MSD
Metropolitan Sewer District

2012 IOAP PROJECT MODIFICATION

FINALIZED ON SEPTEMBER 20, 2012

PROJECT WIN
Waterway Improvements Now

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF ENFORCEMENT
300 FAIR OAKS LANE
FRANKFORT KENTUCKY 40601
www.kentucky.gov

October 4, 2012

CERTIFIED MAIL 70101060000217058806
Return Receipt Requested

Mr. Greg Heitzman
Interim Executive Director
Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville, Kentucky 40203

Re: Partial Approval of MSD's 2012 Integrated Overflow Abatement Plan Project Modification Request

Dear Mr. Heitzman:

The Kentucky Department for Environmental Protection (KDEP) and the U.S. Environmental Protection Agency (EPA) have reviewed the Metropolitan Sewer District's 2012 Integrated Overflow Abatement Plan (IOAP) Project Modification document dated August 17, 2012, with subsequent revisions dated September 20, 2012 and supplements that were provided in response to KDEP/EPA comments. There are 28 separate project modification requests contained in the IOAP Project Modification document.

Projects 1 through 12 and 18, as set forth below and as more particularly described in the 2012 IOAP Project Modification document, are hereby approved. These project modifications do not significantly alter the requirements of the original IOAP and are therefore deemed a non-material modification to the Amended Consent Decree. As such, these IOAP modifications will be incorporated into the existing approved IOAP, dated September 30, 2009, as amendments and will be enforceable requirements of the Amended Consent Decree in accordance with Paragraphs 25.a.(3) and 25.b.(2) of the Amended Consent Decree.

Project Modification approval list:
(2012 IOAP Projects Modification Table of Contents No. and Project Title)

1. Adams Street Sewer Separation
2. CSO058 Sewer Separation
3. CSO093 Structural Modification & Green Infrastructure Controls
4. CSO140 In-Line Storage & Green Infrastructure Controls
5. CSO160 In-Line Storage & Green Infrastructure
6. Derek R. Guthrie WQTC – Wet Weather Facility

7. I-64 and Grinstead Drive Storage Basin
8. Meadow Stream Pump Station & Force Main Upgrade
9. Paddy's Run Wet Weather Treatment Facility
10. Story Avenue and Main Street Storage Basin
11. Story Avenue and Spring Street Green Infrastructure & Distributed Storage
12. 13th Street and Rowan Street Storage Basin
18. Central Relief Drain CSO, Green Infrastructure & Distributed Storage

Please note that once all of the project modification requests have been reviewed and acted upon, it will be necessary to update the District Court of this and any other non-material modification to the IOAP to ensure the Court's record is up to date. If there are any questions, you may contact Courtney Seitz of KDEP at (502) 564-3410 ext. 4914, or you may contact Mr. Dennis Sayre of EPA at (404) 562-9756.

Sincerely,

Jeff Cummins, Acting Director
Division of Enforcement
KY Department for Environmental Protection

Denisse D. Diaz, Chief
Clean Water Enforcement Branch
Water Protection Division
USEPA, Region 4

2012 IOAP Project Modification

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MSD
Metropolitan Sewer District

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
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August 17, 2012 (Revised September 20, 2012)

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U. S. Department of Justice
Post Office Box 7611
Washington, DC 20044-7611

Jeffrey A. Cummins, Acting Director
Division of Enforcement
Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
U. S. EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: 2012 Integrated Overflow Abatement Plan (IOAP) Modification
DOJ Case No. 90-5-1-1-08254

Attention Director and Chiefs:

As part of the adaptive management approach outlined in the approved 2009 Integrated Overflow Abatement Plan (IOAP), the Louisville and Jefferson County Metropolitan Sewer District (MSD) has been expanding the monitoring network throughout its sewer system. MSD has been utilizing data from this network to recalibrate the hydrologic and hydraulic models used to size overflow abatement projects and refine individual project approaches and sizes based on an improved understanding of the sewer system operation and the relationship of certain overflows to one another.

MSD developed this programmatic justification for a proposed 2012 IOAP Modification, utilizing the same benefit/cost methodology defined by the Wet Weather Team for the 2009 approved plan. This justification demonstrates the proposed modifications achieve a higher overall benefit to the community through earlier overflow reduction, increased use of green infrastructure and acknowledgement of pertinent public input. Individual project modification letters were submitted on August 17, 2012 along with this programmatic justification to provide additional detail for each project requiring significant adjustments. Enclosed with this letter are revisions to several of these letters and associated project fact sheets in response to our telephone discussions on September 5, 2012. Note that most of the letters are for "advance notification", documenting the modifications that will be addressed in the proposed 2012 IOAP Modification. Eleven of the letters address modifications that impact MSD's approved IOAP implementation activities and request approval of the minor modifications in advance of the full IOAP Modification submittal. The revised Table 1, attached, summarizes the proposed project modifications.

Consistent with our previous discussions, the 2012 IOAP Modification is currently under development for submittal in 2013. MSD is developing these modifications based on changes to project size, location,

technology and schedule that have previously been informally communicated with federal and state regulators and with the public through a series of project review and input meetings. MSD is planning additional public outreach activities to further communicate project changes to the community and gather comment.

Background

One of the basic principles of IOAP implementation approach is the use of adaptive management, refining past decisions through continuous improvement of the physical and hydraulic information available for use as analytical tools. The intent of adaptive management is to "right-size" projects as additional information is collected and analyzed through expanded flow monitoring and improved system operational understanding. MSD's challenge in implementing the IOAP is adjusting the project sizes and technical approach to successfully achieve overflow reduction and regulatory objectives while maintaining community affordability. Continuous measurement and improved understanding of the large, complex sewer system functionality under various wet weather conditions is enabling the District to achieve these desired outcomes.

Project identification and sizing for the preparation of the approved 2009 IOAP was based on a set of sewer system models developed and calibrated to rain events, flow data and field reconnaissance in 2006 and 2007. This mathematically modeled representation of the physical sewer system was based on sewer maps and construction drawings that date back as far as the early 1900's, supplemented and verified to some extent by survey data related to critical elements of the system. While surveyors field-verified some of the information from the maps, plans, as-builts and drawings, the size, accessibility and complexity of the system precludes resurveying every pipe and manhole during the planning process.

After building the mathematical models of the combined and separate sewer systems, the hydraulic calculations for both dry and wet weather were calibrated using flow measurements taken from 29 locations in the combined system over the course of 3- 4 months in the spring of 2007. This time period included several significant rain events. The purpose of the initial hydraulic modeling was to provide estimates of flows at various locations in the sewer system to allow identification, evaluation, and prioritization of projects to reduce sewer overflows. However, MSD understood that this initial modeling effort would require increased system monitoring and model refinement to ensure that regulatory compliance and water quality objectives are achieved, as documented in the 2009 IOAP adaptive management approach.

Parallel to the development of the IOAP for the 2009 submittal to the regulatory agencies, MSD began implementation of an aggressive program involving installation of long-term flow monitoring equipment at numerous locations to continue improving the quality of the sewer flow predictions from the models and subsequent overflow abatement project sizing. Over 200 new sewer monitoring sites have been installed since 2009.

Approach

The most recent calibration agreed with the overall hydrologic runoff volume calculations performed in 2007, with total volumes of sewer overflow from the combined system within 10% of the original calibration; however, calibrating to additional sewer flow measurements and making corrections in the physical representation of older parts of the sewer system resulted in a redistribution of the flow in individual pipes. For example, this redistribution caused the I-64 and Grinstead Drive Storage Basin to increase significantly in size, and other basins to shrink.

MSD is proposing various project modifications including approach, size, level of control and schedule (see attached) due to the model calibration, constructability, green infrastructure implementation, projected rate increases and recent public input. The projects were analyzed through the same technology assessment and benefit/cost methods used in the 2009 plan, as defined by the Wet Weather Team.

Environmental Benefits

MSD has evaluated the impacts of the proposed modifications on the overflow reduction timing and overall overflow reduction performance as compared to the 2009 IOAP. Table 1 summarizes the original and proposed modifications to the technologies, levels of control, remaining AAOV, and wet weather capture. Note that as a result of revised benefit-cost analyses, five projects have an improved level of control. One project, the 13th Street and Rowan Street Storage Basin, was split into three separate projects, and the level of control for the projects resulting from this split went down. Figure 1 demonstrates that the 2012 proposed modifications provide a higher level of CSO control than the approved 2009 IOAP, and that overflows are reduced quicker, except for two brief periods where the curves intersect.

Note that Figure 1 shows three different overflow reduction curves. The curve labeled "2008 Submitted IOAP" illustrates the timing of AAOV reductions from the plan submitted in December 2008. The curve labeled "2009 Approved IOAP" illustrates a slightly different curve resulting from minor refinements made to a number of projects through the review, revision, and re-submittal process that occurred during January through September 2009. These minor refinements were documented in the project fact sheets submitted with the 2009 IOAP, but were not consistently reflected in the text. The 2012 IOAP Modification will correct the tables showing the 2009 IOAP and the 2012 IOAP Modification.

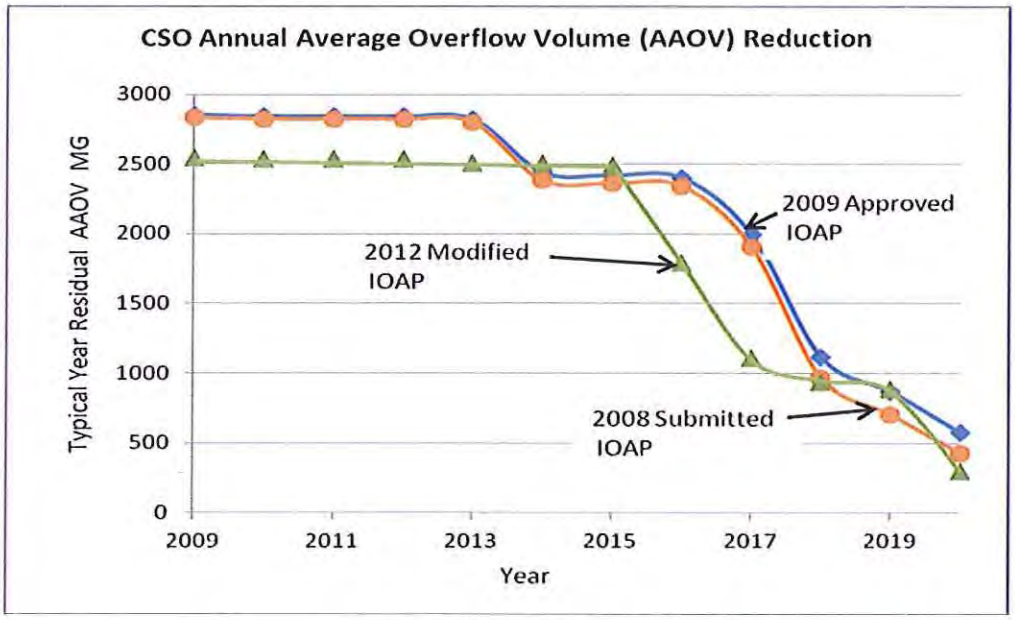


Figure 1 - CSO AAOV Reduction Thru 2020

Figure 2 shows that the overall level of control for SSOs remains essentially the same as in the approved IOAP, but the SSO eliminations occur quicker than originally proposed for SSOs at all levels of control.

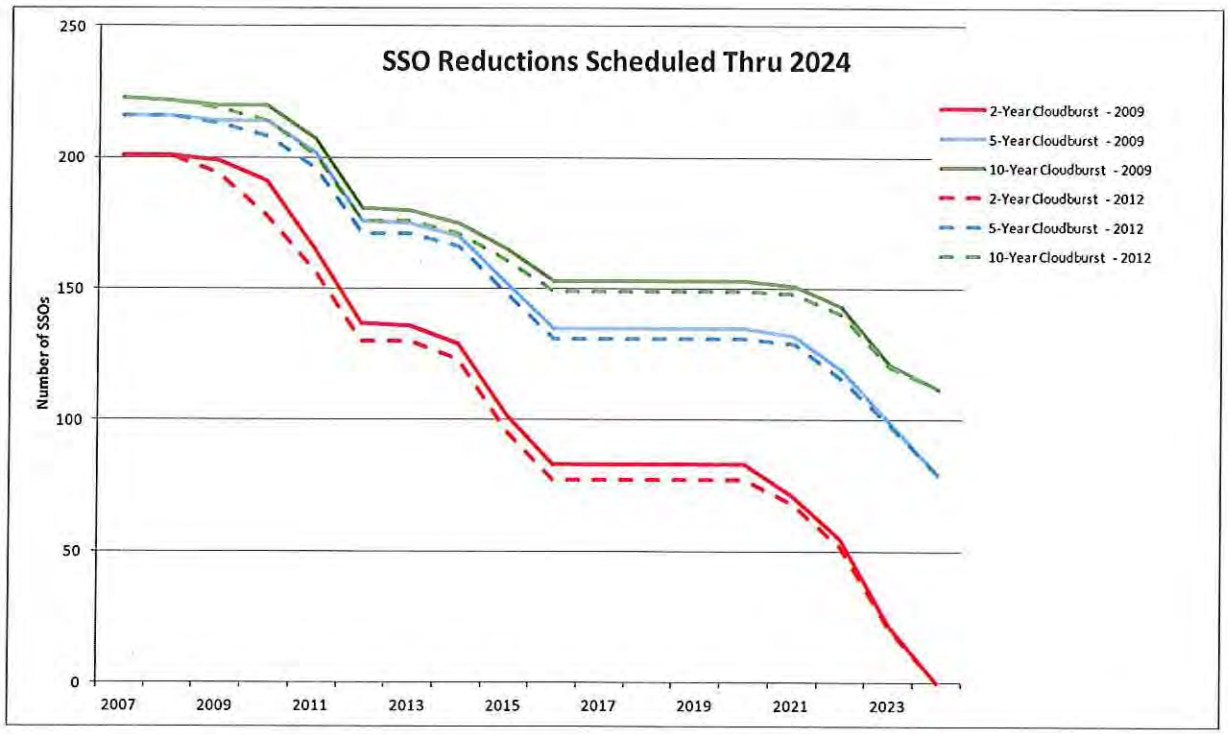


Figure 2 - SSO Reductions Thru 2024

Table 1 and Figures 1 and 2 demonstrate that the proposed changes result in a more effective overflow abatement program with higher community benefit and more expeditious overflow reduction as a program. A revised project schedule is attached.

Path Forward

MSD deems that the recent recalibration has identified most of the major project modifications needed to successfully comply with overflow reduction targets. However, the monitoring system expansion is continuing and the additional data will be used for further model calibration, statistical and behavioral verification. Coupled with overflow statistical analyses, green infrastructure impact assessments and upgrades to modeling technologies, MSD's understanding of system operation and interaction will continue to improve and may result in additional project adjustments as IOAP implementation continues.

Based on feedback received to date, MSD anticipates the proposed project modifications will generally be accepted by all parties with only minor adjustments. In order to proceed with critical, time-sensitive activities, the current project implementation approach and schedule is based on the assumption that the proposed modifications to projects and schedules will be approved. As a result, MSD is moving forward with accelerated schedules in some areas, and deferring activities on other projects that are proposed to be completed later than proposed in the 2009 IOAP.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy,

Attachments

Table 1
2012 IOAP Project Modifications

Project Name	Receiving Stream	2009 Overflows Controlled	2009 Level of Control	2009 Size (MG)	2009 Cost	2009 Baseline AAOV (MG)	2009 Residual AAOV (MG)	2009 AAOV Reduction (MG)	2012 Overflows Controlled	2012 LOC	2012 Revised Size (MG)	2012 Revised Cost (in 2009 dollars)	2012 Baseline AAOV (MG)	2012 Residual AAOV (MG)	2012 AAOV Reduction (MG)	Change in Residual AAOV (MG)	2009 Completion Date	Proposed Completion Date	Comments on AAOV Changes	Explanation for Proposed Revisions
Adams Street Storage Basin	Ohio River	CSO172	0	0.12	$983,000	1.28	0.00	1.28	CSO172	0	Sewer Separation	$20,000	1.11	0.00	1.11	0.00	12/31/2012	12/31/2012		Project modification request to revise this project to a sewer separation has been previously submitted and accepted. Upon inspection of the sewer system, all but two catch basins were found to have been separated already during recent redevelopment.
CSO058 Sewer Separation	Ohio River	CSO058	0	-	$1,361,000	116.64	0.00	116.64	NA	8	Included in 13th&Rowan Basin	NA	69.55	1.88	67.67	1.88	12/31/2014	12/21/2020 (with 13th and Rowan Basin)	Residual AAOV increases slightly compared to 2009 due to change in project type. However, first flush will now be stored and treated.	The overflow from this CSO will be addressed in the 13th & Rowan storage basin. Modeling indicates that the overflow is caused by interceptor surcharging. Separation of the small drainage area upstream of the CSO would be ineffective. The listed 2012 AAOV for CSO058 is accounted for here and not in the 13th & Rowan Storage Basin 2012 AAOV.
CSO093 Sewer Separation	South Fork	CSO093	0	-	$952,000	1.81	0.00	1.81	CSO093	0	Re-Construct Leaping Weir	$488,000	0.00	0.00	0.00	0.00	12/31/2015	12/31/2015		Evaluating the use of green infrastructure and localized storage for this area. First flush stormwater discharge eliminated. The leaping weir will also be modified as part of this project. It is likely that some AAOV currently exists at this location due to the leaping weir. This will be eliminated by the modification.
CSO140 Sewer Separation	Middle Fork	CSO140	0	-	$3,150,000	17.00	0.00	17.00	CSO140	0	Upsize Low Flow Line	$574,000	0.96	0.00	0.96	0.00	12/31/2015	12/31/2015		Upsizing low flow line will reduce overflows to less than 8 per year. First flush stormwater discharge eliminated. Green infrastructure and localized storage will be used to mitigate future overflows based on montioring results.
CSO160 Sewer Separation	Ohio River	CSO160	0	-	$237,000	0.28	0.00	0.28	CSO160	0	Weir Modification and Inline Storage	$231,000	0.09	0.00	0.09	0.00	12/31/2015	12/31/2015		Weir modifications will reduce overflows to less than 8 per year. Evaluating the use of green infrastructure and localized storage for this area. First flush stormwater discharge eliminated. Green infrastructure may be used to enhance or mitigate future overflows based on montioring results.
Derek R. Guthrie WQTC Wet Weather Facility	Ohio River	Wet Weather SSOs	10-Year, 24-Hour	100 MGD Wet Weather Treatment	$102,700,000	31.53	0.00	31.53	Wet Weather SSOs	10-Year, 24-Hour	100 MGD Wet Weather Treatment	$94,350,000	31.53	0.00	31.53	0.00	12/31/2011	11/27/2012		Full high rate treatment capacity not yet available for flows to be seen by 2024 due to extreme wet weather in 2011, but current flows and overflow eliminations can be accommodated with current treatment capacity.
I-64 and Grinstead Drive Storage Basin**	Middle Fork	CSO125, CSO126, CSO127, CSO166	8	2.74	$12, 950,000	63.70	12.58	51.12	CSO125, CSO126, CSO127, CSO166	4	15.33	$52,002,000	276.05	9.86	266.19	-2.72	12/31/2014	12/31/2020		Public comments received requested serious consideration for green infrastructure utilization in the basin drainage area along with intensive public involvement. Due to the size of the drainage area and the increased size and cost of the basin, additional time is needed to evaluate green infrastructure opportunities and right-size this project appropriately.
Meadow Stream Pump Station & Force Main Upgrade	NA	Wet Weather SSOs	2-Year, 3-Hour	0.5	$974,000	9.52	0.00	9.52	Wet Weather SSOs	10-Year, 3-Hour	3.89 MGD PS & New 18" Force Main	$974,000	9.52	0.00	9.52	0.00	12/31/2016	12/31/2012		Project changed from a small storage basin to a pump station upgrade and new force main due to the capacity needs of Crestwood. The City paid the additional costs beyond MSD's overflow control commitment.
Paddys Run Wet Weather Treatment Facility	Ohio River	CSO015, CSO191	8	50 MGD	$24,940,000	526.98	313.78	213.20	CSO015, CSO191	8	50 MGD/ 25 MG Storage	$34,400,000	742.40	141.58	600.82	-172.20	12/31/2014	12/31/2016		Optimization of flow through Morris Forman's Main Diversion Structure and MSD's Real Time Control strategy added storage volume requirements. Additional time for construction is being requested due to size increase, moving the site, offline storage and integration of Southwestern Pump Station.
Story Avenue and Main Street Storage Basin	Ohio River	CSO020	8	0.13	$1,580,000	6.29	4.21	2.08	CSO020	8	5.42	$13,950,000	143.94	8.30	135.64	4.09	12/31/2013	12/31/2020	Residual AAOV increases slightly compared to 2009 due to change in operation assumptions at Starkey. However, LOC 8 is still maintained.	Story and Main & 13th and Rowan basins are linked together functionally. Story & Main grew substantially in size due to more conservative operational assumptions for Starkey PS. MSD proposes to split out and accelerate the schedule of CRD/CSO 22/CSO 23/CSO054 projects using green infrastructure and localized storage. Additional time is requested to right size the Story/Main and 13th/Rowan basins once the impacts of green infrastructure and upstream storage are realized and monitored.
Story Avenue and Spring Street Storage Basin	South Fork	CSO130	8	0.01	$1,077,000	0.84	0.67	0.17	CSO130	8	Green Infrastructure	$896,000	1.96	0.40	1.56	-0.27	12/31/2016	12/31/2016		This project modification uses a suite of green infrastructure projects in lieu of the storage basin. No schedule change for overflow reduction is anticipated.

Table 1
2012 IOAP Project Modifications

Project Name	Receiving Stream	2009 Overflows Controlled	2009 Level of Control	2009 Size (MG)	2009 Cost	2009 Baseline AAOV (MG)	2009 Residual AAOV (MG)	2009 AAOV Reduction (MG)	2012 Overflows Controlled	2012 LOC	2012 Revised Size (MG)	2012 Revised Cost (in 2009 dollars)	2012 Baseline AAOV (MG)	2012 Residual AAOV (MG)	2012 AAOV Reduction (MG)	Change in Residual AAOV (MG)	2009 Completion Date	Proposed Completion Date	Comments on AAOV Changes	Explanation for Proposed Revisions
13th Street and Rowan Street Storage Basin**	Ohio River	CSO023, CSO050, CSO051, CSO052, CSO053, CSO054, CSO055, CSO056, CSO150,CSO 155, and Central Relief Drain CSOs (11 total with an AAOV)	4	14.44	$49,680,000	171.04	32.89	138.15	CSO022, CSO023, CSO050, CSO051, CSO052, CSO053, CSO054, CSO055, CSO056, CSO058, CSO150, CSO155	8	4.36	$29,180,000	56.37	0.26	56.11	-32.63	12/31/2020	12/31/2020		MSD proposes to split CRD/CSO 22/CSO 23 projects into separate projects. The storage basin and CRD projects are proposed to remain on the same schedule. CSO058 will also be addressed in this project however, the 2012 AAOV is listed separately under CSO058.
SOR1	Ohio River	NA	8	NA	NA	NA	NA	NA	CSO016, CSO210	8	11.4	$3,898,500	75.76	20.05	55.71	N/A	12/31/2018	12/31/2018		New stand-alone project. Optimized operating rules between Paddy's Run HRT and Morris Forman's Main Diversion Structure demonstrated that only inline storage was needed at Southern Outfall Relief 1 and Southern Outfall Relief 2. MSD proposes to eliminate the Algonquin storage basin portion of the project and complete the two inline storage basins by the original completion date. Overflow volume reduction attributed to each project is pro-rated based on inline storage volumes.
SOR2	Ohio River	NA	8	NA	NA	NA	NA	NA	CSO211	8	4.7	$3,898,500	283.12	30.54	252.58	N/A	12/31/2018	12/31/2018		New stand-alone project. Optimized operating rules between Paddy's Run HRT and Morris Forman's Main Diversion Structure demonstrated that only inline storage was needed at Southern Outfall Relief 1 and Southern Outfall Relief 2. MSD proposes to eliminate the Algonquin storage basin portion of the project and complete the two inline storage basins by the original completion date. Overflow volume reduction attributed to each project is pro-rated based on inline storage volumes.
Algonquin Parkway Storage Basin/In-line Storage	Ohio River	CSO016, CSO210, CSO211	8	4.84	$17,300,000	598.39	52.89	545.50	NA	NA	NA	NA	358.88	50.59	308.29	-2.30	12/31/2018	Eliminated	Volumes listed for AAOV are summed from SOR1/SOR2 for comparison purposes only.	Offline storage eliminated. Optimized operating rules between Paddy's Run HRT and Morris Forman's Main Diversion Structure demonstrated that only inline storage was needed at Southern Outfall Relief 1 and Southern Outfall Relief 2. MSD proposes to eliminate the Algonquin storage basin portion of the project.
Beargrass Creek Parallel Interceptor	NA	NA	NA	NA	$12,994,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	N/A	12/31/2017	Eliminated		Consolidation of Calvary/Creekside Basin with Logan Street Basin makes the parallel interceptor unnecessary.
Calvary Creekside Storage Basin	South Fork	CSO097, CSO106, CSO110, CSO111, CSO137, CSO148, CSO151	8	3.46	$13,720,000	125.66	13.14	112.52	NA	8 (Part of Logan Street)	NA	N/A	NA	NA	NA	N/A	12/31/2017	Eliminated		Basin volume now addressed through Logan Street. Project is proposed to be eliminated.
Camp Taylor System Improvements	NA	Wet Weather SSOs	2-Year, 3-Hour	Pipe Upgrades	$28,279,000	1.28	0.16	1.12	Wet Weather SSOs	2-Year, 3-Hour	Pipe Upgrades	$28,279,000	1.28	0.16	1.12	0.00	Multiple	Multiple (Same as 2009)		Project approach is similar to 2009, but the project area targeted for inspection and rehabilitation is larger.
Caven Ave Pump Station Elimination	NA	Wet Weather SSOs	2-Year, 3-Hour	0.21	$731,000	0.00	0.00	0.00	Wet Weather SSOs	10-Year, 3-Hour	PS Elmination	$320,000	0.00	0.00	0.00	0.00	12/31/2016	12/31/2016		Recent new pipeline constructed to eliminate a nearby package treatment plant makes the elimination of the pump station the most cost effective overflow solution.
CRD CSO Green Infrastructure & Localized Storage**	Ohio River	NA	4 (Part of 13th & Rowan)	NA	NA	NA	NA	NA	Central Relief Drain CSOs (13 total with an AAOV: CSO028, CSO029, CSO034, CSO036, CSO178, CSO181, CSO193, CSO195, CSO196, CSO197, CSO199, CSO200, CSO202)	8	Diversion and Inline Storage	$2,184,000	47.38	1.26	46.12	1.26	NA	12/31/2018	This project did not previously exist, so no accurate comparison can be made between the two.	New project. MSD proposes to split CRD/CSO 22/CSO 23 projects into separate projects. The CRD projects are proposed to move forward in the schedule.
Clifton Heights Storage Basin	Muddy Fork	CSO132, CSO154, CSO167	8	6.55	$13,870,000	152.65	17.57	135.08	CSO088, CSO131, CSO132, CSO154, CSO167	4	4.28	$15,331,000	74.50	11.24	63.26	-6.33	12/31/2018	12/31/2018		Model calibration and revised benefit/cost analysis changed basin size and level of control.

Table 1
2012 IOAP Project Modifications

Project Name	Receiving Stream	2009 Overflows Controlled	2009 Level of Control	2009 Size (MG)	2009 Cost	2009 Baseline AAOV (MG)	2009 Residual AAOV (MG)	2009 AAOV Reduction (MG)	2012 Overflows Controlled	2012 LOC	2012 Revised Size (MG)	2012 Revised Cost (in 2009 dollars)	2012 Baseline AAOV (MG)	2012 Residual AAOV (MG)	2012 AAOV Reduction (MG)	Change in Residual AAOV (MG)	2009 Completion Date	Proposed Completion Date	Comments on AAOV Changes	Explanation for Proposed Revisions
Eden Care PS Inline Storage	NA	Wet Weather SSOs	2-Year, 3-Hour	NA	NA	0.00	0.00	0.00	Wet Weather SSOs	NA	NA	$0	0.00	0.00	0.00	0.00	NA	Eliminated		Only one overflow had been documented at this location. MSD cleaned the sewers in the vicinity and has not documented an overflow in over 3 years. No further action is deemed necessary.
Fairmount Road Pump Station Off-Line Storage	NA	Wet Weather SSOs	N/A (New Project)	NA	NA	0.00	0.00	0.00	Wet Weather SSOs	10-Year, 3-Hour	3.4 MG	$11,285,000	0.00	0.00	0.00	0.00	NA	12/31/2015		Project needed to accommodate flows from eliminated Jeffersontown WQTC and acknowledged capacity at Cedar Creek WQTC.
Lea Ann Way System Improvements	NA	Wet Weather SSOs	2-Year, 3-Hour	Pipe Upgrades	$827,000	0.00	0.00	0.00	Wet Weather SSOs	2-Year, 3-Hour	Additional Pipe Upgrades	$7,272,000	0.00	0.00	0.00	0.00	12/31/2015	12/31/2015		Additional overflows have been occurring in recent years. Therefore, additional sewer inspection and rehabilitation are underway. Contingency plans have been developed and are dependent upon the efficacy of rehabilitation of wet weather flows.
Leland Road Relief Sewer	NA	Wet Weather SSOs	2-Year, 3-Hour	NA	NA	0.00	0.00	0.00	Wet Weather SSOs	NA	NA	$0	0.00	0.00	0.00	0.00	NA	Eliminated		Only one overflow had been documented at this location. MSD cleaned the sewers in the vicinity and has not documented an overflow in over 3 years. No further action is deemed necessary.
Lexington Road and Payne Street Storage Basin**	South Fork	CSO082, CSO084, CSO118, CSO119, CSO120, CSO121, CSO141, CSO153	8	7.31	$25,200,000	174.83	22.89	151.94	CSO082, CSO083, CSO084, CSO118, CSO119, CSO120, CSO121, CSO141, CSO153	0	8.18	$28,102,000	78.55	0.00	78.55	-22.89	12/31/2020	12/31/2020		Model calibration changed basin size. No change in level of control or schedule.
Logan Street and Breckinridge Street Storage Basin	South Fork	CSO091, CSO113, CSO117, CSO146, CSO149, CSO152	8	11.83	$30,320,000	297.37	32.41	264.96	CSO091, CSO097, CSO106, CSO109, CSO110, CSO111, CSO113, CSO117, CSO137, CSO146, CSO148, CSO149, CSO151, CSO152	8	16.6	$52,165,000	425.27	33.47	391.80	1.06	12/31/2017	12/31/2017	The 2009 Residual AAOV for the overflows mitigated by the the Calvery Basin is 13.14 MG. If that volume is added to the 2009 residual volume for this basin, the total 2009 residual AAOV is 45.35 MG, resulting in a net reduction of 11.88 MG for the sum of all of these CSOs.	A review of project approach and benefit/cost results eliminated the Calvary Creekside basin, consolidating storage to the Logan Street basin location. No changes to schedule are proposed.
Nightingale Pump Station Replacement & Storage**	South Fork	CSO018	NA	60 MGD/0 MG	$15,710,000	18.69	0.00	18.69	CSO018	0	33 MGD / 2.7 MG	$16,540,000	18.70	0.00	18.70	0.00	12/31/2016	12/31/2015		MSD proposed to move this project up in schedule due to operational advantages that would be realized.
Outer Loop Storage Basin Elimination	N/A	Wet Weather SSOs	2-Year, 3-Hour	1.42	$4,280,000	0.00	0.00	0.00	Wet Weather SSOs	N/A	N/A	$0	0.00	0.00	0.00	0.00	12/31/2024	Eliminated		Due to improvements in the Pond Creek hydraulic model calibration, this storage basin is no longer necessary.
Southwestern Parkway Storage Basin	Ohio River	CSO104, CSO105, CSO189	0	5.08	$17,620,000	197.42	0.00	197.42	CSO104, CSO105, CSO189	0	11.07	$33,069,000	107.55	0.00	107.55	0.00	12/31/2018	12/31/2018		Model calibration changed basin size. No change in level of control or schedule.

Notes:

1) 2009 Sewer Separation Projects Show 0 Overflows during the typical year. However, this does not account for the additional first flush runoff that would be directed into the creek during the majority of smaller events if the sewer were separated. Based upon this, a mitigation project that allows some overflow during the typical year likely provides a higher environmental benefit as the first flush will be routed and treated at the WQTC.

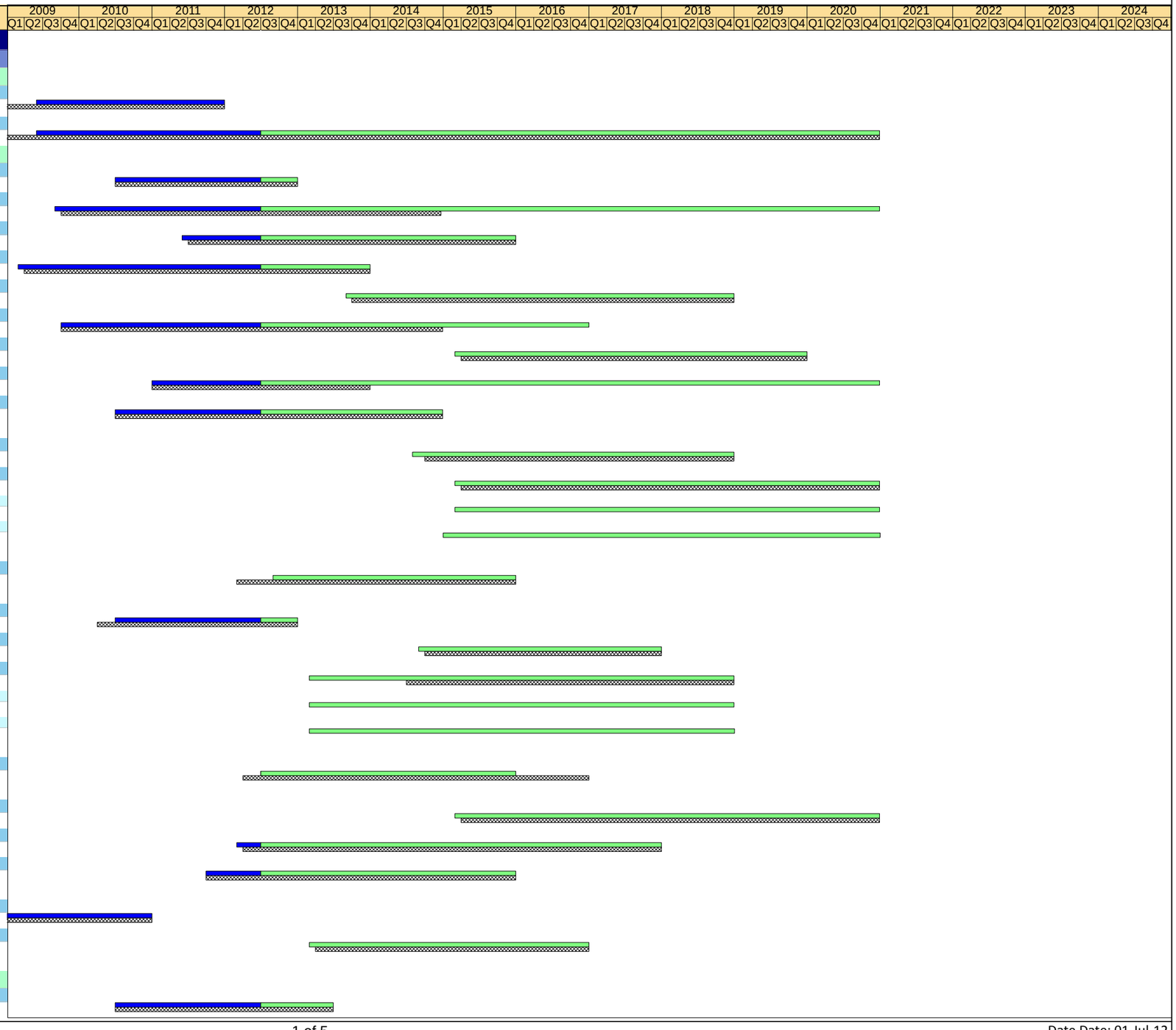
2)The method for calculating residual overflow volumes has been modified since 2009. In 2009, residual AAOVs were assigned to each CSO by pro-rating the total residual overflow at a project location to each CSO based upon the baseline condition total overflow volume. The 2012 residual AAOVs use model predicted data based upon conceptual aligments placed in the model and should reflect a more accurate distribution of residual CSO volume.

3) The models were re-calibrated using 2010/2011 data. Portions of the changes in residual AAOVs may be based upon the re-calibration.

4) The Level of Control methodology used to develop the project sizing for each project in 2012 is the exact same Level of Control methodology used in 2009. This methodology was based on signficant input from the stakeholder group during the intitial developmnt. Therefore, MSD is proposing to continue to respect the outcomes of this methodology in 2012, regardless if the project sizing and resultant level of control increases or decreases. The most notable change demonstrating an increase in level of control is the I-64 and Grinstead Project. Based upon the methodology, the level of control increases from 8 annually to 4 annually, and the project size is increased based upon both re-calibration and the change in Level of Control

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
MSD IOAP SCHEDULE	31-Dec-24	31-Dec-24	31-Dec-24
LONG TERM CONTROL PLAN	01-Jan-21	31-Dec-20	31-Dec-20
GREEN DEMONSTRATION PROJECTS	31-Dec-20	31-Dec-20	31-Dec-20
GREEN INFRASTRUCTURE DEMONSTRATION PROJECTS	31-Dec-11 A	31-Dec-11	31-Dec-11
GREEN INFRASTRUCTURE DEMONSTRATION PROJE(	31-Dec-11 A	31-Dec-11	31-Dec-11
GREEN INFRASTRUCTURE PROGRAM	31-Dec-20	31-Dec-20	31-Dec-20
GREEN INFRASTRUCTURE PROGRAM	31-Dec-20	31-Dec-20	31-Dec-20
GRAY INFRASTRUCTURE PROJECTS	01-Jan-21	31-Dec-20	31-Dec-20
CSO 123 DOWNSPOUT DISCONNECTION	31-Dec-12	31-Dec-12	31-Dec-12
CSO 123 DOWNSPOUT DISCONNECTION	31-Dec-12	31-Dec-12	31-Dec-12
I-64 AND GRINSTEAD DRIVE STORAGE BASIN	31-Dec-20	21-Dec-14	31-Dec-20
I-64 AND GRINSTEAD DRIVE STORAGE BASIN	31-Dec-20	21-Dec-14	31-Dec-20
CSO 140 INCREASE PIPE CONVEYANCE	31-Dec-15	31-Dec-15	31-Dec-15
CSO 140 INCREASE PIPE CONVEYANCE	31-Dec-15	31-Dec-15	31-Dec-15
CSO 206 SEWER SEPARATION	30-Dec-13	31-Dec-13	30-Dec-13
CSO 206 SEWER SEPARATION	30-Dec-13	31-Dec-13	30-Dec-13
CLIFTON HEIGHTS STORAGE BASIN	31-Dec-18	31-Dec-18	31-Dec-18
CLIFTON HEIGHTS STORAGE BASIN	31-Dec-18	31-Dec-18	31-Dec-18
PADDY'S RUN WET WEATHER TREATMENT FACILITY AND OFF LINE S	31-Dec-16	31-Dec-14	31-Dec-16
PADDY'S RUN WET WEATHER TREATMENT FACILITY	31-Dec-16	31-Dec-14	31-Dec-16
PORTLAND WHARF STORAGE BASIN	31-Dec-19	31-Dec-19	31-Dec-19
PORTLAND WHARF STORAGE BASIN	31-Dec-19	31-Dec-19	31-Dec-19
STORY AVENUE AND MAIN STREET STORAGE BASIN	31-Dec-20	31-Dec-13	31-Dec-20
STORY AVENUE AND MAIN STREET STORAGE BASIN	31-Dec-20	31-Dec-13	31-Dec-20
CSO 058 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTRO	31-Dec-14	31-Dec-14	31-Dec-14
CSO 058 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS	31-Dec-14	31-Dec-14	31-Dec-14
SOUTHWESTERN PARKWAY STORAGE BASIN	31-Dec-18	31-Dec-18	31-Dec-18
SOUTHWESTERN PARKWAY STORAGE BASIN	31-Dec-18	31-Dec-18	31-Dec-18
13TH STREET AND ROWAN STREET STORAGE BASIN	01-Jan-21	31-Dec-20	31-Dec-20
13TH STREET AND ROWAN STREET STORAGE BASIN	31-Dec-20	31-Dec-20	
13TH STREET AND ROWAN STREET STORAGE BASIN	31-Dec-20		31-Dec-20
13TH STREET AND ROWAN STREET STORAGE BASIN	31-Dec-20		31-Dec-20
CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE	01-Jan-21		31-Dec-18
CENTRAL RELIEF DRAIN IN-LINE STORAGE, GREEN INFRASTRUCTURE AND DISTRIBUTED STORAGE	01-Jan-21		31-Dec-18
CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTRO	31-Dec-15	31-Dec-15	31-Dec-15
CSO 160 IN-LINE STORAGE AND GREEN INFRASTRUCTURE CONTROLS	31-Dec-15	31-Dec-15	31-Dec-15
ADAMS STREET SEWER SEPARATION	31-Dec-12	31-Dec-12	31-Dec-12
ADAMS STREET SEWER SEPARATION	31-Dec-12	31-Dec-12	31-Dec-12
18TH AND NORTHWESTERN PKY STORAGE BASIN	31-Dec-17	31-Dec-17	31-Dec-17
18TH AND NORTHWESTERN PKY STORAGE BASIN	31-Dec-17	31-Dec-17	31-Dec-17
ALGONQUIN PARKWAY STORAGE BASIN	01-Jan-19	31-Dec-18	31-Dec-18
ALGONQUIN PARKWAY STORAGE BASIN	31-Dec-18	31-Dec-18	
SOUTHERN OUTFALL IN-LINE STORAGE (SOR 1)	31-Dec-18		31-Dec-18
SOUTHERN OUTFALL IN-LINE STORAGE AT 43RD ST.	31-Dec-18		31-Dec-18
SOUTHERN OUTFALL IN-LINE RETENTION (SOR 2)	01-Jan-19		31-Dec-18
SOUTHERN OUTFALL IN-LINE RETENTION AT 13TH AND WILSON AVE. (SOR 2)	01-Jan-19		31-Dec-18
NIGHTINGALE PUMP STATION REPLACEMENT AND STORAGE	31-Dec-15	31-Dec-16	31-Dec-15
NIGHTINGALE PUMP STATION REPLACEMENT AND STORAGE	31-Dec-15	31-Dec-16	31-Dec-15
LEXINGTON ROAD AND PAYNE STREET STORAGE BASIN	31-Dec-20	31-Dec-20	31-Dec-20
LEXINGTON ROAD AND PAYNE STREET STORAGE BA!	31-Dec-20	31-Dec-20	31-Dec-20
LOGAN STREET AND BRECKENRIDGE ST STORAGE BASIN	31-Dec-17	31-Dec-17	31-Dec-17
LOGAN STREET AND BRECKENRIDGE ST STORAGE B	31-Dec-17	31-Dec-17	31-Dec-17
CSO 093 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTU	31-Dec-15	31-Dec-15	31-Dec-15
CSO 093 STRUCTURAL MODIFICATIONS AND GREEN INFRASTRUCTURE CONTROLS	31-Dec-15	31-Dec-15	31-Dec-15
CSO 108 DAM MODIFICATIONS	31-Dec-10 A	31-Dec-10	31-Dec-10
CSO 108 DAM MODIFICATIONS	31-Dec-10 A	31-Dec-10	31-Dec-10
STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CC	31-Dec-16	31-Dec-16	31-Dec-16
STORY AVENUE AND SPRING STREET GREEN INFRASTRUCTURE CONTROLS	31-Dec-16	31-Dec-16	31-Dec-16
FLOOD PUMP STATION PROJECTS	31-Dec-14	31-Dec-14	31-Dec-14
27TH STREET FLOOD PUMP STATION	30-Jun-13	30-Jun-13	30-Jun-13
27TH STREET FLOOD PUMP STATION	30-Jun-13	30-Jun-13	30-Jun-13



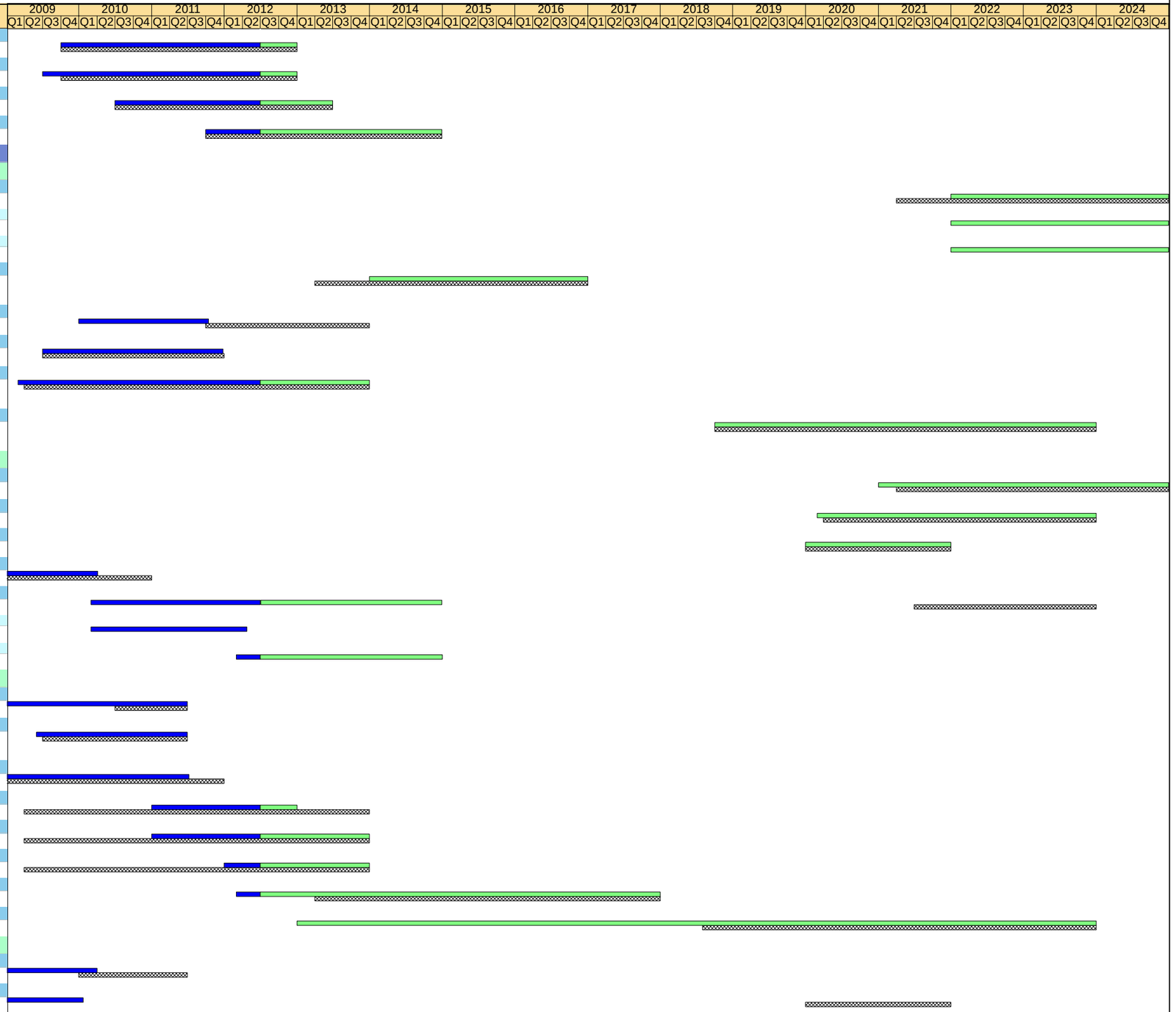
Approved 2009 IOAP Remaining Work

Completed Work

Date Date: 01-Jul-12

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
34TH STREET FLOOD PUMP STATION	31-Dec-12	31-Dec-12	31-Dec-12
34TH STREET FLOOD PUMP STATION	31-Dec-12	31-Dec-12	31-Dec-12
4TH STREET FLOOD PUMP STATION	31-Dec-12	31-Dec-12	31-Dec-12
4TH STREET FLOOD PUMP STATION	31-Dec-12	31-Dec-12	31-Dec-12
SHAWNEE FLOOD PUMP STATION	30-Jun-13	30-Jun-13	30-Jun-13
SHAWNEE FLOOD PUMP STATION	30-Jun-13	30-Jun-13	30-Jun-13
17TH STREET FLOOD PUMP STATION	31-Dec-14	31-Dec-14	31-Dec-14
17TH STREET FLOOD PUMP STATION	31-Dec-14	31-Dec-14	31-Dec-14
SANITARY SEWER DISCHARGE PLAN	31-Dec-24	31-Dec-24	31-Dec-24
BEARGRASS CREEK MIDDLE FORK AREA	31-Dec-24	31-Dec-24	31-Dec-24
GOOSE CREEK PUMP STATION	31-Dec-24	31-Dec-24	31-Dec-24
GOOSE CREEK PUMP STATION	31-Dec-24	31-Dec-24	
GOOSE CREEK PS PH1 - DEVONDALE PS WW STORAGE	31-Dec-24		31-Dec-24
GOOSE CREEK PS PH1 - DEVONDALE PS WW STOR/	31-Dec-24		31-Dec-24
GOOSE CRK PS PH2 - PS & WET WEATHER STORAGE	31-Dec-24		31-Dec-24
GOOSE CRK PS PH2 - PS & WET WEATHER STORAGE	31-Dec-24		31-Dec-24
ANCHOR ESTATES- ANCHOR ESTS PS 1 & 2 PS ELIMINATIONS	31-Dec-16	31-Dec-16	31-Dec-16
ANCHOR ESTATES- ANCHOR ESTS PS 1 & 2 PS ELIMINATIONS	31-Dec-16	31-Dec-16	31-Dec-16
ANCHOR ESTATES- VANNAH PS ELIMINATION	15-Oct-11 A	31-Dec-13	31-Dec-13
ANCHOR ESTATES- VANNAH PS ELIMINATION	15-Oct-11 A	31-Dec-13	31-Dec-13
HURSTBOURNE I&I INVESTIGATION & REHABILITATION	27-Dec-11 A	31-Dec-11	31-Dec-11
HURSTBOURNE I&I INVESTIGATION & REHABILITATION	27-Dec-11 A	31-Dec-11	31-Dec-11
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE, AN	31-Dec-13	31-Dec-13	31-Dec-13
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE, AND UMFLS DIVERSION 1 - BUECHEL BASIN	31-Dec-13	31-Dec-13	31-Dec-13
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE, AN	31-Dec-23	31-Dec-23	31-Dec-23
MIDDLE FORK RELIEF INTERCEPTOR, WET WEATHER STORAGE, AND UMFLS DIVERSION 2 PS & WET WEATHER STORAGE	31-Dec-23	31-Dec-23	31-Dec-23
CEDAR CREEK AREA	31-Dec-24	31-Dec-24	31-Dec-24
LITTLE CEDAR CREEK INTRECEPTOR IMPROVEMENTS	31-Dec-24	31-Dec-24	31-Dec-24
LITTLE CEDAR CREEK INTRECEPTOR IMPROVEMENTS	31-Dec-24	31-Dec-24	31-Dec-24
IDLEWOOD INLINE STORAGE	31-Dec-23	31-Dec-23	31-Dec-23
IDLEWOOD INLINE STORAGE	31-Dec-23	31-Dec-23	31-Dec-23
BARDSTOWN RD PS IMPROVEMENTS	31-Dec-21	31-Dec-21	31-Dec-21
BARDSTOWN RD PS IMPROVEMENTS	31-Dec-21	31-Dec-21	31-Dec-21
RUNNING FOX PS ELIMINATION	05-Apr-10 A	31-Dec-10	31-Dec-10
RUNNING FOX PS ELIMINATION	05-Apr-10 A	31-Dec-10	31-Dec-10
FAIRMOUNT RD PS IMPROVMENTS	01-Jan-15	31-Dec-23	31-Dec-23
FAIRMOUNT RD PS IMPROVMENTS	31-Dec-14	31-Dec-23	
FAIRMOUNT RD PS IMPROVEMENTS	24-Apr-12 A		31-Dec-23
FAIRMOUNT RD PS IMPROVEMENTS	24-Apr-12 A		31-Dec-23
FAIRMOUNT RD PS IMPROVEMENT PH 2	01-Jan-15		31-Dec-15
FAIRMOUNT STORAGE BASIN	01-Jan-15		31-Dec-15
COMBINED SEWER SYSTEM AREA	31-Dec-23	31-Dec-23	31-Dec-23
HAZELWOOD PS I&I INVESTIGATION & REHABILITATION	30-Jun-11 A	30-Jun-11	30-Jun-11
HAZELWOOD PS I&I INVESTIGATION & REHABILITATIO	30-Jun-11 A	30-Jun-11	30-Jun-11
SONNE PUMP STATION I&I INVESTIGATION & REHABILITATION	30-Jun-11 A	30-Jun-11	30-Jun-11
SONNE PUMP STATION I&I INVESTIGATION & REHABILITATION	30-Jun-11 A	30-Jun-11	30-Jun-11
CAMP TAYLOR SSES	08-Jul-11 A	31-Dec-11	31-Dec-13
CAMP TAYLOR SSES	08-Jul-11 A	31-Dec-11	31-Dec-13
CAMP TAYLOR SANITARY SEWER #1A	31-Dec-12	31-Dec-13	31-Dec-13
CAMP TAYLOR SANITARY SEWER #1A	31-Dec-12	31-Dec-13	31-Dec-13
CAMP TAYLOR SANITARY SEWER #1B	31-Dec-13	31-Dec-13	31-Dec-13
CAMP TAYLOR SANITARY SEWER #1B	31-Dec-13	31-Dec-13	31-Dec-13
CAMP TAYLOR SANITARY SEWER #2	31-Dec-13	31-Dec-13	31-Dec-13
CAMP TAYLOR SANITARY SEWER #2	31-Dec-13	31-Dec-13	31-Dec-13
CAMP TAYLOR #3- SEWER REHABILITATION	31-Dec-17	31-Dec-17	31-Dec-17
CAMP TAYLOR #3- SEWER REHABILITATION	31-Dec-17	31-Dec-17	31-Dec-17
CAMP TAYLOR #4-SEWER REHABILITATION & REPLACEMENT	31-Dec-23	31-Dec-23	31-Dec-23
CAMP TAYLOR #4-SEWER REHABILITATION & REPLACI	31-Dec-23	31-Dec-23	31-Dec-23
FLOYDS FORK AREA	01-Apr-10 A	31-Dec-21	01-Apr-10
WOODLAND HILL PS DIVERSION	01-Apr-10 A	30-Jun-11	01-Apr-10
WOODLAND HILL PS DIVERSION	01-Apr-10 A	30-Jun-11	01-Apr-10
ASHBURTON PS IMPROVEMENTS AND DIVERSION	22-Jan-10 A	31-Dec-21	22-Jan-10
ASHBURTON PS IMPROVEMENTS AND DIVERSION	22-Jan-10 A	31-Dec-21	22-Jan-10



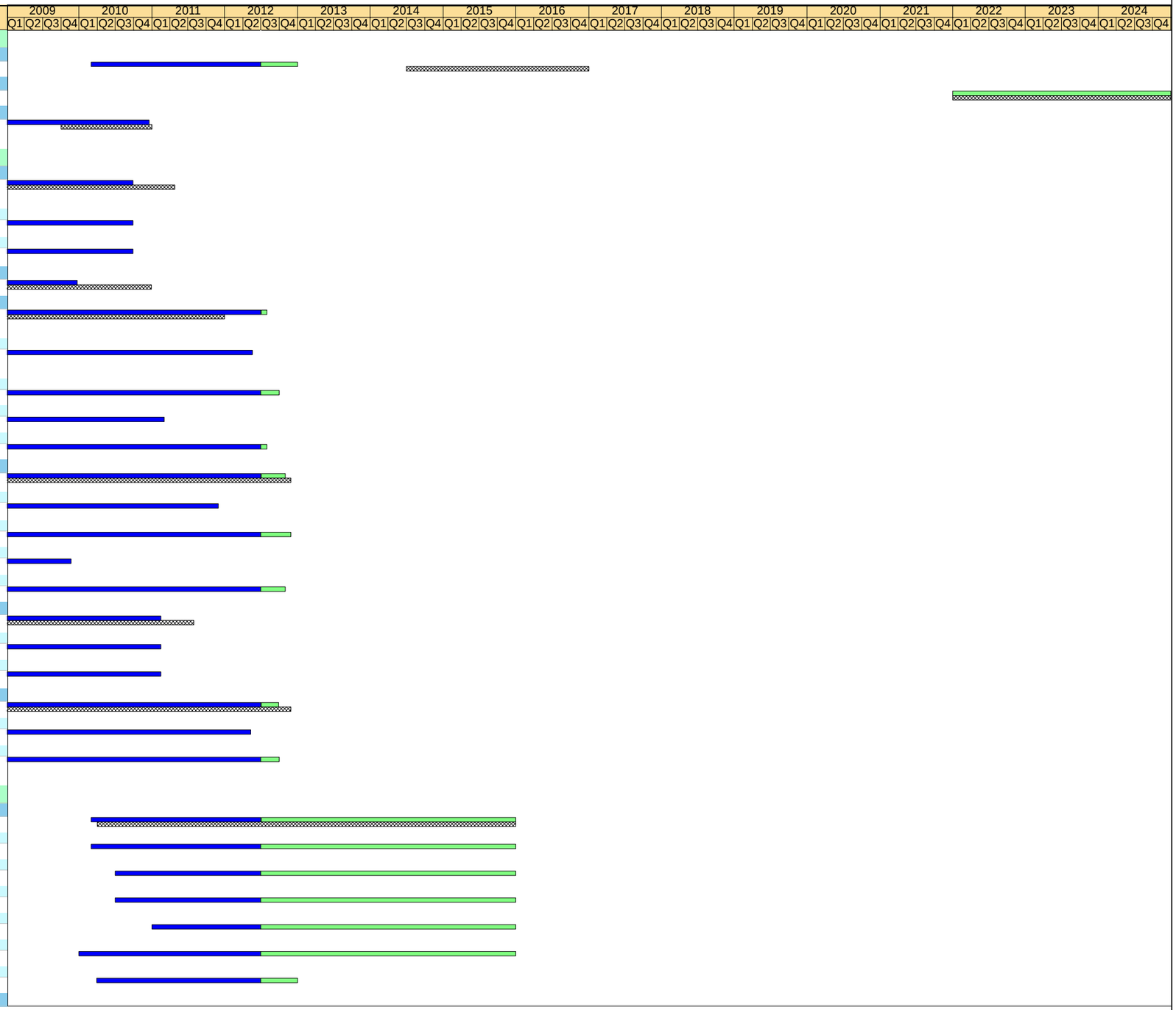
Approved 2009 IOAP Remaining Work

Completed Work

Date Date: 01-Jul-12

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
HITE CREEK AREA	31-Dec-24	31-Dec-24	31-Dec-24
MEADOW STREAM PS AND FORCE MAIN	31-Dec-12	31-Dec-16	31-Dec-16
MEADOW STREAM PS AND FORCE MAIN	31-Dec-12	31-Dec-16	31-Dec-16
KAVANAUGH RD PS IMPROVEMENTS	31-Dec-24	31-Dec-24	31-Dec-24
KAVANAUGH RD PS IMPROVEMENTS	31-Dec-24	31-Dec-24	31-Dec-24
FLOYDSBURG RD SSES, REHAB AND PUMP STATION UPGRADE	17-Dec-10 A	31-Dec-10	31-Dec-10
FLOYDSBURG RD SSES, REHAB AND PUMP STATION UPGRADE	17-Dec-10 A	31-Dec-10	31-Dec-10
INTERIM SSDP PROJECTS	27-Nov-12	27-Nov-12	27-Nov-12
ISSDP BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	29-Sep-10 A	27-Apr-11	27-Apr-11
ISSDP BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT	29-Sep-10 A	27-Apr-11	
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT (WEST)	29-Sep-10 A		27-Apr-11
BEECHWOOD VILLAGE SANITARY SEWER REPLACEI	29-Sep-10 A		27-Apr-11
BEECHWOOD VILLAGE SANITARY SEWER REPLACEMENT (EAST)	29-Sep-10 A		27-Apr-11
BEECHWOOD VILLAGE SANITARY SEWER REPLACEI	29-Sep-10 A		27-Apr-11
SINKING FORK RELIEF SEWER	23-Dec-09 A	30-Dec-10	23-Dec-09
SINKING FORK RELIEF SEWER	23-Dec-09 A	30-Dec-10	23-Dec-09
ISSDP DEREK R GUTHRIE WATER QUALITY TREATMENT CENTER	30-Sep-12	31-Dec-11	31-Oct-12
ISSDP DEREK R GUTHRIE WATER QUALITY TREATMENT CENTER	30-Jul-12	31-Dec-11	
DEREK R GUTHRIE WQTC WET WEATHER TREATMENT FACILITY	20-May-12 A		31-Oct-12
DEREK R GUTHRIE WQTC WET WEATHER TREATMENT FACILITY	20-May-12 A		31-Oct-12
WCWTP: WW FLOW EQU & TMT	30-Sep-12		31-Oct-12
WCWTP: WW FLOW EQU & TMT	30-Sep-12		31-Oct-12
DRGWQTC: BLOWER PACKAGE	03-Mar-11 A		31-Oct-12
DRGWQTC: BLOWER PACKAGE	03-Mar-11 A		31-Oct-12
DRGWQTC: WET WEATHER EQUALIZATION BASIN	31-Jul-12		31-Oct-12
DRGWQTC: WET WEATHER EQUALIZATION BASIN	31-Jul-12		31-Oct-12
ISSDP HIKES LANE INTERCEPTOR /HIGHGATE SPRINGS PS	27-Nov-12	27-Nov-12	27-Nov-12
ISSDP HIKES LANE INTERCEPTOR /HIGHGATE SPRINC	30-Oct-12	27-Nov-12	
HIKES POINT INTERCEPTOR	30-Nov-11 A		27-Nov-12
HIKES POINT INTERCEPTOR	30-Nov-11 A		27-Nov-12
HIKES POINT INTERCEPTOR PHASE 2	27-Nov-12		27-Nov-12
HIKES POINT INTERCEPTOR PHASE 2	27-Nov-12		27-Nov-12
CARSON & RIBBLE RELIEF	20-Nov-09 A		27-Nov-12
CARSON & RIBBLE RELIEF	20-Nov-09 A		27-Nov-12
HIKES POINT RELIEF EFFORT	31-Oct-12		27-Nov-12
HIKES POINT RELIEF EFFORT	31-Oct-12		27-Nov-12
ISSDP NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A	31-Jul-11	31-Jul-11
ISSDP NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A	31-Jul-11	
NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A		31-Jul-11
NORTHERN DITCH DIVERSION INTERCEPTOR	16-Feb-11 A		31-Jul-11
NORTHERN DITCH DIVERSION INTERCEPTOR PH 2	16-Feb-11 A		31-Jul-11
NORTHERN DITCH DIVERSION INTERCEPTOR PH 2	16-Feb-11 A		31-Jul-11
ISSDP SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR	30-Sep-12	27-Nov-12	30-Sep-12
ISSDP SOUTHEAST DIVERSION STRUCTURE & INTER	28-Sep-12	27-Nov-12	
SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR	12-May-12 A		12-May-12
SOUTHEAST DIVERSION STRUCTURE & INTERCEPT	12-May-12 A		12-May-12
SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR Phase 2	30-Sep-12		30-Sep-12
SOUTHEAST DIVERSION STRUCTURE & INTERCEPTOR Phase 2	30-Sep-12		30-Sep-12
JEFFERSONTOWN AREA	31-Dec-22	31-Dec-22	31-Dec-22
JEFFERSONTOWN WQTC ELIMINATION	01-Jan-16	31-Dec-15	31-Dec-15
JEFFERSONTOWN WQTC ELIMINATION	31-Dec-15	31-Dec-15	
JEFFERSONTOWN WQTC ELIMINATION	31-Dec-15		31-Dec-15
JEFFERSONTOWN WQTC ELIMINATION	31-Dec-15		31-Dec-15
JEFFERSONTOWN FORCE MAIN	31-Dec-15		31-Dec-15
JEFFERSONTOWN FORCE MAIN	31-Dec-15		31-Dec-15
GRAND AVENUE PUMP STATION	31-Dec-15		31-Dec-15
GRAND AVENUE PUMP STATION	31-Dec-15		31-Dec-15
UPPER BILLTOWN RD INTERCEPTOR	31-Dec-15		31-Dec-15
UPPER BILLTOWN RD INTERCEPTOR	31-Dec-15		31-Dec-15
BILLTOWN RD INTERCEPTOR SS	01-Jan-16		31-Dec-15
BILLTOWN RD INTERCEPTOR SS	01-Jan-16		31-Dec-15
BILLTOWN RD PS, FM & INT	31-Dec-12		31-Dec-12
BILLTOWN RD PS, FM & INT	31-Dec-12		31-Dec-12
CHENOWETH HILLS WQTC ELIMINATION & PS IMPROVEMENTS	31-Dec-15	31-Dec-15	31-Dec-15

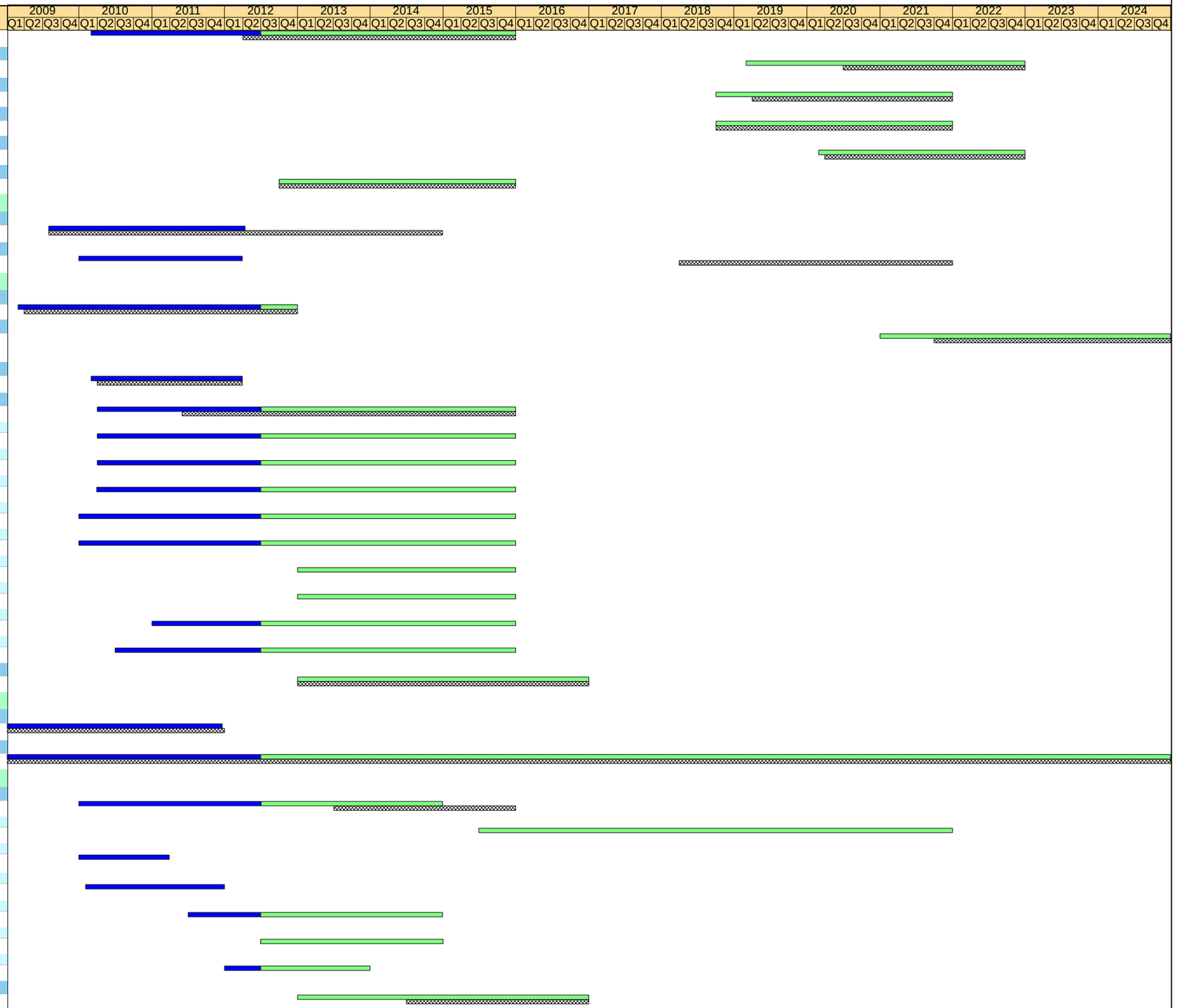


Approved 2009 IOAP Remaining Work
Completed Work

Date Date: 01-Jul-12

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
CHENOWETH HILLS WQTC ELIMINATION & PS ELIMINA	31-Dec-15	31-Dec-15	31-Dec-15
DELL RD & CHARLANE PKWY INTERCEPTOR IMPROVEMENTS	31-Dec-22	31-Dec-22	31-Dec-22
DELL RD & CHARLANE PKWY INTERCEPTOR IMPROVE	31-Dec-22	31-Dec-22	31-Dec-22
RAINTREE & MARIAN CT PH1 - PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21
RAINTREE & MARIAN CT PH1 - PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21
RAINTREE & MARIAN CT PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21
RAINTREE & MARIAN CT PS ELIMINATION	31-Dec-21	31-Dec-21	31-Dec-21
MONTICELLO PS ELIMINATION	31-Dec-22	31-Dec-22	31-Dec-22
MONTICELLO PS ELIMINATION	31-Dec-22	31-Dec-22	31-Dec-22
KLONDIKE INTERCEPTOR	31-Dec-15	31-Dec-15	31-Dec-15
KLONDIKE INTERCEPTOR	31-Dec-15	31-Dec-15	31-Dec-15
MILL CREEK AREA	13-Apr-12 A	31-Dec-21	31-Dec-21
SHIVELY INTERCEPTOR	13-Apr-12 A	31-Dec-14	31-Dec-14
SHIVELY INTERCEPTOR	13-Apr-12 A	31-Dec-14	31-Dec-14
EAST ROCKFORD LANE PS RELOCATION	30-Mar-12 A	31-Dec-21	31-Dec-21
EAST ROCKFORD LANE PS RELOCATION	30-Mar-12 A	31-Dec-21	31-Dec-21
OHIO RIVER FORCE MAIN AREA	31-Dec-24	31-Dec-24	31-Dec-24
MELLWOOD SYS 1 - MELLWOOD PS & FORCE MAIN	31-Dec-12	31-Dec-12	31-Dec-12
MELLWOOD SYS 1 - MELLWOOD PS & FORCE MAIN	31-Dec-12	31-Dec-12	31-Dec-12
MELLWOOD SYS 2 - WINTON & MOCKINGBIRD PS ELIM & PIPE UPGR	31-Dec-24	31-Dec-24	31-Dec-24
MELLWOOD SYS 2 - WINTON & MOCKINGBIRD PS ELIM & PIPE UPGRADES	31-Dec-24	31-Dec-24	31-Dec-24
DERINGTON CT PS I/I INVESTIGATION & REHABILITATION	30-Mar-12 A	31-Mar-12	31-Mar-12
DERINGTON CT PS I/I INVESTIGATION & REHABILITATI	30-Mar-12 A	31-Mar-12	31-Mar-12
PROSPECT WQTC ELIMINATIONS	31-Dec-15	31-Dec-15	31-Dec-15
PROSPECT WQTC ELIMINATIONS	31-Dec-15	31-Dec-15	
HARROD'S CREEK PS & FM	31-Dec-15		31-Dec-15
HARRODS CREEK PS & FM	31-Dec-15		31-Dec-15
HARRODS CREEK INT	31-Dec-15		31-Dec-15
HARRODS CREEK INT	31-Dec-15		31-Dec-15
HARRODS CREEK INT PH 2	31-Dec-15		31-Dec-15
HARRODS CREEK INT PH 2	31-Dec-15		31-Dec-15
RIVER ROAD INT	31-Dec-15		31-Dec-15
RIVER ROAD INT	31-Dec-15		31-Dec-15
TIMBERLAKE & HUNTING CREEK S WQTC ELIM	31-Dec-15		31-Dec-15
TIMBERLAKE & HUNTING CREEK S WQTC ELIM	31-Dec-15		31-Dec-15
KEN CARLA WQTC ELIM	31-Dec-15		31-Dec-15
KEN CARLA WQTC ELIM	31-Dec-15		31-Dec-15
HARRODS CREEK INT PH 3	31-Dec-15		31-Dec-15
HARRODS CREEK INT PH 3	31-Dec-15		31-Dec-15
SHADOW WOOD WWTP ELIM	31-Dec-15		31-Dec-15
SHADOW WOOD WWTP ELIM	31-Dec-15		31-Dec-15
N HUNTING CREEK PS & FM	31-Dec-15		31-Dec-15
N HUNTING CREEK PS & FM	31-Dec-15		31-Dec-15
PROSPECT #3- ORFM SYSTEM IMPROVEMENTS	31-Dec-16	31-Dec-16	31-Dec-16
PROSPECT #3 - ORFM SYSTEM IMPROVEMENTS	31-Dec-16	31-Dec-16	31-Dec-16
OTHER PROJECTS	30-Dec-24	31-Dec-24	30-Dec-24
CPE/CCP MODIFICATIONS TO WQTC	19-Dec-11 A	31-Dec-11	31-Dec-11
CPE/CCP MODIFICATIONS TO WQTC	19-Dec-11 A	31-Dec-11	31-Dec-11
I/I REDUCTION PROGRAM	30-Dec-24	31-Dec-24	30-Dec-24
I/I REDUCTION PROGRAM	30-Dec-24	31-Dec-24	30-Dec-24
POND CREEK AREA	31-Dec-24	31-Dec-24	31-Dec-24
LEE ANN WAY PUMP STATION IMPROVEMENTS	31-Dec-21	31-Dec-15	31-Dec-15
LEE ANN WAY PUMP STATION IMPROVEMENTS	31-Dec-14	31-Dec-15	
LEA ANN WAY SANITARY SEWER I/I REHAB	31-Dec-21		31-Dec-15
LEA ANN WAY SANITARY SEWER I/I REHAB	31-Dec-21		31-Dec-15
LEE ANN WAY PS SYSTEM SSES	30-Mar-11 A		31-Dec-15
LEE ANN WAY PS SYSTEM SSES	30-Mar-11 A		31-Dec-15
LEE ANN WAY PH 2 ICA	31-Dec-11 A		31-Dec-15
LEE ANN WAY PH 2 ICA	31-Dec-11 A		31-Dec-15
LEE ANN WAY SSR PH 1	31-Dec-14		31-Dec-15
LEE ANN WAY SSR PH 1	31-Dec-14		31-Dec-15
LEE ANN WAY SSR PH 2	01-Jan-15		31-Dec-15
LEE ANN WAY SSR PH 2	01-Jan-15		31-Dec-15
LEE ANN WAY INTERCEPTOR I/I REHAB	31-Dec-13		31-Dec-15
LEE ANN WAY INTERCEPTOR I/I REHAB	31-Dec-13		31-Dec-15
OUTER LOOP & CAVEN AREA PIPE UPGRADES	31-Dec-16	31-Dec-16	31-Dec-24
OUTER LOOP & CAVEN AREA PIPE UPGRADES	31-Dec-16	31-Dec-16	31-Dec-24



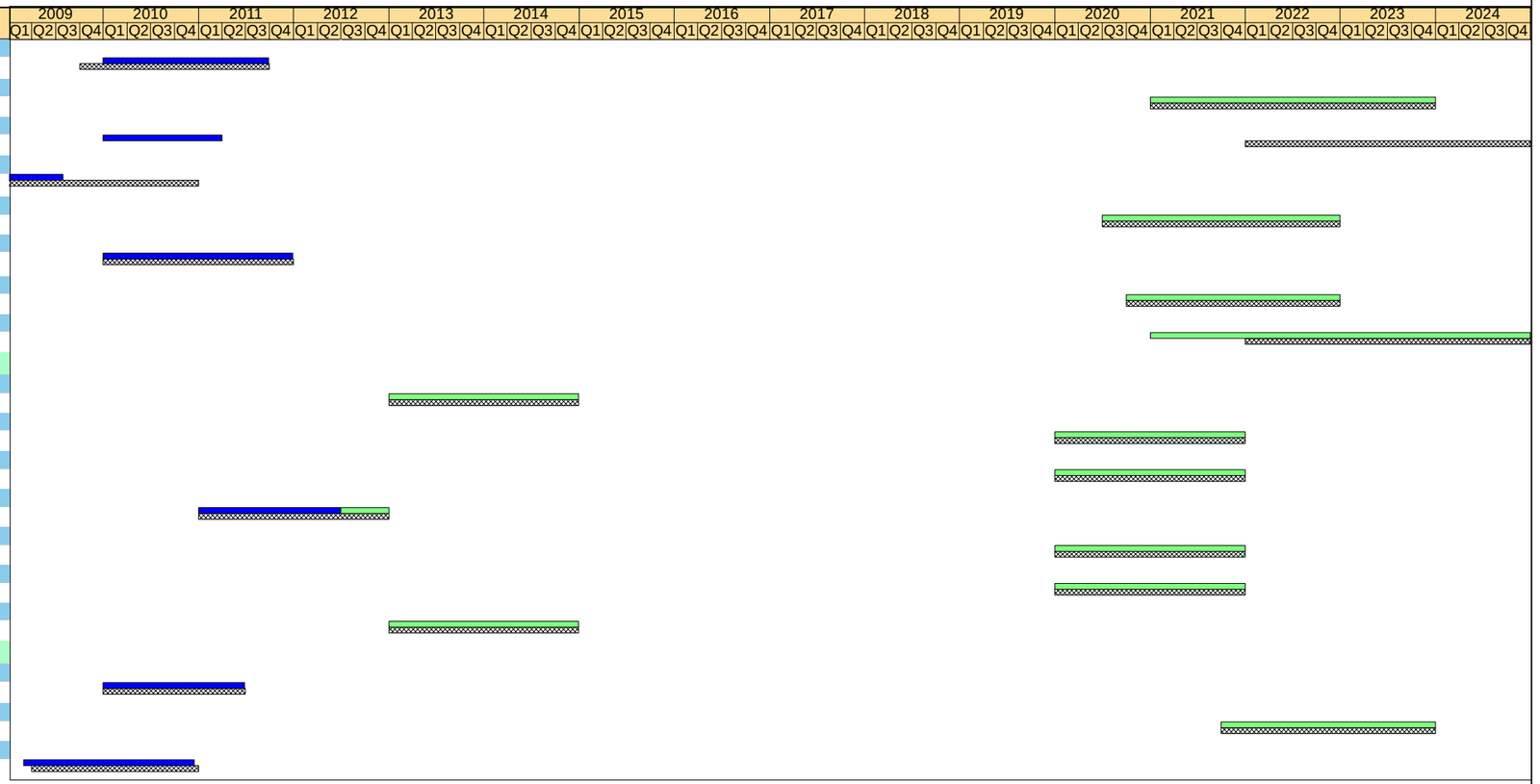
Approved 2009 IOAP Remaining Work

Completed Work

Date Date: 01-Jul-12

MSD Integrated Overflow Abatement Plan Implementation Schedule (01 Jan 2009- 31 Dec 2024)

Activity Name	Scheduled Finish	2009 IOAP Completion	2012 IOAP Modification
EDSEL PS I/I INVESTIGATION & REHABILITATION	27-Sep-11 A	30-Sep-11	30-Sep-11
EDSEL PS I/I INVESTIGATION & REHABILITATION	27-Sep-11 A	30-Sep-11	30-Sep-11
CINDERELLA PS ELIMINATION	31-Dec-23	31-Dec-23	31-Dec-23
CINDERELLA PS ELIMINATION	31-Dec-23	31-Dec-23	31-Dec-23
GOVERNMENT CENTER PS ELIMINATION	01-Apr-11 A	31-Dec-24	31-Dec-24
GOVERNMENT CENTER PS ELIMINATION	01-Apr-11 A	31-Dec-24	31-Dec-24
AVANTI PS ELIMINATION	28-Jul-09 A	31-Dec-10	31-Dec-10
AVANTI PS ELIMINATION	28-Jul-09 A	31-Dec-10	31-Dec-10
CHARLESWOOD INTERCEPTOR EXTENSION	31-Dec-22	31-Dec-22	31-Dec-22
CHARLESWOOD INTERCEPTOR EXTENSION	31-Dec-22	31-Dec-22	31-Dec-22
LANTANA PS I/I INVESTIGATION & REHABILITATION	29-Dec-11 A	31-Dec-11	29-Dec-11
LANTANA PS I/I INVESTIGATION & REHABILITATION	29-Dec-11 A	31-Dec-11	29-Dec-11
LEVEN PS ELIMINATION	31-Dec-22	31-Dec-22	31-Dec-22
LEVEN PS ELIMINATION	31-Dec-22	31-Dec-22	31-Dec-22
CAVEN AVENUE WW STORAGE	31-Dec-24	31-Dec-24	31-Dec-24
CAVEN AVENUE PS ELIMINATION	31-Dec-24	31-Dec-24	31-Dec-24
SMALL WWTP AREA	31-Dec-21	31-Dec-21	31-Dec-21
RIDING RIDGE PS IMPROVEMENTS	31-Dec-14	31-Dec-14	31-Dec-14
RIDING RIDGE PS IMPROVEMENTS	31-Dec-14	31-Dec-14	31-Dec-14
LUCAS LN PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
LUCAS LN PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
ST. RENE RD PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
ST. RENE RD PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
LAKE FOREST PS IMPROVEMENTS	31-Dec-12	31-Dec-12	31-Dec-12
LAKE FOREST PS IMPROVEMENTS	31-Dec-12	31-Dec-12	31-Dec-12
GUNPOWDER PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
GUNPOWDER PS INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
FOX HARBOR INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
FOX HARBOR INLINE STORAGE	31-Dec-21	31-Dec-21	31-Dec-21
FAIRWAY VIEW PS IMPROVEMENTS	31-Dec-14	31-Dec-14	31-Dec-14
FAIRWAY VIEW PS IMPROVEMENTS	31-Dec-14	31-Dec-14	31-Dec-14
SOUTHEASTERN DIVERSION AREA	31-Dec-23	31-Dec-23	31-Dec-23
PARKVIEW ESTATES I/I INVESTIGATION & REHABILITATION	28-Jun-11 A	30-Jun-11	30-Jun-11
PARKVIEW ESTATES I/I INVESTIGATION & REHABILITA	28-Jun-11 A	30-Jun-11	30-Jun-11
SUTHERLAND INTERCEPTOR	31-Dec-23	31-Dec-23	31-Dec-23
SUTHERLAND INTERCEPTOR	31-Dec-23	31-Dec-23	31-Dec-23
BEARGRASS INTERCEPTOR REHABILITATION PH 2	14-Dec-10 A	31-Dec-10	31-Dec-10
BEARGRASS INTERCEPTOR REHABILITATION PH 2	14-Dec-10 A	31-Dec-10	31-Dec-10



Approved 2009 IOAP
Remaining Work
Completed Work

Date Date: 01-Jul-12

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

August 17, 2012

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Adams Street Storage Basin
Minor Project Modification
IOAP Project No. L_OR_MF_172_S_09B_B_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Adams Street Storage Basin project (IOAP Project No. L_OR_MF_172_S_09B_B_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original Adams Street Storage Basin project included construction of a 0.12 million gallon (MG) underground covered storage basin to control CSO 172 to zero overflows per year typical year level of control, with a completion date of December 31, 2012.

Proposed Project Modification

The project modification involves the separation of two catch basins connected to the combined sewer system and closure of the overflow point for CSO 172 by the same December 31, 2012, completion date. By closing the CSO, this effort will exceed the overflow level of protection agreed upon in the IOAP. The project will be renamed 'River Road Sewer Separation and CSO Closure'.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

As the first step in design for this project, MSD initiated a detailed inspection of the combined sewer system and surface connections that flow toward CSO 172, which serves as the wet weather overflow relief to the Ohio River in this area. Upon completion of this inspection, MSD discovered that only two of the catch basins in the stormwater system were still connected to the combined system.

During a recent rerouting and expansion of River Road, which runs through the project area, all other catch basins were separated from the combined system and routed to existing stormwater lines by Louisville Metro Public Works Department. This separation was not communicated to MSD and, as such, was not reflected in the hydraulic sewer model of this system during IOAP development. An area map that displays the location of the combined sewer overflow and the two catch basins still connected into the combined system can be reviewed in Attachment A.

To confirm the conclusions of the inspection, MSD placed a sewer flow meter just upstream of the overflow weir to monitor the flow and depth in the system during dry and wet weather. Over the course of 6 months and various rain events up to a 1.5 inch rainfall on November 24, 2010, the depth in the sewer did not exceed 5 inches compared to a minimum necessary CSO overflow depth of 11.3 inches and demonstrated no discernible reaction to wet weather (see graph in Attachment B). Note: The depth graph reflects a small adjustment in the sensor location in early November 2010 due to solids dropping out of the flow and fouling the sensor.

Given this evidence, MSD intends to separate the final two catch basins connected to the combined sewer system and close the overflow point for CSO 172 by the same December 31, 2012, completion date. By closing the CSO, this effort will exceed the overflow level of protection agreed upon in the IOAP. The project will be renamed ‘River Road Sewer Separation and CSO Closure’.

For your reference, a copy of the original project fact sheet and map from the IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

If you have questions or need additional information, please contact me or Angela Akridge, Project WIN Program Manager, at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

April 19, 2011

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Adams Street Storage Basin
Minor Project Modification
IOAP Project No. L_OR_MF_172_S_09B_B_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is providing this letter as certification of the need for a minor project modification to the Adams Street Storage Basin project (IOAP Project No. L_OR_MF_172_S_09B_B_A_0), which has a required completion date of December 31, 2012. As the first step in design for this project, MSD initiated a detailed inspection of the combined sewer system and surface connections that flow toward CSO172, which serves as the wet weather overflow relief to the Ohio River in this area. Upon completion of this inspection, MSD discovered that only two of the catch basins in the stormwater system were still connected to the combined system.

During the rerouting and expansion of River Road, which runs through the project area, all other catch basins were separated from the combined system and routed to existing stormwater lines by Louisville Metro Public Works Department. This separation was not communicated to MSD and, as such, was not reflected in the hydraulic sewer model of this system during IOAP development. An area map that displays the location of the combined sewer overflow and the two catch basins still connected into the combined system can be reviewed in Attachment A.

To confirm the conclusions of the inspection, MSD placed a sewer flow meter just upstream of the overflow weir to monitor the flow and depth in the system during dry and wet weather. Over the course of 6 months and various rain events up to a 1.5 inch rainfall on November 24, 2010, the depth in the sewer did not exceed 5 inches compared to a minimum necessary CSO overflow depth of 11.3 inches and demonstrated no discernible reaction to wet weather (see graph in Attachment B). Note: The depth graph reflects a small adjustment in the sensor location in early November 2010 due to solids dropping out of the flow and fouling the sensor.

Given this evidence, MSD intends to separate the final two catch basins connected to the combined sewer system and close the overflow point for CSO172 by the same December 31, 2012 completion date. By closing the CSO, this effort will exceed the overflow level of protection agreed upon in the IOAP. The project will be renamed 'River Road Sewer Separation and CSO Closure.'

For your reference, I have enclosed copies of the original project fact sheet and map from the IOAP in Attachment C, respectively. A revised project fact sheet and map reflecting the project modifications have been provided in Appendix D.

If you have questions or need additional information, please contact me or Angela Akridge, Project WIN Program Manager, at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy
jtg/WBB

Attachments

CSO LTCP
Project Fact Sheet

LTCP Project Number:	*L_OR_MF_172_S_09B_B_A_0*
Project Name:	Adams Street Storage Basin
Project Type:	Off-Line Storage
Receiving Stream:	Ohio River
Project Description:	This project includes a 0.12 MG underground covered concrete basin for CSO172 to reduce overflows to 0 overflows per year. The basin is located near River Road/CSX RR. The facility will be a pump out operation.
Design Parameters / Assumptions:	Basins are designed to the 1st overflow event volume, resulting in 0 CSO overflows/year. The 1st peak flowrate is evaluated to compare gravity vs. pumped conveyance. Design for pump-back is 24 hours. Type of basin based on hydraulics and surroundings.
Surrounding Area Land Use:	The project is located between River Rd. and I-64. CSO172 is located to the East of the project. The project is located within 'Parks, Cemeteries, etc.'
Apparent Utilities Description:	Sewer Line approx. 2 ft. from proposed basin.
Capital Projects:	No capital projects identified within the project area
Advanced Site Restoration:	N/A
Estimated Capital Cost (2008):	$983,000
Capital Cost / Gallon Overflow Removed:	$1.11
Weighted Benefit / Cost Ratio (Capital Cost):	96.02

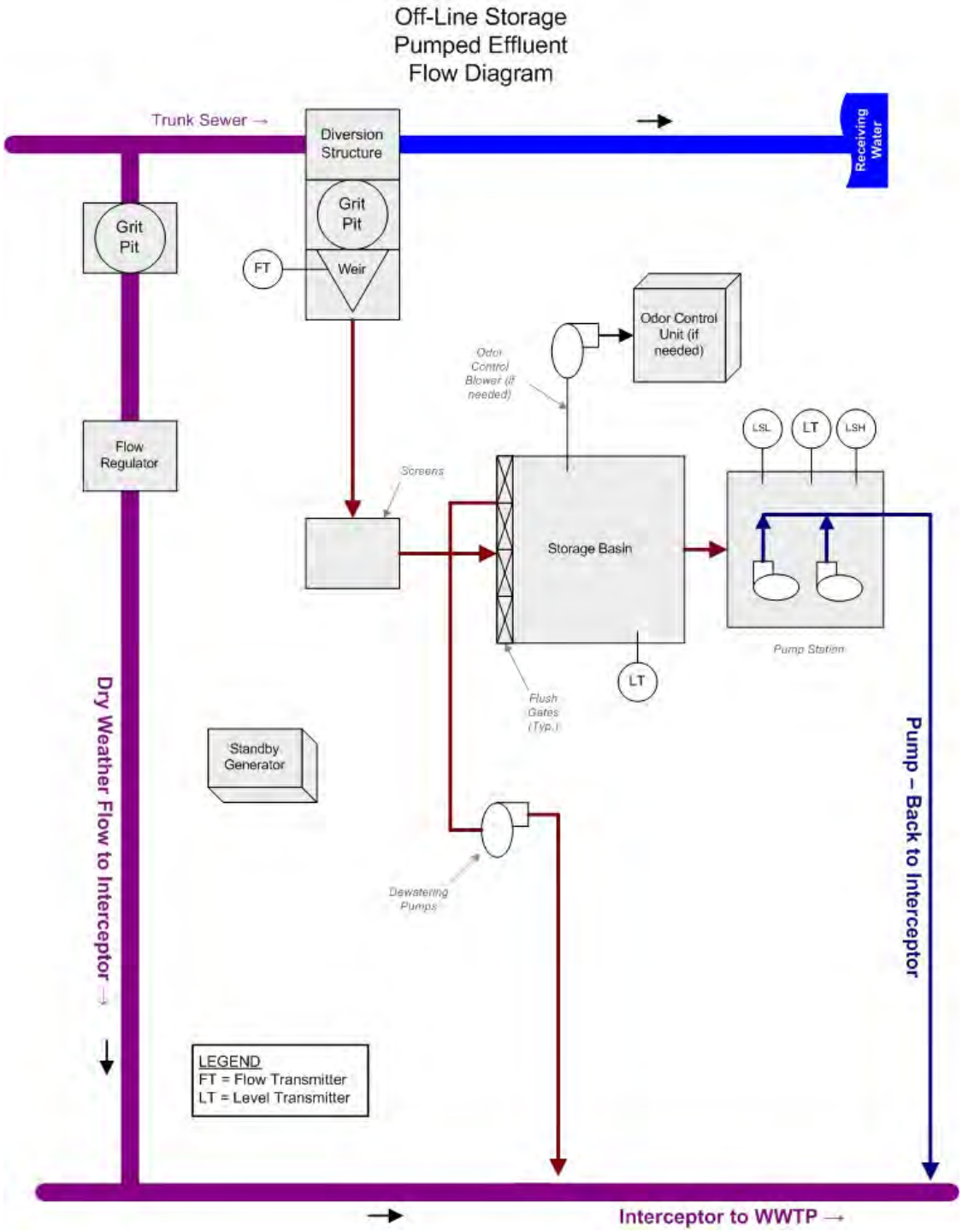
Overflow Points Addressed:

CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO172	Adams Street	13.67	1.28	31	0	0

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_OR_MF_172_S_09B_B_A_0*



Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Ohio River

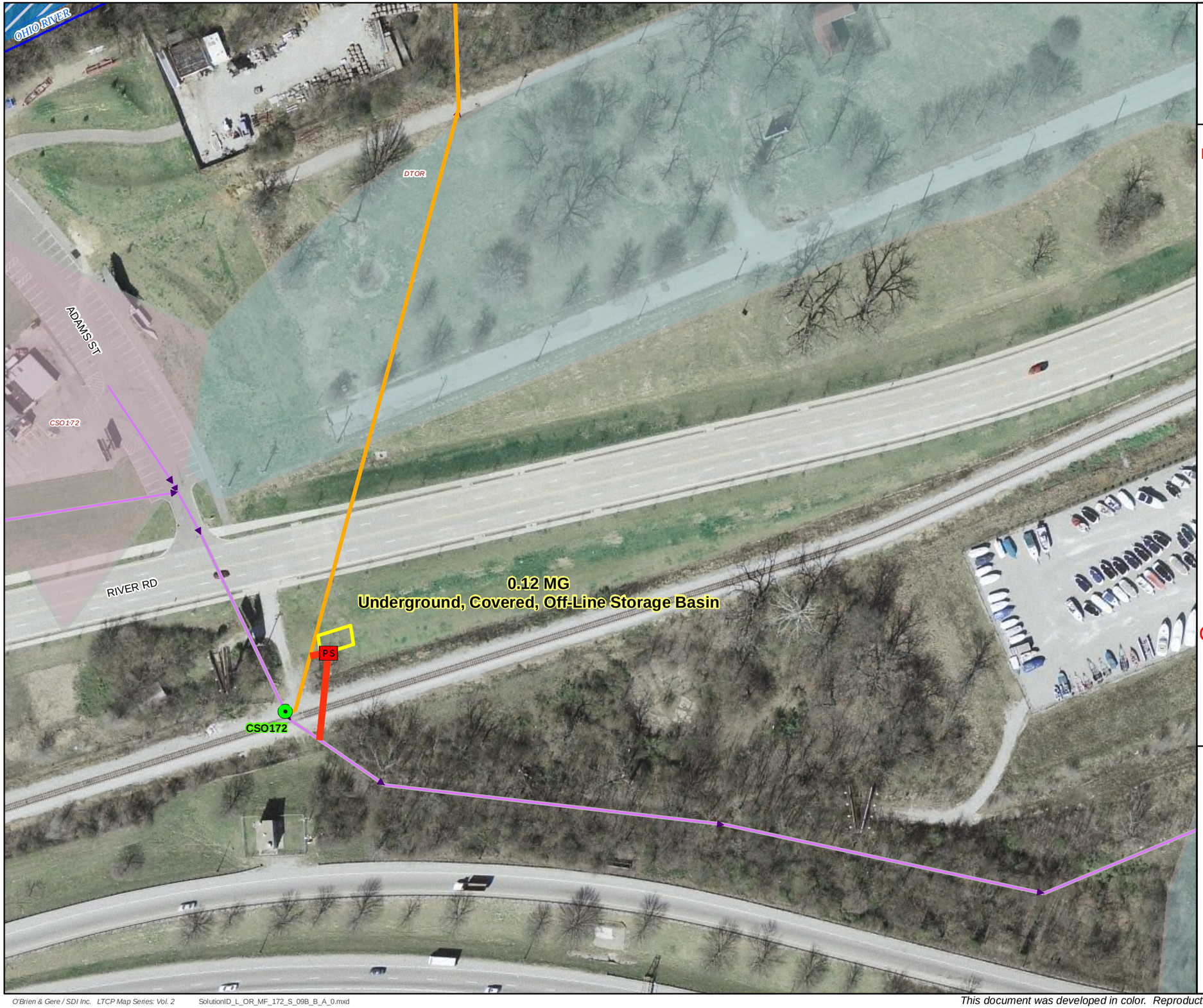
SolutionID # L_OR_MF_172_S_09B_B_A_0

Adams Street Storage Basin

Preliminary - For Budget Development Only

Legend

- PS — Proposed Pump Station Solution
- Active CSO
- Eliminated CSO
- PS — Pump Station
- Proposed Pipe Solution
- Force Main
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Streams
- Proposed Storage Solution
- Floodway
- Metro Parks
- County Boundary



General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch equals 100 feet

Scalable when printed on 11" X 17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
December 3, 2008

Aerial Date: 2006

N

This document was developed in color. Reproduction in black and white may not represent the data as intended.

MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name: Adams Street Sewer Separation

Project Type: Sewer Separation

Rec Stream: Ohio River

Project Description: This project includes the separation of the final two stormwater catch basins from the CSO172 drainage area and closure of the CSO. Televised investigation of the upstream drainage area determined that the system had been mostly separated during the re-configuration of River Road. Project will reduce overflows to zero overflows in a typical year.

Design Assumption:

Capital Cost: $20,000

Capital Benefit/Cost:

Present Worth Benefit Cost:

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO172	ADAMS STREET	1.13	25	1.11	25

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

Integrated Overflow Abatement Plan

Volume 2 - Final CSO Long-Term Control Plan

River Road Sewer Separation and CSO172 Closure

INITAL SOLUTIONS

Preliminary - For Budget Development Only

Legend

- Active CSO
- Eliminated CSO
- Existing Catch Basin
- Existing Drainage Line
- Proposed Storm Catch Basin
- Proposed Storm Manhole
- Proposed Storm Pipe Solution
- Pump Station
- FORCE MAIN
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Floodway
- Metro Parks

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch = 200 feet

Scaleable when printed on 11"x17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
April 13, 2011

Aerial Date: 2006

N

This document was developed in color. Reproduction in black and white may not represent the data as intended.

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

August 17, 2012

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: CSO 058 Separation Project
Project Elimination
IOAP Project No. L_OR_MF_058_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is providing advanced notification of a proposed minor project modification to eliminate the CSO 058 Separation Project (IOAP Project No. L_OR_MF_058_S_08_A_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. No action is requested at this time.

2009 IOAP Project Description

The original CSO 058 Separation Project included the separation of sanitary and storm sewers, with a scheduled completion date of December 31, 2014.

Proposed Project Modification

The project modification involves the elimination of this project, as other proposed project changes related to the proposed 13th and Rowan Street Basin has made the separation unnecessary. Based on benefit/cost analysis, the level of control will be changed from zero to eight CSO events in a typical year. Note however that the original sewer separation project would have allowed "first flush" urban stormwater runoff to reach the Waters of the US with virtually every rain event. It is likely that capturing first flush stormwater runoff and allowing combined sewage to overflow only eight times in a typical year represents an improvement in capture of contaminant loadings as compared to sewer separation.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013. No action is requested at this time.

Technical Justification

Reviews of project approach and benefit/cost results indicate that the elimination of the CSO 058 Sewer Separation is justified. The consolidation of its storage volume in the 13th Street and Rowan Street Storage Basin (IOAP Project No. L_OR_MF_155_M_09B_B_B_4) has proven to be a more cost-effective option than the original design for two separate projects.

Details on the modification of the 13th Street and Rowan Street Storage Basin to compensate for the consolidation of flows from the CSO 058 Sewer Separation are available in the 13th Street and Rowan Street Storage Basin project modification letter. This consolidated project will include a modification of the completion date to December 31, 2017.

For your reference, copies of the original project fact sheet and map from the 2009 IOAP have been provided in Attachment A. A revised project fact sheet and map is attached to the 13th Street and Rowan Street Storage Basin modification letter reflecting the new project size and conveyance alignment.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number:	*L_OR_MF_058_S_08_A_A_0*
Project Name:	CSO058 Sewer Separation
Project Type:	Sewer Separation
Receiving Stream:	Ohio River
Project Description:	This project includes the construction of a new storm system consisting of 785 LF of 15" pipe in street and 1010 LF of 15" pipe out of street. It also includes 220 LF of 18" pipe in street.
Design Parameters / Assumptions:	There are approx. 297 properties impacted by this project. The design flow would be developed in accordance with the MSD Design Manual.
Surrounding Area Land Use:	This project includes properties with varying landuses including 'General Comm. & Office', 'Industrial', 'Public and Semi-Public', 'Multi-Family Residential' & 'Vacant and Undeveloped'.
Apparent Utilities Description:	Sec. OH Elec. Ln. 18.7 ft. E, Ex. Gas Main 21 ft. NE, Water Main 6.42 ft. E; proposed piping passes over gas, electric, and water lines
Capital Projects:	2007~ORI Flow Installation Project - Under Construction2012~Solids & Floatables CSO197 & CSO058 - Hidden
Advanced Site Restoration:	N/A
Estimated Capital Cost (2008):	$1,361,100
Capital Cost / Gallon Overflow Removed:	$0.02
Weighted Benefit / Cost Ratio (Capital Cost):	68.85

Overflow Points Addressed:

CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO058	Preston Street Overflow Weir	105.41	116.64	50	0	0

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

Integrated Overflow Abatement Plan

Volume 2 - Final CSO Long-Term Control Plan

Ohio River
Solution ID # L_OR_MF_058_S_08_A_A
CSO058 Sewer Separation

Preliminary - For Budget Development Only

Legend

- Active CSO
- Eliminated CSO
- Proposed Storm Catch Basin
- Proposed Storm Manhole
- Existing Catch Basin
- Pump Station
- Proposed Storm Pipe Solution
- Force Main
- Existing Drainage Line
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Flood Wall
- Floodway
- Metro Parks
- Streams

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Map Revision
Mar 13, 2009

Aerial Date: 2006

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MSD

Metropolitan Sewer District

ATTACHMENT B

Project Eliminated or Combined with Another

No Attachment B

MSD
Metropolitan Sewer District

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
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August 17, 2012 (Revised September 20, 2012)

Chief, Environmental Enforcement Section
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Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: CSO 093 Sewer Separation
Minor Project Modification
IOAP Project No. L_SO_MF_093_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the CSO 093 Sewer Separation project (IOAP Project No. L_SO_MF_093_S_08_A_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original CSO 093 Sewer Separation project included the separation of 2,975 linear feet of combined sewer line, with a completion date of December 31, 2015.

Proposed Project Modification

The project modification involves the re-construction of the CSO structure to replace the existing leaping weir with a more conventional overflow weir. The project completion date will remain at December 31, 2015. Based on benefit/cost analysis, the level of control will remain at zero CSO events in a typical year. Note also that the original sewer separation project would have allowed "first flush" urban stormwater runoff to reach the waters of the US with virtually every rain event. It is likely that capturing

first flush stormwater runoff represents an improvement in capture of contaminant loadings as compared to sewer separation, even if the level of control does not appear to change.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

The existing CSO structure consists of a leaping weir which will be removed, and a conventional weir will be constructed that will enable MSD to properly monitor the overflow line. The elimination of the leaping weir will allow higher peak flows from the CSO basin to remain in the system if the downstream system has sufficient capacity. MSD also intends to potentially incorporate green infrastructure components in the sewershed to account for any potential future model re-calibration impacts as additional flow monitoring data is obtained. The project will be renamed 'CSO 093 Structural Modifications & Green Infrastructure' and will maintain a December 31, 2015, completion date as previously submitted.

For your reference, a copy of the original project fact sheet and map from the IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number:	*L_SO_MF_093_S_08_A_A_0*
Project Name:	CSO093 Sewer Separation
Project Type:	Sewer Separation
Receiving Stream:	South Fork Beargrass Creek
Project Description:	This project includes the construction of a new storm water system consisting of 2,975 LF of 12" pipe in street plus 350 LF of 12" out of street.
Design Parameters / Assumptions:	There are approx. 87 properties impacted by this project. The design flow would be developed in accordance with the MSD Design Manual. New stomwater outfall will minimize the erosion impact to receiving stream.
Surrounding Area Land Use:	The project area includes 'General Comm. & Office', 'Vacant & Undeveloped', 'Industrial' & 'Single Family Residential' properties.
Apparent Utilities Description:	Sec. OH elec. Running SE 6.5 ft. NE, Prim. OH elec. 22 ft. NE; proposed piping passes over gas, electric, and water lines
Capital Projects:	2007~Middle Fork Rehabilitation Phase 2 - Awaiting Start; 2013~USI Inspection Program - Awaiting Start; 2006~East Region Pump Station Modifications - Under Construction
Advanced Site Restoration:	The stormwater outfall to Beargrass Creek will include design of flow control measures to minimize or prevent erosion impact to the receiving stream.
Estimated Capital Cost (2008):	$952,000
Capital Cost / Gallon Overflow Removed:	$0.72
Weighted Benefit / Cost Ratio (Capital Cost):	56.93

Overflow Points Addressed:

CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO093	Spring Street	20.79	1.81	37	0	0

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

South Fork Beargrass Creek
Solution ID # L_SO_MF_093_S_08_A_A_0
CSO093 Sewer Separation

Preliminary - For Budget Development Only

Legend

- Proposed Storm Catch Basin
- Proposed Sanitary Manhole
- Proposed Storm Manhole
- Active CSO
- Eliminated CSO
- Pump Station
- Proposed Sanitary Pipe Solution
- Proposed Storm Pipe Solution
- Existing Drainage Line
- Force Main
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Streams
- Floodway
- Metro Parks
- County Boundary

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch equals 300 feet
Scalable when printed on 11" X 17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
December 3, 2008

Aerial Date: 2006

N

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MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name: CSO093 Structural Modifications & Green Infrastructure

Project Type: Structural Modifications & Green Infrastructure

Rec Stream: South Fork Beargrass Creek

Project Description: Modify existing structure to eliminate 'leaping weir'. Implement cost effective green infrastructure practices to reinforce overflow control level. Project will reduce overflows to zero overflows in a typical year.

Design Assumption:

Capital Cost: $488,000

Capital Benefit/Cost: 81.97

Present Worth Benefit Cost: 91.53

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO093	SPRING STREET	0.00	0	0.00	0

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

South Fork Beargrass Creek

CSO093 Inline Storage and Increased Dry Flow Capacity at CSO

Preliminary - For Budget Development Only

Rebuild CSO structure to remove leaping weir and increase hydraulic capacity of low flow pipe.

CSO093

SOUTH FORK BEARGRASS CREEK

N SPRING ST

MELLWOOD AVE

QUILL ST

64

- Active CSO
- Eliminated CSO
- Haulop Locations
- Proposed Pump Station Solution
- Pump Stations
- MSD
- Proposed Pipe Solution
- Combined Sewer Pipe
- Force Main
- Collector < 12"
- Interceptor >= 12"
- Proposed Off-line Storage
- Streams
- Floodway
- Jefferson County Boundary

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch = 100 feet	N	Aerial Date: 2009	Map Revision: April 9, 2012

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Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: CSO140 Sewer Separation
Minor Project Modification
IOAP Project No. L_MI_MF_140_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the CSO 140 Sewer Separation project (IOAP Project No. L_MI_MF_140_S_08_A_A_0). This modification is part of a an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original CSO 140 Sewer Separation project included the separation of 10,700 linear feet of combined sewer line, with a completion date of December 31, 2015.

Proposed Project Modification

The project modification involves the re-construction of the CSO structure to increase the low flow line to a 42-inch diameter opening which will increase the conveyance capacity. The project completion date will remain at December 31, 2015, and level of control will be maintained at zero overflows in a typical year.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

Further investigation indicates that the existing Middle Fork Trunk downstream of CSO 140 has available capacity to convey and store the runoff to meet the zero overflow level of control in a typical year. Therefore, MSD intends to modify the CSO structure by increasing the low flow line to a 42-inch diameter opening.

MSD also intends to include green infrastructure as part of the solution to account for any potential future model re-calibrations as additional flow monitoring data is obtained. The project will be renamed 'CSO140 In-Line Storage & Green Infrastructure Controls' and will maintain a December 31, 2015, completion date as previously submitted.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP is in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy
Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number:	*L_MI_MF_140_S_08_A_A_0*
Project Name:	CSO140 Sewer Separation
Project Type:	Sewer Separation
Receiving Stream:	Middle Fork Beargrass Creek
Project Description:	This project includes construction of a storm water system consisting of installing 4,630 lf of piep in street and 6,130 lf of pie out of street.
Design Parameters / Assumptions:	There are approx. 552 properties impacted by this project. The design flow would be developed in accordance with the MSD Design Manual.
Surrounding Area Land Use:	Project is located within 'Vacant & Undeveloped', 'Single Family Residential' and 'Multi Family Residential' property east of I-65 at S. Charlton and Pope St. Adjacent property includes 'Public and Semi-Public' and 'Parks, Cemeteries, etc.'.
Apparent Utilities Description:	Water Main appr. 14.5 ft. SE, Scondary OH Elec. ln. appr. 17 ft. SE, Existing Gas Main appr. 22 ft. NNW, proposed piping passes over gas, electric, and water lines
Capital Projects:	2011~Solids & Floatables @ CSO86 & 140, 2007~Middle Fork Rehab Phase 2, & 2013~RTC @ CSO125, 126, 127, & 140 - Awaiting Start
Advanced Site Restoration:	The stormwater outfall to Beargrass Creek will include design of flow control measures to minimize or prevent erosion impact to the receiving stream.
Estimated Capital Cost (2008):	$3,150,000
Capital Cost / Gallon Overflow Removed:	$0.29
Weighted Benefit / Cost Ratio (Capital Cost):	21.00

Overflow Points Addressed:

CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO140	Locust Street	75.54	17.00	54	0	0

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Middle Fork Beargrass Creek

Solution ID # L_MI_MF_140_S_08_A_A_0

CSO140 Sewer Separation

Preliminary - For Budget Development Only

Legend

- Proposed Storm Catch Basin
- Proposed Sanitary Manhole
- Proposed Storm Manhole
- Active CSO
- Eliminated CSO
- Pump Station
- Proposed Sanitary Pipe Solution
- Proposed Storm Pipe Solution
- Existing Drainage Line
- Force Main
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Streams
- Floodway
- Metro Parks
- County Boundary

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Map Revision
December 3, 2008

Aerial Date: 2006

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MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name: CSO140 Inline Storage & Green Infrastructure Controls

Project Type: Upsize Pipe Conveyance

Rec Stream: Middle Fork Beargrass Creek

Project Description: Upsize the downstream, low flow line to a 42". The new line may need backflow prevention. Project costs includes cost effective green infrastructure controls to reinforce level of protection. Project will reduce overflows to zero overflows in a typical year.

Design Assumption:

Capital Cost: $574,000

Capital Benefit/Cost: 348.56

Present Worth Benefit Cost: 394.85

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO140	LOCUST STREET	0.98	21	0.96	21

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Ohio River

CSO140 Inline/Offline Storage

Preliminary - For Budget Development Only

- Active CSO
- Eliminated CSO
- Haulop Locations
- Proposed Pump Station Solution
- Pump Stations
- MSD
- Proposed Pipe Solution
- Combined Sewer Pipe
- Force Main
- Collector < 12"
- Interceptor >= 12"
- Proposed Off-line Storage
- Streams
- Floodway
- Jefferson County Boundary

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August 17, 2012 (Revised September 20, 2012)

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Department of Environmental Protection
300 Fair Oaks Lane
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Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: CSO160 Sewer Separation
Project Modification
IOAP Project No. L_OR_MF_160_S_08_A_A_0
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the CSO160 Sewer Separation project (IOAP Project No. L_OR_MF_160_S_08_A_A_0). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original CSO160 Sewer Separation project included the separation of 425 linear feet of combined sewer line, with a completion date of December 31, 2015.

Proposed Project Modification

The project modification involves the creation of in-line storage provided by a combination of raising the existing overflow weir and installing 88 feet of 72-inch diameter pipe. Based on benefit/cost analysis, the level of control will remain at zero CSO events in a typical year. Note also that the original sewer separation project would have allowed "first flush" urban stormwater runoff to reach the Waters of the US with virtually every rain event. It is likely that capturing first flush stormwater runoff represents an

improvement in capture of contaminant loadings as compared to sewer separation, even if the level of control appears to be the same.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

Further investigation indicated that in-line storage can be provided by a combination of raising the existing weir and installing 88 feet of 72-inch diameter pipe. This proves to be a more cost effective alternative to mitigate the overflows at CSO160 in comparison to completing a full CSO separation project. This solution also provides the best benefit/cost ratio.

MSD also intends to incorporate green infrastructure components in the sewershed to account for any potential future model re-calibrations as additional flow monitoring data is obtained. Green infrastructure may also be used to potentially reduce the size of the project. The project will be renamed 'CSO160 In-Line Storage & Green Infrastructure' and will maintain a December 31, 2015, completion date as previously submitted.

For your reference, a copy of the original project fact sheet and map from the IOAP in Attachment A are attached. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_OR_MF_160_S_08_A_A_0*

Project Name:	CSO160 Sewer Separation
Project Type:	Sewer Separation
Receiving Stream:	Ohio River
Project Description:	This project includes the construction of a new storm water system consisting of 425 LF of 15" pipe in street.
Design Parameters / Assumptions:	There's approx. 15 properties impacted by this project. The design flow would be developed in accordance with the MSD Design Manual.
Surrounding Area Land Use:	This project is located within 'General Comm. and Office' property at CSO160 in the alley behind the White Castle at 1st and Market St. Adjacent land is 'Industrial'
Apparent Utilities Description:	Proposed piping passes over gas, electric, and water lines
Capital Projects:	2007~ORI Flow Meter Installation Project - Under Construction
Advanced Site Restoration:	N/A
Estimated Capital Cost (2008):	$237,000
Capital Cost / Gallon Overflow Removed:	$1.19
Weighted Benefit / Cost Ratio (Capital Cost):	-246.15

Overflow Points Addressed:

CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO160	Sewer in Alley Sanitary Diversion	1.98	0.28	28	0	0

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

Integrated Overflow Abatement Plan

Volume 2 - Final CSO Long-Term Control Plan

Ohio River
Solution ID # L_OR_MF_160_S_08_A_A
CSO160 Sewer Separation

Preliminary - For Budget Development Only

Legend

- Active CSO
- Eliminated CSO
- Proposed Storm Catch Basin
- Proposed Storm Manhole
- Existing Catch Basin
- Pump Station
- Proposed Storm Pipe Solution
- Force Main
- Existing Drainage Line
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Flood Wall
- Floodway
- Metro Parks
- Streams

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Map Revision
Mar 13, 2009

Aerial Date: 2006

N

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Metropolitan Sewer District

ATTACHMENT B

Project Name: CSO160 In-Line Storage

Project Type: In-Line Storage

Rec Stream: Ohio River

Project Description: The CSO structure is being rebuilt to raise the overflow weir, and in-line storage will be provided through the addition of 88 feet of 72 inch pipe.

Design Assumption:

Capital Cost: $231,000

Capital Benefit/Cost: 554.11

Present Worth Benefit Cost: 684.49

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO160	SEWER IN ALLEY SAN DIV	0.07	2	0.09	4

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

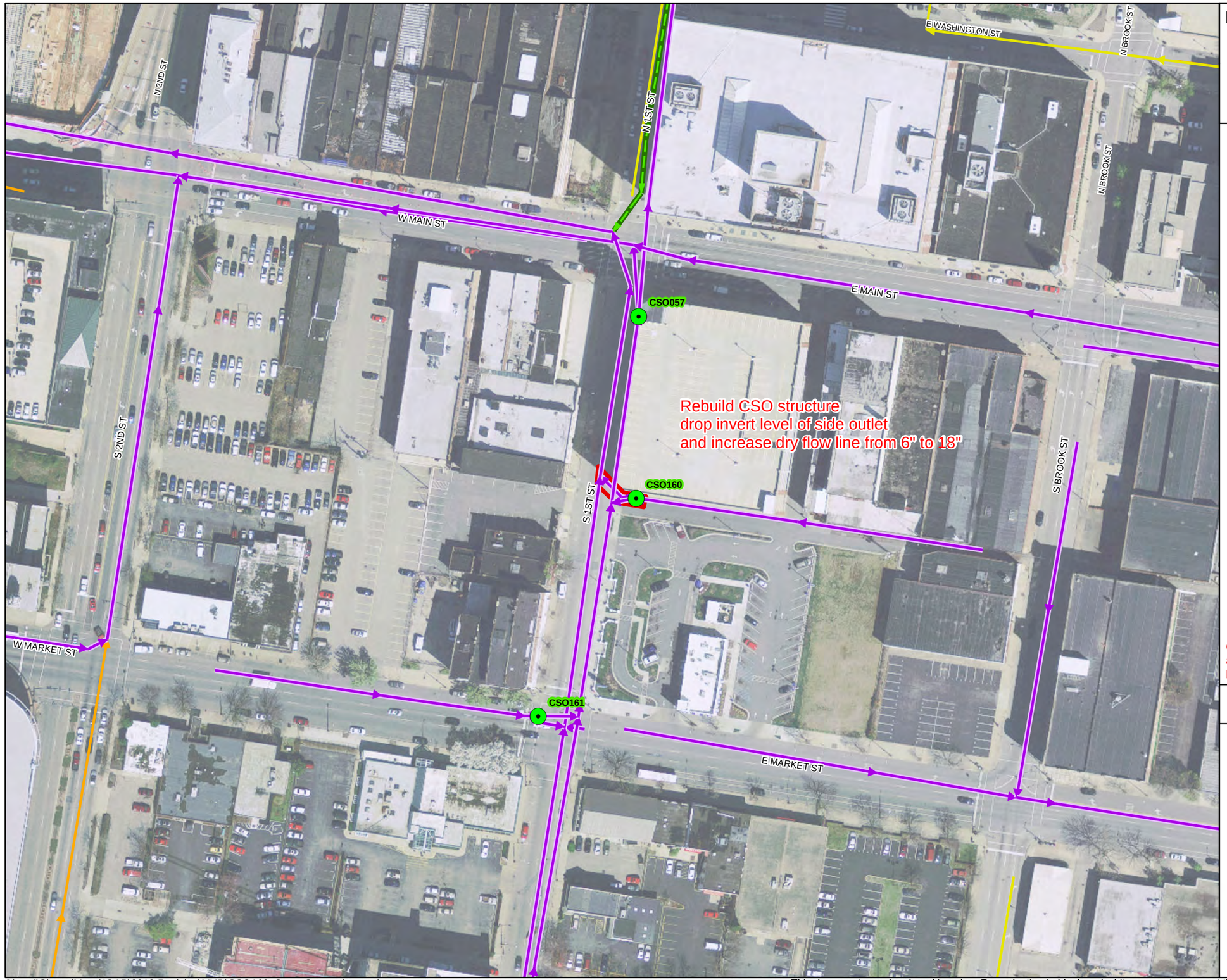
Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Ohio River

CSO160 Inline/Offline Storage

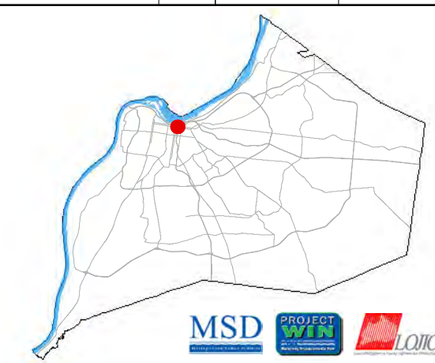
Preliminary - For Budget Development Only



- Active CSO
- Eliminated CSO
- Haulop Locations
- Proposed Pump Station Solution
- Pump Stations
- MSD
- Proposed Pipe Solution
- Combined Sewer Pipe
- Force Main
- Collector < 12"
- Interceptor >= 12"
- Proposed Off-line Storage
- Streams
- Floodway
- Jefferson County Boundary

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch = 100 feet	N	Aerial Date: 2009	Map Revision: April 9, 2012



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Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Derek R. Guthrie Water Quality Treatment Center
Minor Project Modification
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a minor project modification to the completion date for the Derek R. Guthrie Water Quality Treatment Center (DRG WQTC) project. This proposed date modification is not intended to change any of the completion dates for sanitary sewer overflow (SSO) elimination specifically called out in the Amended Consent Decree.

2009 IOAP Project Description

The DRG WQTC project included in the approved 2009 Integrated Overflow Abatement Plan (IOAP) was originally defined in the Interim Sanitary Sewer Discharge Plan (ISSDP) as part of a suite of projects that eliminated SSOs at the Southeast Diversion Structure, the Highgate Springs Pump Station, and the Hikes Point area. While the DRG WQTC project did not eliminate any SSOs by itself, the wet weather treatment capacity provided by this project allowed these Amended Consent Decree-specified overflows to be eliminated with the captured flows routed downstream through the Northern Ditch Diversion Interceptor to the WQTC.

The first of these Consent Decree required SSO eliminations was the constructed SSO at the Southeast Diversion Structure, which was required to be eliminated by December 31, 2011. This date was also selected for completion of the entire DRG WQTC project, even though eliminating the constructed SSO at the Southeast Diversion provided only a small portion of the flow that would eventually be added to the DRG WQTC's wet weather service area. Additional wet weather flow will be added to the DRG WQTC with the elimination of the Hikes Point and Highgate Springs pumped SSOs in November, 2012. The

DRG WQTC wet weather service area will be completely connected by December 2023, with the completion of the Upper Middle Fork Pump Station and Diversion Project.

The DRG WQTC project was split into four separate packages to allow an early start to procuring new aeration blowers, and also to improve bid competition in what would otherwise have been a project too large for most local contractors to bid. Construction of the DRG project was delayed by unusual weather conditions as documented in MSD's letter to USEPA Region 4 and the Department for Environmental Protection dated December 15, 2011. While these weather delays and equipment start-up and commissioning problems have caused final certification of the DRG WQTC project to be pushed back from the originally proposed date, consistent with the our letter of December 15, MSD did close the Southeast Diversion constructed SSO before December 31, 2011. MSD has also provided sufficient treatment capacity at the DRG WQTC through partial utilization of the new facilities to prevent any treatment capacity related SSOs in the service area, thereby complying with the specific requirements of the Amended Consent Decree and the intent of the ISSDP.

Proposed Project Modification

The proposed project modification is limited to a change in the substantial completion date for the DRG WQTC project as a whole. While portions of the project are complete and currently in full operation, the entire project (all four packages) may not be substantially complete until November 27, 2012. MSD proposes the project completion date be modified to this date.

Technical Justification

As noted in our letter dated December 15, 2011, construction progress was significantly impacted by unusual weather, with calendar year 2011 the wettest year on record, and April 2011, when most of the deep excavations were being completed, was the wettest April on record, with more than 19 inches of rain recorded in parts of the county. Other construction, start-up and commissioning issues have also impacted completions of the project.

When all components of the project are completed the DRG WQTC will be able to handle 200 million gallons per day (MGD) through treatment (compared to 96 MGD peak capacity before the expansion), and peak flows of up to approximately 300 MGD using the Wet Weather Pump Station and the Equalization Basin. We currently can handle in excess of 200 MGD, which has proved adequate for the flows received from the currently connected wet weather service area. Note that the maximum daily flow experienced at the plant in 2012 has been 82 MGD, which was associated with a 1.63-inch rain event (following a period with over 2.5 inches of rain in the preceding two weeks).

The current capacity of the DRG WQTC is sufficient to deal with wet weather flows from the currently connected service area, and the full intended capacity will be available prior to November 27, 2012, when the next significant addition to the wet weather service area will be made with the elimination of the pumped overflows in the Hikes Point area and at the Highgate Springs Pump station. Since the proposed schedule meets the intent of the ISSDP and fully complies with the specific requirements of the Amended

Consent Decree, MSD believes a schedule modification to reflect current conditions is appropriate and requests this action be taken at this time.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

Interim SSDP
Project Fact Sheet

SSO Project Number:	Interim SSDP Project
Project Name:	Derek R. Guthrie WQTC
Modeled Area:	N/A
Branch or SSO ID:	N/A
Project Type:	WQTC Upgrade
Receiving Stream:	Mill Creek, Black Pond Creek, Alvey Ditch, and the Ohio River
Project Description:	This project includes improvements to the Derek R. Guthrie WQTC to allow treatment of all wet weather flow from other SSDP system improvements. The 100 MGD peak flow capacity secondary treatment facility will consist of a flow control structure, new influent pumps, piping modifications, new screening facility, a new equalization basin, construction of a wet weather pump station, and secondary clarifiers.
Reason for Overflow:	Treatment Plant Capacity
Design Parameters / Assumptions:	N/A
Project Constraints:	N/A
Estimated Capital Cost (2008 dollars):	$102,700,000
Weighted Benefit/Cost Ratio (Present Worth):	N/A

Overflow Points Addressed:

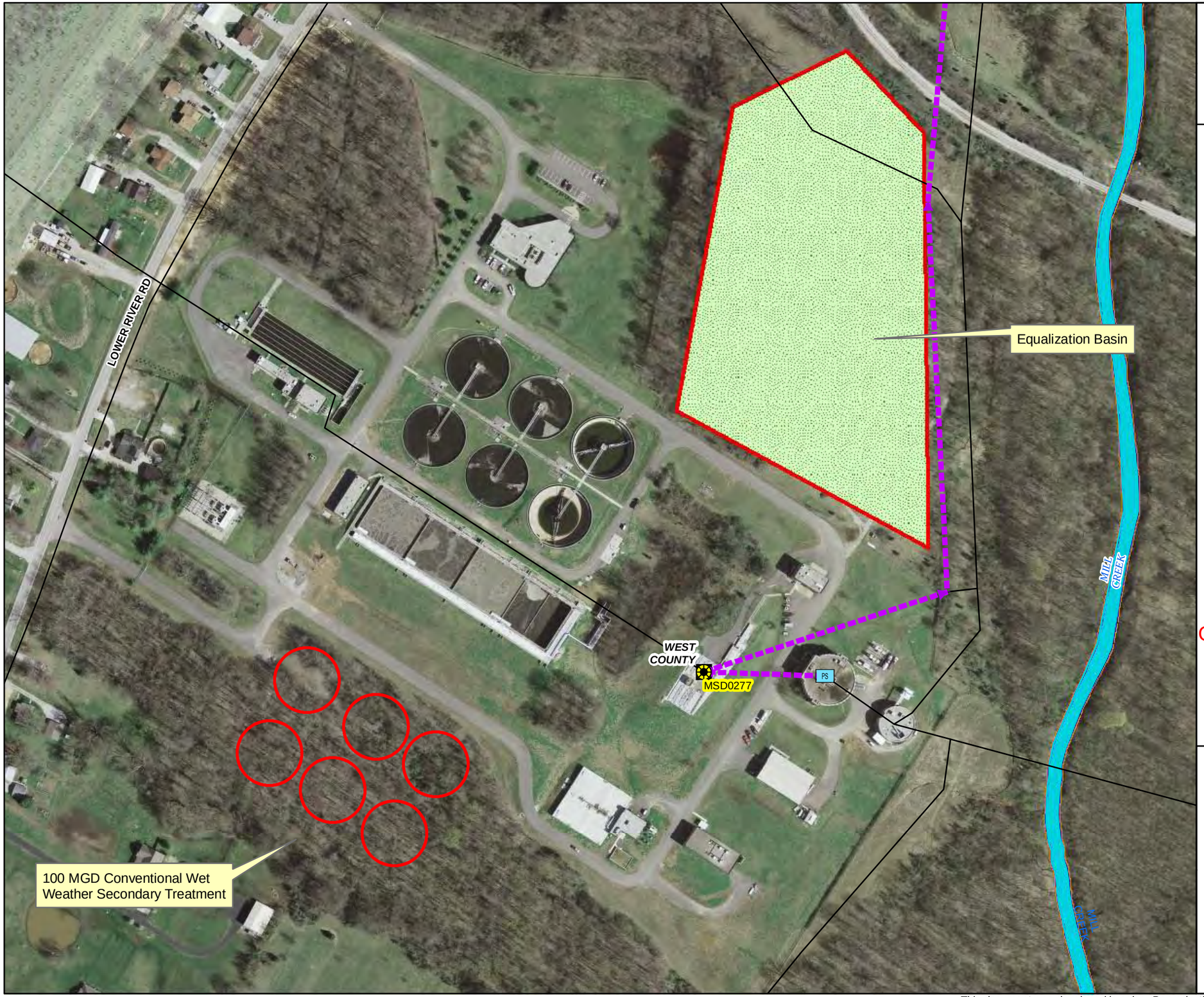
SSO	SSO Name	Service Area	Overflow Type	Discharge To	Average Overflow / Incident (gallons)
22370	Greenbelt Highway	West County	Manhole	Ground	4,858,000

22385	Johsontown Road #2	West County	Manhole	Stream	1,628,500
32682	12700 Abbey Road #2	West County	Manhole	Stream	2,392,000
32688	12701 Abbey Road #1	West County	Manhole	Ground	No Data
59169	Johsontown Road #1	West County	Manhole	Ground	1,905,250
MSD0277	West County	West County	Pumped	Stream	48,477,223

Integrated Overflow Abatement Plan

Interim Sanitary Sewer Discharge Plan

Derek R. Guthrie WQTC



Legend

- Documented SSO
- Suspected SSO
- WWTP
- Pump Station
- Force Main
- Force Main non MSD
- MSD Sewer
- Non MSD Pipes
- Combined Sewer Pipe
- Streams
- Hikes Point
- Metro Parks

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch = 200 feet
Scalable when printed on 11" X 17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
May 07, 2009

Aerial Date: 2006

N

LOJIC MSD PROJECT WIN

CMS Inc. West County WWTP

This document was developed in color. Reproduction in black and white may not represent the data as intended.

MSD
Metropolitan Sewer District

Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

August 17, 2012 (Revised September 20, 2012)

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: I-64 and Grinstead Drive Storage Basin
Minor Project Modification
IOAP Project No. L_MI_MF_127_M_09B_B_A_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the I-64 and Grinstead Drive Storage Basin project (IOAP Project No. L_MI_MF_127_M_09B_B_A_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original I-64 & Grinstead Drive Basin project involved the construction of a 2.74 million gallon (MG) storage basin to be completed by December 31, 2014, with an eight overflows per typical year level of control.

Proposed Project Modification

The project modification involves the construction of a 15.33 MG storage basin to be completed by December 31, 2020, with a four overflows per typical year level of control. Moving the schedule into 2020 will allow for the proper construction of such a large basin and the incorporation of the green infrastructure within the drainage area of the four combined sewer overflows controlled by the basin. MSD is analyzing potential green infrastructure projects to possibly reduce the size of the storage basin.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the overflow structures. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects.

Based on the results of the re-calibration, a level of control analysis was conducted on the I-64 and Grinstead Storage Basin. The level of control analysis showed that the basin size of 15.33 MG would meet a level of control of four overflows per year and provide the highest benefit/cost ratio. Therefore, MSD proposes to change the I-64 and Grinstead Drive Storage Basin solution from a 2.74 MG basin to a 15.33 MG basin.

Additionally, the public has requested that the use of green infrastructure strongly be considered in this area in conjunction with gray infrastructure. Based on this request, MSD is also proposing to evaluate green infrastructure to determine if its use in some areas is cost effective to reduce the basin size. Based on the large drainage area, the large basin size, and the resulting high quantity of stormwater reduction required, significant public and private participating will be necessary to evaluate the potential impacts. Therefore, based on the increased basin size and the desire to further evaluate and implement potential green infrastructure opportunities, MSD is requesting to change the project completion date from December 31, 2014, to December 31, 2020.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_MI_MF_127_M_09B_B_A_8*

Project Name: I-64 and Grinstead Drive Storage Basin

Project Type: Off-Line Storage

Receiving Stream: Middle Fork Beargrass Creek

Project Description: This project is to provide a 2.74 MG off-line storage facility consisting of a covered concrete basin for CSO125, 126, 127 & 166 to reduced overflows to 8 overflows per year. The facility will be a gravity in-gravity out operation.

Design Parameters / Assumptions: Basins are designed to the 9th overflow event volume, resulting in 8 CSO overflows/year. The 9th peak flowrate is evaluated to compare gravity vs. pumped conveyance. Design for pump-back is 24 hours. Type of basin based on hydraulics and surroundings.

Surrounding Area Land Use: Project is located within ' Vacant and Undeveloped' property, close to the I-64 right of way and pedestrian bike route. Nearby land use includes commercial properties. Project is located North of a parking lot off of Lexington Rd.

Apparent Utilities Description: Prim. OH elec. ln. passes through the SW corner of the proposed basin, secondary OH elec. ln. < 60 ft. W of proposed basin

Capital Projects: 2007~Central Region Automation FY05-06 - In progress; 2007~Central Region PS Modification - Under Construction; 2007~Middle Fork Rehab Phase 2 & 2013~RTC @ CSO125, 126, 127, & 140 - Awaiting Start

Advanced Site Restoration: The area of the proposed tank is undeveloped green space. Current and previous public use or development proposals for these areas have identified potential environmental mitigations. The project budget includes a site restoration allowance.

Estimated Capital Cost (2008): $12,950,000

Capital Cost / Gallon Overflow Removed: $0.24

Weighted Benefit / Cost Ratio (Capital Cost): 36.26

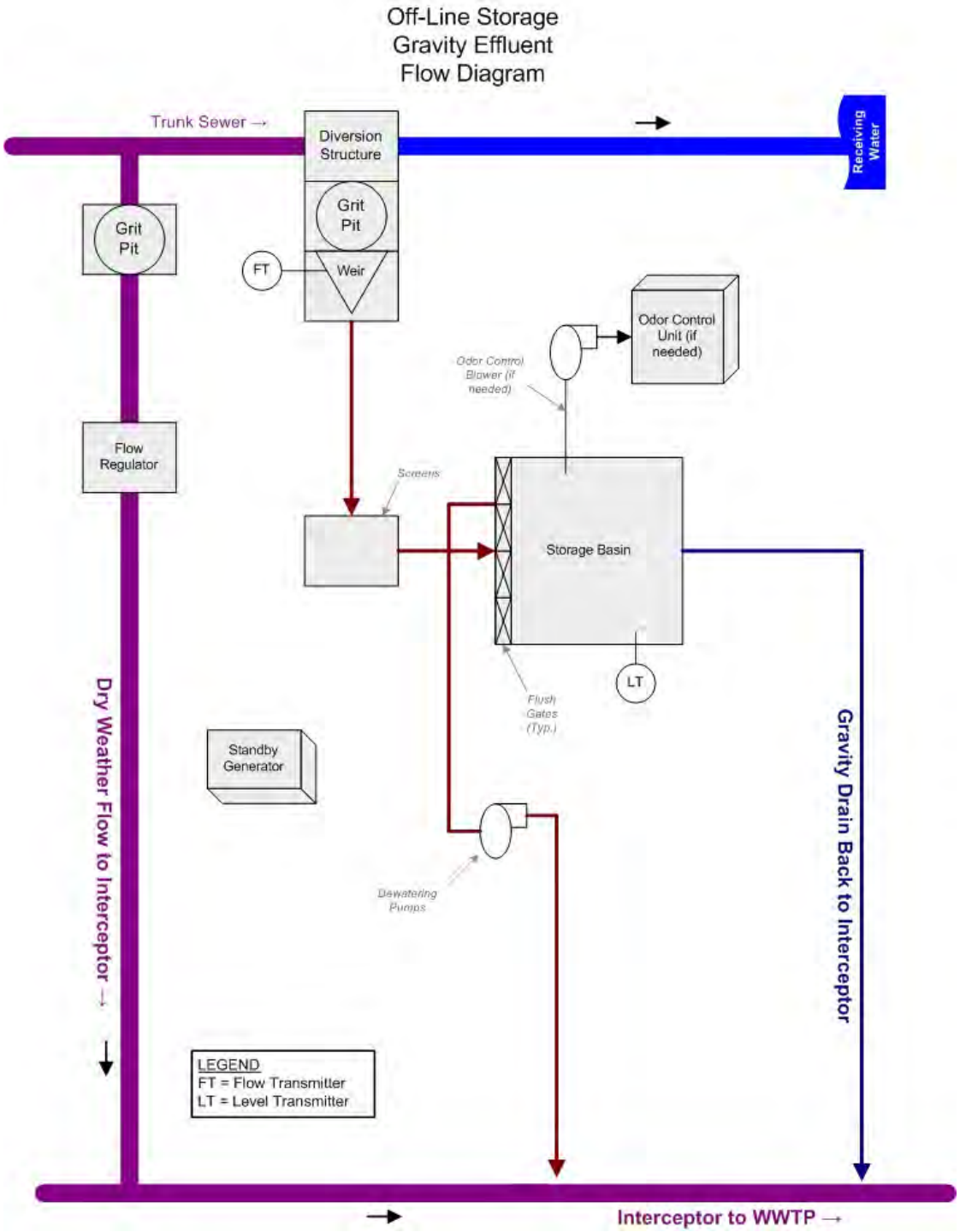
Overflow Points Addressed:

CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO125	Regulator Number 24 - Grinstead Drive	391.03	48.38	54	7.63	8
CSO126	Regulator Number 26 - Raymod Avenue	35.29	0.58	13	0.56	8
CSO127	Etley Avenue	192.26	4.62	21	1.07	8
CSO166	Beals Branch Sanitary Diversion	696.65	10.12	19	3.32	8

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_MI_MF_127_M_09B_B_A_8*



Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Middle Fork Beargrass Creek

SolutionID # L_MI_MF_127_M_09B_B_A_8

I-64 and Grinstead Drive Storage Basin

Preliminary - For Budget Development Only

Legend

- Proposed Pump Station Solution
- Active CSO
- Eliminated CSO
- Pump Station
- Proposed Pipe Solution
- Force Main
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Streams
- Proposed Storage Solution
- Floodway
- Metro Parks
- County Boundary

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch equals 200 feet

Scalable when printed on 11" X 17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
December 3, 2008

Aerial Date: 2006

N

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MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name: I-64 and Grinstead Drive Storage Basin

Project Type: Off-Line Storage

Rec Stream: Middle Fork Beargrass Creek

Project Description: This project is to provide a 15.33 MG off-line storage facility consisting of a covered concrete basin for CSO125, 126, 127 & 166 to reduced overflows to 4 overflows per typical year. The facility will be a gravity in-pump out operation.

Design Assumption: No backflow from Beargrass Creek is accounted for in model. Flapgates may need to be analyzed. Direct runoff from I-64 into outfall pipes is currenlty included in basin size. Separation may reduce basin size if cost effective. CSO 126 likely will be conveyed directly under I-64.

Capital Cost: $52,002,000

Capital Benefit/Cost: 17.73

Present Worth Benefit Cost: 19.25

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO125	REG NO 24 - GRINSTEAD DR	201.71	57	200.36	57
CSO126	REG NO 26 - RAYMOND AVE	5.55	27	3.93	24
CSO127	ETLEY AVENUE	9.71	30	9.40	30
CSO166	BEALS BRANCH SAN DIV	64.66	36	62.36	36

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

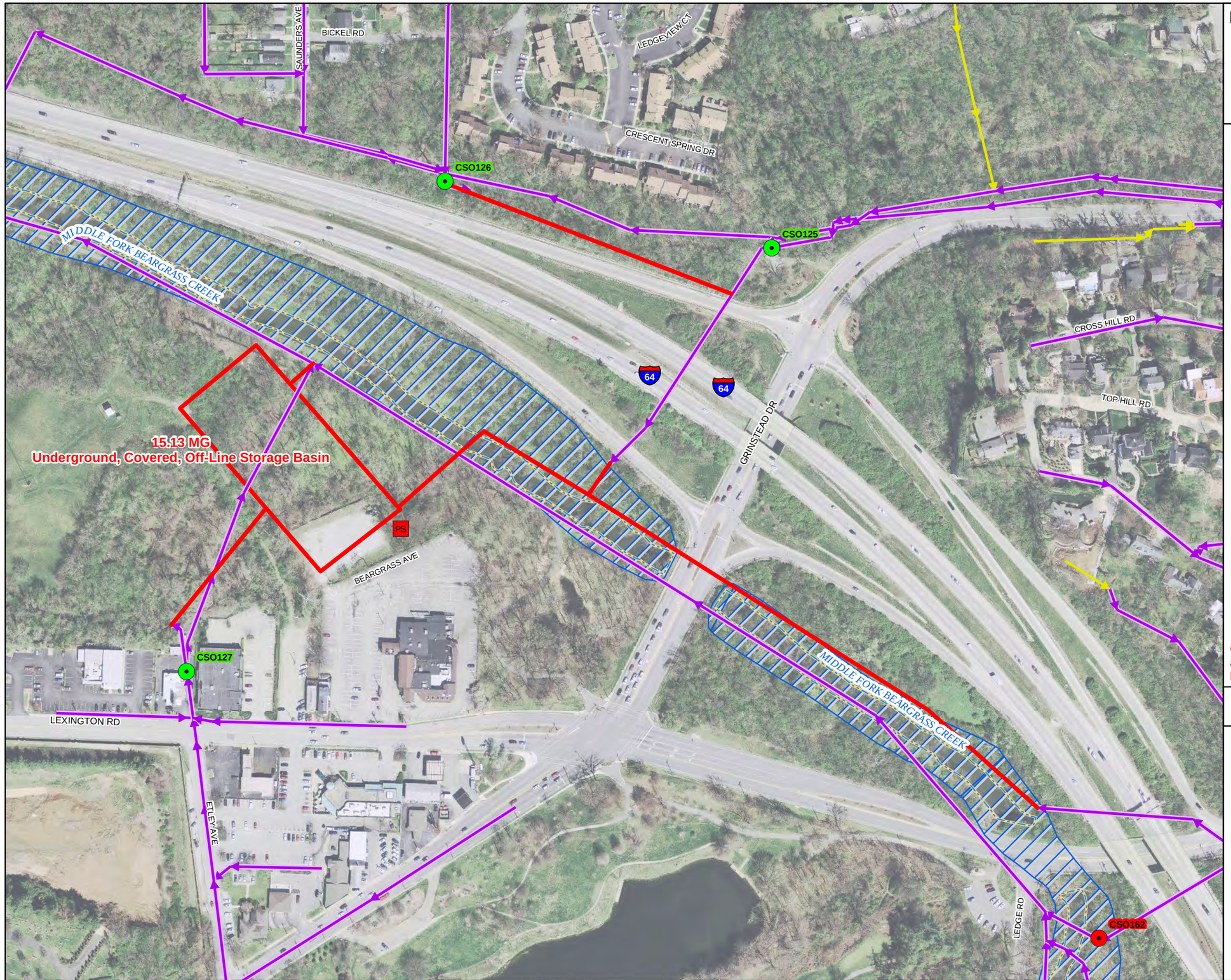
Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Middle Fork Beargrass Creek

I-64 and Grinstead Drive Storage Basin

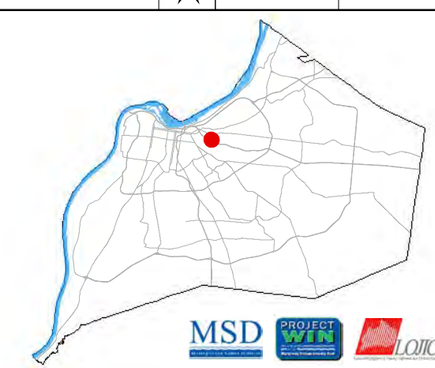
Preliminary - For Budget Development Only



- Active CSO
- Eliminated CSO
- Proposed Pump Station Solution
- Pump Stations
- Proposed Pipe Solution
- Combined Sewer Pipe
- Force Main
- Collector < 12"
- Interceptor >= 12"
- Streams
- Proposed Storage Solution
- Floodway
- Jefferson County Boundary

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch = 200 feet	N	Aerial Date: 2009	Map Revision: April 9, 2012



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Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
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502-540-6000
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August 17, 2012

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Meadow Stream Pump Station Storage Basin
Minor Project Modification
IOAP Project No. S_HC_HC_MSD1082_S_09A_C
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Meadow Stream PS Inline Storage project (IOAP Project No. S_HC_HC_MSD1082_S_09A_C). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The existing Meadow Stream Pump Station is a 1.58 million gallon per day (MGD) facility owned by the City of Crestwood (Crestwood), Kentucky. MSD has an agreement with Crestwood to operate and maintain this station. The original project was the construction of underground, in-line storage near the pump station to mitigate sanitary sewer overflows to a 1.82-inch cloudburst rain event to be constructed by December 31, 2016.

Proposed Project Modification

After submittal of the final 2009 IOAP, MSD received a request from the City of Crestwood to participate in a project to expand the station, in response to both residential and commercial development pressures. The proposed sizing of the pump station upgrade to 3.89 million gallons per day (MGD) with a new, parallel force main will mitigate existing wet weather issues to a 10-year design storm and eliminates the need for the original proposed inline storage. The upgrade will be completed by December 31, 2012.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

The project modification involves the upgrade of the Meadow Stream Pump Station to 3.89 MGD including a new wet well that mirrors the existing well and the construction of a new 18-inch diameter force main parallel to the existing main. The project will be constructed with funding from MSD and Crestwood.

MSD completed a Sanitary Sewer Evaluation Study (SSES) for the Meadow Stream service area in February 2011. The study found only minor defects in the 166,730 linear feet inspected with an estimated flow reduction of 433,000 gallons per day. MSD has a rehabilitation project scheduled for completion by December 2013, which should have a measurable impact on inflow and infiltration.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

SSO SSDP
Project Fact Sheet

SSO Project Number:	S_HC_HC_MSD1082_S_09A_C
Project Name:	Meadow Stream PS Inline Storage
Modeled Area:	Hite Creek
Branch or SSO ID:	MSD1082
Project Type:	Inline Storage
Receiving Stream:	Floyds Fork and South Fork Harrods Creek
Project Description:	This alternative includes underground in-line storage with the current influent line to the PS, consisting of two, 120" diameter storage pipes each 238 LF.
Reason for Overflow:	Pump station capacity
Design Parameters / Assumptions:	This solution is based on a 1.82 inch cloudburst rain event
Project Constraints:	Project will occur in MSD easements or land
Estimated Capital Cost (2008 dollars):	$974,000
Weighted Benefit/Cost Ratio (Present Worth):	13.77

Overflow Points Addressed:

SSO	SSO Name	Service Area	Overflow Type	Discharge To	Average Overflow / Incident (gallons)
91087	Near Meadow Stream PS	Hite Creek	Manhole	Stream	405,001
MSD1082-PS	Meadow Stream	Hite Creek	Lift Station	Ground	51,000

Integrated Overflow Abatement Plan

Vol. 3 - Sanitary Sewer Discharge Plan

Hite Creek Sewershed

Solution ID # S_HC_HC_MSD1082_S_09A_C

Meadow Stream PS Inline Storage

Preliminary - For Budget Development Only

Legend

- Documented SSO
- Suspected SSO
- Haul Operation
- Proposed Pump Station Solution
- Pump Station
- WWTP
- Proposed Pipe Solution
- Force Main
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Proposed Off-line Storage
- Road
- Streams
- Floodway
- Small WWTP Service Area
- Large WWTP Service Area
- CSO Area
- Metro Parks

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

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Map Revision
MY 07, 09

Aerial Date: 2006

N

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MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name Meadow Stream Pump Station & Force Main Upgrade

Modeled Area	Hite Creek
Branch or SSO ID	MSD1082
Project Type	Inline Storage
Receiving Stream	Floyds Fork and South Fork Harrods Creek
Project Description	This project involves the upgrade of Meadow Stream Pump Station to 3.89 MGD including a new wet well that mirrors the existing well and the construction of a new 18-inch force main parallel to the existing main. The project is to be constructed with funding from MSD and the City of Crestwood. The City's interest in the upgrade is to enable additional development within its boundaries. Sizing of the project was to mitigate existing wet weather issues and to accommodate this new development. As such, the IOAP benefit/cost methodology did not apply.
Reason for Overflow	Pump station capacity
Design Parameters	This solution is based on a 2.6 inch cloudburst rain event
Project Constraints	Project will occur in MSD easements or land
Estimated Capital Cost	$974,000
Weighted Benefit/Cost Rati	Not Applicable

Asset-ID	SSO Start Date	Volume (Gal)
91087	3/18/2008 6:40:00 PM	1,440,000
91087	4/4/2008 4:30:00 AM	180,000
91087	9/21/2009 2:15:00 AM	12,700
91087	10/9/2009 6:30:00 AM	56,250
91087	5/2/2010 10:30:00 AM	21,000
91087	3/9/2011 10:50:00 AM	20,600
91087	4/11/2011 9:45:00 PM	335,250
91087	4/23/2011 11:30:00 AM	652,500
91087	5/3/2011 5:35:00 PM	112,500
91087	11/28/2011 4:05:00 PM	6,400
91087	12/5/2011 8:30:00 AM	78,500
MSD1082-PS	1/3/2005 2:04:00 PM	97,000
MSD1082-PS	9/16/2008	25
MSD1082-PS	2/25/2011 9:50:00 AM	6,600
MSD1082-PS	4/27/2011 5:05:00 AM	348,125
MSD1082-PS	1/27/2012	159,750

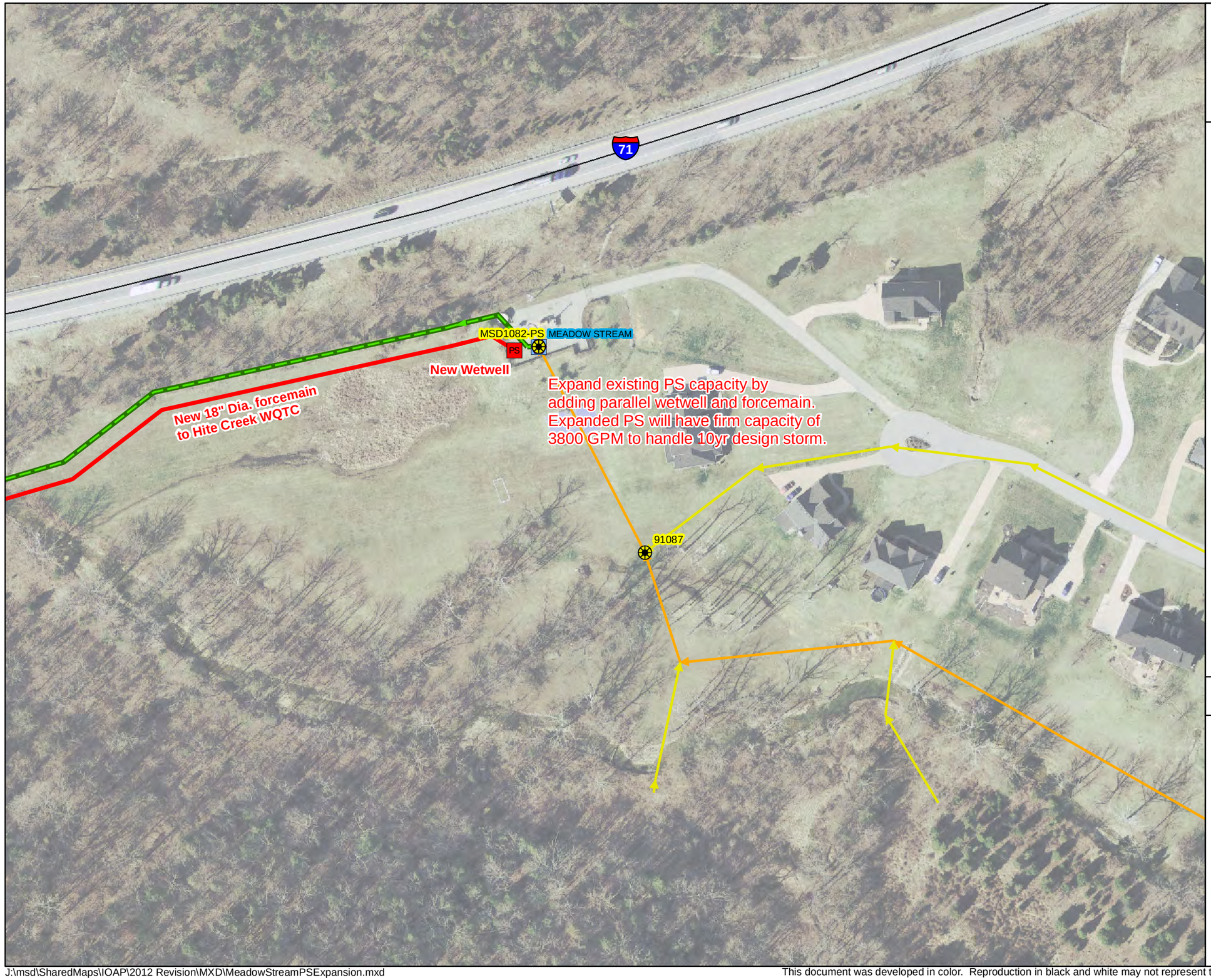
Integrated Overflow Abatement Plan

Vol. 3 - Sanitary Sewer Discharge Plan

Hite creek Sewershed

Meadow Stream PS Expansion

Preliminary - For Budget Development Only



- Documented SSO
- Suspected SSO
- Haulop Locations
- Proposed Pump Station Solution
- Pump Stations
- MSD
- Proposed Pipe Solution
- Combined Sewer Pipe
- Force Main
- Collector < 12"
- Interceptor >= 12"
- Proposed Off-line Storage
- Streams
- Floodway
- Jefferson County Boundary

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Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
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August 17, 2012

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Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Paddys Run Wet Weather Treatment Facility
Minor Project Modification
IOAP Project No. L_OR_MF_015_M_13_B_B_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Paddys Run Wet Weather Treatment Facility project (IOAP Project No. L_OR_MF_015_M_13_B_B_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original Paddys Run Wet Weather Treatment Facility included the construction of the 50 million gallons per day (MGD) high rate treatment (HRT) facility and 9.6 million gallons (MG) of in-line storage in the Southwestern Outfall. The facility was originally sited near the existing Paddys Run Flood Pump Station and was scheduled to be completed by December 31, 2014.

Proposed Project Modification

The newly proposed project includes the construction of 25 MG of off-line storage, a 50 MGD HRT facility and an upgrade of the existing Southwestern Pump Station from 105 MGD to 160 MGD to be completed by December 31, 2016.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

In the 2009 IOAP the location of this facility was near the Paddys Run Flood Pump Station, just inside the flood control levy. The land was MSD property and in close proximity to the Southwestern Outfall, which was intended to be used for approximately 11 million gallons of in-line storage. During preliminary design, MSD pursued an easement or fee-simple land purchase for a construction and operating access point that would be under MSD's full control.

Current operating access to the flood pump station is from the south, through a chemical manufacturing plant owned by DuPont. This access requires MSD and contractor vehicles to pass through DuPont's secure gate, and follow DuPont's internal safety and security requirements. This would not be acceptable for a wet weather treatment facility that requires 24-hour a day access for chemical delivery, grit and screenings haulers, and system operators. Attempts to negotiate an MSD-controlled access through the DuPont plant failed, with DuPont citing Homeland Security Act regulations that prohibit the type of access MSD needs.

MSD then attempted to negotiate access from the north, through a Louisville Gas & Electric (LG&E) power generation and switchyard. Similar problems with security were encountered, in addition to design issues with turning radius and grade changes that would make chemical delivery and construction access very challenging.

MSD also evaluated the remainder of the Southwestern Outfall pipeline route. MSD's easements and owned property parcels along this route are narrow and follow very rough terrain of the Paddys Run stream channel. None of that route was deemed suitable for this facility.

The location ultimately selected is property near the existing Southwestern Pump Station and at the outfall for CSO 015 and CSO 191 (called the Southwestern Outfall, which the Paddys Run Wet Weather Facility will control.) This property is close enough to the Southwestern Pump Station that upgrades to this facility can replace the new 50 MGD pump station originally proposed. The disadvantage of this site is that it cannot make use of the in-line storage potential of the Southwestern Outfall, since the property is upstream of most of the volume of this pipe.

As such, storage required for this facility must be provided off-line through a new storage basin. MSD is currently in the process of purchasing this property, which includes developing an approach to properly mitigate contamination issues arising from previous land uses on the site in addition to negotiating the

purchase price. Assuming contamination issues are not difficult to remediate, MSD intends to purchase this property either through negotiation or condemnation.

Over the past two years, as part of the ongoing model recalibration and refinement described in Volume 1, Chapter 6 of the 2009 IOAP, MSD conducted a major recalibration of the combined system model utilizing new flow monitoring data and upgraded hydrology as well as a review of the real time control (RTC) operating rules for the combined sewer system. As a result of these efforts, MSD determined that approximately 25 MG of storage is required at the wet weather treatment facility site, rather than the 11 MG of in-line storage in the approved 2009 IOAP.

As noted previously, MSD is now proposing the upgrade of the existing Southwestern Pump Station from a 105 MGD maximum pumping rate to 160 MGD rather than the construction of a new 50 MGD pump station. Finally, the 50 MGD HRT capacity originally proposed in the 2009 IOAP is still accurate in the newly proposed project sizing.

The level of control proposed in the 2009 IOAP was to reduce CSO 015 and CSO 191 to eight overflows in the typical year. MSD re-analyzed the level of control using the same stakeholder- defined benefit/cost approach for the revised project location, size and configuration. The same level of control was confirmed to be the one that scored highest in the benefit/cost analysis.

The approved IOAP shows the Paddys Run Wet Weather Treatment Facility being complete and operational by December 31, 2014. The significant changes proposed for this project, both in location and size, make achieving this completion date impractical. Assuming MSD is successful in purchasing the property for the site in 2012, design and construction of this revised project is expected to be completed by December 31, 2016. A significant part of the time required is related to modifying and expanding the Southwestern Pump Station. Completing major construction on this pump station while keeping at least half of it in service at all times adds considerable time to the overall schedule.

An additional driver for the schedule change is the need to design, permit, and execute a site remediation plan prior to the start of facility construction. MSD expects that constraints on construction operations will also add time to the construction duration, contributing to the need to push the completion date to the end of 2016.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps reflecting the creation of separate projects for the two in-line storage facilities on the Southern Outfall have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: Greg Heitzman Paula Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number:	*L_OR_MF_015_M_13_B_B_8*
Project Name:	Paddy's Run Wet Weather Treatment Facility
Project Type:	RTC with Treatment
Receiving Stream:	Ohio River
Project Description:	This project is to provide a 50 MGD RTB High Rate Treatment Facility and ILS for CSO015 and 191 to reduce overflows to eight overflows per year. The basin is located in the vicinity of the Paddy's Run FPS adjacent to the outfall.
Design Parameters / Assumptions:	The HRT is started at the beginning of the event and RTC is used to store 9.6 MG in the outfall during the peak of the event. The basin is located in the vicinity of the Paddy's Run FPS adjacent to the outfall.
Surrounding Area Land Use:	Project is located within 'Industrial' & 'Vacant and Undeveloped' property, which includes the MSD flood protection system and Paddys' Run Creek.
Apparent Utilities Description:	Prim. OH elec. ln. passes through the proposed basin
Capital Projects:	2009~FY08/09 CD-1 Drainage Improvement - Awaiting Start; 2013~ Campground Rd. @ Cane Run Rd.; RTC @ Southwestern Outfall (SWOR1)
Advanced Site Restoration:	N/A
Estimated Capital Cost (2008):	$24,940,000
Capital Cost / Gallon Overflow Removed:	$0.24
Weighted Benefit / Cost Ratio (Capital Cost):	8.05

Overflow Points Addressed:

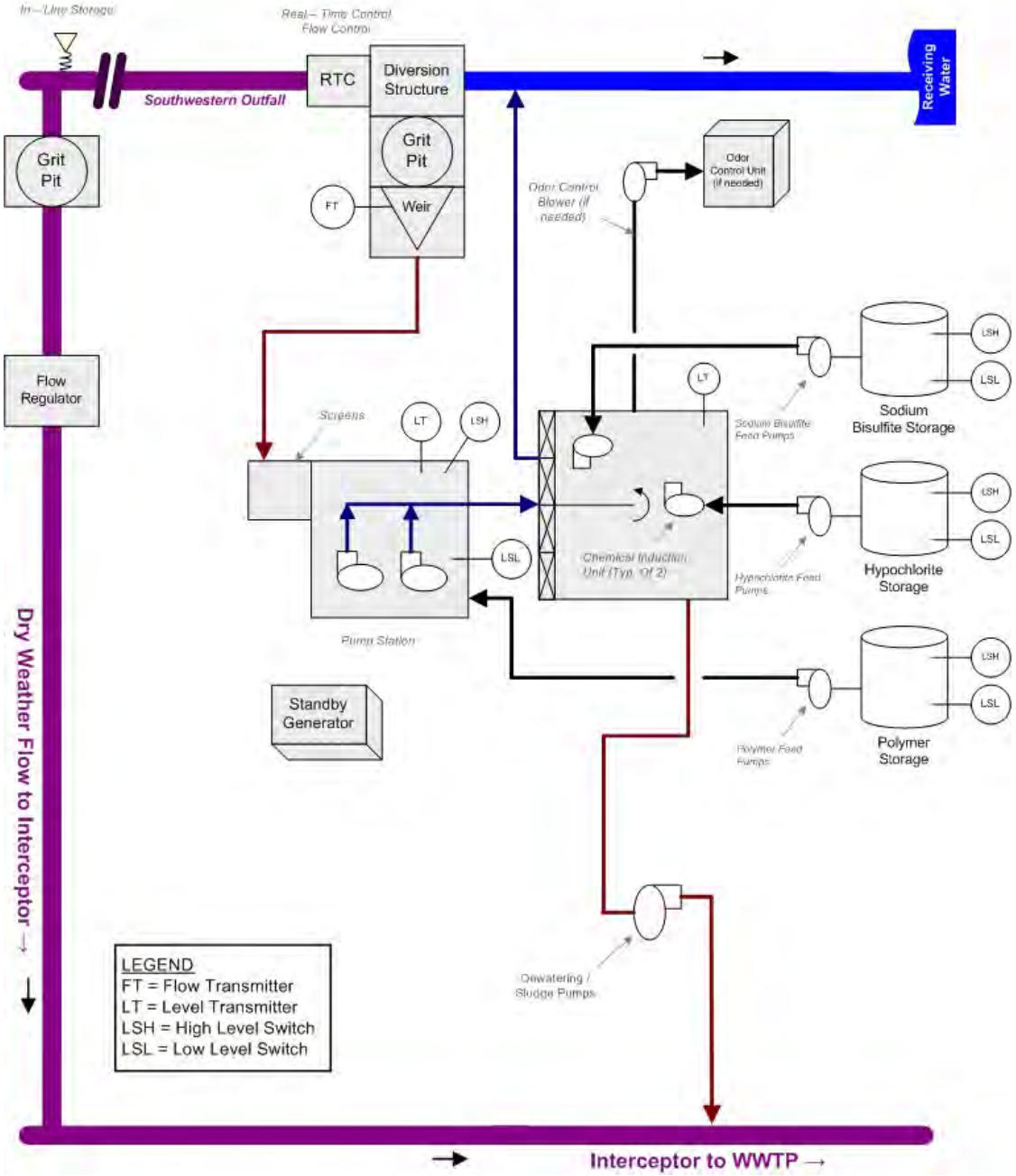
CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO015	Southwestern Pump Station	7,496.70	494.56	61	290.82	8
CSO191	Algonquin Parkway Sanitary Diversion	339.75	32.42	19	22.96	8

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_OR_MF_015_M_13_B_B_8*

Hybrid Technology:
Retention Treatment Basin with Real-Time Control
Process Flow Diagram



Integrated Overflow Abatement Plan

Volume 2 - Final CSO Long-Term Control Plan

Ohio River
Solution ID # L_OR_MF_015_M_13_B_B_8
Paddy's Run Wet Weather Treatment Facility

Preliminary - For Budget Development Only

Legend

- Active CSO
- Eliminated CSO
- Proposed Flow Control Solution
- Proposed Pump Station Solution
- Pump Station
- Proposed Pipe Solution
- Force Main
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Flood Wall
- Proposed Storage Solution
- Floodway
- Metro Parks
- Streams

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch = 200 feet
Scaleable when printed on 11"x17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
Mar 13, 2009

Aerial Date: 2006

N

PADDY'S RUN FLOOD PS

Automated Gate just upstream of Paddy's Run FPS

50 MGD
HTB High Rate Treatment Facility

RUBBERTOWN PS

This document was developed in color. Reproduction in black and white may not represent the data as intended.

MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name: Paddys Run Wet Weather Treatment Facility

Project Type: High Rate Treatment & Off-Line Storage

Rec Stream: Ohio River

Project Description: This project is to provide a 50 MGD Retention Treatment Basin to serve as a high rate treatment facility, a 25 MG earthen basin off-line storage for CSO015 and 191 to reduce overflows to 8 overflows per typical year. The project also includes an expansion of the Southwestern Pump Station to 160 MGD. The treatment and storage basins are located in the vicinity of the Southwestern PS adjacent to the outfall.

Design Assumption: The HRT is started at the beginning of the event and flow is pumped to the off-line storage basin after the capacity of the HRT is reached. After the off-line storage is used, in-line storage in SWOR1 and SWOR2 are used to further attenuate the peak flow. The project is located in the vicinity of the Southwestern PS adjacent to the outfall. Morris Forman WQTC receives 325 MGD from the gravity Main Diversion Structure and Southwestern Pump Station is modulated to maximize gravity flow to Morris Forman.

Capital Cost: $34,400,000

Capital Benefit/Cost:

Present Worth Benefit Cost:

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO015	SOUTHWESTERN PS	1249.68	56	722.13	46
CSO191	ALGONQUIN PKWY SAN DIV	31.71	27	20.27	22

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

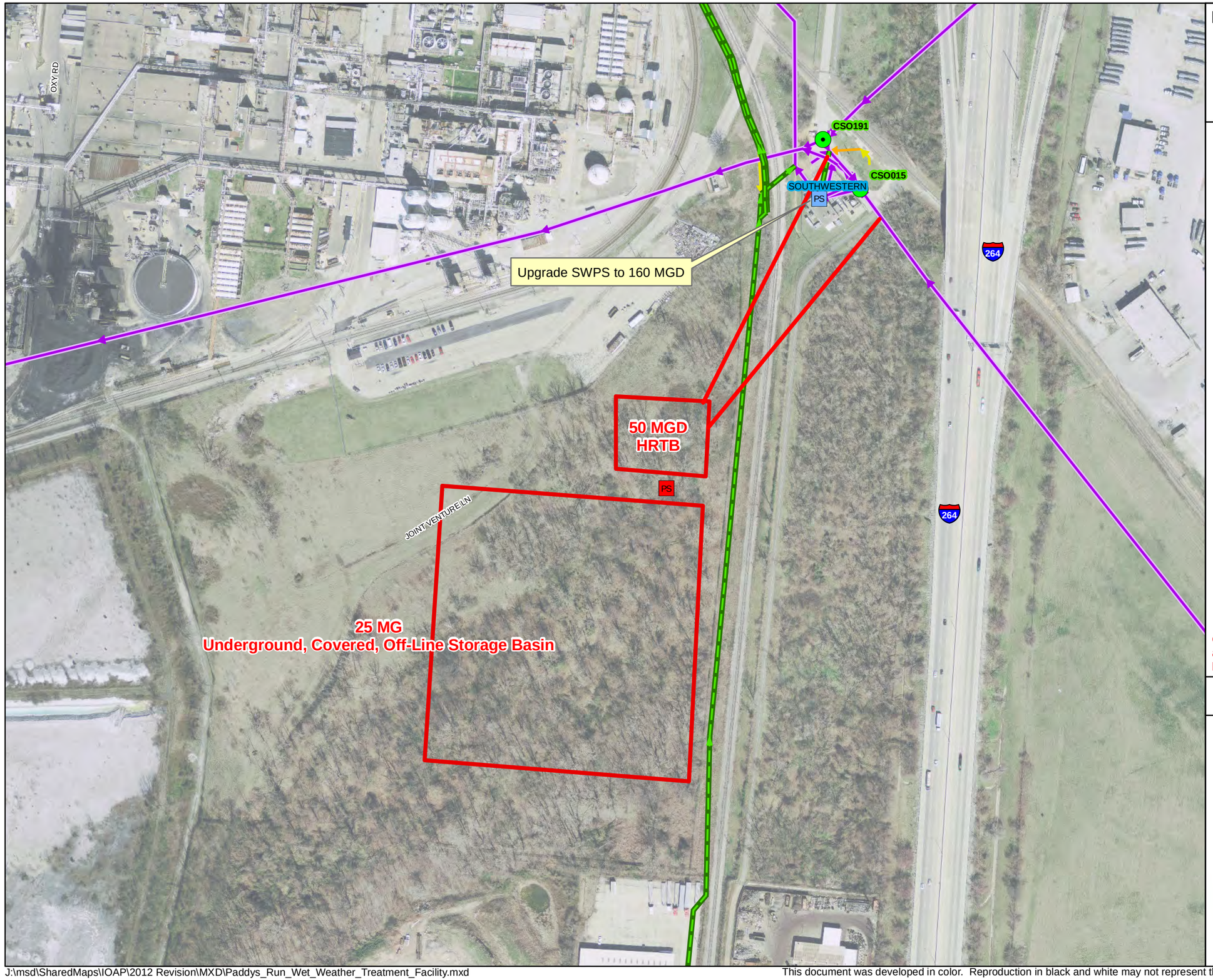
Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Phio River

Paddy's Run Wet Weather Treatment Facility

Preliminary - For Budget Development Only



- Active CSO
- Eliminated CSO
- Proposed Pump Station Solution
- Pump Stations
- Proposed Pipe Solution
- Combined Sewer Pipe
- Force Main
- Collector < 12"
- Interceptor >= 12"
- Drainage Mains
- Proposed Storage Solution
- Streams
- Floodway
- Jefferson County Boundary

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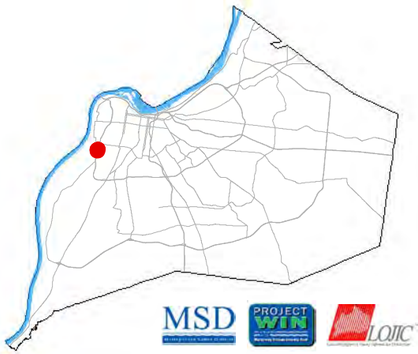
1 inch = 200 feet	N	Aerial Date: 2009	Map Revision: April 9, 2012



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Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
www.msdlouky.org

August 17, 2012

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Story Avenue and Main Street Storage Basin
Minor Project Modification
IOAP Project No. L_OR_MF_020_S_09B_B_A_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Director:

MSD is requesting approval of a proposed minor project modification to the Story Avenue and Main Street Storage Basin project (IOAP Project No.L_OR_MF_020_S_09B_B_A_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The Story Avenue and Main Street Storage Basin project entailed the construction of a 0.13 million gallon (MG), off-line storage basin adjacent to the Starkey Pump Station to be completed by December 31, 2013. The project controlled CSO 020 to an eight overflow per typical year level of control.

Proposed Project Modification

The project modification involves the construction of a 5.42 MG, off-line storage basin adjacent to the Starkey Pump Station to be completed by December 31, 2020. The project will control CSO 020 to an eight overflows per typical year level of control.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical

representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

As part of an internal modeling review and re-calibration, MSD initiated a detailed review of the combined sewer system hydraulic model. Upon completion of this review MSD discovered that the Story Avenue and Main Street Storage Basin was undersized in the previous submittal.

Since the last IOAP submittal, additional flow monitors have been installed in the system and on the outfalls. Detailed topographic surveys were conducted at many of the CSO structures. The combined sewer system model was updated with the new survey data and re-calibrated based on the data from the additional flow monitors. The flows in the re-calibrated model differed from the original model and required changes to some of the IOAP projects. Additionally, MSD Operations staff determined that the Starkey Pump Station could not run at the design pumping rate of 140 million gallons per day (MGD) as assumed in the original analysis. A revised pumping rate of 108 MGD was used in the current model.

Based on the results of the re-calibration, a level of control analysis was conducted on the Story Avenue and Main Street Storage Basin. The level of control analysis showed that the basin size of 5.42 MG would limit the number of overflows to eight per year while providing the best benefit/cost ratio. Therefore, MSD proposes to change the Story Avenue and Main Street Storage Basin solution from 0.13 MG to 5.42 MG. MSD is proposing to revise the schedule from the original completion date of December 31, 2013, to December 31, 2020. The need for this proposed change is based on the scale of the change and the size of the property that is needed. Additionally, MSD would like to further monitor the pumping rate of the Starkey Pump Station to verify that the 108 MGD pumping rate can be met.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_OR_MF_020_S_09B_B_A_8*

Project Name: Story Avenue and Main Street Storage Basin

Project Type: Off-Line Storage

Receiving Stream: Ohio River

Project Description: This project includes the construction of a 0.13 MG off-line underground covered storage basin for CSO020 to reduce overflows to 8 overflows per year. The facility will require a 0.13 MGD PS the stored flow to the RSPS following the wet weather event.

Design Parameters / Assumptions: Basins are designed to the 9th overflow event volume, resulting in 8 CSO overflows/year. The 9th peak flowrate is evaluated to compare gravity vs. pumped conveyance. Design for pump-back is 24 hours. Type of basin based on hydraulics and surroundings.

Surrounding Area Land Use: This project is located within an 'Industrial' property, approximately 100' Northeast of Franklin St. and approximately 200' Northwest of CSO020.

Apparent Utilities Description: No major utilities conflict relating to the proposed basin

Capital Projects: 2008~Middle Fork Rehab Phase 2; Floodwall Closure @ Buchanan; CSO020 and 62 S&F Control - Awaiting Start; 2007~District 4 General Fund DRI - Complete; 2015~Integration of Buchanan PS to RTC - Hidden

Advanced Site Restoration: N/A

Estimated Capital Cost (2008): $1,580,000

Capital Cost / Gallon Overflow Removed: $1.10

Weighted Benefit / Cost Ratio (Capital Cost): 74.25

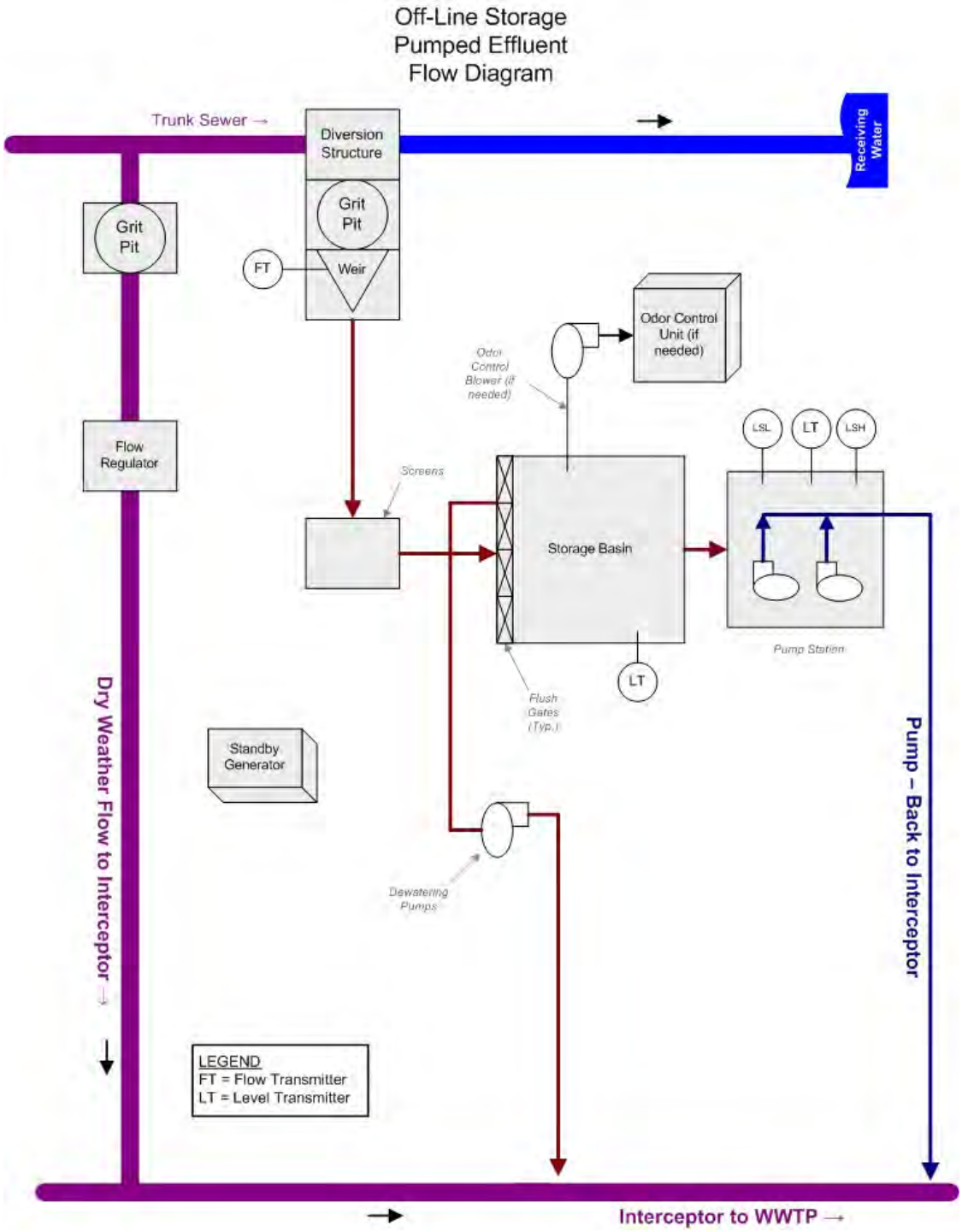
Overflow Points Addressed:

CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO020	Buchanan Pump Station	86.59	6.29	11	4.21	8

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_OR_MF_020_S_09B_B_A_8*



Integrated Overflow Abatement Plan

Volume 2 - Final CSO Long-Term Control Plan

Ohio River
Solution ID # L_OR_MF_020_S_09B_B_A_8
Story Avenue and Main Street Storage Basin

Preliminary - For Budget Development Only

Legend

- Active CSO
- Eliminated CSO
- Proposed Pump Station Solution
- Pump Station
- Proposed Pipe Solution
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- Floodway
- Metro Parks
- Streams

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

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Scaleable when printed on 11"x17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
Mar 13, 2009

Aerial Date: 2006

N

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MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name: Story Avenue and Main Street Storage Basin

Project Type: Off-Line Storage

Rec Stream: Middle Fork Beargrass Creek

Project Description: This project includes the construction of a 5.42 MG off-line underground covered storage basin for CSO020 to reduce overflows to 8 overflows per typical year. Project assumes that the Starkey Pump Station has a typical, minimum pumping rate of 108 MGD. Additional storage or a higher pump-out rate may be added if deemed advantageous to operational and maintenance flexibility as well as impacts to other downstream CSO control projects.

Design Assumption: Basins are designed to the 9th overflow event volume, resulting in 8 CSO overflows per typical year. Type of basin based on hydraulics and surroundings. Starkey PS must be able to maintain a minimum pumping rate of 108 MGD.

Capital Cost: $13,949,000

Capital Benefit/Cost: 18.78

Present Worth Benefit Cost: 20.37

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO020	BUCHANAN PS	436.87	51	143.94	37

1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

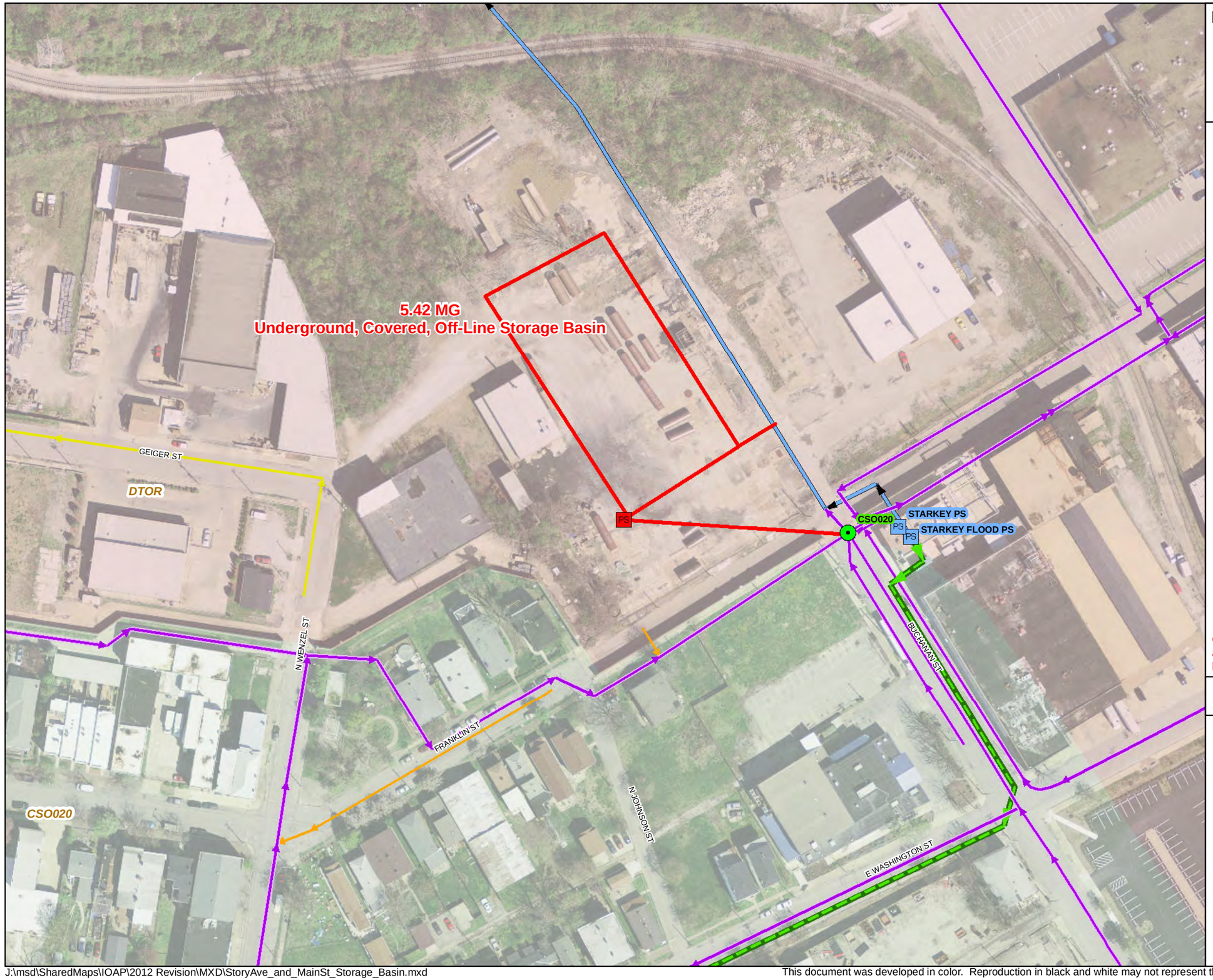
Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

Ohio River

Story Ave & Main St Storage Basin

Preliminary - For Budget Development Only



- Active CSO
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- Proposed Pipe Solution
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General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch = 100 feet	N	Aerial Date: 2009	Map Revision: April 9, 2012

J:\msd\SharedMaps\IOAP\2012 Revision\MXD\StoryAve_and_MainSt_Storage_Basin.mxd

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Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville Kentucky 40203-1911
502-540-6000
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August 17, 2012

Chief, Environmental Enforcement Section
Environmental and Natural Resources Division
U.S. Department of Justice
Post Office Box 7611
Washington, DC 20044-7611

Jeff Cummins, Acting Director
Division of Enforcement
Department of Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

Chief, Water Programs Enforcement Branch
Water Management Program
US EPA Region 4
Atlanta Federal Center
61 Forsyth Street SW
Atlanta, GA 30303

Subject: Story Avenue and Spring Street Storage Basin
Minor Project Modification
IOAP Project No. L_SO_MF_130_S_09B_B_A_8
DOJ Case No. 90-5-1-1-08254

Attention Chiefs and Directors:

MSD is requesting approval of a proposed minor project modification to the Story Avenue and Spring Street Storage Basin project (IOAP Project No. L_SO_MF_130_S_09B_B_A_8). This modification is part of an overall adaptive management review of the approved 2009 IOAP that will be documented in the proposed 2012 IOAP Modification to be formally submitted in 2013. Since the project modifications will affect MSD's implementation activities prior formal submittal of the revision documentation, approval of the proposed modification is requested at this time.

2009 IOAP Project Description

The original IOAP project for this basin included the construction of a 0.01 million gallon (MG), off-line underground covered storage basin located south of CSO 130 to be completed by December 31, 2016. The basin would require a small pump station to return stored flow to the interceptor and would control CSO 130 to an eight overflows per typical year level of control.

Proposed Project Modification

The project modifications requested include the construction of a green infrastructure project suite that will achieve the same level of control as the off-line storage basin. The green project suite would have the same eight overflows per typical year level of control and an accelerated project completion date of December 31, 2014. Performance of the green projects will be conducted over the next two years, and the project certified or remedial actions identified by December 31, 2016.

These modifications are part of an overall adaptive management review of the approved 2009 IOAP. Additional sewer system monitoring, hydraulic modeling recalibration and enhancements to the physical representation of the sewer system resulted in a redistribution of the flow in individual sewer lines, thus affecting project approach and sizing in some cases. Each proposed change will be justified in detail through minor modification letters. Detailed benefits, costs and program implementation refinements to the overflow abatement program will be documented in proposed 2012 IOAP Modification to be submitted in 2013.

Technical Justification

As a first step in the design process and in accordance with Louisville MSD's Green Infrastructure Program, MSD performed a detailed study and determined green infrastructure practices, in-lieu of gray infrastructure, would be most effective in reducing overflow volume. Open tree boxes and permeable pavements were chosen to reduce the volume of flow and pollutants to CSO 130.

As part of this process, MSD developed a hydraulic sewer model for CSO 130. The detailed re-calibration of this model caused the volume necessary to maintain the level of control at eight overflows per year to increase from 0.01 MG to 0.08 MG. Green practices were incorporated into the geometry to create a proposed conditions model. This model confirmed that the proposed green infrastructure solutions and a minor outfall modification could reduce the 20 current overflows per year to eight overflows per year. Due to backwater effects from the trunk line, the weir height at CSO 130 will be raised from the current elevation of 426.70 feet to an elevation of 426.95 feet. The green practices will adequately reduce overflows and that the depth in the sewer for the 9^{th} largest storm does not exceed 426.83 feet compared to the minimum CSO overflow elevation new weir height of 426.95 feet.

For your reference, a copy of the original project fact sheet and map from the 2009 IOAP are in Attachment A. New project fact sheets and maps have been provided in Attachment B. Additional documentation on the costs and level of control analysis will be included in the 2012 IOAP Modification.

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If you have questions or need additional information, please contact Ms. Angela Akridge, Project WIN Program Manager, or myself at (502) 540-6000.

Sincerely,

W. Brian Bingham
Regulatory Services Director

cc: G. Heitzman P. Purifoy

Attachments

MSD

Metropolitan Sewer District

ATTACHMENT A

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_SO_MF_130_S_09B_B_A_8*

Project Name: Story Avenue and Spring Street Storage Basin

Project Type: Off-Line Storage

Receiving Stream: Lower Beargrass Creek

Project Description: This project includes the construction of a 0.01 MG off-line underground covered storage basin for CSO130 to reduce overflows to 8 overflows per year. The facility will require a small pump station to return the stored flow to the interceptor.

Design Parameters / Assumptions: Basins are designed to the 9th overflow event volume, resulting in 8 CSO overflows/year. The 9th peak flowrate is evaluated to compare gravity vs. pumped conveyance. Design for pump-back is 24 hours. Type of basin based on hydraulics and surroundings.

Surrounding Area Land Use: This project is located within 'Vacant & Undeveloped' & 'General Comm. & Office'. This located is located off of Beargrass Creek

Apparent Utilities Description: No major utilities conflict within the area of the proposed basin

Capital Projects: 2007~Middle Fork Rehabilitation Phase 2; 2013~USI Inspection Program

Advanced Site Restoration: The area of the proposed tank is undeveloped green space. Current and previous public use or development proposals for these areas have identified potential environmental mitigations. The project budget includes a site restoration allowance.

Estimated Capital Cost (2008): $1,077,000

Capital Cost / Gallon Overflow Removed: $7.98

Weighted Benefit / Cost Ratio (Capital Cost): 63.92

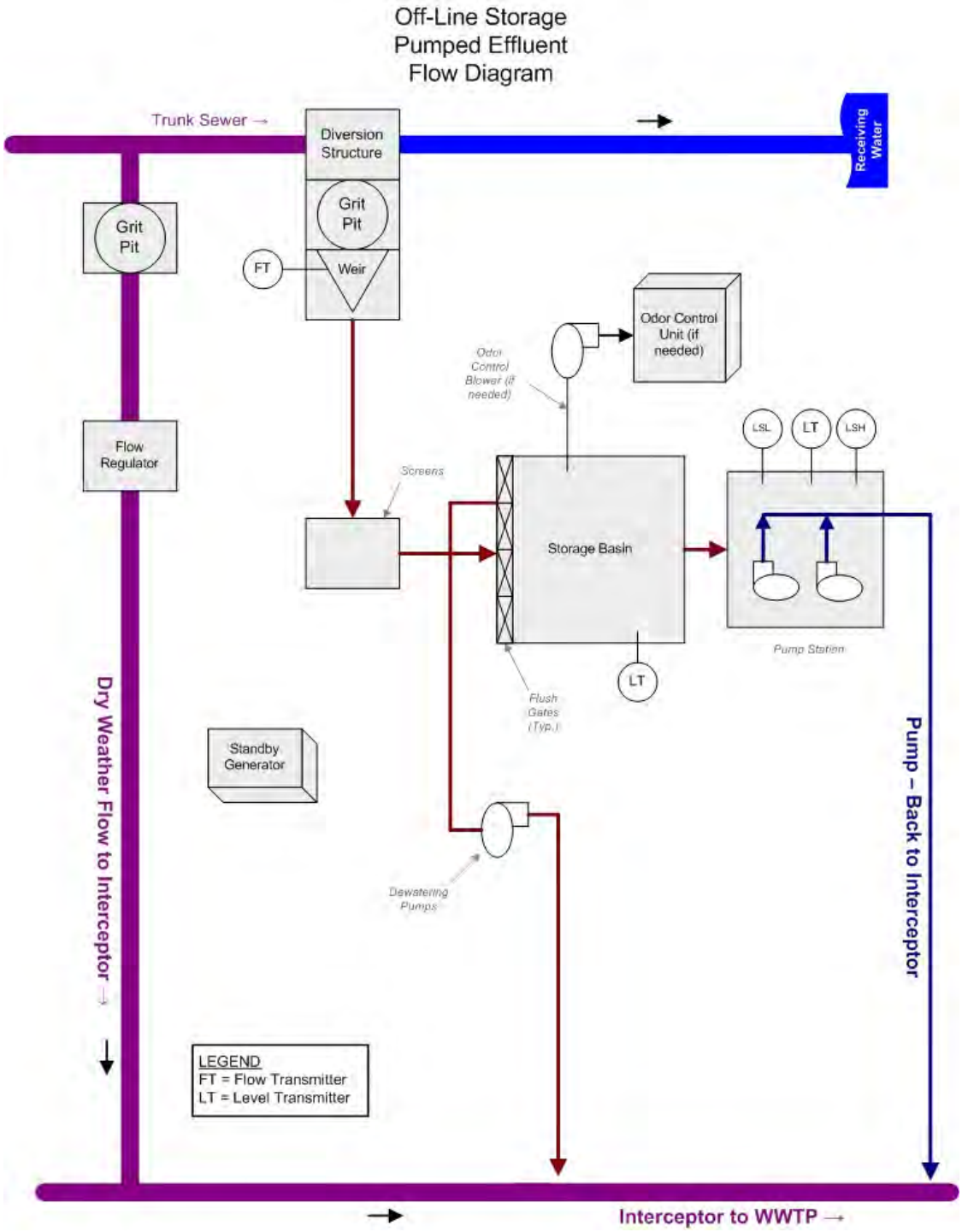
Overflow Points Addressed:

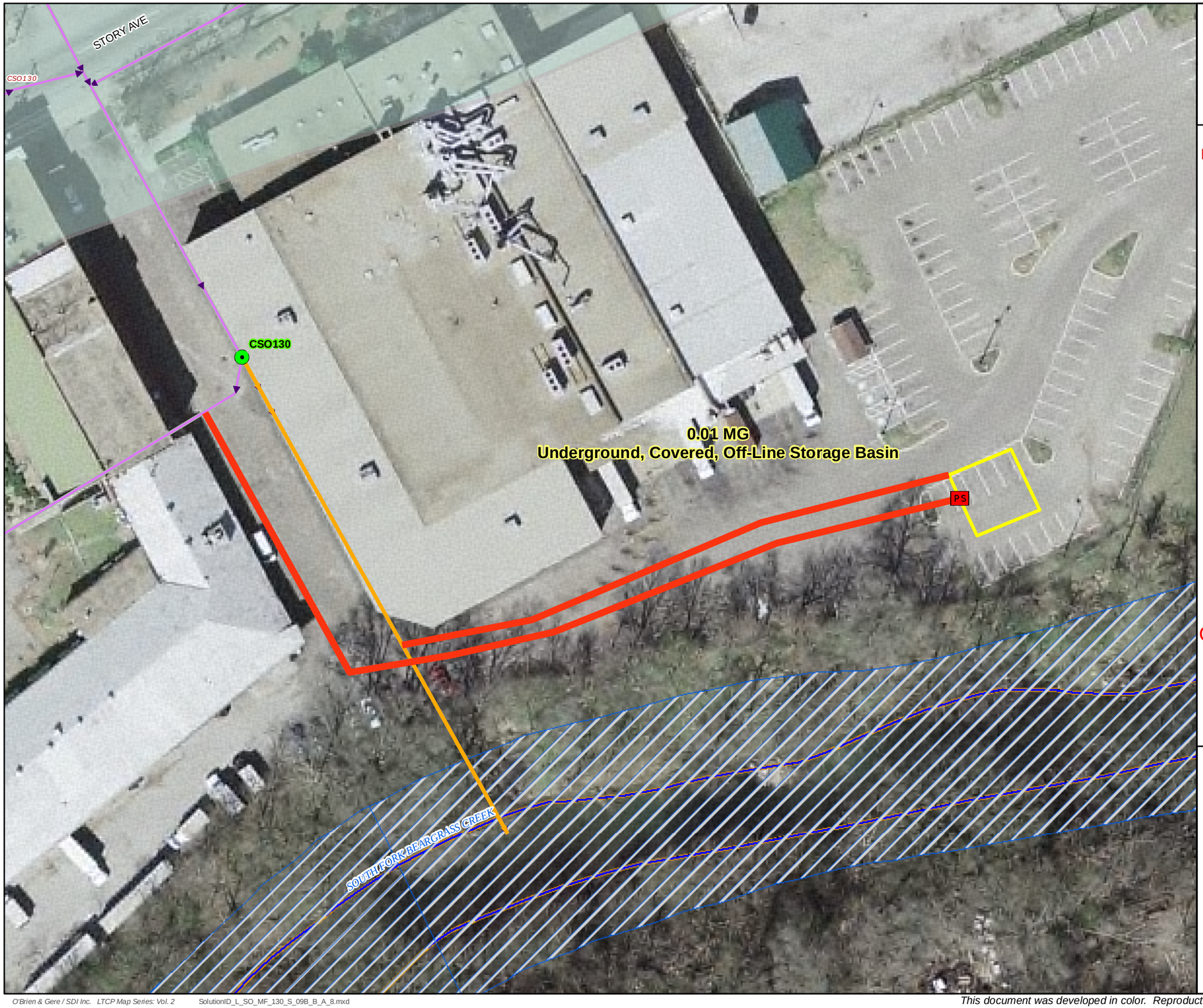
CSO Number	CSO Name	CSO Area (Acres)	2008 AAOV (MG / Yr)	# of Overflows / Yr	Post LTCP AAOV (MG/Yr)	Post LTCP # Overflows / Year
CSO130	Webster Street	28.41	0.84	9	0.67	8

NOTE: CSO hydraulic statistics are predicted based on InfoWorks model results.

CSO LTCP
Project Fact Sheet

LTCP Project Number: *L_SO_MF_130_S_09B_B_A_8*





Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

South Fork Beargrass Creek

SolutionID # L_SO_MF_130_S_09B_B_A_8

Story Av and Spring St Storage Basin

Preliminary - For Budget Development Only

Legend

- PS — Proposed Pump Station Solution
- Active CSO
- Eliminated CSO
- PS — Pump Station
- Proposed Pipe Solution
- Force Main
- Collector < 12"
- Interceptor => 12"
- Combined Sewer Pipe
- Streams
- Proposed Storage Solution
- Floodway
- Metro Parks
- County Boundary

General representation of overflow abatement solutions are for preliminary planning purposes. Alignments and locations may be altered during design.

1 inch equals 50 feet

Scalable when printed on 11" X 17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
December 3, 2008

Aerial Date: 2006

N

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MSD

Metropolitan Sewer District

ATTACHMENT B

Project Name: Story Avenue and Spring Street Green Infrastructure

Project Type: Green Stormwater Infrastructure

Rec Stream: Middle Fork Beargrass Creek

Project Description: This project includes the construction of a suite of green infrastructure practices in the CSO130 contributing drainage area to achieve 0.08 MG in overflow reduction and mitigate the overflow to 8 overflows in a typical year.

Design Assumption: Green practices are designed to contain the 9th overflow event volume, resulting in 8 CSO overflows per typical year.

Capital Cost: $896,000

Capital Benefit/Cost: 131.70

Present Worth Benefit Cost: 125.80

		Existing May 2012[1]		Baseline May 2012[2]	
CSO	CSO Name	Avg. Annual Overflow Volume	Avg. Annual Frequency	Avg. Annual Overflow Volume	Avg. Annual Frequency
CSO130	WEBSTER STREET	6.87	34	1.96	20

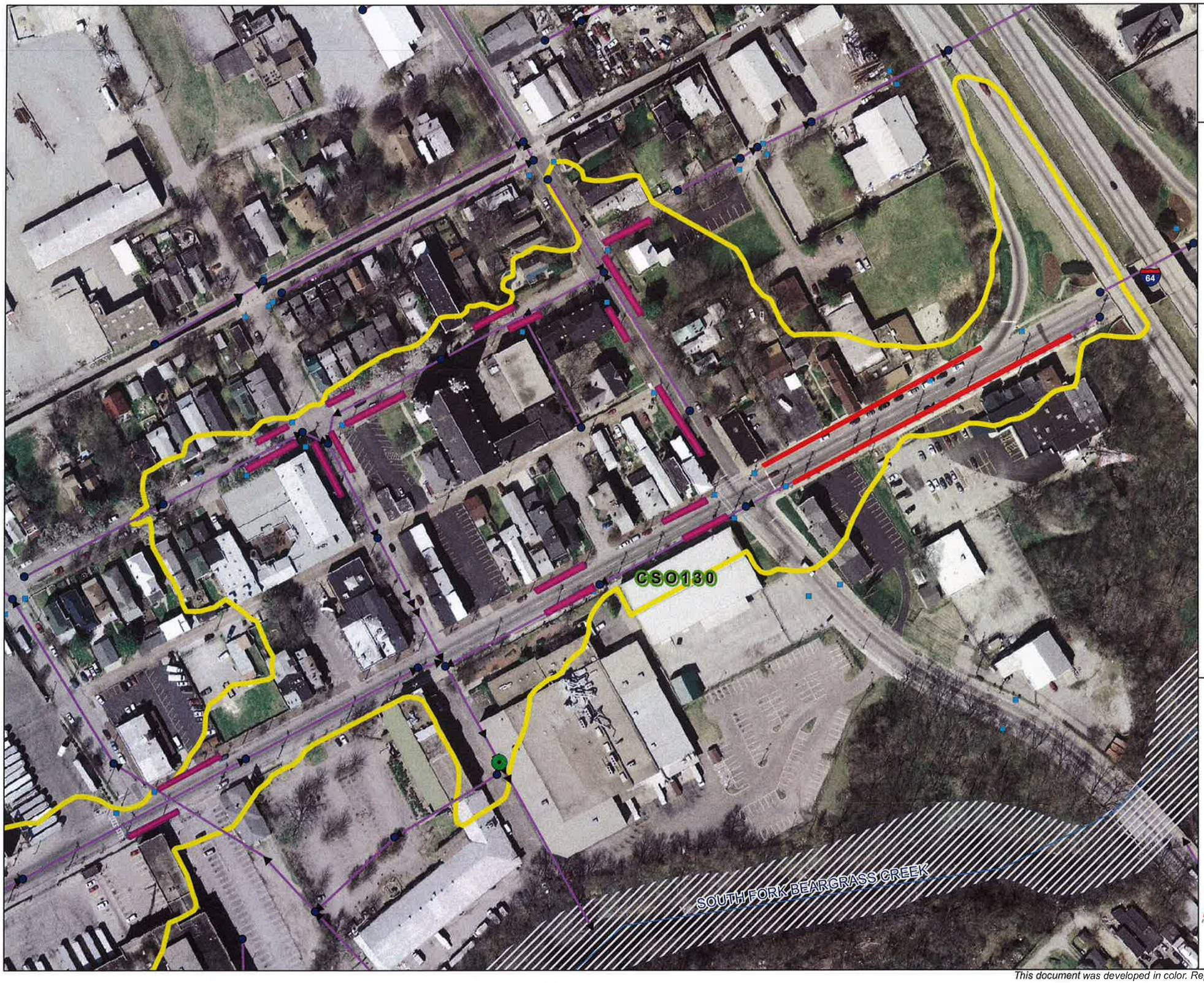
1. Existing May 2012 conditions reflect existing system operating conditions as of that date.

2. Baseline May 2012 assumes all SSDP projects are complete and critical combined sewer facilities (e.g. Morris Forman WQTC Southwestern Pump Station, Starkey Pump Station) are operating at optimal, sustainable levels.

Integrated Overflow Abatement Plan

Vol. 2 - Final CSO Long Term Control Plan

CSO 130
Green Infrastructure Solution



Legend

- Active CSO
- Existing Manhole
- Existing Catch Basin
- Streams
- Combined Sewer Pipe
- Floodway
- CSO 130 Drainage Boundary

CSO 130 Practices

Proposed Green Infrastructure Solutions

- Pervious Pavers
- Tree Boxes

General Representation of overflow abatement solutions are currently out for bid and may be altered during the construction process.

1 inch = 132 feet
Scalable when printed on 11" X 17" paper

Some boundaries are uniquely symbolized within the map.

Map Revision
May 18, 2012

Aerial Date: 2007

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LOJIC MSD PROJECT WIN

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