



Flood Control District of Maricopa County

Date: November 23, 2015

Standard Procedures and Details

The purpose of the following procedures and details are to provide guidance and standardization for work activities on current and future Flood Control District properties and structures. This work may include but is not limited to activities associated with Right of Way Permitting, Internal Operation and Maintenance, New Construction, and Real-Estate. These procedures and details are designed to reduce plan review times and to convey information regarding required procedures to the District's customers and consultants. The following procedures and details have been reviewed and approved by the Flood Control District and therefore do not require additional review when used in appropriate situations. Not all procedures and details are applicable to every project and therefore are subject to review based on situational suitability.

Use the following link to be directed to PDF and Auto Cad details:

<http://www.fcd.maricopa.gov/downloads/manuals/Standard-Details.pdf>

Use the following link to be directed to the Drainage Policies and Standards Manual

<http://www.fcd.maricopa.gov/pub/library.aspx>

The following approved procedures and specifications are to be utilized for the various work activities on FCD properties and structures as necessary.

Index:

Page #	Title
1.	Cover Sheet and Index
2.	ROW Inspection Guideline Handout/Sign in Sheet for Preconstruction Meetings ***Print Pages 2 & 3 two sided
4.	Temporary Non Storm Water Discharge Notification
5.	FCD O&M Access Road Requirements
7.	Seeding Specification for Right of Way Permits and Small O&M Projects
11.	Grouted Riprap Placement Procedures
12.	Minimum Requirements for Legal Descriptions and Map Exhibits
15.	FCD Project Sponsors



Flood Control District of Maricopa County

Date: October 30, 2015

Right of Way Inspection Guideline Handout for Pre-Construction Meetings

Review and understand the following then give to the contractor to distribute to all subcontractors before start of work.
Not all activities stated are applicable to each permit.

- **Read assigned** Flood Control District of Maricopa County (FCD) **permit for special instructions.**
- **Backfill Requirements on FCD Real Property**
 - See As- Built Requirements for compaction details (6 inch lift test every other lift, 95 percent or better)
 - Minimum one sack slurry backfill may be used as a substitute to FCD compaction requirements
- **Communication during construction:**
 - Copy the assigned FCD Permit Specialist on ALL correspondences
 - All submittals, RFP's, and other changes from original approved plans **MUST** be submitted and can **ONLY** be approved by the FCD's assigned permit specialists: **Angie Hardesty or Shelby Brown**
 - Work Schedules, weekly meeting notes, and all other general construction updates must be sent to the Permit Specialists and Inspectors (contacts will be provided) +
 - Inspection requests are to be scheduled 48 hrs. before inspection with the FCD's assigned inspectors (contacts will be provided)
 - Keys can be acquired through the permit specialist.
- **Required inspections and or presence during operation required:**
 - *See As-Built Requirements for required documents and surveys*
 - Concrete Structures
 - Subgrade (test results), Rebar/Formwork before pour.
 - On-site during pour
 - Grouted Rip Rap
 - Turn downs
 - Subgrade Inspection (test results) and Placed Rip Rap before pour
 - Grout installation (vibrate grout into rip rap)
 - Pipe installation
 - Sub base and Pipe before backfill,
 - Backfill process (specific to plan detail)
 - Gabion mattresses /baskets
 - Subgrade Inspection (test results) and Placement of fabric and wire baskets
 - Rip Rap installation
 - Tie in of top wire fabric
- **Worksite Location and Procedures**
 - Worksite Safety must be enforced at ALL times
 - Material and/or equipment storage is **NOT PERMITTED** in channels, basins or impoundment areas
 - FCD access must be maintained during construction. Work plans that allow alternate routes are acceptable but only if approved by the permit specialist
 - Construction site must be secured during non-working times. Example: open excavations or trenches
 - Construction site must be restored to pre-construction conditions or better upon completion for final inspection
- **After contacting law enforcement/ emergency personnel, all accidents, emergencies, or criminal activities **MUST** be reported to the District permit specialist and District inspectors.**



Flood Control District

of Maricopa County

Date: October 23, 2015

MEMORANDUM FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S TEMPORARY NON STORMWATER DISCHARGE NOTIFICATION

Company Name: _____ Company Address: _____
Applicant Name: _____
Description of Activity: _____
Reason for Discharge: _____
Location Description _____
Date(s) of Discharge: _____
Water Source: _____ Approximate Volume : _____ gallons
Other constituents that may exist in the discharge: _____

Non-Stormwater discharges that are allowable and not considered an illicit discharge unless it is determined that it is a source of a significant contributor of pollutants, are listed below:

Check the type of discharge you are requesting:

- Water line flushing
- Landscape irrigation
- Diverted stream flows
- Uncontaminated ground water infiltration
- Uncontaminated pumped ground water
- Discharges from potable water sources
- Foundation drains
- Air-conditioning condensate irrigation water
- Water from crawl space pumps footing drains
- Lawn watering
- Individual residential car washing
- Discharges from riparian habitats and wetlands
- Dechlorinated swimming pool discharges
- Street wash water
- Discharges or flows from firefighting activities.
- Other (If selected, additional information must be submitted)
 - Copy of the NOI Authorization received from ADEQ
 - Other environmental approvals or permits (example: USACOE permits)



Flood Control District

of Maricopa County

Date: August 31, 2015

MEMORANDUM FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S OPERATIONS AND MAINTENANCE ACCESS ROAD REQUIREMENTS

The Operations and Maintenance Division (O&M) of the Flood Control District (District) of Maricopa County is responsible for maintaining the District's real property and structures located thereon. In order to accomplish this task, it is essential that the District has sufficient access to the structures for maintenance and repairs vehicles and equipment. This memorandum is being published to establish those standards for new and existing structures. For structures sponsored by federal agencies (i.e. COE, NRCS), the sponsoring agency's standards may take precedence over these standards.

Definitions:

Drivable width: The clear distance between obstructions (e.g. the distance from the inside of a safety rail to inside of a light pole, etc.)

Vertical Clearance: The vertical clear distance from the top surface of the access road across the entire Drivable Width to the bottom of any overhanging obstruction.

For modifications to existing structures:

- Maintain the drivable width of the existing structure or at least 16 feet whichever is less.
- Maintain a minimum allowable drivable width of 12 feet around obstructions that cannot be relocated.
- Minimum vertical clearance is 13-feet 6-inches.
- Maximum cross slope of 2%
- Existing drivable surfaces shall be maintained or improved, if damaged.
- Provide drainage as necessary to protect structures and maintain access.

For New Structures:

- Unless otherwise mandated by a sponsoring agency, provide 16 feet of drivable width.
- Minimum surface treatment will be 12-feet with 6-inches of aggregate base with 2-foot shoulders of compacted dirt.
- Minimum vertical clearance of 13-feet 6-inches.
- Maximum cross slope of 2%

Gates and Fencing:

- Install District standard gates as needed to prevent public access and provide District access to structures.
- Gates should be located at 65-feet from the public access road to allow a tractor-trailer to pull completely off the road without having to stop to open the gate.

Drainage:

- Drainage should be designed to allow access along the road during a 100-year storm event.

Ramps:

- Ramps shall have a maximum slope of 10%
- The Drivable Width on a ramp is 12-feet.

Land Rights:

- As needed, permanent land rights shall be provided to meet these requirements.

Turning Radii:

- The minimum turning radii for new and modified structures is 33-feet inside radius and 55-feet outside radius so that large equipment and transports can safely make the turns.

Driveway Access:

- Access off a paved street will either be over a thickened asphalt edge MAG Standard Detail 201 Type A or Ribbon Curb MAG Standard Detail 220-1 Type B unless a standard Driveway is provided. Standard Driveways may use MAG Standard Detail 250-1 or 250-2 or any Standard Driveway detail approved by the City or Town with jurisdiction in the project area.
- Minimum access width for driveways is 24 feet to allow for large vehicle turning radii.



Flood Control District

of Maricopa County

Date: October 30, 2015

MEMORANDUM FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY on SEEDING SPECIFICATION FOR PERMITS AND SMALL O&M PROJECTS.

NATIVE SEEDING:

Work under this subsection shall consist of furnishing all materials, preparing the soil, applying seed, and establishing the seeded areas.

All areas of disturbance greater than 0.5 acres shall be seeded, unless approved by the District. These areas to be seeded are those disturbed by construction, shown on the plans, called for in the Contractor's erosion control plan, or as designated by the District Engineer.

Seeding shall be accomplished in two stages. The first stage shall consist of soil preparation, furnishing and applying the seed; and furnishing and applying the final wood fiber mulch layer. The second stage shall consist of a 45 calendar-day maintenance and stabilization period, during which time the Contractor shall be responsible for maintaining and stabilizing the seeded and mulched areas, and restoring damaged or eroded areas until conclusion of the establishment period and acceptance by the District Engineer.

Materials:

Appropriate materials documentation, as specified herein, shall be submitted to the District as part of permit issuance and prior to the start of the scheduled reseeded activity. No materials shall be delivered to the site until such documentation has been approved by the District Engineer.

Seed:

The species, variety and/or strain of seed (hereby referred to as contract-specified seed) shall be as specified herein. As part of the permitting process, the Contractor shall submit written confirmation from the seed supplier, on their letterhead, that the source(s) for the contract-specified seed has been secured, per the seed mix contained herein, and that all seeds have been stored under dry conditions, out of direct sunlight, and at temperatures between 35 and 120 degrees fahrenheit.

All seeds must have a Certificate of Analysis from an accredited seed-testing laboratory, and shall be submitted to the District for approval prior to permit issuance. Certificates of Analysis shall contain the following information for each seed sample:

- Test results of the 50 States Noxious Weed list,
- All other weed seeds listed,
- Purity,
- Germination results (when tetrazolium testing is used results date must be within 12 months of delivery to the job site or shall be retested), and
- Pathology present

Sample testing shall use the rules for testing seeds as published by the "Association of Official Seed Analysts" or the "Society of Commercial Seed Technologists".

If test samples indicate the presence of noxious, restricted or invasive species, the lot will be rejected or further evaluated by the District for use on the project. Unless otherwise approved by the District Engineer, the weed content of the contract-specified seed mix shall not exceed 0.5 percent.

No seed shall be delivered to the project site without approval by the District Engineer.. Each seed species listed in the seed mix(es) shall be delivered to the project site unmixed and in standard, sealed, undamaged containers. Each container shall be labeled in accordance with the appropriate provisions of the Arizona Revised Statutes and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act. The Contractor shall provide all seed tag labels to the District Engineer.

Application rates of seed as specified are for Pure Live Seed (PLS). PLS is determined by multiplying the sum of the percent germination of seeds, including hard or dormant seeds, by the percent purity. Seed mix species and the Pure Live Seed (PLS) rates are shown in Table 1 below:

Botanical Name	Common Name	PLS Rate (Pounds Per Acre)
<i>Ambrosia deltoidea</i>	Triangle-leaf Bursage	1.0
<i>Aristida purpurea</i>	Purple Three-awn	2.0
<i>Baileya multiradiata</i>	Desert Marigold	1.5
<i>Bouteloua aristidoides</i>	Needle Grama	0.5
<i>Encelia farinosa</i>	Brittlebush	1.5
<i>Eschscholtzia mexicana</i>	Mexican Poppy	1.0
<i>Lesquerella gordonii</i>	Gordon's Bladderpod	0.75
<i>Phacelia crenulata</i>	Arizona Desert Bluebells	1.0
<i>Plantago ovata</i>	Desert Indian Wheat	1.0
<i>Senna covesii</i>	Desert Senna	1.5
<i>Sphaeralcea ambigua</i>	Desert Globemallow	1.0
<i>Sporobolus cryptandrus</i>	Sand Dropseed	0.10

No substitution of the specified seed will be allowed unless the Contractor shows documentation from three (3) seed suppliers that the seed is not available in time for the seeding effort, per the Contractor's construction schedule.

Should a substitution of the contract-specified seed be requested, the proposed substitution seed shall be of equal cost value and match (or closely mimic) the original mature plant characteristics (color, growth habit, and known to grow in project area).

Tacking Agent:

Tacking agent shall be a naturally occurring, organic compound and shall be non-toxic. The tacking agent shall be a product typically used for binding soil and mulch in seeding or erosion control operations. Approved types shall consist of mucilage or gum by dry weight as an active ingredient obtained from guar or plantago. The tacking agent shall be labeled indicating the type and mucilage purity.

The Contractor shall have the tacking agent swell volume tested by an approved testing laboratory using the USP method. The standard swell volume shall be considered as 30 milliliters per gram. Material shall have a swell volume of at least 24 milliliters per gram. Certified laboratory test results for homogenous consistency shall be furnished to the District prior to permit issuance. Tacking agent rates shall be adjusted to compensate for swell volume variation. Material tested with lesser swell volume shall have the tacking agent rate increased by the same percentage of decrease in swell volume from the standard 30 milliliters per gram. Material tested with greater volume may reduce tacking agent rates by the same percentage of increase in swell volume from the standard 30 milliliters per gram. Tacking agent shall be pure material without starches, bentonite, or other compounds that would alter the swell volume test results of mucilage, or the effectiveness of the tacking.

The tacking agent may be combined with wood fiber mulch material as a single product provided it meets the tacking agent and mulch requirements as specified herein.

Wood Fiber Mulch:

Wood fiber mulch shall be derived from thermo-mechanically processed wood and contain no growth or germination inhibiting factors. The mulch shall be from virgin wood manufactured and processed so the fibers remain in uniform suspension in water under agitation to form a homogenous slurry. Paper products will not be considered as virgin wood. Wood fiber mulch shall have the properties as shown in Table 2 below:

Virgin Wood Fiber	90% min.
Recycled Cellulose Fiber	10% max.
Ash Content	0.8% +/-0.3%
pH	4.5 +/-1.0 (6.5 +/-1.0, with tackifier)
Water Holding Capacity	10:1 (water: fiber) Min.

Soil Conditioners:

A) Water:

Water shall be free of oil, acid, salts or other substances which are harmful to plants.

B) Compost:

Compost shall consist of composted organic vegetative materials. No animal manure or city biosolids shall be used in the composting or added to the compost. Prior to being furnished on the project, compost mulch samples shall be tested for the specified microbiological and nutrient conditions, including maturity and stability, by a testing laboratory approved for testing of organic materials. Such testing shall have been performed within nine (9) months of time the compost is to be furnished to the project. Written test results shall be submitted to the District Engineer for approval and permit issuance. Compost material shall be dark brown in color with the parent material composted and no longer visible. The structure shall be a mixture of fine and medium size particles and humus crumbs. The odor shall be that of rich humus with no ammonia or anaerobic odors. Bulk compost shall have the properties as shown in Table 3 below:

TABLE 3	
Cation Exchange Capacity (CEC)	Greater than 45 meq/100 g
Carbon: Nitrogen Ratio (C:N)	Less than 20:1
pH (of extract)	6.5 – 8.5
Organic Matter Content	Greater than 30%
Total Nitrogen (not added)	Greater than 1%
Maturity Index	Greater than 50% on Maturity Index at a 10:1 ratio
Stability Indicator, CO ₂ Evolution: Biological Available C (BAC)	Less than 4mg CO ₂ -C/g OM/day is desirable. From 4 through 8mg CO ₂ -C/g OM/day is acceptable. Greater than 8mg CO ₂ -C/g OM/day is NOT acceptable.

Bulk compost shall be applied, using broadcast methods and prior to soil tillage, to areas to be seeded at the rate of 15 cubic yards per acre. Unless otherwise approved by the District Engineer, bulk compost shall be applied, using broadcast methods, to all areas where equipment can be operated.

Construction Requirements:

Seeding Operations:

Seeding work shall occur only after other work affecting the ground is complete. The Contractor shall remove undesirable weed growth prior to seeding. Hydroseeding shall commence as soon as possible after construction is complete and the soil has been prepared. Hydroseed materials deposited on adjacent trees, shrubs, sidewalks, roadways, utility equipment, structures, and other areas where seeding is not specified, shall be removed at no cost to the District.

Areas intended for native seeding shall not be treated with a pre-emergent control.

Seeding operations shall not be performed on undisturbed soils outside the “limits of disturbance” line of the project or when winds exceed 10 miles per hour.

Seeding shall be accomplished within 14 days after grading is complete and within 48 hours of completion of seedbed preparations. Seed shall be applied to soil surfaces which have not been allowed to crust over or erode.

Seeding shall occur in the following steps:

Step 1 – Apply compost at specified rates to all disturbed areas designated for seeding, per the permit details. Incorporate into soil. Till soil to depth specified.

Step 2 – Apply seed slurry (seed, water, tackifier, wood fiber mulch) at the specified rates described herein to all disturbed areas.

Step 3 – Apply wood fiber final mulch layer as specified herein.

Step 4 – Protect seeded areas for a minimum of forty (45) days, per the maintenance and stabilization period. Contractor shall repair and reseed damaged areas. The forty (45) day period shall begin following District Engineer’s acceptance.

Tillage:

Slopes, equal or less than 3:1 (horizontal to vertical), shall be tilled a minimum of 12 inches in depth. Slopes steeper than 3:1, and those areas which could potentially be affected by underground utilities, shall be tilled to a minimum six (6) inches in depth, and left in a roughened condition as they are constructed. Hand raking to a minimum depth of three (3) inches, may be considered.

Seeding Application:

Hydroseeding with a homogenous slurry of seed, water, wood fiber mulch and tackifier; followed by a final mulch layer, shall be considered the preferred method of seed application, unless otherwise approved by the District Engineer.

A final wood fiber mulch layer shall be applied on all hydroseeded areas within 24 hours of seed application. **Combining the seed application and final mulching in a single process is not acceptable.** Seeded areas shall not be watered after planting.

Seed shall be applied, using hydroseeding equipment, in a water-based slurry containing 200 pounds of wood fiber mulch and 40 pounds of tackifier per acre on slopes 3:1 or flatter. On slopes steeper than 3:1, the seed slurry shall contain 250 pounds of wood fiber mulch and 60 pounds of tackifier per acre. Water shall be of a sufficient quantity to form a homogenous mixture capable of being applied by commercial hydromulching equipment per the manufacturer’s specifications.

Seed shall not remain in the slurry for more than 30 minutes before being applied.

Final Wood Fiber Mulch Layer Application:

Within 24 hours after each area has been seeded, a wood fiber mulch and tackifier water-based slurry shall be uniformly applied at the variable rates shown in Table 4 below:

TABLE 4		
Slope (H:V)	Wood Fiber Mulch (Pounds per acre)	Tacking agent (Pounds pure mucilage per acre)
From flatter than 6:1 to 4:1	1,500	45
Less than 3:1 to 2:1	2,000	60
Steeper than 2:1	2,500	75

Water shall be a sufficient quantity to form a homogenous mixture capable of being applied by commercial hydromulching equipment per the manufacturer’s specifications.

Seeding Acceptance:

After completion of the seeding application, the District Engineer will inspect seeded areas for conformance to the permit requirements. The Contractor shall correct any non-conforming areas. The Contractor shall maintain all seeded areas for a minimum period of 45 calendar days after acceptance by the District Engineer. Areas that have less than 90 percent of applied mulch remaining, shall be re-seeded, re-mulched, and re-tacked, as necessary, at no additional cost to the District.



Flood Control District

of Maricopa County

Date: October 30, 2015

MEMORANDUM FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S GROUTED RIPRAP PLACEMENT PROCEDURES.

A representative of FCD is required to inspect riprap placement before grouting operations and must be present during grouting operations. The contractor shall contact the designated FCD representative 48 hours prior to all required inspections. Use these notes in conjunction with FCD Detail 555-1.

1. Riprap bed shall be installed at 1.5 feet thick. Turndowns shall be installed around the perimeter of the riprap apron at a depth of 2.5 feet and a min of 1 foot width.
2. Riprap shall be obtained from any source approved by FCD, and shall be well-graded between 4 and 15 inches, with not less than 40 percent or more than 70 percent 6 inches in size. **(4 inches minimum & 15 inches maximum with a D50=9 inches)**
3. Riprap shall be placed to produce a surface in which the tops of the individual riprap do not vary more than plus 2 inches from true grade. Double decking of thin flat riprap will not be permitted.
4. Grout shall fully penetrate to base of riprap. Contractor shall use a pencil vibrator to ensure full grout penetration.
5. Grout shall be composed of cement, sand, and water mixed in the proportions as directed. The estimated cement content requirement per cubic yard of grout shall be eight sack mix-per MAG Specification 220.5. The water content of the mix shall not exceed eight and one half gallons per sack of cement. Slump of grout mix shall be between seven and 8 inches depending on placement location scenario plus or minus.
6. Placement and sweeping of the grouted surface shall be such that the outer layer of rocks projects 1/3 to 1/4 their diameter above the grouted surface. After the top course has stiffened, the entire surface shall be re-swept to eliminate runs in the top course and to fill voids caused by sloughing of the layers of grout.
7. Contractor shall clean surface of riprap stone projecting above grout to match any existing riprap. Surface shall be cleaned by air-water blasting or other approved method. Cleaning shall remove all grout, cement paste and discolorations caused by grout, without damaging the grout to remain in place.
8. The grout shall be permitted to set a minimum of one hour before air-water blasting is commenced. The air-water blasting shall be at right angles to the surface of the stone.
9. Contractor shall apply a clear curing compound to entire surface of new grouted riprap.



Flood Control District

of Maricopa County

Date: October 30, 2015

MEMORANDUM FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY'S MINIMUM REQUIREMENTS for Legal Descriptions and Map Exhibits to Accompany Legal Description for Permits over FCDMC Properties.

Utilize Exhibit A (Page 14) for a template for legal descriptions to Flood Control.

Note: Information to be Published on Map exhibit and / or Legal description

	Map	Legal	Other
Type of Easement	x	x	(i.e) Sewer, Waterline, Telecom, Drainage, Access Easement, etc.
"EXHIBIT A"	x	x	x Refer to Exhibits
Twn-Rng-Sec	x	x	
Square-Feet	0,000	x	x
Acres	0.0000	x	x
Assessor Number	000-00-000X	x	x
Geometric Map "EXHIBIT B"	x	x	Proposed R/W lines shall be tied with bearing and distance to the nearest section, quarter section, and center section, and shall be shown in both directions.
North Arrow	x		Acceptable Engineering / Surveying Standards
Curves	x	x	Curves shall include the delta angle, radius and arc-length. Local Tangent bearings shall be annotated for non-tangent curves. A legend and line and curve tables may be used.
(8 1/2" x 11") Sheet Border	x	x	Maricopa County Recorder's Office: "Reserve a minimum one-half inch (1/2") border space
Consultant Design Plans			x Provide sufficient section and parcel survey control to Locate Flood Control District R/W in relation to the proposed easements and improvements

Multiple Easements	x	x	All proposed "Water line, Sewer, Electric, Drainage," etc. Easement Map and Legal's shall be submitted individually for review
Registered Land Surveyor Seal	x	x	All Legal descriptions shall be stamped with an Arizona Registered Land Surveyor Seal. Map exhibits are sealed at the discretion of the Registered Surveyor
Text size	x	x	All lettering shall be of such size or type to be clearly legible. Refer to Maricopa County Recorder Office "100" (0.1 inches) for both upper and lower case letters.

Parcel No. 000-00-000
APPLICANTS PROJECT NAME
TYPE OF EASEMENT



Exhibit "A"
Page 14 of 16



Flood Control District

of Maricopa County

Date: October 30, 2015

MEMORANDUM FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY PROJECTS and THEIR ASSOCIATED JOINT SPONSORS

#	Name of Facility	Other Names for structure	Federal agencies involved	Local agencies involved
1	10th St Wash Basins		-	City of Phoenix
2	48th sty Drain		-	SRP
3	ACDC		USACE	City of Phoenix, City of Glendale, City of Peoria
4	Adobe Dam		USACE	
5	ADOT Basins		-	
6	Agua Fria River		USACE	
7	Apache Junction FRS & Floodway		NRCS	
8	Buckeye FRS 1		NRCS	
9	Buckeye FRS 2		NRCS	
10	Buckeye FRS 3		NRCS	
11	Bulldog Floodway		NRCS	
12	Cave Buttes Dam		USACE	
13	Cave Creek Arm		USACE	
14	Dreamy Draw Dam		USACE	
15	East Fork Cave Creek		-	City of Phoenix
16	East Maricopa Floodway (EMF)	RWCD diversion channel	NCRS	
17	East Mesa Drains		-	
18	El Mirage Road Drain		-	
19	Guadalupe FRS		NRCS	
20	Hermosa Vista Storm Drains		-	City of Mesa
21	IBW Collector & Side Drains		USACE	City of Scottsdale
22	McDowell Rd Storm Drain		-	City of Mesa
23	McMicken Dam	Trilby wash	USACE, FCD	
24	McMicken Floodway		USACE	

25	New River Channel	USACE	City of Peoria, City of Glendale
26	New River Dam	USACE	
27	North Inlet Channel	-	
28	Pass Mountain Diversion Channel	NRCS	Maricopa County Parks and Rec
29	Powerline Floodway	NRCS	
30	Powerline FRS	NRCS	
31	Reems Rd Channel	-	City of Peoria, City of Glendale
32	Rittenhouse FRS	NRCS	
33	Rittenhouse Road Drain	-	
34	Scatter Wash	-	City of Phoenix, ADOT
35	Signal Butte Floodway	NRCS	
36	Signal Butte FRS	NRCS	
37	Siphon Draw Basin	-	BLM
38	Skunk Creek @ I-17	USACE	
39	Skunk Creek Bank Stabilization	USACE	City of Peoria
40	Sonoqui Wash	-	
41	Spookhill FRS and Floodway	NRCS	
42	Sun City Drains	-	
43	Sun City West Drains	-	
44	Tres Rios Levee	USACE	
45	Vineyard FRS	NRCS	
46	White Tanks FRS #3	NRCS	
47	WT FRS #3 Outlet Channel	-	
48	WT FRS #4	NRCS	