

# Stormwater Basins GIS Project Report

By Ian Schwarzenberg



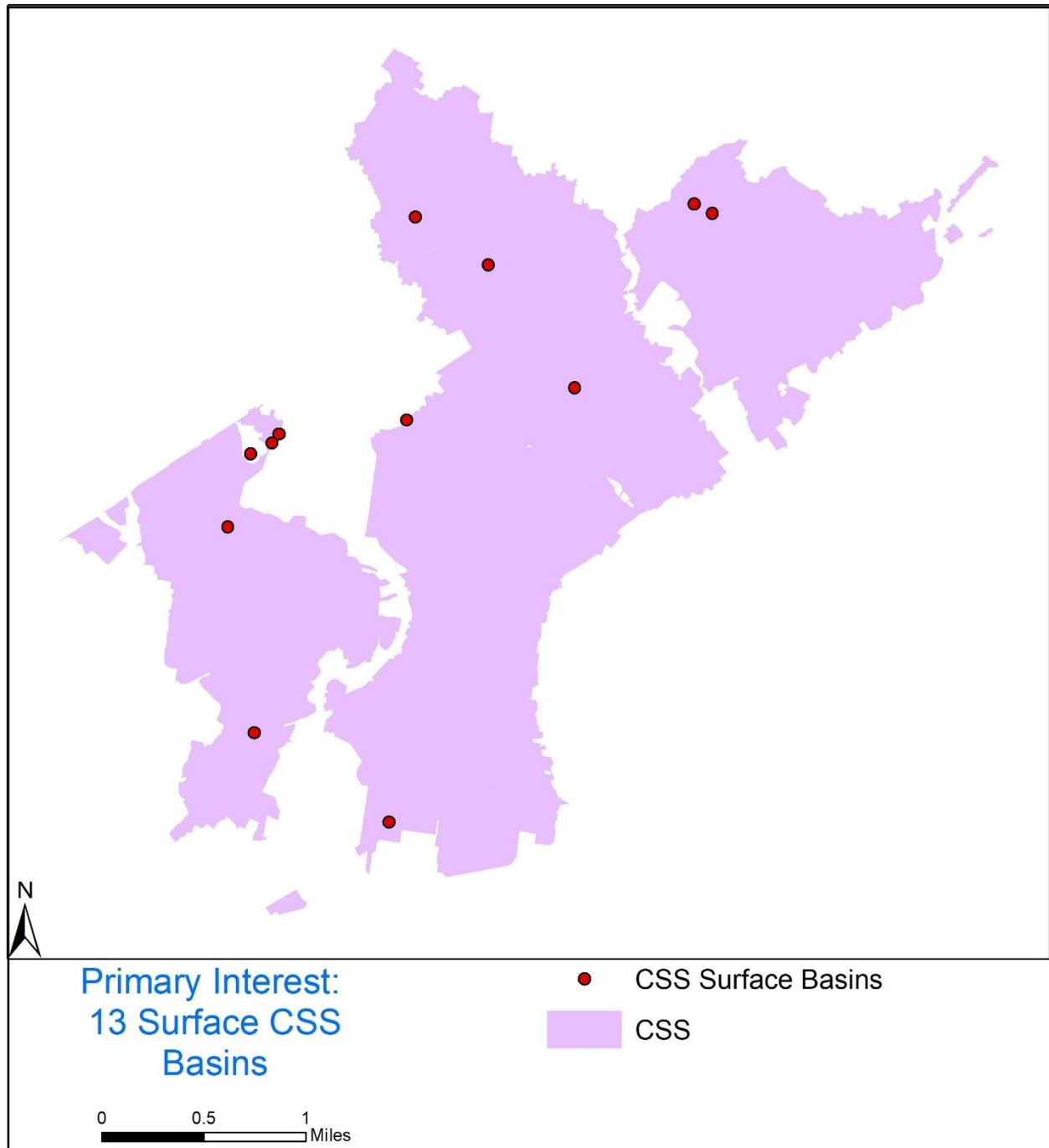
## **I. Background**

It is important to analyze all the city's storm water basins to discover numerous characteristics about them, such as identifying basins best suited for retrofits and finding out where basins were supposed to be built but never were, which identifies developers who owe the city these retrofits they said they would build. I obtained the basin data from the 2009 storm water basins master list in \\pwwhqr2\Plan Review\Stormwater Project Tracking\Compliance Planning\Pre-2006 Storm Water Basins\SW\_Basins\_2009\_GIS\_Project\Master\_List\2018.04.04\_SW Basins 2009 Inspection Master List.xls in mid-March 2018, the latitude and longitude coordinates for each basin from Google Maps and RStudio's "ggmap" library and the drainage district and sewer system data from the Philadelphia Water Department's OWS\_GISDATA.OWS.WATERSHEDS geodatabase in early April 2018.

There are numerous types of storm water basins that I examined. Firstly, I examined basins that are confirmed to exist. Secondly, I examined basins that are not confirmed to exist. There are addresses for these basins that were pledged to be built, but it is unclear if they exist. Thirdly, I examined nonexistent basins. These basins were pledged to be built, but the city knows for certain that these basins do not exist and were never built. Finally, I analyzed not found and never built basins. These basins have very little information, and as a result the city does not know as to whether these are found or built. This makes their existence more uncertain compared to nonexistent basins, in which the lack of existence of those is certain.

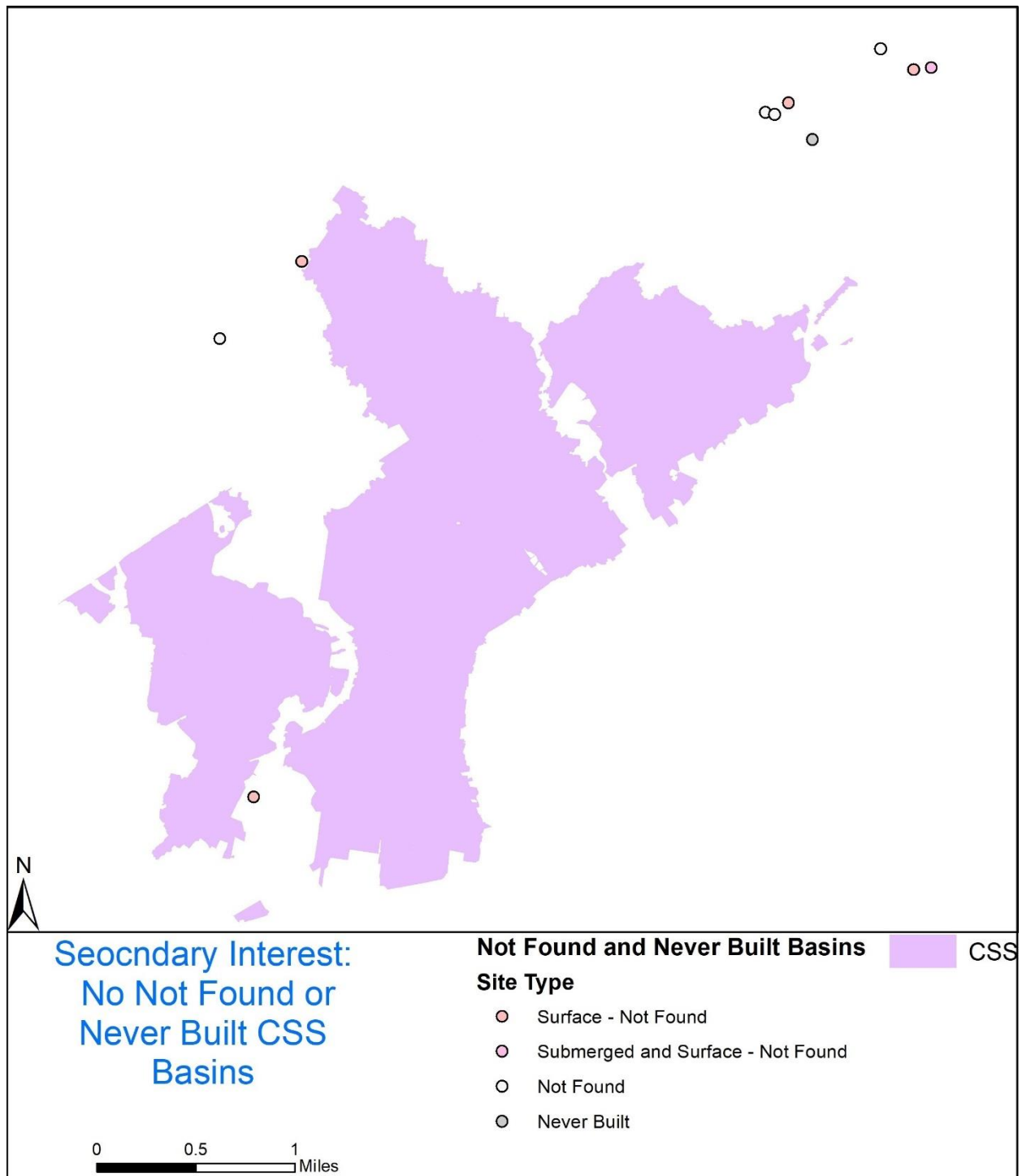
## II. Interests

### Primary Interest –Surface CSS Basins



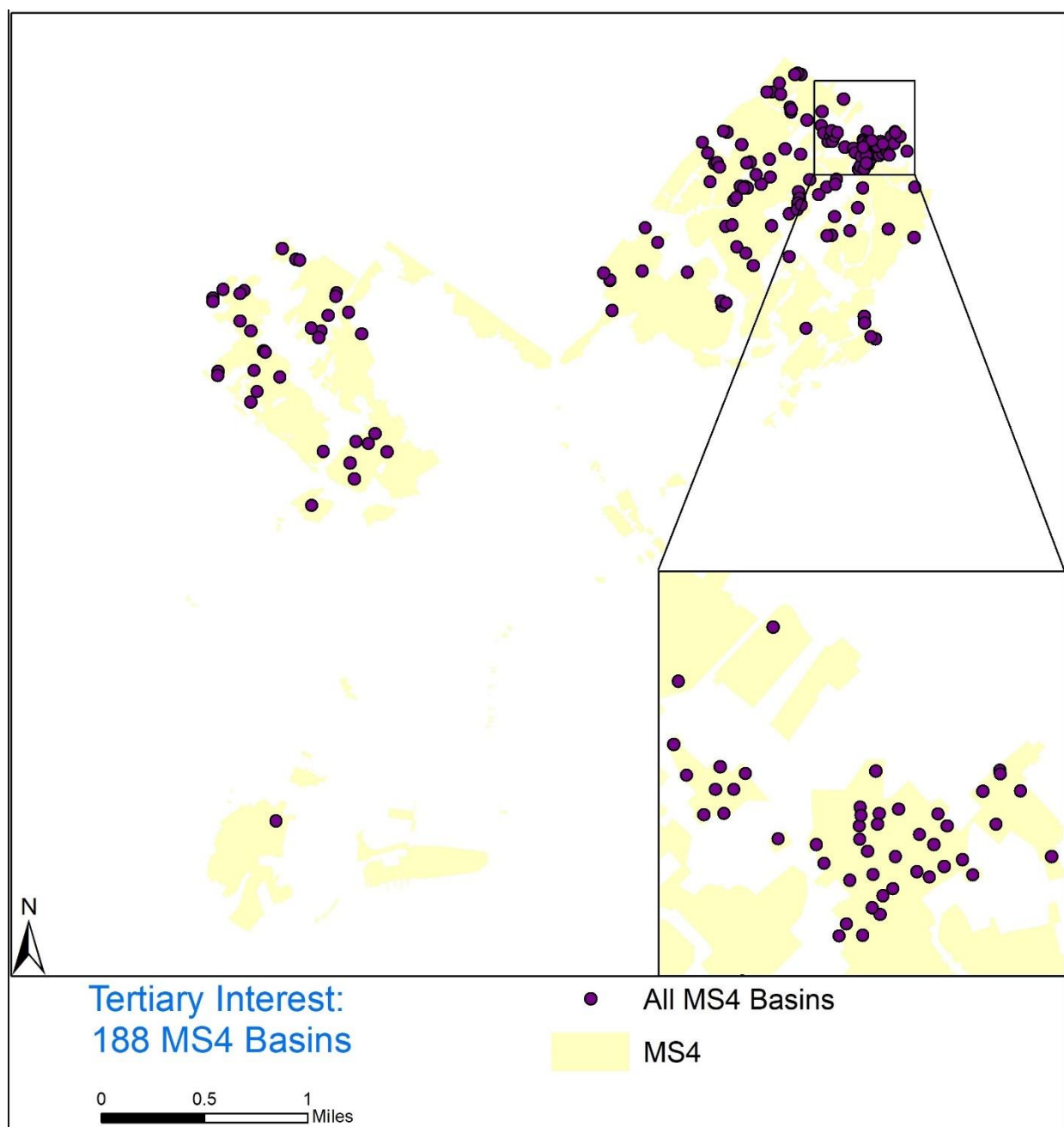
There are 13 surface stormwater basins in the CSS. These represent 6% of the 221 total Philadelphia storm water basins, 59% of the 22 CSS basins, and 11% of the 123 strictly surface basins in Philadelphia. This is the primary interest because these are the easiest to retrofit.

## Secondary Interest – Not Found and Never Built CSS Basins



There are no not found or never built basins in the CSS. There is one just outside of Chestnut Hill that comes very close to being inside the CSS, but is instead just over the border into the MS4. This is the secondary interest because a basin not found or never built in the CSS would be owed to the city by the developers who pledged to build those.

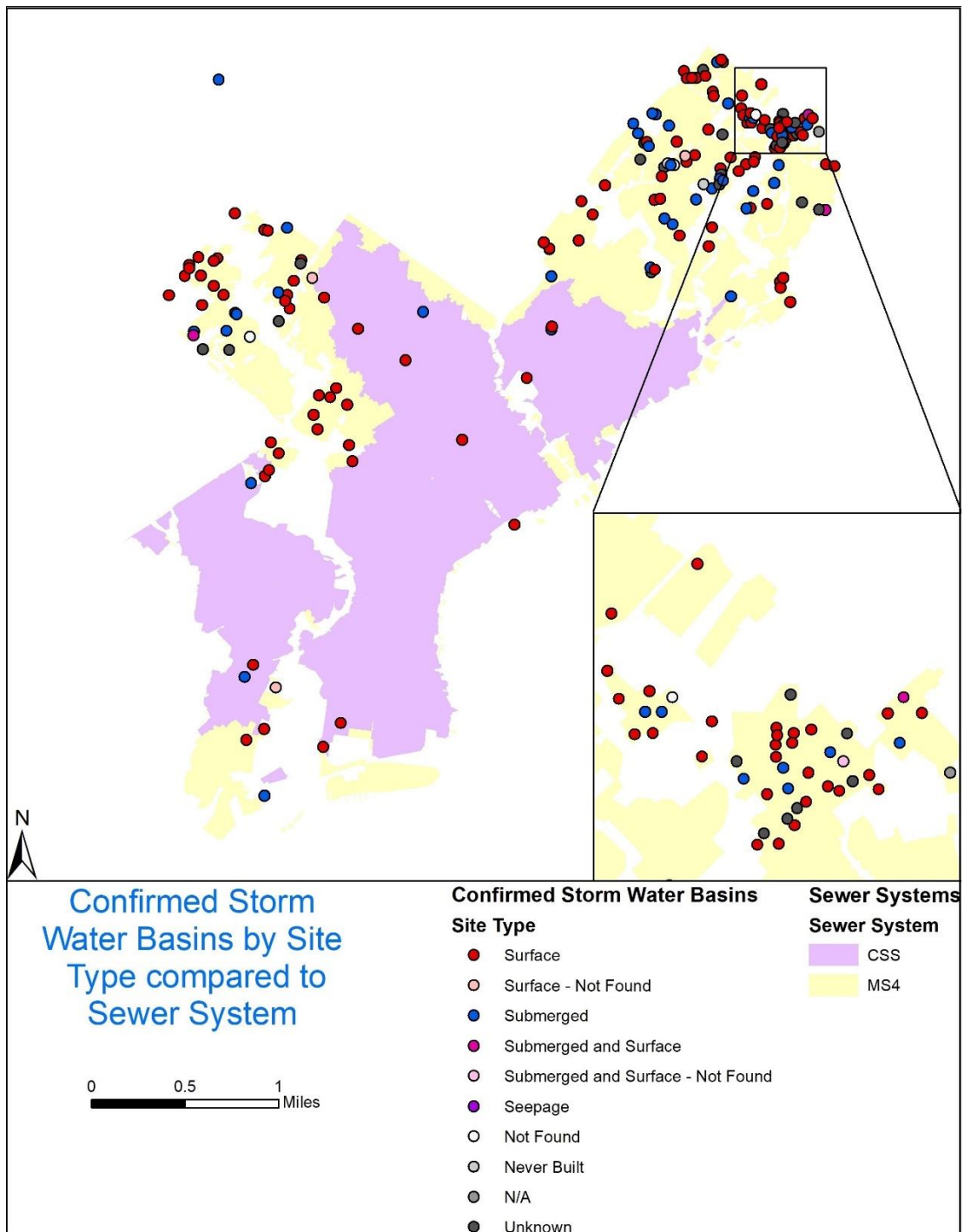
### Tertiary Interest – All MS4 Basins



The 188 storm water basins in the MS4 represent 85% of all the 221 Philadelphia storm water basins.

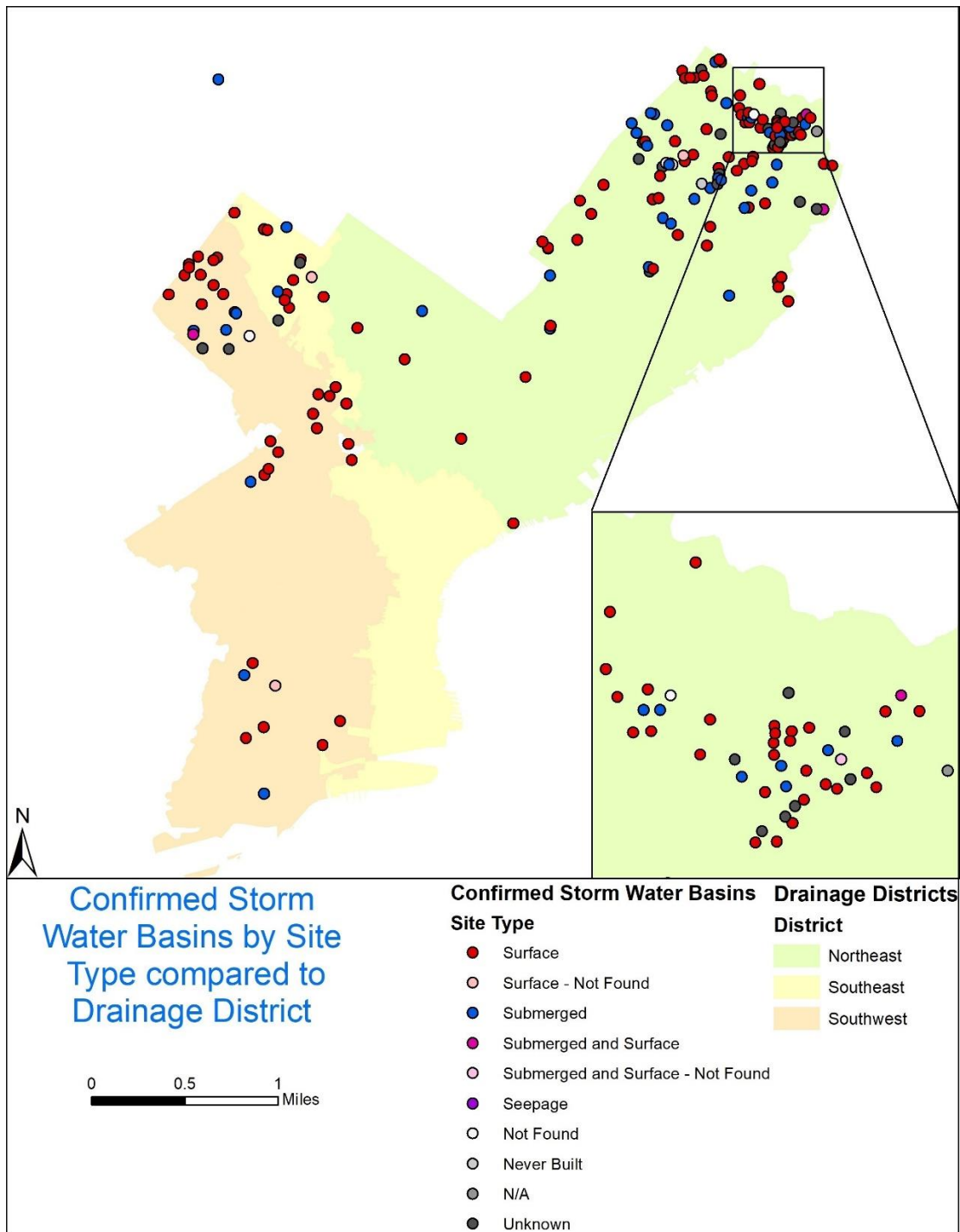
### III. General Basin Existence

#### Confirmed Storm Water Basins by Sewer System



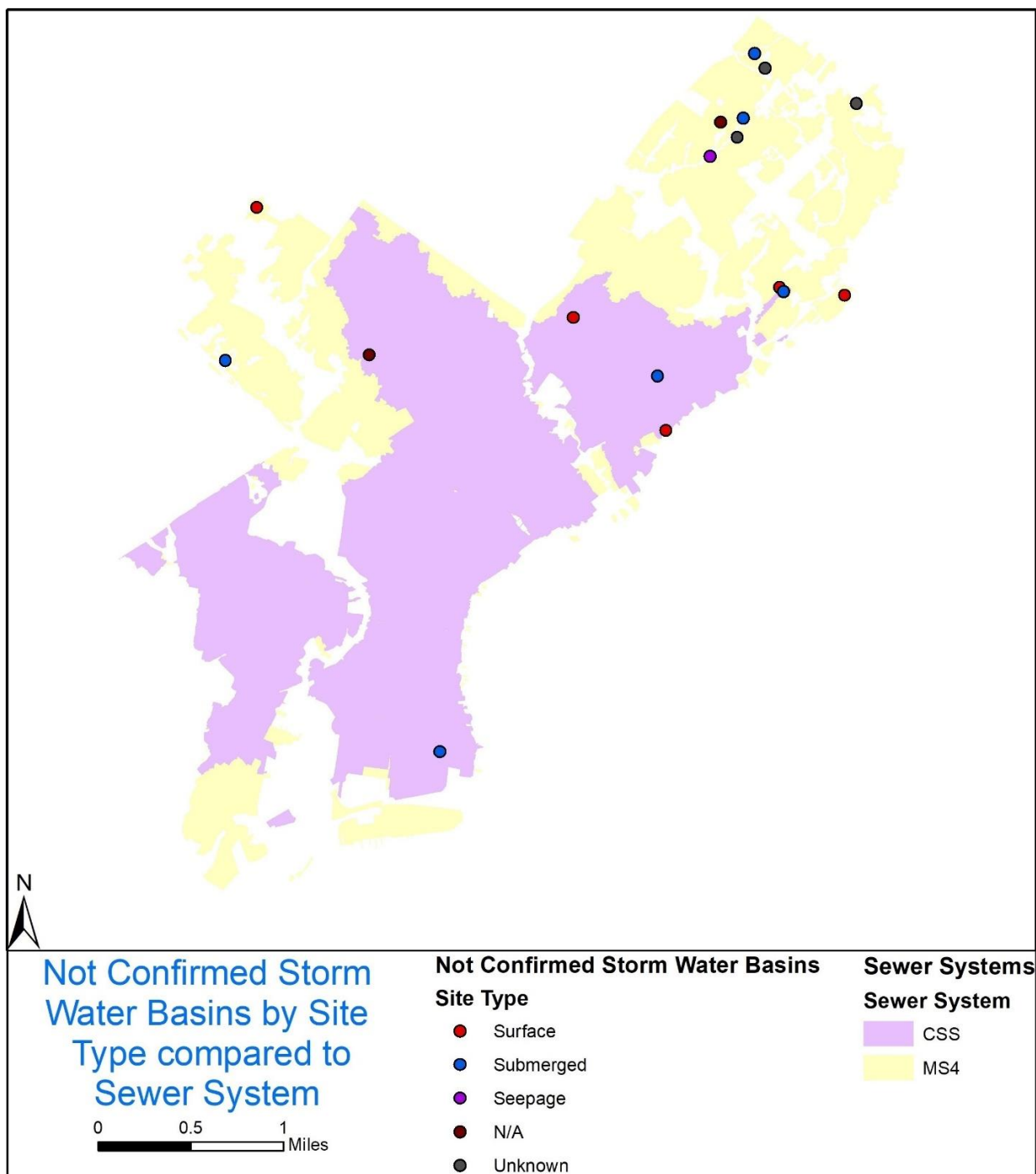
There are 197 confirmed storm water basins total. These make up 90% of the 221 Philadelphia stormwater basins. There are 16 confirmed basins in the CSS, 151 in the MS4, and 30 just barely outside of either. These represent 73% of the 22 basins in the CSS, 90% of the 168 storm water basins in the MS4, and 94% out of the 32 basins just barely outside of either.

## Confirmed Storm Water Basins by Drainage District



There are 143 confirmed basins in the Northeast Drainage District, 16 in the Southeast Drainage District, 40 in the Southwest Drainage District and 1 in none of these. These represent 89% of the 161 basins of all types in the Northeast Drainage District, 89% of the 18 basins of all types in the Southeast Drainage District, 91% of the 44 basins of all types in the Southwest Drainage District and 100% of the basins not in any of these.

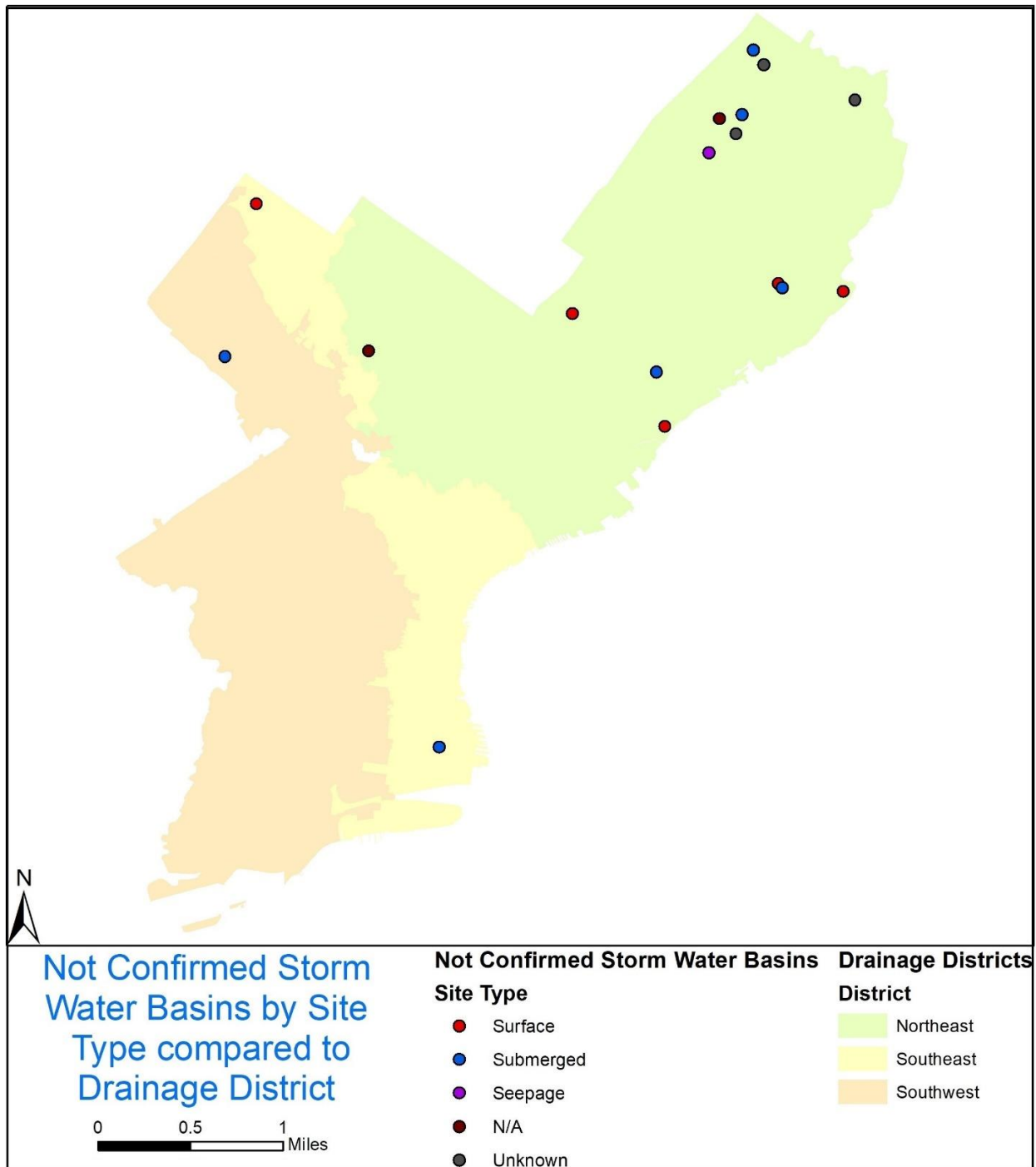
## Not Confirmed Storm Water Basins by Sewer System



There are 17 not confirmed storm water basins total. These make up 8% of the 221 Philadelphia stormwater basins. There are 5 not confirmed basins in the CSS, 10 not confirmed basins in the MS4, and 2 just barely outside of either. These represent 23% of the 22 city CSS basins, 6% of the city MS4 basins and 6% of the city basins just barely outside of either.

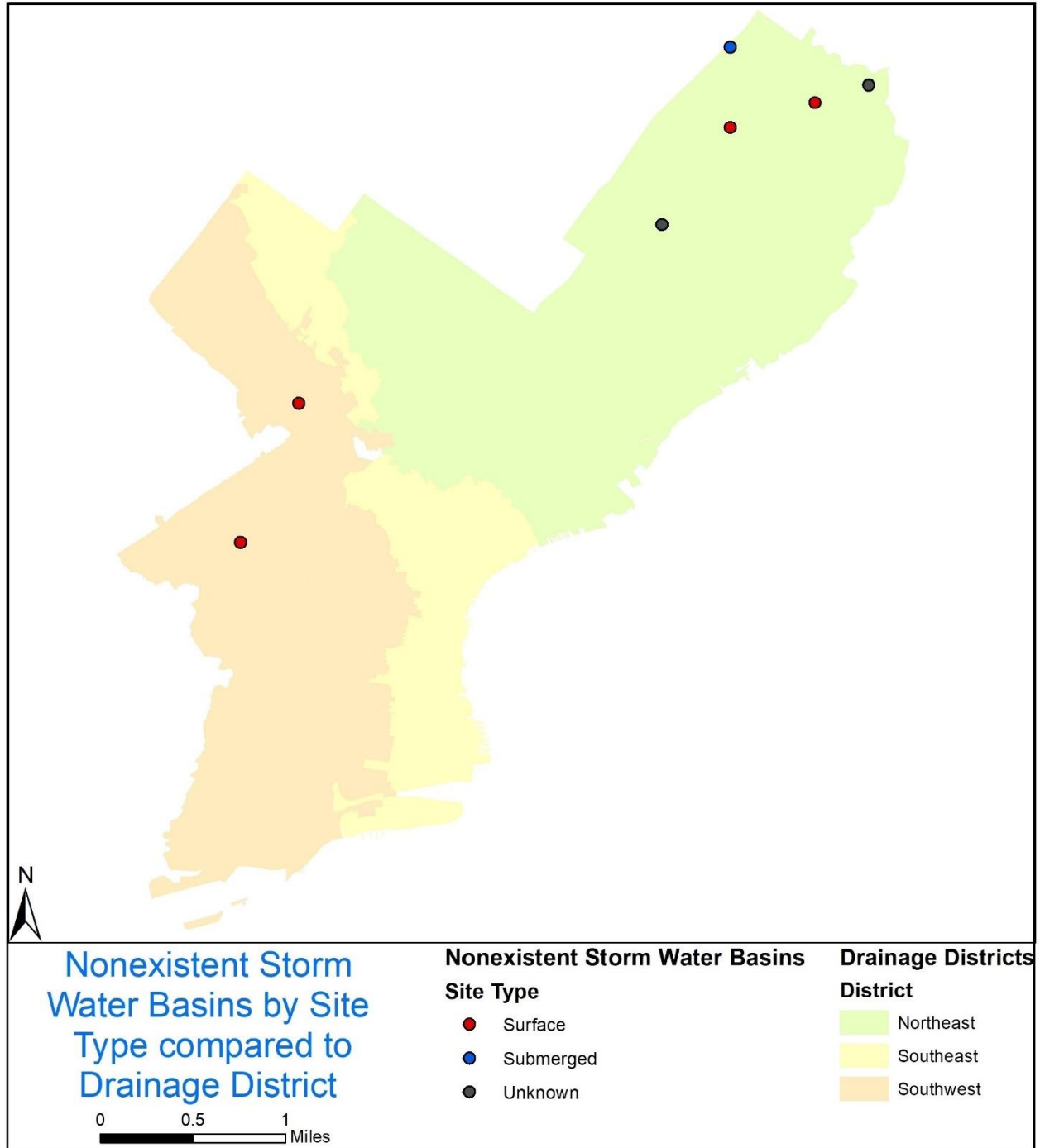


## Not Confirmed Storm Water Basins by Drainage District



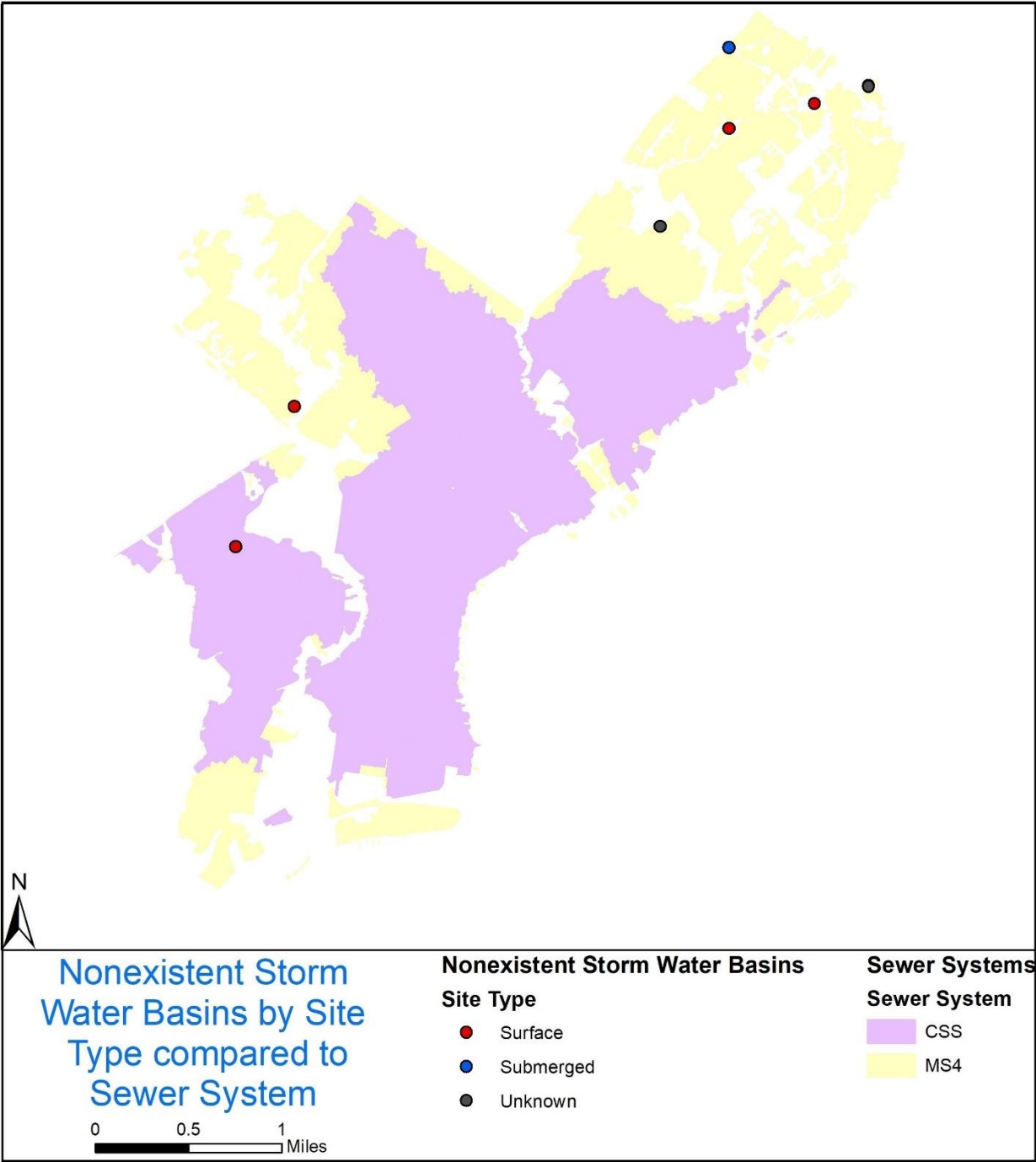
There are 14 not confirmed basins in the Northeast Drainage District, 2 in the Southeast Drainage District and 1 in the Southwest Drainage District. These represent 7% of the 161 basins of all types in the Northeast Drainage District, 11% of the 18 basins of all types in the Southeast Drainage District and 2% of the 44 basins of all types in the Southwest Drainage District.

## Nonexistent Storm Water Basins by Sewer System



There are 6 nonexistent storm water basins total. These make up 3% of the 221 Philadelphia stormwater basins. There is 1 nonexistent basin in the CSS, 4 nonexistent basins in the MS4, and 1 just barely outside of either. These represent 5% of the 22 city CSS basins, 2% of the city MS4 basins and 3% of the city basins just barely outside of either.

**Nonexistent Storm Water Basins by Drainage District**



There are 4 nonexistent basins in the Northeast Drainage District, none in the Southeast Drainage District and 2 in the Southwest Drainage District. These represent 2% of the 161 basins of all types in the Northeast Drainage District and 5% of the 44 basins of all types in the Southwest Drainage District.

## Appendix

### Methodology

To conduct this analysis, I first analyzed the storm water basins in the 2009 storm water basins master list (\\pwdhqr2\Plan Review\Stormwater Project Tracking\Compliance Planning\Pre-2006 Storm Water Basins\SW\_Basins\_2009\_GIS\_Project\Master\_List\2018.04.04\_SW Basins 2009 Inspection Master List.xls) to divide them by existence: whether they were confirmed, not confirmed or nonexistent. Each basin's existence was determined by the information associated with each basin, such as the notes column of that spreadsheet. I did this in mid-March 2018.

To find the latitude and longitude coordinates of all the basins to prepare them for mapping, I put each category of basins by existence. For example, I put all basins confirmed to exist in their own CSV, all not confirmed basins in their own CSV and all nonexistent basins in their own CSV (these can all be found in the \\pwdhqr2\Plan Review\Stormwater Project Tracking\Compliance Planning\Pre-2006 Storm Water Basins\SW\_Basins\_2009\_GIS\_Project\SW\_Basin\_CSVs folder). I then went through each CSV and used Google Maps to ensure that I had the addresses for each: the addresses of where they exist for the confirmed ones, and the addresses of where they were supposed to exist for the not confirmed and nonexistent basins. I made sure I had addresses for as many basins as possible with help from other Philadelphia Water Department Staff such as Patrick Perhosky who looked through the department's old paper records. After getting the addresses, I made sure each address had "Philadelphia pa" written after them to ease the geocoding process. I then loaded each CSV into RStudio to geocode the addresses to get their latitude and longitude coordinates. R obtains coordinates for addresses through its "ggmap" library. I then manually copied and pasted all the coordinates into the CSVs. This can be found in \\pwdhqr2\Plan Review\Stormwater Project Tracking\Compliance Planning\Pre-2006 Storm Water Basins\SW\_Basins\_2009\_GIS\_Project\Geocoder. I did all this during the last two weeks of March 2018.

In the first two weeks of April 2018, I then loaded each CSV into a new ArcMap file (\\pwdhqr2\Plan Review\Stormwater Project Tracking\Compliance Planning\Pre-2006 Storm Water Basins\SW\_Basins\_2009\_GIS\_Project\MXD\_Files\SW\_Basins\_2009\_GIS\_Project.mxd) to add their XY data to convert them into shapefiles, which I saved in the \\pwdhqr2\Plan Review\Stormwater Project Tracking\Compliance Planning\Pre-2006 Storm Water Basins\SW\_Basins\_2009\_GIS\_Project\Shapefiles folder. I then added in two shapefiles from the Philadelphia Water Department's geodatabases into that ArcMap file: the OWS\_GISDATA.OWS.Modelsheds\_2011 shapefile representing the city's CSS and MS4 sewer system boundaries and the OWS\_GISDATA.OWS.Modelsheds\_2011 shapefile representing the city's different Drainage District boundaries, both from the OWS\_GISDATA.OWS.WATERSHEDS geodatabase. I then began to spatially analyze the basins point shapefiles to map them. I merged the 3 shapefiles to create an all basins point shapefile, I symbolized the basins shapefiles by site type (ex. Surface, submerged, not found, never built, etc.), and I used the select by attribute tool to create a host of new shapefiles from

my 2 city geodatabase shapefiles, 3 basins shapefiles and 1 merged all basins shapefile that contained: all surface basins, a shapefile with just the CSS polygon boundaries, a shapefile with just the MS4 polygon boundaries and shapefiles containing all surface basins in the CSS, all basins with not found or never built site types and all basins in the MS4. This was done to analyze the Philadelphia Water Department's three interests: 1) Their primary interest of all surface basins in the CSS, 2) their secondary interest of all basins in the CSs that were not found or never built, and 3) their tertiary interest of all basins in the MS4. I then created the JPEG maps for this report using these shapefiles.

In the last two weeks of April 2018, I then created the list of basins by drainage district and sewer system for this report. To do this, I first created numerous shapefiles in that ArcMap file. I started by making 2 shapefiles by spatial joining my all basins point shapefile to my separated sewer and Drainage District shapefiles: 1 containing all storm water basins broken down by sewer system and 1 containing all basins broken down by Drainage District. I then spatial joined those to get all basins with all their characteristics broken down by both sewer and Drainage District. I then exported this shapefile's attribute table as a CSV file which I converted into an Excel file (\\pwdhqr2\Plan Review\Stormwater Project Tracking\Compliance Planning\Pre-2006 Storm Water Basins\SW\_Basins\_2009\_GIS\_Project\SW\_Basin\_CSVs\20180425\_All\_SW\_Basins\_for\_Appendix.xlsx), in which I then sorted to eliminate duplicates of basins accidentally created in the joining process and to identify basins outside of both sewer systems. I then copied the resulting table into this report.

## List of All Basins by Drainage District and Sewer System

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
<b>CSS Basins</b>								
<b>CSS Northeast Drainage District Basins</b>								
042-003-D	80	122	DR-080-0122-A	6225 oxford ave Philadelphia pa	Submerged	Confirmed	CSS	NE
	0	0		6302 old York rd. Philadelphia pa	Submerged	Confirmed	CSS	NE
	0	0		9099 Frankford avenue Philadelphia pa	Submerged	Confirmed	CSS	NE
	0	0		122 w Erie ave Philadelphia pa	Surface	Confirmed	CSS	NE
084-004-T	69	99	TF-069-0099-A	1701 lindley ave Philadelphia pa	Surface	Confirmed	CSS	NE
	0	0		332 e walnut ln Philadelphia pa	Surface	Confirmed	CSS	NE
166-007-D	80	101	DR-080-0101-A	6301-93 oxford ave Philadelphia pa	Surface	Confirmed	CSS	NE
	68	40	PQ-068-0040-A	5818 Germantown Avenue Philadelphia PA	N/A	Not Confirmed	CSS	NE
	0	0		6302 Frankford Ave, Philadelphia PA	Submerged	Not Confirmed	CSS	NE
	92	128	PP-092-0128-A	9090 Frankford Avenue Philadelphia PA	Submerged	Not Confirmed	CSS	NE
	80	185	DR-080-0185-A	699-681 Robbins St Philadelphia PA	Surface	Not Confirmed	CSS	NE
<b>CSS Southeast Drainage District Basins</b>								
171-024-S	47	134	SR-047-0134-A	2901 W Cambria St Philadelphia pa	Surface	Confirmed	CSS	SE
	16	169	DR-016-0169-A	2743 S 3RD ST Philadelphia PA	Submerged	Not Confirmed	CSS	SE
<b>CSS Southwest Drainage District Basins</b>								
	0	0		2100 n 49th st Philadelphia pa	Submerged	Confirmed	CSS	SW
077-010-S	19	105	SR-019-0105-A	2231 s 62 st Philadelphia pa	Submerged	Confirmed	CSS	SW
135-017-S	39	95	SR-039-0095-A	2100 n 49th street Philadelphia pa	Surface	Confirmed	CSS	SW
	0	0		2101 Belmont avenue Philadelphia pa	Surface	Confirmed	CSS	SW
142-019-S	5	137	SR-005-0137-A	3349-3301 Penrose Ferry Rd Philadelphia pa	Surface	Confirmed	CSS	SW
	0	0	S---A	4300 Monument Rd Philadelphia pa	Surface	Confirmed	CSS	SW
	39	150	SR-039-0150-A	4300 monument road Philadelphia pa	Surface	Confirmed	CSS	SW
	0	0		5800 woodland ave Philadelphia pa	Surface	Confirmed	CSS	SW
	33	147	SR-033-0147-A	5300 Lancaster Ave, Philadelphia PA	Surface	Nonexistent	CSS	SW

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
<b>MS4 Basins</b>								
<b>MS4 Northeast Drainage District Basins</b>								
	0	0		3138 Mechanicsville road Philadelphia pa	N/A	Confirmed	MS4	NE
098-033-PP	109	116	PP-109-0116-A	1209-1217 Norwalk road Philadelphia pa	not found	Confirmed	MS4	NE
172-091-PQB	118	17	PQ-118-0017-A	2198 hornig road Philadelphia pa	not found	Confirmed	MS4	NE
	0	0		9892 bustleton ave Philadelphia pa	not found	Confirmed	MS4	NE
043-006-PP	109	117	PP-109-0117-A	9945-49 Norwalk rd. Philadelphia pa	Seepage	Confirmed	MS4	NE
	113	151	PP-113-0151-A	10049 sandmeyer la Philadelphia pa	Submerged	Confirmed	MS4	NE
140-027-PD	112	172	PP-112-0172-A	10087 sandmeter lane Philadelphia pa	Submerged	Confirmed	MS4	NE
	0	0		10089 sandmeyer lane Philadelphia pa	Submerged	Confirmed	MS4	NE
102-062-PQB	110	158	PQ-110-0158-A	10551 Decatur road Philadelphia pa	Submerged	Confirmed	MS4	NE
161-086-PQB	110	138	PQ-110-0138-A	10975 Dutton road Philadelphia pa	Submerged	Confirmed	MS4	NE
	0	0		13000 trina dr Philadelphia pa	Submerged	Confirmed	MS4	NE
097-060-PQB	114	157	PQ-114-0157-A	1340 Stewarts way Philadelphia pa	Submerged	Confirmed	MS4	NE
	120	135	PQ-120-0135-A	13675 Philmont ave Philadelphia pa	Submerged	Confirmed	MS4	NE
148-081-PQ	0	0		13678 Philmont ave Philadelphia pa	Submerged	Confirmed	MS4	NE
	0	0		14420 Townsend rd. Philadelphia pa	Submerged	Confirmed	MS4	NE
040-023-PQ	120	119	PQ-120-0119-A	14425 bustleton avenue Philadelphia pa	Submerged	Confirmed	MS4	NE
	0	0		2015 welsh rd. Philadelphia pa	Submerged	Confirmed	MS4	NE
	109	47	PQ-109-0047-A	2072-80 red lion rd. Philadelphia pa	Submerged	Confirmed	MS4	NE
023-010-PQB	118	88	PQ-118-0088-A	2101 horning road Philadelphia pa	Submerged	Confirmed	MS4	NE
041-024-PQB	118	110	PQ-118-0110-A	2190 horning road Philadelphia pa	Submerged	Confirmed	MS4	NE
113-023-PD	112	167	PP-112-0167-A	225-73 Geiger road Philadelphia pa	Submerged	Confirmed	MS4	NE
095-057-PQ	118	54	PQ-118-0054-A	2701 commerce way Philadelphia pa	Submerged	Confirmed	MS4	NE
063-041-PQB	109	14	PQ-109-0014-A	2751 red lion rd. Philadelphia pa	Submerged	Confirmed	MS4	NE
	32	163	PQ-032-0163-A	2760 red lion road Philadelphia pa	Submerged	Confirmed	MS4	NE
192-108-PQB	0	0		2760 red lion road Philadelphia pa	Submerged	Confirmed	MS4	NE

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
051-030-PQ-A	118	80	PQ-118-0080-A	2800 black lake place Philadelphia pa	Submerged	Confirmed	MS4	NE
039-022-PQB	114	29	PQ-114-0029-A	2800 Southampton Philadelphia pa	Submerged	Confirmed	MS4	NE
079-051-PQB	110	126	PQ-110-0126-A	2801 red lion road Philadelphia pa	Submerged	Confirmed	MS4	NE
179-096-PQ	114	68	PQ-114-0068-A	2900 black lake place Philadelphia pa	Submerged	Confirmed	MS4	NE
037-019-PQB	0	0		3050 red lion road Philadelphia pa	Submerged	Confirmed	MS4	NE
	0	0		840 cottman ave Philadelphia pa	Submerged	Confirmed	MS4	NE
173-034-P	100	124	PP-100-0124-A	8400 Roosevelt boulevard Philadelphia pa	Submerged	Confirmed	MS4	NE
119-025-PW	105	120	PP-105-0120-A	9250 e Roosevelt Blvd. Philadelphia pa	Submerged	Confirmed	MS4	NE
	109	178	PP-109-0178-A	9815 e Roosevelt Blvd. Philadelphia pa	Submerged	Confirmed	MS4	NE
043-009-PP	109	118	PP-109-0118-A	9945-49 Norwalk rd. Philadelphia pa	Submerged	Confirmed	MS4	NE
186-036-PD	112	136	DR-112-0136-A	9954 gardenia lane Philadelphia pa	Submerged	Confirmed	MS4	NE
149-082-PQB	114	58	PQ-114-0058-A	1 crown way Philadelphia pa	Surface	Confirmed	MS4	NE
065-042-PQB	113	39	PQ-113-0039-A	10102 Jamison ave Philadelphia pa	Surface	Confirmed	MS4	NE
111-021-PP	113	94	PP-113-0094-A	10125 verree road Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		10300 Drummond rd. Philadelphia pa	Surface	Confirmed	MS4	NE
106-063-PQB	110	83	PQ-110-0083-A	10975 academy road Philadelphia pa	Surface	Confirmed	MS4	NE
152-085-PQB	109	111	PQ-109-0111-A	11311 Roosevelt Blvd. Philadelphia pa	Surface	Confirmed	MS4	NE
033-017-PQB	113	49	PQ-113-0049-A	11400 northeast avenue Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		11501 Roosevelt Blvd. Philadelphia pa	Surface	Confirmed	MS4	NE
080-052-PQB	114	92	PQ-114-0092-A	11600 norcom road Philadelphia pa	Surface	Confirmed	MS4	NE
056-035-PQB	114	176	PQ-114-0176-A	12260 Townsend road Philadelphia pa	Surface	Confirmed	MS4	NE
096-059-PQB	114	168	PQ-114-0168-A	12273 Townsend road Philadelphia pa	Surface	Confirmed	MS4	NE
038-021-PQ	118	25	PQ-118-0025-A	12300 mcnulty road Philadelphia pa	Surface	Confirmed	MS4	NE
038-020-PQ	118	24	PQ-118-0024-A	12300 mcnulty road Philadelphia pa	Surface	Confirmed	MS4	NE
TOWNS-CLVT	119	187	PQ-119-0187-A	12301 McNulty Rd Philadelphia pa	Surface	Confirmed	MS4	NE



Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
031-015-PQ	114	18	PQ-114-0018-A	12401 mculty road Philadelphia pa	Surface	Confirmed	MS4	NE
109-066-PQ	114	146	PQ-114-0146-A	12601 Townsend road Philadelphia pa	Surface	Confirmed	MS4	NE
069-046-PQ	114	67	PQ-114-0067-A	12700 Townsend road Philadelphia pa	Surface	Confirmed	MS4	NE
169-090-PQ	114	130	PQ-114-0130-A	12800 Townsend road Philadelphia pa	Surface	Confirmed	MS4	NE
067-043-PQ	115	103	PQ-115-0103-A	12802 galdi ln Philadelphia pa	Surface	Confirmed	MS4	NE
053-075-PQ	115	50	PQ-115-0050-A	12901 Townsend road Philadelphia pa	Surface	Confirmed	MS4	NE
053-032-PQ	114	53	PQ-114-0053-A	12901 Townsend road Philadelphia pa	Surface	Confirmed	MS4	NE
	118	186	PQ-118-0186-A	13451 damar drive Philadelphia pa	Surface	Confirmed	MS4	NE
	119	156	PQ-119-0156-A	14002 mculty rd. Philadelphia pa	Surface	Confirmed	MS4	NE
140002	119	155	PQ-119-0155-A	14002 mculty road Philadelphia pa	Surface	Confirmed	MS4	NE
122-069-PQ	119	96	PQ-119-0096-A	14005 mculty rd. Philadelphia pa	Surface	Confirmed	MS4	NE
150-083-PQ	119	71	PQ-119-0071-A	14300 Townsend rd. Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		15000 poquessing creek ln Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		1630 welsh rd. Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		1701 grant avenue Philadelphia pa	Surface	Confirmed	MS4	NE
	109	84	PP-109-0084-A	1901 Reilly road Philadelphia pa	Surface	Confirmed	MS4	NE
117-068-PQB	118	55	PQ-118-0055-A	2000 kubach road Philadelphia pa	Surface	Confirmed	MS4	NE
181-098-PQB	118	145	PQ-118-0145-A	2100 horning road Philadelphia pa	Surface	Confirmed	MS4	NE
094-056-PQB	118	10	PQ-118-0010-A	2100 kubach road Philadelphia pa	Surface	Confirmed	MS4	NE
024-011-PQB	118	125	PQ-118-0125-A	2180 horning road Philadelphia pa	Surface	Confirmed	MS4	NE
046-027-PQB	118	144	PQ-118-0144-A	2191 horning road Philadelphia pa	Surface	Confirmed	MS4	NE
045-026-PQ	118	165	PQ-118-0165-A	2704 black lake pl Philadelphia pa	Surface	Confirmed	MS4	NE
085-054-PQ	118	31	PQ-118-0031-A	2705 black lake pl Philadelphia pa	Surface	Confirmed	MS4	NE
054-033-PQ	118	174	PQ-118-0174-A	2706 black lake pl Philadelphia pa	Surface	Confirmed	MS4	NE
089-055-PQ	118	65	PQ-118-0065-A	2707 black lake pl Philadelphia pa	Surface	Confirmed	MS4	NE
	118	15	PQ-118-0015-A	2709 commerce way Philadelphia pa	Surface	Confirmed	MS4	NE
180-097-PQ	118	161	PQ-118-0161-A	2722 commerce way Philadelphia pa	Surface	Confirmed	MS4	NE
030-014-PQB	0	0		2800 norcom rd. Philadelphia pa	Surface	Confirmed	MS4	NE

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
	0	0		2811 charter road Philadelphia pa	Surface	Confirmed	MS4	NE
136-074-PQ	114	143	PQ-114-0143-A	2825-45 Southhampton road Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		2900 comly rd. Philadelphia pa	Surface	Confirmed	MS4	NE
015-003-PW	105	85	PP-105-0085-A	2901 grant avenue Philadelphia pa	Surface	Confirmed	MS4	NE
	119	20	PQ-119-0020-A	3000 meeting house road Philadelphia pa	Surface	Confirmed	MS4	NE
019-006-PQ (1)	120	36	PQ-120-0036-A	301 Byberry road Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		301 Byberry Road, Philadelphia PA	Surface	Confirmed	MS4	NE
020-084-PQ	102	89	PQ-102-0089-A	4701 grant ave Philadelphia pa	Surface	Confirmed	MS4	NE
151-030-P	104	87	PP-104-0087-A	501 ridgerun la Philadelphia pa	Surface	Confirmed	MS4	NE
014-001-T	98	76	TF-098-0076-A	7500 central ave Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		7600 central avenue Philadelphia pa	Surface	Confirmed	MS4	NE
014-008-T	98	75	TF-098-0075-A	7701r burholme avenue Philadelphia pa	Surface	Confirmed	MS4	NE
165-088-PQB	117	69	PQ-117-0069-A	780 Byberry road Philadelphia pa	Surface	Confirmed	MS4	NE
174-035-P	99	56	PP-099-0056-A	8001 verree road Philadelphia pa	Surface	Confirmed	MS4	NE
155-031-P	100	70	PP-100-0070-A	8401 Roosevelt Blvd. Philadelphia pa	Surface	Confirmed	MS4	NE
	104	57	PP-104-0057-A	8540 verree rd. Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		9200 blue grass road Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		9200 blue grass road Philadelphia pa	Surface	Confirmed	MS4	NE
	0	0		9600 Milnor st Philadelphia pa	Surface	Confirmed	MS4	NE
028-012-PQ	102	66	PQ-102-0066-A	9621 Eden hall la Philadelphia pa	Surface	Confirmed	MS4	NE
011-001-PP	109	59	PP-109-0059-A	9741 krewstown road Philadelphia pa	Surface	Confirmed	MS4	NE
086-013-PD	112	113	PP-112-0113-A	9947 global rd. Philadelphia pa	Surface	Confirmed	MS4	NE
053-076-PQ	115	51	PQ-115-0051-A	12901 Townsend road Philadelphia pa	Surface & Submerged	Confirmed	MS4	NE
032-016-PQ	119	107	PQ-119-0107-A	14400 mculty rd. Philadelphia pa	Surface & Submerged	Confirmed	MS4	NE
021-008-PQ	111	77	PQ-111-0077-A	4338 Byberry rd. Philadelphia pa	Surface & Submerged	Confirmed	MS4	NE
047-028-PQ	118	131	PQ-118-0131-A	13000 Townsend road Philadelphia pa	Surface & Submerged- - not found	Confirmed	MS4	NE
051-030-PQ-B	118	81	PQ-118-0081-A	2800 black lake place Philadelphia pa	Surface-- not found	Confirmed	MS4	NE

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
116-067-PQB	111	26	PQ-111-0026-A	11082 knights road Philadelphia pa	Unknown	Confirmed	MS4	NE
098-017-PP	109	115	PP-109-0115-A	1225 Norwalk rd. Philadelphia pa	Unknown	Confirmed	MS4	NE
	114	1	PQ-114-0001-A	12270 Townsend rd. Philadelphia pa	Unknown	Confirmed	MS4	NE
018-005-PQB	114	129	PQ-114-0129-A	12285 mculty rd. Philadelphia pa	Unknown	Confirmed	MS4	NE
072-048-PQ	0	0		12301 mculty road Philadelphia pa	Unknown	Confirmed	MS4	NE
050-029-PQ	114	8	PQ-114-0008-A	12600 Townsend road Philadelphia pa	Unknown	Confirmed	MS4	NE
053-077-PQ	114	52	PQ-114-0052-A	12901 Townsend road Philadelphia pa	Unknown	Confirmed	MS4	NE
	120	35	PQ-120-0035-A	13500 Philmont avenue Philadelphia pa	Unknown	Confirmed	MS4	NE
052-031-PQ	119	61	PQ-119-0061-A	14001 Townsend road Philadelphia pa	Unknown	Confirmed	MS4	NE
168-089-PQB	113	123	PQ-113-0123-A	2040 Bennett road Philadelphia pa	Unknown	Confirmed	MS4	NE
115-024-PD	112	139	PP-112-0139-A	268 Geiger road Philadelphia pa	Unknown	Confirmed	MS4	NE
	109	140	PQ-109-0140-A	2701 red lion road Philadelphia pa	Unknown	Confirmed	MS4	NE
	118	64	PQ-118-0064-A	2701 Southampton rd. Philadelphia pa	Unknown	Confirmed	MS4	NE
	32	162	PQ-032-0162-A	2770 red lion road Philadelphia pa	Unknown	Confirmed	MS4	NE
036-018-PQ	114	62	PQ-114-0062-A	2905 Southampton road Philadelphia pa	Unknown	Confirmed	MS4	NE
	0	0		800 Gina dr Philadelphia pa	Unknown	Confirmed	MS4	NE
	100	23	PP-100-0023-A	8351 e Roosevelt Blvd. Philadelphia pa	Unknown	Confirmed	MS4	NE
177-094-PQB	113	27	PQ-113-0027-A	9998-9964 Northeast Ave Philadelphia PA	Surface	Nonexistent	MS4	NE
176-093-PQ	119	97	PQ-119-0097-A	14400 Townsend Rd Philadelphia PA	Unknown	Nonexistent	MS4	NE
141-028-P	99	43	PP-099-0043-A	8335-8345 Algon Ave Philadelphia PA	Unknown	Nonexistent	MS4	NE
013-002-PP	113	41	PP-113-0041-A	10113-15 Verree Rd Philadelphia PA	N/A	Not Confirmed	MS4	NE
147-029-PP	109	106	PP-109-0106-A	68 Marple Drive Philadelphia PA	Seepage	Not Confirmed	MS4	NE
027-005-PP	113	164	PP-113-0164-A	10204 Northeast Ave Philadelphia PA	Submerged	Not Confirmed	MS4	NE
146-80-PQ	120	152	PQ-120-0152-A	13040 Depue Ave Philadelphia PA	Submerged	Not Confirmed	MS4	NE
107-020-P	92	60	PP-092-0060-A	3324 Willits Road Philadelphia PA	Surface	Not Confirmed	MS4	NE
	101	72	DR-101-0072-A	5100 Fitler Street Philadelphia PA	Surface	Not Confirmed	MS4	NE

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
145-079-PQ	119	33	PQ-119-0033-A	13200 Townsend Road Philadelphia PA	Unknown	Not Confirmed	MS4	NE
	117	184	PQ-117-0184-A	752 Byberry Rd Philadelphia PA	Unknown	Not Confirmed	MS4	NE
<b>MS4 Southeast Drainage District Basins</b>								
	76	4	WS-076-0004-A	7714 Moreland circle Philadelphia pa	Submerged	Confirmed	MS4	SE
	118	179	PQ-118-0179-A	10 e Moreland ave Philadelphia pa	Surface	Confirmed	MS4	SE
	52	109	SR-052-0109-A	2900 queen lane Philadelphia pa	Surface	Confirmed	MS4	SE
	76	3	WS-076-0003-A	540 telner street Philadelphia pa	Surface	Confirmed	MS4	SE
	77	82	WS-077-0082-A	6950 Germantown ave Philadelphia pa	Surface	Confirmed	MS4	SE
	76	7	WS-076-0007-A	7611 st martins lane Philadelphia pa	Surface	Confirmed	MS4	SE
	76	180	WS-076-0180-A	7614 mccallum st Philadelphia pa	Surface	Confirmed	MS4	SE
	75	166	WS-075-0166-A	8835 Germantown Ave Philadelphia pa	Surface	Confirmed	MS4	SE
	0	0		8855 Germantown avenue Philadelphia pa	Surface	Confirmed	MS4	SE
	77	112	WS-077-0112-A	7406 Germantown avenue Philadelphia pa	Surface-- Not Found	Confirmed	MS4	SE
156-029-W	60	12	WS-060-0012-A	2967 w school house lane Philadelphia pa	Unknown	Confirmed	MS4	SE
	86	45	WS-086-0045-A	7700 Germantown avenue Philadelphia pa	Unknown	Confirmed	MS4	SE
	95	181	WS-095-0181-A	9201 Germantown Ave Philadelphia PA	Surface	Not Confirmed	MS4	SE
<b>MS4 Southwest Drainage District Basins</b>								
082-010-W	67	42	WS-067-0042-A	561 fairthorne avenue Philadelphia pa	not found	Confirmed	MS4	SW
	66	90	SR-066-0090-A	201-27 shawmont avenue Philadelphia pa	Submerged	Confirmed	MS4	SW
	0	0		700 valley green ct Philadelphia pa	Submerged	Confirmed	MS4	SW
078-009-W	84	34	WS-084-0034-A	120-122 Caledonia street Philadelphia pa	Surface	Confirmed	MS4	SW
	0	0		3000 w school house ln Philadelphia pa	Surface	Confirmed	MS4	SW
	0	0		3200 s 70th st Philadelphia pa	Surface	Confirmed	MS4	SW
035-008-S	60	133	WS-060-0133-A	3243 w school house ln Philadelphia pa	Surface	Confirmed	MS4	SW

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
035-016-W	52	132	SR-052-0132-A	3464 w school house ln Philadelphia pa	Surface	Confirmed	MS4	SW
	0	0		3610 Midvale ave Philadelphia pa	Surface	Confirmed	MS4	SW
164-021-S	46	148	SR-046-0148-A	3955 Conshohocken avenue Philadelphia pa	Surface	Confirmed	MS4	SW
170-023-S	75	154	SR-075-0154-A	513 Lantern Ln Philadelphia pa	Surface	Confirmed	MS4	SW
	0	0		518 port royal ave Philadelphia pa	Surface	Confirmed	MS4	SW
170-022-S	75	153	SR-075-0153-A	525 Greenhill ln Philadelphia pa	Surface	Confirmed	MS4	SW
	67	170	WS-067-0170-A	619 wigard ave Philadelphia pa	Surface	Confirmed	MS4	SW
	75	160	WS-075-0160-A	683 summit avenue Philadelphia pa	Surface	Confirmed	MS4	SW
	0	0		7219 ridge avenue Philadelphia pa	Surface	Confirmed	MS4	SW
049-005-W	75	46	WS-075-0046-A	814 Caledonia road Philadelphia pa	Surface	Confirmed	MS4	SW
	84	22	SR-084-0022-A	9038 arydale crescent Philadelphia pa	Surface	Confirmed	MS4	SW
	0	0		300 autumn river run Philadelphia pa	Surface & Submerged	Confirmed	MS4	SW
093-012-S	59	2	SR-059-0002-A	290 parker avenue Philadelphia pa	Unknown	Confirmed	MS4	SW
	52	121	SR-052-0121-A	257-273 Osborne St Philadelphia PA	Surface	Nonexistent	MS4	SW
	59	126	SR-059-0126-A	100 Parker Ave Philadelphia PA	Submerged	Not Confirmed	MS4	SW
<b>Basins in Neither Sewer System</b>								
<b>Northeast Drainage District Basins in Neither Sewer System</b>								
125-070-PQB	110	114	PQ-110-0114-A	9901 e Roosevelt boulevard Philadelphia pa	never built	Confirmed	N/A	NE
067-044-PQ	115	104	PQ-115-0104-A	12872 knights road Philadelphia pa	Surface	Confirmed	N/A	NE
	0	0		15501 bustleton ave Philadelphia pa	Surface	Confirmed	N/A	NE
134-006-D	43	142	PP-043-0142-A	2801 Richmond st Philadelphia pa	Surface	Confirmed	N/A	NE
	0	0		290 Byberry Road, Philadelphia PA	Surface	Confirmed	N/A	NE
075-050-PQ	120	100	PQ-120-0100-A	420 Laura lane Philadelphia pa	Surface	Confirmed	N/A	NE
055-007-T	71	78	TF-071-0078-A	4641 Roosevelt Blvd. Philadelphia pa	Surface	Confirmed	N/A	NE
020-007-PQ	0	0		4799-4581 Stevenson St Philadelphia pa	Surface	Confirmed	N/A	NE
	0	0	PQ---A	8145 Hornig Rd Philadelphia pa	Surface	Confirmed	N/A	NE

Reference Number	Plat	Random Number	2009 Unique ID	Address	Site Type	Existence	Sewer System	Drainage District
	0	0		9000 Jennifer terrace Philadelphia pa	Surface	Confirmed	N/A	NE
	105	48	PP-105-0048-A	9400 ashton rd. Philadelphia pa	Surface	Confirmed	N/A	NE
026-004-PP	113	28	PP-113-0028-A	920 red lion rd. Philadelphia pa	Surface--not found	Confirmed	N/A	NE
048-007-PP	109	19	PP-109-0019-A	1200 Serota place Philadelphia pa	Unknown	Confirmed	N/A	NE
074-049-PQ	111	102	PQ-111-0102-A	4292-4298 Whiting Rd Philadelphia pa	Unknown	Confirmed	N/A	NE
	117	177	PQ-117-0177-A	102R Byberry Rd Philadelphia PA	Submerged	Nonexistent	N/A	NE
	64	30	DR-064-0030-A	5801 Tacony Street Philadelphia PA	Surface	Not Confirmed	N/A	NE
105-019-PP	113	9	PP-113-0009-A	2000 Red Lion Road Philadelphia PA	Unknown	Not Confirmed	N/A	NE
<b>Southeast Drainage District Basins in Neither Sewer System</b>								
	0	0		8600 prospect ave Philadelphia pa	Submerged	Confirmed	N/A	SE
	76	5	WS-076-0005-A	620 st Georges road Philadelphia pa	Surface	Confirmed	N/A	SE
059-006-WC	67	86	WS-067-0086-A	800 St Georges Rd Philadelphia pa	Unknown	Confirmed	N/A	SE
<b>Southwest Drainage District Basins in Neither Sewer System</b>								
	75	141	SR-075-0141-A	475 spring ln Philadelphia pa	Submerged	Confirmed	N/A	SW
SWTP-01-D	5	182	DR-005-0182-A	8200 enterprise ave Philadelphia pa	Submerged	Confirmed	N/A	SW
001-002-W	75	38	WS-075-0038-A	130 spring lane Philadelphia pa	Surface	Confirmed	N/A	SW
	0	0		3700 s 26th st Philadelphia pa	Surface	Confirmed	N/A	SW
	14	6	SR-014-0006-A	6700 Essington ave Philadelphia pa	Surface	Confirmed	N/A	SW
034-007-S	66	79	SR-066-0079-A	7860 Eva street Philadelphia pa	Surface	Confirmed	N/A	SW
001-001-W	75	37	WS-075-0037-A	8700 ridge avenue Philadelphia pa	Surface	Confirmed	N/A	SW
	94	44	WS-094-0044-A	9701 Germantown avenue Philadelphia pa	Surface	Confirmed	N/A	SW
076-009-S	14	63	SR-014-0063-A	3107 s 61st Philadelphia pa	Surface--Not found	Confirmed	N/A	SW
	58	173	SR-058-0173-A	7200 Umbria st Philadelphia pa	Unknown	Confirmed	N/A	SW
<b>Basins in No Drainage or Sewer System</b>								
				2800 meetinghouse rd philadelphia pa	Surface	Confirmed	N/A	N/A