

NJDEP MS4 Inventory and Mapping Assistance

Presented at the
Clean Water Council

EIT, Ewing

January 9, 2018

Tim Ebersberger, Environmental Engineer, BNPC



Current Permit Status

- Final permit issued on November 9, 2017
- Permit will be effective on January 1, 2018

Why Inventory?

- MS4 Permittees Required to Operate and Maintain Stormwater Management Facilities (SMF)
- MS4 Permittees Required to Ensure Operation and Maintenance of All Privately Owned SMF

Why Inventory?



Why Inventory?



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Why Inventory?

- MS4 Permittees Required to Operate and Maintain Stormwater Management Facilities (SMF)
- MS4 Permittees Required to Ensure Operation and Maintenance of All Privately Owned SMF
- How Can Operation and Maintenance Be Performed Properly Without Knowing What Exists and Where it Exists

Why Inventory?



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Why Inventory?

- MS4 Permittees Required to Operate and Maintain Stormwater Management Facilities (SMF)
- MS4 Permittees Required to Ensure Operation and Maintenance of All Privately Owned SMF
- How Can Operation and Maintenance Be Performed Properly Without Knowing What Exists
- Proper Operation and Maintenance Decreases Localized Flooding and Improves Water Quality

Why Inventory?



Photo courtesy of Camden SMART

Why Inventory?

- Meet the Requirement to Develop, Update, and Maintain an Outfall Pipe Map
- Assist in Detecting and Remediating Stream Scouring
- Assist in Detecting and Eliminating Illicit Discharges

NJDEP Inventory & Mapping Assistance

- Creation of a data dictionary or template for 6 stormwater infrastructure feature classes

NJDEP Inventory & Mapping Assistance



Outfall Pipes



Stormwater Management
Basins



Subsurface Infiltration/
Detention



Manufactured Treatment
Devices



Green Infrastructure



Storm Drain Inlets

NJDEP Inventory & Mapping Assistance

- Creation of a data dictionary or template for 6 stormwater infrastructure feature classes
- Development of multiple collection methodologies to suit different levels of GIS and GPS experience

NJDEP Inventory & Mapping Assistance



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NJDEP Inventory & Mapping Assistance

Untitled - ArcMap

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 - Counties selection
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 - Counties
 - Municipalities
 - Land Use 2012
 - AGRICULTURE
 - BARREN LAND
 - FOREST
 - URBAN
 - WATER
 - WETLANDS

Create Features

There are no templates to show.

Table

Util_stormwater_outfall

OBJECTID *	SHAPE *	OutfallType	Outfall_ID	OwnerType	Owner	OutfallDescription	OutfallCondition	PipeMaterial	PipeShape	PipeHeight	PipeWidth	HeadwallC
1	Point	Outfall	<Null>	Municipal	Brick Township	<Null>	Unknown	<Null>	<Null>	<Null>	<Null>	<Null>
2	Point	Combined Sewer Outfall	<Null>	Municipal	Trenton City	<Null>	Unknown	<Null>	<Null>	<Null>	<Null>	<Null>
3	Point	Outfall	<Null>	<Null>	<Null>	<Null>	Unknown	<Null>	<Null>	<Null>	<Null>	<Null>
4	Point	Outfall	<Null>	<Null>	<Null>	<Null>	Unknown	<Null>	<Null>	<Null>	<Null>	<Null>
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8	Point	Outfall	<Null>	<Null>	<Null>	<Null>	Unknown	<Null>	<Null>	<Null>	<Null>	<Null>
9	Point	Outfall	<Null>	<Null>	<Null>	<Null>	Unknown	<Null>	<Null>	<Null>	<Null>	<Null>
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15	Point	Outfall	<Null>	<Null>	<Null>	<Null>	Unknown	<Null>	<Null>	<Null>	<Null>	<Null>

1 (0 out of 13567 Selected)

Util_stormwater_outfall

Construction Tools

Select a template.

DEP Data Data Layers: Counties Imagery: County/Muni Selector:

315618.115 789355.145 Feet

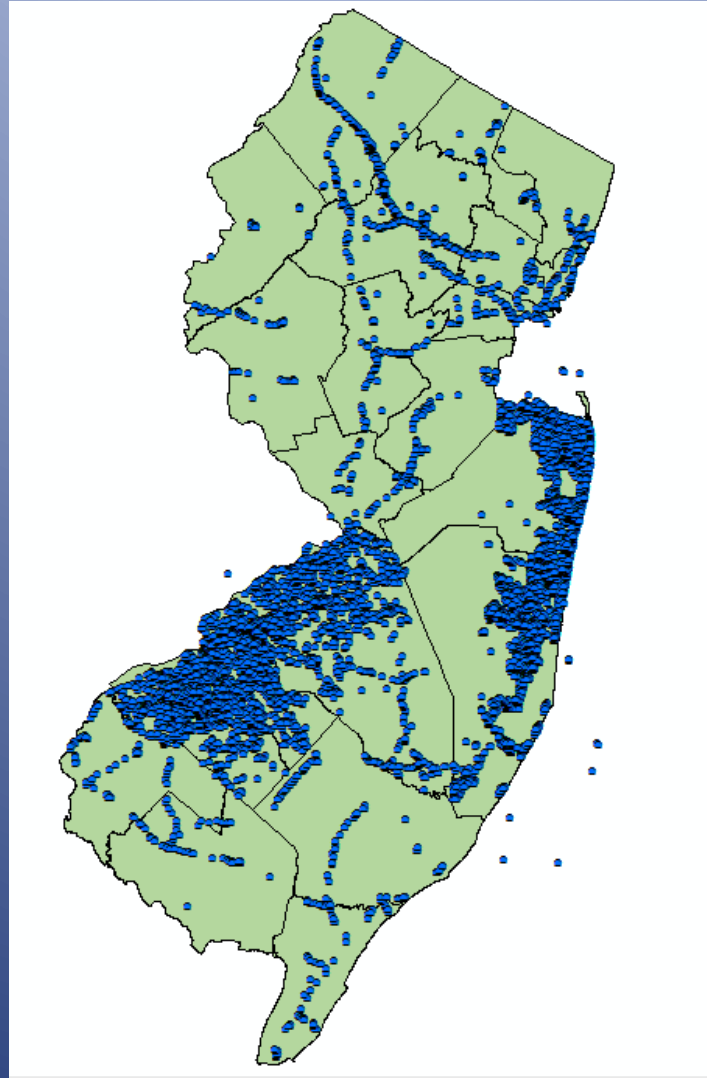
NJDEP Inventory & Mapping Assistance

Test [Compatibility Mode] - Excel													
Ebersberger, Timothy													
File Home Insert Page Layout Formulas Data Review View Developer Tell me what you want to do													
Clipboard Font Alignment Number Styles Cells Editing													
OBJECTID													
	A	B	C	D	E	F	G	H	I	J	K	L	
1	OBJECTID	Outfall_ID	County	Municipality	RoadName	OwnerType	Outfall Type	PipeMaterial	PipeShape	PipeHeight	PipeWidth	HeadwallStructure	BMPs
7453	7452	Somerset	Bound Brook Borough			State	Concrete headwall	Concrete	Circular	24	24		
7454	7453	Somerset	Bound Brook Borough			State	Concrete headwall	Concrete	Circular	60	60		
7455	7454	Somerset	Bound Brook Borough			State		Concrete	Circular	30	30		
7456	7455	Somerset	Bound Brook Borough			State		Clay					
7457	7456	Somerset	Bound Brook Borough			State	Pipe in headwall	Concrete	Circular	24	24		
7458	7457	Somerset	Bound Brook Borough			State	Pipe in headwall	Clay	Circular	15	15		
7459	7458	Somerset	Bound Brook Borough			State	Pipe in headwall	Concrete	Circular	18	18		
7460	7459	Somerset	Bound Brook Borough			State	Pipe in headwall	Clay	Circular	15	15		
7461	7460	Somerset	Raritan Borough			State		Metal	Circular	15	15		
7462	7461	Somerset	Raritan Borough			State		Concrete	Circular	18	18		
7463	7462	Middlesex	Middlesex Borough			State	Pipe in headwall	Concrete					
7464	7463	Middlesex	Middlesex Borough			State		Concrete	Circular	18	18		
7465	7464	Middlesex	Middlesex Borough			State	Pipe in headwall	Concrete	Circular	18	18		
7466	7465	Middlesex	Middlesex Borough			State		Concrete	Circular	15	15		
7467	7466	Middlesex	Middlesex Borough			State	Pipe in headwall	Metal	Circular	15	15		
7468	7467	Middlesex	Middlesex Borough			State	Pipe in headwall	Concrete	Circular	42	42		
7469	7468	Middlesex	Middlesex Borough			State	Pipe in headwall	Concrete	Circular	42	42		
7470	7469	Middlesex	Middlesex Borough			State	Pipe in headwall	Concrete	Circular	36	36		
7471	7470	Middlesex	Dunellen Borough			State	Pipe in headwall	Concrete	Circular	15	15		
7472	7471	Gloucester	Franklin Township			State	Pipe in headwall	Concrete	Circular	18	18		
7473	7472	Somerset	Green Brook Township			State		Concrete	Circular	24	24		
7474	7473	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	24	24		
7475	7474	Hunterdon	Clinton Town			State	Pipe in headwall	Metal	Circular	24	24		
7476	7475	Hunterdon	Clinton Town			State	Pipe	Concrete	Circular	15	15		
7477	7476	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	15	15		
7478	7477	Hunterdon	Clinton Town			State	Pipe	Concrete	Circular	15	15		
7479	7478	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	15	15		
7480	7479	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	15	15		
7481	7480	Hunterdon	Clinton Town			State	Pipe	Concrete	Circular	18	18		
7482	7481	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	15	15		
7483	7482	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	18	18		
7484	7483	Hunterdon	Clinton Town			State		Metal	Circular	18	18		
7485	7484	Hunterdon	Clinton Town			State	Pipe	Concrete	Circular	30	30		
7486	7485	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	15	15		
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7488	7487	Hunterdon	Clinton Town			State		Metal	Circular	30	30		
7489	7488	Hunterdon	Clinton Town			State	Pipe	Concrete	Circular	24	24		
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7492	7491	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	24	24		
7493	7492	Hunterdon	Clinton Town			State	Pipe in headwall	Concrete	Circular	18	18		
7494	7493	Hunterdon	Clinton Town			State	Pipe	Concrete	Circular	18	18		
7495	7494	Somerset	Bridgewater Township			State	Concrete headwall	Metal	Circular	15	15		
7496	7495	Somerset	Bridgewater Township			State	Pipe in headwall	Clay	Circular	24	24		
7497	7496	Somerset	Bridgewater Township			State	Pipe in headwall	Metal	Circular	12	12		
7498	7497	Somerset	Bridgewater Township			State		Clay	Circular	12	12		
7499	7498	Somerset	Bridgewater Township			State	Pipe in headwall	Concrete	Circular	18	18		
7500	7499	Somerset	Bridgewater Township			State	Concrete headwall	Concrete	Circular	18	18		

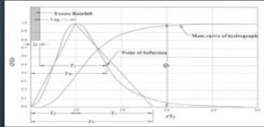
NJDEP Inventory & Mapping Assistance

- Creation of a data dictionary or template for 6 stormwater infrastructure feature classes
- Development of multiple collection methodologies to suit different levels of GIS and GPS experience
- Incorporation of existing data for use as a starting point

NJDEP Inventory & Mapping Assistance



NJDEP Inventory & Mapping Assistance



New Jersey Hydrologic Modeling Database

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Use the filter below to quickly zoom to projects at the county level

County Filter

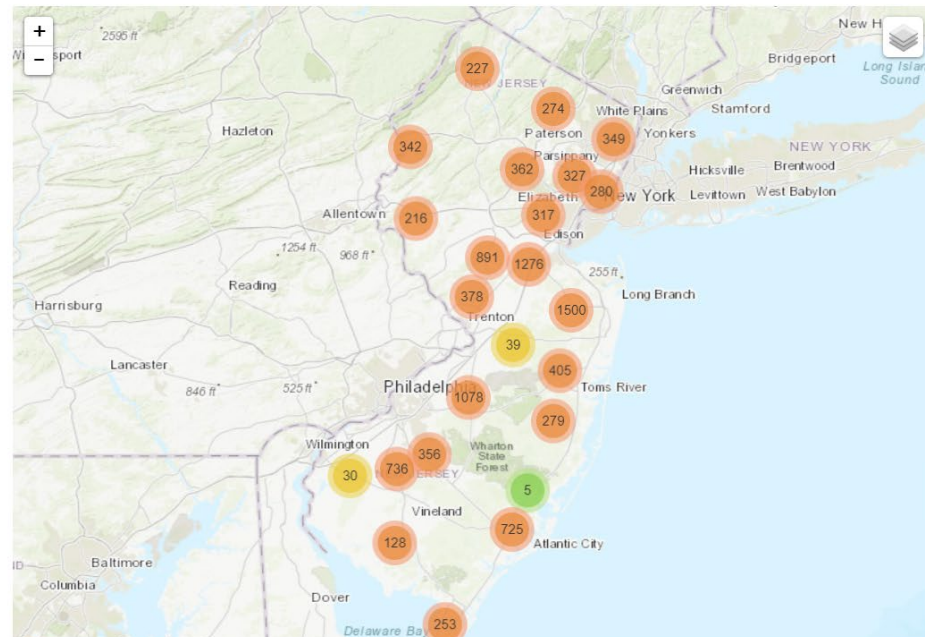
Reset Map

Select All

Search for a desired location in the search box, or click on a numbered dot to zoom in. The number reflects the number of projects within the local area.

Type an address, city, or zipcode to zoom to a project location.

Search Options



Leaflet | Tiles © Esri, DeLorme, NAVTEQ, TomTom, Intermap, IPC, USGS, FAO, NPS, NRCAN, GeoBase, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

NJDEP Inventory & Mapping Assistance

- Creation of a data dictionary or template for 6 stormwater infrastructure feature classes
- Development of multiple collection methodologies to suit different levels of GIS and GPS experience
- Incorporation of existing data for use as a starting point
- Detailed guidance on use of collection methodologies
- In person training and assistance

Stormwater Basin Inventory and Mapping Example

- Determine Inventory and Mapping Method That is Most Suitable
 - Mobile/AGO
 - Handheld GPS
 - Excel
 - Geodatabase Transfer

Stormwater Basin Inventory and Mapping Example

- Verify Existing Equipment and Licensing is in Place
 - Data Capable Phone or Tablet
 - Bluetooth GPS Receiver
 - AGO License
 - Contact NJDEP About Available Licenses and to Join AGO Group





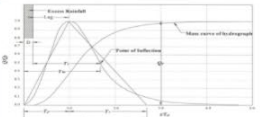

Stormwater Basin Inventory and Mapping Example

- Create Strategy to Accomplish Inventory and Mapping Goals
 - Manpower/Staffing
 - Full Time Staff and/or Volunteers
 - Timeframe
 - All At Once or As You Go
 - Combine with Other Permit Requirements

Stormwater Basin Inventory and Mapping Example

- Check for Existing Data
 - Municipality
 - County
 - NJDEP
 - H&H Database

Stormwater Basin Inventory and Mapping Example



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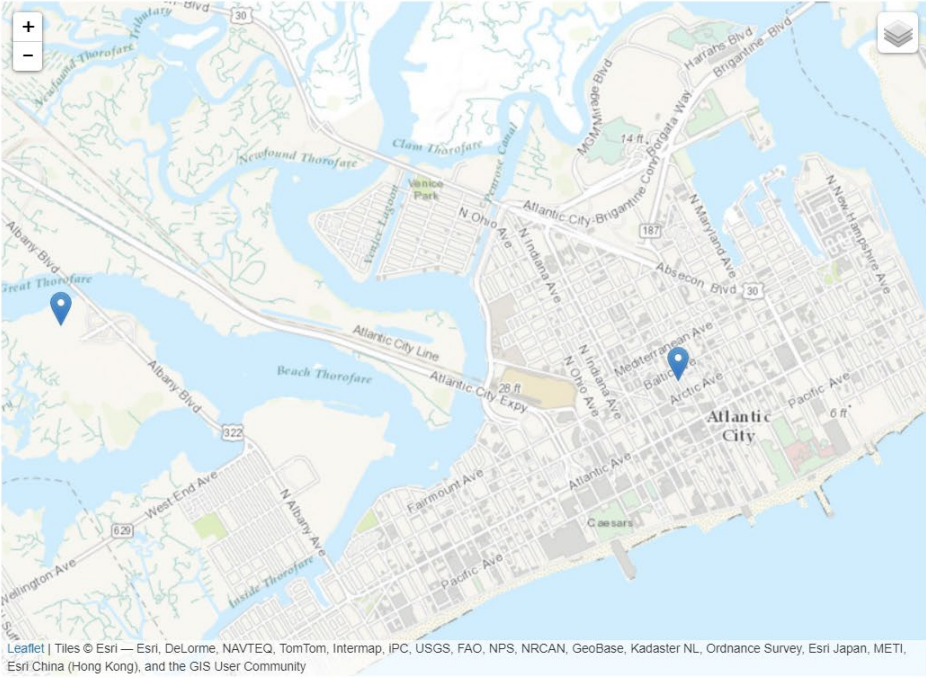
Use the filter below to quickly zoom to projects at the county level

County Filter

[Reset Map](#) [Select All](#)





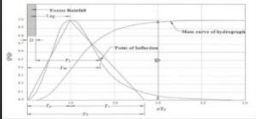

Search for a desired location in the search box, or click on a numbered dot to zoom in. The number reflects the number of projects within the local area.

[Search Options](#)



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Stormwater Basin Inventory and Mapping Example



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“Atlantic ciyt high shcool” Project ID# (114835)



Blue: Project Site | Red: Basin Centroid | Green: Outlet Discharge Point | Yellow: BMP

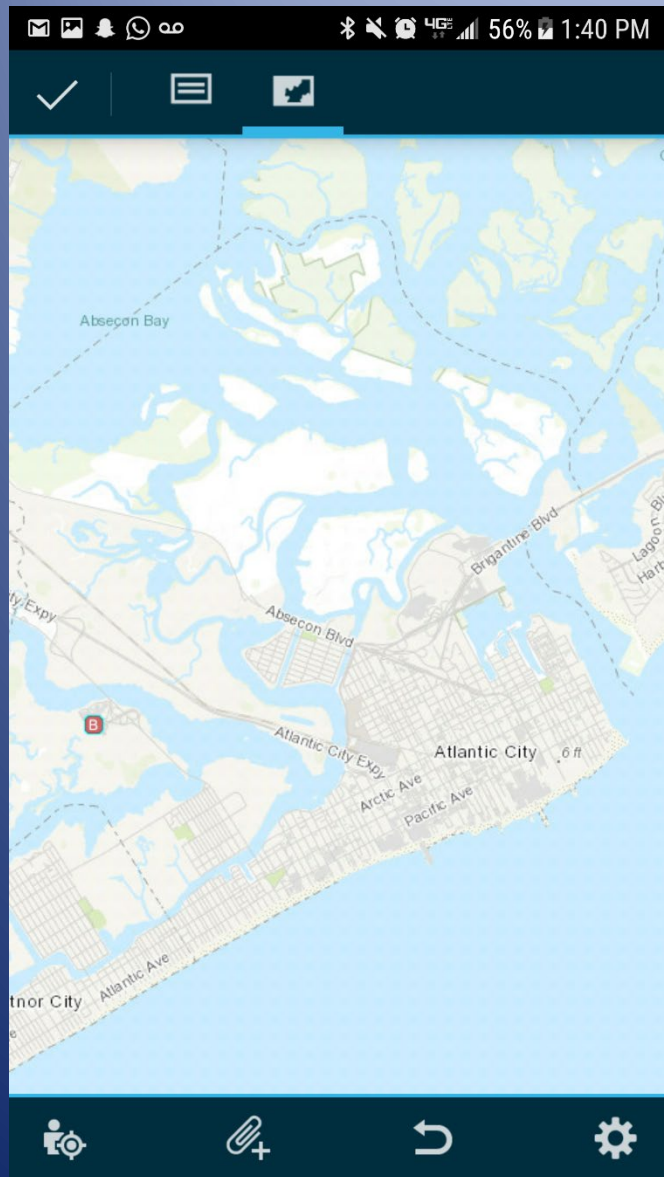
Application Project Data

Project Name	Atlantic ciyt high shcool
Chapter 251 #	121-92
Start Date	1992-11-20
Street Address	rte 40 and 322
Zipcode	08401
Block	200
Lot	31.01,52.03,56
Land Use Code (Proposed)	[1200] Commercial and Services

Stormwater Basin Inventory and Mapping Example

- Field Data Collection

Stormwater Basin Inventory and Mapping Example



Stormwater Basin Inventory and Mapping Example

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ORGANIZATION
Atlantic County

FACILITY NAME
Atlantic City

LOCAL ID

OWNER TYPE
School District

STORMWATER MANAGEMENT BASIN TYPE
<No value>

TRASH RACK INSTALLED
<No value>

PRETREATMENT
<No value>

FENCING PRESENT

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<No value>

Bioretention Basin

Constructed Wetland

Detention Basin

Infiltration Basin

Wet Pond (Retention Basin)

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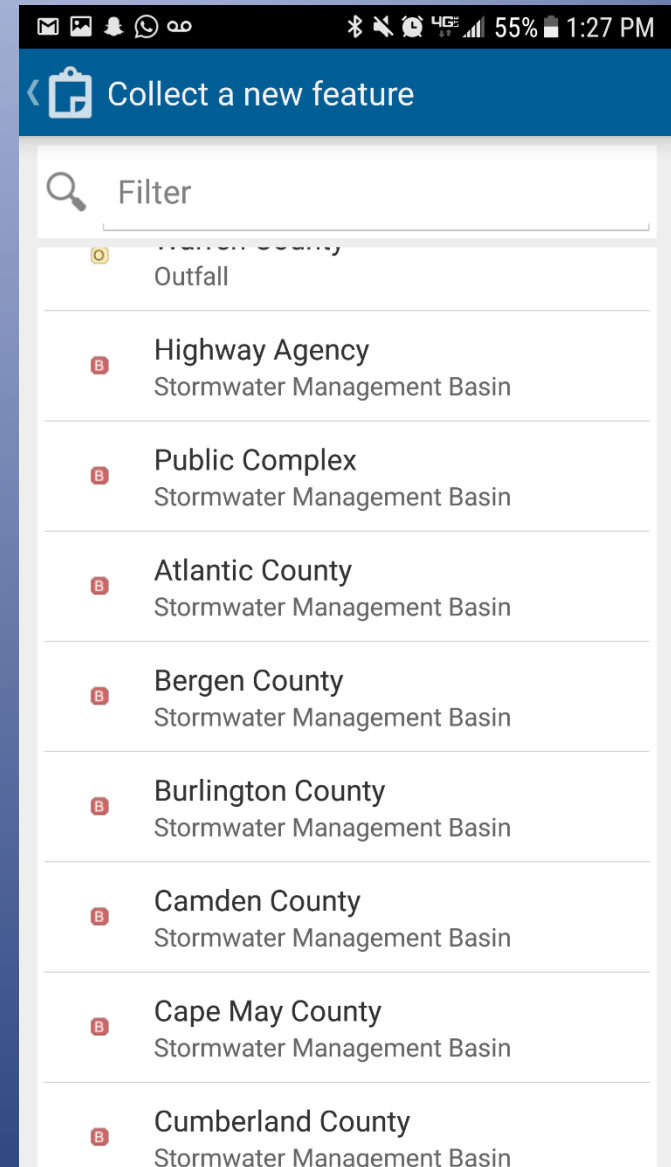
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Stormwater Basin Inventory and Mapping Example



Stormwater Basin Inventory and Mapping Example



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FACILITY NAME
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LOCAL ID

OWNER TYPE
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STORMWATER MANAGEMENT BASIN TYPE
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TRASH RACK INSTALLED
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PRETREATMENT
<No value>

FENCING PRESENT
<No value>

CONTRIBUTING DRAINAGE AREA
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Additional NJDEP Outreach

- Overview of Renewal Permit
 - Regional Sessions
- Mapping and Inventory Training
 - Overview Sessions
 - Field Training
- Stormwater Management Design Review Course
 - February/March
- Board and Council Member Training
 - Online