Private Stormwater Facility Inspection and Rehab

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History of SWFs in Clark County

• 1980: Clark County’s 1st Stormwater Code
• 1994: Clark County adopts Puget Sound Stormwater Manual requiring SWFs to be constructed for new development.
• 1999: Clark County Issued Phase I NPDES Municipal Stormwater Permit
• 2000: Clark County’s Clean Water Division created to manage this new stormwater permit
Public vs Private SWFs

• In Clark County – Developers Choice

• Why Private vs Public SWF?

• Pros and Cons
Types of Stormwater Facilities – Repaired Bioswale
Mature Bioswale
Bioswale with Detention Pond
Wet Swale
Treatment Wetland
Oil/Water Separator - Coalescing Plate Type
Filter Cartridge Vault
Low Impact Development

• New Stormwater Facility Technology
  – Permeable Pavement
  – Bioretention
  – Filterra Systems
  – Filter Strips
  – Full Dispersion
  – Pavers
  – Grass Filled Pavers
Permeable Pavement
Bioretention Unit
SWF Inspection

- Safety First
- Tools
- Mapping
- iPad
Set Up Safe Zone
Tools

- Lid Pullers
- Catch Basin Sediment Depth Measuring Tool
- Filter Vault Sediment Depth Measuring Tool
- Flashlight
- Sledghammer
- Machete
- Screwdriver
- Hex Socket Wrench for Vaults (Filter and O/W)
Manhole Lid Puller – with wheels
Heavy Duty
Light Weight
5’ Probe
Telescoping Measuring Tool
Flashlight
Sledgehammer
Machete
Mapping
How to Perform an Inspection

• Begin Inspection Where Stormwater Enters the Facility
• Inspect Each Stormwater Facility Asset
• Mark Down all Defects
• Take Photos
• Enter Data into iPad
Stormwater Facility Assets

- Inlet Pipe
- Sediment Trap with Trash Screen
- Energy Dissipator
- Bioswale and Detention Pond
- Field Inlet
- Control Structure
- Discharge Point
Inlet Pipe
Sediment Trap with Trash Screen
Sediment Trap with Trash Screen
Energy Dissipator
Bioswale with Detention Pond
Field Inlet
Control Structure
Inside Control Structure
Discharge Point
Common SWF Defects

- Accumulated Sediment in Catch Basins
- Accumulated Sediment in Sediment Trap
- Lack of Vegetation in Bioswale
- Bioswales filled with Rock
- Grass too long in Bioswale – not being mowed
- Sediment Build up in Bioswale
- Sediment Build up in Energy Dissipator
Common SWF Defects

• Noxious Weeds, especially blackberries
• Channelization in Bioswale
• Volunteer Trees Growing on Berms
• Discharge Point Overgrown with Vegetation
• Stormwater Filters Need Replacing from Sediment Overload
• Permeable Pavement no Longer Permeable
• Bioretention – Dead Plants
Sediment in Catch Basin
Sediment in Sediment Trap
Lack of Vegetation in Bioswale
Channelizing in Bioswale
Bioswale Filled with Rock
Sediment Build Up in Bioswale
Sediment over Energy Dissipator
Noxious Weeds - Blackberries
Volunteer Trees Growing on Berm
Volunteer Trees Impacting Assets
Trash and Debris
Discharge Point Overgrown with Vegetation
Stormwater Filters Need Replacing
Permeable Pavement - Failure
Permeable Asphalt – Failure Cont’d
Bioretention – Dead Plants
Questions???