

09/08/99

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols  
See Sheet 1-C For Survey Control

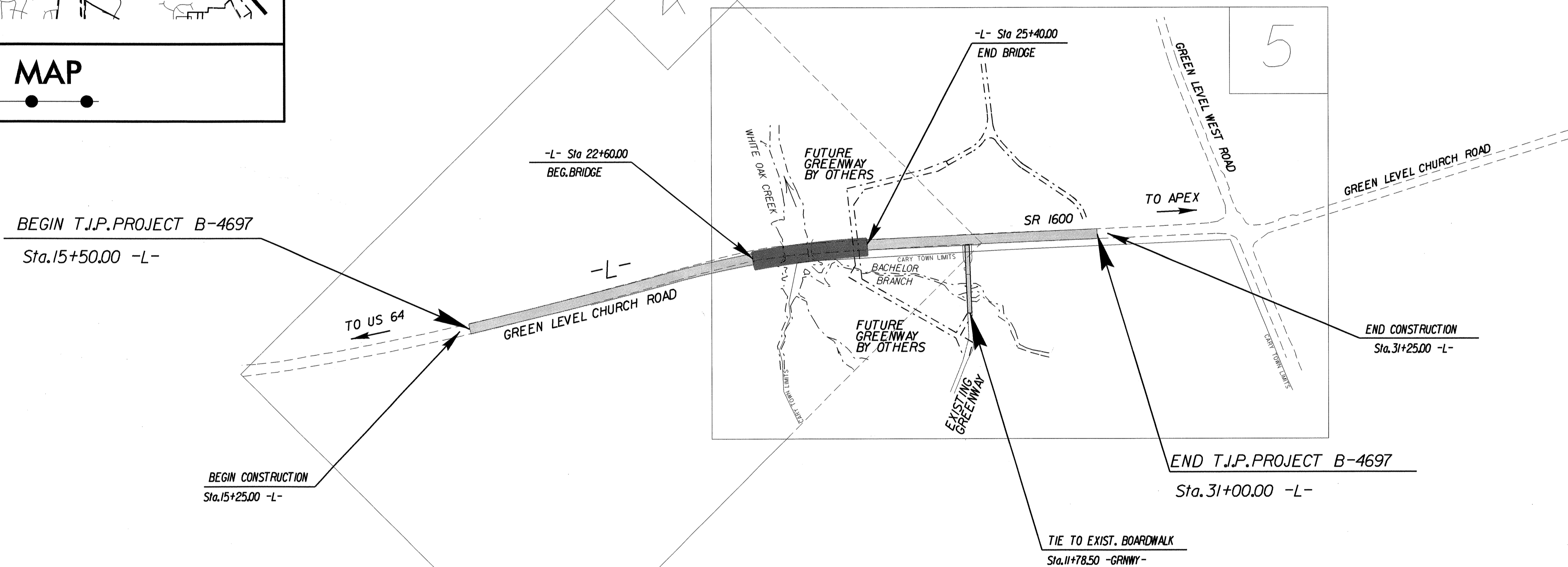
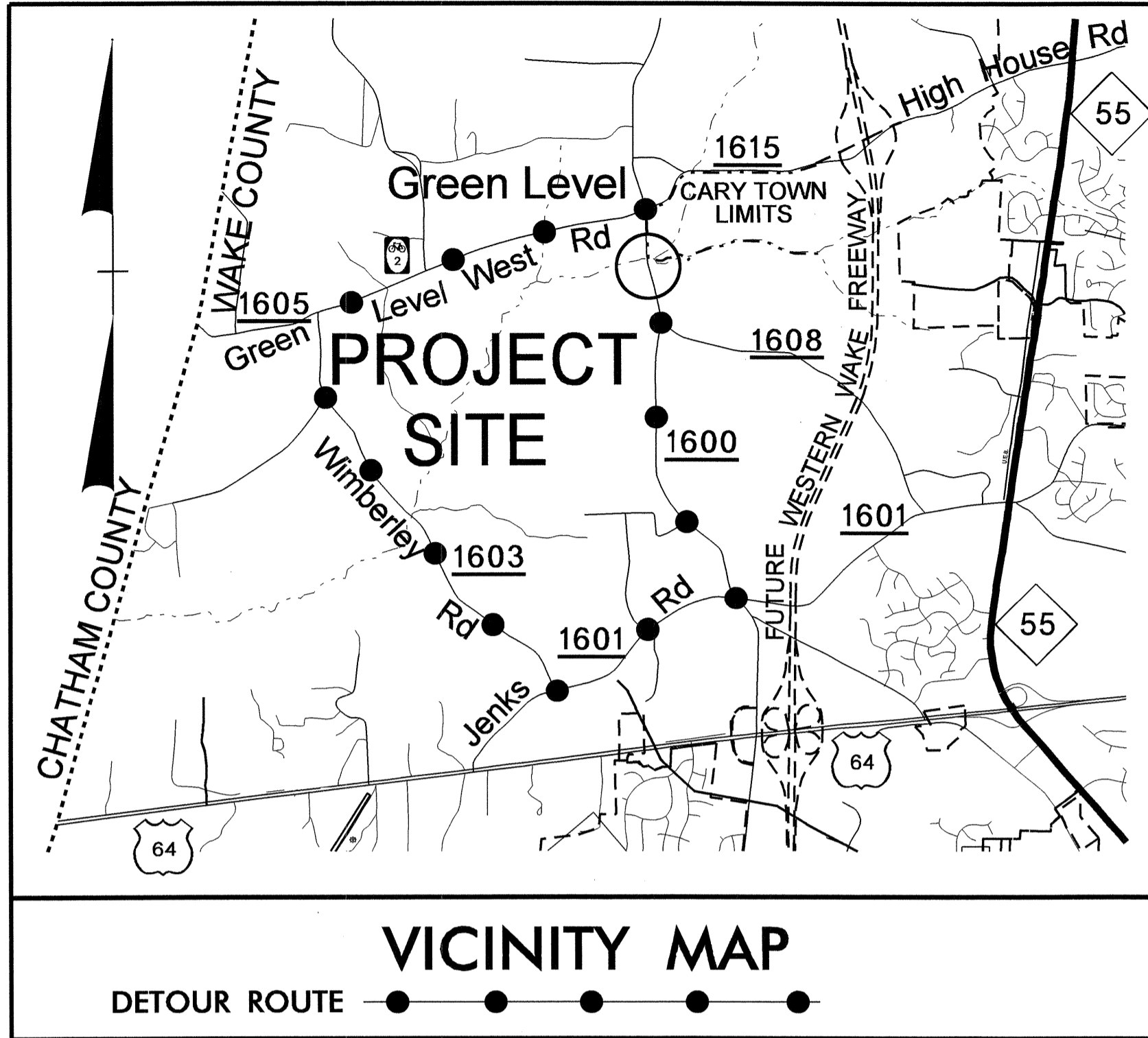
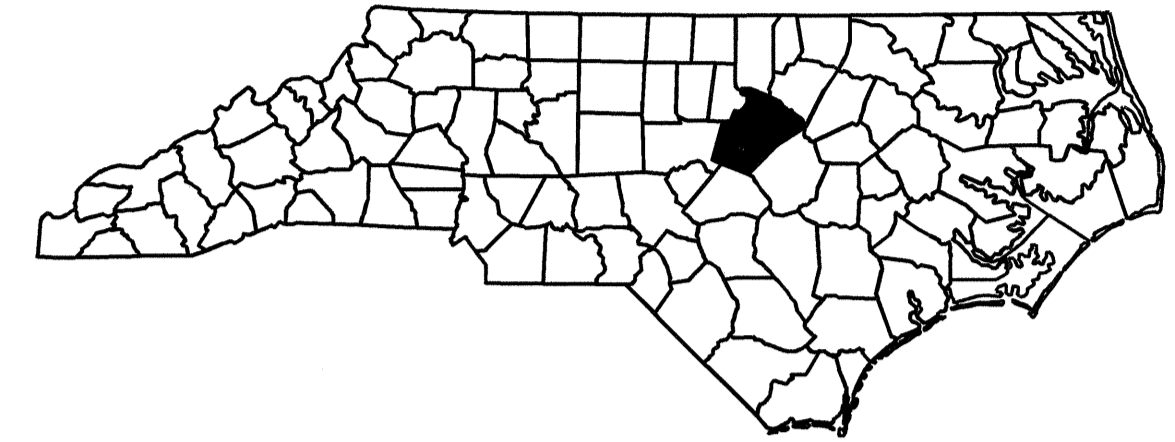
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## WAKE COUNTY

**LOCATION: BRIDGE NO. 55 OVER WHITE OAK CREEK  
ON SR 1600 (GREEN LEVEL CHURCH RD.)**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE  
BOARDWALK AND STRUCTURE**

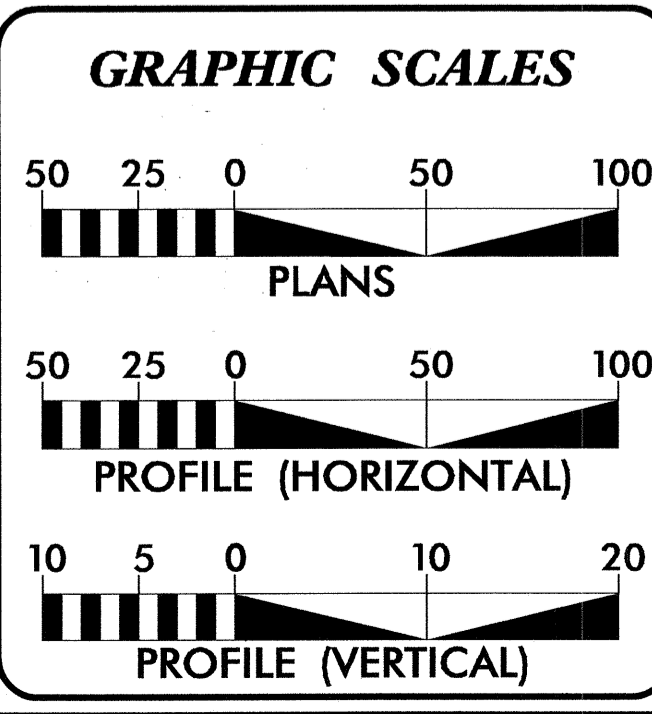
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4697	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38474.1.1	BRZ-1600(9)	PE	
38474.2.1	BRZ-1600(9)	ROW, UTIL	
38474.3.1	BRZ-1600(9)	CONST.	



THIS IS NOT A CONTROL OF ACCESS PROJECT.

TIP PROJECT: B-4697

CONTRACT: C202813



**DESIGN DATA**

ADT 2012 =	7,900
ADT 2035 =	22,000
DHV =	8 %
D =	60 %
T =	5 % *
V =	50 MPH
* TTST =	2% DUAL 3%
FUNC CLASS =	LOCAL
SUB-REGIONAL TIER	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4697	=	0.241 MILES
LENGTH STRUCTURE TIP PROJECT B-4697	=	0.053 MILES
TOTAL LENGTH TIP PROJECT B-4697	=	0.294 MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
MARCH 17, 2011

**LETTING DATE:**  
APRIL 17, 2012

**JASON MOORE, PE**  
PROJECT ENGINEER

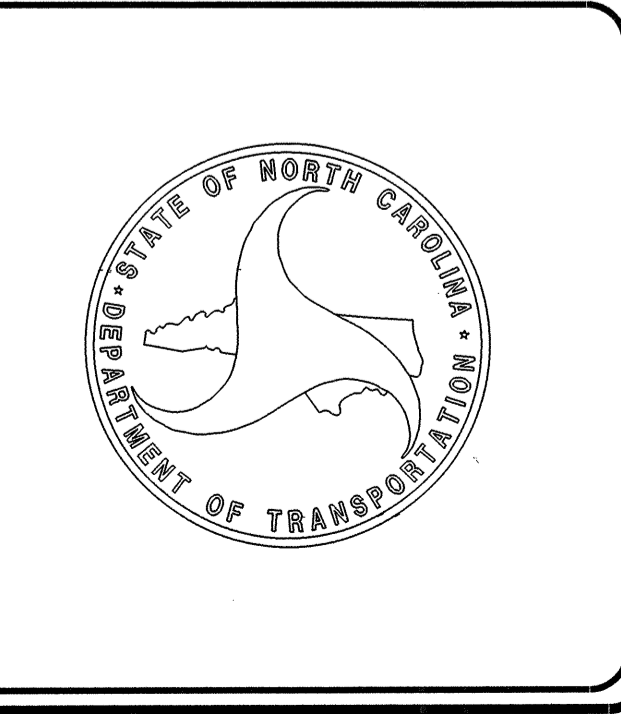
**KEVIN E. MOORE, PE**  
PROJECT DESIGN ENGINEER

**HYDRAULICS ENGINEER**

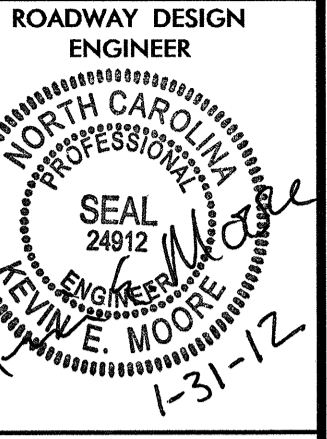
SIGNATURE: \_\_\_\_\_

**ROADWAY DESIGN ENGINEER**

SIGNATURE: *Kevin E. Moore* P.E. 1-31-12



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SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-E	SURVEY CONTROL SHEETS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS
2-A THRU 2-E	BOARDWALK DETAILS
2-F	SAFETY RAIL DETAIL
2-G	WOOD RUB RAIL DETAIL
3	SUMMARY OF QUANTITIES
3-A	SUMMARY OF EARTHWORK, PAVEMENT REMOVAL AND PAVEMENT BREAKUP, SUMMARY OF SAFETY RAIL
3-B	SUMMARY OF DRAINAGE
3-C	GUARDRAIL SUMMARY
3-D	PARCEL INDEX SHEET
4 & 5	PLAN SHEETS
6	PROFILE SHEET
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLAN
SD-1	SIGN DETAIL
PMP-1	PAVEMENT MARKING PLAN
EC-1 thru EC-7	EROSION CONTROL PLANS
RF-1	REFORESTATION PLANS
SIGN-1 thru SIGN-2	SIGNING PLANS
UO-1 thru UO-3	UTILITY CONSTRUCTION PLANS
X-1 thru X-26	CROSS-SECTIONS
S-1 thru S-65	STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS  
EFFECTIVE: 01-17-12  
REVISED: 11/01/11

GRADING AND SURFACING:  
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:  
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:  
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:  
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:  
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:  
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

END BENTS:  
THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:  
UTILITY OWNERS ON THIS PROJECT ARE  
PROGRESS ENERGY CORPORATION  
AT&T  
PUBLIC SERVICE OF NORTH CAROLINA ENERGY  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:  
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

2012 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Super-elevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Super-elevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

# CONVENTIONAL PLAN SHEET SYMBOLS

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EP
Property Corner	✕
Property Monument	□ EOM
Parcel/Sequence Number	②③
Existing Fence Line	---x---x---x---
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	---WLB---
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
Small Mine	✕
Foundation	▭
Area Outline	▭
Cemetery	▭ †
Building	▭
School	▭
Church	▭
Dam	▭

### HYDROLOGY:

Stream or Body of Water	~~~~~
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	▭
Proposed Lateral, Tail, Head Ditch	▭
False Sump	▭

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY:

Baseline Control Point	△
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite RW Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	▭

### VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	⊕
H-Frame Pole	●
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

### TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	⊕
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

### GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

### SANITARY SEWER:

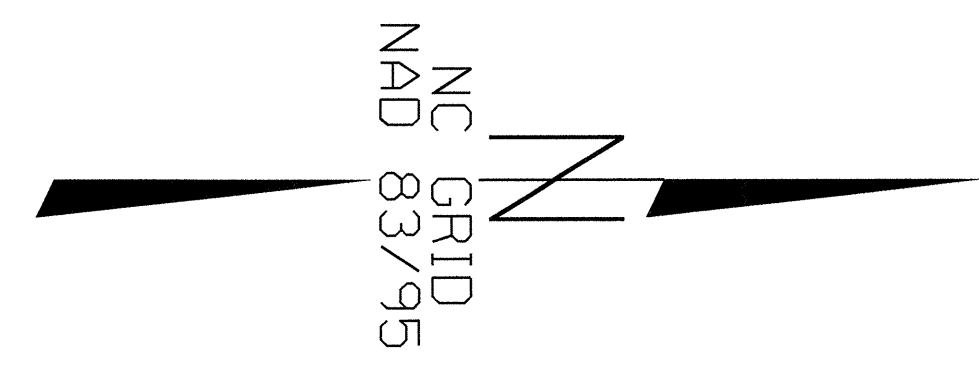
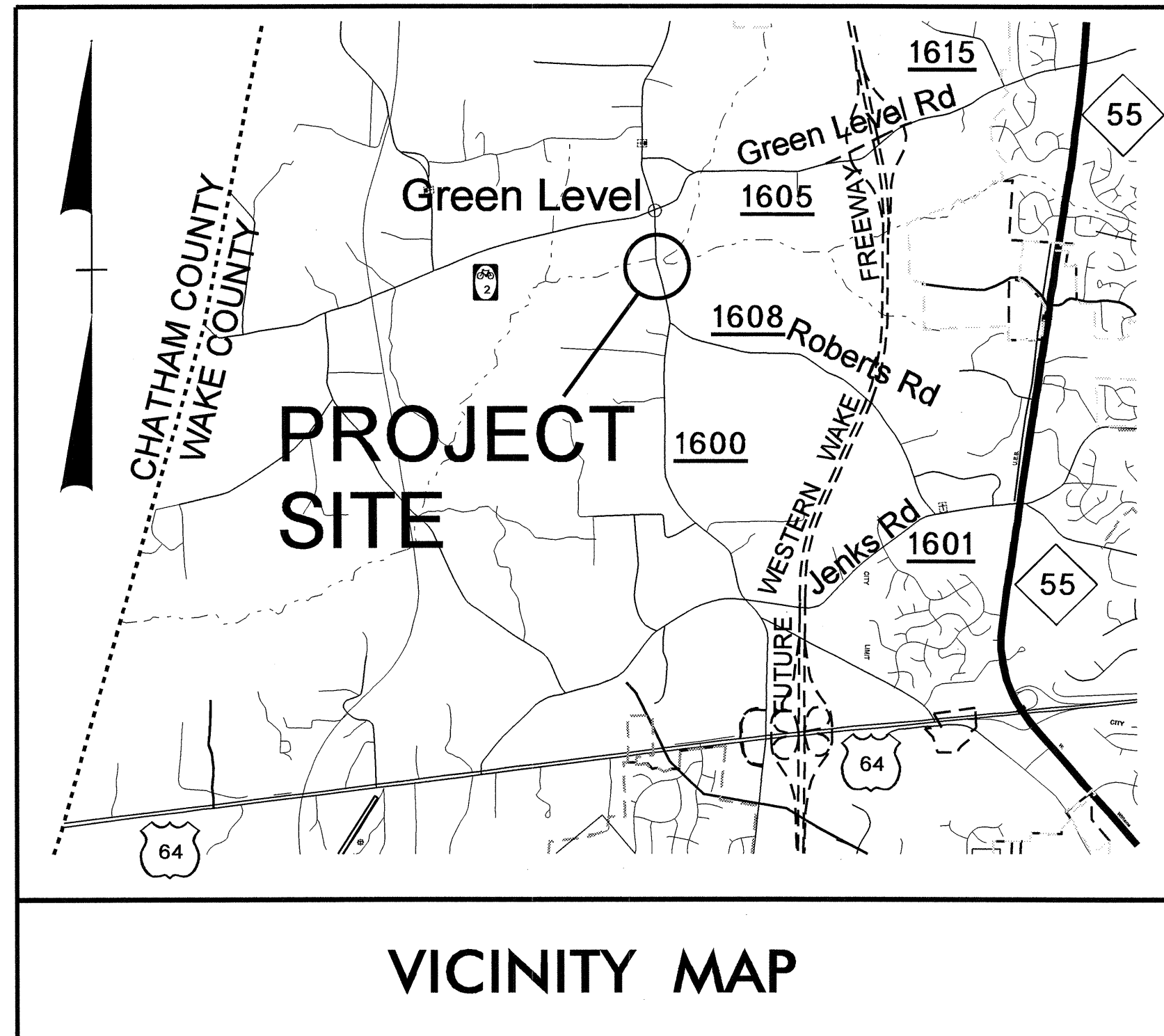
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

### MISCELLANEOUS:

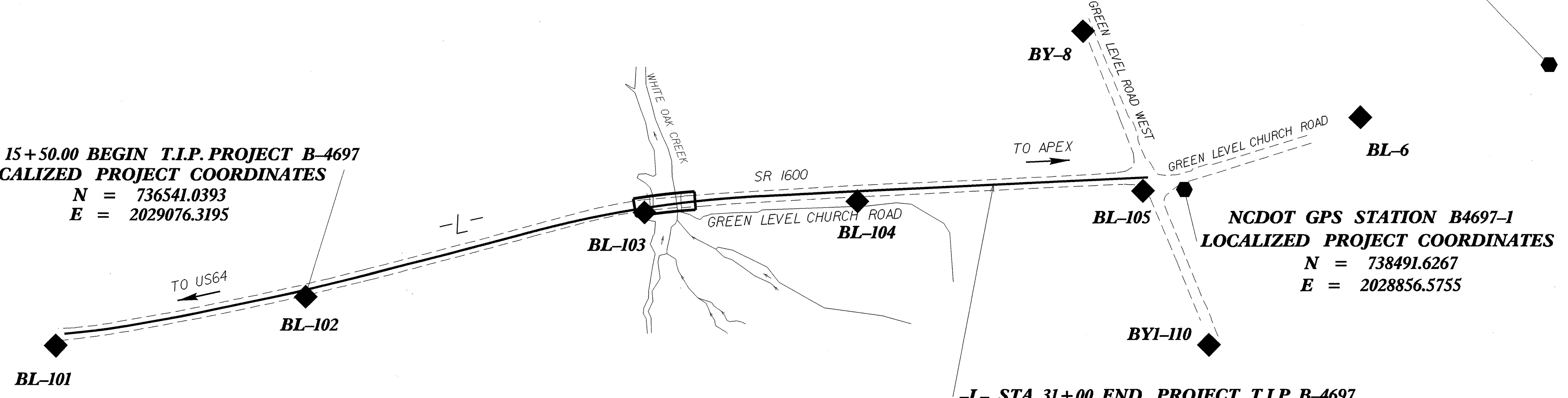
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	⊕
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.



# SURVEY CONTROL SHEET B4697



-L- STA. 15+50.00 BEGIN T.I.P. PROJECT B-4697  
**LOCALIZED PROJECT COORDINATES**  
 N = 736541.0393  
 E = 2029076.3195



**NCDOT GPS STATION B4697-2  
 LOCALIZED PROJECT COORDINATES**  
 N = 739466.5394  
 E = 2028532.5079

**NCDOT GPS STATION B4697-1  
 LOCALIZED PROJECT COORDINATES**  
 N = 738491.6267  
 E = 2028856.5755

-L- STA. 31+00 END PROJECT T.I.P. B-4697  
**LOCALIZED PROJECT COORDINATES**  
 N = 738067.2849  
 E = 2028845.7031

**CONTROL DATA**

BLREV POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	735981.0758	2029201.9905	314.37	OUTSIDE PROJECT LIMITS	
102	BL-102	736537.0797	2029092.2653	293.30	15+42.34	14.53 RT
103	BL-103	737290.9909	2028904.7212	268.62	23+20.31	9.06 RT
104	BL-104	737764.5867	2028880.8662	267.65	27+96.01	21.23 RT
105	BL-105	738399.6460	2028859.4952	270.55	34+31.38	29.03 RT
6	BL-6	738883.3462	2028695.1300	282.82	OUTSIDE PROJECT LIMITS	
BYREV POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
8	BY-8	738266.9945	2028501.5777	275.92	33+15.29	334.60 LT
Y105	BL-105	738399.6460	2028859.4952	270.55	34+31.38	29.03 RT
110	BY1-110	738545.7851	2029203.2038	271.01	OUTSIDE PROJECT LIMITS	

.....  
 44 ELEVATION = 274.06  
 N 738607 E 2029224  
 L STATION 34+44.17  
 N 63°34'03.1" E DIST 440.10'  
 RRS IN 30 INCH OAK  
 .....  
 59 ELEVATION = 317.82  
 N 736079 E 2029409  
 L STATION 10+51.92 239.73' RIGHT  
 RRS IN 10 INCH POPLAR  
 .....  
 88 ELEVATION = 265.07  
 N 737259 E 2029274  
 L STATION 22+15.57 367.02' RIGHT  
 RR SPIKE IN 10' MAPLE  
 .....

**NOTES:**

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B4697\_LS\_CONTROL\_100517.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

◆ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4697-2"  
 WITH NAD 83/95 STATE PLANE GRID COORDINATES OF  
 NORTHING: 739466.5394(ft) EASTING: 2028532.5079(ft)  
 ELEVATION: 322.22(ft)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991087  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4697-2" TO -L- STATION 15+50.00 IS  
 S 10 31 49.2 E 2975.61'  
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

6/2/99  
 06-JAN-2012 10:21  
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 \$\$\$USERNAMF\$\$\$



# SURVEY CONTROL SHEET B4697

## Design Alignments

TYPE	STATION	NORTH	EAST
POT	10+00.01	736000.6245	2029176.5714
PC	10+69.88	736070.0546	2029168.7639
PT	11+38.29	736137.7282	2029158.7997
PC	12+36.32	736234.1640	2029141.2117
PT	12+92.07	736288.8642	2029130.4456
PC	15+09.07	736501.1761	2029085.5761
PT	15+43.17	736534.4078	2029077.9589
PC	16+92.82	736679.6869	2029042.0418
PRC	20+56.85	737032.0564	2028950.6870
PT	25+82.60	737550.4295	2028869.4518
POT	34+44.17	738411.0915	2028829.9058

TYPE	STATION	NORTH	EAST
POT	10+00.00	737750.6989	2028860.2497
POT	11+81.65	737758.1076	2029041.7508
POT	12+43.09	737727.1304	2029094.8103

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4697-2"

WITH NAD 83/95 STATE PLANE GRID COORDINATES OF  
 NORTHING: 739466.5394(ft) EASTING: 2028532.5079(ft)  
 ELEVATION: 322.22(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991087

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4697-2" TO -L- STATION 15+50.00 IS  
 S 10 31 49.2 E 2975.61'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
 VERTICAL DATUM USED IS NAVD 88

**NOTES:**

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 B4697\_LS\_CONTROL\_100517.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- ⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

**NOTE: DRAWING NOT TO SCALE**

6/2/99

# SURVEY CONTROL SHEET B4697

ROW MARKER BRIDGE SPIKE

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+50.00	-35.00	736532.6392	2029042.3424
L	15+50.00	-30.00	736533.8392	2029047.1963
L	15+50.00	30.00	736548.2394	2029105.4426
L	15+50.00	40.00	736550.6394	2029115.1503
L	16+92.82	-35.00	736671.2849	2029008.0653
L	16+92.82	40.00	736689.2870	2029080.8727
L	17+87.04	30.28	736778.5274	2029048.5089
L	17+87.21	40.00	736781.0762	2029057.8941
L	18+07.01	30.41	736797.9479	2029043.7076
L	18+07.16	40.00	736800.4627	2029052.9676
L	19+00.00	-65.00	736864.0733	2028928.1317
L	20+56.85	-57.00	737017.1287	2028895.6764
L	20+56.85	40.00	737042.5319	2028989.2909
L	20+56.85	-40.00	737021.5808	2028912.0830
L	25+82.60	40.00	737552.2655	2028909.4096
L	25+82.60	-40.00	737548.5935	2028829.4940
L	31+00.00	-40.00	738065.4489	2028805.7453
L	31+00.00	-30.00	738065.9079	2028815.7347
L	31+00.00	30.00	738068.6619	2028875.6715
L	31+00.00	40.00	738069.1209	2028885.6610

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+60.50	61.00	736466.2651	2029155.3015
L	14+60.50	30.00	736459.8552	2029124.9714
L	16+37.00	63.00	736640.6166	2029116.5979
L	17+87.38	50.27	736783.7691	2029067.8098
L	18+07.33	50.40	736803.1896	2029063.0085
L	18+15.00	80.00	736817.9705	2029089.7829
L	20+64.00	80.00	737059.6816	2029026.0944
L	21+71.50	-67.00	737128.9419	2028857.8895
L	21+71.50	-40.00	737134.7605	2028884.2551
L	21+86.50	-40.00	737149.6623	2028881.0152
L	21+86.50	-67.00	737144.0087	2028854.6138
L	22+35.00	-40.00	737197.9786	2028871.1776
L	22+35.00	-67.00	737192.8598	2028844.6676
L	22+74.00	77.00	737257.2818	2028979.2005
L	22+88.00	-40.00	737250.9934	2028861.5469
L	22+88.00	-67.00	737246.4607	2028834.9297
L	25+10.00	-60.00	737473.4027	2028814.0544
L	25+10.00	-40.00	737474.9245	2028833.9964
L	25+64.00	78.00	737536.0372	2028948.2652
L	25+65.00	-60.00	737529.6584	2028810.4091
L	25+65.00	-40.00	737530.7229	2028830.3808
L	28+30.00	61.00	737800.3694	2028919.0318
L	30+89.00	-40.00	738054.4605	2028806.2502
L	30+89.00	-58.00	738053.6343	2028788.2692
L	31+05.00	-30.00	738070.9026	2028815.5052
L	31+05.00	-58.00	738069.6174	2028787.5348

### DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4697-2" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 739466.5394(++) EASTING: 2028532.5079(++) ELEVATION: 322.22(++)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99991087

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4697-2" TO -L- STATION 15+50.00 IS  
S 10 31 49.2 E 2975.61'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

**NOTES:**

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAYLOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAYLOCATION/PROJECT/)  
THE FILES TO BE FOUND ARE AS FOLLOWS:  
B4697\_LS\_CONTROL\_100517.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

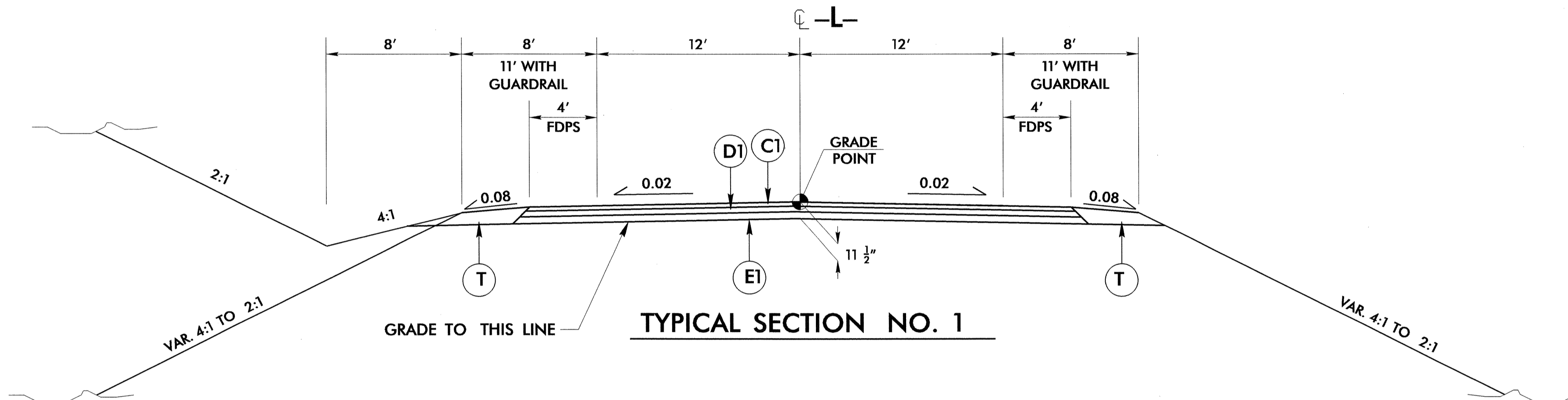
08-MAR-2012 10:21  
R:\Roadwork\Projects\B4697\_1s\_1e.dgn

5/14/99

PROJECT REFERENCE NO. B-4697	SHEET NO. 2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER K. E. MOORE SEAL 28912 1-31-12	PAVEMENT DESIGN ENGINEER CLAYTON S. MORRISON SEAL 22888 2/1/12

PAVEMENT SCHEDULE			
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R2	SAFETY RAIL, SEE DETAIL SHEET 2-F
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	S	4" CONCRETE SIDEWALK
E1	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	T	EARTH MATERIAL
R1	2'-6" CONCRETE CURB AND GUTTER	U	EXISTING PAVEMENT

Note: Pavement Edge Slopes are 1:1 Unless Noted Otherwise.



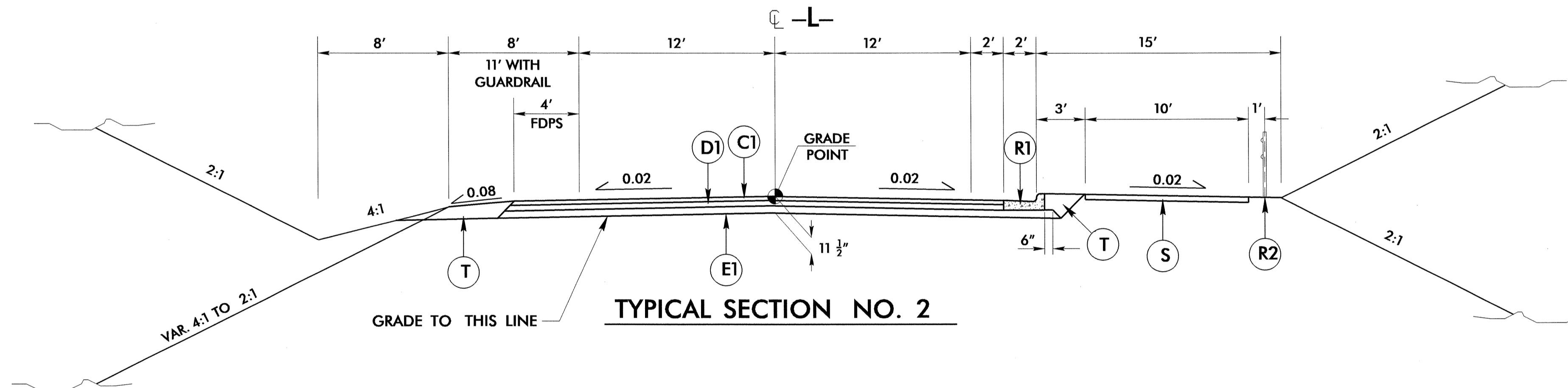
NOTE: TRANSITION FROM EXISTING TO T.S. NO. 1 FROM -L- STA. 15+50.00 TO STA. 16+00.00

USE TYPICAL SECTION NO. 1

-L- STA 16+00.00 TO STA 18+50.00  
-L- STA 28+20.00 TO STA 30+50.00

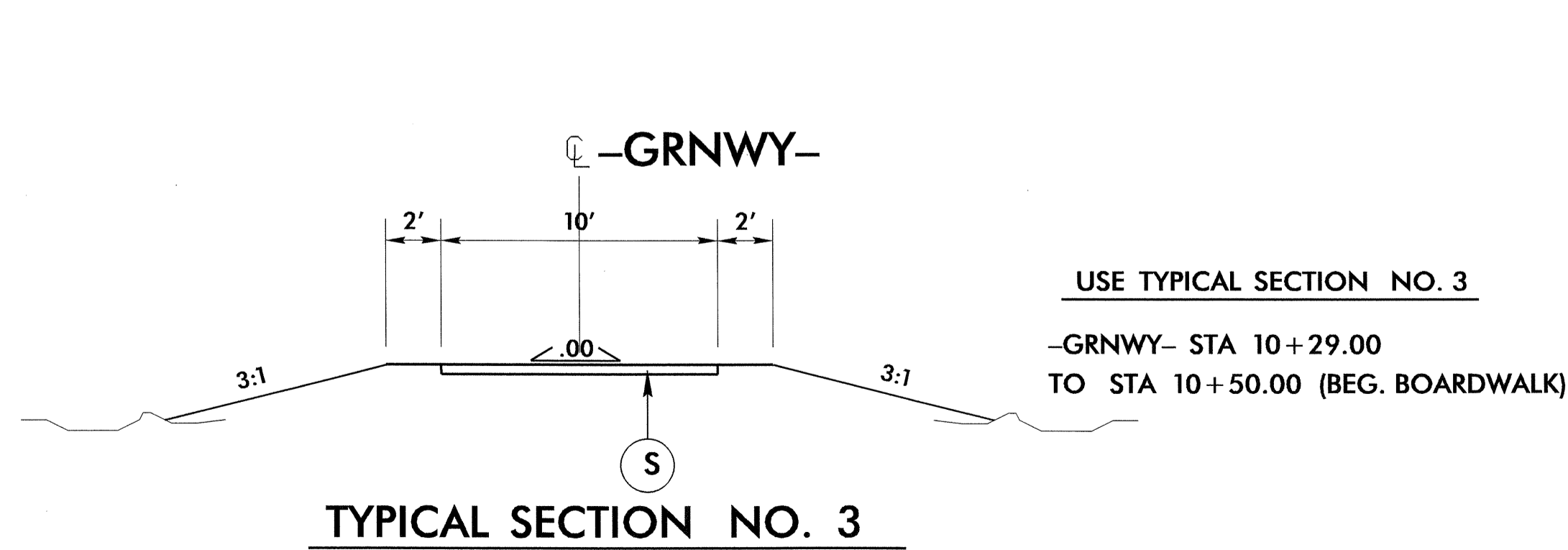
NOTE: TRANSITION FROM T.S. NO. 1 TO EXISTING FROM -L- STA. 30+50.00 TO -L- STA. 31+00.00

NOTE: USE TYPICAL SECTION NO. 1 IN CONJUNCTION WITH DITCH DETAILS 'A' AND 'B'



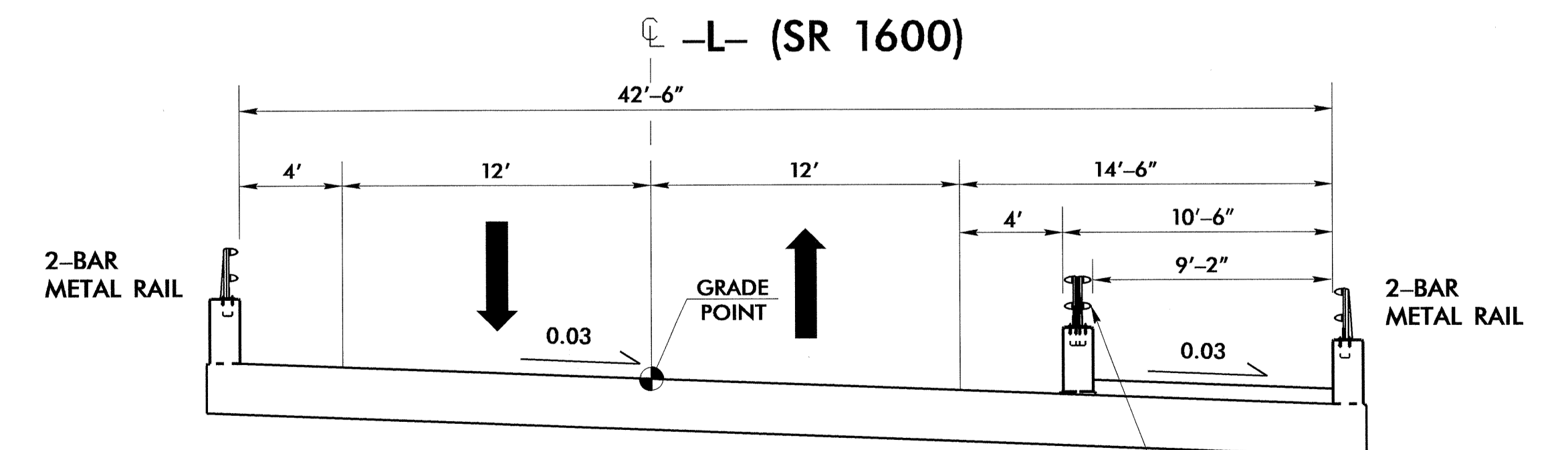
USE TYPICAL SECTION NO. 2

-L- STA 18+50.00 TO STA 22+60.00 (BEGIN BRIDGE)  
-L- STA 25+40.00 (END BRIDGE) TO STA 28+20.00  
NOTE: BERM SLOPES AWAY FROM THE CURB.  
NOTE: SIDEWALK BEGINS -L- STA. 19+50 AND ENDS -L- STA. 27+88.00  
NOTE: RAIL BEGINS -L- STA. 19+50 AND ENDS -L- STA. 27+77.00



USE TYPICAL SECTION NO. 3

-GRNWX- STA 10+29.00 TO STA 10+50.00 (BEG. BOARDWALK)

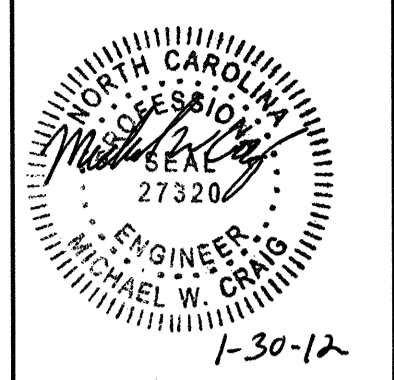


TYPICAL SECTION ON STRUCTURE

-L- STA 22+60 (BEGIN BRIDGE) TO STA 25+40 (END BRIDGE)  
NOTE: TRANSITION SIDEWALK SLOPE ON APPROACH SLAB.

30 - JAN-2012 08:24  
30 - JAN-2012 08:24  
30 - JAN-2012 08:24





# NOTES

## GENERAL

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT STATE AND LOCAL STANDARDS AND REGULATIONS AND THE SPECIFICATIONS OF THE APPROPRIATE GOVERNMENTAL AGENCY, NCDOT, NCDENR, TOWN OF CARY, AND OWASA.

ALL STOCKPILE AREAS AND TEMPORARY SPOIL AREAS SHALL BE PROTECTED BY SILT FENCE.

CONSTRUCTION STAGING AND ACCESS LIMITS TO BE APPROVED BY THE TOWN OF CARY PRIOR TO ANY CONSTRUCTION ACTIVITY ON SITE.

THE CONTRACTOR WILL MAINTAIN UNINTERRUPTED VEHICULAR ACCESS TO ALL PROPERTIES DURING CONSTRUCTION. CONSTRUCTION PLANNING AND/OR ALTERNATIVE MEANS OF ACCESS ARE TO BE PROVIDED AS NECESSARY. AFFECTED PROPERTY OWNERS AND RESIDENTS WILL BE NOTIFIED BY THE CONTRACTOR. THE CONTRACTOR MUST MAINTAIN AT LEAST ONE LANE PASSABLE AT ALL TIMES DURING CONSTRUCTION EXCEPT FOR APPROVED ROADWAY CLOSURES FOR SPECIFIC LOCATIONS. THE CONTRACTOR SHALL USE APPROVED DOT WORK ZONE TRAFFIC CONTROL STANDARDS FOR ROADWAY CLOSURES IN ADDITION TO PROVIDING AN ADVANCE 48 HR. NOTICE TO THE OWNER AND WRITTEN NOTIFICATION TO THE RESIDENTS OF THE AFFECTED STREET CLOSURE STATING:

- SHORT MESSAGE INDICATING WHY THE ROADWAY IS TO BE CLOSED.
- WHERE, (BETWEEN ADDRESSES OF \* AND \*), WHEN AND FOR HOW LONG.
- 911 MUST BE NOTIFIED PRIOR TO AND AT THE CONCLUSION OF THE CLOSURE FOR MAINTAINING EMERGENCY SERVICES ACCESS.

THE TREE PROTECTION FENCE SHALL BE MAINTAINED ON THE SITE UNTIL ALL SITE WORK IS COMPLETED AND THE FINAL SITE INSPECTION PRIOR TO THE CERTIFICATE OF OCCUPANCY (CO) IS SCHEDULED. THE FENCING SHALL BE REMOVED PRIOR TO FINAL INSPECTION FOR THE CO.

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING.

IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREFORE SHALL BE SUBMITTED TO THE OWNER FOR REVIEW. NO DEPARTURES FROM CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE WRITTEN PERMISSION OF THE OWNER.

ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE OWNER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES DUE TO PLAN ERRORS, FIELD CONDITIONS, OR OTHERWISE. NO EXTRA COMPENSATION SHALL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN AND SUBSEQUENT AUTHORIZATION RECEIVED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND/OR RELOCATION OF ALL UTILITIES AND COORDINATION WITH THE APPROPRIATE UTILITY AGENCY OR COMPANY. THE CONTRACTOR IS REQUIRED TO CALL 'THE NC ONE CALL CENTER' (1-800-632-4949) AND OWASA (919-968-4421) BEFORE DIGGING.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY DAMAGES OR RUPTURED UTILITIES THAT OCCUR DURING THE DEMOLITION OR CONSTRUCTION OPERATION THAT ARE NOT INDICATED TO BE ABANDONED.

ALL EXISTING SITE FEATURES SHALL REMAIN UNLESS NOTED TO BE REMOVED OR DEMOLISHED.

THE CONTRACTOR WILL NOT BE ALLOWED TO DRIVE OR MANEUVER EQUIPMENT IN THE STREAM CHANNEL.

## BOARDWALK

DESIGNED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (17 EDITION-2002).

MINIMUM PILE PENETRATION FOR PIERS SHALL BE 10' FEET OR TO A DEPTH RECOMMENDED BY A NORTH CAROLINA PROFESSIONAL ENGINEER.

SMALL MEMBERS 1 1/2" OR LESS SHALL HAVE PRE-DRILLED HOLES TO PREVENT SPLITTING DURING CONSTRUCTION. TREATED TIMBER AND LUMBER SHALL BE USED AND SHALL BE IN ACCORDANCE WITH 2012 NCDOT STANDARD SPECIFICATIONS, SECTION 1082 AND SHALL BE SOUTHERN YELLOW PINE, GRADE 2 OR BETTER.

BOARDWALK STRUCTURES SHALL BE LOCATED A MINIMUM OF 15' FROM THE CENTER OF ALL EXISTING SEWER LINES.

REQUIRES TOWN OF CARY BUILDING PERMIT.

STRUCTURAL LUMBER: SOLID TIMBER DECKING, POSTS AND HANDRAILS SHALL BE NO. 1 SOUTHERN PINE. ALL LUMBER SHALL BE PRESSURE TREATED SOUTHERN PINE NO. 2 OR BETTER UNO.

ALL CONNECTORS SHALL BE HOT-DIPPED GALVANIZED. THIS INCLUDES BOLTS, WASHERS, SCREWS AND FABRICATED CONNECTIONS. ALL DECKING AND RAILINGS SHALL BE CONNECTED WITH BOLTS OR SCREWS, IN ACCORDANCE WITH ASTM A153.

CONSTRUCTION INSPECTOR MAY REQUIRE ADDITIONAL CERTIFICATIONS.

A THIRD PARTY REPORT WILL BE REQUIRED FOR ALL PILES DRIVEN TO CONFIRM MEETING THE STRUCTURAL ENGINEERS SPECIFICATION FOR LOADING.

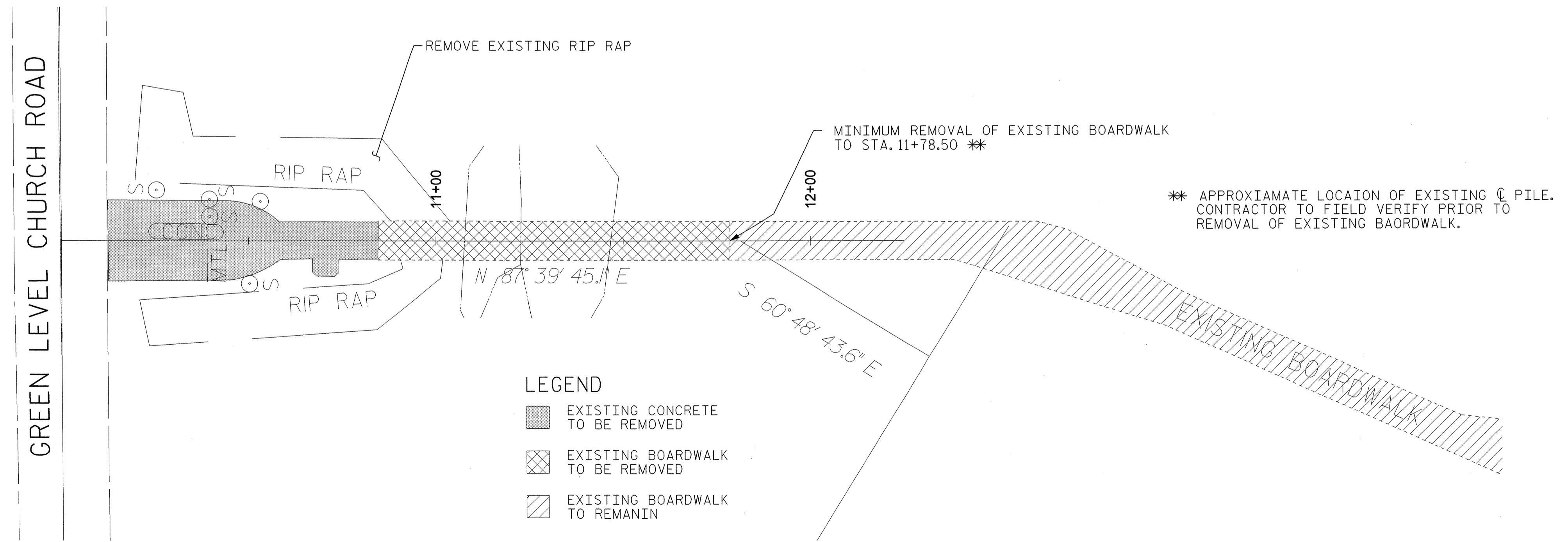
A ROUGH FRAMING INSPECTION WILL BE REQUIRED FOR ALL BOARDWALKS AND BRIDGES PRIOR TO THE FLOOR DECKING BEING APPLIED.

## FOUNDATIONS AND APPROACH SLABS

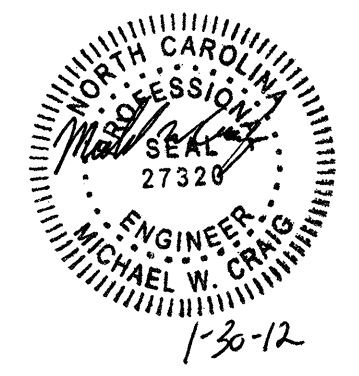
ALL CONCRETE FOR THE ABUTMENTS AND APPROACH SLABS SHALL BE CLASS "A".

ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.

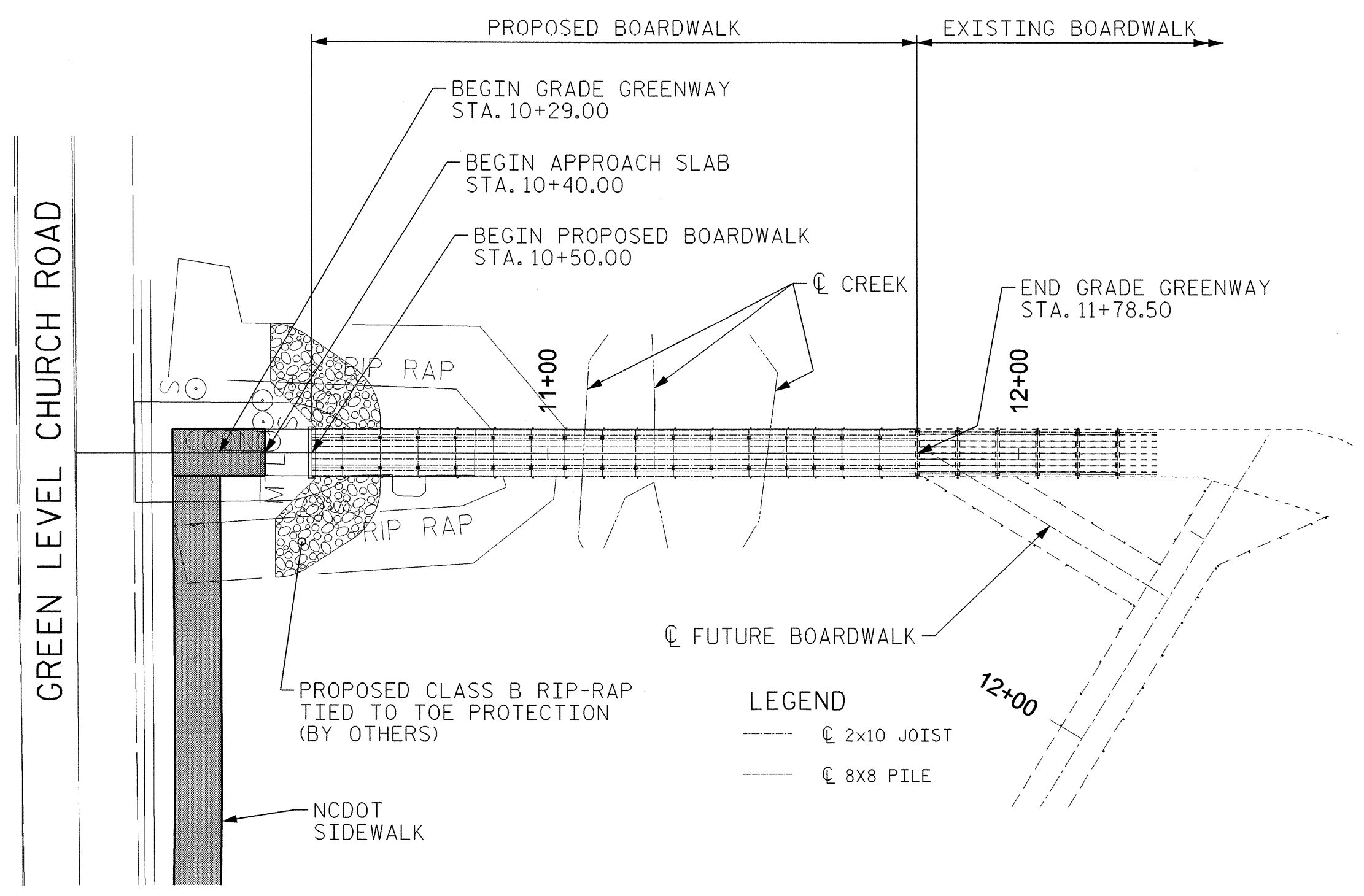
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www.wspells.com  
LICENSE NO. F-0891



DEMOLITION SKETCH  
N.T.S.

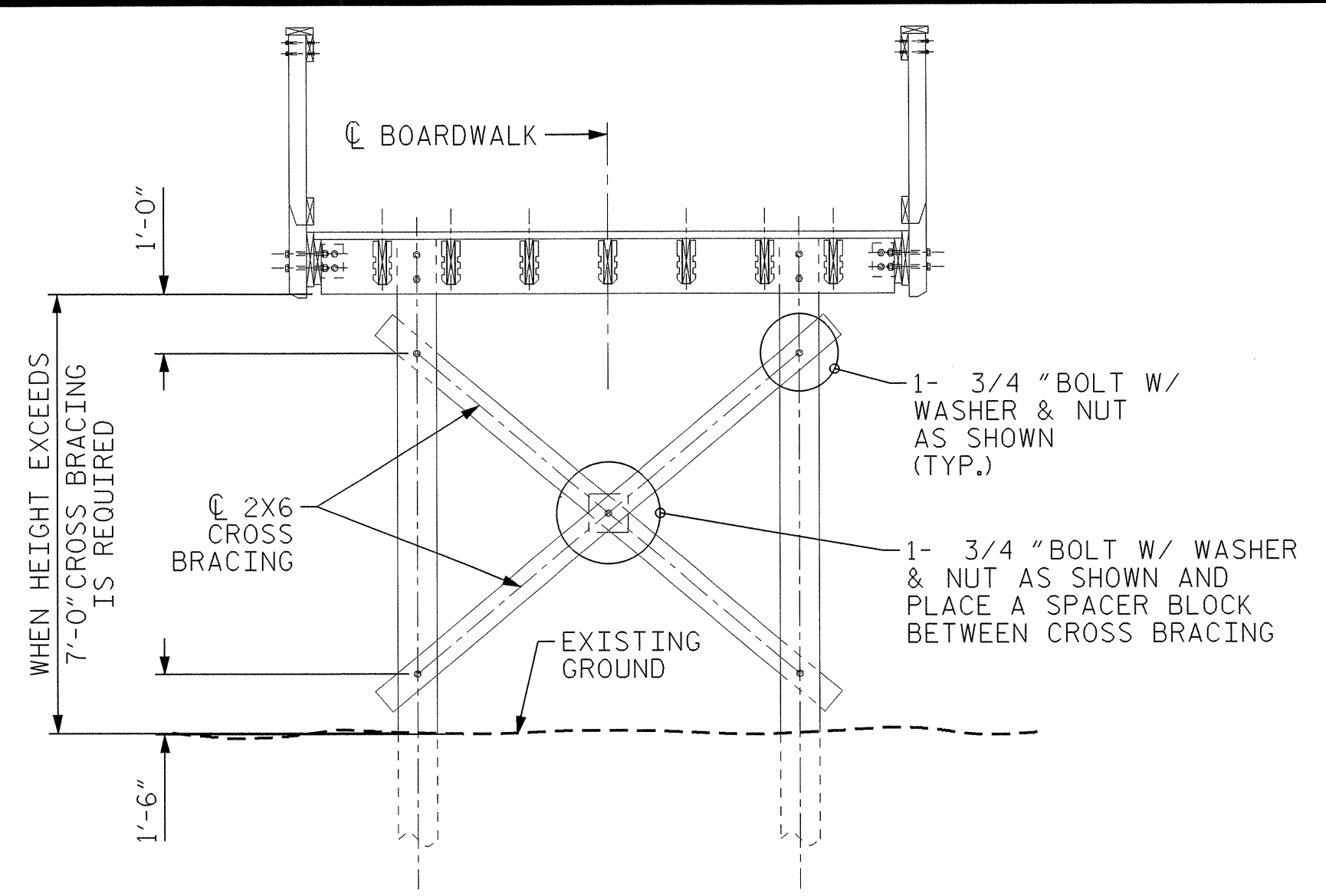


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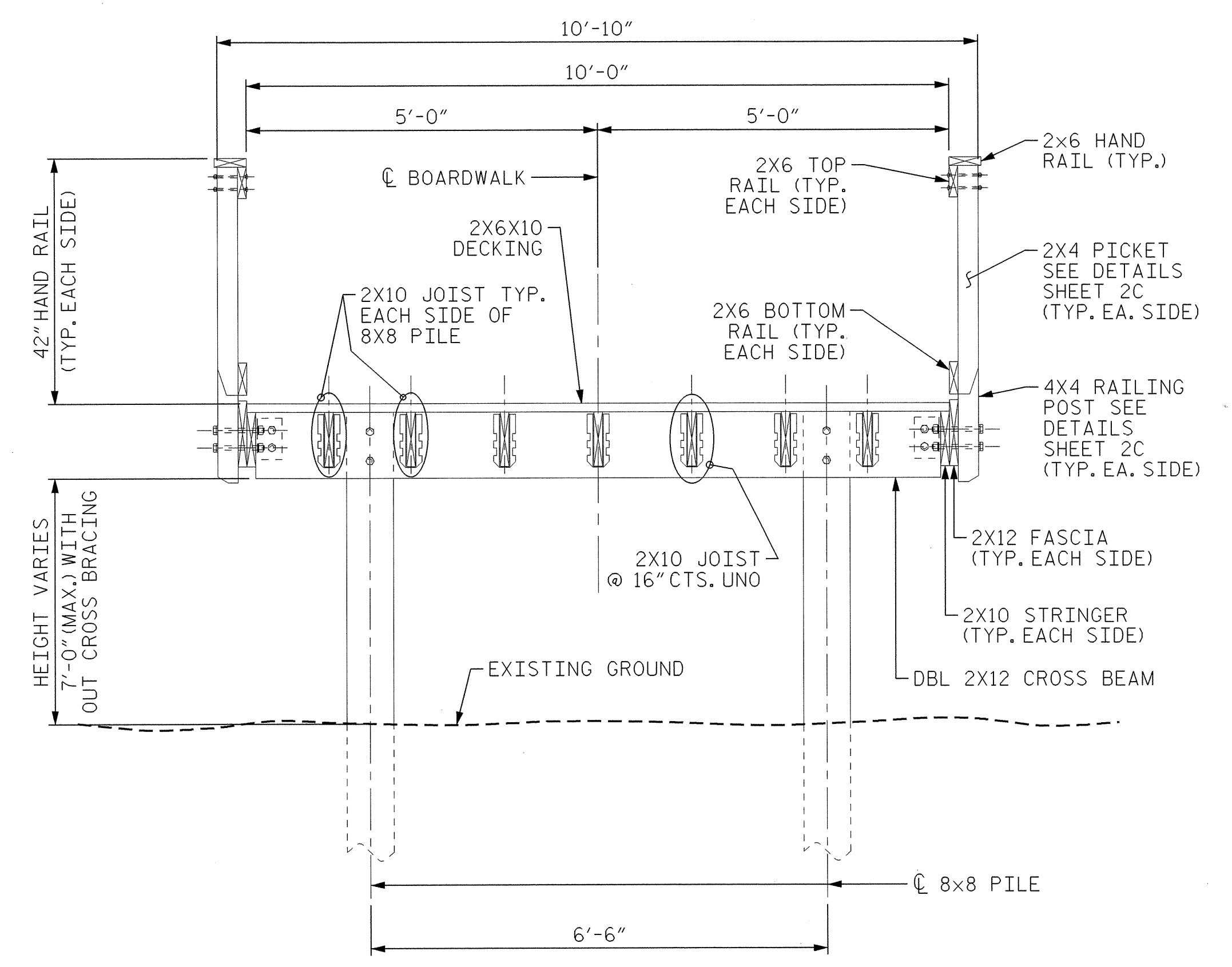


**PLAN**

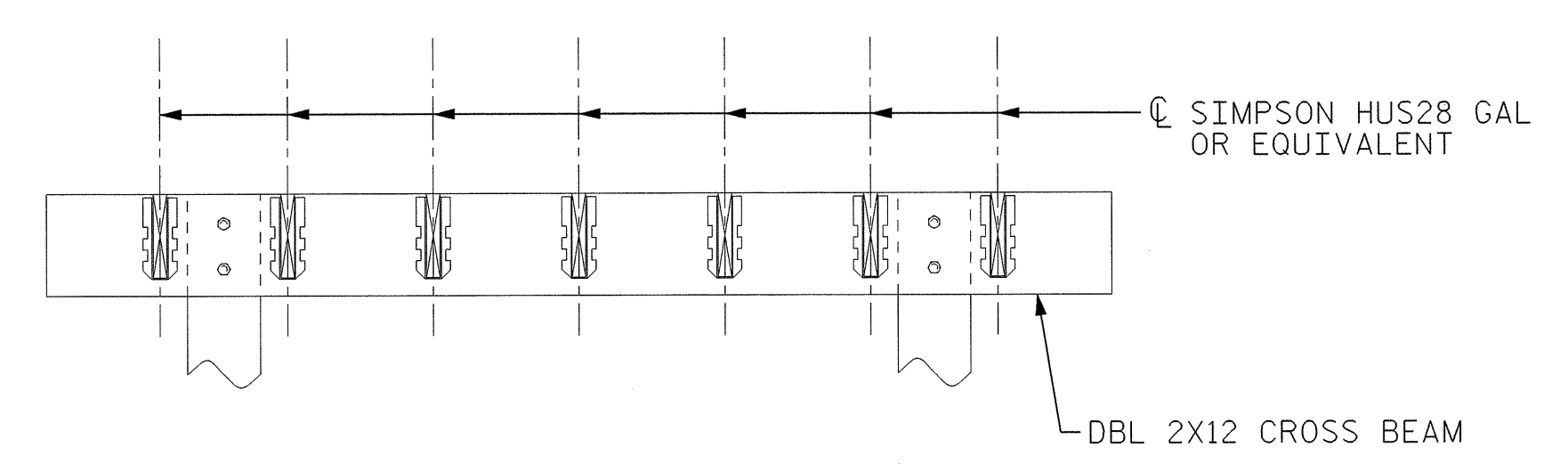
REFER TO "BOARDWALK ELEVATION WITH 42" HAND RAIL" FOR LOCATION OF 2X10 JOIST.



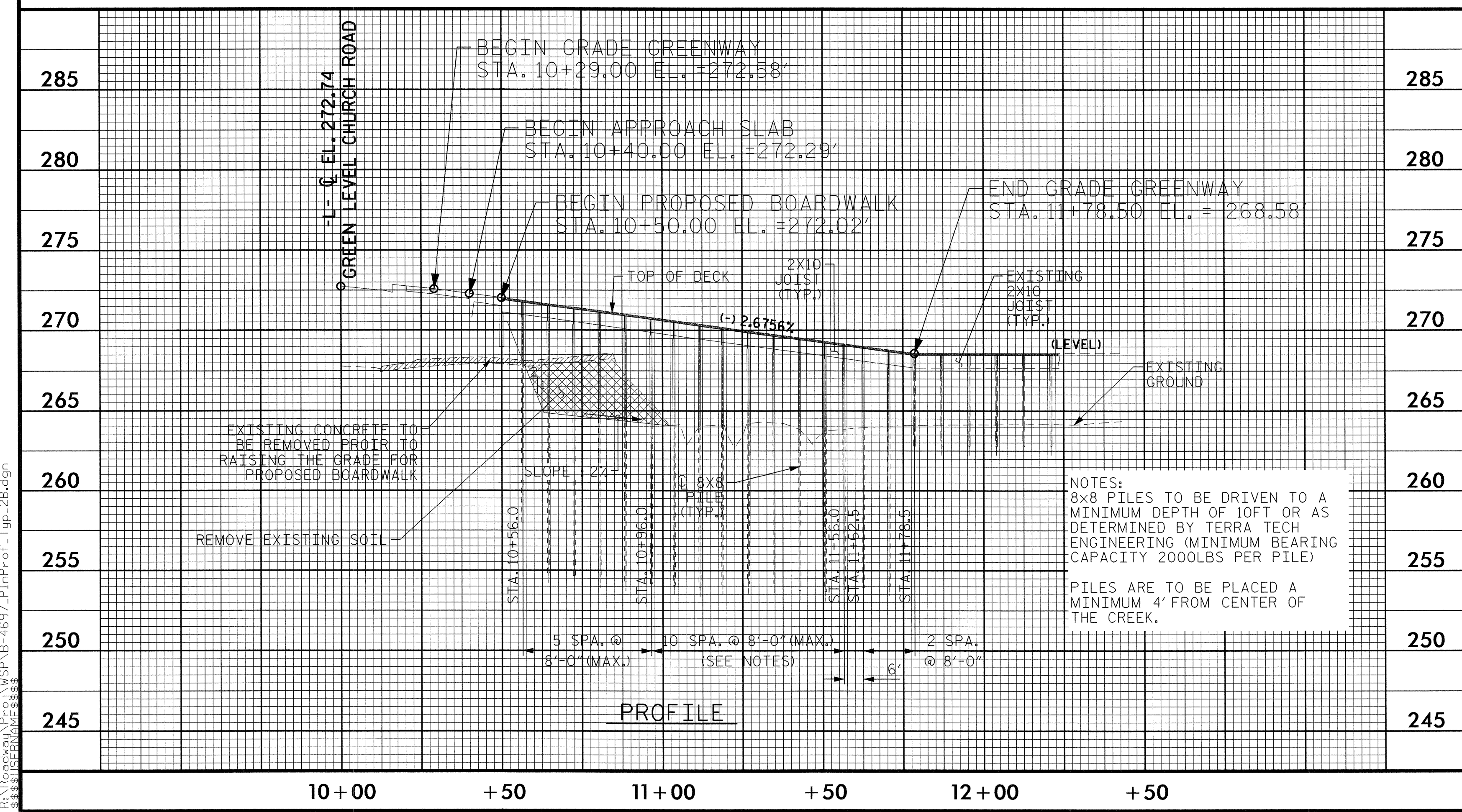
**BOARDWALK ELEVATION WITH CROSS BRACING**



**BOARDWALK ELEVATION WITH 42" HAND RAIL**

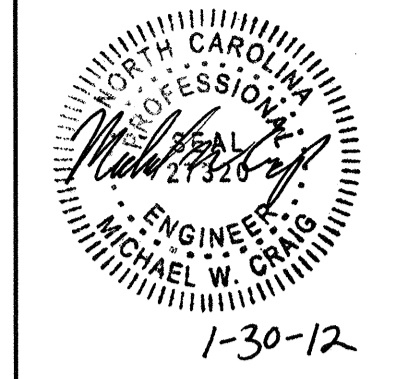


**2X10 JOIST HANGER LOCATION AND REQUIREMENTS**

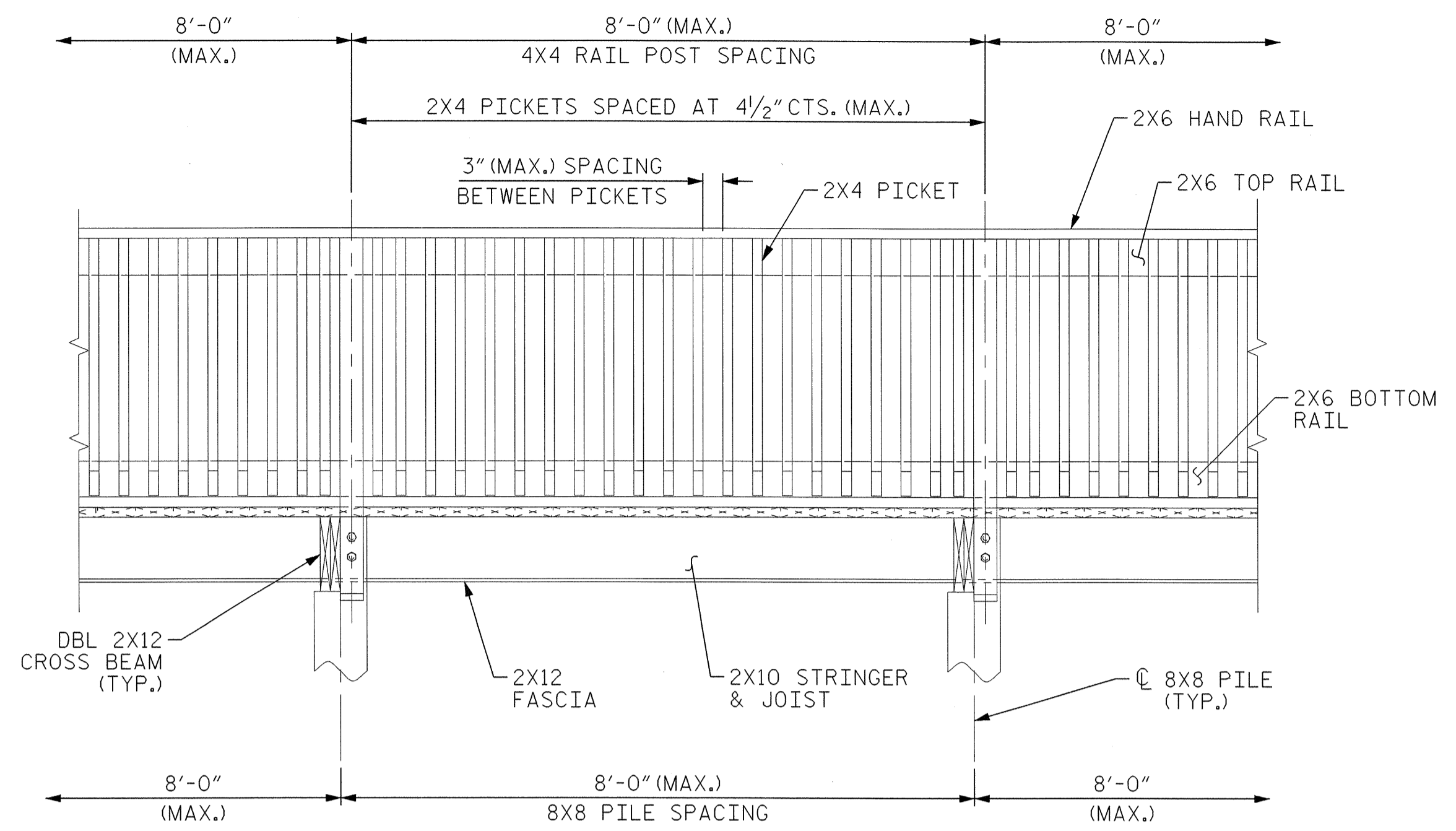


8/17/99  
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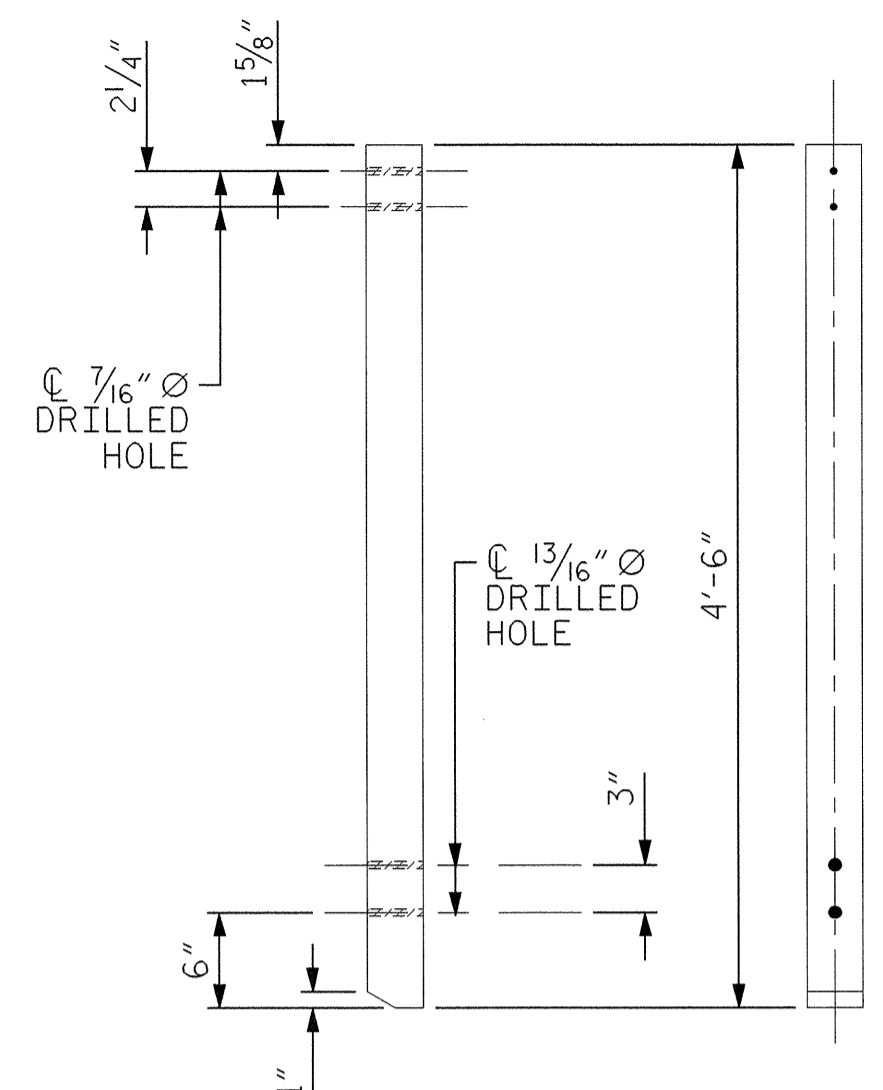




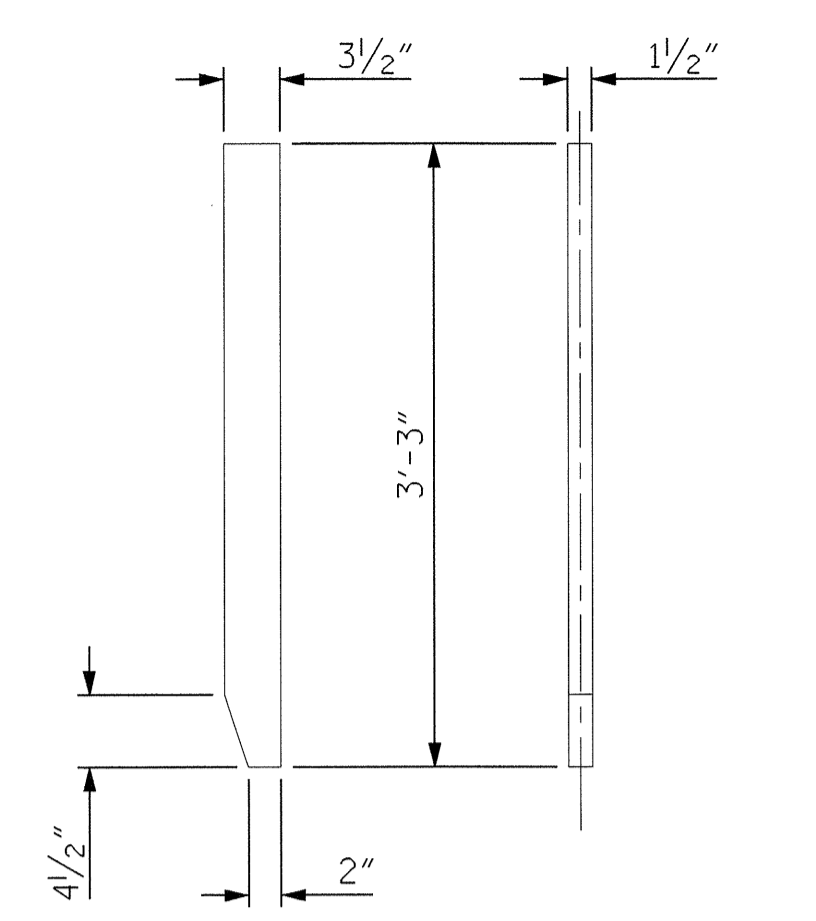
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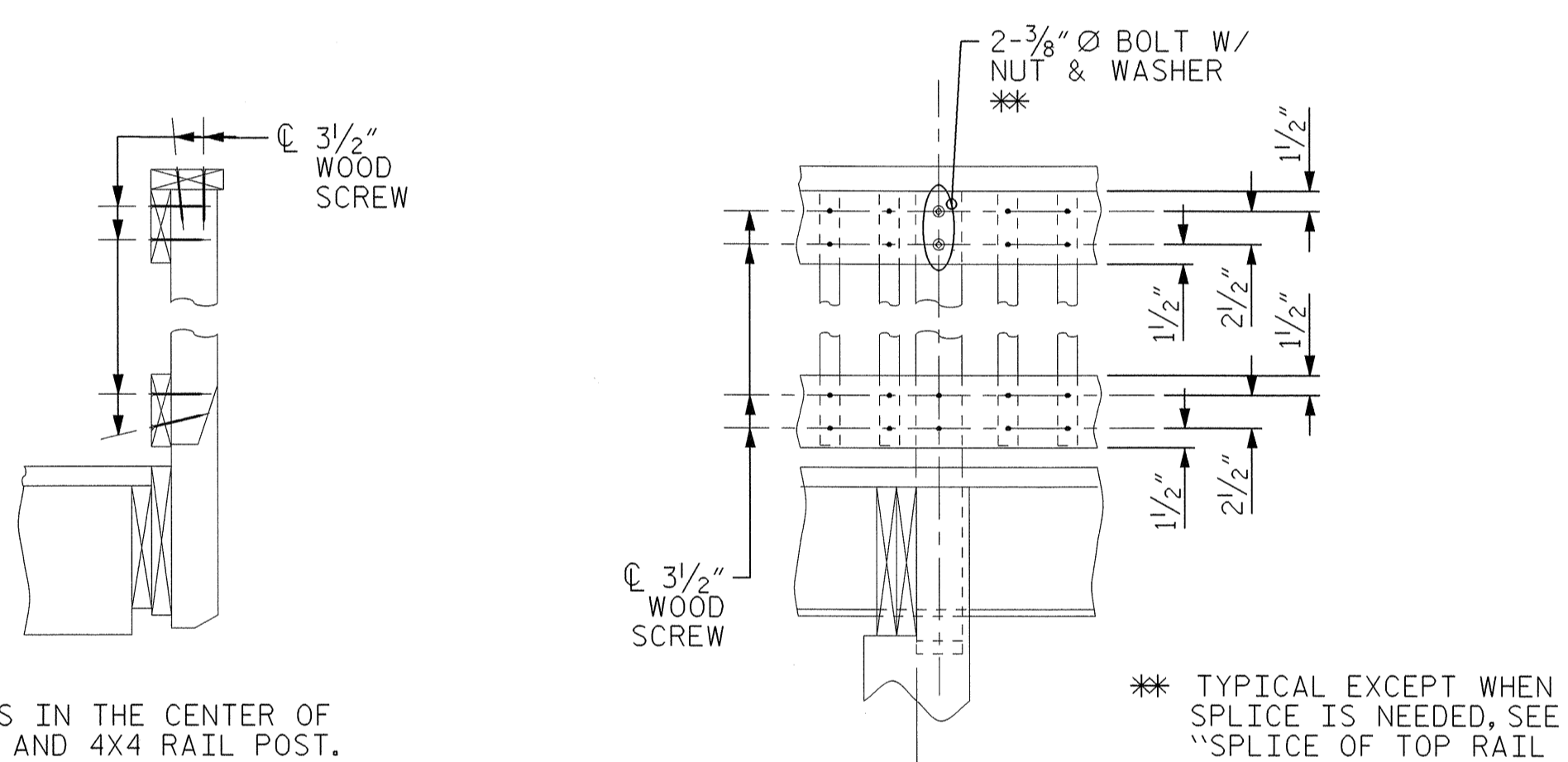
**BOARDWALK ELEVATION WITH 42" HAND RAIL**



**4X4 RAIL POST**



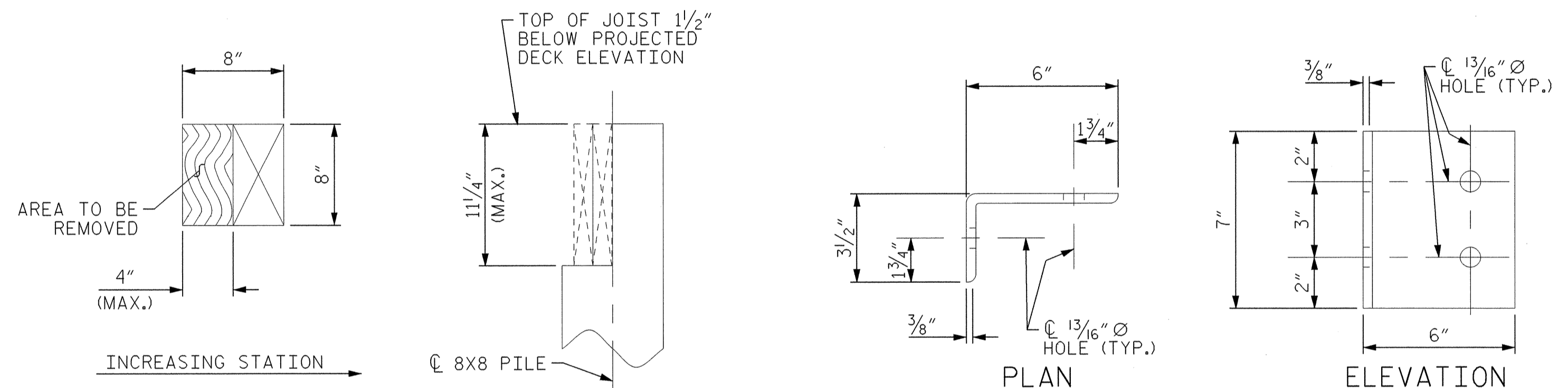
**2X4 PICKET DETAIL**



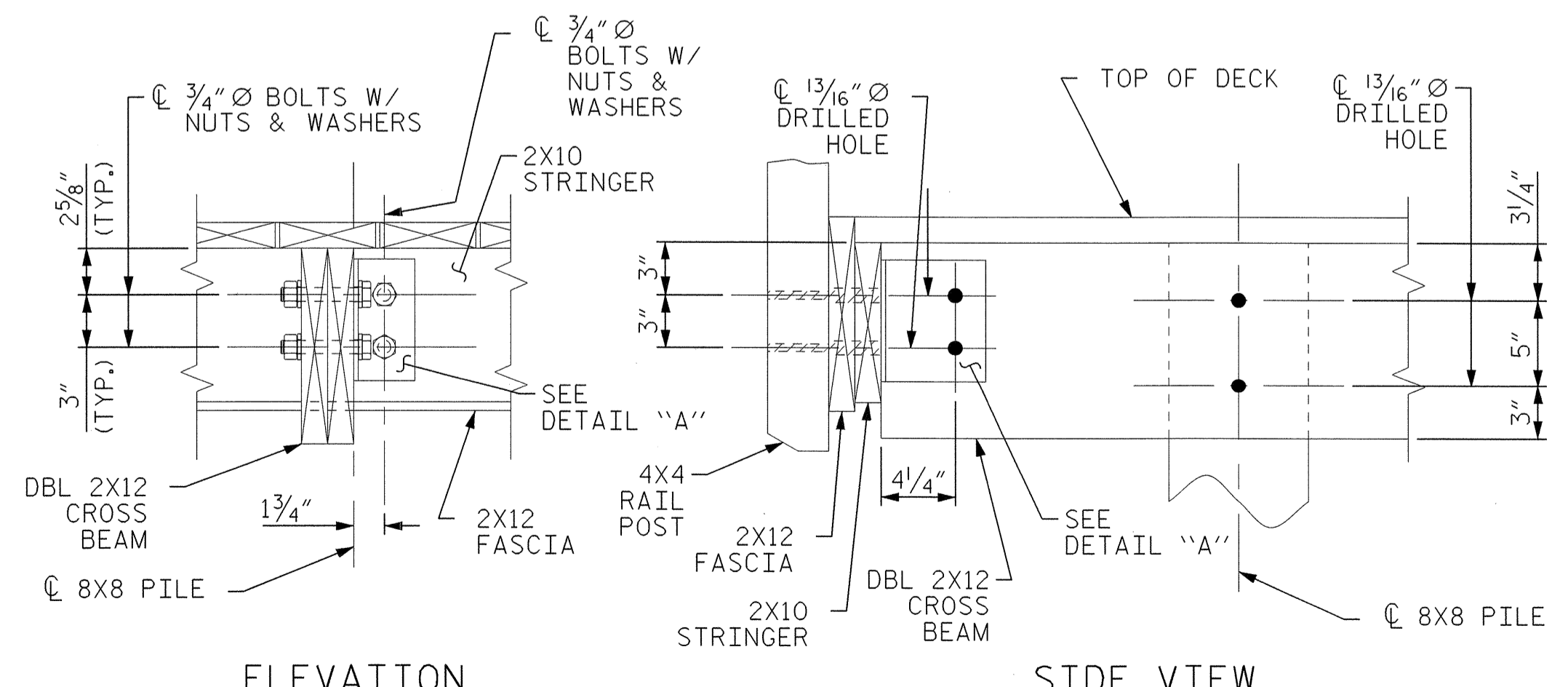
NOTE:  
PLACE SCREWS IN THE CENTER OF  
2X4 PICKETS AND 4X4 RAIL POST.

\* TYPICAL EXCEPT WHEN  
SPLICE IS NEEDED, SEE  
"SPLICE OF TOP RAIL  
BOARD".

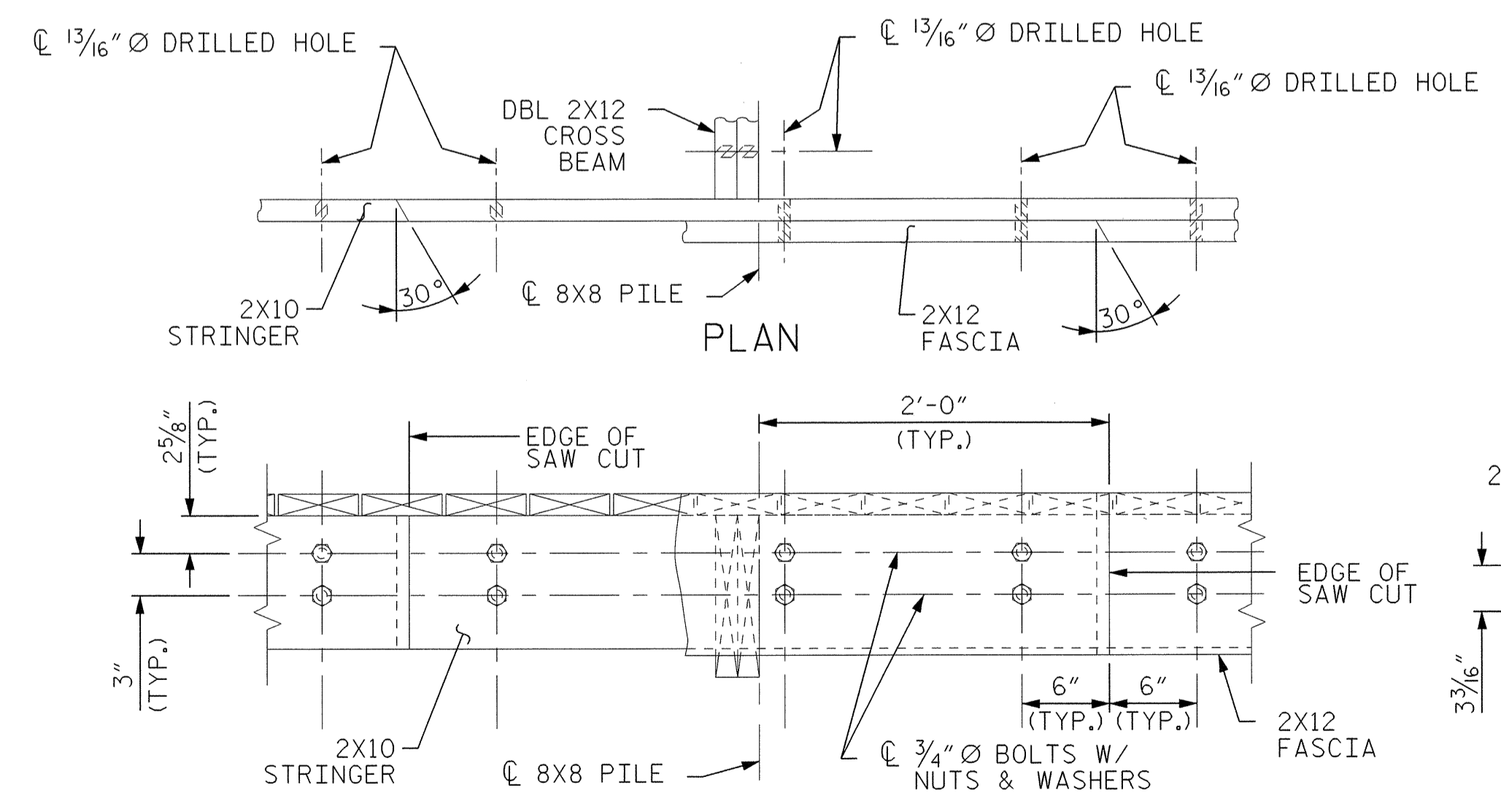
**TYPICAL RAIL CONNECTION DETAIL**



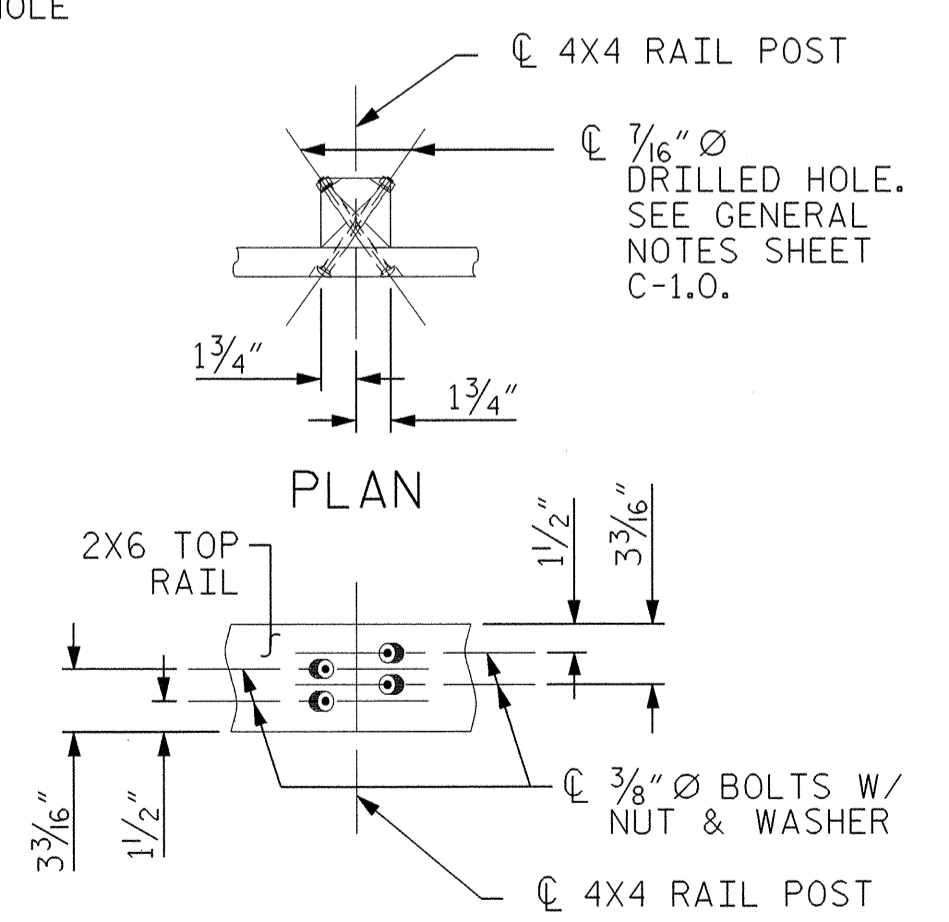
**8X8 PILE**



**LOCATION OF 1 3/16" Ø HOLES  
AT 4X4 RAIL POST & 8X8 PILE**



**SPLICE OF FASCIA  
AND STRINGER**

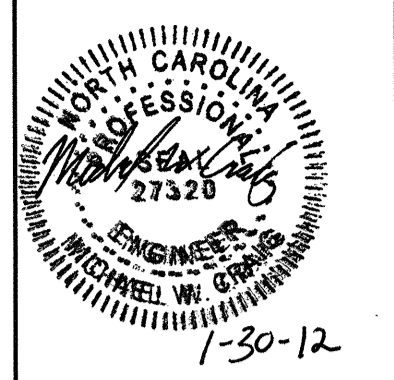


**SPLICE OF TOP  
RAIL BOARD**

**TYPICAL SPLICES**

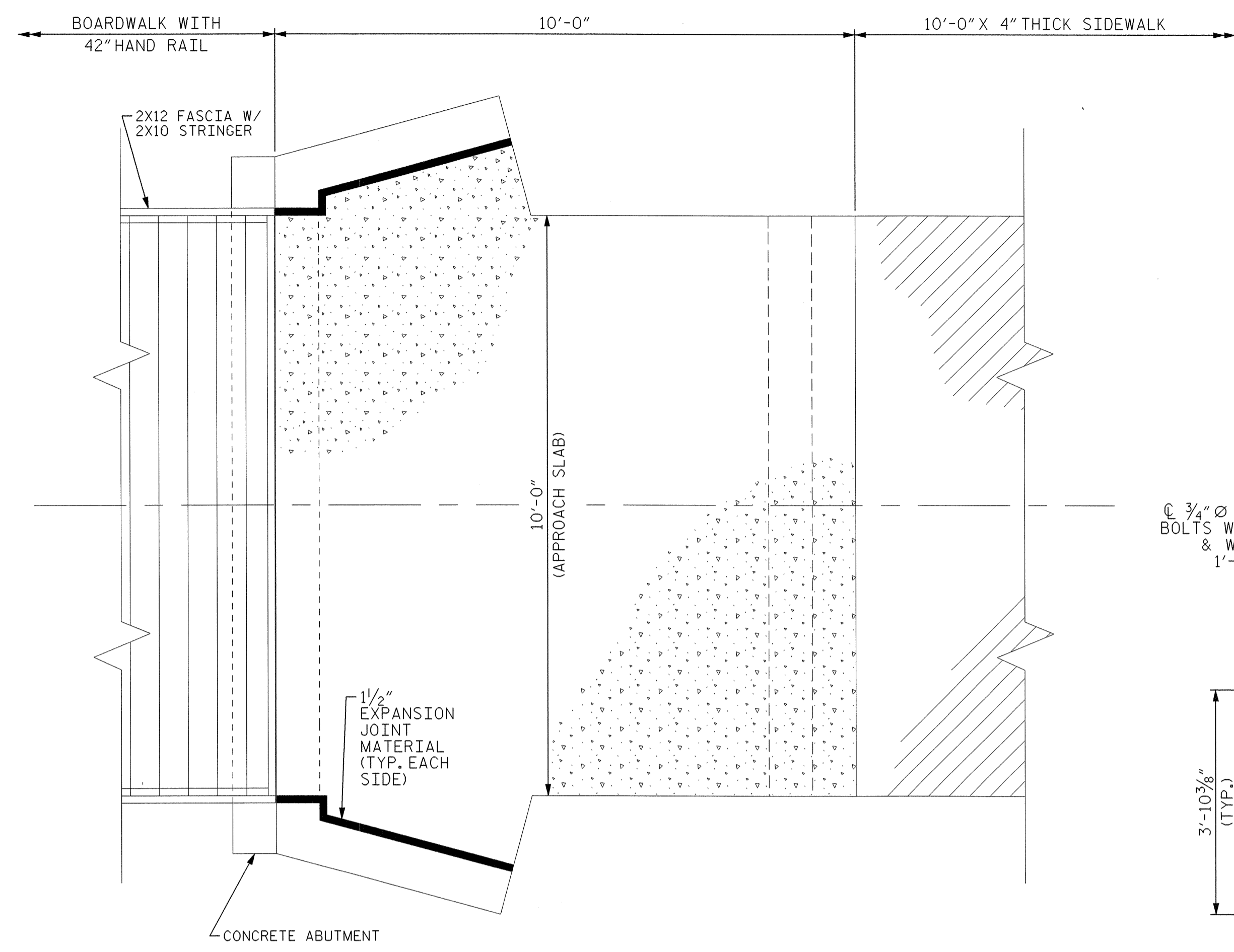
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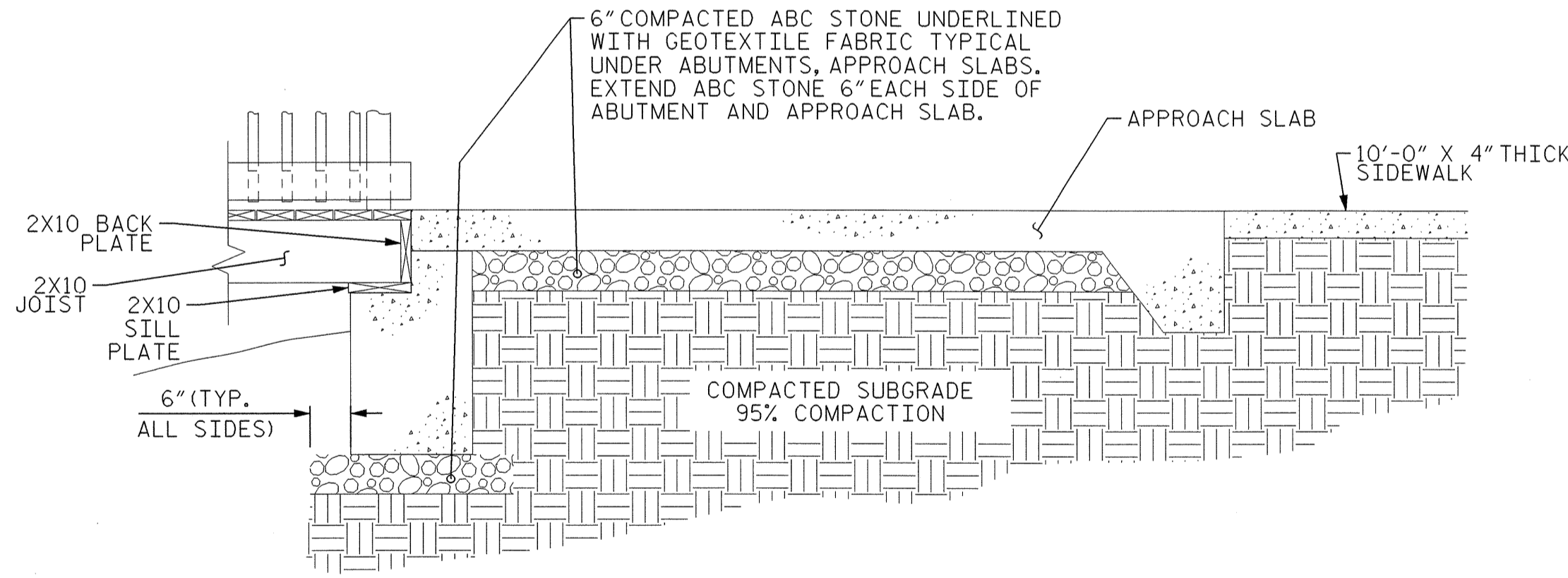


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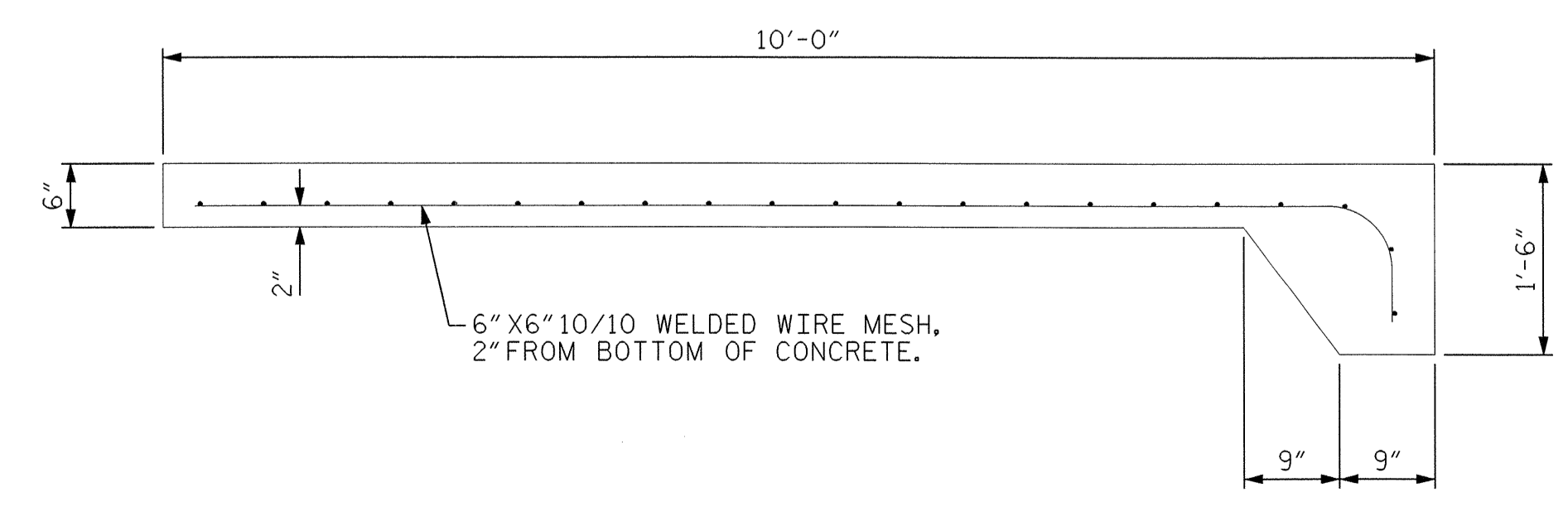
REFERENCES:  
 FOR GENERAL NOTES, SEE SHEET 2A.  
 FOR BILL OF MATERIAL AND BAR TYPES, SEE SHEET 2E.



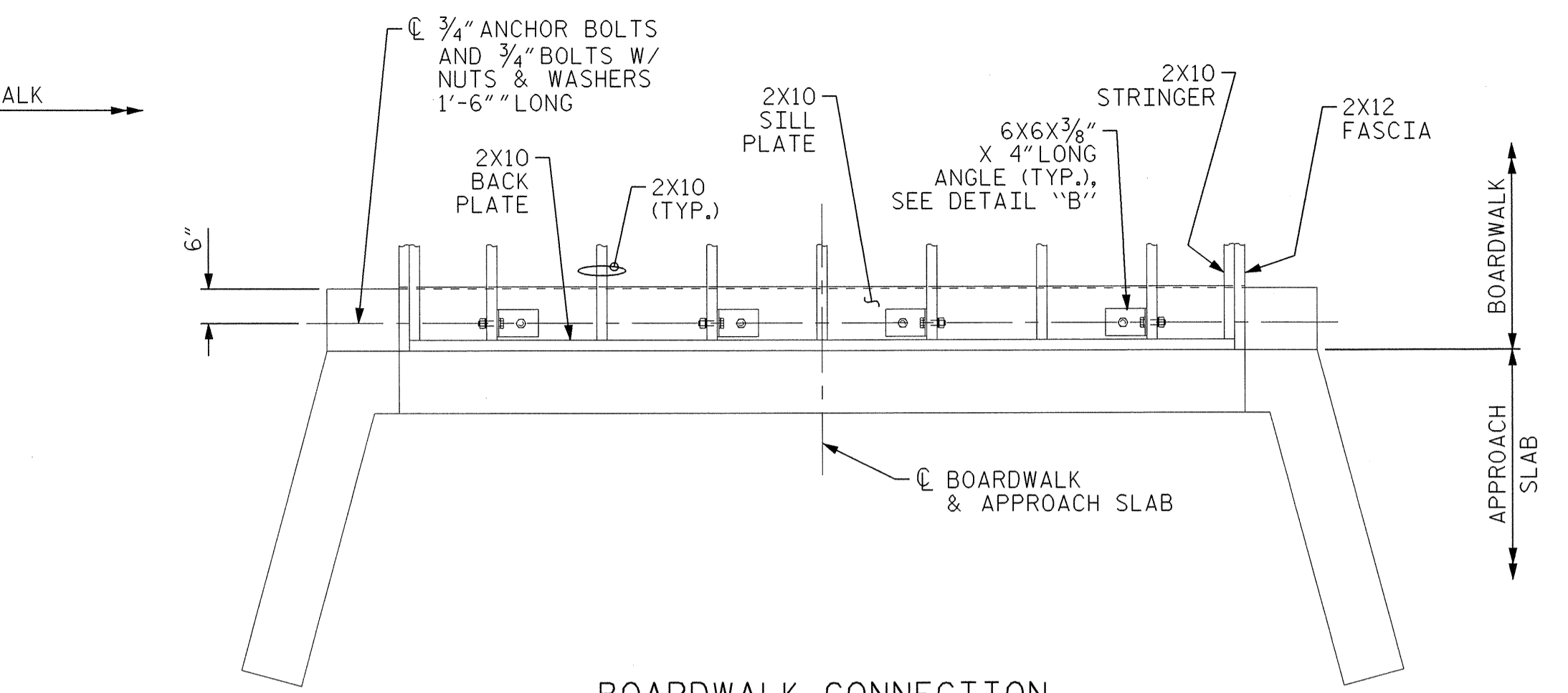
TYPICAL APPROACH SLAB PLAN



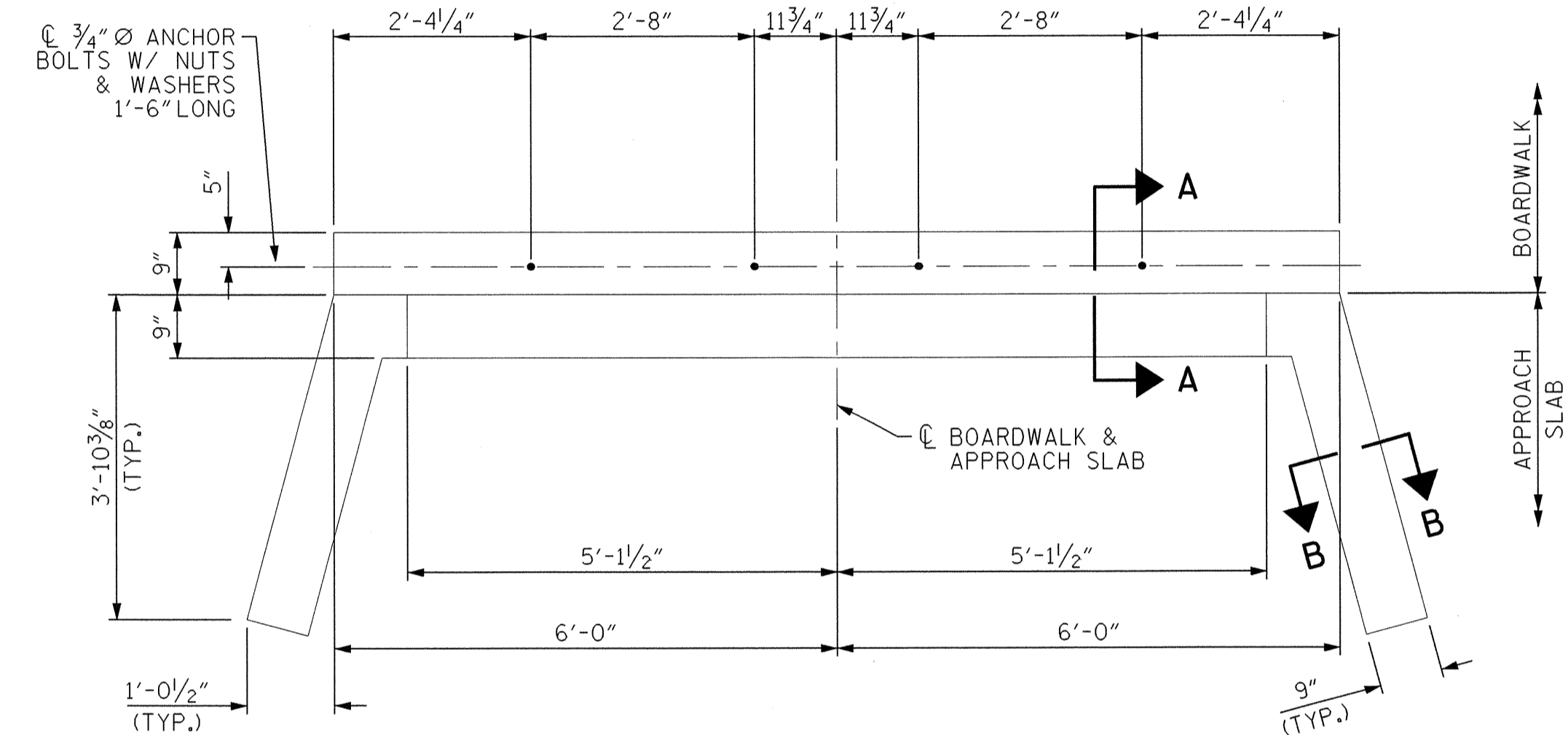
SECTION ALONG C-C



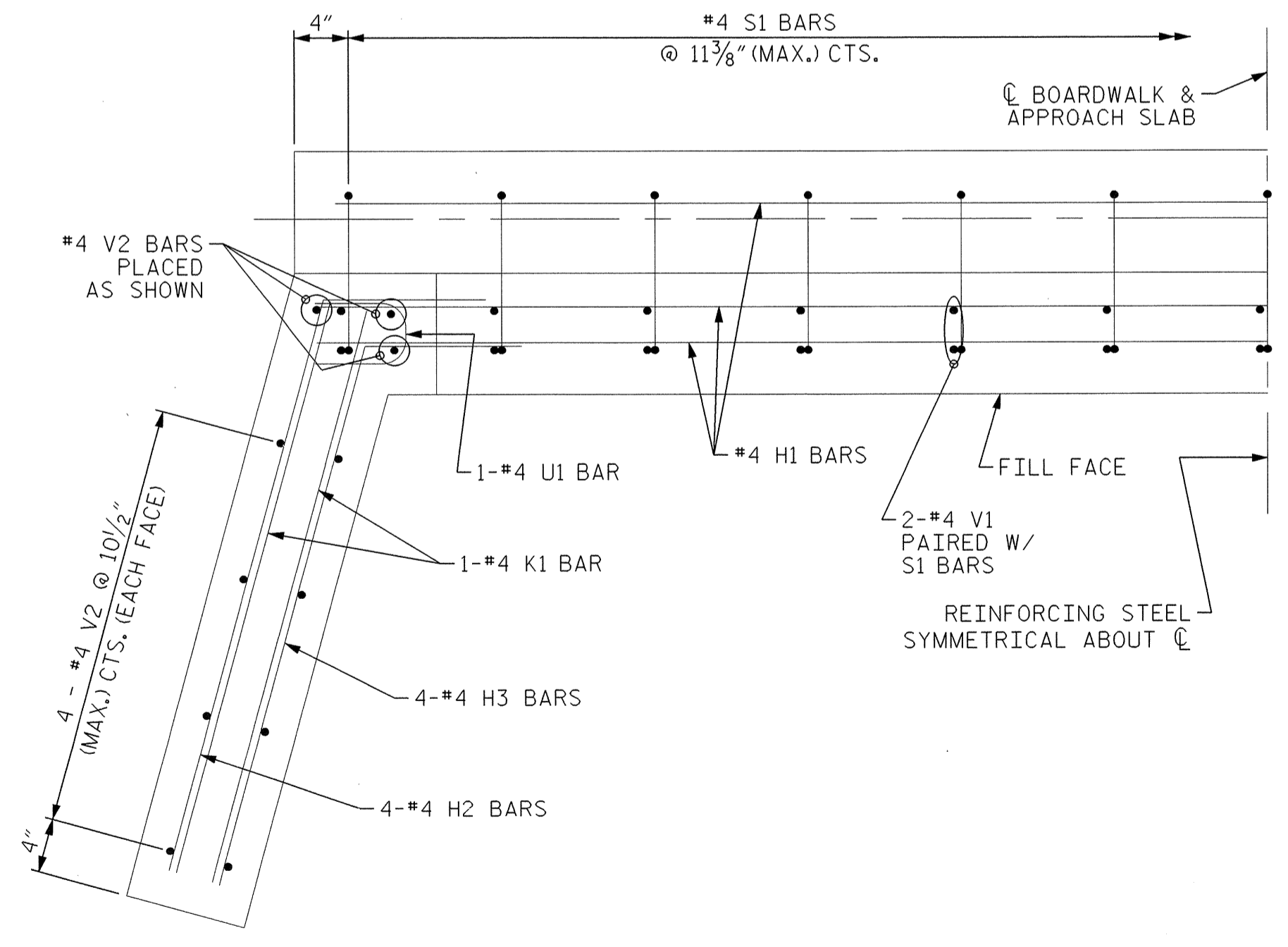
APPROACH SLAB SECTION ALONG C-C



BOARDWALK CONNECTION

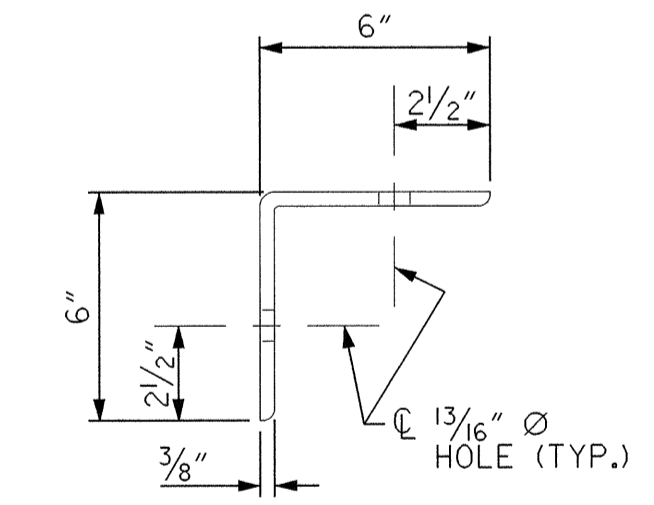


TOP VIEW



REINFORCEMENT PLAN

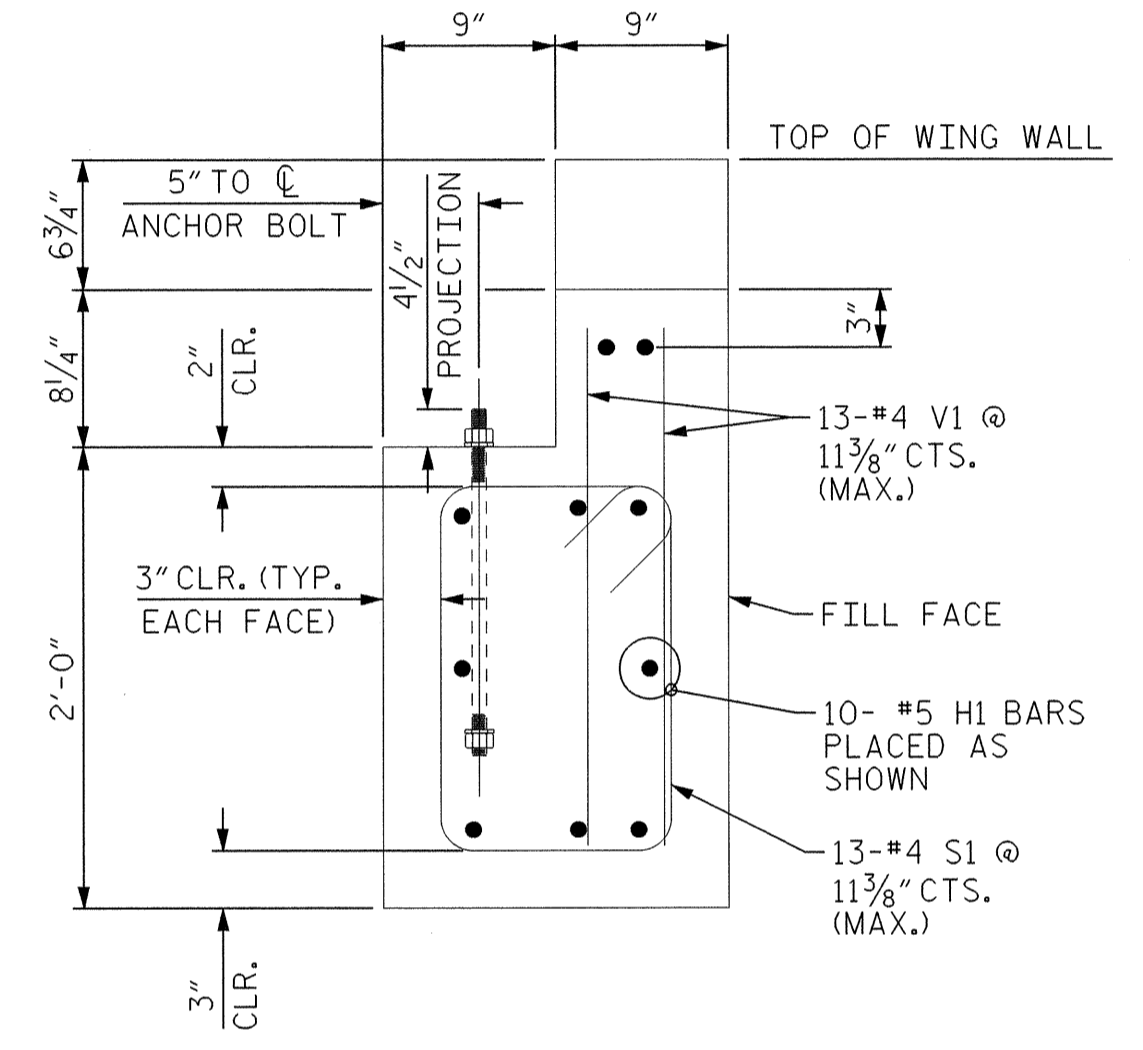
PLAN VIEW OF CONCRETE ABUTMENT



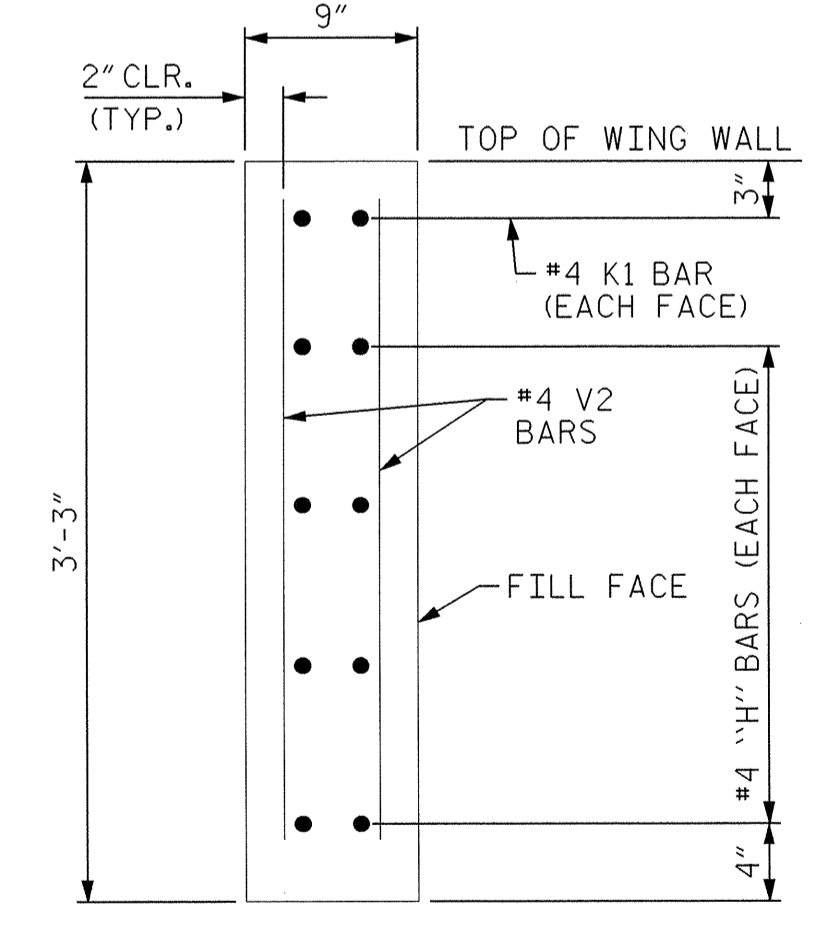
PLAN

ELEVATION

DETAIL "B"  
 6 X 6 X 3/8" X 4" LONG  
 ANGLE BRACKET FOR ANCHOR BOLTS AT ABUTMENT

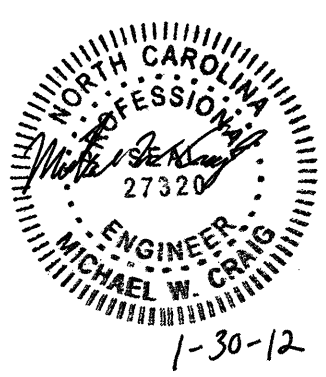


SECTION A-A



SECTION B-B

06-JAN-2012 10:20 \\WSP\B-4697\_Approach Slab\_2D.dgn  
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 6/2/99



REFERENCES:  
 FOR GENERAL NOTES, SEE SHEET 2A.  
 FOR BAR TYPES, SEE SHEET 2D.

### BILL OF MATERIAL

LUMBER				REINFORCING STEEL					
TYPE	NO.	LENGTH	LINEAR FEET	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
2 X 4 PICKETS	666	3'-3"	2,165	H1	10	#5	STR	11'-6"	120
4 X 4 RAIL POST	36	4'-6"	162	H2	8	#4	3	4'-8"	25
8 X 8 PILE	32	20'-0"	640	H3	8	#4	3	4'-6"	24
2 X 6 HAND RAIL	17	16'-0"	272						
2 X 6 TOP RAIL	17	16'-0"	272	K1	4	#4	STR	3'-8"	10
2 X 6 BOTTOM RAIL	17	16'-0"	272						
2 X 10 STRINGER	17	20'-0"	340	S1	13	#4	1	5'-11"	51
2 X 10 JOIST	119	8'-0"	952						
2 X 12 FSCIA	17	20'-0"	340	U1	2	#4	2	1'-7"	2
2 X 12 CROSS BEAM	32	10'-0"	320						
2 X 6 DECKING	275	10'-0"	2,750	V1	26	#4	STR	2'-3"	39
				V2	22	#4	STR	2'-10"	42

### CONNECTIONS

BOLTS AND ROD	NO.	TYPE	WEIGHT
3/8" Ø X 6" W/ NUT & WASHER	108	CARRIAGE	23 LBS
3/4" Ø X 14" W/ NUT & WASHERS	40	HEAVY DUTY	86 LBS
3/4" Ø X 11" W/ NUT & WASHERS	136	HEAVY DUTY	247 LBS
3/4" Ø X 5" W/ NUT & WASHERS	72	HEAVY DUTY	82 LBS
3/4" Ø THREADED ROD X 1'-6" W/ NUTS & WASHER	4	ANCHOR	10 LBS

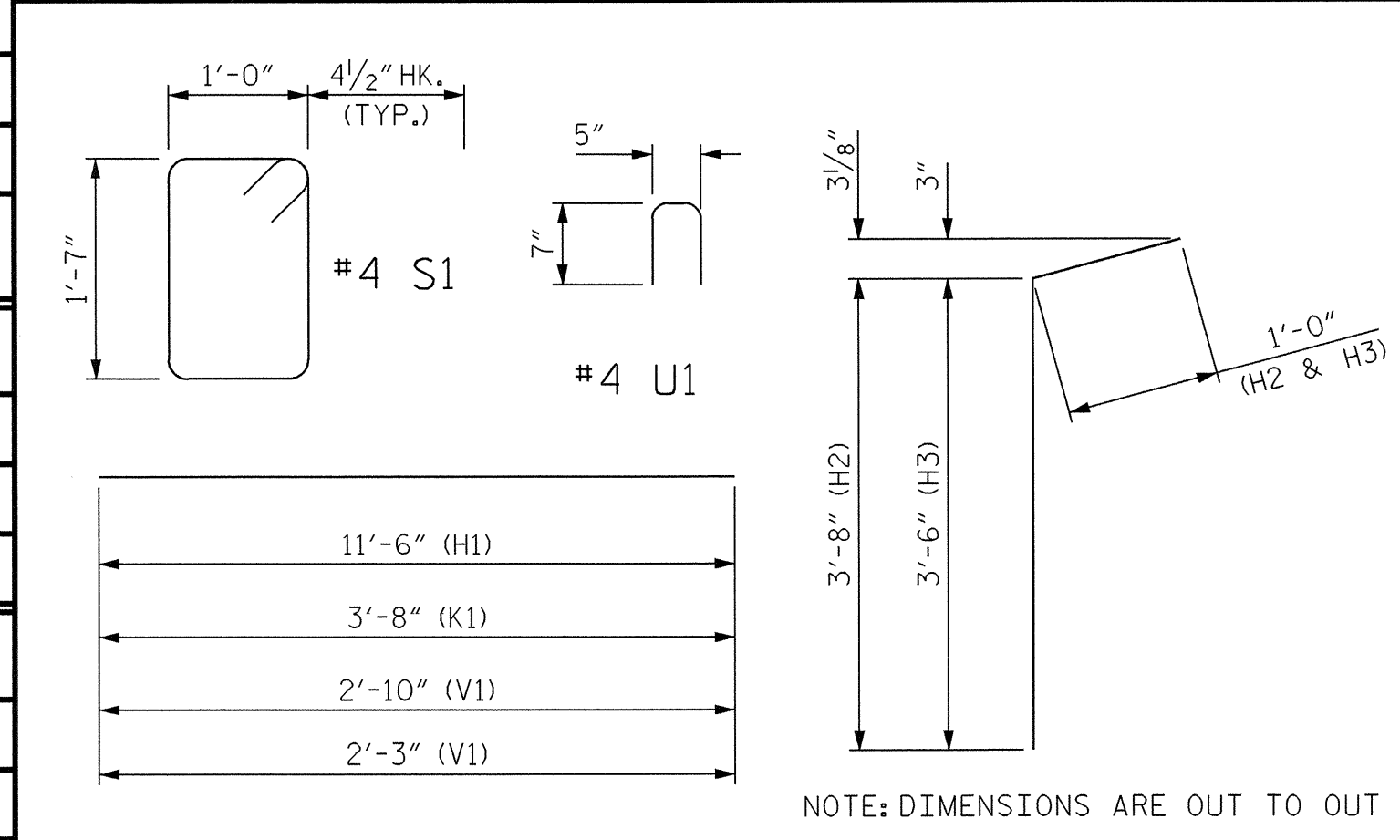
HANGERS AND ANGLES	NO.	TYPE	WEIGHT
HGUS28 OR EQUIVALENT	238	HANGERS	N/A
6 X 3 1/2 X 3/8" X 7" LONG	36	ANGLES	246 LBS
6 X 6 X 3/8" X 4" LONG	4	ANGLES	20 LBS

NAILS AND SCREWS	NO.	TYPE	WEIGHT
10d	3,750	NAILS	54 LBS
3/2" X 4" LONG	10,000	SCREWS	200 LBS

TOTAL LBS. 313

### BAR TYPES

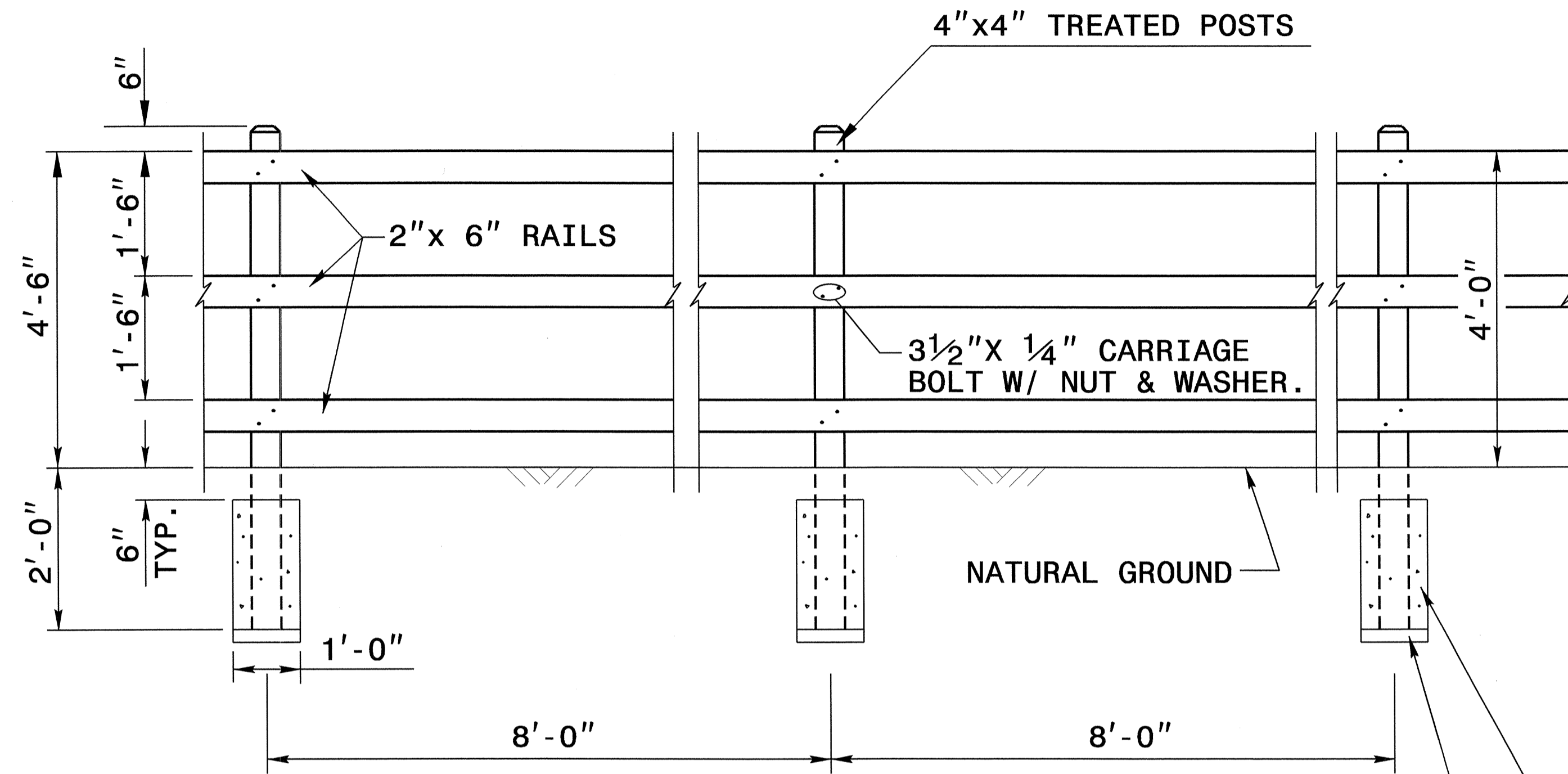


### CONCRETE

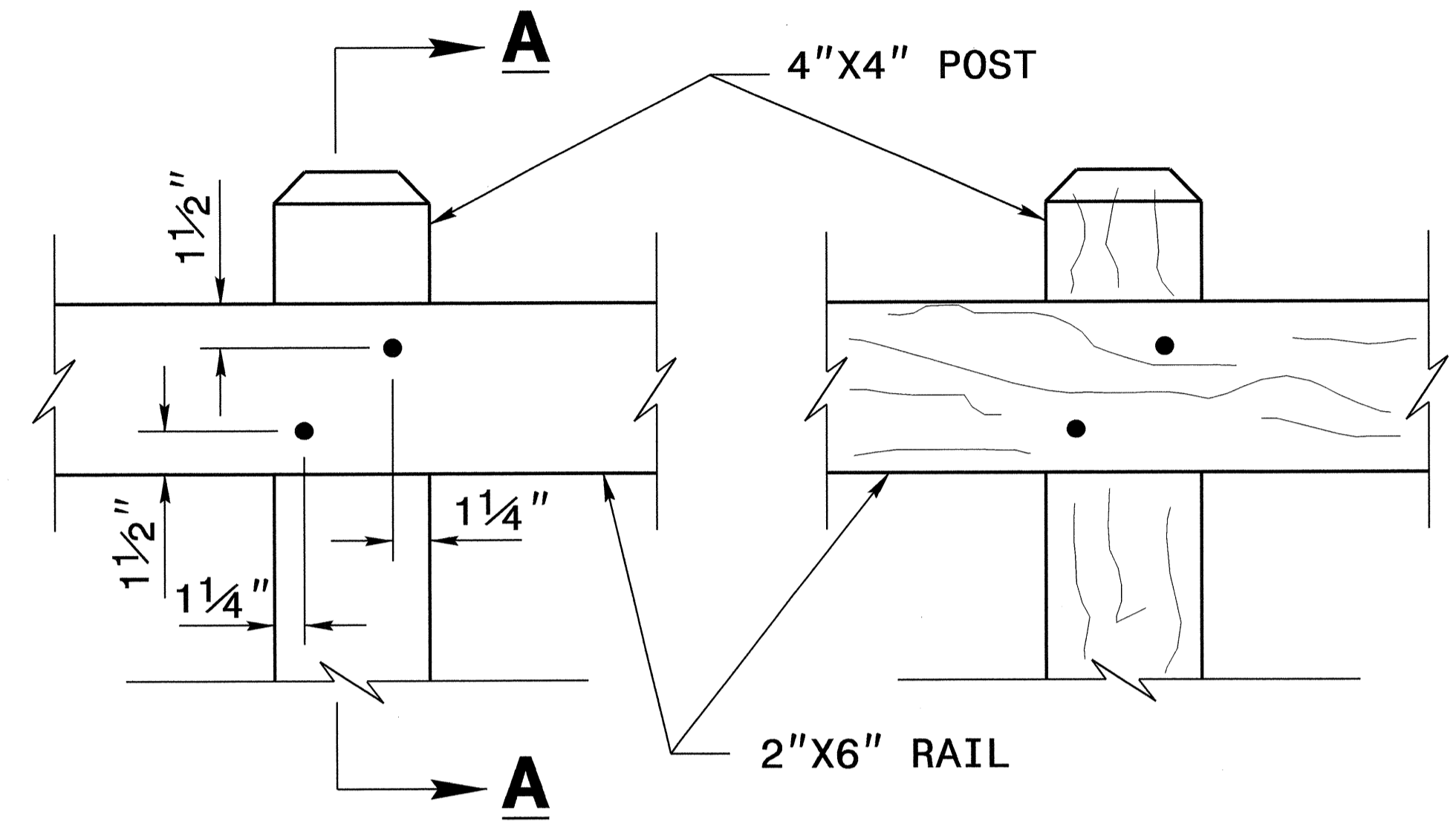
ABUTMENT	CU. YDS.	2.2
APPROACH SLAB	CU. YDS.	2.3

6/27/99

20 JAN 2012 10:30 WSP\B-4697-Bill of Material2E.dgn

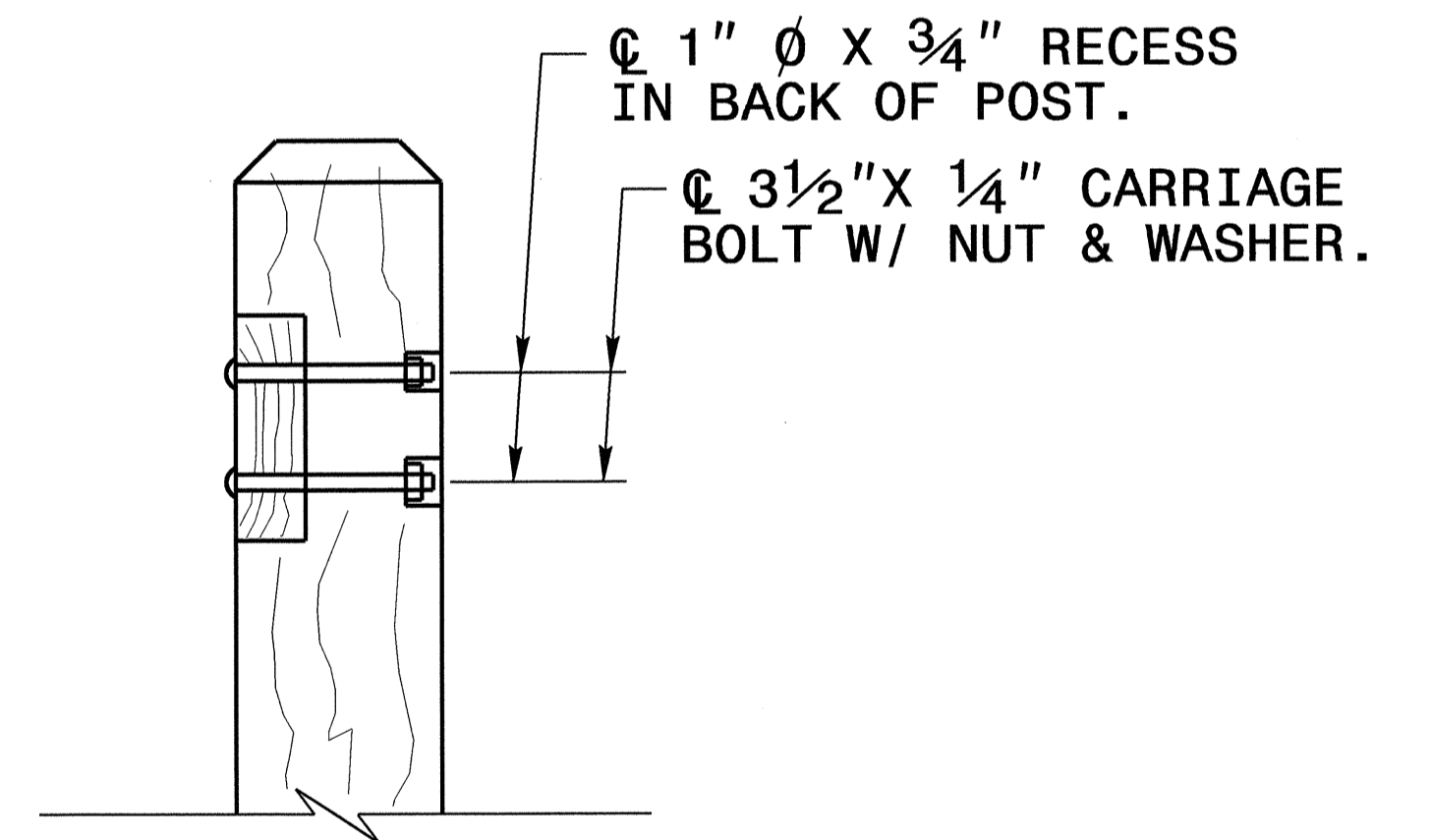


**ELEVATION VIEW**



**CONNECTION DETAILS**

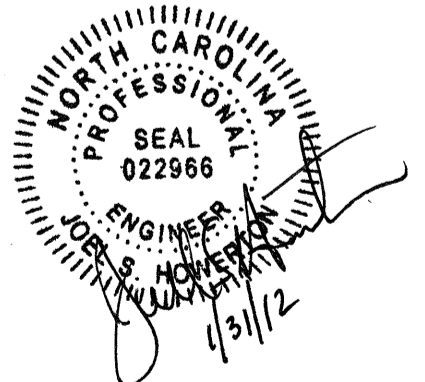
1'-0"  $\phi$  HOLES TO BE FILLED WITH CONCRETE MIX AROUND POSTS.  
2" COMPACTED SAND OR STONE (TYP)



**SECTION A-A**

**GENERAL NOTES:**

- ALL TREATED LUMBER FOR THE SAFETY RAIL & POSTS SHALL MEET THE REQUIREMENTS OF SECTION 1082 OF THE NCDOT STANDARD SPECIFICATIONS.
- ALL SCREWS, BOLTS, NUTS AND WASHERS ARE TO BE HOT DIPPED GALVANIZED.
- CONCRETE FOR POST FOOTINGS AND END BLOCKS ARE TO BE FIELD VERIFIED.
- DEVIATIONS FROM PLAN DIMENSIONS ARE TO BE APPROVED BY THE ENGINEER.

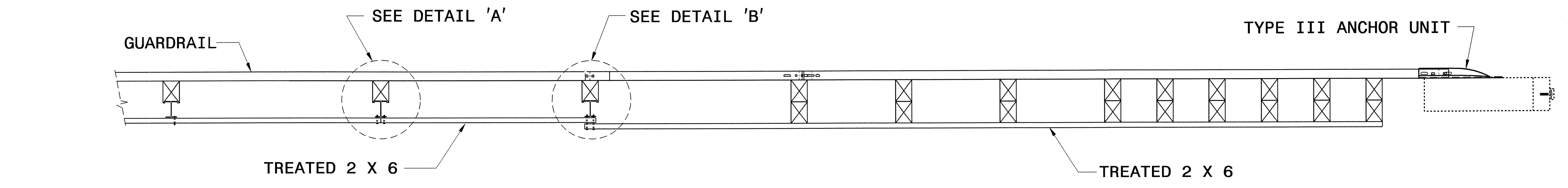


CONTRACT STANDARDS & DEVELOPMENT UNIT  
STANDARDS AND SPECIAL DESIGN  
Office 919-250-4128 FAX 919-250-4119

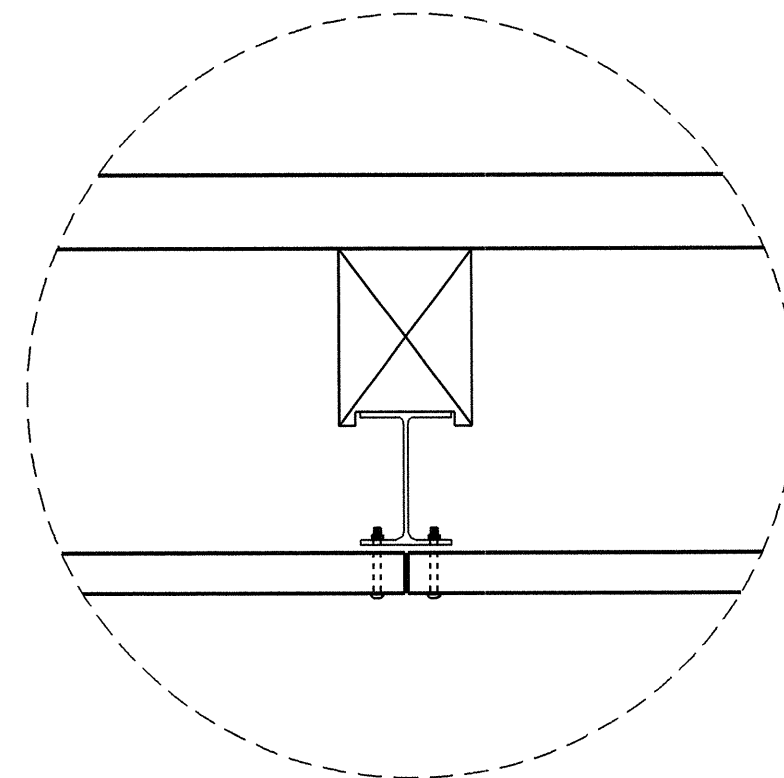
**TYPICAL SAFETY RAIL**

ORIGINAL BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 MODIFIED BY: rnbritt DATE: 02-18-11  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 FILE SPEC.: details/nbritt/english/misc/safetyrail.dgn

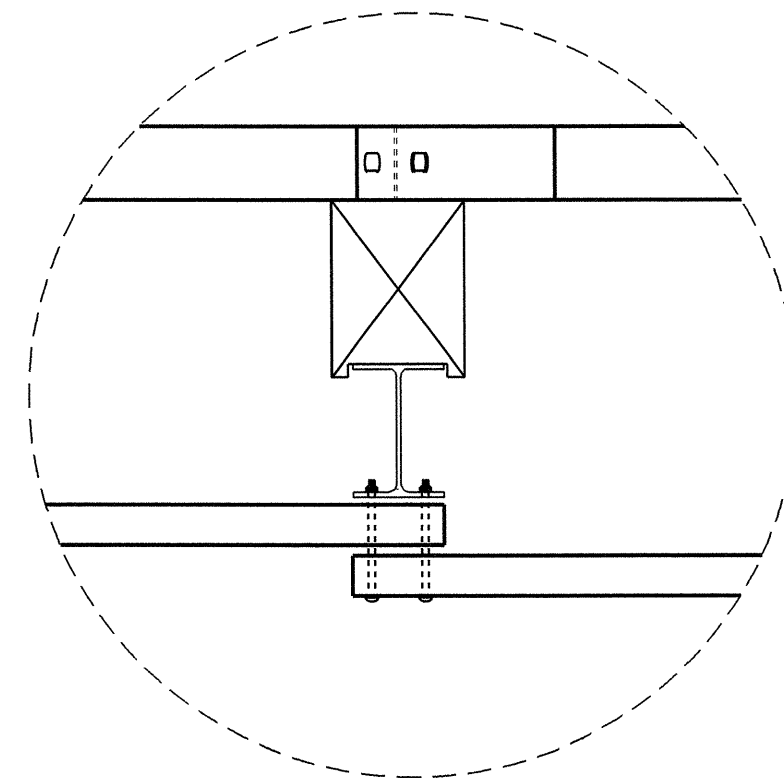




### PLAN

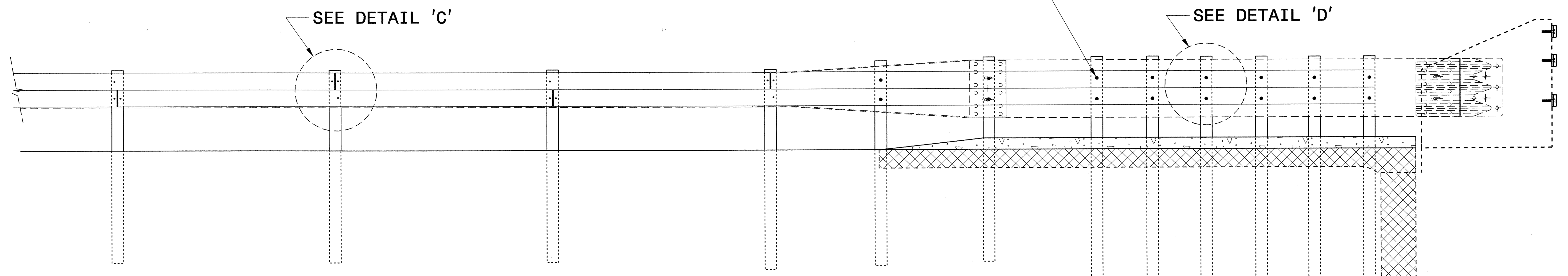


**DETAIL 'A'**

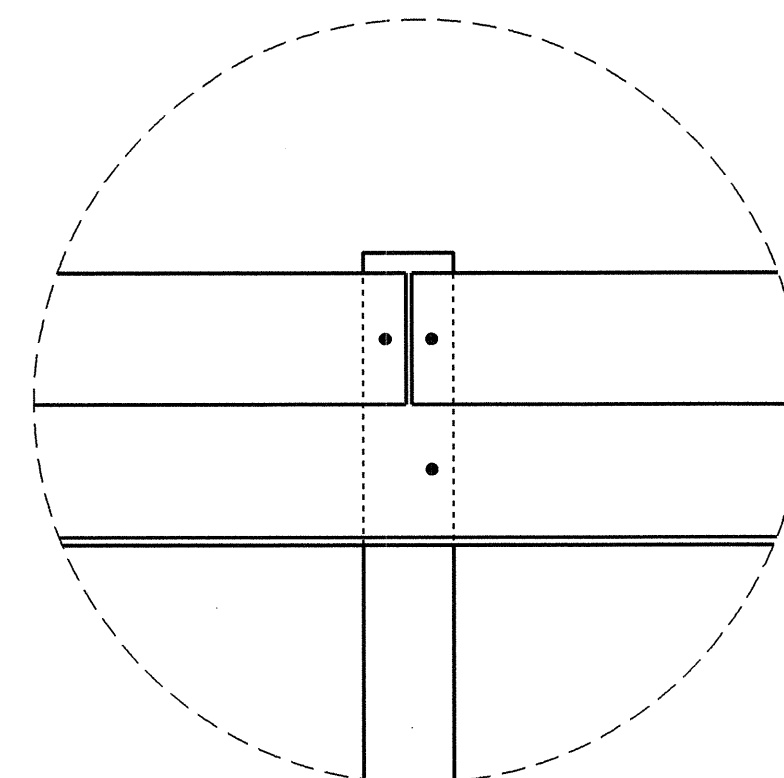


**DETAIL 'B'**

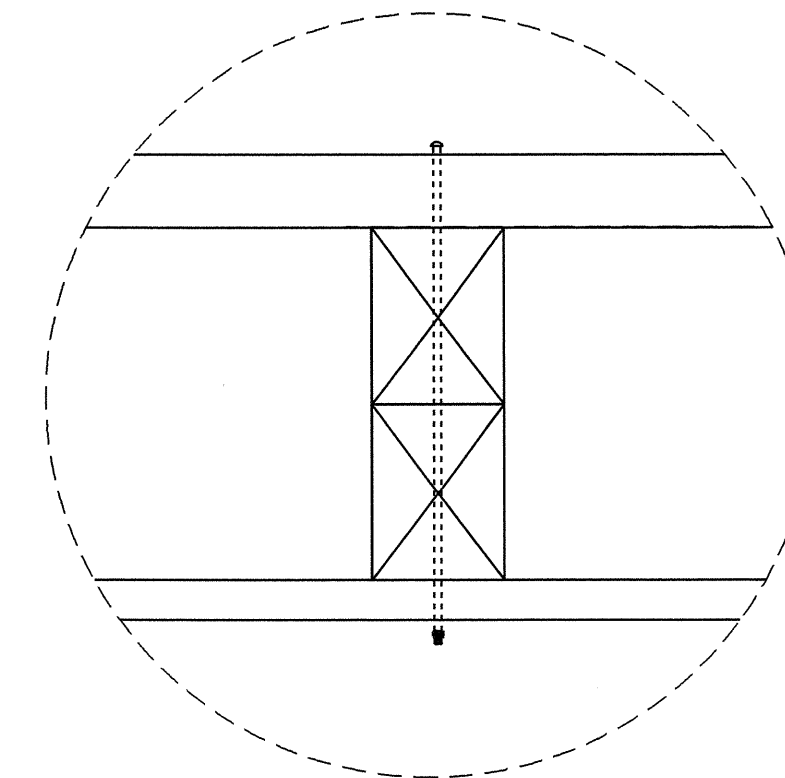
USE BOLTS AND NUTS FROM TYPE III ANCHOR UNIT TO FASTEN 2 X 6 WOOD RAILS TO THE WOOD POSTS - BOLTS MAY NEED TO BE LENGTHENED TO ACCOMMODATE FOR THE 2 X 6 WOOD RAILS.



### ELEVATION



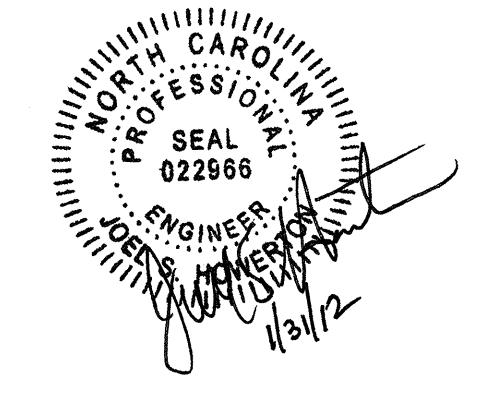
**DETAIL 'C'**



**DETAIL 'D'**

**NOTES:**

1. USE #2 SYP TREATED 2 X 6 FOR WOOD RAIL.
2. USE GUARDRAIL BOLTS TO FASTEN WOOD RAIL TO GUARDRAIL POSTS. SEE ROADWAY STD.NO.862.02.
3. THE MOUNTING HEIGHT OF THE WOODRAIL TO BE DETERMINED IN THE FIELD.
4. PLACE THE TREATED 2 X 6 WOODRAIL AS DIRECTED BY THE ENGINEER.



CONTRACT STANDARDS AND DEVELOPMENT UNIT PLANS AND STANDARDS SECTION Office 919-707-6950 FAX 919-250-4119	
<b>DETAIL OF WOOD RUB RAIL</b>	
ORIGINAL BY: STD.062	DATE: 1-25-12
MODIFIED BY: <i>Jessie</i>	DATE: 1/30/12
CHECKED BY: <i>Jessie</i>	DATE: 1/30/12
FILE SPEC.: 6:\psr\details\stand\boards_att2grposts_b4697.dgn	

30-JAN-2012 10:17  
C:\Users\jessie\Documents\Special Details\spell\spell\details\stand\boards\_att2grposts\_b4697.dgn  
\$\$\$USERNAME\$\$\$

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202813

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000900000-N	SP	Lump Sum		GENERIC MISCELLANEOUS ITEM BOARDWALK
002900000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (24+02.50)
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	300	CY	UNDERCUT EXCAVATION
006300000-N	SP	Lump Sum		GRADING
010600000-E	230	21,400	CY	BORROW EXCAVATION
013400000-E	240	820	CY	DRAINAGE DITCH EXCAVATION
019500000-E	265	300	CY	SELECT GRANULAR MATERIAL
019600000-E	270	400	SY	GEOTEXTILE FOR SOIL STABILIZATION
031800000-E	300	22	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
032000000-E	300	70	SY	FOUNDATION CONDITIONING GEOTEXTILE
033500000-E	305	24	LF	30" DRAINAGE PIPE
035400000-E	310	112	LF	*** RC PIPE CULVERTS, CLASS ***** (15", V)
058200000-E	310	68	LF	15" CS PIPE CULVERTS, 0.064" THICK
063600000-E	310	4	EA	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")
099500000-E	340	46	LF	PIPE REMOVAL
099600000-N	350	1	EA	PIPE CLEAN-OUT
122000000-E	545	100	TON	INCIDENTAL STONE BASE
148900000-E	610	1,170	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	970	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE B19.0B
151900000-E	610	710	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
157500000-E	620	145	TON	ASPHALT BINDER FOR PLANT MIX

SUMMARY OF QUANTITIES - B-4697

ItemNumber	Sec #	Quantity	Unit	Description
200000000-N	806	20	EA	RIGHT OF WAY MARKERS
202200000-E	815	22.4	CY	SUBDRAIN EXCAVATION
203300000-E	815	16.8	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
207000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
207700000-E	815	6	LF	6" OUTLET PIPE
228600000-N	840	4	EA	MASONRY DRAINAGE STRUCTURES
237400000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
237400000-N	840	2	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
237400000-N	840	1	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
254900000-E	846	650	LF	2'-6" CONCRETE CURB & GUTTER
259100000-E	848	580	SY	4" CONCRETE SIDEWALK
303000000-E	862	1,050	LF	STEEL BM GUARDRAIL
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
327000000-N	SP	6	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
357500000-E	SP	500	LF	GENERIC FENCING ITEM SAFETY RAIL
363500000-E	876	310	TON	RIP RAP, CLASS II
364900000-E	876	500	TON	RIP RAP, CLASS B
365600000-E	876	3,580	SY	GEOTEXTILE FOR DRAINAGE
407200000-E	903	93	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
409600000-N	904	2	EA	SIGN ERECTION, TYPE D
410200000-N	904	2	EA	SIGN ERECTION, TYPE E
415500000-N	907	9	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
440000000-E	1110	487	SF	WORK ZONE SIGNS (STATIONARY)

ItemNumber	Sec #	Quantity	Unit	Description
441000000-E	1110	88	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
444500000-E	1145	104	LF	BARRICADES (TYPE III)
468500000-E	1205	1,853	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	2,540	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
477000000-E	1205	840	LF	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (II)
490000000-N	1251	16	EA	PERMANENT RAISED PAVEMENT MARKERS
600000000-E	1605	3,000	LF	TEMPORARY SILT FENCE
600600000-E	1610	225	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	400	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	685	TON	SEDIMENT CONTROL STONE
601500000-E	1615	5	ACR	TEMPORARY MULCHING
601800000-E	1620	200	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	1.75	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	500	LF	TEMPORARY SLOPE DRAINS
602900000-E	SP	1,100	LF	SAFETY FENCE
603000000-E	1630	710	CY	SILT EXCAVATION
603600000-E	1631	6,000	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	20	SY	COIR FIBER MAT
603800000-E	SP	30	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	680	LF	1/4" HARDWARE CLOTH
604800000-E	SP	175	SY	FLOATING TURBIDITY CURTAIN
607000000-N	1639	18	EA	SPECIAL STILLING BASINS
6071010000-E	SP	200	LF	WATTLE
6071020000-E	SP	60	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	255	LF	COIR FIBER BAFFLE

ItemNumber	Sec #	Quantity	Unit	Description
6071050000-E	SP	2	EA	*** SKIMMER (1-1/2")
608400000-E	1660	5	ACR	SEEDING & MULCHING
608700000-E	1660	3	ACR	MOWING
609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	150	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	4.25	TON	FERTILIZER TOPDRESSING
611450000-N	1667	10	MHR	SPECIALIZED HAND MOWING
611700000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
612300000-E	1670	0.25	ACR	REFORESTATION
613500000-E	SP	2	ACR	GENERIC EROSION CONTROL ITEM COMPOST BLANKET

COMPUTED BY: HLE DATE: 1/19/2012  
 CHECKED BY: CSM DATE: 1/19/2012

PROJECT NO. SHEET NO.  
 B-4697 3-A

RD238343

### STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

#### SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL & BREAK-UP

LINE	Station	Station	LOC LT/RT/CL	ASPHALT REMOVAL SY	ASPHALT BREAK UP SY
-L-	15+50.00	18+25.00	CL	744.2	
-L-	18+25.00	23+36.27	CL		1410.7
-L-			CL		1139.7
-L-	24+05.27	31+00.00	CL	779.0	
<b>TOTAL:</b>				<b>1523.2</b>	<b>2550.4</b>
<b>SAY</b>				<b>1525.0</b>	<b>2555.0</b>

#### SUMMARY OF SAFETY RAIL

LINE	Station	Station	LOC LT/RT/CL	LENGTH L. F.	4" POST EA
-L-	19+50.00	22+36.00	RT	286.0	36.0
-L-	25+64.00	27+77.00	RT	213.0	27.0
<b>TOTAL:</b>				<b>499.0</b>	<b>63.0</b>
<b>SAY</b>				<b>500.0</b>	

#### SUMMARY OF EARTHWORK

(IN CUBIC YARDS)

LINE	Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L-	15+50.00	22+75.00	510	11321	10811	0
<b>SUBTOTALS: NO 1</b>			<b>510</b>	<b>11321</b>	<b>10811</b>	<b>0</b>
-L-	25+25.00	31+00.00	98	9185	9087	0
-GRNWAY-	10+30.00	11+10.00	140	139	0	1
<b>SUBTOTALS: NO 2</b>			<b>238</b>	<b>9324</b>	<b>9087</b>	<b>1</b>
<b>PROJECT SUBTOTALS:</b>			<b>748</b>	<b>20645</b>	<b>19898</b>	<b>1</b>
LOSS DUE TO CLEAR, GRUB.			0		0	
SHOULDER CONSTRUCTION				450	450	
WASTE IN LIEU OF BORROW					-1	-1
<b>PROJECT TOTALS:</b>			<b>748</b>	<b>21095</b>	<b>20347</b>	<b>0</b>
REPLACE TOP SOIL BORROW PITS					1018	
<b>GRAND TOTALS:</b>			<b>748</b>		<b>21365</b>	
<b>SAY:</b>			<b>800</b>		<b>21400</b>	

DRAINAGE DITCH EXCAVATION = 820 CUBIC YARDS  
 UNDERCUT EXCAVATION = 300 CUBIC YARDS  
 SELECT GRANULAR MATERIAL = 300 CUBIC YARDS

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT.  
 THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA  
 PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION,  
 FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT,  
 AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT  
 LUMP SUM PRICE FOR "GRADING"





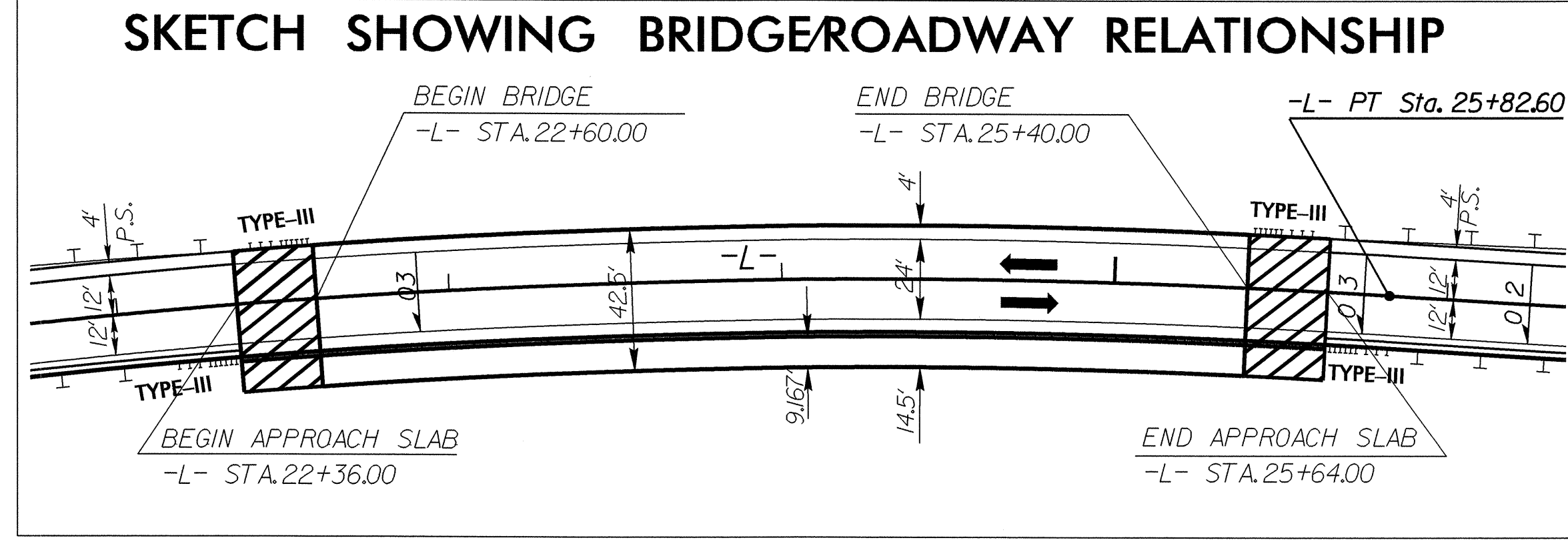
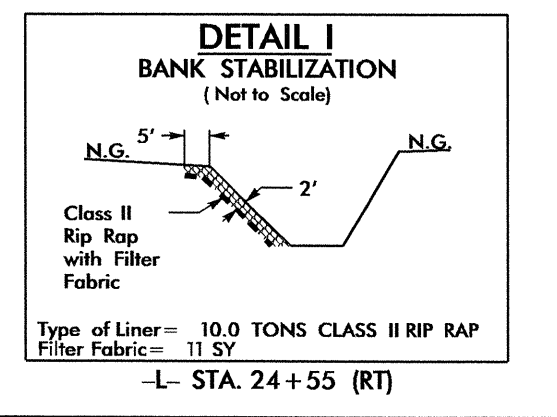
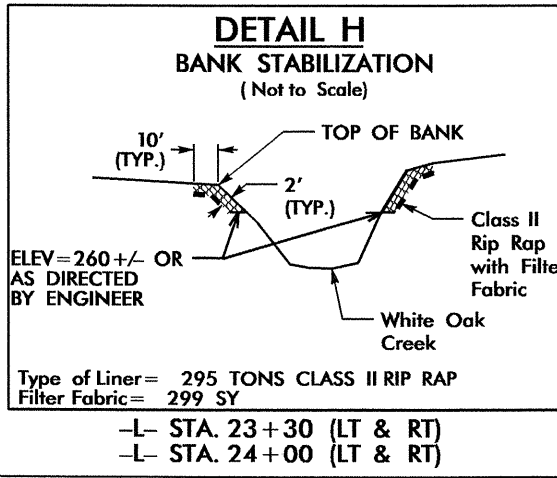
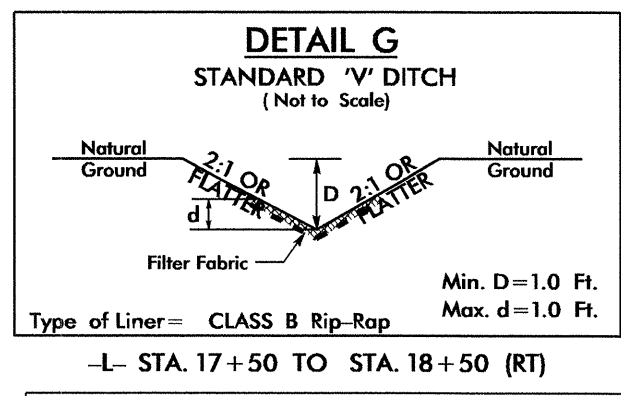
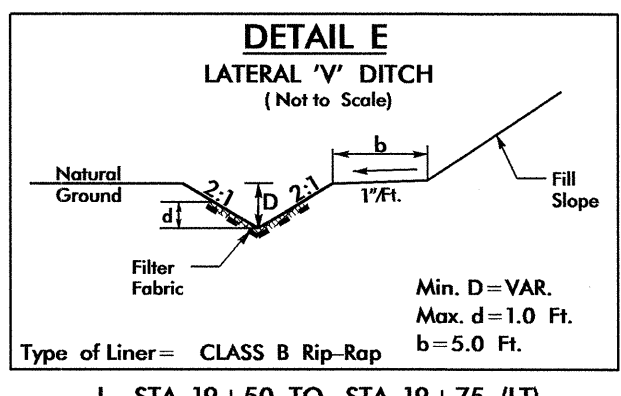
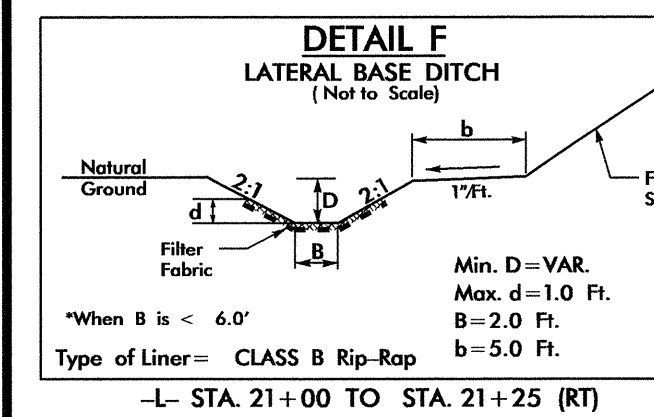
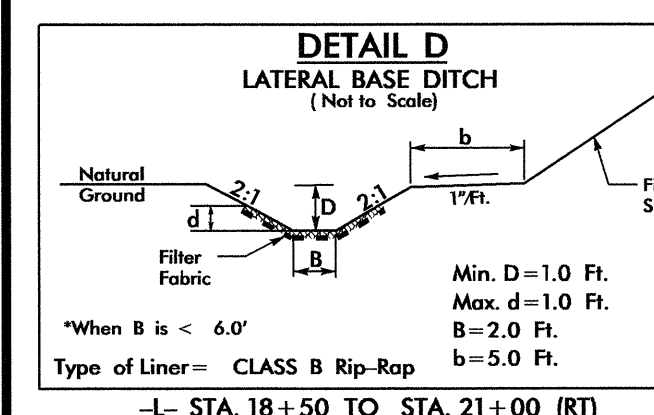
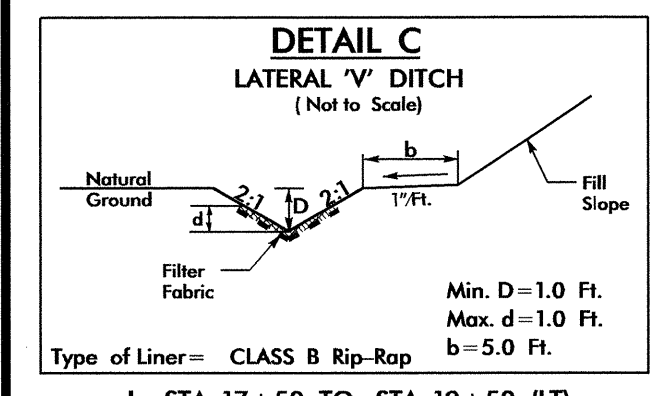
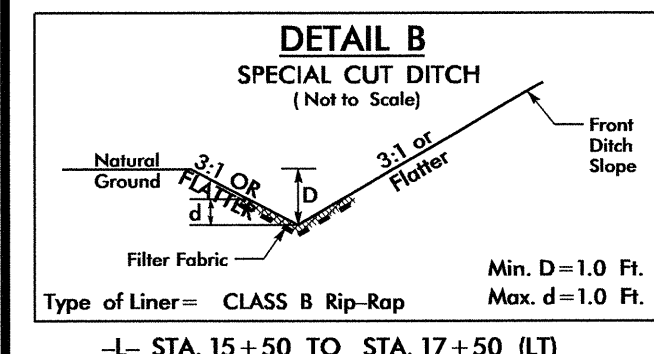
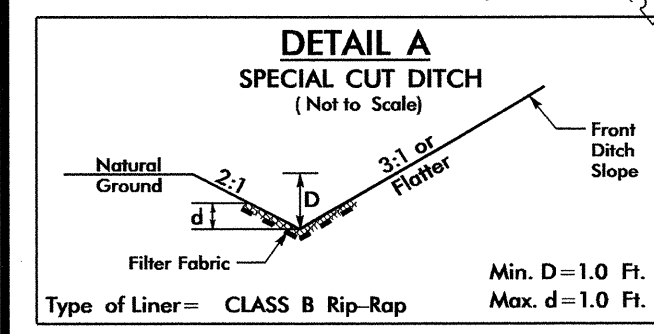
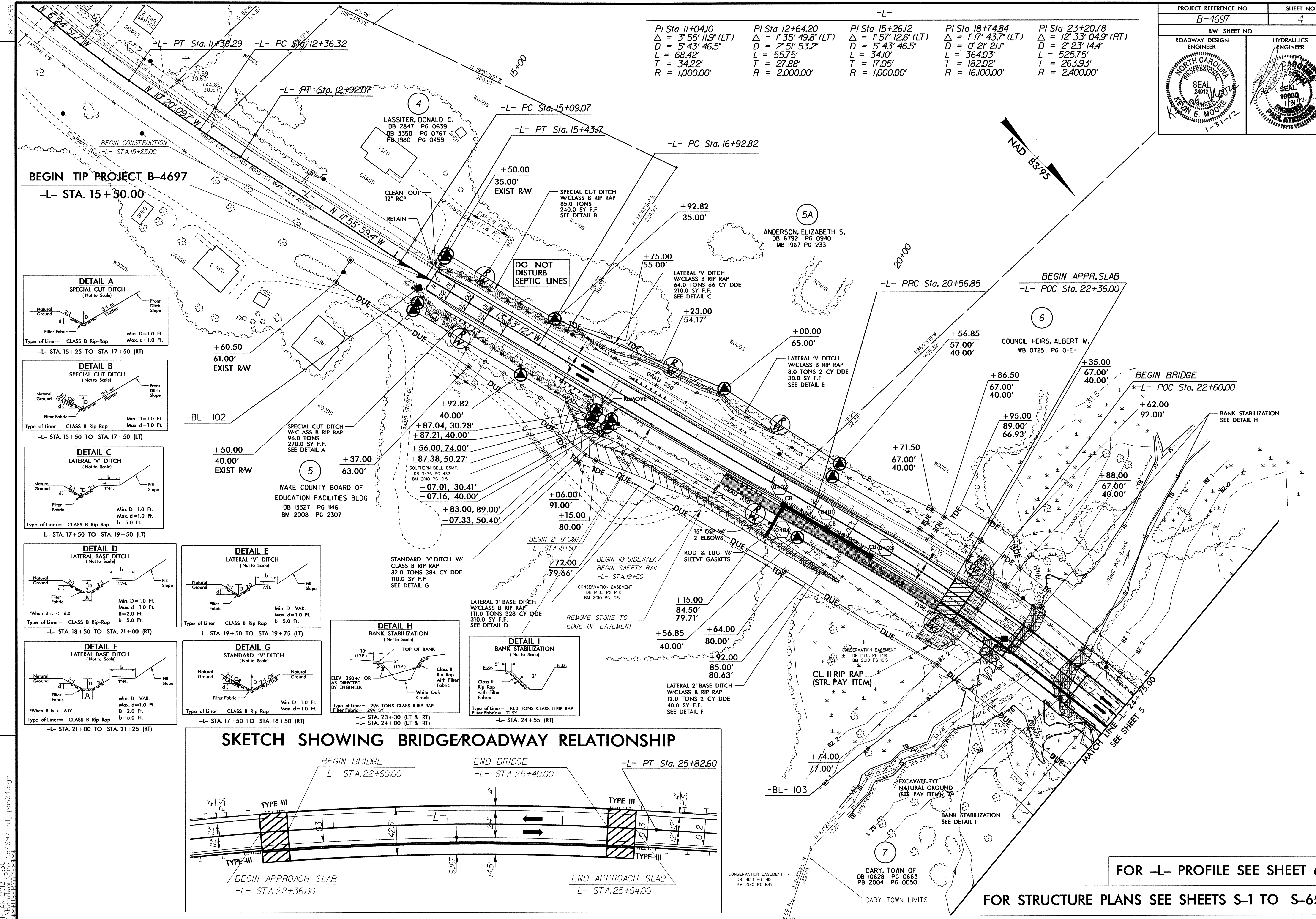








<b>PI Sta 11+04.10</b> $\Delta = 3'55''11.9''$ (LT) $D = 5'43''46.5''$ $L = 68.42'$ $T = 34.22'$ $R = 1,000.00'$	<b>PI Sta 12+64.20</b> $\Delta = 1'35''49.8''$ (LT) $D = 2'51''53.2''$ $L = 55.75'$ $T = 27.88'$ $R = 2,000.00'$	<b>PI Sta 15+26.12</b> $\Delta = 1'57''12.6''$ (LT) $D = 5'43''46.5''$ $L = 34.00'$ $T = 17.05'$ $R = 1,000.00'$	<b>PI Sta 18+74.84</b> $\Delta = 1'17''43.7''$ (LT) $D = 0'21''21.1''$ $L = 364.03'$ $T = 182.02'$ $R = 16,100.00'$	<b>PI Sta 23+20.78</b> $\Delta = 12'33''04.9''$ (RT) $D = 2'23''14.4''$ $L = 525.75'$ $T = 263.93'$ $R = 2,400.00'$
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FOR -L- PROFILE SEE SHEET 6

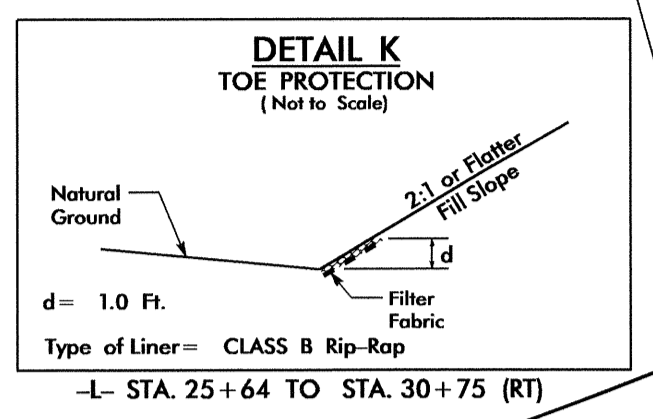
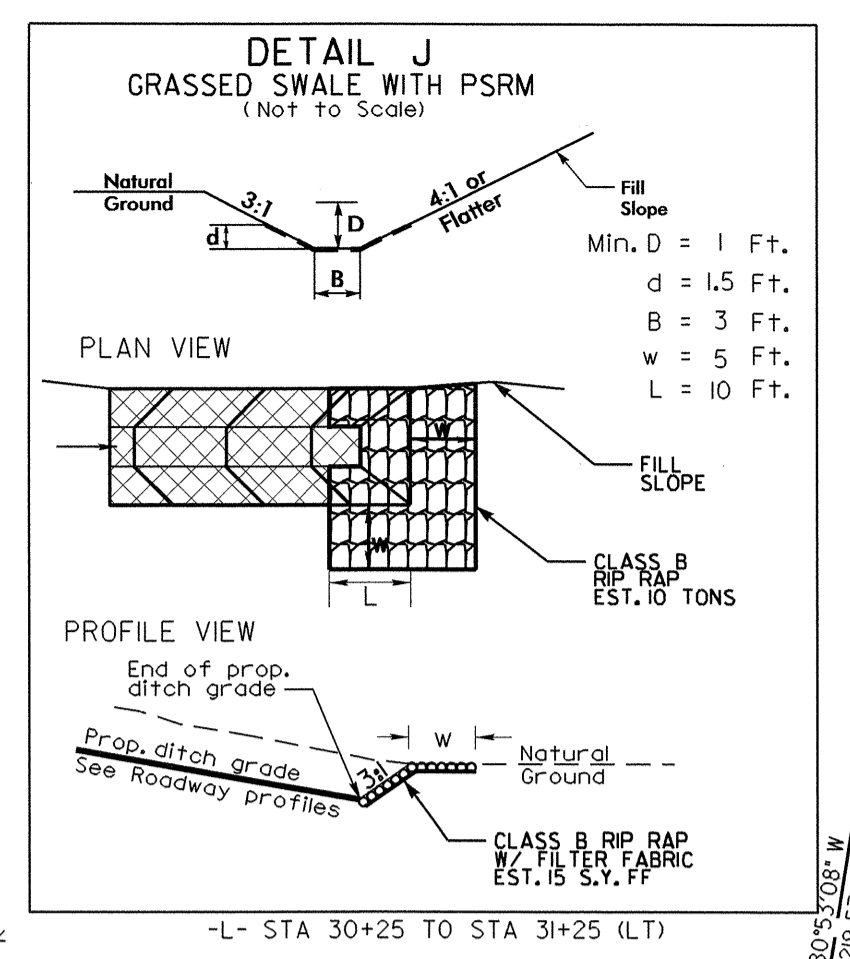
FOR STRUCTURE PLANS SEE SHEETS S-1 TO S-65

REVISIONS

31-JAN-2012 12:30  
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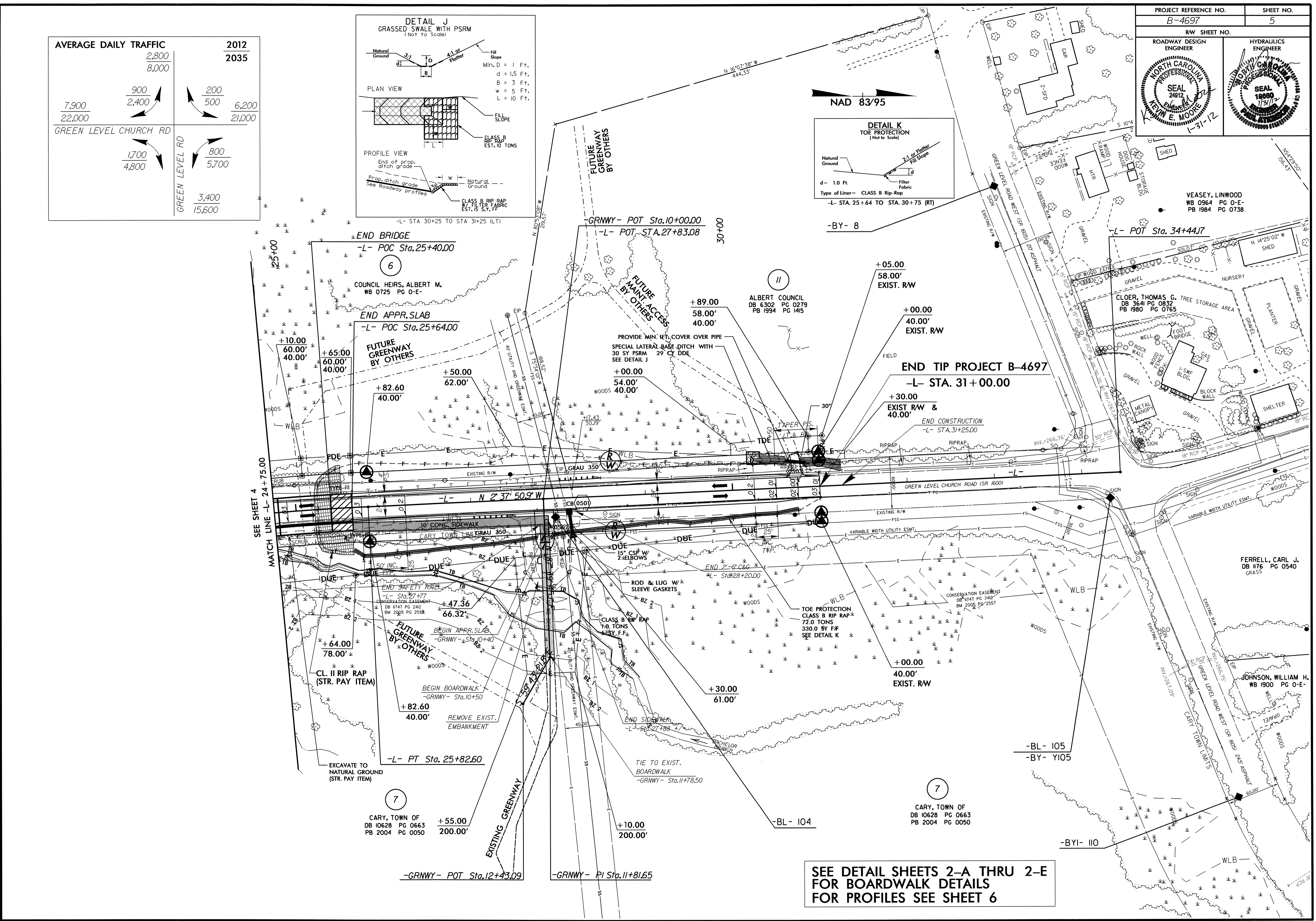
AVERAGE DAILY TRAFFIC		2012	2035
		2,800	8,000
7,900	900	2,400	200
22,000	2,400	500	6,200
		1,700	800
		4,800	5,700
		3,400	15,600



REVISIONS

8/17/99

31-JAN-2012 02:30  
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\$\$\$\$\$INSTRUMENT\$\$\$\$\$



SEE DETAIL SHEETS 2-A THRU 2-E  
FOR BOARDWALK DETAILS  
FOR PROFILES SEE SHEET 6



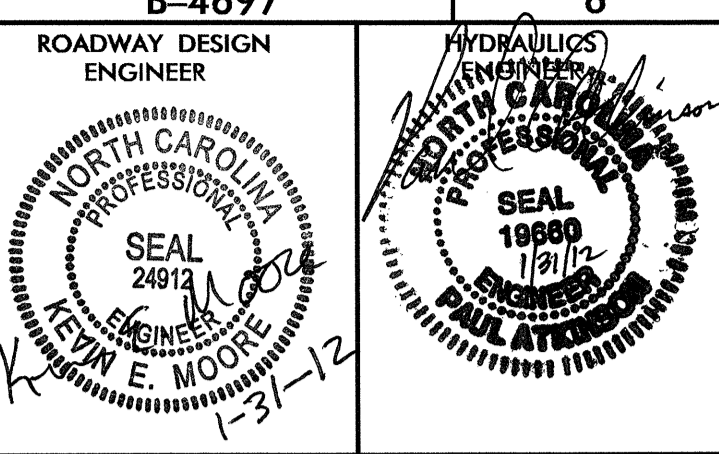
5/28/98

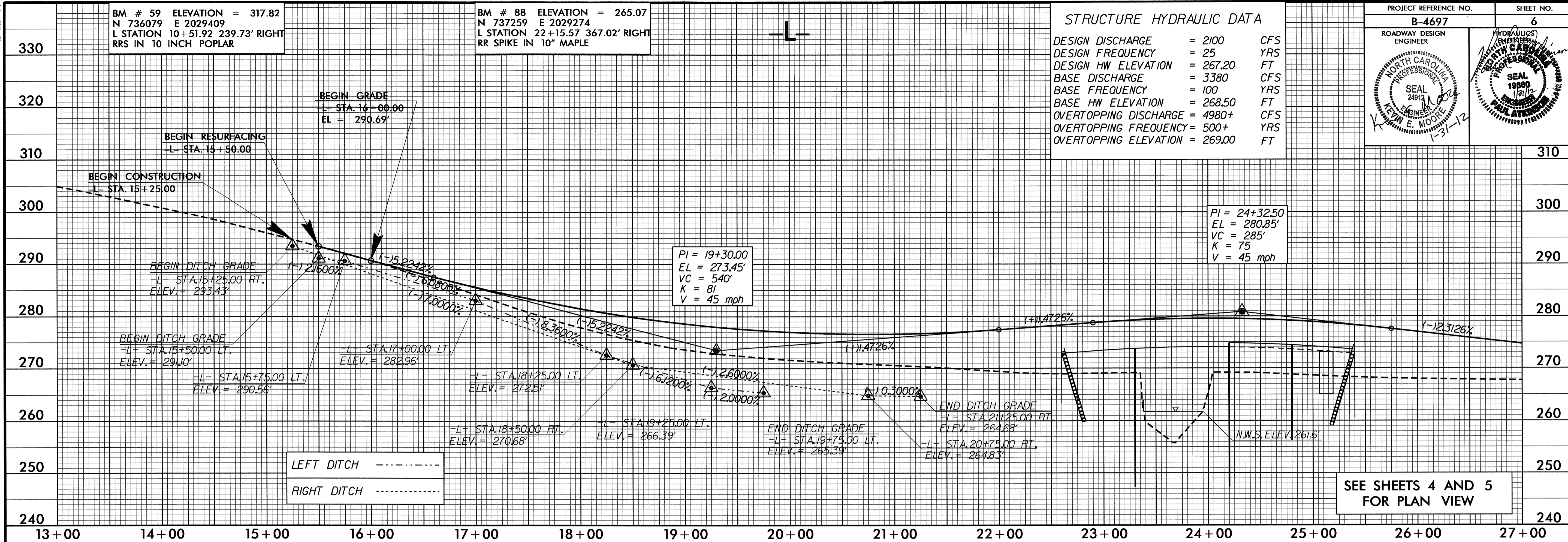
BM # 59 ELEVATION = 317.82  
N 736079 E 2029409  
L STATION 10+51.92 239.73' RIGHT  
RRS IN 10 INCH POPLAR

BM # 88 ELEVATION = 265.07  
N 737259 E 2029274  
L STATION 22+15.57 367.02' RIGHT  
RR SPIKE IN 10" MAPLE

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE = 2100 CFS  
DESIGN FREQUENCY = 25 YRS  
DESIGN HW ELEVATION = 267.20 FT  
BASE DISCHARGE = 3380 CFS  
BASE FREQUENCY = 100 YRS  
BASE HW ELEVATION = 268.50 FT  
OVERTOPPING DISCHARGE = 4980+ CFS  
OVERTOPPING FREQUENCY = 500+ YRS  
OVERTOPPING ELEVATION = 269.00 FT

PROJECT REFERENCE NO.	B-4697	SHEET NO.	6
ROADWAY DESIGN ENGINEER			



30-JAN-2012 08:23  
R:\Roadway\PC01\B4697\_r.dwg p106.dgn

BM # 44 ELEVATION = 274.06  
N 738607 E 2029224  
FROM L STATION 34+44.17  
N 63° 34' 3.10" E Dist 440.10'  
RRS IN 30 INCH OAK

-GRNWX-

