

GENERAL LOCATION OF CONTRACT

THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY
UNITS

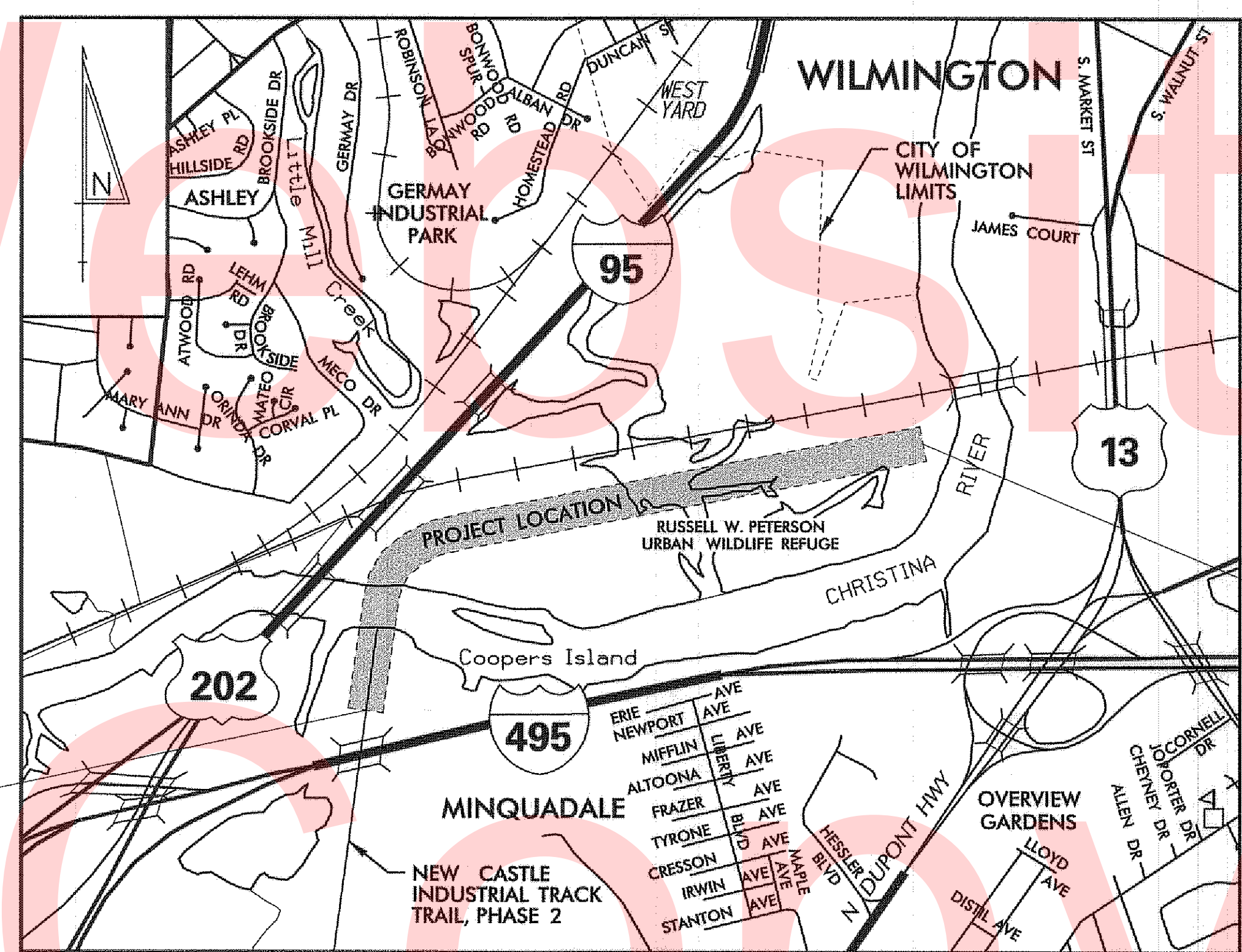


CONSTRUCTION AND RIGHT-OF-WAY PLANS FOR:
**NEW CASTLE INDUSTRIAL TRACK TRAIL,
PHASE 3**

CONTRACT NUMBER: **T201330009**
FEDERAL AID PROJECT NUMBER: **ESTP-N061(01)**

COUNTY: **NEW CASTLE** M.R. #: **NA**

DESIGN DESIGNATION			
FUNCTIONAL CLASS: N/A	D.H.V. PROJECTED: N/A	YEAR: N/A	
TYPE OF CONSTRUCTION: MULTI-MODAL TRAIL	DESIGN SPEED: N/A		
A.A.D.T. CURRENT: N/A	YEAR: N/A	TRUCKS: N/A	
A.A.D.T. PROJECTED: N/A	YEAR: N/A	DIRECTION OF DISTRIBUTION: N/A	
INDEX OF SHEETS			
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APPROVED DESIGN EXCEPTIONS			
DESIGN PARAMETER	REQUIRED	PROVIDED	DATE
ADDENDA & REVISIONS			
DESCRIPTION	NAME & DATE		
ASSOCIATED CONTRACTS			
CONTRACT NO.	CONTRACT NAME		
120515	INDUSTRIAL TRACK TRAIL (NEW CASTLE COUNTY, CAPITAL PROJECT)		
2005253.01	RUSSELL W. PETERSON URBAN WILDLIFE REFUGE EDUCATION CENTER (RIVERFRONT DEVELOPMENT CORPORATION)		
28-177	CHRISTINA RIVER FORCE MAIN (NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS)		
V-3/30 & V-3/31	P.B.&W.R.R. SHELLPOT BRANCH (RIGHT OF WAY AND TRACK VALUATION MAP)		
V-1/1	P.B.&W.R.R. DELAWARE RAILROAD (RIGHT OF WAY AND TRACK VALUATION MAP)		
I-2(2)	INTERSTATE HIGHWAY ROUTE I-95		



LOCATION MAP
1" = 1000'

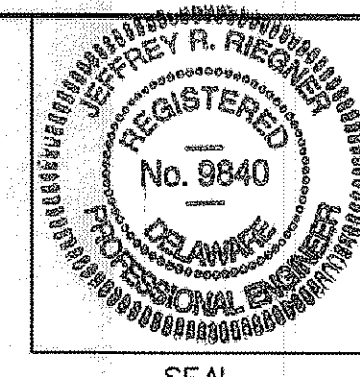
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PREPARED BY
THE CONSULTING FIRM OF



Whitman, Reardon & Associates, LLP
1013 Centre Road, Suite 302, Wilmington, Delaware 19805



Jeffrey R. Rieger
RECOMMENDED

11/30/15
DATE

RECOMMENDED

Nora J. Luster
SQUAD MANAGER, CONSTRUCTION

12/2/15
DATE

John F. Z...
GROUP ENGINEER, CONSTRUCTION

12/2/15
DATE

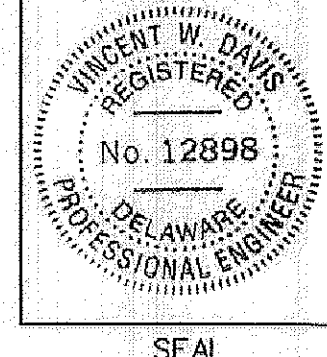
John A. J...
ASSISTANT DIRECTOR, TRANSPORTATION SOLUTIONS (CONSTRUCTION)

12/3/15
DATE

RECOMMENDED

Vincent W. Davis
STORMWATER ENGINEER

DATE 4 Dec 2015



RECOMMENDED AS TO PROCESS

John A. J...
BRIDGE DESIGN ENGINEER

DATE 12/3/15

RECOMMENDED AS TO PROCESS

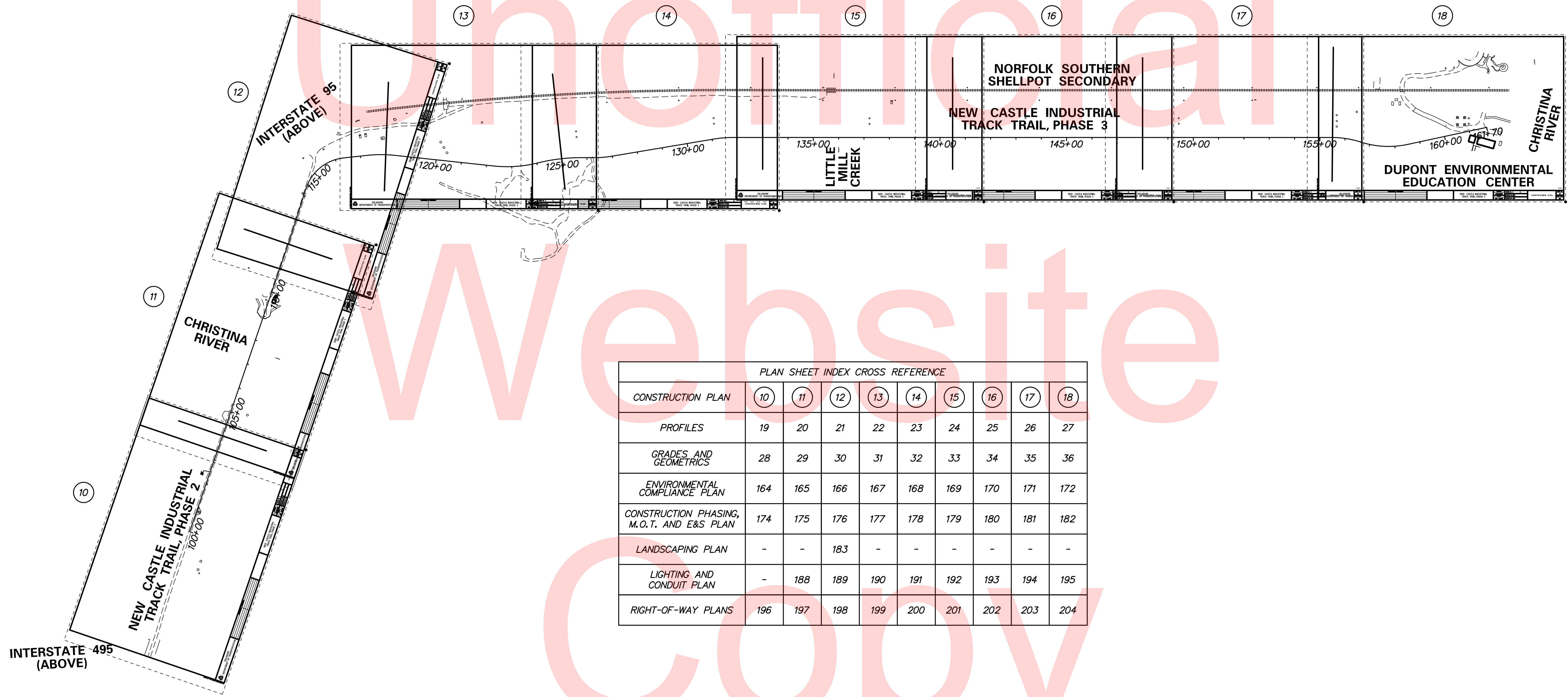
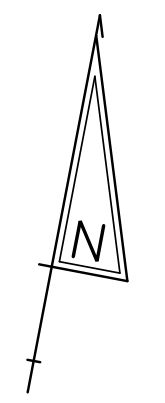
John A. J...
ASSISTANT DIRECTOR, PLANNING

DATE 12-3-15

APPROVED AS TO PROCESS

John B. Wilcox
CHIEF ENGINEER

DATE 12/04/2015

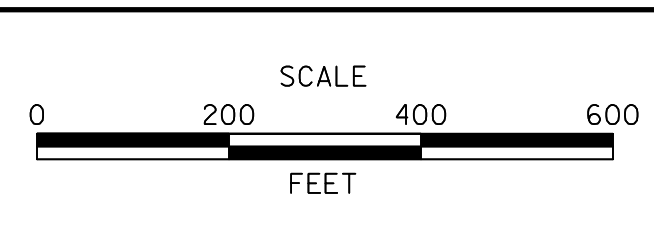


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ADDENDUMS / REVISIONS	



CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

EXISTING SYMBOLS

DRAINAGE	
	DITCH OR STREAM CENTERLINE
	DIRECTIONAL STREAM FLOW ARROW
	DRAINAGE INLET
	DRAINAGE JUNCTION BOX
	DRAINAGE MANHOLE
	DRAINAGE PIPE AND FLOW ARROW
	DRAINAGE PIPE HEADWALL
	RIPRAP - AREA FEATURE
	RIPRAP - LINEAR FEATURE

MANMADE ROADSIDE FEATURES	
	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
	CURB
	CURB AND GUTTER
	FENCE - CHAINLINK OR STRANDED
	FENCE - STOCKADE OR SPLIT RAIL
	FLAG POLE
	GUARDRAIL - STEEL BEAM
	GUARDRAIL - WIRE ROPE
	LAMP AND POST - RESIDENTIAL
	MAILBOX
	PARKING METER AND POST
	PAVEMENT - FLEXIBLE
	PAVEMENT - RIGID
	PILE - BRIDGE
	PILLAR OR MISCELLANEOUS POST
	TRAFFIC SIGN AND POST
	WALL - BRICK OR BLOCK
	WALL - STONE

NATURAL ROADSIDE FEATURES	
	GRASS LAWN
	HEDGEROW OR THICKET
	MARSH BOUNDARY LINE
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	SHRUBBERY
	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY

RIGHT-OF-WAY SYMBOLS	
	PROPERTY MARKER - CONCRETE MON.
	PROPERTY MARKER - IRON PIPE
	HISTORIC RIGHT-OF-WAY BASELINE
	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	EXISTING DENIAL OF ACCESS
	EXISTING R/W & DENIAL OF ACCESS

SURVEY CONTROL & MONUMENTATION	
	SURVEY BENCHMARK LOCATION
	SURVEY TIE POINT LOCATION
	SURVEY TRAVERSE POINT
	POINT OF CURVATURE OR TANGENCY
	POINT OF INTERSECTING TANGENTS

UTILITY	
	SOIL BORING LOCATION
	UTILITY TEST HOLE LOCATION
	CABLE TV DISTRIBUTION BOX
	ELECTRIC MANHOLE
	ELECTRIC METER
	ELECTRIC TRANSFORMER
	POLE MOUNTED LUMINAIRE
	GAS MANHOLE
	GAS METER
	GAS VALVE
	GAS PUMP - SERVICE STATION
	RAILROAD TRACKS
	SANITARY SEWER MANHOLE
	SANITARY SEWER VALVE
	SANITARY SEWER VENT OR CLEANOUT
	SEPTIC DRAIN FIELD
	TELEPHONE BOOTH
	TELEPHONE MANHOLE
	TELEPHONE TEST POINT
	TRAFFIC - CONDUIT JUNCTION WELL
	TRAFFIC - LIGHT POLE AND BASE
	TRAFFIC - PEDESTRIAN POLE & BASE
	TRAFFIC - SIGNAL CABINET & BASE
	TRAFFIC - SIGNAL POLE AND BASE
	UTILITY BOX
	UTILITY POLE GUY WIRE ANCHOR
	UTILITY POLE
	WATER - FIRE HYDRANT
	WATER METER
	WATER VALVE
	WELL HEAD
	MANHOLE - UNDETERMINED OWNER

UTILITY COMPANY FACILITIES	
	CLEAR CHANNEL - ELECTRIC - OVERHEAD
	DELMARVA POWER - ELECTRIC
	DELMARVA POWER - ELECTRIC - OVERHEAD
	DELMARVA POWER - GAS
	UNITED WATER
	NEW CASTLE COUNTY - SEWER
	PRIVATE ELECTRIC
	VERIZON

MISCELLANEOUS	
	MEAN HIGH WATER

PROPOSED SYMBOLS

CONSTRUCTION	
	CONCRETE SAFETY BARRIER - PERMANENT
	BIOFILTRATION SWALE
	BRICK PATTERNED SURFACE
	BUTT JOINT
	CONSTRUCTION BASELINE
	CONSTRUCTION SAFETY FENCE
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB & GUTTER, TYPE 4
	CLEAR ZONE
	DRAINAGE INLET
	DITCH
	FENCE - METAL
	FENCE - WOOD
	FLARED END SECTION
	GUARDRAIL, TYPE 1
	GUARDRAIL, TYPE 2
	GUARDRAIL, TYPE 3
	GUARDRAIL END ANCHORAGE
	GUARDRAIL END TREATMENT, TYPE 1
	GUARDRAIL END TREATMENT, TYPE 2
	GUARDRAIL END TREATMENT, TYPE 3
	IMPACT ATTENUATOR
	JUNCTION BOX - DRAINAGE
	LATERAL OFFSET
	LIMIT OF CONSTRUCTION
	MAILBOX
	MANHOLE
	PAVEMENT PATCH
	PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK - 4"
	P.C.C. SIDEWALK - 6" (USE 8" DEPTH FOR CHANNELIZATION ISLANDS.)
	UNDERDRAIN
	UNDERDRAIN OUTLET

RIGHT-OF-WAY SYMBOLS	
	PROPOSED RIGHT-OF-WAY MONUMENT
	PROPOSED DENIAL OF ACCESS
	PROPOSED PERMANENT EASEMENT
	PROPOSED RIGHT-OF-WAY
	PROPOSED R/W & DENIAL OF ACCESS
	TEMPORARY CONSTRUCTION EASEMENT
	PROPOSED RIGHT-OF-WAY BASELINE

IDENTIFIERS	
	ADJUST BY CONTRACTOR
	ADJUST BY OTHERS
	CONCRETE SAFETY BARRIER
	CURB OR CURB & GUTTER
	CONVERT TO JUNCTION BOX
	CONVERT TO DRAINAGE MANHOLE
	CURB OPENING
	CURB RAMP / TYPE
	CURB RAMP / TYPE - WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM
	CONSTRUCTION SAFETY FENCE
	DRAINAGE INLET
	DO NOT DISTURB
	ENERGY DISSIPATOR
	FENCE
	FLARED END SECTION
	FILL WITH FLOWABLE FILL
	FILTRATION STRUCTURE
	GUARDRAIL
	JUNCTION BOX
	MANHOLE
	MONUMENT - RIGHT-OF-WAY
	PIPE
	RELOCATE BY CONTRACTOR
	RELOCATE BY OTHERS
	REMOVE BY CONTRACTOR
	REMOVE BY OTHERS
	UNDERDRAIN / LENGTH
	UNDERDRAIN OUTLET PIPE

LANDSCAPING	
	LANDSCAPE PLANTINGS
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

TRAFFIC	
	ITMS CONDUIT
	SIGNAL CONDUIT
	CONDUIT JUNCTION WELL
	LUMINAIRE
	PAVEMENT MARKINGS
	PAVEMENT STRIPING
	TRAFFIC SIGN

PAVEMENT SECTION(S)	
	ASPHALT TRAIL - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS
	ASPHALT TRAIL (THICKER SECTION) - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS
	STRUCTURE - SEE BRIDGE PLANS
	DRIVEWAY 2" WMA, TYPE 'C' 8" GABC, TYPE 'B'
	RE-ALIGNED REFUGE ENTRANCE PATH - SEE TYPICAL SECTIONS FOR MATERIALS AND DEPTHS

ADDENDUMS / REVISIONS

NOT TO SCALE

NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD CHECKED BY: JRR

LEGEND

LG-01

SHEET NO.	3
TOTAL SHTS.	207

GENERAL NOTES

1. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED AUGUST 2001 AND THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD CONSTRUCTION DETAILS", DATED 2001, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISEMENT.

EROSION POTENTIAL FOR THIS PROJECT	CONTRACTOR ESC SUPERVISOR REQUIREMENT
() INSIGNIFICANT	NONE
() MINOR	CONTRACTOR TRAINING PROGRAM, AS DEFINED IN SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
() MEDIUM	CONTRACTOR TRAINING PROGRAM, AS DEFINED IN SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
(X) MAJOR	CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 6.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.

3. ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR, INCLUDE:

()	NONE
(X)	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	ALL PLAN SHEETS, IN PDF FORMAT.
()	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
()	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

NOTE: THE DOCUMENT ENTITLED "RELEASE FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORM TO A CONTRACTOR" MUST BE SIGNED BY ALL PARTIES PRIOR TO THE DELIVERY OF ANY ELECTRONIC PROJECT FILES.

4. PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE CONTRACTOR, INCLUDE:

()	CROSS SECTIONS
(X)	RIGHT-OF-WAY PLANS (WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR)

5. AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA) CERTIFIED TRAFFIC CONTROL SUPERVISOR REQUIREMENT FOR THIS PROJECT.

(X)	THE CONTRACTOR SHALL NOT BE REQUIRED TO HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT.
()	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT OR ANOTHER ATSSA CERTIFIED MEMBER OF THE CONTRACTOR'S PROJECT STAFF MAY BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR IS INCIDENTAL TO ITEM 743000.
()	THE CONTRACTOR SHALL HAVE AN ATSSA SUPERVISOR ASSIGNED TO THIS PROJECT. THE ATSSA SUPERVISOR'S SOLE JOB SHALL BE SUPERVISION OF THE INSTALLATION, OPERATION AND MAINTENANCE OF TRAFFIC CONTROL DEVICES FOR THIS PROJECT. THE CONTRACTOR'S GENERAL SUPERINTENDENT FOR THIS PROJECT SHALL NOT BE THE ATSSA SUPERVISOR. PAYMENT FOR ATSSA SUPERVISOR SHALL BE PAID FOR UNDER ITEM 743031.

6. THE DISTURBED AREA FOR THIS PROJECT IS 1.9505 ACRES.

7. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY. THE SEDIMENT AND STORMWATER MANAGEMENT PLANS ARE VALID FOR A THREE YEAR PERIOD, BEGINNING ON THE DATE THE STORMWATER ENGINEER SIGNED THE CONSTRUCTION TITLE SHEET. IF THE FINAL ACCEPTANCE OF THE PROJECT IS ANTICIPATED TO EXTEND BEYOND THE THREE YEARS, THE CONTRACTOR WILL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS. THE STORMWATER ENGINEER WILL REVIEW THE CURRENT SEDIMENT AND STORMWATER MANAGEMENT PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

PROJECT NOTES

SECTION 100

1. ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET BY THE CONTRACTOR, AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

SECTION 200

2. IN AREAS WHERE TREES OR SHRUBS WILL BE OVERHANGING THE PROPOSED TRAIL, PRUNING MAY BE NECESSARY TO ACHIEVE A VERTICAL CLEAR SPACE OF 10 FEET ABOVE THE PROPOSED SIDEWALK ELEVATION. THE CONTRACTOR SHALL PRUNE EXISTING TREE AND SHRUB BRANCHES, WHICH OVERHANG THE SIDEWALK, IN ACCORDANCE WITH I.S.A. STANDARDS. THE CONTRACTOR SHALL NOTIFY DELDOT'S ROADSIDE ENVIRONMENTALIST ADMINISTRATOR, EUGENE 'CHIP' ROSAN, JR. AT (302) 760-2185 AND/OR HIS DESIGNEE, AT LEAST TWO (2) DAYS PRIOR TO THE PRUNING OPERATION. ALL COSTS ASSOCIATED WITH THE ABOVE WORK TO BE PAID UNDER ITEM 201000 - CLEARING AND GRUBBING.

3. THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOI'S KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S STORMWATER SECTION. A COPY OF THE GENERAL PERMIT OR THE NOI CAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.

4. ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
- MISC. SMALL STRUCTURES AND DEBRIS AT THE BANKS OF THE CHRISTINA RIVER OR ELSEWHERE WITHIN THE LOC.

MISCELLANEOUS

5. THE PARTNERSHIP FOR THE DELAWARE ESTUARY MAINTAINS MONITORING EQUIPMENT LOCATED AT STA. 147+00, 21.5' RT. THE CONTRACTOR SHALL INSTALL ITEM 727014 - CONSTRUCTION SAFETY FENCE SURROUNDING THIS EQUIPMENT PRIOR TO WORKING AT THIS LOCATION. THE SAFETY FENCE SHALL BE INSTALLED ALONG THE LOC AND MAINTAIN A 6-FOOT PERIMETER AROUND THE EQUIPMENT. THE CONTRACTOR SHALL CONTACT MS. ANGELA PADELETTI, PARTNERSHIP FOR THE DELAWARE ESTUARY, AT 302-655-4990 EXT. 103 TO COORDINATE WORK IN THIS AREA.

6. CONTRACTOR PARKING AND STORAGE OF EQUIPMENT AND MATERIALS WITHIN THE DUPONT ENVIRONMENTAL EDUCATION CENTER PARKING LOT IS PROHIBITED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

7. THE CONTRACTOR SHALL CONSTRUCT A THICKER TRAIL PAVEMENT SECTION FROM STA. 110+94 TO STA. 116+20 AS SHOWN ON THE TYPICAL SECTIONS. THIS SECTION WILL PROVIDE ACCESS FOR MAINTENANCE VEHICLES TO THE PETERSON WILDLIFE REFUGE, DELMARVA POWER GAS AND TRANSMISSION FACILITIES AND CLEAR CHANNEL OUTDOOR FACILITIES. THE USE OF TIMBER MATTING ON TOP OF THE PAVEMENT SURFACE IS RECOMMENDED FOR TRACKED VEHICLE ACCESS.

8. THE CONTRACTOR SHALL PLACE FLEXIBLE DELINEATORS AT FOUR LOCATIONS ALONG THE THICKER PAVEMENT SECTION TO INDICATE THE MAINTENANCE VEHICLE CROSSING LOCATION. THE DELINEATORS SHALL BE LOCATED AT STA. 115+40 AND STA. 116+20 ON BOTH SIDES OF THE TRAIL AND EMBEDDED INTO THE GROUND APPROXIMATELY 2.5 FEET OFFSET FROM THE EDGE OF THE PAVED TRAIL. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL CONTACT MR. BOB MEADOWS, DNREC, AT (302) 893-3647 REGARDING COLOR AND INSTALLED HEIGHT. PAYMENT SHALL BE UNDER ITEM 720611 - FLEXIBLE DELINEATOR, PERMANENT.

9. PRIOR TO REMOVING ANY TREES OR SHRUBS NEAR THE DUPONT ENVIRONMENTAL EDUCATION CENTER (STA. 159+00 TO STA. 161+00 RT.), THE CONTRACTOR SHALL CONTACT MR. BOB MEADOWS, DNREC, AT (302) 893-3647 AND MEET ON-SITE TO DISCUSS TREE PROTECTION MEASURES FOR TREES NEAR THE LIMIT OF CONSTRUCTION (LOC).

10. THE CONTRACTOR SHALL INSTALL ONE PEDESTRIAN/BICYCLE TRAFFIC COUNTER AT APPROXIMATELY STA. 103+00. SEE SPECIFICATION FOR ITEM 763510 - SITE FURNISHINGS FOR DETAILS.

11. PRIOR TO CONSTRUCTION OF THE PROJECT AND WITHIN 20 DAYS OF EXECUTION OF THE CONTRACT, A VIDEO SHALL BE TAKEN OF THE SITE BY THE CONTRACTOR AND COPY (DVD) GIVEN TO THE DELDOT PROJECT ENGINEER. THE VIDEO SHALL CLEARLY SHOW THE PRECONSTRUCTION CONDITIONS OF THE WORKSITE AND ADJOINING AREAS. THE VIDEO WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF THE VIDEO SHALL BE INCIDENTAL TO ITEM 763501 - CONSTRUCTION ENGINEERING.

12. PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL CONTACT DELDOT'S HAZMAT PROGRAM MANAGER'S OFFICE AT (302) 760-2463 TO SET UP AN ON-SITE MEETING TO DISCUSS HANDLING OF HAZARDOUS MATERIALS. WORK SHALL BE IN CONFORMANCE WITH ITEM 202560 - CONTAMINATED MATERIAL.

CONSTRUCTION ACCESS, NEWPORT BOAT RAMP SITE

13A. CONSTRUCTION ACCESS VIA THE NEWPORT BOAT RAMP SITE IS PERMITTED. THE SITE IS LOCATED APPROXIMATELY 1,600 FEET SOUTH OF THE EAST END OF WATER STREET IN THE TOWN OF NEWPORT.

13B. AT NO TIME SHALL THE CONTRACTOR BE PERMITTED TO USE THE BOAT RAMP FOR ANY CONSTRUCTION ACTIVITIES OR BLOCK ACCESS TO BOAT RAMP. IN ADDITION, THE CONTRACTOR SHALL NOT BE PERMITTED TO TIE-OFF OR MOOR ANY WORK VESSEL TO THE BOAT RAMP AT ANY TIME.

13C. THE CONTRACTOR MAY CLOSE THE PAVED CUL-DE-SAC AREA AT THE WESTERN END OF THE BOAT RAMP PARKING LOT (JUST WEST OF THE BOAT RAMP) FOR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL COORDINATE CLOSURE DURATIONS WITH THE ENGINEER AND MR. LARRY HORAN, DNREC CONSTRUCTION PROJECT MANAGER, AT (302) 739-9914 (OFFICE).

13D. THE CONTRACTOR SHALL REQUEST AN ON-SITE FIELD MEETING WITH MR. LARRY HORAN (DNREC) AND THE ENGINEER TO REVIEW AND DOCUMENT EXISTING SITE CONDITIONS PRIOR TO USE OF THE SITE. AS-BUILT CONSTRUCTION PLANS FOR THE BOAT RAMP SITE ARE AVAILABLE FROM DNREC.

13E. ANY DAMAGE TO THE BOAT RAMP SITE FACILITIES OR THE PARKING LOT INCURRED DURING USE SHALL BE REPAIRED AND REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DNREC. ANTICIPATED CONSTRUCTION ACTIVITIES TO REPAIR THE SITE FACILITIES INCLUDE, BUT ARE NOT LIMITED TO, FULL DEPTH PAVEMENT RECONSTRUCTION AND/OR MILL AND OVERLAY WITHIN THE WORK AREA AND ACCESS TO THE WORK AREA, RE-STRIPING, RE-SEEDING, CURB RECONSTRUCTION, ETC.

13F. ACCESS TO, OR STORAGE OF EQUIPMENT AND MATERIALS ANYWHERE OTHER THAN DESIGNATED STAGING AREAS OF THE BOAT RAMP SITE IS PROHIBITED WITHOUT PRIOR APPROVAL FROM MR. LARRY HORAN (DNREC) AND THE ENGINEER.

13G. THE CONTRACTOR SHALL PLACE CONSTRUCTION SAFETY FENCE AROUND THE PERIMETER OF THE INTERIOR UN-PAVED AREA OF THE CUL-DE-SAC. AT NO TIME SHALL THE CONTRACTOR ACCESS OR STORE EQUIPMENT OR MATERIALS WITHIN THIS AREA. PAYMENT FOR THE SAFETY FENCE SHALL BE INCIDENTAL TO ITEM 743000 - MAINTENANCE OF TRAFFIC.

CONSTRUCTION ACCESS, DUPONT ENVIRONMENTAL EDUCATION CENTER

14A. CONSTRUCTION ACCESS VIA THE DUPONT ENVIRONMENTAL EDUCATION CENTER DRIVEWAY IS PERMITTED. PRIOR TO USE OF THIS ACCESS POINT, THE CONTRACTOR SHALL CONTACT DELDOT'S RAILROAD ENGINEER, MR. BOB PERRINE, AT (302) 760-2183 REGARDING REQUIREMENTS FOR CROSSING THE NORFOLK SOUTHERN RAILROAD.

14B. THE CONTRACTOR SHALL CONDUCT AN ON-SITE FIELD MEETING WITH MR. JOHN HARRROD, MANAGER OF THE DUPONT ENVIRONMENTAL EDUCATION CENTER, AT (302) 656-1490 AND THE ENGINEER TO REVIEW AND DOCUMENT EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.

14C. PRIOR TO CONSTRUCTION OF THE PROJECT AND WITHIN 20 DAYS OF EXECUTION OF THE CONTRACT, A VIDEO SHALL BE TAKEN OF THE DUPONT ENVIRONMENTAL EDUCATION CENTER PARKING LOT AND ACCESS DRIVEWAY AND ANY OTHER AREAS WHERE WHERE CONSTRUCTION ACCESS WILL OCCUR. THE VIDEO SHALL SHOW EXISTING SITE CONDITIONS AND WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF THE VIDEO SHALL BE INCIDENTAL TO ITEM 763501 - CONSTRUCTION ENGINEERING.

14D. ANY DAMAGE TO THE DUPONT ENVIRONMENTAL EDUCATION CENTER SITE INCURRED DURING USE SHALL BE REPAIRED AND REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF DNREC AND THE ENGINEER.

14E. STORAGE OF EQUIPMENT AND MATERIALS WITHIN THE DUPONT ENVIRONMENTAL EDUCATION CENTER SITE AND OUTSIDE OF THE LIMITS OF CONSTRUCTION IS PROHIBITED WITHOUT PRIOR APPROVAL FROM MR. JOHN HARRROD AND THE ENGINEER.

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ADDENDUMS / REVISIONS

NOT TO SCALE

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

NOTES

PN-01

SHEET NO.

4

TOTAL SHTS.

207

PROJECT NOTES (CONTINUED)

CONSTRUCTION ACCESS, NORFOLK SOUTHERN RIGHT-OF-WAY

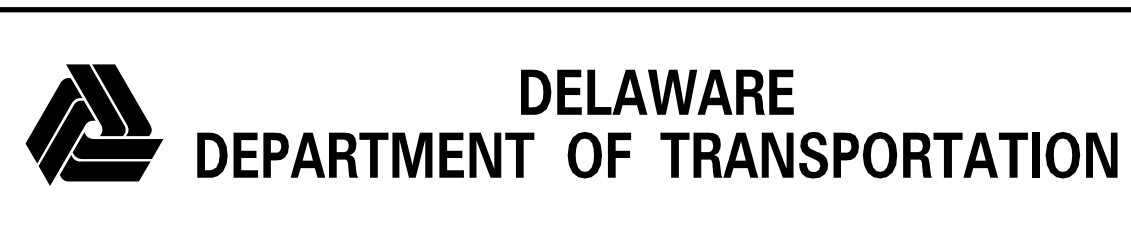
- 15A. ALL WORK ON, OVER, UNDER, OR ADJACENT TO NORFOLK SOUTHERN (NS) RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE NORFOLK SOUTHERN "SPECIAL PROVISIONS FOR THE PROTECTION OF RAILWAY INTERESTS" (NS SPECIAL PROVISIONS).
- 15B. "ONE CALL" SERVICES DO NOT LOCATE BURIED RAILROAD SIGNAL AND COMMUNICATIONS LINES. THE CONTRACTOR SHALL CONTACT THE RAILROAD'S REPRESENTATIVE TWO (2) DAYS IN ADVANCE OF THOSE PLACES WHERE EXCAVATION, PILE DRIVING, OR HEAVY LOADS MAY DAMAGE RAILROAD UNDERGROUND LINES ON RAILROAD PROPERTY. UPON REQUEST FROM THE CONTRACTOR OR AGENCY, RAILROAD SIGNAL FORCES WILL LOCATE AND PAINT MARK OR FLAG RAILROAD UNDERGROUND SIGNAL, COMMUNICATION, AND POWER LINES IN THE AREA TO BE DISTURBED FOR THE CONTRACTOR. THE CONTRACTOR SHALL AVOID EXCAVATION OR OTHER DISTURBANCE OF THESE LINES WHICH ARE CRITICAL TO THE SAFETY OF THE RAILROAD AND THE PUBLIC. IF DISTURBANCE OR EXCAVATION IS REQUIRED NEAR A BURIED RAILROAD SIGNAL, COMMUNICATION, OR POWER LINE, THE LINE SHALL BE POTHOLED MANUALLY WITH CAREFUL HAND EXCAVATION BY THE CONTRACTOR AND PROTECTED BY THE CONTRACTOR DURING THE COURSE OF THE DISTURBANCE UNDER THE SUPERVISION AND DIRECTION OF A RAILROAD SIGNAL REPRESENTATIVE.
- 15C. ALL UTILITY INSTALLATIONS OR RELOCATIONS THAT ARE REQUIRED IN CONJUNCTION WITH THIS PROJECT CAN BE INSTALLED OR RELOCATED AS PART OF THE PROJECT PROVIDED THE CONSTRUCTION IS PERFORMED BY THE PROJECT CONTRACTOR OR PROJECT CONTRACTOR'S SUB-CONTRACTOR. HOWEVER, THE UTILITY MUST SUBMIT AN APPLICATION FOR THE INSTALLATION OR RELOCATION TO AECOM FOR APPROPRIATE HANDLING FOR LICENSE AGREEMENT AND APPLICABLE FEES. FOR UTILITY APPLICATIONS GO TO: WWW.NSCORP.COM > REAL ESTATE > NS SERVICES > WIRE, PIPELINE, & FIBER OPTIC PROJECTS > AECOM. NOTE: LICENSE AGREEMENT MUST BE EXECUTED PRIOR TO UTILITY BEING INSTALLED OR RELOCATED.
- 15D. ALL WORK ON, OVER, UNDER OR ADJACENT TO NORFOLK SOUTHERN RIGHT-OF-WAY THAT IS NOT SPECIFICALLY DENOTED ON THE APPROVED PLANS SHALL BE SUBMITTED TO NORFOLK SOUTHERN FOR REVIEW AND APPROVAL PRIOR TO BEGINNING THE WORK.
- 15E. FOR PROJECTS EXCEEDING 30 DAYS OF CONSTRUCTION, THE FLAGMAN SHALL BE PROVIDED A SMALL WORK AREA WITH A DESK/COUNTER AND CHAIR WITHIN THE FIELD/SITE TRAILER, INCLUDING THE USE OF BATHROOM FACILITIES, WHERE THE FLAGMAN CAN CHECK IN/OUT WITH THE PROJECT, AS WELL AS TO THE FLAGMAN'S HOME TERMINAL. THE WORK AREA SHOULD PROVIDE ACCESS TO TWO (2) ELECTRICAL OUTLETS FOR RECHARGING RADIO(S), AND A LAPTOP COMPUTER; AND HAVE THE ABILITY TO PRINT OFF NEEDED DOCUMENTATION AND ORDERS AS NEEDED AT THE FIELD/SITE TRAILER. THIS SHOULD AID IN MAXIMIZING THE FLAGMAN'S TIME AND EFFICIENCY ON THE PROJECT.

CONSTRUCTION ACCESS,
EXISTING TRAIL SOUTH OF THE CHRISTINA RIVER

- 16A. CONSTRUCTION ACCESS VIA THE EXISTING TRAIL BETWEEN BAYLOR BOULEVARD AND THE CHRISTINA RIVER IS PERMITTED.
- 16B. PRIOR TO CONSTRUCTION OF THE PROJECT AND WITHIN 20 DAYS OF EXECUTION OF THE CONTRACT, A VIDEO SHALL BE TAKEN OF THE EXISTING TRAIL BETWEEN BAYLOR BOULEVARD AND THE CHRISTINA RIVER. THE VIDEO SHALL SHOW PAVEMENT CONDITIONS AND THE GRASS AREA ADJACENT TO THE TRAIL. THE VIDEO WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. THE COST OF THE VIDEO SHALL BE INCIDENTAL TO ITEM 763501 - CONSTRUCTION ENGINEERING.
- 16C. ANY DAMAGE TO THE TRAIL, INCLUDING THE PAVEMENT, GRASS ADJACENT TO THE TRAIL, DRAINAGE FACILITIES, FENCING, TRAIL AMENITIES (KIOSK, BENCHES, SIGNS, ETC.) AND THE GATE AT BAYLOR BOULEVARD, INCURRED DURING USE SHALL BE REPAIRED AND REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE.
- 16D. THE TYPICAL SECTION OF THIS EXISTING PAVED TRAIL IS 3" TYPE C ASPHALT OVER 6" TYPE B, GABC.
- 16E. AFTER COMPLETION OF THE CHRISTINA RIVER BRIDGE, THE CONTRACTOR MAY USE THIS BRIDGE TO TRANSPORT MATERIALS OVER THE CHRISTINA RIVER. SEE BRIDGE PLANS (SHEET PN-101) FOR REQUIREMENTS. ALL REQUIREMENTS MUST BE STRICTLY ADHERED TO.

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Website
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ADDENDUMS / REVISIONS	

NOT TO SCALE

**NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3**

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

NOTES	SHEET NO.
	5
	TOTAL SHTS.
	207

PN-02

**EARTHWORK SUMMARY
FOR INFORMATION ONLY**

	CP-01	CP-02	CP-03	CP-04	CP-05	CP-06	CP-07	CP-08	CP-09	PROJECT
	STA. 102+50	STA. 104+00	STA. 112+00	STA. 118+00	STA. 125+00	STA. 133+00	STA. 140+50	STA. 148+00	STA. 155+50	TOTALS
	TO	TO	TO	TO	TO	TO	TO	TO	TO	
	STA. 104+00	STA. 112+00	STA. 118+00	STA. 125+00	STA. 133+00	STA. 140+50	STA. 148+00	STA. 155+50	STA. 161+70	
EXCAVATION - ITEM 202000 (CY) [NEED = '-' / EXCESS = '+']										
EX01 : FROM CROSS SECTIONS / MODELS (+)	143.71	587.99	1181.26	469.62	83.18	0.00	0.00	0.00	0.00	2465.76
EX02 : BITUMINOUS PAVEMENT REMOVED IN FILL SECTIONS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EX03 : TOPSOIL REMOVED UNDER FILL SECTIONS (+)	1.23	21.07	28.11	36.37	48.43	0.00	0.00	0.00	0.00	135.21
EX04 : TOPSOIL PLACED IN CUT SECTIONS (+) (Template includes proposed topsoil depth)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EX05 : ROOT MAT REMOVED IN CUT SECTIONS (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EX06 : CURB AND/OR CURB AND GUTTER EXCAVATION (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EX07 : UNDERDRAIN EXCAVATION (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EX08 : ROCK EXCAVATION (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EX09 : REMOVAL OF PCC PAVEMENT, CURBS, SIDEWALK, ETC. (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXTOTAL : TOTAL EXCAVATION	144.94	609.06	1209.37	505.99	131.61	0.00	0.00	0.00	0.00	2600.97
STORMWATER MANAGEMENT POND EXCAVATION - ITEM 271000 (CY) [NEED = '-' / EXCESS = '+']										
SWEX01 : FROM CROSS SECTIONS / MODELS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWEX02 : TOPSOIL REMOVED UNDER FILL SECTIONS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWEX03 : TOPSOIL PLACED IN CUT SECTIONS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWEX04 : ROOT MAT REMOVED (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWEX05 : ROCK EXCAVATION (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWEXTOTAL : TOTAL STORMWATER MANAGEMENT POND EXCAVATION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXCAVATION AVAILABLE FOR EMBANKMENT (CY) [NEED = '-' / EXCESS = '+']										
EXTOTAL : TOTAL EXCAVATION (+) [ITEM 202000]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWEXTOTAL : TOTAL STORMWATER MANAGEMENT POND EXCAVATION (+) [ITEM 271000]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX01 : EXCAVATION AND BACKFILLING FOR STRUCTURES (+) [ITEM 207000]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX02 : EXCAVATION AND BACKFILLING FOR PIPE TRENCHES (+) [ITEM 208000 + PIPES < 24" IN DIAMETER]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX03 : CHANNEL EXCAVATION (+) [ITEM 203000]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX04 : EXCAVATION FROM LATERAL OR LONGITUDINAL DITCHING (+) [ITEM 714000]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX05 : EXCAVATION FROM CURBS AND/OR CURB AND GUTTER (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX06 : EXCAVATION FROM UNDERDRAINS (+) [ITEM 71500X]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX07 : MISCELLANEOUS EXCAVATIONS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX08 : TOPSOIL REMOVED IN CUT AND/OR FILL SECTIONS (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX09 : TOPSOIL REMOVED IN CUT AND/OR FILL SECTIONS FOR STORMWATER MANAGEMENT PONDS (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEX10 : UNSUITABLE MATERIALS (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVEXTOTAL : TOTAL EXCAVATION AVAILABLE FOR EMBANKMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMBANKMENT AND BORROW, TYPE 'F' REQUIRED (CY) [NEED = '-' / EXCESS = '+']										
EMRF01 : FROM CROSS SECTIONS / MODEL (+) [EMBANKMENT REQUIRED BELOW SUBGRADE OR CAPPING]	59.78	331.19	539.64	185.24	96.82	0.00	0.00	0.00	0.00	1212.67
EMRF02 : TOPSOIL REMOVED UNDER FILL (+)	10.28	17.03	15.42	9.17	26.91	0.00	0.00	0.00	0.00	78.81
EMRF03 : ROOT MAT REMOVED UNDER FILL (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMRF04 : UNSUITABLE MATERIAL REMOVED UNDER FILL (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMRF05 : PCC REMOVED UNDER FILL (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMRF06 : BITUMINOUS PAVEMENT REMOVED UNDER FILL (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMRF07 : TOPSOIL TO BE PLACED IN FILL (+) (Included in template and EMRFO1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMRF08 : SUBTOTAL OF EMBANKMENT AND BORROW, TYPE 'F' REQUIRED	70.06	348.22	555.06	194.41	123.73	0.00	0.00	0.00	0.00	1291.48
EMRF09 : COMPACTION FACTOR APPLIED TO THE SUBTOTAL (%)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
EMRFTOTAL : TOTAL EMBANKMENT AND BORROW, TYPE 'F' REQUIRED	84.07	417.86	666.07	233.29	148.48	0.00	0.00	0.00	0.00	1549.78
TOPSOIL SUMMARY (CY) [NEED = '-' / EXCESS = '+']										
TOP01 : TOPSOIL SALVAGED FROM CUT SECTIONS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOP02 : TOPSOIL SALVAGED FROM FILL SECTIONS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOP03 : TOPSOIL SALVAGED FROM STORMWATER MANAGEMENT PONDS (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOP04 : TOPSOIL REQUIRED (-)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOPTOTAL : TOTAL TOPSOIL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MATERIAL BALANCE (CY) [NEED = '-' / EXCESS = '+']										
BORROW, TYPE 'A'	0.03	4.27	17.16	27.64	59.88	0.00	0.00	0.00	0.00	108.98
BORROW, TYPE 'B'	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BORROW, TYPE 'C'	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BORROW, TYPE 'F'	84.07	417.86	666.07	233.29	148.48	0.00	0.00	0.00	0.00	1549.78
TOPSOIL	-	-	-	-	-	-	-	-	-	0.00
UNSUITABLE MATERIAL	144.94	609.06	1209.37	505.99	131.61	0.00	0.00	0.00	0.00	2600.97

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ADDENDUMS / REVISIONS	

NOT TO SCALE

NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: MEF CHECKED BY: JRR

NOTES	SHEET NO. 6
	TOTAL SHTS. 207

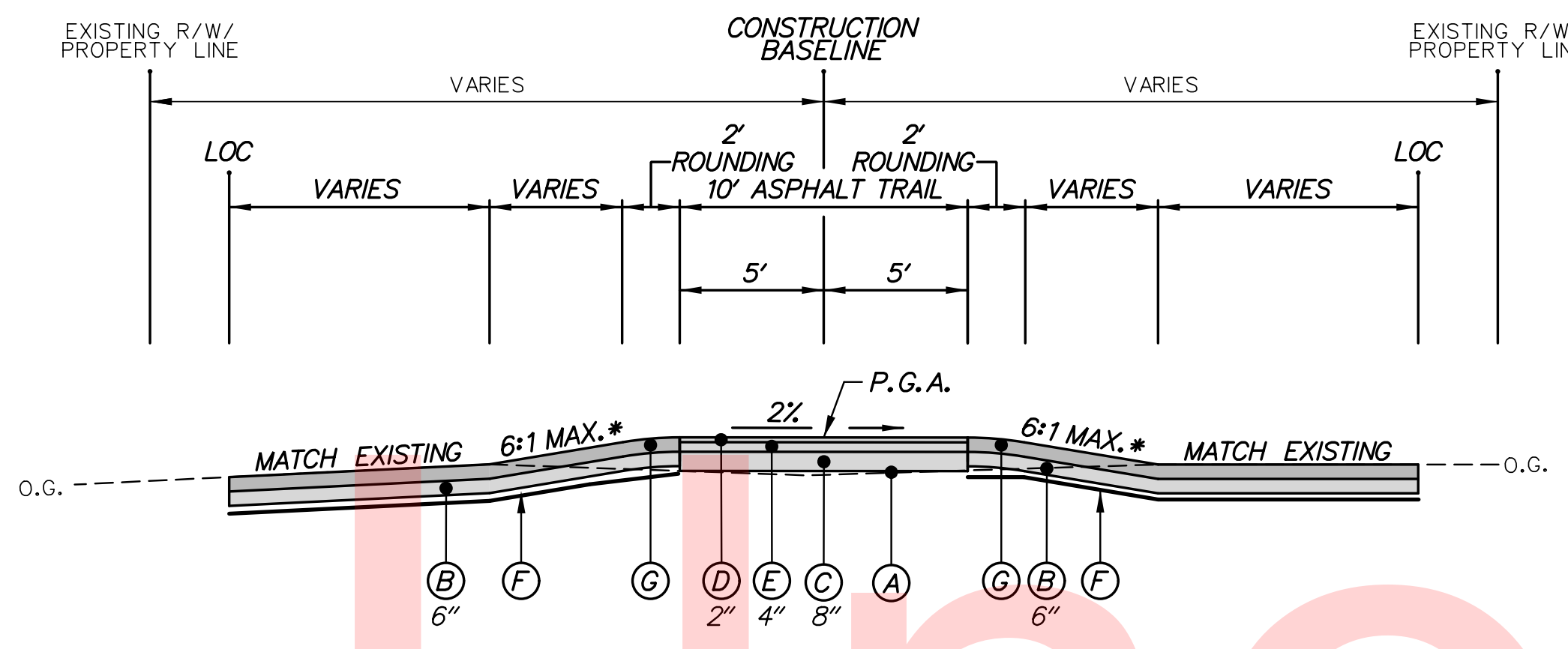
PN-03

MATERIAL	LIFT THICKNESS	
	MINIMUM	MAXIMUM
BITUMINOUS CONCRETE, TYPE 'C'	1.25"	2"
BITUMINOUS CONCRETE, TYPE 'B'	2.25"	4"
BITUMINOUS CONCRETE BASE COURSE	3"	6"
GRADED AGGREGATE BASE COURSE	3"	8"

LEGEND	
(A)	ITEM 209001 - BORROW, TYPE A
(B)	ITEM 209006 - BORROW, TYPE F
(C)	ITEM 302007 - GRADED AGGREGATE BASE COURSE, TYPE B
(D)	ITEM 401800 - BITUMINOUS CONCRETE, SUPERPAVE, TYPE C, 115 GYRATIONS, PG 64-22 (CARBONATE STONE)
(E)	ITEM 401809 - BITUMINOUS CONCRETE, SUPERPAVE, TYPE B, 115 GYRATIONS, PG 64-22
(F)	ITEM 713500 - GEOTEXTILE STABILIZATION, SPECIAL
(G)	ITEM 908004 - TOPSOIL, 6" DEPTH
	ITEM 908512 - TEMPORARY GRASS SEEDING, WET GROUND

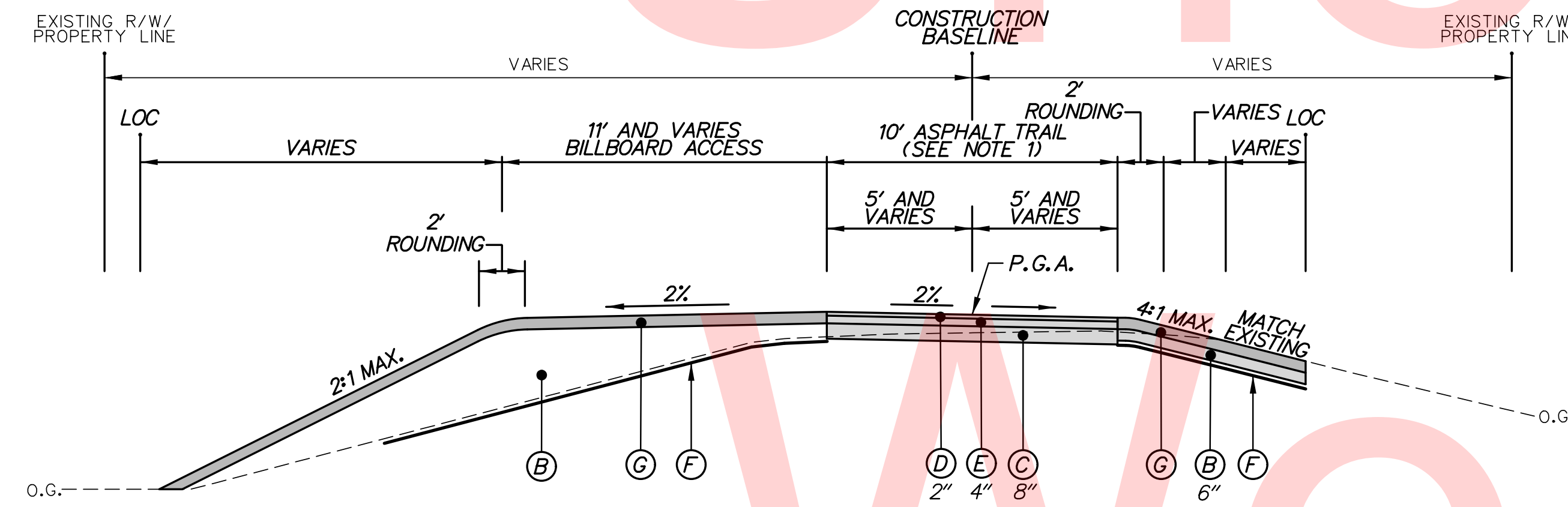
*RIGHT FILL SLOPE CHART	
STATION	SLOPE
112+50 TO 112+80	5:1
112+90 TO 113+00	4:1

*LEFT FILL SLOPE CHART	
STATION	SLOPE
113+70 TO 114+20	4:1

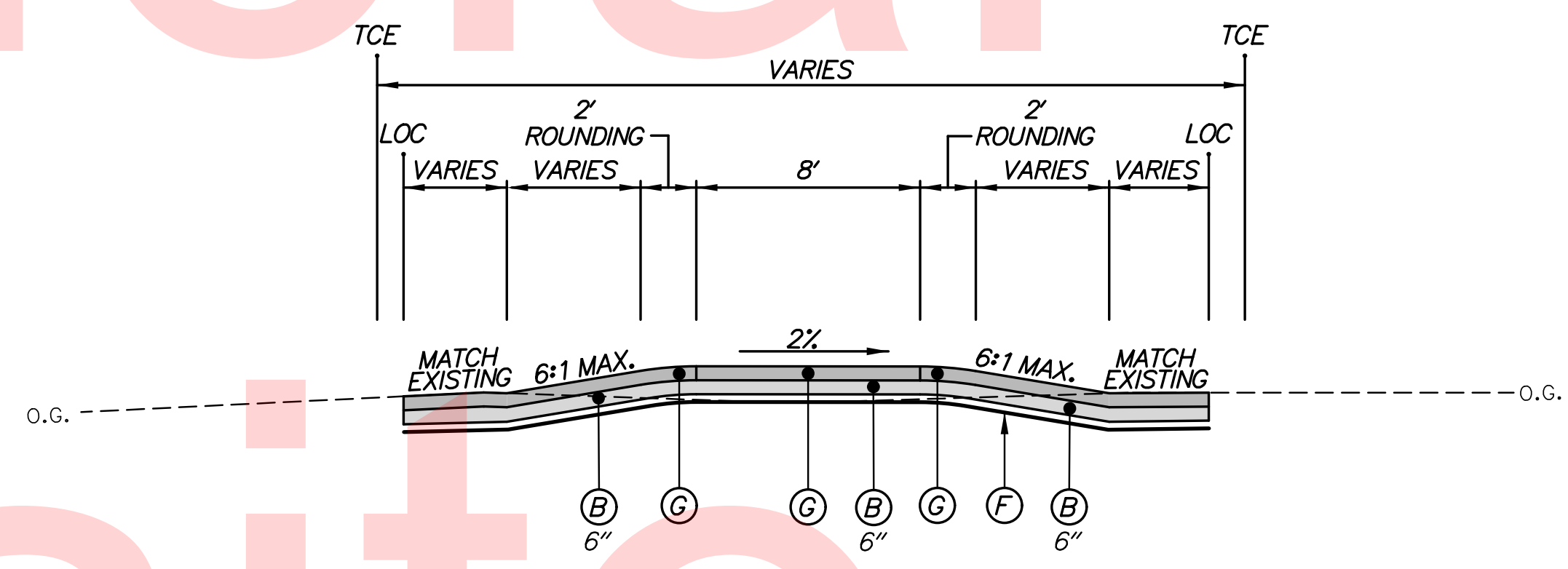


**NEW CASTLE INDUSTRIAL TRACK TRAIL
STATION 111+50 TO STATION 116+20**

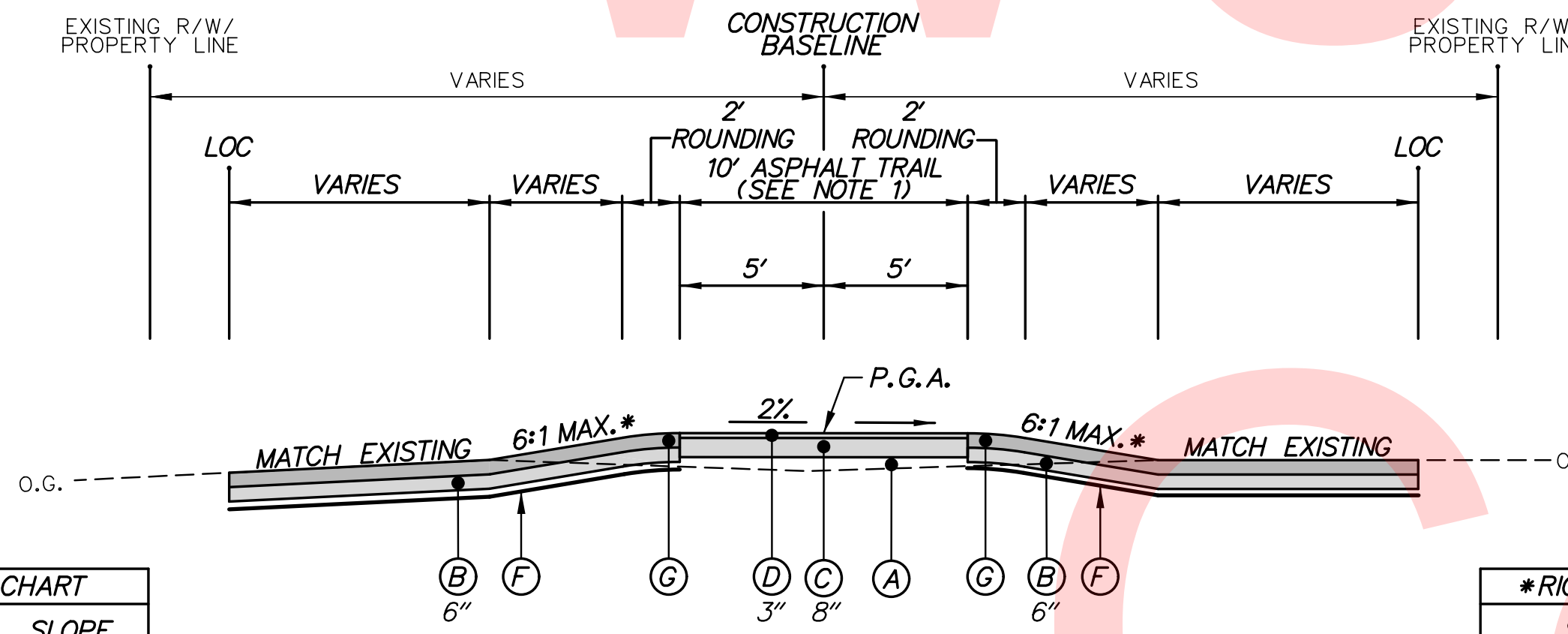
NOTES:
7. THE TRAIL WIDTH TRANSITIONS FROM 10' TO 14' AT THE FOLLOWING LOCATIONS:
- STA. 103+60 TO STA. 103+70
- STA. 110+94 TO STA. 111+19



**NEW CASTLE INDUSTRIAL TRACK TRAIL
STATION 110+94 TO STATION 111+50**



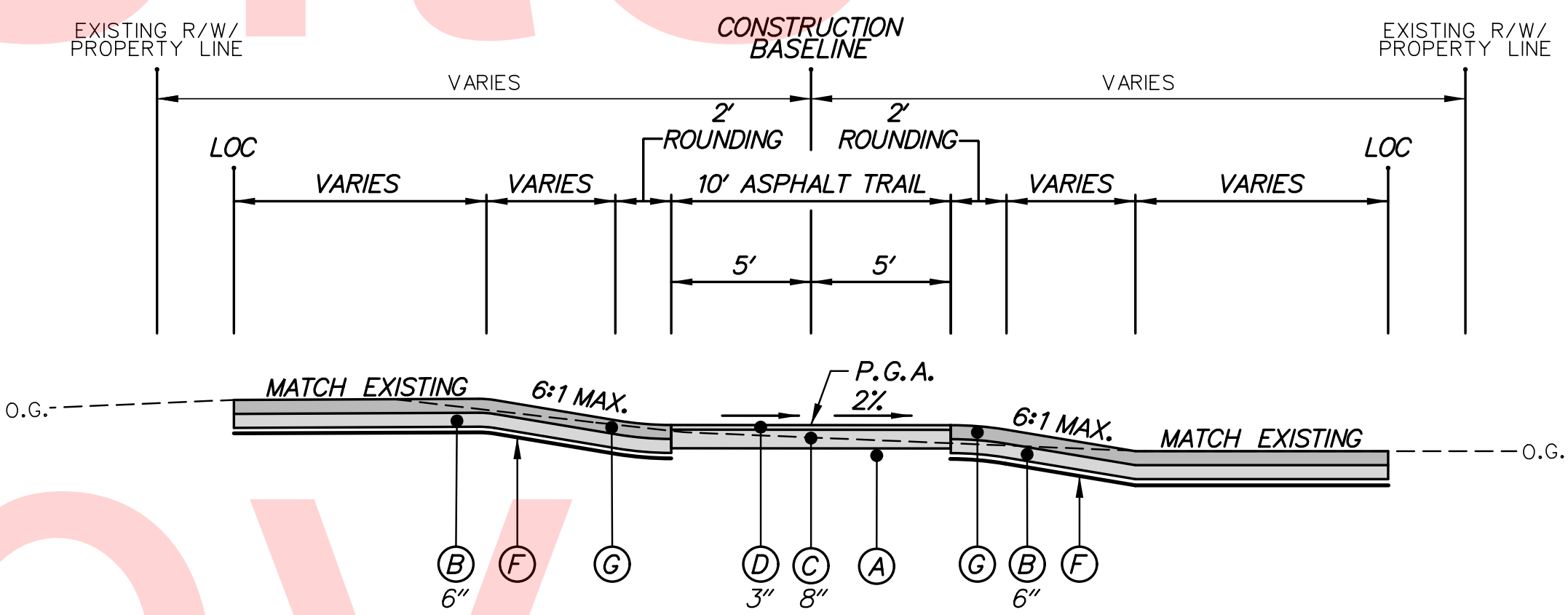
**RE-ALIGNED REFUGE ENTRANCE PATH
STATION 125+78 TO STATION 125+86
(EXTENDS SOUTH OF ASPHALT TRAIL)**



**NEW CASTLE INDUSTRIAL TRACK TRAIL
STATION 102+50 TO STATION 103+71
STATION 116+20 TO STATION 122+10
STATION 122+75 TO STATION 126+12**

*RIGHT FILL SLOPE CHART	
STATION	SLOPE
103+40 TO 103+71	5:1
126+00 TO 126+12	5:1

*LEFT FILL SLOPE CHART	
STATION	SLOPE
103+40 TO 103+54	5:1
103+64 TO 103+71	4:1
121+90 TO 122+00	4:1
126+00 TO 126+12	5:1



**NEW CASTLE INDUSTRIAL TRACK TRAIL
STATION 122+10 TO STATION 122+75**

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ADDENDUMS / REVISIONS	

NOT TO SCALE

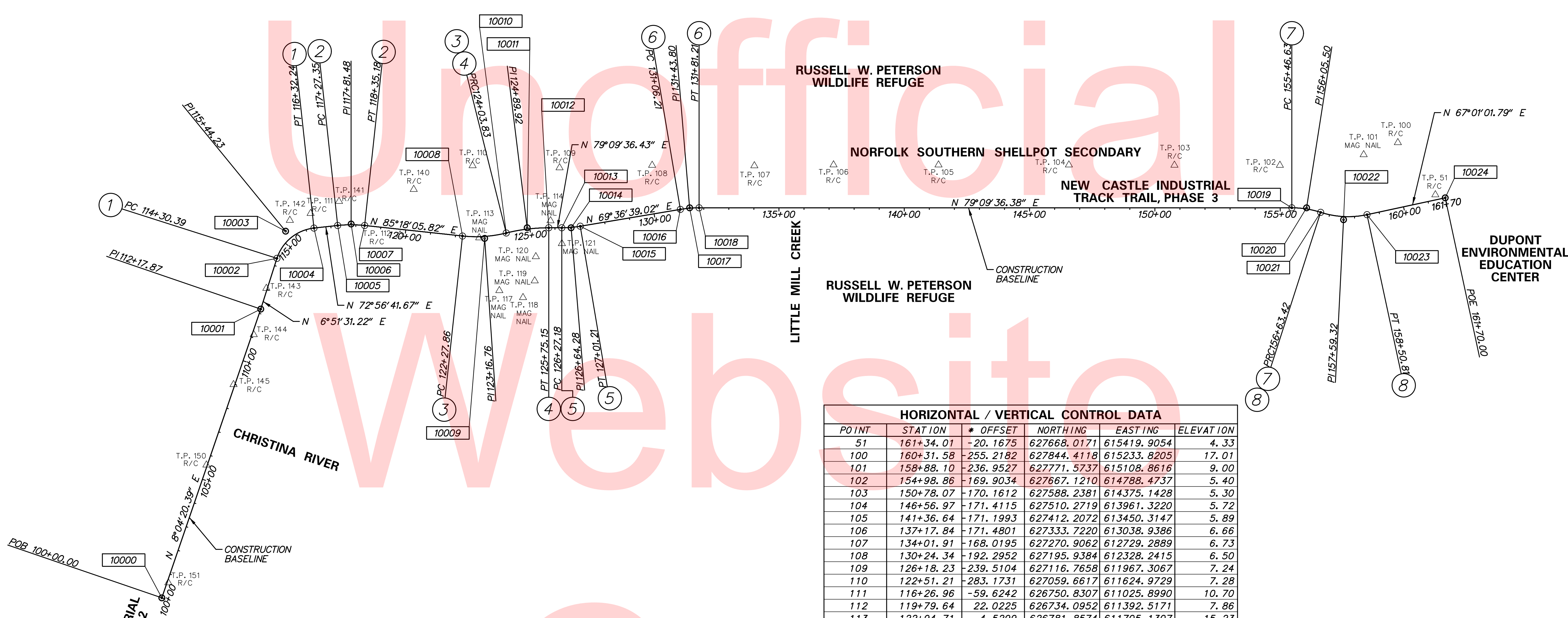
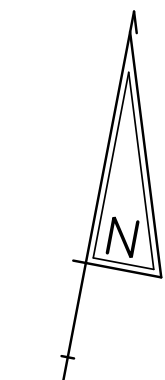
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD CHECKED BY: JRR

TYPICAL SECTIONS

TS-01
SHEET NO. 7
TOTAL SHTS. 207

DATUM REFERENCE:
 HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE
 PLANE COORDINATE SYSTEM (NAD 83/91).
 VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.



HORIZONTAL / VERTICAL CONTROL DATA					
POINT	STATION	* OFFSET	NORTHING	EASTING	ELEVATION
51	161+34.01	-20.1675	627668.0171	615419.9054	4.33
100	160+31.58	-255.2182	627844.4118	615233.8205	17.01
101	158+88.10	-236.9527	627771.5737	615108.8616	9.00
102	154+98.86	-169.9034	627667.1210	614788.4737	5.40
103	150+78.07	-170.1612	627588.2381	614375.1428	5.30
104	146+56.97	-171.4115	627510.2719	613961.3220	5.72
105	141+36.64	-171.1993	627412.2072	613450.3147	5.89
106	137+17.84	-171.4801	627333.7220	613038.9386	6.66
107	134+01.91	-168.0195	627270.9062	612729.2889	6.73
108	130+24.34	-192.2952	627195.9384	612328.2415	6.50
109	126+18.23	-239.5104	627116.7658	611967.3067	7.24
110	122+51.21	-283.1731	627059.6617	611624.9729	7.28
111	116+26.96	-59.6242	626750.8307	611025.8990	10.70
112	119+79.64	22.0225	626734.0952	611392.5171	7.86
113	122+94.71	4.5299	626781.8574	611705.1307	15.23
114	125+82.22	-27.9494	626902.2065	611971.7211	6.43
117	123+46.58	221.0158	626590.1570	611823.5749	11.87
118	124+07.82	266.0249	626580.7053	611921.4721	10.17
119	124+95.07	208.4225	626655.0139	611954.7260	10.01
120	125+13.57	113.0610	626750.4567	611941.0831	11.20
121	126+27.49	63.0435	626821.3611	612033.3481	7.31
140	120+14.51	-164.1026	626922.4513	611412.0273	8.61
141	117+40.50	-95.3317	626819.4389	611128.1270	12.33
142	115+61.71	-60.0749	626708.3897	610949.8838	10.94
143	113+03.43	-4.0478	626424.0305	610908.5252	10.17
144	111+12.63	6.3442	626233.5150	610893.8301	9.98
145	108+97.70	-5.0339	626022.3112	610852.3834	9.63
150	105+59.24	-3.7753	625687.0313	610806.1024	9.56
151	100+65.23	5.1969	625196.6512	610745.6146	9.17

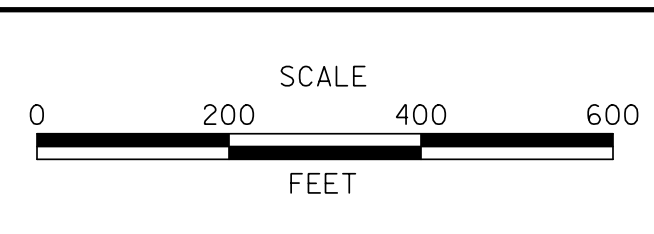
* OFFSETS SHOWN WITH A NEGATIVE SIGN ARE TO THE LEFT OF THE BASELINE

CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
10000	100+00.00	0.00'	625132.7990	610731.3096
10001	112+17.87	0.00'	626338.6026	610902.3268
10024	161+70.00	0.00'	627663.5010	615460.9086
10025	105+00.00	0.00'	625627.8448	610801.5212
10026	110+00.00	0.00'	626122.8906	610871.7327
10027	120+00.00	0.00'	626757.7116	611411.0081
10028	130+00.00	0.00'	627007.2121	612372.4242
10029	135+00.00	0.00'	627124.3327	612857.2301
10030	140+00.00	0.00'	627218.3653	613348.3083
10031	145+00.00	0.00'	627312.3979	613839.3866
10032	150+00.00	0.00'	627406.4305	614330.4649

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ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

HORIZONTAL AND VERTICAL CONTROL

HV-01
SHEET NO.
8
TOTAL SHTS.
207

N:\31896-002\CADD\HV02_LIT3.DGN

CIRCULAR CURVE NO. ①

	STATION	NORTHING	EASTING
Element: Circular			
PC (10002)	114+30.39	626549.6034	610927.7063
PI (10003)	115+44.23	626662.6224	610941.3004
CC ()		626528.7047	611101.4540
PT (10004)	116+32.24	626696.0088	611050.1280
Radius:	175.0000		
Delta:	66° 05' 10.4487" Right		
Degree of Curvature(Arc):	32° 44' 25.6036"		
Length:	201.8489		
Tangent:	113.8337		
Chord:	190.8445		
Middle Ordinate:	28.3044		
External:	33.7657		
Tangent Direction:	N 6° 51' 31.2249" E		
Radial Direction:	S 83° 08' 28.7751" E		
Chord Direction:	N 39° 54' 06.4492" E		
Radial Direction:	S 17° 03' 18.3264" E		
Tangent Direction:	N 72° 56' 41.6736" E		

CIRCULAR CURVE NO. ⑤

	STATION	NORTHING	EASTING
Element: Circular			
PC (10013)	126+27.18	626883.2112	612021.1350
PI (10014)	126+64.28	626890.1891	612057.5765
CC ()		627319.4975	611937.5941
PT (10015)	127+01.21	626903.1158	612092.3555
Radius:	444.2126		
Delta:	9° 32' 57.4127" Left		
Degree of Curvature(Arc):	12° 53' 53.8036"		
Length:	74.0353		
Tangent:	37.1036		
Chord:	73.9497		
Middle Ordinate:	1.5415		
External:	1.5469		
Tangent Direction:	N 79° 09' 36.4329" E		
Radial Direction:	S 10° 50' 23.5671" E		
Chord Direction:	N 74° 23' 07.7266" E		
Radial Direction:	S 20° 23' 20.9798" E		
Tangent Direction:	N 69° 36' 39.0202" E		

CIRCULAR CURVE NO. ②

	STATION	NORTHING	EASTING
Element: Circular			
PC (10005)	117+27.35	626723.9031	611141.0532
PI (10006)	117+81.48	626739.7778	611192.7992
CC ()		626245.8915	611287.6988
PT (10007)	118+35.18	626744.2113	611246.7436
Radius:	500.0000		
Delta:	12° 21' 24.1421" Right		
Degree of Curvature(Arc):	11° 27' 32.9612"		
Length:	107.8326		
Tangent:	54.1263		
Chord:	107.6237		
Middle Ordinate:	2.9042		
External:	2.9211		
Tangent Direction:	N 72° 56' 41.6736" E		
Radial Direction:	S 17° 03' 18.3264" E		
Chord Direction:	N 79° 07' 23.7446" E		
Radial Direction:	S 4° 41' 54.1843" E		
Tangent Direction:	N 85° 18' 05.8157" E		

CIRCULAR CURVE NO. ⑥

	STATION	NORTHING	EASTING
Element: Circular			
PC (10016)	131+06.21	627044.2157	612471.9816
PI (10017)	131+43.80	627057.3108	612507.2136
CC ()		626622.4092	612628.7592
PT (10018)	131+81.21	627064.3796	612544.1299
Radius:	450.0000		
Delta:	9° 32' 57.3606" Right		
Degree of Curvature(Arc):	12° 43' 56.6236"		
Length:	74.9998		
Tangent:	37.5869		
Chord:	74.9130		
Middle Ordinate:	1.5616		
External:	1.5670		
Tangent Direction:	N 69° 36' 39.0202" E		
Radial Direction:	S 20° 23' 20.9798" E		
Chord Direction:	N 74° 23' 07.7005" E		
Radial Direction:	S 10° 50' 23.6192" E		
Tangent Direction:	N 79° 09' 36.3808" E		

CIRCULAR CURVE NO. ③

	STATION	NORTHING	EASTING
Element: Circular			
PC (10008)	122+27.86	626776.3754	611638.0987
PI (10009)	123+16.76	626783.6577	611726.7052
CC ()		627274.6953	611597.1435
PT (10010)	124+03.83	626821.0382	611807.3701
Radius:	500.0000		
Delta:	20° 09' 53.3424" Left		
Degree of Curvature(Arc):	11° 27' 32.9612"		
Length:	175.9712		
Tangent:	88.9052		
Chord:	175.0644		
Middle Ordinate:	7.7215		
External:	7.8426		
Tangent Direction:	N 85° 18' 05.8157" E		
Radial Direction:	S 4° 41' 54.1843" E		
Chord Direction:	N 75° 13' 09.1445" E		
Radial Direction:	S 24° 51' 47.5267" E		
Tangent Direction:	N 65° 08' 12.4733" E		

CIRCULAR CURVE NO. ⑦

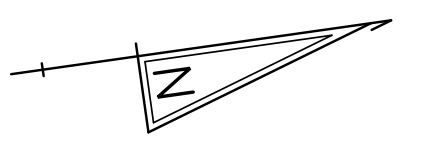
	STATION	NORTHING	EASTING
Element: Circular			
PC (10019)	155+46.63	627509.2329	614867.3430
PI (10020)	156+05.50	627520.3049	614925.1655
CC ()		627140.9242	614937.8674
PT (10021)	156+63.42	627513.1253	614983.5991
Radius:	375.0000		
Delta:	17° 50' 40.6400" Right		
Degree of Curvature(Arc):	15° 16' 43.9483"		
Length:	116.7928		
Tangent:	58.8730		
Chord:	116.3213		
Middle Ordinate:	4.5377		
External:	4.5933		
Tangent Direction:	N 79° 09' 36.3808" E		
Radial Direction:	S 10° 50' 23.6192" E		
Chord Direction:	N 88° 04' 56.7008" E		
Radial Direction:	S 7° 00' 17.0208" W		
Tangent Direction:	S 82° 59' 42.9792" E		

CIRCULAR CURVE NO. ④

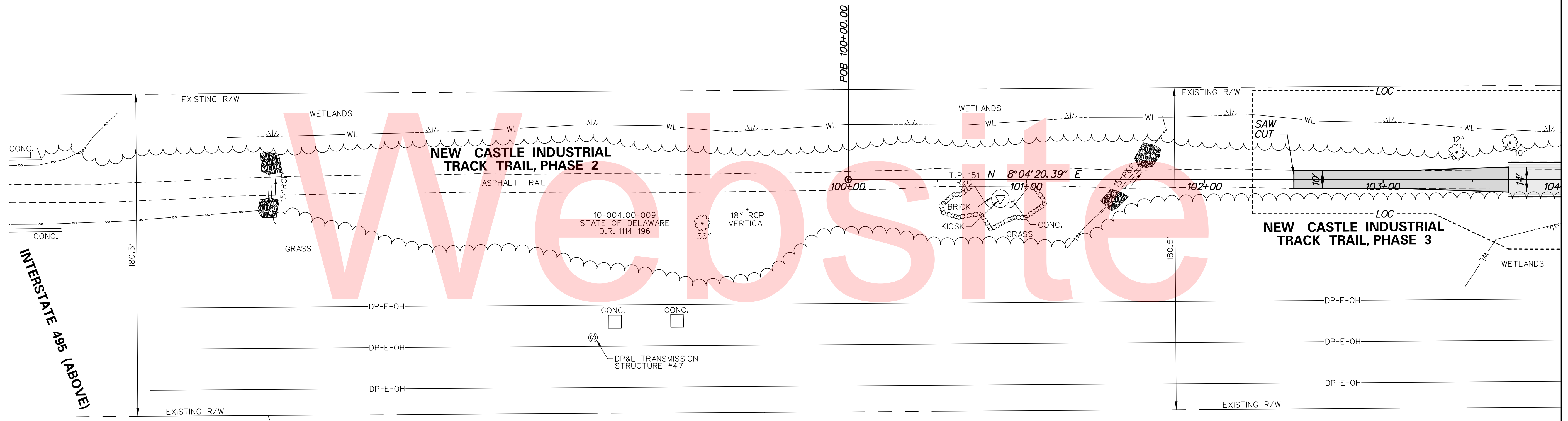
	STATION	NORTHING	EASTING
Element: Circular			
PRC (10010)	124+03.83	626821.0382	611807.3701
PI (10011)	124+89.92	626857.2366	611885.4843
CC ()		626185.9182	612101.6873
PT (10012)	125+75.15	626873.4278	611970.0419
Radius:	700.0000		
Delta:	14° 01' 23.9597" Right		
Degree of Curvature(Arc):	8° 11' 06.4009"		
Length:	171.3272		
Tangent:	86.0938		
Chord:	170.8999		
Middle Ordinate:	5.2351		
External:	5.2745		
Tangent Direction:	N 65° 08' 12.4733" E		
Radial Direction:	S 24° 51' 47.5267" E		
Chord Direction:	N 72° 08' 54.4531" E		
Radial Direction:	S 10° 50' 23.5671" E		
Tangent Direction:	N 79° 09' 36.4329" E		

CIRCULAR CURVE NO. ⑧

	STATION	NORTHING	EASTING
Element: Circular			
PRC (10021)	156+63.42	627513.1253	614983.5991
PI (10022)	157+59.32	627501.4309	615078.7771
CC ()		627868.4886	615027.2620
PT (10023)	158+50.81	627538.8731	615167.0590
Radius:	358.0357		
Delta:	29° 59' 15.2323" Left		
Degree of Curvature(Arc):	16° 00' 10.1227"		
Length:	187.3893		
Tangent:	95.8937		
Chord:	185.2579		
Middle Ordinate:	12.1897		
External:	12.6194		
Tangent Direction:	S 82° 59' 42.9792" E		
Radial Direction:	S 7° 00' 17.0208" W		
Chord Direction:	N 82° 00' 39.4047" E		
Radial Direction:	S 22° 58' 58.2114" E		
Tangent Direction:	N 67° 01' 01.7886" E		



Unofficial



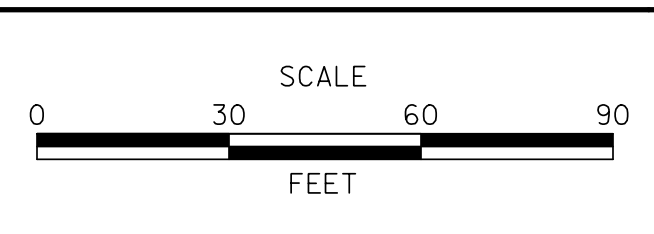
MATCH LINE STA. 104+00 (CP-02)

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ADDENDUMS / REVISIONS	

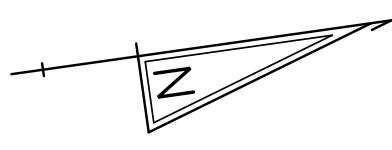


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

CONSTRUCTION PLAN

CP-01
SHEET NO.
10
TOTAL SHTS.
207



Unofficial

Web Site

Copy

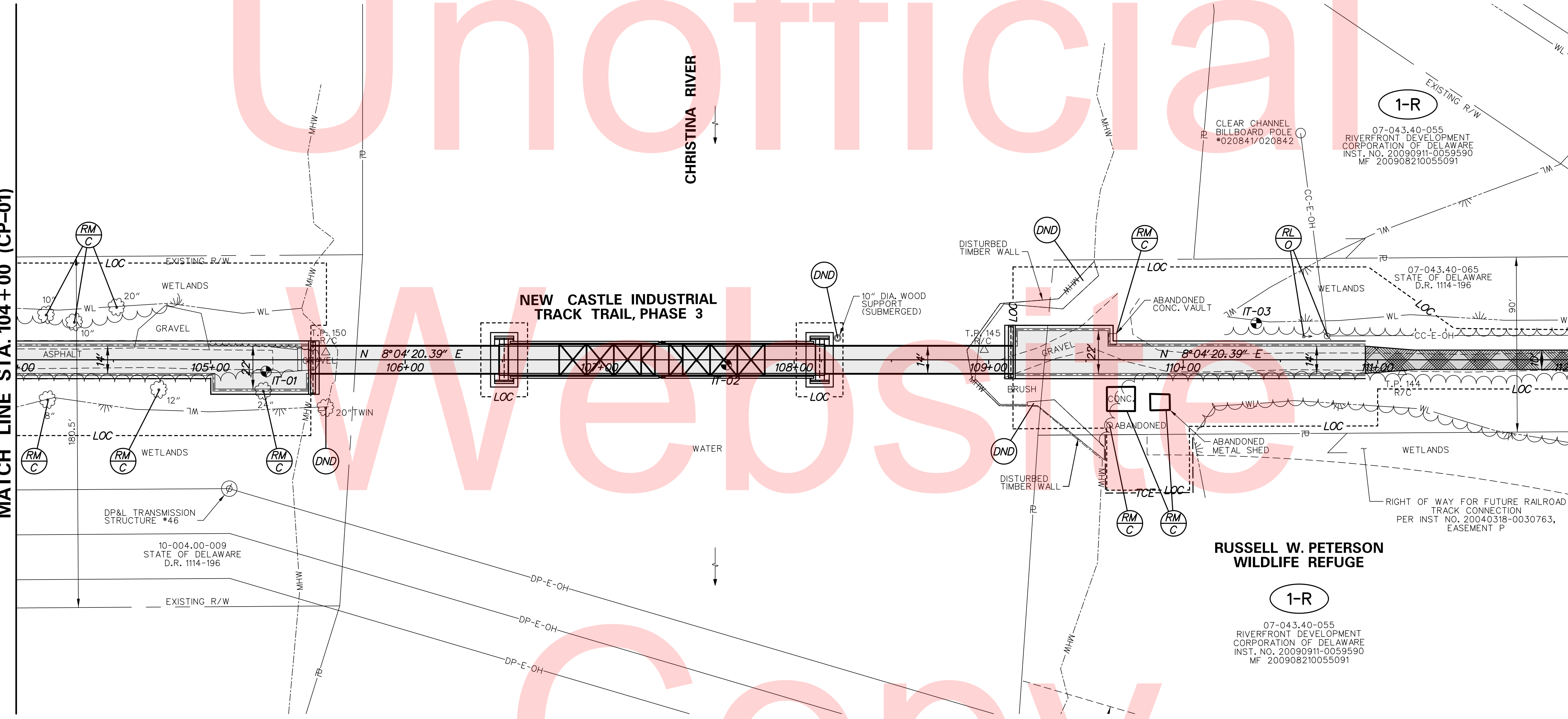
MATCH LINE STA. 104+00 (CP-01)

MATCH LINE STA. 112+00 (CP-03)

CHRISTINA RIVER

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

RUSSELL W. PETERSON WILDLIFE REFUGE



N:\31896-002\CADD\CP02_LIT3.DGN



ADDENDUMS / REVISIONS	

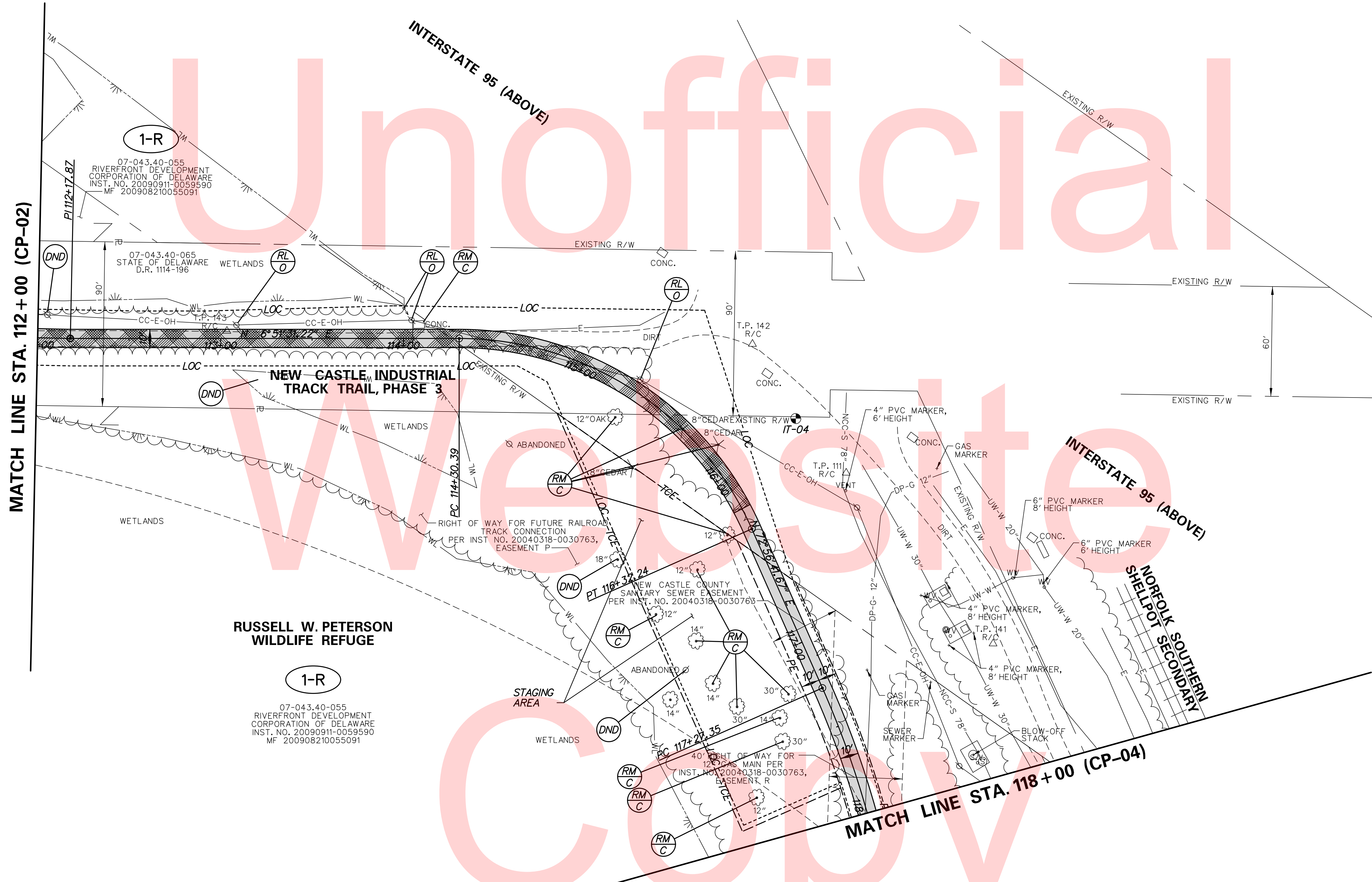
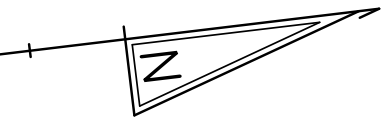


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

CONSTRUCTION PLAN

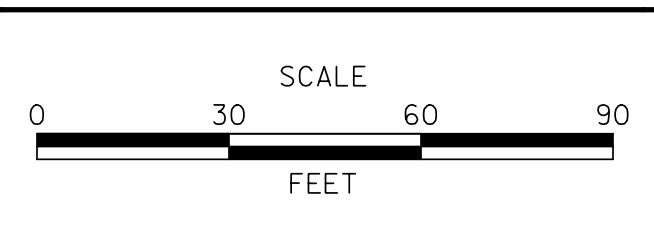
CP-02
SHEET NO.
11
TOTAL SHTS.
207



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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	

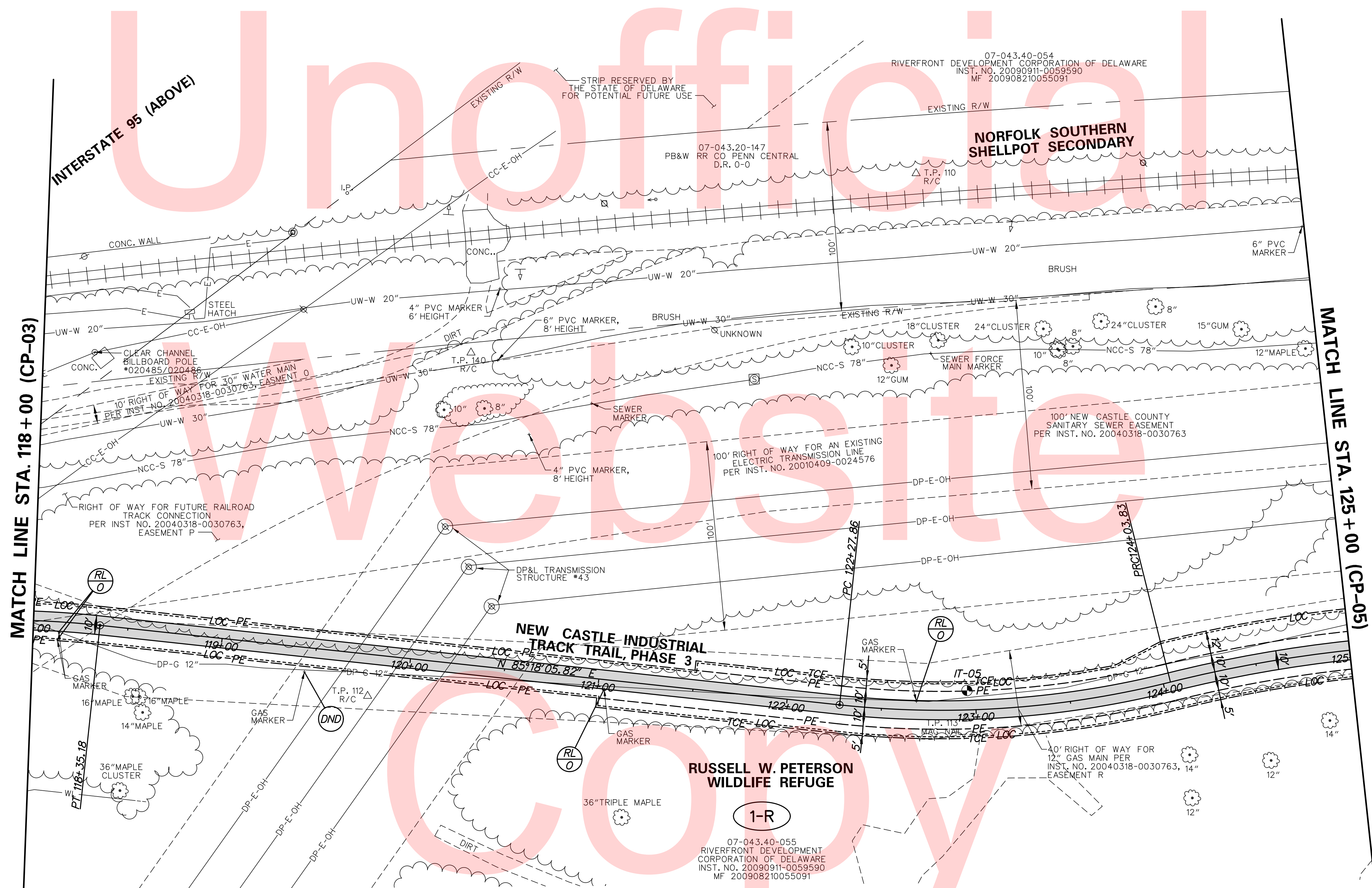
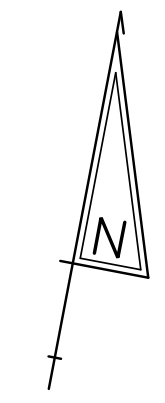


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

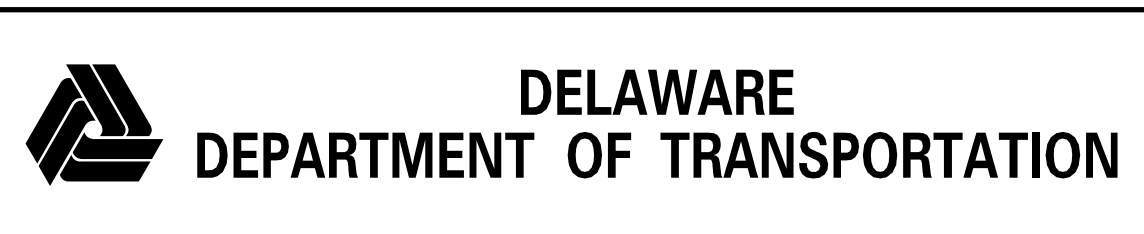
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD CHECKED BY: JRR

CONSTRUCTION PLAN

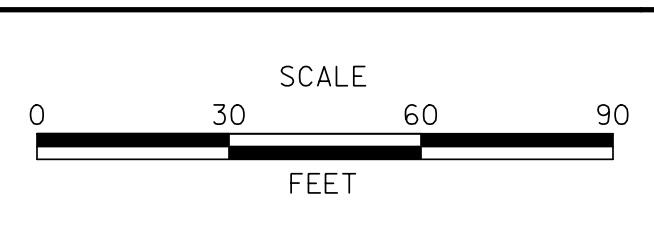
CP-03
SHEET NO. 12
TOTAL SHTS. 207



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ADDENDUMS / REVISIONS	

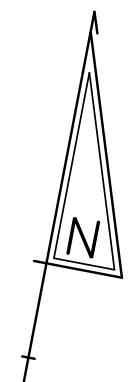


**NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3**

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD CHECKED BY: JRR

CONSTRUCTION PLAN

CP-04
SHEET NO. 13
TOTAL SHTS. 207

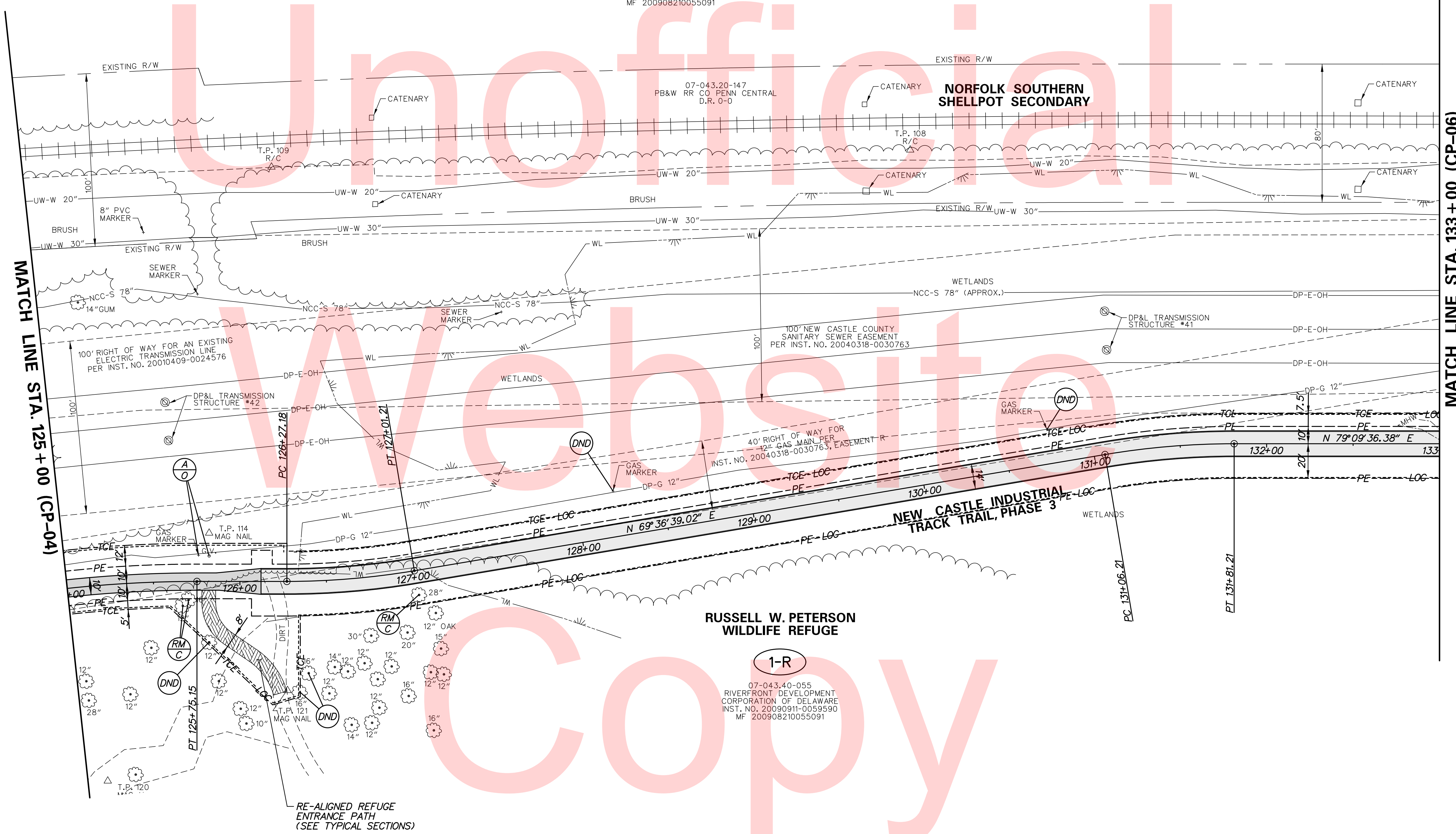


07-043.40-054
RIVERFRONT DEVELOPMENT CORPORATION OF DELAWARE
INST. NO. 20090911-0059590
MF 200908210055091

**RUSSELL W. PETERSON
WILDLIFE REFUGE**

07-043.20-147
PB&W RR CO PENN CENTRAL
D.R. 0-0

**NORFOLK SOUTHERN
SHELLPOT SECONDARY**



MATCH LINE STA. 125 + 00 (CP-04)

MATCH LINE STA. 133 + 00 (CP-06)

**RUSSELL W. PETERSON
WILDLIFE REFUGE**

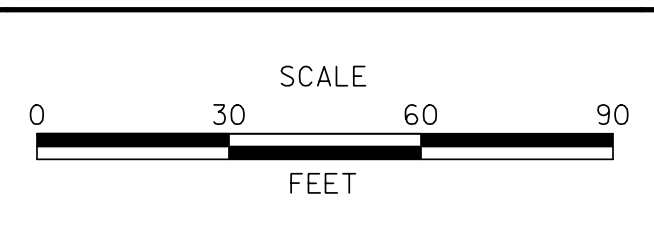
1-R

07-043.40-055
RIVERFRONT DEVELOPMENT CORPORATION OF DELAWARE
INST. NO. 20090911-0059590
MF 200908210055091

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ADDENDUMS / REVISIONS	

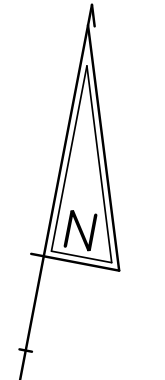


**NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3**

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD CHECKED BY: JRR

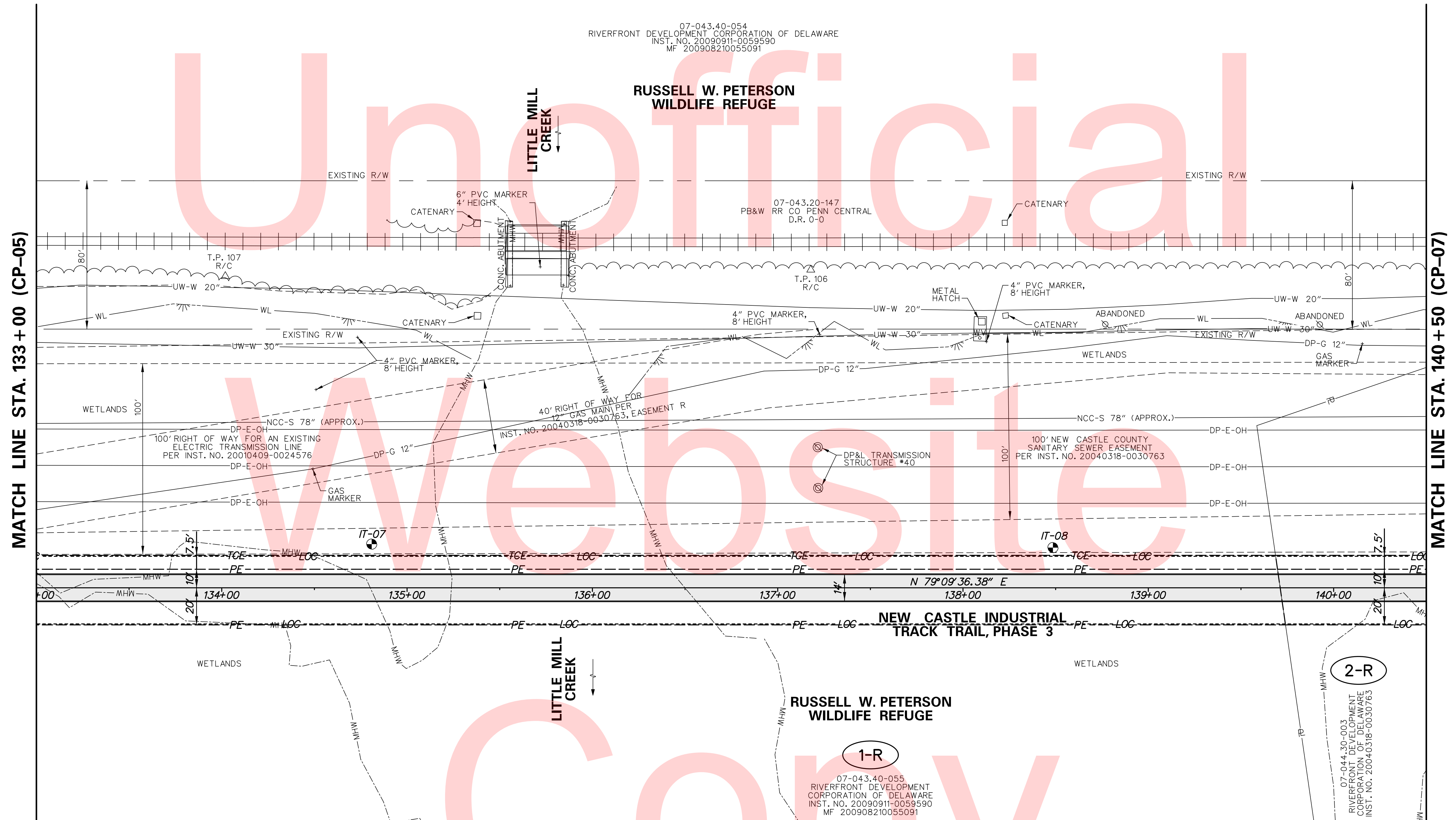
CONSTRUCTION PLAN

CP-05
SHEET NO. 14
TOTAL SHTS. 207



07-043.40-054
RIVERFRONT DEVELOPMENT CORPORATION OF DELAWARE
INST. NO. 20090911-0059590
MF 200908210055091

RUSSELL W. PETERSON WILDLIFE REFUGE



MATCH LINE STA. 133 + 00 (CP-05)

MATCH LINE STA. 140 + 50 (CP-07)

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

RUSSELL W. PETERSON WILDLIFE REFUGE



ADDENDUMS / REVISIONS	



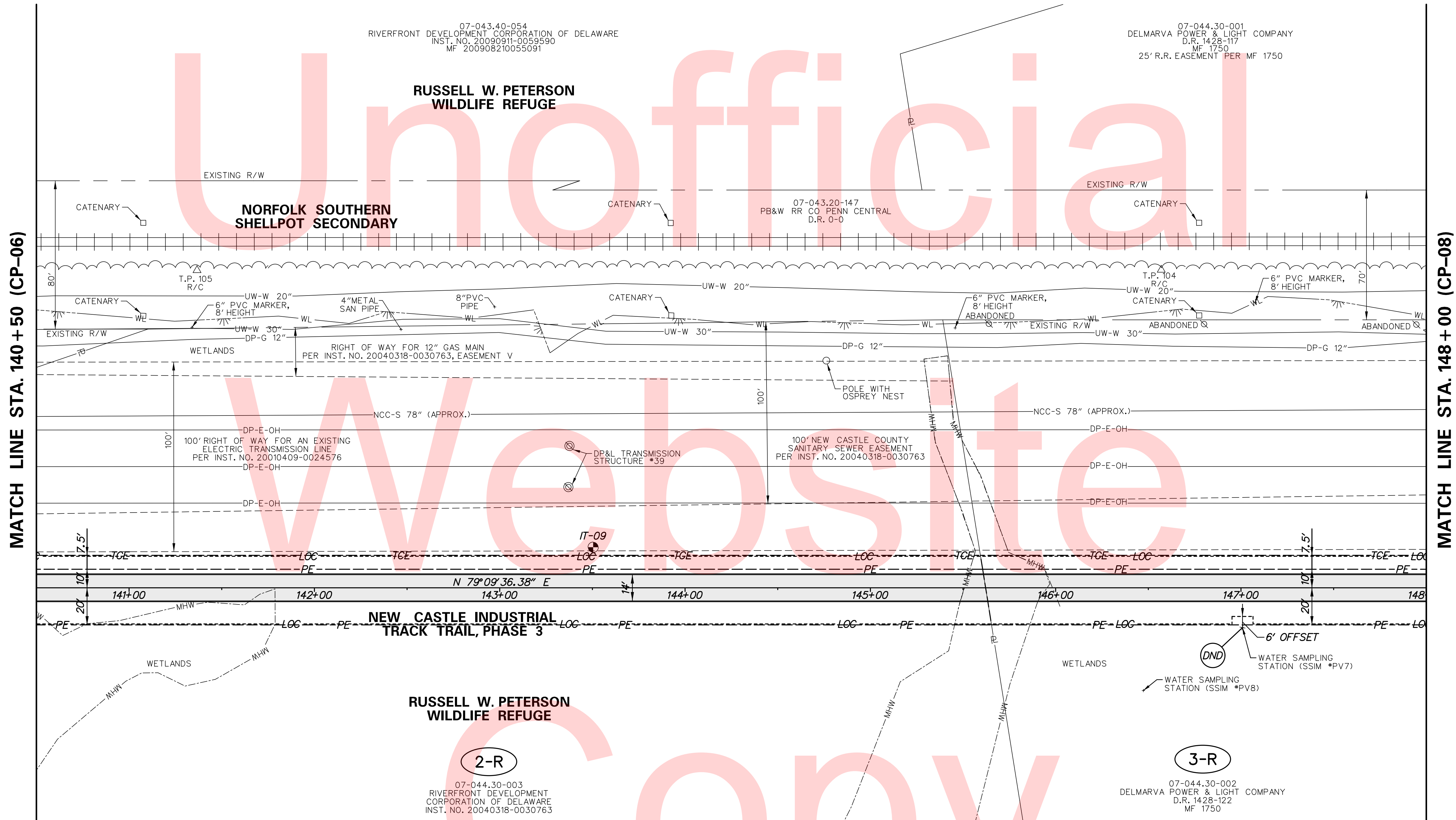
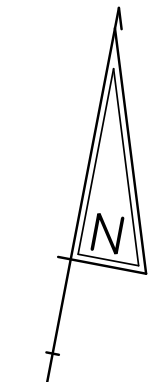
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

CONSTRUCTION PLAN

CP-06
SHEET NO.
15
TOTAL SHTS.
207

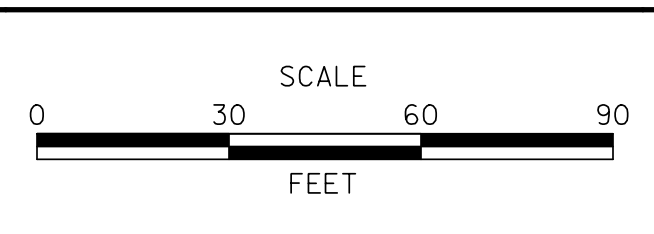
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ADDENDUMS / REVISIONS	

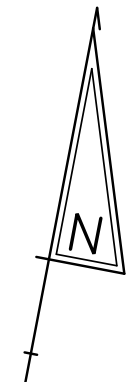


**NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3**

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD CHECKED BY: JRR

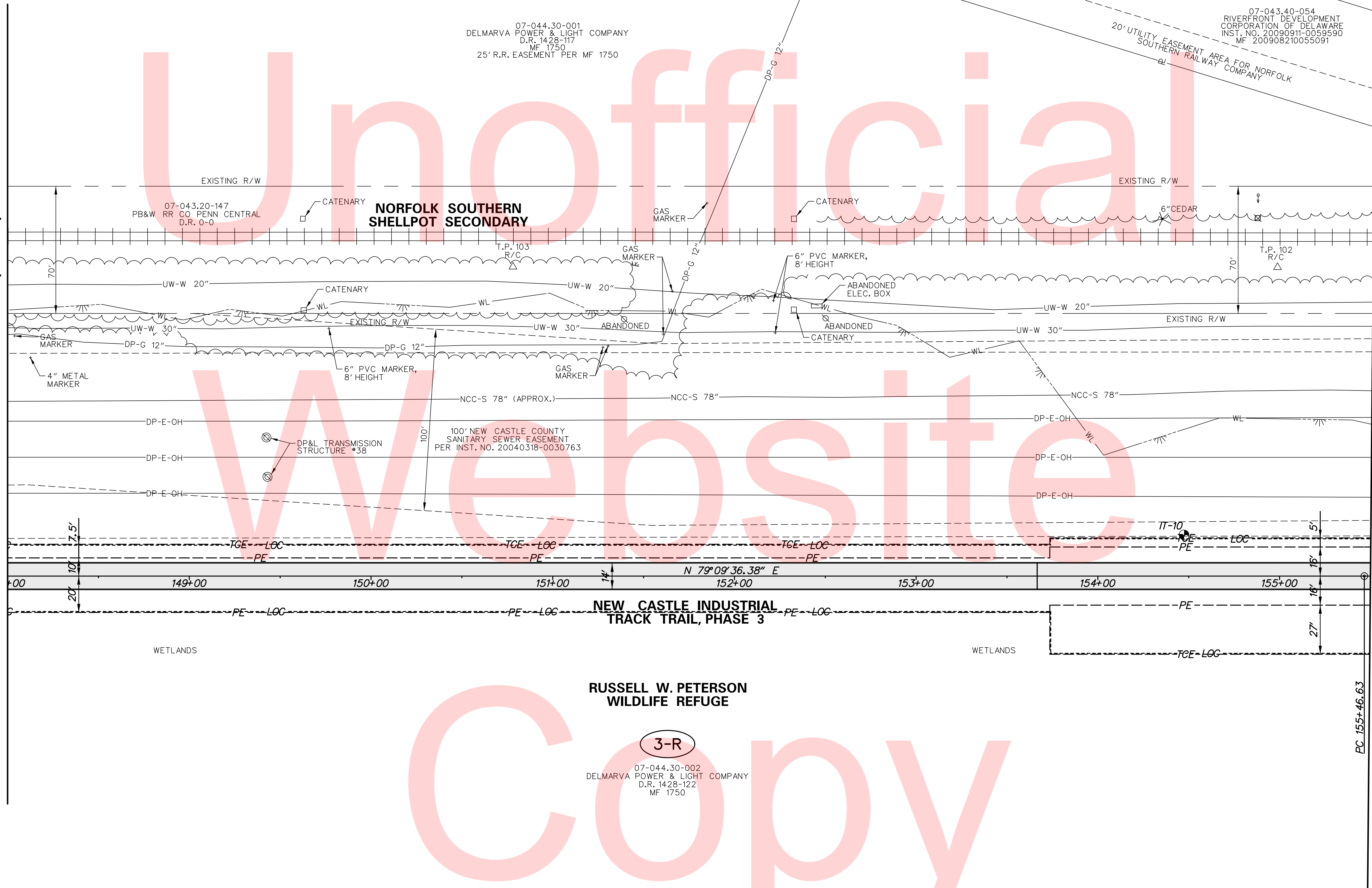
CONSTRUCTION PLAN

CP-07
SHEET NO. 16
TOTAL SHTS. 207



MATCH LINE STA. 148+00 (CP-07)

MATCH LINE STA. 155+50 (CP-09)



N:\31896-002\CADD\CP08_LIT3.DGN

 DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	



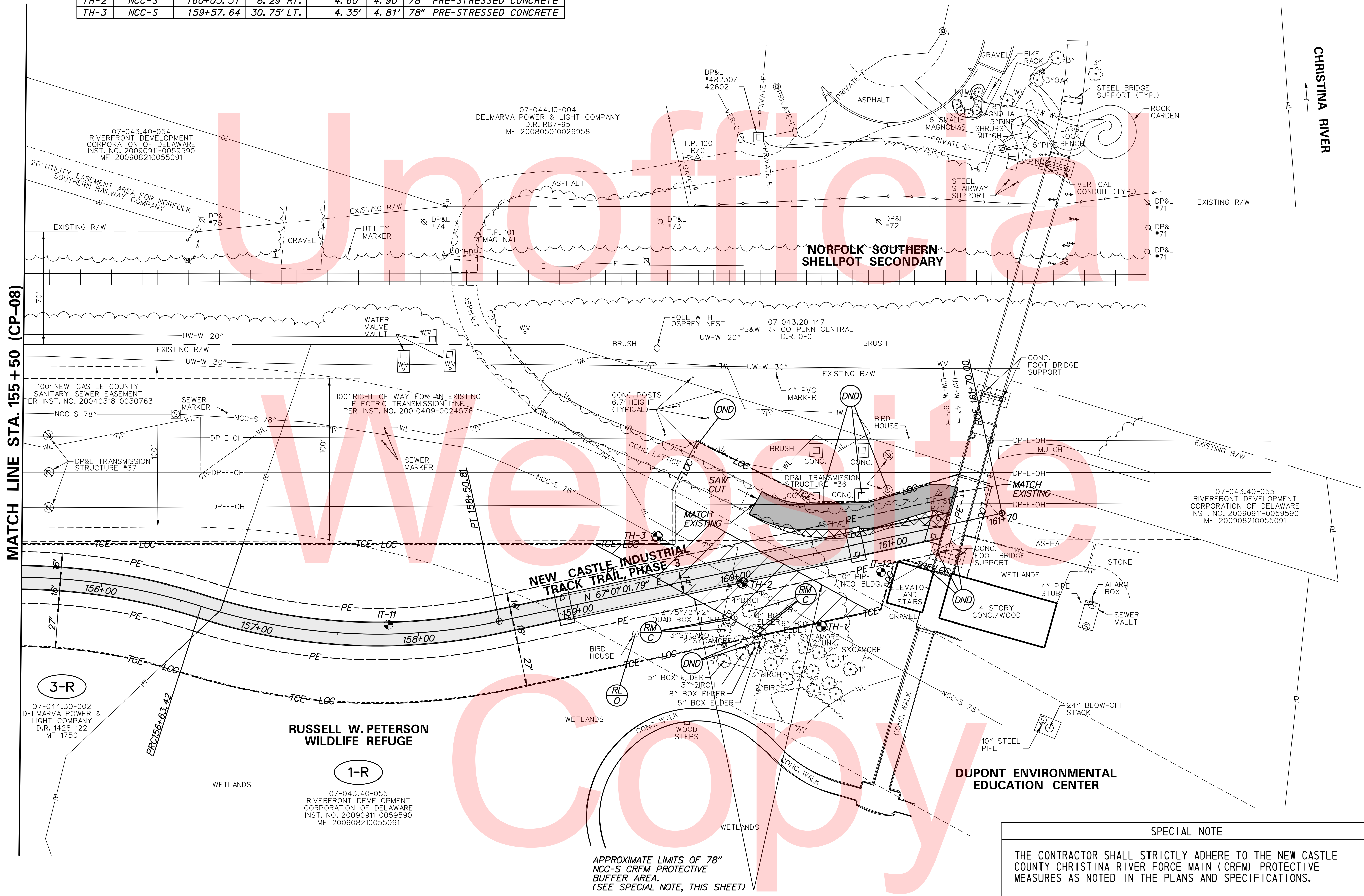
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD CHECKED BY: JRR

CONSTRUCTION PLAN

CP-08
SHEET NO. 17
TOTAL SHTS. 207

UTILITY TEST HOLE SCHEDULE						
NO.	UTILITY	STATION	OFFSET	GRND EL.	COVER	O. D. & MATERIAL
TH-1	NCC-S	160+45.63	45.18' RT.	5.35'	5.31'	78" PRE-STRESSED CONCRETE
TH-2	NCC-S	160+03.31	8.29' RT.	4.60'	4.90'	78" PRE-STRESSED CONCRETE
TH-3	NCC-S	159+57.64	30.75' LT.	4.35'	4.81'	78" PRE-STRESSED CONCRETE

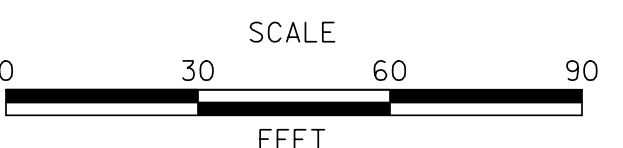


SPECIAL NOTE

THE CONTRACTOR SHALL STRICTLY ADHERE TO THE NEW CASTLE COUNTY CHRISTINA RIVER FORCE MAIN (CRFM) PROTECTIVE MEASURES AS NOTED IN THE PLANS AND SPECIFICATIONS.

APPROXIMATE LIMITS OF 78" NCC-S CRFM PROTECTIVE BUFFER AREA. (SEE SPECIAL NOTE, THIS SHEET)

ADDENDUMS / REVISIONS



CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

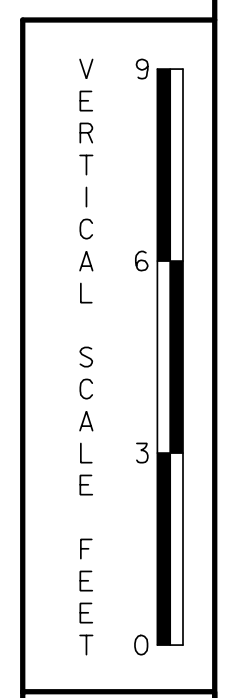
CP-09
SHEET NO.
18
TOTAL SHTS.
207

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Unofficial
 Website
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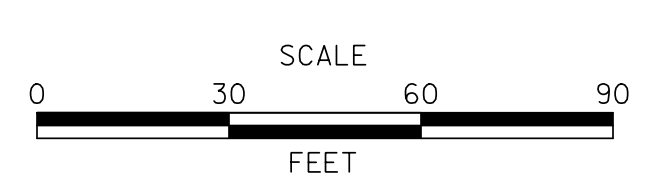
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



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ADDENDUMS / REVISIONS	

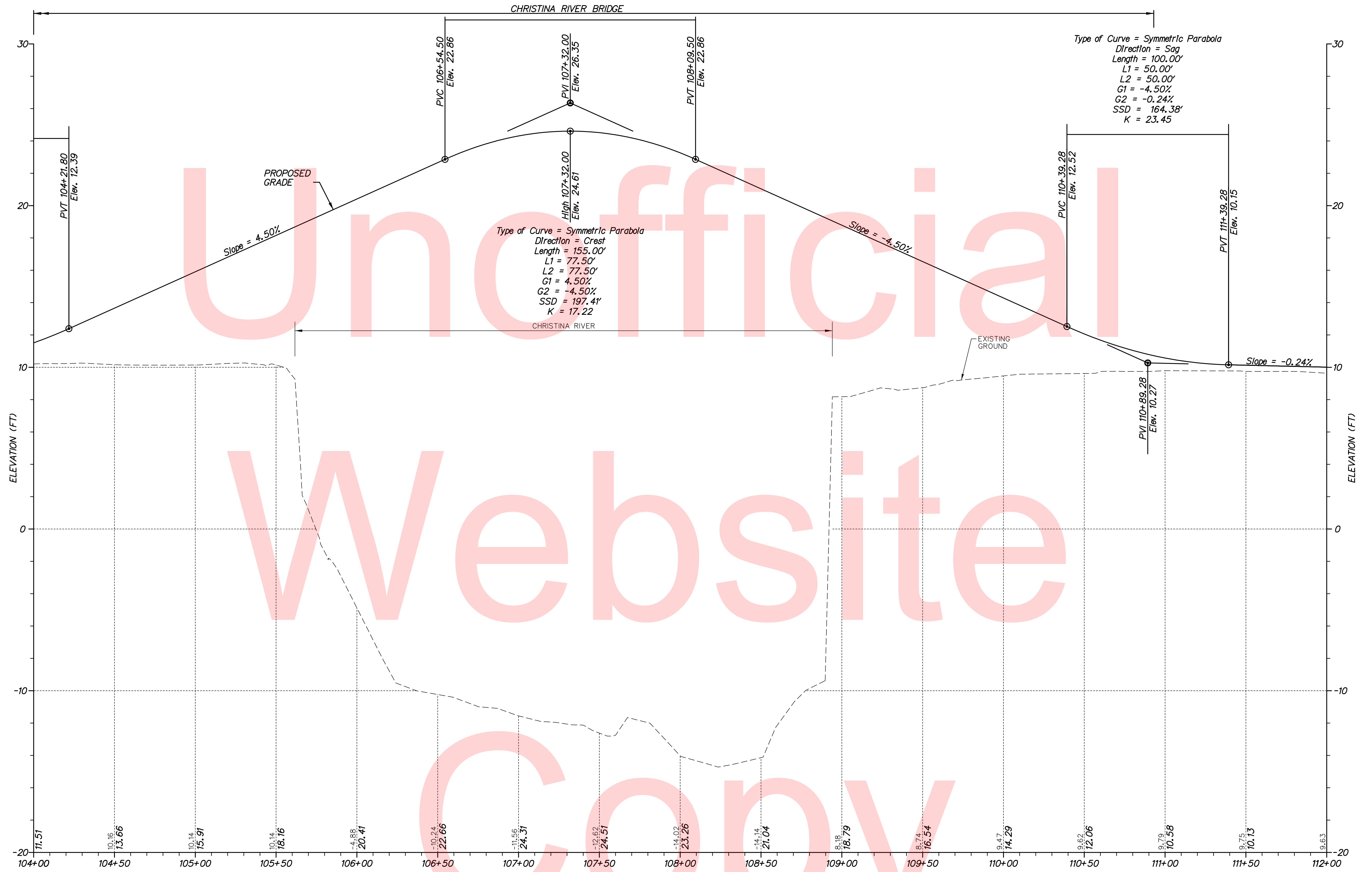


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

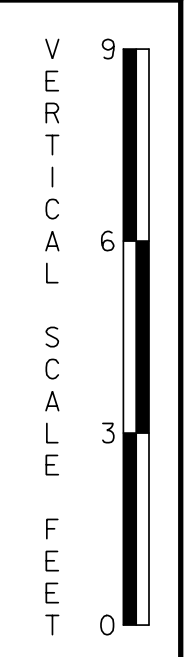
CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

PROFILES

PF-01
SHEET NO.
19
TOTAL SHTS.
207



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



N:\31896-002\CADD\PF02_LTT3.DGN



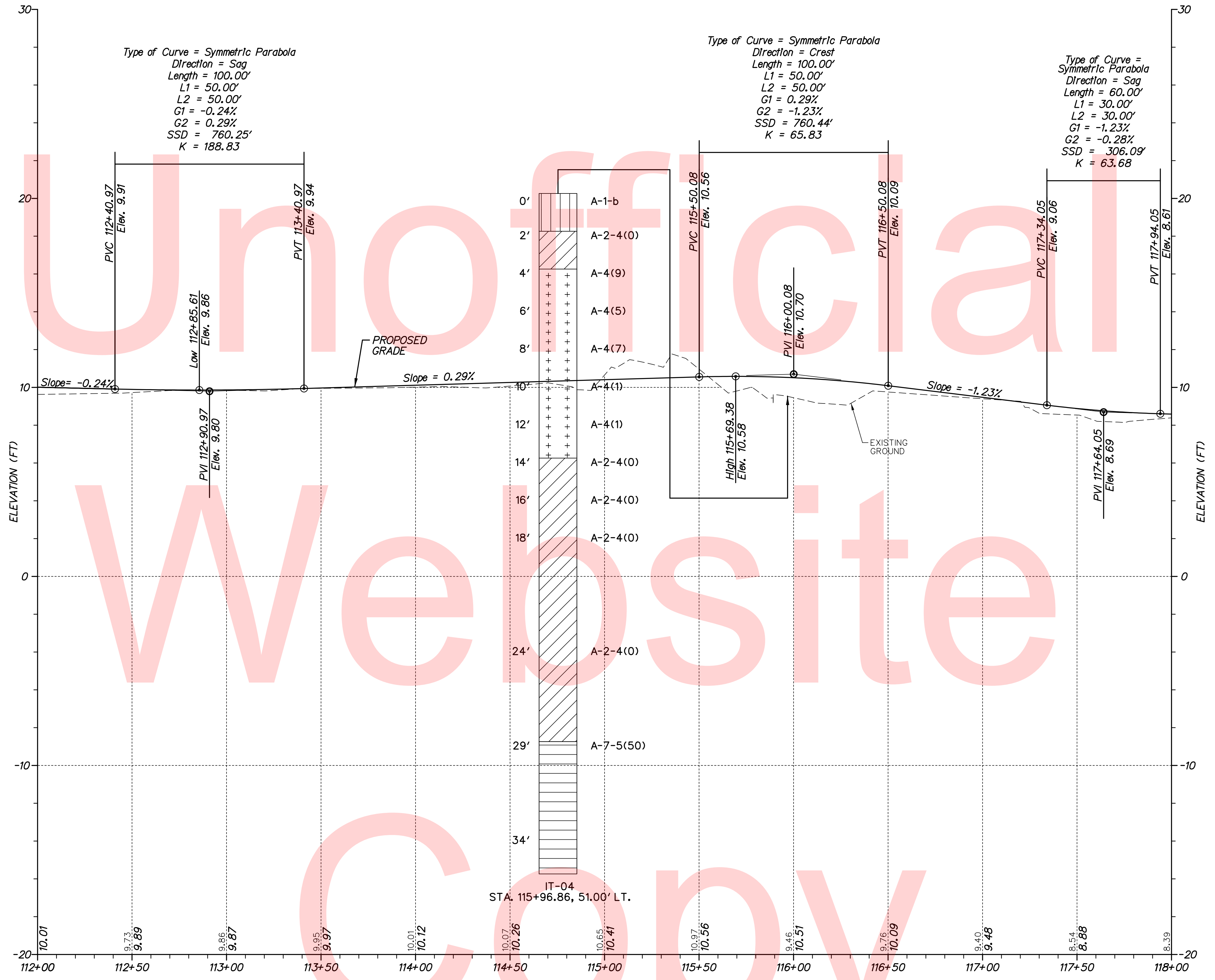
ADDENDUMS / REVISIONS	

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

PROFILES

PF-02	SHEET NO.	20
	TOTAL SHTS.	207

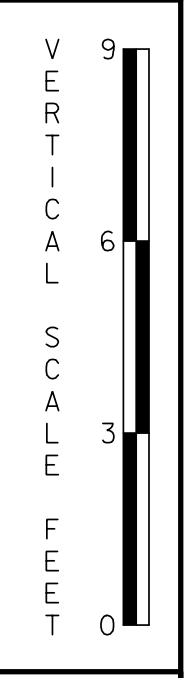


Type of Curve = Symmetric Parabola
 Direction = Sag
 Length = 100.00'
 L1 = 50.00'
 L2 = 50.00'
 G1 = -0.24%
 G2 = 0.29%
 SSD = 760.25'
 K = 188.83

Type of Curve = Symmetric Parabola
 Direction = Crest
 Length = 100.00'
 L1 = 50.00'
 L2 = 50.00'
 G1 = 0.29%
 G2 = -1.23%
 SSD = 760.44'
 K = 65.83

Type of Curve = Symmetric Parabola
 Direction = Sag
 Length = 60.00'
 L1 = 30.00'
 L2 = 30.00'
 G1 = -1.23%
 G2 = -0.28%
 SSD = 306.09'
 K = 63.68

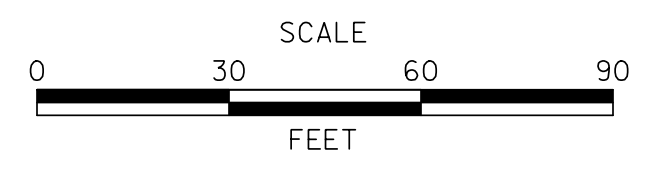
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



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ADDENDUMS / REVISIONS	

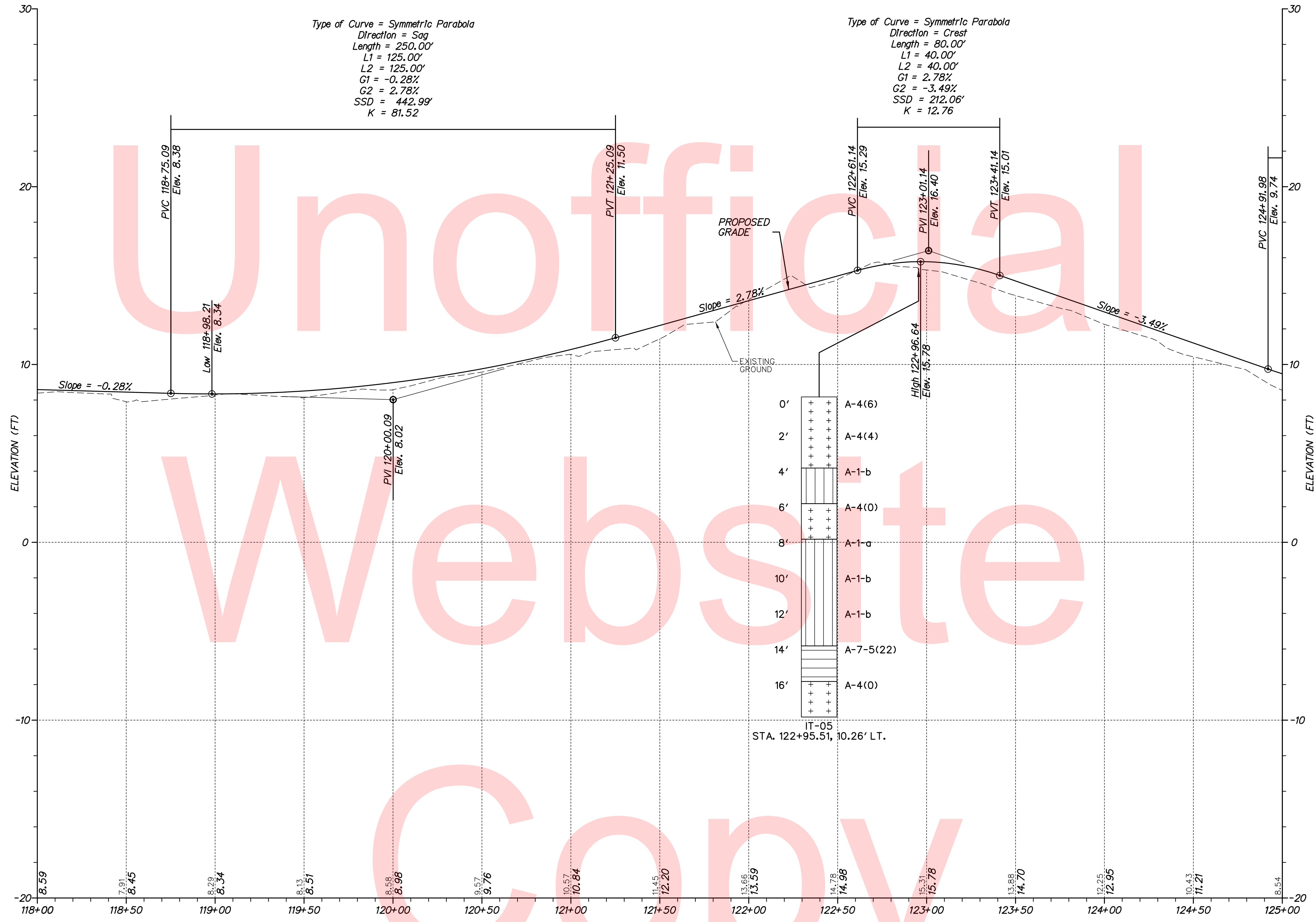


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

PROFILES

PF-03
SHEET NO.
21
TOTAL SHTS.
207



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

N:\31896-002\CADD\PF04_ITT3.DGN



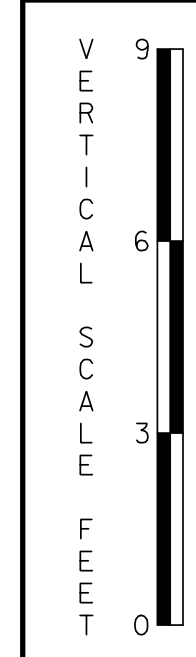
ADDENDUMS / REVISIONS	



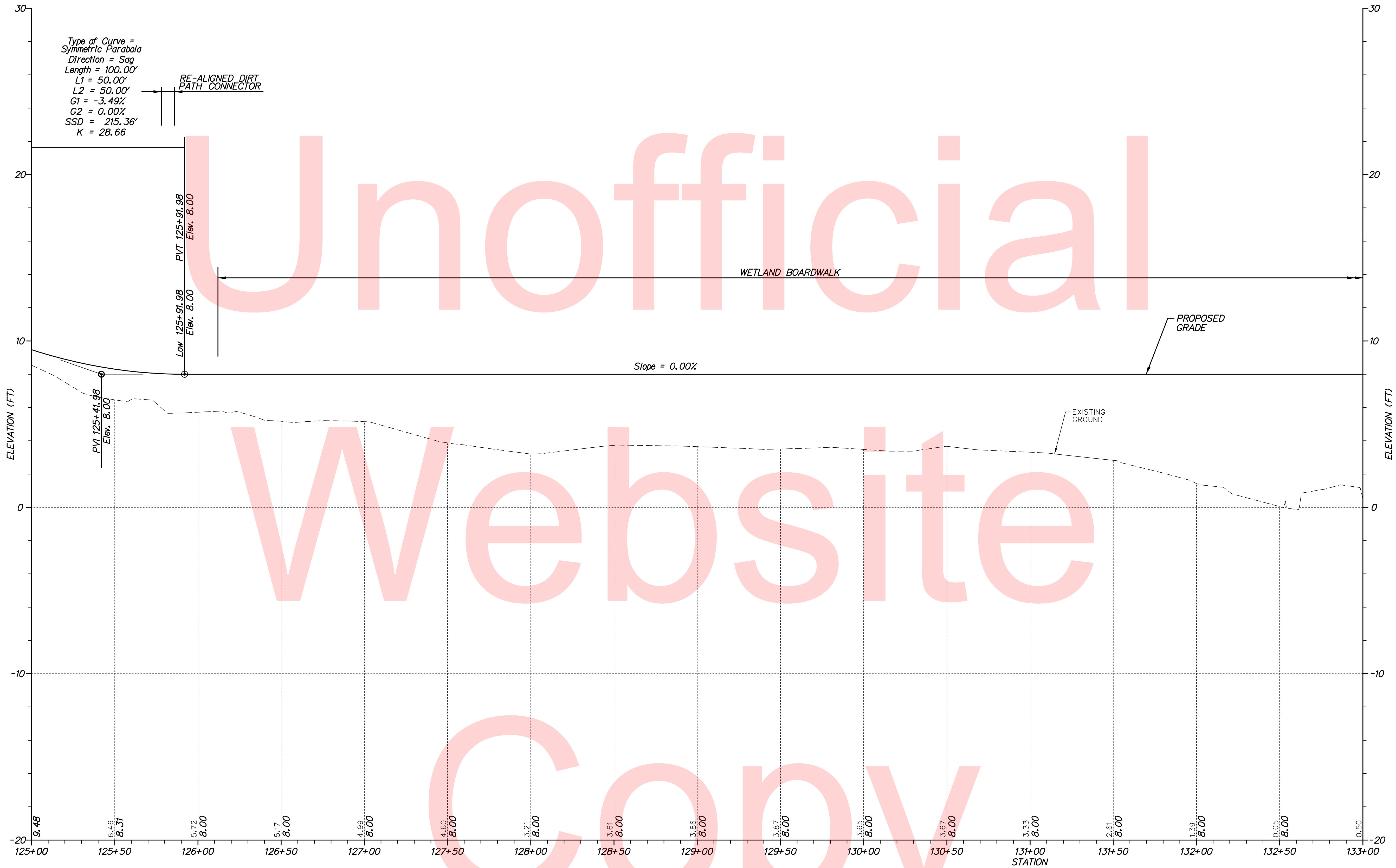
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

PROFILES



PF-04
SHEET NO.
22
TOTAL SHTS.
207



Type of Curve =
 Symmetric Parabola
 Direction = Sag
 Length = 100.00'
 L1 = 50.00'
 L2 = 50.00'
 G1 = -3.49%
 G2 = 0.00%
 SSD = 215.36'
 K = 28.66

RE-ALIGNED DIRT
 PATH CONNECTOR

WETLAND BOARDWALK

Slope = 0.00%

PROPOSED
 GRADE

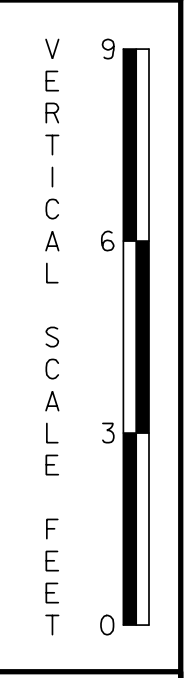
EXISTING
 GROUND

ELEVATION (FT)

ELEVATION (FT)

125+00 125+50 126+00 126+50 127+00 127+50 128+00 128+50 129+00 129+50 130+00 130+50 131+00 131+50 132+00 132+50 133+00
 STATION

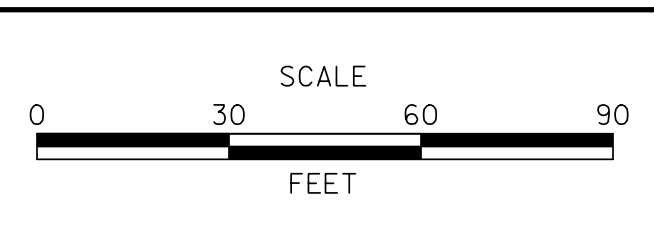
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



N:\31896-002\CADD\PF05_LTT3.DGN



ADDENDUMS / REVISIONS	



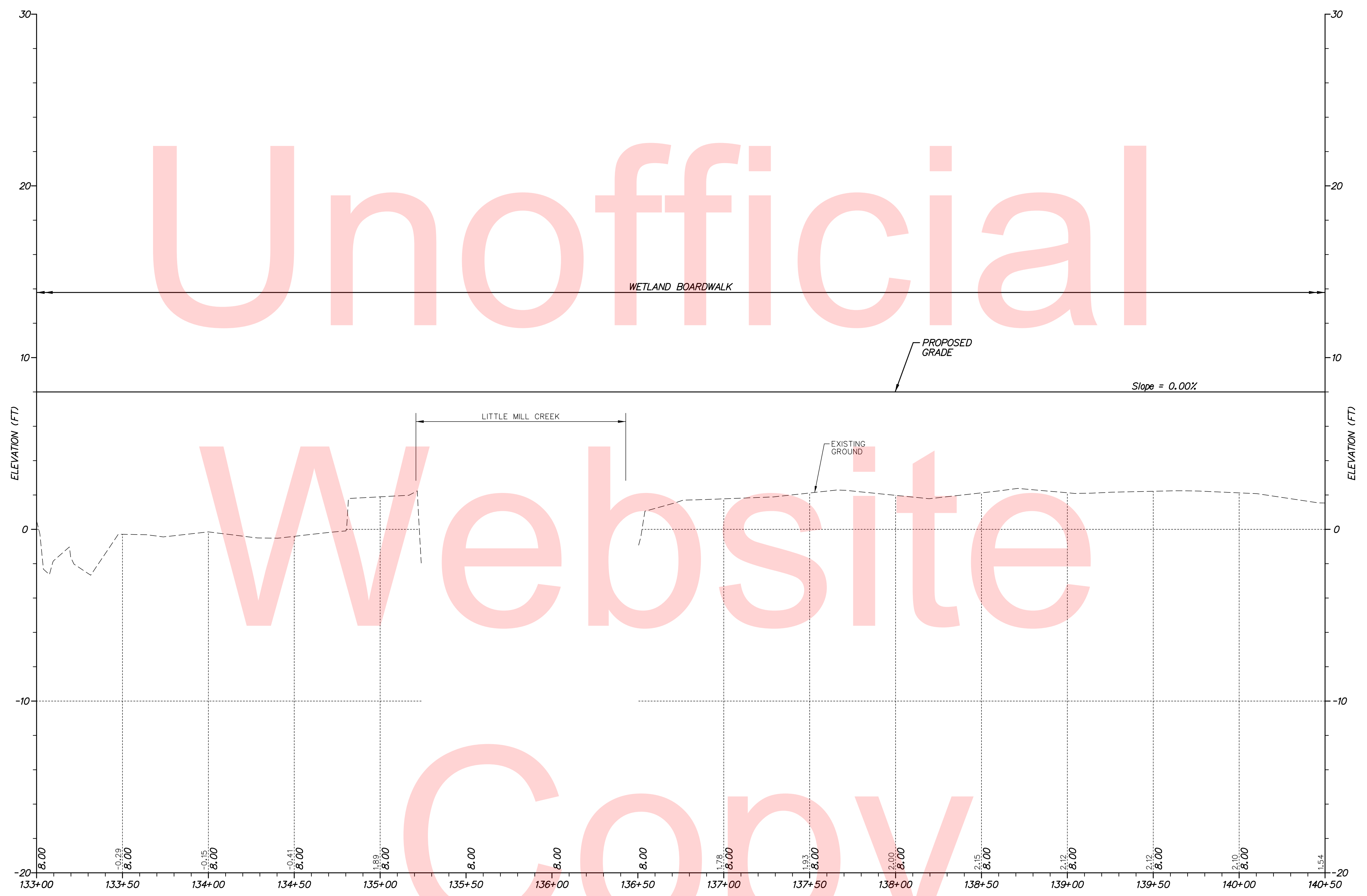
NEW CASTLE INDUSTRIAL
 TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD
	CHECKED BY: JRR

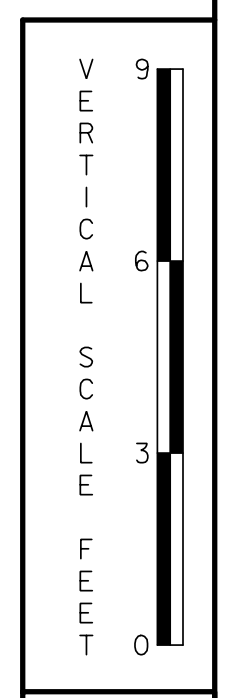
PROFILES

PF-05
SHEET NO. 23
TOTAL SHTS. 207

Unofficial



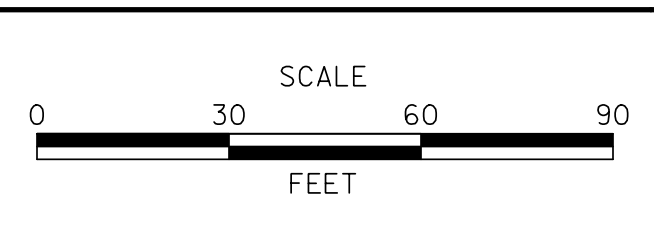
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



N:\31896-002\CADD\PF06_JTT3.DGN



ADDENDUMS / REVISIONS	

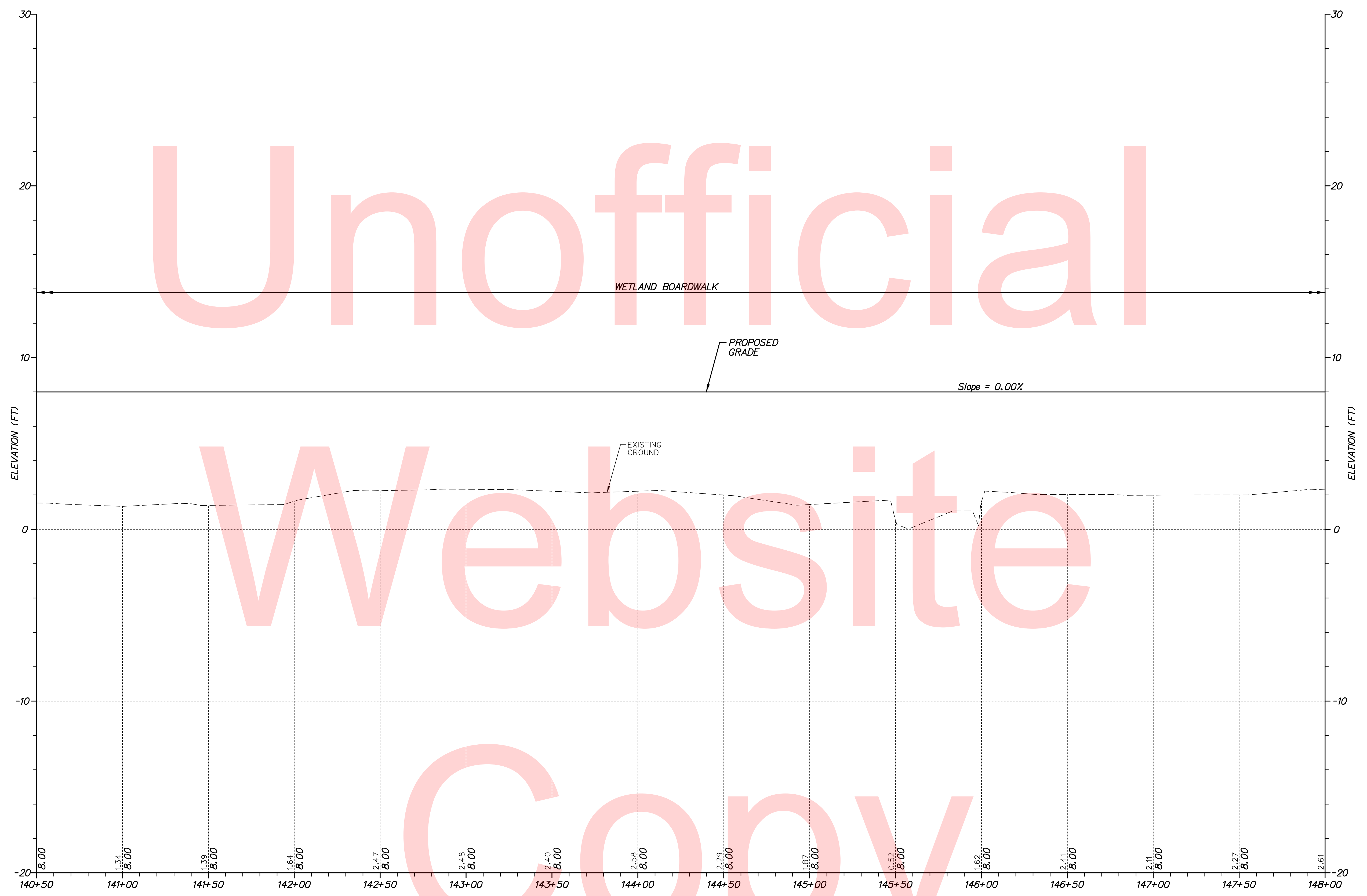


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

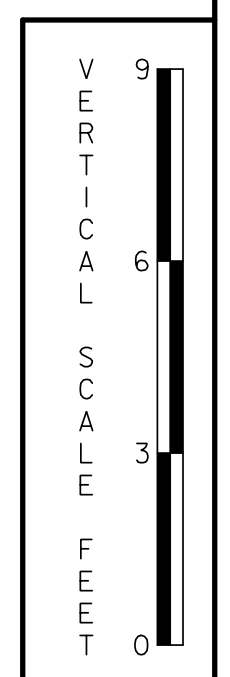
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD
	CHECKED BY: JRR

PROFILES

SHEET NO. 24
TOTAL SHTS. 207



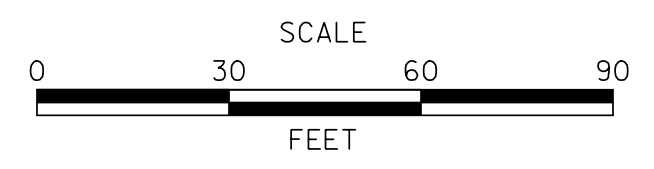
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



PF-07
SHEET NO. 25
TOTAL SHTS. 207



ADDENDUMS / REVISIONS	

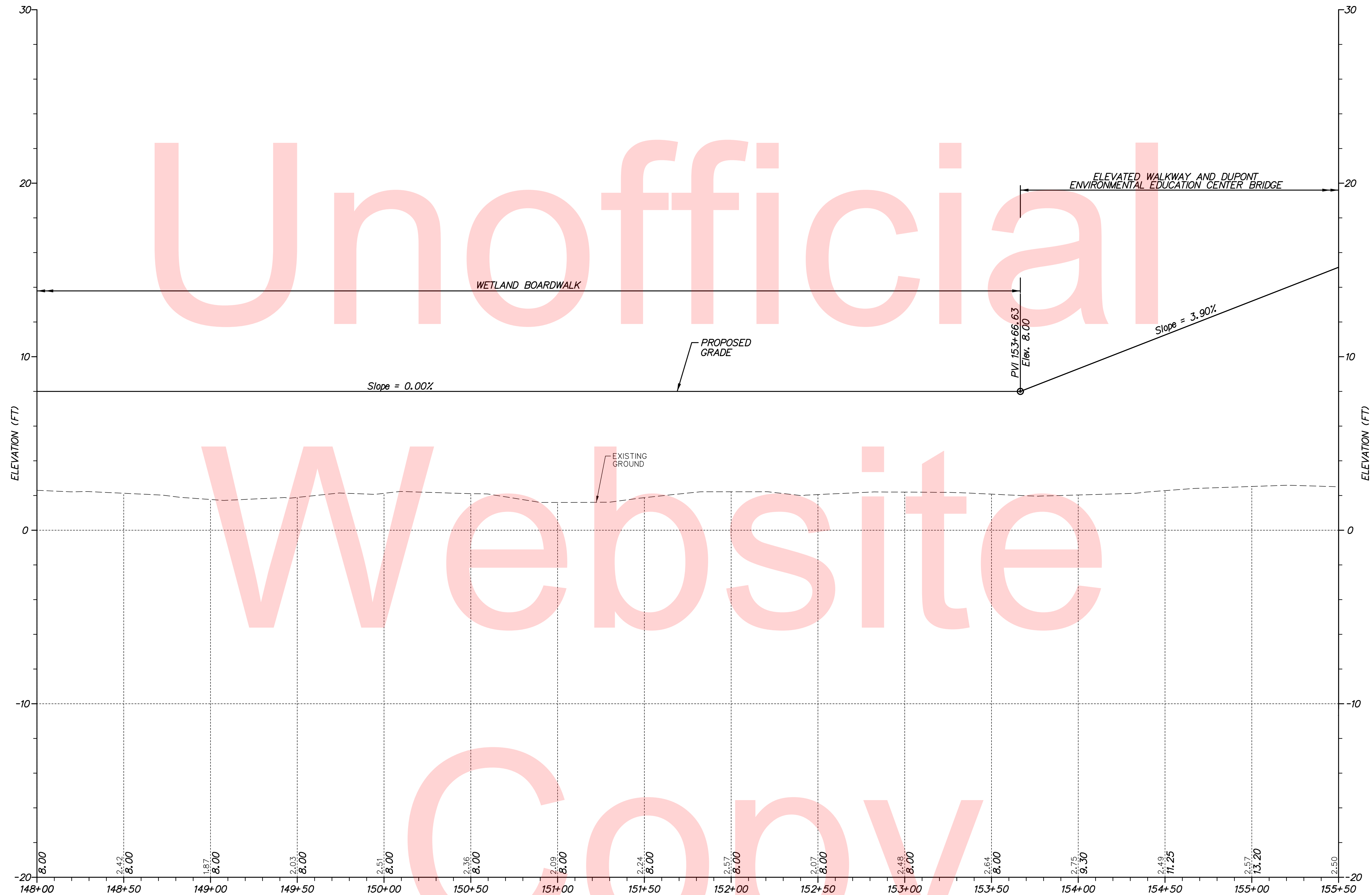


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

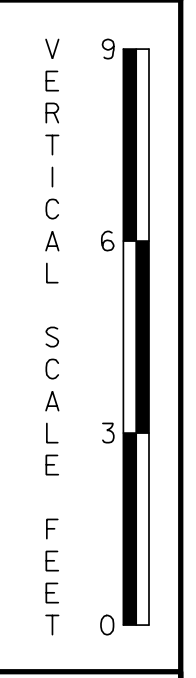
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: DAD
	CHECKED BY: JRR

PROFILES

N:\31896-002\CADD\PF07_ITT3.DGN



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



PF-08
SHEET NO.
26
TOTAL SHTS.
207



ADDENDUMS / REVISIONS	



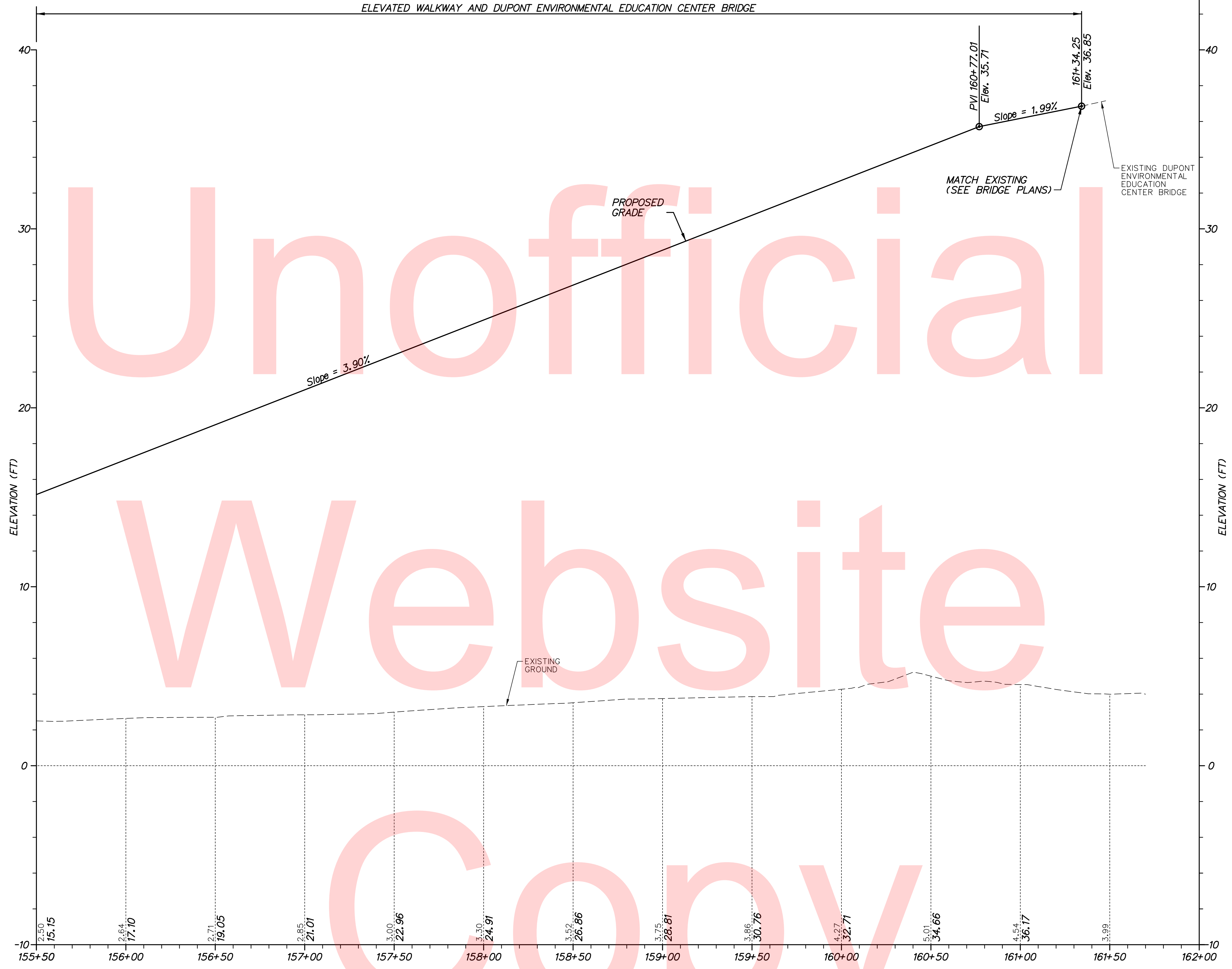
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	DAD
COUNTY	CHECKED BY:	JRR
NEW CASTLE		

PROFILES

N:\31896-002\CADD\PF08_LIT3.DGN

ELEVATED WALKWAY AND DUPONT ENVIRONMENTAL EDUCATION CENTER BRIDGE

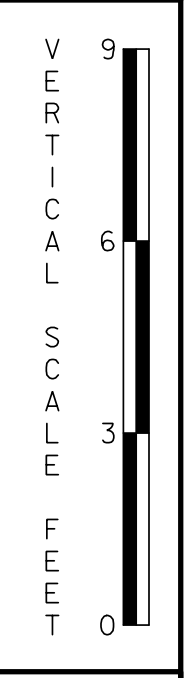


Unofficial

Website

Copy

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3



PF-09

SHEET NO.

27

TOTAL SHTS.

207



ADDENDUMS / REVISIONS



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

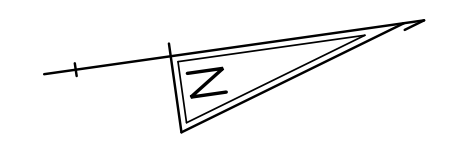
CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

PROFILES

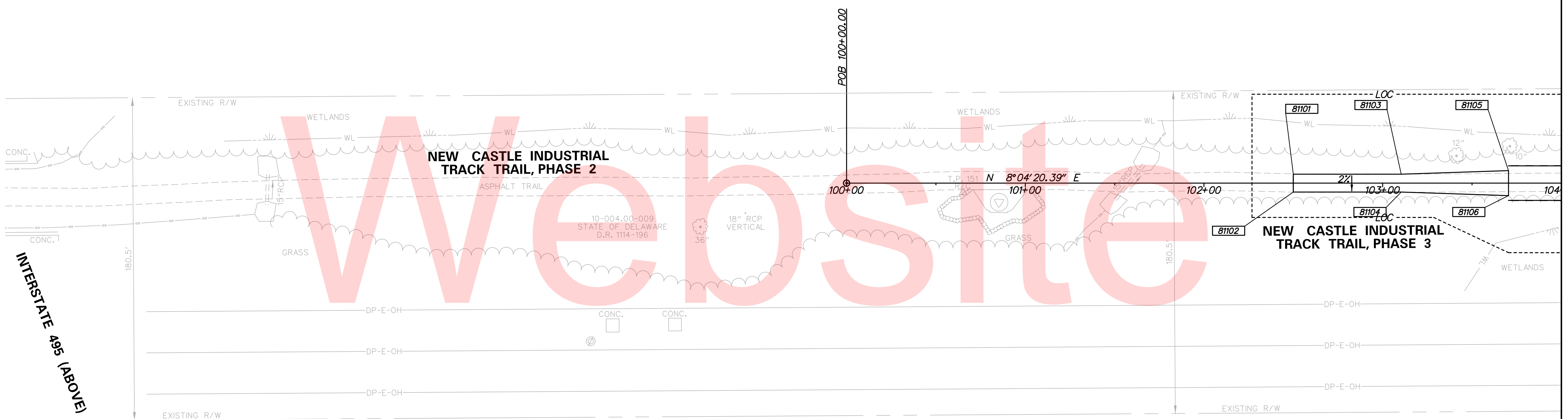
N:\31896-002\CADD\PF09_ITT3.DGN

COORDINATE LIST				
POINT NO.	STATION	OFFSET	NORTHING	EASTING
81101	102+50.00	-5.0000	625381.0240	610761.4649
81102	102+50.00	5.0000	625379.6198	610771.3658
81103	103+10.38	-5.0000	625440.8079	610769.9440
81104	103+10.37	5.0000	625439.3962	610779.8438
81105	103+70.42	-7.0000	625500.5317	610776.3945
81106	103+70.42	7.0000	625498.5658	610790.2558

NOTE: OFFSETS SHOWN WITH A NEGATIVE SIGN ARE TO THE LEFT OF THE CONSTRUCTION BASELINE



Unofficial



INTERSTATE 495 (ABOVE)

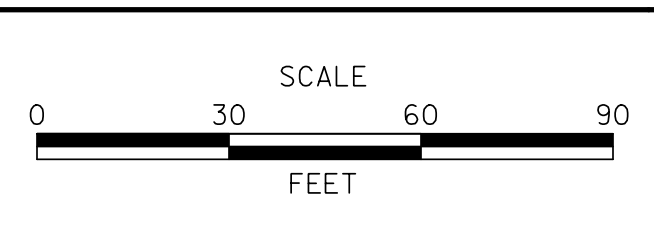
MATCH LINE STA. 104+00 (GG-02)

Copy

N:\31896-002\CADD\GG01_ITT3.DGN



ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

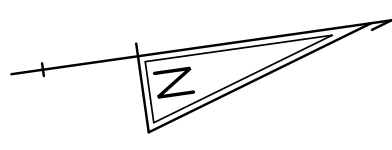
CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

GRADES AND GEOMETRICS

GG-01	
SHEET NO.	28
TOTAL SHTS.	207

COORDINATE LIST				
POINT NO.	STATION	OFFSET	NORTHING	EASTING
81201	110+93.67	-7.0000	626216.6154	610877.9555
81202	110+93.67	7.0000	626214.6495	610891.8168
81203	111+18.75	5.0000	626239.7570	610893.3577
81204	111+18.75	-5.0000	626241.1612	610883.4568

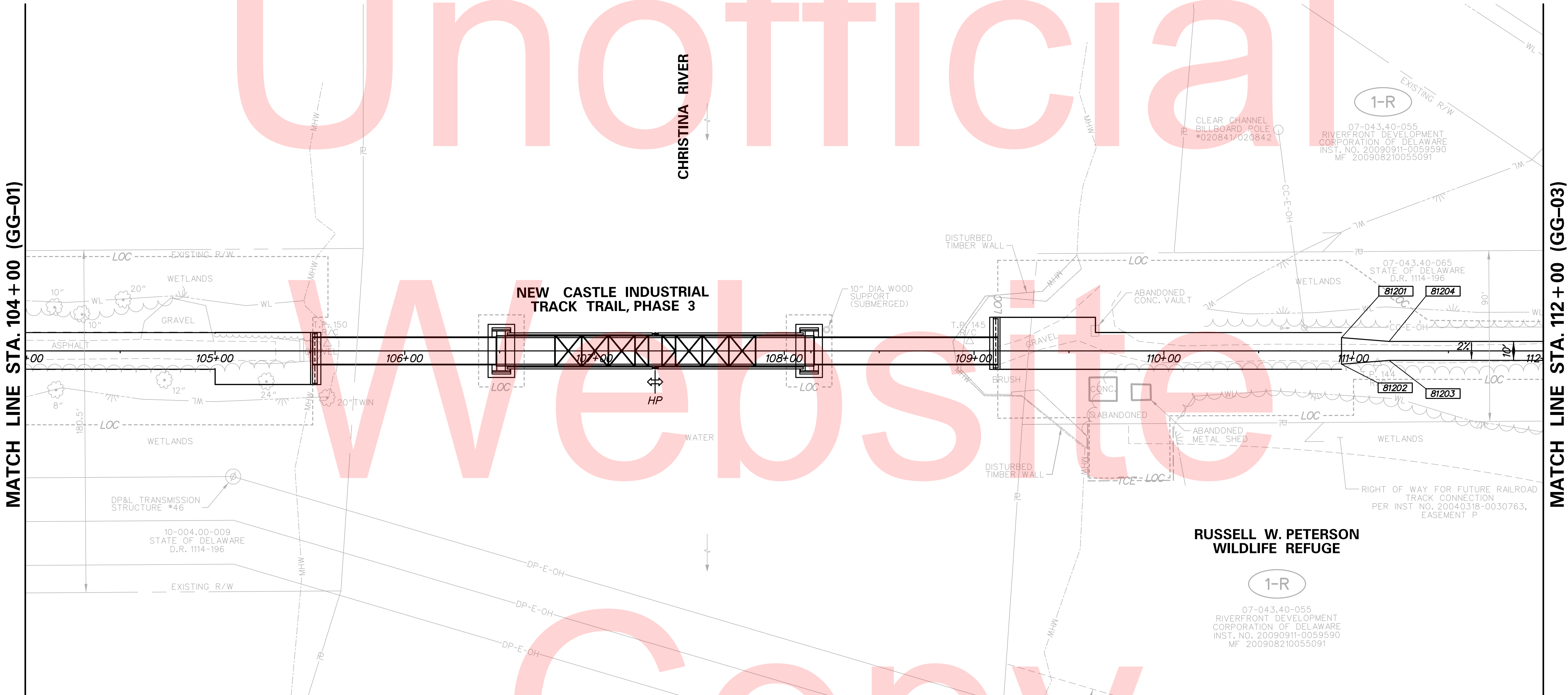
NOTE: OFFSETS SHOWN WITH A NEGATIVE SIGN ARE TO THE LEFT OF THE CONSTRUCTION BASELINE



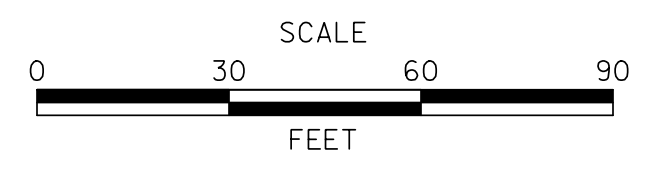
Unofficial

Website

Copy



ADDENDUMS / REVISIONS



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

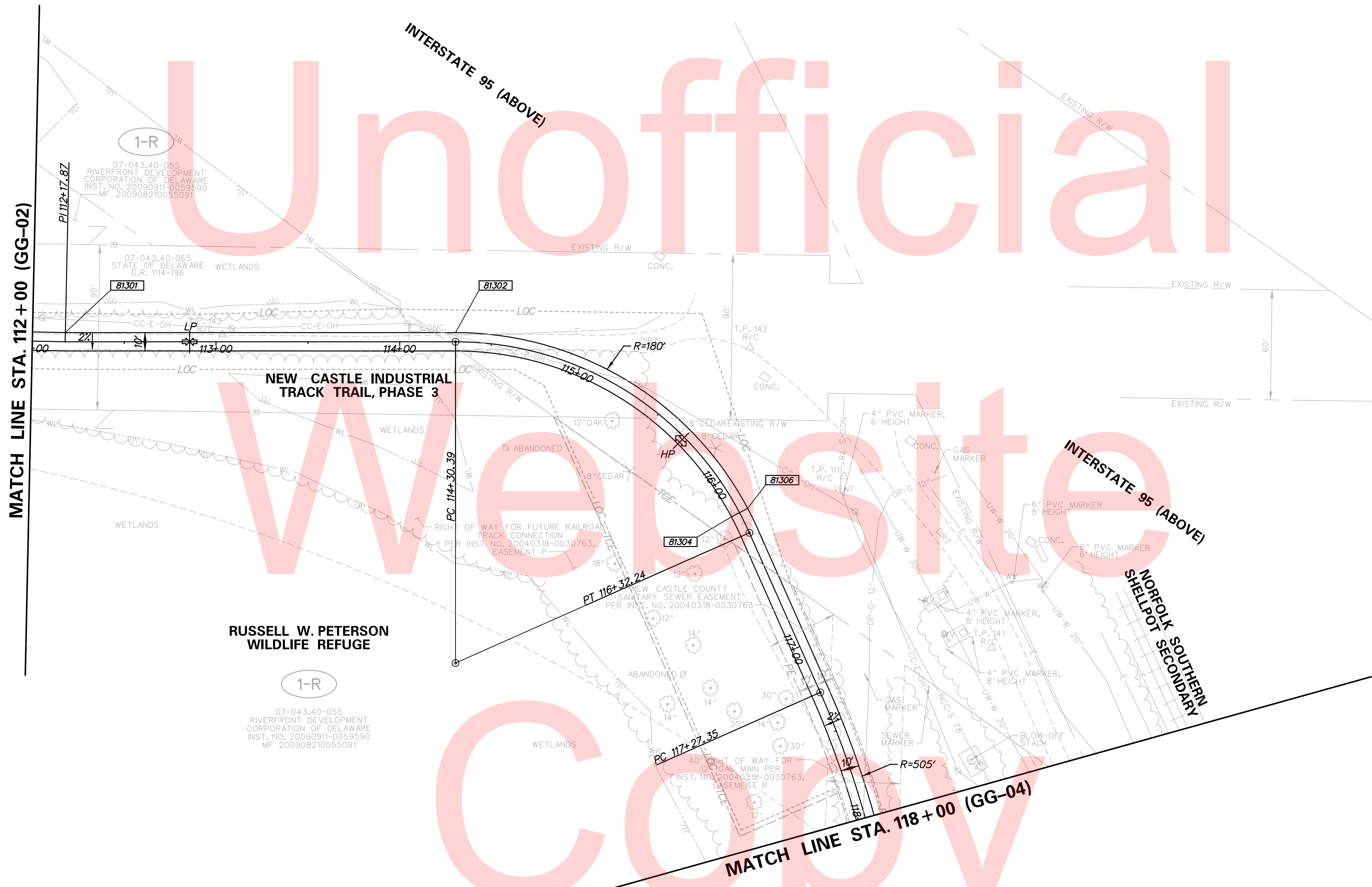
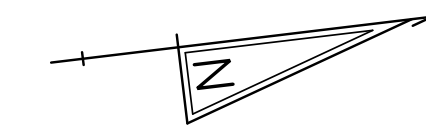
CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

GRADES AND GEOMETRICS

GG-02
SHEET NO.
29
TOTAL SHTS.
207

COORDINATE LIST				
POINT NO.	STATION	OFFSET	NORTHING	EASTING
81301	112+17.82	-5.0000	626339.2523	610897.3689
81302	114+30.39	-5.0000	626550.2005	610922.7421
81304	116+20.00	5.0000	626687.3473	611040.3592
81306	116+20.00	-5.0000	626696.6792	611036.7654

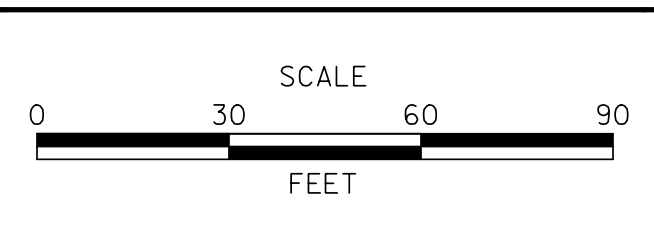
NOTE: OFFSETS SHOWN WITH A NEGATIVE SIGN ARE TO THE LEFT OF THE CONSTRUCTION BASELINE



N:\31896-002\CADD\GG03_1\TT3.DGN

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

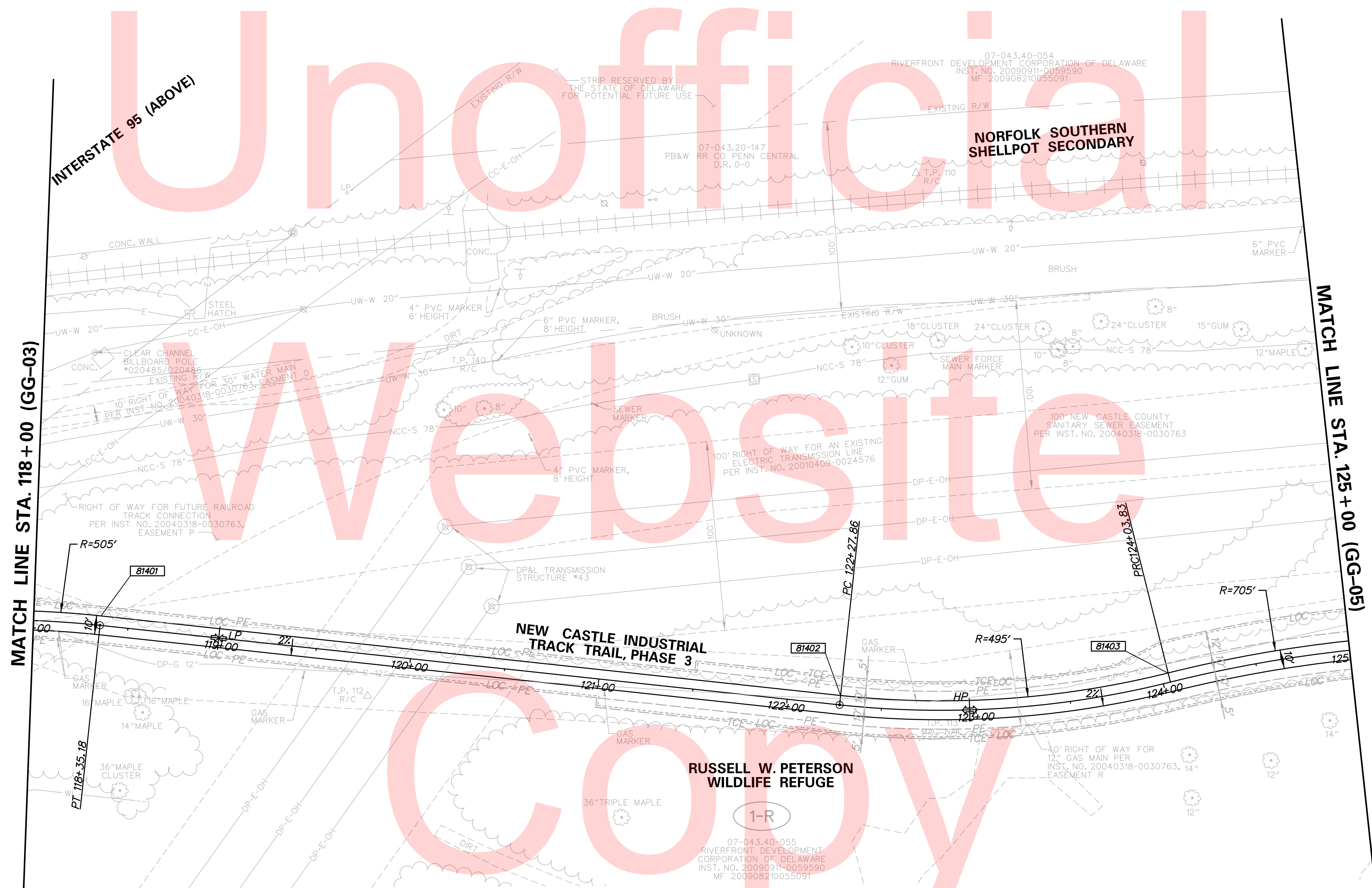
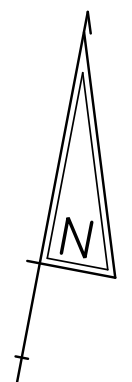
CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

GRADES AND GEOMETRICS

GG-03
SHEET NO.
30
TOTAL SHTS.
207

COORDINATE LIST				
POINT NO.	STATION	OFFSET	NORTHING	EASTING
81401	118+35.18	-5.0000	626749.1945	611246.3341
81402	122+27.86	-5.0000	626781.3586	611637.6890
81403	124+03.69	-5.0000	626825.5183	611805.1461

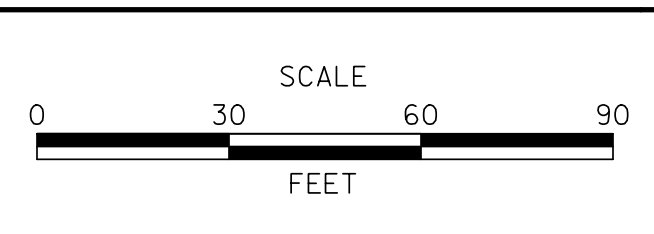
NOTE: OFFSETS SHOWN WITH A NEGATIVE SIGN ARE TO THE LEFT OF THE CONSTRUCTION BASELINE



N:\31896-002\CADD\GG04_1\TT3.DGN

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

GRADES AND GEOMETRICS

GG-04
SHEET NO.
31
TOTAL SHTS.
207

COORDINATE LIST					
POINT NO.	STATION	OFFSET	NORTHING	EASTING	
81501	125+74.84	-4.9213	626878.2018	611968.8062	
81502	125+86.32	-4.9212	626880.3613	611980.0839	
81503	126+12.19	-7.4583	626887.7188	612005.0174	
81504	126+12.19	7.4584	626873.0683	612007.8227	
81505	125+86.00	12.1347	626863.5492	611982.9757	
81506	125+95.13	29.4605	626848.2503	611995.2044	
81507	126+09.83	39.5284	626841.1265	612011.5351	
81508	126+20.57	49.9715	626832.8888	612024.0437	
81509	126+27.18	63.4107	626820.9327	612033.0644	

NOTE: OFFSETS SHOWN WITH A NEGATIVE SIGN ARE TO THE LEFT OF THE CONSTRUCTION BASELINE

07-043.40-054
RIVERFRONT DEVELOPMENT CORPORATION OF DELAWARE
INST. NO. 20090911-0059590
MF 200908210055091

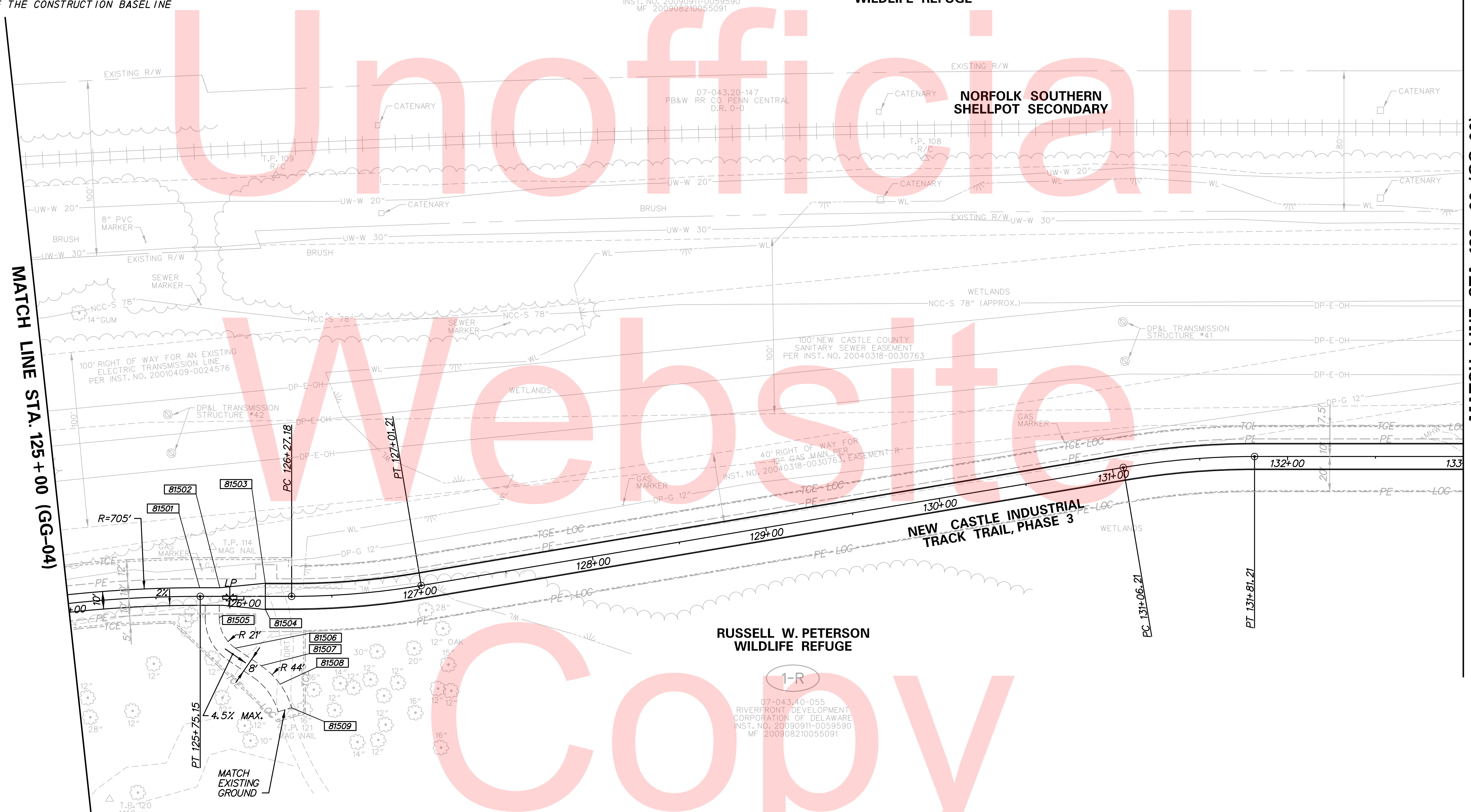
RUSSELL W. PETERSON
WILDLIFE REFUGE

07-043.20-147
PB&W RR CO PENN CENTRAL
D.R. 0-0

NORFOLK SOUTHERN
SHELLPOT SECONDARY

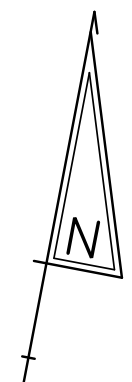
100' NEW CASTLE COUNTY
SANITARY SEWER EASEMENT
PER INST. NO. 20040318-0030763

07-043.40-055
RIVERFRONT DEVELOPMENT
CORPORATION OF DELAWARE
INST. NO. 20090911-0059590
MF 200908210055091

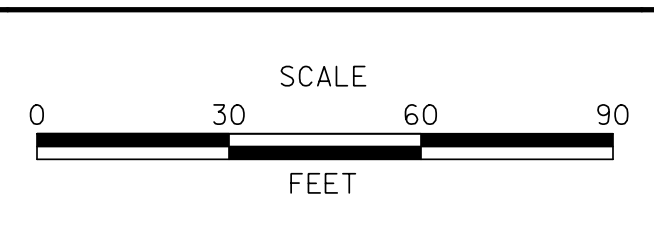


MATCH LINE STA. 125 + 00 (GG-04)

MATCH LINE STA. 133 + 00 (GG-06)



ADDENDUMS / REVISIONS	



**NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3**

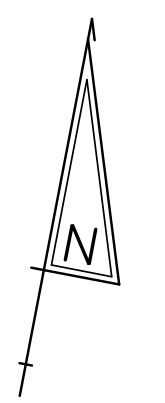
CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

GRADES AND GEOMETRICS	
SHEET NO.	32
TOTAL SHTS.	207

**DELAWARE
DEPARTMENT OF TRANSPORTATION**

N:\31896-002\CADD\GG05_LIT3.DGN

GG-05
SHEET NO.
32
TOTAL SHTS.
207

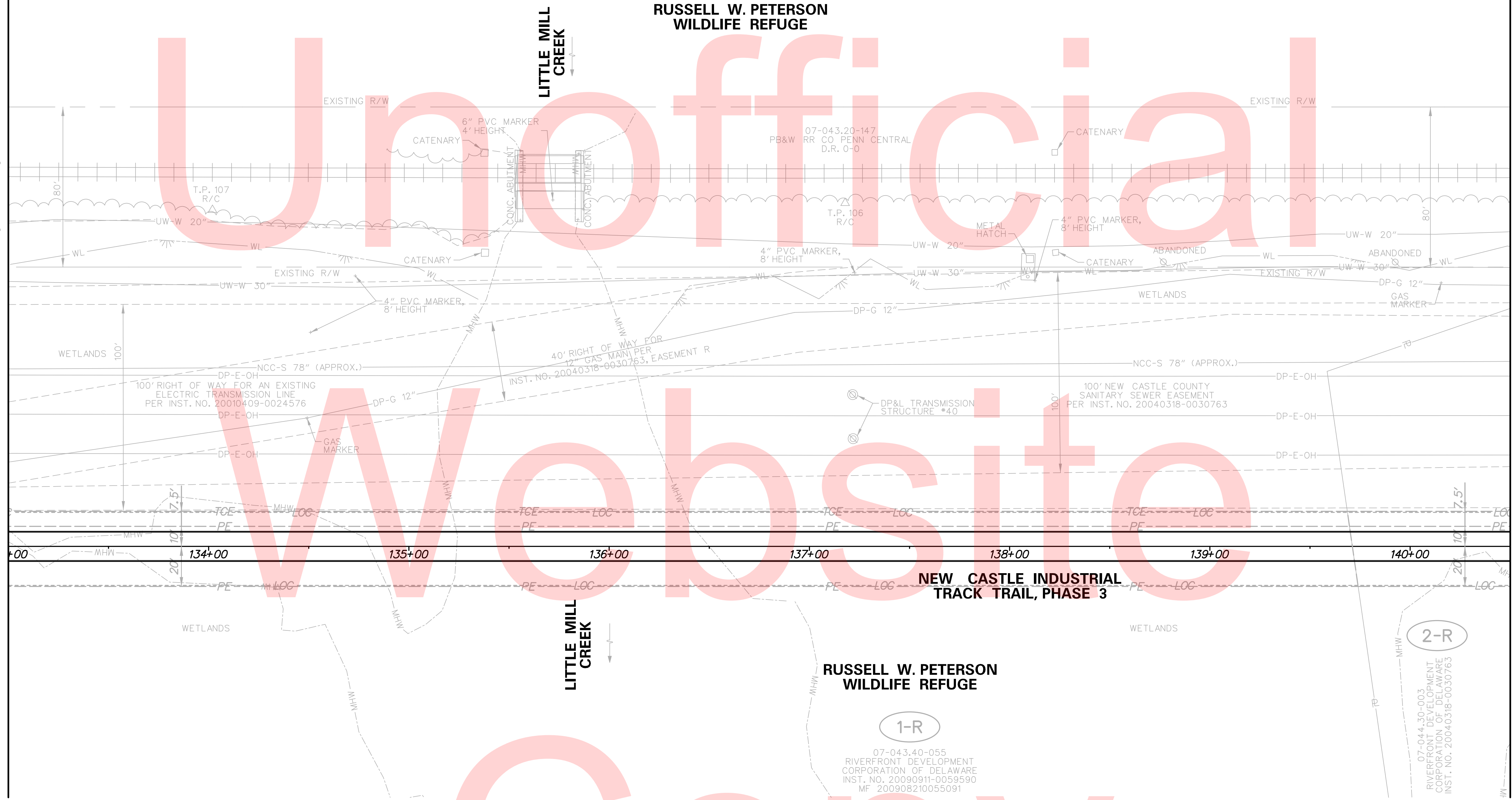


07-043.40-054
 RIVERFRONT DEVELOPMENT CORPORATION OF DELAWARE
 INST. NO. 20090911-0059590
 MF 200908210055091

**RUSSELL W. PETERSON
 WILDLIFE REFUGE**

MATCH LINE STA. 133 + 00 (GG-05)

MATCH LINE STA. 140 + 50 (GG-07)



Unofficial
 Website
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N:\31896-002\CADD\GG06_ITT3.DGN



ADDENDUMS / REVISIONS	

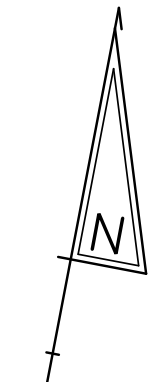


**NEW CASTLE INDUSTRIAL
 TRACK TRAIL, PHASE 3**

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	DAD
COUNTY	CHECKED BY:	JRR
NEW CASTLE		

GRADES AND GEOMETRICS

GG-06
SHEET NO.
33
TOTAL SHTS.
207



07-043.40-054
RIVERFRONT DEVELOPMENT CORPORATION OF DELAWARE
INST. NO. 20090911-0059590
MF 200908210055091

07-044.30-001
DELMARVA POWER & LIGHT COMPANY
D.R. 1428-117
MF 1750
25' R.R. EASEMENT PER MF 1750

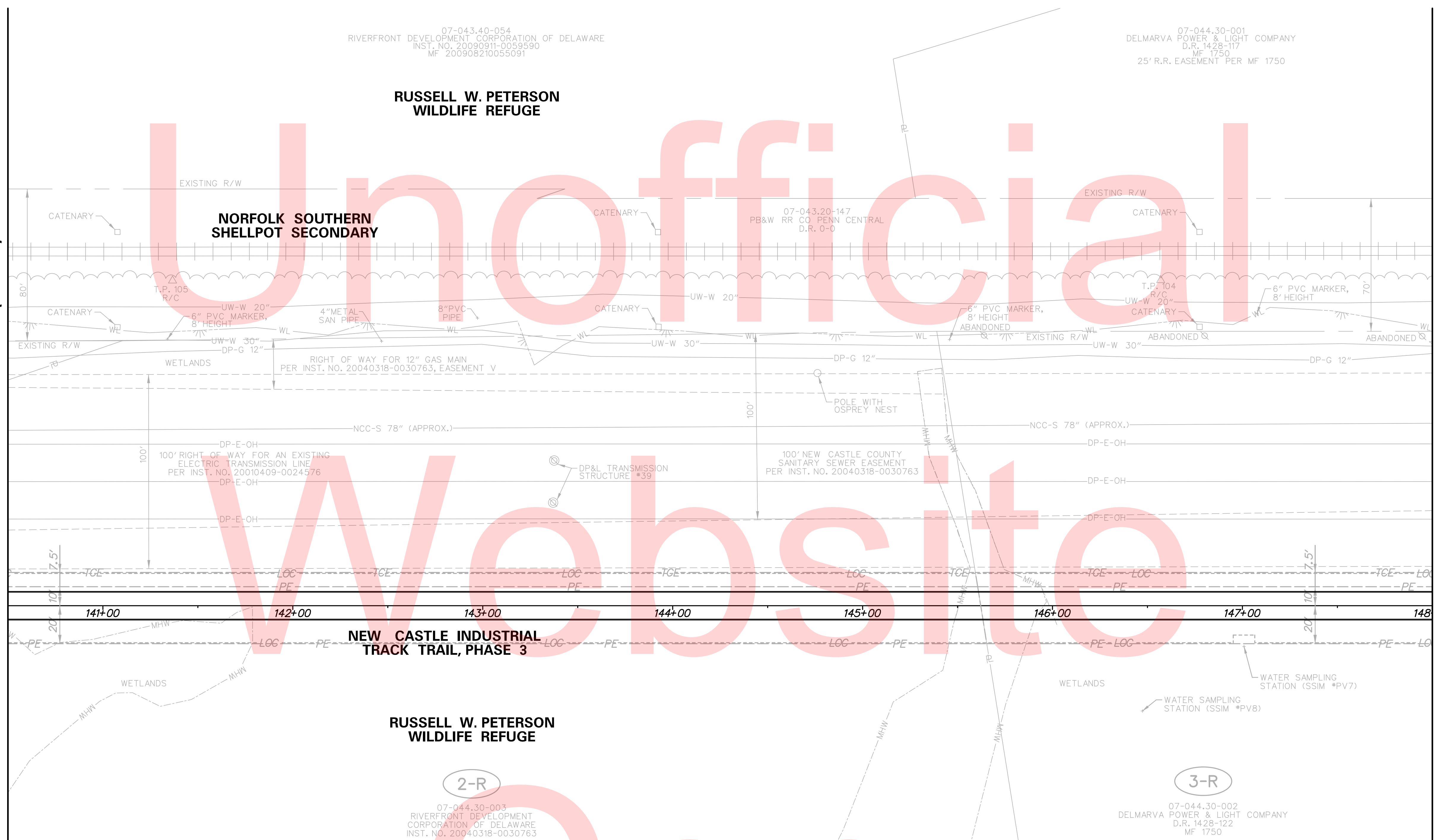
**RUSSELL W. PETERSON
WILDLIFE REFUGE**

**NORFOLK SOUTHERN
SHELLPOT SECONDARY**

07-043.20-147
PB&W RR CO PENN CENTRAL
D.R. 0-0

MATCH LINE STA. 140 + 50 (GG-06)

MATCH LINE STA. 148 + 00 (GG-08)



**NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3**

**RUSSELL W. PETERSON
WILDLIFE REFUGE**

2-R

07-044.30-003
RIVERFRONT DEVELOPMENT CORPORATION OF DELAWARE
INST. NO. 20040318-0030763

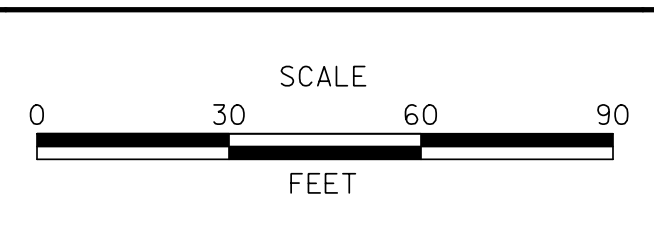
3-R

07-044.30-002
DELMARVA POWER & LIGHT COMPANY
D.R. 1428-122
MF 1750

N:\31896-002\CADD\GG07_LIT3.DGN



ADDENDUMS / REVISIONS	

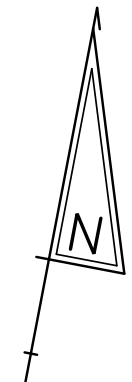


**NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3**

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

GRADES AND GEOMETRICS

GG-07
SHEET NO.
34
TOTAL SHTS.
207



07-044.30-001
 DELMARVA POWER & LIGHT COMPANY
 D.R. 1428-117
 MF 1750
 25' R.R. EASEMENT PER MF 1750

07-043.40-054
 RIVERFRONT DEVELOPMENT
 CORPORATION OF DELAWARE
 INST. NO. 20090911-0059590
 MF 200908210055091
 20' UTILITY EASEMENT AREA FOR NORFOLK
 SOUTHERN RAILWAY COMPANY

07-043.20-147
 PB&W RR CO PENN CENTRAL
 D.R. 0-0

**NORFOLK SOUTHERN
 SHELLPOT SECONDARY**

100' NEW CASTLE COUNTY
 SANITARY SEWER EASEMENT
 PER INST. NO. 20040318-0030763

**NEW CASTLE INDUSTRIAL
 TRACK TRAIL, PHASE 3**

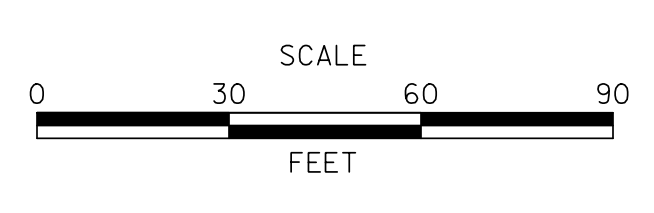
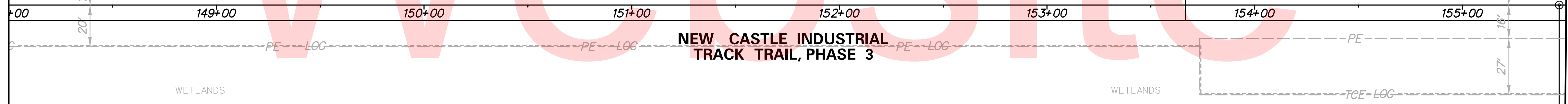
**RUSSELL W. PETERSON
 WILDLIFE REFUGE**

3-R

07-044.30-002
 DELMARVA POWER & LIGHT COMPANY
 D.R. 1428-122
 MF 1750

MATCH LINE STA. 148+00 (GG-07)

MATCH LINE STA. 155+50 (GG-09)



**NEW CASTLE INDUSTRIAL
 TRACK TRAIL, PHASE 3**

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: DAD	
COUNTY	CHECKED BY: JRR	
NEW CASTLE		

GRADES AND GEOMETRICS

GG-08
SHEET NO.
35
TOTAL SHTS.
207

N:\31896-002\CADD\GG08_11T3.DGN

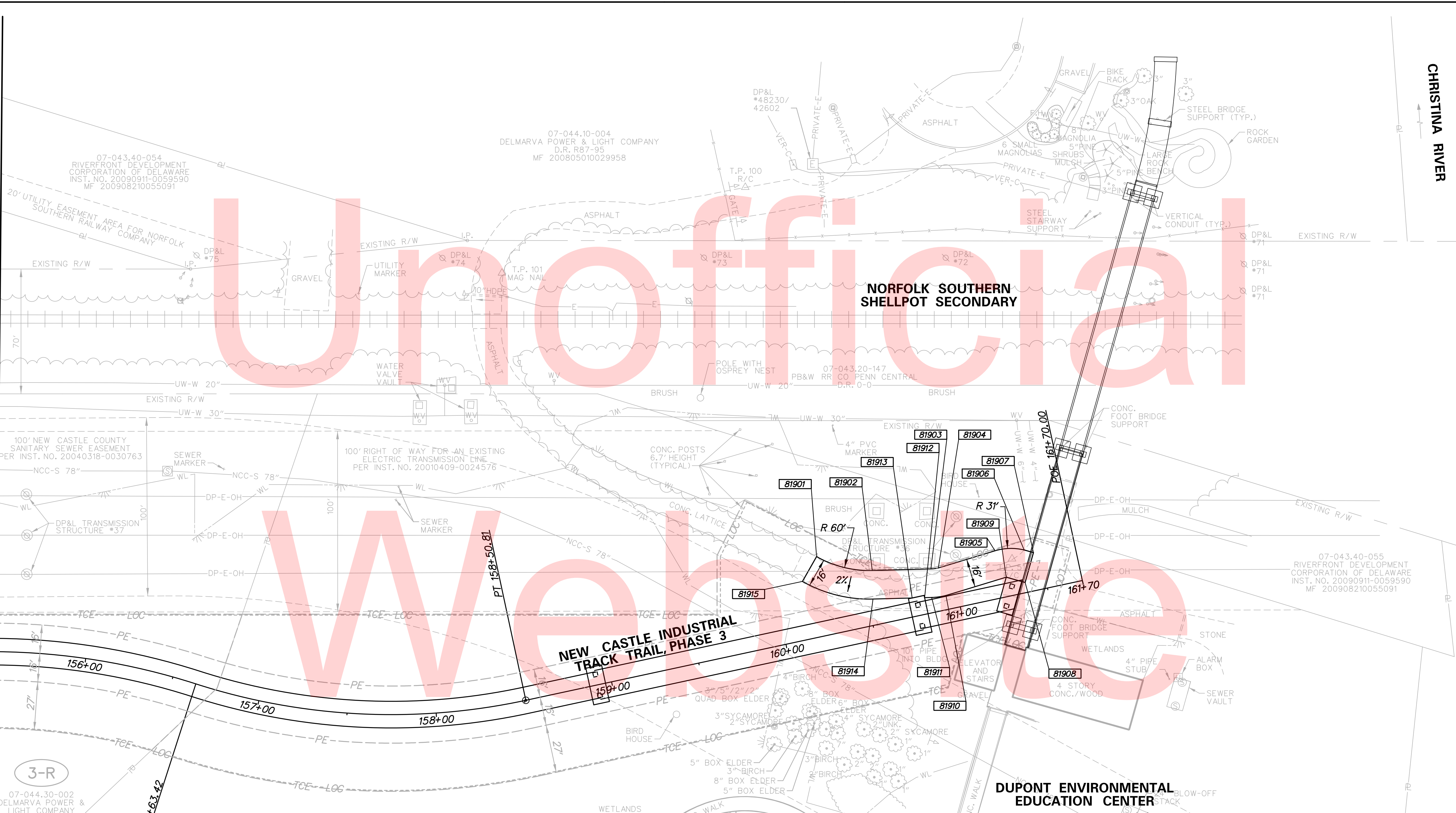


**DELAWARE
 DEPARTMENT OF TRANSPORTATION**

ADDENDUMS / REVISIONS

MATCH LINE STA. 155 + 50 (GG-08)

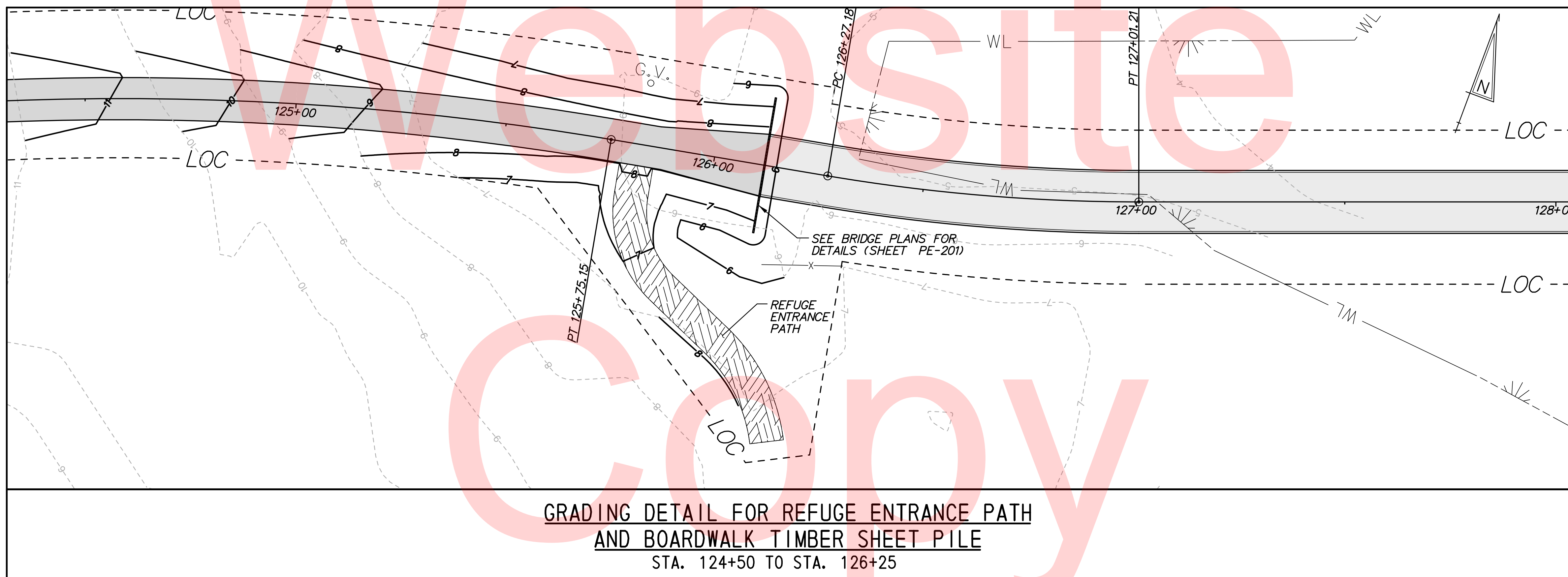
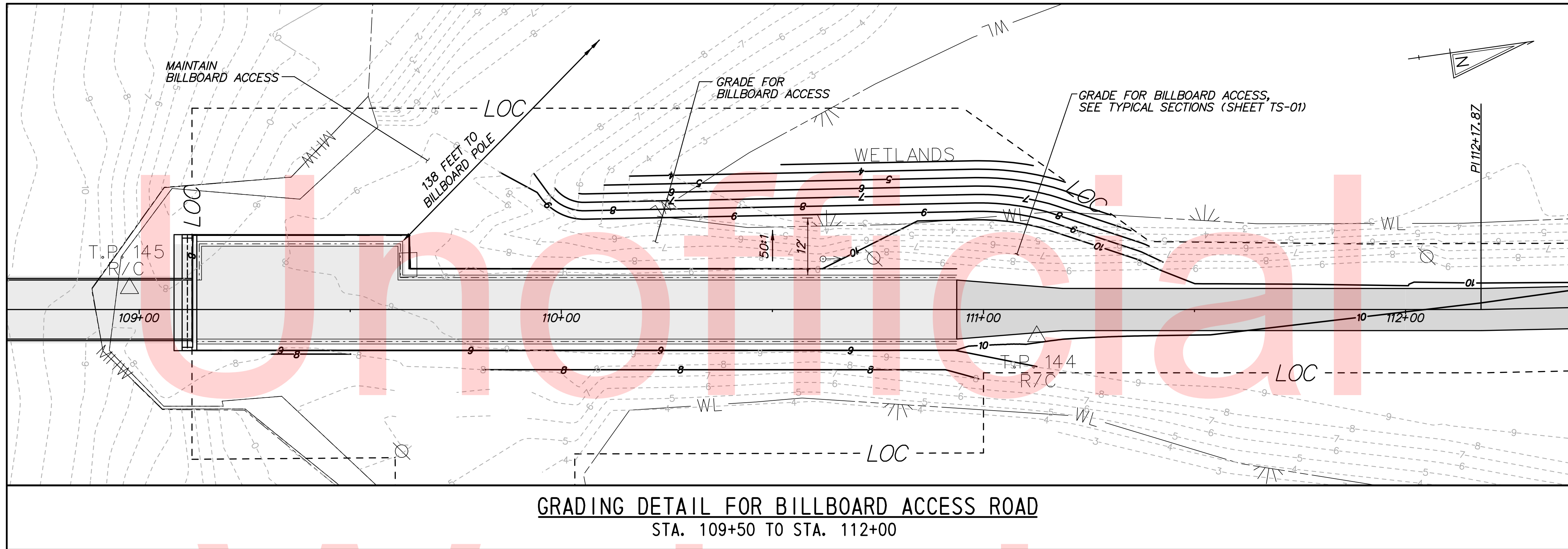
CHRISTINA RIVER



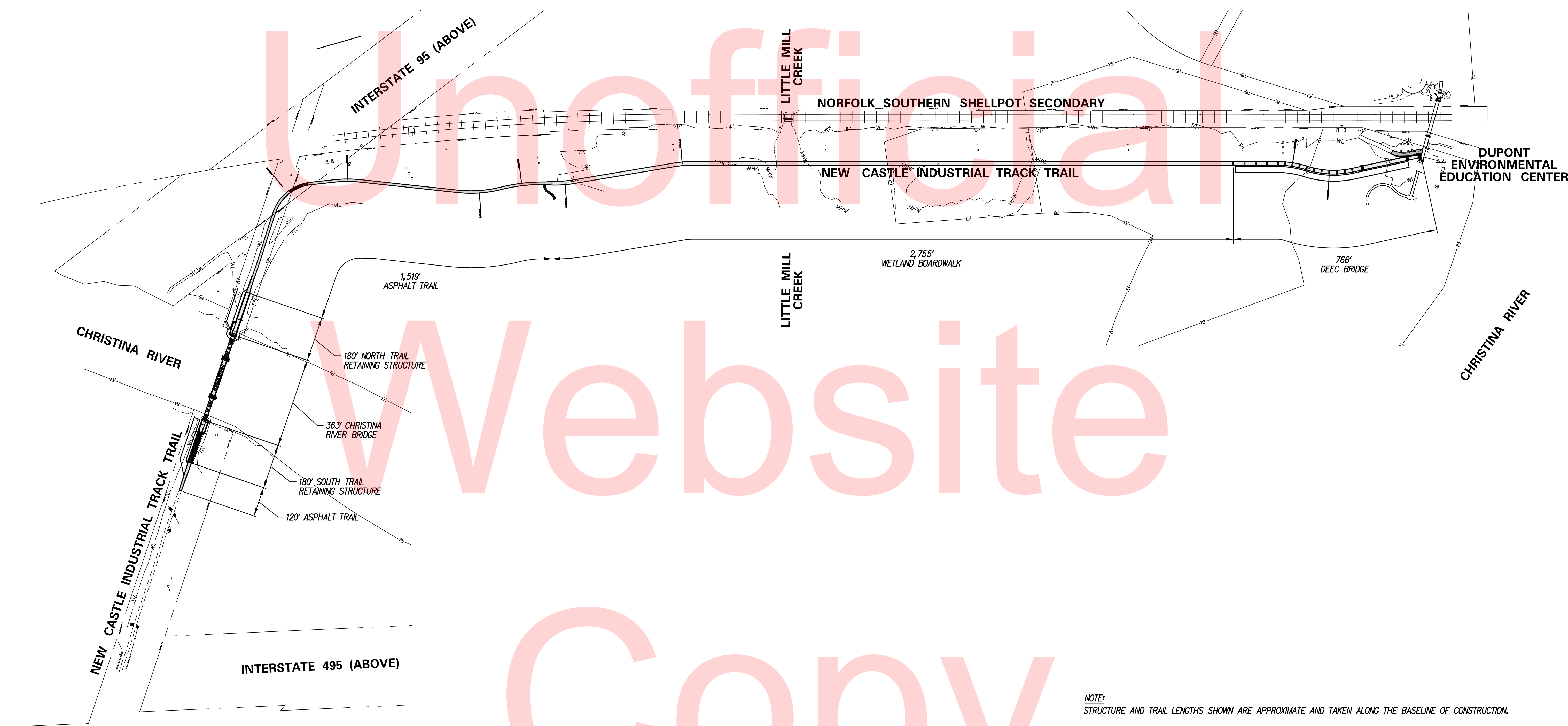
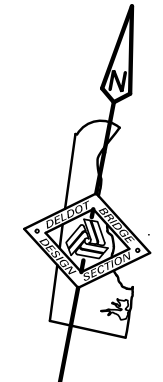
COORDINATE LIST				
POINT NO.	STATION	OFFSET	NORTHING	EASTING
81901	160+27.12	-44.4789	627648.6607	615312.0024
81902	160+55.99	-30.2820	627646.8644	615344.1270
81903	160+88.32	-24.2133	627653.9015	615376.2618
81904	160+92.53	-23.8767	627655.2345	615380.2666
81905	161+25.61	-26.6021	627670.6590	615409.6548
81906	161+41.70	-23.5934	627674.1699	615425.6385
81907	161+46.48	-21.0736	627673.7186	615431.0281
81908	161+38.37	-5.6725	627656.3737	615429.5758
81909	161+28.64	-10.7974	627657.2915	615418.6142
81910	160+93.46	-7.8992	627640.8884	615387.3616
81911	160+85.37	-8.4879	627638.2719	615379.6845
81912	160+81.51	-9.2130	627637.4310	615375.8447
81913	160+74.65	-10.5000	627635.9387	615369.0302
81914	160+53.04	-14.5566	627631.2348	615347.5497
81915	160+16.47	-32.5394	627633.5101	615306.8586

NOTE: OFFSETS SHOWN WITH A NEGATIVE SIGN ARE TO THE LEFT OF THE CONSTRUCTION BASELINE

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N:\31896-002\CADD\DT01_ITT3.DGN

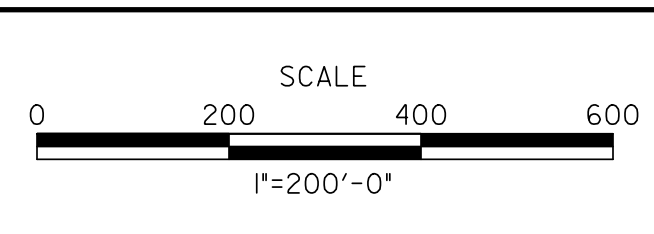


NOTE:
STRUCTURE AND TRAIL LENGTHS SHOWN ARE APPROXIMATE AND TAKEN ALONG THE BASELINE OF CONSTRUCTION.

N:\31896-002\CADD\BRIDGE\SLMO\ITT3.DGN



ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	NAH
COUNTY	CHECKED BY:	WAG
NEW CASTLE		

STRUCTURES LOCATION MAP

SLM-01
SHEET NO.
38
TOTAL SHTS.
207

PROJECT NOTES:

1. LOCATION
PROPOSED NEW PEDESTRIAN STRUCTURE CARRYING THE INDUSTRIAL TRACK TRAIL (PHASE 3) AT THE FOLLOWING LOCATION:
- GLULAM TIMBER TIED ARCH WITH GLULAM TIMBER BEAM APPROACH SPANS OVER THE CHRISTINA RIVER
2. ELEVATIONS
VERTICAL DATUM IS REFERENCED TO NAVD 88.
3. DESIGN CRITERIA
2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SEVENTH EDITION, INCLUDING 2015 INTERIM REVISIONS.
2009 AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, INCLUDING 2015 INTERIM PROVISIONS.
2005 DELDOT BRIDGE DESIGN MANUAL
WELDS SHALL CONFORM TO AWS D1.5.

4. LOADING
VEHICLE LIVE LOAD IS H-10 FOR THIS PROJECT.
PEDESTRIAN LIVE LOAD IS 90 PSF FOR THIS PROJECT.
5. FOUNDATIONS
FOR FOUNDATION REQUIREMENTS SEE DWG. NOS. PL-101 THRU PL-103.
6. ARCH BEARING REACTIONS
WIND LOADING ASSUMES MAXIMUM 15" PURLIN DEPTH AND MAXIMUM 48" DEEP ARCH MEMBERS.

THE PIER AND PIER FOUNDATION DESIGNS PROVIDED IN THE CONTRACT DOCUMENTS ARE BASED ON THE REACTIONS SHOWN IN THE TABLE BELOW. PER THE SPECIAL PROVISIONS FOR ITEM 601536 - PREFABRICATED GLUED LAMINATED TIMBER ARCH, THE CONTRACTOR SHALL SUPPLY CALCULATIONS AND WORKING DRAWINGS FOR ANY STRUCTURE SUPPLIED THAT DOES NOT CONFORM TO THE REACTIONS SHOWN ABOVE AND/OR THE GEOMETRIC DIMENSIONS AND/OR DETAILS OF THE PIER OR PIER FOUNDATIONS SHOWN IN THESE PLANS.

ARCH BEARING REACTIONS ON PIER		
LOAD	VERTICAL (UNFACTORED)	HORIZONTAL THRUST (UNFACTORED)
DL	31.5 KIP/BEARING	0.0 KIP/BEARING
LL (PEDESTRIAN)	45.0 KIP/BEARING	0.0 KIP/BEARING

ARCH PURLIN REACTIONS ON PIER	
LOAD	VERTICAL (UNFACTORED)
DL	0.5 KIP/BEARING
LL (PEDESTRIAN)	2.0 KIP/BEARING

7. PORTLAND CEMENT CONCRETE
ALL CONCRETE PROPERTIES SHALL BE IN ACCORDANCE WITH SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
CLASS A - ABUTMENT STEMS, BACKWALLS, AND PIER WALLS (F'c = 4,500 PSI)
CLASS B - ABUTMENT FOOTINGS, PIER FOOTINGS (F'c = 3,500 PSI)
ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.
8. REINFORCING STEEL
ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M 31 (ASTM A 615), GRADE 60. EPOXY COATED REINFORCING STEEL SHALL BE PROTECTED WITH FUSION BONDED EPOXY, CONFORMING TO AASHTO M 284 (ASTM A 775).
EPOXY COATED REINFORCING STEEL SHALL BE USED IN THE FOLLOWING LOCATIONS:
- ABUTMENT STEMS AND BACKWALLS
- PIER WALLS
ALL REINFORCING STEEL HAS BEEN DETAILED FOR A MAXIMUM LENGTH OF 60 FT.
ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE AASHTO BRIDGE DESIGN SPECIFICATIONS.
MINIMUM CONCRETE COVER FOR REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL BE 3" FOR FOOTINGS AND 2" ELSEWHERE.
9. STRUCTURAL STEEL
ALL STRUCTURAL STEEL SHALL BE AASHTO M 270 (ASTM A 709) GRADE 50, AND HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123, INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M 270 FOR PRIMARY LOAD CARRYING MEMBERS UNDER TENSILE STRESS.
10. THE FOLLOWING ELEMENTS OF THE GLUE-LAMINATED ARCH SHALL BE DESIGNED, DETAILED, AND FURNISHED BY THE GLUE-LAMINATED ARCH FABRICATOR:
- GLUE-LAMINATED ELEMENTS: ARCH RIBS, STRINGERS FLOORBEAMS, DECK PANELS
- PRESSURE TREATED LUMBER: 1"x 6" TIMBER PLANK DECKING
- STAINLESS STEEL ELEMENTS: ARCH TIE, ARCH SUSPENSION CABLES, ARCH CABLE HANGERS, ARCH BEARINGS AND BEARING PINS, ALL CONNECTION HARDWARE

11. TIMBER
STRUCTURAL TIMBER SHALL BE GLUE LAMINATED TIMBER CONFORMING TO THE FOLLOWING MINIMUM ALLOWABLE DRY UNIT STRESSES:
GLUE LAMINATED BEAMS AND GLUE LAMINATED LONGITUDINAL DECK PANELS FOR SPANS 1 AND 3 CONFORM TO AASHTO COMBINATION SYMBOL 20F-V2, SOUTHERN PINE:
- BENDING (Fbxo) = 2,000 PSI
- BENDING (Fbyo) = 1,450 PSI
- HORIZONTAL SHEAR (Fvx0) = 300 PSI
- HORIZONTAL SHEAR (Fvyo) = 260 PSI
- MODULUS OF ELASTICITY (Exo) = 1,500,000 PSI
- MODULUS OF ELASTICITY (Eyo) = 1,400,000 PSI

- GLUE LAMINATED STRUCTURAL ARCH MEMBERS SHALL CONFORM TO AASHTO COMBINATION SYMBOL 20F-V3, WEST COAST DOUGLAS FIR-LARCH:
- BENDING (Fbxo) = 2,000 PSI
- AXIAL COMPRESSION (Fco) = 1,550 PSI
- HORIZONTAL SHEAR (Fvo) = 265 PSI
- MODULUS OF ELASTICITY (Eo) = 1,600,000 PSI

LUMBER FOR 1"x6" DECK PLANKS SHALL BE SOUTHERN YELLOW PINE SELECT STRUCTURAL

TREAT GLUE LAMINATED BEAMS AND ARCH MEMBERS WITH 5% PENTACHLOROPHENOL TYPE 'A' TO A MINIMUM NET RETENTION OF 0.6 PCF PER AWP USER SPECIFICATION U1-15, USE CATEGORY 4B, & DELDOT SPECIFICATION SECTION 814. TREAT GLUE LAMINATED DECK PANELS WITH A COPPER NAPHTHENATE OILBORNE PRESERVATIVE TO A MINIMUM NET RETENTION OF 0.075 PCF PER AWP USER SPECIFICATION U1-15, USE CATEGORY 4B, & DELDOT SPECIFICATION SECTION 814. TREAT 1"x6" TIMBER DECK PLANKS WITH 5% PENTACHLOROPHENOL TYPE 'C' TO A MINIMUM RETENTION OF 0.5 PCF PER AWP USER SPECIFICATION U1-15, USE CATEGORY 4B, & DELDOT SPECIFICATION SECTION 814.

PRESERVATIVES FOR PRESSURE TREATMENT PROCESS SHALL CONFORM TO AWP STANDARD P35 (PENTACHLOROPHENOL) AND P36 (COPPER NAPHTHENATE). ALL TREATED WOOD SHALL CONFORM TO BEST MANAGEMENT PRACTICES (BMP'S). ISSUE CERTIFICATIONS OF TREATMENT.

TIMBER STOCKPILED AT THE JOB SITE MUST BE NEATLY STACKED IN DRY, LEVEL AREAS THAT ARE CLEAR OF PLANT GROWTH AND DEBRIS. THE BOTTOM LAYER OF MATERIAL IN ANY STOCKPILE SHOULD BE AT LEAST 8 INCHES ABOVE GROUND LEVEL AND SUPPORTED ON SPACER BLOCKS SPACED NOT MORE THAN 10 FEET IN ANY DIRECTION OF THE STOCKPILE. IF MATERIAL SAGGING BETWEEN SPACER BLOCKS IS EVIDENT, ADDITIONAL SPACER BLOCKS MUST BE ADDED TO REMOVE SAGGING. STICKERS SPACED NOT MORE THAN 6 FEET IN ANY DIRECTION OF THE STOCKPILE SHALL BE ADDED BETWEEN LAYERS OF STOCKPILED MATERIAL. STICKERS SHALL BE SPACED AT REGULAR INTERVALS TO EXTEND ACROSS THE FULL WIDTH OF THE STOCKPILE IN ANY DIRECTION AND MUST BE ALIGNED VERTICALLY.

TIMBER STOCKPILED IN HOT DRY CLIMATES SHALL BE PROTECTED WITH A PLYWOOD OR MATERIAL COVERING.

12. ELASTOMERIC BEARINGS
FOR REQUIREMENTS OF THE ELASTOMERIC BEARINGS SEE DWG. NO. BM-101.
13. STEEL PILES
STEEL H-SHAPE PILES SHALL CONFORM TO AASHTO M 270 (ASTM A 709), GRADE 50.
14. MSE WALLS
FOR MSE WALL NOTES, SEE DWG. AB-104.
15. CONSTRUCTION JOINTS
KEYED CONSTRUCTION JOINTS SHALL BE 2"x4" OR UNLESS NOTED OTHERWISE. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A 3/4" V-NOTCH UNLESS NOTED OTHERWISE.
16. STABILIZING STRUCTURAL EXCAVATIONS
IN LIEU OF A 2:1 SLOPE, THE CONTRACTOR MAY USE SHORING FOR EXCAVATIONS EXCEEDING 5 FEET IN HEIGHT. THE COST OF SHORING SHALL BE INCIDENTAL TO ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES.
17. HYDRAULIC DATA
DRAINAGE AREA = 234.0 SQ. MI.
25-YR FLOOD ELEVATION = 7.2 (TIDALLY INFLUENCED BACKWATER ELEVATION)
DESIGN FREQUENCY = 50-YEAR
DESIGN DISCHARGE = 22,900 CFS
DESIGN HEADWATER ELEVATION = 7.9 (FEMA, TIDALLY INFLUENCED BACKWATER ELEVATION)
DESIGN VELOCITY, CHANNEL = 5.0 FPS
AVAILABLE FLOW AREA OF PROPOSED OPENING = 8800 SQ. FT.
NOTE: SEE REPORT TITLED, "NEW CASTLE COUNTY INDUSTRIAL TRACK TRAIL, PHASE 3, HYDROLOGIC AND HYDRAULIC REPORT FOR PEDESTRIAN BRIDGE OVER THE CHRISTINA RIVER AND FOR THE BOARDWALK OVER LITTLE MILL CREEK," DATED MARCH 2015
SCOUR DATA
STRUCTURE HAS BEEN ANALYZED FOR THE EFFECTS OF SCOUR IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN FHWA'S HEC-18 MANUAL, "EVALUATING SCOUR AT BRIDGES" (2112).
DESIGN STORM EVENT = 100 YEAR FLOOD
DESIGN STORM DISCHARGE = 27,600 CFS
DESIGN STORM VELOCITY, CHANNEL = 7.09 FPS
DESIGN STORM MAXIMUM DEPTH OF FLOW = 23.72 FT
DESIGN STORM HEADWATER ELEVATION = 9.0 (FEMA, TIDALLY INFLUENCED BACKWATER ELEVATION)
CHECK STORM EVENT = 500 YEAR FLOOD
CHECK STORM DISCHARGE = 41,700 CFS
CHECK STORM VELOCITY, CHANNEL = 8.87 FPS
CHECK STORM MAXIMUM DEPTH OF FLOW = 25.32 FT
CHECK STORM HEADWATER ELEVATION = 10.6 (FEMA, TIDALLY INFLUENCED BACKWATER ELEVATION)

18. UTILITIES
BEFORE BEGINNING WORK, THE CONTRACTOR SHALL GIVE NOTIFICATION BY TELEPHONE BY CALLING "MISS UTILITY" AT 1-800-282-8555 A MINIMUM OF 48 HOURS PRIOR TO THE START OF WORK. VERIFY AND LOCATE ALL UTILITIES PRIOR TO STARTING WORK.

COORDINATE THE REQUIREMENTS FOR PROTECTION OF ANY UTILITY WITH THE UTILITY OWNER PRIOR TO STARTING WORK.

CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED. ANY DAMAGE INCURRED TO THESE UTILITIES OR ANY OTHER UTILITIES, SHOWN OR NOT SHOWN ON THE PLANS, DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE APPROPRIATE UTILITY COMPANY. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS, OR LIABILITY FOR ACCURACY OF TYPE, SIZE, AND LOCATION OF ANY UTILITY.

CHRISTINA RIVER CROSSING STRUCTURES INDEX OF SHEETS

SHEET NO.	DWG. NO.	TABLE OF CONTENTS
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41	PE-101	SOUTH TRAIL RETAINING STRUCTURE GENERAL PLAN AND ELEVATION - 1
42	PE-102	CHRISTINA RIVER BRIDGE GENERAL PLAN AND ELEVATION - 2
43	PE-103	NORTH TRAIL RETAINING STRUCTURE GENERAL PLAN AND ELEVATION - 3
44	FT-101	GEOMETRIC AND FOOTING LAYOUT PLAN - 1
45	FT-102	GEOMETRIC AND FOOTING LAYOUT PLAN - 2
46	FT-103	GEOMETRIC AND FOOTING LAYOUT PLAN - 3
47	PL-101	MSE WALL GRADE BEAM AND SOUTH MAT PILE LAYOUT
48	PL-102	CHRISTINA RIVER BRIDGE ABUTMENT AND PIER PILE LAYOUT
49	PL-103	MSE WALL NORTH MAT PILE LAYOUT
50	AB-101	ABUTMENT A PLAN AND ELEVATION
51	AB-102	ABUTMENT B PLAN AND ELEVATION
52	AB-103	ABUTMENT A AND B TYPICAL SECTIONS
53	AB-104	TRAIL RETAINING STRUCTURES TYPICAL SECTIONS - 1
54	AB-105	TRAIL RETAINING STRUCTURES TYPICAL SECTIONS - 2
55	AB-106	ABUTMENT A REINFORCEMENT DETAILS - 1
56	AB-107	ABUTMENT A REINFORCEMENT DETAILS - 2
57	AB-108	ABUTMENT A REINFORCEMENT DETAILS - 3
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61	AB-112	MSE WALL GRADE BEAM REINFORCEMENT DETAILS
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64	PR-101	PIER 1 PLAN AND ELEVATIONS
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70	RB-101	ABUTMENT REINFORCEMENT LIST
71	RB-102	PIER REINFORCEMENT LIST
72	BM-101	GLULAM BEAM ELEVATION, CAMBER, AND BEARING DETAILS
73	BM-102	CROSS FRAME DETAILS
74	FR-101	CHRISTINA RIVER BRIDGE FRAMING PLAN
75	DK-101	GLULAM DECK
76	FD-101	FINISHED BRIDGE DECK ELEVATIONS
77	EX-101	TRANSVERSE JOINT DETAILS
78	RL-101	RAILING DETAILS - 1
79	RL-102	RAILING DETAILS - 2
80	BO-101	BORING LOG - 1

THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY SUPPORTING, PROTECTING, OR RELOCATING ANY UTILITIES DURING CONSTRUCTION. WHERE NECESSARY, THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.

19. STAGING AREAS
ANY STAGING AREAS OUTSIDE OF THOSE SHOWN ON THESE CONTRACT PLANS AND/OR OUTSIDE OF THE LIMITS OF CONSTRUCTION (LOC) DEPICTED HEREON SHALL HAVE EROSION AND SEDIMENT CONTROLS IMPLEMENTED TO PREVENT DISCHARGE OF SEDIMENT-LADEN RUNOFF FROM ANY SUCH AREAS. THE CONTRACTOR SHALL SUBMIT PLANS DEPICTING EROSION AND SEDIMENT CONTROLS AROUND AND WITHIN ANY SUCH STAGING AREAS TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

THERE SHALL BE NO STOCKPIILING OF CONSTRUCTION MATERIALS OR TEMPORARY FILLS IN WETLANDS OR SUBAQUEOUS LANDS UNLESS OTHERWISE SPECIFIED ON PROJECT PLANS AND APPROVED BY PERMITTING AGENCIES THAT GOVERN THEM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND SECURE THOSE ADDITIONAL PERMITS/AMENDMENTS IF DEVIATING FROM THE PLANS.

20. CONSTRUCTION ACCESS
VEHICLES MAY USE THE IN-PLACE CHRISTINA RIVER AND WETLAND BOARDWALK STRUCTURES TO ACCESS THE CONSTRUCTION SITE. ALL VEHICLES SHALL MAINTAIN AN ABSOLUTE MAXIMUM SPEED OF (3.0) M.P.H. WHEN CROSSING ANY STRUCTURE. THE MAXIMUM GROSS (LOADED) WEIGHT OF ANY VEHICLE SHALL NOT EXCEED 10 TONS. ALL VEHICLE WEIGHTS SHALL BE CONFIRMED BY USE OF AN ON-SITE PORTABLE SCALE PRIOR TO CROSSING ANY STRUCTURE. ALL PORTABLE SCALES MUST SHOW PROOF OF CALIBRATION CERTIFIED BY A WEIGHTS AND MEASURES INSPECTOR CERTIFIED IN THE STATE OF DELAWARE. TRUCK DELIVERIES PRESENTING A CERTIFIED WEIGHT TICKET CONFIRMING A MAXIMUM GROSS (LOADED) WEIGHT OF 10 TONS WILL NOT REQUIRE A SECOND WEIGHING AT THE JOB SITE.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL DOCUMENTING ALL PROPOSED METHODS AND SEQUENCES FOR CONSTRUCTION ACCESS. THESE WORKING DRAWINGS SHALL INCLUDE ALL MEANS AND METHODS NECESSARY TO PROTECT ALL IN-PLACE STRUCTURES IF USED FOR CONSTRUCTION ACCESS. ANY TEMPORARY MATERIALS PROPOSED SHALL BE INSTALLED PRIOR TO THE USE OF ANY STRUCTURE FOR CONSTRUCTION ACCESS. THE TEMPORARY MATERIALS SHALL PROTECT AGAINST ANY DAMAGE DUE TO CONSTRUCTION ACTIVITIES AS WELL AS PREVENT THE SPILLAGE OF MATERIALS ONTO ANY STRUCTURE OR INTO THE SURROUNDING ENVIRONMENT. DAMAGE INCURRED TO ANY STRUCTURE BY THE CONTRACTOR OR ANY SPILLAGE OF MATERIAL BY THE CONTRACTOR INTO THE SURROUNDING ENVIRONMENT SHALL BE REPAIRED OR REMOVED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

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ADDENDUMS / REVISIONS	

SCALE: NONE

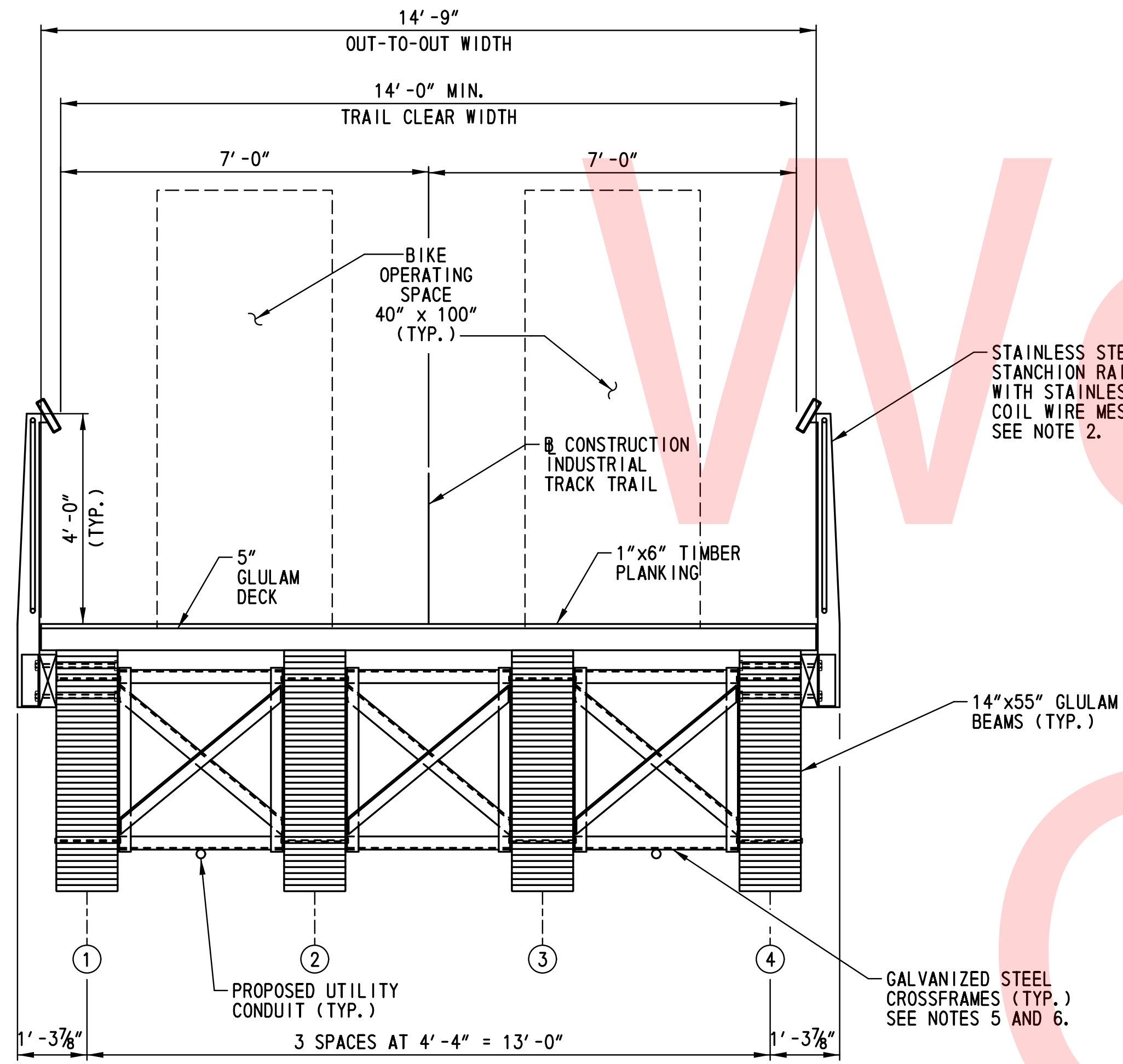
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: NAH	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

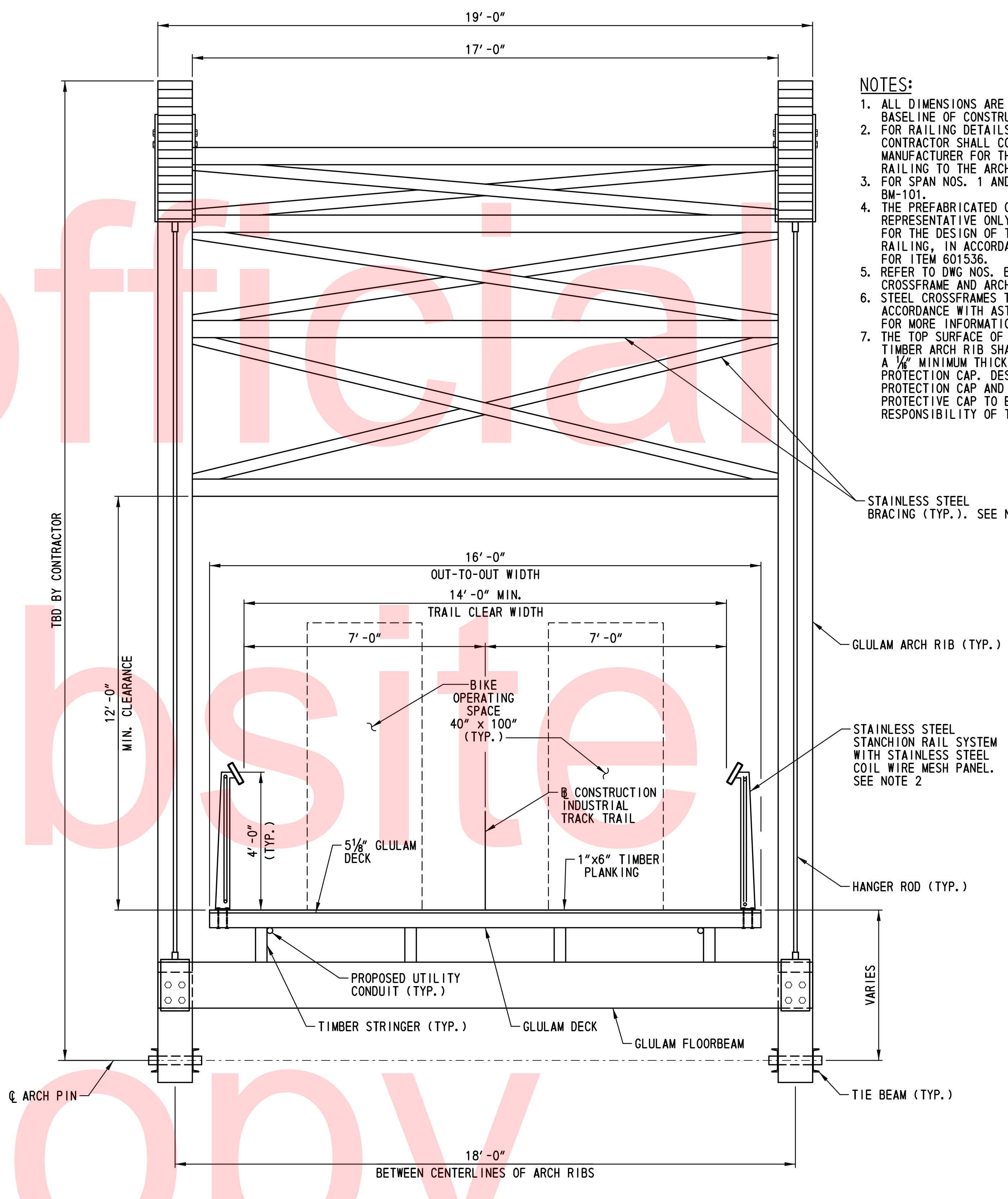
PROJECT NOTES CHRISTINA RIVER CROSSING

PN-101	SHEET NO.
	39
	TOTAL SHTS.
	207

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TYPICAL SECTION - SPANS 1 AND 3
SCALE: 1/2" = 1'-0"

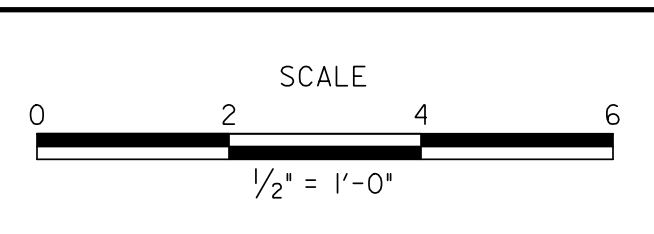


TYPICAL SECTION - SPAN 2 (GLULAM ARCH)
SCALE: 1/2" = 1'-0"

- NOTES:**
1. ALL DIMENSIONS ARE MEASURED PERPENDICULAR TO THE BASELINE OF CONSTRUCTION INDUSTRIAL TRACK TRAIL.
 2. FOR RAILING DETAILS, SEE DWG. NO. RL-101. THE CONTRACTOR SHALL COORDINATE WITH THE ARCH MANUFACTURER FOR THE DESIGN AND ATTACHMENT OF THE RAILING TO THE ARCH.
 3. FOR SPAN NOS. 1 AND 3 BEAM ELEVATIONS, SEE DWG. NO. BM-101.
 4. THE PREFABRICATED GLULAM TIMBER ARCH SHOWN IS REPRESENTATIVE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THIS STRUCTURE, INCLUDING RAILING, IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR ITEM 601536.
 5. REFER TO DWG NOS. BM-102 AND PN-101 FOR STEEL CROSSFRAME AND ARCH BRACING INFORMATION.
 6. STEEL CROSSFRAMES TO BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM 123. REFER TO DRAWING BM-102 FOR MORE INFORMATION.
 7. THE TOP SURFACE OF EACH PREFABRICATED GLULAM TIMBER ARCH RIB SHALL BE PROTECTED FULL LENGTH BY A 1/4" MINIMUM THICKNESS STAINLESS STEEL SHEET PROTECTION CAP. DESIGN OF THE STAINLESS STEEL PROTECTION CAP AND THE METHOD OF ATTACHMENT OF THE PROTECTIVE CAP TO EACH ARCH RIB SHALL BE THE RESPONSIBILITY OF THE ARCH FABRICATOR.

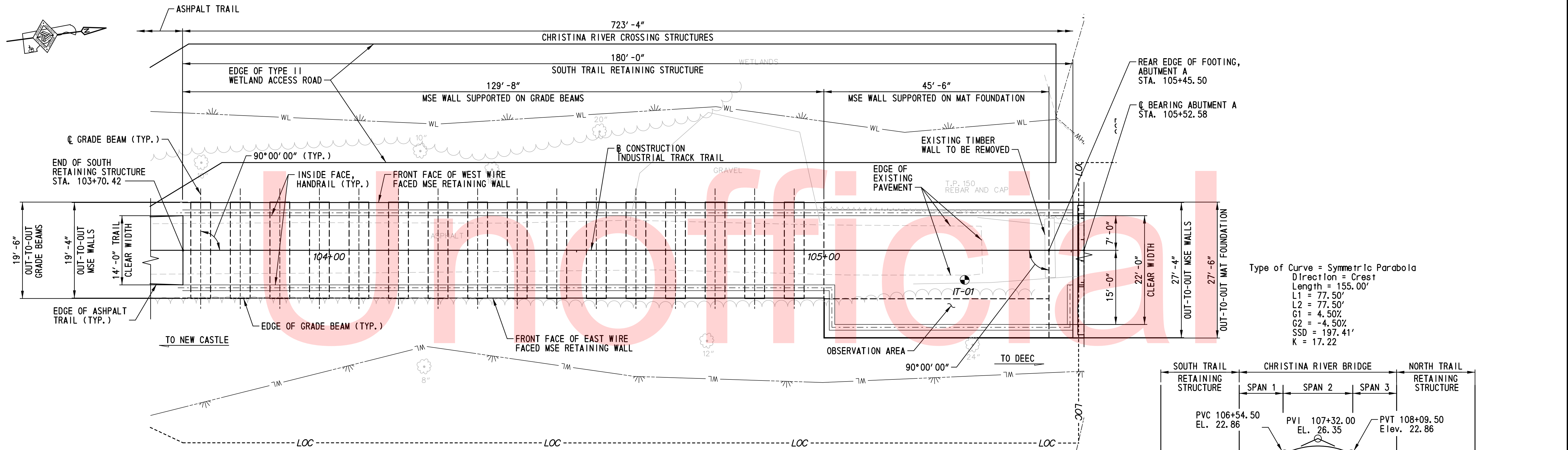
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ADDENDUMS / REVISIONS	



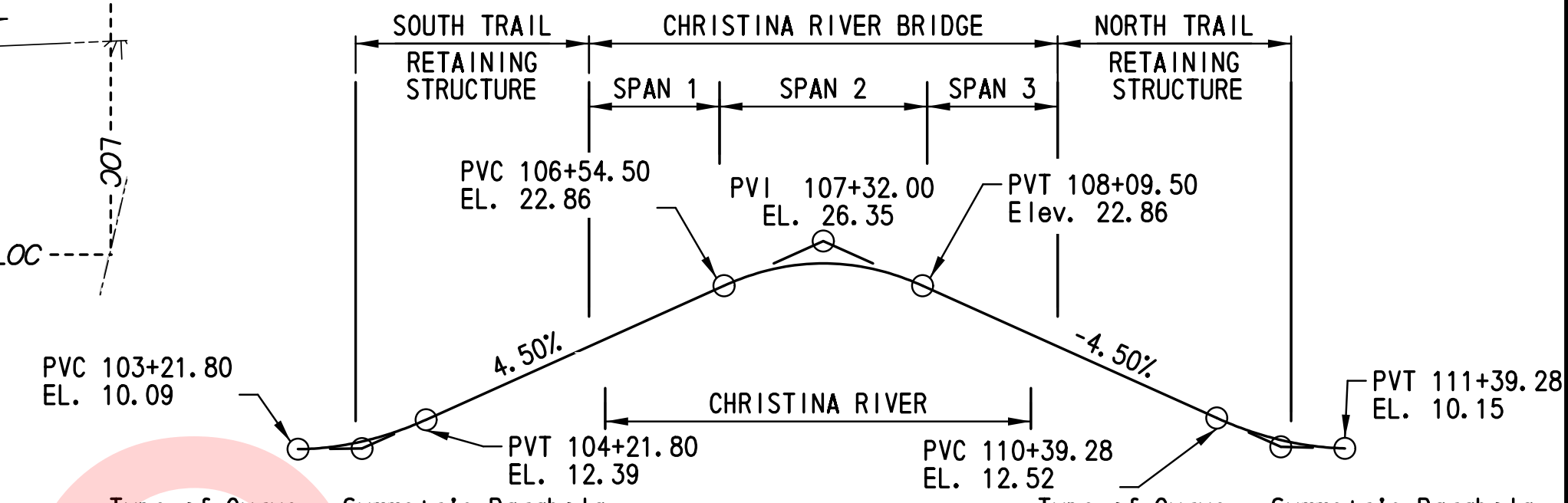
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

TS-101
SHEET NO. 40
TOTAL SHTS. 207



PLAN
SCALE: 1"=10'-0"

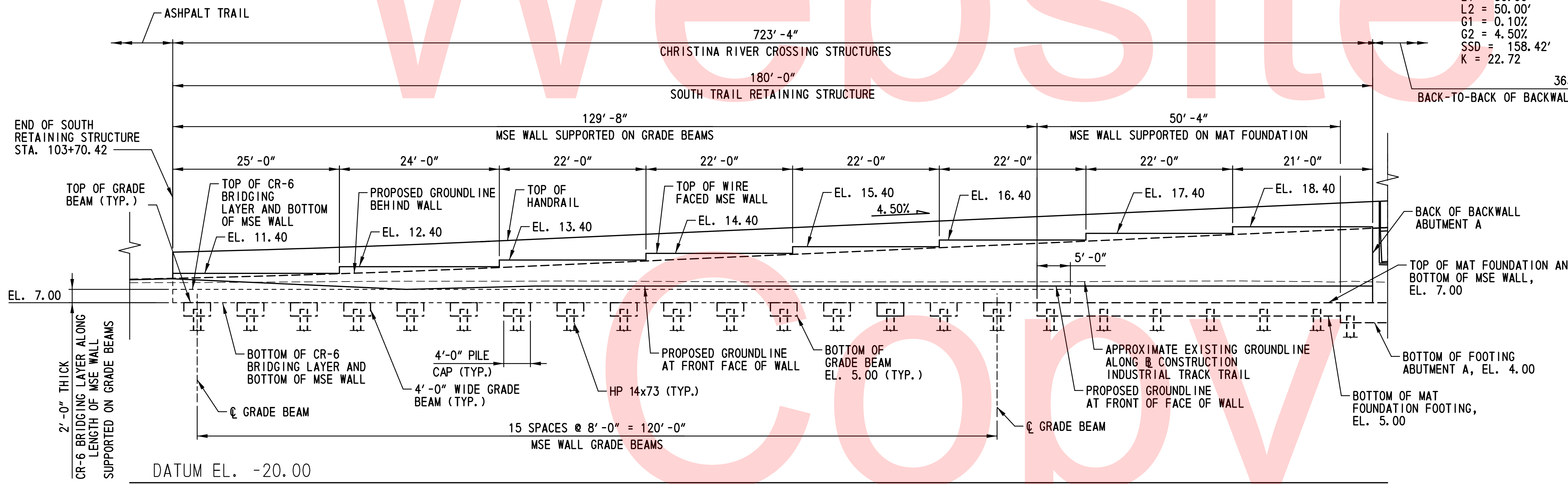
Type of Curve = Symmetric Parabola
 Direction = Crest
 Length = 155.00'
 L1 = 77.50'
 L2 = 77.50'
 G1 = 4.50%
 G2 = -4.50%
 SSD = 197.41'
 K = 17.22



VERTICAL CURVE DATA

Type of Curve = Symmetric Parabola
 Direction = Sag
 Length = 100.00'
 L1 = 50.00'
 L2 = 50.00'
 G1 = 0.10%
 G2 = 4.50%
 SSD = 158.42'
 K = 22.72

Type of Curve = Symmetric Parabola
 Direction = Sag
 Length = 100.00'
 L1 = 50.00'
 L2 = 50.00'
 G1 = -4.50%
 G2 = -0.24%
 SSD = 164.38'
 K = 23.45

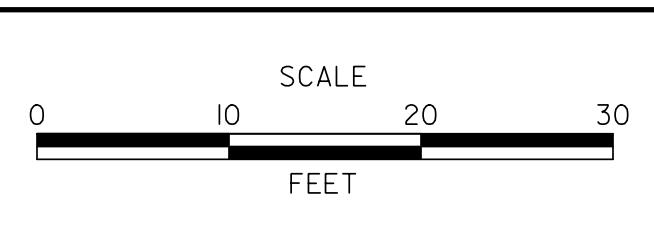


EAST WALL ELEVATION
SCALE: 1"=10'-0"

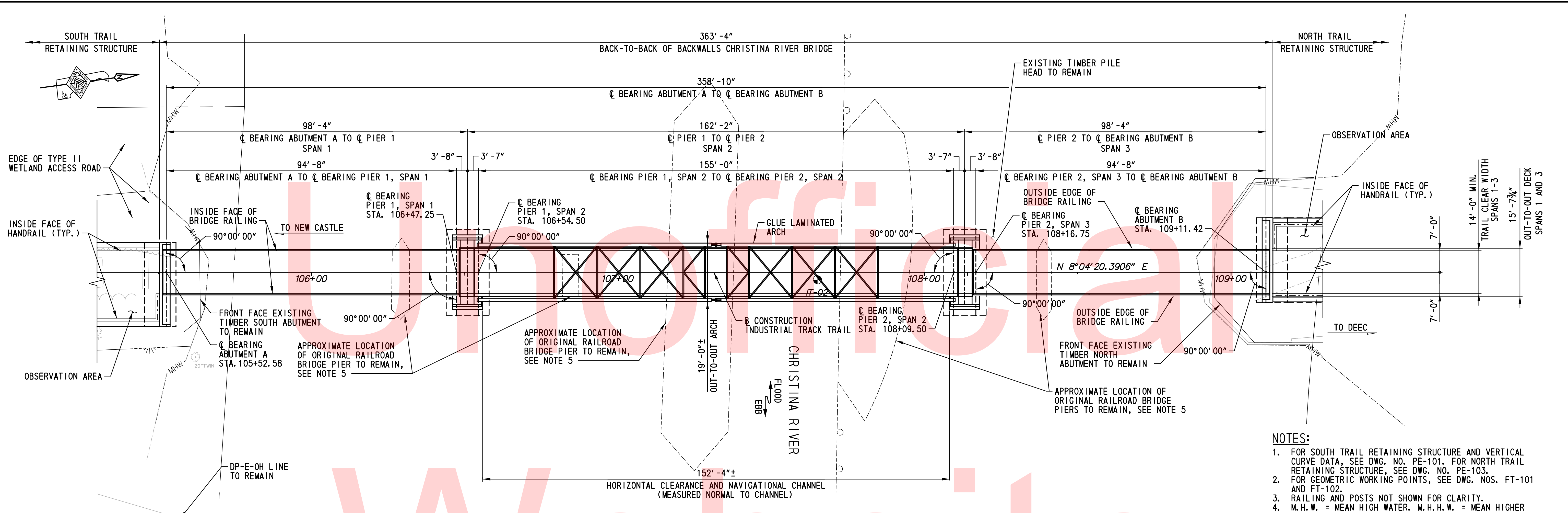
- NOTES:
- FOR CHRISTINA RIVER BRIDGE, SEE DWG. NO. PE-102. FOR NORTH TRAIL RETAINING STRUCTURE, SEE DWG. NO. PE-103.
 - EAST WALL ELEVATION SHOWN. WEST WALL ELEVATION IS SIMILAR TO EAST ELEVATION OF THE NORTH TRAIL RETAINING STRUCTURE, BUT OPPOSITE HAND. SEE DWG. NO. PE-103.
 - FOR GEOMETRIC WORKING POINTS, SEE DWG. NOS. FT-101 AND FT-102.
 - RAILING AND POSTS NOT SHOWN FOR CLARITY.
 - THE HIGH STRENGTH GEOTEXTILE BRIDGING LAYER IS CONTINUOUS FROM STA. 103+70.42 TO STA. 105+05.00.

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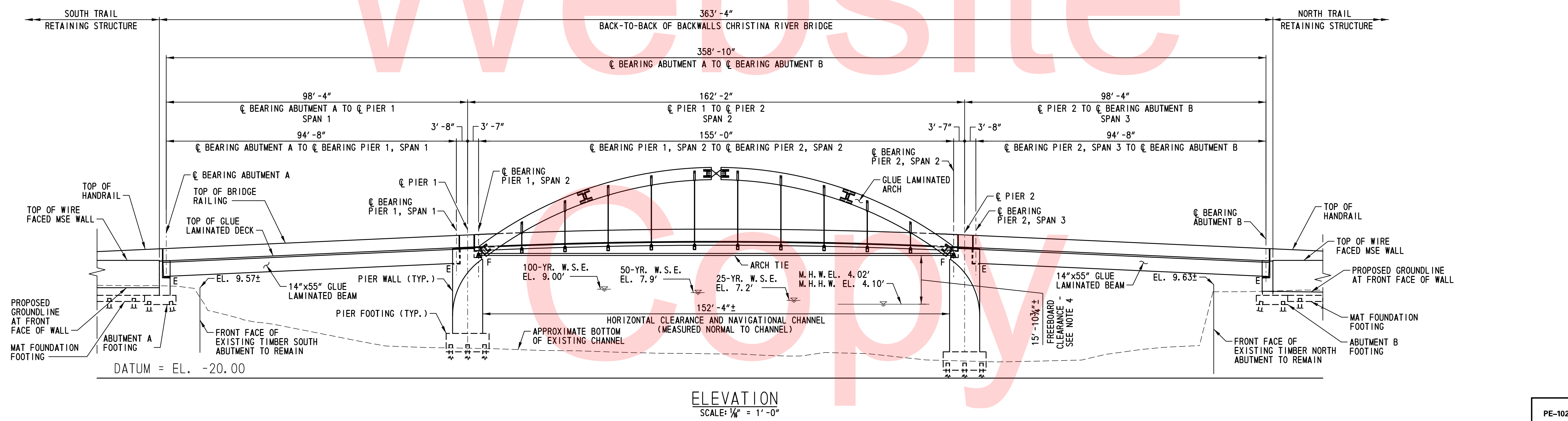
ADDENDUMS / REVISIONS	



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

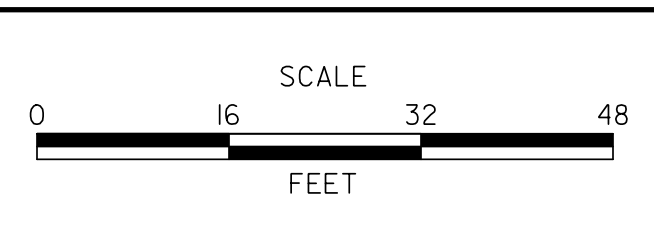


- NOTES:**
- FOR SOUTH TRAIL RETAINING STRUCTURE AND VERTICAL CURVE DATA, SEE DWG. NO. PE-101. FOR NORTH TRAIL RETAINING STRUCTURE, SEE DWG. NO. PE-103.
 - FOR GEOMETRIC WORKING POINTS, SEE DWG. NOS. FT-101 AND FT-102.
 - RAILING AND POSTS NOT SHOWN FOR CLARITY.
 - M.H.W. = MEAN HIGH WATER. M.H.H.W. = MEAN HIGHER HIGH WATER. FREEBOARD CLEARANCE ESTABLISHED BASED ON M.H.H.W. ELEVATION.
 - SURVEY BY DIVERS IN 2014 DID NOT CONFIRM PRESENCE OF EXISTING RAILROAD BRIDGE PIERS. HISTORIC LOCATIONS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.



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ADDENDUMS / REVISIONS

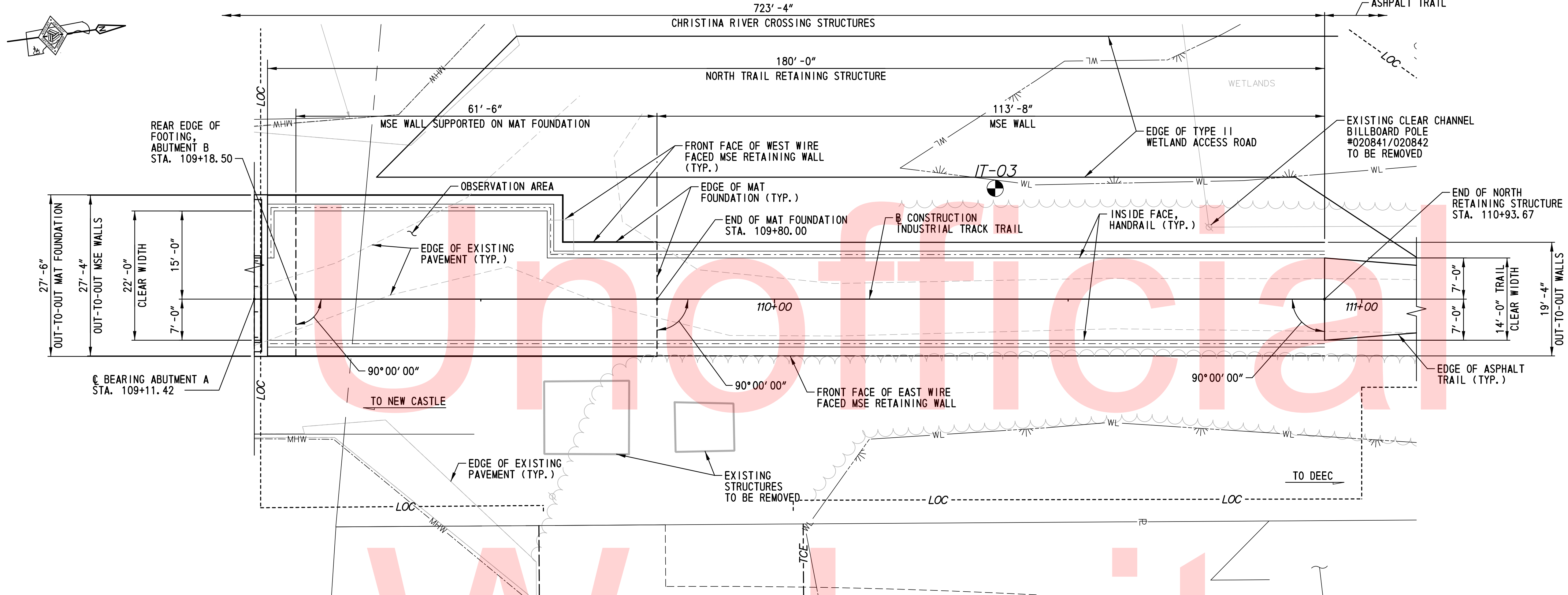


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

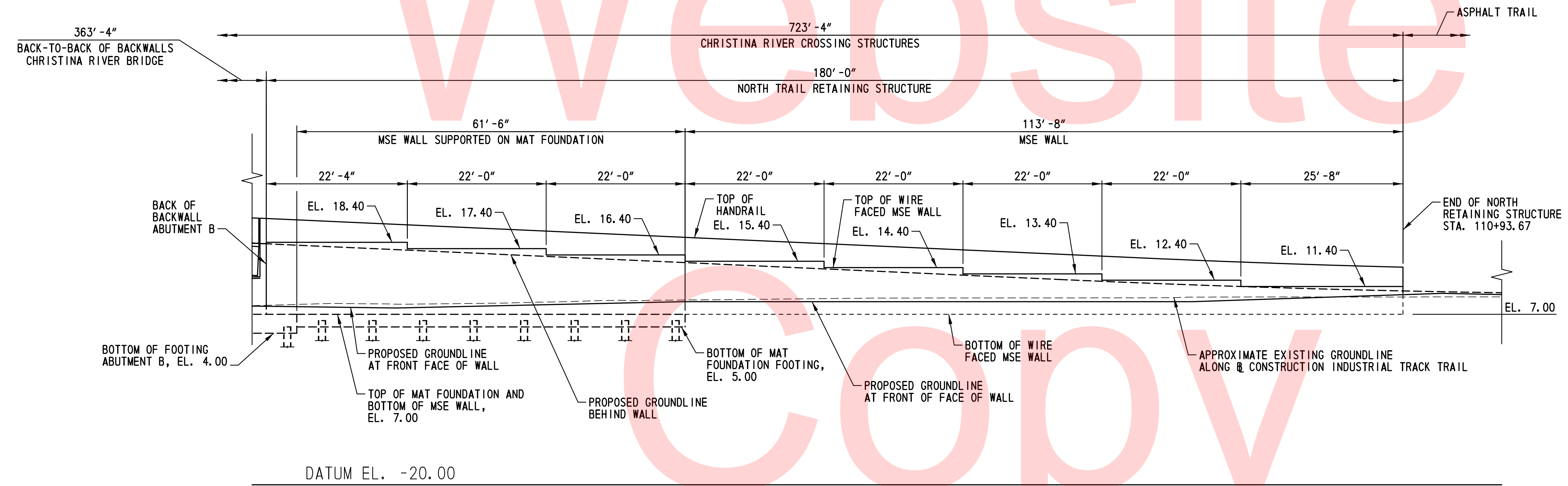
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH
	CHECKED BY: WAG

CHRISTINA RIVER BRIDGE GENERAL PLAN AND ELEVATION - 2

PE-102
SHEET NO. 42
TOTAL SHTS. 207



PLAN
SCALE: 1"=10'-0"

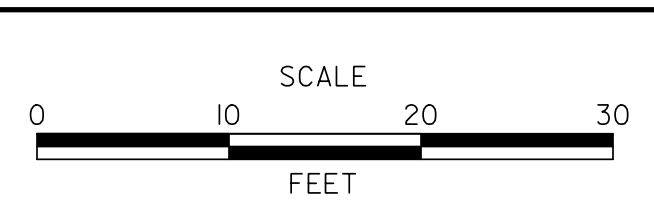


EAST WALL ELEVATION
SCALE: 1"=10'-0"

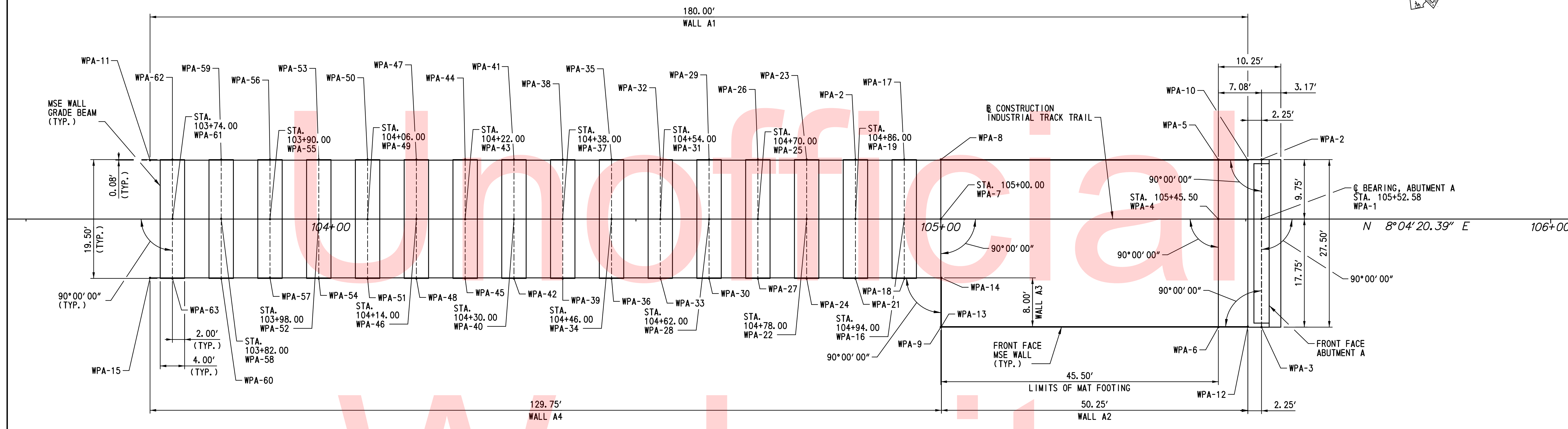
- NOTES:**
- FOR CHRISTINA RIVER BRIDGE, SEE DWG. NO. PE-102. FOR SOUTH TRAIL RETAINING STRUCTURE AND VERTICAL CURVE DATA, SEE DWG. NO. PE-101.
 - EAST WALL ELEVATION SHOWN. WEST WALL ELEVATION IS SIMILAR TO EAST WALL ELEVATION OF THE SOUTH TRAIL RETAINING STRUCTURE, BUT OPPOSITE HAND. SEE DWG. NO. PE-101.
 - FOR GEOMETRIC WORKING POINTS, SEE DWG. NOS. FT-101 AND FT-102.
 - RAILING AND POSTS NOT SHOWN FOR CLARITY. REFER TO DWG. NO. RL102 FOR RAILING DETAILS.

N:\31896-002\CADD\BRIDGE\PE103_1\T.C.DGN

ADDENDUMS / REVISIONS	



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG



GEOMETRIC AND FOOTING LAYOUT PLAN
SCALE: 1/8"=1'-0"

WORKING POINT	COORDINATES	
	NORTHING	EASTING
WPA-1	625679.9071	610808.9051
WPA-2	625681.2795	610799.2288
WPA-3	625677.4146	610826.4792
WPA-4	625672.8940	610807.9104
WPA-5	625674.2631	610798.2573
WPA-6	625670.4015	610825.4845
WPA-7	625627.8448	610801.5212
WPA-8	625629.2139	610791.8680
WPA-9	625625.3523	610819.0953
WPA-10	625679.0368	610799.0181
WPA-11	625500.8203	610773.7421
WPA-12	625675.1986	610826.0808
WPA-13	625625.4465	610819.0246
WPA-14	625626.5699	610811.1038
WPA-15	625498.1055	610792.8838
WPA-16	625621.9042	610800.6786
WPA-17	625623.2733	610791.0254
WPA-18	625620.5701	610810.3372
WPA-19	625613.9834	610799.5554
WPA-20	625615.3526	610789.9020
WPA-21	625612.6143	610809.2088
WPA-22	625606.0627	610798.4320
WPA-23	625607.4318	610788.7786
WPA-24	625604.6936	610808.0854

WORKING POINT	COORDINATES	
	NORTHING	EASTING
WPA-25	625598.1420	610797.3085
WPA-26	625599.5111	610787.6552
WPA-27	625596.7728	610806.9620
WPA-28	625590.2213	610796.2109
WPA-29	625591.5904	610786.5318
WPA-30	625588.8521	610805.8386
WPA-31	625582.3005	610795.0618
WPA-32	625583.6696	610785.4084
WPA-33	625580.9314	610804.7152
WPA-34	625574.3798	610793.9384
WPA-35	625575.7489	610784.2850
WPA-36	625573.0106	610803.5918
WPA-37	625566.4590	610792.8150
WPA-38	625567.8282	610783.1616
WPA-39	625565.0899	610802.4684
WPA-40	625558.5383	610791.6916
WPA-41	625559.9074	610782.0382
WPA-42	625557.1692	610801.3450
WPA-43	625550.6176	610790.5682
WPA-44	625551.9867	610780.9148
WPA-45	625549.2485	610800.2216
WPA-46	625542.6968	610789.4448
WPA-47	625544.0660	610779.7914
WPA-48	625541.3277	610799.0982

WORKING POINT	COORDINATES	
	NORTHING	EASTING
WPA-49	625534.7761	610788.3214
WPA-50	625536.1452	610778.6680
WPA-51	625533.4070	610797.9748
WPA-52	625526.8554	610787.1980
WPA-53	625528.2245	610777.5446
WPA-54	625525.4863	610796.8514
WPA-55	625518.9347	610786.0746
WPA-56	625520.3038	610776.4212
WPA-57	625517.5655	610795.7280
WPA-58	625511.0139	610784.9512
WPA-59	625512.3830	610775.2978
WPA-60	625509.6448	610794.6046
WPA-61	625503.1217	610783.8060
WPA-62	625504.4623	610774.1744
WPA-63	625501.7241	610793.4812

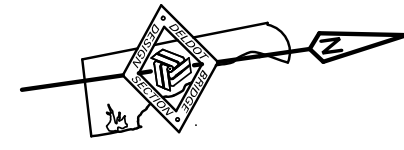
WORKING POINT LEGEND
WPA-1 = WORKING POINT 1, ABUTMENT A
WPA-2 = WORKING POINT 2, ABUTMENT A
WPA-3 = WORKING POINT 3, ABUTMENT A

*ALL COORDINATES SET PERPENDICULAR TO
B CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING
STATION AHEAD

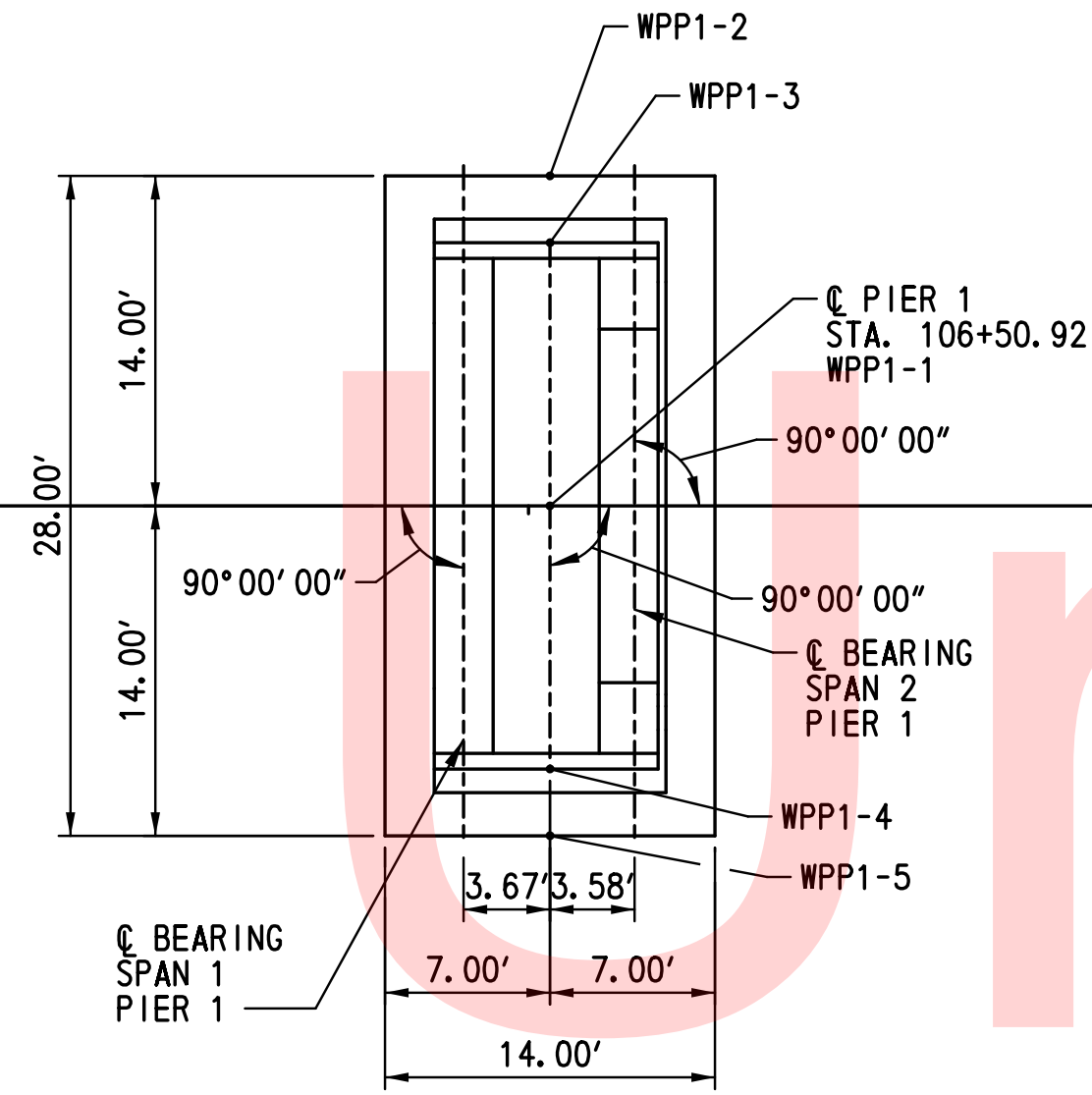
WORKING POINTS 1-6 = LIMITS OF ABUTMENT A FOOTING
WORKING POINTS 5-9 = LIMITS
OF ABUTMENT A MSE WALL MAT FOOTING
WORKING POINTS 10-15 = FRONT FACE OF MSE WALLS A1-A4
WORKING POINTS 16-63 = ABUTMENT A MSE WALL GRADE
BEAMS

NOTES:
1. FOR PILE LAYOUT PLANS, SEE DWG. NOS. PL-101,
PL-102, AND PL-103.

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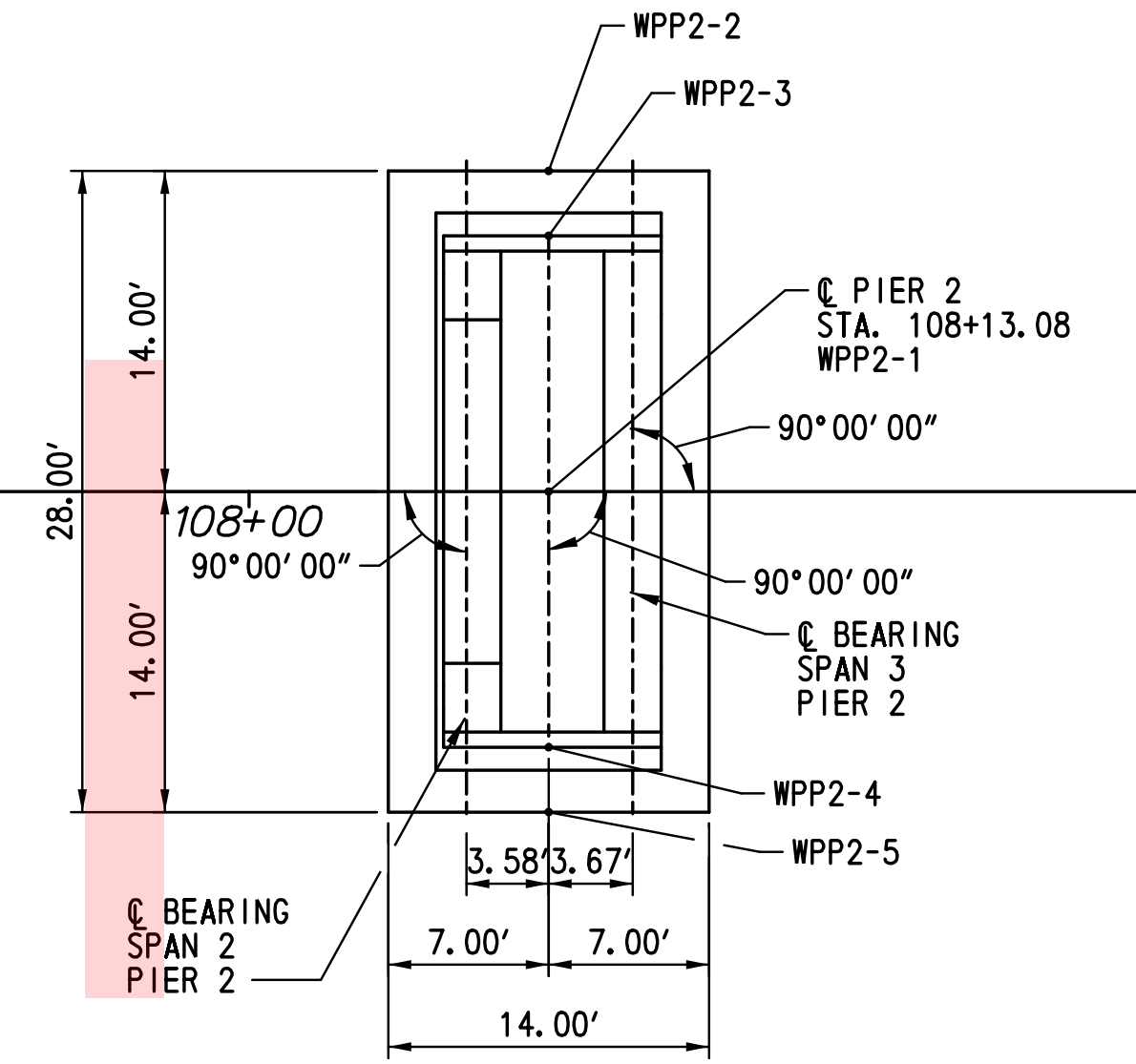


N 8°04'20.39" E
106+00



107+00

CONSTRUCTION INDUSTRIAL TRACK TRAIL



GEOMETRIC AND FOOTING LAYOUT PLAN
SCALE: 1/8" = 1' - 0"

WORKING POINT	COORDINATES	
	NORTHING	EASTING
WPP1-1	625777.2661	610822.7134
WPP1-2	625779.2320	610808.8521
WPP1-3	625778.8342	610811.6574
WPP1-4	625775.6981	610833.7694
WPP1-5	625775.3002	610836.5747
WPP2-1	625937.8260	610845.4852
WPP2-2	625939.7919	610831.6240
WPP2-3	625939.3940	610834.4292
WPP2-4	625936.2579	610856.5413
WPP2-5	625935.8601	610859.3465

WORKING POINT LEGEND

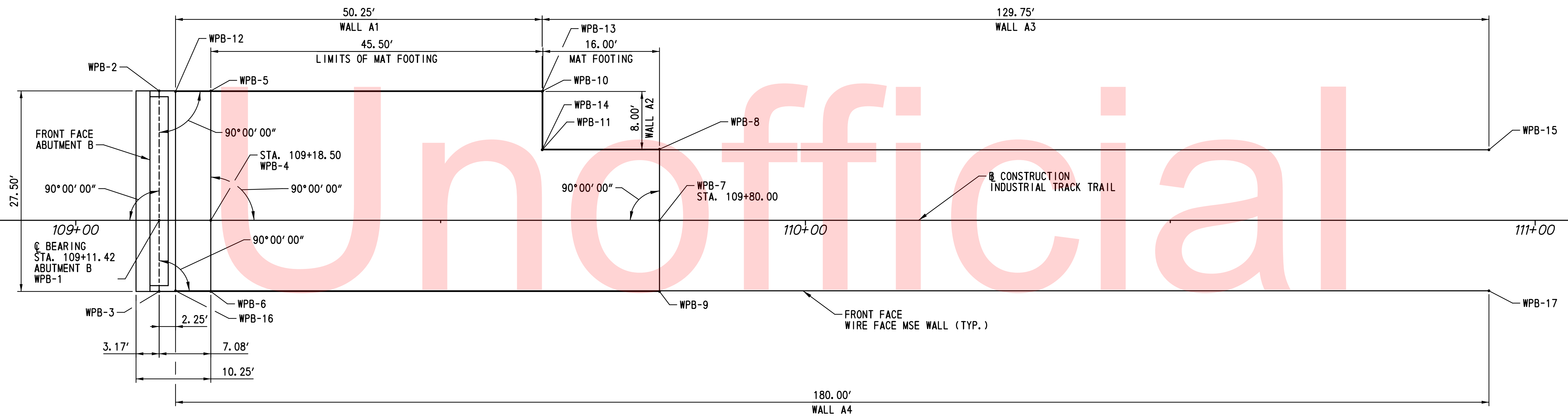
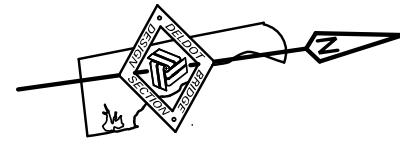
- WPP1-1 = WORKING POINT 1, PIER 1
- WPP1-2 = WORKING POINT 2, PIER 1
- WPP1-3 = WORKING POINT 3, PIER 1

*ALL COORDINATES SET PERPENDICULAR TO
CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING
STATION AHEAD

NOTES:

- 1. FOR PILE LAYOUT PLANS, SEE DWG. NOS. PL-101, PL-102, AND PL-103.

N:\31896-002\CADD\BRIDGE\FT102_JTG.DGN



GEOMETRIC AND FOOTING LAYOUT PLAN
SCALE: 1/8" = 1'-0"

WORKING POINT	COORDINATES	
	NORTHING	EASTING
WPB-1	626035.1850	610859.2936
WPB-2	626037.6775	610841.7195
WPB-3	626033.8159	610868.9470
WPB-4	626042.1981	610860.2882
WPB-5	626044.6906	610842.7141
WPB-6	626040.8290	610869.9416
WPB-7	626103.0888	610868.9243
WPB-8	626104.4579	610859.2710
WPB-9	626101.7196	610878.5777
WPB-10	626090.6456	610849.1741
WPB-11	626088.5222	610857.0950
WPB-12	626039.8935	610842.1178
WPB-13	626090.7398	610849.1043
WPB-14	626088.6164	610857.0242
WPB-15	626216.9866	610875.3149
WPB-16	626036.0553	610869.1804
WPB-17	626214.2717	610894.4566

WORKING POINT LEGEND

WPB-1 = WORKING POINT 1, ABUTMENT B
WPB-2 = WORKING POINT 2, ABUTMENT B
WPA-3 = WORKING POINT 3, ABUTMENT B

*ALL COORDINATES SET PERPENDICULAR TO
CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING
STATION AHEAD

WORKING POINTS 1-6 = LIMITS OF ABUTMENT B FOOTING

WORKING POINTS 5-11 = LIMITS
OF ABUTMENT B MSE WALL MAT FOOTING

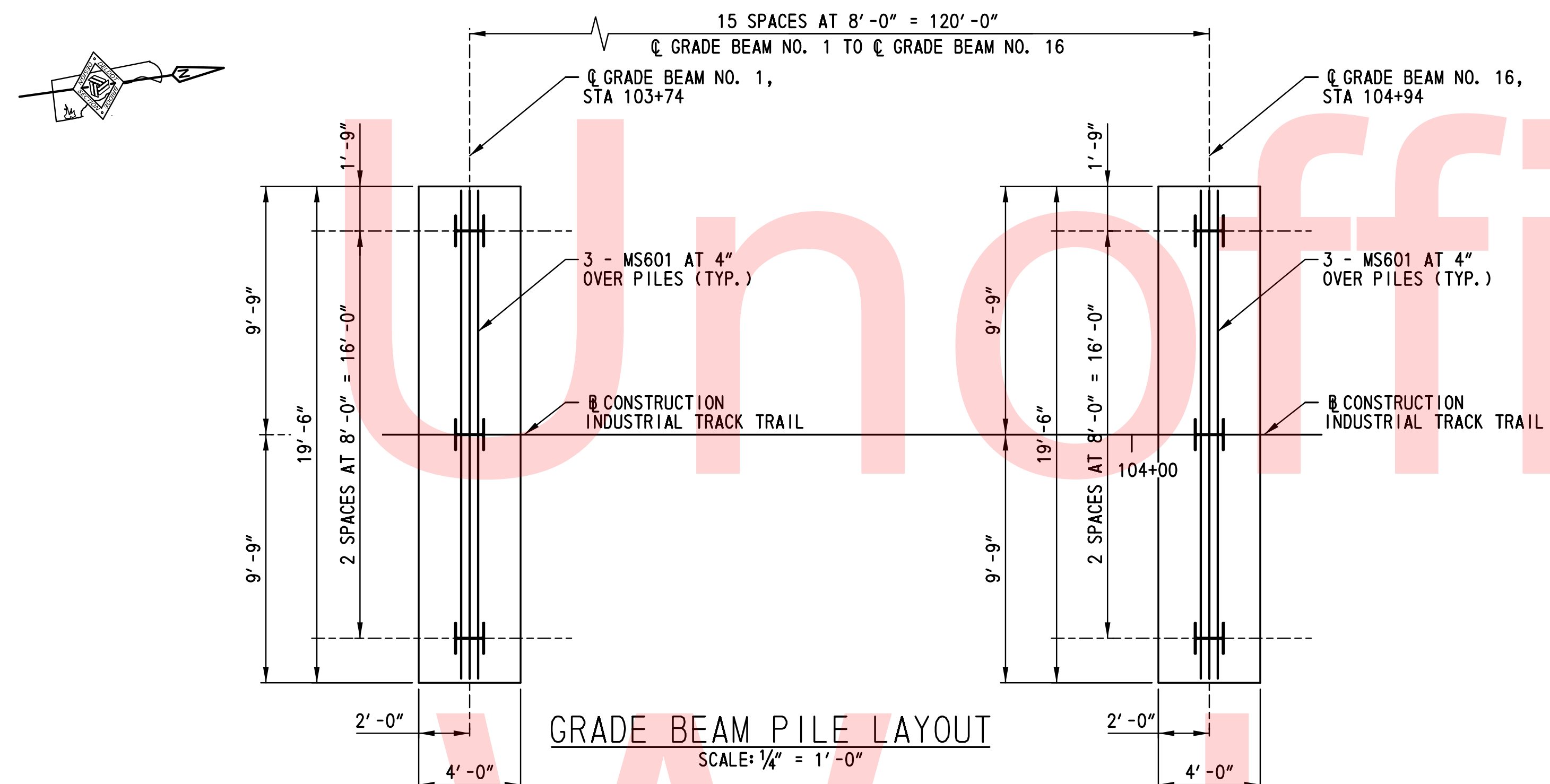
WORKING POINTS 12-17 = FRONT FACE OF MSE WALLS A1-A4

NOTES:

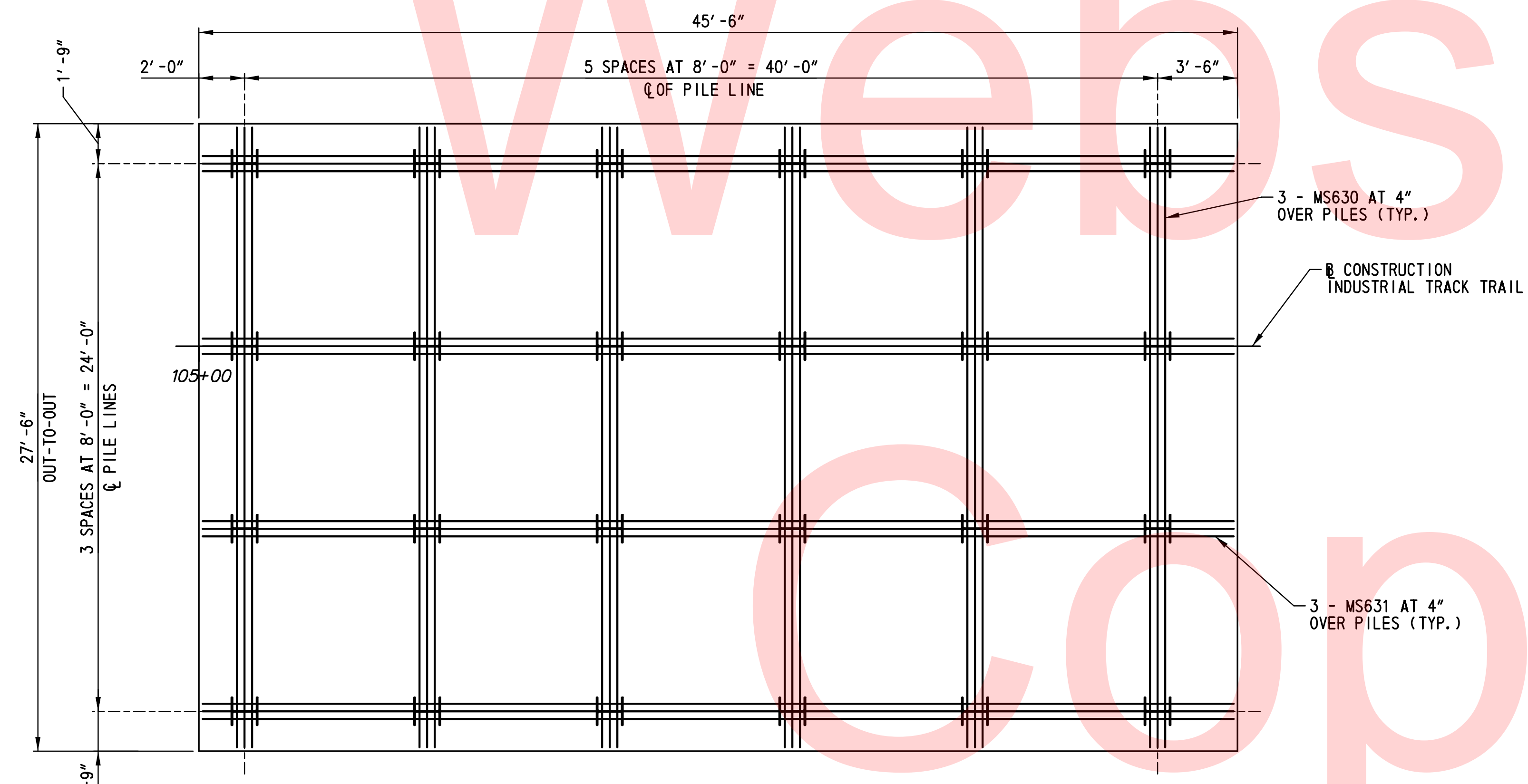
1. FOR PILE LAYOUT PLANS, SEE DWG. NOS. PL-101,
PL-102, AND PL-103.

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SOUTH MSE WALL PILE DRIVING	
PILE SIZE AND TYPE:	HP14X89
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
AVERAGE ACTUAL BLOWS/FT.:	
PILE HAMMER ENERGY:	60,000 LB-FT TO 110,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	X



GRADE BEAM PILE LAYOUT
SCALE: 1/4" = 1'-0"



MSE WALL MAT FOUNDATION PILE LAYOUT
SCALE: 1/4" = 1'-0"

PILE LEGEND:

- 1. H DENOTES PLUMB HP14x89 STEEL PILE.

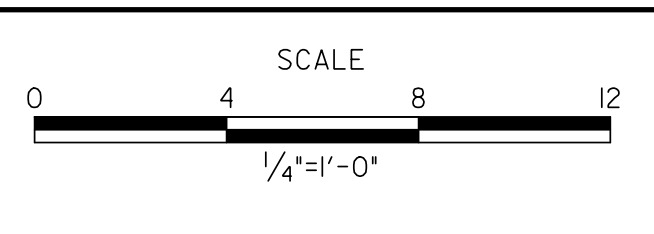
PILE NOTES:

1. THE FACTORED RESISTANCE OF THE HP 14x89 STEEL PILING IS 68 TONS FOR THE GRADE BEAMS AND 85 TONS FOR THE SOUTH FOOTING. PILES SHALL BE DRIVEN AND TESTED IN CONFORMANCE WITH SECTION 619 AND THE SPECIAL PROVISIONS TO A NOMINAL PILE DRIVING RESISTANCE OF 104 TONS FOR THE GRADE BEAMS AND 131 TONS FOR THE SOUTH FOOTING.
2. PILES SHALL BE DRIVEN TO THE DRIVING CRITERIA DEVELOPED FROM DYNAMIC PILE TESTING AND AS SPECIFIED BY THE ENGINEER TO ACHIEVE A NOMINAL PILE DRIVING RESISTANCE AS SPECIFIED IN NOTE 1 BELOW THE SPECIFIED MINIMUM TIP ELEVATION. PILES MEETING THE AFOREMENTIONED CRITERIA WILL BE CONSIDERED SATISFACTORY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH SECTION 619 AND THE SPECIAL PROVISIONS. THE WAVE EQUATION ANALYSIS AND DYNAMIC PILE TESTING MUST BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
4. THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC PILE TESTING OF RESTRIKES.

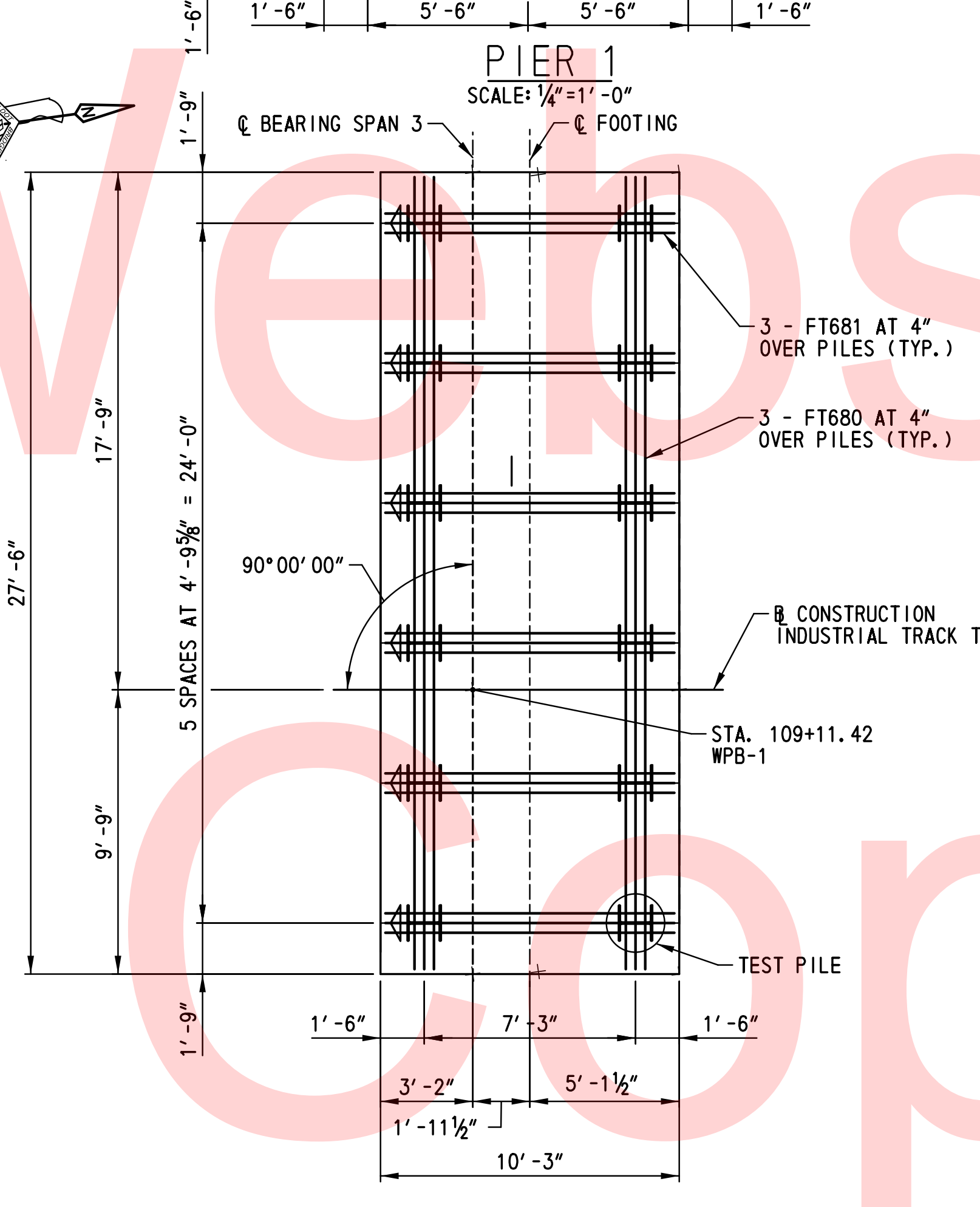
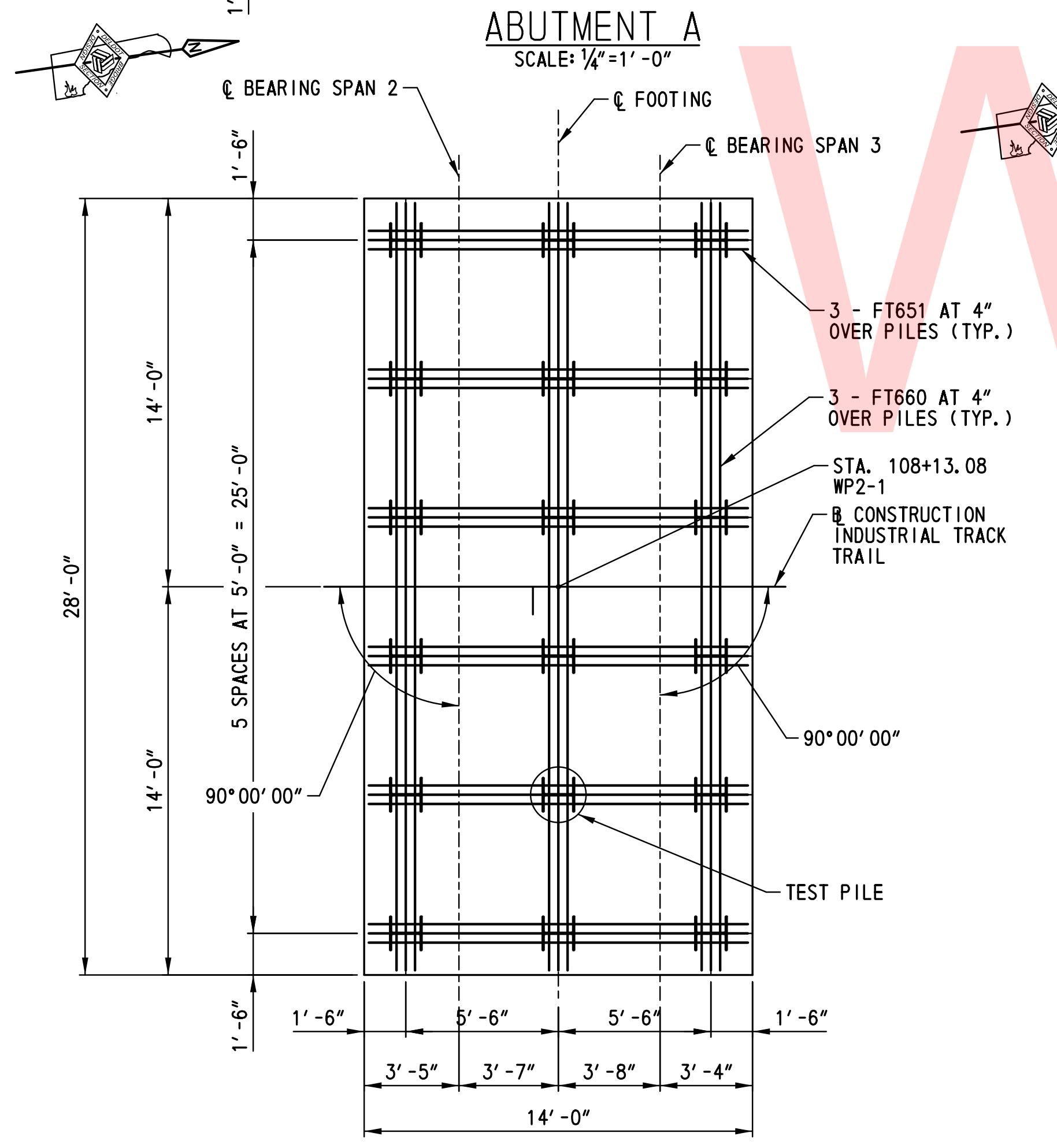
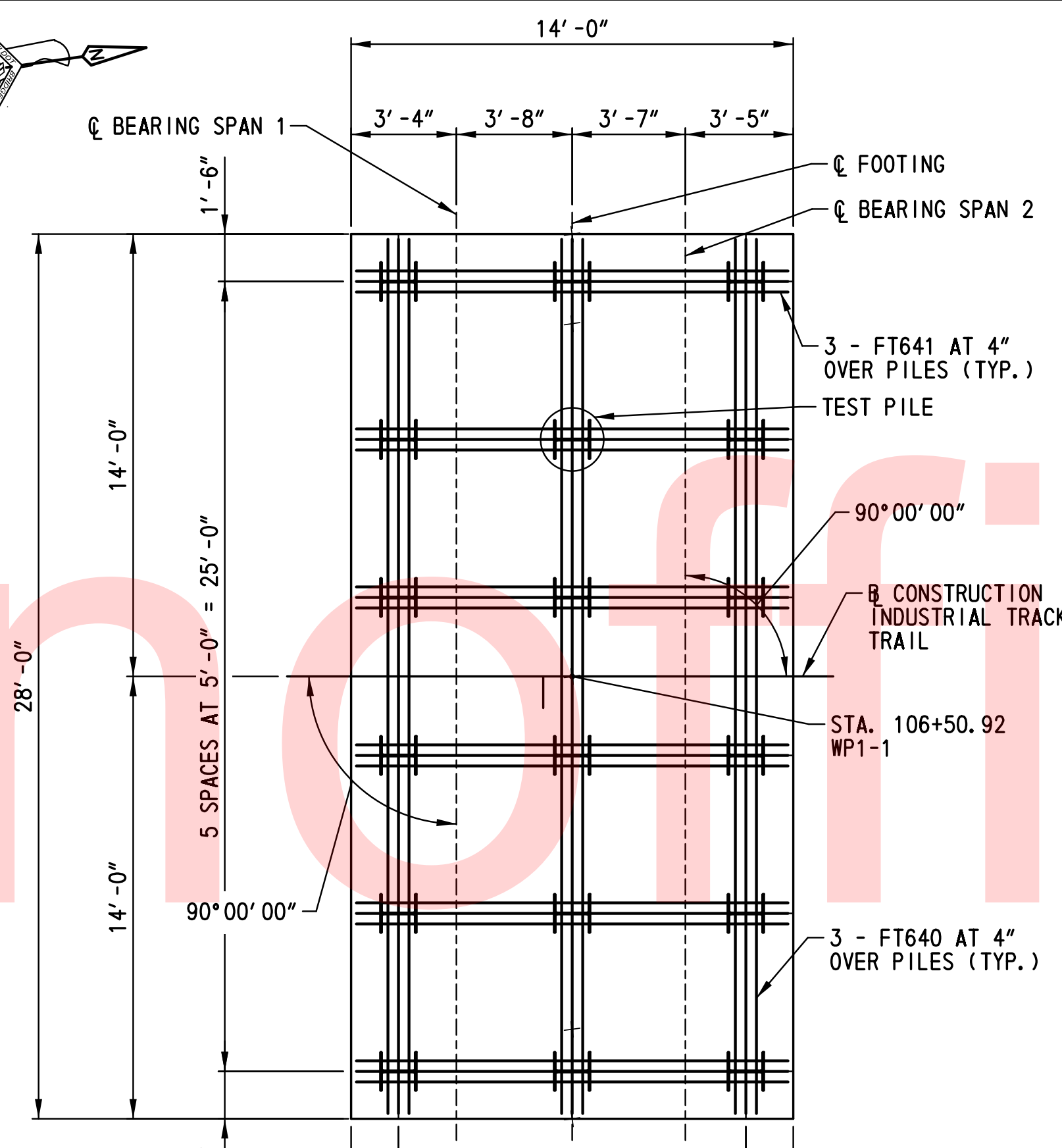
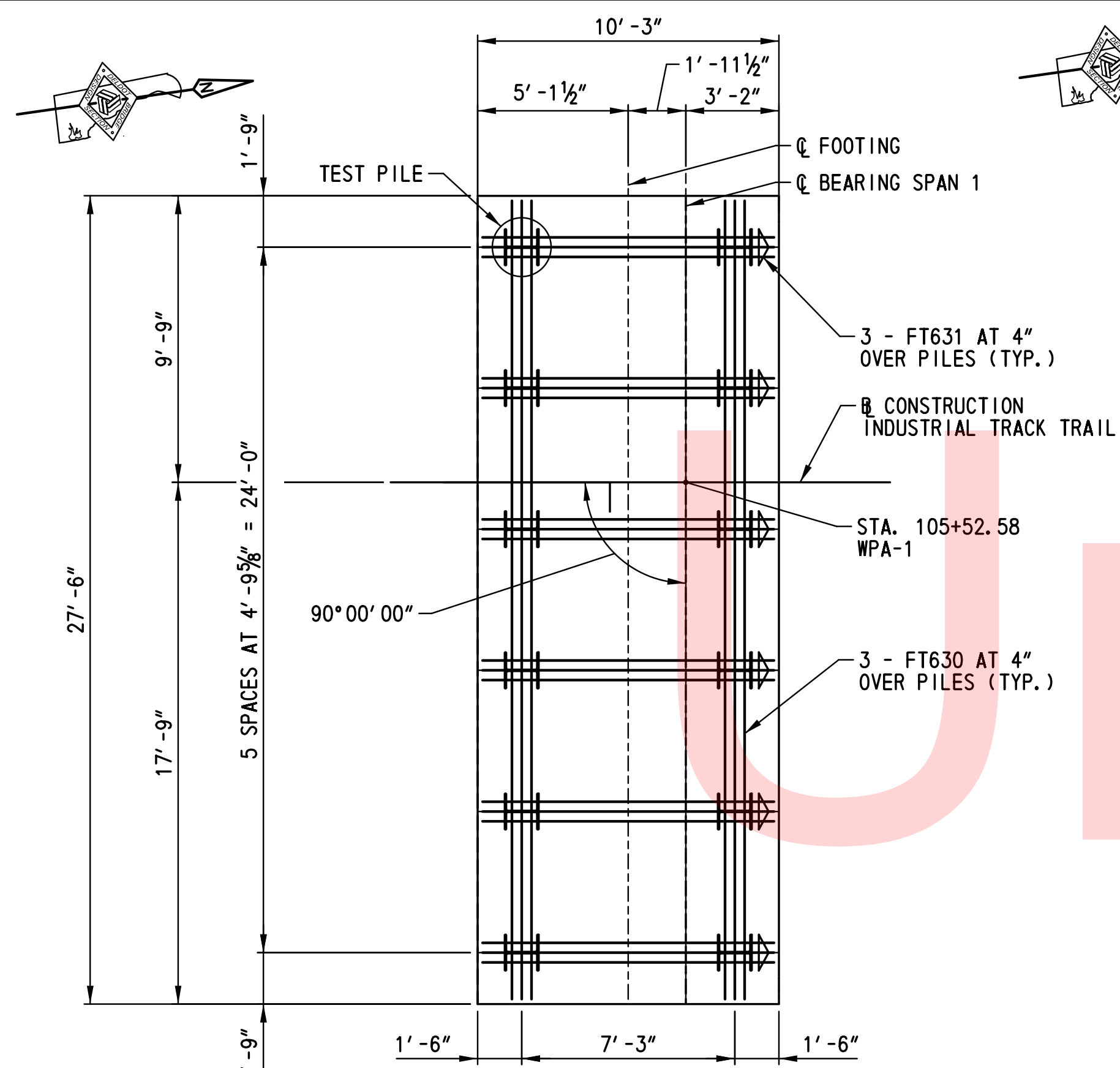
PILE TIP DATA				
SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA	
	MINIMUM TIP ELEVATION	ESTIMATED TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
GRADE BEAMS	-34.0	-44.5		
S. FOOTING	-34.0	-44.5		

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ADDENDUMS / REVISIONS	



CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	ZMG
COUNTY	CHECKED BY:	WAG
NEW CASTLE		



ABUTMENT A PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	HP14X89
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
AVERAGE ACTUAL BLOWS/FT.:	
PILE HAMMER ENERGY:	60,000 LB-FT TO 110,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	X

PIER 1 PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	HP14X89
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
AVERAGE ACTUAL BLOWS/FT.:	
PILE HAMMER ENERGY:	60,000 LB-FT TO 110,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	X

PIER 2 PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	HP14X89
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
AVERAGE ACTUAL BLOWS/FT.:	
PILE HAMMER ENERGY:	60,000 LB-FT TO 110,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	X

ABUTMENT B PILE DRIVING INFORMATION	
PILE SIZE AND TYPE:	HP14X89
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
AVERAGE ACTUAL BLOWS/FT.:	
PILE HAMMER ENERGY:	60,000 LB-FT TO 110,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	X

- PILE LEGEND:**
- H DENOTES PLUMB HP14x89 STEEL PILE.
 - ⊖ DENOTES BATTERED HP14x89 STEEL PILE PILE BATTERED 6:1 IN DIRECTION OF ARROW
 - ⊕ DENOTES LOCATION OF PLUMB HP 14x89 PILE, DYNAMIC PILE TESTING AND SIGNAL MATCHING ANALYSIS.

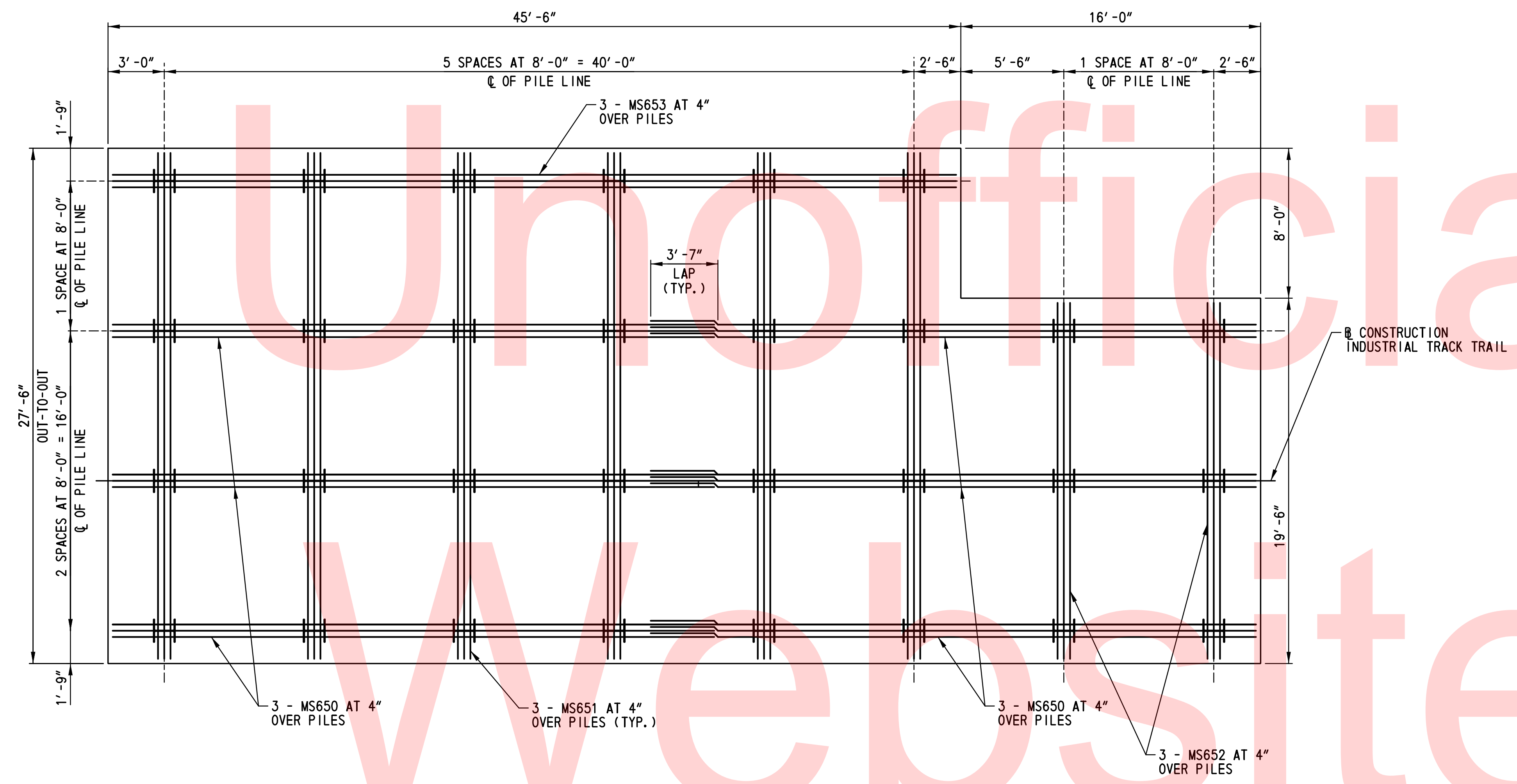
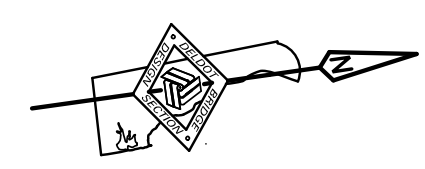
- PILE NOTES:**
- THE FACTORED RESISTANCE OF THE HP 14x89 STEEL PILING IS 53 TONS FOR ABUTMENTS A AND B AND 72 TONS FOR PIERS 1 AND 2. PILES SHALL BE DRIVEN AND TESTED IN CONFORMANCE WITH SECTION 619 AND THE SPECIAL PROVISIONS FOR HIGH STRAIN DYNAMIC PILE TESTING TO A NOMINAL PILE DRIVING RESISTANCE OF 82 TONS FOR ABUTMENTS A AND B AND 160 TONS FOR PIERS 1 AND 2.
 - PILES SHALL BE DRIVEN TO THE DRIVING CRITERIA DEVELOPED FROM DYNAMIC PILE TESTING AND AS SPECIFIED BY THE ENGINEER TO ACHIEVE A NOMINAL PILE DRIVING RESISTANCE AS SPECIFIED IN NOTE 1 BELOW. THE SPECIFIED MINIMUM TIP ELEVATION. PILES MEETING THE AFOREMENTIONED CRITERIA WILL BE CONSIDERED SATISFACTORY.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH SECTION 619 AND THE SPECIAL PROVISIONS. THE WAVE EQUATION ANALYSIS AND DYNAMIC PILE TESTING MUST BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
 - THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC PILE TESTING OF RESTRIKES.
 - THE CONTRACTOR SHALL CONSTRUCT A FIXED TEMPLATE AT EACH PIER AND ABUTMENT LOCATION IN ORDER TO DRIVE PILES AT THE SPECIFIED ALIGNMENT AND LOCATION.
 - APPLY PROTECTIVE COATING TO PILES INSTALLED AT PIERS 1 & 2 LOCATIONS TO THE STEEL H-PILE SURFACES WITHIN THE UPPER 20.0'. COATING SHALL CONSIST OF COAL TAR EPOXY MEETING THE REQUIREMENTS OF SECTION 618.10.

SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA	
	MINIMUM TIP ELEVATION	ESTIMATED TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
ABUTMENT A	-34.0	-44.5		
PIER 1	-36.0	-41.0		
PIER 2	-36.0	-41.0		
ABUTMENT B	-27.0	-38.0		

NOTE:
MINIMUM TIP ELEVATION IS REQUIRED FOR LONG TERM LATERAL RESISTANCE AND STABILITY.

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NORTH MSE WALL PILE DRIVING	
PILE SIZE AND TYPE:	HP14X89
ACTUAL BEARING OBTAINED:	
HAMMER TYPE:	
AVERAGE ACTUAL BLOWS/FT.:	
PILE HAMMER ENERGY:	60,000 LB-FT TO 110,000 LB-FT
SPECIAL DRIVING CONDITIONS AND COMMENTS:	X



PILE LEGEND:
 1. H DENOTES PLUMB HP14x89 STEEL PILE.

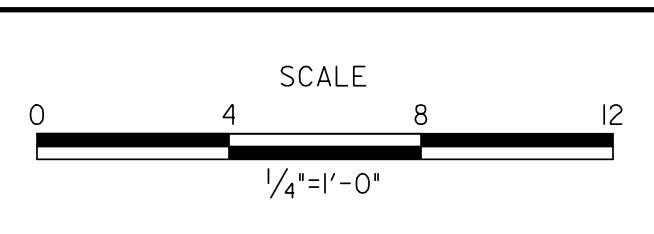
- PILE NOTES:**
1. THE FACTORED RESISTANCE OF THE HP 14x89 STEEL PILING IS 85 TONS FOR THE NORTH FOOTING. PILES SHALL BE DRIVEN AND TESTED IN CONFORMANCE WITH SECTION 619 TO A NOMINAL PILE DRIVING RESISTANCE OF 131 TONS FOR THE NORTH FOOTING.
 2. PILES SHALL BE DRIVEN TO THE DRIVING CRITERIA DEVELOPED FROM DYNAMIC PILE TESTING AND AS SPECIFIED BY THE ENGINEER TO ACHIEVE A NOMINAL PILE DRIVING RESISTANCE AS SPECIFIED IN NOTE 1 BELOW THE SPECIFIED MINIMUM TIP ELEVATION. PILES MEETING THE AFOREMENTIONED CRITERIA WILL BE CONSIDERED SATISFACTORY.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING A WAVE EQUATION ANALYSIS AND ALL OTHER INCIDENTALS IN ACCORDANCE WITH SECTION 619 AND THE SPECIAL PROVISIONS. THE WAVE EQUATION ANALYSIS AND DYNAMIC PILE TESTING MUST BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF DELAWARE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
 4. THE DEPARTMENT RESERVES THE RIGHT TO PERFORM DYNAMIC PILE TESTING OF RESTRIKES.

MSE WALL MAT FOUNDATION PILE LAYOUT
 SCALE: 1/4" = 1'-0"

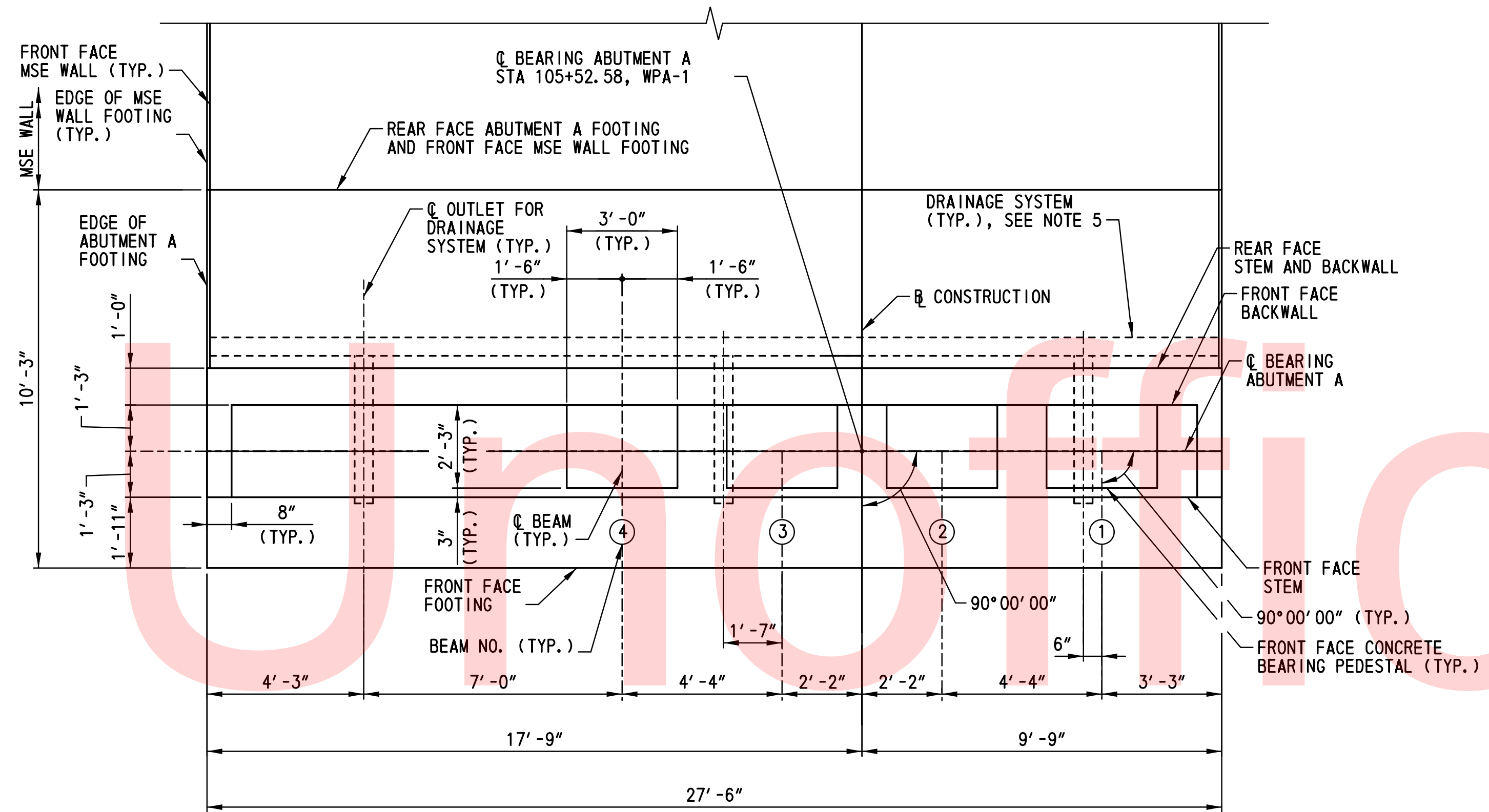
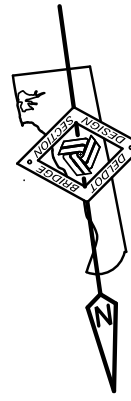
PILE TIP DATA				
SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA	
	MINIMUM TIP ELEVATION	ESTIMATED TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
N. FOOTING	-27.0	-38.0		

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ADDENDUMS / REVISIONS	

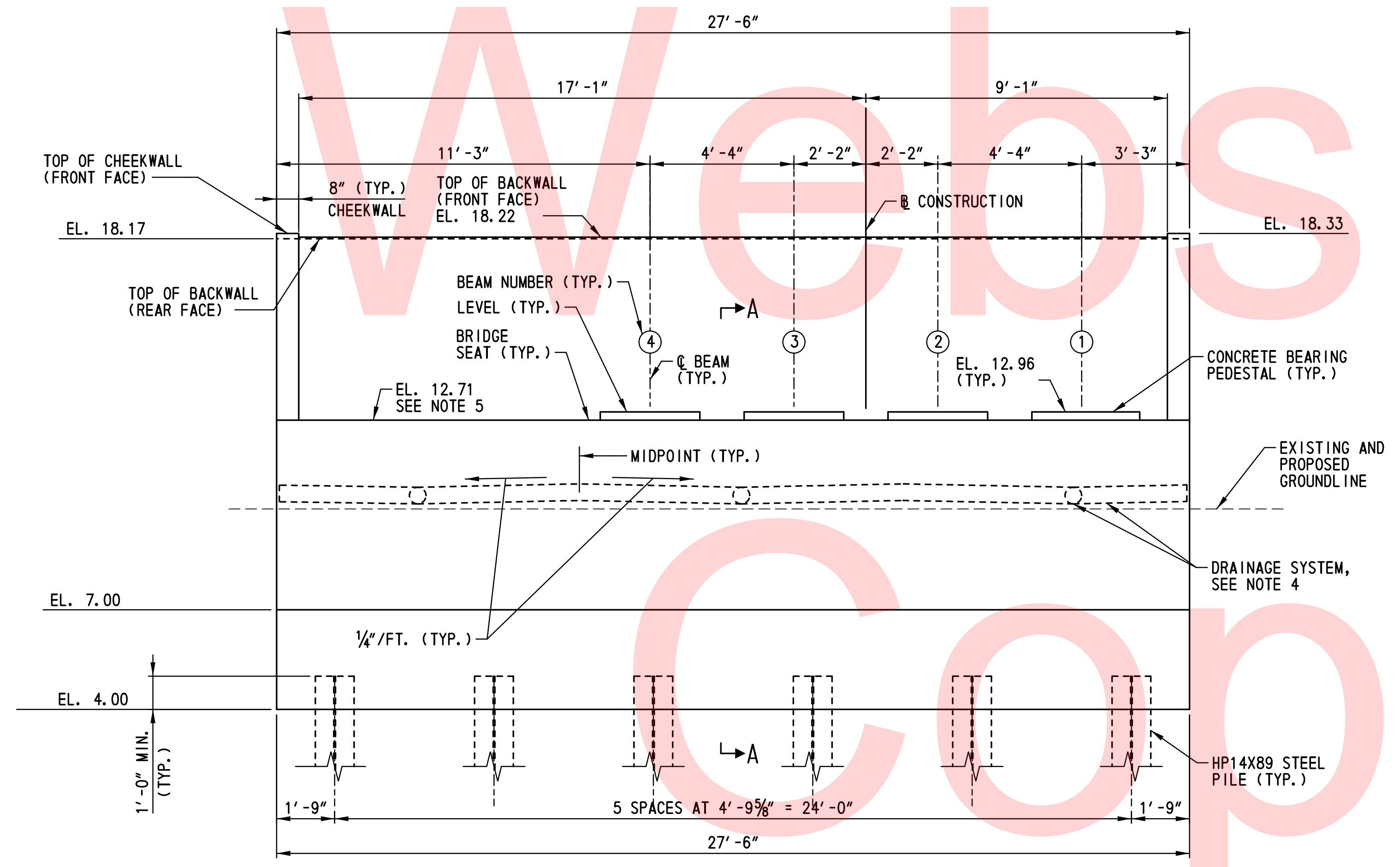


CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	ZMG
COUNTY	CHECKED BY:	WAG
NEW CASTLE		



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

NOTE:
PILES NOT SHOWN IN
PLAN FOR CLARITY.

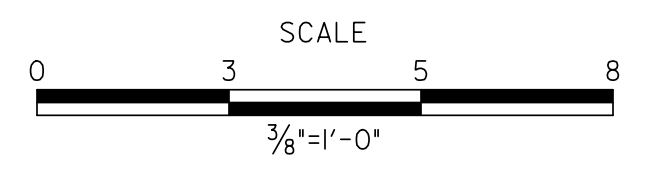


ELEVATION
SCALE: 3/8"=1'-0"

- NOTES:
1. FOR PILE LAYOUT, SEE DWG. NO. PL-101.
 2. FOR SOUTH ABUTMENT SECTION A-A, SEE DWG. NO. AB-103.
 3. FOR MSE WALL ELEVATIONS, SEE DWG. NO. PE-101.
 4. FOR DRAINAGE SYSTEM DETAILS, SEE DWG. NO. AB-103.
 5. BEAM SEAT ELEVATION IS AT THE BACK OF THE BEAM SEAT.

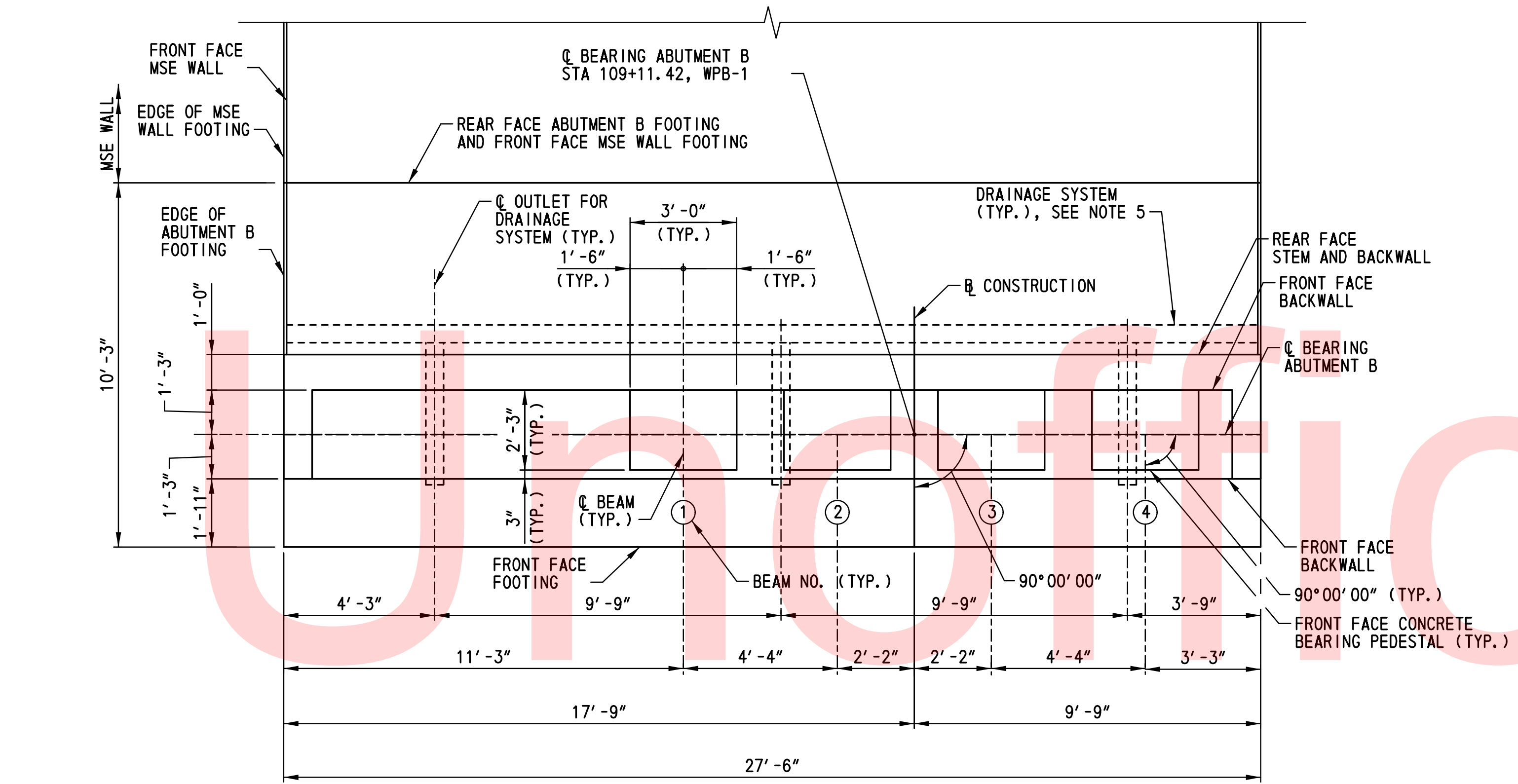
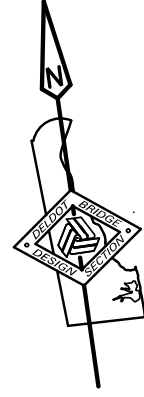
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ADDENDUMS / REVISIONS	



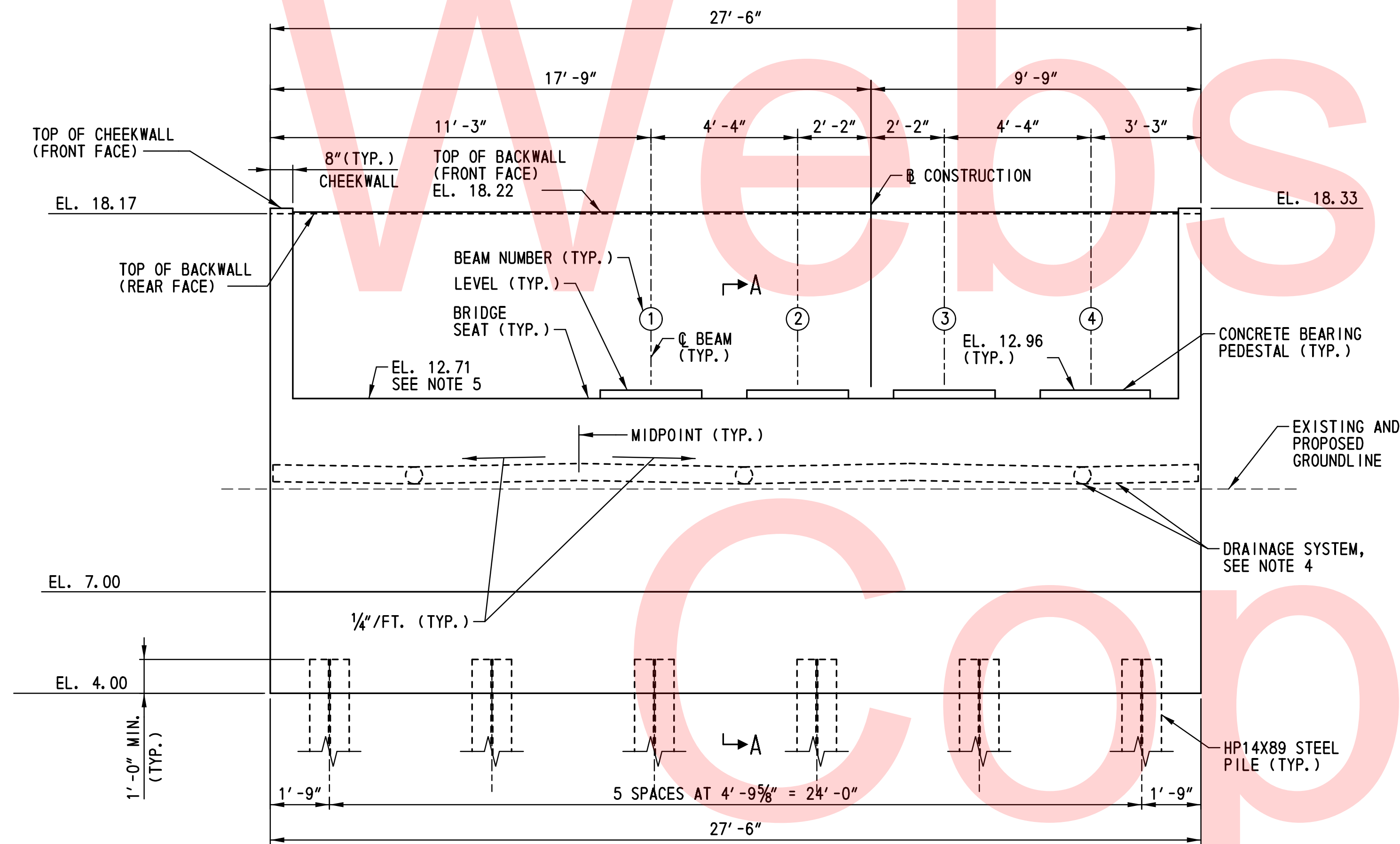
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

AB-101
SHEET NO. 50
TOTAL SHTS. 207



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

NOTE:
PILES NOT SHOWN IN
PLAN FOR CLARITY.



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

NOTES:

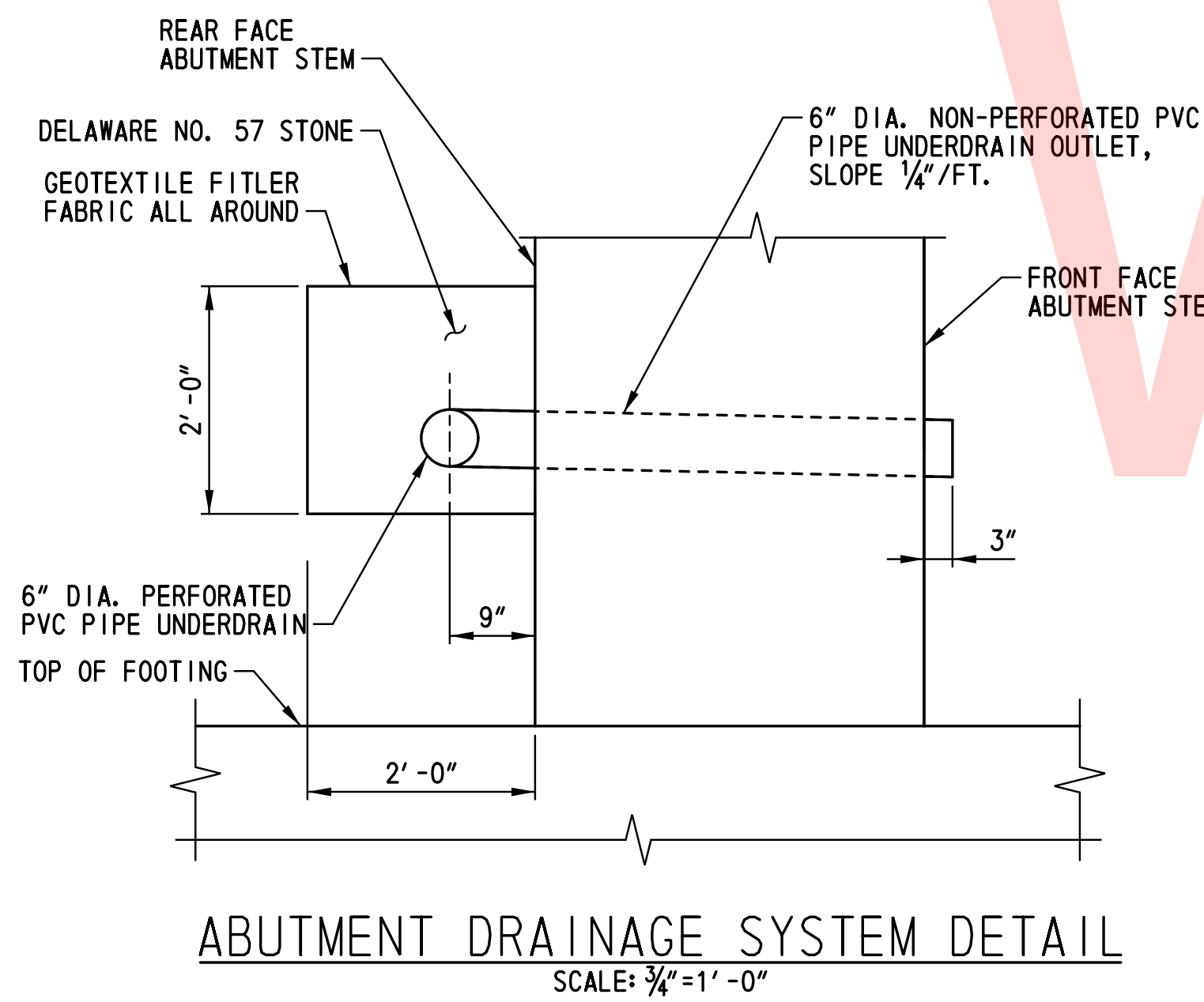
1. FOR PILE LAYOUT, SEE DWG. NO. PL-102.
2. FOR SOUTH ABUTMENT SECTION A-A, SEE DWG. NO. AB-103.
3. FOR MSE WALL ELEVATIONS, SEE DWG. NO. PE-104.
4. FOR DRAINAGE SYSTEM DETAILS, SEE DWG. NO. AB-103.
5. BEAM SEAT ELEVATION IS AT THE BACK OF THE BEAM SEAT.

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Unofficial

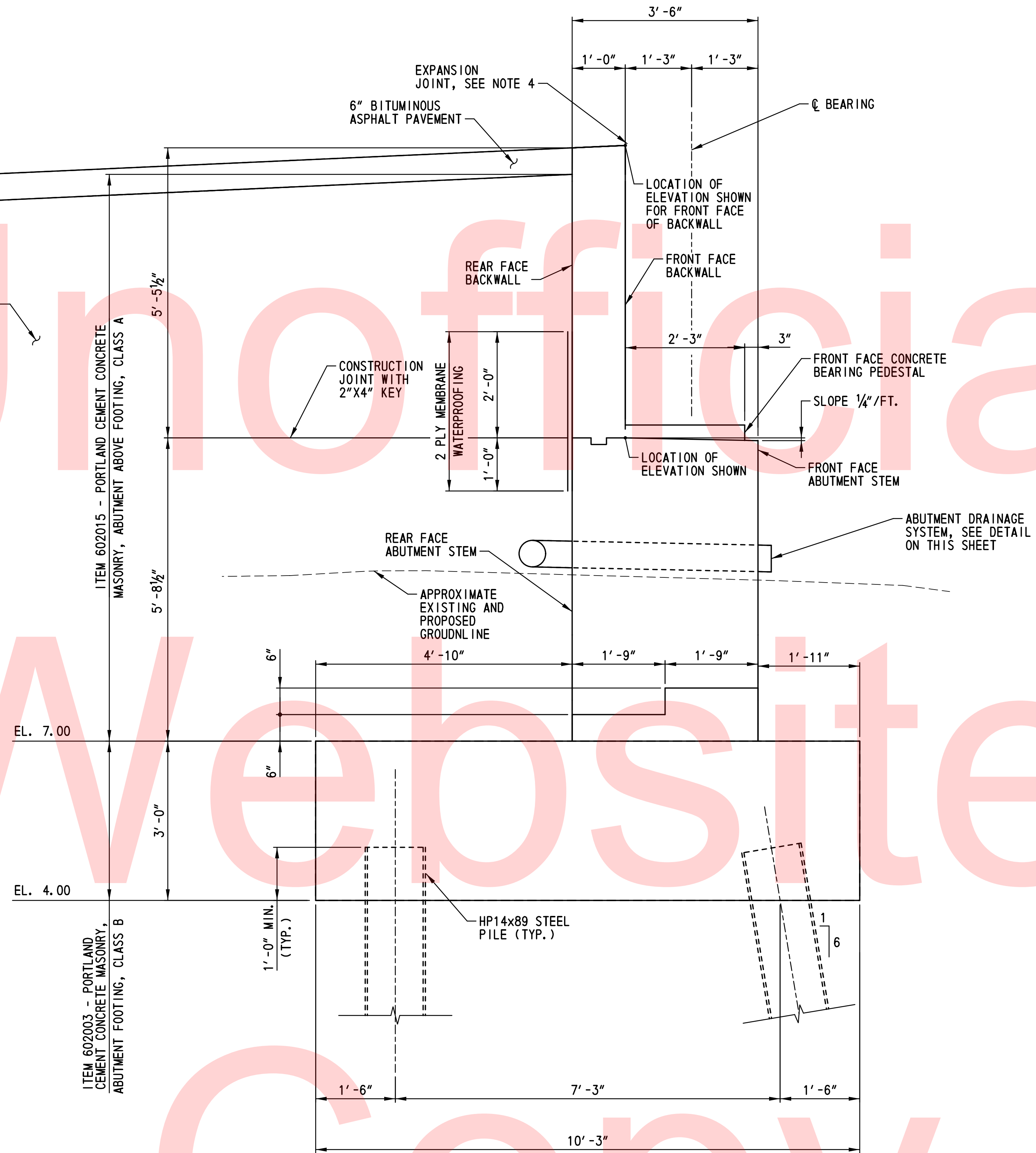
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DRAINAGE SYSTEM NOTES:

1. COST OF PVC PIPE UNDERDRAIN, DELAWARE NO. 57 STONE, GEOTEXTILE FILTER FABRIC, BAR REINFORCEMENT, AND THREADED COUPLERS WILL BE INCIDENTAL TO ITEM 602015 - PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A.
2. PERFORATED AND NON-PERFORATED PVC PIPE UNDERDRAIN SHALL CONFORM TO ASTM F758, TYPE PS 28.
3. GEOTEXTILE FILTER FABRIC SHALL CONFORM TO AASHTO M 288, CLASS 2.



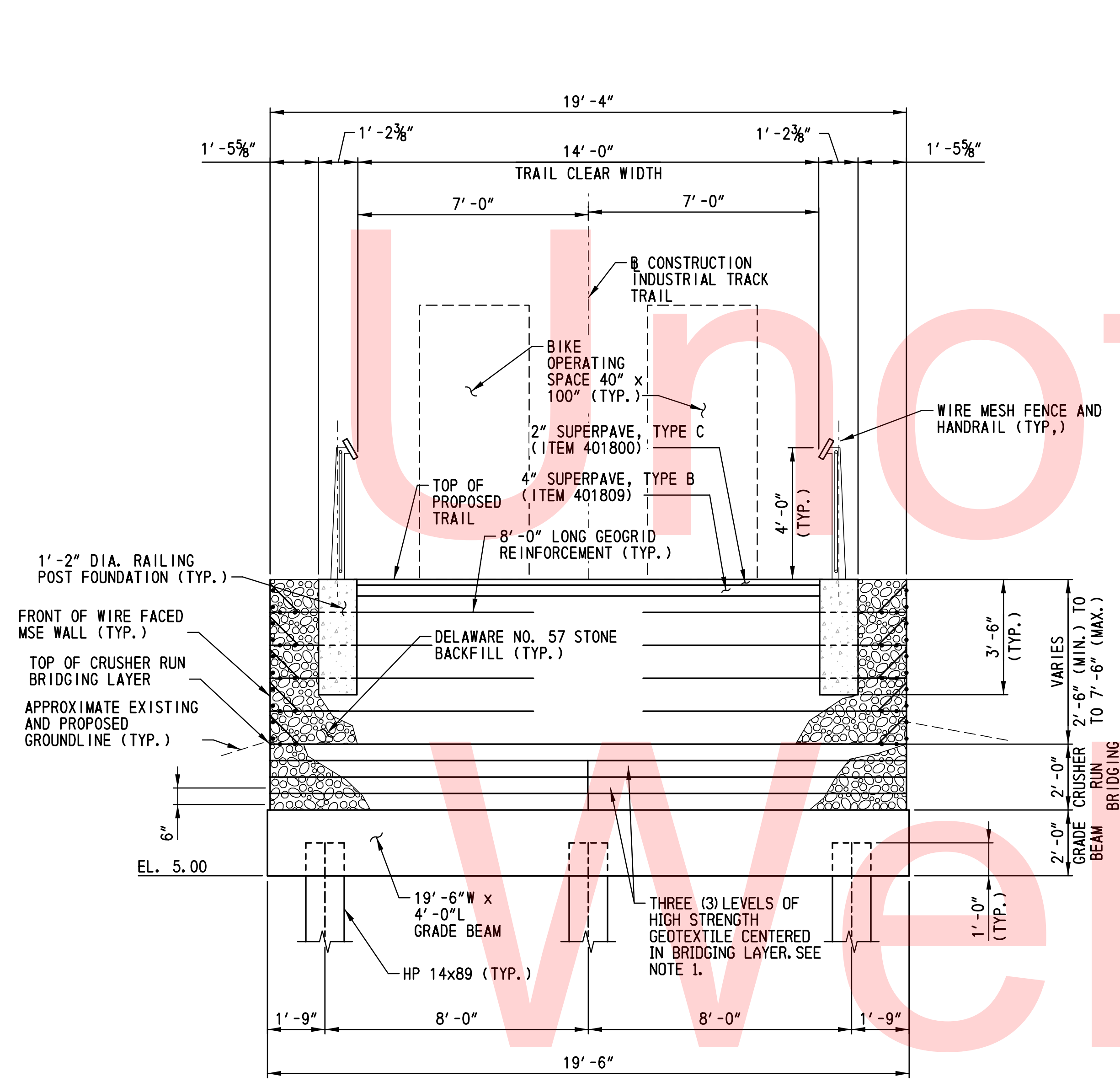
NOTES:

1. FOR PILE LAYOUT, SEE DWG. NO. PL-101.
2. FOR SOUTH ABUTMENT PLAN AND ELEVATION, SEE DWG. NO. AB-101. FOR NORTH ABUTMENT PLAN AND ELEVATION, SEE DWG. NO. AB-102.
3. TOP OF BACKWALL SHALL BE LEVEL PARALLEL TO THE WORKING LINE.
4. FOR EXPANSION JOINT DETAILS, SEE DWG. NO. EX-101.
5. 2-PLY MEMBRANE WATERPROOFING SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TEST PROPERTY	TEST METHOD	SPECIFICATION LIMITS
GRAB TENSILE STRENGTH, LB/IN. @ 12 IN./MINUTE RATE OF LOADING, MIN.	D 5034	70
PLIABILITY, 180° BEND, 1 IN. MANDREL @ 20°F	D 146	UNAFFECTED
RESISTANCE TO PUNCTURE, LB MIN.	E 154 (SQUARE MOUNTING FRAME METHOD)	40
PERMEANCE, PERM (Kg/Pa * s * m ²), MAX.	E 96, METHOD B	0.1
WEIGHT, oz/yd ² MIN.	D 3776	40
PRIMER	-	AS SPECIFIED BY THE MANUFACTURER

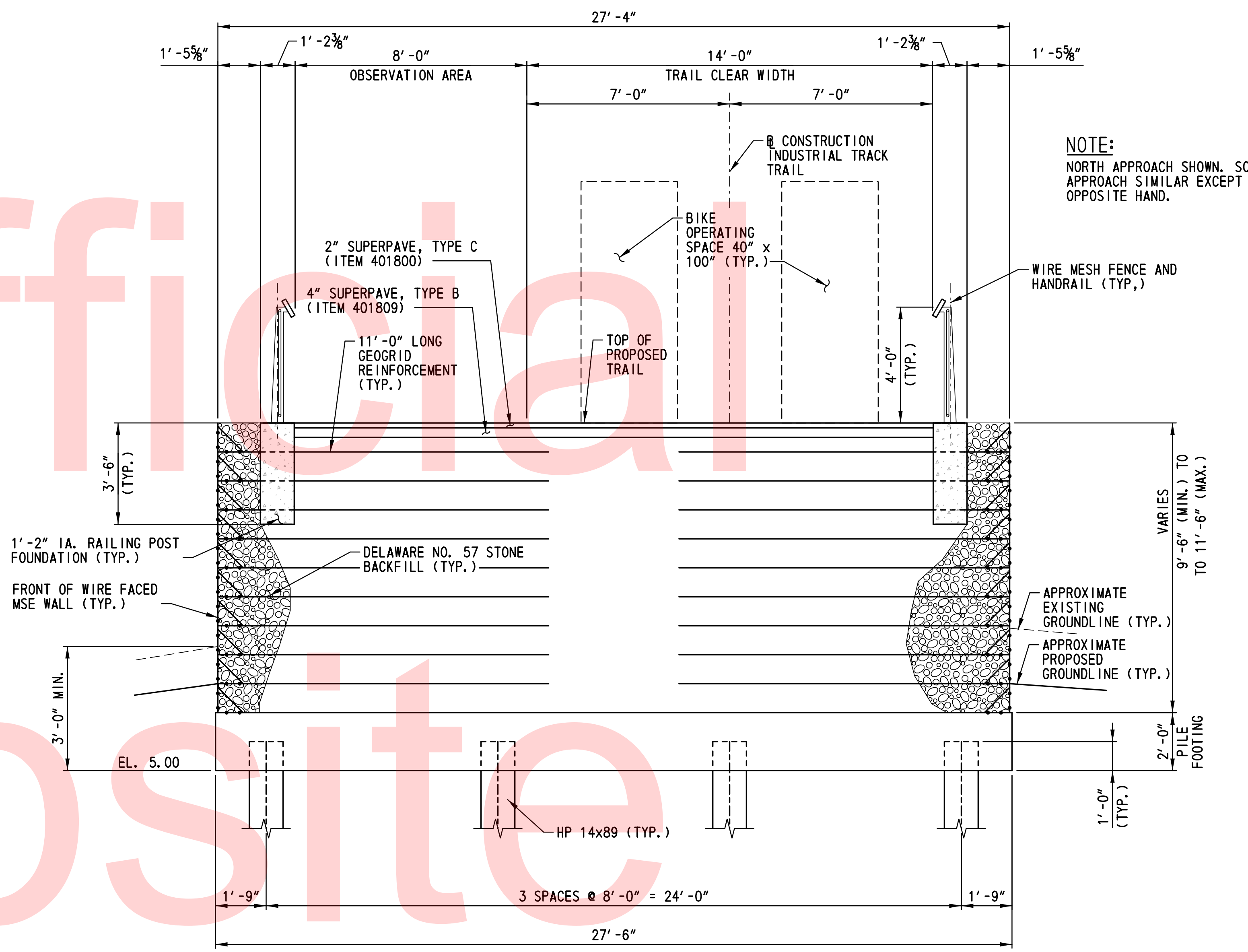
THE ADHESIVE SIDE OF THE MEMBRANE SHALL BE PROTECTED WITH A SPECIAL RELEASE PAPER THAT CAN BE EASILY REMOVED FOR INSTALLATION. COST OF 2-PLY MEMBRANE WATERPROOFING SHALL BE INCIDENTAL TO ITEM 602015 - PORTLAND CEMENT CONCRETE MASONRY, ABUTMENT ABOVE FOOTING, CLASS A.

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TYPICAL SECTION - SOUTH MSE WALL SUPPORTED BY PILE GRADE BEAM
SCALE: 3/8"=1'-0"

GRADE BEAMS: STA. 103+74.42 TO 105+00.00 SPACED AT 8'-0"



TYPICAL SECTION - MSE OBSERVATION AREA SUPPORTED BY PILE FOOTING
SCALE: 3/8"=1'-0"

SOUTH OBSERVATION AREA: STA. 105+00.00 TO 105+45.50
NORTH OBSERVATION AREA: STA. 109+18.50 TO 109+64.00

WIRE-FACED MSE RETAINING WALL DESIGN PARAMETERS:

- A. BACKFILL:
 - NO. 57 STONE:
 - $\phi = 34^\circ$
 - $c = 0$ PSF
 - UNIT WEIGHT = 110 PCF
- B. WIRE-FACED DEFORMATION:
 - 2" MAXIMUM BULGING FROM THE THEORETICAL FACE OF WALL IN BOTH THE HORIZONTAL AND VERTICAL DIRECTIONS.
- C. MINIMUM REINFORCEMENT LENGTH: $0.8 \times H_{wall}$ OR 8'-0", WHICHEVER IS GREATER.
- D. FACTORED BEARING RESISTANCES FROM STA. 109+80 TO STA. 110+93.67: 3.0 KSF (STRENGTH), 1.5 KSF (SERVICE).

WIRE-FACED MSE RETAINING NOTES:

1. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL COMPUTATIONS THAT HAVE BEEN SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF DELAWARE TOGETHER WITH THE SHOP DRAWINGS FOR THE WIRE-FACED MSE RETAINING WALL. ALL COMPUTATIONS SHALL BE IN CONFORMANCE WITH 2014 AASHTO LRFD DESIGN SPECIFICATIONS, INCLUDING 2015 INTERIM REVISIONS.
2. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
3. SEE DWG. NO. PL-103 FOR DETAILS ON RESISTANCE FROM PILE SUPPORTS WITHIN STA. 109+64.00 AND STA. 109+80.00.
4. SEE DWG. PL-101 FOR DETAILS ON RESISTANCE FROM PILE SUPPORTS.
5. BRIDGING LAYER IS CONTINUOUS FROM STA. 103+70.42 TO STA. 105+05.00 AND SHALL CONFORM TO SECTION 821, TYPE B CRUSHER RUN.
6. SEE SPECIAL PROVISION 209503 FOR ADDITIONAL INFORMATION ON THE BRIDGING LAYER.

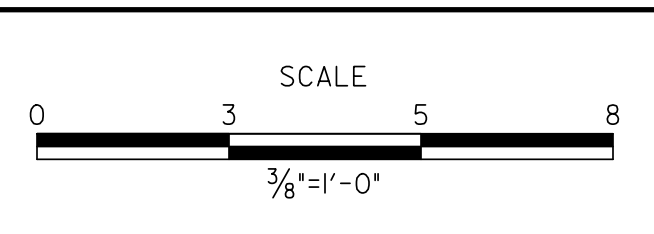
NOTES:

1. THE HIGH STRENGTH GEOTEXTILE BRIDGING LAYER IS CONTINUOUS FROM STA. 103+70.42 TO STA. 105+05.00

N:\31896-002\CADD\BRIDGE\AB104_JTG.DGN



ADDENDUMS / REVISIONS	

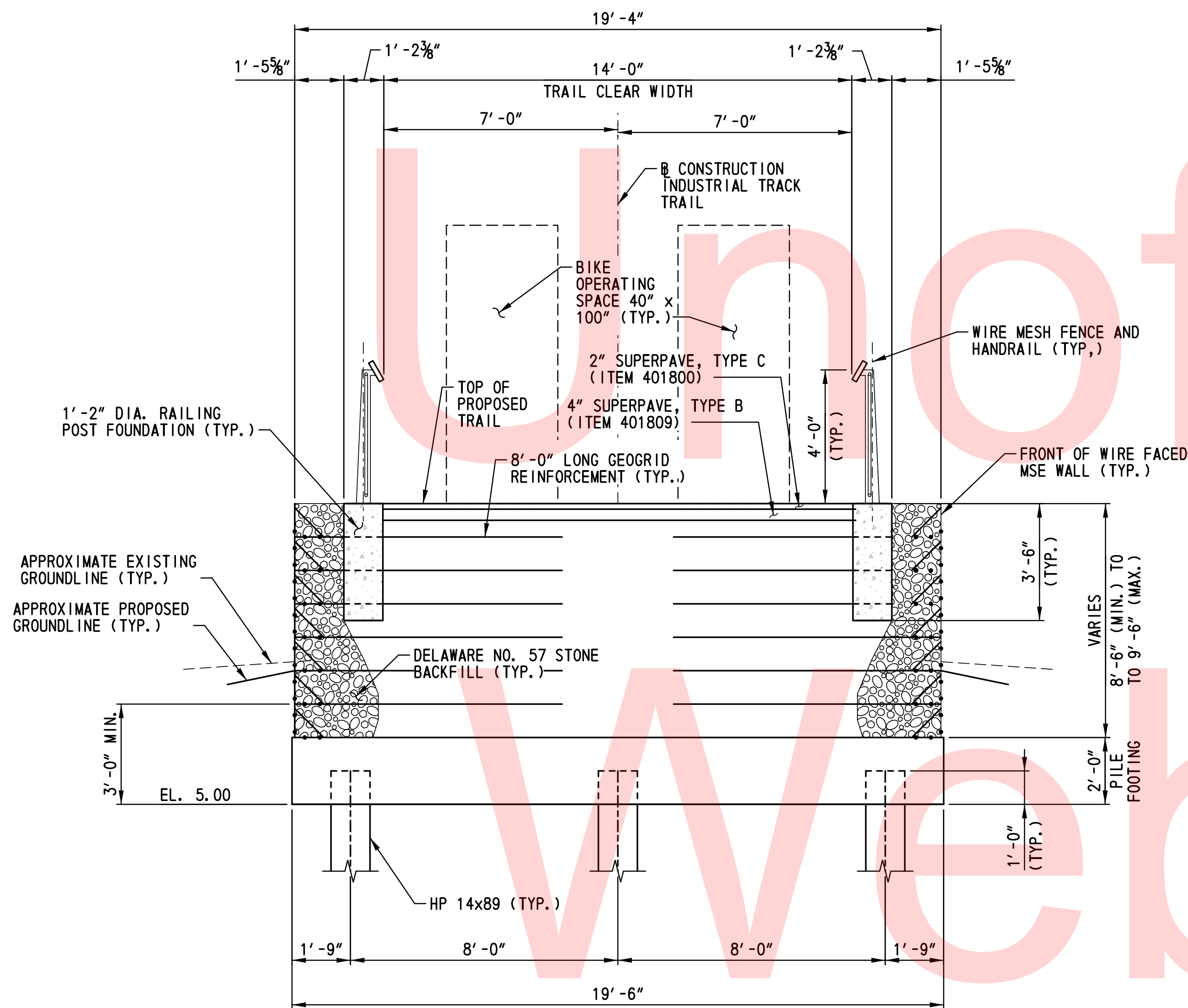


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: ZMG	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

TRAIL RETAINING STRUCTURES TYPICAL SECTIONS - 1

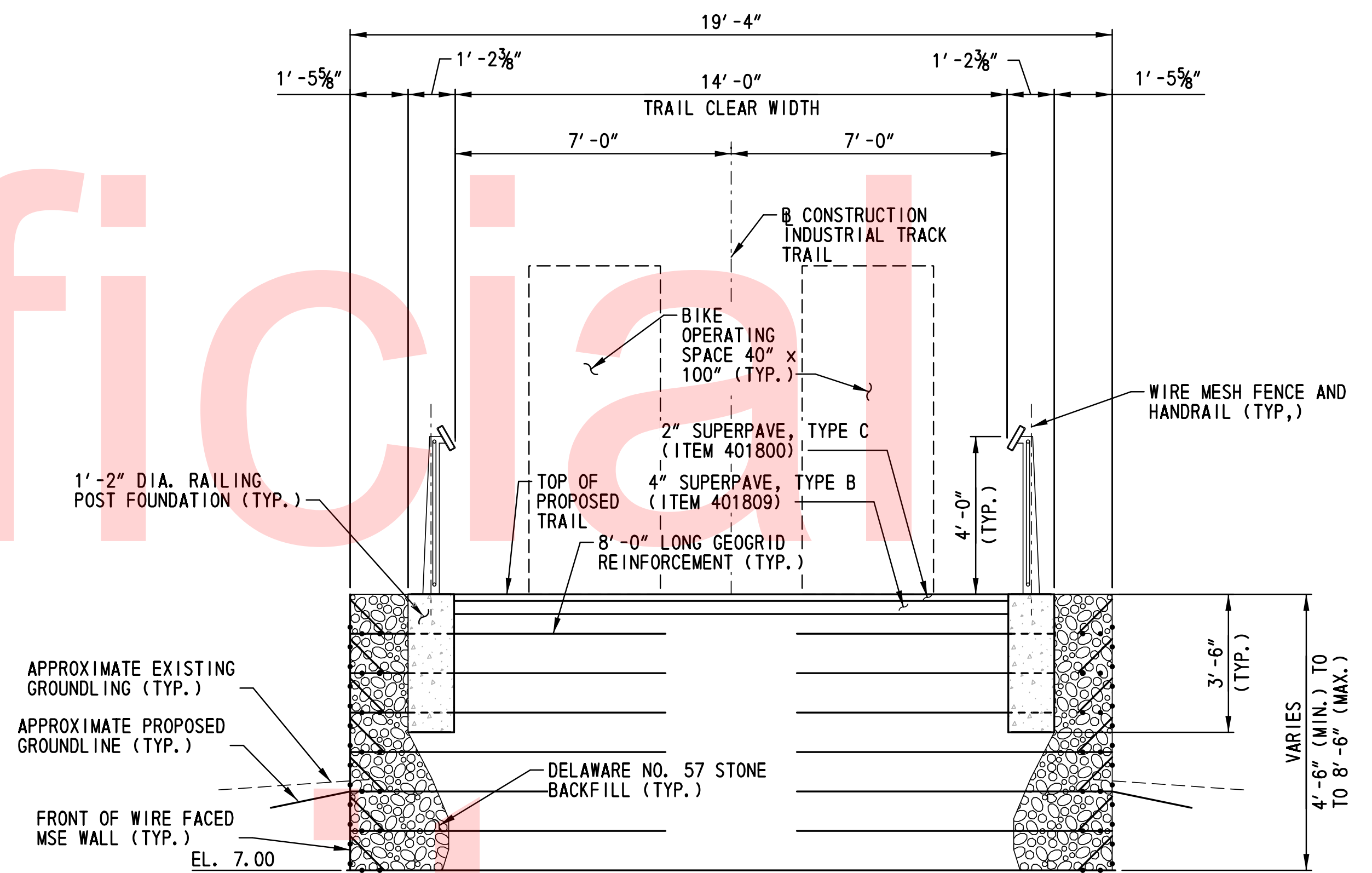
AB-104
SHEET NO.
53
TOTAL SHTS.
207



TYPICAL SECTION - NORTH MSE WALL SUPPORTED BY PILE FOOTING

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

NORTH PILE FOOTING MSE WALL: STA. 109+64.00 TO 109+80.00 NORTH APPROACH



TYPICAL SECTION - NORTH MSE WALL

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

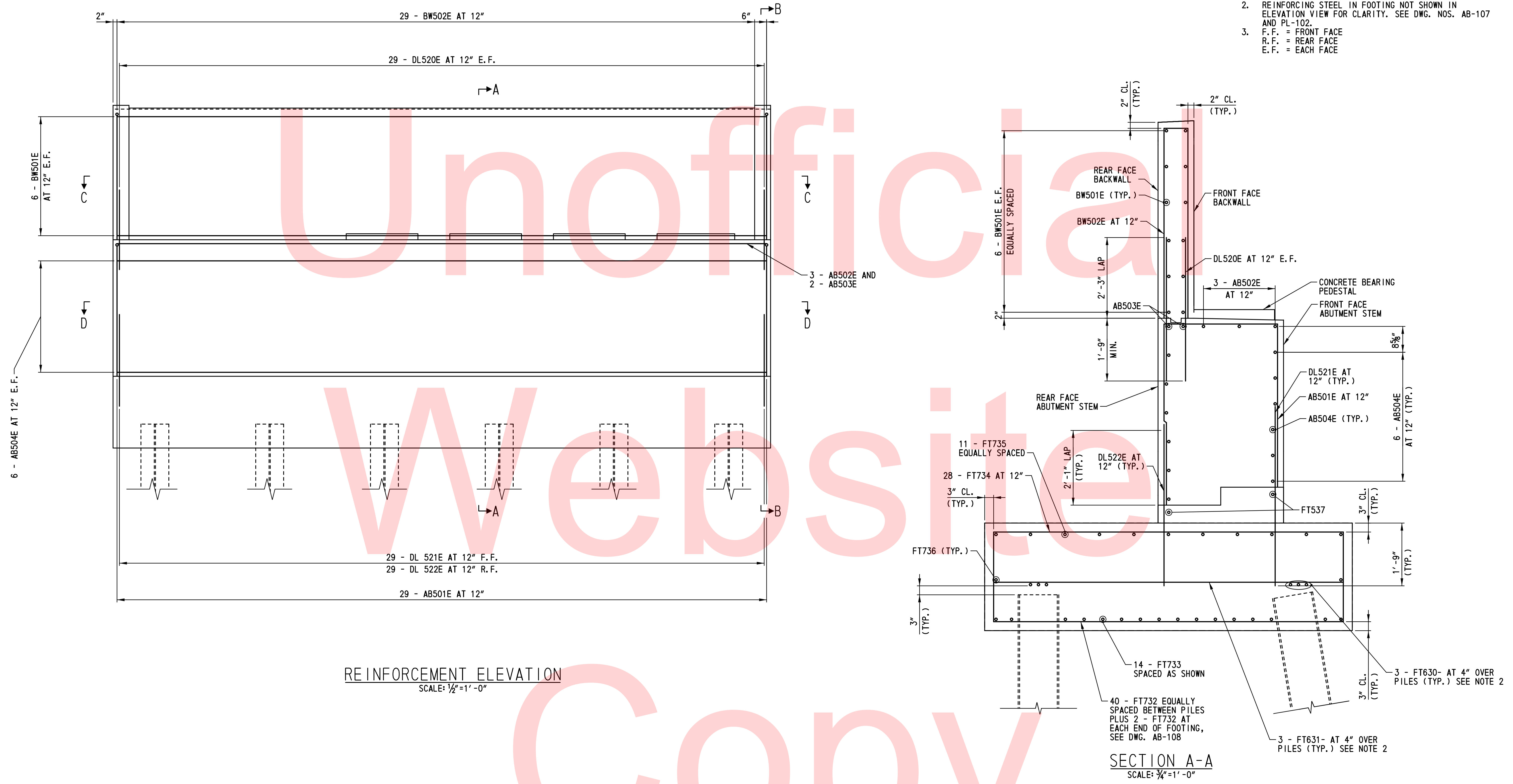
NORTH MSE WALL: STA. 109+80.00 TO 110+93.67

NOTES:

- FOR WIRE-FACED MSE WALL RETAINING WALL DESIGN NOTES AND WIRE-FACED MSE WALL RETAINING WALL NOTES, SEE DWG. NO. AB-104.

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- NOTES:**
- FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-107 AND AB-108.
 - REINFORCING STEEL IN FOOTING NOT SHOWN IN ELEVATION VIEW FOR CLARITY. SEE DWG. NOS. AB-107 AND PL-102.
 - F.F. = FRONT FACE
R.F. = REAR FACE
E.F. = EACH FACE



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ADDENDUMS / REVISIONS	

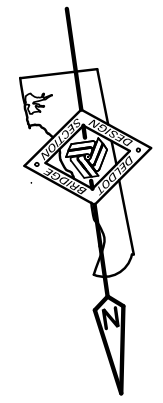
SCALE AS NOTED

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

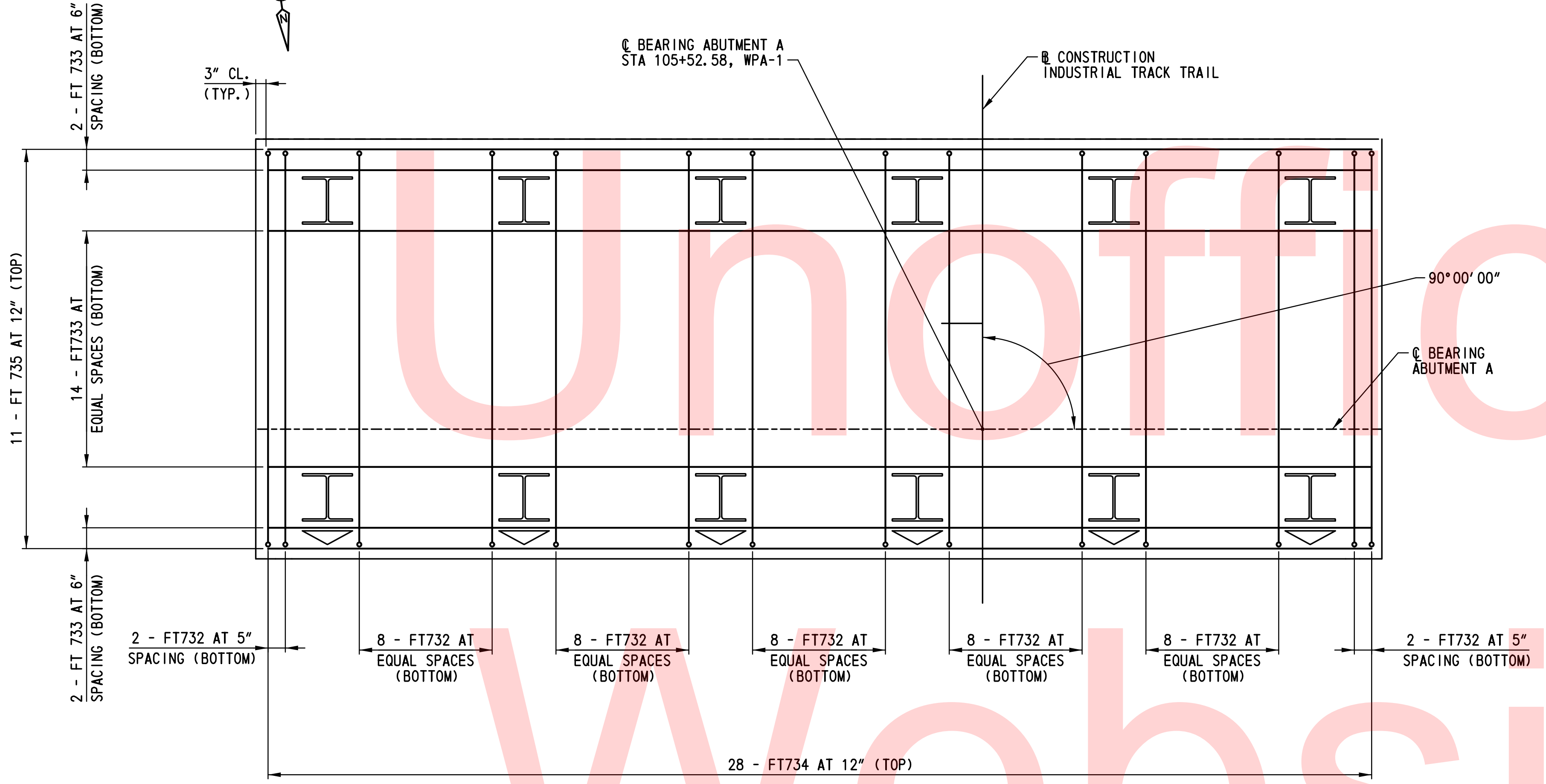
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

ABUTMENT A REINFORCEMENT DETAILS - 1

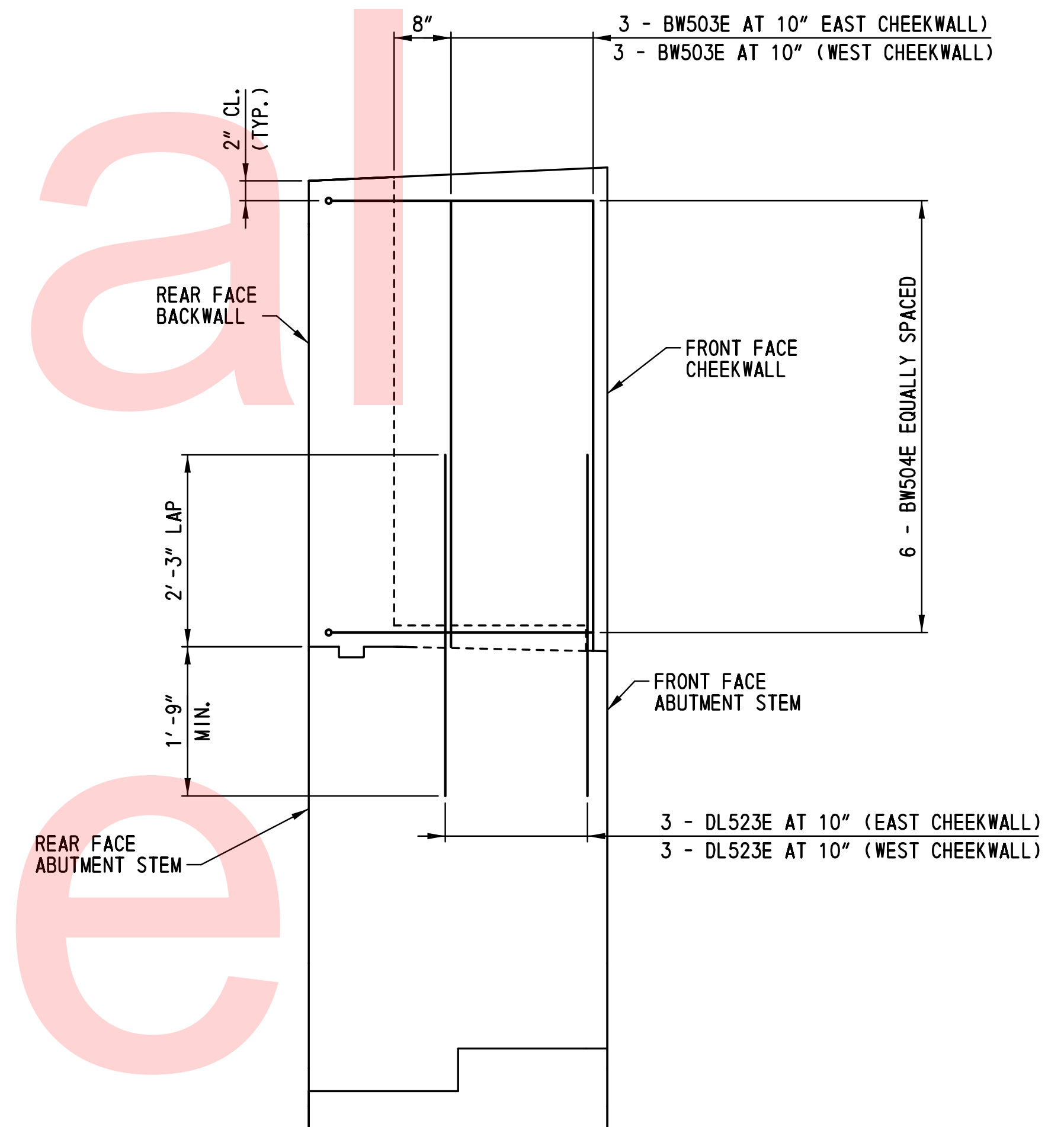
AB-106
SHEET NO. 55
TOTAL SHTS. 207



- NOTES:**
1. REINFORCEMENT OVER PILES NOT SHOWN FOR CLARITY. FOR PILE LAYOUT AND REINFORCEMENT OVER PILES, SEE DWG. NO. PL-102.
 2. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-106 AND AB-108.
 3. MSE WALLS AND MSE WALL FOOTING NOT SHOWN FOR CLARITY.



ABUTMENT FOOTING REINFORCEMENT PLAN
SCALE: 1/2" = 1' - 0"



SECTION B-B
SCALE: 3/4" = 1' - 0"

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ADDENDUMS / REVISIONS	

SCALE AS NOTED

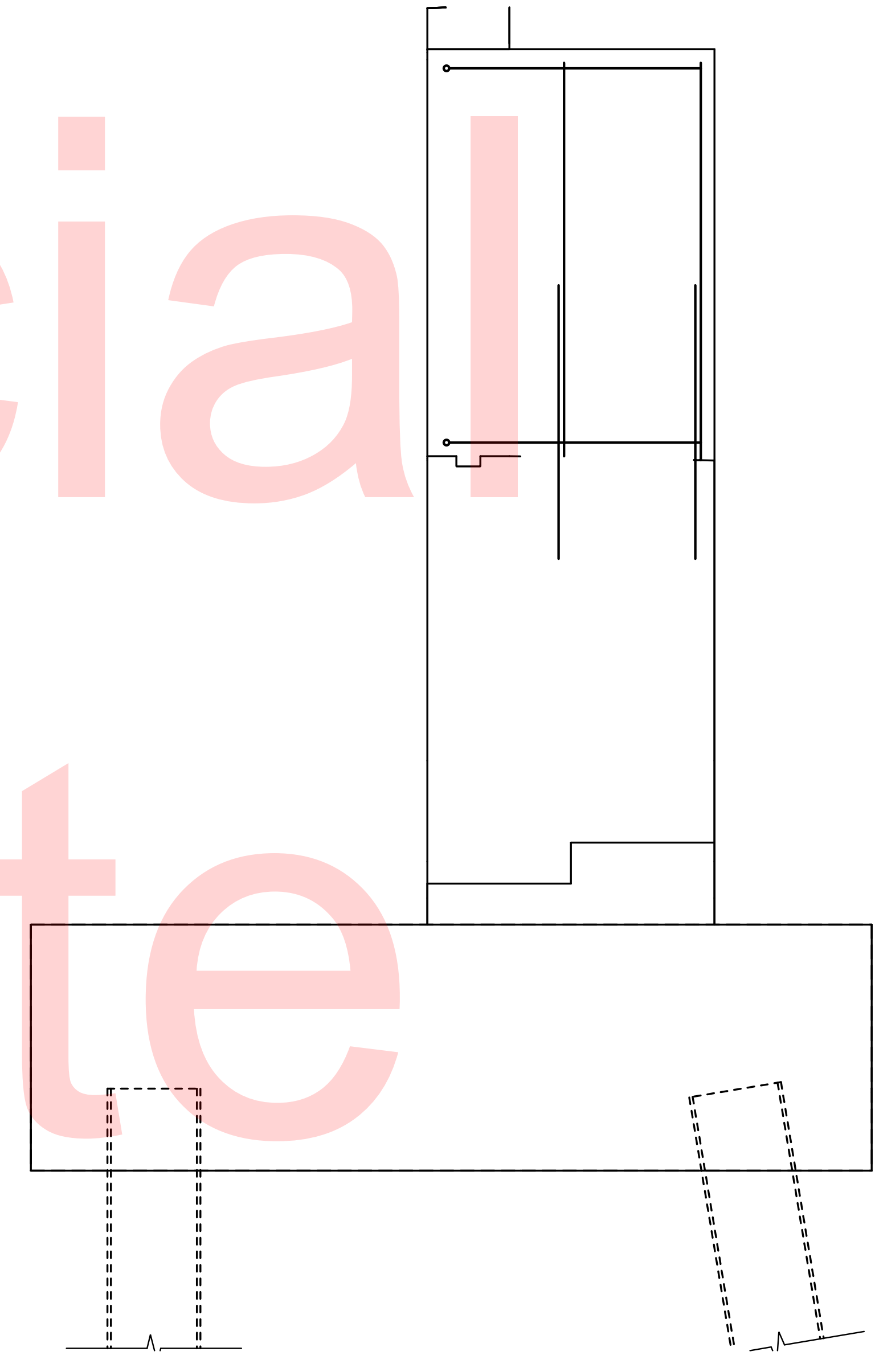
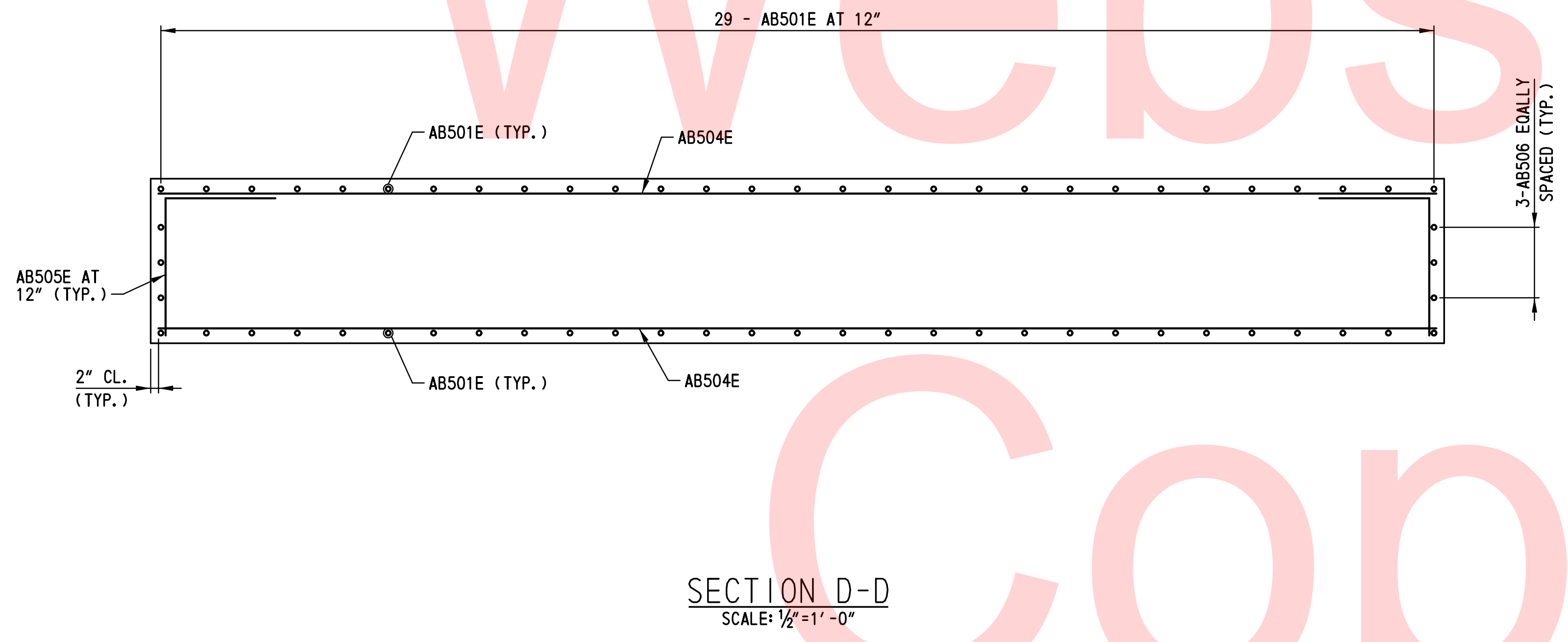
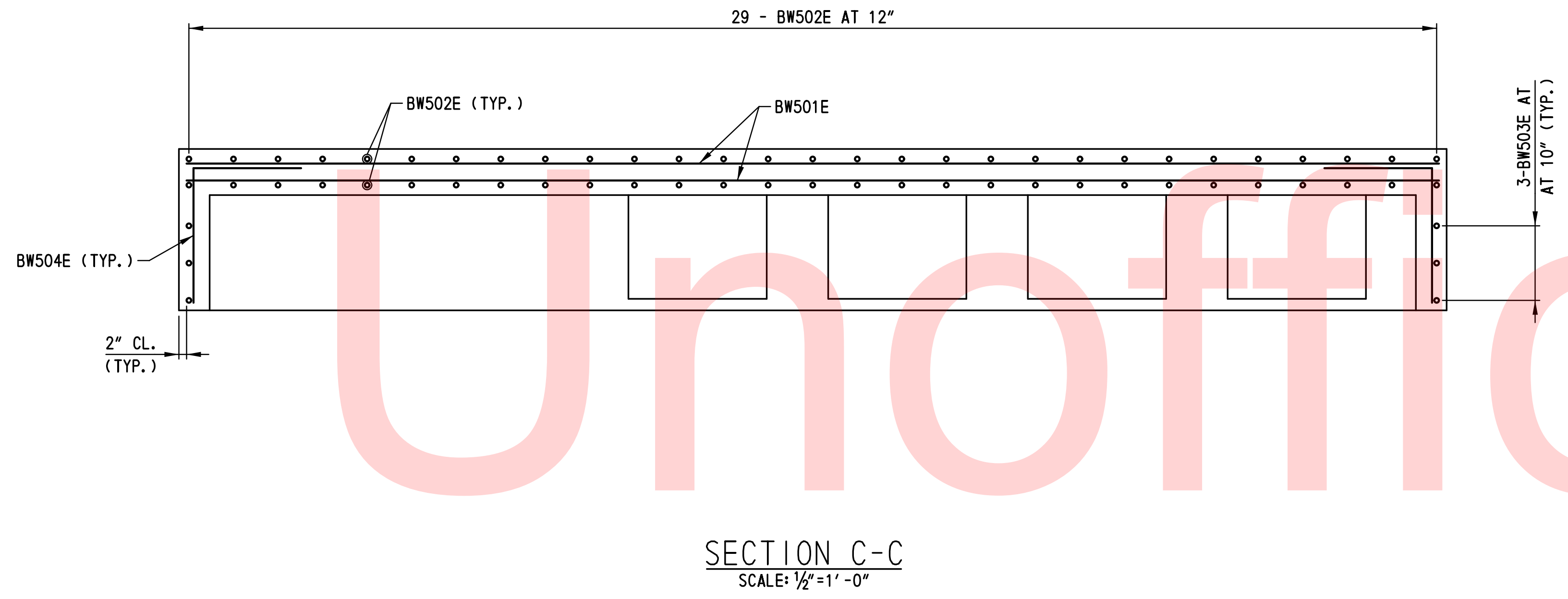
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

ABUTMENT A REINFORCEMENT DETAILS - 2

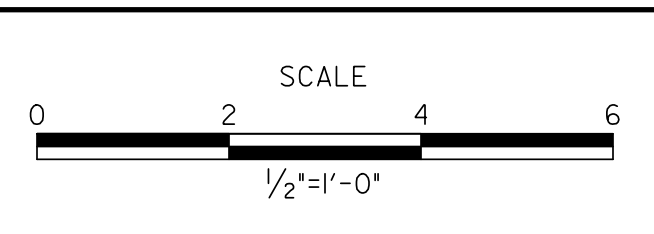
AB-107
SHEET NO. 56
TOTAL SHTS. 207

NOTES:
 1. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-106 AND AB-107.



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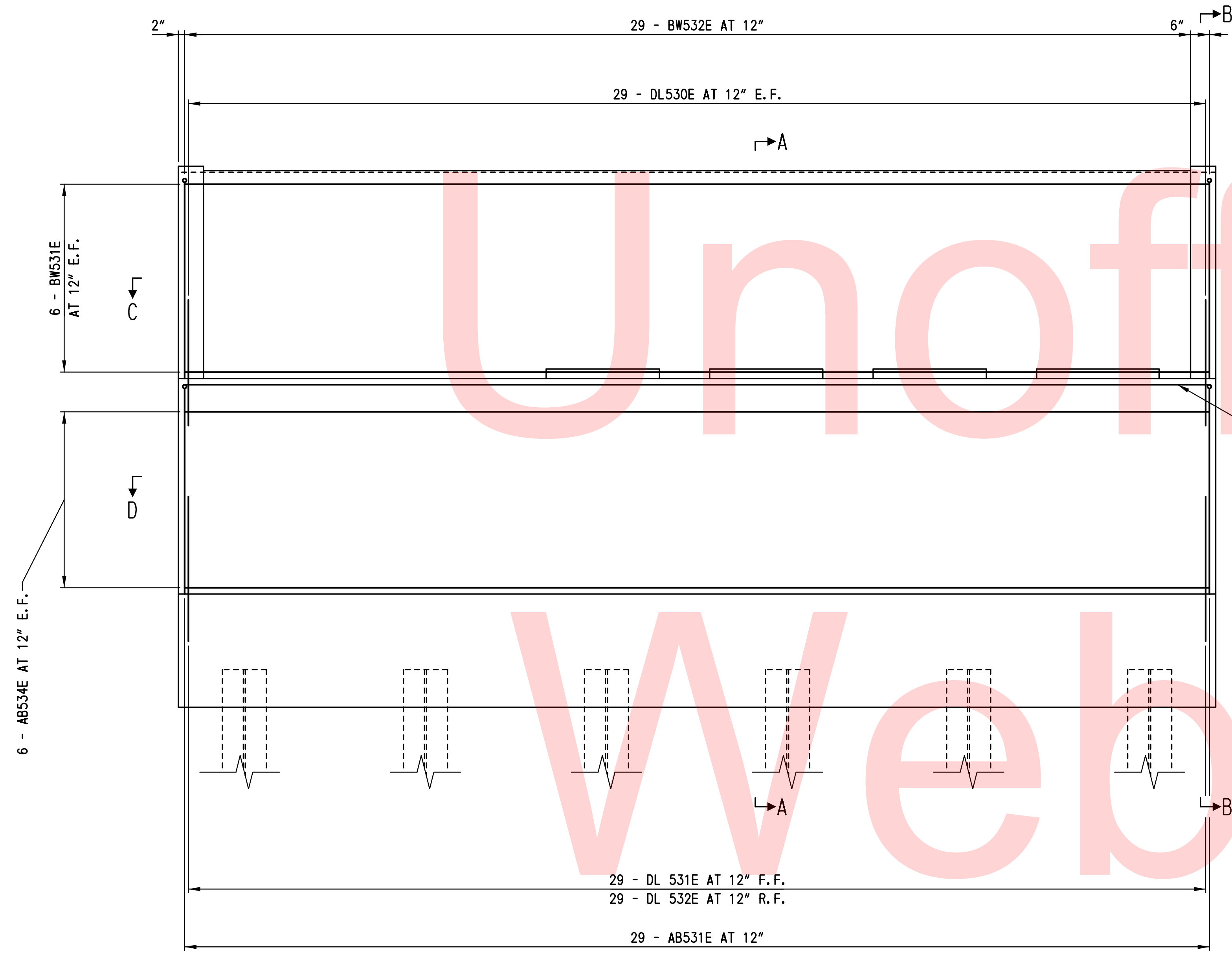
ADDENDUMS / REVISIONS	



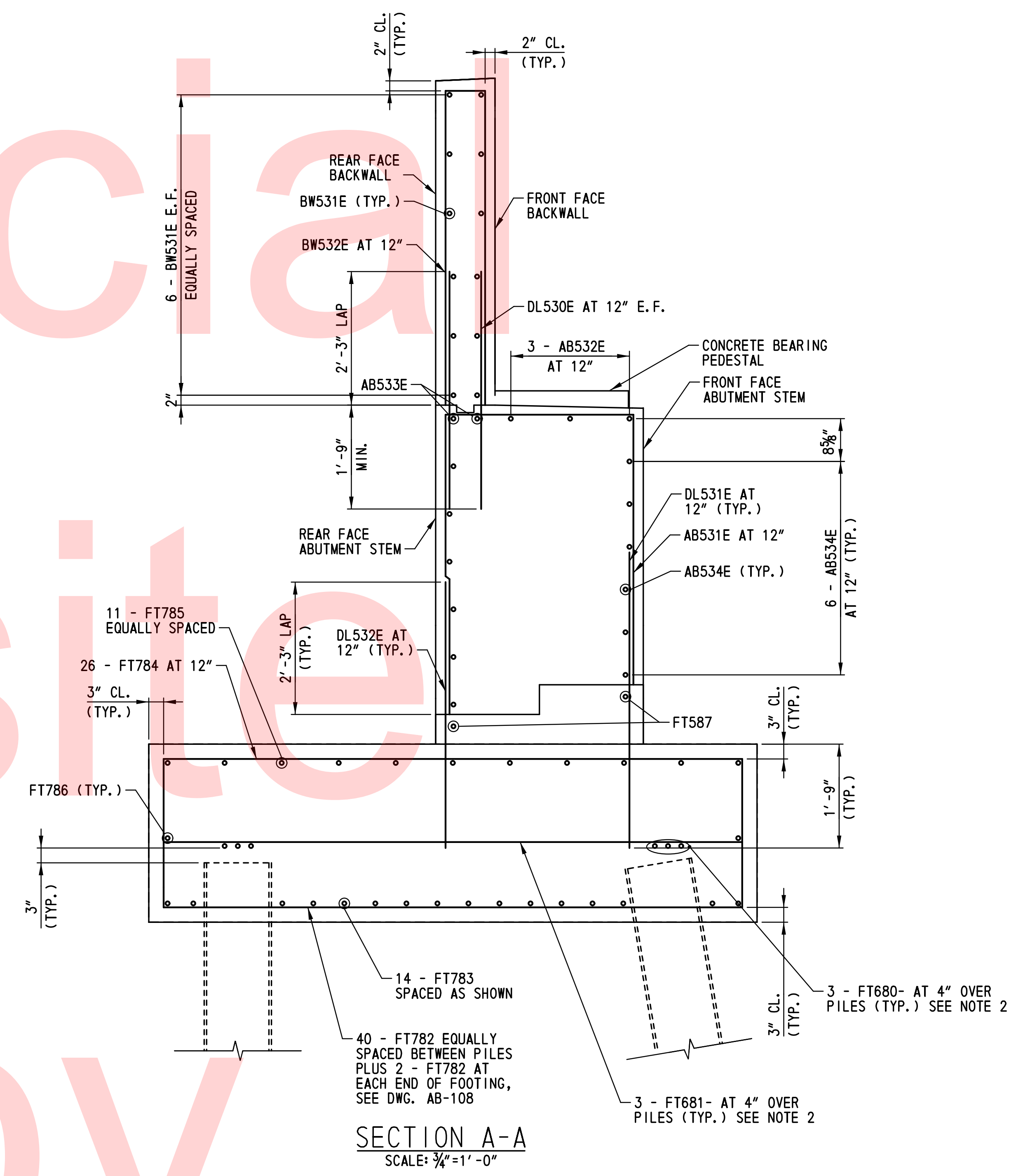
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

AB-108
SHEET NO. 57
TOTAL SHTS. 207

- NOTES:**
- FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-110 AND AB-111.
 - REINFORCING STEEL IN FOOTING NOT SHOWN IN ELEVATION VIEW FOR CLARITY. SEE DWG. NOS. AB-110 AND PL-102.
 - F.F. = FRONT FACE
R.F. = REAR FACE
E.F. = EACH FACE



REINFORCEMENT ELEVATION
SCALE: 1/2" = 1'-0"



SECTION A-A
SCALE: 3/4" = 1'-0"

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ADDENDUMS / REVISIONS	

SCALE AS NOTED

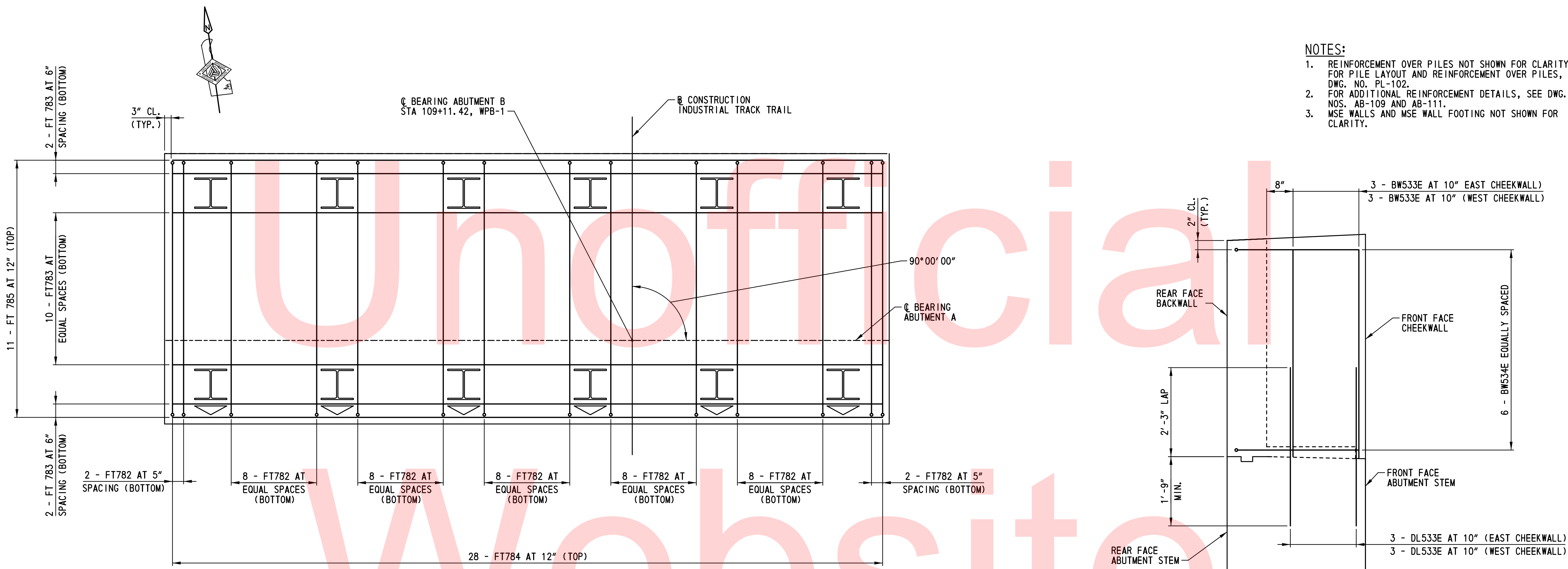
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: NAH	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

ABUTMENT B REINFORCEMENT DETAILS - 1

AB-109
SHEET NO.
58
TOTAL SHTS.
207

- NOTES:**
1. REINFORCEMENT OVER PILES NOT SHOWN FOR CLARITY. FOR PILE LAYOUT AND REINFORCEMENT OVER PILES, SEE DWG. NO. PL-102.
 2. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-109 AND AB-111.
 3. MSE WALLS AND MSE WALL FOOTING NOT SHOWN FOR CLARITY.



ABUTMENT FOOTING REINFORCEMENT PLAN
SCALE: 1/2" = 1'-0"

SECTION B-B
SCALE: 3/4" = 1'-0"

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ADDENDUMS / REVISIONS	

SCALE AS NOTED

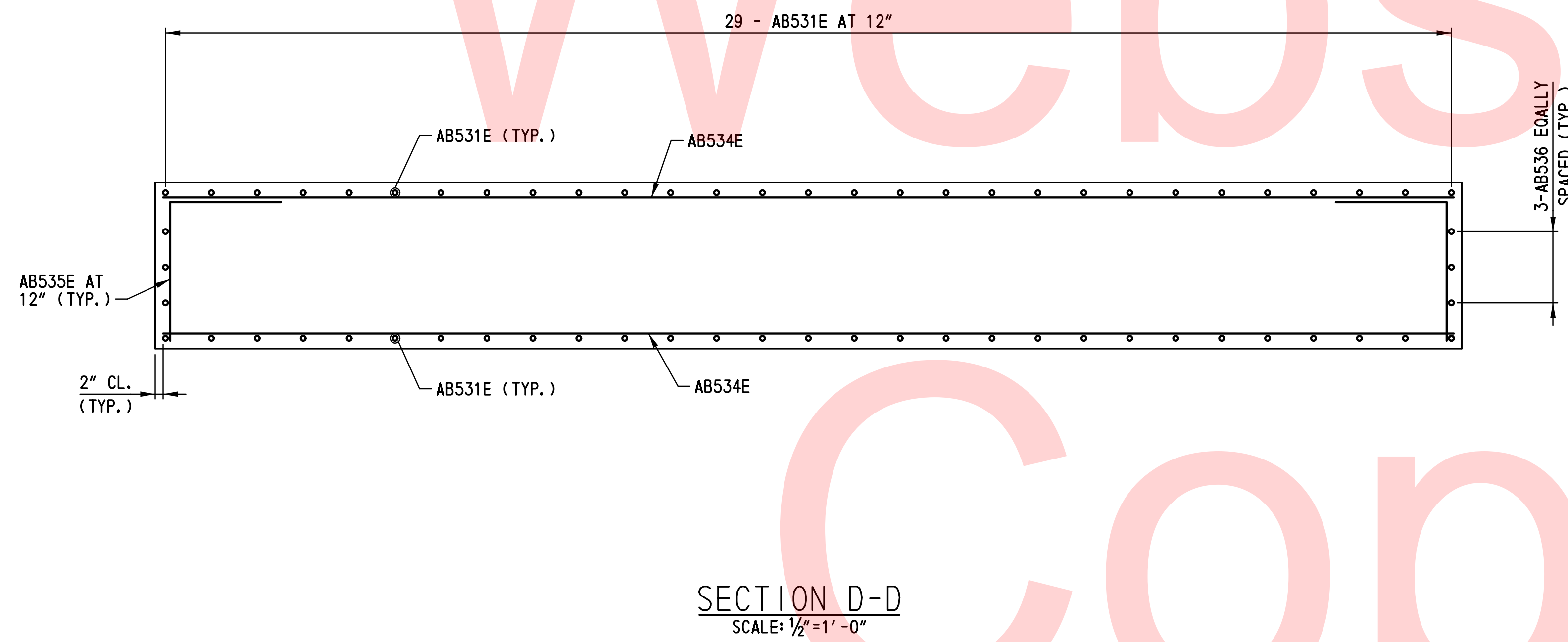
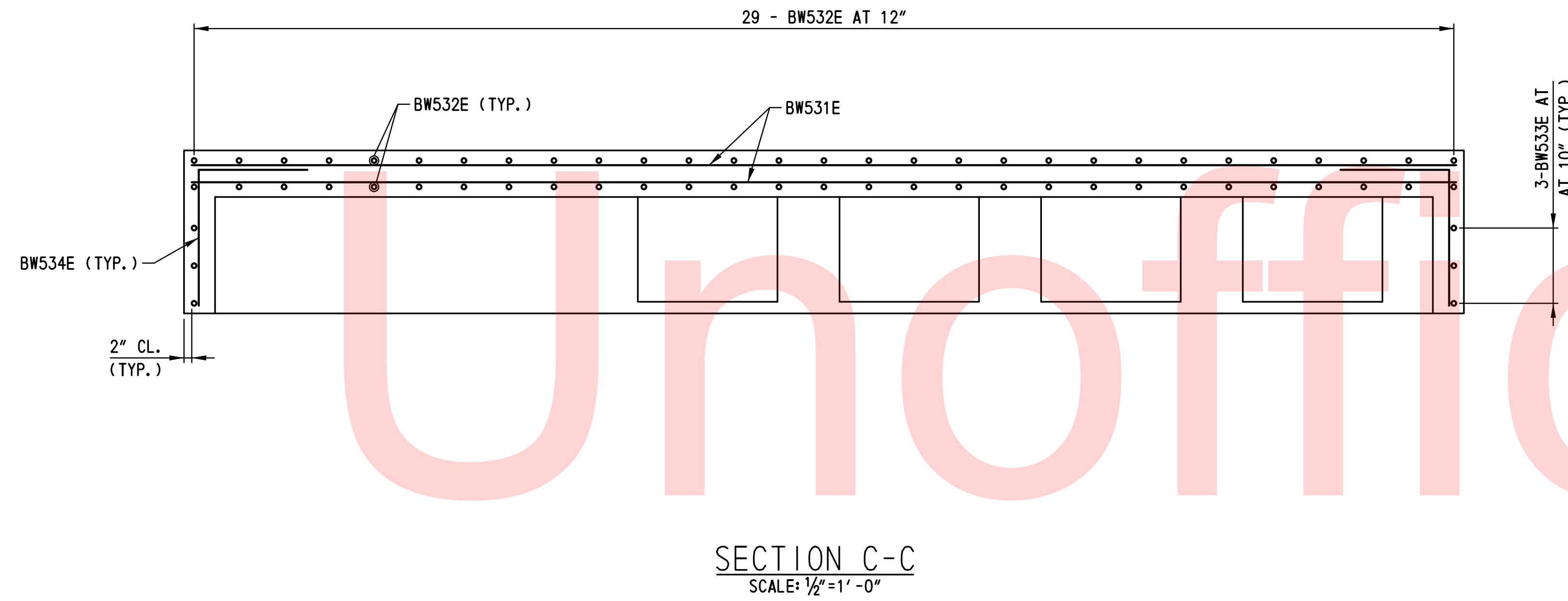
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

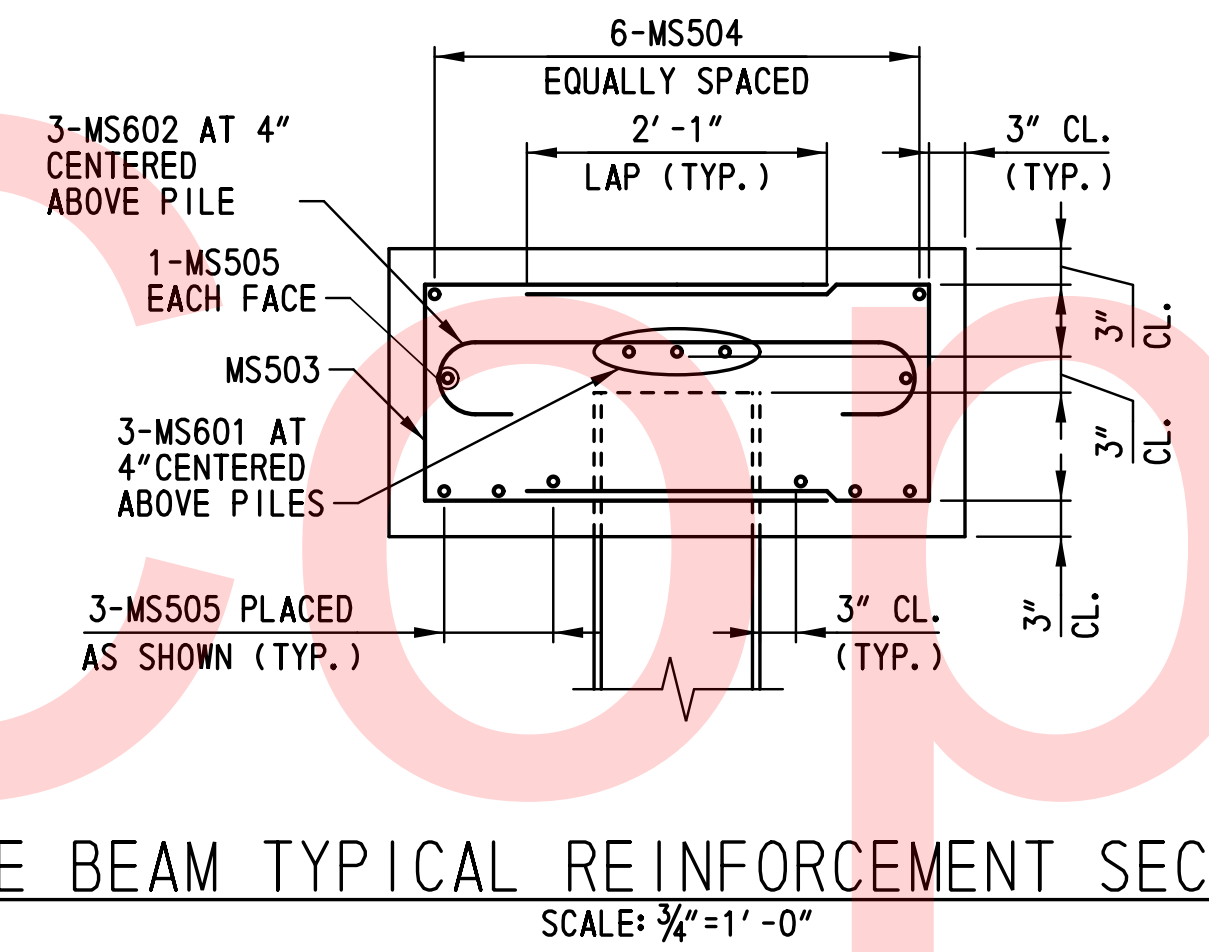
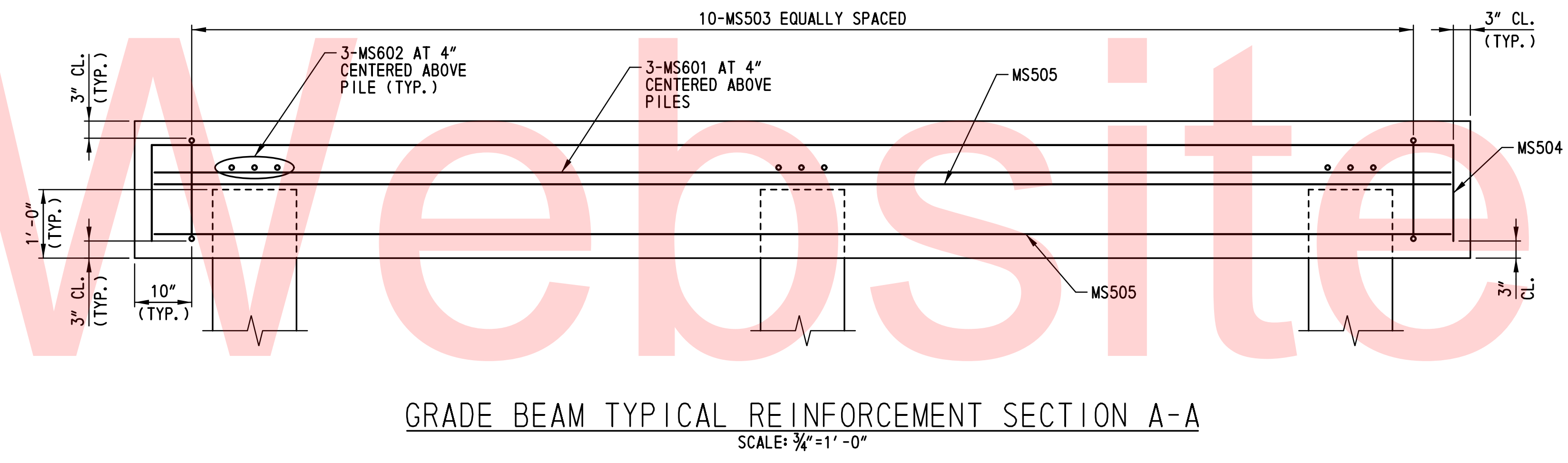
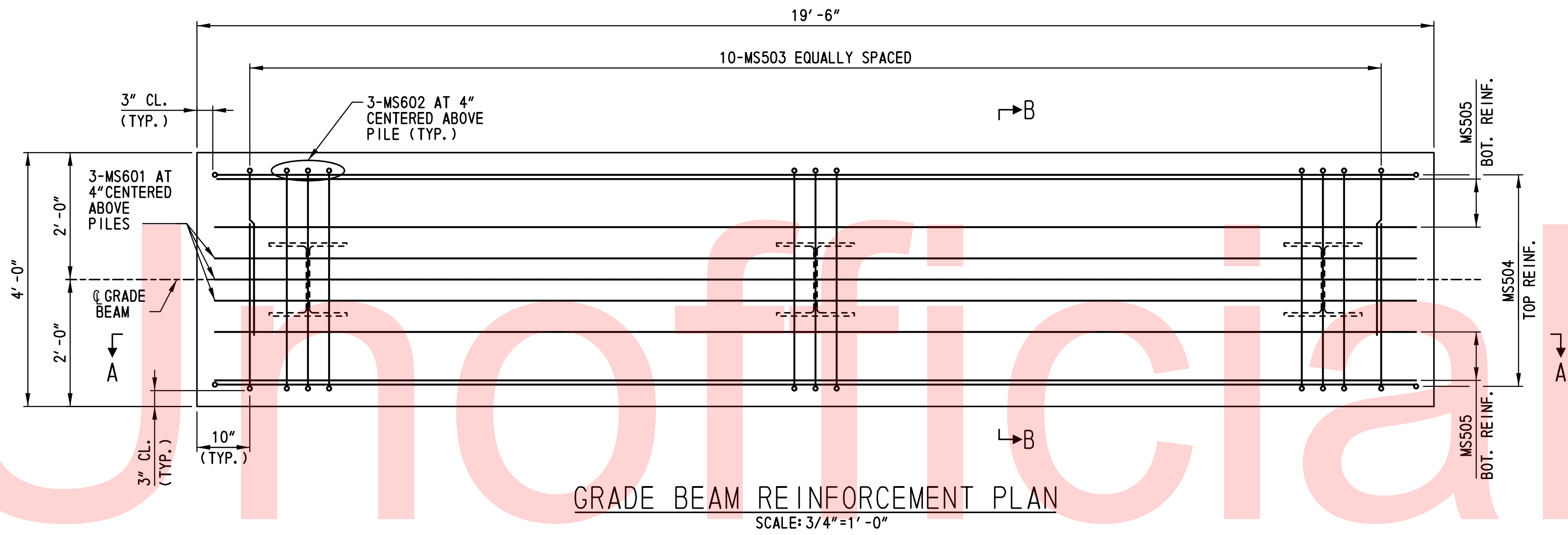
ABUTMENT B REINFORCEMENT DETAILS - 2

AB-110
SHEET NO. 59
TOTAL SHTS. 207

NOTES:
 1. FOR ADDITIONAL REINFORCEMENT DETAILS, SEE DWG. NOS. AB-109 AND AB-110.

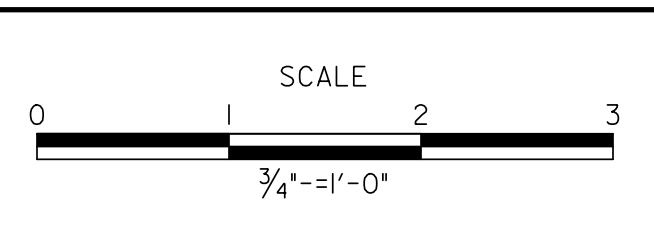


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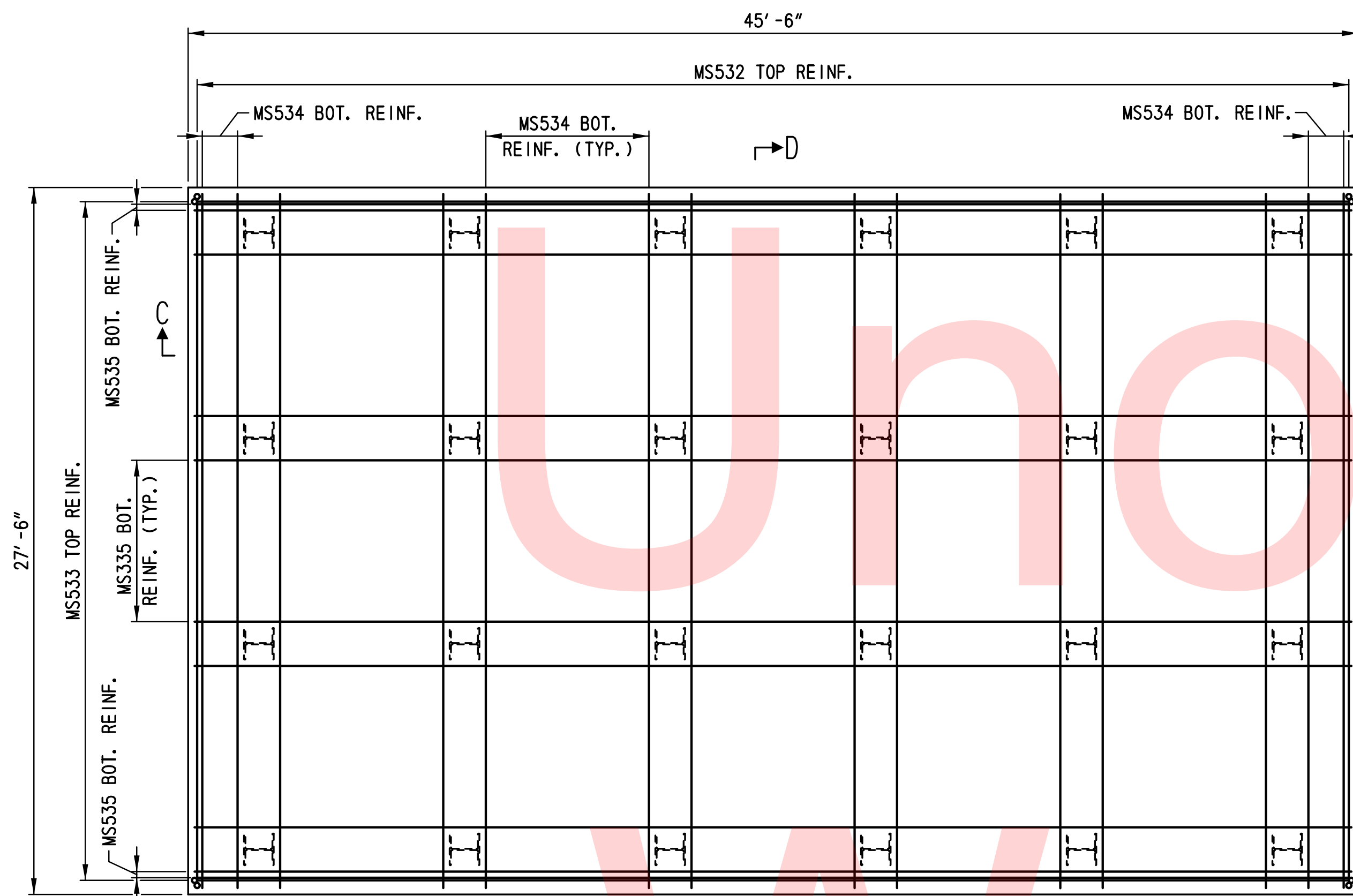
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ADDENDUMS / REVISIONS

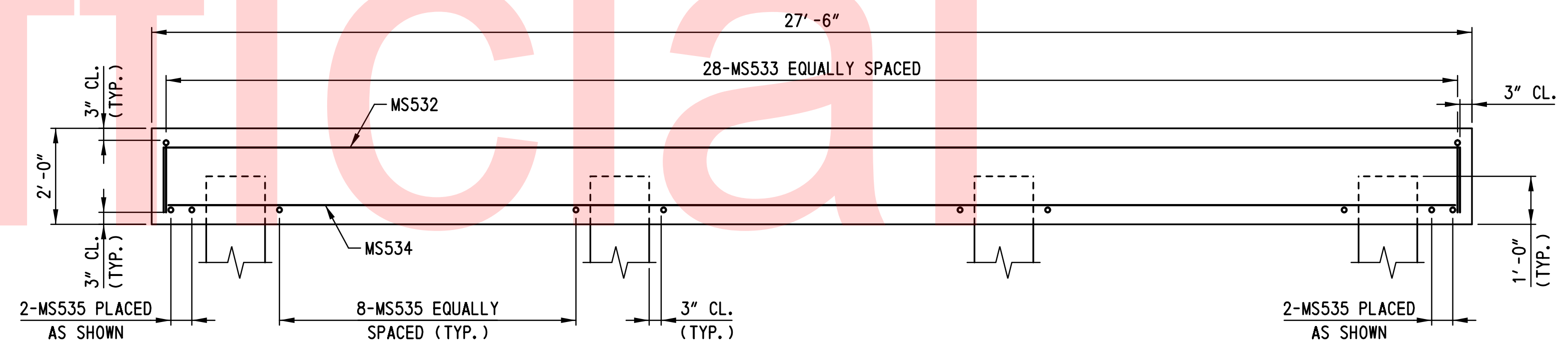


CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	ZMG
COUNTY	CHECKED BY:	WAG
NEW CASTLE		

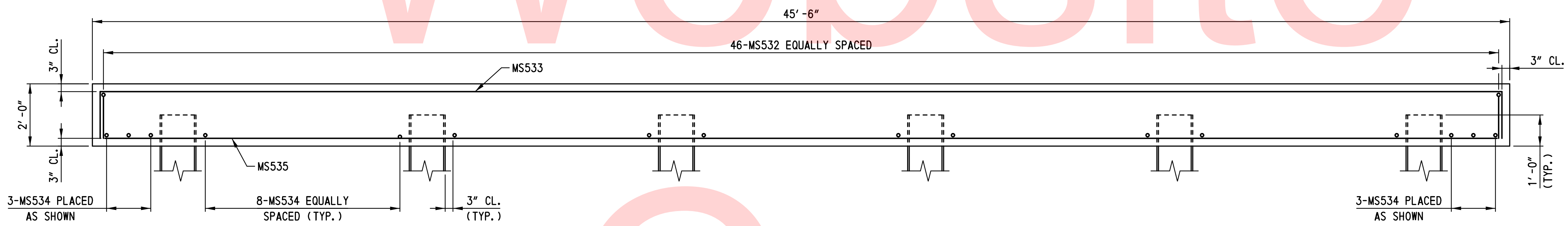
AB-112
SHEET NO.
61
TOTAL SHTS.
207



SOUTH MAT REINFORCEMENT PLAN
SCALE: 1/4"=1'-0"



SOUTH MAT TYPICAL REINFORCEMENT SECTION D-D
SCALE: 1/2"=1'-0"

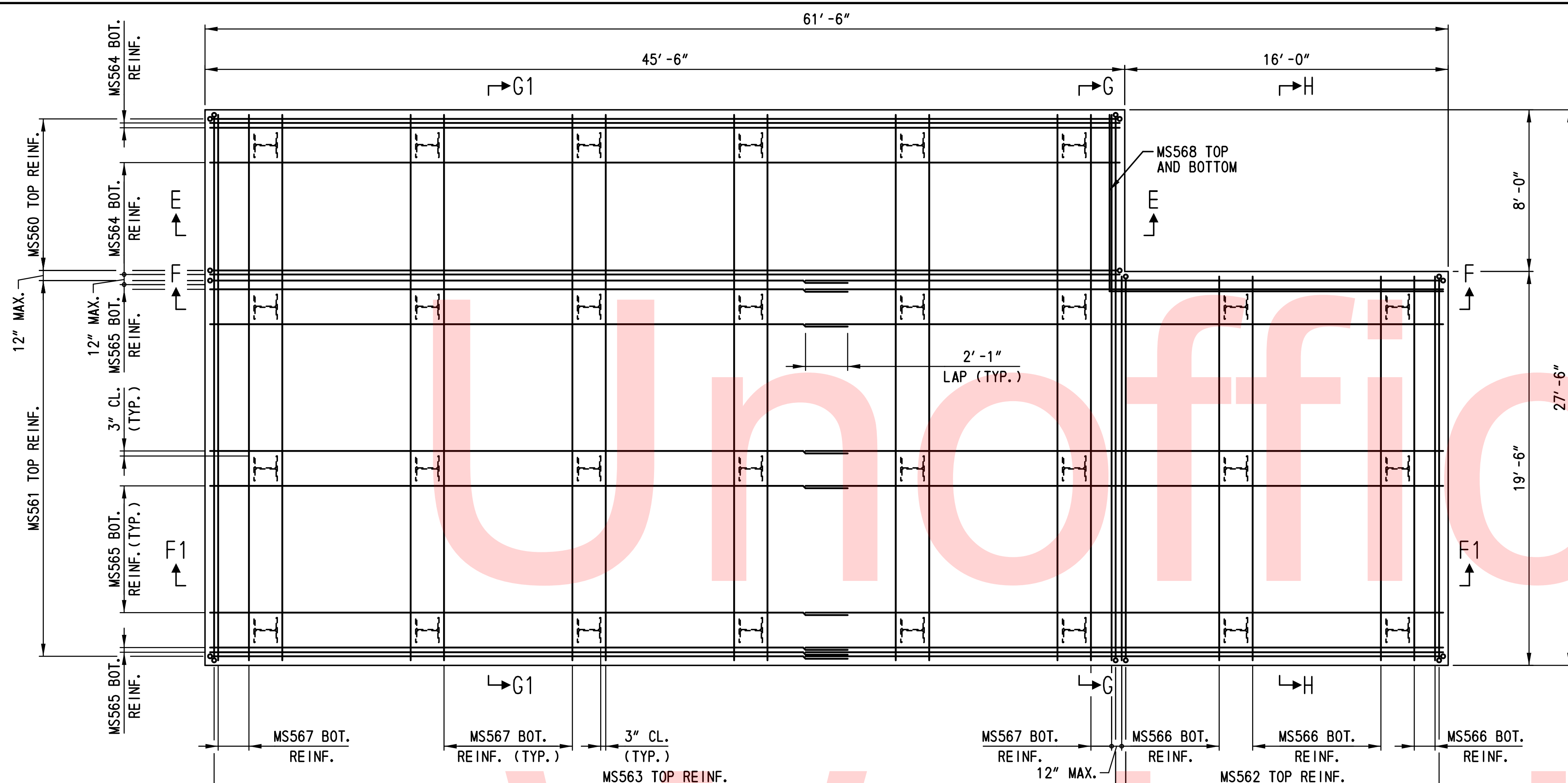


SOUTH MAT TYPICAL REINFORCEMENT SECTION C-C
SCALE: 1/2"=1'-0"

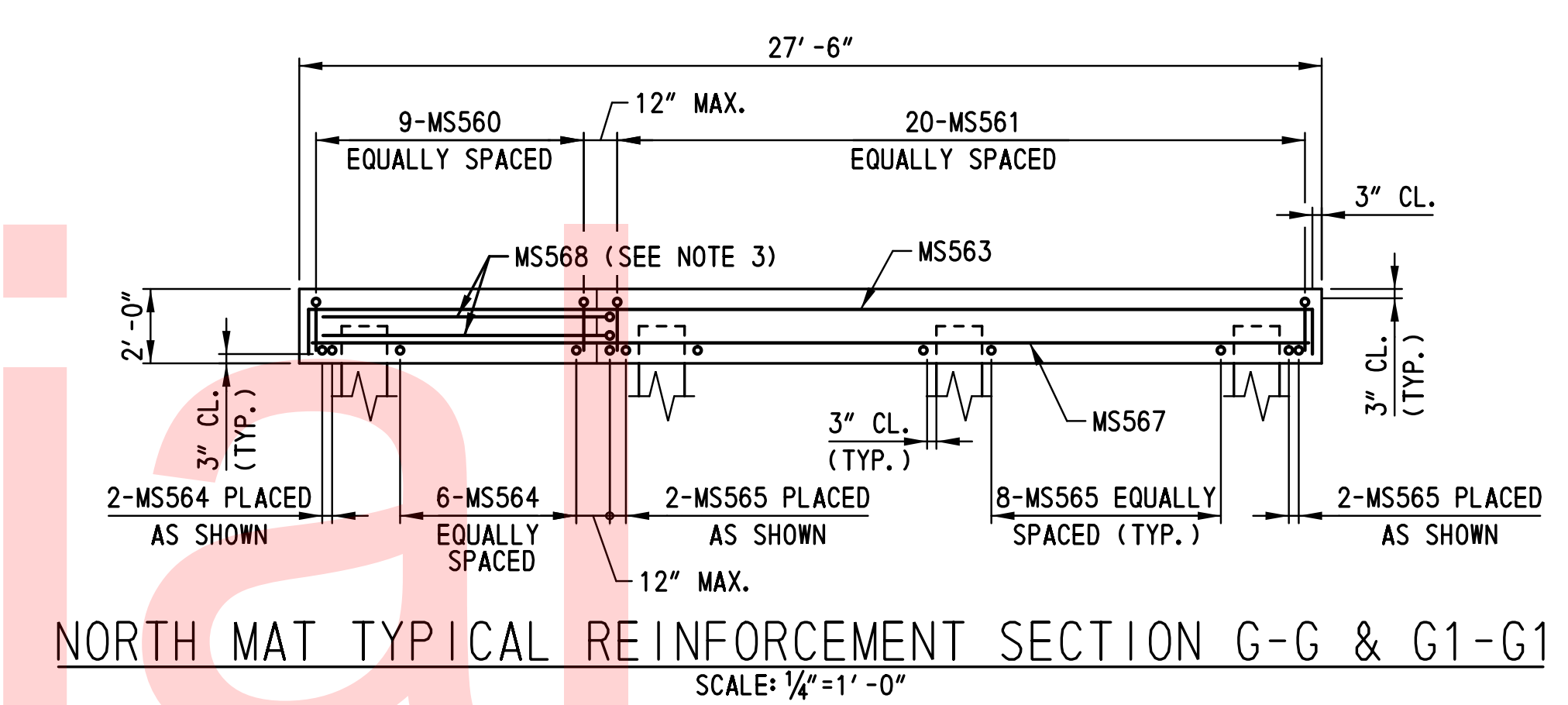
NOTES:

1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR PILES. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PL-101.
2. REINFORCEMENT OVER PILES NOT SHOWN FOR CLARITY. FOR PILE LAYOUT AND REINFORCEMENT OVER PILES, SEE DWG. NO. PL-101.

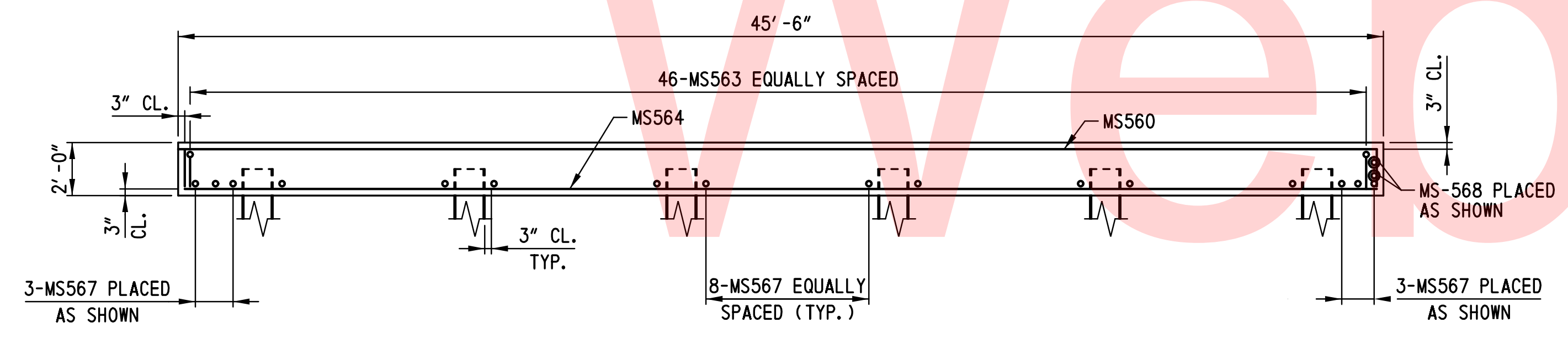
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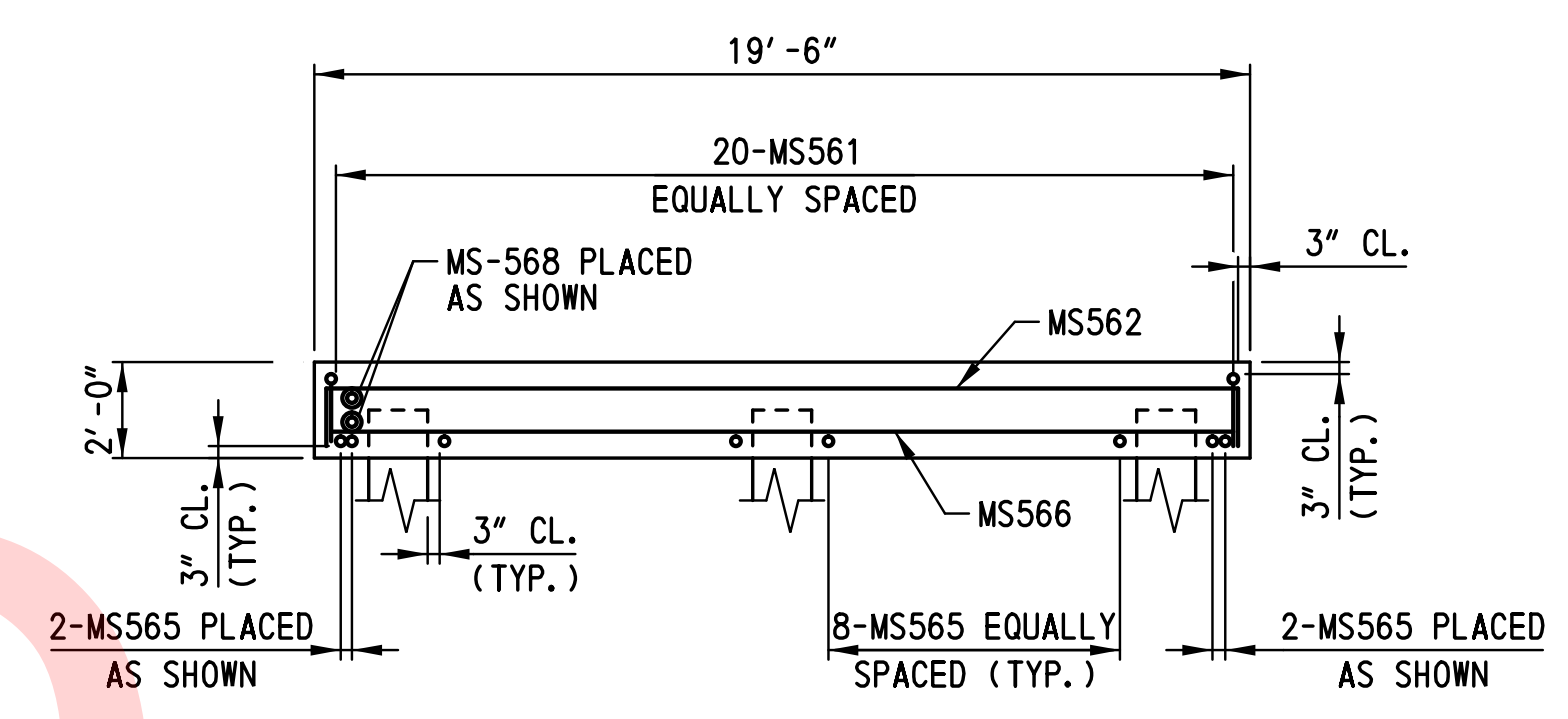
NORTH MAT REINFORCEMENT PLAN
SCALE: 1/4"=1'-0"



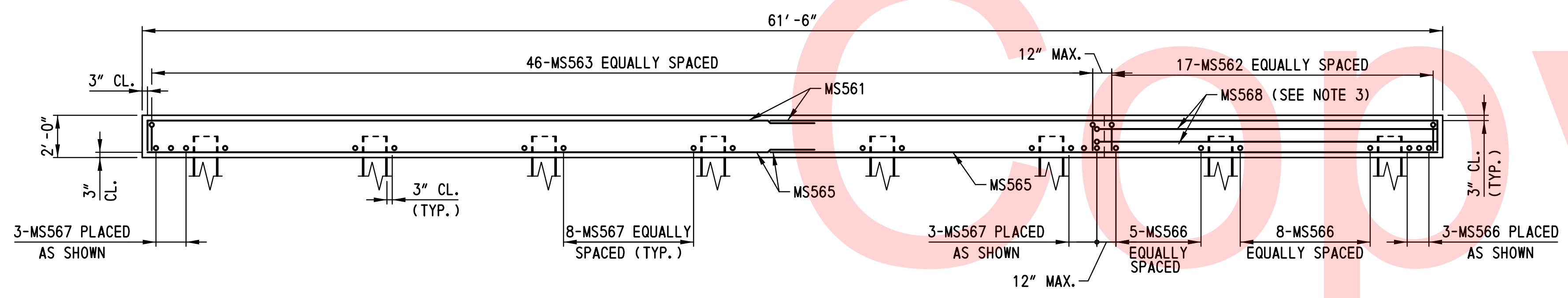
NORTH MAT TYPICAL REINFORCEMENT SECTION G-G & G1-G1
SCALE: 1/4"=1'-0"



NORTH MAT TYPICAL REINFORCEMENT SECTION E-E
SCALE: 1/4"=1'-0"



NORTH MAT TYPICAL REINFORCEMENT SECTION H-H
SCALE: 1/4"=1'-0"

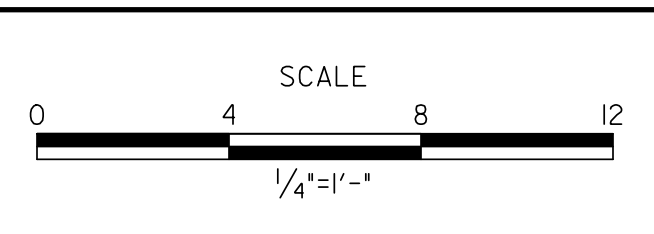


NORTH MAT TYPICAL REINFORCEMENT SECTION F-F & F1-F1
SCALE: 1/4"=1'-0"

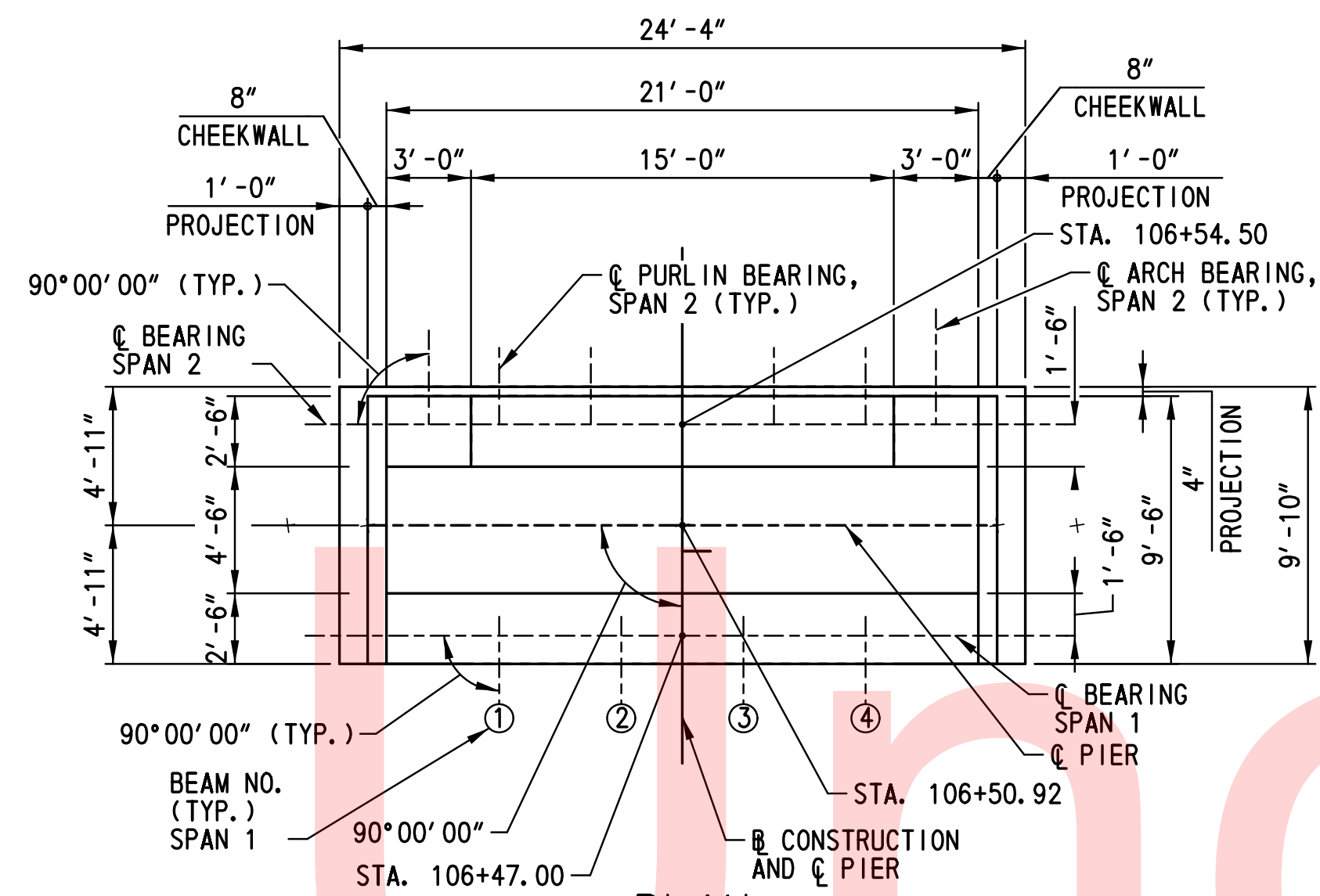
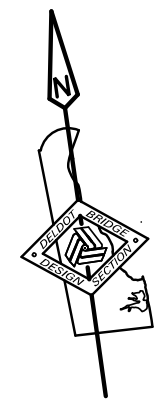
- NOTES:
1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR PILES. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PL-103.
 2. REINFORCEMENT OVER PILES NOT SHOWN FOR CLARITY. FOR PILE LAYOUT AND REINFORCEMENT OVER PILES, SEE DWG. NO. PL-103.
 3. MS586 BAR IS NOT PRESENT IN SECTION G1-G1 OR SECTION F1-F1.

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ADDENDUMS / REVISIONS

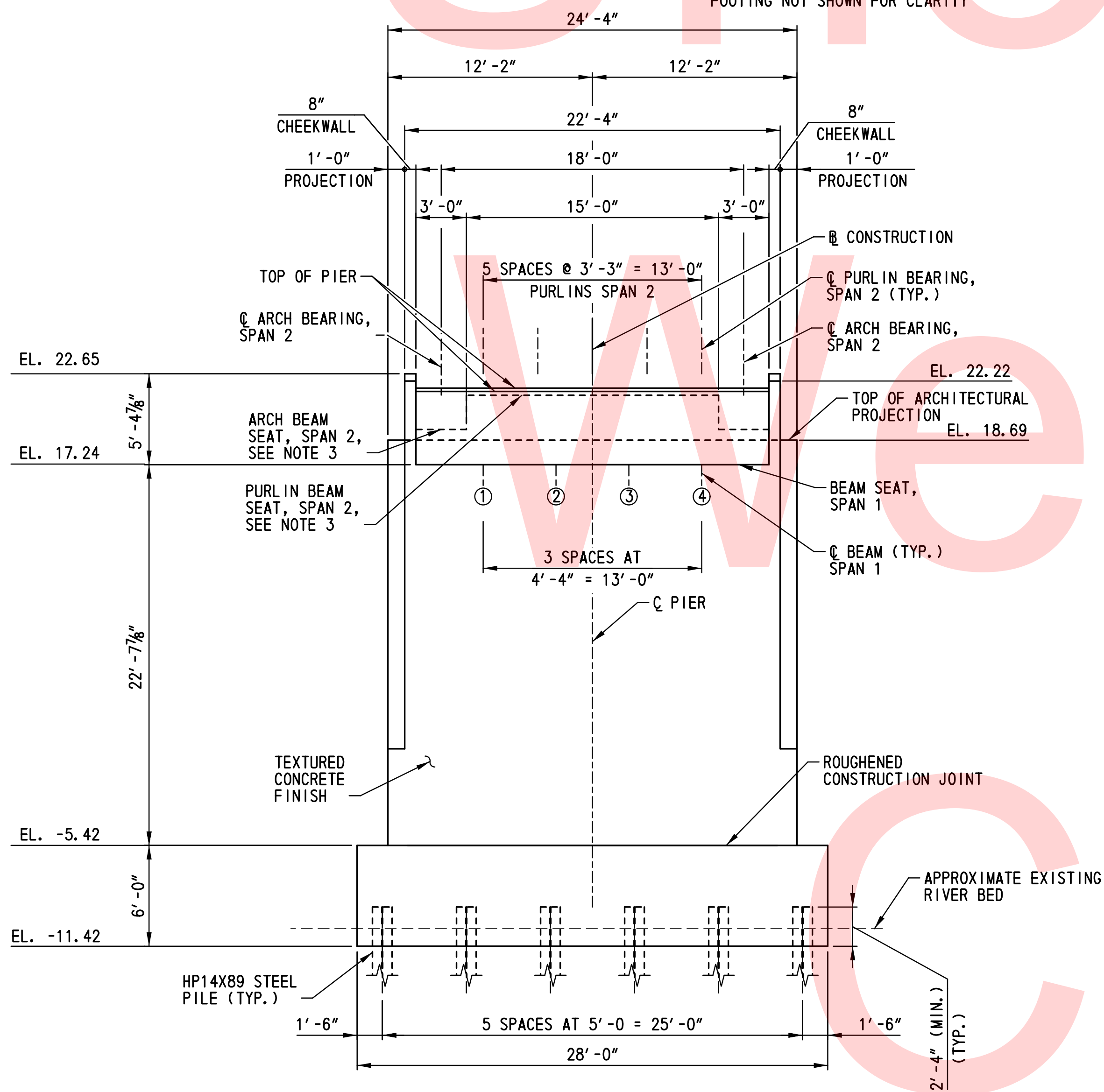


CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ZMG CHECKED BY: WAG

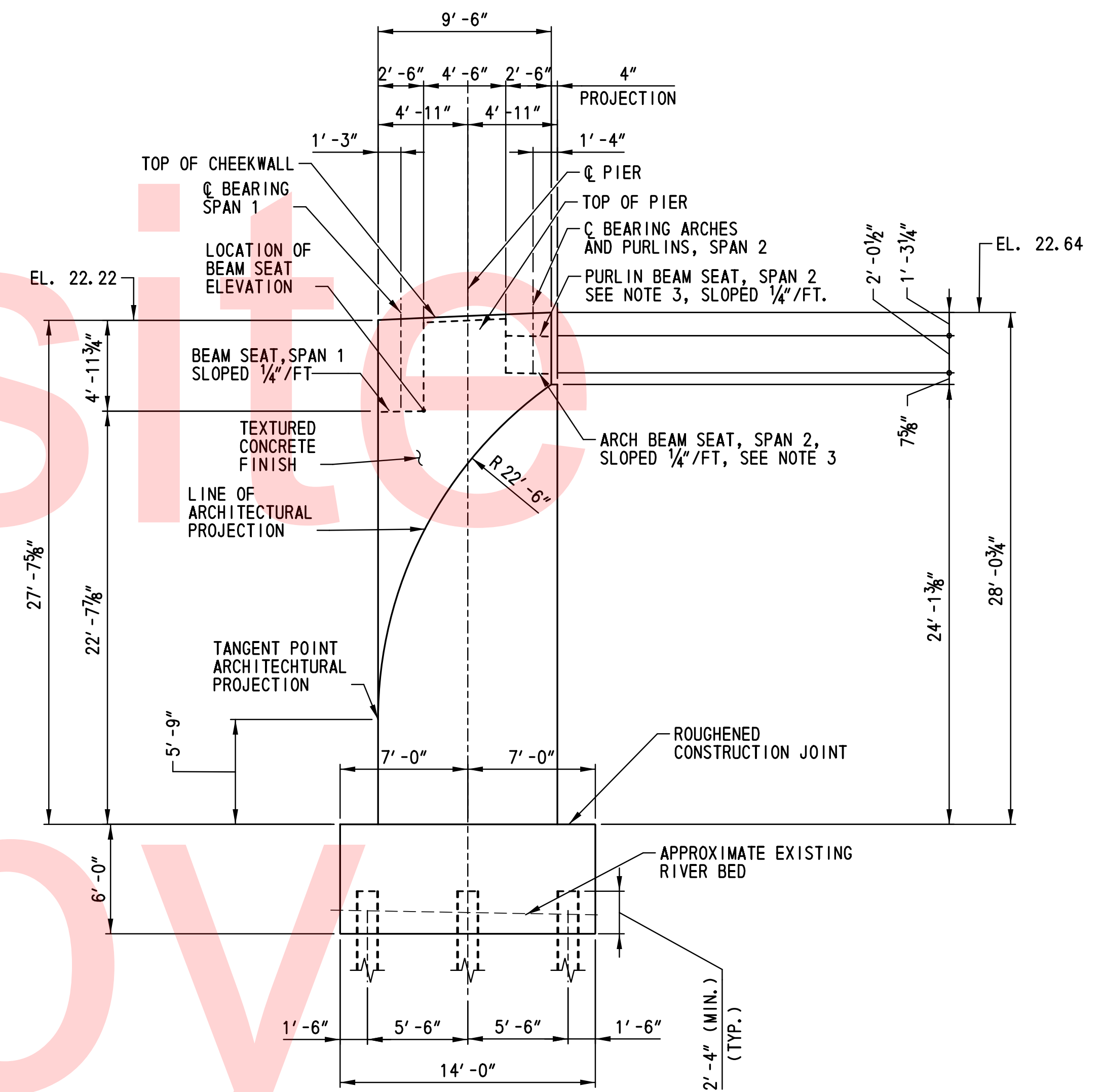


PLAN
SCALE: 3/16" = 1'-0"
NOTE:
FOOTING NOT SHOWN FOR CLARITY

- NOTES:**
- FOR PILE LAYOUT PLAN, SEE DWG. NO. PL-101.
 - FOR PIER REINFORCEMENT DETAILS, SEE DWG. NO. PR-103.
 - ELEVATION OF ARCH BEAM SEATS AND PURLIN BEAM SEAT SHALL BE DETERMINED BY CONTRACTOR BASED ON FINAL DESIGN OF GLULAM ARCH.

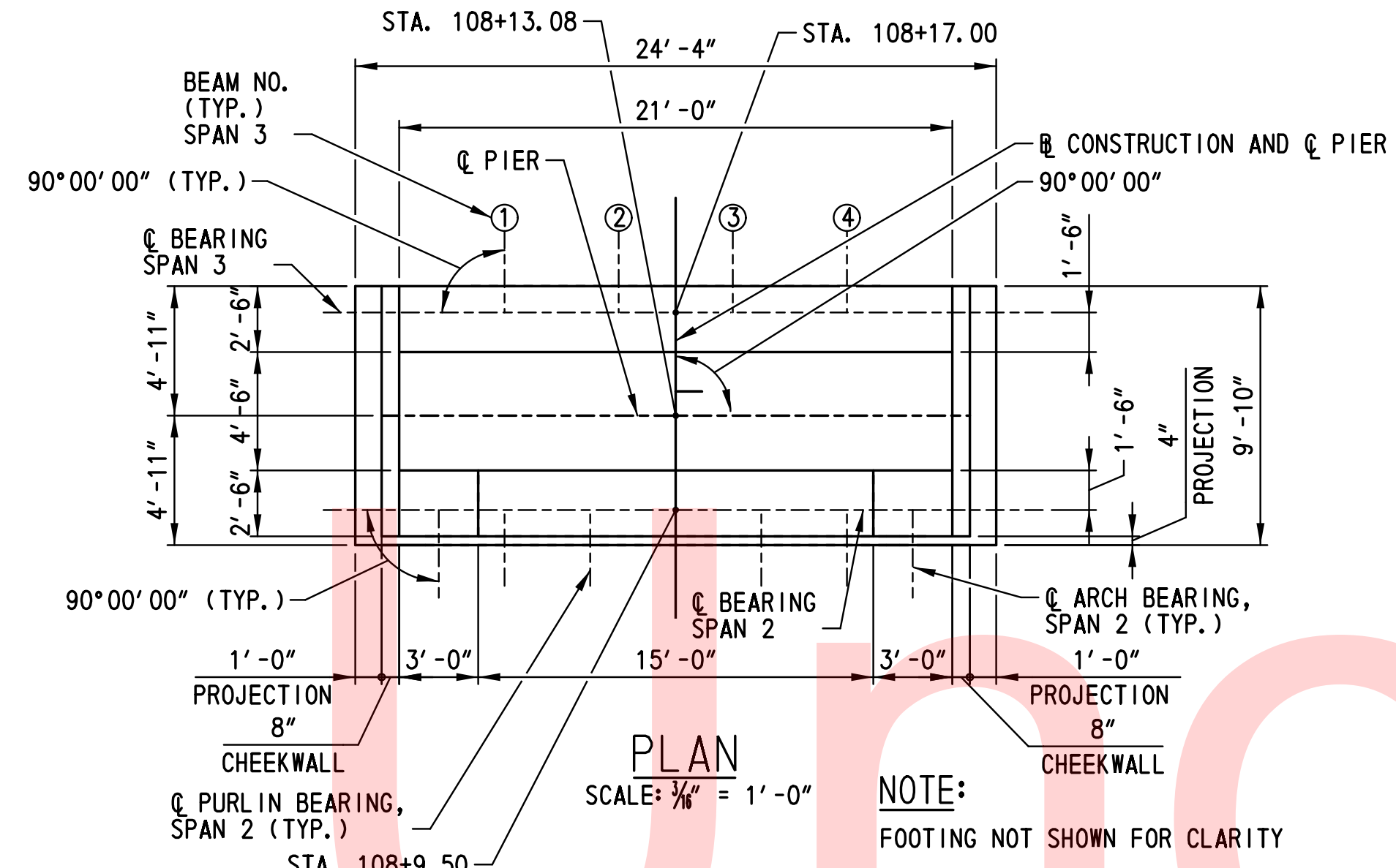


ELEVATION (LOOKING UPSTATION)
SCALE: 3/16" = 1'-0"

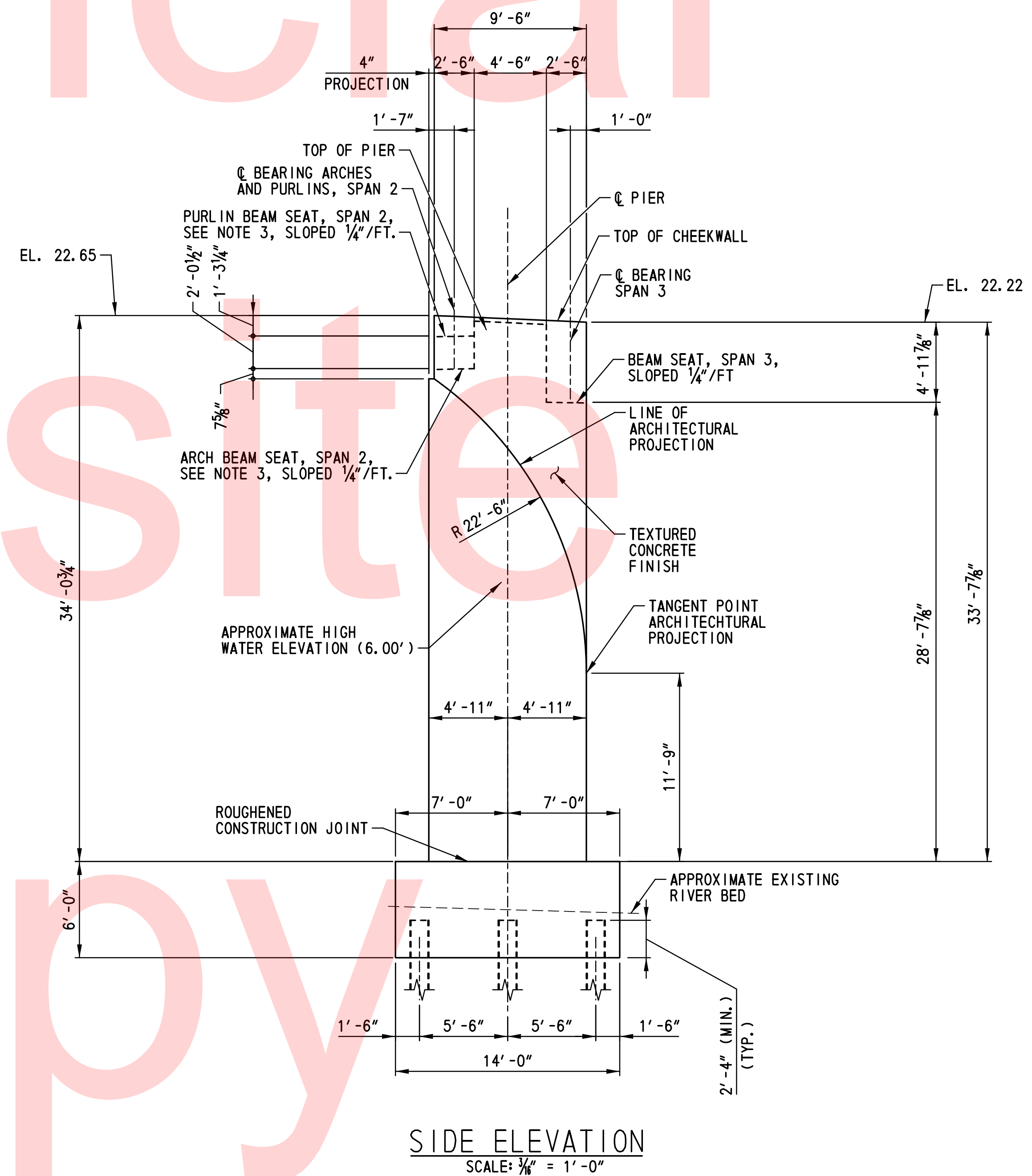
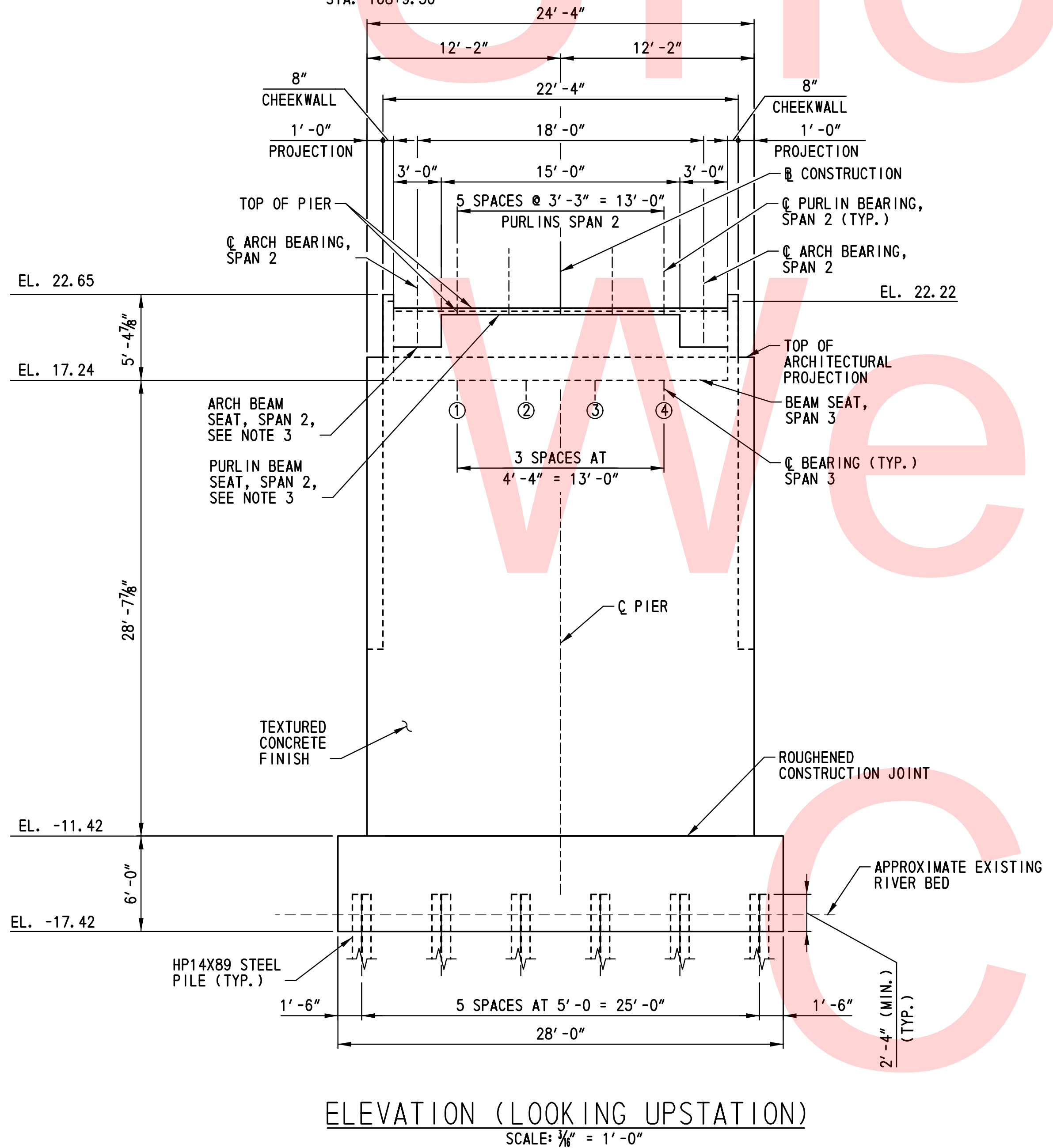


SIDE ELEVATION
SCALE: 3/16" = 1'-0"

N:\31896-002\CADD\BRIDGE\PR101.ITG.DGN



- NOTES:**
- FOR PILE LAOUT PLAN, SEE DWG. NO. PL-102.
 - FOR PIER REINFORCEMENT DETAILS, SEE DWG. NO. PR-103.
 - ELEVATION OF ARCH BEAM SEATS AND PURLIN BEAM SEAT SHALL BE DETERMINED BY CONTRACTOR BASED ON FINAL DESIGN OF GLULAM ARCH.

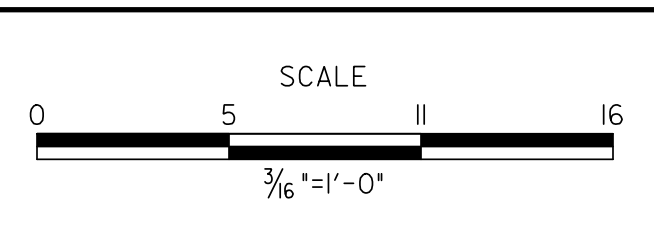


ELEVATION (LOOKING UPSTATION)
SCALE: 3/8" = 1'-0"

SIDE ELEVATION
SCALE: 3/8" = 1'-0"

N:\31896-002\CADD\BRIDGE\PR102_1.TG.DGN

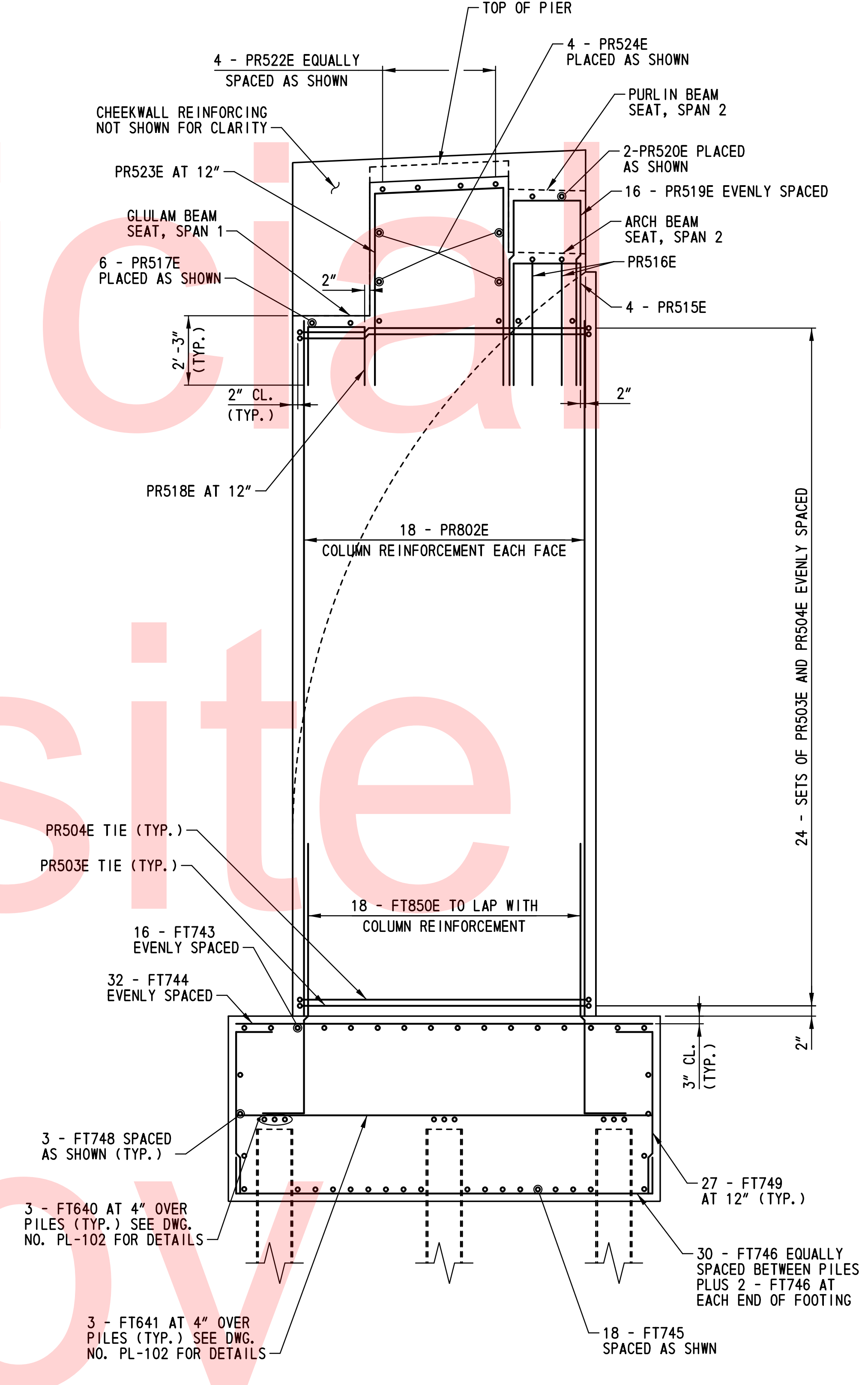
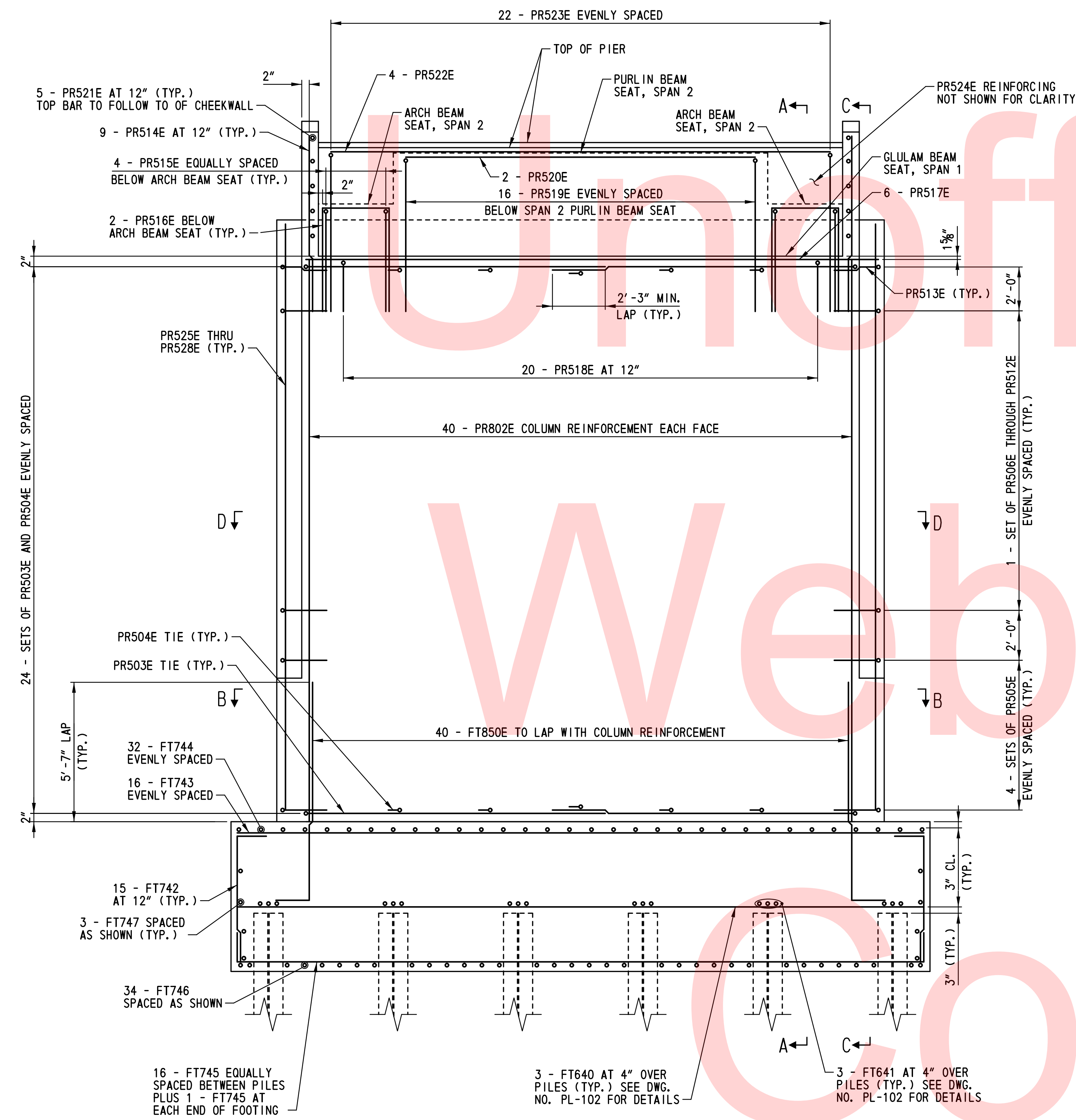
ADDENDUMS / REVISIONS	



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

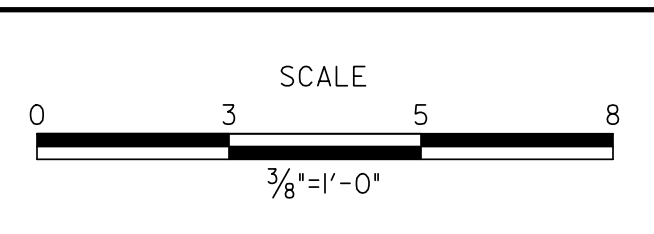
PR-102
SHEET NO. 65
TOTAL SHTS. 207

- NOTES:**
1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PR-101.
 2. FOR SECTION B-B, SECTION CC, AND SECTION D-D, SEE DWG. NO. PR-104.

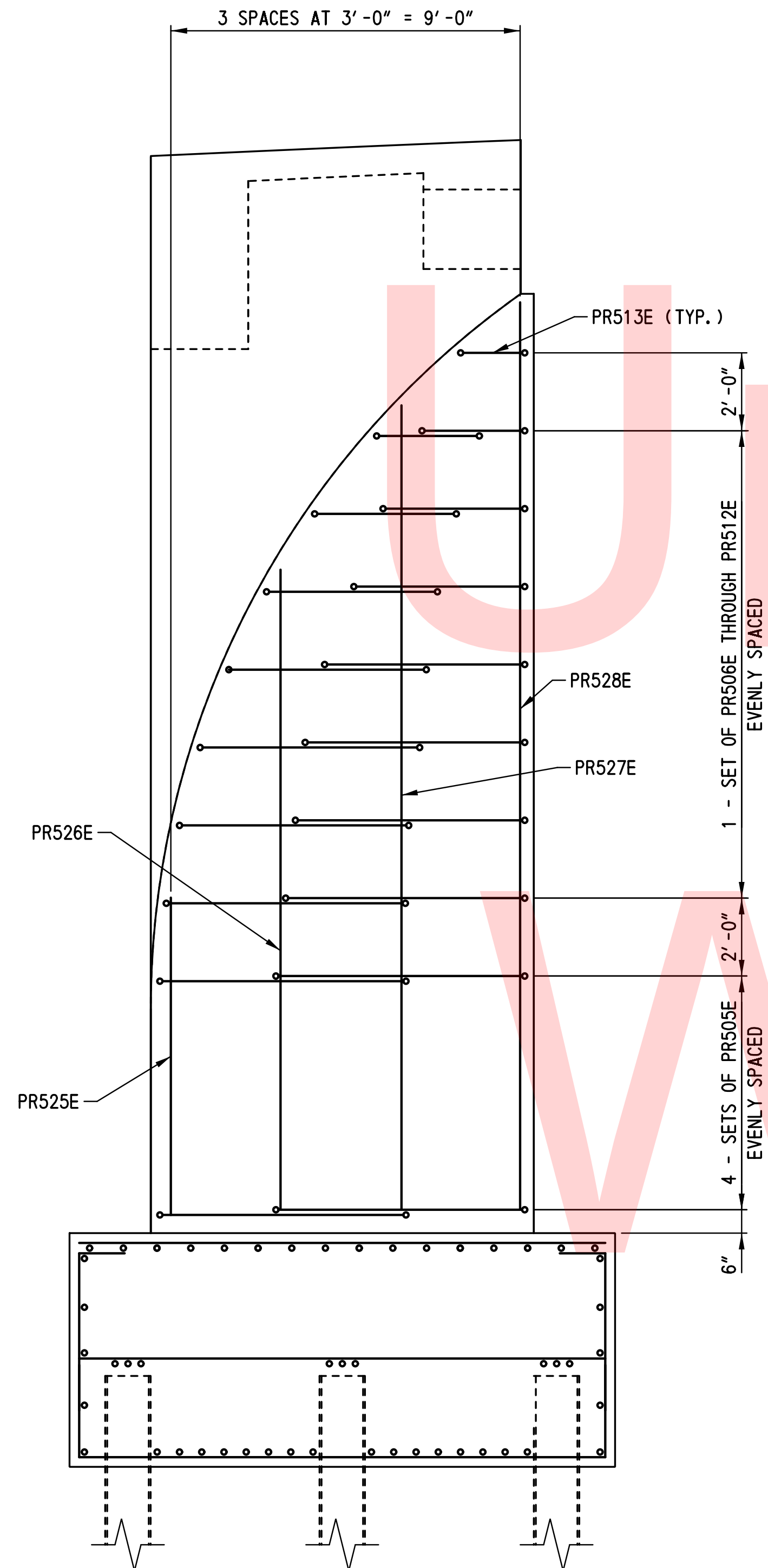


N:\31896-002\CADD\BRIDGE\PR103_1.TG.DGN

ADDENDUMS / REVISIONS

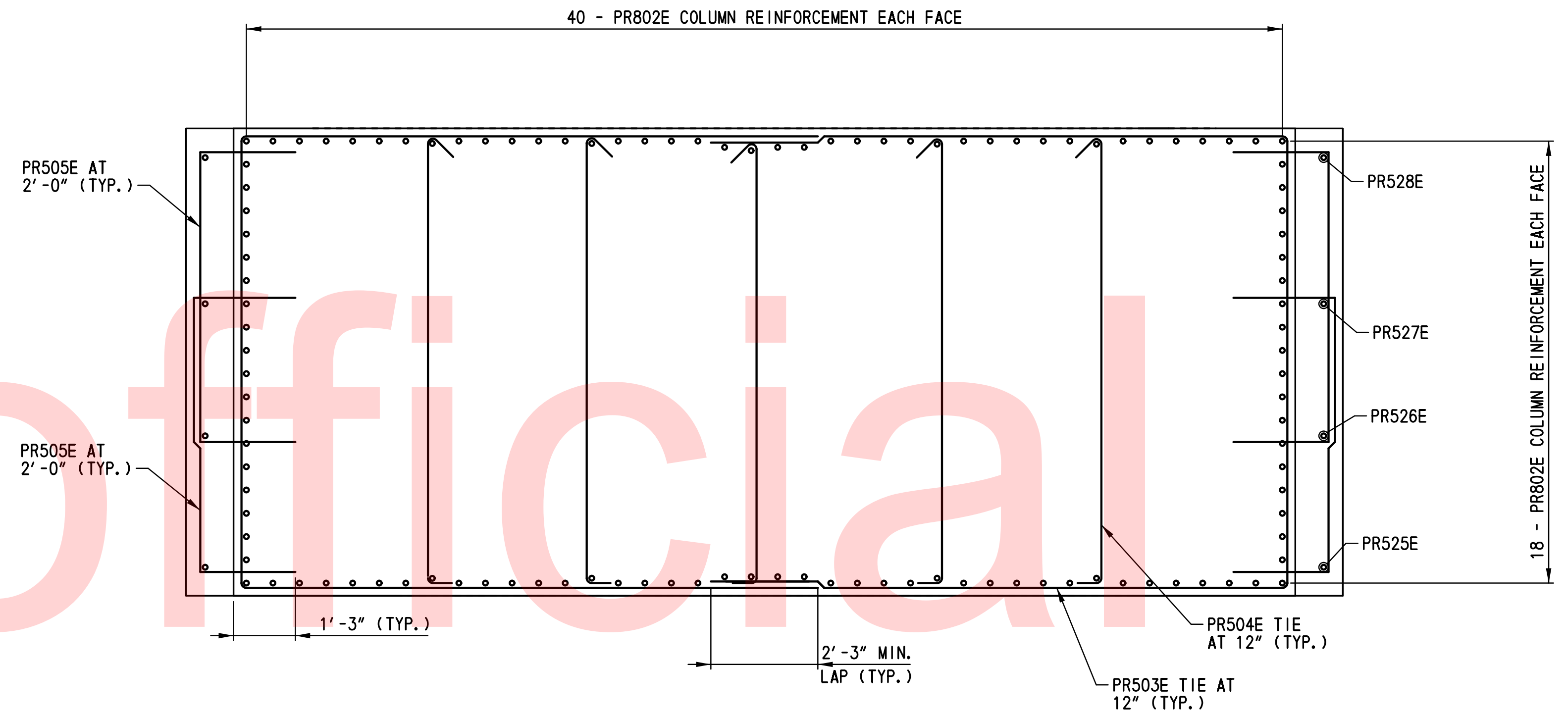


CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

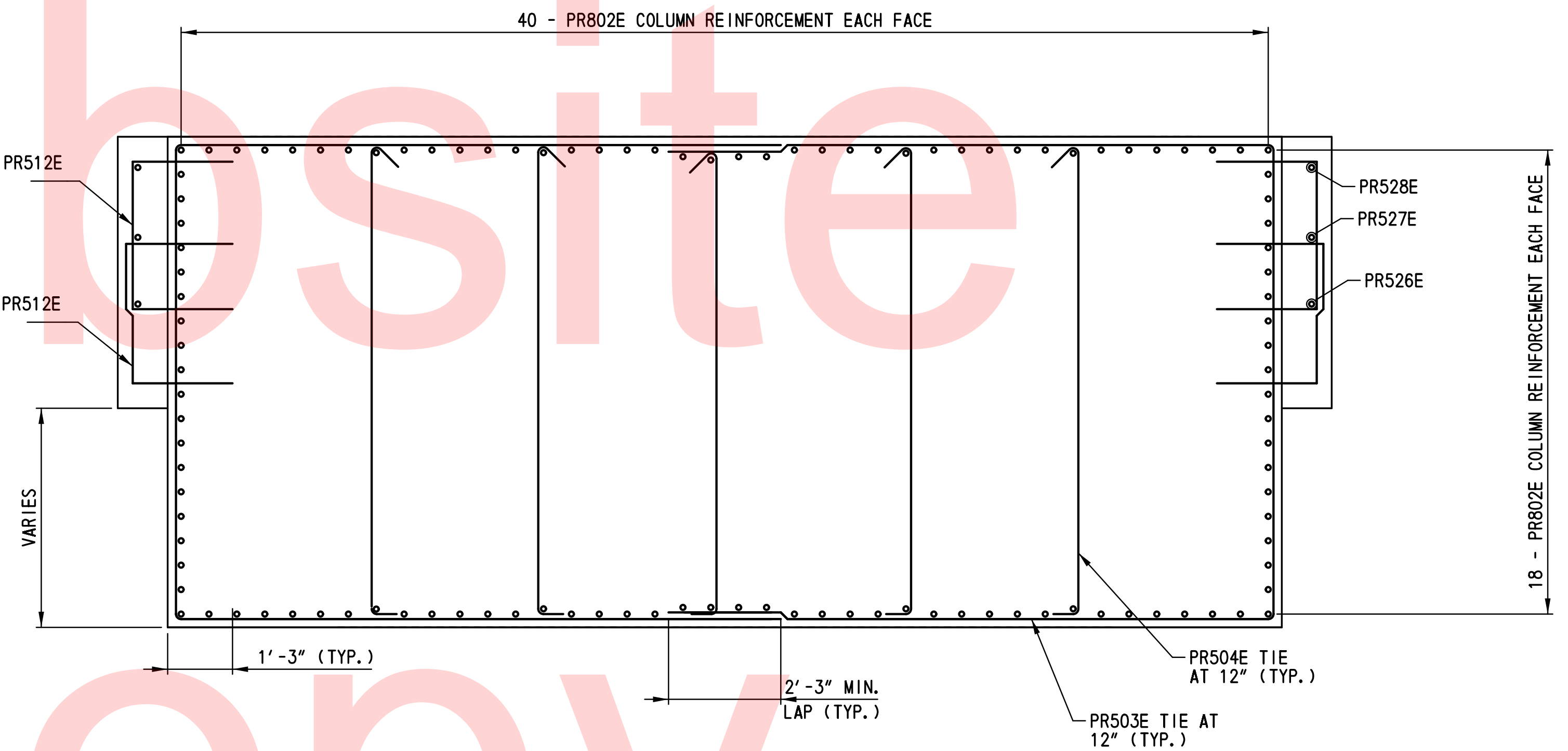


SECTION C-C
SCALE: $\frac{3}{8}'' = 1' - 0''$

NOTE:
REFER TO DWG. NO. PR-103, SECTION A-A FOR FOOTING AND MAIN PIER WALL REINFORCING DETAILS.



SECTION B-B
SCALE: $\frac{1}{2}'' = 1' - 0''$

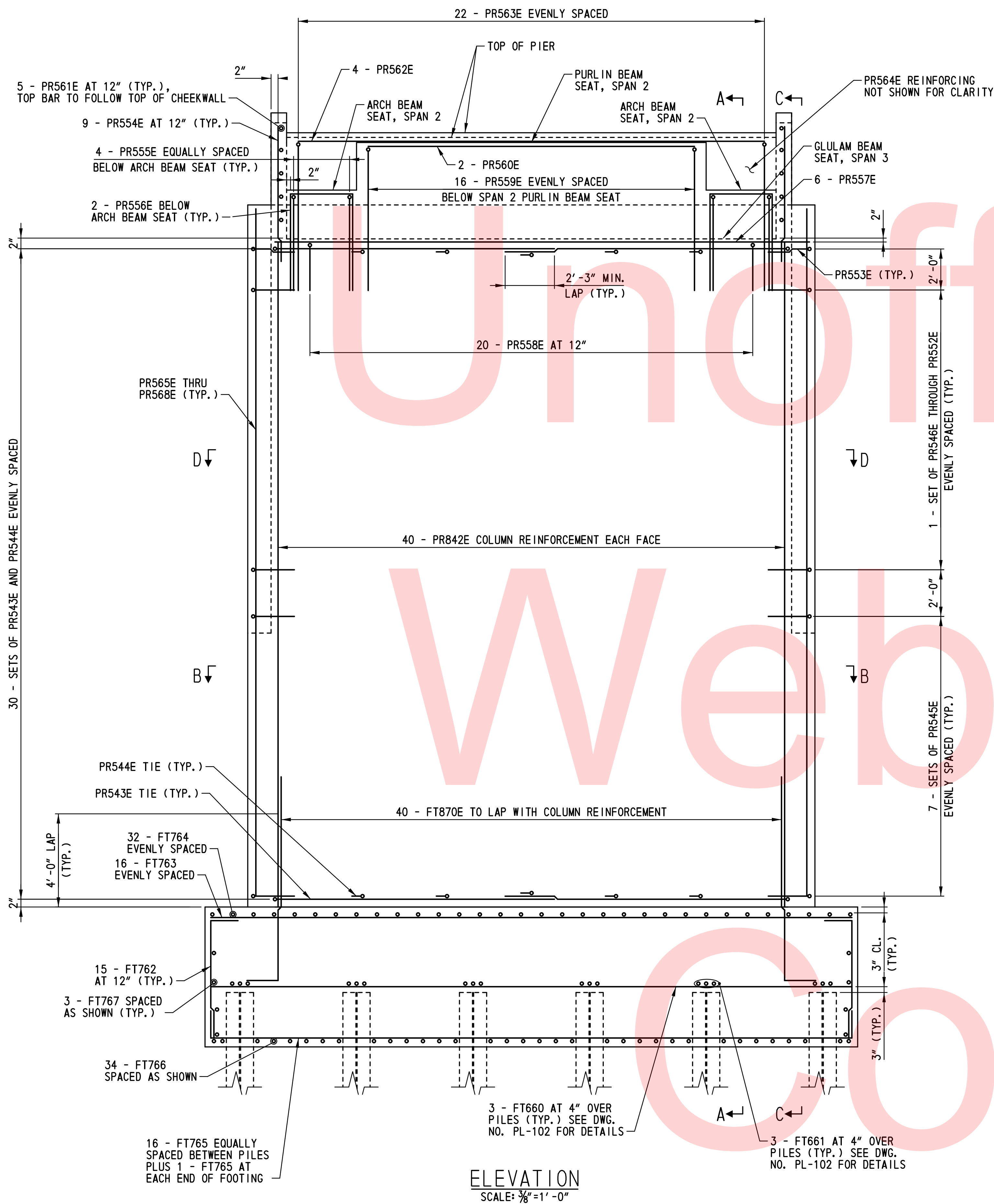


SECTION D-D
SCALE: $\frac{1}{2}'' = 1' - 0''$

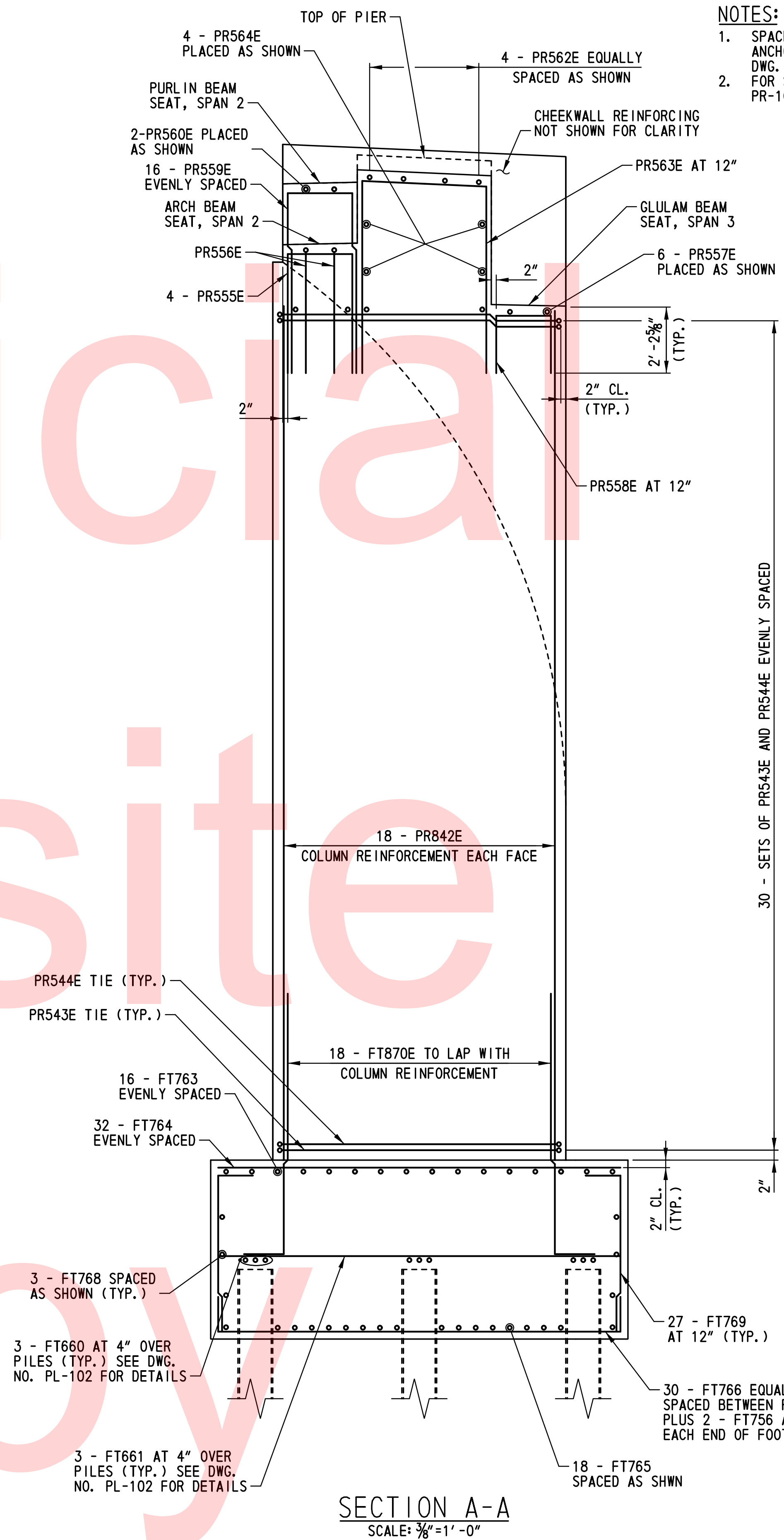
- NOTES:
- FOR LOCATION OF SECTIONS B-B, SECTION C-C, AND SECTION D-D, REFER TO DWG. NO. PR-103.
 - ALTERNATE 90 DEGREE AND 135 DEGREE HOOK OF PR504 IN EACH LAYER OF COLUMN.

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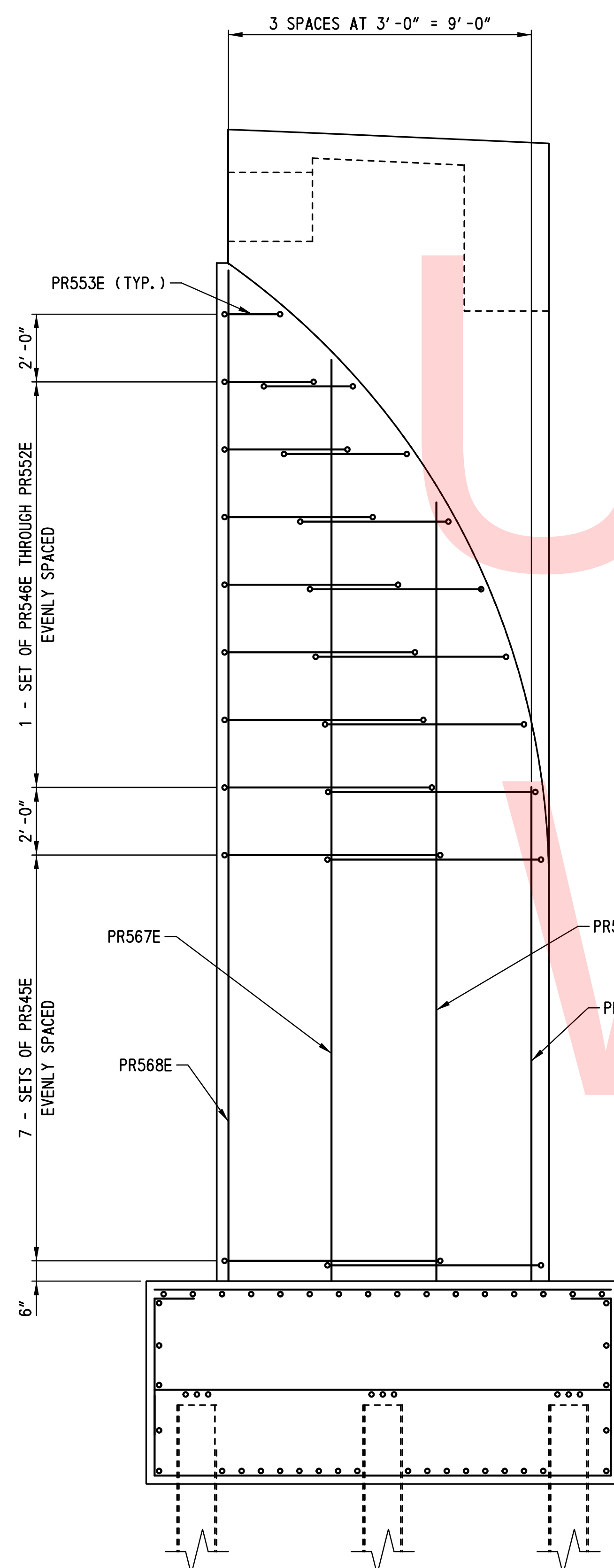


ELEVATION
SCALE: 3/8" = 1'-0"



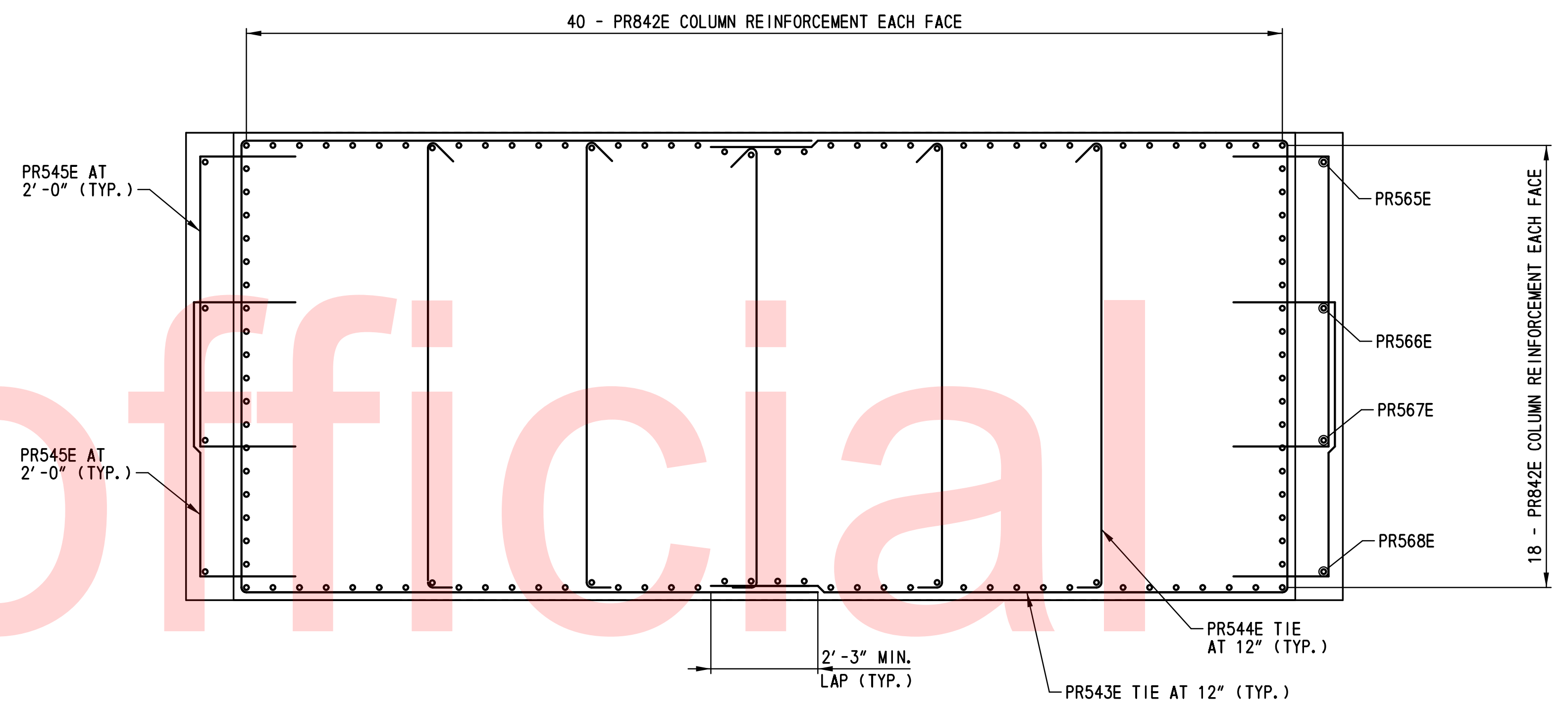
SECTION A-A
SCALE: 3/8" = 1'-0"

- NOTES:**
1. SPACE REINFORCING STEEL AS NECESSARY TO CLEAR ANCHOR BOLTS. FOR ADDITIONAL INFORMATION, SEE DWG. NO. PR-102.
 2. FOR SECTION B-B AND SECTION CC, SEE DWG. NO. PR-106.

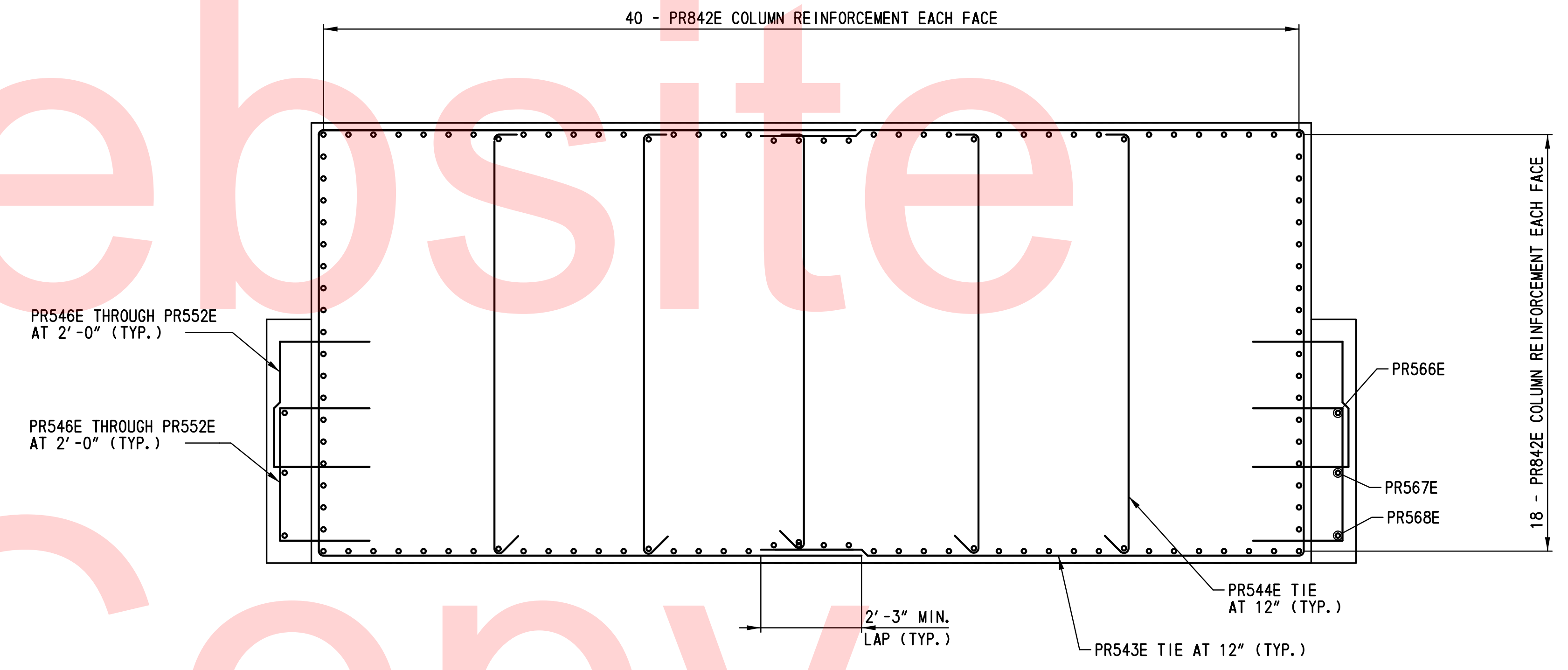


SECTION C-C
SCALE: 3/8" = 1' - 0"

NOTE:
REFER TO DWG. NO. PR-105, SECTION A-A FOR FOOTING AND MAIN PIER WALL REINFORCING DETAILS.



SECTION B-B
SCALE: 1/2" = 1' - 0"



SECTION D-D
SCALE: 1/2" = 1' - 0"

- NOTES:**
- FOR LOCATION OF SECTIONS B-B AND C-C, REFER TO DWG. NO. PR-105.
 - ALTERNATE 90 DEGREE AND 135 DEGREE HOOK OF PR544 IN EACH LAYER OF COLUMN

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ADDENDUMS / REVISIONS	

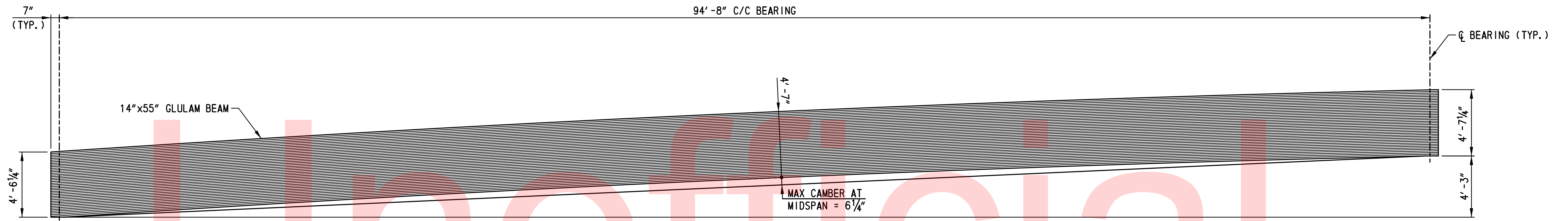
SCALE AS NOTED

NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3

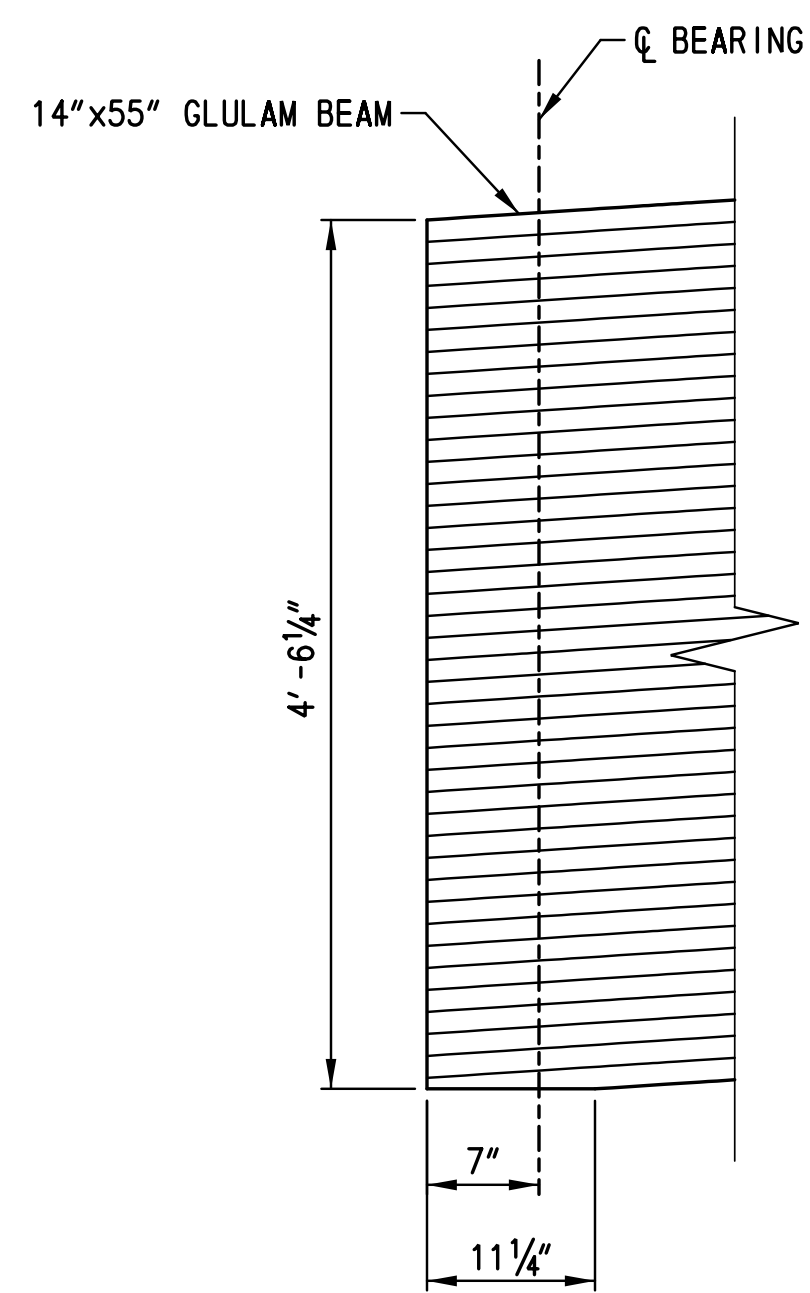
CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: NAH	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

PIER 2
REINFORCEMENT
DETAILS - 2

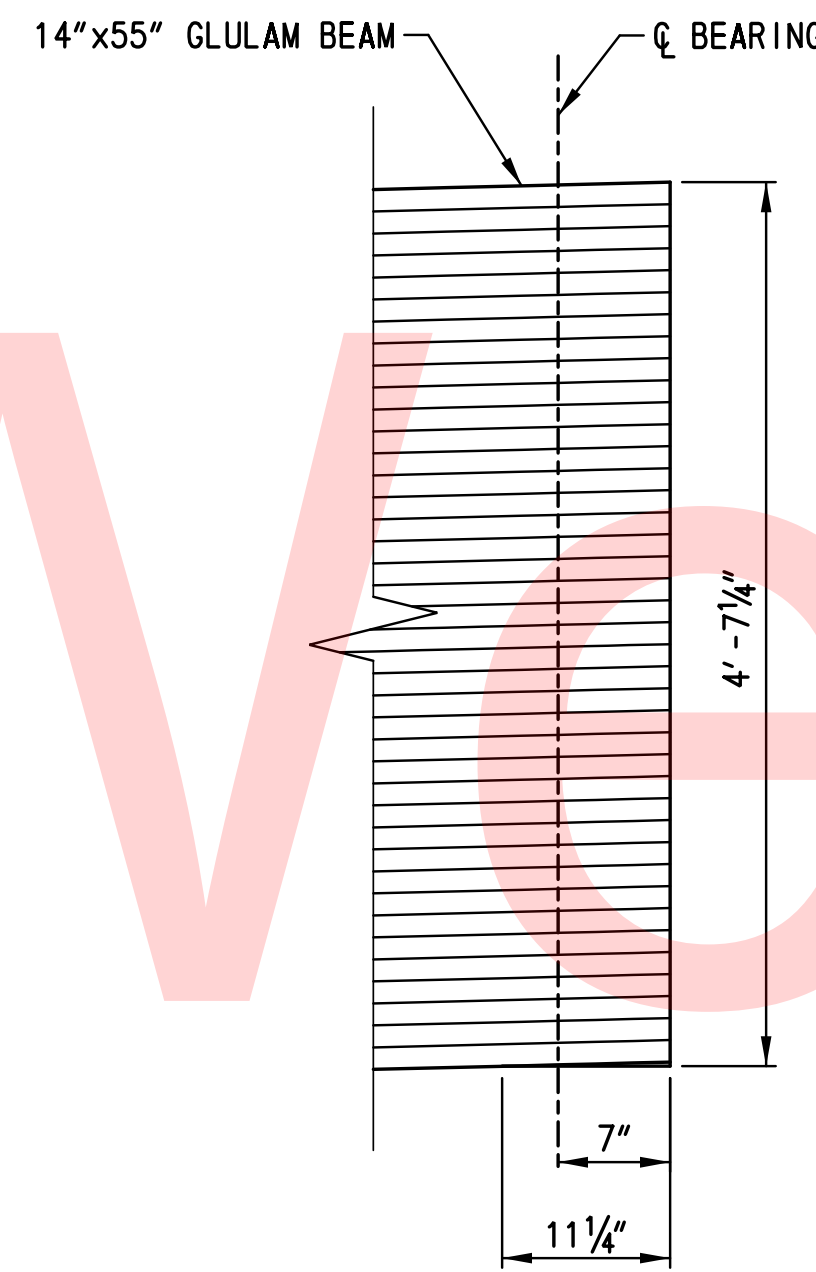
PR-106
SHEET NO.
69
TOTAL SHTS.
207



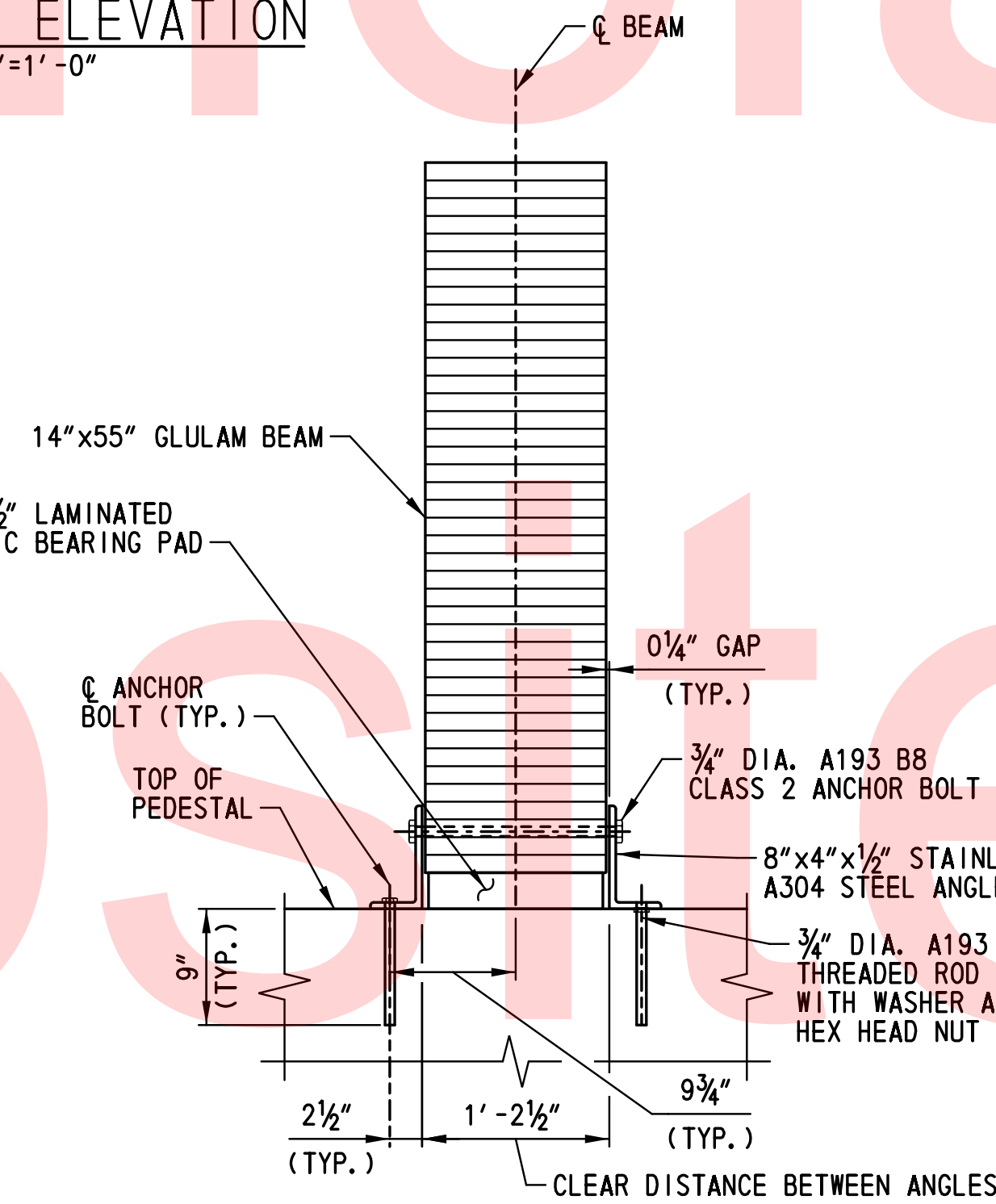
GLULAM BEAM ELEVATION
SCALE: 1/4"=1'-0"



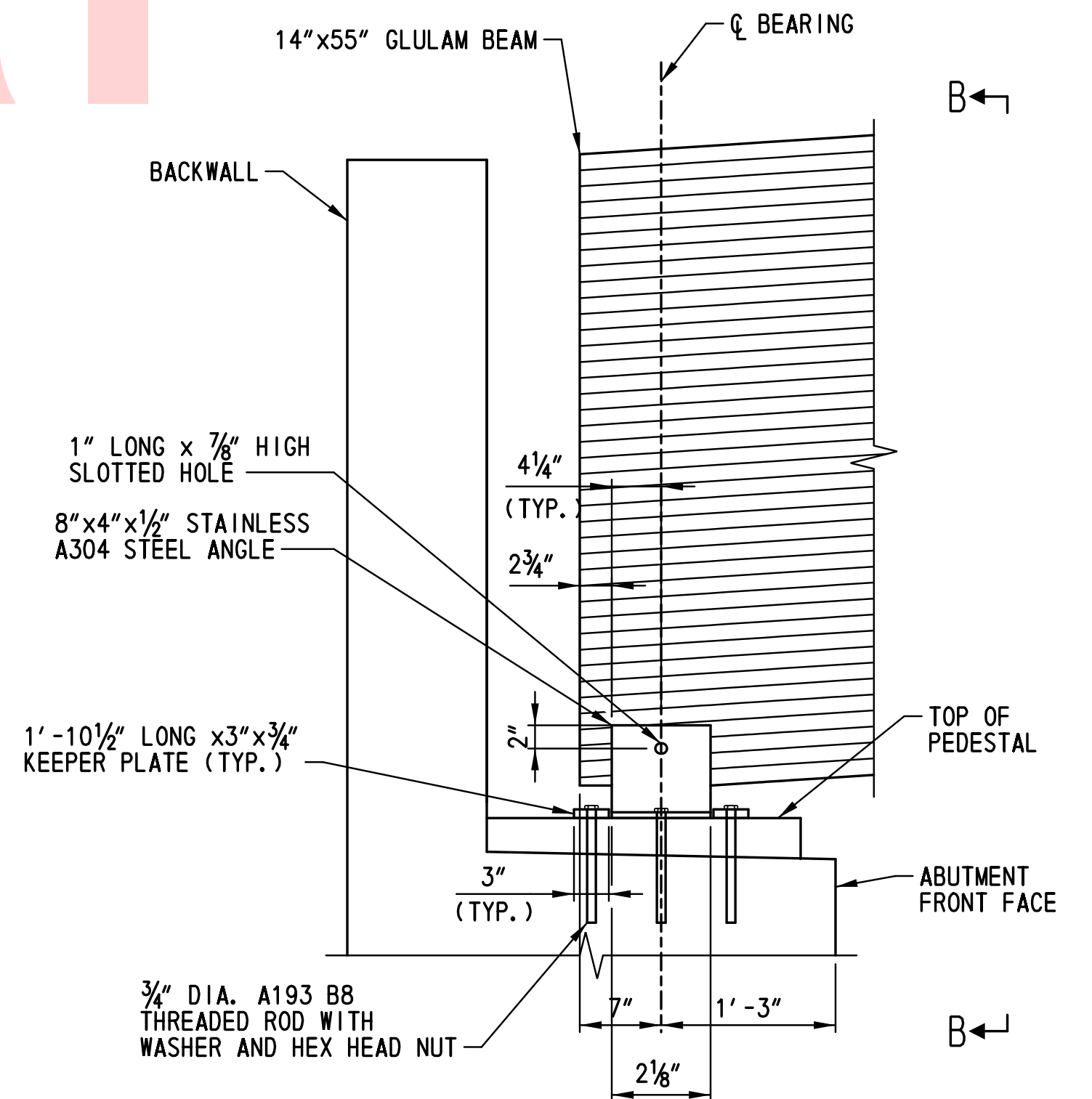
BEAM LOW END BEARING DETAIL
SCALE: 1"=1'-0"



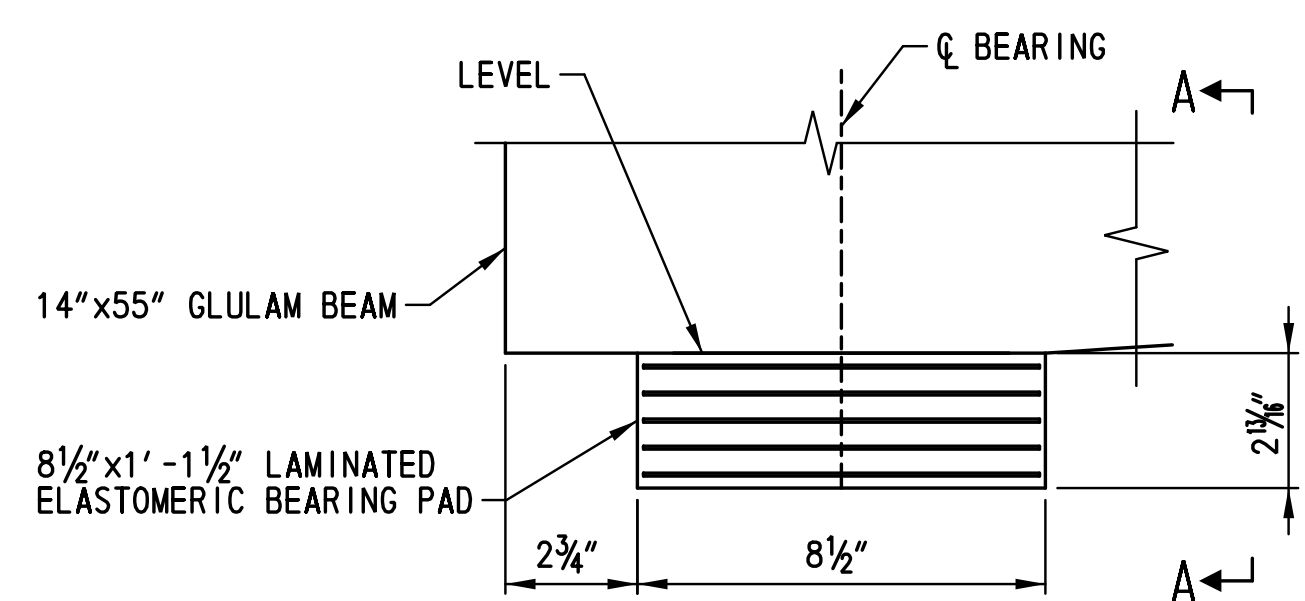
BEAM HIGH END BEARING DETAIL
SCALE: 1"=1'-0"



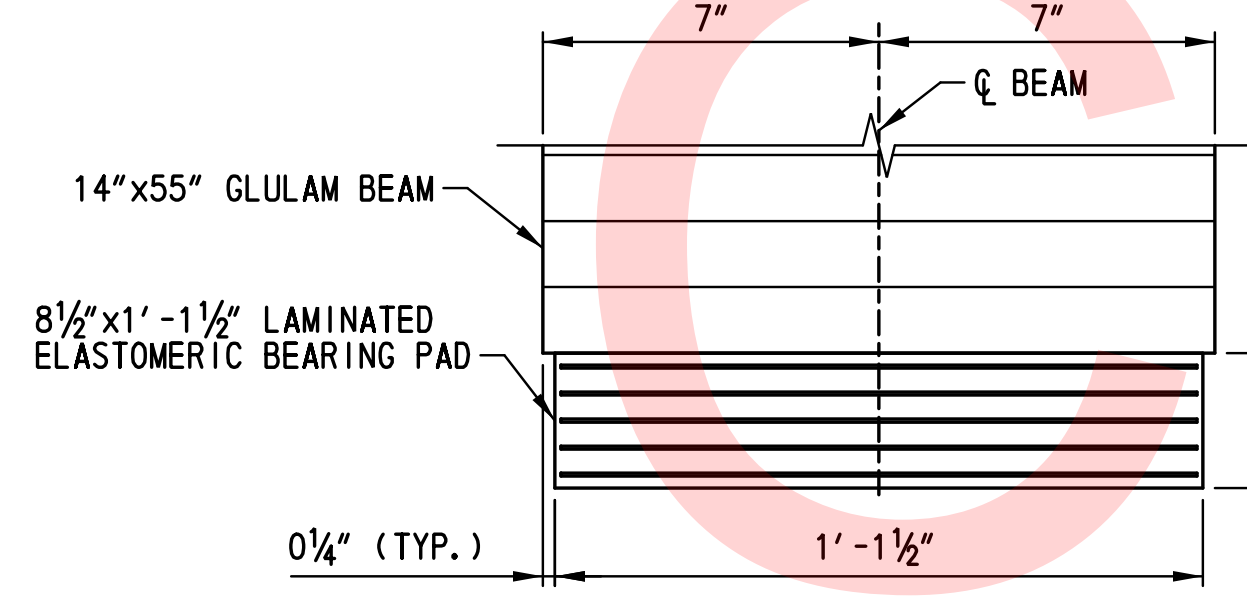
VIEW B-B
SCALE: 1"=1'-0"
NOTE: KEEPER PLATES NOT SHOWN FOR CLARITY.



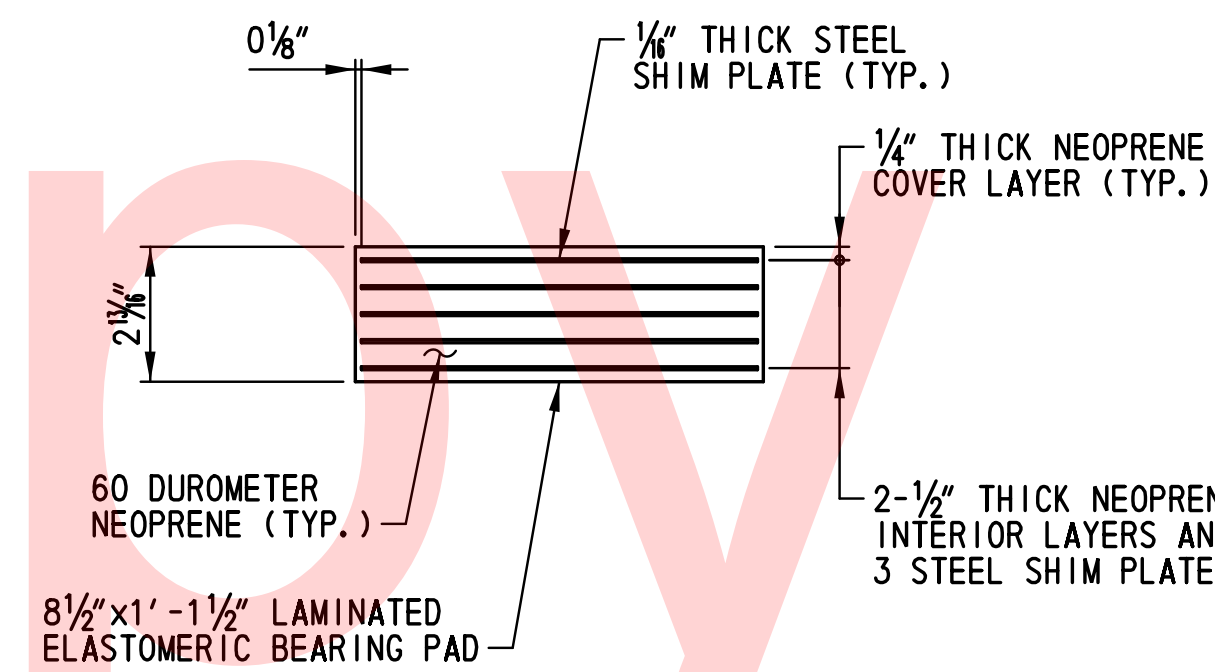
EXPANSION BEARING ANGLE
SCALE: 1"=1'-0"



BEARING ELEVATION
SCALE: 3"=1'-0"



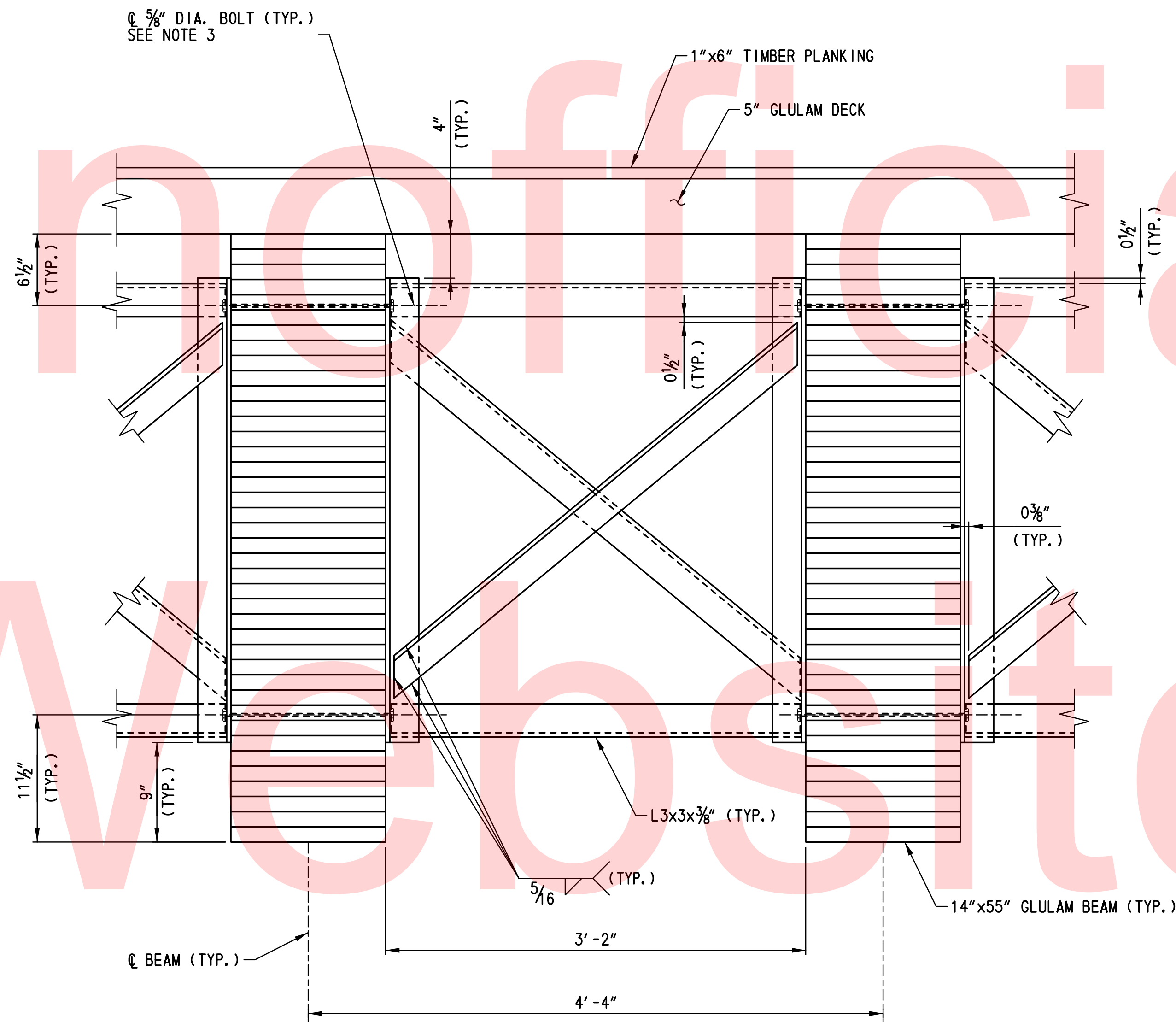
VIEW A-A
SCALE: 3"=1'-0"



BEARING PAD DETAIL
SCALE: 3"=1'-0"

- NOTES:
- PAYMENT FOR STEEL ANGLES AND KEEPER PLATES, 3/4" DIAMETER ANCHOR BOLT, 3/4" DIAMETER THREADED ROD, AND ASSOCIATED HARDWARE SHALL BE INCIDENTAL TO THE BEAM, ITEM NO. 601003.
 - STEEL ANGLE BEARING SHOES AND KEEPER PLATES TO BE GRADE A304 STAINLESS STEEL.
 - ANCHOR BOLTS, THREADED ROD, AND PLATE WASHERS SHALL BE STAINLESS STEEL CONFORMING TO ASTM A193 B8 CLASS 2. ANCHOR NUTS SHALL BE ASTM A194 GRADE 8 STAINLESS STEEL.
 - ELASTOMERIC BEARINGS PADS SHALL CONFORM TO AASHTO M 251 AND THE ELASTOMER SHALL BE 60 DUROMETER NEOPRENE. SHIMS SHALL BE 11 GAUGE STEEL.
 - FOR DESIGN STRESSES OF GLULAM BEAM SEE DWG. NO. PN-101.
 - Holes through GLULAM BEAMS for ANCHOR BOLTS, RAILING CONNECTION BOLTS, AND CROSS-FRAME CONNECTION BOLTS SHALL BE 1/4" DIA. AND BE SHOP-DRILLED PRIOR TO PRESERVATIVE TREATMENT IN ACCORDANCE WITH AASHTO M 133. SEE DWG. NO. BM-102 FOR CROSS-FRAME DETAILS. SEE DWG. NOS. RL-101 AND RL-102 FOR RAILING DETAILS.
 - DIMENSIONS STATED FOR GLULAM BEAMS ARE NET DIMENSIONS.

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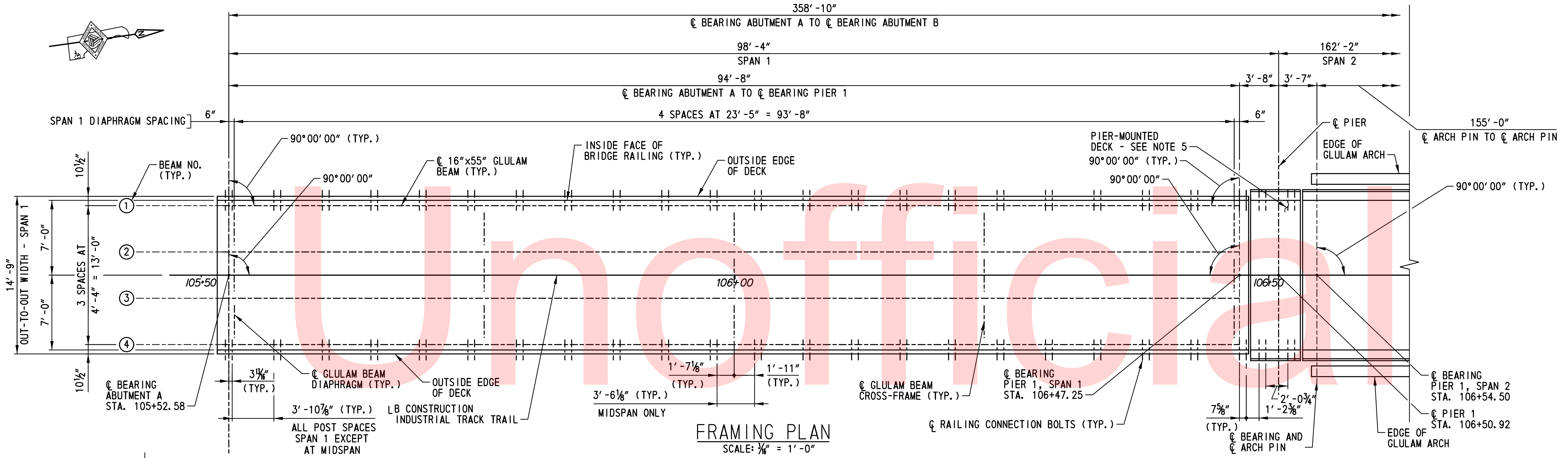
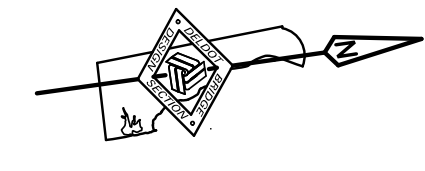
NOTES:

1. FOR CROSS FRAME LOCATIONS, SEE DWG. NO. FR-101.
2. ALL STEEL ANGLES SHALL BE ASTM A36 STEEL, HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
3. ALL BOLTS SHALL BE ASTM A449 TYPE 1, HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.
4. HOLES THROUGH GLULAM BEAMS FOR CROSS-FRAME CONNECTION BOLTS SHALL BE $\frac{1}{4}$ " DIA. AND BE SHOP-DRILLED PRIOR TO PRESERVATIVE TREATMENT. SEE DWG. NO. BM-101 FOR GLULAM BEAM DETAILS.
5. THE CROSS-FRAMES SHALL BE PLACED PLUMB.

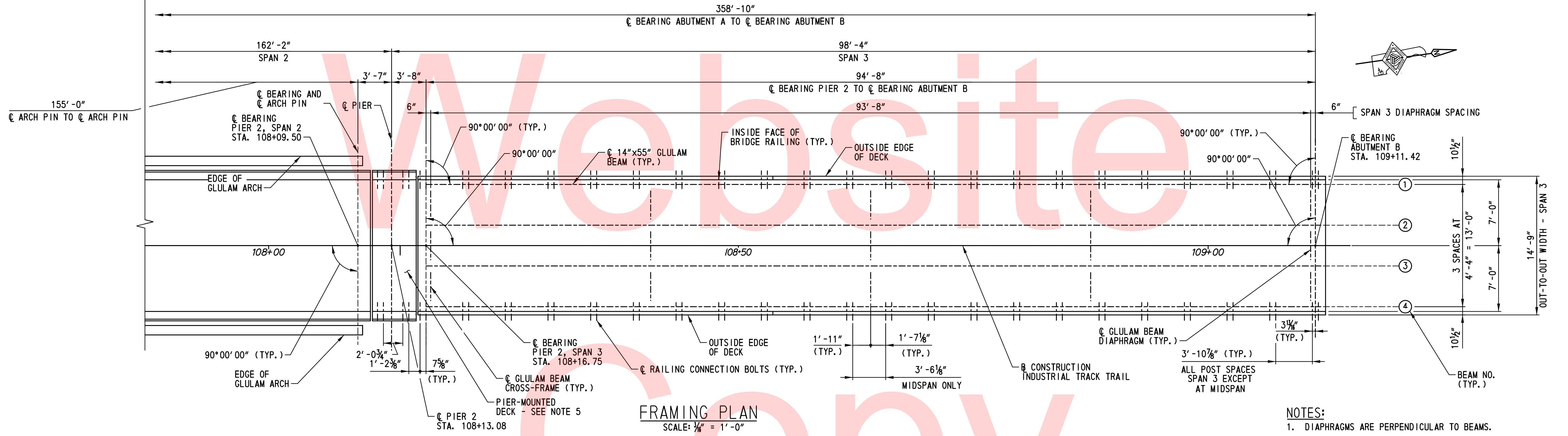
INTERMEDIATE AND END CROSS FRAME DETAIL - SPANS 1 AND 3

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

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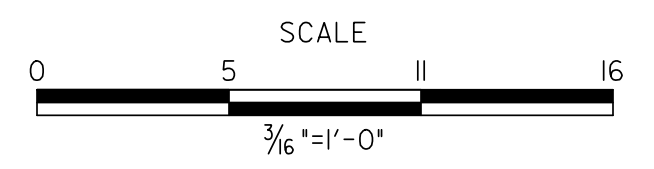
FRAMING PLAN
SCALE: 3/8" = 1'-0"



FRAMING PLAN
SCALE: 3/8" = 1'-0"

- NOTES:**
1. DIAPHRAGMS ARE PERPENDICULAR TO BEAMS.
 2. RAILING POST AND CONNECTION PLATES ARE NOT SHOWN. FOR RAILING DETAILS, SEE DWG. NO. RL-101.
 3. FOR CROSS-FRAME DETAILS, SEE DWG. NO. BM-102.
 4. FOR BEAM ELEVATIONS, SEE DWG. NO. BM-101.
 5. FOR PIER-MOUNTED DECK DETAILS, SEE DWG. NO. DK-101.

ADDENDUMS / REVISIONS	



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

FR-101
SHEET NO. 74
TOTAL SHTS. 207

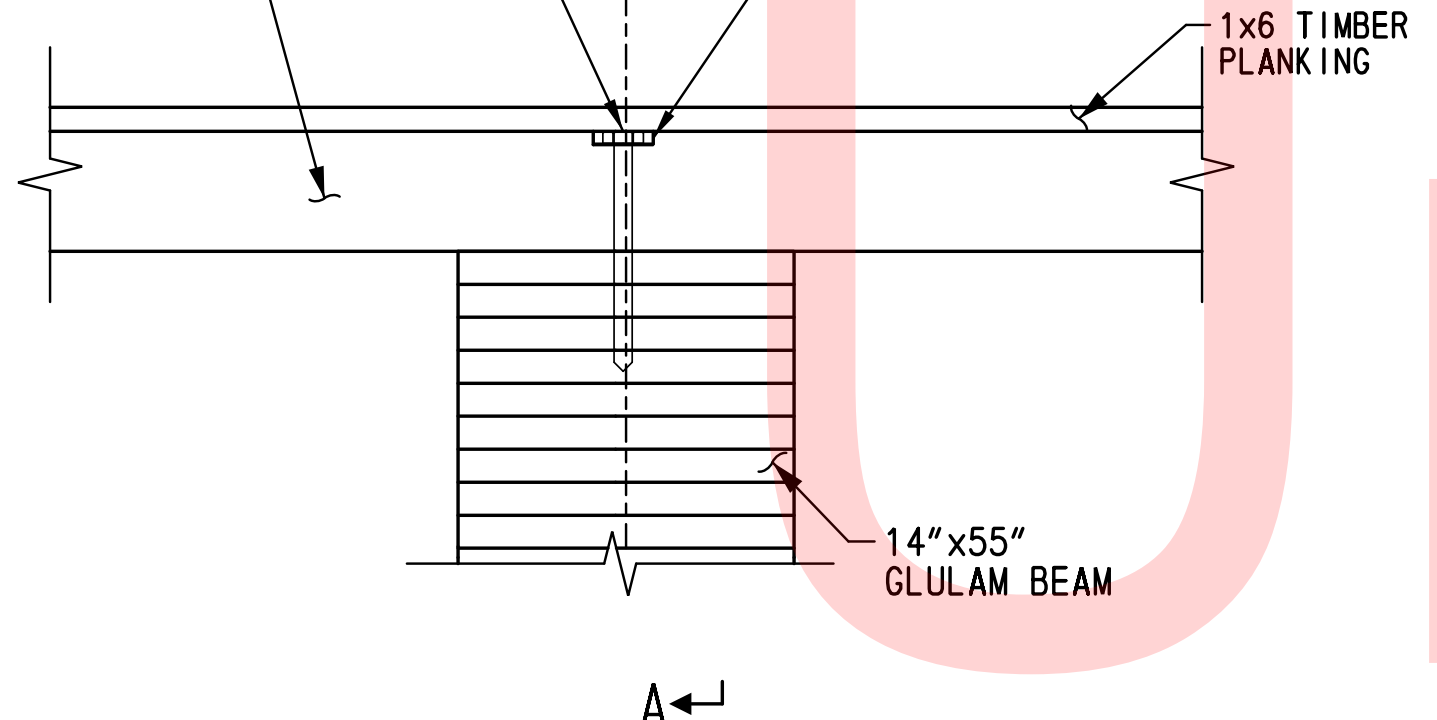
3/4" DIA. x 10" LAG SCREW WITH WASHER, TWO (2) PER PANEL-BEAM INTERSECTION, SEE NOTES 1 AND 2

5" THICK GLULAM DECK PANEL

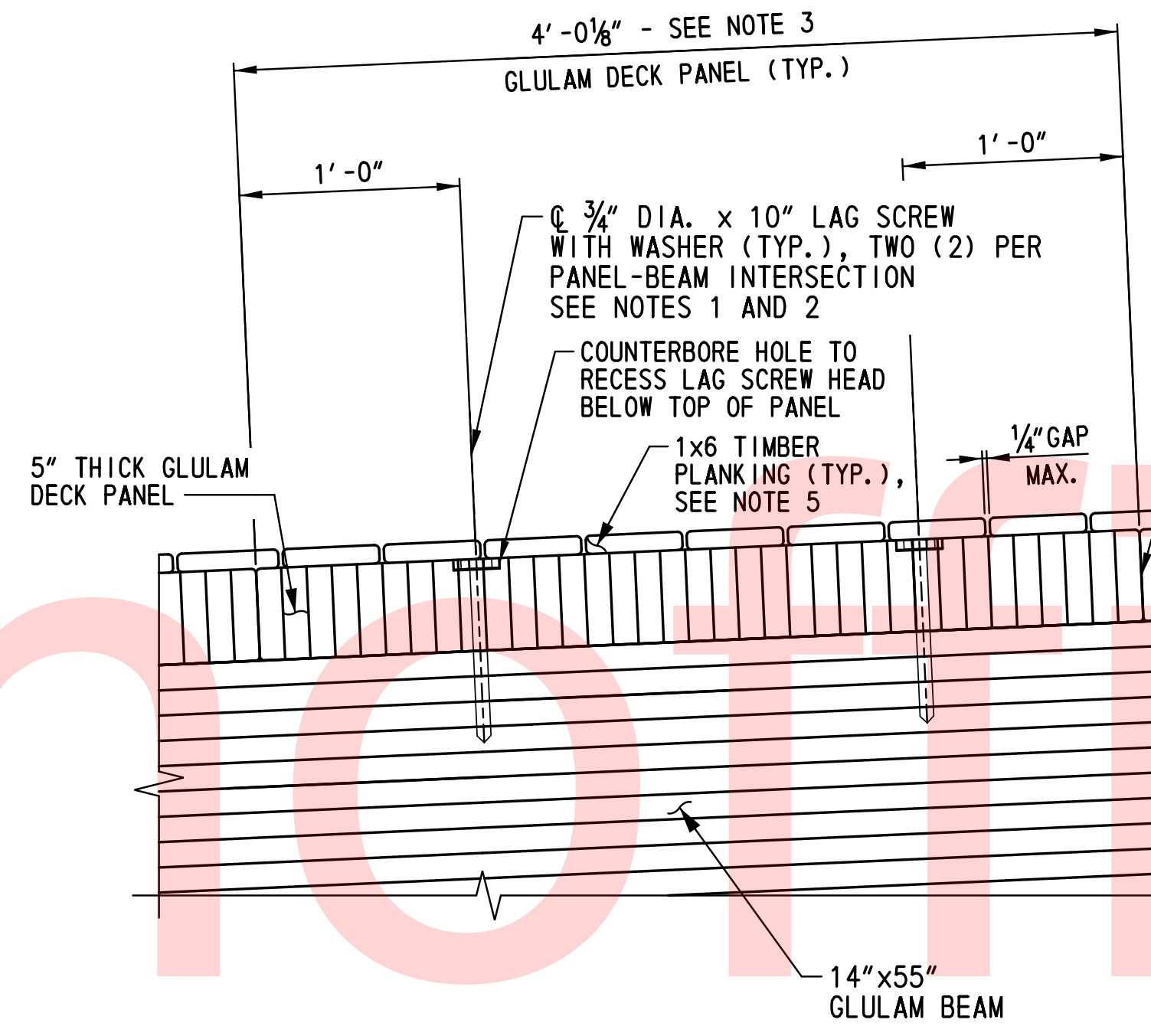
14"x55" GLULAM BEAM AND 1/2" LAG SCREWS (TYP.)

COUNTERBORE HOLE TO RECESS LAG SCREW HEAD BELOW TOP OF DECK

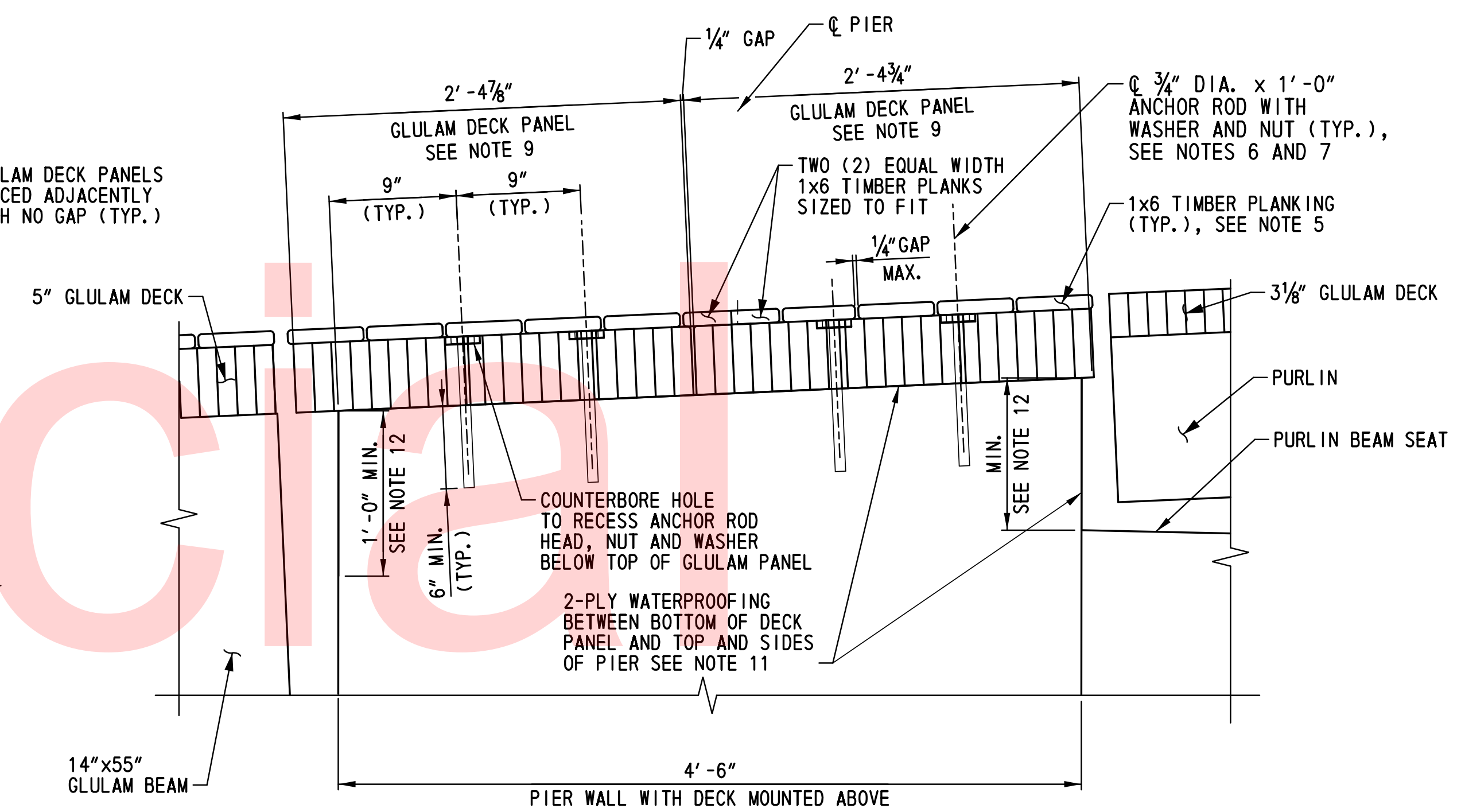
1x6 TIMBER PLANKING



GLULAM DECK CONNECTION DETAIL
SCALE: 1 1/2" = 1' - 0"

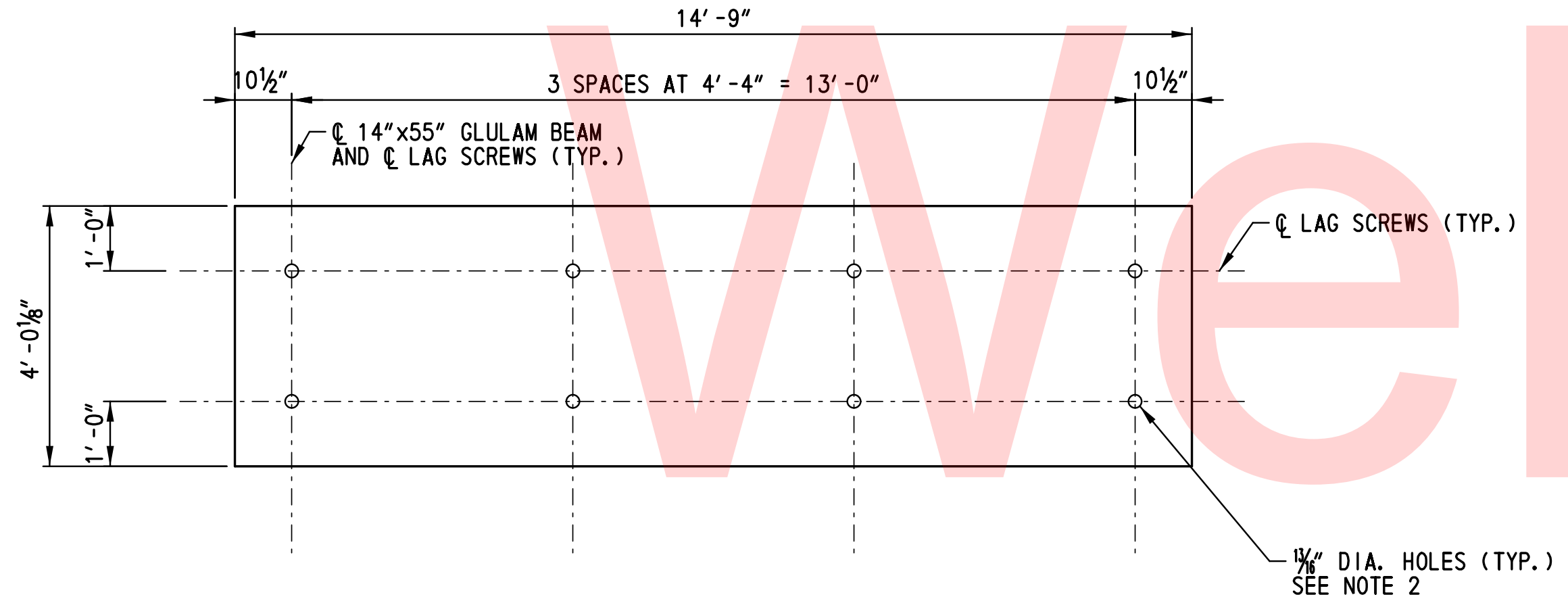


SECTION A-A
SCALE: 1 1/2" = 1' - 0"

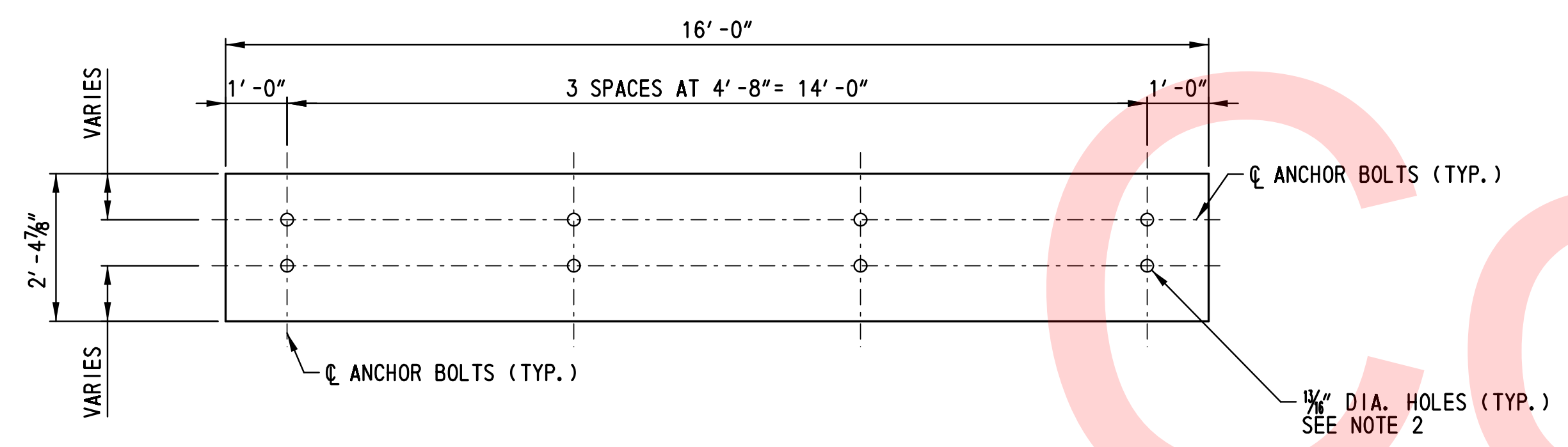


PIER-MOUNTED DECK DETAIL
SCALE: 1 1/2" = 1' - 0"

NOTE:
PIER 1 EAST ELEVATION SHOWN. PIER 2 EAST ELEVATION IS SIMILAR, OPPOSITE HAND. EXPANSION JOINTS NOT SHOWN FOR CLARITY, SEE NOTE 8.



TYPICAL GLULAM DECK PANEL PLAN
SCALE: 1/2" = 1' - 0"

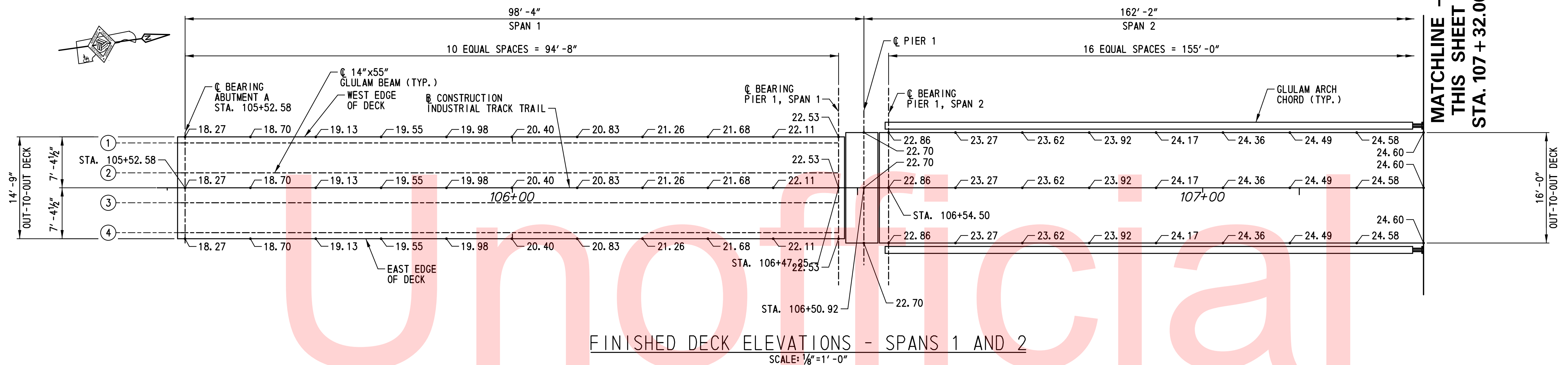


TYPICAL PIER-MOUNTED GLULAM DECK PANEL PLAN
SCALE: 1/2" = 1' - 0"

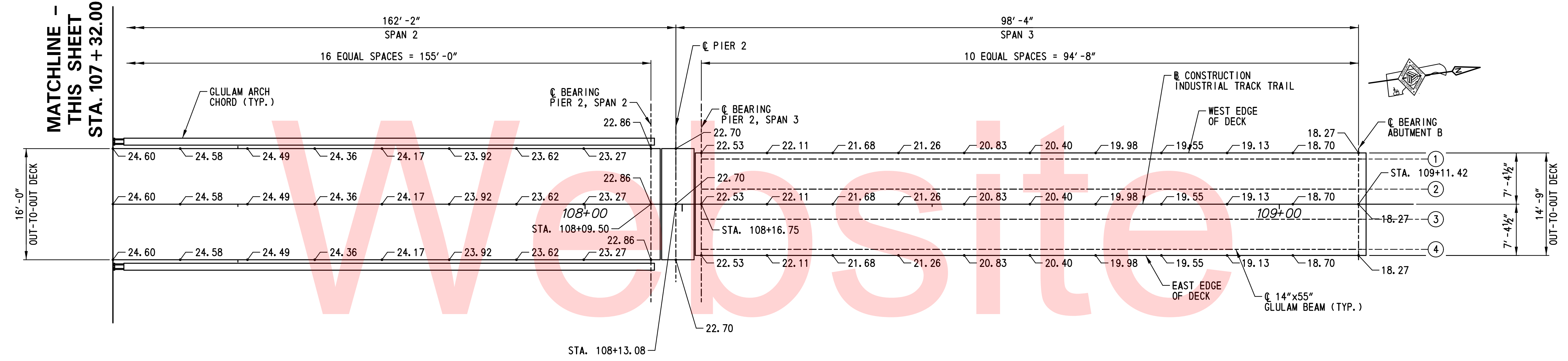
NOTES:

- LAG SCREWS AND WASHERS SHALL BE STAINLESS STEEL CONFORMING TO ASTM A193 B8, CLASS 2 AND SHALL BE IN COMPLIANCE WITH ANSI/ASME B.18.2.1 FOR DIMENSIONAL REQUIREMENTS.
- ALL DIMENSIONED HOLES IN GLULAM DECK PANELS SHALL BE MADE PRIOR TO PRESSURE TREATMENT IN ACCORDANCE WITH AASHTO M 133. ANY FIELD-DRILLED HOLES IN GLULAM DECK PANELS SHALL BE TREATED WITH A FIELD APPLIED COPPER NAPHTHENATE PRESERVATIVE TREATMENT IN ACCORDANCE WITH AASHTO M 133.
- SUGGESTED GLULAM DECK PANEL WIDTH IS 4' - 0 1/8". DECK PANELS SHALL NOT BE LESS THAN 24" WIDE.
- GLULAM DECK PANEL LENGTH SHALL BE CONTINUOUS ACROSS THE FULL DECK WIDTH.
- 1x6 TIMBER PLANKS SHALL BE CONTINUOUS ACROSS FULL DECK WIDTH. 1x6 TIMBER PLANKS SHALL BE FASTENED TO GLULAM DECK WITH TWO (2) #10 x 2 1/2" SCREWS AT EACH END OF BOARD, AND TWO ROWS OF SCREWS AT 3' - 0" CENTER-TO-CENTER (STAGGERED 1' - 6").
- ANCHOR RODS AND PLATE WASHERS SHALL BE STAINLESS STEEL CONFORMING TO ASTM A193 B8 CLASS 2 WITH STAINLESS STEEL NUTS CONFORMING TO ASTM A194 GRADE 8. GROUT OR CHEMICAL ADHESIVE OF ANCHOR RODS SHALL BE PROPOSED BY CONTRACTOR AND SUBMITTED FOR APPROVAL BY THE ENGINEER. INSTALLATION OF ADHESIVE ANCHOR RODS SHALL BE PER THE MANUFACTURER'S SPECIFICATION AND TO THE SATISFACTION OF THE ENGINEER.
- CONTRACTOR SHALL UTILIZE TEMPLATES TO LOCATE THE ANCHOR RODS SUCH THAT THEY ACCURATELY COINCIDE WITH DRILLED HOLES IN THE GLULAM PANELS.
- FOR EXPANSION JOINT DETAILS, SEE DWG. EX-101.
- AT THE CONTRACTOR'S OPTION, EACH PAIR OF PROPOSED PIER-MOUNTED DECK PANELS MAY BE REPLACED WITH A SINGLE, 4' - 9 7/8" WIDE DECK PANEL AT NO ADDITIONAL COST TO THE DEPARTMENT.
- THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL SHOP DRAWINGS FOR THE GLULAM DECK PANELS.
- 2-PLY WATERPROOFING MEMBRANE SHALL EXTEND THE FULL WIDTH OF THE PIER CAP IN CONTACT WITH THE UNDERSIDE OF THE GLULAM PANEL AND SHALL CONFORM TO THE TABULATED REQUIREMENTS SHOWN ON DWG. AB101. THE ADHESIVE SIDE OF THE MEMBRANE SHALL BE PROTECTED WITH A SPECIAL RELEASE PAPER THAT CAN BE EASILY REMOVED FOR INSTALLATION. COST OF 2-PLY MEMBRANE WATERPROOFING WILL BE INCIDENTAL TO ITEM 602015 - PORTLAND CEMENT CONCRETE MASONRY, PIER ABOVE FOOTING, CLASS A.
- 2-PLY WATERPROOFING MEMBRANE SHALL EXTEND TO THE MINIMUM DIMENSIONS SHOWN AND CONSIST OF ONE CONTINUOUS WRAPPING OF THE PIER CAP TOP AND SIDE FACES.

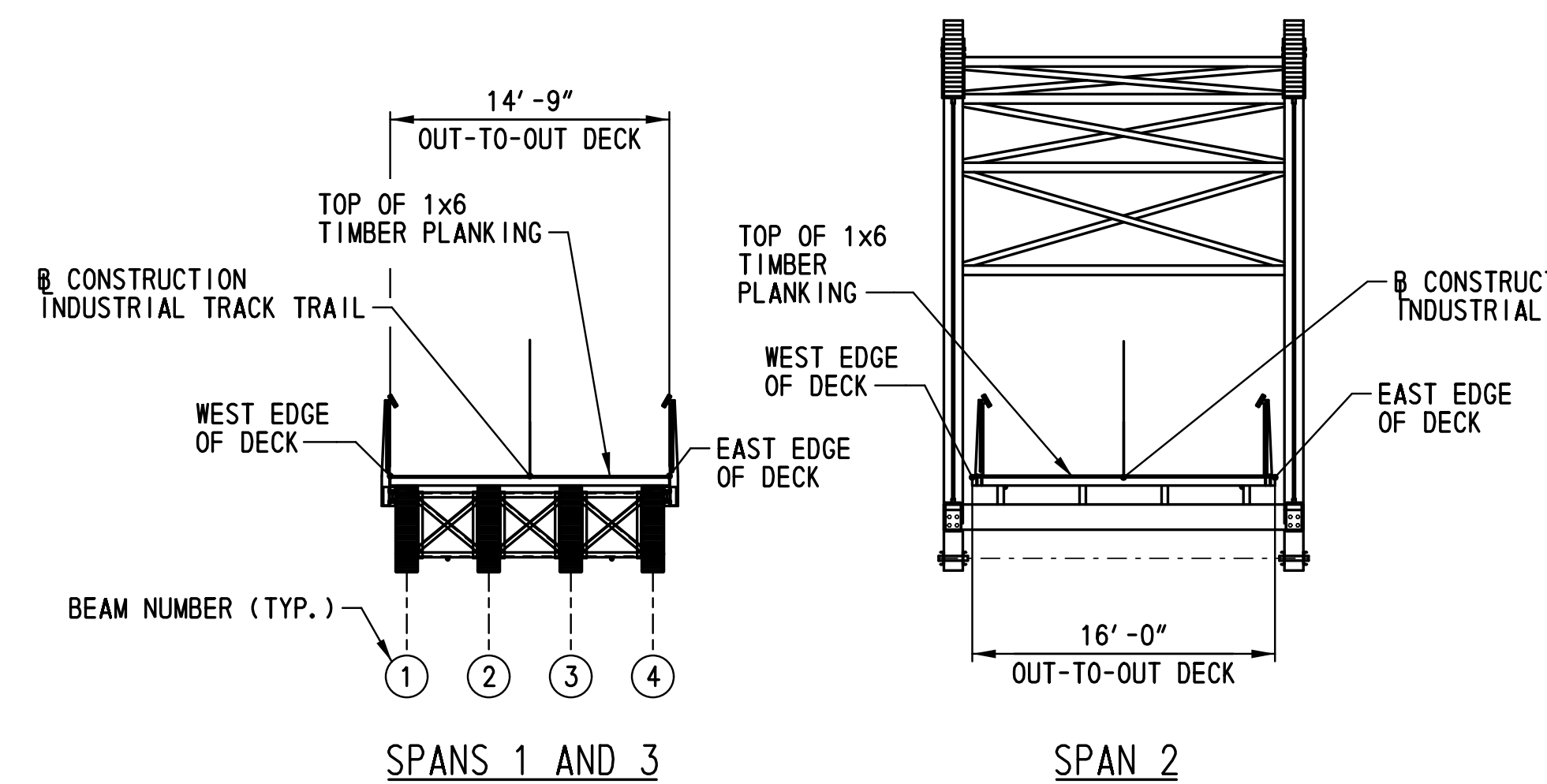
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FINISHED DECK ELEVATIONS - SPANS 1 AND 2
SCALE: 1/8"=1'-0"



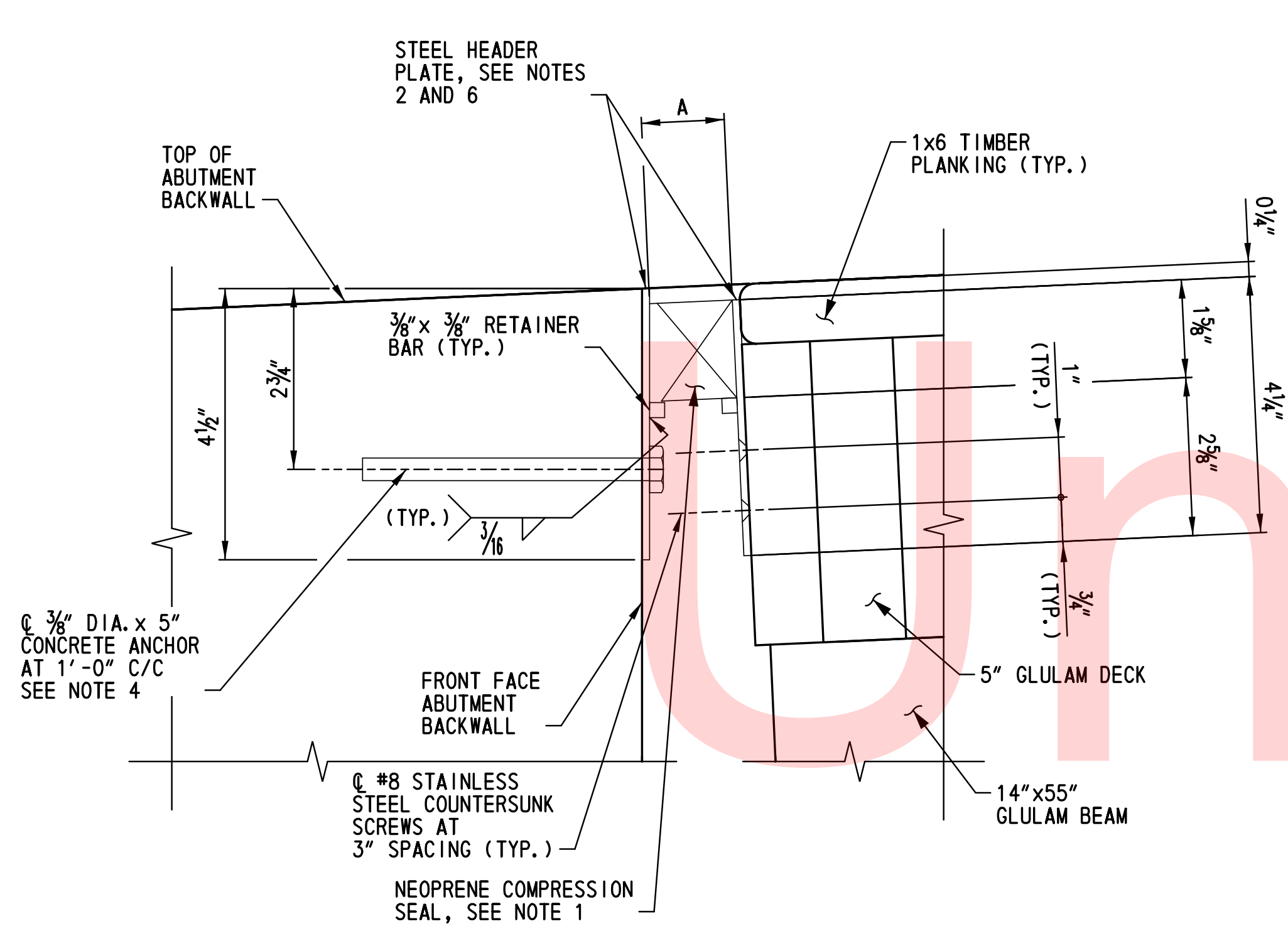
FINISHED DECK ELEVATIONS - SPANS 2 AND 3
SCALE: 1/8"=1'-0"



LOCATION OF FINISHED DECK ELEVATIONS
SCALE: 1/8"=1'-0"

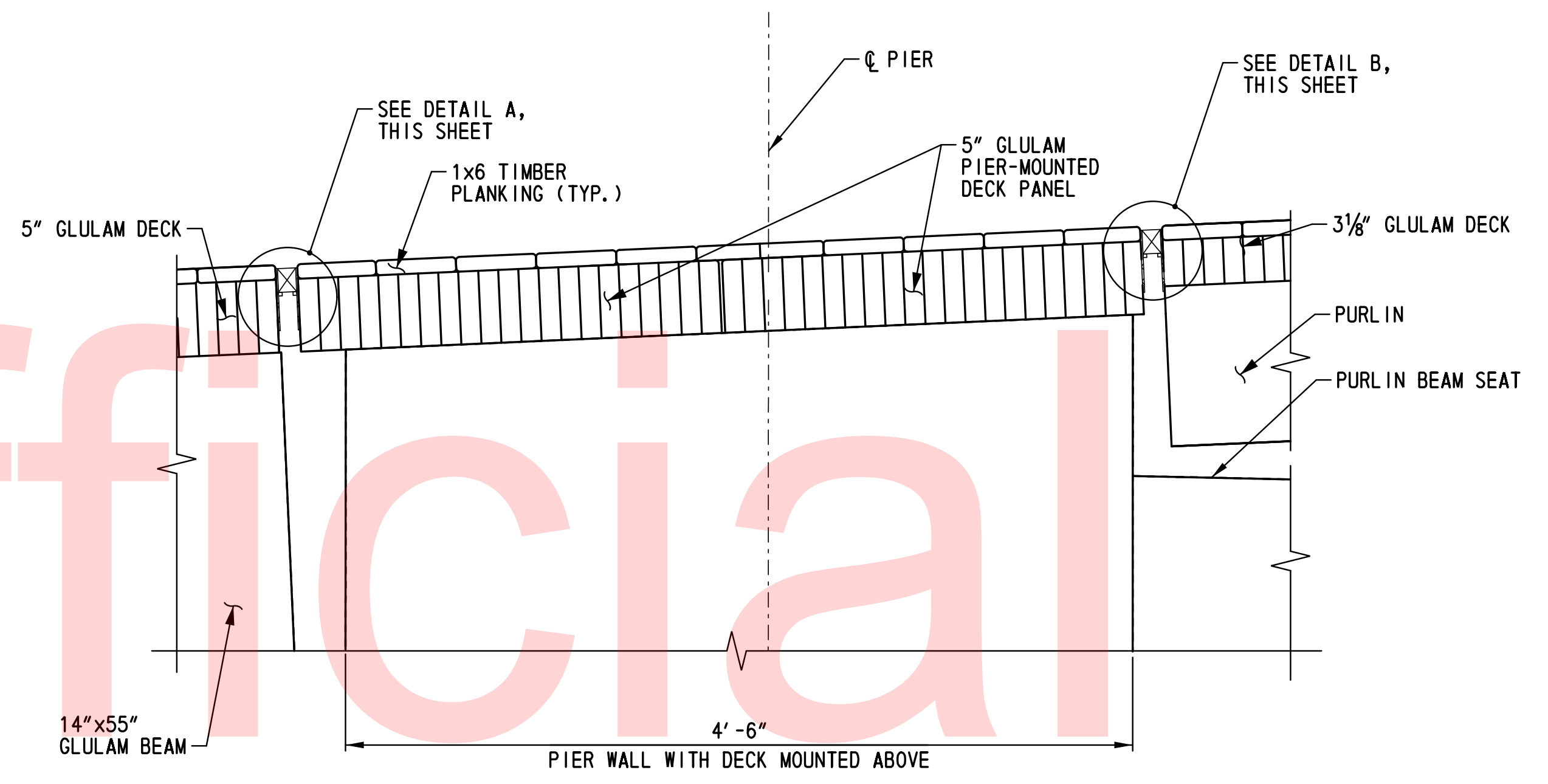
- NOTES:
1. FINISHED BRIDGE DECK ELEVATIONS SHOWN ARE TOP OF PROPOSED 1x6 TIMBER PLANKING.
 2. FOR VERTICAL CURVE DATA, SEE DWG. NO. PE-101.
 3. ALL LINES OF ELEVATIONS SHOWN ARE PERPENDICULAR TO @ CONSTRUCTION.
 4. BRIDGE RAILING, AND GLULAM ARCH CROSS-BRACING IN SPAN 2, ARE NOT SHOWN IN DECK PLANS.

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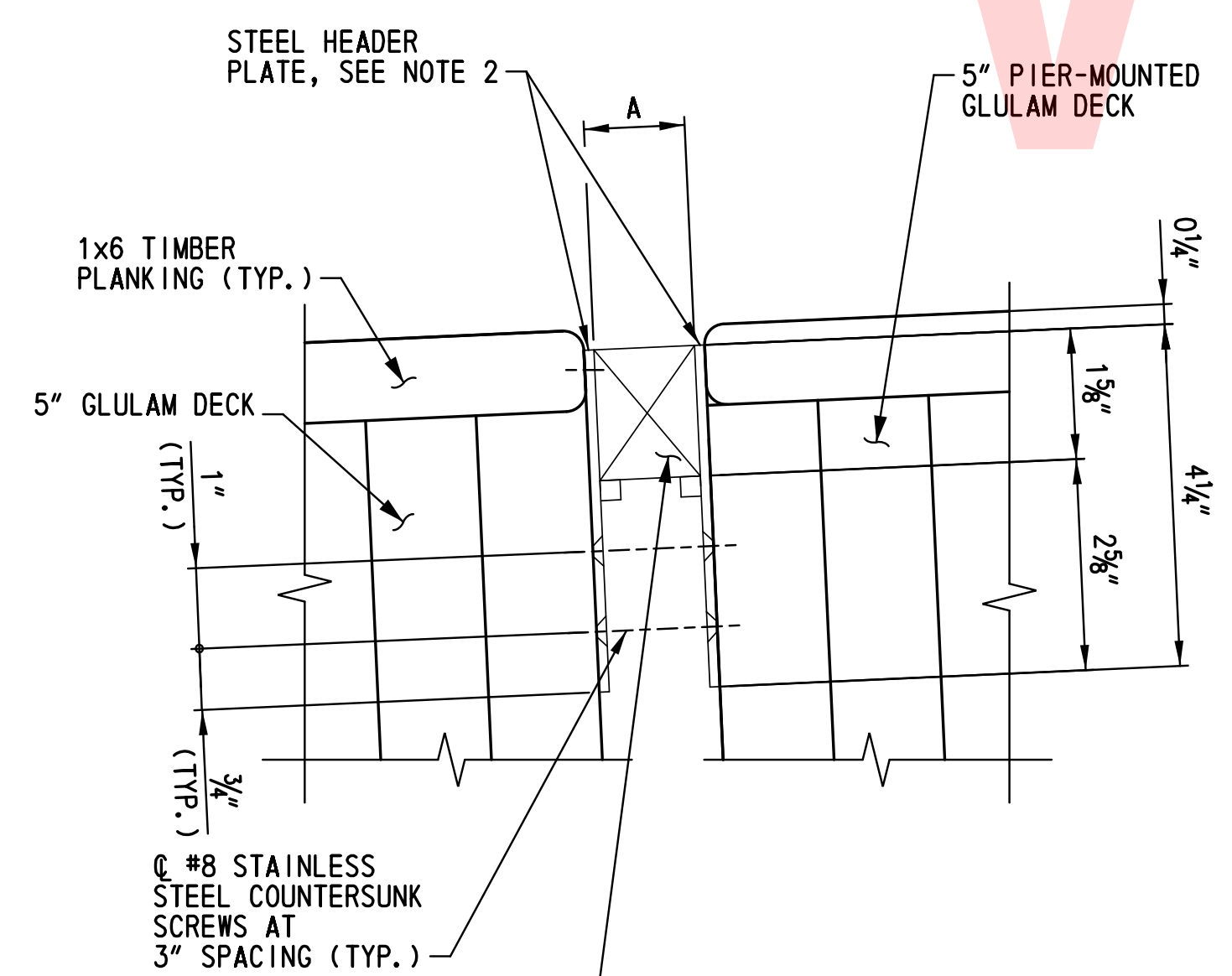
ABUTMENT EXPANSION JOINT DETAIL
SCALE: 6"=1'-0"

NOTE:
ABUTMENT A EAST ELEVATION SHOWN. ABUTMENT B EAST ELEVATION IS SIMILAR, OPPOSITE HAND.



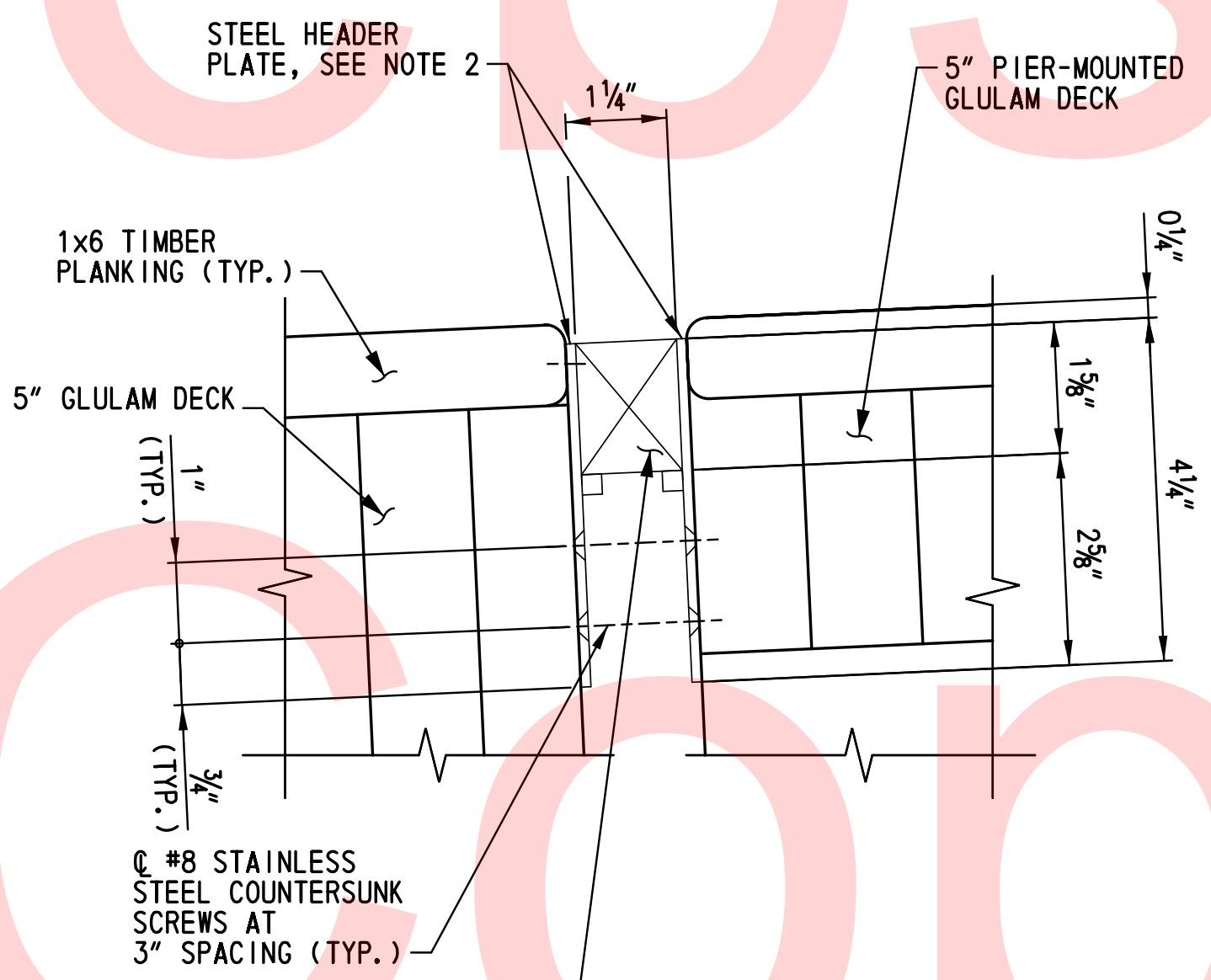
PIER EXPANSION JOINT DETAIL
SCALE: 1 1/2"=1'-0"

NOTE:
PIER 1 EAST ELEVATION SHOWN. PIER 2 EAST ELEVATION IS SIMILAR, OPPOSITE HAND. FOR STAINLESS STEEL JOINT RETAINER BAR SIZE AND WELD DESIGNATION SEE ABUTMENT EXPANSION JOINT DETAIL THIS SHEET.



DETAIL A
SCALE: 6"=1'-0"

NOTE:
FOR STAINLESS STEEL JOINT RETAINER BAR SIZE AND WELD DESIGNATION SEE ABUTMENT EXPANSION JOINT DETAIL THIS SHEET.



DETAIL B
SCALE: 6"=1'-0"

DIMENSION REFERENCE TABLE	
INSTALLATION TEMPERATURE (°F)	A
0	1 1/2"
30	1 3/8"
60	1 1/4"
90	1 1/8"
120	1"

- NOTES:**
- NEOPRENE COMPRESSION SEAL SHALL HAVE A MINIMUM MOVEMENT CAPACITY OF 1/2".
 - STEEL HEADER PLATE SHALL BE MINIMUM 1/8" THICK STAINLESS STEEL CONFORMING TO ASTM A 480. COUNTERSUNK HOLES TO ACCOMMODATE #8 COUNTERSUNK SCREWS SHALL BE PROVIDED IN HEADER PLATE AT ENDS OF TIMBER DECKING. RETAINER BARS SHALL CONFORM TO ASTM A304.
 - DIMENSION A IS TAKEN AT THE 1/4" SETTING DEPTH OF NEOPRENE COMPRESSION SEAL BELOW TOP OF JOINT AT THE ABUTMENT.
 - CONCRETE ANCHORS AND WASHER PLATES SHALL BE STAINLESS STEEL CONFORMING TO ASTM A193 B8 CLASS 2 OR APPROVED EQUAL. CONCRETE ANCHORS SHALL BE PROPOSED BY CONTRACTOR AND SUBMITTED FOR APPROVAL BY THE ENGINEER.
 - STAINLESS STEEL GROUT OR CHEMICAL ADHESIVE ANCHORS WITH WASHER PLATES CONFORMING TO ASTM A193 B8 CLASS 2 OR APPROVED EQUAL MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER IN LIEU OF CONCRETE ANCHORS. INSTALLATION OF GROUT OR ADHESIVE ANCHORS SHALL BE PER THE MANUFACTURER'S SPECIFICATION AND TO THE SATISFACTION OF THE ENGINEER.
 - MINIMUM EDGE DISTANCE BETWEEN THE CENTERLINE OF PROPOSED ANCHORS AND ANY EDGE OF THE STEEL HEADER PLATE IS 1 1/2". HOLES IN STEEL HEADER PLATES FOR PROPOSED ANCHORS SHALL BE 1/8" DIAMETER.

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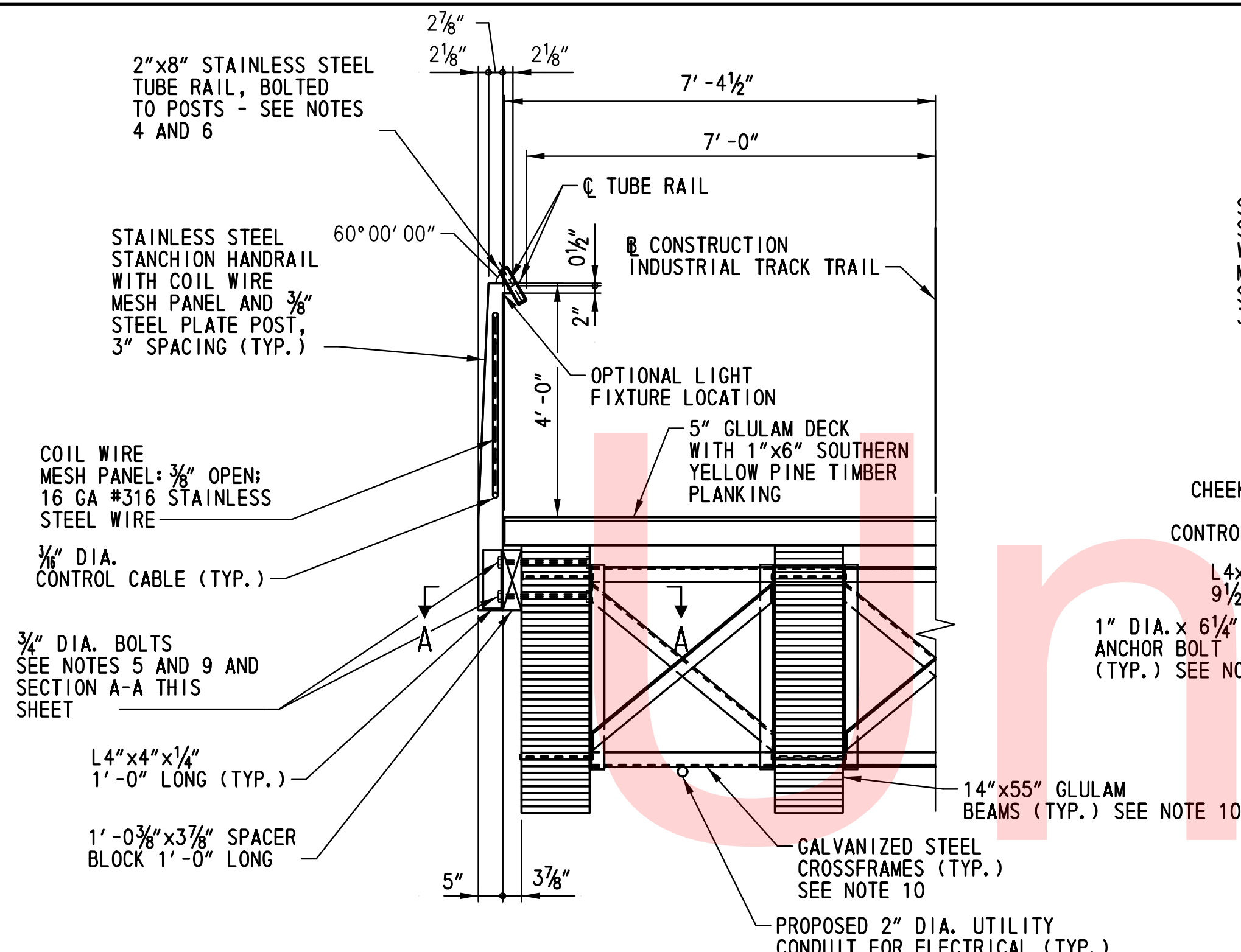
ADDENDUMS / REVISIONS

SCALE AS NOTED

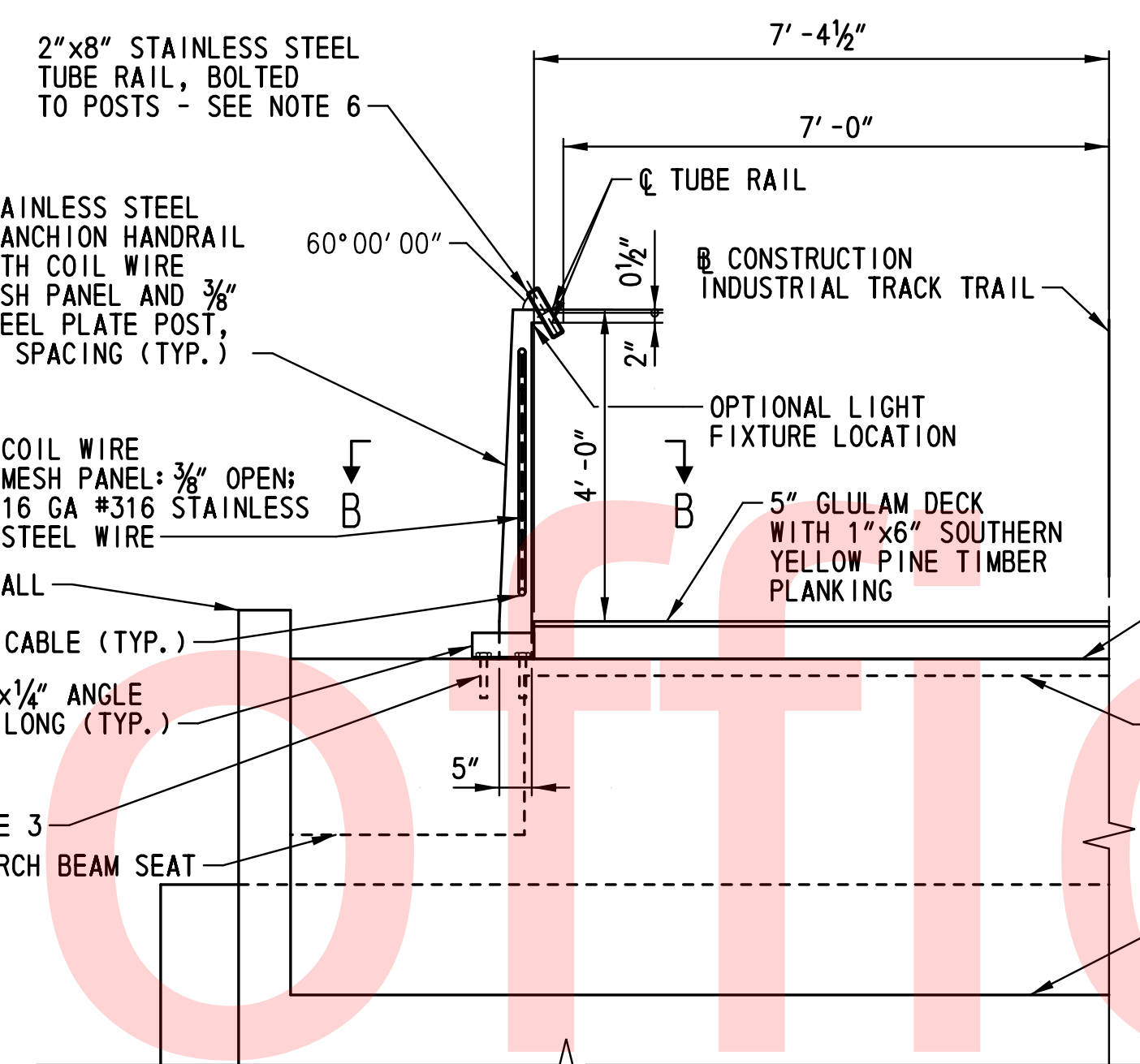
NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

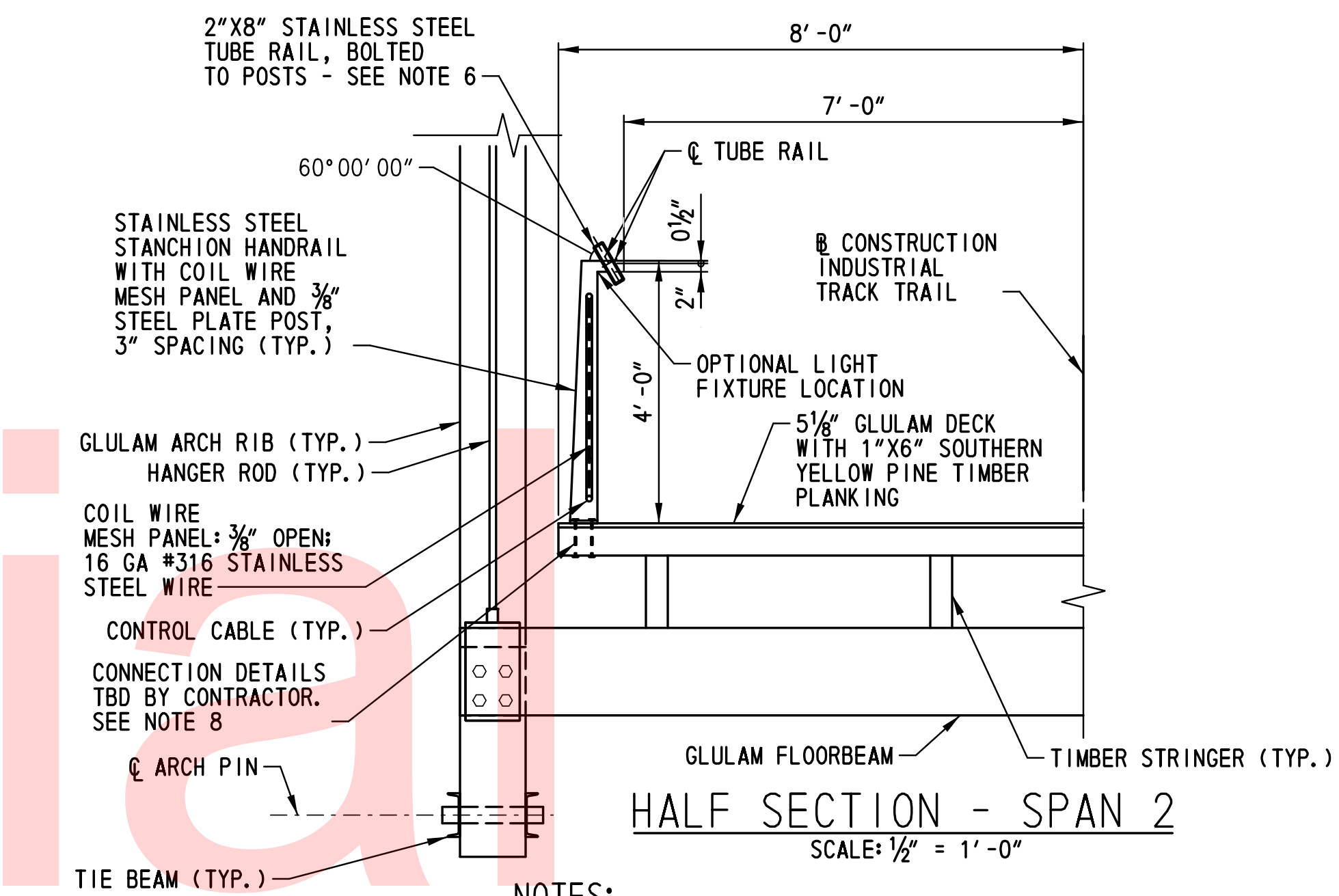
TRANSVERSE JOINT DETAILS



HALF SECTION - SPANS 1 AND 3
SCALE: 1/2" = 1'-0"

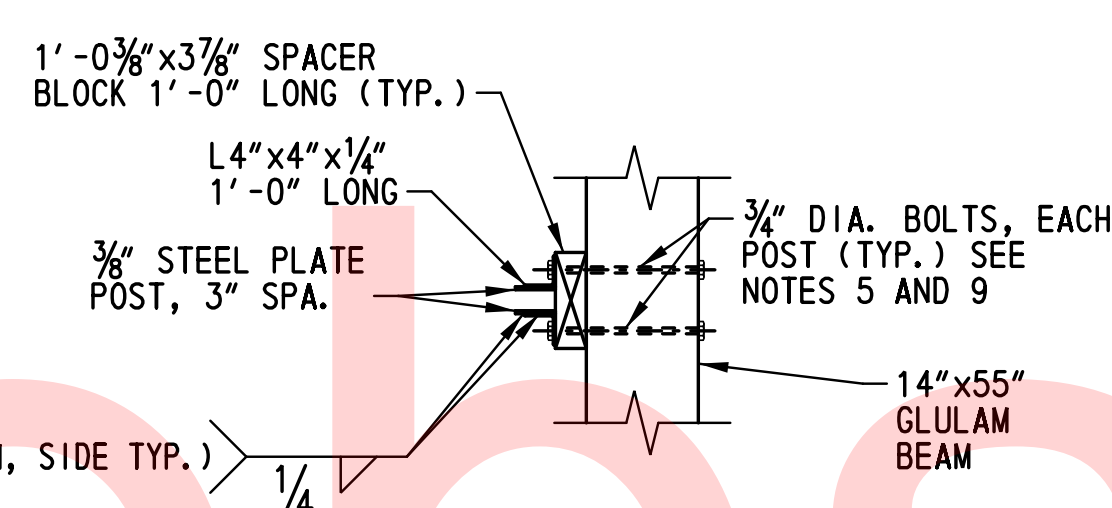


HALF SECTION - PIERS 1 AND 2
SCALE: 1/2" = 1'-0"

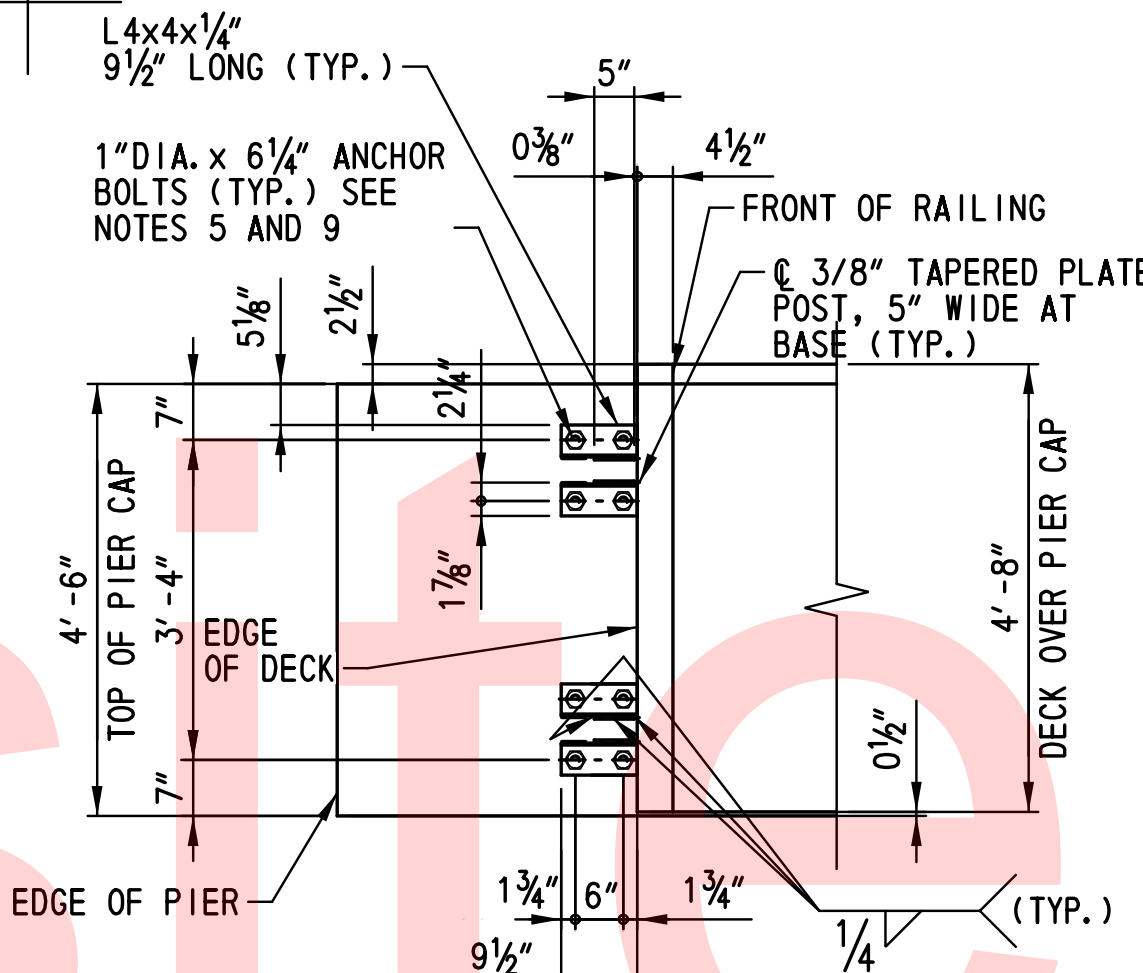


HALF SECTION - SPAN 2
SCALE: 1/2" = 1'-0"

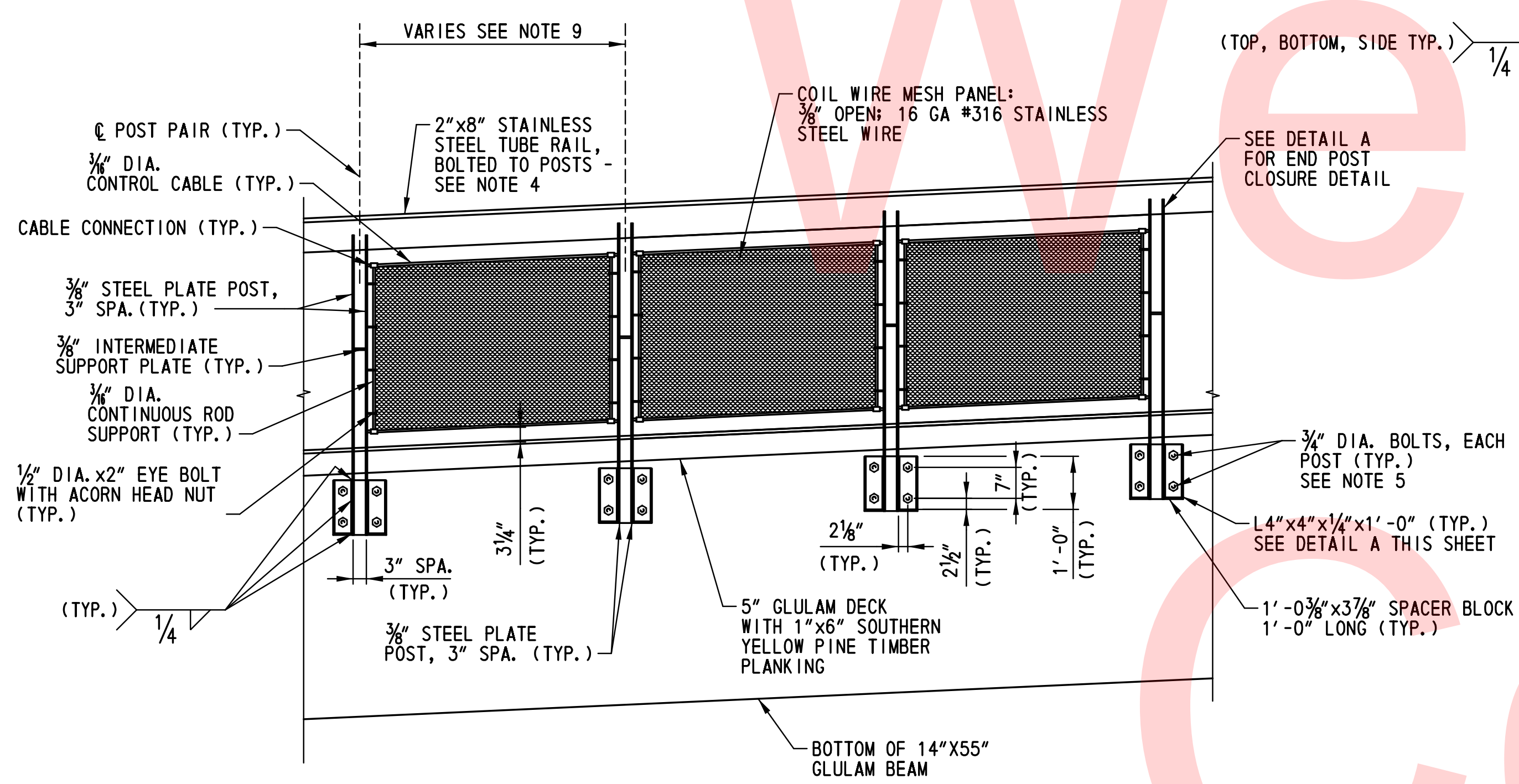
- NOTES:**
- FOR RAILING POST LOCATIONS, SEE DWG. NO. FR-101.
 - STEEL POSTS, INTERMEDIATE PLATES, AND CONNECTION ANGLES SHALL BE TYPE 304 STAINLESS STEEL CONFORMING TO ASTM A240 OR APPROVED EQUAL.
 - ANCHOR BOLTS FOR RAILING POST CONNECTIONS AT PIERS SHALL BE STAINLESS STEEL CONFORMING TO ASTM A193 B8 CLASS 2 WITH STAINLESS STEEL NUTS CONFORMING TO ASTM A194 GRADE 8. GROUT OR CHEMICAL ADHESIVE ANCHOR BOLTS SHALL BE PROPOSED BY CONTRACTOR AND SUBMITTED FOR APPROVAL BY THE ENGINEER. INSTALLATION OF ADHESIVE ANCHOR RODS SHALL BE PER THE MANUFACTURER'S SPECIFICATION AND TO THE SATISFACTION OF THE ENGINEER.
 - ALL STEEL TUBE RAILING SHALL BE TYPE 304 STAINLESS STEEL CONFORMING TO ASTM A269 OR APPROVED EQUAL. ALL CONTROL CABLES, CONTINUOUS ROD SUPPORT MATERIAL, AND ALL MISCELLANEOUS FASTENERS USED FOR SPACER AND RAILING CONNECTIONS SHALL BE TYPE 304 STAINLESS STEEL CONFORMING TO ASTM A240.
 - ALL EYE BOLTS, WASHERS, HARDWARE, AND FASTENERS SHALL BE STAINLESS STEEL CONFORMING TO ASTM A193 B8 CLASS 2.
 - STAINLESS STEEL RAILING TUBE WALLS SHALL BE MINIMUM 1/4" THICK. RAILING CONNECTION TO POSTS SHALL PROVIDE A MINIMUM OF FOUR FASTENERS PER RAILING POST AND THE CONNECTION PLATE SHALL BE A MINIMUM 1/4" THICK. A NEOPRENE PAD SHALL BE PROVIDED BETWEEN THE RAILING TUBE AND POST CONNECTION PLATE. SEE DWG PN-101 FOR RAILING DESIGN LOADS.
 - THE CONTRACTOR SHALL COORDINATE WITH THE ARCH FABRICATOR FOR DESIGN OF THE RAILING AND RAILPOST CONNECTION TO THE GLULAM DECKING. SEE SPECIAL PROVISIONS FOR ITEM 601536, PREFABRICATED GLUED LAMINATED TIMBER ARCH FOR RAILING DESIGN LOADS.
 - THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF RAILING SYSTEM FOR APPROVAL BY THE ENGINEER.
 - REFER TO FRAMING PLAN ON DWG. FR-101 FOR POST SPACING AND LAYOUT.
 - FOR CROSSFRAME AND GLULAM BEAM INFORMATION REFER TO DWG. BM-102.



SECTION A-A
SCALE: 1/2" = 1'-0"

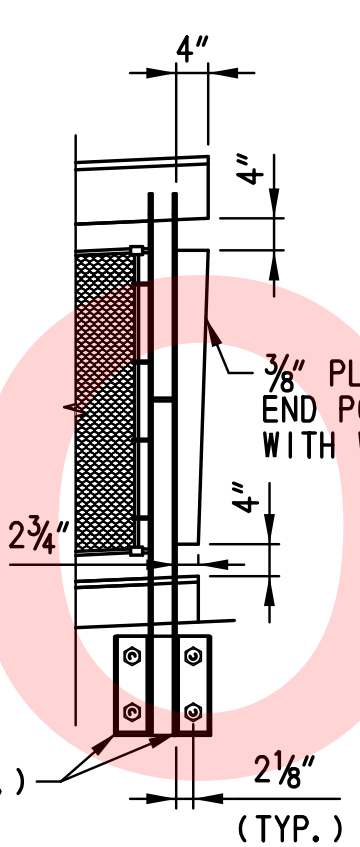


SECTION B-B
SCALE: 1/2" = 1'-0"



TYPICAL RAILING ELEVATION - SPANS 1 AND 3
SCALE: 1/2" = 1'-0"

NOTE:
RAILING ELEVATION FOR SPAN 2 AND PIERS 1 AND 2 ARE NOT SHOWN, POST CONNECTION DETAILS VARY.



DETAIL A
SCALE: 1/2" = 1'-0"

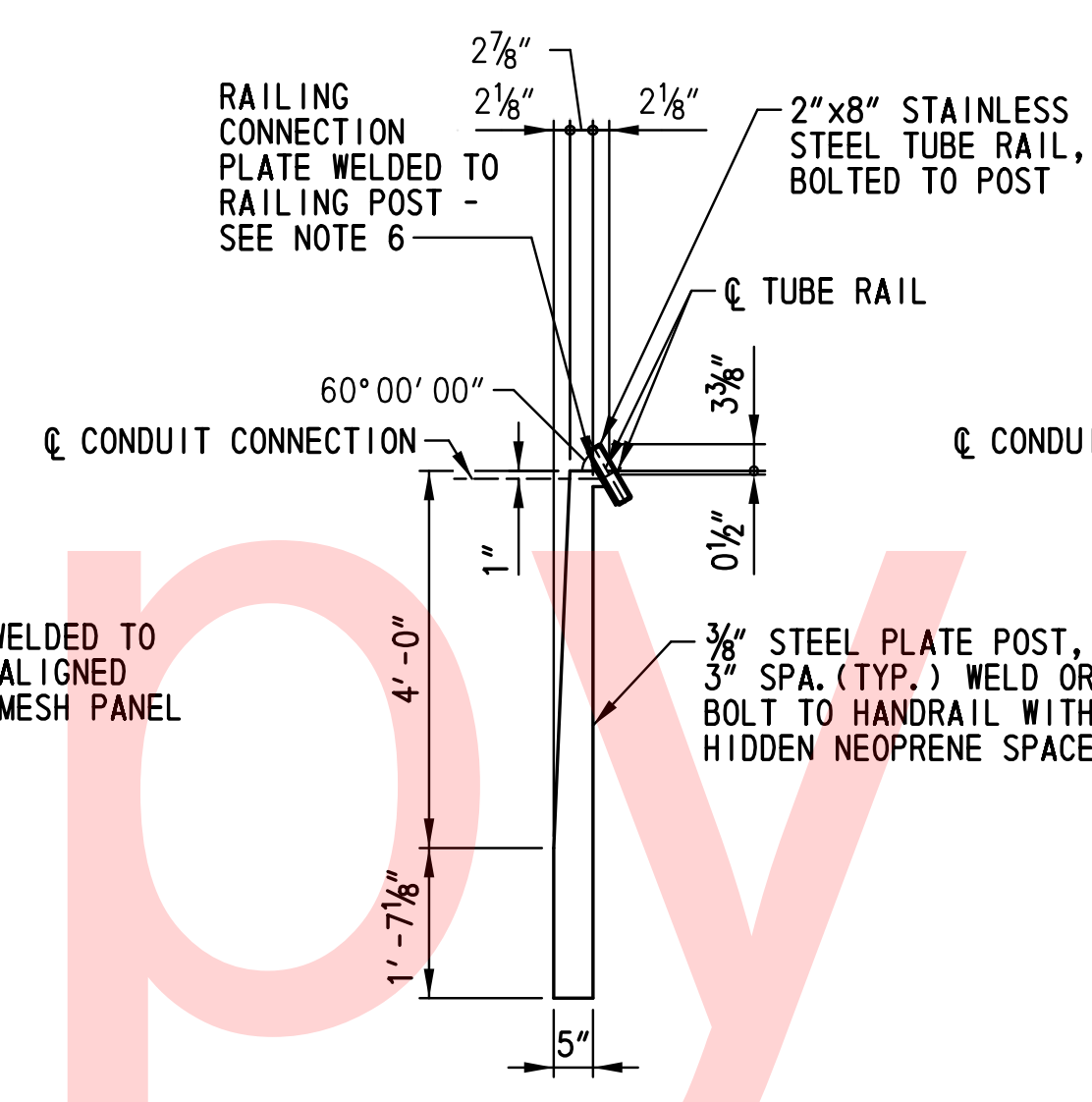


PLATE POST - SPANS 1 AND 3
SCALE: 1/2" = 1'-0"

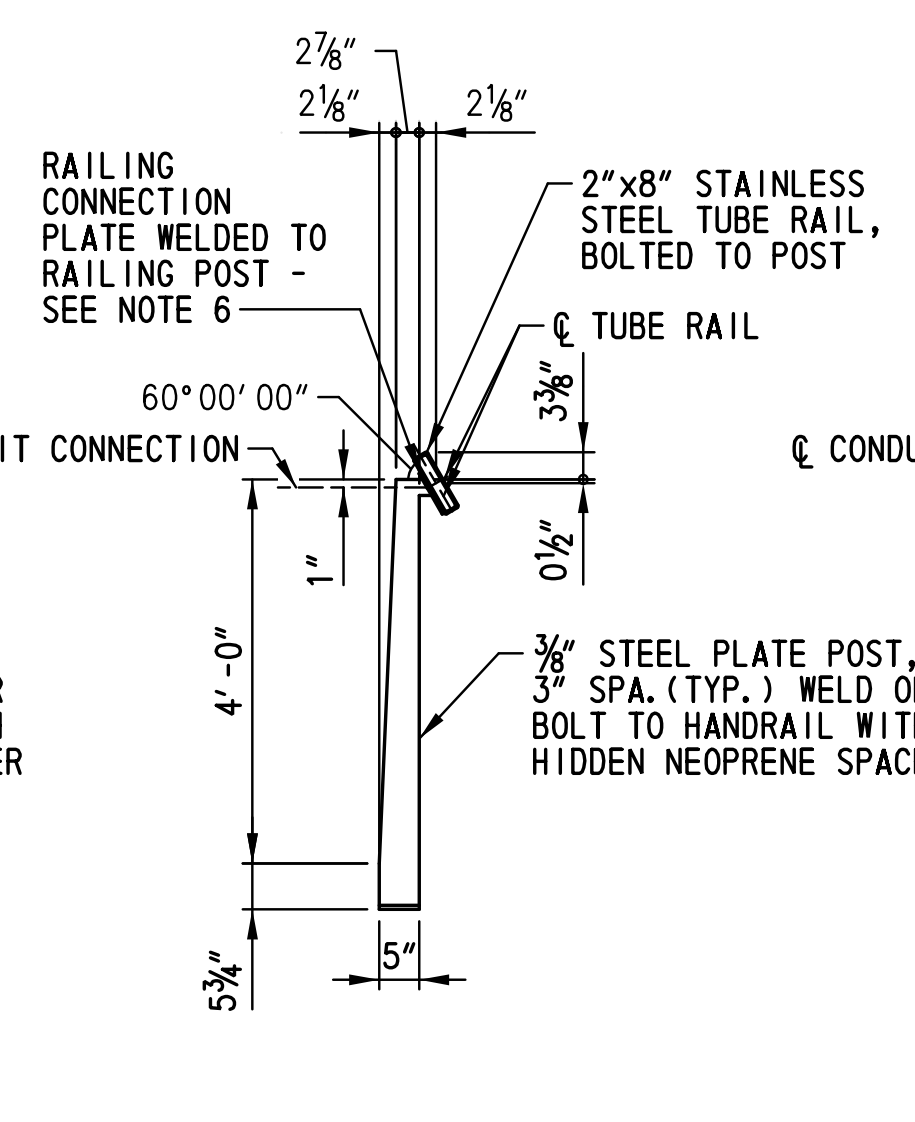


PLATE POST - PIERS
SCALE: 1/2" = 1'-0"

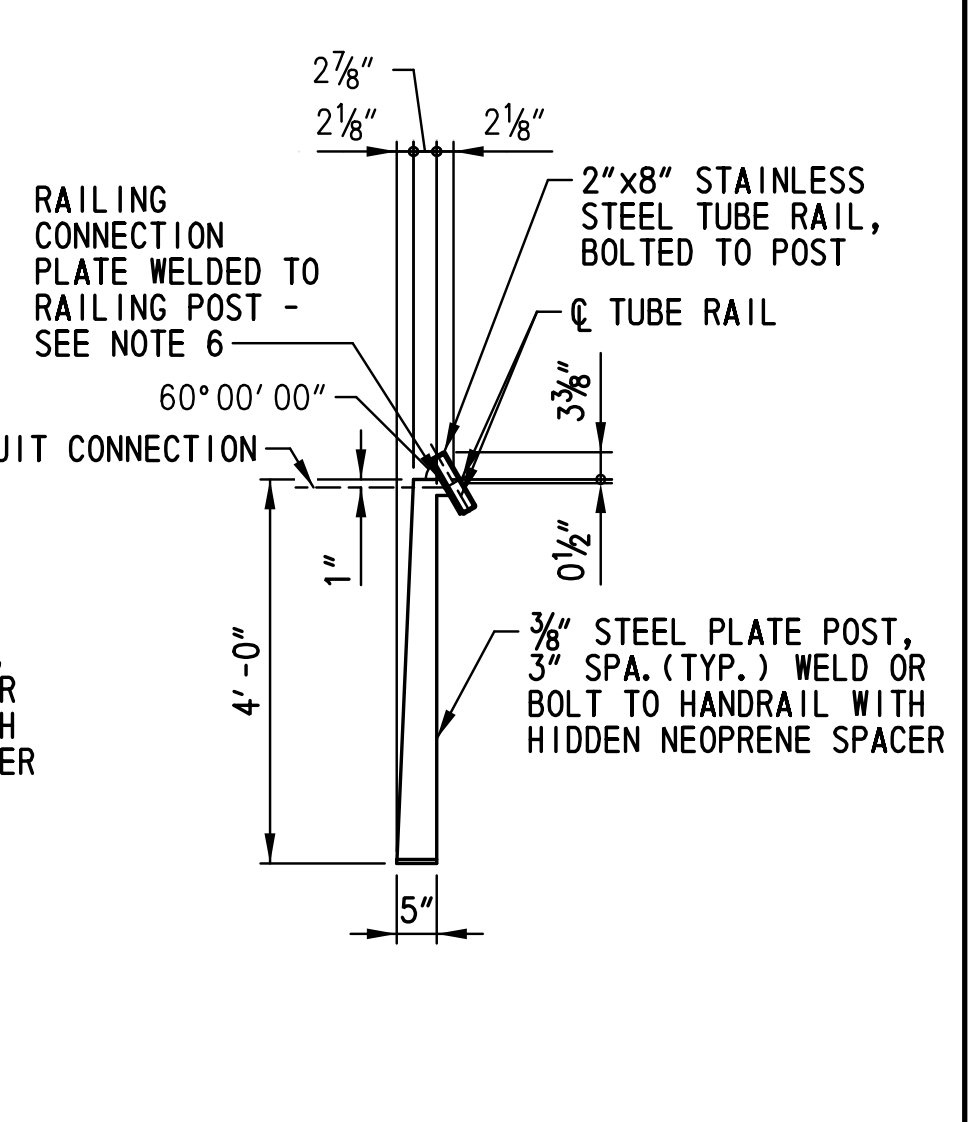
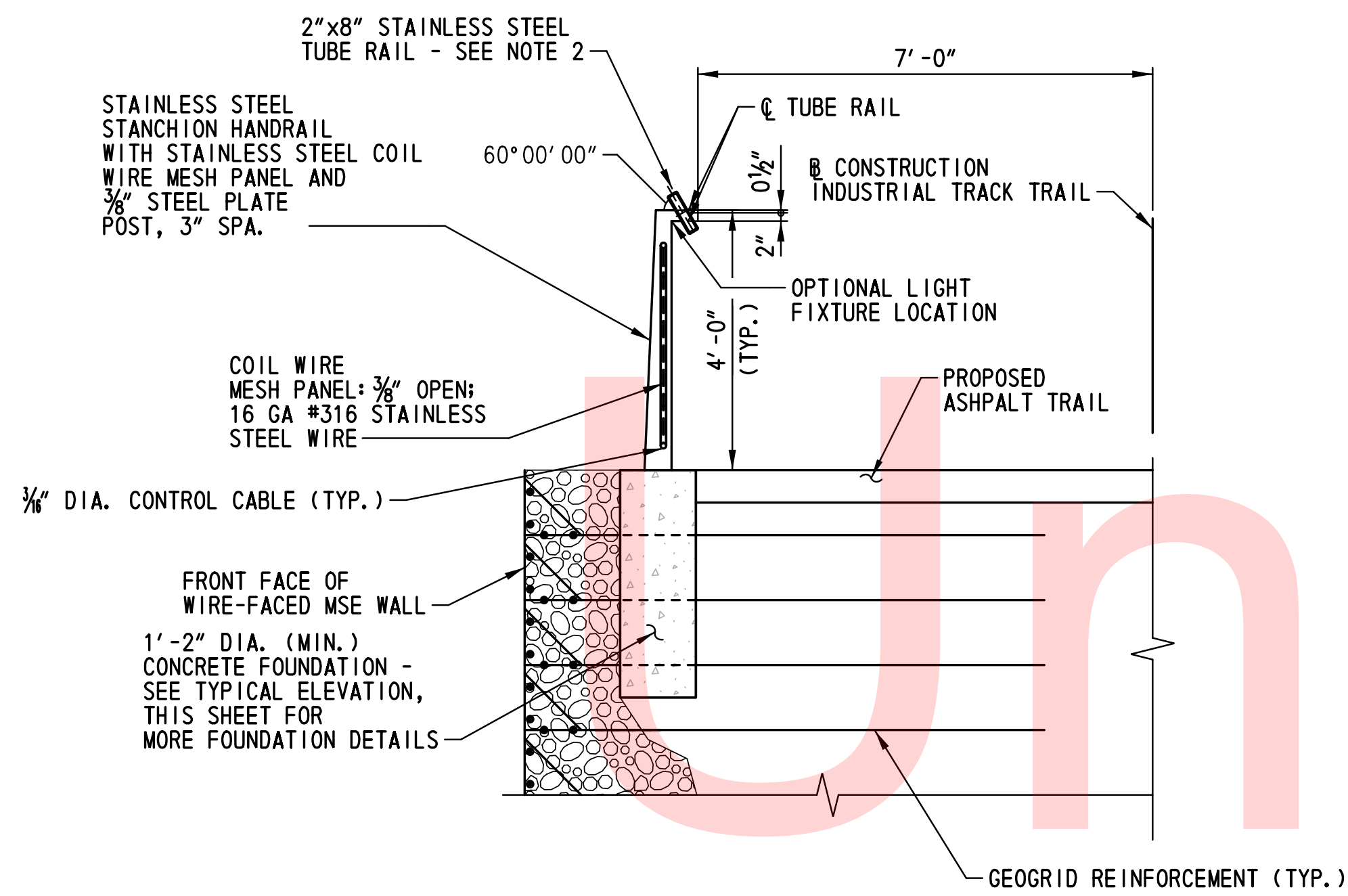
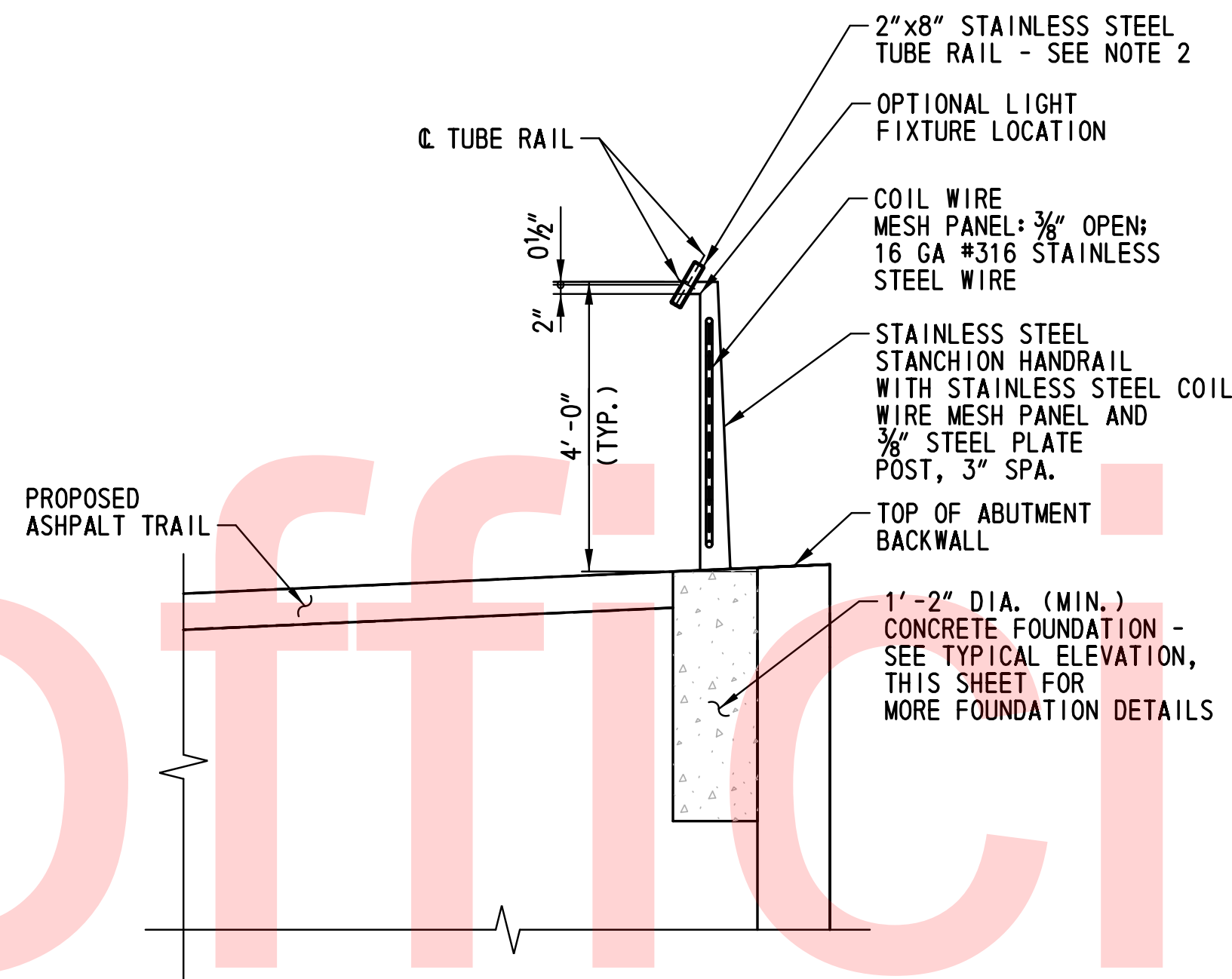


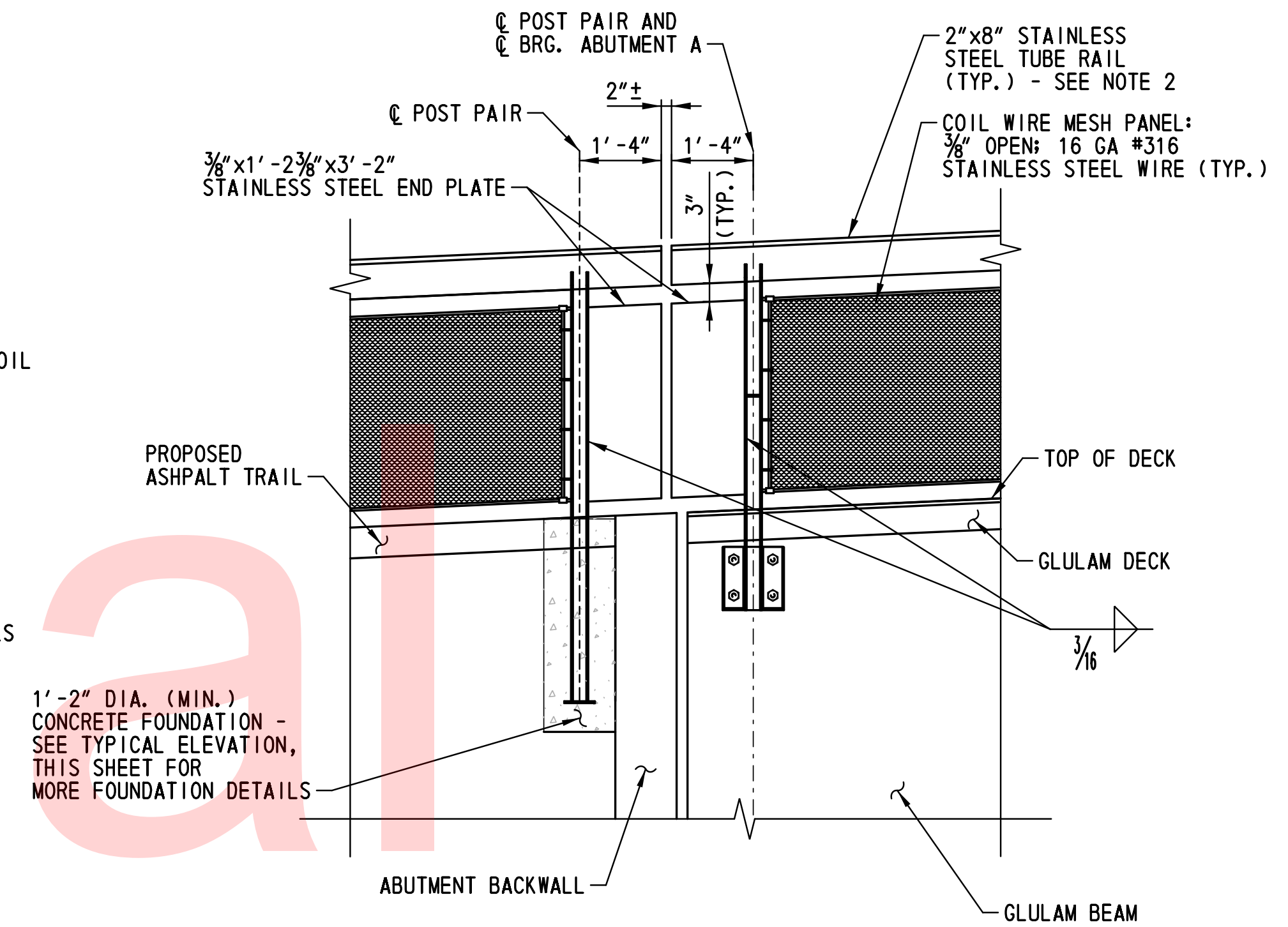
PLATE POST - SPAN 2
SCALE: 1/2" = 1'-0"



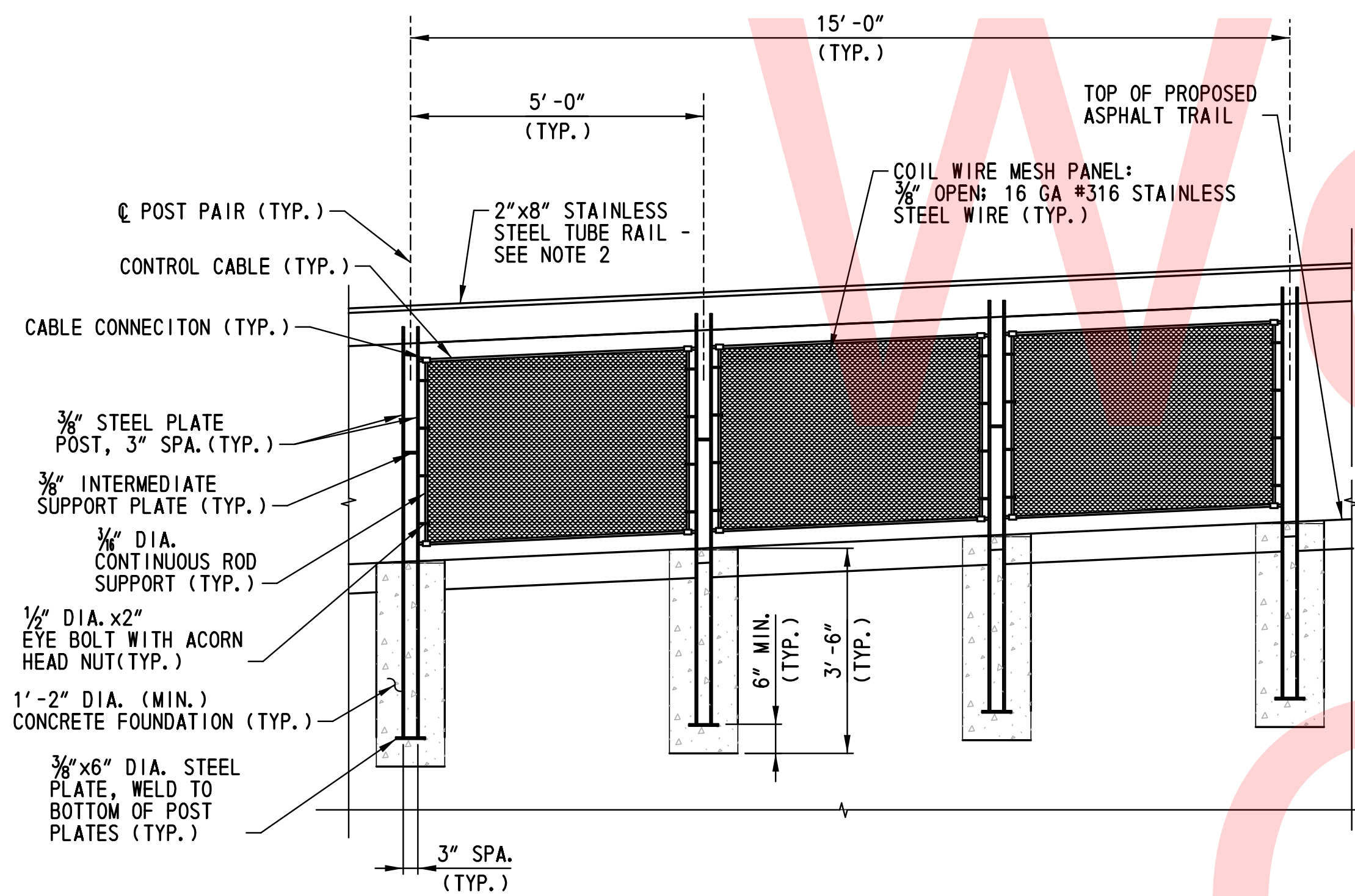
HALF SECTION - TRAIL RETAINING STRUCTURES
SCALE: 1/2" = 1'-0"



SECTION - OBSERVATION AREAS AT ABUTMENTS
SCALE: 1/2" = 1'-0"



RAILING DETAIL AT ABUTMENT JOINTS
SCALE: 1/2" = 1'-0"



TYPICAL ELEVATION - TRAIL RETAINING STRUCTURES
SCALE: 1/2" = 1'-0"

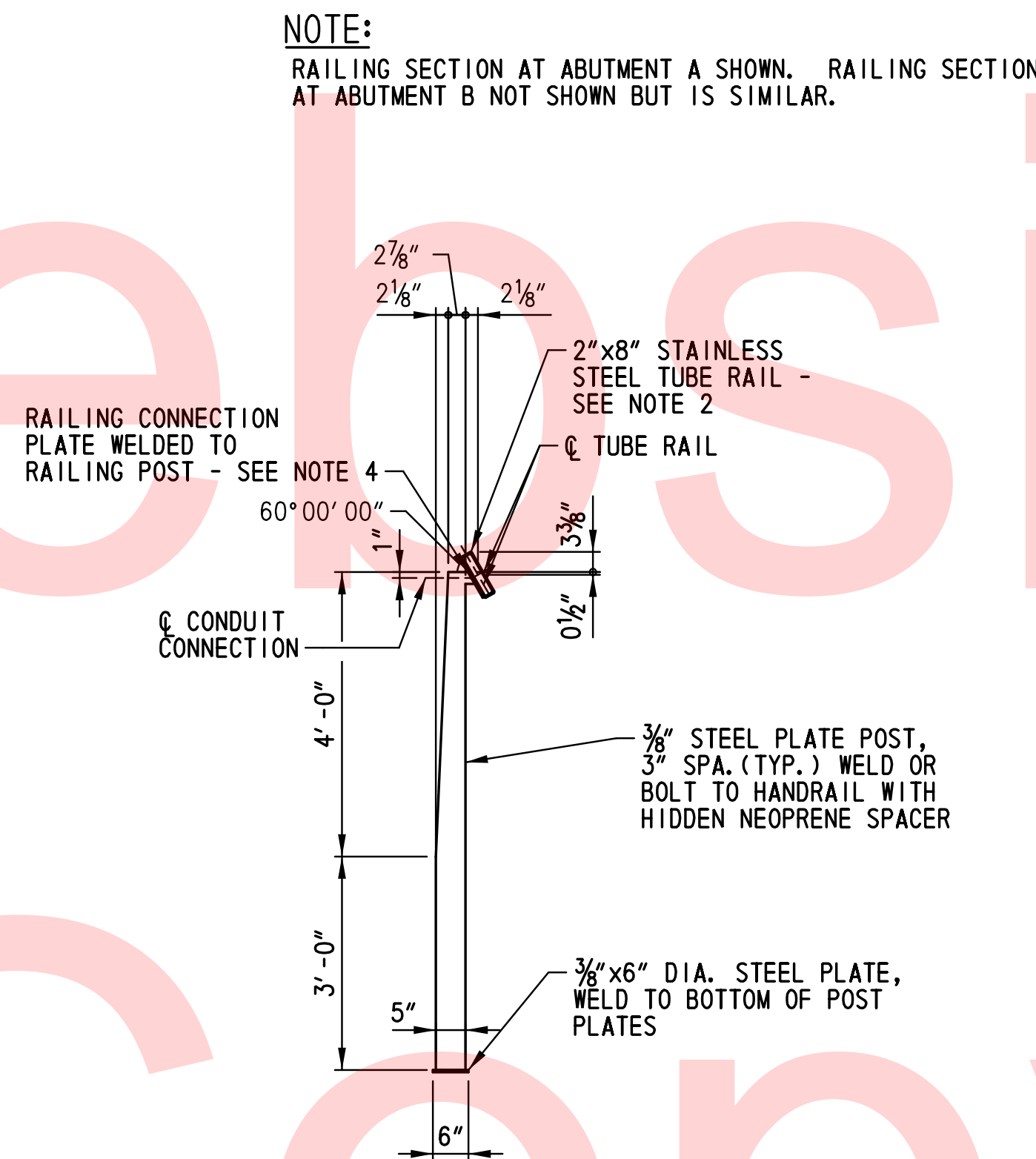
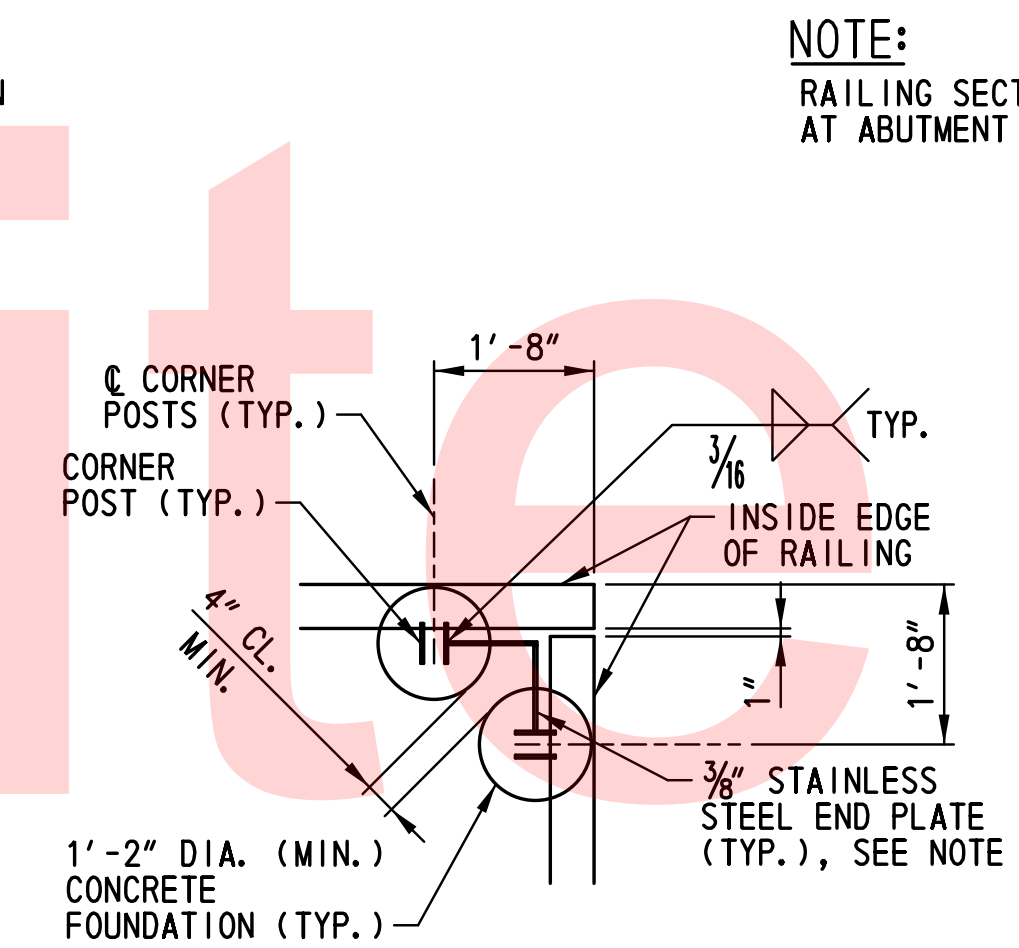


PLATE POST
SCALE: 1/2" = 1'-0"



TYPICAL CORNER POST DETAIL
SCALE: 1/2" = 1'-0"

NOTE:
TYPICAL OUTSIDE RAILING CORNER DETAIL IS SHOWN. TYPICAL INSIDE CORNER DETAIL IS SIMILAR. SEE NOTE 6 FOR ADDITIONAL INFORMATION ABOUT RAILING CORNER DETAILS.

NOTES:

1. STEEL POSTS, INTERMEDIATE PLATES, AND CONNECTION ANGLES SHALL BE TYPE 304 STAINLESS STEEL CONFORMING TO ASTM A240 OR APPROVED EQUAL.
2. ALL STEEL TUBE RAILING SHALL BE TYPE 304 STAINLESS STEEL CONFORMING TO ASTM A269 OR APPROVED EQUAL. ALL CONTROL CABLES, CONTINUOUS ROD SUPPORT MATERIAL, AND ALL MISCELLANEOUS FASTENERS USED FOR SPACER AND RAILING CONNECTIONS SHALL BE TYPE 304 STAINLESS STEEL CONFORMING TO ASTM A240.
3. ALL EYE BOLTS, WAHSERS, HARDWARE, AND FASTENERS SHALL BE TYPE STAINLESS STEEL, CONFORMING TO ASTM A193 B8 CLASS 2.
4. STAINLESS STEEL RAILING TUBE WALLS SHALL BE MINIMUM 1/4" THICK. RAILING CONNECTION TO POSTS SHALL PROVIDE A MINIMUM OF FOUR FASTENERS PER RAILING POST AND THE CONNECTION PLATE SHALL BE A MINIMUM 1/4" THICK. A NEOPRENE PAD SHALL BE PROVIDED BETWEEN THE RAILING TUBE AND POST CONNECTION PLATE.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF RAILING SYSTEM FOR APPROVAL BY THE ENGINEER.
6. THE 'TYPICAL CORNER POST' DETAIL, THIS SHEET, APPLIES TO ALL CORNER RAILING POSTS AT TRAIL OBSERVATION AREAS ADJACENT TO ABUTMENTS A AND B. FOR OUTSIDE CORNER RAILINGS, BREAK SHARP EDGES MIN. 1/2" CHAMFER. THE HEIGHT AND POSITIONING OF CORNER POST END PLATES SHALL MATCH THE END PLATE SHOWN IN 'RAILING DETAIL AT ABUTMENT JOINTS' DETAIL, THIS SHEET. THE CORNER POST END PLATE DETAILS FOR OUTSIDE AND INSIDE CORNERS SHALL SUBMITTED IN SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER.
7. REFER TO DWG. RL-101 FOR ADDITIONAL COIL MESH PANEL AND RAILING DETAILS.

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BORING: IT-01		DATE DRILLED: 9/17/13			
STATION: 105+28.46	OFFSET: 5.99' RT.	ELEVATION: 10.12'	NORTHING: 625655.1860	EASTING: 610811.4450	
COMMENTS: N/A					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0	6	MOIST MEDIUM DENSE BROWN COARSE SAND AND FINE GRAVEL W/SOME FINE SAND AND SILT.	A-1-B	
2	2.0	47	MOIST DENSE BROWN FINE GRAVELLY COARSE SAND W/SOME FINE SAND AND SILT.	A-1-B	
3	4.0	1	NO SIEVE ANALYSIS - INDICATION OF MOIST VERY LOOSE BROWN SILTY SAND.		EL. 5.00 B.O.F. SOUTH RETAINING STRUCTURE MAT FOUNDATION AND GRADE BEAMS
4	6.0	2	NO RECOVERY		EL. 4.00 B.O.F. ABUTMENT A
5	8.0	1	WET VERY LOOSE LIGHT GRAY SILTY COARSE TO FINE SAND W/SOME FINE GRAVEL, TRACE OF CLAY.	A-2-4(0)	
6	10.0	1	WET VERY LOOSE LIGHT GRAY SILTY COARSE TO FINE SAND W/SOME FINE GRAVEL, TRACE OF CLAY.	A-2-4(0)	
7A	12.0	1	WET VERY LOOSE GRAY SILTY COARSE SAND W/SOME FINE SAND, FINE GRAVEL AND CLAY.	A-2-4(0)	
7B	13.5	1	SATURATED SOFT GRAY CLAY W/SOME SILT AND FINE GRAVEL, TRACE OF FINE TO COARSE SAND.	A-7-5(13)	
U-1	14.0			A-4(6)	
8	16.0	WH	SATURATED SOFT GRAY CLAYEY SILT W/TRACE OF FINE TO COARSE SAND AND FINE GRAVEL.	A-4(10)	
9	18.0	WH	SATURATED SOFT GRAY CLAYEY SILT W/SOME FINE SAND, TRACE OF COARSE SAND AND FINE GRAVEL.	A-4(9)	
10	24.0	WH	SATURATED SOFT GRAY SILT W/SOME FINE SAND, TRACE OF COARSE SAND, FINE GRAVEL AND CLAY.	A-4(2)	EL. -15.89, 100 YR. FLOOD SCOUR DEPTH, SOUTH ABUTMENT.
11	29.0	2	SATURATED STIFF GRAY CLAYEY SILT W/SOME FINE SAND, TRACE OF COARSE SAND.	A-4(7)	EL. -18.55, 500 YR. FLOOD SCOUR DEPTH, SOUTH ABUTMENT.
12	34.0	7	SATURATED MEDIUM DENSE GRAY FINE TO COARSE SAND W/SOME SILT.	A-2-4(0)	
13	39.0	6	SATURATED LOOSE GRAY FINE TO COARSE SAND W/SOME FINE GRAVEL, TRACE OF SILT.	A-3	
14	44.0	35	SATURATED VERY DENSE GRAY FINE GRAVEL W/SOME FINE TO COARSE SAND, TRACE OF SILT.	A-1-A	EL. -34.00 MIN. HP14x89 STEEL PILE TIP ELEVATION SOUTH RETAINING STRUCTURE MAT FOUNDATION, GRADE BEAM FOUNDATION AND ABUTMENT A.
15A	49.0	7	SATURATED STIFF GRAY CLAY W/SOME FINE SAND AND SILT, TRACE OF COARSE SAND.	A-7-5(17)	
15B	50.0	6	SATURATED VERY STIFF BROWN FINE SANDY CLAY W/SOME SILT AND COARSE SAND, TRACE OF FINE GRAVEL.	A-7-5(9)	
16	54.0	16	SATURATED HARD WHITE FINE SANDY SILT W/TRACE OF COARSE SAND AND FINE GRAVEL.	A-4(0)	EL. -44.50 ESTIMATED HP14x89 STEEL PILE TIP ELEVATION SOUTH RETAINING STRUCTURE MAT FOUNDATION, GRADE BEAM FOUNDATION AND ABUTMENT A.
CR-1	56.0		BLUE AND WHITE GRANITE		
	58.0				
	65.0				
END BORING					

BORING: IT-02		DATE DRILLED: 11/20/13			
STATION: 107+65.08	OFFSET: 2.44' RT.	ELEVATION: -12.00'	NORTHING: 625889.9553	EASTING: 610841.1554	
COMMENTS: + 14' -15' OF WATER @ LOW TIDE/ + 17' -18' @ HIGH TIDE. FIRST SAMPLE WILL BE TAKEN @ BOTTOM OF RIVER BED AND WILL BE CONSIDERED ELEVATION AND/OR WATER LINE DEPENDING ON TIDE.					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0	7	WET MEDIUM DENSE BLACK FINE SAND W/TRACE OF COARSE SAND, FINE GRAVEL AND SILT.	A-3	EL. -11.42 B.O.F. PIER 1
2	2.0	25	WET MEDIUM DENSE GRAY FINE TO COARSE SAND AND FINE GRAVEL W/SOME SILT.	A-1-B	
3	4.0	23	WET VERY DENSE DARK GRAY COARSE SANDY FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-A	EL. -17.42 B.O.F. PIER 2
4	6.0	9	WET MEDIUM DENSE DARK GRAY COARSE SANDY FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-B	
5	8.0	30	WET VERY DENSE DARK GRAY COARSE SANDY FINE GRAVEL W/TRACE OF FINE SAND AND SILT.	A-1-A	
6	10.0	25	WET MEDIUM DENSE DARK GRAY COARSE SANDY FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-A	
7	12.0	23	WET VERY DENSE DARK GRAY COARSE SANDY FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-B	
8	14.0	6	SATURATED VERY STIFF YELLOWISH BROWN FINE SANDY CLAY W/SOME SILT AND COARSE SAND.	A-7-6(31)	
9	16.0	6	SATURATED HARD YELLOWISH BROWN CLAY W/SOME FINE SAND, TRACE OF COARSE SAND AND SILT.	A-7-5(31)	EL. -29.69, 100 YR. FLOOD SCOUR DEPTH, PIERS 1 AND 2.
10	18.0	9	SATURATED STIFF REDDISH BROWN CLAY W/TRACE OF FINE TO COARSE SAND AND FINE GRAVEL.	A-7-5(46)	EL. -31.53, 500 YR. FLOOD SCOUR DEPTH, PIERS 1 AND 2.
11	24.0	4	SATURATED HARD BROWN CLAY W/SOME COARSE TO FINE SAND AND SILT.	A-7-5(14)	EL. -36.00 MIN. HP14x89 STEEL PILE TIP ELEVATION PIERS 1 AND 2.
12	29.0	50	SATURATED VERY DENSE GRAY SILTY FINE TO COARSE SAND W/TRACE OF FINE GRAVEL.	A-2-4(0)	EL. -41.00 ESTIMATED HP14x89 STEEL PILE TIP ELEVATION PIERS 1 AND 2.
R-1	29.5		BLUE GRANITE		
R-2	34.5		BLUE GRANITE		
R-3	39.5		BLUE GRANITE		
	42.5				
END BORING					

BORING: IT-03		DATE DRILLED: 9/20/13			
STATION: 110+37.58	OFFSET: 18.84' LT.	ELEVATION: 6.14	NORTHING: 626162.7480	EASTING: 610858.3550	
COMMENTS: N/A					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0	19	MOIST MEDIUM DENSE BROWN FINE GRAVEL AND COARSE SAND W/SOME FINE SAND AND SILT.	A-1-B	EL. 5.00 B.O.F. NORTH RETAINING STRUCTURE MAT FOUNDATION
2	2.0	12	MOIST MEDIUM DENSE BROWN COARSE SAND AND FINE GRAVEL W/SOME FINE SAND AND SILT.	A-1-B	EL. 4.00 B.O.F. ABUTMENT B
3	4.0	18	MOIST MEDIUM DENSE BROWN SILTY COARSE TO FINE SAND AND FINE GRAVEL.	A-1-B	
4	6.0	1	WET SOFT GRAY CLAYEY COARSE SANDY SILT W/SOME FINE SAND AND FINE GRAVEL.	A-4(0)	
5	8.0	4	SATURATED SOFT GRAY CLAY W/SOME SILT, TRACE OF FINE TO COARSE SAND.	A-7-5(22)	
U-1	10.0			A-7-5(16)	
6	12.0	WH	SATURATED SOFT GRAY CLAY W/SOME SILT, TRACE OF COARSE TO FINE SAND.	A-7-5(17)	
7	14.0	WH	SATURATED SOFT GRAY CLAY W/SOME SILT, TRACE OF COARSE TO FINE SAND.	A-7-5(15)	
8	16.0	1	SATURATED FIRM GRAY CLAYEY SILT W/TRACE OF FINE TO COARSE SAND.	A-4(5)	
U-2	18.0				
9	20.0	5	SATURATED MEDIUM DENSE BROWN FINE GRAVELLY COARSE SAND W/SOME FINE SAND, TRACE OF SILT.	A-1-B	EL. -15.89, 100 YR. FLOOD SCOUR DEPTH, SOUTH ABUTMENT.
10	24.0	17	SATURATED DENSE BROWN COARSE SAND AND FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-B	EL. -18.55, 500 YR. FLOOD SCOUR DEPTH, SOUTH ABUTMENT.
11	29.0	27	SATURATED DENSE BROWN COARSE SAND AND FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-B	EL. -27.00 MIN. HP14x89 STEEL PILE TIP ELEVATION ABUTMENT B AND NORTH RETAINING STRUCTURE MAT FOUNDATION.
12	34.0	10	SATURATED STIFF BROWN FINE SANDY SILT W/SOME COARSE SAND, TRACE OF CLAY AND FINE GRAVEL.	A-4(0)	
13	39.0	5	SATURATED STIFF BROWN FINE SANDY CLAY W/SOME COARSE SAND AND SILT.	A-6(4)	
14	44.0	50	SATURATED HARD LIGHT GRAY FINE TO COARSE SANDY CLAY W/SOME SILT, TRACE OF FINE GRAVEL.	A-6(3)	EL. -38.00 ESTIMATED. HP14x89 STEEL PILE TIP ELEVATION ABUTMENT B AND NORTH RETAINING STRUCTURE MAT FOUNDATION.
C-1	46.5		BLUE GRANITE		
C-2	51.5		BLUE GRANITE		
	57.1				
END BORING					

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DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE: NONE

NEW CASTLE INDUSTRIAL
TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: ADD	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

BORING LOG - 1

BO-101

SHEET NO.

80

TOTAL SHTS.

207

PROJECT NOTES:

- LOCATION
PROPOSED NEW PEDESTRIAN STRUCTURE CARRYING THE INDUSTRIAL TRACK TRAIL (PHASE 3) AT THE FOLLOWING LOCATION:
- SAWN TIMBER STRINGER AND GLULAM TIMBER BEAM STRUCTURE OVER WETLAND AND LITTLE MILL CREEK
- ELEVATIONS
VERTICAL DATUM IS REFERENCED TO NAVD 88.
- DESIGN CRITERIA
2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SEVENTH EDITION, INCLUDING 2015 INTERIM REVISIONS.
2009 AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, INCLUDING 2015 INTERIM PROVISIONS.
2005 DELDOT BRIDGE DESIGN MANUAL
WELDS SHALL CONFORM TO AWS D1.5.
- LOADING
VEHICLE LIVE LOAD IS H-10 FOR THIS PROJECT.
PEDESTRIAN LIVE LOAD IS 90 PSF FOR THIS PROJECT.
- FOUNDATION
THE FOUNDATIONS PROVIDED IN THE CONTRACT DOCUMENTS (HELICAL PILES AND MICROPILES) ARE SUGGESTED METHODS OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL DESIGN AND PROVIDE PILES BASED ON THE FOLLOWING SERVICE LOADS:
15' SPAN LENGTHS - WETLAND BOARDWALK

PILE LOADS - HELICAL PILES			
LOAD	VERTICAL (UNFACTORED)	HORIZONTAL (UNFACTORED)	LONGITUDINAL (UNFACTORED)
DL	4.66 KIP/PILE		
LL (PEDESTRIAN)	10.13 KIP/PILE		
WS (20 PSF UPLIFT)	-2.25 KIP/PILE		
WS	+/-1.5 KIP/PILE	1.2 KIP/PILE	0.25 KIP/PILE

30' SPAN LENGTHS - WETLAND BOARDWALK

PILE LOADS - MICROPILES			
LOAD	VERTICAL (UNFACTORED)	HORIZONTAL (UNFACTORED)	LONGITUDINAL (UNFACTORED)
DL	10.2 KIP/PILE		
LL (PEDESTRIAN)	20.25 KIP/PILE		
WS (20 PSF UPLIFT)	-4.5 KIP/PILE		
WS	+/-3.0 KIP/PILE	3.35 KIP/PILE	0.75 KIP/PILE

HELICAL PILES AND MICROPILES
FOR INFORMATION REGARDING DESIGN AND CONSTRUCTION OF HELICAL PILES AND MICROPILES REFER TO THE SPECIAL PROVISIONS FOR ITEM NOS. 619520 AND 619562. FOR INFORMATION REGARDING THE SUGGESTED USE OF HELICAL PILES AND MICROPILES SEE DWG. NOS. PL-201 THRU PL-208 AND PR-201 AND PR-202.

- TIMBER
STRUCTURAL TIMBER SHALL BE STRUCTURAL LUMBER CONFORMING TO THE FOLLOWING MINIMUM ALLOWABLE DRY UNIT STRESSES:
STRUCTURAL LUMBER FOR WETLAND BOARDWALK LONGITUDINAL BEAMS, BRACING, AND ABUTMENT SHALL BE SOUTHERN YELLOW PINE NO. 1:
- BENDING (Fbo) = 1,350 PSI
- HORIZONTAL SHEAR (Fvo) = 165 PSI
- MODULUS OF ELASTICITY (Eo) = 1,500,000 PSI
STRUCTURAL LUMBER FOR WETLAND BOARDWALK PLANK DECKING SHALL BE SOUTHERN YELLOW PINE SELECT STRUCTURAL:
- BENDING (Fbo) = 2,050 PSI
- HORIZONTAL SHEAR (Fvo) = 175 PSI
- MODULUS OF ELASTICITY (Eo) = 1,800,000 PSI
STRUCTURAL LUMBER FOR WETLAND BOARDWALK PILE BENT CAPS (4x16) FOR 15' SPANS SHALL BE SOUTHERN YELLOW PINE SELECT STRUCTURAL:
- BENDING (Fbo) = 1,900 PSI
- HORIZONTAL SHEAR (Fvo) = 175 PSI
- MODULUS OF ELASTICITY (Eo) = 1,800,000 PSI
STRUCTURAL LUMBER FOR WETLAND BOARDWALK PILE BENT CAPS (6x18) FOR 30' SPANS SHALL BE SOUTHERN YELLOW PINE SELECT STRUCTURAL:
- BENDING (Fbo) = 1,500 PSI
- HORIZONTAL SHEAR (Fvo) = 165 PSI
- MODULUS OF ELASTICITY (Eo) = 1,500,000 PSI
GLUE LAMINATED BEAMS FOR WETLAND BOARDWALK SHALL CONFORM TO AASHTO COMBINATION SYMBOL 20F-V3, SOUTHERN PINE:
- BENDING (Fbo) = 2,000 PSI
- HORIZONTAL SHEAR (Fvo) = 265 PSI
- MODULUS OF ELASTICITY (Eo) = 1,600,000 PSI

STRUCTURAL LUMBER FOR WETLAND BOARDWALK RAILING SHALL BE SOUTHERN YELLOW PINE SELECT STRUCTURAL :

- BENDING (Fbo) = 2,550 PSI
- HORIZONTAL SHEAR (Fvo) = 175 PSI
- MODULUS OF ELASTICITY (Eo) = 1,800,000 PSI

TREAT GLUE LAMINATED AND SAWN LUMBER BEAMS AND SAWN LUMBER PIER HEADERS WITH 5% PENTACHLOROPHENOL TYPE 'A' TO A MINIMUM NET RETENTION OF 0.6 PCF PER AWPA USER SPECIFICATION U1-15, USE CATEGORY 4B, & DELDOT SPECIFICATION SECTION 814. TREAT TIMBER DECK PLANKS WITH 5% PENTACHLOROPHENOL TYPE 'C' TO A MINIMUM NET RETENTION OF 0.5 PCF PER AWPA USER SPECIFICATION U1-15, USE CATEGORY 4B, & DELDOT SPECIFICATION SECTION 814. TREAT ABUTMENT TIMBER SHEETING AND TIMBER RAILING WITH A COPPER NAPHTHENATE OILBORNE PRESERVATIVE TO A MINIMUM NET RETENTION OF 0.075 PCF PER AWPA USER SPECIFICATION U1-15, USE CATEGORY 4B, & DELDOT SPECIFICATION SECTION 814.

PRESERVATIVES FOR PRESSURE TREATMENT PROCESS SHALL CONFORM TO AWPA STANDARD P35 (PENTACHLOROPHENOL) AND P36 (COPPER NAPHTHENATE). ALL TREATED WOOD SHALL CONFORM TO BEST MANAGEMENT PRACTICES (BMP'S). ISSUE CERTIFICATIONS OF TREATMENT.

TIMBER STOCKPILED AT THE JOB SITE MUST BE NEATLY STACKED IN DRY, LEVEL AREAS THAT ARE CLEAR OF PLANT GROWTH AND DEBRIS. THE BOTTOM LAYER OF MATERIAL IN ANY STOCKPILE SHOULD BE AT LEAST 8 INCHES ABOVE GROUND LEVEL AND SUPPORTED ON SPACER BLOCKS SPACED NOT MORE THAN 10 FEET IN ANY DIRECTION OF THE STOCKPILE. IF MATERIAL SAGGING BETWEEN SPACER BLOCKS IS EVIDENT, ADDITIONAL SPACER BLOCKS MUST BE ADDED TO REMOVE SAGGING. STICKERS SPACED NOT MORE THAN 6 FEET IN ANY DIRECTION OF THE STOCKPILE SHALL BE ADDED BETWEEN LAYERS OF STOCKPILED MATERIAL. STICKERS SHALL BE SPACED AT REGULAR INTERVALS TO EXTEND ACROSS THE FULL WIDTH OF THE STOCKPILE IN ANY DIRECTION AND MUST BE ALIGNED VERTICALLY.

TIMBER STOCKPILED IN HOT DRY CLIMATES SHALL BE PROTECTED WITH A PLYWOOD OR MATERIAL COVERING.

- STABILIZING STRUCTURAL EXCAVATIONS
IN LIEU OF A 2:1 SLOPE, THE CONTRACTOR MAY USE SHORING FOR EXCAVATIONS EXCEEDING 5 FEET IN HEIGHT. THE COST OF SHORING SHALL BE INCIDENTAL TO ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES.
- HYDRAULIC DATA
DRAINAGE AREA = 9.53 SQ. MI.
25-YR FLOOD ELEVATION = 7.2 (TIDALLY INFLUENCED BACKWATER ELEVATION)
DESIGN FREQUENCY = 25-YEAR
DESIGN DISCHARGE = 4,500 CFS
DESIGN HEADWATER ELEVATION = 7.2 (TIDALLY INFLUENCED BACKWATER ELEVATION)
DESIGN VELOCITY, CHANNEL = 6.55 FPS
AVAILABLE FLOW AREA OF PROPOSED OPENING = VARIES, 65 SQ. FT. (TYP.) PER 15 FT SPAN;
260 SQ. FT. (TYP.) PER 30 FT SPAN
NOTE: SEE REPORT TITLED, "NEW CASTLE COUNTY INDUSTRIAL TRACK TRAIL, PHASE 3, HYDROLOGIC AND HYDRAULIC REPORT FOR PEDESTRIAN BRIDGE OVER THE CHRISTINA RIVER AND FOR THE BOARDWALK OVER LITTLE MILL CREEK," DATED MARCH 2015
- SCOUR DATA
STRUCTURE HAS BEEN ANALYZED FOR THE EFFECTS OF SCOUR IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN FHWA'S HEC-18 MANUAL, "EVALUATING SCOUR AT BRIDGES" (2112).
DESIGN STORM EVENT = 100 YEAR FLOOD
DESIGN STORM DISCHARGE = 5,800 CFS
DESIGN STORM VELOCITY, CHANNEL = 7.76 FPS
DESIGN STORM MAXIMUM DEPTH OF FLOW = 9.5 FT
DESIGN STORM HEADWATER ELEVATION = 9.0 (FEMA, TIDALLY INFLUENCED BACKWATER ELEVATION)
CHECK STORM EVENT = 500 YEAR FLOOD
CHECK STORM DISCHARGE = 9,500 CFS
CHECK STORM VELOCITY, CHANNEL = 9.02 FPS
CHECK STORM MAXIMUM DEPTH OF FLOW = 11.1 FT
CHECK STORM HEADWATER ELEVATION = 10.6 (FEMA, TIDALLY INFLUENCED BACKWATER ELEVATION)

- UTILITIES
BEFORE BEGINNING WORK, THE CONTRACTOR SHALL GIVE NOTIFICATION BY TELEPHONE BY CALLING "MISS UTILITY" AT 1-800-282-8555 A MINIMUM OF 48 HOURS PRIOR TO THE START OF WORK. VERIFY AND LOCATE ALL UTILITIES PRIOR TO STARTING WORK.
COORDINATE THE REQUIREMENTS FOR PROTECTION OF ANY UTILITY WITH THE UTILITY OWNER PRIOR TO STARTING WORK.
CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED. ANY DAMAGE INCURRED TO THESE UTILITIES OR ANY OTHER UTILITIES, SHOWN OR NOT SHOWN ON THE PLANS, DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE APPROPRIATE UTILITY COMPANY. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS, OR LIABILITY FOR ACCURACY OF TYPE, SIZE, AND LOCATION OF ANY UTILITY.

THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY SUPPORTING, PROTECTING, OR RELOCATING ANY UTILITIES DURING CONSTRUCTION. WHERE NECESSARY, THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.

- STAGING AREAS
ANY STAGING AREAS OUTSIDE OF THOSE SHOWN ON THESE CONTRACT PLANS AND/OR OUTSIDE OF THE LIMITS OF CONSTRUCTION (LOC) DEPICTED HEREON SHALL HAVE EROSION AND SEDIMENT CONTROLS IMPLEMENTED TO PREVENT DISCHARGE OF SEDIMENT-LADEN RUNOFF FROM ANY SUCH AREAS. THE CONTRACTOR SHALL SUBMIT PLANS DEPICTING EROSION AND SEDIMENT CONTROLS AROUND AND WITHIN ANY SUCH STAGING AREAS TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

THERE SHALL BE NO STOCKPILING OF CONSTRUCTION MATERIALS OR TEMPORARY FILLS IN WETLANDS OR SUBAQUEOUS LANDS UNLESS OTHERWISE SPECIFIED ON PROJECT PLANS AND APPROVED BY PERMITTING AGENCIES THAT GOVERN THEM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND SECURE THOSE ADDITIONAL PERMITS/AMENDMENTS IF DEVIATING FROM THE PLANS.

WETLAND BOARDWALK STRUCTURES INDEX OF SHEETS

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83	PE-201	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 1
84	PE-202	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 2
85	PE-203	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 3
86	PE-204	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 4
87	PE-205	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 5
88	PE-206	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 6
89	PE-207	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 7
90	PE-208	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 8
91	PE-209	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 9
92	PE-210	WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 10
93	PL-201	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 1
94	PL-202	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 2
95	PL-203	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 3
96	PL-204	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 4
97	PL-205	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 5
98	PL-206	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 6
99	PL-207	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 7
100	PL-208	GEOMETRIC, PIER, AND PILE LAYOUT PLAN - 8
101	AB-201	ABUTMENT PLAN, ELEVATION, AND TYPICAL SECTION
102	PR-201	BOARDWALK PIER PLAN, ELEVATION, AND SECTION PIER TYPES A AND B
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104	BM-201	BEAM ELEVATIONS AND BEARING DETAILS
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106	FR-201	FRAMING PLAN - 1
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108	FR-203	FRAMING PLAN - 3
109	DK-201	TIMBER PLANK DECK
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111	SD-202	SUPERSTRUCTURE DETAILS - 2
112	SD-203	SUPERSTRUCTURE DETAILS - 3
113	FD-201	FINISHED BRIDGE DECK ELEVATIONS
114	RL-201	RAILING DETAILS
115	BO-201	BORING LOG - 2

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ADDENDUMS / REVISIONS

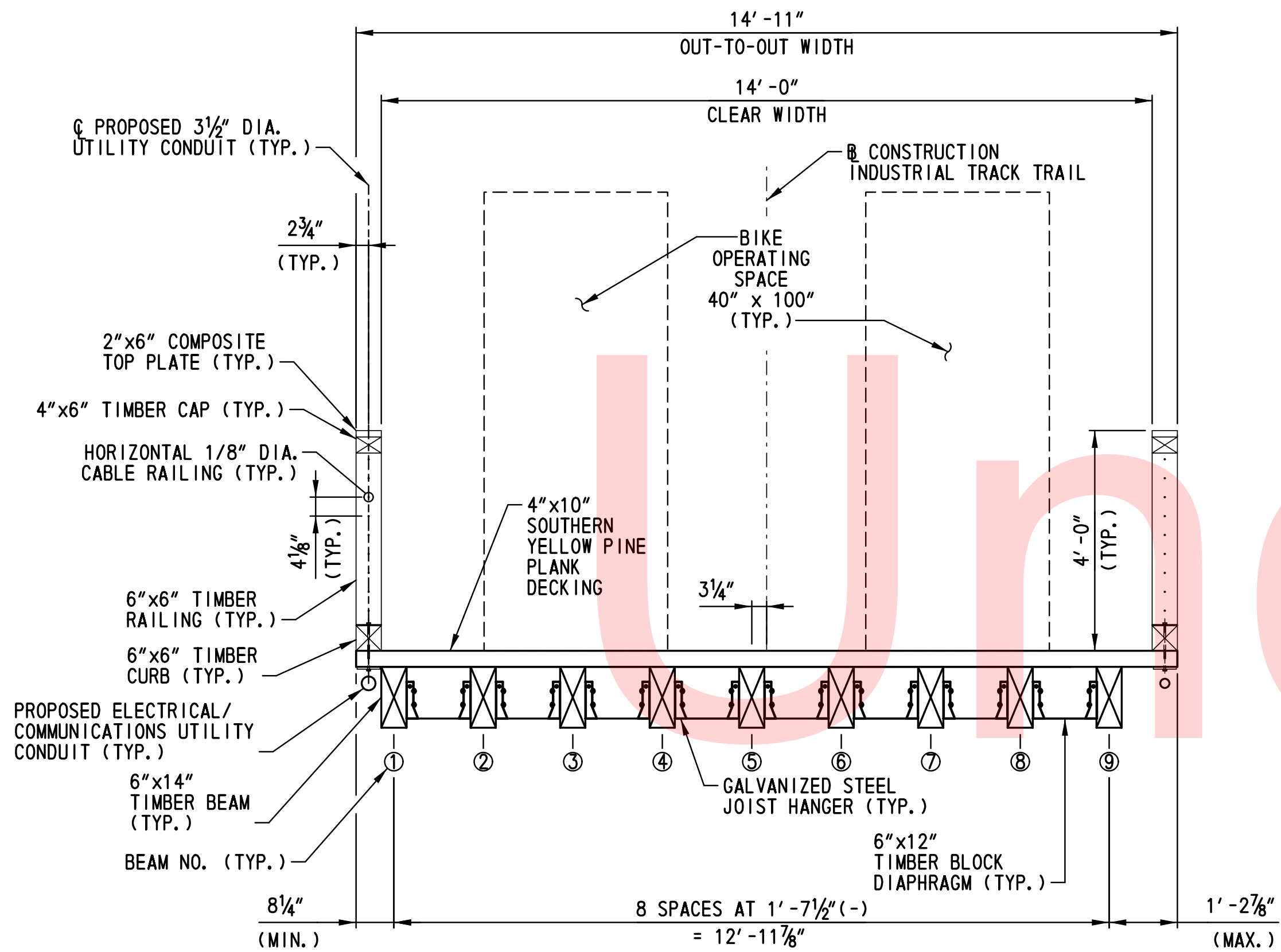
SCALE: NONE

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: NAH	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

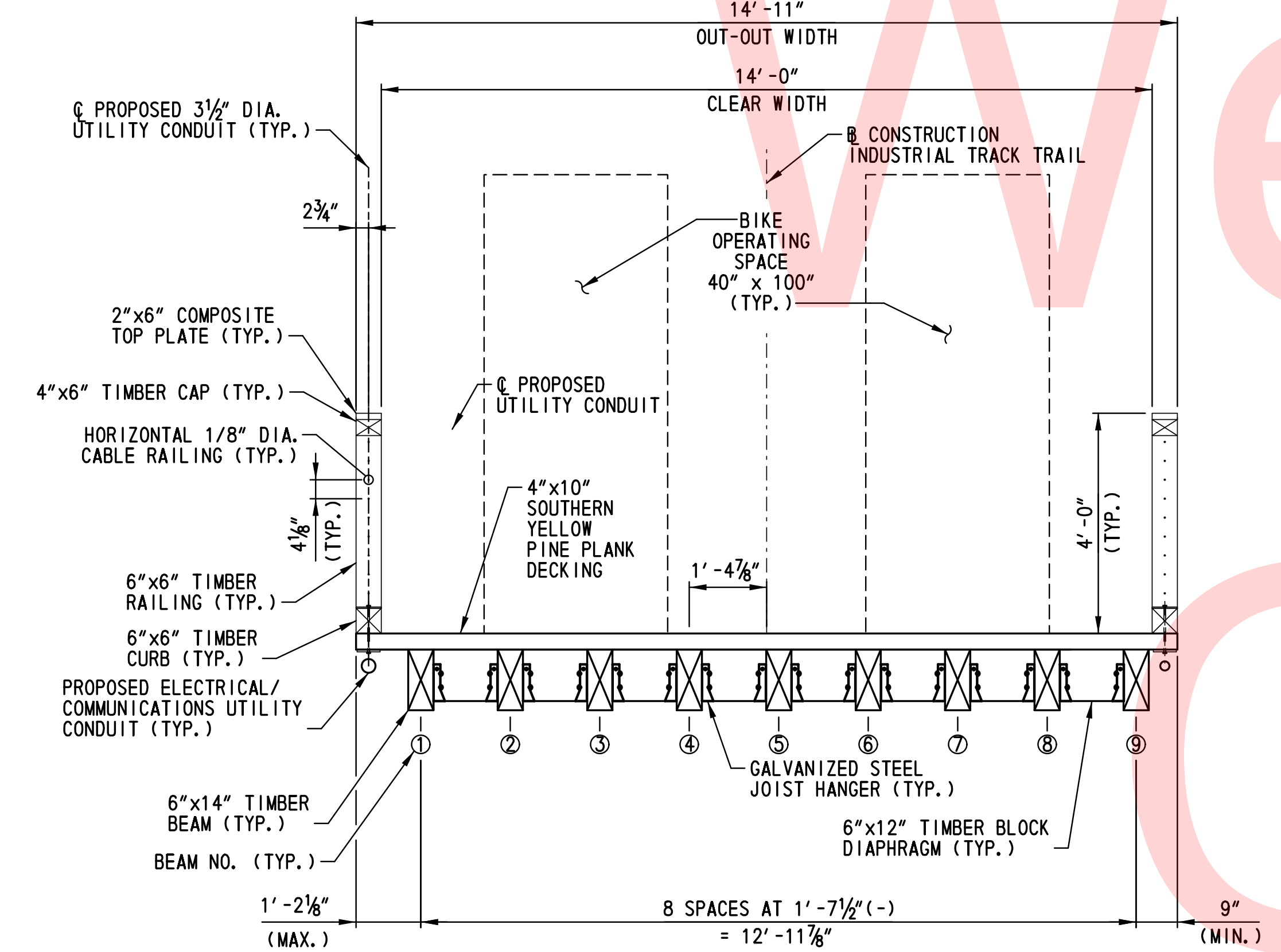
PROJECT NOTES WETLAND BOARDWALK

PN-201
SHEET NO.
81
TOTAL SHTS.
207



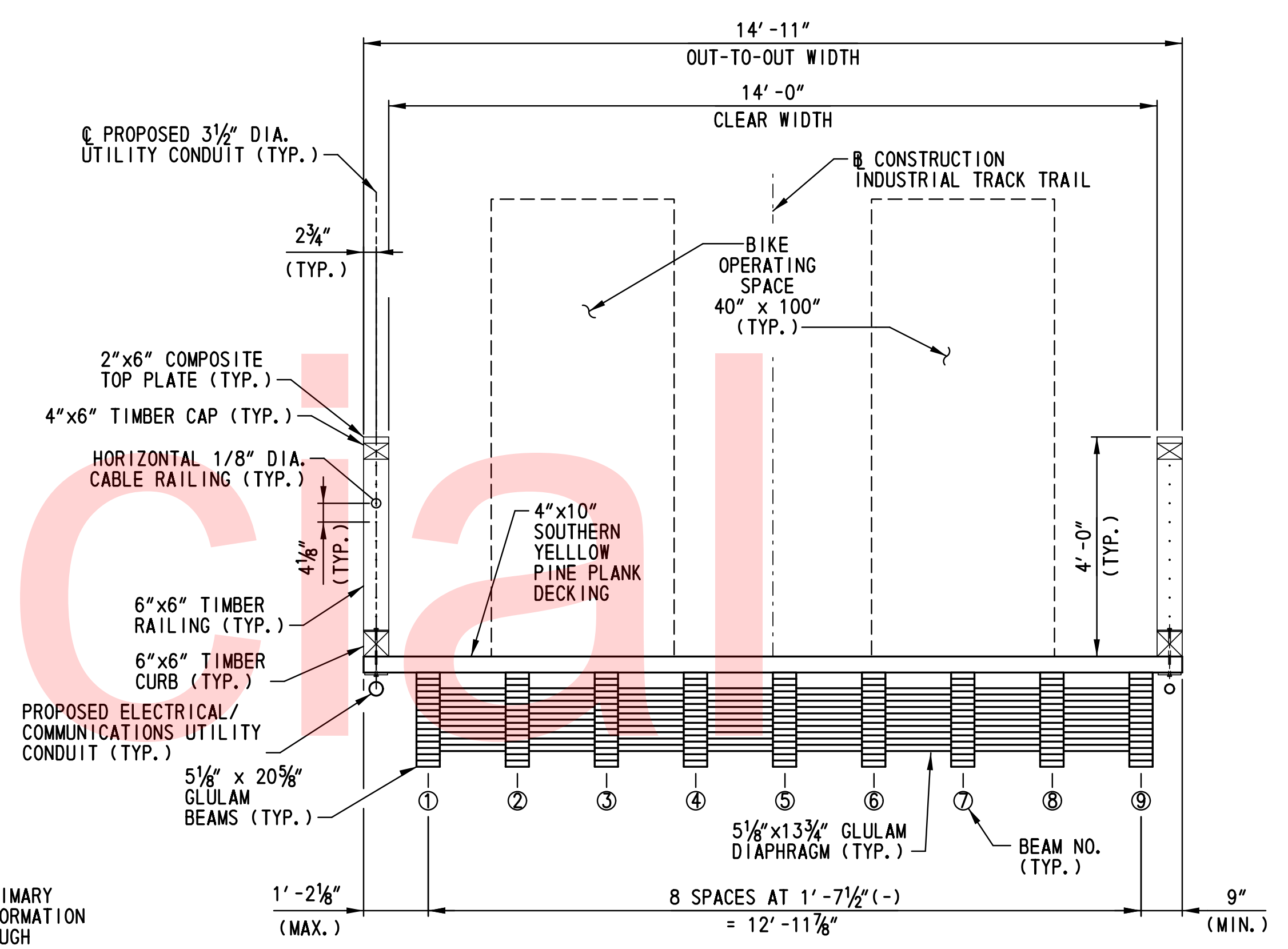
TYPICAL SECTIONS - SPAN NOS. 1-45 AND 66-164 (SEE NOTE 1)

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



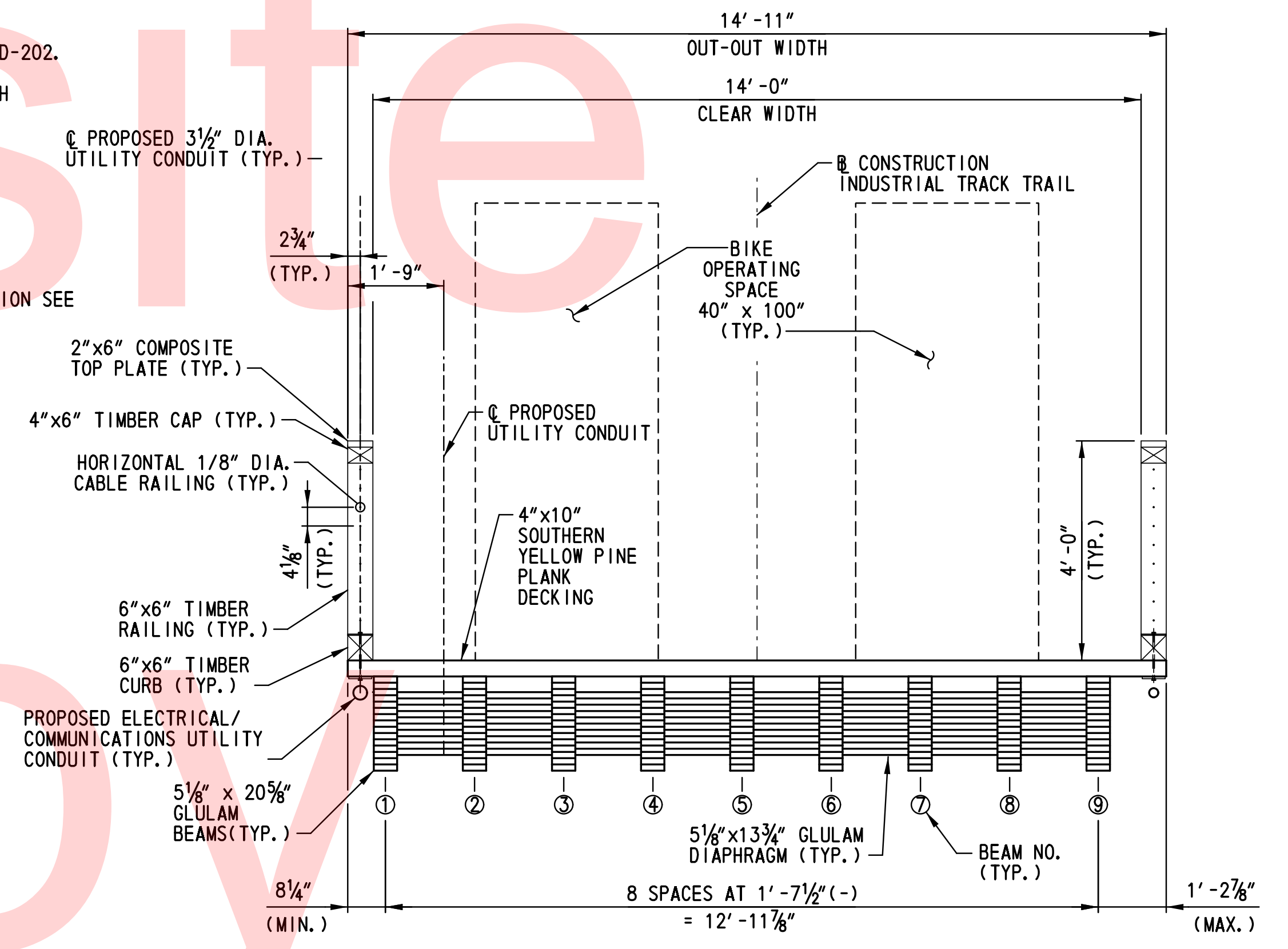
TYPICAL SECTIONS - SPAN NOS. 1-45 AND 66-164 (SEE NOTE 1)

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



TYPICAL SECTIONS - SPAN NOS. 46-65 (OFFSET SPAN - SEE NOTE 1)

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



TYPICAL SECTIONS - SPAN NOS. 46-65 (OFFSET SPAN - SEE NOTE 1)

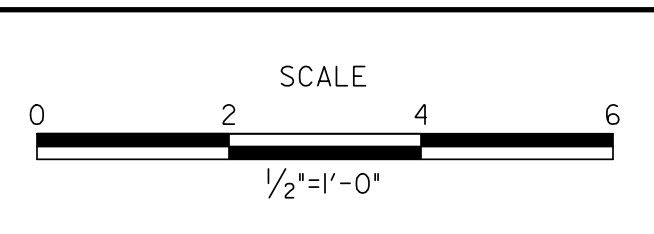
SCALE: 1/2" = 1'-0"

NOTES:

1. TYPICAL SECTIONS SHOWN DISPLAY BEAM LAYOUTS IN PRIMARY SPAN (TOP) AND OFFSET SPAN (BOTTOM). FOR MORE INFORMATION REGARDING BEAM LAYOUTS, SEE DWG. NOS. FR-201 THROUGH FR-203.
2. BEAMS SHALL BE LAPPED SIDE-BY-SIDE OVER CENTERLINE OF PIER. BEAMS SHALL EXTEND TO THE FAR FACE OF EACH PIER CAP WHEN COMPLETING BEAM LAPS. FOR MORE INFORMATION REGARDING BEAM LAPS OVER PIERS, SEE DWG. NOS. FR-201 THROUGH FR-203 AND DWG. NOS. BM-201 AND BM-202.
3. FOR DIAPHRAGM DETAILS, SEE DWG. NOS. SD-201 AND SD-202.
4. FOR DIAPHRAGM SPACING SEE DWG. NOS. FR-201 THROUGH FR-203.
5. FOR BEAM BEARING DETAILS SEE DWG. NO. BM-201.
6. FOR INFORMATION REGARDING STEEL CABLE RAILING SEE THE SPECIAL PROVISIONS.
7. FOR RAIL POST SPACING SEE DWG. NO. RL-201.
8. FOR ELECTRICAL AND COMMUNICATIONS CONDUIT INFORMATION SEE DRAWINGS LI-05 THROUGH LI-12.

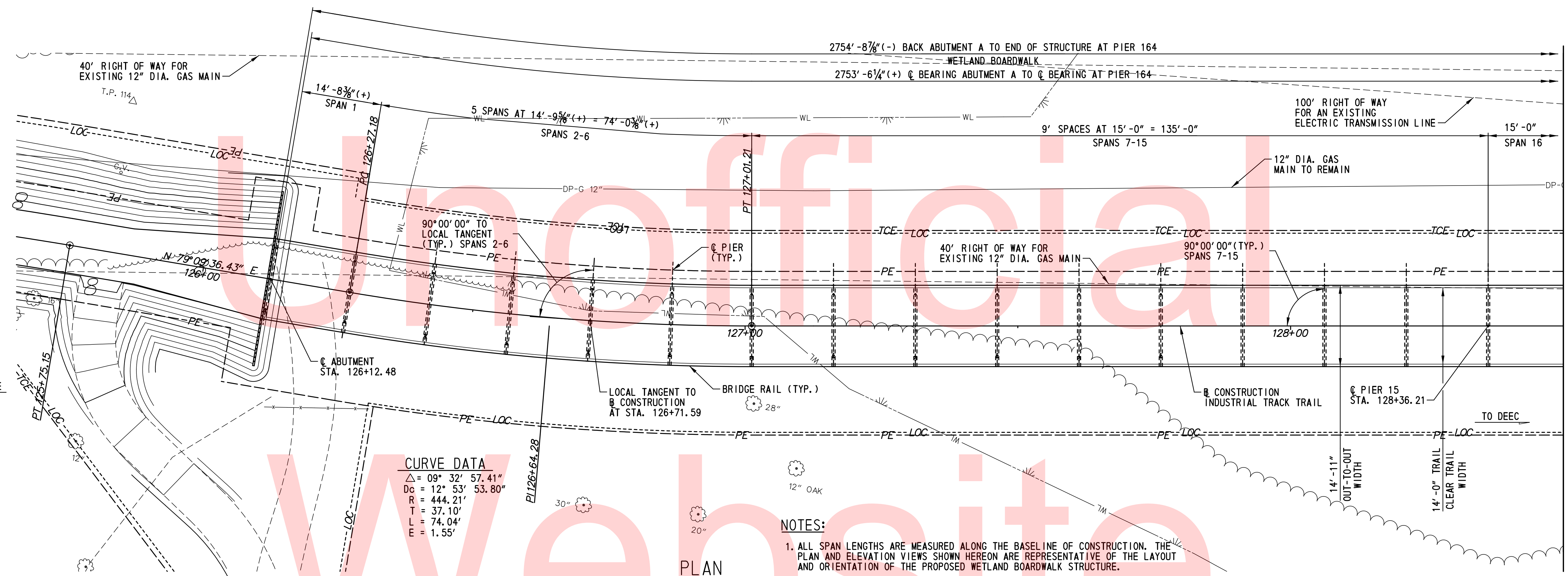
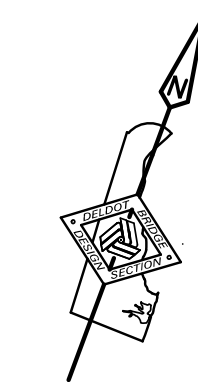
N:\31896-002\CADD\BRIDGE\TS201_L1.TG.DGN

ADDENDUMS / REVISIONS	



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD
	CHECKED BY: WAG

TS-201
SHEET NO. 82
TOTAL SHTS. 207

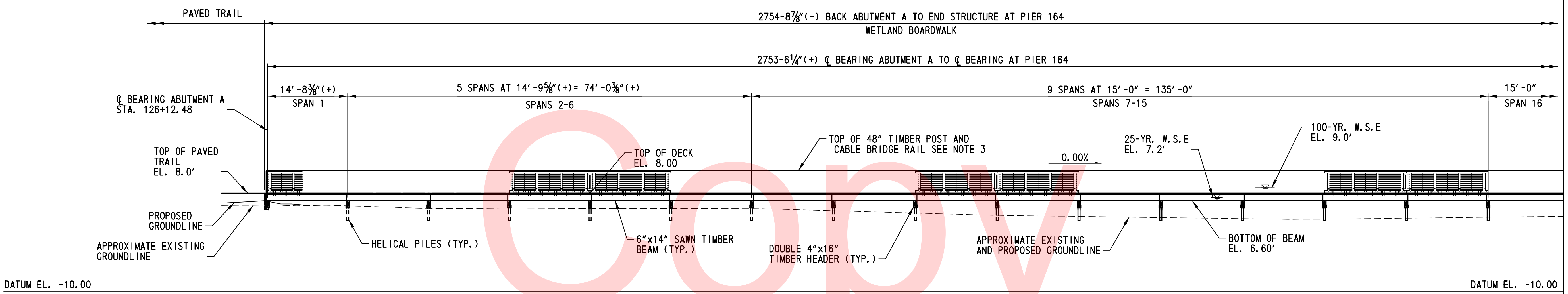


CURVE DATA

Δ = 09° 32' 57.41"
Dc = 12° 53' 53.80"
R = 444.21'
T = 37.10'
L = 74.04'
E = 1.55'

NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"X6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.

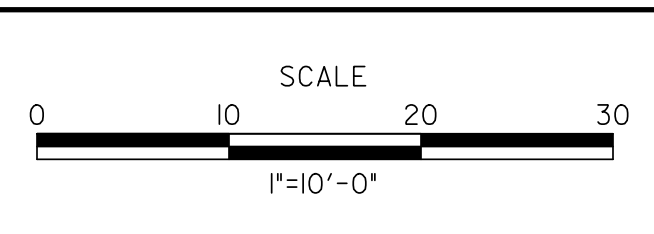


MATCHLINE STA. 128 + 50 - SEE DWG. NO. PE202

MATCHLINE STA. 128 + 50 - SEE DWG. NO. PE202

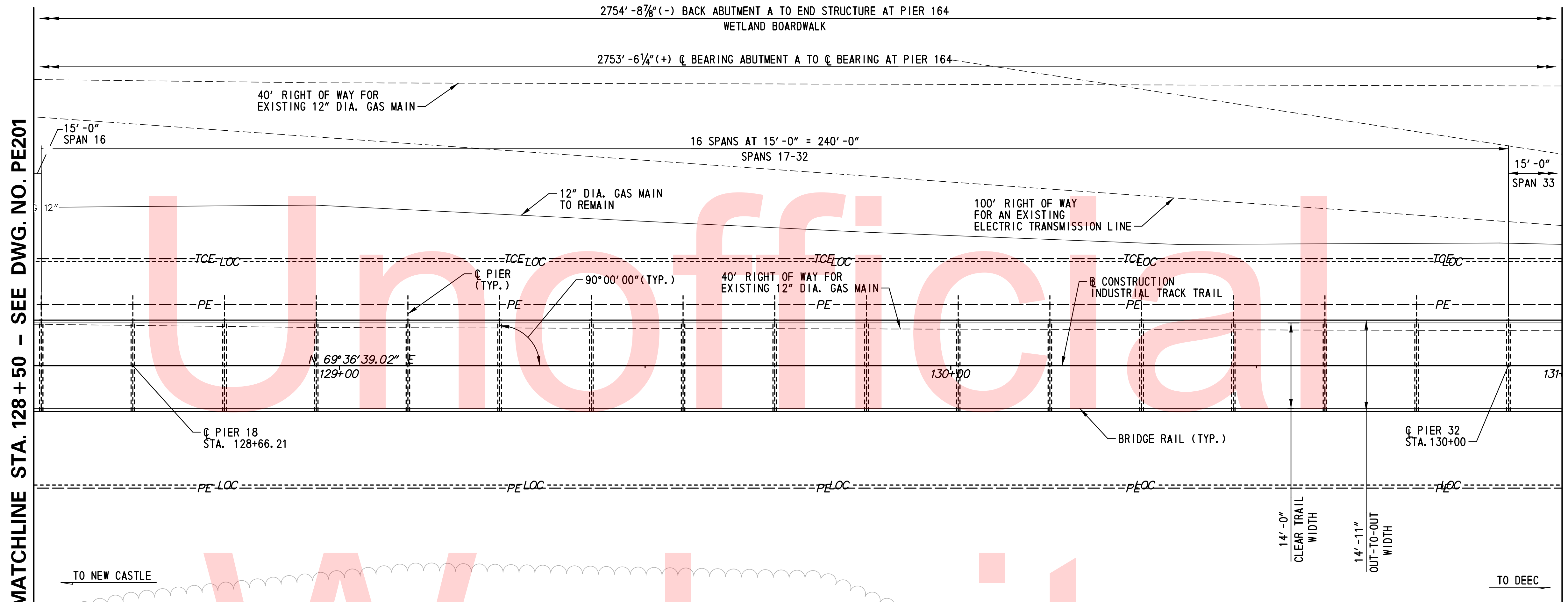
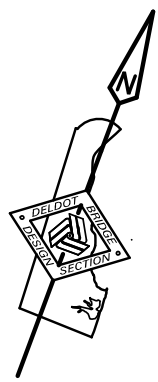
N:\31896-002\CADD\BRIDGE\PE201\TG.DGN

ADDENDUMS / REVISIONS	



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD CHECKED BY: WAG

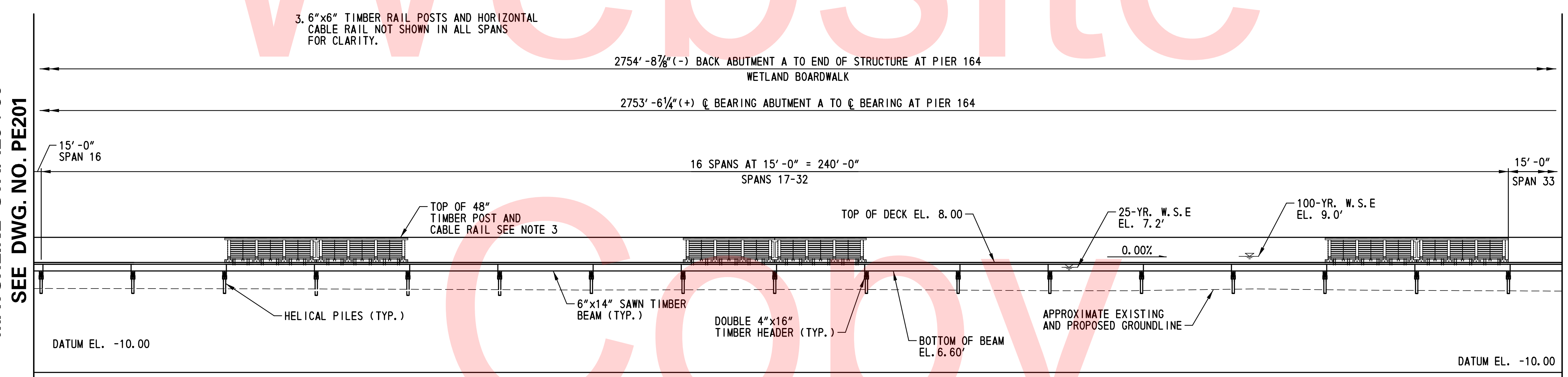
PE-201
SHEET NO. 83
TOTAL SHTS. 207



NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"x6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.

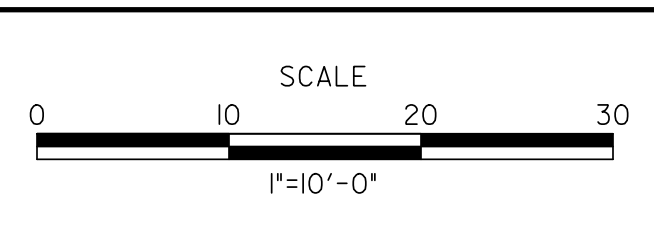
PLAN
SCALE: 1"=10'-0"



ELEVATION
SCALE: 1"=10'-0"

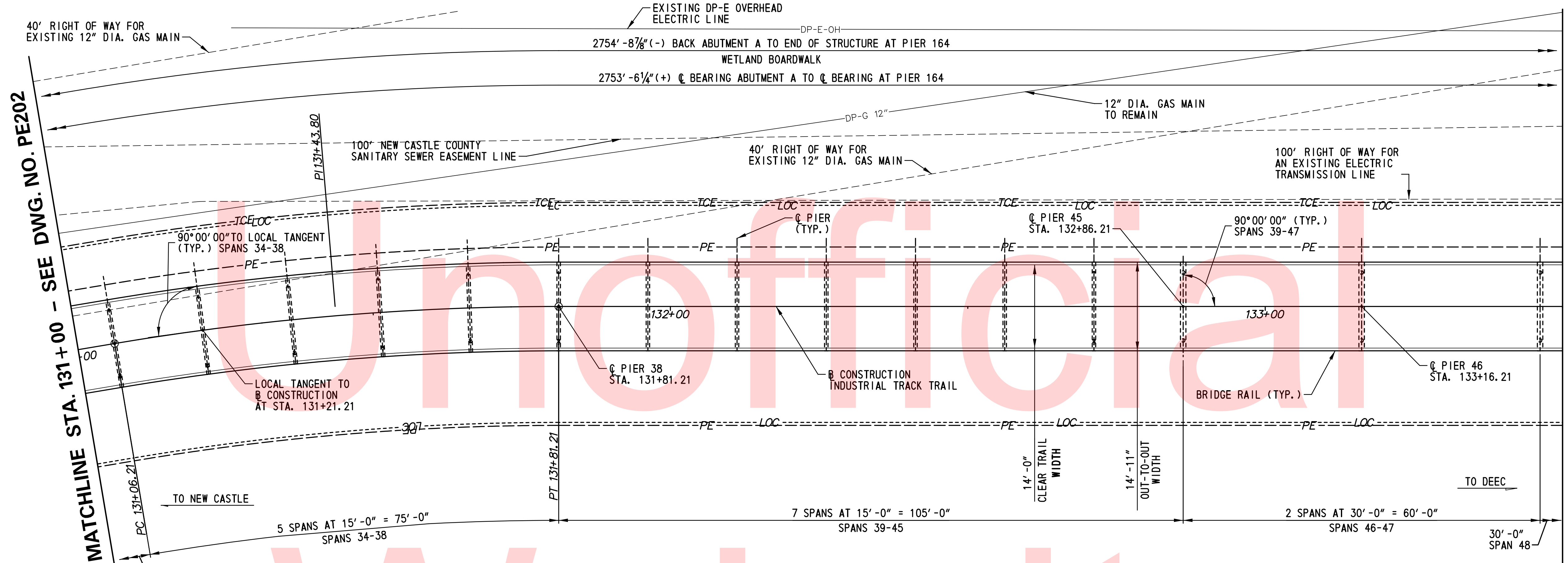
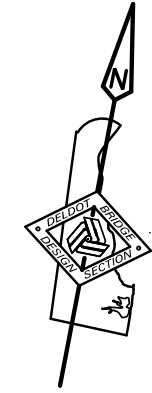
N:\31896-002\CADD\BRIDGE\PE202_JTG.DGN

ADDENDUMS / REVISIONS



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD
	CHECKED BY: WAG

PE-202
SHEET NO. 84
TOTAL SHTS. 207

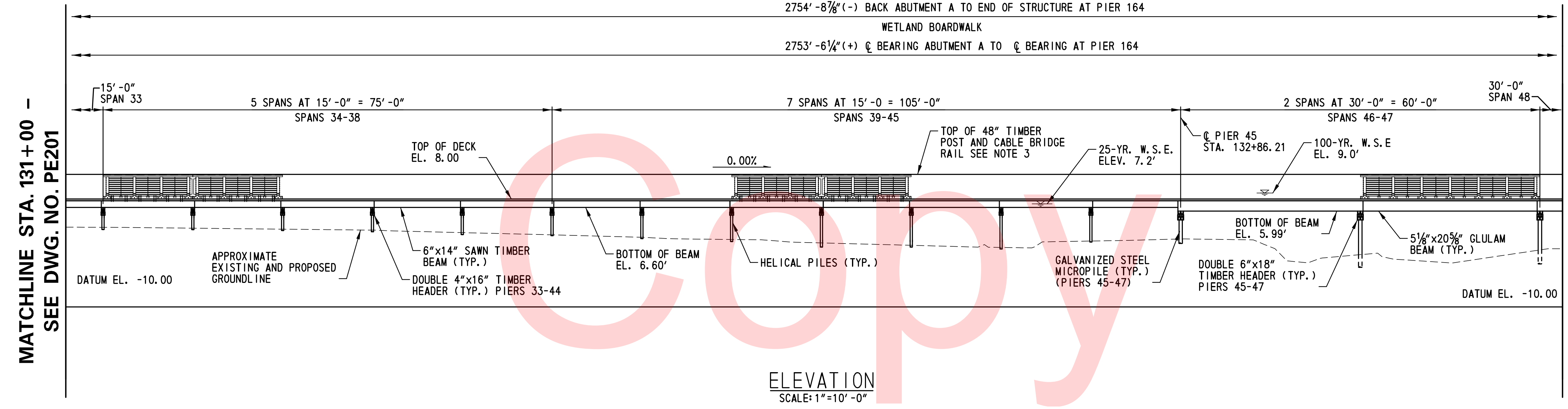


CURVE DATA
 $\Delta = 09^\circ 32' 57.36"$
 $Dc = 12^\circ 43' 56.62"$
 $R = 450.00'$
 $T = 37.59'$
 $L = 75.00'$
 $E = 1.57'$

PLAN
 SCALE: 1" = 10' - 0"

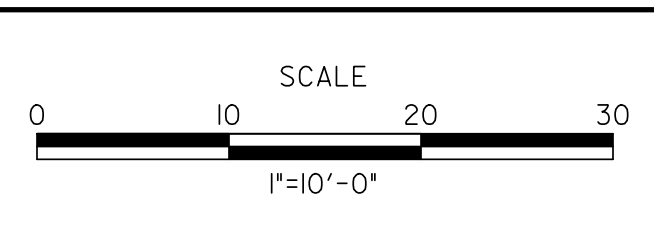
NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"x6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.



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ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD
	CHECKED BY: WAG

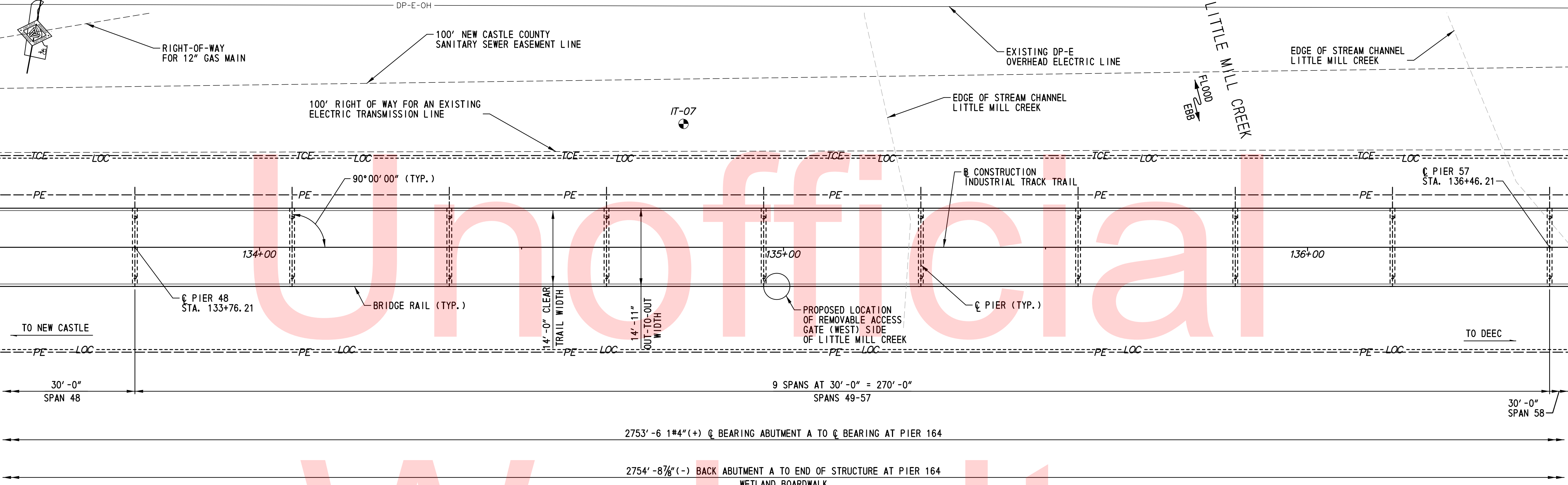
WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 3

PE-203
SHEET NO. 85
TOTAL SHTS. 207

N:\31896-002\CADD\BRIDGE\PE204_ITG.DGN

MATCHLINE STA. 133+50 - SEE DWG. NO. PE203

MATCHLINE STA. 136+50 - SEE DWG. NO. PE205



NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NO. PL-201 THROUGH PL-208.
3. 100-YR. W.S.E. VARIES FROM EL. 9.0' TO 10.0' AT APPROXIMATE STA. 134+00.

4. 6"x6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.
5. M.H.W. = MEAN HIGH WATER. M.H.H.W. = MEAN HIGHER HIGH WATER. FREEBOARD CLEARANCE ESTABLISHED BASED ON M.H.H.W. ELEVATION.

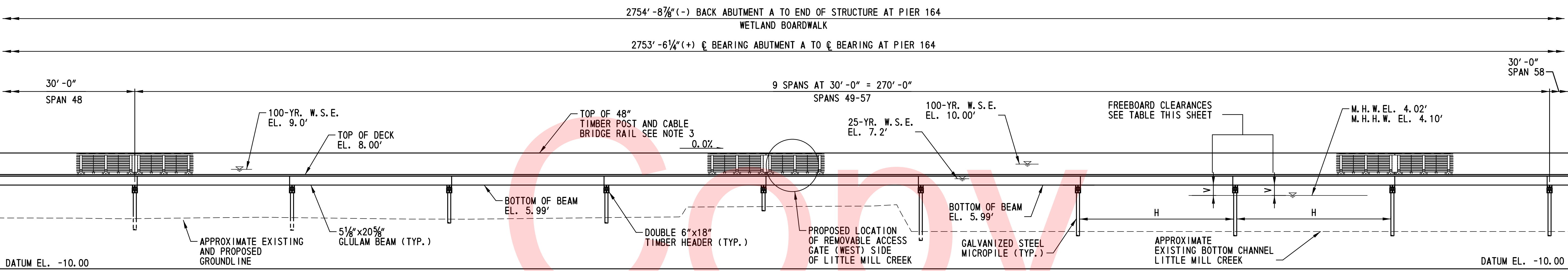
PLAN
SCALE: 1"=10'-0"

FREEBOARD CLEARANCES (SPANS 56-57)*	
DIRECTION	DIMENSION
HORIZONTAL, H	29' - 5 1/2" ±
VERTICAL, V	1' - 10 7/10" ±

* SEE NOTE 5

MATCHLINE STA. 133+50 - SEE DWG. NO. PE203

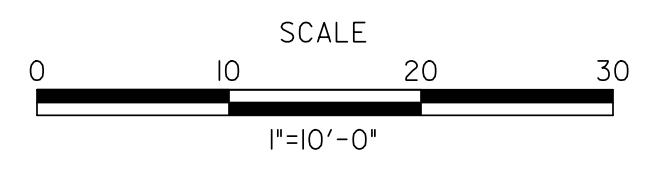
MATCHLINE STA. 136+50 - SEE DWG. NO. PE205



ELEVATION
SCALE: 1"=10'-0"



ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD CHECKED BY: WAG

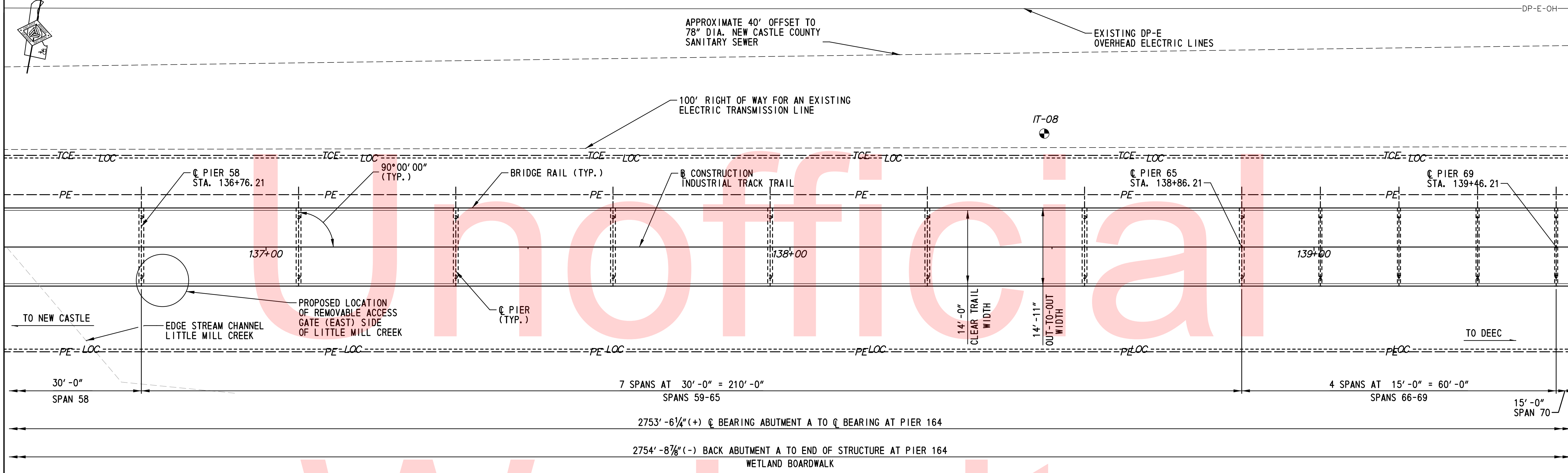
WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 4

PE-204
SHEET NO. 86
TOTAL SHTS. 207

N:\31896-002\CADD\BRIDGE\PE205_JTG.DGN

MATCHLINE STA. 136+50 - SEE DWG. NO. PE204

MATCHLINE STA. 139+50 - SEE DWG. NO. PE206

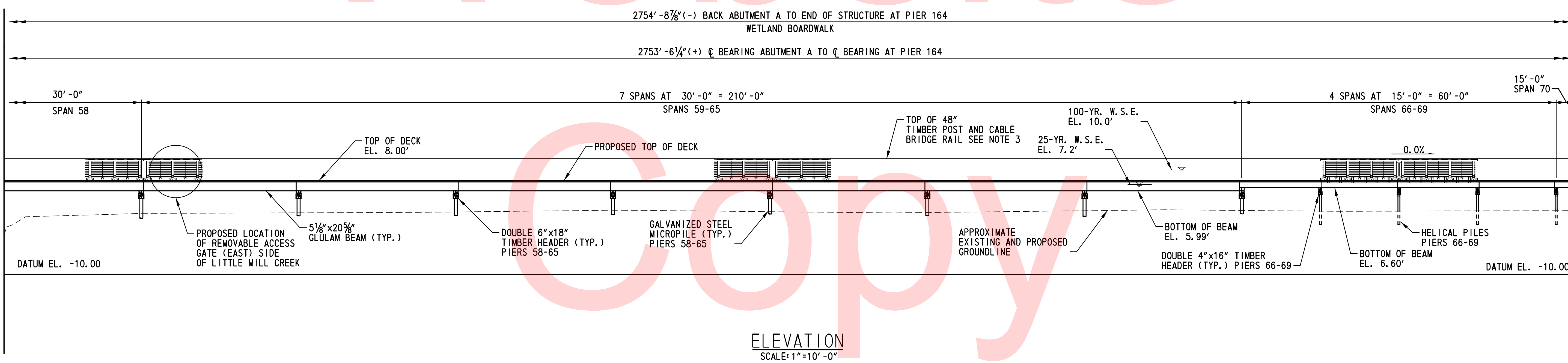


NOTES:

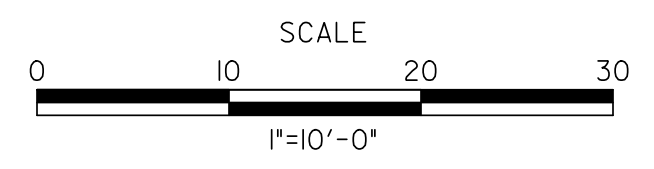
1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"x6" TIMBER RAIL POST AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.

MATCHLINE STA. 136+50 - SEE DWG. NO. PE204

MATCHLINE STA. 139+50 - SEE DWG. NO. PE206



ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

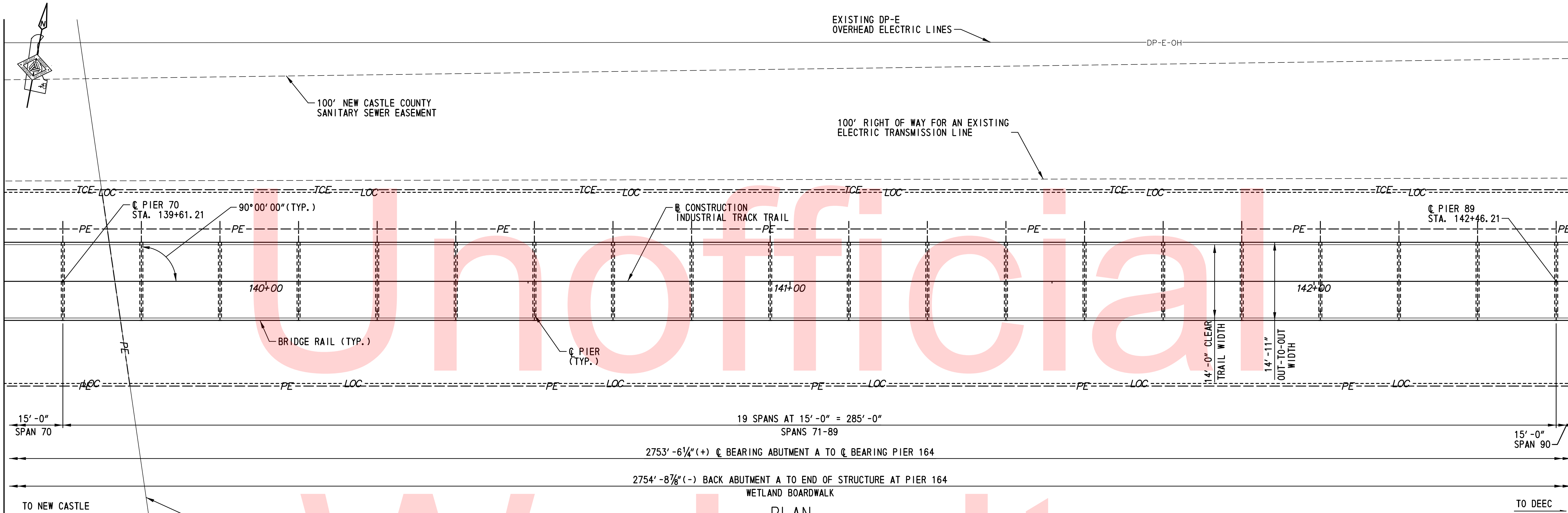
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD CHECKED BY: WAG

WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 5

PE-205
SHEET NO. 87
TOTAL SHTS. 207

MATCHLINE STA. 139+50 - SEE DWG. NO. PE205

MATCHLINE STA. 142+50 - SEE DWG. NO. PE207

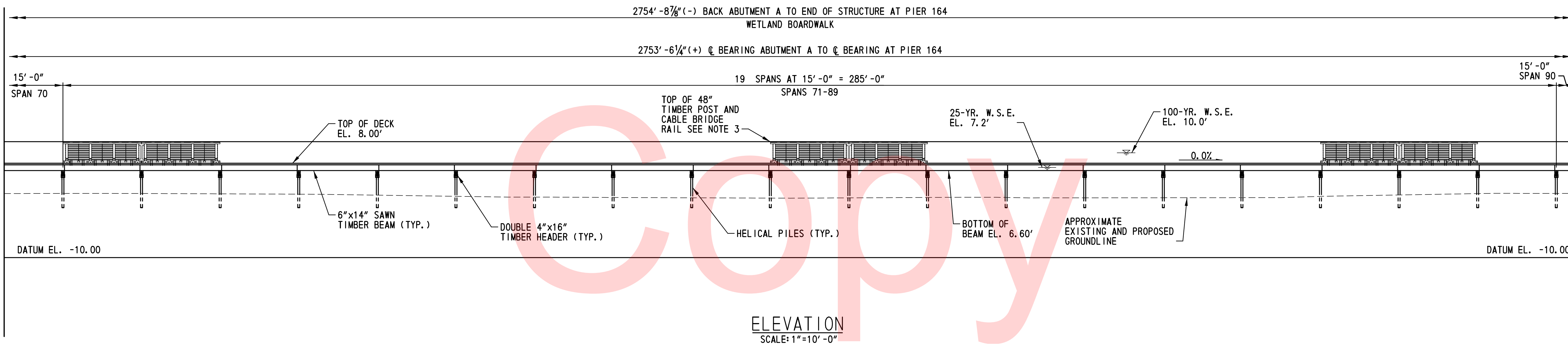


NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"x6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.

MATCHLINE STA. 139+50 - SEE DWG. NO. PE205

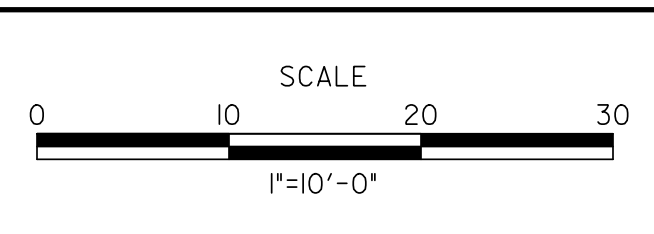
MATCHLINE STA. 142+50 - SEE DWG. NO. PE207



N:\31896-002\CADD\BRIDGE\PE206_JTG.DGN



ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD
	CHECKED BY: WAG

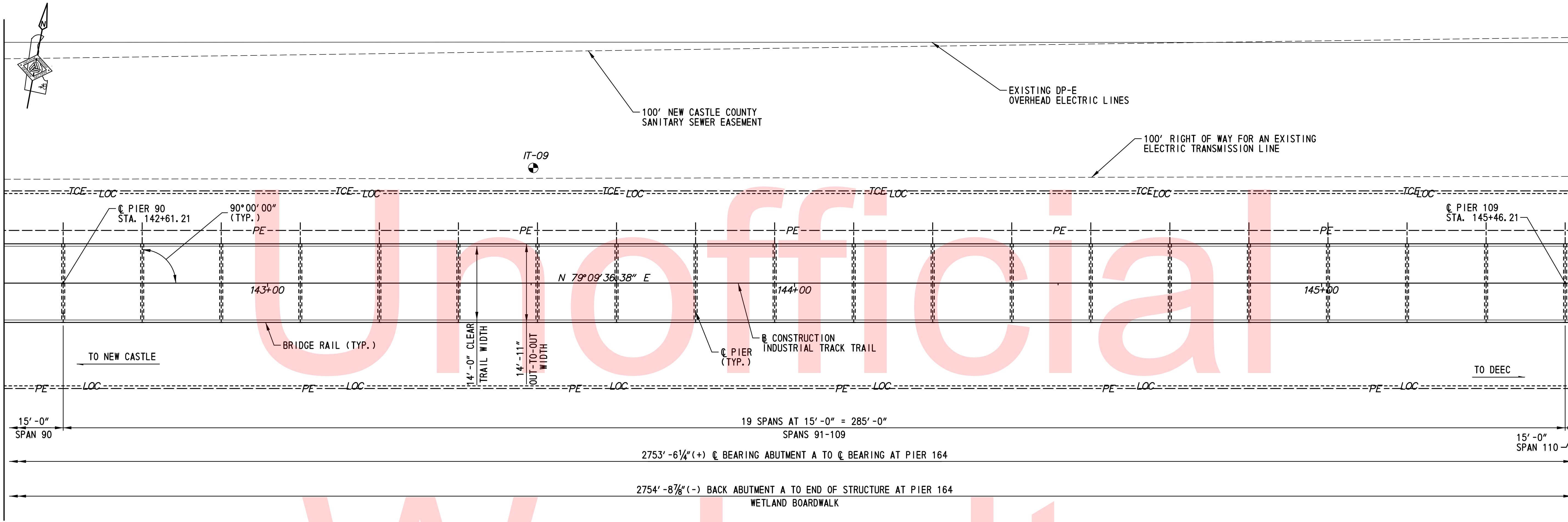
WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 6

PE-206
SHEET NO. 88
TOTAL SHTS. 207

N:\31896-002\CADD\BRIDGE\PE207_JTG.DGN

MATCHLINE STA. 142+50 - SEE DWG. NO. PE206

MATCHLINE STA. 145+50 - SEE DWG. NO. PE208



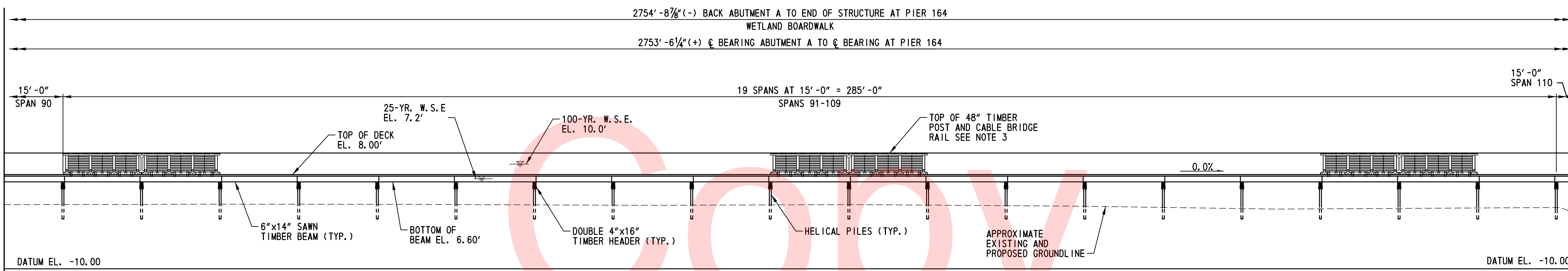
PLAN SCALE: 1"=10'-0"

NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"x6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN FOR CLARITY.

MATCHLINE STA. 142+50 - SEE DWG. NO. PE206

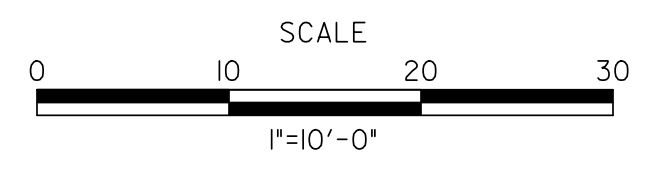
MATCHLINE STA. 145+50 - SEE DWG. NO. PE208



ELEVATION SCALE: 1"=10'-0"



ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

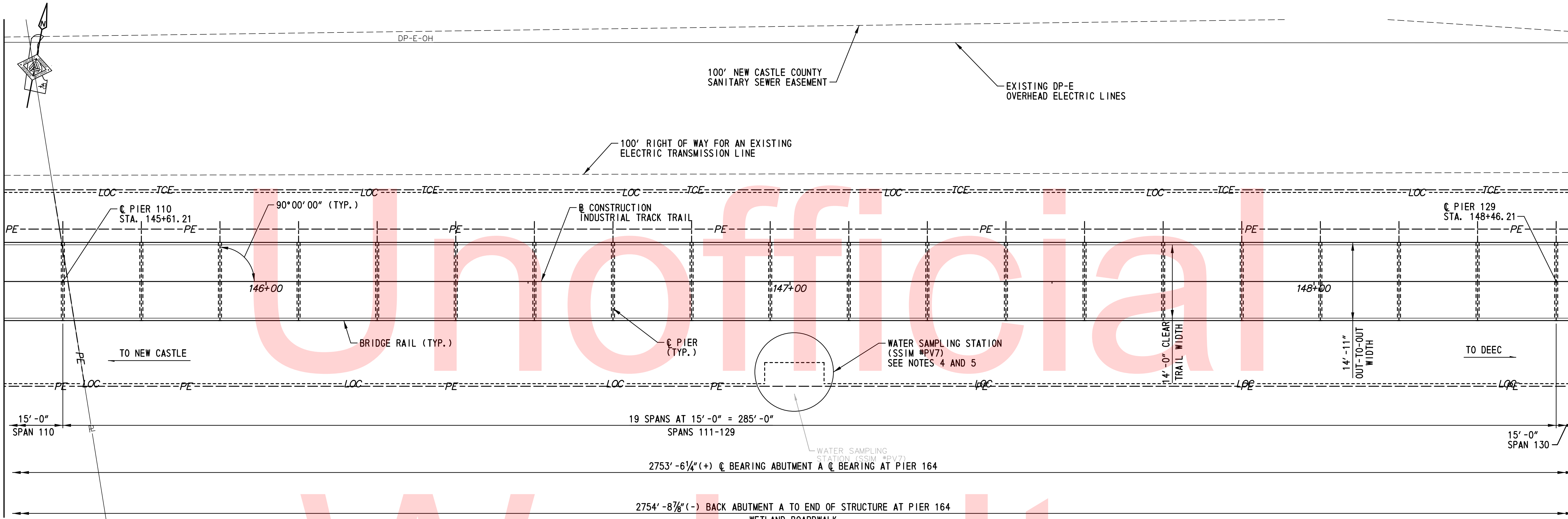
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD CHECKED BY: WAG

WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 7

PE-207
SHEET NO. 89
TOTAL SHTS. 207

MATCHLINE STA. 145+50 - SEE DWG. NO. PE207

MATCHLINE STA. 148+50 - SEE DWG. NO. PE209



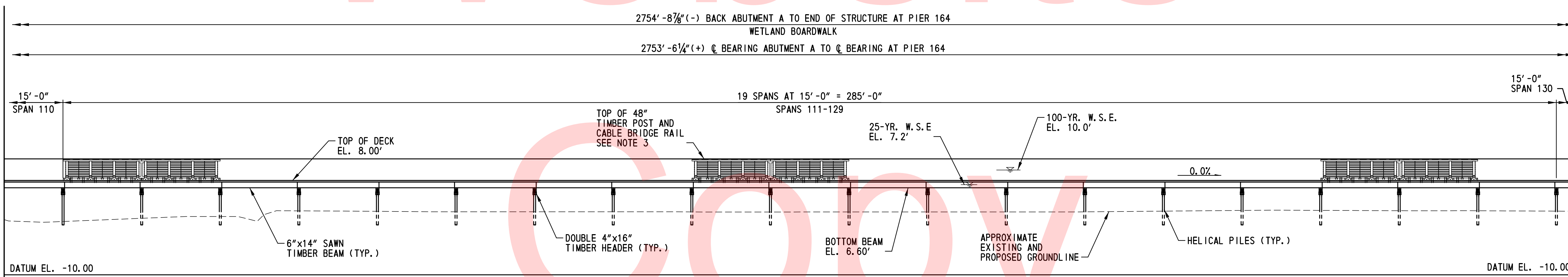
PLAN SCALE: 1"=10'-0"

NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"x6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.
4. WATER SAMPLING STATION TO REMAIN. CONTRACTOR SHALL TAKE CARE IN PROTECTING AND NOT DISTURBING STATION DURING CONSTRUCTION. REFER TO PROJECT NOTES FOR MORE INFORMATION.
5. BATTER OF PILES AT PIERS 117-121, IF REQUIRED, SHALL BE ORIENTED TO NOT DISTURB WATER SAMPLING STATION.

MATCHLINE STA. 145+50 - SEE DWG. NO. PE207

MATCHLINE STA. 148+50 - SEE DWG. NO. PE209

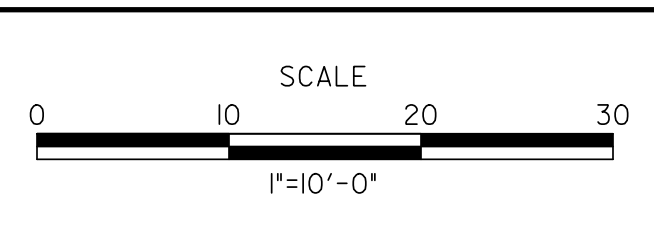


ELEVATION SCALE: 1"=10'-0"

N:\31896-002\CADD\BRIDGE\PE208_JTG.DGN



ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

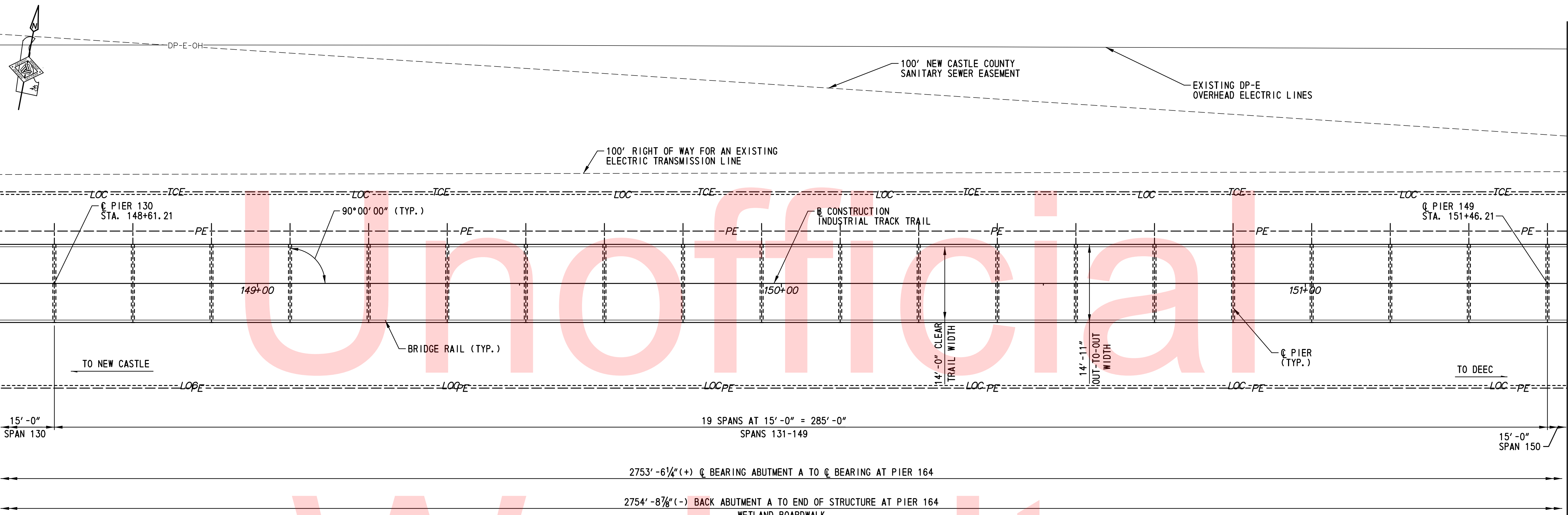
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD CHECKED BY: WAG

WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 8

PE-208
SHEET NO. 90
TOTAL SHTS. 207

MATCHLINE STA. 148+50 - SEE DWG. NO. PE208

MATCHLINE STA. 151+50 - SEE DWG. NO. PE210

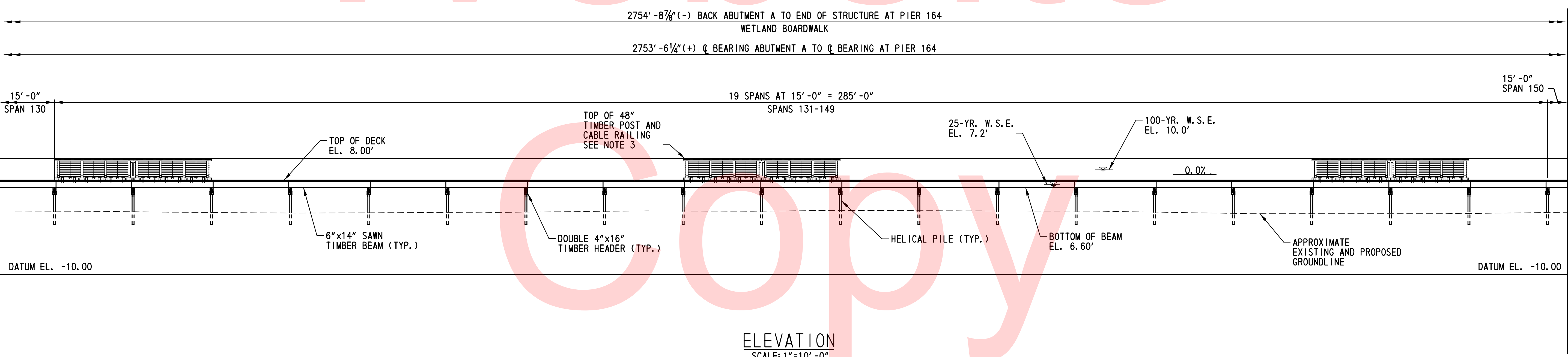


NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-208.
3. 6"x6" TIMBER RAIL POST AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.

PLAN

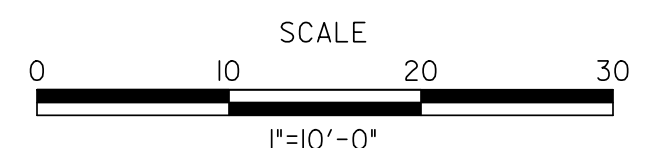
SCALE: 1"=10'-0"



ELEVATION

SCALE: 1"=10'-0"

ADDENDUMS / REVISIONS	



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

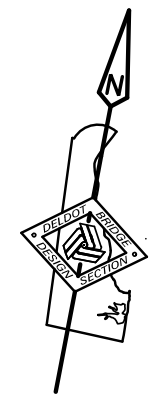
CONTRACT	T201330009
COUNTY	NEW CASTLE
BRIDGE NO.	X
DESIGNED BY:	ADD
CHECKED BY:	WAG

WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 9

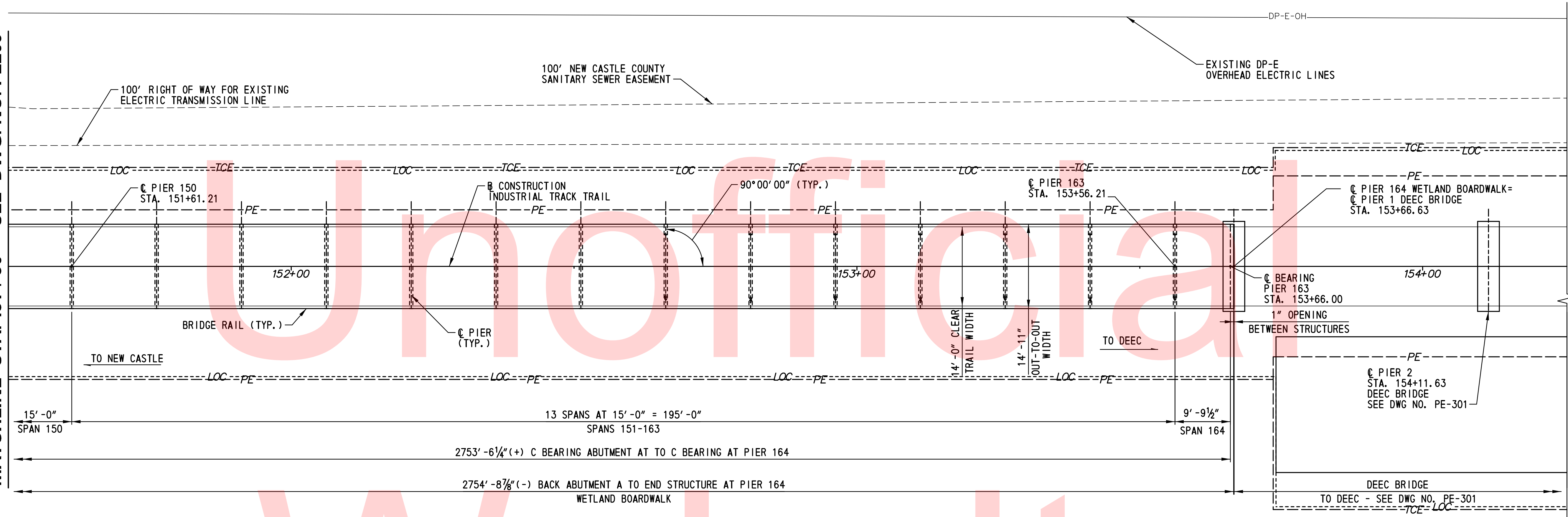


PE-209
SHEET NO.
91
TOTAL SHTS.
207

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MATCHLINE STA. 151+50 - SEE DWG. NO. PE209

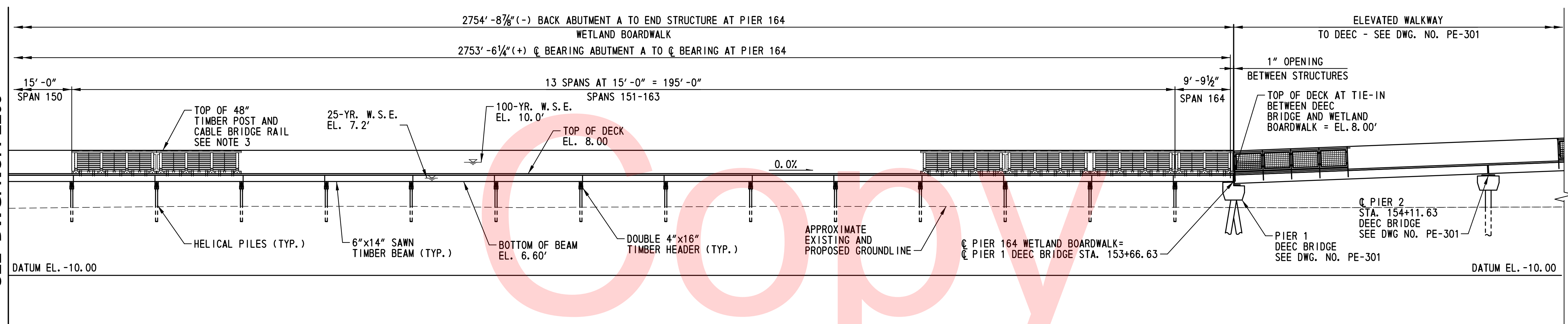


NOTES:

1. ALL SPAN LENGTHS ARE MEASURED ALONG THE BASELINE OF CONSTRUCTION. THE PLAN AND ELEVATION VIEWS SHOWN HEREON ARE REPRESENTATIVE OF THE LAYOUT AND ORIENTATION OF THE PROPOSED WETLAND BOARDWALK STRUCTURE.
2. FOR PIER STATIONS, WORKING POINTS, COORDINATES, AND PILE LAYOUTS SEE DWG. NOS. PL-201 THROUGH PL-207.
3. 6"x6" TIMBER RAIL POSTS AND HORIZONTAL CABLE RAIL NOT SHOWN IN ALL SPANS FOR CLARITY.

PLAN
SCALE: 1"=10'-0"

MATCHLINE STA. 151+50 - SEE DWG. NO. PE209

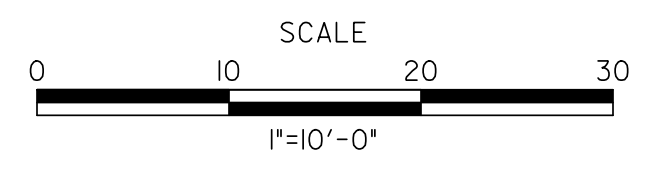


ELEVATION
SCALE: 1"=10'-0"

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ADDENDUMS / REVISIONS	

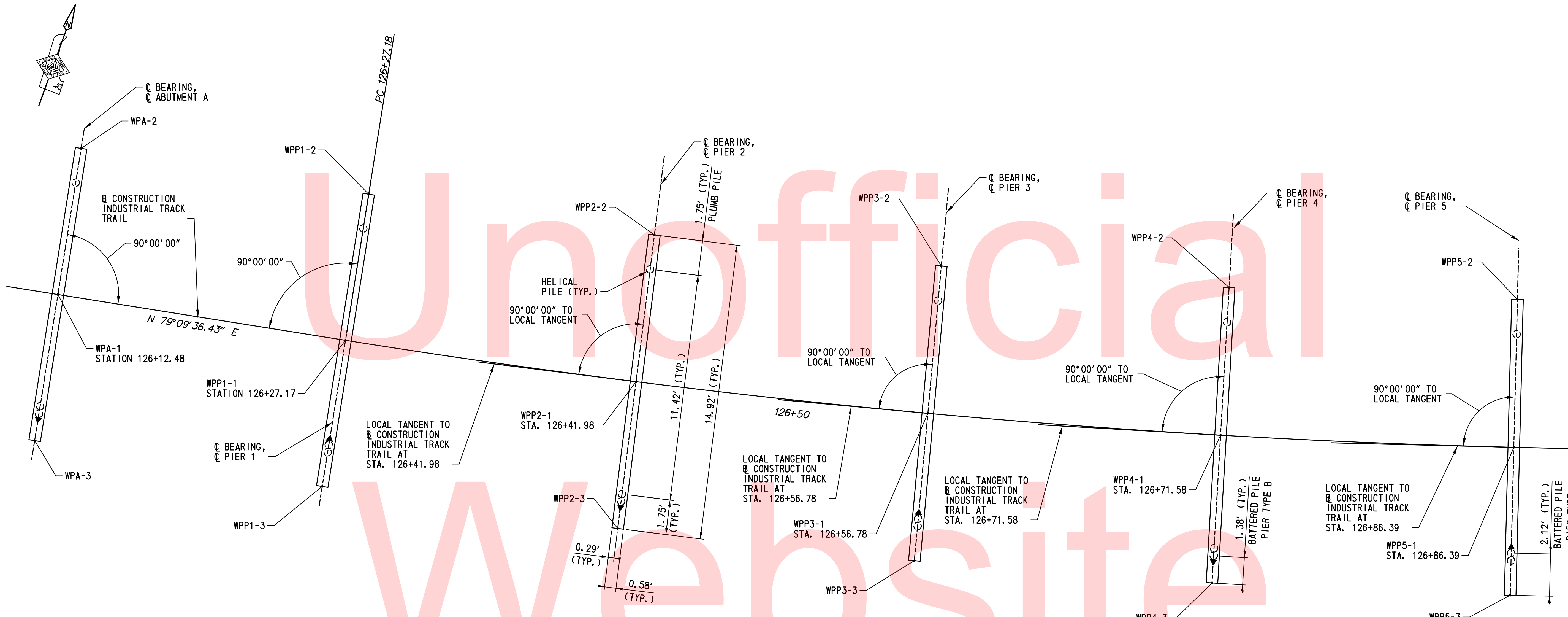


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD
	CHECKED BY: WAG

WETLAND BOARDWALK GENERAL PLAN AND ELEVATION - 10

PE-210
SHEET NO. 92
TOTAL SHTS. 207



WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPA1-1	626880.4484	612006.7065	ABUT	B
WPA1-2	626887.7737	612005.3039		
WPA1-3	626873.1231	612008.1092		
WPP1-1	626883.2112	612021.1350	1	A
WPP1-2	626890.5364	612019.7323		
WPP1-3	626875.8860	612022.5376		
WPP2-1	626886.2377	612035.6287	2	B
WPP2-2	626893.5122	612033.9827		
WPP2-3	626878.9633	612037.2747		
WPP3-1	626889.7456	612050.0136	3	A
WPP3-2	626896.9611	612048.1260		
WPP3-3	626882.5301	612051.9011		
WPP4-1	626893.7310	612064.2735	4	B
WPP4-2	626900.8796	612062.1466		
WPP4-3	626886.5824	612066.4004		
WPP5-1	626898.1893	612078.3927	5	A
WPP5-2	626905.2631	612076.0287		
WPP5-3	626891.1156	612080.7567		

CURVE DATA

$\Delta = 09^{\circ}32' 57.41''$
$D_c = 12^{\circ}53' 53.80''$
$R = 444.21'$
$T = 37.10'$
$L = 74.04'$
$E = 1.55'$

GEOMETRIC, PIER AND PILE LAYOUT PLAN
SCALE: $\frac{3}{8}'' = 1'-0''$

WORKING POINT LEGEND

WPA-1 = WORKING POINT 1, ABUTMENT A
WPA-2 = WORKING POINT 2, ABUTMENT A
WPA-3 = WORKING POINT 3, ABUTMENT A
WPP1-1 = WORKING POINT 1, PIER 1
WPP1-2 = WORKING POINT 2, PIER 1
WPP1-3 = WORKING POINT 3, PIER 1
POINT 1 = @ PIER/ABUTMENT AT @ CONSTRUCTION
POINT 2 = @ PIER/ABUTMENT AT LEFT END OF CAP
POINT 3 = @ PIER/ABUTMENT AT RIGHT END OF CAP
OTHER TABULATED POINTS SIMILAR

*ALL COORDINATES SET PERPENDICULAR TO
@ CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING
STATION AHEAD

PILE LEGEND

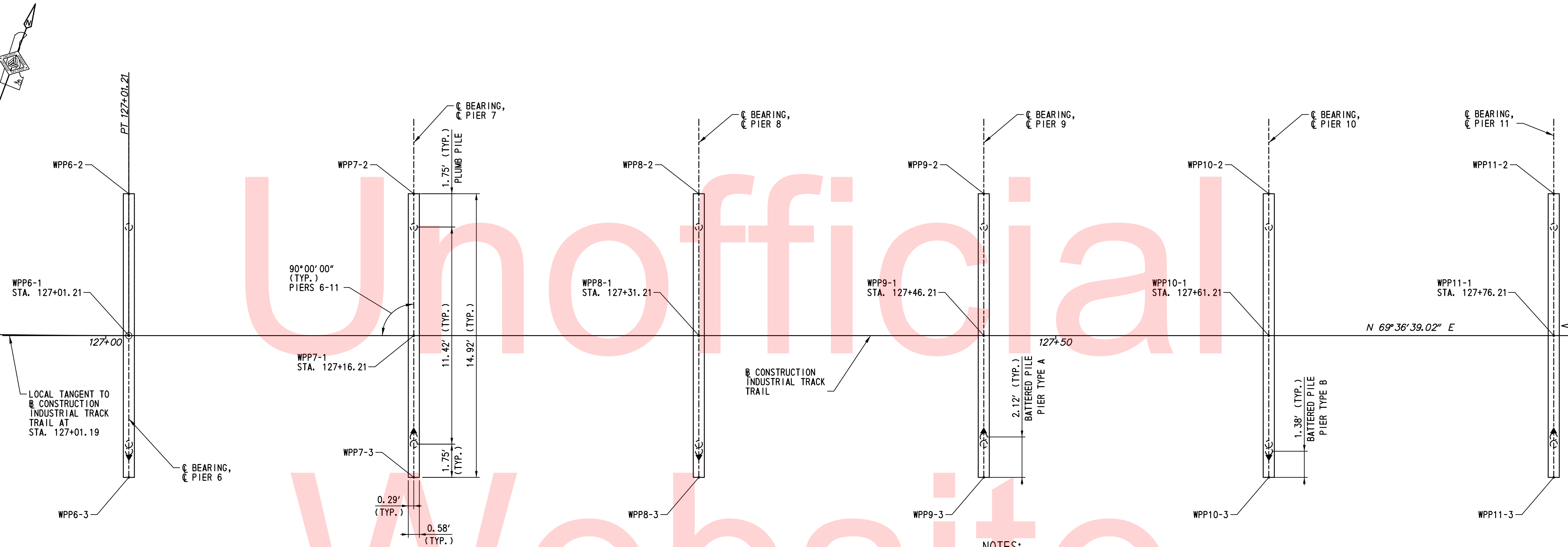
○ DENOTES PLUMB PILE (HELICAL PILE)
➤ DENOTES BATTERED PILE (HELICAL PILE)

NOTES:

1. THE HELICAL PILE TYPE AND LAYOUT SHOWN IS A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE PILES DESIGNED IN ACCORDANCE WITH THE TABULATED SERVICE LOADS SHOWN ON DWG. NO. PN-201. FOR MORE INFORMATION REGARDING HELICAL PILES REFER TO THE SPECIAL PROVISIONS.
2. SEE DWG. NO. PR-201 FOR DESIGNATION OF PIER TYPE.
3. LOCATION AND DIRECTION OF BATTERED HELICAL PILES IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY FOR THE SUGGESTED METHOD OF CONSTRUCTION. ACTUAL LOCATION AND NUMBER OF BATTERING PILES SHALL BE DETERMINED BY THE CONTRACTOR AND INSTALLED TO AVOID CONFLICTS WITH EXISTING UTILITY LOCATIONS AND EASEMENTS AS SHOWN ON DWG. NOS. PE-201 THROUGH PE-210. SEE DWG. NO. PR-201 FOR ADDITIONAL BATTERED PILE INFORMATION FOR EACH PIER TYPE.
4. LOCATIONS OF HELICAL PILES TO BE CONSIDERED AS TEST PILES NOT SHOWN. REFER TO SPECIAL PROVISIONS FOR INFORMATION REGARDING LOCATION AND NUMBER OF TEST PILES.

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MATCHLINE STA. 126 + 94 -
SEE DWG. NO. PL201



CURVE DATA
 $\Delta = 09^\circ 32' 57.41''$
 $D_c = 12^\circ 53' 53.80''$
 $R = 444.21'$
 $T = 37.10'$
 $L = 74.04'$
 $E = 1.55'$

WORKING POINT LEGEND

WPP6-1 = WORKING POINT 1, PIER 6
 WPP6-2 = WORKING POINT 2, PIER 6
 WPP6-3 = WORKING POINT 3, PIER 6
 POINT 1 = C PIER AT B CONSTRUCTION
 POINT 2 = C PIER AT LEFT END OF CAP
 POINT 3 = C PIER AT RIGHT END OF CAP

OTHER TABULATED POINTS SIMILAR

*ALL COORDINATES SET PERPENDICULAR TO
 B CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING
 AHEAD STATION

GEOMETRIC, PIER AND PILE LAYOUT
 SCALE: 3/8"=1'-0"

NOTES:

- WORKING POINTS, PILE LAYOUTS, AND DIMENSIONS FOR PIERS 12-32 NOT SHOWN GRAPHICALLY, BUT COORDINATES, PIER NO. AND PIER TYPE TABULATED ON THIS SHEET.
- BEARING OF B CONSTRUCTION INDUSTRIAL TRACK TRAIL CONTINUES WITHOUT CHANGE THROUGH PIER 32 AS SHOWN.
- THE HELICAL PILE TYPE AND LAYOUT SHOWN IS A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE PILES DESIGNED IN ACCORDANCE WITH THE TABULATED SERVICE LOADS SHOWN ON DWG. NO. PN-201. FOR MORE INFORMATION REGARDING HELICAL PILES REFER TO THE SPECIAL PROVISIONS.
- LOCATION AND DIRECTION OF BATTERED HELICAL PILES IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY FOR THE SUGGESTED METHOD OF CONSTRUCTION. ACTUAL LOCATION AND NUMBER OF BATTERED PILES SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE INSTALLED TO AVOID CONFLICTS WITH EXISTING UTILITY LOCATIONS AND EASEMENTS SHOWN ON DWG. NOS. PE-201 THROUGH PE-210. SEE DWG. NOS. PR-201 AND PR-202 FOR ADDITIONAL BATTERED PILE INFORMATION FOR EACH PIER TYPE.
- LOCATIONS OF HELICAL PILES TO BE CONSIDERED AS TEST PILES NOT SHOWN. REFER TO THE SPECIAL PROVISIONS FOR INFORMATION REGARDING LOCATION AND NUMBER OF TEST PILES.
- SEE DWG. NO. PR-201 FOR HELICAL PILE BATTER DIRECTION AT PIERS 12-32.

PILE LEGEND

- DENOTES PLUMB PILE (HELICAL PILE)
- DENOTES BATTERED PILE (HELICAL PILE)

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP6-1	626903.1156	612092.3555	6	B
WPP6-2	626910.1067	612089.7571		
WPP6-3	626896.1245	612094.9540		
WPP7-1	626908.3415	612106.4158	7	A
WPP7-2	626915.3326	612103.8173		
WPP7-3	626901.3505	612109.0142		
WPP8-1	626913.5675	612120.4760	8	B
WPP8-2	626920.5585	612117.8775		
WPP8-3	626906.5764	612123.0744		
WPP9-1	626918.7934	612134.5362	9	A
WPP9-2	626925.7844	612131.9377		
WPP9-3	626911.8023	612137.1346		
WPP10-1	626924.0193	612148.5964	10	B
WPP10-2	626931.0104	612145.9980		
WPP10-3	626917.0282	612151.1949		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP11-1	626929.2452	612162.6566	11	A
WPP11-2	626936.2363	612160.0582		
WPP11-3	626922.2542	612165.2551		
WPP12-1	626934.4712	612176.7168	12	B
WPP12-2	626941.4622	612174.1184		
WPP12-3	626927.4801	612179.3153		
WPP13-1	626939.6971	612190.7771	13	A
WPP13-2	626946.6882	612188.1786		
WPP13-3	626932.7060	612193.3755		
WPP14-1	626944.9230	612204.8373	14	B
WPP14-2	626951.9141	612202.2388		
WPP14-3	626937.9320	612207.4357		
WPP15-1	626950.1490	612218.8975	15	A
WPP15-2	626957.1400	612216.2990		
WPP15-3	626943.1579	612221.4959		
WPP16-1	626955.3749	612232.9577	16	B
WPP16-2	626962.3659	612230.3593		
WPP16-3	626948.3838	612235.5562		

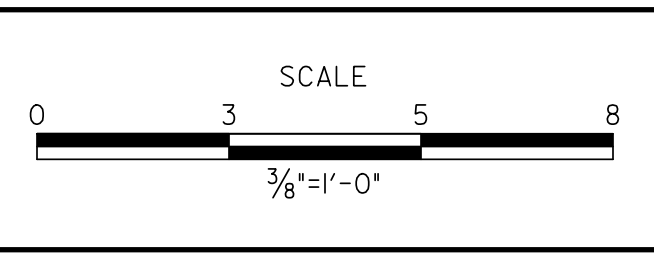
WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP17-1	626960.6008	612247.0179	17	A
WPP17-2	626967.5919	612244.4195		
WPP17-3	626953.6097	612249.6164		
WPP18-1	626965.8267	612261.0781	18	B
WPP18-2	626972.8178	612258.4797		
WPP18-3	626958.8357	612263.6766		
WPP19-1	626971.0527	612275.1384	19	A
WPP19-2	626978.0437	612272.5399		
WPP19-3	626964.0616	612277.7368		
WPP20-1	626976.2786	612289.1986	20	B
WPP20-2	626983.2697	612286.6001		
WPP20-3	626969.2875	612291.7970		
WPP21-1	626981.5045	612303.2588	21	A
WPP21-2	626988.4956	612300.6603		
WPP21-3	626974.5135	612305.8572		
WPP22-1	626986.7304	612317.3190	22	B
WPP22-2	626993.7215	612314.7205		
WPP22-3	626979.7394	612319.9175		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP23-1	626991.9564	612331.3792	23	A
WPP23-2	626998.9474	612328.7808		
WPP23-3	626984.9653	612333.9777		
WPP24-1	626997.1823	612345.4394	24	B
WPP24-2	627004.1734	612342.8410		
WPP24-3	626990.1912	612348.0379		
WPP25-1	627002.4082	612359.4996	25	A
WPP25-2	627009.3993	612356.9012		
WPP25-3	626995.4172	612362.0981		
WPP26-1	627007.6342	612373.5599	26	B
WPP26-2	627014.6252	612370.9614		
WPP26-3	627000.6431	612376.1583		
WPP27-1	627012.8601	612387.6201	27	A
WPP27-2	627019.8512	612385.0216		
WPP27-3	627005.8690	612390.2185		
WPP28-1	627018.0860	612401.6803	28	B
WPP28-2	627025.0771	612399.0818		
WPP28-3	627011.0950	612404.2787		

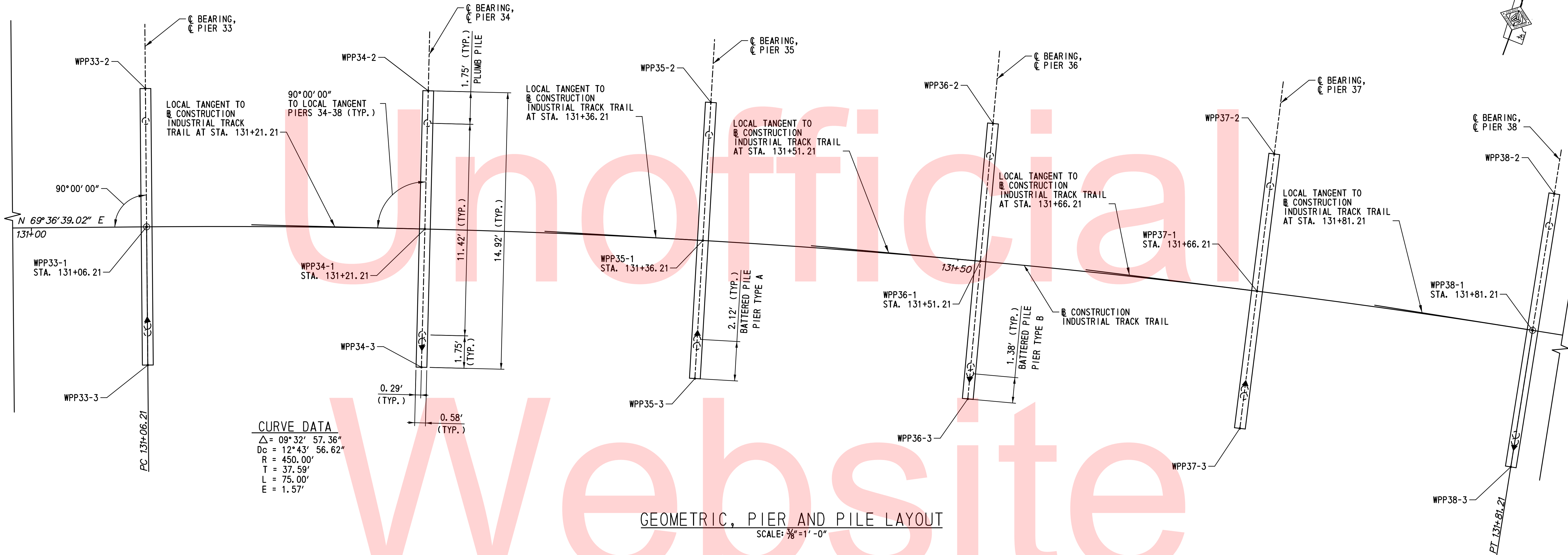
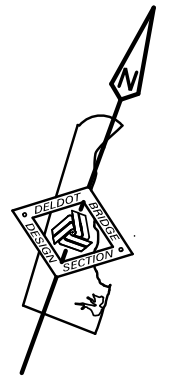
WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP29-1	627023.3119	612415.7405	29	A
WPP29-2	627030.3030	612413.1421		
WPP29-3	627016.3209	612418.3390		
WPP30-1	627028.5379	612429.8007	30	B
WPP30-2	627035.5289	612427.2023		
WPP30-3	627021.5468	612432.3992		
WPP31-1	627033.7638	612443.8609	31	A
WPP31-2	627040.7549	612441.2625		
WPP31-3	627026.7727	612446.4594		
WPP32-1	627038.9897	612457.9212	32	B
WPP32-2	627045.9808	612455.3227		
WPP32-3	627031.9987	612460.5196		

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ADDENDUMS / REVISIONS



CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD CHECKED BY: WAG



GEOMETRIC, PIER AND PILE LAYOUT
 SCALE: 3/8"=1'-0"

PILE LEGEND

- DENOTES PLUMB PILE (HELICAL PILE)
- ◐ DENOTES BATTERED PILE (HELICAL PILE)

WORKING POINT LEGEND

- WPP33-1 = WORKING POINT 1, PIER 33
- WPP33-2 = WORKING POINT 2, PIER 33
- WPP33-3 = WORKING POINT 3, PIER 33
- POINT 1 = C PIER AT B CONSTRUCTION
- POINT 2 = C PIER AT LEFT END OF CAP
- POINT 3 = C PIER AT RIGHT END OF CAP

OTHER TABULATED POINTS SIMILAR

*ALL COORDINATES SET PERPENDICULAR TO B CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING AHEAD STATION

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP33-1	627044.2157	612471.9814	33	A
WPP33-2	627051.2067	612469.3829		
WPP33-3	627037.2246	612474.5798		
WPP34-1	627049.2059	612486.1249	34	B
WPP34-2	627056.2797	612483.7608		
WPP34-3	627042.1321	612488.4889		
WPP35-1	627053.7225	612500.4283	35	A
WPP35-2	627060.8711	612498.3014		
WPP35-3	627046.5739	612502.5553		
WPP36-1	627057.7599	612514.8744	36	B
WPP36-2	627064.9754	612512.9868		
WPP36-3	627050.5443	612516.7619		
WPP37-1	627061.3136	612529.4470	37	A
WPP37-2	627068.5880	612527.8009		
WPP37-3	627054.0391	612531.0930		
WPP38-1	627064.3796	612544.1299	38	B
WPP38-2	627071.7050	612542.7273		
WPP38-3	627057.0543	612545.5326		

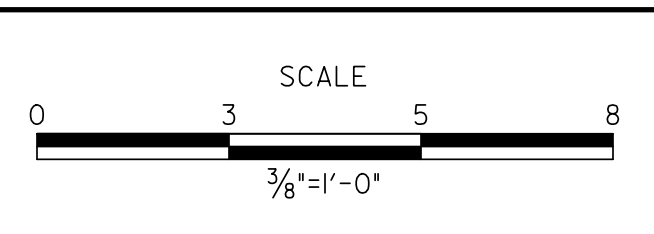
NOTES:

1. WORKING POINTS, COORDINATES, AND PIER TYPE FOR PIERS 12-32 SHOWN TABULATED ON DWG. NO. PL-202.
2. THE HELICAL PILE TYPE AND LAYOUT SHOWN IS A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE PILES DESIGNED IN ACCORDANCE WITH THE TABULATED SERVICE LOADS SHOWN ON DWG. NO. PN-201. FOR MORE INFORMATION REGARDING HELICAL PILES REFER TO THE SPECIAL PROVISIONS.
3. SEE DWG. NO. PR201 FOR DESIGNATION OF PIER TYPE.
4. LOCATION AND DIRECTION OF BATTERED HELICAL PILES IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY FOR THE SUGGESTED METHOD OF CONSTRUCTION. ACTUAL LOCATION AND NUMBER OF BATTERED PILES SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE INSTALLED TO AVOID CONFLICTS WITH EXISTING UTILITY LOCATIONS AND EASEMENTS AS SHOWN ON DWG. NOS. PE-201 THROUGH PE-210. SEE DWG. NOS. PR-201 THROUGH PR-202 FOR ADDITIONAL BATTERED PILE INFORMATION FOR EACH PIER TYPE.
5. SEE TABLE ON THIS SHEET FOR HELICAL PILE BATTER DIRECTION FOR PIERS 33-38.
6. LOCATIONS OF HELICAL PILES TO BE CONSIDERED AS TEST PILES NOT SHOWN. REFER TO SPECIAL PROVISIONS FOR INFORMATION REGARDING LOCATION AND NUMBER OF TEST PILES.

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ADDENDUMS / REVISIONS	

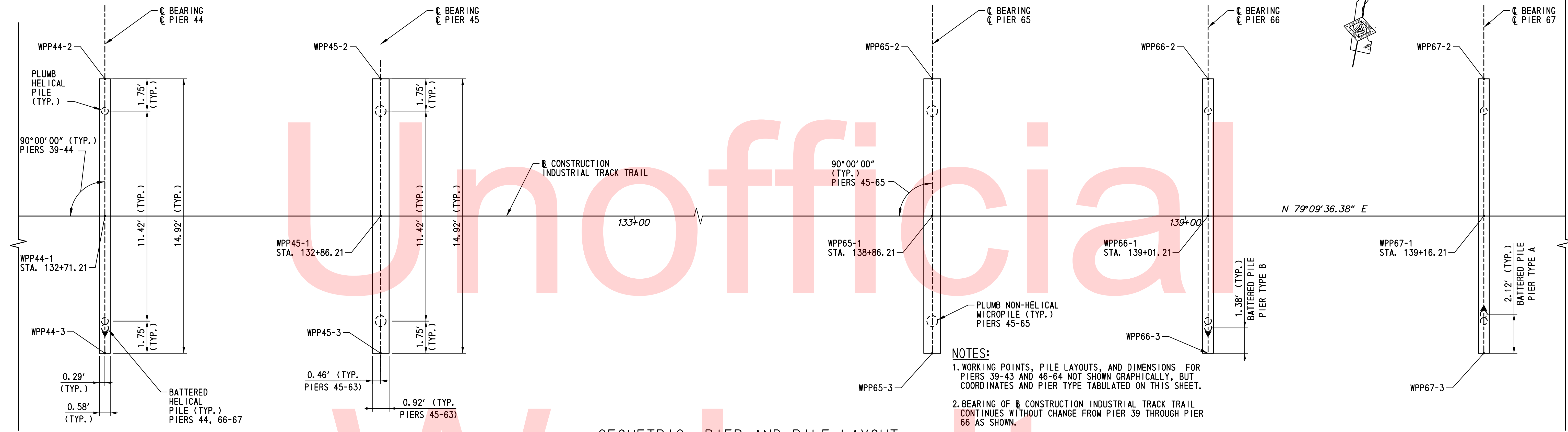


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: ADD	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

GEOMETRIC, PIER AND PILE LAYOUT PLAN - 3	
SHEET NO.	95
TOTAL SHTS.	207

PL-203
SHEET NO. 95
TOTAL SHTS. 207



GEOMETRIC, PIER AND PILE LAYOUT
SCALE: 3/8"=1'-0"

PILE LEGEND

- DENOTES PLUMB PILE (HELICAL PILE)
- ◐ DENOTES BATTERED PILE (HELICAL PILE)
- DENOTES PLUMB MICROPILE

WORKING POINT LEGEND

- WPP39-1 = WORKING POINT 1, PIER 39
- WPP39-2 = WORKING POINT 2, PIER 39
- WPP39-3 = WORKING POINT 3, PIER 39
- POINT 1 = PIER AT B CONSTRUCTION POINT
- POINT 2 = PIER AT LEFT END OF CAP
- POINT 3 = PIER AT RIGHT END OF CAP

OTHER TABULATED POINTS SIMILAR

*ALL COORDINATES SET PERPENDICULAR TO B CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING AHEAD STATION

NOTES:

1. WORKING POINTS, PILE LAYOUTS, AND DIMENSIONS FOR PIERS 39-43 AND 46-64 NOT SHOWN GRAPHICALLY, BUT COORDINATES AND PIER TYPE TABULATED ON THIS SHEET.
2. BEARING OF B CONSTRUCTION INDUSTRIAL TRACK TRAIL CONTINUES WITHOUT CHANGE FROM PIER 39 THROUGH PIER 66 AS SHOWN.
3. THE HELICAL PILE AND MICROPILE TYPE AND LAYOUT SHOWN ON THESE DRAWINGS IS A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE HELICAL PILES DESIGNED IN ACCORDANCE WITH THE TABULATED SERVICE LOADS SHOWN ON DWG. NO. PN-201. FOR MORE INFORMATION REGARDING HELICAL PILES AND MICROPILES REFER TO THE SPECIAL PROVISIONS.
4. SEE DWG. NO. PR-201 FOR DESIGNATION OF PIER TYPE.
5. LOCATION AND DIRECTION OF BATTERED HELICAL PILES IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY FOR THE SUGGESTED METHOD OF CONSTRUCTION. ACTUAL LOCATION AND NUMBER OF BATTERED PILES SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE INSTALLED TO AVOID CONFLICTS WITH UTILITY LOCATIONS AND EASEMENTS AS SHOWN ON DWG. NOS. PE-201 THROUGH PE-210. FOR SUGGESTED BATTER DIRECTION OF HELICAL PILES AT PIERS 39-43 SEE DWG. NO. PR-201 BASED ON PIER TYPE AS TABULATED FOR PIERS 39-43 ON THIS SHEET.
6. SEE DWG. NO. PR-201 FOR ADDITIONAL BATTERED AND PLUMB PILE INFORMATION FOR EACH PIER TYPE.
7. LOCATIONS OF HELICAL PILES AND MICROPILES TO BE CONSIDERED AS TEST PILES NOT SHOWN. REFER TO SPECIAL PROVISIONS FOR INFORMATION REGARDING LOCATION AND NUMBER OF TEST PILES.
8. PILE LAYOUT AND PIER DIMENSIONS FOR PIERS 39-43 SIMILAR TO PIER 44.
9. PILE LAYOUT AND PIER DIMENSIONS FOR PIERS 48-63 SIMILAR TO PIER 45.

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP39-1	627067.2006	612558.8623	39	A
WPP39-2	627074.5259	612557.4596		
WPP39-3	627059.8753	612560.2649		
WPP40-1	627070.0216	612573.5946	40	B
WPP40-2	627077.3469	612572.1920		
WPP40-3	627062.6963	612574.9973		
WPP41-1	627072.8426	612588.3270	41	A
WPP41-2	627080.1679	612586.9243		
WPP41-3	627065.5173	612589.7296		
WPP42-1	627075.6635	612603.0593	42	B
WPP42-2	627082.9889	612601.6567		
WPP42-3	627068.3382	612604.4620		
WPP43-1	627078.4845	612617.7917	43	A
WPP43-2	627085.8098	612616.3890		
WPP43-3	627071.1592	612619.1943		
WPP44-1	627081.3055	612632.5240	44	B
WPP44-2	627088.6308	612631.1214		
WPP44-3	627073.9802	612633.9267		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP45-1	627084.1265	612647.2564	45	C
WPP45-2	627091.4518	612645.8537		
WPP45-3	627076.8012	612648.6590		
WPP46-1	627089.7684	612676.7211	46	C
WPP46-2	627097.0938	612675.3184		
WPP46-3	627082.4431	612678.1237		
WPP47-1	627095.4104	612706.1858	47	C
WPP47-2	627102.7357	612704.7831		
WPP47-3	627088.0851	612707.5884		
WPP48-1	627101.0524	612735.6505	48	C
WPP48-2	627108.3777	612734.2478		
WPP48-3	627093.7270	612737.0531		
WPP49-1	627106.6943	612765.1151	49	C
WPP49-2	627114.0196	612763.7125		
WPP49-3	627099.3690	612766.5178		
WPP50-1	627112.3363	612794.5798	50	C
WPP50-2	627119.6616	612793.1772		
WPP50-3	627105.0110	612795.9825		

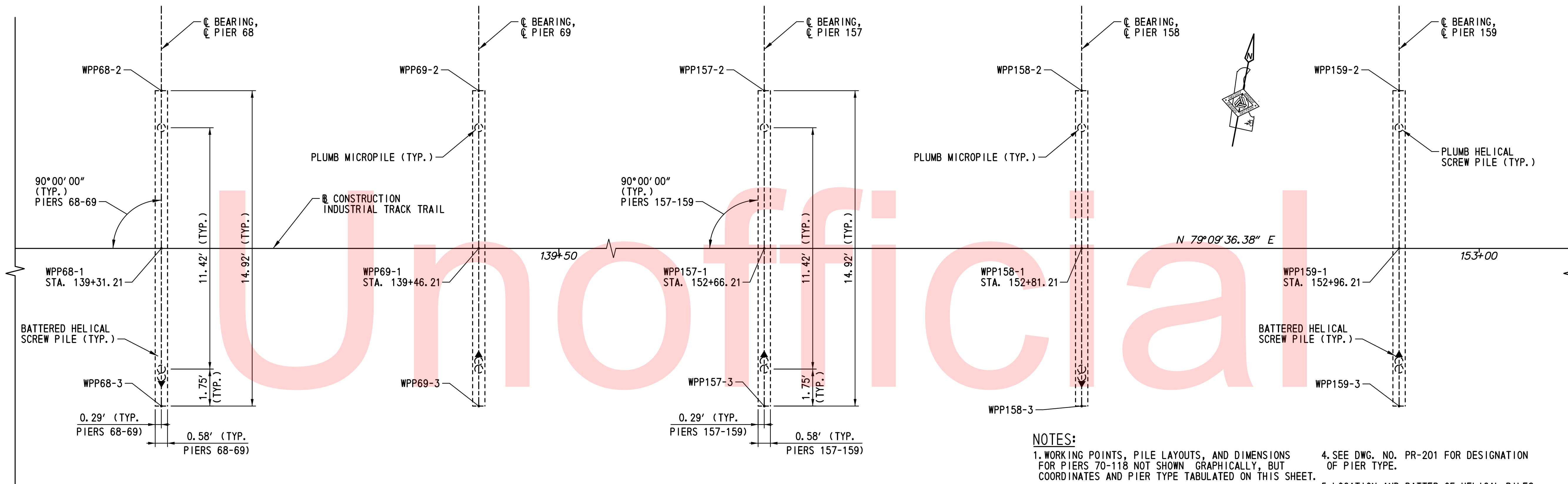
WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP51-1	627117.9782	612824.0445	51	C
WPP51-2	627125.3035	612822.6419		
WPP51-3	627110.6529	612825.4472		
WPP52-1	627123.6202	612853.5092	52	C
WPP52-2	627130.9455	612852.1066		
WPP52-3	627116.2949	612854.9119		
WPP53-1	627129.2621	612882.9739	53	C
WPP53-2	627136.5875	612881.5713		
WPP53-3	627121.9368	612884.3766		
WPP54-1	627134.9041	612912.4386	54	C
WPP54-2	627142.2294	612911.0360		
WPP54-3	627127.5788	612913.8413		
WPP55-1	627140.5461	612941.9033	55	C
WPP55-2	627147.8714	612940.5007		
WPP55-3	627133.2207	612943.3060		
WPP56-1	627146.1880	612971.3680	56	C
WPP56-2	627153.5133	612969.9654		
WPP56-3	627138.8627	612972.7707		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP57-1	627151.8300	613000.8327	57	C
WPP57-2	627159.1553	612999.4301		
WPP57-3	627144.5046	613002.2354		
WPP58-1	627157.4719	613030.2974	58	C
WPP58-2	627164.7972	613028.8947		
WPP58-3	627150.1466	613031.7001		
WPP59-1	627163.1139	613059.7621	59	C
WPP59-2	627170.4392	613058.3594		
WPP59-3	627155.7886	613061.1648		
WPP60-1	627168.7558	613089.2268	60	C
WPP60-2	627176.0812	613087.8241		
WPP60-3	627161.4305	613090.6295		
WPP61-1	627174.3978	613118.6915	61	C
WPP61-2	627181.7231	613117.2888		
WPP61-3	627167.0725	613120.0942		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP62-1	627180.0397	613148.1562	62	C
WPP62-2	627187.3651	613146.7535		
WPP62-3	627172.7144	613149.5589		
WPP63-1	627185.6817	613177.6209	63	C
WPP63-2	627193.0070	613176.2182		
WPP63-3	627178.3564	613179.0236		
WPP64-1	627191.3237	613207.0856	64	C
WPP64-2	627198.6490	613205.6829		
WPP64-3	627183.9983	613208.4883		
WPP65-1	627196.9656	613236.5503	65	C
WPP65-2	627204.2909	613235.1476		
WPP65-3	627189.6403	613237.9530		
WPP66-1	627199.7866	613251.2826	66	B
WPP66-2	627207.1119	613249.8800		
WPP66-3	627192.4613	613252.6853		
WPP67-1	627202.6076	613266.0150	67	A
WPP67-2	627209.9329	613264.6123		
WPP67-3	627195.2823	613267.4177		

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<p>DELAWARE DEPARTMENT OF TRANSPORTATION</p>	ADDENDUMS / REVISIONS	<p>SCALE 0 3 5 8 3/8"=1'-0"</p>	<p>NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3</p>	CONTRACT T201330009	BRIDGE NO.	X	<p>GEOMETRIC, PIER AND PILE LAYOUT PLAN - 4</p>	PL-204
	COUNTY NEW CASTLE			DESIGNED BY: ADD	SHEET NO. 96			
	CHECKED BY: WAG			TOTAL SHTS. 207				



- NOTES:**
- WORKING POINTS, PILE LAYOUTS, AND DIMENSIONS FOR PIERS 70-118 NOT SHOWN GRAPHICALLY, BUT COORDINATES AND PIER TYPE TABULATED ON THIS SHEET.
 - BEARING OF B CONSTRUCTION INDUSTRIAL TRACK TRAIL CONTINUES WITHOUT CHANGE FROM PIER 64 THROUGH PIER 159 AS SHOWN.
 - THE HELICAL PILE TYPE AND LAYOUT SHOWN ON THESE DRAWINGS IS A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE PILES DESIGNED IN ACCORDANCE WITH THE TABULATED SERVICE LOADS SHOWN ON DWG. NO. PN-201. FOR MORE INFORMATION REGARDING HELICAL PILES REFER TO THE SPECIAL PROVISIONS.
 - SEE DWG. NO. PR-201 FOR DESIGNATION OF PIER TYPE.
 - LOCATION AND BATTER OF HELICAL PILES IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY FOR THE SUGGESTED METHOD OF CONSTRUCTION. ACTUAL LOCATION AND NUMBER OF BATTERED PILES SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE INSTALLED TO AVOID CONFLICTS WITH EXISTING UTILITY LOCATIONS AND EASEMENTS AS SHOWN ON DWG. NOS. PE-201 THROUGH PE-201. SEE DWG. NO. PR-201 FOR ADDITIONAL BATTERED PILE INFORMATION FOR EACH PIER TYPE.
 - FOR SUGGESTED BATTER DIRECTION OF HELICAL PILES AT PIERS 68-118 SEE DWG. PR-201 BASED ON TABULATED PIER TYPE ON THIS SHEET.
 - LOCATIONS OF HELICAL PILES BE CONSIDERED AS TEST PILES NOT SHOWN. REFER TO SPECIAL PROVISIONS FOR INFORMATION REGARDING LOCATION AND NUMBER OF TEST PILES.

WORKING POINT LEGEND

- WPP68-1 = WORKING POINT 1, PIER 68
- WPP68-2 = WORKING POINT 2, PIER 68
- WPP68-3 = WORKING POINT 3, PIER 68
- POINT 1 = CENTER PIER AT CONSTRUCTION POINT 2
- POINT 2 = CENTER PIER AT LEFT END OF CAP
- POINT 3 = CENTER PIER AT RIGHT END OF CAP

OTHER TABULATED POINTS SIMILAR

*ALL COORDINATES SET PERPENDICULAR TO B CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING AHEAD STATION

PILE LEGEND

- DENOTES PLUMB PILE (HELICAL PILE)
- ◑ DENOTES BATTERED PILE (HELICAL PILE)

GEOMETRIC, PIER AND PILE LAYOUT
SCALE: 3/8"=1'-0"

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP68-1	627205.4286	613280.7473	68	B
WPP68-2	627212.7539	613279.3447		
WPP68-3	627198.1032	613282.1500		
WPP69-1	627208.2495	613295.4797	69	A
WPP69-2	627215.5748	613294.0770		
WPP69-3	627200.9242	613296.8823		
WPP70-1	627211.0705	613310.2120	70	B
WPP70-2	627218.3958	613308.8094		
WPP70-3	627203.7452	613311.6147		
WPP71-1	627213.8915	613324.9444	71	A
WPP71-2	627221.2168	613323.5417		
WPP71-3	627206.5662	613326.3470		
WPP72-1	627216.7125	613339.6767	72	B
WPP72-2	627224.0378	613338.2741		
WPP72-3	627209.3872	613341.0794		
WPP73-1	627219.5334	613354.4091	73	A
WPP73-2	627226.8588	613353.0064		
WPP73-3	627212.2081	613355.8117		
WPP74-1	627222.3544	613369.1414	74	B
WPP74-2	627229.6797	613367.7388		
WPP74-3	627215.0291	613370.5441		
WPP75-1	627225.1754	613383.8738	75	A
WPP75-2	627232.5007	613382.4711		
WPP75-3	627217.8501	613385.2764		
WPP76-1	627227.9964	613398.6061	76	B
WPP76-2	627235.3217	613397.2035		
WPP76-3	627220.6711	613400.0088		
WPP77-1	627230.8174	613413.3385	77	A
WPP77-2	627238.1427	613411.9358		
WPP77-3	627223.4920	613414.7411		

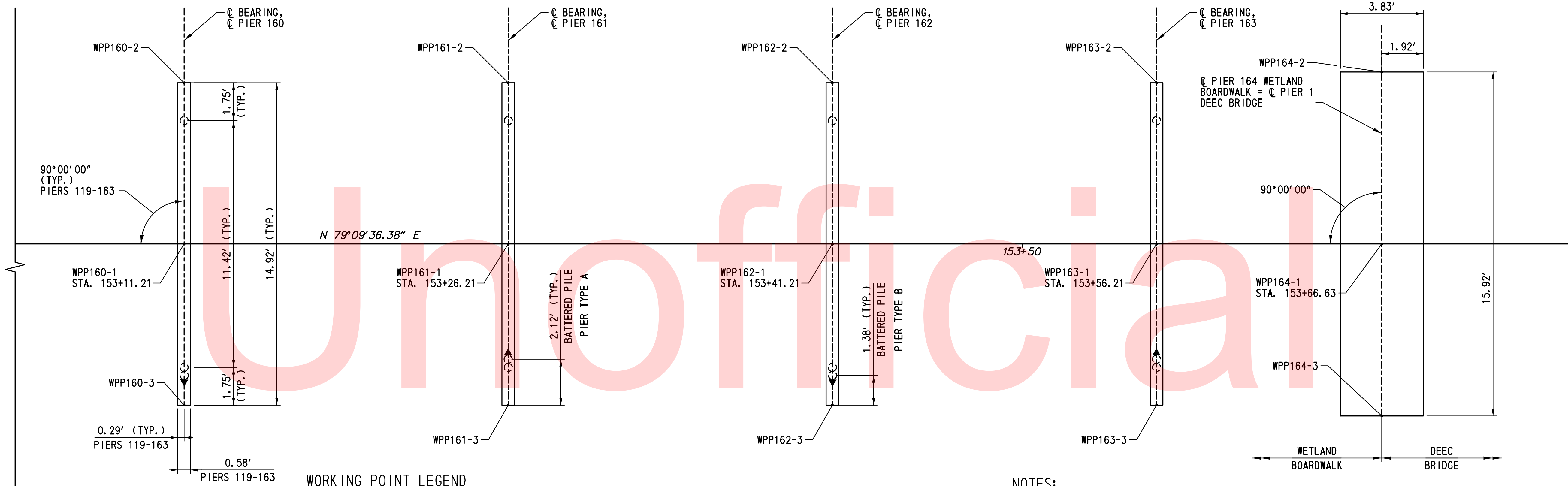
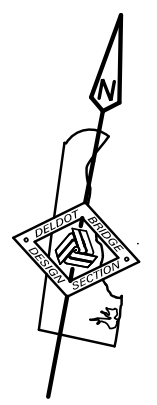
WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP78-1	627233.6383	613428.0708	78	B
WPP78-2	627240.9637	613426.6681		
WPP78-3	627226.3130	613429.4735		
WPP79-1	627236.4593	613442.8032	79	A
WPP79-2	627243.7846	613441.4005		
WPP79-3	627229.1340	613444.2058		
WPP80-1	627239.2803	613457.5355	80	B
WPP80-2	627246.6056	613456.1328		
WPP80-3	627231.9550	613458.9382		
WPP81-1	627242.1013	613472.2679	81	A
WPP81-2	627249.4266	613470.8652		
WPP81-3	627234.7760	613473.6705		
WPP82-1	627244.9223	613487.0002	82	B
WPP82-2	627252.2476	613485.5975		
WPP82-3	627237.5969	613488.4029		
WPP83-1	627247.7432	613501.7326	83	A
WPP83-2	627255.0685	613500.3299		
WPP83-3	627240.4179	613503.1352		
WPP84-1	627250.5642	613516.4649	84	B
WPP84-2	627257.8895	613515.0622		
WPP84-3	627243.2389	613517.8676		
WPP85-1	627253.3852	613531.1973	85	A
WPP85-2	627260.7105	613529.7946		
WPP85-3	627246.0599	613532.5999		
WPP86-1	627256.2062	613545.9296	86	B
WPP86-2	627263.5315	613544.5269		
WPP86-3	627248.8808	613547.3323		
WPP87-1	627259.0271	613560.6619	87	A
WPP87-2	627251.7018	613562.0646		
WPP87-3	627266.3525	613559.2593		
WPP88-1	627261.8481	613575.3943	88	B
WPP88-2	627269.1734	613573.9916		
WPP88-3	627254.5228	613576.7970		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP89-1	627264.6691	613590.1266	89	A
WPP89-2	627271.9944	613588.7240		
WPP89-3	627257.3438	613591.5293		
WPP90-1	627267.4901	613604.8590	90	B
WPP90-2	627274.8154	613603.4563		
WPP90-3	627260.1648	613606.2617		
WPP91-1	627270.3111	613619.5913	91	A
WPP91-2	627277.6364	613618.1887		
WPP91-3	627262.9857	613620.9940		
WPP92-1	627273.1320	613634.3237	92	B
WPP92-2	627280.4574	613632.9210		
WPP92-3	627265.8067	613635.7264		
WPP93-1	627275.9530	613649.0560	93	A
WPP93-2	627283.2783	613647.6534		
WPP93-3	627268.6277	613650.4587		
WPP94-1	627278.7740	613663.7884	94	B
WPP94-2	627286.0993	613662.3857		
WPP94-3	627271.4487	613665.1910		
WPP95-1	627281.5950	613678.5207	95	A
WPP95-2	627288.9203	613677.1181		
WPP95-3	627274.2369	613679.9234		
WPP96-1	627284.4159	613693.2531	96	B
WPP96-2	627291.7413	613691.8504		
WPP96-3	627277.0906	613694.6557		
WPP97-1	627287.2369	613707.9854	97	A
WPP97-2	627294.5622	613706.5828		
WPP97-3	627279.9116	613709.3881		
WPP98-1	627290.0579	613722.7178	98	B
WPP98-2	627297.3832	613721.3151		
WPP98-3	627282.7326	613724.1204		
WPP99-1	627292.8789	613737.4501	99	A
WPP99-2	627300.2042	613736.0475		
WPP99-3	627285.5536	613738.8528		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP100-1	627295.6999	613752.1825	100	B
WPP100-2	627303.0252	613750.7798		
WPP100-3	627288.3745	613753.5851		
WPP101-1	627298.5208	613766.9148	101	A
WPP101-2	627305.8462	613765.5122		
WPP101-3	627291.1955	613768.3175		
WPP102-1	627301.3418	613781.6472	102	B
WPP102-2	627308.6671	613780.2445		
WPP102-3	627294.0165	613783.0498		
WPP103-1	627304.1628	613796.3795	103	A
WPP103-2	627311.4881	613794.9769		
WPP103-3	627296.8375	613797.7822		
WPP104-1	627306.9838	613811.1119	104	B
WPP104-2	627314.3091	613809.7092		
WPP104-3	627299.6585	613812.5145		
WPP105-1	627309.8048	613825.8442	105	A
WPP105-2	627317.1301	613824.4415		
WPP105-3	627302.4794	613827.2469		
WPP106-1	627312.6257	613840.5766	106	B
WPP106-2	627319.9510	613839.1739		
WPP106-3	627305.3004	613841.9792		
WPP107-1	627315.4467	613855.3089	107	A
WPP107-2	627322.7720	613853.9062		
WPP107-3	627308.1214	613856.7116		
WPP108-1	627318.2677	613870.0413	108	B
WPP108-2	627325.5930	613868.6386		
WPP108-3	627310.9424	613871.4439		
WPP109-1	627321.0887	613884.7736	109	A
WPP109-2	627328.4140	613883.3709		
WPP109-3	627313.7634	613886.1763		

WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPP110-1	627323.9096	613899.5060	110	B
WPP110-2	627331.2350	613898.1033		
WPP110-3	627316.5843	613900.9086		
WPP111-1	627326.7306	613914.2383	111	A
WPP111-2	627334.0559	613912.8356		
WPP111-3	627319.4053	613915.6410		
WPP112-1	627329.5516	613928.9706	112	B
WPP112-2	627336.8769	613927.5680		
WPP112-3	627322.2263	613930.3733		
WPP113-1	627332.3726	613943.7030	113	A
WPP113-2	627339.6979	613942.3003		
WPP113-3	627325.0473	613945.1057		
WPP114-1	627335.1936	613958.4353	114	B
WPP114-2	627342.5189	613957.0327		
WPP114-3	627327.8682	613959.8380		
WPP115-1	627338.0145	613973.1677	115	A
WPP115-2	627345.3399	613971.7650		
WPP115-3	627330.6892	613974.5704		
WPP116-1	627340.8355	613987.9000	116	B
WPP116-2	627348.1608	613986.4974		
WPP116-3	627333.5102	613989.3027		
WPP117-1	627343.6565	614002.6324	117	A
WPP117-2	627350.9818	614001.2297		
WPP117-3	627336.3312	614004.0351		
WPP118-1	627346.4775	614017.3647	118	B
WPP118-2	627353.8028	614015.9621		
WPP118-3	627339.1522	614018.7674		

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PILE LEGEND

- ⊙ DENOTES PLUMB PILE (HELICAL PILE)
- ▶ DENOTES BATTERED PILE (HELICAL PILE)

WORKING POINT LEGEND

- WPP119-1 = WORKING POINT 1, PIER 119
- WPP119-2 = WORKING POINT 2, PIER 119
- WPP119-3 = WORKING POINT 3, PIER 119
- POINT 1 = ⊙ PIER AT B CONSTRUCTION
- POINT 2 = ⊙ PIER AT LEFT END OF CAP
- POINT 3 = ⊙ PIER AT RIGHT END OF CAP

OTHER TABULATED POINTS SIMILAR

*ALL COORDINATES SET PERPENDICULAR TO BOARDWALK CONSTRUCTION INDUSTRIAL TRACK TRAIL LOOKING AHEAD STATION

GEOMETRIC, PIER AND PILE LAYOUT

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

NOTES:

1. WORKING POINTS, PILE LAYOUTS, AND DIMENSIONS FOR PIERS 119-158 NOT SHOWN GRAPHICALLY, BUT COORDINATES AND PIER TYPE TABULATED ON THIS SHEET.
2. BEARING OF B CONSTRUCTION INDUSTRIAL TRACK TRAIL CONTINUES WITHOUT CHANGE FROM PIER 68 ON DWG. NO. PL-205 THROUGH PIER 164 SHOWN ON THIS SHEET.
3. SUGGESTED BATTER OF HELICAL PILES AT PIERS 159-163 IS AS SHOWN. FOR BATTER DIRECTION OF HELICAL PILES AT PIERS 114-158, SEE TABLE ON PL-205 AND THIS SHEET.
4. THE HELICAL PILE AND LAYOUT SHOWN ON THESE DRAWINGS IS A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE PILES DESIGNED IN ACCORDANCE WITH THE TABULATED SERVICE LOADS SHOWN ON DWG. NO. PN-201. FOR MORE INFORMATION REGARDING HELICAL PILES REFER TO THE SPECIAL PROVISIONS.
5. SEE DWG. NO. PR-201 FOR DESIGNATION OF PIER TYPE.
6. LOCATION AND DIRECTION OF BATTERED HELICAL PILES IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY FOR THE SUGGESTED METHOD OF CONSTRUCTION. ACTUAL LOCATION AND NUMBER OF BATTERED PILES SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE INSTALLED TO AVOID CONFLICTS WITH EXISTING UTILITY LOCATIONS AND EASEMENTS AS SHOWN ON DWG. NOS. PE-201 THROUGH PE-210. SEE DWG. NO. PR-201 FOR ADDITIONAL BATTERED PILE INFORMATION FOR EACH PIER TYPE.
7. LOCATIONS OF HELICAL PILES TO BE CONSIDERED AS TEST PILES NOT SHOWN. REFER TO SPECIAL PROVISIONS FOR INFORMATION REGARDING LOCATION AND NUMBER OF TEST PILES.
8. PIER 164 IS A COMMON PIER BETWEEN THE WETLAND BOARDWALK AND DEEC BRIDGE. FOR PILE INFORMATION AT THIS PIER, REFER TO DWG. NO. PL-301.

WORKING POINT	COORDINATES		PIER TYPE
	NORTHING	EASTING	
WPP119-1	627349.2985	614032.0971	
WPP119-2	627356.6238	614030.6944	A
WPP119-3	627341.9731	614033.4998	
WPP120-1	627352.1194	614046.8294	
WPP120-2	627359.4447	614045.4268	B
WPP120-3	627344.7941	614048.2321	
WPP121-1	627354.9404	614061.5618	
WPP121-2	627362.2657	614060.1591	A
WPP121-3	627347.6151	614062.9644	
WPP122-1	627357.7614	614076.2941	
WPP122-2	627365.0867	614074.8915	B
WPP122-3	627350.4361	614077.6968	
WPP123-1	627360.5824	614091.0265	
WPP123-2	627367.9077	614089.6238	A
WPP123-3	627353.2570	614092.4291	
WPP124-1	627363.4033	614105.7588	
WPP124-2	627370.7287	614104.3562	B
WPP124-3	627356.0780	614107.1615	
WPP125-1	627366.2243	614120.4912	
WPP125-2	627373.5496	614119.0885	A
WPP125-3	627358.8990	614121.8938	
WPP126-1	627369.0453	614135.2235	
WPP126-2	627376.3706	614133.8209	B
WPP126-3	627361.7200	614136.6262	
WPP127-1	627371.8663	614149.9559	
WPP127-2	627379.1916	614148.5532	A
WPP127-3	627364.5410	614151.3585	
WPP128-1	627374.6873	614164.6882	
WPP128-2	627382.0126	614163.2856	B
WPP128-3	627367.3619	614166.0909	

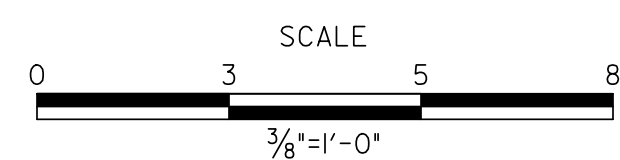
WORKING POINT	COORDINATES		PIER TYPE
	NORTHING	EASTING	
WPP129-1	627377.5082	614179.4206	
WPP129-2	627384.8336	614178.0179	A
WPP129-3	627370.1829	614180.8232	
WPP130-1	627380.3292	614194.1529	
WPP130-2	627387.6545	614192.7503	B
WPP130-3	627373.0039	614195.5556	
WPP131-1	627383.1502	614208.8853	
WPP131-2	627390.4755	614207.4826	A
WPP131-3	627375.8249	614210.2879	
WPP132-1	627385.9712	614223.6176	
WPP132-2	627393.2965	614222.2149	B
WPP132-3	627378.6459	614225.0203	
WPP133-1	627388.7921	614238.3500	
WPP133-2	627396.1175	614236.9473	A
WPP133-3	627381.4668	614239.7526	
WPP134-1	627391.6131	614253.0823	
WPP134-2	627398.9384	614251.6796	B
WPP134-3	627384.2878	614254.4850	
WPP135-1	627394.4341	614267.8147	
WPP135-2	627401.7594	614266.4120	A
WPP135-3	627387.1088	614269.2173	
WPP136-1	627397.2551	614282.5470	
WPP136-2	627404.5804	614281.1443	B
WPP136-3	627389.9298	614283.9497	
WPP137-1	627400.0761	614297.2794	
WPP137-2	627407.4014	614295.8767	A
WPP137-3	627392.7507	614298.6820	
WPP138-1	627402.8970	614312.0117	
WPP138-2	627410.2224	614310.6090	B
WPP138-3	627395.5717	614313.4144	

WORKING POINT	COORDINATES		PIER TYPE
	NORTHING	EASTING	
WPP139-1	627405.7180	614326.7440	
WPP139-2	627413.0433	614325.3414	A
WPP139-3	627398.3927	614328.1467	
WPP140-1	627408.5390	614341.4764	
WPP140-2	627415.8643	614340.0737	B
WPP140-3	627401.2137	614342.8791	
WPP141-1	627411.3600	614356.2087	
WPP141-2	627418.6853	614354.8061	A
WPP141-3	627404.0347	614357.6114	
WPP142-1	627414.1810	614370.9411	
WPP142-2	627421.5063	614369.5384	B
WPP142-3	627406.8556	614372.3438	
WPP144-1	627419.8229	614400.4058	
WPP144-2	627427.1482	614399.0031	A
WPP144-3	627412.4976	614401.8085	
WPP145-1	627422.6439	614415.1381	
WPP145-2	627429.9692	614413.7355	B
WPP145-3	627415.3186	614416.5408	
WPP143-1	627417.0019	614385.6734	
WPP143-2	627424.3272	614384.2708	A
WPP143-3	627409.6766	614387.0761	
WPP146-1	627425.4649	614429.8705	
WPP146-2	627432.7902	614428.4678	B
WPP146-3	627418.1396	614431.2732	
WPP147-1	627428.2858	614444.6028	
WPP147-2	627435.6112	614443.2002	A
WPP147-3	627420.9605	614446.0055	
WPP148-1	627431.1068	614459.3352	
WPP148-2	627438.4321	614457.9325	B
WPP148-3	627423.7815	614460.7378	

WORKING POINT	COORDINATES		PIER TYPE
	NORTHING	EASTING	
WPP149-1	627433.9278	614474.0675	
WPP149-2	627441.2531	614472.6649	A
WPP149-3	627426.6025	614475.4702	
WPP150-1	627436.7488	614488.7999	
WPP150-2	627444.0741	614487.3972	B
WPP150-3	627429.4235	614490.2025	
WPP151-1	627439.5698	614503.5322	
WPP151-2	627446.8951	614502.1296	A
WPP151-3	627432.2444	614504.9349	
WPP152-1	627442.3907	614518.2646	
WPP152-2	627449.7161	614516.8619	B
WPP152-3	627435.0654	614519.6672	
WPP153-1	627445.2117	614532.9969	
WPP153-2	627452.5370	614531.5943	A
WPP153-3	627437.8864	614534.3996	
WPP154-1	627448.0327	614547.7293	
WPP154-2	627455.3580	614546.3266	B
WPP154-3	627440.7074	614549.1319	
WPP155-1	627450.8537	614562.4616	
WPP155-2	627458.1790	614561.0590	A
WPP155-3	627443.5284	614563.8643	
WPP156-1	627453.6747	614577.1940	
WPP156-2	627461.0000	614575.7913	B
WPP156-3	627446.3493	614578.5966	
WPP157-1	627456.4956	614591.9263	
WPP157-2	627463.8209	614590.5236	A
WPP157-3	627449.1703	614593.3290	
WPP158-1	627459.3166	614606.6587	
WPP158-2	627466.6419	614605.2560	B
WPP158-3	627451.9913	614608.0613	

WORKING POINT	COORDINATES		PIER TYPE
	NORTHING	EASTING	
WPP159-1	627462.1376	614621.3910	
WPP159-2	627469.4629	614619.9883	A
WPP159-3	627454.8123	614622.7937	
WPP160-1	627464.9586	614636.1234	
WPP160-2	627472.2839	614634.7207	B
WPP160-3	627457.6332	614637.5260	
WPP161-1	627467.7795	614650.8557	
WPP161-2	627475.1049	614649.4530	A
WPP161-3	627460.4542	614652.2584	
WPP162-1	627470.6005	614665.5881	
WPP162-2	627477.9258	614664.1854	B
WPP162-3	627463.2752	614666.9907	
WPP163-1	627473.4215	614680.3204	
WPP163-2	627480.7468	614678.9177	A
WPP163-3	627466.0962	614681.7231	
WPP164-1	627475.3812	614690.5548	
WPP164-2	627482.7065	614689.1521	B
WPP164-3	627468.0559	614691.9574	

ADDENDUMS / REVISIONS



NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: ADD	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

GEOMETRIC, PIER AND PILE LAYOUT PLAN - 6

PL-206
SHEET NO.
98
TOTAL SHTS.
207

PILE TIP DATA						
SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA			
	HELICAL MICROPILE MINIMUM TIP ELEVATION	MICROPILE MINIMUM TIP DATA	HELICAL MICROPILE		MICROPILE	
			AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
ABUTMENT A	-12.0					
PIER 1	-12.0					
PIER 2	-12.0					
PIER 3	-12.0					
PIER 4	-12.0					
PIER 5	-12.0					
PIER 6	-12.0					
PIER 7	-12.0					
PIER 8	-12.0					
PIER 9	-12.0					
PIER 10	-12.0					
PIER 11	-12.0					
PIER 12	-12.0					
PIER 13	-12.0					
PIER 14	-12.0					
PIER 15	-12.0					
PIER 16	-12.0					
PIER 17	-12.0					
PIER 18	-12.0					
PIER 19	-12.0					
PIER 20	-12.0					
PIER 21	-12.0					
PIER 22	-12.0					
PIER 23	-12.0					
PIER 24	-12.0					
PIER 25	-12.0					
PIER 26	-12.0					
PIER 27	-12.0					
PIER 28	-12.0					
PIER 29	-12.0					
PIER 30	-12.0					
PIER 31	-12.0					
PIER 32	-12.0					
PIER 33	-12.0					
PIER 34	-12.0					
PIER 35	-12.0					
PIER 36	-12.0					
PIER 37	-12.0					
PIER 38	-12.0					
PIER 39	-12.0					
PIER 40	-12.0					
PIER 41	-12.0					
PIER 42	-12.0					
PIER 43	-12.0					
PIER 44	-12.0					
PIER 45		-17.0				
PIER 46		-17.0				
PIER 47		-17.0				
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PIER 64		-17.0				
PIER 65		-17.0				
PIER 66	-12.0					
PIER 67	-12.0					
PIER 68	-12.0					
PIER 69	-12.0					
PIER 70	-12.0					
PIER 71	-12.0					

PILE TIP DATA						
SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA			
	HELICAL MICROPILE MINIMUM TIP ELEVATION	MICROPILE MINIMUM TIP DATA	HELICAL MICROPILE		MICROPILE	
			AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
PIER 72	-12.0					
PIER 73	-12.0					
PIER 74	-12.0					
PIER 75	-12.0					
PIER 76	-12.0					
PIER 77	-12.0					
PIER 78	-12.0					
PIER 79	-12.0					
PIER 80	-12.0					
PIER 81	-12.0					
PIER 82	-12.0					
PIER 83	-12.0					
PIER 84	-12.0					
PIER 85	-12.0					
PIER 86	-12.0					
PIER 87	-12.0					
PIER 88	-12.0					
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PIER 95	-12.0					
PIER 96	-12.0					
PIER 97	-12.0					
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PIER 101	-12.0					
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PIER 122	-12.0					
PIER 123	-12.0					
PIER 124	-12.0					
PIER 125	-12.0					
PIER 126	-12.0					
PIER 127	-12.0					
PIER 128	-12.0					
PIER 129	-12.0					

PILE NOTES:

- PILES SHALL BE INSTALLED TO THE MINIMUM PILE TIP ELEVATIONS SPECIFIED ON THIS SHEET FOR ANY PILE SYSTEM DESIGNED BY THE CONTRACTOR. THE HELICAL PILE AND MICROPILE DESIGNATIONS SHOWN ON THIS SHEET ARE A SUGGESTED METHOD OF CONSTRUCTION ONLY. FOR MORE INFORMATION REGARDING HELICAL PILES AND MICROPILES REFER TO THE SPECIAL PROVISIONS.
- FOR PILE LAYOUT AND WORKING POINT COORDINATES FOR EACH PIER SEE DWG. NOS. PL-201 THROUGH PL-206.
- FOR PIER AND PILE DETAILS, INCLUDING PILE BATTER, SEE DWG NOS. PR-201 AND PR-202.
- PILES SHALL BE DESIGNED TO THE LOADS SHOWN TABULATED ON SHEET PN-201.

N:\31896-002\CADD\BRIDGE\PL207_JTG.DGN



ADDENDUMS / REVISIONS

SCALE: NONE

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: ADD	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

GEOMETRIC, PIER AND PILE LAYOUT PLAN - 7

PL-207

SHEET NO.

99

TOTAL SHTS.

207

PILE TIP DATA						
SUBSTRUCTURE UNIT	DESIGN DATA		ACTUAL FIELD DATA			
	HELICAL MICROPILE MINIMUM TIP ELEVATION	MICROPILE MINIMUM TIP DATA	HELICAL MICROPILE		MICROPILE	
			AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION	AVERAGE ACTUAL MINIMUM TIP ELEVATION	AVERAGE ACTUAL MAXIMUM TIP ELEVATION
PIER 130	-12.0					
PIER 131	-12.0					
PIER 132	-12.0					
PIER 133	-12.0					
PIER 134	-12.0					
PIER 135	-12.0					
PIER 136	-12.0					
PIER 137	-12.0					
PIER 138	-12.0					
PIER 139	-12.0					
PIER 140	-12.0					
PIER 141	-12.0					
PIER 142	-12.0					
PIER 143	-12.0					
PIER 144	-12.0					
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PIER 150	-12.0					
PIER 151	-12.0					
PIER 152	-12.0					
PIER 153	-12.0					
PIER 154	-12.0					
PIER 155	-12.0					
PIER 156	-12.0					
PIER 157	-12.0					
PIER 158	-12.0					
PIER 159	-12.0					
PIER 160	-12.0					
PIER 161	-12.0					
PIER 162	-12.0					
PIER 163	-12.0					

Unofficial
 Website
 Copy

PILE NOTES:

1. PILES SHALL BE INSTALLED TO THE MINIMUM PILE TIP ELEVATIONS SPECIFIED ON THIS SHEET FOR ANY PILE SYSTEM DESIGNED BY THE CONTRACTOR. THE HELICAL PILE AND MICROPILE DESIGNATIONS SHOWN ON THIS SHEET ARE A SUGGESTED METHOD OF CONSTRUCTION ONLY. FOR MORE INFORMATION REGARDING HELICAL PILES AND MICROPILES REFER TO THE SPECIAL PROVISIONS.
2. FOR PILE LAYOUT AND WORKING POINT COORDINATES FOR EACH PIER SEE DWG. NOS. PL-201 THROUGH PL-206.
3. FOR PIER AND PILE DETAILS, INCLUDING PILE BATTER, SEE DWG NOS. PR-201 AND PR-202.
4. PILES SHALL BE DESIGNED TO THE LOADS SHOWN TABULATED ON SHEET PN-201.

N:\31896-002\CADD\BRIDGE\PL208_JTG.DGN



ADDENDUMS / REVISIONS	

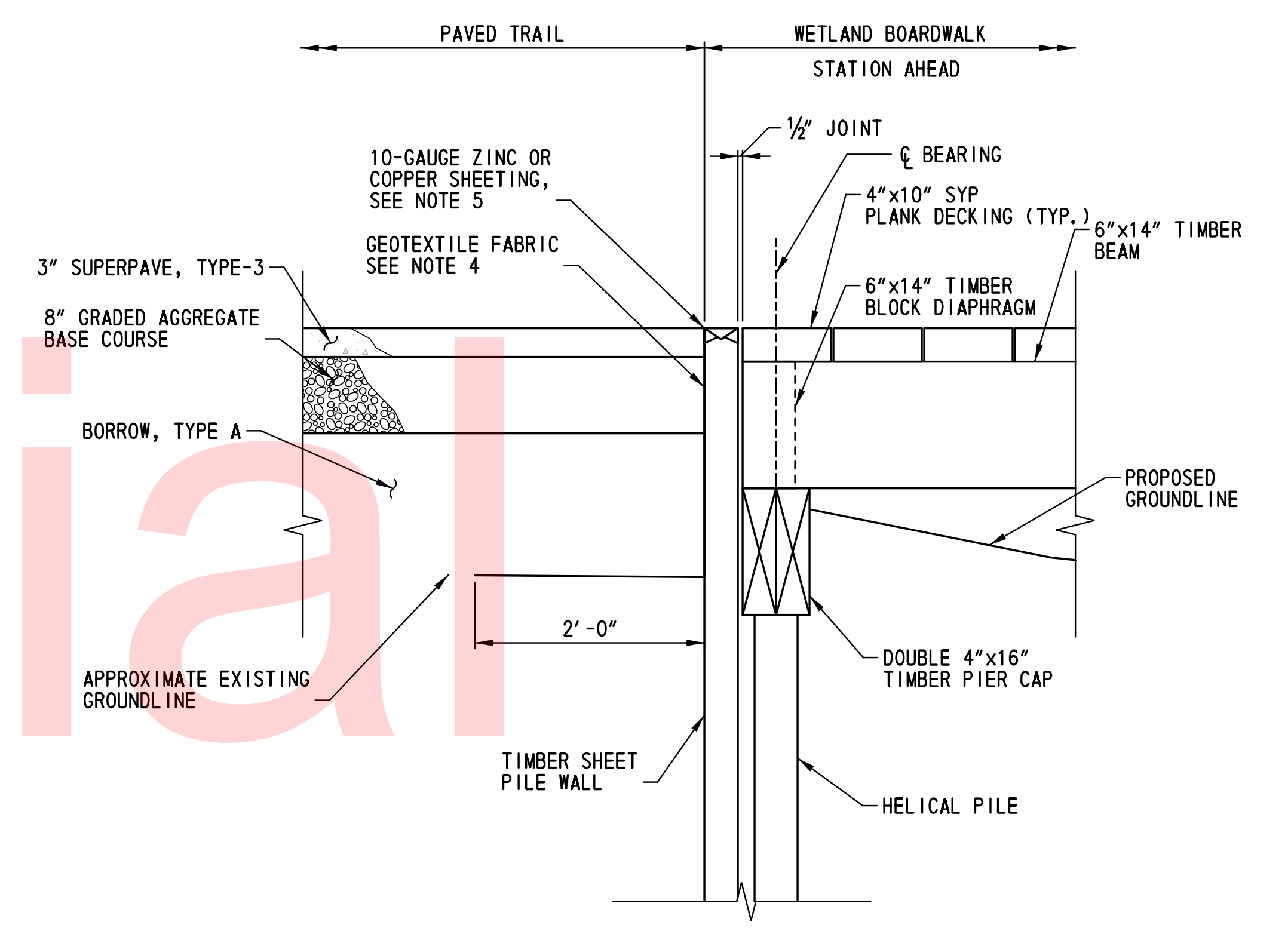
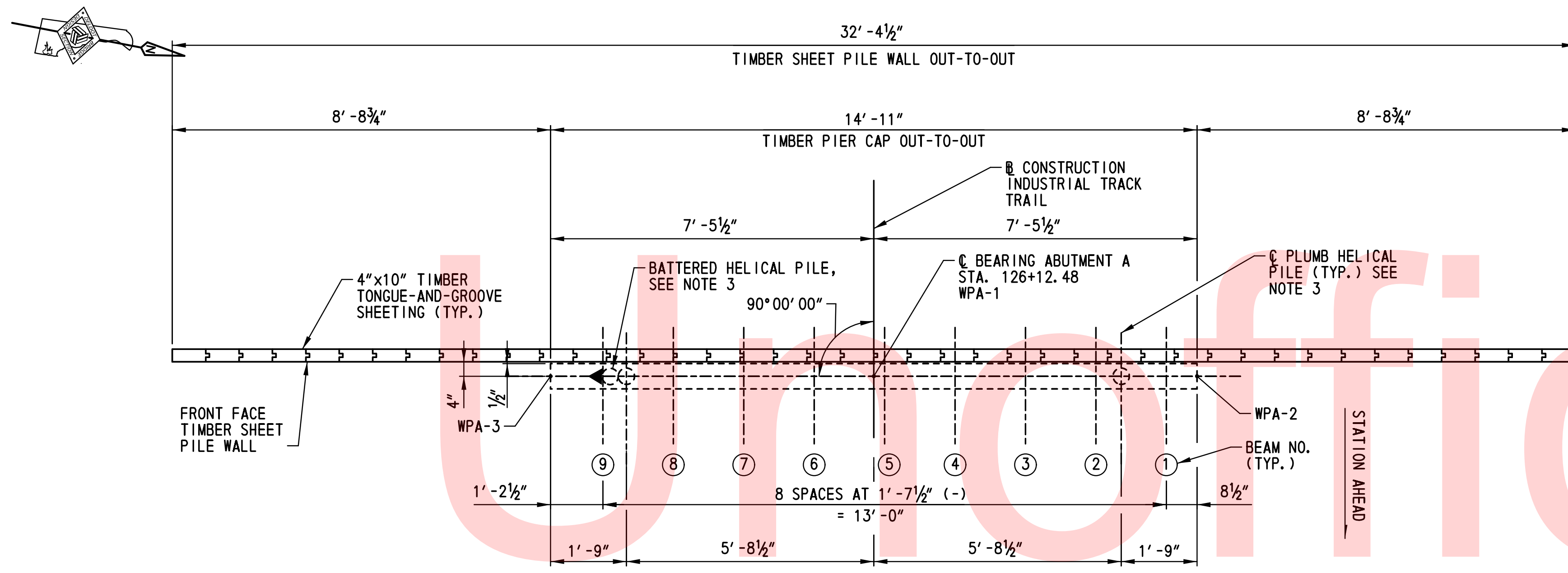
SCALE: NONE

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD
	CHECKED BY: WAG

GEOMETRIC, PIER AND PILE LAYOUT PLAN - 8

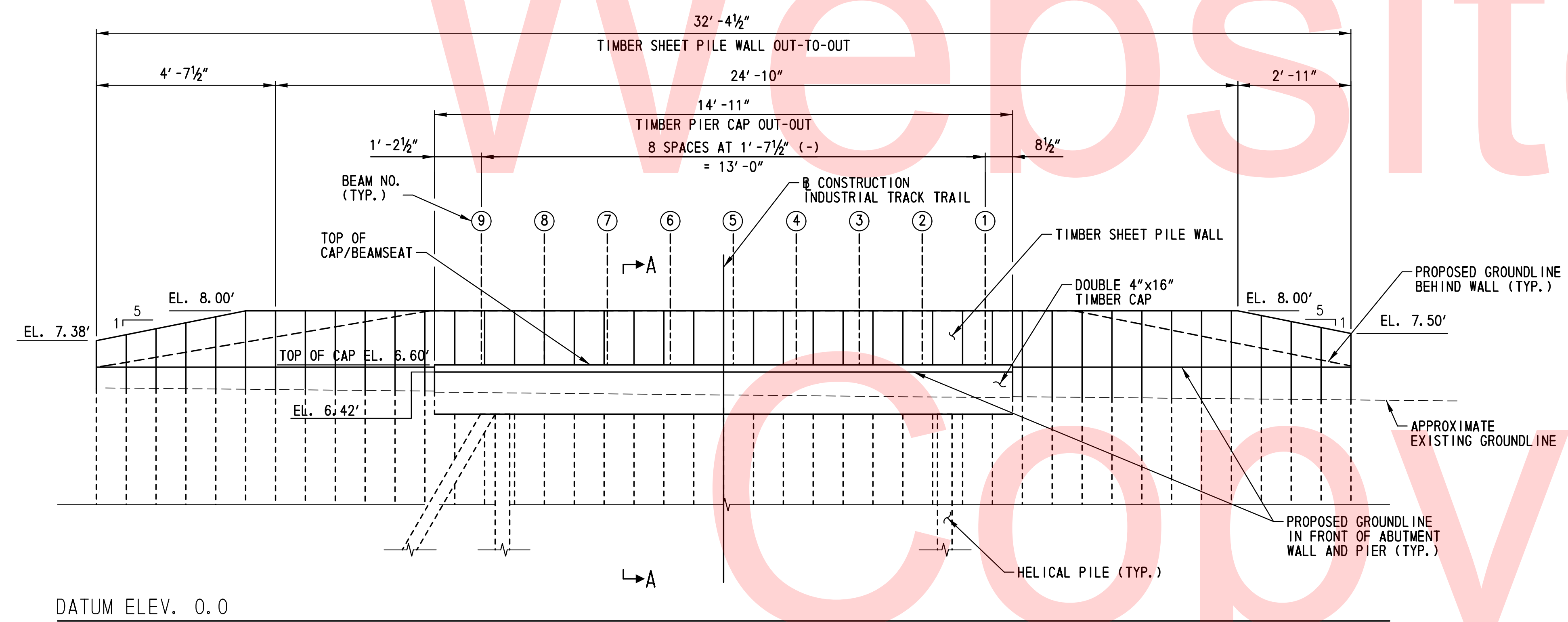
PL-208
SHEET NO. 100
TOTAL SHTS. 207



WORKING POINT	COORDINATES		PIER NO.	PIER TYPE
	NORTHING	EASTING		
WPA1-1	626880.4484	612006.7065	ABUT	B
WPA1-2	626887.7737	612005.3039		
WPA1-3	626873.1231	612008.1092		

ABUTMENT - PLAN
SCALE: 1/2" = 1'-0"

TYPICAL SECTION A-A
SCALE: 1" = 1'-0"

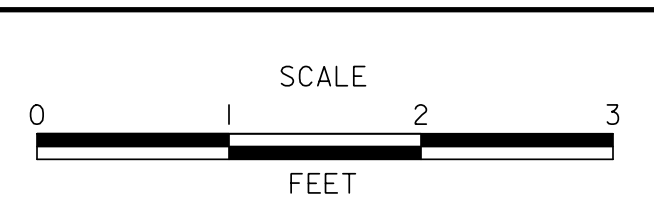


- NOTES:
- SUPERSTRUCTURE NOT SHOWN FOR CLARITY. FOR BROADWALK SUPERSTRUCTURE TYPICAL SECTIONS SEE SHEET NO. TS201.
 - MINIMUM TIP ELEVATION FOR TIMBER SHEET PILE WALL IS ELEV. -10.0. MINIMUM TIP ELEVATION FOR HELICAL PILES IS -12.0.
 - FOR ABUTMENT STATION, WORKING POINTS, COORDINATES AND PILE LAYOUTS, SEE DWG. NOS. PL-201 THROUGH PL-207 AND DWG. NOS. PR-201 THROUGH PR-202.
 - GEOTEXTILE FABRIC SHALL BE PLACED ALONG FILL FACE OF SHEET PILE WALL TO EXISTING GROUND LINE. GEOTEXTILE FABRIC SHALL EXTEND 2'-0" FROM WALL AT EXISTING GROUNDLINE, AS SHOWN.
 - SHEET OF 10-GAUGE ZINC OR COPPER SHEETING SECURED TO TOP SURFACE OF TIMBER SHEET PILE WALL WITH LARGE HEADED GALVANIZED OR COPPER ROOFING NAILS.
 - SEE DWG. NO. PR-201 FOR INFORMATION REGARDING THE TIMBER ABUTMENT CAP AND HELICAL PILES.

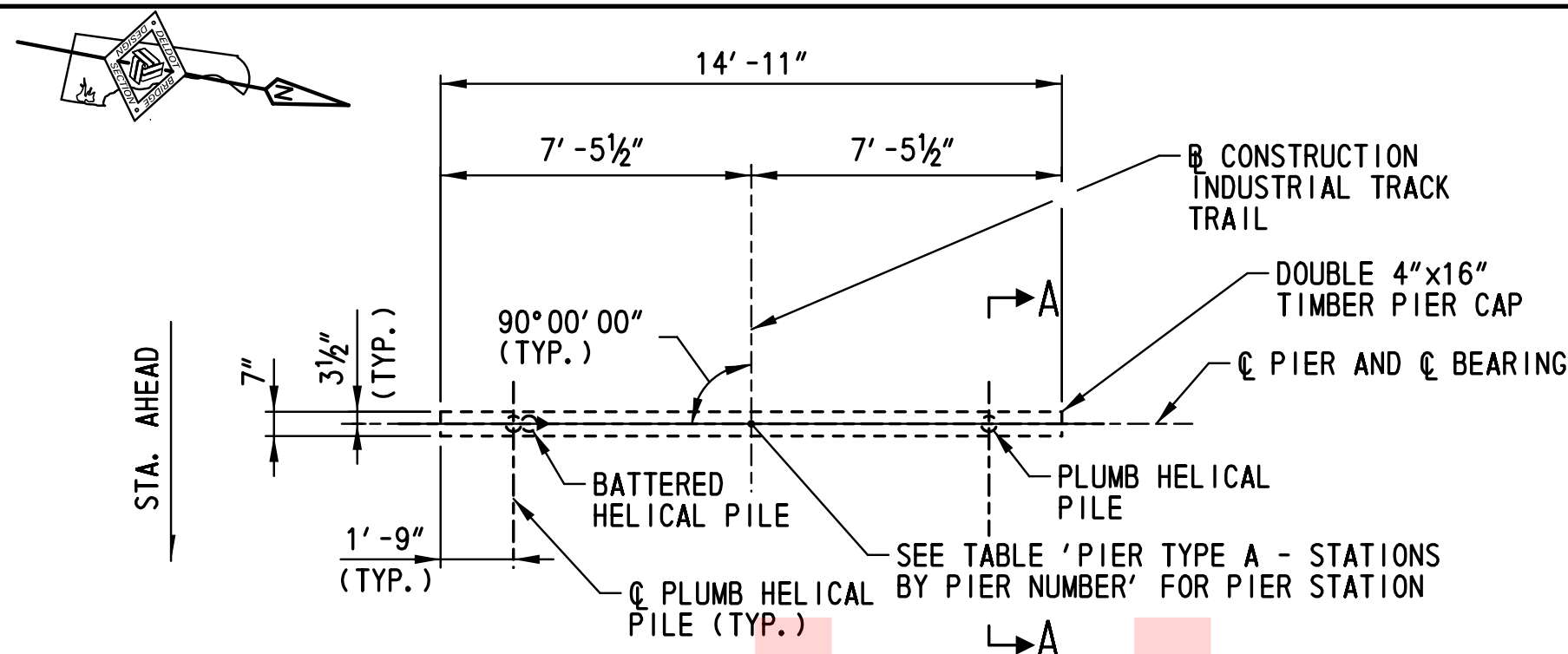
ABUTMENT A - ELEVATION
SCALE: 1/2" = 1'-0"

N:\31896-002\CADD\BRIDGE\AB201\ITG.DGN

ADDENDUMS / REVISIONS

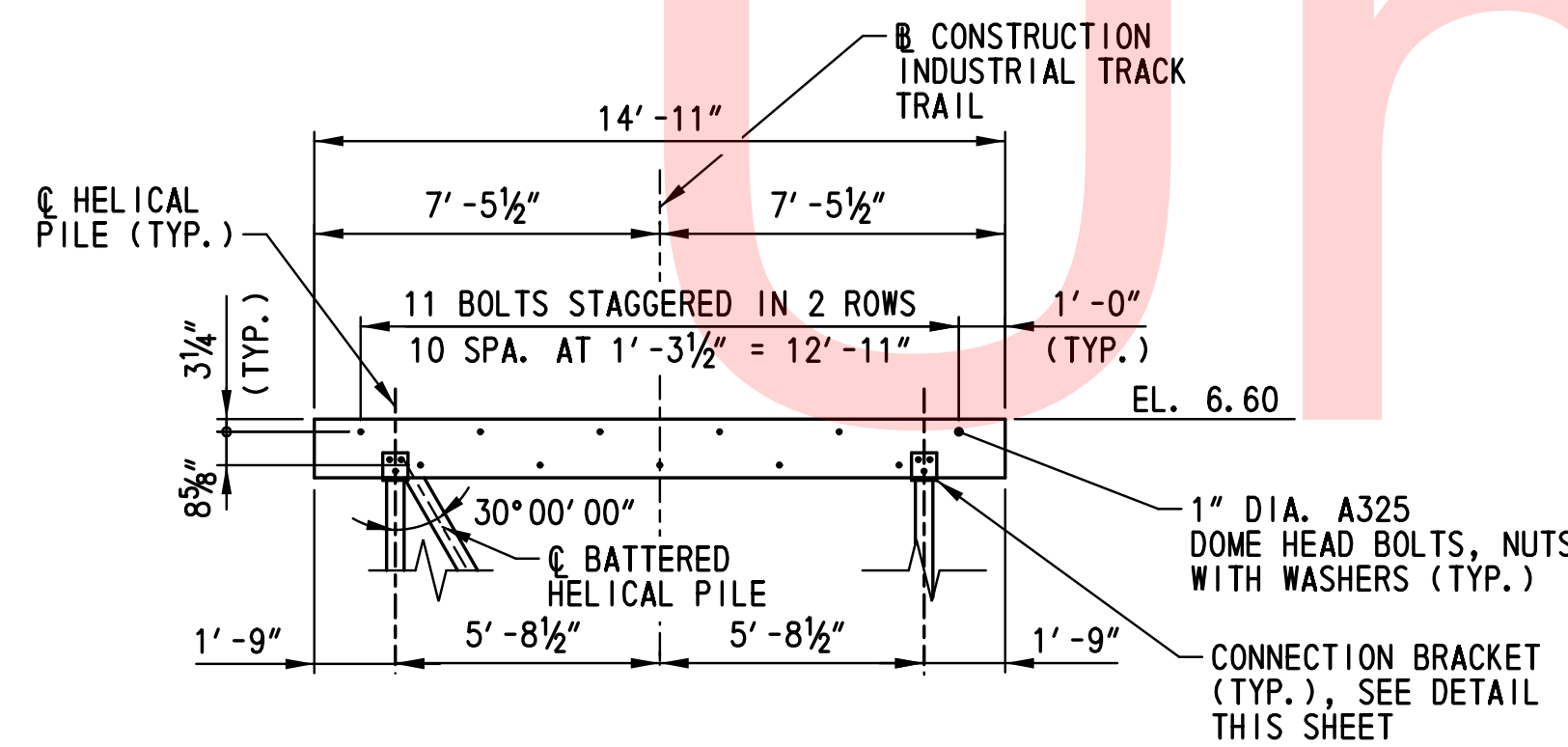


CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	ZMG
COUNTY	CHECKED BY:	WAG
NEW CASTLE		



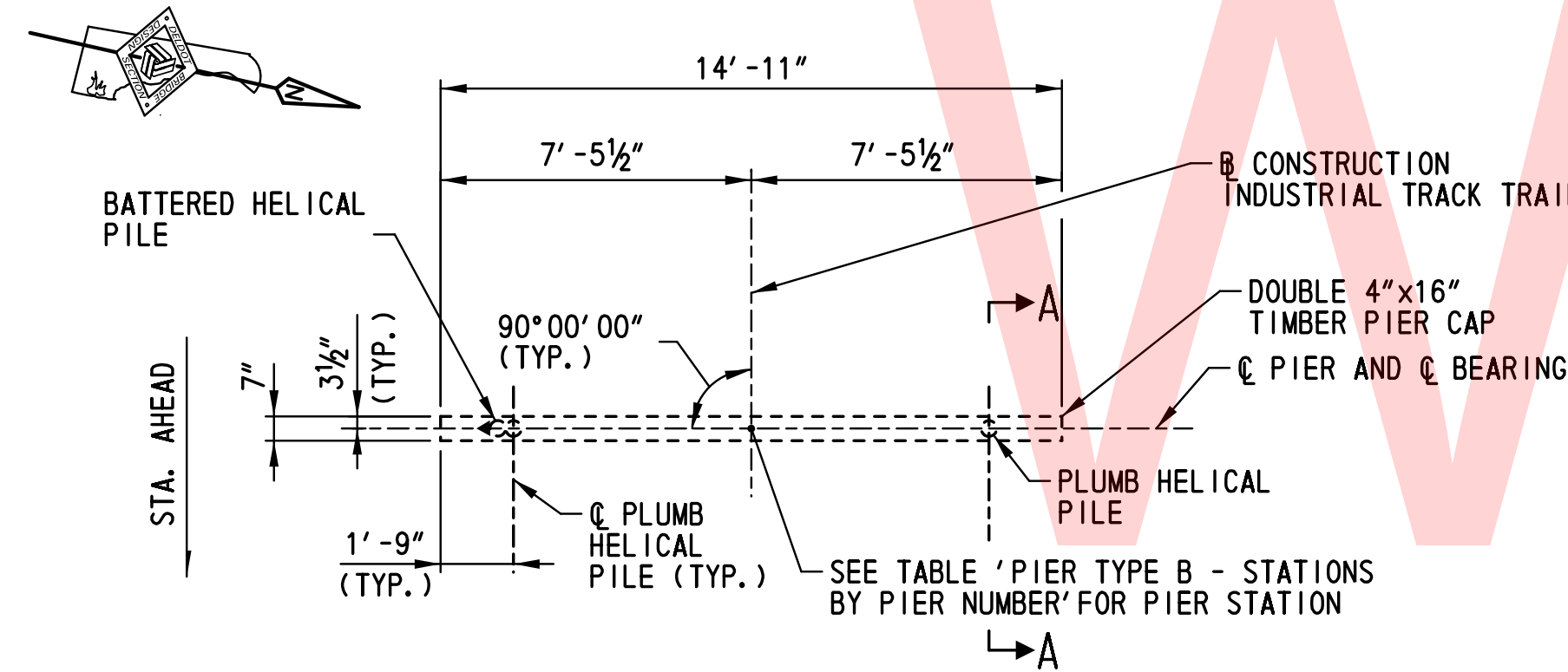
TYPICAL PLAN - PIER TYPE A (PIER 1 SHOWN)

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



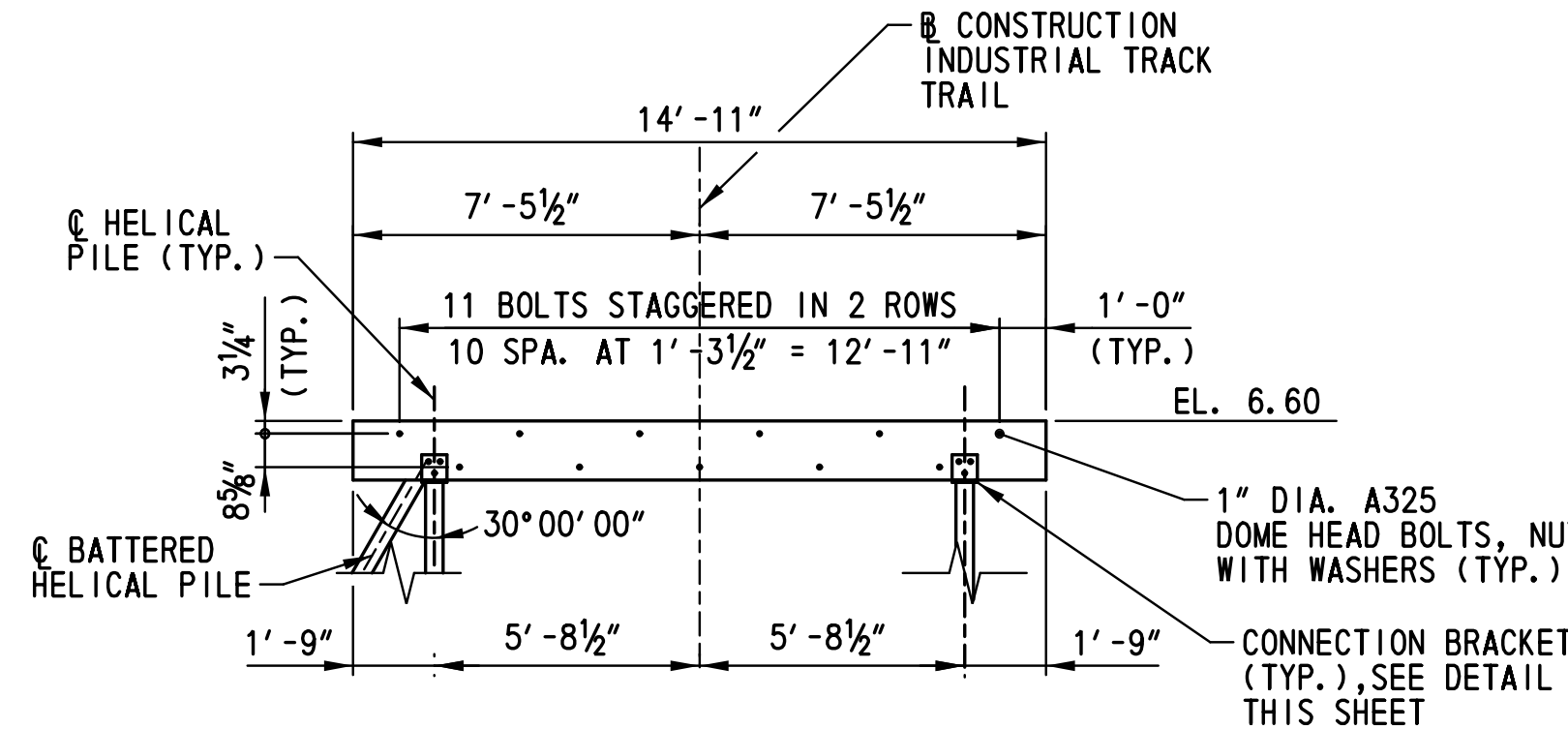
TYPICAL ELEVATION - PIER TYPE A (PIER 1 SHOWN)

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



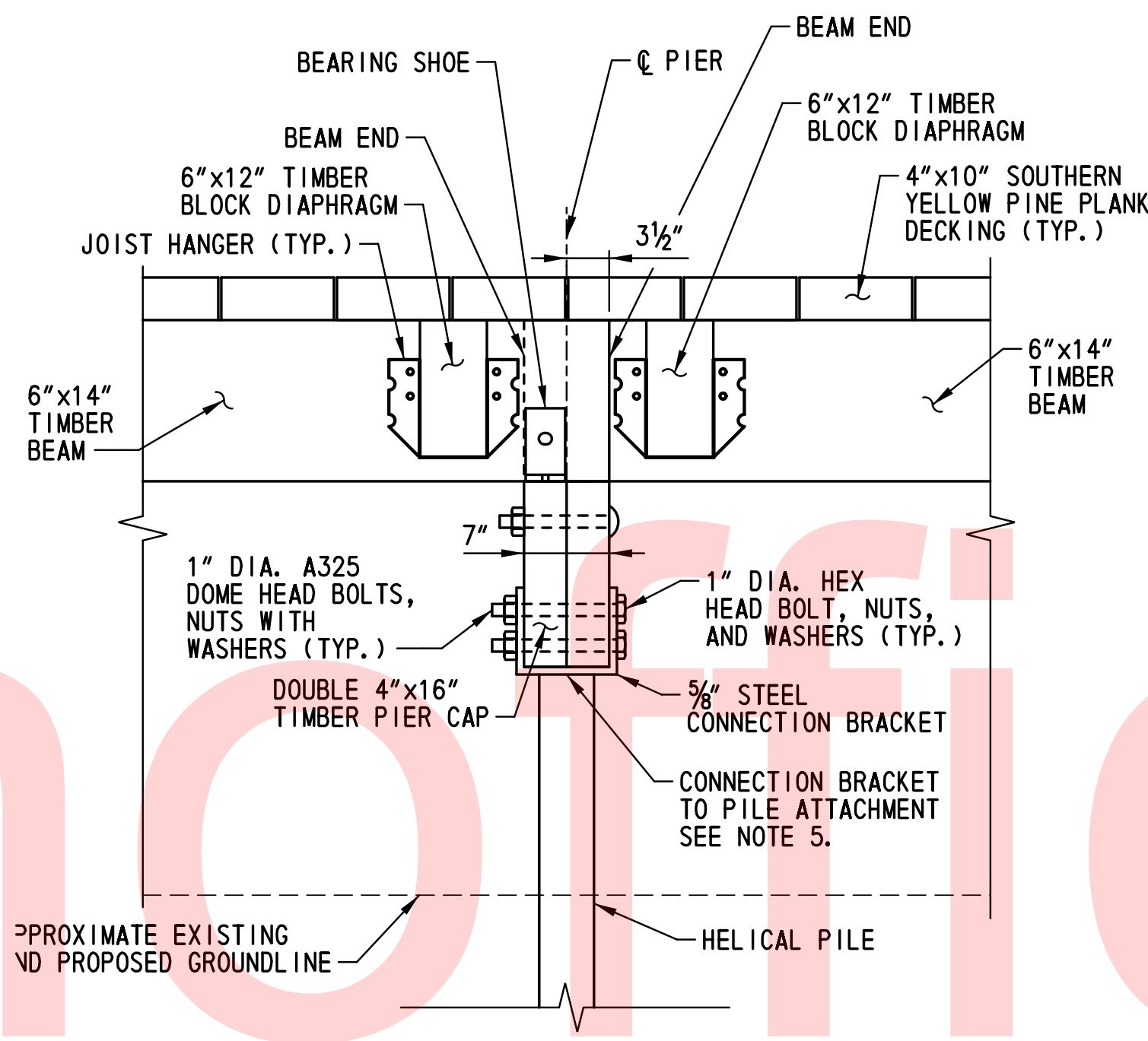
TYPICAL PLAN - PIER TYPE B (PIER 2 SHOWN)

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



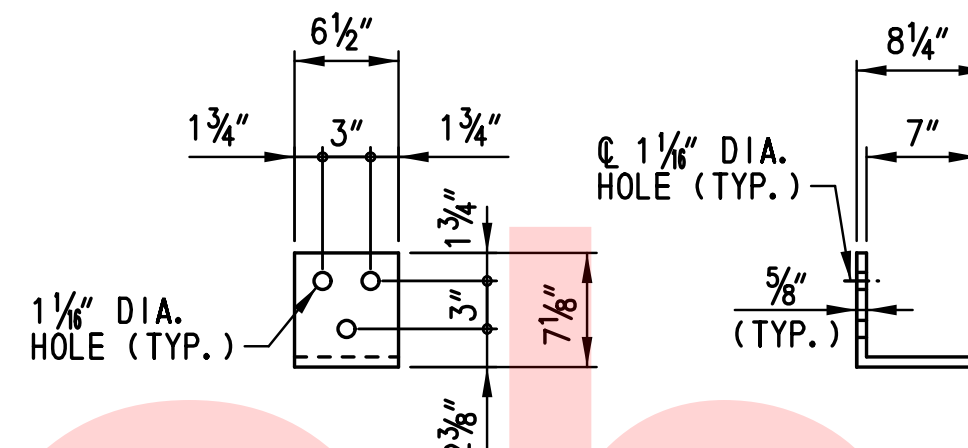
TYPICAL ELEVATION - PIER TYPE B (PIER 2 SHOWN)

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



TYPICAL SECTION A-A

SCALE: 1" = 1'-0"



CONNECTION BRACKET DETAIL

SCALE: 1" = 1'-0"

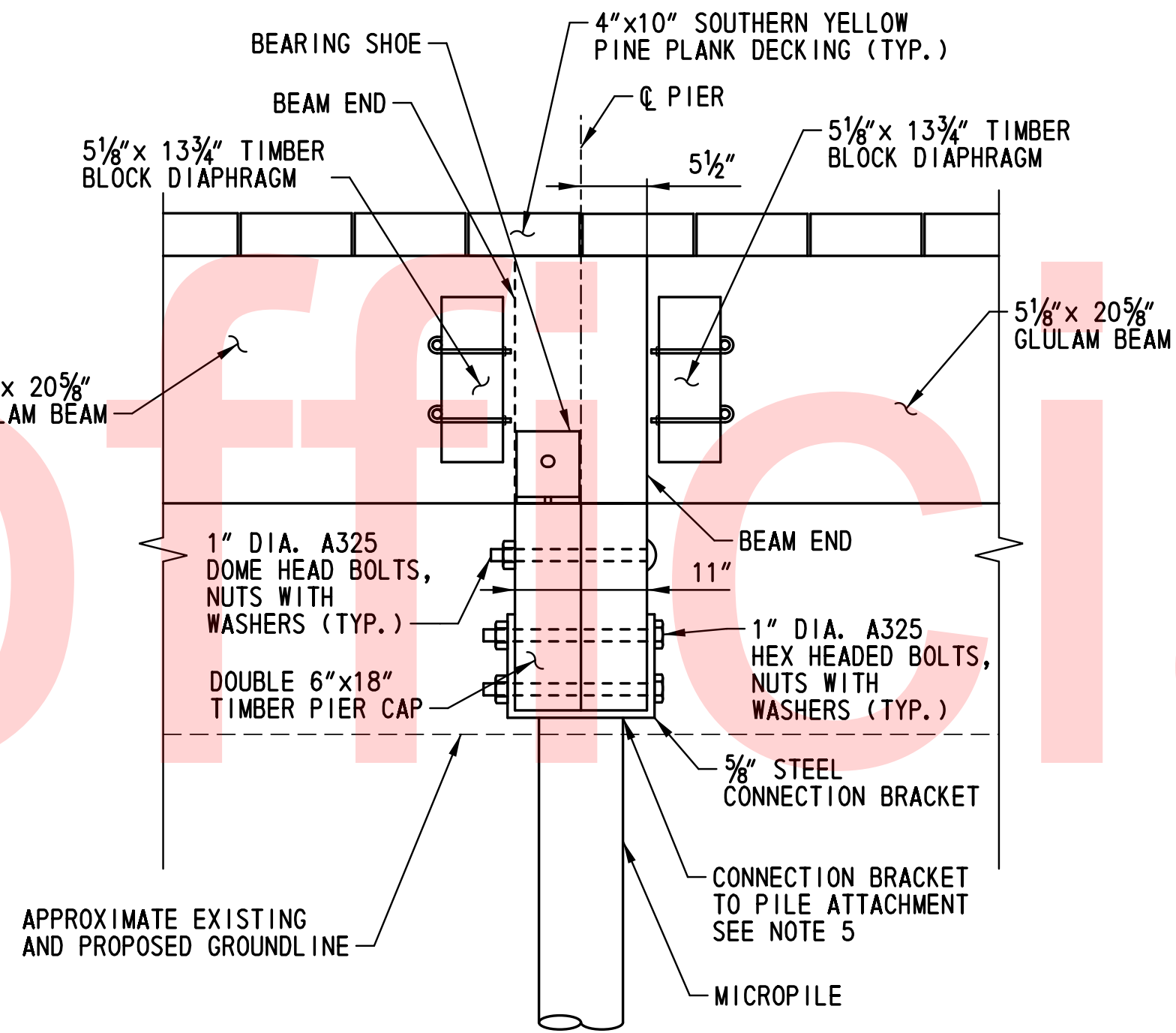
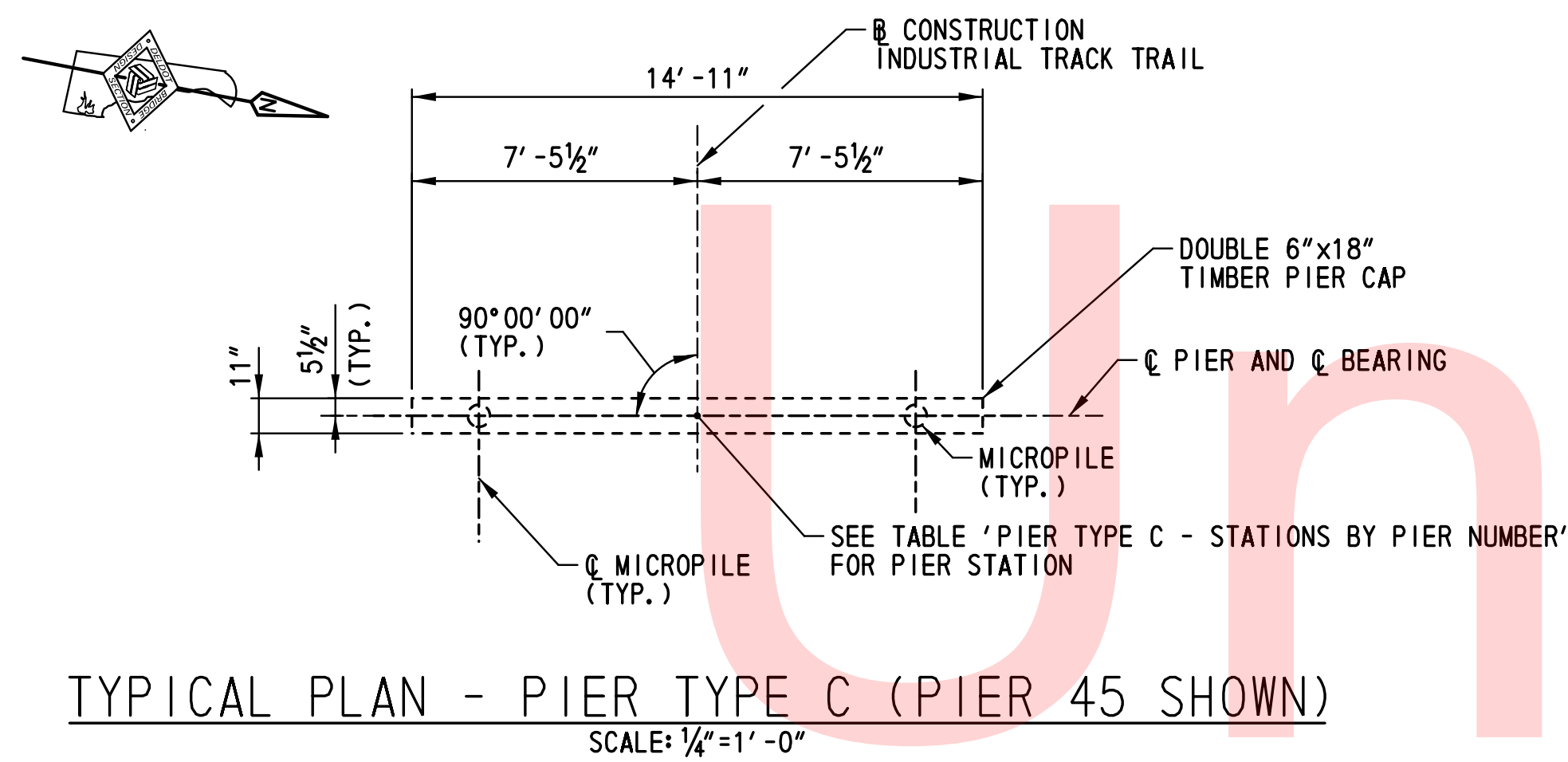
NOTES:

- PIER ORIENTATION VARIES. SEE DWG. NOS. PL-201 THROUGH PL-208 FOR PIER GEOMETRY, PILE LAYOUT, AND WORKING POINT COORDINATES
- HELICAL PILE CONNECTION BRACKET TO BE ZINC HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. THE COST OF THE CONNECTION BRACKETS, HEX HEAD BOLTS, NUTS AND WASHERS SHALL BE INCIDENTAL TO THE HELICAL PILE COST. PAYMENT FOR HELICAL PILES SHALL BE LUMP SUM. REFER TO THE SPECIAL PROVISIONS FOR INFORMATION REGARDING THE PAYMENT OF HELICAL PILES.
- PLACEMENT OF 1" DIA. A325 DOME HEAD BOLTS TO BE AS SHOWN. THE COST FOR DOME HEAD BOLTS, NUTS, AND WASHERS SHALL BE INCIDENTAL TO THE TIMBER PIER CAP, ITEM 601002.
- FOR TIMBER CAP DESIGN STRESSES SEE DWG. NO. PN-201.
- THE CONTRACTOR SHALL DESIGN THE CONNECTION BRACKET TO PILE ATTACHMENT IN ACCORDANCE WITH THE PILE DESIGN LOADS SHOWN ON DWG. NO. PN-201.
- THE HELICAL PILES SHOWN ARE A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE PILES DESIGNED IN ACCORDANCE WITH THE DESIGN LOADS SHOWN ON DWG. NO. PN-201 AND TO THE MINIMUM TIP ELEVATIONS SPECIFIED IN DWG. NOS. PL-207 AND PL-208. FOR MORE INFORMATION REGARDING HELICAL PILES REFER TO THE SPECIAL PROVISIONS.
- ANGLE OF PILE BATTER IS A SUGGESTED METHOD OF CONSTRUCTION ONLY. ANGLE OF BATTERED PILES SHALL BE DESIGNED TO DEVELOP THE REQUIRED DESIGN LOADS SHOWN ON DWG. NO. PN-201 AND TO AVOID CONFLICTS WITH EXISTING UTILITY LOCATIONS AND EASEMENTS. BATTERED PILES SHALL BE DESIGNED BY THE CONTRACTOR TO ATTACH TO PIER CAPS OR PLUMB PILES TO AVOID CONFLICT WITH ADJACENT PILES.

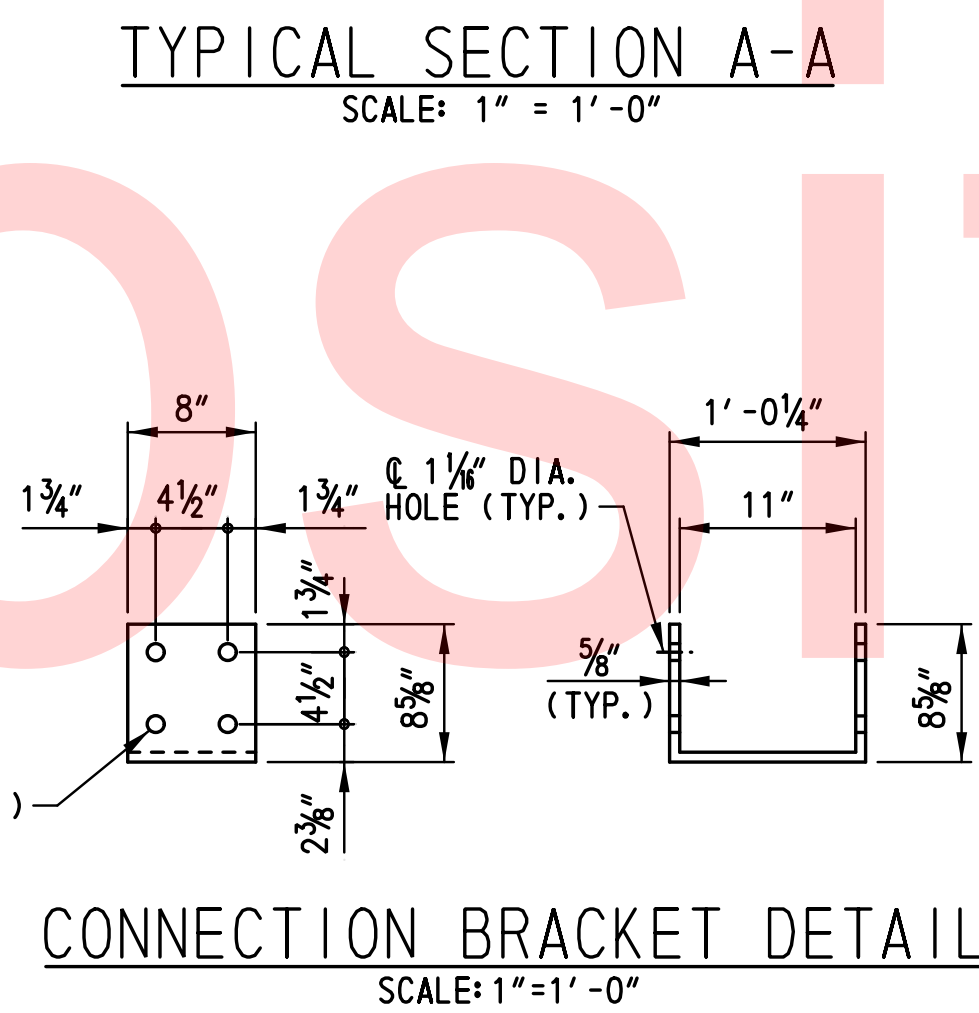
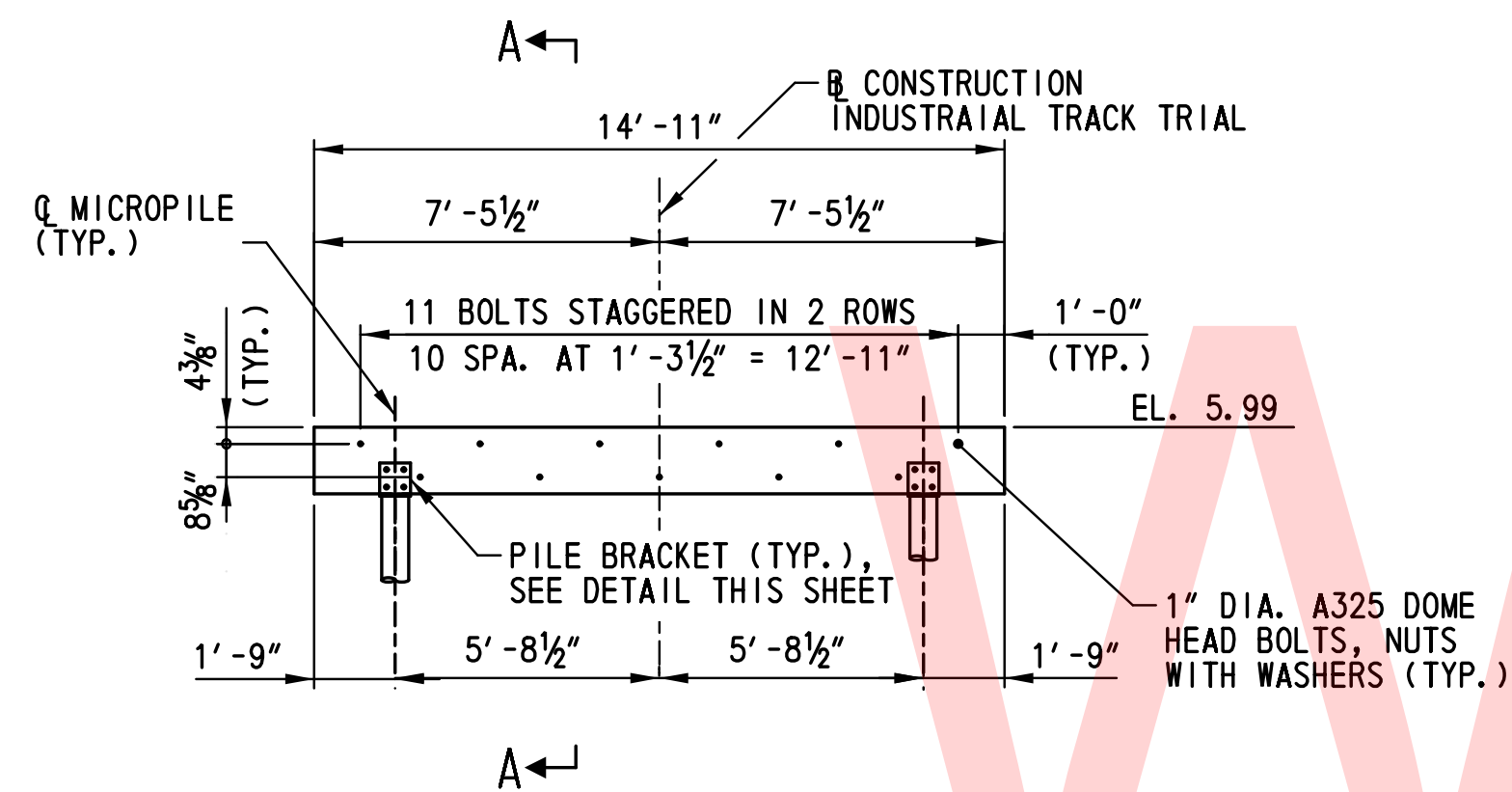
PIER TYPE A - STATIONS BY PIER NUMBER							
PIER NO.	STATION	PIER NO.	STATION	PIER NO.	STATION	PIER NO.	STATION
1	126+27.18	37	131+66.21	95	143+36.21	131	148+76.21
3	126+56.79	39	131+96.21	97	143+66.21	133	149+06.21
5	126+86.40	41	132+26.21	99	143+96.21	135	149+36.21
7	127+16.21	43	132+56.21	101	144+26.21	137	149+66.21
9	127+46.21	67	139+16.21	103	144+56.21	139	149+96.21
11	127+76.21	69	139+46.21	105	144+86.21	141	150+26.21
13	128+06.21	71	139+76.21	107	145+16.21	143	150+56.21
15	128+36.21	73	140+06.21	109	145+46.21	145	150+86.21
17	128+66.21	75	140+36.21	111	145+76.21	147	151+16.21
19	128+96.21	77	140+66.21	113	146+06.21	149	151+46.21
21	129+26.21	79	140+96.21	115	146+36.21	151	151+76.21
23	129+56.21	81	141+26.21	117	146+66.21	153	152+06.21
25	129+86.21	83	141+56.21	119	146+96.21	155	152+36.21
27	130+16.21	85	141+86.21	121	147+26.21	157	152+66.21
29	130+46.21	87	142+16.21	123	147+56.21	159	152+96.21
31	130+76.21	89	142+46.21	125	147+86.21	161	153+26.21
33	131+06.21	91	142+76.21	127	148+16.21	163	153+56.21
35	131+36.21	93	143+06.21	129	148+46.21		

PIER TYPE B - STATIONS BY PIER NUMBER							
PIER NO.	STATION	PIER NO.	STATION	PIER NO.	STATION	PIER NO.	STATION
ABUT. A	126+12.48	36	131+51.21	92	142+91.21	128	148+31.21
2	126+41.98	38	131+81.21	94	143+21.21	130	148+61.21
4	126+71.60	40	132+11.21	96	143+51.21	132	148+91.21
6	127+01.21	42	132+41.21	98	143+81.21	134	149+21.21
8	127+31.21	44	132+71.21	100	144+11.21	136	149+51.21
10	127+61.21	66	139+01.21	102	144+41.21	138	149+81.21
12	127+91.21	68	139+31.21	104	144+71.21	140	150+11.21
14	128+21.21	70	139+61.21	106	145+01.21	142	150+41.21
16	128+51.21	72	139+91.21	108	145+31.21	144	150+71.21
18	128+81.21	74	140+21.21	110	145+61.21	146	151+01.21
20	129+11.21	76	140+51.21	112	145+91.21	148	151+31.21
22	129+41.21	78	140+81.21	114	146+21.21	150	151+61.21
24	129+71.21	80	141+11.21	116	146+51.21	152	151+91.21
26	130+01.21	82	141+41.21	118	146+81.21	154	152+21.21
28	130+31.21	84	141+71.21	120	147+11.21	156	152+51.21
30	130+61.21	86	142+01.21	122	147+41.21	158	152+81.21
32	130+91.21	88	142+31.21	124	147+71.21	160	153+11.21
34	131+21.21	90	142+61.21	126	148+01.21	162	153+41.21

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PIER TYPE C - STATIONS BY PIER NUMBER			
PIER NO.	STATION	PIER NO.	STATION
45	132+86.21	56	136+16.21
46	133+16.21	57	136+46.21
47	133+46.21	58	136+76.21
48	133+76.21	59	137+06.21
49	134+06.21	60	137+36.21
50	134+36.21	61	137+66.21
51	134+66.21	62	137+96.21
52	134+96.21	63	138+26.21
53	135+26.21	64	138+56.21
54	135+56.21	65	138+86.21
55	135+86.21		



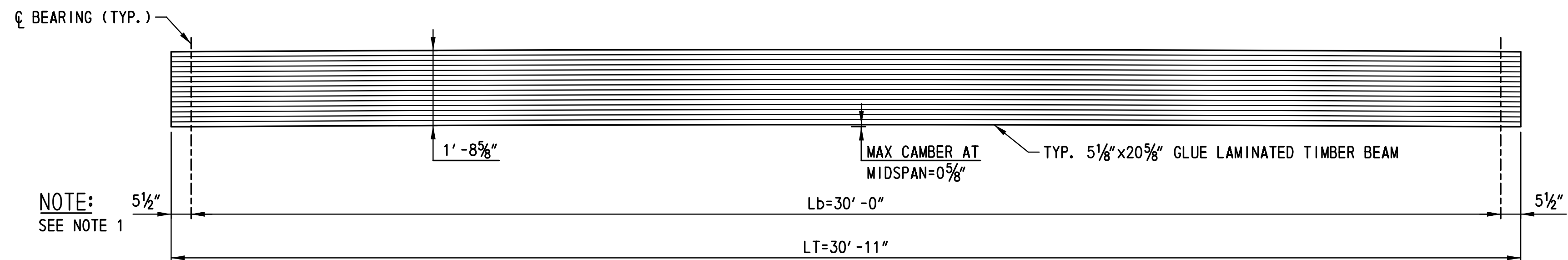
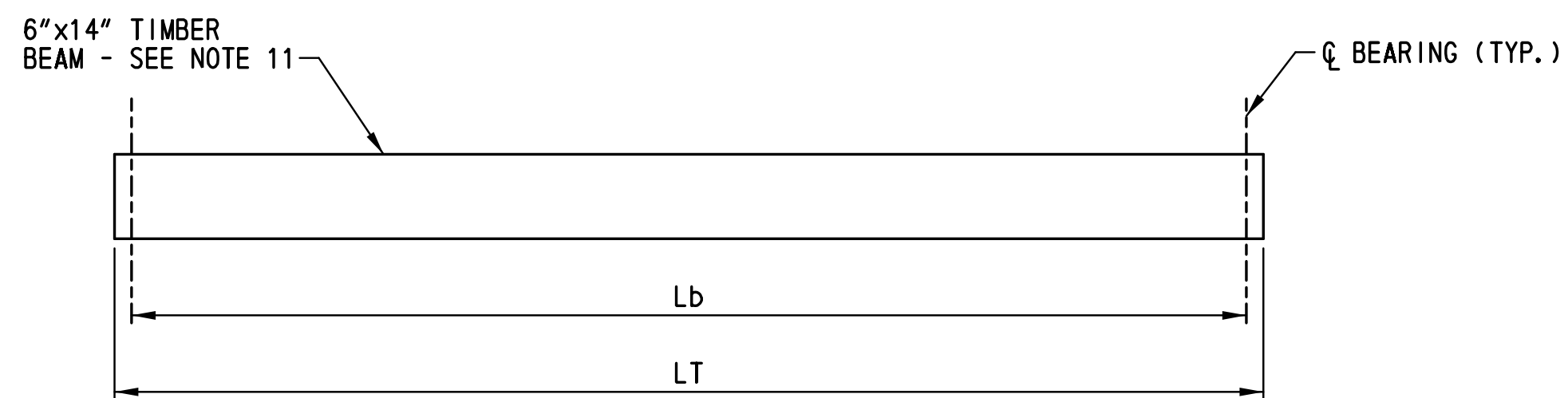
TYPICAL ELEVATION - PIER TYPE C (PIER 45 SHOWN)
SCALE: 1/4" = 1'-0"

TYPICAL SECTION A-A
SCALE: 1" = 1'-0"

CONNECTION BRACKET DETAIL
SCALE: 1" = 1'-0"

- NOTES:**
- PIER ORIENTATION VARIES. SEE DWG. NOS. PL-201 THROUGH PL-208 FOR PIER GEOMETRY, PILE LAYOUT, AND WORKING POINT COORDINATES
 - MICROPILE CONNECTION BRACKET TO BE ZINC HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. THE COST OF THE CONNECTION BRACKETS, HEX HEAD BOLTS, NUTS AND WASHERS SHALL BE INCIDENTAL TO THE MICROPILE COST. PAYMENT FOR MICROPILES SHALL BE LUMP SUM. REFER TO THE SPECIAL PROVISIONS FOR INFORMATION REGARDING THE PAYMENT OF MICROPILES.
 - PLACEMENT OF 1" DIA. A325 DOME HEAD BOLTS TO BE AS SHOWN. THE COST FOR DOME HEAD BOLTS, NUTS, AND WASHERS SHALL BE INCIDENTAL TO THE TIMBER PIER CAP, ITEM 601002.
 - FOR TIMBER CAP DESIGN STRESSES SEE DWG. NO. PN-201.
 - THE CONTRACTOR SHALL DESIGN THE CONNECTION BRACKET TO PILE ATTACHMENT IN ACCORDANCE WITH THE PILE DESIGN LOADS SHOWN ON DWG. NO. PN-201.
 - THE MICROPILES SHOWN ARE A SUGGESTED METHOD OF CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE PILES DESIGNED IN ACCORDANCE WITH THE DESIGN LOADS SHOWN ON DWG. NO. PN-201 AND TO THE MINIMUM TIP ELEVATIONS SPECIFIED IN DWG. NOS. PL-207 AND PL-208. FOR MORE INFORMATION REGARDING MICROPILES REFER TO THE SPECIAL PROVISIONS.

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BEAM ELEVATION - SAWN TIMBER BEAMS
SCALE: 1/2"=1'-0"

BEAM DIMENSIONS: LT					
BEAM	SPAN				
	1	2-6	34-38	164	ALL OTHER SPANS NOT INDICATED (TYP.)
1-9	15'-3 1/4"	15'-7 7/8" (+)	15'-9 5/8" (+)	10'-7"	15'-7"

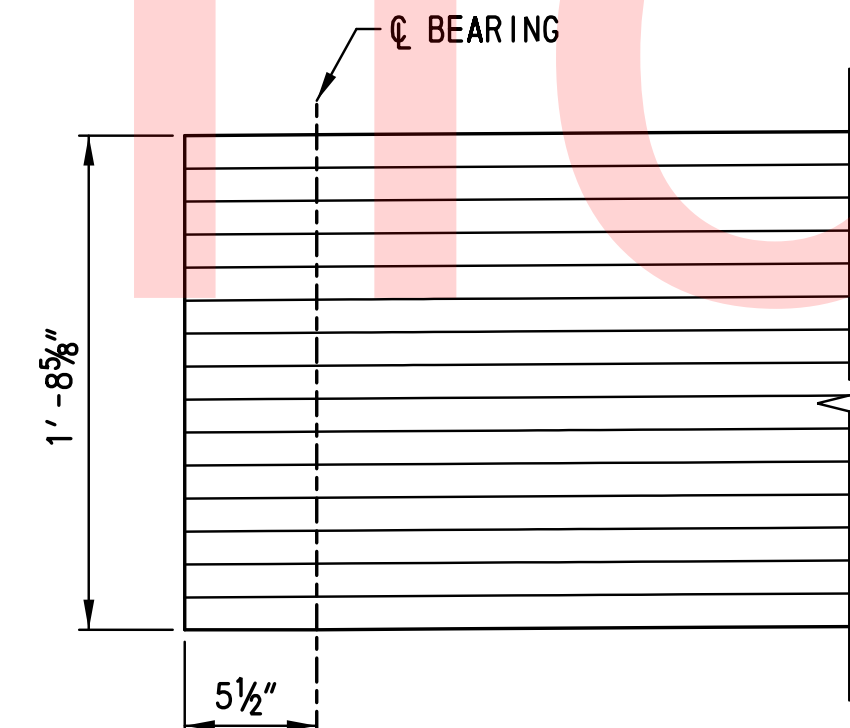
BEAM DIMENSIONS: Lb			
BEAM	SPAN		
	1	164	ALL OTHER SPANS NOT INDICATED (TYP.)
1-9	14'-8 1/4"	9'-9 1/2"	15'

BEAM DIMENSIONS: Lb					
BEAM	SPAN				
	2	3	4	5	6
1	14'-7 1/8"	14'-7"	14'-7 1/8"	14'-7"	14'-7 1/4"
2	14'-7 7/8"	14'-7 7/8"	14'-7 7/8"	14'-7 7/8"	14'-7 7/8"
3	14'-8 1/2"	14'-8 1/4"	14'-8 1/2"	14'-8 1/4"	14'-8 1/2"
4	14'-9 1/8"	14'-9"	14'-9 1/8"	14'-9"	14'-9 1/8"
5	14'-9 3/4"	14'-9 5/8"	14'-9 3/4"	14'-9 5/8"	14'-9 3/4"
6	14'-10 3/8"	14'-10 1/4"	14'-10 3/8"	14'-10 1/4"	14'-10 3/8"
7	14'-11 1/8"	14'-10 7/8"	14'-11 1/8"	14'-10 7/8"	14'-11 1/8"
8	14'-11 3/4"	14'-11 1/2"	14'-11 3/4"	14'-11 1/2"	14'-11 3/4"
9	15'-0 3/8"	15'-0 1/4"	15'-0 3/8"	15'-0 1/4"	15'-0 3/8"

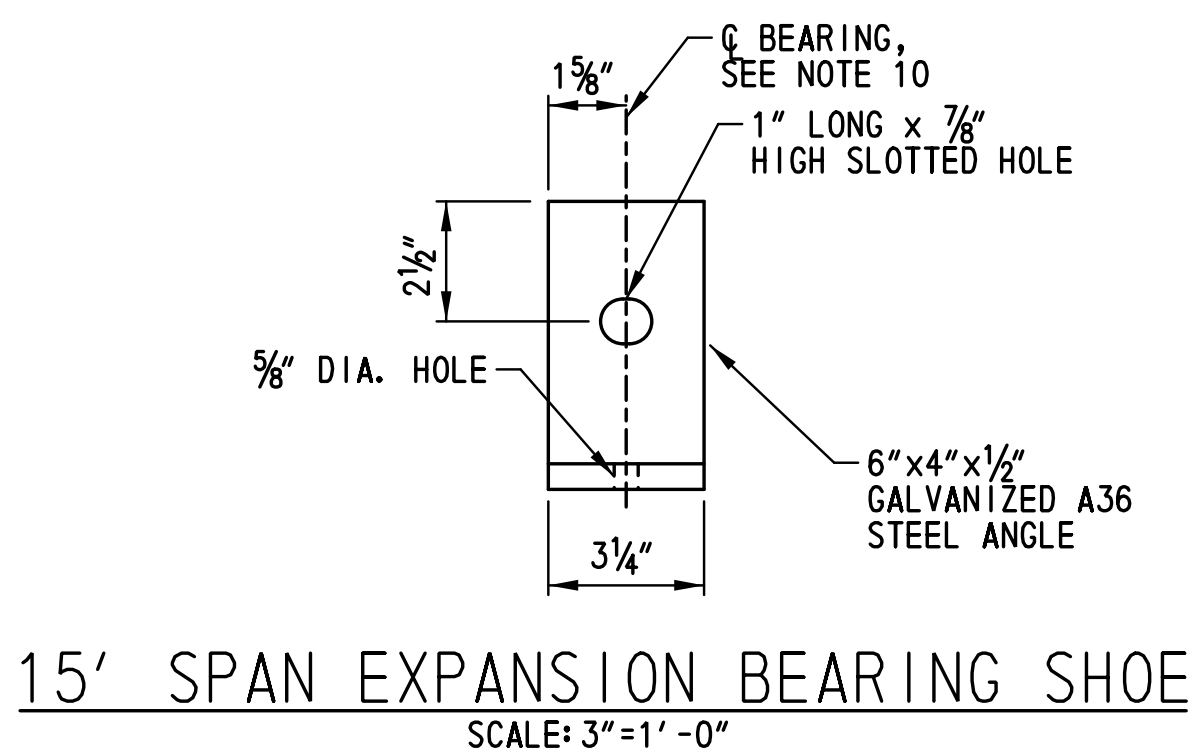
BEAM DIMENSIONS: Lb					
BEAM	SPAN				
	34	35	36	37	38
1	15'-2 1/2"	15'-2 3/4"	15'-2 1/2"	15'-2 3/4"	15'-2 1/2"
2	15'-1 7/8"	15'-2"	15'-1 7/8"	15'-2"	15'-1 7/8"
3	15'-1 1/4"	15'-1 3/8"	15'-1 1/4"	15'-1 3/8"	15'-1 1/4"
4	15'-0 1/2"	15'-0 3/4"	15'-0 1/2"	15'-0 3/4"	15'-0 1/2"
5	14'-11 7/8"	15'-0 1/8"	14'-11 7/8"	15'-0 1/8"	14'-11 7/8"
6	14'-11 1/4"	14'-11 1/2"	14'-11 1/4"	14'-11 1/2"	14'-11 1/4"
7	14'-10 5/8"	14'-10 3/4"	14'-10 5/8"	14'-10 3/4"	14'-10 5/8"
8	14'-10"	14'-10 1/8"	14'-10"	14'-10 1/8"	14'-10"
9	14'-9 1/4"	14'-9 1/2"	14'-9 1/4"	14'-9 1/2"	14'-9 3/8"

BEAM ELEVATION - GLULAM BEAMS
SCALE: 1/2"=1'-0"

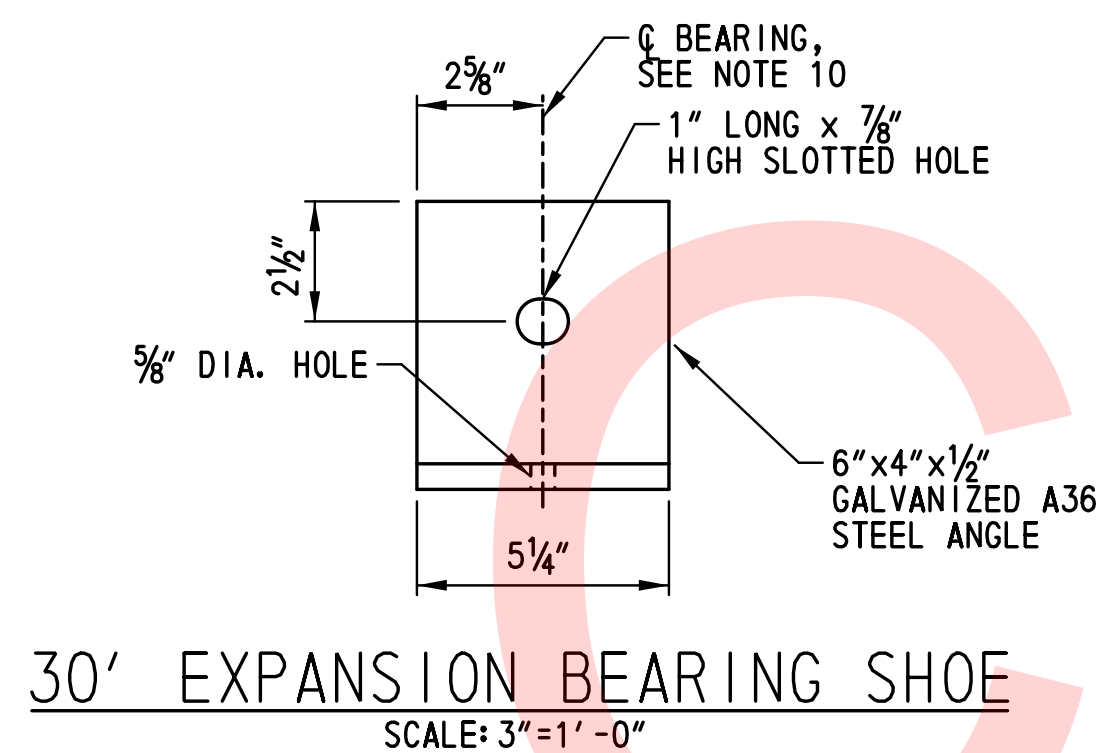
- NOTES:**
- DIAGRAM APPLIES TO SPAN NOS. 46-65.
 - SEE DWG. NOS. FR-201 THROUGH FR-203 FOR FRAMING PLAN AND BEAM LAP INFORMATION AT BEARING AREAS.
 - 30' GLULAM BEAM IS SYMMETRIC. END DETAIL APPLIES TO BOTH ENDS OF GLULAM BEAM.
 - BEARING SHOE DETAILS (TYP.) AT BOTH ENDS OF 15' AND 30' SPAN BEAMS.
 - PAYMENT FOR GALVANIZED A36 STEEL ANGLES, 3/4" DIA. ANCHOR BOLT, AND ASSOCIATED HARDWARE SHALL BE INCIDENTAL TO TIMBER BEAM ITEMS 601002 AND 601003.
 - STEEL ANGLES TO BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM 123.
 - ANCHOR BOLTS SHALL BE 3/4" DIA. HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 AND BE GALVANIZED IN ACCORDANCE WITH AASHTO M232/M 232 (ASTM A153/A153M).
 - LAG SCREWS SHALL BE IN COMPLIANCE WITH ANSI/ASME B18.2.1 FOR DIMENSIONAL AND MATERIAL REQUIREMENTS AND SHALL BE IN COMPLIANCE WITH SAE-J429, GRADE 1 FOR STRENGTH REQUIREMENTS. LAG SCREWS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232/M 232 (ASTM A153/A153M).
 - HOLES IN GLULAM BEAMS AND SAWN TIMBER BEAMS FOR ANCHOR ROD INSTALLATION SHALL BE MADE PRIOR TO PRESSURE TREATMENT IN ACCORDANCE WITH AASHTO M 133. PROPOSED HOLE DIAMETERS SHALL BE A MINIMUM OF 1/8" GREATER THAN THE GLULAM BEAM ANCHOR ROD DIAMETERS AND 1/4" GREATER THAN THE SAWN TIMBER BEAM ANCHOR ROD DIAMETERS AND MUST ACCOUNT FOR FABRICATION TOLERANCES AND FIELD FIT-UP DURING CONSTRUCTION. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL INDICATING THE SIZE OF THE PROPOSED ANCHOR BOLT HOLES IN THE BEAMS. FIELD MODIFICATIONS TO THE PROPOSED HOLES IS PERMITTED. FIELD MODIFIED HOLES SHALL BE TREATED WITH A FIELD APPLIED COPPER NAPHTHENATE PRESERVATIVE TREATMENT IN ACCORDANCE WITH AASHTO M 133.
 - FOR PLACEMENT OF BEARING SHOES, SEE DWG. NOS. SD-201 AND SD-202.
 - 6"x14" SAWN TIMBER BEAM DETAIL SHOWN IN BEAM ELEVATION - SAWN TIMBER BEAMS, THIS SHEET, APPLIES TO BEAMS IN SPAN NOS. 1-44 AND 66-164. FOR 6"x14" SAWN TIMBER BEAM ELEVATION IN SPAN NOS. 45 AND 66, SEE DWG. NO. BM-202.



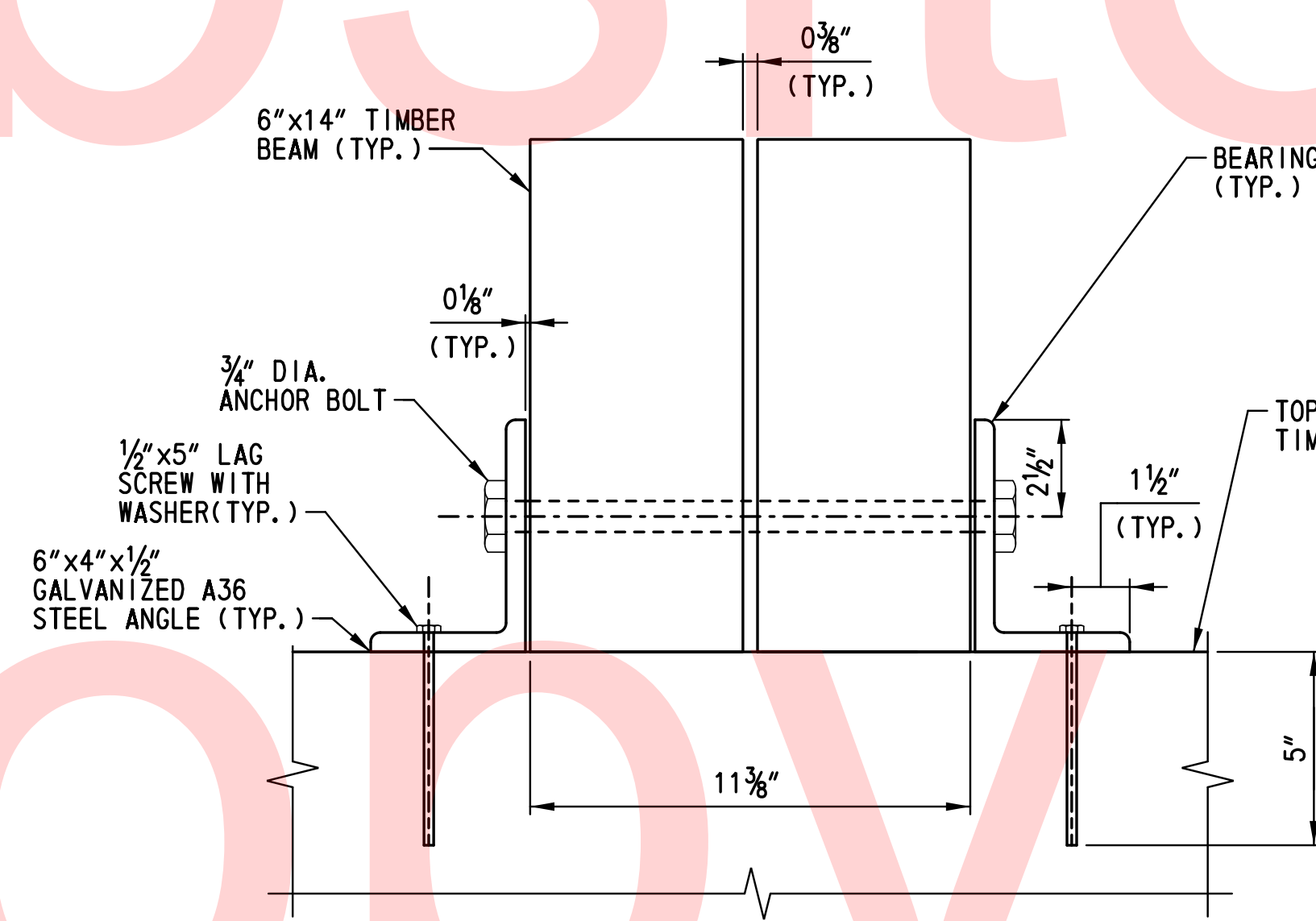
30' BEAM END DETAIL
SCALE: 1 1/2"=1'-0"



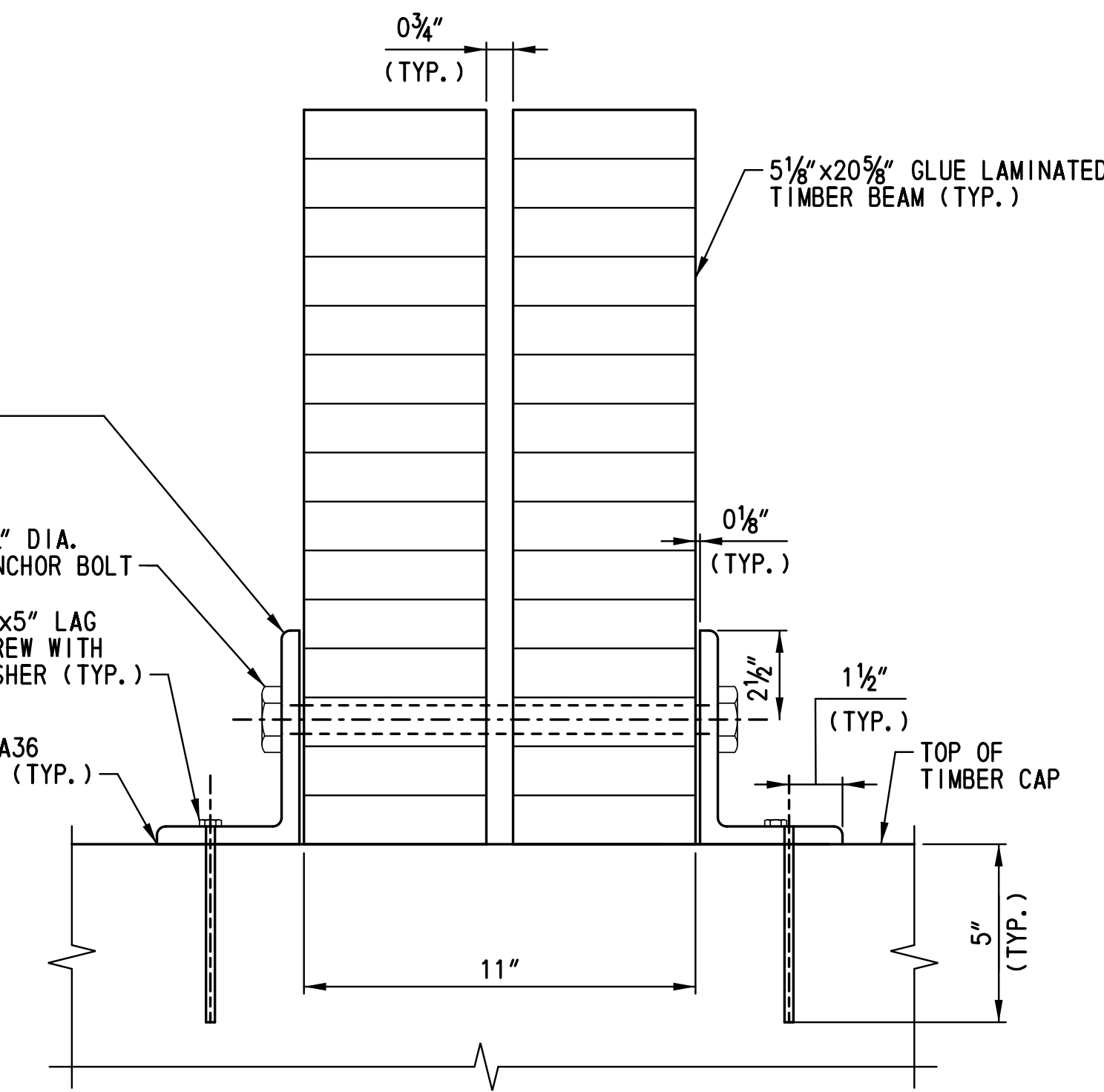
15' SPAN EXPANSION BEARING SHOE
SCALE: 3"=1'-0"



30' EXPANSION BEARING SHOE
SCALE: 3"=1'-0"

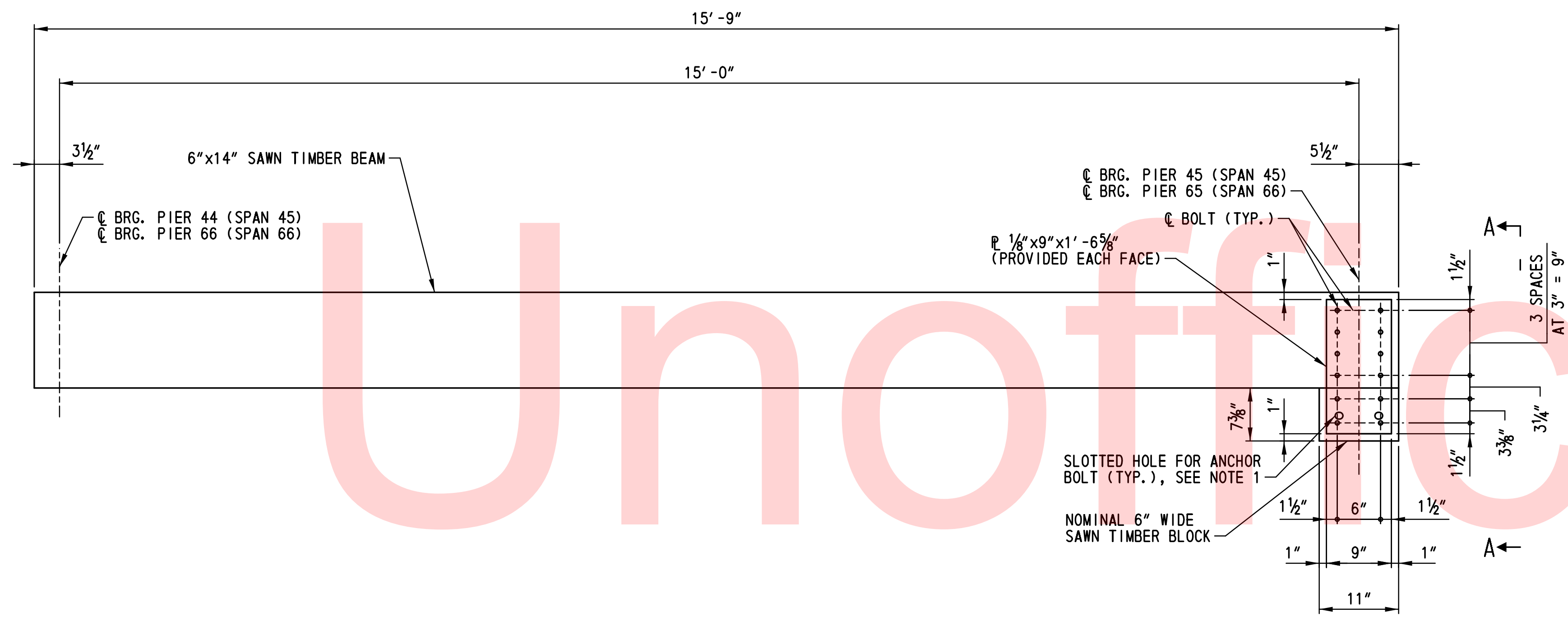


15' SPAN BEARING END DETAIL
SCALE: 3"=1'-0"

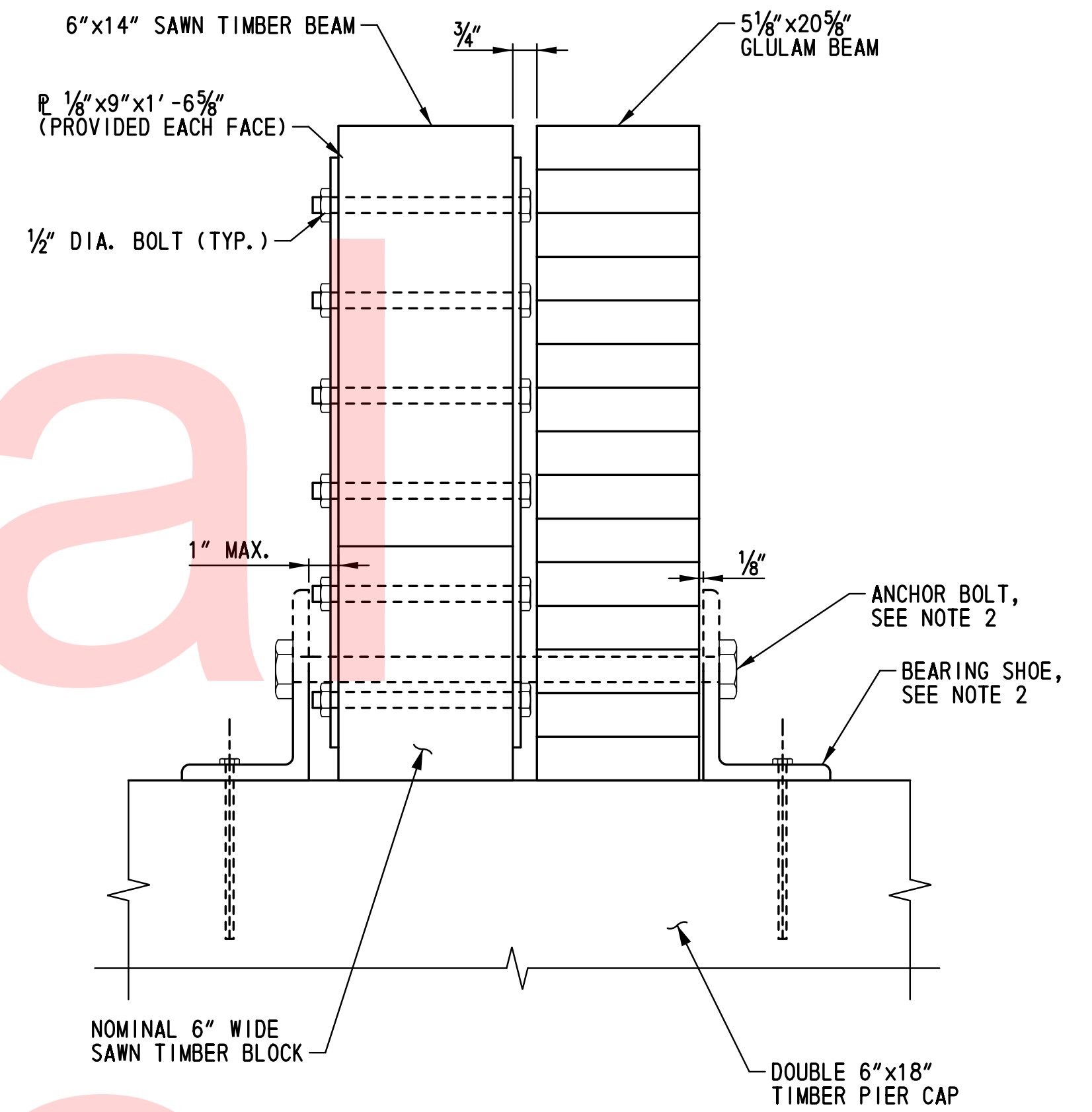


30' SPAN BEARING END DETAIL
SCALE: 3"=1'-0"

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SAWN LUMBER BEAM DETAIL - SPAN NOS. 45 AND 66
SCALE: 1"=1'-0"

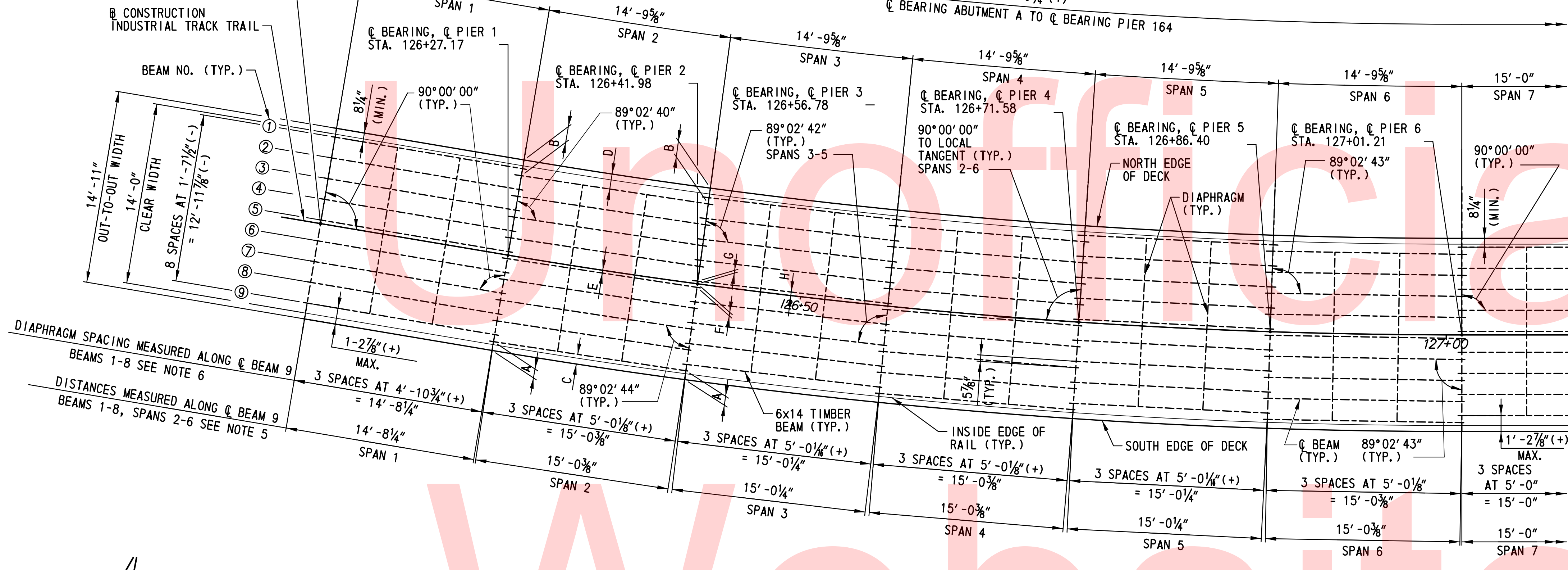
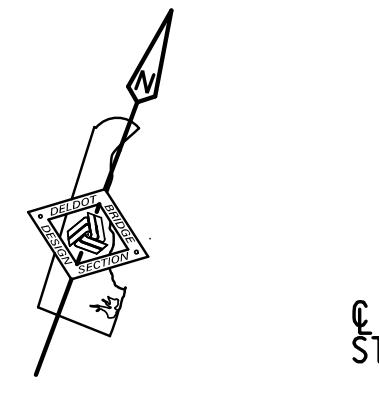


VIEW A-A
SCALE: 3"=1'-0"

NOTES:

1. FOR LOCATION AND DETAILS OF SLOTTED HOLE FOR ANCHOR BOLTS, SEE 30' EXPANSION BEARING SHOE DETAIL, DWG. NO. BM-201.
2. FOR BEARING SHOE AND ANCHOR BOLT DETAILS, SEE DWG. BM-201.
3. FOR FABRICATED HOLES IN GLULAM BEAMS FOR ANCHOR BOLT INSTALLATION SEE DWG. BM-201.

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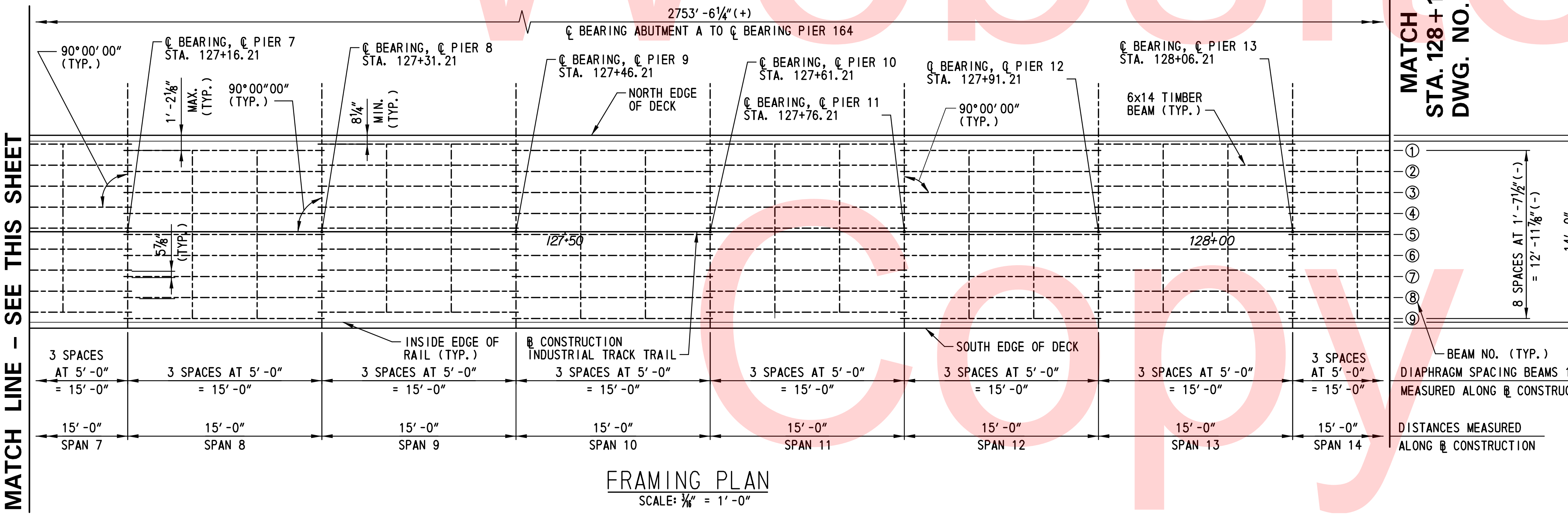
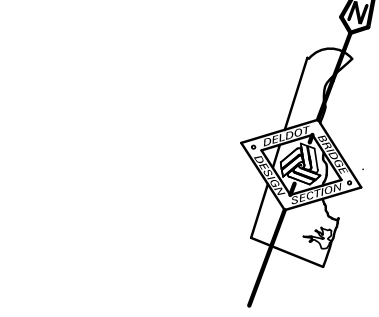
MATCH LINE - SEE THIS SHEET

DIMENSION REFERENCE TABLE - SPANS 2,4,6	
DIMENSION	DIMENSION
A	0'-8 1/4" (+)
B	1'-2 3/4" (+)
C	0'-9 1/8"
D	1'-2 1/8" (+)

DIMENSION REFERENCE TABLE - SPANS 3,5	
DIMENSION	DIMENSION
A	1'-2 1/8" (+)
B	0'-8 1/8" (+)
C	1'-2 7/8" (+)
D	0'-8 1/4"

DIMENSION REFERENCE TABLE - SPANS 2,4,(6)	
DIMENSION	DIMENSION
E	0'-2 1/2"
F	0'-3 1/4"
(E)	0'-2 3/8"
(F)	0'-3 1/4" (+)

DIMENSION REFERENCE TABLE - SPANS 3,5	
DIMENSION	DIMENSION
H	0'-3 3/8"
G	0'-2 3/8"

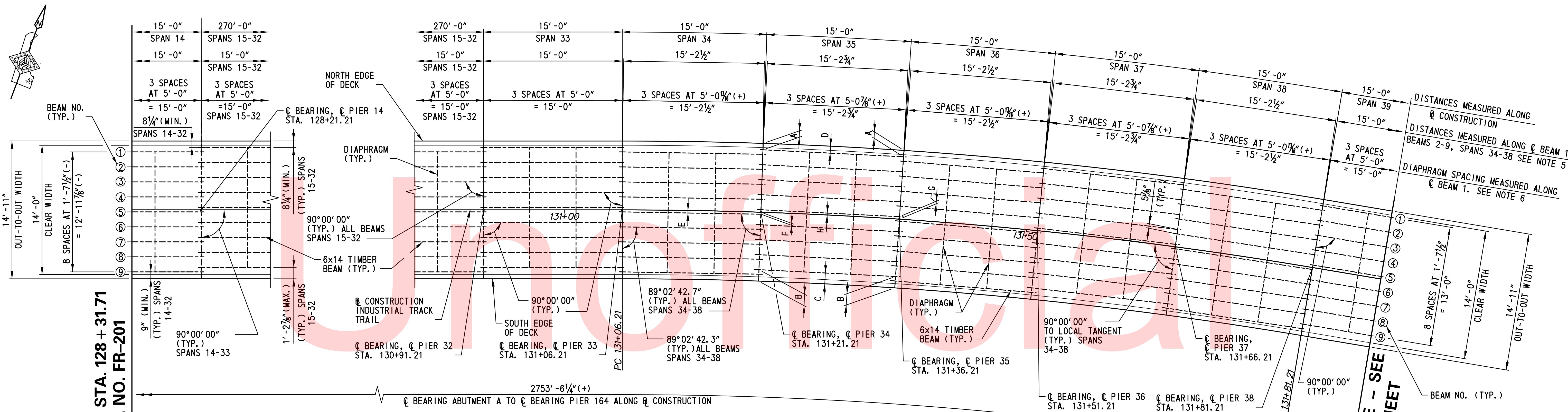


MATCH LINE - SEE THIS SHEET

MATCH LINE STA. 128+13.71 SEE DWG. NO. FR-202

- NOTES:
- SPACING OF LAPPED BEAMS OVER PIERS IS 5 7/8" MEASURED PERPENDICULAR TO BEAMS ALONG CENTERLINE OF PIER. SEE TYPICAL SECTION ON DWG. NO. TS-201 FOR MORE INFORMATION.
 - DIAPHRAGMS ARE PERPENDICULAR TO BEAMS.
 - 6x14 SAWN BEAMS ARE TO BE LAPPED OVER PIER AND EXTEND TO OPPOSITE FACE OF PIER.
 - FOR BEAM ELEVATIONS, SEE DWG. NO. BM-201.
 - FOR CENTER-CENTER BEARING LENGTHS AND TOTAL LENGTHS OF BEAMS 1-8 IN SPANS 2-6 SEE DWG. NO. BM-201.
 - DIAPHRAGMS SPACED EQUALLY AT THIRD POINTS BETWEEN CENTERLINES OF BEARING.

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MATCH LINE STA. 128 + 31.71
SEE DWG. NO. FR-201

MATCH LINE - SEE THIS SHEET
STA. 133 + 31.21
SEE DWG. NO. FR-203

DIMENSION REFERENCE TABLE - SPANS 34, 36, 38

DIMENSION	DIMENSION
E	0' - 3 3/8" (+)
F	0' - 2 1/8" (+)

DIMENSION REFERENCE TABLE - SPANS 35, 37

DIMENSION	DIMENSION
H	0' - 2 1/2" (-)
G	0' - 3 1/4" (-)

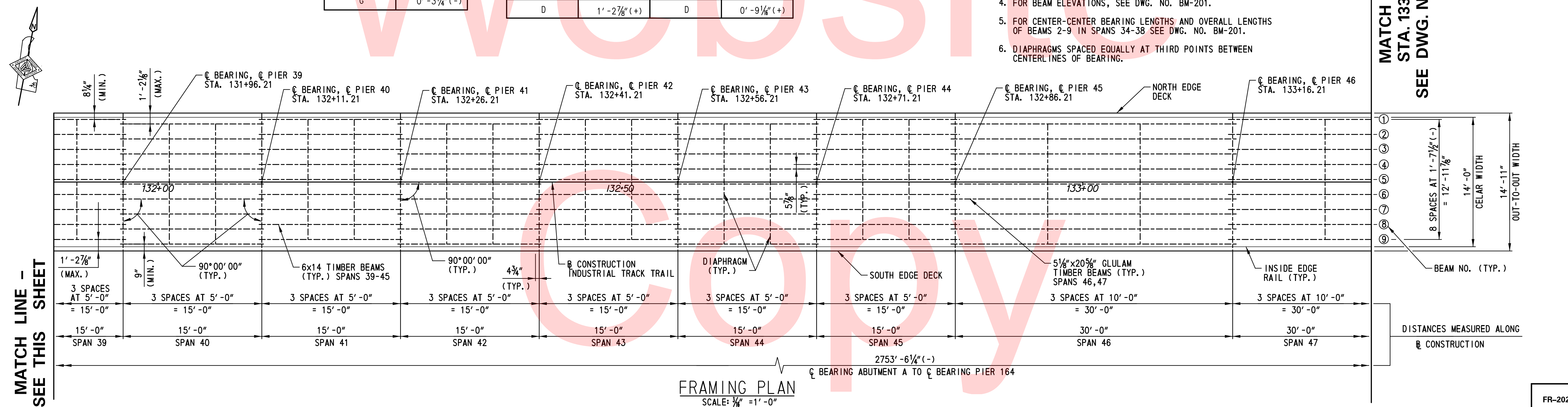
FRAMING PLAN
SCALE: 3/8" = 1' - 0"

DIMENSION REFERENCE TABLE - SPANS 34, 36, 38

DIMENSION	DIMENSION	DIMENSION	DIMENSION
A	1' - 2 1/8" (-)	A	0' - 8 3/8" (-)
B	0' - 8 1/8" (-)	B	1' - 2 3/4" (+)
C	0' - 8' 4"	C	1' - 2 1/8" (+)
D	1' - 2 7/8" (+)	D	0' - 9 1/8" (+)

NOTES:

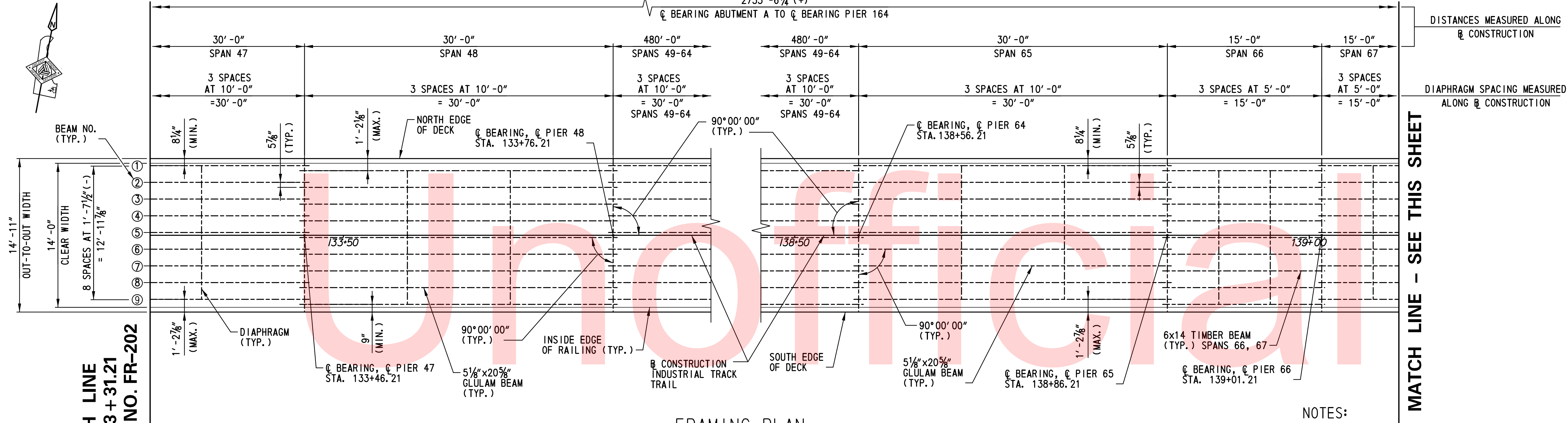
- SPACING OF LAPPED BEAMS OVER PIERS IS 5 7/8" MEASURED PERPENDICULAR TO BEAMS ALONG CENTERLINE OF PIER. SEE TYPICAL SECTION ON DWG. NO. TS-201 FOR MORE INFORMATION.
- DIAPHRAGMS ARE PERPENDICULAR TO BEAMS.
- 6x14 SAWN BEAMS ARE TO BE LAPPED OVER PIER AND EXTEND TO OPPOSITE FACE OF PIER.
- FOR BEAM ELEVATIONS, SEE DWG. NO. BM-201.
- FOR CENTER-CENTER BEARING LENGTHS AND OVERALL LENGTHS OF BEAMS 2-9 IN SPANS 34-38 SEE DWG. NO. BM-201.
- DIAPHRAGMS SPACED EQUALLY AT THIRD POINTS BETWEEN CENTER LINES OF BEARING.



MATCH LINE - SEE THIS SHEET

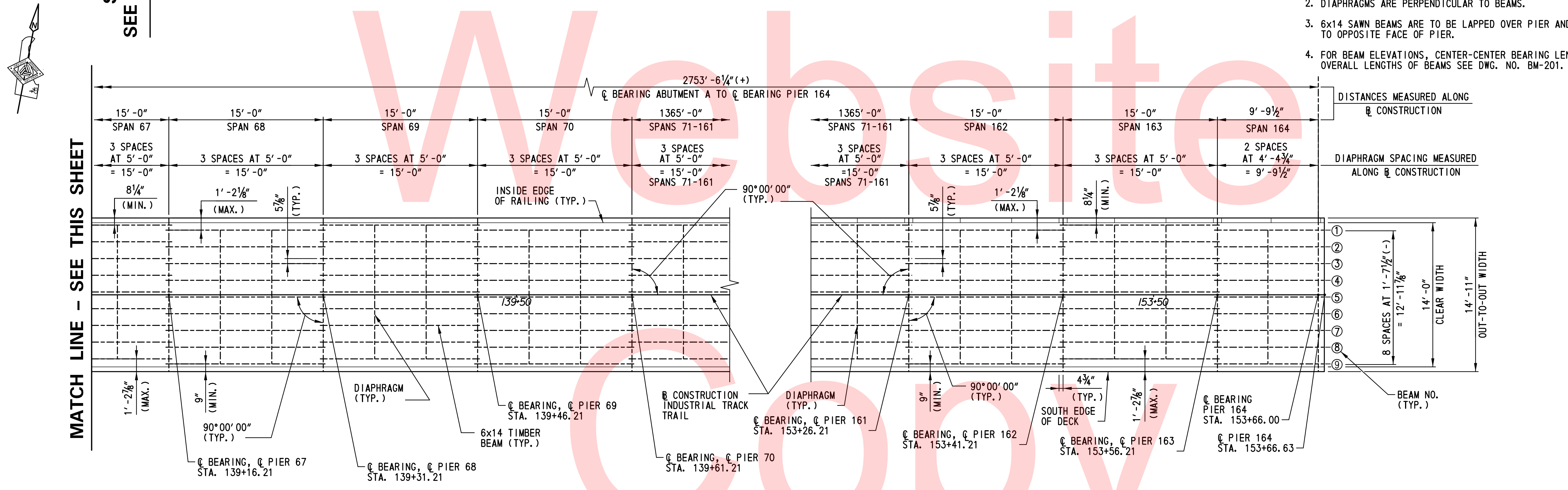
MATCH LINE STA. 133 + 31.21
SEE DWG. NO. FR-203

FRAMING PLAN
SCALE: 3/8" = 1' - 0"



MATCH LINE - SEE THIS SHEET

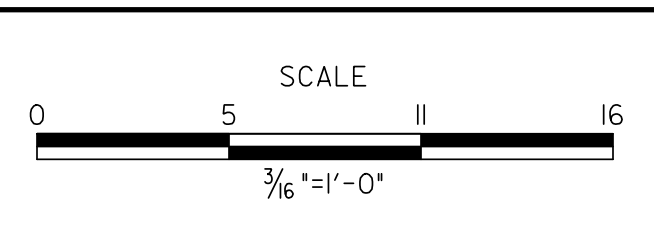
- NOTES:
1. SPACING OF LAPPED BEAMS OVER PIERS IS 5 7/8" MEASURED PERPENDICULAR TO BEAMS ALONG CENTERLINE OF PIER. SEE TYPICAL SECTION ON DWG. NO. TS-201 FOR MORE INFORMATION.
 2. DIAPHRAGMS ARE PERPENDICULAR TO BEAMS.
 3. 6x14 SAWN BEAMS ARE TO BE LAPPED OVER PIER AND EXTEND TO OPPOSITE FACE OF PIER.
 4. FOR BEAM ELEVATIONS, CENTER-CENTER BEARING LENGTHS, AND OVERALL LENGTHS OF BEAMS SEE DWG. NO. BM-201.



MATCH LINE - SEE THIS SHEET

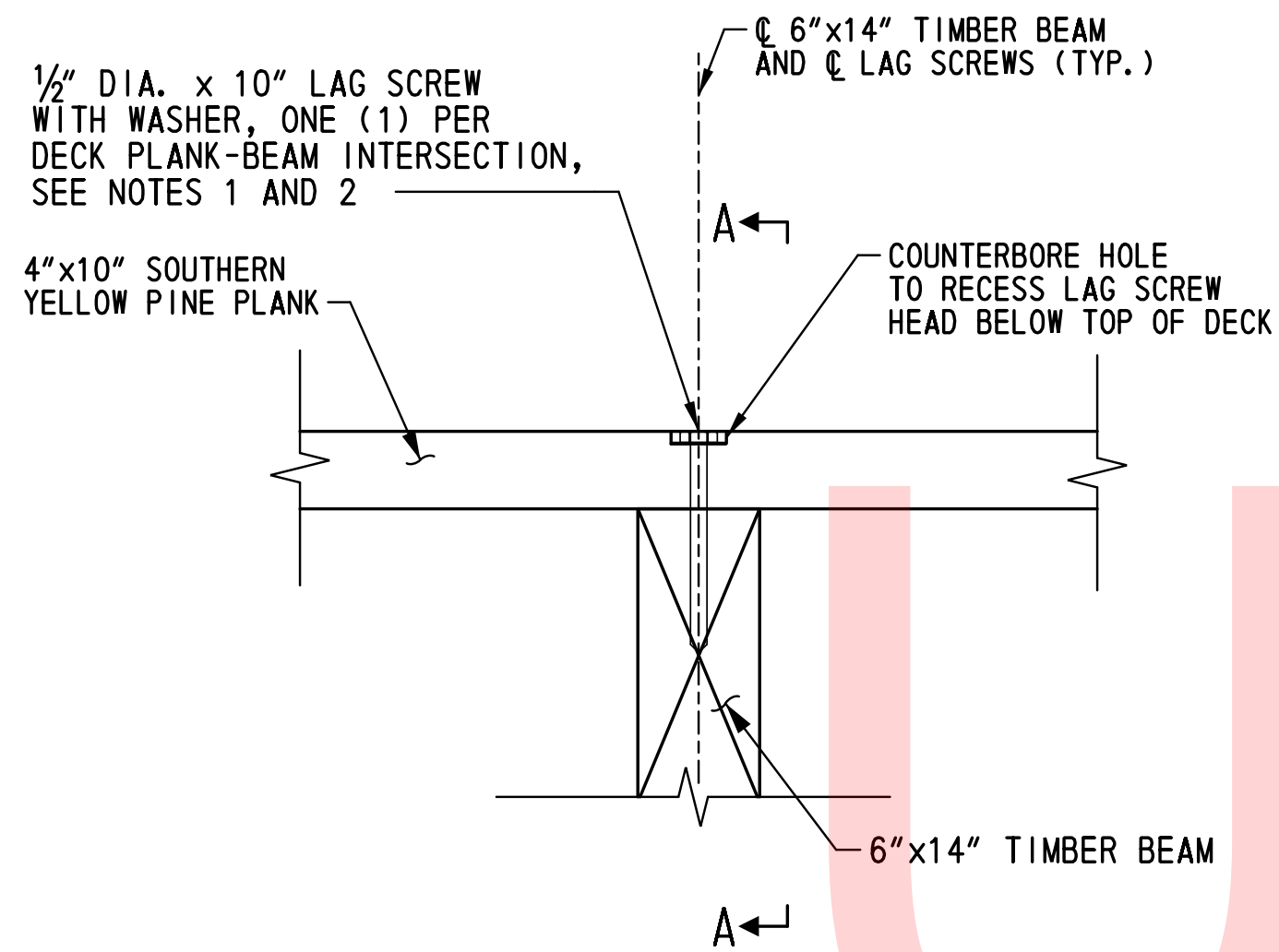
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ADDENDUMS / REVISIONS

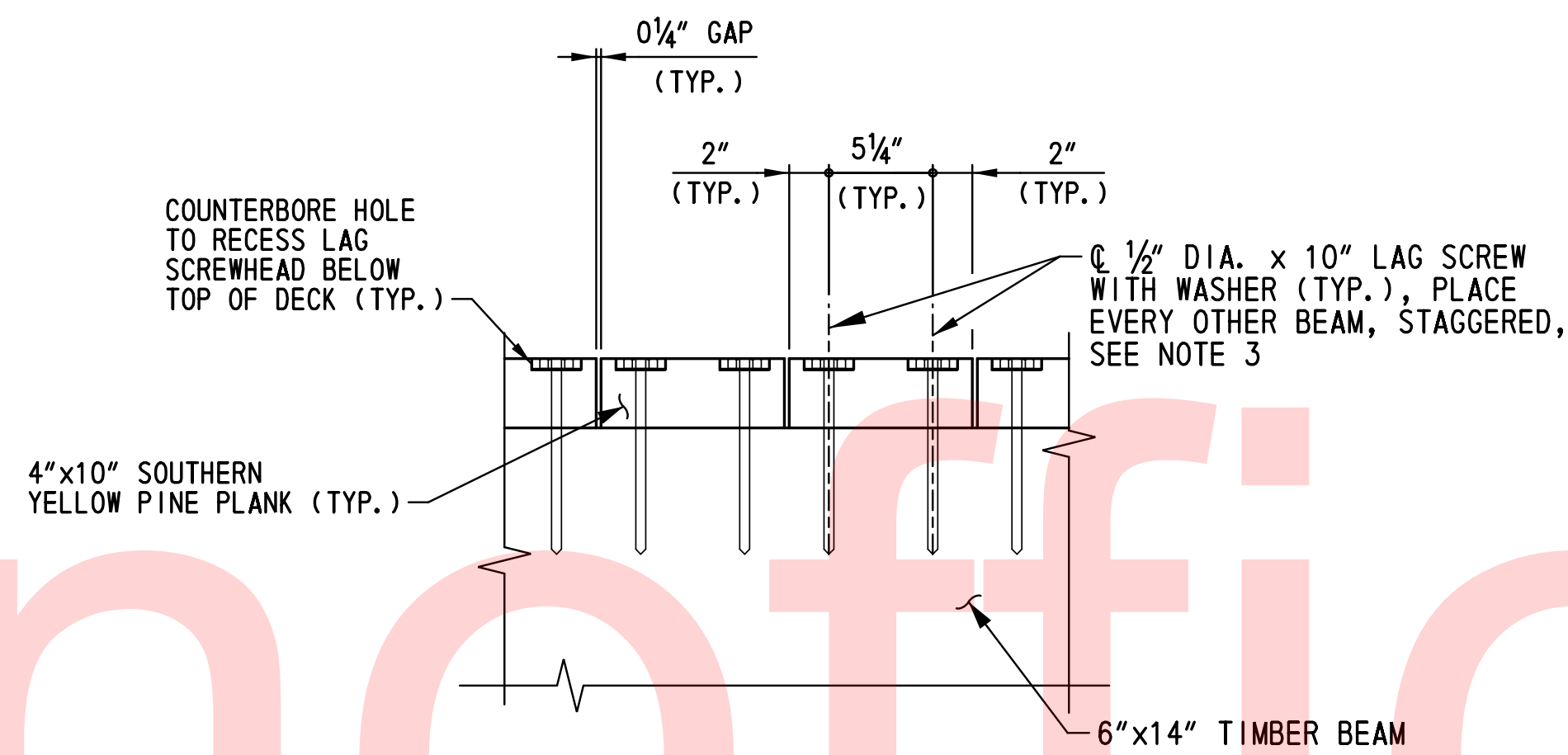


CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: ADD CHECKED BY: WAG

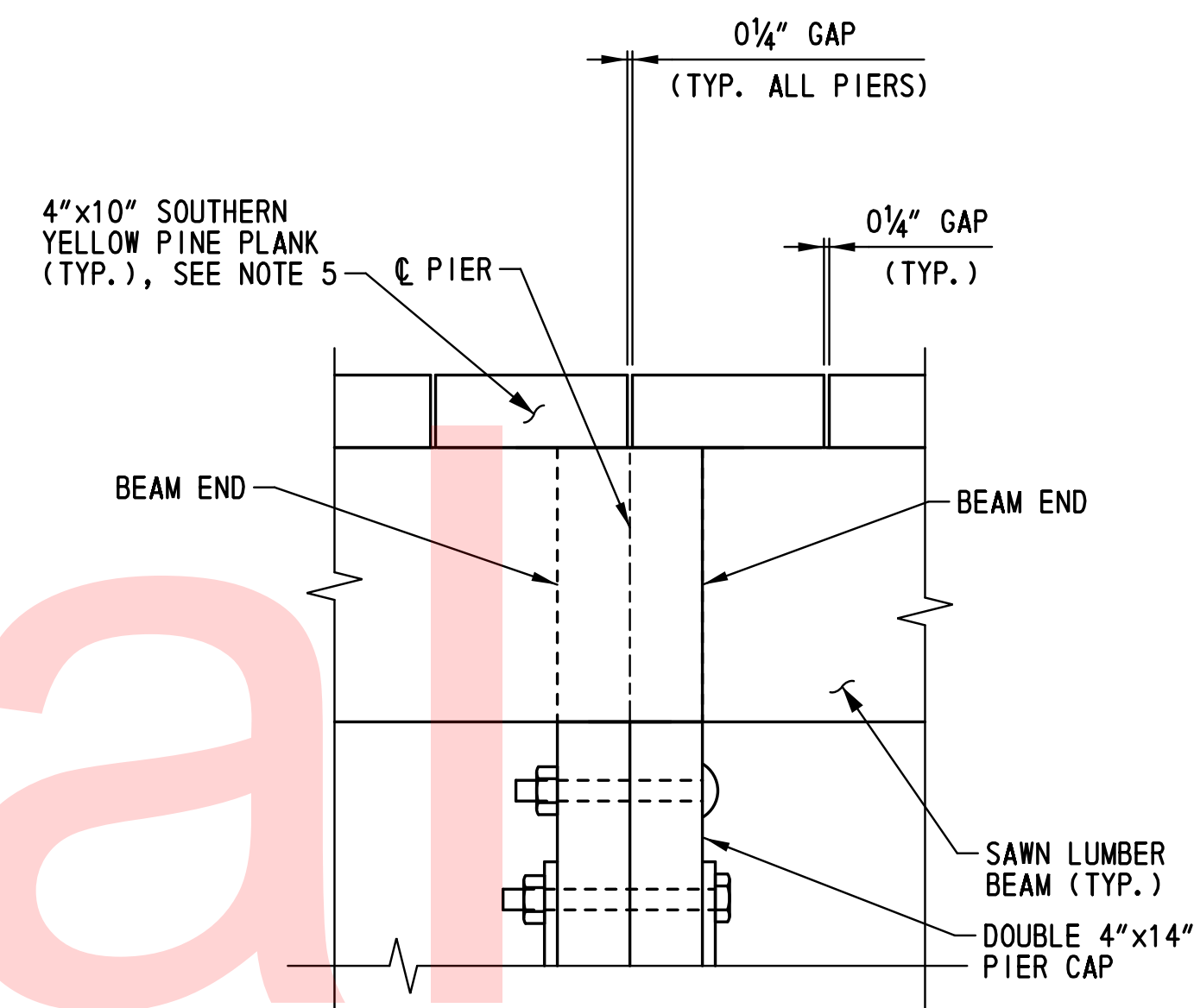
FR-203
SHEET NO. 108
TOTAL SHTS. 207



DECK CONNECTION TO SAWN LUMBER BEAM DETAIL
SCALE: 1 1/2" = 1' - 0"

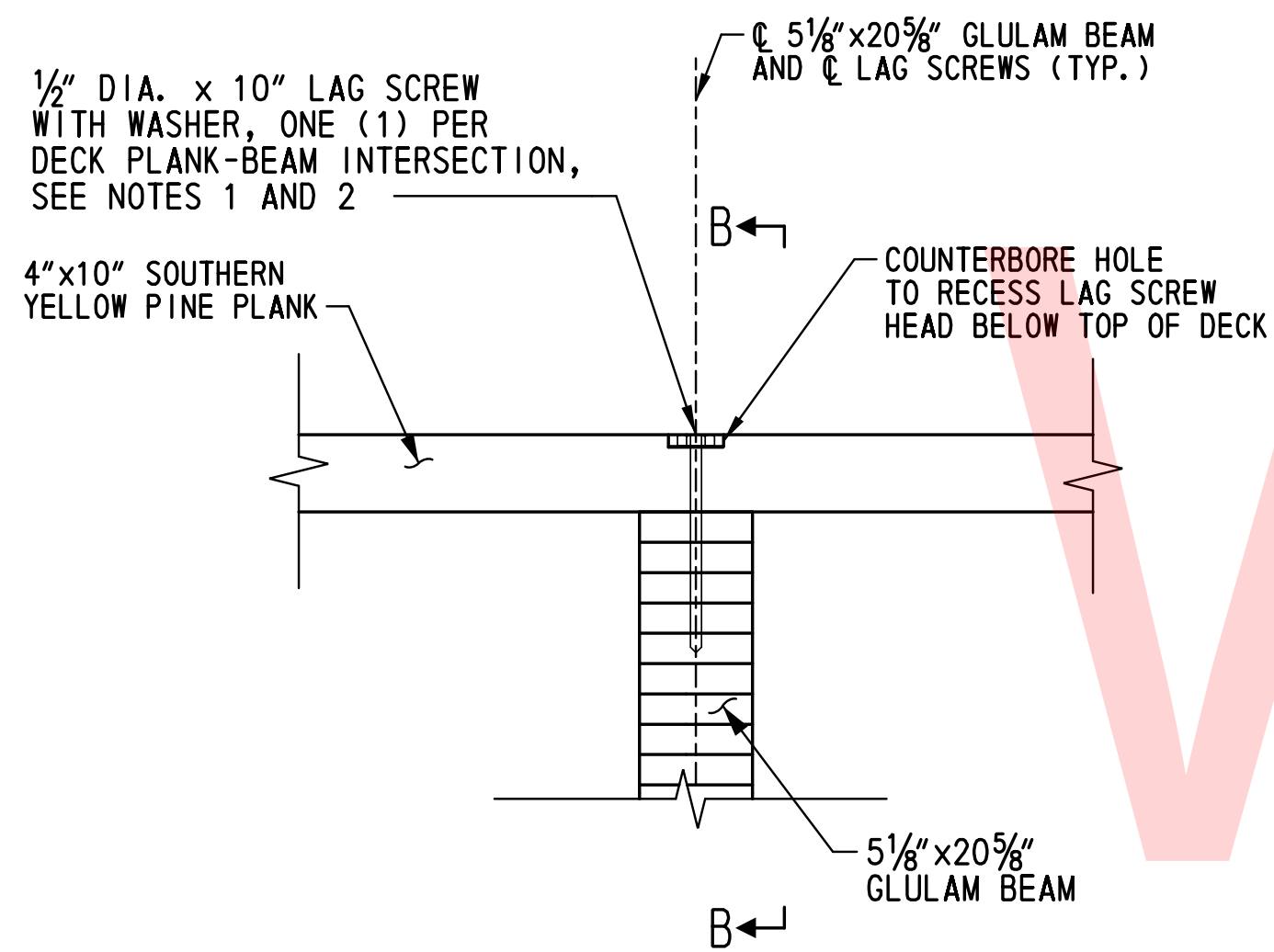


SECTION A-A
SCALE: 1 1/2" = 1' - 0"

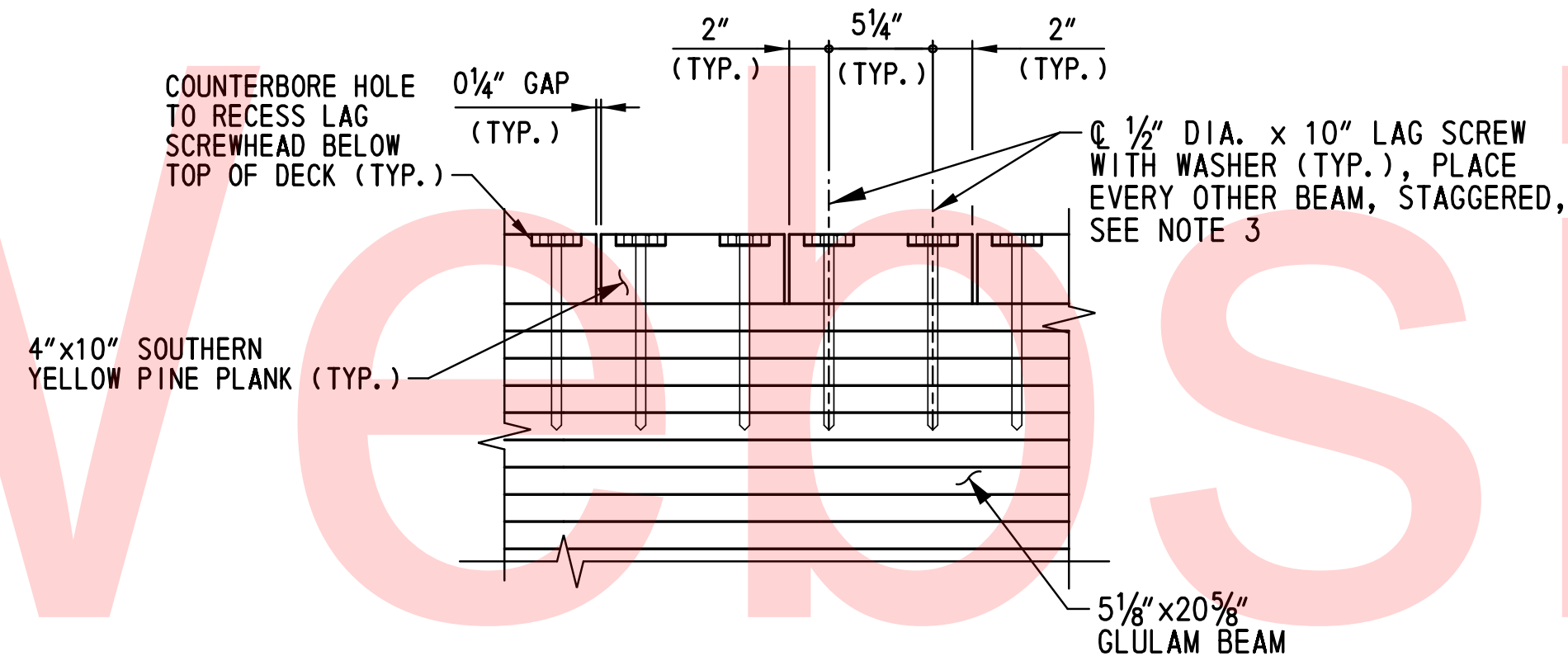


DECK DETAIL AT BEAM END
SCALE: 1 1/2" = 1' - 0"

NOTE:
SAWN LUMBER BEAM SPANS SHOWN. DECK DETAIL AT GLULAM BEAM ENDS IS SIMILAR.



DECK CONNECTION TO GLULAM BEAM DETAIL
SCALE: 1 1/2" = 1' - 0"

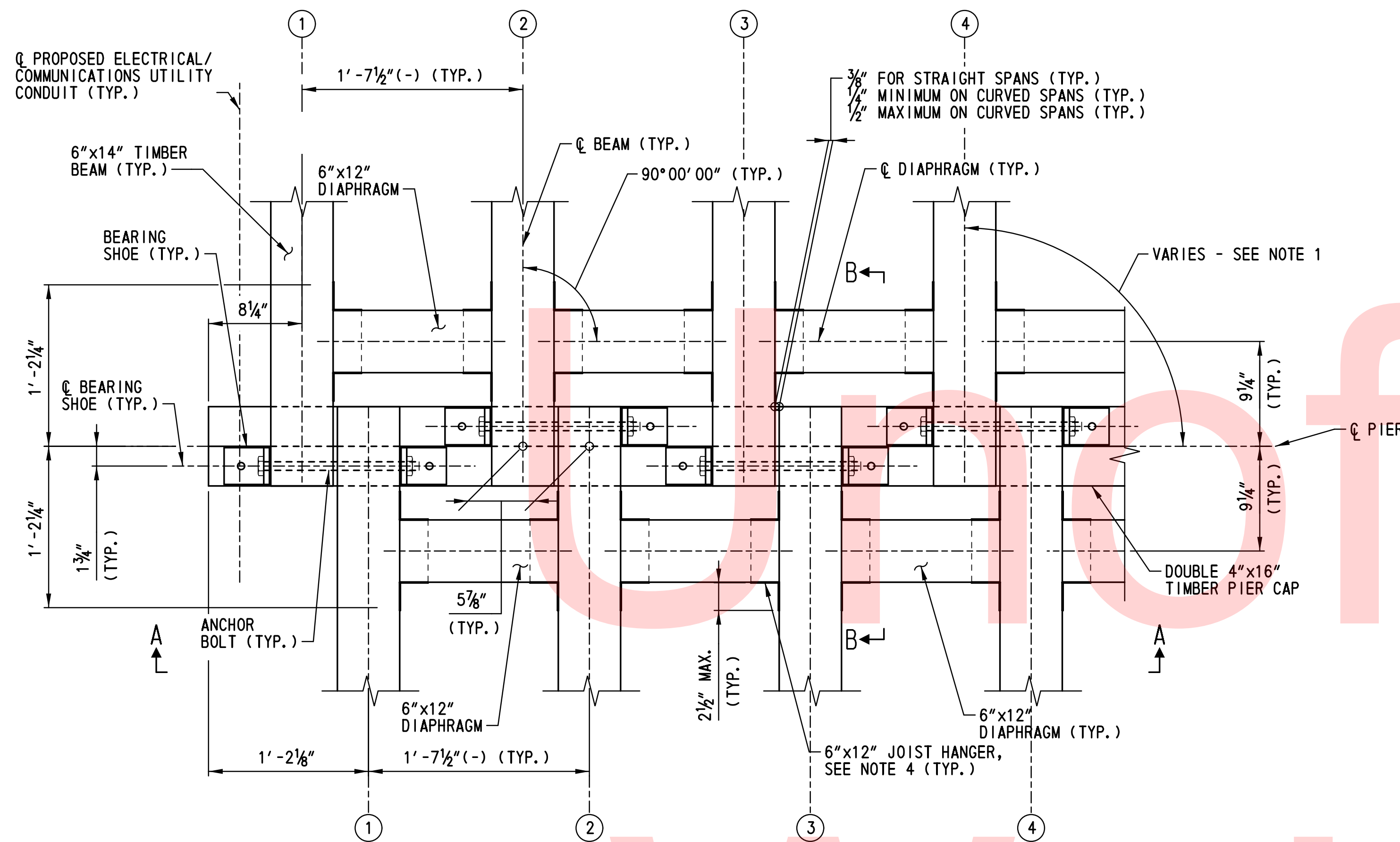


SECTION B-B
SCALE: 1 1/2" = 1' - 0"

NOTES:

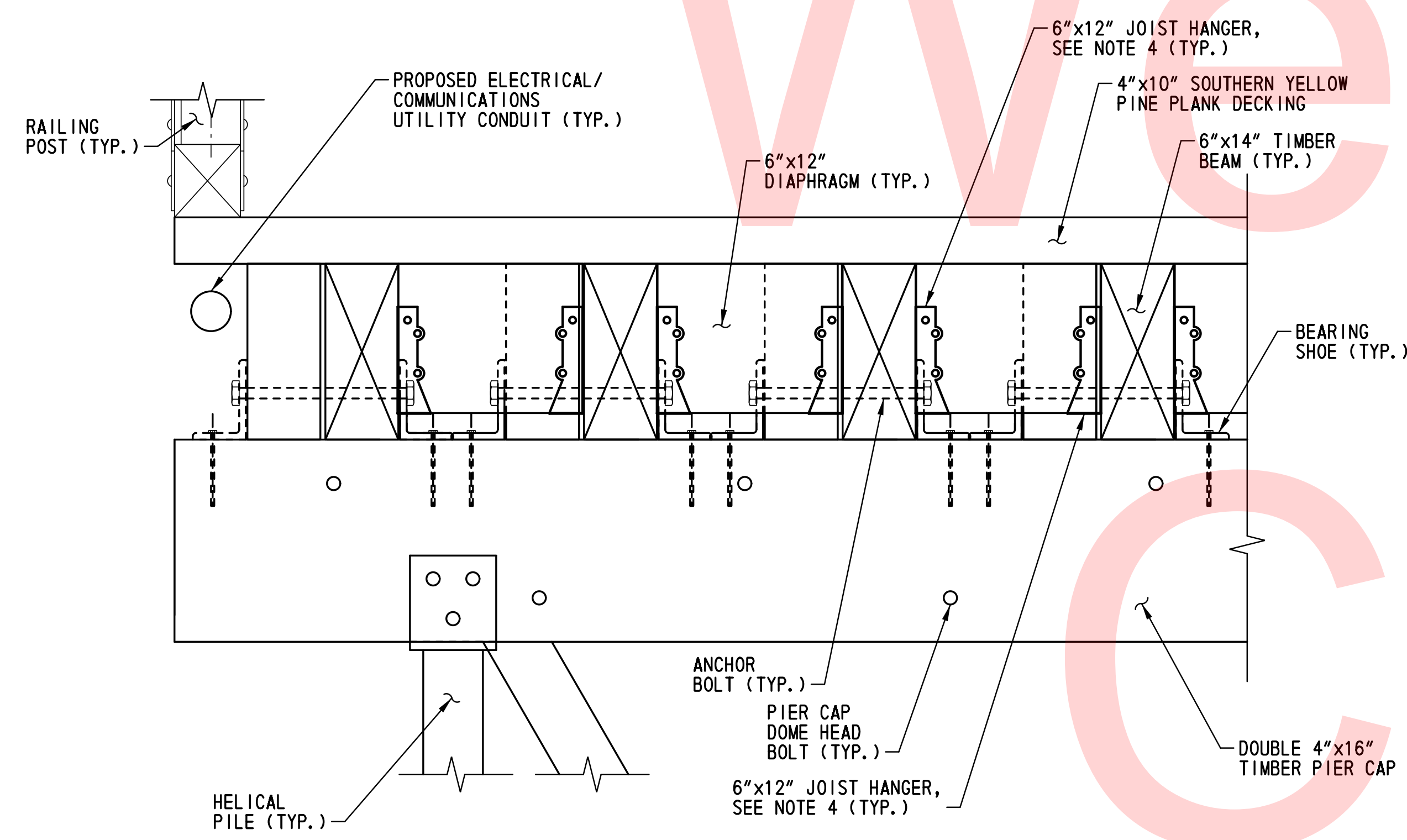
- LAG SCREWS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232/M 232 (ASTM A153/A153M) AND SHALL BE IN COMPLIANCE WITH ANSI/ASME B18.2.1 FOR DIMENSIONAL REQUIREMENTS.
- ALL FIELD DRILLED HOLES IN TIMBER DECK SHALL BE TREATED WITH A FIELD APPLIED COPPER NAPHTHENATE PRESERVATIVE TREATMENT IN ACCORDANCE WITH AASHTO M 133.
- TWO (2) LAG SCREWS CONNECTING DECK PLANKS TO BEAMS SHALL BE PROVIDED AT EACH EXTERIOR BEAM.
- DECK PLANK LENGTH SHALL BE CONTINUOUS ACROSS THE FULL DECK WIDTH. DECK PLANKS SHALL BE CUT SQUARE TO FRONT FACE OF RAILING POSTS.
- DECK PLANKS AT SPAN ENDS MAY BE RIPPED TO WIDTH AS REQUIRED. DECK PLANKS SHALL NOT BE LESS THAN 4" WIDE. FOR RIPPED END PANELS, LAG SCREWS SHALL BE PLACED AT THE CENTERLINE OF PLANK AT EACH DECK PLANK-BEAM INTERSECTION.

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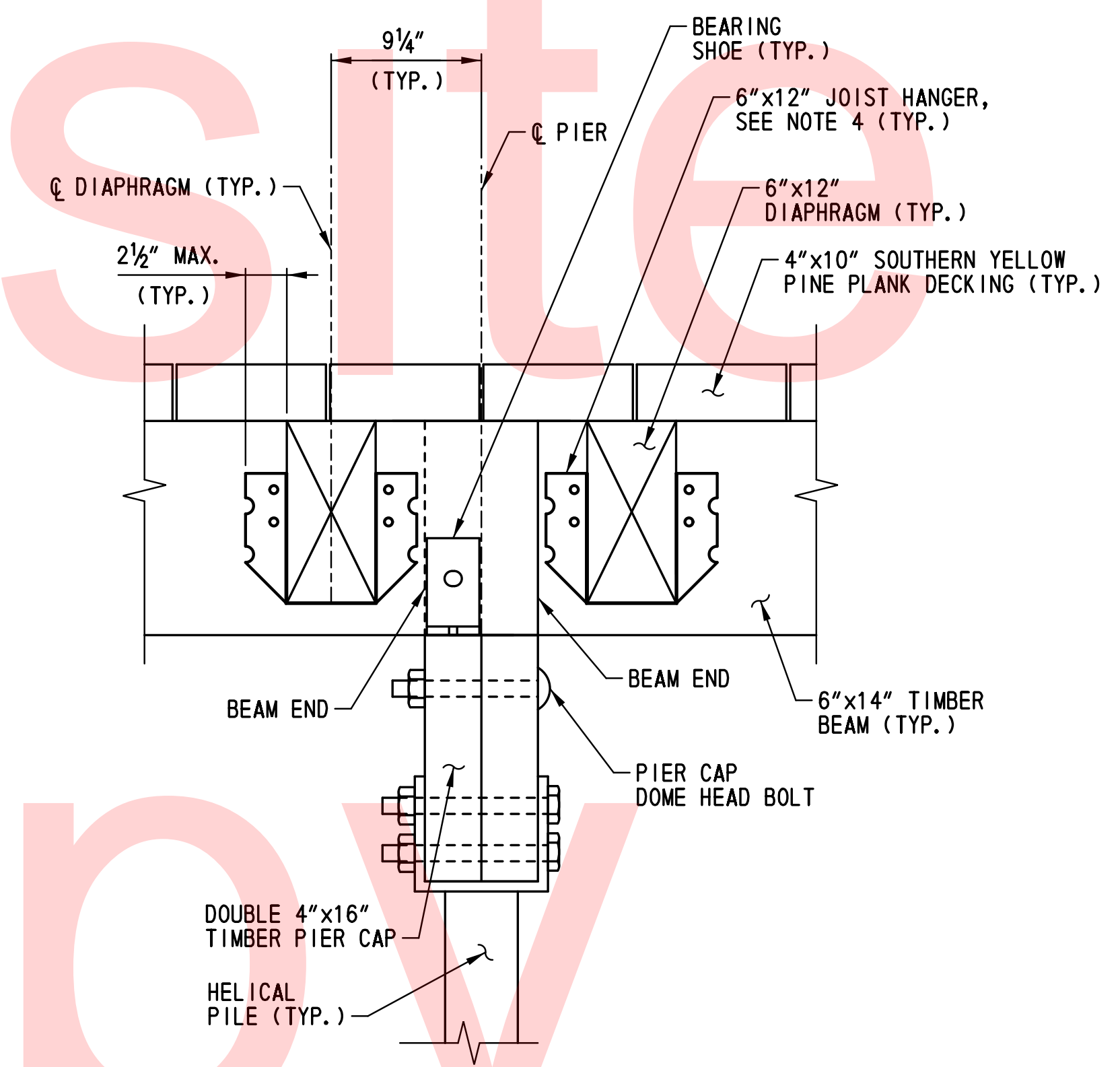
- NOTES:**
1. FOR DIAPHRAGM LOCATIONS AND FRAMING DETAILS, SEE DWG. NOS. FR-201 THRU FR-203.
 2. FOR BEARING SHOE AND ANCHOR BOLT DETAILS, SEE DWG. NO. BM-201.
 3. FOR RAILING LAYOUT AND DETAILS, SEE DWG. NOS. RL-201 AND RL-202.
 4. STEEL JOIST HANGERS SHALL BE ICC-ES APPROVED WITH MINIMUM 14 GAGE STEEL, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. JOIST HANGERS TO BE FASTENED TO BEAMS WITH JOIST HANGER NAILS IN ACCORDANCE WITH MANUFACTURER GUIDELINES. JOIST HANGER NAILS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. THE COST OF THE STEEL JOIST HANGERS AND HARDWARE WILL BE INCIDENTAL TO ITEM 601002.
 5. THE ELECTRICAL/COMMUNICATIONS CONDUIT SHALL BE AFFIXED TO THE UNDERSIDE OF THE DECK. SUPPORTS FOR CONDUIT SHALL BE SPACED TO AVOID ALL CURB AND RAILING TO DECK HARDWARE/FASTENERS. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A CONDUIT HANGER DEVICE, AND THE COST OF CONDUIT HANGERS WILL BE INCIDENTAL TO ITEM 601002.
 6. 6x12" DIAPHRAGMS SHALL BE PROVIDED BETWEEN ALL BEAMS.
 7. REFER TO DRAWING RL-201 FOR RAILING TO DECK CONNECTION INFORMATION.
 8. FOR ELECTRICAL AND COMMUNICATIONS CONDUIT INFORMATION SEE DRAWING NOS. LI-05 THROUGH LI-12.

END DIAPHRAGM DETAILS (PLAN VIEW) - SPAN NOS. 1-45 AND 66-164
SCALE: 1-1/2"=1'-0"



SECTION A-A
SCALE: 1-1/2"=1'-0"

NOTE:
CONDUIT PLACEMENT SHOWN AT ONE SIDE OF DECK ONLY.
OPPOSITE SIDE OF DECK ATTACHMENT LOCATION SIMILAR.

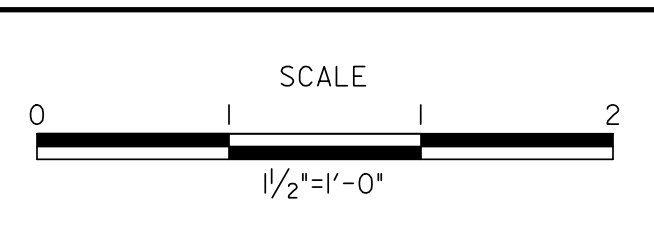


SECTION B-B
SCALE: 1-1/2"=1'-0"

NOTE:
RAILING POSTS NOT SHOWN FOR CLARITY.

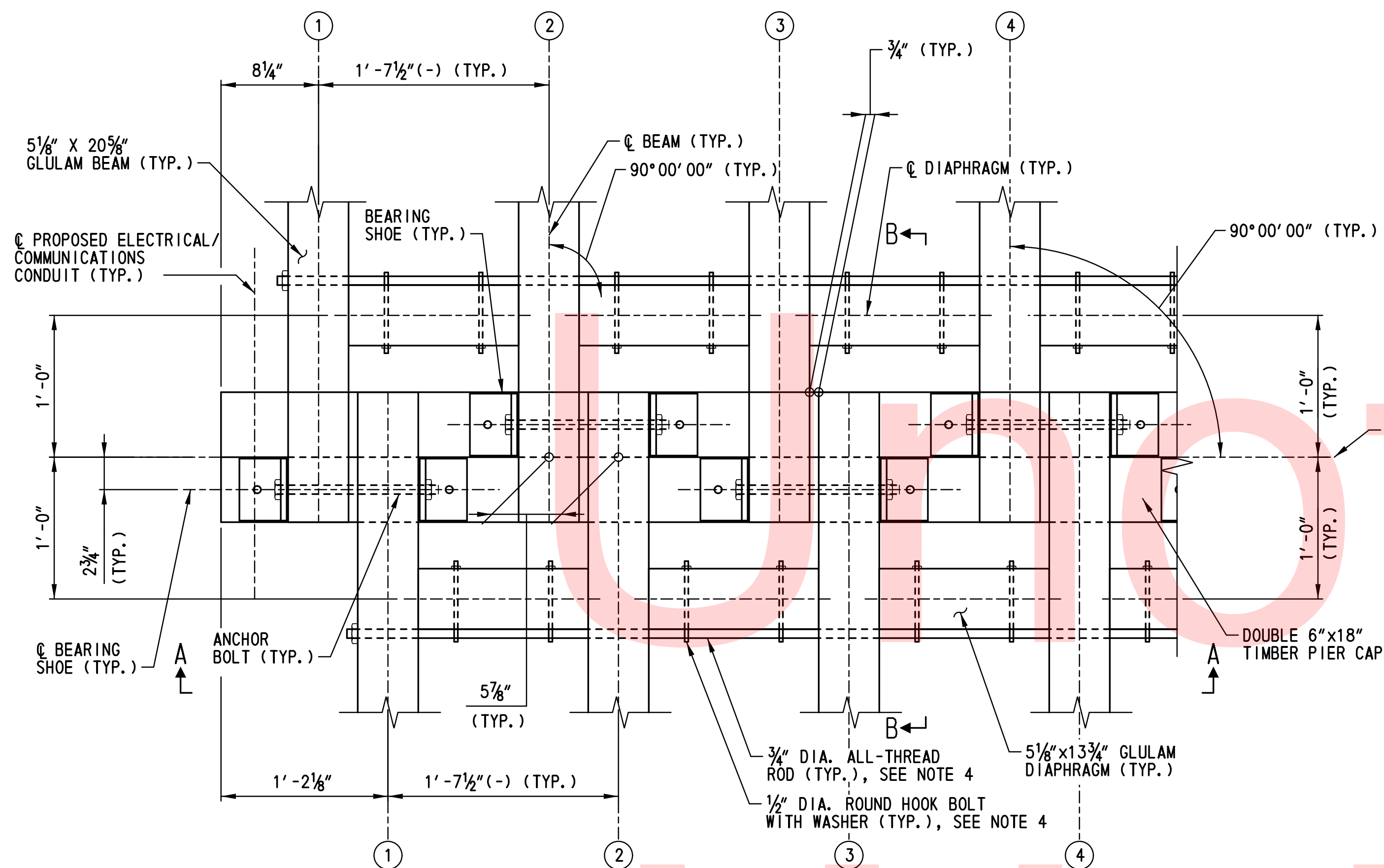
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ADDENDUMS / REVISIONS	



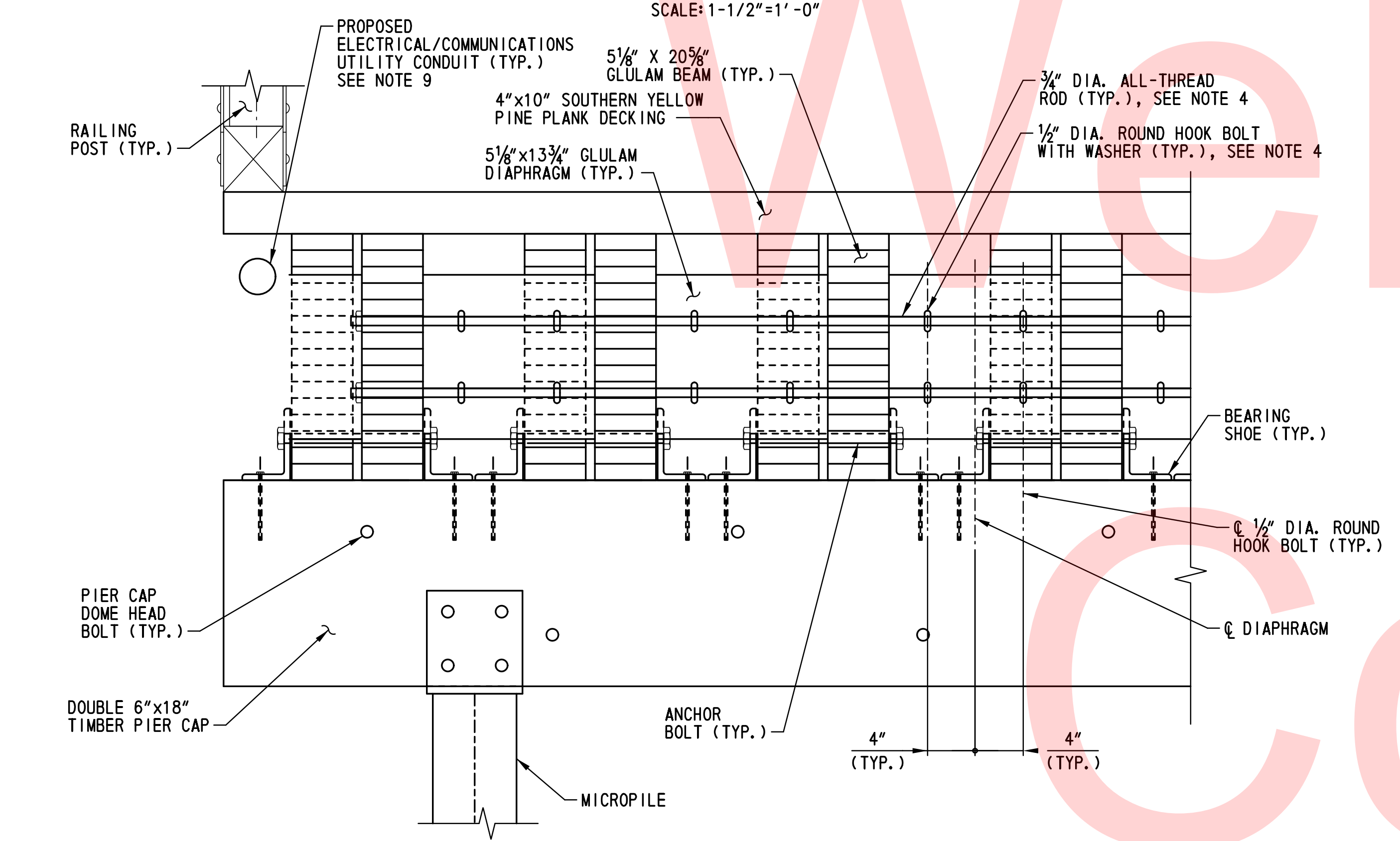
CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

SD-201
SHEET NO. 110
TOTAL SHTS. 207

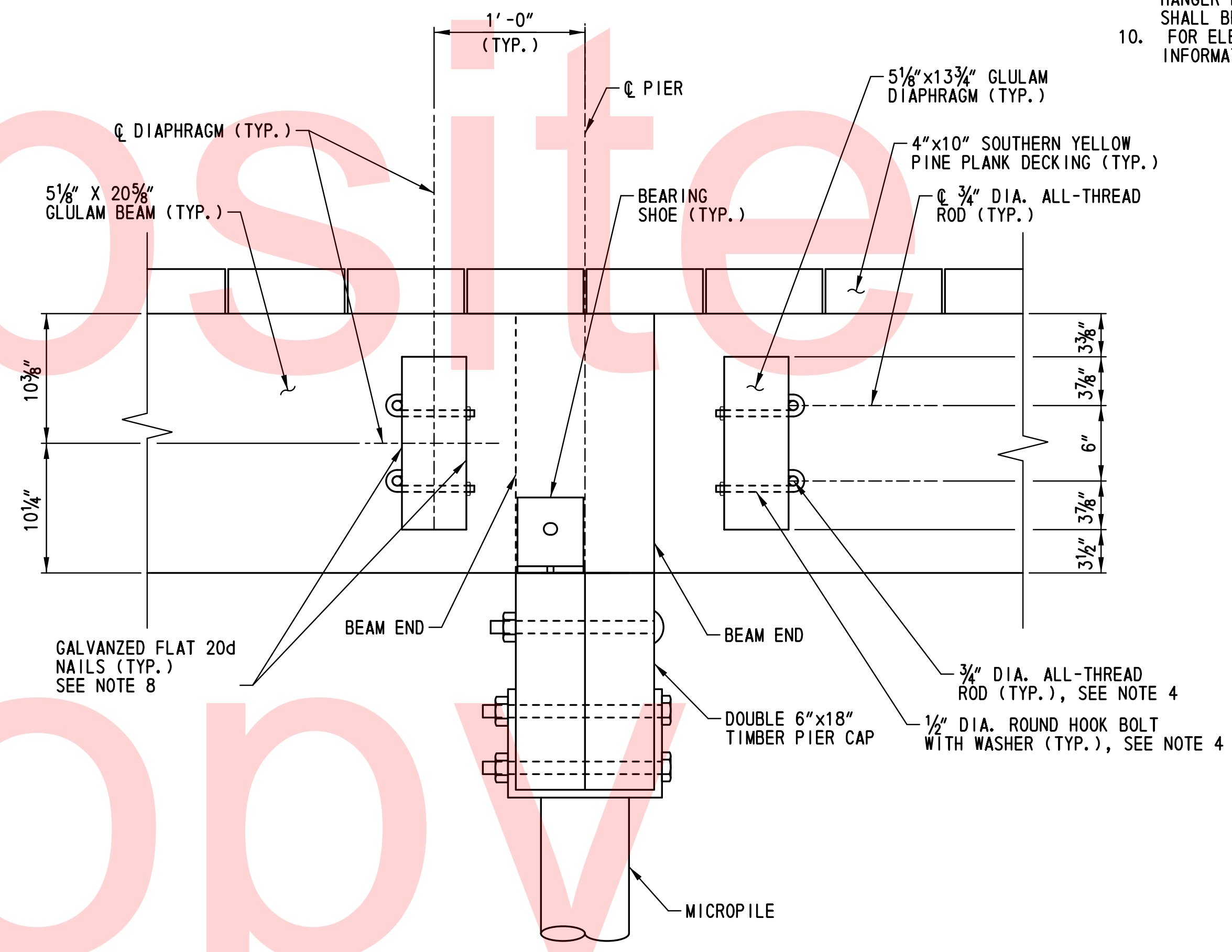


END DIAPHRAGM DETAILS (PLAN VIEW) - SPAN NOS. 46-65

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



SECTION A-A
SCALE: 1-1/2"=1'-0"



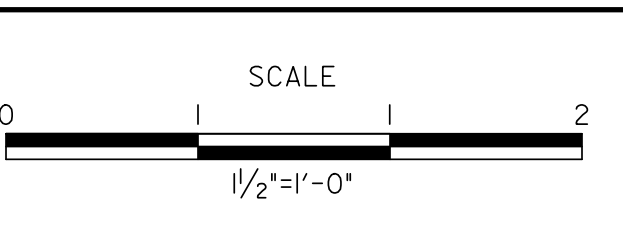
SECTION B-B
SCALE: 1-1/2"=1'-0"

- NOTES:**
- FOR DIAPHRAGM LOCATIONS AND FRAMING DETAILS, SEE DWG. NOS. FR-202 THRU FR-203.
 - FOR BEARING SHOE AND ANCHOR BOLT DETAILS, SEE DWG. NO. BM-201.
 - FOR RAILING LAYOUT AND DETAILS, SEE DWG. NOS. RL-201 AND RL-202.
 - 3/4" DIA. ALL-THREAD RODS AND 1/2" DIA. ROUND HOOK BARS SHALL BE UNPAINTED ASTM F 1554, GRADE 36 GALVANIZED STEEL WITH ASTM F436 PLATE WASHERS AND ASTM A563 NUTS. WASHERS AND NUTS SHALL COMPLY WITH ANSI/ASME B18.2.1 FOR DIMENSIONAL REQUIREMENTS.
 - A JAM NUT SHALL BE PROVIDED AT BOTH ENDS OF EACH ALL-THREAD ROD.
 - ALL-THREAD RODS, ROUND HOOK BARS, PLATE WASHERS, AND NUTS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153/A153M.
 - HOLES IN GLULAM BEAMS AND DIAPHRAGMS FOR ALL-THREAD ROD AND HOOK BAR INSTALLATIONS SHALL BE MADE PRIOR TO PRESSURE TREATMENT IN ACCORDANCE WITH AASHTO M 133. PROPOSED HOLE DIAMETERS SHALL BE A MINIMUM OF 1/8" GREATER THAN ALL-THREAD OR HOOK BAR DIAMETER AND MUST ACCOUNT FOR FABRICATION TOLERANCES AND FIELD FIT-UP DURING CONSTRUCTION. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL INDICATING THE LOCATION AND SIZE OF THE PROPOSED HOLES IN THE GLULAM BEAMS AND DIAPHRAGMS. FIELD MODIFICATIONS TO PROPOSED HOLES IS PERMITTED. FIELD MODIFIED HOLES SHALL BE TREATED WITH A FIELD APPLIED COPPER NAPHTHENATE PRESERVATIVE TREATMENT IN ACCORDANCE WITH AASHTO M 133.
 - AFTER EACH GLULAM DIAPHRAGM IS PLACED IN ITS FINAL POSITION BY CONNECTION BETWEEN ROUND HOOK BOLTS AND ALL-THREAD RODS, EACH DIAPHRAGM SHALL BE SECURED TO THE GLULAM BEAMS BY TOE-NAILING ALONG EACH FACE OF THE DIAPHRAGM. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL INDICATING A PROPOSED NUMBER AND SPACING OF NAILS ALONG EACH DIAPHRAGM FACE.
 - THE ELECTRICAL AND COMMUNICATIONS CONDUIT SHALL BE AFFIXED TO THE UNDERSIDE OF THE DECK. SUPPORTS FOR CONDUIT SHALL BE SPACED TO AVOID ALL CURB AND RAILING TO DECK HARDWARE/FASTENERS. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A CONDUIT HANGER DEVICE, AND THE COST OF CONDUIT HANGERS SHALL BE INCIDENTAL TO ITEM 601003.
 - FOR ELECTRICAL AND COMMUNICATIONS CONDUIT INFORMATION SEE DRAWING NOS. LI-05 THROUGH LI-12.

NOTE:
CONDUIT PLACEMENT SHOWN AT ONE SIDE OF DECK ONLY. OPPOSITE SIDE OF DECK ATTACHMENT LOCATION SIMILAR.

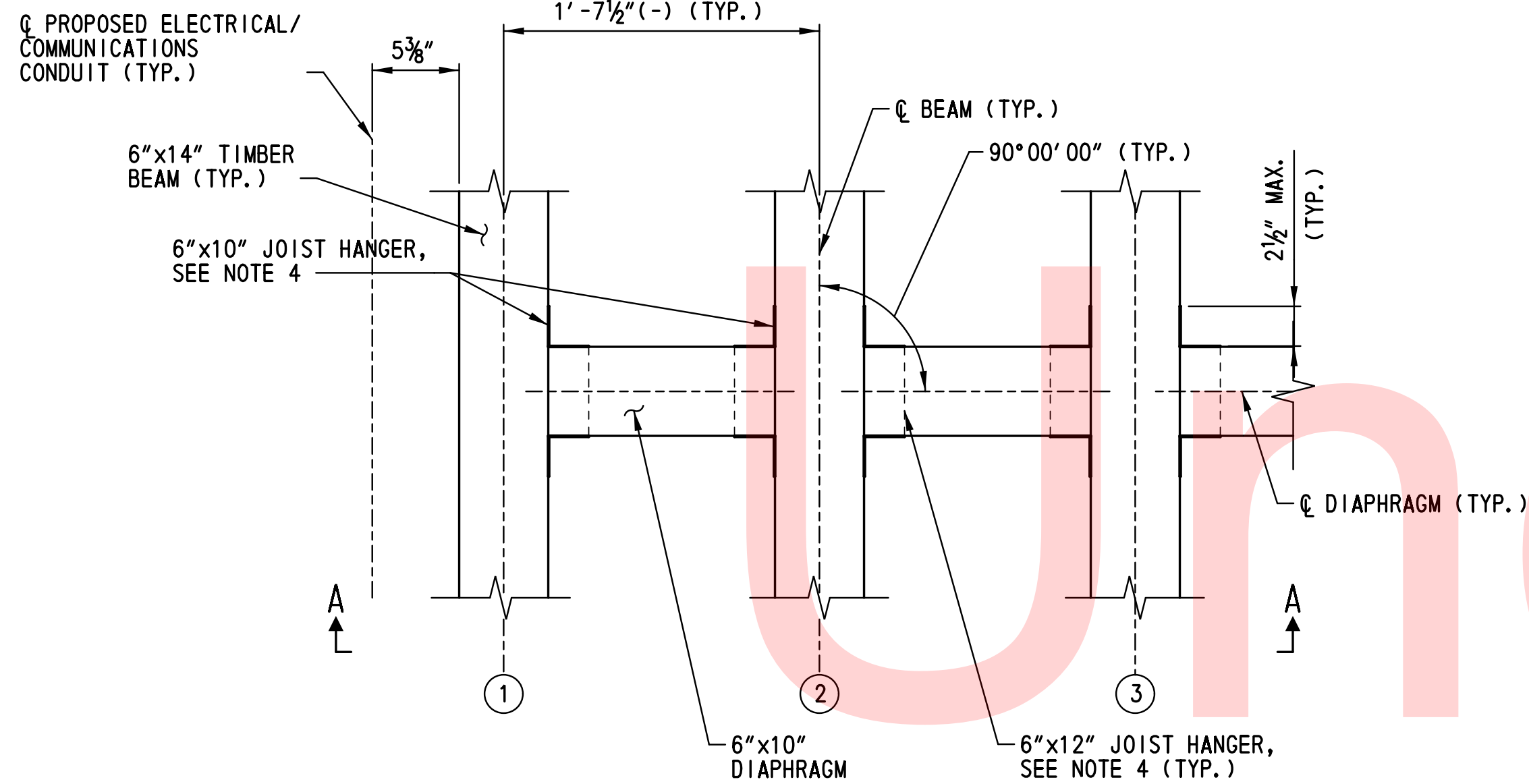
NOTE:
RAILING POSTS NOT SHOWN FOR CLARITY.

ADDENDUMS / REVISIONS

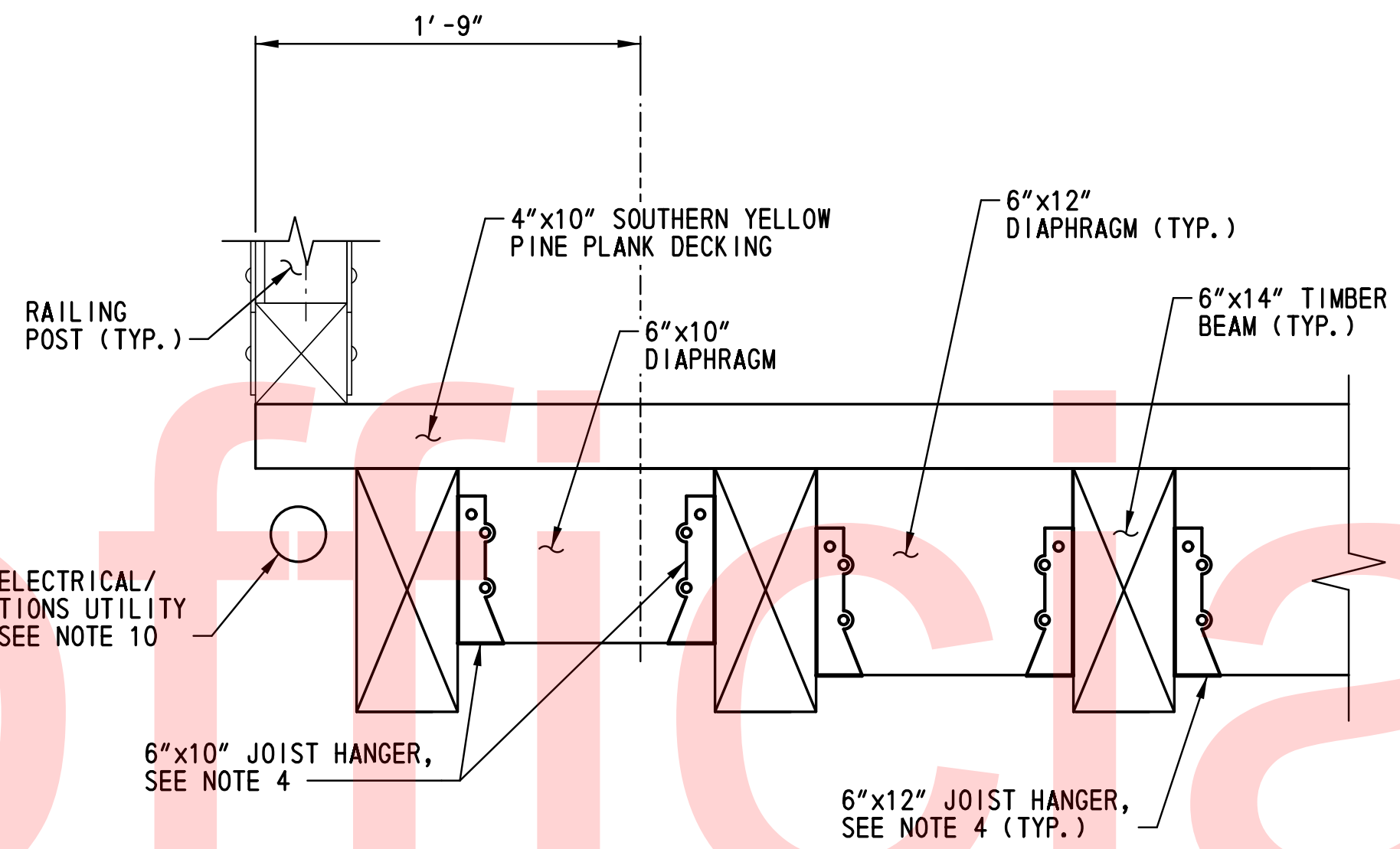


CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

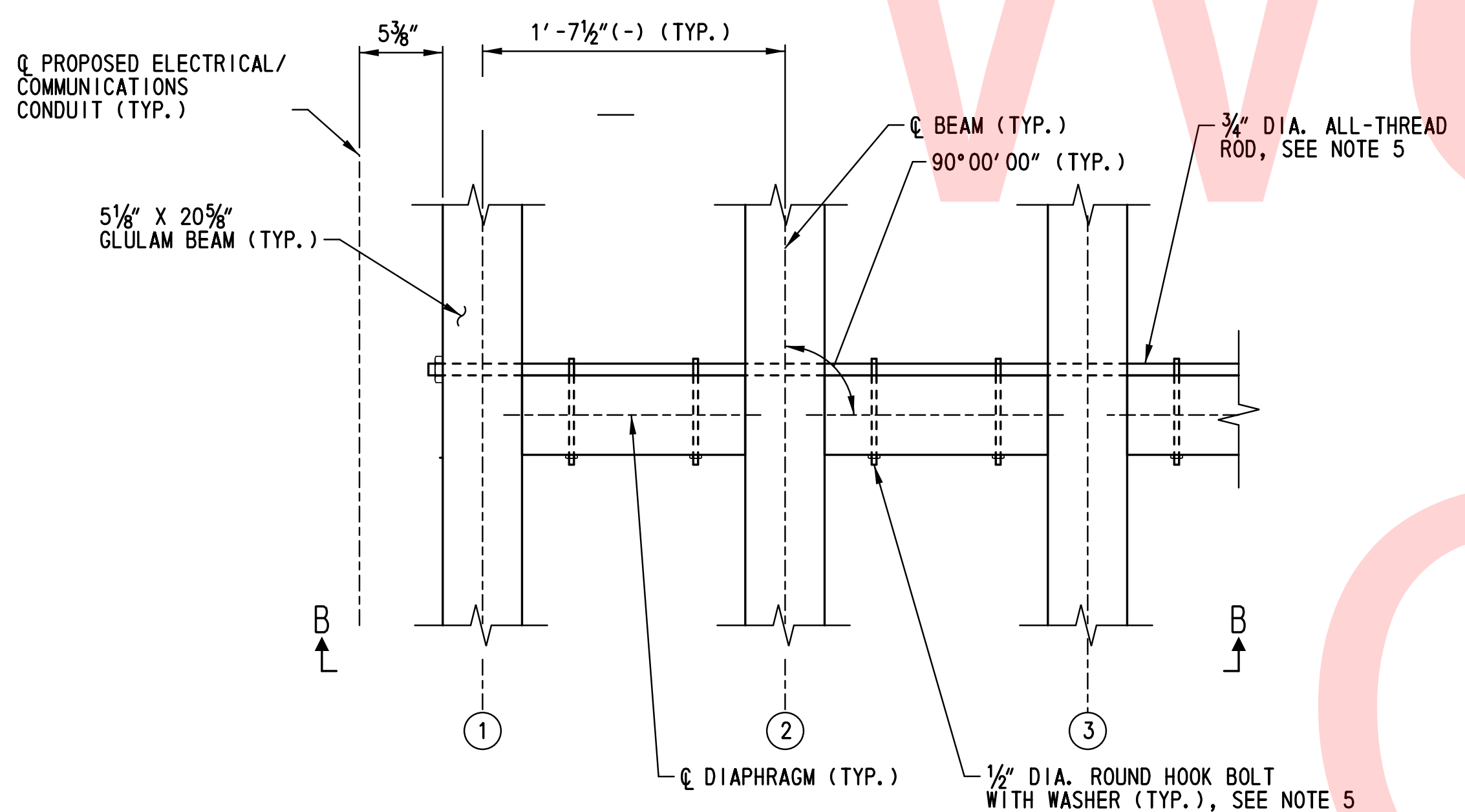
SD-202
SHEET NO. 111
TOTAL SHTS. 207



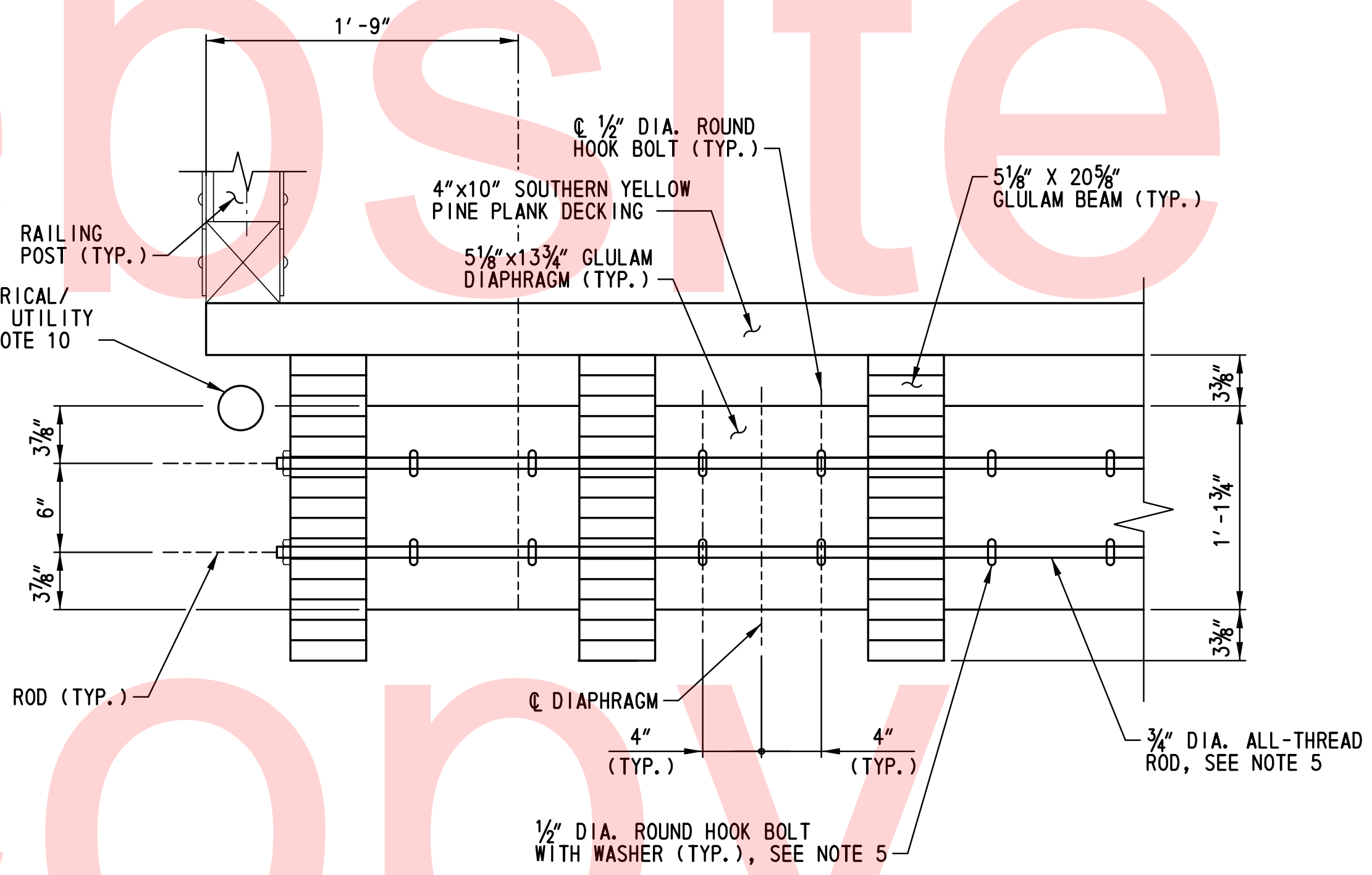
INTERMEDIATE DIAPHRAGM DETAILS (PLAN VIEW) - SPAN NOS. 1-45 AND 66-164
SCALE: 1-1/2"=1'-0"



SECTION A-A
SCALE: 1-1/2"=1'-0"



INTERMEDIATE DIAPHRAGM DETAILS (PLAN VIEW) - SPAN NOS. 46-65
SCALE: 1-1/2"=1'-0"



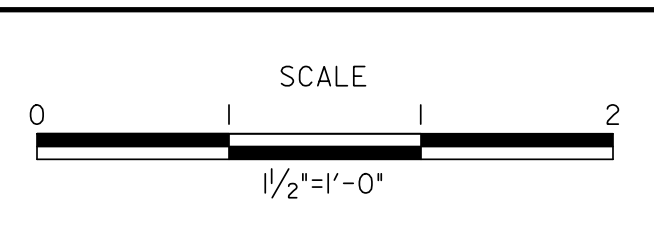
SECTION B-B
SCALE: 1-1/2"=1'-0"

NOTES:

- FOR DIAPHRAGM LOCATIONS AND FRAMING DETAILS, SEE DWG. NOS. FR-201 THRU FR-203.
- FOR BEARING SHOE AND ANCHOR BOLT DETAILS, SEE DWG. NO. BM-201.
- FOR RAILING LAYOUT AND DETAILS, SEE DWG. NOS. RL-201 AND RL-202.
- STEEL JOIST HANGERS SHALL BE ICC-ES APPROVED WITH MINIMUM 14 GAGE STEEL, ZINC HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. JOIST HANGERS TO BE FASTENED TO BEAMS WITH JOIST HANGER NAILS IN ACCORDANCE WITH MANUFACTURER GUIDELINES. JOIST HANGER NAILS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123. THE COST FOR THE STEEL JOIST HANGERS AND HARDWARE WILL BE INCIDENTAL TO ITEM 601002.
- 3/4" DIA. ALL-THREAD RODS AND 1/2" DIA. ROUND HOOK BARS SHALL BE UNPAINTED ASTM F 1554, GRADE 36 GALVANIZED STEEL WITH ASTM F436 PLATE WASHERS AND ASTM A563 NUTS. WASHERS AND NUTS SHALL COMPLY WITH ANSI/ASME B18.2.1 FOR DIMENSIONAL REQUIREMENTS.
- A JAM NUT SHALL BE PROVIDED AT BOTH ENDS OF EACH ALL-THREAD ROD.
- ALL-THREAD RODS, ROUND HOOK BARS, PLATE WASHERS, AND NUTS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153/A153M.
- HOLES IN GLULAM BEAMS AND DIAPHRAGMS FOR ALL-THREAD ROD AND HOOK BAR INSTALLATIONS SHALL BE MADE PRIOR TO PRESSURE TREATMENT IN ACCORDANCE WITH AASHTO M 133. PROPOSED HOLE DIAMETERS SHALL BE A MINIMUM OF 1/8" GREATER THAN ALL-THREAD OR HOOK BAR DIAMETER AND MUST ACCOUNT FOR FABRICATION TOLERANCES AND FIELD FIT-UP DURING CONSTRUCTION. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL INDICATING THE LOCATION AND SIZE OF THE PROPOSED HOLES IN THE GLULAM BEAMS AND DIAPHRAGMS. FIELD MODIFICATIONS TO PROPOSED HOLES IS PERMITTED. FIELD MODIFIED HOLES SHALL BE TREATED WITH A FIELD APPLIED COPPER NAPHTHENATE PRESERVATIVE TREATMENT IN ACCORDANCE WITH AASHTO M 133.
- AFTER EACH GLULAM DIAPHRAGM IS PLACED IN ITS FINAL POSITION BY CONNECTION BETWEEN ROUND HOOK BOLTS AND ALL-THREAD RODS, EACH DIAPHRAGM SHALL BE SECURED TO THE GLULAM BEAMS BY TOE-NAILING ALONG EACH FACE OF THE DIAPHRAGM. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL INDICATING A PROPOSED NUMBER AND SPACING OF NAILS ALONG EACH DIAPHRAGM FACE.
- THE ELECTRICAL AND COMMUNICATIONS CONDUIT SHALL BE AFFIXED TO THE UNDERSIDE OF THE DECK. SUPPORTS FOR CONDUIT SHALL BE SPACED TO AVOID ALL CURB AND RAILING TO DECK HARDWARE/FASTENERS. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A CONDUIT HANGER DEVICE, AND THE COST OF CONDUIT HANGERS SHALL BE INCIDENTAL TO ITEM 601003.
- FOR SPAN NOS. 1-45 AND 66-164, 6x12" DIAPHRAGMS SHALL BE PROVIDED BETWEEN ALL BEAMS WITH THE EXCEPTION OF THE 6"x10" DIAPHRAGM BETWEEN BEAM NOS. 1 AND 2.

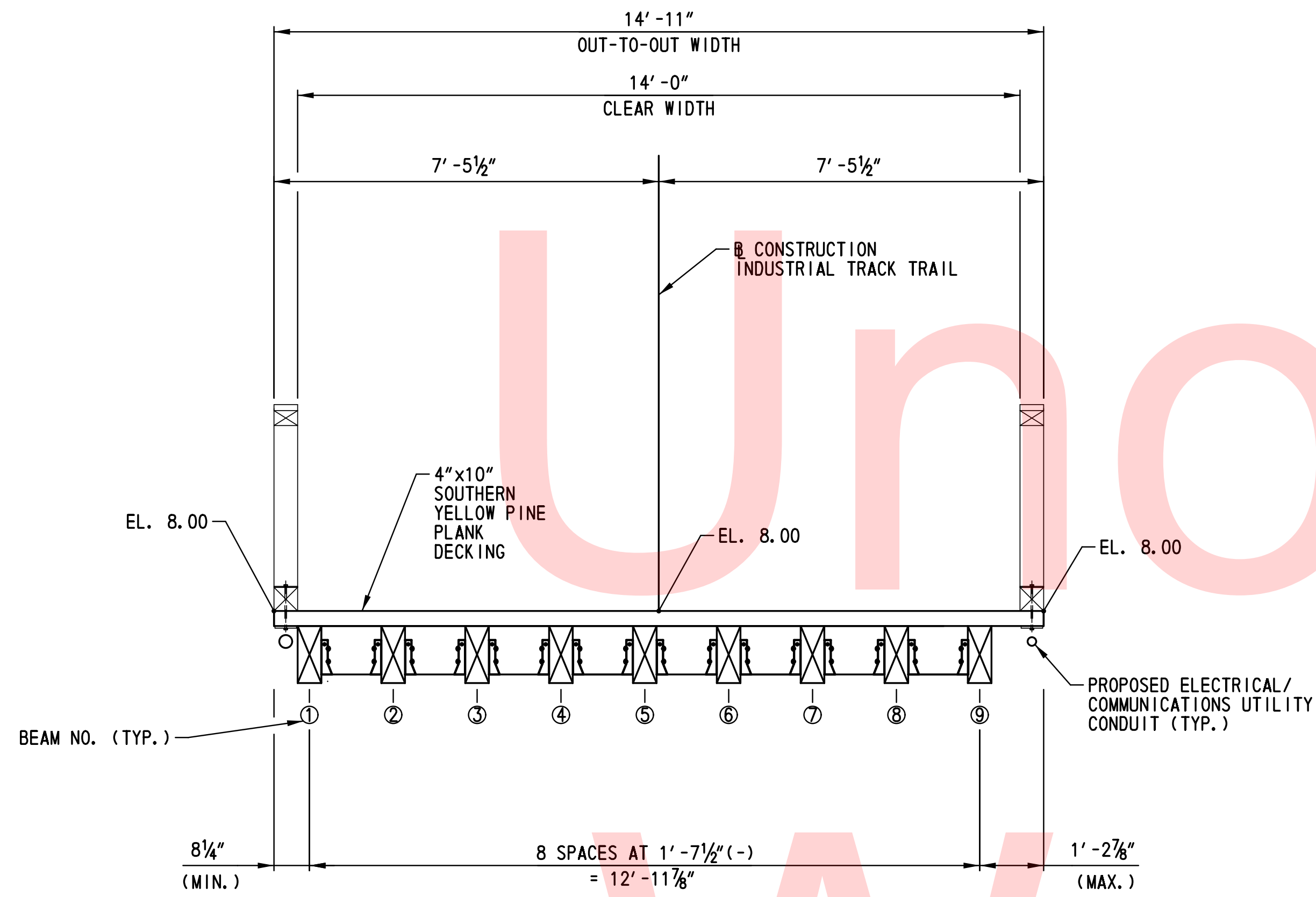
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ADDENDUMS / REVISIONS	

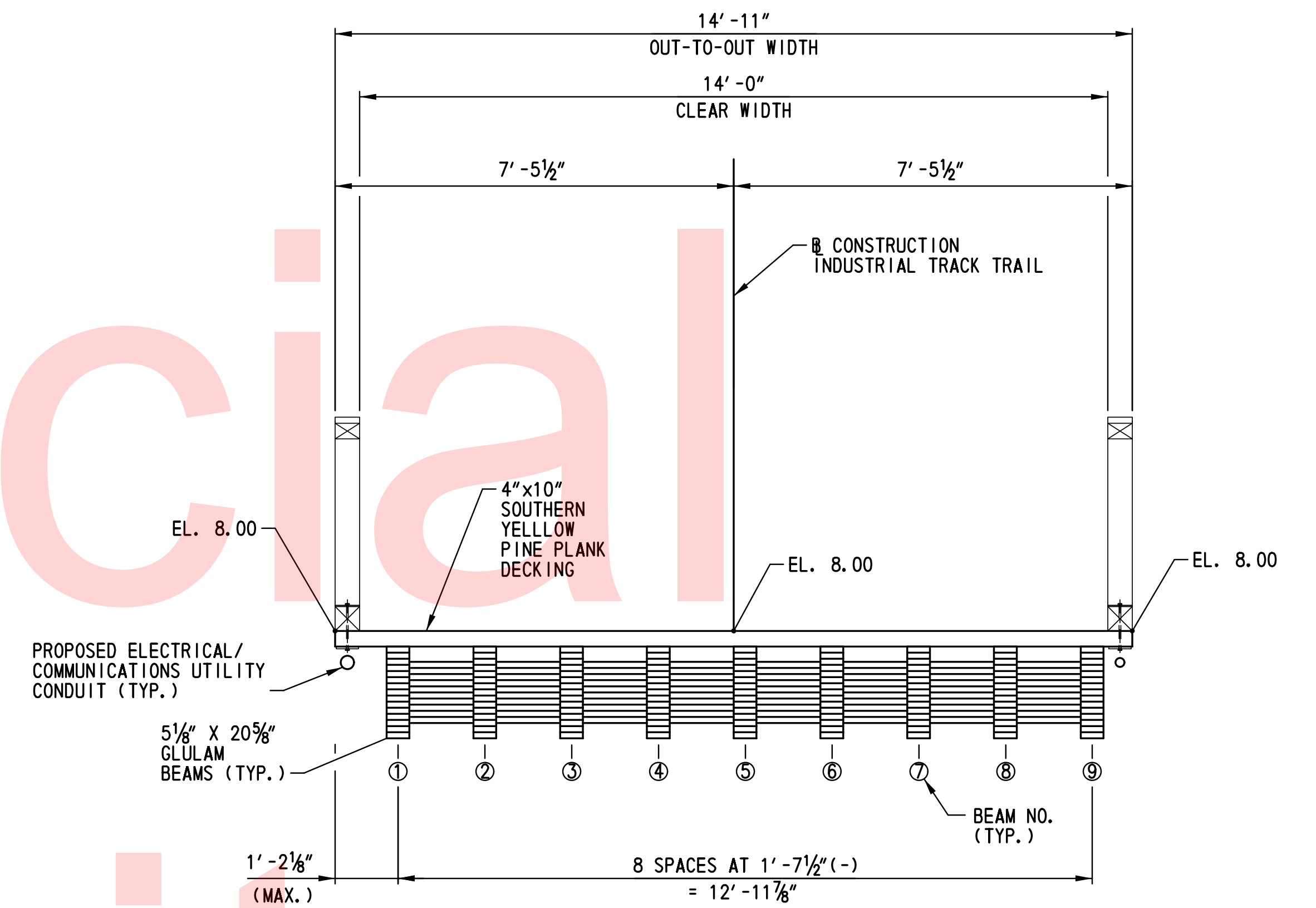


CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: NAH	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

SD-203
SHEET NO.
112
TOTAL SHTS.
207



DECK ELEVATION TYPICAL SECTION - SPAN NOS. 1-45 AND 66-164
SCALE: 1/2" = 1'-0"

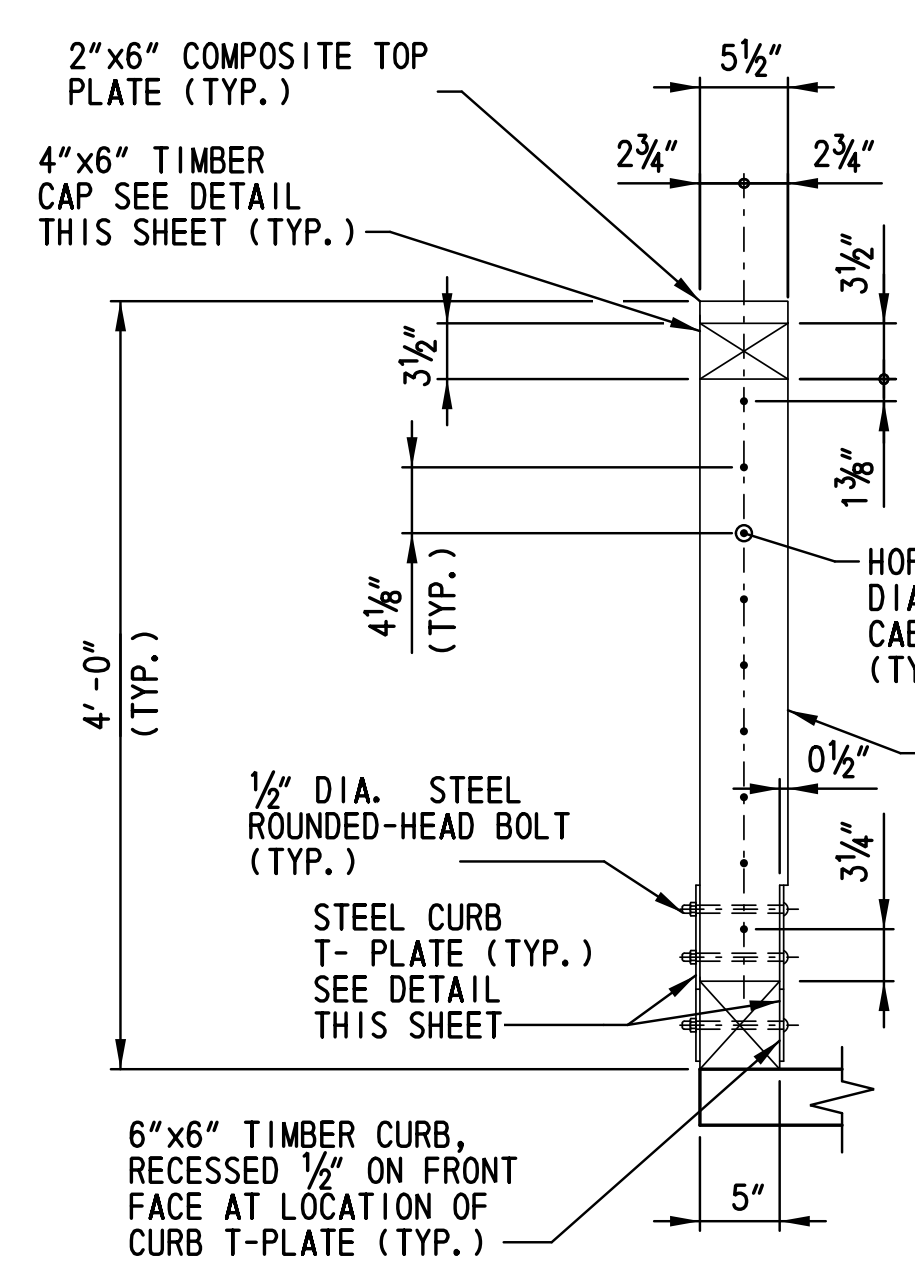


DECK ELEVATION TYPICAL SECTION - SPAN NOS. 46-65
SCALE: 1/2" = 1'-0"

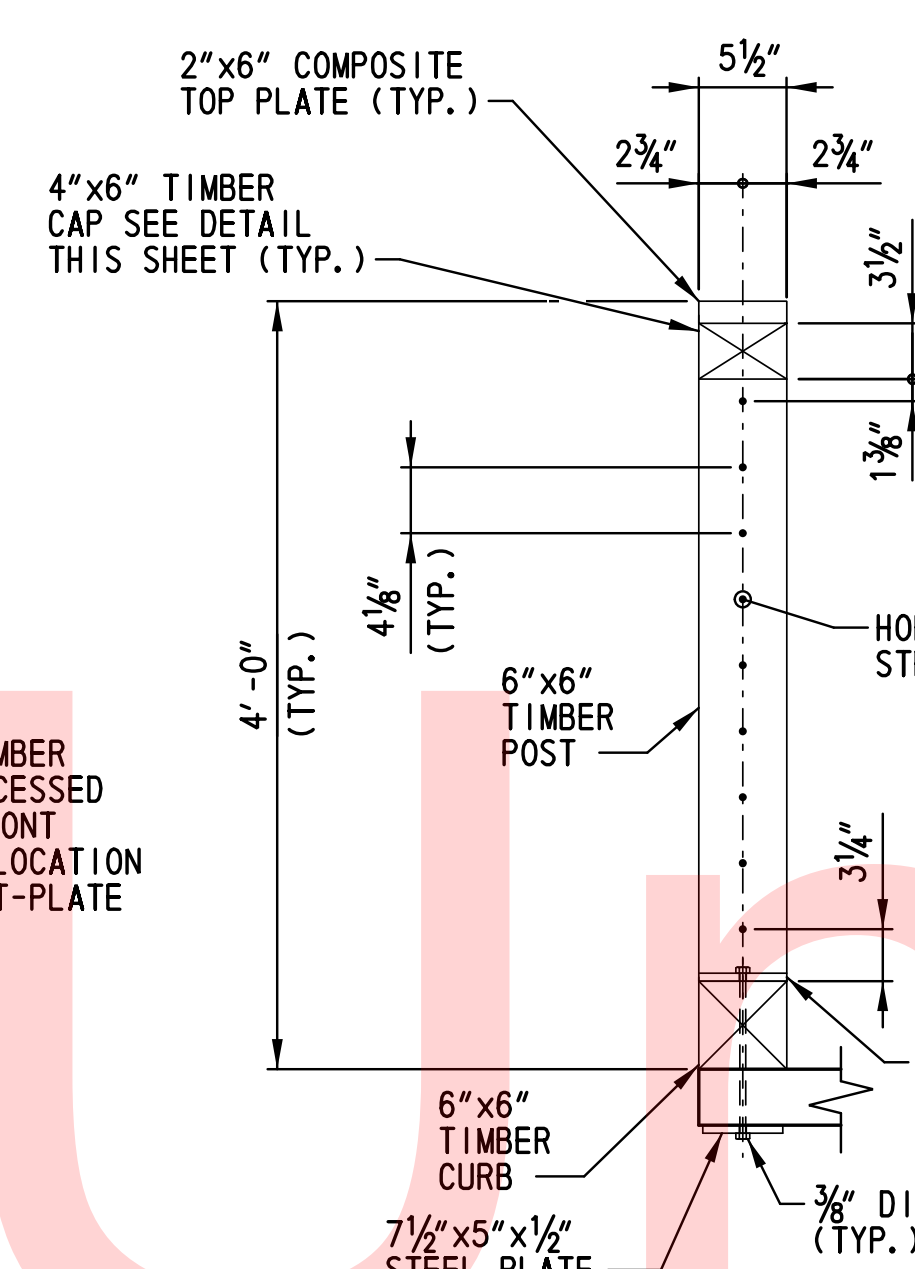
NOTES:

1. FINISHED BRIDGE DECK ELEVATIONS SHOWN ARE TOP OF PROPOSED 4"x10" SOUTHERN YELLOW PINE PLANK DECKING.

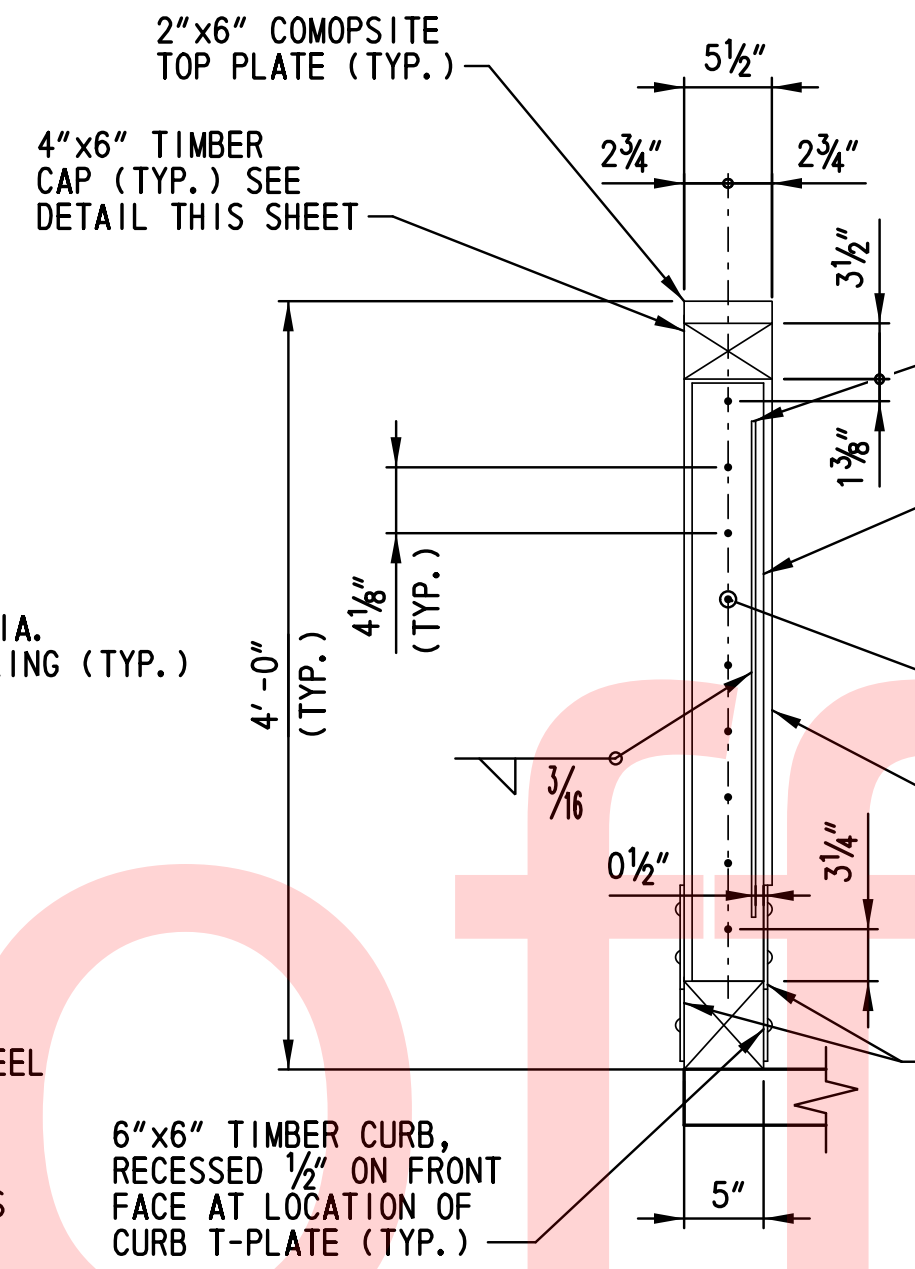
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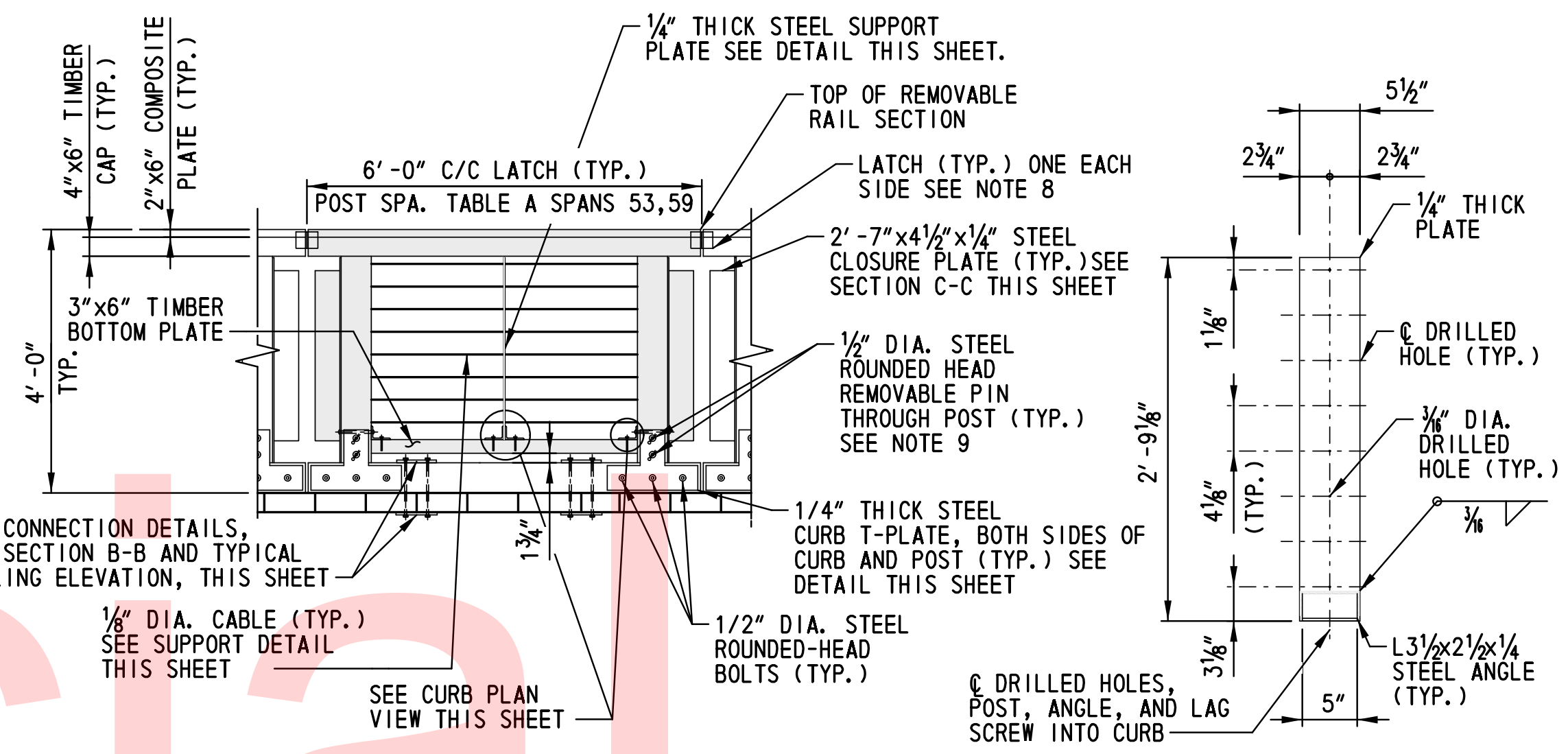
SECTION A-A
SCALE: 1" = 1'-0"



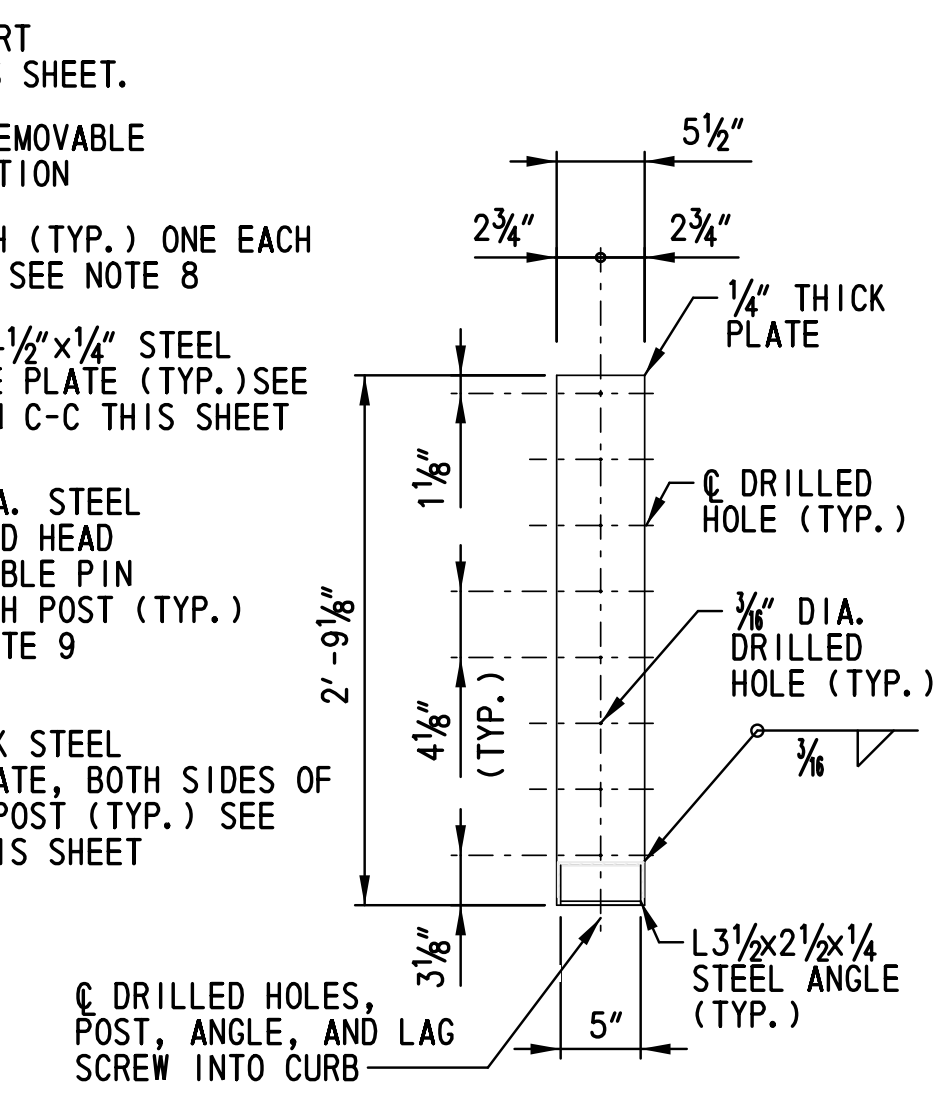
SECTION B-B
SCALE: 1" = 1'-0"



SECTION C-C
SCALE: 1" = 1'-0"



REMOVABLE RAILING SECTION ELEVATION
SCALE: 1/2" = 1'-0"

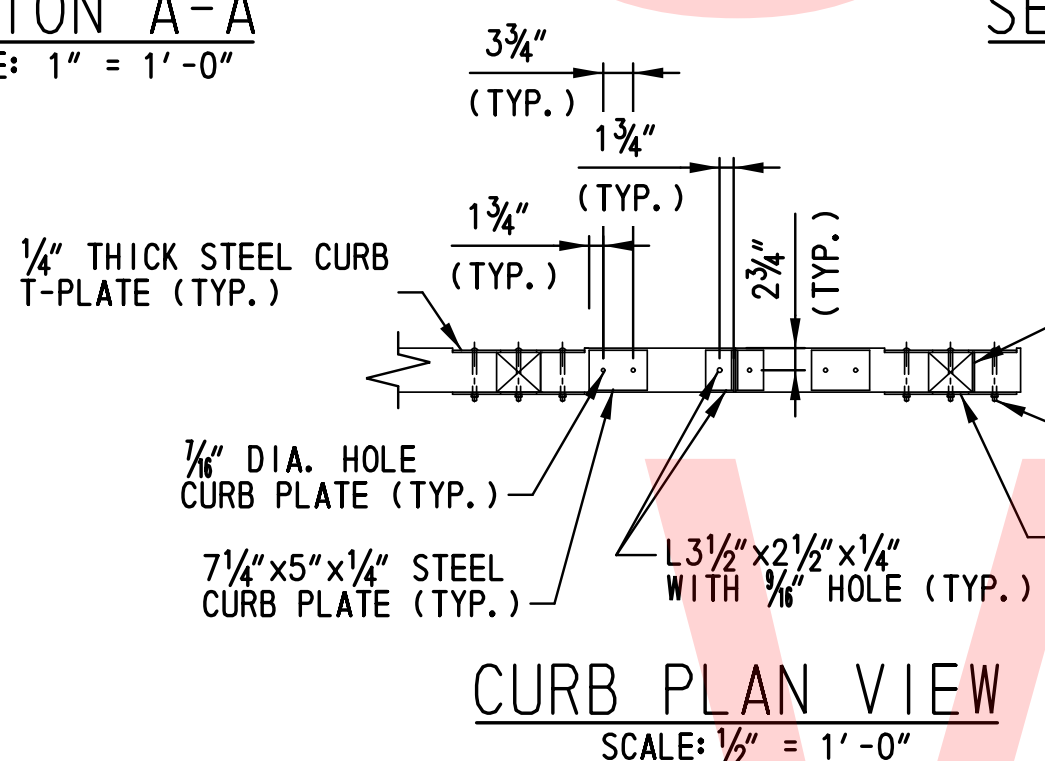


REMOVABLE RAILING SECTION SUPPORT PLATE DETAIL
SCALE: 1" = 1'-0"

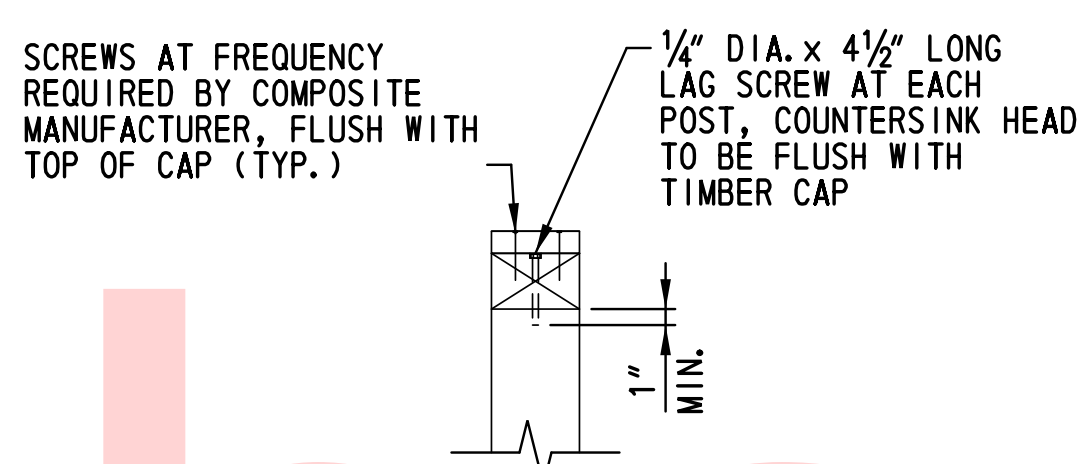
NOTE:
FOR CONNECTION DETAILS, SEE SECTION B-B AND TYPICAL RAILING ELEVATION, THIS SHEET.
FOR LOCATIONS OF REMOVABLE RAILING SECTIONS REFER TO DWG. NOS. PE-204 AND PE-205. OUTSIDE FACE OF RAILING SHOWN.

NOTES:

- STEEL CURB T-PLATES, END POST ANCHOR PLATES, SUPPORT PLATES, CLOSURE PLATES, AND CONNECTION ANGLES SHALL BE ASTM A36 STEEL OR APPROVED EQUAL AND HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM 123.
- BOLTS, WASHERS, LAG SCREWS, LATCHES, AND CLEVIS PINS SHALL BE HIGH STRENGTH CONFORMING TO ASTM A325 AND HOT-DIPPED GALVANIZED IN ACCORDANCE WITH AASHTO M232/M 232 (ASTM A153/A153M). LAG SCREWS, BOLTS, AND CLEVIS PINS SHALL BE IN COMPLIANCE WITH ANSI/ASME B18.2.1 FOR DIMENSIONAL REQUIREMENTS.
- ALL TIMBER RAILING ELEMENTS SHALL BE VISUALLY GRADED SELECT STRUCTURAL SOUTHERN YELLOW PINE. REFER TO DWG. PN-201 AND THE SPECIAL PROVISIONS FOR MORE INFORMATION.
- CABLES AND ATTACHMENT HARDWARE SHALL BE STAINLESS STEEL IN CONFORMANCE WITH GRADE REQUIREMENTS SPECIFIED IN THE SPECIAL PROVISIONS FOR ITEM NO. 606702.
- CABLES SHALL BE TENSIONED AS SPECIFIED PER THE MANUFACTURER SPECIFICATIONS TO ENSURE A MAXIMUM GAP BETWEEN ADJACENT CABLES OF 4" UNDER APPLIED LOADS. CABLE INSTALLATION INCLUDING TIGHTENING SEQUENCE SHALL BE PER THE MANUFACTURER SPECIFICATIONS AND SUBMITTED WITH WORKING DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER. REFER TO ITEM 606702 SPECIAL PROVISIONS FOR MORE INFORMATION.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT WORKING DRAWINGS OF THE TIMBER RAILING AND CABLE SYSTEM FOR REVIEW AND APPROVAL BY THE ENGINEER.
- DIMENSION 'C' PROVIDED FOR INFORMATIONAL PURPOSES ONLY TO ENSURE ANCHORAGE FROM CURB TO DECKING STRADDLES JOINTS BETWEEN DECK PLANKS.
- GALVANIZED STEEL LATCHES SHALL BE SPECIFIED WITHIN SUBMITTED WORKING DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER. LATCHES SHALL BE LOCKABLE AND PROVIDED ONE-EACH SIDE OF REMOVABLE RAILING SECTIONS ON THE OUTSIDE FACE OF RAILING.
- GALVANIZED STEEL REMOVABLE PINS SHALL BE SPECIFIED WITHIN SUBMITTED WORKING DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER AND SHALL CONSIST OF CLEVIS PINS WITH BOW-TIE COTTER PINS OR APPROVED EQUAL. PINS SHALL BE ORIENTED WITH COTTER PIN PLACED ON THE OUTSIDE FACE OF RAILING. HEADS FOR PINS SHALL BE FLUSH WITH INSIDE FACE OF RAILING WHEN IN THE LOCKED POSITION.



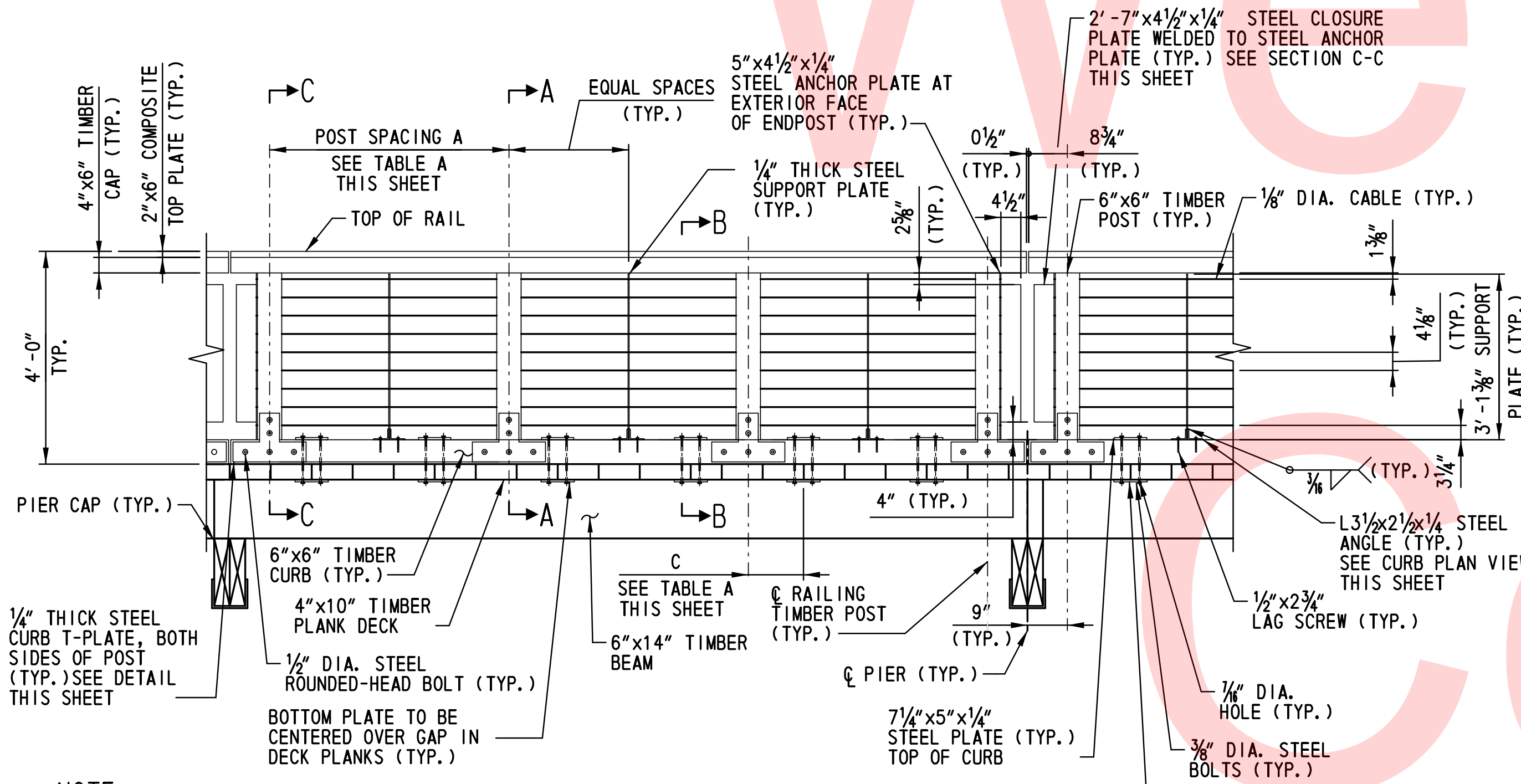
CURB PLAN VIEW
SCALE: 1/2" = 1'-0"



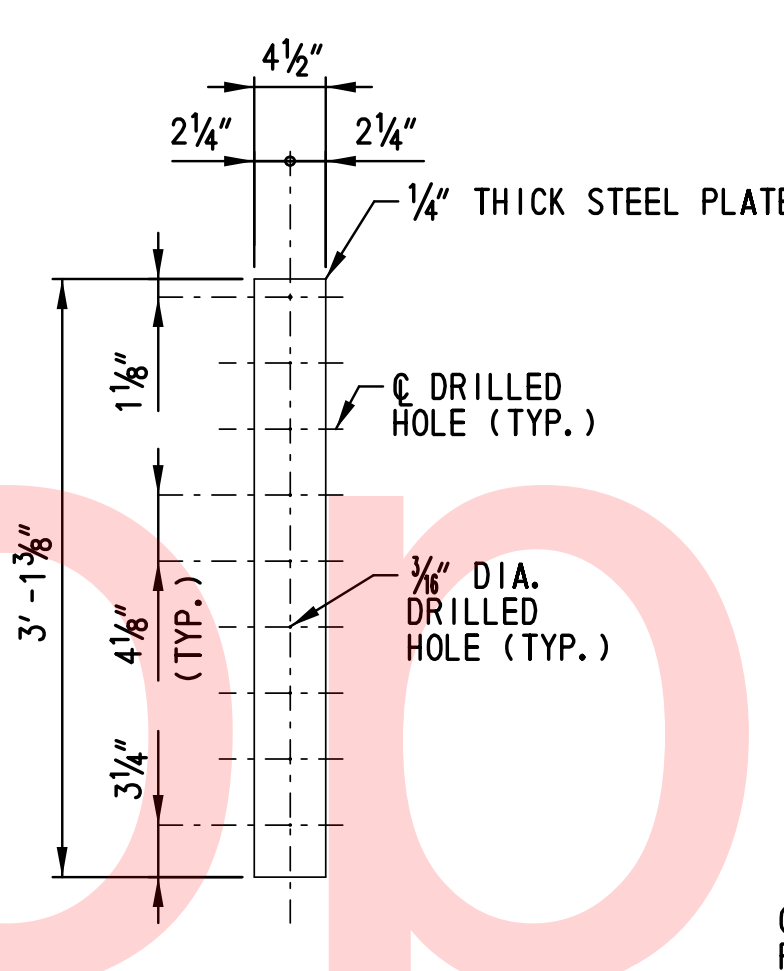
CAP RAILING CONNECTION
SCALE: 1" = 1'-0"

TABLE A			
SPAN	A	C MIN.	C MAX.
1	4' - 4 3/4"	8 1/8"	1' - 6 1/8"
2-6 N*	4' - 4 1/4"	8"	1' - 6"
2-6 S*	4' - 6 1/4"	8 1/2"	1' - 6 1/2"
7-33	4' - 6"	8 1/2"	1' - 6 1/2"
34-38 N*	4' - 7"	8 3/4"	1' - 6 3/4"
34-38 S*	4' - 5"	8 1/4"	1' - 6 1/4"
39-45	4' - 6"	8 1/2"	1' - 6 1/2"
46-65	4' - 9"	9 1/4"	1' - 7 1/4"
66-163	4' - 6"	8 1/2"	1' - 6 1/2"
164	4' - 1 3/4"	7 3/8"	1' - 5 3/8"

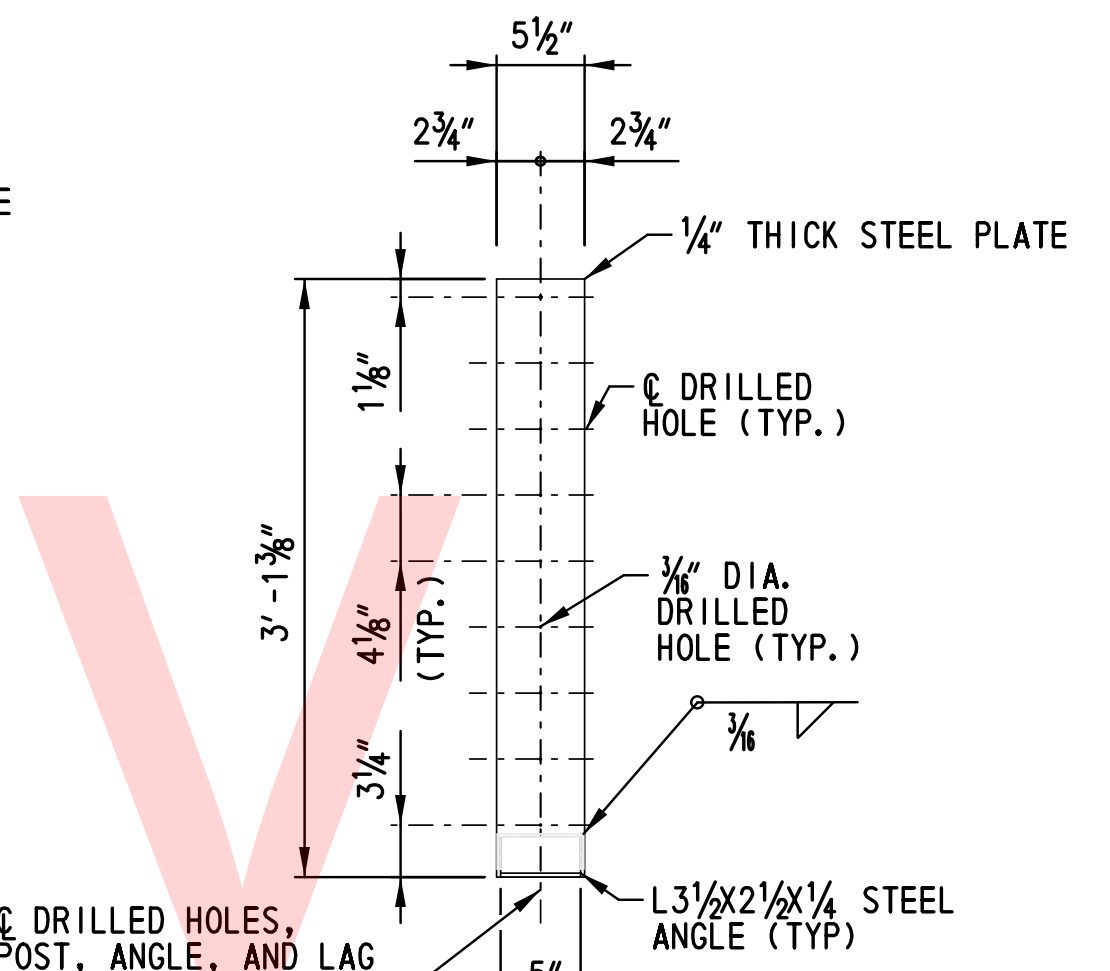
* N AND S INDICATE THE SIDE OF THE BRIDGE. THESE SPANS ARE CHORDED AND HAVE DIFFERENT RAILING SPACINGS FOR THE NORTH AND SOUTH RAILINGS.



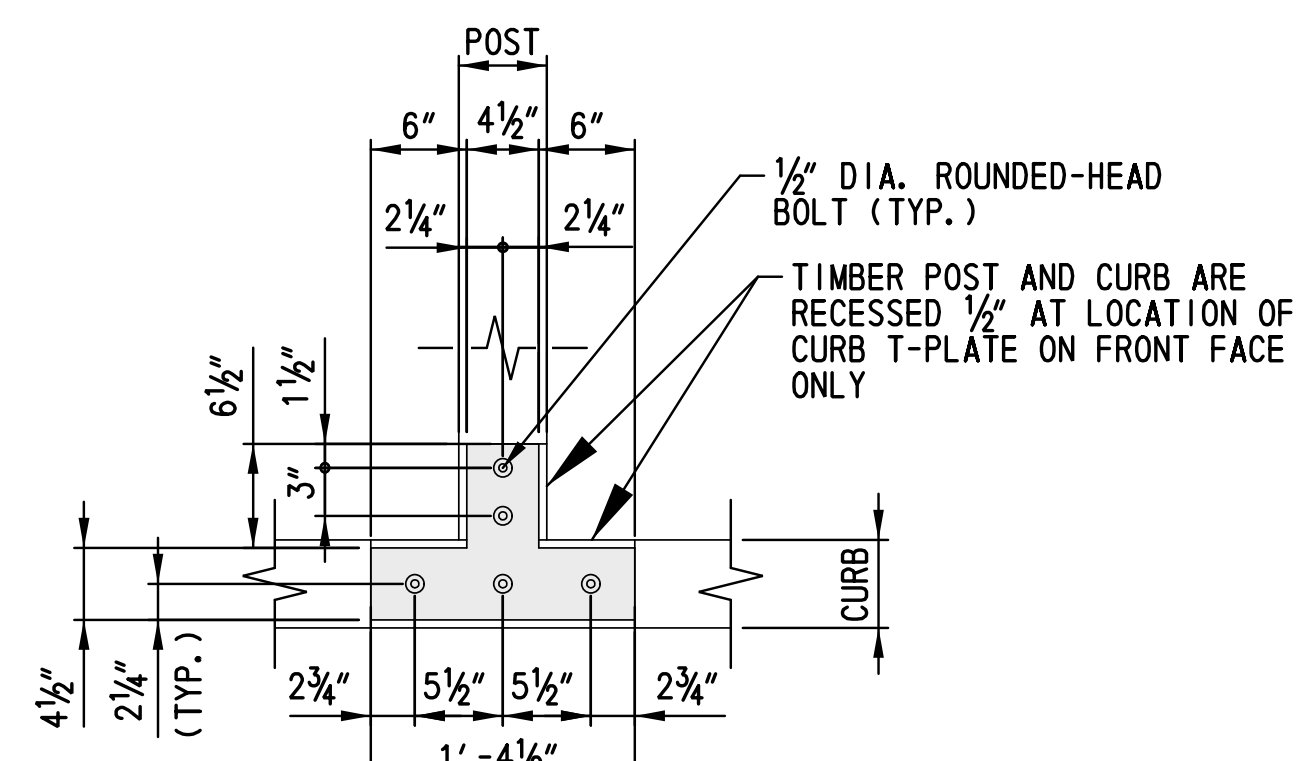
TYPICAL RAILING ELEVATION
SCALE: 1/2" = 1'-0"



ANCHOR PLATE DETAIL
SCALE: 1" = 1'-0"



SUPPORT PLATE DETAIL
SCALE: 1" = 1'-0"



CURB T-PLATE DETAIL
SCALE: 1" = 1'-0"

NOTE:
RAILING SHOWN AT 6"x14" SAWN TIMBER BEAM SPANS. RAILING SIMILAR AT GLULAM BEAM SPANS.

N:\31896-002\CADD\BRIDGE\RL201_JTG.DGN

BORING: 1T-07		DATE DRILLED: 2/10/14			
STATION: 134+80.91	OFFSET: 23.54' LT.	ELEVATION: 2.14'	NORTHING: 627143.8658	EASTING: 612834.0539	
COMMENTS: N/A					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0	3	NO RECOVERY		
2	2.0	2	SATURATED FIRM BLACK CLAYEY FINE TO COARSE SANDY SILT W/TRACE FINE GRAVEL.	A-4(0)	
3	4.0	2	SATURATED SOFT BLACK COARSE SANDY CLAY W/SOME FINE SAND, FINE GRAVEL AND SILT.	A-7-5(1)	
4	6.0	1	SATURATED VERY LOOSE BLACK ORGANIC SILTY COARSE TO FINE SAND W/TRACE FINE GRAVEL.	A-2-5(0)	
5	8.0	1	SATURATED VERY LOOSE BLACK ORGANIC SILTY COARSE TO FINE SAND W/SOME FINE GRAVEL.	A-1-B	
6	10.0	1	SATURATED VERY LOOSE GRAY CLAYEY FINE SAND AND FINE GRAVEL W/SOME SILT AND COARSE SAND.	A-2-4(0)	
7	12.0	2	SATURATED MEDIUM DENSE GRAY COARSE TO FINE SANDY FINE GRAVEL W/SOME SILT.	A-1-B	
8	14.0	7	SATURATED DENSE BROWN COARSE TO FINE SAND AND FINE GRAVEL W/TRACE SILT.	A-1-B	EL. -12.00 MIN. HELICAL MICROPILE TIP ELEVATION PIERS 1 THROUGH 44.
9	16.0	1	SATURATED LOOSE BROWN SILTY COARSE SAND W/SOME FINE SAND AND FINE GRAVEL.	A-1-B	
10	18.0	2	SATURATED LOOSE BROWN ORGANIC COARSE SAND W/SOME FINE SAND, FINE GRAVEL AND SILT.	A-1-B	EL. -17.00 MIN. MICROPILE TIP ELEVATION PIERS 45 THROUGH 51.
11	24.0	25	SATURATED VERY DENSE GRAY COARSE SANDY FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-A	
12	29.0	30	SATURATED VERY DENSE BROWN FINE GRAVEL W/SOME COARSE TO FINE SAND, TRACE OF SILT.	A-1-A	
13	34.0	10	SATURATED VERY STIFF RED CLAYEY FINE SANDY SILT W/TRACE COARSE SAND AND FINE GRAVEL.	A-4(1)	
14	39.0	10	SATURATED VERY STIFF BROWN CLAYEY FINE SANDY SILT W/TRACE COARSE SAND AND FINE GRAVEL.	A-4(0)	
15	44.0	8	SATURATED MEDIUM DENSE BROWN SILTY FINE SAND W/SOME COARSE SAND, TRACE OF FINE GRAVEL.	A-2-4(0)	
16	49.0	8	SATURATED MEDIUM DENSE BROWN COARSE TO FINE SAND W/SOME SILT AND FINE GRAVEL.	A-1-B	
17	54.0	7	SATURATED DENSE BROWN SILTY FINE TO COARSE SAND W/SOME FINE GRAVEL.	A-2-4(0)	
18	59.0	13	SATURATED DENSE BROWN SILTY COARSE TO FINE SAND AND FINE GRAVEL.	A-2-4(0)	
19	64.0	37	SATURATED VERY DENSE BROWN FINE SAND W/SOME COARSE SAND, FINE GRAVEL AND SILT.	A-2-4(0)	
20	69.0	12	SATURATED VERY STIFF BROWN FINE SANDY CLAY W/SOME SILT, TRACE OF COARSE SAND AND FINE GRAVEL.	A-6(2)	
21	74.0	16	SATURATED HARD BROWN CLAYEY FINE SANDY SILT W/TRACE COARSE SAND.	A-4(1)	
22	79.0	32	SATURATED HARD BROWN FINE SANDY SILT W/SOME COARSE SAND.	A-4(0)	
81.0					END BORING

BORING: 1T-08		DATE DRILLED: 1/23/14			
STATION: 138+48.52	OFFSET: 21.67' LT.	ELEVATION: 2.26'	NORTHING: 627211.1604	EASTING: 613195.4568	
COMMENTS: N/A					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0		NO SAMPLE		
2	2.0		SATURATED SOFT BLACK ORGANIC SILTY CLAY W/SOME COARSE SAND, TRACE OF FINE SAND.	A-7-5(17)	
3	4.0		SATURATED SOFT BLACK ORGANIC SILTY CLAY W/SOME COARSE SAND, TRACE OF FINE SAND.	A-7-5(16)	
4	6.0		SATURATED SOFT BLACK ORGANIC SILTY COARSE SANDY CLAY W/SOME FINE SAND.	A-7-5(16)	
5	8.0		NO SIEVE ANALYSIS - INDICATION OF SATURATED SOFT BLACK ORGANIC SILTY COARSE SANDY CLAY W/SOME FINE SAND.		
6	10.0		SATURATED SOFT BLACK ORGANIC CLAYEY SILT W/SOME FINE SAND, TRACE OF COARSE SAND AND FINE GRAVEL.	A-4(5)	
7	12.0		SATURATED STIFF BLACK ORGANIC CLAYEY SILT W/SOME FINE TO COARSE SAND, TRACE OF FINE GRAVEL.	A-4(2)	
8	14.0		SATURATED MEDIUM DENSE GRAY COARSE TO FINE SAND AND FINE GRAVEL W/TRACE SILT.	A-1-B	
9	16.0		SATURATED LOOSE GRAY FINE TO COARSE SAND AND FINE GRAVEL W/SOME SILT.	A-1-B	
10	18.0		SATURATED VERY DENSE GRAY FINE SANDY FINE GRAVEL W/SOME COARSE SAND, TRACE OF SILT.	A-1-B	EL. -17.00 MIN. MICROPILE TIP ELEVATION PIERS 52 THROUGH 63.
11	24.0		SATURATED VERY DENSE GRAY FINE GRAVEL W/SOME FINE TO COARSE SAND, TRACE OF SILT.	A-1-A	
12	29.0		SATURATED VERY DENSE GRAY FINE SAND AND FINE GRAVEL W/SOME COARSE SAND AND SILT.	A-1-B	
13	34.0		SATURATED MEDIUM DENSE BROWN SILTY FINE TO COARSE SAND W/SOME FINE GRAVEL.	A-2-4(0)	
14	39.0		SATURATED MEDIUM DENSE BROWN SILTY COARSE TO FINE SAND W/TRACE FINE GRAVEL.	A-2-4(0)	
15	44.0		SATURATED LOOSE BROWN SILTY FINE TO COARSE SAND W/SOME FINE GRAVEL.	A-2-4(0)	
16	49.0		SATURATED VERY STIFF BROWN FINE SANDY CLAY W/SOME SILT, TRACE OF COARSE SAND.	A-6(3)	
17	54.0		SATURATED HARD BROWN FINE SANDY CLAY W/SOME SILT, TRACE OF COARSE SAND AND FINE GRAVEL.	A-6(6)	
18	59.0		SATURATED HARD BROWN FINE SANDY SILT W/SOME CLAY AND COARSE SAND.	A-4(0)	
19	64.0		SATURATED HARD BROWN SILTY FINE SANDY CLAY W/TRACE COARSE SAND.	A-7-6(16)	
20	69.0		SATURATED HARD BROWN FINE SANDY CLAY W/SOME SILT AND COARSE SAND.	A-7-6(9)	
21	74.0		SATURATED HARD BROWN COARSE SANDY CLAY W/SOME SILT AND FINE GRAVEL, TRACE OF FINE SAND.	A-7-6(8)	
22	79.0		SATURATED HARD BROWN SILTY FINE SANDY CLAY W/TRACE COARSE SAND AND FINE GRAVEL.	A-7-5(19)	
23	84.0		SATURATED HARD BROWN FINE SANDY CLAY W/SOME SILT, TRACE OF COARSE SAND.	A-7-5(8)	
24	89.0		SATURATED HARD BROWN COARSE TO FINE SANDY CLAY W/SOME SILT, TRACE OF FINE GRAVEL.	A-7-5(4)	
91.0					END BORING

BORING: 1T-09		DATE DRILLED: 1/14/14			
STATION: 143+50.41	OFFSET: 21.87' LT.	ELEVATION: 2.63'	NORTHING: 627305.7456	EASTING: 613688.3554	
COMMENTS: N/A					
SAMPLE INFORMATION					
NO.	DEPTH	BLOWS /6"	DESCRIPTION	CLASS /G.I.	REMARKS
1	0.0		TIDAL WATER AND MARSH		
2	2.0		SATURATED SOFT BLACK COARSE SANDY CLAY W/SOME SILT, TRACE OF FINE SAND.	A-7-5(13)	
3	4.0		SATURATED SOFT BLACK SILTY COARSE SANDY CLAY W/TRACE FINE SAND.	A-7-5(13)	
4	6.0		SATURATED SOFT BLACK COARSE SANDY CLAY W/SOME SILT, TRACE OF FINE SAND.	A-7-5(11)	
5	8.0		SATURATED SOFT BLACK SILT W/SOME CLAY AND COARSE TO FINE SAND.	A-5(3)	
6	10.0		SATURATED VERY SOFT BLACK CLAYEY FINE GRAVEL W/SOME COARSE TO FINE SAND AND SILT.	A-2-7(1)	
7	12.0		SATURATED VERY STIFF BLACK CLAYEY SILT W/SOME FINE TO COARSE SAND AND FINE GRAVEL.	A-5(4)	
8	14.0		SATURATED HARD BLACK CLAYEY SILT W/SOME COARSE TO FINE SAND, TRACE OF FINE GRAVEL.	A-5(5)	
9	16.0		SATURATED DENSE BLACK COARSE SANDY FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-B	
10	18.0		SATURATED MEDIUM DENSE GRAY COARSE SAND AND FINE GRAVEL W/SOME FINE SAND, TRACE OF SILT.	A-1-B	EL. -17.00 MIN. MICROPILE TIP ELEVATION PIERS 64 AND 65.
11	24.0		SATURATED VERY DENSE GRAY FINE TO COARSE SAND AND FINE GRAVEL, TRACE OF SILT.	A-1-B	
12	29.0		SATURATED MEDIUM DENSE BROWN SILTY FINE SAND W/SOME COARSE SAND AND CLAY, TRACE OF FINE GRAVEL.	A-2-4(0)	
13	34.0		SATURATED DENSE BROWN SILTY FINE TO COARSE SAND W/TRACE FINE GRAVEL.	A-2-4(0)	
14	39.0		SATURATED VERY STIFF BROWN FINE SANDY SILT W/SOME CLAY, TRACE OF COARSE SAND AND FINE GRAVEL.	A-4(0)	
15	44.0		SATURATED DENSE BROWN COARSE TO FINE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
16	49.0		SATURATED DENSE GRAY SILTY FINE TO COARSE SAND W/TRACE FINE GRAVEL AND CLAY.	A-2-4(0)	
17	54.0		SATURATED HARD BROWN CLAYEY FINE SANDY SILT W/SOME COARSE SAND, TRACE OF FINE GRAVEL.	A-4(0)	
18	59.0		SATURATED VERY STIFF RED FINE SANDY CLAY W/SOME SILT AND COARSE SAND.	A-6(5)	
19	64.0		SATURATED VERY DENSE RED FINE TO COARSE SAND W/SOME SILT, TRACE OF FINE GRAVEL.	A-2-4(0)	
20	69.0		SATURATED HARD BROWN FINE SANDY CLAY W/SOME COARSE SAND AND SILT, TRACE OF FINE GRAVEL.	A-6(2)	
21	74.0		NO SAMPLE	A-6(4)	
22	84.0		SATURATED VERY DENSE RED CLAYEY FINE SAND W/SOME SILT AND COARSE SAND, TRACE OF FINE GRAVEL.	A-2-6(1)	
23	88.0		SATURATED HARD RED FINE SANDY CLAY W/SOME COARSE SAND AND SILT, TRACE OF FINE GRAVEL.	A-6(4)	
90.0					END BORING

N:\31896-002\CADD\BRIDGE\B0201_1T13.DGN



ADDENDUMS / REVISIONS

SCALE: NONE

NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: ADD	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

BORING LOG - 2

BO-201

SHEET NO.

115

TOTAL SHTS.

207

PROJECT NOTES:

- LOCATION
PROPOSED NEW PEDESTRIAN STRUCTURES CARRYING THE INDUSTRIAL TRACK TRAIL (PHASE 3) AT THE FOLLOWING LOCATIONS:
- WEATHERING STEEL BEAMS OVER DEEC WETLANDS
- WEATHERING STEEL THROUGH TRUSS OVER DEEC WETLANDS
- ELEVATIONS
VERTICAL DATUM IS REFERENCED TO NAVD 88.
- DESIGN CRITERIA
2014 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SEVENTH EDITION, INCLUDING 2015 INTERIM REVISIONS.
2009 AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, INCLUDING 2015 INTERIM PROVISIONS.
2005 DELDOT BRIDGE DESIGN MANUAL
WELDS SHALL CONFORM TO AWS D1.5.
- LOADING
VEHICLE LIVE LOAD IS H-10 FOR THIS PROJECT.
PEDESTRIAN LIVE LOAD IS 90 PSF FOR THIS PROJECT.
- FOUNDATION
FOR FOUNDATION REQUIREMENTS SEE DWG. NOS. PL-301 THRU PL-305.
- TRUSS BEARING REACTIONS

TRUSS BEARING REACTIONS ON PIER			
LOAD	VERTICAL (UNFACTORED)	HORIZONTAL (UNFACTORED)	LONGITUDINAL (UNFACTORED)
DL	41.9 KIP/BEARING		
LL (PEDESTRIAN)	58.2 KIP/BEARING		
WS (20 PSF UPLIFT)	-14.4 KIP/BEARING		
WS	+/-25.5 KIP/BEARING	20.3 KIP/BEARING	6.1 KIP/BEARING
TU			6.3 KIP/BEARING

- PORTLAND CEMENT CONCRETE
ALL CONCRETE PROPERTIES SHALL BE IN ACCORDANCE WITH SECTION 812 OF THE DELAWARE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
CLASS A - PIER COLUMNS, PIER CAPS, AND PIPE PILE INFILL (F'c = 4,500 PSI)
CLASS B - PIER FOOTINGS (F'c = 3,500 PSI)
ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.
- REINFORCING STEEL
ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M 31 (ASTM A 615), GRADE 60.
EPOXY COATED REINFORCING STEEL SHALL BE USED IN THE FOLLOWING LOCATIONS:
-PIER COLUMNS
-PIER CAPS
ALL REINFORCING STEEL HAS BEEN DETAILED FOR A MAXIMUM LENGTH OF 60 FT.
ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER THE AASHTO BRIDGE DESIGN SPECIFICATIONS.
MINIMUM CONCRETE COVER FOR REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL BE 3" FOR FOOTINGS AND 2" ELSEWHERE.
- ELASTOMERIC BEARINGS
FOR REQUIREMENTS OF THE ELASTOMERIC BEARINGS, SEE DWG. NO. BB-301.
- STRUCTURAL STEEL
ALL STRUCTURAL STEEL SHALL BE AASHTO M 270 (ASTM A 709), GRADE 50W INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M 270 FOR PRIMARY LOAD CARRYING MEMBERS UNDER TENSILE STRESS.
- TIMBER
STRUCTURAL TIMBER SHALL BE GLUE LAMINATED TIMBER OR STRUCTURAL LUMBER CONFORMING TO THE FOLLOWING MINIMUM ALLOWABLE DRY UNIT STRESSES:
STRUCTURAL LUMBER FOR DEEC BRIDGE DECK NAILER AND DECK NAILER SHIMS SHALL BE SOUTHERN YELLOW PINE NO. 1:
- BENDING (Fbo) = 1,350 PSI
- HORIZONTAL SHEAR (Fvo) = 165 PSI
- MODULUS OF ELASTICITY (Eo) = 1,500,000 PSI
DEEC BRIDGE IPE DECKING SHALL BE IN CONFORMANCE WITH SPECIAL PROVISION 605758, WITH THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
- BENDING (Fbo) = 22,475 PSI
- CRUSHING STRENGTH (Fcpo) = 13,140 PSI
- MODULUS OF ELASTICITY (Eo) = 3,145,000 PSI
TREAT TIMBER DECK NAILERS AND DECK NAILER SHIMS WITH 5% PENTACHLOROPHENOL TYPE 'C' TO A MINIMUM NET RETENTION OF 0.5 PCF PER AWPA USER SPECIFICATION U1-15, USE CATEGORY 4B, & DELDOT SPECIFICATION SECTION 814.


- PRESERVATIVES FOR PRESSURE TREATMENT SHALL CONFORM TO AWPA STANDARD P35 (PENTACHLOROPHENOL). ALL TREATED WOOD SHALL CONFORM TO BEST MANAGEMENT PRACTICES (BMP'S). ISSUE CERTIFICATIONS OF TREATMENT.
- TIMBER STOCKPILED AT THE JOB SITE MUST BE NEATLY STACKED IN DRY, LEVEL AREAS THAT ARE CLEAR OF PLANT GROWTH AND DEBRIS. THE BOTTOM LAYER OF MATERIAL IN ANY STOCKPILE SHOULD BE AT LEAST 8 INCHES ABOVE GROUND LEVEL AND SUPPORTED ON SPACER BLOCKS SPACED NOT MORE THAN 10 FEET IN ANY DIRECTION OF THE STOCKPILE. IF MATERIAL SAGGING BETWEEN SPACER BLOCKS IS EVIDENT, ADDITIONAL SPACER BLOCKS MUST BE ADDED TO REMOVE SAGGING. STICKERS SPACED NOT MORE THAN 6 FEET IN ANY DIRECTION OF THE STOCKPILE SHALL BE ADDED BETWEEN LAYERS OF STOCKPILED MATERIAL. STICKERS SHALL BE SPACED AT REGULAR INTERVALS TO EXTEND ACROSS THE FULL WIDTH OF THE STOCKPILE IN ANY DIRECTION AND MUST BE ALIGNED VERTICALLY.
- TIMBER STOCKPILED IN HOT DRY CLIMATES SHALL BE PROTECTED WITH A PLYWOOD OR MATERIAL COVERING.
- STEEL PILES
STEEL H-SHAPE PILES SHALL CONFORM TO AASHTO M 270 (ASTM A 709), GRADE 50.
STEEL PIPE PILES SHALL CONFORM TO ASTM A 252, GRADE 3.
 - CONSTRUCTION JOINTS
KEYED CONSTRUCTION JOINTS SHALL BE 2"x4" OR UNLESS NOTED OTHERWISE. ALL EXPOSED CONSTRUCTION JOINT EDGES SHALL HAVE A 3/4" V-NOTCH UNLESS NOTED OTHERWISE.
 - STABILIZING STRUCTURAL EXCAVATIONS
IN LIEU OF A 2:1 SLOPE, THE CONTRACTOR MAY USE SHORING FOR EXCAVATIONS EXCEEDING 5 FEET IN HEIGHT. THE COST OF SHORING SHALL BE INCIDENTAL TO ITEM 207000 - EXCAVATION AND BACKFILL FOR STRUCTURES.
 - UTILITIES
BEFORE BEGINNING WORK, THE CONTRACTOR SHALL GIVE NOTIFICATION BY TELEPHONE BY CALLING "MISS UTILITY" AT 1-800-282-8555 A MINIMUM OF 48 HOURS PRIOR TO THE START OF WORK. VERIFY AND LOCATE ALL UTILITIES PRIOR TO STARTING WORK.
COORDINATE THE REQUIREMENTS FOR PROTECTION OF ANY UTILITY WITH THE UTILITY OWNER PRIOR TO STARTING WORK.
CONDUCT OPERATIONS IN A MANNER WHICH ENSURES THAT THE UTILITIES WILL NOT BE DISTURBED OR ENDANGERED. ANY DAMAGE INCURRED TO THESE UTILITIES OR ANY OTHER UTILITIES, SHOWN OR NOT SHOWN ON THE PLANS, DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE APPROPRIATE UTILITY COMPANY. THE DEPARTMENT DOES NOT ASSUME RESPONSIBILITY FOR REIMBURSEMENT, PARTICIPATION IN DESIGN AND/OR REVISIONS, OR LIABILITY FOR ACCURACY OF TYPE, SIZE, AND LOCATION OF ANY UTILITY.
THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARILY SUPPORTING, PROTECTING, OR RELOCATING ANY UTILITIES DURING CONSTRUCTION. WHERE NECESSARY, THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE CONTRACT.
 - STAGING AREAS
ANY STAGING AREAS OUTSIDE OF THOSE SHOWN ON THESE CONTRACT PLANS AND/OR OUTSIDE OF THE LIMITS OF CONSTRUCTION (LOC) DEPICTED HEREON SHALL HAVE EROSION AND SEDIMENT CONTROLS IMPLEMENTED TO PREVENT DISCHARGE OF SEDIMENT-LADEN RUNOFF FROM ANY SUCH AREAS. THE CONTRACTOR SHALL SUBMIT PLANS DEPICTING EROSION AND SEDIMENT CONTROLS AROUND AND WITHIN ANY SUCH STAGING AREAS TO THE ENGINEER FOR APPROVAL PRIOR TO USE.
THERE SHALL BE NO STOCKPILING OF CONSTRUCTION MATERIALS OR TEMPORARY FILLS IN WETLANDS OR SUBAQUEOUS LANDS UNLESS OTHERWISE SPECIFIED ON PROJECT PLANS AND APPROVED BY PERMITTING AGENCIES THAT GOVERN THEM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND SECURE THOSE ADDITIONAL PERMITS/AMENDMENTS IF DEVIATING FROM THE PLANS.
 - EXISTING STRUCTURE ACCESS
TEMPORARY RAILING SHALL BE INSTALLED AND MAINTAINED ON THE EXISTING BRIDGE DECK PRIOR TO DECK AND RAILING DEMOLITION AND REMAIN IN PLACE UNTIL NEW BRIDGE CONSTRUCTION IS COMPLETED. SEE DWG. NO. DE-301 FOR ADDITIONAL INFORMATION AND DESIGN REQUIREMENTS.
 - PROTECTION AND IDENTIFICATION OF THE NEW CASTLE COUNTY CHRISTINA RIVER FORCE MAIN (CRFM) AND ERECTION OF THE DEEC BRIDGE ELEVATED TRUSS
THE ALIGNMENT (HORIZONTALLY AND VERTICALLY) OF THE EXISTING 78 INCH DIAMETER CRFM AS SHOWN ON THE CONTRACT DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OR STAGING ACTIVITIES IN THE VICINITY. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY VARIANCE OR DEVIATION OF THE ALIGNMENT OR LOCATION OF THE CRFM WITH RESPECT TO THE INFORMATION PRESENTED WITHIN THE CONTRACT DOCUMENTS.
THE CRFM SHALL BE CLEARLY MARKED BY THE CONTRACTOR WITHIN THE LIMITS OF CONSTRUCTION SHOWN IN THE CONTRACT DOCUMENTS BY A MEANS THAT REMAINS CLEARLY VISIBLE DURING ALL WORK ACTIVITIES. ALL MARKINGS OF THE CRFM SHALL REMAIN IN PLACE THROUGHOUT THE DURATION OF THE CONTRACT.
A TEMPORARY CONSTRUCTION FENCE SHALL BE ERECTED TO ESTABLISH A PROTECTIVE BUFFER AREA ADJACENT TO THE CRFM. THIS PROTECTIVE BUFFER AREA SHALL REMAIN FREE OF CONSTRUCTION VEHICLE TRAFFIC, MATERIAL STORAGE, AND STAGING THROUGHOUT THE DURATION OF THE PROJECT. THE TEMPORARY CONSTRUCTION FENCE SHALL ESTABLISH A SINGLE CROSSING POINT FOR EQUIPMENT AND VEHICLES ALONG THE LENGTH OF THE CRFM THAT IS LOCATED WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER THAT INDICATE THE LOCATION OF ALL TEMPORARY CONSTRUCTION FENCING AND THE LOCATION OF THE SINGLE CROSSING OF THE CRFM.
THE PROTECTIVE BUFFER AREA SHALL BE ESTABLISHED AS THE DISTANCE OF THREE (3) PIPE DIAMETERS MEASURED FROM EACH OUTSIDE FACE OF THE CRFM.
NO LOADS SHALL BE TRANSFERRED TO THE CRFM WITHIN THE ESTABLISHED PROTECTIVE BUFFER AREA. IF ANY TEMPORARY STRUCTURES ARE CONSTRUCTED WITHIN THE PROTECTIVE BUFFER AREA, THEY SHALL BE DESIGNED TO IMPART NET-ZERO LOADS ONTO THE CRFM. THE CONTRACTOR SHALL PLACE A WETLAND ACCESS ROAD IN LOCATIONS THAT RESIDE OUTSIDE THE LIMITS OF THE PROTECTIVE BUFFER AREA BUT WITHIN THE DESIGNATED WETLANDS WHEN TRAVERSING BETWEEN THESE AREAS. WETLAND ACCESS ROADS SHALL BE IN CONFORMANCE WITH SPECIAL PROVISION 202508.
THE CONTRACTOR SHALL PROTECT THE CRFM AT ALL TIMES AND TAKE VIBRATION MONITORING AND GROUND MOVEMENT MEASUREMENTS WITHIN THE VICINITY OF THE CRFM IN ACCORDANCE WITH SPECIAL PROVISION 763620. THE CONTRACTOR SHALL ENSURE THAT ALL LEVELS OF MONITORED VIBRATION AND GROUND MOVEMENT DUE TO WORK ACTIVITY ARE IN ACCORDANCE WITH THE MAXIMUM LEVELS PRESENTED IN SPECIAL PROVISION 763620. ALL WORK SHALL STOP IMMEDIATELY IF THESE MAXIMUM LEVELS ARE EXCEEDED.

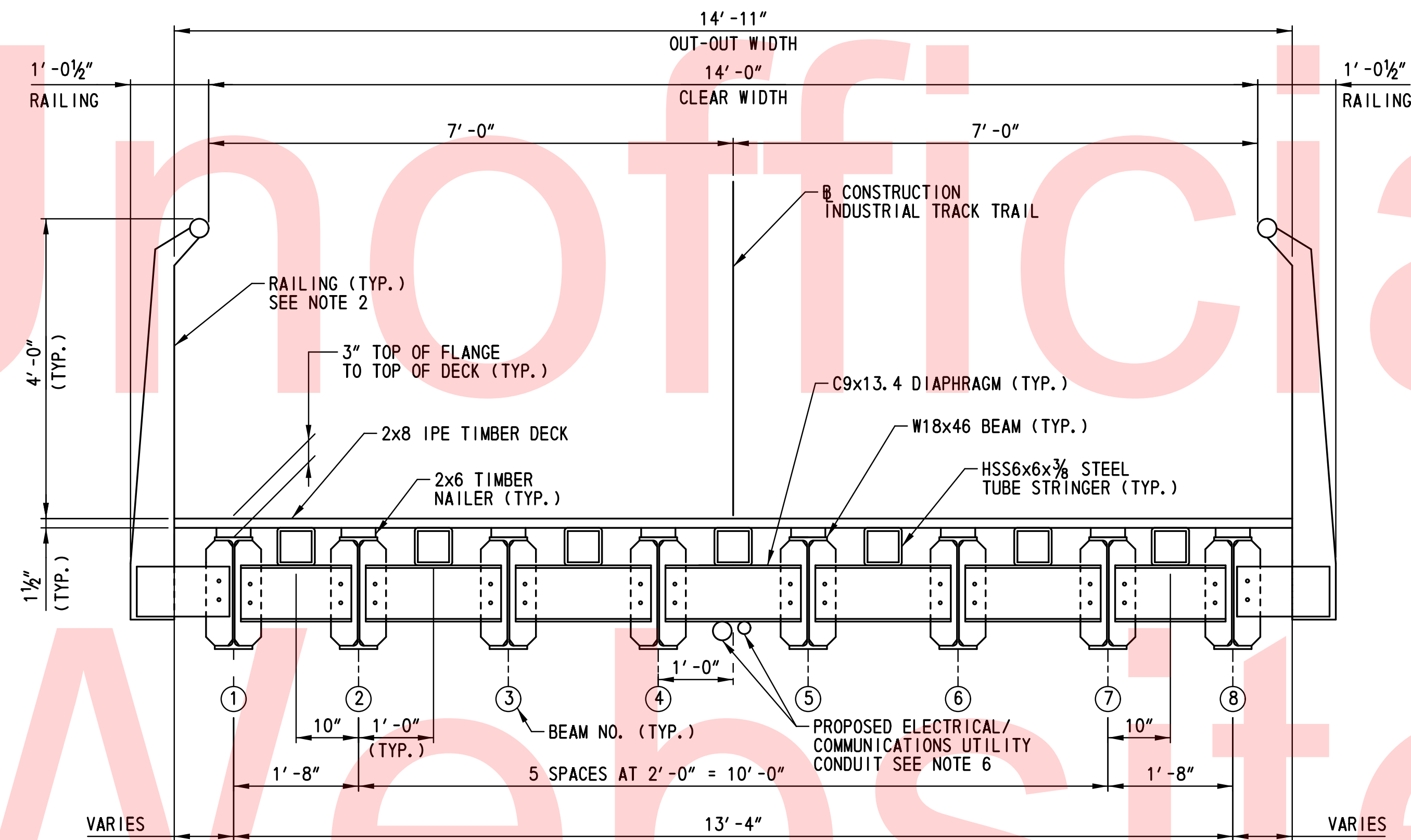
DEEC BRIDGE STRUCTURES INDEX OF SHEETS		
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116	PN-301	PROJECT NOTES DEEC BRIDGE
117	TS-301	TYPICAL SECTIONS - 1
118	TS-302	TYPICAL SECTIONS - 2
119	PE-301	DEEC BRIDGE GENERAL PLAN AND ELEVATION - 1
120	PE-302	DEEC BRIDGE GENERAL PLAN AND ELEVATION - 2
121	PE-303	DEEC BRIDGE GENERAL PLAN AND ELEVATION - 3
122	FT-301	GEOMETRIC AND PIER CAP LAYOUT PLAN - 1
123	FT-302	GEOMETRIC AND PIER CAP LAYOUT PLAN - 2
124	FT-303	GEOMETRIC AND PIER CAP LAYOUT PLAN - 3
125	FT-304	GEOMETRIC AND PIER CAP LAYOUT PLAN - 4
126	FT-305	GEOMETRIC, PIER CAP, AND FOOTING LAYOUT PLAN - 5
127	FT-306	GEOMETRIC AND FOOTING LAYOUT PLAN - 6
128	PL-301	PILE LAYOUT PLAN - 1
129	PL-302	PILE LAYOUT PLAN - 2
130	PL-303	PILE LAYOUT PLAN - 3
131	PL-304	PILE LAYOUT PLAN - 4
132	PR-301	PIERS 1-15 TYPICAL PIER BENT PLAN AND ELEVATIONS
133	PR-302	PIER 16 PLAN AND ELEVATION
134	PR-303	PIER 17 PLAN AND ELEVATION
135	PR-304	PIER 18 PLAN AND ELEVATION
136	PR-305	PIERS 1-15 REINFORCEMENT DETAILS
137	PR-306	PIER 16 REINFORCEMENT DETAILS
138	PR-307	PIER 17 REINFORCEMENT DETAILS
139	PR-308	PIER 18 REINFORCEMENT DETAILS
140	RB-301	PIER REINFORCEMENT LIST
141	BB-301	EXPANSION BEARING DETAILS - PIERS 2-15
142	BB-302	EXPANSION BEARING DETAILS - PIERS 16 AND 18
143	BB-303	FIXED BEARING DETAILS - PIERS 1-14
144	BB-304	FIXED BEARING DETAILS - PIERS 15 AND 17
145	BM-301	BEAM ELEVATIONS - 1
146	BM-302	BEAM ELEVATIONS - 2
147	BM-303	BEAM ELEVATIONS - 3
148	BM-304	DIAPHRAGM DETAILS
149	CT-301	CAMBER DIAGRAMS
150	FR-301	DEEC BRIDGE FRAMING PLAN - 1
151	FR-302	DEEC BRIDGE FRAMING PLAN - 2
152	FR-303	DEEC BRIDGE FRAMING PLAN - 3
153	FR-304	DEEC BRIDGE FRAMING PLAN - 4
154	DK-301	IPE TIMBER DECK DETAILS - 1
155	DK-302	IPE TIMBER DECK DETAILS - 2
156	SD-301	SUPERSTRUCTURE DETAILS - 1
157	SD-302	SUPERSTRUCTURE DETAILS - 2
158	FD-301	FINISHED BRIDGE DECK ELEVATIONS - 1
159	FD-302	FINISHED BRIDGE DECK ELEVATIONS - 2
160	RL-301	RAILING LAYOUT AND DETAILS
161	DE-301	DEMOLITION PLAN
162	BO-301	BORING LOG - 3

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A PROCEDURE OF PROPOSED EXCAVATION THAT CLEARLY DESCRIBES ALL MEANS AND METHODS FOR ANY PROPOSED EXCAVATION WITHIN THE ESTABLISHED PROTECTIVE BUFFER AREA. ADDITIONALLY, THE CONTRACTOR SHALL SUBMIT A PLAN OF PROPOSED EXCAVATION PROCEDURES TO THE ENGINEER FOR APPROVAL FOR ANY EXCAVATION WITHIN FIVE FEET (5'-0") OF EACH EDGE OF THE CRFM. ANY EXCAVATION WITHIN THIS FIVE FEET (5'-0") THAT WILL EXTEND TO A DEPTH THAT IS WITHIN TWO FEET (2'-0") OF THE TOP OF THE CRFM SHALL BE PERFORMED BY HAND PROBING, HAND DIGGING, AND/OR SOFT DIGGING. NO EXCAVATION BY MEANS OF MECHANICAL EQUIPMENT SHALL BE ALLOWED WITHIN FIVE FEET (5'-0") OF EACH EDGE OF THE CRFM TO A DEPTH OF 2 FEET (2'-0") ABOVE THE CRFM.

ERECTION OF THE DEEC BRIDGE ELEVATED TRUSS MAY BE COMPLETED AS A SINGLE OPERATION OR IN STAGES USING TEMPORARY SUPPORTS OR SHORING TOWERS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER INDICATING THE NUMBER AND LOCATION OF ALL SPLICES PROPOSED FOR THE ERECTION OF THE DEEC BRIDGE ELEVATED TRUSS, THE LOCATION OF ANY AND ALL TEMPORARY SUPPORTS, AND THE LOADS (PSF) IMPARTED TO THE GROUND SURFACE BY THE TEMPORARY SUPPORTS AND SUPPORTED TRUSS SEGMENTS. ERECTION OF THE DEEC BRIDGE ELEVATED TRUSS SHALL BE IN CONFORMANCE WITH SPECIAL PROVISION 605758.

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 DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS		SCALE: NONE	NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3	CONTRACT	BRIDGE NO.	X	PROJECT NOTES DEEC BRIDGE	SHEET NO.
	T201330009	DESIGNED BY: NAH			116				
	COUNTY	CHECKED BY: WAG			TOTAL SHTS.				
	NEW CASTLE				207				



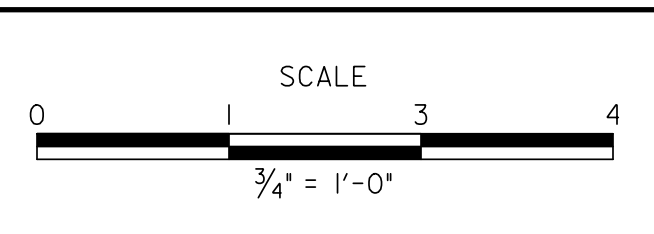
TYPICAL SECTION - SPANS 1-14
SCALE: 3/4" = 1'-0"

NOTES:

1. ALL DIMENSIONS ARE MEASURED RADIAL TO THE BASELINE OF CONSTRUCTION INDUSTRIAL TRACK TRAIL.
2. FOR RAILING DETAILS, SEE DWG. NO. RL-301.
3. FOR CONNECTION PLATE AND DIAPHRAGM DETAILS, SEE DWG. NO. BM-303.
4. FOR BEAM ELEVATIONS, SEE DWG. NO. BM-301.
5. FOR IPE TIMBER DECK DETAILS, SEE DWG. NOS. DK-301 AND DK-302.
6. FOR UTILITY ELECTRICAL AND COMMUNICATIONS UTILITY CONDUIT INFORMATION SEE DRAWINGS LI-05 THROUGH LI-12.

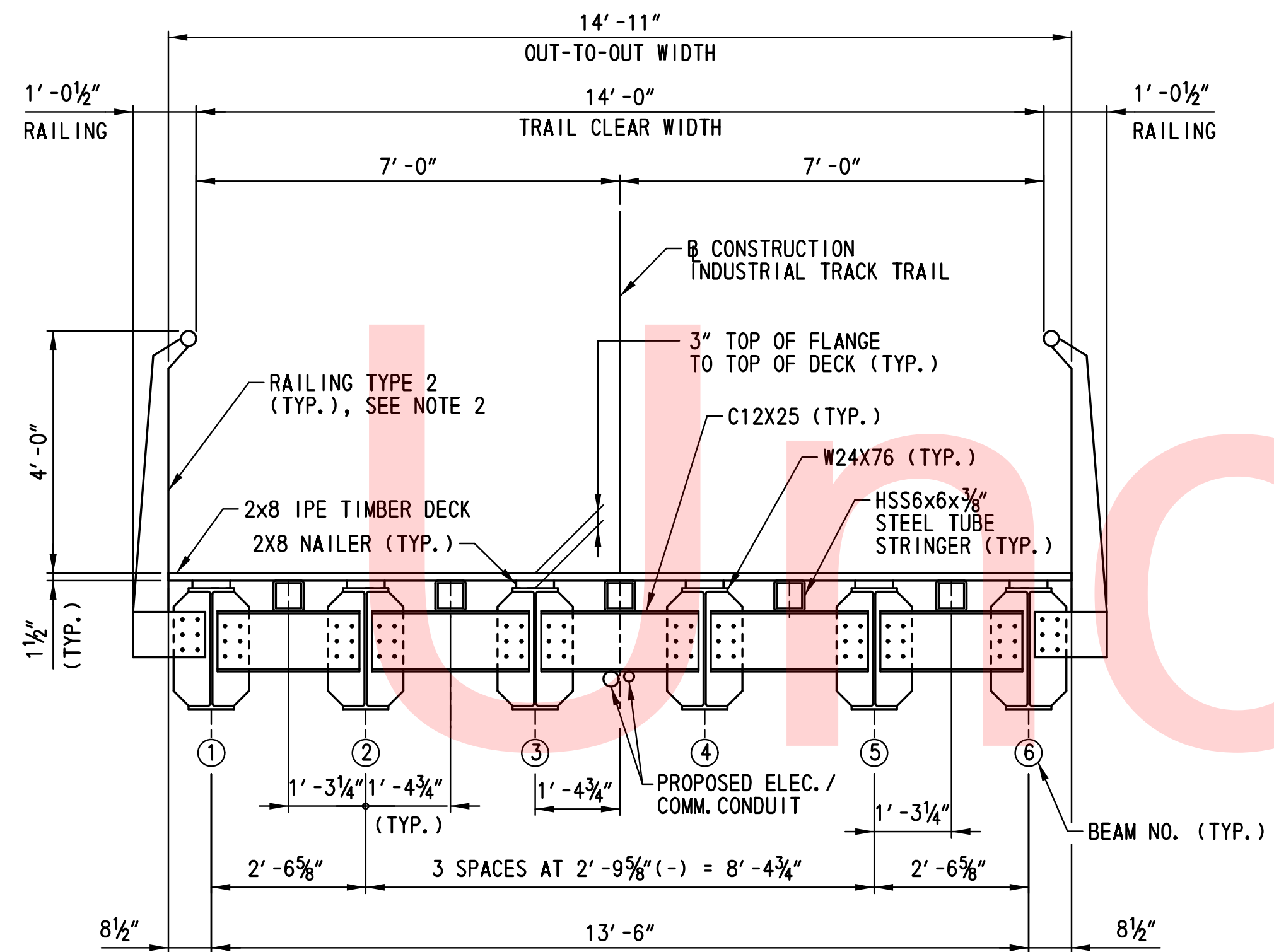
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ADDENDUMS / REVISIONS	

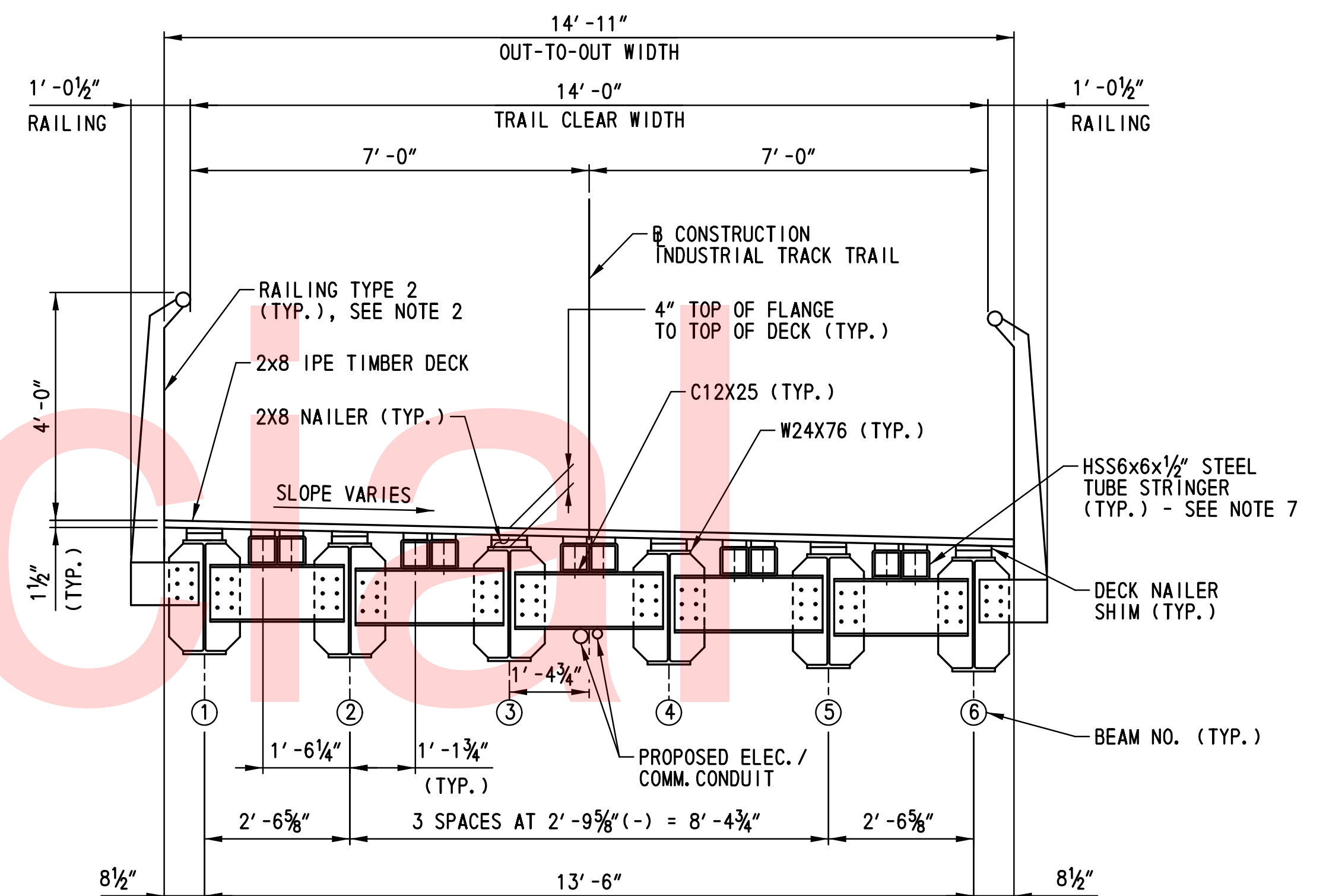


CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY: NAH	
COUNTY	CHECKED BY: WAG	
NEW CASTLE		

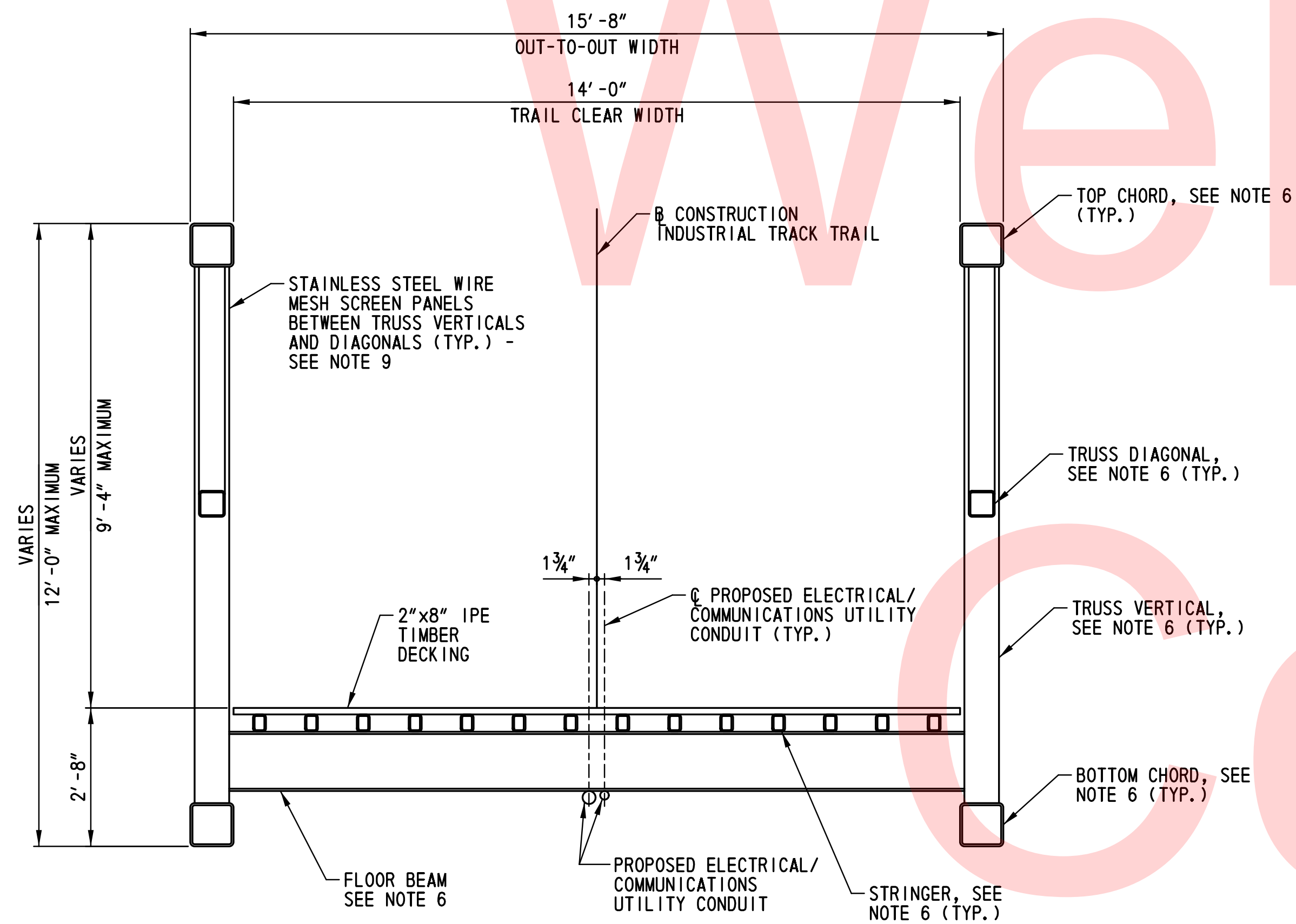
TS-301
SHEET NO.
117
TOTAL SHTS.
207



TYPICAL SECTION - SPAN 15
SCALE: 1/2" = 1'-0"



TYPICAL SECTION - SPAN 17
SCALE: 1/2" = 1'-0"

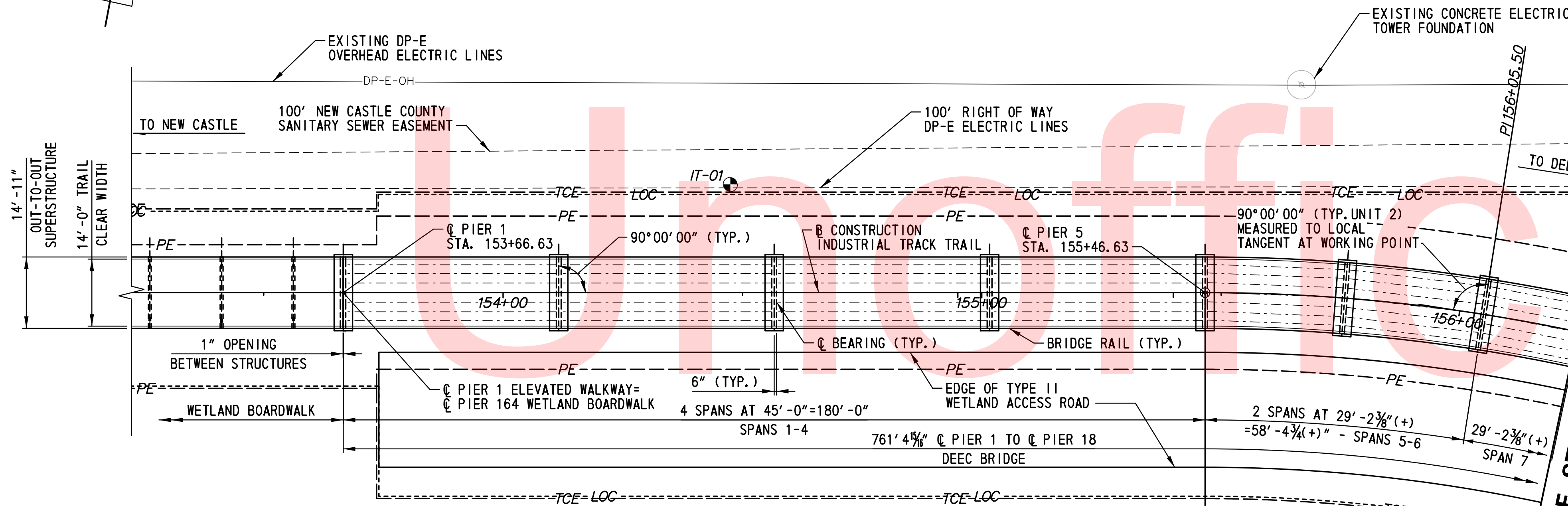
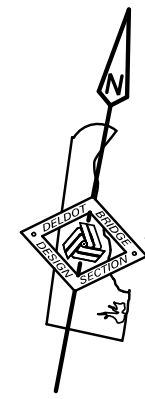


TYPICAL SECTION - SPAN 16
SCALE: 1/2" = 1'-0"

NOTES:

1. ALL DIMENSIONS ARE MEASURED PERPENDICULAR TO THE BASELINE OF CONSTRUCTION INDUSTRIAL TRACK TRAIL.
2. FOR SPAN NOS. 15 AND 17 RAILING DETAILS, SEE DWG. NO. RL-301.
3. FOR SPAN NOS. 15 AND 17 CONNECTION PLATE AND DIAPHRAGM DETAILS, SEE DWG. NO. BM-303.
4. FOR SPAN NOS. 15 AND 17 BEAM ELEVATIONS, SEE DWG. NO. BM-302.
5. FOR IPE TIMBER DECK DETAILS, SEE DWG. NO. DK-301.
6. PREFABRICATED TRUSS DESIGN TO BE PROVIDED BY CONTRACTOR. SEE PROJECT NOTES.
7. STEEL TUBE STRINGERS ARE STAGGERED. SEE DWG. NO. FR-304 FOR FRAMING PLAN.
8. UTILITY CONDUIT PLACED AS SHOWN. CONDUIT FOR ELECTRICAL/COMMUNICATIONS.
9. STAINLESS STEEL WIRE MESH PANELS SHALL MATCH THOSE PROVIDED FOR DEEC BRIDGE RAILINGS. SEE DRAWING RL-301 FOR RAILING DETAILS.
10. FOR ELECTRICAL AND COMMUNICATIONS CONDUIT INFORMATION SEE DRAWING NOS. LI-05 THROUGH LI-12.

N:\31896-002\CADD\BRIDGE\TS302-1.TG.DGN

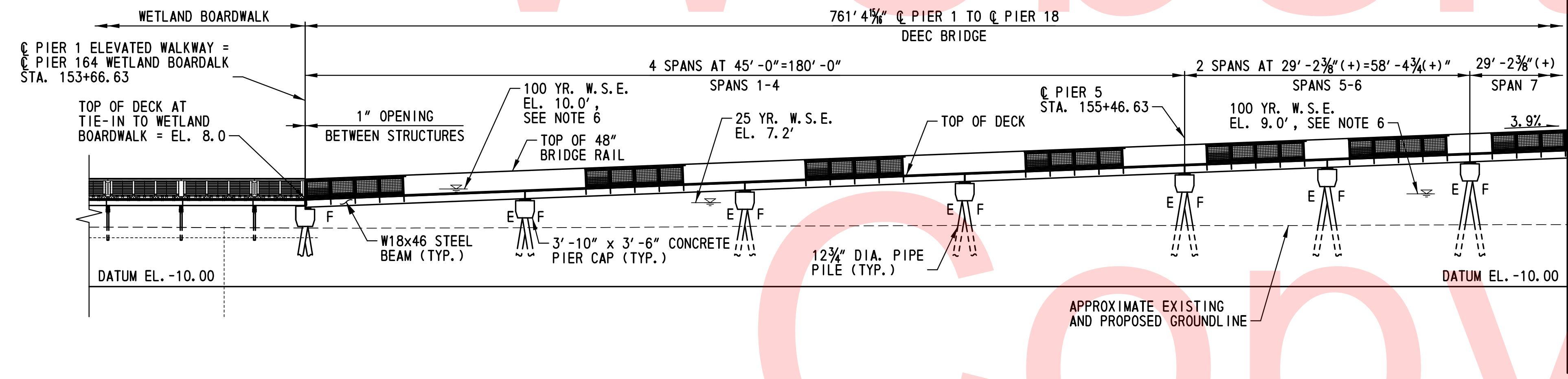


PLAN
SCALE: 1/4" = 1' - 0"

CURVE DATA

Δ =	17° 50' 41"
D _c =	15° 16' 44"
R =	375.00'
T =	58.87'
L =	116.79'
E =	4.59'

MATCHLINE STA. 156 + 25 - SEE DWG. NO. PE302



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

MATCHLINE STA. 156 + 25 - SEE DWG. NO. PE-302

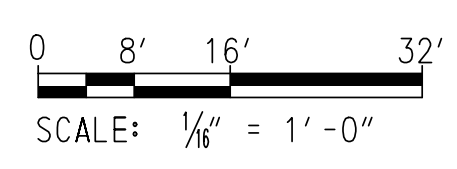
NOTES:

1. ALL SPAN LENGTHS MEASURED ALONG BASELINE OF CONSTRUCTION AT C PIER. SEE DWG NOS. FR 301 THROUGH FR-303 FOR CENTER-CENTER BEARING LENGTH OF EACH SPAN.
2. FOR PIER STATIONS, WORKING POINTS, AND COORDINATES, SEE DWG. NOS. FT-301 THROUGH FT-306.
3. SEE DWG. NO. PR-301 FOR DETAILS END BOTTOM OF CAP ELEVATIONS OF PIERS 1-15.
4. FOR PILE LAYOUT OF PIERS 1-15 SEE DWG. NO. PL-301.
5. RALING NOT SHOWN THROUGHOUT ALL SPANS FOR CLARITY.
6. 100 YEAR STORM ELEVATION CHANGES AS NOTED AT STATION 155+50.00

N:\31896-002\CADD\BRIDGE\PE301.ITG.DGN



ADDENDUMS / REVISIONS	

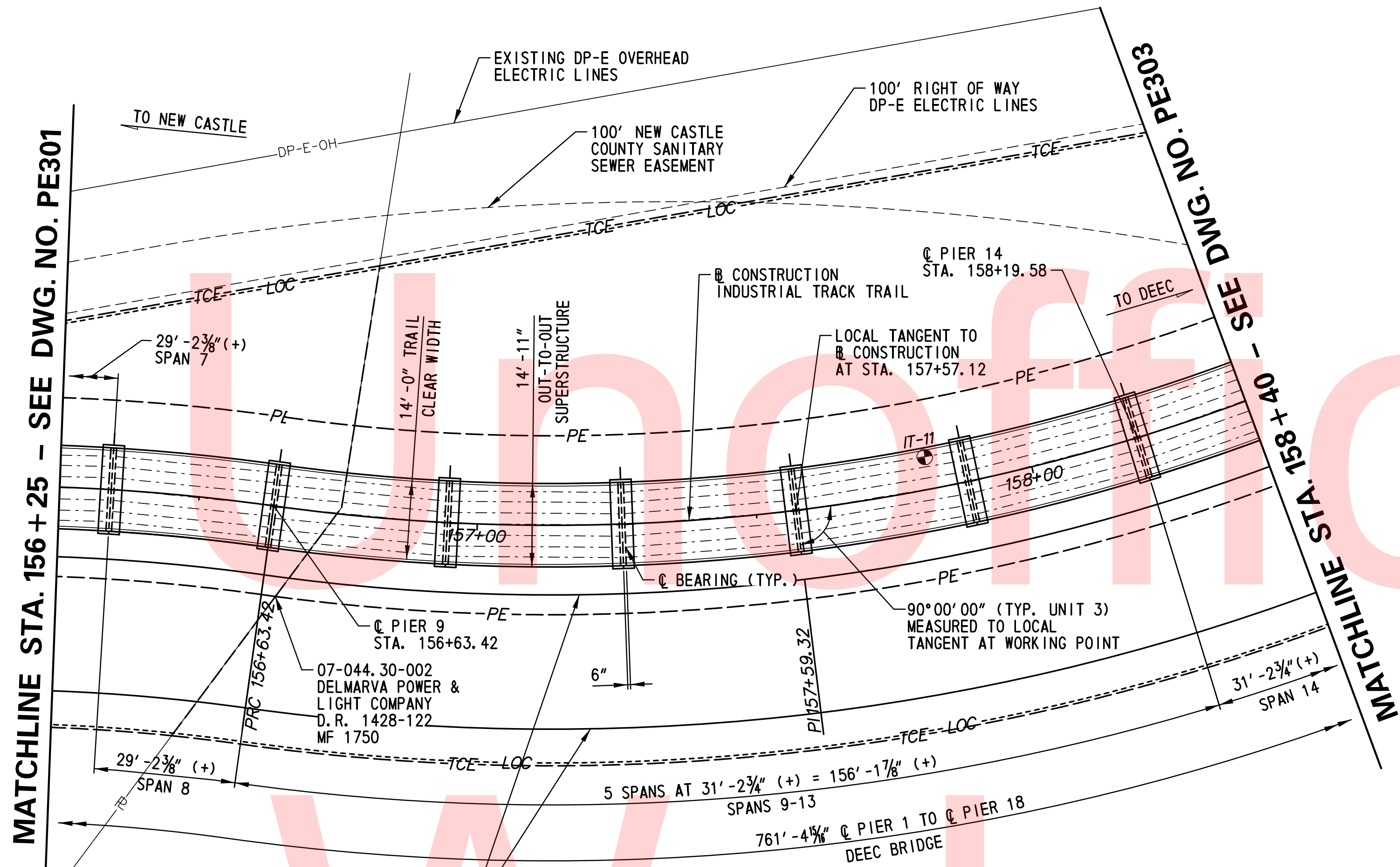


NEW CASTLE INDUSTRIAL TRACK TRAIL, PHASE 3

CONTRACT T201330009	BRIDGE NO. X
COUNTY NEW CASTLE	DESIGNED BY: NAH CHECKED BY: WAG

DEEC BRIDGE
GENERAL PLAN AND
ELEVATION - 1

PE-301
SHEET NO. 119
TOTAL SHTS. 207



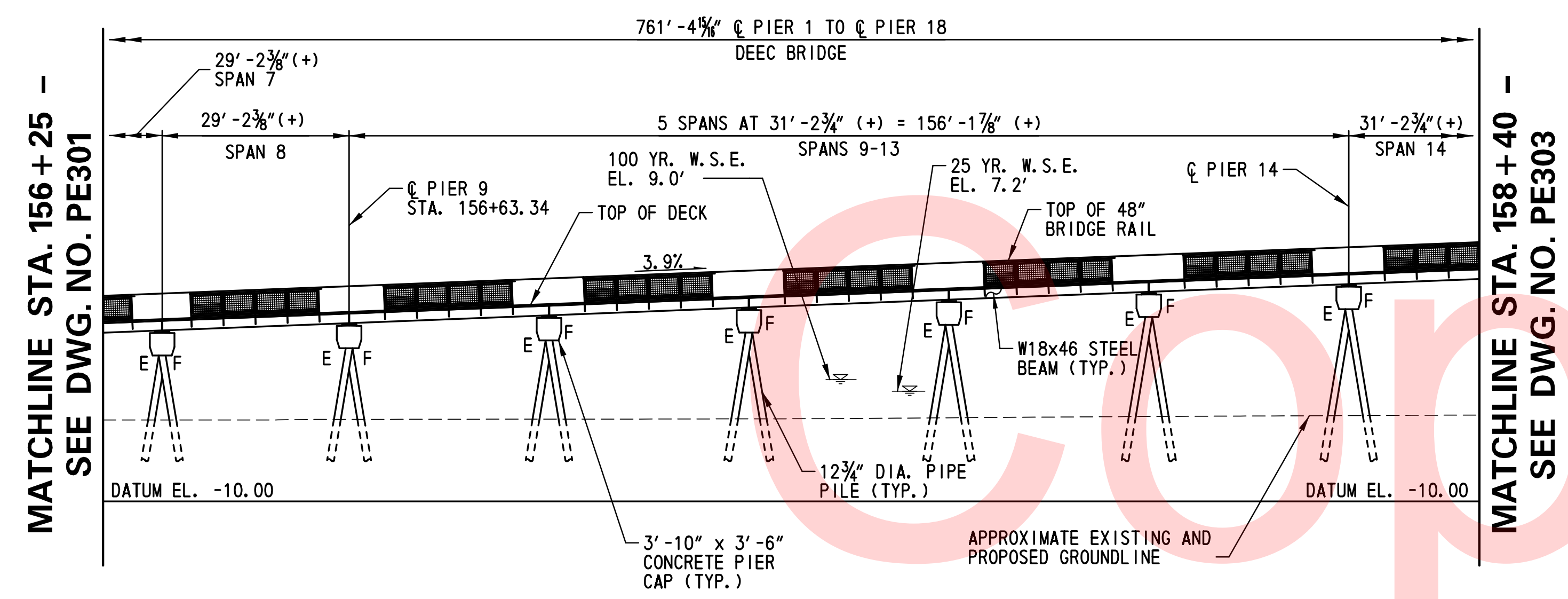
CURVE DATA

Δ =	17° 50' 41"
Dc =	15° 16' 44"
R =	375.00'
T =	58.87'
L =	116.79'
E =	4.59'

CURVE DATA

Δ =	29° 59' 15"
Dc =	16° 00' 10"
R =	358.04'
T =	95.89'
L =	187.39'
E =	12.62'

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



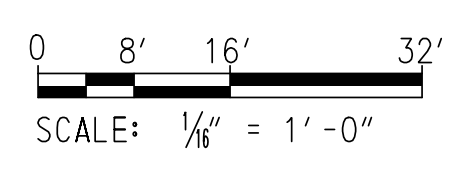
ELEVATION
SCALE: 1/8" = 1'-0"

NOTES:

1. ALL SPAN LENGTHS MEASURED ALONG BASELINE OF CONSTRUCTION AT C PIER. SEE DWG NOS. FR 301 THROUGH FR-303 FOR CENTER-CENTER BEARING LENGTH OF EACH SPAN.
2. FOR PIER STATIONS, WORKING POINTS, AND COORDINATES, SEE DWG. NOS. FT-301 THROUGH FT-306.
3. SEE DWG. NO. PR-301 FOR DETAILS AND BOTTOM OF CAP ELEVATIONS OF PIERS 1-15.
4. FOR PILE LAYOUT OF PIERS 1-15 SEE DWG. NO. PL-301.
5. RALING NOT SHOWN THROUGHOUT ALL SPANS FOR CLARITY.

N:\31896-002\CADD\BRIDGE\PE302_JTG.DGN

ADDENDUMS / REVISIONS	



CONTRACT	BRIDGE NO.	X
T201330009	DESIGNED BY:	NAH
COUNTY	CHECKED BY:	WAG
NEW CASTLE		

PE-302
SHEET NO.
120
TOTAL SHTS.
207