

MEMORANDUM

DATE: July 7, 2023

TO: Ms. Jacqueline Beam, Santa Fe County

FROM: Sarah Ganley, PE, ENV-SP
Caitlin Lardner, EI

SUBJECT: **County Code Review and Recommendations Related to MS4 Permit Stormwater Management Requirements**

Bohannon Huston, Inc. (BHI) reviewed the existing Santa Fe County (County) codes as they relate to the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit requirements for stormwater management.

This memo provides a summary of the code review and recommended code updates to consider (Attachment 1) to better meet stormwater management requirements to address stormwater pollution. It also includes recommendations and related examples of green stormwater infrastructure (GSI) and low impact development (LID) ordinances to improve management of stormwater pollution (Attachment 2).

Code Review Summary and Recommendations

Table 1 summarizes the current Santa Fe County codes and ordinances that were reviewed related to stormwater management.

Santa Fe County's Sustainable Land Development Code (SLDC) currently addresses many of the MS4 permit requirements for stormwater management. Often, multiple codes address portions of the requirements. Table 1 below summarizes the MS4 permit six minimum control measure categories and the various County codes that address elements within these permit categories.

As can be seen in Table 1, there are numerous codes that relate to the requirements in the MS4 permit for stormwater management. Though most requirements of the MS4 permit are covered in existing County codes, the convoluted nature of having them enumerated in so many different areas make the review of County adherence to the MS4 permit requirements difficult. It would provide clarity and efficiency to show all MS4 permit requirements in SLDC 7.19 code, which currently has no content and is reserved for NPDES.

**Table 1: Santa Fe County Existing Codes Related to MS4 Permit
Minimum Control Measures (MCM) Requirements**

No.	MS4 Permit Minimum Control Measures (MCM)	Existing Santa Fe County Codes & Resolutions
1	Public Education & Outreach	- SLDC 7.13 - Resolution 2020-51
2	Public Involvement & Participation	- Resolution 2019-95
3	Illicit Discharge Detection & Elimination (changed to Illicit Discharges and Improper Disposal in draft MS4 permit)	- Chapter 50, Subchapters 7 and 11 - Chapter 90, Subchapter 4 - Chapter 92, Subchapters 7, 13, and 22 - Chapter 93, Subchapters 3, 4, and 08 - Chapter 95, Subchapters 5 and 55 - Chapter 110, Subchapter 9 - Chapter 117, Subchapter 5 - Chapter 131, Subchapter 40 - Ordinance 2014-10 - SLDC 5.10 - SLDC 7.13 - SLDC Chapter 14
4	Construction Site Stormwater Runoff Control	- Chapter 94, Subchapters 23, 24, and 25 - Chapter 112, Subchapter 21 - Ordinance 2008-19 - Resolution 2022-36 - SLDC Chapter 4, 4.3 and 4.8 - SLDC 6.1 - SLDC 7.17 - SLDC 10.19 - SLDC Chapter 11, 11.4, and 11.14
5	Post-Construction Site Stormwater Runoff Control in New Development and Redevelopment	- Chapter 100, Subchapters 5 and 6 - Resolution 2020-93 - SLDC 1.4 - SLDC 4.9 - SLDC 5.7 - SLDC Chapter 7 - SLDC Chapter 8, 8.6, and 8.9-8.12 - SLDC Chapter 11, 11.9-11.11 - SLDC 12.14
6	Pollution Prevention/Good Housekeeping for Municipal Operations	- SLDC 7.25

As mentioned above, it is recommended that content be developed for all MS4 permit requirements and placed in SLDC 7.19 code, which is reserved for NPDES. As development of the new code content for SLDC 7.19 will take additional time and resources, several key existing codes are summarized in Attachment 1 along with updates to consider for improved compliance with MS4 permit requirements. The intent of the updates is to improve the codes to better meet stormwater management requirements to address stormwater quality.

Green Stormwater Infrastructure Ordinance Recommendations

Green stormwater infrastructure (GSI) is a method of sustainable stormwater management that focuses on treating stormwater runoff prior to it entering rivers, streams, aquifers, and other waterways by leveraging the ecological functions of living, natural systems. GSI is often referred to as green infrastructure (GI). GI can have a broader definition than just stormwater, which is why GSI has been adopted in New Mexico as it relates to stormwater management.

The County's current MS4 permit (NMR040000, effective July 1, 2007, and administratively continued since July 30, 2012) does not have any requirements for the use of GI, Low Impact Development (LID), or sustainable practices in stormwater designs. In July 2015, the US Environmental Protection Agency (EPA) issued a draft Small Municipal MS4 permit (NMR040000) and held public meetings across the state. This draft Small MS4 permit is very similar to the Middle Rio Grande Watershed Based MS4 permit and requires the following related to GI/LID:

- 1) The site plans be reviewed and must include an evaluation of opportunities for use of GI/LID/Sustainable practices and when the opportunity exists, encourage project proponents to incorporate GI/LID/Sustainable practices into the site design to mimic the pre-development hydrology of the previously undeveloped site.
- 2) The MS4 permittee must track and report (in each annual report) the number of plans that had the opportunity to implement GI/LID/Sustainable practices and how many incorporated the practices.
- 3) A procedure to develop and implement an educational program for project developers regarding designs to control water quality effects from stormwater, and a training program for plan review staff regarding stormwater standards, and site design techniques and controls, including training regarding GI/LID/Sustainability practices. Training may be developed independently or obtained from outside resources, i.e., federal, state, or local experts.
- 4) The permittee must assess all existing codes, ordinances, planning documents and other applicable regulations, for impediments to the use of GI/LID/Sustainable practices.

Santa Fe County is looking ahead of the current requirements and is considering how to add GSI/LID requirements to its codes and ordinances. Related examples of GSI ordinances and LID recommendations to improve stormwater management requirements to address stormwater quality using GSI in Santa Fe County are summarized below, as well as in Table 2, and provide examples that range from recommending the use of GSI/LID to requiring the implementation of GSI/LID. Attachment 2 provides excerpts from the example ordinances.

The Village of Los Ranchos in the Middle Rio Grande provides an example of code where GSI/LID use is recommended, but not required, and analysis for GSI/LID is not required. The Village of Los Ranchos Code of Ordinances includes references to LID in their requirements for Site Development Plans. Site Development Plans require a Stormwater Management Plan and the ordinance indicates that LID is recommended. They also require all development to meet Federal, State, and local EPA NPDES requirements and recommend using LID practices and principals.

The Bernalillo County Code of Ordinances provides an example of code where GSI/LID use is encouraged and recommended, and evaluation of opportunities to implement GSI/LID is required. Implementation of GSI/LID is strongly encouraged but not required. The Bernalillo County Code of Ordinances states that Post-Construction Best Management Practices (BMPs) design requirements and implementation must include an evaluation by the applicant of the GSI/LID practices provided by the County's guidelines and development process manual. It further stipulates that the language of the code should not be construed to prohibit the use of GSI/LID in medians and within off-pavement rights-of-way for stormwater quality treatment purposes upon approval by the county engineer. This example is modeled most closely to the MS4 permit requirements that Santa Fe County is likely to encounter from EPA.

Three examples where agency codes require the implementation of GSI are included with this memo. First, Los Angeles County, California implemented an ordinance to amend their Title 12 – Environmental Protection of the Los Angeles County Code with LID requirements for designated projects to include retention of 100% of the Stormwater Quality Design Volume through infiltration, evapotranspiration, rainfall harvest and use, or a combination thereof, unless determined to be technically infeasible. The City of Flagstaff, Arizona is another example of an ordinance that requires LID integrated management practices be used to retain or infiltrate the first one inch of runoff from all impervious areas on sites that are also required to provide stormwater detention. Finally, as an example from New Mexico, Los Alamos National Labs (LANL) requires a minimum of two GSI/LID features to meet the Energy Independence and Security Act (EISA) 438 standards. EISA 438 requires that all facility development or redevelopment projects must maintain or restore the pre-development hydrology of the property with regard to temperature, rate, volume, and duration of flow.

**Table 2: Examples of GSI Requirements in Codes/Ordinances
for Santa Fe County to Consider**

Level of GSI/LID Requirements in Code/Ordinance	Example Agency	Santa Fe County Code Updates to Consider
Recommend Use, No Required Consideration or Analysis	Village of Los Ranchos, NM	SLDC 7.17 – Add language to recommend GSI/LID practices as a means to protect water quality.
Recommend Use, Analysis Required	Bernalillo County, NM	SLDC 7.17 – Add language to require submittal by the applicant of an evaluation of GSI/LID practices. This would also require the County to develop guidelines for including GSI/LID in developments.
Implementation Required	Los Angeles County, CA City of Flagstaff, AZ Los Alamos National Labs, NM	There are many examples of how the County can require implementation of GIS/LID on projects. All three of these example ordinances are provided in Attachment 2 to this memo and provide different means by which to require implementation of GIS/LID on projects. The County should evaluate these and decide how they would like to quantify GSI/LID implementation and could then add language describing requirements to SLDC 7.17.

If the County decides to add GSI/LID language to code requirements, designated staff and a system for review and tracking will be required to ensure compliance to the code and support MS4 program reporting.

CL/SG/ab
Attachments

ATTACHMENT 1:
EXISTING SANTA FE COUNTY CODE SUMMARIES AND
UPDATES TO CONSIDER FOR IMPROVED
COMPLIANCE WITH MS4 PERMIT REQUIREMENTS
FOR STORMWATER MANAGEMENT

Code	Code Summary	Updates to Consider for Improved Compliance with MS4 Permit Requirements
Resolution 2019-95	<i>Resolution Updating the Purpose and Activities of the Water Policy Advisory Committee</i>	This resolution could support the MS4 permit Public Involvement and Participation requirements if the Water Policy Advisory Committee (WPAC) could serve as an advisory committee for the MS4, and the WPAC could include stormwater quality protection in its duties.
Resolution 2020-51	<i>Resolution to Protect and Enhance Pollinator Species and Their Habitat</i>	- This resolution supports the MS4 permit Post-Construction Stormwater Management and Public Education requirements. - This resolution could tie well with the County's MS4 Program related to promoting GSI. - Documentation from programs that are developed from this resolution should be included in MS4 annual reports.
SLDC 5.10.2	<i>Inspection Schedule</i> This code section indicates the stages of construction at which inspections are required.	- An ordinance or other regulatory mechanism stipulating construction inspections is a requirement in the MS4 permit. This requirement could be expanded to require inspections for all construction sites > 1 acre in size. - For MS4 compliance, this code should add a requirement for submitting construction plans for review.
SLDC 5.10.5	<i>Site Cleanup</i> This stipulates that both the applicant and the applicant's contractor are responsible for removal of construction equipment, materials and debris and that dumping said debris into sewers or other land in the County is prohibited.	An ordinance or other regulatory mechanism stipulating construction waste control is a requirement in the MS4 permit. This code could be expanded to include control of waste during construction, such as requiring covered dumpsters and proper placement of portable toilets.
SLDC 7.17	<i>Terrain Management</i> The intention of this code is to protect water quality and the natural character of the land. It establishes buildable areas as well as provides guidance for storm drainage and erosion control within new development. This applies to all development.	- GSI/LID may fit well in SLDC 7.17.1. - SLDC 7.17.10.3 could be improved to provide additional protections for prevention of stormwater pollution from construction. - SLDC 7.17.1.6 is an incomplete statement – it “encourages minimum disturbance to the natural areas of a site by;” and does not provide the methods by which to do so.

Code	Code Summary	Updates to Consider for Improved Compliance with MS4 Permit Requirements
SLDC 7.19	Titled NPDES and reserved, but code has no content.	- As mentioned in the memo, it is recommended that content be developed for all MS4 permit requirements and placed in SLDC 7.19, which is reserved for NPDES. This would help provide clarity and efficiency to the review of MS4 permit requirements. - This section should include a list of authorized non-stormwater discharges to meet the MS4 permit requirements.
SLDC Chapter 8	<i>Zoning</i> This chapter covers codes for development within various zoning districts.	- The storm drainage requirements in this code should be reevaluated to ensure that they fully support the MS4 permit Construction Site Stormwater Runoff Control and Post-Construction Site Stormwater Runoff Control requirements. - Storm drainage requirements could be added here or placed in SLDC 7.19, which is reserved for NPDES. - In SLDC 8.9.3.7, "A National Pollution Discharge Elimination System permit shall be provided, if applicable" needs to be better defined. There are many NPDES permits.
SLDC Chapter 11	<i>Developments of Countywide Impact (DCIs)</i> This chapter covers codes for DCIs. DCI's include: landfills, junkyards, sand and gravel extraction and processing, concentrated animal feeding operations, oil and gas drilling and production, and mining and resource extraction.	- Many of the requirements in this code should apply to any developments within the County MS4 area to support Construction Site Stormwater Runoff Control and Post-Construction Site Stormwater Runoff Control MS4 permit requirements. - In SLDC 11.7.1 – Stormwater Pollution Prevention Plans (SWPPP) should be required for all construction sites in the County that are greater than 1 acre, as required by the EPA Construction General Permit (CGP). - In SLDC 11.8.5 - Many of the terrain management requirements should be required for all development. - In SLDC 11.19.9 - This section should be required for all construction sites in the County that are greater than 1 acre, as required by the EPA CGP.

Code	Code Summary	Updates to Consider for Improved Compliance with MS4 Permit Requirements
93.03	<i>Littering Prohibited</i> This County code notes the prohibition of littering and details the persons responsible for litter control on various premises.	• This code supports the MS4 permit Illicit Discharge and Elimination requirements. • The litter definition (in 93.02) could be expanded to include leaf litter, grass clippings, and pet/animal wastes to cover additional MS4 permit requirements. As an example used by Bernalillo County – “Litter and other man-made pollutants such as plastic, paper products, polystyrene, cigarette butts, diapers, aluminum cans, bottles, construction trash, wood products, and vegetative debris including leaves, tumbleweeds, twigs, grass clippings, yard waste and like items.” • This code, or related code, could be improved by requiring covers on all trash receptacles to prevent wind-blown litter and stormwater from coming into contact with waste. • This code, or related code, could be improved by including more clear enforcement activities and actions for violations of this code. Penalties are clear.
93.04	<i>Storage and Disposal of Litter</i> This code details the storage and disposal of litter and the prevention of scattering litter. This code stipulates the containment and methods of disposal for all litter and the responsible parties for all areas.	• This code supports the MS4 permit Illicit Discharge and Elimination requirements. • This code, or related code, could be improved by including more clear enforcement activities and actions for violations of this code. Penalties are clear.
93.08	<i>Special Refuse</i> This code indicates that flammable, explosive, or hazardous materials are not to be a part of regular collection.	• This code supports the MS4 permit Illicit Discharge and Elimination requirements. • This code could be improved by including more clear enforcement activities and actions for violations. Penalties are clear. • The County’s MS4 Program could be improved by developing and maintaining a waste collection program for special refuse collection as well as providing clear information to the public on this program.

Code	Code Summary	Updates to Consider for Improved Compliance with MS4 Permit Requirements
95.55	<i>Animal Nuisances on Sidewalks, Streets, and the Like.</i> This code indicates that when an animal defecates in a public place, the owner must remove the feces and dispose of it in a sanitary manner.	• This code supports the MS4 permit Discharges to Water Quality Impaired Water Bodies with an Approved TMDL (E. coli) and Illicit Discharge and Elimination requirements. • “Dispose of in a sanitary manner” should be better defined. Many people have the incorrect assumption that animal feces provides a great fertilizer, while in reality it is a large source of E. coli pollution to surface waters.
95.05	<i>Kennels, Grooming Parlors, and the Like.</i> This code sets minimum standards for kennel permits.	• This code could be expanded to support the MS4 permit Discharges to Water Quality Impaired Water Bodies with an Approved TMDL (E. coli) and Illicit Discharge and Elimination requirements. • This code requires cages to have an impervious, washable surface. This code could be improved to support water quality by requiring no animal feces to be allowed to be washed into a storm sewer system, any water body, or offsite. In addition, the collection and proper disposal of all animal feces could be required. • This code could be extended to ensure it also covers petting zoos and livestock stables.
100.06	<i>Swimming Pools, Operation</i> This code sets requirements for swimming pool operation.	• This code could be improved to meet MS4 permit requirements by clearly stating that any swimming pool discharges must be dechlorinated or they will be considered an illicit discharge.
110.09	<i>Licensed Activities</i> This code lists activities that require a license from the County as well as conditions of each license.	• Stormwater quality aspects could be added to some of the license conditions. For example, licenses related to any animals could include animal waste disposal requirements. Salvage yard license requirements could include good housekeeping and pollution prevention requirements to minimize pollutants in stormwater.

Code	Code Summary	Updates to Consider for Improved Compliance with MS4 Permit Requirements
117.05	<i>Film Permit Requirements</i> This code lists requirements for film permits.	Stormwater quality aspects could be added to the film permit requirements.
131.40	<i>Acts Declared a Public Nuisance</i> This code declares the pollution of any public well, stream, lake, canal, or body of water by sewage, dead animals, dairy, industrial, or agricultural wastes or other substances a public nuisance.	- This code supports the MS4 permit Illicit Discharge and Elimination requirements and actions the County can take to clean up sources of pollutions when this occurs on a privately owned property. - This code could be improved by adding oil & toxic substances, pet/animal waste, and fats/oils/grease to the 131.40 (I) section. - This code could be improved by including more clear enforcement activities and actions for violations of this code. Penalties are clear.

ATTACHMENT 2:
GSI/LID EXAMPLE CODE COMPILATION

parcs and subdivisions which are greater than fifty (50) lots or five (5) acres, whichever is lesser, if not otherwise provided pursuant to § 4.2.6(B) or § 4.2.7(B)(8) of this Article.

(4) All subdivision proposals, including the placement of manufactured home parks and subdivisions, shall have adequate drainage provided to reduce exposure to flood hazards.

(5) 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, which are otherwise required to be located and constructed to minimize or eliminate flood damage.

§ 4.2.11 STANDARDS FOR AREAS OF SHALLOW FLOODING (AO/AH ZONES).

Located within the areas of special flood hazard established in §4.2.6(B) are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

(A) All new construction and substantial improvements of residential structures 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).

(B) All new construction and substantial improvements of non-residential structures:

(1) 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); and,

(2) 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.

(C) A licensed professional engineer or architect shall submit a certification to the Floodplain Manager that the standards of this Article, as proposed in §.2.10(B) are satisfied.

(D) Require within Zone AH or AO adequate drainage paths around structures on slopes, to guide flood waters around and away from proposed structures.

§ 4.2.12 FLOODWAYS

(A) Floodways – located within areas of special flood hazard established in §4.2.6(B) – 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:

(1) 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.

(2) If § 4.2.12(A) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of § 4.2.10.

(B) Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community first applies for a conditional FIRM and floodway revision through FEMA.

§ 4.2.13 ENFORCEMENT

The provisions of this Article shall be enforced by such persons who are appointed by the Mayor as zoning enforcement officers. Such persons shall be employees of the Village of Los Ranchos and shall have the power to issue citations for the violation of this Article. Such citations shall be heard by the Village of Los Ranchos de Albuquerque municipal court.

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Article and other applicable regulations. Violation of the provisions of this Article by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this Article or fails to comply with any of its requirements shall upon conviction thereof be fined not less than fifty dollars (\$50), nor more than five hundred dollars (\$500) or imprisoned for not more than ninety (90) days, or both, for each violation, and a separate violation shall be deemed committed on each day during on or which a violation occurs or continues; in addition, such person shall pay all costs and expenses involved in the prosecution of the case. Nothing herein contained shall prevent the Village of Los Ranchos from taking such other lawful action as is necessary to prevent or remedy any violation.

§ 4.2.14 SEVERABILITY

The provisions of this Article are severable, and if any provision, sentence, clause, section, or part thereof, is held illegal, invalid, unconstitutional, or in applicable to any person or circumstance, the illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, sentences, clauses, sections, or parts of this Article or their application to other persons or circumstances.

Ordinance and State Law References regarding Chapter 4, Article 2 (f/k/a Chapter 11):

Ordinance #77, August 10, 1988;

Ordinance #139, June 26, 1996, repeals Ordinance No. 77;

Ordinance #169, July 10, 2002 (re-writes Chapter 11 and replaces ORD #139, except Article 6, Section A.);

Ordinance #185, November 12, 2003, amends Chapter 11, Ordinance 169, Section 6B;

Ordinance #219, June 18, 2008, amends Chapter 11, Ordinance 169 & Ordinance 185;

Requirement of Certified Floodplain Manager, NMSA 1978, § 3-18-7C;

Power to minimize floods hazard § 3-18-7 NMSA 1978;

Flood control NMSA 1978, § 3-41-1, et seq.

ARTICLE 3.

STORMWATER MANAGEMENT

SECTION 1. Definitions

SECTION 2. General Regulations

SECTION 3. Illicit Discharge

SECTION 4. Stormwater Discharge

SECTION 5. Administration

SECTION 6. Inspections

SECTION 7. Violations, Noncompliance, Penalty

SECTION 8. Additional Permits

SECTION 9. Appeals

SECTION 10. Severability

§ 4.3.1 DEFINITIONS

BEST MANAGEMENT PRACTICES (BMPs) means activities or structural improvements that help reduce the quantity and improve the quality of stormwater runoff. Best management practices are schedules of activities, prohibitions or practices, maintenance procedures and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control runoff, spillage, or leaks; sludge, waste disposal, or drainage from raw material storage. With regard to construction, these practices may include structural devices or nonstructural practices that are designed to prevent pollutants from entering water or to direct the flow of water.

CLEAN WATER ACT (WATER QUALITY ACT): (formerly the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972). Public law 92-500; 33 U.S.C. 1251 et. seq.; legislation which provides statutory authority for the NPDES program. Also known as the Federal Water Pollution Control Act.

COMPREHENSIVE PLAN means the Village of Los Ranchos Comprehensive Plan and amendments thereto.

CONCEPTUAL GRADING AND DRAINAGE PLAN means a plan prepared in graphical format showing existing and proposed grading, drainage, control, flood control and erosion control information in sufficient detail to determine project feasibility.

CONVEYANCE means the process of water moving from one place to another.

DIRECTOR means The Director of Planning and Zoning, the official designated to enforce the comprehensive zoning ordinance, as may be amended from time to time.

DISCHARGE means the volume of water (and suspended sediment if surface water) that passes a given location within a given period of time.

DESIGN STORM means a storm which deposits a stated amount of precipitation within a stated period over a defined area and which is used in calculating storm runoff and in designing drainage control, flood control and erosion control measures.

DEVELOPED LAND means any lot or parcel of land occupied by any structure intended for human occupation, including structures intended for commercial enterprise.

DEVELOPER means any individual, estate, trust, receiver, cooperative association, club, corporation, company, firm, partnership, joint venture, syndicate, or other entity engaging in the platting, subdivision, filling, grading, excavation, or construction of structures or facilities.

DRAINAGE means storm drainage.

DRAINAGE MANAGEMENT OR TREATMENT means the treatment and/or management of surface runoff from all storms up to and including a ten-year design storm.

DRAINAGE PLAN means a short, detailed plan prepared in graphical format with or on a detailed grading plan addressing onsite and off-site drainage control, flood control, and erosion control issues for lots or parcels of less than five acres.

DRAINAGE REPORT means a comprehensive analysis of the drainage, flood control, and erosion control constraints on and impact resulting from a proposed platting, development or construction project.

EPA means United States Environmental Protection Agency.

EROSION CONTROL means treatment measures for the prevention of damages due to soil movement and to deposition.

EROSION CONTROL PLAN means a plan for the mitigation of damages due to soil erosion and to deposition.

EXCAVATION means the process of removing earth, stone, or other materials from land.

FLOOD CONTROL means the treatment measures necessary to protect life and property from the 100-year design storm runoff.

FLOOD HAZARD AREA means an area subject to inundation from the 100-year design storm runoff.

GENERAL PERMIT means a permit issued under the NPDES program to cover a certain class or category of stormwater discharges. These permits reduce the administrative burden of permitting stormwater discharges.

GRADING means the cutting and/or filling of the land surface to a desired slope or elevation.

GRADING PLAN means a plan describing the existing topography and proposed grading, including retaining wall locations and details, interfaces with adjacent properties, streets, alleys and channels, referenced to mean sea level (1929 or 1988 datum) such as city benchmark or NMDOT benchmark, and showing sufficient contours, spot elevations and cross sections to allow a clear understanding by reviewers, contractors, and inspectors.

ILLICIT CONNECTION means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater and is not authorized by an NPDES permit, with some exceptions (e.g., discharges due to fire fighting activities).

MAINTENANCE means the cleaning, shaping, grading, repair and minor replacement of drainage, flood control and erosion control facilities, but not including the cost of power consumed in the normal operation of pump stations.

MAXIMUM EXTENT PRACTICABLE (MEP) means a standard for water quality that applies to all MS4 operators regulated under the NPDES Stormwater Program. Since no precise definition of MEP exists, it allows for maximum flexibility on the part of MS4 operators as they develop and implement their programs.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) means a publicly owned conveyance or system of conveyances that discharges to waters of the U.S. and is designed or used for collecting or conveying stormwater, is not a combined sewer, and is not part of a publicly-owned treatment works (POTW).

NON-POINT SOURCE (NPS) POLLUTANTS means pollutants from many diffuse sources. NPS pollution is caused by rainfall or snowfall moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water.

NOTICE OF INTENT(NOI) means Notice of Intent.

NPDES: "National Pollutant Discharge Elimination System" the name of the surface water quality program authorized by Congress as part of the 1987 Clean Water Act. This is EPA's program to control the discharge of pollutants to waters of the United States (see 40 C.F.R. 122.2) Phase II.

NUISANCE WATERS means those waters leaving a site and entering a public right of way.

ONE HUNDRED (100) YEAR DESIGN STORM means that storm whose precipitation within a six-hour period and resulting runoff has a one percent chance of being equaled or exceeded in any given year. A special condition may require/allow use of storms of longer duration.

OUTFALL means the point where wastewater or drainage discharges from a sewer pipe, ditch, or other conveyance to a receiving body of water.

PHYSICALLY INTERCONNECTED MS4 means that one MS4 is connected to a second MS4 in such a way that it allows for direct discharges into the second system.

POINT SOURCE POLLUTANT means pollutants from a single, identifiable source such as a factory or refinery.

POLLUTANT LOADING means the total quantity of pollutants in stormwater runoff.

REGULATED MS4 means any MS4 covered by the NPDES Stormwater Program (regulated small, medium, or large MS4s).

RETROFIT means the modification of stormwater management systems through the construction and/or enhancement of wet ponds, wetland plantings, or other BMPs designed to improve water quality.

RUNOFF means drainage or flood discharge that leaves an area as surface flow or as pipeline flow. Has reached a channel or pipeline by either surface or sub-surface routes.

SEDIMENT means soil, sand, and minerals washed from land into water, usually after rain. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

SITE RUNOFF means any drainage or flood discharge that is released from a specified area.

SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM(MS4) means any MS4 that is not regulated under Phase I of the NPDES Stormwater Program and Federally-owned MS4s.

STORM DRAIN means a slotted opening leading to an underground pipe or an open ditch for carrying surface runoff.

STORM DRAINAGE SYSTEM means arroyos, storm drains, roadways, culverts, bar ditches, ponds, pump stations, dams, detention ponds, retention ponds, inlets, and appurtenant structures and other facilities which convey stormwater.

STORMWATER means precipitation that accumulates in natural and/or constructed storage and stormwater systems during and immediately following a storm event.

STORMWATER MANAGEMENT means functions associated with planning, designing, constructing, maintaining, financing, and regulating the facilities (both constructed and natural) that collect, store, control, and/or convey stormwater.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) means a plan to describe a process whereby a facility thoroughly evaluates potential pollutant sources at a site and selects and implements appropriate measures designed to prevent or control the discharge of pollutants in stormwater runoff.

STORMWATER QUALITY CONTROL means the treatment methods necessary to protect and enhance the quality of stormwater.

SURFACE WATER means water that remains on the surface of the ground, including rivers, lakes, reservoirs, streams, wetlands, impoundments, seas, estuaries, etc.

TEN-YEAR DESIGN STORM means that storm whose precipitation within a six hour period and resulting runoff has a ten percent chance of being equaled or exceeded in any given year. A special condition may require/allow use of storms of longer duration.

TOTAL MAXIMUM DAILY LOAD (TMDL) means the maximum amount of pollutants which can be released into a water body without adversely affecting the water quality.

URBAN RUNOFF means stormwater from urban areas, which tends to contain heavy concentrations of pollutants from urban activities.

WET WEATHER FLOWS means water entering storm drains during rainstorms/wet weather events.

§ 4.3.2 GENERAL REGULATIONS

The Village shall, under direction of the Director of Planning and Zoning, develop, implement, and enforce, according to EPA standards, a Stormwater Management Plan designed to reduce the discharge of pollutants from a small MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy applicable surface water quality standards.

(A) STORM DRAINAGE.

- (1) Prevent the creation of public safety hazards and seek to eliminate existing problems.
- (2) Prevent, to the extent feasible, the discharge of storm runoff from public facilities onto private property.
- (3) Prevent the increased risk of damage to private property caused by storm runoff from other private property.
- (4) Coordinate with the M.R.G.C.D., A.M.A.F.C.A., Bernalillo County and the City of Albuquerque the discharge of storm runoff into M.R.G.C.D. and A.M.A.F.C.A facilities and minimize impact on downstream facilities.
- (5) Provide for timely and effective construction and maintenance of storm drainage facilities.
- (6) Design storm drainage facilities, which provided effective storm drainage and flood control.
- (7) Improve the quality of storm runoff.

(B) EROSION CONTROL.

- (1) Protect the hydraulic capacity of flood control and storm drainage facilities from losses due to sedimentation and degradation.
- (2) Preserve public health, safety, and convenience from jeopardy due to erosion and sedimentation in private and public facilities of all types.
- (3) Preserve the quality of surface runoff.

§ 4.3.3 ILLICIT DISCHARGE

(A) NON-STORMWATER DISCHARGE. It is prohibited to discharge into the storm sewer system any form of pollutant, including but not limited to:

- (1) Automotive oils, gasoline, grease, fluids, or other waste products;
- (2) Floatables – such as plastic bags, fast food wrappers, Styrofoam cups, soft drink cans, or cups, etc.;
- (3) Plant refuse – weeds, tree trimmings, leaves, etc.;
- (4) Water line flushing;
- (5) Landscape irrigation or sprinkler run off;
- (6) Fertilizers, pesticides, or poisons;
- (7) Diverted stream or ditch flows;
- (8) Uncontaminated pumped groundwater;
- (9) Discharges from potable water sources;
- (10) Foundation drains;
- (11) Open space or agricultural irrigation water;
- (12) Car washing between Mullen and Schulte on 4th Street or where water flows into storm sewer outlets;
- (13) Flows from riparian habitats and wetlands;
- (14) De-chlorinated swimming pool discharges;
- (15) Toxic spills;

- (16) Street wash water;
- (17) Animal waste;
- (18) Grease from cooking, commercial and residential;
- (19) Household cleaning products.

(B) **ILLEGAL DUMPING.** It is prohibited for any person or persons to deposit trash, household items, yard debris, appliances, or any such items on Village of Los Ranchos owned or controlled property.

- (1) All possible investigative means may be utilized to determine the person or persons responsible for illegal dumping.

(C) **GROUNDWATER CONTAMINATION.** Any activity which contributes to groundwater contamination through the burying of animal waste, dead animals, and garbage or toxic chemicals is expressly prohibited.

- (1) All possible investigative means may be utilized to determine the person or persons responsible for groundwater contamination.

§ 4.3.4 STORMWATER DISCHARGE

(A) NEW CONSTRUCTION.

(1) All construction, development, and redevelopment projects with land disturbances equal to or greater than one acre, including sites, which disturb less than one acre, but are part of a larger common plan of development, must, at the time of application to the Village, submit:

- (a) A Notice of Intent permit issued by EPA.

(b) A Stormwater Pollution Prevention Plan (SWPPP) including Best Management Practices to prevent stormwater discharge in accordance with EPA NPDES Phase II regulations for construction site stormwater runoff control.

(2) The stormwater pollution prevention plan shall outline the BMPs to be undertaken by the operator/owner of the project to protect stormwater quality during the construction phase of the project.

(a) These BMPs shall be maintained by the owner of the property. Inspection of these BMPs shall be made at a minimum once a week by the owner and a log of this inspection shall be kept on-site for review by the Village. The Village shall also inspect these BMPs on a periodic basis. These BMPs shall be subject to the approval of the Planning and Zoning Department.

- (3) Construction and development sites must control and properly dispose of construction wastes, trash, chemicals, etc.

(B) POST CONSTRUCTION.

(1) All development and redevelopment projects with land disturbances equal to or greater than one acre, including sites which disturb less than one acre but are part of a larger common plan of development and all construction of additions to buildings or of outbuildings over fifty percent (50%) of existing Floor Area Ratio, must submit a Grading and Drainage Plan with a Certified Engineer's stamp showing on-site water retention ponding volumes.

(2) For all development and redevelopment projects with land disturbances equal to or greater than one acre, including sites which disturb less than one acre but are part of a larger common plan of development, and all construction of additions to buildings or of outbuildings over fifty percent (50%) of existing Floor Area Ratio within the Village, post construction water quality BMPs are required. This requirement is in addition to any other requirements that may apply. These BMPs shall be subject to the approval of the Planning and Zoning Department.

(3) Contractors or developers must complete the on-site water retention ponding, berming, banking, ditching, or underground retention system prior to receipt of Certificate of Occupancy or in case of subdivision, sales of lots to the public.

- (4) Maintenance responsibility of stormwater control is the responsibility of the property owner up to the point where stormwater enters public facilities.

(5) Where a site development, building permit, a major or minor subdivision, or a replat alters the elevation or location of any designated 100-year floodplain, as shown on current FEMA flood insurance rate maps, the developer shall be required to provide to the Village all necessary data needed to effect the flood boundary revision or amendment. Any required fees for processing shall be the responsibility of the developer.

(6) Site development and major or minor subdivisions or replats shall be designed and constructed such that non-stormwater discharges into storm sewers, ditches, or watercourses will not occur.

(C) STORMWATER DISCHARGE FROM INDIVIDUAL PARCELS.

(1) The discharge of nuisance waters from private property to public streets is prohibited. Arterial and collector streets shall be protected from damages to the surface and from the safety hazard created by surface flow of nuisance waters across them.

(a) Parking lots, yards, open fields, landscaped areas, developed and undeveloped lots shall be bermed, banked, ponded, ditched, or otherwise contoured for on-site water retention to prevent stormwater runoff onto Village streets and roads or ditches.

§ 4.3.5 ADMINISTRATION

(A) The design, construction, and maintenance of all drainage control, flood control, erosion control, and stormwater quality control facilities within the Village shall be performed in accordance with procedures, criteria and standards formulated by the Director of Planning and Zoning and in accordance with the policies established in this Article.

(B) All construction activities within the jurisdiction of the Village shall conform to the requirements of the Article with respect to drainage control, flood control, erosion control and stormwater quality control.

(1) Construction, grading or paving on any lot within the Village shall not increase the damage potential to adjacent properties or public facilities. Damages shall be defined as those caused by flooding, erosion, and sedimentation from the 100-year design storm and all smaller storms.

(2) Any grading shall provide for erosion control and the safe passages of the ten-year design storm runoff during the construction phase and until the permanent improvements are completed.

(3) Grading, cut, fill or importation of material in excess of 500 cubic yards or grading of any area of one acre or more, or any grading which will adversely affect other properties, ditches, watercourses or easements shall conform to drainage control, flood control, erosion control and stormwater quality control policies and to standards, criteria and procedures established by the Village with respect to drainage, flood control, erosion control, and stormwater quality control.

(C) The Village may participate with the private sector, other public bodies, and agencies operating within the jurisdiction of this Article in order to accomplish the goals and implement the policies adopted herein. This includes, but shall not be limited to, the development and adoption of master plans, participation in the construction of projects, and exercising control through the planning, platting, zoning, and permitting processes.

(D) It shall be the responsibility of the Director of Planning and Zoning to produce, approve, make and retain records of all drainage plans, drainage reports, design analyses, design drawings, as-built drawings, and maintenance schedules related to all drainage control, flood control, erosion control, and stormwater quality control facilities constructed within the Village.

(E) Application for all land use changes shall address drainage control, flood control, and erosion control in terms of the interaction of these parameters with other requirements and needs produced by the proposed land use changes, and shall comply with an adopted drainage management plan.

(F) Requests for building permits, site plan approval, or the platting of land for the purpose of major or minor subdivision, and for replats, shall be accompanied by appropriate grading, drainage control, flood control, erosion control, and stormwater quality control information.

having separate or joint entrances, and including apartments, group homes, row houses, and condominium; also multiple dwellings.

DWELLING, MULTI-RESIDENTIAL UNITS means residential units that have a common wall(s) such as condominiums or townhouses. Multi-Residential Units do not include multifamily or apartment developments designed as rental properties.

DWELLING UNIT means a single, on site built, modular unit or mobile home a minimum of eight (8) feet wide and forty (40) feet long providing a minimum of 320 square feet of heated living area, that provides the complete independent facilities for one or more persons, including permanent provision for living, sleeping, eating, cooking, and sanitation. These areas include, but are not limited to one or more rooms designated and used for a bedroom, one or more bathrooms with sanitation service and a shower or tub for bathing, one or more closets for hanging or storing clothing, and other facilities conducive to long term residential living quarters.

ECONOMIC DEVELOPMENT PLAN means a plan developed for the Project Area of the Village Center Zone to address the justification of the development for the type of commercial, residential and open space proposed. The justification shall specifically address: site coverage, residential density, heights, setbacks, entrances, parking, open space and operating plan for the commercial portion of the development.

(a) Site Development Plans for the Project Area shall have an Economic Development Plan included as part of the application.

(b) Site Development Plan applications for Village Center zoned properties (VC Zone) that are not in the Project Area and do not require a platting action shall be processed under the regulations set forth in § 9.2.25.(E)(4).

(c) Site Development Plan applications for Village Center zoned Properties that are not in the Project Area, but do require a platting action may be processed without an economic development plan to justify the development for the type of commercial, residential and open space proposed.

ENCLOSED AREA means all areas of a building enclosed by a continuous perimeter wall.

FACADE means the exterior wall of a building exposed to public view or that wall viewed by persons not within the building.

FAMILY means one or more persons occupying a single dwelling unit, provided that unless all are related by blood, marriage, or legal adoption, no such family shall contain over five (5) unrelated persons. This provision shall not apply to dwellings for persons who are disabled as that term is used in the Americans with Disabilities Act.

FENCE means an enclosure or barrier, such as wooden posts, wire, iron, etc., used as a boundary, means of protection, privacy screening or confinement but not including hedges, shrubs, trees or other natural growth.

FENCE, OPEN means a fence (including any gates in said fence) that permits direct vision through at least 90 percent of any one square foot segment of vertical fence surface area, excluding pilasters.

FENCE SOLID means an enclosure or barrier, including solid entrance and exit gates, that effectively conceals from viewers in or on adjoining properties, streets, alleys, or public ways, materials stored and operations conducted behind it. A barrier constructed of solid material, wood or masonry, through which no visual images may be seen.

FIRE ACCESS ROAD means a roadway designed to the most recently adopted International Fire Code including, but not limited to twenty (20) foot wide unobstructed all weather road, with a thirteen (13) foot overhead clearance leading from a right-of-way to a private lot.

FIRE EQUIPMENT ACCESS means the nearest location where a fire truck can access a structure.

FIRE HYDRANT means a fire water source as defined by the most recently adopted International Fire Code.

FLAG LOT (see LOT, FLAG).

FLEA MARKET means an occasional or periodic commercial sales activity held within a building or structure where groups of individual sellers offer goods, new and used, for sale to the general public, not to include private garage sales, shopping centers, individual retail operations, or sales conducted by a non-profit or charitable organization.

FLOODPLAIN means any land area as identified by the Federal Emergency Management Agency susceptible to being inundated by water from any source, or any area subject to the unusual and rapid accumulation of run-off or surface waters from any source.

FLOOR AREA means the combined area of each separate story under the roof as measured from the outer dimensions of the building enclosing the area.

FLOOR AREA RATIO (FAR) means a relationship between net lot size and allowable square footage of buildings and structures as defined by the adopted FAR table. The ratio of the total floor area to net lot area, excluding two-thirds (2/3) of any Village of Los Ranchos designated Sensitive Areas as defined herein.

FLOOR AREA, TOTAL means all building area above or accessible to grade including, but not limited to:

- (a) Attic spaces with a clear ceiling height of 7'0" or greater;
- (b) Open carports;
- (c) Agricultural buildings;
- (d) Greenhouses;
- (e) Shops;
- (f) Detached garages.

Floor area total does not include:

- (g) Basements and below grade wine cellars not accessible to grade
- (h) Open porches, portals, gazebos;
- (i) Non-enclosed outdoor "living areas" or other such non-enclosed spaces.

FRONT YARD (see SETBACK, FRONT).

FRONTAGE (see LOT, FRONTAGE).

GARAGE, PRIVATE means a building for the use of the occupants of a principle building, situated on the same lot as the principle building, for the storage of motor vehicles with no facilities for mechanical service or repair of a commercial or public nature, or storage of commercial vehicles.

GARAGE, PUBLIC means a building or portion thereof designed and used for the storage of automotive vehicles operated as a business enterprise with a service charge or fee being paid to the owner or operator for the parking or storage of privately owned vehicles.

GARAGE, REPAIR (see AUTOMOBILE REPAIR SERVICES).

GAS STATION (see SERVICE STATION).

GRADE means the average of the surface of the existing ground measured from the proposed façade of the building at a ninety-degree angle to nearest property line.

GREENHOUSE (see NURSERY) means a building or structure constructed chiefly of glass, glasslike or translucent material, cloth or lath, which is devoted to the protection or cultivation of flowers or other plants.

GREEN INFRASTRUCTURE means the creation of plant or tree areas, gardens, etc. on an individual lot or throughout an area to reduce greenhouse gas emission and urban heat effects and clean the air and storm water. Used in conjunction with Low Impact Development (LID).

LOT AREA, GROSS means the total area of Lot.

LOT AREA, NET means the total of Lot excluding road or access easement.

LOT, CORNER means a platted parcel of land abutting two road rights-of-way (either public or private) at their intersection.

LOT COVERAGE means an area determined by dividing that area of a lot which is occupied or covered by buildings, roofed areas or impermeable paving surfaces, including covered porches and accessory buildings, by the net area of that lot.

LOT, DOUBLE FRONTAGE means, when used in reference to a lot for purposes of determining setback requirements, frontage on two (2) parallel or approximately parallel streets, as distinguished from a corner lot.

LOT, FLAG means a lot or parcel that the Village has approved, with less frontage on a public street than is normally required. The access corridor to a flag lot or parcel located behind lots or parcels with normally required street frontage is a private right-of-way adequate for public safety purposes.

LOT, FRONTAGE means that part of a lot or lot line abutting on a street or way; except that the ends of incomplete streets, or streets without a turning circle, shall not be considered frontage.

LOT, INTERIOR means a lot other than a corner lot.

LOT LINE, FRONT (see also YARD, FRONT) means a line connecting the foremost points of the side lot lines and dividing the lot from the access right-of-way. The line separating the front of the Lot from the street. When a lot, or building site, is bounded by a public street and one or more alleys or private street easements or private streets, the front lot line shall be the nearest right-of-way line of the public street.

LOT LINE, REAR means the lot line not intersecting a front lot line that is most distant from and most closely parallel to the front lot line. A lot bounded by only three lot lines will not have a rear lot line. The rear property line of a lot is that lot line opposite to the front property line. Where the side property lines of a lot meet in a point, the rear property line shall be assumed to be a line not less than ten (10) feet long, lying within the lot and parallel to the front property line. In the event that the front property line is a curved line, then the rear property line shall be assumed to be a line not less than ten (10) feet long, lying within the lot and parallel to a line tangent to the front property line at its midpoint.

LOT LINE, SIDE means any lot line not a front or rear lot line.

LOT LINE, STREET means a side lot line separating a lot from a street.

LOT, SUBSTANDARD means a lot or parcel of land that has less than the required minimum area or width, as established by the zone in which it is located, and provided that such lot or parcel was of record as a legally created lot on October 27, 2003.

LOT WIDTH means the horizontal distance between side lot lines, measured along a line that is parallel to the front lot line and located the minimum exterior setback distance from the front lot line. When a lot has more than one street lot line, the required lot width shall be measured along the narrowest street lot line.

LOW IMPACT DEVELOPMENT means an approach to land development or re-development that treats stormwater as a precious resource and not a waste product and works with nature to manage stormwater as close to its source as possible. Low Impact Development practices and principles include on-site water retention, water harvesting and recycling, swales, berms, artificial streams and infiltration systems.

LUMINAIRE (LIGHT FIXTURE) means a complete lighting unit consisting of a light source and all necessary mechanical, electrical, and decorative parts.

LUMINOUS TUBE LIGHTING means gas filled tubing which, when subjected to high voltage, becomes luminescent in a color characteristic of the particular gas used, e.g. neon, argon, etc.

MANUFACTURED HOUSING means a manufactured or mobile home that is a single family dwelling with a heated area of at least thirty-six (36) by twenty-four (24) feet in dimension and at least eight hundred sixty-four (864) square feet in area, constructed in a factory to the standards of the United States Department of Housing and Urban Development, the National Manufactured Home Construction and Safety Standards Act of 1974, 42 U.S.C. § 5401 et seq., and the Housing and Urban Development Code, as amended to the date of the unit's construction, and installed consistent with the Regulations made pursuant thereto pertaining to ground level installation and anchoring.

MANUFACTURING, HEAVY means the manufacture or compounding process of raw materials. These activities or processes would necessitate the storage of large volumes of highly flammable, toxic matter or explosive materials needed for the manufacturing process. These activities may involve outdoor operations as part of the manufacturing process.

MANUFACTURING, LIGHT means the manufacture, predominantly, from previously prepared materials, or finished products or parts, including processing, fabrication, assembly, treatment and packaging of such products, and incidental storage, sales, and distribution of such products, but excluding basic industrial processing and custom manufacturing.

MANUFACTURING, MEDIUM means the processing and manufacturing of materials or products predominately from extracted or raw materials. These activities do not necessitate the storage of large volumes of highly flammable, toxic matter or explosive materials needed for the manufacturing process.

MANUFACTURING, SECONDARY means establishments engaged in the manufacture of products for final use or consummation. This involves the secondary processing, fabrication, or assembly or semi-finished products from a primary manufacturing industry.

MEGACHURCH means a large, specialized type of house of worship that includes such nontraditional accessory uses as retail sales, residential uses, amusement parks, and sports and entertainment facilities, as an integrated part of the development.

MAXIMUM OVERALL DENSITY means the maximum number of single family residential dwelling units that would be permitted on a tract or parcel calculated as if the tract or parcel was not subject to the Setback. The calculation of Maximum Overall Density will be calculated by considering the requirements and restrictions set out in the Codified Ordinances, including but not limited to, the gross acreage of the property, area required for access including public and private roads, and the ordinances relating to floor area ratios. For purposes of calculating Maximum Overall Density, guest houses constructed pursuant to a Conditional Use Permit will not be deemed a dwelling unit.

MOBILE HOME means a moveable or portable housing structure which was originally constructed with a chassis allowing portability, being a minimum of eight (8) feet in width, forty (40) feet in length and providing a minimum of 320 square feet of heated living area.

MODIFICATION means any physical change or alteration to use or structure from what was approved by the Village at the time of the issuance of the necessary permits or authorizations.

MODULAR HOUSING means Structures constructed in a similar fashion to "site built" buildings complying with all residential building codes, excepting that all or portions of the structure may be constructed offsite and then assembled into a completed structure on site and commonly referred to as permanent modular construction. Modular construction specifically does not include structures commonly referred to as manufactured or mobile housing. All modular components must be assembled and finished on site so as to be indistinguishable in function and appearance from residences built on site without use of modular components.

MORTUARY means a building or part thereof used for human funeral services. Such a building may contain space and facilities for the following: a) embalming and the performance of other services used in preparation of the human dead for burial; b) the performance of autopsies and other surgical procedures; c) the storage of caskets, funeral urns, and other related funeral supplies; and, d) the storage of funeral vehicles, but shall not include facilities for cremation. Where a funeral home is permitted, a funeral chapel shall be permitted. This classification excludes cemeteries, crematoriums, and columbariums.

MOTEL (see also HOTEL) means a building or group of detached or connected buildings designed or used primarily for providing sleeping accommodations for transient guests and having a parking space adjacent to or nearby to a sleeping room, offered to the public for compensation. An automobile court or a tourist court with more than one (1) unit or a motor lodge shall be deemed a motel.

NIGHTCLUB or BAR means a commercial establishment dispensing alcoholic beverages for consumption on the premises and in which dancing, television, and musical entertainment is permitted.

NONCONFORMING BUILDING means any structure or building the size, dimensions, or location of which was lawful prior to the adoption of, revision, or

sidewalks of roadways may not be used for outdoor display of merchandise.

- (1) The total area allowed for outdoor display of merchandise. Is limited to five (5) percent of the total gross square footage of the lot upon which the display is located.
 - (2) Displayed merchandise shall be safely stored and shall not utilize required parking spaces or impede pedestrian use of interior walkways.
 - (3) The displays shall be temporary and be erected during business hours only.
 - (4) Displays shall be located not less than twenty (20) feet from any residentially zoned property.
- (O) TRANSIT REGULATIONS. If there is an existing bus stop located directly adjacent to a property, granting of an easement for a new sheltered bus stop will be a development requirement, as approved by the Commission/Board.
- (P) APPLICATION AND APPROVAL PROCESS. As set forth in §9.2.25.

§ 9.2.13 GD – GATEWAY DISTRICT ZONE

- (A) SHORT TITLE. This Section may be cited as the Gateway District Zone Code
- (B) PURPOSES. The purpose of the Gateway District Zone, referred to as “GD,” is to encourage the development of a transit-supportive mixed-use neighborhood of commercial and residential uses that fosters pedestrian activity and a sense of community. It recognizes the importance of linkages to the broader community and the importance of public transit as a viable alternative to the automobile by providing appropriate densities and land uses within walking distance of bus terminals, bike and pedestrian formal trails and the Rail Runner Los Ranchos/Journal Center Station. It is the intent of this Section that the Gateway District Zone should focus on maintaining Village style, scale and character. The Gateway District Zone will permit both commercial and residential uses on the same lot or tract.
- (C) DEFINITIONS. As used in the Gateway District Zone Code of the Village of Los Ranchos.
- (1) GENERAL TERMS.
 - (a) The word “person” includes a firm, association, organization, partnership, trust, company, limited liability company and corporation, as well as an individual.
 - (b) The present tense includes the future tense, the singular number includes the plural, and the plural number includes the singular.
 - (c) The words “shall,” “will” and “must” are always mandatory and not merely directory. The word “may” is permissive.
 - (d) All references to “he” or “she” herein are deemed to be gender-neutral, unless specifically indicated otherwise.
 - (e) The definitions in this Section shall supersede any dictionary definition.
 - (2) DEFINITIONS.

CONDOMINIUM DECLARATION means a condominium declaration meeting the requirements of the New Mexico Condominium Act, NMSA 1978 § 47-7A-1, et seq., as amended and having been approved by the Village pursuant to the Subdivision Code.

GATEWAY DISTRICT means that specific area beginning on Fourth Street at the southeast corner of Villa Christina Road to El Pueblo Road and continuing east parallel to El Pueblo Road to Second Street as shown on the accompanying Zone Map for the Gateway District.

KIOSK means a permanent freestanding structure or mobile cart located within a pedestrian circulation area, but not in a pedestrian way, and used for the purpose of sale of food, flowers, newspapers or other goods, with a Village issued license.

LOW IMPACT DEVELOPMENT means an approach to land development (or re-development) that treats stormwater as a valuable resource and not a waste product and works with nature to manage stormwater as close to its source as possible, in accordance with standards adopted by the Village. Low Impact Development practices and principles include on-site water retention, water harvesting and recycling, swales, berms, artificial streams and infiltration systems.

MULTI-RESIDENTIAL UNIT means residential units which have a common wall(s) such as condominiums or townhouses. Multi-Residential Units do not include multifamily or apartment developments designed as rental properties.

MULTI-USE BUILDING means a building specifically designed for residential and commercial use such as live/work where part of the building is commercial space and part is residential. Residential and commercial use may be independent of each other.

PEDESTRIAL WAY means a designated area specifically designed for pedestrian traffic and designated as a “Pedestrian Way” on the Site Development Plan approved by the Village.

(D) ESTABLISHMENT OF GATEWAY DISTRICT ZONE.

- (1) Each lot, parcel or tract of land in the Gateway District is hereby zoned Gateway District Zone.
- (2) The boundaries of the Gateway District are shown on the attached map and are incorporated into this Section. The Village Zone map is hereby amended to include the Gateway District and the Gateway District Zone.
- (3) In the event the properties east of Fourth Street shown within the area designated future Gateway District on the attached map are annexed into the Village, such properties shall become a part of the Gateway District and shall be zoned Gateway District Zone.

(E) PERMISSIVE USES.

(1) COMMERCIAL USES AND MIXED RESIDENTIAL AND COMMERCIAL USES. The following uses shall be permissive uses in commercial and in mixed residential and commercial developments; mixed residential and commercial developments shall be permitted on a single parcel or on separate parcels:

- (a) All uses permitted in § 9.2.7 A-1 Zone except as may be specifically modified or prohibited herein.
- (b) All uses permitted in § 9.2.12 C-1 Zone except as expressly modified or prohibited herein.
- (c) Kiosks. Kiosks may freely move, but shall not block the Pedestrian Way, bicycle or vehicular travel path. Kiosks may not exceed 28 square feet in total size. Kiosks must be permitted in accordance with the procedures adopted by the Village and NMED if selling food. Signage shall be limited to identification of products or services sold by the Kiosk.
- (d) All residential uses as permitted in subsection §9.2.13(E)(3) hereof.

(2) CONDITIONAL USES. The following uses may be allowed when approved as set forth in §9.2.25(D)(3); § 9.2.25(E)(2):

- (a) Animal keeping in excess of that allowed by permissive use.
- (b) Animal boarding kennels, provided animal smells and noises are mitigated.
- (c) Assisted living (adult) facilities, provided the facility complies with Village, State and Federal regulations.
- (d) Bars, lounges, or restaurants serving liquor, provided hours of operation and associated impacts such as noise are mitigated.
- (e) Bed and Breakfast establishments, without limitation on number of units, which meet §9.2.25(E)(1) Application and Approval Process.
- (f) Contractor yards with approved hours of operation, dust control, storage, buffering from adjoining neighbors and noise mitigation.
- (g) Dry cleaning, laundry, clothes pressing operation and laundromat, provided:
 1. Only non-flammable or non-combustible materials are used in the cleaning process;

(6) ANCILLARY USES. Uses that are customary and incidental to the primary use of the lot and in conformance with the zone. Ancillary Uses shall be permitted only as shown in the approved Site Development Plan.

(F) SITE DEVELOPMENT PLANS.

(1) APPLICATION AND APPROVAL. A Site Development Plan shall be required for (i) all new development; (ii) redevelopment of any lot(s) which shall include a change in use of the lot(s); (iii) for a structural alteration to 20% or more of an existing structure; and (iv) for the addition of square footage equal to 20% or more of existing square footage in any existing structure. Applications for a Site Development Plan or modification of an approved Site Development Plan shall be submitted in accordance with § 9.2.25(E)(4) Application and Approval Process requirements for approval of Site Development plans, and in addition shall include the following:

(a) A Preliminary/Sketch Plat Site Development Plan Application shall be submitted to the Village in accordance with Village adopted procedures. The Application shall set out the commercial and residential building areas, egress, parking, setbacks and other schematic plans for the proposed development.

(b) The Preliminary Site Development Plan Application shall include the viability of the development and the justification of the size and location of the main elements of the proposed development.

(c) After the Sketch Plat Review (no vote taken) by the Planning and Zoning Commission, a Preliminary Site Development Plan Application shall be submitted providing required detail. The Preliminary Site Development Plan shall receive a recommendation from the Planning and Zoning Commission to the Board of Trustees.

(d) The Preliminary Site Development Plan shall include, but shall not be limited to, specifics to that particular development which shall include:

1. Lot area coverage of structures – including Floor Area Ratio (if required) and number of dwelling units per acre.
2. Height and number of stories per structure.
3. Setbacks.
4. Street layout and design.
5. Pedestrian Ways and Bike Paths.

6. Stormwater Management Plan, which includes grading, and drainage plan (Low Impact Development is recommended).

7. A plan for noise, light and sound mitigation for the surrounding neighborhood(s).
8. A list of all facilities/amenities maintenance responsibilities and to whom they are assigned.
9. Architectural style and color.
10. All other requirements of the Village Codified Ordinances relating to Site Development Plans.

(e) The Final Site Development Plan shall be submitted for final action by the Board of Trustees of the Village.

(f) All Site Development Plan approvals will require the developer of commercial projects or mixed residential/commercial buildings to comply with commercial construction standards.

(G) AREA REGULATIONS.

(1) Residential density shall be a maximum density of one dwelling unit per one twelfth (.0833) acre.

(2) Lot size shall be governed by the terms set out in the Site Development Plan approved by the Board of Trustees, but for a residential lot shall not be less than .12 acre (3,630 square feet).

(a) The Floor Area Ratio (FAR) requirements of the Village Wide FAR per the Zoning Code shall be met in single family residential developments calculated on the basis of the net lot area excluding right-of-ways and common areas, Bike Paths and Pedestrian Ways, (if included in the development).

(b) Commercial and mixed commercial/residential developments will be exempt from the Floor Area Ratio requirements of the Zoning Code.

(3) Minimum setback limits for lots or parcels abutting property which is zoned residential and not within the Gateway District, shall be as follows:

(a) The front setback for all buildings shall be as approved in the Site Development Plan.

1. For single family residential houses, staggered front setbacks shall be implemented to avoid the "row house" look.
2. The side yard setback shall be ten (10) feet.
3. The rear yard setback shall be fifteen (15) feet.

4. Minimum setback limits for properties abutting an M.R.G.C.D. irrigation ditch or drain shall be twenty-five (25) feet from the property line abutting the M.R.G.C.D. facility.

5. The maximum height of buildings or structures is twenty-six (26) feet measuring the vertical distance from the existing grade after grading and drainage plan implementation to the top of the parapet on a flat roof or the apex of a pitched roof.

(4) All condominiums, residential or commercial, to be sold to individual owners must have a Village approved Condominium Declaration prepared in accordance with § 47-7A-1, et seq., NMSA 1978 and a condominium plat.

(5) All commercial buildings or mixed residential/commercial buildings must meet commercial building codes for the proposed usage.

(6) All buildings within the Gateway District Zone shall be built using conventional on-site or modular construction.

(H) PEDESTRIAN WAY. Pedestrian Ways and Bicycle Paths designated to enable the free movement of pedestrians or bicyclists with a specific development are encouraged in developments with the Gateway District Zone. Development design may include, where possible, the following elements:

(1) A Pedestrian Walkway, consisting of a stable permeable surface – pavers, permeable asphalt or concrete.

(2) A Bike Path consisting of a stable permeable surface – pavers, permeable asphalt or concrete, which shall be separate from the Pedestrian Way, shall be provided from public streets or other Bike Paths to a bicycle parking area within the project, from which the Pedestrian Walkway is accessed.

(3) A safety buffer separating the walkway and Bike Path from the street to promote pedestrian and bicycle safety.

(4) Pedestrian Ways and Bike Paths shall tie into other public Pedestrian Ways or Bike Paths wherever connection is possible.

(5) No walls or fences are allowed within a Pedestrian Way or Bike Path. Low planters no more than two feet, six inches (2.5 feet) in height are allowable in either side of the Pedestrian Walkway area or Bike Path.

(6) Vehicular driveways shall be perpendicular to Pedestrian Ways and clearly marked by color, pavers or texture and shall not block the continuous walkway surface.

(I) DESIGN CRITERIA.

(1) All new buildings are required to have a street facing entrance. The intent is to make major entrances to buildings obvious and welcoming using architectural details, lighting and signage.

(2) Massing articulation is required on all buildings.

(a) Massing articulation methods may include:

1. distinctive roof forms;
2. changes in materials;
3. window patterns;
4. different colors.

(3) Modulation shall extend to the roof, except at balconies. The purpose is, to the extent reasonably possible, avoid creating a rigid, rectangular building, but to break up the mass in creative ways.

(4) Flat, blank walls shall be prohibited for distances of more than a fifteen (15) foot length.

(5) All mechanical equipment located on the roof shall be concealed by architectural screening or treatment designed into the roof form. Merely painting rooftop mechanical equipment or surrounding it with fencing will not meet the requirements of this Section.

(6) Construction shall be appropriate for the architectural style. Materials such as aluminum siding, metal wall panels, mirrored glass and unstuccoed masonry units (except brick) or concrete are not allowed.

(J) ENVIRONMENTAL AND STORMWATER MANAGEMENT.

(1) All development, new or remodel, shall meet required Federal, State and local EPA National Pollutant Discharge Elimination System (NPDES) requirements and the Air Quality program administered by the City of Albuquerque. All sites shall provide for noise abatement.

(a) Low Impact Development practices and principals for on-site water retention, water harvesting and recycling, swales, berms, artificial streams and infiltration systems are recommended.

(K) LIGHTING.

(1) All lighting within the Gateway District Zone shall conform to §9.2.20, Dark Skies.

(L) NON-CONFORMING USES.

(1) Developed properties within the Gateway District which are existing on November 19, 2012 are an approved non-conforming use, if the use was in compliance with existing zoning. This Section shall not be interpreted to approve any use, development or construction that was not in compliance with existing zoning and development standards as of November 19, 2012. All future development on the nonconforming parcels shall be governed by the requirements of the Gateway District.

(M) SUBDIVISION.

(1) No land containing existing structures shall be subdivided into an area less than the allowable lot size for the Floor Area Ratio of the existing structures on the land.

§ 9.2.14 VC – VILLAGE CENTER ZONE

PURPOSE AND INTENT. In accordance with the Village of Los Ranchos Master Plan, the purpose and intent of this Section is to establish a Village Center Zone surrounding the Fourth Street/Osuna Boulevard/Chavez Road Intersections in the Village of Los Ranchos that promotes a more viable commercial center for the Village while protecting the established neighborhoods abutting Fourth Street and Osuna.

In creating the Village Center Zone the Village envisions a pleasurable destination for Village residents to gather and shop, an area that can be utilized for public gatherings such as markets and special events with a mix of complementary uses. Commercial development should be limited to those uses which are deemed to encourage pedestrian activity and draw large numbers of individuals to the area for the use of the general retail, restaurant and service establishments. To support the desired commercial development, the Village Center Zone should be the highest density residential zoning district in the Village of Los Ranchos.

The Village Center Project Area includes land within the Village Center Zone, but does not include all of the land within the Village Center Zone. In this Project Area, the Village will encourage the types of development envisioned, and may control development parameters by requiring economic development plans, entering into development agreements and to the extent the land may be owned or controlled by the Village, by filing of covenants and restrictions dealing with development and use of the Land, in addition to the zoning ordinances.

(A) LOCATION AND AREA. In accordance § 9.2.5, the boundaries of the Village Center Zone and the Village Center Project Area are shown on the official Zone Map.

(1) The Project Area boundaries may be amended by the Board of Trustees in accordance with §9.2.25(E), Commission/Board Issued Permits.

(B) ECONOMIC DEVELOPMENT PLAN. An Economic Development Plan may be required for any development within the Village Center Project Area and the content shall be defined by the terms of a Development Agreement entered into between the Village and the property owner or developer. The Economic Development Plan will be reviewed by the Planning and Zoning Commission, which may make recommendations with regard to the Economic Development plan, and approved by the Board of Trustees.

(C) USES. Properties within the Village Center Zone shall conform to the Use Table below. Uses designated as "Permitted" may be denied if the proposed use is not in conformance with the Master Plan, or is deemed by the Village to be a nuisance or injurious to adjacent property, the neighborhood, or the Village of Los Ranchos.

Use Table	
Key:	
Permissive Uses	P
Conditional Uses	C
Prohibited Uses	X
All uses shall meet regulations for permits as required by the Village Codified Ordinances.	
Agricultural	C
As an ancillary use in support of an on-site permissive use, limited to an area not to exceed 10% of the area of the permissive use it supports, and not to include livestock	C
Cannabis establishment	X
Residential (as qualified below)	P
Assisted living (adult) facilities	C
Daycare (adult) facilities	C
Duplex	X
Garage sales, estate sales, home distribution parties, trunk shows or other similar activities.	X
Single-family detached	X
Townhouses are required to provide a minimum of 24 dwelling units per gross acre.	C
Triplex	X

- g. Adjacent street names;
 - h. Other appurtenances that exist which impact the development (wells, walls, ditches etc.); and
 - i. Archeological or historical data and clearance if required from State Historic Preservation Office;
2. Site Plan
- a. Vicinity map with north arrow;
 - b. Lot dimensions, setbacks, and easements;
 - c. Data for total site area, disturbed area, and total impervious area;
 - d. Ingress/egress to the property and access to proposed structures thereon, with particular reference to automobile and pedestrian safety;
 - e. Pedestrian walkways.
3. Sign Requirements;
- a. Placement of all signs.
 - b. Size and type of signs (must be permitted separately and follow §9.2.22 for Signs)
4. Exterior lighting locations, type of lighting
5. Mailbox locations;
6. Bike rack locations;
7. Building plans/elevations;
- a. Total proposed square footage for all structures;
 - i. Individual square footage per structure marked on plans. (Heated and unheated, covered patios and walkways).
 - b. Proposed use of space;
 - i. Restaurants must meet State Environmental Health requirements.
 - c. Four direction exterior elevation plans;
 - d. Height from final grade – marked on plans;
 - e. Exterior materials and colors; and
 - f. Exterior equipment (including roof mounted).
- (g) Grading and Drainage Plan – NPDES Stormwater Management Plan
- 1. Vicinity map and north arrow;
 - 2. FEMA Floodplain data, benchmark data and legend;
 - 3. A complete Grading and Drainage Plan (EPA NPDES Stormwater Management Plan) which will be forwarded to the building permitting process as follows:
 - a. A topographic survey and grading plan with final elevation contours to be achieved by grading.
 - i. All grade and spot elevations at access points.
 - b. Stormwater management measures;
 - i. Selected to best accommodate the specific geologic, hydrologic, and topographic features of the land to be developed.
 - c. Stormwater runoff peak flow rate;
 - i. Determined by the one hundred (100) year, six (6) hour storm event.
 - ii. Calculation of the runoff peak flow rate may approximate the event from available data.
 - d. On-site control measures;
 - i. These may include, but are not limited to, the use of detention or retention basins and active and passive water harvesting techniques including swales, berms, cisterns, check dams, vegetative ground cover, and other techniques appropriate for retaining and infiltrating water on-site.
 - e. All water containment in structures that have water open to the air;
 - i. Shall empty within twenty four (24) hours through approved outlet structures designed to ensure a controlled release of water that will not cause flooding or erosion or shall empty within ninety-six (96) hours through percolation or natural infiltration.
 - ii. Percolation tests or other means of demonstrating that containment structures will empty within ninety-six (96) hours may be required.
 - f. Infiltration, detention, and retention basins;
 - i. Shall provide a means of controlling and removing sediment.
 - ii. Methods may include sedimentation settling ponds, sediment traps, filters on drop inlets, or other methods.
 - iii. All basins shall be designed to empty within no more than 24 hours with approved outlet, or within 96 hours as per §9.2.25(E)(3)(g)(3)(e)(1). Vector control for mosquitoes, other insects and rodents shall be maintained.
 - g. Wherever possible, retention water shall be used for the irrigation of vegetation for landscaping;
 - h. No stormwater runoff shall be routed into public irrigation ditches, canals, acequias or private ditches;
 - i. No stormwater runoff shall be permitted to enter streets, public or private or public or private adjacent property.
 - i. A roof run-off drainage plan;
 - j. In-flow of runoff from adjacent properties; and
 - k. A post construction maintenance plan.
- (h) Roadway Standards
- 1. Traffic control mechanisms;
 - a. Traffic Impact Study may be required.

DIVISION 1. - GENERALLY

Sec. 38-400. - Purpose and intent of article.

It is the purpose of this article to promote the public health, safety and general welfare, and to improve the quality of stormwater discharges, and to:

- (1) Establish policies, criteria and requirements related to stormwater quality protection that complement and supplement article II (floods) and article III (storm drainage) of this chapter.
- (2) Integrate stormwater quality policies, criteria and requirements with chapter 30, article V (water protection advisory board) and article VII (water conservation), and with applicable elements of: chapter 6 animals (section 6-54, animal waste); with chapter 70 solid waste (section 70-33, definitions), (section 70-37, ownership of solid waste), (section 70-42, dumping, accumulating and scattering of solid waste).
- (3) Provide assistance and guidance for county officials, county staff, co-permittees, and all persons and entities within the jurisdiction of the county.
- (4) As to flood control, storm drainage, and erosion control refer to section 38-141 of article III, storm drainage.
- (5) As to stormwater quality to:
 - a. Reduce quantity and improve quality of stormwater runoff within the context of mimicking predevelopment hydrology and within the limits of state water law.
 - b. Integrate stormwater quality protection requirements with related Code chapters, standards and guidelines.
 - c. Address ordinance implementation requirements of the county's watershed-based stormwater discharge permit (i.e., MS4 permit or NPDES permit).
 - d. Address construction and post-construction stormwater quality management within the limits of state water law and, where applicable, within flood control agency authorities and limitations.
 - e. Ensure, to the maximum extent practicable, that discharges to and from the county's stormwater drainage system and facilities do not cause or contribute to exceedances of applicable surface water quality standards.
 - f. Prohibit non-stormwater discharges and minimize release of floatables and gross pollutants to the county's stormwater drainage system, and provide for appropriate enforcement procedures and actions.

Address discharges from industrial activities to the county's stormwater drainage system

Address discharges from industrial activities to the county's stormwater drainage system.
g.

h. Work cooperatively with the MRGCD, AMAFCA, the City of Albuquerque and other co-permittees to best manage the discharge of storm runoff into MRGCD and co-permittee facilities, maximize efficient use of stormwater facilities, and minimize impact on downstream water quality and storm drainage facilities.

i. Promote and encourage the use of green infrastructure/low impact development in the treatment of stormwater prior to discharge to the waters of the US.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-401. - Definitions.

The following words, terms, and phrases, when used in this article shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning.

All definitions provided in article II section 38-32 and in section 38-142 are adopted for use in this article unless otherwise specifically defined or delimited.

Best management practices (BMP) means the schedules of activities, prohibitions of practices, maintenance procedures, and other management practices (public or private) to prevent or reduce the pollution of waters of the US. BMPs include devices, practices or methods for removing, reducing, retarding, or preventing targeted stormwater runoff constituents, pollutants, and contaminants from reaching receiving waters. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from material storage.

Burden of proof means reasonable evidence or presumptions regarding ownership of wastes and/or the responsible party involved in an IDDE event. In the presence of prima facie evidence and reasonable assumption, the burden of proof to establish a non-violation of this article falls to the responsible party.

Construction general permit (CGP) means the EPA-issued general permit for stormwater discharge associated with construction activity.

Cooperator/cooperative agreement means any arrangement, organization, or joint functioning of the co-permittees, or in combination with other governmental agencies, which works constructively with the county to address mutual stormwater issues. The cooperation, agreements, and functionality may be informal, customary, or more formally documented through written agreement, contracts, joint planning documents, or ordinances.

Co-permittee means any entity discharging stormwater within the urbanized area under the auspices of the EPA-issued watershed-based NPDES general permit no. NMR04000 or successor permits.

Directly connected impervious area (DCIA) means the portion of impervious area with a direct surface or infrastructure hydraulic connection to the county's stormwater system or receiving waters via continuous impervious area or by other means of impervious conveyance features such as gutters, pipes, drains, and other impervious features.

Discharge means the release of stormwater, in whatever manner or composition, to or from the county's stormwater system.

Dispose, disposal, discharge, release means causing, allowing, abandoning, depositing, placing, injecting, releasing, spreading, dumping, spilling, leaking, or other similar actions by whatever term of use, of wastes in whatever manner or composition to stormwater or to the stormwater drainage system of the county or its co-permittees.

EPA means United States Environmental Protection Agency.

Floatables/floatable debris means rubbish/litter/wastes and vegetative debris in stormwater runoff. Litter and other man-made pollutants such as plastic, paper products, polystyrene, cigarette butts, diapers, aluminum cans, bottles, construction trash, wood products, and vegetative debris including leaves, tumbleweeds, twigs, grass clippings, yard waste and like items, that float or remain suspended in stormwater flows.

GI/LID, green infrastructure (GI), low impact development (LID) means any array of products, technologies, and practices that preserve or use natural systems, or engineered systems that mimic natural processes and systems, to enhance overall environmental quality and more specifically that provide treatment resulting in stormwater quality improvement.

Gross pollutants means floatables and coarse sediments of relatively large size.

Illicit discharge detection and elimination (IDDE) means the detection and elimination of non-stormwater discharges and pollutants to the stormwater system. This term may be used synonymously with any number of terms of a nature similar to illicit discharge, illegal disposal, or illegal dumping.

Illicit discharge/illegal disposal/illegal dumping means discharges not composed entirely of stormwater into the county's or other co-permittees stormwater system, except discharges pursuant to an NPDES permit or those otherwise allowed by exception of the county, or the placement or release of any manner of materials defined as waste, solid waste, or pollutant directly into or in a manner that can reasonably be expected to result in a direct release of materials into the county's or a co-permittee's stormwater system.

From chapter 70 article II section 70-33 the term "dispose or disposal" and from section 70-42, the terms "dumping", "unauthorized accumulation", and "scattering of solid waste" as described therein are also adopted, but within this article are extended more specifically to apply to any such action which results, or may be reasonably expected to result, in a direct discharge or release (whether in solid, sludge, liquid,

gaseous, or any other state of matter) to the county's stormwater drainage system. Collectively, these various terms are included within the general terms "dispose" or "discharge" "or release" as used in this article.

Impervious surface/impervious area means conventional constructed surfaces such as pavements, sidewalks, driveways, roadways, parking lots, and rooftops that are intended to be impermeable or water-resistant. Highly compacted soils may also be considered to be impervious as may be landscaped areas which are underlain by plastic sheeting which is not intended to allow the passage of water into the underlying soil layer.

Industrial facility/industrial activity means a property that has discharges associated with industrial activity as defined by federal regulations in 40 C.F.R. 122.26(B)(214)I-XI and the activities which occur on the property.

Managed on site means to control, direct, and treat the stormwater quality design volume on the property, or if from an area of common development, then at an alternate location designed for stormwater management or as otherwise approved by the county engineer. The control and treatment will be for water quality and/or flood volume purposes prior to discharge of the stormwater to the county or a co-permittees MS4. Nothing in this definition shall be construed to require an action which the applicant or the county deems to be contrary to state law, or to verbal or written state agency guidance regarding flood control or surface water capture, or which requires acquisition or amendment of a water right to legally implement.

***Maximum extent practicable (MEP)* means a technology-based discharge standard for MS4 operators regulated under the NPDES stormwater program to reduce pollutants in stormwater discharges. The water quality standard may be quantitative or in the form of a narrative discharge limitation, requiring BMPs designed to satisfy the technology requirement of the Clean Water Action (CWA) and protect water quality. BMPs are determined by permittee and permit authority.**

Multisector general permit (MSGP) means the EPA-issued permit for stormwater discharge associated with industrial activity. The MSGP has general requirements as well as industry sector-specific requirements as described in subparts A through AD of the MSGP.

Municipal separate storm sewer system (MS4) means the system of stormwater conveyances and drainages owned, operated, or under the control of the county, or any such facilities or conveyances owned, operated or under control of the co-permittees to which or from which the county discharges or receives discharges of stormwater, and within the urbanized area. The MS4 includes all manner of natural and man-made, lined or unlined, ditches, arroyos, channels, canals, inlets, drains, and piping, inclusive of MRGCD facilities allowed for such use, that are used to convey stormwater. The term is used interchangeably to refer individually to the county's MS4 specifically and also collectively to that of the county and co-permittees.

The requirements of this article and of the related NPDES permit shall apply to all unincorporated lands within the county, including those lands and drainages located outside of the urbanized area.

This article shall not apply to federal lands and reservations, or as regards stormwater, to the lands of the city or other co-permittees with jurisdictional authority to pass and enforce ordinances, unless specifically mentioned and included. The jurisdiction of this article is not exclusive. In particular, AMAFCA, the city, and the MRGCD, where applicable, share jurisdiction in matters of flood control, drainage and stormwater quality. In the event of conflict with ordinance or regulations of overlapping jurisdictions, the more stringent of the requirements as determined by the county engineer shall apply.

(Ord. No. 2017-8, 4-25-17)

DIVISION 2. - ADMINISTRATION AND ENFORCEMENT

Sec. 38-406. - Generally.

- (a) The provisions for administration and enforcement of article III section 38-171 apply to this article with the following exceptions:
 - (1) The requirements of subsection 38-171(i) and its subsections shall be expanded to include:
 - a. Review of the planned controls to be used to manage runoff created after development.
 - b. Stormwater quality treatment for the stormwater quality design volume.
 - c. Evaluation of opportunities for use of GI/LID practices including but not limited to the use of rooftop discharge and passive water harvesting or other water conservation methods as permissively allowed without water right by state water law and state agency interpretation.
 - d. Incorporation of design elements to manage the stormwater quality design volume on-site, or the basis for requesting and the proposed method for an alternative treatment option.
 - (2) The subsection 38-171(i)(5) special provisions for the east mountain area do not apply to the stormwater quality requirements of this article.
 - (3) The subsection 38-171(l) provisions for the design storm do not apply for the stormwater quality design storm. Rather, the stormwater quality design storm shall be the 90th percentile storm event for newly developing properties and the 80th percentile event for re-development properties. The definition of the 90th percentile and 80th percentile stormwater quality design volume shall be as determined by direction of the county engineer or designee. In no case shall it be less than that event as defined in the NPDES permit as related to post-construction stormwater management. Nothing in this article shall preclude the definition of the stormwater quality design storm to be greater than prescribed in the NPDES permit. In

implementation committee, the WPAB is hereby considered by the county to be a cooperative agreement for purposes of NPDES permit compliance with regard to all elements of the NPDES permit where cooperative agreements are encouraged.

- (d) The WPAB is hereby designated by the county as the primary citizen advisory board for the county regarding stormwater quality protection policy matters. The WPAB is directed in these policy and implementation matters to work jointly and cooperatively with other boards and technical advisory groups of the city, the ABCWUA, AMAFCA, and other NPDES co-permittees as the WPAB deems appropriate and necessary.
- (e) The WPAB is hereby designated as the county's "water committee/advisor group" and "stormwater management panel" as mentioned in the NPDES permit for purposes of public education, outreach, and public participation process, and provides the opportunity to serve as a citizen representative on a local stormwater management panel through the vacancy notice and appointment processes of the respective governmental bodies.
- (f) The WPAB is hereby assigned the responsibility to assist county staff in stormwater quality policy matters and will facilitate annual public review and comment of the county's stormwater management plan and annual report as required per the NPDES permit. The WPAB will be briefed on the county's NPDES stormwater program at least annually or more frequently as the WPAB may request.

(Ord. No. 2017-8, 4-25-17)

DIVISION 3. - DESIGN STANDARDS

Sec. 38-412. - General provisions.

- (a) The provisions of article III section 38-201 apply to this article and are extended to stormwater quality facilities and features where not specifically addressed. This article is intended to complement and supplement article III of this chapter, and shall be administered in concert therewith.
- (b) No non-stormwater discharges. Site development, major or minor subdivisions, or replats for industrial activities shall be designed and constructed such that non-stormwater discharges into the storm sewers, arroyos or watercourses will not intentionally occur. Some non-stormwater discharges are allowable; a list of authorized non-stormwater discharges can be found in part I.A.4 of the permit.
- (c) For all new industrial and commercial development and for all new residential development requiring a grading and drainage plan and approval, all stormwater discharge resulting from the stormwater quality design storm event must be managed on-site for water quality prior to discharge from the property. **Implementation of stormwater BMPs into the landscape and**

grading design plans to minimize runoff and to increase on-site rainwater retention will be required. No discharge from directly connected impervious areas resulting from the stormwater quality design storm or lesser storms will be allowed without on-site treatment prior to release to the MS4, or provision of means to minimize such discharges to the maximum extent practicable.

- (d) For all new and redevelopment of industrial and commercial properties requiring a paving permit, the site plan will be evaluated by the applicant for the treatment of stormwater from directly connected impervious areas, particularly driveways and parking lots. If, in the opinion of the county engineer, control and treatment of stormwater prior to discharge from such areas to the MS4 is practicable, such measures shall be implemented, or other practical measures or alternatives to minimize such discharges may be utilized as approved by the county engineer.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-413. - Construction phase stormwater quality protection.

- (a) For all grading, construction, development, and redevelopment projects with land disturbances equal to or greater than one acre, including sites which disturb less than one acre but are part of a larger common plan of development, a stormwater pollution prevention plan in accordance with EPA NPDES regulations for construction site stormwater runoff control shall be submitted to the county engineer, prior to the issuance of a building or paving permit or approval of a grading and drainage plan. This requirement is in addition to any other provisions of this article that may apply.
- (b) The stormwater pollution prevention plan shall outline the BMPs to be undertaken by the operator/owner of the project to protect stormwater quality during the construction phase of the project. These BMPs shall be maintained by the owner of the property. Inspection of these BMPs shall be made at a minimum of once per week by the owner, and a log of this inspection shall be kept on-site for review by the county engineer. The county shall also inspect these BMPs on a periodic basis. These BMPs shall be subject to the approval of the county engineer.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-414. - Post-construction phase stormwater quality protection.

- (a) *State water law, flood control authorities, and application to post-construction BMP selection and limitations.*
 - (1) It is the county's understanding for the purposes of this article that the office of the state engineer's position, at the time of enactment of this article, is that all detained stormwater must be released within 96 hours and local flood control authority requirements prevail over the requirements of the NPDES permit.
 - (2)

The NPDES permit provides that where state water law limits the ability to fully manage stormwater quality design volume on site, measures to minimize increased discharge consistent with requirements under state water law must still be implemented, and also that local flood control requirements and NPDES permit requirements may be met through a combination of on-site and off-site controls.

- (3) The NPDES permit contains a list of possible infeasibility considerations for post-construction BMPs including: the lot being too small to allow for infiltration capacity; soil instability; a site use that is inconsistent with capture and reuse; other physical conditions; and compliance with on-site flood-control requirements leaves insufficient area. The permit allows for consideration of "multiple criteria that rule out an adequate combination of the practices" set forth in the permit, and further indicates that state water law may limit the ability to fully manage the stormwater quality design volume on site.
 - (4) Where applicable state water law limits the ability to address stormwater BMPs requiring infiltration, reuse or other beneficial uses that require permits under state environmental or water law or acquisition of water rights, such BMPs may be determined by the county to be "not practicable" and alternative compliance may be considered.
- (b) *Post-construction BMP design requirements and implementation.*
- (1) For all development and redevelopment projects with land disturbances equal to or greater than one acre, including sites which disturb less than one acre but are part of a larger common plan of development, that discharge into the county's storm drainage system, post-construction water quality BMPs to manage the stormwater quality design volume are required. This requirement is in addition to any other requirements that may apply. These BMPs shall be subject to the approval of the county engineer and stormwater compliance manager.
 - (2) The selection of management BMPs must be included in a stormwater quality design (incorporated into the grading and drainage plan as part of the preconstruction review process and as such, subject to inspection during construction, at final inspection, and as a condition of final construction approval) that manages the 90th percentile stormwater quality design volume for new development and the 80th percentile stormwater quality design volume associated with redevelopment sites. Managing the stormwater quality design volumes on-site, as defined in this article, may be implementable in large part - particularly for new development and consistent with the NPDES permit intent to reduce pollutants in stormwater (e.g., a water quality facility).
 - (3) Where practicable, BMPs will be selected and designed to first and primarily manage flow from the contributing area impervious surfaces. Selected BMPs should include the following elements to improve on-site stormwater runoff quality:
 - a.

Grade impervious surfaces, such as driveways, during construction to drain to vegetated areas.

- b. Minimize the area of impervious surfaces such as paved areas, roof and concrete driveways.
 - c. Incorporate pervious or porous surfaces where allowable (e.g., gravel, permeable pavers or blocks, pervious or porous concrete) that minimize runoff.
 - d. Direct runoff from paved surfaces and roof areas into planting beds or landscaped areas to maximize site water capture and reuse.
 - e. Incorporate rain gardens, cisterns, and other rain harvesting or catchment systems.
 - f. Incorporate beds, swales, basins and other such features to manage stormwater and dry weather runoff and increase percolation into the soil for landscape use.
- (4) The BMPs must include an evaluation by the applicant of the GI/LID practices as provided in the county's Development Guidelines for Water Conservation and the Development Process Manual and determination and inclusion of the viable BMPs that will be implemented. The evaluated BMPs can and should be integrated with water conservation techniques such as passive water harvesting, rooftop harvesting as allowed by state water law, and/or soil amendment programs that improve the capacity of the soil texture to retain water.
- (5) As-built plans for stormwater quality designs must be submitted prior to final inspection. Grading and drainage plans or other required planning documents must specifically identify post-construction BMPs that are required to be maintained and inspected.
- (6) BMP(s) must be inspected by the stormwater compliance manager or other county-designated qualified person and found to be in compliance with all approved plans and specifications prior to the release of certificate of occupancy or other county-required approval for the site.
- (7) Post-construction agreements and inspection and maintenance requirements are as outlined in subsections 38-414(c) and 38-414(d).
- (c) *Alternative compliance for post-construction due to infeasibility.*
- (1) The applicant may submit to the county engineer a request for a determination of infeasibility for on-site management of all or a portion of the stormwater quality design volume based on the limitations provided in subsection 38-412(a)(4) above. If, at the discretion of the county engineer, the request is confirmed, an alternative compliance strategy acceptable to the county engineer shall be implemented to address predevelopment hydrology concern prior to discharge to waters of the US.
 - (2) The limitations of section 38-412(a)(4) above should not be construed to be exclusive, and other valid basis, other than costs, may also be considered. Such basis may include, but are not limited to:

Full or partial on-site treatment for stormwater quality treatment acceptable to the county engineer and to owner and operator of the alternate compliance facility will be required prior to discharge to the receiving facility. The more stringent of treatment requirements specified by the county engineer or the co-permittee will apply.

- c. No discharge of any portion of the stormwater quality design volume (other than under those approved through other NPDES permit means) will be discharged from the site to any MS4 without a minimum level of treatment (GI/LID or structural) to address floatables, gross pollutants, and/or site specific pollutants of concern as determined by the county engineer and the stormwater compliance manager.
- d. The maintenance of the on-site stormwater quality feature remains the responsibility of the property owner/operator, subject to the provisions of sections 38-415 through 38-417 and related enforcement provisions.
- e. Annual inspection of the installed on-site water quality feature will be performed and documented by the owner/operator and records will be provided upon request by the county engineer and/or equivalent position of the co-permittee. Because of the reliance on off-site public facilities, an annual inspection applies rather than the three-year inspection schedule for private facilities specified for post-construction inspection and maintenance, as described in subsection 38-414(d)(2) of this article.

(d) *Post-construction inspection and maintenance.*

- (1) Private stormwater facilities shall be maintained by the facility or property owner to standards established by the county engineer, published in the Development Process Manual, and/or in related county rules.
- (2) Periodic inspection and certification of private facilities by a state professional engineer or otherwise qualified stormwater person (as determined by the county engineer) are required of the facility/property owner and shall occur no less frequently than once every three years from the date of final construction inspection.
 - a. Because of the reliance on off-site public facilities, an annual inspection applies rather than the three-year inspection schedule for private facilities specified for post-construction inspection and maintenance.
 - b. The responsibility and cost for the inspection is the responsibility of the private facility owner and/or property owner. The owner and property owner of each structural BMP shall keep records of inspections, maintenance, and repairs for at least five years from the date of creation of the record, whether the inspection schedule is annual or every three years.

Documentation of the inspection, maintenance activities, and repairs shall be provided to the county engineer upon request and once presented shall be maintained electronically as part of the county's permit tracking system. Copies of the inspection reports shall be kept on file at the subject property/facility or at the offices of the property owner and/or manager, and shall be made available within two working days of an inspection request (whether verbal or written). A facility or BMP that cannot be certified or for which records cannot be provided in a timely manner shall be certified by current inspection and/or deficiencies corrected within 90 days of notice from the county that such correction or inspection is needed unless a more immediate action is deemed necessary by the county engineer.

- (4) All on-site post-construction BMPs or alternate compliance methods and techniques are subject to random inspections by the county engineer per the inspection provisions of section 38-409.
- (5) Inspections and inspection programs by the county may be conducted or established on any reasonable basis, including but not limited to routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges of surface water, groundwater, and material or water in BMPs; and evaluating the condition of BMPs.
- (6) Enforcement provisions will apply per section 38-402 of this article.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-415. - Industrial facilities stormwater quality protection and the multi-sector general permit (MSGP).

- (a) For any existing industrial activities subject to the MSGP, proof of compliance with the relevant EPA industrial sector permit provisions shall be provided to the county engineer prior to issuance of any building, zoning, special use, development or redevelopment permit or approval of a grading and drainage plan. For new industrial development projects, such proof will be provided no later than 90 days after receipt of the certificate of occupancy or other necessary permit or approval from the county. Proof of coverage under the MSGP may include, but is not limited to, notice of intent submittal to and approval by the EPA.
- (b) The county engineer or stormwater compliance manager may require monitoring of non-stormwater discharges if the engineer/manager reasonably believes that such discharges violate the provisions of this article or of the terms of the MSGP provisions.
- (c) Within the sub-watersheds serviced by the Adobe Acres Drain, Alameda Outfall Channel, Paseo del Norte Outfall Channel and Sanchez Farms Drainage Area, as part of the development and redevelopment review processes, the county engineer or stormwater compliance manager may, at their discretion, request an evaluation of the site, based on prior use and history for potential past use and disposal of PCBs. If there is documentable concern with previous PCB use, release,

or accumulation at a site, the county engineer or the stormwater compliance manager may require sediment and shallow soil sampling on the site and in downstream drainages to determine the concentration of PCBs that may be present at the site and or in sediments originating from the site. If present at levels above background, the county engineer may require sediment retention BMPs on-site or accept alternatives from the developer, to address PCB concerns. Limits of the sub-watershed boundaries are maintained by and available from the county engineer or stormwater compliance manager.

- (d) Upon request by the county engineer or the stormwater compliance manager, an industrial facility subject to the MSGP shall submit the results of any sampling or monitoring undertaken pursuant to the MSGP or other water-related discharge permit.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-416. - Surface use of streets for stormwater quality purposes.

- (a) The provisions of article III section 38-202 apply to this article and are extended to stormwater quality facilities and features where not specifically addressed.
- (b) Excepting the specified depth, flowline, and velocity restrictions of section 38-202, nothing in this section should be construed to prohibit the use of GI/LID in medians and within off-pavement rights-of-way for stormwater quality treatment purposes upon approval by the county engineer.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-417. - Financial responsibility and guarantee.

The provisions of article III section 38-204 apply to this article and are extended to stormwater quality facilities and features where not specifically addressed.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-418. - Multiple use rights-of-way and easements.

The provisions of article III section 38-205 apply to this article and are extended to stormwater quality facilities and features where not specifically addressed.

(Ord. No. 2017-8, 4-25-17)

Sec. 38-419. - Maintenance responsibility.

The provisions of article III section 38-206 apply to this article and are extended to stormwater quality facilities and related BMPs.

ANALYSIS

This ordinance amends Chapter 12.84 of Title 12 – Environmental Protection of the Los Angeles County Code, related to low impact development water quality and hydromodification standards applicable to new development and redevelopment, as follows:

Changes low impact development water quality and hydromodification standards and requirements on certain new development and redevelopment projects to conform to requirements imposed on the County by the California Regional Water Quality Control Board in the County's stormwater discharge permit under the Federal Clean Water Act.

JOHN F. KRATTLI
County Counsel

By
MARK T. YANAI
Principal Deputy County Counsel
Public Works Division

MTY:jjj

Requested: 03/19/13
Revised: 08/13/13

ORDINANCE NO. _____

An ordinance amending Chapter 12.84 of Title 12 – Environmental Protection of the Los Angeles County Code, relating to low impact development water quality and hydromodification standards for property development.

The Board of Supervisors of the County of Los Angeles ordains as follows:

SECTION 1. Section 12.84.410 is hereby amended to read as follows:

12.84.410 Purpose.

The purposes of this chapter are as follows:

A. Lessen the adverse impacts of stormwater runoff from development and urban runoff on natural drainage systems, receiving waters and other water bodies.

B. Minimize pollutant loadings from impervious surfaces by requiring development projects to incorporate properly designed, technically appropriate BMPs and other LID strategies.

C. Minimize erosion and other hydrologic impacts on natural drainage systems by requiring development projects to incorporate properly designed, technically appropriate hydromodification control development principles and technologies.

D. The provisions in this Chapter 12.84 shall be construed to augment any county, state, or federal ordinance, statute, regulation, or other requirement governing the same or related matter, and where a conflict exists between a provision in this Chapter 12.84 and such other ordinance, statute, regulation, or requirement, the stricter provision shall apply to the extent permitted by law.

SECTION 2. Section 12.84.420 is hereby amended to read as follows:

12.84.420**Definitions.**

The following definitions shall apply to this chapter:

A. "Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Water Board on June 13, 1994 and subsequent amendments.

B. "Beneficial Use" means the existing or potential use of receiving waters as designated by the Los Angeles or Lahontan Regional Water Quality Control Boards in their respective basin plans for the County.

C. "Best Management Practices ("BMPs")" are practices or physical devices or systems designed to prevent or reduce pollutant loading from stormwater or non-stormwater discharges to receiving waters, or designed to reduce the volume of stormwater or non-stormwater discharged to the receiving water.

D. "Capital Flood" means the runoff produced by a fifty (50)-year frequency design storm falling on a saturated watershed (soil moisture at field capacity). A fifty (50)-year frequency design storm has a probability of 1/50 of being equaled or exceeded in any year.

E. "County" means the County of Los Angeles.

F. "Designated Project" means any development project described in subsection A of Section 12.84.430.

G. "Development" means activity requiring discretionary or non-discretionary land use or construction approval from the County that results in the creation, addition, modification, or replacement of impervious surface area, which replacement is not part

of routine maintenance activity. Development includes, but is not limited to, land subdivisions; the construction, installation, addition, or replacement of a building or structure; expansion of a building footprint; and land-disturbing activities related to structural or impervious surfaces. Development shall not include routine maintenance of original lines and grades and/or hydraulic capacity.

H. "Director" means the Director of Public Works.

I. "Excess Volume" means the additional volume of stormwater caused by development; excess volume is determined by calculating the difference in the volume of runoff under undeveloped and post-developed conditions, using the water quality design storm event.

J. "Hardscape" means any durable, pervious or impervious surface material, including paving for pedestrians and vehicles.

K. "Hydromodification" means the alteration of a natural drainage system through a change in the system's flow characteristics.

L. "Low Impact Development ("LID")" means technologies and practices that are part of a sustainable stormwater management strategy that controls stormwater and urban runoff on site.

M. "Natural Drainage System" means any unlined or unimproved (not engineered) creek, stream, river, or similar waterway.

N. "Non-designated Project" means any development project that is not included in subsection A of Section 12.84.430.

V. "Stormwater Quality Design Volume ("SWQDv")" means the runoff generated by a water quality design storm event.

W. "Urban Runoff" means surface flows, other than stormwater, emanating from development.

X. "Water Quality Design Storm Event" means any of the volumetric or flow rate based design storm events for water quality BMPs identified in the National Pollutant Discharge Elimination System Municipal Stormwater Permit for the County of Los Angeles.

SECTION 3. Section 12.84.430 is hereby amended to read as follows:

12.84.430 Applicability.

A. Designated Projects. The following development projects shall comply with the provisions of subsection C of Section 12.84.440, below:

1. All new development projects equal to one (1) acre or greater of disturbed area and adding more than ten thousand (10,000) square feet of impervious surface area;
2. Industrial parks with ten thousand (10,000) square feet or more of surface area;
3. Commercial malls with ten thousand (10,000) square feet or more of surface area;
4. Retail gasoline outlets with five thousand (5,000) square feet or more of surface area;
5. Restaurants (SIC 5812) with five thousand (5,000) square feet or

only such incremental development shall comply with the provisions of subsection D of Section 12.84.440.

C. Street and Road Construction. In addition to complying with all other applicable provisions of Section 12.84.440, development projects involving street and road construction of ten thousand (10,000) square feet or more of impervious surface area shall follow USEPA guidance regarding "Managing Wet Weather with Green Infrastructure: Green Streets 26" (December 2008 EPA-833-F-08-009) to the maximum extent practicable. This subsection applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.

D. Single Family Hillside Homes. In addition to complying with all other applicable provisions of Section 12.84.440, development projects involving the construction of a single-family home in a hillside management area (as defined in Section 22.08.080 of Title 22 of this Code) shall implement the following measures:

1. Conserve natural areas;
2. Protect slopes and channels;
3. Provide storm drain system stenciling and signage;
4. Divert roof runoff to vegetated areas before discharge, unless the diversion would result in slope instability; and
5. Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

E. Exemptions. This chapter shall not apply to any of the following development projects:

1. Any Non-designated Project that results in an addition or alteration of less than fifty percent (50%) of the impervious surfaces of an existing developed site consisting of four (4) or fewer residential units; and

2. Any project for which a complete discretionary or non-discretionary permit application was filed with the Los Angeles County Department of Regional Planning, Public Works, or any County-controlled design control board, prior to January 1, 2009.

SECTION 4. Section 12.84.440 is hereby amended to read as follows:

12.84.440 Low Impact Development Standards.

A. The LID standards of this chapter are:

1. Mimic undeveloped stormwater runoff rates and volumes in any storm event up to and including the Capital Flood;
2. Prevent pollutants of concern from leaving the development site in stormwater as the result of storms, up to and including a Water Quality Design Storm Event; and
3. Minimize hydromodification impacts to natural drainage systems.

B. The Director shall prepare, maintain, and update, as deemed necessary and appropriate, a manual ("LID Standards Manual"), which shall include urban and stormwater runoff quantity and quality control development principles and technologies for achieving compliance with the provisions of this section. The LID Standards Manual shall also include technical feasibility and implementation parameters, as well as other rules, requirements, and procedures as the Director deems necessary, for implementing

the provisions of this Chapter 12.84.

C. Designated Projects. To meet the standards described in subsection A of this section, development projects described in subsection A of Section 12.84.430 shall comply with the following requirements:

1. The project shall retain one hundred percent (100%) of the Stormwater Quality Design Volume ("SWQDv") on-site, through infiltration, evapotranspiration, rainfall harvest and use, or a combination thereof, unless the Director determines that it would be technically infeasible to do so;

2. If the Director determines that it would be technically infeasible to retain one hundred percent (100%) of the SWQDv on-site, the project shall comply with one of the following alternative compliance measures:

a. The project shall provide for on-site biofiltration of one and one-half (1.5) times the portion of the SWQDv that is not retained on-site;

b. The project shall include infiltration or bioretention BMPs to intercept the portion of the SWQDv that is not retained on-site at an offsite location, as approved by the Director. The project shall also provide for treatment of the portion of the SWQDv discharged from the project site, as approved by the Director;

c. The project shall provide for the replenishment of groundwater supplies that have a designated beneficial use in the Basin Plan;

(i) Groundwater replenishment projects shall include infiltration, or bioretention BMPs to intercept the portion of the SWQDv that is not retained on-site at an offsite location, as approved by the Director;

(ii) Groundwater replenishment projects shall also provide for treatment of the portion of the SWQDv discharged from the project site, as approved by the Director;

d. The project shall include infiltration, bioretention, or rainfall harvest and use BMPs to retrofit an existing development, with similar land uses as the project, to intercept the portion of the SWQDv that is not retained on-site;

e. The County, independently or in conjunction with one (1) or more cities, may apply to the Regional Water Board for approval of a regional or sub-regional stormwater mitigation program to substitute in part or wholly for the provisions of this chapter for the area covered by the regional or sub-regional stormwater mitigation program. If the Regional Water Board approves the program, the provisions of the program shall apply in lieu of any conflicting provisions of this chapter.

D. Non-designated Projects. To meet the standards described in subsection A of this section, any development project described in subsection B of Section 12.84.430, above, shall comply with the following requirements:

1. A development project consisting of four (4) or fewer residential units shall implement at least two (2) LID BMP alternatives listed in the LID Standards Manual, which alternatives include, but are not limited to, disconnecting impervious surfaces, using porous pavement, downspout routing, a dry well, landscaping and irrigation requirements, and a green roof;

2. A development project consisting of five (5) or more residential units, or a nonresidential development project, shall comply with the following

requirements:

a. The excess volume from each lot upon which such development is occurring shall be infiltrated at the lot level, or in the alternative, the excess volume from the entire development site, including streets and public right-of-way, shall be infiltrated in sub-regional facilities. The tributary area of a sub-regional facility shall be limited to five (5) acres, but may be exceeded with approval of the Director. When the Director determines that infiltration of all excess volume is not technically feasible, on-site storage, reuse, or other water conservation uses of the excess volume is required and shall be implemented as authorized by the Director in accordance with the requirements and provisions specified in the LID Standards Manual;

b. The runoff from the water quality design storm event associated with the developed site hydrology must be treated to the satisfaction of the Director before discharge.

SECTION 5. Section 12.84.445 is hereby added to read as follows:

12.84.445 Hydromodification Control

A. Exemptions. The Director may grant exemptions from the provisions of this Section 12.80.445 for the following types of development projects where the Director determines that downstream channel conditions and proposed discharge hydrology indicate that adverse hydromodification effects to beneficial uses of natural drainage systems are unlikely:

1. The replacement, maintenance or repair of existing, publicly-

maintained flood control facilities, storm drains, or transportation networks;

2. Development of a previously developed site in an urbanized area that does not increase the effective impervious area or decrease the infiltration capacity of pervious areas compared to the pre-project conditions;

3. Projects that have any increased discharge directly or through a storm drain to a sump, lake, area under tidal influence, into a waterway that has an estimated hundred (100)-year peak flow of twenty-five thousand (25,000) cubic feet per second ("c.f.s.") or more, or other receiving water that is not susceptible to hydromodification impacts;

4. Projects that discharge directly or through a storm drain into concrete or other engineered channels (e.g., channelized or armored with rip rap, shotcrete, etc.), which, in turn, discharge into receiving water that is not susceptible to hydromodification impacts;

5. Non-designated Projects disturbing an area less than one (1) acre or creating less than ten thousand (10,000) square feet of new impervious area; or

6. Single family homes that incorporate LID BMPs in accordance with the LID Standards Manual.

B. The LID Standards Manual shall include hydromodification control development principles and technologies for achieving compliance with the provisions of this Section 12.84.445 as well as other rules, requirements and procedures as the Director deems necessary, for implementing the provisions of this section.

C. Unless excluded by subsection A, above, or excused pursuant to subsection D, below, development projects must fully mitigate off-site drainage impacts caused by hydromodification and changes in water quality, flow velocity, flow volume, and depth/width of flow, as determined by the Director, in accordance with the requirements and provisions specified in the LID Standards Manual.

1. Sediment transport analysis shall be required when the project is tributary to any natural drainage system with a Capital Flood flow rate greater than five thousand (5,000) c.f.s.

D. If the Director determines that it would be infeasible for a development project to comply with the provisions of subsection C of this section, and the project disturbs an area greater than one (1) acre but less than fifty (50) acres, written consent to the unmitigated impacts shall be obtained from the owner of every impacted downstream property. In addition, the development project shall comply with one of the following alternative requirements:

1. The project shall retain on-site, one hundred percent (100%) of the stormwater volume from the runoff of the ninety-fifth (95th) percentile, twenty-four (24)-hour rainfall event, through infiltration, evapotranspiration, and/or harvest and use;

2. The runoff flow rate, volume, velocity, and duration for the project's post-development condition shall not exceed the pre-development condition for the two (2)-year, twenty-four (24)-hour rainfall event; or

3. The Erosion Potential ("Ep") in the receiving water channel shall approximate one (1), as demonstrated by a hydromodification analysis study approved by the Director.

E. If the Director determines that it would be infeasible for a development project to comply with the provisions of subsection C of this section, and the project disturbs an area fifty (50) acres or more, written consent to the unmitigated impacts shall be obtained from the owner of every impacted downstream property. In addition, the development project shall comply with one of the following alternative requirements:

1. The project shall infiltrate on-site at least the runoff from a two (2)-year, twenty-four (24)-hour rainfall event;

2. The runoff flow rate, volume, velocity, and duration for the project's post-development condition shall not exceed the pre-development condition for the two (2)-year, twenty-four (24)-hour rainfall events; or

3. The Ep in the receiving water channel shall approximate one (1), as demonstrated by a hydromodification analysis study approved by the Director.

SECTION 6. Section 12.84.450 is hereby amended to read as follows:

12.84.450 LID Plan Review.

A. Compliance with the LID and hydromodification control standards of this Chapter 12.84 shall be shown through a LID plan review described in subsection B, below.

B. The applicant for any development project shall submit a LID plan to the Director for review and approval that provides a comprehensive, technical discussion of

how the development project will comply with this Chapter 12.84 and the applicable provisions specified in the LID Standards Manual. A deposit and fee to recover the costs associated with LID plan review shall be required. The time for obtaining LID plan approval shall be as follows:

1. For subdivisions, the LID plan shall be approved prior to the tentative map approval;
2. For any development project requiring a conditional use permit ("CUP") or other discretionary entitlement required under Title 22 of the Los Angeles County Code, the LID plan shall be approved prior to the issuance of any such CUP or other discretionary entitlement; and
3. For all other development projects, the LID plan shall be approved prior to issuance of a grading permit for such development project, or when no grading permit is required, prior to the issuance of a building permit for such development project, or when no grading or building permit is required, prior to the commencement of any development activity or as otherwise indicated in the non-discretionary land use approval.

SECTION 7. Section 12.84.460 is hereby amended to read as follows:

12.84.460 Additional Requirements.

Except as specifically exempted therein, all development projects described in Section 12.84.430 shall comply with the following:

- A. All grading and/or site drainage plans for the development shall incorporate the features of the approved LID plan described in subsection B of

Section 12.84.450;

B. Ongoing Maintenance.

1. The development project's LID and hydromodification control features shall be maintained and shall remain operable at all times and shall not be removed from the project site unless and until such features have been replaced with other LID or hydromodification control features in accordance with this Chapter 12.84.

2. Unless excused by the Director in his or her discretion, the owner of the subject development project site shall prepare and obtain the Director's approval of an operation and maintenance plan and monitoring plan for all LID practices and LID and hydromodification control features incorporated into the project.

3. The owner of the subject development project site shall record a covenant or agreement, approved as to form and content by the Director, in the office of the Los Angeles County Registrar-Recorder/County Clerk indicating that the owner of the subject development project site is aware of and agrees to the requirements in this subsection B. The covenant or agreement shall also include a diagram of the development project site indicating the location and type of each LID and hydromodification control feature incorporated into the development project. The time to record such covenant or agreement shall be as follows:

- a. For any subdivision, prior to final map approval; and
- b. For any other development project, prior to issuance of a grading plan approval for the development project, and when no grading plan approval is required, prior to the issuance of building plan approval for the development project.

ORDINANCE NO. 2009-07

AN ORDINANCE ADOPTING THE “2009 LOW IMPACT DEVELOPMENT (LID) AMENDMENTS TO THE CITY OF FLAGSTAFF STORMWATER MANAGEMENT DESIGN MANUAL”, WHICH ADOPTS A NEW CHAPTER 9 OF THE CITY OF FLAGSTAFF STORMWATER MANAGEMENT DESIGN MANUAL, ENTITLED “THE LOW IMPACT DEVELOPMENT (LID) REQUIREMENTS” AND AMENDS CHAPTER 8 OF THE STORMWATER MANAGEMENT DESIGN MANUAL TO COMPLY WITH THE LOW IMPACT DEVELOPMENT REQUIREMENTS; ADOPTING THE LOW IMPACT DEVELOPMENT (LID) GUIDANCE MANUAL; AND PROVIDING FOR HOUSEKEEPING CHANGES.

WHEREAS, the City of Flagstaff desires to adopt LID requirements as part of the Stormwater Management Design Manual; and

WHEREAS, the Stormwater Advisory Committee has reviewed the proposed City of Flagstaff Low Impact Development (LID) Guidance Manual and the “2009 Low Impact Development (LID) Amendments to the City of Flagstaff Stormwater Design Manual”; has held public meetings on the proposed LID Manual, and amendments to the Stormwater Management Design Manual and has recommended that the City Council adopt the new requirements; and

WHEREAS, the City Council finds that the adoption of this Ordinance will adhere to Council goals related to sustainability; and

WHEREAS, the City Council finds Resolution No. 2009-09, adopted on February 3, 2009, declared the Low Impact Development (LID) Guidance Manual and the “2009 Low Impact Development (LID) Amendments to the City of Flagstaff Stormwater Management Design Manual” to be a public record with three copies of each placed on file with the City Clerk; and

WHEREAS, the City Council finds that the new LID requirements are needed, under the City's powers regarding public health, safety and general welfare, to ensure compliance with applicable floodplain management regulations, provide consistent stormwater management policies and criteria, and protect private and public property from the effects of flooding and erosion;

NOW THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. That the Low Impact Development (LID) Guidance Manual, the “2009 Low Impact Development (LID) Amendments to the City of Flagstaff Stormwater Management Design Manual” adding a New Chapter 9 of the City of Flagstaff Stormwater Management Design Manual and amending Chapter 8 to comply with the low impact development requirements declared by the

Council to be a public record on February 3, 2009, shall henceforth be adopted by this reference as if fully set forth herein.

SECTION 2: That the City Clerk be authorized to make housekeeping changes to the City of Flagstaff Stormwater Management Design Manual to comply with the Low Impact Development Requirements; to correct typographical and grammatical errors, as well as errors of wording and punctuation, as necessary; and to make formatting changes needed for purposes of clarity and form, if required, to be consistent with Flagstaff City Code.

PASSED AND ADOPTED by the Council and approved by the Mayor of the City of Flagstaff this _____ day of _____, 2009.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY

CHAPTER 9: LOW IMPACT DEVELOPMENT REQUIREMENTS FOR INFILTRATION AND REUSE OF STORMWATER

Volumetric increases to the city stormwater conveyance system, as the result of increased impervious surface have resulted in the need to upsize stormdrain systems in the City. While detention is effective in controlling peak discharges, the volumetric increase is not abated. Low Impact Development (LID) is an accepted standard in which stormwater is infiltrated and/or reused, resulting in the mitigation of these volume increases.

Low Impact Development will address water quality concerns that can arise when impervious area is added to previously undeveloped sites. Runoff from impervious areas often contains suspended solids and heavy metals along with other contaminants. Many of the Low Impact Development measures will remove some of these pollutants.

Water conservation is also a consideration when designing for the Low Impact Development requirements. Water can in many cases be reused or directed towards landscape areas in an effort to reduce water consumption.

The use of LID will help control volume increases and hence reduce the cost of upsizing downstream infrastructure as well as promote water conservation.

9.1. POLICIES

- a. Stormwater LID is required for all new subdivisions, commercial and industrial developments, redevelopment of non-conforming sites (i.e., existing developed sites that do not have detention that have been razed and vacant for greater than six months), and other developments greater than 1/4 acre in size. LID shall be implemented according to the following schedule as measured from the effective date of Ordinance No. 2009-07:
 1. For the first year the program will be voluntary.
 2. In the second year, developments will be required to retain/infiltrate one half (1/2) inch of runoff from all additional impervious surfaces.
 3. In the third year, developments will be required to retain/infiltrate one (1) inch of runoff from all additional impervious surfaces. The requirement to detain for the 2-year storm will no longer be required once the 1-inch threshold is implemented.
- b. LID requirements may be waived by the Stormwater Manager for the following:
 1. Single-family residential structure or lot (i.e., not associated with a new subdivision).
 2. Residential subdivisions with lot areas ≥ 1 acre in area, if it can be shown that such a

waiver will not result in any adverse downstream effects, nor create any disturbance to the existing drainage patterns both within and adjacent to the subdivision.

3. Developments less than 1/4 acre or increases in impervious area of $\leq 5,000$ square feet. It must be demonstrated to the satisfaction of the Stormwater Manager that there will be no increase in the potential for damages to adjacent properties and adequate off-site or downstream drainage capacity is available.
- c. For developments requiring LID, all new impervious surfaces shall be infiltrated or reused in accordance with the current applicable standard.
- d. The methodology for determining the required volume of stormwater to be infiltrated or reused is as follows:
Impervious Surface (square feet) X current requirement (ft.) (e.g. 1/2 inch or 1 inch) = volume requirement
- e. In order to provide specific guidance for the design of these LID facilities, the City has developed the City of Flagstaff Low Impact Development (LID) Guidance Manual. The Manual is hereby adopted as part of these Requirements.
- f. A waiver may be granted by the Stormwater Manager for deviations from the Integrated Management Practice designs in the LID Guidance Manual. The waiver request will be reviewed on a case-by-case basis and will require supporting analysis, documentation, etc. (as determined by the Stormwater Manager) be submitted and approved prior to granting of the waiver.
- g. The City established a maximum ponding depth of (.3) three-tenths of (1) one foot without an engineered infiltration system.
- h. Developments which are phased shall prepare a master stormwater LID plan for the entire development. The master stormwater LID plan must either be implemented with the first phase, if possible, or LID measures must stand alone for each phase. Interim temporary LID facilities may be required for phasing.
- i. The City of Flagstaff shall only accept large-scale LID facilities for operation and maintenance. The City shall not accept small-scale, local on-site LID's for operation, maintenance, or liability.
- j. Maintenance of local on-site LID facilities shall be the responsibility of the property owner or homeowner's association. The City shall reserve the right to periodically inspect any LID facilities to verify that regular maintenance activities are being performed. Final Plats; Covenants, Conditions, and Restrictions (CC&R's); and/or Development Plans shall include a special note stating that (1) the owner(s) shall be solely responsible for the operation, maintenance, and liability for all LID facilities; and, (2) the City of Flagstaff may periodically inspect said LID facilities to verify that regular maintenance activities are being performed adequately.
- k. The City of Flagstaff Parks and Recreation Division shall review and approve proposed

stormwater LID facilities designed within designated public areas or parks. Review and approval from the Parks and Recreation Commission may also be required.

1. No part of a private LID shall be constructed in a public right-of-way or public utility easement.

9.2. SUBDIVISION REQUIREMENTS

All new subdivisions are required to provide LID for the entire subdivision, including the respective one-half of all abutting streets to the subdivision. Two or more subdivisions may join together to provide a common LID facility.

Preliminary Plat submittals shall be accompanied by a preliminary drainage report that identifies LID locations, types and sizes and a preliminary calculation of the required volume.

All Final Plat submittals require a final drainage report, in accordance with Chapter 2 of this manual, which technically demonstrates compliance with City of Flagstaff Floodplain Management Regulations, Stormwater Management requirements, and the drainage policies and design criteria set forth in this manual. This report must be submitted with the subdivision improvement plans and must be accepted prior to recording the final plat.

Urbanization and other land development activities, including construction of roads, changes natural pervious areas into impervious, altered surfaces. In addition, natural drainage systems are often replaced by lined channels, storm drains, and curbed streets. The result of such activities is an increase in the volume of runoff, peak discharge rates, erosion, and non-point source pollution due to the reduction in infiltration and natural vegetation.

In the absence of regional detention facilities and due to inadequate downstream capacities of existing streets, storm drain systems or channels, local on-site or sub-regional LID facilities are necessary to attenuate the increased runoff caused by development. LID facilities can also serve a dual purpose by improving the quality of stormwater discharges. The temporary storage of stormwater runoff can reduce the extent of downstream flooding, soil erosion, sedimentation, and surface water pollution. LID facilities can also be used to reduce the costs associated with large storm drain systems.

VAR-10468 Rev. 0, Revised Storm Water Material (ESM Civil Chapter 3)

Attachment 1 Storm Water Compliance and Design Requirements

1.0 Storm Water Compliance

A. Best Management Practices

1. All projects, regardless of size, shall utilize appropriate Best Management Practices (BMPs). BMPs shall be indicated in the design, in a Storm Water Pollution Prevention (SWPP) Plan, or as specified by LANL EPC-CP. These site specific BMPs may be temporary or permanent in nature. Furthermore, BMPs may be required to meet State and Federal regulatory requirements.
2. The LANL [Storm Water BMP Manual](#) provides guidance on BMP selection, design, and use. BMP measures are used to prevent or mitigate pollution from any activity. They include processes, procedures, schedule of activities, prohibitions on practices, and other management practices to prevent or reduce water pollution. They include measures for stabilization, sediment and erosion control, and storm water management and can generally be broken down into two categories—structural and non-structural. Examples of non-structural BMPs include minimizing removal of established vegetation, good housekeeping, preventative maintenance, employee training, record keeping and reporting, visual inspections, and spill prevention and response. Some examples of structural BMPs are detention ponds, silt fence, gravel bags, straw wattles, earth berms, culvert inlet and outlet protection, riprap, turf reinforcement mats, and construction entrances/exits.

When soil is disturbed, implement a combination of erosion and sediment controls. Erosion controls manage sediment movement at the source. Sediment controls retain sediment that has eroded before the sediment leaves the site.

Additional information on BMP use is provided in LANL Master Specifications Sections [32 9219 Seeding](#) and [01 5705 Temporary Controls and Compliance Requirements](#).

B. EISA Section 438 Compliance

Section 438 of the Energy Independence and Security Act (EISA) of 2007 requires all Federal facility development or redevelopment projects with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the pre-development hydrology of the property with regard to the temperature, rate, volume, and duration of flow.

The EPA Technical Guidance document for implementing EISA 438 defines “the pre-development hydrologic condition” as “the combination of runoff, infiltration and evapotranspiration rates and volumes that typically existed on the facility site before ‘development’ on a greenfield site” —meaning any construction of infrastructure on undeveloped land, typically ponderosa pine forest, pinon-juniper woodland or grassland for our area. The project “footprint” would include all areas disturbed during construction activities, including the facility location, access routes, and staging/stockpiling/construction support areas, etc.

Attachment 1 Storm Water Compliance and Design Requirements

Implementation of EISA compliance must be achieved through the use of green infrastructure/low impact development (GI/LID) methods. A minimum of two GI/LID features are required. Design guidance associated with EISA Section 438 compliance is provided in Section 2.

C. NPDES CGP and SWPP Plan

1. Projects where construction activities disturb one (1) acre or more, or where activities are part of an EPA defined larger “common plan” of development that disturbs 1 acre or more, are required to obtain permit coverage to discharge storm water from the site in accordance with the EPA’s National Pollutant Discharge Elimination System (NPDES) Construction General Permit (GCP). Submission of a Notice of Intent (NOI) to EPA is required to obtain Permit coverage. The NPDES CGP requires temporary storm water controls during construction activities and permanent post-construction storm water controls.

Refer to section 6.E.2 for NPDES CGP requirements specific to the State of New Mexico.

2. Projects subject to NPDES CGP requirements must develop a Storm Water Pollution Prevention (SWPP) Plan prior to obtaining Permit coverage. A SWPP Plan identifies project activities, describes potential pollutant sources, and identifies the BMPs to minimize the potential for erosion and discharge of potential.
3. LANL will provide a SWPP Plan for the project. A/E and Subcontractor personnel shall provide assistance in SWPP Plan preparation through the following:
 - a. Provide the EPC-CP Group with the necessary design information in sufficient format and detail to complete the SWPP Plan.
 - b. Prepare design drawings and specifications that correspond with the SWPP Plan and NPDES Permit requirements. Project documents must specify the methods, materials, and procedures associated with the temporary and permanent stabilization of disturbed areas.
 - c. Work with the LANL EPC-CP Group to develop documentation that the specified BMPs prevent an increase in sediment yield and flow velocity from pre-construction, pre-development conditions. Permanent GI/LID and conveyance structures must meet the design requirements described in Section 2.
 - d. Design permanent storm water management devices and sediment controls to control pollutants in storm water discharges. Such measures include, but are not limited to, perennial vegetation, storm water detention ponds with controlled outlet structures, sediment basins, turf reinforcement mats, and rock check dams.

Attachment 1 Storm Water Compliance and Design Requirements

- e. Design of stabilization controls at all disturbed unpaved areas and areas not covered by permanent structures. Achieve stabilization by covering soil with measures including, but not limited to, native perennial vegetation, asphalt, concrete, gabions, geotextiles, base course, gravel, or riprap.
- f. Design of velocity dissipation devices at discharge locations and along the length of any outfall channel to provide a non-erosive flow velocity from the structure to the receiving water course. In doing so, the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).
- g. Design of velocity dissipating devices for all other areas of concentrated flow such as drainage ways, steep slopes, and compacted earth surfaces. These include such controls as riprap, turf reinforcement mats, check dams, and waterbars. Subsection 2.E provides additional guidance on channel velocity control.
- h. If permanent BMPs can be utilized during the construction phase to meet the objectives of temporary sediment and erosion controls, specify their installation in lieu of temporary controls.

D. 404/401 Permits

- 1. If project construction activities involve crossing, working in, or otherwise disturbing a watercourse, Clean Water Act Section 404 Dredge and Fill Permit coverage from the U.S. Army Corps of Engineers and a New Mexico Environment Department Section 401 Water Quality Certification may be required. A watercourse is defined as “any river, creek, arroyo, canyon, draw, or wash, or any other channel having defined bed and banks with visible evidence of the occasional flow of water or high water mark.” The Permit and Certification must be obtained prior to performing any work in a watercourse. Allow at least one to two months for 404/401 Permit Applications.
- 2. 404/401 Permits will require the specification and implementation of BMPs, and integration with design. Identification of excavation and fill material quantities will also be required for submission to the USACE to obtain 404/401 permit coverage. Excavation and fill material types and quantities will be determined by project personnel (subcontractor or designer) and provided to EPC-CP. The drawings shall clearly show the watercourse area and identify the required BMPs.
- 3. The EPC-CP Group will file the 404/401 Permit Application and review the BMPs identified in design documents to ensure compliance with Permit requirements. All information required for the permit application shall be forwarded to the EPC-CP Group by the LANL STR Project Coordinator for inclusion in the Permit Application. Contact the EPC-CP Group for more information.

E. State of New Mexico Requirements

1. Per New Mexico Administrative Code (NMAC) 20.6.2.1201. Notice of Intent to Discharge:
 - a) Liquids or other substances (e.g., fertilizer, hydraulically applied mulches, soil stabilizing agents, etc.) applied to the ground may require an NOI to Discharge be submitted to the New Mexico Environment Department (NMED). Contact the LANL EPC-CP Group for more information and to determine whether liquids or other substances to be used are covered under an existing lab-wide NOI.
 - b) Substances applied to the ground shall not be applied in a watercourse.
2. **The NMED 2017 NDPES CGP State Conditions of Certification require that projects discharge storm water at or less than pre-development rates. GI/LID structures are recommended. Section 2 provides GI/LID design guidance.**
3. The NM Office of the State Engineer requires detention features to release water within 96 hours.

F. Flood Effects on Structures

The potential for flooding and precipitation impact shall be considered for structures that are located in defined flood plains in accordance with DOE Standard 1020 Chapters 5 and 7. Utilize available information for the evaluation of local flooding potential and surface drainage analysis for minimum design of surface drainage or water collection management systems. Refer to DOE-STD-1020 and its Tables 5-2, 5-3, 7-1 & 7-2 (Regarding Table 7-2, the 100-year return period for PDC-1 for precipitation structural loads is equivalent to that of the IBC for rainfall intensity, and it's 2" per hour [i.e., per IBC Fig. 1611.1 & LA 14165 Table 2-21]).¹

2.0 Hydrological Analyses and Design of GI/LID and Conveyance Structures

This section provides direction for the analysis and design of storm water quality treatment, flood control, and general conveyance structures. It also clarifies the design of permanent storm water controls to meet NPDES CGP and/or EISA Section 438 compliance requirements for construction, development, and/or re-development projects.

Use Table 1 to determine the specific storm water requirements for your project.

Project designs and hydrologic calculations, including the rationale for multi-stage discharge designs, must be reviewed and approved by EPC-CP.

Site-specific soil properties, such as infiltration rate, may be required for larger projects. Contact EPC-CP for guidance.

¹ LANL is in the process of completing the analysis (PFHA) and documentation of all data necessary for project implementation of the STD, including the DBFL indicating where our flood plains are located.

Attachment 1 Storm Water Compliance and Design Requirements

Questions about CGP, EISA or other storm water related requirements may be directed to lanlstormwater@lanl.gov.

Table 1. Compliance Requirements Guide to Usage

Project Type	EISA	CGP	Subsection
Construction projects $\geq 5,000$ ft ² and < 1 acre	X		B
Construction projects ≥ 1 acre (or < 1 acre and part of a common plan-of-development)	X	X	C
Design of flood control or drainage structures (e.g., culverts, drop inlets, larger conveyances)	n/a	n/a	D

A. GI/LID Design

GI/LID methods use or mimic natural processes to: (1) infiltrate and recharge, (2) evapotranspire, and/or (3) harvest and use precipitation near to where it falls to earth.

Examples of GI/LID features, associated retention/detention classification, and potential runoff volume reduction credit are listed in Table 2. Additional guidance related to the selection and design of GI/LID features is provided in the LANL [Low Impact Development Standards for Stormwater](#) posted with LANL ESM Chapter 3; ST-G20GEN-1 Standard Details for LID are available on the Civil Details webpage located [here](#).

Table 2. GI/LID features, retention/detention classification and potential runoff volume reduction credit.

GI/LID Feature	Function	Potential Credit ¹
Green Roof	Retention	Feature Volume
Tree/Tree Boxes	Retention	Feature Volume
Rain Garden/Infiltration Basin	Detention	Feature Volume
Vegetated/Rock-Lined Swale with Rock Check Dams ²	Detention	0.1 in
Filter Basin	Detention	Feature Volume
Permeable Pavement	Retention	Feature Volume
Vegetated Strips/Buffers ³	Detention	0.1 in
Revegetation ³	Detention	0.1 in
Rain Barrels/Cisterns	Retention	Feature Volume

¹ Potential credit for features listed on this table will either be (1) the total volume provided by the feature or (2) 0.1 in.. The 0.1-in. credit represents the volume calculated by multiplying 0.1 in. of depth over the drainage area served by the specific feature. This volume credit may be deducted from the total volume required in the post-construction condition for the storm water quality treatment system.

² Swales must have a permeable bottom, be ≥ 50 ft. long, ≥ 2 ft wide, and ≥ 1 ft deep, with 2:1 side slopes and rock check dams spaced in accordance with the LANL Storm Water BMP Manual, Section 4.2.

³ Consult with EPC-CP for credit (email LANLStormwater@lanl.gov).

B. EISA-only Compliance Requirements:

Upon completion of construction activities, storm water discharges must be at rates, volumes and durations less than or equivalent to pre-development conditions as determined through appropriate industry standard methodologies (see Subsection D below) using the 95th percentile design storm. Table 3 provides design storm rainfall totals. The meteorological station nearest to the project site shall be used.

- Use Curve Number (CN) values listed in Table 4 to determine pre-development and post-construction runoff volumes when using the Technical Release 55 (TR-55) Method.
- Use the runoff coefficients, rainfall intensity-duration relationship curves, and precipitation rates listed in Table 5, Figure 1, and Table 6, respectively to determine runoff volumes when using the Rational Method.

The following steps must be completed to achieve this requirement:

1. **Determine water quality treatment volumes:** Calculate pre-development and post-construction runoff volumes for the project area using the 95th percentile design storm. The difference between the pre-development and post-construction runoff volume is the Excess Runoff Volume (ERV). **GI/LID structures and storm water management basins must be designed to detain the ERV for a minimum of 4-hrs and drain within 96-hrs.** Meeting or exceeding the minimum drain time of 4-hrs will assure that pre-development discharge rates are not exceeded. Additionally, unless retention depth is ≤ 6 in., demonstrate that storm water will infiltrate/evaporate within 96-hrs.
2. **Size conveyance features:** Calculate and design conveyance structures to (a) discharge the ERV from the site and (b) manage larger frequency storm events. Figure 2 provides examples of discharge structure configurations from a storm water detention basin.
 - a. **Identify and design a minimum of two GI/LID features to manage the ERV. Ensure infiltration or discharge of the ERV from site features in no less than 4-hrs. Select and size conveyance or outlet structures (i.e., weir or orifice) to achieve this.**
 - b. To manage larger frequency storms, calculate the post-construction discharge rate for the 25-yr, 2-hr storm event. Size outlet structures from the project site to convey the 25-yr, 2-hr flows, unless site or project requirements dictate a larger storm frequency, as discussed in Subsection D. EISA requires management only of storm water discharge from the developed project area (does not include run-on). However, conveyance features for the 25-yr, 2-hr flows must be sized to accommodate the entire contributing area. Run-on diversion around the site is recommended to simplify construction and reduce costs of storm water management.

Table 3. Design Storm Rainfall Totals (inches) by Meteorological Station

Met Station	Period of Record	95 th Percentile	2-yr, 24-hr	25-yr, 2-hr	100-yr, 24-hr
TA-06	29	0.90	1.28	1.90	3.05
TA-49	32	0.88	1.30	1.92	3.56
TA-53	27	0.84	1.09	1.48	2.44
TA-54	27	0.83	1.14	1.68	2.54
NCOM	33	0.94	1.33	1.76	2.73

Table 4. Curve numbers for TR-55 runoff volume calculations.

Cover Type ¹	CN: HG-C	CN: HG-D
Impervious	98	98
Urban Open Space/Lawns	79	84
Base Course/Gravel	89	91
Bare Ground/Dirt	87	89
Paved Roads w/curbs and storm drains	98	98
Paved Roads w/open ditches	92	93
Fair Grassland/Herbaceous	81	89
Fair Brush	57	63
Pinon/Juniper	85	89
Ponderosa Pine	77	83

¹For redevelopment projects at LANL, estimate predevelopment land use cover based on elevation specific reference conditions. Pre-development reference conditions are 50 percent Ponderosa Pine/50 percent Fair Grassland/Herbaceous cover for projects over 7,000 feet elevation and 50 percent Pinon/Juniper - 50 percent Grassland/Herbaceous cover for projects under 7,000 feet elevation (e.g., use 83 as a CN for a site with HG-C). Hydrologic Soil Groups are available on the LANL internal network located [here](#).

Table 5. Rational Method runoff coefficients

Use the following C Factors in conjunction with the Rational Method		
Lawns	Flat 0-2 Percent Slope	0.05-0.15
	Average 2-7 Percent Slope	0.15-0.25
	Steep Slope >7 Percent	0.25-0.35
Roofs		0.75-0.95
Industrial	Heavy Commercial	0.60-0.90
	Light Commercial	0.50-0.80
Streets	Asphalt	0.70-0.95
	Portland Concrete	0.80-0.95
	Gravel Shoulders	0.40-0.60
Unimproved		0.10-0.30

Figure 1. Rainfall Intensity-Duration-Relationship Curves. These curves were calculated using TA-06 meteorological tower data. Extrapolated rainfall rate values less than 15 minutes duration can be found in Table 6.

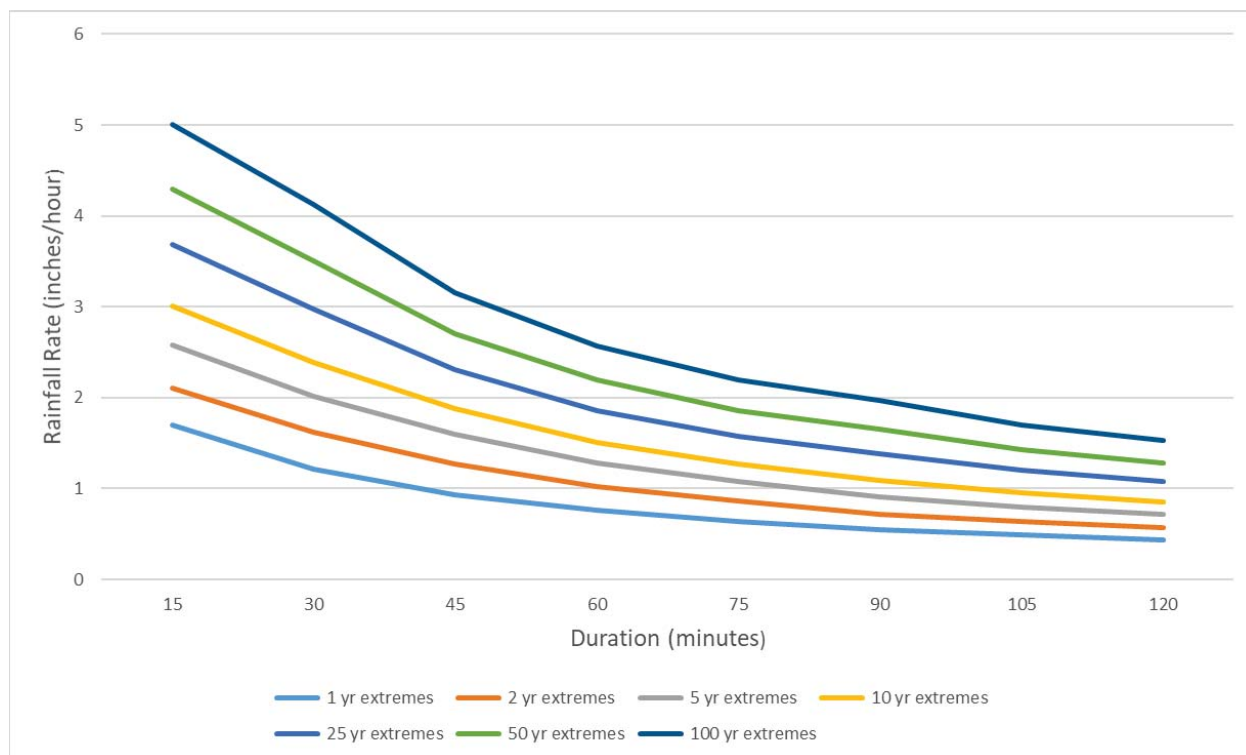


Table 6: Extreme Precipitation Rates¹

Duration (minutes)	1 yr.	2 yr.	5 yr.	10 yr.	25 yr.	50 yr.	100 yr.
<i>5</i>	<i>2.03</i>	<i>2.43</i>	<i>2.95</i>	<i>3.42</i>	<i>4.17</i>	<i>4.83</i>	<i>5.60</i>
<i>10</i>	<i>1.86</i>	<i>2.27</i>	<i>2.76</i>	<i>3.22</i>	<i>3.93</i>	<i>4.56</i>	<i>5.30</i>
15	1.70	2.11	2.58	3.01	3.69	4.30	5.01
30	1.21	1.62	2.02	2.39	2.97	3.50	4.13
45	0.93	1.27	1.60	1.88	2.31	2.70	3.16
60	0.76	1.02	1.28	1.51	1.86	2.19	2.57
75	0.64	0.86	1.08	1.27	1.58	1.86	2.19
90	0.55	0.72	0.91	1.09	1.38	1.65	1.97
105	0.49	0.64	0.80	0.95	1.20	1.43	1.70
120	0.44	0.57	0.72	0.85	1.08	1.28	1.53

¹Corresponding to the curves in Figure 1, extreme precipitation rates (inches/hour) for a set of average recurrence intervals from 1 to 100 years, and a set of durations from 5 to 120 minutes. The method described above cannot be applied to durations less than the observed data frequency of 15 minutes, so values for 5 and 10 minute durations (in italics) are instead estimated by linearly extrapolating from 15 and 30 minute durations.

Attachment 1 Storm Water Compliance and Design Requirements

Figure 2. Examples of discharge structure configurations. A. 2-stage weir plate, B. Riser pipe with orifices C. Flash board riser and D. Riser constructed of masonry blocks with gaps between blocks.



A



B



C



D

C. EISA and CGP Compliance Requirements:

Upon completion of construction activities, storm water discharges from projects with construction footprints greater than or equal to 1 acre (or less than 1 acre if part of a common plan-of-development) must be at rates, volumes and durations less than or equivalent to pre-development conditions as determined through appropriate industry standard methodologies (see Subsection D below) using the 2-yr, 24-hr design storm. Table 3 provides design storm rainfall totals. The meteorological station nearest to the project site shall be used.

- Use Curve Number (CN) values listed in Table 4 to determine pre-development and post-construction runoff volumes when using the TR-55 Method.
- Use the runoff coefficients, rainfall intensity-duration relationship curves, and precipitation rates listed in Table 5, Figure 1, and Table 6, respectively to determine runoff volumes when using the Rational Method.

The following steps must be completed to achieve this requirement:

1. **Determine water quality treatment volumes and release rates:** Calculate pre-development and post-construction runoff volumes for the project area for the 2-yr, 24-hr storm. **The difference between the pre-development and post-construction runoff volume is the ERV. GI/LID structures and storm water management basins must be designed to detain the ERV.**
 - For sites between 1 and 5 acres in size the ERV must be detained for a minimum of 12-hrs and drain within 96-hrs.
 - If the site is greater than 5 acres in size the ERV must be detained for a minimum of 2-hrs and drain within 96-hrs.
 - If the site is < 1 acre and part of a common plan of development, the ERV must be detained for a minimum of 4-hrs and drain within 96-hrs.

Calculate the pre-development and post-construction discharge rate for the 2-yr, 2-hr storm. Compare the pre-development and post-construction discharge rates for the 2-yr, 2-hr storm to assure that pre-development discharge rates are not exceeded. Additionally, if a retention/filter basin system is utilized, demonstrate that storm water will infiltrate/evaporate within 96-hrs, unless retention depth is ≤ 6 in.

2. **Size conveyance features:** Calculate and design conveyance structures to (a) discharge the ERV from the site and (b) manage larger frequency storm events. Figure 2 provides examples of discharge structure configurations from a storm water detention basin.
 - a. **Identify and design a minimum of two GI/LID features to manage the ERV.** Ensure infiltration or discharge of the ERV from site features in no less than the minimum drain times described above. Select and size conveyance or outlet structures (i.e., weir or orifice) to achieve this.
 - b. To manage larger frequency storms, calculate the post-construction discharge rate for the 25-yr, 2-hr storm event. Size outlet structures from the project site to convey the 25-yr, 2-hr flows, unless site or project requirements dictate a larger storm frequency, as discussed in Subsection D. Conveyance features for the 25-yr, 2-hr flows must be sized to accommodate the entire contributing area. The CGP requires management of all storm water discharge from the developed project area (which includes run-on). Run-on diversion around the site is recommended to simplify construction and reduce costs of storm water management. Run-on not diverted must be included in the ERV calculation for the project site.

D. Flood Control Conveyances and Drainage Structures Design Requirements:

Perform hydrologic analyses using the 25-yr, 2-hr return storm. Table 3 provides design storm rainfall totals. The meteorological station nearest to the project site shall be used. If project or site requirements dictate, or the site is within a 100-year

floodplain, use a 100-yr, 24-hr return storm to size conveyance and drainage structures after the requirements of Subsections B or C above are met. Use appropriate industry standard methodologies such as the Rational Method, Technical Release 55 (TR-55), SWMM, and/or HEC methodology to compute runoff volumes and peak flows from drainage areas and for sizing drainage structures based on site characteristics.

E. Channel Velocity Control

1. Riprap— Use riprap to dissipate energy and reduce velocity in channels subject to erosion and to prevent scour at hydraulic structure inlets and outlets.

- Appropriately size riprap taking into account uniform flow depth, shear stress at maximum flow depth, permissible shear stress, and flow velocity. Identify permissible shear stress using published values or by calculating the value with the following equation:

$$\tau_p = 4.0 D_{50}, \text{ where } D_{50} \text{ is in feet.}$$

Also ensure that stone size is adequate to withstand movement due to flow velocity (i.e., prevent rolling or migration).

- Riprap thickness shall be 12 inches or equal to the diameter of the largest rock size in the gradation (approximately 1.5-3 times D_{50}), whichever is greater.
 - Place filter fabric beneath riprap applications. The fabric must be able to transmit water faster than the soil and be of sufficient size that the base material does not escape through the fabric.
 - Do not use round stone on channel side slopes steeper than 3:1. Do not use riprap on slopes steeper than 1.5:1.
 - Do not use flat slab-like stones.
2. Gabions— Consider the use of wire enclosed riprap, gabion baskets, or gabion mattresses if adequate riprap size is not available, if slopes are too steep for standard riprap placement, or for locations of high flow velocity.
- To prevent gabion mattresses from sliding down a slope, stabilize their base with a key trench. The trench depth shall be two times the mattress thickness and the trench width shall be three times the mattress thickness. Within a channel, tie the upstream and downstream ends of the mattress into the bank to prevent currents from unraveling the mattress.
 - The minimum rock size diameter for gabion baskets shall not be less than four inches.
 - The minimum rock size diameter for gabion mattresses shall not be less than three inches.

Attachment 1 Storm Water Compliance and Design Requirements

- The minimum gabion mattress thickness shall be 1.5 times the largest rock size.
- Place filter fabric beneath gabion applications. The fabric must be able to transmit water faster than the soil and be of sufficient size that the base material does not escape through the fabric.
- 3. Culverts—In channel applications, place riprap or gabions flush with the invert of culverts. The break between a steep slope and a culvert entrance should equal 3-5 times the mean rock diameter of the mattress thickness.
- 4. Check Dams—Design the center of check dams (the spillway) at least 6 inches lower than the outer edges. Where applicable, extend abutments 18 inches into the channel bank. Maximum spacing between check dams shall provide that the toe of the upstream dam is at the same elevation as the top of the downstream dam.
- 5. Other Methods—Contact Civil Standards POC and EPC-CP Group for advisement and approval prior to use.

F. Hydraulic Design

1. Where possible, use GI/LID features to promote infiltration, evapotranspiration or capture and re-use of surface drainage prior to routing to existing storm drainage system (see 7.B above).
2. Make use of open ditches and install pipe culverts at all walkways (12 in. dia. minimum) and road crossings (24 in. dia. min.). Provide new culverts with appropriate end sections, head walls and erosion-resistant discharge end designs. Comply with AASHTO RSDG, Roadside Design Guide, for clear zone requirements. Provide invert elevations at inlet and discharge end of culverts and percentage of slope for the pipe grade.
3. Produce hydraulic design calculations, accompanied by preliminary design drawings, submit for approval to the LANL STR for coordination with EPC-CP and U&IF and for review and approval.

G. References

1. *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. EPA 841-B-09-001. Environmental Protection Agency, Washington, D.C. 2009.*
2. *Denver Urban Drainage and Flood Control District. Urban Storm Drainage Criteria Manual, Volume 2. September 2017.*
3. *USDA National Resources Conservation Service: [National Engineering Handbook, Part 630, Hydrology](#) (for hydrologic analyses of large off-site drainage areas)*

Attachment 1 Storm Water Compliance and Design Requirements

4. *USDA Natural Resources Conservation Service publication [Urban Hydrology for Small Watersheds](#), TR 55 (for smaller drainage areas)*
5. *Guidance: Refer to American Society of Civil Engineers Publications 77–Design and Construction of Urban Stormwater Management Systems, 37–Design and Construction of Sanitary and Storm Sewers, and 62-64 – Standard Guidelines for the Design, Installation, and Operation and Maintenance of Stormwater Impoundments.*
6. *Guidance: Reference LANL Site and Architectural Design Principles (pgs 83-88 of LA-UR 01-5383) and Sustainable Design Guide (pgs 147-153), on Architectural Chapter, for additional expectations on integration of landscaping and storm water management.*
7. *Guidance: U.S. Department of Interior, Bureau of Reclamation publications Design of Small Canal Structures and Design of Small Dams for appropriate design considerations for open channels and other surface drainage facilities.*
8. *Guidance: FHWA Hydraulics publication HDS 5, Hydraulic Design of Highway Culverts.*

H. Definitions

Common Plan of Development - The "common plan" of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating construction activities may occur on a specific plot. LANL-specific examples of a common plan of development could include a common PR-ID, EX-ID, funding source, planning document, NEPA analysis document, etc.

EISA Section 438 – Section 438 of the Energy Independence and Security Act of 2007 requires federal agencies to manage storm water runoff from federal development projects to protect water resources.

Excess Runoff Volume (ERV) – The difference between the pre-development (green field conditions) and post-construction runoff volume

Green Infrastructure/Low Impact Development (GI/LID) – a set of management approaches and technologies that utilize and/or mimic the natural hydrologic cycle processes of infiltration, evapotranspiration and use.

Maximum Extent Technically Feasible – All technical options, regardless of cost, have been employed to restore the pre-development hydrologic conditions with respect to storm water temperature, rate, volume and duration of flow.

Pre-development - the combination of runoff, infiltration and evapotranspiration rates and volumes that typically existed on the facility site before ‘development’ on a greenfield site (meaning any construction of infrastructure on undeveloped land, typically ponderosa pine forest, pinon-juniper woodland or grassland for our area)

Technical Infeasibility – Stormwater strategies, such as infiltration, evapotranspiration, and harvesting and use have been used to the Maximum Extent Technically Feasible, and that full employment of these types of controls are infeasible due to site constraints.