

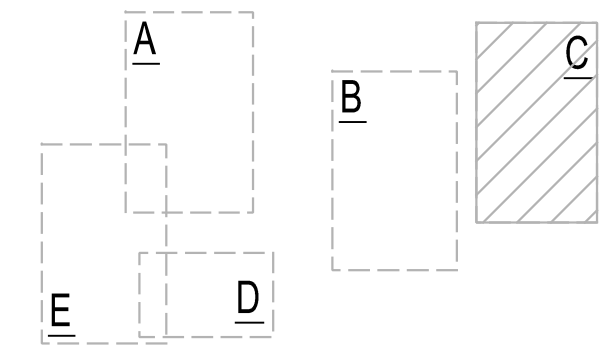




# AREA CODE INDEX

1. AREA A1 - HORSESHOE ROAD AREA
  - HORSESHOE ROAD WITH PARKING
  - ON STREET PARKING
2. AREA A2 - COMMUNITY GREEN
3. AREA A3 - NATURAL PLAY AREA AND SIDEWALK
4. AREA B - DAM BOARDWALK
5. AREA C - SOUTH TRAIL
6. AREA D - POOL PARKING
7. AREA E - WETLAND BOARDWALK

## SHEET KEY



No.	Date	Description
1	04/20	LDP Submittal



CITY OF BROOKHAVEN  
 MURPHEY CANDLER PARK  
 1551 W. NANCY CREEK DRIVE NE  
 BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
05/07/19	BM	GZ

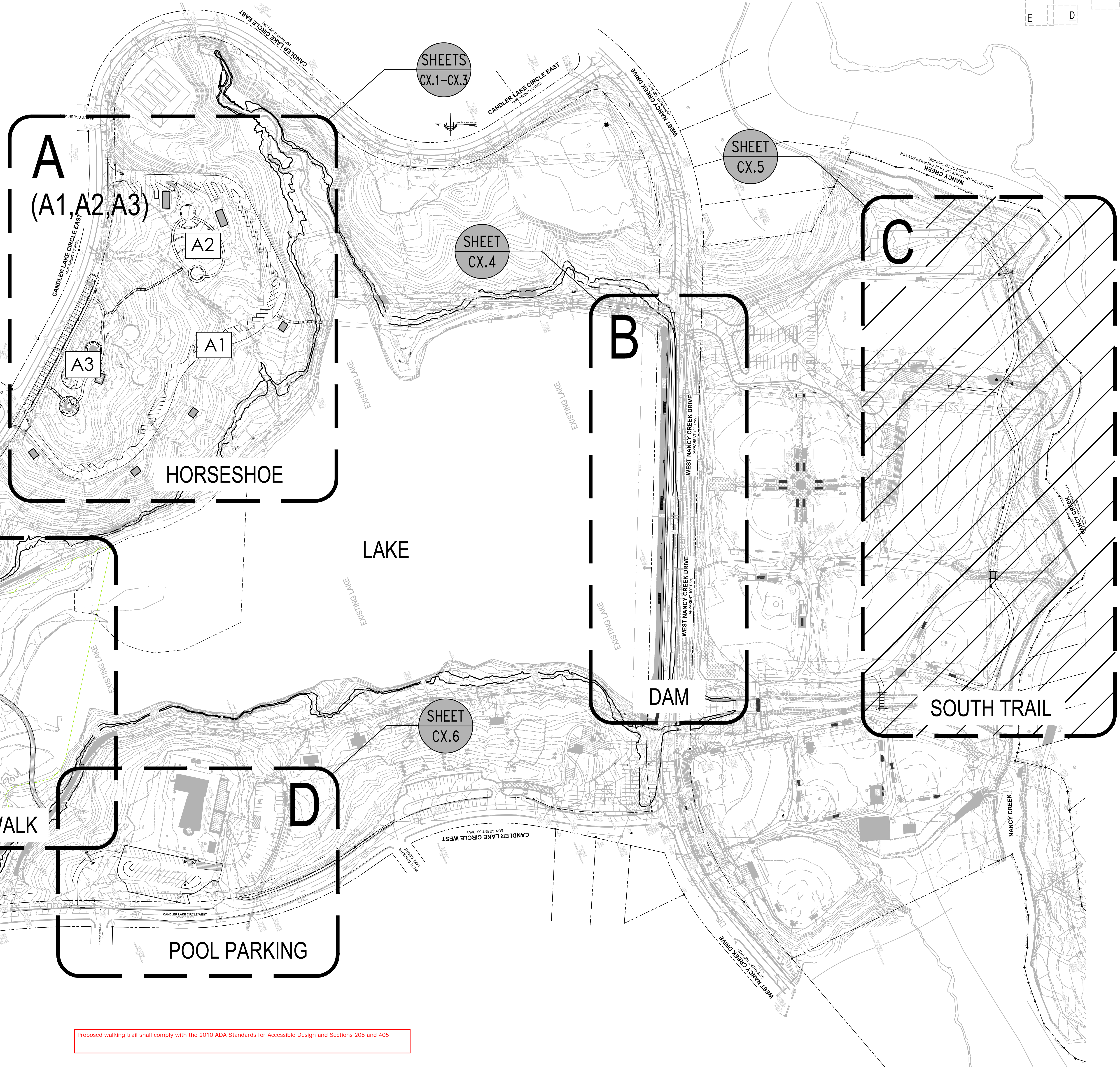
SCALE

SHEET TITLE

KEY SHEET  
SOUTH TRAIL

PROJECT NUMBER	15092.00
C0.5A	
DRAWING NUMBER	

APPROVED PLAN 08/28/2020  
 Permit # LDP20-00008

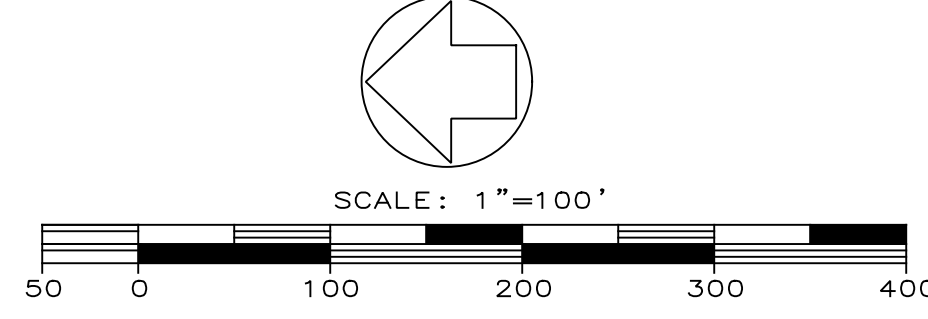


Proposed walking trail shall comply with the 2010 ADA Standards for Accessible Design and Sections 206 and 405

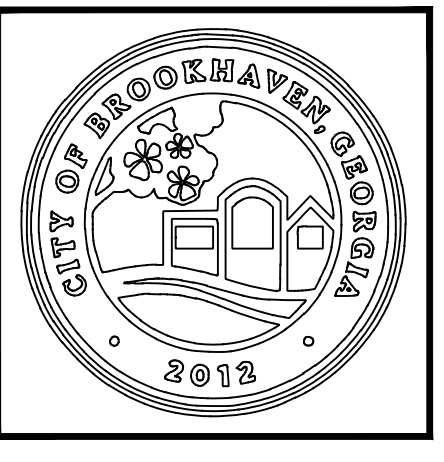
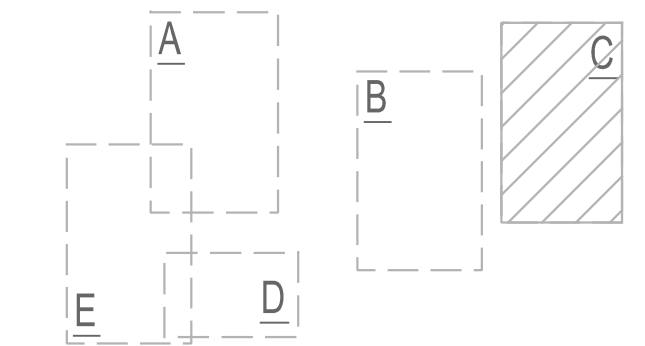
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 Date last accessed: 4/21/2020 11:02 AM  
 Date last plotted: 4/21/2020 1:24 PM  
 Plotted by: Geoc Zhang



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 TERRAMARK LAND SURVEYING, INC.  
 1306 BELLS TERRY ROAD  
 MARIETTA, GEORGIA 30066  
 PHONE NO. (770) 421-1927  
 FAX NO. (770) 421-0552  
 WWW.TERRAMARK.COM  
 C. O. A. # LSF000810

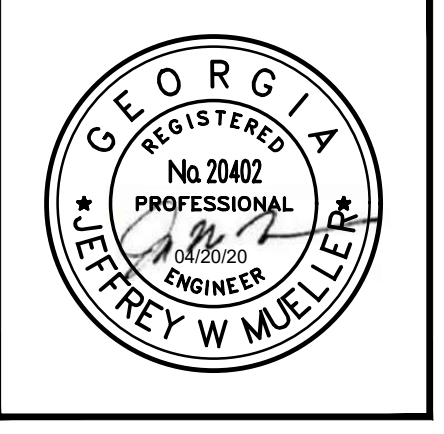






DRAWINGS SCHEDULE

No.	Date	Description
1	04/20	LDP Submittal



CITY OF BROOKHAVEN  
MURPHY CANDLER PARK  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	05/07/19	DRAWN	BM	CHECKED	GZ
SCALE					
SHEET TITLE	EXISTING CONDITIONS - AREA C (SOUTH TRAIL)				

PROJECT NUMBER	15092.00
DRAWING NUMBER	C1.5

### LEGEND

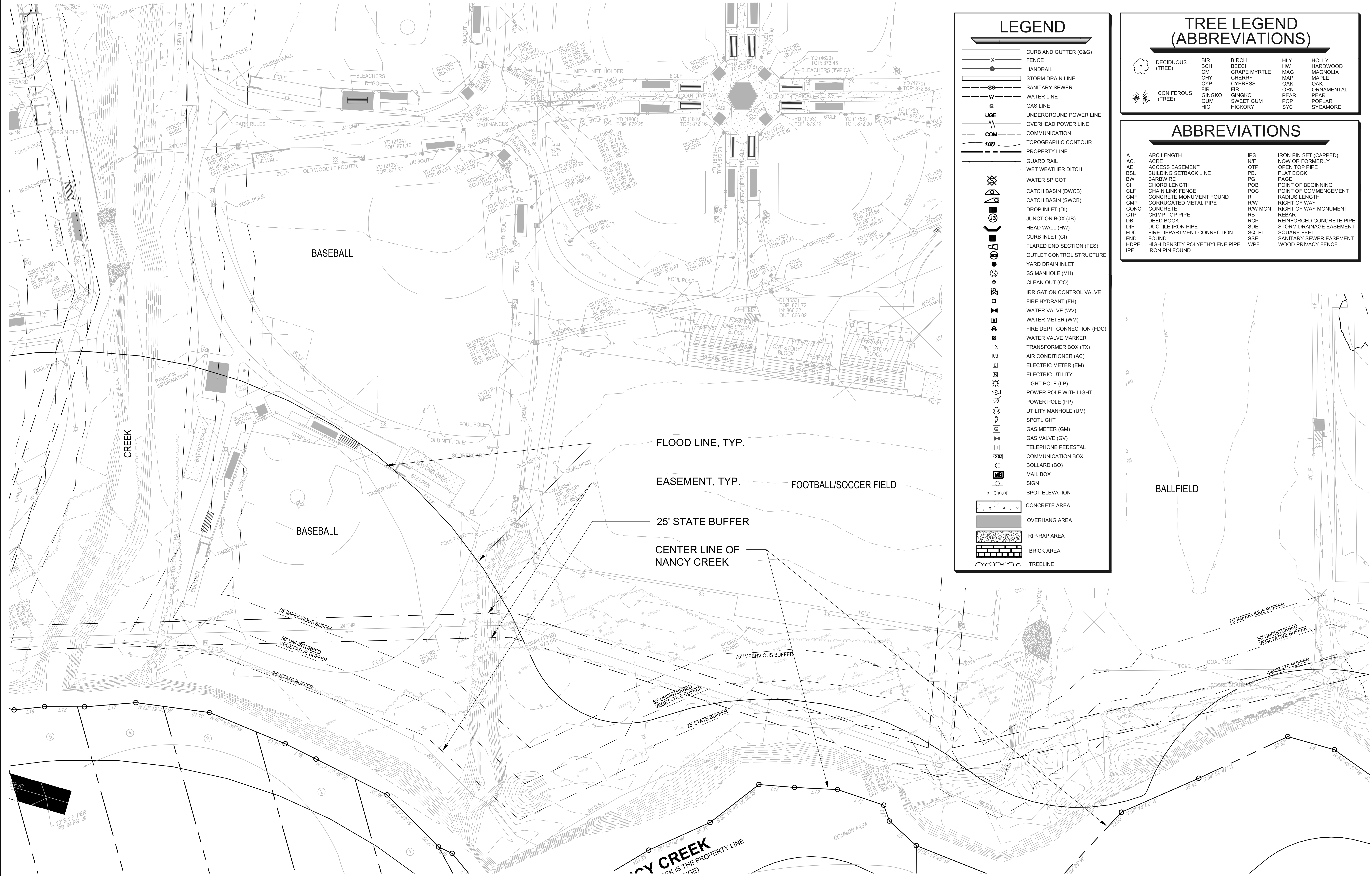
- CURB AND GUTTER (C&G)
- FENCE
- HANDRAIL
- STORM DRAIN LINE
- SANITARY SEWER
- WATER LINE
- GAS LINE
- UNDERGROUND POWER LINE
- OVERHEAD POWER LINE
- COMMUNICATION
- TOPOGRAPHIC CONTOUR
- PROPERTY LINE
- GUARD RAIL
- WET WEATHER DITCH
- WATER SPIGOT
- CATCH BASIN (DWCB)
- CATCH BASIN (SWCB)
- DROP INLET (DI)
- JUNCTION BOX (JB)
- HEAD WALL (HW)
- CURB INLET (CI)
- FLARED END SECTION (FES)
- OUTLET CONTROL STRUCTURE
- YARD DRAIN INLET
- SS MANHOLE (MH)
- CLEAN OUT (CO)
- IRRIGATION CONTROL VALVE
- FIRE HYDRANT (FH)
- WATER VALVE (WV)
- WATER METER (WM)
- FIRE DEPT. CONNECTION (FDC)
- WATER VALVE MARKER
- TRANSFORMER BOX (TX)
- AIR CONDITIONER (AC)
- ELECTRIC METER (EM)
- ELECTRIC UTILITY
- LIGHT POLE (LP)
- POWER POLE WITH LIGHT
- POWER POLE (PP)
- UTILITY MANHOLE (UM)
- SPOTLIGHT
- GAS METER (GM)
- GAS VALVE (GV)
- TELEPHONE PEDESTAL
- COMMUNICATION BOX
- BOLLARD (BO)
- MAIL BOX
- SIGN
- SPOT ELEVATION
- CONCRETE AREA
- OVERHANG AREA
- RIP-RAP AREA
- BRICK AREA
- TREELINE

### TREE LEGEND (ABBREVIATIONS)

DECIDUOUS (TREE)	BIR	BIRCH	HLY	HOLLY
CONIFEROUS (TREE)	BCH	BEECH	HW	HARDWOOD
	CM	CRANE MYRTLE	MAG	MAGNOLIA
	CHY	CHERRY	MAP	MAPLE
	CYP	CYPRESS	OAK	OAK
	FIR	FIR	ORN	ORNAMENTAL
	GINGKO	GINGKO	PEAR	PEAR
	GUM	SWEET GUM	POP	POPLAR
	HIC	HICKORY	SYC	SYCAMORE

### ABBREVIATIONS

A	ARC LENGTH	IPS	IRON PIN SET (CAPPED)
AC	ACRE	N/F	NOW OR FORMERLY
AE	ACCESS EASEMENT	OTP	OPEN TOP PIPE
BLL	BUILDING SETBACK LINE	PB	PLAT BOOK
BW	BARB WIRE	PG	PAGE
CH	CHORD LENGTH	POB	POINT OF BEGINNING
CLF	CHAIN LINK FENCE	POC	POINT OF COMMENCEMENT
CMF	CONCRETE MONUMENT FOUND	R/L	RADIUS LENGTH
CMP	CORRUGATED METAL PIPE	R/W	RIGHT OF WAY
CONC.	CONCRETE	R/W MON	RIGHT OF WAY MONUMENT
CTP	CRIMP TOP PIPE	REBAR	REBAR
DB	DEED BOOK	RCP	REINFORCED CONCRETE PIPE
DIP	DUCTILE IRON PIPE	SDE	STORM DRAINAGE EASEMENT
FDC	FIRE DEPARTMENT CONNECTION	SQ. FT.	SQUARE FEET
FND	FOUND	SSE	SANITARY SEWER EASEMENT
HDPE	HIGH DENSITY POLYETHYLENE PIPE	W/PF	WOOD PRIVACY FENCE
IPF	IRON PIN FOUND		

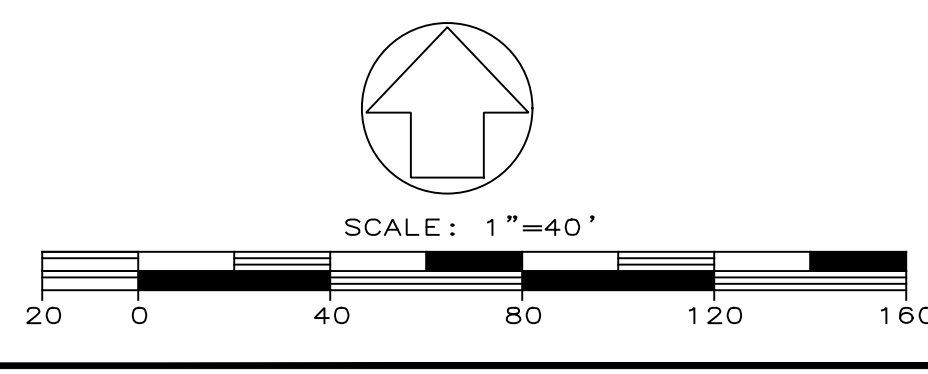


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Date last accessed: 4/21/2020 11:03 AM  
Date last plotted: 4/21/2020 1:25 PM  
Plotted By: Grace Zhang

# GEORGIA811

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2018 SURVEY & 2019 UPDATED TREE SURVEY  
TERRAMARK LAND SURVEYING, INC.  
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MARIETTA, GEORGIA 30066  
PHONE NO. (770) 421-1927  
FAX NO. (770) 421-0552  
WWW.TERRAMARK.COM  
C. O. A. # LSF000810





- 1 MOBILIZATION, STAKING AND LAYOUT, 1 JOB  
SEE C4 SHEET SERIES
- 2 DEMOLITION, 1 JOB  
SEE DEMOLITION PLANS, C3 SERIES
- 3 CLEARING & GRUBBING, 1 JOB  
SEE ITEMS ON DEMOLITION PLANS, C3 SHEET SERIES  
A. TREE PROTECTION FENCING, SEE TREE PROTECTION SHEET 1,810 LF
- 4 GRADING, DRAINAGE, AND UTILITIES, 1 JOB  
A. GRADING AND DRAINAGE, C5 SHEET SERIES
- 5 EROSION CONTROL, 1 JOB  
SEE EROSION CONTROL PLANS, C7 SERIES
- 6 TRAIL BRIDGE, 1 JOB  
SEE SHEET C8.5B1 & C8.5C1  
A. SEE PLACEMENT AND ERECTION, 1 JOB  
B. ABUTMENT, 2 EA, SEE DETAIL 1/C8.5  
C. WING WALL, SEE DETAIL 5/C8.5C - 20 LF
- 7 SOUTH TRAIL  
A. REGULAR CONCRETE TRAIL-SEE DETAIL1/C8.5A - 11,900 SF  
B. PERVIOUS CONCRETE TRAIL - SEE DETAIL 4/C8.5A - 1,400 SF  
C. CONCRETE TRAIL OVER ROOT ZONE - SEE DETAIL 3/C8.5A - 3,355 SF  
SEE AREA LABELED FROM #1-6  
D. 4" CONCRETE SIDEWALK - SEE DETAIL 8/C8.5A - 720 SF
- 8 SITE FURNITURE  
A. NONE

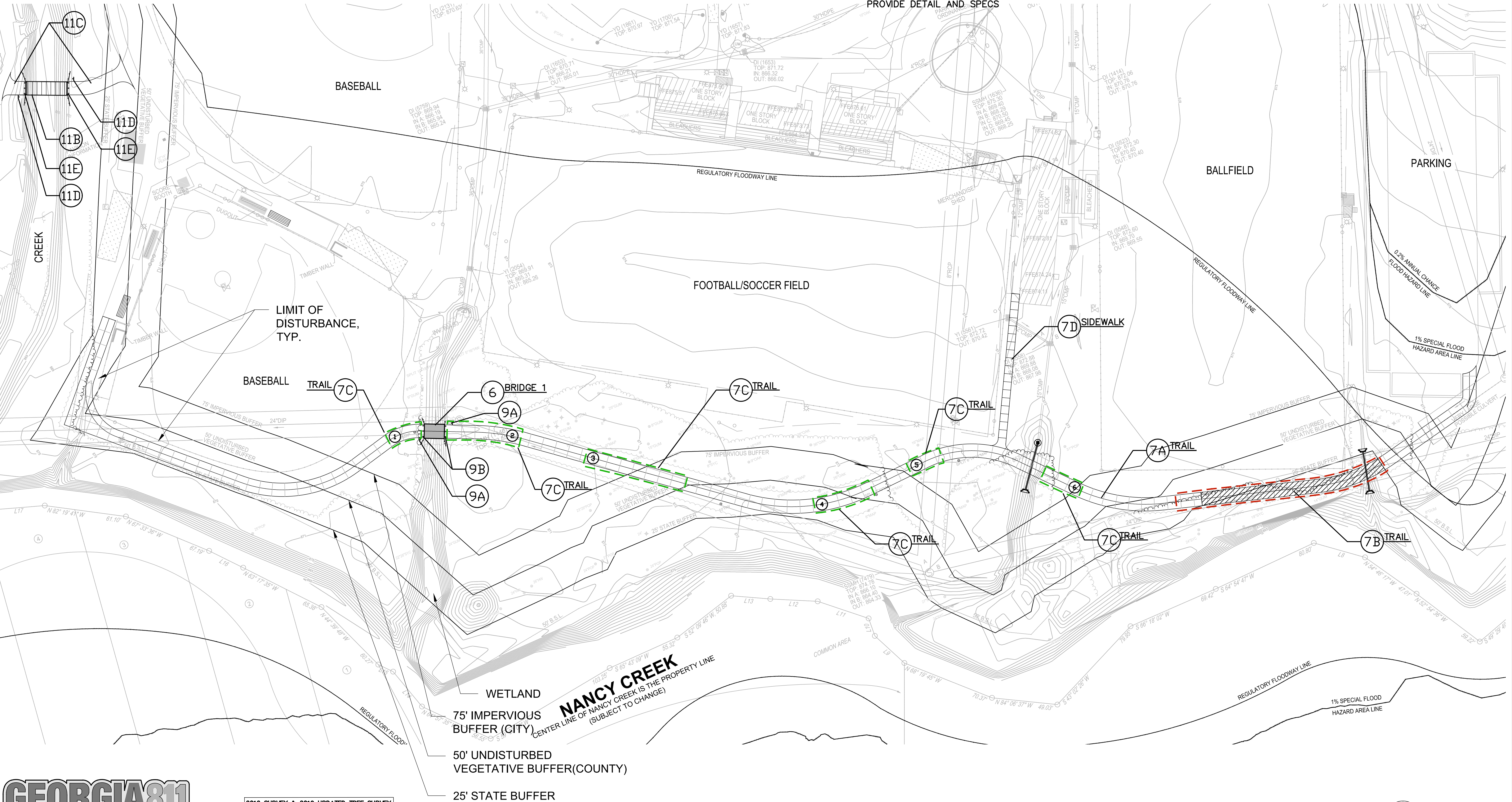
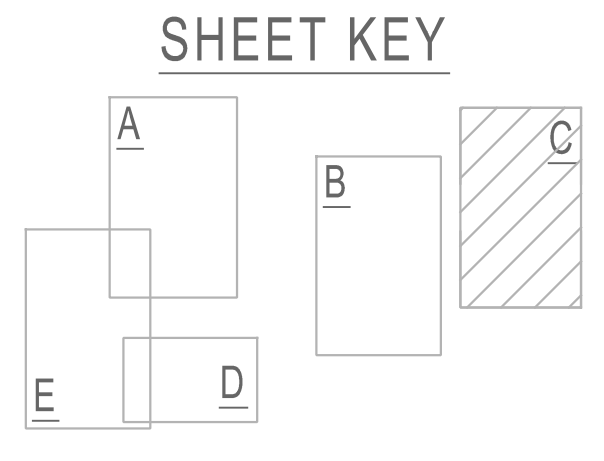
- 9 SITE SIGNAGE  
A. TWO ON EITHER SIDES OF BRIDGE  
SEE DETAIL 5/C8.5A  
B. 3 BOLLARDS ON EACH SIDE OF BRIDGE(TOTAL 6), 4' APART, CLIENT TO PROVIDE DETAIL AND SPECS
- 10 FINAL CLEAN UP & GRADING, 1 JOB  
SEE SPECIFICATIONS
- 11 2ND BRIDGE AREA - BID ALTERNATE, 1 JOB  
SEE SPECIFICATIONS  
A. SITE WORK, 1 JOB  
B. 2ND BRIDGE: SEE SHEET C8.5B1 & C8.5C1; PLACEMENT AND ERECTION, 1 JOB; ABUTMENT, 2 EA, SEE DETAIL 1/C8.5; WING WALL, SEE DETAIL 5/C8.5C - 20 LF  
C. REGULAR CONCRETE TRAIL CONNECTION-SEE DETAIL1/C8.5A - 680 SF  
D. TWO ON EITHER SIDES OF BRIDGE  
SEE DETAIL 5/C8.5A  
E. 3 BOLLARDS ON EACH SIDE OF BRIDGE(TOTAL 6), 4' APART, CLIENT TO PROVIDE DETAIL AND SPECS

1 CONCRETE TRAIL OVER ROOT ZONE - SEE DETAIL 3/C8.5A

GENERAL NOTES:  
PROVIDE UNIT PRICE FOR THE 2ND BRIDGE AS A BID ALTERNATE.

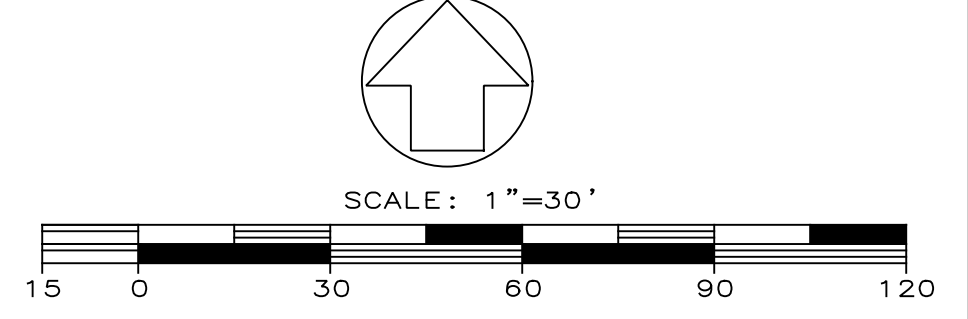
QUANTITY NOTE:  
QUANTITIES ARE GIVEN ONLY FOR CONVENIENCE TO THE CONTRACTORS FOR CLARIFICATION OF THE CONSTRUCTION ITEMS. LANDSCAPE ARCHITECT ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF THE QUANTITIES. CONTRACTORS SHALL TAKE THEIR OWN QUANTITIES AS PART OF THEIR BID WORK.

BUFFER NOTES:  
1. STATE BUFFER VARIANCE IS SECURED, SEE COVER SHEET.  
2. THIS PROJECT IS EXEMPT FROM CITY BUFFERS.

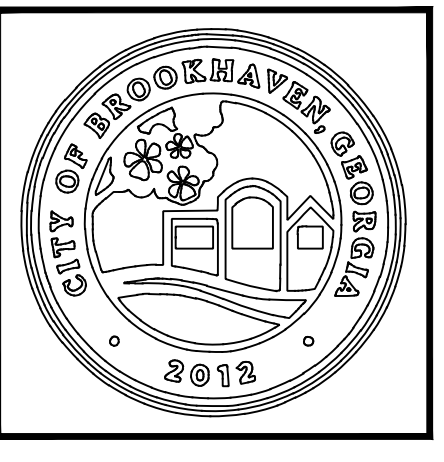


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FAX NO. (770) 421-0552  
WWW.TERRAMARK.COM  
C. O. A.# LSF000810



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DRAWINGS SCHEDULE

No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/08	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design/Build
7	05/28	LDP - Natural Play Area - Rev #2
8	05/28	LDP - Community Green
9	05/28	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



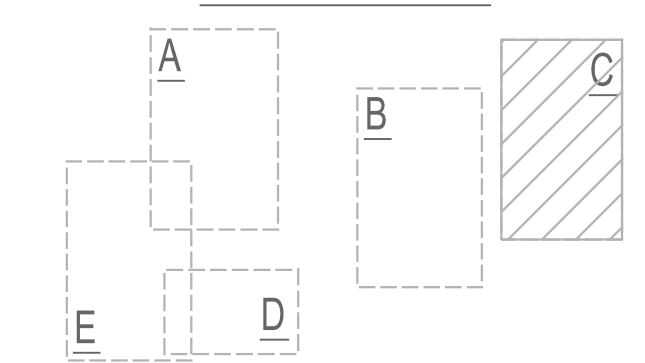
CITY OF BROOKHAVEN  
MURPHY CANDLER PARK  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	GZ
SCALE		
SHEET TITLE		

CONSTRUCTION ITEMS  
SOUTH TRAIL

PROJECT NUMBER	15092.00
C2.5	
DRAWING NUMBER	





**Park Bond Project Tree Preservation Form**

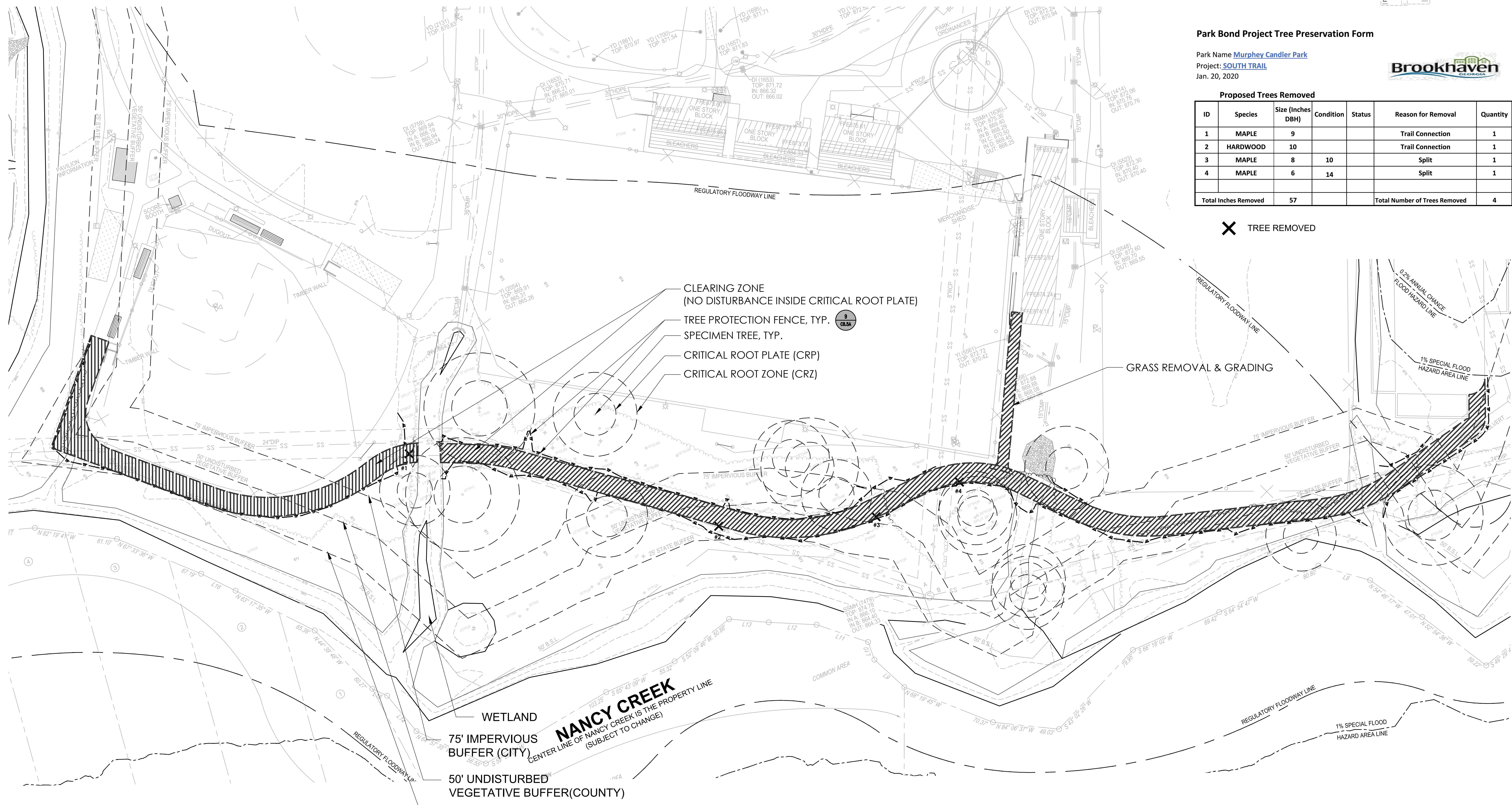
Park Name **Murphy Candler Park**  
 Project: **SOUTH TRAIL**  
 Jan. 20, 2020



**Proposed Trees Removed**

ID	Species	Size (Inches DBH)	Condition	Status	Reason for Removal	Quantity
1	MAPLE	9			Trail Connection	1
2	HARDWOOD	10			Trail Connection	1
3	MAPLE	8	10		Split	1
4	MAPLE	6	14		Split	1
<b>Total Inches Removed</b>						<b>57</b>
<b>Total Number of Trees Removed</b>						<b>4</b>

**X TREE REMOVED**



- CLEARING ZONE (NO DISTURBANCE INSIDE CRITICAL ROOT PLATE)
- TREE PROTECTION FENCE, TYP. (Symbol: 1/2" dia circle with 'X')
- SPECIMEN TREE, TYP. (Symbol: 1/2" dia circle with 'S')
- CRITICAL ROOT PLATE (CRP)
- CRITICAL ROOT ZONE (CRZ)

**SITE VISIT:**  
 CONTRACTOR SHALL VISIT THE SITE TO VALIDATE ALL DEMOLITION ITEMS AND VERIFY QUANTITIES.

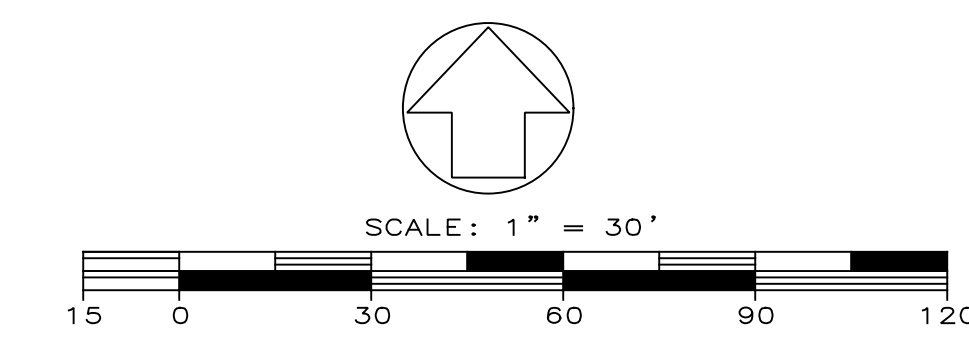
**GENERAL SITE DEBRIS & FINE GRADING NOTE:**  
 THERE ARE VARIOUS SMALL ITEMS ON THE SITE THAT WILL BE AFFECTED BY DEMOLITION AND CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO PROTECT PERMANENT ITEMS AND WORK AROUND OR REMOVE OTHER ITEMS AS NEEDED. THE FINAL SITE TO BE LEFT CLEAN AND FINE-GRADED. THE CONTRACTOR IS TO REMOVE ANY DIPS, GULLIES, PITS OR OTHER IRREGULARITIES WITHIN THE WORK LIMITS OF THE PROJECT.

- TREE NOTES:**
- ALL SPECIMEN TREES WILL BE PROTECTED.
  - NO ANY CONSTRUCTION ACTIVITIES ARE ALLOWED INSIDE CRITICAL ROOT PLATE (CRP).
  - ONLY FILL IS ALLOWED INSIDE CRITICAL ROOT ZONE (CRZ). NO CUT IS PERMITTED. SEE DETAIL 3 / C8.5A.
  - TREE DENSITY: BASED ON CITY ARBORIST, EXISTING PARK SITE DENSITY EXCEEDS MIN. REQUIRED FULL TREE DENSITY CALCULATION IS EXEMPTED FOR THIS PARK.

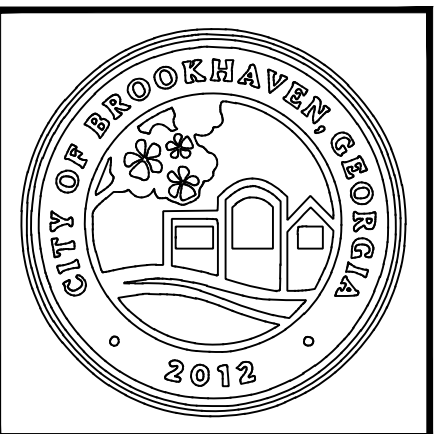
- DEMOLITION NOTES:**
- CONTRACTOR SHALL CONDUCT DEMOLITION ACTIVITIES WITHOUT INTERFERING WITH VEHICLE AND PEDESTRIAN TRAFFIC IN ADJACENT AREAS.
  - CONTRACTOR SHALL PROTECT UTILITIES AND BENCHMARKS NOT SCHEDULED FOR DEMOLITION FROM DAMAGE. AT NO ADDITIONAL COST TO OWNER, THE CONTRACTOR SHALL REPLACE OR REPAIR ITEMS DAMAGED BEYOND THE LIMITS OF THE DEMOLITION SHOWN.
  - DISCONNECT AND SEAL OFF ABANDONED UTILITIES TO BE REMOVED PRIOR TO THE START OF ANY DEMOLITION ACTIVITIES. UTILITIES SHALL BE DISCONNECTED BELOW EXISTING GRADE LEVEL, OR OUTSIDE OF CONTRACT LIMITS BY REPRESENTATIVES OF THE PUBLIC UTILITY BEING DISCONNECTED. MAINTAIN UTILITY SERVICE TO FACILITIES IN USE.
  - EXCEPT FOR ITEMS DESIGNATED TO BE REMOVED OR REUSED IN THE WORK, ALL MATERIALS RESULTING FROM THIS WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE PROMPTLY REMOVED FROM THE SITE. STORAGE OR SALE OF REMOVED MATERIALS WILL NOT BE PERMITTED ON PROJECT SITE.
  - REMOVE ALL DEBRIS, RUBBISH, AND WASTE MATERIALS FROM THE SITE. DO NOT STOCKPILE DEBRIS ON SITE.
  - ALL MATERIALS SHALL BE DISPOSED OF IN A LEGAL MANNER.
  - CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY THE GOVERNING AGENCY HAVING JURISDICTION.
  - ALL LAND DISTURBANCE TO BE STABILIZED WITH VEGETATION UPON COMPLETION OF DEMOLITION PER THE EROSION AND CONTROL PLANS.
  - ALL TREES TO REMAIN SHALL HAVE PROPER PROTECTION UNLESS APPROVED PLANS INDICATES OTHERWISE.
  - DUMPSTERS AND/OR TEMPORARY SANITARY FACILITIES SHALL NOT BE LOCATED IN THE STREET AND TREE PROTECTION AREA.
  - SAWCUT PAVEMENTS, CURBS, AND/OR WALLS WHOLE TO PROVIDE SMOOTH TRANSITION BETWEEN IMPROVEMENTS TO REMAIN & NEW IMPROVEMENTS.

**GEORGIA811**  
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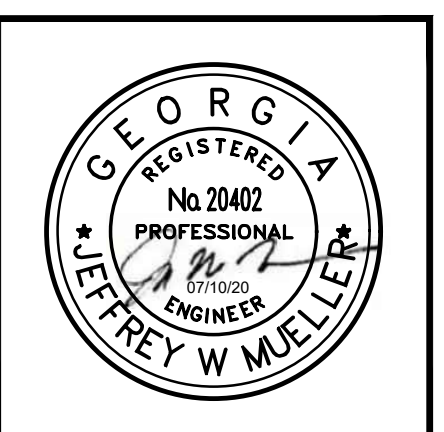
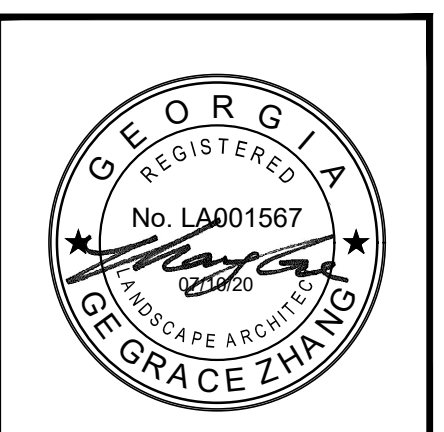


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**DRAWINGS SCHEDULE**

No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/08	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design Build
7	05/28	LDP - Natural Play Area - Rev #2
8	05/29	LDP - Wetland Boardwalk
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



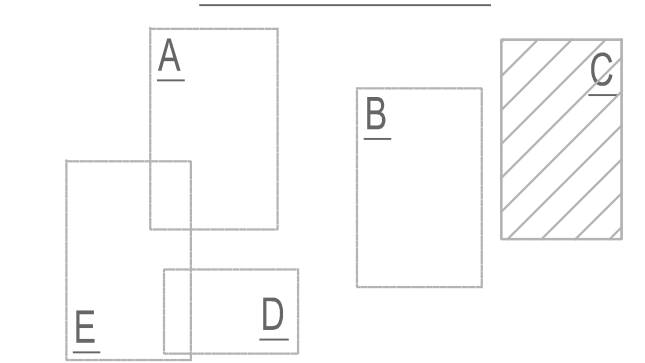
CITY OF BROOKHAVEN  
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 BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	CZ
SCALE		
SHEET TITLE		
DEMO & TREE PROTECTION PLAN - (SOUTH TRAIL)		

PROJECT NUMBER	15092.00
SCALE	C3.5
DRAWING NUMBER	

Date last processed: 8/16/2020 11:39 AM  
 Date last plotted: 8/16/2020 11:39 AM  
 Plotter: Gcoco Zhang  
 Drawing Name: S:\Project\Brookhaven\_C\Murphy Candler\Design\01\_Job Info\CAD\C3 Series\_MCP-Demo Plan.dwg





**DRAWINGS SCHEDULE**

No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	Base Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/28	LDP - Natural Play Area - Rev #1
6	06/18	Wetland Boardwalk Design Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/28	LDP - Measurement/Plan
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2

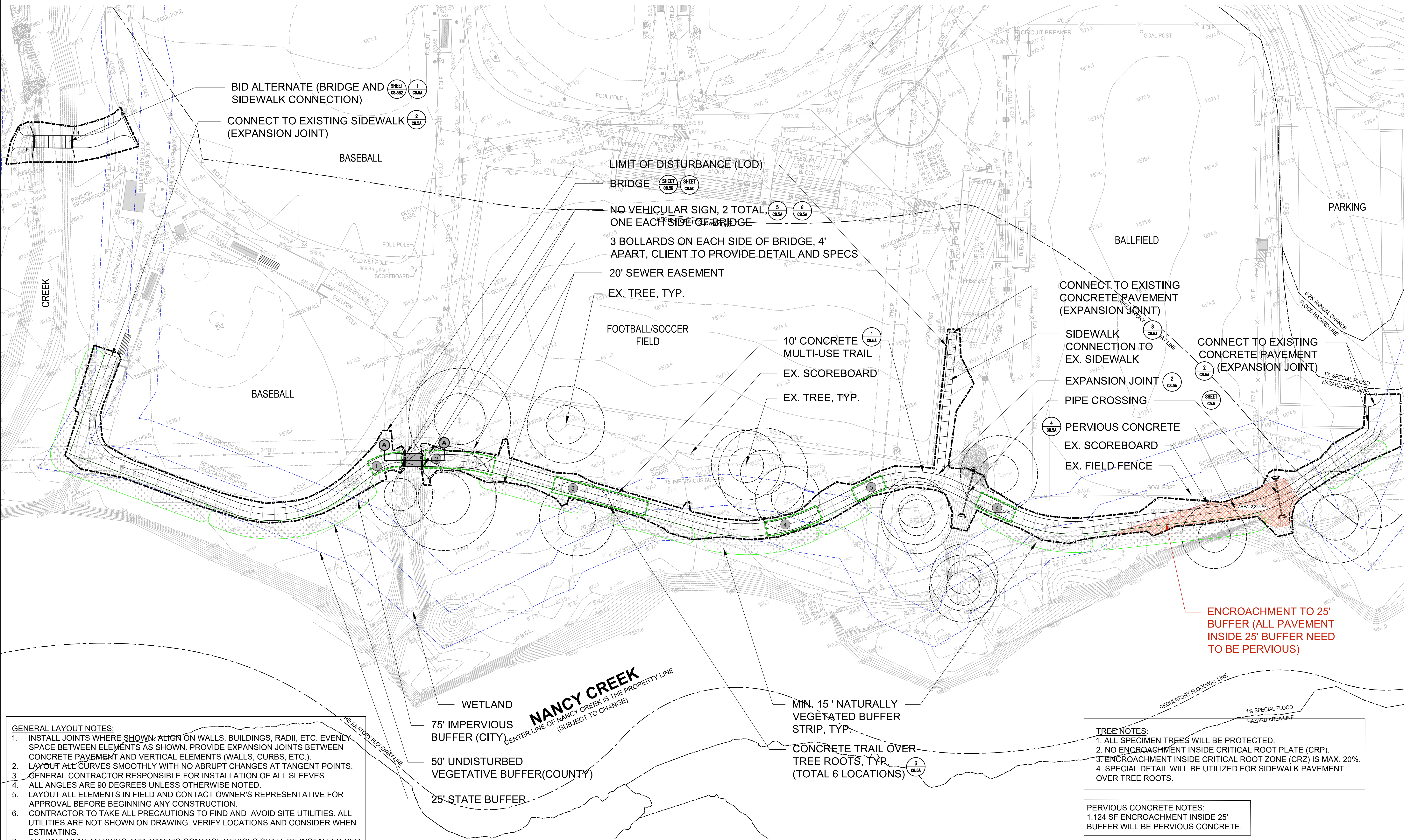


**CITY OF BROOKHAVEN**  
**MURPHEY CANDLER PARK**  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	CZ
SCALE		
SHEET TITLE		

LAYOUT PLAN - (SOUTH TRAIL)

PROJECT NUMBER	15092.00
C4.5A	
DRAWING NUMBER	



BID ALTERNATE (BRIDGE AND SIDEWALK CONNECTION)  
CONNECT TO EXISTING SIDEWALK (EXPANSION JOINT)

LIMIT OF DISTURBANCE (LOD) BRIDGE  
NO VEHICULAR SIGN, 2 TOTAL ONE EACH SIDE OF BRIDGE  
3 BOLLARDS ON EACH SIDE OF BRIDGE, 4' APART, CLIENT TO PROVIDE DETAIL AND SPECS  
20' SEWER EASEMENT  
EX. TREE, TYP.

CONNECT TO EXISTING CONCRETE PAVEMENT (EXPANSION JOINT)  
SIDEWALK CONNECTION TO EX. SIDEWALK  
EXPANSION JOINT  
PIPE CROSSING  
PERVIOUS CONCRETE  
EX. SCOREBOARD  
EX. FIELD FENCE

CONNECT TO EXISTING CONCRETE PAVEMENT (EXPANSION JOINT)

ENCROACHMENT TO 25' BUFFER (ALL PAVEMENT INSIDE 25' BUFFER NEED TO BE PERVIOUS)

- GENERAL LAYOUT NOTES:**
- INSTALL JOINTS WHERE SHOWN, ALIGN ON WALLS, BUILDINGS, RADII, ETC. EVENLY SPACE BETWEEN ELEMENTS AS SHOWN. PROVIDE EXPANSION JOINTS BETWEEN CONCRETE PAVEMENT AND VERTICAL ELEMENTS (WALLS, CURBS, ETC.).
  - LAYOUT ALL CURVES SMOOTHLY WITH NO ABRUPT CHANGES AT TANGENT POINTS.
  - GENERAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL SLEEVES.
  - ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.
  - LAYOUT ALL ELEMENTS IN FIELD AND CONTACT OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE BEGINNING ANY CONSTRUCTION.
  - CONTRACTOR TO TAKE ALL PRECAUTIONS TO FIND AND AVOID SITE UTILITIES. ALL UTILITIES ARE NOT SHOWN ON DRAWING. VERIFY LOCATIONS AND CONSIDER WHEN ESTIMATING.
  - ALL PAVEMENT MARKING AND TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PER THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
  - ALL GRADE ELEVATIONS AND HORIZONTAL CONTROL TO BE SET FROM PROJECT BENCHMARK NOTED ON PLANS.

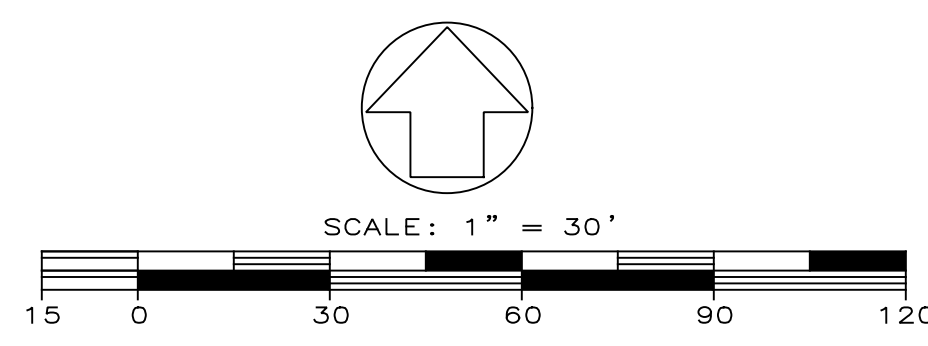
- TREE NOTES:**
- ALL SPECIMEN TREES WILL BE PROTECTED.
  - NO ENCROACHMENT INSIDE CRITICAL ROOT PLATE (CRP).
  - ENCROACHMENT INSIDE CRITICAL ROOT ZONE (CRZ) IS MAX. 20%.
  - SPECIAL DETAIL WILL BE UTILIZED FOR SIDEWALK PAVEMENT OVER TREE ROOTS.

**PERVIOUS CONCRETE NOTES:**  
1,124 SF ENCROACHMENT INSIDE 25' BUFFER WILL BE PERVIOUS CONCRETE.

**BID ALTERNATE:**  
PROVIDE UNIT PRICE FOR THE 2ND BRIDGE AS A BID ALTERNATE.

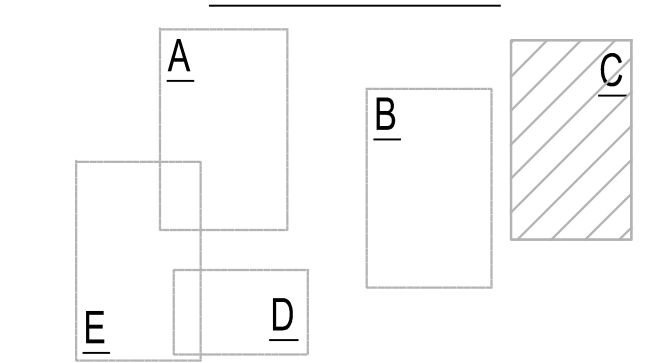


2018 SURVEY & 2019 UPDATED TREE SURVEY  
TERRAMARK LAND SURVEYING, INC.  
1306 BELLS TERRY ROAD  
MARIETTA, GEORGIA 30066  
PHONE NO. (770) 421-1927  
FAX NO. (770) 421-0552  
WWW.TERRAMARK.COM  
C. O. A. # LSF000810



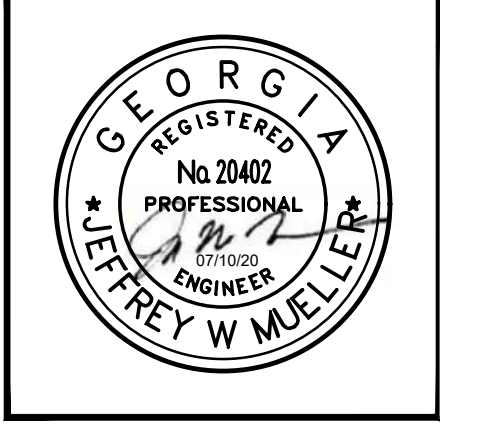
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 Date last plotted: 8/14/2020 11:50 PM  
 Date last accessed: 8/14/2020 11:55 AM  
 Plotted By: Gongzi Zhang





**DRAWINGS SCHEDULE**

No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	06/05	LDP - Natural Play Area
4	06/05	LDP - South Trail - Rev #1
5	06/28	LDP - Natural Play Area - Rev #1
6	06/18	Weekend Boardwalk Design-Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/28	LDP - Performance Trail
9	07/07	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



**CITY OF BROOKHAVEN**  
**MURPHEY CANDLER PARK**  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	GZ

SCALE  
SHEET TITLE  
**STAKING PLAN - (SOUTH TRAIL)**

PROJECT NUMBER  
15092.00  
**C4.5B**  
DRAWING NUMBER



**NANCY CREEK**  
CENTER LINE OF NANCY CREEK IS THE PROPERTY LINE  
(SUBJECT TO CHANGE)

Point #	Raw Description	Elevation	Northing	Easting
1		0.000	1421452.3889	2248434.0870
2		0.000	1421449.0714	2248443.5208
3		0.000	1421405.8157	2248428.0747
4		0.000	1421371.5082	2248405.2056
5		0.000	1421366.4665	2248447.9059
6		0.000	1421357.0806	2248444.4558
7		0.000	1421333.0856	2248538.9009
8		0.000	1421323.4630	2248535.3477
9		0.000	1421344.6224	2248618.9532
10		0.000	1421336.5927	2248624.9244
11		0.000	1421354.7830	2248649.3522
12		0.000	1421368.3420	2248652.9614
13		0.000	1421361.8761	2248673.3191
14		0.000	1421371.5163	2248673.5269
15		0.000	1421371.1443	2248691.3523
16		0.000	1421361.6219	2248691.1535
17		0.000	1421370.8999	2248711.7848
18		0.000	1421360.8453	2248713.6265
19		0.000	1421366.9707	2248743.8409
20		0.000	1421355.4863	2248748.5060

Point #	Raw Description	Elevation	Northing	Easting
21		0.000	1421342.3494	2248833.3525
22		0.000	1421319.7829	2248914.7809
23		0.000	1421310.1461	2248912.1102
24		0.000	1421318.8593	2249007.2497
25		0.000	1421327.8506	2249002.8730
26		0.000	1421339.5075	2249049.6688
27		0.000	1421348.4987	2249045.2918
28		0.000	1421355.8877	2249096.9056
29		0.000	1421344.5481	2249101.7872
30		0.000	1421352.1231	2249111.0742
31		0.000	1421361.3190	2249108.1498
32		0.000	1421361.8754	2249102.1760
33		0.000	1421469.4100	2249112.1913
34		0.000	1421468.8528	2249118.1143
35		0.000	1421333.8857	2249149.7738
36		0.000	1421319.2160	2249157.8513
37		0.000	1421328.2412	2249162.1576
38		0.000	1421307.8057	2249225.5679
39		0.000	1421317.7438	2249224.4569
40		0.000	1421327.4425	2249311.2137

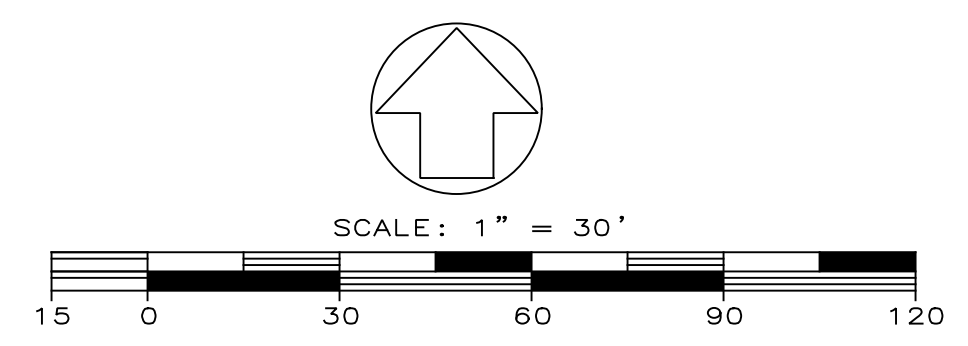
Point #	Raw Description	Elevation	Northing	Easting
41		0.000	1421320.5974	2249339.9918
42		0.000	1421342.4295	2249397.8013
43		0.000	1421347.3690	2249387.1890
44		0.000	1421379.1998	2249450.3147
45		0.000	1421388.8509	2249446.6626
46		0.000	1421391.5953	2249458.7408
47		0.000	1421391.5955	2249448.7308
48		0.000	1421409.3836	2249448.7408
49		0.000	1421415.4893	2249458.7408

**TREE NOTES:**  
1. ALL SPECIMEN TREES WILL BE PROTECTED.  
2. NO ENCROACHMENT INSIDE CRITICAL ROOT PLATE (CRP).  
3. ENCROACHMENT INSIDE CRITICAL ROOT ZONE (CRZ) IS MAX. 20%.  
4. SPECIAL DETAIL WILL BE UTILIZED FOR SIDEWALK PAVEMENT OVER TREE ROOTS.

**ADJUSTMENT NOTES:**  
STAKING MAY BE SUBJECT TO SAME ADJUSTMENT IN THE FIELD AFTER STAKEOUT IS COMPLETE, ADJUSTMENT WILL BE MADE TO ACCOMMODATE EXISTING CONDITIONS ON SITE.



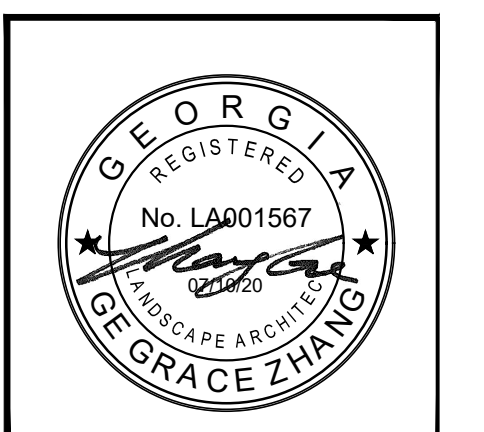
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**DRAWINGS SCHEDULE**

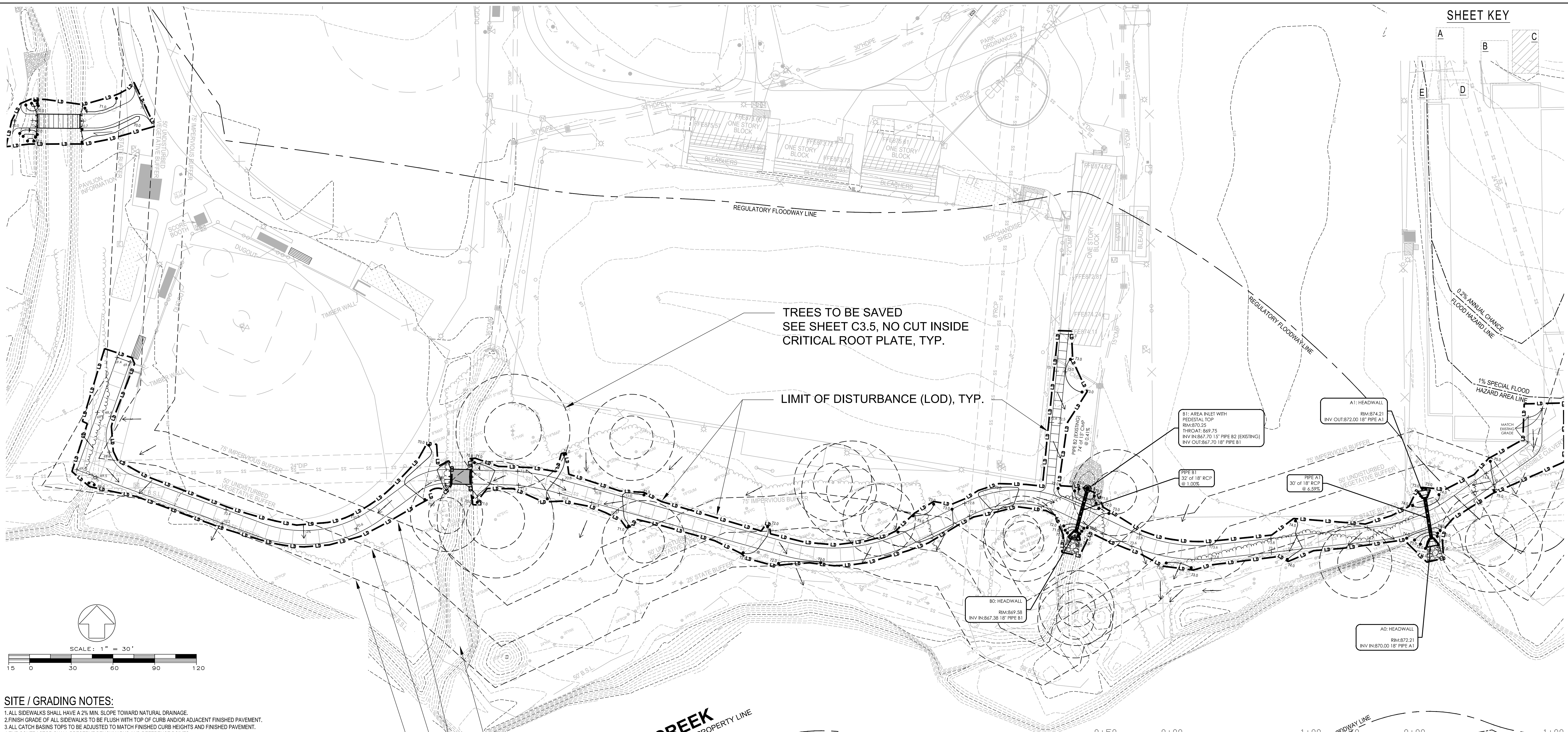
No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	06/02	LDP - Natural Play Area
4	06/05	LDP - South Trail - Rev #1
5	05/28	LDP - Natural Play Area - Rev #1
6	06/18	Wetland Boardwalk Design-Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/29	LDP - Stormwater Trail
9	07/02	LDP - Community Green
10	07/16	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



**CITY OF BROOKHAVEN**  
**MURPHEY CANDLER PARK**  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	GZ
SCALE		
SHEET TITLE		
GRADING AND DRAINAGE PLAN SOUTH TRAIL		

PROJECT NUMBER	15092.00
C5.5	
DRAWING NUMBER	



- SITE / GRADING NOTES:**
1. ALL SIDEWALKS SHALL HAVE A 2% MIN. SLOPE TOWARD NATURAL DRAINAGE.
  2. FINISH GRADE OF ALL SIDEWALKS TO BE FLUSH WITH TOP OF CURB AND/OR ADJACENT FINISHED PAVEMENT.
  3. ALL CATCH BASINS TOPS TO BE ADJUSTED TO MATCH FINISHED CURB HEIGHTS AND FINISHED PAVEMENT.
  4. THE CONTRACTOR SHALL PRESERVE BENCHMARKS AND REFERENCE POINTS.
  5. ALL WORK AND MATERIALS SHALL COMPLY WITH CITY OF BROOKHAVEN REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
  6. NOTIFY ALL CITY OF BROOKHAVEN INSPECTORS AT LEAST 24 HOURS PRIOR TO CONSTRUCTION.
  7. IF THE CONTRACTOR IN THE COURSE OF WORK FINDS ANY DISCREPANCIES BETWEEN THE PLANS AND THE PHYSICAL CONDITIONS OF THE LOCALITY, OR ANY ERRORS OR OMISSIONS IN THE PLANS OR IN THE LAYOUT AS GIVEN BY THE ENGINEER, IT SHALL BE HIS DUTY TO IMMEDIATELY INFORM THE ENGINEER, IN WRITING, AND THE ENGINEER WILL PROMPTLY VERIFY THE SAME. ANY WORK DONE AFTER SUCH A DISCOVERY, UNLESS AUTHORIZED, WILL BE AT THE CONTRACTOR'S RISK.
  8. DUST AND DEBRIS FROM GRADING AND OPERATION OF EQUIPMENT MUST BE MONITORED AND MINIMIZED TO LEVELS ACCEPTABLE TO THE ENGINEER, OWNER AND CITY OF BROOKHAVEN.
  9. APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL BY CITY OF BROOKHAVEN OF ANY LAND DISTURBING ACTIVITIES WHICH MAY RESULT IN THE TAKE OF ENDANGERED SPECIES. IT IS THE RESPONSIBILITY OF THE OWNER TO CONTACT THE APPROPRIATE REGULATORY AGENCY FOR APPROVAL OF ANY DISTURBANCE WHICH MAY HAVE THIS EFFECT.
  10. THE TRAFFIC CONTROL DEVICES MUST COMPLY WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), CURRENT EDITION.
  11. UPON COMPLETION OF THE CONTRACT WORK, THE CONTRACTOR WILL BE REQUIRED TO RESTORE THE STAGING AREA AND SURROUNDING AREAS AFFECTED BY HIS WORK TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF AND AT NO ADDITIONAL COST TO THE OWNER.
  12. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS THAT ARE PERTINENT TO THIS WORK.
  13. ALL CONCRETE, ASPHALT, WASTE EMBANKMENT, DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM DEMOLITION OPERATIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS.
  14. HANDICAP ACCESSIBLE RAMPS, AS PER THE AMERICAN NATIONAL STANDARDS INSTITUTE, SHALL BE INSTALLED AT THE SAME TIME AS THE CURB IS PLACED.
  15. 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, CURRENT EDITION.
  16. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN ENTERING MANHOLES, PIPES OR OTHER STRUCTURES SHOWN ON THE PLANS. AT A MINIMUM, THESE PIPES AND STRUCTURES SHALL BE PROPERLY VENTILATED.
  17. ALL PAVEMENT MARKINGS SHALL BE PAINTED.
  18. ALL UTILITIES SHALL BE PLACED UNDERGROUND, (UTILITIES SHALL NOT BE LOCATED IN ANY DRAINAGE EASEMENTS EXCEPT FOR CROSSINGS).
  19. ALL CONSTRUCTION CONTRACTORS MUST OBSERVE THE LIMITS OF CONSTRUCTION OR DISTURBANCE AS SHOWN.
  20. IF USING HOPE HOPE PIPE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-294 AND AASHTO M-197, TYPE S&D. CONNECTION SHALL USE A RUBBER GASKET, WHICH CONFORMS TO ASTM F-47. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM RECOMMENDED PRACTICE D-2321, AASHTO SECTION 30, OR WITH SECTION 550 OF THE GEORGIA DOT STANDARD SPECIFICATION CONSTRUCTION OF ROAD AND BRIDGES.
  21. IF USING ALUMINUM COATED TYPE 2 STEEL PIPE OR ALUMINUM ALLOY PIPE, ALL ALUMINUM COATED TYPE 2 STEEL PIPE OR ALUMINUM ALLOY PIPE, WHICH WILL CARRY A LIFE STREAM, SHALL HAVE PAVED INVERTS IN ACCORDANCE WITH AASHTO M-190, TYPE C, EXCEPT THAT THE PIPE NEED NOT BE FULLY COATED. INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 550 OF THE GEORGIA DOT STANDARD SPECIFICATION CONSTRUCTION OF ROAD AND BRIDGES.
  22. IF USING RCP PIPE, ALL RCP PIPE JOINTS SHALL BE BELL & SPIGOT TYPES WITH RUBBER GASKET CONFORMING TO ASTM C-443. THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO M-170 AND/OR ASTM C-76. CLASS OF PIPE AND WALL THICKNESS SHALL BE IN ACCORDANCE WITH 1030-D, GA. DOT SPECIFICATION, TABLE NO. 1. INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 550 OF THE GEORGIA DOT STANDARD SPECIFICATIONS CONSTRUCTION OF ROAD AND BRIDGES.
  23. A SEPARATE BUILDING PERMIT SHALL BE OBTAINED FOR ALL RETAINING WALL (WHICH EITHER EXCEEDS 4 FEET IN HEIGHT OR WHICH HAS A BACKFILL SLOPE GREATER THAN 1 FOOT RISE IN 3 FEET HORIZONTAL) AND FOR EACH DETENTION POND WALL (DAM) IN ACCORDANCE WITH CITY OF BROOKHAVEN CONSTRUCTION CODE. A CERTIFICATE OF COMPLETION SHALL BE ISSUED BY CITY OF BROOKHAVEN BUILDING INSPECTIONS SECTION FOR ALL WALLS PERTINENT TO THE PROJECT PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY FOR ANY USABLE STRUCTURE ON THE SITE OR PRIOR TO APPROVAL OF THE FINAL SUBDIVISION PLAN AS APPLICABLE.
  24. ALL PAVEMENT TO HAVE 2% MIN. SLOPES FOR POSITIVE DRAINAGE.



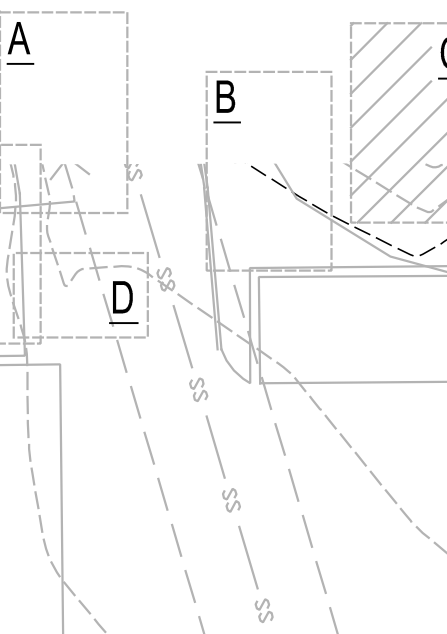
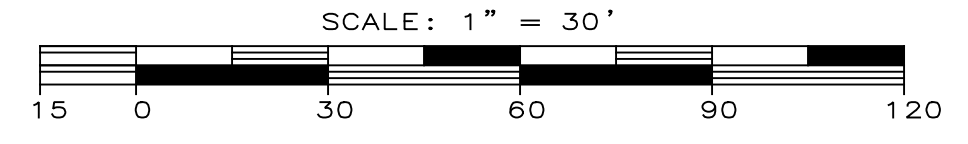
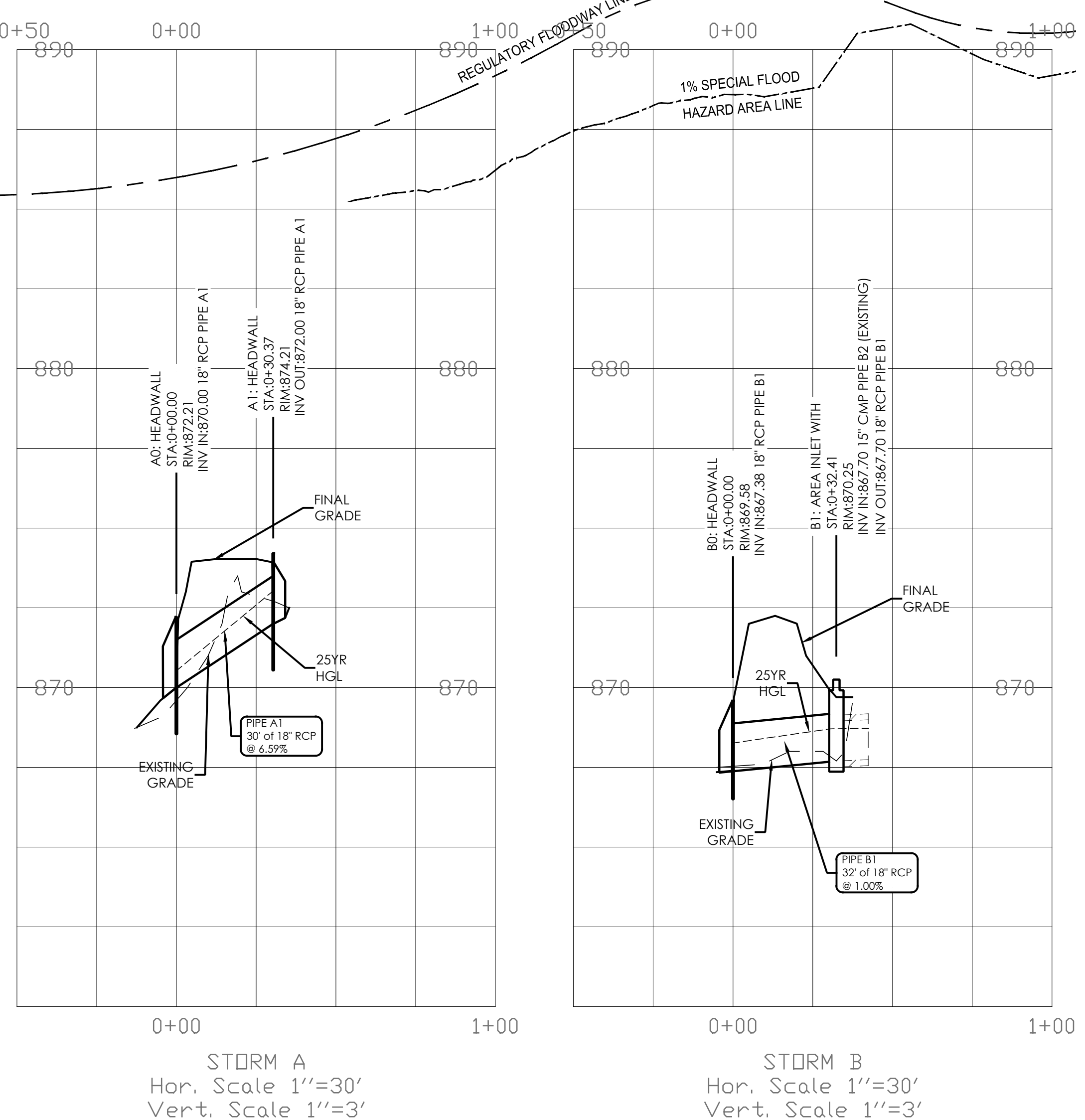
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**Storm Sewer Tabulation**

Station	Line	Len (ft)	Drng Area (ac)	Rooft coeff	Area x C	Tc	Rain (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe Size (in)	Slope (%)	Invert Elev (ft)	HGL Elev (ft)	Grnd / Rim Elev (ft)	Line ID			
1	End	30.368	2.21	2.21	0.49	1.08	12.0	6.8	7.11	26.95	18	6.59	870.00	872.00	870.53	873.03	872.21	874.21	PIPE A1
2	End	32.414	2.22	2.22	0.48	1.07	13.0	6.4	6.79	10.43	18	0.99	867.38	867.70	868.26	868.71	869.58	870.25	PIPE B1

Project File: New.stm  
Number of lines: 2  
Run Date: 4/23/2020

NOTES: Intensity = 72.79 / (inlet time + 13.00) ^ 0.75; Return period = Yrs. 25; c = cr; e = ell; b = box





**CHECK LIST # 1**

SEE SHEET 7.5B

**CHECKLIST # 2**

JEFFREY W. MUELLER  
GSWCC LEVEL II CERT # 0000015136

**CHECKLIST # 3**

NOT APPLICABLE - LIMITS OF DISTURBANCE < 50 ACRES

**CHECKLIST # 4**

24 HOUR LOCAL CONTACT  
LEE CROY - CITY OF BROOKHAVEN  
4362 PEACHTREE ROAD  
BROOKHAVEN, GA 30319  
LEE.CROY@BROOKHAVENGA.GOV  
PH: (678) 576 9846

**CHECKLIST # 5**

CITY OF BROOKHAVEN  
4362 PEACHTREE ROAD  
BROOKHAVEN, GA 30319  
PH: (404) 637-0513  
CHRISTIAN.SIGMAN@BROOKHAVENGA.GOV

**CHECKLIST # 6**

DISTURBED AREA: 0.64 ACRES

**CHECKLIST # 7**

GPS  
33.307375"N  
-84.322089"W

**CHECKLIST # 8**

REFERENCE TITLE BLOCK ALL SHEETS.

**CHECKLIST # 9**

NATURE OF THE CONSTRUCTION ACTIVITY: CONSTRUCTION OF CONCRETE WALKWAY, BRIDGE AND ASSOCIATED STORMWATER INFRASTRUCTURE.

**CHECKLIST # 10**

REFERENCE COVER SHEET 7.5B

**CHECKLIST # 11**

RECEIVING WATERS: NANCY CREEK, A WARM WATER, IMPAIRED STREAM

**CHECKLIST # 12**

SITE VISIT CERTIFICATION:

I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY SUPERVISION.

*Jeffrey W. Mueller* 5/4/2020  
JEFFREY W. MUELLER, P.E.

**CHECKLIST # 13**

CERTIFICATION:

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE PROTECTION OF RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALL(S) AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 10001."

*Jeffrey W. Mueller* 5/4/2020  
JEFFREY W. MUELLER, P.E.

**CHECKLIST # 14**

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WITH IN 7 DAYS AFTER INSTALLATION.

THE PRIMARY PERMITTEE MUST RETAIN THE DESIGN PROFESSIONAL WHO PREPARED THE PLAN, EXCEPT WHEN THE PRIMARY PERMITTEE HAS REQUESTED IN WRITING AND EPD HAS AGREED TO AN ALTERNATE DESIGN PROFESSIONAL, TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WHICH THE DESIGN PROFESSIONAL DESIGNED WITHIN SEVEN (7) DAYS AFTER INSTALLATION. THE DESIGN PROFESSIONAL SHALL DETERMINE IF THESE BMP'S HAVE BEEN INSTALLED AND ARE BEING MAINTAINED AS DESIGNED. THE DESIGN PROFESSIONAL SHALL REPORT THE RESULTS OF THE INSPECTION TO THE PRIMARY PERMITTEE WITHIN SEVEN (7) DAYS AND THE PERMITTEE MUST CORRECT ALL DEFICIENCIES WITHIN TWO (2) BUSINESS DAYS OF RECEIPT OF THE INSPECTION REPORT FROM THE DESIGN PROFESSIONAL UNLESS WEATHER RELATED SITE CONDITIONS ARE SUCH THAT ADDITIONAL TIME IS REQUIRED.

DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION INSPECT THE INSTALLATION OF INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMP'S WITHIN SEVEN (7) DAYS

DATE OF INSPECTION \_\_\_\_\_

I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ES&PC PLAN ON THE DATE OF INSPECTION.

GSWCC LEVEL II DESIGN PROFESSIONAL # \_\_\_\_\_

INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN.

THESE DOCUMENTS MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED.



**CHECKLIST # 15**

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50 FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF ORIGIN OF ALL STATE WATER OR WITHIN 25 FEET OF COASTAL MARSHLAND BUFFER AS MEASURED FROM JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

(I), EXCEPT AS PROVIDED IN PART IV. (III), BELOW, NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A 25 FOOT BUFFER ALONG THE BANKS OF ALL STATE WATER(S), AS MEASURED HORIZONTALLY FROM THE POINT WHERE VEGETATION HAS BEEN WRESTED BY NORMAL STREAM FLOW OR WAVE ACTION, EXCEPT WHERE THE DIRECTOR HAS DETERMINED TO ALLOW A VARIANCE THAT IS AT LEAST AS PROTECTIVE OF NATURAL RESOURCES AND THE ENVIRONMENT IN ACCORDANCE WITH THE PROVISIONS OF O.C.G.A. 12-2-6, OR WHERE A DRAINAGE STRUCTURE OR A ROADWAY DRAINAGE STRUCTURE MUST BE CONSTRUCTED, PROVIDED THAT ADEQUATE EROSION CONTROL MEASURES ARE INCORPORATED IN THE PROJECT PLANS AND SPECIFICATIONS AND ARE IMPLEMENTED, OR ALONG ANY EPHEMERAL STREAM OR WHERE BULKHEADS AND SEAWALLS MUST BE CONSTRUCTED TO PREVENT THE EROSION OF THE SHORELINE ON LAKE OCONEE AND LAKE SINCLAIR. THE BUFFER SHALL NOT APPLY TO THE FOLLOWING ACTIVITIES PROVIDED THAT ADEQUATE EROSION CONTROL MEASURES ARE INCORPORATED INTO THE PROJECT PLANS AND SPECIFICATIONS ARE IMPLEMENTED:

- (1) PUBLIC DRINKING WATER SYSTEM RESERVOIRS.
- (2) STREAM CROSSINGS FOR WATER AND SEWER LINES, PROVIDED THAT THE STREAM CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25 DEGREES OF PERPENDICULAR TO THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER.

(3) BUFFER CROSSING FOR FENCES, PROVIDED THAT THE CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25 DEGREES OF PERPENDICULAR TO THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER. PROVIDED THAT: (A) THE NEW UTILITY LINE RIGHT-OF-WAY WIDTH DOES NOT EXCEED 100 LINEAR FEET, (B) UTILITY LINES ARE ROUTED AND CONSTRUCTED SO AS TO MINIMIZE THE NUMBER OF STREAM CROSSINGS AND DISTURBANCES TO THE BUFFER, (C) ONLY TREES AND TREE DEBRIS ARE REMOVED FROM WITHIN THE BUFFER RESULTING IN ONLY MINOR SOIL EROSION (I.E., DISTURBANCE TO UNDERLYING VEGETATION IS MINIMIZED), AND (D) NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER. THE PLAN SHALL INCLUDE A DESCRIPTION OF THE STREAM CROSSING WITH DETAILS OF THE BUFFER DISTURBANCE INCLUDING AREA AND LENGTH OF BUFFER DISTURBANCE, ESTIMATED LENGTH OF TIME OF BUFFER DISTURBANCE, AND JUSTIFICATION.

(II), NO CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN A 50 FOOT BUFFER, AS MEASURED HORIZONTALLY FROM THE POINT WHERE VEGETATION HAS BEEN WRESTED BY NORMAL STREAM FLOW OR WAVE ACTION, ALONG THE BANKS OF ANY STATE WATERS CLASSIFIED AS 'TROUT STREAMS' EXCEPT WHEN APPROVAL IS GRANTED BY THE DIRECTOR FOR ALTERNATE BUFFER REQUIREMENTS IN ACCORDANCE WITH THE PROVISIONS OF O.C.G.A. 12-2-6, OR WHERE A ROADWAY DRAINAGE STRUCTURE MUST BE CONSTRUCTED; PROVIDED, HOWEVER, THAT SMALL SPRINGS AND STREAMS CLASSIFIED AS 'TROUT STREAMS' WHICH DISCHARGE LESS THAN AN ANNUAL FLOW OF 25 GALLONS PER MINUTE OR LESS SHALL HAVE A 25 FOOT BUFFER OR THEY MAY BE PIPED, AT THE DISCRETION OF THE PERMITTEE, PURSUANT TO THE TERMS OF A RULE PROVIDING FOR A VARIANCE. THE BUFFER SHALL BE APPROVED BY THE BOARD OF NATURAL RESOURCES INCLUDING NOTIFICATION OF SUCH TO EPD AND THE LOCAL ISSUING AUTHORITY OF THE LOCATION AND EXTENT OF THE PIPING AND PRESCRIBED HYDROLOGY FOR MINIMIZING THE IMPACT OF SUCH PIPING AND FOR MEASURING THE VOLUME OF WATER DISCHARGED BY THE STREAM. ANY SUCH PIPE MUST STOP SHORT OF THE DOWNSTREAM PERMITTEE'S PROPERTY, AND THE PERMITTEE MUST COMPLY WITH THE BUFFER REQUIREMENTS FOR ANY ADJACENT TROUT STREAMS. THE BUFFER SHALL NOT APPLY TO THE FOLLOWING ACTIVITIES PROVIDED THAT ADEQUATE EROSION CONTROL MEASURES ARE INCORPORATED INTO THE PROJECT PLANS AND SPECIFICATIONS ARE IMPLEMENTED:

- (1) PUBLIC DRINKING WATER SYSTEM RESERVOIRS.
- (2) STREAM CROSSINGS FOR WATER AND SEWER LINES, PROVIDED THAT THE STREAM CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25 DEGREES OF PERPENDICULAR TO THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER.
- (3) BUFFER CROSSING FOR FENCES, PROVIDED THAT THE CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25 DEGREES OF PERPENDICULAR TO THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER.
- (4) STREAM CROSSINGS FOR AERIAL UTILITY LINES, PROVIDED THAT: (A) THE NEW UTILITY LINE RIGHT-OF-WAY WIDTH DOES NOT EXCEED 100 LINEAR FEET, (B) UTILITY LINES ARE ROUTED AND CONSTRUCTED SO AS TO MINIMIZE THE NUMBER OF STREAM CROSSINGS AND DISTURBANCES TO THE BUFFER, (C) ONLY TREES AND TREE DEBRIS ARE REMOVED FROM WITHIN THE BUFFER RESULTING IN ONLY MINOR SOIL EROSION (I.E., DISTURBANCE TO UNDERLYING VEGETATION IS MINIMIZED), AND (D) NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER. THE PLAN SHALL INCLUDE A DESCRIPTION OF THE STREAM CROSSINGS WITH DETAILS OF THE BUFFER DISTURBANCE INCLUDING AREA AND LENGTH OF BUFFER DISTURBANCE, ESTIMATED LENGTH OF TIME OF BUFFER DISTURBANCE, AND JUSTIFICATION.

(3) BUFFER CROSSING FOR FENCES, PROVIDED THAT THE CROSSINGS OCCUR AT AN ANGLE, AS MEASURED FROM THE POINT OF CROSSING, WITHIN 25 DEGREES OF PERPENDICULAR TO THE STREAM AND CAUSE A WIDTH OF DISTURBANCE OF NOT MORE THAN 50 FEET WITHIN THE BUFFER, AND NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER. PROVIDED THAT: (A) THE NEW UTILITY LINE RIGHT-OF-WAY WIDTH DOES NOT EXCEED 100 LINEAR FEET, (B) UTILITY LINES ARE ROUTED AND CONSTRUCTED SO AS TO MINIMIZE THE NUMBER OF STREAM CROSSINGS AND DISTURBANCES TO THE BUFFER, (C) ONLY TREES AND TREE DEBRIS ARE REMOVED FROM WITHIN THE BUFFER RESULTING IN ONLY MINOR SOIL EROSION (I.E., DISTURBANCE TO UNDERLYING VEGETATION IS MINIMIZED), AND (D) NATIVE RIPARIAN VEGETATION IS RE-ESTABLISHED IN ANY BARE OR DISTURBED AREAS WITHIN THE BUFFER. THE PLAN SHALL INCLUDE A DESCRIPTION OF THE STREAM CROSSINGS WITH DETAILS OF THE BUFFER DISTURBANCE INCLUDING AREA AND LENGTH OF BUFFER DISTURBANCE, ESTIMATED LENGTH OF TIME OF BUFFER DISTURBANCE, AND JUSTIFICATION.

**CHECKLIST # 16**

STREAM BUFFERS WILL BE IMPACTED AND A BUFFER VARIANCE WILL BE REQUIRED.

**CHECKLIST # 17**

AMENDMENTS/REVISIONS TO THE ES&PC PLAN THAT HAVE A SIGNIFICANT EFFECT ON THE PUBLIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

**CHECKLIST # 18**

WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

**CHECKLIST # 19**

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.

**CHECKLIST # 20**

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 OR TREAT THE SEDIMENT SOURCE.

**CHECKLIST # 21**

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

**CHECKLIST # 22**

THE SITE IS WITHIN 1 MILE OF AN IMPAIRED STREAM.

THE FOLLOWING "CHECKED" ADDITIONAL ERO BMP'S ARE TO BE USED PER PART III, C. IF THE STATEMENT ABOVE IDENTIFIES ANY IMPAIRED STREAMS WITHIN 1 MILE OF THE PROJECT SITE:

**D. A LARGE SIGN (MIN. 4 FEET X 6 FEET) MUST BE POSTED ON THE SITE BY THE ACTUAL START DATE OF CONSTRUCTION. THE SIGN MUST BE VISIBLE FROM PUBLIC ROADWAY. THE SIGN MUST IDENTIFY THE FOLLOWING: (1) CONSTRUCTION SITE, (2) THE PERMITTEE(S), (3) THE CONTACT PERSON(S) AND PHONE NUMBER, (4) THE PERMITTEE'S REGISTERED WEBSITE WHERE THE PLAN CAN BE VIEWED MUST BE PROVIDED ON THE SUBMITTED NOI. THE SIGN MUST REMAIN ON SITE AND THE PLAN MUST BE AVAILABLE ON THE PROVIDED WEBSITE UNTIL A UNTIL A N.O.T. HAS BEEN SUBMITTED.**

**F. CONDUCT TURBIDITY SAMPLING AFTER EVERY RAIN EVENT OF 0.5 INCH OR GREATER WITHIN ANY 24 HOUR PERIOD, REGARDLESS OF THE EXCEPTIONS SPECIFIED IN PART IV.D.6.d. OF THE NPDES PERMIT.**

**P. CONDUCT SOIL TESTS TO IDENTIFY AND TO IMPLEMENT SITE-SPECIFIC FERTILIZER NEEDS.**

**U. CONDUCT INSPECTIONS DURING THE INTERMEDIATE GRADING AND DRAINAGE BMP PHASE AND DURING THE FINAL BMP PHASE OF THE PROJECT BY THE DESIGN PROFESSIONAL WHO PREPARED THE PLAN IN ACCORDANCE WITH SECTION IV.A.6 OF THE PERMIT.**

**CHECKLIST # 23**

THE TMDL PLAN FOR THE NANCY CREEK WATERSHED HAS BEEN CREATED. THE CITY OF BROOKHAVEN HAS PREPARED AND IMPLEMENTED THE NANCY CREEK WATERSHED IMPROVEMENT PLAN WITH THE GOAL OF REDUCING FECAL COLIFORM LEVELS AND SEDIMENT LOADING. THIS PROJECT WILL INCLUDE THE RESTORATION OF STREAMS AND NON-WORKING AMOUNT OF TURFGRASS INSTALLED AND RE-INTRODUCING NATIVE VEGETATION IN THE RIPARIAN BUFFER. ADDITIONAL PROJECTS ARE PLANNED AS PART OF THE NANCY CREEK WATERSHED RESTORATION PLAN TO INTRODUCE BIODIVERSITY INTO ENHANCED SWALES AND OTHER GREEN BMP'S.

**CHECKLIST # 24**

TRUCK WASH-DOWN FACILITY

USE FOR THE CONCRETE WASH-DOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS, AND REAR OF VEHICLES. WASH-OUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED.

THE CONTRACTOR SHALL EXCAVATE A PIT OUTSIDE OF STATE WATER BUFFERS, AT LEAST 25 FEET FROM ANY STORM DRAIN AND OUTSIDE OF THE TRAVEL WAY, INCLUDING SHOULDERS, FOR A WASH/PIT AREA. THE PIT SHALL BE LARGE ENOUGH TO STORE ALL WASH-DOWN WATER WITHOUT OVERFLOWING THE PIT. IMMEDIATELY AFTER THE WASH-DOWN OPERATIONS ARE COMPLETED AND AFTER THE WASH-DOWN WATER HAS SOAKED INTO THE GROUND, THE PIT SHALL BE FILLED IN, AND THE GROUND ABOVE SHALL BE GRADED TO MATCH THE ELEVATION OF THE SURROUNDING AREA. THE SMOOTHED OUT, ALTERNATE WASH-DOWN PLANS MUST BE APPROVED BY THE PROJECT ENGINEER. WASH-DOWN PLANS DESCRIBE PROCEDURES THAT PREVENT WASH-DOWN WATER FROM ENTERING STREETS AND RIVERS. NEVER DISPOSE OF WASH-DOWN WATER DOWN A STORM DRAIN. ESTABLISH A WASH-DOWN WATER PIT LOCATION THAT INCLUDES THE FOLLOWING: (1) THE PIT IS LOCATED AWAY FROM STORM DRAIN, STREET OR OTHER AREA THAT IS ACCESSIBLE TO THE VEHICLE BEING USED FOR WASH-DOWN, (3) THE PIT HAS ENOUGH VOLUME FOR WASH-DOWN WATER, AND (4) MAKE SURE YOU HAVE PERMISSION TO USE THE AREA FOR WASH-DOWN. ON SOME SITES, THERE MAY BE A DRIVEWAY OR ACCESS TO A LOCATION WHICH ALLOWS FOR A WASH-DOWN PIT. IN THOSE CASES, THE CONTRACTOR MAY HAVE TO WASH-DOWN INTO A WHEELBARROW OR OTHER CONTAINER AND CARRY THE CONTAINER TO A PROPER DISPOSAL SITE. FOR ADDITIONAL INFORMATION, REFER TO THE GEORGIA SMALL BUSINESS ENVIRONMENTAL ASSISTANCE PROGRAM'S "A GUIDE FOR READY MIX CHUTE/HOPPER WASH-DOWN."

**CHECKLIST # 25**

SPILL CLEANUP AND CONTROL PRACTICES

LOCAL, STATE, AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL EQUIPMENT AND EQUIPMENT TO BE USED ARE LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PERPEPLY LABELED PLASTIC AND METAL WASTE CONTAINERS.

SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.

ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON OCCURRENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EROSION PREVENTION AND POLLUTION CONTROL PLAN. THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.

**CHECKLIST # 26**

THE INCREASE OF IMPERVIOUS SURFACES IS UNDER 5,000 S.F. AND NO WATER QUALITY OR STORMWATER MANAGEMENT BMP'S ARE PROPOSED.

**CHECKLIST # 27**

**CONTRACTOR IS REQUIRED TO COVER ALL BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE WITH HEAVY GAUGE PLASTIC TARPS AT ALL TIMES WHEN NOT IN USE. CONTRACTOR SHALL LIMIT AMOUNT OF BUILDING MATERIALS AND BUILDING PRODUCTS TO THE MINIMAL AMOUNT NECESSARY FOR EACH PHASE OF CONSTRUCTION.**

**CHECKLIST # 28**

PRACTICES TO BE USED TO REDUCE POLLUTANTS IN STORM WATER DISCHARGE.

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS, AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATERS, NATURAL DRAINS, AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION, DISCHARGE OF OILS, FUELS, AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

PAINTS/FINISHES/SOLVENTS - ALL PRODUCTS WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS STORED WITH THE ORIGINAL CONTAINERS, BUT NOT IN USE, WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING - NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.

FERTILIZER/HERBICIDES - THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE BEST MANAGEMENT PRACTICES MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS - NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

**CHECKLIST # 29**

SEE SHEET 7.5B FOR ACTIVITIES SCHEDULE

**CHECKLIST # 30**

INSPECTIONS

A. PRIMARY PERMITTEE.

(1) EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT, (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTERING STREETS AND RIVERS, (C) EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

(2) MEASURE AND RECORD RAINFALL WITHIN DISTURBED AREAS OF THE SITE THAT HAVE NOT MET FINAL STABILIZATION ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY AND NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY. THE DATA COLLECTED FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.

(3) CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY FOLLOWING THE DATE THAT SUCH OCCURS FIRST): (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE, (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO WASH-DOWN WATER FROM STORM DRAIN CONTROL MEASURES, EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE MAINTAINED AS DESIGNED, (C) STRUCTURAL CONTROL LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S), (D) THE TIME(S) ANALYSES WERE INITIATED, (E) THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES.

(4) CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION HAS BEEN SUBMITTED) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THE PERMITTEE MUST CARRY THE BURDEN OF PROOF THAT THE INSPECTION MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

(5) BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION PREVENTION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.

(6) A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E., CITY OF BROOKHAVEN'S INITIAL, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.(5), OF THE PERMIT SHALL BE MAINTAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION SITE THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN, WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN AND THIS PERMIT. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT.

**CHECKLIST # 31**

D. SAMPLING FREQUENCY.

(1) THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW, FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORMWATER DISCHARGE FROM THE RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE.

(2) HOWEVER, WHEN MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORMWATER DISCHARGE.

**CHECKLIST # 32**

COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE A NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

**CHECKLIST # 33**

B. SAMPLE TYPE. ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METROLOGY AQA TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED). THE GUIDANCE DOCUMENT TITLED "EPA'S STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 823-R-01" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.

- 1. SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES.
- 2. SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.

CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;

(B), IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORMWATER DISCHARGE THAT COLLECTED NO MORE THAN TWO (2) BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOI, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST.

(C), AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMP'S IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, ARE NOT STRUCTURALLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMP'S ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;

(D), WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED, PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B), OR (C) ABOVE; AND

(E), EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

**E. REPORTING**

1. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEEN (15) DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORMWATER SAMPLES MUST BE SIGNED AND DATED BY THE PERMITTEE (I.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

- 2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
  - A. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
  - B. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
  - C. THE DATE(S) OF THE RECEIVING WATER(S);
  - D. THE TIME(S) ANALYSES WERE INITIATED;
  - E. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
  - F. EVIDENCE OF THE WRITING PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
  - G. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READINGS, COMPUTER DISK OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
  - H. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU"; AND
  - I. A CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED PER THE PLAN.

3. ALL WRITTEN CORRESPONDENCE RECEIVED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT THE DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

**CHECKLIST # 32**

F. RETENTION OF RECORDS.













**Construction Exit Co**

**DEFINITION**  
A stone stabilized pad located at any point where traffic will be leaving a construction site to a public right-of-way, street, alley, sidewalk or parking area or any other area where there is a transition from bare soil to a paved area.

**PURPOSE**  
To reduce or eliminate the transport of mud from the construction area onto public rights-of-way by motor vehicles or by runoff.

**CONDITIONS**  
This practice is applied at appropriate points of construction egress. Geotextile underlayment is required to stabilize and support pad aggregates.

**DESIGN CRITERIA**  
Formal design is not required. The following standards shall be used:

**Aggregate Size**  
Stone will be in accordance with National Stone Association R-2 (1.5 to 3.5 inch stone).

**Pad Thickness**  
The gravel pad shall have a minimum thickness of 6 inches.

**Pad Width**  
At a minimum, the width should equal full width of all points of vehicular egress, but not less than 20 feet wide.

**Pad Length**  
The gravel pad shall have a minimum length

of 50 feet. When the construction is less than 50' from the paved access, the length shall be from the edge of existing pavement to the permitted building being constructed.

**Washing**  
If the action of the vehicle traveling over the gravel pad does not sufficiently remove the mud, the tires should be washed prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with crushed stone and provisions that intercept the sediment-laden runoff and direct it into an approved sediment trap or sediment basin.

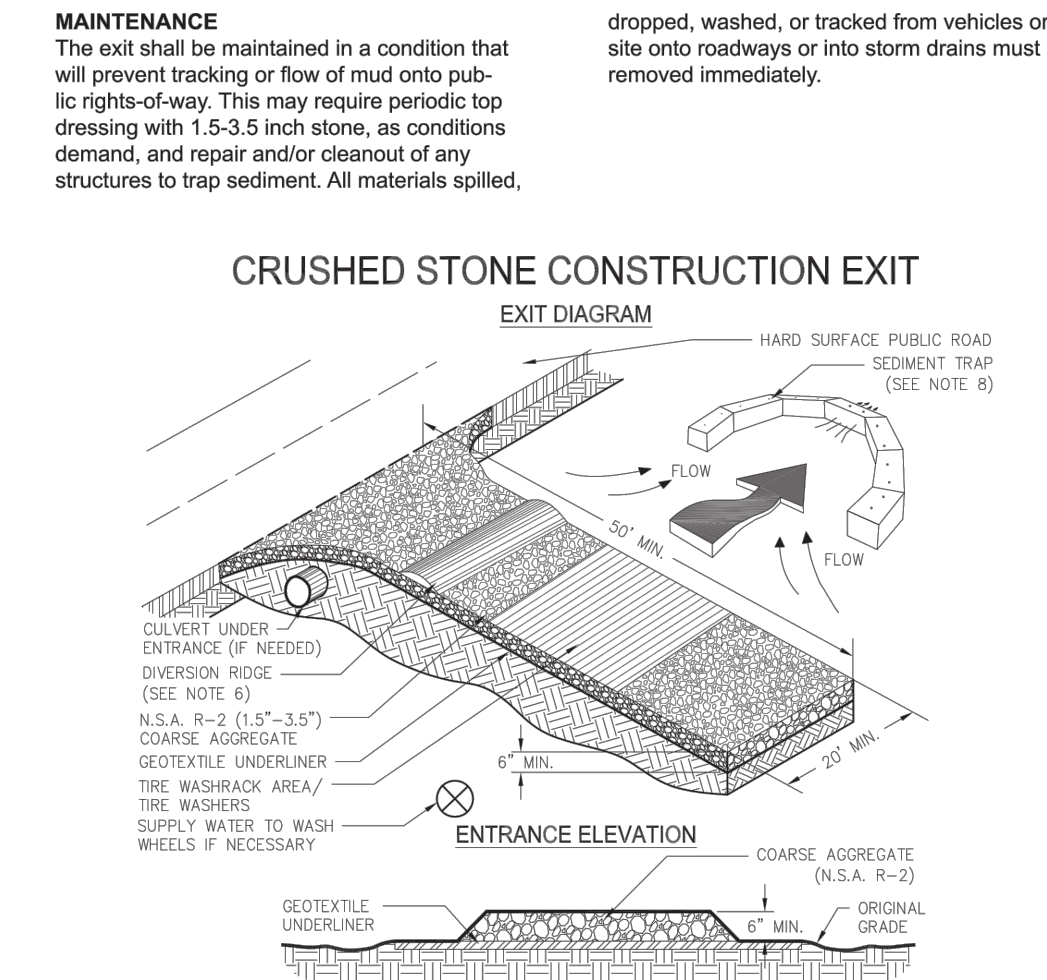
**Location**  
The exit shall be located or protected to prevent sediment from leaving the site.

**CONSTRUCTION SPECIFICATIONS**  
It is recommended that the egress area be excavated to a depth of 3 inches and be cleared of all vegetation and roots.

**Diversion Ridge**  
On sites where the grade toward the paved area is greater than 2%, a diversion ridge 3 to 6 inches high with 3:1 side slopes shall be constructed across the foundation approximately 15 feet above the road.

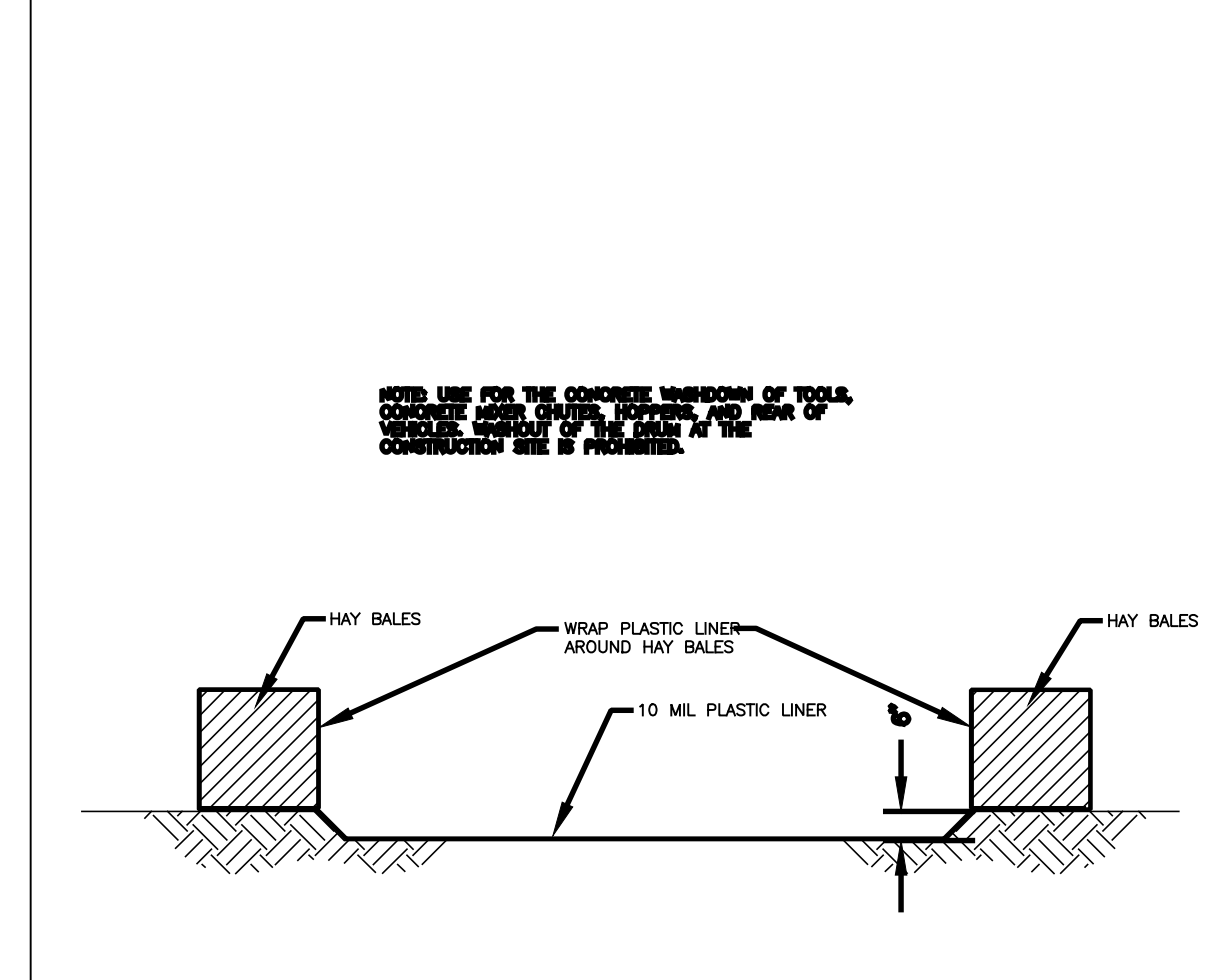
**Geotextile**  
The geotextile underlayment must be placed the full length and width of the entrance. Geotextile selection shall be based on AASHTO M288-06 specification:

- For subgrades with a CBR greater than or equal to 3 or shear strength greater than 20 kPa, geotextile must meet requirements of section AASHTO M288-06 Section 7.3, Separation Requirements.
- For subgrades with a CBR between 1 and 3 or shear strength between 30 and 90 kPa, geotextile must meet requirements of section AASHTO M288-06 Section 8, Geotextile Property Requirements for Sub-surface Drainage, Separation, Stabilization, and Permanent Erosion Control (Geotextile Property Requirements).



**CRUSHED STONE CONSTRUCTION EXIT**

**NOTES:**  
1. PAD LOCATION ON STEEP SLOPE OR AT CURVES ON PUBLIC ROADS.  
2. PROVIDE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CURVE OF POSITIVE DRAINAGE.  
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).  
4. CURVE RADIUS SHALL HAVE A MINIMUM THICKNESS OF 4".  
5. FIVE FEET SHALL BE DESIGN RADIUS WITH ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.  
6. FIVE FEET SHALL BE DESIGN RADIUS WITH ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.  
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DIRECTION.  
8. WHEN MAINTENANCE IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DO NOT ALLOW SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).  
9. MAINTAINANCE AND/OR THE WORKERS MAY BE REQUIRED OPERATING ON SCALE AND CIRCUMSTANCE, IF NECESSARY, WASH AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THEY MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.



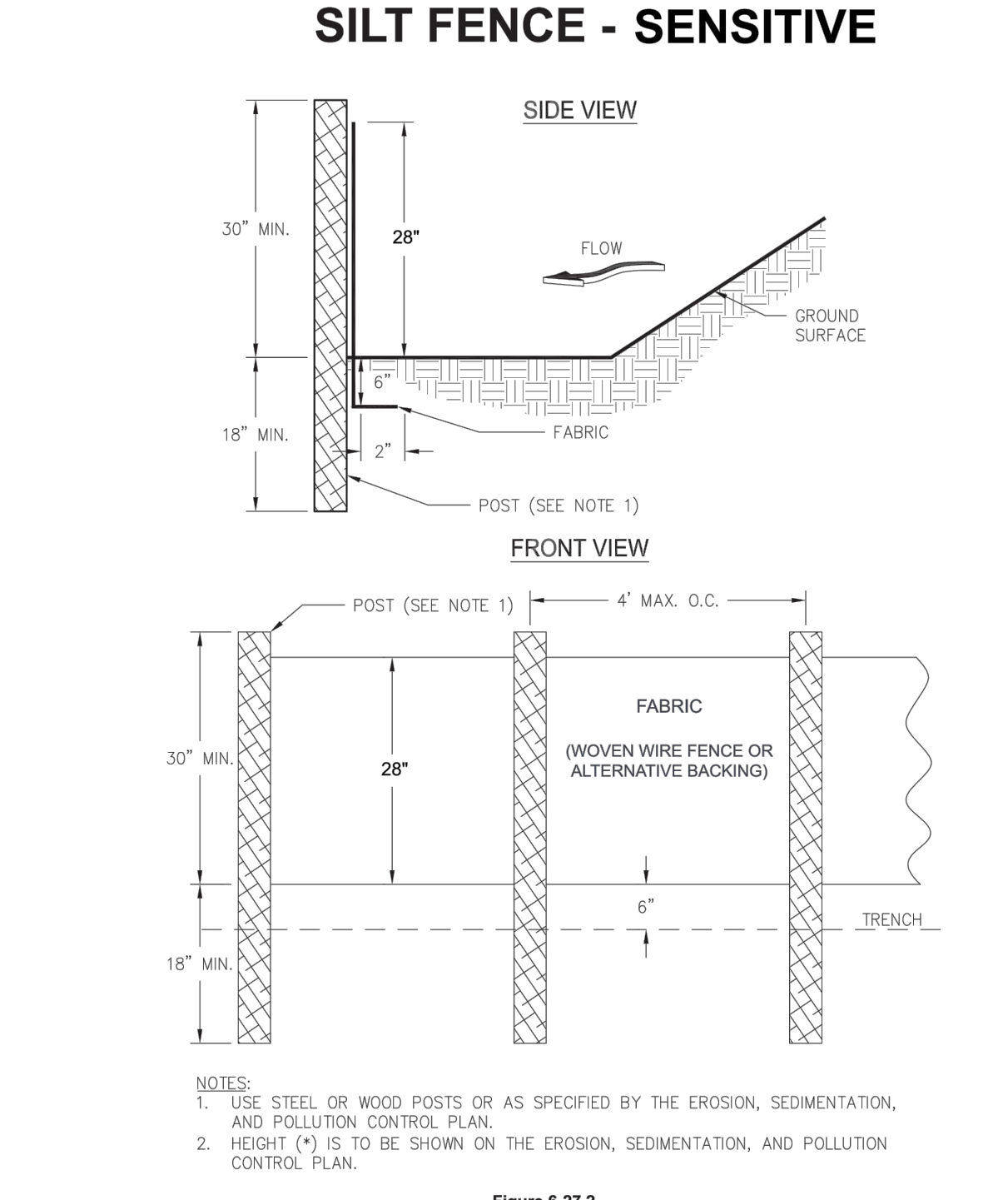
**CONCRETE WASHOUT DETAIL**

**DEFINITION**  
Sediment Barriers are temporary structures made up of a porous material typically supported by steel or wood posts. Types of sediment barriers may include silt fence, brush piles, mulch bales, compost filter socks or other filtering material.

**PURPOSE**  
To minimize and prevent sediment carried by sheet flow from leaving the site and entering natural drainage ways or storm drainage systems by slowing storm water runoff and causing the deposition and/or filtration of sediment at the structure. The barriers retain the soil on the disturbed land until the activities disturbing the land are completed and vegetation is established.

**CONDITIONS**  
Barriers should be installed where runoff can be stored behind the barrier without damaging the subgrade area behind the barrier or the structure itself. Sediment barriers shall not be installed across streams, ditches, waterways, or any area the design professional designates as sensitive.

**DESIGN CRITERIA**  
Sediment barriers are designed to retain sediment transported by sheet flow from disturbed areas. It is important for the design professional to take into account the profile of the product for use on the site.



**SILT FENCE - SENSITIVE**

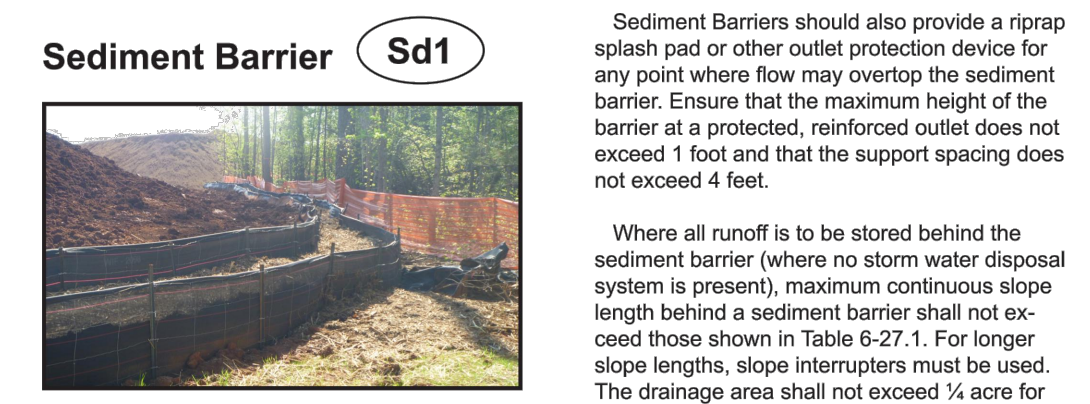
**REFERENCES:**  
ASCE 2001. Environmental Technology Verification Report for Installation of Silt Fence Using the Tommy Static Slicing Method. CERF Report #40565. Washington, DC: American Society of Civil Engineers. www.epa.gov/epubs/08\_vs\_tommy.pdf

ASTM 2003. Standard Practice for Silt Fence Installation. D 6462-03(2008). West Conshohocken, PA: American Society of Testing Materials International. www.astm.org/SEARCH/Research.html?query=D6462-03&site=Typestore-standards&searchType=standardsFull

Carpenter, Thomas 2000. Silt Fence That Works. Ankey, Iowa: Thomas Carpenter. www.tommy-sfm.com/pages/resources/Silt%20Fence%20That%20Works%20Manual.pdf

Fitzell, Daniel S. 2011. Designing and Reviewing Effective Sediment and Erosion Control Plans, 3rd Edition. Santa Barbara, CA: Forester Press.

U.S. Environmental Protection Agency 2007. Developing Your Stormwater Pollution Prevention Plan. EPA 833-R-06-004. Washington: EPA. Available from EPA homepage 800-450-9198 or www.epa.gov/epd/swp/swppp\_guide.pdf



**Sediment Barrier Sd1**

**DEFINITION**  
Sediment Barriers are temporary structures made up of a porous material typically supported by steel or wood posts. Types of sediment barriers may include silt fence, brush piles, mulch bales, compost filter socks or other filtering material.

**PURPOSE**  
To minimize and prevent sediment carried by sheet flow from leaving the site and entering natural drainage ways or storm drainage systems by slowing storm water runoff and causing the deposition and/or filtration of sediment at the structure. The barriers retain the soil on the disturbed land until the activities disturbing the land are completed and vegetation is established.

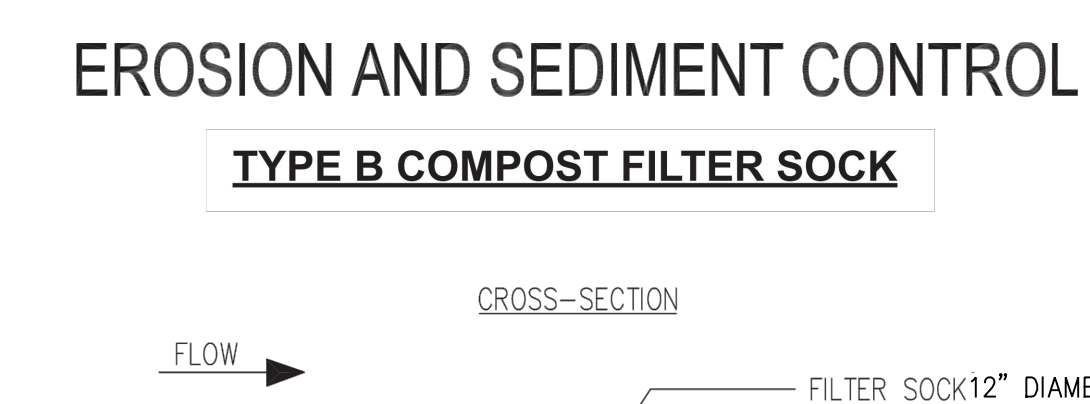
**CONDITIONS**  
Barriers should be installed where runoff can be stored behind the barrier without damaging the subgrade area behind the barrier or the structure itself. Sediment barriers shall not be installed across streams, ditches, waterways, or any area the design professional designates as sensitive.

**DESIGN CRITERIA**  
Sediment barriers are designed to retain sediment transported by sheet flow from disturbed areas. It is important for the design professional to take into account the profile of the product for use on the site.

**Table 6-27.1 Criteria for Sediment Barrier**

Land Slope Percent	Maximum Fence Length Above Fence Feet
< 2	100
2 to 5	75
5 to 10	50
10 to 20	25
> 20	15

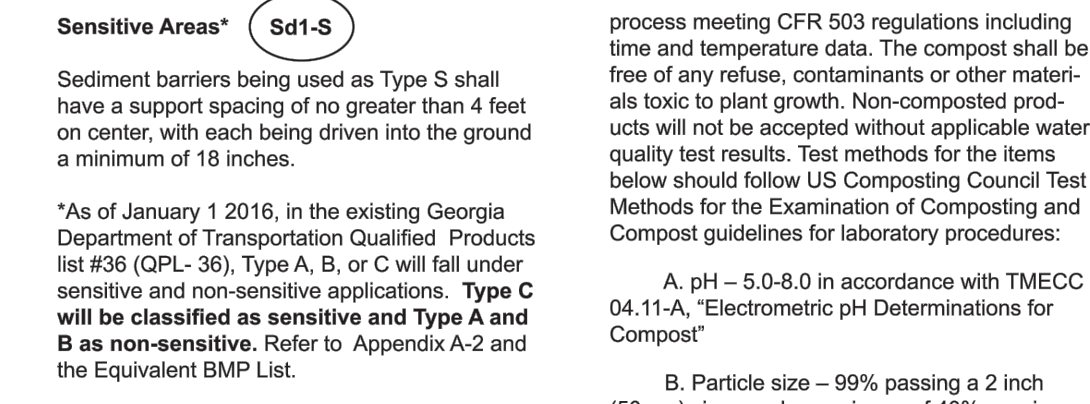
**NOTE:** In areas where the slope is greater than 20%, a flat area length of 10 feet between the toe of slope to the barrier should be provided.



**TYPE B COMPOST FILTER SOCK**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**CONSTRUCTION SPECIFICATIONS**  
**Non-sensitive Areas - Sd-NS**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.



**Sensitive Areas Sd-S**

Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**DEFINITION**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**Table 6-27.2 Post Size**

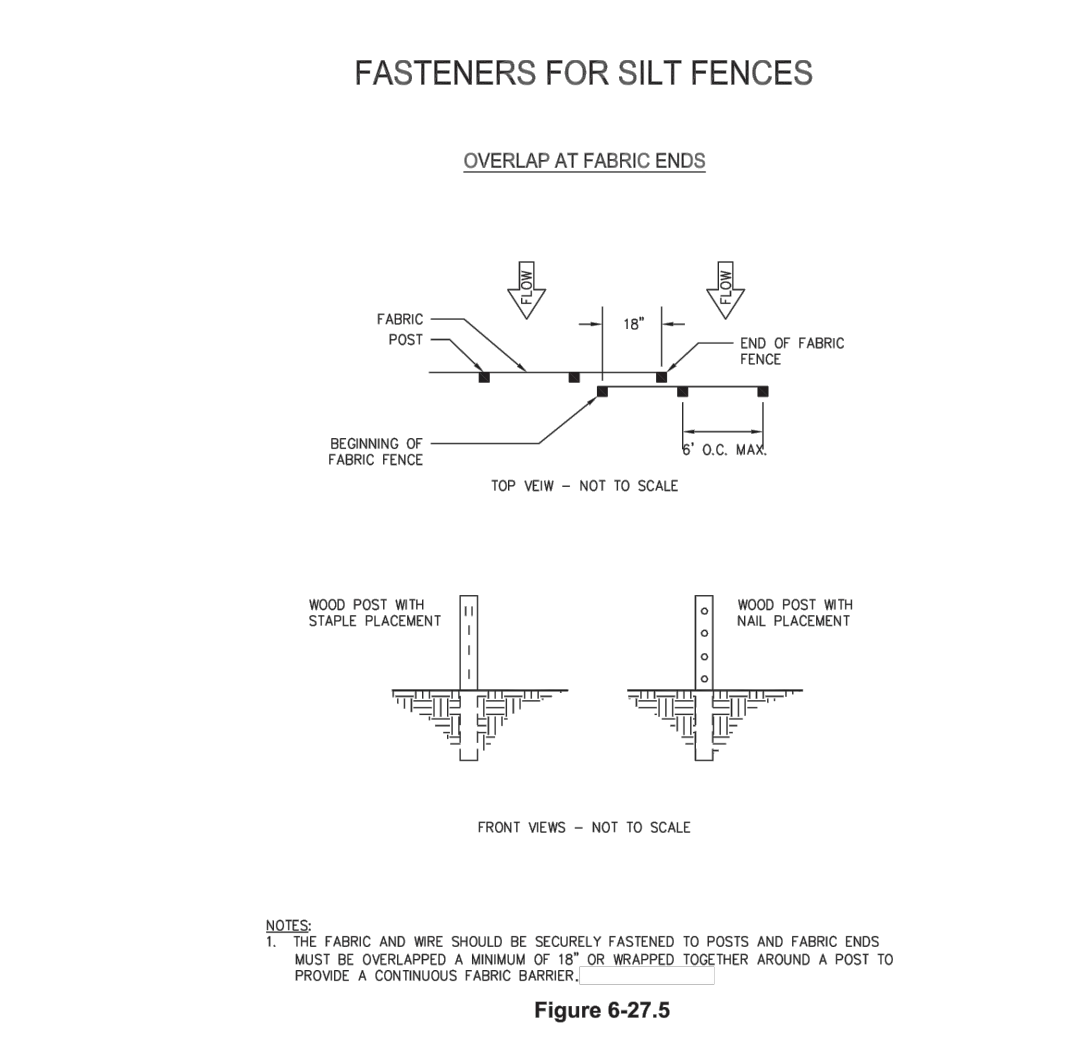
Type	Min Length	Type of Post	Size of Post
NS	4'	Soft wood Oak Steel	3/4" dia or 2x4 1.5" x 1.5" 1.125 lb. min
S	4'	Steel	1.15-1.25 lb./ft. min 2"x2"

**Table 6-27.3 Fasteners for Wood Posts**

Wire Staples	Gauge	Crown	Legs	Staples / Post
17 min.	3/4"	1/2"	long	5 min.

**Table 6-27.4 Fasteners for Silt Fences**

Gauge	Width	Button Heads	Nail Post
14 min.	1"	3/4"	4 min.



**FASTENERS FOR SILT FENCES**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

A brush barrier is a good tool to use in developing pasture in an agricultural situation to prevent sediment from leaving the site until the pasture is stabilized.

If greater filtering capacity is required, a commercially available sediment barrier may be placed on the side of the brush barrier receiving the sediment-laden runoff. The lower edge of the fabric must be buried in a 6-inch deep trench immediately uphill from the barrier. The upper edge must be stapled, tied or otherwise fastened to the brush barrier. Edges of adjacent fabric pieces must overlap each other. See Figure 6-27.5.

**Installation**  
Sediment barriers should be installed along the contour.

Temporary sediment barriers shall be installed according to the following specifications as shown on the plans or as directed by the design professional.

For installation of the barriers, see Figures 6-27.1, 6-27.2, 6-27.3, and 6-27.4, respectively. It is important to remember that not all sediment barriers need to be trenched into the ground but most later sediment barriers do.

Post installation shall start at the center of a low point (if applicable) with the remaining posts spaced no greater than 6 feet apart for Type NS sediment barriers and no greater than 4 feet apart for Type C sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for wood posts are listed in Table 6-27.3.

**Static Slicing Method**  
The static slicing machine pulls a narrow blade through the ground to create a slit 1/2" deep, and simultaneously inserts the silt fence fabric into this slit behind the blade. The blade is designed to slightly diverge so that upward need to the slit and to minimize horizontal compaction, thereby creating an optimum condition for compacting the soil vertically on both sides of the fabric. Compaction is achieved by rolling a tractor wheel along both sides of the slit in the ground 2 to 4 times to achieve nearly the same or greater compaction as the original undisturbed soil.

**Along all state waters and other sensitive areas, two rows of Type S sediment barriers shall be used. The two rows of Type S should be placed a minimum of 36 inches apart.**

**MAINTENANCE**  
Sediment shall be removed once its height has accumulated to one-half the original height of the barrier.

Sediment barriers shall be replaced whenever they have deteriorated to such an extent that the effectiveness of the product is reduced (approximately six months) or the height of the product is not maintaining 80% of its property installed height.

Temporary sediment barriers shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the barrier shall be removed and properly disposed of before the barrier is removed.

**TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN**  
When a SEDIMENT BARRIER is used, show the product height in inches for each barrier being used on site.

**Tree Protection Tr**

tree protection specifications written in their local ordinances. In some areas a permit is needed to remove trees with a specified diameter. It is important for property owners and design professionals to contact the local government to obtain information regarding tree ordinances BEFORE ES&PC plans are designed. Failure to do so could result in heavy fines or delay in construction.

**DESIGN CRITERIA**  
No formal design is required. However, in planning, a number of criteria must be considered.

**Tree Protection Zones:**

- Measure the diameter of the tree trunk in inches at 4.5 feet from the ground. This is called the Diameter Breast Height or DBH.
- Multiply this value by 1.5. This result is the radius of the root protection zone in feet. This is also considered the critical rooting distance.

Once the size of the area is determined, consider fencing materials. Orange tree save fencing or black silt fencing are commonly used.

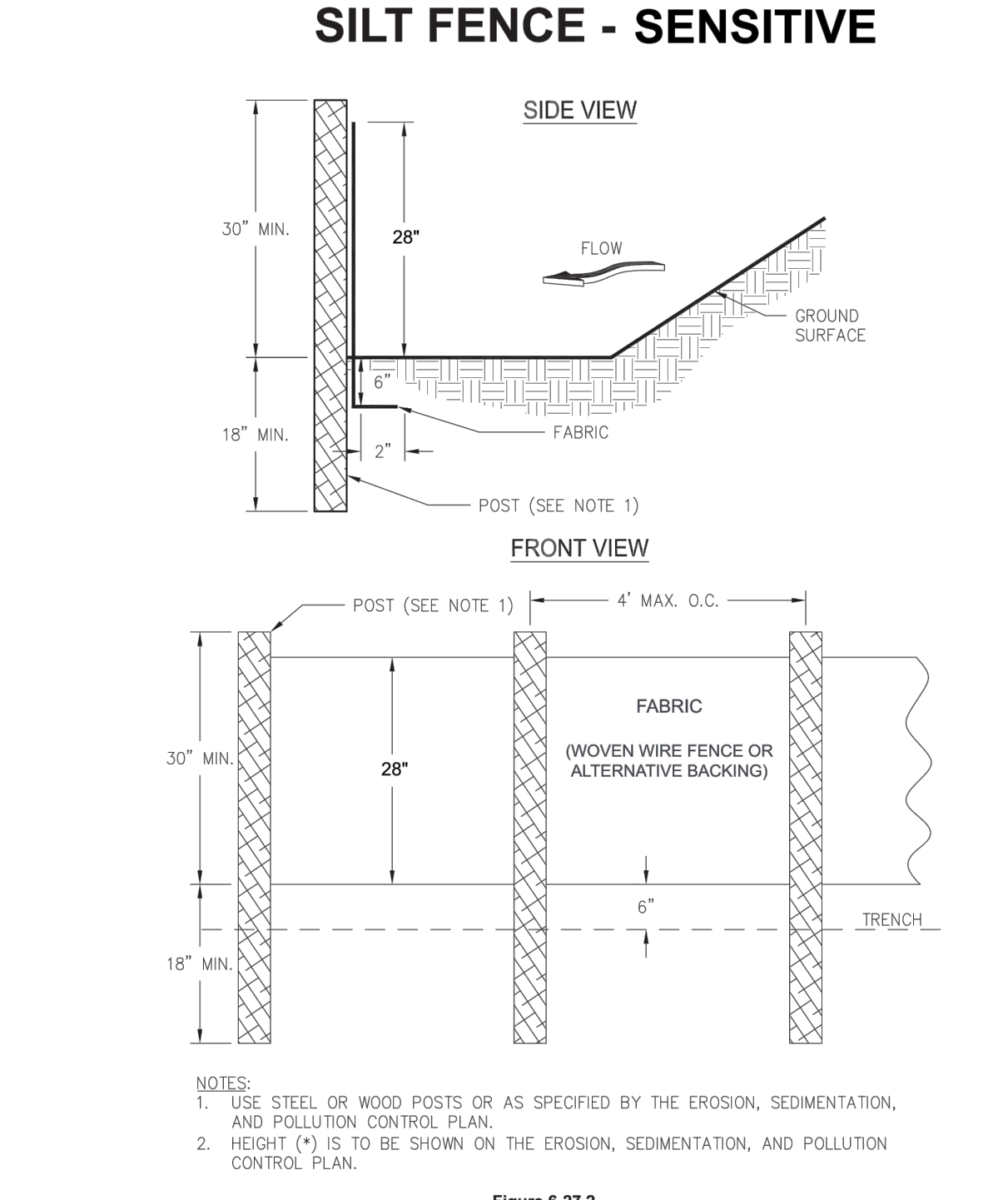
These materials are easy to install but they often get knocked down or removed when it is inconvenient to go around the tree save area. In some cases more permanent materials, such as chain link fencing, may be required. Whatever fencing material is used, it must be maintained throughout the construction process.

**Tree Protection Zone Fencing:**  
Tree protection zone fencing may be one of the following:

- For areas of large remnant forest to be protected use 4 feet high orange plastic fabric fencing stapled in three locations to treated wood 2x4 stakes. Set stakes 6 feet on center. Barriers are not to be used for stakes. Figure 6-38.1
- For single family homes use a treated wood fencing as shown on detail. It may have orange fabric attached to it.
- For all other developments use 6 feet high

**CRUSHED STONE CONSTRUCTION EXIT**

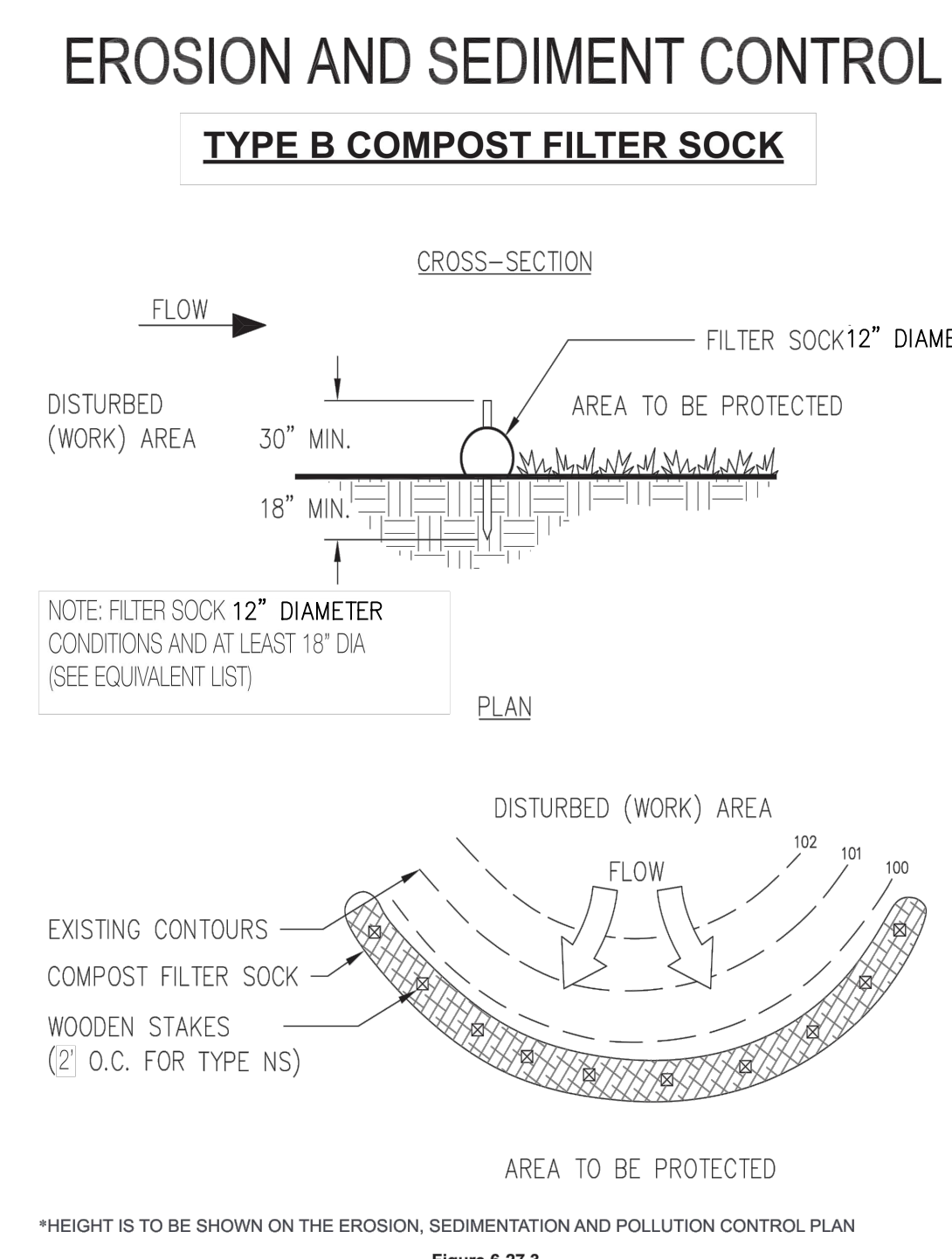
**NOTES:**  
1. PAD LOCATION ON STEEP SLOPE OR AT CURVES ON PUBLIC ROADS.  
2. PROVIDE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CURVE OF POSITIVE DRAINAGE.  
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).  
4. CURVE RADIUS SHALL HAVE A MINIMUM THICKNESS OF 4".  
5. FIVE FEET SHALL BE DESIGN RADIUS WITH ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.  
6. FIVE FEET SHALL BE DESIGN RADIUS WITH ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.  
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DIRECTION.  
8. WHEN MAINTENANCE IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DO NOT ALLOW SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).  
9. MAINTAINANCE AND/OR THE WORKERS MAY BE REQUIRED OPERATING ON SCALE AND CIRCUMSTANCE, IF NECESSARY, WASH AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THEY MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.



**TREE PROTECTION "SNOW" FENCE**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

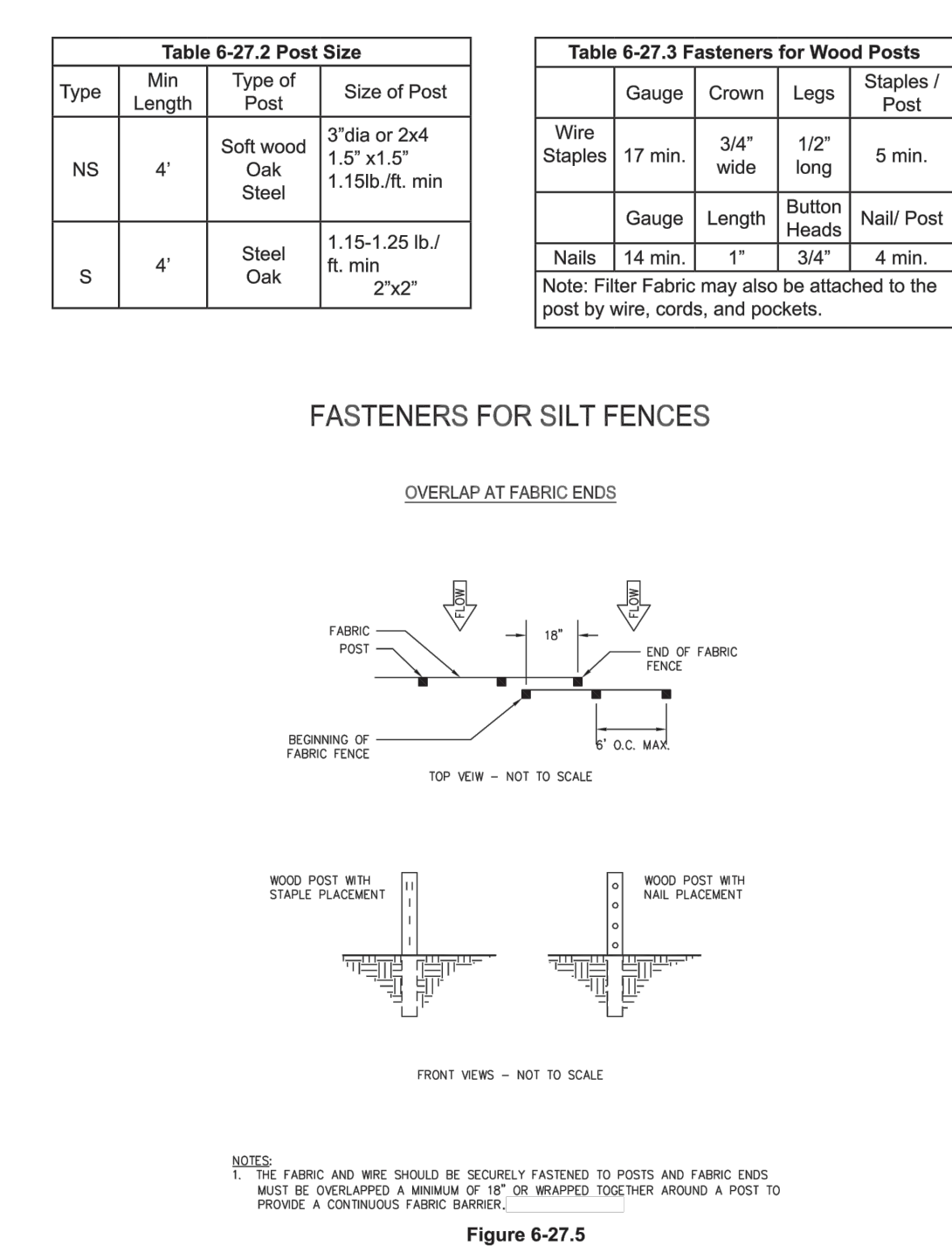
**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.



**TREE PROTECTION CHAIN LINK FENCE DETAIL**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.



**TREE PROTECTION BARRIER**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.



**Tree Protection Tr**

tree protection specifications written in their local ordinances. In some areas a permit is needed to remove trees with a specified diameter. It is important for property owners and design professionals to contact the local government to obtain information regarding tree ordinances BEFORE ES&PC plans are designed. Failure to do so could result in heavy fines or delay in construction.

**DESIGN CRITERIA**  
No formal design is required. However, in planning, a number of criteria must be considered.

**Tree Protection Zones:**

- Measure the diameter of the tree trunk in inches at 4.5 feet from the ground. This is called the Diameter Breast Height or DBH.
- Multiply this value by 1.5. This result is the radius of the root protection zone in feet. This is also considered the critical rooting distance.

Once the size of the area is determined, consider fencing materials. Orange tree save fencing or black silt fencing are commonly used.

These materials are easy to install but they often get knocked down or removed when it is inconvenient to go around the tree save area. In some cases more permanent materials, such as chain link fencing, may be required. Whatever fencing material is used, it must be maintained throughout the construction process.

**Tree Protection Zone Fencing:**  
Tree protection zone fencing may be one of the following:

- For areas of large remnant forest to be protected use 4 feet high orange plastic fabric fencing stapled in three locations to treated wood 2x4 stakes. Set stakes 6 feet on center. Barriers are not to be used for stakes. Figure 6-38.1
- For single family homes use a treated wood fencing as shown on detail. It may have orange fabric attached to it.
- For all other developments use 6 feet high

**TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN**  
When a SEDIMENT BARRIER is used, show the product height in inches for each barrier being used on site.

**Tree Protection Tr**

tree protection specifications written in their local ordinances. In some areas a permit is needed to remove trees with a specified diameter. It is important for property owners and design professionals to contact the local government to obtain information regarding tree ordinances BEFORE ES&PC plans are designed. Failure to do so could result in heavy fines or delay in construction.

**DESIGN CRITERIA**  
No formal design is required. However, in planning, a number of criteria must be considered.

**Tree Protection Zones:**

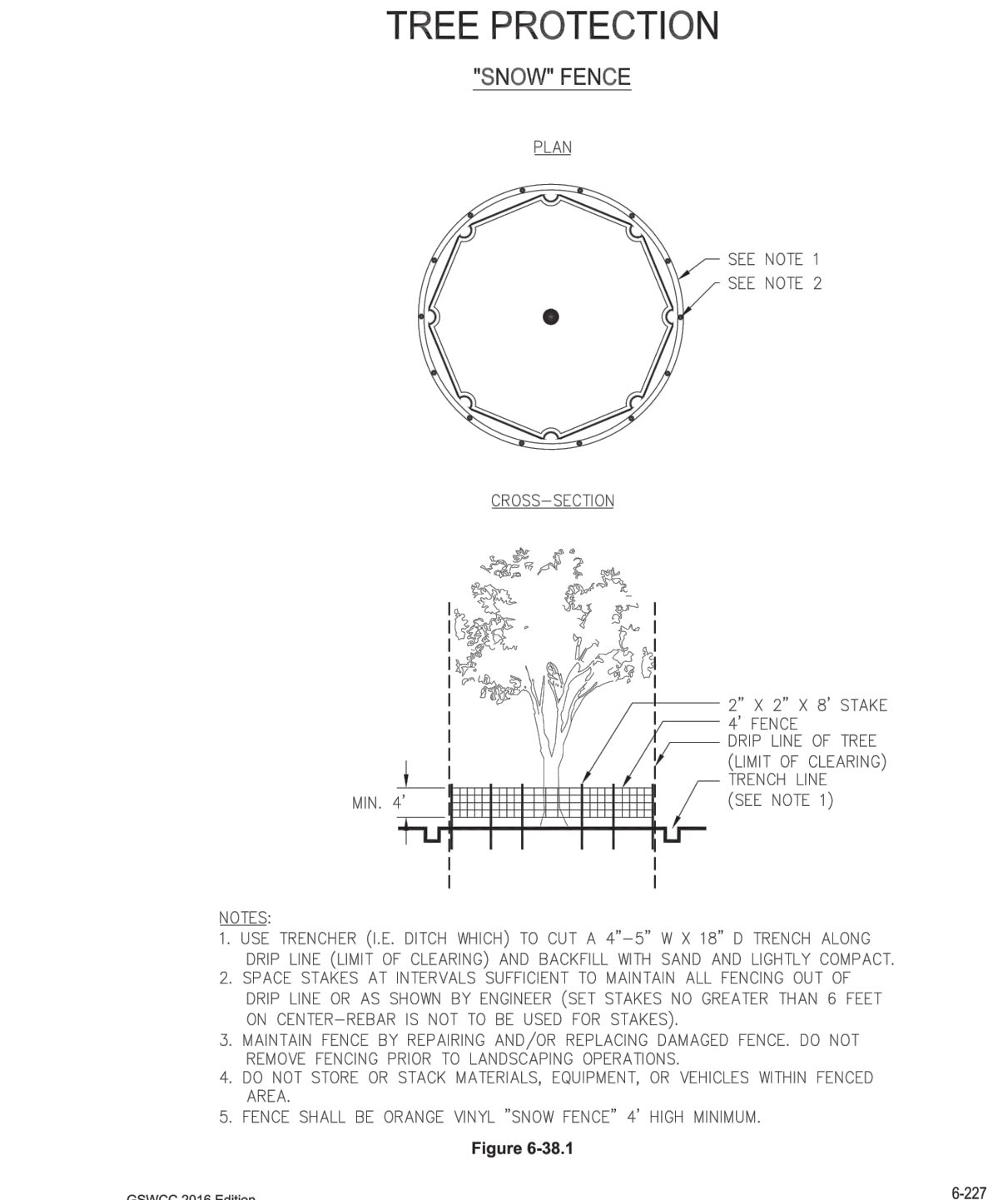
- Measure the diameter of the tree trunk in inches at 4.5 feet from the ground. This is called the Diameter Breast Height or DBH.
- Multiply this value by 1.5. This result is the radius of the root protection zone in feet. This is also considered the critical rooting distance.

Once the size of the area is determined, consider fencing materials. Orange tree save fencing or black silt fencing are commonly used.

These materials are easy to install but they often get knocked down or removed when it is inconvenient to go around the tree save area. In some cases more permanent materials, such as chain link fencing, may be required. Whatever fencing material is used, it must be maintained throughout the construction process.

**Tree Protection Zone Fencing:**  
Tree protection zone fencing may be one of the following:

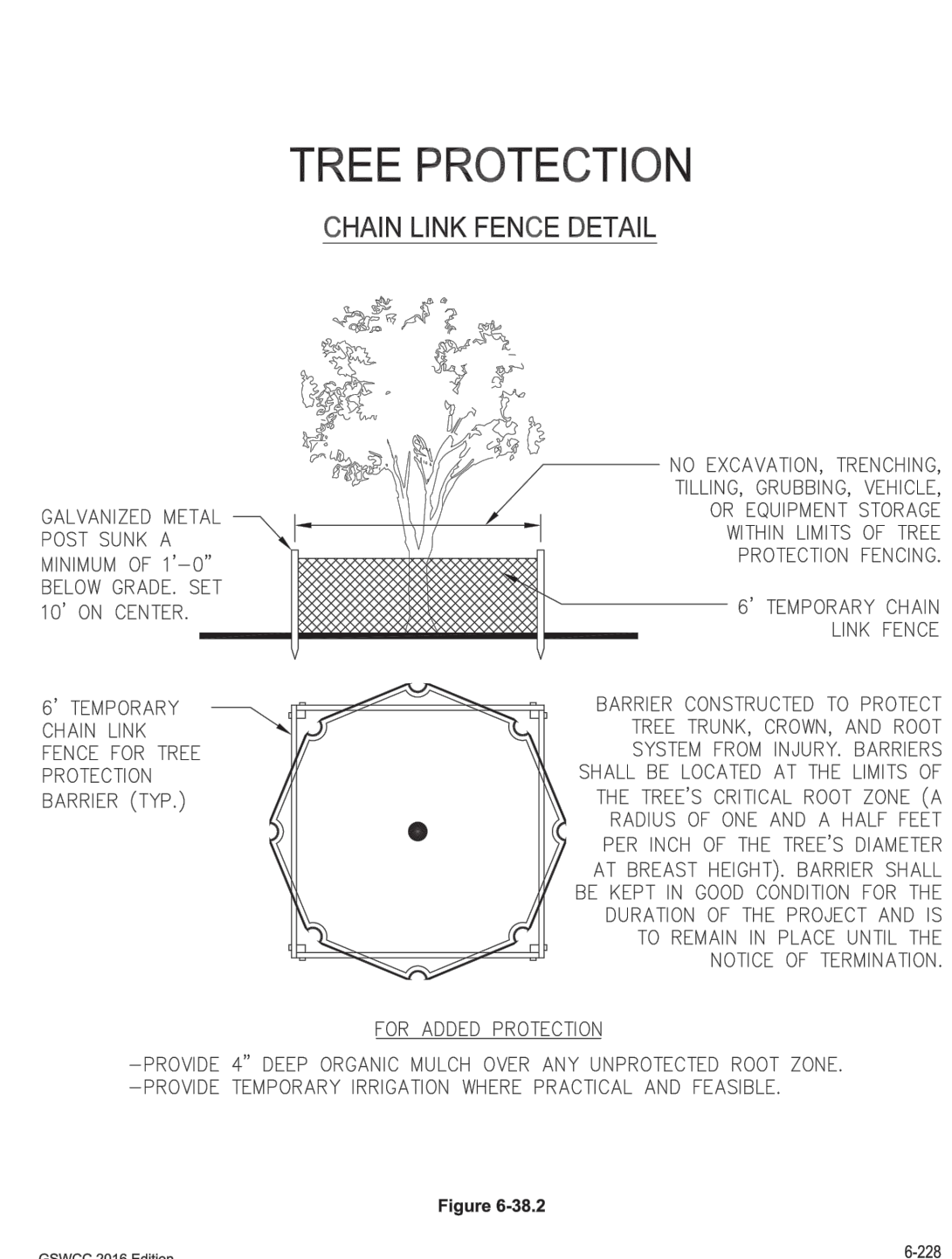
- For areas of large remnant forest to be protected use 4 feet high orange plastic fabric fencing stapled in three locations to treated wood 2x4 stakes. Set stakes 6 feet on center. Barriers are not to be used for stakes. Figure 6-38.1
- For single family homes use a treated wood fencing as shown on detail. It may have orange fabric attached to it.
- For all other developments use 6 feet high



**TREE PROTECTION "SNOW" FENCE**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.



**TREE PROTECTION CHAIN LINK FENCE DETAIL**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

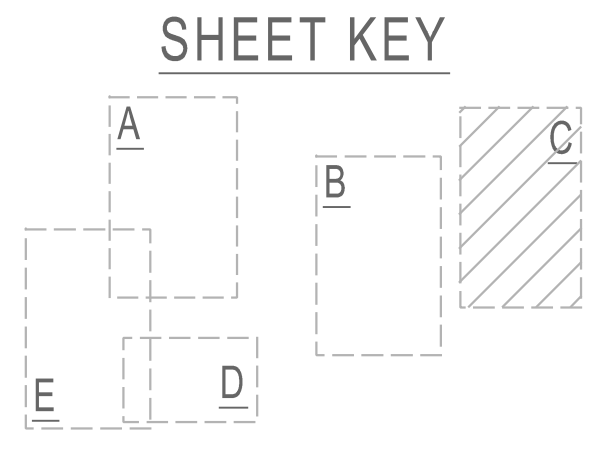
**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.



**TREE PROTECTION BARRIER**

**DEFINITION**  
Sediment barriers being used as Type NS shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.

**CONSTRUCTION SPECIFICATIONS**  
**Sensitive Areas Sd-S**  
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each being driven into the ground a minimum of 18 inches.



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**DRAWINGS SCHEDULE**

No.	Date	Description
1	04/20/20	LDP - South Trail
2	05/05	Brush Barrier Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/28	LDP - Natural Play Area - Rev #1
6	05/18	Woodland Wetland Design Build
7	05/28	LDP - Natural Play Area - Rev #2
8	05/28	LDP - Wetland Wetland
9	05/28	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



CITY OF BROOKHAVEN  
MURPHY CANDLER PARK  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	GZ

SCALE

SHEET TITLE

EROSION CONTROL DETAILS I

PROJECT NUMBER  
15092.00

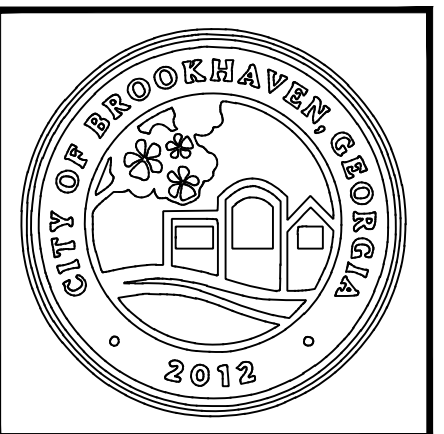
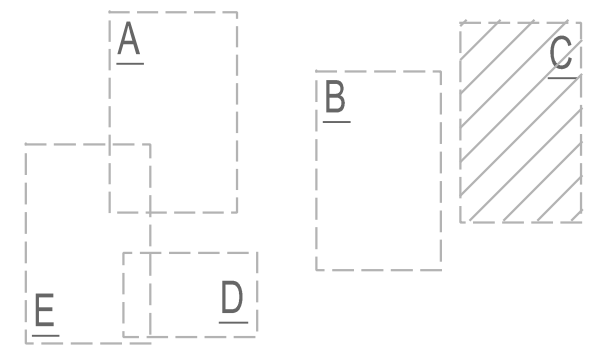
C7.5D

DRAWING NUMBER

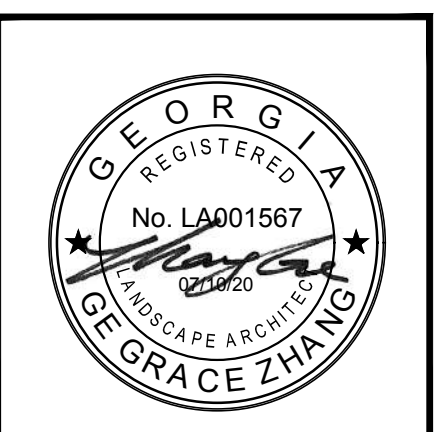
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FAX NO. (770) 421-0552  
WWW.TERRAMARK.COM  
C. O. # LSF00810





DRAWINGS SCHEDULE table with columns: No., Date, Description. Lists drawing numbers 1 through 13.



CITY OF BROOKHAVEN MURPHEY CANDLER PARK 1551 W. NANCY CREEK DRIVE NE BROOKHAVEN, GEORGIA 30319

Table with columns: DATE, DRAWN, CHECKED, SCALE, SHEET TITLE. Title: EROSION CONTROL DETAILS II.

Table with columns: PROJECT NUMBER (15092.00), CPLEAM logo, DRAWING NUMBER.

FABRIC AND SUPPORTING FRAME FOR INLET PROTECTION

STEEL FRAME AND TYPE C SILT FENCE INSTALLATION

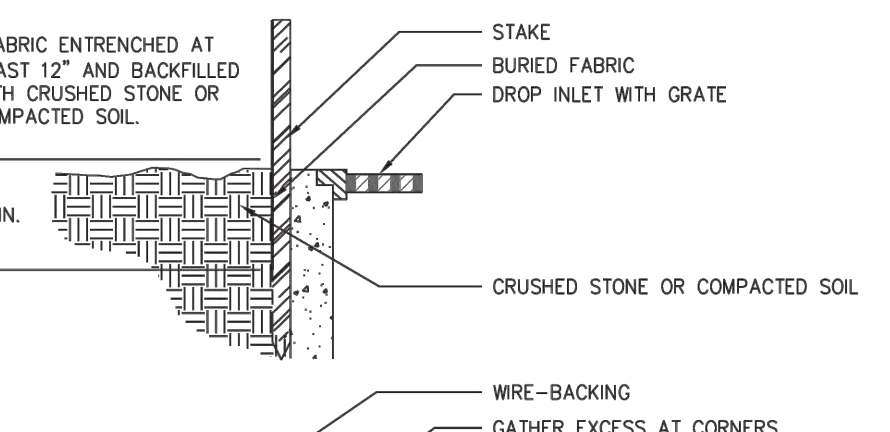
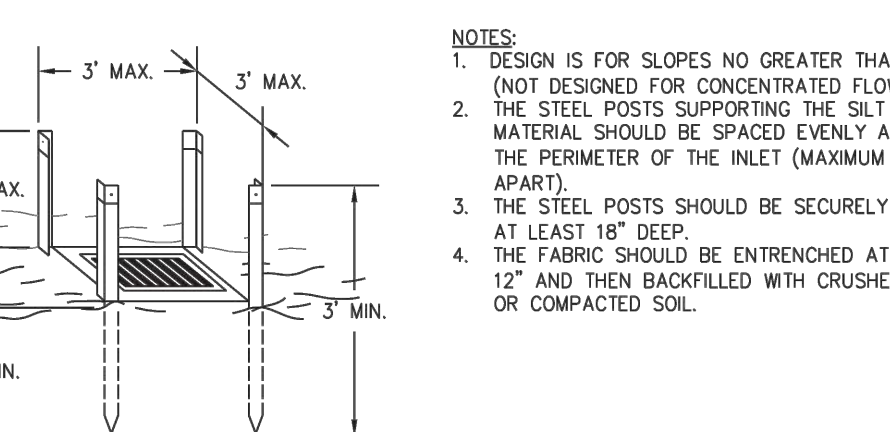


Figure 6-28.1 - Fabric and Supporting Frame For Inlet Projection

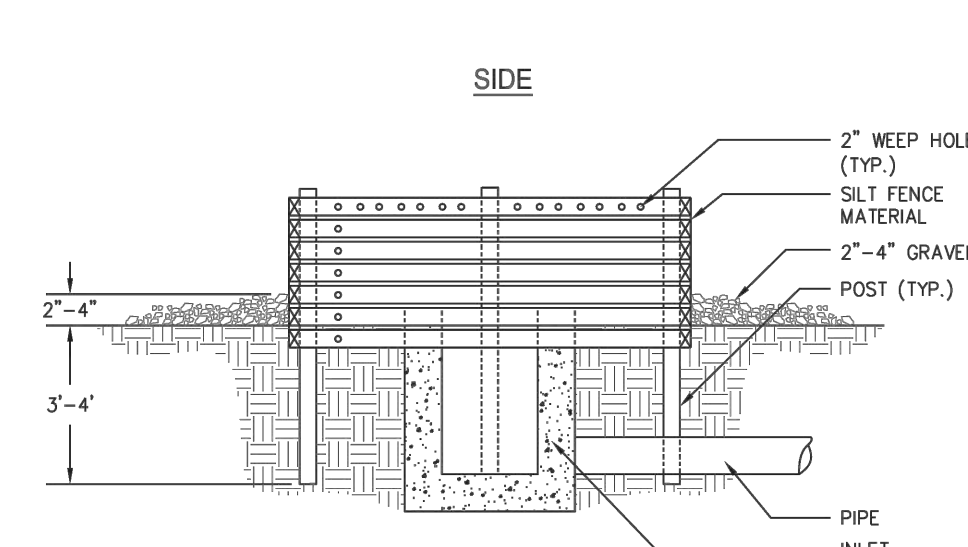
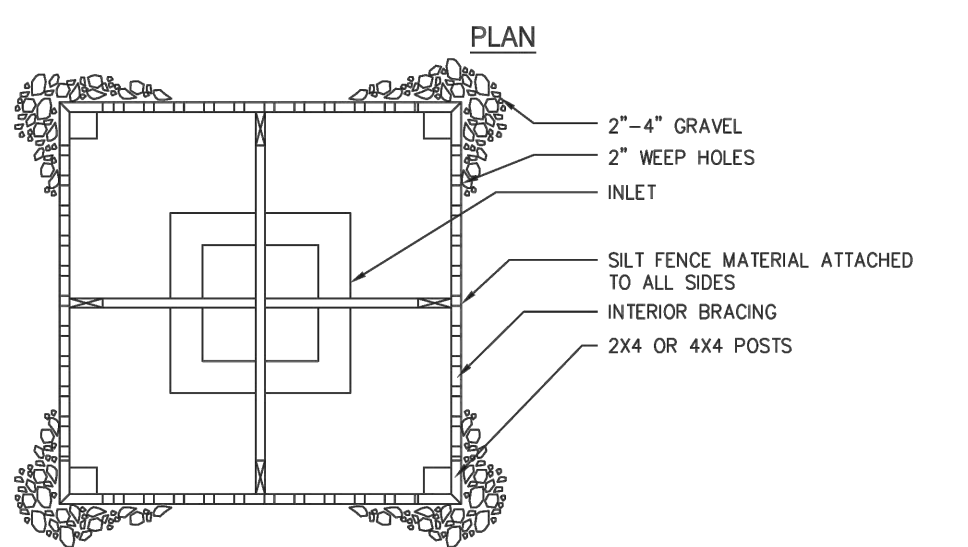
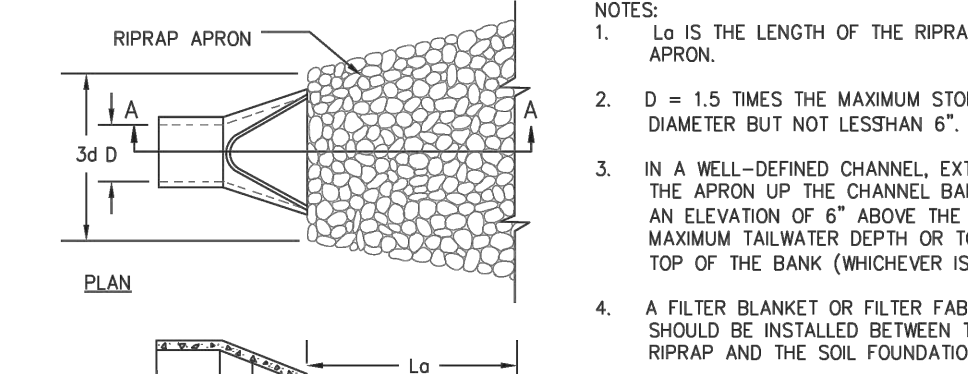


Figure 6-28.2 Baffle Box

RIPRAP OUTLET PROTECTION

PIPE OUTLET TO FLAT AREA - NO WELL DEFINED CHANNEL



PIPE OUTLET TO WELL DEFINED CHANNEL

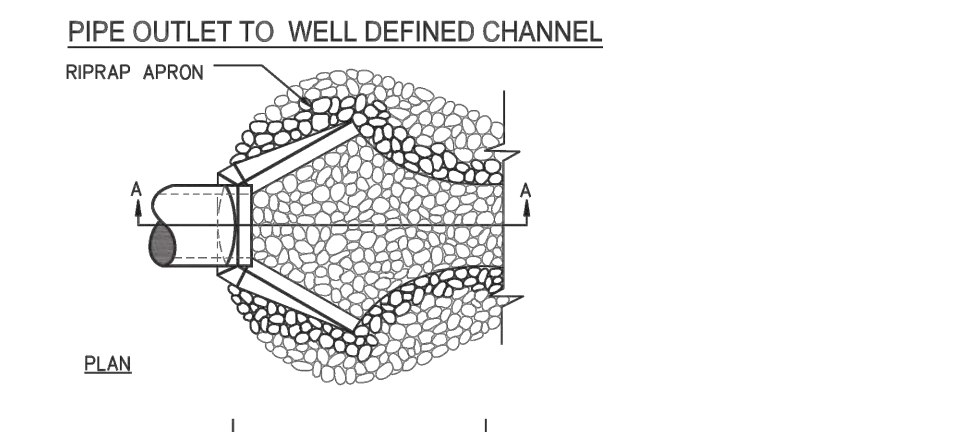


Figure 6-34.3 - Riprap Outlet Protection (Modified From Va SWCC)

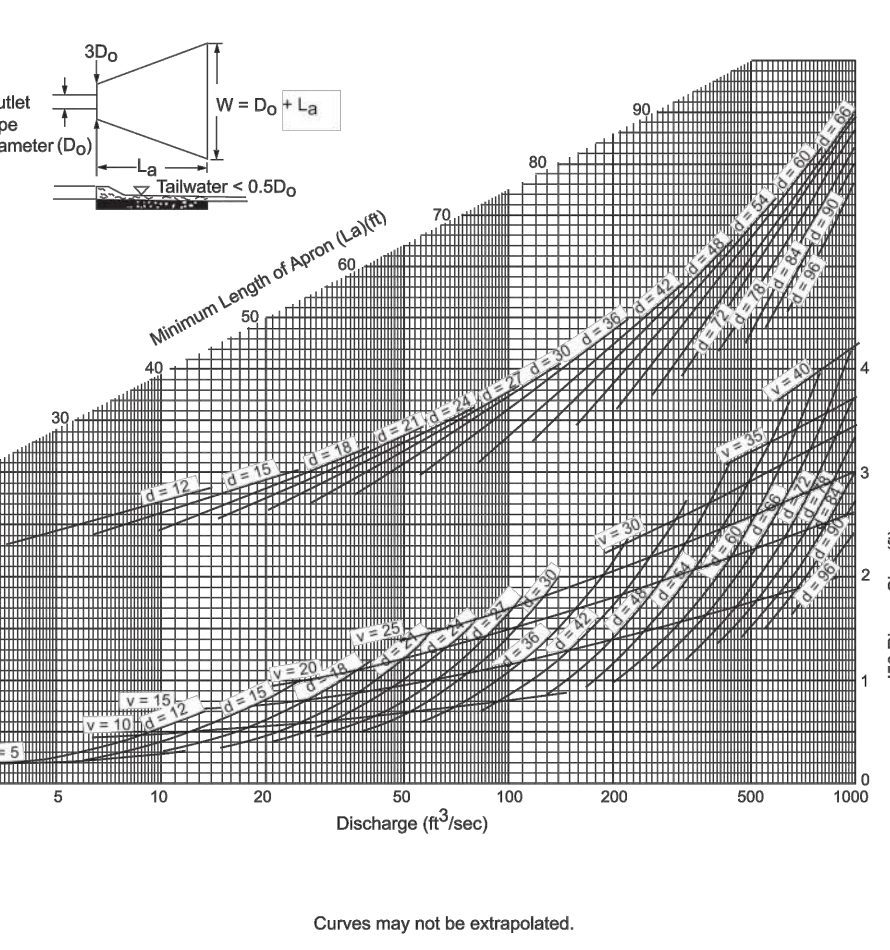


Figure 6-34.1 - Design of Outlet Protection From a Round Pipe Flowing Full, Minimum Tailwater Condition (Tw = 0.5 Diameter)

TO BE SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN. 1. The flow characteristics of the pipe at full flow including pipe diameter, flow rate (Q), velocity (V), and tailwater condition. 2. The dimensions of the apron including length (La), width at the headwall (W), downstream width (Wd), average stone diameter (D50), and stone depth (D) designed in accordance with Figures 6-34.1 and 6-34.2.

Inlet Sediment Trap (Sd2) - Definition, Purpose, Conditions, Design Criteria, Fabric with Supporting Frame, Baffle Box, Storm Drain Outlet Protection (St) - Definition, Purpose, Conditions, Design Criteria, Capacity, Tailwater Depth, Buffer Zone (BF) - Definition, Purpose, Conditions, General Buffers, Vegetated Stream Buffers, Design Specifications.

Block and Gravel Drop Inlet Protection (Sd2-Bg) - Definition, Purpose, Conditions, Design Criteria, Fabric and Supporting Frame, Baffle Box, Storm Drain Outlet Protection (St) - Definition, Purpose, Conditions, Design Criteria, Capacity, Tailwater Depth, Buffer Zone (BF) - Definition, Purpose, Conditions, General Buffers, Vegetated Stream Buffers, Design Specifications.

Curb Inlet Protection (Sd2-C) - Definition, Purpose, Conditions, Design Criteria, Fabric and Supporting Frame, Baffle Box, Storm Drain Outlet Protection (St) - Definition, Purpose, Conditions, Design Criteria, Capacity, Tailwater Depth, Buffer Zone (BF) - Definition, Purpose, Conditions, General Buffers, Vegetated Stream Buffers, Design Specifications.

Gravel Drop Inlet Protection (Sd2-G) - Definition, Purpose, Conditions, Design Criteria, Fabric and Supporting Frame, Baffle Box, Storm Drain Outlet Protection (St) - Definition, Purpose, Conditions, Design Criteria, Capacity, Tailwater Depth, Buffer Zone (BF) - Definition, Purpose, Conditions, General Buffers, Vegetated Stream Buffers, Design Specifications.

Soil Inlet Protection (Sd2-S) - Definition, Purpose, Conditions, Design Criteria, Fabric and Supporting Frame, Baffle Box, Storm Drain Outlet Protection (St) - Definition, Purpose, Conditions, Design Criteria, Capacity, Tailwater Depth, Buffer Zone (BF) - Definition, Purpose, Conditions, General Buffers, Vegetated Stream Buffers, Design Specifications.

Alignment - The apron shall be located so that there are no bends in the horizontal alignment. Geotextile - Geotextiles should be used as a separator between the graded stone, the soil base, and the subgrade. Materials - The apron may be lined with riprap, grouted riprap, or concrete. Construction Specifications - 1. Ensure that the subgrade for the filter and apron follows the required lines and grades shown in the plan. 2. The riprap and gravel filter must conform to the specified grading limits shown on the plans. 3. Geotextile must meet design requirements and be properly protected from snagging or tearing during installation.

Maintenance - The trap shall be inspected daily after each rain, and repairs made as needed. Sediment shall be removed from the trap when sediment has accumulated to one-half the height of the trap. Storm Drain Outlet Protection (St) - Definition, Purpose, Conditions, Design Criteria, Capacity, Tailwater Depth, Buffer Zone (BF) - Definition, Purpose, Conditions, General Buffers, Vegetated Stream Buffers, Design Specifications.

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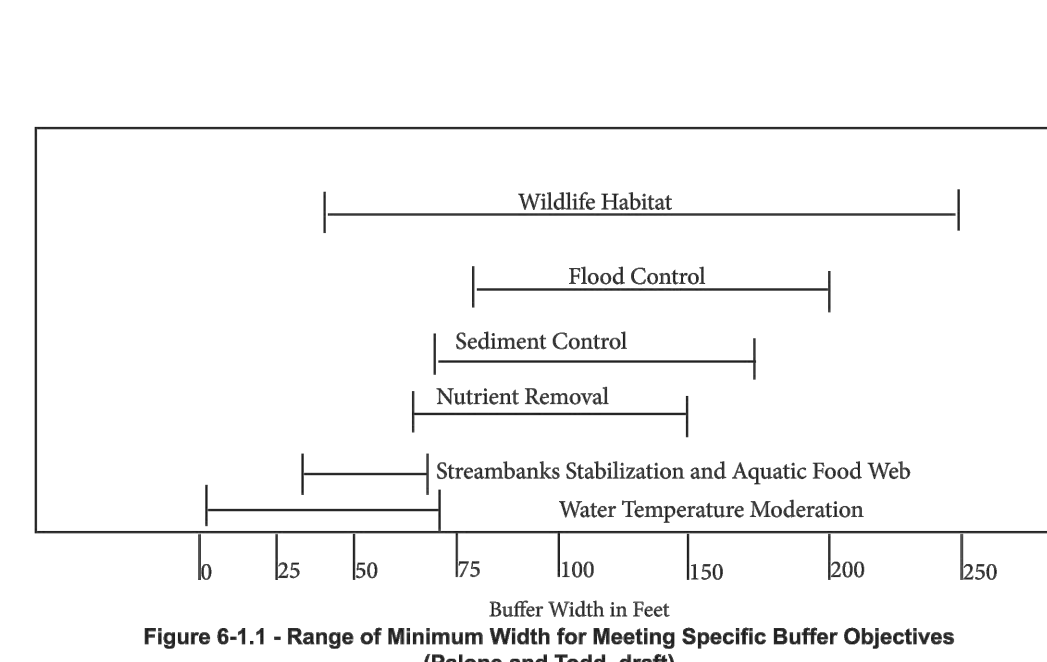


Figure 6-1.1 - Range of Minimum Width for Meeting Specific Buffer Objectives (Palone and Todd, draft)

General Buffers - A width should be selected to permit the zone to serve the purpose(s) as listed above. Vegetated Stream Buffers - The structure of vegetated stream buffers should be considered to determine if the buffer must be enhanced to achieve the necessary goals.

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Inlet Sediment Trap (Sd2) - Definition, Purpose, Conditions, Design Criteria, Fabric with Supporting Frame, Baffle Box, Storm Drain Outlet Protection (St) - Definition, Purpose, Conditions, Design Criteria, Capacity, Tailwater Depth, Buffer Zone (BF) - Definition, Purpose, Conditions, General Buffers, Vegetated Stream Buffers, Design Specifications.

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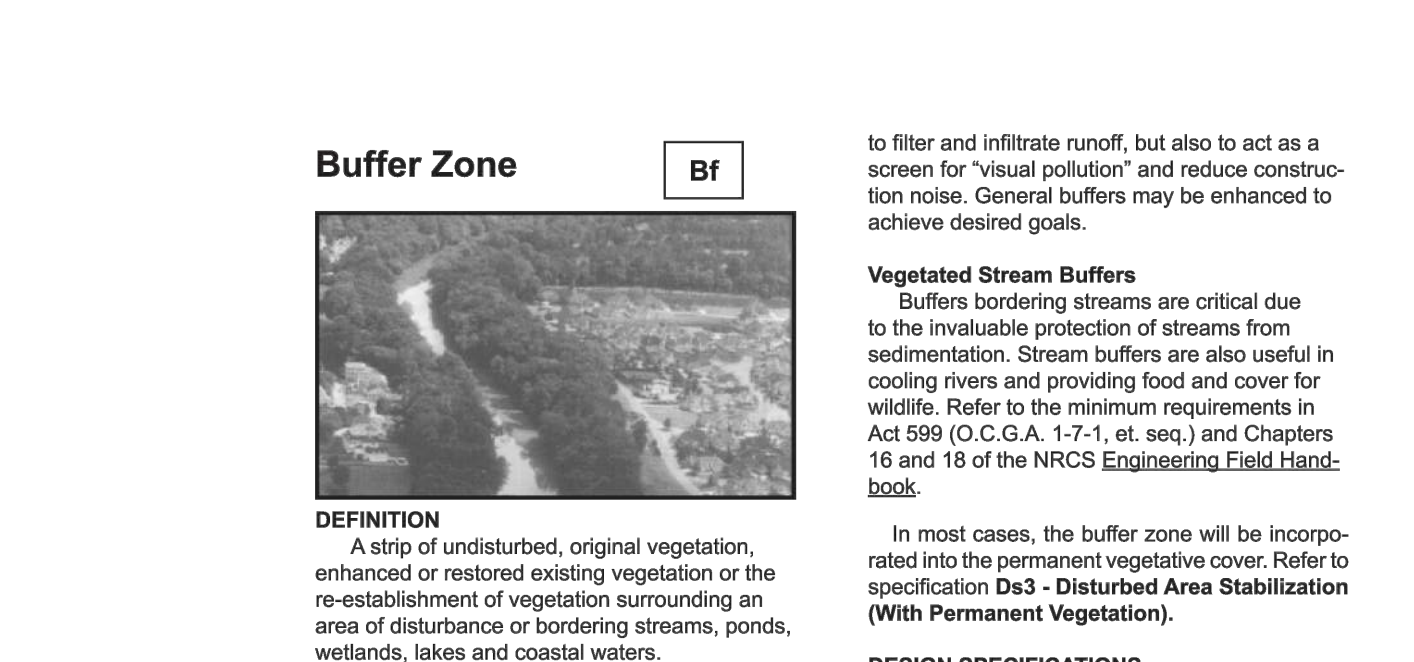


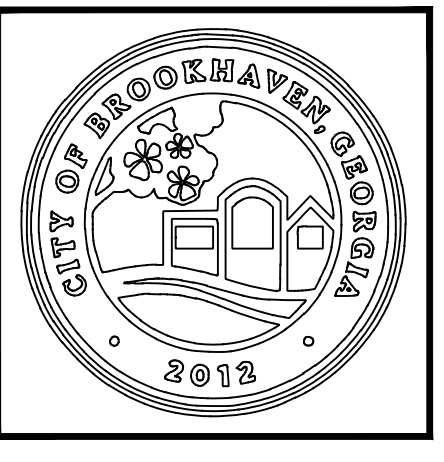
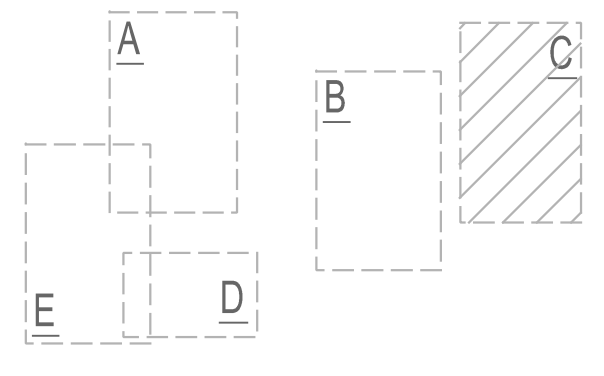
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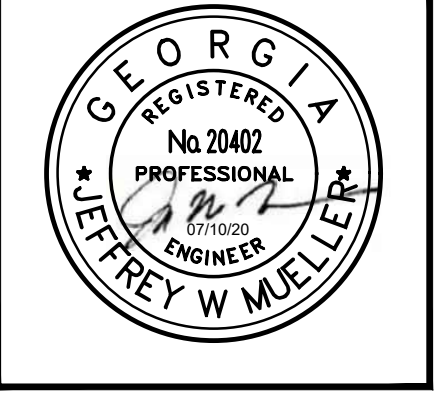
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DRAWINGS SCHEDULE table with columns: No., Date, Description.



CITY OF BROOKHAVEN MURPHEY CANDLER PARK 1551 W. NANCY CREEK DRIVE NE BROOKHAVEN, GEORGIA 30319

DATE, DRAWN, CHECKED table with values: 04/23/20, BM, GZ.

EROSION CONTROL DETAILS III

PROJECT NUMBER, SCALE, DRAWING NUMBER table with values: 15092.00, C7.5F.

ton establishment enhancement, and erosion control effectiveness. Select the mulching material from the following and apply as indicated:

- 1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 to steeper.
4. Sericea Lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas, slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.
8. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when applied in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or plant.

loosen the soil to a depth of 4 to 6 inches; alleyside compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.

Hydraulic Seeding Mix the seed (inoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a culti-packer-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a culti-packer or other suitable equipment.

No-Till Seeding No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting. For nursery stock plants, holes shall be large enough to accommodate roots without crowding. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Inoculants All legume seeds shall be inoculated with appropriate nitrogen-fixing bacteria. The inoculant shall be a pure culture prepared specifically for the seed species and used within the dates on the container.

Seedbed Preparation A mixing medium recommended by the manufacturer shall be used to bond the inoculant to the seed. For conventional seeding, use twice the amount of inoculant recommended by the manufacturer. For hydraulic seeding, four times the amount of inoculant recommended by the manufacturer shall be used.

All inoculated seed shall be protected from the sun and high temperatures and shall be planted the same day inoculated. No inoculated seed shall remain in the hydroseder longer than one hour.

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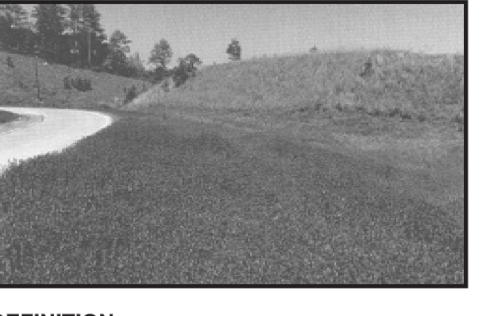
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Disturbed Area Stabilization (With Permanent Vegetation) Ds3



DEFINITION The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

- PURPOSE To protect the soil surface from erosion
To reduce damage from sediment and runoff to down-stream areas
To improve wildlife habitat and visual resources
To improve aesthetics

REQUIREMENT FOR REGULATORY COMPLIANCE This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. Final Stabilization means that all soil disturbing activities at the site have been completed, and that for ungraded areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPCO for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures.

- PLANNING CONSIDERATIONS 1. Use conventional planting methods where possible.
2. When mixed plantings are done during marginal planting periods, companion crops shall be used.
3. No-till planting is effective when planting is done following a summer or winter annual cover crop. Sericea lespedeza planted to-tilt into stands of rye is an excellent procedure.
4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete curbs and other structures. Refer to Specification Ds4-Disturbed Area Stabilization (With Sodding).
5. Irrigation should be used when the soil is dry or when summer plantings are done.
6. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.
7. Mowing should not be performed during the quail nesting season (May to September).
8. Wildlife plantings should be included in critical area plantings.

Wildlife Plantings

Commercially available plants beneficial to wildlife species include the following:
Mast Bearing Trees Beech, Black Cherry, Blackgum, Chestnut, Chinkapin, Hackberry, Hickory, Mountain Laurel, Native Oak, Persimmon, Sawtooth Oak, and Sweetgum.
All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear.
Shrubs and Small Trees Bayberry, Bicolor Nettlebane, Crabapple, Dogwood, Huckleberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry.

Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza that produces seeds used by quail and songbirds.
Grasses, Legumes, Vines and Temporary Cover Bahagrass, Bermudagrass, Grass-Legume Mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browmlop Millet (for temporary cover), and Native grasses.
Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and lespedeza may be planted alone or with grass, but they may die out after a few years.

CONSTRUCTION SPECIFICATIONS Grading and Shaping Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.
When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation. Concentrations of water that will cause excessive

erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.
Finely ground limestone can be applied in the much slurry or in combination with the top dressing. When conventional planting is to be done, lime and fertilizer shall be applied uniformly in one of the following ways:
1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation.
2. Mix with the soil used to fill the holes, distribute in furrows.
3. Broadcast after steep surfaces are scarified, pitted or trenched.
4. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seedling.

Plant Selection Refer to Tables 6-4.1, 6-5.2, 6-5.3 and 6-5.4 for approved species. Species not listed shall be approved by the State Resource Conservationist of the Natural Resources Conservation Service before they are used.
Plants shall be selected on the basis of species characteristics, site and soil conditions, planned use and maintenance of the area, time of year of planting, method of planting; and the needs and desires of the land user.
Some perennial species are easily established and can be planted alone. Examples of these are Common Bermuda, Tall Fescue, and Weeping Lovegrass.
Other perennials, such as Bahia Grass and Sericea lespedeza, are slow to become established and should be planted with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species become established. For example, Common seeding combinations are 1) Weeping Lovegrass with Sericea lespedeza (scarified) and 2) Tall Fescue with Sericea lespedeza (unscarified).

Plant selection may also include annual companion crops. Annual companion crops should be used only when the perennial species are not planted during their optimum planting period. A common

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Table 6-5.1. Fertilizer Requirements

Table with columns: TYPE OF SPECIES, YEAR, ANALYSIS OR EQUIVALENT N-P-K, RATE, TOP DRESSING RATE.

- 1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/ Apply when plants are pruned.
5/ Apply to grass species only.
6/ Apply when plants grow to a height of 2 to 3 inches.

Table 6-5.3. Durable Shrubs and Ground Covers for Permanent Cover

Table with columns: Common Name, Scientific Name, Mature Height, Plant Spacing, Comments.

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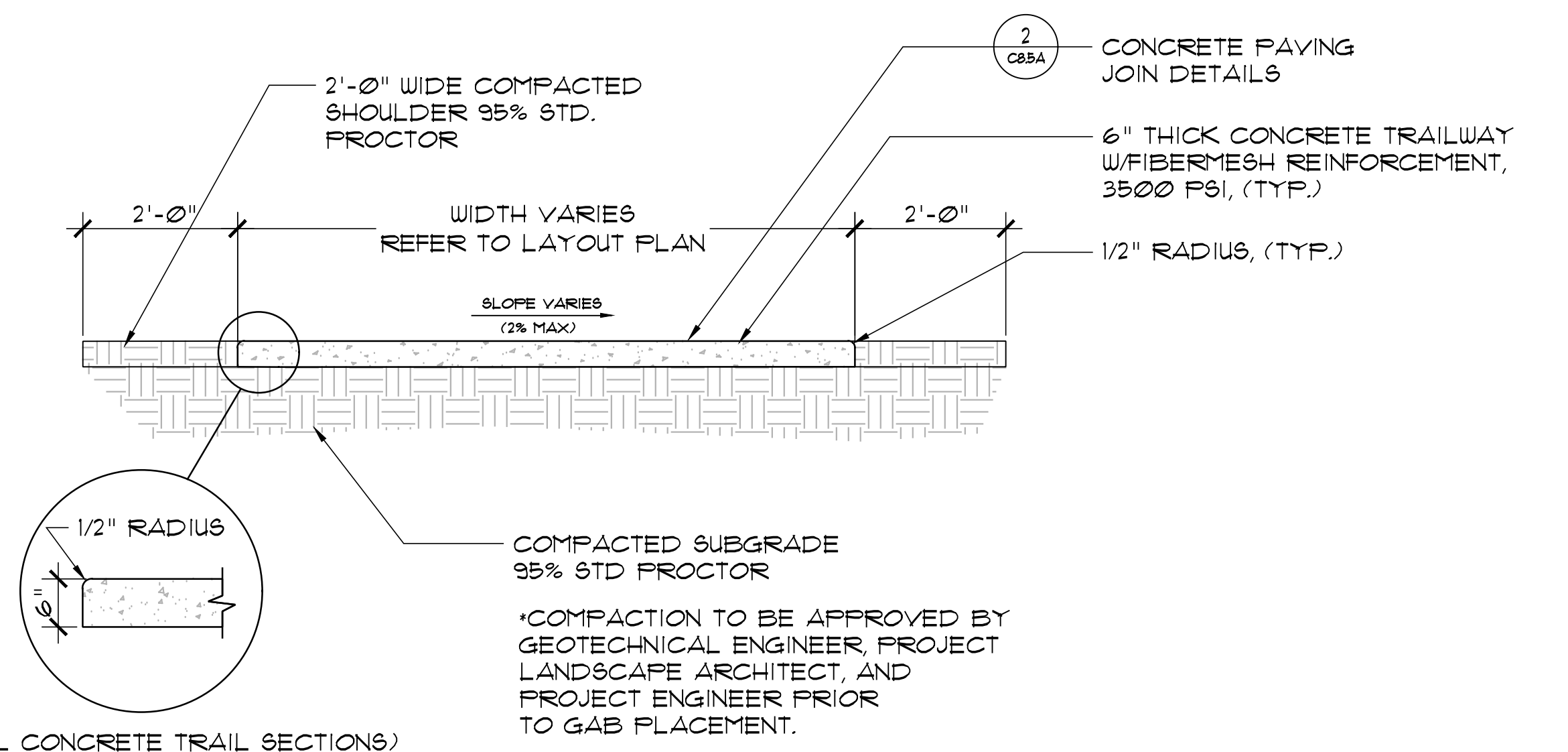
Table with columns: Common Name, Scientific Name, Mature Height, Plant Spacing, Comments.

APPROVED GROUNDCOVERS IN BUFFER ZONE:
\* LADY FERN - ATHYRIUM FILIX-FEMINA
\* BLAZING STAR - LIATRIS GRAMINIFOLIA



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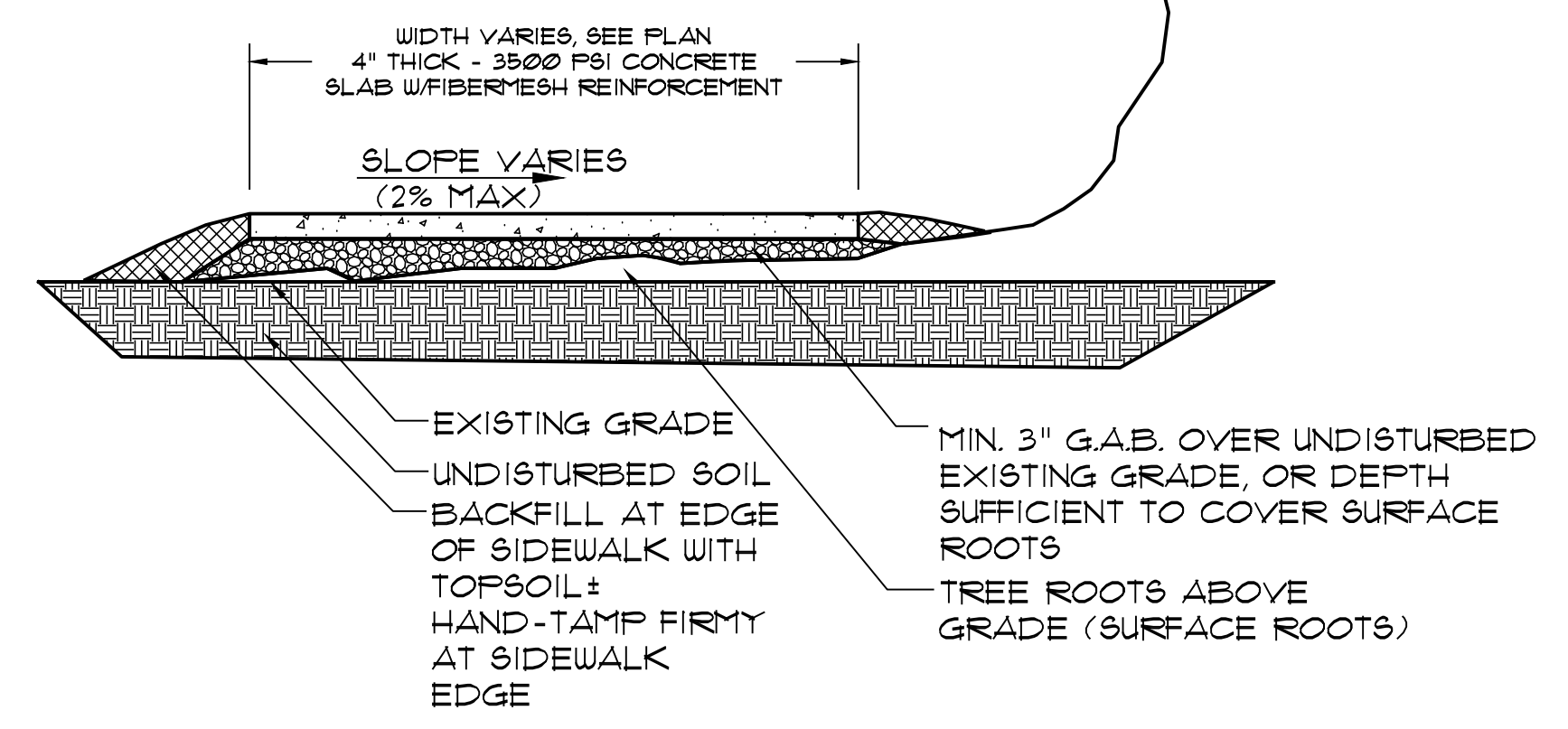
2 TYPICAL CONCRETE JOINT DETAILS  
NTS

NOTES:  
1. SOME AREAS MAY CONTAIN EXCEPTIONALLY WEAK SUBGRADE MATERIALS WHICH WILL REQUIRE ADDITIONAL SOIL STABILIZATION MEASURES PER DIRECTION OF GEOTECHNICAL CONSULTANT, AND SUBJECT TO APPROVAL OF LANDSCAPE ARCHITECT AND PROJECT ENGINEER.

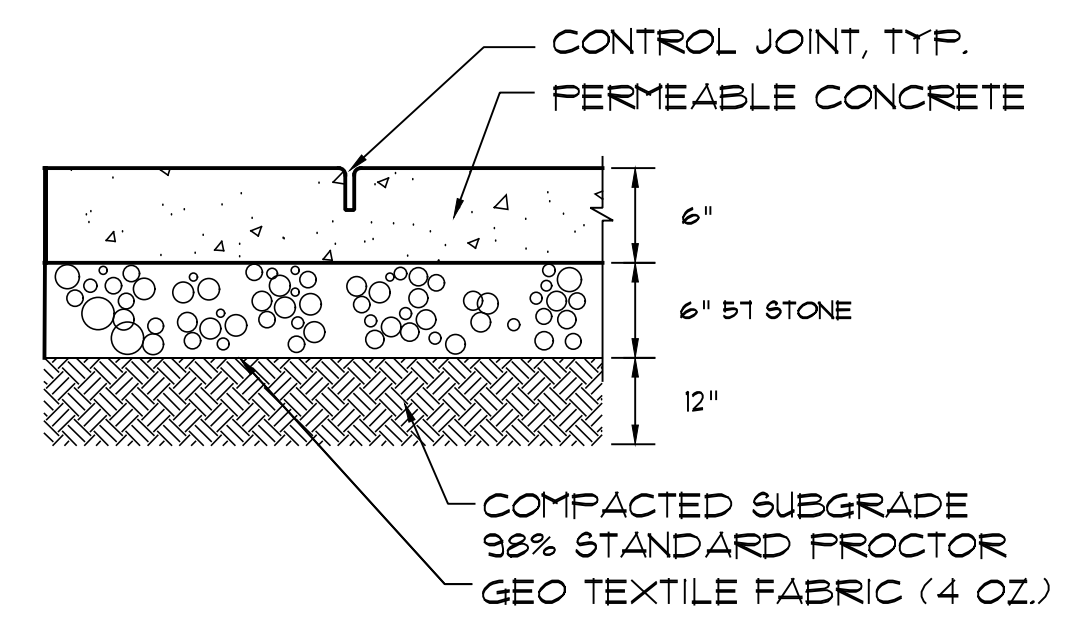
NOTES:  
1. CONCRETE TRAIL TO BE SCORED IN SQUARES EQUAL TO TRAIL WIDTH FOR PLACEMENT OF CONTROL JOINTS BUT NOT TO EXCEED 10' SPACING BETWEEN JOINTS.  
2. PLACE EXPANSION JOINTS ALONG THE CONCRETE TRAIL AT REGULAR INTERVALS NOT MORE THAN 30' APART AS WELL AS BETWEEN ALL RIGID FIXED OBJECTS AND THE NEW CONCRETE TRAIL.  
3. THE CONTRACTOR SHALL INSURE THAT THE CONCRETE TRAIL SECTION DOES NOT EXCEED THE 2% MAXIMUM CROSS-SLOPE CRITERIA (ADA REQUIREMENT). IF EXISTING GRADES IN THE FIELD DICTATE A STEEPER CROSS-SLOPE, THEN THE LOWER SIDE OF TRAIL SECTION SHALL MATCH EXISTING GRADE, AND THE COMPACTED SUBGRADE SHOULDERS SHALL BE TRANSITIONED (3:1 MAX) TO MAINTAIN THE 2% MAX. CROSS-SLOPE REQUIREMENT ACROSS TRAIL SECTION.

1 CONCRETE TRAIL - TYP  
1"=1'-0"

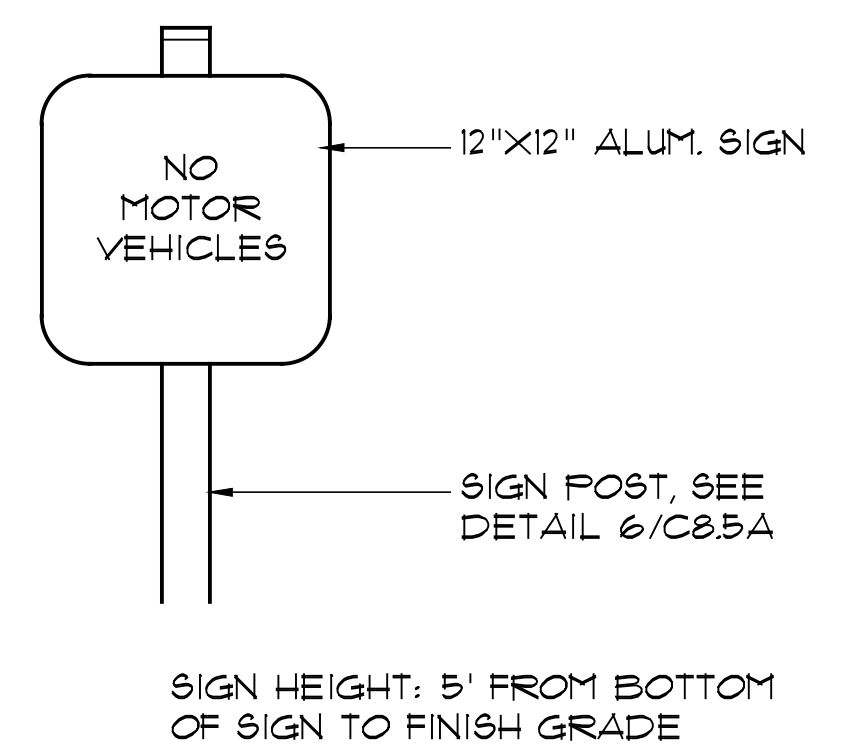
NOTE:  
WHERE SIDEWALK PASSES CLOSE TO A TREE, AS DEFINED BY THE TREE ORDINANCE, CONTRACTOR SHALL "FLOAT" THE SIDEWALK ABOVE THE LEVEL OF EXISTING GRADE IN ORDER TO AVOID DAMAGE TO THE ROOTS. CONTRACTOR SHALL COORDINATE SUCH SPECIAL CONSTRUCTION IN THE FIELD WITH THE LANDSCAPE ARCHITECT OR OWNER REPRESENTATIVE.



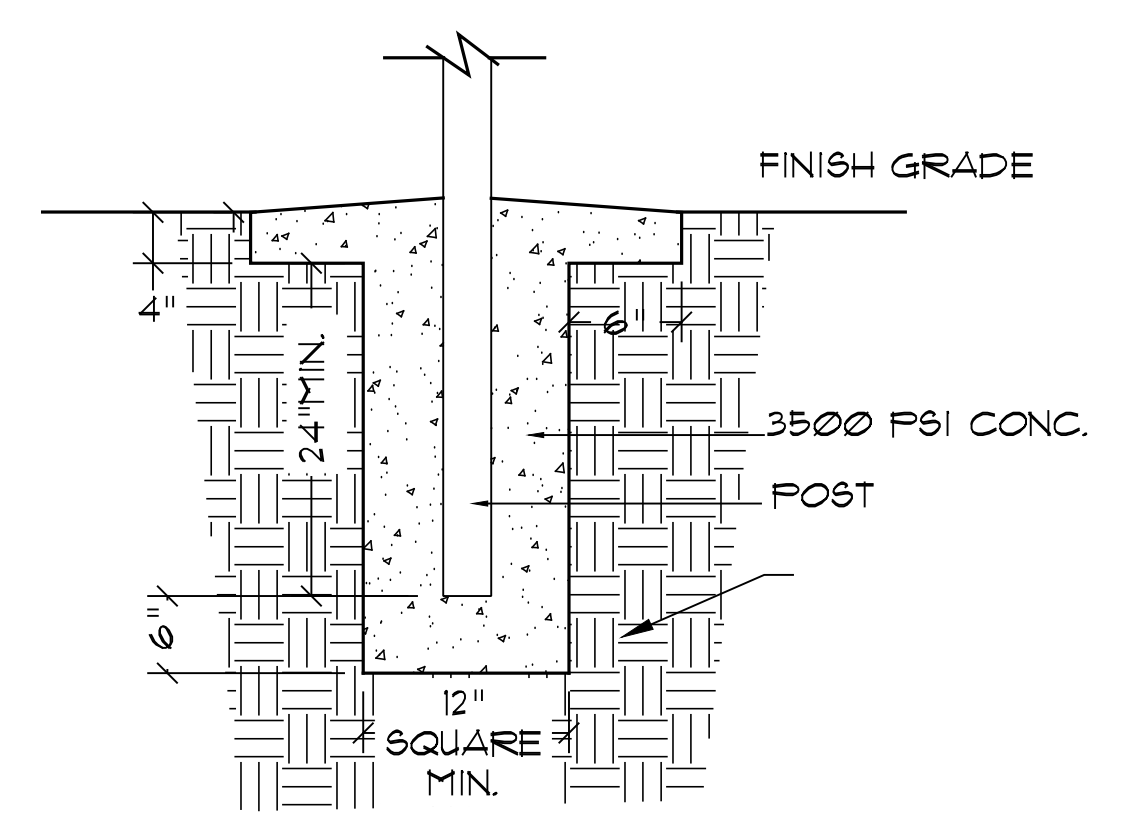
3 CONCRETE TRAIL OVER TREE ROOTS  
NTS



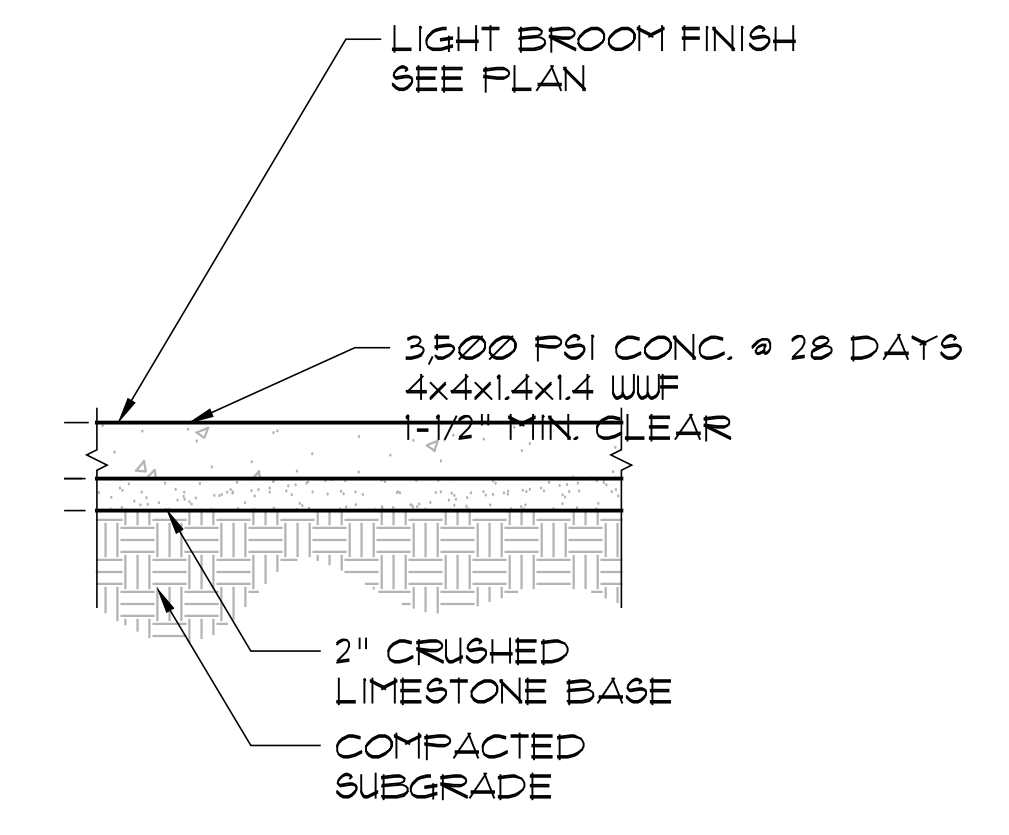
4 PERVIOUS CONCRETE TRAIL  
1"=1'-0"



5 NO MOTOR VEHICLES SIGN  
NTS

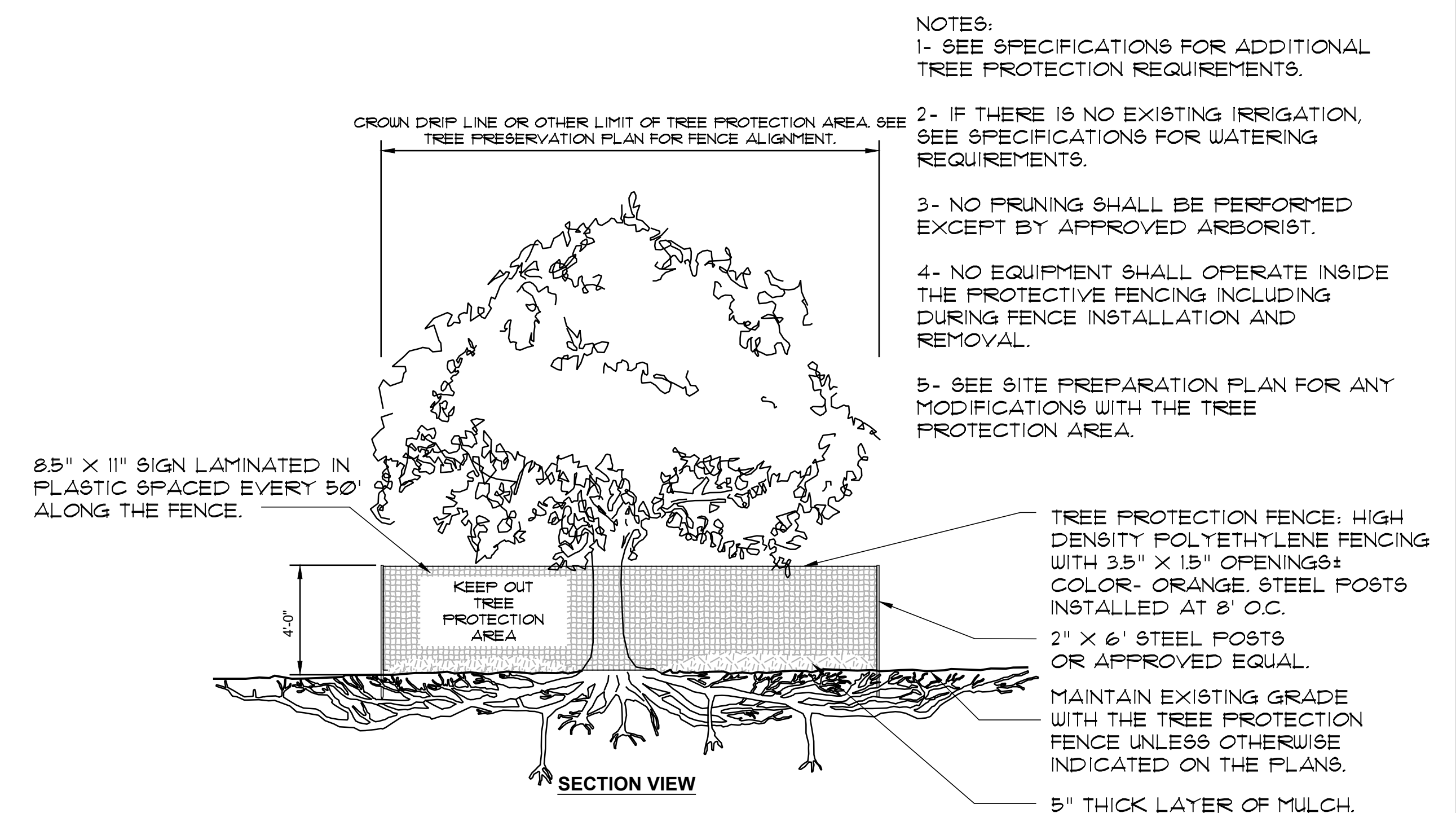


6 POST FOOTING  
NTS



8 CONCRETE SIDEWALK - TYP.  
1"=1'-0"

7 BENCH - NOT USED  
NTS



9 TREE PROTECTION  
1/4" = 1'-0"

NOTES:  
1- SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.  
2- IF THERE IS NO EXISTING IRRIGATION, SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.  
3- NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.  
4- NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.  
5- SEE SITE PREPARATION PLAN FOR ANY MODIFICATIONS WITH THE TREE PROTECTION AREA.

No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/08	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/29	LDP - Wetland Boardwalk
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2

DATE	DRAWN	CHECKED
04/23/20	BM	GZ
SCALE		
SHEET TITLE		

SITE DETAILS  
SOUTH TRAIL

PROJECT NUMBER	15092.00
DRAWING NUMBER	C8.5A



**Max Span Reactions - Estimate**

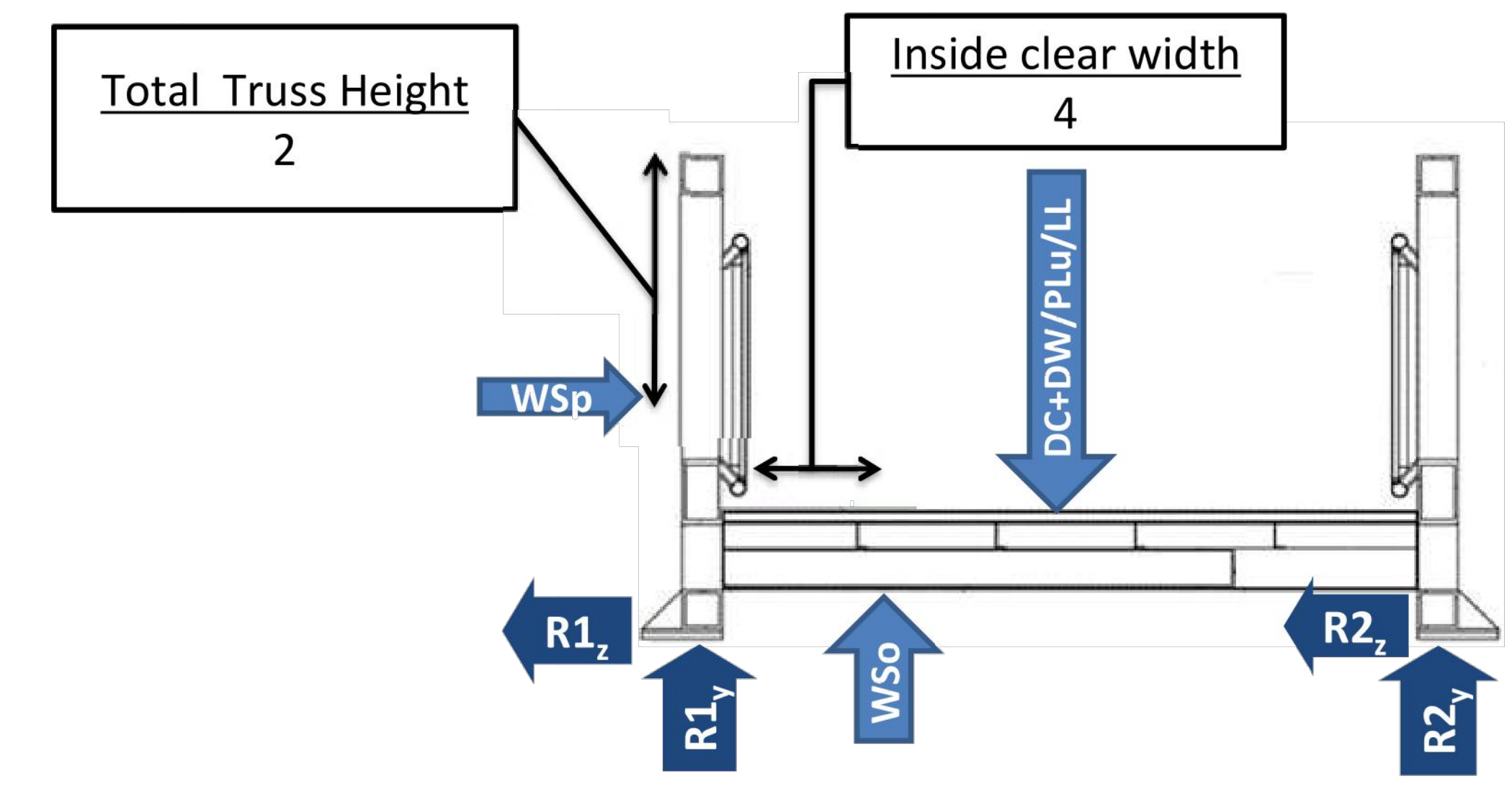
Anchor Locations	4	Qty
Estimated Average Total Truss Height	6.0	ft
Inside Clear Width	10.0	ft
Total Length	15.0	ft
Coefficient of Expansion	0.000013	1/F
Design Temperature Range	120	F
Design Live Load	90	psf
Design Wind Pressure (70% opacity assumed)	32	psf
Design Overturning Wind Pressure	20	psf
Est. Min. Expansion Range	0.28	in

Est. Dead Load (DC+DW)	1,759	lbf
Est. Max Vehicle Load (LLv)	0	lbf
Est. Live Load (PLu)	13,500	lbf
Est. Wind Load (WSp)	2,908	lbf
Est. Overturning Wind (WSo)	3,350	lbf

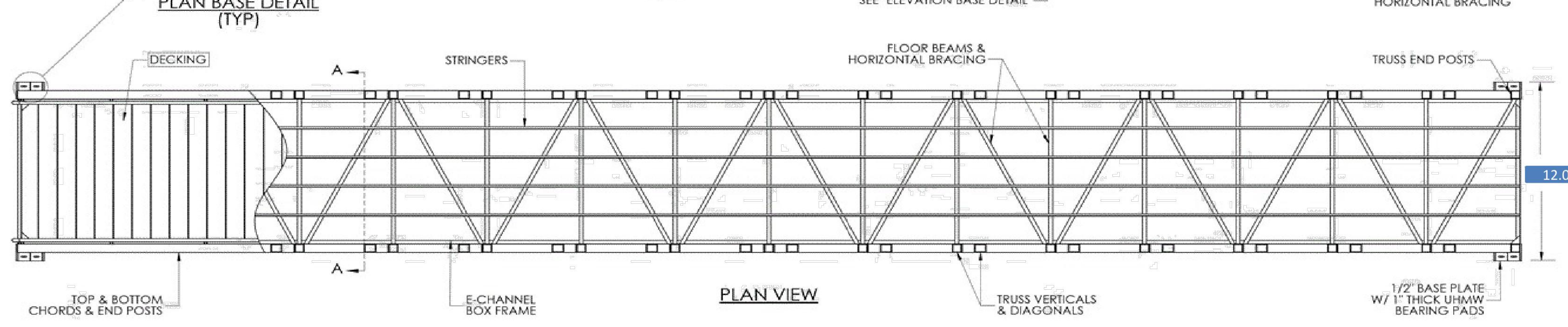
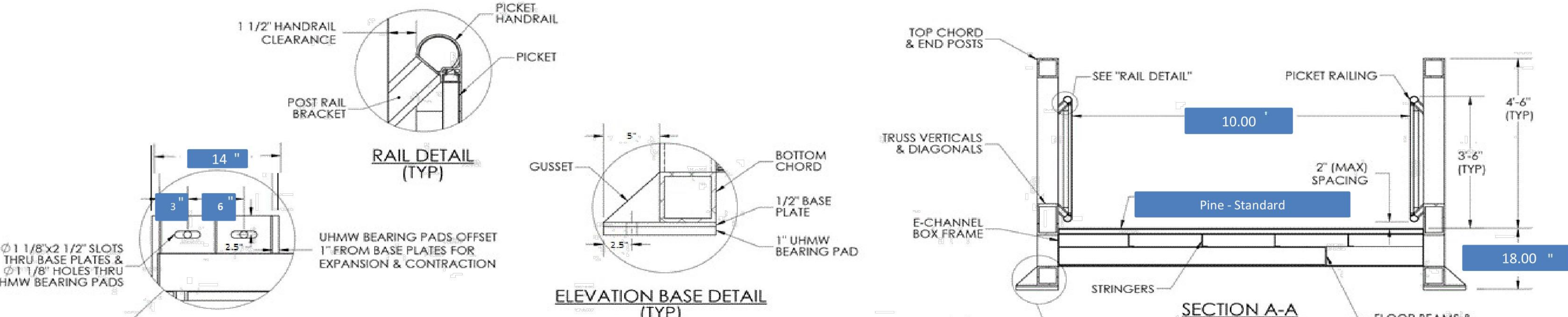
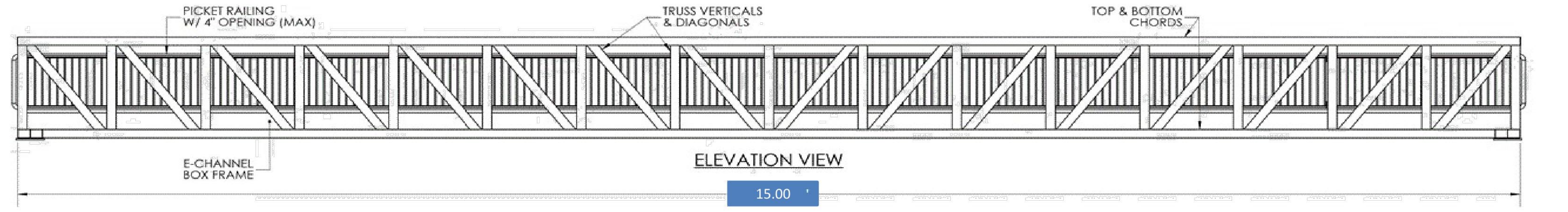
	R1 <sub>z</sub>	R1 <sub>y</sub>	R1 <sub>x</sub>	R2 <sub>z</sub>	R2 <sub>y</sub>	R2 <sub>x</sub>
Unfactored - Dead Load (DC+DW)	---	440	---	---	440	---
Unfactored - Ped. Live Load (PLu)	---	3,375	---	---	3,375	---
Unfactored - Vehicle Live Load (LLv)*	---	0	---	---	0	---
Unfactored - Horizontal Wind (WSp)	727	-436	---	727	436	---
Unfactored - Overturning Wind (WSo)	---	-1,256	---	---	-419	---
Strength I - Ped. [(DC+DW)(1.25) + (PLu)(1.75)]	---	6,456	---	---	6,456	---
Strength I - Vehicle [(DC+DW)(1.25) + (LLv)(1.75)]	---	550	---	---	550	---
Strength III - [(DC+DW)(1.25) + (WSp)(1.4) + (WSo)(1.4)]	1,018	-1,820	---	1,018	574	---
Expansion/Contraction	---	---	0	---	---	0

Unfactored - Dead Load (DC+DW)  
 Unfactored - Ped. Live Load (PLu)  
 Unfactored - Vehicle Live Load (LLv)\*  
 Unfactored - Horizontal Wind (WSp)  
 Unfactored - Overturning Wind (WSo)  
 Strength I - Ped. [(DC+DW)(1.25) + (PLu)(1.75)]  
 Strength I - Vehicle [(DC+DW)(1.25) + (LLv)(1.75)]  
 Strength III - [(DC+DW)(1.25) + (WSp)(1.4) + (WSo)(1.4)]  
 Expansion/Contraction

Assumes symmetrically distributed loading. Values given are for one bridge side.  
 \*Assumes vehicle load acting on 2 anchor locations



**CASCADE PEDESTRIAN BRIDGE**



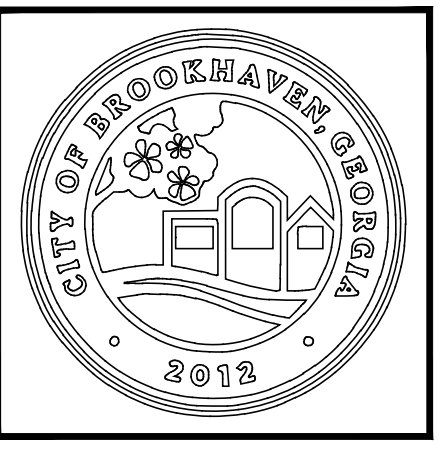
**Options Not Shown:**

Guard Rail	42" Combination
Color/Texture	Mill Finish Aluminum
Grab Rail	NO
Toe Rail	NO
Top Chord Cladding	NO
Rub Rails	NO
Accent Lighting	NO
Enclosures & Fencing	NO
Additional Camber	NO
Skew & Incline	NO
Mid-span Splice (qty)	0

**NOTE:**  
 CONTRACTOR SHALL CONTACT GATOR BRIDGE TO DEVELOP THE FINAL SHOP DRAWINGS FOR PROPOSED BRIDGE. DRAWINGS SHALL BE STAMPED BY PROFESSIONAL ENGINEER IN GEORGIA. SHOP DRAWINGS SUBMITTED FOR APPROVAL PRIOR TO ORDERING THE BRIDGE.

**GATOR Bridge**  
 2880 MELLONVILLE AVE, SANFORD, FL 32773  
 800/256-8857 407/323-0190

ESTIMATED LOADS AND GEOMETRY ARE PRELIMINARY, AND ARE NOT FOR CONSTRUCTION. FINAL LOADS AND GEOMETRY MAY VARY.  
 ALL LOADS ARE ESTIMATED BASED ON CUSTOMER SUPPLIED INFORMATION AND UNFACTORED.  
 FOR FINAL GEOMETRY AND REACTIONS, PLEASE CONTACT YOUR CMI REPRESENTATIVE.



**DRAWINGS SCHEDULE**

No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/08	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design-Build
7	05/28	LDP - Natural Play Area - Rev #2
8	06/05	LDP - Wetland Boardwalk
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2

**CITY OF BROOKHAVEN**  
**MURPHEY CANDLER PARK**  
 1551 W. NANCY CREEK DRIVE NE  
 BROOKHAVEN, GEORGIA 30319

DATE	04/23/20	DRAWN	BM	CHECKED	CZ
SCALE					
SHEET TITLE	SITE DETAILS SOUTH TRAIL BRIDGE				

PROJECT NUMBER	15092.00
DRAWING NUMBER	C8.5B1

Drawing Name: S:\Projects\Brookhaven-C\Murphey-Candler\0 Design\01 Job Info\CAD\C8 Series\_MCP\C8.tbl.dwg  
 Date last accessed: 8/17/2020 1:38 AM  
 Date last plotted: 8/17/2020 1:28 AM  
 Plotted By: Grace Zhang



# 2ND BRIDGE - BID ALTERNATE

## Max Span Reactions - Estimate

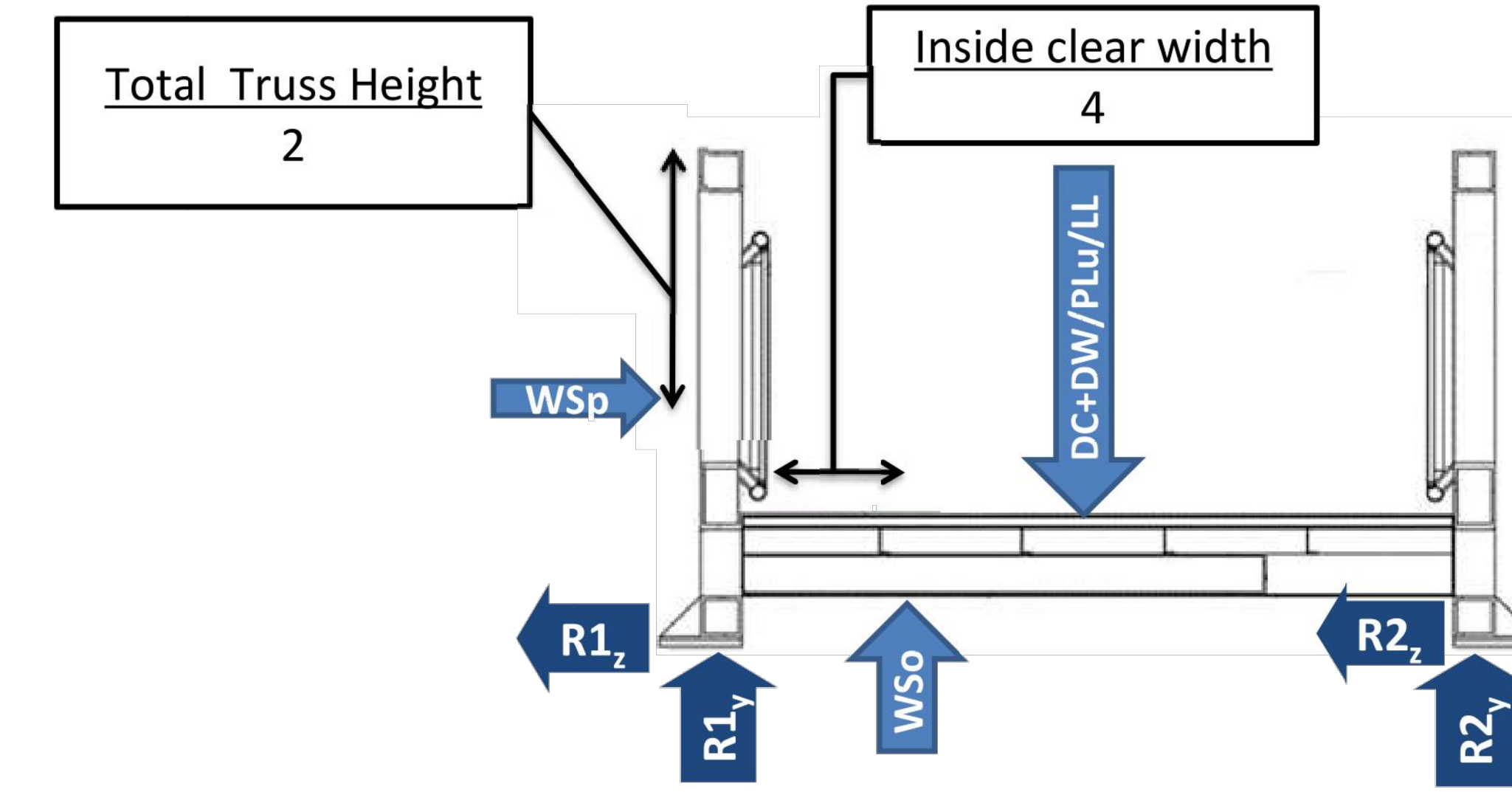
Anchor Locations	4	Qty
Estimated Average Total Truss Height	6.1	ft
Inside Clear Width	10.0	ft
Total Length	30.0	ft
Coefficient of Expansion	0.000013	1/F
Design Temperature Range	120	F
Design Live Load	90	psf
Design Wind Pressure (70% opacity assumed)	32	psf
Design Overturning Wind Pressure	20	psf
Est. Min. Expansion Range	0.56	in

Est. Dead Load (DC+DW)	3,811	lbf
Est. Max Vehicle Load (LL)	0	lbf
Est. Live Load (PLu)	27,000	lbf
Est. Wind Load (WSp)	5,897	lbf
Est. Overturning Wind (WSo)	6,800	lbf

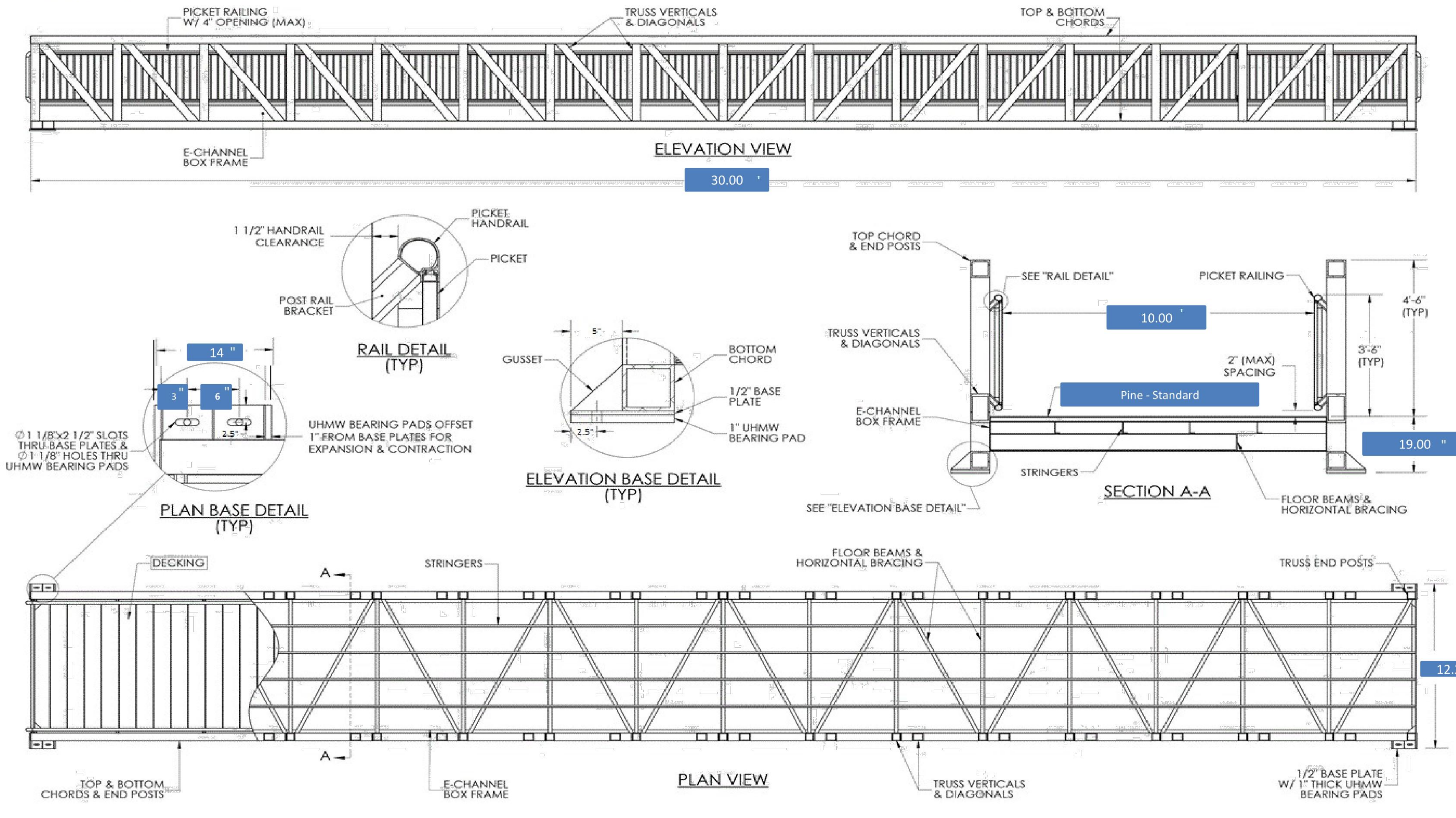
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Unfactored - Dead Load (DC+DW)	---	953	---	---	953	---
Unfactored - Ped. Live Load (PLu)	---	6,750	---	---	6,750	---
Unfactored - Vehicle Live Load (LLv)*	---	0	---	---	0	---
Unfactored - Horizontal Wind (WSp)	1,474	-897	---	1,474	897	---
Unfactored - Overturning Wind (WSo)	---	-2,550	---	---	-850	---
Strength I - Ped. ((DC+DW)(1.25) + (PLu)(1.75))	---	13,003	---	---	13,003	---
Strength I - Vehicle ((DC+DW)(1.25) + (LLv)(1.75))	---	1,191	---	---	1,191	---
Strength III - ((DC+DW)(1.25) + (WSp)(1.4) + (WSo)(1.4))	2,064	-3,635	---	2,064	1,256	---
Expansion/Contraction	---	---	0	---	---	0

Unfactored - Dead Load (DC+DW)  
 Unfactored - Ped. Live Load (PLu)  
 Unfactored - Vehicle Live Load (LLv)\*  
 Unfactored - Horizontal Wind (WSp)  
 Unfactored - Overturning Wind (WSo)  
 Strength I - Ped. ((DC+DW)(1.25) + (PLu)(1.75))  
 Strength I - Vehicle ((DC+DW)(1.25) + (LLv)(1.75))  
 Strength III - ((DC+DW)(1.25) + (WSp)(1.4) + (WSo)(1.4))

Assumes symmetrically distributed loading. Values given are for one bridge side.  
 \*Assumes vehicle load acting on 2 anchor locations



## CASCADE PEDESTRIAN BRIDGE



\* ALL DIMENSIONS, CONFIGURATIONS, AND MEMBERS SHOWN ARE STANDARD AND MAY VARY. CUSTOM OPTIONS ARE AVAILABLE.

Options Not Shown:	
Guard Rail	42" Combination
Color/Texture	Mill Finish Aluminum
Grab Rail	NO
Toe Rail	NO
Top Chord Cladding	NO
Rub Rails	NO
Accent Lighting	NO
Enclosures & Fencing	NO
Additional Camber	NO
Skew & Incline	NO
Mid-span Splice (qty)	0

NOTE:  
 CONTRACTOR SHALL CONTACT GATOR BRIDGE TO DEVELOP THE FINAL SHOP DRAWINGS FOR PROPOSED BRIDGE. DRAWINGS SHALL BE STAMPED BY PROFESSIONAL ENGINEER IN GEORGIA. SHOP DRAWINGS SUBMITTED FOR APPROVAL PRIOR TO ORDERING THE BRIDGE.



ESTIMATED LOADS AND GEOMETRY ARE PRELIMINARY, AND ARE NOT FOR CONSTRUCTION. FINAL LOADS AND GEOMETRY MAY VARY.

ALL LOADS ARE ESTIMATED BASED ON CUSTOMER SUPPLIED INFORMATION AND UNFACTORED.

FOR FINAL GEOMETRY AND REACTIONS, PLEASE CONTACT YOUR CMI REPRESENTATIVE.



No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/08	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/29	LDP - Wetland Boardwalk
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2

CITY OF BROOKHAVEN  
 MURPHY CANDLER PARK  
 1551 W. NANCY CREEK DRIVE NE  
 BROOKHAVEN, GEORGIA 30319

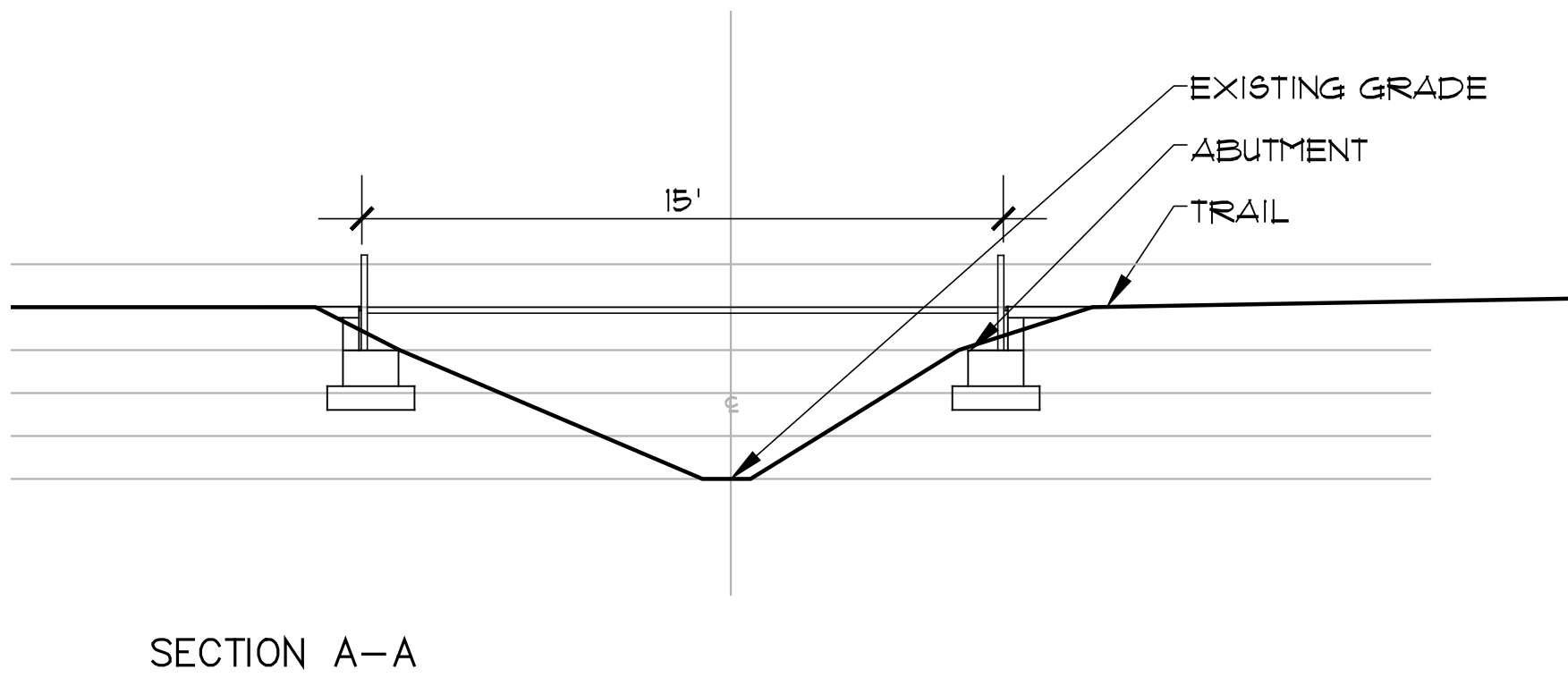
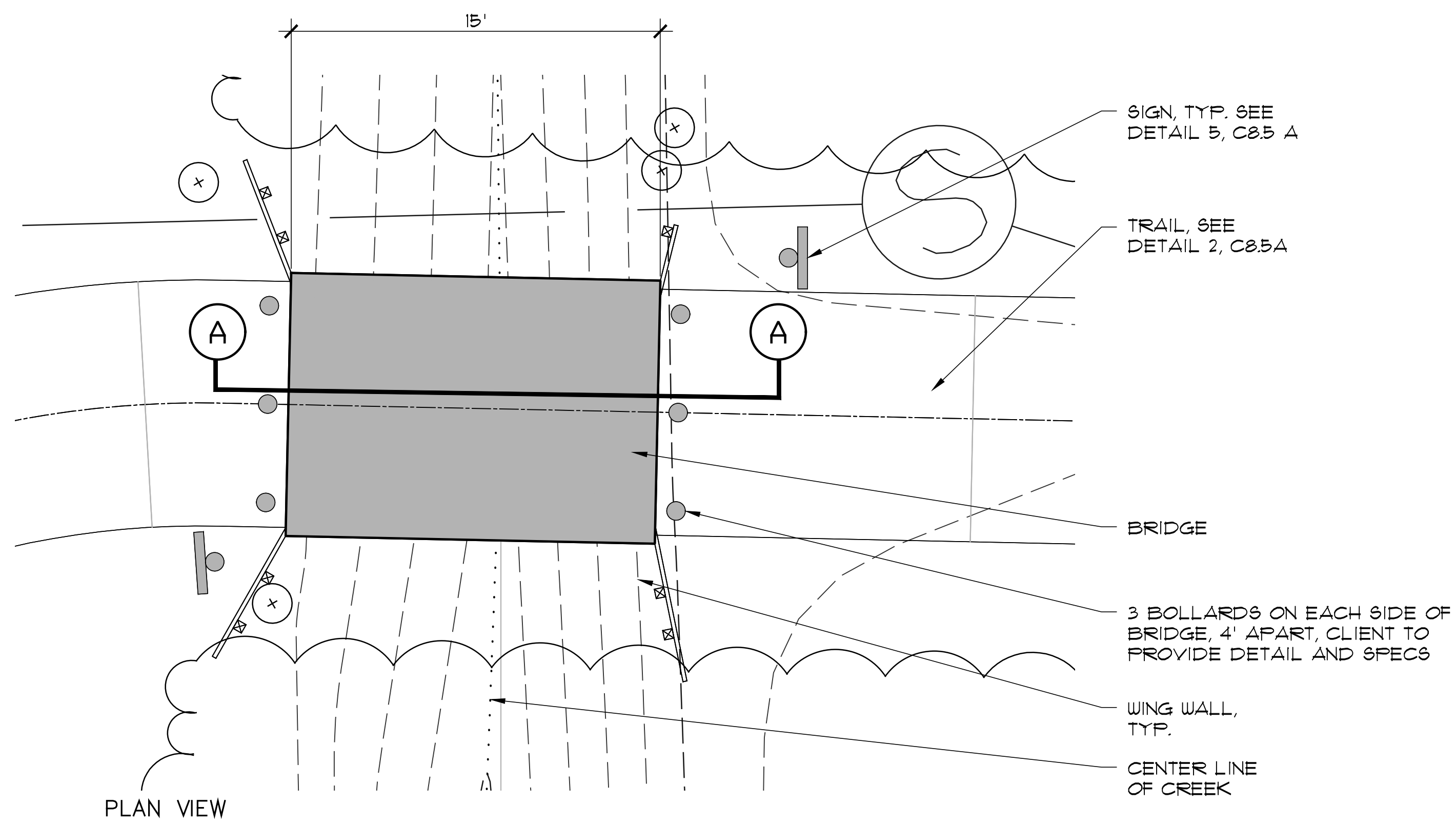
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04/23/20	BM	GZ
SCALE		
SHEET TITLE		

SITE DETAILS  
 SOUTH TRAIL  
 BRIDGE

PROJECT NUMBER	15092.00
C8.5B2	
DRAWING NUMBER	

Date last accessed: 8/17/2020 1:08 AM  
 Date last modified: 8/17/2020 1:09 AM  
 Plotted By: Grace Zhang  
 Drawing Name: S:\Projects\Brookhaven-C\Murphy Candler\0 Design\01 Job Info\CAD\C8 Series\_MCP\C8.tbl.dwg

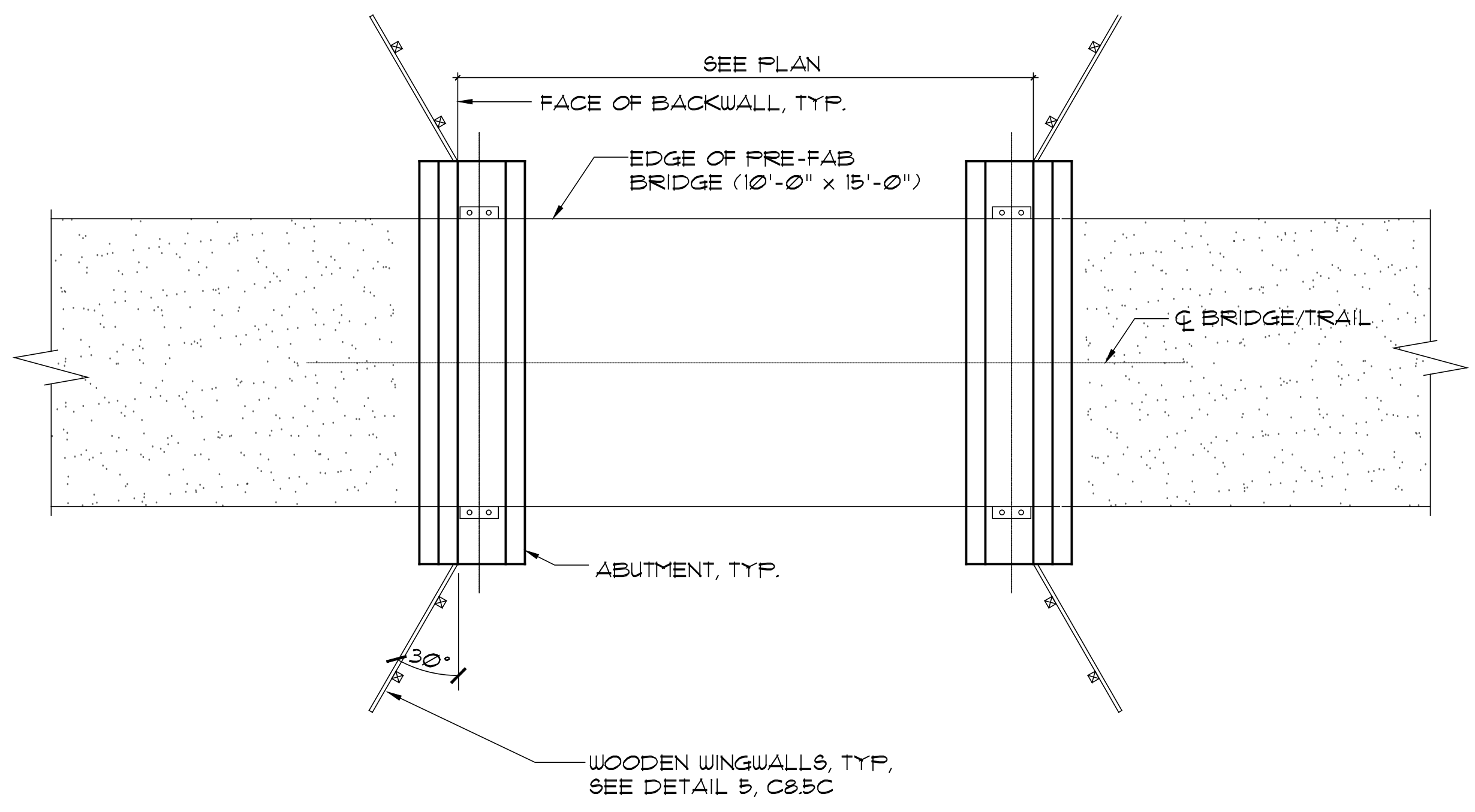




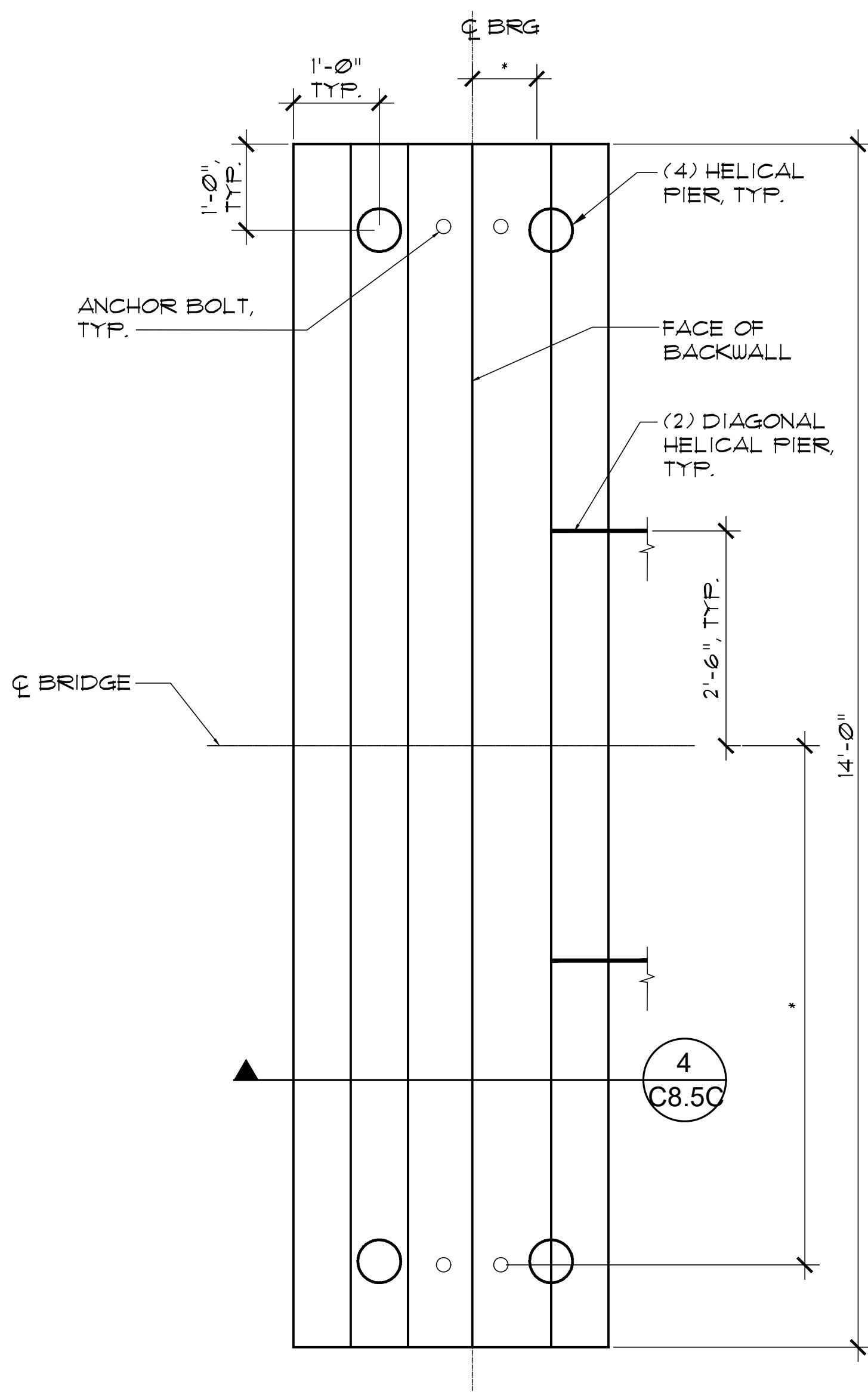
SECTION A-A

NOTE: WING WALL LOCATION TO BE ADJUSTED IN THE FIELD PER EXISTING GRADE AND PROTECT EXISTING TREES.

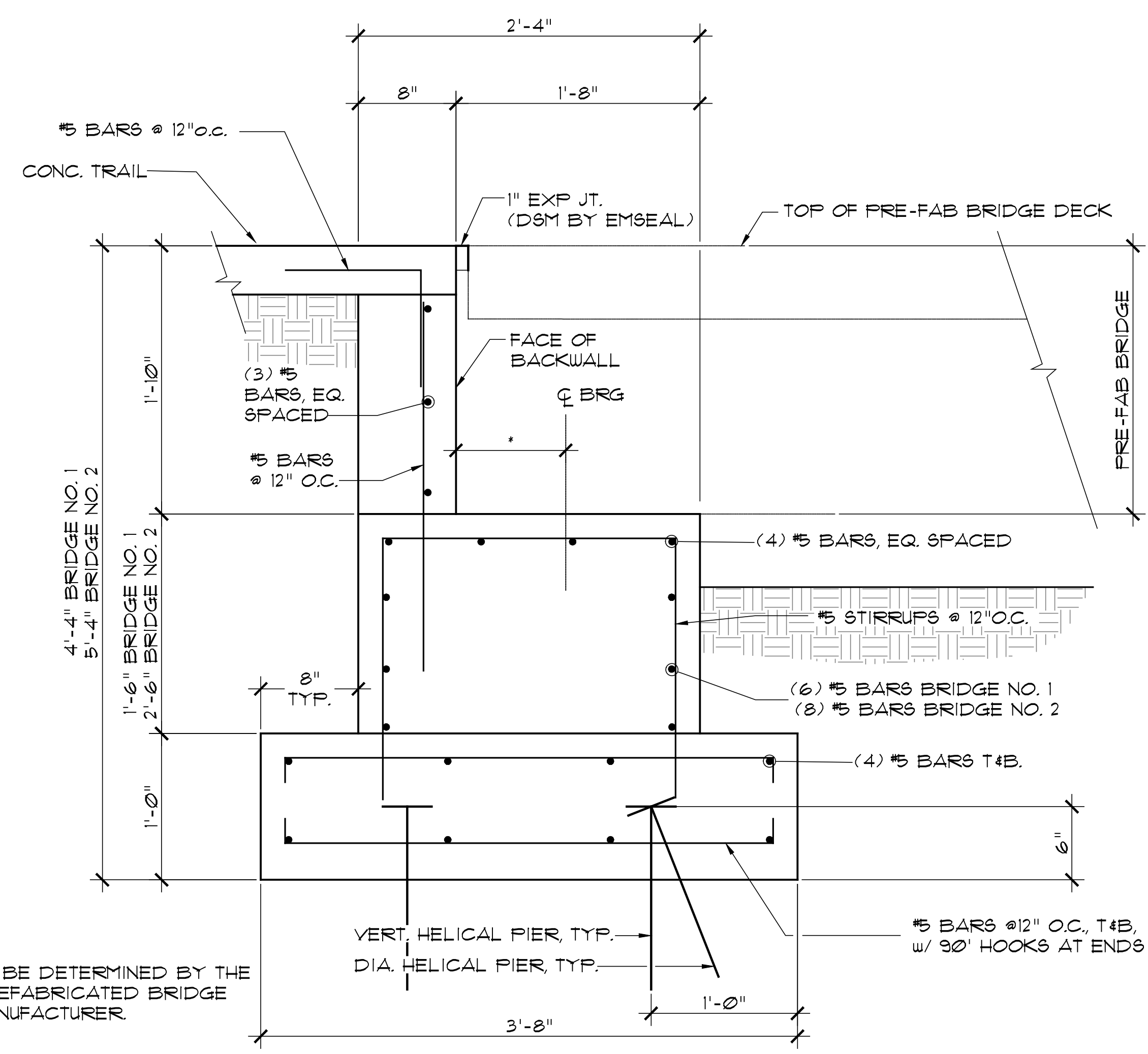
1 FOOTBRIDGE  
SCALE: NTS



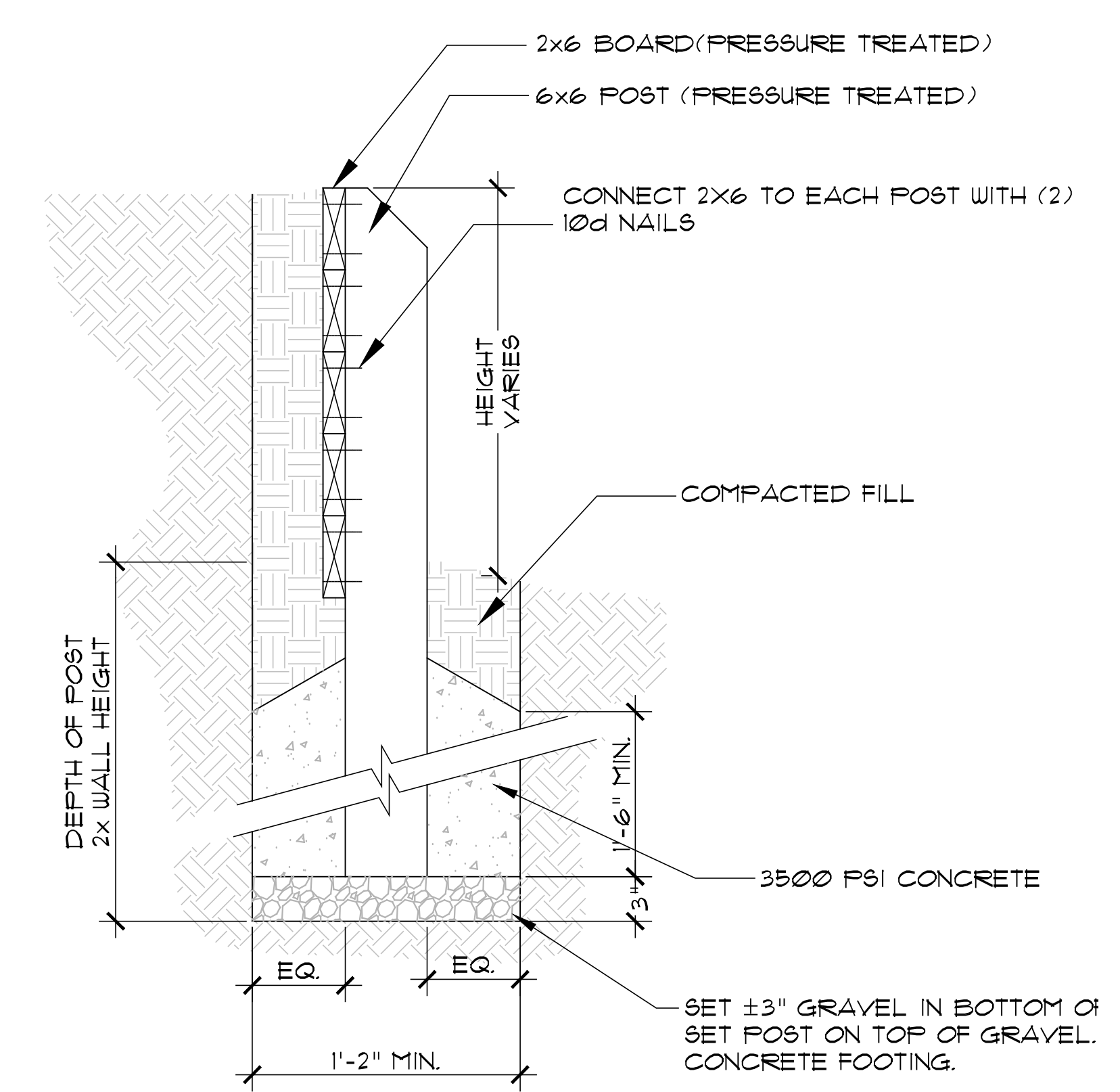
2 PLAN VIEW  
BRIDGE  
SCALE: 1/4"=1'-0"



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

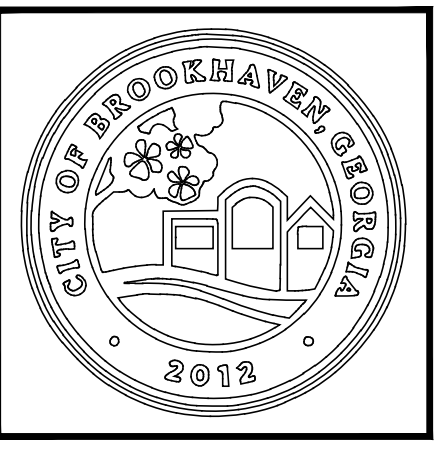


4 BRIDGE ABUMENT  
SCALE: 1 1/2"=1'-0"



5 WINGWALL DETAIL  
SCALE: 1-1/2"=1'-0"

NOTE: SEE FOOTBRIDGE PLANS ON C5.5 FOR GRADES AND ELEVATIONS.



No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/28	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design-Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/29	LDP - Reservoir Road
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



CITY OF BROOKHAVEN  
MURPHY CANDLER PARK  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	GZ
SCALE		
SHEET TITLE		

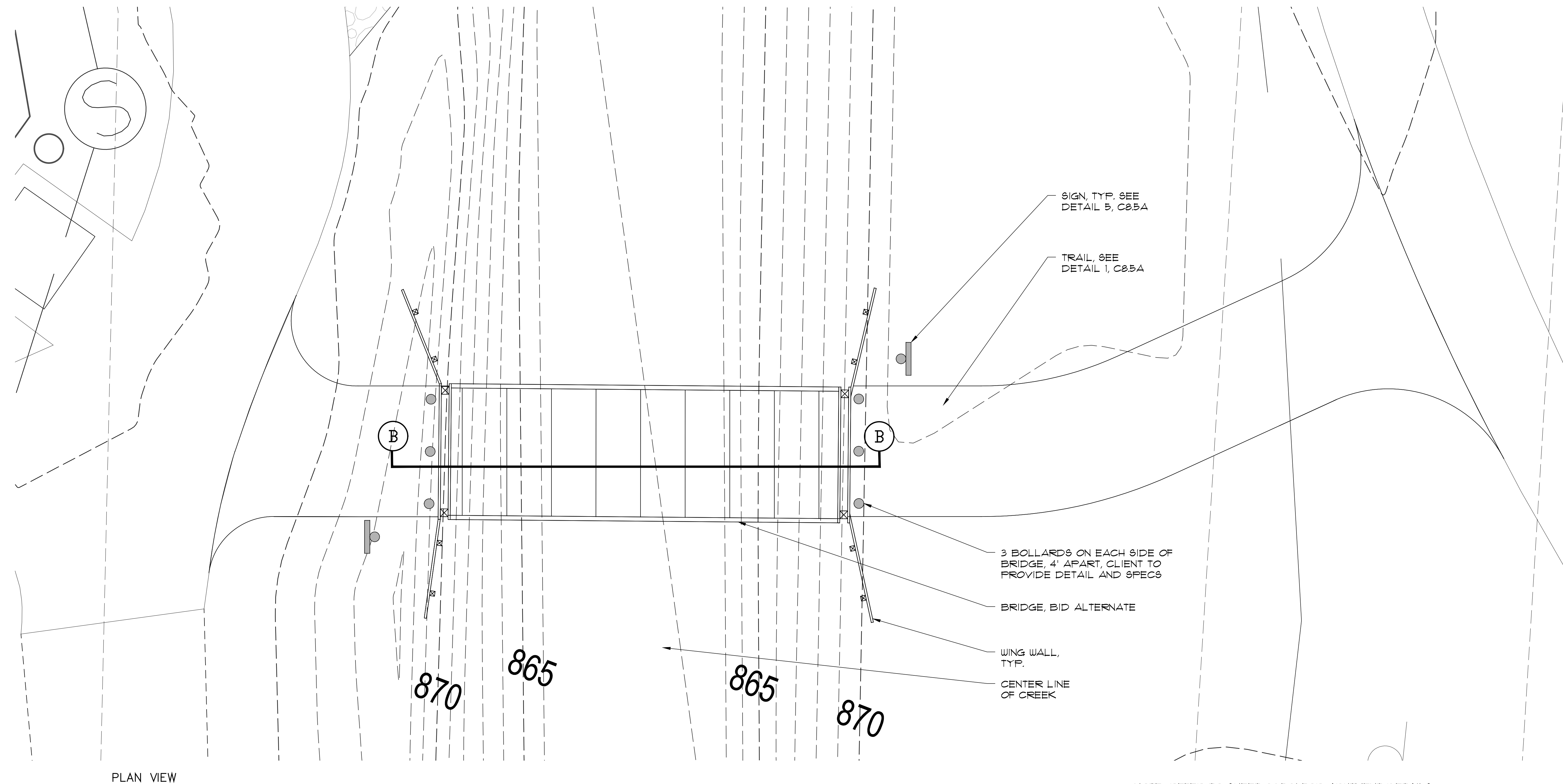
SITE DETAILS  
SOUTH TRAIL  
BRIDGE

PROJECT NUMBER	15092.00
C8.5C1	
DRAWING NUMBER	

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 Date last accessed: 8/16/2020 1:38 AM  
 Date last plotted: 8/17/2020 12:10 AM  
 Plotted By: Grace Zhang

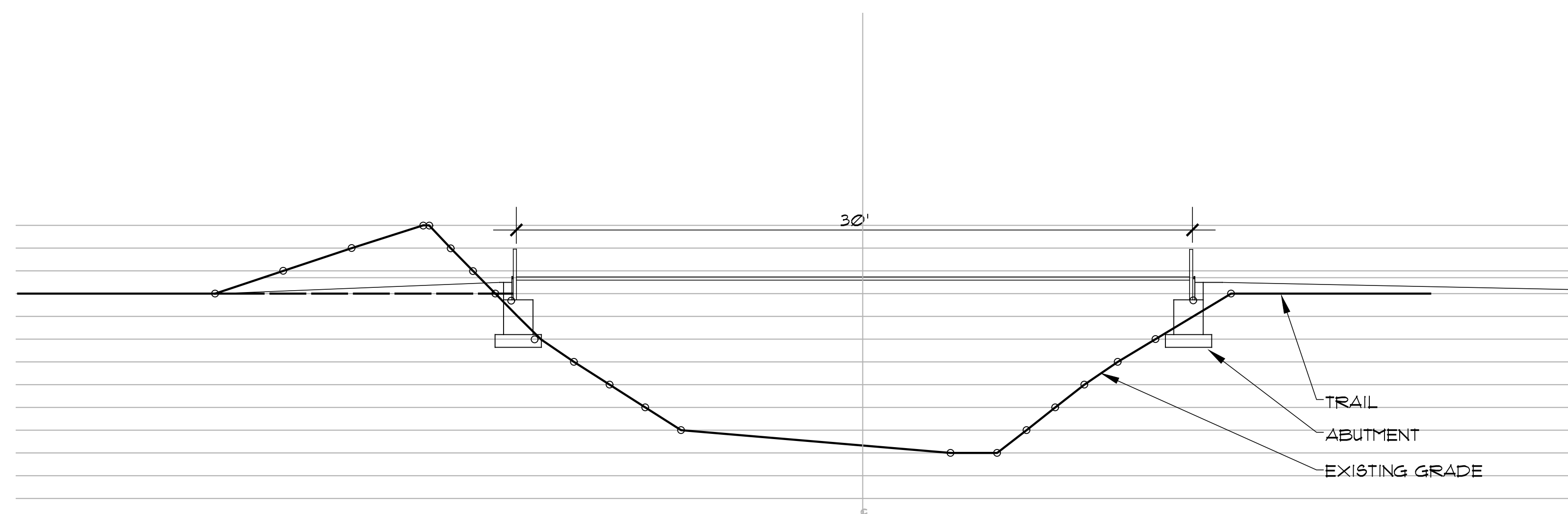


# 2ND BRIDGE - BID ALTERNATE



PLAN VIEW

NOTE: REFER TO SHEET C8.5C1 FOR ABUTMENT DETAILS.



SECTION B-B

1 2ND FOOTBRIDGE - BID ALTERNATE  
SCALE: NTS

NOTE: SEE FOOTBRIDGE  
PLANS ON C5.5 FOR GRADES  
AND ELEVATIONS.



No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/28	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design-Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/29	LDP - Reservoir Road
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



CITY OF BROOKHAVEN  
MURPHY CANDLER PARK  
1551 W. NANCY CREEK DRIVE NE  
BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	GZ

SCALE

SHEET TITLE

SITE DETAILS  
SOUTH TRAIL  
BRIDGE

PROJECT NUMBER	15092.00
DRAWING NUMBER	C8.5C2

Drawing Name: S:\Project\Brookhaven\_C\Murphy Candler\0 Design\01 Job Info\CAD\C8 Series\_MCP\C8.5C2.dwg  
 Date last accessed: 8/16/2020 1:38 AM  
 Date last plotted: 8/17/2020 12:15 AM  
 Plotted By: Grace Zhang



**GENERAL NOTES**

- THE STRUCTURE SHOWN ON THESE DRAWING IS SOUND ONLY IN ITS COMPLETED FORM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE DESIGN, ADEQUACY, SAFETY AND STABILITY OF TEMPORARY ERECTION BRACING AND SHORING.
- WHERE A DETAIL, TYPICAL DETAIL, SECTION, TYPICAL SECTION OR PLAN NOTE IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL SIMILAR OR LIKE CONDITIONS UNLESS NOTED OTHERWISE.
- ALL DESIGN, INCLUDING MATERIAL STRESSES AND METHODS OF CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE 2018 INTERNATIONAL BUILDING CODE WITH GEORGIA STATE AMENDMENTS, THE UNIFORM BUILDING CODE, OSHA AND GOVERNING AGENCIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS SHOWN ON THE DRAWINGS AND IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES PRIOR TO ORDERING OR FABRICATING MATERIALS OR OTHERWISE PROCEEDING WITH THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ORDER TO COMPLY WITH THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND SERVICES REQUIRED TO EXECUTE AND COMPLETE ALL ITEMS OF WORK AS SHOWN OR INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN, INCLUDING INCIDENTAL ITEMS TO EFFECT A FINISHED AND COMPLETE JOB, EVEN THOUGH SUCH ITEMS ARE NOT SHOWN OR PARTICULARLY MENTIONED.
- THE GENERAL CONTRACTOR SHALL USE CONSTRUCTION METHODS THAT ARE IN STRICT ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR ADEQUATELY SHORING EXISTING CONSTRUCTION WHILE PERFORMING NEW WORK.
- DIMENSIONS ARE NOT TO BE DERIVED BY SCALING THESE DRAWINGS. IF THERE ARE ANY QUESTIONS REGARDING DIMENSIONS, CONTACT THE ARCHITECT/ENGINEER FOR INFORMATION PRIOR TO SUBMITTING SHOP DRAWINGS.
- THE CONTRACTOR SHALL COORDINATE ALL STRUCTURAL WORK WITH THE CIVIL DRAWINGS AND SPECIFICATIONS, AND WITH THE WORK OF ALL OTHER TRADES.
- THE CONTRACTOR SHALL RESTORE TO ITS ORIGINAL CONDITION ALL SITE APPURTENANCES DAMAGED UNDER THIS CONTRACT AT NO ADDITIONAL COST TO THE OWNER.
- INFORMATION IN THESE STRUCTURAL NOTES IS A SELECTED SUMMARY OF REQUIREMENTS. REFER TO SPECIFICATIONS FOR AMPLIFICATIONS OF REQUIREMENTS.
- WHERE MEMBER LOCATIONS ARE NOT SPECIFICALLY DIMENSIONED, MEMBERS ARE EQUALLY SPACED BETWEEN LOCATED MEMBERS.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. CONTRACTOR SHALL BE SOLEY RESPONSIBLE FOR CONSTRUCTION SAFETY.

**CAST-IN-PLACE CONCRETE NOTES**

- ALL CONCRETE WORK, CONSTRUCTION AND REINFORCING DETAILS SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE WITH GEORGIA STATE SUPPLEMENTS AND "THE SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS" (ACI-318).
- ALL CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS AND CONFORM TO THE REQUIREMENTS OF THE SCHEDULE BELOW, UNLESS NOTED OTHERWISE. SEE SPECIFICATIONS FOR MIX DESIGN REQUIREMENTS.

LOCATION	w/ C RATIO	SLUMP (±1")	% AIR (±1%)	MAXIMUM AGGREGATE	MIN. STRENGTH @ 28 DAYS
RETAINING WALLS	.45	3.5"	5.5	1 1/2"	4,000 PSI
SITE CONCRETE	SEE CIVIL DRAWINGS				

- CONTRACTOR SHALL SUBMIT MIX DESIGNS PROPORTIONED BY A LICENSED TESTING LABORATORY.
- OWNER TO PROVIDE ALL CONCRETE TESTING. MINIMUM OF FOUR (4) CYLINDERS PER EACH FIFTY (50) YARDS OR FRACTION THEREOF POURED IN ONE DAY. BREAK ONE AT 7 DAYS AND TWO AT 28 DAYS.

**REINFORCING STEEL**

- ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES" (ACI-315).
- REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
- LAP SPLICES AND EMBEDMENT LENGTHS SHALL CONFORM TO ACI 318.
- PROVIDE CORNER BARS TO MATCH HORIZONTAL REINFORCING WHERE FOOTINGS, WALLS OR BEAMS MEET AT CORNERS OR INTERSECT. THIS ALSO INCLUDES INTERSECTIONS OF CONCRETE WITH MASONRY WORK.
- PROVIDE SHOP DRAWINGS FOR REINFORCING INCLUDING ALL NECESSARY ACCESSORIES TO HOLD REINFORCING SECURELY IN PLACE.
- CLEAR COVER CONCRETE PROTECTION FOR REINFORCING STEEL SHALL BE:
  - 3" - CONCRETE CAST AGAINST EARTH.
  - 2" - FORMED SURFACES IN CONTACT WITH SOIL OR EXPOSED TO WEATHER.

**FOUNDATIONS**

- ALL FORMS AND REINFORCING STEEL IN PLACE SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE BEFORE ANY CONCRETE IS PLACED.
- NO FOUNDATION SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
- IN GENERAL, THE BOTTOM OF FOOTINGS SHALL BE A MINIMUM OF 2'-0" BELOW GRADE.
- CENTERLINE OF FOOTINGS, WALLS, GRADE BEAMS, COLUMNS, AND BEAMS SHALL COINCIDE, UNLESS OTHERWISE NOTED.
- ALL EXTERIOR CONCRETE USED ABOVE GRADE SHALL HAVE AN AIR ENTRAINING AGENT.
- RUB ALL SIGHT EXPOSED CONCRETE AFTER FORMS HAVE BEEN REMOVED.
- ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
- ISOLATION JOINT - ASPHALT IMPREGNATED FILLER STRIP CONFORMING TO ASTM D-944.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK. EPOXY ANCHORS SHALL BE HIT HY-200 INJECTION ADHESIVE ANCHORS AS MANUFACTURED BY HILTI, INC., TULSA OK (800-879-8000).

**DESIGN CRITERIA NOTES**

**1. GENERAL BUILDING CODE**

THE CONSTRUCTION DOCUMENTS ARE BASED ON THE REQUIREMENTS OF THE 2018 INTERNATIONAL BUILDING CODE WITH GEORGIA STATE AMENDMENTS.

**2. DEAD AND LIVE LOADS**

- THE DEAD LOADS ARE THE SELF WEIGHT OF MATERIALS OF CONSTRUCTION.
- THE UNIFORMLY DISTRIBUTED AND/OR CONCENTRATED LIVE LOADS USED IN THE DESIGN OF THE BUILDING ARE BASED ON THE FOLLOWING INTENDED USE OR OCCUPANCIES:
  - PEDESTRIAN BRIDGES: 100 PSF

**3. GEOTECHNICAL INFORMATION**

THE STRUCTURE HAS BEEN DESIGNED BASED ON AN ASSUMED BEARING CAPACITY. THE SOIL BEARING CAPACITY AND CONSISTENCY SHALL BE VERIFIED FOR THE FOUNDATION LIMITS BY A PROFESSIONAL GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF GEORGIA. THE BOTTOM OF ALL FOOTINGS SHALL BE A MINIMUM OF 1'-6" BELOW FINISHED GRADE.

- ALLOWABLE BEARING: 1,500 PSF

**HELICAL PIER FOUNDATION NOTES**

- A HELICAL PIER FOUNDATION CONTRACTOR SHALL BE EMPLOYED BY THE GENERAL CONTRACTOR TO DESIGN AND DETAIL THE HELICAL PIER FOUNDATION SYSTEM. THE HELICAL PIER FOUNDATION SYSTEMS SHALL BE DESIGNED BASED ON THE FOLLOWING LOADING INFORMATION:
  - VERTICAL HELICAL PIERS: 25.0 KIPS (SERVICE LOAD)
  - DIAGONAL HELICAL PIERS: 25.0 KIPS (SERVICE LOAD)
- THE HELICAL PIER LAYOUT AND DETAILING DRAWINGS SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF GEORGIA.
- THE HELICAL PIER FOUNDATION DRAWINGS SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
  - HELICAL PIER LAYOUT, INCLUDING PLAN DIMENSIONS AND ELEVATIONS.
  - DESIGN AND DETAILING OF CAP PLATES THAT ARE EMBEDDED IN THE CONCRETE FOUNDATIONS.
  - THE DESIGN AND/OR SPECIFYING OF ALL CONNECTION HARDWARE (BOLTS, NUTS, PLATES, ANGLES, ETC.) USED IN THE HELICAL PIER FOUNDATION SYSTEM.
- CONTRACTOR SHALL CONFIRM EXISTING GRADE ELEVATIONS AND COORDINATE TOP OF FOOTING ELEVATIONS.
- GEOTECHNICAL DATA GATHERED IN THE FIELD SHALL BE PROVIDED TO THE HELICAL PIER FOUNDATION CONTRACTOR.
- FOR BIDDING PURPOSES, ASSUME THE DEPTH OF ALL HELICAL PIERS IS 40 FT. CONTRACTOR TO PROVIDE A UNIT PRICE FOR HELICAL PIERS (MATERIAL AND INSTALLATION) ON A PER FOOT BASIS. THE SPECIALTY ENGINEER RESPONSIBLE FOR THE DESIGN OF THE HELICAL PIERS WILL DETERMINE THE ACTUAL LENGTH TO DEVELOP THE CAPACITY LISTED IN NOTE 1.

**PRE-ENGINEERED PEDESTRIAN BRIDGE NOTES (DELEGATED DESIGN)**

- THE PRE-ENGINEERED PEDESTRIAN BRIDGES SHALL BE DESIGNED BY THE BRIDGE MANUFACTURER (BASIS OF DESIGN: GATOR BRIDGE) IN CONFORMANCE TO THE PROVISIONS OF THE 2018 INTERNATIONAL BUILDING CODE WITH GEORGIA STATE AMENDMENTS.
- FOUNDATION DESIGNS ARE BASED ON REACTIONS PROVIDED BY GATOR BRIDGE. THE FOUNDATIONS SHALL NOT BE CONSTRUCTED UNTIL THE STRUCTURAL ENGINEER HAS REVIEWED AND APPROVED THE FINAL REACTIONS SUPPLIED BY THE BRIDGE MANUFACTURER.
- CONTRACTOR SHALL SUBMIT DRAWINGS AND PERTINENT DOCUMENTATION FROM THE BRIDGE MANUFACTURER BEARING THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF GEORGIA. THE SUBMITTAL SHALL IDENTIFY AND INDICATE THE FOLLOWING:
  - IDENTIFY PROJECT AND LIST LOADING AND OTHER DESIGN CRITERIA.
  - INCLUDE FABRICATION AND ERECTION DRAWINGS WHICH INDICATE IN DETAIL THE CONSTRUCTION OF THE STANDARD STRUCTURE USED OR AS MODIFIED TO COMPLY WITH THE REQUIREMENTS OF THIS PROJECT.
  - ALL CONNECTION DETAILS, OPENINGS, AND OTHER SPECIAL DETAILS.
  - MAGNITUDE, LOCATION, AND DIRECTION OF BUILDING REACTIONS ON THE FOUNDATION UNDER ALL DESIGN CONDITIONS.
  - CALCULATIONS SUPPORTING THE DESIGN OF STANDARD STRUCTURE, MODIFIED CONDITIONS AN RELATED COMPONENTS.
- THE CONTRACTOR SHALL REVIEW THE BRIDGE MANUFACTURER'S SUBMITTAL FOR COMPLETENESS AND CONTENT PRIOR TO SUBMITTAL TO THE ENGINEER FOR REVIEW.



**DRAWINGS SCHEDULE**

No.	Date	Description
1	04/20	LDP - South Trail
2	05/05	State Buffer Comments - South Trail
3	05/05	LDP - Natural Play Area
4	05/07	LDP - South Trail - Rev #1
5	05/08	LDP - Natural Play Area - Rev #1
6	05/18	Wetland Boardwalk Design-Build
7	06/28	LDP - Natural Play Area - Rev #2
8	06/29	LDP - Reservoir Wetland
9	07/02	LDP - Community Green
10	07/10	LDP - Pool Parking
11	08/17	LDP - Community Green - Rev #1
12	08/17	LDP - South Trail - Rev #2



**CITY OF BROOKHAVEN**  
**MURPHEY CANDLER PARK**  
 1551 W. NANCY CREEK DRIVE NE  
 BROOKHAVEN, GEORGIA 30319

DATE	DRAWN	CHECKED
04/23/20	BM	GZ
SCALE		
SHEET TITLE		
STRUCTURAL GENERAL NOTE		

PROJECT NUMBER
15092.00
C8.5D
DRAWING NUMBER