CSUSM
Storm Water Management Plan
Municipal Separate Storm Sewer System
Phase II

National Pollution Discharge Elimination System

Agenda

- Key Definitions
- Storm Water Management at CSUSM
- Inspections
- General Duties/Responsibilities
- Program Effectiveness Assessment & Improvement Plan
- Pesticide Safety
- SSOERP Responsibilities

Authority/Regulations

- CSUSM SWMP
- Clean Water Act (CWA), 33 USC 1251 to 1387
- 40 CFR 122: EPA Administered Permit Programs: The National Pollutant Discharge Elimination System (NPDES)
- 40 CFR 112 –Spill Prevention, Control, and Countermeasures (SPCC)

CSUSM Management

Phase II Small MS4 Program Requirements

Reduce the discharge of pollutants to the "maximum extent practicable" (MEP);

Protect water quality;

Comply with water quality requirements of the Clean Water Act

Key Definitions

- **Storm Water:** Runoff consisting of only those discharges which originate from precipitation events.
- **Storm Water Conveyance System:** Storm Water may be conveyed to waters, including any roads with drainage systems, catch basins, natural and artificial channels, aqueducts, canyons, stream beds, gullies, curbs, gutters, ditches, natural and artificial channels or storm drains.

Key Definitions

- **Storm Water Best Management Practice:** Activities, prohibitions of practices, good housekeeping practices, pollution prevention and maintenance procedures, structural treatment BMPs, and other management practices to prevent or reduce to the maximum extent practicable the discharge of pollutants directly or indirectly to receiving waters.

Key Definitions

- **Bioswale:** a long, channeled depression or trench that receives rainwater runoff (as from a parking lot) and has vegetation (such as grasses, flowering herbs, and shrubs) and organic matter (such as mulch) to slow water infiltration and filter out pollutants.

Key Definitions

Full Capture System: Capable of efficiently removing and safely storing man-made trash of 5 mm or greater in size from storm water and urban runoff flows.

Illicit Discharge: Any discharge to the storm drain system that is prohibited. Includes **ALL** non-storm water discharges.

Key Definitions

Detention Basin: These basins are also called "dry ponds", "holding ponds" or "dry detention basins" if no permanent pool of water exists. In its basic form, a detention basin is used to manage water quantity.

Effects of Stormwater Runoff

- Water quality impacts:
  - Not treated before entering waterways (Oceans, rivers and streams, lakes, estuaries
- Pollutant sources:
  - Impacts to aquatic habitat
  - Trash
  - Heavy metals bioaccumulation
  - Pathogens
  - Oil & grease
  - Sediment

Best Management Practices

Sandbags

Best Management Practices

Sandbags and oil separator

General FS Duties For Stormwater Management

- Inspections
- Post Construction Runoff Control/BMP's
- Pollution Prevention/Good House Keeping
- Maintenance & Upkeep of BMP's
- Cleaning BMP's
- Record Keeping

Storm Drain System Inspections

- Inspect all high priority catch basins annually, prior to the rainy season (October 1st) to determine if cleaning is needed & clean as necessary.
  - Listed in Appendix E of our SWMP. Inspections activities are tracked and logged in the Facilities Services Department work order system and shall include the following information:

Storm Drain Inspections/Cleaning

- Name and date of inspection
- Amount of sediment/debris/trash accumulated compared to capacity as an estimated percentage (e.g., 20%, 50%).
- ≤ 33%, must be cleaned.
- Type (e.g., trash, sediment, leaf litter) & amount of materials removed (e.g., 3 cubic feet)
- Pictures

Inspections

- FS annually inspects storm drains are clean free of debris/trash.
  - Clean as needed using shop vac w/extension
  - **No confined space entry without training/ air quality testing**
- Landscaping crews maintain BMP's free of debris as part of their routine maintenance.
- Evaluate changes in high priority catch basin inspection/cleaning frequency.

Storm Water Inspections:

California State University SAN MARCOS Facility Inspection Form – Storm Water Management Plan

GENERAL INSPECTION AND SITE INFORMATION

☒ Routine Quarterly Inspection ☐ Routine Annual Inspection ☐ Follow-Up - Original Date: Type: ☒ Quarterly ☐ Annual

				Watershed		
Date	1-26-2022	Time	11:00 am		Hydrologic Unit	904
Observer	Isidro Alvarez	Association			Hydrologic Area	904.5
Facility	Services	Bldg No.	SWMP - BMP ID# A-2 -		Hydrologic Subarea (Optional)	San Marcos
Type	☐Building ☐Parking ☐Utility ☐Recreation ☐Other: Catch basin				Discharge Area (Optional)	

Current Facility Classification: ☐ High Priority Pollutant Hotspot Potential ☐ Pollutant Hotspot Potential ☐ No Pollutant Potential

Annual Facility Classification Assessment (1st Quarter/July-Sept Inspection): ☒ No Change ☐ Change to:

HOUSEKEEPING PRACTICES (provide comments for other than Good)

Cleanliness	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Staff Knowledge	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Spill Clean-up/Kit	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Signage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A

Comments:

Notes/Sketches:

AREA OR ACTIVITY BMPs (provide comments for other than Good)

Waste Storage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Trash Areas (Dumpsters)	☐ Good	☒ Needs Improvement	☐ Deficient	☐ N/A
Vehicle/Equipment Storage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Vehicle/Equipment Fueling	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Material Handling/Storage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Wash Areas (Contained)	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Landscaping/Irrigation	☐ Good	☒ Needs Improvement	☐ Deficient	☐ N/A
Other:	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Other:	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Other:	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A

Comments:

STORM OR NON-STORM DISCHARGE OBSERVATIONS

ATMOSPHERIC CONDITIONS

Weather ☒ Sunny ☐ Partly Cloudy ☐ Overcast ☐ Fog

Last Rain ☐ >72 hours ☐ < 72 hours Rainfall ☒ None ☐ < 0.1" ☐ > 0.1"

DISCHARGE CHARACTERISTICS – Evidence of Discharges: ☐ No ☐ Yes (complete)

Odor	☐ None	☐ Musty	☐ Rotten Eggs	☐ Chemical	☐ Sewage	☐ Other	
Color	☐ None	☐ Yellow	☐ Brown	☐ White	☐ Gray	☐ Other	
Clarity	☐ Clear	☐ Slightly Cloudy	☐ Opaque	☐ Other			
Floatables	☐ None	☒ Trash	☐ Bubbles/Foam	☐ Sheen	☐ Leaf Litter	☒ Other: wood debris	
Deposits	☐ None	☐ Sediment/Gravel	☐ Fine Particulates	☐ Stains	☐ Oily Deposits	☐ Other	

Storm Drain ☐ Flowing (Estimate ____ gpm) ☐ Ponded ☒ Dry

Evidence of Illegal Discharge Flow? ☐ Yes ☒ No ☐ Irrigation Runoff ☐ Other:

Photo Taken ☒ Yes ☐ No Photo # 2 Send To Work Control Via Email

Comments: Photo #1 is To Remove all Trash and debris Rocks and wood

Photo # 2 is To Remove all Vegetation and spray Weeds

INSPECTION RESULTS: ☐ Good ☒ Needs Improvement ☐ Deficient

BMP or Corrective Action Requirements: Is To Remove all Trash and debris / weed Control

Notified: Isidro Alvarez Phone No: (760) 866-4316 Date: 1-26-2022 Planned Re-inspection Date: 2-1-2022

Revised 4/2015

California State University SAN MARCOS **Facility Inspection Form – Storm Water Management Plan**

GENERAL INSPECTION AND SITE INFORMATION

☑ Routine Quarterly Inspection ☐ Routine Annual Inspection ☐ Follow-Up - Original Date: Type: ☒ Quarterly

Date	1-24-2022	Time	12:45 PM	Watershed: Hydrologic Unit	904
Observer	ISIDRO ALVAREZ	Association		Hydrologic Area	904.5
Facility	SERVICES	Bldg No.	SWMP-BMP ID# G-1-A	Hydrologic Subarea (Optional)	San Ma
Type	☐Building ☐Parking ☐Utility ☐Recreation ☐Other: CATCH BASIN/SWALE			Discharge Area (Optional)	

Current Facility Classification: ☐ High Priority Pollutant Hotspot Potential ☐ Pollutant Hotspot Potential ☐ No Pollutant Potent

Annual Facility Classification Assessment (1st Quarter/July-Sept Inspection): ☒ No Change ☐ Change to:

HOUSEKEEPING PRACTICES (provide comments for other than Good)

Cleanliness	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Staff Knowledge	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Spill Clean-up/Kit	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Signage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A

Comments:

AREA OR ACTIVITY BMPs (provide comments for other than Good)

Waste Storage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Trash Areas (Dumpsters)	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Vehicle/Equipment Storage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Vehicle/Equipment Fueling	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Material Handling/Storage	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Wash Areas (Contained)	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Landscaping/Irrigation	☐ Good	☒ Needs Improvement	☐ Deficient	☐ N/A
Other:	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Other:	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A
Other:	☐ Good	☐ Needs Improvement	☐ Deficient	☒ N/A

Comments: weed Control

Notes/Sketches:

STORM OR NON-STORM DISCHARGE OBSERVATIONS

ATMOSPHERIC CONDITIONS

Weather ☒ Sunny ☐ Partly Cloudy ☐ Overcast ☐ Fog

Last Rain ☐ >72 hours ☒ < 72 hours Rainfall ☒ None ☐ < 0.1" ☐ > 0.1"

DISCHARGE CHARACTERISTICS – Evidence of Discharges: ☒ No ☐ Yes (complete)

Odor	☐ None	☐ Musty	☐ Rotten Eggs	☐ Chemical	☐ Sewage	☐ Other
Color	☐ None	☐ Yellow	☐ Brown	☐ White	☐ Gray	☐ Other
Clarity	☐ Clear	☐ Slightly Cloudy	☐ Opaque	☐ Other		
Floatables	☐ None	☐ Trash	☐ Bubbles/Foam	☐ Sheen	☐ Leaf Litter	☐ Other
Deposits	☐ None	☐ Sediment/Gravel	☐ Fine Particulates	☐ Stains	☐ Oily Deposits	☐ Other

Storm Drain ☐ Flowing (Estimate gpm) ☐ Ponded ☒ Dry

Evidence of Illegal Discharge Flow? ☐ Yes ☒ No ☐ Irrigation Runoff ☐ Other:

Photo Taken ☒ Yes ☐ No Photo # 1 SEND TO Work Control Via E

mments:

SPECTION RESULTS: ☐ Good ☒ Needs Improvement ☐ Deficient

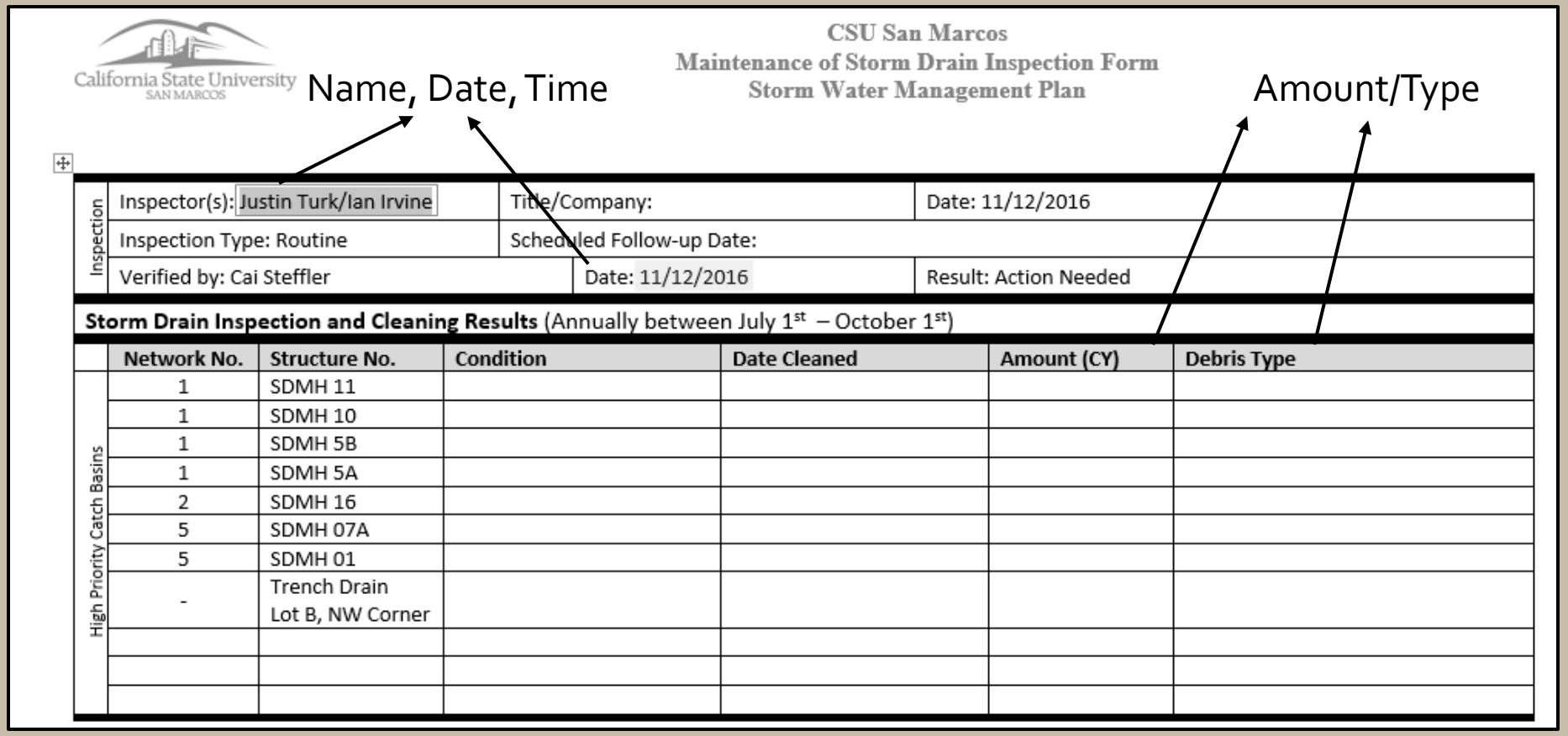
P or Corrective Action Requirements: JUST WEED CONTROL Need Sprayed

fied Isidro Alvarez Phone No. (760) 866-4516 Date: 1-24-2022 Planned Re-inspection Date: 3-

evised 4/2015

BMP Maintenance

Storm Drain Inspection/Cleaning Form



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Maintenance of Storm Drain Inspection Form
Storm Water Management Plan

Name, Date, Time

Amount/Type

Inspection			
	Inspector(s): Justin Turk/Ian Irvine	Title/Company:	Date: 11/12/2016
	Inspection Type: Routine	Scheduled Follow-up Date:	
	Verified by: Cai Steffler	Date: 11/12/2016	Result: Action Needed

Storm Drain Inspection and Cleaning Results (Annually between July 1st – October 1st)

	Network No.	Structure No.	Condition	Date Cleaned	Amount (CY)	Debris Type
High Priority Catch Basins	1	SDMH 11				
	1	SDMH 10				
	1	SDMH 5B				
	1	SDMH 5A				
	2	SDMH 16				
	5	SDMH 07A				
	5	SDMH 01				
	-	Trench Drain Lot B, NW Corner				

Empty Storm Drains = Good

Manholes Confined Space?

Yes: Non-Permit

Non-permit confined:
Confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Entry into a NPCS must still be done in accordance with the Injury and Illness Prevention Program and other applicable regulations in order to ensure that employees comply with safe and healthful work practices.

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Confine Space Entry To Manhole

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High Priority Catch Basin/Manhole Inspection Log

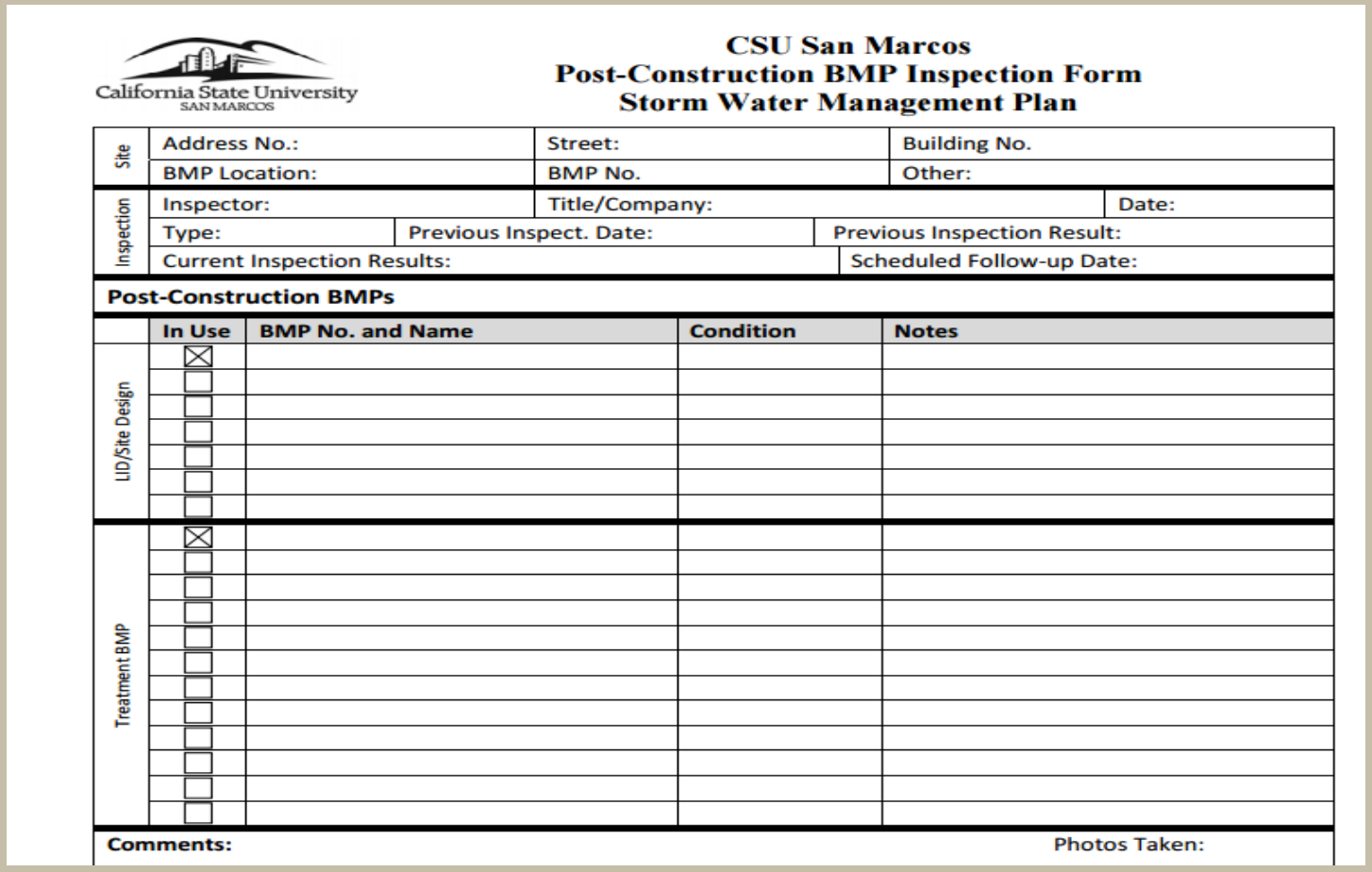
Location

Appendix E					CSUSM Storm Water Management Plan		Annual Inspection Results			
High Priority Catch Basins					Initial Assessment Date:	Apr-13	FY 2015-16		FY 2016-17	
					Current Assessment Date:	Apr-15	Inspection Date	Inspection Result	Inspection Date	Inspection Result
Network No.	Structure No.	Structure Type	Initial Category	Current Category	Location Description	Drainage Area				
1	SDMH 11	MH/CB	High	High	NW Corner Parking Lot C		11/7/2015	Pass	11/12/2016	Pass
1	SDMH 10	MH/CB	Medium	High	S. of SDMH11. West of Parking Lot		11/7/2015	Pass	11/12/2016	Pass
1	SDMH 09	MH/CB	Medium	Medium	S. of SDMH10. West of Parking Lot		11/7/2015	Pass	11/12/2016	Pass
1	SDMH 5B	MH/CB	High	High	NW Corner Upper Parking Lot B		11/7/2015	Pass	11/12/2016	Pass
1	SDMH 5A	MH/CB	Medium	High	West of Parking Lot B. S of SDMH 05B		11/7/2015	Pass	11/12/2016	Pass
2	SDMH 19	MH	High	Low	Between Bldgs 5S & 56		11/7/2015	Pass	11/12/2016	Pass
2	SDHM 18	MH	High	Low	N corner of upper parking lot E		11/7/2015	Pass	11/12/2016	Pass
2	SDMH 16	MH/CB	High	High	E of Loading Dock behind Craven Bldg		11/7/2015	Pass	11/12/2016	Pass
2	SDMH 15	MH/CB	Medium	Medium	West Corner of lower parking lot E by Entrance		11/7/2015	Pass	11/12/2016	Pass
2	SDMH 10	MH	High	Medium	South corner of Bldg 14		11/7/2015	Pass	11/12/2016	Pass
2	SDMH 09	MH	High	Medium	NW of SDMH 10 along S side of Bldg 14		11/7/2015	Pass	11/12/2016	Pass
5	SDHM 07B	Head wall	Low	High	E corner of Bldg 103 across		11/7/2015	Pass	11/12/2016	Pass
5	SDMH 07B	MH	Low	Low	East corner of Bldg 103		11/7/2015	Pass	11/12/2016	Pass
5	SDMH 09	MH	Low	Low	North corner of Parking Lot N		11/7/2015	Pass	11/12/2016	Pass
5	SDMH 08A	MH	Low	Low	N. edge of Parking Lot N. N of entrance Campus View Dr.E		11/7/2015	Pass	11/12/2016	Pass
5	SDMH 08	MH	Low	Low	N.edge of Parking Lot N. South of entrance on Campus View Dr.E		11/7/2015	Pass	11/12/2016	Pass
5	SDMH 05A	MH	Medium	Low	Between S end of Bldg.307 and Campus View Dr.E North Curb		11/7/2015	Pass	11/12/2016	Pass
5	SDMH 05B	MH	Medium	Low	South of Bldg 305; S Curb		11/7/2015	Pass	11/12/2016	Pass
5	SDMH 01	MH/CB	Medium	High	S. end Bldg 301. W corner of Parking Lot O		11/7/2015	Pass	11/12/2016	Pass
	Unmarked	Trench drain	NA	High	NW corner lower parking lot B; at soccer field		11/7/2015	Pass	11/12/2016	Pass

Result

Date

Post-Construction BMP Inspection Form



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CSU San Marcos
Post-Construction BMP Inspection Form
Storm Water Management Plan

Site	Address No.:	Street:	Building No.
	BMP Location:	BMP No.	Other:
Inspection	Inspector:	Title/Company:	Date:
	Type:	Previous Inspect. Date:	Previous Inspection Result:
	Current Inspection Results:		Scheduled Follow-up Date:

Post-Construction BMPs

	In Use	BMP No. and Name	Condition	Notes
LID/Site Design	☒			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
Treatment BMP	☒			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			
	☐			

Comments: Photos Taken:

Program Effectiveness Assessment and Improvement Plan (PEAIP)

- Strategy to track the short- and long-term effectiveness of the stormwater program:
  - How to improve?
  - Focused on *impact* stormwater program is having rather than the strict *implementation* of the program.
  - Is our program achieving our goals?
    - Clean waterways & clean ocean

Program Effectiveness Assessment and Improvement Plan

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Program Effectiveness Assessment and Improvement Plan

Before Rain Event

Program Effectiveness Assessment and Improvement Plan

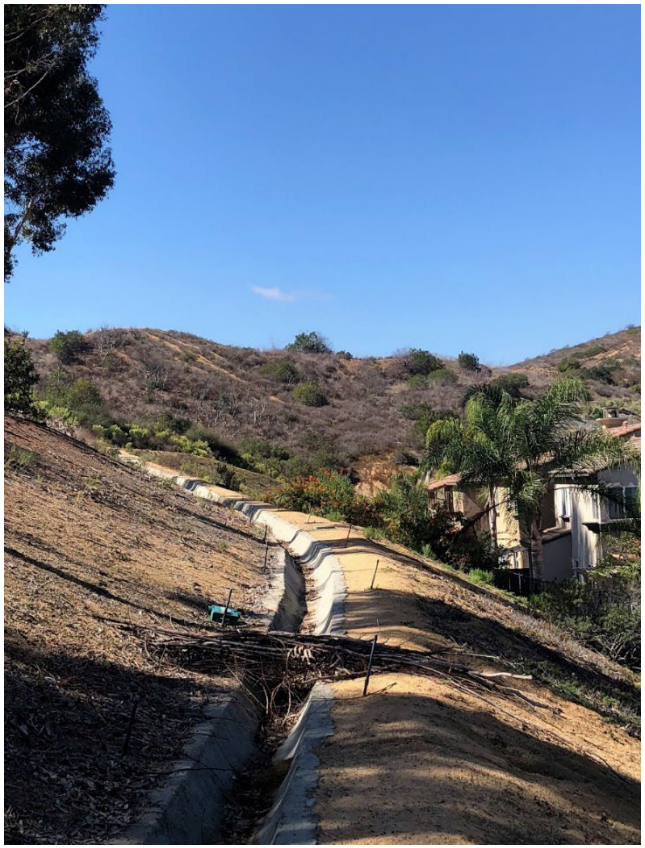
After Rain Event:

Working Towards Improvements

Program Effectiveness?

Improvements:

Improvements:



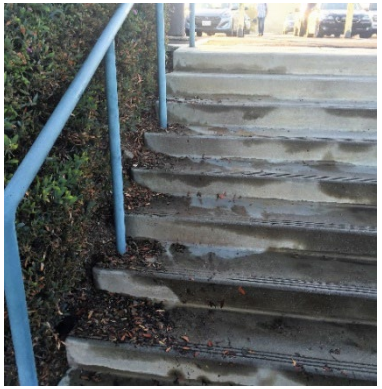
Illicit Discharge: Power Washing?

Protecting Storm Drains:

- **For use while power washing. Covering drains to prevent water from entering**
- https://www.fastenal.com/products/details/1030155
- https://www.fastenal.com/products/details/1094911

Sprinkler Maintenance:

- Detect leaks from broken sprinkler heads and correct the leaks within 72 hours of leak.
- Properly design and aim sprinkler heads.
- No irrigating during precipitation events.



House Keeping Practices

House Keeping Practices

GOOD House Keeping Practices

- Sweeping and wet mopping
- Wash down and capture (wet vac)
- Avoid caustic degreasers or detergents in excess
- Direct wash down to pervious areas
  - Landscaping
  - Soil, rock garden, plants (not drains)
- Disposal to Sanitary Sewer
  - Facilities 'Wash Rack'
  - Sink or 'Janitor's Closet' – Sewer

BAD House Keeping Practices

- Power washing to drains
  - Water must go to plants (Not storm drains)
- Irrigation runoff (Broken sprinklers)
- Concrete washing
- Vehicle oils, spills, or leaks
- Trash
- Air conditioning condensation

Good Housekeeping

Gathering Cuttings

No Debris/Trash on Ground

Closed Trans bins

Solid Waste & Universal Waste Storage

Material and Chemical Storage

- Emergency Spill Kit: Pads, Pillows, Socks, Absorbent, Nitrile Gloves
- Locations: Central Plant, Recycling Yard, Sci 1 &2 Loading Docks, USB Loading Dock, Vehicle Washing Area at USB

Assisting with Research:

Herbicide, Fungicide, Pesticide

- Cide: Latin: a suffix; kill, killer; murder, to cause death.
- Limit/eliminate spraying within 5 feet of payment, 25 feet of storm drain, & when a rain event is predicted for 2 consecutive days.

Storage/Disposal Pesticides

- Pesticides containers shall not be:
  - Stored, handled, emptied, disposed of, where they may present a hazard to persons, animals (including bees), food, feed, crops or property.
- Collect & properly dispose of unused pesticides, herbicides, and fertilizers.
  - Contact SH&S for proper disposal

Application, Use, Disposal of Pesticides

No application of pesticides and fertilizers when two or more consecutive days with greater than 50% chance of rainfall are predicted by NOAA.

Limit or eliminate the use of fertilizers, including prohibiting application within five feet of pavement, 25 feet of a storm drain inlet, or 50 feet of a water body.

Limit or replacing herbicide and pesticide use

Conduct manual weed and insect removal.

Sanitary Sewer Overflow Emergency Response Plan

- **All discharges of sewage resulting from a failure in CSUSM's wastewater collection system that:**
  - Equals or exceeds 1,000 gallons; or
  - Results in a discharge to a drainage channel and/or surface water; or
  - Discharges to a storm drain and was not fully captured and returned to the wastewater collection system.
- **Possible causes of SSOs include:**
  - Blockages
  - Line breaks
  - Sewer defects that allow stormwater and groundwater to overload the system
  - Power failures
  - Improper sewer design
  - Vandalism

Sanitary Sewer Overflow Emergency Response Plan

- The Director of FS or designated back-up is considered the Incident Commander.
- If the IC determines that notification of additional staff beyond the "standby" SSO response crew is required and approved contractors are necessary to fully contain and recover the overflow, the IC will mobilize the additional resources necessary.

Sanitary Sewer Overflow Emergency Response Plan

- **Facility Services staff must respond and be prepared to:**
  - Contain the SSO
  - Coordinate and implement response activities necessary to contain, control, isolate, mitigate and clean the SSO
  - Notify the appropriate authorities
  - Online reporting
- **SHS Responsibilities:**
  - Perform external agency notification
  - Work with external regulatory agencies
  - Determine necessary water quality testing if needed
  - Investigate root cause of incident
  - Determine when to post notice signs if water sources are polluted
  - Coordinate with Office of Communication if further notices need to be sent out to local community

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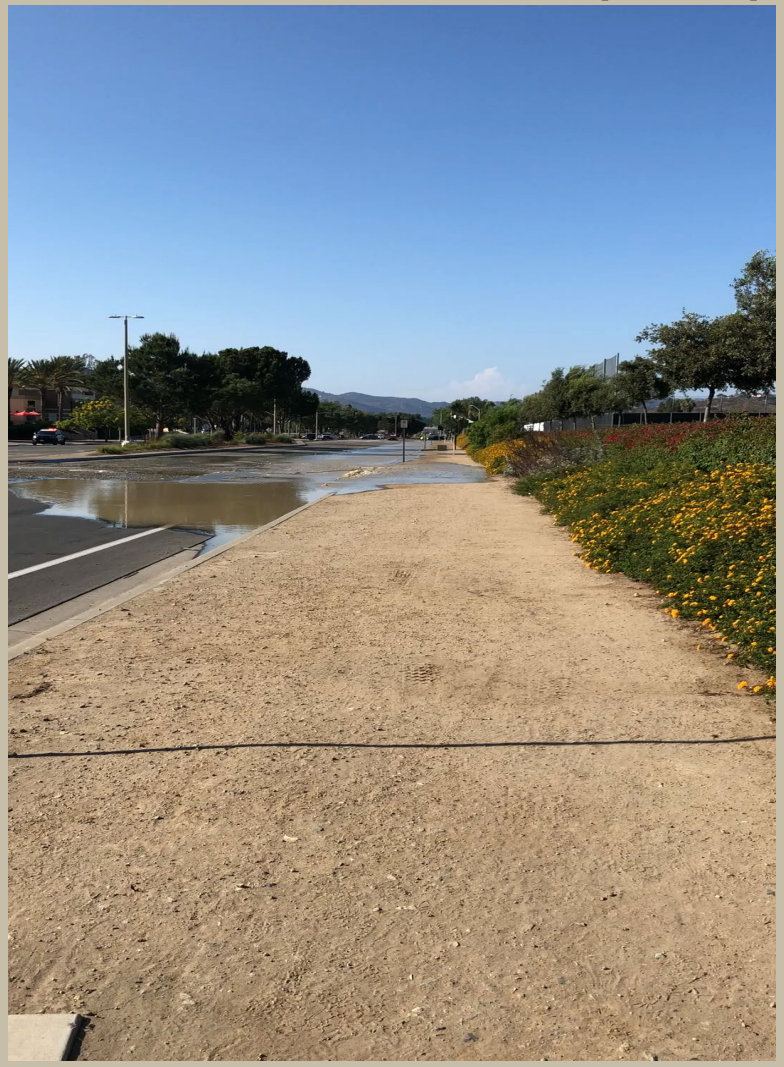
Water Main Break….
What if This Occurred on CSUSM Property?



Future for CSUSM Stormwater Management

- Full capture system (BMP/$$$) or continuing public education option.
  - Full capture system (Track I)
  - **Completed 2018!**
- Continued PEAIP (Program Effectiveness Assessment and Improvement Plan)
  - Find solutions to keep organic debris (Bougainvillea leaves) out of SW system.
    - Grates?
    - Filters?
  - Create inspection log for BMP's
  - Area 5 improvements
    - In progress and continuous

What's the Issue?

Organic Debris (Most Common)

Improper UW Storage No UW labels, wrong container & open, can leach metals into the soil during rain event

Blocked Bioswale and pipe

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What is the Point?

After 1 Minor Rain Event

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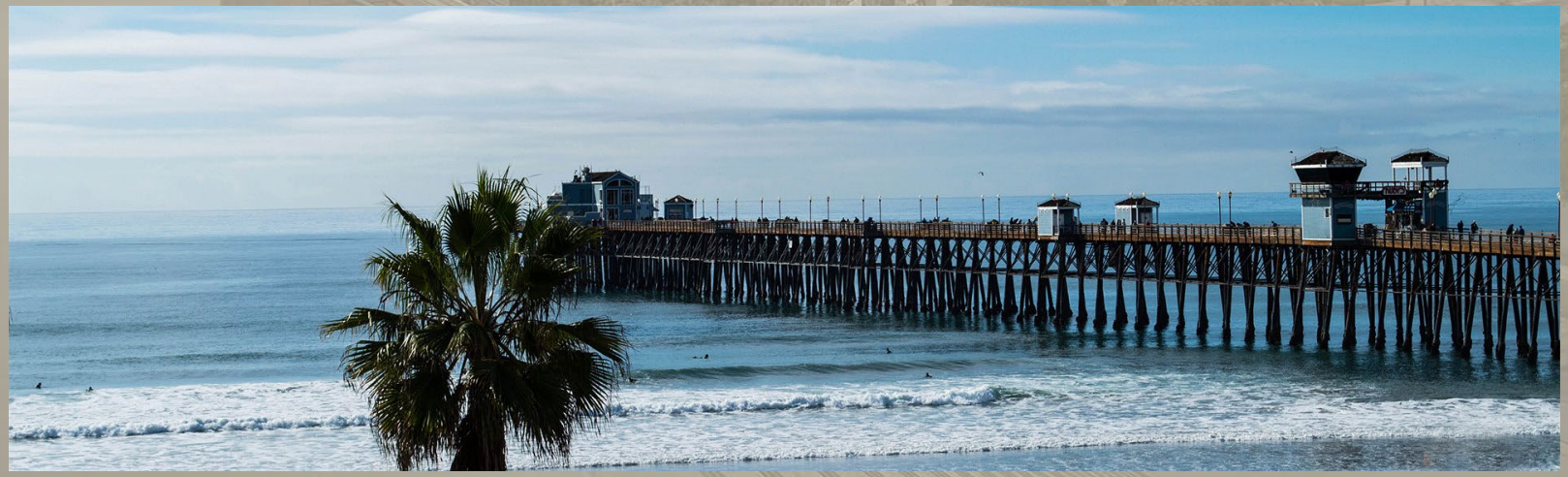
Clean Water &….



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And For The Kids…

Questions?

Safety, Health, and Sustainability
Craven 4700
Cai Steffler
csteffler@csusm.edu
http://www.csusm.edu/shs

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Question #1

- What is allowed to enter the storm drain?
  - A) Stormwater, leaves, & water from sprinklers
  - B) Stormwater, trash, & water from power washing
  - C) Stormwater & water from fire fighting operations
  - D) Nothing

Question #2

- What is the PEAIP?

  A) Program Effectiveness And Institutional Plan

  B) Program Effectiveness Assessment and Improvement Plan

  C) Program Excessiveness And Impact Program

  D) Program Example And Ineffectiveness Progress

Question #3

- What are examples of Best Management Practices (BMP's)?
  - A) Sandbags, concreate, & storm drains
  - B) Waddle, sandbags, & bioswales, full capture systems, grates
  - C) Biological water treatment, sandbags, & inspections
  - D) Basin management plan

Question #4

- Why is stormwater runoff a problem?
  - A) Stormwater can pollute water we use for recreation and drinking water.
  - B) Stormwater is discharged to water bodies without treatment
  - C) A & B
  - D) None of the above

Question #5

- Which of the following would be considered an illicit discharge?
  - A) Water in a retention pond after a heavy rain
  - B) Power washing water or debris entering a storm drain
  - C) Fertilizer applied to athletic fields
  - D) Discharges or flows from firefighting activities

Question #6

- Polluted stormwater can cause which of the following effects?
  - A) Excess sedimentation of water bodies
  - B) Contamination of beaches
  - C) Contamination of shell fish
  - D) All of the above