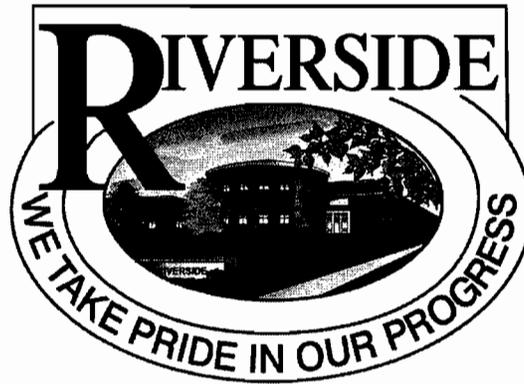


City of Riverside



MS4

Stormwater Management Program
Permit No MO.-R040007

A Storm Water Management Plan
of Implementation for
NPDES I Compliance
Using MDNR Guidelines
&
NPDES II Compliance Using
Six Minimum Control Measure Best Management Practices

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**CITY OF RIVERSIDE
BACKGROUND INFORMATION**

Information on the Permittee:

Name of the Permittee:	City of Riverside, Missouri
Type of Entity:	City – Municipality
Total Area (acres):	5.8 square miles
Mailing Address:	2950 NW Vivion Road Riverside, MO 64150
Primary Contact:	Jeffrey Rupp, Director of Public Works
Phone Number:	816-741-3993
Secondary Contact:	Meredith Hauck
Phone Number:	816-741-3993
Population (2000):	2,997

Information on the Municipal Separate Storm Sewer System:

MS4 System Location:	Riverside, Missouri
Name of Organization:	City of Riverside, Missouri
County of Permittee:	Platte County

Major Receiving Waters within Permitted Area:

Line Creek, Burlington Creek and the Missouri River
None of the receiving waters are on the latest CWA's list of impaired waters.

Information on Adjacent Waterways:

Permittee is within 100 feet of:

Line Creek, Burlington Creek and the Missouri River

The Permittee is not within 100 feet of waters classified as major reservoirs.

The Permittee has some area defined as wetlands as identified by the National Wetland Inventory (see attached map).

Stormwater from Riverside does not discharge to any known sinkholes.

**MISSOURI PHASE II MS4 STORM WATER MANAGEMENT PROGRAM
(SWMP) CHECKLIST**

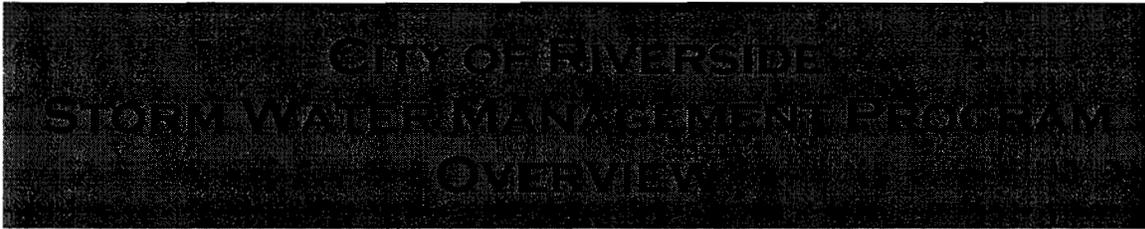
- 1) Does your MS4 have a separate, stand-alone, comprehensive program plan for each of the six minimum control measures (MCMs)? YES NO (could be just one large plan, but individual plans for each MCM are helpful.) **See Page 8**
- 2) What are the primary Public Education and Outreach (PEO) products, events and timelines for your MS4? **See Page 9**

- 3) What are the primary features of your Public Involvement and Participation (PIP) plan? **See Page 12**

- a) Does your PIP plan provide for direct public involvement and participation in the development of the SWMP, the development of related policies, regulations and plans, and the continued implementation and oversight of the SWMP? YES NO **See Page 12**
- 4) Does your MS4 have an illicit discharge ordinance that meets the intention and subsections of the permit? YES NO **See Page 14**
 - a) Do you have a storm sewer system map that includes outfalls and open conveyances? YES NO **See Page 14**
 - b) Does your Illicit Discharge Detection and Elimination (IDDE) program include a formal inspection plan and formal procedures for visual/field screening of outfalls and open conveyances? YES NO **See Page 14**
 - c) Do you have a formal IDD training program for municipal inspectors? YES NO **See Page 14**
 - d) Do you have a formal complaint and response program? YES NO **See Page 14**
 - e) Is IDDE addressed in your PEO program? YES NO **See Page 14**
- 5) Does your MS4 have a construction ordinance that meets the intention and subsections of the permit? YES NO **See Page 16**
 - a) Is it relatively as stringent as the State land disturbance permit? YES NO **See Page 16**
 - b) Does your construction program (CP) include a formal adoption or reference to a menu of preferred best management practices (BMPs) for contractors/developers? YES NO **See Page 16**
 - c) Does the CP include BMP training for contractors/developers/operators? YES NO **See Page 16**
 - d) Does the CP include a formal inspection plan, formal inspection protocol and an inspection schedule for oversight of the construction program? YES NO **See Page 16**
 - e) Does the CP include formal training for municipal inspectors? YES NO **See Page 16**
 - f) Do your municipal projects comply with these requirements, and are your projects included in the inspection program? YES NO **See Page 16**

- g) Does your CP include formal procedures for review and consideration of public input?
YES NO **See Page 16**
- h) Does your CP entail any certification requirements for SWPPPs? YES NO (this item is currently optional, but is a long-term objective for the program.) **See Page 16**
- 6) Does your MS4 have a post-construction ordinance(s) that meets the intention and subsections of the permit? YES NO **See Page 19**
- a) Which of the following ordinances does your post-construction program (PCP) include?
- i) Stream setback YES NO **See Page 19**
- ii) Overlay zoning ordinance or performance-based Planned Unit Development? YES NO **See Page 19**
- iii) General post-construction ordinance inclusive of i) & ii)? YES NO **See Page 19**
- iv) Other? _____ YES NO **See Page 19**
- b) Does your PCP include green space set asides? YES NO **See Page 19**
- c) Does your PCP easements and covenants for those set asides? YES NO **See Page 19**
- d) Does your PCP an inspection/audit plan? YES NO **See Page 19**
- e) Does your PCP inspector training for MS4 staff? YES NO **See Page 19**
- f) Does your PCP address small storm events and water quality? YES NO **See Page 19**
- g) Does your PCP and ordinance(s) tie back to your comprehensive plan? YES NO **See Page 19**
- h) Does your PCP include a formal adoption of BMPs for developer design/building teams? YES NO **See Page 19**
- i) Does your community planning review and approval process address post-construction practices at the beginning of design and review? YES NO **See Page 20**
- 7) Does your MS4 have a Pollution Prevention & Good Housekeeping in Municipal Operations (PPGH) program? YES NO **See Page 21**
- a) Does it include a list of all municipal operations? YES NO **See Page 21**
- b) Does it include a storm water scenario report for each operation? YES NO **See Page 21**
- c) Do you have a formal BMP training program for municipal employees? YES NO **See Page 21**
- d) Do you have formal inspection procedures and an inspection plan? YES NO **See Page 21**
- 8) Have you designated a primary person responsible for the entire MS4 program? YES NO **See Page 23**
- a) Have you designated and listed a responsible person for each separate responsibility of the program? YES NO **See Page 23**
- 9) Have you addressed/identified specific urban pollutants/sources in your individual program components as required by the permit? YES NO **See Page 9**
- a) Identified specific products/events? YES NO **See Page 9**
- b) Identified targeted audiences for specific products/events? YES NO **See Page 9**
- c) Identified accomplishment dates? YES NO **See Page 9**
- 10) Have you identified ongoing funding mechanisms/sources for your MS4 program? YES NO **See Page 23**
- a) Is your MS4 adequately staff to manage this program? YES NO **See Page 23**
- 11) Will your MS4 program be fully implemented and operational by March 9, 2008 or within five years of initial permit issuance)? YES NO **See Page 23**

- a) Do you have an implementation plan with defined action items and corresponding timelines (i.e. a schedule of implementation spread across the five-year permit period?)
YES NO **See Page 23**
- b) Are you implementing it? YES NO **See Page 23**
- c) Does your program include required measures of success for each MCM? YES NO
See Page 23
- d) Are you submitting annual reports by April 10 of each year? YES NO **See Page 23**



MS4 Checklist

- 1) Does your MS4 have a separate, stand-alone, comprehensive program plan for each of the six minimum control measures (MCMs)? YES NO (could be just one large plan, but individual plans for each MCM are helpful.)

Basis of Program

Riverside’s Storm Water Management Program is based on the six requirements of Phase II National Pollutant Discharge Elimination System (NPDES II):

1. Public Education and Outreach on Storm Water Impacts
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Storm Water Runoff
5. Post – Construction Storm Water Management in New Development and redevelopment.
6. Pollution Prevention/Good Housekeeping for Municipal Operations

The information on the following pages illustrates the requirements as well as the current and proposed projects for the six minimum measures.

1. Public Education and Outreach

Regulatory Requirement—“40 CFR 122.34 (b)(1) – Implement a public education program to distribute educational materials to the community of contact, equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps the public can take to reduce pollutants in storm water runoff.”

MS4 Checklist

2) What are the primary Public Education and Outreach (PEO) products, events and timelines for your MS4?

Informational Flyers (monthly, quarterly since 2003), Stormwater Quality Web Page (9/2008), Educational Questionnaire (12/2008), Presentations to Community Groups (12/2009), Developing a Builders Handbook for Stormwater Management (12/2009).

- 9) Have you addressed/identified specific urban pollutants/sources in your individual program components as required by the permit? **YES** **NO**
- a) Identified specific products/events? **YES** **NO**
- b) Identified targeted audiences for specific products/events? **YES** **NO**
- c) Identified accomplishment dates? **YES** **NO**

Current Projects

The City of Riverside participated in the MARC “Good Neighbors Care About Clean Water” program and distributed the following informational flyers since 2003 in monthly and quarterly newsletters.

- How To Build A Rain Garden
- Know Your Roots
- Conserve Water with a Rain Barrel
- How To Disconnect Your Downspout
- Know Your Soil
- Know Your Watershed
- Keep Sediment Out of Our Water
- Ten Natives For Kansas City
- Making and Using Compost
- Oil and Water Don't Mix
- Pick Up After Your Pet
- Protect Our Streams
- Stormdrain Stewardship
- Use Lawn Chemicals Wisely
- Wash Your Car The Right Way

City of Riverside staff mailed flyers, "Making and Using Composting" to every single-family resident within the City of Riverside City Limits once since 2003.

Contractors are provided technical assistance for BMP requirements.

Identified urban pollutants as the following:

- A) Suspended solids
- B) Oil and grease
- C) Pesticides/Herbicides
- D) Bacteria/Nutrients/Oxygen-depleting substances
- E) Habitat alterations
- F) Salinity (salt)

Proposed Projects for Minimum Control Measure #1 – Public Outreach/Education

Activity	Responsible Person	Goal	Accomplished
Obtain brochures from MARC and place at City Hall and Library, replenish as necessary	Director of Public Works	On-going	
Create web page for stormwater quality information with links to MARC pages	Director of Public Works	9/1/2008	
Include stormwater web page on utility bills	Director of Public Works	Twice/year starting 9/1/2008	
Include a stormwater segment in the Citizens Newsletter	Director of Public Works	Ongoing	
Press releases	Director of Public Works	Twice/year starting 9/1/2008	
Develop questionnaire and informational cover letter for distribution	On-call city engineer	12/31/2008	
Review MARC community survey	On-call city engineer	Biannually	
Distribute educational information at community event (i.e. – Riverfest)	Director of Public Works	Annually	
Develop list of direct mail target audiences/topics	Director of Public Works	12/31/2009	
Mail information to target audience	Director of Public Works	Annually starting 12/31/2009	
Develop a Builder’s Handbook which includes the importance of stormwater management during and after the development process	Director of Public Works	12/31/2009	
Develop presentation for adult and children audiences	On-call city engineer	12/31/2009	
Give presentation to local community group or school	On-call city engineer	Twice/year starting 12/31/2009	
Determine possible demonstration project and resources needed to complete	Director of Public Works	9/1/2008	
Complete demonstration project	Director of Public Works	Annually	

2. Public Involvement/Participation

Regulatory Requirement—“40 CFR 122.34 (b)(2) -At a minimum, comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program. *EPA recommends that the public be included in developing, implementing, and reviewing your storm water management program and that the public participation process should make efforts to reach out and engage all economic and ethnic groups*”.

MS4 Checklist

- 3) What are the primary features of your Public Involvement and Participation (PIP) plan? “Stormwater Issues and Discussion” will be placed on Board of Aldermen/Planning and Zoning agenda (2/2008), Opportunity for citizen input on web page (12/2008), Develop and sponsor activities where citizens can be involved (4/2009).
- a) Does your PIP plan provide for direct public involvement and participation in the development of the SWMP, the development of related policies, regulations and plans, and the continued implementation and oversight of the SWMP? **YES** **NO**

Current Projects

Volunteers participate by stenciling “Don’t Pollute Drains to Stream” on storm inlets

Contractors are provided with technical assistance for BMP requirements through:

- a) Written materials
- b) Staff meetings
- c) Public input via Board of Aldermen and Planning & Zoning Commission meetings

Proposed Projects for Minimum Control Measure #2 – Public Involvement

Activity	Responsible Person	Goal	Accomplished
Include information regarding how to become involved in MARC programs on website, in brochures and in press releases	Director of Public Works	Ongoing	
Add stormwater information to citizen input web page	Director of Public Works	12/31/2008	
Place “stormwater issues and discussion” on Board agenda	Director of Public Works	Twice/year; starting 3/31/2008	
Place “stormwater issues and discussion” on P&Z agenda (specifically as related to new or re-development)	Director of Public Works	Twice/year; starting 3/31/2008	
Follow all routine notice requirements for public meetings	Director of Public Works/Director of Planning and Development	Ongoing	
Develop and update community group contact list	Director of Public Works	12/31/2008; ongoing	
Develop and update list of activities for citizens to be involved with (i.e. – storm drain stenciling, stream cleanups, water quality monitoring)	Director of Public Works	12/31/2008; ongoing	
Obtain supplies for citizen involvement activities	Director of Public Works	Ongoing	
Reach out to community groups for participation in activities	Director of Public Works	12/31/2008; annually	
Sponsor general public involvement activity	Director of Public Works	4/1/2009; ongoing	

3. Illicit Discharge Detection and Elimination

Regulatory Requirement—“40 CFR 122.34 (b)(3) -Develop, implement, and enforce a program to detect and eliminate illicit discharges into your small MS4. Develop a storm sewer system map, showing the location of all outfalls and the names and locations of all water of the U.S. that receive discharges from those outfalls. To the extent allowable under state, tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions. Develop and implement a plan to detect and address non-storm water discharges including illegal dumping to your system. Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste. Address categories listed in 122.34(b)(3)(D)(iii) if you determine they are significant contributors of pollutants to MS4.”

MS4 Checklist

- 4) Does your MS4 have an illicit discharge ordinance that meets the intention and subsections of the permit? YES NO --**ordinance exists in chapter 703 of Riverside Municipal Code, but not all subsections below have been met.**
- a) Do you have a storm sewer system map that includes outfalls and open conveyances? YES NO --**planned completion by 12/2008**
- b) Does your Illicit Discharge Detection and Elimination(IDDE) program include a formal inspection plan and formal procedures for visual/field screening of outfalls and open conveyances? YES NO --**planned completion by 12/2009**
- c) Do you have a formal IDD training program for municipal inspectors? YES NO --**planned completion by 12/2009**
- d) Do you have a formal complaint and response program? YES NO --**planned completion by 12/2008**
- e) Is IDDE addressed in your PEO program? YES--**there will be opportunity for comment by 12/2008** NO

Current Projects

Staff is available to log complaints or answer questions.

Complaints are logged and actions taken to ensure compliance with erosion control requirements by various City personnel

Proposed Projects for Minimum Control Measure #3 - IDDE

Activity	Responsible Person	Goal	Accomplished
Complete mapping of storm sewer system	On-call city engineer	12/31/2009	
Update mapping of storm sewer system	On-call city engineer	Ongoing	
Utilize GIS to identify "major outfalls"	On-call city engineer	1/31/2010; review annually	
Field screen all major outfalls	Director of Public Works	20%/year or all once/permit cycle	
Draft IDDE Ordinance	Director of Public Works	12/31/2009	
Finalize IDDE Ordinance and take to Board	Director of Public Works	1/10/2010	
Document investigations or enforcement actions	Director of Public Works	Ongoing; report annually	
Evaluate detection program requirements, resource and training needs	Director of Public Works	9/1/2008; review annually	
Acquire needed training and/or resources for detection program	Director of Public Works	12/31/2009; review annually	
Public education on IDDE (see MCM #1); also considered educational component with MCM #2	Director of Public Works	Ongoing	
CCTV/Smoke Testing to identify cross-connection between sanitary and storm sewers	Director of Public Works	Ongoing	
Household Hazardous Waste (HHW) Program	Director of Public Works	Ongoing	
Draft pet waste ordinance and take to Board	Director of Public Works	12/31/2009	
Assess availability of trash receptacles and pet waste removal materials at City parks and along trails	Director of Public Works	6/1/2010	
If necessary, meet with commercial car wash owners & determine best method for disconnection	Director of Public Works	12/31/2008	
Eliminate commercial car wash waste water from MS4	Director of Public Works	12/31/2009	

4. Construction Site Stormwater Runoff

Regulatory Requirement—“40 CFR 122.34 (b)(4) -Develop, implement and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Program must include: the development and implementation of (at a minimum) and ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, requirements for construction site operators to implement appropriated erosion and sediment control BMPs, requirements for construction site operators to control waste at the construction site, procedures for site plan review which incorporate consideration of potential water quality impacts, procedures for receipt and consideration of information submitted by the public.”

MS4 Checklist

- 5) Does your MS4 have a construction ordinance that meets the intention and subsections of the permit? YES NO
- a) Is it relatively as stringent as the State land disturbance permit? YES NO
- b) Does your construction program (CP) include a formal adoption or reference to a menu of preferred best management practices (BMPs) for contractors/developers? YES--in chapter 400.860.B.7 of Riverside Municipal Code NO
- c) Does the CP include BMP training for contractors/developers/operators? YES NO
- d) Does the CP include a formal inspection plan, formal inspection protocol and an inspection schedule for oversight of the construction program? YES NO
- e) Does the CP include formal training for municipal inspectors? YES NO
- f) Do your municipal projects comply with these requirements, and are your projects included in the inspection program? YES NO
- g) Does your CP include formal procedures for review and consideration of public input? YES NO
- h) Does your CP entail any certification requirements for SWPPPs? YES NO (this item is currently optional, but is a long-term objective for the program.)

Current Projects

Erosion Controls are required for “every” land disturbance in Riverside (regardless of disturbed area).

Building Inspectors conduct inspections for silt fence and other BMP’s.

Construction Wastes must be controlled on site by Contractors

City of Riverside created a Stormwater Pollution Prevention Plan (SWPPP) guide that outlines specific instructions for developers and their engineers.

Field inspections are to be accomplished periodically for every development site and every building site where grading or excavation occurs and erosion or siltation control measures must be maintained.

Every building site where grading or excavation occurs is required to implement erosion control measures which must be maintained.

Wastes must be controlled by contractors on construction sites.

Public and/or City personnel may submit complaints to Code Enforcement Officers. These complaints are logged on Advisory/Problem Sheets for follow-up actions. A siltation erosion control call-line is available for public filing of complaints.

Erosion-siltation controls monitoring by City staff

- Inspections of sites 2010 – 2012.
 - b. Compliance
 - c. Notifications of violations
 - d. Corrections and/or maintenance actions
 - e. Amount of silt fence erected

Proposed Projects for Minimum Control Measure #4 – Construction Site Runoff

Activity	Responsible Person	Goal	Accomplished
Draft amendments to ordinance for ESC and other construction waste control	Director of Public Works	9/1/2008	
Take amendments to Board	Director of Public Works	10/1/2008	
Update the SWPPP guide	Director of Public Works	2/1/2010	
Review and draft any needed amendments to policies and procedures for design review, inspection and enforcement	Director of Public Works	2/1/2010	
Implement modifications	Director of Public Works	3/1/2010; review annually	
Educational efforts for construction site runoff control for public, employees and developers/contractors	Director of Public Works	Ongoing	
Receive public input (P&Z, Board, Citizen Input web page)	Director of Public Works	Ongoing; report annually	
Enforce ESC/construction waste control on job sites and document inspections and citations	Director of Public Works	Ongoing; report annually	

5. Post Construction Stormwater Management for New Development/Redevelopment

Regulatory Requirement—“40 CFR 122.34 (b)(5) –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, including projects that are less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for your community. Use an ordinance or other regulatory mechanism to address post-construction runoff. Ensure adequate long-term operation and maintenance of BMPs.”

MS4 Checklist

- 6) Does your MS4 have a post-construction ordinance(s) that meets the intention and subsections of the permit? YES NO **--planned completion by 12/2008**
- a) Which of the following ordinances does your post-construction program (PCP) include?
- i) Stream setback **YES--in chapter 400.920 of Riverside Municipal Code** NO
 - ii) Overlay zoning ordinance or performance-based Planned Unit Development? **YES--in chapter 400.380 of Riverside Municipal Code** NO
 - iii) General post-construction ordinance inclusive of i) & ii)? **YES--in chapter 400.880 of Riverside Municipal Code** NO
 - iv) Other? _____ YES NO
- b) Does your PCP include green space set asides? **YES--in chapters 400.380 and 400.890 of Riverside Municipal Code** NO
- c) Does your PCP easements and covenants for those set asides? **YES--in chapters 400.240, 400.860 and 400.880 of Riverside Municipal Code** NO
- d) Does your PCP an inspection/audit plan? YES NO **--planned completion by 12/2008**
- e) Does your PCP inspector training for MS4 staff? YES NO **--planned completion by 12/2008 (MCM #6)**
- f) Does your PCP address small storm events and water quality? **YES--in chapter 703 of Riverside Municipal Code** NO
- g) Does your PCP and ordinance(s) tie back to your comprehensive plan? **YES--in chapter 400.920 of Riverside Municipal Code** NO
- h) Does your PCP include a formal adoption of BMPs for developer design/building teams? YES NO

- i) Does your community planning review and approval process address post-construction practices at the beginning of design and review? YES
 NO

Current Projects

Storm water detention ordinance. 6/17/03

Stream setbacks ordinance adopted 12/19/06

Field inspections are accomplished after every rain and during routine inspections for every development site and every building site where grading or excavation occurs.

Proposed Projects for Minimum Control Measure #5 – Post Construction

Activity	Responsible Person	Goal	Accomplished
Draft and enact any needed ordinance or ordinance modifications	Director of Public Works	Ongoing	
Inventory existing BMPs and determine ownership/maintenance responsibility	Director of Public Works	12/31/2009; update annually	
Draft requirements for long term operation and maintenance of BMPs	Director of Public Works	12/31/2009	
Outreach to BMP owners of drafted requirements	Director of Public Works	3/1/2010; ongoing	
Finalize requirements for long term operation and maintenance of BMPs and present to Board	Director of Public Works	4/1/2010	
Inspection of long term structural BMPs	Director of Public Works	Ongoing	

6. Pollution Prevention/Good Housekeeping for Municipal Operations

Regulatory Requirement—“40 CFR 122.34 (b)(6) Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

A public works salt control barn was erected in 2003.

MS4 Checklist

- 7) Does your MS4 have a Pollution Prevention & Good Housekeeping in Municipal Operations (PPGH) program? YES NO
- a) Does it include a list of all municipal operations? YES NO **planned completion by 4/2010**
- b) Does it include a storm water scenario report for each operation? YES NO **planned completion by 4/2010**
- c) Do you have a formal BMP training program for municipal employees? YES NO **planned completion by 12/2008**
- d) Do you have formal inspection procedures and an inspection plan? YES NO **planned completion by 12/2008**

Current Projects

Street Sweeping of the entire street system seasonal monthly.

Clean identified storm inlets.

Clean Storm water lines as required annually.

Proposed Projects for Minimum Control Measure #6 – Good Housekeeping

Activity	Responsible Person	Goal	Accomplished
Develop list of employee training topics	Director of Public Works	12/31/2008	
Employee training	Director of Public Works	Ongoing starting 12/31/2008	
Distribute educational materials	Director of Public Works	See MCM #1	
Review all departments' activities for stormwater pollution potential	Director of Public Works	12/31/2009	
Draft policies for departments' materials handling/storage, fleet maintenance, salt application, cleanup of salt spreaders, vehicle washing, etc.	Director of Public Works	1/31/2010	
Meet with staff to discuss policies; Finalize and incorporate into training and new employee orientation	Director of Public Works	4/1/2010; ongoing	
Cleaning of City parking lots	Director of Public Works	Ongoing	
Litter removal from public rights-of-way	Director of Public Works	Ongoing	
Street sweeping	Director of Public Works	Ongoing	
Used oil recycling	Director of Public Works	Ongoing	
Inspection of construction site BMPs	Director of Public Works	Ongoing	
Stream inspections and maintenance efforts as required	Director of Public Works	Ongoing	

Overall Compliance with Permit Conditions

MS4 Checklist

- 8) Have you designated a primary person responsible for the entire MS4 program?
 YES NO
- a) Have you designated and listed a responsible person for each separate responsibility of the program? YES NO
- 10) Have you identified ongoing funding mechanisms/sources for your MS4 program? YES NO
- a) Is your MS4 adequately staff to manage this program? YES NO
- 11) Will your MS4 program be fully implemented and operational by March 9, 2008 or within five years of initial permit issuance)? YES NO
- a) Do you have an implementation plan with defined action items and corresponding timelines (i.e. a schedule of implementation spread across the five-year permit period?) YES NO
- b) Are you implementing it? YES NO
- c) Does your program include required measures of success for each MCM? YES NO
- d) Are you submitting annual reports by April 10 of each year? YES NO

1. Appropriateness of the identified BMP's:

It appears that all BMP's are working properly. With an added inspector in the Building Codes Department in 2006, increased inspection efforts and communication with builders has occurred.

2. Progress towards achieving the statutory goal of reducing the discharge of pollutants to the maximum amount practicable.

The City of Riverside is meeting this goal. With the yearly updates of the sewer map the storm sewer infrastructure will be monitored through inspections and maintenance. An asset inventory is being prepared from this in field investigation using ArcView. The 11 points of the program seem to be working well and further improvement in 2007 and beyond through continued evaluation. The City believes it has met the requirements and will continue to run the program in the most practical way possible.

Review of Program Functionality:

1. Riverside assesses whether it is achieving the statutory goal of reducing the discharge of pollutants to the maximum amount practicable.

2. Make annual reviews and update the program as funding becomes available and as various needs arise to improve water quality program.
3. Appropriateness of the identified BMP's: It appears that all BMP's are working properly; however, some BMP's are working better than others. This will cause revisions to written instructional documents mentioning required usage of certain BMP's.

Proposed Changes to the Program Area.

New ordinances will be submitted to MDNR for review prior to passage by the Board of Aldermen. These ordinance revisions will cite the "Technical Specifications, Design Criteria and Procedures For Public Works Actions" which will contain the storm water program. More definitive BMP's will be included.

Some program adjustment is required to better define departmental roles and functions pertaining to the Stormwater Program. Additionally, some developer/contractor education materials and programs will be more fully developed.

These improvements have been identified to be:

- Revise program with additional ordinances providing system updates.
- Prepare an internal document that indicates all inter-departmental stormwater management operations.
- Create a systemic flowchart of Program functions and Responsibilities.
- Create Developer/Builder handbooks with educational materials and hold at least an annual Developers/Builders meeting for education and program updates.
- Make annual reviews and update the program as funding becomes available and as various needs arise to improve water quality program.
- Funding Source—Public Works Operational Budget
- Required Measures for Success
- Annual Reporting to MDNR by April 10

NOTE: A complete list of proposed changes is shown at the end of each MCM section

Plan Implementation Responsibility: City of Riverside, Director of Public Works

No other entity is relied upon to meet our program goals.

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Plan Submissions

ADOPTED SPECIFICATIONS AND DESIGN CRITERIA

The City of Riverside technical specifications, the latest edition of the American Public Works Association Specifications and Design Criteria, and Riverside Municipal Code shall govern construction of any site or development project. In case of any conflict between codes the most restrictive code shall apply.

1. Stormwater Plan adopted by ordinance: Section 400.860; 703.020; 703.100
2. Stream Buffer and Stream Setback Ordinance Section 400.920
3. Adoption of American Public Works Association Standard Specifications and Design Criteria. 400.820; 400.2504b5c; 400.250.5fiii
 - Fifty Foot Stream Setback -Section 400:930 C 8:a
 - Measured from: Ordinary High Water Mark APWA 5605.3b2
4. Land Disturbance Regulations Section 400:930
 - Adoption of American Public Works Association Standard Specifications and Design Criteria Erosion and Sediment Control Manual.
 - Land Disturbance Permit Applications Section 400:260
5. Levee Critical Area Regulations Section 400:910
 - Critic zone identified : 350 feet riverward and 500 feet landward
 - Regulations are Corps of Engineers guidelines and rules for Federally Constructed Flood Control Project.
6. Detention Ordinance
 - Adopted by ordinance Section 703.100
 - Regulates the 1,10, 1000 year storm events to not exceed the pre-development peak flow rate as specified within APWA specifications 5601.5.
7. Illicit Discharge Ordinance Section 703.020; 703.060
8. Construction and Post Construction stormwater runoff regulated by Municipal Ordinance Section 703.100.

A. Introduction. The following criteria have been established to provide a uniform system of plan preparation that will aid the Engineer in preparing plans for the work within the City of Riverside. It is not intended that the criteria be an iron-clad set of rules that would restrict the Engineer from utilizing imaginative design; however, all items as described below shall be shown on the plans in some manner.

B. General. All plans and specifications for public improvement construction within either publicly or privately financed developments shall be prepared by a qualified professional engineer licensed in the state of Missouri and submitted to the office of the Director of Public Works for review.

Upon completion of the review and approval of the plans by the Director of Public Works, five sets of plans (as approved) must be submitted for signing and distribution:

Director of Public Works----- 2 sets (1 full set and 1 half size)
Design Engineer ----- 1 set
General Contractor----- 2 sets

In addition, one set of approved plans shall be sent to each of the utilities providing service within the proposed construction area.

The suggested plan sheet size is 22" x 34" or 24" x 36" with all sheets in a given set of plans being of the same size. Plan and profile shall be drawn on double or single plan and profile sheets to scales of one (1) inch equals ten (10) feet, unless otherwise approved by the Director of Public Works for special cases.

The plans shall consist of:

1. Title Sheet
2. General Layout Sheets
3. Plan and Profile Sheets
4. Cross-Section Sheets (Street Improvement plans only unless otherwise required by the
Director of Public Works.)
5. Standard and Special Detail Sheets

Each sheet should contain a sheet number, including the individual sheet number and the total number of sheets, the engineer's seal, proper project identification, and date.

Street plans, storm drainage plans, sewer plans and street lighting plans shall be submitted in separate sets, with each set clearly showing the other public improvements, (and utilities if applicable) in a de-emphasized manner. Separate

bonds will be required for each segment of public improvement.

C. Title Sheet. The following items shall be included on the title sheet:

1. Name of project (development name, street name, etc.)
2. City project number (when applicable)
3. Index of sheets included in the plans
4. A location map adequately showing project location in relation to major streets at a
scale no smaller than 1' = 1000'
5. A summary of plan quantities of principal items, such as:
 - *length of curb and gutter, square yardage or tonnage of asphaltic concrete pavement, etc. (streets)

 - *Pipe sizes and lengths, number of inlets, etc. (storm sewers)
6. The project control benchmark shall be identified as to location and elevation;
USGS datum.
7. Name, address, and telephone number of the consulting engineer, owner/developer,
and signature and seal of the responsible consultant shall be included.
8. A list containing name and telephone number of each utility company.
9. A signature block for the signature of the Director of Public Works and the date of such signing. The general form of the signature block shall be as follows:

APPROVED

Director of Public Works

Date

Approved from one year from this date.

D. General Layout Sheet

The following items shall be included on the General Layout Sheet for all improvement projects.

1. A legend of symbols shall apply to all sheets.
2. North Arrow and scale. Scale of the general layout map shall be 1 inch = 100 feet unless otherwise approved.
3. Existing contour lines at acceptable intervals as determined by the Director of Public Works, but in no case greater than 5' intervals.
4. Layout shall include name(s) of subdivision(s), block designation, if any, lot designation, or proposed block and lots, all street names, and an accurate tie to at least one (1) quarter section. An un-platted tract shall have an accurate tie to at least one (1) quarter section.
5. Boundary line of project shall be shown.
6. A list of notes to the contractor shall include at least the following notes to the contractor:
 - A. Development plans and drainage reports are initially approved for one (1) year after which they automatically become void and must be updated and re-approved by the Director of Public Works before any construction may be permitted. This period of one year requirement may only be exempted for projects exceeding 100 acres in project scope and must have initial approval by the Director of Public Works for a longer period of time not to exceed two full years from the initial date of approval.
 - B. The City of Riverside *plan review* is only for general conformance of the City of Riverside technical specifications, the latest edition of the American Public Works Association, and Riverside Municipal Code. Through approval of these documents the City is not responsible for the accuracy and adequacy of the design, or dimensions and elevations which shall be confirmed at the job site. The City assumes no responsibility other than stated above.
 - C. The Contractor shall have one (1) signed set of approved plans (approved by the City of Riverside) at the job site at all times.
 - D. Construction of the improvements shown or implied by this set of drawings shall not be initiated or any part thereof undertaken until all bonds and permit fees are paid to the City of Riverside and the Public Works Director is notified of such intent.

E. The City of Riverside technical specifications, the latest edition of the American Public Works Association, and Riverside Municipal Code shall govern construction of this project. In case of any conflict between codes the most restrictive code shall apply.

F. All existing utilities indicated on the drawings are according to the best information available to the Engineer; however, all utilities actually existing may not be shown. Utilities damaged through negligence of the Contractor to obtain the location of the same shall be repaired or replaced by the Contractor at his expense.

G. All backfill shall be tamped and compacted as specified on the plans in accordance with the City of Riverside codes.

H. Any excavation beneath streets for drainage pipe larger than 4'0" diameter shall be backfilled with CA-5 rock to 4' back of curb.

I. Sidewalks are shown on the plans for information purposes only except where noted. Although the sidewalk may be constructed by others, and not part of this project, the curb must be laid down properly for wheelchair ramp construction.

J. The contractor shall not be allowed to work on Saturday or Sundays or Holidays. Saturday work may be considered for approval by special request to the Director of Public Works in writing.

K. All telephone lines, gas mains, (unless to be installed by boring), waterline mains, sanitary sewer mains, and stormwater drainage crossings under proposed street pavements shall be in place or a casing pipe provided for future installation prior to the placement of asphalt base and surface courses.

L. Siltation control measures shall be in place prior to the disturbance of the ground.

These notes are not meant to be all-inclusive, and in certain instances additional notes may be required by the Director of Public Works.

In addition, the following items shall be included on the general layout sheet:

1. Drainage basin boundary line for the drainage basin encompassing the project area.
2. All existing established drainage channels located on the site or abutting the property line shall be shown. The channel centerline, top of banks, and the limits of the 100 year storm runoff shall be indicated.
3. Drainage calculation summary table containing the following information:
 - * Pipe Size and Slope
 - * Pipe Capacity
 - * Velocity
 - * Time of Concentration
 - * Runoff Coefficient
 - * Incremental tributary acreage
 - * Accumulative acreage
 - * Rainfall Intensity

Note: Provide for side yard swale over pipe having a capacity to carry the 50 year storm runoff. Pipe must extend to the receiving channel, appurtenance, or to the property line.
4. Detention calculation summary table containing the following information:
 - * Total Site Area (acres)
 - * Design Storm Frequency
 - * Runoff coefficient (both pre- and post development)
 - * Allowable release rate (CFS)
 - * Required Storage Volume (Cu. Ft.)
 - * Storage volume at design pool elevation
 - * Emergency spillway flowline elevation, width, and flow when passing the 100 year storm (design depth).
 - * Elevation of top of settled embankment - must have 1 ' freeboard
5. Details of the detention basin emergency spillway and controlled outlet pipe along with a section through the detention basin.
7. If the design Engineer determines that detention will not be necessary for a particular development, he shall submit a Stormwater study and report

summarizing the details of the study and request to the Director of Public Works a waiver per APWA 5601.6 standard.

8.

Whenever homes, buildings, or other structures are flooded downstream from a proposed development in a one hundred year or smaller flood, or where flood damage areas have been identified, or an engineering study indicates the proposed development would cause or increase such flooding, stormwater detention facilities shall be constructed;

Exceptions are when such flooding occurs within the limits of the one hundred year flood on lower reaches of the main channel of major streams as established by the current federal Flood Insurance Study; and when such development is a single family or multi-family residential lot of one-half acre or less and not part of a larger development.

Stormwater Detention

Plans, specifications, and calculations.

Based on design criteria in this chapter, plans and specifications shall be submitted to the Director of Public Works for approval prior to any building permit being issued, grading or land disturbance permit, or the beginning of any construction.

Stormwater Runoff Not Detained

The rate of discharge from a detention facility and the rate of discharge of stormwater runoff from areas of the development not controlled by the detention facility shall not collectively exceed the maximum release rate established in APWA 5601.5.

Construction

Standards for construction of inlets, pipes, manholes, paved ditches, and other detention appurtenances shall be in accordance with the most current edition of APWA standards, unless otherwise designated by the Director of Public Works.

If slopes for wet or dry detention basins exceed twenty percent, both erosion control and safety measures shall be provided. In no case shall earthen slopes exceed thirty-three percent. If vertical walls are used, the basin must be fenced, with steps, ramps or other means of egress provided.

Wet detention facilities shall have an outlet works consisting of valves, gates, pipes, or other devices necessary to completely drain the facility in seventy-two (72) hours or less when required for maintenance.

Easements and Maintenance

Maintenance of private detention facilities shall be the responsibility of the property owner and shall include:

Debris removal and cleaning, cutting of vegetation, repair of erosion, removal of silt and maintenance of structural facilities.

Maintenance of public detention facilities shall be the responsibility of the City of Riverside, and permanent easements shall be dedicated to the City and sized according to the latest edition of APWA.

Storm Drainage

Detailed alignment of the storm sewer, appurtenances, sizes of line, capacity, and other details relating to the storm drainage system including inlet station, top and invert elevations.

Proper ties into existing and permanent facilities.

Distances between the storm sewer and other existing or future utilities within the right-of-way or drainage easement.

Drainage channel or pipe flow-line, elevations and percent (%) of grade.

Existing and proposed street grades.

Proper elevations for existing outfall ditches.

Locations of all bends and appurtenances.

Show size of line and the capacity of each line on the profile.

Angles for storm sewer lines shown on plan view.

Show the 100 year floodplain limits of any streams or rivers

Cross-Section Sheets

The following items shall be included on the cross-section sheets:

Street cross-section at each station showing existing grade by dashed lines and proposed grade by a solid line. Cross-sections to show grade lines a minimum of ten (10) feet beyond right-of-way lines, at fifty foot (50) intervals or less.

Centerline elevation of top of pavement.

Cross-sections shall be shown at all intersecting streets and driveways.

Channel cross –sections shall be shown for all channel improvements.

Other cross-sections may be required to clearly show the extent of the grading operations.

Standard and Special Detail Sheets

Detail sheets shall be included to show all details of appurtenances, materials, and construction necessary to construct the improvement whether or not covered by APWA or the City of Riverside Technical Specifications and Ordinances.

Construction Record Drawings

Construction Record Drawings showing the “AS Built” conditions shall be submitted to the Public Works Director upon completion of the project. A set of “marked up” field drawings showing the changes to the design and 1 set of revised as built plans with each page marked “Conforming to Construction Records shall be submitted to the Director of Public Works.

The Director of Public Works will forward a recommendation of final acceptance of the Public Improvements to the Board of Aldermen for consideration after a letter is submitted to the Director from the Developer or his Engineer requesting that the improvements be accepted with accordance to the maintenance bonds (of which a copy should be attached).

LAND DISTURBANCE PERMIT APPLICATIONS AND REQUIREMENTS

This Section sets out the required review procedures and review criteria for a land disturbance permit application.

1. *Permit required.* Except as herein provided, no galling, clearing, excavation, filling storage or disposal of soil and earth materials or any other land-disturbing activity shall occur on any site without first obtaining a land disturbance permit from the City.
 2. *Exemptions.* Except for any site disturbing or grading in anticipation of or in preparation for construction of buildings or any construction or development that would require rezoning, a special use permit, development plan approval or amendment or platting, a site disturbance permit shall not be required in the following instances:
 - a. *Land disturbances less than one (1) acre but greater than three hundred (300) square feet.* The land-disturbance activity shall comply with the City's adopted standards and the person shall install erosion and sediment control measures.
 - b. *Land disturbances less than or equal to three hundred (300) square feet which are not disturbing a natural drainage course.* The land-disturbance activity does not have to comply with the City's adopted standards, however, the activity is subject to the City's nuisance (Chapter 215) and solid waste (Chapter 225) codes.
 - c. *Land-disturbance activities by City departments.* The City shall comply with the requirements of the City's general permit issued by the State and, if applicable, the City's adopted standards and the City's Building Code.
 - d. *Home gardens.* Home gardening operations including plowing or tilling of land for the purposes of growing flowers and/or vegetables.
 - e. *Work to correct or remedy emergencies.* This includes situations that pose an immediate danger to life or property or substantial flood or fire hazards.
 - f. *Routine agricultural crop management practices.*
3. *Relationship to other applications.* Grading in preparation for any development requiring the approval of a rezoning, special use permit, platting or development plan application shall be consistent with such proposed application. A land disturbance permit shall not be issued until such rezoning, special use permit, platting or development plan application has been approved.

4. *Application submittal requirements.* All land disturbance permit applications shall include the following:

- a. A completed application form.
- b. A non-refundable fee as established in Section 400.1110 Schedule of Fees.
- c. Legal description of the subject property.
- d. A map depicting the general location of the subject property and all surrounding land within one hundred (100) feet from the subject property, including the names of the property owner.
- e. Description of the proposal.
- f. Contoured development map showing existing contours of the site and adjoining strips of non-site property and proposed contours after completion of the proposed grading and development, based on United State Geological Survey datum, with established elevations at buildings, walks, drives, street and roads; and information on necessary clearing and grubbing, removal of existing structures, excavating, filling, spreading and compacting. The Director of Planning and Economic Development or their designees may require the development map to be prepared and sealed by a licensed professional engineer or land surveyor.
- g. An accurate proposed plot plan showing the location of the grading site, a description of the type and features of the soil and details of all structures, walls, cribbing and surface protection.
- h. Name and address of the property owner.
- i. Estimated grading quantity.
- j. Details of site drainage system.
- k. A proposed erosion and sediment control plan.
- l. Construction access to the site.
- m. Location of temporary off-street parking.
- n. The estimated schedule of operation, including the dates of starting and completion of grading work.

- o. Sources of off-site fill material or soil sites and all information relative to haul routes, trucks and equipment.
- p. A recent aerial photograph or a detailed topographic map showing tree canopy in the same scale as the development plan.
- q. Erosions and sediment control plan providing the following information with respect to the conditions existing on-site during land disturbing or filling activities or soil storage and after final structures and improvements have been completed:
- r. Copy of the State operating permit (also known as the stormwater discharge permit) issued by the Water Pollution Control Program of the Department of Natural Resources if one (1) or more acres will be disturbed.
- s. **Stormwater Pollution Prevention Plan (SWPPP)**

1. Site Evaluation and Design Development

2. Assessment

3. Siltation and Erosion & Storm Water Control/Plan Design

- Select proper approved controls
- Select/design storm water management controls
- Indicate the controls on a site plan
- Coordinate Controls with construction activity
- Prepare sequence of major activities
- Incorporate State and local requirements

1.1 **Site Evaluation and Design Development**

Collect site information, develop site plan, and prepare site map. Develop a topographical site plan with at least 5' contour lines. Existing conditions should be indicated by dashed lines and proposed grade contours should be indicated with bold contour lines. Soils present at the site must be determined to evaluate the proper coefficient for runoff. This information should be site specific and not regional in character.

2.2 **Assessment**

After the characteristics of the site have been evaluated including the site area, measure drainage areas and calculate runoff coefficient. Prepare drainage calculation summary chart. Identify the areas where silt-laden runoff could leave the site.

3.3 Siltation and Erosion & Storm Water Control/Plan Design

The final controls should be indicated on the plan in accordance with APWA Specifications and Design Criteria Erosion and Sediment Control Manual, including representative symbols identified in a legend and should consist of at least the following minimum controls:

- Construction phasing or sequencing
- Silt Fence
- Silt Ponds and Check Dams
- Temporary Seeding or Soil Retaining Systems (Mulch Netting and Matting)
- Storm Drain Inlet Protection (Geo-textile bags)
- Storm Water Detention Facilities and Swales
- Stabilized Construction Entrances
- Use of Velocity Reducing Materials (i.e. Rip Rap)

Final Stabilization Methods

- (1) Maximum surface runoff from the site, calculated using the adopted standards.
- (2) Sediment yield, calculated using the adopted standards.
- (3) A delineation and brief description of the measures undertaken to retain sediment from the site including, but not limited to, designs and specifications for berets and sediment detention basins and a schedule for maintenance and upkeep.
- (4) A delineation and brief description of the surface runoff and erosion control measures to be implemented including, but not limited to, types and method of applying mulches, designs and specifications for diverters, dikes and drains and a schedule for their maintenance and upkeep.
- (5) A delineation and brief description of the vegetative measures to be used including, but not limited to, seeding methods, the type, location and extent of pre-existing undisturbed vegetation types and vegetation to remain and a schedule for maintenance and upkeep.
- (6) Proposed conditions of the site in accordance with the phases outlined in the adopted standards.
- (7) Alternative methods of stabilizing the site when either seeding was not performed in accordance with the schedule or was performed and was not effective.

(8) The location and description of each temporary and permanent erosion and sediment control measure.

(9) The estimated needed duration of the permit.

The following requirements shall apply in addition to those set forth in the Missouri State Operating Permit.

- A. Submittal Instructions: The City of Riverside must review and approve the application and SWPPP before the permit is issued by Missouri Department of Natural Resources [MDNR]. The SWPPP shall be submitted to the Riverside Department of Public Works, along with the appropriate application (Form "O" or Forms "E" and "G"). Applicant will submit four copies of the plan for initial review. Upon review or approval, two copies will be returned to the applicant. When the City has approved the SWPPP, the Director of Public Works will provide a letter of approval for MDNR, and an approved plan copy to the applicant. At this point the applicant will file the plan, application fee, and acceptable application to MDNR. Each copy of the SWPPP shall be signed and sealed by a Professional Engineer licensed in the State of Missouri.
- B. Format for SWPPP: The SWPPP will consist of a set of drawings and a bound 8.5" x 11" manual. Please note that the SWPPP drawings are separate from the grading plans used to obtain the grading permit, but are a required complement to the grading plans. The SWPPP drawings should be attached to the grading plans for use at the site.
1. Drawings:
 - a. Maximum size 24" x 36". Smaller is acceptable only if scale meets the requirements.
 - b. Scale: 1" = 20' maximum. If necessary, use multiple sheets to describe the site.
 - c. Two drawings must be included, at a minimum:
 - 1) One drawing shall show temporary storm water handling and erosion control measures or Best Management Practices [BMP's]. This drawing shall be based on the grading plan, showing existing and proposed contours, as well as existing features.
 - 2) The second drawing shall show permanent storm water control and stabilization measures BMP's. If additional intermediate phases are intended, these must also be included. This drawing shall be based on the grading plan, showing final grading and completed storm water system features.
 - d. One or more *separate* detail sheets shall be included to illustrate the proper construction of BMP's. These details must comply with the

American Public Works Association Standard Specifications and Design Criteria Erosion and Sediment Control Manual.

- e. Drawings must have notes on each plan sheet, stating that:
 - 1) No disturbance and grading will take place until the Land Disturbance Permit has been issued by MDNR *and* the erosion and sediment control BMP's are in place.
 - 2) All non-paved areas that will not be under active earthwork for 2 weeks shall be stabilized with mulching and temporary seeding to establish a stand of grass, as set forth in the PWQ guide. These areas shall be stabilized again the next season with temporary seeding, until the final grading is complete and the area is permanently stabilized.
 - 3) When the next spring or fall planting period arrives, all non-paved areas in which earthwork is completed will be stabilized by mulching and seeding to establish a permanent stand of grass.

2. Manual:

- a. Site Description: Township, Range, section, etc. Also legal description of the site and total area.
- b. Description of Project, including purpose and function.
- c. Identify Owner(s), and individuals designated as responsible for construction, inspection, and maintenance of the BMP's. Include: name, organization represented, phone number(s), and fax number.
- d. Schedule for construction, including phasing if applicable.
- e. Discuss applicable Federal permits and regulations for work occurring in the floodplain or a watercourse, as applicable.
- f. Verbal description of Best Management Practices intended for this site: temporary and permanent. Discuss how the BMP's will be phased or sequenced to follow construction, and address:
 - 1) Perimeter protection
 - 2) Inlet protection,
 - 3) Stabilized construction entrances
 - 4) Channel protection,
 - 5) Stabilization of disturbed areas,
 - 6) Silt control around stockpiles,

- 7) Temporary and permanent siltation basins, etc.
- g. Description of maintenance activities required for the BMP's (temporary and permanent), along with the required frequency and the criteria for determining such.
- h. Sample of inspection form/report and maintenance log to be used by maintenance personnel. Inspections shall be performed weekly and after every rainfall.
- i. Discussion of procedures for updating and appending the SWPPP.
- j. Discussion of permit closure procedures: Final stabilization, notification, and continuing authority.

C. Other Requirements:

- 1. SWPPP and drawings shall show the complete extents of grading, even if this includes disturbance that occurs on adjacent properties. A letter of permission shall be submitted that authorizes the grading on these properties.
- 2. The SWPPP is required to be a dynamic document, that will be amended or appended during the project. The SWPPP shall be revised and resubmitted as required by the City of Riverside, and as initiated by the applicant to reflect: changes in the construction of the project, changes in the sequence of construction, or the address deficiencies the proposed BMP's. A significant change in the site plan, in the opinion of the Public Works Director, shall require a revision of the SWPPP.

As the operator of a Stormwater Management Program accepted by MDNR, the City of Riverside may require additional measures or limitations, on a site-specific basis

- t. *Surety.* The applicant shall provide such escrow, bond or other surety to guarantee the restoration, maintenance and rehabilitation of the site if the project does not proceed in accordance with the approved plans. The procedure for providing such surety shall be as described in Section 400.790 Assurance for Completion of Public Improvements.
 - t. Copies of tax certificates from the County.
- u. Proof of ownership or control of the property or permission from the property owner.
- v. A completed flood hazard and levee critical area information form, if necessary. Applications involving the flood hazard or levee critical area may not be reviewed by the Planning and Zoning Commission and Board of Aldermen in the time frame outlined in this Section due to the time required

for additional agencies, such as the Corps of Engineers and levee district, to review the application.

Duration of permit.

a. A land disturbance permit shall be valid from the time that it is issued until the site is stabilized and erosion and sediment control measures are no longer necessary. The site will be considered stabilized when either perennial vegetation, pavement, buildings or structures using permanent materials cover all areas that have been disturbed. In order to terminate the land disturbance permit, the applicant shall submit a written request to terminate the permit to the City. The City will then inspect the site and make a determination as to whether the permit can be terminated. The applicant will be notified in writing of the determination.

b. If the applicant sells the property before the termination of the land disturbance permit, the permit may be assigned to the new owner, if such assignment is approved in writing by the City.

c. If the applicant sells any portion of the property before the termination of the land disturbance permit, the applicant will remain responsible for that portion until one (1) of the following events occur:

(1) The new owner of the property obtains a land disturbance permit.

(2) The new owner of the property obtains or is required to obtain a building permit. When a new owner has contiguous lots totaling less than one (1) acre and obtains or is required to obtain a building permit, they may design an erosion and sediment plan for the contiguous lots as approved by the Director of Planning and Economic Development or their designees.

SECTION 400.930: LAND DISTURBANCE REGULATIONS

A. *Adoption Of Kansas City Metro American Public Works Association's Erosion And Sediment Control Manual.*

1. *Adoption.* The Kansas City Metro American Public Works Association's Erosion and Sediment Control Manual (the "Erosion and Sediment Control Manual") is hereby enacted and made a part of this Chapter by reference except as to portions hereinafter specifically deleted, clarified or amended.

2. *Adopted standards.* The term "*adopted standards*" shall include the Erosion and Sediment Control Manual.

3. *Conflicts.* If any conflict should exist between the Erosion and Sediment Control Manual and the City Municipal Code, the provisions of the Code shall control.

B. *Surety.*

1. All applications for a land disturbance permit shall include such escrow, bond, insurance, affidavits, easements, etc., as described below and as required for particular sites. The applicant shall deposit with the City a sum equal to that which is required for assurance of the completion of said project. The Director of Planning and Economic Development or their designees may adopt procedures, fees and schedules relating to the payment and release of such bonds. Said escrow funds shall guarantee the restoration, maintenance and/or rehabilitation of said site if the project does not proceed in accordance with the plans as approved by the City. Said escrow can be approved by the Director or their designees and the City Attorney and drawn upon by order of the Director or their designees if the requirements of the permit or of this Section are not satisfied. In drawing upon such funds, the Director may use such funds to restore the site to a stable or finished condition or to otherwise remedy any violations, including any costs of inspections and enforcement.

2. In lieu of cash escrow, a bond or surety for not less than one thousand dollars (\$1,000.00) may be provided for each grading site, subject to all the terms and conditions of this Chapter and to the approval of the City Attorney. The amount of the bond escrow or indemnity shall partially be based on the City's previous experience with the owner, contractor or builders.

3. Any portion of the deposit not expended or retained by the City hereunder shall be refunded when the disturbance is completed and soil conditions are stabilized to the satisfaction of the City.

C. *Standards--Safety Precaution.* A permit shall be issued and shall remain in force only upon compliance with the following requirements:

1. *Surface waters--damage.* Adequate provision shall be made to prevent any surface waters from damaging the cut face of an excavation or the sloping surface of a hill.

2. *Retaining walls--cribbing.* Retaining walls or cribbing shall be required whenever deemed necessary by the Department of Public Works to prevent the surface of any excavation or fill from exceeding at any point the maximum allowable slopes as set forth herein.

3. *Drainage.* All drainage provisions shall be of such design to carry surface waters to the nearest practical storm drain or natural watercourse as approved by the Department of Public Works as a suitable place to deposit and receive such waters. Where possible, water shall be dispersed by convex surfaces to dissipate water energy and velocity and disperse volume over a greater surface area before being carried to a storm drain or watercourse.

4. *Protection of streets and property.* No excavation shall be made so close to the property line to endanger any adjoining public or private street without supporting and protecting such public or private street or property from settling, cracking or other damage.

5. *Fill location.* No fill shall be made so as to cause or to allow the same to be deposited upon or to roll, flow or wash upon or over the premises of another without the express written consent of the owner of such premises so affected; or upon or over any public street, walk, place or way; nor so close to the top of a bank of a channel as to create the possibility of bank failure and sliding.

6. *Materials.* Materials for fills shall consist of material obtained from excavation of banks, borrow pits or other approved source. Material shall be free of vegetable matter and deleterious material and shall not contain large rocks or lumps. Materials for roadways are not covered by this Section as per exceptions in Section 400.260(2) Exemptions.

7. *Minimum standards.* Minimum standards of excavations and fills shall be as follows:

a. No excavation shall be made with a cut face steeper in slope than three (3) horizontal to one (1) vertical.

b. No fill shall be made which creates an exposed embankment face steeper in slope than three (3) horizontal to one (1) vertical. The embanked end of the fill shall be uniformly compacted as provided below and stable under the proposed conditions.

8. *Minimum standards--land disturbance.* Unless modified as may be permitted in this Subsection or by provisions of Subsection (C)(9) below, minimum standards for land disturbance shall be as follows:

a. No land disturbance shall occur within fifty (50) feet of any creek, stream, water runoff channels or ravines or in other areas determined by the Director of Planning and Economic Development or their designees to be highly sensitive or subject to erosion or flooding, except as necessary for construction pursuant to an approved final development plan, special use permit or plat specifically authorizing the modification of this standard and necessitating exception to this minimum standard.

b. No land disturbance shall occur on terrain that does not satisfy the minimum standards for excavation or fill, except as necessary for construction pursuant to an approved final development plan, special use permit or plat specifically authorizing the modification of this standard and necessitating exception to this minimum standard.

c. No land disturbance shall occur on any property or lot line or within the area of building setback required by this Chapter, except as necessary for construction pursuant to an approved final development plan, special use permit or plat specifically authorizing the modification of this standard and necessitating exception to this minimum standard.

d. No land disturbance shall occur which shall cause a nuisance to any adjoining property owner or which shall violate any Federal, State or local law or regulation. The Department of Public Works, in conjunction with the Department of Planning, shall establish regulations for the granting of permits so as to enforce this Chapter and ensure that any grading is completed with minimum erosion, aesthetic degradation or other negative impact on the site or surrounding areas or the community.

e. The Department of Public Works, in conjunction with the Department of Planning, shall establish such other minimum standards as may be necessary to protect grand trees or specimen vegetation or land features or to otherwise affect the purposes of this Section.

9. *Minimum standards--all grading.*

a. All grading shall comply with the restrictions and prohibitions set forth in this Section pertaining to the site or development. No land disturbance permit shall be issued on any site where there is an existing uncured violation of any provision of this Chapter or other development regulations of the City of Riverside.

b. *Modifications.* Any party seeking a permit may request a modification of any of the minimum standards set forth in this Section by filing a written request with the Department of Public Works specifically identifying:

(1) Unique or unusual characteristic(s) of the site, not generally applicable, that eliminate the need for full application of the standard, or

(2) The precise mitigation proposed that would fully rectify the harms addressed by the minimum standard to be modified.

The Department of Public Works may make such modification upon a determination that such facts exist qualifying for such modification; provided that no modification shall be permitted that shall circumvent any other applicable regulation or the intent of these minimum standards to eliminate the detrimental impact of grading addressed by each such standard.

10. *Compaction.* All fills intended to support buildings or structures, sewers and conduits shall be compacted to a minimum of ninety percent (90%) compaction as determined by Modified Proctor, ASTM D-1775. Compaction of fills for these uses must be certified by a registered professional engineer at the owner's expense. Frequency of compaction tests is to be determined by the Department of Public Works. Compaction of other fills shall be required where necessary as a safety measure to aid in preventing the saturation, slipping or erosion of the fill. The requirements of the Department of Public Works for the compaction of fills shall include, but shall not be limited to, the following:

a. Areas to be graded by cutting or filling shall be rough graded to within two-tenths (2/10) of a foot of accepted elevation after allowance has been made for thickness of topsoil, paved areas and other installations.

b. The natural ground surface shall be prepared by removing topsoil and vegetation and by compacting the fill upon a series of terraces. Hillside or slope fills shall require plowing or scarification of original ground.

c. Grading of slopes will require silt fencing at intermediate levels to slow surface water, prevent rutting and decrease erosion.

d. Grading sites will require silting basins to prevent mud from washing onto adjacent properties.

e. If fill material moisture content is below the requirement for compacting to maximum practical density, water in the proper amount shall be added. If moisture content is too great, fill material shall be aerated by blading or other satisfactory methods to reduce moisture content.

f. Frozen materials or soft, mucky, friable, easily compressible materials shall not be incorporated in fills intended to support buildings, structures, sewers or conduits or in the embanked ends of fills. In heavy rain, interrupted work shall not be resumed until moisture content is satisfactory. Fill material shall not be placed, spread or rolled while the ground is frozen or thawing.

g. The maximum uncompacted thickness of layers of the fill to be compacted shall not exceed eight (8) inches.

h. Compaction shall be by tamping, sheeps foot rollers, multiple wheel pneumatic or other type rollers. Rolling shall be continuous until the desired maximum density is obtained.

i. Topsoil disturbed by grading or building operations shall be stripped and piled for storage in an amount necessary to complete finished grading only.

11. *Removal of timber, rubbish, etc.* Timber, logs, trees, brush, vegetable matters and rubbish of any description shall be removed and disposed of so as to leave the disturbed area with a neat and finished appearance. Tree stumps, masonry and other obstructions shall be removed to the following depths:

a. *Paved areas.* Two (2) feet below subgrade.

b. *Lawn areas.* Two (2) feet below finished grade.

Solid rock, shale or similar materials shall be removed to a depth of fifteen (15) inches below subgrade for paved area and two (2) feet below finish grade for lawn area except where it is impractical because of rock outcropping.

D. *Use Of Streets During Grading.*

1. *Notice.* At least five (5) working days prior to the use of any street in the City by trucks or hauling or grading equipment engaged in grading operations in the City which requires the use of the streets of the City, the contractor in charge shall make a written report to the Department of Public Works specifying the kind and description of trucks or hauling or grading equipment and the loaded and unloaded weight of trucks and hauling equipment and the number of each and the length of time they will be required to use the streets of the City. The contractor shall furnish the Department of Public Works with all other information required to estimate or determine the amount of wear and tear or damage, if any, that may be caused to streets by such usage. Before construction actually commences or while the work on the streets is in progress, the Department of Public Works may require any contractor or subcontractor to post surety bond or insurance with the

City to guarantee the City for compensation for any damage to streets, curbs, sidewalks, trees, landscaping or other public facilities.

2. *Routes.* The Department of Public Works shall, at least two (2) working days before the commencement of work and usage of the streets of the City, notify the contractor of the route or routes to be used by such trucks and equipment. The contractor shall be charged with the duty of seeing that the trucks or equipment use only the route or routes designated by the Department of Public Works. In the event of any emergency requiring a change in route or routes or if the Department of Public Works finds or determines that any route or routes so designated are not safe or that excessive damage is being caused to any street or streets in the City by such usage or if they find the welfare of the City so requires, they may, upon one (1) day's notice to the contractor in writing, designate an alternate route or routes and it shall thereupon be the duty of the contractor to see that the trucks or equipment use only the alternate route or routes so designated by the Department of Public Works.

E. *Conditions Of Streets.*

1. *Photographs.* It shall be the duty of the Department of Public Works, immediately prior to the time of designating the route or routes or alternate route or routes as provided herein, to examine the condition of the streets to be used and to take photographs of the streets showing the condition of the pavement, curbs, sidewalks and other physical features, which shall be dated and a memorandum made of the location shown by each photograph. Within five (5) days after termination of the use of the streets as herein provided, the Department of Public Works shall have additional photographs made and proper descriptive matter included therewith.

F. *Damage to Streets, Curbs And Sidewalks.* At the time the Department of Public Works designates the route or routes to be used as provided above, they shall notify the contractor that the City will hold the contractor liable for unusual wear and tear or damage to the streets, curbs and sidewalks resulting from such usage and that acceptance of the route or routes by the contractor shall constitute an agreement on their part to pay the reasonable cost of restoring the streets, curbs and sidewalks in question to their original condition. Within thirty (30) days after termination of the contractor's usage of said route or routes under the land disturbance permit, the contractor shall pay to the City an amount sufficient to reimburse the City for the expense of restoring the streets, sidewalks and curbs to their original condition.

G. *Inspections.* In addition to the taking of photographs before and after construction, the Department of Public Works shall cause a thorough inspection to be made of the condition of the pavement of the streets

designated and used under the permit, as well as the curbs and sidewalks, and shall make written reports of their findings, including with their report after termination of the work their estimate of the cost of restoring the street to its original condition as well as any curbs or sidewalks.

SECTION 250.860: INSPECTIONS

A. *Notice Of Completion.* When the work under any construction permit is completed, construction permittee shall notify the Public Ways Inspector.

B. *Site Inspection.* Construction permittee shall make the work site available to the Public Ways Inspector and to all others as authorized by law for inspection at all reasonable times during the execution of and upon completion of the work.

C. *Authority Of Public Ways Inspector.* At any time of inspection the Public Ways Inspector may order the immediate cessation of any work which poses a serious threat to the life, health, safety or well-being of the public or which is not in conformance with a valid permit. The Public Ways Inspector may issue an order to construction permittee for any work which does not conform to the applicable standards, conditions or Codes. The order shall state that failure to correct the violation will be cause for revocation of the permit. Within three (3) business days after such issuance, construction permittee shall contact the Public Ways Inspector with an acceptable plan and within ten (10) days after issuance of the order, construction permittee shall present proof to the Public Ways Inspector that the violation has been corrected. If such proof has not been presented within the required time, the Administrator may revoke the permit.

Construction Dirt, Debris And Noise.

1. *Barriers at construction site.* After new excavation or construction is commenced on any lot or tract of land in the City and until sodding, planting, concreting, paving or other final surfacing is in place which will avoid washing or spreading of dirt and mud onto other property, sidewalks, curbs, gutters, streets and the space between sidewalks and curbs, the owner of the property or the contractor or builder in charge of work shall erect and maintain temporary walls or other approved barriers to prevent such washing or spreading of mud or dirt. At the end of each day and as required throughout the day during the course of excavating or construction, dirt and mud on the sidewalks, curbs, gutters and streets and the space between sidewalk and street, resulting from work, must be removed.

2. *Removing mud from vehicle wheels.* The owners, contractors, subcontractors and builders, jointly and severally, shall provide their personnel with shovels or other equipment as necessary to remove dirt from the wheels of all vehicles leaving any grading site where mud has accumulated on the wheels, before such vehicles enter any public or private street of the City. It shall be unlawful for any owner, contractor or subcontractor or builder to permit any vehicles to leave such place with mud on the wheels which is liable to be dispersed over any public or private street of the City and it shall be unlawful for

any driver of a vehicle to enter upon the public or private streets of the City without having removed or had mud removed from the wheels prior to such entry. Each occurrence in which the mud is not removed shall be a separate offense.

3. *Spilling materials on streets.* The owners, contractors, subcontractors and builders, jointly and severally, who may load dirt, mud or other materials on any vehicle at any grading site in the City, during construction or otherwise, shall so load the same that no portion thereof shall be spilled or be liable to be spilled on the streets of the City. It shall be unlawful for any such person to permit any vehicle to enter upon the streets of the City loaded in violation of this provision and it shall be unlawful for any driver to operate a vehicle on the streets of the City which is loaded in such manner that it spills or is liable to spill mud, dirt or other materials on the streets.

4. *Boards over sidewalks.* Boards, tracks or other protection must be laid over sidewalks, curbs and gutters to avoid dirt and mud accumulating therein, as completely as possible and to prevent breakage or damage to such installations, of whatever material constructed. Damage to walks, curbs and gutters will be repaired by the contractor or the Department of Public Works may cause to have them repaired at the contractor's expense.

5. *Waste material.* During the course of construction or excavation, owners, contractors and builders are required to clean up all paper, refuse, sticks, lumber and other building waste and all other waste material daily and to prevent the same from blowing or otherwise being scattered over adjacent public or private property.

6. *Planting ground.* Vacant property and improved property, after grading and construction is completed, shall be sodded, planted, concreted, paved or otherwise surfaced to avoid washing or spreading of dirt and mud onto other property, sidewalks, curbs, gutters, streets and the space between sidewalks and curbs prior to issuing an occupancy permit.

9. *Grading.* Grading, including operation or idling of equipment, shall be accomplished only between the hours of 7:00 A.M. and sunset on weekdays and 8:00 A.M. and sunset on Saturdays and Sundays, unless in the case of an emergency or a limited extension of hours is specifically granted by the Department of Public Works.

10. *Noise.* The applicant shall take appropriate measures to reduce noise to the fullest extent practical in the performance of the grading work.

H. *Correction Of Deficiencies.*

1. All violations shall be corrected within the time limit specified in the issuance of a written notice to correct. Action to correct violations which require immediate action shall be taken upon verbal notification of the contractor by the City. All persons failing to comply with such notice shall be deemed in violation of this Chapter.

2. Any usage of the applicant's surety shall be followed by a written explanation by the Director of Planning and Economic Development or their designees describing the condition corrected and the funds required to complete the corrective action.

3. Nothing in this Section shall prevent prosecution of violations of this Chapter in the absence of, or in addition to, the issuance of a notice of violation.

Maintenance

All soil and storm water runoff control facilities and measures shall be maintained in accordance with Riverside City policies, codes and/or ordinances.

All building sites should be inspected frequently but **not less than weekly and after every rainfall**. Any damaged areas of protection should be repaired immediately.

Any sediment which is tracked onto the street should be scraped and deposited in a stable area. DO NOT flush sediment from street with water.

Avoid filling in existing drainage channels and roadside ditches which are not part of an approved plan that may result in downstream or adjacent property or roadway damages.

Sediment and Erosion Control Practices