



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
89 Kings Highway
Dover, DE 19901

**CONTRACT DOCUMENTS & TECHNICAL SPECIFICATIONS
ADDENDUM NO. 1**

**DELAWARE BAYSHORE BYWAY
COOPER-CROSS WILDLIFE VIEWING ENHANCEMENTS
CONTRACT NO. FW-1-15**

Project Name: Delaware Bayshore Byway
Cooper-Cross Wildlife Viewing Enhancements

Contract No.: FW-1-15

Date of Issue: November 6, 2017

Notice No. 1: Attach this addendum to the Project Manual for this project. It modifies and becomes part of the Bidding Documents. Work or material not specifically mentioned herein is to be as described in the main body of the specifications and as shown on the drawings.

Bids Due: November 17, 2017, 2:00 PM EST

"CONTRACT NO. FW-1-15 - SEALED BID – DO NOT OPEN".
Dept. of Natural Resources & Environmental Control
Division of Fish and Wildlife
89 Kings Highway, Dover DE 19901
Attn: Anthony T. Gonzon Jr., Delaware Bayshore Initiative Coordinator

1. PRE-BID MEETING AGENDA, MEETING MINUTES AND SIGN-IN SHEET:

The mandatory pre-bid meeting for the above referenced project was held at the Cooper-Cross project site, located at 740 Delaware City – Port Penn Road, Middletown, DE 19709, on November 1, 2017. The following summary is provided for the purpose of clarifying and reiterating those points discussed during the meeting.

The agenda, meeting minutes and attendance list are attached.

***We Bring You Delaware's Great Outdoors
through Science and Service***

Additional comments/questions received at the prebid meeting:

1. Are there borings available?
Boring logs will be provided in an addendum
2. Is the contractor responsible for acquiring the New Castle County building permit?
Yes. The cost of the construction permit will be paid as a change order to the contract.
3. Who will be performing CCR?
We do not anticipate CCR being required. If a CCR is required, Denise Husband, Delaware Division of Fish & Wildlife (DFW), will provide this service for the project.
4. Consider using back to back angles instead of a channel for the railing.
The railing shown in the plans is a concept. The contractor is responsible for the final design of the railing including all elements and connections.
5. When does DFW expect to provide Notice to Proceed?
NTP could take as much as 80 days from bid-opening.

2. QUESTIONS:

1. How deep do the helical piles have to be for this job?
Response: The contractor is responsible for the design of the helical anchors. Boring logs have been included in this addendum for the contractor's use. The contractor may take additional borings at no additional expense to the Owner for the design of the helical anchors.

3. DRAWINGS:

1. **Drawing S-4, S-6, S-7:** Revised direction of angles on the railing.

4. SPECIFICATIONS:

None

5. ADDITIONAL INFORMATION:

1. Boring Logs

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME.

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT:

Anthony Gonzon (anthony.gonzon@state.de.us)

Attachments: 1 - Pre-Bid Agenda and Meeting Minutes
2 - Pre-Bid Attendance List
3 - Boring Logs
4 - Structures Railing Addendum Drawings S-4, S-6, S-7



ADDENDUM NO. 1 - ATTACHMENT 1



Date: November 01, 2017 10:00 AM EST

Reference: **Delaware Bayshore Byway
Cooper Cross Wildlife Viewing Enhancements
Contract No. FW-1-15
Mandatory Pre-Bid Meeting**

Location: Project Site
740 Delaware City - Port Penn Road
Middletown, Delaware 19709

AGENDA

INTRODUCTIONS

ADMINISTRATIVE

1. Sign-In Sheet
2. Questions during Bidding
3. Bonds
4. Wages/Payroll
5. Bids Due
6. Sub-Contractors
7. On-Site Superintendent
8. Completion of Work:
 - Notice of Contract Award
 - Purchase Order Issuance
 - On-Site Mobilization
 - Substantial Completion
 - Hunting Time of Year Restrictions
9. Permits
10. Shop Drawings

SCOPE OF WORK

1. Base Bid
2. Add/Alternate No 1

QUESTIONS

FIELD WALK

MEETING MNUTES

Anthony Gonzon, Bayshore Initiative coordinator, DE Division of Fish & Wildlife (DFW), DNREC, opened the meeting with brief introductions of project manager (Anthony Gonzon, DFW), construction manager (Denise Husband, DFW) and the design engineer (Robert Shaffer, RK&K) along with additional DFW staff responsible for management of the wildlife area (Eric Ludwig and Craig Rhoads, DFW).

Bob Shaffer, RK&K, provided administrative and described the scope of work, followed by a site walk.

During the meeting, the following points were clarified or emphasized:

1. All in attendance were reminded to fill in the sign-in sheet; otherwise you will not be considered in attendance and will not be permitted to submit a bid.
2. All questions during the bidding phase shall be submitted via email to anthony.gonzon@state.de.us.
3. Last Day for Questions shall be Thursday, November 9, 2017 (4:30 PM). Any questions received after this time will not be addressed.
4. Questions will answered via Addendum.
5. Phone calls will not be replied to.
6. Do not contact Bob Shaffer or anyone at RK&K with questions.
7. Performance bond will be required for the work. Bond form was included in the bid package and will be required upon notice of award of the contract, along with a certificate of insurance.
8. Bid bond and payment bond are required for this work.
9. Prevailing wage and payroll reporting are not applicable to this project.
10. Bids are due Friday, November 17, 2017, 2:00 PM, EST.
11. Sealed bids shall be addressed to the following address with the outer envelope clearly marked "DNREC CONTRACT NO. FW-1-15-SEALED BID-DO NOT OPEN"

Dept. of Natural Resources & Environmental Control
Division of Fish and Wildlife
89 Kings Highway, Dover DE 19901

Attn: Anthony T. Gonzon, Jr, Delaware Bayshore Initiative Coordinator

12. Bids shall be publicly opened in the auditorium at the above stated time and location.
13. Successful Bidder will be expected to enter into a Standard A101-2007 Agreement between Owner and Contractor.
14. Sub-Contractors: A completed list of sub-contractors shall be submitted with your bid. We reminder bidders to name only one subcontractor for each of the trades.
15. The contractor shall designate a superintendent who shall be on site for the duration of the project.
16. Completion of Work:
 - Notice of Contract Award: Within thirty (30) days of receipt and acceptance of qualified low bid.
 - Purchase Order Issuance: The issuance of a State of Delaware purchase order is contingent upon the successful Contractor submitting bonds on State-approved forms, signed contracts and insurance certificates to the State of Delaware within 20 days of Notice of Award. A purchase order will be issued in approximately thirty days after these items have been submitted to the State of Delaware.
 - On-Site Mobilization: Within 7 days after issuance of State of Delaware purchase order.
 - Substantial Completion: The work shall be completed within 70 calendar days of on-site start of work.
17. Hunting Time of Year Restrictions: December 8 - January 27: to avoid interference with active waterfowl hunting, no on-site activity shall be permitted until after 9:00 AM on Mondays, Wednesdays, Fridays and Saturdays. Work may occur anytime on Tuesdays, Thursdays and Sundays. After January 27, 2018 there will be no hunting time of year restrictions.
18. Wetlands and Subaqueous Lands, Sediment and Stormwater, and New Castle County Flood Plain Permits have been obtained by the owner and will be provided to the awarded contractor.
19. The Sediment and Stormwater permit requires the contractor to “stabilize as you go” by placing stone immediately after soil disturbance.
20. Disturbance to wetlands in the path of construction is to be minimized. Any temporarily impacted wetlands shall be returned to the pre-disturbance elevations and conditions.
21. Disturbance to any wetlands adjacent to the permitted area is prohibited.

22. All shop drawings and Source of Supply documents will be submitted electronically to the project file sharing site. The awarded contractor shall be provided access to the site. The contractor will designate a point of contact for access.
23. The project team will have 15 days to review and respond to all shop drawings and Source of Supply documents. Please consider this when making submissions and scheduling the work.
24. The project scope was briefly presented. Items discussed included:
- **Base Bid:** Stone trail, elevated boardwalk, observation platform including furnish and installation of bench, drainage swale, grading, concrete parking pad, split rail fence, bicycle rack, bollards, installation of kiosk furnished by the owner, installation of 2 benches furnished by the owner, and repairs to the existing entrance
 - **Add/Alternate No 1:** Furnish and install handrail along perimeter of the observation area.
25. A site walk was conducted.
26. The hunting time of year restrictions were repeated during the site walk.
27. Construction drawings were provided on compact disc to those that requested them.

ATTENDANCE SHEET


PRE-BID CONFERENCE - CONTRACT #FW-1-15









NAME: Cooper-Cross Wildlife Viewing Enhancements






DATE: November 01, 2017 10:00 AM EST

NAME	AGENCY/COMPANY	TELEPHONE	EMAIL	FAX
Bob Sheffer	RKC	410.462.9392	RSHEFFER@RKC.com	—
TEUTE HUSBAND	AKER F&W	302-739-9233	douise.husband@state.de.us	
Vincent Dills	MEAT CONSTRUCTION ENTERPRISES	302-792-9810	vinced@meat85.com	302-992-9568
ED BUSH	EPB ASSOCIATES, INC	302-475-7301	epbush@aol.com	302-475-7302
Long Reynolds	Kurt Construction Co	302-653-6489	Long@KurtConstructionCo.com	302-653-6489
Curt Dempsey	Dempsey's Specialized	302-530-7856	curtd@ssfabrication.com	302-339-1852
Rob Bellows	Kent	302-653-6469	est@k50r2@kentconstruction.com	302-653-4044
Mike Brown from	Liposurgery C.C. Out-Tac	410-778-6344	mb21617@gmail.com	—
Matt Tolan	G.E.S.	302-914-3070	MTARL@GIESMCHILL.com	302-234-1459
Ian Ryan	JOTID inc.	302-836-0414	mryan@jotid.com	
Anthony Gonzalez	DOBE F&W	302-735-8673	anthony.gonzalez@state.de.us	—
Eric Ludwig	DMRFR F&W	302-834-8433	eric.ludwig@skte.de.us	N/A
Larry Bathon	Bathon Bldrs	410-398-0800	abathon@aol.com	410-398-0846
Craig Ruch	DMRFR	302-739-5912	craig.ruch@skte.de.us	—
DAVID TALLEY	Carrow Construction	302-814-4310	DAVID.TALLEY@CarrowConstruction.com	

TEST BORING LOG

 PROJECT: Cooper Cross SITE: New Castle, Delaware DRILLING CO.: HCEA RIG/HAMMER: Tripod										COMMISSION NO.: 115-010-001 NORTH: 556370 EAST: 610904 ELEVATION: 4 - ft START DATE: 11/20/2015 END DATE: 11/23/2015 DRILLER: John LOGGED BY: BAW	
GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE			
Date	Time	Water	Casing	Cave-In	TYPE	SIZE, ID (in)					
11/23/2015	3:00:00 PM	6.8		4.4	SIZE, ID (in)	3.25	1.375				
					HAMMER WT. (lb)		140		-		
					HAMMER FALL (in)		30		-		

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-1	X	18	10 12 28	16%				EL 3.3 0.7		8-inches Topsoil Moist, dense, dark brown to tan, coarse to fine SAND, some Silt, little Clay, trace fine Gravel (SC) [A-2-4(0)]	Estimated N60 S-1=14
S-2	X	8	4 7 9	15.3%	26	8		EL 0.0 4.0		Sample S-2: Medium dense Wet, medium dense, brown, medium to fine SAND, some Silt, trace Clay (sm) [a-2-4]	Estimated N60 S-2=6
S-3	X	15	16 30 50/3"	16.4%	24	8	5	EL -1.0 5.0		Wet, Hard, brown to grey, CLAY and coarse to fine SAND, little Silt, trace coarse to fine Gravel (CL) [A-4(1)]	Estimated N60 S-3=35
S-4	X	4	50/4"					EL -3.5 7.5		Wet, very dense, light brown, medium to fine SAND, some Silt (sm) [a-2-4]	Estimated N60 S-4=53
S-5	X	18	25 30 27				10	EL -6.0 10.0		Wet, very dense, light brown, medium to fine SAND, trace Silt (SP) [A-1-b]	Estimated N60 S-5=28
S-6	X	18	28 24 20				15			Sample S-6: Coarse to fine SAND, little fine Gravel	Estimated N60 S-6=22
S-7	X	5	50/5"	14.2%	NP	NP	20			Sample S-7: Coarse to fine SAND, trace fine Gravel	Estimated N60 S-7=53
S-8	X	3	50/3"				25	EL -21.3 25.3		Bottom of Boring @ 25.3 ft	Estimated N60 S-8=49

SAMPLE IDENTIFICATION		DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
	- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
	- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
	- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
	- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
	- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
					OVER 30	HARD		

RKK NORTHEAST (DEFAULT) 15010-COOPER.GPJ RKK CURRENT.GDT 12/15/16

TEST BORING LOG

Boring No. CC-2
Page 1 of 1

PROJECT: Cooper Cross										COMMISSION NO.: 115-010-001									
SITE: New Castle , Delaware										NORTH: 556283									
DRILLING CO.: HCEA										RIG/HAMMER: Tripod									
EAST: 611016										ELEVATION: 2 - ft									
START DATE: 11/23/2015										END DATE: 11/24/2015									
DRILLER: John										LOGGED BY: BAW									

GROUNDWATER DATA (ft)					EQUIPMENT	CASING	SAMPLER	CORE
Date	Time	Water	Casing	Cave-In	TYPE	DC	S	
11/24/2015	3:00:00 PM	1.0		1.5	SIZE, ID (in)	3.25	1.375	
					HAMMER WT. (lb)		140	-
					HAMMER FALL (in)		30	-

SAMPLE NUMBER	SAMPLE TYPE	SAMPLE RECOVERY (in)	BLOWS/6" (% RQD)	LABORATORY TEST RESULTS			DEPTH	ELEV. DEPTH	GRAPHIC	DESCRIPTION AND CLASSIFICATION (moisture, density, color, proportions, etc.)	NOTES:
				NMC/ Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX					
S-1	X	18	2 2 4	24.1%			▽			Moist, loose, dark brown, coarse to fine SAND, little Silt, little Roots (sm) [a-2-4]	Estimated N60 S-1=9
S-2	X	17	5 7 7					EL -0.5 2.5		Wet, medium dense, brown, coarse to fine SAND, little Silt, trace Roots (SM) [A-2-4(0)]	Estimated N60 S-2=9
S-3	X	18	2 2 2	21.4%	NP	NP	5			Sample S-3: Very loose, trace fine Gravel	Estimated N60 S-3=2
S-4	X	18	7 5 16								Estimated N60 S-4=11
S-5	X	18	12 18 4	22.3%			10			Sample S-5: Orange brown, little coarse to fine Gravel	Estimated N60 S-5=11
S-6	X	18	37 45 36	14.4%	NP	NP	15	EL -13.0 15.0		Wet, very dense, orange brown, coarse to fine SAND, little Silt (SM) [A-2-4(0)]	Estimated N60 S-6=41
S-7	X	3	50/3"				20			Sample S-7: Light brown, some coarse to fine Gravel	Estimated N60 S-7=53
								EL -20.0 22.0		Bottom of Boring @ 22.0 ft	Casing refusal at 22-ft
							25				

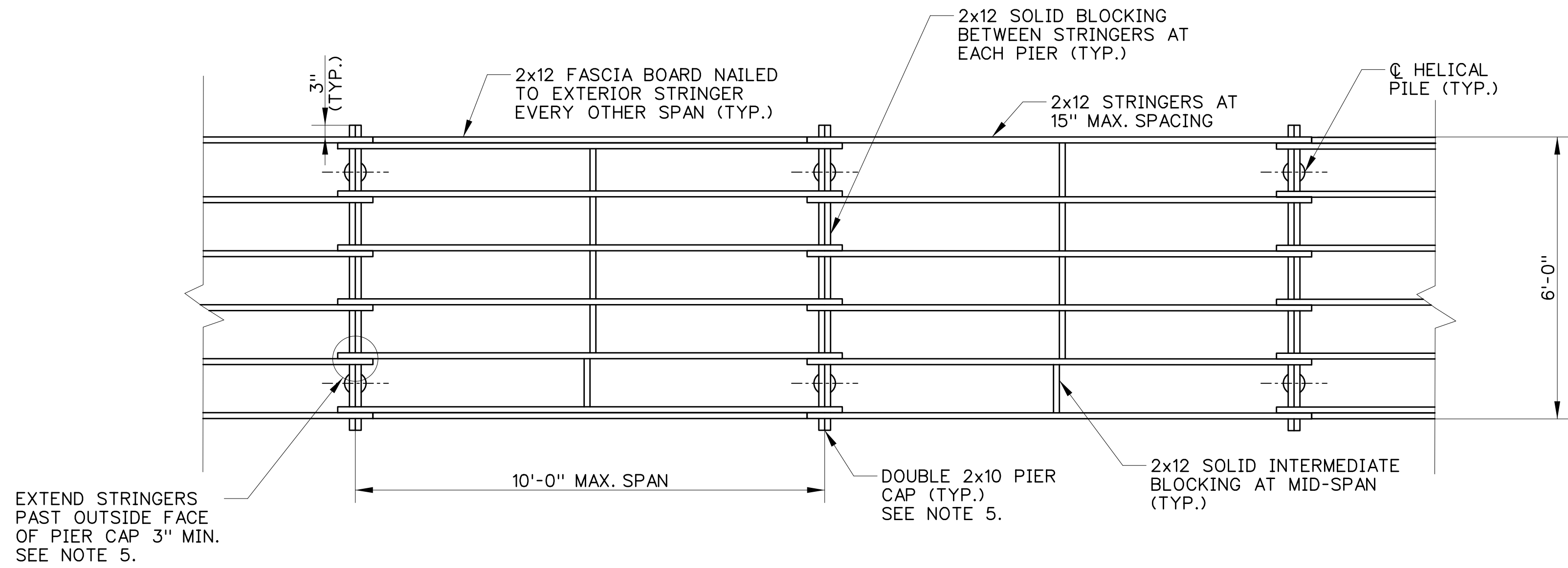
SAMPLE IDENTIFICATION		DRILLING METHOD	BLOWS/FT	DENSITY	BLOWS/FT	CONSISTENCY	SAMPLE PROPORTIONS (PERCENT)	
X	- S - SPLIT SPOON	HSA - HOLLOW STEM AUGERS	0-4	VERY LOOSE	0-2	VERY SOFT	TRACE	1 TO 10
H	- T - THIN WALL TUBE	SSA - SOLID STEM AUGERS	5-10	LOOSE	3-4	SOFT	LITTLE	11 TO 20
S	- SS - 3" SPLIT SPOON	DC - DRIVING CASING	11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SOME	21 TO 35
D	- D - DENISON	MD - MUD DRILLING	31-50	DENSE	9-15	STIFF	AND	36 TO 50
R	- RC - ROCK CORE	HA - HAND AUGER	OVER 50	VERY DENSE	16-30	VERY STIFF		
					OVER 30	HARD		

RKK NORTHEAST (DEFAULT) 15010-COOPER.GPJ RKK CURRENT.GDT 12/15/16

Boring No. CC-2

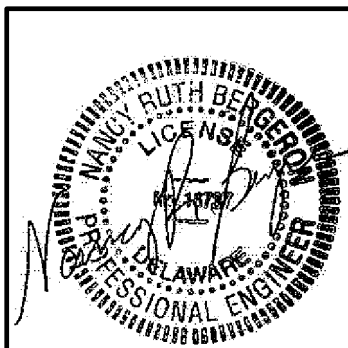
SCALE: 1"=1'-0"

1. HELICAL PILES SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION T-618500.
2. TWIST STRAPS TO BE 16-GAUGE, Z-MAX. GALVANIZED, INSTALLED WITH 14 HOT-DIP GALVANIZED 10d 1/2" NAILS PER MANUFACTURER'S RECOMMENDATIONS.
3. GAPS BETWEEN ADJACENT DECKING SECTIONS SHALL NOT EXCEED 1/2" AT ANY LOCATION.
4. UNLESS SHOWN OTHERWISE RESTORE AREA TO ORIGINAL GRADE. THE AREAS SHALL BE ALLOWED TO NATURALLY REVEGETATE. WETLANDS SHALL BE MINIMALLY DISTURBED BY USING SUPPORT MATS, LOW IMPACT EQUIPMENT, AND BY MINIMIZING VEHICULAR TRAFFIC AND ALLOWED TO NATURALLY REVEGETATE.
5. PIER CAPS AT EITHER END OF LANDING NO.2 SHALL CONSIST OF 4-2x10. STRINGERS MAY BE BUTTED OVER THESE PIERS AND NEED NOT EXTEND 3" BEYOND OUTSIDE FACE OF PIER CAP.
6. RAILING POSTS SHALL BE LOCATED APPROXIMATELY AT PIERS AND MIDSPAN. COORDINATE WITH BLOCKING. CONTRACTOR SHALL DETERMINE FINAL POST LAYOUT IN ACCORDANCE WITH THE SPACING REQUIREMENTS ON DWG. NO. S-7.




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

ADDENDUM NO. 1 - ATTACHMENT 4



DELAWARE BAYSHORE BYWAY COOPER-CROSS WILDLIFE VIEWING ENHANCEMENTS	DATE:	11/3/17	REVISION:	REVISED RAILING	BY:	RKK
BOARDWALK TYPICAL SECTION AND FRAMING						



DESIGNED BY: _____ RKK

DRAWN BY: _____ RKK

BUILDING NO.: _____ N/A

DATE: _____ AUGUST 28, 2017

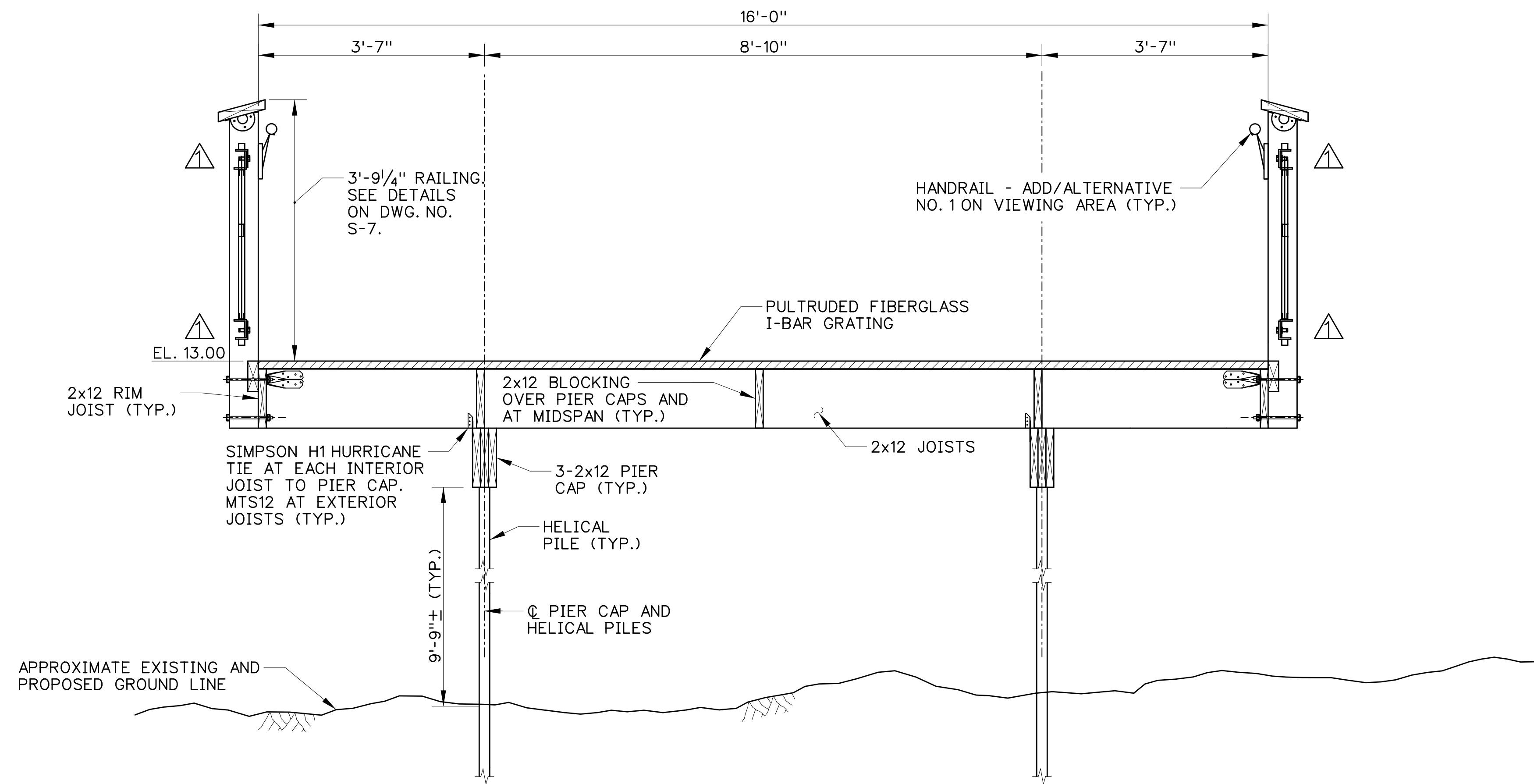
SCALE: _____ AS NOTED

SHEET NO.: **S-4**

DFW PROJECT #: _____ FW-1-15

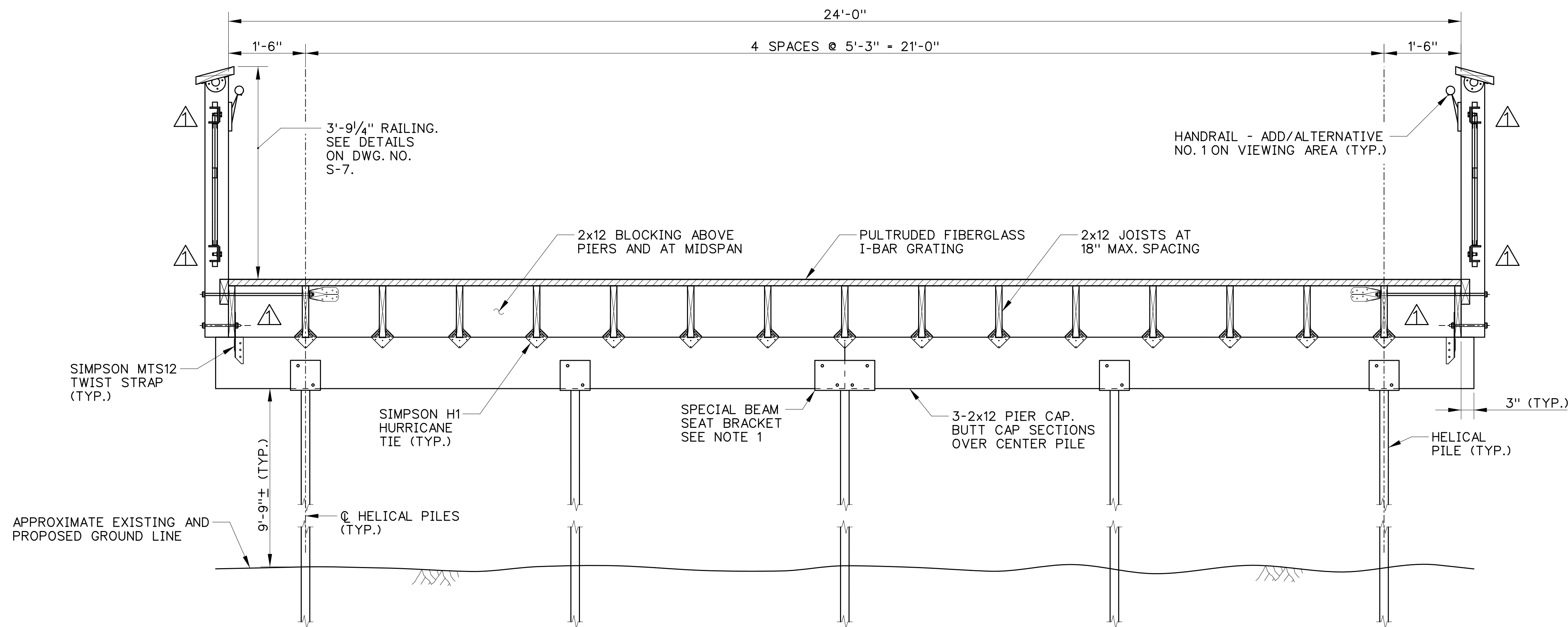
CONTRACT #: _____ FW-1-15

\\balerv05\\v2015\\2015\\15010_dnr\\FW\\Cooper Cross\\Cadd\\contract_number\\Plans\\St06_cc.dgn



SECTION A-A

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



SECTION B-B

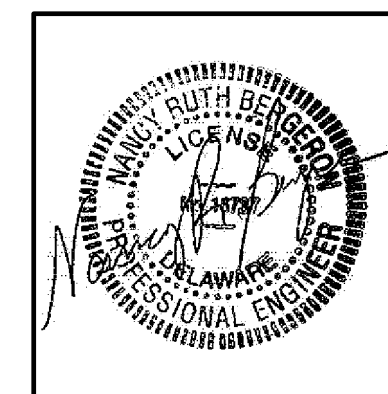
SCALE: 3/4"=1'-0"

ADD ALTERNATE NO. 1

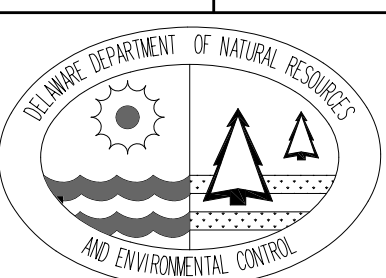
ADD ALTERNATE NO. 1 SHALL CONSIST OF FURNISHING AND INSTALLING HANDRAIL AROUND THE PERIMETER OF THE OBSERVATION PLATFORM. HANDRAIL SHALL MATCH THE HANDRAIL ON THE BOARDWALK.

NOTES:

1. BEAM SEAT BRACKET AT CENTER PILE SHALL PROVIDE A MINIMUM 7 INCHES OF BEARING LENGTH FOR EACH PIER CAP SECTION AND TWO THRU-BOLTS FOR EACH PIER CAP SECTION.
2. BATTERED PILES NOT SHOWN. SEE DRAWING NO. S-2 FOR THE PILE LAYOUT.



DELAWARE BAYSHORE BYWAY
COOPER-CROSS
WILDLIFE VIEWING ENHANCEMENTS
VIEWING AREA SECTIONS



DESIGNED BY:

RKK

DRAWN BY:

RKK

BUILDING NO.:

N/A

DATE:

AUGUST 28, 2017

SCALE:

AS NOTED

SHEET NO.:

S-6

DFW PROJECT #:

FW-1-15

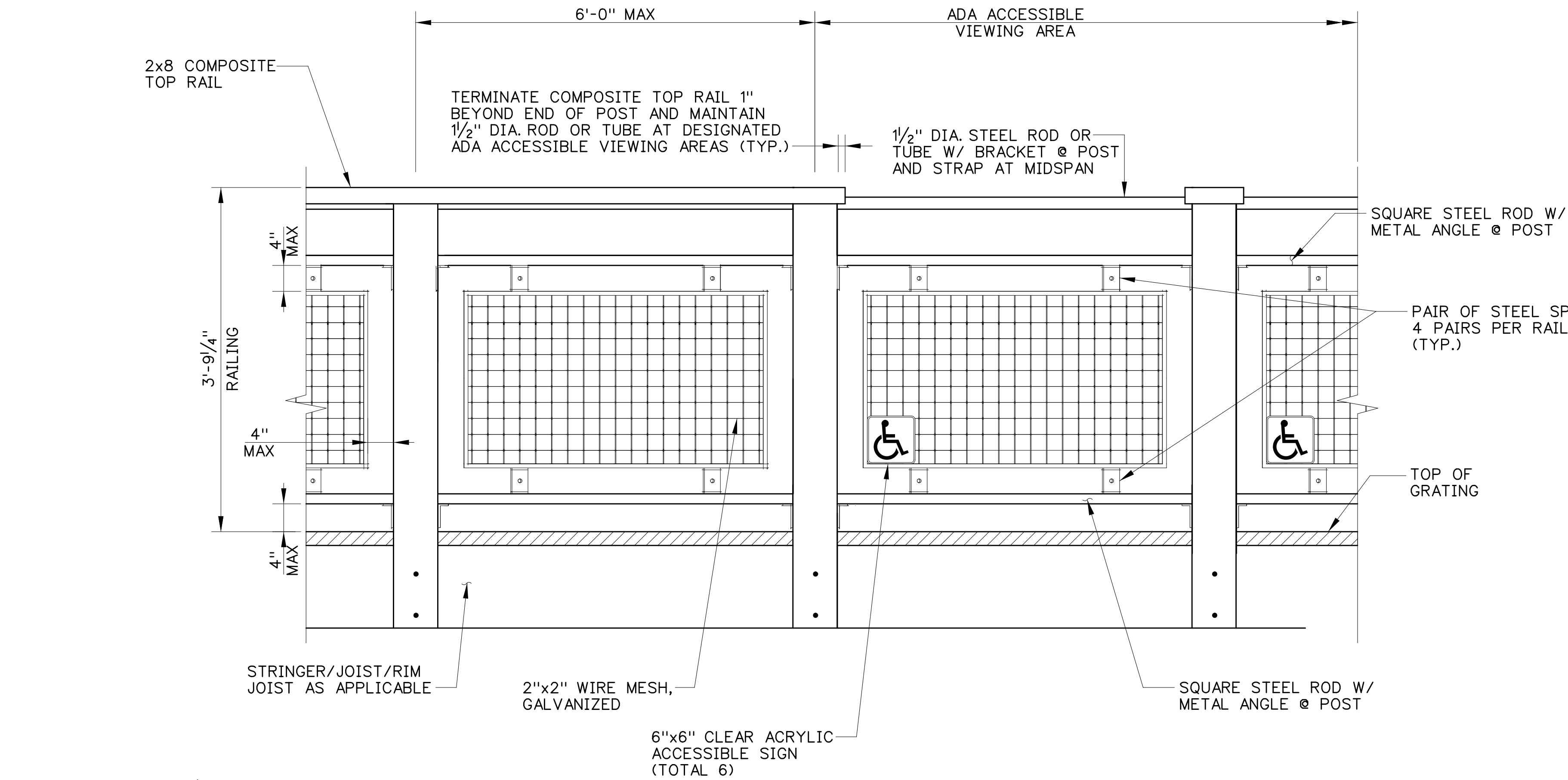
CONTRACT #:

FW-1-15

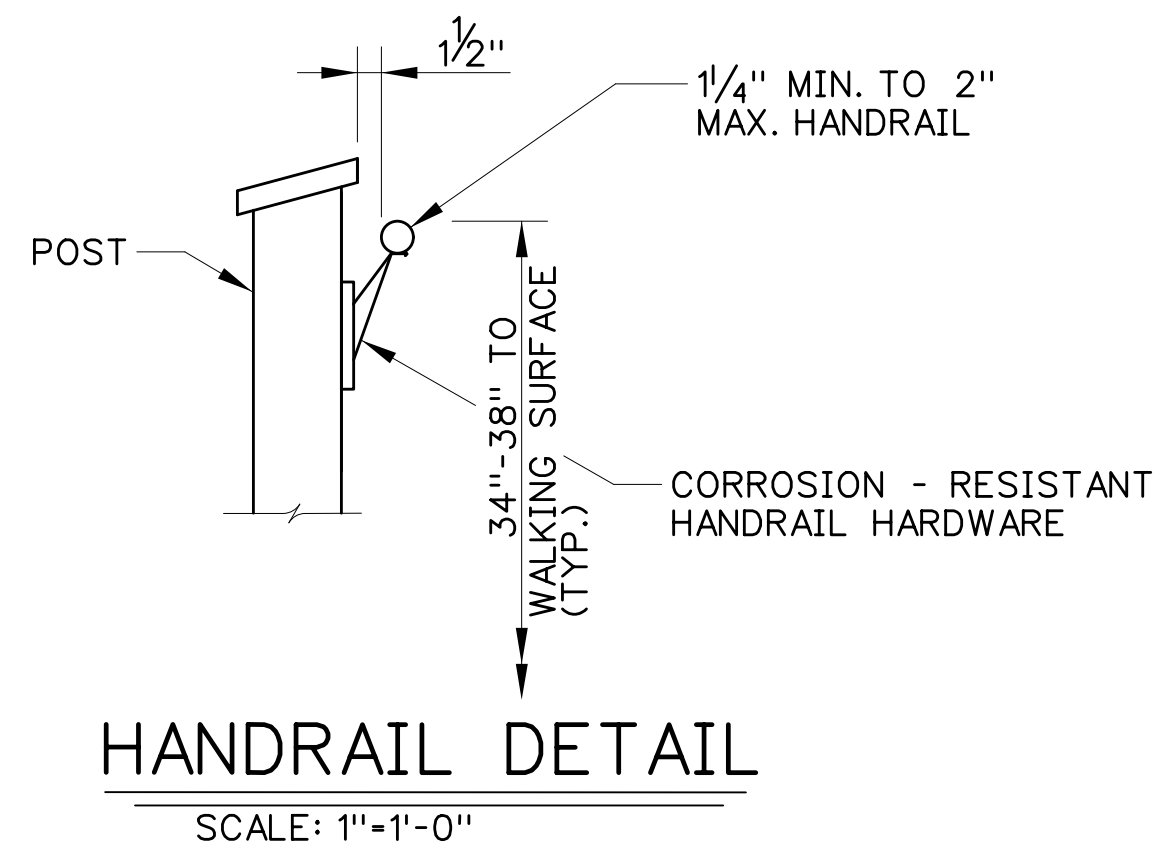
DATE: 11/3/17
DESCRIPTION: REVISED RAILING

BY: RKK

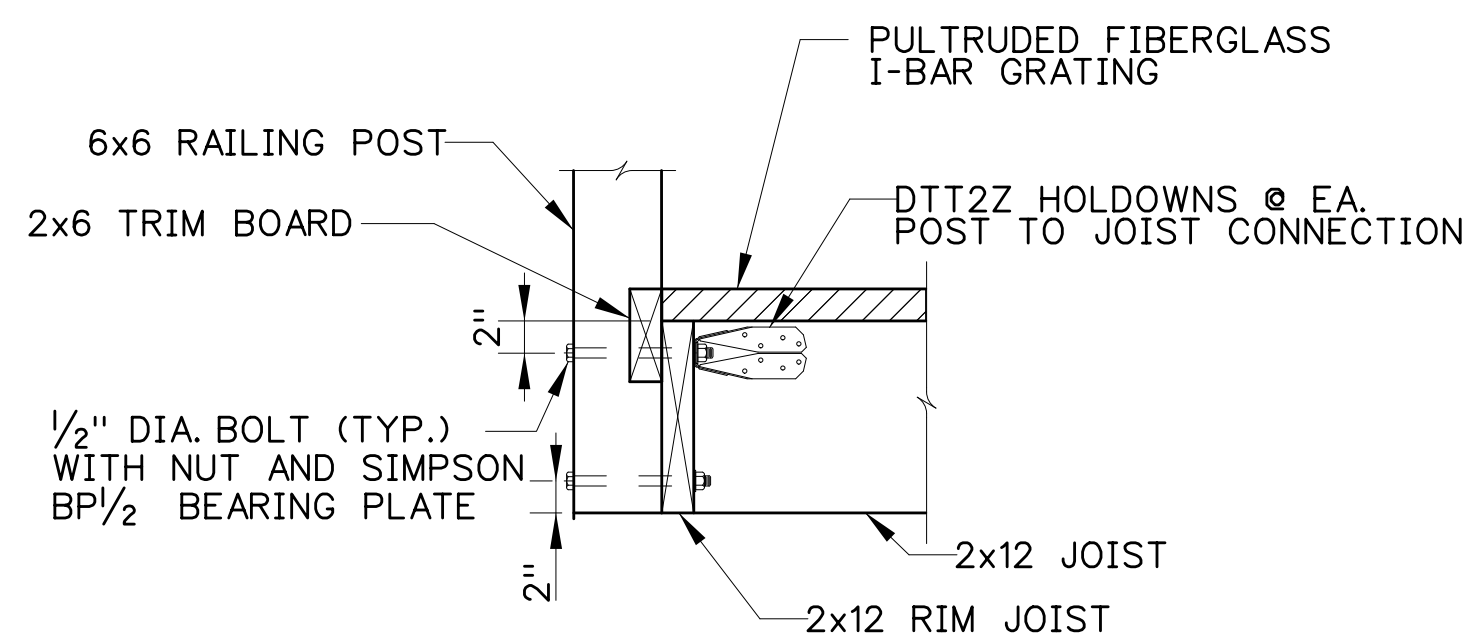
\\balrv05\\v2015\\2015\\15010_dnr\\contract_number\\Plans\\S107_cc.dgn



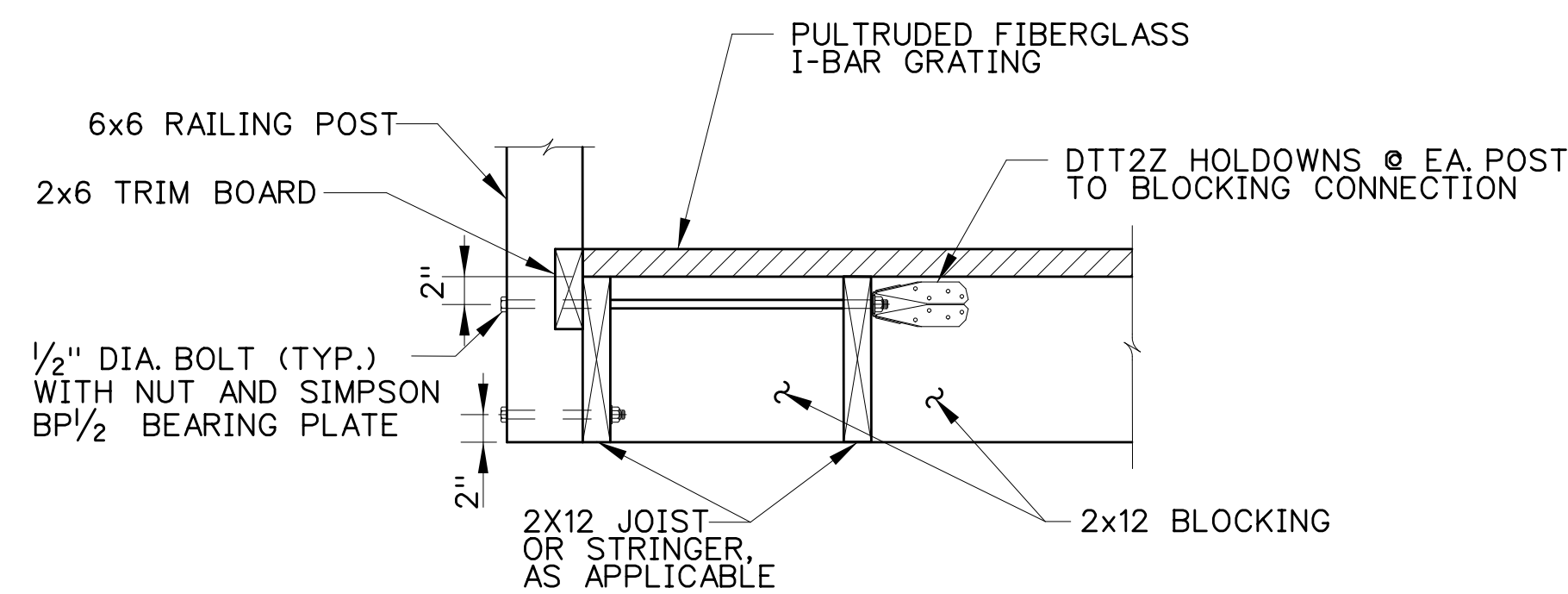
TYPICAL RAILING ELEVATION
(2x6 TRIM BOARD NOT SHOWN FOR CLAIRITY)
SCALE: 1"=1'-0"



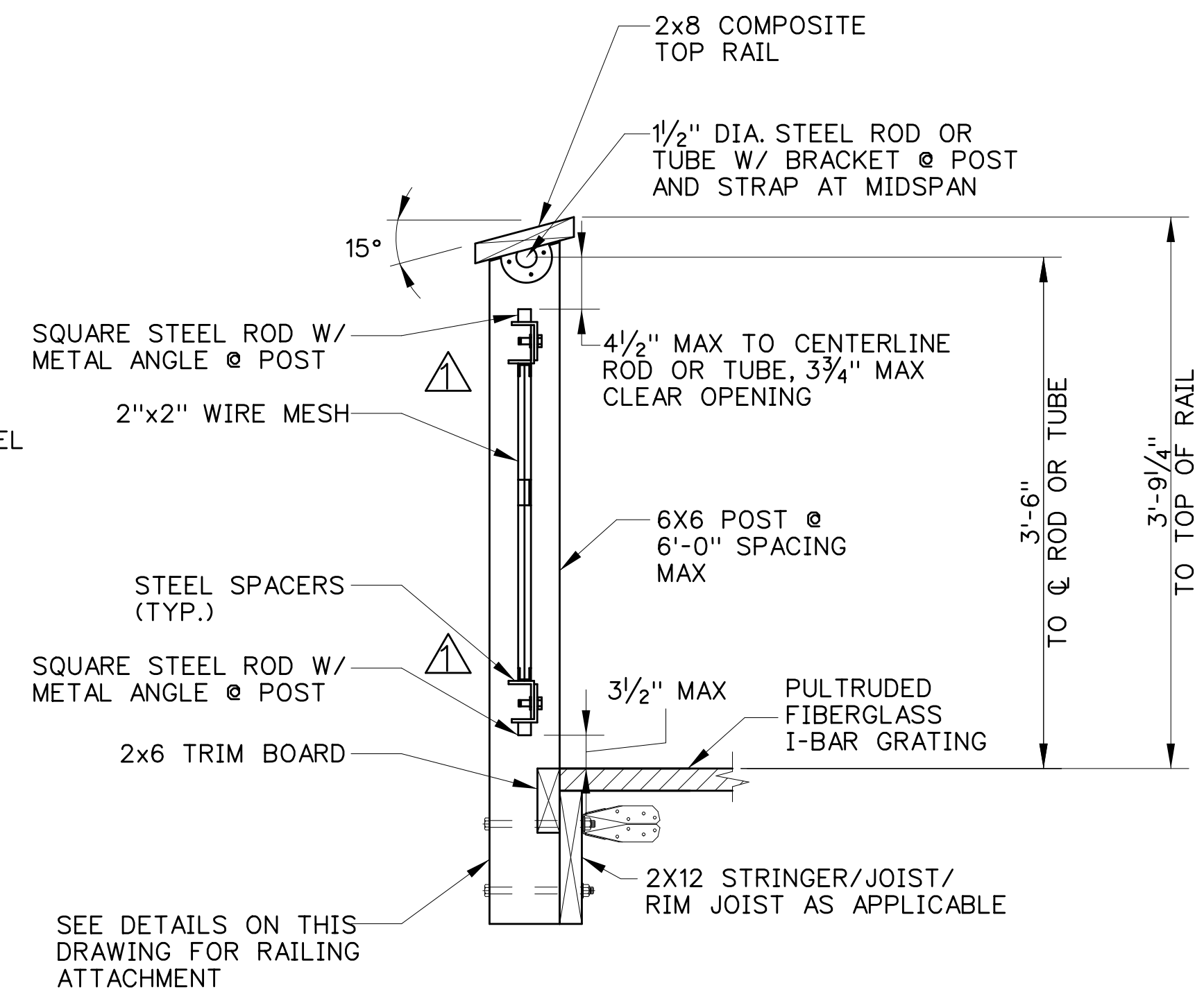
HANDRAIL DETAIL
SCALE: 1"=1'-0"



TYPICAL RAILING ATTACHMENT
TO RIM JOIST DETAIL
SCALE: 1"=1'-0"



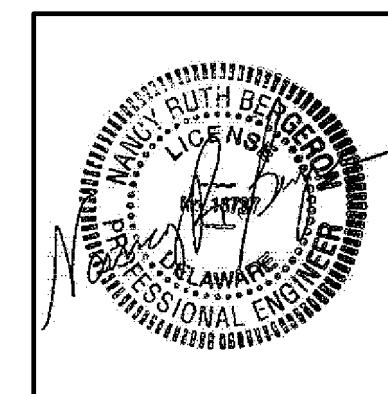
TYPICAL RAILING ATTACHMENT TO
EXTERIOR JOIST OR STRINGER DETAIL
SCALE: 1"=1'-0"



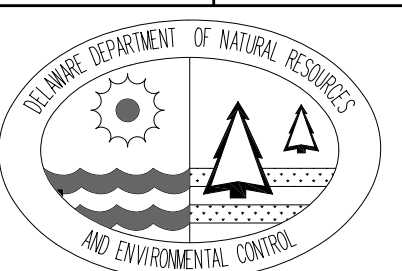
TYPICAL RAILING SECTION
SCALE: 1"=1'-0"

RAILING NOTES:

1. GENERAL CONTRACTOR TO VERIFY THAT THE RAILING SYSTEM MEETS APPLICABLE CODES AND THE DESIGN AND SHOP DRAWINGS SHALL BE CERTIFIED AS INDICATED IN THE PERFORMANCE SPECIFICATIONS. SEE SPECIAL PROVISIONS FOR RAILING DELEGATED DESIGN REQUIREMENTS.
2. SET RAILING POSTS PLUMB THROUGHOUT, INCLUDING RAMPED SECTIONS OF THE BOARDWALK WHERE THE WALKING SURFACE IS NOT LEVEL. FABRICATE INFILL PANELS AND POST CONNECTIONS TO ACCOMMODATE GRADE.
3. RAILING POST CONNECTION CONFIGURATIONS FOR WHICH A DETAIL HAS NOT BEEN PROVIDED SHALL BE SECURELY BRACED AND CONNECTED USING METHODS SIMILAR TO THOSE SHOWN HERE. CONNECTIONS SHALL INCLUDE BEARING PLATES TO PROVIDE A LARGE BEARING AREA UNDER THE BOLT HEADS AND TENSION HOLDDOWNS TO TRANSMIT PRYING FORCES INTO THE JOISTS/ BLOCKING THROUGH SHEAR IN THE FASTENERS. IN NO CASE SHALL RAILING POSTS BE CONNECTED ONLY TO THE RIM JOIST.
4. THE RAILING SHALL NOT ALLOW PASSAGE OF A 4" SPHERE AT ANY POINT.
5. HANDRAILS ARE REQUIRED FOR THE FULL LENGTH OF THE BOARDWALK AND SHALL RETURN TO THE RAILING AT EACH END. HANDRAILS ON THE VIEWING AREA ARE ADD/ALTERNATIVE NO. 1.
6. GALVANIZED STEEL BRACKETS SHALL BE PROVIDED AT POSTS TO RESTRICT LATERAL MOVEMENT OF THE 1/2" DIA. STEEL ROD OR TUBE. INTERMEDIATE STEEL STRAPS SHALL BE PROVIDED AT MIDSPAN OF THE STEEL ROD OR TUBE WHEREVER THE COMPOSITE TOP RAIL IS PRESENT. THE BRACKETS SHALL BE ATTACHED TO THE POSTS. THE COMPOSITE TOP RAIL SHALL BE ATTACHED TO THE BRACKETS AND INTERMEDIATE STRAPS.
7. CONTRACTOR TO PROVIDE STEEL STRAP CONNECTOR ON THE UNDERSIDE OF THE COMPOSITE TOP RAIL AT THE CORNERS OF THE WILDLIFE VIEWING AREA TO CONNECT THE MITER JOINT. BEND STRAP TO FIT COMPOUND MITER.
8. ALL STEEL COMPONENTS SHALL BE HOT DIP GALVANIZED.



DELAWARE BAYSHORE BYWAY
COOPER-CROSS
WILDLIFE VIEWING ENHANCEMENTS
RAILING DETAILS



DESIGNED BY:

RKK

DRAWN BY:

RKK

BUILDING NO.:

N/A

DATE:

AUGUST 28, 2017

SCALE:

AS NOTED

SHEET NO.:

S-7

DFW PROJECT #:

FW-1-15

CONTRACT #:

FW-1-15

DESCRIPTION:

11/3/17 REVISED RAILING

DATE:

BY:

RKK