



# City of Las Cruces®

Realize Las Cruces Ad Hoc Committee Agenda  
February 1, 2023 @ 3:00 PM  
Room 2007 - B, Las Cruces City Hall  
700 N Main Street, Las Cruces, NM 88011

I. Call To Order

II. Approval Of Minutes

II.I. January 4, 2023

Documents:

[01-04-23 REALIZE TAC MINUTES.PDF](#)

III. Postponements

IV. Discussion Items

IV.I. Design Standards Section 5- - Drainage, Flood Constrol, And Erosion

Documents:

[LCO DEVELOPMENT CODE \(2023.01.25\) - DRAINAGE SECTION - TAC REVIEW.PDF](#)

V. Upcoming Meeting Discussion Items  
To Be Determined

VI. Public Participation

VII. Adjournment

Posted: 1/26/2023

1 **REALIZE LAS CRUCES AD HOC COMMITTEE COMMISSION**

2  
3 Following are the minutes from the City of Las Cruces Realize Las Cruces Ad Hoc  
4 Committee Meeting held Wednesday, January 4, 2023, at 3:00 p.m.

5  
6 **MEMBERS PRESENT:**

- 7 David G. Lynch
- 8 Arturo Duran
- 9 Sara Gonzales
- 10 John Moscato
- 11 Sharon Thomas
- 12 Scott Kaiser
- 13 Christopher Brown
- 14 Daniel G. Buck
- 15 Dawn Sanchez
- 16 George Pearson
- 17 Dan Carter
- 18 Paul Dulin

19  
20 **MEMBERS ABSENT:**

- 21 Paul Pompeo
- 22 Daniel Sanchez
- 23 Ken Odenheim

24  
25 **STAFF PRESENT:**

- 26 Tony Trevino, Deputy Director Public Works
- 27 Katherine Harrison-Rogers, Senior Planner
- 28 David Weir, Deputy Director Community Planning
- 29 David Sedillo, Director Public Works

30  
31 **1. CALL TO ORDER:** \*Not in recording

32  
33 **2. APPROVAL OF MINUTES - November 2, 2022:** \*Not in recording.

34  
35 **3. POSTPONEMENTS:** \*Not in recording.

36  
37 **4. DISCUSSION ITEMS:**

38  
39 **4.1 2023 Schedule - Discussion of alternative meeting days/times for**  
40 **2023**

41  
42 **4.2 Chapter 5. Design Standards:**

- 43 • **Section 5-9 Buffering, Fencing, and Screening:** A suggestion
- 44 was made to consider sight triangles and traffic safety when
- 45 designing the new requirements. A question was raised regarding
- 46 Section B and was clarified that the new requirements will not apply

1 to single-family developments, only the larger  
2 developments. Comment was made that landscaping cannot be  
3 over 36 inches in sight triangles. Change in use was discussed,  
4 stating that screening from neighboring residential areas would be  
5 required if the use of a business property was intensified. Concern  
6 was raised that this requirement will interfere with the zoning code.  
7 Transparency and fairness are also of concern, considering the  
8 case-dependent nature of the need for screening. Specifications  
9 were discussed regarding improving walkability in new  
10 developments, as well as parkways and street trees. The definition  
11 of "blank wall" was discussed, as a rock wall may not be blank  
12 since it is varied on its own and polypropylene fencing is molded  
13 with texture. A suggestion was made to add examples to the  
14 supplementary technical manuals that will be published with the  
15 code. Cost of maintenance will fall upon the property owners and  
16 suggestion was made to look for their input as well. The prohibition  
17 of chain link along collector roadways was discussed as it impacts  
18 some industrial properties. Suggestion was made to use a more  
19 attractive type of fencing along the roadway itself, then use the  
20 chain link for the rest of the property.

21  
22 Regarding Section 6, a question was raised about including murals  
23 as an architectural feature to break up long stretches of blank wall,  
24 and a suggestion was made that any trees planted should be native  
25 desert plants to reduce water consumption. Parks and Rec has a  
26 recommended plants list that can be shared. Requirements for  
27 fencing between yards in developments was discussed for  
28 dust/erosion control. The Erosion Control Ordinance has several  
29 best practices listed. Question was raised regarding the statement  
30 that screening must be installed prior to issuance of a building  
31 permit. Wording in the code will be clarified. Question was raised  
32 regarding screening in M-1 areas. That section is currently being  
33 modified so the committee will wait to read the modified wording  
34 later. Encouraging water conservation and capturing storm runoff  
35 were discussed. Guidelines for placement and walls around  
36 dumpsters need to be synched with Utilities' requirements and state  
37 clearly that trash must be contained within the enclosure.

38  
39 The members had no extra suggestions for the section on  
40 screening rooftop industrial mechanical units. There is a separate  
41 section for cell towers that is currently under revision. Question  
42 was raised regarding outdoor storage units and clarifying the  
43 difference between retail, manufacturing, and private use.  
44 Examples will be requested. Currently the guidelines are in the  
45 land uses section.  
46

1 Item 9 regarding screening sports facilities: Suggestion was made  
2 to remove that requirement as members enjoy seeing the facilities.  
3 Clarification is requested between fencing to protect property from  
4 stray equipment such as golf balls going through windows versus  
5 screening to hide the facility from view.  
6

7 Section 7 regarding roadway cuts along collector and arterial  
8 streets prohibits homes in these areas to have direct access from  
9 the large streets. The new code will require access to homes from  
10 alleyways or smaller side streets, and streets with on-street  
11 parking. This will hopefully prevent a situation similar to the homes  
12 on Missouri where people have to back directly into traffic when  
13 leaving home. Connectivity across residential walls for pedestrians  
14 is a concern. Commercial and business parks are not addressed in  
15 this section. Suggestion was made to remove section 7 entirely.  
16

17 Members ask why there is a section regarding pools when the  
18 Building Code already requires fencing. This section simply  
19 provides clarification. Suggestion was made to move this section  
20 into the Building Code entirely.  
21

22 E.1 and E.2 regarding land uses help clarify how to add  
23 requirements for infill proposals and other nonconforming uses.  
24

25 Suggestion was made to remove section D as being excessive  
26 regulation. Section D allows residents to build an arch for their  
27 fence that would be prohibited by code otherwise. Language  
28 should be simplified. Existing code has definitions listed for  
29 setback widths and wall heights. Suggestion was made to add  
30 sports facilities' fence heights into this section. Suggestion was  
31 made to also add utility substation fences into this section.  
32 Retaining walls are separate from yard walls and should be  
33 removed from this section.  
34

35 Question was raised regarding whether the committee would rather  
36 continue to have long meetings once a month or more frequent but  
37 shorter meetings, and whether the committee would like to change  
38 time and day of meetings. There were no suggestions for a  
39 different day than Wednesday or different hours to meet, so first  
40 and third Wednesdays are confirmed for meeting. Suggestion was  
41 made to read material and submit comments before meeting to  
42 allow staff to research and create talking points to help meetings go  
43 faster. Suggestion was made to share the document through  
44 Adobe Cloud so members can follow progress and creating a live  
45 document for comments that members can update through  
46 Dropbox. The speed of the consultants' response was discussed,

1 and there have been some delays. The Power Up meetings at the  
2 convention center on January 20th and 21st were mentioned. MRA  
3 meetings are at 10:00 and 5:30 on January 5, 2023 through Zoom  
4 or at Cruces Creatives.

5  
6 **5. UPCOMING MEETING DISCUSSION ITEMS:**

7  
8 Continuing to discuss design standards.

9  
10 **6. PUBLIC PARTICIPATION:**

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12 **7. ADJOURNMENT (5:05)**

13  
14 Motion to adjourn, seconded.

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21 \_\_\_\_\_  
Chairperson

## Sec. 5-5. Drainage, Flood Control, and Erosion

### A. Introduction

1. This section contains guidelines for drainage system design and establishes a standard practice for recognized and established engineering design of storm drain facilities to protect the health, safety, and welfare of the general public.
2. Methods and processes included in this section are the minimum standards. Recognized and established engineering practices and principles shall be followed in all engineering projects within the City limits. The Public Works Director shall determine the required parameters of any particular project or technical analysis and may require additional criteria should such be deemed to be in the best interest of the general public. If any of these requirements conflict with existing standards or guidelines, the more stringent shall apply.
3. Authority to Issue Administrative Warnings

The Public Works Director, Community Development Director and personnel under their supervision, as well as the City building and project inspectors shall be authorized to issue verbal or written administrative warnings to any person, operator or owner who allegedly violated any provision of this Section. A written warning may include a stop work order that requires that all construction activity on a site be stopped.

### B. Development In or Adjacent to Areas Prone to Erosion

1. Scope of Division

Construction of all slope protection within the City shall require an approved building permit and shall conform to the minimum design standards as specified within this Code and in accordance with the latest City-adopted edition of the International Building Code (IBC), City construction specifications and design standards for all drainage facilities that will be dedicated to the City. All development in the special flood hazard area (SFHA) - also known as the flood zone - must comply with Code of Federal Regulations (44 CFR 60.3).

2. Slope Protection for Ponds and Embankments

The following shall be applied to all slope protection designs and construction:

- a) Construction permit applications, if applicable, shall include all structural calculations, investigative reports, and design documentation.
- b) All slope protection within the City shall be designed and constructed per City Code and in accordance with the latest City-adopted edition of the IBC for both private and public construction.
- c) The following design values shall be used when no geotechnical site-specific investigation and subsequent laboratory test values have been developed:

Figure 5-5-1. Design Values

$\phi$	28°	<sup>a</sup> Soil Angle of Internal Friction (max.)
$\gamma_s$	120 PCF	<sup>a</sup> Compacted (dry) Soil Density (min.)
$\gamma'_w$	43.3 PCF	<sup>c</sup> Active Equivalent Fluid Pressure (min.)
K	(Only Soil Test Value)	<sup>b</sup> Soil Permeability Coefficient
$P_{use}$	2,000 PSF	<sup>a</sup> Useable foundation bearing capacity (IBC max)
$F_y$	60 KSI	Rebar, yield strength (min.)
$S_{28}$	3,000 PSI	Concrete compressive strength, 28 days (min.)
$S_{28}$	Based on ASTM C270 design for (yard walls only)	Mortar use type S cement, designed per ASTM C270, and field tested per ASTM C780 procedure A1 & A3
$S_{28}$	1,800 PSI (retaining walls only)	Mortar use type S cement, compressive strength (min.)
$\gamma_c$	150 PCF	Density of concrete (min.)

$\gamma_{RW}$	135 PCF	Density of rock masonry wall (min.)
$f$	0.25	Coefficient of friction for soil/concrete (IBC) (max.)

<sup>a</sup> Site specific soil properties gained from a geotechnical investigation and subsequent soil laboratory testing shall be used when available.

<sup>b</sup> Published soil permeability data typically relate poorly to local stratigraphy and soil structure, therefore only site-specific field/laboratory permeability tests shall be used.

<sup>c</sup> Based on 120 PCF and  $\phi = 28^\circ$

d) All development shall prevent drainage impacts on adjacent slopes and structures.

3. Erosion Control

The following shall apply to all construction listed in this Division:

- a) An approved Stormwater Pollution Prevention Plan (SWPPP) and a Notice of Intent (NOI) must be included as part of the initial project design plan submissions for construction permit.
- b) All Best Management Practices (BMPs) shall be listed in the SWPPP.
- c) All grading for construction shall limit and control surface soil disturbance and removal of vegetation. All grading shall have controls in place to prevent surface runoff and sediment transport off site.

4. Geotechnical Soils Investigation

A geotechnical soils investigation shall explore and identify the type and structure of the subsurface soils at a specific site.

- a) Specific tests and activities shall be conducted to identify at a minimum:
  - i) Soil type, color, moisture-content, gradation, and index properties.
  - ii) Changes in soil type with depth.
  - iii) Soil strength tests at specific depths including zones of weakness.
  - iv) Ground water table (GWT) elevation and the sampling date if GWT is encountered in the exploration.
  - v) Actual bottom-of-hole (BOH) elevation based on the topographic site map to locate various soil strata and support bearing capacity calculations.
- b) Sampling: All laboratory testing shall come from undisturbed soil samples.
- c) Equipment information:
  - i) Describe the field exploration company, equipment, sampler size, operator and personal responsible for logging boring.
  - ii) Document weather, site, exploration hole location on site map, hole number, and the top-of-hole elevation/location.
  - iii) Log all information onto field soil boring log sheets including field testing/sampling and depth, the site, and sign field log sheet.
- d) Ponds: Subsurface exploration depth below the designed bottom-of-pond (BOP) elevation to define the infiltration zone shall be:
  - i) Private ponds. Exploration of ten feet (minimum) below the designed bottom-of-pond (BOP) elevation for at least 20 percent of ponds in a development. Exploration points shall be equally spaced across proposed pond locations.
  - ii) City drainage ponds, ponds dedicated to the City, and dual use facilities. One exploratory hole of 20 feet below BOP (minimum) for each pond.
  - iii) Soil samples shall be undisturbed samples for laboratory classification and permeability testing. Other parameters may be required to support specific pond requirements. They may include, but are not limited to, the following:
    - a. Additional permeability tests at specific depths. This testing may be required for impoundments that are designed to allow water to percolate during a specific time period.
    - b. Installation of subsurface instrumentation required for engineering design or monitoring.

## Chapter 5. Design Standards

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#### 5. Geotechnical Soils Report

A geotechnical soils report based on a geotechnical soils investigation shall be required if the soil conditions are unknown, unreliable, or otherwise unusual as determined by the Public Works Department, technical and engineering services section. This requirement must also be met for soils that are classified as expansive, very fine, loose structure, have a history of instability, have a potential for future instability, or will have a designed slope steeper than 3:1. Any soils report, or addendum, for a project/development shall be part of the building permit application and shall be presented as part of the construction permit drawing submittal. A geotechnical soils report shall be included with the following items A through J as a minimum:

- a) Hole number with top-of-hole and bottom-of-hole elevation(s).
- b) Soil stratigraphy (exploration logs).
- c) In situ soil testing with test type and location(s).
- d) Soil classification (AASHTO/Unified); and support testing.
- e) Sieve analysis and support testing.
- f) Water table elevation notation on exploration logs.
- g) Discussion of all findings (investigative and laboratory) with specific design recommendations pertaining to the subject project/development. All soil engineering calculations using the specific soil parameters determined from the exploration and testing shall be included.
- h) Other parameters may be required, including but not limited to the following to support specific development requirements:
  - i) Structural design factors (SPT tests); with testing results.
  - ii) Stability design for slopes that exceed minimum design standards.
  - iii) Topographic map of the ground surface with exploration hole locations noted.
  - iv) Cross sections showing identified subsurface stratigraphy.

#### 6. General Slope Protection

The following applies to all slope protection applications:

- a) All slope protection designs 3:1 or steeper shall be designed by a Professional Engineer licensed in the State of New Mexico and reviewed by the City prior to issuance of a construction permit.
- b) All slopes shall be stabilized.
- c) Mortar for rock slope protection shall be Type M and shall have a minimum compressive strength of 2,500 psi at 28 days as determined by AASHTO T 106. A mix design certification for the mortar mixture shall be forwarded to the City for compliance review and approval prior to use.
- d) Rock and mortar slope protection shall be both internally and externally drained to designed collection point(s).
- e) Internal drainage of slope protection shall:
  - i) Use two-inch diameter (min.) high-density polyethylene (HDPE) pipes (or better) extending through the slope protection.
  - ii) Horizontal spacing of the drainage pipes shall be 20 feet (nominal).
  - iii) Additional rows of drainage pipes shall be spaced every ten feet of slope distance.
  - iv) Drainage pipe locations shall be staggered from adjacent row locations.
  - v) Pipes shall be sloped to drain onto slope protection surface.
  - vi) Drainage pipes shall have a secured geotextile (drainage) covering over the inlet ends if draining a sand retained back-fill.
- f) The downslope edge of slope protection shall include a stable foundation structure to prevent movement.
- g) The downslope edge shall be graded to drain collected water to designated areas as designed.



- h) The unprotected soil adjacent to slope protection shall not be steeper than four to one (4H:1V) unless otherwise recommended by a geotechnical soils report and designed by an engineer. Adjacent slopes shall drain surface water away from the slope protection.
- i) Prior to placing slope protection, the fill slopes shall be constructed as a structural fill including both layer placement and compaction. Compaction testing is defined in the latest edition of the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction.
- j) Cut slope construction (undisturbed soil) shall have exposed surface compacted in accordance with the latest edition of the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction.
- k) Rock and mortar slope protection shall have a six-inch thick mortar bed (min.) with rocks embedded three to four inches into the mortar. The joints between rocks shall be tightly packed with mortar. The mortar shall extend to within one-quarter inch of the rock surface. The minimum joint width should be no less than one-half inch wide. Rock that comes into contact with an adjacent rock (i.e., no joint) will not be allowed. Rock and mortar slope protection shall be constructed with no voids in the structure. Material design elements other than concrete, mortar and rock is not allowed within a rock and mortar slope protection system unless approved by the design engineer. The presence of unapproved material will be the basis for rejection of construction. Alternative designs for any slope protection will be considered by the Public Works Department.
- l) Rock used in slope protection construction shall meet the size as specified in the latest edition of the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction. All rock for slope protection shall be of a quality such that it will not flake or disintegrate.
- m) Slope protection using planted vegetation is encouraged and required for slopes 4:1 or less. Design shall be in compliance with the City landscape design standards and shall include an adequate watering system, plant maintenance plan, and meet the following specifications:
  - i) Plants specified shall be suitable for the Chihuahuan Desert climate. Native plants are preferred but other suitable plants will be considered for approval by the City Landscape Architect.
  - ii) All seed planting shall be covered with a securing blanket to protect seeds to full germination.
  - iii) Planting and irrigation plans must be stamped by a landscape architect licensed to practice in the state of New Mexico.
  - iv) The City requires varied planting instead of a monoculture on a slope for more effective slope protection.
  - v) Use of plastic sheeting under a mulch layer is not allowed.
  - vi) Organic mulch (i.e., straw mats, tacked clean straw, bark-mulch, or similar) are recommended for use with newly planted vegetation.
  - vii) Planted slope protection shall not be used for slopes steeper than 4:1.
  - viii) United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) practice standards shall be met for slope protection planting as presented in the following guidelines:
    - a. Conservation Cover, Code 327.
    - b. Critical Area Planting, Code 342.
    - c. Mulching, Code 484.
    - d. Runoff Management System, Code 570.

## Chapter 5. Design Standards

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#### C. Stormwater Quality/Pollution Reduction Development

##### 1. Purpose

The purpose of this section is to prevent or reduce pollutants in the City's municipal separate storm sewer system and for control over discharges to and from the system. It shall also be the purpose of this section to:

- a) Maintain and improve the quality of surface water and groundwater within the City limits;
- b) Prevent the discharge of contaminated stormwater runoff from industrial, commercial, residential, and construction sites into the municipal separate storm sewer system (MS4), natural waters and water courses within the City;
- c) Promote public awareness of the hazards involved in the improper discharge of hazardous substances, petroleum products, household hazardous waste, industrial waste, sediment from construction sites, pesticides, herbicides, fertilizers, and other contaminants into the City's storm drains, natural waters and water courses;
- d) Encourage recycling of used motor oil and safe disposal of other hazardous consumer products;
- e) Minimize destruction of the natural landscape by reducing erosion and sedimentation;
- f) Treat stormwater runoff as a valuable natural resource of the City of Las Cruces, which is prone to drought, by encouraging water collection and infiltration on site;
- g) Control the adverse impacts associated with increased and high velocity stormwater runoff on natural drainage ways and stormwater structures due to increased development and its creation of new impervious surfaces;
- h) Minimize erosion and degradation of arroyo channels and improve the condition of these channels where possible;
- i) Respect, protect, maintain, and restore natural drainage ways, wetlands, bosques, floodplains, steep slopes, riparian vegetation, and wildlife habitat areas that are within the City's jurisdiction;
- j) Integrate stormwater management measures into the landscape and site planning process;
- k) Provide aesthetically pleasing solutions to stormwater management and erosion control measures by integrating permanent measures into the overall landscape and site design;
- l) Facilitate compliance with state and federal standards and permits by owners and operators of construction sites within the City;
- m) Assist the City in compliance with all federal and state laws, regulations and permits applicable to stormwater discharge;

##### 2. Scope

This section shall apply to any stormwater discharge associated with commercial, industrial and other activities including construction in strict accordance with the current MS4 permit for the City of Las Cruces.

##### 3. National pollutant discharge elimination system (NPDES).

Persons obtaining construction permits clearing more than one acre or more are subject to the federal Environmental Protection Agency (EPA) construction general permit, State of New Mexico Environment Department Regulations, and this Code regarding pollution of stormwater.

##### 4. Administration

The Public Works Director shall administer and coordinate the implementation and enforcement of the provisions of this section.

##### 5. Duties and Responsibilities of Public Works Director

Duties and responsibilities of the Public Works Director shall include, but are not limited to the following:

- a) Be the guardian of the MS4, including all dams, detention and retention basins, storm drains, outlet working channels and pumping stations;
- b) Maintain and hold open for public inspection all records pertaining to the provisions of this section;
- c) Review permit applications to determine whether proposed developments will eliminate or reduce the pollutants entering the MS4;
- d) Review, approve or deny all applications for development permits required by adoption of this section;

- e) Maintain supervision over the operation and maintenance condition of the MS4 to ensure its safe and effective functioning and notify the streets systems administrator of any required maintenance and/or repair work;
  - f) Conduct an annual inspection of the MS4 and provide a written inspection report, including an assessment of the operational condition, safety, effectiveness and maintenance condition of the system, and a line item list of required special maintenance or repairs to the streets systems administrator;
  - g) Establish and implement a program to locate and eliminate illicit discharges and improper disposals to the MS4;
  - h) Establish and implement a program to prevent, contain and respond to spills that may discharge into MS4. This program shall be in conjunction with the fire department's hazardous materials division;
  - i) Establish and implement a program to identify and control pollutants in stormwater discharges from any construction or commercial facility that the Public Works Director determines that is contributing a substantial pollutant loading to the MS4.
6. General Prohibitions
- a) No person shall introduce or cause to be introduced into the MS4 or waters within the jurisdiction of the City any discharge that is not composed entirely of stormwater other than those that are identified in the following section.
  - b) It is an affirmative defense to any enforcement action for violation of subsection (a) of this section that the discharge was composed entirely of one or more of the following categories of discharges:
    - i) A discharge authorized by and in full compliance with an NPDES permit (other than the NPDES permit for discharges from the MS4);
    - ii) A discharge resulting from firefighting;
    - iii) Agricultural stormwater runoff;
    - iv) A discharge from water line flushing, but not including discharge from water line disinfected by super chlorination or other means unless it contains no harmful quantity of chlorine, or any other chemical used in line disinfection;
    - v) A discharge from residential lawn watering, residential landscape irrigation, or crop irrigation, water;
    - vi) A discharge from a diverted stream flow or natural spring;
    - vii) A discharge from uncontaminated pumped groundwater or rising groundwater;
    - viii) Uncontaminated groundwater infiltration to the MS4;
    - ix) Uncontaminated discharge from a foundation drain, crawl space pump, footing drain or sump pump;
    - x) A discharge from a potable water source not containing any harmful substance or material from the cleaning or draining of a storage tank or other container;
    - xi) A discharge from air conditioning condensation that is unmixed with water from a cooling tower, emissions scrubber, emissions filter, or any other source of pollutant;
    - xii) A discharge from individual residential vehicle washing;
    - xiii) Uncontaminated discharge from riparian habitat or wetland;
    - xiv) Discharge from water used in street washing provided that the water is not contaminated with any harmful cleaning substance;
  - c) No affirmative defense shall be available under subsection **b)** above if the discharge or flow in question has been determined by the City to be a source of a pollutant or pollutants to the waters of the United States or to the MS4, and written notice of such determination has been provided to the discharger.
7. Specific Prohibitions and Requirements
- a) The specific prohibitions and requirements in this section are within but do not limit the general prohibition of all the discharges prohibited by **Sec. 5-5.C.6. General Prohibitions**.
  - b) No person shall introduce or cause to be introduced into the MS4 any discharge that causes or contributes to causing the City to violate a water quality standard, the City's NPDES permit, or any state or federal issued discharge permit for discharges from its MS4.

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- c) No person shall release or cause, allow, or permit the introduction of any of the following substances into the MS4 or the waters within the jurisdiction of the City such that the substance may enter the air or groundwater:
  - i) Any used motor oil, antifreeze, or any other motor vehicle fluid;
  - ii) Any industrial waste or wastewater;
  - iii) Any hazardous waste, including hazardous household waste;
  - iv) Any pet waste deposited on any property, public or private, not owned or possessed by that person.
  - v) Any runoff or discharge from an animal pen, kennel, or livestock containment area.
  - vi) Any domestic sewage or septic tank waste, grease trap waste, or grit trap waste;
  - vii) Any wastewater from a commercial carwash facility, and from any commercial vehicle washing, cleaning, or maintenance at any new or used automobile or other vehicle dealership, rental agency, body shop, repair shop, or maintenance facility.
  - viii) Any wastewater from the commercial washing, cleaning, de-icing, or other maintenance of aircraft;
  - ix) Any wastewater from a commercial mobile power washer or from the washing or other cleaning of building exterior where the wastewater contains any cleaning substance;
  - x) Any wastewater from commercial floor, rug, or carpet cleaning;
  - xi) Any wastewater from the wash down or other cleaning of pavement that contains any harmful quantity of any cleaning substance; or any wastewater from the wash down or other cleaning of any pavement where any spill, leak, or other release of oil, motor fuel, or other petroleum or hazardous substance has occurred, unless all quantities of such released material have been previously removed;
  - xii) Any effluent from a cooling tower, condenser, compressor, emissions scrubber, emissions filter, or the blow down from a boiler;
  - xiii) Any ready-mixed concrete, mortar, ceramic, or asphalt base material or hydro mulch material, or runoff from the cleaning of commercial vehicles or equipment containing, or used in transporting or applying, such material;
  - xiv) Any fountain, swimming pool, or spa water, to include any filter backwash water;
  - xv) Any discharge from water line disinfected by super chlorination or other means, if it contains any harmful quantity of chlorine or any other chemical used in line disinfection;
  - xvi) Any water from a water curtain in a spray room used for painting vehicles or equipment;
  - xvii) Any contaminated runoff from a vehicle wrecking yard;
  - xviii) Any substance or material that will damage, block, or clog the MS4;
  - xix) Any release from a petroleum storage tank (PST), or any leachate or runoff from soil contaminated by a leaking PST, or any discharge of pumped, confined, or treated wastewater from the remediation of any such PST release, unless the discharge complies with all state and federal standards and requirements.
- d) No person shall introduce or cause to be introduced into the MS4 or waters within the jurisdiction of the City any quantity of sediment, silt, earth, soil, or other material associated with clearing, grading, excavation or other construction activities, or associated with land filling or other placement or disposal of soil, rock, or other earth materials, in excess of what could be retained on site or captured by employing sediment and erosion control measures to the maximum extent practicable under prevailing circumstances.
- e) No person shall connect a line conveying sanitary sewage, domestic or industrial, to the MS4, or allow such a connection to continue.
- f) Regulation of Pesticides, Herbicides, and Fertilizers
  - i) Any sale, distribution, application, labeling, manufacture, transportation, storage, or disposal of a pesticide, herbicide, or fertilizer must comply fully with all state and federal statutes and regulations including, without limitation, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and all federal regulations promulgated pursuant to FIFRA; and any other state or federal requirement.

- ii) No person shall use, or cause to be used, any pesticide or herbicide contrary to any directions for use on any labeling required by state or federal statute or regulation.
  - iii) No person shall dispose of, discard, store, or transport a pesticide, herbicide, or fertilizer, or a pesticide, herbicide, or fertilizer container, in a manner that the person knows, or reasonably should know, is likely to cause, or does cause, a harmful quantity of the pesticide, herbicide, or fertilizer to enter the MS4 or waters of the United States.
- g) Used Oil Regulation
- i) No person shall:
    - a. Discharge used oil into the MS4 or a sewer, drainage system, septic tank, surface water, groundwater, or watercourse;
    - b. Knowingly mix or commingle used oil with solid waste that is to be disposed of in a landfill or knowingly directly dispose of used oil on land or in a landfill or knowingly discharge used oil onto the ground;
    - c. introduce used oil into the environment by any method, including application of used oil to a road or land for dust suppression, weed abatement, or other similar use.
  - ii) A retail dealer who annually sells directly to the public more than five hundred gallons of oil in containers for use off-premises shall post in a prominent place a sign informing the public that improper disposal of used oil is prohibited by law. The sign shall prominently display the City of Las Cruces Recycling Center or any other local used oil disposal locations.
  - h) No person shall install an impervious underlayment for landscaping related uses. All underlayment must allow 12 GPM/sq. ft. of water to pass. No underlayment shall be placed at the bottom of a detention or retention pond.
  - i) Sites may be allowed to discharge into the MS4, upon mutual agreement with the operator of the MS4. The operator of the MS4 shall be allowed to assess a fee for expenses incurred to meet latest EPA standards for stormwater quality based on the two-year event.
8. Release Reporting and Cleanup
- a) The operator of any facility, vehicle, or other source of any spilling, leaking, pumping, pouring, emitting, emptying, discharging, escaping, leaching, dumping, disposing, or any other release of any of the following quantities of any of the following substances that may flow, leach, enter, or otherwise be introduced into the MS4 or waters of the United States, shall notify the applicable regulatory agencies, including the United States Environmental Protection Agency (USEPA) and the New Mexico Environment Department (NMED), the City Fire Department, the City Public Works department, and the City's Floodplain Administrator as soon as practicable concerning the incident:
    - i) An amount equal to or in excess of a reportable quantity of any hazardous substance;
    - ii) An amount equal to or in excess of a reportable quantity of any extremely hazardous substance;
    - iii) An amount of oil that either:
      - a. Violates applicable water quality standards, or
      - b. Causes a film or discoloration of the surface of the water or an adjoining shoreline or causes a sludge or emulsion to be deposited beneath the surface of the water or upon an adjoining shoreline; or
    - iv) Any harmful quantity of any pollutant.
  - b) The immediate notification required by subsection **a)** above shall include the following information:
    - i) The identity or chemical name of the substance released, chemical classification, and whether the substance is an extremely hazardous substance;
    - ii) The exact location of the release, including any known name of the waters involved or threatened and any other environmental media affected;
    - iii) The time and duration (thus far) of the release;
    - iv) An estimate of the quantity and concentration (if known) of the substance released;
    - v) The source of the release;

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- vi) Any known or anticipated health risks associated with the release and, where appropriate, advice regarding medical attention that may be necessary for exposed individuals;
  - vii) Any precautions that should be taken as a result of the release;
  - viii) Any steps that have been taken to contain and clean up the released material and minimize its impacts; and
  - ix) The names and telephone numbers of the person or persons to be contacted for further information
- c) Within 14 days following such release, the operator of the facility, vehicle, or other source of the release shall submit a written report to the City Public Works Department containing each of the items of information specified in subsection **b)** above, as well as the following additional information:
- i) The ultimate duration, concentration, and quantity of the release;
  - ii) All actions taken to respond to contain, and clean up the released substances, and all precautions taken to minimize the impacts;
  - iii) Any known or anticipated acute or chronic health risks associated with the release;
  - iv) Where appropriate, advice regarding medical attention necessary for exposed individuals;
  - v) The identity of any governmental/private sector representatives responding to the release; and
  - vi) The measures taken or to be taken by the responsible person(s) to prevent similar future occurrences.
- d) Any release report required by a state or federal authority containing the information described in subsections **b)** and **c)** above, shall be adequate to meet the reporting requirements of subsection **c)** above upon submittal to the City.
- e) The notifications required by subsections **b)**, **c)**, and **d)** above shall not relieve the responsible person of any expense, loss, damage, or other liability which may be incurred as a result of the release, including any liability for damage to the City, to natural resources, or to any other person or property; nor shall such notification relieve the responsible person of any fine, penalty, or other liability which may be imposed pursuant to this section or to state or federal law.
- f) Any person responsible for any release as described in subsection **a)** above shall comply with all state, federal, and any other local law requiring reporting, cleanup, containment and any other appropriate remedial action in response to the release.
- g) Any person responsible for a release described in subsection **a)** above shall reimburse the City for any cost incurred by the City in responding to the release, within 30 days of being invoiced by the City.
9. Stormwater Discharge from Construction Activities
- a) Manual
- All operators of construction sites requiring NPDES coverage shall use the methodology on BMPs and SWPPP development from the NMDOT "Storm Water Management Guidelines for Construction & Industrial Activities" manual, appendices, and all addenda (most current version). Alternate BMPs may be submitted for consideration at any time.
- b) Inspection by Owners and Operators
- Qualified personnel (provided by the operator of the construction site) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site, at least twice a month, (or as required by law) and within 24 hours of the end of a rainfall event that is 0.25 inches or greater. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP shall be observed by the operator to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters or the MS4. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking on a daily basis.
- c) Erosion and Sediment Control Plan
- All operators of sites of construction activity, including clearing, grading, and excavation activities, that result in the disturbance of one or more acres of total land area, or that disturb less than an acre and are part of a larger plan of development such as a residential subdivision., or who are required to obtain an NPDES permit for stormwater discharges associated with construction activity, shall include an erosion and sediment control plan. The ECP shall also include all other existing or potential pollutants expected on site such as concrete, stucco and paint washout, oil and fuels, solid and

sanitary waste, and any other wastes referenced in Section 6, Specific Prohibitions and Requirements. Pollution prevention controls shall be included for all expected pollutants.

d) Certification

Any operator who is required to obtain coverage for stormwater discharges from a construction site under the NPDES general permit for stormwater discharges from construction sites ("the construction general permit") shall submit a signed copy of the following certification prior to commencement of work:

"I certify under penalty of law that I understand the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit that authorizes stormwater discharges associated with construction activity from the site identified as part of this certification. Prior to any earthwork or clearing a Notice of Intent (NOI) will be approved by EPA Region Six for this project and I understand I must keep a copy of my Stormwater Pollution Prevention Plan (SWPPP) on site, or posted location thereof, available for public viewing. I understand that my project shall not damage the City of Las Cruces' municipal stormwater system (MS4)".

The certification must include:

- i) Address of site.
- ii) Legal description of property.
- iii) Property owner's name, address and phone.
- iv) Contractor's name, address and phone number, if applicable.
- v) SWPPP preparer's name, address and phone.
- vi) Start and end date of construction.
- vii) Acreage of disturbed area.

e) Operator Changes

For stormwater discharges from construction sites where the operator changes, an NOI shall be accepted by EPA prior to the operator commencing work at the site. The NOI must be signed by an officer of the company.

f) Additional Requirements

Additional requirements which may be requested from operator could include:

- i) Location of all easements and rights-of-way;
- ii) The delineation, if applicable, of the 100-year floodplain, including the flood fringe and floodway, if available, and any on-site or adjacent wetlands;
- iii) Percolation test results for all areas with retention ponds or other facilities designed for infiltration and a description of techniques to be used to prevent the clogging of soil pores by fine sediment;
- iv) A description of the approximate area of the watershed above the site, including the vegetative coverage and impervious surfaces;
- v) SWPPP;
- vi) The NOI.

g) Denial and Review

The Community Development Director may deny approval of any building permit, grading permit, subdivision plat, site development plan, or any other City approval necessary to commence or continue construction, or to assume occupancy, on the grounds that the management practices described in the plans, or observed upon a site inspection by City personnel, are determined not to control and reduce the discharge of sediment, silt, earth, soil, and other materials associated with clearing, grading, excavation, and other construction activities to the maximum extent practicable. Together with written notification to the applicant that the approval sought is denied, the Public Works Director shall provide the applicant a written explanation of the reasons for the denial. The applicant may request review of the decision made by the Community Development Director or by the Development Review Committee. Any such request for review shall be made within ten days of the date the applicant receives notification of the decision by the Community Development Director. The decision whether or not to review the decision shall be within the sole discretion of the Committee and may be limited to written materials considered by the Committee to be relevant.

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#### h) Inspections and Corrective Action by the City

The City of Las Cruces, through its designated agent(s), shall inspect sites throughout construction activities and either shall approve that portion of the work completed or shall notify the permittee that the work fails to comply with the provisions of this Code, State Administrative Code and/or federal NPDES regulations. Corrective action for non-compliance issues shall begin immediately. Completion of corrections shall not exceed seven days. Failure to comply will result in an immediate stop work order of construction on the site.

#### i) Increase in Minimum Standards

The Public Works Director and/or the Community Development Director may require implementation of more than the minimum stormwater standards if arroyos on-site, or immediately downstream of a site, show evidence of increased flooding, accelerated erosion (erosion caused by development activities that exceeds the natural processes by which the surface of the land is worn away), channel erosion or sedimentation. Increased requirements shall be limited to the following on-site measures:

- i) Erosion control measures extended to a broader area of the site than the development area;
- ii) Revegetation of highly eroded areas;
- iii) Arroyo restoration or other erosion control measures within highly eroded channels; or
- iv) A combination of the above measures.

#### j) Waivers

If a waiver is granted by EPA, the operator will not be required to sign the certification for permit. However the operator must still comply with the general and specific prohibitions and may still be required to have a SWPPP. Specifically the operator must ensure no harmful substances are introduced into the MS4 or groundwater by mechanical means. It is the operator's sole responsibility to meet the requirements of the waiver. If the operator fails to meet the requirements of the waiver, the operator shall be required to comply with this section prior to expiration of the waiver. Failure to do so will constitute a knowing violation of this section.

#### k) Notification or Permitting by Other Agencies

Activities permitted by this section may also require notification or permitting by other agencies, including but not limited to written approval from the Elephant Butte Irrigation District or other official watercourse related organization, the federal Environmental Protection Agency, the United States Army Corps of Engineers, the Federal Emergency Management Agency (FEMA) and NMED.



## D. Flood Hazard Prevention and Flood Control

### 1. Statutory Authorization

The Legislature of the State of New Mexico has in New Mexico Statutes Annotated 1978, § 3-18-7 delegated the responsibility to local governmental units to adopt regulations designed to minimize flood losses, and it is determined to be in the public interest for the City to establish the flood control damage prevention regulations in this section.

### 2. Findings of Fact

- a) The flood hazard areas of the City are subject to periodic inundation, which could result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety, and general welfare.
- b) These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, floodproofed, or otherwise protected from flood damage.

### 3. Statement of Purpose

It is the purpose of this section to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- a) Protect human life and health;
- b) Minimize expenditure of public money for costly flood control projects;
- c) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- d) Minimize prolonged business interruptions associated with flooding;
- e) Minimize damage to public facilities and utilities such as water, sewer and gas mains; electric, telephone and communication lines; and streets and bridges located in flood-prone areas;
- f) Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
- g) Ensure that potential buyers are notified that property is in a flood zone or a flood-prone area.

### 4. Methods of Reducing Flood Losses

In order to accomplish its purposes, this section is intended to introduce methods designed to reduce flood losses including the following:

- a) Restrict or prohibit uses that are dangerous to health, safety, or property in times of flood, or that cause excessive increases in flood heights or velocities.
- b) Require that land and buildings vulnerable to floods, including facilities which serve such development, be protected against flood damage at the time of initial construction.
- c) Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters.
- d) Control filling, grading, dredging and other development which may increase flood damage.
- e) Prevent or regulate the construction of flood barriers that will unnaturally divert floodwaters, or which may increase flood hazards to other lands.

### 5. Applicability of Section

This section shall apply to all areas of special flood hazard within the jurisdiction of the City.

### 6. Basis for Establishing the Areas of Special Flood Hazard

The areas of special flood hazard identified by the Federal Emergency Management Agency in the current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for the City of Las Cruces, Dona Ana County, NM, dated July 6, 2016, with accompanying Flood Insurance Rate Maps (FIRM) dated July 6, 2016 and any revisions thereto are hereby adopted by reference and declared to be a part of this ordinance.

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#### 7. Establishment of Development Permit

A development permit shall be required to ensure conformance with the provisions of this Code prior to the commencement of any development activities.

#### 8. Compliance

No structure or land shall hereafter be located, altered, or have its use changed without full compliance with the terms of this Code and other applicable regulations.

#### 9. Abrogation and Greater Restrictions

This section is not intended to repeal, abrogate, or impair any existing regulations, ordinances, easements, covenants, or deed restrictions. However, where this Code and the provisions of other regulations or ordinances conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

#### 10. Interpretation

In the interpretation and application of this ordinance, all provisions shall be:

- a) Considered as minimum requirements;
- b) Liberally construed in favor of the City of Las Cruces; and
- c) Deemed neither to limit nor repeal any other powers granted under State Statutes.

#### 11. Warning and Disclaimer of Liability

The degree of flood protection required by this section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions, greater floods can and will occur, and flood levels may be increased by manmade or natural causes. This section does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This section shall not create liability on the part of the City or any officer or employee thereof for any flood damages that result from reliance on this section, or any administrative decision lawfully made thereunder.

#### 12. Lands to which this Section Applies

The section shall apply to all areas of special flood hazard within the jurisdiction of the City of Las Cruces, New Mexico.

#### 13. Administration

##### a) Designation of the Floodplain Administrator

The City or City Manager hereby appoints a Floodplain Administrator who is certified to administer and implement the provisions of this ordinance and other appropriate sections of 44 CFR (National Flood Insurance Regulations) pertaining to floodplain management.

##### b) Duties and Responsibilities of the Certified Floodplain Administrator

Duties and responsibilities of the certified Floodplain Administrator under this section shall include but not be limited to:

- i) Maintaining and holding open for public inspection all records pertaining to this section;
- ii) Reviewing permit applications to determine whether a proposed building site, including the placement of manufactured homes, will be reasonably safe from flooding;
- iii) Reviewing and then approving or denying all applications for development permits required by this ordinance;
- iv) Reviewing permits for proposed development to ensure that all necessary permits have been obtained from those Federal, State or Local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972 from which prior approval is required);
- v) Making the necessary interpretation where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions);
- vi) In riverine conditions, notifying adjacent communities and the New Mexico Department of Homeland Security and Emergency Management (NMDHSEM), prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency;

- vii) Assuring that the stormwater capacity within the altered or relocated portion of any watercourse is maintained;
  - viii) Obtaining, reviewing, and reasonably utilizing any base flood elevation data and floodway data available from a federal, state, local, or other source in order to administer the provisions of **Sec. 5-5.D.14.a)** through **Sec. 5-5.D.14.e)** below when base flood elevation data has not been provided, in accordance with **Sec. 5-5.D.6 Basis for Establishing the Areas of Special Flood Hazard**;
  - ix) Requiring that, when a regulatory floodway has not been designated, that no new construction, substantial improvements or other development, including fill, shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community; and
  - x) The City may approve certain development in Zones A1-30, AE, AH, on the community's FIRM that increases the water surface elevations of the base flood by more than one foot, provided that the community first applies for a conditional FIRM revision through FEMA (Conditional Letter of Map Revision).
- c) Permit Procedures
- i) Application for a development permit required under this Code shall be presented to the floodplain administrator on forms furnished by the property owner or the property owner's representative and may include, but is not limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, including the placement of manufactured homes, and the location of the development in relation to areas of special flood hazard. Additionally, the following information is required:
    - a. Where base flood elevations have not been provided by the Federal Emergency Management Agency, a drainage study prepared and certified by a professional engineer registered in the state. The drainage study shall include:
      - i. An aerial photo of the area to be developed and contributing watershed;
      - ii. An up-to-date contour map of the site to be developed at a scale of 1" = 100' and contour lines at intervals of no more than one foot and spot elevations at all breaks in grade along all drainage channels or swales and at selected points not more than 100 feet apart in all directions;
      - iii. A contour map identifying the site to be developed and the entire watershed that contributes storm runoff to the development site;
      - iv. Calculations showing the peak discharge and volume of runoff that will pond or pass through the development site from a one percent probability storm; and
      - v. Calculations showing the one percent probability storm base flood elevation in relation to mean sea level on the site to be developed.
    - b. Elevation in relation to mean sea level, of the lowest floor, including basement, of all new and substantially improved structures;
    - c. Elevation in relation to mean sea level to which any nonresidential structure shall be flood proofed;
    - d. A certificate from a professional engineer or architect registered in the state of New Mexico that the nonresidential floodproofed structure shall meet the floodproofing criteria of **Sec. 5-5.D.14.b)ii)** below;
    - e. A description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development; and
    - f. Maintenance of a record of all such information in accordance with **Sec. 5-5.D.13.b)i)** above.
  - ii) Approval or denial of a development permit by the Floodplain Administrator shall be based on all of the sections of this ordinance and the following relevant factors:
    - a. The danger to life and property due to flooding or erosion damage;
    - b. The susceptibility of the proposed structure and its contents to flood damage and the effect of such damage on the individual owner;
    - c. The danger that materials may be swept onto other lands to the injury of others;
    - d. The compatibility of the proposed use with existing and anticipated development;

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- e. The safety of access to the property in times of flood for ordinary and emergency vehicles;
- f. The costs of providing governmental services during and after flood conditions, including maintenance and repair of streets and bridges and public utilities;
- g. The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; or
- h. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.

#### 14. Flood Hazard Reduction

##### a) General Standards

In all areas of special flood hazards, the following are required for all new construction and substantial improvements:

- i) All new construction or substantial improvements shall be designed or modified and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
- ii) All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.
- iii) All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- iv) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
- v) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters.
- vi) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- vii) Floodplain development shall follow the Federal Emergency Management Agency's letter of map change (LOMC) process (e.g., LOMA, LOMR, LOMR-F, CLOMR, CLOMR-F) as specified in 44 CFR. Upon the submittal of any preliminary and/or final drainage drawings for review, floodplain information shall be required along with a Conditional Letter of Map Revision (CLOMR and CLOMR-F) and a Letter of Map Revision (LOMR and LOMR-F) for 1-percent probability storm event for storm flows of greater than 250 cubic feet per second, developments of five acres and larger, developments with 50 or more lots, and/or developments with any changes to the existing flow path in flood hazard zones AE, A, AH, AO, and D. Information shall include peak discharges for the 10-percent, 2-percent, 1-percent, and 0.2-percent probability storms for the floodplain inundation area and anticipated depth of floodwaters one foot and deeper. Standard step backwater models shall be used for flood depth determination. The Hydrologic Engineering Centers HEC-2 analysis method may be required. Improvements and subdivisions will not be accepted by the City until the flood study has been approved by the Federal Emergency Management Agency.
  - a. A CLOMR will be submitted for review by the City and submitted to the Federal Emergency Management Agency prior to plan and/or final plat approval.
  - b. A LOMR will be submitted for review by the City and submitted to the Federal Emergency Management Agency before acceptance by the City and before the issuance of any Certificate of Occupancy. Costs incurred for the preparation of materials and fees paid to the Federal Emergency Management Agency will be borne by the developer.

##### b) Specific Standards

In all areas of special flood hazards where base flood elevation data has been provided as set forth in **Sec. 5-5.D.6 Basis for Establishing the Areas of Special Flood Hazard, Sec. 5-5.D.13.b)viii)** or **Sec. 5-5.D.14.c)iii)** below), the following are required:

##### i) Residential Construction

New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one foot above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit a certification to the Floodplain Administrator that the standard of this subsection as proposed in

**Sec. 5-5.D.13.c)i)a** above is satisfied. When Base Flood elevation data has not been established, the City shall obtain, review, and reasonably utilize any Base Flood elevation data and regulatory data available from federal, state or other source, in order to administer the provisions of this Section.

ii) Nonresidential Construction

New construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated to or above the base flood level or, together with attendant utility and sanitary facilities, be designed so that below the base flood level, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification, which includes the specific elevation in relation to mean sea level to which such structures are floodproofed, shall be issued by the certifying professional to the Floodplain Administrator and be maintained by the Floodplain Administrator.

iii) Enclosures

New construction and substantial improvements, with fully enclosed areas below the lowest floor that are useable solely for the parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed all of the following minimum criteria:

- a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided;
- b. The bottom of all openings shall be no higher than one foot above grade; and
- c. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

iv) Manufactured Homes

Manufactured homes are subject to the following regulations.

- a. All manufactured homes to be placed within Zone A on a community's FIRM shall be installed using methods and practices which minimize flood damage. For the purpose of this subsection, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.
- b. Manufactured homes in the following categories that are placed or substantially improved within Zones A1-30, AH, and AE on the community's FIRM must be elevated on a permanent foundation such that the lowest floor of the manufactured home is one foot above the base flood elevation and shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movements in accordance with subsection 4(d) of this section:
  - i. Outside of a manufactured home park or subdivision,
  - ii. In a new manufactured home park or subdivision,
  - iii. In an expansion to an existing manufactured home park or subdivision, or
  - iv. In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood.
- c. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision with Zone A1-30, AH and AE on the community's FIRM that are not subject to the provision of paragraph iv of this section must be elevated so that either:
  - i. The lowest floor of the manufactured home is one foot above the base flood elevation, or

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- ii. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.
- d. Ground anchoring systems shall meet the requirements outlined in the City manufactured housing installation code. Anchors and anchoring systems that do not meet these requirements shall be designed by a professional engineer registered in the state of New Mexico and approved by the Floodplain Administrator.
- v) Recreational Vehicles

Recreational vehicles placed on sites within Zones A1-30, AH, and AE on the community's FIRM either:

  - a. Be on the site for fewer than 180 consecutive days,
  - b. Be fully licensed and ready for highway use, or
  - c. Meet the permit requirements of **Sec. 5-5.D.13.c)i)b** above, and the elevation and anchoring requirements for "manufactured homes" in **Sec. 5-5.D.14.b)iv)** above. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions.
- c) Standards for Subdivision Proposals
  - i) All subdivision proposals, including the placement of manufactured home parks and subdivisions, shall be consistent with **Sec. 5-5.D.2 Findings of Fact** through **Sec. 5-5.D.4 Methods of Reducing Flood Losses**.
  - ii) All proposals for the development of subdivisions, including the placement of manufactured home parks and subdivisions, shall meet development permit requirements of **Sec. 5-5.D.7 Establishment of Development Permit** and **Sec. 5-5.D.13.c) Permit Procedures**.
  - iii) Base flood elevation data shall be generated for subdivision proposals and other proposed development, including the placement of manufactured home parks and subdivisions, which is greater than 50 lots or five acres, whichever is less, if not otherwise provided pursuant to **Sec. 5-5.D.6 Basis for Establishing the Areas of Special Flood Hazard** or **Sec. 5-5.D.13.b)viii)** above.
  - iv) All subdivision proposals, including the placement of manufactured home parks and subdivisions, shall have adequate drainage provided to reduce exposure to flood hazards.
  - v) All subdivision proposals, including the placement of manufactured home parks and subdivisions, shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system. New and replacement sanitary sewer systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during a flood event.

In addition to the requirements herein, all proposals for the development of subdivisions shall meet development permit requirements of **Sec. 5-5.D.7 Establishment of Development Permit**, and **Sec. 5-5.D.13.c) Permit Procedures**.
- d) Standards for Areas of Shallow Flooding (AO/AH Zones)

Areas designated as shallow flooding are located within the area of special flood hazard as established in **Sec. 5-5.D.6 Basis for Establishing the Areas of Special Flood Hazard**. These areas have flood hazards associated with base flood depths of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where higher velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following apply to AO and AH zones:

  - i) All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified).
  - ii) All new construction and substantial improvements of nonresidential structures shall:
    - a. Have the lowest floor, including basement, elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified); or

- b. Together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.
- iii) A registered professional engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this section, as proposed in **Sec. 5-5.D.13.c)i)a** above, are satisfied.
- iv) Adequate drainage paths around structures on slopes shall be required to guide floodwaters around and away from proposed structures.
- e) Floodways

Floodways located within areas of special flood hazard established in Sec. 5-5.D.6 Basis for Establishing the Areas of Special Flood Hazard are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions shall apply to the floodway:

Revisit LID incentives with Design Standards comprehensive review (increased coverage/density, reduced landscaping).

- i) Encroachments are prohibited, including fill, new construction, substantial improvements and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses, performed in accordance with standard engineering practice, that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.
- ii) If subsection i) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of **Sec. 5-5.D.14.a) General Standards** through **Sec. 5-5.D.14.d) Sec. 5-5.D.14.d)Standards for Areas of Shallow Flooding (AO/AH Zones)**.
- iii) Under the provisions of the National Flood Insurance Regulations, the City may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the City first applies for a conditional FIRM and floodway revision through the Federal Emergency Management Agency.
- iv) Encroachment may be allowed for new development when proper studies are performed that provide ecological uplift. The City encourages the restoration of deteriorated flood areas and encourages a dual-purpose standard for flood mitigation including participation in FEMA/CRS program Activity 420-Open Space Preservation which provides for flood insurance policy holder discounts.
- v) Buffers. Development adjacent to arroyos shall have an established setback or buffer to protect the property and structures from erosion and undercutting. Minimum setback will be ten (10) feet from the top of the banks where the arroyo or channel banks are well-defined and in a natural condition (unlined). In areas where the arroyo is not well-defined, or multiple shallow arroyos exist, the buffer shall be established by determining the erosion potential adjacent to the property proposed for development based on characteristics of the arroyo or its banks, by a registered professional engineer in the State of New Mexico.

## E. Low Impact Development and Green Infrastructure

1. In accordance with the Arroyo Management Plan (2015), Low Impact Development (LID) and Green Infrastructure (GI) techniques related to stormwater control are designed to reduce the volume of runoff that reaches arroyos and drainage structures by lessening the runoff at the source. This is accomplished by using a combination of strategic site design, measures to control sources of runoff, and landscape planning. LID focuses on hydrologically functional sites that restore predevelopment drainage conditions. GI includes techniques to infiltrate, evapotranspire, harvest and reuse stormwater to maintain or restore natural hydrology. This section outlines Low Impact Development (LID) strategies to design stormwater quality features to treat the stormwater quality as part of the development process. In addition, the recommendations provided by the National Association of City Transportation Officials (NACTO) in the Urban Street Stormwater Guide shall be used for the development of LIDs within the City limits. LID goals for the City are include improved infiltration of stormwater, improved soil stabilization, and increased groundwater recharge.
2. Stormwater quality needs should be considered during the design process. The intent should be to provide for stormwater capture and treatment throughout the site. Spreading the runoff over a larger portion of the site can help avoid underground capture or large basins that are difficult to maintain.
3. Impervious areas should be drained to landscaped areas. Impervious areas can be reduced by using porous pavement or gravel for low-use or emergency access and select treatment techniques to promote infiltration.

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4. Integrate stormwater quality management and flood control when and where practical. Use landscaping to minimize potential for erosion which will reduce maintenance. Fine soils may clog filters and porous pavement over time. Fines should be captured or stabilized to minimize maintenance or clogging. The use of soil amendment is encouraged to improve infiltration.
5. LID strategies shall be considered and developed as part of the development drainage plan in order to minimize required stormwater detention or retention volumes. LID strategies shall be considered for both commercial and residential development and should demonstrate consideration of the local climate and soil types and availability of water for maintenance of trees and vegetation. The City's Landscape Architect shall maintain a list of approved plant materials.
6. See the Drainage Criteria Manual for approved LID methods to improve stormwater quality. Such LID methods must be shown on a Master Drainage Study.

Specific LID methods to be moved to separate manual to allow for more frequent updates

## F. Drainage and Stormwater Quality Submittals

### 1. Requirements for Storm Drainage Reports and Construction Plans

All drainage reports shall be prepared by a professional engineer registered in the State of New Mexico and shall comply with the minimum requirements and specifications set forth in this section.

Review schedules will be as outlined in the subdivision and building codes. However, reports involving large developments and complex structures will require more review time.

The engineer should be aware that whenever unusual or serious drainage problems are anticipated in conjunction with a proposed development, additional analysis and information beyond the minimum requirements outlined in this section may be required by the Public Works Director.

The following specifications and criteria shall be used:

#### a) Master Drainage Study

- i) A master drainage study shall be required prior to approval for any annexation, planned unit development, or subdivision preliminary plat. The purpose of the master drainage study is to identify major drainage ways, ponding areas, locations of culverts, bridges, open channels and drainage basins that are contributory to the proposed study area. In addition, the ability of downstream drainage facilities to pass the developed runoff from the proposed development must be analyzed in the master drainage study. The master drainage study shall contain a general outline of the proposed drainage routing plans for the development. The report shall include but not be limited to the following information and calculations:
  - a. Calculations for peak flow for the major storm event from all upstream off-site tributary drainage areas.
  - b. Calculations for peak flow for the major storm event within the proposed development for all drainage basins larger than 20 acres.
  - c. Preliminary analysis of the floodplain and major drainage ways for the one percent and ten percent probability storm event.
  - d. Closed subbasin analysis including identification of water into or out of subbasin.
  - e. Discussion and analysis of adverse impact anticipated to downstream drainage facilities.
  - f. Discussion of drainage problems and solutions that are anticipated within the proposed development.
  - g. The report shall be submitted electronically and formatted to an 8½-inch by 11-inch paper.
  - h. All drainage studies/reports must include a table of pertinent values in the body of the report. The values shall include, at a minimum, flow depth for all flow paths, peak velocity, T<sub>c</sub>, freeboard for channels (not including streets), flow (Q), CN numbers, and volumes of runoff for basins. Drainage studies shall include maps showing both flow and volume into and out of basin(s) and proposed development.
  - i. Flows may need to be routed to a historic point of convergence for both the pre- and post-development/construction condition.
- ii) Drawings for the master drainage study shall include but not be limited to the following:



- a. Any and all floodplains and floodways must be identified. A copy of the applicable FEMA floodplain map is required indicating limits of current study.
  - b. Existing topography, **one-foot** contour interval minimum.
  - c. Location and size of existing and proposed open channels, storm drains, and all other drainage structures.
  - d. NRCS soils map with area of interest indicated.
  - e. Identification of all drainage basins upstream and within the development, as applicable.
  - f. Location of all streets larger than local classification.
  - g. Basin maps may be scaled as small as 1" = 600' (1:7200). Orthophoto maps at a scale of 1" = 200' are preferred. Basin maps shall have each basin name, area (acres), 10-percent and 1-percent peak flows (CFS) into and out of the basin (shown at the location of concentration) and, clearly indicated flow paths. Maps of a scale 1" = 2,000' may be used for undeveloped, offsite basins greater than one square mile.
  - h. All maps shall be formatted to a minimum of 24" x 36" and shall be professionally incorporated within the report. Pre-printed maps, such as USGS maps, are acceptable. Maps of a smaller size may be accepted at the reviewer's discretion.
- iii) Inlet and storm drain size calculations are not required with the master drainage study; therefore, the number of subbasins analyzed in the report shall be held to the smallest practical number.
- iv) Recommended Outline. The following is a sample outline for a typical master drainage report. Each of these headings should be addressed in the report body with supporting information and calculations in the appendices. Information provided at this stage of the review process is reviewed for only the phase submitted for and only for the requirements above. Post-development items are considered conceptual during this review phase.
- a. Introduction and purpose
  - b. Methodology
  - c. Scope of investigation
  - d. Meteorological and geological
    - i. Climate
    - ii. Rainfall
    - iii. Soil investigation
      - (a) Hydrologic soil classification
      - (b) Runoff curve number
      - (c) Soil description
  - e. Basins
    - i. Basin parameters
  - f. Hydrology
    - i. Pre-development
      - (a) Direct runoff
      - (b) Runoff volume computation
      - (c) Peak flow computations
    - ii. Post-development
      - (a) Direct runoff
      - (b) Runoff volume computation
      - (c) Peak flow computations

City Staff to confirm whether 1' or 2' is desired

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- iii. Comparison and ponding of pre- and post-development
- g. Hydraulics
  - i. Natural and manmade channels
  - ii. Streets
- h. Conclusion section
  - i. Discussion of final drainage management strategy
  - ii. Detailed description of hydraulic and hydrologic interaction
  - iii. Formal statement by the developer certifying that the development will not have adverse on properties and structures adjacent to or downstream of the new development.
- i. Appendices
  - i. All required maps and drawings
  - ii. All calculations
  - iii. Input and output from any modeling and routing software.
- b) Final Drainage Study

The final drainage study shall be a detailed study and analysis of the drainage in the proposed development for both predevelopment and post-development conditions. Developments include but are not limited to subdivisions, commercial developments, or planned unit developments. It shall include detailed calculations for all runoff within the proposed development, and detailed calculations for all runoff exterior to the site, with detailed calculations supporting the design of all drainage structures within the development. Final drainage studies shall use the approved methods as outlined in the Runoff Analysis Methods and shall incorporate green infrastructure as per NACTO guidelines where applicable and appropriate, including, but not limited to, porous pavement, enhanced infiltration, and vegetative slope stabilization. Construction plans for all drainage structures, grading plans and street grades, where applicable, shall also be considered part of the final drainage study. Drawings and calculations comprising the final drainage study shall include but not be limited to the following information:

- i) Clearly labeled existing and proposed contours for proposed development. (Contour interval based on USGS datum, two-foot contour interval minimum.)
- ii) Location and elevations of City or USGS benchmarks. All elevations shall be based on USGS datum.
- iii) Property lines.
- iv) Streets, right-of-way limits, names and grades.
- v) Existing drainage facilities and structures, including existing irrigation ditches, roadside ditches, drainage ways, gutter flow directions, and culverts. All pertinent information such as size, slope, and location of existing drainage ways shall be included to facilitate review and approval of drainage plans.
- vi) Overall drainage area boundaries and drainage sub area boundaries.
- vii) Proposed type of curb and gutter (vertical, combination, rollover, or flat) and gutter flow directions including cross-spans (intersections).
- viii) Proposed storm drains, open drainage ways, and right-of-way requirements, including proposed inlets, manholes, culverts, erosion control and energy dissipation devices, and any other required appurtenances necessary for drainage control.
- ix) Proposed inflow and outfall points for runoff from the study area.
- x) Routing and combining all flows at various critical points for the initial 10-percent probability (10-year) and major (1-percent probability, 100-year) storm runoff. Note: When a stormwater pollution prevention plan (SWPPP) or erosion control plan is required, this evaluation is required for a 50-percent probability, 2-year storm during construction.
- xi) Minimum finished floor elevation and ground site elevations at all critical building locations for protection from major storm runoff.

- xii) Predevelopment and post-development basin maps, with a scale of 1" = 100' (1:100) of the proposed development, which shall show the following information:
  - a. Location and size of all drainage structures.
  - b. General flow patterns and flow paths within the development also to include offsite basins affecting the development.
  - c. Finished floor and ground site elevations of all buildings and adjacent sites and structures.
  - d. The 1-percent probability storm event flood level in all streets in which the curb is overtopped.
  - e. All drainage basins within, and affecting, the development shown in a table listing basin names, basin area (acre), 10-percent and 1-percent flood event peak flows into and out of each basin shown at the flow path location. The number of basins should be limited to the smallest practical number.
- xiii) All floodplains and floodways within the proposed development. A copy of the current FEMA floodplain map is required, showing project limits.
- xiv) All electronic or printed drawings shall be on 24" by 36" sheets. Maps of a smaller size may be accepted at the reviewer's discretion.
- xv) NRCS soils map showing project location.
- xvi) Final drainage study shall incorporate master drainage study.
- xvii) Recommended outline. The following is a sample outline for a typical final drainage report. Each of these headings should be addressed in the report body with supporting information and calculations in the appendices. Information provided at this stage of the review process is reviewed for only the phase submitted for and only for the requirements above.
  - a. Introduction and purpose
  - b. Methodology
  - c. Scope of investigation
  - d. Meteorological and geological
    - i. Climate
    - ii. Rainfall
    - iii. Investigation
      - (a) Hydrologic soil classification
      - (b) Runoff curve number
      - (c) Soil description
  - e. Basins
    - i. Basin parameters
  - f. Hydrology
    - i. Pre-development
      - (a) Direct runoff
      - (b) Runoff volume computation
      - (c) Peak flow computations
    - ii. Post-development
      - (a) Direct runoff
      - (b) Runoff volume computation
      - (c) Peak flow computations

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- iii. Comparison and ponding of pre- and post-development
- g. Hydraulics
  - i. Natural and manmade channels
  - ii. Streets
  - iii. Culverts and storm drains
- h. Conclusion section
  - i. Discussion of final drainage approach
  - ii. Detailed description of hydraulic and hydrologic interaction.
- i. Appendices
  - i. All required maps and drawings
  - ii. All calculations
  - iii. Input and output from any modeling and routing software.

#### c) Plan Details

The following details shall be indicated on the drainage plans:

- i) Title block (lower right-hand corner preferred).
- ii) Scale.
- iii) Date and revisions.
- iv) Name of professional engineer and firm.
- v) Professional engineer's seal.
- vi) Drawing number (sheet n/n).
- vii) Legend.
- viii) Approval blocks for various city departments.

#### d) Construction Plans

Construction plans shall show the following information:

- i) Plan.
  - a. North arrow.
  - b. Property lines, adjacent property's, ownership thereof and subdivision information.
  - c. Street names and easements with width dimensions and location.
  - d. Existing utility lines, location and depth, or height, as follows:
    - i. Water.
    - ii. Gas.
    - iii. Telephone.
    - iv. Storm drains.
    - v. Irrigation canals.
    - vi. Sanitary sewers.
    - vii. Other utilities.
- ii) Profile.
  - a. Vertical and horizontal grids with scales.

- b. Ground surface grade (dashed) and proposed grade (solid).
- c. Existing utility lines where crossed.
- d. Benchmarks (USGS datum).
- iii) Proposed construction.
  - a. Pipes and culverts.
    - i. Plan showing stationing.
    - ii. Profile.
    - iii. Size, length between manholes, and pipe composition.
    - iv. Grades of pipe.
    - v. Inlet and outlet details of all manholes and inlets, and connections to existing drainage systems.
    - vi. Manhole details including station numbers and invert and top elevations.
    - vii. Typical bedding details for pipe for all bedding situations encountered on project.
  - b. Open channels.
    - i. Plan showing stationing.
    - ii. Profile indicating grade of invert of channel, top of lining if any and adjacent ground grade.
    - iii. Typical cross sections.
    - iv. Construction notes.
    - v. Lining details.
    - vi. Riprap and bedding details, and gradation requirements for same.
    - vii. Structure details of all inflow, outflow and drop structures. Including sub grade and foundation design details.

2. Construction Approval

Record drawings of improvements shall be provided for all subdivision or public right-of-way construction projects. The design engineer and the City must review and approve any changes to the original design of a project. Record drawings will be made by the design engineer from information provided by job-site contractors or field surveys. Upon obtaining the record drawings, final inspection, Letter of Map Revision (when applicable), and approval by the Public Works Director, the project can be issued a letter of acceptance, or the improvement can be accepted by the City in the case of a subdivision or planned development.

3. Warrant from Stormwater Quality Management On Site

- a) Warrant: The Public Works Director may authorize alternative methods if the following conditions are met:
  - i) Stormwater quality can effectively be controlled through private off-site mitigation or through an arrangement to use an existing regional stormwater management facility.
  - ii) Any of the following conditions apply:
    - a. The soil is not stable as demonstrated by a geotechnical report certified by a professional engineer licensed in the State of New Mexico.
    - b. The site use is not consistent with the capture and reuse of stormwater.
    - c. Other physical conditions exist that do not leave sufficient area for on-site stormwater quality control.
    - d. The developer constructs a project to replenish regional groundwater supplies at an off-site location that is located in the same drainage basin within the boundaries of the development site.
    - e. A waiver to New Mexico water law or acquisition of water rights would be required in order to implement management on site.
- b) The basis for requesting private off-site mitigation or a warrant request is clearly demonstrated in the Drainage Plan.

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**G. Drainage System Operation and Maintenance**

1. The actual effectiveness of any storm drainage system compared to that determined through modeling and other engineering computation procedures may differ greatly. The intake capacity of a storm drain inlet can be reduced by more than 75 percent due to debris accumulation. Trash collecting on a pier of a bridge over a flood control channel may actually direct water out of the channel although the discharge is well below the channel design capacity. Sand and silt accumulations within a storm sewer may completely block the line. Pump stations that have not been regularly exercised may not operate when called upon.
2. In order to increase system efficiency and improve the City drainage systems, the following maintenance guidelines shall apply to operators of private drainage systems:

**Figure 5-5-2. Private Drainage System Maintenance Guidelines**

Facility	Maintenance	Inspection
Channels	Monthly June-October	Semiannual
Pump stations	Monthly June-October	Semiannual
Detention facilities	As necessary monthly June-October	After any major storm (one inch or greater)
Storm sewer systems	Annual	Biannual
Storm sewer inlets	After rainfall events or biweekly during rainy periods	Semiannual

3. Proper operations and maintenance of storm drainage and flood control facilities includes both cleaning and minor repair to the facilities as well as completely rebuilding some facilities which have, through weathering or lack of maintenance, been rendered useless or present a threat to public safety.

4. Community Ditches and Parkways

The maintenance, cleaning, weed and grass removal, upkeep and repair of community ditches and parkways within the City shall be the responsibility of the owners of the abutting property, whether or not such persons are users of water in the community ditch.

5. Maintenance Responsibilities for Stormwater Systems

- a) Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately-owned structures within or adjacent to the watercourse, so that such structures will not become a hazard to the use, function or physical integrity of the watercourse.
- b) The stormwater management system shall be maintained in good condition and promptly repaired. Maintenance shall include the repair and restoration of all grade surfaces, walls, swales, drains, dams, ponds, basins, site restoration measures, associated vegetation, and any other stormwater measure constructed on site. Such maintenance shall be in accordance with the National Pollutant Discharge Elimination System Manual Storm Water Management Guidelines for Construction and Industrial Activities, latest version.
- c) All stormwater management measures and facilities shall be maintained by the fee simple owner of the property or a homeowners association in the case of a regional pond, unless a dedication of the stormwater management system has been required or accepted by the City, in which case, the City shall be responsible for maintenance. Maintenance agreements shall be recorded at the County Clerk and the rights and responsibilities for the maintenance of the drainage structures will be associated with the property in the event of a transfer of ownership, unless and until the drainage structures are modified or removed. Any and all changes to the maintenance agreement will be required to be recorded at the County.
- d) Owner(s) of drainage structures, including ponds, that discharge or connect to the City of Las Cruces stormwater utility (MS4) or discharge into the Waters of the United States within the City of Las Cruces city limits must conduct, at a

minimum, an inspection of each drainage structure every three years following a passing inspection beginning when the property owner assumes ownership of the property and files the maintenance agreement.

- i) Privately maintained infrastructure shall be inspected by City personnel on a routine basis. Inspection shall include, but not be limited to:
  - a. Inspection and maintenance records; review of design and technical specifications of infrastructure; physical inspection of facility; and review of required maintenance agreement.
  - b. Erosion will be noted in physical inspection with corrective actions required.
  - c. Sediment accumulation will be noted by required engineered controls including sediment gauges, staffs, or designed elevation of pond depth, to determine if sediment removal is required.
- ii) The City may choose to provide a pre-formatted inspection report to be used for each inspection. Any maintenance and repair deficiency identified in the inspection report must be adequately addressed to ensure compliance with the requirements of the City. Upon completion of all necessary maintenance, repair or deficiency identified in the inspection report, the drainage structure shall be re-inspected at the Owner's expense. The re-inspection report shall be filed and approved by the City confirming that all corrective measures have been completed.
- iii) If the Owner(s) responsible for maintaining the drainage structure(s) fails to properly maintain the structures or submit certified inspection reports, the City will send a written notice to the owner(s) to correct the problem within 30 days from the Owner(s) receipt of the notice. If the owner(s) fail to comply with the notice, the City may initiate action as outlined in the subsequent section, Maintenance Agreement.
- e) Prior to project construction plan approval by the City, applicants must ensure implementation and maintenance of the BMPs. Applicants shall be required to submit a maintenance agreement and operation and maintenance plan prior to issuance assuring that all permanent BMPs will be maintained throughout the "use" of the project site, in a manner that is satisfactory to the public works department.
- f) For all properties, the verification mechanism will include the applicant's signed statement, as part of the construction permit application, accepting responsibility for all permanent BMP maintenance, repair and replacement. This signed statement shall be in the form of a Maintenance Agreement.

6. Maintenance Agreement

The maintenance agreement shall include the following:

a) Operation and Maintenance (O&M) Plan

The applicant shall include an operation and maintenance (O&M) plan, prepared satisfactory to the City, with the approved maintenance agreement, which describes the designated responsible party to manage the stormwater BMP(s), including maintenance frequency specific maintenance activities (including maintenance of storm drain inlet markers), copies of agency permits and any other necessary activities. At a minimum, maintenance agreements shall require the applicant to provide inspection and servicing of all permanent BMPs on an annual basis. The project proponent shall complete and maintain O&M forms to document all maintenance requirements. Parties responsible for the O&M plan shall retain records for at least five years following the date that the maintenance occurred. These documents shall be made available to the City for inspection upon request at any time. O&M plan shall require engineered controls, including staffs or gauges, to facilitate inspection of sediment accumulation in retention and detention facilities.

b) Access Easement/Agreement

Unless the applicant accepts permanent maintenance responsibilities, the applicant shall execute an access easement, if needed, to the official maintenance entity that shall be binding on the land throughout the life of the project.

c) Maintenance Violations

If, after notice by the City to correct a violation requiring maintenance work, satisfactory corrections are not made by the owner(s) or responsible party within 30 days, the City may perform or contract all necessary work to place the facility in proper working condition. The owner(s) or responsible party of the facility shall be assessed the associated costs of the work and shall reimburse the costs for said work. In the event of non-payment of work, a lien will be placed on the property associated with the repair, maintenance or corrections of deficiencies identified by the City.

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#### 7. Citizen Participation

- a) All citizens are encouraged to report to the City any spills, releases, illicit connections, other instances of anyone discharging pollutants into the MS4 or waters of the United States, and any other violation of this section of which they become aware.
- b) The Public Works Director or City Codes Enforcement Department shall receive all such citizen reports by telephone, in writing, and in person. A written record of each citizen report will be prepared and kept on file for a period of three years, and a copy of the City's record of the report will be furnished to the reporting citizen upon request. Also upon request, the City will inform the reporting citizen of any action undertaken by the City in response to the citizen's report.
- c) The City shall establish a local telephone number for the reporting of such violations. The number shall be displayed at various locations throughout the City, as designated by the Public Works Director and City Codes Enforcement Department.