



Forsyth County Procurement

Donna H. Kukarola, CPPO, CPPB, Director

August 9, 2021

ADDENDUM #1

Bid 21-109-5211

For: **Providing all materials, equipment, and labor for the rehabilitation, restoration, and renewal of the Big Creek Greenway, Phase 2, from Union Hill Road to Fowler Park, approximately 0.859 miles. We are requesting 3 alternates in construction, timber deck, FRP Deck and concrete deck – it will be at the discretion of the County which solution is chosen.**

This addendum supersedes and supplements all portions of the bidding documents and becomes part of the contract documents for the above-referenced project.

Where any item called for in the specifications or indicated on the drawings is supplemented hereby, the original requirements shall remain in effect.

Where any original item is amended, voided or superseded hereby, the provision of such item not so specifically amended, voided or superseded shall remain in effect.

Response to questions received: *(response in italics)*

1. It appears that the plans do not show where the elevation changes occur and what substructure configurations are required along the pathway. Can you please clarify? *As noted on the plans, the proposed boardwalk plan and profile shall be replaced on the existing alignment and profile unless noted otherwise. No locations on this segment (Segment 2) are proposed to be modified from the existing alignment or elevation of what was originally constructed in the field. Typical boardwalk structure details provided on the 35-series plan sheets provide sufficient information to layout the proposed trail. We anticipate the typical trail layout will be 12' spans modified as required for curves and adhering to all plan requirements.*
2. What is the completion time and liquidated damages? *Contractor is to provide the schedule on Page 3 on the Bid Documents. Liquidated Damages are listed on page 49 (in sample contract).*

Clarifications to Bid Documents:

1. Attached is Revised Standard Construction Scope Exhibit to be used.
2. Attached are Revised Final Plans to be used, revisions have been clouded.
3. Attached is Revised Bid Schedule to be used in submitting your bid.

End of Addendum #1



Forsyth County Department of Public Facilities Capital Projects

STANDARD CONSTRUCTION SCOPE EXHIBIT ADDED NUM #1

A. GENERAL

- 1.) "Provide" shall mean furnished and installed complete.
- 2.) "Contractor" includes the General Contractor and all sub-contractors that fall under General Contractor's executed agreement with Owner/General Contractor.
- 3.) Contractor shall provide all supervision, labor, equipment, tools, supplies and materials to provide the complete project scope of work.
- 4.) By entering into contract with the Owner Contractor confirms that he is an expert in this field of work and is fully knowledgeable and experienced in all aspects of procedures, methods, regulations, codes and municipal requirements and Contractor further acknowledges that the Owner is relying on this expertise.
- 5.) Contractor shall provide all work in accordance with the Latest edition of the International Building Code (IBC) recognized by the State of Georgia.
- 6.) Contractor shall perform all work in accordance with the most current version of the regulation of the Federal Occupational Safety and Health Act (OSHA).
- 7.) All quantities shown on the plans are for accounting and/or permitting purposes only and are not to be used for bid pricing, unless noted specifically on the bid form as authored by the owner. Contractor shall determine its bid price based on the information which is inferable within the complete bid documents.
- 8.) Architect's and/or Engineers schedules contained within construction plans or specifications are a theoretical, schematic, order of magnitude estimate which do not reflect the actual start project dates and shall not to be used by the contractor for quantifying costs associated with its construction schedule. The contractor is responsible to determine its construction schedule unless the bid documents specifically require a maximum construction schedule duration.
- 9.) Contractor shall Provide own scaffold, lifts, and/or ladders and all other equipment, plant, tools, shoring required to complete this project.
- 10.) All special inspections required by the project specifications shall be scheduled by the contractor with the owners third party inspection firm. Completion of any work without the required inspections shall be cause for the contractor to remove the uninspected work to the satisfaction of the owner, engineer, inspector and replace of the work in accordance with the specification as and inspectors requirements, at the sole cost of the contractor.
- 11.) All goods and materials to be furnished and installed consistent with the manufacture's recommendations.
- 12.) In absence of specifications the most applicable State of Georgia standard specification shall apply as determined by the owner or EOR.
- 13.) Contractor is responsible for daily cleanup of the work area including removal and proper disposal of trash and debris to the satisfaction of the owner and/or architect, including but not limited to a minimum of 1 full man-day of clean-up per week of the construction schedule.

B. SITE WORK

- 1.) The General Contractor shall be solely responsible for obtaining the NPDES Construction Storm Water General Permit as the Primary Permittee; inclusive of Notice of Intent (NOI), Notice of Termination (NOT) all fees, inspections, records, data, corrections, fines or any other requirements enumerated within the NPDES Construction Storm Water General Permit, as applies to this project.
- 2.) Contractor shall provide a qualified third party NPDES inspection firm for all post rain fall water quality inspections, sampling and lab testing; weekly inspection reports; upload of all required reports and test data to the GEOS web site; and distribute reports directly to the Owner and Engineer.
- 3.) Contractor shall provide a rain meter and maintain a daily log of precipitation at the site, perform daily BMP inspections to continuously maintain and provide repairs of the BMPs required by the erosion control plans.

- 4.) Manage all site work and stormwater drainage in a manner consistent with the erosion control plans.
- 5.) Contractor agrees that it may expect to lose work-days due to inclement weather as follows:

January - 12 days	February - 12 days	March - 10 days
April - 8 days	May - 6 days	June - 5 days
July - 5 days	August - 5 days	September - 5 days
October - 6 days	November - 8 days	December - 10 day

An actual inclement weather delay day shall qualify by any one or combination of the following conditions occurring during normal work hours, Monday through Friday:

- a. Wind speed exceeds 30 miles per hour for more than 3 hours – 1-day delay
 - b. Temperature is below 32 degrees (F) for more than 3 hours – 1-day delay
- November through March:
- c. Precipitation greater than 0.25 inches on a single day = 1 delay day
 - d. Precipitation greater than 0.5 inches on a single day = 1 day delay + 1 drying day
- May through October:
- e. Precipitation greater than 0.5 inches on a single day = 1 delay day
 - f. Precipitation greater than 1.0 inch on a single day = 1 day delay + 1 drying day

Actual inclement weather days shall be determined via NOAA historical weather data connected to the address or latitude and longitude of the job site. Extension of the contract schedule for inclement weather delay will be requested on each pay application. Only critical path site work can be considered for inclement weather delay. Work in interior spaces will not be considered for inclement weather delay unless extenuating circumstances are determined by the Architect/Owner. The Contractor shall not be entitled to an extension of the contract time due to normal inclement weather, unless the Contractor can substantiate to the satisfaction of the Owner/Architect that there was greater than normal inclement weather, considering the full term of the contract, and that such greater than normal inclement weather actually delayed the work.

- 6.) Provide and maintain temporary construction fencing with screening around all site work.
- 7.) Contractor is responsible for implementing any and all security measures required to protect its work, the work site, circulation of its construction operations and the public; including but not limited to trespassing, vandalism, theft, accidents, injury and/or death.
- 8.) Traffic control shall be provided in compliance the latest version of the Manual on Uniform Traffic Control Devices. Contractor will provide construction layout in accordance with Section 149 prior to beginning any construction work.
- 9.) Construction that requires lane closure or interferes with the traffic will be limited to the owners satisfaction, as occurs between 8 AM until 6 PM.
- 10.) Provide flagmen with radios and proper traffic control signage for all construction circulation outside of the work site construction fence.
- 11.) Prior to beginning work, the contractor shall perform a private underground utility locate at all excavation locations.
- 12.) Contractor shall perform excavations in accordance with OSHA 1926 Subpart P and O.C.G.A. Title 25 chapter 9 (2017).
- 13.) Contractor shall provide hand potholing and/or hydro-vac of all existing underground infrastructure, occurring within 2 feet or less horizontally from the side of infrastructure to the side of excavation, to determine the exact location of infrastructure items.
- 14.) Contractor shall restore disturbed grades smooth and provide grassing upon completion of work. All areas of grassing, re-grassing, repair or restoration that have not grown-in to the satisfaction of the owner/architect within 30 days of seeding, shall be completely provided with new sod, by the contractor.

C. PROJECT MANAGEMENT

- 1.) Contractor shall utilize owners on-line project management application for all project documents including but not limited

to, all project plans specification and any revisions; RFI's, ASI's, submittals, project cash flow projection, schedule of values, critical path method construction schedule, pay applications, project executive summaries, Contractors executed copy of the contract and all change orders; all potential and active change issues; daily field reports, inclement weather logs and site photos; inspections reports (including owner provided inspections, if any), Owner/Architect/Contractor, OAC meeting minutes; Punch lists, closeout documents, project contact directory. **Software and training will be provided by the owner at no cost to Contractor.** Contractor shall seek and participate in any training necessary to utilize owner's software.

- 2.) Approvals of all Cost Change Proposals in owner's on-line project management application means, "Approval for recommendation to Forsyth County Director of Procurement and/or Board of Commissioners".
- 3.) Daily field reports to include weather description, temperature, inches of rain, wind conditions, active trades, general work areas and active work hours. Daily field reports are to be completed daily and must not be altered after 3 days.
- 4.) Contractor shall keep logs of all active RFI's, submittals, cost issues, pay applications, weather delays, field issues, upcoming work. All logs shall be updated and presented at each OAC meeting.
- 5.) Draft pay applications shall be submitted by the 1st of each month for the previous month and properly complete the standard Pay Application Inspection Checklists as a condition precedent of pay application approval, including update all project documents on owner's on-line project management website. See attached Pay Application Inspection Checklists.
- 6.) The Contractor shall submit a Schedule of Values, project Cashflow Projection and a detailed cost-loaded critical path method schedule, within 2 days of receiving a PO or within 10 days of receiving a notice to proceed.
- 7.) Prior to approval of it's first pay application, Contractor shall submit a complete closeout procedure schedule, schedule of values and a project cashflow projection.
- 8.) The project cashflow projection shall indicate the projected percentage of the original contract value for each pay application through the entire project including the cumulative percentage shown separately.
- 9.) As a condition precedent to approval of monthly pay applications, the contractor shall update all project documents on owner's on-line project management application.
- 10.) The Contractor's draft pay application must be reviewed at one OAC meeting prior to the pay application deadline.
- 11.) Schedules shall be provided in Critical path method format, cost-loaded, broken down by sequential phases of each trade and individual sub-trade work category's, sensitive/critical/major activities and milestones, and include building system and infrastructure service interruptions. Contractor shall update and submit the construction schedule monthly on a monthly basis or more frequently.
- 12.) Contractor shall hold OAC (Owner, Architect & Contractor) meetings as required to the satisfaction of the architect and owner, record all meeting minutes and submit all meeting minutes within 48 hours following each meeting. Contractors Project Manager and Superintendent are required to attend all OAC meetings.
- 13.) Contractor shall provide monthly executive summary consisting of major milestones, safety issues, costs and or schedule impacts and progress photos, at the time of each pay application.
- 14.) Contractor shall provide adequate project management, administrative and accounting personnel to ensure the project is run smoothly and expeditiously, inclusive of a full-time on-site English-speaking Superintendent.
- 15.) Project management and superintending personnel cannot be the same person.
- 16.) Contractor's Subcontractor's shall provide a qualified, competent, English speaking, full-time on-site supervisors.
- 17.) Contractor shall include a set of redline as-builts on the conformed for closeout set of plans provided by the architect at the end of the project.
- 18.) Contractor includes the cost of material escalation and availability of goods through final completion of the work in the original contract price.
- 19.) Procurement, delivery and/or storage of goods and materials shall not constitute right for payment until installed in its final condition and accepted by the owner; unless, the goods and materials are delivered to a secure, bonded warehouse facility and the county is provided a bill of sale for all goods and materials. Owner reserves the right to inspect and approve the proposed warehouse facility prior to acceptance of goods and materials. Payment for goods and materials shall not constitute acceptance by the owner.
- 20.) Contractor shall immediately notify the architect and Forsyth County Capital Projects Manager of new or potential cost impact items. Submit formal notification of cost issue to the architect and copy the Capital Projects Manager.
- 21.) Contractor to present formal change order requests in one or more OAC meetings prior to recommendation for contract

change.

- 22.) Contractor's change order request shall be submitted on the county's change order form and include all the following back-up information:
- a. A narrative of the circumstances surrounding the cost issue.
 - b. The date, time and location the cost issue was discovered.
 - c. The date, time that the issue was first reported to the owner's representative, in writing.
 - d. All COR detail shall be provided on a material, labor and equipment basis and separated per logical sequence of the work for each issue with quote back-up for material costs.
 - e. A detailed breakdown of quantities.
 - f. Attachments with mark-ups of plans and details to clarify the COR scope of work.
 - g. Assumptions of production shall be justified in accordance with performance of actual work that was completed on the same project, that the contractor has self-performed, under similar conditions.
- 23.) All change orders are approved by procurement in accordance with the contract.
- 24.) Contractor shall take all pictures and video necessary to document the existing site conditions immediately prior to contractor's mobilization and notify owner of specific existing damage to surfaces or areas in contractors work area(s) prior to commencing work. Commencement of work shall constitute Contractors acceptance of all existing conditions.
- 25.) Should any of the items enumerated herein conflict or contradict any other requirements set forth in the entirety of the contract documents, the more stringent and highest level of quality requirement shall govern.
- 26.) Include consecutive workdays 6 days a week, Monday through Saturday, including any overtime needed to ensure the project schedule, until the work is complete.
- Forsyth County normal work hours: (*Ord. No. 87, 1-11-2006*)
- 7:00 a.m. to 7:00 p.m. Monday to Friday
 - 8:00 a.m. to 6: 00 p.m. Saturday

Forsyth County
Project Pricing Worksheet REVISED ADDENDUM #1
 Big Creek Greenway Rehabilitation Segment 2

Pay Item #	Item Description	Qty.	Unit	Unit Price	Total
	Trail				
210-0100	GRADING COMPLETE	1	LS		
310-5060	GR AGGR BASE CRS, 6 INCH, INCL MATL (AS DIRECTED)	44	SY		
441-0106	CONC SIDEWALK, 6 IN (AS DIRECTED)	40	SY		
				Sub Total	
	Erosion Control				
163-0232	TEMPORARY GRASSING	1	AC		
163-0240	MULCH	6	TN		
163-0300	CONSTRUCTION EXIT	2	EA		
165-0010	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	4,396	LF		
165-0101	MAINTENANCE OF CONSTRUCTION EXIT	2	EA		
171-0030	TEMPORARY SILT FENCE, TYPE C	8,792	LF		
643-8200	BARRIER FENCE (ORANGE), 4 FT	372	LF		
700-6910	PERMANENT GRASSING	1	AC		
700-7000	AGRICULTURAL LIME	3	TN		
700-8000	FERTILIZER MIXED GRADE	2	TN		
700-8100	FERTILIZER NITROGEN CONTENT	50	LB		
				Sub Total	
	Signing & Marking				
	SOLID TRAFFIC STRIPE, 4 IN, WHITE (PAINT) (AS DIRECTED)	30	LF		
				Sub Total	
	Boardwalks				
540-1102	REMOVAL OF EXISTING BR, BOARDWALK 10	1	LS		
	HELICAL PILE - BOARDWALK 10	240	LF		
540-1102	REMOVAL OF EXISTING BR, BOARDWALK 11	1	LS		
	HELICAL PILE - BOARDWALK 11	780	LF		
540-1102	REMOVAL OF EXISTING BR, BOARDWALK 12	1	LS		
	HELICAL PILE - BOARDWALK 12	16,320	LF		
540-1102	REMOVAL OF EXISTING BR, BOARDWALK 13	1	LS		
	HELICAL PILE - BOARDWALK 13	4,740	LF		
				Sub Total	

	Alternate 1 Boardwalk Design - Timber Decking				
	BOARDWALK 10	1	LS		
	BOARDWALK 11	1	LS		
	BOARDWALK 12	1	LS		
	BOARDWALK 13	1	LS		
	TIMBER HANDRAIL	2,358	LF		
	TIMBER CURB	6,378	LF		
				Alt 1 Sub Total	
	Alternate 2 Boardwalk Design - FRP Decking				
	BOARDWALK 10	1	LS		
	BOARDWALK 11	1	LS		
	BOARDWALK 12	1	LS		
	BOARDWALK 13	1	LS		
	STEEL HANDRAIL	2,358	LF		
	FRP CURB	6,378	LF		
				Alt 2 Sub Total	
	Alternate 3 Boardwalk Design - Concrete Decking				
	BOARDWALK 10	1	LS		
	BOARDWALK 11	1	LS		
	BOARDWALK 12	1	LS		
	BOARDWALK 13	1	LS		
	STEEL HANDRAIL	2,358	LF		
	CONCRETE CURB	6,378	LF		
				Alt 3 Sub Total	
ALTERNATE 1 PROJECT TOTAL =					
ALTERNATE 2 PROJECT TOTAL =					
ALTERNATE 3 PROJECT TOTAL =					

BID SCHEDULE 21-109-5211 REVISED ADDENDUM #1

FOR: Providing all materials, equipment, and labor for the rehabilitation, restoration, and renewal of the Big Creek Greenway, Phase 2, from Union Hill Road to Fowler Park, approximately 0.859 miles. We are requesting 3 alternates in construction, timber deck, FRP Deck and concrete deck – it will be at the discretion of the County which solution is chosen.

**1. Alternate 1
Timber Deck with Steel Stringer**

TOTAL BID AMOUNT ALTERNATE 1: \$ _____

(written format)

**2. Alternate 2
FRP Deck with Steel Stringer**

TOTAL BID AMOUNT ALTERNATE 2: \$ _____

(written format)

**3. Alternate 3
Concrete Deck with Steel String**

TOTAL BID AMOUNT ALTERNATE 3: \$ _____

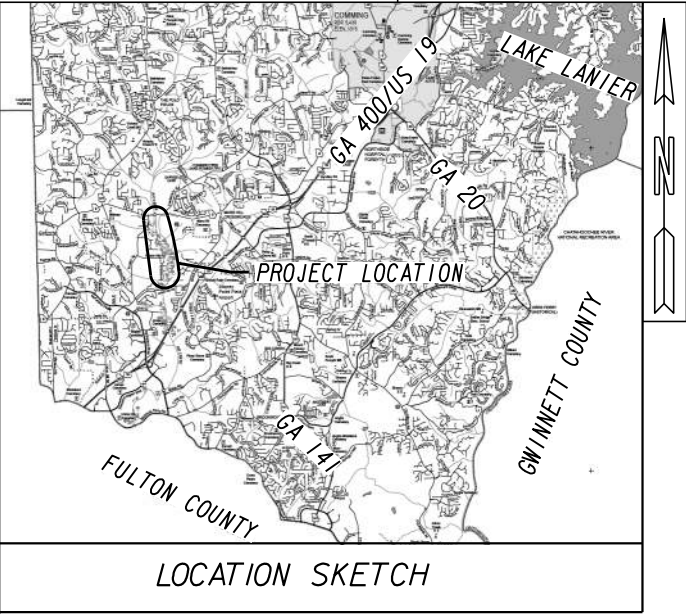
(written format)

Authorized Signature

Date

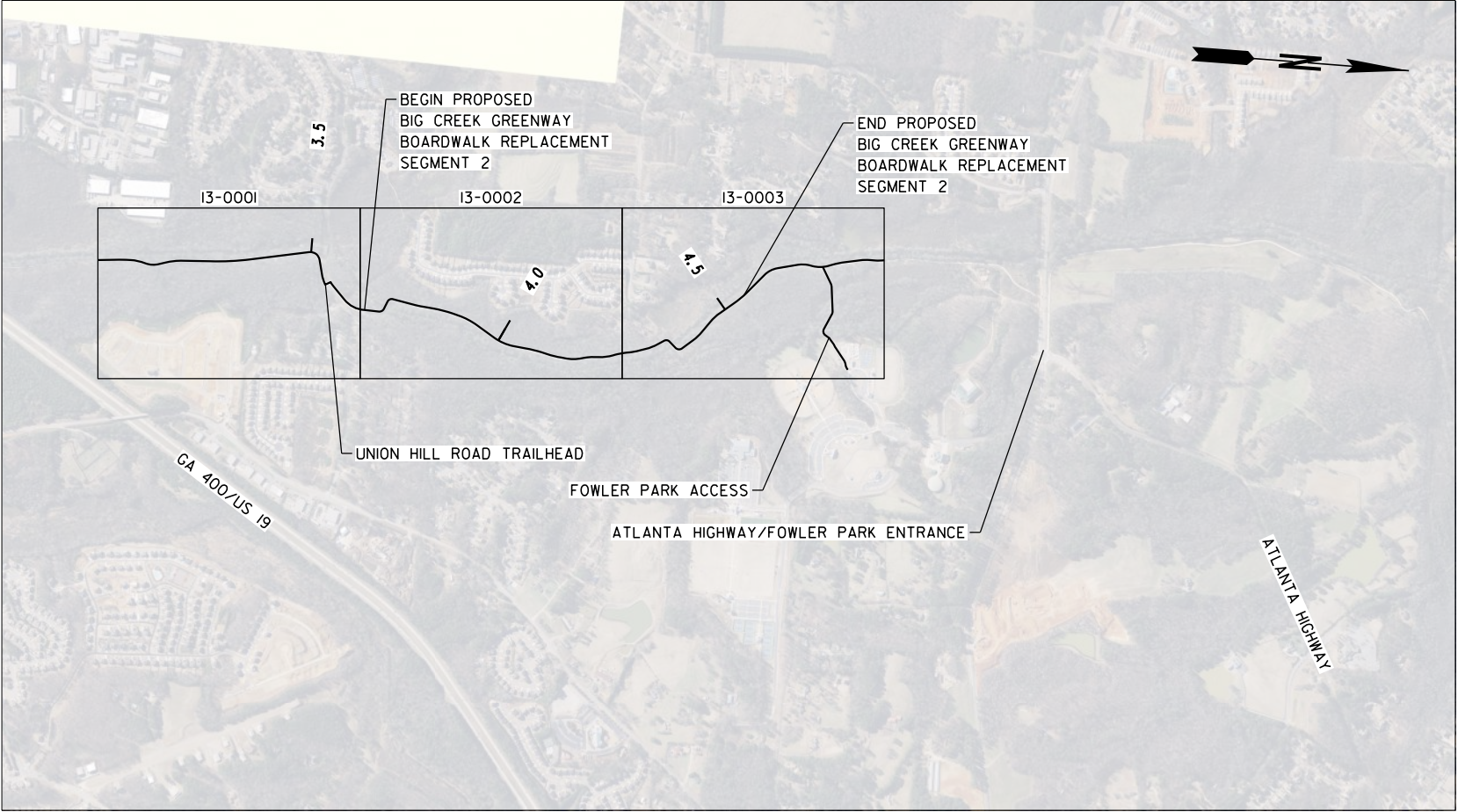
Print Name and Title

Company Name



FORSYTH COUNTY PARKS AND RECREATION

REHABILITATION, RESTORATION, AND RENEWAL OF BIG CREEK GREENWAY SEGMENT 2



Heath & Lineback Engineers
INCORPORATED
2390 CANTON ROAD, BUILDING 200
MARIETTA, GEORGIA 30066-5393
(770)424-1668

PREPARED BY: DESIGN

INDEX

DRAWING NO.	DESCRIPTION
01-0001	COVER SHEET & INDEX
04-0001 TO 04-0002	GENERAL NOTES
05-0001 TO 05-0006	TYPICAL SECTIONS & DETAILS
06-0001	SUMMARY OF QUANTITIES
13-0001 TO 13-0003	CONSTRUCTION PLAN
35-0001 TO 35-0006	BOARDWALK DETAILS

LENGTH OF PROJECT	COUNTY No.117
	MILES
NET LENGTH OF TRAIL	0.000
NET LENGTH OF BOARDWALK	0.827
NET LENGTH OF BRIDGES	0.000
NET LENGTH OF PROJECT	0.859
GROSS LENGTH OF PROJECT	0.859

PLANS COMPLETED 7-29-2021	
REVISIONS	

THIS PROJECT IS 100% IN
FORSYTH COUNTY.

THIS PROJECT HAS BEEN PREPARED
USING THE HORIZONTAL GEORGIA
COORDINATE SYSTEM OF 1984 (NAD
1983)/94 WEST ZONE, AND THE NORTH
AMERICAN VERTICAL DATUM (NAVD)
OF 1988.

THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY
INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON
FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE
SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE DEPARTMENT
OF TRANSPORTATION IN ANY WAY. THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO
SUBSECTIONS 102.04, 102.05, AND 104.03 OF THE SPECIFICATIONS.

TRAIL REPLACEMENT SUMMARY			
BOARDWALK/TRAIL SEGMENT NUMBER	SUMMARY OF CHANGES		
	SCOPE OF WORK	LENGTH	DETAILED SCOPE OF WORK
10	ENTIRE BOARDWALK REPLACEMENT	36’	REMOVE AND RECONSTRUCT BOARDWALK SUPERSTRUCTURE AND SUBSTRUCTURE.
11	ENTIRE BOARDWALK REPLACEMENT	144’	REMOVE AND RECONSTRUCT BOARDWALK SUPERSTRUCTURE AND SUBSTRUCTURE.
12	ENTIRE BOARDWALK REPLACEMENT	3252’	REMOVE AND RECONSTRUCT BOARDWALK SUPERSTRUCTURE AND SUBSTRUCTURE.
13	ENTIRE BOARDWALK REPLACEMENT	936’	REMOVE AND RECONSTRUCT BOARDWALK SUPERSTRUCTURE AND SUBSTRUCTURE.

BOARDWALK LOCATION SUMMARY TABLE			
BOARDWALK NUMBER	BETWEEN MILE MARKERS	EXISTING LENGTH (FT)	PROPOSED LENGTH (FT)
UNION HILL ROAD TRAILHEAD			
10	3. 7	36	36
11	3. 7-3. 8	144	144
12	3. 7-4. 4	3252	3252
13	4. 3-4. 6	936	936
FOWLER PARK ACCESS			

UTILITIES

THE FOLLOWING UTILITY OWNERS HAVE FACILITIES ON THIS PROJECT:

UTILITY OWNER	SERVICE
GEORGIA POWER COMPANY	ELECTRIC



Know what's below.
Call before you dig.

PROJECT GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE GDOT STANDARD SPECIFICATIONS, CURRENT EDITION, UNLESS OTHERWISE NOTED ON THE PLANS.
2. THE BOARDWALK AND REPLACEMENT OF ANY SLAB ON GRADE SHALL BE REPLACED ON THE EXISTING ALIGNMENT AND PROFILE UNLESS OTHERWISE NOTED ON PLANS.
3. THE ACCESS POINT AND STAGING AREA FOR THE DEMOLITION AND CONSTRUCTION OF THE BOARDWALKS AND ANY AT-GRADE TRAIL SEGMENTS IS THE UNION HILL ROAD TRAILHEAD. THE CONTRACTORS WORK ZONE IS LIMITED TO THE TRAILHEAD AREA AND THE 20’ WIDE TRAIL EASEMENT. THE COUNTY WILL ALLOW THE CONTRACTOR TO CLOSE THE UNION HILL TRAILHEAD FOR THE DURATION OF CONSTRUCTION.
4. THE EXISTING BOARDWALK, INCLUDING THE CONNECTION TO FOWLER PARK, IS LIMITED IN IT’S CAPACITY TO HANDLE CONSTRUCTION EQUIPMENT. THE CONSTRUCTION ACCESS POINT WILL BE FROM THE UNION HILL ROAD TRAILHEAD AND THE EXISTING BOARDWALK WILL BE DEMOED AND REPLACED FROM THE UNION HILL ROAD NORTH TO PROVIDE EQUIPMENT ACCESS IN TO AND OUT OF THE SITE. THE CONTRACTOR SHALL ENSURE ANY EQUIPMENT PLACED ON NEW OR EXISTING BOARDWALK TO REMAIN DOES NOT DAMAGE THE BOARDWALK. ANY DAMAGES CAUSED BY THE CONTRACTOR TO THE TRAIL OR BOARDWALK SHALL BE REPAIRED AT NO COST TO THE COUNTY.
5. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PROVIDE THE COUNTY WITH A DETAILED CONSTRUCTION ACCESS, STAGING AREA, AND SECURITY PLAN FOR REVIEW AND APPROVAL. THE SECURITY PLAN SHALL INCLUDE BARRIERS AND SIGNAGE SUFFICIENT TO KEEP THE PUBLIC OUT OF THE PROJECT AREA. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING ACCESS TO THE WORK SITE INCLUDING TRAILHEAD AND NEIGHBORHOOD ENTRANCES.
6. THE PROPOSED BOARDWALKS SHALL BE CONSTRUCTED FROM THE TOP DOWN. NO EQUIPMENT IS PERMITTED TO BE WITHIN WETLANDS OR STREAMS AT ANY TIME.
7. ALL PROPOSED BOARDWALK 30" AND ABOVE THE FINISHED GROUNDLINE SHALL HAVE RAILING AS DETAILED ON THE STRUCTURAL BOARDWALK PLANS. THE CONTRACTOR IS TO PROVIDE A CONTINUOUS HANDRAIL THROUGH AREAS WHERE THE EXISTING GRADE INTERMITTENTLY TRANSITIONS ABOVE AND BELOW 30" TO THE WALKING SURFACE OF THE BOARDWALK, SUCH THAT A CONTINUOUS SECTION OF HANDRAIL OR TOE CURB SHALL NOT BE LESS THAN 10 BENTS IN LENGTH AND COMPLY WITH THE CODE REQUIREMENTS FOR HANDRAILS.
8. IF THE BOARDWALK IS RAISED, EACH SPAN SHALL RAISE IN PROFILE NO MORE THAN 5" PER SPAN TO COMPLY WITH ADA REQUIREMENT OF 5% MAXIMUM SLOPE.
9. IF THE SLAB ON GRADE IS RAISED, GRADE SHALL NOT EXCEED THE ADA REQUIREMENT OF 5% MAXIMUM SLOPE.
10. ALL AREAS OF CONSTRUCTION SHALL BE PROTECTED BY SILT FENCE ALONG THE LIMITS OF THE 20’ TRAIL EASEMENT, EXCEPT WHERE ALL WORK IS REQUIRED TO BE PERFORMED FROM THE TOP OF BOARDWALK. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SEDIMENT WITHIN THE ENTIRETY OF THE WORK ZONE AND SILT FENCE IS REQUIRED IN ALL AREAS OF GROUND DISTURBANCE.
11. THE CONTRACTOR SHALL HAVE AL UTILITIES MARKED PRIOR TO BEGINNING WORK AND SHALL PROTECT ANY UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE ANY EXISTING UTILITIES AS A RESULT OF THE TRAIL REPAIR WORK WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. IN THE EVENT OF AN INCIDENT, THE CONTRACTOR SHALL ALERT THE COUNTY OF THE POSSIBLE DAMAGE IMMEDIATELY.
12. THE COUNTY WILL CLOSE THE ENTIRE TRAIL SEGMENT FROM UNION HILL ROAD TO THE FOWLER PARK CONNECTION. THE CONTRACTOR IN COORDINATION WITH THE COUNTY IS RESPONSIBLE FOR THE PLACEMENT OF ADEQUATE SIGNAGE AND BARRIERS AND SHALL MAINTAIN UNTIL COMPLETION OF THE PROJECT.
13. IN AREAS WHERE THE DISTANCE BETWEEN TOP OF DECK AND BOTTOM OF BEAM WILL BE GREATER THAN THE GROUND CLEARANCE, EXCAVATION WILL BE REQUIRED. SOME ELEMENTS OF THE STRUCTURE AT TRANSITIONS BETWEEN AT-GRADE CONCRETE TRAIL AND PROPOSED BOARDWALK WILL BE BURIED. THE CONTRACTOR SHALL GRADE TO DRAIN TO ENSURE THE STRINGERS ARE OUT OF THE GROUND AS QUICKLY AS POSSIBLE OVER THE FIRST COUPLE OF SPANS.

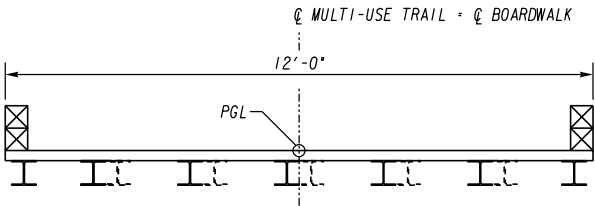
REVISION DATES

FORSYTH COUNTY
GENERAL NOTES
BIG CREEK GREENWAY
REHABILITATION

CHECKED:		DATE:		DRAWING No. 04-0001
BACKCHECKED:		DATE:		
CORRECTED:		DATE:		
VERIFIED:		DATE:		

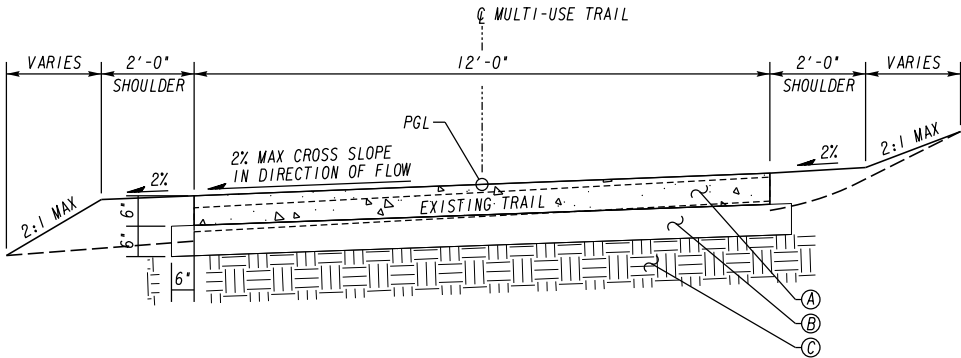
PROJECT GENERAL NOTES CONT.

14. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING DIMENSIONS SHOWN PRIOR TO ANY CONSTRUCTION AND SHALL PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
15. DIMENSIONS ARE TO FACE OF STRUCTURE AND CENTER LINE OF TRAIL, UNLESS OTHERWISE NOTED.
16. NECESSARY BARRICADES, SUFFICIENT LIGHTS, SIGNS AND OTHER TRAFFIC CONTROL DEVICES AS MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 EDITION AND MAINTAINED WHEN WORKING IN CLOSE PROXIMITY TO PUBLIC ROADS.
17. AFTER ALL NEW CONSTRUCTION IS COMPLETED CONTRACTOR SHALL PRESSURE WASH THE TRAIL. THE CONTRACTOR SHALL INCLUDE THIS COST IN THE "GRADING COMPLETE" BID ITEM.
18. CONTRACTOR IS CAUTIONED ABOUT THE PRESENCE OF UNDERGROUND UTILITIES AT OR NEAR THE PROPOSED IMPROVEMENTS THROUGHOUT THIS PROJECT. CALL BEFORE YOU DIG: 1-800-282-7411.
19. ALL STORM DRAIN PIPES WITHIN THE AREA OF WORK ARE TO BE COMPLETELY CLEANED OF ALL SILT AND DEBRIS AT THE COMPLETION OF CONSTRUCTION. THE CONTRACTOR SHALL INCLUDE THIS COST IN THE GRADING COMPLETE BID ITEM.
20. THERE IS NO SUITABLE PLACE TO BURY THE CONSTRUCTION DEBRIS WITHIN THE PROJECT'S LIMITS. THE CONTRACTOR SHALL PROVIDE AN ENVIRONMENTALLY APPROVED SITE TO DISPOSE OF THE EXISTING CONSTRUCTION DEBRIS AT NO ADDITIONAL COST TO THE COUNTY.
21. A NOTICE OF INTENT IS NOT REQUIRED FOR THIS PROJECT.
22. DIRT FOR FILL SHALL BE CLEAN, FREE OF DEBRIS, ORGANICS, DELETERIOUS MATERIAL AND ROCKS GREATER THAN 3" DIA. SEE GEORGIA STANDARD SPECIFICATIONS FOR SUITABLE SOIL TYPES FOR FILL.
23. MAX CUT OR FILL SLOPES SHALL BE 2:1 (H:V), UNLESS SPECIFICALLY NOTED.
24. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PROMPTLY UPON DISCOVERY.
25. ANY FILL AREAS MUST BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR.
26. PLACE CONSTRUCTION EXITS AND INSTALL PERIMETER BMPS AS SHOWN ON PLANS.
27. SEDIMENT AND EROSION CONTROL MEASURES TO BE INSPECTED DAILY. MAINTAIN BMPS THROUGHOUT LAND DISTURBANCE ACTIVITY.
28. THE LAYOUT OF TRAIL IS SHOWN IN RELATION TO BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY THE LAYOUT WITH OWNER PRIOR TO CONSTRUCTION OF TRAIL.
29. THE CONTRACTOR SHALL LEAVE THE SITE IN A CLEAN AND NEAT CONDITION. ALL DEBRIS, VEGETATION WHICH HAS BEEN REMOVED, LUMBER, CONCRETE, ETC., SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED.
30. ALL WASTE FROM DEMOLITION OPERATIONS SHALL BE HAULED OFFSITE AND DISPOSED OF LEGALLY.
31. ALL NECESSARY PERMITS FOR DEMOLITION SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO BEGINNING WORK.
32. CONTRACTOR SHALL PROTECT ALL ADJACENT LANDS FROM DAMAGE DURING DEMOLITION WORK. ANY DAMAGE TO ADJACENT ROADS, WALKS AND OTHER EXISTING FACILITIES CAUSED BY CONTRACTORS SHALL BE REPAIRED TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING CONDITION BY THE CONTRACTOR AT NO COST TO THE OWNER.
33. MILE MARKER LOCATIONS ARE SHOWN FOR REFERENCE ONLY. FIELD CONFIRM LOCATIONS WITH COUNTY PRIOR TO CONSTRUCTION.
34. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
35. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL TO TREAT THE SEDIMENT SOURCE.
36. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
37. EXISTING BOARDWALK POSTS TO BE REMOVED SHALL BE REMOVED TO EXISTING GROUND LINE.



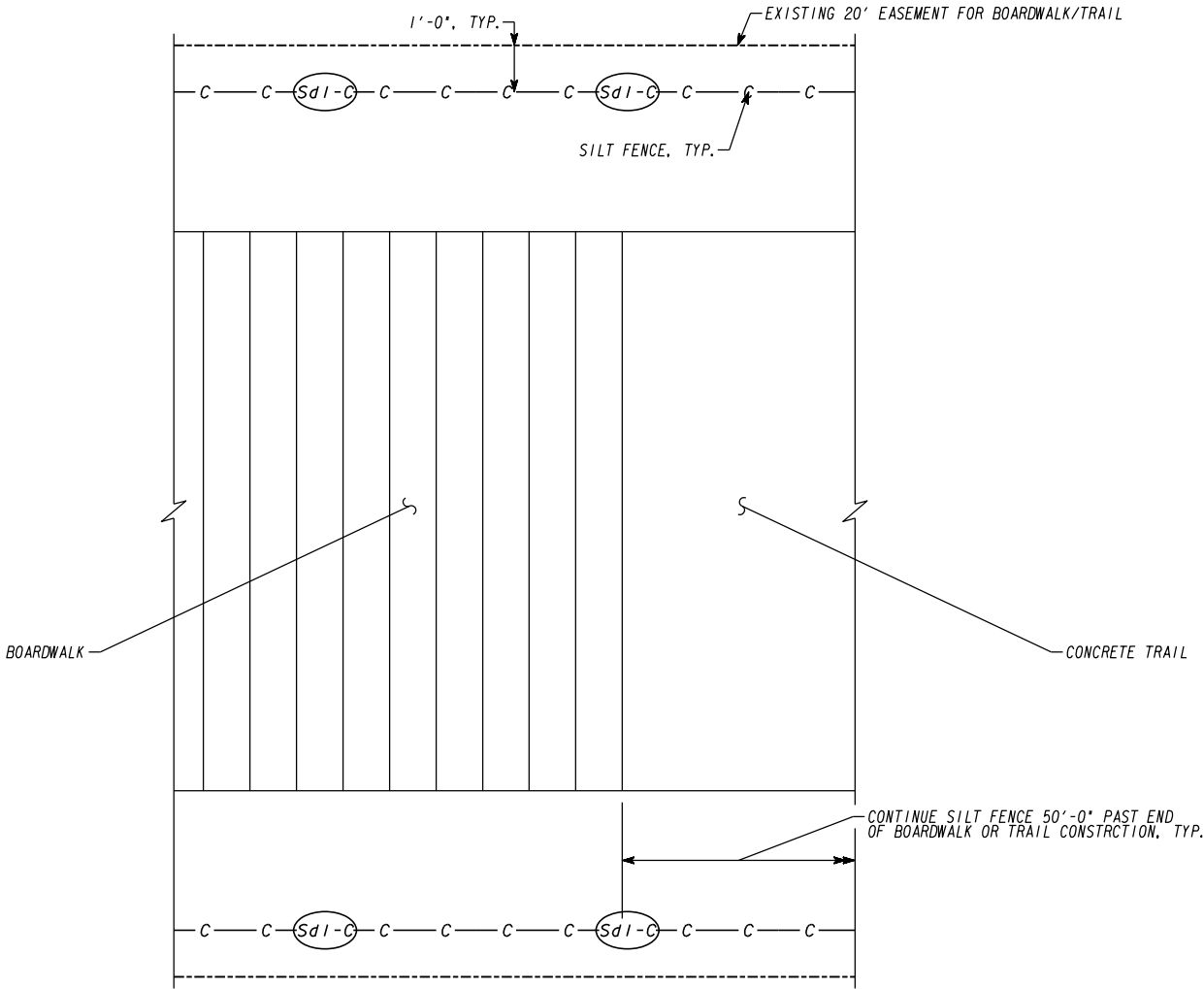
TYPICAL SECTION 1 - BOARDWALK REPLACEMENT
FOR ADDITIONAL DETAILS SEE 35-SERIES

BOARDWALK 10
BOARDWALK 11
BOARDWALK 12
BOARDWALK 13



TYPICAL SECTION 2 - REPLACEMENT OF SLABS ON GRADE

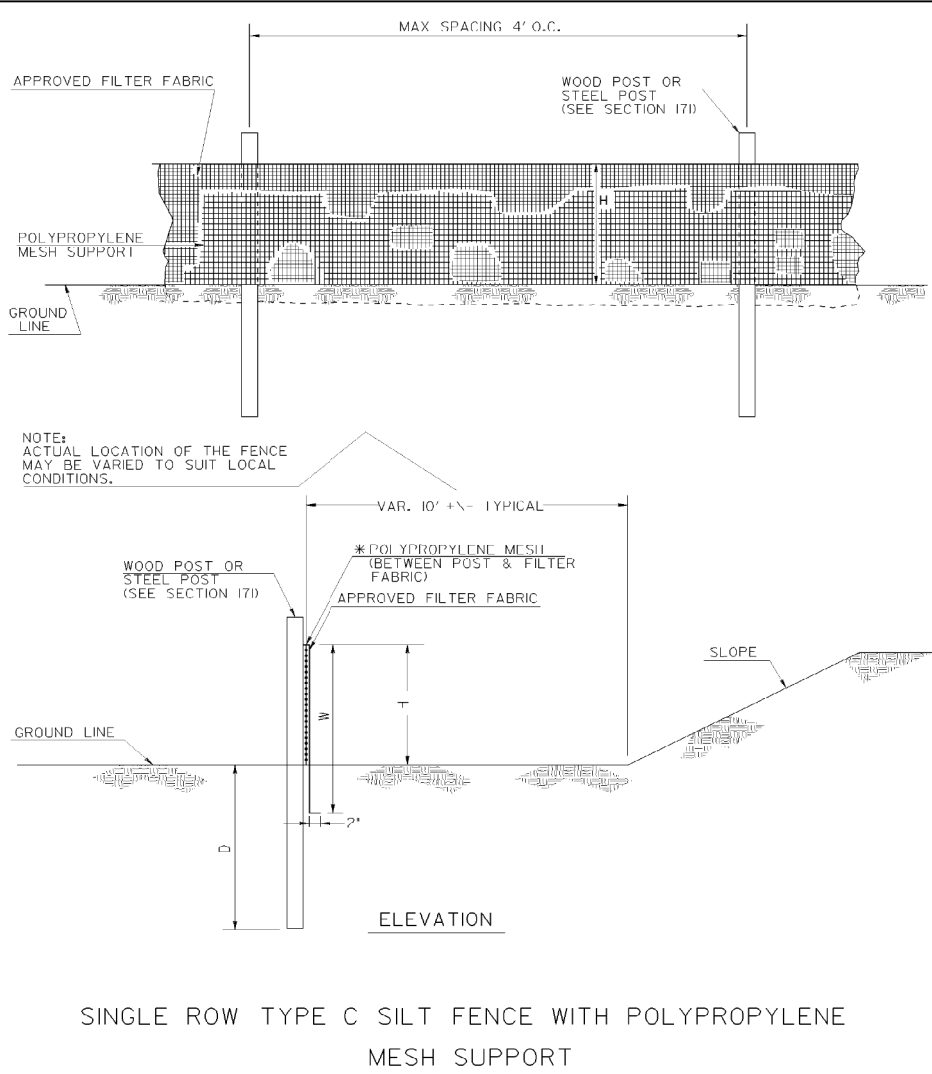
- Ⓐ - CONCRETE SIDEWALK - 6 IN THICK
Ⓑ - GRADED AGGREGATE OR STABILIZED BASE CRS - 6 IN THICK
Ⓒ - COMPACTED SUBGRADE



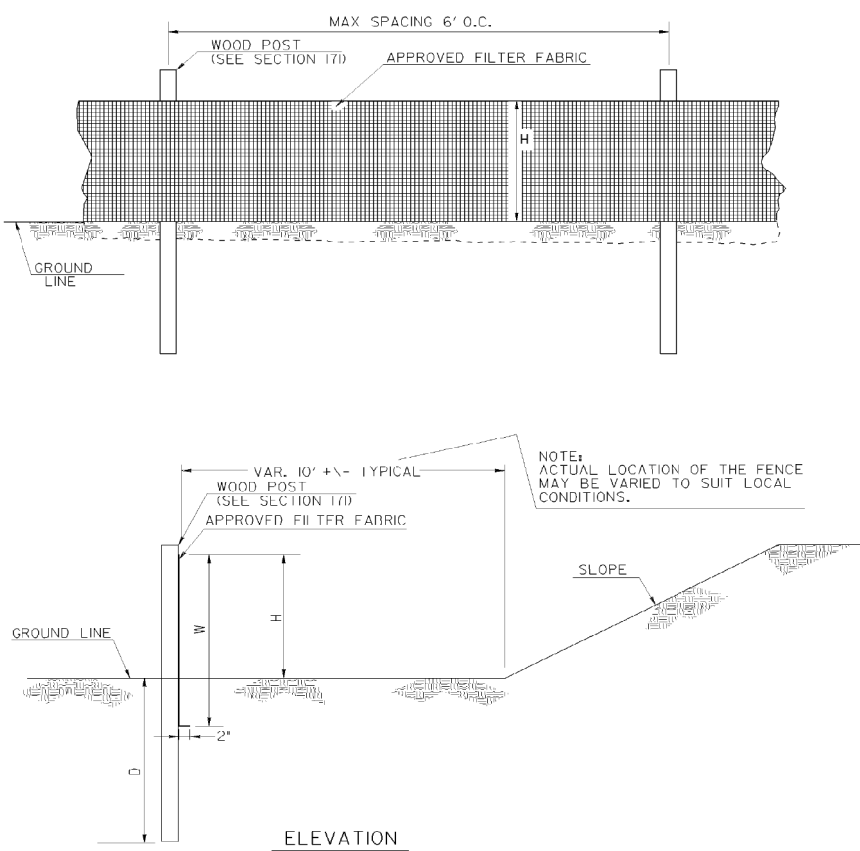
TYPICAL SILT FENCE PLACEMENT

NOTE: SEE GENERAL NOTE NUMBER 10 ON SHEET 04-0001

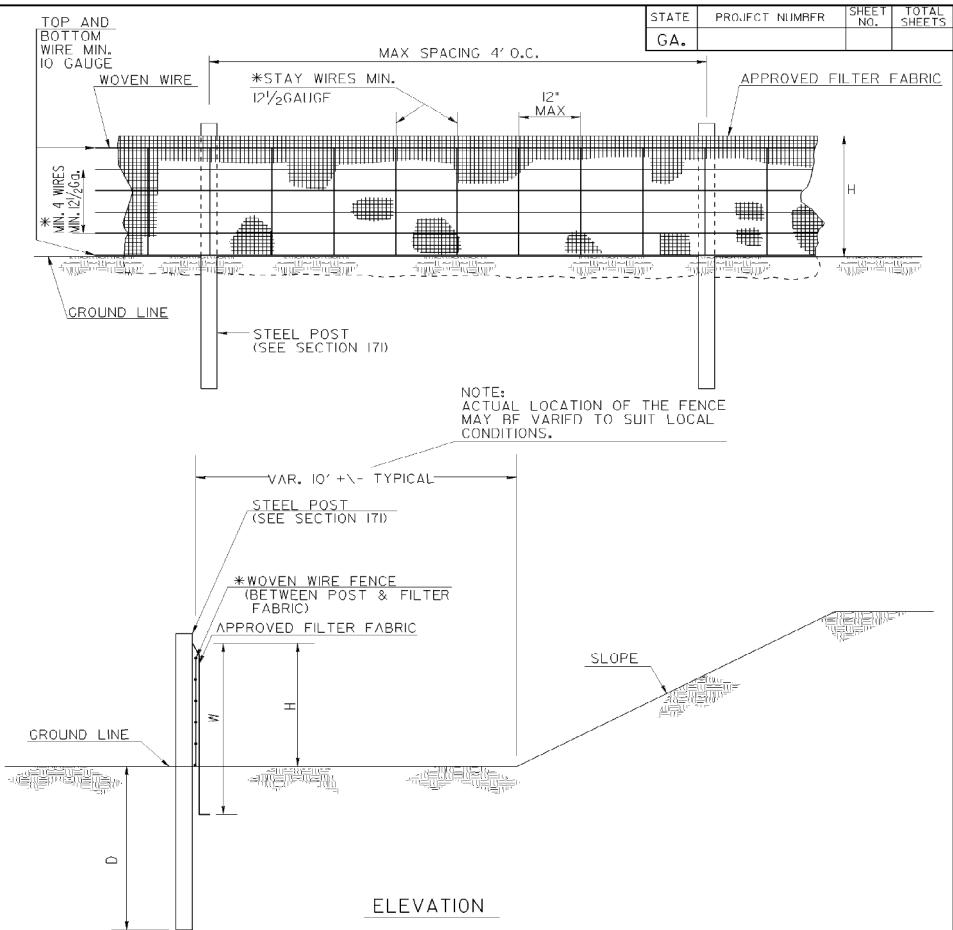
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SINGLE ROW TYPE C SILT FENCE WITH POLYPROPYLENE MESH SUPPORT



SINGLE ROW TYPE A SILT FENCE



SINGLE ROW TYPE C SILT FENCE WITH WOVEN WIRE SUPPORT

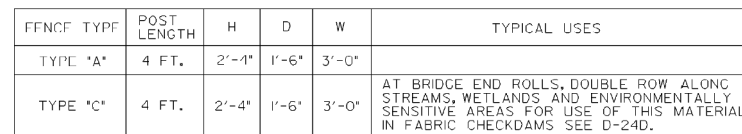
FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

- NOTES:
- WIRE STAPLES SHALL BE AT LEAST 17 GAUGE, WITH LEGS AT LEAST 1/2 INCHES LONG AND A CROWN AT LEAST 3/4 INCHES WIDE. NAILS SHALL BE AT LEAST 14 GAUGE, 1 INCH LONG, WITH BUTTON HEADS AT LEAST 3/4 INCHES WIDE.
 - NAILS OR STAPLES SHALL BE EVENLY PLACED WITH AT LEAST 5 PER POST FOR TYPE A FENCE AND 4 PER POST FOR TYPE C FENCE.
 - THE VERTICAL WIRES FOR THE WOVEN WIRE SUPPORT FENCE SHALL HAVE A MAXIMUM SPACING OF 12 INCHES. THE TOP AND BOTTOM WIRES SHALL BE AT LEAST 10 GAUGE AND ALL OTHER WIRES SHALL BE AT LEAST 12 1/2 GAUGE.
 - TEMPORARY SILT FENCE INSTALLATION IS DIFFERENT THAN THE SILT RETENTION BARRIER INSTALLATION.
 - SEE SECTION 171 FOR SILT FENCE SPECIFICATIONS.
 - SEE SECTION 894 FOR FENCING SPECIFICATIONS.
 - SEE OPL-36 FOR A LIST APPROVED SILT FENCE FABRIC.
 - TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS UNLESS PERMITTED.

	DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
	REVISION	CONSTRUCTION DETAILS TEMPORARY SILT FENCE
	BY	NO SCALE REV. AND REDRAWN JAN. 2011
		NUMBER D-24A (SHEET 1 OF 4)

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[\\$REF10\\$](#)
[\\$REF09\\$](#)
[\\$REF08\\$](#)
[\\$REF07\\$](#)
[\\$REF05\\$](#)

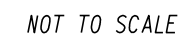


FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

NOTE: TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.

		DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
		REVISION	CONSTRUCTION DETAILS TEMPORARY SILT FENCE BERM DITCH, INSTALLATION, BRUSH BARRIER NO SCALE REV. AND REDRAWN JAN. 2011	
	BY		NUMBER D-24B (SHEET 2 OF 4)	

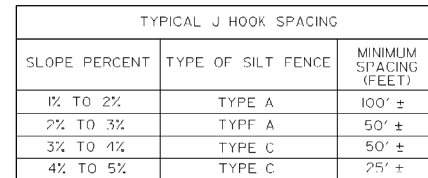
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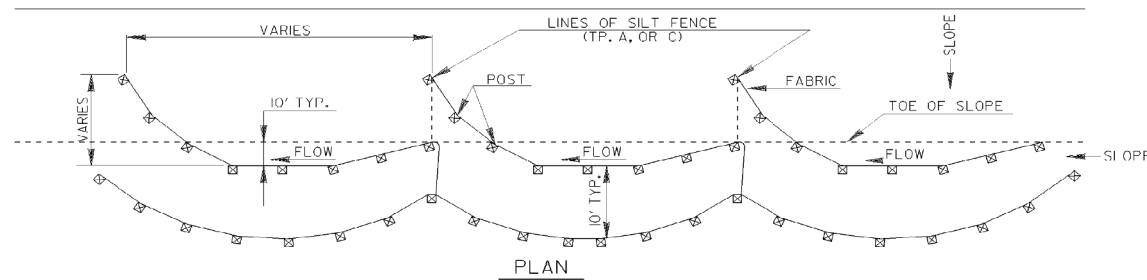
TYPICAL SECTIONS & DETAILS

DRAWING No.

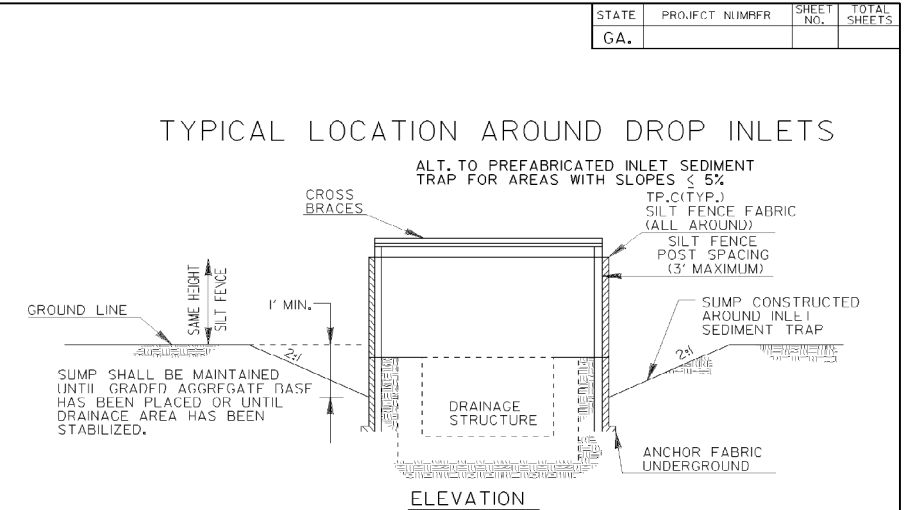
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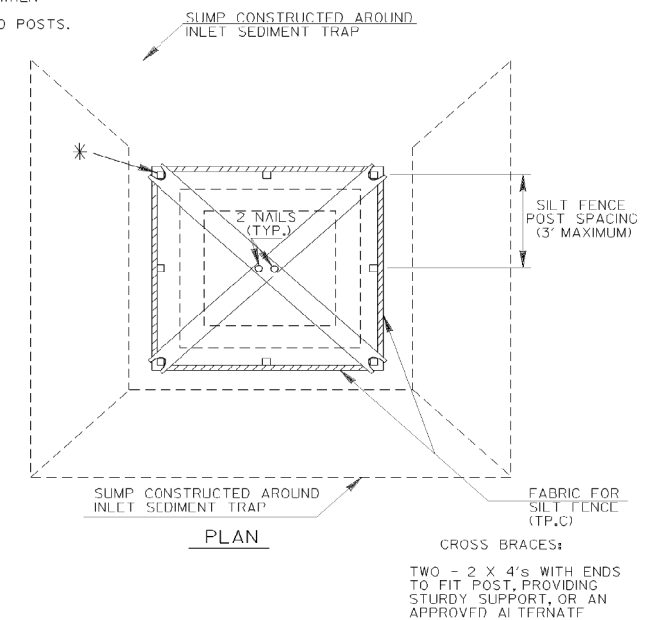
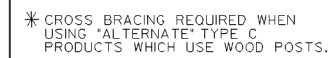
DOUBLE ROW SILT FENCE



1. IF THE GRADE IS BETWEEN 0 TO 1 PERCENT, THE SILT FENCE SHALL BE PLACED ACROSS THE DITCH.
2. TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.



TYPICAL LOCATION AROUND DROP INLETS



PLAN

CROSS BRACES:
0 - 2 X 4's WITH ENDS
FIT POST, PROVIDING
URDY SUPPORT, OR AN
PROVED ALTERNATE

NOTE:
PAYMENT AS INLET SEDIMENT
TRAP PER EACH.

NOTE:
SEE SEPARATE SHEET ENTITLED "TEMPORARY SILT FENCE
DETAILS" FOR SILT FENCE ERECTION DETAILS.

		DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA	
		REVISION	CONSTRUCTION DETAILS TEMPORARY SILT FENCE J-HOOK, INLET SEDIMENT TRAPS	
			NO SCALE	JANUARY 2011
		BY		NUMBER D-24C (SHEET 3 OF 4)

NOTE:
INLET SEDIMENT TRAP ALTERNATE SHALL BE AS APPROVED
BY THE GA. D.O.T. OFFICE OF MATERIALS & RESEARCH.
DETAILS & SPECIFICATIONS NOT SHOWN ARE PER
THE MANUFACTURER'S REQUIREMENTS.

LET SEDIMENT TRAP - FOR DROP INLETS

Diagram of a fence post cap. The cap has a circular base and a wavy top edge. A label "FENCE POST CAP (FOR FENCE)" points to the cap. A label "FENCE POST" points to the post below the cap.

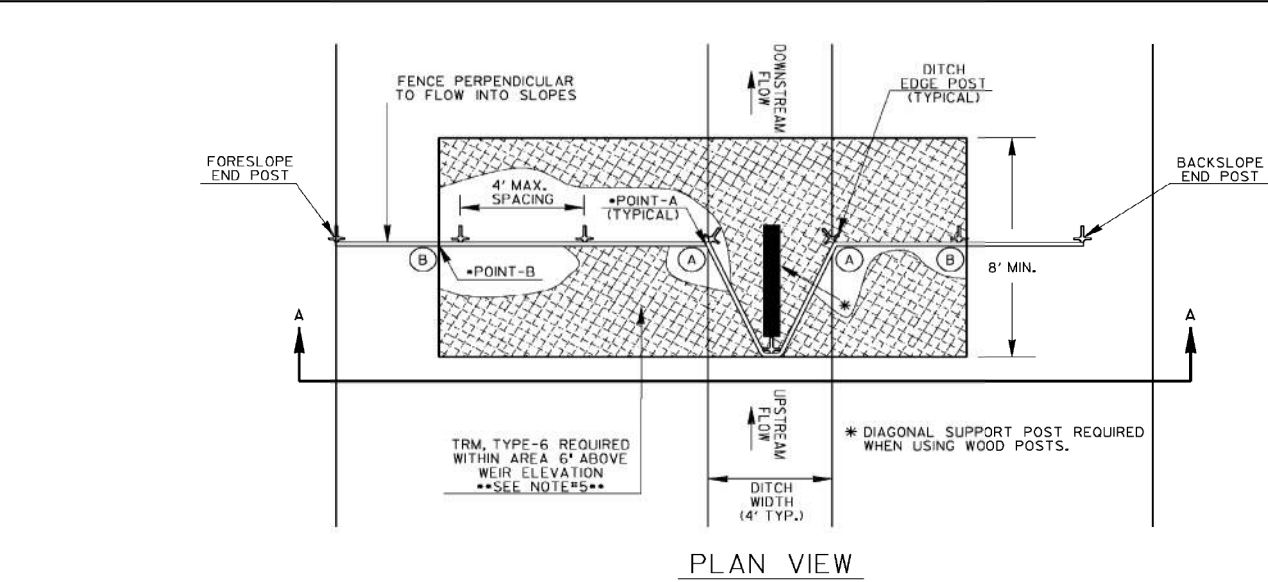
SIDE VIEW

NOTE:
PAYMENT AS INLET SEDIMENT TRAP
PER EACH

TOP VIEW

NOTE: SEE SEPARATE DETAILS
FOR SILT FENCE AROUND
DROP INLETS.

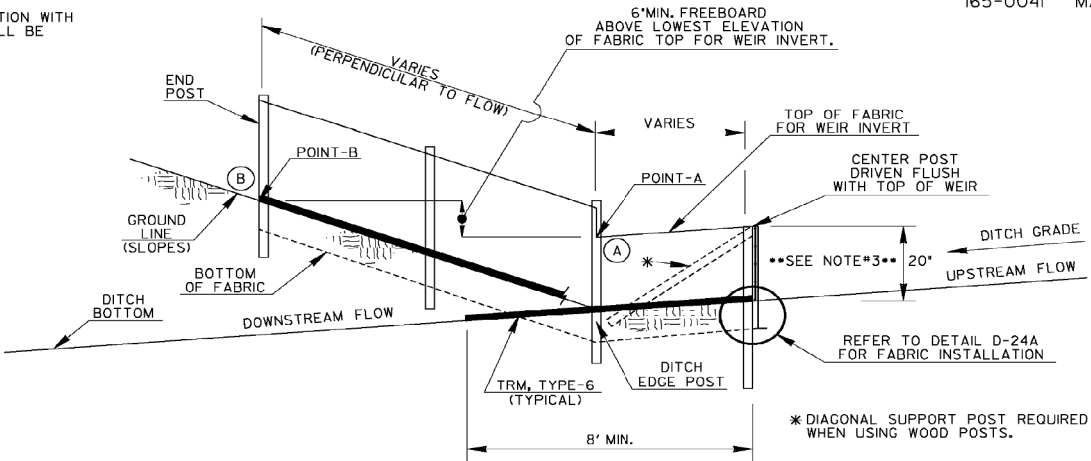
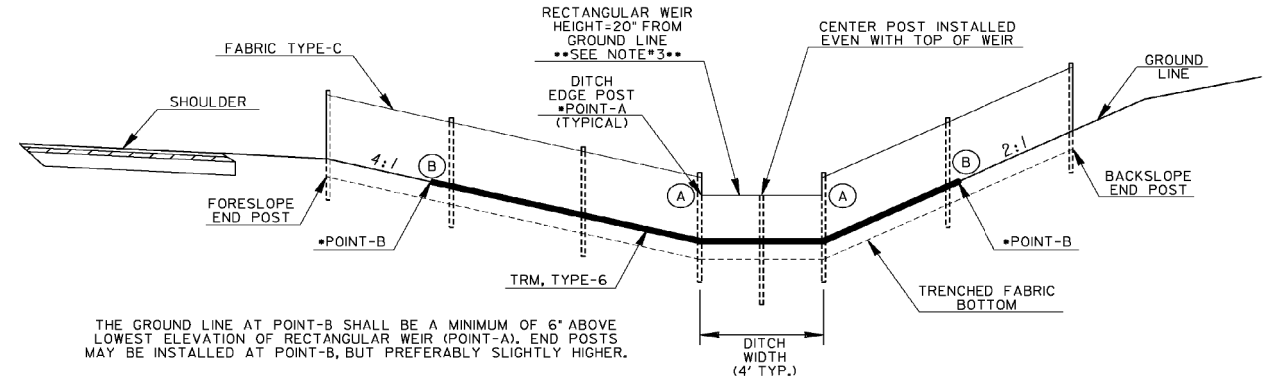
REVISION DATES			FORSYTH COUNTY				
			TYPICAL SECTIONS & DETAILS BIG CREEK GREENWAY REHABILITATION				
			CHECKED:		DATE:		DRAWING No. 05-0004
			BACKCHECKED:		DATE:		
			CORRECTED:		DATE:		
			VERIFIED:		DATE:		



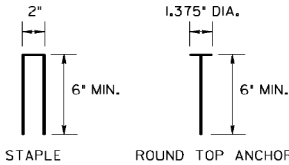
TYPICAL FABRIC CHECK DAM SPACING	
GRADE OF DITCH	MINIMUM SPACING (FEET)
LESS THAN 1%	100' ±
1% TO 3%	75' ±
3% TO 6%	50' ±
6% TO 8%	25' ±

- NOTES:
- FABRIC CHECK DAMS MAY BE USED FOR FLOWS UP TO 2.0-CFS. A ROCK FILTER DAM SHALL BE USED AT THE DOWNSTREAM POINT FOR FLOWS GREATER THAN 2.0-CFS.
 - FABRIC CHECK DAMS SHALL NOT BE PLACED WITHIN FLOWING STATE WATERS.
 - FABRIC CHECK DAMS MAY BE USED IN DITCHES WITH DEPTHS AT LEAST 26-IN. IF DITCH DEPTH IS LESS THAN 26-IN, THE WEIR INVERT MAY BE LOWERED SLIGHTLY IN THE FIELD TO PROVIDE 6-IN MINIMUM FREEBOARD ABOVE POINT-A OR TO MATCH SPACING OF WIRE SUPPORT. THE WEIR HEIGHT SHALL BE NO LESS THAN 15-IN. THE DESIGNER SHALL CONSIDER OTHER APPROPRIATE BMPs FOR CONCENTRATED FLOW FOR DITCH DEPTHS LESS THAN 26-IN.
 - THE FOLLOWING STEPS ARE RECOMMENDED FOR PROPER FABRIC CHECK DAM INSTALLATION:
 - DETERMINE DITCH CENTERLINE AND USE A LINE LEVEL OR OTHER MEANS TO FIND POINT-B WITHIN THE DITCH FORESLOPE AND BACKSLOPE TO PROVIDE 6-IN MINIMUM FREEBOARD ABOVE POINT-A.
 - CREATE TRENCH 6-IN BELOW DITCH GRADE TO FIT LAYOUT FROM STEP-A WITH MINIMAL SOIL DISTURBANCE.
 - LAYOUT TURF REINFORCEMENT MATTING (TRM), TYPE-6 TO PROVIDE PROTECTION A MINIMUM LENGTH OF 8-FT DOWNSTREAM OF CENTER POST TO FUNCTION AS A SPLASH PAD TO PREVENT SCOURING. ADDITIONAL NECESSARY TRM SHALL BE OVERLAPPED 3-FT. THE WIDTH SHALL BE THE DISTANCE BETWEEN POINT-B ON THE DITCH FORESLOPE AND POINT-B ON BACKSLOPE.
 - INSTALL FENCE POSTS THROUGH TRM WITHIN TRENCH. CENTER POST AND POSTS WITHIN WEIR AREA SHALL BE INSTALLED FLUSH WITH WEIR. CUT TRM WITHIN TRENCH FOLLOWING CHECK DAM LAYOUT AND SAVE UPSTREAM PORTION OF TRM FOR FURTHER USE.
 - PROPERLY INSTALL TYPE-C SILT FENCE. TRENCH BACKFILL SHALL BE COMPACTED WITH A HAND TAMPER, JUMPING JACK COMPACTOR, OR PLATE COMPACTOR TO PREVENT UNDERMINING.
 - INSTALL PREVIOUSLY CUT TRM FROM STEP-D UPSTREAM AGAINST CHECK DAM. INSTALLING UPSTREAM AND DOWNSTREAM TRM ACCORDING TO DETAIL D-35 FOR THIS TEMPORARY APPLICATION IS NOT REQUIRED. HOWEVER, TRM SHALL HAVE PROPER CONTACT WITH GROUND SURFACE, ANCHORED 6-IN MAXIMUM SPACING ALONG THE EDGES, AND ADEQUATELY WITHIN THE MATTED AREA.
 - TEMPORARY INSTALLATION OF TRM WITH FABRIC CHECK DAMS SHALL BE INCLUDED IN THE LINEAR COST OF THE CONSTRUCTION, REMOVAL, AND MAINTENANCE OF EACH FABRIC CHECK DAM. NO ADDITIONAL PAYMENT WILL BE MADE.

PAY ITEMS:
163-0528 CONSTRUCT & REMOVE FABRIC CHECK DAM, TYPE-C SILT FENCE (LF)
165-0041 MAINTENANCE OF CHECK DAMS - ALL TYPES (LF)



TURF REINFORCEMENT MATTING ANCHOR



NOTE: TURF REINFORCEMENT MATTING SHALL BE ANCHORED WITH 8-GAUGE METAL STAPLES OR ROUND TOP ANCHORS. ANCHORS SHALL BE LONG ENOUGH TO PROVIDE SUFFICIENT GROUND PENETRATION TO RESIST PULL OUT.

		DATE	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA		
		REVISION	CONSTRUCTION DETAILS TEMPORARY SILT FENCE FABRIC CHECK DAM		
			NO SCALE		

REVISION DATES			FORSYTH COUNTY		
			TYPICAL SECTIONS & DETAILS BIG CREEK GREENWAY REHABILITATION		
CHECKED:		DATE:		DRAWING No.	
BACKCHECKED:		DATE:		05-0005	
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VERIFIED:		DATE:			

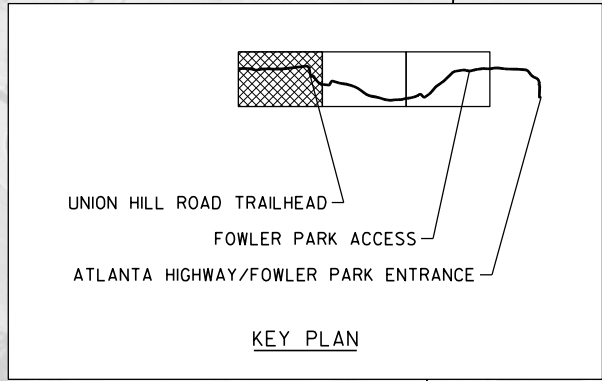
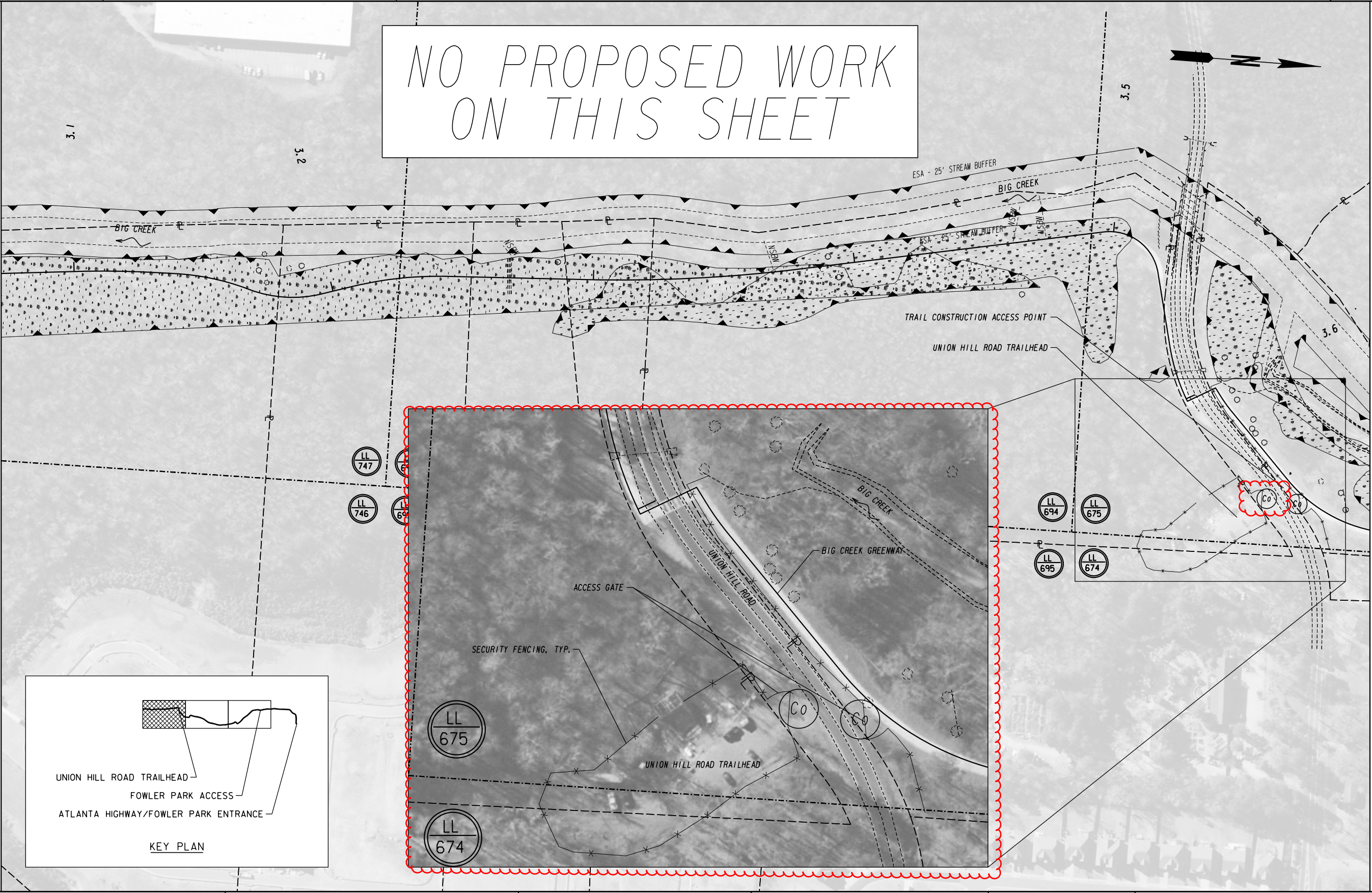


SUMMARY QUANTITIES

GRADING COMPLETE	
TOTAL	1 LS
GR AGGR BASE CRS. 6 INCH. INCL MATL	
AS DIRECTED	44 SY
CONCRETE SIDEWALK. 6 IN	
AS DIRECTED	40 SY
CONSTRUCTION EXIT	
TOTAL	2 EA
MAINTENANCE OF TEMPORARY SILT FENCE, TP C	
TOTAL	4396 LF
MAINTENANCE OF CONSTRUCTION EXIT	
TOTAL	2 EA
TEMPORARY SILT FENCE, TYPE C	
TOTAL	8792 LF
SOLID TRAFFIC STRIPE, 4 IN, WHITE (PAINT)	
AS DIRECTED	30 LF
ORANGE BARRIER FENCE	
AS DIRECTED	372 LF

GRASSING			AGRICULTURAL LIME	FERTILIZER MIXED GRADE	FERTILIZER NITROGEN CONTENT	MULCH
	UNIT	QUANTITY	TN	TN	LB	TN
PERMANENT GRASSING	AC	1	3	1	50	3
TEMPORARY GRASSING	AC	1	0	1	0	3
TOTALS		2	3	2	50	6

REMOVAL OF EXISTING BR, BOARDWALK 10	
TOTAL	1 LS
BOARDWALK 10	
TOTAL	1 LS
HELICAL PILE - BOARDWALK 10	
TOTAL	240 LF
REMOVAL OF EXISTING BR, BOARDWALK 11	
TOTAL	1 LS
BOARDWALK 11	
TOTAL	1 LS
HELICAL PILE - BOARDWALK 11	
TOTAL	780 LF
REMOVAL OF EXISTING BR, BOARDWALK 12	
TOTAL	1 LS
BOARDWALK 12	
TOTAL	1 LS
HELICAL PILE - BOARDWALK 12	
TOTAL	16320 LF
REMOVAL OF EXISTING BR, BOARDWALK 13	
TOTAL	1 LS
BOARDWALK 13	
TOTAL	1 LS
HELICAL PILE - BOARDWALK 13	
TOTAL	4740 LF
TIMBER HANDRAIL	
TOTAL	2358 LF
TIMBER TOE CURB	
TOTAL	6378 LF



PROPERTY AND EXISTING R/W LINE
BOARDWALK REPLACEMENT
WETLAND

-----E-----

CONSTRUCTION ENTRANCE
ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA
SEWER
OVERHEAD ELECTRIC

Co

Heath & Lineback Engineers
INCORPORATED
2390 CANTON ROAD, BUILDING 200
MARIETTA, GEORGIA 30066-5393
(770)424-1668

SCALE IN FEET

REVISION DATES	

FORSYTH COUNTY CONSTRUCTION PLAN BIG CREEK GREENWAY REHABILITATION			
CHECKED:		DATE:	
BACKCHECKED:		DATE:	
CORRECTED:		DATE:	
VERIFIED:		DATE:	

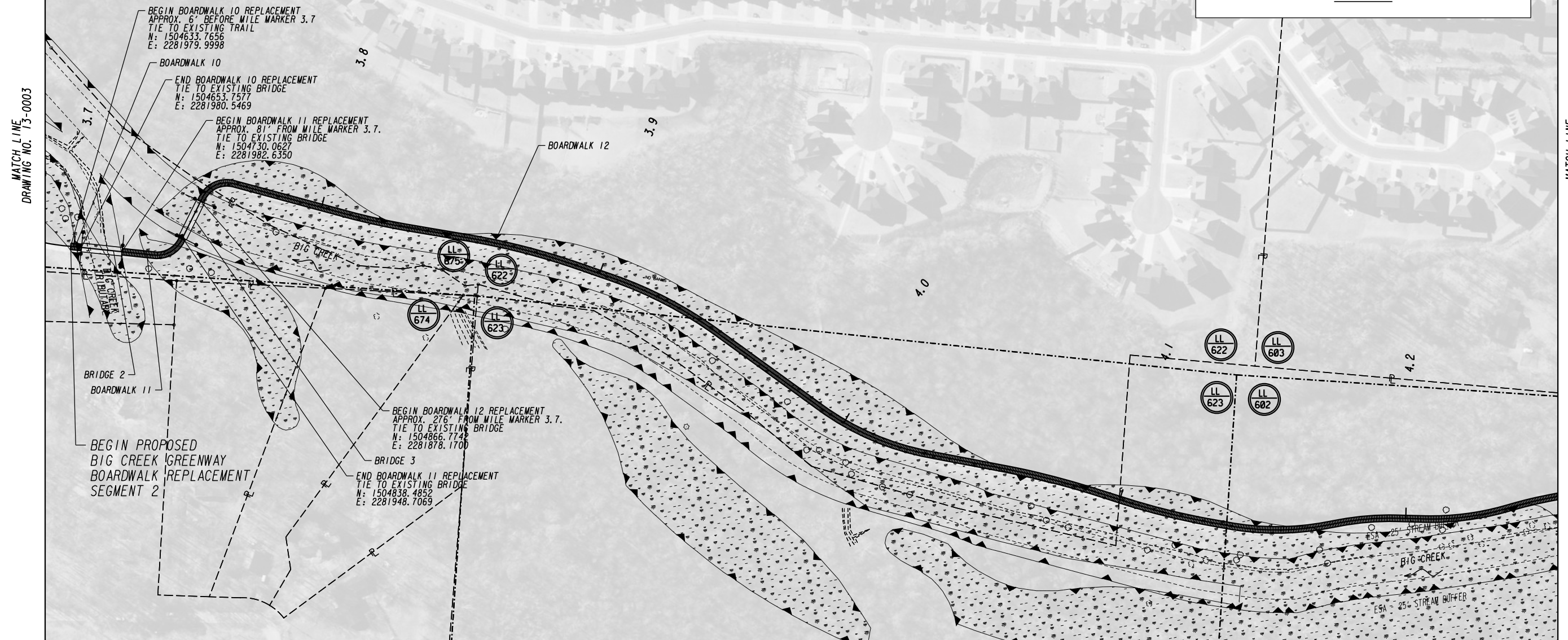
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13-0001

UNION HILL ROAD TRAILHEAD

FOWLER PARK ACCESS

ATLANTA HIGHWAY/FOWLER PARK ENTRANCE

KEY PLAN

[illegible]

The diagram shows a central quantum dot labeled 'Co' (Cobalt) represented by a circle. Below it is a horizontal line with five dots, representing a chain of atoms or a surface. Below this line are two downward-pointing triangles, representing magnetic impurities or spin states. Below the triangles is a dashed line labeled 'SS' (Single Spin). At the bottom, there are two electrodes labeled 'E', each represented by a zigzag line.



SCALE IN FEET

0 100 200 400

REVISION DATES

FORSYTH COUNTY

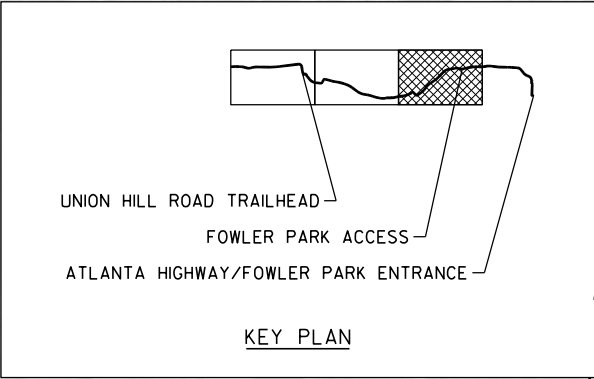
CONSTRUCTION PLAN
BIG CREEK GREENWAY
REHABILITATION

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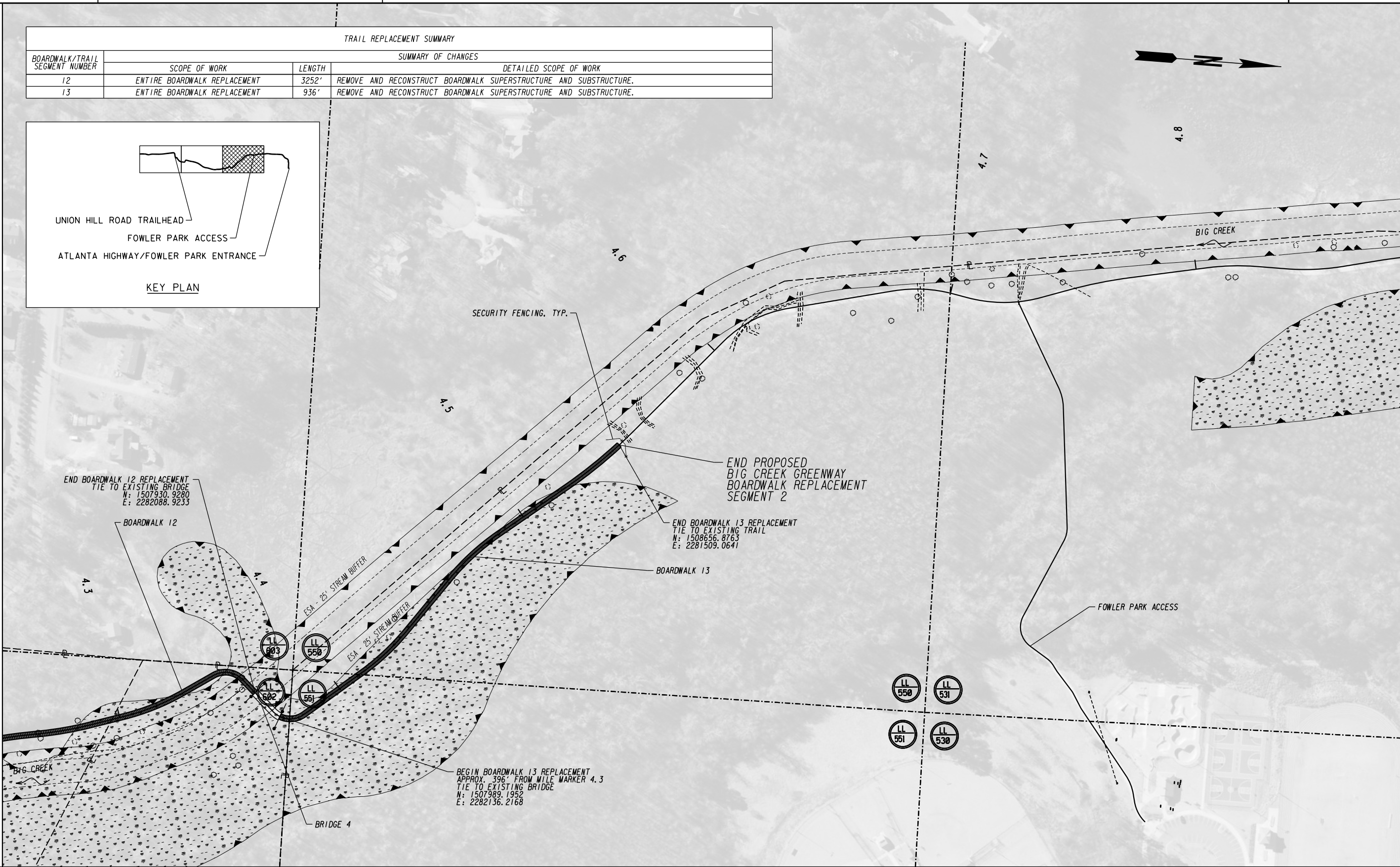
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3-0002

TRAIL REPLACEMENT SUMMARY			
BOARDWALK/TRAIL SEGMENT NUMBER	SCOPE OF WORK	LENGTH	SUMMARY OF CHANGES
			DETAILED SCOPE OF WORK
12	ENTIRE BOARDWALK REPLACEMENT	3252'	REMOVE AND RECONSTRUCT BOARDWALK SUPERSTRUCTURE AND SUBSTRUCTURE.
13	ENTIRE BOARDWALK REPLACEMENT	936'	REMOVE AND RECONSTRUCT BOARDWALK SUPERSTRUCTURE AND SUBSTRUCTURE.



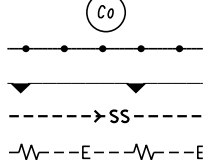
MATCH LINE
DRAWING NO. 13-0002



PROPERTY AND EXISTING R/W LINE
BOARDWALK REPLACEMENT
WETLAND



CONSTRUCTION ENTRANCE
ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA
SEWER
OVERHEAD ELECTRIC



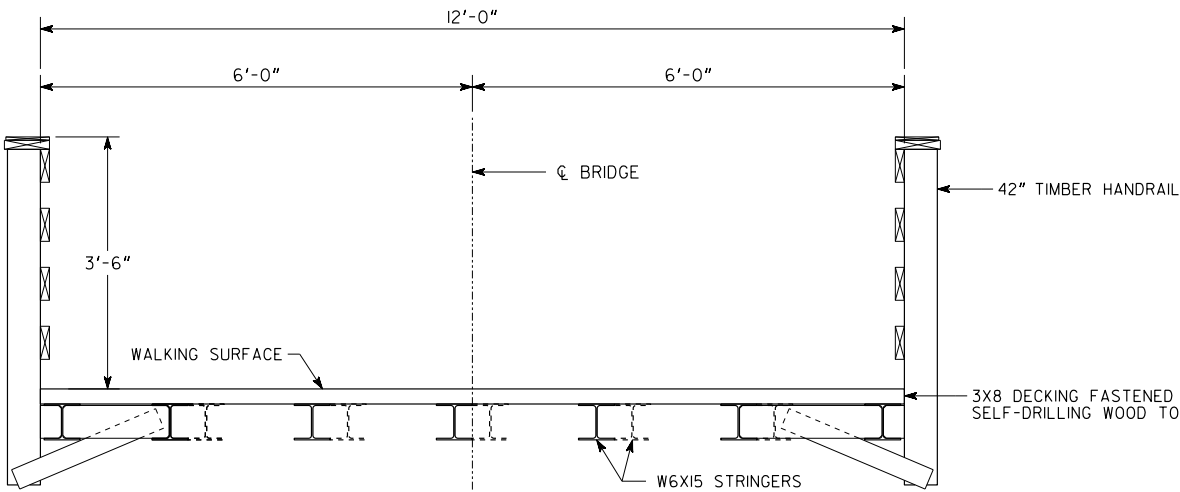
H&L Heath & Lineback Engineers
INCORPORATED
2390 CANTON ROAD, BUILDING 200
MARIETTA, GEORGIA 30066-5393
(770)424-1668



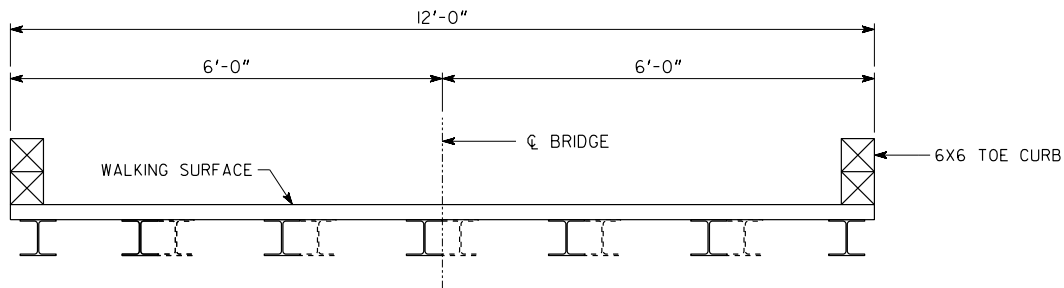
REVISION DATES

FORSYTH COUNTY
CONSTRUCTION PLAN
BIG CREEK GREENWAY
REHABILITATION

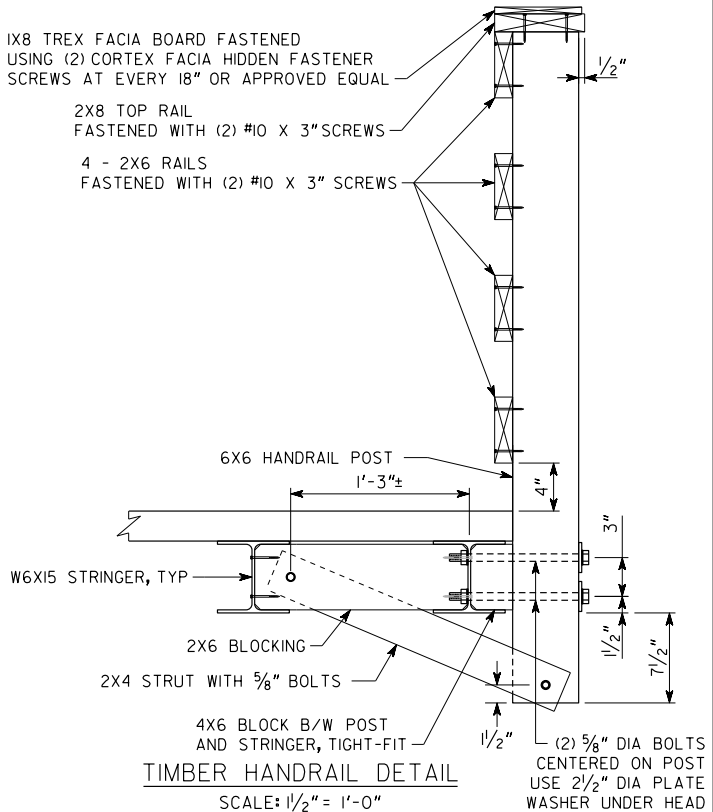
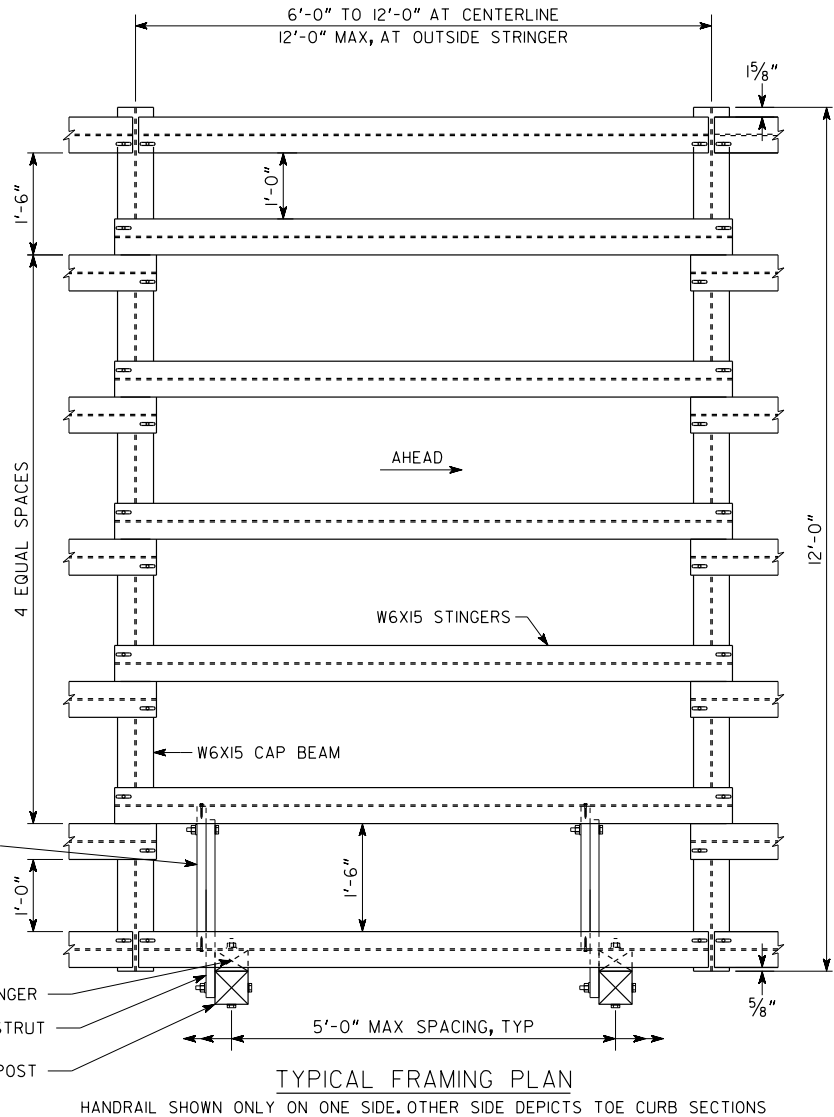
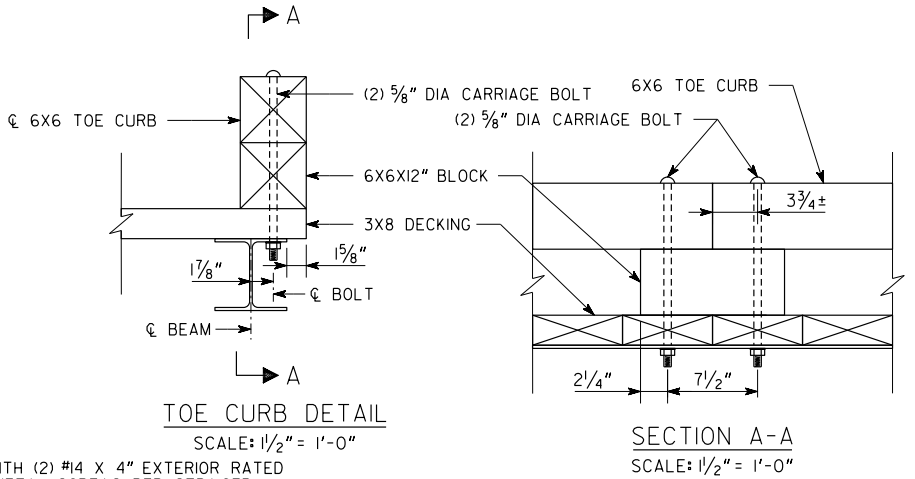
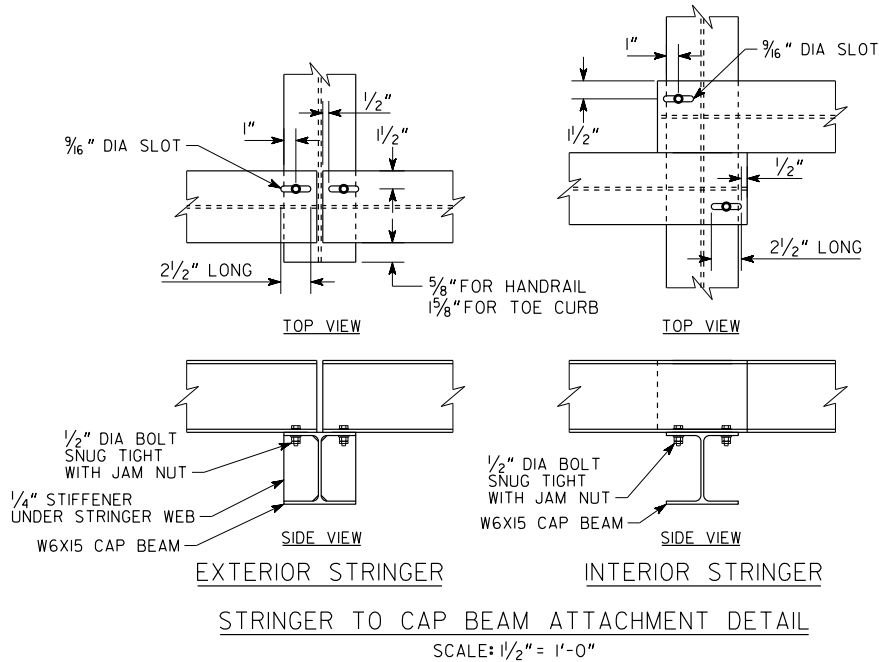
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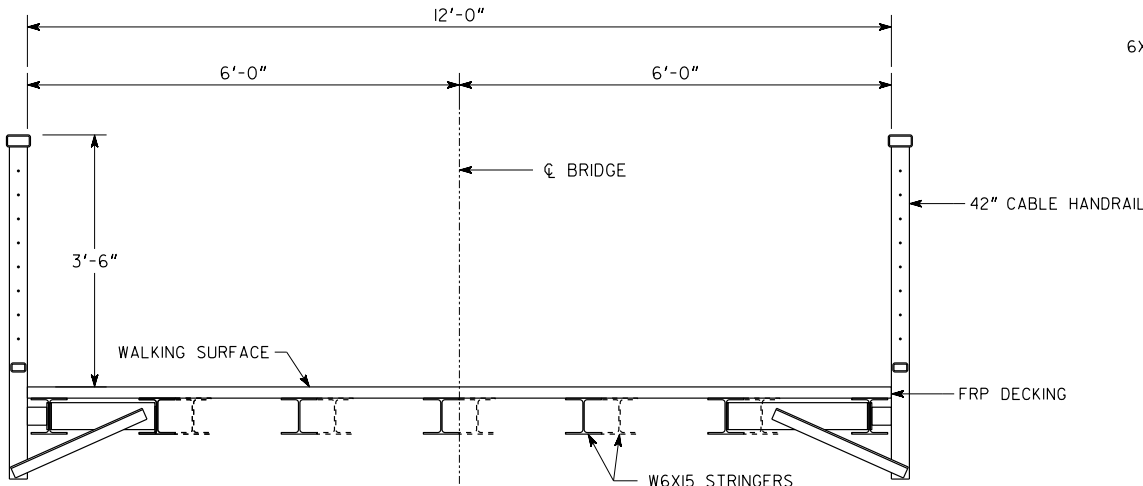
BOARDWALK TYPICAL SECTION WITH HANDRAIL
USE HANDRAIL WHEN WALKING SURFACE IS HIGHER THAN GROUND BY 30"



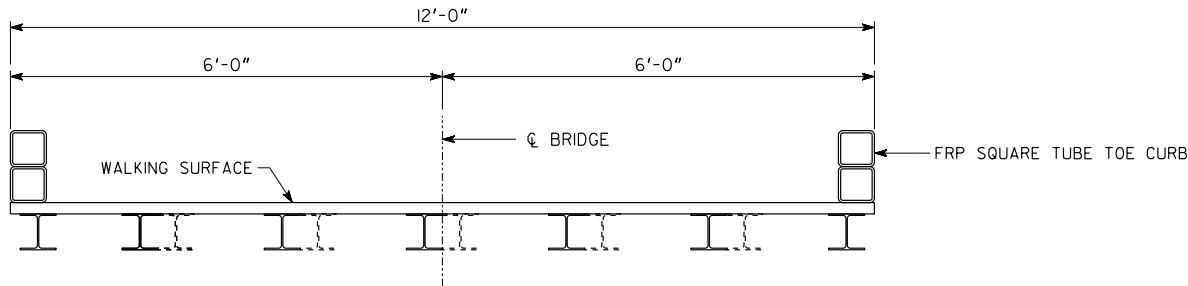
BOARDWALK TYPICAL SECTION WITH TOE CURB
STRINGER AND DECK DETAILS SIMILAR TO SECTION THROUGH HANDRAIL
USE HANDRAIL WHEN WALKING SURFACE IS HIGHER THAN GROUND 30"



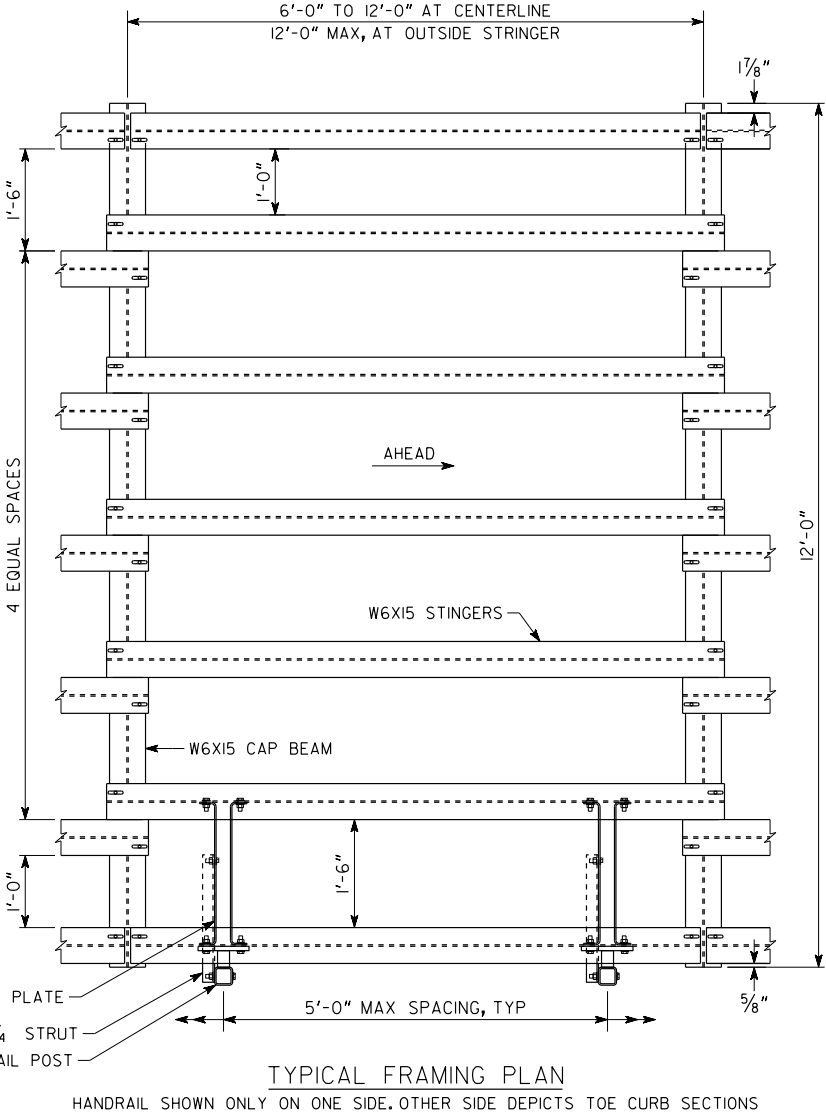
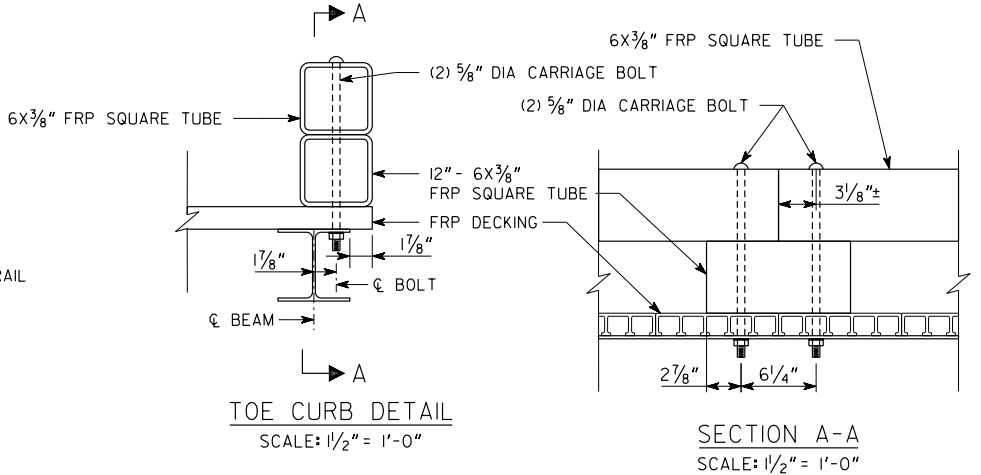
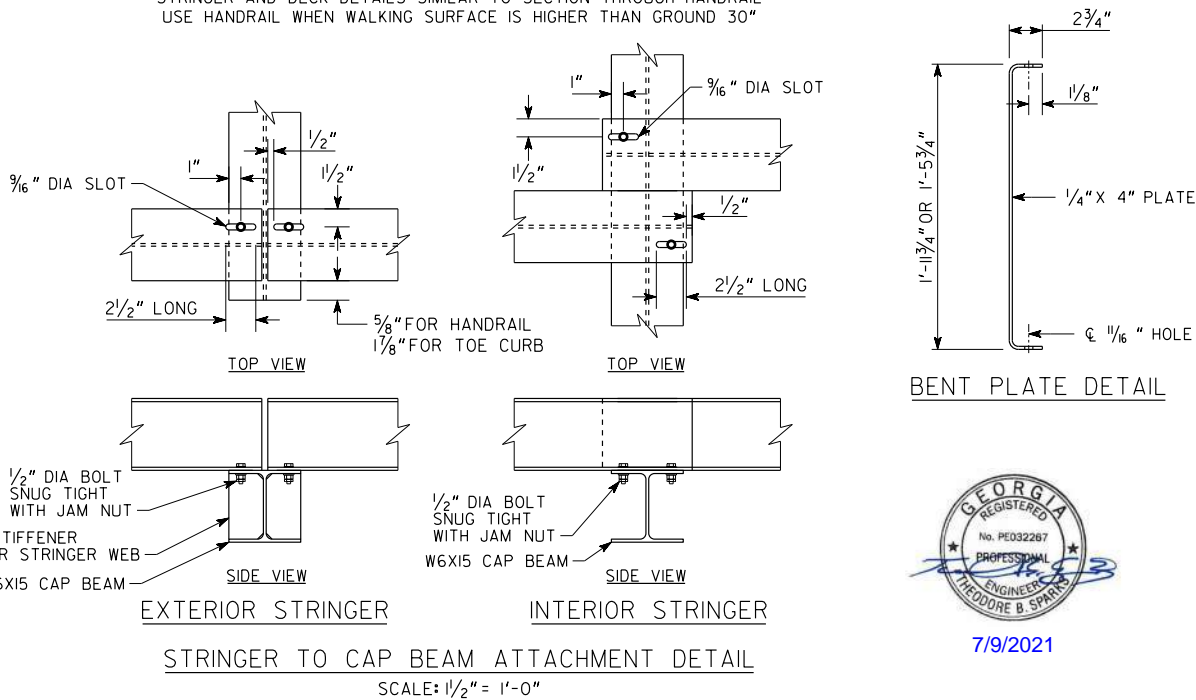
- GENERAL NOTES:
- BOARDWALK IS DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS 17TH EDITION, 2002, AWC NDS 2015 AND AISC STEEL CONSTRUCTION MANUAL 14TH EDITION, 2011.
 - BOARDWALK IS DESIGNED FOR THE FOLLOWING LOADS:
PEDESTRIAN LOADING: 90 PSF
VEHICULAR LOADING: H-5 TRUCK (NO IMPACT)
CONSTRUCTION LOADING: 18,000 LBS (INCLUDING ATTACHMENTS)
 - STEEL BEAMS: ASTM A992 GRADE 50 PAINTED WITH PAINT SYSTEM VII AS PER SECTION 535 OF THE GEORGIA DOT SPECIFICATIONS.
 - BOLTS SHALL BE ASTM A307 GRADE A. NUTS SHALL BE ASTM A563. REGULAR WASHERS SHALL BE ASTM F844 AND PLATE WASHERS SHALL BE ASTM F436.
 - BOLTS, NUTS, WASHERS, SCREWS, NAILS & LAG BOLTS SHALL BE GALVANIZED ACCORDING TO ASTM A153.
 - WASHERS SHALL BE PROVIDED UNDER BOLT AND LAG SCREW HEADS AND NUTS THAT ARE IN CONTACT WITH WOOD. PLATE WASHERS SHALL BE PROVIDED AT HANDRAIL POST BASE CONNECTIONS.
 - ALL LUMBER SHALL BE VISUALLY GRADED, SOUTHERN PINE INSPECTION BUREAU (SPIB) SOUTHERN PINE NO. 1.
 - ALL WOOD COMPONENTS SHALL BE PRESSURE IMPREGNATED WITH WOOD PRESERVATIVE IN ACCORDANCE WITH THE REQUIREMENTS OF AWPA STANDARD UC4B WITH .31 CA-C RETENTION WITH THE EXCEPTION OF DECKING, HANDRAIL POSTS, RAILS AND TOE CURB WHICH MAY BE UC4A WITH .15 CA-C RETENTION.
 - SEE SUBSTRUCTURE SHEET FOR FOUNDATION NOTES.
 - FOR TOP DOWN CONSTRUCTION, CONTRACTOR SHALL DETERMINE SPAN LENGTH BASED ON CONSTRUCTABILITY USING AVAILABLE EQUIPMENT.
 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE STEEL BEAMS FOR REVIEW AND APPROVAL BY THE ENGINEER.



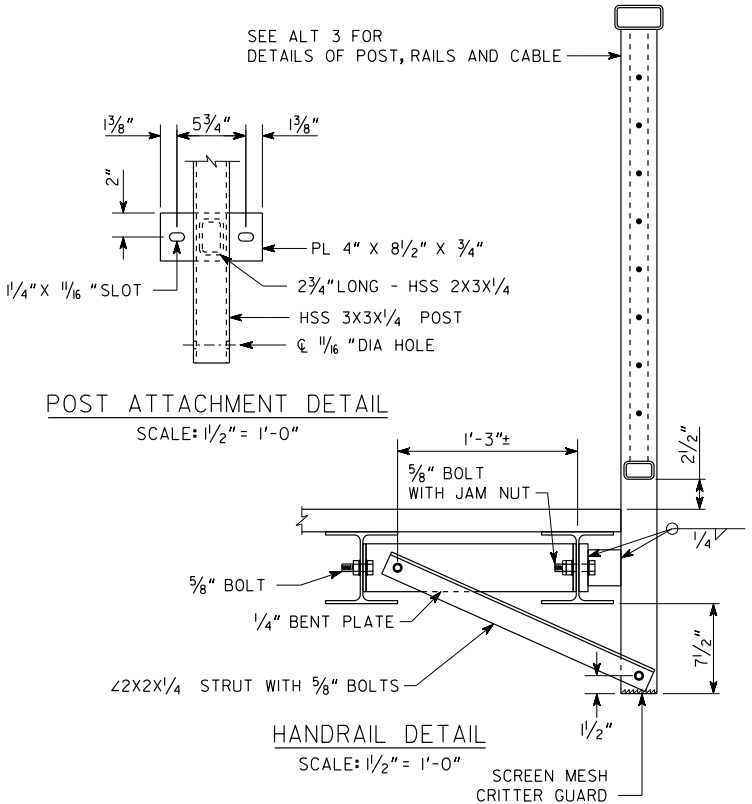
BOARDWALK TYPICAL SECTION WITH HANDRAIL
USE HANDRAIL WHEN WALKING SURFACE IS HIGHER THAN GROUND BY 30"

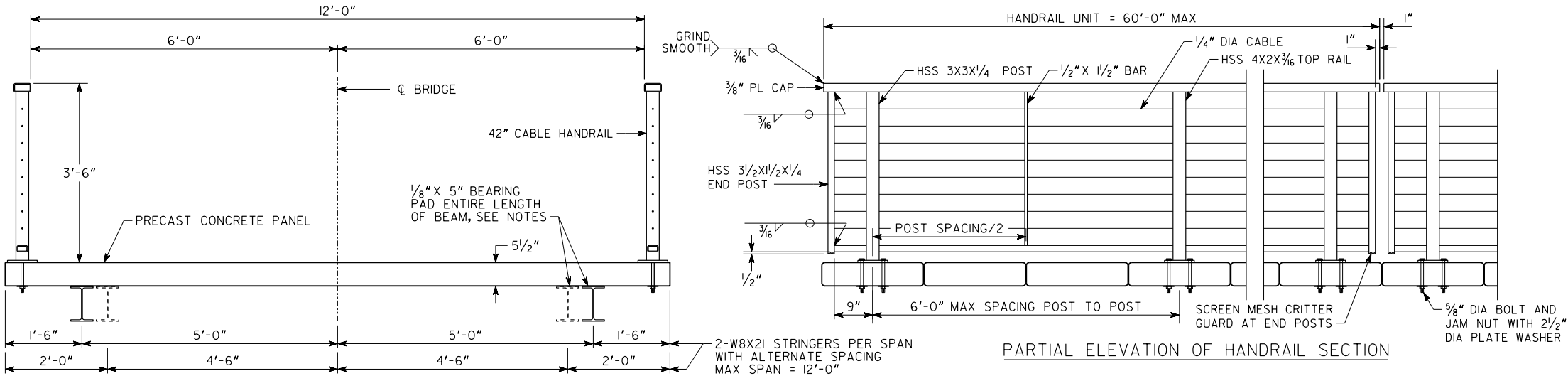


BOARDWALK TYPICAL SECTION WITH TOE CURB
STRINGER AND DECK DETAILS SIMILAR TO SECTION THROUGH HANDRAIL
USE HANDRAIL WHEN WALKING SURFACE IS HIGHER THAN GROUND 30"

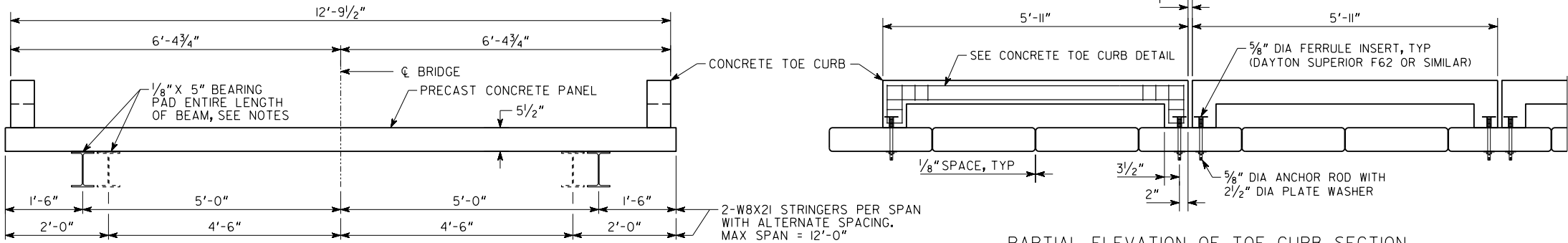


- GENERAL NOTES:
- BOARDWALK IS DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS 17TH EDITION, 2002, AWC NDS 2015 AND AISC STEEL CONSTRUCTION MANUAL 14TH EDITION, 2011.
 - BOARDWALK IS DESIGNED FOR THE FOLLOWING LOADS:
PEDESTRIAN LOADING: 90 PSF
VEHICULAR LOADING: H-5 TRUCK (NO IMPACT)
CONSTRUCTION LOADING: 18,000 LBS (INCLUDING ATTACHMENTS)
 - STEEL BEAMS: ASTM A992 GRADE 50 PAINTED WITH PAINT SYSTEM VII AS PER SECTION 535 OF THE GEORGIA DOT SPECIFICATIONS.
 - BOLTS SHALL BE ASTM A307 GRADE A. NUTS SHALL BE ASTM A563. REGULAR WASHERS SHALL BE ASTM F844 AND PLATE WASHERS SHALL BE ASTM F436.
 - BOLTS, NUTS, WASHERS, SCREWS, NAILS & LAG BOLTS SHALL BE GALVANIZED ACCORDING TO ASTM A153.
 - FRP DECKING SHALL BE ET TECHTONICS FRP CP064 FIBERGLASS HEAVY DUTY PLANK WITH ANTI-SKID COATING RATED FOR 10,000 LBS VEHICLE LOAD (AASHTO H-5) OR APPROVED EQUAL. CONTRACTOR SHALL VERIFY MINIMUM STRINGER SPACING ACCORDING FRP PLANK SPECIFICATIONS FOR H-5 LOADING AND ADD STRINGERS AS NECESSARY AT NO COST TO THE COUNTY. ATTACH PLANKS TO STRINGERS AS PER MANUFACTURER RECOMMENDATIONS.
 - FRP SQUARE TUBE SHALL BE BEDFORD REINFORCED PLASTICS PROFORMS STRUCTURAL SHAPES OR APPROVED EQUAL. MATCH COLOR WITH DECKING.
 - SEE SUBSTRUCTURE SHEET FOR FOUNDATION NOTES.
 - SEE DRAWING NO. 35-0003 FOR HANDRAIL NOTES.
 - FOR TOP DOWN CONSTRUCTION, CONTRACTOR SHALL DETERMINE SPAN LENGTH BASED ON CONSTRUCTABILITY USING AVAILABLE EQUIPMENT.
 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE STEEL BEAMS AND HANDRAIL FOR REVIEW AND APPROVAL BY THE ENGINEER.

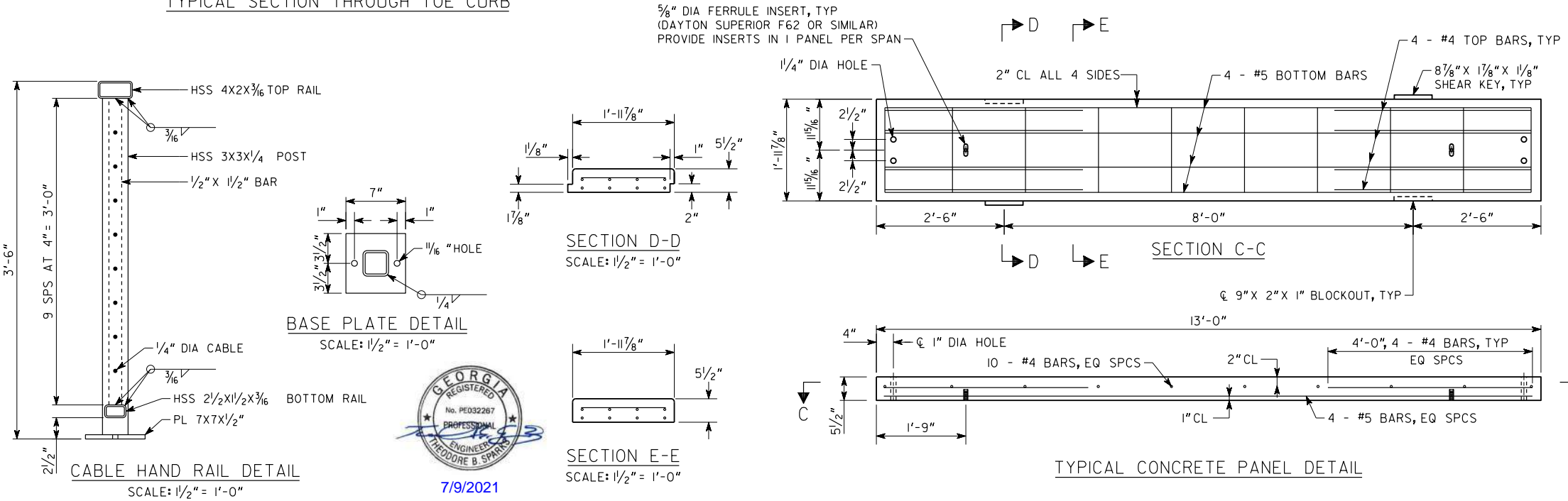




TYPICAL SECTION THROUGH HANDRAIL
USE HANDRAIL WHEN WALKING SURFACE
IS HIGHER THAN GROUND BY 3'-0"



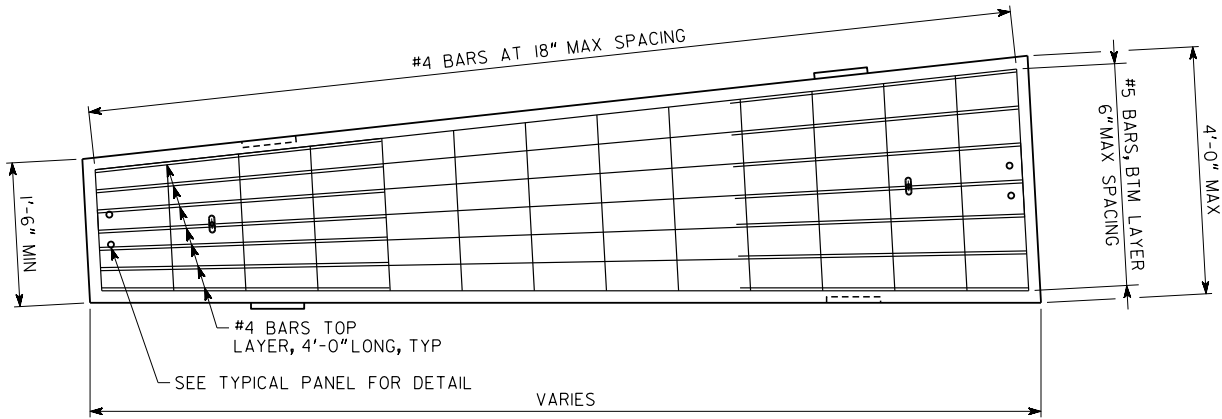
TYPICAL SECTION THROUGH TOE CURB



- GENERAL NOTES:
- BOARDWALK IS DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS 17TH EDITION, 2002, AWC NDS 2015 AND AISC STEEL CONSTRUCTION MANUAL 14TH EDITION, 2011.
 - BOARDWALK IS DESIGNED FOR THE FOLLOWING LOADS:
PEDESTRIAN LOADING: 90 PSF
VEHICULAR LOADING: H-5 TRUCK (NO IMPACT)
CONSTRUCTION LOADING: 18,000 LBS (INCLUDING ATTACHMENTS)
 - MAINTAIN 2" CLEARANCE ON ALL REINFORCEMENT UNLESS OTHERWISE NOTED.
 - ALL WELDING SHALL BE DONE IN ACCORDANCE WITH AWS D1.1:2015.
 - CHAMFER ALL EXPOSED CONCRETE EDGES 1/2" UNLESS OTHERWISE NOTED.
 - SEE SUBSTRUCTURE SHEET FOR FOUNDATION NOTES.
 - FOR TOP DOWN CONSTRUCTION, CONTRACTOR SHALL DETERMINE SPAN LENGTH BASED ON CONSTRUCTABILITY USING AVAILABLE EQUIPMENT. CONCRETE PANELS SHALL BE LIFTED FROM THE ENDS USING BEAM CLAMPS AND PLATES TO SPREAD THE LOAD.
 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE CONCRETE PANELS, STEEL BEAMS AND HANDRAIL FOR REVIEW AND APPROVAL BY THE ENGINEER.

- MATERIALS:
- CONCRETE: $f'_c = 4000$ PSI.
 - STEEL:
A. W-BEAMS: ASTM A992 GRADE 50
B. HSS SECTIONS: ASTM A500 GRADE B, $f_y = 42$ KSI.
C. CHANNEL, ANGLE, BAR & PLATE: ASTM A36
 - FASTENERS:
A. BOLTS: ASTM A307 GRADE A
B. ANCHOR RODS: ASTM F1554 GRADE 36
C. NUTS AND WASHERS: ASTM A563 & F844
 - REINFORCING STEEL: GRADE 60, $f_y = 60$ KSI
 - BEARING PAD SHALL BE MADE OF 60 DUROMETER HARDNESS NEOPRENE, GRADE 2 OR HIGHER. BEARING PADS CAN BE EPOXIED TO BEAMS IF REQUIRED.
 - COATINGS:
A. BOLTS, NUTS, WASHERS, SCREWS: GALVANIZED ASTM A153.
B. W-BEAMS: CLEAN AND PAINT WITH PAINT SYSTEM VII AS PER SECTION 535 OF THE GEORGIA DOT SPECIFICATIONS.
C. SUBSTRUCTURE CHANNEL, ANGLE, PLATE & HSS: HOT DIP GALVANIZE ACCORDING TO ASTM A123.
D. CONCRETE PANELS: PROVIDE A BROOM FINISH ON THE WALKING SURFACE.
E. HANDRAIL AND BASE PLATE WITH BOLTS SHALL BE POWDER COATED. COORDINATE WITH THE COUNTY FOR THE EXACT COLOR.

- HANDRAIL NOTES:
- CABLE SHALL BE ASTM A492, TYPE 316 STAINLESS STEEL WIRE, 1 X 19 CONFIGURATION WITH LEFT HAND LAY, CONFORMING TO DIMENSIONAL PROPERTIES SPECIFIED IN MIL-DTL-87161.
 - CABLE SHALL BE CONTINUOUS FROM END TO END OF HANDRAIL UNIT.
 - TENSION CABLES TO 400LB EACH. START AT TOP AND BOTTOM CABLES AND SEQUENTIALLY WORK TOWARDS MIDDLE. REPEAT AT OPPOSITE END TO CONFIRM TENSION.
 - GROMMETS MADE OF DERLIN SHALL BE USED AT ALL LOCATIONS WHERE STAINLESS STEEL CABLES PASS THROUGH MILD STEEL.
 - STAINLESS STEEL CABLE ANCHORAGE HARDWARE SHALL BE HIDDEN IN THE END ANCHOR TUBES AND SHALL PROVIDE MEANS FOR ADJUSTING THE CABLE TENSION.

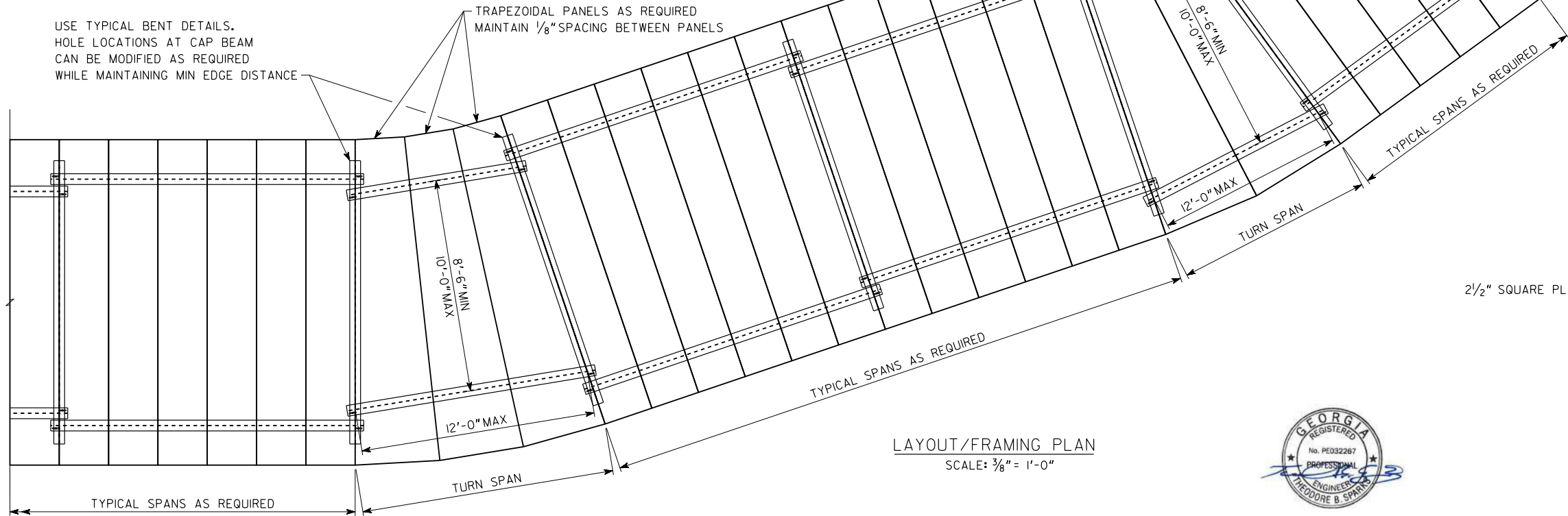


TRAPEZOIDAL CONCRETE PANEL DETAIL

NOTES:

- ALIGNMENTS ON A CURVE SHALL BE ACCOMODATED USING A TURN SPANS WITH TRAPEZIODAL CONCRETE PANELS AND STRINGERS OF VARYING DIMENSIONS.
- TRAPEZOIDAL SLABS SHALL ADHERE TO THE LIMITATIONS IN THE TRAPEZOIDAL CONCRETE PANEL DETAIL.
- SUPPORT TO SUPPORT SPAN LENGTH OF ANY STRINGER SHALL NOT EXCEED 12'-0".

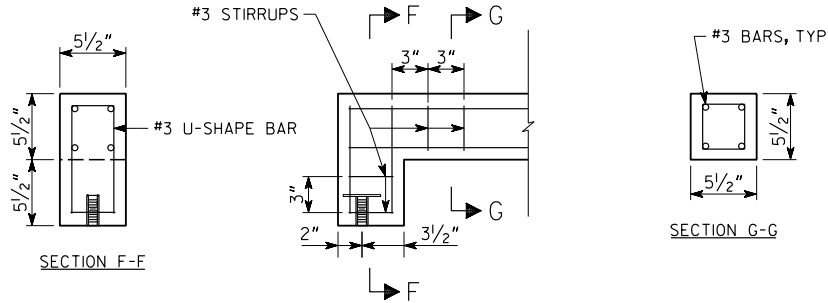
USE TYPICAL BENT DETAILS.
HOLE LOCATIONS AT CAP BEAM
CAN BE MODIFIED AS REQUIRED
WHILE MAINTAINING MIN EDGE DISTANCE



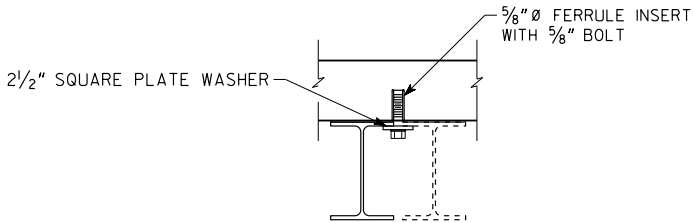
LAYOUT/FRAMING PLAN
SCALE: 3/8" = 1'-0"



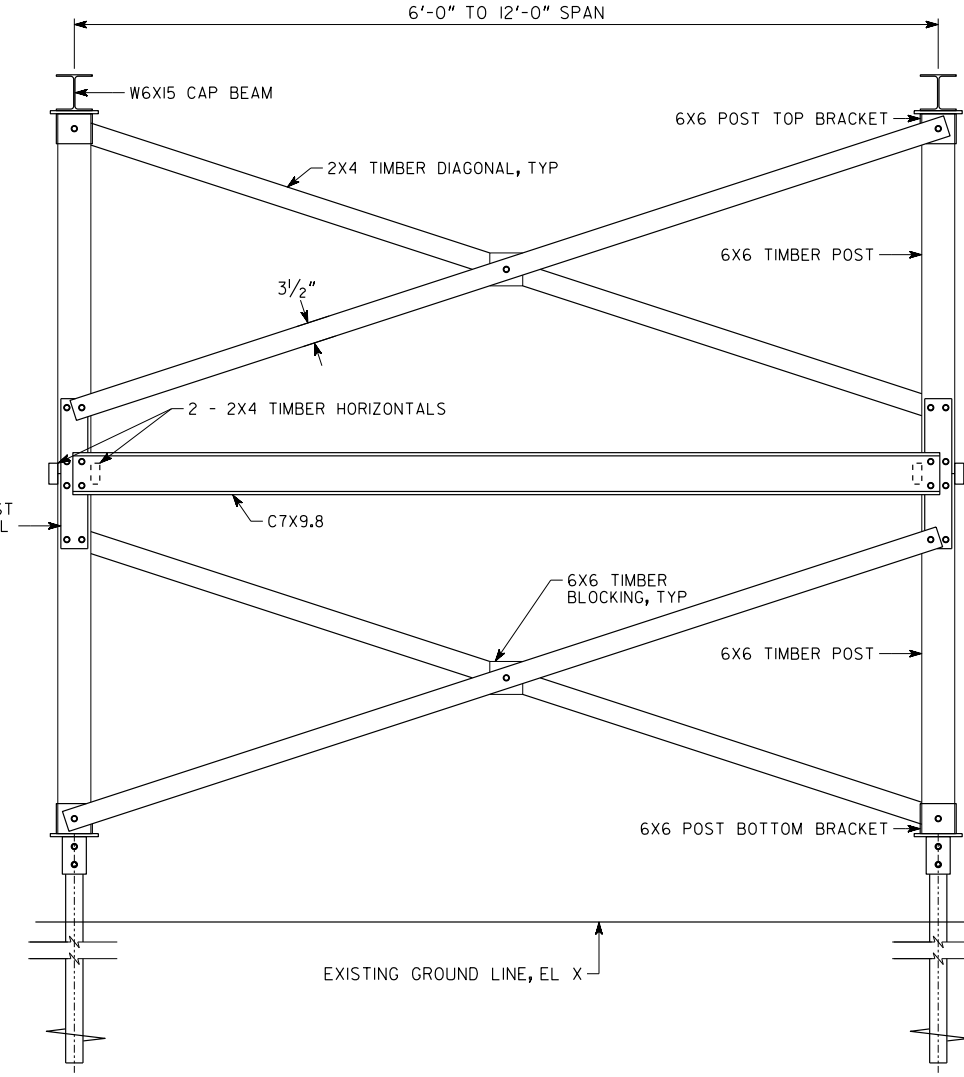
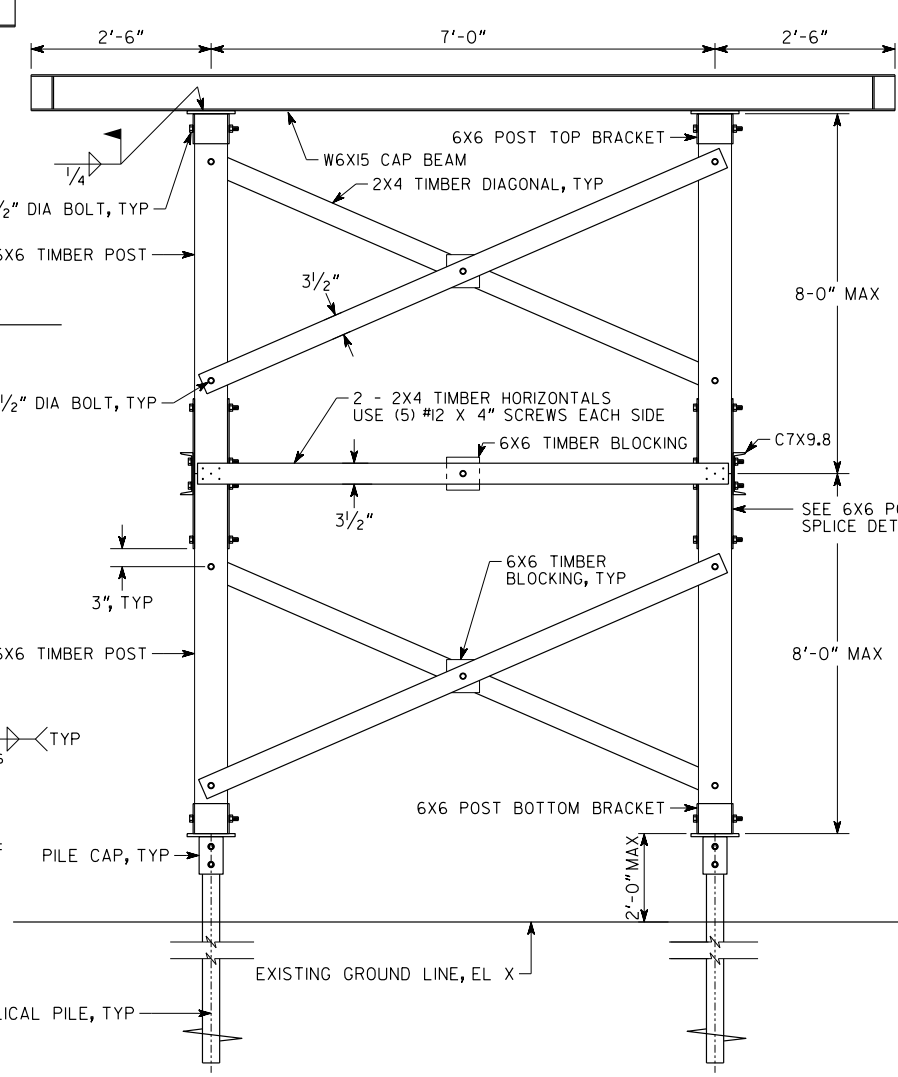
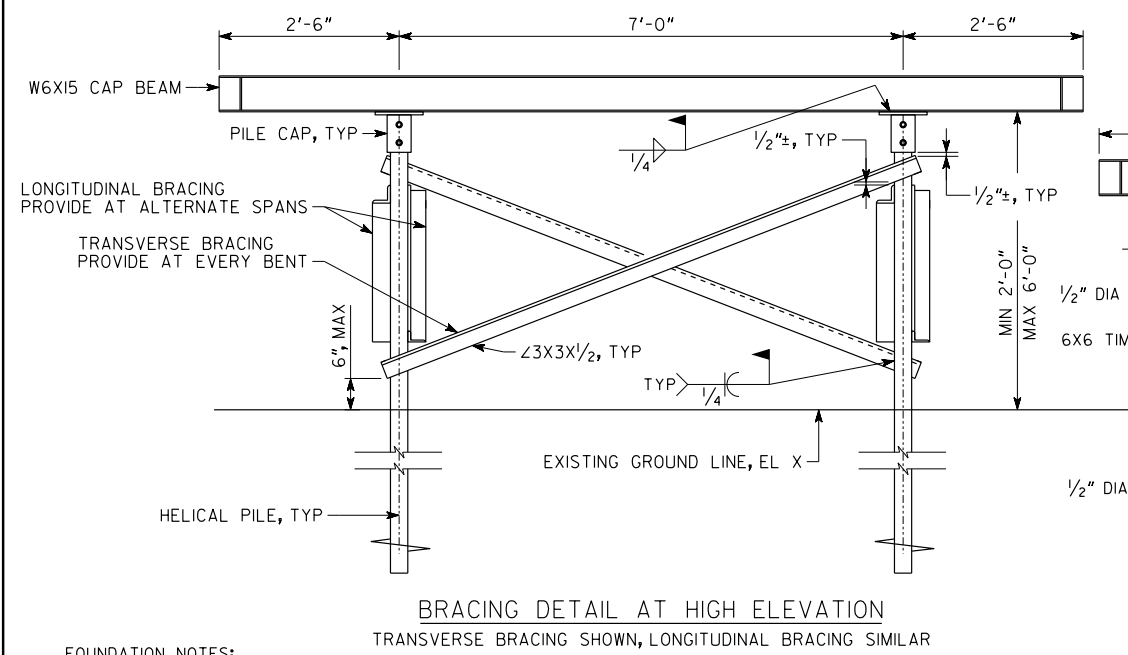
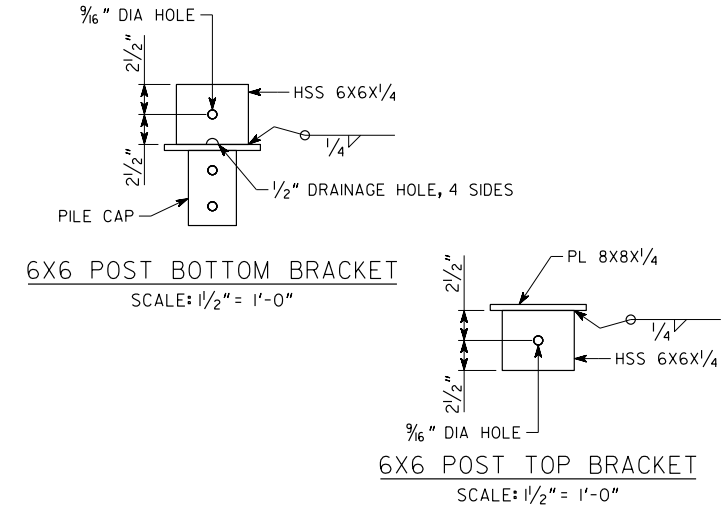
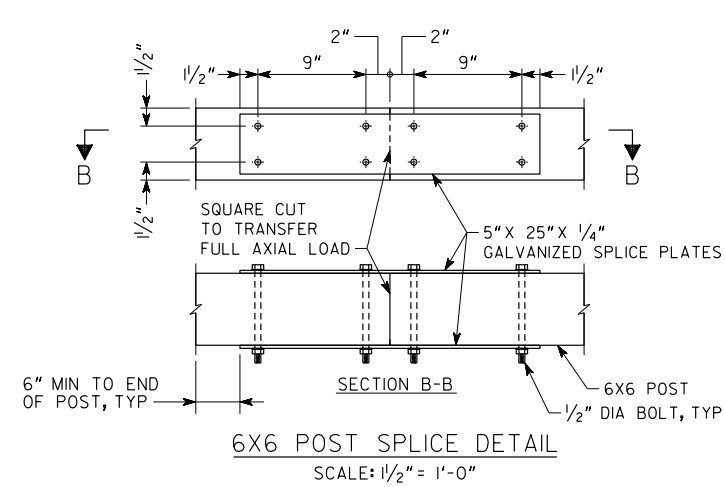
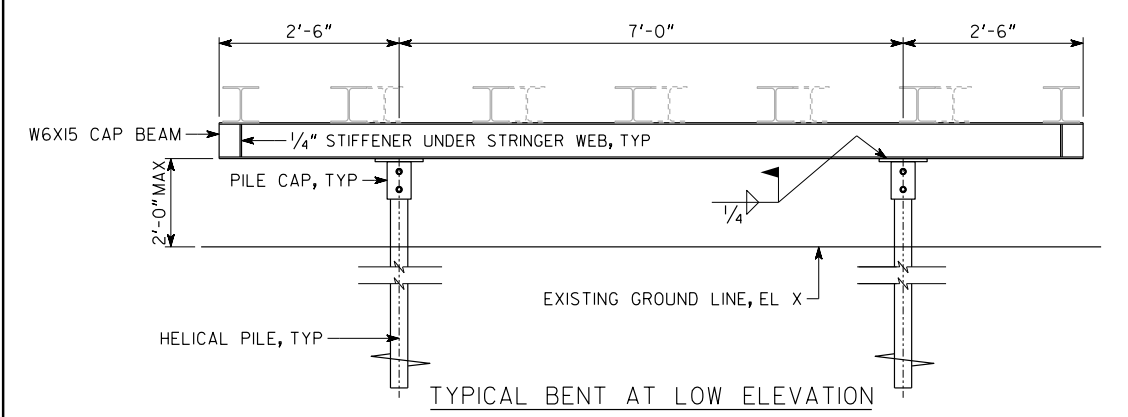
7/9/2021



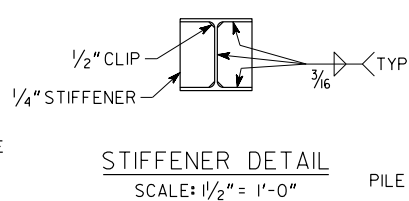
CONCRETE TOE CURB DETAIL
MAINTAIN 1/2" CLEARANCE ON ALL REINFORCEMENT
SCALE: 1/2" = 1'-0"



PANEL ATTACHMENT
DETAIL
SCALE: 1/2" = 1'-0"



- FOUNDATION NOTES:
- HELICAL PILES SHALL BE DESIGNED FOR A MINIMUM FACTOR OF SAFETY OF 2 BETWEEN ALLOWABLE PILE LOAD AND THE FOLLOWING DESIGN SERVICE LOADS:
DESIGN SERVICE AXIAL COMPRESSION = 12 KIPS
DESIGN SERVICE LATERAL LOAD = 1.5 KIPS.
 - MINIMUM PILE TIP ELEVATION OF (X - 5'-0") SHALL BE ACHIEVED.
 - PILE SHAFT CAPACITY CALCULATIONS SHALL INCLUDE CONSIDERATION WEAK SOIL LAYERS, IF ANY, AND LATERAL STABILITY REQUIREMENTS.
 - HELICAL PILES AND PILE CAP SHALL BE GALVANIZED. PILE CAP SHALL BE COMPATIBLE WITH HELICAL PILE AND SHALL BE CAPABLE OF HANDLING DESIGN LOADS. MIN CAP PLATE SIZE = 8" X 8".
 - CHANNEL, ANGLE, AND PLATE SHALL BE ASTM A36 AND SHALL BE HOT DIP GALVANIZED ACCORDING TO ASTM A123.
 - HSS SECTIONS SHALL BE ASTM A500 GRADE B AND AND SHALL BE HOT DIP GALVANIZED ACCORDING TO ASTM A123.
 - PREPARATION AND WELDING OF GALVANIZED SURFACES SHALL BE ACCORDING TO AWS GUIDELINES. AFTER WELDING, APPLY COLD GALVANIZING COMPOUND OVER THE WELDED AREA ACCORDING TO ASTM A780.
 - CONTRACTOR SHALL SUBMIT HELICAL PILE DESIGN AND HELICAL PILE CONTRACTOR QUALIFICATIONS TO ENGINEER FOR APPROVAL. DESIGN SHALL BE SEALED BY AN ENGINEER, REGISTERED IN THE STATE OF GEORGIA.
 - SEE SHEET 35-0006 FOR DETAILS AT ABUTMENTS.



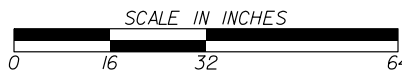
7/9/2021

SECTION - TYPICAL BENT AT HIGH ELEVATION > 6'-0"
LONGITUDINAL DIAGONAL BRACING NOT SHOWN

SIDE ELEVATION - TYPICAL BENT AT HIGH ELEVATION > 6'-0"
TRANSVERSE DIAGONAL BRACING NOT SHOWN

H&L Heath & Lineback Engineers
INCORPORATED
2390 CANTON ROAD, BUILDING 200
MARIETTA, GEORGIA 30066-3393
(770)424-1668

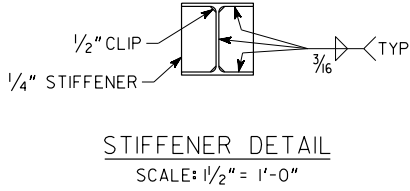
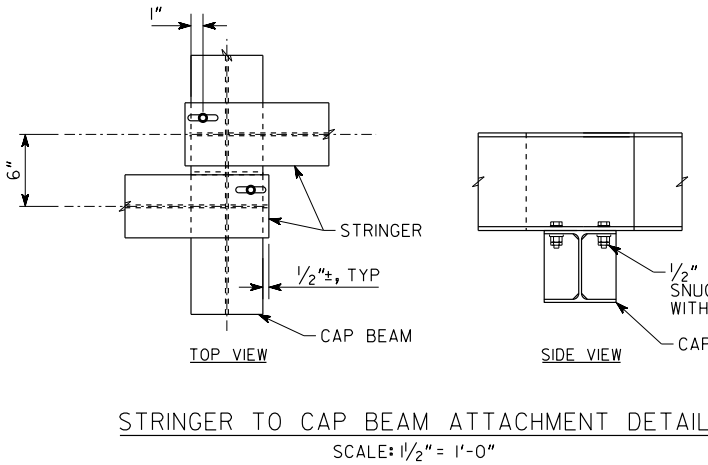
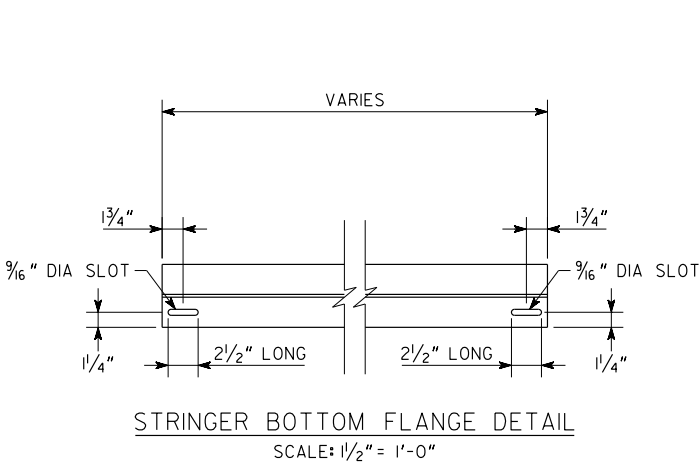
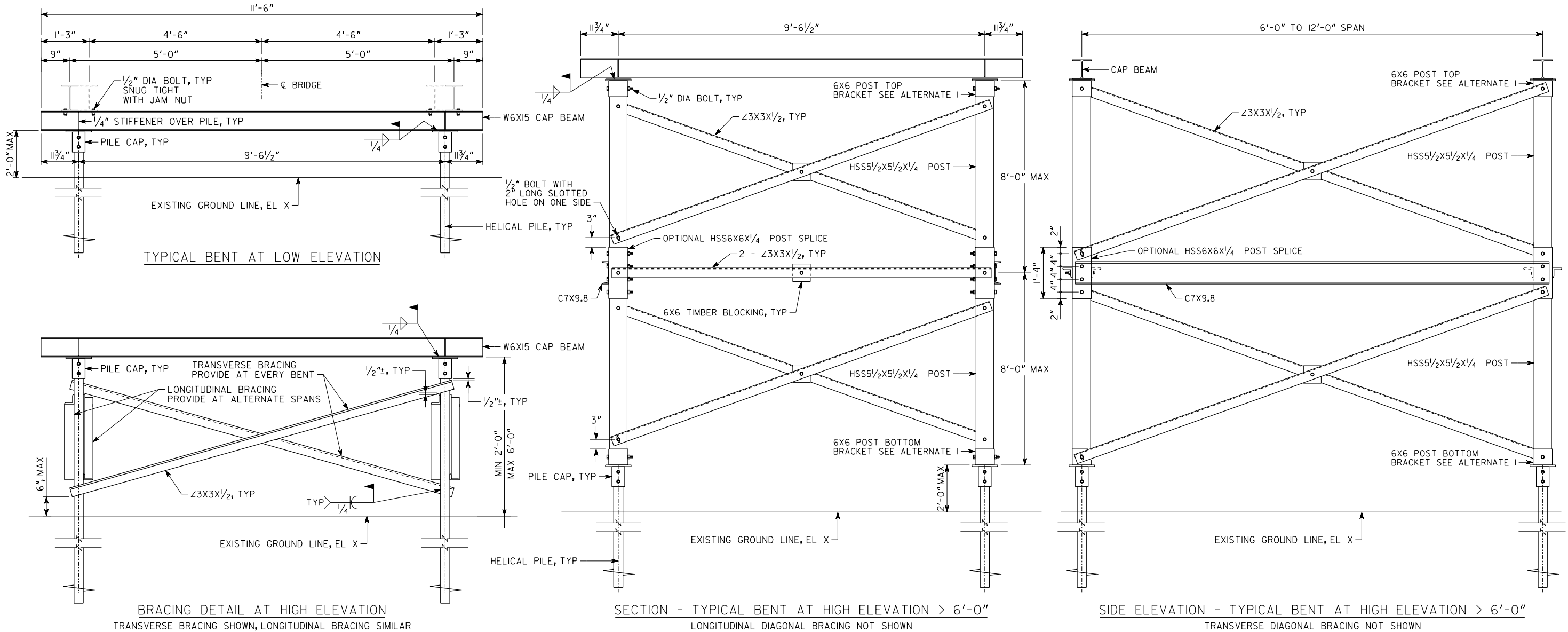
SCALE: 3/4" = 1'-0"
(UNLESS NOTED OTHERWISE)



REVISION DATES

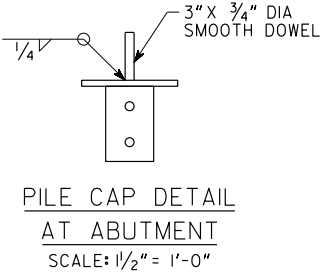
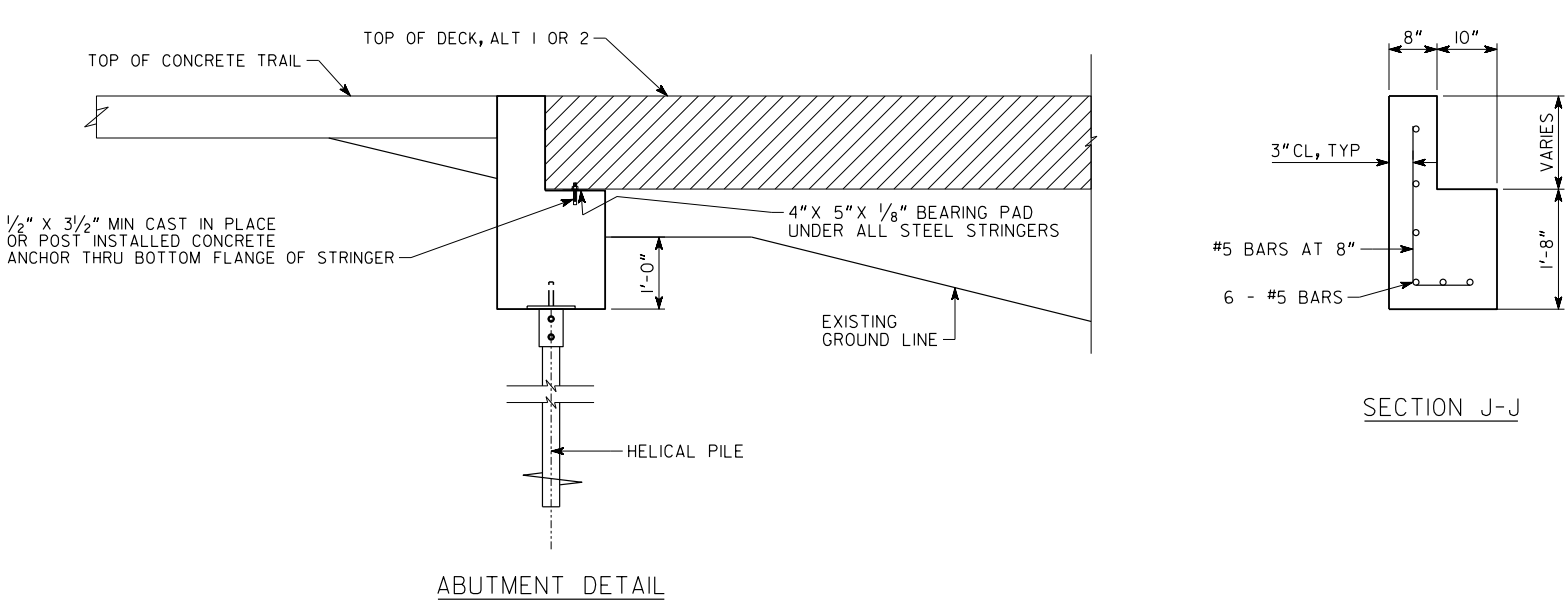
FORSYTH COUNTY
BOARDWALK DETAILS - ALTERNATE 1 & 2
SUBSTRUCTURE DETAILS
BIG CREEK GREENWAY REHABILITATION

CHECKED:	DATE:	DRAWING No. 35-0005
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

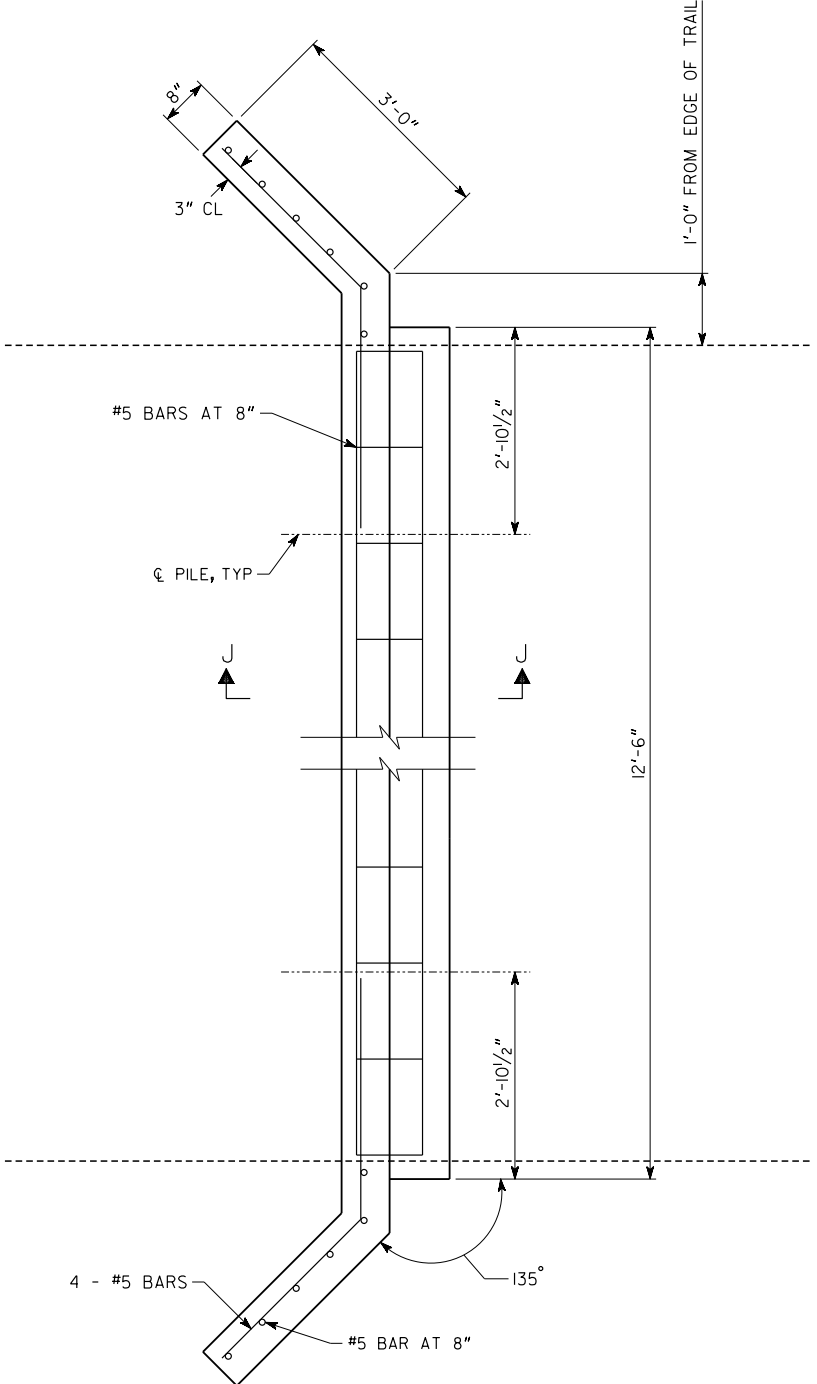


- FOUNDATION NOTES:
- HELICAL PILES SHALL BE DESIGNED FOR A MINIMUM FACTOR OF SAFETY OF 2 BETWEEN ALLOWABLE PILE LOAD AND THE FOLLOWING DESIGN SERVICE LOADS:
DESIGN SERVICE AXIAL COMPRESSION = 16 KIPS
DESIGN SERVICE LATERAL LOAD = 1.5 KIPS.
 - MINIMUM PILE TIP ELEVATION OF (X - 5'-0") SHALL BE ACHIEVED.
 - PILE SHAFT CAPACITY CALCULATIONS SHALL INCLUDE CONSIDERATION WEAK SOIL LAYERS, IF ANY, AND LATERAL STABILITY REQUIREMENTS.
 - HELICAL PILES AND PILE CAP SHALL BE GALVANIZED. PILE CAP SHALL BE COMPATIBLE WITH HELICAL PILE AND SHALL BE CAPABLE OF HANDLING DESIGN LOADS. MIN CAP PLATE SIZE = 8" X 8".
 - PREPARATION AND WELDING OF GALVANIZED SURFACES SHALL BE ACCORDING TO AWS GUIDELINES. AFTER WELDING, APPLY COLD GALVANIZING COMPOUND OVER THE WELDED AREA ACCORDING TO ASTM A780.
 - CONTRACTOR SHALL SUBMIT HELICAL PILE DESIGN AND HELICAL PILE CONTRACTOR QUALIFICATIONS TO ENGINEER FOR APPROVAL. DESIGN SHALL BE SEALED BY AN ENGINEER, REGISTERED IN THE STATE OF GEORGIA.
 - SEE SHEET 35-0006 FOR DETAILS AT ABUTMENTS.

REVISION DATES		FORSYTH COUNTY			
		BOARDWALK DETAILS - ALTERNATE 3			
		SUBSTRUCTURE DETAILS			
		BIG CREEK GREENWAY REHABILITATION			
CHECKED:		DATE:		DRAWING No.	
BACKCHECKED:		DATE:		35-0006	
CORRECTED:		DATE:			
VERIFIED:		DATE:			



SECTION J-J



ABUTMENT REINFORCEMENT DETAIL

FOUNDATION NOTES:

1. HELICAL PILES AND DOWEL DETAIL IS ONLY REQUIRED FOR ALTERNATE 2. ABUTMENT FOR ALTERNATE 1 CAN BE CAST ON GRADE AFTER MINIMUM SOIL BEARING CAPACITY OF 1500 PSF HAS BEEN VERIFIED.
2. HELICAL PILES FOR ALT 2 SHALL BE DESIGNED FOR A MINIMUM FACTOR OF SAFETY OF 2 BETWEEN ALLOWABLE PILE LOAD AND THE FOLLOWING DESIGN SERVICE LOADS:

DESIGN SERVICE AXIAL COMPRESSION = 16 KIPS
DESIGN SERVICE LATERAL LOAD = 1.5 KIPS.
3. MINIMUM PILE TIP ELEVATION OF (X - 5'-0") SHALL BE ACHIEVED.
4. PILE SHAFT CAPACITY CALCULATIONS SHALL INCLUDE CONSIDERATION WEAK SOIL LAYERS, IF ANY, AND LATERAL STABILITY REQUIREMENTS.
5. PILE CAP SHALL BE COMPATIBLE WITH HELICAL PILE AND SHALL BE CAPABLE OF HANDLING DESIGN LOADS. MIN CAP PLATE SIZE = 8" X 8".
6. CONTRACTOR SHALL SUBMIT HELICAL PILE DESIGN AND HELICAL PILE CONTRACTOR QUALIFICATIONS TO ENGINEER FOR APPROVAL. DESIGN SHALL BE SEALED BY AN ENGINEER, REGISTERED IN THE STATE OF GEORGIA.



7/9/2021

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

(UNLESS NOTED OTHERWISE)

SCALE IN INCHES

0

16

32

64

REVISION DATES

FORSYTH COUNTY

ABUTMENT DETAIL

BIG CREEK GREENWAY REHABILITATION

CHECKED:	DATE:	DRAWING No. 35-0007
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	