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Tiffany K. Wright
twright@rmmenvirolaw.com

October 9, 2013

John Miller, Senior Planner
County of Humboldt
Department of Community Development Services
3015 H Street
Eureka, California 95501

Re: *Public Comments for Proposed Humboldt County General Plan Update, Draft Environmental Impact Report*

Dear Mr. Miller:

On behalf of the McKinleyville Community Services District ("MCSD"), we are presenting additional comments on the Draft Environmental Impact Report ("DEIR") for Humboldt County's proposed General Plan Update ("GPU"). MCSD is responsible for providing wastewater, water, parks and recreation, library and street lighting for the McKinleyville Community Planning Area, located within Humboldt County. The comments below relate to the DEIR's inadequate and misleading analysis of MCSD's wastewater system capacity.

As noted in our prior comments, the DEIR does not adequately analyze the effects of growth under the GPU within the McKinleyville CSD on wet weather flows and wastewater treatment capacity. Rather, the DEIR only discusses the effect of future growth on dry weather flows. (DEIR, pp. 3.3-19; 3.3-37.) The DEIR states that McKinleyville CSD is estimated to have the capacity for approximately 4,500 additional sewer connections based on average dry weather flow and its wastewater facility design flow of 1.61 million gallons per day. (DEIR, p. 3.3-37.) Such a conclusion is misleading, however, because it fails to take into consideration the effect on wastewater capacity in the collection system from wet weather flows, i.e. rainfall-derived infiltration and inflow (RDII). RDII into sanitary sewer systems has long been recognized as a source of operating problems in sewerage systems. RDII is the main cause of sanitary sewer overflows (SSOs) to basements, streets, or nearby streams; it can also cause serious operating problems at wastewater treatment facilities. SSOs usually contain high levels of pathogenic microorganisms, suspended solids, toxic pollutants, floatables, nutrients, oxygen-demanding organic components, and oil and grease. There are serious potential health and environmental risks associated with SSOs. SSOs may result in a public nuisance when untreated wastewater is discharged to areas with high public exposure, such as streets or surface waters used for drinking, fishing, or body contact recreation. SSOs may pollute surface or ground waters, threaten public health, adversely affect

aquatic life, and impair the recreational use, aesthetic enjoyment and other beneficial uses of surface waters.

Furthermore, the DEIR states that if development were to occur at expected densities within the McKinleyville CSD service area buildout would likely result in an estimated 2,095 units, which could be accommodated by the existing wastewater system. (*Ibid.*) This conclusion is also incorrect.

To highlight the inaccuracies in the GPU DEIR's analysis, MCSD initiated its own analysis of its future capacity at its wastewater management facility. (MCSD Sewer Capacity Analysis (August 2013), Attachment A.) The analysis is based on a model of the MCSD sanitary sewer collection system which was developed for the purposes of the 20-year facility planning process for the MCSD wastewater management facility (WWMF). This information was used to determine the development potential in McKinleyville based on areas that can be supported by the existing collection system. This model recently was updated in 2013 to include recent, verified as-built conditions that were not previously reflected in the geographic information system (GIS) data used for the base layer information in the model.

The MCSD Sewer Capacity Analysis focused primarily on the review of the available capacity in the three main gravity transmission lines that convey wastewater from the east side of Highway 101 to the WWMF located west of Highway 101. As all the lateral sewer lines in the service area feed into the main gravity transmission lines, the main gravity transmission lines are the primary limiting factor for the collection system capacity. The amount of available capacity in a sewer system will vary based on the storm event selected for the rainfall-derived infiltration and inflow (RDII) analysis. RDII is the term used to define a sewer's response to rainfall. RDII represents the additional flow in a sewer above the normal dry-weather base sanitary flow due to wet-weather storm events.

MCSD is covered under the California State Water Resources Control Board (SWRCB) statewide general waste discharge requirements (WDRs) for sanitary sewer systems in (Order No. 2006-0003- DWQ). In accordance with the WDRs, MCSD is required to provide adequate capacity in the collection system to convey base flows and peak flows, including flows related to wet weather events. However, the statewide WDRs do not specify the particular storm interval that shall be used for analysis of a wet weather event. Therefore, the MCSD Sewer Capacity Analysis used three different design storm return intervals: the 5-year, 25-year, and 100-year design storms.[1] the 1-in-100 annual exceedances probability (AEP) event (i.e., the 100-year flood event) Furthermore, the 25-year storm event can be considered suitable for planning purposes because it provides a balance between the higher-risk 5-year RDII estimates and the more conservative 100-

[1] / A 5-year storm is not a storm that is likely to occur every five years. Rather, the 5-year storm is a 1-in-5 annual exceedances probability (AEP) event, meaning it has 20% probability of occurring in any given year. On the same basis, the 25-year storm has a 4% AEP and the 100-year storm a 1% AEP.

year RDII estimates. Limiting capacity based on the 25-year RDII analysis enables MCSD to reserve capacity for flows in excess of the 5-year RDII in the system, while allowing for some additional development to occur in McKinleyville under existing conditions.

Employing these RDII scenarios, the MCSD Sewer Capacity Analysis provides a very different picture of MCSD's sewer capacity and its ability to serve new dwelling units than depicted in the GPU DEIR. The GPU DEIR found MCSD has the capacity for up to 4,500 additional sewer connections based on average dry weather flow. But even under the least-conservative 5-year RDII scenario, the MCSD sewer capacity analysis concluded the available capacity in the three main transmission lines in the McKinleyville collection system was only approximately 2,500 new Equivalent Dwelling units (EDUs) total. For the 25-year RDII scenario, the available capacity is limited to approximately 780 new EDUs, and the capacity is only available in the middle and southern main transmission lines; the northern main line is limited by the firm capacity of the downstream pump station. Even more concerning, under the 100-year RDII scenario, there is no available capacity in the system at any of the main transmission lines.

The MCSD Sewer Capacity Analysis reveals that, when accounting for wet weather flows, MCSD does not have sufficient capacity to accommodate the 2,095 units that the GPU DEIR concludes are expected to build out under expected densities within MCSD's service area. (DEIR, p. 3.3-37.) Nor does MCSD have the sewer capacity to accommodate the 1,300 new units the GPU DEIR forecasts will be developed in the MCSD service area over the next 20 years. (*Ibid.*) Furthermore, it is not clear whether the 1,300 new units projected by the GPU DEIR even takes into consideration the by-right high-density development that is already permitted in McKinleyville subsequent to the County's August 30, 2011 approval of Resolution No. 11-66 adopting the "2010 Humboldt County Housing Element Implementation Plan Amendment, Zone Reclassification, and Local Coastal Plan Amendment" ("August Rezoning Project"). Thus, the GPU DEIR incorrectly concludes that the MCSD wastewater system can accommodate the development that is projected to occur during the General Plan Update planning period. (*Ibid.*)

Furthermore, even if the GPU DEIR analysis is revised to show the MCSD system cannot accommodate projected GPU buildout, the GPU policies proposed to reduce impacts related to exceedences of wastewater capacity to less-than-significant levels are inadequate. For example, at least one of these policies lacks any language demonstrating that the policy can and will be enforced:

> IS-P9 Capacity of Facilities and Land Use Decisions. The County shall evaluate the capacity and sizing of road and drainage facilities and coordinate with water and wastewater service providers to determine adequacy for proposed land uses and discretionary development. The density, timing, and design of new development shall be consistent with service capacity.

The General Plan does not indicate the timing of implementation of this policy and without outlining the timing or providing enforceable actions, there is no guarantee the County will be aware of the capacity of different service providers. As such, there is no assurance that Impact 3.3.3.1 would be reduced to a less-than-significant level, as concluded in the GPU DEIR. Policy IS-P9 should be revised to include mandatory, enforceable language to ensure development will not proceed when service capacity is lacking:

> IS-P9 Capacity of Facilities and Land Use Decisions. The County shall evaluate the capacity and sizing of road and drainage facilities and coordinate with water and wastewater service providers to determine adequacy for proposed land uses and discretionary development. Prior to the approval of any development project, the County shall verify that ~~T~~the density, timing, and design of new development is ~~shall be~~ consistent with service capacity and infrastructure either exists or will be available upon operation of the development project.

Furthermore, the GPU DEIR concludes that Impact 3.3.3.1 is less-than-significant, but then adds a new policy as a mitigation measure to reduce impacts to a less-than-significant level:

> Policy IS-PX The County shall encourage service providers to design and implement new infrastructure improvements, including but not limited to water and wastewater capacity expansions, park and recreation facilities, and fire stations, in a manner that avoids or minimizes associated environmental impacts.

(DEIR pp. 3.3-41, 3.3-59, 3.4-17, 3.4-24.)

This measure is vague and unenforceable, however, and impermissibly defers mitigation because it simply "encourages" service providers to take unspecified actions to avoid environmental impacts. The measure includes no enforcement mechanism or even any standards by which service providers would need to comply to avoid or minimize the anticipated impacts. The impact analysis and mitigation measure must be reviewed and revised to address these inconsistencies and inadequacies. At a minimum, an implementation schedule should be included in the mitigation measures. Otherwise, the significance determination of Impact 3.3.3.1 should be changed to a significant and unavoidable impact.

As it currently stands, the GPU DEIR's analysis of MCSD's sewer capacity is fundamentally inadequate and conclusory in nature. The County must re-analyze the potential impacts of the effect of maximum development in McKinleyville on MCSD capacity and services, including the effects of wet weather flows and the by-right high-density development permitted under the August Rezoning Project, as well as the

secondary impacts resulting from the necessary construction of new or expanded MCSD wastewater treatment facilities. A revised draft EIR must be prepared and recirculated for public review and comment that addresses these flaws. (CEQA Guidelines, § 15088.5, subd. (a)(4).)

Very truly yours,

Tiffany K. Wright

Attachment A

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 •shninfo@shn-engr.com

Reference: 011034.150

September 18, 2013

Mr. Greg Orsini, General Manager
McKinleyville Community Services District
PO Box 2037
McKinleyville, CA 95519

Subject: Sewer Capacity Analysis, MCSD Sewer Collection System, McKinleyville, California, Revision 1

Dear Mr. Orsini:

SHN Consulting Engineers & Geologists, Inc. (SHN) has prepared this sewer capacity analysis for the McKinleyville Community Services District (MCSD) wastewater management facility (WWMF) sanitary sewer collection system. This analysis provides information as requested by MCSD to determine the remaining available capacity in the three gravity trunk lines that convey wastewater from the east side of Highway 101 to the west side of Highway 101, where the WWMF is located (Figure 1).

Sewer Capacity Analysis

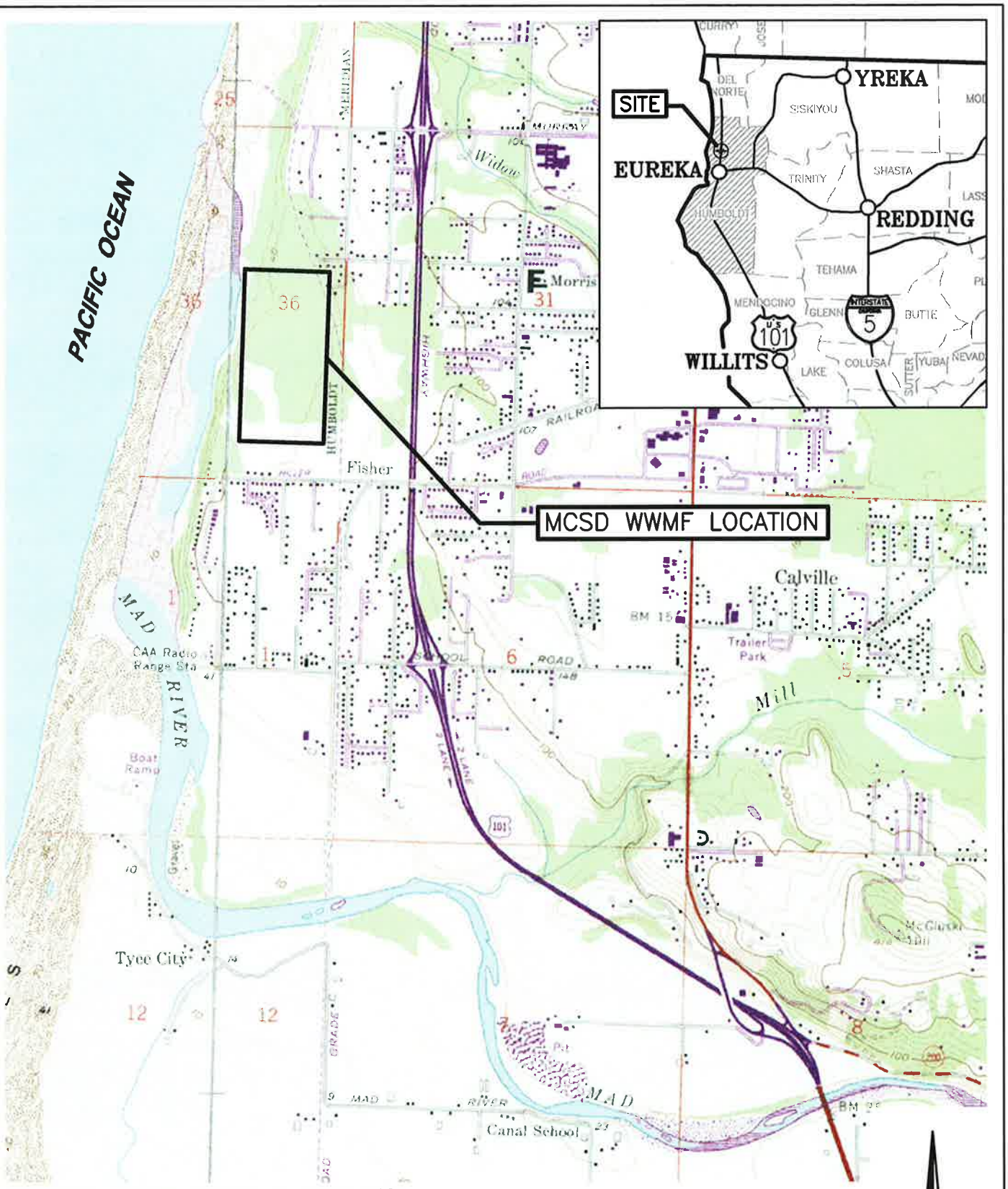
Sewer Model Development

SHN developed a preliminary model of the sanitary sewer collection system as part of the 20-year facility planning process for the WWMF. A complete description of the model development process and the baseline assumptions used in the model setup are presented in the 20 Year Facility Plan for the WWMF (SHN, 2012). Minor adjustments were made to the model in June 2013 to address recent, verified as-built conditions that were not previously reflected in the geographic information system (GIS) data used for the base layer information in the model.

Sewer Model Results – Existing Conditions

SHN used the model to evaluate the existing available capacity in the three gravity trunk lines (referred to as the north, middle, and south crossing locations) under varying flow conditions. Table 1 shows a summary of the hydraulic capacity of the limiting segments for each crossing location. The limiting segments were those sections of the three gravity trunk lines with the lowest design flow capacity.

As shown in Table 1, the limiting segment for the northern crossing has more flow capacity than the downstream pump station, based on firm capacity. Firm capacity is the capacity of the pump station assuming the largest pump is out of service. For the northern crossing location, the total flow capacity was set to the firm capacity of the pump station. For the middle and south crossing locations, the total flow capacity was based on the design flow for the gravity trunk lines.



SOURCE: ARCATA NORTH & TYEE CITY USGS 7.5 MINUTE QUADRANGLE

1"=2,000'±

SHN Consulting Engineers & Geologists, Inc.	McKinleyville Community Services District Wastewater Management Facility McKinleyville, California		Site Location Map SHN 011034.150
	September 2013	011034-150-SITE-LCTN	Figure 1

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Table 1
Summary of Limiting Segments
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Model Link	Pipe Diameter (inches)	Slope (%)[1]	Design Flow (gpm)[2]	Pump Station Capacity[3] (gpm)
1	North (Line 2)	1190	15	0.35	1,484	673
3	Middle (Line 5)	1079	10	0.45	573	836
4	South (Line 3)	1182	15	0.20	1,112	1,614

1. %: percent
2. gpm: gallons per minute
3. Pump station capacity estimate is based on firm capacity of the downstream pump station.

Table 2 provides a summary of the estimated remaining available capacity at each crossing location under existing flow conditions with no additional rainfall derived infiltration and inflow (RDII)[1] included in the analysis. Total remaining available capacity was estimated by subtracting the peak flow rate, based on model results, from the total flow capacity. Adjustments were made to account for the average peaking factor (1.34) applied as part of the sanitary time step pattern. The number of equivalent dwelling units (EDUs) that could be serviced with the remaining available capacity was estimated assuming an average dry weather flow of 0.125 gallons per minute (gpm) per EDU. Further description of the methods used to develop the sanitary system time step pattern and dry weather flow allocation are included in the 20 Year Facility Plan (SHN, 2012).

Sewer Model Results – Design Storm Evaluation

MCSD is covered under the California State Water Resources Control Board (SWRCB) statewide general waste discharge requirements (WDRs) for sanitary sewer systems in (Order No. 2006-0003-DWQ). In accordance with the WDRs, MCSD is required to provide adequate capacity in the collection system to convey base flows and peak flows, including flows related to wet weather events. However, the statewide WDRs do not dictate the specific storm interval that shall be used for analysis of a wet weather event.

In the absence of regulatory guidance that would dictate a specific design storm for RDII analyses, three different design storms were evaluated during this analysis: a 5-year, 24-hour event; a 25-year, 24-hour event; and a 100-year, 24-hour event. The estimated remaining available capacity in the system with a 5-year RDII, 25-year RDII, and a 100-year RDII included in the analysis are shown in Tables 3, 4, and 5, respectively.

1 RDII is the term used to define a sewer's response to rainfall. RDII represents the additional flow in a sewer above the normal dry-weather base sanitary flow due to wet-weather storm events.

Table 2
Remaining Capacity Under Existing Flow Conditions without RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	262	411	307	2,456
3	Middle (Line 5)	573	291	281	210	1,680
4	South (Line 3)	1,112	326	786	587	4,694

1. Assumes no rainfall derived infiltration and inflow (RDII).
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.

Table 3
Remaining Capacity Under Existing Flow Conditions with 5-year RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	596	77	57	458
3	Middle (Line 5)	573	471	101	76	604
4	South (Line 3)	1,112	864	249	186	1,484

1. Includes rainfall derived infiltration and inflow (RDII) based on a 5-year rainfall event.
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.

Table 4
Remaining Capacity Under Existing Flow Conditions with 25-year RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	699	-26	---[8]	---
3	Middle (Line 5)	573	527	45	34	270
4	South (Line 3)	1,112	1,027	86	64	511

1. Includes rainfall derived infiltration and inflow (RDII) based on a 25-year rainfall event.
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.
8. ---: not applicable

Table 5
Remaining Capacity Under Existing Flow Conditions with 100-year RDII[1]
MCSD Sewer Collection System
McKinleyville, CA

Basin	Crossing Location	Total Flow Capacity (gpm)[2]	Existing Peak Flow (gpm)	Total Remaining Capacity[3] (gpm)	Adjusted Remaining Capacity[4] (gpm)	Remaining Capacity in EDUs[5,6]
1	North (Line 2)	673	794	-121	---[8]	---
3	Middle (Line 5)	573	580	-7	---	---
4	South (Line 3)	1,112	1,172	-59	---	---

1. Includes rainfall derived infiltration and inflow (RDII) based on a 100-year rainfall event.
2. gpm: gallons per minute
3. Total remaining capacity equals total flow capacity minus peak flow.
4. Adjusted remaining capacity equals total remaining capacity divided by 1.34 (average peaking factor).
5. EDUs: equivalent dwelling units
6. Remaining capacity in terms of EDUs was calculated by dividing the adjusted capacity by 0.125 gpm per EDU.
7. Total flow capacity for the north crossing is limited to the pump station firm capacity.
8. ---: not applicable

Conclusions

The sewer model analysis results indicate that there is remaining available capacity in the three gravity trunk lines that convey wastewater from the east to the west side of Highway 101 under existing flow conditions without RDII and under existing flow conditions with a 5-year RDII. There is also capacity under existing flow conditions with a 25-year RDII, however it is limited to the middle and southern crossings. The estimated number of EDUs that can be serviced with the remaining available capacity assuming no RDII and assuming a 5-year RDII and a 25-year RDII are shown in Tables 2, 3, and 4, respectively. There is no additional capacity available at any crossing location under the existing flow conditions with the 100-year RDII included in the analysis.

For planning purposes, SHN recommends MCSD use the capacity analysis results based on the 25-year, 24-hour RDII analysis (Figure 2). The 25-year RDII capacity analysis results provide a balance between the higher risk, 5-year RDII capacity analysis, and the more conservative 100-year RDII capacity analysis. Limiting capacity based on the 25-year RDII analysis enables the MCSD to reserve capacity for flows in excess of the 5-year RDII in the system, while allowing for additional development to occur in McKinleyville under existing conditions.

If you have any questions or need additional information, please call me at 707-441-8855.

Sincerely,

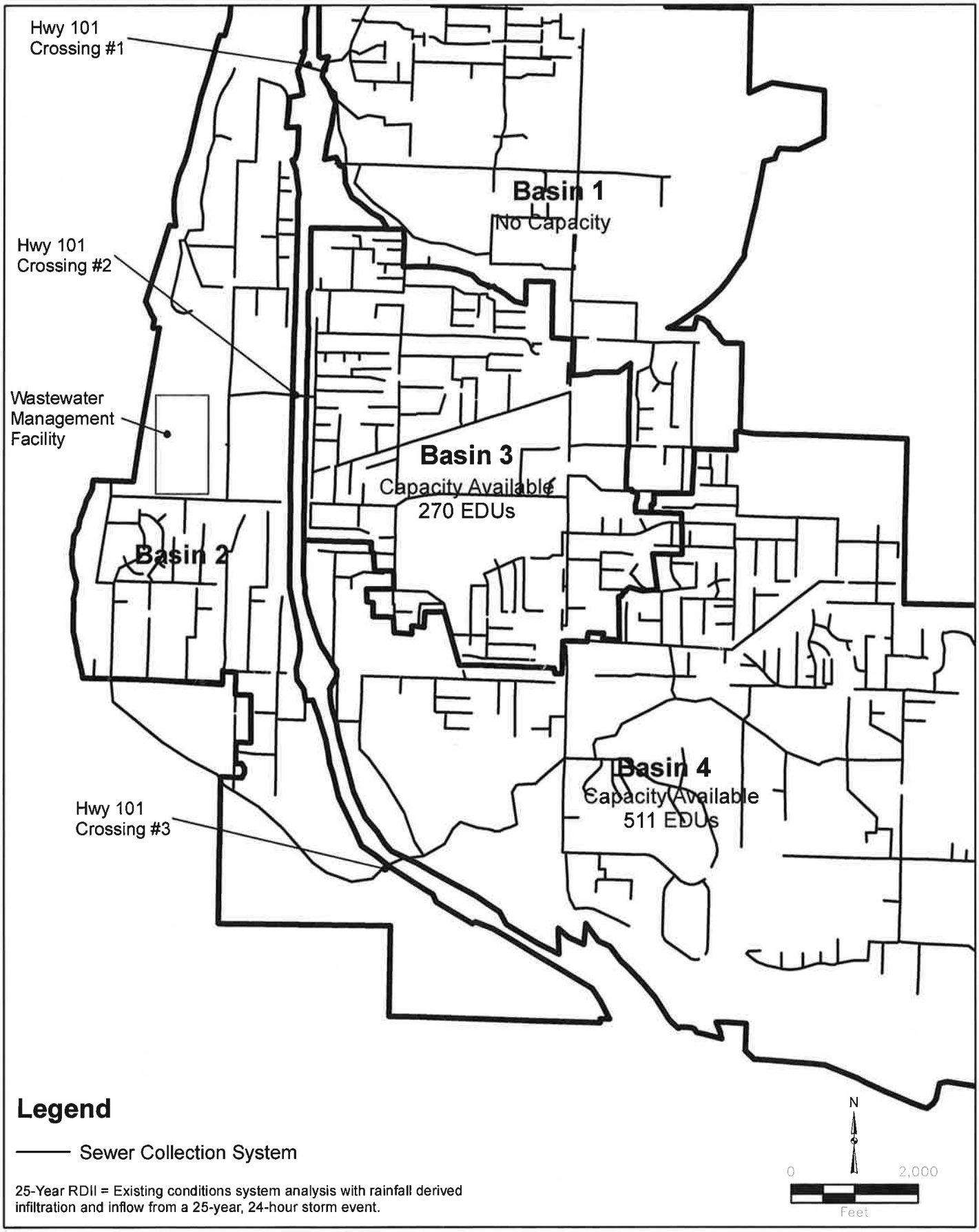
SHN Consulting Engineers & Geologists, Inc.

Lisa K. Stromme, PE
Water Resources Engineer

LKS:bmd

References

SHN Consulting Engineers & Geologists, Inc. (January 2012). "Wastewater Facilities Plan Administrative Draft, MCSD Wastewater Management Facility, NPDES Permit No. CA0024490, Order No. WQ2011-0008-DWQ." Eureka, CA:SHN.



Consulting Engineers & Geologists, Inc.	McKinleyville Community Services District Wastewater Management Facility McKinleyville, CA	MCSD Sewer Analysis System Capacity - 25-Year RDII SHN 011034.150
	SEPTEMBER 2013 | MCSD-GPU-2013.mxd	Figure 2

Sewer Capacity Analysis
MCSD Sewer Collection System

Analysis Summary

For the purposes of the 20-year facility planning process for the McKinleyville Community Services District (MCSD) wastewater management facility (WWMF), a preliminary model of the sanitary sewer collection system was developed. Now, this information is being used to determine the development potential in McKinleyville based on areas that can be supported by the existing collection system. This model was updated in 2013 to include recent, verified as-built conditions that were not previously reflected in the geographic information system (GIS) data used for the base layer information in the model.

The MCSD sewer capacity analysis focused primarily on the review of the available capacity in the three main gravity transmission lines that convey wastewater from the east side of Highway 101 to the WWMF located west of Highway 101. The amount of available capacity in a sewer system will vary based on the storm event selected for the rainfall-derived infiltration and inflow (RDII) [1] analysis. Currently California has not specified a design storm interval for use in RDII analyses. Therefore, three different design-storm return intervals were used for the McKinleyville sewer system analysis, the 5-year, 25-year, and 100-year design storms.

Under a 5-year RDII scenario, the available capacity in the three main transmission lines, in terms of equivalent dwelling units (EDUs), is approximately 2,500 new units total, with capacity available in all three main transmission lines. For the 25-year RDII scenario, the available capacity is limited to approximately 780 new units, and the capacity is only available in the middle and southern main transmission lines. The northern main line is limited by the firm capacity of the downstream pump station under the 25-year RDII scenario. The 100-year RDII scenario shows no available capacity in the system at any of the main transmission lines.

In the absence of regulatory guidance, the 25-year storm event can be considered suitable for planning purposes, because it provides a balance between the higher-risk 5-year RDII estimates and the more conservative 100-year RDII estimates. Limiting capacity based on the 25-year RDII analysis enables the MCSD to reserve capacity for flows in excess of the 5-year RDII in the system, while allowing for some additional development to occur in McKinleyville under existing conditions.

1 RDII is the term used to define a sewer's response to rainfall. RDII represents the additional flow in a sewer above the normal dry-weather base sanitary flow due to wet-weather storm events.