



MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
8787 Georgia Avenue • Silver Spring, Maryland 20910-3760

MCPB Item #4

MEMORANDUM

TO: Montgomery County Planning Board

VIA: Jeff Zyontz, Chief, County-wide Planning Division

FROM: Mark Pfefferle, Planning Coordinator *mp*

DATE: October 22, 2004

SUBJECT: Forest Conservation Plan Black Hill Regional Park/New Sewer Outfall Project #84.46

STAFF RECOMMENDATION: Environmental Planning staff recommends approval of the final forest conservation plan for WSSC Sewer Outfall Project # 84.46 through Black Hill Regional Park with the following conditions:

1. Applicant to prepare and implement a non-native invasive (NNI) management plan, for a minimum of five year, to cover the area within the limits of disturbance and extending 100 feet on either side of the limits of disturbance for a minimum of five years. The M-NCPPC Natural Resource Management staff shall review and approve the NNI management plan. At a minimum, the plan will include inspections and removal of NNIs, using approved mechanical means and glyphosate based herbicide applications, two times per year during the growing season. Prior to the end of the five-year period, Natural Resource Management staff will inspect the area and a final treatment plan developed to remove all remaining NNIs from the area.
2. Applicant to provide a five-year maintenance period on all planted material.
3. Area of clearing for the wastewater line and construction of the wastewater line is restricted to the limits of disturbance identified in the Forest Conservation Plan. If it becomes necessary to go beyond the limits of disturbance, the applicant must get approval from the Planning Board prior to any clearing activities.
4. Applicant to identify the size and condition of each tree 4 inches dbh and greater within 40 feet of the limits of disturbance. Each tree to be tagged and a database constructed with tree specific information. If any of the 4-inch and greater trees outside of the limit of disturbance dies, or has significant dieback within 5 years from the start of clearing or grading activities, the applicant must replace the tree on a one-inch to one-inch caliper basis.
5. Applicant must use disturbance-minimizing construction techniques, such as crib walls, metal plates, etc, that prevent the laying back of the trench wall.

6. Applicant to use only track vehicles to access the site.
7. Applicant to restore site to original grades.
8. All debris piles and downed trees to be immediately removed from the site.
9. No material storage allowed anywhere except within the specified limits of disturbance. Trees shall be downed in a manner that minimizes collateral damage.
10. Planting to occur in phases and as soon after the disturbance as possible.
11. Site to be prepared for reforestation and excavated deep material must not be the last material used to fill trench after wastewater is in place.
12. Applicant to prepare the site for planting according to specifications in "Revegetation Requirements for Disturbance of M-NCPPC Parkland" revised edition November 2004.
13. Applicant to provide deer protection mechanisms for all planted material. Deer protection to be approved by Natural Resource Management staff.
14. M-NCPPC Parks Arborist to be included in all appropriate phases of the project.

BACKGROUND

The subject site is located on the southwest quadrant of Interstate 270 and West Old Baltimore Road along the western side of a second order unnamed tributary to Little Seneca Creek as well as part of Little Seneca Creek immediately west of I-270. Both watercourses are classified as Use Class IV-P streams. The site is mature forested parkland owned and managed by the Maryland-National Capital Park and Planning Commission. The subject site is entirely within the Black Hill Regional Park. The proposed use of the site is for the construction of a WSSC 24-inch wastewater line to service the Cabin Branch subdivision and future stage IV areas of Clarksburg. The wastewater line is to be constructed by the owners of the Cabin Branch property and they are the applicants for this forest conservation plan.

The Planning Board approved, on June 3, 2004, preliminary plan of subdivision 1-03110A. The preliminary plan includes 1600 residential dwelling units, 500 senior units, and 1,538,000 square feet of employment/ retail/public uses. The Master Plan allows for additional 900 residential units in the Stage IV area of west of Cabin Branch. Based on alternatives analysis, construction of a wastewater line through Black Hill Regional Park is necessary in order for development to proceed and to provide service to the future residents and employees west of I-270.

The Clarksburg Master Plan identifies the Cabin Branch property in Stage 3 of the Clarksburg development implementation plan. The property was initially identified as in water and sewer category W-6 and S-6. In order to development to occur within this part of Clarksburg the water and sewer category needed to be advanced. The Planning Board supported general water and sewer category amendments, for the Cabin Branch property, to W-4 and S-4, on June 1, 2000, with conditional advancement to W-3 and S-3. Advancement to S-3 and W-3 would occur only if TDRs are utilized in the development. (Preliminary plan 1-03110A includes TDRs).

The wastewater line is entirely funded by developer contributions and is approved in the WSSC CIP budget. Financing of the Cabin Branch wastewater line is the first CIP sewer project fully funded by developer contributions in Montgomery County. The wastewater line will be constructed to WSSC specifications and oversight, and become part of the WSSC infrastructure once it is complete. WSSC will be responsible for all operation and maintenance costs.

Environmental Planning staff approved natural resource inventory/forest stand delineation (NRI/FSD) #4-02312 in May 2002. The applicant submitted a forest conservation plan in March 2003. The forest conservation plan indicates the removal of 3.96 acres of forest. The proposed wastewater line is entirely within the stream buffer. Once construction is complete, the applicant would be required to reforest the entire site and, because of the large amount of forest removed, the applicant will have to plant an additional 0.5 acres of forest.

On November 7, 2003, a MNCPPC permit was issued for the construction of the wastewater line through Black Hill Regional Park. The park permit was issued prior to Planning Board approval of the forest conservation plan but is conditioned on the applicant receiving all the necessary approvals from the appropriate permitting agencies.

ANALYSIS

The Clarksburg Master Plan is silent on the exact location of the wastewater line for this property. During the master plan process, there was considerable concern on how to safely and efficiently transport wastewater around Little Seneca Lake. Staff recollections of the master plan deliberations indicate that a more thorough analysis of the appropriate route for the wastewater line would occur at the time of the Mandatory Referral for the WSSC sewer line. However, based on the new WSSC financing procedure the developer is required to fund and construct the wastewater line and therefore a mandatory referral is not required.

Montgomery County Council approved WSSC CIP Project # 84.46 in February 2001. The approval does not specifically identify the location of the wastewater line but does indicate it as a gravity system on the west of the stream in Black Hill Regional Park. M-NCPPC staff did not comment on WSSC CIP Project #84.46 during Council deliberations and that this CIP project was part of a much larger WSSC funding request. WSSC staff concedes that alternative routes were not discussed for the wastewater line.

Alternatives Selected for Review

As part of the forest conservation plan review, Environmental Planning staff required the applicant to conduct an alternative analysis and to determine if other alternatives were feasible. Environmental Planning staff identified 5 Alternatives for study in addition to the CIP route. Attachment A indicates the 5 alternatives selected for study and the CIP route. The alternatives selected for more detailed analysis are as follows:

- Alternative 1. Pump sewage material from the Cabin Branch development and Stage IV across the stream that runs parallel to I-270, underneath I-270 and connect into the existing wastewater line that runs through the Summerfield Crossing subdivision, or run a parallel wastewater line in this currently unforested stream valley.
- Alternative 2. Pump sewage material from Cabin Branch development and Stage IV across the stream, underneath I-270 to a new line parallel to I-270 but on the east side of the Interstate.

- Alternative 3. Transport sewage material from Cabin Branch development and Stage IV across the stream that runs parallel to I-270 and place the wastewater line between the I-270 right-of-way and east of the stream.
- Alternative 4. Pump sewage material from Cabin Branch development and Stage IV along a route parallel to Lake Ridge Drive and through existing forest clearings, meadows, and canopy breaks as much as possible to connect to the existing wastewater line prior to the Crystal Rock Station.
- Alternative 5. Transport wastewater, via gravity, through the park but at the 520 topographical contour elevation. This elevation is similar to the elevation at the intersection of Lake Ridge Drive and West Old Baltimore Road. Utilize deep wastewater lines as necessary to minimize forest impact and utilize a gravity system. Once at the high point utilize forest clearings, meadows, and canopy breaks to minimize forest loss.

Alternative and CIP Project Comparison

A number of problems arise with the alternatives and CIP route. A summary of the CIP and each alternative is presented below.

- CIP 84.46 Route.
 - This route is entirely within the stream buffer.
 - Requires wetlands impacts and a stream crossing.
 - The forest in this part of Black Hill is high quality with very few invasive materials.
 - MNCPPC Natural Resource staff identified this forest as an important natural resource and feels that a sizeable amount of forest will be both directly destroyed and substantially degraded.
 - Direct forest loss of 3.96 acres.
 - Estimated interior forest loss of 9 acres.
 - Wetland impacts of 0.14 acres.
 - One stream crossing.
 - Estimated park impacts of 3.96 acres.
 - Require 4196 linear feet of pipe.
 - Entirely gravity system through the park
 - Estimate cost for this route is \$1.1 million not including possible excavation difficulties such as depth of soil to bedrock and removing material to achieve a desired pipe depth.
- Alternative 1.
 - Requires the construction of a 9 MGD (million gallon per day) pumping station at an estimated capital cost of \$2 million.
 - Requires easements from the Linthicum family. (The stream buffer in the Summerfield Crossing subdivision is to be dedicated to M-NCPPC).
 - Requires tunneling under I-270 and/or laying pipe within the Little Seneca Creek culvert.
 - Requires a wastewater line parallel to the existing wastewater line.

- Includes 3 stream crossings.
 - Wetland impacts of 0.70 acres
 - No forest/interior forest lost.
 - Estimate park impacts of 0.17 acres.
 - 4200 linear feet of gravity pipe.
 - 1300 linear feet of force main.
 - Estimated cost: \$3.8 million (including pump station)
- Alternative 2.
 - Requires the construction of a 9 MGD (million gallon per day) pumping station at an estimated capital cost of \$2 million.
 - Requires easements from the Linthicum family. (The stream buffer in the Summerfield Crossing subdivision is to be dedicated to M-NCPPC).
 - Requires tunneling under I-270 and/or laying pipe within the Little Seneca Creek culvert.
 - Includes 3 stream crossings.
 - Wetland impacts of 0.13 acres.
 - No interior forest lost.
 - Estimated forest loss of 2.2 acres.
 - Estimated park impacts of 0.23 acres
 - 2800 linear feet of gravity pipe.
 - 1350 linear feet of force main.
 - Estimated cost: \$3.6 million (including pump station)
- Alternative 3.
 - Extra depth sewers of up to 30 feet.
 - Due to proposed widening of I-270 the pipe would have multiple stream crossings.
 - Wetland impacts of 0.51 acres.
 - No interior forest lost.
 - Estimated forest loss of 3.2 acres.
 - Estimated park impacts of 3.1 acres.
 - 3400 linear feet of gravity pipe.
 - Estimated cost: \$1.5 million
- Alternative 4.
 - Requires the construction of a 9 MGD (million gallon per day) pumping station at an estimated capital cost of \$2 million.
 - Trees will need to be removed adjacent to Lake Ridge Drive.
 - No stream crossings
 - No wetland impacts.
 - No interior forest lost.
 - Estimate forest lost of 1.2 acres.
 - Estimated park impacts of 3.5 acres.
 - 2000 linear feet force main.
 - 1900 linear feet of gravity pipe.
 - Estimated cost: \$3.4 million (including pump station).

- Alternative 5.
 - Extra depth sewers of up to 70 feet.
 - No stream crossings
 - No wetland impacts.
 - Estimated interior forest lost of 4.1 acres.
 - Estimated forest lost of 4.2 acres.
 - Estimated park impacts of 4.1 acres.
 - 4500 linear feet of gravity pipe.
 - Estimated cost: \$2.9 million

All alternatives utilizing a pump station require additional long-term operation and maintenance costs that are not included in the information presented above. The alternatives utilizing a pump station create a situation where a pump station pumps to a gravity system and then to another pump station. WSSC has employed pump stations in series in a few applications such as the Freedom Hill wastewater pump station to a gravity line to Wexford wastewater pump station in Germantown. However, using such a technique, specifically with the proposed stations being in close proximity in this instance, presents potential impacts locally from increased odor mitigation and increased corrosion in the downstream gravity collection system. Also, overflows could occur at the stations in the event of a major power outage due to a significant weather event. When feasible, WSSC provides redundant power sources either by an on-site generator or via dual power feed to its wastewater pumping stations. However, WSSC staff and the applicant agree that the existing gravity wastewater alternative through Black Hill Park is the most efficient in terms of cost, reliability, operation, and maintenance.

The following table summaries and compares the CIP route and the five alternatives.

Impact	CIP 84.46	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Force Main-LF	0	1300	1350	0	2000	0
Pump Station	No	Yes	Yes	No	Yes	No
270 Tunnel	No	2	2	No	No	No
Deep Sewer	No	No	No	Yes 30 feet	No	Yes 70 feet
Stream Crossing	1	3	3	6	0	0
Wetlands (ac)	0.14	0.7	0.13	0.51	0	0
Forest Loss (ac)	3.96	0	2.2	3.2	1.2	4.2
Interior Forest Loss (ac)	9	0	0	0	0	4.1
Parklands Impact (ac)	3.96	0.17	0.23	3.1	3.5	5.1
Gravity Main-LF	4196	4200	2800	3400	2600	4500
Estimated Cost ¹ (Millions)	\$1.1	\$3.8	\$3.6	\$1.5	\$3.4	\$2.9
1. Estimated cost does not include additional costs from construction difficulties such as depth of bedrock and blasting.						

Concerns from M-NCPPC Staff

Environmental Planning staff, Natural Resources staff, and the Black Hill staff all have concerns with the removal of the existing forest and leaving the potential for invasive materials to overcome the cleared area and negatively impact the proposed CIP sewer alignment. Long-term invasive plant control and maintenance of desirable forest plantings are essential to restore the site.

Staff is very concerned that the forest impacts will be greater than the forest lost indicated in the forest conservation plan worksheet. It is inevitable that trees outside the limits of disturbance will be negatively impacted during the construction process from vehicle movement and necessary tree pruning to allow equipment to maneuver in the constrained limits of disturbance.

Environmental Planning identified the number of trees lost within the limits of disturbance, the number of trees outside the limits of disturbance that will have more than 1/3 of their critical root zone severed by construction, and the number of trees that will be impacted but most likely survive. Environmental Planning found that 237 trees would be removed within the limits of disturbance. Another 214 trees will have more than 1/3 of their critical root zone severed. An additional 151 trees will also be impacted but have a high potential for survival provided the applicant stays within the limits of disturbance. The following table summarizes tree impacts by size and location for the CIP route.

CIP Route	Number of Trees by dbh size (inches)					
	6-<10	10-<16	16-<24	24-<30	30+	Total
Trees Lost within LOD	77	94	54	9	3	237
Trees with more than 1/3 CRZ lost	34	72	67	33	8	214
Trees with less than 1/3 CRZ lost	22	51	48	25	5	151

Environmental Planning staff differs with Natural Resources and Black Hill Regional Park staff on the necessity of locating the wastewater line through this segment of park. Natural Resource staff notes that Black Hill Regional Park is designated as one of our "Top 13 Natural Areas" within the 32,500-acre park system. Black Hill staff is equally concerned with this alignment and as stewards of the park are concerned with the encroachment of invasive plants, loss of interior forest, and the difficulty in regenerating forest in poor quality soils found in this location. It is Black Hill staff's preference not to have the wastewater alignment in the Park.

Environmental Planning staff recognizes the Natural Resources and Black Hill staff's concerns but believes stringent conditions on the forest conservation plan and making the applicant responsible until the trees are established and capable of outperforming invasive competition can overcome some of the concerns. While not explicitly reviewed previously, Environmental Planning staff also notes that CIP Project #84.46 was approved by the Montgomery County Council in February 2001 and was identified as a gravity system. Environmental Planning staff notes that a pumping station is not WSSC's preferred alternative to sewer the Cabin Branch development but also recognizes that alternatives 1, 2, 3, and 4 are technically feasible alternatives.

In conducting the alternative analysis, WSSC estimated the capital cost for the 9 MGD pumping station at approximately \$2 million or \$1.30 per square foot of approved office/retail/employment space, or \$952 per residential unit in preliminary plan 1-03110A. No information was provided by WSSC on annual operation and maintenance costs and how that can be translated to residential units or square footage of office/retail employment spaces.

SUMMARY

Environmental Planning staff recommends approval of the final forest conservation plan for the route proposed by the applicant with the conditions identified on page 1 of this staff report. WSSC staff and the applicant agree that the gravity wastewater alternative through Black Hill Regional Park is the most efficient in terms of cost, reliability, operation, and maintenance. Environmental Planning recognizes the CIP route is not the most environmental friendly of all the alternatives considered. The CIP alternative will have more direct and indirect forest loss impact, will result in the greatest loss of interior forest, and will have excavation challenges associated with the depth to bedrock. Environmental Planning recognizes that the most feasible avoidance alternative is Alternative 4; however, this alternative requires a pump station, which in itself creates potential problems. The potential problems include increased odor and odor mitigation, increased corrosion in the downstream gravity collection system, increased capital expenditures and greater operation and maintenance costs. Also, overflows could occur at the stations in the event of a major power outage due to a significant weather event. Environmental Planning also recognizes that the Montgomery County Council approved WSSC CIP Project # 84.46 as a gravity system on the west side of the tributary that parallels I-270.

