

Municipality Of Anchorage  
Girdwood Street Maintenance

GIRDWOOD  
RURAL ROAD SERVICE AREA

STANDARD OPERATING PROCEDURES  
2017

# GIRDWOOD RURAL ROAD SERVICE AREA

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Please refer to these Standard Operating Procedures when in the performance of any road maintenance and or construction within road Right of Way.-

# Catchbasin, Catch Basin Manhole, and Manhole Maintenance and Repair

## RESOURCE NEEDS

**DEFINITIONS:**

Catch basins are subsurface concrete basins that receive water through a metal or slotted grate. These basins can also be round concrete chambers, manholes, which contain flow control and water quality devices. The catch basin's primary function is to convey flow while filtering debris and sediment to prevent these items from transferring and clogging the piped collection system downstream.

**PERMIT REFERENCES:**

CBERRRSA performs annual inspection and cleaning of catch basins and inlet control measures to meet permits requirements (1 1.B.4.b).

**ACTIVITY DESCRIPTION:**

Inspecting, cleaning, repairing, or replacing catch basins and manholes to ensure adequate drainage of street and the rights-of-way.

**Materials:**

1. Cement and aggregate
2. Rebar
3. Cast iron lids and concrete rings
4. Vactor truck
5. Warning signs and temporary barricades
6. Clean water

**Work Method:**

1. Locate nearby underground utilities.
2. Place signs and safety devices prior to commencement of work.
3. Inspect drainage structures and record maintenance needs.
4. Use vactor truck to remove sediment and other debris from manholes or catch basins.
5. When warranted, jet rod or flush storm lines, using precautionary measure to minimize downstream release of plumes.
6. Perform repair work needed.
7. Backfill and replace pavement as required.

**INSPECTION PROCEDURES:**

Surface features of catch basins, catch basin manholes, and manholes are inspected as part of the street maintenance foreman's activity. The maintenance foreman, crew, and general public monitor catch basins and other storm water facilities throughout the year for problems. Areas with a known history of problems are monitored more frequently.

**MAINTENANCE PROCEDURES:**

Drainage structures are considered operational if they are not creating a significant drainage problem. When catch basins, catch basin manholes, and manholes are cleaned approximately 90%-95% of the dirt and debris is removed.

**INSPECTION CRITERIA:**

Action is taken when a drainage structure is either dirty or damaged enough to cause significant damage to either the roadway or private property. This emergency type work is prioritized at the time with other routine drainage work being done, when resources are available.

**MAINTENANCE CRITERIA:**

Drainage crews are sent to known problem areas first. After these areas have been addressed, an attempt is made to clean an entire route at once and to systematically work through the entire system as equipment and resources are available.

# **Catchbasin, Catch Basin Manhole, and Manhole Maintenance and Repair**

**INSPECTION SCHEDULE:**

The foreman, crew, and general public monitor drainage structures year-round for problems, with most inspections occurring during the summer. The problems become most apparent during the spring when the ice and snow melt, or during rainstorms. In most cases, maintenance workers responding to problems are able to discern whether the drainage structure needs cleaning or repairs.

**MAINTENANCE SCHEDULE:**

This is mainly a summer activity with the exception of some emergency manhole repairs are performed during the winter months. Drainage structures causing significant damage to either the road or private property are taken care of ASAP. Structures that have been problematic either during the winter or the spring thaw are scheduled for cleaning and repair.

**POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES**

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Check fittings associated with the vacor truck prior to starting operation of the vacor truck to remove accumulated sediment material.

Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard and dispose in solid waste containers.

**WASTE REMOVAL:**

Remove dirt and water that has accumulated in catch basins and manholes with a vacuum truck.

**WASTE TREATMENT & DISPOSAL:**

Decant materials removed during cleaning at the Hiland Storage facility and take solids to the sanitary landfill for disposal.

# Flow Control Structures (Dams or Weirs)

## RESOURCE NEEDS

### DEFINITIONS:

Manholes allow surface access to underground utilities for inspection and maintenance operations. Manholes can also be used to make flow connections within the system. Pipes within the storm water system are used to convey surface flow to receiving bodies of water. Weirs installed within manholes are generally used as a means for flow control.

### ACTIVITY DESCRIPTION:

Inspecting, cleaning, repairing, or replacing damaged or unserviceable flow control structures to ensure adequate drainage of streets and the right-of-way.

#### Materials

1. Replacement parts as needed

#### Work Method:

1. Determine the location of the problem and locate nearby underground utilities.
2. Place signs and safety devices prior to commencement of work.
3. Remove debris that has accumulated on the upstream side of the flow control structure.
4. Adjust flow control structure and verify that it is functioning properly.

### INSPECTION PROCEDURES:

Flow control structures will be inspected for debris buildup (on upstream side) and short circuiting of flow around or over the structure.

### MAINTENANCE PROCEDURES:

A cleaning crew of 1 or 2 laborers is used to manually remove any debris that has accumulated on the upstream side of the structural controls. Heavy equipment may be needed if a significant amount of sediment needs to be removed.

### INSPECTION CRITERIA:

Action is taken when flow control structures fail to control drainage and or flooding and have the potential to cause significant damage to either the roadway or private property. This emergency type work is prioritized at the time with other routine drainage work being done when resources are available.

### MAINTENANCE CRITERIA:

Flow control structures are considered operational if they are fully adjustable and do not create significant drainage problems.

### INSPECTION SCHEDULE:

These structures are inspected during or after major flooding events to ensure that they are functioning properly.

### MAINTENANCE SCHEDULE :

Flow control structures causing significant damage to either the road or private property are taken care of ASAP. Structures that have been problematic either during the winter or the spring thaw are scheduled for repair during the summer months. Drainage crews are sent to known problem areas first. After the problem areas have been cleaned and/or repaired, an attempt is made to clean an entire route at once and to systematically work through the entire system, as equipment and resources are available.

# ***Flow Control Structures (Dams or Weirs)***

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
Provide training and frequent reminders on how to operate the equipment.
Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.
Check fittings associated with the vacor truck prior to starting operation of the vacor truck to remove accumulated sediment material.
Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard and dispose in solid waste containers.
Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.
<b>Waste Removal:</b> Remove sediment, vegetative matter, and rubbish on the upstream side of the flow control structures either manually or with heavy equipment as required.
<b>Waste Treatment and Disposal:</b> Use sediment removed during cleaning and maintenance activities as fill or take to the designated fill site for disposal. Recycle or take brush to the designated fill site. Take trash to the sanitary landfill.

# Drainage Ditch Maintenance

RESOURCE NEEDS
<p><b>ACTIVITY DESCRIPTION:</b> Cleaning and shaping ditches to restore proper cross-section and flow line, and to ensure proper drainage of the roadway and adjacent roadway.</p> <p><b>Materials:</b></p> <ol style="list-style-type: none"> <li>1. None</li> </ol> <p><b>Work Method:</b></p> <ol style="list-style-type: none"> <li>1. Locate underground utilities before starting work.</li> <li>2. Place signs, traffic warning devices and necessary</li> <li>3. Cut the ditch to the correct grade and cross-section; load waste material into dump trucks.</li> <li>4. Haul the waste to disposal area.</li> <li>5. Clean up work area. Sweep roadway and/or shoulder as necessary.</li> <li>6. Hydro seed banks for erosion control.</li> <li>7. Remove signs and safety devices.</li> </ol>

<p><b>INSPECTION PROCEDURES:</b> Drainage ditches are inspected as part of the maintenance foreman's activity. Drainage ditches are inspected for proper cross-section, flow line, and debris accumulations. Ditches that need cleaning but are not creating any immediate problems are noted and will be scheduled for cleaning when resources are available.</p>	<p><b>MAINTENANCE PROCEDURES:</b> Drainage crews are sent to known problem areas first. Once these problematic areas have been addressed, an attempt is made to clean an entire route at once and to systematically work through the entire system, as equipment and resources are available.</p>
<p><b>INSPECTION CRITERIA:</b> Action is taken when drainage ditches become clogged enough to cause flooding or significant damage to either the roadway or private property. This emergency type work is prioritized at the time in conjunction with other routine drainage work.</p>	<p><b>MAINTENANCE CRITERIA:</b> Drainage ditches are considered operational if they are not creating a significant drainage problem. Drainage ditches are considered clean when approximately 95% of the brush and sediment is removed.</p>
<p><b>INSPECTION SCHEDULE:</b> The foreman, crew, and general public monitor drainage structures year-round for problems with most inspections and work occurring during the summer. The problems are most apparent during the spring when the ice and snow are melting or during rainstorms. Personnel are periodically contacted and made aware of problem areas by the general public. In most events maintenance workers responding to problems are able to discern whether the drainage structure needs repairs.</p>	<p><b>MAINTENANCE SCHEDULE:</b> Drainage structures causing significant damage to either the road or private property are taken care of ASAP. Structures that have been problematic either during the winter or the spring are scheduled for cleaning and repair on an as needed basis during the summer months.</p>

# Drainage Ditch Maintenance

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Provide training and frequent reminders on how to operate the equipment.

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.

Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard, and dispose in solid waste containers.

Where practical, prevent disturbance of vegetation in the ditch.

If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:

- Prevent disturbance of or introduction of polluted runoff to receiving waterbodies. Precautions include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal Storm Water Treatment Plan Review Guidance Manual (SWTPRGM) Appendix A.
- If more than 500 square feet are disturbed, the project may require a Stormwater Pollution Prevention Plan (SWPPP). Follow the requirements set forth in the SWTPRGM Appendix B.
- Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch sideslopes, are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.

Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.

### Waste Removal:

Dirt and vegetative matter from drainage ditches are removed.

### Waste Treatment and Disposal:

Organic material (dirt, weeds, brush, etc.) removed during ditch repair is biodegradable and will be hauled away for proper disposal at the designated fill site.

Garbage that is generated from drainage ditches is recycled or disposed of at regional landfills.



# Oil and Grit Separators

## RESOURCE NEEDS

**DEFINITIONS:**

Oil and grit separators (OGS) are structural Best Management Practice designed to remove hydrocarbons and sediment from runoff. Runoff passes through these compartments to separate grit, oil and sediment before continuing in the downstream conveyance system.

**ACTIVITY DESCRIPTION:**

Inspecting and cleaning oil/grit separators to remove accumulations of debris, sediment, and oil to ensure proper flow and to prevent pollutants from leaving the separator unit.

Materials:

1. Vactor truck
2. Pickup Truck
3. Signs and Temporary Barricades

Work Method:

1. Clean and inspect all oil/grit separators.
2. At each site, place signs and safety devices as necessary.
3. Clean up as necessary using a vactor truck.
4. Remove signs and safety devices.
5. Dispose of waste material (e.Q., water, sediment, and oil) removed from oil/grit separator (according to the Waste Management Practices below.)

<p><b>INSPECTION PROCEDURES:</b> The maintenance foreman and crew inspect the OGS units for oil and sediment accumulations. Areas with a known history of oil and sediment accumulation are monitored more closely.</p>	<p><b>MAINTENANCE PROCEDURES:</b> A cleaning crew and a vacuum truck are used to remove the water, oil, and sediment out of the OGS unit.</p>
<p><b>INSPECTION CRITERIA:</b> Action is taken when a drainage structure is either dirty or damaged enough to cause significant damage to either the roadway or private property. This emergency type work is prioritized at the time with other routine drainage work being done, when resources are available.</p>	<p><b>MAINTENANCE CRITERIA:</b> OGS units are considered operational if they are not creating a significant drainage problem. When OGS units, approximately 90%-95% of the dirt and debris is removed.</p>
<p><b>INSPECTION SCHEDULE:</b> OGS units are inspected and cleaned on an annual basis.</p>	<p><b>MAINTENANCE SCHEDULE:</b> OGS units are cleaned and inspected annually and reported through the MOA Watershed Management Section. OGS units causing significant damage to either the road or private property are taken care of ASAP. Structures that are damaged and have been problematic either during the winter or the spring thaw are scheduled for repair during the summer months.</p>

# Oil and Grit Separators

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Provide training and frequent reminders on how to operate the equipment.

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material

Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard, and dispose in solid waste containers.

Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.

### Waste Removal:

Dirt, water, and oil from oil/grit separators is removed with a vactor truck.

### Waste Treatment and Disposal:

Decant water from OGS cleaning activities at the Hiland Storage Facility. Take sediment to the sanitary landfill for disposal.

# Concrete/Asphalt Saw Cutting

## RESOURCE NEEDS

**ACTIVITY DESCRIPTION:**

Saw cutting concrete and/or asphalt on the streets, intersections, curbs, gutters, sidewalks, and bike paths to remove damaged or failing structures to maintain a neat appearance and prevent accidental discharge of fluids in the storm sewer system.

**Materials:**

1. Pickup truck
2. Signs
3. Water
4. Cutting Saw

**Work Method:**

1. Determine the location of the problem and locate nearby underground utilities.
2. Place sign and safety devices prior to commencement of work.
3. Clean debris away from drainage areas.
4. Install fabric to eliminate any cutting fluid from entering drainage system.
5. Cut and remove pavement or concrete.
6. Replace pavement or concrete and backfill material as required.
7. Remove any BMP's that are in place.

**INSPECTION PROCEDURES:**

Asphalt and concrete is inspected by the street maintenance foreman. Concrete that requires maintenance but is not creating any immediate hazards is noted and put on a future maintenance schedule. Areas with a known history of problems are monitored more frequently.

**MAINTENANCE PROCEDURES:**

Maintenance crews are sent to repair high safety risk areas first. After these areas have been addressed, an attempt is made to repair sections encompassing an entire route, as equipment and resources are available.

**INSPECTION CRITERIA:**

Action is taken when a surface is damaged to the point of a safety hazard. This emergency type work is prioritized at the time with other routine drainage work being done, when resources are available.

**MAINTENANCE CRITERIA:**

BMP's are utilized to prevent the infiltration of cutting fluid and debris into the storm system. Fluids and debris are collected and disposed of. Surfaces are considered operational if they are not creating a significant drainage problem and are not a walking or a driving hazard.

**INSPECTION SCHEDULE:**

The foreman, crew, and general public monitor surfaces year-round for problems, with the majority of inspections and repairs occurring in the summer.

**MAINTENANCE SCHEDULE:**

Surfaces that are of significant damage to either the road or private property are taken care of ASAP. Surfaces are historically repaired during the summer months.

# Concrete/Asphalt Saw Cutting

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Provide training and frequent reminders on how to operate the equipment.

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard and dispose in solid waste containers.

If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:

- - Prevent disturbance of or introduction of polluted runoff to receiving waterbodies. Precaution include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal Storm Water Treatment Plan review Guidance Manual Appendix A.
  - If more than 500 square feet are disturbed, the project may require a Stormwater Pollution Prevention Plan (SWPPP). Follow the requirements set forth in the SWTPRGM, Appendix B.
  - Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch sidelopes, are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.

Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.

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### Waste Treatment and Disposal:

Dispose of waste materials that have been collected before they enter the storm system in the designated fill site.

# Mowing and Brushing

## RESOURCE NEEDS

### ACTIVITY DESCRIPTION:

Protect storm water by using proper mowing and brushing techniques. Proper techniques will reduce organic matter and other pollutants from entering the storm drain systems and water bodies.

#### Materials:

1. Mower, brusher
2. Sweeper

#### Work Method:

1. Manage leaves, mowing, and clippings so that runoff does not enter the storm drain system or water bodies.
2. Sweep up lawn and brush clipping instead of flushing with water.
3. Mow and brush less frequently.

### INSPECTION PROCEDURES:

Vegetated facilities are inspected as part of the street maintenance foreman's activities.

### MAINTENANCE PROCEDURES:

Mowing and brushing on an as needed basis. Substantial grass growth and brush growth that hinders storm system and driver visibility problems require maintenance attention.

### INSPECTION CRITERIA:

Action is taken when vegetated areas become overgrown enough to cause significant damage to either the roadway or sight distance problems. This emergency type work is prioritized at the time with other routine drainage work being done, when resources are available.

### MAINTENANCE CRITERIA:

Ensure that all safety factors are met for driver visibility and aesthetically visible grassy areas are met without impact to the storm drain system.

### INSPECTION SCHEDULE:

The foreman, crew, and general public monitor drainage structures year-round for problems, with inspections occurring during the summer. Vegetated facilities that need maintenance but are not creating any immediate problems are noted and cleaned on an as necessary schedule. In most cases, maintenance crews responding are able to discern whether the problem needs cleaning or scheduled mowing or brushing.

### MAINTENANCE SCHEDULE:

Vegetated areas located along roadways are generally scheduled for mowing and brushing once a year after vegetation has grown to a suitable length and resources are available. However, situation may arise that require tending to vegetation more than once during the summer months.

# Mowing and Brushing

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Provide training and frequent reminders on how to operate the equipment.

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Mulch clippings from mowing activities in place.

Do not mow within 10-feet of entry points to the storm water conveyance system or water body.

Pick up litter and debris around the site prior to starting mowing activities. Take any litter collected back to the storage yard, and dispose in solid waste containers.

Sweep up and remove any excess clippings from mowing or brushing activities, instead of flushing with water.

**Waste Treatment and Disposal:**

Take accumulated grass or brushing that needs to be removed to the designated fill site or use as bedding for other organizations.

# Culvert and Storm Drain Maintenance and Repair

## RESOURCE NEEDS

**ACTIVITY DESCRIPTION:**

Inspecting, cleaning, repairing, or replacing damaged or unserviceable culverts and/or storm drains to ensure adequate drainage of streets and the rights-of-way.

**Materials:**

1. Pipe and bands
2. Base rock
3. Backfill
4. Water plug(s)
5. Backhoe
6. Vactor
7. Signs and temporary barricades
8. Water

**Work Method:** Work methods will vary depending on the condition of the structure and the nature of the repair.

1. Determine the location of the problem and locate nearby underground utilities.
2. Place signs and safety devices prior to commencement of work.
3. Clean branches and other debris prior to commencement of work.
4. Clean branches and other debris away from culvert ends. If necessary, use a shovel to remove sloughing soil from ends.
5. Cut and remove pavement and excavate down to the storm drain (if required)
6. When warranted, jet rod or flush to clean storm lines as needed, using precautionary measures to minimize downstream plumes.
7. Install inflatable sewer plugs to stop the flow (if required) and perform repair work as needed.
8. Backfill and replace pavement as required.

**INSPECTION PROCEDURES:**

Portions of storm drains and culverts are inspected as part of the street maintenance foreman's activity. Storm drains and culverts that need cleaning but are not creating any immediate problems are added to a cleaning schedule. All major storm drain outfalls are inspected once during the summer months and documented. The inlets and outfalls of culverts are inspected for accumulations of dirt, grasses, weeds, brush, rocks, and other debris that may cause blockage. Areas with a known history of problems are monitored more frequently.

**MAINTENANCE PROCEDURES:**

Drainage crews are sent to known problem areas first. After the problematic areas have been addressed, an attempt is made to clean an entire route at once and to systematically work through the entire system as equipment and resources are available.

**INSPECTION CRITERIA:**

Action is taken when a drainage structure is either dirty or damaged enough to cause significant damage to either the roadway or private property. This emergency type work is prioritized at the time with other routine drainage work being done, when resources are available.

**MAINTENANCE CRITERIA:**

Drainage structures are considered operational if they are not creating a significant drainage problem. Culverts and storm drains are considered clean when approximately 75% of the dirt and debris is removed.

# Culvert and Storm Drain Maintenance and Repair

<p><b>INSPECTION SCHEDULE:</b> The foreman, crew, and general public monitor drainage structures year-round for problems, with most inspections occurring during the summer. The problems become most apparent during the spring when the ice and snow are melting, or during rainstorms. Personnel are periodically contacted and made aware of problem areas by the general public. Maintenance workers responding to problems are able to discern whether the drainage structure needs cleaning or repairs.</p>	<p><b>MAINTENANCE SCHEDULE:</b> Drainage structures causing significant damage to either the road or private property are taken care of ASAP. Structures that have been problematic either during the winter or the spring thaw are scheduled for cleaning and repair (if needed) during the summer months.</p>
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## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

<p>Provide training and frequent reminders on how to operate the equipment.</p> <p>Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.</p> <p>Check fittings associated with the vactor truck prior to starting operation of the vactor truck to remove accumulated sediment material.</p> <p>Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard and dispose in solid waste containers.</p> <p>Place a bladder downstream of any pipe jetting activities to ensure that sediment plumes are not released into the receiving waters.</p> <p>Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.</p>
<p><b>Waste Removal:</b> Dirt and water that have accumulated in culverts and storm drains are removed with a vactor truck.</p>
<p><b>Waste Treatment and Disposal:</b> Decant water from cleaning activities at the Hiland Storage Facility. Take sediment to the sanitary landfill for disposal.</p>



# Road Rehabilitation

## RESOURCE NEEDS

**ACTIVITY DESCRIPTION:**

Road rehabilitation subject to but, not limited to; concrete and/or asphalt repairs in the street, intersections, curbs, gutters, sidewalks, and bike paths. Removing damaged or failing infrastructures to maintain a safe and neat appearance and preventing accidental discharge of fluids in the storm sewer system.

**Materials:**

1. Pickup Truck
2. Dozers
3. Loaders
4. Compactors
5. Graders
6. Pavers
7. Rollers
8. Hand tools
9. Signs
10. Water
11. Type IIA, D-1, geotextile, emulsion, asphalt, concrete, foam board, topsoil

**Work Method:**

1. Determine the location of the problem and locate nearby underground utilities.
2. Place signs and safety devices prior to commencement of work.
3. Clean debris away from drainage area.
4. Install fabric and BMPs to preclude any construction fluids from entering drainage system.
5. Cut and remove pavement or concrete.
6. Excavate any unstable materials.
7. Backfill with acceptable materials.
8. Replace pavement or concrete and backfill material as required.
9. Remove any BMPs that are in place.

**INSPECTION PROCEDURES:**

Road infrastructure a constantly inspected by the street maintenance foreman. Road repairs that are required but are not creating any immediate hazards are noted and added into the future maintenance schedule.

**INSPECTION CRITERIA:**

Action is taken when a surface is damaged to the point of a safety hazard. This emergency type work is prioritized at the time with other routine road maintenance work being done.

**INSPECTION SCHEDULE:**

The foreman, crew, and general public monitor surfaces year-round for problems to road surfaces and potential infrastructure failures. The majority of inspections and repairs occurring in the summer.

**MAINTENANCE PROCEDURES:**

Maintenance crews are sent to repair high safety risk areas first, after these areas have been addressed an attempt is made to repair sections encompassing an entire route.

**MAINTENANCE CRITERIA:**

BMP's are utilized to prevent the infiltration of any road construction debris from entering the storm system. Fluids and debris are collected and disposed of with the proper techniques. Road surfaces are considered operational when they are not creating a significant drainage problem or a walking or a driving hazard.

**MAINTENANCE SCHEDULE:**

Road and structures that are significantly damaged to either the road or private property are taken care of ASAP. Most surfaces are historically repaired during the summer months.

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Provide training and frequent reminders on how to operate the equipment.

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Use only the amount of repair material needed to fix the road.

Compact repair material to prevent tracking on the roadway surface.

Pick up litter and debris around the site prior to starting repair activities. Take any litter collected back to the storage yard and dispose in solid waste containers.

Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.

If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:

- Prevent disturbance of or introduction of polluted runoff to receiving waterbodies. Precautions include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal Storm Water Treatment Plan Review Guidance Manual (SWTPRGM) Appendix A.
- If more than 500 square feet are disturbed, the project may require a Stormwater Pollution Prevention Plan (SWPPP). Follow the requirements set forth in the SWTPRGM Appendix B.
- Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch sideslopes, are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.

### **Waste Treatment and Disposal:**

Collect all waste materials before they enter the storm system and dispose of in the designated fill site. Use any unusable materials generated by the construction site not suitable for road construction in other areas that are not located in the road prism. Take any materials not suitable for use in any aspect of the repair to the sanitary landfill and dispose.

# Vegetated Facilities Maintenance

## RESOURCE NEEDS

### DEFINITIONS:

Vegetated facilities include vegetated swales and engineered wetlands. Vegetated swales are gently sloping depressions planted with vegetation that allow stormwater runoff to be treated before entering the flow conveyance system. Vegetated facilities slow the runoff flow, allowing the water to be filtered and, in some cases, infiltrated into the ground.

### ACTIVITY DESCRIPTION:

Periodic maintenance of engineered wetlands and vegetated facilities is necessary to ensure that the hydraulic and pollutant removal capacities of these facilities are sustained.

### Materials:

1. Mower
2. Sweeper
3. Clippers
4. Saws

### Work Method:

1. Place signs and safety devices.
2. Inspect vegetative facilities for evidence of erosion and/or sedimentation, damaged vegetations, mowing or brush cutting needs, or accumulation of rubbish.
3. Install BMP's to manage leaves, mowing, and clippings so that runoff does not carry vegetation into the storm drain system or water bodies.
4. Perform maintenance and landscaping work as necessary.
5. Remove signs and safety devices.

### INSPECTION PROCEDURES:

Vegetated facilities are inspected as part of the street maintenance foreman's activities.

### INSPECTION CRITERIA:

Action is taken when vegetated areas become eroded enough to cause significant damage to either the roadway or private property. This emergency type work is prioritized at the time with other routine drainage work being done, when resources are available.

### INSPECTION SCHEDULE:

The foreman, crew, and general public monitor drainage structures year-round for problems, with inspections occurring during the summer. Vegetated facilities that need maintenance are cleaned on a specific schedule. In most cases, maintenance personnel responding to flooding problems are able to discern whether the problem needs cleaning or repairs.

### MAINTENANCE PROCEDURES:

Mowing and brushing is done on an as needed basis and erosion control is maintained with hydro seed materials.

### MAINTENANCE CRITERIA:

Action is taken when vegetated areas become eroded or when sloughing occurs enough to cause significant damage. This emergency type work is prioritized at the time with other routine drainage work being done, when resources are available.

### MAINTENANCE SCHEDULE:

Vegetated facilities located along major roadways are scheduled for mowing and brush removal once a year after vegetation has grown to a suitable length and as equipment and resources are available.

# Vegetated Facilities Maintenance

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Provide training and frequent reminders on how to operate the equipment.

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard and dispose in solid waste containers.

Where practical or during inspection, prevent disturbance of vegetation.

If any work associated with this SOP results in ground disturbance (digging, grading, asphalt removal, etc.), including follow-up repairs that are needed at the structure, the following are implemented:

- - Prevent disturbance of or introduction of polluted run off to receiving waterbodies. Precautions include flow diversion and installation of temporary sediment and erosion control best management practices (such as waddles, matting, or silt fence) as specified in the municipal Storm Water Treatment Plan Review Guidance Manual (SWTPRGM) Appendix A.
  - If more than 500 square feet are disturbed, the project may require SWPPP. Follow the requirements set forth in the SWTPRGM Appendix B.
  - Stabilize exposed ground, soil, or dirt. Roadways may be stabilized by asphalt or chip seal. Other surfaces, including ditch sideslopes are reseeded to reestablish vegetation or covered with aggregate (rock or gravel) with no fines.

Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.

### Waste Removal:

Remove dirt and vegetative material manually or with heavy equipment. Obtain required permits prior to any work in designated wetlands.

### Waste Treatment and Disposal:

Use sediment and vegetative matter that are removed while performing work in engineered wetlands as fill when suitable. Take litter and brush to the sanitary landfill.

# Aggregate Application (Sanding)

## RESOURCE NEEDS

<p><b>PERMIT REFERENCE:</b> CBERRRSA has written this standard operating procedure to meet the requirement for section (11.8.4.c.i).</p> <p><b>ACTIVITY DESCRIPTION:</b> Placing aggregate on the streets to provide better traction and for safer driving conditions.</p> <p><b>Materials:</b></p> <ol style="list-style-type: none"> <li>1. Aggregate</li> <li>2. Magnesium Chloride (26%)</li> </ol> <p><b>Work Method:</b></p> <ol style="list-style-type: none"> <li>1. Confirm areas to receive aggregate rather than chemical deicer.</li> <li>2. Apply aggregate to allow safe passage of traffic, specific areas include, intersections and hills.</li> <li>3. Complete documentation as required, including areas sanded and approximate quantity of sand used.</li> </ol>	
<p><b>INSPECTION PROCEDURES:</b> Maintenance foreman conducts the bulk of the inspection work and is supported by calls and reports from the Anchorage Police Department (APO), Alaska State Troopers (AST), and the general public.</p>	<p><b>MAINTENANCE PROCEDURES:</b> Sanding starts at the summit of steep grades, continues through curves, and begins in advance of major intersections in accordance with prevailing speeds. Liquid magnesium chloride is used to pre-wet the sand in an attempt to "seat" the sand particles into accumulated snow or ice so that it stays in place.</p>
<p><b>INSPECTION CRITERIA:</b> Focus inspections on primary roads, followed by lower priority roads and high traffic areas that are icy.</p>	<p><b>MAINTENANCE CRITERIA:</b> Abrasives are applied to increase the traction on the traveled way. Sanding only makes a moderate improvement in increasing friction, so the surface will still be somewhat slippery even after sanding is completed. Abrasives are applied to increase the traction on the traveled way. Sanding only makes a moderate improvement in increasing friction, so the surface will still be somewhat slippery even after sanding is completed.</p>
<p><b>INSPECTION SCHEDULE:</b> Aggregate application is primarily a winter activity. Road conditions are continually assessed while other winter road maintenance activities are in process.</p>	<p><b>MAINTENANCE SCHEDULE:</b> Sanding operations on primary roads (major roads) begin after plowing and/or when ice or compact snow conditions are evident. Sanding operations on secondary roads begin when ice or compact snow conditions are evident and the priority one sections of the roadway has been covered. Sanding operations on priority three roads normally begin when ice or compact snow conditions are evident and priority one and two sections of roadway have been attended. A rea wide slick conditions may call for sanding on all roads, as resources are available. However, priority is given to hills, curves, bridges, major intersections, school zones, railroad crossings, and shaded spots.</p>

# ***Aggregate Application (Sanding)***

<b>POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES</b>
Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.
<b>Waste Treatment and Disposal:</b> Sand is removed from roads and sidewalks at the end of winter and used as fill. Some sand is swept off to the road shoulder of the road.

# Street Sweeping

RESOURCE NEEDS
<p><b>PERMIT REFERENCES:</b></p> <p>CBERRRSA performs street sweeping practices to meet permit requirements (11.8.4.d). This work is executed in accordance with the Municipality of Anchorage Street Sweeping Management Plan (MOA SSMP).</p> <p><b>ACTIVITY DESCRIPTION:</b> Sweeping and cleaning streets, intersections, curbs, gutters, sidewalks, and bike paths to remove debris, sand, leaves, and dirt to maintain a neat appearance and prevent the accumulation of debris in the storm sewer system.</p> <p><b>Materials:</b></p> <ol style="list-style-type: none"> <li>1. Vacuum and Mechanical Sweepers</li> <li>2. Water</li> <li>3. Magnesium chloride for early season sweeping to prevent water from freezing.</li> </ol> <p><b>Work Method:</b></p> <ol style="list-style-type: none"> <li>1. Wet the area using a flusher truck.</li> <li>2. Sweep sidewalks into the curb (sweep on shoulder in areas without curb and gutter).</li> <li>3. Sweep using as many passes as necessary to clean the street.</li> <li>4. Dump debris at the nearest staging area for testing of materials and disposal.</li> </ol>

<p><b>INSPECTION PROCEDURES:</b> Inspect streets, curbs, and gutters for the accumulation of sand, dirt, and mud associated with street sanding activities or construction.</p>	<p><b>MAINTENANCE PROCEDURES:</b> A street cleaning crew and a flusher truck are used to remove gross accumulations of sand, dirt, or mud that has accumulated on the surfaces of streets, curbs, and gutters.</p>
<p><b>INSPECTION CRITERIA:</b> Action is taken when accumulations of sand, dirt, mud and/or leaves are unsightly or have the potential to clog nearby storm sewer systems.</p>	<p><b>MAINTENANCE CRITERIA :</b> Street cleaning activities are considered successful if most sand, dirt, mud, and leaves have been removed from streets, curbs, and gutters and a neat, clean appearance is obtained.</p>
<p><b>INSPECTION SCHEDULE:</b> Inspections are performed on an as needed basis or while other street maintenance activities are being performed. The foreman, crew, and general public monitor streets for problem areas.</p>	<p><b>MAINTENANCE SCHEDULE:</b> Streets are swept by sweepers twice a year as specified in the Municipality of Anchorage Street Sweeping Management Plan: Additional street sweeping is performed on a as needed basis throughout the summer months, along designated routes and the Central Business District. Gravel spills, tract-out, and other debris are cleaned up as soon as possible, as equipment and resources are available.</p>

# Street Sweeping

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
<p>Pertinent BMP's for pollution prevention and good housekeeping procedures associated with street sweeping are outlined in the MOA SSMP. Provide training and frequent reminders on how to operate the equipment.</p> <p>Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.</p> <p>Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard and dispose in solid waste containers.</p>
<p><b>Waste Removal:</b> Remove sand, dirt and mud from streets, curbs, and gutters using a street sweeper in conjunction with a flusher truck.</p>
<p><b>Waste Treatment and Disposal:</b> Dispose of sediment removed during street cleaning activities as fill or transport to the sanitary landfill for disposal.</p>



# Spill Cleanup

<b>RESOURCE NEEDS</b>
<p><b>ACTIVITY DESCRIPTION:</b></p> <p>Protect storm water by educating employees on proper clean up procedures, state reporting requirements and preventative actions.</p> <p>Materials:</p> <ol style="list-style-type: none"> <li>1. Spill response kit</li> <li>2. Absorbent pads</li> <li>3. Containment booms</li> <li>4. Containment materials storage/transportation receptacle</li> </ol> <p>Work Method:</p> <ol style="list-style-type: none"> <li>1. Stop the source of the spill, contain if possible- safely</li> <li>2. Report the spill to the proper agencies.</li> <li>3. Dispose of the spill related materials.</li> </ol>

<p><b>INSPECTION PROCEDURES:</b></p> <p>Ensure that spill response equipment is being used in the proper manner and contaminated materials are disposed of properly.</p>	<p><b>MAINTENANCE PROCEDURES:</b></p> <p>Stop source, containment if possible, contact proper authorities, and dispose of materials safely and efficiently.</p>
<p><b>INSPECTION CRITERIA:</b></p> <p>All materials are contained and collected for proper disposal, with all required agencies contacted.</p>	<p><b>MAINTENANCE CRITERIA:</b></p> <p>Containment of spills before they reach any body of water. Proper disposal of contaminated materials</p>
<p><b>INSPECTION SCHEDULE:</b></p> <p>Daily when operations are on going. Weekly ensuring the necessary spill response equipment is on hand.</p>	<p><b>MAINTENANCE SCHEDULE:</b></p> <p>Maintenance when operations are underway.</p>

<b>POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES</b>
<p>Street maintenance personnel responsible for the inspection and maintenance of contaminated materials receive annual hazardous materials training.</p>
<p>Handle contaminated materials in accordance with the Agency's hazardous materials operating policy.</p>
<p><b>Waste Treatment and Disposal:</b></p> <p>Contaminated materials may be taken to a contractual source for remediation or disposal.</p>

# Stream Crossings Maintenance

## RESOURCE NEEDS

### ACTIVITY DESCRIPTION:

Inspecting, cleaning, repairing, or replacing damaged or unserviceable storm water control structures that cross a stream.

### Materials:

1. Replacement parts (as needed)

### Work Method:

1. Determine the location of the problem and locate nearby underground utilities
2. Place signs and safety devices prior to commencement of work.
3. Remove debris that has accumulated on the upstream side of the stream crossing.
4. Repair the storm water control structure while minimizing adverse impacts to the stream.

### INSPECTION PROCEDURES:

Inspect stream crossings for debris buildups, drainage problems, and structural integrity.

### MAINTENANCE PROCEDURES:

A cleaning crew is used to manually remove any debris that has accumulated around the stream crossing. A vacuum truck and/or backhoe may be needed if a significant amount of sediment needs to be removed.

### INSPECTION CRITERIA:

Action is taken when a stream crossing appears to be failing or if drainage problems associated with the structure are significant enough to cause damage to either the roadway or private property. This emergency type work is prioritized at the time with other routine drainage work being done when resources are available.

### MAINTENANCE CRITERIA:

Stream crossings are considered operational if they function properly and do not create significant drainage problems.

### INSPECTION SCHEDULE:

This is mostly a summer activity. Major stream crossings are inspected during or after major flooding events to ensure these structures remain intact. Drainage structures are inspected as part of the street maintenance foreman's inspection activity. Maintenance operators also do cursory inspections of these and other storm water facilities during their travels.

### MAINTENANCE SCHEDULE:

Maintenance activities are performed after inspections indicate that this work is necessary.

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

When litter is collected in bags, store the bags within the ROW away from drainage conveyance areas. Provide pickup for these bags in a timely manner to ensure that litter is disposed of properly in solid waste containers.

Where practical or during inspection, prevent disturbance of vegetation.

If repairs are made to the side slopes that expose soil material, re-seed to re-establish vegetations. Temporary best management practices such as waddles, matting, or silt fence may be needed to protect any nearby receiving body water.

Take precaution to prevent mud and dust tracking on the roadways. Clean any tracked sediment or dust from work activities.

### WASTE REMOVAL:

Dirt and vegetative matter in the vicinity of stream crossing is removed manually or with heavy equipment, after the appropriate Alaska Fish and Game and/or Corps of Engineers permits have been obtained.

### WASTE TREATMENT & DISPOSAL:

Sediment removed during maintenance activities may be used as fill. Rubbish that is collected is either recycled or disposed of at a sanitary landfill.

# Vehicle and Equipment Fueling

RESOURCE NEEDS
<p><b>ACTIVITY DESCRIPTION:</b></p> <p>Prevent storm water contamination originating from vehicle and equipment fueling.</p> <p><b>Materials:</b></p> <ol style="list-style-type: none"> <li>1. Absorbent spill clean up kits.</li> <li>2. Ground cables, where applicable</li> </ol> <p><b>Work Method:</b></p> <ol style="list-style-type: none"> <li>1. Fuel carefully to prevent drips, maintain a clean distribution vehicle.</li> <li>2. Fuel in designated areas, away from storm system and water bodies.</li> <li>3. Immediately clean up spills and properly dispose of contaminated soil and clean up materials.</li> </ol>

<p><b>INSPECTION PROCEDURES:</b> Visual inspection upon fueling activities, looking for leaks in the distribution system and on the vehicle.</p>	<p><b>MAINTENANCE PROCEDURES :</b> Regular inspection during equipment refueling for contamination structural failure. Attempt to fuel in areas with impervious surfaces, protect drains from fueling areas by berms and dikes and use absorbent pads to collect any leaks or minor spills when fueling.</p>
<p><b>INSPECTION CRITERIA:</b> Action is taken when obvious fuel leakage is noted. Spill and leakage will be kept at a minimum with protective measures in place, fueling on site.</p>	<p><b>MAINTENANCE CRITERIA:</b> Fueling is necessary and must be done with the utmost care and patience. Spills and leakage will be kept at a minimum with protective measures in place when fueling on site.</p>
<p><b>INSPECTION SCHEDULE:</b> Inspections are performed on an as needed basis or while other street maintenance activities are being performed. The foreman and crews monitor for problem areas daily or when fueling is present.</p>	<p><b>MAINTENANCE SCHEDULE:</b> Inspections are performed daily, on an as needed basis and while other street maintenance activities are being performed.</p>

POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES
<p>Provide training and frequent reminders on how to operate the equipment.</p>
<p>Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.</p>
<p><b>Waste Treatment and Disposal:</b> All absorbent materials will be taken to the proper location for disposal. All contaminated soils will be removed to a contracted location for soil remediation.</p>

# Thawing of Drainage Structures and Stream Crossings

## RESOURCE NEEDS

### ACTIVITY DESCRIPTION:

Thawing drainage structures, storm drains, and ditches to provide for the proper passage of water and to prevent flooding. (This includes the pumping of areas that have flooded due to ice buildup.)

#### Materials:

1. Truck mounted boiler unit
2. Signs
3. Water

#### Work Method:

1. Place signs and safety devices prior to the commencement of work.
2. Thaw using stream and appropriate equipment.
3. Clean up site and remove signs and safety devices.

### INSPECTION PROCEDURES:

The maintenance foreman, crew, and general public monitor culverts, storm drains, and other storm water facilities throughout the winter for problems. The inlets and outlets of culverts are inspected for accumulations of ice that may cause blockage. Areas with a known history of freezing problems are monitored more frequently.

### MAINTENANCE PROCEDURES:

A thawing crew and a boiler unit are utilized to thaw the ice in catch basins, manholes, culverts, and storm pipes.

### INSPECTION CRITERIA:

Action is taken when a drainage structure contains enough ice to cause flooding of either the roadway or private property. This emergency type work is prioritized at the time with other cold weather work being done, when resources are available.

### MAINTENANCE CRITERIA:

Culverts and storm drains are considered operational if they are free of ice and are not creating a significant drainage problem.

### INSPECTION SCHEDULE:

Drainage structures and stream crossings are inspected as part of the street maintenance foreman's activity. Flooding becomes most apparent during the spring when the ice and snow are melting, or during rainstorms. In most cases, maintenance workers responding to flooding problems are able to discern whether the problem is due to ice blockage or if the structure is in need of cleaning or repairs.

### MAINTENANCE SCHEDULE:

Thawing of drainage structures or stream crossings is normally performed during spring breakup, but may be necessary earlier in the winter if freeze-thaw cycles clog drainage structures with ice. Frozen drainage structures that flood and cause significant damage to either the road or private property are thawed to restore proper drainage flow.

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

Provide training and frequent reminders on how to operate the equipment.

Check all vehicles used for inspection and maintenance for operational condition, leaks, and deficiencies prior to leaving the yard.

Pick up litter and debris around the site as seen during routine inspection. Take any litter collected back to the storage yard and dispose in solid waste containers.

#### Waste removal:

Remove debris after drainage structure has been thawed. Dispose of in landfill.

**Waste Treatment and Disposal:**

Disposal rubbish that is collected at the regional landfill.

# General Facility Housekeeping

## RESOURCE NEEDS

**ACTIVITY DESCRIPTION:**

Protect storm water by maintaining a clean and organized facility.

**Materials:**

1. Dumpsters at each location
2. Fenced in facility to eliminate any errant flying garbage.

**Work Method:**

1. Keep open area clean and orderly.
2. Pick up litter and remove any unused scrap/junk materials.
3. Conduct employee training to re-enforce proper housekeeping.

**INSPECTION PROCEDURES:**

Facilities are inspected as part of the maintenance foreman's activity for proper storage of materials and debris accumulations. Sites are surveyed at a minimum of weekly.

**MAINTENANCE PROCEDURES:**

Disposal of small debris will be deposited in the dumpster. Larger material will be stockpiled until a full load is accumulated and then taken to the sanitary landfill for proper disposal.

**INSPECTION CRITERIA:**

Action is taken when visible or significant loose amount of debris and trash or storage of materials and General construction supplies are in disarray.

**MAINTENANCE CRITERIA :**

Containment receptacles are in place and monitored, materials stored in proper locations, and construction debris disposed of promptly.

**INSPECTION SCHEDULE :**

The foreman and crew maintain facilities year-round to prevent problems from occurring with inspections and summer work. The problems are most apparent during the spring when the snow and ice melts and accumulated debris is visible. In most cases maintenance workers are a normal part of standard daily housekeeping maintenance. \_\_\_\_\_

**MAINTENANCE SCHEDULE:**

During the summer months a daily routine needs to be established and a weekly routine for the winter months

## POLLUTION PREVENTION/GOOD HOUSEKEEPING PROCEDURES

**Waste Treatment and Disposal:**

All materials will be taken to the sanitary landfill and disposed of in a proper manner.

