

## TECHNICAL MEMORANDUM

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**Date:** January 10, 2019

**To:** Scott Thurman, P.E., Project Manager, FDOT D4

**From:** Aylin Costa, P.E., Senior Drainage Engineer

**Subject:** SR 9/I-95 at SR 842/Broward Boulevard Interchange PD&E  
Pond Siting Technical Memo

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### **BACKGROUND**

The Florida Department of Transportation (FDOT), District Four, is conducting a Project Development and Environment (PD&E) Study involving potential improvements to the SR 9/I-95 and SR 842/Broward Boulevard Interchange in the City of Fort Lauderdale, Broward County, Florida. The major improvements being considered under the PD&E study will improve traffic flow to and from I-95 and along Broward Boulevard, increase connectivity between the I-95 Express Lanes and Broward Boulevard, and expand intermodal connectivity. The improved connectivity and traffic flow will be achieved via widening along Broward Boulevard and I-95, new ramps to connect to the I-95 Express Lanes, and re-alignment of existing ramps.

The PD&E study limits extend along I-95 from just south of Davie Boulevard to just south of Sunrise Boulevard, a distance of approximately two miles, and along Broward Boulevard from NW 24th Avenue to SW 18th Avenue, a distance of approximately one half mile. The study area includes the median ramp connections to the Park & Ride lots from I-95 north and south of Broward Boulevard. These study limits are shown in [Appendix A](#).

### **PURPOSE**

The purpose of this Technical Memorandum is to evaluate the need for acquisition of additional right-of-way to accommodate stormwater management facilities to meet FDOT drainage criteria and environmental permitting agency requirements that govern the final design, to identify alternative pond sites outside the existing I-95 limited access roadway right-of-way, and to justify the selection of a specific pond site if required for the construction of stormwater management facilities in support of the PD&E study.

### **EXISTING DRAINAGE SYSTEMS**

The existing drainage within the project limits can be divided into four distinct systems based on existing collection and conveyance systems, interconnected stormwater management facilities, and outfalls. Refer to [Appendix B](#) for pre-development drainage maps.

System 16A is defined as the segment of the I-95 corridor from the South Fork of the New River to south of Broward Boulevard, including the Davie Boulevard interchange.

System 16B is defined as the segment of the I-95 corridor from south of Broward Boulevard to the North Fork of the New River, and includes the Broward Boulevard interchange.

System 17 is defined as the segment of the I-95 corridor from the North Fork of the New River to just south of the Sunrise Boulevard interchange.

The Broward Boulevard (SR 824) and Park & Ride system is defined as the segment of Broward Boulevard, between the NW 22<sup>nd</sup> Avenue and South Florida Rail Corridor (SFRC), and the Park & Ride which is comprised of three parking lots on the north and south sides of Broward Boulevard, just west of the SFRC and I-95 corridors.

## **STORMWATER MANAGEMENT PERMITTING CRITERIA**

The agencies having stormwater permitting jurisdiction over the proposed improvements include:

- South Florida Water Management District (SFWMD)
- Broward County Environmental Protection and Growth Management Division (BCEPGMD)

SFWMD is the state permitting authority and has jurisdiction over the water bodies receiving stormwater runoff from the project area.

### **Stormwater Quality Criteria**

The SFWMD has the lead jurisdiction over the stormwater quality criteria for the project and generally requires that all projects meet state water quality standards, as set forth in Chapter 17-302, Florida Administrative Code (FAC). According to the SFWMD Permit Volume IV, all projects must meet the following volumetric retention/detention requirements:

- For wet detention systems, the first inch of runoff from the project or the total runoff from 2.5 inches times the percent of imperviousness, whichever is greater, must be detained on site. A wet detention system is a system that maintains the control elevation at the seasonal high groundwater elevation and does not bleed down more than one-half inch of detention volume in 24 hours;
- Dry detention systems must provide 75 percent (75%) of the required wet detention volume. Dry detention systems must maintain the control elevation at or above one foot above the seasonal high groundwater elevation;
- Retention systems must provide 50 percent (50%) of the wet detention volume; and
- For projects with more than 50 percent (50%) of imperviousness, discharge to the receiving water bodies must be made through baffles, skimmers, or other mechanisms suitable from preventing oil and grease from discharging to or from the retention/detention areas.

### **Stormwater Quantity Criteria**

SFWMD criteria govern peak discharge rate attenuation. SFWMD criteria govern attenuation volume by limiting the post-development peak discharge rate to the pre-development peak discharge rate for the 25-year, 72-hour design rainfall event using SFWMD 72-hour rainfall distribution. SFWMD requires that offsite discharge rates be limited to rates not causing adverse impacts to existing off-site properties, and:

- Historic discharge rates,
- Rates determined in previous SFWMD permit action, or
- Basin allowable discharge rates.

## **Proposed Drainage Systems**

The proposed drainage systems boundaries remained unchanged from the existing condition. The existing collection and conveyance systems, interconnected stormwater management facilities, and outfalls currently in place were utilized to the largest extent possible, if unaffected by the proposed project changes.

The proposed stormwater management facilities and the interconnections within the drainage systems will be similar to the pre-development (existing) conditions. These will consist of closed collection and conveyance drainage systems interconnected by pipes to the existing and/or modified stormwater treatment facilities (wet ponds, dry ponds, swales) and French drains to collect, convey, treat, and attenuate stormwater runoff for the controlling design and permitting criteria outlined in this Technical Memorandum and Conceptual Drainage Report.

Retaining walls extending below the stormwater management facilities finished grade elevation are proposed throughout the project instead of roadway embankments, thereby maximizing the footprint of the dry ponds and dry swales within the existing roadway right-of-way while minimizing and/or eliminating the need for offsite right-of-way acquisition and impacts to the public. Additionally, French Drain has been proposed where feasible to further minimize offsite stormwater management facility needs.

Refer to [Appendix C](#) for post-development drainage maps showing all proposed drainage systems boundaries and stormwater management facilities including wet ponds, dry ponds, swales, and French Drains.

For System 16A, System 17, and the Broward Boulevard and Park & Ride systems, offsite right-of-way acquisition will not be necessary for stormwater management purposes. Refer to [Appendix D](#) for Pre-Development and Post-Development Land Use Tables, Water Quality Calculations and Discharge/System Summary Table.

For System 16B, when Broward Boulevard was originally constructed under less stringent permitting requirements, some drainage systems serving the eastern portion of Broward Boulevard were allowed to directly discharge to the North Fork of the New River without water quality treatment. Ten of the 28 onsite sub-basins (11.34 acres) are currently located downstream of the existing control structures, and do not receive water quality treatment or attenuation in the pre-development conditions. Since its original construction, Broward Boulevard has not been reconstructed, and thusly, previous projects did not trigger the requirement for full water quality treatment and discharge attenuation in order to receive an Environmental Resource Permit from SFWMD.

Due to the widening and reconstruction of Broward Boulevard associated with this project, full water quality treatment volume and discharge attenuation for Broward Boulevard drainage basins will be required in order to obtain a permit. The proposed widening, reconstruction, and shift in roadway alignment along Broward Boulevard will require right-of-way takes of three parcels at the southwest quadrant of the intersection with SW 18<sup>th</sup> Avenue. Since roadway reconstruction, widening, and re-alignment, involve right-of-way takes where only a portion of the affected parcels will be utilized for the roadway, there is opportunity to extend Pond 16B-1 parallel to the eastbound travel lanes, contingent with the proposed shift in the alignment of Broward Boulevard. This will allow for re-routing and modification of the collection/conveyance system of three of the ten sub-basins downstream of the control structures so that they can be routed through stormwater

management facilities, upstream of the control structures. The remaining eight onsite sub-basins (3.92 acres) would continue directly discharging to the North Fork of the New River without treatment or attenuation in the post-development condition.

## **CONCLUSION AND RECOMMENDATIONS**

Due to the fact that additional right-of-way will be utilized for drainage purposes, even though the right-of-way takes are required in order to accommodate the proposed alignment shift and widening along Broward Boulevard, the Department requires that two additional pond sites be evaluated. Accordingly, based on review of current aerial images, two vacant sites within the vicinity were identified as potential pond sites, as well as the parcels required for proposed roadway modifications.

The parcels required for the roadway improvements are owned by Max, LLC and contain existing structures and active businesses. These parcels are directly adjacent to Broward Boulevard, and would allow for the contiguous expansion of Pond 16B-1. One of the additional sites is owned by Softscapes LLC, which has an active landscaping business. The site is adjacent to FDOT right-of-way, and would allow for contiguous expansion of Pond 16B-1. The second of the additional sites is owned by Riverside Park, LLC, and is completely vacant. However, this site is remote and not adjacent to the Department's right-of-way, and thusly would require additional piping in order to route stormwater through a pond located on the site.

Please refer to [Appendix G](#) for proposed alternative pond sites, [Appendix H](#) for a pond siting evaluation matrix and [Appendix I](#) for parcel property information from the Broward County Property Appraiser. During the Final Design process, a formal Pond Siting Analysis will need to take place.

The existing SFWMD permit which covers System 16B was previously approved, in light of the noted treatment and attenuation deficiencies, since the project improved the overall water quality discharge into the North Fork of the New River.

While it is anticipated that SFWMD will be consistent in future permit actions and continue to approve the direct discharge of such basins contingent to overall project water quality improvements, there is always the possibility that future regulations or agency positions may require full water quality treatment of these basins. In this event, the Department will need additional right-of-way to meet the more stringent permit criteria. The Department owns 1.22 acres of a roadway right-of-way (NW 2<sup>nd</sup> Street) which dissects two Salvation Army parcels immediately adjacent to the northeast quadrant of the interchange between Broward Boulevard and the I-95 limited access right-of-way line. The City of Fort Lauderdale owns 0.56 acres of roadway right-of-way (NW 20<sup>th</sup> Avenue) which also lies between the two Salvation Army parcels as shown in [Appendix E](#).

The Salvation Army has plans to re-develop their parcels in the near future and has recently approached the Department and the City of Fort Lauderdale with a proposal to acquire or land swap the road right of way in order to consolidate their parcels into a single site that maximizes available space for future development.

Preliminary drainage analysis indicates that 0.65 acres will be required parallel to the existing limited access right-of-way to accommodate a dry detention treatment swale with a 0.43 ac-ft treatment volume capacity, as necessary to provide water quality treatment volume for the



3125 West Commercial Boulevard  
Suite 130  
Fort Lauderdale, Florida 33309

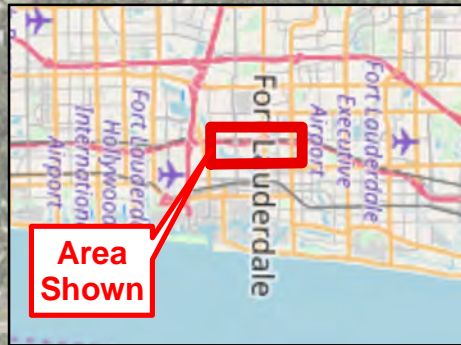
☎ 954-474-3005  
F 954-474-3006  
[rsandh.com](http://rsandh.com)

additional basins within System 16B. Please refer to **Appendix E** for proposed conceptual swale area layout and **Appendix F** for Water Quality Calculations.


The proposed dry detention swale layout as shown will require a land swap agreement between the Salvation Army, City of Fort Lauderdale, and the Department since the swale footprint lies within parcels owned by both entities.

*APPENDIX A:  
PROJECT LOCATION  
MAP*





**Legend**

 Project Limits

**BEGIN PROJECT**

SW 24TH AVE

SW 21ST TER

SOUTH FLORIDA RAIL CORRIDOR



RIVERSIDE DR

DAVIE BLVD

SOUTH FORK OF THE NEW RIVER

Matchline - Sheet 2

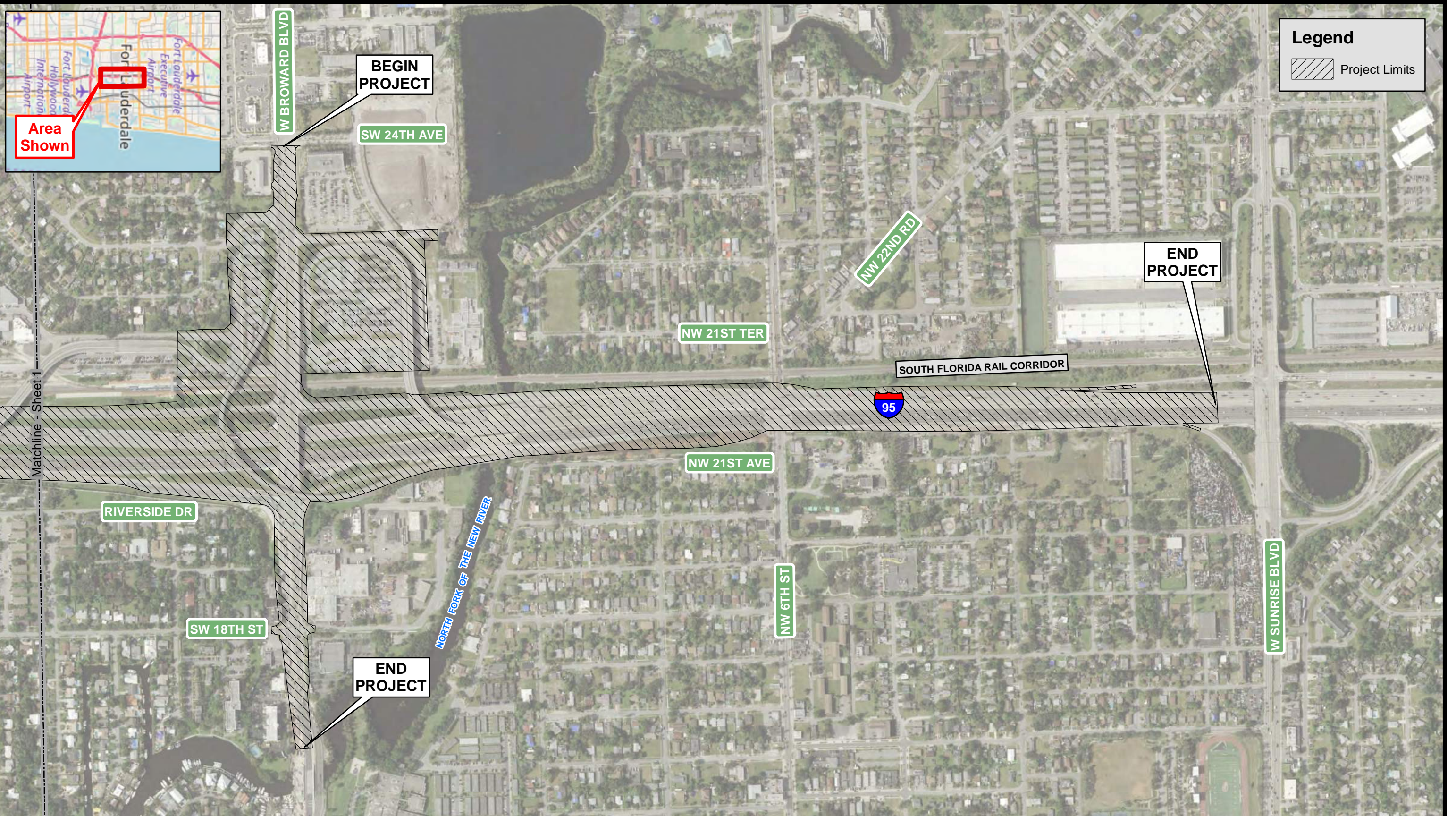


Florida Department of Transportation  
I-95 at Broward Blvd PD&E Study  
ETDM # 14226  
FM # 435513-1-22-02  
Broward County, Florida

0 250 500 1,000 Feet



Figure 1  
Project Location Map



Florida Department of Transportation  
 I-95 at Broward Blvd PD&E Study  
 ETDM # 14226  
 FM # 435513-1-22-02  
 Broward County, Florida

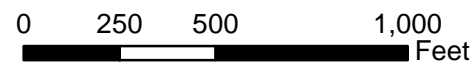


Figure 1  
 Project Location Map

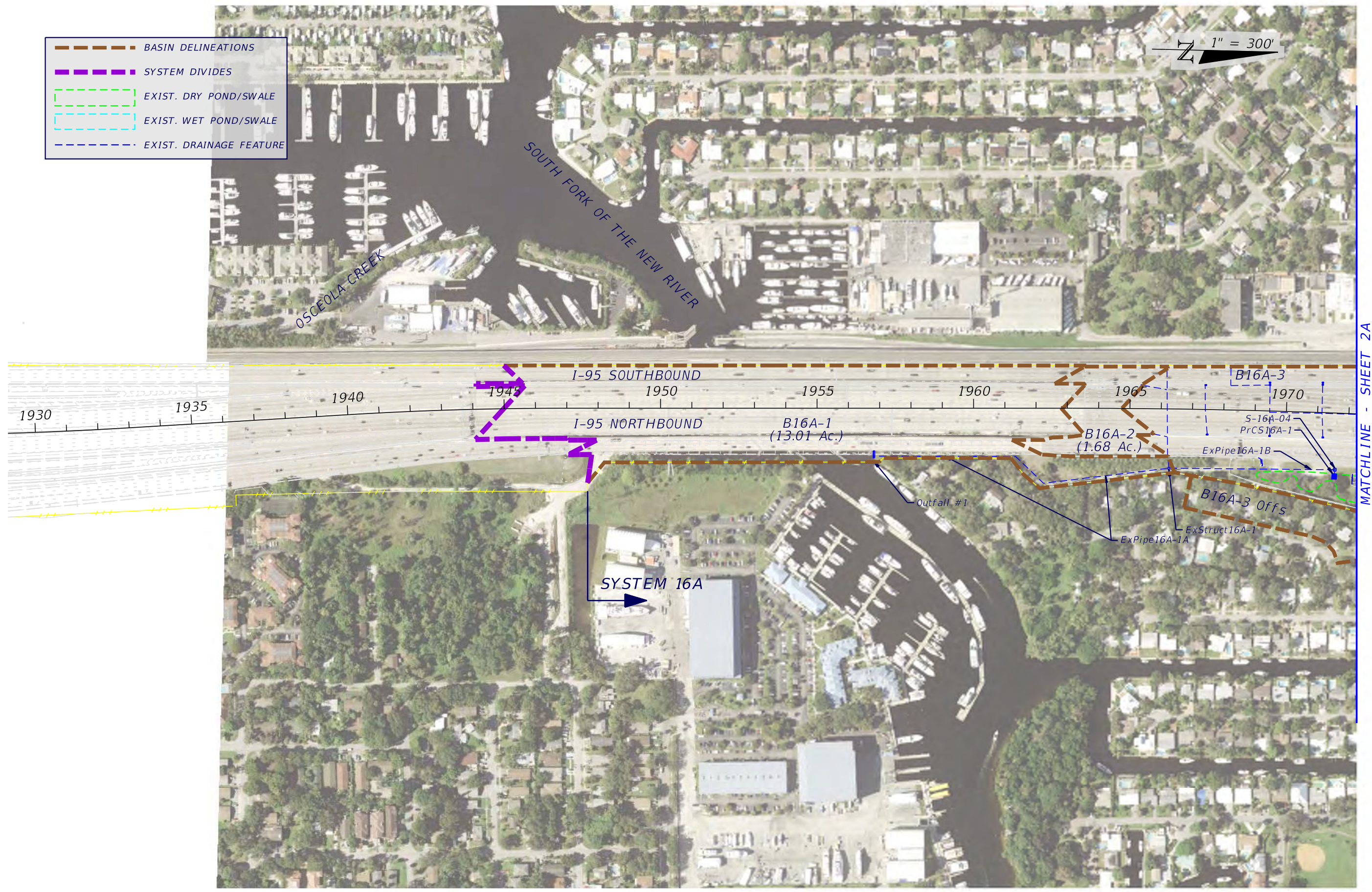


*APPENDIX B:  
PRE-DEVELOPMENT  
DRAINAGE MAPS*



1" = 300'

- - - - BASIN DELINEATIONS
- - - - SYSTEM DIVIDES
- - - - EXIST. DRY POND/SWALE
- - - - EXIST. WET POND/SWALE
- - - - EXIST. DRAINAGE FEATURE



MATCHLINE - SHEET 2A

REVISIONS				<b>RS&amp;H, Inc.</b> <small>3125 W. Commercial Blvd. - Suite 130                      Fort Lauderdale, Florida 33309-3446                      954-474-3005                      FL Cert. No. EB0005620                      Aylin Costa, P.E. No. 69865</small>	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			<b>PRE-DEVELOPMENT                      DRAINAGE MAP</b>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		1A
					9	BROWARD	435513-1-22-02		

1" = 300'

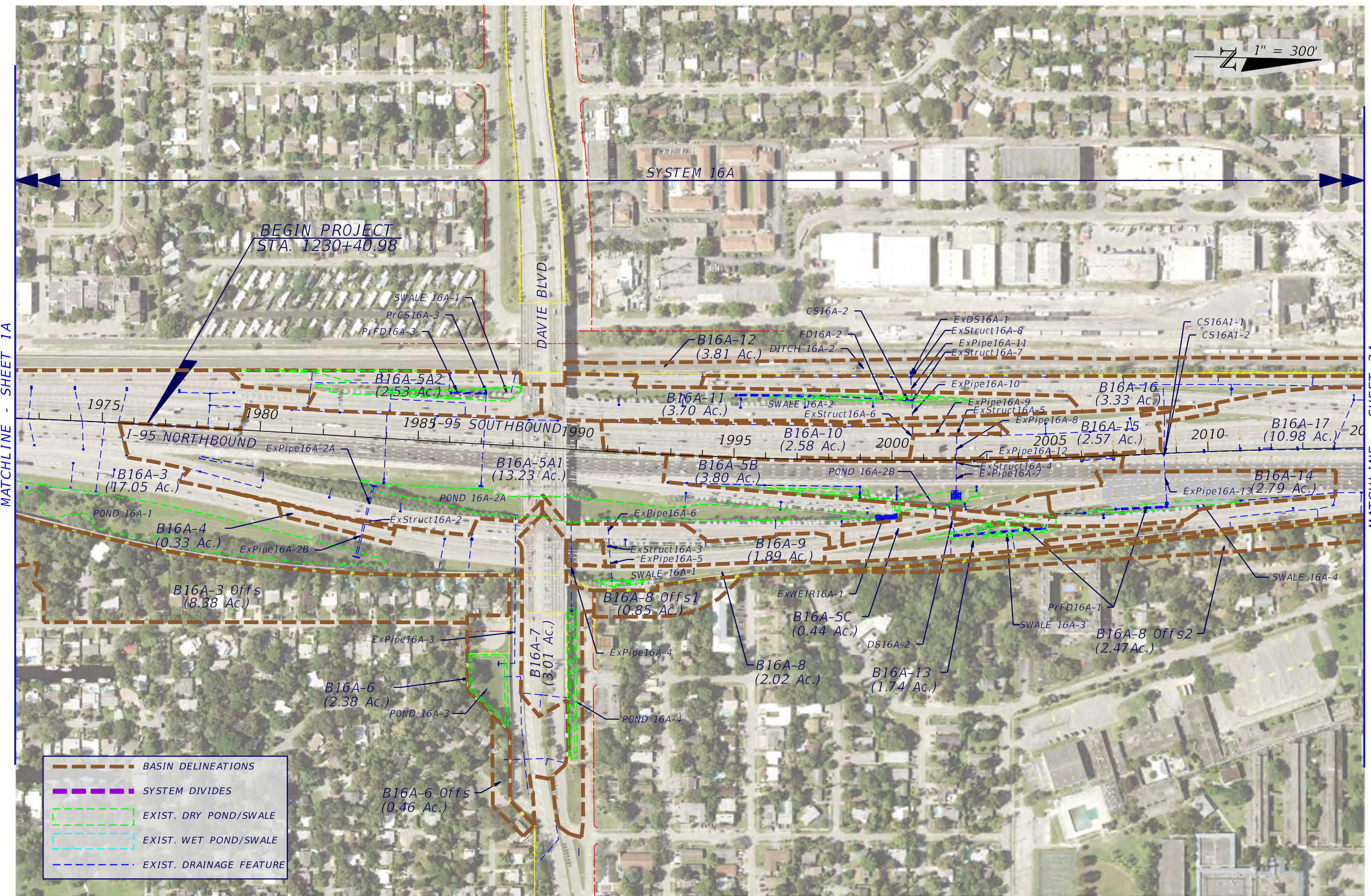
SYSTEM 16A

BEGIN PROJECT  
STA. 1230+40.98

DAVIE BLVD.

MATCHLINE - SHEET 1A

MATCHLINE - SHEET 3A



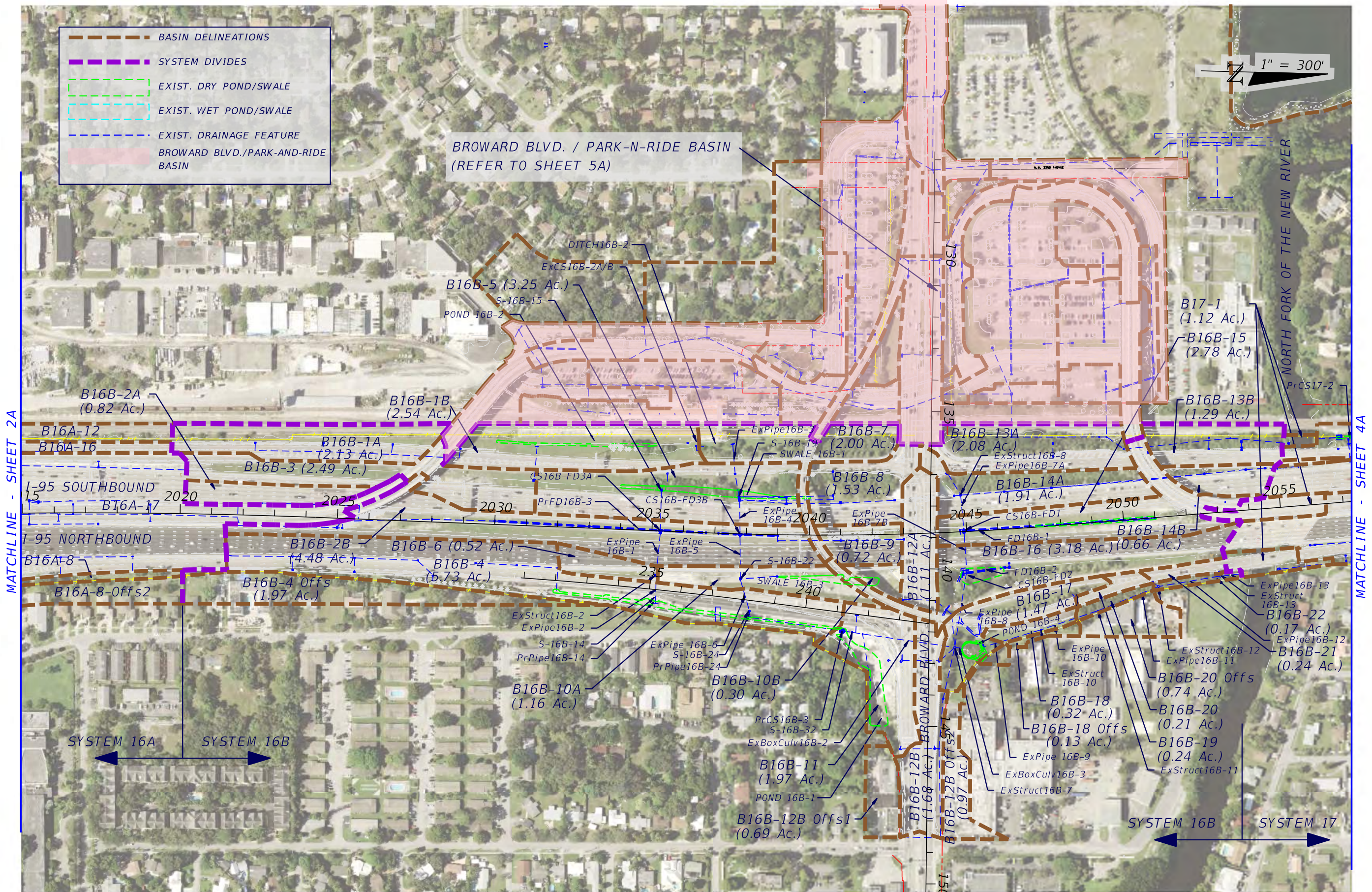
	BASIN DELINEATIONS
	SYSTEM DIVIDES
	EXIST. DRY POND/SWALE
	EXIST. WET POND/SWALE
	EXIST. DRAINAGE FEATURE

REVISIONS		RS&H, Inc.		STATE OF FLORIDA			PRE-DEVELOPMENT DRAINAGE MAP	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				9	BROWARD	435513-1-22-02	2A	

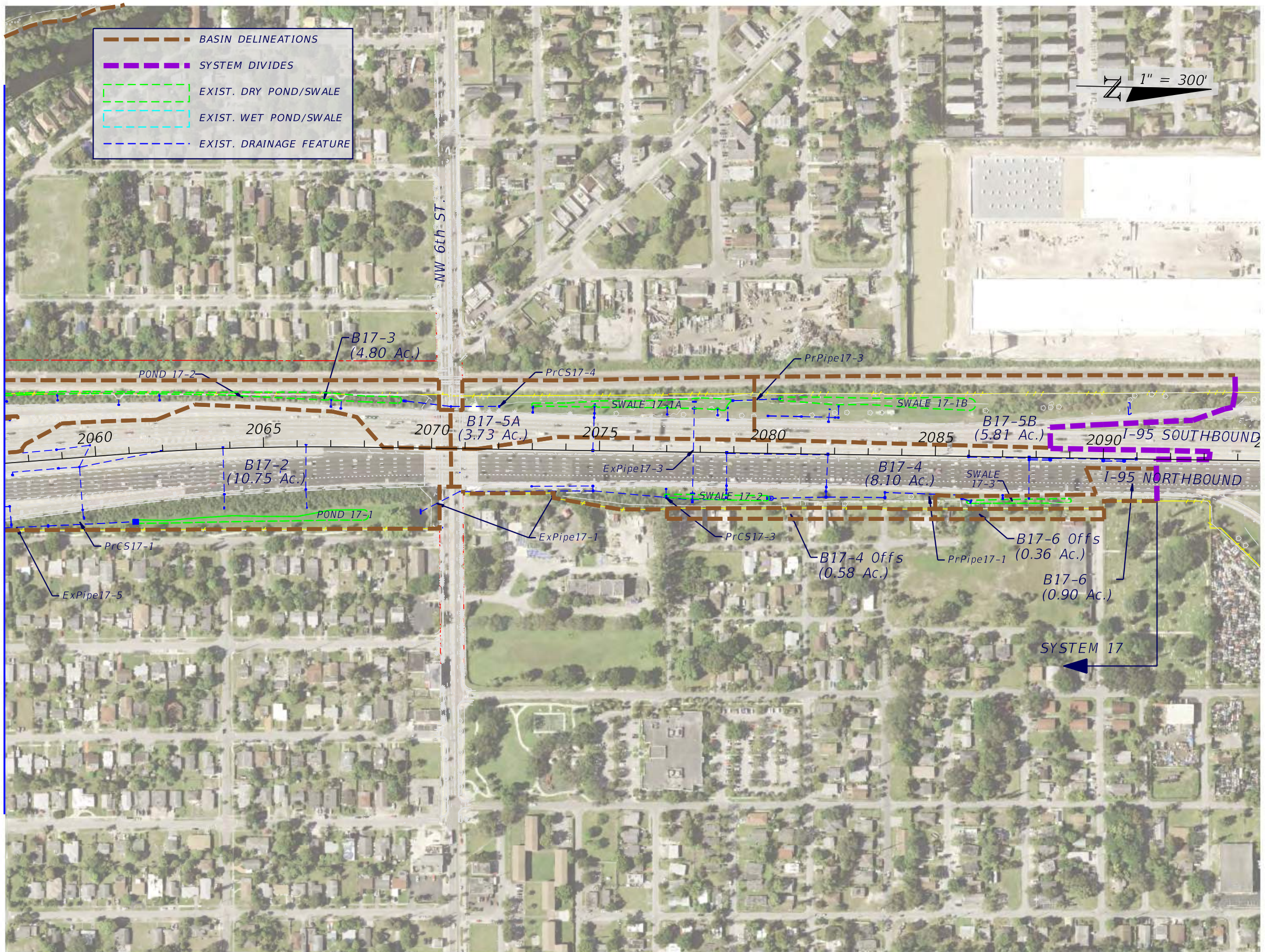
- - - - - BASIN DELINEATIONS  
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 - - - - - EXIST. WET POND/SWALE  
 - - - - - EXIST. DRAINAGE FEATURE  
 BROWARD BLVD./PARK-AND-RIDE BASIN  
 BROWARD BLVD./PARK-AND-RIDE BASIN

1" = 300'

BROWARD BLVD. / PARK-N-RIDE BASIN  
(REFER TO SHEET 5A)



REVISIONS		RS&H, Inc.		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PRE-DEVELOPMENT DRAINAGE MAP	SHEET NO.  3A
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
				9	BROWARD	435513-1-22-02		



MATCHLINE - SHEET 3A

	BASIN DELINEATIONS
	SYSTEM DIVIDES
	EXIST. DRY POND/SWALE
	EXIST. WET POND/SWALE
	EXIST. DRAINAGE FEATURE

1" = 300'

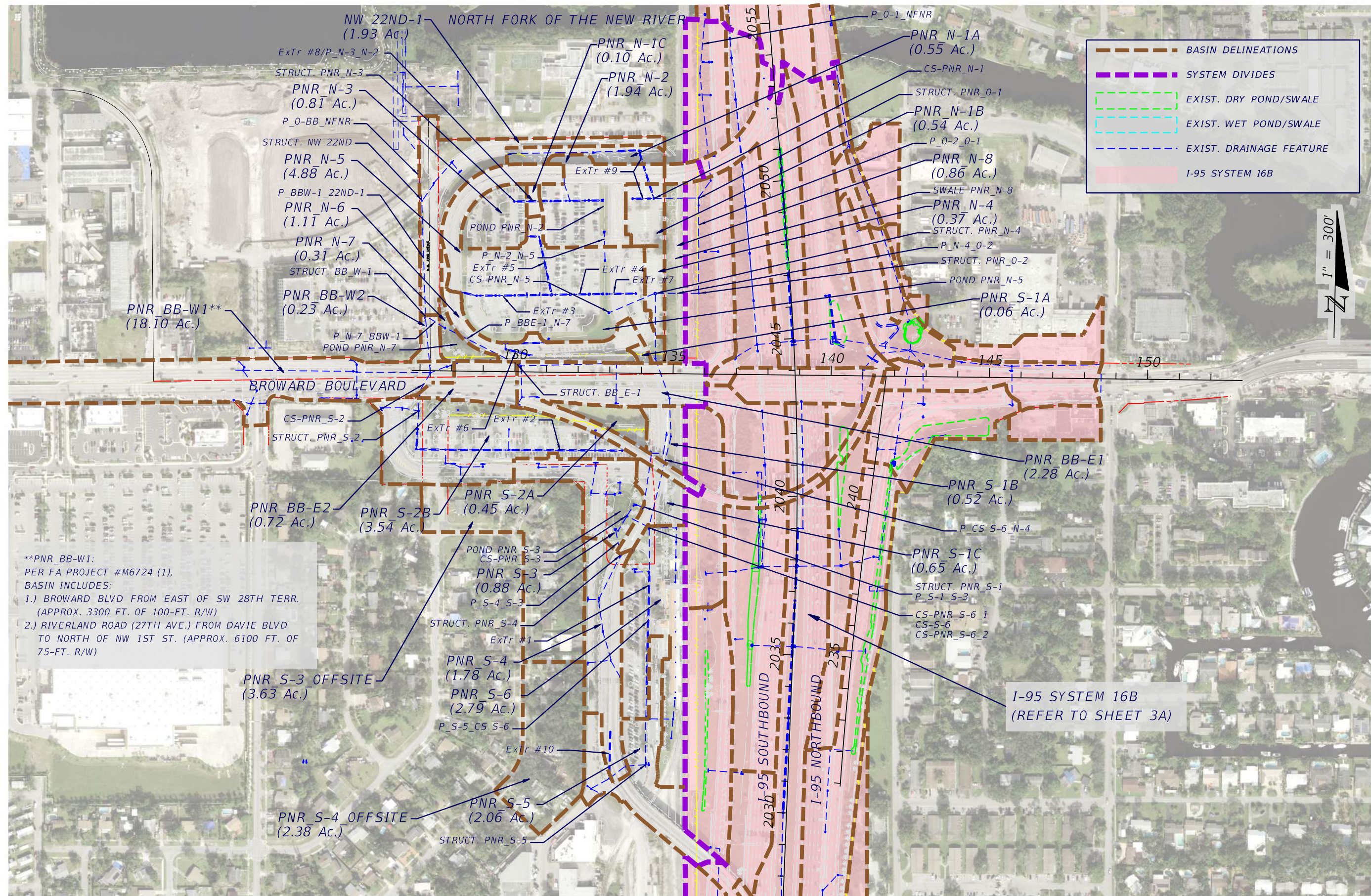
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STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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**PRE-DEVELOPMENT  
DRAINAGE MAP**

SHEET  
NO.  
  
4A



\*\*PNR\_BB-W1:  
 PER FA PROJECT #M6724 (1),  
 BASIN INCLUDES:  
 1.) BROWARD BLVD FROM EAST OF SW 28TH TERR.  
 (APPROX. 3300 FT. OF 100-FT. R/W)  
 2.) RIVERLAND ROAD (27TH AVE.) FROM DAVIE BLVD  
 TO NORTH OF NW 1ST ST. (APPROX. 6100 FT. OF  
 75-FT. R/W)

I-95 SYSTEM 16B  
 (REFER TO SHEET 3A)

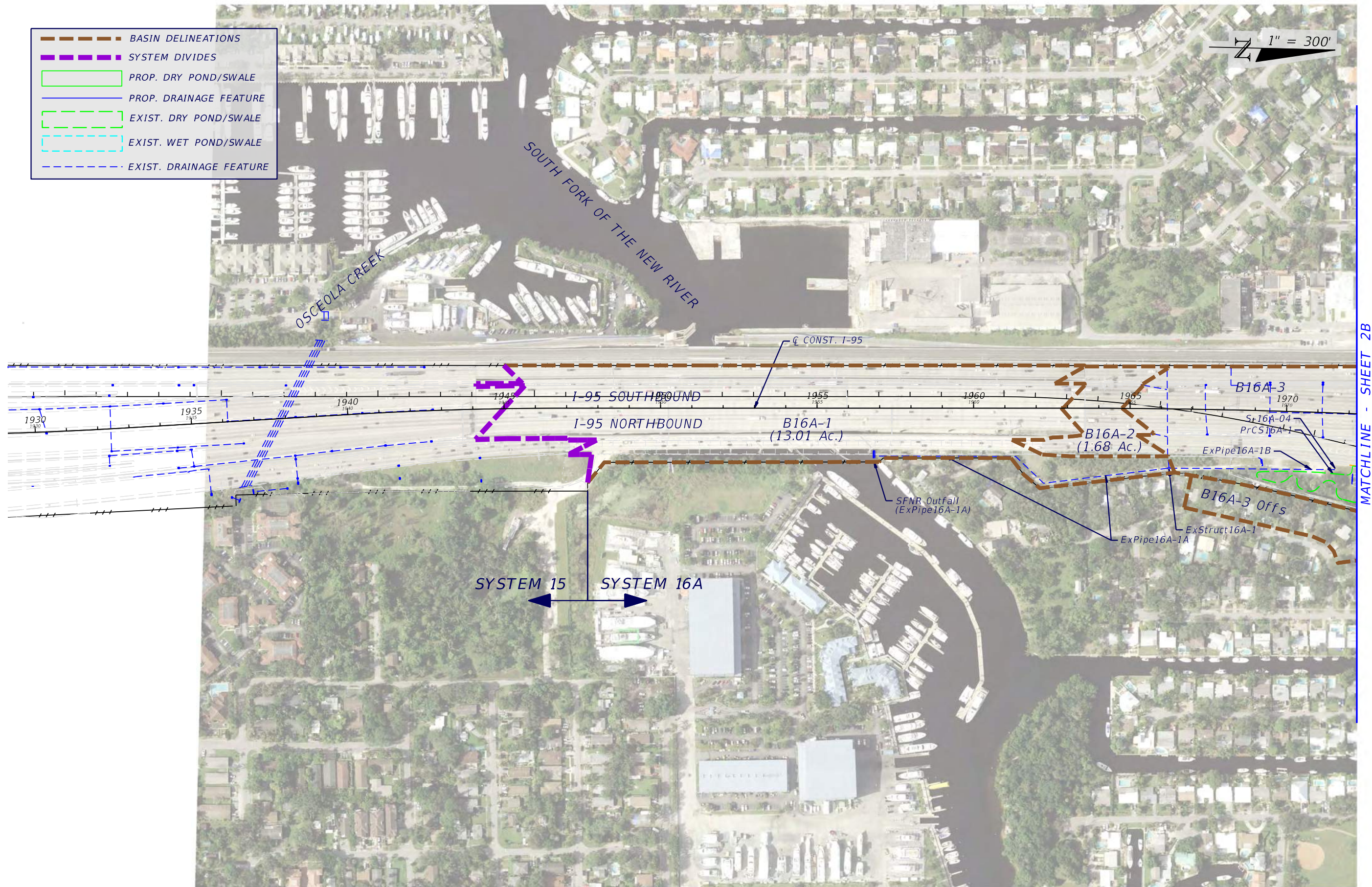
REVISIONS				RS&H, Inc. 3125 W. Commercial Blvd. - Suite 130 Fort Lauderdale, Florida 33309-3446 954-474-3005 FL Cert. No. EB0005620 Aylin Costa, P.E. No. 69865	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			PRE-DEVELOPMENT DRAINAGE MAP	SHEET NO.  5A
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					9	BROWARD	435513-1-22-02		

*APPENDIX C:  
POST-DEVELOPMENT  
DRAINAGE MAPS*



- - - - - BASIN DELINEATIONS
- - - - - SYSTEM DIVIDES
- PROP. DRY POND/SWALE
- PROP. DRAINAGE FEATURE
- - - - - EXIST. DRY POND/SWALE
- - - - - EXIST. WET POND/SWALE
- - - - - EXIST. DRAINAGE FEATURE

1" = 300'

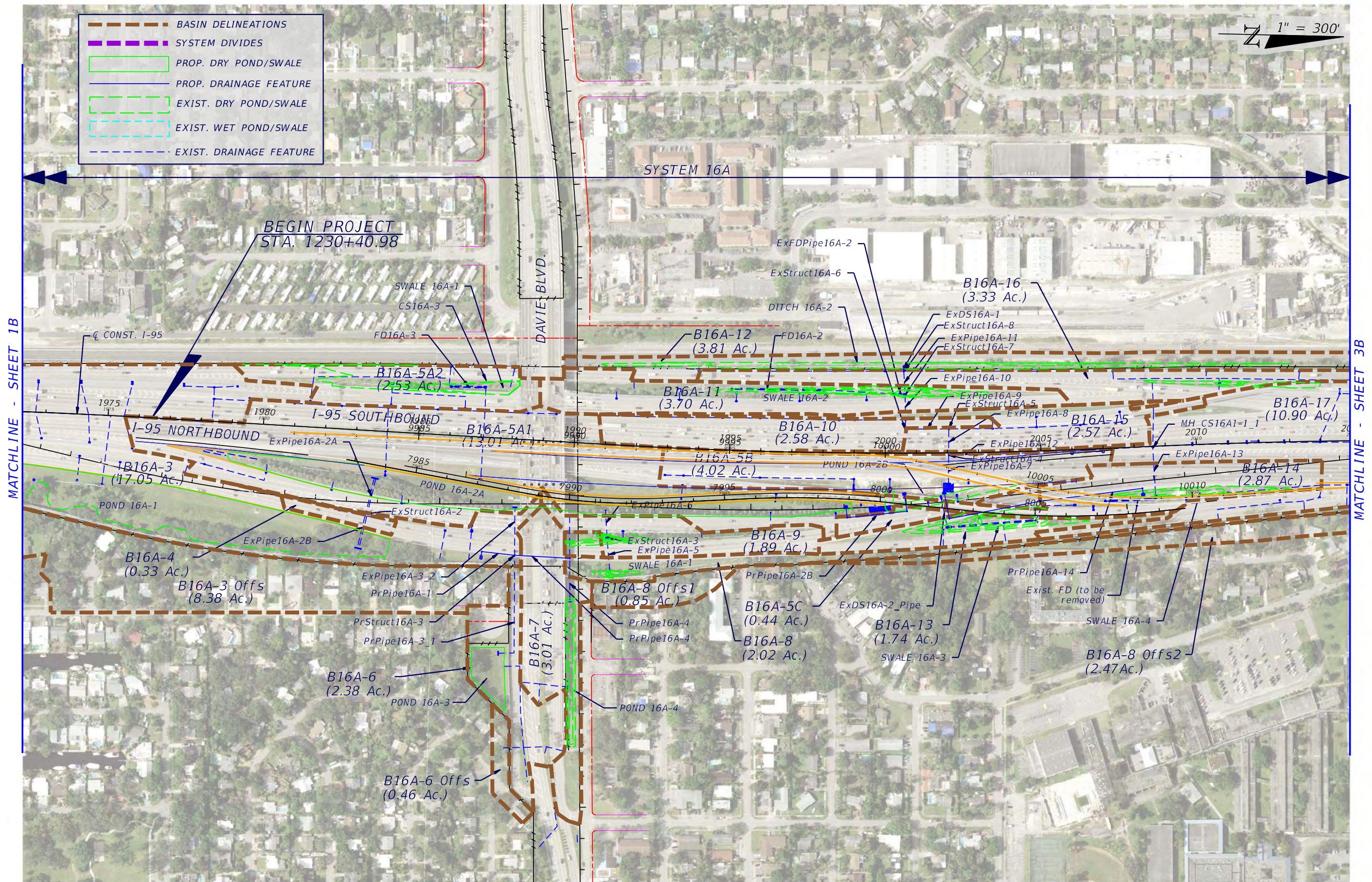


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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		1B
					9	BROWARD	435513-1-22-02		



	BASIN DELINEATIONS
	SYSTEM DIVIDES
	PROP. DRY POND/SWALE
	PROP. DRAINAGE FEATURE
	EXIST. DRY POND/SWALE
	EXIST. WET POND/SWALE
	EXIST. DRAINAGE FEATURE

1" = 300'



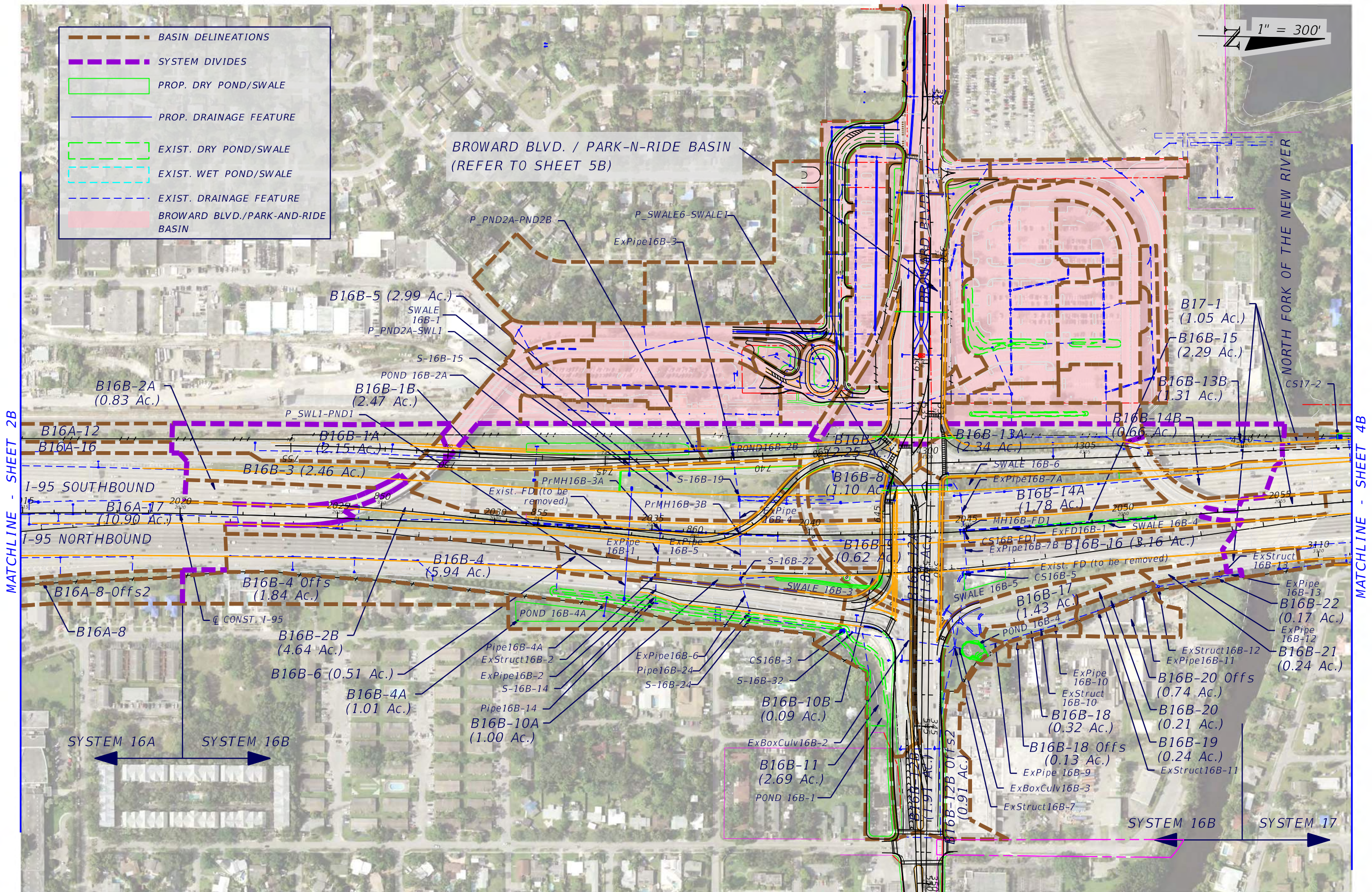
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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					9	BROWARD	435513-1-22-02		2B

1" = 300'

**LEGEND**

- BASIN DELINEATIONS
- SYSTEM DIVIDES
- PROP. DRY POND/SWALE
- PROP. DRAINAGE FEATURE
- EXIST. DRY POND/SWALE
- EXIST. WET POND/SWALE
- EXIST. DRAINAGE FEATURE
- BROWARD BLVD./PARK-AND-RIDE BASIN

BROWARD BLVD. / PARK-N-RIDE BASIN  
(REFER TO SHEET 5B)



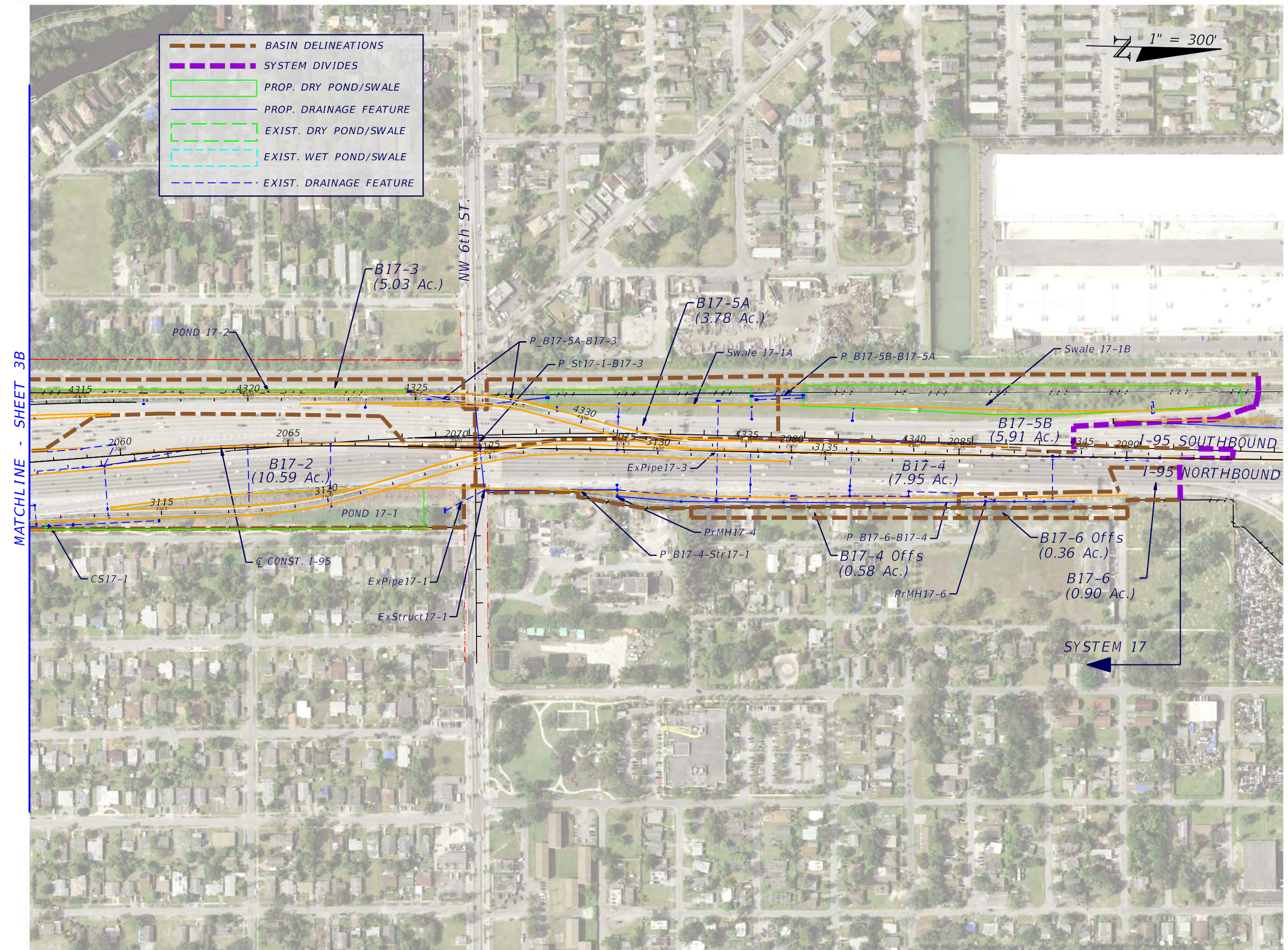
REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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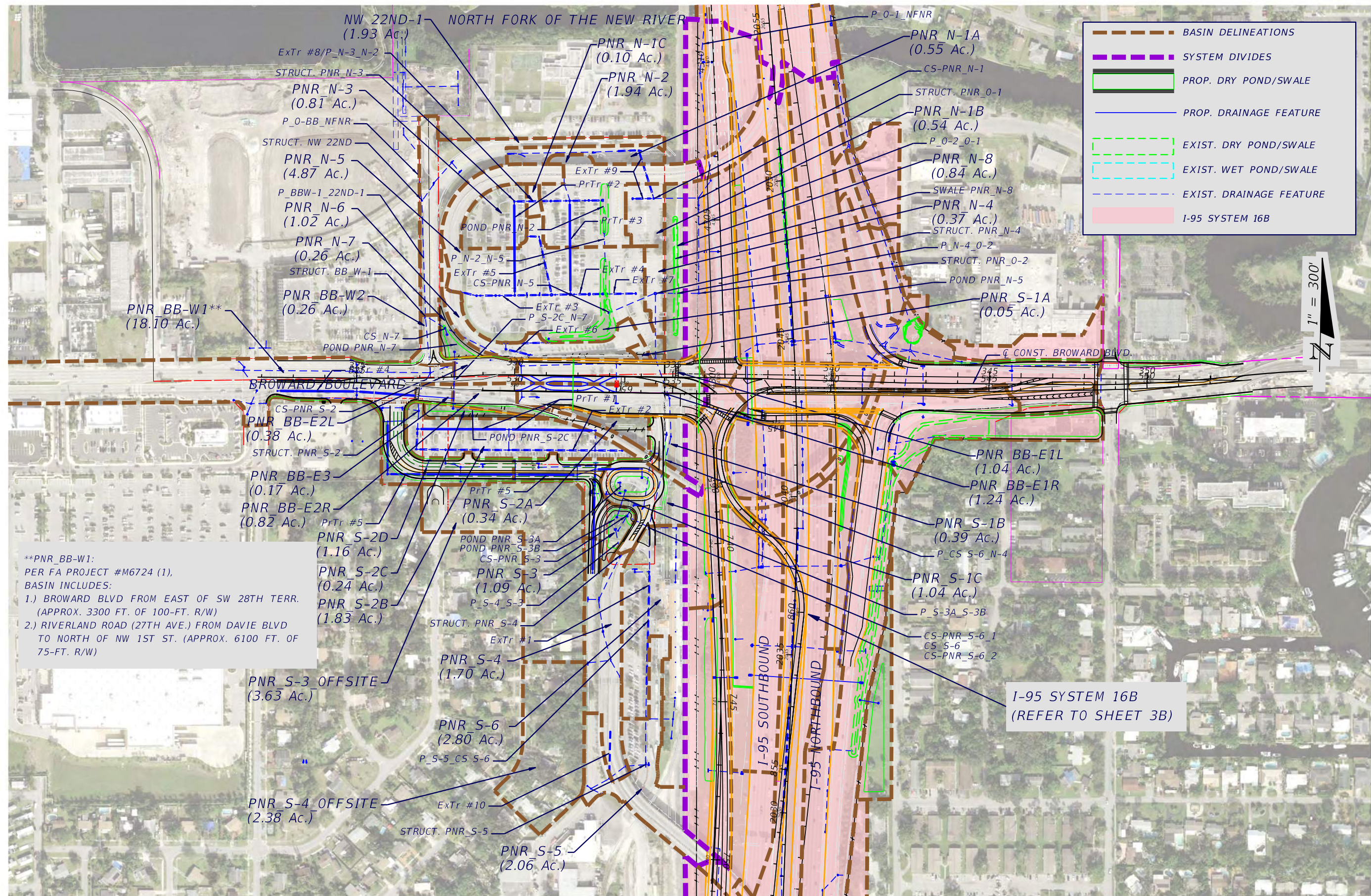
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
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**POST-DEVELOPMENT  
DRAINAGE MAP**

SHEET NO.  
**3B**



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DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					9	BROWARD	435513-1-22-02		



**LEGEND**

- BASIN DELINEATIONS
- SYSTEM DIVIDES
- PROP. DRY POND/SWALE
- PROP. DRAINAGE FEATURE
- EXIST. DRY POND/SWALE
- EXIST. WET POND/SWALE
- EXIST. DRAINAGE FEATURE
- I-95 SYSTEM 16B



**\*\*PNR\_BB-W1:**  
 PER FA PROJECT #M6724 (1),  
 BASIN INCLUDES:  
 1.) BROWARD BLVD FROM EAST OF SW 28TH TERR.  
 (APPROX. 3300 FT. OF 100-FT. R/W)  
 2.) RIVERLAND ROAD (27TH AVE.) FROM DAVIE BLVD  
 TO NORTH OF NW 1ST ST. (APPROX. 6100 FT. OF  
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9	BROWARD	435513-1-22-02

**POST-DEVELOPMENT  
DRAINAGE MAP**

SHEET NO.  
**5B**

*APPENDIX D:  
SYSTEM  
CALCULATIONS*



## *SYSTEM 16A*

- *PRE-DEVELOPMENT LAND USE TABLE*
- *POST-DEVELOPMENT LAND USE TABLE*
- *WATER QUALITY CALCULATIONS*
- *SUMMARY TABLE*

## *SYSTEM 16B*

- *PRE-DEVELOPMENT LAND USE TABLE*
- *POST-DEVELOPMENT LAND USE TABLE*
- *WATER QUALITY CALCULATIONS*
- *SUMMARY TABLE*

## *SYSTEM 17*

- *PRE-DEVELOPMENT LAND USE TABLE*
- *POST-DEVELOPMENT LAND USE TABLE*
- *WATER QUALITY CALCULATIONS*
- *SUMMARY TABLE*

## *BROWARD BOULEVARD PARK-AND-RIDE*

- *PRE-DEVELOPMENT LAND USE TABLE*
- *POST-DEVELOPMENT LAND USE TABLE*
- *WATER QUALITY CALCULATIONS*
- *SUMMARY TABLE*

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
PRE-DEVELOPMENT LAND-USE**

**DRAINAGE SYSTEM: 16A**

**SHGWT EL. (ft-NAVD): 0.42**

BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
B16A-1	10	13.01	13.01	10.69	0.24	2.08	0.00	0.00	0.00	0.00	3.00	2.58	3.66	94.47
B16A-2	10	1.68	1.68	1.68	0.00	0.00	0.00	0.00	0.00	0.00	45.00	44.58	8.18	100.00
B16A-3	10	17.05	17.05	10.83	0.00	6.22	0.00	0.00	0.00	0.00	5.00	4.58	8.18	77.02
B16A-3 Offs	10	8.38	0.00	0.00	0.00	0.00	8.38	3.18	0.00	5.20	5.00	4.58	8.18	66.33
B16A-4	10	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	9.00	8.58	8.18	100.00
B16A-5A1	10	13.23	13.23	8.71	0.00	4.52	0.00	0.00	0.00	0.00	5.00	4.58	8.18	78.16
B16A-5A2	10	2.53	2.53	1.83	0.00	0.70	0.00	0.00	0.00	0.00	5.00	4.58	8.18	81.54
B16A-5B	10	3.80	3.80	2.78	0.00	1.02	0.00	0.00	0.00	0.00	5.00	4.58	8.18	82.00
B16A-5C	10	0.44	0.44	0.41	0.00	0.03	0.00	0.00	0.00	0.00	5.00	4.58	8.18	94.72
B16A-6	10	2.38	2.38	1.43	0.00	0.95	0.00	0.00	0.00	0.00	5.00	4.58	8.18	75.39
B16A-6 Offs	10	0.46	0.00	0.00	0.00	0.00	0.46	0.14	0.00	0.32	5.00	4.58	8.18	63.73
B16A-7	10	3.01	3.01	2.23	0.00	0.78	0.00	0.00	0.00	0.00	5.00	4.58	8.18	82.51
B16A-8	10	2.02	2.02	0.19	0.00	1.83	0.00	0.00	0.00	0.00	6.00	5.58	8.18	57.44
B16A-8 Offs1	10	0.85	0.00	0.00	0.00	0.00	0.85	0.44	0.00	0.41	5.00	4.58	8.18	71.71
B16A-8 Offs2	10	2.47	0.00	0.00	0.00	0.00	2.47	0.57	0.00	1.90	5.00	4.58	8.18	61.38
B16A-9	10	1.89	1.89	1.48	0.00	0.41	0.00	0.00	0.00	0.00	8.00	7.58	8.18	84.93
B16A-10	10	2.58	2.58	2.58	0.00	0.00	0.00	0.00	0.00	0.00	17.00	16.58	8.18	100.00
B16A-11	10	3.70	3.70	2.23	0.00	1.47	0.00	0.00	0.00	0.00	9.00	8.58	8.18	75.47
B16A-12	10	3.81	3.81	0.17	0.00	3.64	0.00	0.00	0.00	0.00	5.00	4.58	8.18	56.13
B16A-13	10	1.74	1.74	0.83	0.00	0.91	0.00	0.00	0.00	0.00	9.00	8.58	8.18	70.04
B16A-14	10	2.79	2.79	2.12	0.00	0.67	0.00	0.00	0.00	0.00	7.00	6.58	8.18	83.58
B16A-15	10	2.57	2.57	2.23	0.00	0.34	0.00	0.00	0.00	0.00	12.00	11.58	8.18	90.23
B16A-16	10	3.33	3.33	3.05	0.00	0.28	0.00	0.00	0.00	0.00	10.00	9.58	8.18	93.56
B16A-17	10	10.98	10.98	10.79	0.00	0.19	0.00	0.00	0.00	0.00	11.00	10.58	8.18	98.60
<b>SYSTEM TOTALS</b>		<b>105.03</b>	<b>92.87</b>	<b>66.59</b>	<b>0.24</b>	<b>26.04</b>	<b>12.16</b>	<b>4.33</b>	<b>0.00</b>	<b>7.83</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
POST-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: 16A

SHGWT EL. (ft-NAVD): 0.42

BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
B16A-3	10	17.05	17.05	10.83	0.00	6.22	0.00	0.00	0.00	0.00	5.00	4.58	8.18	77.02
B16A-3 Offs	10	8.38	0.00	0.00	0.00	0.00	8.38	3.18	0.00	5.20	5.00	4.58	8.18	66.33
B16A-4	10	0.33	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00	9.00	8.58	8.18	100.00
B16A-5A1	10	13.01	13.01	10.17	0.00	2.84	0.00	0.00	0.00	0.00	5.00	4.58	8.18	84.85
B16A-5A2	10	2.53	2.53	1.83	0.00	0.70	0.00	0.00	0.00	0.00	15.00	14.58	8.18	81.54
B16A-5B	10	4.02	4.02	3.58	0.00	0.44	0.00	0.00	0.00	0.00	5.00	4.58	8.18	91.78
B16A-5C	10	0.44	0.44	0.41	0.00	0.03	0.00	0.00	0.00	0.00	5.00	4.58	8.18	94.72
B16A-6	10	2.38	2.38	1.43	0.00	0.95	0.00	0.00	0.00	0.00	5.00	4.58	8.18	75.39
B16A-6 Offs	10	0.46	0.00	0.00	0.00	0.00	0.46	0.14	0.00	0.32	5.00	4.58	8.18	63.73
B16A-7	10	3.01	3.01	2.23	0.00	0.78	0.00	0.00	0.00	0.00	5.00	4.58	8.18	82.51
B16A-8	10	2.02	2.02	0.19	0.00	1.83	0.00	0.00	0.00	0.00	6.00	5.58	8.18	57.44
B16A-8 Offs1	10	0.85	0.00	0.00	0.00	0.00	0.85	0.44	0.00	0.41	5.00	4.58	8.18	71.71
B16A-8 Offs2	10	2.47	0.00	0.00	0.00	0.00	2.47	0.57	0.00	1.90	5.00	4.58	8.18	61.38
B16A-9	10	1.89	1.89	1.48	0.00	0.41	0.00	0.00	0.00	0.00	8.00	7.58	8.18	84.93
B16A-10	10	2.58	2.58	2.58	0.00	0.00	0.00	0.00	0.00	0.00	17.00	16.58	8.18	100.00
B16A-11	10	3.70	3.70	2.23	0.00	1.47	0.00	0.00	0.00	0.00	10.00	9.58	8.18	75.47
B16A-12	10	3.81	3.81	0.17	0.00	3.64	0.00	0.00	0.00	0.00	5.00	4.58	8.18	56.13
B16A-13	10	1.74	1.74	0.83	0.00	0.91	0.00	0.00	0.00	0.00	9.00	8.58	8.18	70.04
B16A-14	10	2.87	2.87	2.41	0.00	0.46	0.00	0.00	0.00	0.00	7.00	6.58	8.18	88.32
B16A-15	10	2.57	2.57	2.23	0.00	0.34	0.00	0.00	0.00	0.00	12.00	11.58	8.18	90.23
B16A-16	10	3.33	3.33	3.05	0.00	0.28	0.00	0.00	0.00	0.00	10.00	9.58	8.18	93.56
B16A-17	10	10.90	10.90	10.79	0.00	0.11	0.00	0.00	0.00	0.00	11.00	10.58	8.18	99.18
16A-PONDS		90.34	78.18	56.77	0.00	21.41	12.16	4.33	0.00	7.83				
B16A-1	10	13.01	13.01	10.69	0.24	2.08	0.00	0.00	0.00	0.00	3.00	2.58	3.66	94.47
B16A-2	10	1.68	1.68	1.68	0.00	0.00	0.00	0.00	0.00	0.00	45.00	44.58	8.18	100.00
DS of PrCS16A-1		14.69	14.69	12.37	0.24	2.08	0.00	0.00	0.00	0.00				
<b>SYSTEM TOTALS</b>		105.03	92.87	69.14	0.24	23.49	12.16	4.33	0.00	7.83	--	--	--	--



**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
WATER QUALITY**

Drainage System: **16A**

SYSTEM	SHGWT EL. (ft-NAVD)	TOTAL ONSITE AREA (Ac.) [POST-DEV.]	ONSITE IMPERVIOUS AREA (Ac.) [POST-DEV.]	ONSITE PERVIOUS AREA (Ac.) [POST-DEV.]	1" OVER TOTAL ONSITE AREA (Ac-ft)	2.5" OVER IMPERVIOUS AREA (Ac-ft)	<sup>1</sup> WATER QUALITY TREATMENT REQUIRED (Ac-ft)	DRY- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	WET- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	DRY- / WET- RETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	FRENCH DRAIN TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>2</sup> TOTAL TREATMENT VOLUME PROVIDED (Ac-ft)	SURPLUS TREATMENT VOLUME PROVIDED (Ac-ft)
<b>16A-PONDS</b>	0.42	78.18	56.77	21.41	6.52	11.83	<b>11.83</b>	8.90	0.00	0.29	0.00	<b>12.45</b>	<b>0.62</b>
<b>SYSTEM TOTAL</b>	0.42	78.18	56.77	21.41	6.52	11.83	<b>11.83</b>	8.90	0.00	0.29	0.00	<b>12.45</b>	<b>0.62</b>

<sup>1</sup>Greater of 1" over Total Onsite Area and 2.5" over Onsite Impervious Area; Volume based on wet detention requirements.

<sup>2</sup>Sum of all treatment provided; Retention and Dry Detention volumes divided by 0.50 and 0.75, respectively to account for 50% and 25% credits.

<sup>3</sup>Water quality treatment in System 16A provided for all onsite contributing basins with the exception of B16A-1 and B16A-2 (14.69 acres, located downstream of existing control structure and project limits).

Pond 16A-1			Pond 16A-2A			Pond 16A-3			Pond 16A-4		
TYPE:	Dry Detention		TYPE:	Dry Detention		TYPE:	Dry Detention		TYPE:	Dry Detention	
STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)
1.42	2.96	--	1.42	2.60	--	1.42	0.37	--	1.42	0.08	--
2.00	3.72	1.94	2.00	2.61	1.51	2.00	0.39	0.22	2.00	0.13	0.06
<b>2.70</b>	<b>4.07</b>	<b>4.66</b>	<b>2.70</b>	<b>2.62</b>	<b>3.34</b>	<b>2.70</b>	<b>0.42</b>	<b>0.50</b>	<b>2.70</b>	<b>0.19</b>	<b>0.17</b>
3.00	4.23	5.91	3.00	2.63	4.13	3.00	0.43	0.63	3.00	0.21	0.23
6.00	4.23	18.59	5.00	2.69	9.45	4.00	0.47	1.08	4.00	0.30	0.48
			8.00	2.72	17.56	5.00	0.55	1.59	5.00	0.39	0.82
						5.25	0.57	1.73	5.25	0.41	0.93

Pond 16A-2B			Ditch 16A-2		
TYPE:	Dry Detention		TYPE:	Dry Retention	
STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)
1.42	0.16	--	3.00	0.0050	--
2.00	0.18	0.10	4.00	0.0710	0.04
<b>2.70</b>	<b>0.19</b>	<b>0.23</b>	5.00	0.22	0.18
3.00	0.20	0.28	<b>5.42</b>	<b>0.30</b>	<b>0.29</b>
4.00	0.22	0.50	6.00	0.4130	0.50
5.00	0.25	0.73	7.00	0.6910	1.05
8.00	0.34	1.63			
9.70	0.40	2.26			



# I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS

## DRAINAGE SYSTEM SUMMARY TABLES

Drainage System: **16A**

Summary of Peak Discharges								
<b>Receiving Waterbody:</b>		<b>South Fork of the New River</b>						
PRE-DEVELOPMENT								
ICPR Link/Basin:	Outfall Pipe / Weir Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-24hr Peak Flow Velocity (fps)
ExPipe16A-1A	66" Pipe	23.75	48.27	2.03	111.67	4.70	119.19	5.02
B16A-1	Direct Discharge		67.27		80.58		104.61	
<b>PRE-DEVELOPMENT TOTALS:</b>		--	--	--	<b>192.25</b>	--	--	--
POST-DEVELOPMENT								
ICPR Link/Basin:	Outfall Pipe / Weir Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-24hr Peak Flow Velocity (fps)
ExPipe16A-1A	66" Pipe	23.75	92.63	3.90	103.53	4.36	108.70	4.58
B16A-1	Direct Discharge		67.27		80.58		104.61	
<b>POST-DEVELOPMENT TOTALS:</b>		--	--	--	<b>184.11</b>	--	--	--
<b>Pre-Post 25yr-72hr Peak Discharge Reduction (cfs):</b>				<b>8.14</b>				

Summary of Peak Stages									
Pond/ Swale/ FD #	Type: [Wet/Dry, Det./Ret., FD]	Disposition [Exist./ Prop./ Modified]	Warning EL. [Min. Berm/ Min. EOP] (ft-NAVD)	PRE-DEVELOPMENT			POST-DEVELOPMENT		
				Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)	Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)
Pond16A-1	Dry Detention	Modified	6.25	4.91	5.76	5.93	4.31	5.51	6.16
Pond16A-2A	Dry Detention	Modified	7.50	5.19	6.85	7.25	4.70	6.23	6.98
Pond16A-2B	Dry Detention	Modified	9.70	6.38	6.92	7.32	5.60	7.08	7.98
Pond16A-3	Dry Detention	Modified	6.50	5.20	6.87	7.27	4.40	5.64	6.31
Pond16A-4	Dry Detention	Exist.	6.50	5.20	6.87	7.27	4.40	5.64	6.31
Ditch16A-2	Ditch	Exist.	9.00	6.72	7.80	8.14	6.29	7.71	8.16
Swale16A-1	Dry Detention	Exist.	9.50	5.30	7.42	7.87	5.19	6.96	7.69
Swale16A-3	Dry Detention	Exist.	10.00	7.52	7.61	7.69	5.73	7.25	8.13
Swale 16A-4/ FD16A-1	Removed French Drain	Modified	8.50	7.27	7.77	8.42	5.81	7.30	8.25
Swale 16A-2/ FD16A-2	French Drain	Exist.	9.00	7.60	8.20	8.78	7.30	8.33	8.98
Swale 16A-1/ FD16A-3	French Drain	Exist.	15.00	9.82	9.99	10.16	5.06	6.92	8.41

Control Structure Summary Table - Proposed Conditions					
Control Structure:	Disposition [Exist./ Prop./ Modified]	Weir Type/ Geometry	Weir EL. (ft-NAVD)	Bleeder Type/ Geometry	Bleeder Invert EL. (ft-NAVD)
PrCS16A-1	Prop.	Raised Type H DBI (4 Grate)	2.70	V-Notch	0.42
ExDS16A-1	Exist.	DBI w/ internal weir wall	5.42	n/a	n/a
CS16A-2	Removed	DBI w/ internal weir wall	5.00	n/a	n/a
CS16A-3	Exist.	DBI w/ internal weir wall	2.70	Orifice	0.42

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS**  
**DRAINAGE SYSTEM SUMMARY TABLES**

DRAINAGE SYSTEM: **16B**                      SHGWT EL. (ft-NAVD): **0.42**

BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
B16B-1A	10	2.13	2.13	0.96	0.00	1.17	0.00	0.00	0.00	0.00	6.00	5.58	8.18	69.00
B16B-1B	10	2.54	2.54	1.11	0.00	1.43	0.00	0.00	0.00	0.00	7.00	6.58	8.18	68.47
B16B-2A	10	0.82	0.82	0.82	0.00	0.00	0.00	0.00	0.00	0.00	12.00	11.58	8.18	100.00
B16B-2B	10	4.48	4.48	3.34	0.00	1.14	0.00	0.00	0.00	0.00	7.00	6.58	8.18	82.77
B16B-3	10	2.49	2.49	1.55	0.00	0.94	0.00	0.00	0.00	0.00	8.00	7.58	8.18	76.41
B16B-4	10	5.73	5.73	4.08	0.00	1.65	0.00	0.00	0.00	0.00	5.00	4.58	8.18	80.94
B16B-4 Offs	10	1.97	0.00	0.00	0.00	0.00	1.97	0.69	0.00	1.28	5.00	4.58	8.18	65.30
B16B-5	10	3.25	3.25	1.88	0.00	1.37	0.00	0.00	0.00	0.00	8.00	7.58	8.18	74.36
B16B-6	10	0.52	0.52	0.35	0.00	0.17	0.00	0.00	0.00	0.00	9.00	8.58	8.18	78.90
B16B-7	10	2.00	2.00	0.77	0.00	1.23	0.00	0.00	0.00	0.00	15.00	14.58	8.18	66.53
B16B-8	10	1.53	1.53	0.97	0.00	0.56	0.00	0.00	0.00	0.00	9.00	8.58	8.18	76.96
B16B-9	10	0.72	0.72	0.63	0.00	0.09	0.00	0.00	0.00	0.00	6.00	5.58	8.18	90.72
B16B-10A	10	1.16	1.16	0.28	0.00	0.88	0.00	0.00	0.00	0.00	12.00	11.58	8.18	61.71
B16B-10B	10	0.30	0.30	0.09	0.00	0.21	0.00	0.00	0.00	0.00	14.00	13.58	8.18	63.59
B16B-11	10	1.97	1.97	0.86	0.00	1.11	0.00	0.00	0.00	0.00	10.00	9.58	8.18	68.45
B16B-14A	10	1.91	1.91	1.20	0.00	0.71	0.00	0.00	0.00	0.00	16.00	15.58	8.18	76.68
B16B-14B	10	0.66	0.66	0.60	0.00	0.06	0.00	0.00	0.00	0.00	12.00	11.58	8.18	93.08
B16B-15	10	2.78	2.78	2.05	0.00	0.73	0.00	0.00	0.00	0.00	7.00	6.58	8.18	82.32
B16B-16	10	3.18	3.18	1.69	0.00	1.49	0.00	0.00	0.00	0.00	13.00	12.58	8.18	72.29
B16B-12A	10	1.11	1.11	1.10	0.00	0.01	0.00	0.00	0.00	0.00	30.00	29.58	8.18	99.27
B16B-12B	10	1.68	1.68	1.61	0.00	0.07	0.00	0.00	0.00	0.00	15.00	14.58	8.18	96.70
B16B-12B Offs1	10	0.69	0.00	0.00	0.00	0.00	0.69	0.54	0.00	0.15	5.00	4.58	8.18	84.90
B16B-12B Offs2	10	0.97	0.00	0.00	0.00	0.00	0.97	0.77	0.00	0.20	5.00	4.58	8.18	85.57
B16B-13A	10	2.08	2.08	0.82	0.00	1.26	0.00	0.00	0.00	0.00	7.00	6.58	8.18	66.87
B16B-13B	10	1.29	1.29	0.49	0.00	0.80	0.00	0.00	0.00	0.00	7.00	6.58	8.18	66.34
B16B-17	10	1.47	1.47	0.56	0.04	0.87	0.00	0.00	0.00	0.00	10.00	9.58	8.18	67.38
B16B-18	10	0.32	0.32	0.14	0.00	0.18	0.00	0.00	0.00	0.00	6.00	5.58	8.18	68.49
B16B-18 Offs	10	0.13	0.00	0.00	0.00	0.00	0.13	0.03	0.00	0.10	5.00	4.58	8.18	61.38
B16B-19	10	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	23.00	22.58	8.18	100.00
B16B-20	10	0.21	0.21	0.00	0.00	0.21	0.00	0.00	0.00	0.00	9.00	8.58	8.18	55.01
B16B-20 Offs	10	0.74	0.00	0.00	0.00	0.00	0.74	0.43	0.00	0.31	5.00	4.58	8.18	74.48
B16B-21	10	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	14.00	13.58	8.18	100.00
B16B-22	10	0.17	0.17	0.01	0.00	0.16	0.00	0.00	0.00	0.00	10.00	9.58	8.18	56.50
DS of Control Structures		11.34	6.02	2.50	0.04	3.48	2.53	1.77	0.00	0.76	--	--	--	--
SYSTEM TOTALS:		51.48	46.98	28.44	0.04	18.50	4.50	2.46	0.00	2.04	--	--	--	--

Water quality treatment not provided for basins downstream of existing/proposed control structures (11.34 acres).

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS**  
**DRAINAGE SYSTEM SUMMARY TABLES**

DRAINAGE SYSTEM: **16B**

SHGWT EL. (ft.-NAVD): **0.42**

BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft.-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
B16B-1A	10	2.15	2.15	0.99	0.00	1.16	0.00	0.00	0.00	0.00	6.00	5.58	8.18	69.38
B16B-1B	10	2.47	2.47	1.54	0.00	0.93	0.00	0.00	0.00	0.00	7.00	6.58	8.18	76.45
B16B-2A	10	0.83	0.83	0.83	0.00	0.00	0.00	0.00	0.00	0.00	12.00	11.58	8.18	100.00
B16B-2B	10	4.64	4.64	3.54	0.00	1.10	0.00	0.00	0.00	0.00	7.00	6.58	8.18	83.76
B16B-3	10	2.46	2.46	1.65	0.00	0.81	0.00	0.00	0.00	0.00	8.00	7.58	8.18	78.78
B16B-4	10	5.94	5.94	4.20	0.00	1.74	0.00	0.00	0.00	0.00	5.00	4.58	8.18	80.67
B16B-4 Offs	10	1.84	0.00	0.00	0.00	0.00	1.84	0.68	0.00	1.16	5.00	4.58	8.18	66.03
B16B-4A	10	1.01	1.01	0.00	0.00	1.01	0.00	0.00	0.00	0.00	5.00	4.58	8.18	55.01
B16B-5	10	2.99	2.99	1.72	0.00	1.27	0.00	0.00	0.00	0.00	8.00	7.58	8.18	74.21
B16B-6	10	0.52	0.51	0.36	0.00	0.15	0.00	0.00	0.00	0.00	9.00	8.58	8.18	79.89
B16B-7	10	2.25	2.25	1.87	0.00	0.38	0.00	0.00	0.00	0.00	15.00	14.58	8.18	87.86
B16B-8	10	1.10	1.10	0.58	0.00	0.52	0.00	0.00	0.00	0.00	9.00	8.58	8.18	72.11
B16B-9	10	0.62	0.62	0.48	0.00	0.14	0.00	0.00	0.00	0.00	6.00	5.58	8.18	84.41
B16B-10A	10	1.00	1.00	0.30	0.00	0.70	0.00	0.00	0.00	0.00	12.00	11.58	8.18	63.59
B16B-10B	10	0.09	0.09	0.02	0.00	0.07	0.00	0.00	0.00	0.00	14.00	13.58	8.18	61.12
B16B-11	10	2.69	2.69	1.12	0.00	1.57	0.00	0.00	0.00	0.00	10.00	9.58	8.18	67.69
B16B-12A	10	1.84	1.84	1.84	0.00	0.00	0.00	0.00	0.00	0.00	30.00	29.58	8.18	100.00
B16B-12B	10	1.91	1.91	1.91	0.00	0.00	0.00	0.00	0.00	0.00	15.00	14.58	8.18	100.00
B16B-13A	10	2.34	2.34	1.81	0.00	0.53	0.00	0.00	0.00	0.00	7.00	6.58	8.18	84.37
B16B-14A	10	1.78	1.78	1.17	0.00	0.61	0.00	0.00	0.00	0.00	16.00	15.58	8.18	78.11
B16B-14B	10	0.66	0.66	0.55	0.00	0.11	0.00	0.00	0.00	0.00	12.00	11.58	8.18	88.00
B16B-15	10	2.29	2.29	1.15	0.00	1.14	0.00	0.00	0.00	0.00	7.00	6.58	8.18	71.06
B16B-16	10	3.16	3.16	1.63	0.00	1.53	0.00	0.00	0.00	0.00	13.00	12.58	8.18	71.63
Subtotal		46.58	44.73	29.26	0.00	15.47	1.84	0.68	0.00	1.16				
B16B-12B Offs2	10	0.91	0.00	0.00	0.00	0.00	0.91	0.75	0.00	0.16	5.00	4.58	8.18	87.43
B16B-13B	10	1.31	1.31	0.93	0.00	0.38	0.00	0.00	0.00	0.00	7.00	6.58	8.18	80.82
B16B-17	10	1.43	1.43	0.50	0.04	0.89	0.00	0.00	0.00	0.00	10.00	9.58	8.18	66.26
B16B-18	10	0.32	0.32	0.14	0.00	0.18	0.00	0.00	0.00	0.00	6.00	5.58	8.18	68.49
B16B-18 Offs	10	0.13	0.00	0.00	0.00	0.00	0.13	0.03	0.00	0.10	5.00	4.58	8.18	61.38
B16B-19	10	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	23.00	22.58	8.18	100.00
B16B-20	10	0.21	0.21	0.00	0.00	0.21	0.00	0.00	0.00	0.00	9.00	8.58	8.18	55.01
B16B-20 Offs	10	0.74	0.00	0.00	0.00	0.00	0.74	0.43	0.00	0.31	5.00	4.58	8.18	74.48
B16B-21	10	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	14.00	13.58	8.18	100.00
B16B-22	10	0.17	0.17	0.01	0.00	0.16	0.00	0.00	0.00	0.00	10.00	9.58	8.18	56.50
DS of Control Structures		5.70	3.92	2.06	0.04	1.82	1.78	1.21	0.00	0.57	--	--	--	--
SYSTEM TOTALS:		52.28	48.65	31.32	0.04	17.29	3.62	1.89	0.00	1.73	--	--	--	--

Water quality treatment not provided for basins downstream of existing/proposed control structures (8.21 acres).

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS**  
**DRAINAGE SYSTEM SUMMARY TABLES**

Drainage System: **16B**

SYSTEM	SHGWT EL. (ft-NAVD)	TOTAL AREA (Ac.) [POST-DEV.]	IMPERVIOUS AREA (Ac.) [POST-DEV.]	PERVIOUS AREA (Ac.) [POST-DEV.]	1" OVER TOTAL ONSITE AREA (Ac-ft)	2.5" OVER IMPERVIOUS AREA (Ac-ft)	<sup>1</sup> WATER QUALITY TREATMENT REQUIRED (Ac-ft)	DRY- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	WET- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	DRY- / WET- RETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	FRENCH DRAIN TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>2</sup> TOTAL TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>3</sup> SURPLUS TREATMENT VOLUME PROVIDED (Ac-ft)
<b>16B Total</b>	0.42	46.58	29.94	16.63	3.88	6.24	<b>6.24</b>	4.64	0.00	0.00	0.29	<b>6.48</b>	<b>0.24</b>

<sup>1</sup>Greater of 1" over Total Onsite Area and 2.5" over Onsite Impervious Area; Volume based on wet detention requirements.

<sup>2</sup>Sum of all treatment provided; Retention and Dry Detention volumes divided by 0.50 and 0.75, respectively to account for 50% and 25% credits.

<sup>3</sup>Water quality treatment provided for all onsite contributing basins with the exception of basins downstream of existing/proposed control structures (8.21 acres), water quality treatment provided for offsite contributing basins upstream of existing/proposed control structures (1.84 acres).

Pond 16B-1			Pond16B-2A			Pond16B-2B			Pond16B-4A		
TYPE:	Dry Detention		TYPE:	Dry Detention		TYPE:	Dry Detention		TYPE:	Dry Detention	
STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)
1.42	1.02	--	1.42	0.42	--	1.42	0.21	--	1.42	0.37	--
2.00	1.15	0.63	2.00	0.45	0.25	2.00	0.22	0.13	2.00	0.42	0.23
<b>2.45</b>	<b>1.26</b>	<b>1.17</b>	<b>2.45</b>	<b>0.47</b>	<b>0.46</b>	<b>2.45</b>	<b>0.24</b>	<b>0.23</b>	<b>2.45</b>	<b>0.46</b>	<b>0.42</b>
3.00	1.39	1.90	4.00	0.53	1.23	4.00	0.28	0.63	3.00	0.51	0.69
4.50	1.75	4.25	5.50	0.59	2.07	5.50	0.33	1.09	4.00	0.61	1.25
									5.00	0.72	1.92

Swale 16B-1			Swale 16B-3			Swale 16B-5			Swale 16B-6		
TYPE:	Dry Detention		TYPE:	Dry Detention		TYPE:	Dry Detention		TYPE:	Dry Detention	
STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)
1.42	1.52	--	1.42	0.14	--	1.42	0.12	--	1.42	0.48	--
2.00	1.52	0.88	2.00	0.16	0.09	2.00	0.13	0.07	2.00	0.48	0.28
<b>2.45</b>	<b>1.52</b>	<b>1.57</b>	<b>2.45</b>	<b>0.18</b>	<b>0.16</b>	<b>2.45</b>	<b>0.14</b>	<b>0.14</b>	<b>2.45</b>	<b>0.48</b>	<b>0.49</b>
4.00	1.53	3.93	3.00	0.19	0.26	3.00	0.15	0.21	3.00	0.48	0.76
5.50	1.53	6.22	4.00	0.23	0.47	4.50	0.17	0.45	5.50	0.49	1.97

# I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS

## DRAINAGE SYSTEM SUMMARY TABLES

Drainage System: **16B**

Summary of Peak Discharges								
Receiving Waterbody:		North Fork of the New River						
PRE-DEVELOPMENT								
ICPR Node:	Outfall Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-72hr Peak Flow Velocity (fps)
NFNR	54" Pipe	15.90	78.29		93.19		100.60	
PRE-DEVELOPMENT TOTALS:		--	--	--	93.19	--	--	--
POST-DEVELOPMENT								
ICPR Node:	Pipe/Weir Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-72hr Peak Flow Velocity (fps)
NFNR	54" Pipe	15.90	56.96		77.35		82.47	
POST-DEVELOPMENT TOTALS:		--	--	--	77.35	--	--	--
<b>Pre-Post 25yr-72hr Peak Discharge Reduction (cfs):</b>				<b>15.84</b>				

Summary of Peak Stages									
Pre - Dev. Pond/Swale/FD #	Post - Dev. Pond/Swale/FD #	Disposition [Exist./ Prop./ Modified]	Warning EL. [Min. Berm/ Min. EOP] (ft-NAVD)	PRE-DEVELOPMENT			POST-DEVELOPMENT		
				Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)	Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)
FD16B-1	ExFD16B-1	Existing	7.57	5.98	6.98	7.74	4.22	5.05	5.45
Pond16B-1	Pond16B-1	Existing	5.00	4.63	5.47	5.87	3.76	5.01	5.39
Pond16B-2	Pond16B-2A	Modified	5.50	5.52	6.58	7.02	3.82	5.13	5.52
Ditch16B-2	Pond16B-2B	Modified	5.50	5.50	6.57	7.01	3.82	5.13	5.53
Pond16B-4	Pond16B-4	Existing	5.00	2.74	3.79	4.19	1.71	3.07	3.37
--	Pond16B-4A	Proposed	5.50	--	--	--	3.76	5.01	5.39
FD16B-3	PrMH16B-3A	Modified	7.20	4.93	5.82	6.21	3.82	5.12	5.51
	PrMH16B-3B	Modified					3.81	5.10	5.48
Swale16B-1	Swale16B-1	Modified	11.00	5.12	6.04	6.42	3.81	5.11	5.50
Swale16B-3	Swale16B-3	Modified	5.50	6.52	6.71	6.65	3.82	5.11	5.49
FD16B-2	Swale16B-5	Modified	7.00	5.10	6.24	6.94	3.34	4.86	5.28
--	Swale16B-6	Proposed	5.50	--	--	--	3.81	5.11	5.51

Control Structure Summary Table - Proposed Conditions					
Control Structure:	Disposition [Exist./ Prop./ Modified]	Weir Type/ Geometry	Weir EL. (ft-NAVD)	Bleeder Type/ Geometry	Bleeder Invert EL. (ft-NAVD)
CS16B-3	Modified	Raised Ditch Bottom Inlet (Type H) - Vert. Weir	2.45	Circular Orifice (4")	0.42
CS16B-5	Proposed	Raised Ditch Bottom Inlet (Type E)	2.50	Circular Orifice (4")	0.42

## I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS

### PRE-DEVELOPMENT LAND-USE

DRAINAGE SYSTEM: 17

SHGWT EL. (ft.-NAVD): 0.42

BASIN	Time of Conc. $t_c$ (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft.-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
B17-1	10	1.12	1.12	0.75	0.18	0.19	0.00	0.00	0.00	0.00	3.00	2.58	3.66	94.15
B17-2	10	10.75	10.75	8.01	0.00	2.74	0.00	0.00	0.00	0.00	8.00	7.58	8.18	82.75
B17-3	10	4.80	4.80	2.64	0.00	2.16	0.00	0.00	0.00	0.00	5.00	4.58	8.18	73.09
B17-4	10	8.10	8.10	6.47	0.00	1.63	0.00	0.00	0.00	0.00	5.00	4.58	8.18	85.87
B17-4 Offs	10	0.58	0.00	0.00	0.00	0.00	0.58	0.17	0.00	0.41	5.00	4.58	8.18	63.36
B17-5A	10	3.73	3.73	1.39	0.00	2.34	0.00	0.00	0.00	0.00	5.00	4.58	8.18	66.09
B17-5B	10	5.81	5.81	2.17	0.00	3.64	0.00	0.00	0.00	0.00	5.00	4.58	8.18	66.12
B17-6	10	0.90	0.90	0.35	0.00	0.55	0.00	0.00	0.00	0.00	5.00	4.58	8.18	66.67
B17-6 Offs	10	0.36	0.00	0.00	0.00	0.00	0.36	0.02	0.00	0.34	5.00	4.58	8.18	56.42
<b>SYSTEM TOTALS:</b>		<b>36.15</b>	<b>35.21</b>	21.78	0.18	13.25	<b>0.94</b>	0.19	0.00	0.75	--	--	--	--



## I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS

### POST-DEVELOPMENT LAND-USE

DRAINAGE SYSTEM: 17

SHGWT EL. (ft.-NAVD): 0.42

BASIN	Time of Conc. $t_c$ (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft.-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
B17-1	10	1.05	1.05	0.68	0.18	0.19	0.00	0.00	0.00	0.00	3.00	2.58	3.66	93.79
B17-2	10	10.59	10.59	8.63	0.00	1.96	0.00	0.00	0.00	0.00	8.00	7.58	8.18	86.85
B17-3	10	5.03	5.03	4.41	0.00	0.62	0.00	0.00	0.00	0.00	5.00	4.58	8.18	90.84
B17-4	10	7.95	7.95	7.12	0.00	0.83	0.00	0.00	0.00	0.00	5.00	4.58	8.18	92.13
B17-4 Offs	10	0.58	0.00	0.00	0.00	0.00	0.58	0.17	0.00	0.41	5.00	4.58	8.18	63.36
B17-5A	10	3.78	3.78	2.75	0.00	1.03	0.00	0.00	0.00	0.00	5.00	4.58	8.18	81.77
B17-5B	10	5.91	5.91	3.21	0.00	2.70	0.00	0.00	0.00	0.00	5.00	4.58	8.18	72.80
B17-6	10	0.90	0.90	0.50	0.00	0.40	0.00	0.00	0.00	0.00	5.00	4.58	8.18	73.34
B17-6 Offs	10	0.36	0.00	0.00	0.00	0.00	0.36	0.02	0.00	0.34	5.00	4.58	8.18	56.42
<b>SYSTEM TOTALS:</b>		<b>36.15</b>	<b>35.21</b>	27.30	0.18	7.73	<b>0.94</b>	0.19	0.00	0.75	--	--	--	--

## I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS WATER QUALITY

Drainage System: **17**

SYSTEM	SHGWT EL. (ft-NAVD)	TOTAL ONSITE AREA (Ac.) <i>[POST-DEV.]</i>	ONSITE IMPERVIOUS AREA (Ac.) <i>[POST-DEV.]</i>	ONSITE PERVIOUS AREA (Ac.) <i>[POST-DEV.]</i>	1" OVER TOTAL ONSITE AREA (Ac-ft)	2.5" OVER IMPERVIOUS AREA (Ac-ft)	<sup>1</sup> WATER QUALITY TREATMENT REQUIRED (Ac-ft)	DRY-DETECTION TREATMENT VOLUME PROVIDED (Ac-ft)	WET-DETECTION TREATMENT VOLUME PROVIDED (Ac-ft)	DRY- / WET-RETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	FRENCH DRAIN TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>2</sup> TOTAL TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>3</sup> SURPLUS TREATMENT VOLUME PROVIDED (Ac-ft)
<b>17</b>	0.42	35.21	27.30	7.73	2.93	5.69	<b>5.69</b>	4.34	0.00	0.00	0.00	<b>5.79</b>	<b>0.10</b>

<sup>1</sup>Greater of 1" over Total Onsite Area and 2.5" over Onsite Impervious Area; Volume based on wet detention requirements.

<sup>2</sup>Sum of all treatment provided; Retention and Dry Detention volumes divided by 0.50 and 0.75, respectively to account for 50% and 25% credits.

<sup>3</sup>Water quality treatment in System 17 provided for all onsite contributing basins with the exception of B17-1 (which is located downstream of existing/proposed control structures and consists of 0.87 acres of non-water surface area). Compensatory water quality in System 17 provided for all offsite contributing basins (0.94 acres).

Pond 17-1			Pond 17-2			Swale 17-1A			Swale 17-1B		
TYPE:	Dry Retention		TYPE:	Dry Retention		TYPE:	Dry Retention		TYPE:	Dry Retention	
STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)	STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)
1.42	1.93	--	1.42	0.36	--	1.42	0.66	--	1.42	2.26	--
2.00	1.95	1.12	2.00	0.36	0.21	2.00	0.67	0.39	2.00	2.26	1.31
<b>2.25</b>	<b>1.95</b>	<b>1.61</b>	<b>2.25</b>	<b>0.36</b>	<b>0.30</b>	<b>2.25</b>	<b>0.67</b>	<b>0.55</b>	<b>2.25</b>	<b>2.27</b>	<b>1.88</b>
5.50	1.97	7.98	5.50	0.37	1.48	5.00	0.68	2.42	5.00	2.28	8.13

# I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS

## DRAINAGE SYSTEM SUMMARY TABLES

Drainage System: 17

Summary of Peak Discharges								
Receiving Waterbody:		North Fork of the New River						
PRE-DEVELOPMENT								
ICPR Node:	Outfall Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-24hr Peak Flow Velocity (fps)
NFNR	48" Pipe and 30" Pipe		50.04		87.34		111.16	
PRE-DEVELOPMENT TOTALS:		--	--	--	87.34	--	--	--
POST-DEVELOPMENT								
ICPR Link:	Pipe/Weir Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-24hr Peak Flow Velocity (fps)
NFNR	48" Pipe and 30" Pipe		68.74		80.59		90.39	
POST-DEVELOPMENT TOTALS:		--	--	--	80.59	--	--	--
Pre-Post 25yr-72hr Peak Discharge Reduction (cfs):				6.75				

Summary of Peak Stages									
Exist./Prop. Pond/Swale/FD #	Type: [Wet/Dry, Det./Ret., FD]	Disposition [Exist./Prop./Modified]	Warning EL. [Min. Berm/Min. EOP] (ft-NAVD)	PRE-DEVELOPMENT			POST-DEVELOPMENT		
				Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)	Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)
Pond17-1	Dry Detention	Modified	5.50	4.45	4.97	5.22	3.42	3.90	4.43
Pond17-2	Dry Detention	Modified	5.50	3.97	4.49	4.69	3.50	4.06	4.73
Swale 17-2/PrMH17-4	Dry Detention	Modified	5.00	4.63	5.54	6.08	3.91	4.79	5.87
Swale 17-3 PrMH17-6	Dry Detention	Modified	4.50	4.65	5.58	6.05	3.91	4.80	5.88
Swale17-1A	Dry Detention	Modified	5.00	4.39	5.29	5.62	3.61	4.22	4.81
Swale17-1B	Dry Detention	Modified	5.00	4.44	5.43	5.76	2.86	3.94	3.97

Control Structure Summary Table - Proposed Conditions					
Control Structure:	Disposition [Exist./Prop./Modified]	Weir Type/Geometry	Weir EL. (ft-NAVD)	Bleeder Type/Geometry	Bleeder Invert EL. (ft-NAVD)
CS17-1	Modified	Type C Ditch Bottom Inlet	2.25	Circular Orifice (3")	0.42
CS17-2	Modified	Type C Ditch Bottom Inlet	2.25	Circular Orifice (3")	0.42

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS**  
**PRE-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: **Broward Blvd & Park-n-Ride**

SHGWT EL. (ft-NAVD): **0.42**

SYSTEM	BASIN	Time of Conc. $t_c$ (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
PARK 'N' RIDE (NORTH LOT)	PNR_N-1A	10	0.55	0.55	0.43	0.00	0.12	0.00	0.00	0.00	0.00	5.00	4.58	8.18	84.86
	PNR_N-1B	10	0.54	0.54	0.51	0.00	0.03	0.00	0.00	0.00	0.00	6.00	5.58	8.18	95.65
	PNR_N-1C	10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	5.50	5.08	8.18	100.00
	PNR_N-2	10	1.94	1.94	1.78	0.00	0.16	0.00	0.00	0.00	0.00	6.00	5.58	8.18	93.68
	PNR_N-3	10	0.81	0.81	0.62	0.00	0.19	0.00	0.00	0.00	0.00	6.00	5.58	8.18	83.90
	PNR_N-4	10	0.37	0.37	0.35	0.00	0.02	0.00	0.00	0.00	0.00	6.00	5.58	8.18	95.77
	PNR_N-5	10	4.88	4.88	3.91	0.00	0.97	0.00	0.00	0.00	0.00	6.00	5.58	8.18	86.01
	PNR_N-6	10	1.11	1.11	1.06	0.00	0.05	0.00	0.00	0.00	0.00	8.00	7.58	8.18	96.45
	PNR_N-7	10	0.31	0.31	0.00	0.00	0.31	0.00	0.00	0.00	0.00	5.00	4.58	8.18	55.01
PNR_N-8	10	0.86	0.86	0.00	0.00	0.86	0.00	0.00	0.00	0.00	5.00	4.58	8.18	55.01	
PARK 'N' RIDE NORTH LOT SYSTEM TOTALS:			11.47	11.47	8.76	0.00	2.71	0.00	0.00	0.00	0.00	--	--	--	--

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS**  
**PRE-DEVELOPMENT LAND-USE**

**DRAINAGE SYSTEM:** Broward Blvd & Park-n-Ride

**SHGWT EL. (ft-NAVD):** 0.42

SYSTEM	BASIN	Time of Conc. $t_c$ (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
PARK 'N' RIDE (SOUTH LOT)	PNR_S-1A	10	0.06	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	7.00	6.58	8.18	100.00
	PNR_S-1B	10	0.52	0.52	0.37	0.00	0.15	0.00	0.00	0.00	0.00	7.00	6.58	8.18	80.91
	PNR_S-1C	10	0.65	0.65	0.50	0.00	0.15	0.00	0.00	0.00	0.00	6.00	5.58	8.18	84.12
	PNR_S-2A	10	0.45	0.45	0.12	0.00	0.33	0.00	0.00	0.00	0.00	7.00	6.58	8.18	62.51
	PNR_S-2B	10	3.54	3.54	2.47	0.00	1.07	0.00	0.00	0.00	0.00	5.00	4.58	8.18	80.18
	PNR_S-3	10	0.88	0.88	0.05	0.10	0.73	0.00	0.00	0.00	0.00	4.00	3.58	4.95	70.89
	PNR_S-3_Offsite	10	3.63	0.00	0.00	0.00	0.00	3.63	1.27	0.00	2.36	4.00	3.58	4.95	75.66
	PNR_S-4	10	1.78	1.78	1.43	0.00	0.35	0.00	0.00	0.00	0.00	8.00	7.58	8.18	86.14
	PNR_S-4_Offsite	10	2.38	0.00	0.00	0.00	0.00	2.38	0.83	0.00	1.55	8.00	7.58	8.18	65.29
	PNR_S-5	10	2.06	2.06	1.88	0.00	0.18	0.00	0.00	0.00	0.00	6.00	5.58	8.18	93.33
PNR_S-6	10	2.79	2.79	2.17	0.00	0.62	0.00	0.00	0.00	0.00	8.00	7.58	8.18	84.62	
PARK 'N' RIDE SOUTH LOT SYSTEM TOTALS:			18.74	12.73	9.05	0.10	3.58	6.01	2.10	0.00	3.91	--	--	--	--

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
PRE-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: Broward Blvd & Park-n-Ride

SHGWT EL. (ft-NAVD): 0.42

SYSTEM	BASIN	Time of Conc. $t_c$ (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
BROWARD BOULEVARD SYSTEMS WITHIN PROJECT LIMITS	PNR_BB-E1	10	2.28	2.28	2.16	0.00	0.12	0.00	0.00	0.00	0.00	24.00	23.58	8.18	95.87
	PNR_BB-E2	10	0.72	0.72	0.72	0.00	0.00	0.00	0.00	0.00	0.00	18.00	17.58	8.18	100.00
	PNR_BB-W2	10	0.23	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00	5.00	4.58	8.18	100.00
	NW 22ND-1	10	1.93	1.93	1.16	0.00	0.77	0.00	0.00	0.00	0.00	4.00	3.58	4.95	83.51
BROWARD BOULEVARD SYSTEM TOTALS:			5.16	5.16	4.27	0.00	0.89	0.00	0.00	0.00	0.00	--	--	--	--
PROJECT TOTALS:			35.37	29.36	22.08	0.10	7.18	6.01	2.10	0.00	3.91	--	--	--	--
BROWARD BOULEVARD SYSTEM OUTSIDE PROJECT LIMITS	PNR_BB-W1*	10	18.10	18.10	18.10	0.00	0.00	0.00	0.00	0.00	0.00	--	--	--	98.00

\*Basin includes:

- 1) Broward Blvd from east of SW 28 Terr. to NW 22nd Avenue (approximately 3,300 ft of 100-ft R/W) = 10.50 ac. (approx.)
- 2) Riverland Road from Davie Blvd. to north of NW 1st Street (approximately 6,100 ft of 75-ft R/W) = 7.60 ac. (approx.)

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
PRE-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: Bridge Riverbend

SHGWT EL. (ft-NAVD): 0.42

BASIN	Time of Conc. $t_c$ (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
RVR BND_SITE*	30	17.85	0.00	0.00	0.00	0.00	17.85	15.05	0.00	2.80	6.29	5.87	8.18	88.63
DELEV PK_LAKE**	10	20.60	0.00	0.00	0.00	0.00	20.60	0.78	16.84	2.98	1.00	0.58	0.45	99.35
SYSTEM TOTALS:		38.45	0.00	0.00	0.00	0.00	38.45	15.83	16.84	5.78	--	--	--	--

\* Basin Land-Use information obtained from Bridge Riverbend Project Drainage Calculations, prepared by Flynn Engineering Services, P.A.

\*\* Basin Land-Use information based on topographical survey information.

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
POST-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: **Broward Blvd & Park-n-Ride**

SHGWT EL. (ft-NAVD): **0.42**

SYSTEM	BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
PARK 'N' RIDE (NORTH LOT)	PNR_N-1A	10	0.55	0.55	0.43	0.00	0.12	0.00	0.00	0.00	0.00	5.00	4.58	8.18	84.86
	PNR_N-1B	10	0.54	0.54	0.51	0.00	0.03	0.00	0.00	0.00	0.00	6.00	5.58	8.18	95.65
	PNR_N-1C	10	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	5.50	5.08	8.18	100.00
	PNR_N-2	10	1.94	1.94	1.78	0.00	0.16	0.00	0.00	0.00	0.00	6.00	5.58	8.18	93.68
	PNR_N-3	10	0.81	0.81	0.62	0.00	0.19	0.00	0.00	0.00	0.00	6.00	5.58	8.18	83.90
	PNR_N-4	10	0.37	0.37	0.35	0.00	0.02	0.00	0.00	0.00	0.00	6.00	5.58	8.18	95.77
	PNR_N-5	10	4.87	4.87	3.90	0.00	0.97	0.00	0.00	0.00	0.00	6.00	5.58	8.18	85.99
	PNR_N-6	10	1.02	1.02	0.97	0.00	0.05	0.00	0.00	0.00	0.00	8.00	7.58	8.18	96.14
PNR_N-8	10	0.84	0.84	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	5.00	4.58	8.18	55.01
PARK 'N' RIDE NORTH LOT SYSTEM TOTALS:			11.04	11.04	8.66	0.00	2.38	0.00	0.00	0.00	0.00	--	--	--	--



**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
POST-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: **Broward Blvd & Park-n-Ride**

SHGWT EL. (ft-NAVD): **0.42**

SYSTEM	BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
PARK 'N' RIDE (SOUTH LOT)	PNR_S-1A	10	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	7.00	6.58	8.18	100.00
	PNR_S-2A	10	0.34	0.34	0.14	0.00	0.20	0.00	0.00	0.00	0.00	7.00	6.58	8.18	67.51
	PNR_S-2B	10	1.83	1.83	1.55	0.00	0.28	0.00	0.00	0.00	0.00	5.00	4.58	8.18	88.88
	PNR_S-4	10	1.70	1.70	1.42	0.00	0.28	0.00	0.00	0.00	0.00	8.00	7.58	8.18	88.13
	PNR_S-5	10	2.06	2.06	1.89	0.00	0.17	0.00	0.00	0.00	0.00	6.00	5.58	8.18	93.68
	PNR_S-6	10	2.80	2.80	2.18	0.00	0.62	0.00	0.00	0.00	0.00	8.00	7.58	8.18	84.66
	PNR_S-3_Offsite	10	3.63	0.00	0.00	0.00	0.00	0.00	3.63	1.27	0.00	2.36	4.00	3.58	4.95
PNR_S-4_Offsite	10	2.38	0.00	0.00	0.00	0.00	0.00	2.38	0.83	0.00	1.55	8.00	7.58	8.18	65.29
PARK 'N' RIDE SOUTH LOT SYSTEM TOTALS:			14.79	8.78	7.23	0.00	1.55	6.01	2.10	0.00	3.91	--	--	--	--
FIRST STREET RECONSTRUCTION	PNR_S-1B	10	0.39	0.39	0.27	0.00	0.12	0.00	0.00	0.00	0.00	7.00	6.58	8.18	79.89
	PNR_S-1C	10	1.04	1.04	0.64	0.00	0.40	0.00	0.00	0.00	0.00	6.00	5.58	8.18	76.07
	PNR_S-2D	10	1.16	1.16	1.02	0.00	0.14	0.00	0.00	0.00	0.00	5.00	4.58	8.18	91.01
	PNR_S-3	10	1.09	1.09	0.56	0.10	0.43	0.00	0.00	0.00	0.00	4.00	3.58	4.95	83.66
FIRST STREET RECONSTRUCTION SYSTEM TOTALS:			3.68	3.68	2.49	0.10	1.09	0.00	0.00	0.00	0.00	--	--	--	--

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
POST-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: **Broward Blvd & Park-n-Ride** SHGWT EL. (ft-NAVD): **0.42**

SYSTEM	BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
<b>BROWARD BOULEVARD RECONSTRUCTION</b>	PNR_BB-E1L	10	1.04	1.04	1.04	0.00	0.00	0.00	0.00	0.00	0.00	24.00	23.58	8.18	100.00
	PNR_BB-E1R	10	1.24	1.24	1.24	0.00	0.00	0.00	0.00	0.00	0.00	24.00	23.58	8.18	100.00
	PNR_BB-E2L	10	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00	18.00	17.58	8.18	100.00
	PNR_BB-E2R	10	0.82	0.82	0.82	0.00	0.00	0.00	0.00	0.00	0.00	18.00	17.58	8.18	100.00
	PNR_N-7	10	0.26	0.26	0.00	0.00	0.26	0.00	0.00	0.00	0.00	4.00	3.58	4.95	66.89
	PNR_S-2C	10	0.24	0.24	0.00	0.00	0.24	0.00	0.00	0.00	0.00	3.00	2.58	1.88	84.18
<b>BROWARD BOULEVARD RECONSTRUCTION SYSTEM TOTALS:</b>			3.98	3.98	3.48	0.00	0.50	0.00	0.00	0.00	0.00	--	--	--	--
<b>BROWARD BOULEVARD MILL/RESURFACE/OVERBUILD</b>	PNR_BB-E3	10	0.17	0.17	0.17	0.00	0.00	0.00	0.00	0.00	0.00	18.00	17.58	8.18	100.00
	PNR_BB-W2	10	0.26	0.26	0.26	0.00	0.00	0.00	0.00	0.00	0.00	5.00	4.58	8.18	100.00
	NW 22ND-1	10	1.93	1.93	1.16	0.00	0.77	0.00	0.00	0.00	0.00	4.00	3.58	4.95	83.51
<b>BROWARD BOULEVARD MILL/RESURFACE/OVERBUILD SYSTEM TOTALS:</b>			2.36	2.36	1.59	0.00	0.77	0.00	0.00	0.00	0.00	--	--	--	--
<b>PROJECT TOTALS:</b>			32.17	26.16	20.96	0.00	5.20	6.01	2.10	0.00	3.91	--	--	--	--
<b>BROWARD BOULEVARD SYSTEM OUTSIDE PROJECT LIMITS</b>	PNR_BB-W1*	10	18.10	18.10	18.10	0.00	0.00	0.00	0.00	0.00	0.00	--	--	--	98.00

\*Basin includes:

- 1) Broward Blvd from east of SW 28 Terr. to NW 22nd Avenue (approximately 3,300 ft of 100-ft R/W) = 10.50 ac. (approx.)
- 2) Riverland Road from Davie Blvd. to north of NW 1st Street (approximately 6,100 ft of 75-ft R/W) = 7.60 ac. (approx.)

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
WATER QUALITY**

**Drainage System: Broward Blvd & Park-n-Ride**

SYSTEM	SHGWT EL. (ft-NAVD)	TOTAL ONSITE AREA (Ac.) <i>[POST-DEV.]</i>	ONSITE IMPERVIOUS AREA (Ac.) <i>[POST-DEV.]</i>	ONSITE PERVIOUS AREA (Ac.) <i>[POST-DEV.]</i>	1" OVER TOTAL ONSITE AREA (Ac-ft)	2.5" OVER IMPERVIOUS AREA (Ac-ft)	<sup>1</sup> WATER QUALITY TREATMENT REQUIRED (Ac-ft)	DRY- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	WET- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	DRY- / WET- RETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>2</sup> FRENCH DRAIN TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>3</sup> TOTAL TREATMENT VOLUME PROVIDED (Ac-ft)	SURPLUS TREATMENT VOLUME PROVIDED (Ac-ft)
PARK 'N' RIDE (NORTH LOT)	0.42	11.04	8.66	2.38	0.92	1.80	1.80	0.00	0.00	0.25	1.31	1.81	0.01
PARK 'N' RIDE (SOUTH LOT)	0.42	14.79	7.23	1.55	1.23	1.51	1.51	0.00	0.00	0.28	1.27	1.83	0.32
NW 1ST STREET RECONSTRUCTION	0.42	3.68	2.49	1.19	0.31	0.52	0.52	0.00	0.00	0.00	0.57	0.57	0.06
<b>PARK 'N' RIDE TOTAL</b>		<b>25.83</b>	<b>15.89</b>	<b>3.93</b>	<b>2.15</b>	<b>3.31</b>	<b>3.31</b>	0.00	0.00	0.53	3.15	4.21	0.39
BROWARD BOULEVARD RECONSTRUCTION	0.42	3.98	3.48	0.50	0.33	0.73	0.73	0.45	0.00	0.00	0.20	0.80	0.08
<b>PROJECT TOTAL</b>		<b>29.81</b>	<b>19.37</b>	<b>4.43</b>	<b>2.48</b>	<b>4.04</b>	<b>4.04</b>	<b>0.45</b>	<b>0.00</b>	<b>0.53</b>	<b>3.35</b>	<b>5.02</b>	<b>0.46</b>

<sup>1</sup>Greater of 1" over Total Onsite Area and 2.5" over Onsite Impervious Area; Volume based on wet detention requirements.

<sup>2</sup>Sum of all existing and proposed French Drain. Park and Ride North Lot includes ExTr# 3 thru #9 and PrTr #2 and #3. Park and Ride South Lot includes ExTr #1, #2 and #10 and PrTr#1.

<sup>3</sup>Sum of all treatment provided; Retention and Dry Detention volumes divided by 0.50 and 0.75, respectively to account for 50% and 25% credits.



# I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS

## DRAINAGE SYSTEM SUMMARY TABLES

Drainage System: *Broward Blvd & Park-n-Ride*

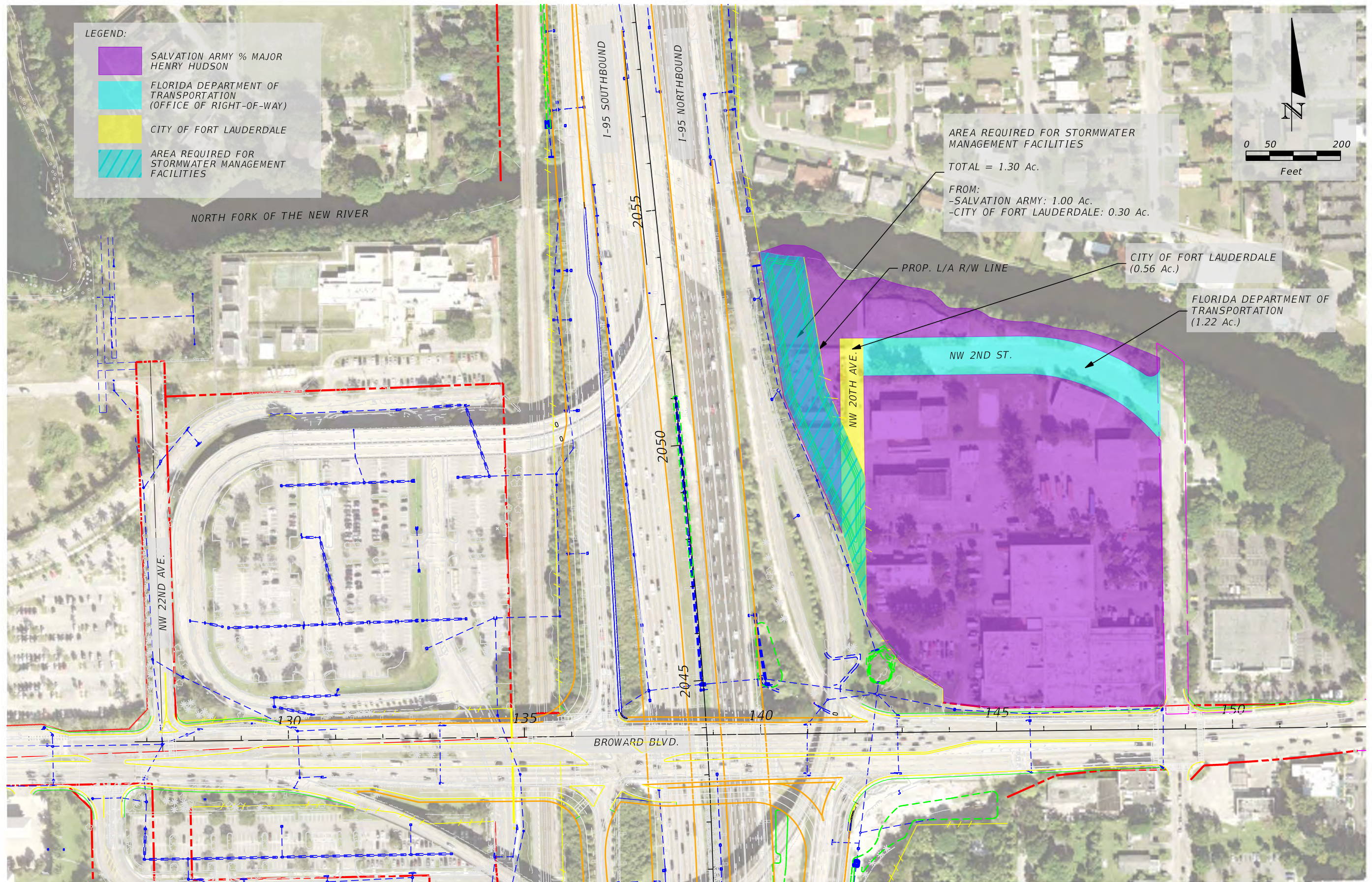
Summary of Peak Discharges								
Receiving Waterbody:		North Fork of the New River						
PRE-DEVELOPMENT								
ICPR Node:	Outfall Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-24hr Peak Flow Velocity (fps)
NFNR	60" Pipe and 72" Pipe		130.98		180.10		230.33	
<b>PRE-DEVELOPMENT TOTALS:</b>		--	--	--	<b>180.10</b>	--	--	--
POST-DEVELOPMENT								
ICPR Link:	Pipe/Weir Description:	Flow Area (ft <sup>2</sup> )	10yr-24hr Peak Flow Rate (cfs)	10yr-24hr Peak Flow Velocity (fps)	25yr-72hr Peak Flow Rate (cfs)	25yr-72hr Peak Flow Velocity (fps)	100yr-24hr Peak Flow Rate (cfs)	100yr-24hr Peak Flow Velocity (fps)
NFNR	60" Pipe and 72" Pipe		128.39		178.32		236.36	
<b>POST-DEVELOPMENT TOTALS:</b>		--	--	--	<b>178.32</b>	--	--	--
<b>Pre-Post 25yr-72hr Peak Discharge Reduction (cfs):</b>				<b>1.78</b>				

Summary of Peak Stages									
Pond/ Swale/ FD #	Type: [Wet/Dry, Det./Ret., FD]	Disposition [Exist./ Prop./ Modified]	Warning EL. [Min. Berm/ Rim Elev] (ft-NAVD)	PRE-DEVELOPMENT			POST-DEVELOPMENT		
				Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)	Max 10yr-24hr Stage (ft-NAVD)	Max 25yr-72hr Stage (ft-NAVD)	Max 100yr-24hr Stage (ft-NAVD)
POND_PNR_N-2	Dry Retention	Existing	6.00	4.54	5.55	5.95	3.42	3.74	4.65
POND_PNR_N-5	Dry Retention/FD	Existing	6.00	3.28	3.55	4.22	3.29	3.56	4.39
POND_PNR_N-7	Dry Detention	Modified	5.00	1.59	1.78	2.73	4.15	4.23	4.34
POND_PNR_S-2C	Dry Detention	Proposed	5.50	-	-	-	4.33	4.49	4.79
POND_PNR_S-3A	Dry Retention	Modified	4.50	5.13	5.27	5.37	5.17	5.37	5.53
POND_PNR_S-3B	Dry Retention	Modified					5.15	5.31	5.41
SWALE_PNR_N-8	Dry Retention	Existing	6.50	6.50	6.52	6.51	6.50	6.52	6.51
CS_PNR_S-6_1	FD	Existing	6.17	4.55	4.71	5.00	4.51	4.68	4.98
STRUCT_PNR_S-2	FD	Exist./Modified	5.02	4.70	4.96	5.12	4.58	4.91	5.11
STRUCT_PNR_S-5	FD	Existing	6.42	5.16	5.26	5.35	5.15	5.29	5.38
CS_PNR_N-1	FD	Existing	5.72	2.16	2.29	2.33	2.16	2.28	2.32
STRUCT_PNR_N-3	FD	Exist./Modified	5.72	4.70	5.81	6.13	3.36	3.67	4.55

Control Structure Summary Table - Proposed Conditions					
Control Structure:	Disposition [Exist./ Prop./ Modified]	Weir Type/ Geometry	Weir EL. (ft-NAVD)	Bleeder Type/ Geometry	Bleeder Invert EL. (ft-NAVD)
CS_N-7	Proposed	Rectangular	3.65	Circular	0.42
W_CS_S-6	Existing	Rectangular	3.42	N/A	N/A
CS_PNC_N-5	Existing	Rectangular	2.50	N/A	N/A
CS_PNR_S-3	Existing	Rectangular	2.92	N/A	N/A
CS_PNR_N-1	Existing	Rectangular	1.72	N/A	N/A
CS_PNR_S-2	Existing	Rectangular	3.42	N/A	N/A

*APPENDIX E:  
POND SITING EXHIBIT*





**LEGEND:**

	SALVATION ARMY % MAJOR HENRY HUDSON
	FLORIDA DEPARTMENT OF TRANSPORTATION (OFFICE OF RIGHT-OF-WAY)
	CITY OF FORT LAUDERDALE
	AREA REQUIRED FOR STORMWATER MANAGEMENT FACILITIES

AREA REQUIRED FOR STORMWATER MANAGEMENT FACILITIES  
 TOTAL = 1.30 Ac.  
 FROM:  
 -SALVATION ARMY: 1.00 Ac.  
 -CITY OF FORT LAUDERDALE: 0.30 Ac.

CITY OF FORT LAUDERDALE (0.56 Ac.)

FLORIDA DEPARTMENT OF TRANSPORTATION (1.22 Ac.)

REVISIONS				<b>RS&amp;H, Inc.</b> 3125 W. Commercial Blvd. - Suite 130 Fort Lauderdale, Florida 33309-3446 954-474-3005 FL Cert. No. EB0005620 Aylin Costa, P.E. No. 69865		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		<b>POND SITING          BCPA PARCELS</b>		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION			ROAD NO.	COUNTY			FINANCIAL PROJECT ID

*APPENDIX F:  
SYSTEM 16B  
CALCULATIONS*





**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS**  
**POST-DEVELOPMENT LAND-USE**

DRAINAGE SYSTEM: **16B**

SHGWT EL. (ft-NAVD): **0.42**

BASIN	Time of Conc. t <sub>c</sub> (min.)	TOTAL AREA (Ac.)	TOTAL ONSITE AREA (Ac.)	ONSITE IMPERVIOUS AREA (Ac.)	ONSITE WATER SURFACE AREA (Ac.)	ONSITE PERVIOUS AREA (Ac.)	TOTAL OFFSITE AREA (Ac.)	OFFSITE IMPERVIOUS AREA (Ac.)	OFFSITE WATER SURFACE AREA (Ac.)	OFFSITE PERVIOUS AREA (Ac.)	AVERAGE GROUND ELEV. (ft-NAVD)	AVERAGE DEPTH TO SHGWT (ft)	COMPACTED SOIL STORAGE (in)	CURVE NUMBER
B16B-12B Offs2	10	0.91	0.00	0.00	0.00	0.00	0.91	0.75	0.00	0.16	5.00	4.58	8.18	87.43
B16B-13B	10	1.31	1.31	0.93	0.00	0.38	0.00	0.00	0.00	0.00	7.00	6.58	8.18	80.82
B16B-17	10	1.43	1.43	0.50	0.04	0.89	0.00	0.00	0.00	0.00	10.00	9.58	8.18	66.26
B16B-18	10	0.32	0.32	0.14	0.00	0.18	0.00	0.00	0.00	0.00	6.00	5.58	8.18	68.49
B16B-18 Offs	10	0.13	0.00	0.00	0.00	0.00	0.13	0.03	0.00	0.10	5.00	4.58	8.18	61.38
B16B-19	10	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	23.00	22.58	8.18	100.00
B16B-20	10	0.21	0.21	0.00	0.00	0.21	0.00	0.00	0.00	0.00	9.00	8.58	8.18	55.01
B16B-20 Offs	10	0.74	0.00	0.00	0.00	0.00	0.74	0.43	0.00	0.31	5.00	4.58	8.18	74.48
B16B-21	10	0.24	0.24	0.24	0.00	0.00	0.00	0.00	0.00	0.00	14.00	13.58	8.18	100.00
B16B-22	10	0.17	0.17	0.01	0.00	0.16	0.00	0.00	0.00	0.00	10.00	9.58	8.18	56.50
DS of Control Structures		5.70	3.92	2.06	0.04	1.82	1.78	1.21	0.00	0.57	--	--	--	--

Water quality treatment not provided for basins downstream of existing/proposed control structures (8.21 acres).

**I-95 at Broward Boulevard Interchange PD&E Study DRAINAGE CALCULATIONS  
WATER QUALITY**

**Drainage System: 16B**

SYSTEM	SHGWT EL. (ft-NAVD)	TOTAL ONSITE AREA (Ac.) [POST-DEV.]	ONSITE IMPERVIOUS AREA (Ac.) [POST-DEV.]	ONSITE PERVIOUS AREA (Ac.) [POST-DEV.]	1" OVER TOTAL ONSITE AREA (Ac-ft)	2.5" OVER IMPERVIOUS AREA (Ac-ft)	<sup>1</sup> WATER QUALITY TREATMENT REQUIRED (Ac-ft)	DRY- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	WET- DETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	DRY- / WET- RETENTION TREATMENT VOLUME PROVIDED (Ac-ft)	FRENCH DRAIN TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>2</sup> TOTAL TREATMENT VOLUME PROVIDED (Ac-ft)	<sup>3</sup> SURPLUS TREATMENT VOLUME PROVIDED (Ac-ft)
<b>16B DS of Control Structures</b>	0.42	3.92	2.06	1.82	0.33	0.43	<b>0.43</b>	0.37	0.00	0.00	0.00	<b>0.49</b>	<b>0.06</b>

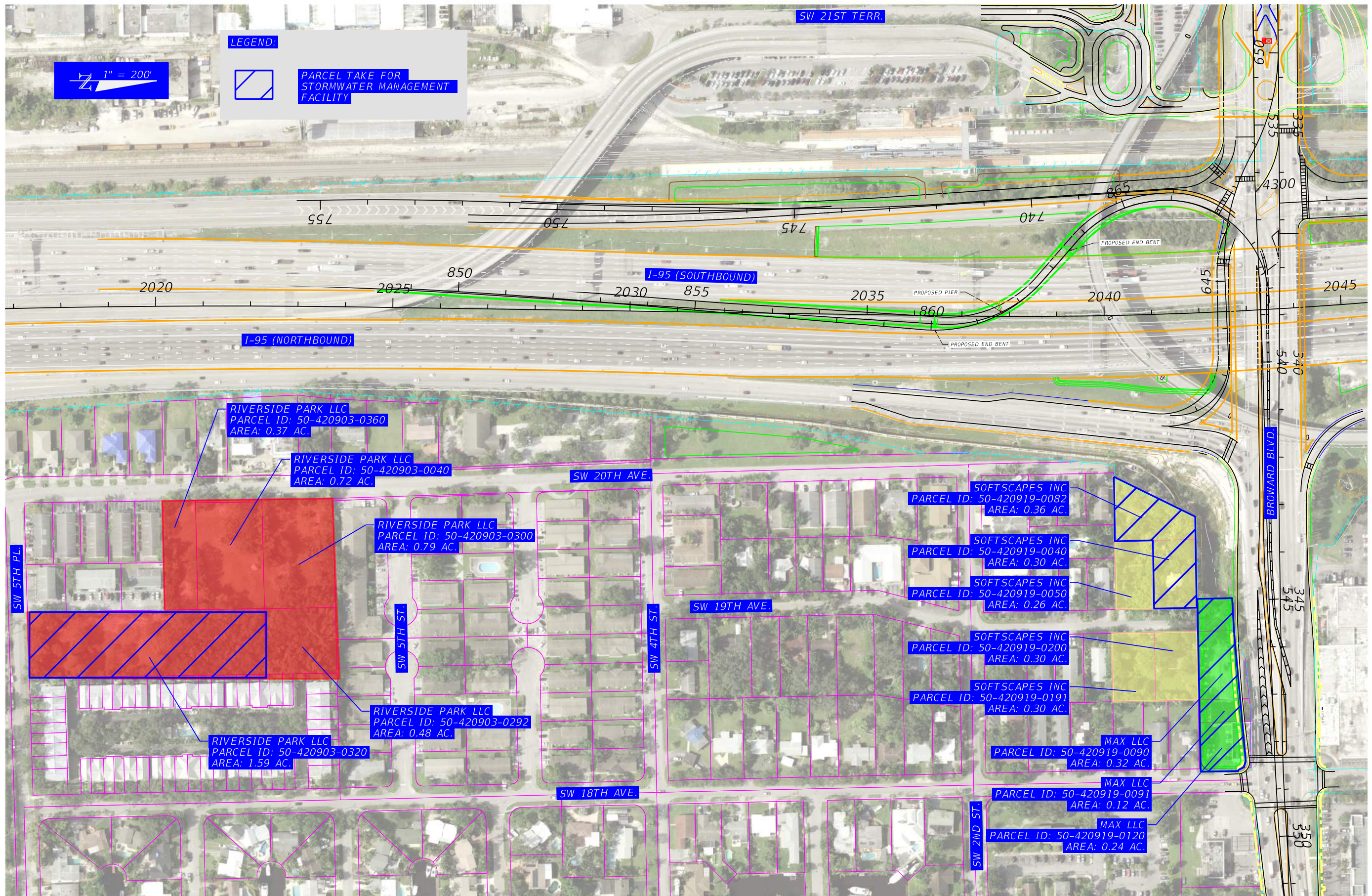
<sup>1</sup>Greater of 1" over Total Onsite Area and 2.5" over Onsite Impervious Area; Volume based on wet detention requirements.

<sup>2</sup>Sum of all treatment provided; Retention and Dry Detention volumes divided by 0.50 and 0.75, respectively to account for 50% and 25% credits.


Swale 16B-SA		
TYPE:	Dry Detention	
STAGE (ft-NAVD)	AREA (Ac.)	VOLUME (Ac-ft)
1.42	0.31	--
2.00	0.34	0.19
<b>2.50</b>	<b>0.37</b>	<b>0.37</b>
3.00	0.41	0.56
4.00	0.47	1.00

*APPENDIX G:  
OFFSITE POND  
PARCELS EXHIBIT*





**LEGEND:**

 PARCEL TAKE FOR STORMWATER MANAGEMENT FACILITY

1" = 200'

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

**RS&H, Inc.**  
 3125 W. Commercial Blvd. - Suite 130  
 Fort Lauderdale, Florida 33309-3446  
 954-474-3005  
 FL Cert. No. EB0005620  
 Aylin Costa, P.E. No. 69865

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
9	BROWARD	435513-1-22-02

**I-95 AT BROWARD BOULEVARD  
 INTERCHANGE PD&E STUDY  
 OFFSITE POND EXHIBIT**

SHEET NO.  
1

*APPENDIX H:  
POND SITE  
EVALUATION MATRIX*



I-95 AT BROWARD BLVD. PD&E - POND SITING MATRIX (PRELIMINARY, 12-17-2018)								
Factor No.	Weight of Factor	Factor Name	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
<b>1-10</b>		<b>Pond Alternative Number</b>	<b>1</b>		<b>2</b>		<b>3</b>	
		Brief Description of Alternative (Owner)	Max LLC		Riverside Park LLC		Softscapes Inc	
		Parcel Number						
					50-420903-0292		50-420919-0040	
				50-420919-0090	50-420903-0300		50-420919-0050	
				50-420919-0091	50-420903-0320		50-420919-0082	
				50-420919-0120	50-420903-0360		50-420919-0191	
					50-420940-0040		50-420919-0200	
		Parcel Size (Acres)	0.70		4.07		1.52	
<b>1.00</b>	5.00	Zoning (Right of Way)	3.00	15.00	6.00	30.00	3.00	15.00
<b>2.00</b>	5.00	Land Use	3.00	15.00	3.00	15.00	3.00	15.00
<b>3.00</b>	5.00	Right of Way Costs	6.00	30.00	4.00	20.00	2.00	10.00
<b>4.00</b>	5.00	Drainage considerations	6.00	30.00	1.00	5.00	6.00	30.00
<b>5.00</b>	5.00	Flood Zone FEMA	6.00	30.00	3.00	15.00	6.00	30.00
<b>6.00</b>	5.00	Contamination and Hazardous Materials (Confirm with Level 2 from gas stations)	4.00	20.00	6.00	30.00	3.00	15.00
<b>7.00</b>	5.00	Utilities	6.00	30.00	3.00	15.00	6.00	30.00
<b>8.00</b>	5.00	Threatened and Endangered Species and Associated Costs	9.00	45.00	6.00	30.00	9.00	45.00
<b>9.00</b>	5.00	Noise	6.00	30.00	6.00	30.00	3.00	15.00
<b>10.00</b>	5.00	Wetlands and protected Uplands and Associated Costs	9.00	45.00	6.00	30.00	9.00	45.00
<b>11.00</b>	5.00	Cultural Resources Involvement and Associated Costs	9.00	45.00	9.00	45.00	9.00	45.00
<b>12.00</b>	5.00	Section 4(f)	10.00	50.00	10.00	50.00	10.00	50.00
<b>13.00</b>	5.00	Public Wellfield (None identified-factor was not scored)	10.00	50.00	10.00	50.00	10.00	50.00
<b>14.00</b>	5.00	Construction	9.00	45.00	3.00	15.00	9.00	45.00
<b>15.00</b>	5.00	Maintenance/Easements	9.00	45.00	3.00	15.00	9.00	45.00
<b>16.00</b>	5.00	Aesthetics	9.00	45.00	6.00	30.00	7.00	35.00
<b>17.00</b>	5.00	Public Opinion and Adjacent Residency Concerns	9.00	45.00	6.00	30.00	9.00	45.00
<b>18.00</b>	5.00	Other	0.00	0.00	0.00	0.00	0.00	0.00
		Comments						
		Score	615.00		455.00		565.00	
		Ranking						
		Factor scores are 1-10. 1 is least desirable, 10 is most desirable						

### Pond Siting Matrix Instructions and Assignments

	Weight of Factor Evaluator	Factor	Factor Evaluation Considerations	Score Evaluator
1.00	5.00	Zoning (Right of Way)	Consider the Right-of-Way implications of the parcel in question. Parcels that are located on a commercial site with an active business or residential site, or currently under a proposed plan for improvement, are less desirable than vacant or undeveloped parcels.	
2.00	5.00	Land Use	Consider current and/or proposed land use which could affect the acquisition costs of the parcel.	
3.00	5.00	Right of Way	Consider time and costs for right-of-way acquisition of parcel and associated easements. Also, identify Right-of-Way Costs associated with the acquisition of the parcel.	
4.00	5.00	Drainage considerations	Consider location of pond relative to center of the basin, in the low area within the basin; proximity to outfall location, and piping needs. Also consider site elevations and the corresponding need to elevate (build-up) the perimeter berm.	
5.00	5.00	Flood Zone FEMA	Consider FEMA Flood Zone and associated impacts / benefits of constructing the pond within the respective flood zone. The perimeter berm will affect flood zone storage, while the pond will enhance said storage. If the parcel is currently outside the Flood Zone, then it is even more desirable since pond construction will help to offset (compensate) for floodplain encroachment within the roadway corridor.	
6.00	5.00	Contamination and Hazardous Materials	Consider if the parcel is contaminated and costs associated with the clean-up of the site based on contaminant type and magnitude.	
7.00	5.00	Utilities	Consider potential for existing utilities located within or adjacent to the parcel, including any required inflow/outflow easements or sidestreets, and the cost of relocating these facilities.	
8.00	5.00	Threatened and Endangered Species and Associated Costs	Consider potential for impact to Threatened, Endangered, or Significant species within the parcels and associated easements and any costs required for species relocation or mitigation.	
9.00	5.00	Noise	Consider noise impacts and corresponding noise abatement which may impact the location and placement of pond sites.	
10.00	5.00	Wetlands and protected Uplands and Associated Costs	Consider presence of jurisdictional wetlands, conservation easements, or upland preserves, and costs for mitigating impacts.	
11.00	5.00	Cultural Resources Involvement and Associated Costs	Consider the presence of cultural resources including archeological and historical resources which could affect the suitability of the site in question and associated costs.	
12.00	5.00	Section 4(f)	Consider the presence of Section 4(f) properties which could affect the suitability of the site in question and associated costs.	
13.00	5.00	Public Wellfield	Consider the proximity to a wellfield site, as additional dry pretreatment retention will be required if the stormwater management facility is within wellfield cone of influence. Additional dry pretreatment retention will increase right-of-way needs and costs.	
14.00	5.00	Construction	Consider access to the parcel for pond construction and associated impacts which may affect construction costs, such as amount of drainage piping required to reach pond.	
15.00	5.00	Maintenance / Easements	Consider access for the parcel for pond maintenance and the costs of maintaining a facility at this parcel location, including inflow/outflow pipes and easement requirements. Also, consider opportunities for handing facility over to municipality for maintenance.	
16.00	5.00	Aesthetics	Consider the need for landscape buffers or variable pond shapes in residential or commercial areas, as well as fencing adjacent to schools.	
17.00	5.00	Public Opinion and Adjacent Residency Concerns	Consider possible impacts to current or proposed land use. Example, would the pond(s) be well received by the community or adjacent residents.	
18.00	5.00	Other	Consider joint use opportunities. Can the property owner also utilize the pond(s) to their advantage?	

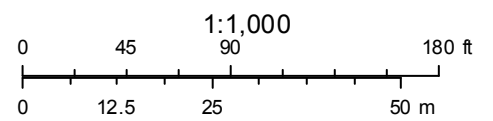
*APPENDIX I:  
OFFSITE POND  
PARCELS PROPERTY  
INFORMATION*







December 6, 2018





<b>Site Address</b>	1830 W BROWARD BLVD BOULEVARD, FORT LAUDERDALE FL 33312	<b>ID #</b>	5042 09 19 0090
<b>Property Owner</b>	MAX LLC	<b>Millage</b>	0312
<b>Mailing Address</b>	1800 WEST BROWARD BLVD FORT LAUDERDALE FL 33312-1550	<b>Use</b>	17
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B LOT 1 & 2 LESS E 50 OF LOT 2,AND LESS COM SW COR LOT 1,NLY 76.51 FOR POB,CONT NLY 68.45,E 192, SLY 35,SW 138.08,SWLY 59.25 TO POB BLK 2		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	\$169,280	\$445,510	\$614,790	\$614,790	
2018	\$169,280	\$445,510	\$614,790	\$614,790	\$13,226.21
2017	\$169,280	\$418,140	\$587,420	\$562,610	\$12,621.64

2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$614,790	\$614,790	\$614,790	\$614,790
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$614,790	\$614,790	\$614,790	\$614,790
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$614,790	\$614,790	\$614,790	\$614,790

Sales History			
Date	Type	Price	Book/Page or CIN
6/7/2004	WD*	\$1,000,000	37697 / 977
5/3/2002	CE*	\$300	33169 / 592
11/6/1998	SW*	\$600,000	28981 / 162
9/11/1997	SW*	\$549,400	26986 / 238
7/31/1996	WD	\$206,300	25220 / 643

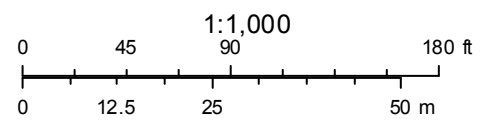
Land Calculations		
Price	Factor	Type
\$12.00	14,107	SF
<b>Adj. Bldg. S.F. (Card, Sketch)</b>		5000
<b>Units</b>		1
<b>Eff./Act. Year Built: 1970/1963</b>		

\* Denotes Multi-Parcel Sale (See Deed)

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
C								
5000								



December 6, 2018





<b>Site Address</b>	1800 W BROWARD BOULEVARD, FORT LAUDERDALE FL 33312	<b>ID #</b>	5042 09 19 0091
<b>Property Owner</b>	MAX LLC	<b>Millage</b>	0312
<b>Mailing Address</b>	1800 WEST BROWARD BLVD FORT LAUDERDALE FL 33312-1550	<b>Use</b>	17
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B THE E 50 LESS THE FOLLOWING DESC PAR;COM SE COR SAID LOT 2;NLY 109.08 TO POB CONT NLY 35;SW 50;SLY 36.66;NE 17.49;NE 32.59 TO POB		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	\$62,960	\$389,400	\$452,360	\$452,360	
2018	\$62,960	\$389,400	\$452,360	\$452,360	\$9,658.38
2017	\$62,960	\$367,430	\$430,390	\$411,820	\$9,175.94

2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$452,360	\$452,360	\$452,360	\$452,360
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$452,360	\$452,360	\$452,360	\$452,360
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$452,360	\$452,360	\$452,360	\$452,360

Sales History			
Date	Type	Price	Book/Page or CIN
6/7/2004	WD*	\$1,000,000	37697 / 977
5/3/2002	CE*	\$300	33169 / 592
11/6/1998	SW*	\$600,000	28981 / 162
9/11/1997	SW*	\$549,400	26986 / 238
7/31/1996	WD	\$68,800	25220 / 641

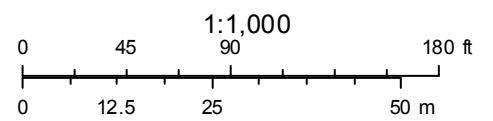
Land Calculations		
Price	Factor	Type
\$12.00	5,247	SF
<b>Adj. Bldg. S.F. (Card, Sketch)</b>		3500
<b>Eff./Act. Year Built: 1964/1963</b>		

\* Denotes Multi-Parcel Sale (See Deed)

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
C								
3500								



December 6, 2018





<b>Site Address</b>	1800 W BROWARD BOULEVARD, FORT LAUDERDALE FL 33312-1550	<b>ID #</b>	5042 09 19 0120
<b>Property Owner</b>	MAX LLC	<b>Millage</b>	0312
<b>Mailing Address</b>	1800 WEST BROWARD BLVD FORT LAUDERDALE FL 33312-1550	<b>Use</b>	18
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B LOT 3 LESS N 35 BLK 2		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

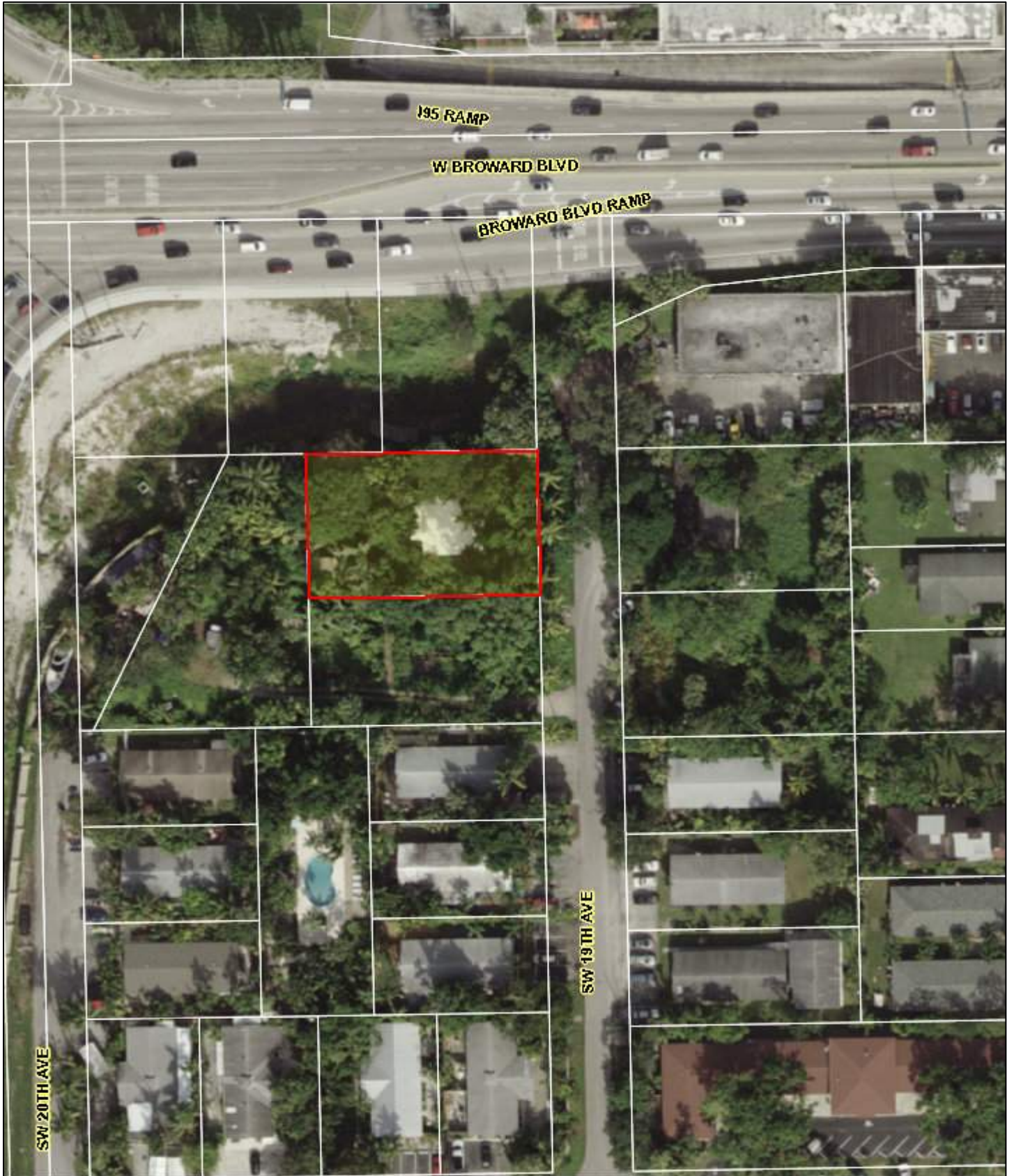
Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	\$127,960	\$464,900	\$592,860	\$592,860	
2018	\$127,960	\$464,900	\$592,860	\$592,860	\$12,828.07
2017	\$127,960	\$425,710	\$553,670	\$539,920	\$12,130.10

2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$592,860	\$592,860	\$592,860	\$592,860
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$592,860	\$592,860	\$592,860	\$592,860
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$592,860	\$592,860	\$592,860	\$592,860

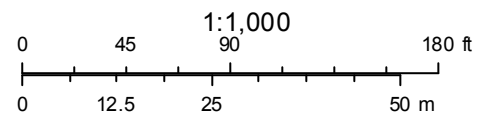
Sales History				Land Calculations		
Date	Type	Price	Book/Page or CIN	Price	Factor	Type
6/7/2004	WD*	\$1,000,000	37697 / 977	\$12.00	10,663	SF
5/3/2002	CE*	\$300	33169 / 592			
11/6/1998	SW*	\$600,000	28981 / 162			
9/11/1997	SW*	\$549,400	26986 / 238			
2/1/1993	WD	\$100,000	20603 / 650			
				<b>Adj. Bldg. S.F. (Card, Sketch)</b>		5850
				<b>Eff./Act. Year Built: 1995/1994</b>		

\* Denotes Multi-Parcel Sale (See Deed)

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
C								
5850								



December 6, 2018





<b>Site Address</b>	15 SW 19 AVENUE, FORT LAUDERDALE FL 33312-1529	<b>ID #</b>	5042 09 19 0040
<b>Property Owner</b>	SOFTSCAPES INC	<b>Millage</b>	0312
<b>Mailing Address</b>	15 SW 19 AVE FORT LAUDERDALE FL 33312-1529	<b>Use</b>	69
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B LOT 4 BLK 1		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values						
Year	Land	Building / Improvement	Agricultural Savings	Just / Market Value	Assessed / SOH Value	Tax
2019	\$39,200	\$121,480	\$38,300	\$122,380	\$122,380	
2018	\$39,200	\$121,480	\$38,300	\$122,380	\$122,380	\$2,634.74
2017	\$39,200	\$121,480	\$38,300	\$122,380	\$112,880	\$2,560.61

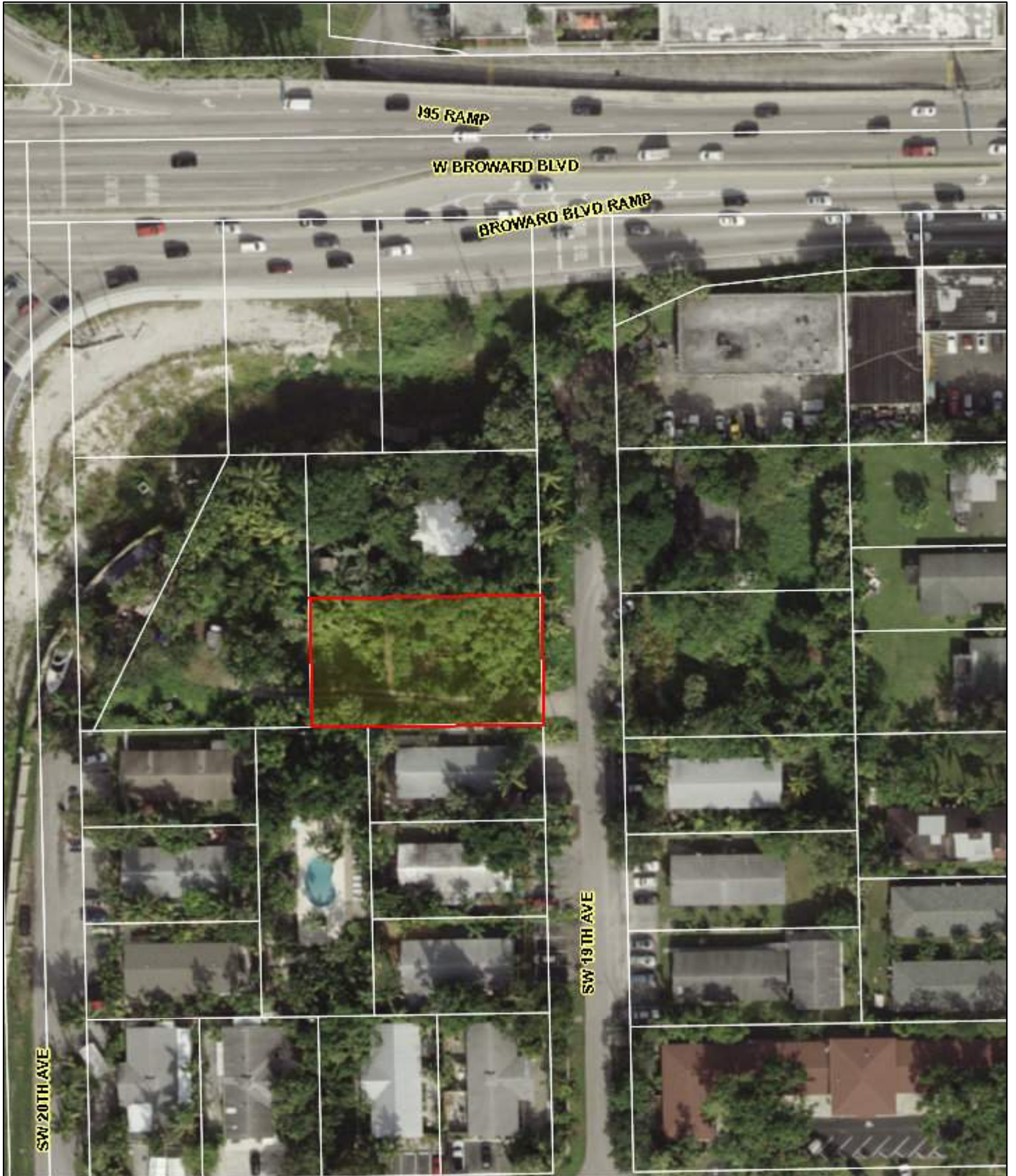
2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$122,380	\$122,380	\$122,380	\$122,380
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$122,380	\$122,380	\$122,380	\$122,380
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$122,380	\$122,380	\$122,380	\$122,380

Sales History			
Date	Type	Price	Book/Page or CIN
			7906 / 261

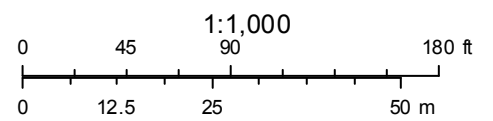
Land Calculations		
Price	Factor	Type
\$3,000	0.30	NU
\$130,680	0.30	AG
<b>Adj. Bldg. S.F. (Card, Sketch)</b>		1578
<b>Eff./Act. Year Built: 1952/1951</b>		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
C								
1578								





December 6, 2018





<b>Site Address</b>	SW 19 AVENUE, FORT LAUDERDALE FL 33312	<b>ID #</b>	5042 09 19 0050
<b>Property Owner</b>	SOFTSCAPES INC	<b>Millage</b>	0312
<b>Mailing Address</b>	15 SW 19 AVE FORT LAUDERDALE FL 33312-1529	<b>Use</b>	69
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B LOT 5 N 80 BLK 1		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values						
Year	Land	Building / Improvement	Agricultural Savings	Just / Market Value	Assessed / SOH Value	Tax
2019	\$33,980		\$33,200	\$780	\$780	
2018	\$33,980		\$33,200	\$780	\$780	\$14.14
2017	\$33,980		\$33,200	\$780	\$780	\$14.39

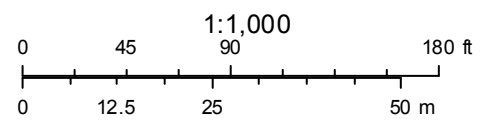
2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$780	\$780	\$780	\$780
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$780	\$780	\$780	\$780
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$780	\$780	\$780	\$780

Sales History				Land Calculations		
Date	Type	Price	Book/Page or CIN	Price	Factor	Type
1/1/1962	WD	\$3,800	7906 / 261	\$3,000	0.26	NU
				\$130,680	0.26	AG
				<b>Adj. Bldg. S.F.</b>		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
L								
1								



December 6, 2018





<b>Site Address</b>	BROWARD BOULEVARD, FORT LAUDERDALE FL 33312	<b>ID #</b>	5042 09 19 0082
<b>Property Owner</b>	SOFTSCAPES INC	<b>Millage</b>	0312
<b>Mailing Address</b>	15 SW 19 AVE FORT LAUDERDALE FL 33312-1529	<b>Use</b>	69
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B THAT PT OF LOTS 12 & 13 DESC AS BEG AT NE COR OF LOT 13,S 170, W 135.92,NELY TO PT ON N/L OF LOT 13,E 48 TO POB BLK 1		

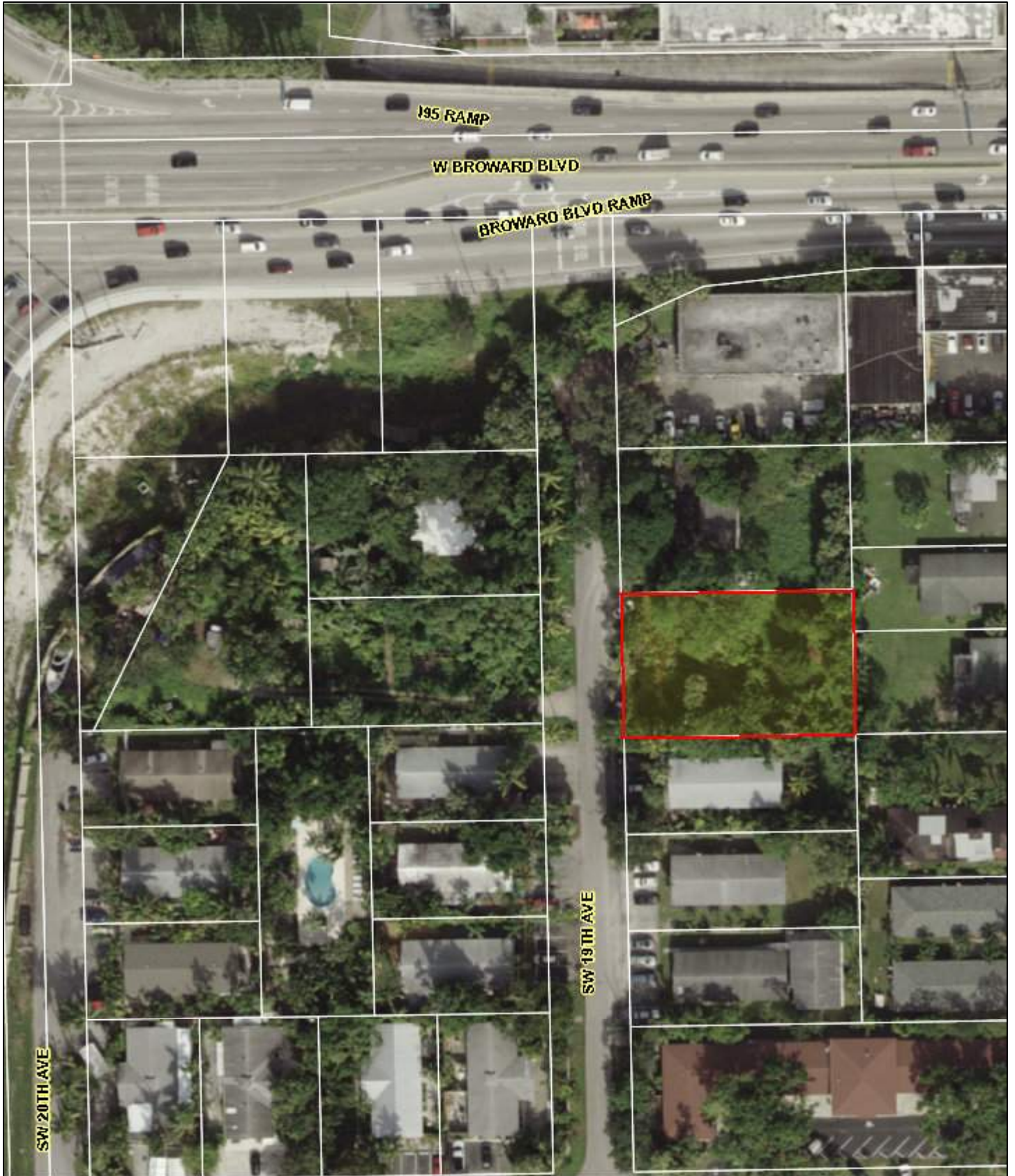
The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values						
Year	Land	Building / Improvement	Agricultural Savings	Just / Market Value	Assessed / SOH Value	Tax
2019	\$47,040		\$45,960	\$1,080	\$1,080	
2018	\$47,040		\$45,960	\$1,080	\$1,080	\$19.61
2017	\$47,040		\$45,960	\$1,080	\$1,080	\$19.95

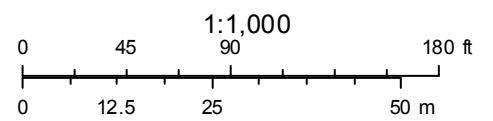
2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$1,080	\$1,080	\$1,080	\$1,080
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$1,080	\$1,080	\$1,080	\$1,080
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$1,080	\$1,080	\$1,080	\$1,080

Sales History				Land Calculations		
Date	Type	Price	Book/Page or CIN	Price	Factor	Type
1/1/1974	WD	\$65,000	7906 / 261	\$3,000	0.36	NU
				\$130,680	0.36	AG
				<b>Adj. Bldg. S.F.</b>		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
L								
1								



December 6, 2018





<b>Site Address</b>	SW 19 AVENUE, FORT LAUDERDALE FL 33312	<b>ID #</b>	5042 09 19 0191
<b>Property Owner</b>	SOFTSCAPES INC	<b>Millage</b>	0312
<b>Mailing Address</b>	15 SW 19 AVE FORT LAUDERDALE FL 33312-1529	<b>Use</b>	69
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B LOT 12 BLK 2		

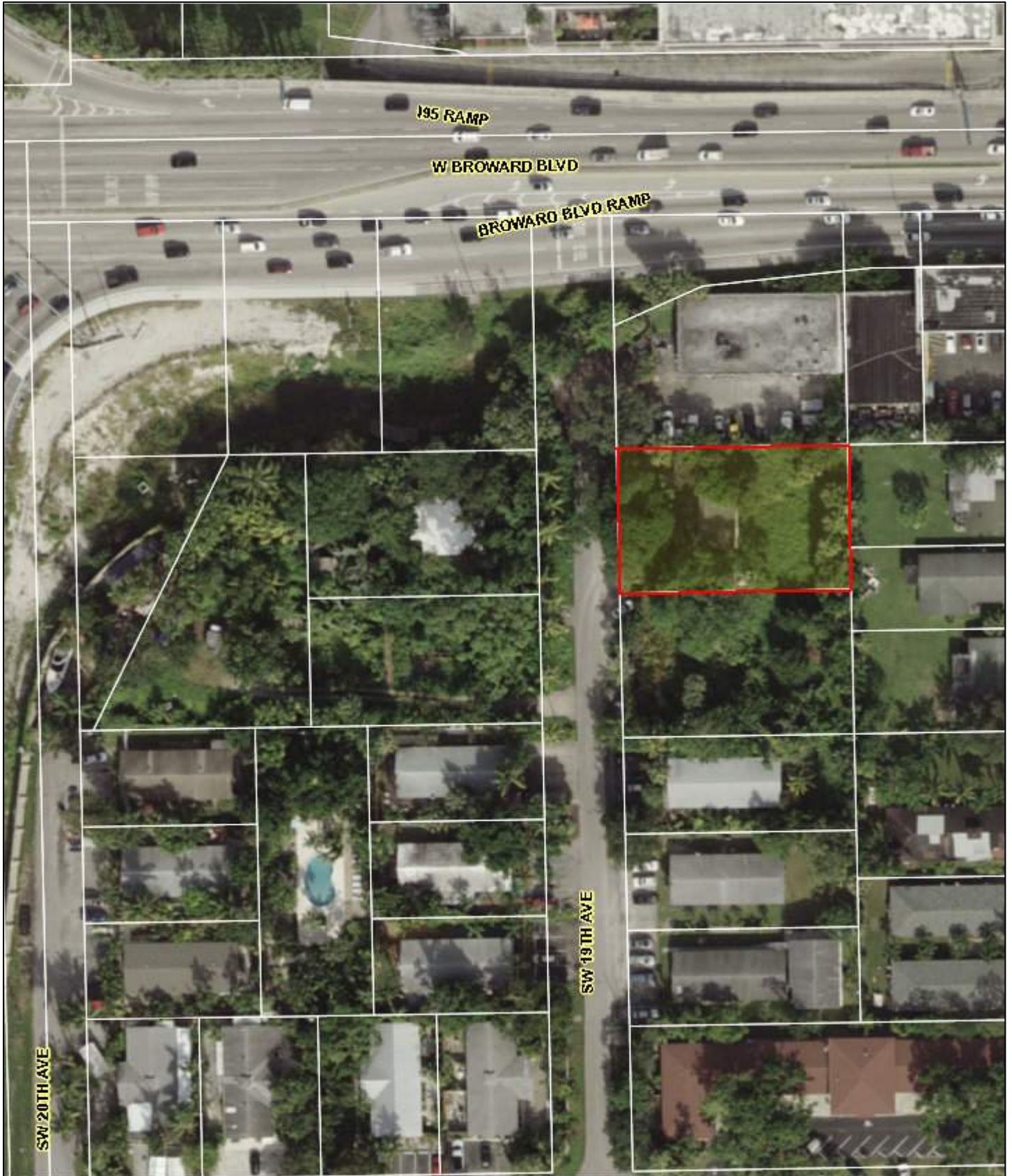
The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values						
Year	Land	Building / Improvement	Agricultural Savings	Just / Market Value	Assessed / SOH Value	Tax
2019	\$39,200		\$38,300	\$900	\$900	
2018	\$39,200		\$38,300	\$900	\$900	\$16.35
2017	\$39,200		\$38,300	\$900	\$900	\$16.62

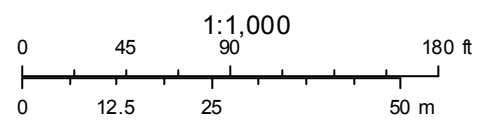
2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$900	\$900	\$900	\$900
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$900	\$900	\$900	\$900
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$900	\$900	\$900	\$900

Sales History				Land Calculations		
Date	Type	Price	Book/Page or CIN	Price	Factor	Type
7/11/1997	WD	\$18,000	26770 / 942	\$3,000	0.30	NU
12/1/1993	QCD	\$100	21775 / 371			
10/1/1987	WD	\$18,500				
12/1/1970	WD	\$6,100		\$130,680	0.30	AG
				<b>Adj. Bldg. S.F.</b>		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
L								
1								



December 6, 2018





<b>Site Address</b>	12 SW 19 AVENUE, FORT LAUDERDALE FL 33312	<b>ID #</b>	5042 09 19 0200
<b>Property Owner</b>	SOFTSCAPES INC	<b>Millage</b>	0312
<b>Mailing Address</b>	15 SW 19 AVE FORT LAUDERDALE FL 33312-1529	<b>Use</b>	01
<b>Abbr Legal Description</b>	CYPRESS GARDENS 21-12 B LOT 13 BLK 2		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	\$38,880	\$108,140	\$147,020	\$147,020	
2018	\$38,880	\$108,140	\$147,020	\$147,020	\$2,925.06
2017	\$38,880	\$95,780	\$134,660	\$134,660	\$2,743.89

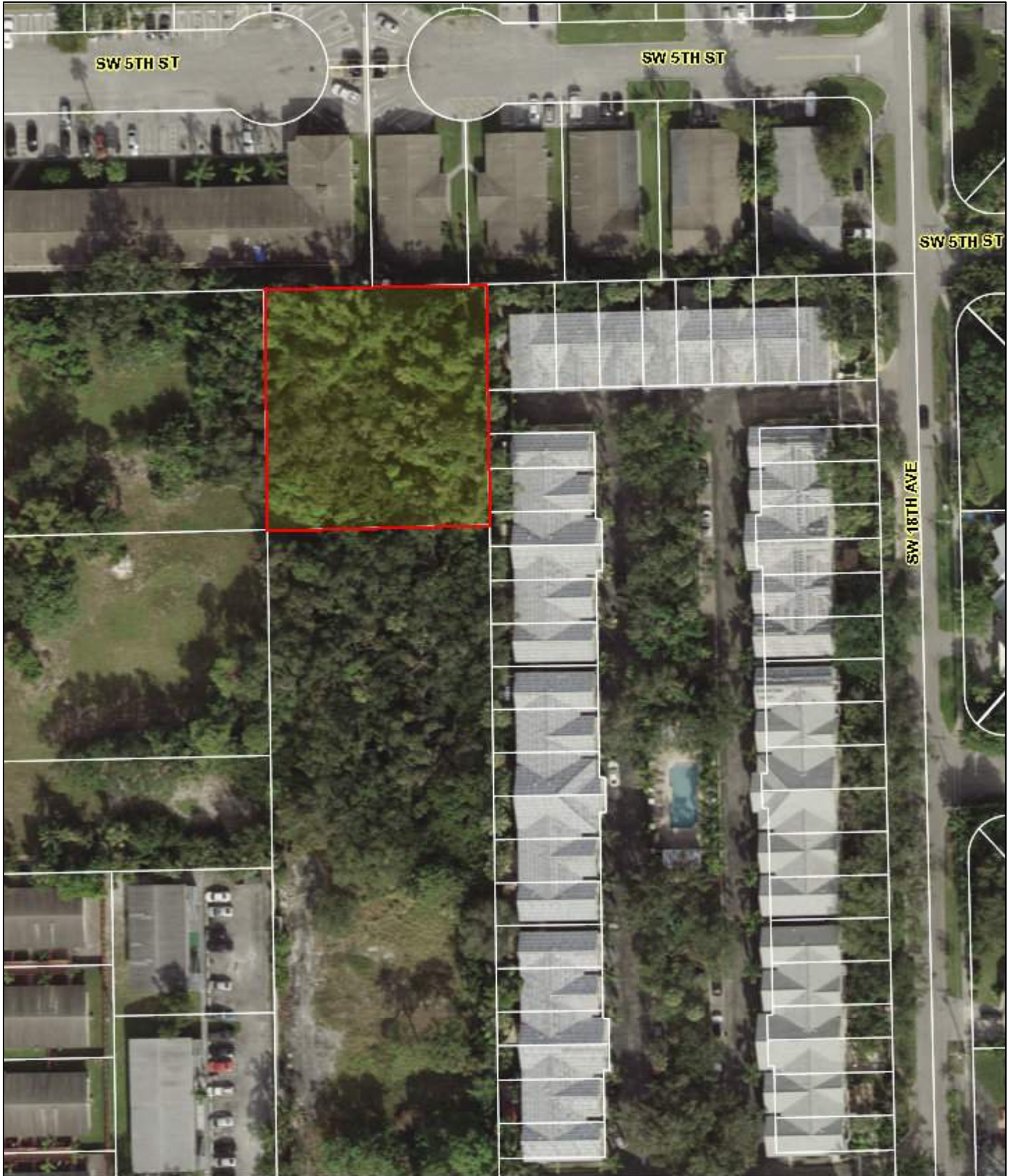
2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$147,020	\$147,020	\$147,020	\$147,020
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$147,020	\$147,020	\$147,020	\$147,020
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$147,020	\$147,020	\$147,020	\$147,020

Sales History			
Date	Type	Price	Book/Page or CIN
12/8/1998	WD	\$75,000	29177 / 674
4/1/1982	WD	\$100	15547 / 321
4/1/1976	WD	\$21,000	
8/1/1975	WD	\$20,000	

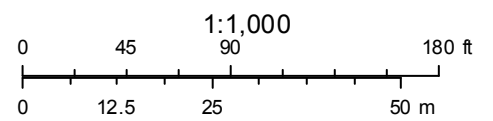
Land Calculations		
Price	Factor	Type
\$3.00	12,960	SF
<b>Adj. Bldg. S.F. (Card, Sketch)</b>		2180
<b>Units</b>		1
<b>Eff./Act. Year Built: 1952/1947</b>		

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
R								
1								

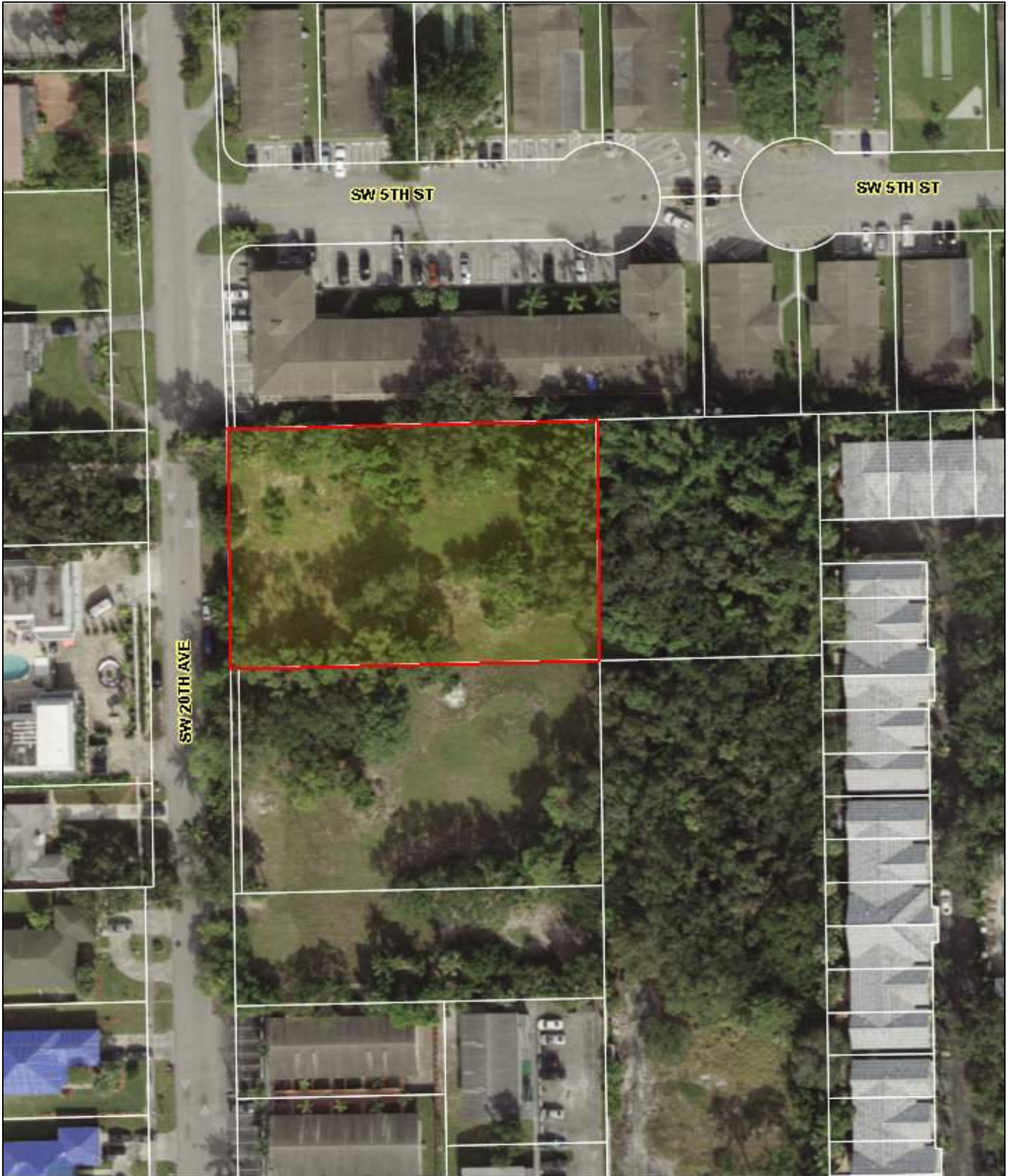




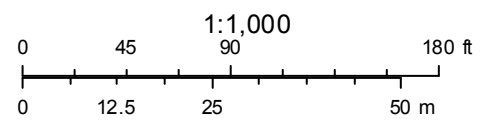
December 6, 2018



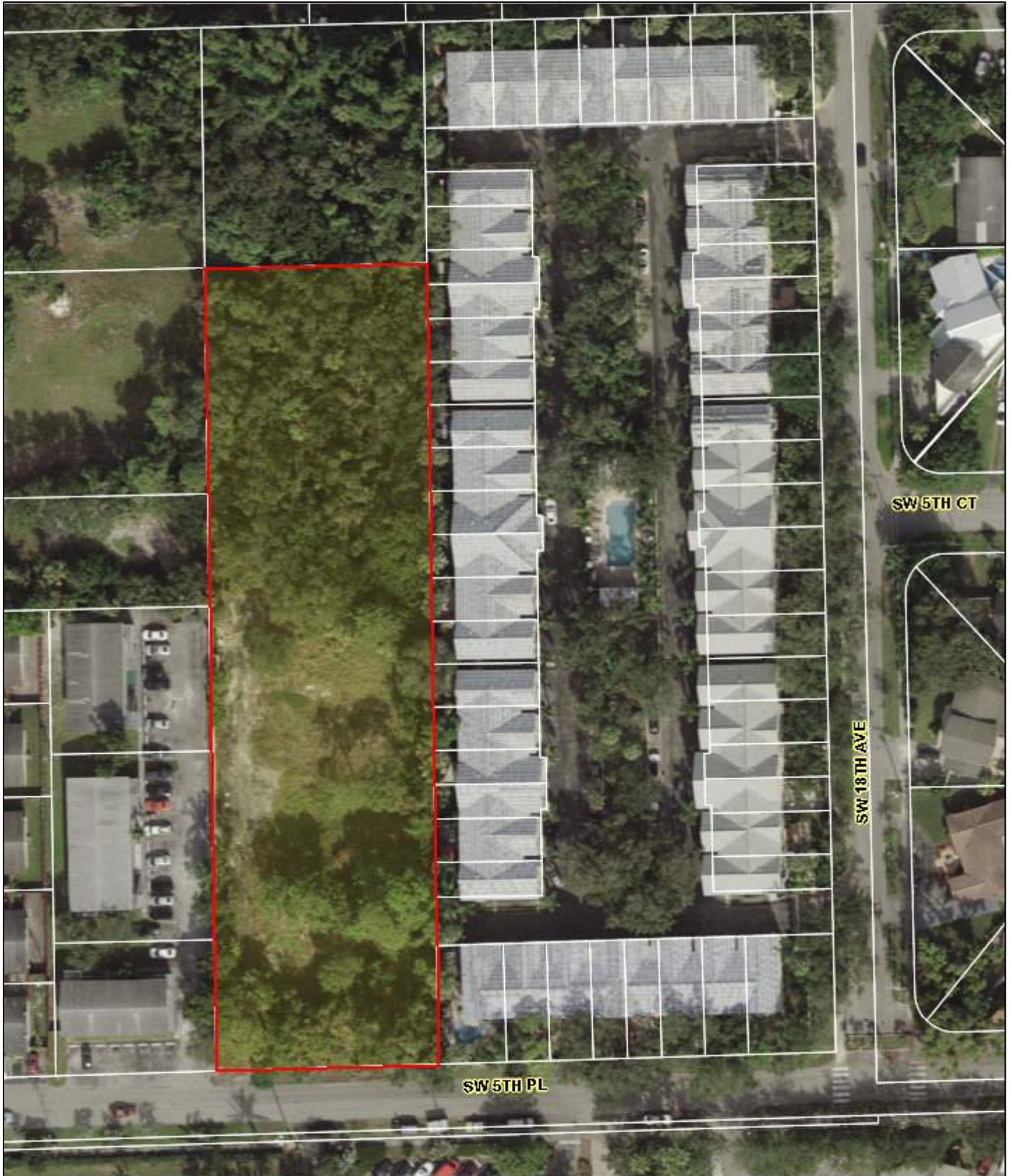




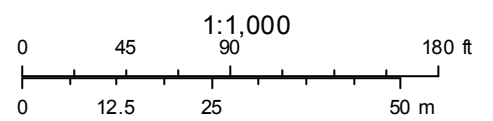
December 6, 2018







December 6, 2018





<b>Site Address</b>	1901 SW 5 PLACE, FORT LAUDERDALE FL 33312	<b>ID #</b>	5042 09 03 0320
<b>Property Owner</b>	RIVERSIDE PARK LLC	<b>Millage</b>	0312
<b>Mailing Address</b>	2645 NE 207 ST # 101 AVENTURA FL 33180	<b>Use</b>	00
<b>Abbr Legal Description</b>	RIVERSIDE NO 2 1-104 D LOT 4 LESS N 150,5 LESS N 150 BLK E		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	\$950,260		\$950,260	\$950,260	
2018	\$950,260		\$950,260	\$950,260	\$17,251.51
2017	\$345,550		\$345,550	\$275,490	\$5,547.91

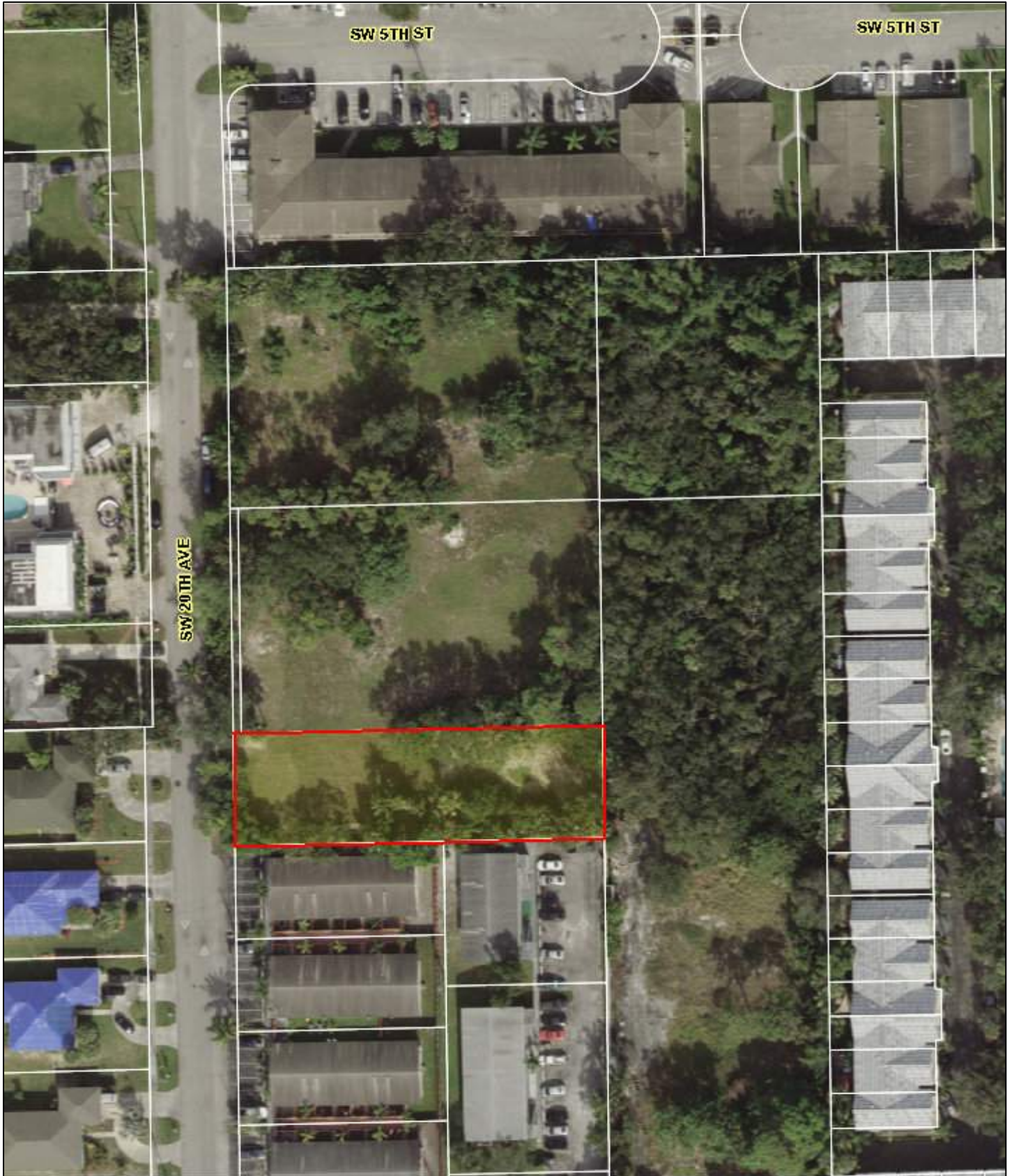
2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$950,260	\$950,260	\$950,260	\$950,260
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$950,260	\$950,260	\$950,260	\$950,260
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$950,260	\$950,260	\$950,260	\$950,260

Sales History			
Date	Type	Price	Book/Page or CIN
1/4/2017	SW*-E	\$2,650,000	114140050
3/9/2009	CE*-T	\$100	46045 / 1441
9/15/2006	WD*	\$100	42787 / 1459
9/18/2000	WD	\$250,000	30864 / 1009

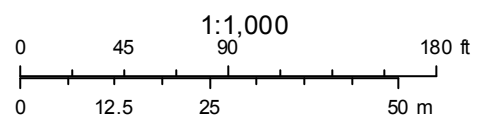
Land Calculations		
Price	Factor	Type
\$13.75	69,110	SF
<b>Adj. Bldg. S.F.</b>		

\* Denotes Multi-Parcel Sale (See Deed)

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
L								
1								

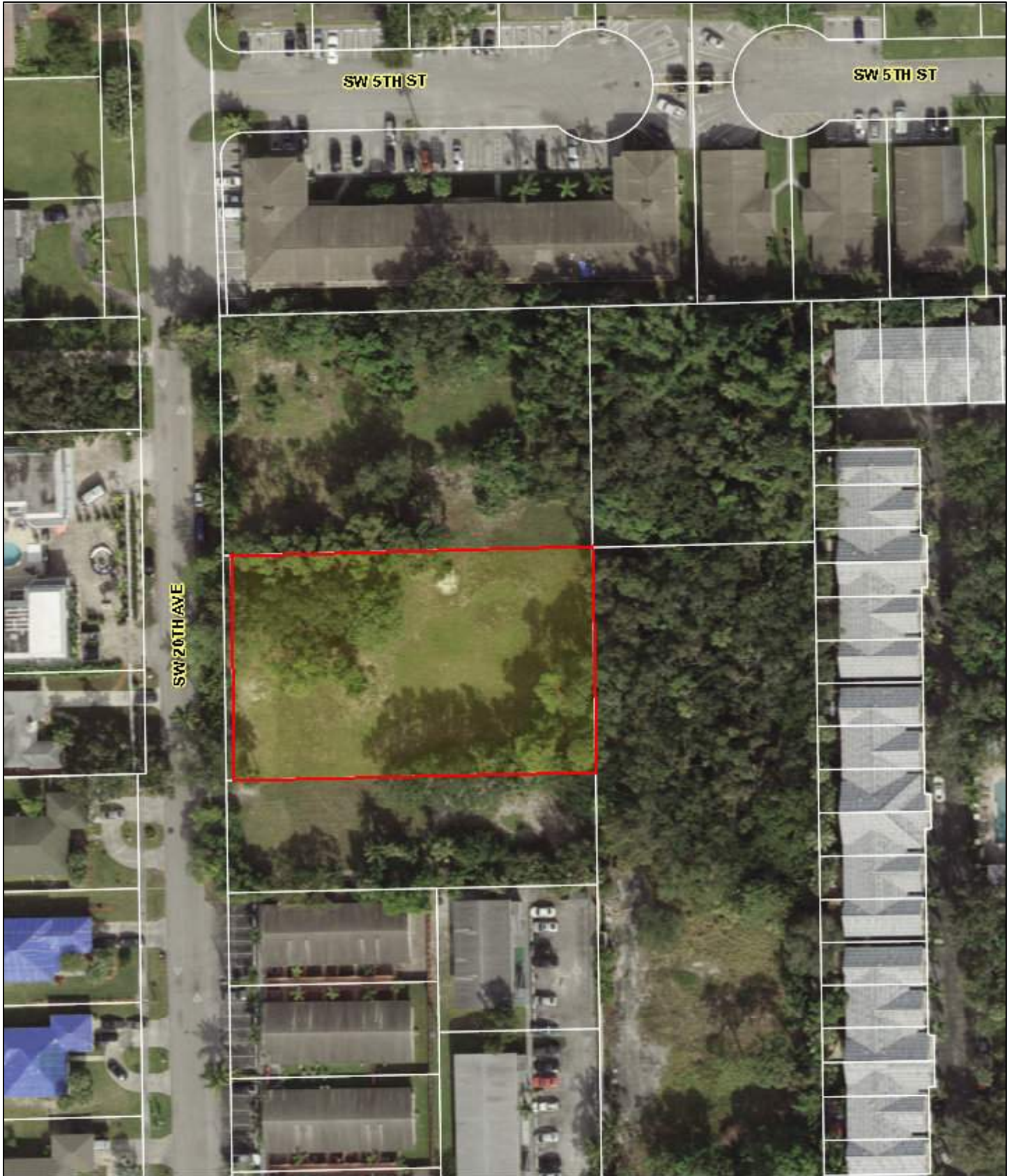


December 6, 2018

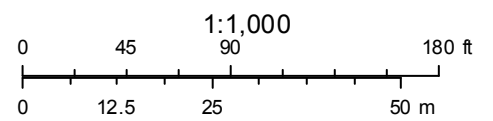








December 6, 2018





<b>Site Address</b>	<b>502 SW 20 AVENUE, FORT LAUDERDALE FL 33312</b>	<b>ID #</b>	5042 09 40 0040
<b>Property Owner</b>	RIVERSIDE PARK LLC	<b>Millage</b>	0312
<b>Mailing Address</b>	2645 NE 207 ST # 101 AVENTURA FL 33180	<b>Use</b>	00
<b>Abbr Legal Description</b>	RIVERSIDE PARK TOWNHOUSE AND VILLAS 141-43 B PARCEL 4		

The just values displayed below were set in compliance with **Sec. 193.011**, Fla. Stat., and include a reduction for costs of sale and other adjustments required by **Sec. 193.011(8)**.

Property Assessment Values					
Year	Land	Building / Improvement	Just / Market Value	Assessed / SOH Value	Tax
2019	\$434,030		\$434,030	\$434,030	
2018	\$434,030		\$434,030	\$434,030	\$7,879.60
2017	\$102,590	\$5,680	\$108,270	\$108,270	\$2,256.30

2019 Exemptions and Taxable Values by Taxing Authority				
	County	School Board	Municipal	Independent
<b>Just Value</b>	\$434,030	\$434,030	\$434,030	\$434,030
<b>Portability</b>	0	0	0	0
<b>Assessed/SOH</b>	\$434,030	\$434,030	\$434,030	\$434,030
<b>Homestead</b>	0	0	0	0
<b>Add. Homestead</b>	0	0	0	0
<b>Wid/Vet/Dis</b>	0	0	0	0
<b>Senior</b>	0	0	0	0
<b>Exempt Type</b>	0	0	0	0
<b>Taxable</b>	\$434,030	\$434,030	\$434,030	\$434,030

Sales History			
Date	Type	Price	Book/Page or CIN
1/4/2017	SW*-E	\$2,650,000	<b>114140050</b>
3/9/2009	CE*-T	\$100	<b>46045 / 1441</b>
9/15/2006	WD*	\$100	<b>42787 / 1459</b>
8/18/1995	WD	\$95,000	<b>23822 / 712</b>

Land Calculations		
Price	Factor	Type
\$13.75	31,566	SF
<b>Adj. Bldg. S.F.</b>		

\* Denotes Multi-Parcel Sale (See Deed)

Special Assessments								
Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
L								
1								