July 28, 2020

Robin Bailey, Project Manager
Jeff Hagberg, Field Operations Manager
Southwest Florida Water Management District
2379 Broad Street (U.S. 41 South)
Brooksville, Florida 34604
Phone (352) 796-7211

Subject: Army Corp of Engineers Nationwide Permit 3 – Maintenance Application
TWA NO. 20TW0002868

Ms. Bailey and Mr. Hagberg, EXP is pleased to submit Task 4.4.3, Army Corp of Engineers (ACOE) Permit Application. Once the District has an opportunity to review, EXP is prepared to discuss the District's comments on the submittal at your earliest convenience. Upon District approval of the permit package please sign the approval for EXP to act as the authorized agent as well as the permit application.

Please feel free to contact me at (813) 310-3217 or via email at james.fine@exp.com.

Sincerely,
James Fine
Director of Environmental Services

400 North Tampa Street, Suiren1650, Tampa, FL 336028, USA
T: +1.813.310.3217• www.exp.com

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-0003
EXPIRES: 31 August 2012

Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This Information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME:
First - Brian Middle - S Last – Starford
Company – Southwest Florida Water Management District
E-mail Address – Robin.Bailey@swfwmd.state.fl.us

8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
First - James Middle - M Last – Fine
Company – EXP US Services
E-mail Address – James.fine@exp.com

6. APPLICANT'S ADDRESS.
Address - 2379 Broad St
City – Brooksville State – Florida Zip – 34604 Country – US

9. AGENT'S ADDRESS
Address - 400 North Tampa Street, Suite 1650
City – Tampa State – Florida Zip – 33602 Country – US

7. APPLICANT'S PHONE NOs. W/AREA CODE.
a. Residence b. Business c. Fax
(352) 796-7211 ext. 4252

10. AGENT'S PHONE NOs. W/AREA CODE
a. Residence b. Business c. Fax
(813) 310-3217

STATEMENT OF AUTHORIZATION

11. I hereby authorize, James Fine to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
SWFWMD Devil's Creek Timber Bridge Replacement

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Devil's Creek located in the Green Swamp Wildlife Management Area

14. PROJECT STREET ADDRESS (if applicable)
Address 2379 Broad Street (US 41 South)
City - Brooksville State – Florida Zip - 34604

15. LOCATION OF PROJECT
Latitude: °N 28 25 23.40
Longitude: °W 82 00 51.41

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID VW9-001 Folio:1075184 Municipality NA
Section – 15 Township – 24 Range – 23

17. DIRECTIONS TO THE SITE

Project is located in the Green Swamp Wildlife Management Area (WMA). Entrance is located on the east side of US 98 / Highway 471 Intersection. Go east on the Main Grade for 2.6 miles to the Levee Road intersection then go northeast on Levee Road for 2.4 miles to the intersection with Devils Creek Road then go east on Bull Barn Road approximately 0.7 miles to bridge location.

18. Nature of Activity (Description of project, include all features)

The replacement of an existing bridge with a structure of the same design having the maximum discharge rate capacity and control elevation of the structure to be replaced. Minor deviations in the structure's design may include changes in materials, construction techniques, and current construction codes or safety standards. Associated construction activities may include temporary channel shaping needed to accommodate the replacement and bank stabilization, including rip rap adjacent to the structure. Replacement will occur at the same site as the original structure. Any stream channel modification is limited to the minimum necessary for the replacement of the structure immediately adjacent to the project.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

Replacement in the same footprint of an existing timber bridge located across Devils Creek. This bridge is essential to the District for providing access across Devil's Creek for management of the land, law enforcement activities, wildfire response, and emergency search and rescue operations related to recreation and hunting activities

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

Or

Liner Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Project meets the requirements set forth in Nationwide Permit 3 - Maintenance

24. Is Any Portion of the Work Already Complete? Yes ☐ No ☑ IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Address – 2379 Broad Street (US 41 South)

City – Brooksville State – Florida Zip – 34604

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
FDEP	General Permit (GP)	0389529-001-EG	June 29, 2020	July 17, 2020	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

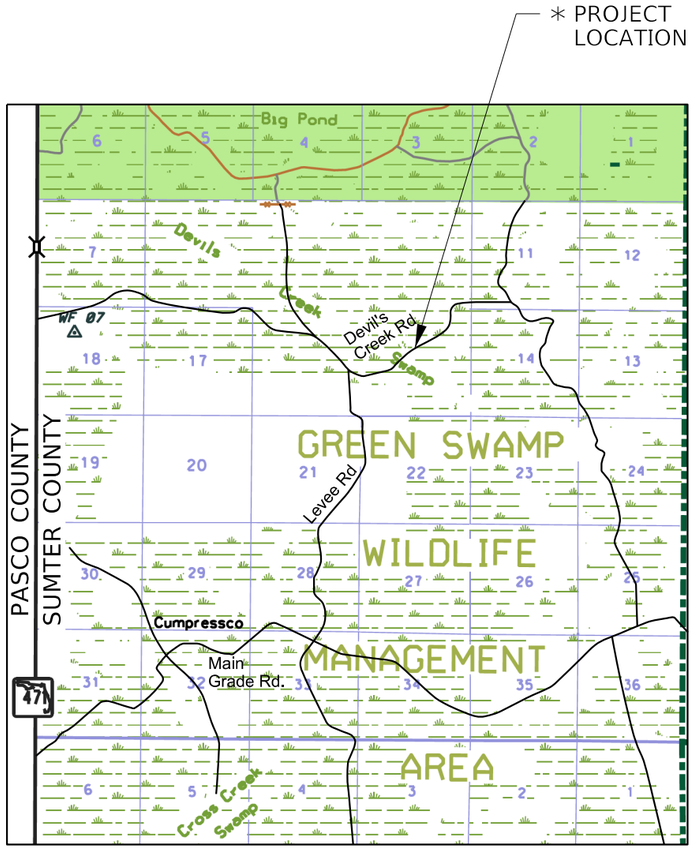
The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.


Staging Areas
Staging Area
Bull Barn Road
Gate
Devils Creek Bridge
Staging Areas
Three Run Road
Tanic Road will be the
Heavy Load use
3.3 Miles from Main Grade
to staging area
Levee Road will be the
light Load use
2.4 Miles to Devils Creek
Bridge Turn Off
Powerlines
Tanic Rd
Levee Rd
Main Grade Gate
Located 14 Miles from Hwy 50
Located 6.8 Miles from Hwy 98
Main Grade Road
2.6 Miles from Gate
to Levee Road
5.5 Miles from Gate
to Tanic Road
471
1.97 Miles from Gate to Stock Pile
Rock and Shell stock Pile

SWFWMD
DEVIL'S CREEK BRIDGE REPLACEMENT
80' TIMBER PILE SUPPORTED 15 TON BRIDGE

DRAWING INDEX



LOCATION MAP
NOT TO SCALE

* PROJECT IS LOCATED IN THE GREEN SWAMP WILDLIFE MANAGEMENT AREA (WMA).
ENTRANCE IS LOCATED ON THE EAST SIDE OF HIGHWAY 471, 6.7 MILES NORTH OF THE US 98 / HIGHWAY 471 INTERSECTION.

LIGHT LOAD USE ACCESS LOCATION:

GO EAST ON THE MAIN GRADE ROAD FOR 2.6 MILES TO THE LEVEE ROAD INTERSECTION.
GO NORTHEAST ON LEVEE ROAD FOR 2.4 MILES TO THE INTERSECTION WITH DEVIL'S CREEK ROAD.
GO EAST ON BULL BARN ROAD APPROXIMATELY 0.7 MILES TO BRIDGE LOCATION.

HEAVY LOAD USE ACCESS LOCATION:

GO EAST ON THE MAIN GRADE ROAD FOR 5.5 MILES TO THE TANIC ROAD INTERSECTION.
GO NORTH ON TANIC ROAD FOR 3.3 MILES TO THE INTERSECTION WITH BULL BARN ROAD.
GO WEST ON BULL BARN ROAD
APPROXIMATELY 0.7 MILES TO BRIDGE LOCATION.

JonesT
6/27/2020
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Southwest Florida Water Management District

NUMBER	DATE	DESCRIPTION
P-0		ISSUED FOR REVIEW

EXP U.S. Services Inc.
400 N. TAMPA STREET
SUITE 1650
TAMPA, FL 33602 USA
813-868-8943
COA AA26002448

www.exp.com

DEVIL'S CREEK
BRIDGE REPLACEMENT
TIMBER PILE SUPPORTED
15 TON BRIDGE

ENGINEER:
BYRON DANLEY, P.E.
REG. NO. 83585

PROJECT NUMBER

SHEET NUMBER
1 OF 7

SECTION 15, TOWNSHIP 24 SOUTH, RANGE 23 EAST

NOTE:

PLEASE REFER TO SWFWMD SURVEY, WORK ORDER 19-041, DATED 02/18/2019.
FOR ALL APPLICABLE SURVEY INFORMATION. FIELD BOOK, PAGE NUMBER: 10/139, 66-80.

LINE STYLE LEGEND

= Top Bank or Top of Berm
= Toe of Slope or Edge of Water
= Steel Cable

TREE LEGEND

(CT) = Citrus Tree
(MP) = Maple Tree
(OA) = Oak Tree
(PM) = Palm Tree

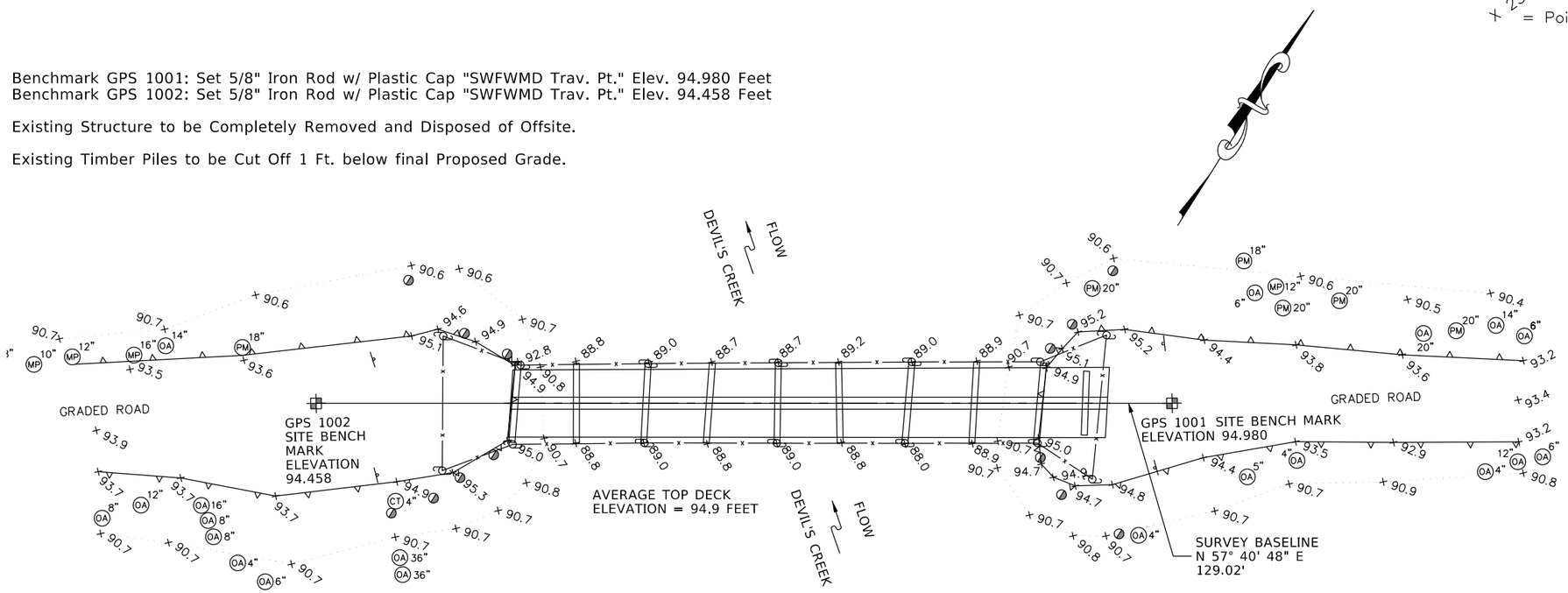
SYMBOLS LEGEND

= Bench Mark
= Sign
= Wood Post
= Steel Post
× 25.2 = Point of Elevation

Benchmark GPS 1001: Set 5/8" Iron Rod w/ Plastic Cap "SWFWMD Trav. Pt." Elev. 94.980 Feet
Benchmark GPS 1002: Set 5/8" Iron Rod w/ Plastic Cap "SWFWMD Trav. Pt." Elev. 94.458 Feet

Existing Structure to be Completely Removed and Disposed of Offsite.

Existing Timber Piles to be Cut Off 1 Ft. below final Proposed Grade.



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
PARCEL NUMBER 10-200-106

EXISTING CONDITIONS PLAN

0 10' 20' 40'

SCALE: 1" = 20'

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REG. NO. 83585

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SHEET NUMBER
2 OF 7

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SECTION 15, TOWNSHIP 24 SOUTH, RANGE 23 EAST

EROSION CONTROL PLAN NOTES:

1. CONTRACTOR SHALL SUBMIT EROSION CONTROL PLAN FOR APPROVAL BY THE ENGINEER OR DISTRICT REPRESENTATIVE PRIOR TO PLACEMENT.
2. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE SATISFACTION OF THE ENGINEER OR DISTRICT REPRESENTATIVE.
3. EROSION CONTROL MEASURES SHOWN ARE FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL INSTALL MEASURES SUITABLE TO THE CONDITIONS AT THE TIME OF CONSTRUCTION.
4. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES THROUGHOUT THE TERM OF THE CONTRACT UNTIL ACCEPTANCE.

LINE STYLE LEGEND

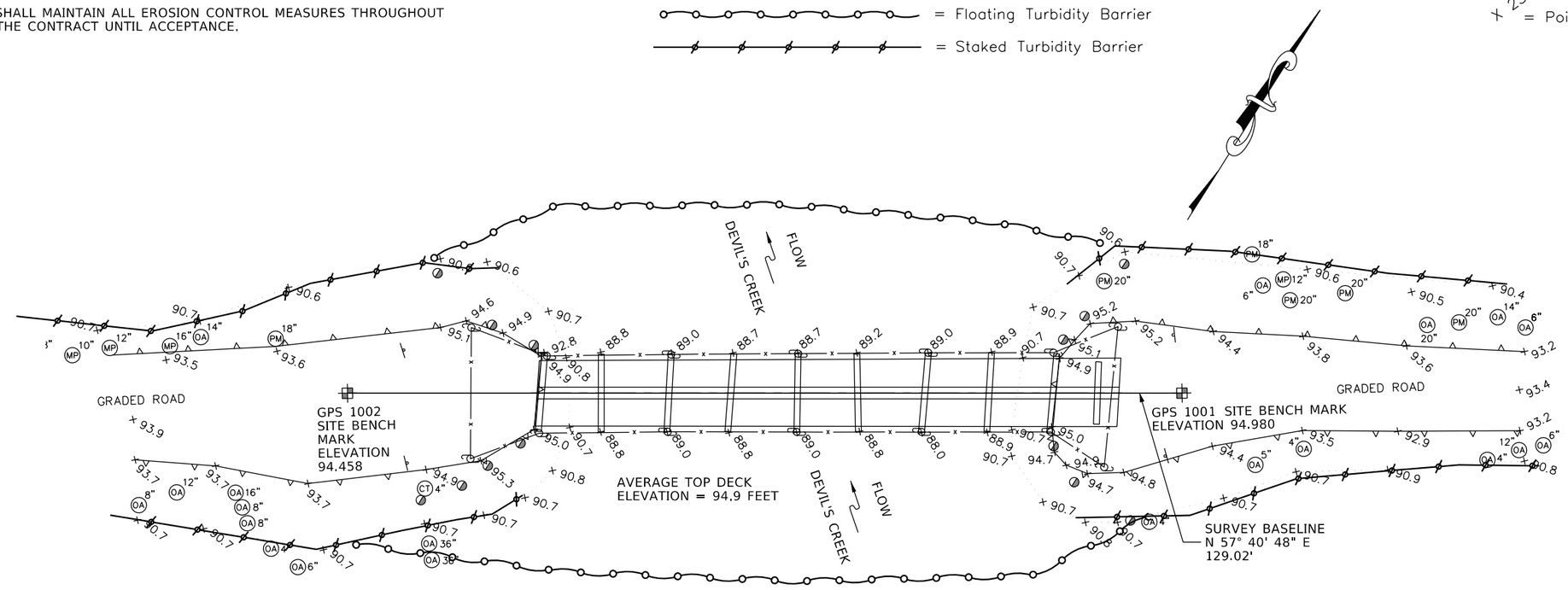
= Top Bank or Top of Berm
= Toe of Slope or Edge of Water
= Steel Cable
= Floating Turbidity Barrier
= Staked Turbidity Barrier

TREE LEGEND

CT = Citrus Tree
MP = Maple Tree
OA = Oak Tree
PM = Palm Tree

SYMBOLS LEGEND

= Bench Mark
= Sign
= Wood Post
= Steel Post
+ 25.2 = Point of Elevation



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
PARCEL NUMBER 10-200-106

EROSION CONTROL PLAN

0 10' 20' 40'

SCALE: 1" = 20'

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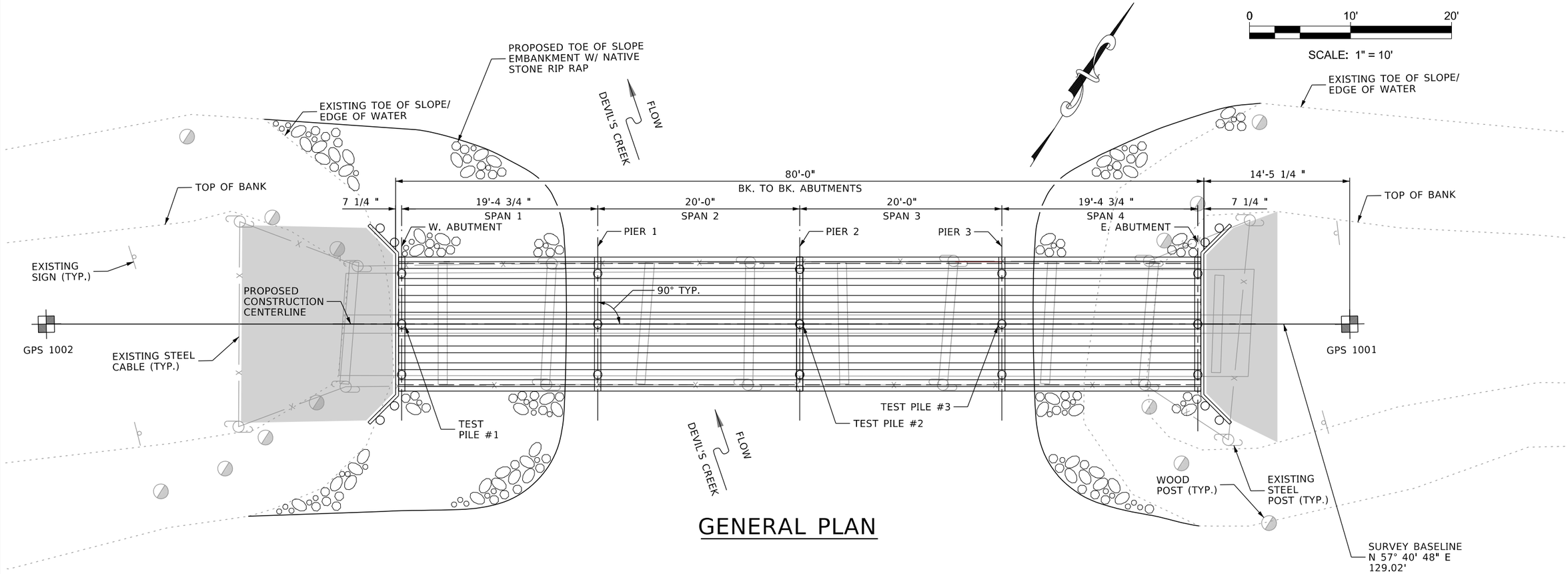
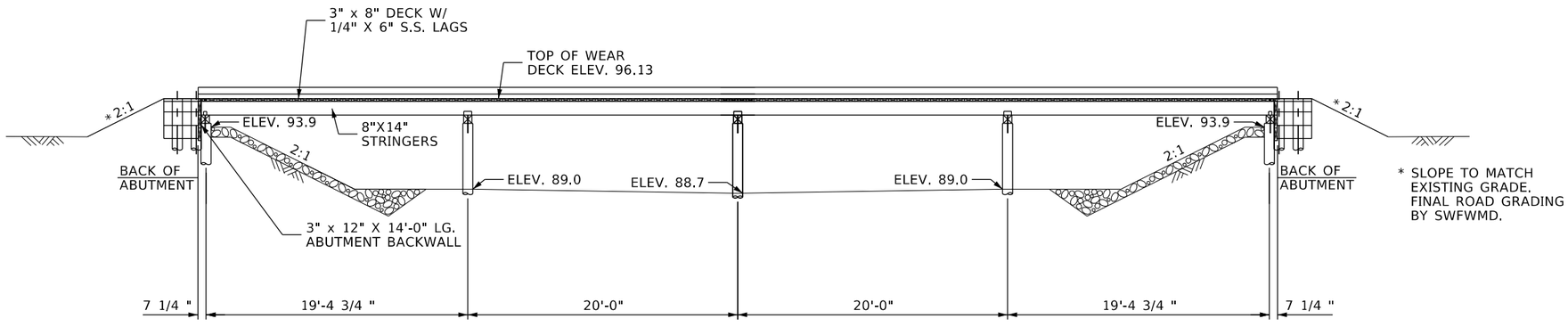
SHEET NUMBER
3 OF 7



GENERAL PLAN



ELEVATION

NOTES:

1. CONSTRUCT EMBANKMENT CONES PRIOR TO DRIVING PILES.
2. BACKFILL ABUTMENTS AND WINGWALLS TO ELEV. 96.0 AFTER STRINGERS ARE PLACED.
3. ARMOR CONES W/ NATIVE STONE RIPRAP, SEE SHEET 7.

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6/9/2020
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ENGINEER:
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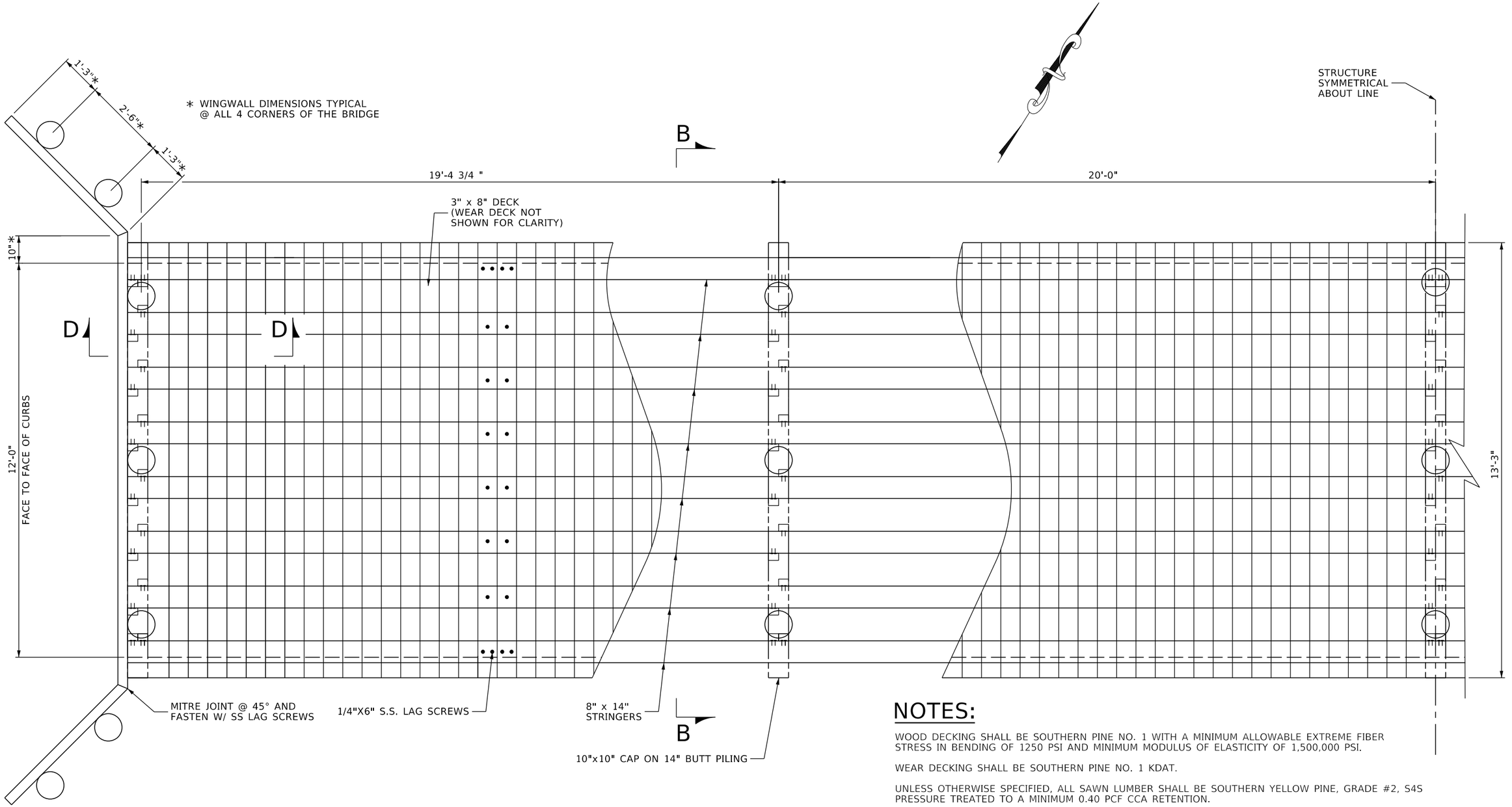
REG. NO. 83585

PROJECT NUMBER

SHEET NUMBER
4 OF 7



DECK PLAN

SEE DWG. NO. 006 FOR SECTION B-B
SEE DWG. NO. 007 FOR SECTION D-D

NOTES:

WOOD DECKING SHALL BE SOUTHERN PINE NO. 1 WITH A MINIMUM ALLOWABLE EXTREME FIBER STRESS IN BENDING OF 1250 PSI AND MINIMUM MODULUS OF ELASTICITY OF 1,500,000 PSI.

WEAR DECKING SHALL BE SOUTHERN PINE NO. 1 KDAT.

UNLESS OTHERWISE SPECIFIED, ALL SAWN LUMBER SHALL BE SOUTHERN YELLOW PINE, GRADE #2, S4S PRESSURE TREATED TO A MINIMUM 0.40 PCF CCA RETENTION.

UNLESS OTHERWISE SPECIFIED, TIMBER PILES SHALL BE SOUTHERN YELLOW PINE CONFORMING TO ASTM STANDARD D-25, PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD UC4C.

UNLESS OTHERWISE SPECIFIED, ALL BELOW DECK HARDWARE, INCLUDING ALL ASSOCIATED WASHERS AND NUTS SHALL BE HDG, ALL DECKING TO BE FASTENED WITH STAINLESS STEEL SCREWS.

LIVE LOAD: 15 TON VEH. (AASHTO H-15).

DESIGN COMPLIES WITH FLORIDA BUILDING CODE (2001) AND NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION (2018).

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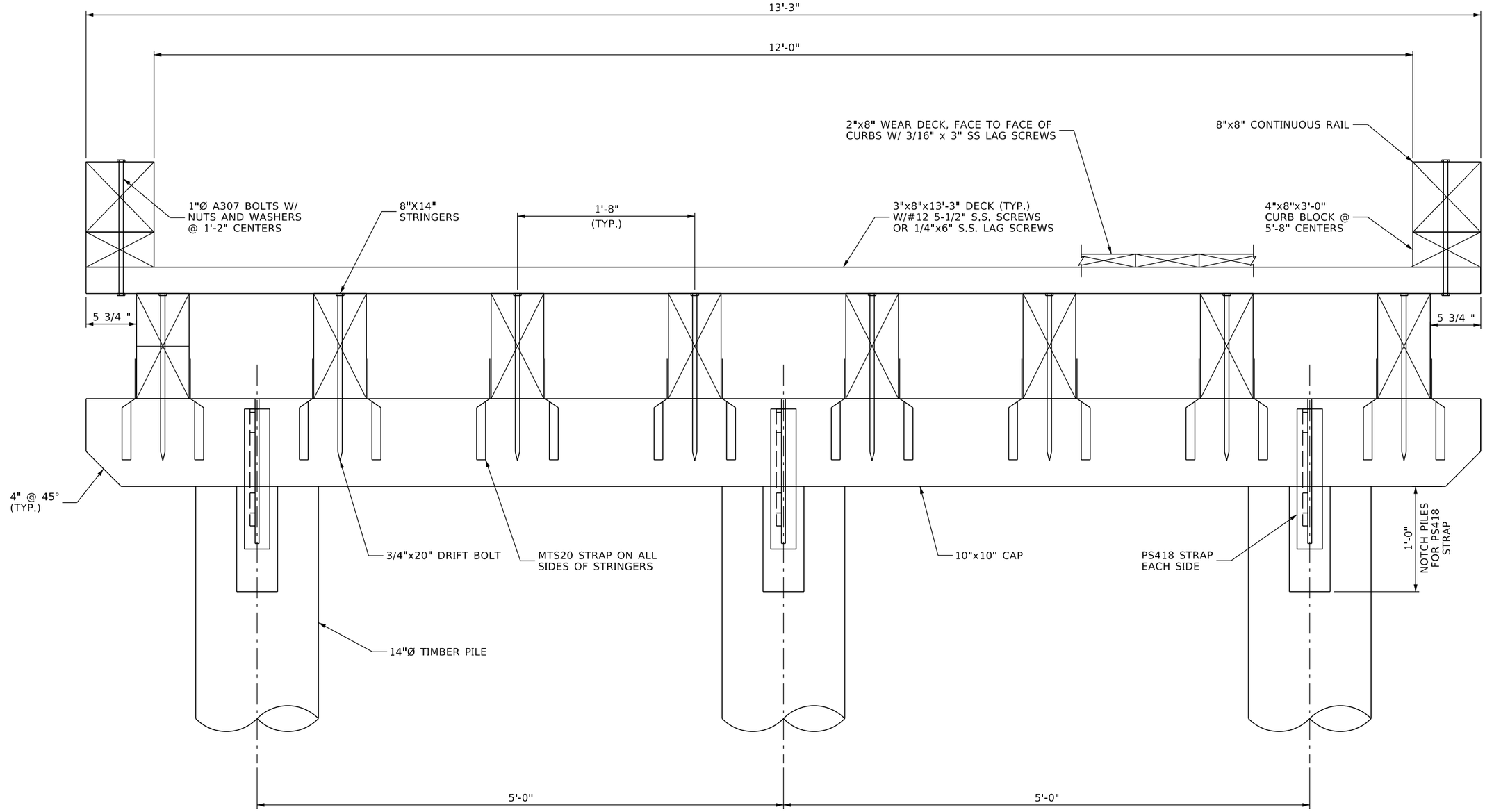

BRIDGE SECTION B-B

SEE DWG. NO. 005

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6/9/2020
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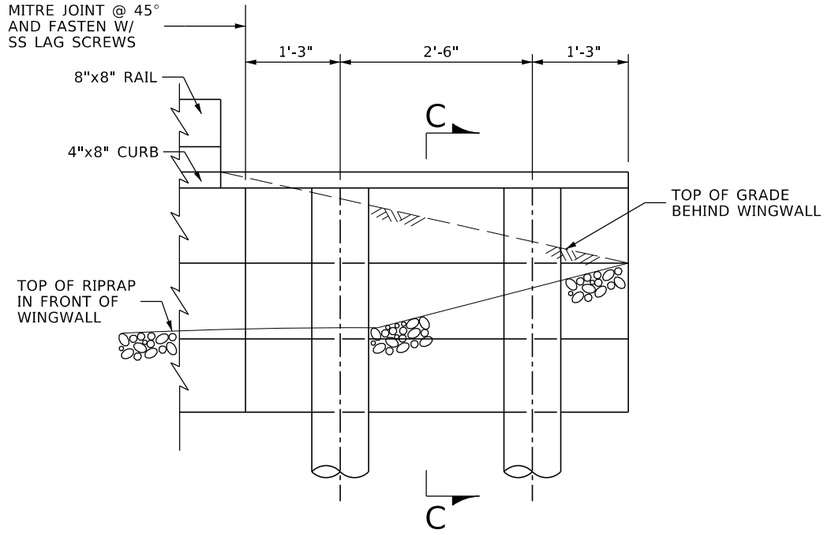
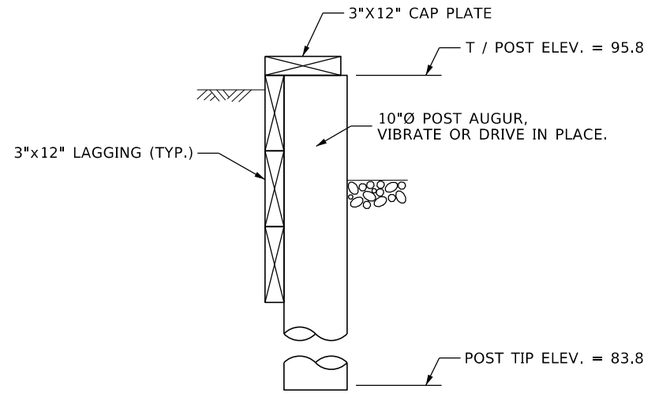


WINGWALL ELEVATION

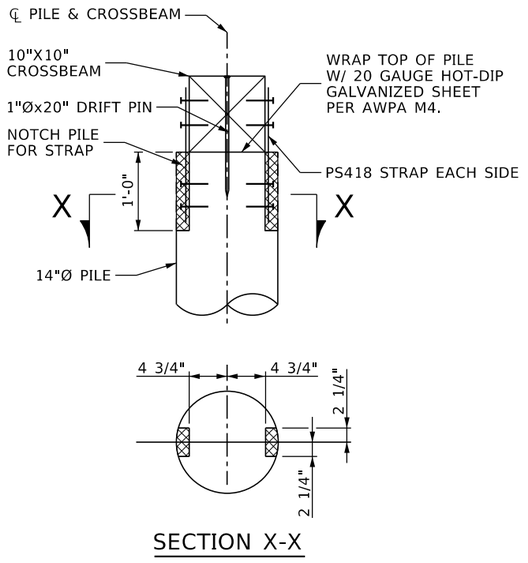


SECTION C-C
THRU WINGWALL

LOCATION	EXT. OR INT.	CAPACITY	* EST. LENGTH
PIER BENT	EXTERIOR PILE	11 T	20'
	INTERIOR PILE	19 T	30'
ABUTMENT BENT	EXTERIOR PILE	9 T	17'
	INTERIOR PILE	16 T	29'

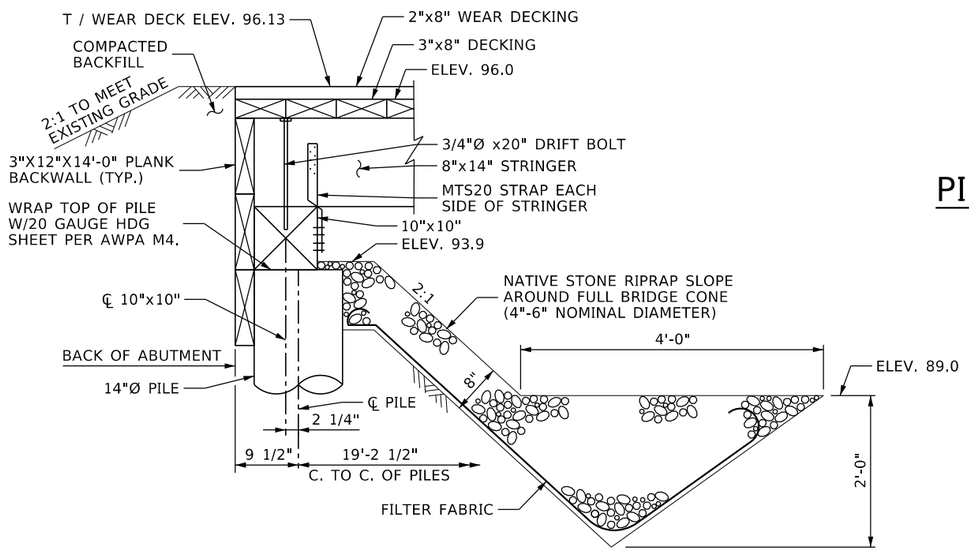
* ESTIMATED LENGTHS ARE FROM TIP TO FINAL CUTOFF ELEVATION. LENGTHS DO NOT INCLUDE ADDITIONAL 15 FT. REQUIRED FOR TEST PILE LOCATIONS.

PILE CAPACITIES AND ESTIMATED LENGTHS



SECTION X-X

PILE STRAP DETAIL



SECTION D-D
THRU ABUTMENT BENT
(SEE DWG. NO. 005)

MEMBER	AWPA TREATMENT CATEGORY
PILES AND POSTS	UC4C
10"x10" CROSSBEAMS	UC4A
8"x14" STRINGERS	UC3B
3"x8" DECKING	UC4A
3"x12" BACKWALL / WINGWALL	UC4C
4"x8" CURB BLOCK	UC3B
8"x8" CURB RAILING	UC3B

TIMBER TREATMENT CATEGORIES

Southwest Florida Water Management District

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TIMBER PILE SUPPORTED
15 TON BRIDGE

ENGINEER:
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REG. NO. 83585

PROJECT NUMBER

SHEET NUMBER
7 OF 7

TIMBER STRUCTURES REQUIREMENTS

All timber to be used as structural members, including untreated timber as well as timber to be treated shall be manufactured and graded in accordance with the current edition of the Standard Grading Rules for Southern Pine Timber, of the Southern Pine Inspection Bureau. The timber shall meet the requirements of No. 1 grade or as otherwise specified in the Plans.

For timber to be used for columns, sills, wheelguards, bulkhead, sheeting, bracing, fender wales, or any other purpose for which the grade is not specified otherwise, the specification grade shall be as follows:

Nominal Thickness	Nominal Width	Grade
1 to 1.5 inches	2 inches and wider	No. 1 Boards
2 to 4 inches	2 inches and wider	No. 1 Dimension
5 inches and larger	5 inches and larger	No. 2 Timbers

All dimension lumber shall be S4S (surfaced four sides) and shall have the appropriate grade stamp.

All decking shall be S4S No. 1 KDAT and better and shall have the appropriate grade stamp. Wood type shall be Southern Pine pressure treated with a minimum allowable fiber stress in bending of 1,200 psi and minimum Modulus of Elasticity of 1,600,000 psi.

See Section on TREATMENT REQUIREMENTS for all timbers identified as treated.

Handle treated timber with rope slings, without sudden dropping, breaking of outer fibers, bruising, or penetration of the surface with tools. Do not use cant dogs, hooks, or pike poles.

Before treatment, cut and frame all timbers which are shown by the Plans to be furnished in special lengths or framed to detailed dimensions. Limit the cutting of treated timber to minor fitting which might be necessary and that is authorized by the Engineer. For all places where the surface is broken, by cutting or otherwise, thoroughly coat with the preservatives and by the methods specified in AWPA M4.

The Contractor may drill holes in the field. For timbers originally treated with pentachlorophenol, creosote, creosote solutions, or waterborne preservatives, field treat all cuts, abrasions, bolt holes, and recesses that occur after treatment with two liberal applications of a compatible preservative in accordance with the requirements specified in AWPA Standard M4, Standard for the Care of Pressure-Treated Wood Products.

Ensure that pile caps have full even bearing on all piles in the bent, and secure them to each pile by a 3/4 inch diameter drift bolt extending at least 9 inches into the pile. Where so shown in the Plans, cover the tops and ends of pile caps with 10 ounce, minimum weight, copper sheet meeting the requirements of ASTM B370 or 20 gauge hot-dip galvanized steel per AWPA M4.

Attach the planks to each joist or nailing strip with at least two 8 inch nails or 6” lag screws for 3 inch planks. Use nails or screws that are at least 1/4 inch in diameter. Lay the planks with the best side up

and with adjacent edges in contact. Grade the planks as to thickness before laying, and lay the planks so that no two adjacent planks vary in thickness more than 1/8 inch.

Bore holes for bolts, dowels, rods and lag screws to the diameters shown in the following table:

Hole use	Hole diameter
Drift Bolts and Dowels	1/16 inch less in diameter than the bolt or dowel to be used
Machine Bolts	same diameter as the bolt
Rods	1/16 inch greater in diameter than the rod
Lag Screws	not larger than the body of the screw at the base of the thread

All hardware, including bolts, drift pins, dowels, rods, nuts, washers,
spikes, nails and all similar incidental metal items, necessary to complete the work in accordance with the details shown in the Plans shall be hot-dipped galvanized meeting ASTM A-153 requirements unless otherwise specified in the Plans.

Do not use aluminum in direct contact with treated wood.

Use bolts of the sizes shown in the Plans with square heads and nuts and with screw threads that make close fits in the nuts. Upon completion of the installation, check all nuts for tightness, and cut off protruding bolt ends so that not more than 1/4 inch extends beyond the nut.

Perform countersinking wherever the heads of screws or bolts would otherwise interfere with the assembly of the work. Fill recesses formed by countersinking with hot asphalt.

All screws fastening the decking to the stringers shall be recessed a minimum of 1/4” below the surface.

TIMBER PILING REQUIREMENTS

Piles shall be of timber which will stand the driving for which they are intended. They shall be sound and solid. Piling shall be cut from southern pine and contain at least 30% of summer wood.

All piles shall be treated as specified in the Section on TREATMENT REQUIREMENTS.

Piles shall be cut above the ground swell, shall have a form taper, and shall not vary more than plus or minus 6 inches from the specified length.

For piles up to 50 feet in length, the minimum tip diameter shall be 8 inches. For lengths in excess of 50 feet, a graduated reduction in tip diameter at the rate of 1 inch for each 10 feet of length in excess of 50 feet will be permitted. This reduction will correspond to 7 inch tips for 60 foot piles and 6 inch tips for 70 foot pile; at which length these allowable reductions shall cease. As an exception to the above, when so shown in the Plans, 7 inch diameter tips on timber piles less than 60 feet in length will be accepted. No

piles shall have tips less than 6 inches in diameter. The maximum diameter at the cut-offs shall be 20 inches.

A straight line drawn from the center of the butt to the center of the tip shall not, at any point, fall further away from the center of the pile than a distance equal to 1% of the length of the pile.

The surface of the pile shall not contain kinks greater than 1 inch in 5 feet, as measured by a straightedge.

The pile shall be peeled soon after cutting. In the operation of removing the bark from the pile, not more than three annual rings of the solid wood shall be removed. All knots shall be trimmed close to the body of the pile.

The diameter of sound knots shall not exceed one-third of the diameter of the pile at the point where the knot occurs. A sound knot shall be defined as a knot which is solid across its face, is as hard as the surrounding wood and shows no indication of decay. It may vary in color from red to black and may contain a pith hole not more than 1/4 inch in diameter. An unsound knot may or may not be as hard as the surrounding wood, but contains decay, and will be allowed only in accordance with the restrictions in ASTM D25.

Any defect, or combination of defects, which would be more injurious than the maximum allowable knot will not be acceptable.

Turpentine cuts will be allowed on all timber piles provided that no single cut shall exceed one-half of the circumference of the pile, and that the length of the cut shall not be more than 15% of the length of the pile. Piles to be used as outside piles in timber bents shall not have more than one turpentine cut.

TREATMENT REQUIREMENTS

All structural timber, timber piling, timber posts and other wood products identified as treated shall receive a method of treatment in accordance with AASHTO M 133, or American Wood Protection Association (AWPA) Use Category System (UCS) - U1, with the exceptions and additions as specified herein.

Above Ground or Ground Contact and Fresh Water Immersion Use: The treating of SYP lumber and timber for above ground or ground contact and fresh water immersion applications, shall be done with, Ammoniacal Copper Zinc Arsenate (ACZA), Copper Azole (CA), Micronized Copper Azole (MCA), Alkaline Copper Quat (ACQ), Micronized Copper Quat (MCQ), or CCA.

All timber and lumber items shall be treated in accordance with AWPA T1.

ACQ, CCA, CA, MCA and ACZA shall be in accordance with the appropriate AWPA P Standard. MCA shall be in accordance with the appropriate ICC Evaluation Service (ICC-ES) ESR Report.

All pilings shall be treated in accordance with AWPA U1.

All structural timber shall be treated in accordance with AWPA U1.

Retention shall be determined by assay performed and certified by the treating company in accordance with the applicable AWPA standards.

The penetration of the treatment shall be in accordance with AWPA T1.

In handling of piles that have been treated with chromated copper arsenate (CCA) or ammoniacal copper zinc arsenate (ACZA), cable slings shall be used. Mechanical grabbers or pointed tools shall not be permitted. Rough or careless handing shall be avoided at all times.

PILE DRIVING REQUIREMENTS

All pile driving equipment is subject to satisfactory field performance during and without dynamic testing. Hammers will be rated based on the theoretical energy of the ram at impact. Supply driving equipment which provides the required resistance at a blow count ranging from 3 blows per inch (36 blows per foot) to 10 blows per inch (120 blows per foot) at the end of initial drive, unless approved otherwise by the Engineer after satisfactory field trial. Ensure the hammer is capable of driving to a resistance equal to at least 2.0 times the factored design load shown in the Contract Documents, without overstressing the piling in compression or tension and without reaching or exceeding 20 blows per inch. When the Engineer determines the stroke height or bounce chamber pressure readings do not adequately determine the energy of the hammer, provide and maintain a device to measure the velocity of the ram at impact. Determine the actual hammer energy in the field so that it is consistent with the hammer energy used for each bearing capacity determination. When requested, submit to the Engineer all technical specifications and operating instructions related to hammer equipment.

Variable energy air/steam hammers shall be capable of providing at least two ram stroke lengths. The short ram stroke length shall be approximately half of the full stroke for hammers with strokes up to 4 feet and no more than 2 feet for hammers with maximum strokes lengths over 4 feet. Operate and maintain air/steam hammers within the manufacturer's specified ranges. Use a plant and equipment for steam and air hammers with sufficient capacity to maintain, under working conditions, the hammer, volume and pressure specified by the manufacturer. Equip the plant and equipment with accurate pressure gauges which are easily accessible to the Engineer. The Engineer will not accept final bearing on piles the Contractor drives with air/steam hammers unless the Contractor operates the hammers within 10% of the manufacturer's rated speed in blows per minute, unless otherwise authorized by the Engineer. Provide and maintain in working order for the Engineer's use an approved device to automatically determine and display the blows per minute of the hammer.

Variable energy diesel hammers shall have at least three fuel settings that will produce reduced strokes. Operate and maintain diesel hammers within the manufacturer's specified ranges. Determine the rated energy of diesel hammers using measured ram stroke length multiplied by the weight of the ram for open end hammers and by methods recommended by the manufacturer for closed end hammers. Provide and maintain in working order for the Engineer's use an approved device to automatically determine and display ram stroke for open-end diesel hammers. Equip closed-end (double acting) diesel hammers with a bounce chamber pressure gauge, in good working order, mounted near ground level so the Engineer can easily read it. Also, submit to the Engineer a chart, calibrated to actual hammer performance within 30 days prior to initial use, equating bounce chamber pressure to either equivalent energy or stroke for the closed-end diesel hammer to be used.

Variable energy hydraulic hammers shall have at least three hydraulic control settings that provide for predictable energy or equivalent ram stroke. Supply hammer instrumentation with electronic read out, and control unit that allows the Engineer to monitor, and the operator to read and adjust the hammer energy or equivalent ram stroke. When pressure measuring equipment is required to determine hammer energy, calibrate the pressure measuring equipment before use.

Provide a capblock (also called the hammer cushion) as recommended by the hammer manufacturer. Use commercially manufactured capblocks constructed of durable manmade materials with uniform known properties. Do not use wood chips, wood blocks, rope, or other material which permit excessive loss of hammer energy. Do not use capblocks constructed of asbestos materials. Obtain the Engineer's approval for all proposed capblock materials and proposed thickness for use. Maintain capblocks in good condition, and replace them when charred, melted, or otherwise significantly deteriorated. The Engineer will inspect the capblock before driving begins and weekly or at appropriate intervals determined by the Engineer based on field trial. Replace or repair any capblock which loses more than 25% of its original thickness, in accordance with the manufacturer's instructions, before permitting further driving.

Provide a pile cushion that is adequate to protect the pile from being overstressed in compression and tension during driving. Use a pile cushion sized so that it will fully fill the lateral dimensions of the pile helmet minus one inch but does not cover any void or hole extending through the top of the pile. Determine the thickness based upon the hammer-pile-soil system. Obtain the Engineer's approval for all pile cushions. Do not use materials previously soaked, saturated or treated with oil. Maintain pile cushions in good condition and replace them when charred, splintered, excessively compressed, or otherwise deteriorated to the point it will not protect the pile against overstressing in tension or compression. Protect cushions from the weather and keep them dry. Do not soak the cushions in any liquid.

Replace the pile cushion when the cushion is either compressed more than one-half the original thickness, begins to burn, or as directed by the Engineer after field performance. Reuse pile cushions in good condition to perform all set-checks and redrives. Use the same cushion to perform the set-check or redrive as was used during the initial driving, unless this cushion is unacceptable due to deterioration, in which case use a similar cushion.

Provide a pile helmet suitable for the type and size of piling being driven. Use a pile helmet deep enough to adequately contain the required thickness of pile cushion and to assist in maintaining pile-hammer alignment. Use a pile helmet that fits loosely over the pile head and is at least 1 inch larger than the pile dimensions. Use a pile helmet designed so that it will not restrain the pile from rotating.

Provide pile leads constructed in a manner which offers freedom of movement to the hammer and that have the strength and rigidity to hold the hammer and pile in the correct position and alignment during driving. When using followers, use leads that are long enough and suitable to maintain position and alignment of the hammer, follower, and pile throughout driving.

Provide a fixed template, adequate to maintain the pile in proper position and alignment during driving with swinging leads or with semi-fixed leads. Where practical, place the template so that the pile can be driven to cut-off elevation before removing the template. Ensure that templates do not restrict the vertical movement of the pile.

Supply a stable reference close to the pile, which is satisfactory in the opinion of the Engineer, for determination of the pile penetration. At the time of driving piles, furnish the Engineer with elevations of the original ground and template at each pile or pile group location. Note the highest and lowest elevation at each required location and the ground elevation at all piles.

Do not drive piles beyond practical refusal.

Drive piles to provide the bearing required for carrying the loads shown in the Plans. For all types of bearing piles, consider the driving resistance as determined by the methods described herein sufficient for carrying the specified loads as the minimum bearing which is accepted. Determine pile bearing using the method described herein.

The Engineer may accept a driven pile when the blow count is generally the same or increasing and the minimum required bearing capacity obtained for 24 inches of consecutive driving. At the discretion of the Engineer, the driven pile may be accepted when driving has reached practical refusal in firm material.

The Engineer will determine the number of blows required to provide the required bearing according to the methods described herein. Determine the pile bearing by computing the penetration per blow with less than 1/4 inches rebound averaged through 12 inches of penetration. When it is considered necessary by the Engineer, determine the average penetration per blow by averaging the penetration per blow through the last 10 to 20 blows of the hammer.

Practical refusal is defined as 20 blows per inch or less than one inch penetration, with the hammer operating at the highest setting determined by the Engineer and less than 1/4 inches rebound per blow. Stop driving as soon as the Engineer determines that the pile has reached practical refusal.

In the event that the Contractor has driven the pile to approximately 12 inches above cut-off without reaching the required resistance, the Engineer may require the Contractor to interrupt driving to perform a set-check. Provide an engineer's level or other suitable equipment for elevation determinations to determine accurate pile penetration during the set-checks. In the event the results of the initial set-checks are not satisfactory, the Engineer may direct additional set-checks. The Engineer may accept the pile as driven when a set-check shows that the Contractor has achieved the minimum required pile bearing and has met all other requirements of this Specification.

Drive the piles in a sequence to minimize the effects of heave and lateral displacement of the ground. Monitor piles previously driven for possible heave during the driving of the remaining piles. When required by the Engineer, take elevation measurements to determine the magnitude of the movement of piles and the ground surface resulting from the driving process. Redrive all piles that have heaved 1/4 inches or more unless the Engineer determines that the heave is not detrimental to pile capacity.

In the case that the Engineer determines that the safe bearing capacity of any pile is less than the required bearing capacity, the Contractor shall extract the pile and drive a pile of greater length.

Use Wave Equation Analysis for Piles (WEAP) programs to evaluate the suitability of the proposed driving system (including the hammer, follower, capblock and pile cushions) as well as to estimate the driving resistance, in blows per 12 inches or blows per inch, to achieve the pile bearing requirements and to evaluate pile driving stresses. Use Wave Equation Analyses to show the hammer meets the

requirements described above and maximum allowed pile stresses are not exceeded. Ensure the maximum pile compression and tensile stresses measured during driving are no greater than 3.6 ksi.

All test piles shall have the same cross-section and type as the permanent piles shown in the Plans, in order to determine any or all of the following:

1. installation criteria for the piles.
2. nature of the soil.
3. lengths of permanent piles required for the work.
4. driving resistance characteristics of the various soil strata.
5. amount of work necessary to obtain minimum required pile penetration.
6. ability of the driving system to do the work.

Because test piles are exploratory in nature, drive them harder (within the limits of practical refusal), deeper, and to a greater bearing resistance than required for the permanent piling. Drive test piles their full length or to practical refusal. As a minimum, unless otherwise directed by the Engineer, do not cease driving of test piles until obtaining the required bearing capacity continuously, where the blow count is increasing, for 10 feet unless reaching practical refusal first. Drive all test piles in the position of permanent piles at the designated locations. Use the same hammer and equipment for driving test piles as for driving the permanent piles. Also use the same equipment to redrive piles.

Provide the length of test piles shown in the Plans. The production pile lengths are based on information available during design and are approximate. The Contractor will determine final pile lengths in the field which may vary significantly from the lengths or quantities shown in the Plans.

Ensure that the final position of the pile head at cut-off elevation is no more than 3 inches, or 1/6 of the diameter of the pile, whichever is less, laterally in the X or Y coordinate from the Plan position indicated in the Plans.

Contractor shall collect unused cut-off lengths remaining, and properly dispose of them off-site.

ANCILLARY CONSTRUCTION SPECIFICATIONS

Furnish, install, maintain, and remove silt fences, in accordance with the manufacturer's directions, these Specifications, the details as shown in the Plans. Use a geotextile fabric made from woven or nonwoven fabric, meeting typical industry and DISTRICT standards according to those applications for erosion control.

Install, maintain, and remove turbidity barriers to contain turbidity that may occur as the result of dredging, filling, or other construction activities which may cause turbidity to occur in the waters of the State. The Engineer will identify such areas. Place the barriers prior to the commencement of any work that could impact the area of concern. Install the barriers in accordance with the details shown in the Plans or as approved by the Engineer. Ensure that the type barrier used, and the deployment and maintenance of the barrier will minimize dispersion of turbid waters from the construction site meeting DISTRICT requirements.

Excavation consists of the excavation and the utilization or disposal of all materials necessary for the construction shown on the plans within the project limits.

All embankment shall be suitable for roadway construction and uniformly compacted by layer, using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment meeting the satisfaction of the Engineer or DISTRICT Representative.

To restore disturbed areas, install performance turf using seed, hydroseed, bonded fiber matrix, or sod in all other areas. Maintain turf areas until final acceptance of all contract work.

Contractor shall maintain the access road in a condition sufficient to allow vehicular traffic during construction. The DISTRICT will supplement this requirement with materials (I.e. shell/aggregate) during construction. The contractor shall provide any temporary slope grading necessary for its construction needs to complete the bridge.

The DISTRICT will be responsible for any road restoration after construction along routes to access the Devils Creek bridge work site. Contractor may use the Levee Road route for work access using light trucks and Tanic Road for heavy load use if desired during the construction period. Both options will be discussed with potential bidders at mandatory pre-bid meeting.

Bid Amounts

Item	*Designation*	*Unit of Measure*	*Quantity*	*Price*
Silt Fence	**Staked**	Linear Feet		$
Turbidity Barrier	**Floating and/or Staked**	Linear Feet		$
Excavation	**All Forms**	Lump Sum		$
Embankment	**Roadway**	Cubic Yards		$
Performance Turf		Square Yards		$

COST SAVINGS INITIATIVES

Bid documents will provide language that will allow the selected contractor to offer the DISTRICT an alternate design or construction options through the Cost Savings Initiative process. This process would include the Contractor providing engineering signed and sealed plans for it proposed alternative.