Attachment 12
Table 2 – Comparison of NR 151; SEWRPC; Technical Standards 1001, 1053, 1064; and NR 504.09 Storm Water Performance Standards

Table 2
Comparison of NR 151, SEWRPC, Technical Standard 1001, 1053 & 1064 to NR 504.09 Storm Water Performance Standards

NR 151, SEWRPC, AND TECHNICAL STANDARDS 1001, 1053 AND 1064 CRITERIA [REFERENCES BY BRYAN HARTSOOK IN FR INCOMPLETENESS LETTER DATED 4-23-09]	NR 504.09 CRITERIA	RAMIFICATIONS TO THE PROPOSED EXPANSION IF CRITERIA MEETING NR 151, SEWRPC, TECHNICAL STANDARDS 1001, 1053, 1064, IS IMPLEMENTED OVER THE CRITERIA SET FORTH IN NR 504.09
TOTAL SUSPENDED SOLIDS (TSS)		
New development: TSS reduction by 80% based on comparison to no controls for an average annual rainfall. Redevelopment: TSS reduction by 40% based on comparison to no controls for an average annual rainfall [NR 151.12 (5) (a)].	Temporary and permanent sediment control: ▪ Settle 0.015mm (15 micron) particle size for storms up to and including 25 year, 6 hour event [NR 504.09 (1)(e). This would equate to approximately a 30 % TSS reduction.	No additional increase in impervious area due to the landfill, therefore NR 151 post construction standards do not apply (April 2009 DNR letter). However, to reduce TSS by 80% versus 30%, considering the fine grain soils that exist at the proposed expansion site, it would require the sedimentation basins to increase in size by approximately 8 times. This would effectively eliminate the biofilters which are currently providing a final polishing of the surface water prior to discharge to the receiving body. As our current sampling point is prior to the discharge of the biofilter we cannot quantify the impact of this processing system.
PEAK DISCHARGE CONTROL		
Maintain discharge to pre-developed condition for 2 year, 24 hour runoff [NR 151.12 (5) (b)].	Not a requirement in NR 504.09. Usually included as a condition by the WDNR in an FR approval letter	Development of the Expansion to maintain predevelopment conditions can be achieved by meeting NR 504.09 design criteria
INFILTRATION		
Infiltrate 90 % of the pre-developed volume based on an average annual rainfall OR Infiltrate 25% of the post development 2 year, 24 hour runoff [NR 151.12(5)(c)]	No a requirement in NR 504.09.	Because of the tight fine-grained soils within the property boundary it would not be practical to expect that the infiltration rate could be achieved as specified in NR 151. To attempt to meet these requirements would require an infiltration basin that is impractical for the space available.

Table 2
Comparison of NR 151, SEWRPC, Technical Standard 1001, 1053 & 1064 to NR 504.09 Storm Water Performance Standards

NR 151, SEWRPC; AND TECHNICAL STANDARDS 1001, 1053 AND 1064 CRITERIA [REFERENCES BY BRYAN HARTSOOK IN FR INCOMPLETENESS LETTER DATED 4-23-09]	NR 504.09 CRITERIA	RAMIFICATIONS TO THE PROPOSED EXPANSION IF CRITERIA MEETING NR 151, SEWRPC, TECHNICAL STANDARDS 1001, 1053, 1064, IS IMPLEMENTED OVER THE CRITERIA SET FORTH IN NR 504.09
PROTECTIVE AREAS		
Setback for highly susceptible wetlands = 50 feet. Setback for less susceptible wetlands = 10% of the average wetland width but no less than 10 feet [NR 151.12(5)(d)]	No requirement in NR 504.09	The site wetlands are likely high susceptible wetlands per NR 151 which would result in a 50 ft setback. However we understand the WDNR is flexible in activities within the 50 ft setback if other wetland boundaries are preserved. The high susceptible definition does not apply to all wetland functional values.
RUNOFF VOLUME CALCULATIONS FOR 2 YEAR, 24 HOUR EVENT		
SEWRPC = 2.57 inches (refer to 4-23-09 DNR letter)	2.7 inches – Feasibility Report calculations used USDA, NRCS Field Handbook (DFH) – Part 650 Wisconsin Supplement 2 – Estimating Runoff for counties in Wisconsin over 24 hour period.	The requirement for the NR 504.09 is a more conservative design than using 2.57 inches

Table 2

Comparison of NR 151, SEWRPC, Technical Standard 1001, 1053 & 1064 to NR 504.09 Storm Water Performance Standards

NR 151, SEWRPC; AND TECHNICAL STANDARDS 1001, 1053 AND 1064 CRITERIA [REFERENCES BY BRYAN HARTSOOK IN FR INCOMPLETENESS LETTER DATED 4-23-09]	NR 504.09 CRITERIA	RAMIFICATIONS TO THE PROPOSED EXPANSION IF CRITERIA MEETING NR 151, SEWRPC, TECHNICAL STANDARDS 1001, 1053, 1064, IS IMPLEMENTED OVER THE CRITERIA SET FORTH IN NR 504.09
PERMANENT SEDIMENTATION BASIN DESIGN		
Wet detention – removal of Total Suspended Solids: ▪ For 80% control, 3 micron particles ▪ For 60% control, 6 micron particles ▪ For 40% control, 12 micron particles Peak outflow from a 1 year, 24 hour event = 2.1 inches (SEWRPC 2 year, 6 hour event) Basin lined with 2 feet of clay or HDPE Permanent pool depth of 5 feet	Temporary and permanent sediment control: ▪ Basin design is required to dewater in no less than 3 days. ▪ Settle 0.015mm (15 microns) particles size (approximately 30% TSS control) for storms up to and including 25 year, 6 hour event. ▪ The surface area of the basin: rainfall intensity over the 25 year, 6 hour event. ▪ Principle spillways and outfall protection: 25 year, time of concentration storm event ▪ Emergency spillways: 100 year, time of concentration storm event. NR 504.09 (e)	Reduce TSS by 80% versus 30%, considering the fine grain soils that exist at the proposed expansion site, would require the wet detention/sedimentation basins to increase in size by approximately 8 times. This would effectively eliminate the biofilters which are currently providing a final polishing of the surface water prior to discharge to the receiving body. As our current sampling point is prior to the discharge of the biofilter we cannot quantify the impact of this processing system.
<u>Sedimentation Basin During Construction</u> Treatment Surface Area (S_a) = 1.2* (q_{out}/V_s) where V_s = particle settling velocity of Type C soils = 1.2×10^{-5} fts (WDNR Technical Standard 1064) (refer to 4-23-09 DNR letter)		

(3)

Table 2
Comparison of NR 151, SEWRPC, Technical Standard 1001, 1053 & 1064 to NR 504.09 Storm Water Performance Standards

NR 151, SEWRPC; AND TECHNICAL STANDARDS 1001, 1053 AND 1064 CRITERIA [REFERENCES BY BRYAN HARTSOOK IN FR INCOMPLETENESS LETTER DATED 4-23-09]	NR 504.09 CRITERIA	RAMIFICATIONS TO THE PROPOSED EXPANSION IF CRITERIA MEETING NR 151, SEWRPC, TECHNICAL STANDARDS 1001, 1053, 1064, IS IMPLEMENTED OVER THE CRITERIA SET FORTH IN NR 504.09
DIVERSION SWALES		
Provide positive drainage to basins, topsoil, seeding and erosion mat. Construction can commence after vegetation is established in swales and basins (WDNR Technical Standard 1053) (refer to 4-23-09 DNR letter)	All temporary and permanent storm water ditches, swales, conveyance channels, channels, outlet protection, culverts and other storm water structures handling flow onto or off the landfill shall be designed to accommodate peak flow rates from a 25 year, time of concentration event (NR 504.09 (1)(d)). Containment berms around active fill areas: control and collect volume resulting from 25 year, 24 hour storm event (NR 504.09 (1)(g))	It is not practical to expect construction of the landfill to stop temporarily to wait for the vegetation establishment in the disturbed areas. If this were to occur, the volume of sediment created after construction proceeds would likely destroy the new young vegetation. Basins and ditches would be constructed first thing before working on other construction features and would be used to collect sediment throughout the remaining construction period. After all construction is completed the sediment collected in the basins and ditches should be removed and finish graded, followed by seeding, fertilizing and mulching when the risk of be damage due to other construction activities has diminished. Sedimentation basins and perimeter berms are constructed prior to full scale excavation of the landfill liner systems and well in advance of any cover systems. This sequencing is essential to insuring the maximum quantity of surface water is processed through these treatment systems.
DRAINAGE STRUCTURES		
No requirements	Design for 25 year storm event (NR 504.09(1) (g))	NR 504.09 is more conservative than NR 151.

Prepared by: D. Marshall, 11/9/09
Checked by: J. Kucher, 11/9/09