

~~November 2, 2010 (REVISED March 30, 2011)~~  
 REVISED August 9, 2011

TABLE 1. WESTERN BRANCH DAM SAFETY MODIFICATIONS – U.S. WATERS IMPACTS

Design Sheet	Dam Design Feature	Impact Location	Wetland Impact	Wetland Type Impacted	Reason for Impact	Type of Impact	Comment
SHEET 1	<i>Impact Area – 1</i>  Existing Impoundment	West side of parapet wall	0.488 acres  112,000 Cu. Ft fill	Non-tidal subaqueous land	Placement of fill for the construction of a stability berm upstream in the old river channel	Permanent	<b>NO MITIGATION REQUIRED BECAUSE NO HABITAT CONVERSION</b>  (Phone conversation with USACOE (A. Cotnoir; 27 Jan 2011) agreement that this impact does not require mitigation
	<b>Based on Phone conversation with Audrey Cotnoir (USACOE; January 27, 2011) – additional evaluation of Impact Area 2A was requested to differentiate the impacts below MLW, between MLW and MHW, and above MHW. Therefore, impact area 2A has been split into those three categories. Refer to revised plan sheet C-27 for additional information.</b>						
	<i>Impact Area – 2A-1 (impacts that will result in elevations Below MLW)</i>  Existing Impoundment	East side of parapet wall	0.059 acres  5,016 Cu. Ft fill	Tidal subaqueous lands	Placement of riprap for the construction of a stability berm downstream in the old river channel	Permanent	No habitat conversion since all impacts will occur below mean low water.  No anticipated mitigation.
<i>Impact Area – 2A-2 (impacts that will result in elevations Between MLW and MHW)</i>  Existing Impoundment	East side of parapet wall	0.043 acres  3,656 Cu. Ft fill	Tidal subaqueous lands	Placement of riprap for the construction of a stability berm downstream in the old river channel	Permanent	Area will continue to be tidal influenced therefore no habitat conversion.  No anticipated mitigation.	

Design Sheet	Dam Design Feature	Impact Location	Wetland Impact	Wetland Type Impacted	Reason for Impact	Type of Impact	Comment
	<i>Impact Area – 2A-3</i> <i>(impacts that will result in elevations Above MHW)</i> Existing Impoundment	East side of parapet wall	0.145 acres 12,328 Cu. Ft fill	Tidal subaqueous lands	Placement of riprap for the construction of a stability berm downstream in the old river channel	Permanent	Impact area will be above MHW therefore anticipating a mitigation requirement.
	<i>Impact Area – 2B</i> Existing Impoundment	East side of parapet wall	0.155 acres 149,000 Cu. Ft fill	Tidal subaqueous lands	Placement of fill for the construction of a stability berm downstream in the old river channel	Permanent	Impacts above MHW
	<i>Impact Area – 3</i> Existing Impoundment	East side of parapet wall	0.395 acres (25 ft RVMA buffer applies – no mitigation required)	Tidal vegetated	Clearing downstream of the toe of the new stability berm	Permanent (RVMA Applies)	<ul style="list-style-type: none"> <li><i>Removed impact from table since it has been agreed upon with COE and DEQ that impact area 3 is in an emergent state and no clearing will be required</i></li> </ul>
	<i>Impact Area – 4A</i> Existing Impoundment	East side of parapet wall	0.541 acres 40,200 Cu. Ft fill	Tidal vegetated	Placement of riprap for the construction of a downstream stability berm	Permanent	
	<i>Impact Area – 4B</i> Existing Impoundment	East side of parapet wall	0.128 acres 124,000 Cu. Ft fill	Tidal vegetated	Placement of fill for the construction of a downstream stability berm	Permanent	

Design Sheet	Dam Design Feature	Impact Location	Wetland Impact	Wetland Type Impacted	Reason for Impact	Type of Impact	Comment
<b>SHEET 2</b>	<i>Impact Area – 5 (impacts that will result in elevations Above MHW)</i> Existing Spillway	Downstream of existing spillway – Southside of spillway	0.016 acres  1,385 Cu. Ft fill	Tidal non-vegetated	Placing rip rap scour protection at the end of the spillway	Permanent	<b>Refer to revised plan sheet C-38. Impact area will be above MHW</b>
	<b>Based on Phone conversation with Audrey Cotnoir (USACOE; January 27, 2011) – additional evaluation of Impact Area 6A was requested to differentiate the impacts below MLW, between MLW and MHW, and above MHW. Therefore, impact area 6A has been split into those three categories. Refer to revised plan sheet C-38 for additional information.</b>						
	<i>Impact Area – 6-1 (impacts that will result in elevations Below MLW)</i> Existing Spillway	Downstream of existing spillway – In the channel	0.437 acres  148,932 Cu. Ft fill	Tidal subaqueous lands	Placing rip rap scour protection in the channel immediately downstream of the spillway chute	Permanent	No habitat conversion since all impacts will occur below mean low water.  No anticipated mitigation.
	<i>Impact Area – 6-2 (impacts that will result in elevations Between MLW and MHW)</i> Existing Spillway	Downstream of existing spillway – In the channel	0.046 acres  12,975 Cu. Ft fill	Tidal subaqueous lands	Placing rip rap scour protection in the channel immediately downstream of the spillway chute	Permanent	Area will continue to be tidal influenced therefore no habitat conversion.  No anticipated mitigation.
	<i>Impact Area – 6-3 (impacts that will result in elevations Above MHW)</i> Existing Spillway	Downstream of existing spillway – In the channel	0.080 acres  9,793 Cu. Ft fill	Tidal subaqueous lands	Placing rip rap scour protection in the channel immediately downstream of the spillway chute	Permanent	Impact area will be above MHW therefore anticipating a mitigation requirement.
<i>Impact Area – 7A</i> Existing Spillway	Downstream of existing spillway – Southside of the spillway	0.025 acres  (25 ft RVMA buffer applies – no	Non-tidal PFO	Clearing at the downstream toe of embankment	Permanent  (RVMA Applies)	<ul style="list-style-type: none"> <li>▪ Based on new regulation there is a need for additional 25 foot RVMA clearing adjacent to new emergency spillway -</li> </ul>	

Design Sheet	Dam Design Feature	Impact Location	Wetland Impact	Wetland Type Impacted	Reason for Impact	Type of Impact	Comment
			mitigation required)				no wetland mitigation required for this impact
	<i>Impact Area – 7B</i> Existing Spillway	Downstream of existing spillway	0.020 acres 910 Cu. Ft fill	Non-tidal PFO	Placing rip rap scour protection at the end of the spillway	Permanent	
	<i>Impact Area – 7C</i> Existing Spillway	Downstream of existing spillway - Southside of the spillway	0.060 acres 2,600 Cu. Ft fill	Non-tidal PFO	Constructing a stabilized surface drain	Permanent	<ul style="list-style-type: none"> <li>Impact area assumes an average of 1 foot of fill in this area. It's going to be clearing, cut, and fill for construction access and a stabilized swale.</li> </ul>
	<i>Impact Area – 8A</i> Construction Access Road	Downstream of existing spillway – North abutment	0.068 acres 20,720 Cu. Ft fill	Tidal subaqueous lands	Construction of North abutment for temporary bridge for construction access	Temporary  (post construction onsite mitigation)	<ul style="list-style-type: none"> <li>Fill below El. -2 is captured in spillway riprap impact in existing channel</li> </ul>
SHEET 2	<i>Impact Area – 8B</i> Construction Access Road	Downstream of existing spillway – South abutment	0.030 acres 9,400 Cu. Ft fill	Tidal subaqueous lands	Construction of South abutment for temporary bridge for construction access	Temporary  (post construction onsite mitigation)	<ul style="list-style-type: none"> <li>Fill below El. -2 is captured in spillway riprap impact in existing channel</li> </ul>
	<i>Impact Area – 9A</i> Construction Access Road	North of existing spillway	0.002 acres 100 Cu. Ft. fill	Non-tidal PFO			<ul style="list-style-type: none"> <li>Access road has been realigned to void this wetland; therefore wetland impact has been removed.</li> </ul>
	<i>Impact Area – 9B</i> Construction Access Road	North of existing spillway	0.021 acres 905 Cu. Ft. fill	Non-tidal PFO			<ul style="list-style-type: none"> <li>Access road has been realigned to void this wetland; therefore wetland impact has been removed.</li> </ul>

Design Sheet	Dam Design Feature	Impact Location	Wetland Impact	Wetland Type Impacted	Reason for Impact	Type of Impact	Comment
SHEET 3	<i>Impact Area – 10A</i> New emergency spillway	East side of new emergency spillway (Downstream side of new emergency spillway)	0.233 acres  (25 ft RVMA buffer applies – no mitigation required)	Non-tidal PEM	Clearing at east end of new emergency spillway	Temporary  (RVMA Applies)	<ul style="list-style-type: none"> <li>Removed impact from table since it has been agreed upon with COE and DEQ that impact area 10A is in an emergent state and no clearing will be required</li> </ul>
	<i>Impact Area – 10B</i> New emergency spillway - Existing Impoundment	West side of new emergency spillway	0.288 acres  (25 ft RVMA buffer applies – no mitigation required)	Non-tidal PFO	Existing impoundment repairs: Clearing at west end of new emergency spillway	Permanent  (RVMA Applies)	<ul style="list-style-type: none"> <li>Removal of submerged trees at base of new spillway slope for preventative maintenance</li> <li>Based on new regulation there is a need for additional 25 foot RVMA clearing adjacent to new emergency spillway - no wetland mitigation required for this impact</li> </ul>

Notes:

1. MHW - Mean High Water; El. +1.8
2. MLW - Mean Low Water; El. -1.2
3. Areas and volumes calculated from AutoCAD measurements
4. Ground surface elevation of Impact Area 5 is El. 5.0 or above. Therefore all impacts are above MHW.
5. Existing riprap above El. +2.0 +/- on the north bank of Impact Area 6C will be removed and replaced. Therefore, it is not captured in the fill volume for this impact.

~~November 2, 2010 (REVISED March 30, 2011)~~  
**REVISED August 9, 2011**

**TABLE 2. WESTERN BRANCH DAM SAFETY MODIFICATIONS – SUMMARY OF U.S. WATERS IMPACTS**

<b>WETLAND TYPE</b>	<b>IMPACT (Acres)</b>	<b>WETLAND IMPACT AREA</b>	<b>PERMANENT (revised 28 March 2011)</b>	<b>TEMPORARY</b>
Non-tidal subaqueous land	0.488	1	0.488	0
Non-tidal PFO	0.393	7A, 7B, 7C, 10B	0.393 (7A, 7B, 7C, 10B)	0
Tidal subaqueous lands				
Impacts to elevations below MLW	0.594	2A-1, 6-1, 8A, 8B	0.496	0.098 (8A, 8B)
Impacts to elevations between MLW and MHW	0.089	2A-2, 6-2	0.089	0
Impacts to elevations above MHW	0.380	2A-3, 2B, 6-3	0.380	0
Tidal vegetated	0.669	4A, 4B	0.669	0
Tidal non - vegetated	0.016	5	0.016	0
<b>TOTAL IMPACTS</b>	<b>2.629</b>		<b>2.531</b>	<b>0.098</b>

~~November 2, 2010 (REVISED March 30, 2011)~~  
**REVISED August 9, 2011**

**TABLE 3. WESTERN BRANCH DAM SAFETY MODIFICATIONS – MITIGATION REQUIREMENTS FOR PERMANENT IMPACTS TO U.S. WATERS**

WETLAND TYPE	MITIGATION REQUIREMENTS		
	PERMANENT IMPACTS (acres)	REVISED MITIGATION REQUIREMENTS (acres) (30 March 2011)	TOTALS (acres)
Non-tidal subaqueous land	0.488	No conversion – mitigation revised to 0 acres	0
Non-tidal PFO	0.393	7A (0.025 acres) – 1:1 mitigation = 0.025 acres 7B (0.020 acres) – 2:1 mitigation = 0.040 acres 7C (0.060 acres) – 2:1 mitigation = 0.120 acres 10B (0.288 acres) – 1:1 mitigation = 0.288 acres	0.473
Tidal subaqueous lands – below MLW	0.496	Impacts below MLW – mitigation is 0 acres	0
Tidal subaqueous lands – between MLW and MHW	0.089	Area will continue to be tidally influenced – mitigation is 0 acres	0
Tidal subaqueous lands – above MHW	0.380	Impacts above MHW – mitigation is at 0.5:1 at mitigation bank 0.19 acres	0.19
Tidal vegetated	0.669	0.669 acres	0.669
Tidal non - vegetated	0.016	Impacts above MHW – mitigation is at 1:1 at mitigation bank 0.016 acres	0.016
<b>TOTAL IMPACTS</b>	<b>2.531</b>	<b>TOTAL Tidal wetland mitigation = 0.875 acres</b> <b>TOTAL Non-Tidal Forested wetland mitigation = 0.473 acres</b>	