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Subject:
Technical Memorandum 2 – Regulatory Analysis
Wastewater Treatment Capacity and Effluent Disposal Study
Murfreesboro Water and Sewer Department

The purpose of this technical memorandum is to provide a summary of the regulatory constraints associated with the disposal of effluent from an expansion of treatment capacity either at the Sinking Creek Wastewater Treatment Plant (SCWWTP) or at a new satellite treatment facility. The contents of this technical memorandum include an overview of the current permit limits, a summary of recent Tennessee Department of Environment and Conservation (TDEC) correspondence with the City of Murfreesboro, an update of the regulatory constraints, and an overall analysis of the strategies developed previously by the City for the disposal of excess effluent flow. This technical memorandum also includes effluent disposal strategies discussed with TDEC as part of this study.

City of MURFREESBORO TENNESSEE

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1. Summary of Regulatory Issues for Effluent Disposal

The Sinking Creek Wastewater Treatment Plant (SCWWTP) is currently the sole wastewater treatment plant serving the City of Murfreesboro. The SCWWTP, owned and operated by the Murfreesboro Water and Sewer Department (MWSD), currently has an NPDES permit (TN0022586) allowing the discharge of 16 mgd from Outfall 001 into the West Fork Stones River. Effluent discharge at the plant averaged 15.7 mgd in January 2010. MWSD also maintains a non-potable repurified effluent disposal system that meets beneficial reuse standards. This repurified water is either land applied at a dedicated disposal site (Jordan Farm) or conveyed to a growing list of reuse customers for site irrigation or other reclaimed water uses. The disposal volume of treated effluent through the repurification system is seasonal. In the 12 month period ending June 2010, approximately 3.8 mgd of plant effluent was routed through the repurification system. The anticipated increase in growth within the MWSD service area, as described in Technical Memorandum No. 1, requires an increase in treatment and effluent disposal capacity.

1.1 Summary of Permit Limits

Currently, the SCWWTP is permitted to discharge 16 mgd to West Fork Stones River. Monthly average concentration limits are 5 mg/l for summer $CBOD_5$, 10 mg/l for winter $CBOD_5$, 2.2 mg/l winter ammonia nitrogen, 1 mg/l for summer ammonia nitrogen, 9 mg/l of total nitrogen, and 30 mg/l suspended solids. Total phosphorus is monitored as a “Report” only parameter. The concentration of *E. coli* must not exceed 126 cfu/100 ml as the geometric mean of samples collected within the required reporting period. Monitoring requirements set by the permit include sampling at both the effluent and influent locations. Once-a-day sampling is required for most of the constituents, while total nitrogen and total phosphorus requires bimonthly sampling.

1.2 Summary of Previous TDEC Communications

In January 2010, MWSD submitted a letter to the Tennessee Department of Environment and Conservation (TDEC) that outlined seven effluent disposal strategies for flow in excess of 16 mgd. The effluent disposal strategies were described as follows:

- Strategy 1: Expanded discharge into West Fork Stones River at existing Outfall #001.
- Strategy 2: New continuous discharge into East Fork Stones River at proposed Outfall #002.
- Strategy 3: New flow-based discharge into East Fork Stones River at proposed Outfall #002.
- Strategy 4: New satellite WWTP with continuous discharge into West Fork Stones River at proposed Outfall #003.
- Strategy 5: New satellite WWTP with continuous discharge into Middle Fork Stones River at proposed Outfall #004.

- Strategy 6: New satellite WWTP with discharge into East Fork Stones River at proposed Outfall #002.
- Strategy 7: New satellite WWTP with discharge into Overall Creek (proposed Outfall #005) or at the confluence of Overall Creek and West Fork Stones River.

There are several regulatory constraints that limit effluent disposal options for MWSD. The first regulatory issue is the presence of low flow streams in the service area. The low 7Q10 flow of the West Fork Stones River (upstream of the current discharge location), Middle Fork Stones River, and Overall Creek limit the volume and strength of treated effluent that may be discharged. Another issue is the impaired waters classification of many of the local streams. TDEC limits new or modified effluent discharge permits to impaired waters. Figure 1-1 shows the five outfall locations that were considered, the location of impaired waters, and the date of listing (or de-listing).

TDEC replied to the City's effluent disposal feasibility request in March 2010. TDEC highly recommended considering the expansion of year-round land application or the expansion of the repurified water system prior to evaluating discharge alternatives. However, TDEC did provide an opinion on the regulatory constraints associated with each of the seven effluent disposal strategies. The effluent disposal strategies and the corresponding TDEC responses are summarized in Table 1-1.

1.3 Update of Regulatory Constraints

The response letter from TDEC (March 2010) was based on the Final 2008 303(d) list. The draft version of the 2010 303(d) list was released in May of 2010. Table 1-2 provides a summary of the findings in the Final 2008 303(d) list and the Draft 2010 303(d) list. The table also provides the Total Maximum Daily Load (TMDL) development status for each stream segment. The differences between the Final 2008 303(d) and the findings of the Draft 2010 303(d) are as follows:

- The stream segment at existing Outfall #001 will most likely be developed in the next 5 to 12 years, per the Draft 2010 303(d) list, instead of in the next 2 years.
- In 2008, the East Fork Stones River was not listed as impaired in the Draft 2010 303(d) list; however, in 2010, a segment of the East Fork Stones River (waterbody TN05130203026–2000) is listed as impaired due to *Escherichia coli*. *E. coli* is the pollutant exceeding water quality standards likely as a result of pasture grazing. TDEC has stated that this segment is now a high priority for TMDL development. This particular segment is several miles east of the proposed Outfall #002.
- Waterbody TN05130203018-5000 of the West Fork Stones River is delisted due to improved biological quality. This segment is located downstream of proposed Outfall #003.

The TMDL priorities of waterbodies in Sinking Creek and West Fork Stones River decreased for certain pollutants. At the waterbody segment at existing Outfall #001, the TMDL priorities for nitrates decreased

from high to low, and the priority for TMDL development due to siltation decreased from high to medium. Additionally, phosphorus was added as a pollutant of concern with a low TMDL priority.

Table 1-1: Summary of TDEC Responses to Effluent Disposal Strategies

Strategy [1]	Tennessee Department of Environment and Conservation Response [2]	Viable Effluent Disposal Option?
1: Expand discharge into West Fork Stones River at Outfall #001 using a minimum river flow rate, or flow-based discharge permit.	The West Fork is impaired for nitrates and siltation (and phosphorus per draft 2010 303(d) list). Additional loading will not be allowed. However, TDEC may be able to consider allowing additional flow during the winter months while keeping pollutant loadings the same.	Yes, only during winter months if pollutant loadings are kept the same.
2: New continuous discharge into East Fork Stones River at Outfall #002.	The 7Q10 of the East Fork at Outfall #002 is 5.67 cfs. TDEC may be able to consider permitting a discharge to the East Fork as it is not identified as impaired.	Yes.
3: New intermittent discharge into East Fork Stones River at Outfall #002 using a minimum river flow rate, or flow-based discharge permit.	TDEC does not consider a flow-based discharge permit to be a viable option due to monitoring compliance issues and protecting water quality.	No.
4: New satellite WWTP with continuous discharge into West Fork Stones River at Outfall #003.	TDEC does not consider this strategy to be a viable option (independent of treatment technology implemented). The 7Q10 of West Fork is only 0.41 cfs and the discharge point is upstream of the impaired section.	No.
5: New satellite WWTP with continuous discharge into Middle Fork Stones River at Outfall #004.	TDEC does not consider this strategy to be a viable option (independent of treatment technology implemented). The 7Q10 of Middle Fork is only 0.31 cfs and the discharge point is just before the confluence with the West Fork, upstream of the impaired section.	No.
6: New satellite WWTP with discharge into East Fork Stones River at Outfall #002.	TDEC may be able to consider permitting a discharge at this point; however, the division recommends that the City considers seasonal discharge.	Yes, seasonal discharge.
7: New satellite WWTP with discharge into Overall Creek or West Fork Stones River at Outfall #005.	TDEC does not consider this strategy to be a viable option (independent of treatment technology implemented). The7Q10 of Overall Creek at the point of discharge is 0.097 cfs. The 7Q10 at the confluence of Overall Creek and West Fork Stones River is 0.57 cfs and is directly downstream from the existing 16 mgd discharge.	No.

[1] *Letter dated January 6, 2010 from Murfreesboro Water and Sewer Department to Tennessee Department of Environment and Conservation.*
[2] *Letter dated March 11, 2010 from Tennessee Department of Environment and Conservation to Murfreesboro Water and Sewer Department.*

Table 1-2: Summary of Impaired Waterbodies in Rutherford County

Waterbody ID	Impacted Waterbody	Location Relative to Existing or Proposed Outfalls	Final 2008 303(d) List			Draft 2010 303(d) List			TMDL Developed?
			TMDL Cause	Priority [1]	Pollutant Source	TMDL Cause	Priority [1]	Pollutant Source	
TN051302030 18 - 0100	Sinking Creek	Intersects with West Fork just upstream of existing Outfall #001	Alteration in stream-side or littoral vegetative cover *E. coli*	H H	Land development, discharges from MS4 area	Alteration in stream-side or littoral vegetative cover *E. coli*	M H	Land development, discharges from MS4 area	Yes, for *E. coli* (2006)
TN051302030 18 0 - 2000	West Fork Stones River	Existing Outfall #001 located on this segment	Nitrates Loss of biological integrity due to siltation	H H	Municipal point source, land development	Nitrate and nitrite Total phosphorus Loss of biological integrity due to siltation	L L M	Municipal point source, land development	No
TN051302030 18 0 - 3000	West Fork Stones River	Directly upstream of existing Outfall #001 and downstream of proposed Outfall #003	Loss of biological integrity due to siltation	H	Land development	Loss of biological integrity due to siltation	M	Discharges from MS4 area	No
TN051302030 18 0 - 7000	West Fork Stones River	Several miles upstream of proposed Outfall #003, slightly north of county line	Low dissolved oxygen	H	Pasture grazing, unrestricted cattle access	Low dissolved oxygen	L	Pasture grazing, unrestricted cattle access	Yes, for total nitrogen, total phosphorus, and $CBOD_5$ (2008)

Table 1-2: Summary of Impaired Waterbodies in Rutherford County

Waterbody ID	Impacted Waterbody	Location Relative to Existing or Proposed Outfalls	Final 2008 303(d) List			Draft 2010 303(d) List			TMDL Developed?
			TMDL Cause	Priority [1]	Pollutant Source	TMDL Cause	Priority [1]	Pollutant Source	
TN051302030 18 0 - 5000	West Fork Stones River	Upstream of proposed Outfall #003, intersects with stream containing proposed Outfall #004	Delisted			Loss of biological integrity due to siltation	H	Land development, pasture grazing	No
TN051020302 6 - 2000	East Fork Stones River	Several miles east of proposed Outfall #002	Not listed			*E. coli*	H	Pasture grazing	No

[1] *A low priority (L) TMDL is one in which tools are not available to produce a TMDL in the twelve years of the final impairment listing. A medium priority (M) TMDL will be developed in the five years of the final impairment listing. A TMDL of high priority (H) indicates that tools are available to produce the TMDL in the next years of impairment listing.*

1.4 Summary of TMDLs

Out of the six waterbodies included in Table 1-2, only two have EPA-approved TMDLs. The waterbody segment at Sinking Creek just upstream of existing Outfall #001 has a TMDL for *E. coli* that was approved in 2006. Table 1-3 provides a summary of the TMDL associated with this segment.

According to the Final Stage 1 TMDL Report for the Stones River Watershed, TMDL and load allocations have been set for waterbody TN05130203018-7000 at the West Fork Stones River. Stage 1 TMDLs for total nitrogen, total phosphorus, and $CBOD_5$ are summarized in Table 1-4.

Currently, there are no TMDLs for the segments of the West Fork Stones River that correspond to existing Outfall #001, the discharge point of the SCWWTP's current permit. As understood from recent discussions with TDEC, the priority for setting a TMDL at this location is low because it is difficult to implement near a major point source discharge. Due to the low and medium TMDL priorities of these segments, it is suspected that TMDLs will not be developed within the next 5 to 12 years. Additionally, there are no TMDLs that correspond with proposed Outfalls #002, #003, #004, or #005.

Table 1-3: Summary of Stage 1 TMDL for *E. coli*

HUC-12 Sub-watershed (05130203_) or Drainage Area	Impaired Waterbody	Waterbody ID	TMDL (% Reduction)
DA	Sinking Creek	TN05130203018-0100	72.3

Table 1-4: Summary of Stage 1 TMDL for Total Nitrogen, Total Phosphorus, and $CBOD_5$

HUC-12 Sub-watershed (05130203_) or Drainage Area	Impaired Waterbody	Waterbody ID	TMDL					
			Total Nitrogen		Total Phosphorus		$CBOD_5$	
			(lbs/yr)	(lbs/day)	(lbs/yr)	(lbs/day)	(lbs/yr)	(lbs/day)
0201	West Fork Stones River	TN051302 03018-7000	169,007	$2.200 \times 10^1 * Q$ [1]	34,899	$1.045 \times 10^1 * Q$	336,300	$4.046 \times 10^1 * Q$

[1] *Q = Stream flow at pour point of subwatershed or drainage area (ft^3/sec).*

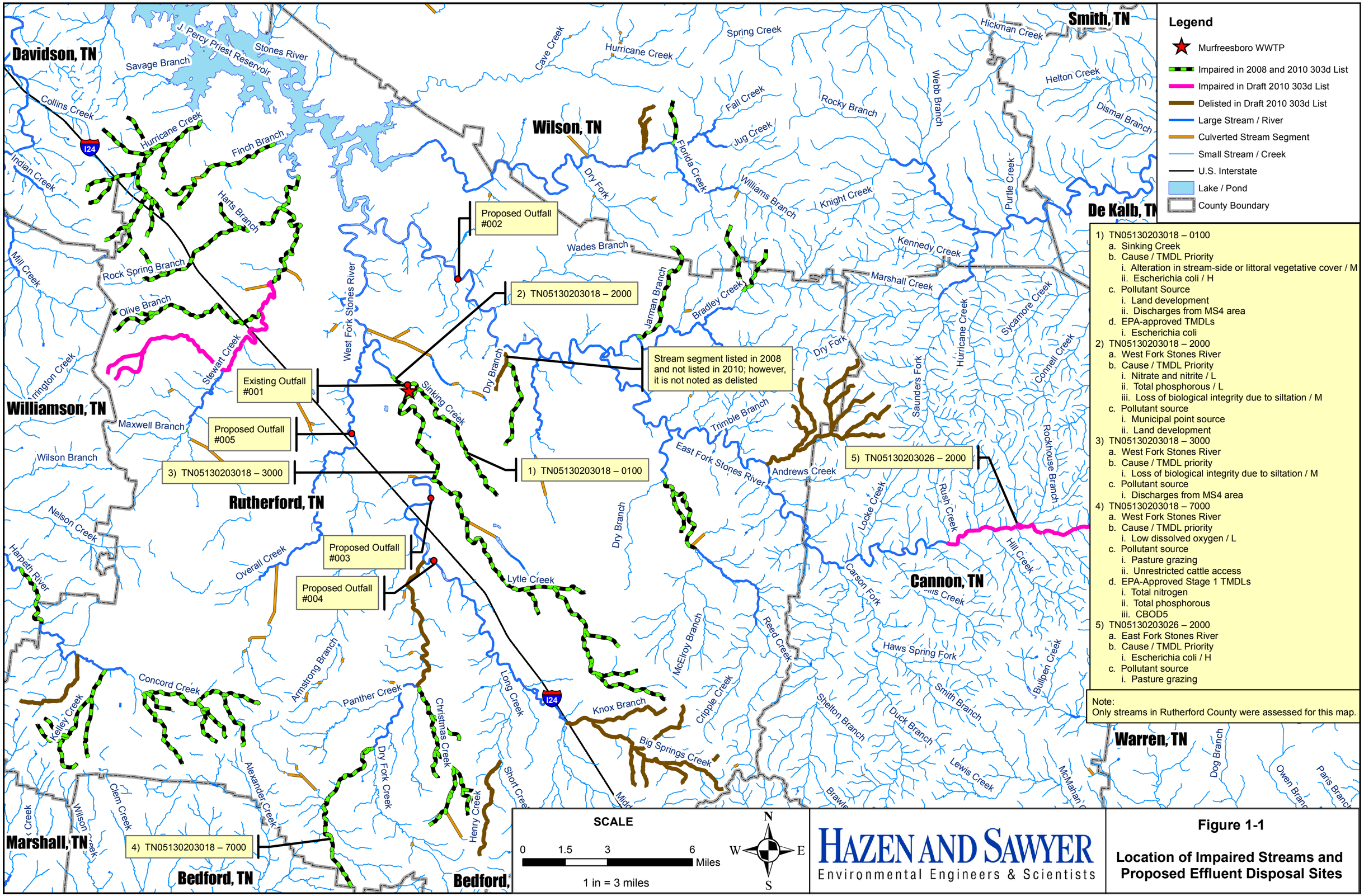

Figure 1-1

Location of Impaired Streams and Proposed Effluent Disposal Sites

2. Regulatory Strategies for Expanded Effluent Disposal

2.1 Updated Evaluation of Effluent Disposal Strategies

MWSD and Hazen and Sawyer met with TDEC on September 28, 2010 to discuss effluent disposal options, examine local stream impairments, and review the previous TDEC letter responses to MWSD. The outcomes of the meeting are incorporated into the following discussions.

2.2 Summary of Repurified Water Reuse and Land Application Options

Expansion of MWSD's beneficial reuse initiatives should continue since the need for high quality repurified water to serve industrial customers, commercial developments, golf courses, recreational areas, and residential developments will likely continue to grow. Disposal options for repurified water not consumed by beneficial reuse include land application by either spray or drip irrigation. Spray irrigation includes surface application of wastewater by one of a number of different types of irrigation spray heads and is currently adopted by MWSD for Jordan Farm. Sub-surface drip irrigation is accomplished through buried piping laterals that discharge the wastewater into the soil through an orifice-type system.

According to the current NPDES permit, the application rates of treated wastewater are restricted by several factors:

1. The application rate shall be restricted such that ponding or runoff of the reuse water does not occur. (Per discussions with TDEC, this requirement also implies no land application during wet or frozen conditions at the application site.)
2. Nitrogen uptake by the receiving crop must be sufficient during all months of the year to prevent the reuse water from causing the groundwater underlying the application site to exceed State groundwater criteria for nitrate.
3. The discharge of repurified water to any surface or subsurface streams is not permitted.

Treatment requirements for repurified water include those for wastewater being discharged at the current outfall location plus additional disinfection to meet stricter *E. coli* effluent limits. The repurified water must meet a daily maximum *E. coli* concentration of 23 colonies per 100 ml and a daily minimum chlorine residual of 1.0 mg/l in the distribution system.

A significant portion of the September 2010 meeting with TDEC focused on land application effluent disposal options, including spray irrigation and subsurface dispersal systems, as well as the permitting classifications of restricted and unrestricted land application. The main requirements from TDEC's publications on "*Design Criteria for Sewage Works*," specifically Chapter 15 (Managed Wastewater Dispersal Using Drip Irrigation), Chapter 16 (Design Guidelines for Wastewater Treatment using Spray Irrigation), and Chapter 17 (Design Guidelines for Wastewater Dispersal Using Drip Disposal), are summarized in Table 2-1. The guidelines also include recommendations on the requirements for

topography, buffers, and cover crop selection.

Per Table 2-1, the calculation for application rates (hydraulic loading rates) is the same for both spray irrigation and subsurface drip systems. The maximum application rate for both options equals 0.25 gallons per day per square foot (gpd/SF). If nutrient limitations are expected at the site, the maximum application rate for planning purposes should be closer to 0.20 gpd/SF. The main differences among the options shown in Table 2-1 are as follows:

- Seasonal application – Spray irrigation is not allowed during rain or snow/ice events but drip irrigation systems theoretically can run 365 days per year.
- Storage requirements and/or need for a seasonal surface water discharge permit – For the same reasons as stated above for seasonal application, spray irrigation requires a backup disposal/storage option for times when spraying is not allowed. Storage is not required for subsurface drip systems.
- Water quality of treatment plant effluent – Unrestricted categories that allow potential public exposure to the application sites require higher quality effluent standards.

In response to questions during the meeting on a proposal to convert the Jordan Farm from spray irrigation to a sub-surface drip system, TDEC mentioned that it may be financially inefficient to treat water to high-quality beneficial reuse levels (e.g., low bacterial counts and chlorinated residual) for use in a restricted drip irrigation land application system. However, for future restricted spray and restricted drip irrigation options, which allow treatment to lower water quality standards, designing the treatment process for beneficial use water quality standards should still be considered to maintain future flexibility to serve beneficial reuse customers in the region. Cost-benefit analyses should be performed to determine if the additional expenses associated with high-quality treatment are consistent with MWSD's repurification initiatives and the potential for serving new reuse customers.

The land application options, as well as seasonal discharge options, will require public notice periods during the permitting process. TDEC does not typically issue effluent water quality planning limits for restricted land application (either by spray or by sub-surface drip irrigation). Typically, these systems are designed in accordance with the appropriate manuals of practice and TDEC's design guidelines. The Consolidated Utility District (CUD) has similar land application permits that also can be consulted for typical language associated with restricted land application sites.

Table 2-1: Land Application Effluent Disposal Options

Option	General [4]	Treatment	Soils	Design Application Rates	Storage/Backup
Spray – Unrestricted (Sites open to public access)	No direct discharge to surface waters	$BOD_5 \leq 30$ mg/l TSS ≤ 30 mg/l (monthly average)	Must consider limiting aspects (shallow restrictive horizons, low permeability soils, hydrologic boundaries)	Maximum application rate for land application is 0.25 gpd/SF (0.20 – 0.21 gpd/SF planning rate if nutrients are limiting). See Note 1 for details on application rate calculations for specific soils.	Minimum storage requirement should be 60 days at design flow. See TDEC guidelines to estimate requirement via water balance calculations. -or- Surface water discharge permit (seasonal, continuous) [3]
	State of Tennessee Operation Permit (SOP) required	Disinfection: *E. coli* less than 23 colonies/100 ml. Maintain chlorine residual	Moderately permeable and well-drained soils are desirable		
	Site should be relatively isolated, easily accessible, and not susceptible to flooding	Inorganic constituents should be compared with guidance documents to ensure soil compatibility	It is desirable to have a minimum depth of 20 inches of undisturbed soil above restrictive horizon (rock, fragipan, high water table)		
Spray – Restricted (Sites closed to public access)	No direct discharge to surface waters	Lagoon system effluent acceptable if designed in accordance with guidance documents	Must consider limiting aspects (shallow restrictive horizons, low permeability soils, hydrologic boundaries)	Maximum application rate for land application is 0.25 gpd/SF (0.20 – 0.21 gpd/SF planning rate if nutrients are limiting). See Note 1 for details on application rate calculations for specific soils.	Minimum storage requirement should be 60 days at design flow. See TDEC guidelines to estimate requirement via water balance calculations. -or- Surface water discharge permit (seasonal, continuous) [3]
	State of Tennessee Operation Permit (SOP) required	Disinfection generally not required for restricted and fenced access	Moderately permeable and well-drained soils are desirable		
	Site should be relatively isolated, easily accessible, and not susceptible to flooding	Inorganic constituents should be compared with guidance documents to ensure soil compatibility	It is desirable to have a minimum depth of 20 inches of undisturbed soil above restrictive horizon (rock, fragipan, high water table)		

Table 2-1: Land Application Effluent Disposal Options

Option	General [4]	Treatment	Soils	Design Application Rates	Storage/Backup
Drip – Unrestricted (Open Access or Attractive Access) [2]	Must consider all factors influencing infiltrative capacity, including historical information (e.g., soils that have been highly compacted and/or disturbed such as old road beds, must be excluded.)	BOD_5 < 30 mg/l, meet disinfection and disinfectant residual requirements unless drip dispersal area is properly fenced	Moderately permeable and well-drained soils are desirable It is desirable to have a minimum depth of 20 inches of undisturbed soil above restrictive horizon (rock, fragipan, high water table) The horizon of each soil series and any surface condition which most limits vertical or lateral drainage shall be identified.	Maximum application rate for land application is 0.25 gpd/SF (0.20 – 0.21 gpd/SF planning rate if nutrients are limiting). See Note 1 for details on application rate calculations for specific soils.	None required.
Drip – Restricted (Inhibited Access or Difficult Access) [2]	Must consider all factors influencing infiltrative capacity, including historical information (e.g., soils that have been highly compacted and/or disturbed such as old road beds, must be excluded.)	Disinfection may not be required	Moderately permeable and well-drained soils are desirable It is desirable to have a minimum depth of 20 inches of undisturbed soil above restrictive horizon (rock, fragipan, high water table) The horizon of each soil series and any surface condition which most limits vertical or lateral drainage shall be identified.	Maximum application rate for land application is 0.25 gpd/SF (0.20 – 0.21 gpd/SF planning rate if nutrients are limiting). See Note 1 for details on application rate calculations for specific soils.	None required.

Notes:

1. *Design application rates are based on the lowest of:*
   - *(1) The hydraulic loading rate (L_{wh}) based on the most restrictive of the following:*
     - *a) The applicable hydraulic loading rate based on soil texture and structure:*
       - *i. Spray Unrestricted: Table 16-1 (column for BOD < 30 mg/l)*
       - *ii. Spray Restricted: Table 16-1 (column for BOD < 150 mg/l)*
         - *1. If the effluent wastewater is of high strength (> 150 mg/l BOD), the organic loading rate for restricted spray application rate will be limited based on a BOD mass loading rate assigned to each soil classification.*
       - *iii. Drip Restricted/Unrestricted: Table 17-2*
     - *b) 10% of the minimum NRCS saturated vertical hydraulic conductivity (K_{sat})*
     - *c) 0.25 gpd/SF*

Table 2-1: Land Application Effluent Disposal Options

Option	General [4]	Treatment	Soils	Design Application Rates	Storage/Backup

(2) the nutrient loading rate (L_{wn}) calculations based on nitrogen limits (monthly basis):

a) $L_{wn} = (C_p(P_r\text{-}PET) + U(4.413))/((1\text{-}f)(C_n)\text{-}C_p)$ (Equation 16-1)

b) The nitrogen concentration in the percolate (C_p) must not exceed 10 mg/l nitrate-nitrogen at the property line.

2. For centralized systems (Chapter 17), no differentiation is made between restricted and unrestricted drip systems. For decentralized systems (Chapter 15), access is defined as follows:

Open Access: Drip areas are used for ball fields, playgrounds, picnic areas, golf courses, etc.

Attractive Access: Open spaces for drip application are maintained similar to residential lawns with easy access and grass maintained at short heights, but with the area undeveloped for recreational purposes.

Inhibited Access: Areas for drip application area are allowed to return to natural vegetation. Routine human access is discouraged.

Difficult Access: Areas for drip application are located where human access is rare due to terrain, location, or vegetation.

3. TDEC indicated that storage would not necessarily be required if the plant had a seasonal discharge permit. However, the occurrence of another major rain event in the summer, during which land application would not be possible, must be considered. This case could lead to permit violation and/or the need for TDEC to revisit and revise the permit.

4. Spray and sub-surface drip land application have different buffer and allowable slope requirements, further discussed in TDEC's design guidelines for drip and spray irrigation.

3. Summary of Effluent Disposal Options

According to TDEC, the earlier-proposed outfall location on the East Fork of the Stones River remains an acceptable option for seasonal discharge. Planning limits for such a discharge may be requested by a letter from MWSD to TDEC. These planning limits will need to take into consideration TDEC's anti-degradation policies, which include an evaluation of the social and economic impacts of the discharge. TDEC's responses to the other disposal options, as described in the letter dated March 2010 and summarized in Table 2-1, are still valid including the potential alternative of expanding the discharge into the West Fork of the Stones River at the existing outfall during the winter months if pollutant loadings are kept the same. Thus, there are viable alternatives for discharge into a surface water within the service area but the options are limited. Other disposal options, such as deep well injection or discharge to constructed wetlands, may not be feasible under current TDEC regulations and will be discussed further in TM 4 – *Effluent Disposal Options*.

In terms of the current study being performed by Hazen and Sawyer, one of the consensus items from the September 2010 meeting was that potential land application sites west of I-24, where the highest population growth appears to be occurring, should be evaluated. It was mentioned that MWSD has been proactive in evaluating future land application sites, including performing a soils evaluation of parcels of land that are potential sites for future land application development. Further, the evaluation of alternatives should include an analysis of spray irrigation versus subsurface drip irrigation for the Coleman Farm and a cost-benefit comparison of land application at the Coleman Farm to a new seasonal discharge permit on the East Fork of the Stones River. Prior to permitting either a surface-water discharge option or a land disposal option, the hydraulic capacity of the existing wastewater treatment plant (with or without plant expansion improvements) and/or a new satellite wastewater treatment plant will need to be determined and reviewed by TDEC.