Porous Pavement Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Surface is Clogged	Water infiltrates unevenly across surface or ponds in low areas	Recommend vacuum sweep at least twice per year; if pavement surface has become significantly clogged use low pressure washer to restore permeability; do not use surfactants		
Cracked or moving edge constraints; cracked or settled pavement	Cracked or moving edge constraints; cracked or settled pavement that affects overall performance of stormwater structural components	Repair all cracks, settlement or other defects that affect performance of structural components. Refer to manufacturers' specifications	As Needed	
Leaf, soil deposition on surface	Leaf litter that could affect stormwater infiltration through pavement. Look for soil washout from adjacent planted areas	Sweep leaf litter and sediment to prevent surface clogging and ponding. Planted areas adjacent to porous pavement should be well maintained to prevent soil washout onto the pavement.	 During leaf season. As needed	
Excessive weeds	Weeds cover 10% of the surface area	Remove weeds by hand, or use an herbicide approved for use around sensitive areas; refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment	 During the growing season	
Settling of pavers or lack of aggregate around pavers	Filter medium between pavers reduced. Aggregate loss in pavers from settling and power washing	Reset pavers and replace pore space with aggregate from original design	As Needed	
Visual evidence of trash, debris or dumping	Any debris or trash that could clog the surface	Remove trash or debris and vacuum sweep area if necessary	As Needed	

Green Roof Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Standing Water	Standing water, super saturated soil observed. Check for clogged drain or compacted soil	Clear drains; remove organics and other debris from drain; loosen compacted soil and amend soil		
Leaks in Green Roof	Leaks in roof observed. Check for tears or perforation of membrane	Contact manufacturer or installer for repair or replacement	As Needed	
Dead or stressed vegetation; exposed soil	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Remove dead or stressed vegetation and replant per original planting plan; irrigate as needed. Remove excessive weeds and all invasive plants		
Excessive Vegetation	Vegetation has become overgrown	Prune grass and plantings; remove clippings		
Excessive Weeds	Weeds on more than 20% of the surface area	Remove weeds by hand; avoid using pesticides		
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilized using proper erosion control measures. Establish appropriate vegetation as needed	As Needed	

If replanting in the Summer, irrigation will be necessary.

Infiltration Planter / Rain Garden Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Invasive Vegetation as outlined in Appendix A	Invasive vegetation found in facility. Examples include: Himalayan Blackberry; Reed Canary Grass; Teasel; English Ivy; Nightshade; Clematis; Cattail; Thistle; Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible. Refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment.		
Obstructed Inlet/Outlet	Material such as vegetation, trash, sediment is blocking more than 10% of the inlet pipe or basin opening	Remove blockages from facility	 Inspect after major storm (1-inch in 24 hours)	
Excessive Vegetation	Vegetation grows so tall it competes with or shades approved emergent wetland grass/shrubs; interferes with access or becomes a fire danger	Cut tall grass 4″ to 6″ and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown.	 Ideal time to prune emergent wetland grass is spring. Cut grass during dry months	
Tree/Shrub Growth	Tree/shrub growth shades out wetland/emergent grass in treatment area. Interferes with access for maintenance/inspection	Prune trees and shrubs that block sun from reaching treatment area. Remove trees that block access points. Do not remove trees that are not interfering with access or maintenance without first contacting Clean Water Services or local City.	 Ideal timing for pruning trees is winter	

Infiltration Planter / Rain Garden Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Hazard Trees	Observe dead, dying or diseased trees	Remove hazard trees. A certified arborist may need to determine health of tree or removal requirements	As Needed	
Poor Vegetation Coverage	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Determine cause of poor growth and correct the condition. Replant per the approved planting plan and applicable standards at the time of construction. Remove excessive weeds and all invasive plants.	 Ideal time to plant is spring and fall seasons	
Trash and Debris	Visual evidence of trash, debris or dumping	Remove trash and debris from facility. Dispose of properly		
Contaminants and Pollution	Evidence of oil, gasoline, contaminants or other pollutants. Look for sheens, odor or signs of contamination.	If contaminants or pollutants are present, coordinate removal/cleanup with local jurisdiction		
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilize using proper erosion control measures. Establish appropriate vegetation as needed.		
Flow Not Distributed Evenly	Flows unevenly distributed through planter width due to uneven or clogged flow spreader	Level the spreader and clean so that flows spread evenly over entire planter width		

Infiltration Planter / Rain Garden Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Vector Control	Evidence of rodents or water piping through facility via rodent holes. Insects such as wasps and hornets interfere with maintenance/inspection activities	Repair facility if damaged. Remove harmful insects, use professional if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options	As Needed	
Sediment Accumulation in Treatment Area	Sediment depth in treatment area exceeds 3 inches	Remove sediment from treatment area. Ensure planter is level from side to side and drains freely toward outlet; no standing water within 24 hours after any major storm (1-inch in 24 hours)	 Ideally in the dry season	
Standing Water	Standing water in the planter between storms that does not drain freely. Water should drain after 24 hours of dry weather	Remove sediment or trash blockages; improve end to end grade so there is no standing water 24 hours after any major storm (1-inch in 24 hours)	 Inspect after major storm (1-inch in 24 hours)	
Grate Damaged, Missing or Not in Place	Grate is missing or only partially in place may have missing or broken grate members	Grate must be in place and meets design standards. Replace or repair any open structure	As Needed	

Flow-Through Planter Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Sediment Accumulation in Treatment Area	Sediment depth exceeds 3 inches	Remove sediment from treatment area. Ensure planter is level from side to side and drains freely toward outlet; no standing water within 24 hours after any major storm (1-inch in 24 hours)	 Ideally in dry season	
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilized using proper erosion control measures Establish appropriate vegetation as needed	 Inspect after major storm (1-inch in 24 hours)	
Standing Water	Standing water in the planter between storms that does not drain freely. Water should drain after 24 hours of dry weather.	Remove sediment or trash blockages. Grade out areas of mounding and improve end to end grade so there is no standing water.		
Flow Not Distributed Evenly	Flow unevenly distributed through planter width due to uneven or clogged flow spreader	Level the spreader and clean so that flows spread evenly over entire planter width		
Obstructed Inlet/Outlet	Material such as vegetation, sediment, trash is blocking more than 10% of the inlet/outlet pipe	Remove blockages from facility	 Inspect after major storm (1-inch in 24 hours)	

Flow-Through Planter Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Poor Vegetation Coverage	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Determine cause of poor growth and correct the condition; replant with plugs or containerized plants per approved plans and applicable standards at time of construction. Remove excessive weeds and all invasive plants.	 Ideal time to plant is spring and fall seasons	
Invasive Vegetation as outlined in Appendix A	Invasive vegetation found in facility. Examples include: Himalayan Blackberry; Reed Canary Grass; Teasel, English Ivy, Nightshade, Clematis, Cattail, Thistle	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible. Refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment.		
Excessive Vegetation	Vegetation grows so tall it competes with or shades approved emergent wetland grass/shrubs; interferes with access or becomes a fire danger	Prune over-hanging limbs, if possible; remove brushy vegetation as needed. Prune emergent wetland grass/shrubs that have become overgrown.	 Ideal time to prune emergent wetland grass is spring	
Vector Control	Evidence of rodents or water flowing through facility via rodent holes. Harmful insects such as wasps or hornets present	Repair damage to facility. Remove harmful insects, call professional if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options.	As Needed	

Flow-Through Planter Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Trash and Debris	Visual evidence of trash, debris or dumping.	Remove and dispose of trash and debris from facility. Dispose of properly		
Contamination and Pollution	Evidence of oil, gasoline, contaminants, or other pollutants. Look for sheens, odor or signs of contamination.	If contaminants or pollutants present, coordinate removal/cleanup with local jurisdiction.		
Outlet Structure Damaged	Grate or overflow structure is missing or only partially in place and may have missing or broken grate members.	Repair or replace outlet structure.	As Needed	

LIDA Swale Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Sediment Accumulation in Treatment Area	Sediment depth exceeds 3 inches	Remove sediment deposits in treatment area. Swale should be level from side to side and drain freely toward outlet	 Ideally in Dry Season	
Standing Water	Standing water in the swale between storms that does not drain freely	Remove sediment or trash blockages; improve grade from end to end of swale; no standing water 24 hours after any major storm (1 inch in 24 hours)	 Inspect after any major storm (1-inch in 24 hours)	
Flow Not Distributed Evenly	Flows unevenly distributed through swale due to uneven or clogged flow spreader	Level the spreader and clean so that flows spread evenly over entire swale width	As Needed	
Poor Vegetation Coverage	80% survival of approved vegetation and no bare areas large enough to affect function of facility	Determine cause of poor growth and correct the condition; replant with plugs or containerized plants per approved plans and applicable standards at time of construction. Remove excessive weeds and all invasive plants.	 Ideal time to plant is Spring and Fall seasons	
Excessive Vegetation	Vegetation grows so tall it competes with or shades approved emergent wetland grass/shrubs; interferes with access or becomes a fire danger	Prune overhanging limbs if possible. Prune emergent wetland grass/shrubs that have become overgrown	 Ideal time to prune emergent wetland grass is Spring	

LIDA Swale Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Invasive Vegetation as outlined in Appendix A	Invasive vegetation found in facility. Reed Canary Grass; Teasel, English Ivy; Nightshade; Clematis; Cattail, Thistle; Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible. Refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment		
Hazard Trees	Observed dead, dying or diseased trees	Remove hazard trees. A certified arborist may need to determine health of tree or removal requirements	As Needed	
Obstructed Inlet/Outlet	Material such as vegetation, sediment or debris is blocking more than 10% of the inlet/outlet pipe	Remove blockages from facility	 Inspect after any major storm (1-inch in 24 hours)	
Damage to Outlet Structure	Outlet structure damage may include a grate that is missing or not in place. Grate may have broken members or have a damaged frame	Grate must be in place and meet design standards. Replace or repair grate and ensure grate is firmly attached	As Needed	
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern Evidence of trash, debris or dumping	Repair eroded areas and stabilized using proper erosion control measures. Establish appropriate vegetation as needed		

LIDA Swale Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Trash and Debris		Remove trash and debris from facility. Dispose of properly		
Contamination and Pollution	Evidence of oil, gasoline, contaminants, or other pollutants. Look for sheens, odor or other signs of contamination	Locate source of contamination and correct. Remove oil using oil-absorbent pads or vactor truck. If low levels of oil persist plant wetland plants that can uptake small concentrations of oil such as Juncus effuses. (soft rush) If high levels of contaminants or pollutants are present, coordinate removal/ cleanup with local jurisdiction		
Vector Control	General evidence of rodents or water piping through facility via rodent holes. Insects such as wasps and hornets interfere with maintenance/ inspection activities	Repair facility if damaged. Remove harmful insects, use professional if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options	As Needed	
Damage to Outlet Structure	Damage to Frame or Top Slab. Frame not sitting flush on top slab (more than ¾ inch between frame and top slab); frame not securely attached	Ensure frame is firmly attached and sits flush on the riser rings or top slab	As Needed	
Damage to Outlet Structure	Fractures or Cracks in Walls or Bottom. Maintenance person determines the structure is unsound. Soil entering structure through cracks	Structure replaced or repaired to design standards	As Needed	

Vegetated Swale Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Obstructed Inlet/Outlet	Material such as vegetation, sediment is blocking more than 10% of Inlet/ outlet pipe or basin opening	Remove blockages from facility		
Flow not distributed evenly	Flows unevenly distributed through swale due to uneven or clogged flow spreader	Level and clean the spreader so that flows spread evenly over entire swale width		
Sediment Accumulation in Treatment Area	Sediment depth in treatment area exceeds 3 inches	Remove sediment from treatment area. Ensure facility is level from side to side and drains freely toward outlet; no standing water once inflow has ceased	 Ideally in the dry season	
Tree/Shrub Growth	Tree/shrub growth shades out wetland/emergent grass in treatment area. Interferes with access for maintenance/inspection	Prune trees and shrubs that block sun from reaching treatment area. Remove trees that block access points. Do not remove trees that are not interfering with access or maintenance without first contacting Clean Water Services or local City	 Ideal timing for pruning is winter	
Hazard Trees	Observed dead, dying or diseased trees	Remove hazard trees. A certified arborist may be needed to determine health of tree or removal requirements	As Needed	

Vegetated Swale Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilized using proper erosion control measures. Establish appropriate vegetation as needed.		
Poor Vegetation Coverage	80% survival of approved vegetation and no bare areas large enough to affect function of facility	Determine cause of poor growth and correct the condition. Replant per the approved planting plan and applicable standards at time of construction. Remove excessive weeds and all invasive plants.	 Ideal time to plant is spring and fall seasons	
Invasive Vegetation as outlined in Appendix A	Invasive vegetation is found in facility. Examples include: Himalayan Blackberry; Reed Canary Grass; Teasel; English Ivy; Nightshade; Clematis; Cattail; Thistle; Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible. Refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment		
Excessive Vegetation	Vegetation grows so tall it competes with or shades approved emergent wetland grass/shrubs; interferes with access or becomes fire danger	Cut tall grass to 4" to 6" and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown.	 Ideal time to prune emergent wetland grass is spring. Cut grass in dry months	
Trash and Debris	Visual evidence of trash, debris or dumping	Trash and debris removed from facility. Dispose of properly		

Vegetated Swale Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Standing Water	Standing water in the swale between storms that does not drain freely	Remove sediment or trash blockages; improve grade from end to end of swale; no standing water 24 hours after any major storm (1-inch in 24 hours)	 Inspect after any major storm (1-inch in 24 hours)	
Vector Control	Evidence of rodents or water piping through facility via rodent holes. Harmful insects such as wasps and hornets interfere with maintenance/ inspection activities	Repair facility if damaged. Remove harmful insects, use professional if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options	As Needed	
Contamination and Pollution	Evidence of oil, gasoline, contaminants, or other pollutants. Look for sheens, odor or signs of contamination	If contaminants or pollutants present, coordinate removal/ cleanup with local jurisdiction		
Grate Damaged, missing or not in place	Grate is missing or only partially in place, may have missing or broken grate members	Grate must be in place and meet design standards. Replace or repair any open structure, replace grate if missing.	As Needed	
Damage to Outlet Structure	Frame not sitting flush on top slab (more than ¾ inch between frame and top slab); frame not securely attached	Ensure frame is firmly attached and sits flush on riser rings or on top of slab. Structure replaced or repaired to design standards	As Needed	

Vegetated Swale Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Damage to Outlet Structure	Fractures or Cracks in Walls or Bottom. Maintenance person determines the structure is unsound. Soil entering structure through cracks	Structure replaced or repaired to design standards	As Needed	
Damage to Outlet Structure	Settlement or Misalignment. Failure of basin has created a safety, function, or design problem	Structure replaced or repaired to design standards	As Needed	

Vegetated Filter Strip Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Flow not distributed evenly	Flows unevenly distributed through filter strip due to uneven or clogged flow spreader	Level and clean the spreader so that flows spread evenly over entire filter strip width	 WINTER SPRING	
Invasive Vegetation as outlined in Appendix A	Invasive vegetation is found in facility. Examples include: Himalayan Blackberry; Reed Canary Grass; Teasel; English Ivy; Nightshade; Clematis; Cattail Thistle; Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible. Refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment.	 SPRING SUMMER FALL	
Poor Vegetation Coverage	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Determine cause of poor growth and correct the condition; replant with plugs or containerized plants per approved plans and applicable standards at time of construction. Remove excessive weeds and all invasive plants	 FALL SPRING Ideal time to plant is Spring and Fall seasons	
Excessive Vegetation	Vegetation grows so tall it competes with or shades approved emergent wetland grass/shrubs; interferes with access or becomes a fire danger	Cut grass tall grass 4" to 6" and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown.	 SPRING Ideal time to prune emergent wetland grass is Spring. Cut grass in dry months	
Tree/Shrub Growth	Tree/shrub growth shades out wetland/emergent grass in treatment area. Interferes with access for maintenance/inspection	Prune trees and shrubs that block sun from reaching treatment area. Remove trees that block access points. Do not remove trees that are not interfering with access or maintenance without first contacting Clean Water Services or local City.	 WINTER Ideal timing for pruning trees is winter	

Vegetated Filter Strip Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilize using proper erosion control measures. Establish appropriate vegetation as needed		
Sediment Accumulation in Treatment Area	Sediment depth in treatment area exceeds 3 inches	Remove sediment from treatment area. Ensure facility is level from side to side and drains freely toward outlet; no standing water once inflow has ceased	 Ideally in the dry season	
Trash and Debris	Visual evidence of trash, debris or dumping	Remove trash and debris from facility. Dispose of properly		
Contaminants and Pollution	Evidence of oil, gasoline, contaminants or other pollutants. Look for sheens, odor or signs of contamination	If contaminants or pollutants present; coordinate removal/cleanup with local jurisdiction		
Vector Control	Evidence of rodents or water piping through facility via rodent holes. Harmful insects present such as wasps and hornets that interfere with maintenance/ inspection activities	Repair facility if damaged. Remove harmful insects, use professional service if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options	As Needed	

Extended Dry Basin Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Trash and Debris	Visual evidence of trash, debris or dumping	Remove trash and debris from facility. Dispose of properly		
Contamination and Pollution	Evidence of oil, gasoline, contaminants, or other pollutants. Look for sheens, odor or signs of contamination	Locate source of contamination and correct. Remove oil using oil-absorbent pads or vactor truck. If low levels of oil persist plant wetland plants that can uptake small concentrations of oil such as Juncus effuses. (soft rush) If high levels of contaminants or pollutants are present, coordinate removal/ cleanup with local jurisdiction		
Invasive vegetation as outlined in Appendix A.	Invasive vegetation found in facility. Examples include: Himalayan Blackberry, Reed Canary Grass, Teasel, English Ivy, Nightshade, Clematis, Cattail, Thistle, Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible; refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment		
Obstructed Inlet/Outlet	Material such as vegetation, trash, sediment is blocking more than 10% of inlet/outlet pipe or basin opening	Remove blockages from facility	 Inspect after major storm (1-inch in 24 hours)	
Poor Vegetation Cover	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Determine cause of poor growth and correct the condition. Replant with plugs or containerized plants per the approved planting plan and applicable standards at time of construction. Remove excessive weeds and all invasive plants.	 Ideal time to plant is spring and fall seasons	

Extended Dry Basin Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Vector Control	Evidence of rodents or water piping through facility via rodent holes. Harmful insects present such as wasps and hornets that interfere with maintenance/ inspection activities	Repair facility if damaged. Remove harmful insects, use professional if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options	As Needed	
Tree/Shrub Growth	Tree/shrub growth shades out wetland/ emergent grass in treatment area. Interferes with access for maintenance/ inspection	Prune trees and shrubs that block sun from reaching treatment area. Remove trees that block access points. Do not remove trees that are not interfering with access or maintenance without first contacting Clean Water Services or local City	 WINTER Ideal time for pruning is winter	
Hazard Trees	Observed dead, dying or diseased trees	Remove hazard trees. A certified Arborist may need to determine health of tree or removal requirements	As Needed	
Excessive Vegetation	Vegetation grows so tall that it competes with approved emergent wetland grass/shrubs, interferes with access or becomes a fire danger	Cut tall grass 4" to 6" and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown.	 SPRING Ideal time to prune emergent wetland grass is spring. Cut grass in dry months	
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilize using proper erosion control measures. Establish appropriate vegetation as needed	 FALL WINTER SPRING	

Extended Dry Basin Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Settlement of Pond Dike/ Berm	Look for any part of dike/berm that has settled 4 inches or more lower than the design elevation	Repair dike/berm to approved design specifications. A licensed civil engineer should be consulted to determine the source of the settlement	As Needed	
Blockage of Emergency Overflow/ Spillway	Blockage of overflow/ spillway by trees, vegetation or other material. Blockages may cause the berm to fail due to uncontrolled overtopping	Remove blockage. Small root system (base less than 4 inches) may be left in place; otherwise, roots are removed. A licensed civil engineer should be consulted for proper berm/spillway restoration.	 Inspect after major storm (1-inch in 24 hours)	
Erosion of Emergency Overflow/Spillway	Native soil is exposed at the spillway, or there is only one layer of rock in an area of 5 square feet or larger	Restore rock and pad depth to appropriate depth. Refer to design specifications	 Inspect after major storm (1-inch in 24 hours)	
Blockage of Overflow Structure/ Orifice Plate	Excessive standing water or water is not detained for required time.	Inspect and if needed clear orifice plate for proper drainage or re-install to ensure required detention.	 Inspect after major storm (1-inch in 24 hours)	
Sediment Accumulation in Pond Bottom	Sediment accumulation in pond bottom exceeds 6 inches or affects facility inlet/ outlet or plant growth in treatment area	Remove sediment from pond bottom. Re-establish designed pond shape and depth. Establish appropriate vegetation in treatment area	 Ideally in the dry season	

Extended Dry Basin Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Grate Damaged, missing or not in place	Grate is missing or only partially in place, may have missing or broken grate members.	Grate must be in place and meet design standards. Replace or repair any open structure, replace grate if missing	As Needed	
Damage to Outlet Structure	Damage to Frame or Top Slab. Frame not sitting flush on top slab (more than ¾ inch between frame and top slab); frame not securely attached	Ensure frame is firmly attached and sits flush on the riser rings or top slab	As Needed	
Damage to Outlet Structure	Fractures or Cracks in Walls or Bottom. Maintenance person determines the structure is unsound. Soil entering structure through cracks.	Structure replaced or repaired to design standards.	As Needed	
Damage to Outlet Structure	Settlement or Misalignment of Basin. Failure of basin has created a safety, function, or design problem	Structure replaced or repaired to design standards	As Needed	

Constructed Water Quality Wetland Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Trash and Debris	Visual evidence of trash, debris or dumping	Remove trash and debris from facility. Dispose of properly		
Contaminants and Pollution	Evidence of oil, gasoline, or other contaminants. Look for signs such as sheens or odors.	Locate source of contamination and correct. Remove oil using oil-absorbent pads or vactor truck. If low levels of oil persist plant wetland plants that can uptake small concentrations of oil such as Juncus effuses. (soft rush) If high levels of contaminants or pollutants are present, coordinate removal/ cleanup with local jurisdiction.		
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilize using proper erosion control measures. Establish appropriate vegetation as needed.		
Obstructed Inlet/Outlet or basin opening	Material such as vegetation, sediment, trash is blocking more than 10% of inlet/outlet pipe or basin opening	Remove blockages from facility.	 Inspect after major storm (1-inch in 24 hours)	
Invasive Vegetation as outlined in Appendix A	Invasive vegetation found in facility. Examples include: Himalayan Blackberry; Reed Canary Grass; Teasel; English Ivy; Nightshade; Clematis; Cattail; Thistle; Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible. Refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment.		

Constructed Water Quality Wetland Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Tree/Shrub Growth	Tree/shrub growth shades out wetland/ emergent grass in treatment area. Interferes with access for maintenance/ inspection	Prune trees and shrubs that block sun from reaching treatment area. Remove trees that block access points. Do not remove trees that are not interfering with access or maintenance without first contacting Clean Water Services or local City.	 WINTER Ideal timing for pruning is winter	
Poor Vegetation Cover	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Determine cause of poor growth and correct the condition. Sediment accumulation or competition with invasive vegetation could be cause. Replant with plugs or containerized plants per the approved planting plan and applicable standards at time of construction. Remove excessive weeds and all invasive plants.	 SPRING FALL Ideal time to plant is spring and fall seasons	
Hazard Trees	Observed dead, dying or diseased trees	Remove hazard trees. A Certified Arborist may need to determine health of tree or removal requirements.	As Needed	
Vector Control	Evidence of rodents, or water piping through facility via rodent holes. Harmful insects present such as wasps and hornets that interfere with maintenance/inspection activities	Repair facility if damaged. Remove harmful insects, use professional service if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options.	As Needed	
Sediment Accumulation in Wetland Bottom	Sediment depth in wetland bottom exceeds 6 inches or affects inlet/outlet functions or plant growth in treatment area	Remove sediment from wetland bottom. Re-establish designed wetland shape and depth; re-seed if necessary to control erosion, or replant to achieve treatment.	 SUMMER FALL Ideally in the dry season	

Constructed Water Quality Wetland Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	✔ Task Complete Comments
Settlement of Pond Dike/ Berm	Look for any part of dike/berm that has settled 4 inches or more lower than the design elevation	Repair dike/berm to approved design specifications. A licensed civil engineer should be consulted to determine the source of settlement.	As Needed	
Excessive Vegetation	Vegetation grows so tall that it competes with approved emergent wetland grass/shrubs, interferes with access or becomes a fire danger	Cut tall grass to 4" to 6" and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown	 SPRING Ideal time to prune emergent wetland grass is spring. Cut grass in dry months	
Grate Damaged, missing or not in place	Grate is missing or only partially in place, may have missing or broken grate members	Grate must be in place and meet design standards. Replace or repair any open structure, replace grate if missing.	As Needed	
Damage to Outlet Structure	Frame not sitting flush on top slab (more than ¾ inch between frame and top slab); frame not securely attached	Frame is firmly attached and sits flush on the riser rings or top slab. Structure replaced or repaired to design standards.	As Needed	
Damage to Outlet Structure	Fractures or Cracks in walls or bottom. Maintenance person determines the structure is unsound. Soil entering structure through cracks	Structure replaced or repaired to design standards	As Needed	
Damage to Outlet Structure	Settlement or Misalignment of Outlet Basin. Failure of basin has created a safety, function, or design problem	Structure replaced or repaired to design standards	As Needed	