

**PRIVATE DETENTION BASIN /  
STORMWATER QUALITY BEST MANAGEMENT PRACTICE  
MAINTENANCE AGREEMENT AND EASEMENT**

This PRIVATE DETENTION BASIN / STORMWATER QUALITY BEST MANAGEMENT PRACTICE MAINTENANCE AGREEMENT AND EASEMENT (Agreement) is made by and between EL PASO COUNTY by and through THE BOARD OF COUNTY COMMISSIONERS OF EL PASO COUNTY, COLORADO (Board or County) and WT Holdings, LLC (Developer). The above may occasionally be referred to herein singularly as "Party" and collectively as "Parties."

Recitals

A. WHEREAS, Developer is the owner of certain real estate (the Property) in El Paso County, Colorado, which Property is legally described in Exhibit A attached hereto and incorporated herein by this reference; and

B. WHEREAS, Developer desires to develop on the Property a land use to be known as Lot 12 Rolling Thunder Business Park; and

C. WHEREAS, the development of this Property will substantially increase the volume of water runoff and will decrease the quality of the stormwater runoff from the Property, and, therefore, it is in the best interest of public health, safety and welfare for the County to condition approval of this land use on Developer's promise to construct adequate drainage, water runoff control facilities, and stormwater quality structural Best Management Practices ("BMPs") for the land use; and

D. WHEREAS, Chapter 8, Section 8.4.5 of the El Paso County Land Development Code, as periodically amended, promulgated pursuant to Section 30-28-133(1), Colorado Revised Statutes (C.R.S.), requires the County to condition approval of all subdivisions on a developer's promise to so construct adequate drainage, water runoff control facilities, and BMPs in subdivisions; and

E. WHEREAS, the Drainage Criteria Manual, Volume 2, as amended by Appendix I of the El Paso County Engineering Criteria Manual (ECM), as each may be periodically amended, promulgated pursuant to the County's Colorado Discharge Permit System General Permit (MS4 Permit) as required by Phase II of the National Pollutant Discharge Elimination System (NPDES), which MS4 Permit requires that the County take measures to protect the quality of stormwater from sediment and other contaminants, requires subdividers, developers, landowners, and owners of facilities located in the County's rights-of-way or easements to provide adequate permanent stormwater quality BMPs with new development or significant redevelopment; and

F. WHEREAS, Section 2.9 of the El Paso County Drainage Criteria Manual provides for a developer's promise to maintain a subdivision's drainage facilities in the event the County does not assume such responsibility; and

G. WHEREAS, developers in El Paso County have historically chosen water runoff detention basins as a means to provide adequate drainage and water runoff control in subdivisions, which basins, while effective, are less expensive for developers to construct than other methods of providing drainage and water runoff control; and

H. WHEREAS, Developer desires to construct for the land use one detention basin/stormwater quality BMP(s) (“detention basin/BMP(s)”) as the means for providing adequate drainage and stormwater runoff control and to meet requirements of the County’s MS4 Permit, and to operate, clean, maintain and repair such detention basin/BMP(s); and

I. WHEREAS, Developer desires to construct the detention basin/BMP(s) on property that is or will be platted as Lot 12, as indicated on the final plat of the subdivision, and as set forth on Exhibit A attached hereto; and

J. WHEREAS, Developer shall be charged with the duties of constructing, operating, maintaining and repairing the detention basin/BMP(s) on the Property described in Exhibit A; and

K. WHEREAS, it is the County’s experience that subdivision developers and property owners historically have not properly cleaned and otherwise not properly maintained and repaired these detention basins/BMPs, and that these detention basins/BMPs, when not so properly cleaned, maintained, and repaired, threaten the public health, safety and welfare; and

L. WHEREAS, the County, in order to protect the public health, safety and welfare, has historically expended valuable and limited public resources to so properly clean, maintain, and repair these detention basins/BMPs when developers and property owners have failed in their responsibilities, and therefore, the County desires the means to recover its costs incurred in the event the burden falls on the County to so clean, maintain and repair the detention basin/BMP(s) serving this land use due to the Developer’s failure to meet its obligations to do the same; and

M. WHEREAS, the County conditions approval of this land use on the Developer’s promise to so construct the detention basin/BMP(s), and conditions approval on the Developer’s promise to reimburse the County in the event the burden falls upon the County to so clean, maintain and/or repair the detention basin/BMP(s) serving this land use; and

N. WHEREAS, the County could condition land use approval on the Developer’s promise to construct a different and more expensive drainage, water runoff control system and BMPs than those proposed herein, which more expensive system would not create the possibility of the burden of cleaning, maintenance and repair expenses falling on the County; however, the County is willing to forego such right upon the performance of Developer’s promises contained herein; and

O. WHEREAS, the County, in order to secure performance of the promises contained herein, conditions approval of this land use upon the Developer’s grant herein of a perpetual Easement over a portion of the Property for the purpose of allowing the County to periodically access, inspect, and, when so necessary, to clean, maintain and/or repair the detention basin/BMP(s).

#### Agreement

NOW, THEREFORE, in consideration of the mutual Promises contained herein, the sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Incorporation of Recitals: The Parties incorporate the Recitals above into this Agreement.
2. Covenants Running with the Land: Developer agrees that this entire Agreement and the performance thereof shall become a covenant running with the land, which land is legally described in Exhibit A attached hereto, and that this entire Agreement and the performance thereof shall be binding upon itself, its successors and assigns.
3. Construction: Developer shall construct on the Property described in Exhibit A attached hereto and incorporated herein by this reference, one detention basin/BMP(s). Developer shall not commence construction of the detention basin/BMP(s) until the El Paso County Planning and Community Development Department (PCD) has approved in writing the plans and specifications for the detention basin/BMP(s) and this Agreement has been signed by all Parties and returned to the PCD. Developer shall complete construction of the detention basin/BMP(s) in substantial compliance with the County-approved plans and specifications for the detention basin/BMP(s). Failure to meet these requirements shall be a material breach of this Agreement, and shall entitle the County to pursue any remedies available to it at law or in equity to enforce the same. Construction of the detention basin/BMP(s) shall be substantially completed within one (1) year (defined as 365 days), which one year period will commence to run on the date the approved plat of this Subdivision is recorded in the records of the El Paso County Clerk and Recorder. In cases where a subdivision is not required, the one year period will commence to run on the date the Erosion and Stormwater Quality Control Permit (ESQCP) is issued. Rough grading of the detention basin/BMP(s) must be completed and inspected by the El Paso County Planning and Community Development Department prior to commencing road construction.

In the event construction is not substantially completed within the one (1) year period, then the County may exercise its discretion to complete the project, and shall have the right to seek reimbursement from the Developer/Owner and its successors and assigns, for its actual costs and expenses incurred in the process of completing construction. The term actual costs and expenses shall be liberally construed in favor of the County, and shall include, but shall not be limited to, labor costs, tool and equipment costs, supply costs, and engineering and design costs, regardless of whether the County uses its own personnel, tools, equipment and supplies, etc. to correct the matter. In the event the County initiates any litigation or engages the services of legal counsel in order to enforce the Provisions arising herein, the County shall be entitled to its damages and costs, including reasonable attorney fees, regardless of whether the County contracts with outside legal counsel or utilizes in-house legal counsel for the same.

4. Maintenance: The Developer agrees for itself and its successors and assigns, that it will regularly and routinely inspect, clean and maintain the detention basin/BMP(s), and otherwise keep the same in good repair, all at its own cost and expense. No trees or shrubs that will impair the structural integrity of the detention basin/BMP(s) shall be planted or allowed to grow on the detention basin/BMP(s).

5. Creation of Easement: Developer hereby grants the County a non-exclusive perpetual easement upon and across the Property described in Exhibit A. The purpose of the easement is to allow the County to access, inspect, clean, repair and maintain the detention basin/BMP(s); however, the creation of the easement does not expressly or implicitly impose on the County a duty to so inspect, clean, repair or maintain the detention basin/BMP(s).

6. County's Rights and Obligations: Any time the County determines, in the sole exercise of its discretion, that the detention basin/BMP(s) is not properly cleaned, maintained and/or otherwise kept in good repair, the County shall give reasonable notice to the Developer and its successors and assigns,

that the detention basin/BMP(s) needs to be cleaned, maintained and/or otherwise repaired. The notice shall provide a reasonable time to correct the problem(s). Should the responsible parties fail to correct the specified problem(s), the County may enter upon the Property to so correct the specified problem(s). Notice shall be effective to the above by the County's deposit of the same into the regular United States mail, postage pre-paid. Notwithstanding the foregoing, this Agreement does not expressly or implicitly impose on the County a duty to so inspect, clean, repair or maintain the detention basin/BMP(s).

7. Reimbursement of County's Costs / Covenant Running With the Land: The Developer agrees and covenants, for itself, its successors and assigns, that it will reimburse the County for its costs and expenses incurred in the process of completing construction of, cleaning, maintaining, and/or repairing the detention basin/BMP(s) pursuant to the provisions of this Agreement.

The term "actual costs and expenses" shall be liberally construed in favor of the County, and shall include, but shall not be limited to, labor costs, tools and equipment costs, supply costs, and engineering and design costs, regardless of whether the County uses its own personnel, tools, equipment and supplies, etc. to correct the matter. In the event the County initiates any litigation or engages the services of legal counsel in order to enforce the provisions arising herein, the County shall be entitled to its damages and costs, including reasonable attorney's fees, regardless of whether the County contracts with outside legal counsel or utilizes in-house legal counsel for the same.

8. Contingencies of Land Use/Land Disturbance Approval: Developer's execution of this Agreement is a condition of land use/land disturbance approval.

The County shall have the right, in the sole exercise of its discretion, to approve or disapprove any documentation submitted to it under the conditions of this Paragraph, including but not limited to, any separate agreement or amendment, if applicable, identifying any specific maintenance responsibilities not addressed herein. The County's rejection of any documentation submitted hereunder shall mean that the appropriate condition of this Agreement has not been fulfilled.

9. Agreement Monitored by El Paso County Planning and Community Development Department and/or El Paso County Department of Public Works: Any and all actions and decisions to be made hereunder by the County shall be made by the Director of the El Paso County Planning and Community Development Department and/or the Director of the El Paso County Department of Public Works. Accordingly, any and all documents, submissions, plan approvals, inspections, etc. shall be submitted to and shall be made by the Director of the Planning and Community Development Department and/or the Director of the El Paso County Department of Public Works.

10. Indemnification and Hold Harmless: To the extent authorized by law, Developer agrees, for itself, its successors and assigns, that it will indemnify, defend, and hold the County harmless from any and all loss, costs, damage, injury, liability, claim, lien, demand, action and causes of action whatsoever, whether at law or in equity, arising from or related to its intentional or negligent acts, errors or omissions or that of its agents, officers, servants, employees, invitees and licensees in the construction, operation, inspection, cleaning (including analyzing and disposing of any solid or hazardous wastes as defined by State and/or Federal environmental laws and regulations), maintenance, and repair of the detention basin/BMP(s), and such obligation arising under this Paragraph shall be joint and several. Nothing in this Paragraph shall be deemed to waive or otherwise limit the defense available to the County pursuant to the Colorado Governmental Immunity Act, Sections 24-10-101, *et seq.* C.R.S., or as otherwise provided by law.

11. Severability: In the event any Court of competent jurisdiction declares any part of this

Agreement to be unenforceable, such declaration shall not affect the enforceability of the remaining parts of this Agreement.

12. Third Parties: This Agreement does not and shall not be deemed to confer upon or grant to any third party any right to claim damages or to bring any lawsuit, action or other proceeding against either the County, the Developer, or their respective successors and assigns, because of any breach hereof or because of any terms, covenants, agreements or conditions contained herein.

13. Solid Waste or Hazardous Materials: Should any refuse from the detention basin/BMP(s) be suspected or identified as solid waste or petroleum products, hazardous substances or hazardous materials (collectively referred to herein as "hazardous materials"), the Developer shall take all necessary and proper steps to characterize the solid waste or hazardous materials and properly dispose of it in accordance with applicable State and/or Federal environmental laws and regulations, including, but not limited to, the following: Solid Wastes Disposal Sites and Facilities Acts, §§ 30-20-100.5 – 30-20- 119, C.R.S., Colorado Regulations Pertaining to Solid Waste Disposal Sites and Facilities, 6 C.C.R. 1007-2, *et seq.*, Solid Waste Disposal Act, 42 U.S.C. §§ 6901-6992k, and Federal Solid Waste Regulations 40 CFR Ch. I. The County shall not be responsible or liable for identifying, characterizing, cleaning up, or disposing of such solid waste or hazardous materials. Notwithstanding the previous sentence, should any refuse cleaned up and disposed of by the County be determined to be solid waste or hazardous materials, the Developer/Owner, but not the County, shall be responsible and liable as the owner, generator, and/or transporter of said solid waste or hazardous materials.

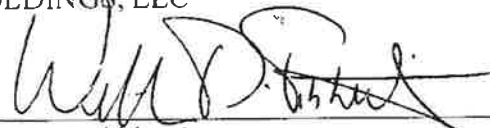
14. Applicable Law and Venue: The laws, rules, and regulations of the State of Colorado and El Paso County shall be applicable in the enforcement, interpretation, and execution of this Agreement, except that Federal law may be applicable regarding solid waste or hazardous materials. Venue shall be in the El Paso County District Court.

IN WITNESS WHEREOF, the Parties affix their signatures below.

Executed this 25<sup>th</sup> day of July, 2024, by:

WT HOLDINGS, LLC

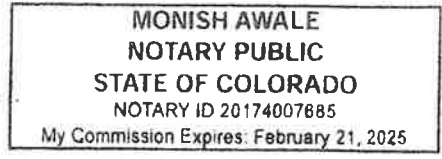
By: \_\_\_\_\_

  
William Tibbitt, Owner

The foregoing instrument was acknowledged before me this 23 day of July, 2024, by William Tibbitt, Owner of WT Holdings, LLC

Witness my hand and official seal.

My commission expires: 02/21/2025



[Signature]  
Notary Public

Executed this 21<sup>st</sup> day of August, 2024 by:

BOARD OF COUNTY COMMISSIONERS  
OF EL PASO COUNTY, COLORADO

By: [Signature]

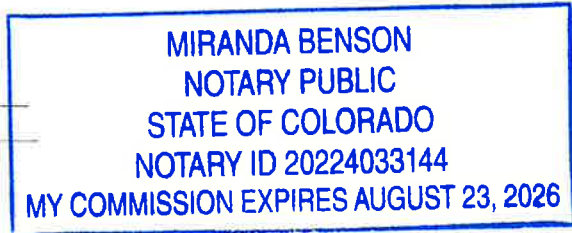
Gilbert LaForce, Engineering Manager  
Department of Public Works  
Authorized signatory as County Engineer designee pursuant to Resolution 24-145

The foregoing instrument was acknowledged before me this 21<sup>st</sup> day of August, 2024 by Gilbert LaForce Engineering Manager of El Paso County Department of Public Works.

Witness my hand and official seal.

My commission expires: Aug. 23, 2026

[Signature]  
Notary Public



Approved as to Content and Form:

[Signature]  
Assistant County Attorney

Exhibit A  
Exhibit B

**EXHIBIT A**

Legal Description of Property

LOT 12, ROLLING THUNDER BUSINESS PARK, COUNTY OF EL PASO, STATE OF COLORADO.

**EXHIBIT B**  
O&M MANUAL

Standard Operation Procedures for Inspection and Maintenance of Stormwater Quality Infiltration Basin(s)  
– Lot 12 – Rolling Thunder Business Park





Standard Operation Procedures  
for  
Inspection and Maintenance  
of  
Stormwater Quality Infiltration Basin(s)

**Lot 12 – Rolling Thunder Business Park  
10707 Maltese Pt.  
Peyton, Colorado**

**Owner:**  
**WT Holdings, LLC**  
William Tibbitt  
30 E. Uintah St.  
Colorado Springs, CO 80903  
Phone: 719-492-0084  
E-mail: [BTibbitt@wdconstruct.com](mailto:BTibbitt@wdconstruct.com)

El Paso County Department of Public Works  
3275 Akers Drive  
Colorado Springs, CO 80922

[dotweb@elpasoco.com](mailto:dotweb@elpasoco.com)  
719-520-6900

## **Introduction**

This plan addresses operation and maintenance of the private detention / water quality facility (**Infiltration Basin – Pond A**) constructed as part of the **commercial development of vacant Lot 12 in Rolling Thunder Business Park (EPC PCD projects number(s): PPR2414)**. The plat number of Rolling Thunder Business Park is 12872.

## **Background**

The State of Colorado Department of Public Health and Environment, Water Quality Control Division (CDPHE), has implemented federal regulations within the State of Colorado through permitting, and has included El Paso County as one of numerous Municipal Separate Storm Sewer Systems (MS4s) required to be permitted in compliance with National Pollutant Discharge Elimination System (NPDES) Phase 2 Regulations, as defined within Colorado's Phase 2 Municipal Guidance.

NPDES Phase 2 MS4s stormwater discharges are covered under a general permit under the Colorado Discharge Permit System (CDPS) under Regulation 61, and as a minimum require the MS4's operator (e.g., El Paso County) to develop, implement, and enforce a stormwater management program to reduce the discharge of pollutants to the maximum extent practicable to protect water quality requirements of the Colorado Water Quality Control Act, Colorado Code of Regulations [CCR] 61.8(11)(a)(i).

This Stormwater Facilities Operation and Maintenance Plan (O&M Plan) is for the private Lot 12 stormwater quality infiltration basin (Pond A) constructed as part of the development project referenced above.

## **Associated Agreements**

The Private Detention / Stormwater Quality Best Management Practice Maintenance Agreement and Easement (Maintenance Agreement) for the development requires the property owner to construct the detention and stormwater quality facilities in accordance with county approved plans and to regularly and routinely inspect, clean, and maintain the facilities in good repair at their own expense. The Maintenance Agreement includes provision of an easement granted to the county to allow the county to access, inspect, clean, repair and maintain the facilities; although those duties are not implied to be that of the county.

## **Funding for and Organization of Facility Operation and Maintenance**

WT Holdings, LLC will be responsible for operations and maintenance of the Pond A detention facilities upon acceptance of the facilities.

## **Site and Facilities Description**

Lot 12 of Rolling Thunder Business Park is located northwest of the intersection of Rolling Thunder Way and Firehouse View, and south of Maltese Point. The property is located in a portion of the NE ¼ of Section 11, Township 13 South, Range 65 West of the 6th P.M. in El Paso County, Colorado. The lot area is 1.17 acres. This project is proposing to construct a commercial building on the site.

This Site was platted as Lot 12 of the Rolling Thunder Business Park in 2008. Access to the site is via Rolling Thunder Way, which becomes Golden Sage Rd and intersects with E Woodmen Rd.

Drainage and access easements for the site are platted in the Rolling Thunder Business Park Plat. Refer to Final Drainage Report and the Construction documents for drainage basin and more specific design information for Pond A.

Pond A will be located at the southern edge of Lot 12. Pond A receives stormwater via sheet flow from the parking lot flowing from north to south. Stormwater that does not get fully infiltrated during larger storm events will overflow to a grass swale to the east and eventually to the curb & gutter of Rolling Thunder Way.

Infiltration testing was performed on the native soils. Due to the low rates of native soils, the bottom 2' of native soil will be excavated and replaced with AASHTO M43 Fine Aggregate Sand to achieve the appropriate infiltration rates required for full infiltration of the WQCV in 12-hours.

## **Stormwater Quality Infiltration Basin (SQIB) Description**

The subsections below describe general SQIB operations and maintenance.

### **SQIB-1 GENERAL SQIB CONCEPT**

Stormwater Quality Infiltration Basins (SQIBs) are permanent stormwater control measures. A SQIB is a sedimentation basin designed to capture stormwater runoff, and to drain completely sometime after stormwater runoff ends. The basins are considered to be "dry" because the basin is designed not to have a significant permanent pool of water remaining between runoff events.

SQIBs are an adaptation of a detention basin used for flood control, with the primary difference being the addition of volume to accommodate the Water Quality Capture Volume (WQCV). The basins collect and infiltrate stormwater runoff capturing sediment within the basin as runoff infiltrates into the ground.

### **SQIB-2 INSPECTING STORMWATER QUALITY INFILTRATION BASINS (SQIBs)**

#### **SQIB-2.1 Access and Easements**

Inspection and maintenance personnel may utilize the attached stormwater facility map containing the location(s) of the access points and maintenance easements of the SQIB(s) within this development.

#### **SQIB-2.2 Stormwater Management Facilities Locations**

Inspection and maintenance personnel may utilize the attached stormwater facility map containing the location(s) of the SQIB(s) within this development.

#### **SQIB-2.3 Stormwater Quality Infiltration Basin (SQIB) Features**

SQIBs have a number of features that are designed to serve a particular function. Many times the proper function of one feature depends on another.

Therefore, it is critical that each feature of the SQIB is properly inspected and maintained to ensure that the overall facility functions as it was intended. Below is a list and description of the most common features within a SQIB and the corresponding maintenance inspection items that can be anticipated:

**Table SQIB-1: Typical Inspection & Maintenance Requirements Matrix**

SQIB Features	Sediment Removal	Mowing/ Weed Control	Trash & Debris Removal	Erosion	Over-grown Vegetation Removal	Standing Water (mosquito/ algae control)
Inflow Points (outfalls)	X	X	X	X	X	
Basin	X	X	X	X	X	X
Emergency Spillway			X	X	X	

**SQIB-2.3.1 Inflow Points**

Inflow Points or Outfalls into SQIBs are the point source of the stormwater discharge into the facility. An inflow point is commonly a storm sewer pipe with a flared end section that discharges into the SQIB. In some instances, an inflow point could be a drainage channel or ditch that flows into the facility.

An energy dissipater (riprap or hard armor protection) is typically immediately downstream of the discharge point into the SQIB to protect from erosion. In some cases, a storm sewer outfall can have a toe-wall or cut-off wall immediately below the structure to prevent undercutting of the outfall from erosion.

*The typical maintenance items that are found with inflow points are as follows:*

*a. Riprap Displaced* – Many times, because the repeated impact/force of water, riprap, if installed, can shift and settle. If any portion of a riprap apron appears to have settled, soil is present between the riprap, or the riprap has shifted, maintenance may be required to ensure future erosion is prevented.

*b. Erosion Present/Outfall Undercut* – In some situations, an energy dissipater may not have been sized, constructed, or maintained appropriately and erosion has occurred. Any erosion within the vicinity of the inflow point will require maintenance to prevent damage to the structure(s) and sediment transport within the facility.

*c. Sediment Accumulation* – Because of the turbulence in the water created by an energy dissipater, sediment often deposits immediately downstream of the inflow point. To prevent a loss in hydraulic performance of the upstream infrastructure, sediment that accumulates in this area must be removed in a timely manner.

*d. Woody Growth/Weeds Present* – Undesirable vegetation can grow in and around the inflow area to a SQIB that can significantly affect the performance of the drainage facilities discharging into the facility. This type of vegetation includes trees (typically cottonwoods) and dense areas of shrubs (willows). If woody vegetation is not routinely mowed/removed, the growth can cause debris/sediment to accumulate, resulting in blockage of the discharge. Routine maintenance is essential for trees (removing a small tree/sapling is much cheaper and “quieter” than a mature tree). In addition, noxious weeds growing in the facility can result in the loss of desirable native vegetation and impact adjacent open spaces/land.

*e. Trash/Debris* – Trash and debris can accumulate in the basin after large events, or from illegal dumping. Over time, this material can accumulate and clog the SQIB.

### SQIB-2.3.2 Basin

The basin is designed to store runoff events. This area of the SQIB may develop wetland vegetation.

*The typical maintenance items that are found with the basin are as follows:*

- a. Sediment/Debris Accumulation* – The basin accumulates sediment and debris. This material must be removed to maintain pond volume and proper function of the basin.
- b. Woody Growth/Weeds Present* – Woody growth (cottonwoods/willows) can create operational problems for the SQIB. The basin will have to be dredged to ensure volume, and large trees and shrubs will be difficult to protect during that operation. Routine management is essential for trees (removing a small tree/sapling is much cheaper and less disruptive than removing a mature tree).
- c. Bank Erosion* –The bottom grades of the basin are typically flat enough that erosion should not occur. However, inadequate vegetative cover may result in erosion of the basin banks. Erosion that occurs in this area can result in increased dredging/maintenance.
- d. Petroleum/Chemical Sheen* – Indicators of illicit discharges into the drainage system may be present in the basin. These indicators can include sheens, odors, discolored soil, and dead vegetation. If it is suspected that an illicit discharge has occurred, contact County Stormwater immediately. Proper removal/mitigation of contaminated soils and water in the SQIB is necessary to minimize any environmental impacts downstream.
- e. Vegetation Sparse* – Basin aesthetics are important. Adequate and properly maintained vegetation can greatly increase the overall appearance and acceptance of the SQIB by the public. In addition, vegetation can reduce the potential for erosion and subsequent sediment transport to the other areas of the pond.
- f. Standing Water/Boggy Areas* – Standing water or boggy areas in the basin can encourage mosquito and algae problems. Mosquito larvae can be laid by adult mosquitoes within shallow water. Aquatic vegetation that grows in shallow can decompose causing foul odors. Chemical/mechanical treatment of these areas may be necessary to reduce impacts to adjacent homeowners. Routine maintenance (mowing, trash removal, etc.) can also be extremely difficult for the basin if the ground is saturated. If this inspection item is checked, make sure you have identified the root cause of the problem.
- g. Trash/Debris* – Trash and debris can accumulate in the basin after large events, or from illegal dumping. Over time, this material can accumulate and clog the SQIB.
- h. Maintenance Access* – Most SQIBs typically have a maintenance access path to the basin bottom and/or around the basin. This access path should be inspected to ensure the surface is still drivable. Some of the smaller SQIBs may not have maintenance access paths; however, the inspector should verify that access is available from adjacent properties.

### SQIB-2.3.3 Emergency Spillway

An emergency spillway is typical of all SQIBs and designed to serve as the overflow in the

event the volume of the pond is exceeded. The emergency spillway may be armored with riprap (or other hard armor) and is sometimes buried with soil. The emergency spillway is typically a weir (notch) in the pond embankment. Proper function of the emergency spillway is essential to ensure flooding does not affect adjacent properties.

*The typical maintenance items that are found with emergency spillways are as follows:*

- a. *Riprap Displaced* – If the emergency spillway is armored with riprap to provide erosion protection; over the life of an SQIB, the riprap may shift or dislodge due to flow.
- b. *Erosion Present* – Stormwater flowing through the spillway can cause erosion damage. Erosion must be repaired to ensure the integrity of the basin embankment, and proper function of the spillway.
- c. *Woody Growth/Weeds Present* – Management of woody vegetation is essential in the proper long-term function of the spillway. Larger trees or dense shrubs can capture larger debris entering the SQIB and reduce the capacity of the spillway.
- d. *Obstruction Debris* – The spillway must be cleared of any obstruction (man-made or natural) to ensure the proper design capacity.

#### SQIB-2.3.4 Miscellaneous

There are a variety of inspection/maintenance issues that may not be attributed to a single feature within the SQIB. This category on the inspection form is for maintenance items that are commonly found in the SQIB but may not be attributed to an individual feature.

- a. *Encroachment in Easement Area* – Private lots/property can sometimes be located very close to the SQIBs, even though they are required to be located in tracts with drainage easements. Property owners may place landscaping, trash, fencing, or other items within the easement area that may affect maintenance or the operation of the facility.
- b. *Graffiti/Vandalism* – Damage to the SQIB infrastructure can be caused by vandals. If criminal mischief is evident, the inspector should forward this information to the local Sheriff's Office.
- c. *Public Hazards* – Public hazards include items such as vertical drops of greater than 4-feet, containers of unknown/suspicious substances, exposed metal/jagged concrete on structures. If any hazard is found within the facility area that poses an immediate threat to public safety, contact the Sheriff at 911 immediately!
- d. *Burrowing Animals/Pests* – Prairie dogs and other burrowing rodents may cause damage to the SQIB features and negatively affect the vegetation within the SQIB. Consult EPC Environmental Division if this becomes an issue.
- e. *Other* – Any miscellaneous inspection/maintenance items not contained on the form should be entered here.

### **SQIB-3 MAINTAINING STORMWATER QUALITY INFILTRATION BASINS (SQIBs)**

#### **SQIB-3.1 Maintenance Personnel**

Maintenance personnel must be qualified to properly maintain SQIBs. Inadequately trained personnel can cause additional problems resulting in additional maintenance costs.

### **SQIB-3.2 Equipment**

It is imperative that the appropriate equipment and tools are taken to the field with the operations crew. The types of equipment/tools will vary depending on the task at hand. Below is a list of tools, equipment, and material(s) that may be necessary to perform maintenance on a SQIB:

- 1.) Loppers/Tree Trimming Tools
- 2.) Mowing Tractors
- 3.) Trimmers (extra string)
- 4.) Shovels
- 5.) Rakes
- 6.) All Surface Vehicle (ASVs)
- 7.) Skid Steer
- 8.) Backhoe
- 9.) Track Hoe/Long Reach Excavator
- 10.) Dump Truck
- 11.) Engineers Level (laser)
- 12.) Riprap
- 13.) Filter Fabric
- 14.) Erosion Control Blanket(s)
- 15.) Seed Mix (Native)
- 16.) Illicit Discharge Cleanup Kits
- 17.) Trash Bags
- 18.) Tools (wrenches, screw drivers, hammers, etc.)
- 19.) Chain Saw
- 20.) Approved Stormwater Facility Operation and Maintenance Manual

Some of the items identified above may not be needed for every maintenance operation. However, this equipment should be available to the maintenance operations crews should the need arise.

### **SQIB-3.3 Safety**

Vertical drops may be encountered in areas located within and around the facility. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified within the SQIB that is greater than 48" in height, make the appropriate note/comment on the maintenance inspection form.

### **SQIB-3.4 Maintenance Categories and Activities**

A typical SQIB Maintenance Program will consist of three broad categories of work: routine, minor, and major maintenance activities. Within each category of work, a variety of maintenance activities can be performed on a SQIB. A maintenance activity can be specific to each feature within the SQIB, or general to the overall facility. A variety of maintenance activities are typical of SQIBs. The maintenance activities range in magnitude from routine trash pickup to the reconstruction of drainage infrastructure. The following three sub-sections (3.5, 3.6, and 3.7) explain each of the categories and briefly describes the typical maintenance activities for a SQIB, including the objectives and frequency of actions. The infiltration basin being constructed has 3:1 side slopes, which exceeds the recommended 4:1 maximum due to the site limitations. The side slopes within this infiltration basin will be stabilized during construction with erosion control blankets, and at the time of building occupancy will have permanent seeding established which will prevent erosion and degradation of the slope. The area of 3:1 slopes will be maintained after building occupancy utilizing standard lawn mowers due to the fact that it is 6 horizontal feet in width and standard lawn mowers can safely access and maintain the vegetation as needed.

**SQIB-3.5 Routine Maintenance Activities**

The majority of this work consists of regularly scheduled mowing and trash and debris pickups for stormwater management facilities during the growing season. This includes items such as the removal of debris/material. It also includes activities such as weed control, mosquito treatment, and algae treatment. These activities will normally be performed numerous times during the year. These items can be completed without any prior correspondence with the EPC Stormwater; however, completed inspection and maintenance forms shall be retained for each inspection and maintenance activity.

The Maintenance Activities are summarized below, and further described in the following sub-sections.

**TABLE SQIB-2: Summary of Routine Maintenance Activities**

MAINTENANCE ACTIVITY	MINIMUM FREQUENCY	LOOK FOR	MAINTENANCE ACTION
<b>Mowing</b>	Twice annually	Excessive grass height/aesthetics	Mow grass to a height of 4" to 6"
<b>Trash/Debris Removal</b>	Twice annually	Trash & debris in SQIB	Remove and dispose of trash and debris
<b>Weed control</b>	Minimum twice annually	Noxious weeds; Unwanted vegetation	Treat w/ herbicide or hand pull; Consult the local weed specialist
<b>Mosquito Treatment</b>	As needed	Standing water/ mosquito habitat	Treat w/ EPA approved chemicals
<b>Algae Treatment</b>	As needed	Standing water/ Algal growth/green color	Treat w/ EPA approved chemicals

SQIB-3.5.1 Mowing

Occasional mowing is necessary to limit unwanted vegetation and to improve the overall appearance of the SQIB. Native vegetation should be mowed to a height of 4-to-6 inches tall. Grass clippings should be collected and disposed of properly.

*Frequency* – Routine - Minimum of twice annually or depending on aesthetics.

SQIB-3.5.2 Trash/Debris Removal

Trash and debris must be removed from the entire SQIB area to minimize clogging and to improve aesthetics. This activity must be performed prior to mowing operations.

*Frequency* – Routine – Prior to mowing operations and minimum of twice annually.

SQIB-3.5.3 Weed Control

Noxious weeds and other unwanted vegetation must be treated as needed throughout the SQIB. This activity can be performed either through mechanical means (mowing/pulling) or with herbicide. Consultation with the Environmental Division at 719-520-7878 is highly recommended prior to the use of herbicide.

*Frequency* – Routine – As needed based on inspections.

SQIB-3.5.4 Mosquito/Algae Treatment

Treatment of permanent pools that may have formed is necessary to control mosquitoes and undesirable aquatic vegetation that can create nuisances. Only EPA approved chemicals/materials can be used in areas that are warranted.



*Frequency* – As needed. SQIB- 3.6 Minor Maintenance Activities

This work consists of a variety of isolated or small-scale maintenance or operational problems. Most of this work can be completed by a small crew, tools, and small equipment. These items may require prior correspondence with EPC Stormwater and require completed inspection and maintenance forms to be submitted to EPC upon request for each inspection and maintenance activity.

**Table SQIB-3: Summary of Minor Maintenance Activities**

MAINTENANCE ACTIVITY	MINIMUM FREQUENCY	LOOK FOR	MAINTENANCE ACTION
<b>Sediment Removal</b>	As needed; typically every 1–2 years	Sediment build-up; decrease in pond volume	Remove and dispose of sediment
<b>Erosion Repair</b>	As needed, based upon inspection	Rills/gullies forming on side slopes, trickle channel, other areas	Repair eroded areas Revegetate; address source of erosion
<b>Vegetation Removal/Tree Thinning</b>	As needed, based upon inspection	Large trees/wood vegetation in lower stage of pond	Remove vegetation; restore grade and surface

SQIB-3.6.1 Sediment Removal

Sediment removal is necessary to maintain the original design volume of the SQIB and to ensure proper function of the infrastructure. Regular sediment removal (minor) from the inflow(s) can significantly reduce the frequency of major sediment removal activities (dredging) in the basin. The minor sediment removal activities can typically be addressed with shovels and smaller equipment. Major sediment removal activities will require larger and more specialized equipment. The major sediment activities will also require surveying with an engineer's level, and consultation with EPC Stormwater Staff to ensure design volumes/grades are achieved.

Stormwater sediments removed from SQIBs do not meet the criteria of "hazardous waste". However, these sediments are contaminated with a wide array of organic and inorganic pollutants and handling must be done with care. Sediments from permanent pools that may have formed must be carefully removed to minimize turbidity, further sedimentation, or other adverse water quality impacts. Sediments should be transported by motor vehicle only after they are dewatered. All sediments must be taken to a landfill for proper disposal. Prompt and thorough cleanup is important should a spill occur during transportation.

*Frequency* – Nonroutine – As necessary based upon inspections.

SQIB-3.6.2 Erosion Repair

The repair of eroded areas is necessary to ensure the proper function of the SQIB, minimize sediment transport, and to reduce potential impacts to other features. Erosion can vary in magnitude from minor repairs and rilling to major gullies in the embankments and spillways. The repair of eroded areas may require the use of excavators, earthmoving equipment, riprap, concrete, erosion control blankets, and turf reinforcement mats. Major erosion repair to the pond embankments and spillways will require consultation with EPC Stormwater Staff.

*Frequency* – Nonroutine – As necessary based upon inspections.

SQIB-3.6.3 Vegetation Removal/Tree Thinning

Dense stands of woody vegetation (willows, shrubs, etc) or trees can create maintenance problems for the infrastructure within a SQIB. Tree roots can damage the basin thereby blocking flows. Also, trees growing in the basin of the SQIB will most likely have to be removed when sediment/dredging operations occur. A small tree is easier to remove than a large tree, therefore, regular removal/thinning is preferred. All trees and woody vegetation that is growing in the bottom of the SQIB or near structures (inflows, emergency spillways, etc) should be removed.

*Frequency* – Nonroutine – As necessary based upon inspections.

**SQIB-3.7 Major Maintenance Activities**

This work consists of larger maintenance/operational problems and failures within the stormwater management facilities. All of this work requires consultation with EPC Stormwater Staff to ensure the proper maintenance is performed. This work requires that the staff review the original design and construction drawings to assess the situation and assign the necessary maintenance. **An ESQCP permit may be required for major maintenance activities.** This work may also require more specialized maintenance equipment, design/details, surveying, or assistance through private contractors and consultants.

**Table SQIB-4: Summary of Major Maintenance Activities**

MAINTENANCE ACTIVITY	MINIMUM FREQUENCY	LOOK FOR	MAINTENANCE ACTION
<b>Major Sediment Removal</b>	As needed – based upon scheduled inspections	Large quantities of sediment; reduced pond capacity	Remove and dispose of sediment. Repair vegetation as needed
<b>Major Erosion Repair</b>	As needed – based upon scheduled inspections	Severe erosion including gullies, excessive soil displacement, areas of settlement, holes	Repair erosion – find cause of problem and address to avoid future erosion

SQIB-3.7.1 Major Sediment Removal

Major sediment removal consists of removal of large quantities of sediment or removal of sediment from vegetated areas. Care shall be given when removing large quantities of sediment and sediment deposited in vegetated areas. Large quantities of sediment need to be carefully removed, transported and disposed of. Vegetated areas need special care to ensure design volumes and grades are preserved.

*Frequency* – Nonroutine – Repair as needed based upon inspections.

SQIB-3.7.2 Major Erosion Repair

Major erosion repair consists of filling and revegetating areas of severe erosion. Determining the cause of the erosion as well as correcting the condition that caused the erosion should also be part of the erosion repair. Care should be given to ensure design grades and volumes are preserved.

*Frequency* – Nonroutine – Repair as needed based upon inspections.

Reference:

**This manual is adapted from SEMSWA and the Town of Parker, Colorado, *STORMWATER PERMANENT BEST MANAGEMENT PRACTICES (PBMP) LONG-TERM OPERATION AND MAINTENANCE MANUAL*, October 2004**

For additional resources and contact info, visit the EPC Stormwater website:  
<https://publicworks.elpasoco.com/stormwater>

