

# Retrofitting FCD Catch Basins with Trash Excluders

Workshop February 12, 2014

Los Angeles County Flood Control District (FCD)

<http://dpw.lacounty.gov/idd/floodcontrol/formsandreferences.cfm>

<http://dpw.lacounty.gov/idd/floodcontrol/permitsubmittals.cfm>



Good Afternoon...My Name is Charles Darensbourg, I am a civil engineer working for the FCD.

Welcome to the workshop on retrofitting FCD catch basins with trash excluders.

Thank you all for taking the time to be here and for any preparations and assistance you have made to make this Workshop informative and helpful.

Please hold all questions and comments until after the presentation.

Let me clarify that I may interchangeably use DPW, Department of Public Works, Flood Control District, and County, interchangeably. Unless otherwise noted, I am referring to the Los Angeles County Flood Control District and not the unincorporated areas of Los Angeles County.

This presentation is available at the door.

Please raise your hand if you need a set.

The links on this slide provide access to general information, the Flood Permit Application, Exhibit A Spreadsheet and ARS/CPS requirements attachments. We will work to add this presentation and other forms for your use.

**The MS4 permit establishes TMDLs for trash  
and other pollutants for various water bodies  
in Los Angeles County**



The MS4 permit establishes TMDLs for trash and other pollutants for various water bodies in Los Angeles County

One approach cities are choosing to address trash TMDLs is to retrofit *catch basins* with trash excluders.



Cities that choose to retrofit *FCD catch basins* must get a  
Flood Permit

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Cities that choose to retrofit *FCD catch basins* must get a  
Flood Permit

## Before submitting a Flood Permit Application

Contact FCD.

We'll be there for you and are committed to helping you:

- navigate the permit process,
- reduce delays, and
- minimize review costs



The FCD goal is to make the permit process as simple and inexpensive as possible without compromising flood protection.

To that end, we've taken a comprehensive look at the permit process and continue to meet periodically to look for ways to make our internal review process more efficient.

Today's workshop is part of that effort to make the process as simple and inexpensive as possible.

"Here are some tips to saving time and money." You'll hear that many times today

Quality control is the key to avoiding delays in getting a Flood Permit and the FCD accepting the installation.

Before submitting a Flood Permit application, contact FCD. We'll be there for you and are committed to helping you navigate the permit process, reduce delays and minimize review costs.

And before you leave today, we will put you in contact with the right staff to answer more questions.

## **The primary function of a catch basin ...**

how they were designed, sized,  
and located....

**...is to collect stormwater  
runoff.**



I begin by providing background on FCD catch basins

The primary function of a catch basin ...how they were designed, sized, and located ...is to collect stormwater runoff

## Quality design, installation, and routine maintenance

Retrofitting existing catch basins with reliable trash excluder devices requires detailed testing, accurate design and installation, and routine maintenance to prevent flooding.



Retrofitting existing catch basins with trash excluder devices requires detailed testing, accurate design and installation, and routine maintenance to prevent flooding.

### Automatic Retractable Screen (ARS)



The screen in the curb opening

- Keeps trash out of catch basin
- Opens during major storms

Street sweepers can remove trash

### Connector Pipe Screen (CPS)



The screen frame surrounds the catch basin outlet pipe to keep the trash inside the catch basin where it can be cleaned out later with a vactor truck.

For those that may not be familiar, I have provided a brief description of the two trash excluders devices that we will discuss today.

The Automatic Retractable Screen (ARS) is a screen on the curb opening which keeps trash out of catch basin opens during a major storm.

Can be used in conjunction with Street sweeping

The Connector Pipe Screen (CPS) is a screen frame surrounds that the catch basin outlet pipe to keep the trash inside the catch basin where it can be cleaned out later with a vactor truck.

## The FCD conducts tests on ARS devices

to ensure that the screens:

- do not reduce the hydraulic capacity of the catch basin inlets
- will operate properly



At the San Gabriel Dam, the FCD continues to test trash excluders as vendors improve their products.

The FCD tests vendor's ARS devices to ensure that they do not significantly reduce the hydraulic capacity of the catch basin and will operate properly to prevent flooding.

We have established a list of devices we will permit to be installed on our catch basins.

Cities can request to install BMP devices not on the list, but we would need to test them at the city's expense.

# ARS Devices

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

**AUTOMATIC RETRACTABLE CATCH BASIN SCREENS  
ACCEPTED FOR MINIMUM REDUCTION IN  
CATCH BASIN HYDRAULIC CAPACITY**

**Model: Surf Gate**  
Manufacturer: American Stormwater  
Inc.  
19500 Normandie Ave.  
Torrance, CA 90502  
Contact: Todd Waters  
(310) 354-9999, Ext. 284  
[TWaters@ecologycontrol.com](mailto:TWaters@ecologycontrol.com)  
[www.americanstormwater.com](http://www.americanstormwater.com)

**Model: STS 1**  
Manufacturer: EnviroEnergy Inc.  
513 E 1st. Street Suite B  
Tustin, CA 92780  
Contact: Hazem Abdellatif  
714-832-9797  
[abdellatif@sbcglobal.net](mailto:abdellatif@sbcglobal.net)

**Model: Cam Lock**  
Manufacturer: G2 Construction  
13331 1<sup>st</sup> Garden Grove Blvd.  
Garden Grove, CA 92843  
Contact: John Alvarado  
714-748-4242 X250  
[jalvarado@g2construction.com](mailto:jalvarado@g2construction.com)

**Model: West Coast Storm Screen**  
Manufacturer: West Coast Storm, Inc.  
654 S. Lincoln Ave.  
San Bernardino, CA 92408  
Contact: Ralph Padilla, V.P. Operations  
909-890-5700  
[rpadilla@wcstorm.net](mailto:rpadilla@wcstorm.net)  
[www.wcstorm.net](http://www.wcstorm.net)

**Model: Wing-Gate**  
Manufacturer: United Storm Water Inc.  
14000 E. Valley Blvd.  
City of Industry, CA 91746-2801  
Contact: Terry Flury  
(877) 717-8676  
[terry@unitedstormwater.com](mailto:terry@unitedstormwater.com)

1/30/13  
8/31/11 Rev.  
5/28/11 Rev.  
4/21/11 Rev.  
3/31/09  
RW  
W:\Documents\CB BMP testing\Approved ARS BMPs

The FCD accepts these vendors' ARS devices because they do not significantly reduce the hydraulic capacity of the catch basins.

Regarding TMDL requirements, please contact the Regional Board to get up to date information on what devices have been approved as full capture devices.

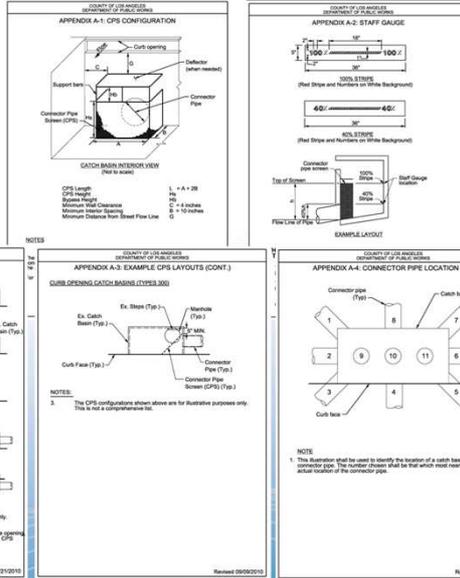
# CPS Devices

Based on sizing tables and various configurations shown on these schematics

**TABLE 1**  
CPS SIZING TABLE FOR CBs IN NON-SUMP CONDITIONS WITH NO ARS

<sup>1</sup> v-depth (ft)	CB Width (ft)	Bypass Height H <sub>b</sub> (ft)	Screen Height H <sub>s</sub> (ft)	Screen Length L (ft)	Q (mg)
3.0	3.5	8	14	3.0	6
	7			4.0	
	10			5.0	
	14			6.0	
	21			8.0	
3.5	3.5	10	16	3.0	8
	7			4.0	
	10			5.0	
	14			6.0	
	21			8.0	
4.0	3.5	12	20	3.0	8
	7			4.0	
	10			5.0	
	14			6.0	
	21			8.0	
4.5 or greater	3.5	12	20	3.0	8
	7			4.0	
	10			5.0	
	14			6.0	
	21			8.0	

\* for CBs with v-depth less than 3 feet, contact



CPS devices are manufactured and installed based on these sizing tables and various configurations shown on these schematics.

# Flood Permit Process



## Main Steps to get a Flood Permit

- ✓ Complete application and review attachments
- ✓ Pay permit fees for FCD's design and field review based on actual cost
- ✓ Sign Trash Excluder Maintenance Agreement
- ✓ Complete Exhibit A based on actual field measurements (Need Access Permit)
- ✓ Upon FCD approval, hire contractor/vendor
- ✓ Submit Shop Drawings



Let's review the main steps to getting a permit

Complete Application and review the attachments

Pay permit fees which covers the FCD's design and field review.

The FCD charge cities based on the actual time it takes to review submittals and inspect during installations.

In this presentation, we will discuss ways that cities can reduce costs and avoid delays.

The FCD may ask for an initial deposit of \$200 to \$400 per catch basin depending on the number of catch basins.

Generally, the more catch basins retrofitted, the lower the cost per catch basin.

If Cities propose BMP devices that are not on the FCD's ARS list, the FCD will have to test the devices which will be at the city's expense.

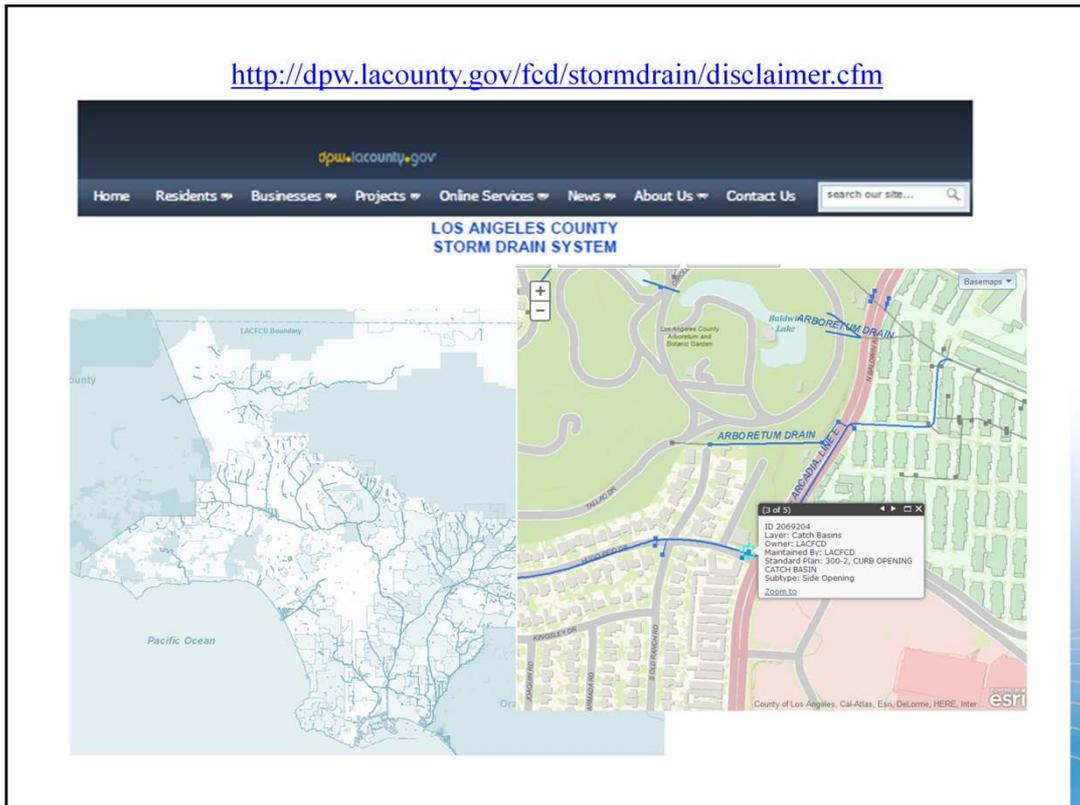
We urge you to have your City officials and Counsel sign the Trash Excluder Maintenance Agreement early in the process simultaneous to completing the permit requirements. We will discuss the Maintenance Options later in this presentation.

Complete Exhibit A based on actual field measurements not based on As-builts. You will need to get a No Fee Access Permit to open the manhole and take measurements and note catch basin configurations.

Upon the FCD's approval of the Exhibit A submittal, hire a contractor

Submit vendor shop drawings to the FCD for review. The FCD will review and compare shop drawings with Exhibit A.

<http://dpw.lacounty.gov/fcd/stormdrain/disclaimer.cfm>



Cities will begin the process by identifying the FCD catch basins in their jurisdictions.

Cities can access this information online.

You can identify what catch basins belong to the FCD by entering this URL or contact me, Charles Darensbourg, and I will assist you.

## Complete Exhibit A Spreadsheet

### New Protocol:

- City/ Permittee shall obtain a No fee "Access Permit" from the FCD to open the manhole
- Do not enter the catch basin; permittee's inspector needs confined space training.

### Inside CB

"Y" is the vertical dimension measured from the street flow line to the CB invert at the outlet pipe

("V"="X"+"Y")



### New Protocol:

City/ Permittee shall obtain a No fee "Access Permit" from the FCD to open the manhole and take measurements from above.

Do not enter the catch basin; permittee's inspector needs confined space training.

## Complete Exhibit A Spreadsheet

...based on actual field measurements. Inaccurate measurements = cannot actually install in field or malfunctioning BMP

### Inside CB

"Y" is the vertical dimension measured from the street flow line to the CB invert at the outlet pipe

("V"="X"+"Y")



Cities or their Consultants must complete the Exhibit A spreadsheet based on actual field measurements.

The FCD will check Exhibit A and inform the City if a catch basin can or cannot be retrofitted. For example, catch basins in a sump cannot be retrofitted.

Providing correct information on Exhibit A is the first step and by far the most important toward avoiding situations where during installation the city contractor cannot install the trash excluders or the trash excluder that does not function properly.

This is the time to take actual field measurements and note structural deficiencies that need to be addressed before installation.

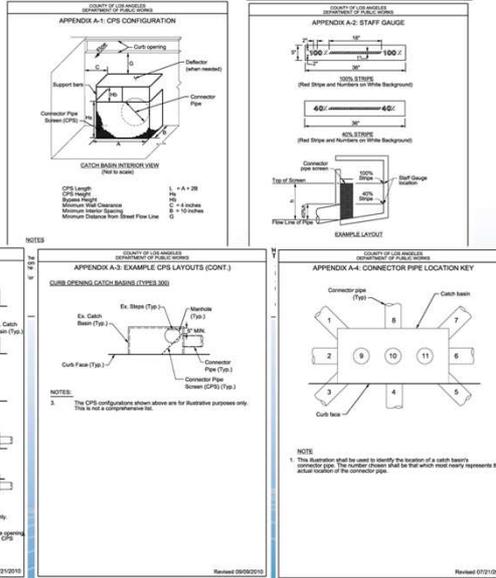
# CPS Devices

Match and note the actual catch basin configuration in field on Exhibit A spreadsheet based on these sizing tables and schematics

**TABLE 1**  
CPS SIZING TABLE FOR CBs IN NON-SUMP CONDITIONS WITH NO ARS

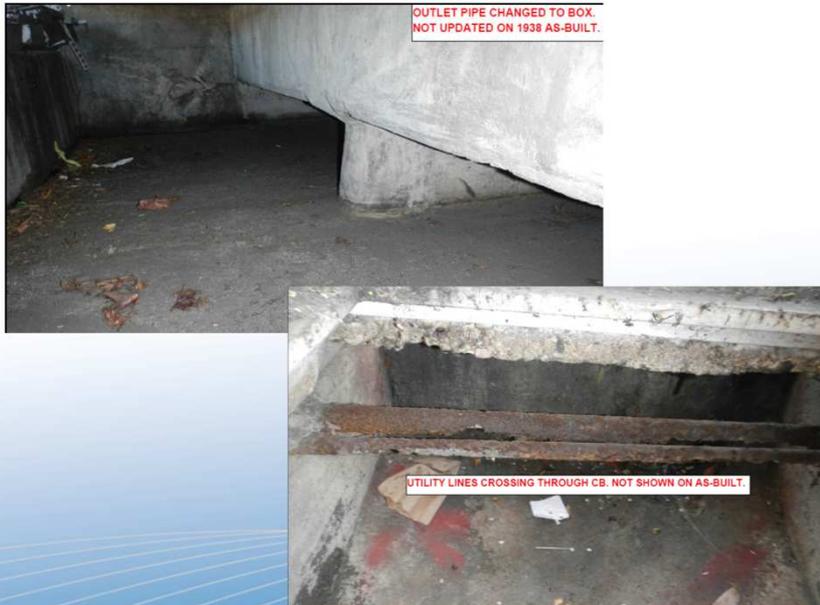
*v-depth (ft)	CB Width (ft)	Bypass Height H <sub>b</sub> (ft)	Screen Height H <sub>s</sub> (ft)	Screen Length L (ft)	Q (mgd)
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	14			6.0	
	21			8.0	
3.5	3.5	10	16	3.0	8
	7			4.0	
	10			5.0	
	14			6.0	
	21			8.0	
4.0	3.5	12	20	3.0	8
	7			4.0	
	10			5.0	
	14			6.0	
	21			8.0	
4.5 or greater	3.5	12	20	3.0	8
	7			4.0	
	10			5.0	
	14			6.0	
	21			8.0	

\* for CBs with v-depth less than 3 feet, contact



Again, if a City is proposing a CPS, you need to match and note the actual catch basin configuration in the field on Exhibit A spreadsheet based on these sizing tables and schematics.

## Examples of field conditions not shown on construction As-builts



Cities should not rely solely on the As-builts.

Catch basins may have been modified since the As-builts.

Cities need to visit each FCD catch basin to know this

The top picture: The outlet was shown on the 1938 As-built drawings was a circular pipe now it is a box drain.

The bottom picture: Utilities lines run through this catch basin and while they may not interfere with the catch basin's ability to handle storm runoff, they can interfere with the installation of trash excluders.

Also you may encounter a situation where a catch basin does not have a manhole and you cannot install a CPS as planned.



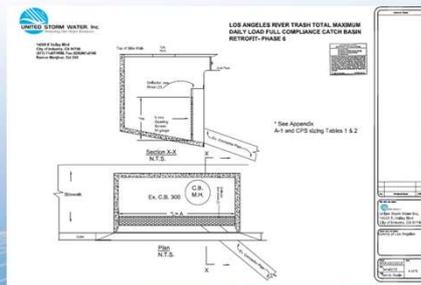
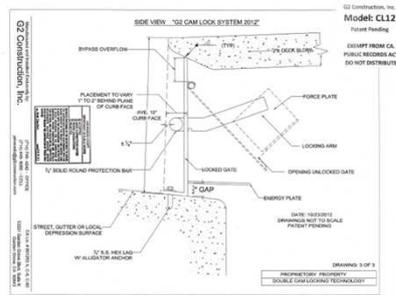
Once the FCD approves the Exhibit A spreadsheet,  
Cities can begin the process to hire a contractor/vendor that will  
manufacture and install the trash excluders.

Once FCD approves the Exhibit A spreadsheet, cities can begin the process to hire a contractor/ vendor that will manufacture and install the trash excluders.

Hiring a contractor does not mean that they can start installation. At his point you still need to submit additional documents to get the Flood Permit.

## Shop Drawings

- The hired vendor/contractors will use the catch basin dimensions and inlet configurations indicated on the Exhibit A spreadsheet to provide the appropriate Shop Drawing.
- The FCD reviews and approves the Shop Drawing based on the information provided on the Exhibit A spreadsheet.
- Upon approval, the FCD issues the Flood Permit



The hired vendor/contractors will use the catch basin dimensions and inlet configurations indicated on the Exhibit A spreadsheet to provide the appropriate Shop Drawing.

The FCD reviews and approves the Shop Drawing based on the information provided on the Exhibit A spreadsheet.

Upon approval, the FCD issues the Flood Permit

## Installation



## Pre-construction

The FCD requires a pre-construction meeting to

- Review permit attachments
- Define roles and answer questions
- Give the FCD advance notice before beginning installation
- Install only on catch basins approved for installation



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- Review permit attachments
- Define roles and answer questions
- Give the FCD advance notice before beginning installation
- Install only on catch basins approved for installation

## City/ Permittee's role:

- Provide inspection
- Assure quality control
- Comply with safety requirements
- Conduct hydraulic/ mechanical testing of ARS devices with water truck.
- Collect data and finalize submittals as noted on permit.



## City/ Permittee's role:

Provide inspection  
Assure quality control on all installations including administering contractor progress payments  
Comply with safety requirements  
Conduct hydraulic/ mechanical testing of ARS devices with water truck  
Collect data for final submittals.

## The FCD's role:

- Quality assurance
- Field verification: Spot check and witness hydraulic/mechanical testing of ARS devices with water truck.
- Prepare deficiency list
- Evaluate and approve final submittals.

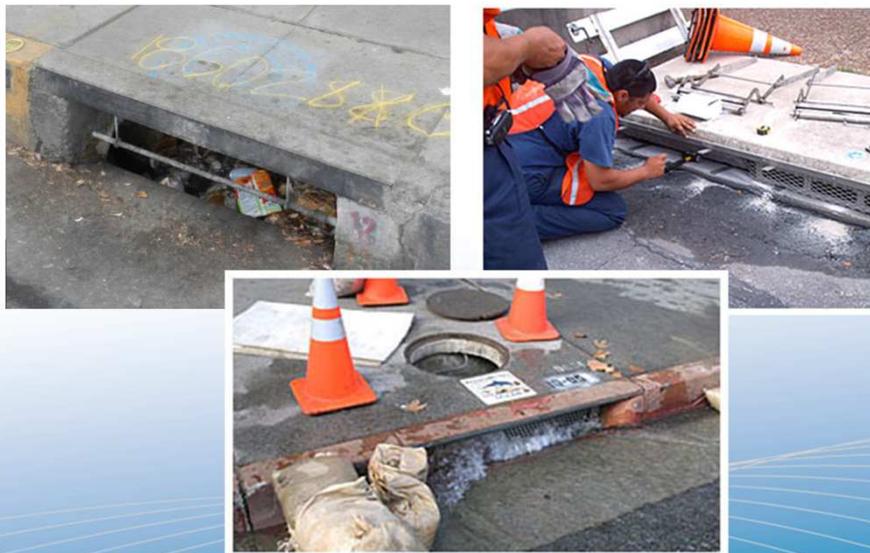


## The FCD's role:

- Quality assurance
- Field verification: Spot check and witness hydraulic/mechanical testing of ARS devices with water truck
- Prepare deficiency list
- Evaluate and approve final submittals

## Quality fabrication and installation

Remove existing protection bar, install, and hydraulically/ mechanically test ARS devices with water truck.



Steps during actual installation vary from catch basin to catch basin

Typical installation of an ARS

- Remove existing protection bar (Attachment A explains)
- 
- Install trash excluder,
- 
- and mechanically test device with a water truck (Attachment B explains how)

Installing trash excluders is like installing a door or window.

Although the process may seem simple, installation requires quality craftsmanship

## Quality fabrication and installation



At the left note the installation of CPS without proper support.

At the right note the reinforcement provided.

This is the craftsmanship we want.

## Acceptance of trash excluder installations

### City/ Permittee

- Completes final submittals as described in permit attachments (post photos, etc.)
- Updates Exhibit A Spreadsheet based on actual installations



### The FCD

- Issues Notice of Flood Permit Acceptance
- Executes the Trash Excluder Maintenance Agreement

### Acceptance of Installations

#### City/ Permittee

Completes final submittals as described in permit attachments (post photos, etc.)

Updates Exhibit A Spreadsheet based on actual installations. There may be situations where devices were not installed because of structural deficiencies or the trash excluder did not pass the water test etc.

#### The FCD

Issues Notice of Flood Permit  
Acceptance

Executes the Trash Excluder Maintenance Agreement Final submittals

## Maintenance





## Main Steps to get a Flood Permit

- ✓ Complete application and review attachments
- ✓ Pay deposit and fees for FCD's design and field review based on actual cost
- ✓ Sign Trash Excluder Maintenance Agreement
- ✓ Complete Exhibit A based on actual field measurements
- ✓ Upon FCD approval, hire contractor/vendor
- ✓ Submit Shop Drawings



Again, let's review the main steps to Getting a permit

- Complete application and review attachments
- Pay deposit and fees for FCD's design and field review based on actual cost
- Sign Trash Excluder Maintenance Agreement
- Complete Exhibit A based on actual field measurements
- Upon FCD approval, hire contractor/vendor
- Submit Shop Drawings

## Main steps towards acceptance of BMP installations

- ✓ Host a pre-construction meeting to clarify roles, review permit requirements, etc.
- ✓ City/ Permittee provides
  - ✓ Inspection of the contractor/vendor's installation
  - ✓ Quality Control
- ✓ Collect data and finalize submittals as noted on permit.
- ✓ Update Exhibit A spreadsheet based on actual installation.
- ✓ The FCD will execute the Trash Excluder Maintenance Agreement.

### Main steps of the installation process and acceptance

Host a pre-construction meeting to clarify roles, review permit requirements, etc.

City/ Permittee provides

Inspection of the contractor/vendor's installation

Quality Control

Collect data and finalize submittals as noted on permit.

Update Exhibit A spreadsheet based on actual installation.

The FCD will execute the Trash Excluder Maintenance Agreement

## Contacts

### Permit Application

Eden Berhan, Land Development Division  
626-458-4936 [eberhan@dpw.lacounty.gov](mailto:eberhan@dpw.lacounty.gov)

### Maintenance Agreements

Charles Darensbourg, Watershed Management Division  
626-458-5923 [cdarensbourg@dpw.lacounty.gov](mailto:cdarensbourg@dpw.lacounty.gov)

This concludes our presentation and here are the primary Contacts in our Department that will be able to provide you with more information.

### Permit Application

Eden Berhan, Land Development Division

### Maintenance Agreements

Charles Darensbourg, Watershed Management Division

