	45.50	997.96	0.15	0.27	0.13
5.4L	86+15.20	11.50	998.22	0.18	0.31	0.16	86+15.20	20.17	998.05	0.18	0.31	0.17	86+15.20	28.83	997.87	0.18	0.31	0.17	86+15.20	37.50	997.70	0.18	0.31	0.16	86+15.20	45.50	997.58	0.18	0.31	0.15
5.5L	86+28.00	11.50	997.84	0.19	0.32	0.17	86+28.00	20.17	997.66	0.19	0.32	0.18	86+28.00	28.83	997.49	0.19	0.32	0.18	86+28.00	37.50	997.32	0.19	0.32	0.17	86+28.00	45.50	997.20	0.19	0.32	0.16
5.6L	86+40.80	11.50	997.44	0.18	0.31	0.16	86+40.80	20.17	997.27	0.18	0.31	0.17	86+40.80	28.83	997.10	0.18	0.31	0.17	86+40.80	37.50	996.93	0.18	0.31	0.16	86+40.80	45.50	996.81	0.18	0.31	0.15
5.7L	86+53.60	11.50	997.04	0.15	0.27	0.14	86+53.60	20.17	996.87	0.15	0.27	0.14	86+53.60	28.83	996.69	0.15	0.27	0.14	86+53.60	37.50	996.52	0.15	0.27	0.14	86+53.60	45.50	996.40	0.15	0.27	0.13
5.8L	86+66.40	11.50	996.63	0.12	0.21	0.10	86+66.40	20.17	996.45	0.12	0.21	0.10	86+66.40	28.83	996.28	0.12	0.21	0.10	86+66.40	37.50	996.11	0.12	0.21	0.10	86+66.40	45.50	995.99	0.12	0.21	0.10
5.9L	86+79.20	11.50	996.20	0.07	0.12	0.05	86+79.20	20.17	996.03	0.07	0.12	0.05	86+79.20	28.83	995.86	0.07	0.12	0.05	86+79.20	37.50	995.69	0.07	0.12	0.05	86+79.20	45.50	995.57	0.07	0.12	0.05
℄ Bk. Brg. Pier No. 5	86+92.00	11.50	995.77	0.00	0.00	0.00	86+92.00	20.17	995.60	0.00	0.00	0.00	86+92.00	28.83	995.42	0.00	0.00	0.00	86+92.00	37.50	995.25	0.00	0.00	0.00	86+92.00	45.50	995.13	0.00	0.00	0.00
℄ Pier No. 5	86+93.00	11.50	995.73	0.00	0.00	0.00	86+93.00	20.17	995.56	0.00	0.00	0.00	86+93.00	28.83	995.39	0.00	0.00	0.00	86+93.00	37.50	995.22	0.00	0.00	0.00	86+93.00	45.50	995.10	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 5	86+94.00	11.50	995.70	0.00	0.00	0.00	86+94.00	20.20	995.53	0.00	0.00	0.00	86+94.00	28.91	995.35	0.00	0.00	0.00	86+94.00	37.61	995.18	0.00	0.00	0.00	86+94.00	45.61	995.06	0.00	0.00	0.00
6.1L	87+04.80	11.50	995.32	0.04	0.08	0.03	87+04.80	20.60	995.14	0.04	0.08	0.03	87+04.80	29.69	994.96	0.04	0.08	0.03	87+04.80	38.79	994.78	0.04	0.08	0.03	87+04.80	46.79	994.66	0.04	0.08	0.03
6.2L	87+15.60	11.50	994.95	0.08	0.14	0.05	87+15.60	20.99	994.76	0.08	0.14	0.06	87+15.60	30.48	994.57	0.08	0.14	0.06	87+15.60	39.97	994.38	0.08	0.14	0.06	87+15.60	47.97	994.26	0.08	0.14	0.05
6.3L	87+26.40	11.50	994.57	0.11	0.19	0.08	87+26.40	21.38	994.37	0.11	0.19	0.09	87+26.40	31.26	994.17	0.11	0.19	0.09	87+26.40	41.14	993.98	0.11	0.19	0.08	87+26.40	49.14	993.86	0.11	0.19	0.07
6.4L	87+37.20	11.50	994.19	0.12	0.22	0.09	87+37.20	21.77	993.99	0.12	0.22	0.10	87+37.20	32.05	993.78	0.12	0.22	0.10	87+37.20	42.32	993.58	0.12	0.22	0.09	87+37.20	50.32	993.46	0.12	0.22	0.08
6.5L	87+48.00	11.50	993.81	0.13	0.23	0.09	87+48.00	22.17	993.60	0.13	0.23	0.11	87+48.00	32.83	993.39	0.13	0.23	0.11	87+48.00	43.50	993.18	0.13	0.23	0.10	87+48.00	51.50	993.06	0.13	0.23	0.08
6.6L	87+58.80	11.50	993.43	0.12	0.22	0.09	87+58.80	22.56	993.21	0.12	0.22	0.10	87+58.80	33.62	992.99	0.12	0.22	0.10	87+58.80	44.68	992.78	0.12	0.22	0.09	87+58.80	52.68	992.66	0.12	0.22	0.08
6.7L	87+69.60	11.50	993.06	0.11	0.19	0.08	87+69.60	22.95	992.83	0.11	0.19	0.09	87+69.60	34.40	992.60	0.11	0.19	0.09	87+69.60	45.86	992.37	0.11	0.19	0.08	87+69.60	53.86	992.25	0.11	0.19	0.07
6.8L	87+80.40	11.50	992.68	0.08	0.14	0.06	87+80.40	23.34	992.44	0.08	0.14	0.06	87+80.40	35.19	992.20	0.08	0.14	0.06	87+80.40	47.03	991.97	0.08	0.14	0.06	87+80.40	55.03	991.85	0.08	0.14	0.05
6.9L	87+91.20	11.50	992.30	0.04	0.08	0.03	87+91.20	23.74	992.06	0.04	0.08	0.03	87+91.20	35.98	991.81	0.04	0.08	0.03	87+91.20	48.21	991.57	0.04	0.08	0.03	87+91.20	56.21	991.45	0.04	0.08	0.03
℄ Bk. Brg. Pier No. 6	88+02.00	11.50	991.92	0.00	0.00	0.00	88+02.00	24.13	991.67	0.00	0.00	0.00	88+02.00	36.76	991.42	0.00	0.00	0.00	88+02.00	49.39	991.17	0.00	0.00	0.00	88+02.00	57.39	991.05	0.00	0.00	0.00
℄ Pier No. 6	88+03.00	11.50	991.89	0.00	0.00	0.00	88+03.00	24.17	991.63	0.00	0.00	0.00	88+03.00	36.83	991.38	0.00	0.00	0.00	88+03.00	49.50	991.13	0.00	0.00	0.00	88+03.00	57.50	991.01	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 6	88+04.00	11.50	991.85	0.00	0.00	0.00	88+04.00	24.17	991.60	0.00	0.00	0.00	88+04.00	36.83	991.35	0.00	0.00	0.00	88+04.00	49.50	991.10	0.00	0.00	0.00	88+04.00	57.50	990.98	0.00	0.00	0.00
7.1L	88+12.80	11.50	991.54	0.03	0.04	0.01	88+12.80	24.17	991.29	0.03	0.04	0.02	88+12.80	36.83	991.04	0.03	0.04	0.02	88+12.80	49.50	990.79	0.03	0.04	0.01	88+12.80	57.50	990.67	0.03	0.04	0.01
7.2L	88+21.60	11.50	991.24	0.05	0.08	0.03	88+21.60	24.17	990.98	0.05	0.08	0.03	88+21.60	36.83	990.73	0.05	0.08	0.03	88+21.60	49.50	990.48	0.05	0.08	0.03	88+21.60	57.50	990.36	0.05	0.08	0.02
7.3L	88+30.40	11.50	990.93	0.06	0.11	0.04	88+30.40	24.17	990.68	0.06	0.11	0.04	88+30.40	36.83	990.42	0.06	0.11	0.04	88+30.40	49.50	990.17	0.06	0.11	0.04	88+30.40	57.50	990.05	0.06	0.11	0.03
7.4L	88+39.20	11.50	990.62	0.07	0.12	0.04	88+39.20	24.17	990.37	0.07	0.12	0.05	88+39.20	36.83	990.12	0.07	0.12	0.05	88+39.20	49.50	989.87	0.07	0.12	0.04	88+39.20	57.50	989.75	0.07	0.12	0.03
7.5L	88+48.00	11.50	990.31	0.07	0.13	0.04	88+48.00	24.17	990.06	0.07	0.13	0.05	88+48.00	36.83	989.81	0.07	0.13	0.05	88+48.00	49.50	989.56	0.07	0.13	0.05	88+48.00	57.50	989.44	0.07	0.13	0.04
7.6L	88+56.80	11.50	990.00	0.07	0.12	0.04	88+56.80	24.17	989.75	0.07	0.12	0.05	88+56.80	36.83	989.50	0.07	0.12	0.05	88+56.80	49.50	989.25	0.07	0.12	0.04	88+56.80	57.50	989.13	0.07	0.12	0.03
7.7L	88+65.60	11.50	989.70	0.06	0.11	0.04	88+65.60	24.17	989.44	0.06	0.11	0.04	88+65.60	36.83	989.19	0.06	0.11	0.04	88+65.60	49.50	988.94	0.06	0.11	0.04	88+65.60	57.50	988.82	0.06	0.11	0.03
7.8L	88+74.40	11.50	989.39	0.05	0.08	0.03	88+74.40	24.17	989.14	0.05	0.08	0.03	88+74.40	36.83	988.88	0.05	0.08	0.03	88+74.40	49.50	988.63	0.05	0.08	0.03	88+74.40	57.50	988.51	0.05	0.08	0.02
7.9L	88+83.20	11.50	989.08	0.03	0.04	0.01	88+83.20	24.17	988.83	0.03	0.04	0.02	88+83.20	36.83	988.58	0.03	0.04	0.02	88+83.20	49.50	988.33	0.03	0.04	0.01	88+83.20	57.50	988.21	0.03	0.04	0.01
℄ Bk. Brg. Pier No. 7	88+92.00	11.50	988.77	0.00	0.00	0.00	88+92.00	24.17	988.52	0.00	0.00	0.00	88+92.00	36.83	988.27	0.00	0.00	0.00	88+92.00	49.50	988.02	0.00	0.00	0.00	88+92.00	57.50	987.90	0.00	0.00	0.00
℄ Pier No. 7	88+93.00	11.50	988.74	0.00	0.00	0.00	88+93.00	24.17	988.48	0.00	0.00	0.00	88+93.00	36.83	988.23	0.00	0.00	0.00	88+93.00	49.50	987.98	0.00	0.00	0.00	88+93.00	57.50	987.86	0.00	0.00	0.00
℄ Ahd. Brg. Pier No. 7	88+94.00	11.50	988.70	0.00	0.00	0.00	88+94.00	24.17	988.45	0.00	0.00	0.00	88+94.00	36.83	988.20	0.00	0.00	0.00	88+94.00	49.50	987.95	0.00	0.00	0.00	88+94.00	57.50	987.83	0.00	0.00	0.00
8.1L	89+02.90	11.50	988.39	0.03	0.04	0.01	89+02.90	24.17	988.14	0.03	0.04	0.02	89+02.90	36.83	987.89	0.03	0.04	0.02	89+02.90	49.50	987.64	0.03	0.04	0.01	89+02.90	57.50	987.52	0.03	0.04	0.01
8.2L	89+11.80	11.50	988.08	0.05	0.08	0.03	89+11.80	24.17	987.83	0.05	0.08	0.03	89+11.80	36.83	987.57	0.05	0.08	0.03	89+11.80	49.50	987.32	0.05	0.08	0.03	89+11.80	57.50	987.20	0.05	0.08	0.02
8.3L	89+20.70	11.50	987.77	0.06	0.11	0.04	89+20.70	24.17	987.52	0.06	0.11	0.05	89+20.70	36.83	987.26	0.06	0.11	0.05	89+20.70	49.50	987.01	0.06	0.11	0.04	89+20.70	57.50	986.89	0.06	0.11	0.03
8.4L	89+29.60	11.50	987.46	0.07	0.13	0.04	89+29.60	24.17	987.20	0.07	0.13	0.05	89+29.60	36.83	986.95	0.07	0.13	0.05	89+29.60	49.50	986.70	0.07	0.13	0.04	89+29.60	57.50	986.58	0.07	0.13	0.04
8.5L	89+38.50	11.50	987.15	0.07	0.13	0.05	89+38.50	24.17	986.89	0.07	0.13	0.06	89+38.50	36.83	986.64	0.07	0.13	0.06	89+38.50	49.50	986.39	0.07	0.13	0.05	89+38.50	57.50	986.27	0.07	0.13	0.04
8.6L	89+47.40	11.50	986.83	0.07	0.13	0.04	89+47.40	24.17	986.58	0.07	0.13	0.05	89+47.40	36.83	986.33	0.07	0.13	0.05	89+47.40	49.50	986.08	0.07	0.13	0.04	89+47.40	57.50	985.96	0.07	0.13	0.04
8.7L	89+56.30	11.50	986.52	0.06	0.11	0.04	89+56.30	24.17	986.27	0.06	0.11	0.05	89+56.30	36.83	986.02	0.06	0.11	0.05	89+56.30	49.50	985.77	0.06	0.11	0.04	89+56.30	57.50	985.65	0.06	0.11	0.03
8.8L	89+65.20	11.50	986.21	0.05	0.08	0.03	89+65.20	24.17	985.96	0.05	0.08	0.03	89+65.20	36.83	985.71	0.05	0.08	0.03	89+65.20	49.50	985.46	0.05	0.08	0.03	89+65.20	57.50	985.34	0.05	0.08	0.02
8.9L	89+74.10	11.50	985.90	0.03	0.04	0.01	89+74.10	24.17	985.65	0.03	0.04	0.02	89+74.10	36.83	985.39	0.03	0.04	0.02	89+74.10	49.50	985.14	0.03	0.04	0.01	89+74.10	57.50	985.02	0.03	0.04	0.01
℄ Brg. Abut. No. 2	89+83.00	11.50	985.59	0.00	0.00	0.00	89+83.00	24.17	985.33	0.00	0.00	0.00	89+83.00	36.83	985.08	0.00	0.00	0.00	89+83.00	49.50	984.83	0.00	0.00	0.00	89+83.00	57.50	984.71	0.00	0.00	0.00

Notes:

For camber notes, beam camber and dead load deflection diagram, see Sh. No.634.

SHEET NO. 635 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

HDR Engineering, Inc.

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound PAVEMENT ELEVATIONS AND CAMBER (2 OF 2)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_PaveElev2.dgn

Bottom of Deck Elevations										
Location	Unit 1									
	Beam A		Beam B		Beam C		Beam D		Beam E	
	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
℄ Brg. Abut. No. 1	81+33.19	1004.47	81+36.34	1004.30	81+39.49	1004.12	81+42.65	1003.96	81+45.56	1003.84
1.1L	81+43.09	1004.50	81+46.24	1004.32	81+49.39	1004.15	81+52.55	1003.98	81+55.46	1003.86
1.2L	81+52.99	1004.52	81+56.14	1004.34	81+59.29	1004.17	81+62.45	1003.99	81+65.36	1003.87
1.3L	81+62.89	1004.53	81+66.04	1004.35	81+69.19	1004.17	81+72.35	1004.00	81+75.26	1003.87
1.4L	81+72.79	1004.52	81+75.94	1004.35	81+79.09	1004.17	81+82.25	1003.99	81+85.16	1003.86
1.5L	81+82.69	1004.50	81+85.84	1004.33	81+88.99	1004.14	81+92.15	1003.96	81+95.06	1003.83
1.6L	81+92.59	1004.47	81+95.74	1004.29	81+98.89	1004.11	82+02.05	1003.93	82+04.96	1003.79
1.7L	82+02.49	1004.43	82+05.64	1004.25	82+08.79	1004.06	82+11.95	1003.88	82+14.86	1003.74
1.8L	82+12.39	1004.37	82+15.54	1004.19	82+18.69	1004.00	82+21.85	1003.81	82+24.76	1003.67
1.9L	82+22.29	1004.30	82+25.44	1004.11	82+28.59	1003.92	82+31.75	1003.74	82+34.66	1003.60
℄ Bk. Brg. Pier No. 1	82+32.19	1004.22	82+35.34	1004.03	82+38.49	1003.84	82+41.65	1003.65	82+44.56	1003.52
℄ Pier No. 1	82+33.19	1004.22	82+36.34	1004.03	82+39.49	1003.83	82+42.65	1003.65	82+45.56	1003.51
℄ Ahd. Brg. Pier No. 1	82+34.19	1004.21	82+37.34	1004.02	82+40.49	1003.83	82+43.65	1003.64	82+46.56	1003.50
2.1L	82+45.49	1004.19	82+48.64	1004.00	82+51.79	1003.80	82+54.95	1003.61	82+57.86	1003.47
2.2L	82+56.79	1004.15	82+59.94	1003.96	82+63.09	1003.76	82+66.25	1003.57	82+69.16	1003.42
2.3L	82+68.09	1004.10	82+71.24	1003.90	82+74.39	1003.70	82+77.55	1003.51	82+80.46	1003.36
2.4L	82+79.39	1004.03	82+82.54	1003.83	82+85.69	1003.63	82+88.85	1003.43	82+91.76	1003.28
2.5L	82+90.69	1003.93	82+93.84	1003.74	82+96.99	1003.53	83+00.15	1003.33	83+03.06	1003.17
2.6L	83+01.99	1003.82	83+05.14	1003.62	83+08.29	1003.41	83+11.45	1003.21	83+14.36	1003.05
2.7L	83+13.29	1003.68	83+16.44	1003.48	83+19.59	1003.27	83+22.75	1003.06	83+25.66	1002.91
2.8L	83+24.59	1003.53	83+27.74	1003.32	83+30.89	1003.11	83+34.05	1002.90	83+36.96	1002.74
2.9L	83+35.89	1003.35	83+39.04	1003.15	83+42.19	1002.93	83+45.35	1002.72	83+48.26	1002.56
℄ Bk. Brg. Pier No. 2	83+47.19	1003.17	83+50.34	1002.96	83+53.49	1002.74	83+56.65	1002.53	83+59.56	1002.37
℄ Pier No. 2	83+48.19	1003.16	83+51.34	1002.94	83+54.49	1002.73	83+57.65	1002.52	83+60.56	1002.36
℄ Ahd. Brg. Pier No. 2	83+49.19	1003.15	83+52.34	1002.93	83+55.49	1002.72	83+58.65	1002.51	83+61.56	1002.35
3.1L	83+58.95	1003.04	83+61.79	1002.83	83+64.63	1002.61	83+67.47	1002.40	83+70.09	1002.24
3.2L	83+68.72	1002.93	83+71.24	1002.71	83+73.76	1002.50	83+76.29	1002.29	83+78.62	1002.13
3.3L	83+78.48	1002.80	83+80.69	1002.59	83+82.90	1002.38	83+85.10	1002.17	83+87.14	1002.01
3.4L	83+88.24	1002.67	83+90.14	1002.46	83+92.03	1002.25	83+93.92	1002.04	83+95.67	1001.89
3.5L	83+98.01	1002.52	83+99.59	1002.31	84+01.16	1002.11	84+02.74	1001.90	84+04.20	1001.75
3.6L	84+07.77	1002.36	84+09.04	1002.16	84+10.30	1001.95	84+11.56	1001.76	84+12.72	1001.61
3.7L	84+17.54	1002.18	84+18.49	1001.99	84+19.43	1001.79	84+20.38	1001.60	84+21.25	1001.46
3.8L	84+27.30	1001.99	84+27.93	1001.81	84+28.57	1001.62	84+29.20	1001.43	84+29.78	1001.30
3.9L	84+37.07	1001.80	84+37.38	1001.62	84+37.70	1001.43	84+38.01	1001.26	84+38.31	1001.13
℄ Bk. Brg. Pier No. 3	84+46.83	1001.59	84+46.83	1001.42	84+46.83	1001.24	84+46.83	1001.08	84+46.83	1000.96
℄ Pier No. 3	84+48.00	1001.57	84+48.00	1001.40	84+48.00	1001.22	84+48.00	1001.05	84+48.00	1000.93

Bottom of Deck Elevations										
Location	Unit 2									
	Beam A		Beam B		Beam C		Beam D		Beam E	
	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
℄ Pier No. 3	84+48.00	1001.57	84+48.00	1001.40	84+48.00	1001.22	84+48.00	1001.05	84+48.00	1000.93
℄ Ahd. Brg. Pier No. 3	84+49.17	1001.55	84+49.17	1001.37	84+49.17	1001.20	84+49.17	1001.03	84+49.17	1000.91
4.1L	84+60.45	1001.37	84+60.45	1001.20	84+60.45	1001.02	84+60.45	1000.85	84+60.45	1000.73
4.2L	84+71.73	1001.18	84+71.73	1001.01	84+71.73	1000.84	84+71.73	1000.67	84+71.73	1000.54
4.3L	84+83.02	1000.98	84+83.02	1000.81	84+83.02	1000.63	84+83.02	1000.46	84+83.02	1000.34
4.4L	84+94.30	1000.75	84+94.30	1000.58	84+94.30	1000.41	84+94.30	1000.24	84+94.30	1000.11
4.5L	85+05.58	1000.51	85+05.58	1000.34	85+05.58	1000.17	85+05.58	999.99	85+05.58	999.87
4.6L	85+16.87	1000.24	85+16.87	1000.07	85+16.87	999.90	85+16.87	999.73	85+16.87	999.60
4.7L	85+28.15	999.95	85+28.15	999.78	85+28.15	999.61	85+28.15	999.44	85+28.15	999.31
4.8L	85+39.43	999.65	85+39.43	999.48	85+39.43	999.30	85+39.43	999.13	85+39.43	999.01
4.9L	85+50.72	999.33	85+50.72	999.15	85+50.72	998.98	85+50.72	998.81	85+50.72	998.69
℄ Bk. Brg. Pier No. 4	85+62.00	998.99	85+62.00	998.82	85+62.00	998.64	85+62.00	998.48	85+62.00	998.36
℄ Pier No. 4	85+63.00	998.96	85+63.00	998.79	85+63.00	998.62	85+63.00	998.45	85+63.00	998.33
℄ Ahd. Brg. Pier No. 4	85+64.00	998.94	85+64.00	998.77	85+64.00	998.59	85+64.00	998.42	85+64.00	998.30
5.1L	85+76.80	998.65	85+76.80	998.48	85+76.80	998.30	85+76.80	998.13	85+76.80	998.01
5.2L	85+89.60	998.34	85+89.60	998.17	85+89.60	998.00	85+89.60	997.83	85+89.60	997.71
5.3L	86+02.40	998.02	86+02.40	997.85	86+02.40	997.68	86+02.40	997.51	86+02.40	997.38
5.4L	86+15.20	997.67	86+15.20	997.50	86+15.20	997.33	86+15.20	997.16	86+15.20	997.03
5.5L	86+28.00	997.30	86+28.00	997.13	86+28.00	996.96	86+28.00	996.78	86+28.00	996.66
5.6L	86+40.80	996.89	86+40.80	996.73	86+40.80	996.55	86+40.80	996.38	86+40.80	996.25
5.7L	86+53.60	996.47	86+53.60	996.30	86+53.60	996.13	86+53.60	995.95	86+53.60	995.83
5.8L	86+66.40	996.02	86+66.40	995.85	86+66.40	995.67	86+66.40	995.50	86+66.40	995.38
5.9L	86+79.20	995.55	86+79.20	995.37	86+79.20	995.20	86+79.20	995.03	86+79.20	994.91
℄ Bk. Brg. Pier No. 5	86+92.00	995.06	86+92.00	994.89	86+92.00	994.71	86+92.00	994.54	86+92.00	994.42
℄ Pier No. 5	86+93.00	995.03	86+93.00	994.85	86+93.00	994.68	86+93.00	994.51	86+93.00	994.39
℄ Ahd. Brg. Pier No. 5	86+94.00	994.99	86+94.00	994.82	86+94.00	994.64	86+94.00	994.47	86+94.00	994.35
6.1L	87+04.80	994.64	87+04.80	994.47	87+04.80	994.28	87+04.80	994.10	87+04.80	993.98
6.2L	87+15.60	994.29	87+15.60	994.11	87+15.60	993.92	87+15.60	993.73	87+15.60	993.60
6.3L	87+26.40	993.94	87+26.40	993.75	87+26.40	993.55	87+26.40	993.35	87+26.40	993.22
6.4L	87+37.20	993.57	87+37.20	993.38	87+37.20	993.17	87+37.20	992.96	87+37.20	992.83
6.5L	87+48.00	993.20	87+48.00	993.00	87+48.00	992.78	87+48.00	992.57	87+48.00	992.43
6.6L	87+58.80	992.81	87+58.80	992.61	87+58.80	992.39	87+58.80	992.16	87+58.80	992.03
6.7L	87+69.60	992.42	87+69.60	992.20	87+69.60	991.98	87+69.60	991.74	87+69.60	991.61
6.8L	87+80.40	992.02	87+80.40	991.80	87+80.40	991.56	87+80.40	991.32	87+80.40	991.19
6.9L	87+91.20	991.62	87+91.20	991.38	87+91.20	991.13	87+91.20	990.89	87+91.20	990.77
℄ Bk. Brg. Pier No. 6	88+02.00	991.21	88+02.00	990.96	88+02.00	990.71	88+02.00	990.46	88+02.00	990.34
℄ Pier No. 6	88+03.00	991.18	88+03.00	990.93	88+03.00	990.67	88+03.00	990.42	88+03.00	990.30
℄ Ahd. Brg. Pier No. 6	88+04.00	991.14	88+04.00	990.89	88+04.00	990.64	88+04.00	990.39	88+04.00	990.27
7.1L	88+12.80	990.85	88+12.80	990.60	88+12.80	990.35	88+12.80	990.09	88+12.80	989.97
7.2L	88+21.60	990.55	88+21.60	990.31	88+21.60	990.05	88+21.60	989.80	88+21.60	989.67
7.3L	88+30.40	990.26	88+30.40	990.01	88+30.40	989.76	88+30.40	989.50	88+30.40	989.37
7.4L	88+39.20	989.95	88+39.20	989.71	88+39.20	989.46	88+39.20	989.20	88+39.20	989.07
7.5L	88+48.00	989.65	88+48.00	989.40	88+48.00	989.15	88+48.00	988.89	88+48.00	988.76
7.6L	88+56.80	989.34	88+56.80	989.09	88+56.80	988.84	88+56.80	988.58	88+56.80	988.46
7.7L	88+65.60	989.02	88+65.60	988.78	88+65.60	988.53	88+65.60	988.27	88+65.60	988.14
7.8L	88+74.40	988.71	88+74.40	988.46	88+74.40	988.21	88+74.40	987.95	88+74.40	987.83
7.9L	88+83.20	988.39	88+83.20	988.13	88+83.20	987.88	88+83.20	987.63	88+83.20	987.51
℄ Bk. Brg. Pier No. 7	88+92.00	988.06	88+92.00	987.81	88+92.00	987.56	88+92.00	987.31	88+92.00	987.19
℄ Pier No. 7	88+93.00	988.03	88+93.00	987.78	88+93.00	987.52	88+93.00	987.27	88+93.00	987.15
℄ Ahd. Brg. Pier No. 7	88+94.00	987.99	88+94.00	987.74	88+94.00	987.49	88+94.00	987.24	88+94.00	987.12
8.1L	89+02.90	987.70	89+02.90	987.45	89+02.90	987.19	89+02.90	986.94	89+02.90	986.82
8.2L	89+11.80	987.40	89+11.80	987.15	89+11.80	986.90	89+11.80	986.64	89+11.80	986.52
8.3L	89+20.70	987.10	89+20.70	986.85	89+20.70	986.60	89+20.70	986.34	89+20.70	986.22
8.4L	89+29.60	986.79	89+29.60	986.55	89+29.60	986.30	89+29.60	986.04	89+29.60	985.91
8.5L	89+38.50	986.48	89+38.50	986.24	89+38.50	985.99	89+38.50	985.73	89+38.50	985.60
8.6L	89+47.40	986.17	89+47.40	985.93	89+47.40	985.67	89+47.40	985.41	89+47.40	985.29
8.7L	89+56.30	985.85	89+56.30	985.61	89+56.30	985.35	89+56.30	985.10	89+56.30	984.97
8.8L	89+65.20	985.53	89+65.20	985.28	89+65.20	985.03	89+65.20	984.77	89+65.20	984.65
8.9L	89+74.10	985.20	89+74.10	984.95	89+74.10	984.70	89+74.10	984.45	89+74.10	984.33
℄ Brg. Abut. No. 2	89+83.00	984.88	89+83.00	984.63	89+83.00	984.37	89+83.00	984.12	89+83.00	984.00

Note:

Elevation values included were calculated as follows: Final pavement elevation - deck thickness + dead load deflection.

For Final Pavement Elevations and Dead Load Deflections, see Sh. No.634 & 635

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BottDeck1.dgn

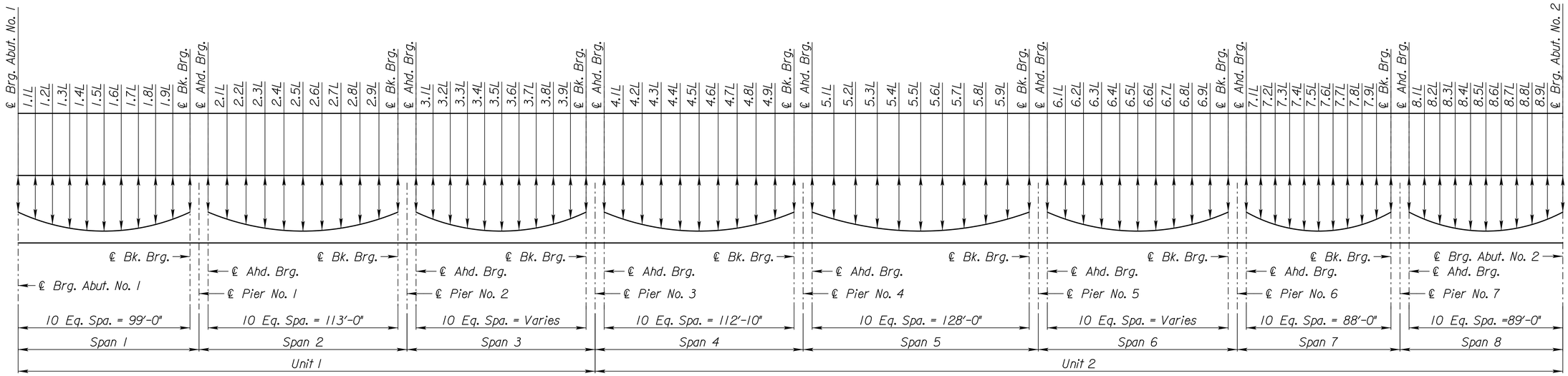
SHEET NO. 636 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000656

CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BOTTOM OF DECK ELEVATIONS

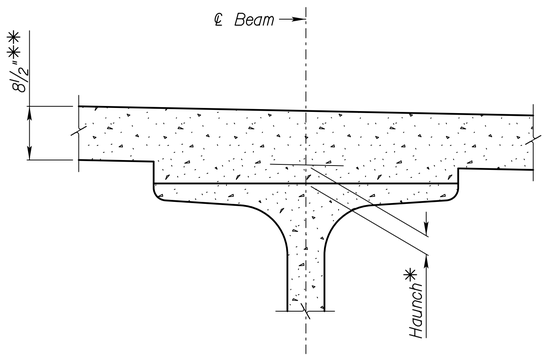


HAUNCH DIAGRAM

HAUNCH (INCHES)					
Location	Unit 1				
	Beam A	Beam B	Beam C	Beam D	Beam E
℄ Brg. Abut. No. 1	1 9/16	1 1/2	1 1/2	1 1/2	1 9/16
1.1L	1 3/8	1 5/16	1 5/16	1 3/8	1 3/8
1.2L	1 1/4	1 1/4	1 5/16	1 1/4	1 5/16
1.3L	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
1.4L	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
1.5L	1 1/4	1 1/4	1 5/16	1 1/4	1 1/4
1.6L	1 5/16	1 5/16	1 3/8	1 5/16	1 5/16
1.7L	1 7/16	1 7/16	1 1/2	1 7/16	1 7/16
1.8L	1 9/16	1 9/16	1 5/8	1 9/16	1 9/16
1.9L	1 3/4	1 3/4	1 7/8	1 3/4	1 13/16
℄ Bk. Brg. Pier No. 1	2 1/16	2	2 1/8	2	2 1/16
℄ Pier No. 1					
℄ Ahd. Brg. Pier No. 1	2	1 15/16	1 15/16	2	2 1/16
2.1L	1 5/8	1 9/16	1 9/16	1 9/16	1 5/8
2.2L	1 5/16	1 5/16	1 5/16	1 5/16	1 3/8
2.3L	1 1/8	1 1/8	1 1/8	1 1/8	1 3/16
2.4L	1 1/16	1	1	1 1/16	1 1/16
2.5L	1	1	1	1	1
2.6L	1 1/16	1	1	1 1/16	1 1/16
2.7L	1 1/8	1 1/8	1 1/8	1 1/8	1 3/16
2.8L	1 5/16	1 5/16	1 5/16	1 5/16	1 3/8
2.9L	1 5/8	1 9/16	1 9/16	1 9/16	1 5/8
℄ Bk. Brg. Pier No. 2	2	1 15/16	1 15/16	2	2 1/16
℄ Pier No. 2					
℄ Ahd. Brg. Pier No. 2	1 1/2	1 3/8	1 1/2	1 5/8	1 11/16
3.1L	1 7/16	1 3/8	1 3/8	1 7/16	1 1/2
3.2L	1 7/16	1 3/8	1 3/8	1 3/8	1 7/16
3.3L	1 1/2	1 7/16	1 3/8	1 3/8	1 7/16
3.4L	1 5/8	1 1/2	1 7/16	1 7/16	1 7/16
3.5L	1 11/16	1 5/8	1 1/2	1 1/2	1 1/2
3.6L	1 13/16	1 3/4	1 5/8	1 5/8	1 5/8
3.7L	1 15/16	1 15/16	1 13/16	1 13/16	1 13/16
3.8L	2 1/8	2 1/8	2	2	2 1/16
3.9L	2 5/16	2 3/8	2 3/16	2 5/16	2 5/16
℄ Bk. Brg. Pier No. 3	2 5/8	2 5/8	2 1/2	2 5/8	2 11/16
℄ Pier No. 3					

HAUNCH (INCHES)					
Location	Unit 2				
	Beam A	Beam B	Beam C	Beam D	Beam E
℄ Pier No. 3					
℄ Ahd. Brg. Pier No. 3	1 9/16	1 1/2	1 1/2	1 9/16	1 5/8
4.1L	1 5/16	1 1/4	1 1/4	1 5/16	1 3/8
4.2L	1 3/16	1 1/8	1 1/8	1 3/16	1 3/16
4.3L	1 1/16	1 1/16	1 1/16	1 1/16	1 1/8
4.4L	1	1	1	1	1
4.5L	1	1	1	1	1
4.6L	1	1	1	1	1
4.7L	1 1/16	1 1/16	1 1/16	1 1/16	1 1/16
4.8L	1 1/8	1 1/8	1 1/8	1 1/8	1 3/16
4.9L	1 5/16	1 1/4	1 1/4	1 5/16	1 5/16
℄ Bk. Brg. Pier No. 4	1 9/16	1 1/2	1 1/2	1 9/16	1 5/8
℄ Pier No. 4					
℄ Ahd. Brg. Pier No. 4	1 1/2	1 7/16	1 7/16	1 1/2	1 9/16
5.1L	1 7/16	1 3/8	1 3/8	1 3/8	1 7/16
5.2L	1 1/2	1 7/16	1 7/16	1 7/16	1 1/2
5.3L	1 5/8	1 5/8	1 5/8	1 9/16	1 5/8
5.4L	1 13/16	1 13/16	1 13/16	1 11/16	1 13/16
5.5L	2	2	2	1 7/8	2
5.6L	2 3/16	2 3/16	2 3/16	2 1/16	2 3/16
5.7L	2 7/16	2 7/16	2 7/16	2 1/4	2 7/16
5.8L	2 11/16	2 11/16	2 11/16	2 1/2	2 3/4
5.9L	3	2 15/16	2 15/16	2 3/4	3 1/16
℄ Bk. Brg. Pier No. 5	3 1/2	3 7/16	3 7/16	3 1/4	3 9/16
℄ Pier No. 5					
℄ Ahd. Brg. Pier No. 5	2 11/16	2 9/16	2 9/16	2 5/8	2 13/16
6.1L	2 1/16	2	2	2 1/16	2 1/8
6.2L	1 5/8	1 5/8	1 9/16	1 5/8	1 11/16
6.3L	1 5/16	1 5/16	1 5/16	1 5/16	1 5/16
6.4L	1 3/16	1 3/16	1 3/16	1 3/16	1 1/8
6.5L	1 1/8	1 1/8	1 1/8	1 1/8	1 1/16
6.6L	1 1/4	1 3/16	1 3/16	1 3/16	1 1/8
6.7L	1 7/16	1 3/8	1 7/16	1 7/16	1 3/8
6.8L	1 13/16	1 11/16	1 3/4	1 3/4	1 3/4
6.9L	2 1/4	2 1/8	2 3/16	2 1/4	2 1/4
℄ Bk. Brg. Pier No. 6	2 15/16	2 13/16	2 13/16	2 7/8	2 15/16
℄ Pier No. 6					

HAUNCH (INCHES)					
Location	Unit 2 Continued				
	Beam A	Beam B	Beam C	Beam D	Beam E
℄ Pier No. 6					
℄ Ahd. Brg. Pier No. 6	2 1/16	1 15/16	1 15/16	2 1/16	2 3/16
7.1L	1 3/4	1 11/16	1 11/16	1 3/4	1 7/8
7.2L	1 9/16	1 1/2	1 1/2	1 9/16	1 5/8
7.3L	1 7/16	1 7/16	1 7/16	1 7/16	1 7/16
7.4L	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
7.5L	1 7/16	1 7/16	1 7/16	1 7/16	1 7/16
7.6L	1 9/16	1 9/16	1 9/16	1 9/16	1 9/16
7.7L	1 13/16	1 3/4	1 3/4	1 13/16	1 13/16
7.8L	2 1/16	2 1/16	2 1/16	2 1/16	2 1/8
7.9L	2 1/2	2 3/8	2 3/8	2 7/16	2 9/16
℄ Bk. Brg. Pier No. 7	2 15/16	2 13/16	2 13/16	2 15/16	3 1/16
℄ Pier No. 7					
℄ Ahd. Brg. Pier No. 7	2 1/16	1 15/16	1 15/16	2 1/16	2 3/16
8.1L	1 11/16	1 9/16	1 9/16	1 11/16	1 3/4
8.2L	1 3/8	1 5/16	1 5/16	1 3/8	1 7/16
8.3L	1 3/16	1 1/8	1 1/8	1 3/16	1 3/16
8.4L	1 1/16	1 1/16	1 1/16	1 1/16	1 1/16
8.5L	1	1	1	1	1
8.6L	1 1/16	1 1/16	1 1/16	1 1/16	1 1/16
8.7L	1 3/16	1 1/8	1 1/8	1 3/16	1 3/16
8.8L	1 3/8	1 5/16	1 5/16	1 3/8	1 7/16
8.9L	1 11/16	1 9/16	1 9/16	1 11/16	1 3/4
℄ Brg. Abut. No. 2	2 1/16	1 15/16	1 15/16	2 1/16	2 3/16



CONCRETE HAUNCH DETAIL

* See Haunch Diagrams for Theoretical Haunch

** 9″ at Overhangs

Notes:
The theoretical amount of concrete required for the fillets is 69.5 C.Y. This amount of concrete is included in the Summary of Quantities. Any additional concrete required to construct the fillets will be subsidiary.

For Typical Section, see Sh. No. 630.

For Camber and Dead Load Deflections, see Sh. No. 634- 635 .

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Haunch.dgn

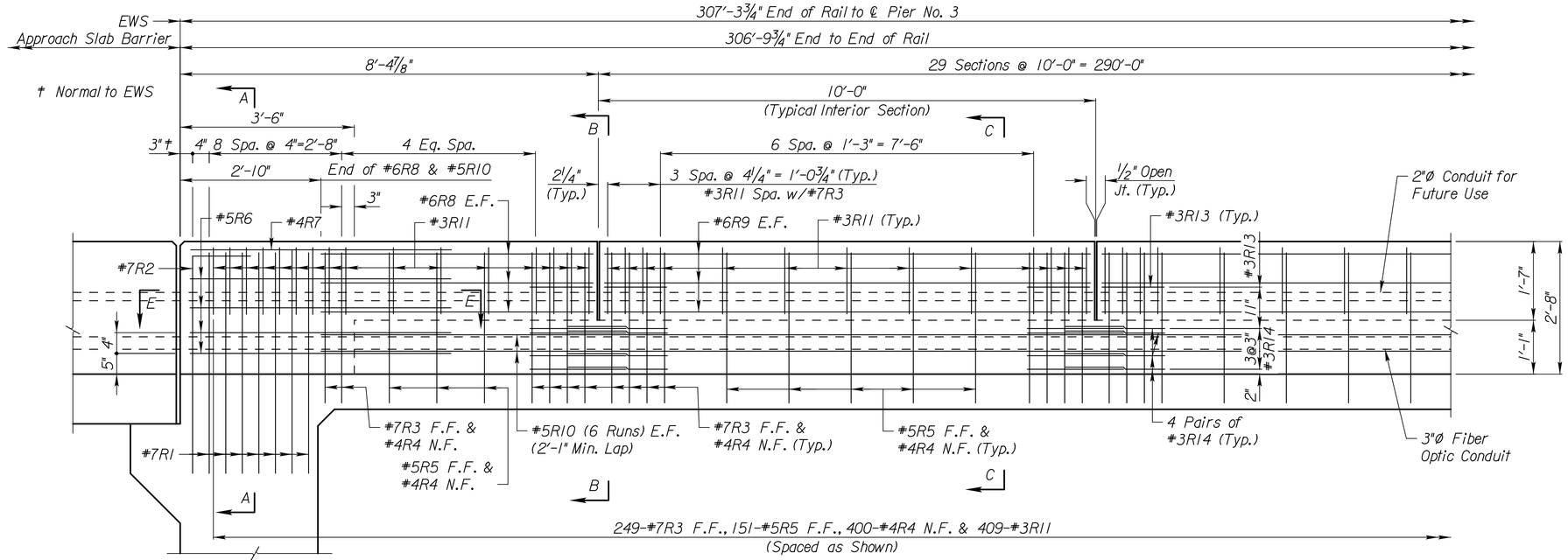
SHEET NO. 637 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

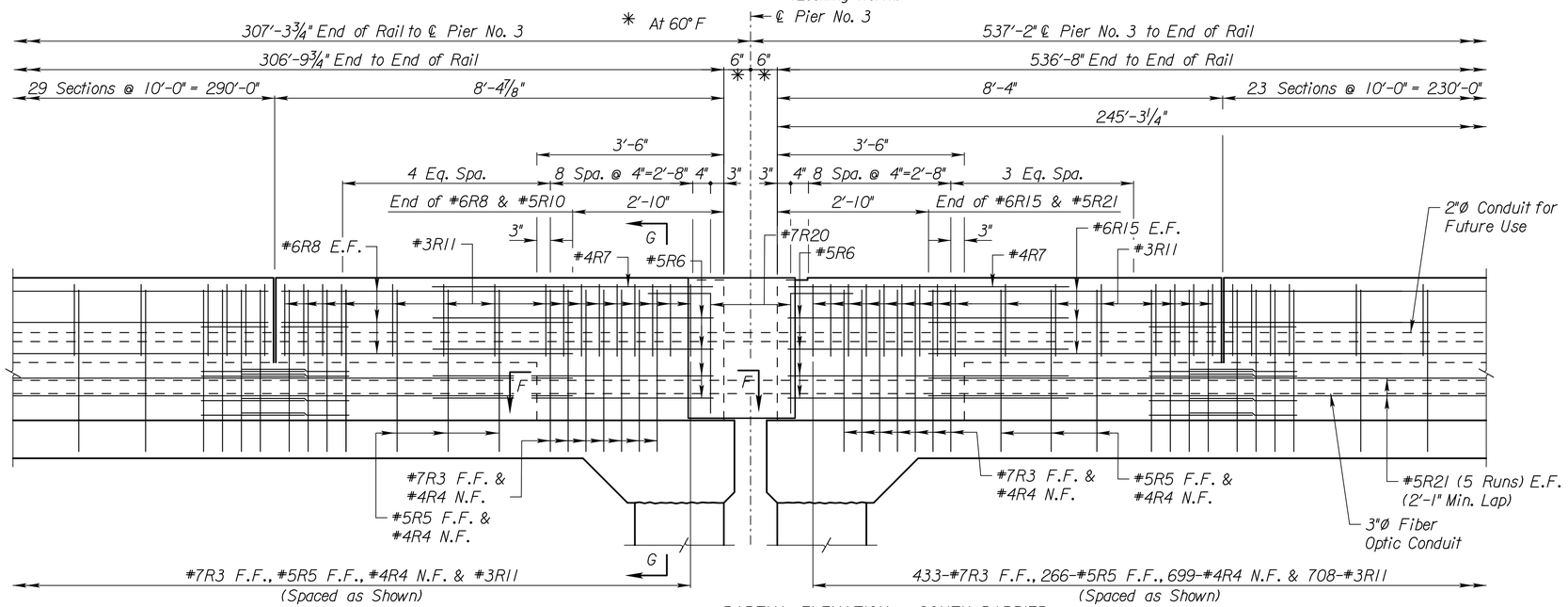
CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
HAUNCH DIAGRAMS



PARTIAL ELEVATION - SOUTH BARRIER
(Looking North)



PARTIAL ELEVATION - SOUTH BARRIER
(Looking North)

Notes:

All longitudinal dimensions are measured along traffic face of Bridge Rail for South Barrier.

For Section A-A, B-B, C-C, E-E and G-G, see Sh. No. 642.

Adjust reinforcement to avoid conflict with Pedestrian Rail anchor bolt locations. See Sh. No. 652

For additional information on Concrete Form Liner and Pigmented Stain Treatments, see Sh. No. 661.

E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_corral1.dgn
Plotted : 08-28-24

SHEET NO. 638 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

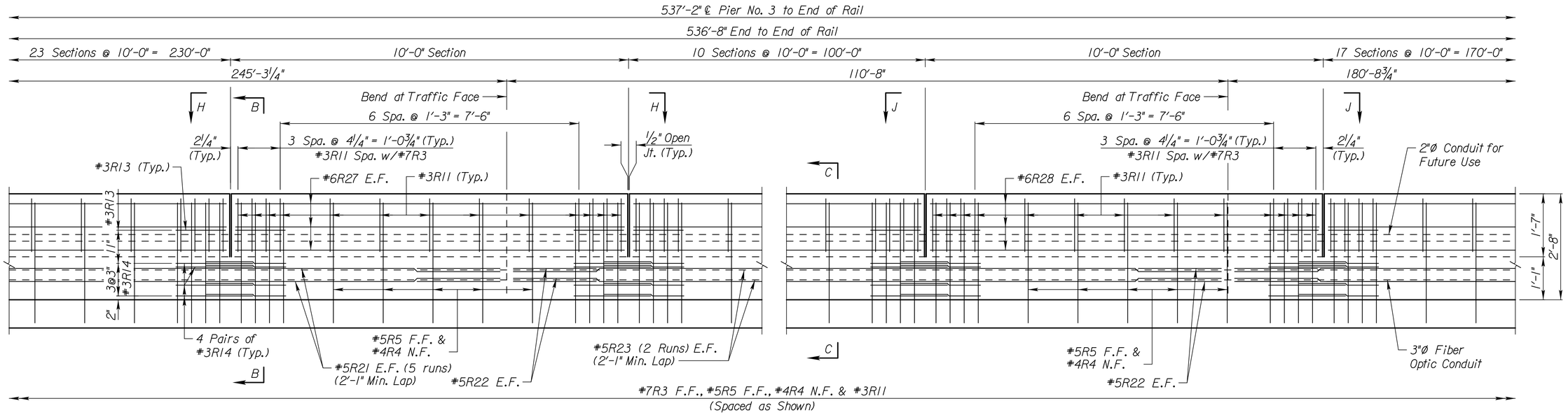
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

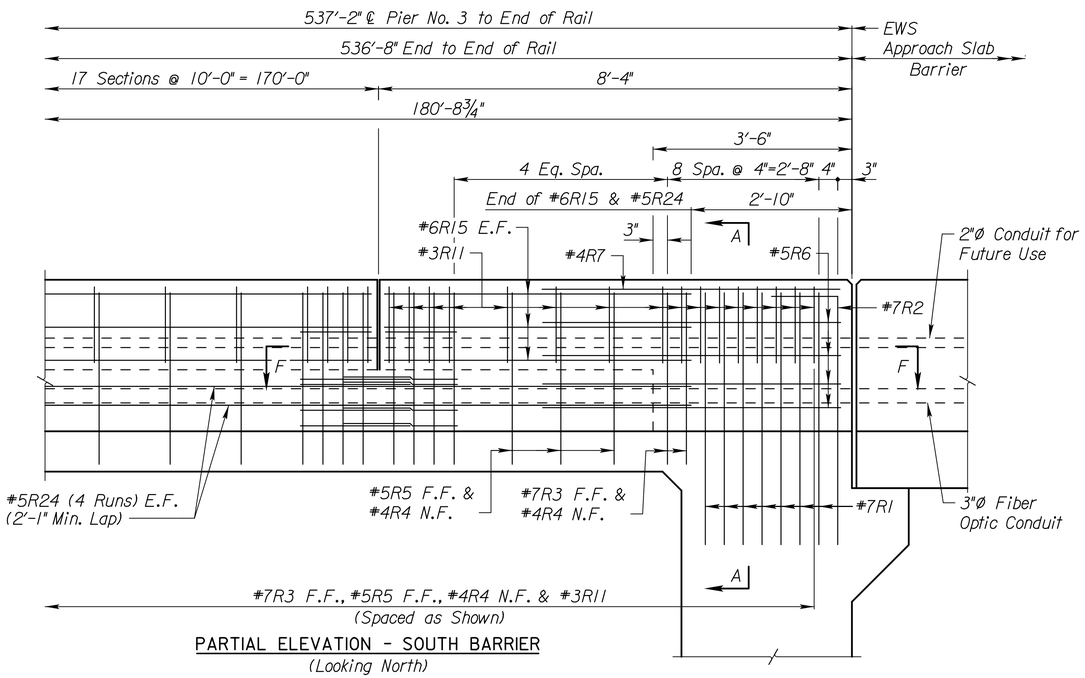
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

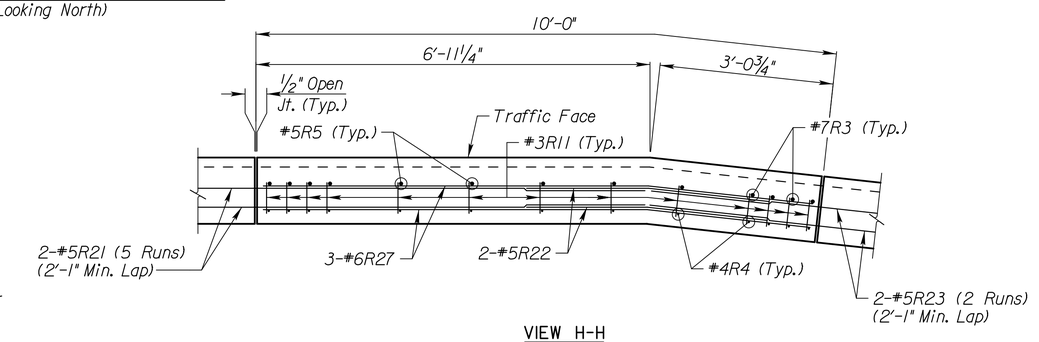
119th Street - Eastbound
CORRAL RAIL DETAILS (10F 5)



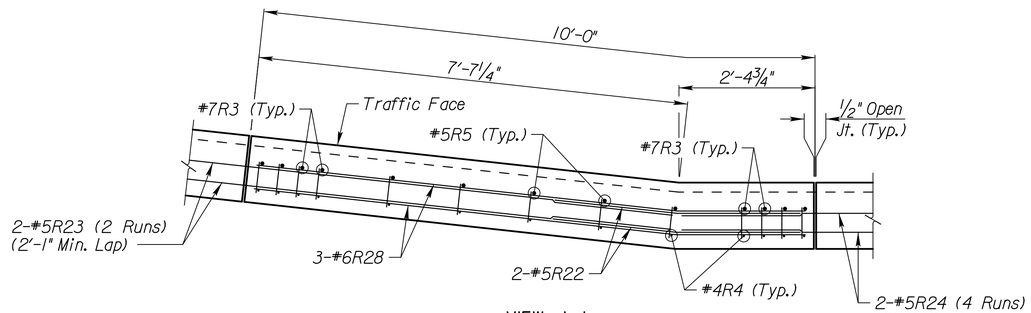
PARTIAL ELEVATION - SOUTH BARRIER
(Looking North)



PARTIAL ELEVATION - SOUTH BARRIER
(Looking North)



VIEW H-H
(#3R13 & #3R14 Bars Not Shown for Clarity)



VIEW J-J
(#3R13 & #3R14 Bars Not Shown for Clarity)

Notes:

All longitudinal dimensions are measured along traffic face of Bridge Rail for South Barrier.

For Section A-A, B-B, C-C and F-F, see Sh. No. 642.

Adjust reinforcement to avoid conflict with Pedestrian Rail anchor bolt locations. See Sh. No. 652

For additional information on Concrete Form Liner and Pigmented Stain Treatments, see Sh. No. 661.

E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_corral2.dgn

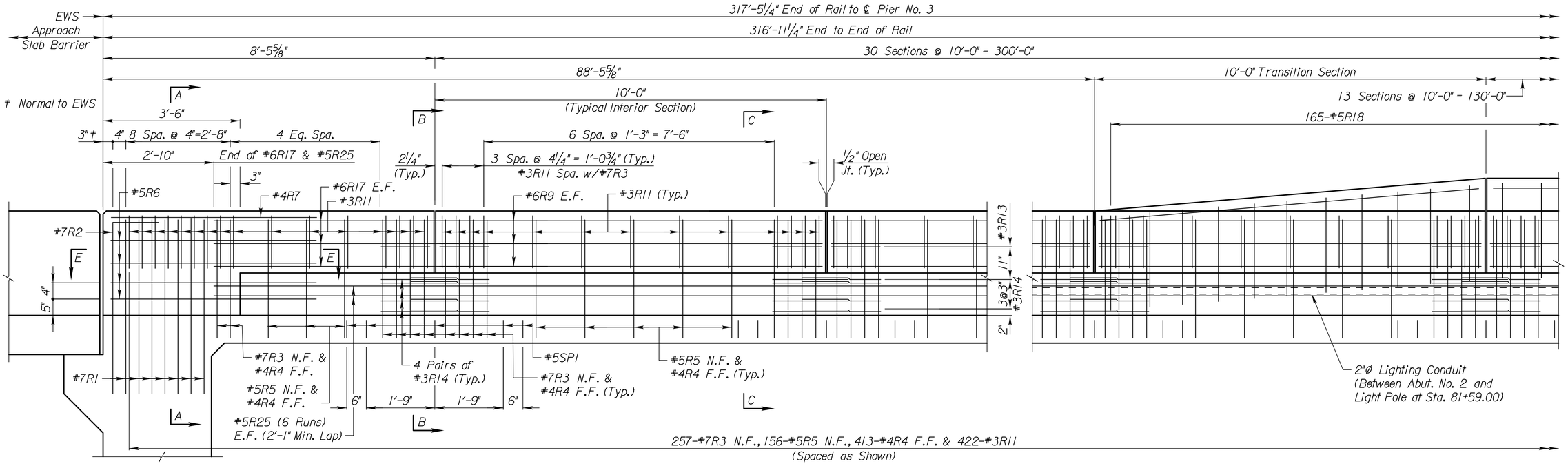
SHEET NO. 639 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

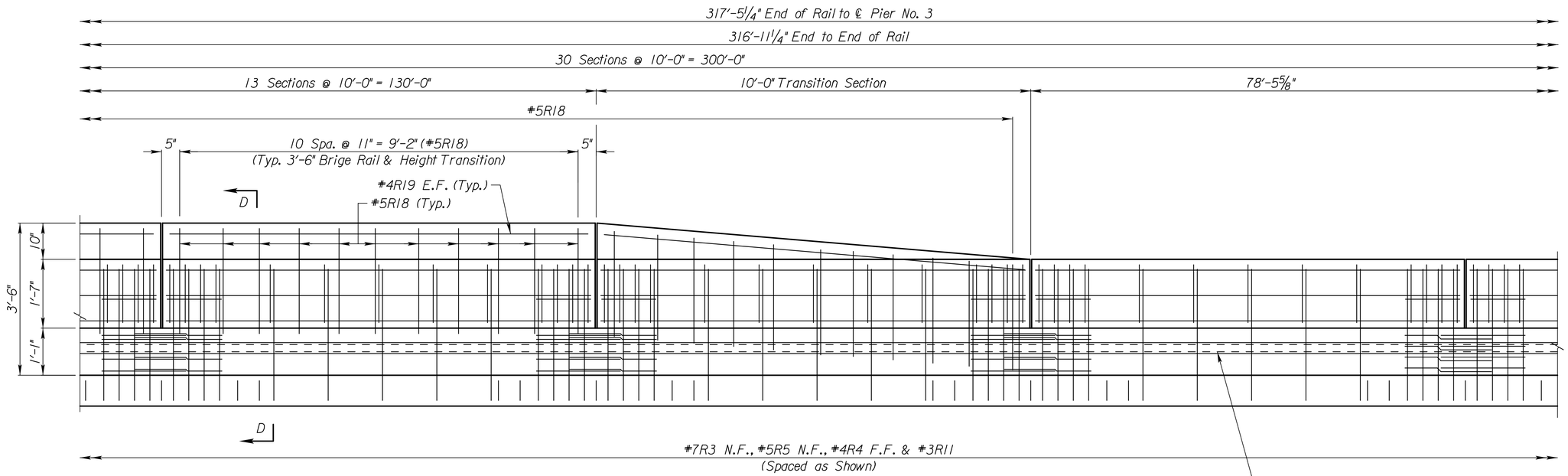
CITY OF OLATHE, KS
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
CORRAL RAIL DETAILS (2 OF 5)



PARTIAL ELEVATION - NORTH BARRIER
(Along Traffic Face)



PARTIAL ELEVATION - NORTH BARRIER
(Along Traffic Face)

Notes:

All longitudinal dimensions are measured along traffic face of Bridge Rail for the North Barrier.

For Section A-A, B-B, C-C, D-D and E-E, see Sh. No. 642.

Adjust reinforcement to avoid conflict with fence anchor bolt locations. See Sh. No. 653

For additional information on Concrete Form Liner and Pigmented Stain Treatments, see Sh. No. 661.

E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_corral3.dgn

SHEET NO. 640 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

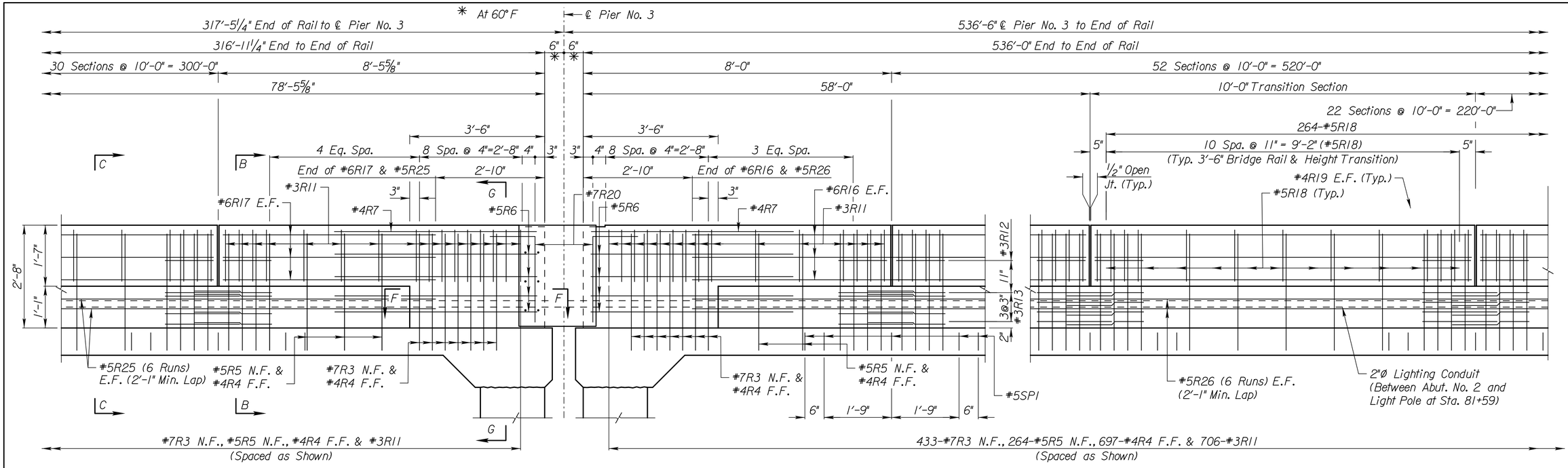
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

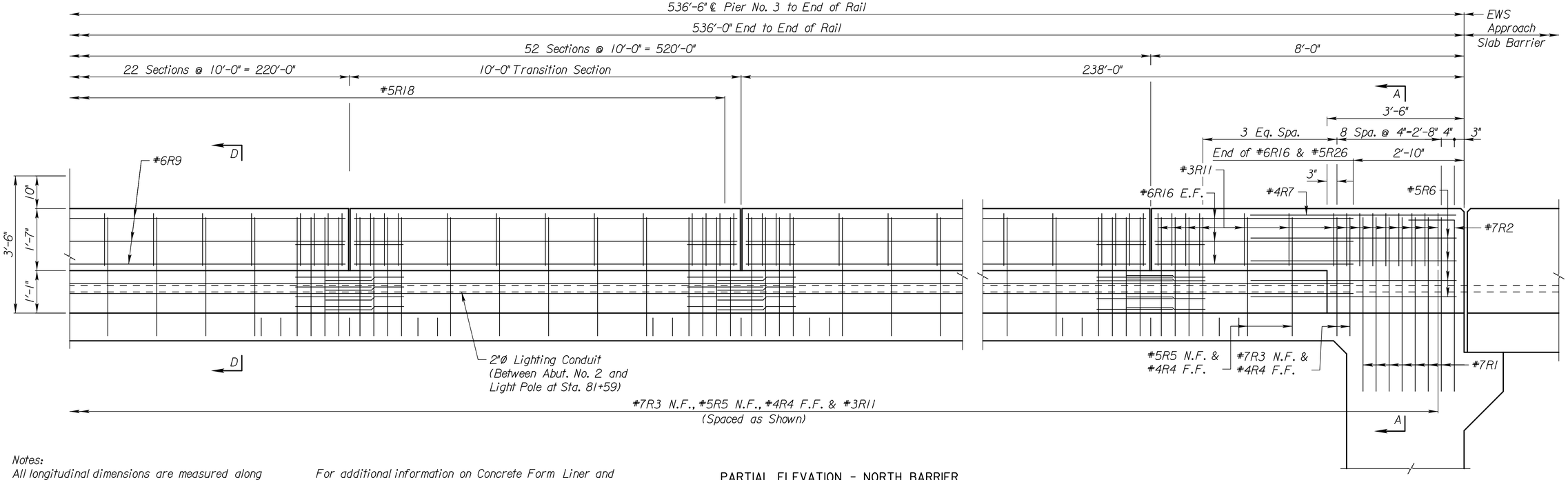
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
CORRAL RAIL DETAILS (3 OF 5)



PARTIAL ELEVATION - NORTH BARRIER
(Along Traffic Face)



PARTIAL ELEVATION - NORTH BARRIER
(Along Traffic Face)

Notes:

All longitudinal dimensions are measured along traffic face of Bridge Rail for North Barrier.

For Section A-A, B-B, C-C, D-D, F-F and G-G, see Sh. No. 642.

Adjust reinforcement to avoid conflict with fence anchor bolt locations. See Sh. No. 653

For additional information on Concrete Form Liner and Pigmented Stain Treatments, see Sh. No. 661.

E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.

SHEET NO. 641 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

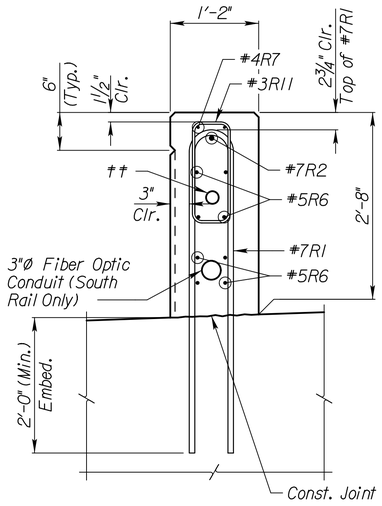
CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.

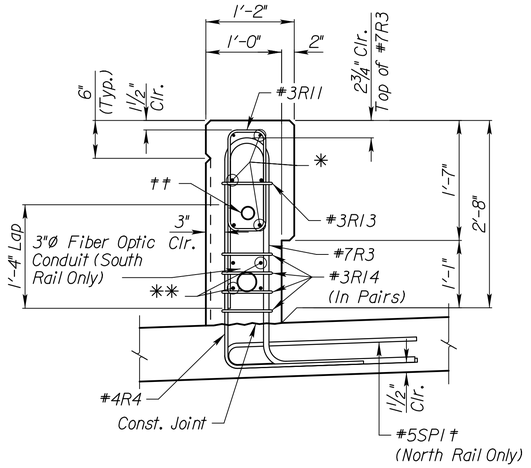
119th Street - Eastbound
CORRAL RAIL DETAILS (4 OF 5)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_corral4.dgn

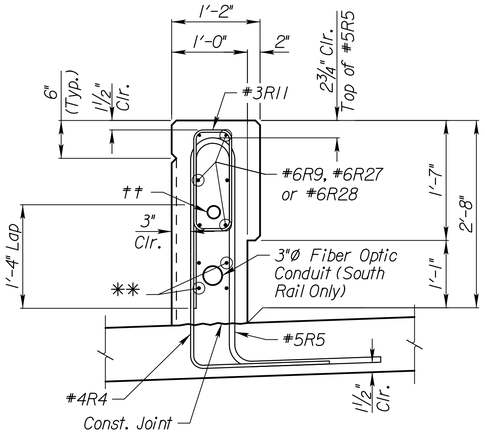
* #6R8, #6R9, #6R15, #6R16, #6R17, #6R27 or #6R28
** #5R10, #5R21, #5R22, #5R23, #5R24, #5R25 or #5R26



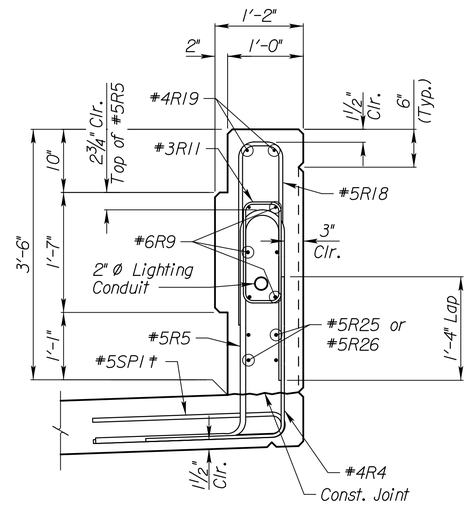
SECTION A-A
(South Rail Shown, North Rail Similar)



SECTION B-B
(South Rail Shown, North Rail Similar)



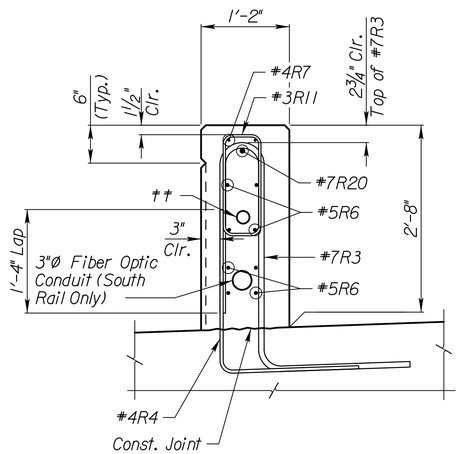
SECTION C-C
(South Rail Shown, North Rail Similar)



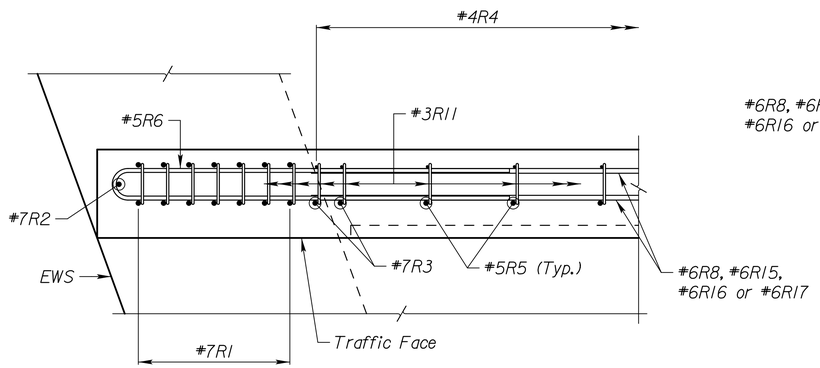
SECTION D-D
(North Rail Only)

† The hook may be canted to provide clearance and/or fit between reinforcing steel

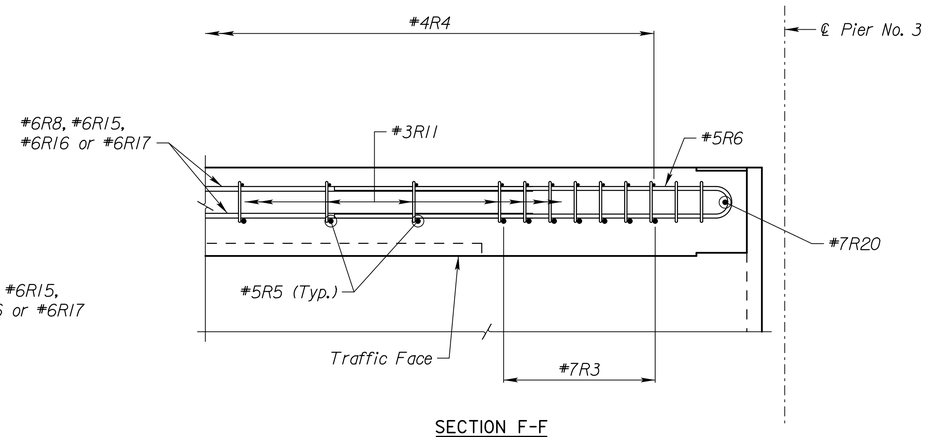
†† 2" ø Lighting Conduit (North Rail Only)
2" ø Conduit for Future Use (South Rail Only)



SECTION G-G
(South Rail Shown, North Rail Similar)



SECTION E-E
(North Rail at Abut. No. 1 Shown, Other Abut. Locations Similar)



SECTION F-F
(North Rail Shown, Other Locations Similar)

SHEET NO.	TOTAL SHEETS
642	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

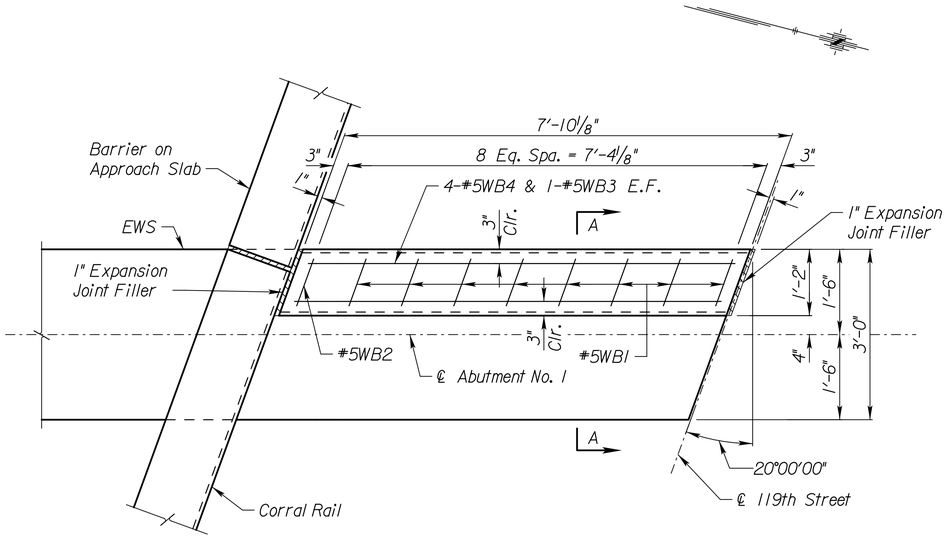
CITY OF OLATHE, KS

OLATHE KANSAS

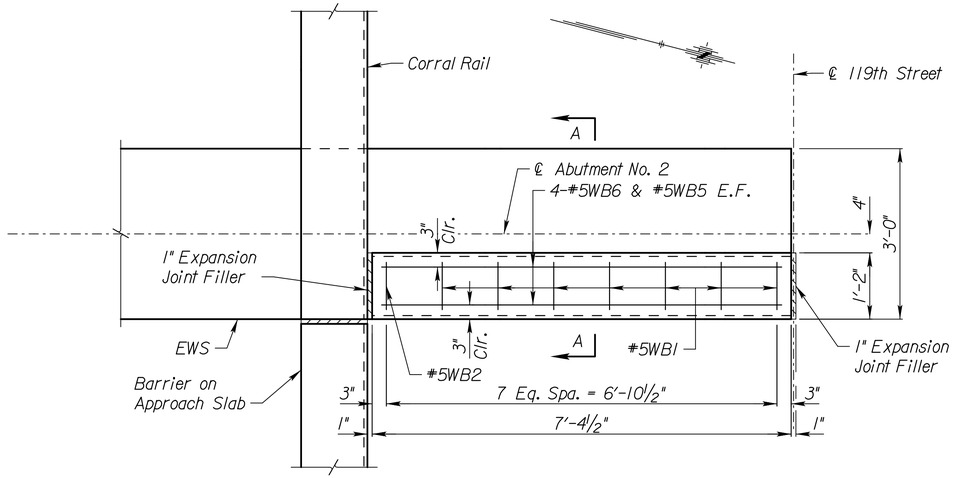
By	Description	Date	Rev.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
CORRAL RAIL DETAILS (5 OF 5)

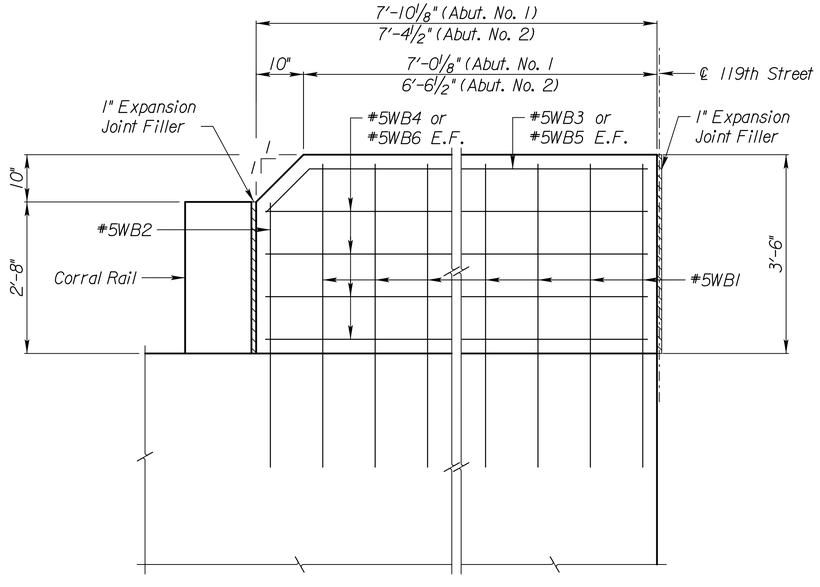
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_corral5.dgn



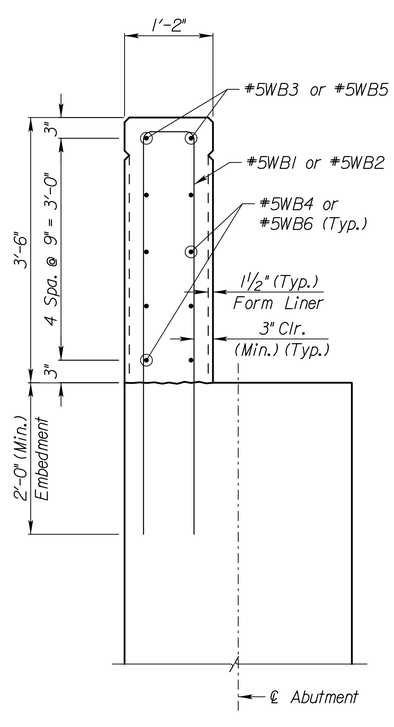
PLAN AT ABUTMENT NO. 1



PLAN AT ABUTMENT NO. 2



ELEVATION



SECTION A-A

SHEET NO.	TOTAL SHEETS
643	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

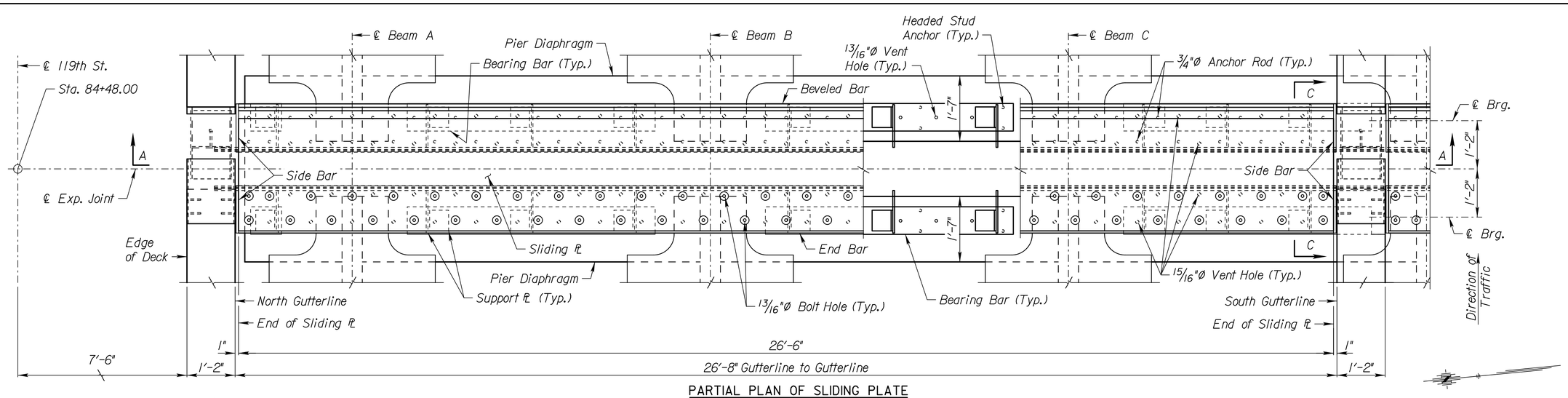
CITY OF OLATHE, KS

OLATHE KANSAS

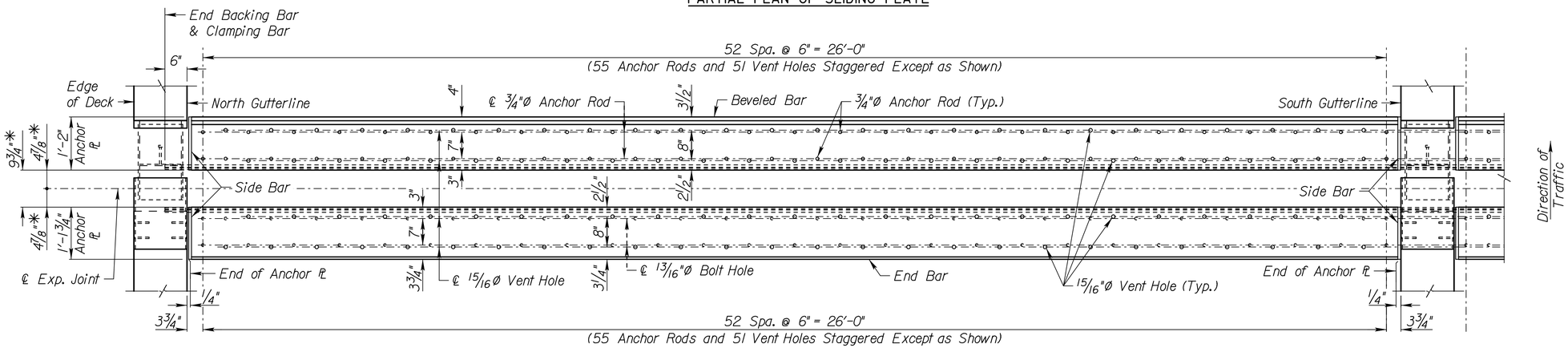
By	Description	Date	Rev.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
WINGWALL BARRIER

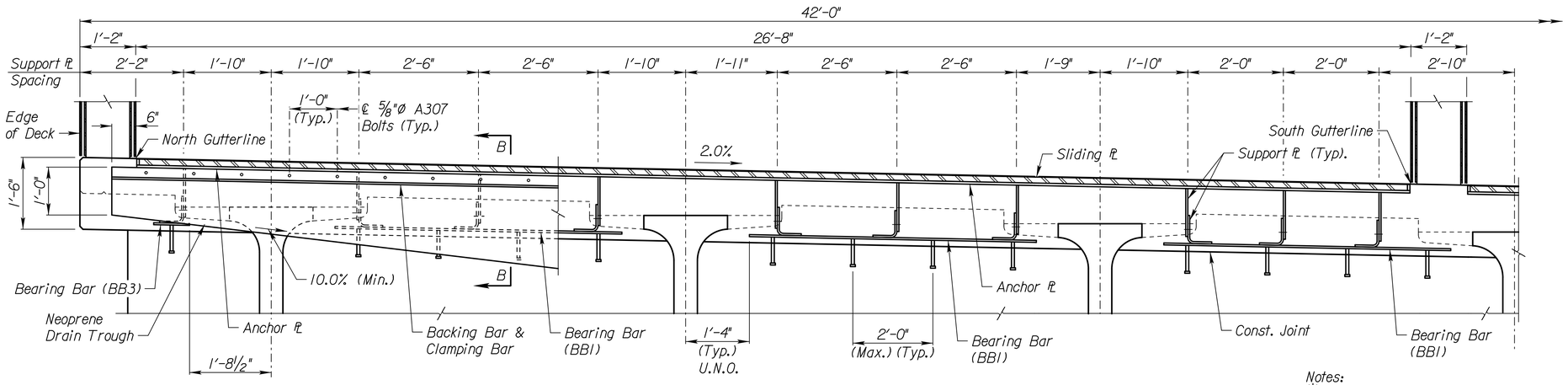
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_WingRail.dgn



PARTIAL PLAN OF SLIDING PLATE



PARTIAL PLAN OF ANCHOR PLATES
(Support ℄'s Not Shown)



SECTION A-A

Notes:
*Indicates dimensions shown at 60° F.
All transverse dimensions are given along ℄ Expansion Joint.
For Section B-B and General Notes, See Sh. No. 646
For Installation Sequence, See Sh. No. 645
For View C-C, See Sh. No. 647

SHEET NO. 644 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

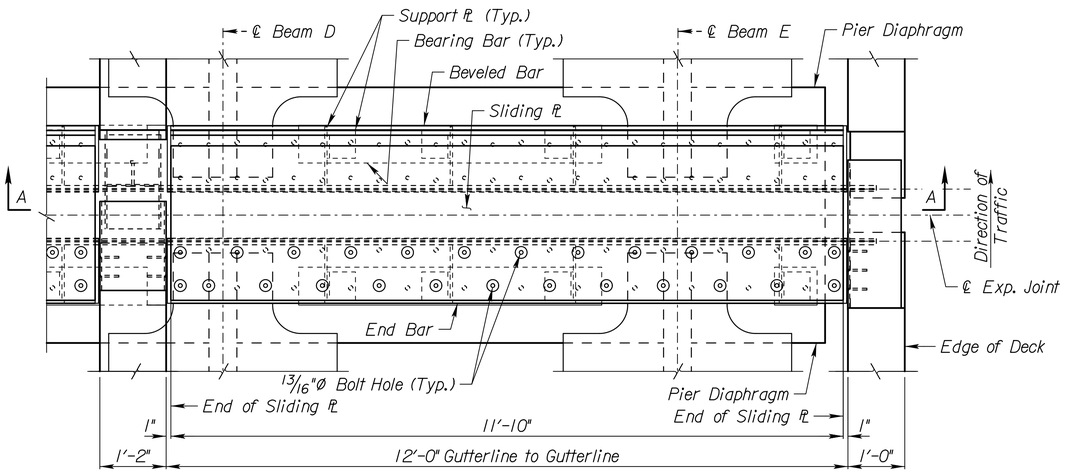
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

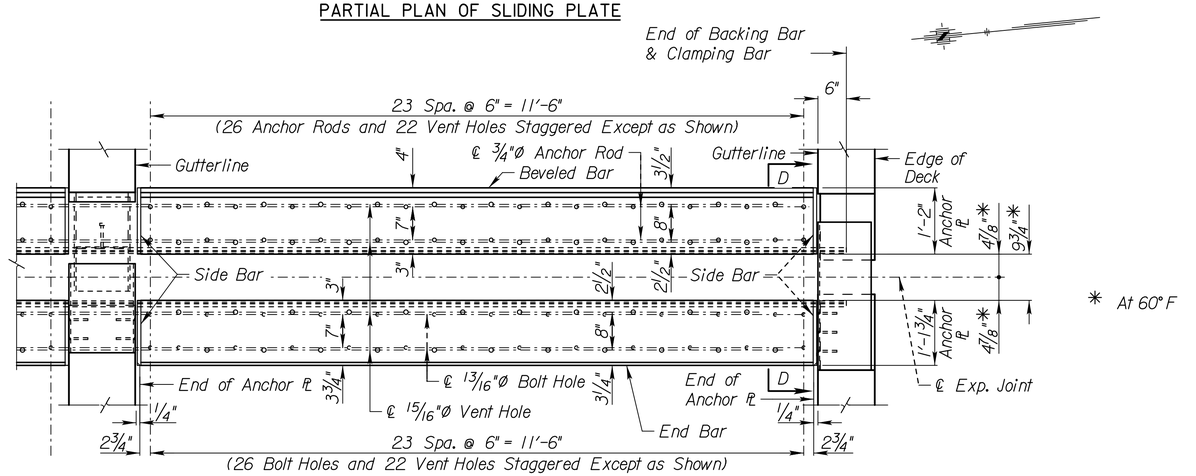
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
EXPANSION JOINT DETAILS (1 OF 4)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Exp.lt1.dgn

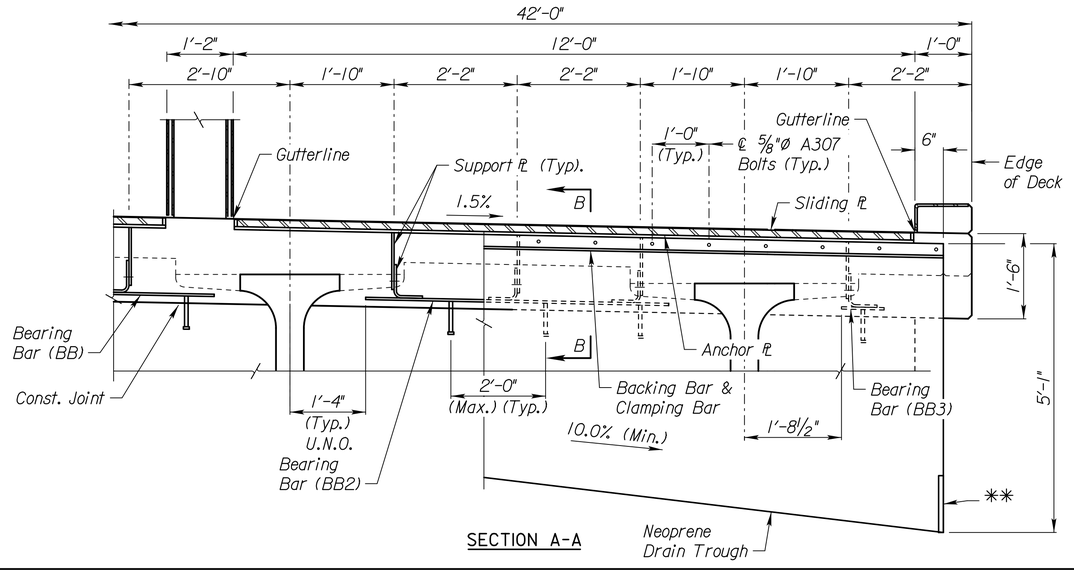


PARTIAL PLAN OF SLIDING PLATE



* At 60° F

PARTIAL PLAN OF ANCHOR PLATES
(Support ℄'s Not Shown)



SECTION A-A

** Bond 1"x36" Strip of Fabric Trough to Exterior Side of Continous Drain Trough for Dip Lip, Centered on Bottom of Trough, 1/2" from end of Trough

SUGGESTED EXPANSION JOINT INSTALLATION SEQUENCE

1. Concrete for the pier diaphragm shall be placed to the construction joint with the bearing bar installed at the proper location. The concrete shall cure a minimum of 3 days prior to installing the anchor units.

2. Bring the anchor units, with sliding plate bolted in place, to proper grade and alignment. Set the top surface of the sliding plate parallel to the roadway slope. Check the scribe lines for proper alignment.

3. Position the bent support plates against the vertical support plates on both anchor units and clamp the bent support plates to the top of bearing bar. Weld the bent support plates to the top of bearing bar.

4. Adjust the expansion joint gap based on the average ambient air temperature during the previous 24 hours. Tighten the bolts (using the turn-of-the-nut method) connecting the bent support plates to the vertical support plates.

5. Remove the sliding plate and place the concrete for the Unit 1 side. Thoroughly vibrate and compact the concrete around the anchor unit until concrete comes through the vent holes and no voids exist under the anchor unit. Allow concrete to cure a minimum of 3 hours before continuing installation.

6. Re-align the anchor unit on the Unit 2 side to proper alignment and grade with the sliding plate in place. Tighten the bolts (using the turn-of-the-nut method) connecting the support angles to the vertical support plates.

7. Remove the sliding plate and place concrete around the Unit 2 side anchor unit. Again, thoroughly vibrate and compact the concrete around the anchor unit until concrete comes through the vent holes and no voids exist under the anchor unit.

8. Three days after concrete placement the Engineer will check for voids and loose bolts by sounding the anchor plate. Fill any voids by drilling through the anchor plate and pumping in an approved epoxy mortar at a minimum of 75 PSI. This work will be subsidiary to the bid item "Expansion Device (Sliding Plate)".

9. Install the fabric trough and the sliding plate according to KDOT Specifications. Coat all threads of anchor rods and nuts with beeswax just prior to installation and tightening.

10. After installation of the sliding plate, the Engineer shall inspect the plate for alignment. Any portion of the sliding plate that the Engineer determines is misaligned, so that it my be struck by a snow plow, shall be ground as directed by the Engineer. This work will be subsidiary to the bid item "Expansion Device (Sliding Plate)".

11. Clean the trough of all foreign material after the completion of all superstructure work.

For View D-D, See Sh. No. 647 .

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_ExpJt2.dgn

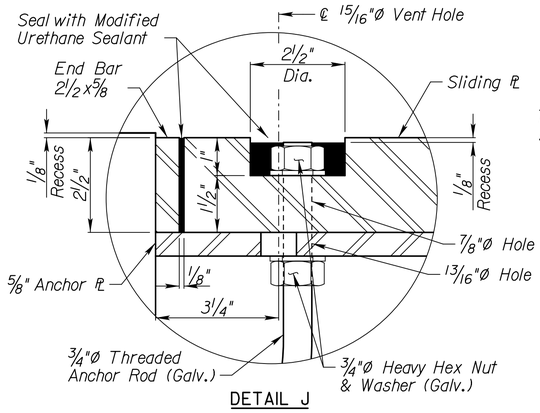
SHEET NO. 645 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

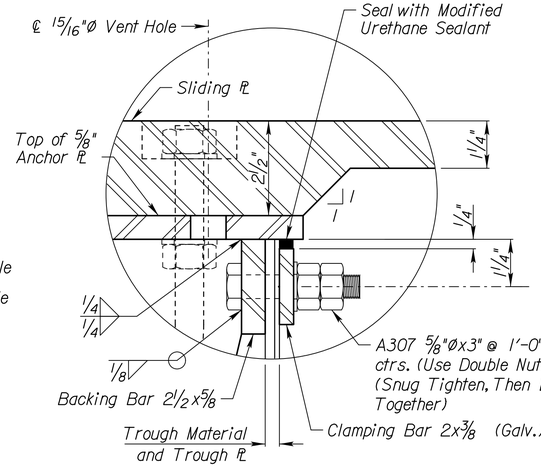
CITY OF OLATHE, KS
OLATHE KANSAS

By	Description	Date	Rev.
.	.	.	.
.	.	.	.
.	.	.	.

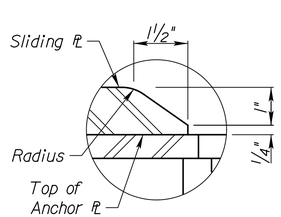
119th Street - Eastbound
EXPANSION JOINT DETAILS (2 OF 4)



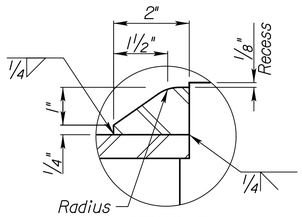
DETAIL J



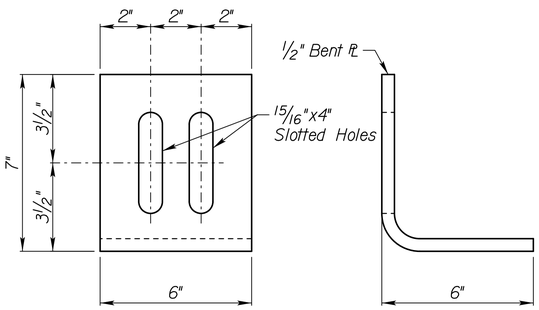
DETAIL H



DETAIL G



DETAIL F



BENT SUPPORT PLATE

GENERAL NOTES

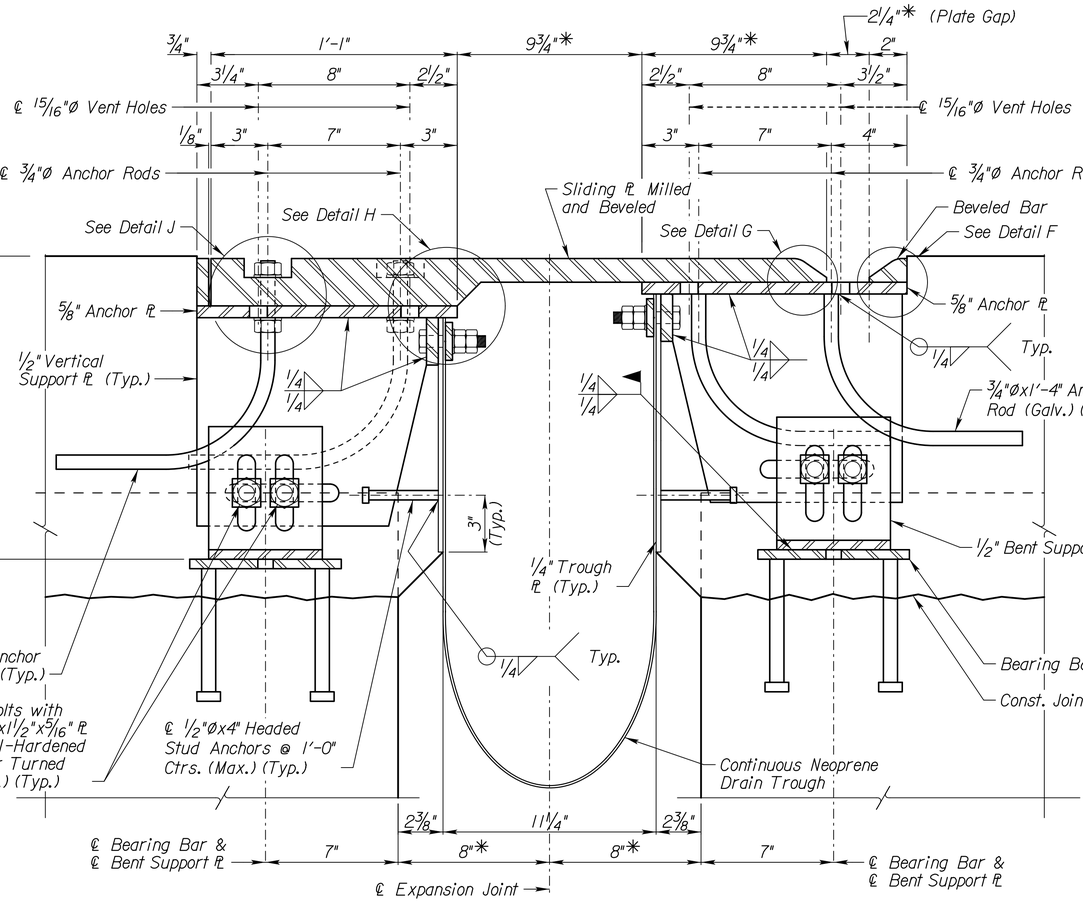
All material and labor shall be paid for by the bid item "Expansion Device (Sliding Plate)" unless noted otherwise. All steel plates and bars shall be ASTM A709 Grade 36 steel, except sliding plate shall be AASHTO M270 Grade 50 (T3). No weathering steel is allowed.

Anchor rods shall meet the requirements of AASHTO M314 with 55 ksi yield strength. The threads may be rolled or cut. Torque anchor rod nuts to 110 ft./lbs. minimum. Tighten the high-strength bolts (used to align the device) using the turn-of-the-nut method. Use special plate washers over the slotted holes in the bent support and the vertical support plates. Use a hardened washer under the turned element of the fastener.

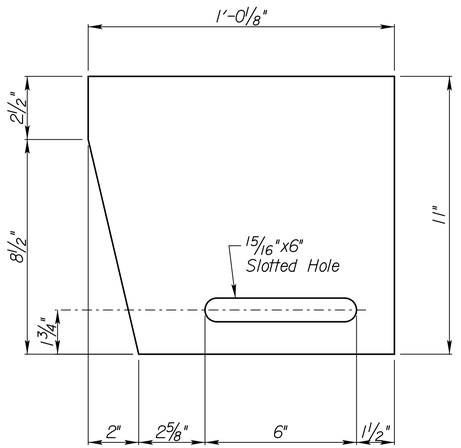
Galvanize all structural steel after fabrication except the bent support plates and bearing bars. Shop paint the bent support plates and bearing bars with an approved inorganic zinc primer to a nominal dry film thickness of 3 mil. Galvanize in accordance with ASTM A123. Galvanize the barrier plate assemblies after fabrication.

Galvanize all anchor rods, headed stud anchors, bolts, threaded rods and nuts shall meet AASHTO requirements. Ship the galvanized bolts and threaded rods together in the same shipping container in a plastic bag to protect the lubricants. Show proper manufacturer's marking on bolts and threaded rods. Bolts and threaded rods with improper bolt markings will be rejected.

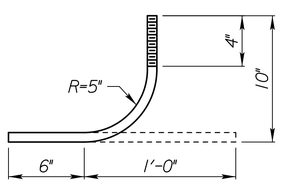
The fabric material for the trough shall meet the requirements of KDOT Specifications. Supply the trough in one continuous piece from end to end. On the exterior side of the continuous trough, provide a stiffening strip at outlet end as shown on Sheet "Expansion Joint Details (2 of 4)".



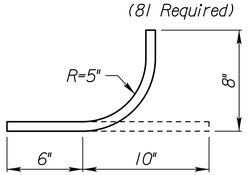
SECTION B-B



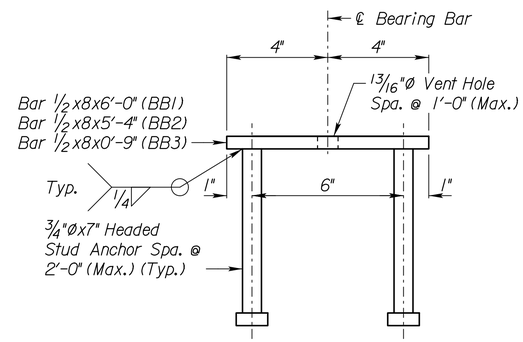
VERTICAL SUPPORT PLATE



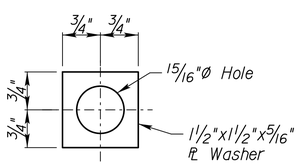
THREADED ANCHOR ROD
(Galv. ¾"x1'-6")
(81 Required)



ANCHOR ROD
(Galv. ¾"x1'-4")
(81 Required)



BEARING BAR



SPECIAL WASHER

Notes:
* Indicates dimensions shown at 60° F.

For location of Section B-B, see Sh. No. 644.

For Installation Sequence see Sh. No. 645.

PLATE GAP							
Temp. F°	30	40	50	60	70	80	90	100
Gap	3 3/8"	3"	2 5/8"	2 1/4"	1 7/8"	1 1/2"	1 1/8"	3/4"

ANCHOR UNIT GAP								
Temp. F°	30	40	50	60	70	80	90	100
Gap	10 7/8"	10 1/2"	10 1/8"	9 3/4"	9 3/8"	9"	8 5/8"	8 1/4"

SHEET NO. 646 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

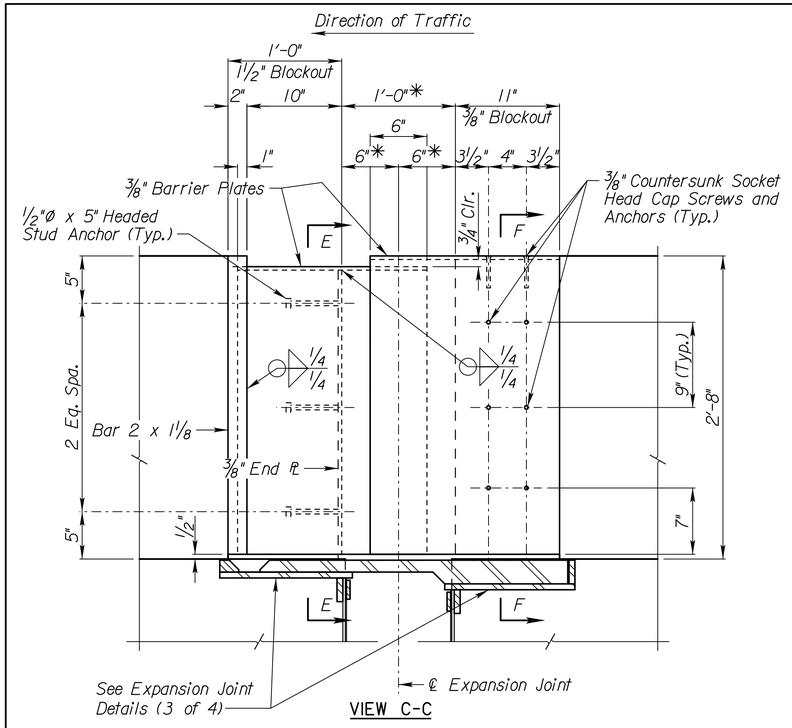
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

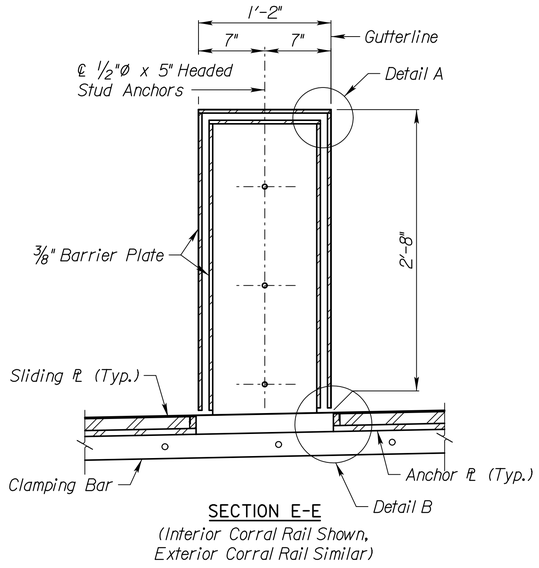
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
EXPANSION JOINT DETAILS (3 OF 4)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_ExpJt3.dgn

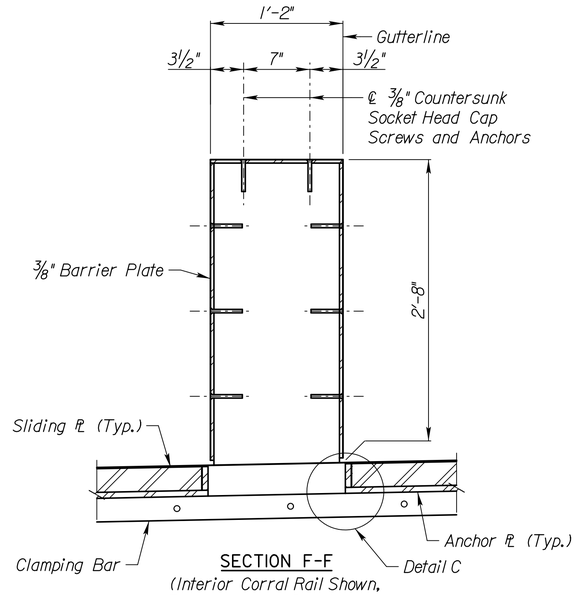


VIEW C-C



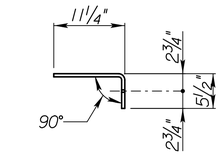
SECTION E-E

(Interior Corral Rail Shown, Exterior Corral Rail Similar)



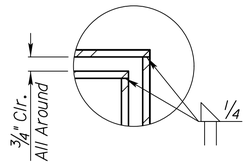
SECTION F-F

(Interior Corral Rail Shown, Exterior Corral Rail Similar)

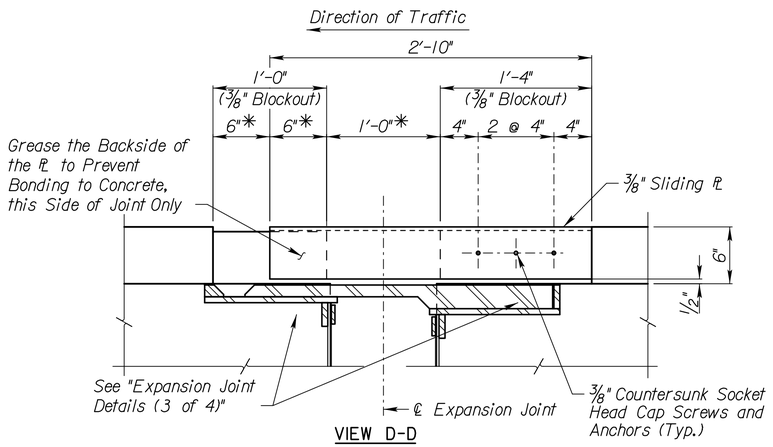


CURB SLIDING ℄ SECTION

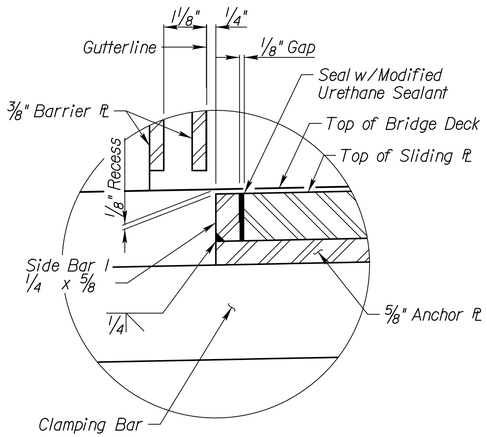
⅜"x1'-4¾"x2'-10" Bent Plate (1 Required)



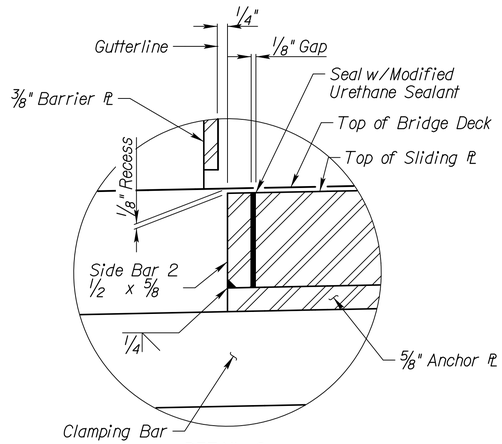
DETAIL A



VIEW D-D



DETAIL B



DETAIL C

Notes:

* *Indicates dimensions shown at 60°F. For Temperature Gap Correction Tables, See Sh. No. 646 .*

Align and install barrier plates prior to placement of barrier concrete.

For location of View C-C, See Sh. No. 644.

For location of View D-D, See Sh. No. 645.

SHEET NO.	TOTAL SHEETS
647	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

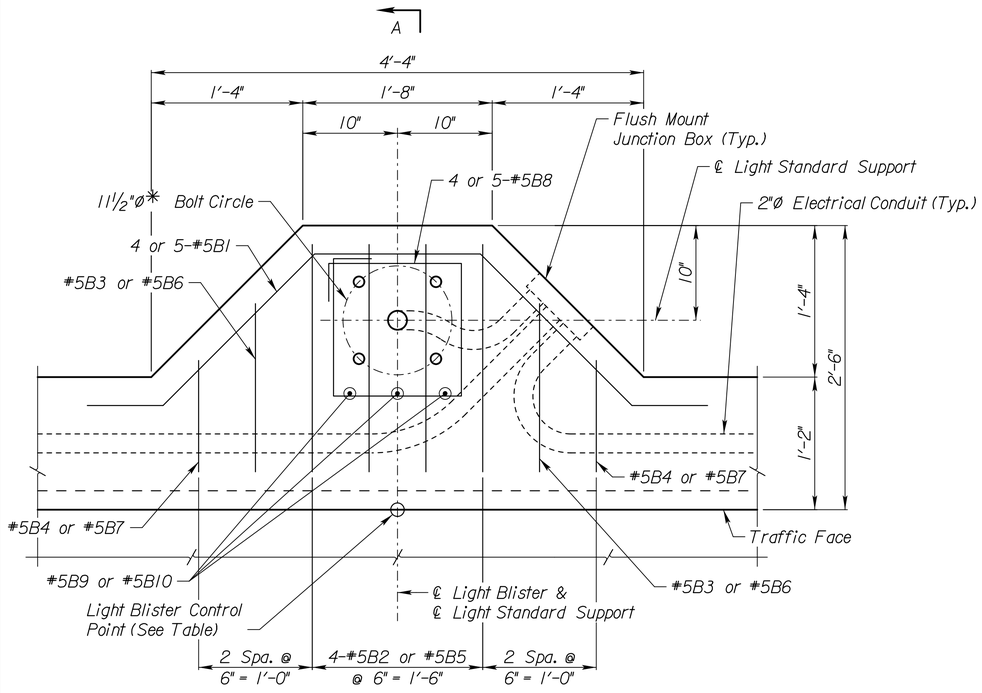
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

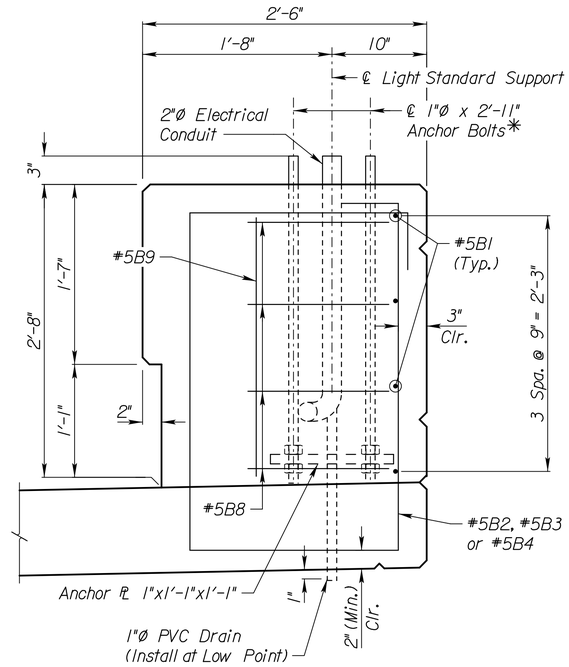
119th Street - Eastbound EXPANSION JOINT DETAILS (4 OF 4)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_ExpJt4.dgn



LIGHT BLISTER PLAN

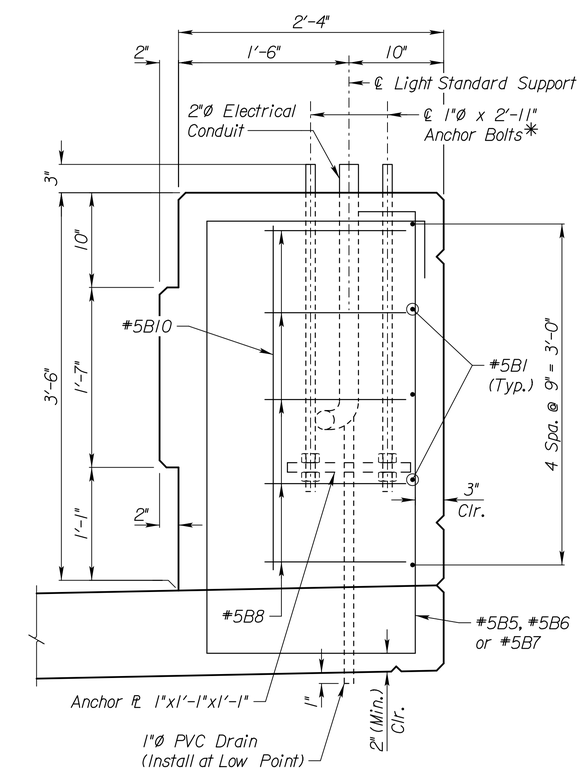
(Barrier Rail Reinforcing Not Shown, Reinforcement may be Shifted to Avoid Conflict with Anchor ℄)



SECTION A-A

At 32" Barrier Rail

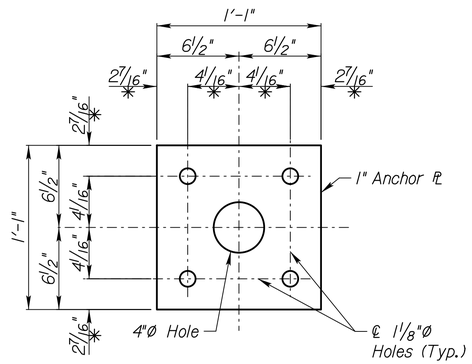
(Barrier Rail and Deck Reinforcing Not Shown)



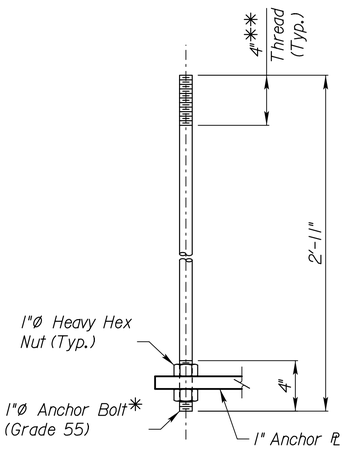
SECTION A-A

At 42" Barrier Rail

(Barrier Rail and Deck Reinforcing Not Shown)



ANCHOR ℄ DETAIL



ANCHOR BOLT DETAIL

(4 Required per Light Blister)

***Provide only Rolled Threads*

LIGHT BLISTER LOCATIONS			
Station	Offset	Side	Barrier Height
81+62.00	8.67'	Rt.	32"
83+52.00	8.67'	Rt.	42"
85+22.00	8.67'	Rt.	42"
87+30.00	8.67'	Rt.	42"
89+12.00	8.67'	Rt.	32"

Notes:

**Confirm bolt circle diameter as well as the size, type and length of anchor bolts with the light standard manufacturer before placing concrete for barrier rail.*

All conduit cast in the barrier rail shall be PVC or HDPE and bear the U.L. Label.

All fittings used with PVC or HDPE conduit shall be PVC or HDPE, no metallic fittings are acceptable.

Conduit bends, elbows and offsets shall be accurately formed.

Anchor bolts for lighting standards shall be material and dimensions shown in the plans.

Structural steel for anchor plates shall be ASTM A709 (Grade 36.)

Anchor bolt assembly shall be galvanized according to the requirements of ASTM A153.

Conduit drains, couplings, anchor bolt assemblies and all other hardware and miscellaneous fittings required for the installation of the conduit system will be subsidiary to the bid item "Electric Conduit (2.0") (Non-metallic).

SHEET NO. 648 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

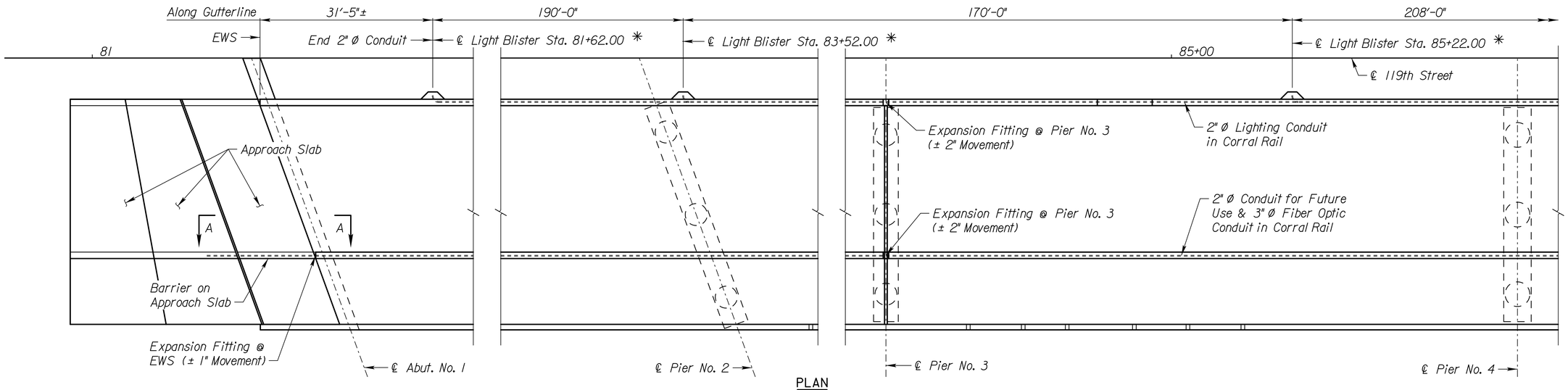
CITY OF OLATHE, KS

OLATHE KANSAS

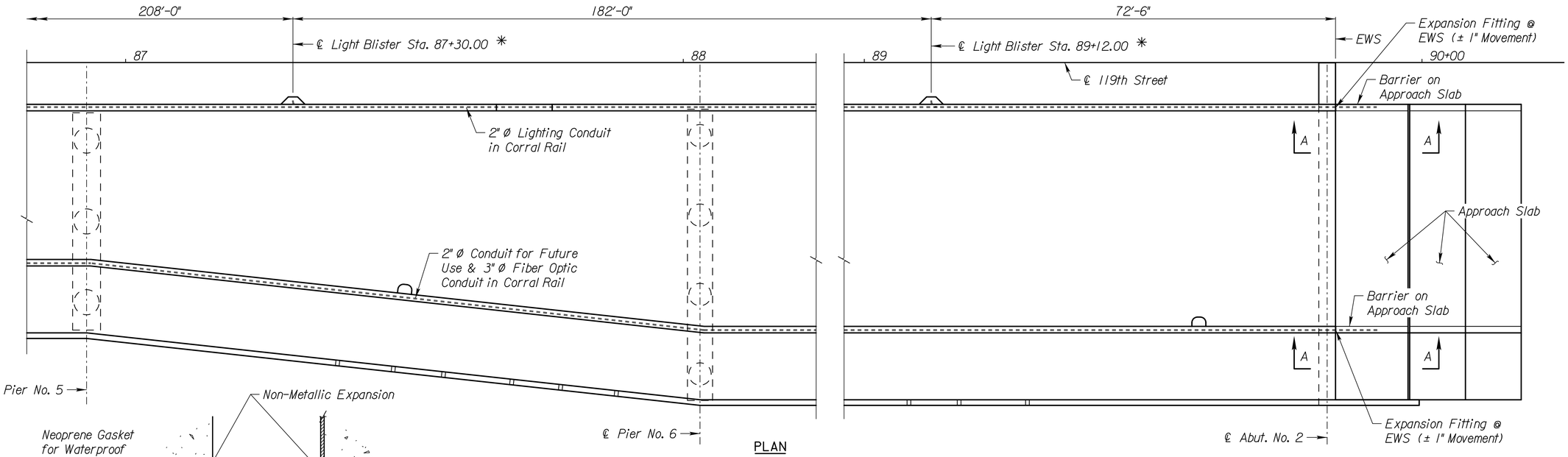
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
STREET LIGHTING FOUNDATION
BLISTER DETAILS

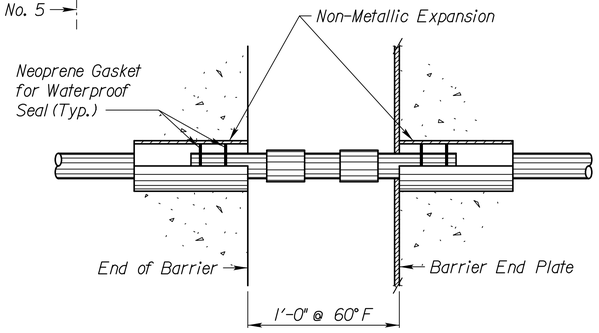
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_LBlister.dgn



PLAN

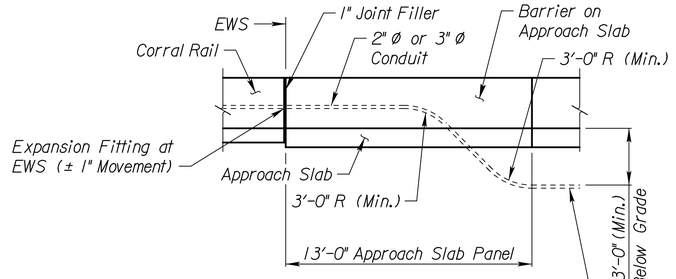


PLAN



EXPANSION FITTING AT PIER NO. 3

(5" Maximum Movement per Fitting)
Temperature Adjustment per 10°F = 3/8"±



SECTION A-A

* Optional Junction Box should be flush mounted at each location. Contractor to show adequate pulls in order to opt out of using junction boxes. Must be approved by the Engineer. For Light Blister and Junction Box details see Sh. No. 648.

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_Conduit.dgn

SHEET NO. 649 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

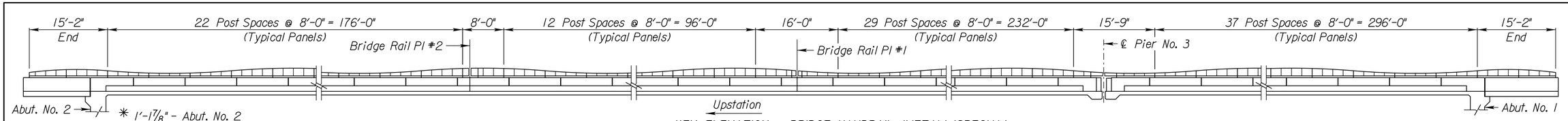
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS

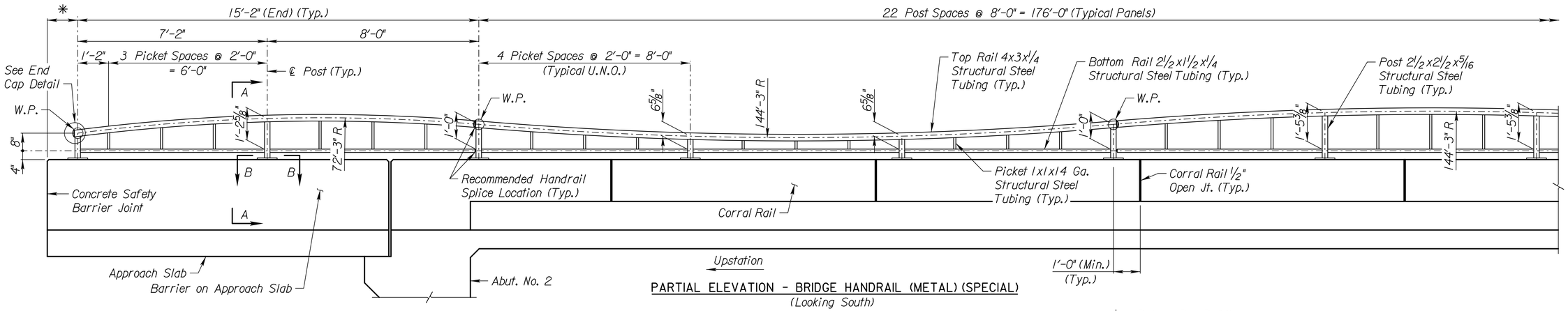
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

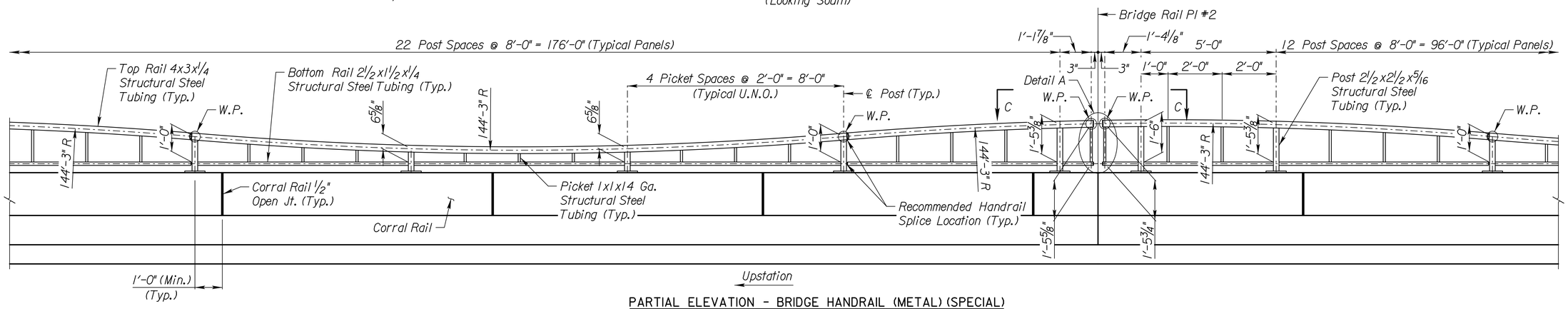
119th Street - Eastbound BRIDGE CONDUIT PLAN



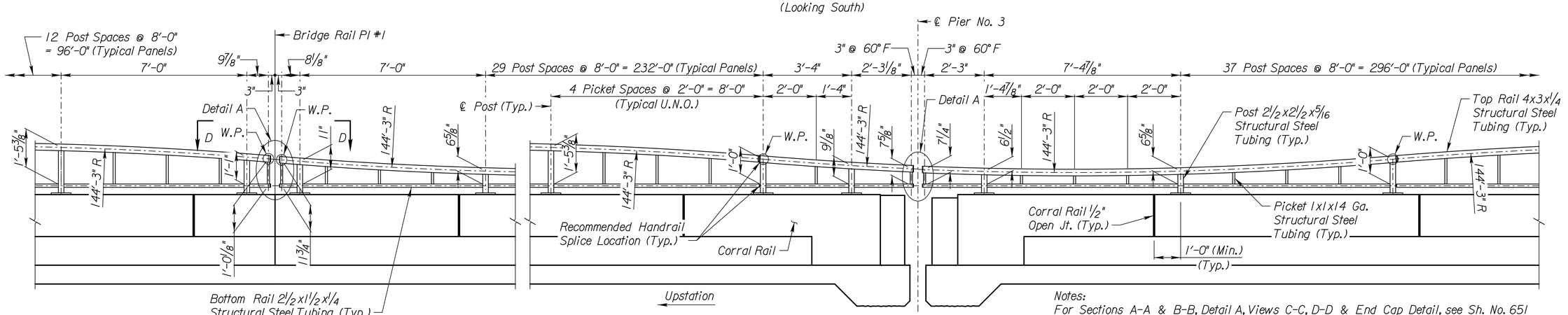
KEY ELEVATION - BRIDGE HANDRAIL (METAL) (SPECIAL)
(Looking South)



PARTIAL ELEVATION - BRIDGE HANDRAIL (METAL) (SPECIAL)
(Looking South)



PARTIAL ELEVATION - BRIDGE HANDRAIL (METAL) (SPECIAL)
(Looking South)



PARTIAL ELEVATION - BRIDGE HANDRAIL (METAL) (SPECIAL)
(Looking South)

Notes:
For Sections A-A & B-B, Detail A, Views C-C, D-D & End Cap Detail, see Sh. No. 651
W.P. = Work Point
U.N.O. = Unless Noted Otherwise

SHEET NO. 650 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

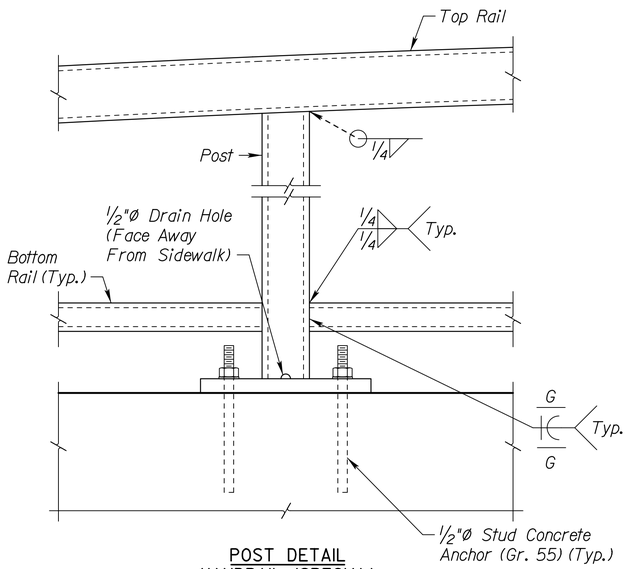
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856
HDR Engineering, Inc.

CITY OF OLATHE, KS

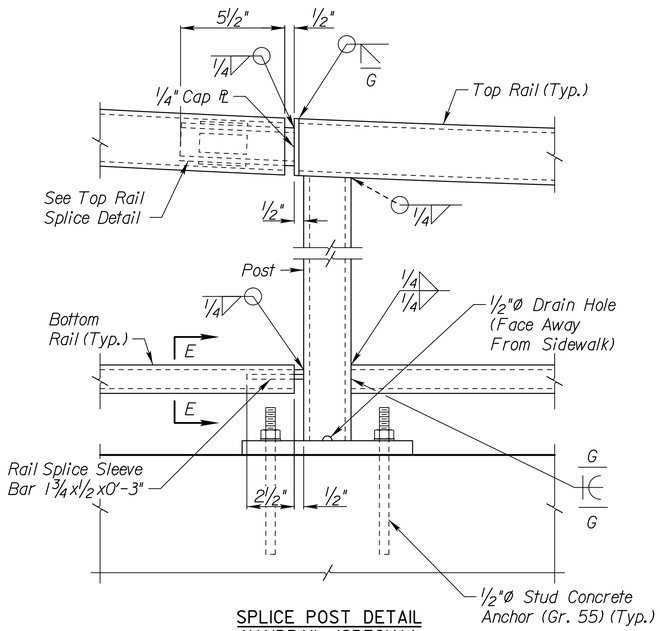
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BRIDGE HANDRAIL (SPECIAL)
DETAILS (1 OF 2)

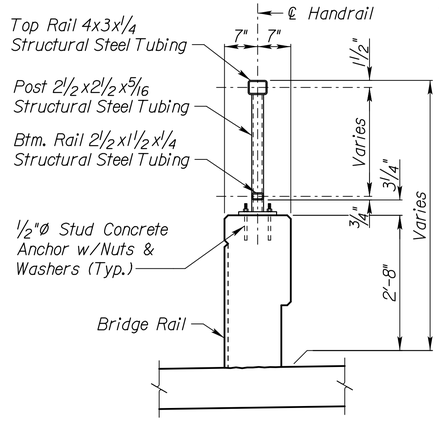
Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_fence1.dgn
Plotted : 08-28-24



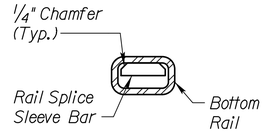
POST DETAIL
HANDRAIL (SPECIAL)



SPLICE POST DETAIL
HANDRAIL (SPECIAL)



SECTION A-A
(Pickets Not Shown)



SECTION E-E

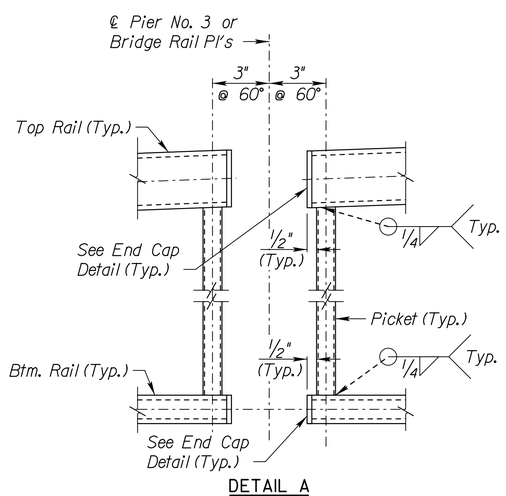
BRIDGE HANDRAIL (METAL)(SPECIAL): Structural tubing shall conform to ASTM A500, Grade B. Base plates, spacer bars and bottom rail splice sleeve bars shall conform to ASTM A709 (Grade 36). Anchor bolts shall conform to KDOT Specification Section 1600 (Grade 55) with the following exception: the threads may be rolled or cut.

Galvanize and paint all rails, posts, pickets and base plates after fabrication. Galvanize in accordance with the requirements of ASTM 123. The paint system shall be as described in Section 1806 of the KDOT Standard Specifications. The finish coat shall be a water-borne acrylic. Color of the finish coat shall be black. After preparing surfaces of the partially weathered galvanized steel, as described in ASTM D6386, apply to all the galvanized materials a two-component, 98 percent polymeric epoxy, amido-amine primer tie coat of approximately 1-2 mils in thickness prior to application of the finish coat. Follow the manufacturer's recommendation for the application and cure time.

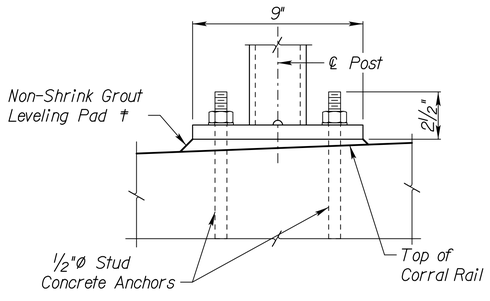
Construct bridge handrail according to Section 721 of the KDOT Standard Specifications. Set all posts and pickets vertical, both in and out of plane of the handrail. Shims may be used between concrete and base plate of steel post. Fabricate handrail in lengths to include a minimum of 2 posts. Splice details shown are recommended locations. Splice locations shall be provided to help facilitate erection in the field. Field welding is not permitted.

Anchor bolt embedment depth shall conform to manufacturer's recommendations for the specific anchor system for embedment into 4,000 psi concrete and a minimum factored load of 3,000 lbs per anchor bolt. Tensile resistance of the anchors shall be determined in accordance with AASHTO LRFD Specifications. Concrete anchor breakout and pullout resistance shall be determined with the strength design provisions of ACI 318-11, Appendix D. The Contractor shall submit verification from the anchor system manufacturer that the anchor system is adequate to resist the specified factored load.

All material, labor, splices, shims and installation shall be paid for under bid item "Bridge Handrail (Metal) (Special)". The handrail is to be bid on a linear basis measured from end to end of handrail. The Contractor shall submit shop drawings to the Engineer for approval prior to fabrication.

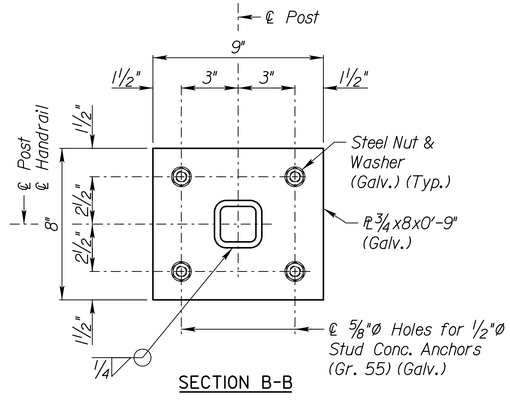


DETAIL A

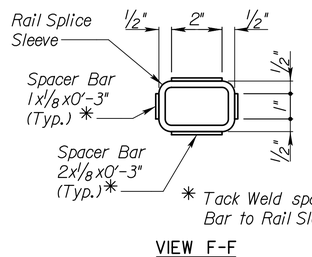


LEVELING PAD DETAIL

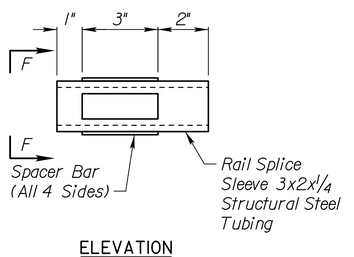
† At the Contractor's option, a grouted leveling pad may be used in lieu of the steel shims to erect the posts vertical and shall have a minimum thickness of 1/4". The leveling pad shall be of a non-shrink grout as approved by the Engineer. The grout shall be mixed, applied and cured according to the manufacturer's recommendations. Grout shall not extend above bottom of the base plate.



SECTION B-B

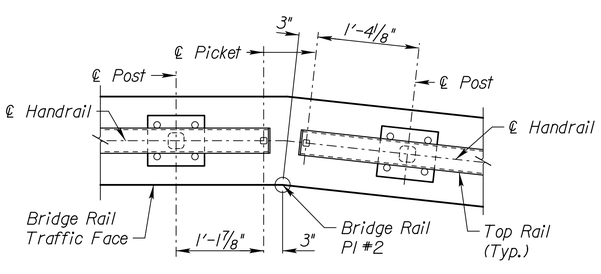


VIEW F-F

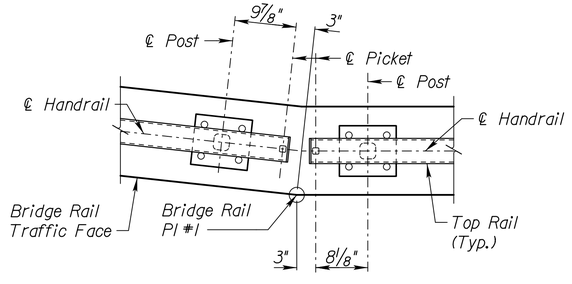


ELEVATION

TOP RAIL SPLICE SLEEVE DETAIL

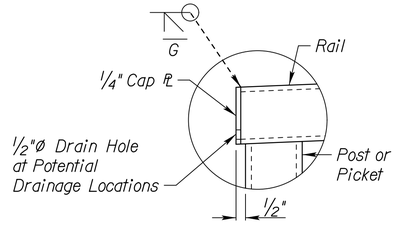


VIEW C-C
(Bottom rail not shown for clarity)

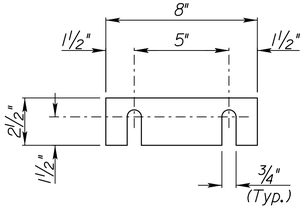


VIEW D-D
(Bottom rail not shown for clarity)

Notes:
For Sections A-A & B-B, Detail A, Views C-C & D-D and End Cap Detail locations, see Sh. No. 650



END CAP DETAIL



SHIM DETAIL
Provide 3-1/16" galv. steel shims for each post as req'd.

SHEET NO.	TOTAL SHEETS
651	781

YEAR 2024

PROJECT NO. 3-C-024-21

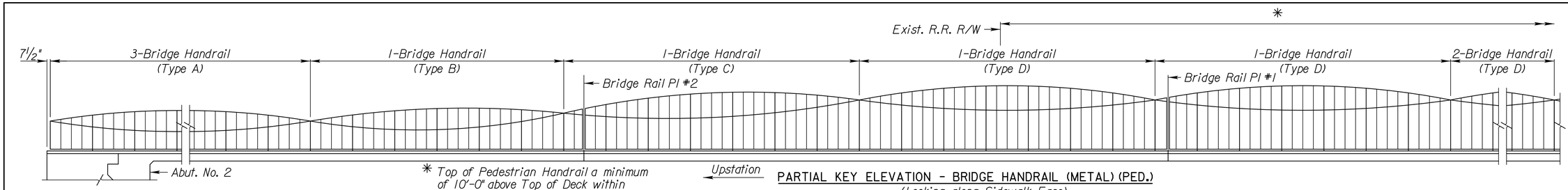
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

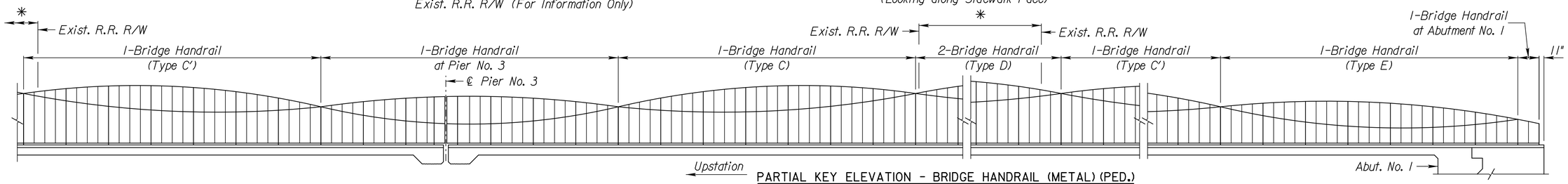
No.	Description	Date	By
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BRIDGE HANDRAIL (SPECIAL)
DETAILS (2 OF 2)

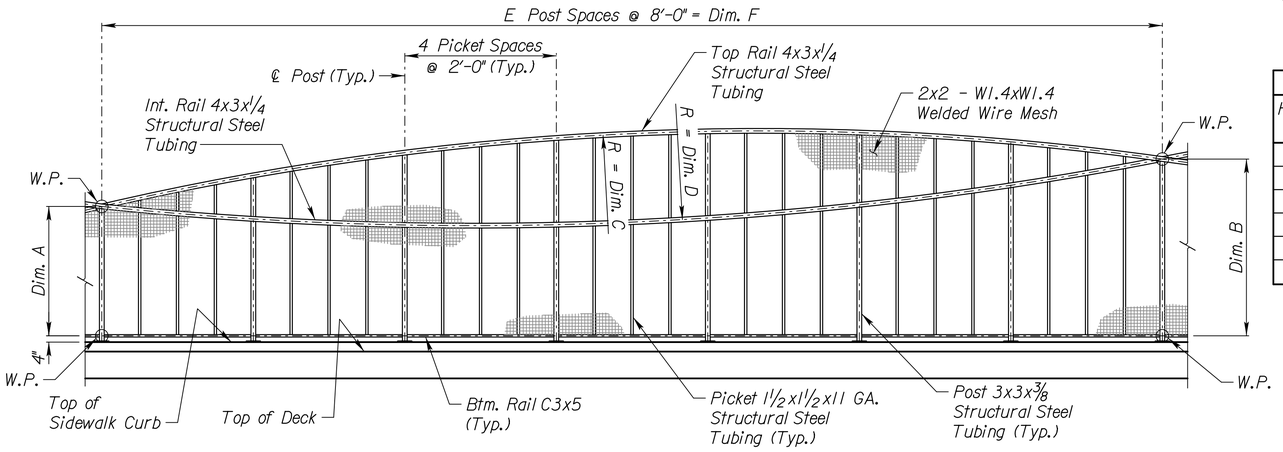
Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_fence2.dgn



PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (PED.)
(Looking along Sidewalk Face)

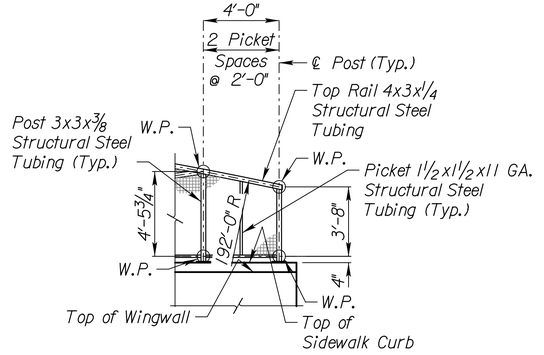


PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (PED.)
(Looking along Sidewalk Face)

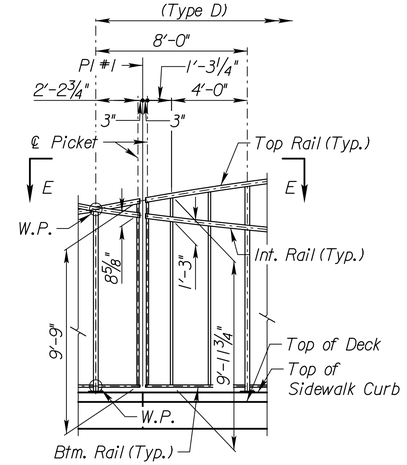


TYPICAL BRIDGE HANDRAIL (METAL) (PED.) ELEVATION
(Looking along Sidewalk Face)

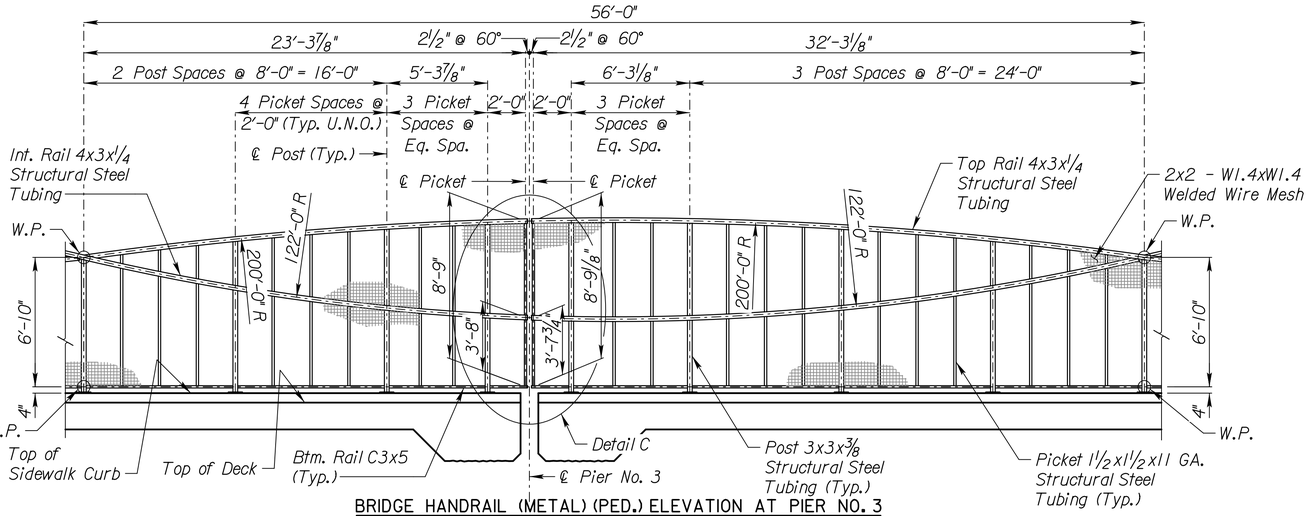
TABLE OF VARIABLES							
Handrail Type	No. Req'd.	Dim. A	Dim. B	Dim. C	Dim. D	E	Dim. F
A	3	5'-4"	5'-4"	145'-0"	145'-0"	6	48'-0"
B	1	5'-4"	6'-10"	178'-0"	122'-0"	6	48'-0"
C	2	6'-10"	9'-4"	153'-0"	190'-0"	7	56'-0"
C'	2	9'-4"	6'-10"	153'-0"	190'-0"	7	56'-0"
D	6	9'-4"	9'-4"	146'-0"	201'-0"	7	56'-0"
E	1	6'-10"	4'-5 3/4"	192'-0"	148'-0"	7	56'-0"



BRIDGE HANDRAIL ELEVATION ABUTMENT NO. 1
(Looking along Sidewalk Face)

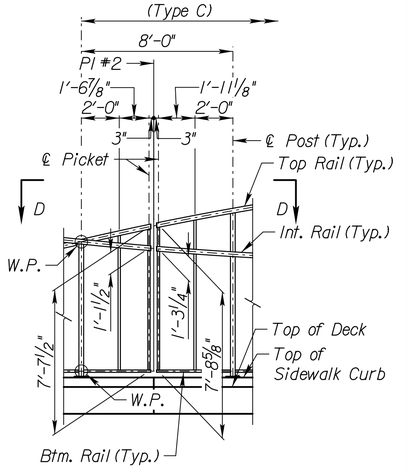


BRIDGE HANDRAIL ELEVATION Pl #1
(Looking along Sidewalk Face)



BRIDGE HANDRAIL (METAL) (PED.) ELEVATION AT PIER NO. 3
(Looking along Sidewalk Face)

Notes:
For Views D-D & E-E, see Sh. No. 655
For Detail C, see Sh. No. 654



BRIDGE HANDRAIL ELEVATION Pl #2
(Looking along Sidewalk Face)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_fence3.dgn

SHEET NO.	TOTAL SHEETS
652	781

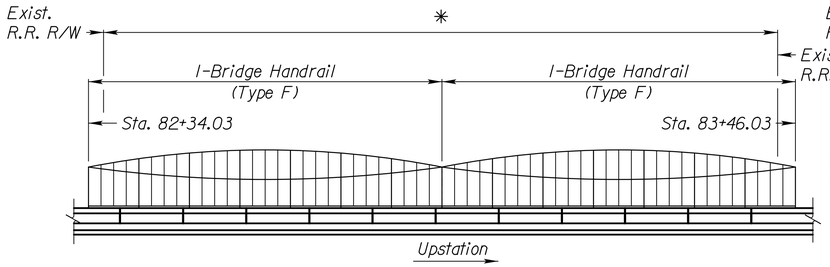
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

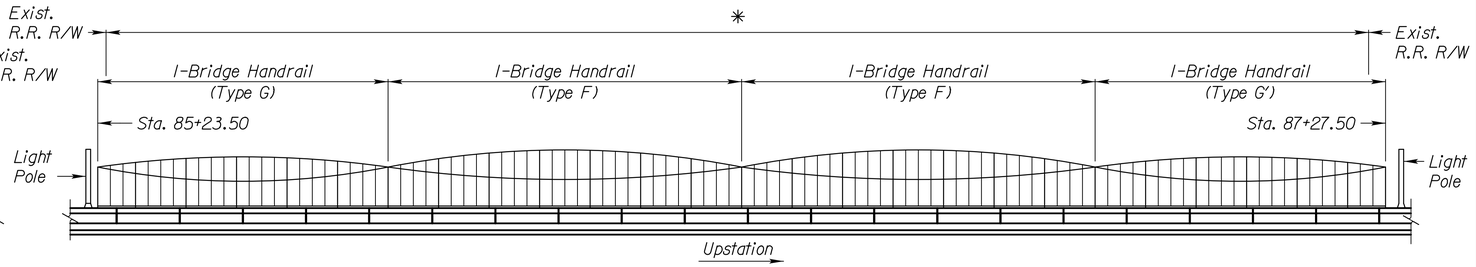
CITY OF OLATHE, KS
OLATHE KANSAS

By	Description	Date	Rev.
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BRIDGE HANDRAIL (PED.) DETAILS

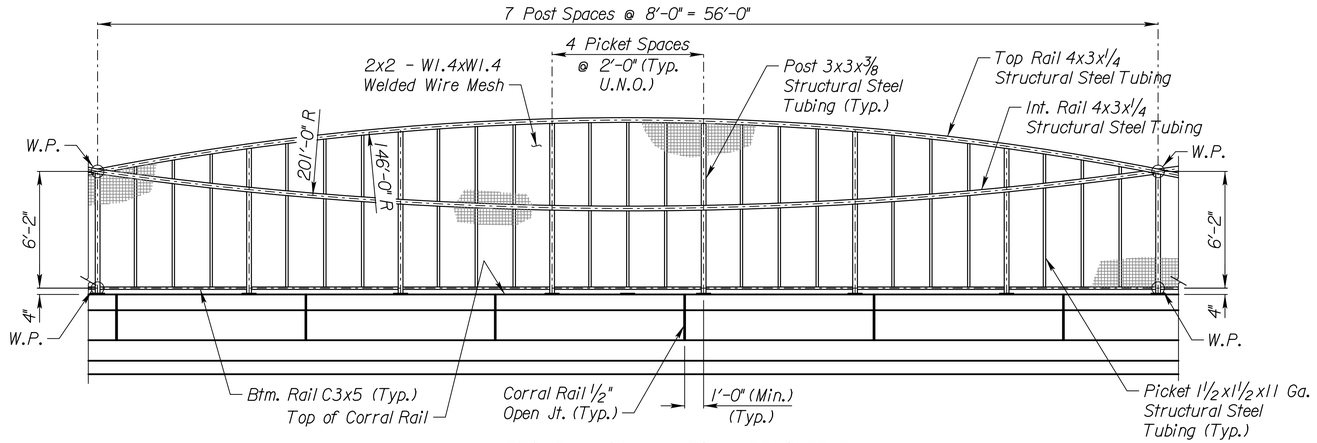


PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (RR)
(Looking at Traffic Face)

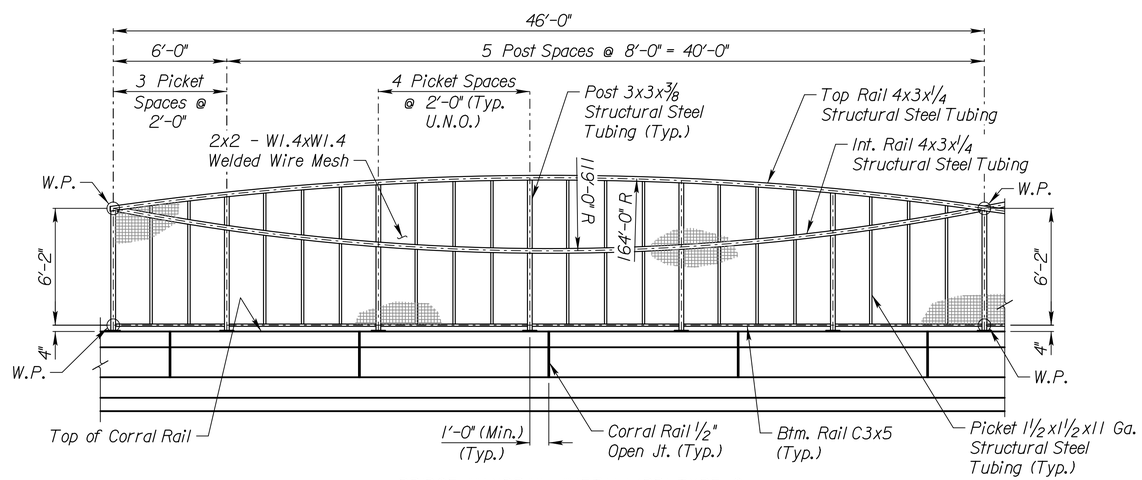


PARTIAL KEY ELEVATION - BRIDGE HANDRAIL (METAL) (RR)
(Looking at Traffic Face)

* *Top of Pedestrian Handrail a minimum of 10'-0" above top of deck within exist. R.R. R/W (For Information Only)*



BRIDGE HANDRAIL (METAL) (RR) TYPE F
(Looking at Traffic Face)



BRIDGE HANDRAIL (METAL) (RR) TYPE G
(Type G Shown, Type G' Opposite)
(Looking at Traffic Face)

BRIDGE HANDRAIL (METAL)(PED.) AND BRIDGE HANDRAIL (METAL)(RR): Structural tubing shall conform to ASTM A500, Grade B. Base plates, spacer bars, bottom rail channels and bottom rail splice sleeve bars shall conform to ASTM A709 (Grade 36). Anchor bolts shall conform to KDOT Specification Section 1600 (Grade 105) with the following exception: the threads may be rolled or cut.

Galvanize and paint all rails, posts, pickets, welded wire mesh, and base plates after fabrication. Galvanize in accordance with the requirements of ASTM 123. The paint system shall be as described in Section 1806 of the KDOT Standard Specifications. The finish coat shall be a water-borne acrylic. Color of the finish coat shall be black. After preparing surfaces of the partially weathered galvanized steel, apply a two-component, 98 percent polymeric epoxy, amido-amine primer tie coat of approximately 1-2 mils in thickness prior to application of the finish coat. Follow the manufacturer's recommendation for the application and cure time.

Wire reinforcing mesh shall be electrically welded and shall be composed of 2x2 - W1.4xW1.4 welded wire mesh. Welded wire mesh shall be welded to the frame no less than one time per foot along edges and pickets. See Welded Wire Mesh Attachment Detail, see Sh. No. 655.

Construct bridge handrail according to Section 721 of the KDOT Standard Specifications. Set all posts and pickets vertical, both in and out of plane of the handrail. Set welded wire mesh level and align vertically between top and bottom panels. Shims may be used between concrete and base plate of steel post. Fabricate handrail in lengths to include a minimum of 2 posts. Splice details shown are recommended locations. Splice locations shall be provided to help facilitate erection in the field. Field welding is not permitted.

Anchor bolt embedment depth shall conform to manufacturer's recommendations for the specific anchor system for embedment into 4,000 psi concrete and a minimum factored load of 15,000 lbs per anchor bolt. Tensile resistance of the anchors shall be determined in accordance with AASHTO LRFD Specifications. Concrete anchor breakout and pullout resistance shall be determined with the strength design provisions of ACI 318-11, Appendix D. The Contractor shall submit verification from the anchor system manufacturer that the anchor system is adequate to resist the specified factored load.

All material, labor, splices, shims and installation shall be paid for under bid item "Bridge Handrail (Metal) (Ped.)" and "Bridge Handrail (Metal) (RR)". The handrail is to be bid on a linear basis measured from end to end of handrail. The Contractor shall submit shop drawings to the Engineer for approval prior to fabrication.

SHEET NO. 653 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

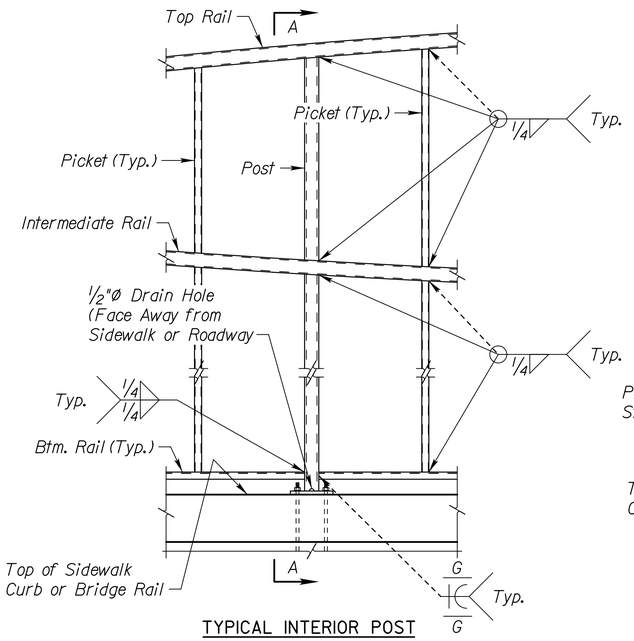
HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS
OLATHE KANSAS

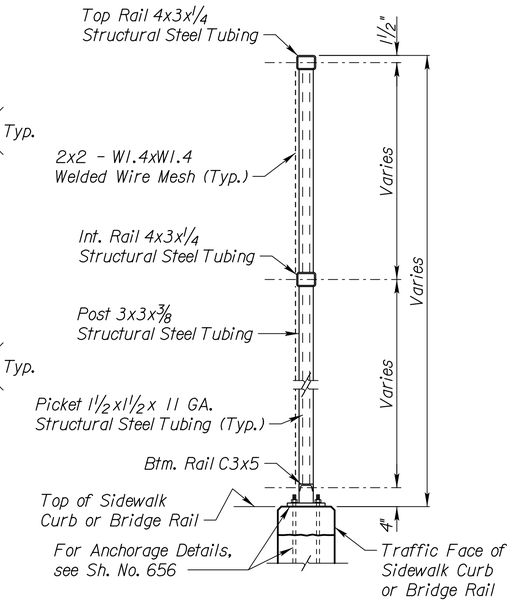
Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BRIDGE HANDRAIL (RR) DETAILS

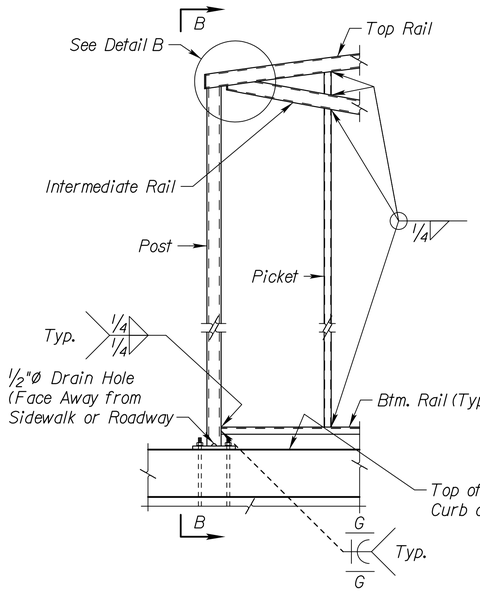
Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_fence4.dgn
Plotted : 08-28-24



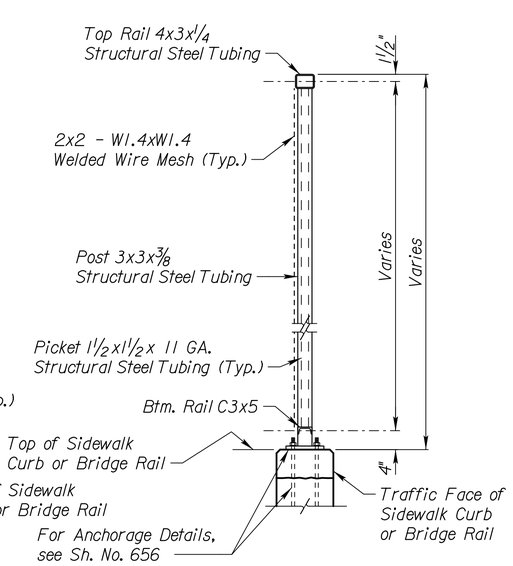
TYPICAL INTERIOR POST



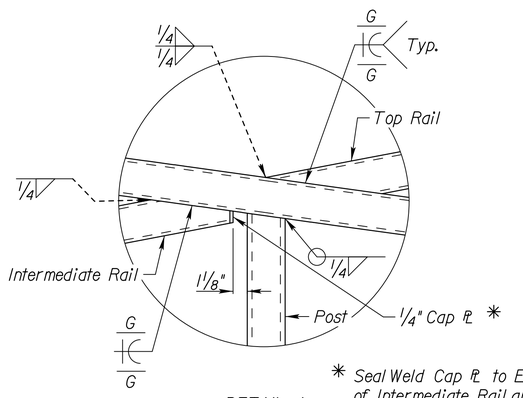
SECTION A-A



TYPICAL END POST

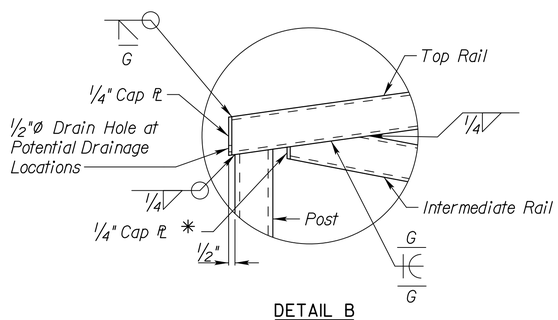


SECTION B-B

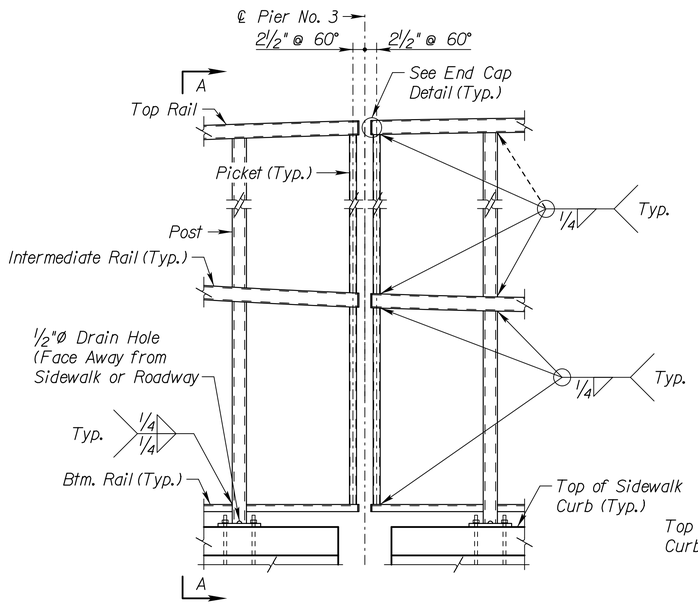


DETAIL A

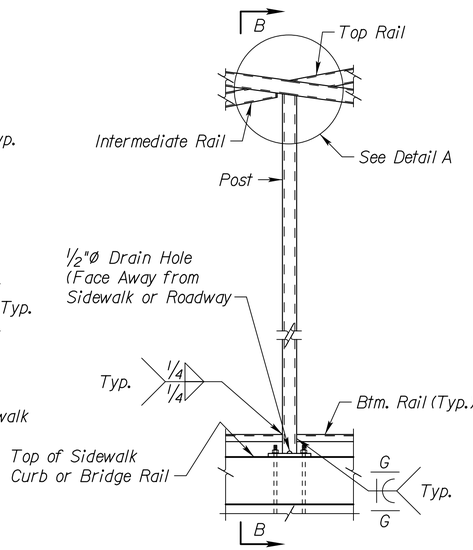
* Seal Weld Cap fl. to End of Intermediate Rail and Bottom of Top Rail



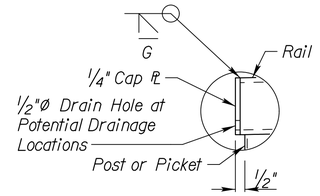
DETAIL B



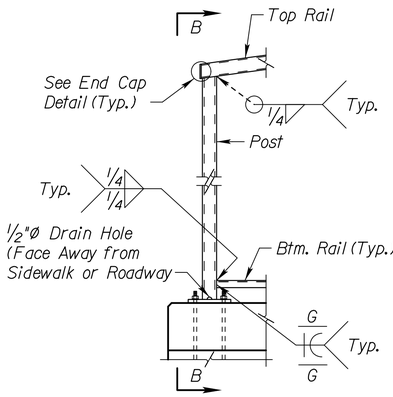
DETAIL C



TYPICAL POST AT W.P.



END CAP DETAIL



BRIDGE HANDRAIL (METAL)(PED.)
DETAIL AT ABUTMENT NO. 1

Note:
For location of Detail C, see Sh. No. 652

SHEET NO.	TOTAL SHEETS
654	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

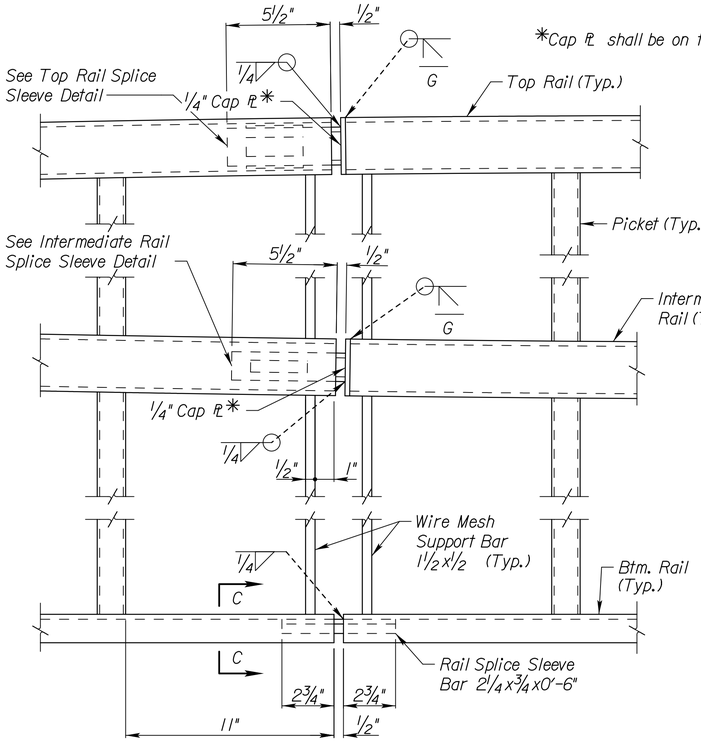
CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

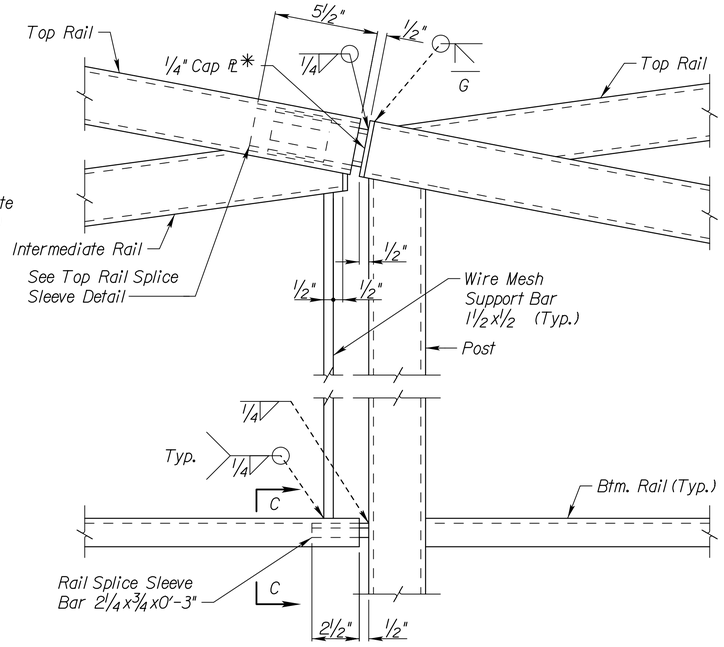
119th Street - Eastbound
MISC. HANDRAIL (PED.) & (RR)
DETAILS (1 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_fence5.dgn

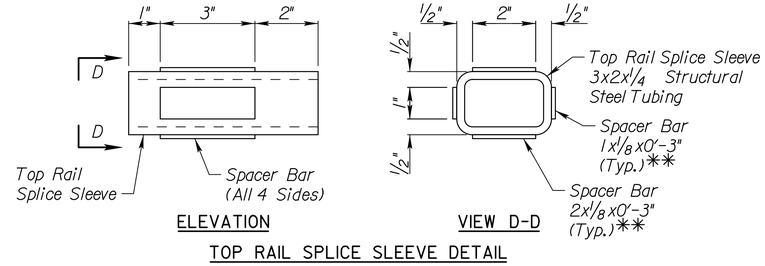


BETWEEN POSTS

*℄ shall be on the downhill side of the splice.



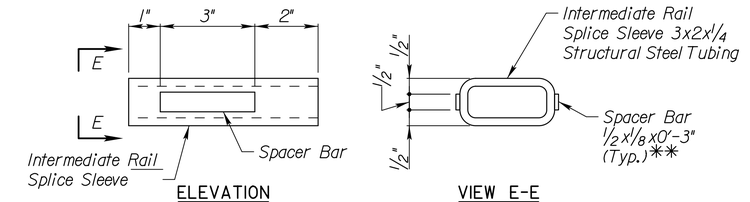
AT POST



ELEVATION VIEW D-D

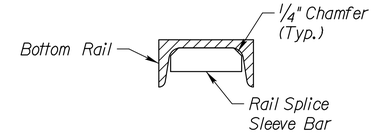
TOP RAIL SPLICE SLEEVE DETAIL

**Tack weld spacer bar to rail sleeve



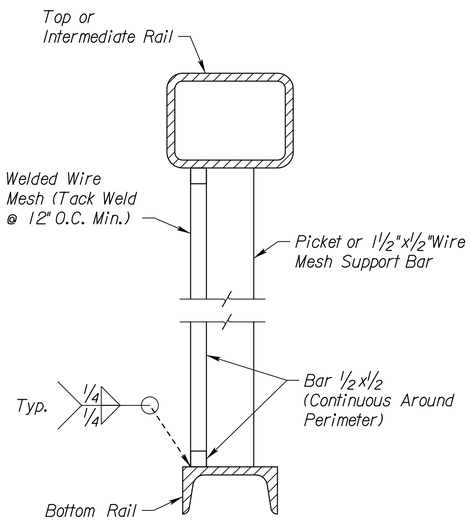
ELEVATION VIEW E-E

INTERMEDIATE RAIL SPLICE SLEEVE DETAIL

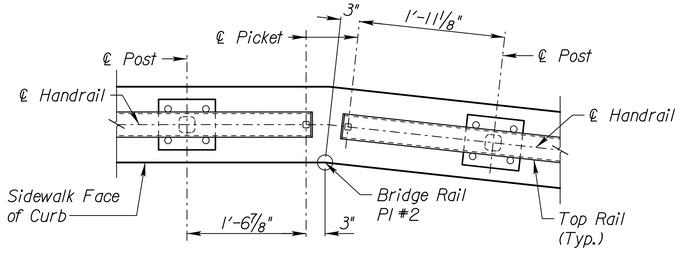


SECTION C-C

RECOMMENDED HANDRAIL SPLICE DETAILS

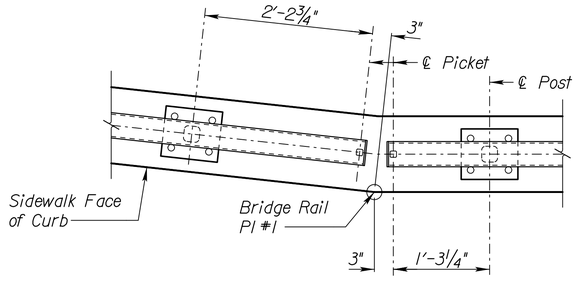


WELDED WIRE MESH ATTACHMENT DETAIL



VIEW D-D

(Bottom rail not shown for clarity)



VIEW E-E

(Bottom rail not shown for clarity)

Notes:
For Views D-D & E-E Locations, see Sh. No. 652

Plotted : 08-28-24
Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_fence6.dgn

SHEET NO.	TOTAL SHEETS
655	781

YEAR 2024

PROJECT NO. 3-C-024-21

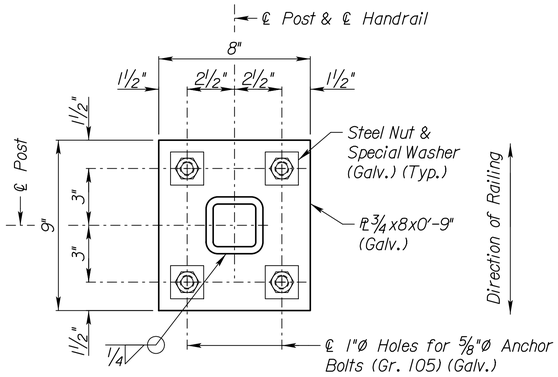
HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

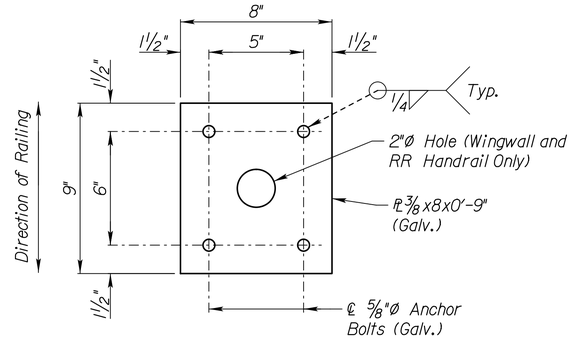
OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

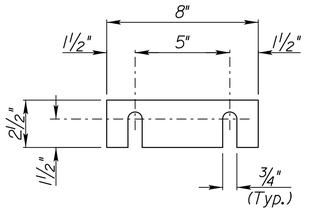
119th Street - Eastbound
MISC. BRIDGE HANDRAIL (PED.) & (RR)
DETAILS (2 OF 3)



PLAN AT SIDEWALK CURB, SIDEWALK CURB OVER WINGWALL AND BRIDGE RAIL

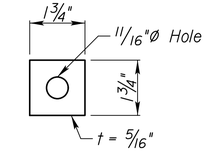


ANCHOR PLATE

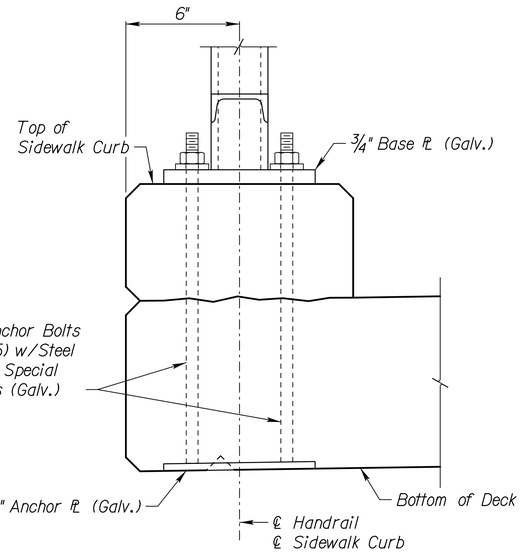


SHIM DETAIL

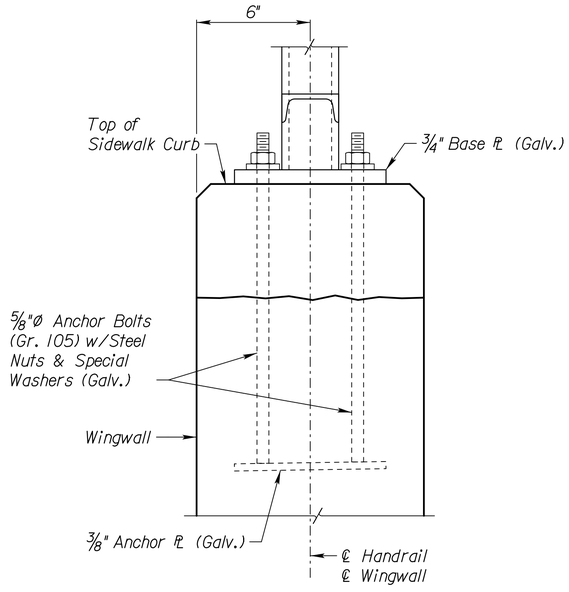
Provide 3-1/16" Galv. Steel Shims for Each Post as Req'd.



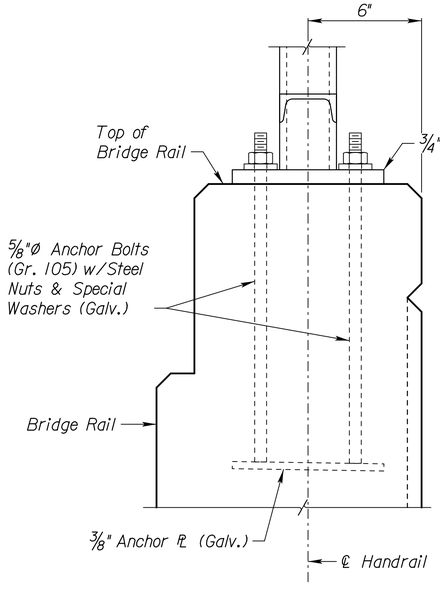
SPECIAL WASHER



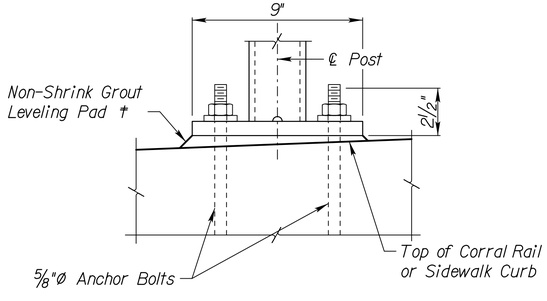
SECTION AT SIDEWALK CURB



SECTION AT SIDEWALK CURB OVER WINGWALL



SECTION AT BRIDGE RAIL



LEVELING PAD DETAIL

† *At the Contractor's option, a grouted leveling pad may be used in lieu of the steel shims to erect the posts vertical and shall have a minimum thickness of ¼". The leveling pad shall be of a non-shrink grout as approved by the Engineer. The grout shall be mixed, applied and cured according to the manufacturer's recommendations. Grout shall not extend above bottom of the base plate.*

SHEET NO. 656 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 800
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

OLATHE KANSAS

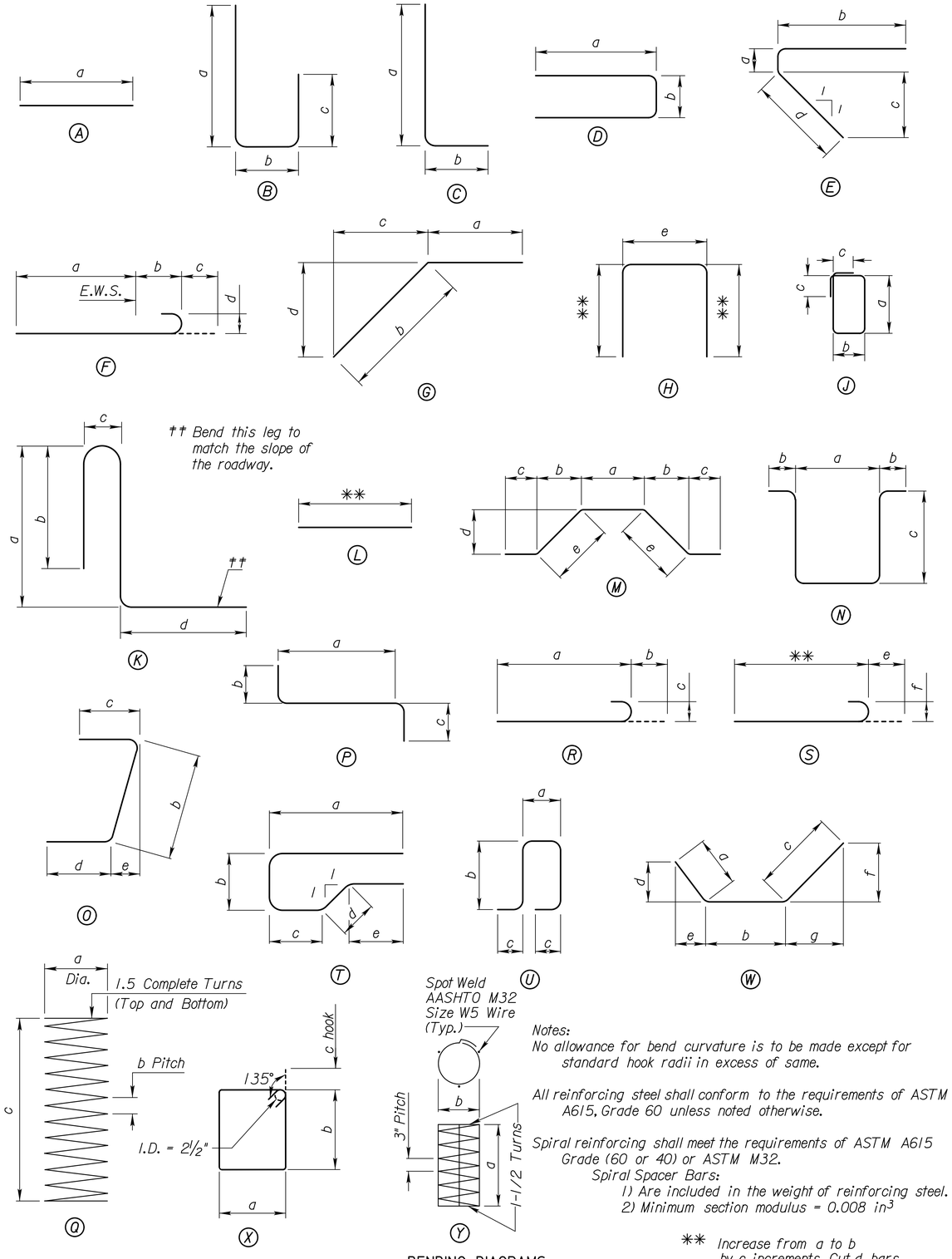
By	Description	Date	Rev.

119th Street - Eastbound
MISC. BRIDGE HANDRAIL (PED.) & (RR)
DETAILS (3 OF 3)

Drawn By : MGEHL
Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_fence7.dgn

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Abutment No. 1		WA1	8	A	8	52'-4"	52'-4"						
	†	WA2	6	A	5	52'-4"	52'-4"						
	†	WA3	3	A	5	5'-6"	5'-6"						
	†	WA4	12	A	5	8'-5"	8'-5"						
	†	WA5	3	A	5	6'-3"	6'-3"						
	†	WA6	31	D	5	16'-2"	6'-8"	2'-10"					
		WA7	53	D	5	9'-0"	3'-1"	2'-10"					
	†	WA8	36	D	5	14'-0"	5'-7"	2'-10"					
	†	WA9	13	A	5	6'-8"	6'-8"						
	†	WA10	14	B	5	12'-7"	6'-8"	2'-10"	3'-1"				
	†	WA11	17	C	5	8'-5"	5'-7"	2'-10"					
	†	WA12	10	A	5	3'-7"	3'-7"						
	†	WA13	10	A	5	4'-0"	4'-0"						
		WA14	3	A	5	3'-1"	3'-1"						
	†	WA15	16	A	6	11'-7"	11'-7"						
	†	WA16	1	A	5	10'-3"	10'-3"						
	†	WA17	4	A	5	11'-8"	11'-8"						
	†	WA18	1	A	5	10'-5"	10'-5"						
	†	WA19	2	A	4	43'-4"	43'-4"						
	†	WA20	27	E	4	7'-11"	9"	3'-11"	2'-3 5/8"	3'-3"			
	†	WA21	44	F	4	4'-7"	3'-2"	10"	7"	5"			
	†	WA22	1	A	5	2'-3"	2'-3"						
	†	WA23	4	A	5	3'-8"	3'-8"						
	†	WA24	1	A	5	2'-9"	2'-9"						
	†	WA25	4	A	8	52'-4"	52'-4"						
	†	WA26	1	A	5	4'-10"	4'-10"						
	†	WA27	4	A	5	7'-8"	7'-8"						
	†	WA28	1	A	5	5'-7"	5'-7"						
	†	WA29	4	A	6	9'-8"	9'-8"						
	†	WA30	10	G	8	6'-0"	1'-5"	4'-7"	4'-3 5/8"	1'-6 3/4"			
		WA31	10	A	5	52'-4"	52'-4"						
	†	WW1	60	A	6	9'-3"	9'-3"						
	†	WW2	3	A	6	8'-3"	8'-3"						
	†	WW3	20	A	8	17'-8"	17'-8"						
	†	WW4	18	W	6	8'-2"	2'-2 1/4"	3'-9 1/2"	2'-2 1/4"	1'-3"	1'-9 1/2"	1'-3"	1'-9 1/2"
	†	WW5	20	A	8	15-'7"	15'-7"						
Abutment No. 2		EA1	16	A	8	33'-1"	33'-1"						
	†	EA2	14	A	5	31'-10"	31'-10"						
	†	EA3	3	A	5	9'-2"	9'-2"						
	†	EA4	15	A	5	11'-11"	11'-11"						
	†	EA5	3	A	5	9'-11"	9'-11"						
	†	EA6	40	D	5	16'-8"	7'-0"	2'-8"					
		EA7	59	D	5	8'-10"	3'-1"	2'-8"					
	†	EA8	46	D	5	15'-2"	6'-3"	2'-8"					
	†	EA9	20	A	5	7'-0"	7'-0"						
	†	EA10	8	B	5	12'-9"	7'-0"	2'-8"	3'-1"				
	†	EA11	16	C	5	8'-11"	6'-3"	2'-8"					
	†	EA12	10	A	5	4'-3"	4'-3"						
	†	EA13	10	A	5	4'-8"	4'-8"						
		EA14	8	A	5	3'-1"	3'-1"						
	†	EA15	16	A	6	14'-0"	14'-0"						
	†	EA16	1	A	5	2'-1"	2'-1"						
	†	EA17	5	A	5	3'-6"	3'-6"						
	†	EA18	1	A	5	2'-6"	2'-6"						
	†	EA19	2	A	4	52'-9"	52'-9"						
	†	EA20	38	E	4	7'-9"	9"	3'-9"	2'-3 5/8"	3'-3"			



BENDING DIAGRAMS

(All dimensions are out to out of bars.)

Notes:

No allowance for bend curvature is to be made except for standard hook radii in excess of same.

All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60 unless noted otherwise.

Spiral reinforcing shall meet the requirements of ASTM A615 Grade (60 or 40) or ASTM M32.

Spiral Spacer Bars:

1) Are included in the weight of reinforcing steel.
2) Minimum section modulus = 0.008 in^3

** Increase from a to b by c increments. Cut d bars to length. Each set has d bars.

SHEET NO.	TOTAL SHEETS
657	781

YEAR 2024

PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000656

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BILL OF REINFORCING STEEL
(1 OF 4)

Plotted : 08-28-24
Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_BillofReinf1.dgn

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Abutment No. 2 (Cont'd.)	†	EA21	54	F	4	4'-5"	3'-0"	10"	7"	5"			
	†	EA22	1	A	5	9'-7"	9'-7"						
	†	EA23	5	A	5	10'-11"	10'-11"						
	†	EA24	1	A	5	9'-11"	9'-11"						
	†	EA25	8	A	8	33'-1"	33'-1"						
	†	EA26	1	A	5	4'-6"	4'-6"						
	†	EA27	5	A	5	7'-3"	7'-3"						
	†	EA28	1	A	5	5'-3"	5'-3"						
	†	EA29	4	A	6	9'-4"	9'-4"						
	†	EA30	10	A	8	6'-0"	6'-0"						
		EA31	20	A	5	31'-10"	31'-10"						
		EA32	3	D	5	9'-6"	3'-5"	2'-8"					
	†	EW1	36	L	6	VARIES	9'-5"	9'-10"	1"	6			
	†	EW2	26	L	6	VARIES	9'-5"	9'-8"	1/4"	2			
	†	EW3	4	A	6	8'-9"	8'-9"						
	†	EW4	21	A	8	17'-9"	17'-9"						
	†	EW5	19	W	6	8'-10"	2'-2"	4'-6"	2'-2"	1'-6 3/8"	1'-6 3/8"	1'-6 3/8"	1'-6 3/8"
	†	EW6	21	A	8	16'-1"	16'-1"						
Pier No. 1		AB1	8	R	8	23'-4"	22'-5"	11"	8"				
		AB2	9	A	8	42'-3"	42'-3"						
		AB3	10	A	5	42'-3"	42'-3"						
	†	AB4	54	A	6	4'-0"	4'-0"						
		AB5	4	D	6	8'-6"	1'-10"	4'-10"					
		AB6	4	D	6	7'-9"	1'-10"	4'-1"					
		AB7	16	D	6	7'-9"	1'-10"	4'-1"					
		AB8	2	A	5	22'-5"	22'-5"						
		AB9	8	R	8	26'-11"	26'-0"	11"	8"				
		AB10	4	A	5	7'-6"	7'-6"						
		AB11	9	X	5	19'-4"	4'-3"	4'-11"	5 1/2"				
		AB12	20	X	5	18'-7"	4'-3"	4'-7"	5 1/2"				
		AB13	21	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		AC1	57	A	9	26'-3"	26'-3"						
		AC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	22'-11"				
		AS1	90	A	9	15'-7"	15'-7"						
		AS2	57	A	9	7'-2"	7'-2"						
		AS3	3	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	15'-6"				
		AS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Pier No. 2		BB1	8	R	8	23'-4"	22'-5"	11"	8"				
		BB2	9	A	8	42'-3"	42'-3"						
		BB3	10	A	5	42'-3"	42'-3"						
	†	BB4	54	A	6	4'-0"	4'-0"						
		BB5	4	D	6	8'-7"	1'-10"	4'-11"					
		BB6	4	D	6	7'-9"	1'-10"	4'-1"					
		BB7	16	D	6	7'-9"	1'-10"	4'-1"					
		BB8	2	A	5	22'-5"	22'-5"						
		BB9	8	R	8	26'-11"	26'-0"	11"	8"				
		BB10	4	A	5	7'-6"	7'-6"						
		BB11	9	X	5	19'-6"	4'-3"	5'-0"	5 1/2"				
		BB12	20	X	5	18'-8"	4'-3"	4'-7"	5 1/2"				
		BB13	21	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		BC1	57	A	9	45'-1"	45'-1"						
		BC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	41'-10"				
		BS1	90	A	9	25'-7"	25'-7"						
		BS2	57	A	9	7'-2"	7'-2"						
		BS3	3	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	25'-6"				
		BS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Pier No. 3	†	CB1	8	R	8	22'-0"	21'-1"	11"	8"				
	†	CB2	9	A	8	38'-9"	38'-9"						
	†	CB3	10	A	5	38'-9"	38'-9"						
	†	CB5	4	D	6	8'-5"	1'-10"	4'-9"					
	†	CB6	4	D	6	7'-9"	1'-10"	4'-1"					
	†	CB7	16	D	6	7'-9"	1'-10"	4'-1"					
	†	CB8	2	A	5	21'-1"	21'-1"						
	†	CB9	8	R	8	24'-10"	23'-11"	11"	8"				
	†	CB10	4	A	5	6'-11"	6'-11"						
	†	CB11	8	X	5	19'-2"	4'-3"	4'-10"	5 1/2"				
	†	CB12	18	X	5	18'-6"	4'-3"	4'-6 1/2"	5 1/2"				
	†	CB13	18	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
	†	CB14	20	Y	W5	SPIRAL	2'-1"	9 1/8"					
		CC1	57	A	9	49'-11"	49'-11"						
		CC2	3	Q	1/2"Ø	SPIRAL	3'-6"	6"	46'-7"				
		CS1	90	A	9	27'-7"	27'-7"						
		CS2	57	A	9	7'-2"	7'-2"						
		CS3	3	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	27'-6"				
		CS4	3	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Pier No. 4		DB1	8	R	8	21'-7"	20'-8"	11"	8"				
		DB2	8	A	8	38'-9"	38'-9"						
		DB3	12	A	5	38'-9"	38'-9"						
	†	DB4	62	A	6	4'-0"	4'-0"						
		DB5	5	D	6	8'-11"	1'-10"	5'-3"					
		DB6	5	D	6	8'-3"	1'-10"	4'-7"					
		DB7	18	D	6	8'-3"	1'-10"	4'-7"					
		DB8	2	A	5	20'-8"	20'-8"						
		DB9	8	R	8	24'-10"	23'-11"	11"	8"				
		DB10	6	A	5	7'-3"	7'-3"						
		DB11	8	X	5	21'-2"	4'-9"	5'-4"	5 1/2"				
		DB12	16	X	5	20'-6"	4'-9"	5'-0"	5 1/2"				
		DB13	18	X	5	19'-11"	4'-9"	4'-9"	5 1/2"				
		DC1	57	A	10	51'-4"							
		DC2	3	Q	1/2"Ø	SPIRAL	4'-3"	6"	47'-1"				
		DS1	96	A	10	28'-7"	28'-7"						
		DS2	57	A	10	9'-8"	9'-8"						
		DS3	3	Q	5/8"Ø	SPIRAL	5'-0"	1'-0"	28'-6"				
		DS4	3	Q	1/2"Ø	SPIRAL	4'-3"	1'-0"	4'-7"				
Pier No. 5		EB1	8	R	8	21'-7"	20'-8"	11"	8"				
		EB2	8	A	8	38'-9"	38'-9"						
		EB3	12	A	5	38'-9"	38'-9"						
	†	EB4	62	A	6	4'-0"	4'-0"						
		EB5	5	D	6	8'-11"	1'-10"	5'-3"					
		EB6	5	D	6	8'-3"	1'-10"	4'-7"					
		EB7	18	D	6	8'-3"	1'-10"	4'-7"					
		EB8	2	A	5	20'-8"	20'-8"						
		EB9	8	R	8	24'-10"	23'-11"	11"	8"				
		EB10	6	A	5	7'-3"	7'-3"						
		EB11	8	X	5	21'-2"	4'-9"	5'-4"	5 1/2"				
		EB12	16	X	5	20'-6"	4'-9"	5'-0"	5 1/2"				
		EB13	18	X	5	19'-11"	4'-9"	4'-9"	5 1/2"				
		EC1	57	A	10	41'-10"	41'-10"						
		EC2	3	Q	1/2"Ø	SPIRAL	4'-3"	6"	37'-7"				
		ES1	96	A	10	30'-1"	30'-1"						
		ES2	57	A	10	9'-8"	9'-8"						
		ES3	3	Q	5/8"Ø	SPIRAL	5'-0"	1'-0"	30'-0"				
		ES4	3	Q	1/2"Ø	SPIRAL	4'-3"	1'-0"	4'-7"				

Bars with prefix "AS", "BS", "CS", "DS" & "ES" are not included with the weight of reinforcing steel for payment. They are listed here for information only.

Note: For bending diagrams and reinforcing notes, See Sh. No. 657

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_BillofReinf2.dgn
Plotted : 08-28-24

SHEET NO. 658 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority: 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BILL OF REINFORCING STEEL
(2 OF 4)

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Pier No. 6		FB1	8	R	8	24'-5"	23'-6"	11"	8"				
		FB2	9	A	8	52'-0"	52'-0"						
		FB3	10	A	5	52'-0"	52'-0"						
	†	FB4	70	A	6	4'-0"	4'-0"						
		FB5	4	D	6	8'-8"	1'-10"	5'-0"					
		FB6	4	D	6	7'-9"	1'-10"	4'-1"					
		FB7	16	D	6	7'-9"	1'-10"	4'-1"					
		FB8	2	A	5	31'-1"	31'-1"						
		FB9	8	R	8	35'-5"	34'-6"	11"	8"				
		FB10	4	A	5	9'-2"	9'-2"						
		FB11	10	X	5	19'-9"	4'-3"	5'-2"	5 1/2"				
		FB12	44	X	5	18'-8"	4'-3"	4'-7"	5 1/2"				
		FB13	29	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		FC1	76	A	9	38'-10"	38'-10"						
		FC2	4	Q	1/2"Ø	SPIRAL	3'-6"	6"	35'-6"				
		FS1	120	A	9	26'-7"	26'-7"						
		FS2	76	A	9	7'-2"	7'-2"						
		FS3	4	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	26'-6"				
		FS4	4	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Pier No. 7		GB1	8	R	8	24'-5"	23'-6"	11"	8"				
		GB2	9	A	8	52'-0"	52'-0"						
		GB3	10	A	5	52'-0"	52'-0"						
		GB5	4	D	6	8'-8"	1'-10"	5'-0"					
		GB6	4	D	6	7'-9"	1'-10"	4'-1"					
		GB7	16	D	6	7'-9"	1'-10"	4'-1"					
		GB8	2	A	5	31'-1"	31'-1"						
		GB9	8	R	8	35'-5"	34'-6"	11"	8"				
		GB10	4	A	5	9'-2"	9'-2"						
		GB11	10	X	5	19'-8"	4'-3"	5'-1"	5 1/2"				
		GB12	44	X	5	18'-8"	4'-3"	4'-7"	5 1/2"				
		GB13	29	X	5	17'-11"	4'-3"	4'-3"	5 1/2"				
		GB14	20	Y	W5	SPIRAL	2'-1"	9 1/8"					
		GC1	76	A	9	35'-6"	35'-6"						
		GC2	4	Q	1/2"Ø	SPIRAL	3'-6"	6"	32'-2"				
		GS1	120	A	9	26'-7"	26'-7"						
		GS2	76	A	9	7'-2"	7'-2"						
		GS3	4	Q	1/2"Ø	SPIRAL	4'-0"	1'-0"	26'-6"				
		GS4	4	Q	1/2"Ø	SPIRAL	3'-6"	1'-0"	3'-4"				
Piers No. 1 & 2 Diaphragm	†	AD1	38	N	5	17'-5"	4'-5"	10"	5'-8"				
	†	AD2	20	N	5	15'-11"	4'-5"	10"	4'-11"				
	†	AD3	12	A	5	7'-9"	7'-9"						
	†	AD4	4	A	5	7'-0"	7'-0"						
	†	AD5	80	A	5	10'-2"	10'-2"						
	†	AD6	12	A	6	6'-5"	6'-5"						
	†	AD7	4	A	6	5'-6"	5'-6"						
	†	AD8	20	A	4	6'-0"	6'-0"						
	†	AD9	40	A	8	6'-0"	6'-0"						
	†	AD10	20	C	5	6'-6"	5'-8"	10"					
	†	AD11	20	O	5	7'-2"	3'-11 1/2"	4'-2"	1'-6"	1'-6"	1'-5 1/2"		

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Pier No. 3 Diaphragm	†	CD1	116	D	5	7'-11"	3'-4"	1'-3"					
	†	CD2	16	A	6	10'-2"	10'-2"						
	†	CD3	48	A	5	10'-0"	10'-0"						
	†	CD4	6	A	6	7'-10"	7'-10"						
	†	CD5	12	A	5	8'-5"	8'-5"						
	†	CD6	2	A	6	7'-2"	7'-2"						
	†	CD7	16	D	5	4'-3"	1'-6"	1'-3"					
	†	CD8	12	C	5	5'-0"	4'-2"	10"					
	†	CD9	4	A	6	8'-10"	8'-10"						
	†	CD10	4	A	6	1'-6"	1'-6"						
Pier No. 4 Diaphragm	†	DD1	19	N	5	18'-9"	4'-5"	10"	6'-4"				
	†	DD2	10	P	5	8'-8"	5'-8"	10"	2'-2"				
	†	DD3	10	P	5	10'-6"	5'-0"	10"	4'-8"				
	†	DD4	32	A	5	9'-10"	9'-10"						
	†	DD5	8	A	5	9'-1"	9'-1"						
	†	DD6	6	A	5	7'-3"	7'-3"						
	†	DD7	2	A	5	6'-7"	6'-7"						
	†	DD8	6	A	6	5'-2"	5'-2"						
	†	DD9	2	A	6	4'-6"	4'-6"						
	†	DD10	2	A	6	8'-1"	8'-1"						
	†	DD11	6	A	6	11'-5"	11'-5"						
	†	DD12	2	A	6	6'-11"	6'-11"						
	†	DD13	10	D	5	7'-5"	1'-6"	4'-5"					
	†	DD14	12	C	5	7'-2"	6'-4"	10"					
	†	DD15	20	A	8	6'-0"	6'-0"						
	†	DD16	10	A	4	6'-0"	6'-0"						
Pier No. 5 Diaphragm	†	ED1	19	N	5	18'-7"	4'-5"	10"	6'-3"				
	†	ED2	10	N	5	17'-5"	4'-5"	10"	5'-8"				
	†	ED3	32	A	5	9'-11"	9'-11"						
	†	ED4	8	A	5	9'-1"	9'-1"						
	†	ED5	6	A	5	7'-3"	7'-3"						
	†	ED6	2	A	5	6'-7"	6'-7"						
	†	ED7	6	A	6	5'-2"	5'-2"						
	†	ED8	2	A	6	4'-6"	4'-6"						
	†	ED9	12	C	5	7'-2"	6'-4"	10"					
	†	ED10	10	D	5	7'-5"	1'-6"	4'-5"					
	†	ED11	20	A	8	6'-0"	6'-0"						
	†	ED12	10	A	4	6'-0"	6'-0"						
Pier No. 6 Diaphragm	†	FD1	31	N	5	18'-1"	3'-11"	10"	6'-3"				
	†	FD2	10	N	5	16'-9"	3'-11"	10"	5'-7"				
	†	FD3	32	A	5	13'-0"	13'-0"						
	†	FD4	8	A	5	8'-4"	8'-4"						
	†	FD5	6	A	5	11'-3"	11'-3"						
	†	FD6	2	A	5	6'-7"	6'-7"						
	†	FD7	6	A	6	9'-2"	9'-2"						
	†	FD8	2	A	6	4'-6"	4'-6"						
	†	FD9	20	A	8	6'-0"	6'-0"						
	†	FD10	10	A	4	6'-0"	6'-0"						
	†	FD11	10	D	5	7'-0"	1'-6"	4'-0"					
	†	FD12	10	C	5	7'-1"	6'-3"	10"					

Bars with prefix "AS", "BS", "CS", "DS" & "ES" are not included with the weight of reinforcing steel for payment. They are listed here for information only.

Note: For bending diagrams and reinforcing notes, See Sh. No. 657

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

SHEET NO. 659 | TOTAL SHEETS 781

YEAR 2024

PROJECT NO. 3-C-024-21

CITY OF OLATHE, KS

OLATHE KANSAS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BILL OF REINFORCING STEEL
(3 OF 4)

Drawn By : MGEHL Plotted : 08-28-24
File : c:\pwworking\central01\d2525844\119th_BrEB_BillofReinf3.dgn

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Pier No. 7 Diaphragm	†	GD1	31	N	5	15'-8"	4'-0"	10"	5'-0"				
	†	GD2	6	A	5	11'-3"	11'-3"						
	†	GD3	2	A	5	6'-7"	6'-7"						
	†	GD4	24	A	5	13'-0"	13'-0"						
	†	GD5	6	A	5	8'-4"	8'-4"						
	†	GD6	6	A	6	11'-10"	11'-10"						
	†	GD7	2	A	5	7'-2"	7'-2"						
	†	GD8	10	D	5	6'-11"	1'-6"	3'-11"					
	†	GD9	10	N	5	16'-11"	3'-11"	10"	5'-8"				
	†	GD10	10	D	5	7'-2"	5'-6'	10"	10"				
	†	GD11	10	A	8	6'-0"	6'-0"						
	†	GD12	10	A	4	6'-0"	6'-0"						
	†	GD13	10	A	8	3'-2"	3'-2"						
	†	GD14	16	A	5	2'-0"	2'-0"						
	†	GD15	6	A	6	13'-3"	13'-3"						
	†	GD16	2	A	6	9'-1"	9'-1"						
Deck	†	S1	1312	R	5	42'-4"	41'-9"	7"	5"				
	†	S2	35	S	5	VARIES	1'-8 1/2"	40'-8"	1'-1 3/4"	1	7"	5"	
	†	S3	41	A	8	28'-8"	28'-8"						
	†	S4	1391	A	5	60'-0"	60'-0"						
	†	S5	264	A	8	40'-0"	40'-0"						
	†	S6	82	A	8	29'-6"	29'-6"						
	†	S7	82	A	8	29'-9"	29'-9"						
	†	S8	42	L	5	VARIES	17'-1"	32'-0 3/8"	4 3/8"	1			
	†	S9	1	A	5	32'-1"	32'-1"						
	†	S10	1	A	5	17'-0"	17'-0"						
	†	S11	44	A	5	28'-2"	28'-2"						
	†	S12	44	A	7	38'-7"	38'-7"						
	†	S13	44	A	7	34'-2"	34'-2"						
	†	S14	82	A	8	45'-4"	45'-4"						
	†	S15	82	A	8	31'-8"	31'-8"						
	†	S16	44	A	5	49'-11"	49'-11"						
	†	S17	82	A	8	55'-9"	55'-9"						
	†	S18	82	A	8	20'-0"	20'-0"						
	†	S19	100	A	8	25'-9"	25'-9"						
	†	S20	1	A	5	53'-8"	53'-8"						
	†	S21	7	L	5	VARIES	6'-0"	60'-0"	9'-0"	1			
	†	S22	5	L	5	VARIES	17'-5"	54'-1"	9'-2"	1			
	†	S23	1	G	5	16'-11"	13'-11"	3'-0"	2'-11 3/4"	3 7/8"			
	†	S24	3	L	8	VARIES	39'-4"	57'-8"	9'-2"	1			
	†	S25	3	L	8	VARIES	32'-7"	50'-11"	9'-2"	1			
	†	S26	106	A	8	56'-0"	56'-0"						
	†	S27	56	A	5	56'-6"	56'-6"						
	†	S28	53	A	8	26'-2"	26'-2"						
	†	S29	264	S	5	VARIES	41'-9"	53'-9"	*	1	7"	5"	
	†	S30	435	R	5	54'-4"	53'-9"	7"	5"				
	†	S31	29	L	5	VARIES	2'-5"	40'-10"	1'-4 1/2"	1			
	†	S32	1191	A	5	41'-9"	41'-9"						
	†	S33	264	L	5	VARIES	41'-9"	53'-9"	*	1			
	†	S34	435	A	5	53'-9"	53'-9"						
	†	S35	5	L	5	VARIES	31'-4"	32'-1"	2 1/4"	1			
	†	S36	12	L	5	VARIES	28'-1 1/4"	30'-2"	2 1/4"	1			
	†	S37	12	L	5	VARIES	24'-11 1/2"	27'-0 1/4"	2 1/4"	1			
	†	S38	12	L	5	VARIES	21'-9 3/4"	23'-10 1/2"	2 1/4"	1			
	†	S39	11	L	5	VARIES	18'-10 1/4"	20'-8 3/4"	2 1/4"	1			
	†	S40	5	L	5	VARIES	16'-11 1/2"	17'-8 1/2"	2 1/4"	1			
	†	S41	57	A	5	16'-5"	16'-5"						
	†	S42	4	L	5	VARIES	11'-9 1/2"	56'-9 1/2"	15'-0"	1			
	†	S43	4	L	5	VARIES	14'-11"	59'-11"	15'-0"	1			
	†	S44	4	L	5	VARIES	12'-4"	58'-7"	15'-5"	1			
	†	S45	3	L	5	VARIES	16'-11"	47'-9"	15'-5"	1			

* Equal length increments from dimension a to dimension b.

REINFORCING STEEL SCHEDULE (Grade 60)

Location	Epoxy	Bar Label	No. Req.	Shape	Size	Total Length	Dimensions a	b	c	d	e	f	g
Deck (Cont'd.)	†	S46	4	L	5	VARIES	12'-3"	59'-9"	15'-10"	1			
	†	S47	3	L	5	VARIES	18'-5"	50'-1"	15'-10"	1			
	†	S48	5	G	5	60'-0"	57'-0"	3'-0"	2'-11 3/4"	3 7/8"			
	†	S49	81	A	5	10'-5"	10'-5"						
	†	S50	78	T	5	10'-5"	4'-7"	11"	1'-7"	1'-1"	2'-3"		
	†	S51	16	A	5	2'-10"	2'-10"						
	†	S52	24	A	5	6'-7"	6'-7"						
	†	S53	8	A	5	5'-11"	5'-11"						
	†	S54	1	A	5	59'-4"	59'-4"						
	†	S55	1	A	5	59'-8"	59'-8"						
Sidewalk Curb	†	SC1	36	D	4	3'-9"	1'-6"	9"					
	†	SC2	835	U	4	4'-1"	9"	1'-0"	8"				
	†	SC7	12	A	4	54'-3"	54'-3"						
	†	SC8	20	A	4	56'-8"	56'-8"						
Corral Rail	†	R1	28	K	7	9'-3"	4'-6"	4'-6"	7"				
	†	R2	4	C	7	5'-7"	4'-5"	1'-2"					
	†	R3	1372	K	7	7'-7"	3'-0"	2'-3"	7"	2'-0"			
	†	R4	2209	C	4	4'-0"	2'-2"	1'-10"					
	†	R5	837	K	5	7'-7"	3'-0"	2'-3"	7"	2'-0"			
	†	R6	32	K	5	10'-8"	5'-3"	5'-3"	5"				
	†	R7	8	K	4	10'-8"	5'-3"	5'-3"	4"				
	†	R8	12	A	6	5'-6"	5'-6"						
	†	R9	966	A	6	9'-8"	9'-8"						
	†	R10	24	A	5	52'-0"	52'-0"						
	†	R11	2245	J	3	4'-4"	1'-4"	6"	4"				
	†	R13	334	J	3	4'-6"	1'-3"	8"	4"				
	†	R14	1336	D	3	4'-6"	1'-11"	8"					
	†	R15	12	A	6	5'-5"	5'-5"						
	†	R16	12	A	6	5'-1"	5'-1"						
	†	R17	12	A	6	5'-7"	5'-7"						
	†	R18	429	D	5	6'-7"	3'-0"	7"					
	†	R19	78	A	4	9'-8"	9'-8"						
	†	R20	4	C	7	3'-4"	2'-2"	1'-2"					
	†	R21	20	A	5	50'-2"	50'-2"						
	†	R22	8	G	5	4'-2"	2'-1"	2'-1"	2'-0 7/8"	2 3/4"			
	†	R23	8	A	5	56'-5"	56'-5"						
	†	R24	16	A	5	46'-1"	46'-1"						
	†	R25	24	A	5	53'-8"	53'-8"						
	†	R26	40	A	5	54'-11"	54'-11"						
	†	R27	6	G	6	9'-8"	6'-9 1/4"	2'-10 3/4"	2'-10 1/2"	3 3/4"			
	†	R28	6	G	6	9'-8"	7'-5 1/4"	2'-2 3/4"	2'-2 5/8"	2 7/8"			
	†	SP1	420	D	5	4'-5"	2'-0"	4 1/2"					
Wingwall Barrier	†	WB1	15	D	5	11'-4"	5'-4"	8"					
	†	WB2	2	D	5	9'-10"	4'-7"	8"					
	†	WB3	2	G	5	7'-11"	6'-9 3/4"	1'-1 1/4"	9 3/8"	9 3/8"			
	†	WB4	8	A	5	7'-7"	7'-7"						
	†	WB5	2	G	5	7'-4"	6'-3"	1'-1"	9 1/4"	9 1/4"			
	†	WB6	8	A	5	7'-1"	7'-1"						
Light Blister	†	B1	23	M	5	6'-6"	1'-5"	1'-4"	8"	1'-4"	1'-10 1/2"		
	†	B2	8	J	5	10'-10"	3'-1"	1'-10"	6"				
	†	B3	4	J	5	9'-10"	3'-1"	1'-4"	6"				
	†	B4	4	J	5	8'-10"	3'-1"	10"	6"				
	†	B5	12	J	5	12'-6"	3'-11"	1'-10"	6"				
	†	B6	6	J	5	11'-6"	3'-11"	1'-4"	6"				
	†	B7	6	J	5	10'-6"	3'-11"	10"	6"				
	†	B8	23	J	5	5'-8"	1'-2"	1'-2"	6"				
	†	B9	6	A	5	2'-4"	2'-4"						
	†	B10	9	A	5	3'-2"	3'-2"						

Note: For bending diagrams and reinforcing notes, See Sh. No. 657

Drawn By : MGEHL
File : c:\pwworking\central01\d2525844\119th_BrEB_BillofReinf4.dgn
Plotted : 08-28-24

SHEET NO. 660 | TOTAL SHEETS 781
YEAR 2024
PROJECT NO. 3-C-024-21

HDR Engineering, Inc.
10450 Holmes Road
Suite 600
Kansas City, MO 64131-3471
816-360-2700
Certificate of Authority, 000856

CITY OF OLATHE, KS

Rev.	Date	Description	By
.	.	.	.
.	.	.	.
.	.	.	.

119th Street - Eastbound
BILL OF REINFORCING STEEL
(4 OF 4)