

US EPA ARCHIVE DOCUMENT



**MUNICIPAL SEPARATE STORM
SEWER SYSTEM (MS4)
COMPLIANCE INSPECTION**

**EVALUATION CONDUCTED: September 23–25, 2009
FINAL REPORT DATE: January 22, 2010**

CITY OF CHICO, CALIFORNIA

Prepared For:
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Section 1.0 Introduction

On September 23–25, 2009, an inspection team composed of staff from U.S. Environmental Protection Agency (EPA) Region 9 and an EPA contractor, PG Environmental, LLC, with participation from the State of California’s Central Valley Regional Water Quality Control Board (RWQCB), (hereafter, collectively, the EPA Inspection Team), conducted an inspection of the City of Chico’s Municipal Separate Storm Sewer System (MS4) Program.

Discharges from the City of Chico’s (hereafter, City or permittee) MS4 are regulated under Water Quality Order No. 2003-0005-DWQ for the State of California’s National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000004 for Storm Water Discharges from Small MS4s (hereafter, the Permit). The Permit is the first NPDES MS4 permit issued to the City. The City submitted an NOI on March 21, 2003, received confirmation of coverage from the RWQCB effective December 22, 2004, and was subsequently issued WDID No. 5A04MSW2002.

The City encompasses approximately 28 square miles of land (17,920 acres) located about 90 miles north of Sacramento. The City has five main watercourses, which flow through the City within the Sacramento River watershed. Several of these creeks support Spring-run Chinook salmon and Steelhead trout. The City’s economy is largely influenced by the presence of the California State University Chico, which employs more than 1,500 people and educates about 18,000 students annually. Other prominent industries include health and social services, as well as retail trade. In 2000 the total population of the City was estimated to be 59,954; in 2008 it was estimated to be over 85,000.

The primary purpose of the inspection was to assess the City’s compliance with the requirements of the Permit through an assessment the City’s implementation of applicable program elements.

The inspection schedule is presented in Appendix A, and a copy of the Permit and the City’s Storm Water Management Plan is provided in Appendix B. Specifically, the inspection included an evaluation of the following program areas or elements, which are described in the Permit:

- Part D.2.c Illicit Discharge Detection and Elimination
- Part D.2.d Construction Site Storm Water Runoff Control
- Part D.2.e Post-Construction Storm Water Management in New Development and Redevelopment
- Part D.2.f Pollution Prevention/Good Housekeeping for Municipal Operations

The EPA Inspection Team conducted a series of interviews with numerous members of the City's staff, along with several site visits and field verification inspections. Dry weather conditions were experienced during the inspections.

The sign-in sheet for the September 23–25, 2009, meetings and activities is presented in Appendix C. The primary representatives involved in the inspection were the following:

- City Representatives:
- Richard Burgi, Associate Civil Engineer
 - Matt Thompson, Sr. Civil Engineer
 - Matt Johnson, Sr. Development Engineer
 - Kirby White, Public Works Manager
 - John Vonderhaar, Construction Engineer
 - Scott Arcoraci, Supervising Building Inspector
 - Scott Armstrong, Code Enforcement Supervisor
 - Amie McAllister, Development Engineer
 - Rick Rodriguez, Engineer Tech
 - Ruben Martinez, Operations and Maintenance Director
 - Tom Varga, Capital Project Services Director
 - Rich Snyder, Construction Inspector
 - Rick Vagis, Building Inspector
- RWQCB
Representatives:
- Scott Zaitz, RWQCB, 5R
 - Kim Schwab, RWQCB, 5S
 - Mike Conway, RWQCB, 5S
- EPA Contractors:
- Wes Ganter, PG Environmental, LLC
 - Bobby Jacobsen, PG Environmental, LLC

Section 2.0 Permit Compliance Review

The EPA Inspection Team conducted an evaluation of the City's MS4 program to assess compliance with the requirements of the Permit and the City's implementation of applicable program elements to ensure a comprehensive and effective MS4 program. As stated previously, the City maintains coverage for discharges from its MS4 under Water Quality Order No. 2003-0005-DWQ for the State of California's NPDES General Permit No. CAS000004 for Storm Water Discharges from Small MS4s. The Permit expired May 1, 2008, after the end of its first 5-year term, but has been administratively extended and will continue in full force and effect until it is rescinded or a new general permit is issued.

As required by Part D of the Permit, "Storm Water Management Program Requirements," the permittee must "maintain, implement, and enforce an effective SWMP...to reduce the discharge of pollutants from the permitted MS4 to MEP [maximum extent practicable] and to protect water quality." The City developed a storm water management program (SWMP), which it began to implement in December 2004 and last updated in July 2008. The City was required to fully implement its SWMP within 5 years of its designation as a small MS4. Based on a review of the conditions of the Permit and the City's SWMP, all program elements should have been fully implemented and functional at the time of the inspection.

During the inspection, the EPA Inspection Team noted several notable elements of the City's MS4 Program, including the following:

1. Effective efforts to identify and remove illicit discharges and connections to the storm sewer system such as (1) strong storm water awareness by city staff, (2) partnering with the Big Chico Creek Alliance to conduct routine screening inspections of the outfalls, (3) allocating a member of its storm drain maintenance crew to participate in all screening inspections who is tasked to conduct readily needed maintenance and document issues that require additional resources and funding, (4) an increase in illicit discharge reporting by citizens and City staff, and (5) the various community and volunteer creek clean-up activities;
2. Widespread use of permanent post-construction controls, including the deployment of approximately 120–130 storm water hydrodynamic separators at various locations throughout the City;
3. Relatively new and well designed municipal facilities that allow the City to utilize effective storm water pollution prevention practices;
4. A multi-departmental approach to implementation of the storm water program.

Notwithstanding the items listed above, the EPA Inspection Team identified several deficiencies (hereafter, inspection findings) regarding the City's compliance with the Permit and the City's SWMP. The presentation of inspection findings in this section of the report does not constitute a formal compliance determination or violation. All referenced documentation used as supporting evidence is provided in Appendix C, and

photo documentation is provided in Appendix D. For clarity, items that require the City's response are underlined while recommendations are presented in *italic*.

Section 2.1 Illicit Discharge Detection and Elimination

Part D.2.c of the Permit requires the City to develop, implement, and enforce a program to detect and eliminate illicit discharges to the MS4 in accordance with the specific requirements at Part D.2.c (1)–(6) of the Permit. Overall, the City appeared to have implemented an effective program to identify and eliminate illicit discharges to the MS4. City field staff displayed a good general knowledge of what constitutes an illicit discharge and who to notify in response to observing an illicit discharge in the City. However, as described below, the EPA Inspection Team noted several areas for improvement with regard to the City's illicit discharge detection and elimination program.

2.1.1. Need to Develop and Implement Enforcement Procedures to Effectively Eliminate Illicit Discharges. As required by Part D.2.c.3 of the Permit, the City must “effectively prohibit, through an ordinance, or other regulatory mechanism, non-storm water discharges into the MS4 and implement appropriate enforcement procedures and actions.” The City has adopted City Code, Chapter 15.5, “Storm Water Management and Discharge Controls,” Section 15.50.040, to prohibit non-storm water discharges to the MS4. As explained by City staff members, the City has seen a dramatic increase in illicit discharges over the past couple of years, apparently as a result of increased awareness of what constitutes an illicit discharge and notification procedures. However, the City does not have written enforcement escalation procedures or a formal enforcement response plan (ERP) regarding the response to illicit discharges, spills and illegal dumping. The City's Code Enforcement department usually responds to illicit discharges. Enforcement actions are essentially based on the circumstances of the occurrence and past examples.

The EPA Inspection Team recommends that the City develop and implement a formal ERP or equivalent defined procedures for eliminating identified illicit discharges and enforcing the City's non-storm water discharge prohibition. This document, or set procedures, would be similar to that deployed by the Chico Industrial Pretreatment Program and would establish a defined and reproducible process and staff responsibilities for escalating enforcement. Many municipal regulatory programs have found an ERP to be a valuable component of their regulatory program.

2.1.2. Failure to Identify and Eliminate Illicit Discharges from Plane-Washing Activities at the Chico Municipal Airport. During the inspection, the EPA Inspection Team noted that three designated areas at the Chico Municipal Airport are used for plane-washing activities. As explained by City staff, washwater from two of the three plane-washing areas discharges to nearby storm drain inlets and subsequently to the City's MS4. Non-storm water discharges of wastewater from plane-washing activities are illicit discharges to the City's MS4. Though City staff generally displayed a good knowledge of what constitutes an illicit discharge and who to notify in the event of witnessing such a discharge, why this issue had not been previously recognized and rectified by City staff is

unclear. The City must eliminate non-storm water discharges of wastewater from plane-washing activities at the Chico Municipal Airport to the City's MS4.

This issue is discussed further in Section 2.4, Pollution Prevention/Good Housekeeping.

2.1.3. Opportunity to Improve MS4 Outfall Inspections

The City has five major waterways within the City limits and about 500 known outfalls from its MS4 to the receiving waters. The City itself does not conduct routine inspections of the outfall structures; however, through a contractual relationship with the Big Chico Creek Alliance, members of that organization conducted screening inspections of the outfalls approximately 2 years prior to the inspection and plan to conduct another round of inspections this year. In addition, this year the City is allocating a member of its storm drain maintenance crew to participate in all inspections so as to conduct readily needed maintenance and document issues that require additional resources and funding. *The EPA Inspection Team recommends that the City photograph each outfall as a component of the inspection process and record additional observations of baseline conditions to further document and track the status of the City's assets and to aid in future illicit discharge identification and elimination.*

Section 2.2 Construction Site Storm Water Runoff Control

As stated at Part D.2.d of the Permit, the City must “develop, implement, and enforce a program to reduce pollutants in any storm water runoff to the Small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre.” The program must include, at a minimum, the specific requirements at Part D.2.d (1)–(6) of the Permit. Based on the implementation plan and time frames described in the SWMP, the construction-related program elements should have been fully implemented at the time of the inspection.

The City has many of the tools necessary for the effective implementation of a construction storm water runoff control program. For example, the City has engaged multiple departments, planners, plan reviewers, and inspectors to implement its construction storm water runoff control program and has in place an effective and comprehensive ordinance to adequately control construction site runoff and the application of best management practices (BMPs). The City has developed checklists and instructions for the development and implementation of a storm water pollution prevention plan (SWPPP) and for plan submittal and review, including design bulletins with enhanced instructions for the development community. The City has invested in inspector training, and all of its inspectors have received training and a certificate from the National Stormwater Center's construction site training program. The City also has the tools necessary to effectively track the location and status of both public and private development activities. In some instances, the City has contracted the services of outside consultants to provide construction administration and oversight, including the inspection of ongoing construction. The Inspection Team visited several private and public construction sites. During the inspections, the City inspectors and contract inspectors (1) appeared knowledgeable regarding the need for, and application of, BMPs; (2) had

visited sites routinely and were aware of the current construction status; and (3) had effective relationships with site operators.

Notwithstanding these positive elements, all but one of the sites visited by the EPA Inspection Team displayed significant deficiencies and provided direct evidence that the City has failed to enforce an adequate program to reduce pollutants in storm water runoff from construction activities. This claim is substantiated by the following inspection findings.

The EPA Inspection Team conducted eight inspections of individual private construction sites located within the City limits and served by the City's MS4. Three of the private sites were residential development and three were commercial development. In addition, the team completed two inspections of public (City-sponsored) construction sites. Overall, the EPA Inspection Team noted inadequate or inadequately maintained erosion and sediment controls or other BMPs at the construction sites. Summary observations are presented below in a series of individual construction site assessments. Following the individual construction site assessments is an assessment of the City's implementation of the individual requirements for construction storm water runoff control, as stated at Part D.2.d (1)–(6) of the Permit.

Private Site: Merriam Park Neighborhood in Chico, California. The Merriam Park subdivision is a mixed-use development on 270 acres in southeast Chico that is to be phased over 10–12 years. The site owner had submitted a Notice of Intent and had received WDID 5R04C355876 for Phase I. At the time of the inspection, a portion of the site was undergoing rough and final grading; street and curb and gutter work were forthcoming. Phase I of the project was said to be 4.5 acres. The entire site appeared to be disturbed, and several large soil stockpiles were present (see attached Photographs 1 and 2). Overall, the construction site lacked an adequate combination of temporary and permanent erosion and sediment control BMPs; instead, it relied entirely on sediment control BMPs consisting of perimeter straw wattles and silt fences, storm drain inlet protection, and vehicle tracking controls. Storm drain inlet protection had been deployed at the two most down-gradient storm drain inlets, however, straw wattles were not properly trenched into the ground and sediment controls were not installed around the stockpiles (see attached Photographs 3 and 4). The site contract inspector stated that the on-site storm drain system had been connected to the city's existing storm drain system and that any resulting flows would be directed to the City's Teichert Ponds, approximately 1 mile to the west¹. Permanent post-construction controls were not planned, or installed, for the site because the Teichert Ponds were to serve as the post-construction storm water controls for the entire Merriam Park development. Given the extent of disturbed area and the lack of additional controls, the BMPs at the site were inadequate and the discharge of sediment during future precipitation events appeared likely.

¹ Additional information regarding Teichert Ponds and the City's Teichert Ponds Restoration Project can be found at http://www.chico.ca.us/document_library/departments/planning_department/TeichertPondsIS-MND_040109.pdf

Private Site: Creekside Subdivision in Chico, California. The subdivision is for the construction of residential dwellings and consisted of several tracks, with several different developers, in various stages of development on the west side of Chico. The site owner had submitted an initial Notice of Intent and had received WDID 5R04C346843. In the Innsbrook area of the development, under development by Webb Homes, adequate BMPs had not been implemented to prevent the discharge of sediment and other pollutants. Specifically, adequate BMPs had not been implemented for erosion and sediment control, vehicle tracking control, and good housekeeping. The EPA Inspection Team observed and identified for the City and site inspector that there were large expanses of disturbed soil and building pads without any form of temporary or permanent stabilization (see attached Photographs 5 and 6). In addition, good housekeeping BMPs for disposing of waste had not been implemented at the construction site as evidenced by plaster and mortar compounds on the ground in various areas throughout the construction site (see attached Photographs 7, 8 and 9).

In other areas of the subdivision with different developers, the EPA Inspection Team observed that adequate BMPs had not been implemented to prevent the discharge of sediment and other pollutants. Specifically, it was obvious that storm drain inlets along DeGarmo Drive had not been adequately maintained because vegetation was growing in the curb inlets. In other areas of the site however, the EPA Inspection Team observed appropriate BMPs in the form of temporary stabilization on improved building pads, well-maintained sediment controls, and catch basin protection. Those areas of the site were maintained by a developer who, City and RWQCB staff stated, is knowledgeable regarding storm water controls. In contrast, other portions of the area were said to be under development by a builder who has routinely expressed disinterest in storm water controls and whose sites typically have lacked adequate BMPs.

Private Site: Webb Homes, Schill Subdivision Phase I, Esplanade and Nord Highway in Chico, California. A series of residential apartments is planned for this 10.9-acre site. The site owner, Webb Homes, had submitted a Notice of Intent and had received WDID 5R04C356035. The site was undergoing rough grading and wet utility installation at the time of the inspection. The EPA Inspection Team observed and identified for the City inspector that adequate BMPs had not been implemented to prevent the discharge of sediment and other pollutants from various areas of the construction site. With the exception of vehicle tracking controls at one location, no sediment, erosion, good housekeeping, or other pollutant control BMPs were observed at the time of the inspection (see attached Photograph 10). The EPA Inspection Team observed construction crews exiting the site at locations other than the established construction entrance, and sediment tracking was observed on Esplanade. The City inspector present for the EPA inspection was not familiar with the site and did not know whether the site had an approved SWPPP.

Following the EPA inspection, the RWQCB contacted the site owner and was provided a SWPPP for the site dated October 8, 2009. Whether the site owner had submitted a SWPPP prior to initiating soil disturbance at the site was unclear. This site was

subsequently inspected by the RWQCB on September 30, 2009, at which time it again displayed inadequate and/or missing BMPs (see attached Photographs 11 and 12).

Private Site: Walgreens Pharmacy at 2507 Esplanade in Chico, California. The site is for the construction of a new Walgreens pharmacy, and the site appeared to be within 2–4 months of completion. The site was equipped with a sub-grade hydrodynamic separator as a post-construction control. The site owner had submitted a Notice of Intent and had received WDID 5R04C354198. The EPA Inspection Team observed and identified for the City and site inspector that adequate BMPs had not been implemented to prevent the discharge of sediment and other pollutants from various areas of the construction site. Specifically, adequate BMPs had not been implemented for sediment control and good housekeeping. The team observed that construction crews had washed sediment into an adjacent storm drain on Esplanade and that the silt fence BMP implemented at various areas of the site had not been properly installed or maintained which resulted in sediment deposition in gutter flow lines and outside containment. Additionally, the team observed active, direct discharges of plaster, stucco, and construction waste into an on-site storm drain. Furthermore, the on-site construction foreman and trade personnel were washing tools and paint waste directly into an on-site storm drain, and the construction foreman stated that he was unaware that the storm drain system was different from the sanitary sewer system (see attached Photographs 13 through 15). The RWQCB inspector instructed the foreman to stop these practices and educated the foreman on proper storm water protection procedures. In addition, stucco debris from sanding the walls of the building was observed on the pavement in the immediate vicinity of the storm drain (see attached Photograph 16). Finally, a portion of the site drained directly to Esplanade, thereby avoiding the installed on-site treatment device.

Private Site: CVS Pharmacy at 2760 Esplanade in Chico, California. The site is for the construction of a new CVS pharmacy, and it was nearing external completion. The site owner had submitted a Notice of Intent and had received WDID 5R04C353998. A subsurface storm drain treatment system had been installed in the west corner of the site (i.e. at Esplanade and East Lassen). The site was adjacent to (or part of) another commercial complex that was also being developed, and the CVS pharmacy building is contained within the larger plan of development. The EPA Inspection Team observed that adequate BMPs had not been implemented to prevent the discharge of sediment and other pollutants from the eastern side of the construction site (see attached Photograph 17). Specifically, several storm drain inlets lacked protection. In addition, the construction foreman was unaware of the presence of the on-site permanent storm water control, and on more than one occasion he stated that he was not responsible for most of the storm drains on the property.

Private Site: Walgreens Pharmacy at 860 East Ave. in Chico, California. The site is for the redevelopment of an existing Walgreens pharmacy located within a larger shopping center. The site owner had submitted a Notice of Intent and had received WDID 5R04C354516. At the time of the inspection, the site was undergoing exterior and interior remodeling and the parking lot was being reconstructed. The EPA Inspection Team observed that adequate BMPs had not been implemented to prevent the discharge

of sediment and other pollutants from various areas of the construction site. Specifically, adequate BMPs had not been implemented for sediment control and vehicle tracking control. The EPA Inspection Team observed that the storm drain inlet in front of the property was in need of maintenance (see attached Photograph 18). In addition, sediment had been tracked from the construction site to other adjoining areas of the parking lot (see attached Photograph 19).

Public Site: Manzanita Road and Bridge Reconstruction in Chico, California. The operations at this public construction site consisted of roadway rebuilding, widening, surfacing, creation of new round-a-bouts and bike paths, and two bridge enhancements. The City had submitted two Notices of Intent and had received WDIDs 5R04C342563 and 5R04C332240. Two separate contractors had been employed for the job—one for the roadway and one for the bridge projects. The City had also obtained the services of a private contract management firm, which provided a dedicated construction inspector. The contract inspector was present on the site daily and was responsible for oversight of the contractor's sediment and erosion control practices. The EPA Inspection Team inspected portions of the road and bridge activities and was accompanied by City staff and the contract inspector. The EPA Inspection Team observed that the bridge portions of the construction site lacked adequate BMPs for temporary and permanent erosion and sediment control to prevent the discharge of pollutants from the site to Big Chico Creek and Lindo Channel. The EPA Inspection Team noted the absence of BMPs in Lindo Channel (see attached Photograph 20) and on the northern bank of Big Chico Creek, as specified in their respective SWPPPs. The EPA Inspection Team also noted the inappropriate use of silt fence within the waterways (see attached Photograph 21); ineffective, incorrectly installed, and poorly maintained silt fencing adjacent to the bridge projects (see attached Photographs 21, 22 and 23); the discharge of Styrofoam pellets from construction forms to Big Chico Creek and the presence of such pellets in the creek (see attached Photographs 24 and 25); and a lack of effective erosion control (see attached Photograph 26).

Public Site: East 8th Street Improvement Project Phase II in Chico, California. The City is resurfacing 8th Street and installing traffic-calming structures along the street. The City had submitted a Notice of Intent and had received WDID 5R04C349029. Phase I of the project had been completed, and Phase II activities were ongoing. The EPA Inspection team observed adequate BMPs in the form of storm drain inlet protection along the length of the Phase II site.

In summary, the EPA Inspection Team observed numerous examples of private and public construction sites with inadequate BMPs or inadequately maintained BMPs for erosion and sediment control, evidence of illicit past and active discharges, and inadequate BMPs for the control of other pollutants. As a result, there was a potential for the contribution of pollutants to the MS4.

2.2.1. Failure to Ensure Adequate BMPs Are Implemented and Maintained at Construction Sites. As required by Part D.2.d (1)–(3) of the Permit, the City must require erosion and sediment controls through an ordinance or other regulatory

mechanism, require construction site operators to implement appropriate erosion and sediment controls, and require construction site operators to control other wastes at construction sites that might have an adverse impact on water quality. The site conditions observed during the site visits indicated that the City has failed to require the implementation of adequate nonstructural and structural BMPs for erosion and sediment control and the control of other wastes at construction sites for at least seven of the eight visited.

The City must require the implementation of adequate nonstructural and structural BMPs and proper maintenance as per the approved site plans to prevent the discharge of pollutants from public and private construction sites located within the City's jurisdiction. Furthermore, the City must require the implementation of temporary stabilization practices at both public and private construction sites to reduce the amount of sediment that is discharged from sites that are not actively being graded. The EPA Inspection Team further recommends that the City encourage the practice of limiting the area that is cleared and graded on construction sites as specified on the site's approved site plans and that the City promote appropriate construction sequencing in conjunction with the implementation of up-gradient erosion and sediment controls.

2.2.2. Failure to Develop an Effective Construction Site Plan Review Program. As required by Part D.2.d.4 of the Permit, the City must develop and implement "procedures for site plan review which incorporate consideration of potential water quality impacts" as a component of its construction site storm water runoff control program. BMP# CE II-A, listed in Section 4-5 of the City's SWMP, states that "plan review will ensure projects adequately address City erosion, sediment, and pollution control requirements through the development process."

Based on a review of the City's site plan review program, there appeared to be an overreliance on the project proponent's determination of the adequacy of sediment and erosion control BMPs. Furthermore, it appeared that the City's review of submitted construction site plans and SWPPPs was largely based on the presence or absence of BMPs rather than the appropriateness and adequacy of the proposed BMPs. For example, the Manzanita Road bridge project, which includes City-sponsored improvements to two bridge structures over Big Chico Creek and Lindo Channel, lacked an adequate array of BMPs to protect the adjacent receiving waters. The SWPPPs for both stream crossings called for the placement of silt fence BMPs along and within the stream channels themselves and within areas of potentially concentrated flow within Lindo Channel. The City's site plan review staff should have identified the inadequacy of these proposed BMPs and the need for additional and redundant BMPs, especially for these high-risk, high-visibility areas. As described in further detail above, field visits to these sites revealed that the minimal BMPs described in the respective SWPPPs were generally not effective or had not been implemented. See Appendix E for a copy of the SWPPP for the Manzanita Road bridge project.

The SWPPPs for large development projects such as the Merriam Park subdivision and the Schill Apartments did not include the use of erosion control BMPs or temporary

sediment basins; instead, they relied exclusively on perimeter sediment controls and inlet protection. Observations during the site visits to these projects indicated that the BMPs implemented on-site were not adequate to prevent the contribution of pollutants to storm water runoff. It should be noted that the site was undergoing rough grading immediately prior to the pending wet season.

The City has adopted a BMP design manual that includes design criteria for structural controls to be implemented at construction sites; however, the manual is more than 10 years old and City staff stated it is not readily used. The EPA Inspection Team noted that the City's Checklist for Improvement Plans, Section II.C, Storm Drainage, contains required elements for "Hydrology" and "Collection System and Hydraulics" but does not contain requirements for temporary erosion and sediment control BMPs. See Appendix F for a copy of the checklist.

The City must develop and implement adequate procedures for site plan review to reduce pollutants in storm water runoff from construction activities in accordance with Part D.2.d of the Permit and the City's SWMP. As a component of the review process, the City must evaluate the adequacy of erosion and sediment controls during the site plan review process rather than merely assessing whether controls are included in the plans.

The EPA Inspection Team recommends that the City improve its plan review checklist by including review elements for erosion and sediment control and overall SWPPP requirements to ensure that the reviews are conducted consistently and documented adequately. The EPA Inspection Team also recommends that the City (1) assess its BMP design manual to ensure that it includes current design criteria for temporary erosion and sediment control and permanent structural controls for construction sites and (2) incorporate the use of this manual into the City's site plan review process.

2.2.3. Failure to Develop and Implement a Comprehensive and Effective Construction Site Inspection Program. As required by Part D.2.d.6 of the Permit, the City must develop and implement procedures for conducting construction site inspections to reduce pollutants in storm water runoff from construction activities. According to BMP# CE II-B, described in Section 4-5 of the City's SWMP, the City must "inspect construction sites for compliance with the approved SWPPPs." Based on a review of the City's construction site inspection program and visits to various construction sites, the City has failed to develop and implement a comprehensive and effective construction site inspection program.

The EPA Inspection Team observed numerous examples of inadequate BMPs, inadequate installation and maintenance of BMPs, and areas without BMPs implemented at several public and private construction sites that had a potential to contribute pollutants to storm water runoff and subsequently to the MS4. Furthermore, the inspection team noted a preference toward the implementation of perimeter control BMPs with inadequate redundancy of upslope BMPs and an underutilization of temporary stabilization at construction sites. Significant deficiencies were noted at private residential, commercial,

and public sites. Site visit observations are discussed in further detail above in Section 2.4.

As explained by City staff, the City's building inspectors are responsible for conducting construction site inspections for erosion and sediment control in addition to the typical building inspection protocols. As stated above, the City's inspectors had received training from the National Stormwater Center's construction site training program and appeared to have a general understanding of proper BMP implementation. However, it does not appear that the City's building inspectors are able to adequately conduct inspections of the entire construction site for erosion and sediment control because of other obligations. Furthermore, the City's inspectors do not appear to provide sufficient oversight of BMP implementation on public construction project sites. The City relies on its contractor to implement and maintain erosion and sediment controls, as well as other BMPs. Site observations during the inspection indicated significant deficiencies. For example, the EPA Inspection Team observed examples of improper use of BMPs within receiving streams, woefully maintained sediment control BMPs, and the absence of temporary stabilization and erosion control at the bridge sites of the Manzanita Avenue project.

The City does not have written inspection procedures, a checklist, or other structured components of a construction site inspection program to ensure that inspections are conducted adequately and consistently. Furthermore, the City does not have a system for documenting the occurrence of inspections, findings, and corrective actions taken. For example, the City does not document routine inspections or follow-up inspections that are conducted at construction sites. The lack of documentation significantly hinders the City's ability to take enforcement or even issue corrective notices.

The City must develop and implement adequate procedures for conducting construction site inspections to reduce pollutants in storm water runoff from construction activities, as required by Part D.2.d.6 of the Permit and in accordance with the City's SWMP. *The EPA Inspection Team recommends that the City develop and implement standardized inspection procedures, an inspection checklist, and a tracking mechanism to ensure that consistent inspections are conducted and adequately documented. The EPA Inspection Team also recommends that the City use dedicated erosion and sediment control inspectors for conducting construction site inspections rather than placing the added responsibility of conducting erosion and sediment control inspections on the City's building inspectors.*

2.2.4. Failure to Develop and Implement an Effective Construction Site Enforcement Program. As required by Part D.2.d.6 of the Permit, the City must develop and implement procedures for enforcement of required control measures (e.g., erosion and sediment control) at construction sites. BMP# CE II-C, listed in Section 4-5 of the City's SWMP, states that the City was to begin enforcing its storm water ordinance during 2004–2005 and continue to do so throughout program implementation. The measureable goal for this BMP is listed in the SWMP as the number of enforcement actions taken with regard to construction activity.

Although the City's storm water program had been implemented for several years, at the time of the inspection the City had yet to initiate formal enforcement on either a public or private construction project. During the interview portion of the inspection, the City explained that the development community adheres to the City's verbal instructions and therefore the City does not need to implement enforcement or test the full extent of its municipal ordinance. As described above, the EPA Inspection Team observed significant deficiencies during site visits to several construction sites within the City. The site conditions indicated a need for a more thorough inspection process, the requirement of corrective actions, and selective enforcement.

As described by City staff, the City does not have a specific set of written enforcement procedures or an ERP for responding to issues with BMP implementation at construction sites. BMP# CE II-C, listed in SWMP, provides a general guideline for the escalation of enforcement proceedings.

As explained by City staff, the City's Code Enforcement officers have been actively involved in enforcing the City's ordinance regarding illicit discharges. However, the Code Enforcement officers have not been engaged in enforcement activity to ensure that adequate BMPs are implemented on construction sites to prevent the contribution of pollutants to storm water. According to a document provided by a City Code Enforcement officer (refer to [Exhibit 2 in Appendix C](#)), none of the 39 citations issued by Code Enforcement from November 2007 through September 2009 were related to BMP implementation at construction sites.

As required by Part D.2.d.6 of the Permit, the City must develop and implement procedures for enforcement of required control measures (e.g., erosion and sediment control) at construction sites. The EPA Inspection Team recommends that the City develop a written ERP or equivalent for enforcing the City's Ordinance as it relates to control measures implemented at construction sites. The EPA Inspection Team also recommends that the City use its Code Enforcement officers to provide another level of oversight and enforcement of BMP implementation at construction sites.

Section 2.3 Post-construction Storm Water Management

As required by Part D.2.e.1 of the Permit, the City must "develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre...by ensuring that controls are in place that would prevent or minimize water quality impacts." Furthermore, Part D.2.e (2) and (4) of the Permit requires the City to "develop and implement strategies, which include a combination of structural and/or non-structural BMPs appropriate for your [the City's] community" and to "ensure adequate long-term operation and maintenance of BMPs." Based on a review of the City's program, it appears that the City has developed and implemented an effective post-construction storm water control program.

The City has implemented a program that has deployed approximately 120–130 storm water hydrodynamic separators at various locations throughout the City for post-construction storm water control. The City and the local development community have identified this as a preferred post-construction control BMP. The City also relies on at least two large regional storm water detention pond complexes (i.e., Teichert Ponds and Fair Street Detention Complex) and allows developers within these areas to participate in the funding of the regional facility in lieu of on-site post-construction control. This approach was also said to be the City’s preferred approach to regional storm water management. The City has also developed a *Design Bulletin for Storm Drain Improvement Plans and First Flush Treatment Vaults* that provides a methodology for calculating treatment unit sizing and flow-through rates.

The following additional observations were made with regard to the City’s post-construction storm water management program:

- The City’s geographic information system (GIS) contains the locations of public post-construction controls, and the City is in the process of identifying and mapping all private post-construction BMPs implemented at sites throughout the City.
- The City is in the process of determining its preferred method(s) for ensuring long-term maintenance of post-construction BMPs.
- The Merriam Park subdivision is a mixed-use development on 270 acres in southeast Chico that is to be phased over 10–12 years. At the time of the inspection, a portion of the site was undergoing rough and final grading, with street and curb and gutter work forthcoming. The project website (<http://www.newurbanbuilders.com/meriampark>) indicates the plan review and approval process was three years in length and included many phases of City, community, and state environmental reviews. Merriam Park subdivision does not use on-site post-construction controls to treat storm water; instead, storm water is conveyed via storm drain to Teichert Ponds for discharge. This project appears to be one that participates in the funding of the regional detention facility in lieu of on-site post-construction controls. The EPA Inspection Team did not have sufficient time to more fully investigate why the City and the developer chose not to use on-site treatment for this large multiphase, multiyear development. It should be noted that the EPA Inspection Team was not able to investigate the thoroughness of the City’s analysis regarding pond inlet-outlet hydraulics, siltation, detention capacity, treatment performance, and conformance with the Permit requirements for post-construction controls. However, the EPA Inspection Team expressed concerns to the City regarding the potential impacts to the ponds resulting from an influx of sediment during site development and the applicability and appropriateness of using the ponds as the sole post-construction control for such a large development site. *The EPA Inspection Team recommends that the City and the RWQCB further evaluate the suitability and compliance of using the Teichert Ponds as a post-construction control for storm water treatment.*

Section 2.4 Pollution Prevention/Good Housekeeping

Part D.2.f of the Permit requires the City to “develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of reducing pollutant runoff from municipal operations.” Furthermore, “the program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet building maintenance, new construction and land disturbances, and storm water system maintenance.”

As stated above, City staff interviewed during the inspection appeared to have a general awareness of the existence of the City’s storm water program and issues relating to storm water pollution prevention. In addition, the staff appeared to have a general knowledge of how to respond and who to contact in the event of an illicit discharge to the storm sewer. The City also had an intensive street sweeping schedule and an effective leaf and litter removal program.

The EPA Inspection Team conducted site visits to the City’s Municipal Services Center (i.e., corporation yard) and the Chico Municipal Airport to evaluate the effectiveness of the City’s pollution prevention and good housekeeping practices at facilities that support municipal operations. The EPA Inspection Team also observed a City maintenance crew remove sediment and debris from a hydrodynamic separator BMP. Although the municipal facilities generally displayed good housekeeping practices and site conditions, the EPA Inspection Team noted several issues, which are discussed in further detail below.

City Facility Site Visit: Municipal Services Center (Corporation Yard). This facility is the City’s primary corporate yard, and it provides personnel offices, materials storage, and vehicle and equipment parking, maintenance, fueling, and washing. In addition, the City’s Fire Department conducts training activities and the Police Department stores physical evidence at the facility. The City submitted a Notice of Intent and received WDID 5R04I003207. The facility was designed with several effective BMPs, including overhead cover for fueling operations and materials storage, a vehicle wash rack that drains to the sanitary sewer, and two oil and grease separators through which storm water from the facility flows prior to discharge. However, during the inspection, the EPA Inspection Team observed that loose materials such as gravel, dirt, and tree debris were stored in uncovered, uncontained areas that were in close proximity to storm drain inlets that did not contain BMPs for inlet protection (see attached Photographs 27, 28 and 29). In addition, one of the garbage dumpsters on-site did not have a lid that could be closed in the event of precipitation, and the dumpster was located adjacent to a storm drain inlet without BMPs for inlet protection (see attached Photographs 30 and 32). It should be noted, however, that the inspection occurred before the official start of the rainy season and a City staff member explained that the tree debris would be disposed of before the rainy season began, the other stockpiles would be covered at the start of the rainy season (if they were still on-site), and the garbage dumpster lid would be replaced. The EPA Inspection Team also noted that two 55-gallon drums of cleaning chemicals were stored without secondary containment along the perimeter of the dedicated vehicle wash rack (see attached Photographs 31 and 32). One of the 55-gallon drums was located on the

outside perimeter of the wash rack, up-gradient of a storm drain inlet located to the southwest (see attached Photographs 31 and 32).

The City's Fire Department conducts training activities at the City's Municipal Services Center. The EPA Inspection Team observed an area with vehicles used for training purposes that have been wrecked, flipped on their sides, and the like (see attached Photographs 33 and 34). This area was adjacent to storm drain inlets and had spills of fluids from the vehicles, as well as glass pieces and other debris on the ground surface (see attached Photographs 33 through 36). As a result, there was a potential to contribute pollutants to storm water runoff and subsequently to the City's MS4. A Fire Department staff member stated that the Fire Department does not have written standard operating procedures (SOPs) or specific BMPs that are used during training activities to prevent illicit discharges to the MS4.

City Facility Site Visit: Chico Municipal Airport. The City owns and operates the Chico Municipal Airport, which provides services for commercial, private, and government aviation. The City had submitted a Notice of Intent and had received WDID 5R04I003206. The EPA Inspection Team observed three main areas for aircraft-washing activities at the Chico Municipal Airport facility. City staff explained that two of the aircraft-washing areas are used for cleaning private aircraft while the third area is used by the California Department of Forestry and Fire (CAL FIRE). A CAL FIRE staff member explained that the aircraft-washing and storage area used by CAL FIRE is plumbed to both the storm sewer system and an underground storage tank with a manually adjustable valve to control the destination of the flow (see attached Photograph 37). When aircraft are actively stored or washed in the area, the wash water flows to the underground storage tank. The storage tank is regularly pumped out, and the contents are hauled off-site for treatment or disposal. When aircraft are not stored or cleaned in the area, the drainage system is cleaned and the valve is adjusted to flow to the storm sewer system. The CAL FIRE staff member appeared to be knowledgeable of storm water issues and stated that CAL FIRE has developed and implemented written SOPs regarding the operation of the drainage system.

The other two aircraft-washing areas, which are primarily used for cleaning private aircraft, flow to nearby storm drain inlets and subsequently to the City's MS4 (see attached Photographs 38, 39 and 40). A City staff member stated that aircraft-washing activity typically involves the use of soap, although he was not sure how often aircraft washing is conducted at the facility. The discharge of wash water from aircraft-washing activities to the City's MS4 would constitute an illicit discharge.

The EPA Inspection Team also observed several chemical containers of a methanol/water mixture that were not stored within secondary containment and were located about 10–15 yards from and up-gradient of a storm drain inlet on one of the two private aircraft-washing areas (see attached Photographs 41 and 42). Furthermore, the EPA Inspection Team observed a disturbed area within the Municipal Airport site that was being used for vehicle parking and access to a paved parking lot adjacent to a building at the airport (see attached Photograph 43). Sediment had been tracked into the roadway, and BMPs had

not been implemented for tracking control or inlet protection for an adjacent storm drain inlet (see attached Photographs 44 and 45). Consequently, there was a potential for the discharge of sediment to the City's MS4.

Observation of City Maintenance Activity: Hydrodynamic Separator BMP Maintenance.

The EPA Inspection Team observed a City maintenance crew conducting routine maintenance on an underground hydrodynamic separator BMP at the intersection of Bancroft Drive and Wingfield Drive. The maintenance activity included removing sediment and debris from the three-chamber device with a vactor truck (see attached Photographs 46 and 47) and assessing the condition of the absorbent "pillows" in the chambers. The City maintenance crew members displayed a good general knowledge of the City's storm water program and how to identify and respond to an illicit discharge to the City's MS4. The maintenance crew tracks its maintenance activities with a paper form to record information about each activity, such as location, staff members involved, depth of sediment and debris in chambers, condition of absorbent pillows, and other observations or comments. The form completed for the activity that the EPA Inspection Team observed is included in this report as Exhibit 3. As explained by City staff, the information from these maintenance sheets is entered into a database that is used to track accumulation rates and will be used to determine whether the routine maintenance frequency is adequate or needs to be adjusted.

The City must ensure that adequate BMPs are implemented at municipal facilities to prevent the contribution of pollutants to storm water runoff. Specifically, the City must eliminate the potential for and occurrence of illicit non-storm water discharges to the City's MS4 from aircraft-washing activities at the Chico Municipal Airport. The EPA Inspection Team recommends that the City develop a BMP plan that includes written SOPs, training procedures and documentation, and pertinent signage or posted procedures for operations at municipal facilities and field operations to ensure that consistent and adequate training is provided to employees. Moreover, the City should actively consider the use of additional BMPs, including storm drain inlet protection BMPs, at municipal facilities where materials storage or activities are conducted adjacent to storm drain inlets (e.g., Fire Department training activities).

2.4.1. Need to Label Storm Drain Inlets at Municipal Facilities. According to BMP# PE I-A, listed in the City's SWMP, the City should require "100 percent of all new storm drain inlets to be stenciled" and "stencil 20 percent of existing storm drain inlets per year." The storm drain labeling program was to be initially implemented during 2004–2005, and therefore 100 percent of storm drain inlets should have been labeled by the end of the fifth year of implementation (2008–2009). The EPA Inspection Team observed several storm drain inlets at municipal facilities and other locations within the City limits that were not labeled or had labels that were no longer legible (see attached Photograph 48). As per BMP# PE I-A, the City must adequately label all storm drain inlets, including those at municipal facilities, to inform City staff and the public that the drains ultimately discharge directly to the City's waterways. Furthermore, the EPA Inspection Team recommends that the City develop a program to ensure that storm drains are

relabeled at an adequate frequency to increase the overall effectiveness of the storm drain labeling program.

2.4.2. Need to Develop Written Procedures for Pollution Prevention Activities.

Although the City's activities appeared to be adequate, the City does not have written SOPs for pollution prevention activities such as street sweeping, catch basin cleaning, hydrodynamic separator BMP maintenance, and closed-circuit television inspection of its storm sewers. As explained by City maintenance staff, training is typically provided on the job by other City staff members. City staff explained that resource constraints limit the extent of the City's storm sewer line and catch basin cleaning efforts. Therefore, catch basins are cleaned on about a 10- to 12-year return frequency and storm sewer lines are generally cleaned in response to flooding and excessive debris build-up. It should be noted that the City has about 150 contract maintenance districts within the City limits, of which about 75 percent include a storm water component, and maintenance activities are usually focused in the areas with designated funding. As described above, the City maintenance staff records information regarding hydrodynamic separator BMP maintenance. This information is compiled into a database in an effort to track debris, sediment accumulation rates, and absorbent pillow deterioration. The City's Public Works manager explained that the City maintains the hydrodynamic separator BMPs two times per year in accordance with the manufacturer's maintenance specifications. The compiled data will be used after several years to determine whether the maintenance frequencies are adequate.

The EPA Inspection Team recommends that the City develop written SOPs for pollution prevention activities to ensure that training and activities are performed adequately and consistently and to reduce the reliance on institutional knowledge. The EPA Inspection Team also recommends that the City continue its data collection efforts to determine appropriate maintenance frequencies of BMPs and other assets to ensure that resources are allocated as efficiently and effectively as possible.

2.4.3. Need to Develop and Implement a Program to Assess BMPs at City Facilities.

Part D.2.f of the Permit requires the City to "develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of reducing pollutant runoff from municipal operations." Although the City has a list of all municipal properties and facilities, it does not have SOPs or written procedures for assessing municipal operations for potential storm water impacts or tracking whether formal assessments have been conducted. Furthermore, the City does not have SOPs for implementing and maintaining BMPs at municipal facilities. The intention of pollution prevention practices is to reduce pollutants in storm water runoff from areas associated with municipal maintenance activities and from municipally owned or operated equipment yards and maintenance shops that support municipal operations. As described above, though overall municipal facility site conditions appeared good, the EPA Inspection Team identified concerns regarding aircraft washing at the Municipal Airport, chemical storage, and the lack of BMPs implemented in the area used for firefighting training activities.

The EPA Inspection Team recommends that the City develop and implement a program to assess the need for BMPs and BMP maintenance at City facilities to reduce pollutants in storm water runoff. The program should include inspection procedures, including a checklist and tracking mechanism, to ensure that consistent assessments of City facilities are conducted. The EPA Inspection Team recommends that the City conduct at least annual inspections of City facilities to assess the adequacy of BMPs implemented at the facilities.

Section 3.0 Additional Observations and Recommendations for Improved Storm Water Management by the City

3.1. Need to Evaluate Overall Effectiveness of Storm Water Management Program and Procedures for Annual Reporting

As required by Part F.1 of the Permit, the City must submit an annual report to the RWQCB that summarizes the activity of the City's program during the reporting period (July 1–June 30). The annual report must include the specific information required by Part F.1. (a)–(g) of the Permit. Part F.1.b of the Permit requires “an assessment of the appropriateness and effectiveness of the identified BMPs,” and Part 1.f.c requires a summary of the “status of the identified measurable goals [described in the SWMP].” Although the EPA Inspection Team did not perform a comprehensive review of the annual report, it did not appear that the City has thoroughly evaluated the effectiveness of individual storm water program components or the program as a whole.

The effectiveness portions of the annual report provide a small amount of information or data that could be used to measure effectiveness. For example, the effectiveness discussion for pollution prevention street-sweeping activities in Section E.6 of the annual report simply states that “street sweeping is an effective way to reduce trash and litter from getting into the storm drain system and therefore into the streams.” The City does not provide information regarding the amount of material collected by street-sweeping activities, which is thereby prevented from being discharged to waterways. Furthermore, City staff found the actual figure reported in the annual report for street sweeping to be incorrect. The annual report states that “on average, the City sweeps roughly 215 miles per year.” City staff stated that the statement should have read “215 miles every two weeks.”

It should be noted that the few program activity-related figures that the annual report provides do not provide any perspective on the amount of work possible. For example, Section E.6 of the City's annual report states: “During the past year City crews cleaned 108 storm water hydrodynamic separators, 123 manholes/catch basins/drywells, 350 drop inlets, 18,281 linear feet of storm drain line, and removed 395.75 cubic yards of debris.” The annual report does not provide a figure for how many hydrodynamic separator BMPs the City has (at the time of the inspection, City staff stated that there were about 120–130) or the total number of manholes, catch basins, drywells, drop inlets, and miles of storm sewer that are located within the City. Furthermore, the annual report reader must

assume that the figure provided for amount of debris removed pertains to all the structures that were cleaned; data are not provided for each activity. The annual report also fails to indicate whether the 18,281 linear feet of storm sewer line represents unique sewer line or a total figure including hotspot areas, which are cleaned more frequently. During the inspection, City staff stated that there are 227 miles (1,198,560 feet) of storm sewer in the City.

As another example, Section 4-5 of the City's SWMP describes the City's program for construction site storm water runoff control. It states that the number of construction site inspections performed and number of enforcement actions taken may be used "to measure the degree of Program Element implementation and activity effectiveness." It should be noted, however, that the section in the annual report for effectiveness of the construction site storm water control program simply states that "inspection and training are required so inspectors can determine whether BMPs are installed correctly"; it does not provide any numbers for inspections conducted or enforcement actions taken.

The EPA Inspection Team strongly recommends that the City reevaluate its current methodology for annual reporting and explore alternative methods to assess program implementation effectiveness. These could include both direct and indirect measures of success, which could be used to determine the program elements that provide the most benefit versus resource expenditure. The EPA Inspection Team also recommends that the City develop procedures for annual reporting to ensure that reported numbers and figures are accurate.

3.2. *Illegal Greenway Occupant Removal Program*

The City has implemented a program focused on removing illegal occupants from greenway areas in the City by means of organized efforts by the City's Code Enforcement and Police departments. Through this program the City has identified numerous human encampments along waterways in the City, forced the people to leave the greenway areas, and cleaned the associated trash from the sites. This program has directly prevented an unknown quantity of solids and other pollutants from being discharged to surface waters. *The EPA Inspection Team recommends that the City record data regarding trash and pollutant removal from greenway areas and include these activities in its annual report to the RWQCB.*

Appendix A Inspection Schedule

Agenda for MS4 Inspection of the City of Chico (September 23–25, 2009)

**Tentative Agenda for MS4 Program Evaluation
 of Chico, CA - September 23 – 25, 2009**

Day	Time	Program/Agenda Item	
Wednesday September 23, 2009	1:00 pm - 1:30 pm	Kick-off Meeting & Program Management Overview	
	1:30 pm - 2:30 pm	Construction Site Storm Water Runoff Control – Part D.2.d (Office)	
	2:30 pm - 3:30 pm	Post-Construction Storm Water Management in New Development and Redevelopment – Part D.2.e (Office)	
	3:30 pm - 4:30 pm	Pollution Prevention/Good Housekeeping for Municipal Operations – Part D.2.f (Office)	
	4:30 pm - 4:45 pm	Recap, Follow-up, and Logistics Planning for Thursday	
Thursday September 24, 2009	8:00 am - 9:30 am	Illicit Discharge Elimination Program – Part D.2.c (Office)	
	9:30 am - 12:00 pm	Pollution Prevention/Good Housekeeping for Municipal Operations – Part D.2.f (Field)	Construction and Post-Construction Storm Water Management in New Development and Redevelopment – Part D.2.d and e (Field)
	12:00 pm - 1:00 pm	Lunch Break	
	1:00 pm - 2:30 pm	Pollution Prevention/Good Housekeeping for Municipal Operations – Part D.2.f (Field)	Construction and Post-Construction Storm Water Management in New Development and Redevelopment – Part D.2.d and e (Field)
	2:30 pm - 4:00 pm	Illicit Discharge Elimination Program – Part D.2.c (Field)	
	4:00 pm - 4:30 pm	Recap, Follow-up, and Logistics Planning for Thursday	
Friday September 25, 2009	8:00 am - 10:00 am	Open Period for Additional Activities	
	10:00 am 11:00 am	Closing Conference	