101468

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Water Resources
William R. Snodgrass Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor, Nashville, Tennessee 37243
1-888-891-8332 (TDEC)

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

OFFICIAL STATE USE ONLY	Site #:		Permit #:	NR1504.177

Section 1. Applicant Information *(individual responsible for site, signs certification below)*

Applicant Name: Eddie Miles			
Company: Old Hillsboro Building Company, LLC		Signatory's Title or Position: Managing Partner	
Mailing Address: 6012 Hillsboro Pike		City: Nashville	State: TN / Zip: 37215
Phone: (615) 500-6291	Fax:	E-mail: eddie@oldhillsborobuildingcompany.com	

Section 2. Alternate Contact/Consultant Information *(a consultant is not required)*

Alternate Contact Name: Tim Turner			
Company: T-Square Engineering		Title or Position: President	
Mailing Address: 7101 Sharondale Court, Suite 200		City: Brentwood	State: TN / Zip: 37027
Phone: (615) 678-8212	Fax:	E-mail: tim@t2-eng.com	

Section 3. Fee *(check appropriate box and submit requisite fee with application)*

☒ No Fee Submitted ☐ Fee Submitted with Application Amount Submitted: $ _____

Current fee schedules for Aquatic Resource Alteration Permit processing may be found at the Division of Water Resources webpage at http://www.tn.gov/environment/permits/arap.shtml or by calling (615) 532-0625. Make checks payable to "Treasurer, State of Tennessee".

Section 4. Project Details *(fill in information and check appropriate boxes)*

Site or Project Name: South Creek Rural Retreat	Nearest City, Town or Major Landmark: Franklin	
Street Address or Location: 1994 Carters Creek Pike		
County(ies): Williamson	MS4 Jurisdiction: Williamson County	Latitude (dd.dddd): 35.887953 Longitude (dd.dddd): -86.840833

Resource Proposed for Alteration: ☒ Stream ☐ Wetland ☐ Reservoir

Name of Water Resource: Polk Creek

Brief Project Description (a more detailed description is required under Section 8):

Roadway and pedestrian crossings for South Creek Rural Retreat

Does the proposed activity require approval from the U.S. Army Corps of Engineers, the Tennessee Valley Authority, or any other federal, state, or local government agency? ☐ Yes ☒ No

If Yes, provide the permit reference numbers: _____

Is the proposed activity associated with a larger common plan of development? ☒ Yes ☐ No

If Yes, submit site plans and identify the location and overall scope of the common plan of development. Plans attached? ☐ Yes ☒ No

If applicable, indicate any other federal, state, or local permit authorizations that the overall project site (common plan of development) has obtained in the past (i.e. construction general permit coverage and/or other ARAPs):

Section 5. Project Schedule *(fill in information and check appropriate boxes)*

Start date:	Estimated end date:

Is any portion of the activity complete now? ☐ Yes ☒ No If yes, describe the extent of the completed portion:

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

The required information in Sections 6-11 must be submitted on a separate sheet(s) and submitted in the same numbered format as presented below. If any question in not applicable, state the reason why it is not applicable.

Section 6. Project Description		**Attached** Yes	No
6.1	A narrative description of the scope of the project	☒	☐
6.2	USGS topographic map indicating the exact location of the project (*can be a photographic copy*)	☒	☐
6.3	Photographs of the resource(s) proposed for alteration with location description (*photo locations should be noted on map*)	☒	☐
6.4	A narrative description of the **existing** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.5	A narrative description of the **proposed** stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation	☒	☐
6.6	In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points	☐	☒
6.7	A copy of all hydrologic or jurisdictional determination documents issued for water resources on the project site	☐	☒

Section 7. Project Rationale	**Attached** Yes	No
Describe the need for the proposed activity, including, but not limited to, the purpose, alternatives considered, and what will be done to avoid or minimize impacts to streams or wetlands.	☒	☐

Section 8. Technical Information		**Attached** Yes	No
8.1	Detailed plans, specifications, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5.x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans should be superimposed on existing and new conditions *(e.g., stream cross sections where road crossings are proposed)*	☒	☐
8.2	For both the proposed activity and compensatory mitigation, provide a discussion regarding the sequencing of events and construction methods	☒	☐
8.3	Depiction and narrative on the location and type of erosion prevention and sediment control (EPSC) measures for the proposed alterations	☒	☐

Section 9. Water Resources Degradation (degree of proposed impact) *Note that in most cases, activities that exceed the scope of the General Permit limitations are considered greater than de minimis degradation to water quality.*

My activity, as proposed:

a. ☒ Will not cause measurable degradation to water quality

b. ☐ Will only cause de minimis degradation to water quality

c. ☐ Will cause more than de minimis degradation to water quality (*Complete additional sections 9-11*)

d. ☐ Unsure/need more information

For information and guidance on the definition of de minimis and degradation, refer to the Antidegradation Statement in Chapter 0400-40-03-.06 of the Tennessee Water Quality Criteria Rule: https://www.tn.gov/sos/rules/0400/0400-40/0400-40-03.20131216.pdf. For more information on specifics on what General Permits can cover, refer to the Natural Resources Unit webpage at http://www.tn.gov/environment/permits/arap.shtml

If you checked "c." above in Section 9, complete the following 2 sections, 10-11.

Section 10. Detailed Alternative Analysis		**Attached** Yes	No
10.1	Analyze all reasonable alternatives and describe the level of degradation caused by each of the feasible alternatives	☐	☐
10.2	Discuss the social and economic consequences of each alternative	☐	☐
10.3	Demonstrate that the degradation associated with the preferred alternative will not violate water quality criteria for uses designated in the receiving waters, and is necessary to accommodate important economic and social development in the area	☐	☐

Application for Aquatic Resource Alteration Permit (ARAP) & State §401 Water Quality Permit

Section 11. Compensatory Mitigation		Attached Yes	Attached No
11.1	A detailed discussion of the proposed compensatory mitigation	☐	☐
11.2	Describe how the compensatory mitigation would result in no net loss of resource value	☐	☐
11.3	Provide a detailed monitoring plan for the compensatory mitigation site	☐	☐
11.4	Describe the long-term protection measures for the compensatory mitigation site *(e.g., deed restrictions, conservation easement)*	☐	☐

Certification and Signature

An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official, or other duly authorized employee.

"I certify under penalty of law that this document and all attachments were prepared by me, or under my direction or supervision. The submitted information is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury".

Printed Name	Official Title	Signature	Date
Eddie Miles	Chief Manager	Eddie Miles	10/5/2016

Submitting the form and obtaining more information Note that this form must be signed by the principal executive officer, partner or proprietor, or a ranking elected official in the case of a municipality; for details see **Certification and Signature** statement above. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit the completed ARAP Application form (keep a copy for your records) to the appropriate EFO for the county(ies) where the ARAP activity is located, addressed to **Attention: ARAP Processing**. You may also electronically submit the complete application and all associated attachments (e.g., maps, wetland delineations and narrative portions) to water.permits@tn.gov.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	8383 Wolf Lake Drive, Bartlett	38133-4119	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Drive	38305-4316	Chattanooga	1301 Riverfront Pkwy., Ste. 206	37402
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	1421 Hampshire Pike	38401	Johnson City	2305 Silverdale Road	37601

OFFICIAL STATE USE ONLY

Received Date: 12/6/16	Permit Number: 1504.177	Reviewer: BMY	Field Office: 04
Fee amount paid: 500	T & E Aquatic Flora and Fauna: Yes	Impaired Receiving Stream: Yes	Application Review:
Date: 13-Oct-15			☐ Deficient Date:
Check #:	Exceptional TN Water: NO		☑ Complete Date: 12/06/16

8.1 Plans and Specifications

As previously mentioned, there are six (6) proposed roadway crossings and two (2) pedestrian crossings which will require slab bridges. The slab bridges quantities and lengths of each point are detailed in Table 2 below. Detailed plans and specifications for the proposed slab bridges can be found in Appendix B.

Table 2 – Types and quantities of slab bridges[2]

Point	Width of proposed roadway/pedestrian crossing	Slab Bridge Type	Slab Bridge Length	Slab Bridge Height	Slab Bridge Quantity
#1	24'	STD-17-117	12'	8'	2
#2	24'	STD-17-117	12'	8'	2
#3	8'	STD-17-113	8'	8'	1
#4	10'	STD-17-115	10'	8'	2
#5	8'	STD-17-113	8'	8'	1
#6	22'	STD-17-115/ STD-17-117	10'/12'	8'	1/1
#7	20'	STD-17-115	8'	8'	2
#8	10'	STD-17-115	10'	8'	1

8.2 Sequence of Events

The construction of the roadway and pedestrian crossings will proceed as follows:

1. Install stream buffers in the two streams and silt fences along the top of the creek banks.
2. Excavate stream banks with backhoe (no blasting in stream bed) and prepare the trench.
3. Install concrete blocks and support structure
4. Seed, straw, and install erosion control matting on any denuded surfaces once final grade is achieved.

8.3 Erosion Prevention and Sediment Control (EPSC)

As previously mentioned in the description of the sequence of events, the following erosion prevention and sediment control measures will be taken: silt fence installation, steam buffers, and seed/straw/matting on denuded surfaces.

Section 9. Water Resources Degradation

As indicated on Page 2 of the application form, the proposed project is not expected to cause measurable degradation to water quality.

Section 10. Detailed Alternative Analysis

This section is not applicable as the proposed project will not cause measurable degradation to water quality.

[2] "LRFD Box Culverts." TN Department of Transportation. TDOT, n.d. Web. 05 Oct. 2016.

Figure 3 – Proposed roadways and pedestrian crossings

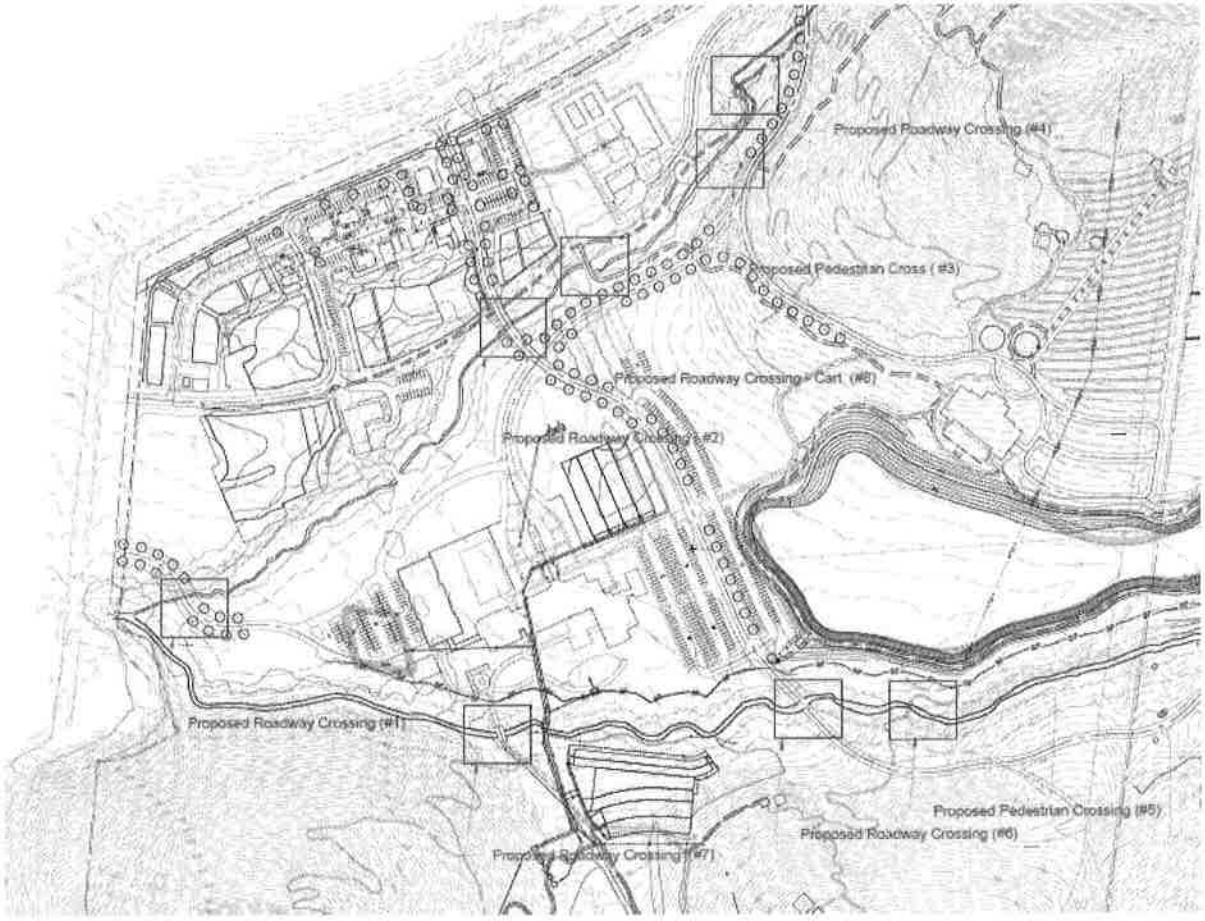

Table 1 – Latitude and Longitude of proposed crossings[1]

Point	Latitude	Longitude
#1	35°53'23.46"N	86°55'35.73"W
#2	35°53'28.76"N	86°55'28.36"W
#3	35°53'33.88"N	86°55'20.71"W
#4	35°53'37.12"N	86°55'17.45"W
#5	35°53'19.42"N	86°55'26.10"W
#6	35°53'20.17"N	86°55'35.00"W
#7	35°53'19.34"N	86°55'28.61"W
#8	35°53'30.84"N	86°55'25.50"W

[1] "South Creek Rural Retreat", 35.887953, -86.840833. Google Earth. October 5, 2016, October 5, 2016.

Application for Aquatic Resource Alteration Permit (ARAP) Road Crossings

South Creek Rural Retreat

October 6, 2016

T-SQUAREENGINEERING

Application for Aquatic Resource Alteration Permit (ARAP)

South Creek Rural Retreat
1994 Carters Creek Pike
Map 091 Parcel 191
Williamson County, TN 37027

Prepared for:

Eddie Miles, President
Old Hillsboro Building Company, LLC
6012 Hillsboro Pike
Nashville, TN 37215
(615) 500-6291

Prepared by:

T-SQUAREENGINEERING

7101 Sharondale Court, Suite 200
Brentwood, TN 37027
615.678.8212

www.T2-eng.com

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Sections 1-5

See Page 1 of the application form in Appendix A.

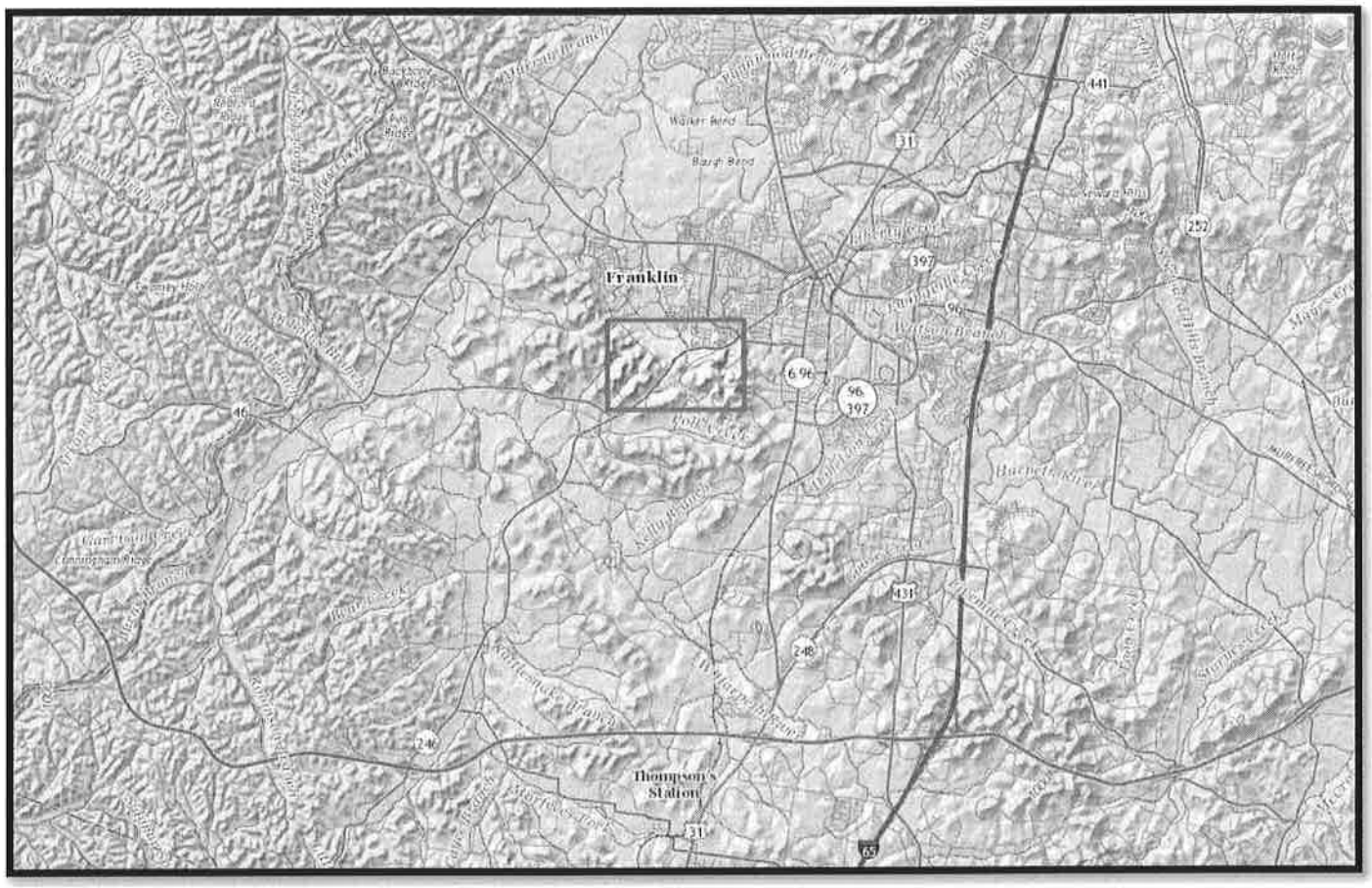
Section 6. Project Description

6.1 Project Scope

The proposed South Creek Rural Retreat consists of a 189 aces for mixed-use development, the installation of the roadways, installation of related utilities. The project will consist of the construction of eight (8) slab bridges along Polk Creek to provide roadway and pedestrian crossings to the proposed South Creek Rural Retreat on Carters Creek Pike in Williamson County, Tennessee.

6.2 Project Location

Figure 1 – USGS Topographic Map



6.3 Location Photograph(s)

Detailed locations for the proposed crossings can be found in Appendix C.

Figure 2 – Polk Creek Photos

6.4 Description of Existing Stream

There are two streams combining into one main stream located on the existing site, Polk Creek. Polk Creek is located in the northeastern and southeastern portion of the proper and combines on the western side of the property Presently, the creek bed is approximately 12 to 15 feet wide at the points of the proposed crossings. The creek bottom is composed of grass, rocks, and bare soil deposited along the bends of the creek. The creek banks are lined with trees and grass and are irregular along the cross sections.

6.5 Description of Proposed Stream

The existing width and depth of the creek bed will be maximally preserved so as to impact the creek as minimally as possible. Appropriate erosion control measures will be used to make sure the proposed creek bottom and banks maintain similar levels of grass and vegetation as the existing stream.

6.6 Wetland Delineation

This section is not applicable as the aquatic resource proposed to be altered is a stream.

6.7 Hydrologic/Jurisdictional Determination

A hydrology study was not performed for this project, and there are no hydrologic or jurisdictional determination documents.

Section 7. Project Rationale

To facilitate roadway and pedestrian crossings, for the South Creek Rural Retreat, it is necessary to construct crossings through Polk Creek which generally flows in the east to west direction from the northeastern and southeastern portion of the site. With respect to the existing conditions, the site layout, and the available means of construction, T-Square Engineering has designed the six (6) road crossings and two (2) pedestrian crossings for minimal creek disturbance. The eight (8) crossings are nearly perpendicular to the flow line of the creek, so as to make it as short as possible, and final grading will be finished to match the existing rock bottom of the creek.

The contractor will coordinate the installation of the roadway and pedestrian crossings during a period when there is a higher than average chance of the bed being in its dry state. Once the construction is complete, the contractor will remove the temporary check dam materials. The width of the trenches will be no greater than two (2) feet wide and no deeper than two (2) feet deep. The Tennessee Department of Environment and Conservation (TDEC) will be notified 48 hours prior to the beginning of construction.

Following the construction of the roadway and pedestrian crossings, the contractor will restore the creek bed to original grading so as to ensure as little disturbance to the creek as possible will take place during heavy rains. The trench line will have reinforced erosion control matting to establish vegetation and stream buffers as soon as practical. The silt fencing will remain in place until the construction activities have ceased and vegetation is established.

Section 8. Technical Information

Section 11. Compensatory Mitigation

This section is not applicable as the proposed project will not cause measurable degradation to water quality.

APPENDIX

APPENDIX A – ARAP APPLICATION FORM

APPENDIX B – SLAB BRIDGE INFORMATION

STD-112&113_1BARREL_SLAB8'.DGN

CONST. NO.		
PROJECT NO.	YEAR	SHEET NO.
	2010	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

1 @ 8 x 6 REINFORCED CONCRETE SLAB BRIDGE

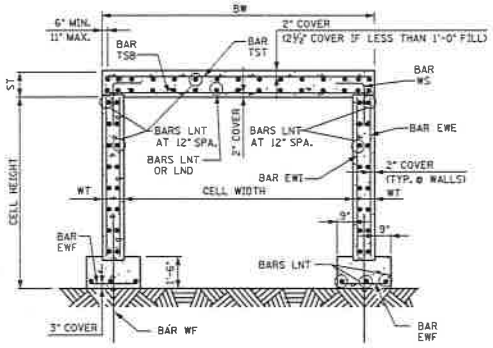
Fill Height ft.	Dimensions ST in.	WT in.	BW ft.	Bars TST Size	No.	Spacing in.	Length ft.	Bars TSB Size	No.	Spacing in.	Length ft.	Bars EWE Size	No.	Spacing in.	Length ft.	Bars EWI Size	No.	Spacing in.	Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	9.5	8	9.33	4	1	12	8.83	6	2	6	8.83	4	2	12	4.50	5	2	12	4.50	31	16	2	2	1.67	0.74	146
3	11	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	4.50	5	2	12	4.50	31	16	2	2	1.67	0.78	156
5	9	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	4.50	5	2	12	4.50	40	0	2	2	1.67	0.72	145
10	9	8	9.33	4	1	12	8.83	8	2	6	8.83	4	2	12	4.50	5	2	12	4.50	40	0	2	2	1.67	0.72	156
20	10	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	4.50	5	2	12	4.50	40	0	2	2	1.67	0.75	145
30	14	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	4.50	5	2	12	4.50	40	0	2	2	1.67	0.87	145
40	18	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	4.50	5	2	12	4.50	40	0	2	2	1.67	0.98	145
50	21	9	9.50	4	1	12	9.00	7	2	6	9.00	4	2	12	4.50	5	2	12	4.50	40	0	2	2	1.75	1.12	146
60	24	9	9.50	4	1	12	9.00	7	2	6	9.00	4	2	12	4.50	5	2	12	4.50	40	0	2	2	1.75	1.20	146

1 @ 8 x 7 REINFORCED CONCRETE SLAB BRIDGE

Fill Height ft.	Dimensions ST in.	WT in.	BW ft.	Bars TST Size	No.	Spacing in.	Length ft.	Bars TSB Size	No.	Spacing in.	Length ft.	Bars EWE Size	No.	Spacing in.	Length ft.	Bars EWI Size	No.	Spacing in.	Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	9.5	8	9.33	4	1	12	8.83	6	2	6	8.83	4	2	12	5.50	5	2	12	5.50	35	16	2	2	1.67	0.79	152
3	11	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	5.50	5	2	12	5.50	35	16	2	2	1.67	0.83	162
5	9	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	5.50	5	2	12	5.50	44	0	2	2	1.67	0.77	151
10	9	8	9.33	4	1	12	8.83	8	2	6	8.83	4	2	12	5.50	5	2	12	5.50	44	0	2	2	1.67	0.77	162
20	10	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	5.50	5	2	12	5.50	44	0	2	2	1.67	0.80	151
30	14	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	5.50	5	2	12	5.50	44	0	2	2	1.67	0.92	151
40	18	9	9.50	4	1	12	9.00	7	2	6	9.00	4	2	12	5.50	6	2	12	5.50	44	0	2	2	1.75	1.08	157
50	21	10	9.67	4	1	12	9.17	7	2	6	9.17	4	2	12	5.50	5	2	12	5.50	44	0	2	2	1.83	1.23	153
60	24	11	9.83	4	1	12	9.33	7	2	6	9.33	4	2	12	5.50	5	2	12	5.50	44	0	2	2	1.92	1.37	154

1 @ 8 x 8 REINFORCED CONCRETE SLAB BRIDGE

Fill Height ft.	Dimensions ST in.	WT in.	BW ft.	Bars TST Size	No.	Spacing in.	Length ft.	Bars TSB Size	No.	Spacing in.	Length ft.	Bars EWE Size	No.	Spacing in.	Length ft.	Bars EWI Size	No.	Spacing in.	Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	9.5	8	9.33	4	1	12	8.83	6	2	6	8.83	4	2	12	6.50	5	2	12	6.50	39	16	2	2	1.67	0.84	158
3	11	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	6.50	5	2	12	6.50	39	16	2	2	1.67	0.88	168
5	9	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	6.50	5	2	12	6.50	48	0	2	2	1.67	0.82	157
10	9	8	9.33	4	1	12	8.83	8	2	6	8.83	4	2	12	6.50	6	2	12	6.50	48	0	2	2	1.67	0.82	174
20	10	8	9.33	4	1	12	8.83	7	2	6	8.83	4	2	12	6.50	5	4	6	6.50	48	0	2	2	1.67	0.85	171
30	14	9	9.50	4	1	12	9.00	7	2	6	9.00	4	2	12	6.50	5	4	6	6.50	48	0	2	2	1.75	1.02	172
40	18	10	9.67	4	1	12	9.17	7	2	6	9.17	4	2	12	6.50	5	4	6	6.50	48	0	2	2	1.83	1.20	173
50	21	11	9.83	4	1	12	9.33	7	2	6	9.33	4	2	12	6.50	5	4	6	6.50	48	0	2	2	1.92	1.35	174
60	24	13	10.17	4	1	12	9.67	7	2	6	9.67	4	2	12	6.50	6	2	12	6.50	50	0	2	2	2.08	1.56	169



TYPICAL SECTION

NOTE: FOR DESCRIPTIONS OF BOX DIMENSIONS AND REINFORCING BAR DESIGNATIONS SEE STANDARD DRAWING NO. STD-17-5.

Note: Maximum fill height shown in the table is measured from the bottom of the top slab. To obtain the total fill height from the flow line, add the height of the box.
Note: When height of fill above the top slab is less than 1 foot, the top mat of reinforcing in the top slab shall be constructed with 2-1/2 inches of concrete cover.

The following bar information applies to all fill cases in the tables above:
Bars LNT Size = 4 Spacing = 12 in.
Bars LND Size = 5 Spacing = 6 in.
Bars WS Size = 8 Length = 5.00 ft. Spacing = 12 in.
Bars WF Size = 8 Length = 6.00 ft. Spacing = 12 in.
Bars EWF Size = 4 No. = 2 Spacing = 12 in.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STANDARD REINFORCED CONCRETE SLAB BRIDGE
INTERIOR SECTION
SPANS: 1 BARREL AT 8'-0"
CLEAR HEIGHTS 6'-0" THRU 8'-0"
0' THRU 60' FILL
2010

CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES

STD-17-113

DESIGNED BY	RLL/ALP	DATE	12-09
DRAWN BY	KEVIN MARTINEZ	DATE	1-10
SUPERVISED BY	EPW/RLC	DATE	12-09
CHECKED BY	RLL/ALP	DATE	2-10

STD-112#113_1BARREL_SLAB10'.DGN

CONST. NO.		
PROJECT NO.	YEAR 2010	SHEET NO.

REVISIONS

NO.	DATE	BY	SHEET DESCRIPTION

1 @ 10 x 7 REINFORCED CONCRETE SLAB BRIDGE

Fill Height ft.	Dimensions ST in.	Dimensions WT in.	Dimensions BW ft.	Bars TST Size	Bars TST No.	Bars TST Spacing in.	Bars TST Length ft.	Bars TSB Size	Bars TSB No.	Bars TSB Spacing in.	Bars TSB Length ft.	Bars EWE Size	Bars EWE No.	Bars EWE Spacing in.	Bars EWE Length ft.	Bars EWI Size	Bars EWI No.	Bars EWI Spacing in.	Bars EWI Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	10.5	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	5.50	5	2	12	5.50	37	20	4	4	1.67	0.88	228
3	12	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	5.50	5	2	12	5.50	37	20	4	4	1.67	0.93	228
5	10	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	5.50	5	2	12	5.50	48	0	4	4	1.67	0.86	222
10	10	8	11.33	4	1	12	10.83	8	2	6	10.83	4	2	12	5.50	5	2	12	5.50	48	0	4	4	1.67	0.86	236
20	12	8	11.33	4	1	12	10.83	8	2	6	10.83	4	2	12	5.50	5	2	12	5.50	48	0	4	4	1.67	0.93	236
30	18	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	5.50	6	2	12	5.50	48	0	4	4	1.67	1.14	227
40	22	9	11.50	4	1	12	11.00	7	2	6	11.00	4	2	12	5.50	5	2	12	5.50	48	0	4	4	1.75	1.34	223
50	25	10	11.67	4	1	12	11.17	8	2	6	11.17	4	2	12	5.50	5	2	12	5.50	48	0	4	4	1.83	1.50	238
60	29	11	11.83	4	1	12	11.33	8	2	6	11.33	4	2	12	5.50	5	2	12	5.50	48	0	4	4	1.92	1.70	239

1 @ 10 x 8 REINFORCED CONCRETE SLAB BRIDGE

Fill Height ft.	Dimensions ST in.	Dimensions WT in.	Dimensions BW ft.	Bars TST Size	Bars TST No.	Bars TST Spacing in.	Bars TST Length ft.	Bars TSB Size	Bars TSB No.	Bars TSB Spacing in.	Bars TSB Length ft.	Bars EWE Size	Bars EWE No.	Bars EWE Spacing in.	Bars EWE Length ft.	Bars EWI Size	Bars EWI No.	Bars EWI Spacing in.	Bars EWI Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	10.5	8	11.33	4	1	12	10.83	7	2	6	10.83	4	1	12	6.50	5	2	12	6.50	41	20	2	2	1.67	0.93	171
3	12	8	11.33	4	1	12	10.83	7	2	6	10.83	4	1	12	6.50	5	2	12	6.50	41	20	2	2	1.67	0.91	171
5	10	8	11.33	4	1	12	10.83	7	2	6	10.83	4	1	12	6.50	5	2	12	6.50	52	0	2	2	1.67	0.87	165
10	10	8	11.33	4	1	12	10.83	8	2	6	10.83	4	1	12	6.50	5	2	12	6.50	52	0	2	2	1.67	0.87	179
20	12	8	11.33	4	1	12	10.83	8	2	6	10.83	4	1	12	6.50	5	4	6	6.50	52	0	2	2	1.67	0.94	192
30	18	9	11.50	4	1	12	11.00	7	2	6	11.00	4	1	12	6.50	6	2	12	6.50	52	0	2	2	1.75	1.21	172
40	22	10	11.67	4	1	12	11.17	7	2	6	11.17	4	1	12	6.50	5	4	6	6.50	52	0	2	2	1.83	1.41	180
50	25	11	11.83	4	1	12	11.33	8	2	6	11.33	4	1	12	6.50	6	2	12	6.50	52	0	2	2	1.92	1.56	188
60	29	12	12.00	4	1	12	11.50	8	2	6	11.50	4	1	12	6.50	6	2	12	6.50	54	0	2	2	2.00	1.83	190

1 @ 10 x 9 REINFORCED CONCRETE SLAB BRIDGE

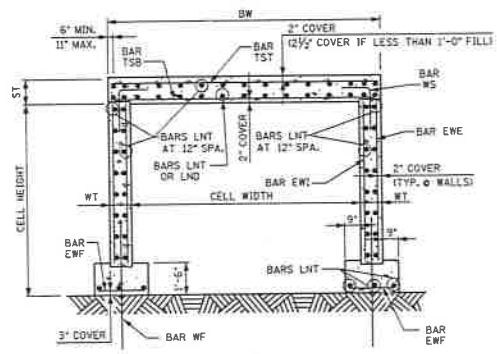
Fill Height ft.	Dimensions ST in.	Dimensions WT in.	Dimensions BW ft.	Bars TST Size	Bars TST No.	Bars TST Spacing in.	Bars TST Length ft.	Bars TSB Size	Bars TSB No.	Bars TSB Spacing in.	Bars TSB Length ft.	Bars EWE Size	Bars EWE No.	Bars EWE Spacing in.	Bars EWE Length ft.	Bars EWI Size	Bars EWI No.	Bars EWI Spacing in.	Bars EWI Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	10.5	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	7.50	5	2	12	7.50	45	20	2	2	1.67	0.98	182
3	12	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	7.50	5	2	12	7.50	45	20	2	2	1.67	1.03	182
5	10	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	7.50	6	2	12	7.50	56	0	2	2	1.67	0.96	182
10	10	8	11.33	4	1	12	10.83	8	2	6	10.83	4	2	12	7.50	6	2	12	7.50	56	0	2	2	1.67	0.96	196
20	12	8	11.33	4	1	12	10.83	8	2	6	10.83	4	2	12	7.50	6	4	6	7.50	56	0	2	2	1.67	1.03	219
30	18	10	11.67	4	1	12	11.17	7	2	6	11.17	4	2	12	7.50	6	4	6	7.50	56	0	2	2	1.83	1.37	207
40	22	11	11.83	4	1	12	11.33	7	2	6	11.33	4	2	12	7.50	6	4	6	7.50	56	0	2	2	1.92	1.58	208
50	25	13	12.17	4	1	12	11.67	8	2	6	11.67	4	2	12	7.50	5	4	6	7.50	58	0	2	2	2.08	1.83	212
60	29	14	12.33	4	1	12	11.83	8	2	6	11.83	4	2	12	7.50	5	4	6	7.50	58	0	2	2	2.17	2.05	213

1 @ 10 x 10 REINFORCED CONCRETE SLAB BRIDGE

Fill Height ft.	Dimensions ST in.	Dimensions WT in.	Dimensions BW ft.	Bars TST Size	Bars TST No.	Bars TST Spacing in.	Bars TST Length ft.	Bars TSB Size	Bars TSB No.	Bars TSB Spacing in.	Bars TSB Length ft.	Bars EWE Size	Bars EWE No.	Bars EWE Spacing in.	Bars EWE Length ft.	Bars EWI Size	Bars EWI No.	Bars EWI Spacing in.	Bars EWI Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	10.5	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	8.50	5	2	12	8.50	49	20	2	2	1.67	1.03	188
3	12	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	8.50	5	2	12	8.50	49	20	2	2	1.67	1.08	188
5	10	8	11.33	4	1	12	10.83	7	2	6	10.83	4	2	12	8.50	6	2	12	8.50	60	0	2	2	1.67	1.01	189
10	10	8	11.33	4	1	12	10.83	8	2	6	10.83	4	2	12	8.50	7	2	12	8.50	60	0	2	2	1.67	1.01	212
20	12	9	11.50	4	1	12	11.00	8	2	6	11.00	4	2	12	8.50	7	4	6	8.50	60	0	2	2	1.75	1.15	248
30	18	11	11.83	4	1	12	11.33	7	2	6	11.33	4	2	12	8.50	6	4	6	8.50	60	0	2	2	1.92	1.50	218
40	22	13	12.17	4	1	12	11.67	7	2	6	11.67	4	2	12	8.50	6	4	6	8.50	62	0	2	2	2.08	1.80	221
50	25	14	12.33	4	1	12	11.83	8	2	6	11.83	4	2	12	8.50	6	4	6	8.50	62	0	2	2	2.17	1.98	237
60	29	16	12.67	4	1	12	12.17	8	2	6	12.17	4	2	12	8.50	6	4	6	8.50	62	0	2	2	2.33	2.29	239

Note: Maximum fill height shown in the table is measured from the bottom of the top slab. To obtain the total fill height from the flow line, add the height of the box.
Note: When height of fill above the top slab is less than 1 foot, the top mat of reinforcing in the top slab shall be constructed with 2-1/2 inches of concrete cover.

The following bar information applies to all fill cases in the tables above:
Bars LNT Size = 4 Spacing = 12 in.
Bars LND Size = 4 Spacing = 6 in.
Bars WS Size = 8 Length = 5.00 ft. Spacing = 12 in.
Bars WF Size = 8 Length = 6.00 ft. Spacing = 12 in.
Bars EWF Size = 4 No. = 2 Spacing = 12 in.



TYPICAL SECTION

NOTE: FOR DESCRIPTIONS OF BOX DIMENSIONS AND REINFORCING BAR DESIGNATIONS SEE STANDARD DRAWING NO. STD-17-5.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STANDARD REINFORCED CONCRETE SLAB BRIDGE
INTERIOR SECTION
SPANS: 1 BARREL AT 10'-0"
CLEAR HEIGHTS 7'-0" THRU 10'-0"
0' THRU 60' FILL
2010

CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES

STD-17-115

DESIGNED BY	RLL/ALP	DATE	12-09
DRAWN BY	KEVIN MARTINKO	DATE	1-10
SUPERVISED BY	EPW/RLC	DATE	12-09
CHECKED BY	RLL/ALP	DATE	1-10

STD-1164117#118_1BARREL_SLAB12'.DGN

CONST. NO.		
PROJECT NO.	YEAR	SHEET NO.
	2010	

REVISIONS

NO.	DATE	BY	BRIEF DESCRIPTION

1 @ 12 x 7 REINFORCED CONCRETE SLAB BRIDGE

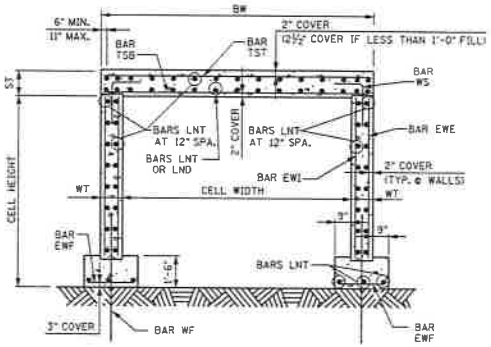
Fill Height ft.	Dimensions ST in.	Dimensions WT in.	Dimensions BW ft.	Bars TST Size	Bars TST No.	Bars TST Spacing in.	Bars TST Length ft.	Bars TSB Size	Bars TSB No.	Bars TSB Spacing in.	Bars TSB Length ft.	Bars EWE Size	Bars EWE No.	Bars EWE Spacing in.	Bars EWE Length ft.	Bars EWI Size	Bars EWI No.	Bars EWI Spacing in.	Bars EWI Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	10.5	8	13.33	4	1	12	12.83	7	2	6	12.83	4	2	12	5.50	5	2	12	5.50	39	24	2	2	1.67	0.94	192
3	13	8	13.33	4	1	12	12.83	8	2	6	12.83	4	2	12	5.50	5	2	12	5.50	39	24	2	2	1.67	1.05	208
5	11	8	13.33	4	1	12	12.83	8	2	6	12.83	4	2	12	5.50	5	2	12	5.50	52	0	2	2	1.67	0.97	192
10	11	8	13.33	4	1	12	12.83	9	2	6	12.83	4	2	12	5.50	5	2	12	5.50	52	0	2	2	1.67	0.97	210
20	16	8	13.33	4	1	12	12.83	9	2	6	12.83	4	2	12	5.50	5	2	12	5.50	52	0	2	2	1.67	1.17	210
30	21	8	13.33	4	1	12	12.83	8	2	6	12.83	4	2	12	5.50	5	2	12	5.50	52	0	2	2	1.67	1.38	192
40	26	9	13.50	4	1	12	13.00	8	2	6	13.00	4	2	12	5.50	5	2	12	5.50	52	0	2	2	1.75	1.64	193
50	31	10	13.67	4	1	12	13.17	8	2	6	13.17	4	2	12	5.50	5	2	12	5.50	52	0	2	2	1.83	1.91	194
60	34	10	13.67	4	1	12	13.17	9	2	6	13.17	4	2	12	5.50	5	2	12	5.50	52	0	2	2	1.83	2.03	213

1 @ 12 x 8 REINFORCED CONCRETE SLAB BRIDGE

Fill Height ft.	Dimensions ST in.	Dimensions WT in.	Dimensions BW ft.	Bars TST Size	Bars TST No.	Bars TST Spacing in.	Bars TST Length ft.	Bars TSB Size	Bars TSB No.	Bars TSB Spacing in.	Bars TSB Length ft.	Bars EWE Size	Bars EWE No.	Bars EWE Spacing in.	Bars EWE Length ft.	Bars EWI Size	Bars EWI No.	Bars EWI Spacing in.	Bars EWI Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	10.5	8	13.33	4	1	12	12.83	7	2	6	12.83	4	2	12	6.50	5	2	12	6.50	43	24	2	2	1.67	0.99	198
3	13	8	13.33	4	1	12	12.83	8	2	6	12.83	4	2	12	6.50	5	2	12	6.50	43	24	2	2	1.67	1.10	214
5	11	8	13.33	4	1	12	12.83	8	2	6	12.83	4	2	12	6.50	5	2	12	6.50	56	0	2	2	1.67	1.01	198
10	11	8	13.33	4	1	12	12.83	9	2	6	12.83	4	2	12	6.50	5	2	12	6.50	56	0	2	2	1.67	1.01	216
20	16	8	13.33	4	1	12	12.83	9	2	6	12.83	4	2	12	6.50	6	2	12	6.50	56	0	2	2	1.67	1.22	222
30	21	9	13.50	4	1	12	13.00	8	2	6	13.00	4	2	12	6.50	6	2	12	6.50	56	0	2	2	1.75	1.49	205
40	26	10	13.67	4	1	12	13.17	8	2	6	13.17	4	2	12	6.50	6	2	12	6.50	56	0	2	2	1.83	1.76	206
50	31	11	13.83	4	1	12	13.33	8	2	6	13.33	4	2	12	6.50	5	2	12	6.50	56	0	2	2	1.92	2.03	201
60	34	12	14.00	4	1	12	13.50	9	2	6	13.50	4	2	12	6.50	5	2	12	6.50	58	0	2	2	2.00	2.23	223

1 @ 12 x 9 REINFORCED CONCRETE SLAB BRIDGE

Fill Height ft.	Dimensions ST in.	Dimensions WT in.	Dimensions BW ft.	Bars TST Size	Bars TST No.	Bars TST Spacing in.	Bars TST Length ft.	Bars TSB Size	Bars TSB No.	Bars TSB Spacing in.	Bars TSB Length ft.	Bars EWE Size	Bars EWE No.	Bars EWE Spacing in.	Bars EWE Length ft.	Bars EWI Size	Bars EWI No.	Bars EWI Spacing in.	Bars EWI Length ft.	Bars LNT No.	Bars LND No.	Bars WS No.	Bars WF No.	Bars EWF Length ft.	Concrete CY/LF	Reinf. Steel LB/LF
No Fill	10.5	8	13.33	4	1	12	12.83	7	2	6	12.83	4	2	12	7.50	5	2	12	7.50	47	24	2	2	1.67	1.04	204
3	13	8	13.33	4	1	12	12.83	8	2	6	12.83	4	2	12	7.50	5	2	12	7.50	47	24	2	2	1.67	1.15	220
5	11	8	13.33	4	1	12	12.83	8	2	6	12.83	4	2	12	7.50	5	2	12	7.50	60	0	2	2	1.67	1.06	204
10	11	8	13.33	4	1	12	12.83	9	2	6	12.83	4	2	12	7.50	6	2	12	7.50	60	0	2	2	1.67	1.06	229
20	16	8	13.33	4	1	12	12.83	9	2	6	12.83	4	2	12	7.50	6	4	6	7.50	60	0	2	2	1.67	1.27	252
30	21	10	13.67	4	1	12	13.17	8	2	6	13.17	4	2	12	7.50	5	4	6	7.50	60	0	2	2	1.83	1.61	222
40	26	11	13.83	4	1	12	13.33	8	2	6	13.33	4	2	12	7.50	7	2	12	7.50	60	0	2	2	1.92	1.89	222
50	31	13	14.17	4	1	12	13.67	8	2	6	13.67	4	2	12	7.50	6	2	12	7.50	62	0	2	2	2.08	2.24	218
60	34	14	14.33	4	1	12	13.83	9	2	6	13.83	4	2	12	7.50	6	2	12	7.50	62	0	2	2	2.17	2.45	239



TYPICAL SECTION

NOTE: FOR DESCRIPTIONS OF BOX DIMENSIONS AND REINFORCING BAR DESIGNATIONS SEE STANDARD DRAWING NO. STD-17-5.

Note: Maximum fill height shown in the table is measured from the bottom of the top slab. To obtain the total fill height from the flow line, add the height of the box.
Note: When height of fill above the top slab is less than 1 foot, the top mat of reinforcing in the top slab shall be constructed with 2-1/2 inches of concrete cover.

The following bar information applies to all fill cases in the tables above:
Bars LNT Size = 4 Spacing = 12 in.
Bars LND Size = 5 Spacing = 6 in.
Bars WS Size = 8 Length = 5.00 ft. Spacing = 12 in.
Bars WF Size = 8 Length = 6.00 ft. Spacing = 12 in.
Bars EWF Size = 4 No. = 2 Spacing = 12 in.

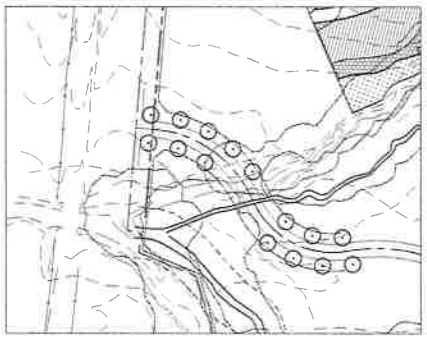
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
STANDARD REINFORCED CONCRETE
SLAB BRIDGE
INTERIOR SECTION
SPANS: 1 BARREL AT 12'-0"
CLEAR HEIGHTS 7'-0" THRU 9'-0"
0' THRU 60' FILL
2010

CORRECT Edward P. Wasserman
ENGINEER OF STRUCTURES

STD-17-117

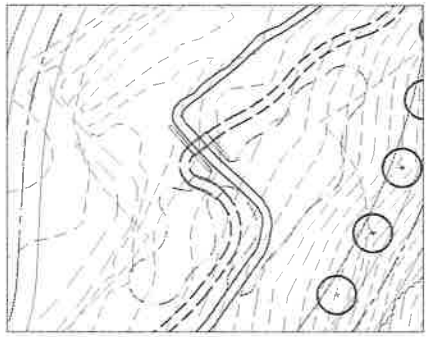
DESIGNED BY	RLL/ALP	DATE	12-09
DRAWN BY	KEVIN MARTINEZ	DATE	1-10
SUPERVISED BY	EPW/RLC	DATE	12-09
CHECKED BY	RLL/ALP	DATE	2-10

APPENDIX C – DETAILS OF CROSSING LOCATIONS

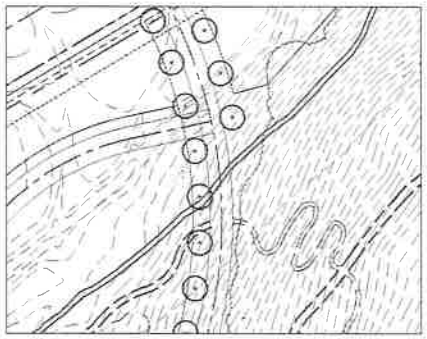


Proposed Roadway Crossing (#1)

Proposed Roadway Crossing (#2)

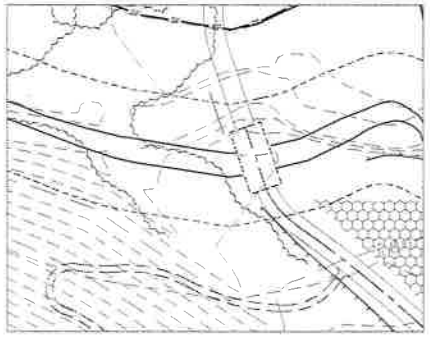


Proposed Pedestrian Cross (#3)

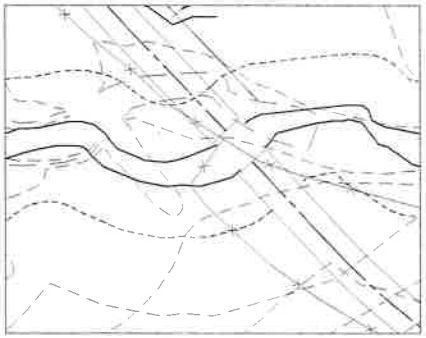


Proposed Roadway Crossing (#4)

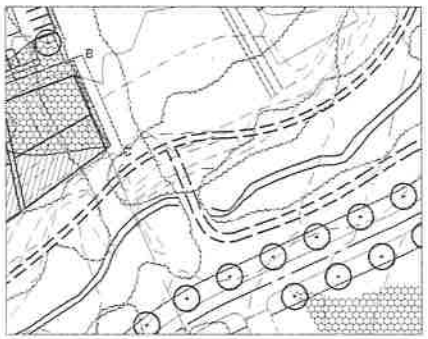
Proposed Pedestrian Crossing (#5)



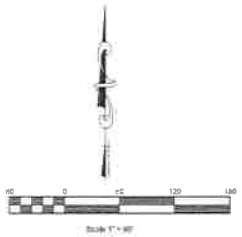
Proposed Roadway Crossing (#6)



Proposed Roadway Crossing (#7)



Proposed Roadway Crossing - Cart (#8)



Print page 1 of 1

Click on the Column Headings to sort accordingly.
Click on the Parcel ID to view the parcel detail.

Parcel ID	Location	Owner	Built Type	Total Value	Beds Baths	Lot size Fin area	LUC Description	NHood	Sale date Sale price	Book Page
164A A 028.00 000	109 SANDERS FERRY ROAD	GAMA MANAGEMENT INC	1962 SALES	$104,300	0 0	10,890 3,190	CO Commercial	HWPN	12/13/2005	2464-633
164A A 028.00 001	109 SANDERS FERRY ROAD	GAMA MANAGEMENT INC	1962 STORE	$140,000	0 0	10,890 2,507	CO Commercial	HWPN	12/13/2005	2464-633

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