

Dania Beach Energy Center



SITE CERTIFICATION APPLICATION

Volume III of III



July 2017

**SITE CERTIFICATION APPLICATION
DANIA BEACH ENERGY CENTER**

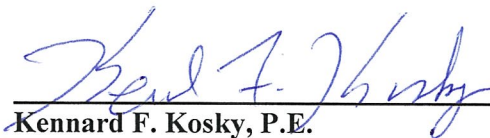
VOLUME III OF III

Submitted by:

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July 2017

17-73823



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VOLUME I

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LIST OF ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
°F	degrees Fahrenheit
μPa	Micropascals
μS/cm	microsiemens per centimeter
AAQS	Ambient Air Quality Standards
AERMOD	American Meteorological Society and EPA Regulatory Model
ANSI	American National Standards Institute
BACT	Best Available Control Technology
BMPs	Best Management Practices
Btu/kWh	British thermal units per kilowatt-hour
Btu/lb	British thermal units per pound
Btu/scf	British thermal units per standard cubic foot
C.I.E.	Commission Internationale de l'Eclairage (International Commission on Illumination)
CadnaA	Computer Aided Noise Abatement
cd	Candelas
cd/m ²	candelas per square meter
CESQG	Conditionally Exempt Small Quantity Generator
cf/yr	cubic feet per year
CFR	Code of Federal Regulations
CH ₄	Methane
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ equivalent emissions
CTEMISS	Cooling Tower Emissions Processor
CWA	Clean Water Act
dB	Decibels
dBA	A-weighted decibels
DLN	dry low-NO _x
EDTA	ethylene diamine tetra-acetic acid
eGRID	Emissions & Generation Resource Integrated Database
EIA	U.S. Energy Information Administration
EMB	Everglades Mitigation Bank
ENP	Everglades National Park
EPA	U.S. Environmental Protection Agency
F.A.C.	Florida Administrative Code
FAS	Floridan Aquifer System
FCPA	Florida Community Planning Act
FDACS	Florida Department of Agriculture and Consumer Services
FDEO	Florida Department of Economic Opportunity
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FGT	Florida Gas Transmission
FLL	Fort Lauderdale-Hollywood International Airport
FLUCFCS	Florida Land Use, Cover and Forms Classification System

FMSF	Florida Master Site File
FNAI	Florida Natural Areas Inventory
FPL	Florida Power & Light Company
FPSC	Florida Public Service Commission
F.S.	Florida Statutes
FWC	Florida Fish and Wildlife Conservation Commission
ft	feet
ft/day	feet per day
ft/yr	feet per year
ft ² /day	square feet per day
GHG	greenhouse gas
GIS	geographic information systems
gpm	gallons per minute
gr/100 scf	grains per 100 standard cubic feet
GWP	Global Warming Potential
H ₂ SO ₄	sulfuric acid
HAP	hazardous air pollutant
HHV	higher heating value
hp	horsepower
hr/yr	hours per year
HRSG	heat recovery steam generator
Hz	hertz
I	Interstate (highway)
ICU	Intermediate Confining Unit
ISO	International Organization for Standardization
IWW	Industrial Wastewater
kg	kilograms
km	kilometer
kV	kilovolts
kW	kilowatt
L ₅₀	sound pressure level exceeded 50 percent of the time
L ₉₀	sound pressure level exceeded 90 percent of the time
lb/hr	pounds per hour
lb/MMBtu	pounds per million British thermal units
lb/MWh	pounds per megawatt-hour
lb CO ₂ e/MWh	pounds CO ₂ -equivalent (e) per megawatt-hour
L _{eq}	equivalent sound pressure level
LHV	lower heating value
L _{max}	maximum sound pressure level
L _{min}	minimum sound pressure level
LOS	Level of Service (traffic)
L _w	octave band sound power levels
m	meters
MACT	maximum achievable control technology
mag/arcsec ²	magnitudes per square arcsecond
MCU	Middle Confining Unit
MG	million gallons

mg/L	milligrams per liter
MGD	million gallons per day
MMBtu/hr	million British thermal units per hour
MMcf/hr	million cubic feet per hour
MSW	municipal solid waste
MW	Megawatt
N ₂ O	nitrous oxide
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGVD 29	National Geodetic Vertical Datum 1929
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
NSR	New Source Review
NTU	nephelometric turbidity units
NWS	National Weather Service
O ₂	Oxygen
OSHA	Occupational Safety and Health Administration
PM	particulate matter
PM ₁₀	particulate matter with an aerodynamic diameter of 10 micrometers or less
PM _{2.5}	particulate matter with an aerodynamic diameter of 2.5 micrometers or less
POTW	publicly owned treatment works
ppm	parts per million
ppmvd	parts per million by volume dry
PPSA	Florida Electrical Power Plant Siting Act
ppt	parts per thousand
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RICE	reciprocating internal combustion engines
SR	State Road
SAS	surficial aquifer system
SCA	Site Certification Application
SCR	selective catalytic reduction
SFWMD	South Florida Water Management District
SJRWMD	St. Johns River Water Management District
SO ₂	sulfur dioxide
SPL	sound pressure level
SRPP	Strategic Regional Policy Plan
SWPPP	Storm Water Pollution Prevention Plan
TDS	total dissolved solids
TPY	tons per year
UFA	Upper Floridan Aquifer
ULSD	ultra low sulfur distillate

USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound

SITE CERTIFICATION APPLICATION DEFINITIONS

1. “Lauderdale Site” or “Site” – refers to the existing approximately 392 acres of FPL-owned, certified property, associated facilities, two gas turbine peaking units and five combustion turbine peaking units (FDEP Certification Number PA 89-26H).
2. “Dania Beach Energy Center Project”, “DBEC Project”, or “Project” – refers to the entire “Project” for which FPL seeks certification, including construction of a proposed 2-on-1 combined cycle generating unit, the construction parking and laydown areas, and related activities as described in the Site Certification Application. “Dania Beach Energy Center Project”, “DBEC Project”, or “Project” does not include the existing two gas turbine units and five combustion turbine peaking units (Unit 6) on the Lauderdale Site.
3. “Dania Beach Energy Center Project Area” or “DBEC Project Area” or “Project Area” – refers to the approximately 134 acre area used for the construction of the DBEC Project.
4. “DBEC”, or “Unit 7” – refers to the 2-on-1 combined cycle generating unit at the Lauderdale Site after construction is complete and the unit is operating.

APPENDIX 10.2.6

AIR OPERATION PERMIT

NOTE: The existing Lauderdale Plant is authorized to operate under Final Title V Permit No. 0110037-012-AV issued by FDEP effective May 27, 2014. Draft Proposed Title V Permit has been issued by FDEP on June 26, 2017. This Draft/Proposed Title V Permit includes Units 4 and 5, the two gas turbines and Unit 6. Once DBEC becomes operational, a Title V revision will be requested for the modernized unit. The application for the Title V revision for DBEC will be submitted pursuant to the FDEP rules in 62-213.420 Florida Administrative Code.

Please see link:

<https://fldep.dep.state.fl.us/air/emission/apds/default.asp>

Enter Facility ID: 0110037

APPENDIX 10.2.7

COASTAL ZONE MANAGEMENT CERTIFICATIONS

NOTE: The Florida Coastal Management Act (§380.205-380.27, Florida Statutes) requires that the Coastal Zone Management Section of FDEP be responsible for certification of consistency with the Florida Coastal Management Program (FCMP) for all federal licenses, permits, activities, and projects listed in §380.23(3)(c), Florida Statutes, when such activities are subject to federal consistency review and affect land or water use, are seaward of the jurisdiction of the state, or there is no state agency with sole jurisdiction for such consistency review. The issuance of federal permits listed in §380.23(3)(c), Florida Statutes is not required for this Project. Nonetheless, issuance of the final Site Certification constitutes consistency with the Federal Coastal Zone Management Act.

APPENDIX 10.2.8

OTHER FEDERAL PERMITS OR APPROVALS

APPENDIX 10.2.8-1

FEDERAL AVIATION AGENCY DETERMINATION OF NO HAZARD TO AIR NAVIGATION

(NOTE: A Notice of Proposed Construction or Alteration – Off Airport – will be submitted electronically to the FAA for permanent structures and within 6 months of Work Schedule Start Date for temporary construction cranes.)

APPENDIX 10.3
ZONING DESCRIPTIONS

APPENDIX 10.3.1
CITY OF DANIA BEACH



CITY OF DANIA BEACH
2016 ZONING MAP
Last modified: AUGUST 2016

LEGEND

- CITY HALL
- HISTORICAL SITES
- CRA BOUNDARY
- DANIA BEACH CITY LIMIT

OVERLAY DISTRICTS

- DD, DESIGN DISTRICT
- HO, HOTEL DISTRICT

ZONING DISTRICTS

- C-1, NGBRHD OFFICE & BANKING
- C-2, COMMUNITY BUSINESS
- C-3, GENERAL BUSINESS
- C-4(DR), COMMERCIAL(DEED RESTR)
- C-4, GENERAL COMMERCIAL
- CC, CITY CENTER
- CF, COMMUNITY FACILITY
- CON-2, CONSERVATION

- E-1, S.F. - ESTATE
- EDBB-MU, EAST DANIA BCH BLVD MIXED USE
- GTWY-MU, TRANSIT
- I-G, INDUSTRIAL
- IRO, INDUSTRIAL-RESEARCH-OFFICE
- IROC, INDSTR-LRSCRCH-OFFICE-COMRCL
- IROM, INDUSTRIAL-RSRCH-OFFICE-MARINE
- IROM-AA, INDUSTRIAL
- MA, MARINE
- MA-1, MARINA MILE ASSOCIATION
- NBHD-MU, NEIGHBORHOOD MIXED USE
- NBHD-RES*, M-F - Prev RM & 1-2-3 ZONE
- NBHD-RES, RESIDENTIAL
- OS, OPEN SPACE
- PEDD, PORT EVERGLADES DEV DIST
- PMUD, PLANNED MU DEVELOPMENT

- PRD-1, PLANNED RES DEV
- RD-8000, RESIDENTIAL
- RM, MULTI FAMILY 10DU/AC
- RM-1, MULTI FAMILY 16DU/AC
- RM-2, MULTI FAMILY 25DU/AC
- RM-3, RESIDENTIAL
- RMH, MOBILE HOME
- RMO, RESIDENTIAL MULTI-FAM OFFICE
- RO, RESIDENTIAL OFFICE
- RS-12000, SINGLE FAMILY 12000
- RS-6000, SINGLE FAMILY 6000
- RS-8000, SINGLE FAMILY 8000
- SFED-MU, SOUTH FEDERAL MIXED USE

Beach Inset



0 362.5 725 1,450 2,175 2,900 Feet

Sec. 115-40. Schedule of permitted uses.**Legend**

- P - Permitted
- A - Permitted accessory use only
- #, # - (Ex: 1, 2) Permitted subject to the conditions of use numbered 1 and 2 found in section 115-50
- SE - Permitted special exception use only, pursuant to article 630
- SE(#, #) - (Ex: 1, 2) Permitted as a special exception only, and subject to conditions of use numbers 1 and 2 found in section 115-50.
- NP - not permitted

USES	IROM	IROM-AA	IROC	IRO	IG	IR	PEDD	MA-1
LIGHT INDUSTRIAL USES								
Airport-related and airport-compatible uses	33, 34	33, 34	NP	NP	NP	NP	NP	NP
Assembly of products from prefabricated parts	1, 2	1, 2	1, 2	1	P	SE	P	NP
Assembly, repair, and fabrication of furniture, home furnishings, art objects, clothing, leather goods, and jewelry	P	P	P	NP	P	NP	P	P
Bakery	P	P	P	P	P	P	NP	P
Brewery or craft distillery or winery with/or without tasting room [subject to section 110-50]	P	P	P	P	NP	P	NP	P
Catering establishments	P	NP	P	P	P	A 70	NP	P
Distribution facility, accessory use	51	51	51	51	51	NP	P	51
Distribution, principal use	SE 2, 4, 52	SE 2, 4, 52	SE 2, 4, 52	SE 46, 50	SE	NP	P	2, 5
Document preparation and processing service (including publishing and printing)	P	P	P	NP	NP	NP	NP	NP
Fish smoking, curing, and canning	NP	NP	A 17, 64	NP	NP	NP	71	NP
Fleet parking, associated with a contractor's office	NP	80	NP	NP	80	NP	NP	NP
Light industrial uses not itemized in this section	1, 2	1, 2	1, 2	1	P	NP	71	NP
Light manufacturing	1, 2	1, 2	1, 2	1	P	NP	71	NP
Medical and dental laboratories	P	P	P	NP	P	NP	NP	P
Overnight fleet parking for vehicles owned or leased by the business legally operating at same location. Storage in rear or internal side yard, must not be visible from any street & cannot be parked in required parking spaces.	A	A	A	NP	A	NP	NP	NP

USES	IROM	IROM-AA	IROC	IRO	IG	IR	PEDD	MA-1
Pest control service, storage or fleet yard	NP	NP	79	NP	79	NP	NP	P
Railroad and truck terminal	NP	NP	NP	NP	SE 50	NP	P	NP
Research, product development and testing, engineering development, and marketing development	1, 2	1, 2	1, 2	1	P	NP	71	NP
Self-storage facility	NP	2, 4, 52	NP	SE 2, 46	P 2	P	NP	SE 2
Warehousing facilities with up to twenty (20) percent ancillary office space	2, 4, 51	2, 4	P	7, 8	P 2	P	P	2, 5
Watchman or caretaker dwelling unit as an accessory use to a primary marine use or storage facility [subject to sections 110-30, 230-20]	A	A	A	A	A	A	A	A
Wholesale: combined office-distribution-warehouse facilities with up to twenty (20) percent ancillary office space	SE 2, 4	2, 4	SE 2, 4	69	SE 2	NP	P	2, 5
Wholesale: combined office-showroom-warehouse facilities with up to twenty (20) percent ancillary office space	2, 4, 7, 51, 69	2, 4, 7, 69	2, 7, 51, 69	69	P 2	7	7	NP
GENERAL BUSINESS USES								
Adult entertainment [subject to 115-60]	P	P	NP	NP	NP	NP	NP	NP
Bail Bond [subject to section 110-310]	P	P	P	P	NP	P	NP	P
Banks, financial institutions	6	6	6	NP	NP	NP	6	6
Business office	P	P	P	P	A	P	P	P
Convenience food store (without fuel sales)	NP	NP	NP	NP	NP	NP	NP	6
Data processing and computer centers, including service and maintenance of electronic data processing equipment	P	P	P	P	P	P	P	NP
Gym, fitness center, or health club	P 6	P 6	P 6	NP	NP	NP	NP	P 6
Live entertainment	SE	SE	SE	SE 46	NP	NP	P	SE 48
Marine-related retail	6	6	6	NP	6, 36	NP	A 6	6
Office, medical [subject to section 110-40]	P	P	P	P	NP	NP	NP	P
Office, professional	P	P	P	P	NP	NP	P	P
Parts store, including vehicle, aircraft or boat parts within a completely enclosed building	NP	6	6	NP	NP	NP	NP	6
Pawnshop	NP	NP	NP	NP	NP	NP	NP	NP

USES	IROM	IROM-AA	IROC	IRO	IG	IR	PEDD	MA-1
Personal service establishments	24	24	24	15	NP	NP	NP	6
Pharmacy, nonretail (includes compounding)	NP	NP	NP	NP	NP	NP	NP	NP
Pharmacy or drug store	6	6	6	15	NP	NP	A 6	6
Private sport or athletic training facility not open to general public for viewing or participation	NP	NP	P	NP	NP	NP	NP	NP
Restaurant, fast food [including outdoor seating subject to section 115-80]	SE 6, 63	SE 6, 63	SE 6, 63	NP	A 6, 70	NP	6	6
Restaurant, full service (including accessory bars or lounges, including outdoor seating)	6	6	6	SE 6, 46	A 6, 70	NP	6	6
Restaurant, takeout	SE 6, 63	SE 6, 63	SE 6, 63	NP	A 6, 70	NP	6	6
Retail uses not itemized in this section	9, 24	9, 24	9, 24	15	NP	NP	A 6	3, 6
Tattoo, body piercing	NP	NP	NP	NP	NP	NP	NP	22, 6
Retail sales of guns or ammunition	NP	NP	38, 39, 6	NP	NP	NP	NP	NP
Thrift shop, secondhand goods sales	NP	NP	NP	NP	NP	NP	NP	SE, 6
Tool and equipment rental	NP	19	NP	NP	NP	NP	NP	P
CIVIC, GOVERNMENT AND PUBLIC ASSEMBLY USES								
City of Dania Beach governmental, administrative, community, service, or office facilities	P	P	P	P	P	NP	P	P
Convention and conference centers as a principal use	NP	NP	NP	NP	NP	NP	NP	NP
Charitable, civic, fraternal and professional organizations (including union halls)	NP	NP	NP	NP	NP	NP	NP	P
Day care center	NP	NP	NP	NP	NP	NP	NP	P
Governmental facilities	NP	NP	NP	NP	NP	NP	P	NP
Library or art gallery	NP	NP	45	NP	NP	NP	SE 40, 46, 47, 49	P
Museum	NP	NP	45	NP	NP	NP	SE 40, 46, 47, 49	P
Place of worship	NP	NP	NP	NP	NP	NP	NP	P
EDUCATIONAL FACILITIES								
Colleges and specialty schools	P	P	P	NP	P	NP	SE 40, 46, 47, 49, 67	P

USES	IROM	IROM-AA	IROC	IRO	IG	IR	PEDD	MA-1
COMMERCIAL USES								
Athletic training facility (indoors) including, but not limited to a facility offering gymnastics, fitness training, boxing, yoga, or dance, with no spectator seating	P	P	P	P	P	P	NP	P
Auction as an accessory use, limited to one auction monthly, only on off hours (i.e. evenings or weekends)	P	P	P	P	NP	NP	NP	NP
Auto body repair	NP	73	P	NP	P 16	NP	NP	SE
Automobile automated car washes	NP	NP	NP	NP	NP	NP	NP	P
Automobile rental (indoor/outdoor)	33, 74	33, 74	32, 2	2, 17, 74, 76	NP	SE	P	P
Automobile repair, minor or major	NP	73	P	NP	P 16	P	P	P
Automotive fuel pump stations	NP	P	NP	NP	NP	NP	P	NP
Boarding or breeding kennel, veterinary clinic (indoor only)	NP	NP	SE 6, 17	NP	NP	NP	NP	6
Boarding or breeding kennel, veterinary clinic (outdoors)	NP	NP	NP	NP	NP	NP	NP	SE 6
Cabinet or furniture shop (wood working)	P	P	P	P	P	P	NP	P
Contractor shops, repair or service shops, including, but not limited to, air conditioning and other appliances, marine, cloth or canvas	2	2	2	P	P	P	NP	P
Copy or printing shop	P	P	P	P	P	P	NP	P
Courier service/package delivery	NP	NP	79	NP	NP	NP	NP	P
Day labor or temporary employment office	SE 53-60	SE 53-60	NP	NP	NP	NP	NP	NP
Dry cleaning or laundry, excluding self-service laundromat	NP	NP	NP	NP	NP	NP	NP	6
Fortune teller or palm reader	NP	NP	NP	NP	NP	NP	NP	6, 22
Funeral home or mortuary	NP	NP	NP	NP	NP	NP	NP	6, 22, 45
Indoor pistol and rifle ranges	NP	NP	38, 18	NP	NP	NP	NP	NP
Indoor sales, service, display, rental or repair of automobiles, motorcycles, or trucks	33, 73, 74	33, 73, 74	32, 2	NP	P	SE	NP	P
Machine shop, sheet metal shop, welding shop, or tool and die shop	2, 17	2, 17	2, 17	NP	P 16	SE	P	NP
Medical marijuana retail center (subject to 115-70)	NP	SE	NP	NP	NP	NP	NP	NP
Motion picture production studio, indoors	P	P	P	NP	P	NP	NP	P

USES	IROM	IROM-AA	IROC	IRO	IG	IR	PEDD	MA-1
Motion picture production studio, outdoors	SE	SE	SE	NP	NP	NP	NP	NP
Outdoor or indoor sales and display of fully assembled outdoor recreational merchandise	NP	P	68	NP	P 62	NP	NP	NP
Outdoor or indoor sale or rental of new or late-model construction equipment	NP	17	NP	NP	62	NP	NP	SE
Outdoor sales, leasing, rental, and display of automobiles, motorcycles, or trucks	NP	17, 19, 73, 74	32, 2	NP	62	SE	NP	P
Outdoor or indoor storage of passenger vehicles, trailers, and tractor-trailers	NP	NP	NP	NP	35	NP	NP	NP
Recording or broadcasting studio (no transmission antenna tower)	P	P	P	NP	P	NP	NP	P
Repair of bicycles in an enclosed building	P	P	P	P	P	P	NP	P
Roadside vendors	NP	NP	NP	NP	NP	NP	NP	NP
Sales, rental, leasing, display (indoors/outdoors), or repair of fully-assembled recreational vehicles or campers	26	17, 26	25, 26, 30, 31	NP	NP	SE	NP	P
Spray painting/spray booth	P	P	P	P	P	P	NP	P
Telecom web-hosting facilities	P	P	P	P	P	P	NP	P
LODGING USES								
Hotels containing one hundred (100) or more rooms	6, 72	6, 72	6, 72	SE 6, 46, 72	NP	NP	SE 6, 40, 46, 47, 49, 72	SE 6, 72
MARINE AND HEAVY INDUSTRIAL USES								
Assembly of boats not over two hundred (200) feet in length	19	19	19	NP	21, 36, 37	NP	71	NP
Boat sanitary waste pump-out facilities	A, SE 65	A, SE 65	NP	NP	A 65	A 65	A 65	A 65
Docks and docking of boats and ships not over two hundred (200) feet in length, including the operation of charter boats	23	23	NP	NP	23, 36	NP	70	NP
Docks and docking of boats, ships, and cargo or shipping barges not over two hundred fifty (250) feet in length	NP	NP	NP	NP	35	NP	P	NP
Fuel tanks for fueling of vehicles and ships, including retail sale of fuel	SE 65, 66	SE 65, 66	NP	NP	35, 36	SE 65, 66	A 65, 66	SE 65, 66
Indoor or outdoor sales, leasing, display, or storage of fully-assembled new boats (including new boat trailers)	P	P	P	NP	P	SE	NP	P

USES	IROM	IROM-AA	IROC	IRO	IG	IR	PEDD	MA-1
Indoor sales, leasing, rental, display, storage of used boats and marine vessels	P	P	P	NP	P	SE	NP	P
Manufacture of bulk materials with up to twenty (20) percent ancillary office space	NP	NP	NP	NP	NP	SE	NP	NP
Manufacturing of boats not over two hundred (200) feet in length	17	17	17	NP	16, 20, 36	NP	P	NP
Manufacturing, painting and repair of boats in excess of two hundred (200) feet in length, associated assembly, fabrication, outfitting and maintenance, marine construction and equipment loading and handling operations	NP	NP	NP	NP	36	P	NP	NP
Marinas, dry stack	NP	P	NP	NP	P	NP	P	P
Marinas, wet	P	P	NP	NP	P	NP	P	P
Marine cargo handling facilities (indoor/outdoor)	NP	SE	NP	NP	35	NP	P	NP
Marine-related educational facilities	P	P	P	NP	P	NP	P	P
Office trailer	NP	NP	NP	NP	36	NP	NP	NP
Outdoor sales, leasing rental, display and accessory repair of used boats and marine vessels	NP	17, 73, 74	NP	NP	62	NP	NP	NP
Outdoor sales, leasing, rental, display and accessory repair of used boats accessory to new boat sales	P	P	P	NP	P	SE	NP	P
Outdoor storage accessory to seaport and marine shipping	NP	SE 77	NP	NP	A 35, 36	NP	A	NP
Outdoor storage, accessory other	NP	19, 75, 77	NP	NP	NP	NP	NP	NP
Outdoor storage/parking of fully assembled & operational automobiles, aircraft, bus, truck, recreation vehicles, motor home, motorcycle, tractor trailer, boat or construction equipment.	NP	17, 76, 77	NP	NP	NP	NP	NP	NP
Painting of boats not over two hundred (200) feet in length	17	17	17	NP	16, 20	NP	71	NP
Parking for vehicles and equipment	NP	17, 76, 77	NP	17, 74, 76	35, 36	NP	P(81)	NP
Passenger terminal	65, 33	65, 33	NP	NP	NP	NP	P	NP
Petroleum processing, transmission and storage	NP	NP	NP	NP	NP	NP	P	NP
Petroleum tanks, storage in bulk of petroleum and petroleum products including oils, gasoline fuels, grease, and lubricants	NP	NP	NP	NP	NP	NP	P	NP

USES	IROM	IROM-AA	IROC	IRO	IG	IR	PEDD	MA-1
Repair of boats of not over two hundred (200) feet in length	19	P	19	NP	21, 36, 37	SE	71	P
Security gatehouses	NP	P	NP	NP	35, 36	NP	NP	NP
Shipbuilding and repair	NP	SE	NP	NP	36	NP	P	NP
Storage containers required for storage of shipyard/boatyard materials, vessel supplies, cargo	NP	17, 76, 77	NP	NP	35, 36	NP	P	NP
U.S. border patrol facilities	NP	NP	NP	SE 46, 61	NP	NP	NP	NP
UTILITIES								
Electrical power plants	NP	NP	NP	SE 46, 50	SE 50	NP	P	NP
Electrical substations or related electrical facilities	SE 17	SE 17	SE 17	SE 17, 46	SE 17	NP	P	NP
Municipal water or sanitary sewer treatment facilities	SE 17	SE 17	SE 17	SE 46, 50	NP	NP	P	P
Utilities including electric, gas and sanitary	NP	NP	NP	NP	NP	NP	P	NP
MISCELLANEOUS								
Commercial recreation facilities (indoors)	NP	NP	NP	SE 6, 46	SE 6	NP	NP	NP
Crop raising and plant nursery (commercial and noncommercial, excluding marijuana)	NP	P	NP	NP	NP	NP	NP	NP
Indoor private sports or athletic training facility without spectator seating	NP	NP	P 6	NP	NP	NP	NP	NP
Medical marijuana treatment center	NP	NP	NP	NP	NP	NP	NP	NP
Mobile vendors, except as permitted in conjunction with a temporary use approved under article 675	NP	NP	NP	NP	NP	NP	NP	NP
Parking garage	NP	P	NP	NP	NP	NP	P	NP
Recreational facilities	NP	NP	NP	NP	NP	NP	P	NP
Solid waste disposal, transfer or recycling facilities	NP	NP	NP	NP	NP	NP	NP	NP

(Ord. No. 2010-20, § 2(Exh. A), 9-14-10; Ord. No. 2010-025, § 3, 11-23-10; Ord. No. 2011-001, § 2, 1-11-11; Ord. No. 2011-007, § 6, 2-22-11; Ord. No. 2011-024, § 5, 8-9-11; Ord. No. 2012-008, § 5, 5-8-12; Ord. No. 2013-004, § 3, 6-25-13; Ord. No. 2014-004, § 4, 5-27-14; Ord. No. 2014-006, § 2, 5-27-14; Ord. No. 2014-012, § 3, 9-23-14; Ord. No. 2014-016, § 3, 10-28-14; Ord. No. 2015-009, § 4, 4-28-15; Ord. No. 2015-024, § 3, 10-27-15; Ord. No. 2016-004, § 5, 3-22-16; Ord. No. 2016-006, § 2, 3-22-16; Ord. No. 2016-007, § 4, 3-22-16; Ord. No. 2015-027, § 2, 1-12-16)

Sec. 115-50. Conditions of use.

- 1 *Conditions of use:* applicant must demonstrate that the use will not cause or result in dissemination of dust, smoke, corrosion, noxious fumes, odor, noise, vibration, harsh glare or visual hazard to vehicle or air traffic beyond the building within which the use is conducted, and that the use will not pose a risk of chemical fire, explosion, radiation, discharge of waste materials, or other environmental hazards.
Applies to the following uses and districts:
 - a. Research, product development and testing, engineering development and marketing development: IROM, IROC, IRO, IROM-AA.
 - b. Light manufacturing: IROM, IROC, IRO, IROM-AA.
 - c. Assembly of products from pre-manufactured parts: IROM, IROC, IRO, IROM-AA.
 - d. Light industrial uses not itemized: IROM, IROC, IRO, IROM-AA.
- 2 *Conditions of use:* the architectural treatment of the building(s) shall resemble that of an office building, particularly in those portions of the building(s) facing public rights-of-way and adjoining residential areas. This may include use of substantial construction materials (ex: stucco or stone over concrete for exterior building walls), pedestrian scale architectural treatment, significant use of window and door glass, landscaping directly adjacent to a building, and overhead doors and loading activities to be located to the rear of buildings, within interior areas between buildings, or within interior side yards.
Applies to the following uses and districts:
 - a. Research, product development and testing, engineering development and marketing development: IROM, IROC, IROM-AA.
 - b. Light manufacturing: IROM, IROC, IROM-AA.
 - c. Assembly of products from pre-manufactured parts: IROM, IROC, IROM-AA.
 - d. Light industrial uses not itemized: IROM, IROC, IROM-AA.
 - e. Warehousing facilities: IROM, MA-1, IROM-AA.
 - f. Self-storage facility: IRO, IG, MA-1, IROM-AA.
 - g. Combined office-distribution-warehouse facilities: MA-1, IROM-AA.
 - h. Combined office-showroom-warehouse facilities: IROM, IROC, IG, IROM-AA.
 - i. Distribution facility: IROM, IROC, IROM-AA.
 - j. Machine shop, sheet metal shop, welding shop, or tool and die shop: IROM, IROC, IROM-AA.
 - k. Contractor shops, repair or service shops, including air conditioning and other appliances, marine, cloth or canvas: IROM, IROC, IROM-AA.
 - l. Sales, service, display or repair of automobiles, motorcycles or trucks: IROC, IROM-AA.
- 3 *Conditions of retail uses not itemized:* in the MA-1 District, includes, but is not limited to, the following:
 - a. Carpet and flooring sales
 - b. Furniture store
 - c. Glass and mirror shop

- d. Lawn and garden shop
 - e. Swimming pool supplies and sales
 - f. Hardware, home improvement, hobby or craft store
- 4 *Conditions of use:* the office floor area, showroom floor area, or any combination of office and showroom floor area, shall comprise at least ten (10) percent of the total gross floor area of the building(s). All office area must be fully enclosed air conditioned space.
Applies to the following uses and districts:
- a. Combined office/distribution/warehouse and Distribution facility in the: IROM, IROC, IROM-AA districts.
 - b. Combined office-showroom-warehouse facilities: IROM, IROM-AA districts. In IROM, less than ten (10) percent combined office and showroom area may be permitted as a special exception use.
 - c. Warehousing in the IROM and IROM-AA.
 - d. Self-storage in the IROM-AA District.
 - e. Combined office/showroom/warehouse in the IROM and IROM-AA districts. In the IROM District, less than ten (10) percent combined office and showroom may be permitted by special exception pursuant to article 630.
- 5 *Conditions of use:* minimum of ten (10) percent of the gross floor area of the building(s) must be devoted to office use.
Applies to the following uses and districts: Combined office-distribution-warehouse facility, distribution facility, and warehouse in the MA-1 District. Less than ten (10) percent office may be permitted as a special exception use, pursuant to article 630.
- 6 *Conditions of use:* subject to the provisions of the Future Land Use Element of the Comprehensive Plan pertaining to commercial uses in the Industrial and Employment Center future land use categories.
- 7 *Conditions of use:* excludes self-storage warehouses.
- 8 *Conditions of use:* not to exceed ninety (90) percent of the gross floor area of a light industrial or office building.
Applies to the following uses and districts:
- a. Warehousing facilities: IRO

- 9 *Conditions of use:* retail is permitted as an accessory use to a marina, office, industrial, or office-showroom-warehouse use. Retail use shall not exceed twenty (20) percent of the gross floor area of the office, industrial or office-showroom-warehouse building. Retail permitted as a principal use within shopping centers is regulated by condition number 24 of this section.
Applies to the following uses and districts:
Retail uses not itemized: IROM, IROC, IROM-AA
- 10 *Conditions of use:* excludes the display or sale of preowned or used furniture.
[11—14 are reserved]
Applies to the following uses and districts:
Furniture store: MA-1
- 15 *Conditions of use:* permitted accessory to an office building only.
Applies to the following uses and districts:
Retail uses not itemized: IRO
Pharmacy or drug store: IRO
Personal service establishments: IRO
- 16 *Conditions of use:* permitted only must be conducted within a completely enclosed building with two hundred fifty (250) feet of minimum separation from any property with a "residential" land use plan designation.
Applies to the following uses and districts:
Assembly of products from prefabricated parts: IG
Light manufacturing: IG
Light industrial uses not itemized: IG
Machine shop, sheet metal shop, welding shop, or tool and die shop: IG
Manufacturing and painting of boats not over two hundred (200) feet in length: IG
- 17 *Conditions of use:* must be located at least five hundred (500) feet from any property with a "residential" land use plan designation.
Applies to the following uses and districts:
Fish smoking, curing and canning: IROC
Outdoor storage/parking: IROM-AA
Repair and painting of automobiles, recreational vehicles and tractor trailers: IROM-AA
Machine shop, sheet metal shop, welding shop, or tool and die shop: IROM, IROC, IROM-AA
Indoor boarding or breeding kennel, veterinary clinic: IROC
Manufacturing, repair and painting of boats not over two hundred (200) feet in length: IROM, IROC, IROM-AA
Municipal water or sanitary sewer treatment facilities: IROM, IROC, IROM-AA
Electrical substations or related electrical facilities: IROM, IROC, IRO, IG, IROM-AA
Outdoor sales, leasing, rental, display and repair of new and used boats and marine vessels: IROM-AA
Sales, rental, leasing, display (Indoor/outdoor) or repair of fully-assembled recreational vehicles or campers. IROM-AA

Storage containers required for storage of shipyard/boatyard material, vessel supplies, cargo and construction tools and materials: IROM-AA

Outdoor sales, rental or repair of new or late-model construction equipment: IROM-AA

Outdoor sales, leasing, rental, service display or repair of automobiles, motorcycles or trucks: IROM-AA

- 18 *Conditions of use:* must be located at least seven hundred fifty (750) feet from any property with a "residential" land use plan designation.

Applies to the following uses and districts:

Indoor pistol and rifle ranges: IROC

- 19 *Conditions of use:* must be conducted within either a completely enclosed building or an interior side yard or rear yard that is located at least two hundred fifty (250) feet from any property with a "residential" land use plan designation.

- 20 *Conditions of use:* shall not be located within one hundred (100) feet of a limited access trafficway.

Applies to the following uses and districts:

Manufacturing and painting of boats not over two hundred (200) feet in length: IG

- 21 *Conditions of use:* must be conducted within either a completely enclosed building or an interior side yard or rear yard that is located at least one hundred (100) feet from any property with a "residential" land use plan designation.

Applies to the following uses and districts:

Assembly and repair of boats not over two hundred (200) feet in length: IG, IROM-AA

- 22 *Conditions of use:* must be located at least two thousand five hundred (2,500) feet from any similar use.

Applies to the following uses and districts:

Fortune teller or palm reader: MA-1

Tattoo [or] body piercing: MA-1

- 23 *Conditions of use:* specifically excludes and prohibits the operation of gaming vessels and personal watercraft rental or leasing.

Applies to the following uses and districts:

Docks and docking of boats and ships not over two hundred (200) feet in length, including operation of charter boats: IROM, IG, IROM-AA

- 24 *Conditions of use:* permitted only within shopping centers with a minimum building gross floor area of fifty thousand (50,000) square feet, subject to the provisions of the Future Land Use Element of the Comprehensive Plan pertaining to commercial uses in the Industrial and Employment Center future land use categories. Uses within shopping centers shall be those of the C-2 Commercial district set forth in section 110-20 (list of permitted, special exception and prohibited uses for commercial and mixed-use districts).

Applies to the following uses and districts:

Retail uses not itemized: IROM, IROC, IROM-AA

Personal service establishments: IROM, IROC, IROM-AA

- 25 *Conditions of use:* the following uses in the IROC District shall not be located on the site of buildings planned, designed, built, or used for industrial or warehouse use.
Applies to the following uses and districts:
Outdoor sales, rental, leasing, display or repair of fully assembled new recreational vehicles or campers.
Outdoor sales, service, display or repair of automobiles, motorcycles or trucks.
- 26 *Conditions of use:* the sale, rental, leasing, display or repair of fully assembled recreational vehicles or new campers is limited to new vehicles only in the IROC district, IROM district, and IROM-AA district. Such use is limited to well-maintained FDOT-ready, vehicles in a front, street, side, or rear yard if separated from the adjacent roadways or rights-of-way by landscaping pursuant to the requirements of this Land Development Code.
- 30 *Conditions of use:* must be located on the same site as a shopping center containing in excess of one hundred thousand (100,000) square feet of gross floor area.
Applies to the following uses and districts:
Sales, rental, leasing, display or repair of fully assembled new recreational vehicles or campers: IROC.
- 31 *Conditions of use:* the combined square footage of sales, leasing, display and storage area shall not occupy more than twenty-five (25) percent of the gross land area occupied by the shopping center development.
Applies to the following uses and districts:
Sales, rental, leasing, display or repair of fully assembled new recreational vehicles or campers: IROC
- 32 *Conditions of use:* not permitted as a freestanding use, or within a shopping center.
Applies to the following uses and districts:
Sales, service, display, repair, or any combination of these, of automobiles, motorcycles or trucks: IROC
- 33 *Conditions of use:* the uses listed below are permitted on those properties identified as plats 3, 7, and 8 in the interlocal agreement between Broward County and the City of Dania Beach pertaining to expansion and jurisdiction of Fort Lauderdale-Hollywood International Airport, executed by the City of Dania Beach on October 17, 1995, and by Broward County on September 12, 1995.
Applies to the following uses and districts:
Airport-related and airport-compatible uses: IROM, IROM-AA
Automobile rental car agency: IROM, IROM-AA
Passenger terminal: IROM, IROM-AA
- 34 *Conditions of use:* airport related and airport compatible uses shall include, but not be limited to, rental car facilities and storage lots, longterm passenger parking facilities, employee parking facilities, airline in-flight services, air cargo services, specialized aircraft and ground transportation equipment repair and maintenance excluding aircraft testing, and aviation-oriented training facilities.
Applies to the following uses and districts:
Airport-related and airport-compatible uses: IROM, IROM-AA

- 35 *Conditions of use:* the uses listed below are permitted in the IG district on parcels abutting the Dania Cut-Off Canal and Port Everglades, not including easements and rights-of-way, with a required setback [of] at least five hundred (500) feet from any residential zoning district, and a required opaque fence eight (8) to ten (10) feet in height adjacent to any public street.

Applies to the following uses in the IG district:

- a. Marine cargo handling facilities
 - b. Parking for vehicles and equipment
 - c. Outdoor storage of materials, supplies, machinery, equipment, vehicles, trailers, cargo shipping equipment (i.e. flat racks, chassis, and containers), or products being processed in or transported through the property.
 - d. Shipping and storage containers in shipyards or cargo port facilities may be stacked four (4) high not to exceed forty (40) feet as an accessory use. Outdoor activities and operations shall be permitted only between the hours from 8:00 a.m. to 10:00 p.m. During named hurricanes or tropical storms, no storage containers shall be stacked.
 - e. Fuel tanks for fueling of vehicles and ships as an accessory use and as regulated and permitted by the applicable Broward County environmental agency.
 - f. Security gatehouses, as an accessory use, including manufactured modular buildings, when set back at least one hundred (100) feet from NE 7th Avenue or Taylor Lane and complying with any applicable building code requirements, subject to the approval of the Broward Sheriff's Office and the Dania Beach Fire Department.
 - g. Docks and docking of boats, ships and cargo or shipping barges not over two hundred fifty (250) feet in length. For the purpose of this provision, the term "barge" shall mean a non self-propelled cargo or shipping vessel, which includes a bow and stern and possesses the appearance of a ship. "Barge" does not include a flat-bed, rectangular or raft-like vessel.
 - h. When located on property no larger than three (3) net acres, having frontage on Taylor Lane and NE 7th Avenue, with access limited to NE 7th Avenue, the following are permitted:
 - (1) Outdoor storage of materials, supplies, machinery, equipment, vehicles, trailers, and cargo shipping equipment (i.e. flat racks, chassis, and containers) or products being processed in or transported through the property.
 - (2) Outdoor storage of cargo containers not to exceed two (2) stacks and sixteen (16) feet in height (no storage containers may be stacked during named hurricanes or tropical storms)
- 36 *Conditions of use:* the uses listed below are permitted in the IG district on lots generally located along the Dania Cut-Off Canal from the east end of the city limits, west one hundred eighty (180) feet past the end of Taylor Lane, south of Taylor Lane to the north bank of the Dania Cut-Off Canal, and more specifically described as Parcel A and Parcel B of Transworld Plat, Powell Brothers Barge Terminal Plat, Derecktor's South Plat and Port Laudania Plat, less than east three hundred thirty-three (333) feet of the South seven hundred forty-three and

eight-two hundredths (743.82) feet and Dania Canal, not including easements and rights-of-way, and unless otherwise stated below, set back a minimum of one hundred (100) feet from any residential zoning district. If there is any conflict between the provisions of this subsection and any other provision of this code, the provisions of this subsection will prevail.

Uses permitted in the IG district within the location described above:

- a. Manufacturing, painting and repair of ships and boats in excess of two hundred (200) feet in length, associated assembly, fabrication, outfitting and maintenance, marine construction and equipment loading and handling operations.
- b. Retail sales of material and supplies for construction and repair of vessels.
- c. Warehousing of materials, supplies, cargo and equipment related to shipyards, boatyards and marine construction businesses.
- d. Outdoor storage of materials, supplies, cargo, equipment, machinery, staging, vehicles, vessels, trailers, ladders and other associated items related to shipyard, boatyard and marine construction.
- e. Storage containers required for storage of shipyard/boatyard materials, vessel supplies, cargo, and construction tools and materials. Storage containers shall not exceed fifty (50) containers per property. The containers shall not be stacked or used as shipbuilding or repair work shops, and shall be set back a minimum of twenty-five (25) feet from Taylor Lane and at least twenty-five (25) feet from the Dania Cut-Off Canal. During named storms, all containers and loose materials shall be secured.
- f. One (1) office trailer not to exceed one thousand (1,000) square feet, set back a minimum of thirty-five (35) feet from Taylor Lane. The trailer shall be properly secured.
- g. Fuel tanks, including mobile fueling from fuel trucks or fuel barges, for fueling of vehicles and ships as an accessory use and as regulated and permitted by the State of Florida Department of Environmental Protection and Broward County's environmental protection agency.
- h. For those properties located along and with access to Taylor Lane, including those properties on the north side of Taylor Lane, parking of vehicles on hard surface or good rolled, crushed rock base, as an accessory use.
- i. Security gatehouse, including manufactured modular buildings, complying with applicable building code requirements, as an accessory use, when approved by the Broward Sheriff's Office, the city fire department, and the city public services director.
- j. Shipbuilding and repair.
- k. The following shipping, marine transportation and barge operation uses are recognized by the city as special uses for those certain properties as described above, and they shall be permitted for up to one hundred twenty (120) days in any calendar year, subject to the following conditions:
 - (1) Prior written approval by the city manager and the community development director is required, if the length of time any one (1) use will be in operation will exceed fourteen (14) days.

- (2) For uses, excluding barges, which will be in operation for fourteen (14) days or less, written notice shall be provided to the community development department indicating the location and duration of the operation.
 - (3) Prior written approval for barges shall be required regardless of duration.
 - (4) Barges shall not exceed one hundred ninety (190) feet in length.
 - (5) No more than two (2) barges are permitted at any one (1) time within the confines of the area described above.
 - (6) The city commission may grant waivers of the above conditions based upon an applicant's demonstration of unique circumstances, practical hardship, or both, that are not generally applicable to other such uses.
- 37 *Conditions of use:* outdoor assembly and repair of boats shall not be located within a required yard abutting a street, and shall not be located within one hundred (100) feet of any limited access trafficway.
Applies to the following uses and districts:
Assembly and repair of boats not over two hundred (200) feet in length: IG
- 38 *Conditions of use:* must be located within a fully enclosed shopping center containing in excess of one hundred thousand (100,000) square feet of gross floor area.
Applies to the following uses and districts:
Retail sales of guns and ammunition: IROC
Indoor pistol and rifle ranges: IROC
- 39 *Conditions of use:* permitted accessory to a sporting goods store.
Applies to the following uses and districts:
Retail sales of guns and ammunition: IROC
- 40 *Conditions of use:* the development shall comply with the county land use plan provision that restricts land devoted to nonindustrial use to no more than twenty (20) percent of the acreage within an industrially designated flexibility zone.
Applies to the following uses and districts:
Convention and conference centers: PEDD
Library or art gallery: PEDD
Museum: PEDD
Colleges and specialty schools: PEDD
Hotel containing 100 or more rooms: PEDD
Hotel containing less than 100 rooms: PEDD
- [41—44 are reserved]
- 45 *Conditions of use:* must be located within a freestanding building.
Applies to the following uses and districts:
Library or art gallery: IROC
Museum: IROC
Funeral home or mortuary: MA-1
- 46 *Conditions of use:* the following uses in the listed zoning districts are permitted only upon demonstration that vehicular traffic generated by the proposed use will not have an adverse effect upon, be detrimental to, nor interfere with, the

surrounding land uses, the ability of the local and regional transportation network to operate at or above level of service "D", or the orderly and appropriate development of the area in accordance with the future land use plan.

Applies to the following uses and districts:

Restaurant, full-service: IRO
Convention and conference centers: IRO, PEDD
Library or art gallery: PEDD
Museum: PEDD
Colleges and specialty schools: PEDD
Hotel containing one hundred (100) or more rooms: IRO, PEDD
Hotel containing less than one hundred (100) rooms: PEDD
U.S. Border Patrol facilities: IRO
Electrical substations or related electrical facilities: IRO
Electrical power plants: IRO, IG
Commercial recreation facilities (indoors): IRO

- 47 *Conditions of use:* permitted only upon a city commission determination that the land upon which the use is proposed is not best reserved for future industrial uses.

Applies to the following uses and districts:

Convention and conference centers: PEDD
Library or art gallery: PEDD
Museum: PEDD
Colleges and specialty schools: PEDD
Hotel containing 100 or more rooms: PEDD
Hotel containing less than 100 rooms: PEDD

- 48 *Conditions of use:* must be accessory to a bar or restaurant.

Applies to the following uses and districts:

Live entertainment: MA-1

- 49 *Conditions of use:* must be designed in such a manner as to preserve, perpetuate and improve the natural environmental character of the proposed site and surrounding area.

Applies to the following uses and districts:

Convention and conference centers: PEDD
Library or art gallery: PEDD
Museum: PEDD
Colleges and specialty schools: PEDD
Hotel containing one hundred (100) or more rooms: PEDD
Hotel containing less than one hundred (100) rooms: PEDD

- 50 *Conditions of use:* must be located at least one thousand five hundred (1,500) feet from any property with a "residential" land use plan designation.

Applies to the following uses and districts:

Distribution facility: IRO, IG
Railroad and truck terminal: IG
Electrical power plants: IRO, IG
Wastewater treatment facilities: IRO

- 51 *Conditions of use:* distribution is a permitted accessory use to the following principal uses:
Applies to the following districts:
To a primary light industrial or research use in the IROM, IROC, IROM-AA and IG districts
To a primary warehouse use in combined showroom-warehouse facilities in the IROC district
To a primary office-warehouse-showroom facility in the IROM, IROM-AA districts
To a primary warehouse or light industrial use in MA-1 District
To a primary warehouse in IRO.
- 52 *Conditions of use:* the lot coverage comprised of fully enclosed air conditioned space shall be a minimum of twenty-five (25) percent.
Applies to the following uses and districts:
Distribution facility: IROM, IROC, IROM-AA
Warehousing facilities: IROM, IROM-AA
- 53 *Conditions of use:* must be separated from similar uses by at least one thousand (1,000) feet, measured between property lines.
Applies to the following uses and districts:
Employment agency: IROM, IROM-AA
Day labor or temporary employment office: IROM, IROM-AA
- 54 *Conditions of use:* must be separated from parks, day care centers, academic schools, and residentially zoned or used land by at least one thousand (1,000) feet, measured between property lines.
Applies to the following uses and districts:
Employment agency: IROM, IROM-AA
Day labor or temporary employment office: IROM, IROM-AA
- 55 *Conditions of use:* must be separated from arterial or collector roadways by at least one thousand (1,000) feet, measured from property line to street line.
Applies to the following uses and districts:
Employment agency: IROM, IROM-AA
Day labor or temporary employment office: IROM, IROM-AA
- 60 *Conditions of use:* must be separated from similar uses, parks, schools, residentially zoned or used land, and from arterial and collector roadways—measured property line to street line—by at least one thousand (1,000) feet, and from limited access facilities as described in the transportation element of the Dania Beach Comprehensive Plan by at least five hundred (500) feet, measured property line to street line.
Applies to the following uses and districts:
Employment agency: IROM, IROM-AA
Day labor or temporary employment office: IROM, IROM-AA
- 61 *Conditions of use:* U.S. Border Patrol facilities in the IRO district shall be permitted when located east of U.S. 1, north of the Dania Cut-Off Canal, directly abutting Port Everglades, and at least three thousand (3,000) feet from any property with a City of Dania Beach "residential" or "commercial" land use

plan designation. These facilities shall not be open to the general public for any purpose other than border patrol matters. The following are permitted uses when accessory and incidental to permitted U.S. Border Patrol facilities:

- a. Outdoor storage, loading and limited repair of boats and other similar watercraft
- b. Dog kennel
- c. Temporary holding cells within fully enclosed, air-conditioned building, not to exceed three thousand five hundred (3,500) square feet in floor area
- d. Temporary secure storage of illegal items, contraband or both (excluding explosives other than weapons and ammunition), seized by government authorities when stored entirely within an enclosed building
- e. Automobile storage, service, and limited repair facilities
- f. Limited storage and distribution of fuel
- g. Storage of weapons and ammunition generally associated with U.S. Border Patrol operations, not to exceed five hundred (500) square feet in floor area.
- h. Communications towers up to ninety (90) feet in height, subject to FAA requirements.

62 *Conditions of use:* Must be hidden/screened from public view and/or residential properties.

63 *Conditions of use:* fast food restaurants in the IROM, IROM-AA and IROC districts must be physically attached by a common wall to a shopping center containing in excess of fifty thousand (50,000) square feet of gross floor area, with no drive-in or drive-through facility.

64 *Conditions of use:* fish smoking, curing and canning in the IROC district is permitted only incidental and accessory to a restaurant.

65 *Conditions of use:* the following uses must be clearly incidental and accessory to an established marina.

Applies to the following uses and districts:

Fuel tanks for fueling of vehicles and ships, including retail sales of fuel:
IROM, IG, IR, PEDD, MA-1, IROM-AA

Boat sanitary waste pump-out facilities: IROM, IG, IR, PEDD, MA1, IROM-AA

Passenger terminal: IROM, IROM-AA

66 *Conditions of use:* city commission may require provision of boat sanitary waste pump-out facilities in conjunction with the fuel facilities.

Applies to the following uses and districts:

Fuel tanks for fueling of vehicles and ships, including retail sales of fuel:
IROM, IR, PEDD, MA-1, IG, IROM-AA

67 *Conditions of use:* permitted college and specialty schools in the PEDD district are business schools, colleges, private schools, and commercial schools (art, music, theatrical, business, technical).

68 *Conditions of use:* The display of outdoor recreational merchandise shall be accessory to a permitted retail or wholesale use and items permitted within such displays shall be limited to assembled children's play structures including

climbing equipment, platforms, slides, swings, and playhouses designed for playground and residential yard use. Outdoor sales displays of fully assembled outdoor recreational merchandise shall be subject to the following standards:

- a. The display shall be located in a contiguous area which shall not exceed seven hundred fifty (750) square feet in total display area per licensed business. The total maximum display area shall be calculated by measuring the perimeter of the display area and calculating the square footage within such area.
- b. The display shall not encroach into parking spaces or aisles, and assembled recreational items within the display shall be set back at least four (4) feet from a property line, sidewalk, or parking lot.
- c. The items contained within the display shall not exceed twenty (20) feet in height.

- 69 *Conditions of use:* showrooms may display furniture, lighting, home furnishings, electrical, mechanical and plumbing equipment, large appliances, carpeting, tile, cabinets, marine equipment, and similar items as determined by the community development director.

Applies to the following uses and districts:

Wholesale: combined office-showroom-warehouse facilities: IROM, IROC, IRO, IG, IROM-AA

Wholesale: combined office-distribution-warehouse facilities: IRO

- 70 *Conditions of use:* fast food restaurants, full-service restaurants, takeout restaurants and catering businesses are permitted in the IG district accessory to a wet marina.

- 71 *Conditions of use:* Whenever application is made for a building permit to erect any building or improvement upon any site in the PEDD [district] in which the premises may be or are contemplated to be used for industries or uses involving any processes, substance or mixture of substances which is toxic, corrosive, an irritant, a strong sensitizer, or which generates pressure through decomposition, heat or other means, if such substances or mixture of substances may cause substantial personal injury or substantial illness during, or as a proximate result of, any customary or reasonably foreseeable handling or use, or which is identified as hazardous by state or federal legislation, the use may be approved only by special exception pursuant to the procedures and requirements of article 630. Furthermore, the city commission shall not approve the special exception use until it has received a written report by the city and port fire departments and any other governmental agency having jurisdiction. In determining whether to approve such use, the city commission shall consider its compatibility with other uses in the vicinity and the potentially harmful or dangerous effects of such use on persons and property.

- 72 *Conditions of use:* hotels shall comply with the following conditions:

- (1) Guestroom access shall be via interior corridors.
- (2) Individual wall- or window-mounted air conditioners (if used) shall not project beyond any exterior wall of the building.

- (3) A minimum of one hundred (100) rooms are required. For the purpose of article 625, the minimum number of hotel rooms shall be deemed a development standard.

Applies to the following uses and districts:

Hotels in the IROM, IROC, IRO, PEDD, IROM-AA AND MA-1 Districts.

- 73 *Conditions of use:* garage doors not permitted to face a public right-of-way.
- 74 *Conditions of use:* on-site parking and storage of vehicles shall not be visible from the public right-of-way.
- 75 *Conditions of use:* Provided the area is secured and screened by an opaque fence or wall (chain link with slat not permitted) with a ten (10)-foot wide landscape buffer with a continuous hedge and a tree planted every forty (40) linear feet and is separated from adjacent roadways or rights-of-way by landscaping pursuant to the requirements of article 275, landscaping requirements. The fence or wall must be located on the inside of the landscape buffer area.
- 76 Properties larger than fifteen (15) acres must be secured and the area must be screened by providing an opaque fence or wall (chain link with slat not permitted) with a fifteen-foot wide landscape buffer with a two and one-half-foot high berm along the front property line and a minimum of seven and one-half-foot wide landscape buffer areas along the side and rear property lines. The landscape buffer areas shall also have a continuous hedge screen with a minimum height of three (3) feet and provide trees planted every forty (40) linear feet. The opaque fence or wall must be located on the inside of the landscape buffer area. Properties less than fifteen (15) net acres shall provide a ten-foot wide landscape buffer along the front property line and a five-foot wide landscape buffer on the side and rear with required linear trees and hedges.
- 77 A fifteen-foot wide landscape buffer with a two and one-half-foot high meandering or winding berm and an opaque fence or wall (chain link with slat not permitted) equaling eight (8) feet total height is required adjacent to residentially zoned or used land. The fence or wall must be located on the inside of the landscape buffer area.
- 78 a. Use shall not be permitted within the community redevelopment area.
b. A five (5)-foot wide perimeter landscaped buffer shall be required on all sides of the property.
c. Use must be separated from any arterial roadway by a minimum of five hundred (500) feet.
d. Outdoor activities and movement of vehicles shall be permitted only between the hours from 7:00 a.m. to 7:00 p.m.
- 79 *Conditions of use:* Use must be fully enclosed with no outdoor storage of vehicles.
- 80 Use cannot be located on a parcel located immediately adjacent to residentially zoned or residentially used land, and must provide a solid wall of a minimum of six (6) feet in height surrounding the storage area. Where adjacent to a public right-of-way, a landscaped buffer area of a minimum of seven (7) feet in width must be provided, with a continuous hedge and trees planted 1 every thirty (30) feet.

81 Notwithstanding the requirements of article 265 and article 320 to the contrary, a parking facility which stores automobiles for customers, or provides attendants to receive, park, and deliver the automobiles to customers may be permitted subject to the following requirements:

- A. Parking, stacking, driveway aisle, drop-off and delivery areas, and stall dimensions shall be shown on the circulation plan for the automobile storage parking facility.
- B. Stacking rows for vehicles may be permitted. Stacking rows shall provide a minimum eight and one-half (8½) feet in width and a maximum of 140 feet in depth.
- C. Overnight storage of automobiles may be permitted in the designated automobile storage area.

(Ord. No. 2010-20, § 2(Exh. A), 9-14-10; Ord. No. 2010-025, § 3, 11-23-10; Ord. No. 2011-001, § 2, 1-11-11; Ord. No. 2011-024, § 5, 8-9-11; Ord. No. 2012-008, § 5, 5-8-12; Ord. No. 2013-001, § 3, 2-26-13; Ord. No. 2013-004, § 3, 6-25-13; Ord. No. 2014-004, § 4, 5-27-14; Ord. No. 2014-012, § 3, 9-23-14; Ord. No. 2015-024, § 3, 10-27-15; Ord. No. 2016-006, § 2, 3-22-16)

Sec. 115-60. Adult entertainment establishments.

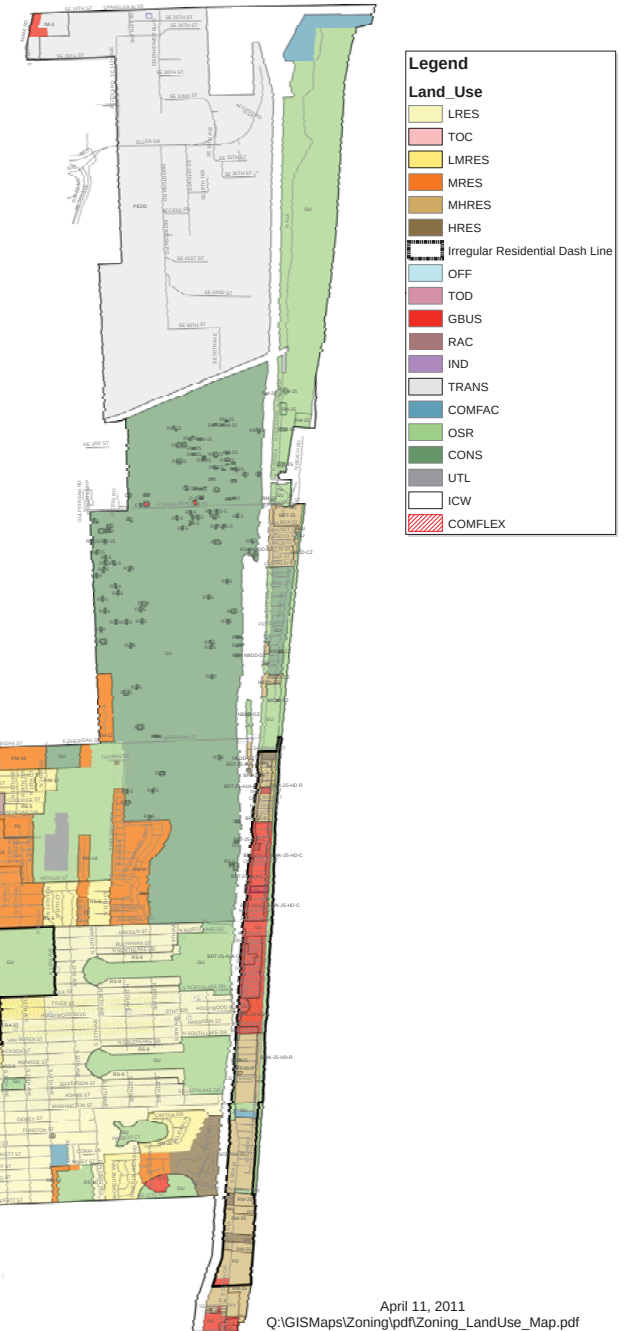
(A) *Definitions.* For the purposes of this article, the following definitions shall apply:

- (1) *Adult book store/adult novelty store/adult video store.* An establishment having adult material as a substantial or significant portion of its stock in trade, or an establishment with a segment or section devoted to the sale or display of such material. Twenty (20) percent of the gross floor area of the establishment devoted to adult material shall be presumed to be a substantial or significant portion of the stock in trade.
- (2) *Adult dancing establishment.* An establishment where employees display or expose specified anatomical areas to others, regardless of whether the employees actually engage in dancing.
- (3) *Adult domination/submission parlor.* An adult establishment specializing in bondage, sadomasochism, humiliating activities or other similar activities which depict, describe or relate to the "specified sexual activities" or "specified anatomical areas", as defined below.
- (4) *Adult entertainment establishment.*
 - (a) An adult minimotion picture theater, adult motion picture theater, adult bookstore/adult novelty store/adult video store, adult motel, adult domination and submission parlor, adult dancing establishment, nude entertainment establishment, or other establishment or business operated for commercial gain where an employee, operator, or owner exposes his or her specified anatomical area for viewing by patrons, including, but not limited to, massage establishments, whether or not licensed pursuant to F.S. chapter 480, tanning salons, encounter studio /modeling studios, or lingerie studios.
 - (b) Excluded from this definition are educational institutions, as defined in this Land Development Code, where the exposure of specified anatomical areas is associated with a curriculum or program.

APPENDIX 10.3.2
CITY OF HOLLYWOOD



City of Hollywood, Florida Zoning and Land Use



0 2,150 4,300 8,600 Feet

April 11, 2011
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educational. School, Grades K-12	Yes	Yes	Yes	Yes	Yes	No	No	No	No
School, recreational and cultural	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Service Stations.+	No**	SE	SE	SE	SE	No	No	No	No
Thrift shops.	No	No	Yes** *	Yes	Yes	No	No	No	No
Wholesaling and Warehousing.	No	No	No	Yes	Yes	No	No	No	No
SE = Special Exception - See Article 5 Administrative Regulations * Allowed as an accessory use - See § 4.21 ** Allowed east of the Intracoastal Waterway *** See performance standards + Only permitted as a Special Exception									

(Ord. O-94-14, passed 4-16-94; Am. Ord. O-94-73, passed 11-23-94; Am. Ord. O-96-18, passed 5-22-96; Am. Ord. O-96-42, passed 9-25-96; Am. Ord. O-99-14, passed 5-12-99; Am. Ord. O-2001-16, passed 5-16-2001; Am. Ord. O-2002-27, passed 9-4-2002; Am. Ord. O-2002-35, passed 10-2-2002; Am. Ord. O-2006-12, passed 5-3-2006; Am. Ord. O-2008-28, passed 11-19-2008; Am. Ord. O-2010-12, passed 4-7-10; Am. Ord. O-2011-14, passed 5-4-11; Am. Ord. O-2012-05, passed 3-7-12)

§ 4.4 IM Industrial and Manufacturing Districts.

A. IM-1 Low Intensity Industrial and Manufacturing District.

1. Purpose and uses:

District Purpose	Main Permitted Uses	Special Exception	Prohibited Uses
This district is intended to provide suitable standards for development and	Commercial; Consignment Shop; Hotels and motels; Light Industrial and	Oil and/or gasoline storage tanks; Outdoor commercial	Residential; Institutional; Heavy industrial and manufacturing; Hazardous Industries; Motor freight terminals; Paint or varnish manufacture; Uses which produce effects upon contiguous property in the form of noise,

maintenance of office; heavy commercial; and light manufacturing uses.	Manufacturing; Offices; Pawn Shop; Self-Storage Facility; Thrifty Shop; Warehouse.	amusement facilities; Service Station	odor, vibration, smoke, particulate matter, glare, heat, fire or explosive hazard; All uses which are incompatible with the approved land use designation of the property pursuant to the City of Hollywood's future land use map.
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2. Development regulations:

Setbacks	Maximum Height	Maximum Lot Coverage
Front or street side - Pursuant to the performance standards of the industrial street landscape buffers (§ 4.4.E). Side interior and Rear - 0 feet. Whenever the IM-1 District abuts a residential district, 20 ft setback +1 additional ft per 1 ft increase over 15 ft of height. A 5 ft. wide approved landscaped buffer must be included and maintained pursuant to the industrial landscape buffers (§ 4.4.E).	35 feet	90%

Setbacks are measured from the Base Building Line pursuant to Article 3.

B. IM-2 Low/Medium Intensity Industrial and Manufacturing District.

1. Purpose and uses:

District Purpose	Main Permitted Uses	Special Exception	Prohibited Uses
			Residential, except that provisions may be made for living quarters for owners and agents within

This district is intended to provide suitable standards for development and maintenance of office; heavy commercial; light manufacturing; and industrial uses of a non-objectionable nature.	Commercial; Consignment Shop; Hotels and motels; Light Industrial and Manufacturing; Offices; Pawn Shop; Self-Storage Facility; Thrifty Shop; Warehouse.	Hazardous Industries; Oil and/or gasoline storage tanks; Service Station	structures used exclusively for businesses; Institutional; Heavy manufacturing and industrial. Motor freight terminals; Paint or varnish manufacture; Uses which produce effects upon contiguous property in the form of noise, odor, vibration, smoke, particulate matter, glare, heat, fire or explosive hazard; All uses which are incompatible with the approved land use designation of the property pursuant to the Comprehensive Plan Future Land Use Map.
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2. Development regulations:

Setbacks	Maximum Height	Maximum Lot Coverage
Front or street side - Pursuant to the performance standards of the industrial street landscape buffers (§ 4.4.E). Side interior and Rear - 0 feet. Whenever the IM-2 District abuts a residential district, 20 ft setback +1 additional ft per 1 ft increase over 15 ft of height. A 5 ft. wide approved landscaped buffer must be included and maintained pursuant to the industrial landscape buffers (§ 4.4.E).	35 feet	90%

Setbacks are measured from the Base Building Line pursuant to Article 3.

C. **IM-3 Medium Intensity Industrial and Manufacturing.**

1. Purpose and Uses:

District Purpose	Main Permitted Uses	Special Exception	Prohibited Uses
This district is intended to provide sites for manufacturing and industrial uses which may be objectionable to or incompatible with residential areas.	Commercial; Consignment Shop; Manufacturing and Industrial; Hotels and motels; Pawn Shop; Places of worship; Offices; Self-Storage Facility; Thrift Shop; Warehouse.	Hazardous Industries; Service Station	Residential, except that provisions may be made for living quarters for owners and agents within structures used exclusively for businesses; Institutional; Heavy manufacturing and industrial; Paint or varnish manufacture. Uses which produce effects upon contiguous property in the form of noise, odor, vibration, smoke, particulate matter, glare, heat, fire or explosive hazard; All uses which are incompatible with the approved land use designation of the property pursuant to the Comprehensive Plan Future Land Use Map.

2. Development regulations:

Setbacks	Maximum Height	Maximum Lot Coverage
Front or street side - Pursuant to the performance standards of the industrial street landscape buffers (§ 4.4.E). Side interior and Rear - 0 feet. Whenever the IM-3 District abuts a residential district, 20 ft setback +1 additional ft per 1 ft increase over 15 ft of height. A 5 ft. wide approved landscaped buffer must be included and	100 feet, except for radio antenna towers which may extend to	90%

maintained pursuant to the industrial landscape buffers (§ 4.4.E).	a height of 200 feet.	
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Setbacks are measured from the Base Building Line pursuant to Article 3.

D. IM-4 High Intensity Industrial and Manufacturing District.

1. Purpose and uses:

District Purpose	Main Permitted Uses	Special Exception	Prohibited Uses
This district is intended to preserve, enhance, and create areas containing larger and heavier types of manufacturing and industrial uses which normally have no serious effects upon contiguous nonresidential areas.	Industrial; Consignment Shop; Manufacturing; Pawn Shop; Places of worship; Self-Storage Facility; Thrift Shop; Warehouse.	Service Station	Residential, except as accessory to a permitted use; Institutional; Hotels and motels. Uses which produce effects upon contiguous property in the form of noise, odor, vibration, smoke, particulate matter, glare, heat, fire or explosive hazard; All uses which are incompatible with the approved land use designation of the property pursuant to the City of Hollywood's future land use map.

2. Development regulations:

Setbacks	Maximum Height	Maximum Lot Coverage
Front or street side - Pursuant to the performance standards of the industrial street landscape buffers (§ 4.4.E). Side interior and Rear - 0 feet. Whenever the IM-4 District abuts a residential district, 20 ft setback +1 additional ft per 1 ft increase over 15 ft of height. A 5 ft. wide	35 feet	90%

approved landscaped buffer must be included and maintained pursuant to the industrial landscape buffers (§ 4.4.E).		
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E. Performance standards:

1. Industrial Landscape Buffers: New construction, alterations or additions to existing structures which increase the gross floor area of a building by more than 50 percent, shall be required to provide:
 - a. Landscaped buffers along street frontages equal to 5 percent of lot depth, with a minimum depth of 5 feet from the base building line, and a maximum required depth of 15 feet. Depth of landscape buffers shall be measured from the base building line and any corner chord as required by these regulations (See § 4.22).
 - b. A decorative metal picket fence or CBS wall six to eight feet high along the inside of the landscaped buffer except where broken by a building or a driveway.
 - c. Landscaping as required in Vehicular Use Areas (See Article 9).
 - d. Required landscaping and screening must be installed prior to issuance of a certificate of occupancy. An occupancy certificate may be issued if an approved bond is posted in the amount of the cost of the landscaping to ensure that the landscaping and screening will be provided within a 30 day period.
 - e. Parking shall not be placed within the landscaped buffer.
 2. Outdoor storage: Permitted, subject to the Industrial Street Landscape Buffer requirements.
 3. Recycling Operations:
 - a. Must take place within enclosed buildings;
 - b. Shall be limited to disassembling, sorting, baling for transport, storage, buying and selling; and
 - c. May not utilize chemicals or heat in the recycling process.
 4. If the IM District is adjacent to a residential district, then a 6 ft. CBS wall and 10 ft. setback is required.
- (Ord. O-94-14, passed 4-16-94; Am. Ord. O-2002-35, passed 10-2-2002; Am. Ord. O-2012-05, passed 3-7-12)

§ 4.5 AD Limited Agricultural District.

A. Purpose and uses:

District Purpose	Main Permitted Uses	Special Exceptions	Accessory Uses
This district is applied to areas which are used for farming purposes, and to other areas where it is premature to apply a more restrictive zoning district designation.	Single family dwelling; place of worship; agricultural uses; horticulture; livestock; aquaculture; stables; railroad right of way; but not yards, shops or round house.	None	Any Use that is customarily associated with the Main Permitted Use. See § 4.21.

B. Development regulations:

Minimum Lot Area	Minimum Lot Width	Maximum Height	Max. Lot Coverage
35,000 sq. ft.	125 ft.	60 ft.	20% Structures

C. Setback regulations:

1. The following regulations apply to structures that are less than 20 ft. in height:

Front	Side	Side facing a street	Rear
25 ft.	Single Family - 10 ft. Other - 25 ft.	25% of lot width not to exceed 25 ft.	25 ft.

2. Buildings which exceed 20 ft. in height: the setback listed in C.1. above plus one ft. for each two ft in height above 20 ft.

3. Buildings which exceed 30 ft. in height: the setback required by C.1. above plus the setback for C.2. above plus one ft. for each foot above 30 ft.

4. Structures associated with the storage of animals, including feeders, shall be setback at least 100 ft. from any lot line; however, a stable with four or fewer horses is not required to be setback more than 50 ft. from a side or rear lot line.

(Ord. O-94-14, passed 4-16-94; Am. Ord. O-2012-05, passed 3-7-12)

§ 4.6 Community Redevelopment Districts.

The Community Redevelopment Zoning Districts consists of all land in the Community Redevelopment Areas which have been delineated on the Official Zoning Map. The Downtown District consists of the following zoning districts:

- CN-1 Neighborhood Commercial Low Intensity
- CN-2 Neighborhood Commercial Medium Intensity
- CN-3 Neighborhood Commercial High Intensity
- CCC-1 Central City Commercial/Mixed Use Low Intensity
- CCC-2 Central City Commercial/Mixed Use Medium Intensity
- OM Mixed Use Office

The North Downtown District subdistricts are as follows:

- ND-1 North Downtown District 1
- ND-2 North Downtown District 2

The Young Circle District subdistricts are as follows:

- YC-B39 Young Circle YC-B39
- YC-B40 Young Circle YC-B40
- YC-B42 Young Circle YC-B42

APPENDIX 10.4

ENVIRONMENTAL RESOURCE PERMIT



Environmental Resource Permit Application

ENVIRONMENTAL RESOURCE PERMIT APPLICATION

FPL Dania Beach Energy Center

Broward County, FL



July 2017

Project No. 1773823

A world of
capabilities
delivered locally



JOINT APPLICATION FOR INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT/ AUTHORIZATION TO USE STATE-OWNED SUBMERGED LANDS/ FEDERAL DREDGE AND FILL PERMIT

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION/
WATER MANAGEMENT DISTRICTS/
U.S. ARMY CORPS OF ENGINEERS

Effective October 1, 2013



INSTRUCTIONS FOR USE OF THIS FORM:

This form is designed to assist you in submitting a complete application. All applications must include Section A- General Information for All Activities. Sections B through H list typical information that is needed based on the proposed activities, and are only required as applicable. Part 1-C of Section A will guide you to the correct sections needed based on your proposed activities. Applicants are advised to consult Chapter 62-330, F.A.C., and the Environmental Resource Permit Applicant's Handbook Volumes I and II for information regarding the ERP permitting process and requirements while preparing their application. Internet addresses for Chapter 62-330, F.A.C. and the Applicant's Handbook, Agency contact information, and additional instructions for this form can be found in Attachment 1.

What Sections of the Application Must I Fill Out?

Does the project involve....	Section							
	A- General Information	B- Single Family Projects	C- Wetlands and other Surface Waters	D- Structures or Works in Surface Waters	E- Stormwater Management System	F- State-owned Submerged Lands	G- Mitigation Banks	H- Mines
Fill in wetlands or waters for a single family residence?	X	X						
Docks, shoreline stabilization, seawalls associated with a single family residence?	X	X				X, if applicable		
Wetland impacts (other than associated with an individual residence)?	X		X					
Boating facilities, a marina, jetty, reef, or dredging?	X		X	X		X if applicable		
Any work on state owned submerged land?	X		X			X		
Construction of a stormwater management system?	X		X, if applicable		X			
Constructing a mitigation bank?	X		X		X, if applicable		X	
Creating a mine?	X		X, if applicable					X

Note- if you are required to provide Section B, then you do not have to provide any other Sections, unless the activities are on state-owned submerged lands. In that case, Section F will also be required.

If you have any questions, or would like assistance completing this form, please contact the staff of the nearest office of either the Florida Department of Environmental Protection (DEP) or a Water Management District (WMD) (see Attachment 2).

Section A: General Information for All Activities

PART 1: NAME, APPLICATION TYPE, LOCATION, AND DESCRIPTION OF ACTIVITY

A. Name of project, including phase if applicable: **FPL Dania Beach Energy Center**

B. This is for (check all that apply):

- ☒ Construction or operation of **new** works, activities and/ or a stormwater management system
- ☐ **Conceptual Approval** of proposed works, activities and/ or a stormwater management system
- ☐ Modification or Alteration of **existing** works activities and / or a stormwater management system. Provide the existing DEP or WMD permit #, if known: ____ Note: Minor modifications do not require completion of this form, and may instead be requested by letter.
- ☐ **Maintenance or repair** of works, activities and/ or stormwater management system previously permitted by the DEP or WMD Provide existing permit #, if known: ____
- ☐ Abandonment or removal of works, activities and/ or stormwater management system Provide existing DEP or WMD permit #, if known: ____
- ☐ Operation of an **existing unpermitted** stormwater management system.
- ☐ Construction of additional phases of a permitted work, activity and/ or stormwater management system.
Provide the existing DEP or WMD permit #, if known: ____

C. **List the type of activities proposed. Check all that apply, and provide the supplemental information requested in each of the referenced application sections. Please also reference Applicant's Handbooks I and II for the type of information that may be needed.**

- ☐ Activities associated with one single-family residence, duplex, triplex, or quadruplex that do not qualify for an exemption or a General Permit: **Provide the information requested in Section B. Do not complete Section C.**
- ☒ Activities within wetlands or surface waters, or within 25 feet of a wetland or surface water, (not including the activities associated with an individual residence). *Examples include dredging, filling, outfall structures, docks, piers, over-water structures, shoreline stabilization, mitigation, reclamation, restoration/enhancement.* **Provide the information requested in Section C.**
- ☐ Activities within navigable or flowing surface waters such as a multi-slip dock or marina, dry storage facility, dredging, bridge, breakwaters, reefs, or other offshore structures: **In addition to Section C, also provide the information requested in Section D.**
- ☐ Activities that are (or may be) located within, on or over state-owned submerged lands (See Chapter 18-21, F.A.C. <https://www.flrules.org/gateway/ChapterHome.asp?Chapter=18-21>): **In addition to Section B or C, also provide the information requested in Section F**

- ☒ Construction or alteration of a stormwater management system serving residential, commercial, transportation, industrial, agricultural, or other land uses, or a solid waste facility (excluding mines that are regulated by DEP). **Provide the information requested in Section E.**
- ☐ Creation or modification of Mitigation Bank (refer to Chapter 62-342, F.A.C. <https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-342>): **Provide the information requested in Section G.**
- ☐ Mines (as defined in Section 2.0 of Applicant's Handbook Volume I) that are regulated by the DEP: **Provide the information requested in Section H.**
- ☐ Other, describe: Please contact the Agency to determine which additional sections of the application are needed. See Attachment 1 for Agency contacts.

D. Describe in general terms the proposed project, system, works, or other activities. For permit modifications, please briefly describe the changes requested to the permit:

Construct a new combined cycle natural gas fired generating unit (Dania Beach Energy Center) providing approximately 1,200 megawatts (MW) of electric generation. The Dania Beach Energy Center (DBEC) will be constructed upon an approximately 134 acre Project Area within the existing 392 acre FPL Lauderdale Site in Broward County. The new unit (Unit 7) will replace existing Lauderdale Units 4 and 5. The modernization will result in an increase in power generation without using additional land or water. The DBEC will be more energy efficient than the existing Units 4 and 5. The DBEC has an in-service date in June 2022.

As part of the Project's wetland avoidance and minimization efforts, construction will utilize previously filled areas of the Lauderdale Site to the greatest extent practicable. No off-site linear facilities are required, and no new construction access roads are required. A new boat ramp within the existing Lauderdale Site discharge canal is proposed to be constructed in accordance with 62-330.051(5), exempt activities.

Unavoidable wetland impacts include approximately 18.67 acres of permanent impact and 0.12 acre of potential secondary impact to relatively low-quality wetlands vegetated with a mixture of nuisance exotic and native species surrounded by existing electric utility infrastructure. Compensatory mitigation for permanent wetland impacts will be provided through purchase of 11.82 credits from the Everglades Mitigation Bank (EMB).

- E. For activities in, on, or over wetlands or other surface waters, check the type of federal dredge and fill permit requested (if known): ☒ Individual ☐ Programmatic General permit #: ☐ General ☐ Nationwide permit #: ☐ Not Applicable ☐ Not sure
- F. Project/Activity Street/Road Address or other location (if applicable): **4300 SW 42nd Avenue**
City: **Dania Beach** County(ies): **Broward** Zip: **33314**
Note: For utility, road, or ditch/canal activities, provide a starting and ending point using street names and nearest house numbers or provide length of project in miles along named streets or highways.
- G. Project location map and Section, Township, and Range information (use additional sheets if needed):
Please attach a location map showing the location and boundaries of the proposed activity in relation to major intersections or other landmarks. The map should also contain a north arrow and

a graphic scale; show Section(s), Township(s), and Range(s); and must be of sufficient detail to allow a person unfamiliar with the site to find it.

See Attachment A – Site Location Information, Figure 1 – Project Location Map

Section(s): **30** Township: **50S** Range: **42E** Land Grant name, if applicable:
Section(s): **25** Township: **50S** Range: **42E**

H. Latitude (DMS) **26° 04' 11.20"N** Longitude (DMS) **80° 11' 51.08" W**(Taken from central location of the activity). Explain source for obtaining latitude and longitude (i.e. U.S.G.S. Quadrangle Map, GPS, online resource): **Google Earth**

I. Tax Parcel Identification Number(s): **504230000050, 504125010000, 504125010250, 504230000053, 504230000051, 504229000000, 504230000000, 504125010000, 504125010000**

[Number may be obtained from property tax bill or from the county property appraiser's office; if on multiple parcels, provide multiple Tax Parcel Identification Numbers]

J. Directions to Site (from major roads; include distances and landmarks as applicable):

The Site is located in Dania Beach Florida, approximately 2 miles west of the Fort Lauderdale-Hollywood International Airport. From the intersection of Interstate 595 and Interstate 95, proceed south on I-95, take exit for FL-818W/Griffin Rd and head west for approximately 1 mile, turn right onto SW 30th Ave, and then turn left onto SW 42nd St.

K. Project area or phase area: **approximately 134** acres

L. Name of waterbody(ies) (if known) in which activities will occur or into which the system will discharge:

Unnamed wetlands will be impacted during construction.

The following questions (M-O) are not applicable to activities related to a single-family residence, including private single-family residential docks, piers, seawalls or boat ramps.

M. Is it part of a larger plan of development or sale? ☐ yes ☒ no

N. Impervious or semi-impervious area excluding wetlands and other surface waters (if applicable):
29.5 acres or **1,285,020** square feet

O. Volume of water the system is capable of impounding (if applicable): **43.8** acre-feet.

PART 2: SUPPLEMENTAL INFORMATION, AND PERMIT HISTORY

A. Is this an application to modify an existing Environmental Resource Permit, or to construct or implement part of a multi-phase project, such as a project with a Conceptual Approval permit? ☐ Yes ☒ No *If you answered "yes", please provide permit numbers below:*

AGENCY	DATE	PERMIT/APPLICATION NO.	PROJECT NAME

- B. Indicate if there have been any ***pre-application meeting(s)*** or other discussions about the proposed project, system or activity. If so, please provide the date(s), location(s) of the meeting, and the name(s) of Agency staff that attended the meeting(s):

AGENCY	DATE	LOCATION	MEETING ATTENDEES
FDEP	4-13-17	FDEP Siting Office Tallahassee	Ann Seiler, Cindy Mulkey, David Read, Paul Wierzbicki (SE District – phone), Monica Sovacool (SE District – phone)
USACE	3-15-17	USACE Palm Beach Gardens	Linda Knoeck
FDEP	7-14-17	Site Visit	Monica Sovacool, Rachel Hickey, Danielle Sattelberger

- C. ***Attach a depiction (plan and section views), which clearly shows the works or other activities proposed to be constructed.*** Use multiple sheets, if necessary, a scale sufficient to show the location and type of works, and include a north arrow and a key to any symbols used. ***Specific information to be included in the plans is based on the activities proposed and is further described in Sections B-H.*** However, supplemental information may be required based on the specific circumstances or location of the proposed works or other activities.

See Attachment B – Construction Plans

- D. Processing Fee: ***Please submit the application processing fee along with this application form and supplemental information.*** Processing fees vary based on the size of the activity, the type of permit applied for, and the reviewing Agency. Please reference Attachment 3 to determine the appropriate fee.

The ERP application is being submitted as part of the DBEC Site Certification Application.

PART 3: APPLICANT AND ASSOCIATED PARTIES INFORMATION

Instructions: Permits are only issued to entities having sufficient real property interest as described in Section 4.2.3 (d) of Applicant's Handbook Volume I. Please attach evidence of sufficient real property interest over the land upon which the activities subject to the application will be conducted, including mitigation (if applicable). Refer to Section 4.2.3 (d) for acceptable ownership or real property interest documentation. For corporations, list a person who is a registered agent or officer of the corporation who has the legal authority to bind the corporation.

A. APPLICANT (ENTITY MUST HAVE SUFFICIENT REAL PROPERTY INTEREST) ☒ THIS IS A CONTACT PERSON FOR ADDITIONAL INFORMATION			
Name: Last: Sole		First: Michael	Middle: W.
Title: Vice President, Environmental Services		Company: Florida Power & Light Company	
Address: 700 Universe Boulevard			
City: Juno Beach		State: FL	Zip: 33408
Home Telephone:		Work Telephone: 561-691-7001	
Cell Phone:		Fax: 561-691-7003	
E-mail Address: Michael.Sole@fpl.com also cc: John.Tessier@nee.com			
Correspondence will be sent via email. Check here to receive correspondence via US Mail: ☐			
B. LAND OWNER(S) (IF DIFFERENT OR IN ADDITION TO APPLICANT) ☐ CHECK HERE IF LAND OWNER IS ALSO A CO-APPLICANT			
Name: Last:		First:	Middle:
Title:		Company:	
Address:			
City:		State:	Zip:
Home Telephone:		Work Telephone:	
Cell Phone:		Fax:	
E-mail Address:			
Correspondence will be sent via email. Check here to receive correspondence via US Mail: ☐			
C. OPERATION AND MAINTENANCE ENTITY (see Applicant's Handbook I, Section 12.3)			
Entity Name:		Contact: Last:	First: Middle:
Title:		Company:	
Address:			
City:		State:	Zip:
Home Telephone:		Work Telephone:	
Cell Phone:		Fax:	
E-mail Address:			
Correspondence will be sent via email. Check here to receive correspondence via US Mail: ☐			

D. CO-APPLICANT (IF DIFFERENT OR IN ADDITION TO APPLICANT AND OWNER)		
Name: Last:	First:	Middle:
Title:	Company:	
Address:		
City:	State:	Zip:
Home Telephone:		Work Telephone:
Cell Phone:	Fax:	
E-mail Address:		
Correspondence will be sent via email. Check here to receive correspondence via US Mail: ☐		
E. ENGINEERING CONSULTANT ☐ THIS IS A CONTACT PERSON FOR ADDITIONAL INFORMATION		
Name: Last:	First:	Middle:
Title:	Company:	
Address:		
City:	State:	Zip:
Home Telephone:		Work Telephone:
Cell Phone:	Fax:	
E-mail Address:		
Correspondence will be sent via email. Check here to receive correspondence via US Mail: ☐		
F. ENVIRONMENTAL CONSULTANT ☒ THIS IS A CONTACT PERSON FOR ADDITIONAL INFORMATION		
Name: Last: Bullock	First: Karl	Middle:
Title: Associate	Company: Golder Associates	
Address: 6026 NW 1st Place		
City: Gainesville	State: FL	Zip: 32607
Home Telephone:		Work Telephone: 352-336-5600
Cell Phone:	Fax: 352-336-6603	
E-mail Address: kbullock@golder.com		
Correspondence will be sent via email. Check here to receive correspondence via US Mail: ☐		
G. AGENT AUTHORIZED TO SECURE PERMIT (IF DIFFERENT FROM CONSULTANT) ☐ THIS IS A CONTACT PERSON FOR ADDITIONAL INFORMATION		
Name: Last:	First:	Middle:
Title:	Company:	
Address:		
City:	State:	
Home Telephone:		Work Telephone:
Cell Phone:	Fax:	
E-mail Address:		
Correspondence will be sent via email. Check here to receive correspondence via US Mail: ☐		

PART 4: SIGNATURES AND AUTHORIZATION TO ACCESS PROPERTY

Instructions: For multiple applicants please provide a separate Part 4 for each applicant. For corporations, the application must be signed by a person authorized to bind the corporation. A person who has sufficient real property interest (see Section 4.2.3 (d) of Applicant's Handbook Volume I) is required in (B) to authorize access to the property, except when the applicant has the power of eminent domain.

A. By signing this application form, I am applying for the permit and any proprietary authorizations identified above, according to the supporting data and other incidental information filed with this application. I am familiar with the information contained in this application and represent that such information is true, complete and accurate. I understand this is an application and not a permit, and that work prior to approval is a violation. I understand that this application and any permit issued or proprietary authorization issued pursuant thereto, does not relieve of any obligation for obtaining any other required federal, state, water management district or local permit prior to commencement of construction. I agree to operate and maintain the permitted system unless the permitting agency authorizes transfer of the permit to a different responsible operation and maintenance entity. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Michael Sole



July 26, 2017

Typed/Printed Name of Applicant or
Applicant's Authorized Agent

Signature of Applicant or Applicant's
Authorized Agent

Date

Vice President, Environmental Services

(Corporate Title if applicable)

B. CERTIFICATION OF SUFFICIENT REAL PROPERTY INTEREST AND AUTHORIZATION FOR STAFF TO ACCESS THE PROPERTY:

I certify that:

☒ I possess sufficient real property interest in or control, as defined in Section 4.2.3 (d) of Applicant's Handbook Volume I, over the land upon which the activities described in this application are proposed and I have legal authority to grant permission to access those lands. I hereby grant permission, evidenced by my signature below, for staff of the Agency and the U.S. Army Corps of Engineers to access, inspect, and sample the lands and waters of the property as necessary for the review of the proposed works and other activities specified in this application. I authorize these agents or personnel to enter the property as many times as may be necessary to make such review, inspection, and/ or sampling. Further, I agree to provide entry to the project site for such agents or personnel to monitor and inspect permitted work if a permit is granted.

OR

☐ I represent an entity having **the power of eminent domain and condemnation authority**, and I/we shall make appropriate arrangements to enable staff of the Agency and the U.S. Army Corps of Engineers to access, inspect, and sample the property as described above.

Michael Sole



July 26, 2017

Typed/Printed Name

Signature

Date

Vice President, Environmental Services

(Corporate Title if applicable)

C. DESIGNATION OF AUTHORIZED AGENT (IF APPLICABLE):

I hereby designate and authorize _____ to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the permit and/or proprietary authorization indicated above; and to furnish, on request, supplemental information in support of the application. In addition, I authorize the above-listed agent to bind me, or my corporation, to perform any requirements which may be necessary to procure the permit or authorization indicated above. I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S. and 18 U.S.C. Section 1001.

Typed/Printed Name of Applicant	Signature of Applicant	Date
---------------------------------	------------------------	------

(Corporate Title if applicable)

(9.25.13)

SECTION C: SUPPLEMENTAL INFORMATION FOR WORKS OR OTHER ACTIVITIES IN, ON, OR OVER WETLANDS AND/OR OTHER SURFACE WATERS

(Note: This section is not required if all the proposed activities are covered in Section B.)

Instructions: This section is for ERP applications that do not involve activities associated with an individual single-family residence, duplex, triplex or quadruplex. For those activities, please use Section B. This form is to be completed if the proposed work or activity will occur in, on, over, or within 25 feet of a wetland or other surface water. The supplemental information required by this section is in addition to the information required by Section A of the ERP application.

PART 1: WETLAND OR OTHER SURFACE WATER IMPACT SUMMARY

1. Describe the basic purpose of the project or activity:

The basic purpose is to provide baseload generation to maintain system reliability in the most cost-effective manner (as required by the Florida Public Service Commission) within FPL's service territory. Baseload capacity is electricity that is available most of the time on a continuous basis and is only subject to infrequent shutdown or maintenance outages.

2. Total area of work (dredging, filling, construction, alteration, or removal) in, on, or over wetlands or other surface waters: **813,265 sq. ft.; 18.67 ac**
3. Total volume of material in wetlands or other surface waters:
 - a. to be dredged: **0** cubic yards,
 - b. to be filled: **approximately 91,700** cubic yards.
4. Identify the seasonal high water level (SHWL) and wetland normal pool elevations for each wetland or surface water within the project site. For tidal wetlands and/or surface waters provide the elevation of mean high and mean low water. Include an aerial photograph showing the location of each sampling location, dates, datum, and methods used to determine these elevations.

Seasonal high water elevations were approximated based upon the wetland boundary lines (Attachment C) and topographic survey. Seasonal high water elevations for wetlands within the Project Area are approximately 2 ft NAVD88; normal pool elevations are approximately 12" below seasonal high water elevation.

5. Name of waterbody(ies) (if applicable & if known) in which work will occur? **N/A**
6. Is the activity proposed in an Outstanding Florida Water or Aquatic Preserve?
☐ yes, name: ☒ no ☐ I don't know
7. Has there ever been a formal or informal wetland determination for the project site? If yes, provide the identifying number and/ or a copy of the jurisdictional map.

Wetlands were delineated in 2013 and May 2017, see Attachment C - Wetland Survey and Boundary Survey. USACE wetland datasheets and W.A.T.E.R. functional assessment forms are included in Attachment D.

8. Provide a map(s) of the project area and vicinity delineating USDA/NRCS soil types.

See Attachment A – Site Location Information, Figure 2 - Soils

9. Provide recent aerials, legible for photointerpretation (no photocopies) with a scale of 1" = 400 ft, or more detailed, with project boundaries and wetland boundaries delineated on the aerial.

See Attachment A – Site Location Information, Figure 3 – Land Use Map; Attachment B – Construction Plans, Figure 1 – Wetland Impacts; and Attachment C - Wetland Survey and Boundary Survey

10. Provide existing and proposed maps indicating vegetative community types based on Florida Land Use and Cover Classification System (FLUCCS) (FDOT 1999). For vegetated areas dominated by exotic vegetation, use the FLUCCS code representative of the native community type that was present prior to exotic infestation.

See Attachment A – Site Location Information, Figure 3 – Land Use Map and Figure 4 – Proposed Land Use Map. A summary of the acreage of existing and proposed vegetative community types is provided below:

FLUCFCS Code	Habitat Type	Acreage	
		Existing	Proposed
320	Upland Shrub and Brushland	2.50	0.54
437	Australian Pine	2.18	2.18
512	Channelized Waterway	15.14	15.14
612	Mangrove Swamp	8.32	8.32
617 / 619	Mixed Wetland Hardwoods / Exotic Wetland Hardwoods	8.33	2.12
619	Exotic Wetland Hardwoods	12.89	0.54
641	Freshwater Marsh	0.11	0
6411	Sawgrass	1.37	1.37
743	Spoil Areas	0.56	0.56
831	Electric Power Facilities	82.40	103.03
TOTAL		133.8	133.8

11. Provide existing and proposed maps indicating vegetative community types based on the Florida Natural Areas Inventory Guide to the Natural Communities of Florida.

See Attachment A – Site Location Information, Figure 3 – Land Use Map; FNAI classifications are included in the legend, where applicable

12. Impact Summary Tables (located at the end of this section):

- a. For all projects, complete Table 1, 2 and 3 as applicable. **Table 1 is provided below**
- b. For shoreline stabilization projects, provide the information requested in Table 4. **N/A**

13. Adjacent property owners. The following information is required only for projects proposed to occur in, on or over wetlands that need a federal dredge and fill permit and/or authorization to use state owned submerged lands and is not necessary when applying solely for an Environmental Resource Permit. If the activity is located on state owned submerged lands and requires a lease or easement, provide a list of names and addresses from the latest county tax assessment roll of all property owners located

within a 500 ft. radius of the proposed lease or easement boundary in mailing label format, or you may elect to send notice to those persons by certified mail, with the return-receipt card addressed to the DEP or water management district, as applicable, in accordance with subsection 18-21.005(3), F.A.C., and Section 253.115, F.S. For projects that need a federal dredge and fill permit, please provide the names, addresses and zip codes of property owners whose property directly adjoins the project (excluding applicant). Attach additional sheets if necessary.

BIERER, THOMAS E & MARGARET 4409 SW 35 AVE FORT LAUDERDALE FLORIDA 33312	HOANG, TIMMY H/E 4406 SW 35 AVE FORT LAUDERDALE FLORIDA 33312
BOTTON, DANNY 4408 SW 34 TERR FORT LAUDERDALE FLORIDA 33312	JEFFERS, MANSEL W & JAMI 4405 SW 35 AVE FORT LAUDERDALE FLORIDA 33312
BROWARD COUNTY 115 S ANDREWS AVE RM 501-RP FORT LAUDERDALE FLORIDA 33301	KANE, MICHAEL 4407 SW 37 AVE FORT LAUDERDALE FLORIDA 33312
CIRINO, MADELINE 4400 SW 37 AVE FORT LAUDERDALE FLORIDA 33312	LEE, ERNESTO & KIMBERLY 4409 SW 34 TER FORT LAUDERDALE FLORIDA 33312
CITY OF FORT LAUDERDALE 100 N ANDREWS AVE FORT LAUDERDALE FLORIDA 33301	LEMIEUX, DIANE H/E 4412 SW 34 TER FORT LAUDERDALE FLORIDA 33312
DE SOUZA, KELLY U 4401 SW 35 AVE FORT LAUDERDALE FLORIDA 33312	LUCKYS ARCADE INC 298 NE 181 ST MIAMI FLORIDA 33162
DISTRIBUTION FUNDING III INC 4545 AIRPORT WAY DENVER COLORADO 80239	MARCOS VERDEGUER, CARLOS ANTONI 4408 SW 35 AVE FORT LAUDERDALE FLORIDA 33312
DOVICO, JOEL 4410 SW 34 TER FORT LAUDERDALE FLORIDA 33312	OWENSBY, VINCETTA & WAYNE E 4406 SW 37 AVE FORT LAUDERDALE FLORIDA 33312
FORTIN, MICHEL H/E 4407 SW 38 TER FORT LAUDERDALE FLORIDA 33312	SECURITY CAPITAL IND 4545 AIRPORT WAY DENVER COLORADO 80239
	TOLE, WESLEY W III 4406 SW 38 TER FORT LAUDERDALE FLORIDA 33312

PART 2: ENVIRONMENTAL CONSIDERATIONS

Note: for many questions, a state rule/Applicant's Handbook Volume I (AH I) section is cited to assist the applicant in addressing these questions. However, additional Federal criteria may apply.

1. Elimination or Reduction of Impacts (Avoidance and Minimization). Describe measures taken to eliminate or reduce impacts to wetlands and other surface waters (*Refer to AH I Section 10.2.1*).

Elimination and reduction of wetland impacts focused upon refinement of the design and overall layout within the Project Area to maximize utilization of previously-developed areas, roadways,

and infrastructure of the Lauderdale Site, limiting wetland impacts to lower quality systems colonized by exotic species of vegetation to the greatest extent practicable. The loss of wetland functions is proposed to be offset through purchase of 11.82 credits from the Everglades Mitigation Bank.

2. Fish, Wildlife, Listed Species and their Habitats. Provide results of any wildlife assessments that have been conducted on the project site and provide any comments pertaining to the project from the Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service (*Refer to AH I Section 10.2.2*).

The potential for listed species utilization of the Project Area for foraging, roosting, or breeding is limited due to the surrounding industrial, commercial, and residential development, as well as the proximity of the Ft. Lauderdale-Hollywood International Airport and the location of the Site immediately within the flight path of large commercial passenger airplanes, resulting in significant and regular disturbance.

The potential impacts to threatened or endangered (listed) species associated with construction of the Project were evaluated based upon a combination of site surveys, previous studies, the Florida Natural Areas Inventory (FNAI) GIS database of documented listed species occurrences, literature review, and the habitat preferences of listed species known to occur within Broward County.

A review of the FNAI GIS database resulted in a known manatee (*Trichechus manatus*) aggregation site within South New River Canal located to the southwest of the Project Area (Attachment A - Site Location Information, Figure 5 – Listed Species). The Lauderdale Site cooling pond is also a known manatee aggregation area. No in-water work is proposed; therefore no potential impacts to the manatee are anticipated.

No documented bald eagle nests are located within 660 feet of the Project site. The closest documented bald eagle nest (nest ID #BO002) is approximately 15 miles southwest of the Site. In addition, wading bird rookery and nest colony records were researched using the FWC wading bird rookery and nest colony locator. The closest wood stork (*Mycteria americana*) colony (Sawgrass Ford) is located approximately 10 miles to the northwest (Attachment A – Site Location Information, Figure 5 – Listed Species).

Listed animal species observed within and adjacent to the DBEC Project Area during the field reconnaissance conducted in 2013 and 2017, as well as during previous studies, include two species of wading birds, little blue heron (*Egretta caerulea*) and tricolored heron (*Egretta tricolor*), the least tern (*Sternula antillarum*), and manatee. No indications of nesting activity have been observed, and no adverse impacts to listed avian species are anticipated as a result of construction and operation of the Project.

Due to the lack of suitable wood stork foraging habitat, no adverse impacts are expected for wood storks. The USFWS/USACE Effect Determination Key for the Wood Stork is provided in Attachment E. No gopher tortoise burrows or other refugia likely to be utilized by eastern indigo snakes (*Drymarchon couperi*) occur within the Project Area, therefore no adverse impact to the eastern indigo snake is anticipated. The Eastern Indigo Snake Programmatic Effect Determination Key is provided in Attachment E.

Several exotic wildlife species were observed within or immediately surrounding the Project Area, including green iguana (*Iguana iguana*), knight anole (*Anolis equestris*), brown basilisk (*Basiliscus vittatus*), and Cuban brown anole (*Anolis sagrei*). Other non-listed species observed within or immediately surrounding the Project Area include green tree frog (*Hyla cinerea*), anhinga (*Anhinga anhinga*), green heron (*Butorides virescens*), mourning dove (*Zenaida macroura*), blue land crab (*Cardisoma guanhumī*), mangrove tree crab (*Aratus pisonii*), Eurasian-collared dove (*Streptopelia decaocto*), pileated woodpecker (*Dryocopus pileatus*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), chimney swift (*Chaetura pelagica*), Carolina wren (*Thryothorus ludovicianus*), starling (*Sturnus vulgaris*), and raccoon (*Procyon lotor*).

3. Water quantity impacts to wetlands and other surface waters (Refer to AH I Section 10.2.2.4 and AH II).
 - a. Does the activity include a proposed stormwater water management system with a control elevation different than the wetland normal pool elevation(s) of existing or proposed created wetlands or other surface waters? **No**
 - b. If yes to (a), provide documentation (e.g. drawdown assessment or other methods) that shows the proposed surface water management system will not change the hydroperiod of the existing or created wetland or other surface water. **N/A**
4. Public Interest Test. Please describe how the proposed activity will **not be contrary** to the public interest, OR if such an activity significantly degrades or is located within an Outstanding Florida Water (OFW), that the regulated activity will be **clearly in** the public interest (Refer to AH I Section 10.2.3).

The Project is not contrary to the public interest as it facilitates the generation of electricity derived from natural gas to fulfill the need for new baseload generation to support electric system reliability.

- a. Please describe how the project will be designed to avoid adverse effects to public health, safety, or the welfare or the property of others.

The Project has been designed to meet the applicable ERP water quantity, water quality, and environmental criteria. Thus, the Project will avoid adverse effects to public health, safety, and the property of others by incorporating the ERP criteria and applicable requirements on offsite water discharge, flood protection, water quality treatment, and mitigation for the unavoidable loss of wetland functions.

- b. Please describe how the project will be designed to avoid adverse effects to the conservation of fish and wildlife, including endangered or threatened species, or their habitats.

The DBEC is proposed to be located within a previously-impacted Site historically utilized for electrical power generation and surrounded by urban development. No significant habitat for fish and wildlife, including endangered or threatened species, will be impacted.

- c. Please describe how the project will be designed to avoid adverse effects to navigation or the flow of water or cause harmful erosion or shoaling.

The Project will not have any adverse effects to navigation. A new boat ramp is proposed within the existing discharge canal in accordance with ERP exemption 62-330.051(5). The Project will meet applicable ERP criteria and will not adversely affect the flow of water. Erosion and sedimentation BMPs will be employed during construction, therefore the Project will not cause harmful erosion or shoaling.

- d. Please describe how the project will be designed to avoid adverse effects to the fishing or recreational values or marine productivity in the vicinity of the activity.

The Project is not located within navigable waters or waterbodies used for fishing or recreational activities; therefore the Project will not adversely affect fishing or recreational values or marine productivity.

- e. Will the project be of a temporary or permanent nature?

The DBEC Project will be permanent.

- f. Please describe how the project will be designed to avoid adverse impacts to significant historical and archaeological resources, under the provisions of section 267.061, F.S.

No significant historical or archaeological resources occur within the Project Area; see SCA Appendix 10.7.1.

- g. Please describe how the project will be designed to avoid adverse effects to the current condition and relative value of functions being performed by areas affected by the proposed regulated activity.

The DBEC is proposed as the replacement of Units 4 and 5 at the Lauderdale Site, to be constructed upon a site historically used for electric power generation. Adverse effects on the current condition and relative value of functions being provided by wetlands will be offset through compensatory mitigation.

5. Water Quality. Provide a description of how water quality will be maintained in wetlands and other surface waters that will be preserved or will remain undisturbed, both on and offsite. Please address both short-term (such as during construction) and long-term water quality considerations (*Refer to AH I Section 10.2.4*).

Construction areas will be isolated from adjacent wetlands through installation of staked turbidity screen and/or silt fence, in accordance with best management practices (BMPs). The stormwater management system has been designed to provide required water quality treatment prior to release at a rate designed to maintain hydroperiod in adjacent wetlands and surface waters.

6. Class II Waters; Waters approved for shellfish harvesting (*Refer to AH I Section 10.2.5*).

- a. Will the project occur in Class II that are NOT approved for shellfish harvesting? If yes, please provide a plan or procedure detailing the measures to be taken to meet the requirements of *AH I Section 10.2.5(a)*. **No**

- b. Is the project located adjacent to or in close proximity to Class II waters? If yes, please provide a plan or procedure detailing the measures to be taken to meet the requirements of *AH I Section 10.2.5(b)*. **No**
 - c. Is the project located in Class II or Class III waters that are classified as “approved”, “restricted”, “conditionally approved”, or “conditionally restricted”? If yes, demonstrate that the project meets the requirements of *AH I Section 10.2.5(c)*. **No**
7. Vertical seawalls. Are vertical seawalls proposed in an estuary or lagoon as part of the project? If yes, please describe how the project meets the requirements of *AH I Section 10.2.6*. **No**
8. Secondary Impacts (*AH I Section 10.2.7*).
- a. Will an upland buffer, with a minimum width of 15' and an average width of 25', be provided between the proposed activities and existing wetlands or wetlands to be preserved, enhanced, restored, or created? Provide the location and dimension of all buffers on the plans. If not, demonstrate that secondary impacts will not occur or how they will be offset.

Areas of wetland fill associated with the Project are bounded by existing electric utility infrastructure (see Attachment B – Construction Plans, Figure 1 – Wetland Impacts). To the greatest extent practicable, the Project will maintain a minimum width of 15' and an average width of at least 25' of upland buffer surrounding all wetlands on the Site not proposed to be impacted by the Project construction. Where the buffer is not feasible (0.12 acre), additional wetland mitigation credits are proposed. In addition, the implementation of BMPs to avoid erosion/sedimentation within areas adjacent to construction will minimize potential secondary wetland impacts.

- b. If listed species are present or may be present then coordination with wildlife agencies is needed. Have you coordinated with the FFWCC and/or USFWS? If so, please provide correspondence from the wildlife agencies indicating concurrence with the species management plan(s).

The Project has been designed to avoid impacts to listed species through use of disturbed areas of the Site for construction of the Project.

- c. What measures will be taken to avoid impacts to wetland-dependent wildlife and/or listed species that use uplands for nesting or denning?

Measures to avoid impacts to wetland-dependent wildlife and/or listed species that use uplands for nesting or denning include minimization of wetland impacts, utilization of existing developed area of the Lauderdale Site to the greatest extent practicable, and incorporation of BMPs to minimize any erosion or sedimentation outside of the construction area.

- d. Describe whether there are any other relevant activities that are very closely linked and causally related to any proposed dredging or filling in wetlands or other surface waters that have the potential to cause impacts to significant historical and archaeological resources.

No significant historical and archaeological resources occur within the DBEC Project Area. See SCA Appendix 10.7.1.

- e. Are there additional future phases or extensions of the proposed activities that are not shown? If yes, please describe.

No.

9. Cumulative Impacts. Is the proposed mitigation located within the same drainage basin (*Refer to AH I Figures 10.2.8.1 – 10.2.8.5*) as the proposed wetland impacts? **No** If not, please submit a Cumulative Impact Evaluation in accordance with *AH I Section 10.2.8*.

See Attachment F – Cumulative Impact Evaluation

10. Mitigation Plan (*Refer to AH I Section 10.3*).

- a. If a mitigation bank is proposed to offset wetland/other surface water impacts, provide:

- i. the name of the bank: **Everglades Mitigation Bank**. A letter of reservation from the banker will be required once the application has been evaluated.
- ii. If the mitigation bank was assessed using UMAM, provide UMAM worksheets for impact area(s). If the bank was assessed using a method other than UMAM, then prepare the impact assessment using the same method.

The Everglades Mitigation Bank W.A.T.E.R. functional assessment forms are provided in Attachment D.

- b. If mitigation is proposed to offset wetland/other surface water impacts, please provide a mitigation plan that includes, at a minimum, the following:

- i. Proposed mitigation narrative:

- (1) ☐ Describe the current and proposed condition for each type of mitigation component (restoration, enhancement, creation, preservation), including:
 - (a) ☐ Describe current and proposed vegetation
 - (b) ☐ Describe current and proposed hydrologic conditions for the proposed mitigation.
 - (c) ☐ Describe the soil types from NRCS maps and confirm if actual soil conditions appear to match.
- (2) ☐ Provide details of the proposed construction/mitigation activities including phasing and timing, as appropriate.
- (3) ☐ Identify measures that will be implemented during and after construction to avoid adverse impacts related to the proposed activities.
- (4) ☐ A mitigation implementation and monitoring schedule with dates.
- (5) ☐ Identify the success criteria.
- (6) ☐ Describe the anticipated site conditions in and around the mitigation area after the mitigation plan is successfully implemented.
- (7) ☐ Provide a comparison of current fish and wildlife habitat to expected habitat after the mitigation plan is successfully implemented.

- ii. ☐ Provide a Management Plan that includes, as appropriate, aspects of operation and maintenance, including water management practices, vegetation establishment, exotic and nuisance species control, fire management, and control of access.

- iii. ☐ Maps:

- (1) ☐ Soil map (include soil names/codes, hydrologic soil groups and hydric soil types).

- (2) ☐ Topographic map of the mitigation area and adjacent contributing and receiving areas.
 - (3) ☐ Hydrologic features map of the mitigation area and adjacent contributing and receiving areas.
 - (4) ☐ Vegetative communities map (using FLUCCS or other appropriate classification system).
 - (5) ☐ For all maps, identify source.
- iv. Provide the necessary supporting information for the application of sections 62-345.400 - .600 (Uniform Mitigation Assessment Method (UMAM)). To meet this requirement, submittal of UMAM worksheets is acceptable for impact and mitigation areas.
 - v. If onsite and/or offsite applicant-responsible mitigation is proposed, submit a draft Conservation Easement document or other form of restrictive covenant that provides for protection of the mitigation area in perpetuity. Standard forms, as described in subsection 62-330.301(6), F.A.C., are available from the Agency or on its website.
 - vi. If onsite and/or offsite applicant-responsible mitigation is proposed, submit a cost estimate for completing the mitigation, including monitoring and maintenance.
 - vii. If onsite and/or offsite applicant-responsible mitigation is proposed and the proposed mitigation exceeds \$25,000, please provide a draft financial assurance document.
 - viii. Identify the entity responsible for monitoring, maintenance and long-term stewardship of the mitigation area (i.e. the landowner or homeowner association, not the consultant or contractor that will do the work).

PART 3: PLANS

PLANS: The information listed in the checklist below represent the typical information required on the submitted project plans. The Plans checklists in each application section are cumulative unless otherwise noted. Separate plans for each application section are not required.

See Attachment B – Construction Plans

- 1. ☐ Include the following on the construction plans and cross sections:
 - a. ☐ An Existing Conditions sheet showing the entire project and wetland/other surface water boundaries. Include the following: Acreage and type (herbaceous, forested or other surface water) of each wetland/other surface water.
 - b. ☐ A Proposed Conditions sheet showing the entire project and wetland/other surface water boundaries with construction plan overlay.
 - c. ☐ A Proposed Wetland Impact sheet that include the following: **See Table 1 – Project Wetland Impact Summary**
 - i. ☐ Acreage and type (herbaceous, forested or other surface water) of each wetland/other surface water to be impacted.
 - ii. ☐ Proposed upland buffers with dimensions.
 - iii. ☐ Identify the seasonal high water and wetland normal pool elevations on the plans.

- iv. ☐ Separately identify WMD/FDEP and USACE wetland/other surface water impacts if different.
 - d. ☐ Include wetland boundaries on all construction plan sheets.
2. ☐ If onsite and/or offsite applicant-responsible mitigation is proposed, submit mitigation permit plans and cross sections including, at a minimum:
- a. ☐ existing conditions plan sheet identifying upland and wetland communities and acreage of each, topography, drainage patterns, and location of cross-section detail.
 - b. ☐ proposed conditions plan sheet identifying proposed improvements by type (restoration, enhancement, creation, preservation), acreage of each, topography, drainage patterns, and location of cross-section detail.
 - c. ☐ monitoring plan sheet including proposed improvements, monitoring transects, photostations, and mitigation signage (if applicable).
 - d. ☐ cross-section and/or profile detail(s) sheet(s) including representative section of each type of mitigation component. Include existing and proposed conditions and representative elevations.
 - e. ☐ planting schedule, plant species including common and scientific names divided into three sections (canopy, shrub, herbaceous) by mitigation component, quantity, spacing, size, and elevation range.

TABLE 1 - PROJECT WETLAND (WL) AND OTHER SURFACE WATER (SW) IMPACT SUMMARY

WL & SW ID	WL & SW TYPE (FLUCFCS)	WL & SW SIZE (ac.) ON SITE	WL & SW ACRES NOT IMPACTED	PERMANENT IMPACTS TO WL & SW		SECONDARY IMPACTS TO WL & SW		MITIGATION ID
				IMPACT SIZE (acres)	IMPACT CODE	IMPACT SIZE (acres)	IMPACT CODE*	
A	617/619	2.98	1.41	1.57	Fill	0.12	H	Mitigation Bank
	6411	1.38	1.38	-	-	-	-	-
B	619	0.54	0.54	-	-	-	-	-
C	619	2.64	0	2.64	Fill	-	-	Mitigation Bank
D	612	10.57	10.57	-	-	-	-	-
E	617/619	8.62	0	8.62	Fill	-	-	Mitigation Bank
F	617/619	1.09	0	1.09	Fill	-	-	Mitigation Bank
G	617/619	0.33	0	0.33	Fill	-	-	Mitigation Bank
H	617/619	1.49	0	1.49	Fill	-	-	Mitigation Bank
I	617/619	0.75	0.75	-	-	-	-	-
J	641	0.11	0	0.11	Fill	-	-	Mitigation Bank
X	617/619	2.82	0	2.82	Fill	-	-	Mitigation Bank
Total		33.32	14.65	18.67				

* H = potential secondary impact on hydrology due to placement of fill within 25 feet.

Wetland Impact Summary:

FLUCFCS	W.A.T.E.R. Score	Site Suitability Score	Direct Impact (acres)	Potential Secondary Impact (acres)*	Total Functional Loss (EMB Credits)
617/619	0.63	1.03	15.92	0.12	10.41
619	0.50	1.03	2.64		1.36
641	0.47	1.03	0.11		0.05
Totals			18.67	0.12	11.82

*Potential functional loss from secondary impacts calculated as secondary impact acreage x W.A.T.E.R. Score x Site Suitability Score x 0.25

SECTION E: SUPPLEMENTAL INFORMATION REQUIRED FOR WORKS OR OTHER ACTIVITIES INVOLVING A STORMWATER MANAGEMENT SYSTEM (OTHER THAN A SINGLE-FAMILY PROJECT)

Instructions: The information listed in the checklists below represents the level of information that is usually required to evaluate an application. Information can be provided within reports, plans and documents. The level of information required for a specific project will vary depending on the nature and location of the site and the activity proposed. Conceptual approvals generally do not require the same level of detail as a construction permit. However, providing a greater level of detail will reduce the need to submit additional information at a later date. If an item does not apply to your project, proceed to the next item. The supplemental information required by this section is in addition to the information required by Section A of the ERP application.

PART 1: STORMWATER MANAGEMENT SYSTEM SUMMARY

Provide drainage calculations, signed and sealed by an appropriate registered professional, and supporting documentation demonstrating that the proposed project meets the conditions for issuance under 62-330.301(1)(a),(b),(c),(e), F.A.C. The drainage calculations should include, but not necessarily be limited to, the following:

See SCA Appendix 10.8 - Stormwater Management System Design, Dewatering Plans, and Calculations

1. General Site Information:

- a. ☐ Provide pre-development and post-development drainage map(s), as appropriate, that include drainage patterns and basin boundaries with acreage served by each hydraulically separate system, showing the direction of flows, including any off-site runoff being routed through or around the system; topographic information; and connections between wetlands and other surface waters.
- b. ☐ Provide the results of any percolation tests, where appropriate, and soil borings that are representative of the actual site conditions. Identify the wet season high water table elevations, soil profiles, and hydraulic conductivity. Include dates, datum, and methods used to determine these soil parameters.
- c. ☐ Identify the onsite hydrologic soil classification (e.g. Type A, B/D, D). Reference the source, such as the USDA/NRCS Soil Survey, used in estimating the onsite hydrologic soil classification. Provide maps, as appropriate, with the project limits delineated.
- d. ☐ Identify the seasonal high water or mean high tide elevation for receiving waters/wetlands into which runoff will be discharged. Include dates, datum, and methods used to determine these elevations.
- e. ☐ Identify the name of each receiving waterbody to which the proposed stormwater management system will discharge: **existing Lauderdale Site discharge canal.**
- f. ☐ Indicate the existing land use and land cover.

See Attachment A – Site Location Information, Figure 3 – Land Use Map. A summary table is provided below:

FLUCFCS Code	Land Use	Acreage	Percent
320	Upland Shrub and Brushland	2.50	1.9
437	Australian Pine	2.18	1.6
512	Channelized Waterway	15.14	11.3
612	Mangrove Swamp	8.32	6.2
617 / 619	Mixed Wetland Hardwoods / Exotic Wetland Hardwoods	8.33	6.2
619	Exotic Wetland Hardwoods	12.89	9.6
641	Freshwater Marsh	0.11	0.1
6411	Sawgrass	1.37	1.0
743	Spoil Areas	0.56	0.4
831	Electric Power Facilities	82.40	61.6
TOTAL		133.8	100

- g. ☐ Provide the acreage, and percentages of the total project, of the following:
1. Impervious surfaces, excluding buildings, wetlands and other surface waters;
 2. Buildings;
 3. Pervious surfaces (green areas not including wetlands);
 4. Lakes, canals, retention areas, other open water areas; and
 5. Wetlands (Please refer to Section C to ensure consistency in wetland acreages).

Land Cover Type	Acreage	Percent
Impervious surfaces, excluding buildings, wetlands and other surface waters	28.15	21.0
Buildings	1.35	1.0
Pervious Surfaces (not including wetlands)	66.90	50.0
Lakes, canals, retention area, other open water areas	25.05	18.7
Wetlands	12.35	9.2
TOTAL	133.8	100

- h. ☐ Provide the location and description of any nearby existing offsite features (such as wetland and other surface waters, stormwater management ponds, and building or other structures) which might be affected by or affect the proposed construction or development.

2. Water Quality Analysis:

Please see SCA Appendix 10.8 - Stormwater Management System Design, Dewatering Plans, and Calculations

- a. ☐ Provide a description of the proposed stormwater treatment methodology that addresses the type of treatment, pollution abatement volumes, and recovery analysis.
- b. ☐ Is the receiving waterbody known to be impaired, and/or has an established Total Maximum Daily Load (TMDL) or Basin Management Action Plan (BMAP)? If so, please provide specific descriptions of all water quality parameters for which the waterbody is known to be impaired? For more information about water quality, impaired waters, and to determine whether a TMDL has been adopted in your project area, refer to: <http://waterwebprod.dep.state.fl.us/basin411/downloads/Florida-Adopted->

TMDLs.pdf. To determine whether a BMAP exists, or is being developed in your project area, refer to:
<http://www.dep.state.fl.us/water/watersheds/bmap.htm#rad>.

☐ yes ☒ no ☐ don't know

If yes, provide calculations demonstrating that the proposed project will not contribute to violations of state water quality standards in accordance with the applicable Applicant's Handbook, Vol. II.

- c. ☐ Does the project have a direct discharge to a Class I, Class II, Outstanding Florida Waters or Class III waters, which are approved, conditionally approved, restricted, or conditionally restricted for shellfish harvesting? *To determine whether your project is within, or will discharge to an OFW, or for more information about OFWs in general, refer to:*
<http://www.dep.state.fl.us/water/wqssp/ofw.htm>.

☐ yes ☒ no ☐ don't know

If yes, additional treatment in accordance with the applicable Applicant's Handbook, Vol. II, may be required.

- d. ☐ Provide construction plans and calculations that address the required treatment volume and recovery, as well as stage-storage and design elevations, which demonstrate compliance with the appropriate water quality treatment criteria in the applicable Applicant's Handbook, Vol. II.

Provide a description of the engineering methodology, assumptions and references for the parameters listed above, and a copy of all such computations, engineering plans, and specifications used to analyze the system. If a computer program is used for the analysis, provide the name of the program, a description of the program, input and output data, and justification for model selection.

3. Water Quantity Analysis:

Please see SCA Appendix 10.8 - Stormwater Management System Design, Dewatering Plans, and Calculations

Provide calculations and documentations demonstrating that the project, as proposed, meets the applicable design criteria as indicated in the applicable Applicant's Handbook, Vol. II. Typically, the information would include, at a minimum, but is not necessarily be limited to, the following:

- a. ☐ For projects requiring pre-development analysis, provide an analysis of the pre-development peak rate of discharge and / or volume of runoff, for all design storm events. Account for all onsite depressional storage and offsite contributing area. Please refer to the applicable Applicant's Handbook, Vol. II for the design storm event(s) that apply to your project.
- b. ☐ Provide an analysis of the post-development peak rate of discharge and / or volume of runoff for all applicable design storm events. Account for all onsite storage and offsite contributing area. Please refer to the applicable Applicant's Handbook, Vol. II for the design storm event(s) and criteria that apply to your project.

These analyses should include:

- ☐ Runoff characteristics, including area, runoff curve number or runoff coefficient, and time of concentration for each drainage basins in the pre-development and post-development condition;
- ☐ Design storms used including rainfall depth, duration, frequency, and distribution;
- ☐ Runoff hydrograph(s) for each drainage basin, for all required design storm event(s);
- ☐ Stage-storage computations for any area such as a reservoir, closed basin, detention area, or channel, used in storage routing;
- ☐ Stage-discharge computations for any storage areas at a selected control point, such as control structure or natural restriction;
- ☐ Flood routings through on-site conveyance and storage areas;
- ☐ Water surface profiles in the primary drainage system for each required design storm event(s);
- ☐ Runoff peak rates and volumes discharged from the site for each required design storm event(s);

- ☐ Design tailwater elevation(s) for each storm event at all points of discharge (include source or method of estimate); and
- ☐ Pump specifications and operating curves for range of possible operating conditions (if used in system).

Provide a description of the engineering methodology, assumptions and references for the parameters listed above, and a copy of all such computations, engineering plans, and specifications used to analyze the system. If a computer program is used for the analysis, provide the name of the program, input and output data, justification for model selection, and, if necessary, a description of the program.

4. Floodplain Analysis (where applicable).

Portions of the DBEC Project Area occur within the 100 year floodplain, please see Attachment A – Site Location Information, Figure 6 – FEMA Flood Zones. The Project is within the Southeast Florida Coast drainage basin (03090202), which connects to the Atlantic Ocean; no floodplain impact will occur and no compensating storage is required.

- a. ☐ If the project is in a known floodplain of a stream or other water course, identify the appropriate floodplain boundary and approximate flooding elevations of any lake, stream or other watercourse located on or adjacent to the site.
- b. ☐ For traversing works, in accordance with the applicable Applicant's Handbook, Vol. II, provide:
 - ☐ Hydraulic calculations for all proposed traversing works; and
 - ☐ Water surface profiles showing upstream impact of traversing works.
- c. ☐ For impacts to regulated floodplains, in accordance with the applicable Applicant's Handbook, Vol. II, provide:
 - ☐ Location and volume of encroachment within regulated floodplain(s); and
 - ☐ Plans and calculations for compensating floodplain storage, if necessary, and calculations required for determining minimum building and road flood elevations.

PART 2: CONSTRUCTION PLANS

Please See Attachment B – Construction Plans and SCA Appendix 10.8 - Stormwater Management System Design, Dewatering Plans, and Calculations

1. Provide clear, construction level detailed plans for the system. The plans must be signed and sealed by an appropriate registered professional as required by law. These plans should include cumulative information from all applicable sections; as well as the following:
 - a. ☐ Project area boundary and total area, including distances and orientation from roads or other landmark.
 - b. ☐ Existing topography extending at least 100 feet off the project area. All topography shall include location and description of benchmarks, reference to NGVD 1929 or NAVD 1988 along with the conversion factor.
 - c. ☐ Proposed site plan with acreage, including the following:
 - ☐ plan view of proposed development, including impervious surfaces and water management areas;
 - ☐ land cover and natural communities*;
 - ☐ wetlands and other surface waters*;
 - ☐ undisturbed uplands*;

- ☐ aquatic communities*;
- ☐ proposed buffers*;
- ☐ proposed impacts to wetlands and other surface waters, and any proposed connections/outfalls to other surface waters or wetlands, (if applicable); and
- ☐ onsite wetland mitigation areas*.

*Please refer to Section C.

- ☐ For phased projects, provide a master development plan clearing delineating the limits of each phase of construction.
- d. ☐ Paving, Grading, and Drainage Information, which includes, but not necessarily limited to, the following:
 - ☐ Existing topography;
 - ☐ Boundaries of wetlands and other surface waters and upland buffers (see Section C);
 - ☐ Plan view of proposed development;
 - ☐ Proposed elevations and/or profiles, including:
 - ☐ roadway, parking, and pavement grades;
 - ☐ floor slabs, walkways, and other paved surfaces;
 - ☐ earthwork grades for pervious landscaped areas; and
 - ☐ perimeter site grading, tying back into existing grades.
 - ☐ Location of all water management areas, including elevations, dimensions, side slopes, and design water depths;
 - ☐ Location, size, and invert elevations of existing and proposed stormwater conveyance systems;
 - ☐ Vegetative cover plan for all on-site and off-site earth surfaces disturbed by construction; and
 - ☐ Rights-of-way and easements for the system, including all on-site and off-site areas to be reserved for water management purposes (including access), and rights-of-way and easements for the existing drainage system, if any.
- e. ☐ Stormwater detail information, including but not necessarily limited to, the following:
 - ☐ Cross section of all stormwater management areas, including elevations, dimensions, side slopes, and proposed stabilization measures (with location of the cross section(s) shown on the corresponding plan view);
 - ☐ Detail of all proposed control structures, including elevations, dimensions, and skimmer, where applicable; and
 - ☐ Details of proposed stormwater management systems, such as underdrains, exfiltration trenches, vaults, and other proposed Best Management Practices (BMPs).
- f. ☐ Location and description of any nearby existing offsite features (such as wetland and other surface waters, stormwater management ponds, and building or other structures) which might be affected by or affect the proposed construction or development.

PART 3: CONSTRUCTION SCHEDULE AND TECHNIQUES

Please See Attachment B – Construction Plans and SCA Appendix 10.8 - Stormwater Management System Design, Dewatering Plans, and Calculations

Provide a construction schedule, and a description of construction techniques, sequencing and equipment. This information should include, as applicable, the following.

- a. ☐ Access and staging of equipment; **Existing and proposed roadways will be used for access; areas for construction laydown are identified on the construction plans.**
- b. ☐ Location and details of the erosion, sediment and turbidity control measures to be implemented during each phase of construction and all permanent control measures to be implemented in post-development conditions. **Construction areas will be isolated from adjacent wetlands through**

installation of staked turbidity screen and/or silt fence along the perimeter, in accordance with best management practices (BMPs).

- c. ☐ The location of disposal site(s) for any excavated material, including temporary and permanent disposal sites. **The construction laydown areas will be used for on-site temporary storage of excavated materials; material that is not re-used on site will be disposed off-site at an appropriate solid waste facility.**
- d. ☐ A demolition plan for any existing structures to be removed. **N/A**
- e. ☐ Dewatering plan details. If dewatering is required, detail the dewatering proposal including the methods that are proposed to contain the discharge, methods of isolating dewatering areas, and indicate the period dewatering structures will be in place; Note: a Consumptive Use or Water Use permit may be required for dewatering. **Please see SCA Appendix 10.8 - Stormwater Management System Design, Dewatering Plans, and Calculations**
- f. ☐ Methods for transporting equipment and materials to and from the work site. If barges are required for access, provide the low water depths and draft of the fully loaded barge; **Existing roadways will be used for transport.**

PART 4: OPERATION AND MAINTENANCE AND LEGAL DOCUMENTATION:

- a. ☐ Describe the overall maintenance and operation schedule for the proposed system. **FPL will be responsible for the upkeep and maintenance of the proposed stormwater management system. FPL will inspect and maintain the system as required to ensure proper operation.**
- b. ☐ Identify the entity (or entities) that will be responsible for operating and maintaining the system (or parts of the system) to demonstrate that the entity (or entities) meet(s) the requirements of section 12.3 of the Applicant's Handbook, Vol. I. **FPL will remain the entity responsible for operation and maintenance of the system in perpetuity.**
 - ☐ If different from the permittee, provide a draft document enumerating the enforceable affirmative obligations on the entity to properly operate and maintain the system for its expected life, and documentation of the entity's financial responsibility for long-term maintenance.
 - ☐ If the proposed operation and maintenance entity is not a property owner's association, provide proof of the existence of an entity, or the future acceptance of the system by an entity which will operate and maintain the system.
- c. ☐ Provide drafts of all proposed conservation easements, stormwater management system easements, draft property owner's association documents, and plats for the property containing the proposed system. **No conservation easements or homeowner's association documents associated with the stormwater management system are proposed.**
- d. ☐ Provide legal reservations for access to the treatment system for maintenance and operation by future maintenance entities for subdivided projects. **N/A – The Project will not be subdivided.**
- e. ☐ Provide indication of how water and wastewater service will be supplied. **The DBEC will have four primary water requirements: cooling water to condense steam in the steam generator and for auxiliary cooling of other equipment; process water for steam system makeup and for air pollution control; potable water for employees; and landscape irrigation. Cooling water will be provided from the Dania Beach Cutoff Canal for cooling water; process water will be raw water provided by Broward County; potable and irrigation supplies is to be provided from the City of Hollywood. The Site's sanitary systems are connected to the City of Hollywood.**

- f. ☐ Provide a copy of the boundary survey and/or legal description and acreage of the total land area of contiguous property owned/controlled the applicant. **See Attachment C – Wetland Survey and Boundary Survey**

PART 5: WATER USE

- a. ☐ Describe how irrigation will be provided to the project. Will the surface water system be used for water supply, including landscape irrigation, or recreation? **Irrigation water will continue to be provided to the Lauderdale Site from the City of Hollywood, to be used for DBEC**
- b. ☐ If a Consumptive Use or Water Use permit has been issued for the project, state the permit number:
- c. ☐ If a Consumptive Use or Water Use permit has not been issued for the project, indicate if such a permit will be required. ☐ yes ☐ no ☐ don't know
If yes, please indicate when the application for a permit will be submitted:
- d. ☐ Indicate how any existing wells located within the project site will be utilized or abandoned. **N/A**

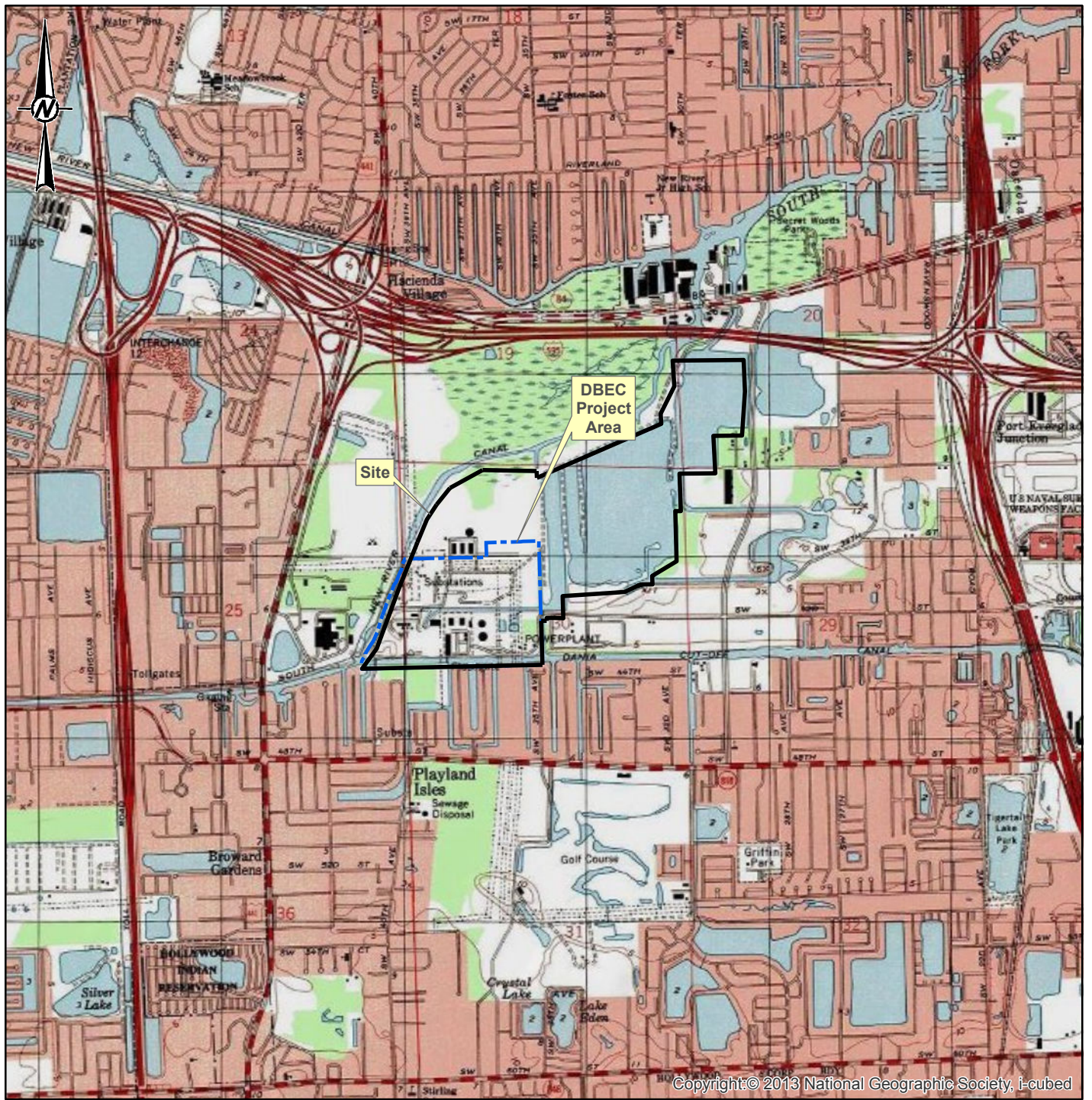
PART 6: SPECIAL BASIN INFORMATION

Is your project within a special basin as described in the applicable Applicant's Handbook, Vol. II?

☐ yes ☒ no ☐ don't know

If yes, please demonstrate that the project will meet the applicable special basin criteria.

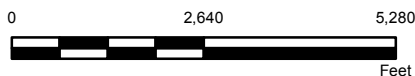
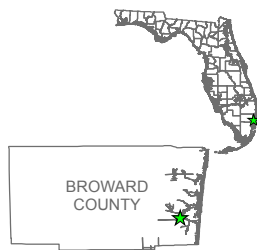
ATTACHMENT A
SITE LOCATION INFORMATION



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LEGEND

-  Site
-  DBEC Project Area



REFERENCE(S)

SITE, A.R. TOUSSAINT & ASSOCIATES INC., 1989
DBEC PROJECT AREA, GOLDER ASSOCIATES INC., 2017

CLIENT
FPL

PROJECT
DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT

TITLE
LOCATION MAP



YYYY-MM-DD	2017-06-19
DESIGNED	NRL
PREPARED	JGW
REVIEWED	KAB
APPROVED	KAB

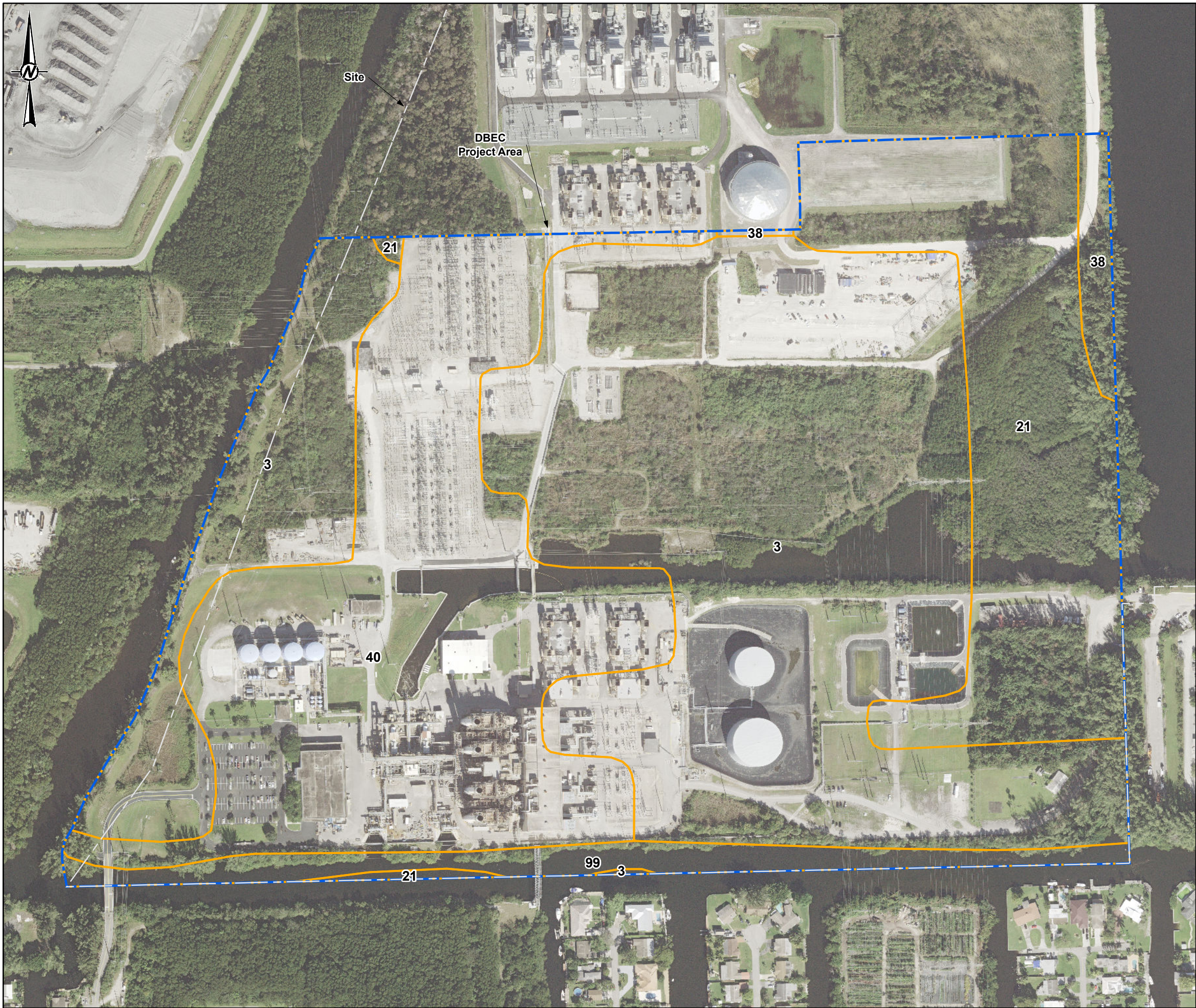
PROJECT NO.
1773823

CONTROL
G001

REV.
0

FIGURE
1

G:\PROJECTS\FPL\Danis_Beach_Energy_Center\99_PROJECTS\1773823_SCAIG_ERP\02_PRODUCTION\1773823_G002_SoilsMap.mxd



LEGEND

- Site
- DBEC Project Area
- Soils
 - 3 - Arents, Organic Substratum-Urban Land Complex
 - 21 - Okeelanta Muck, Drained, 0 To 1 Percent Slopes
 - 38 - Udorthents, Shaped
 - 40 - Urban Land
 - 99 - Water

0 150 300 600
Feet

REFERENCE(S)
SITE, A.R. TOUSSAINT & ASSOCIATES INC., 1989
DBEC PROJECT AREA, GOLDER ASSOCIATES INC., 2017
SOILS, NRCS, 2012

CLIENT
FPL

PROJECT
DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT

TITLE
SOILS MAP

YYYY-MM-DD	2017-06-19
DESIGNED	NRL
PREPARED	JGW
REVIEWED	KAB
APPROVED	KAB

PROJECT NO.
1773823

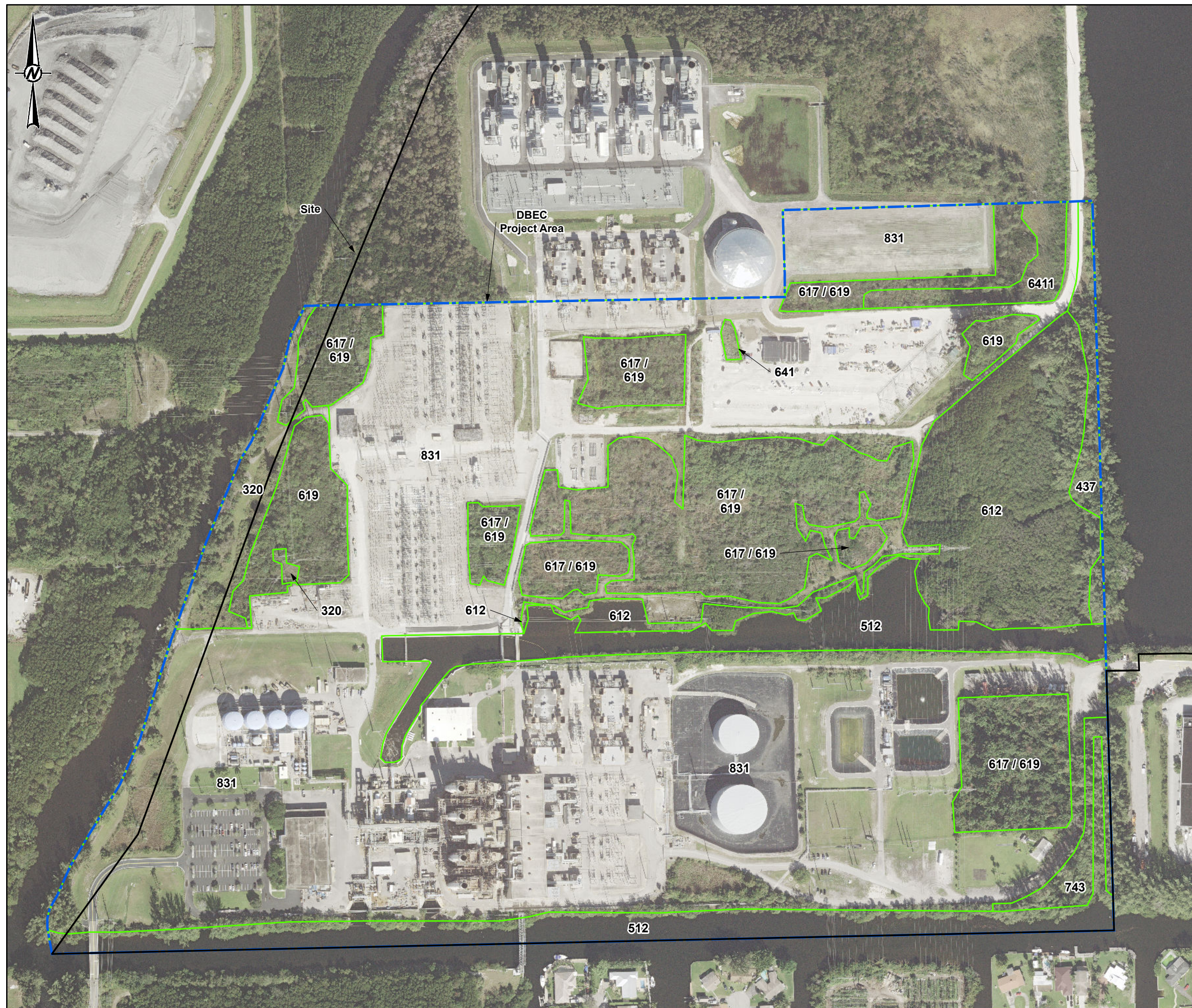
CONTROL
G002

REV.
0

FIGURE
3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B 11

G:\PROJECTS\FPL\Dania_Beach_Energy_Center\99_PROJECTS\1773823_SCAN02_PRODUCTION\DWG\1773823_F017_LandUse_FLUCS011.mxd



LEGEND

- Site
- ▭ DBEC Project Area
- ▭ Land Use
- 320: Upland Shrub and Brushland
- 437: Australian Pine
- 512: Channelized Waterway
- 612: Mangrove Swamp
- 617: Mixed Wetland Hardwoods
- 617 / 619: Mixed Wetland Hardwoods / Exotic Wetland Hardwoods
- 619: Exotic Wetland Hardwoods
- 6411: Sawgrass
- 641: Freshwater Marsh
- 743: Spoil Areas
- 831: Electric Power Facilities

REFERENCE(S)

SITE, A.R. TOUSSAINT & ASSOCIATES, INC., 1989
DBEC PROJECT AREA: GOLDER ASSOCIATES INC., 2017
LAND USE: SFWMD 2008 MODIFIED BY GOLDER ASSOCIATES 2017

CLIENT

FPL

PROJECT

DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT

TITLE

LAND USE MAP



YYYY-MM-DD	2017-06-22
DESIGNED	NRL
PREPARED	NRL
REVIEWED	KAB
APPROVED	KAB

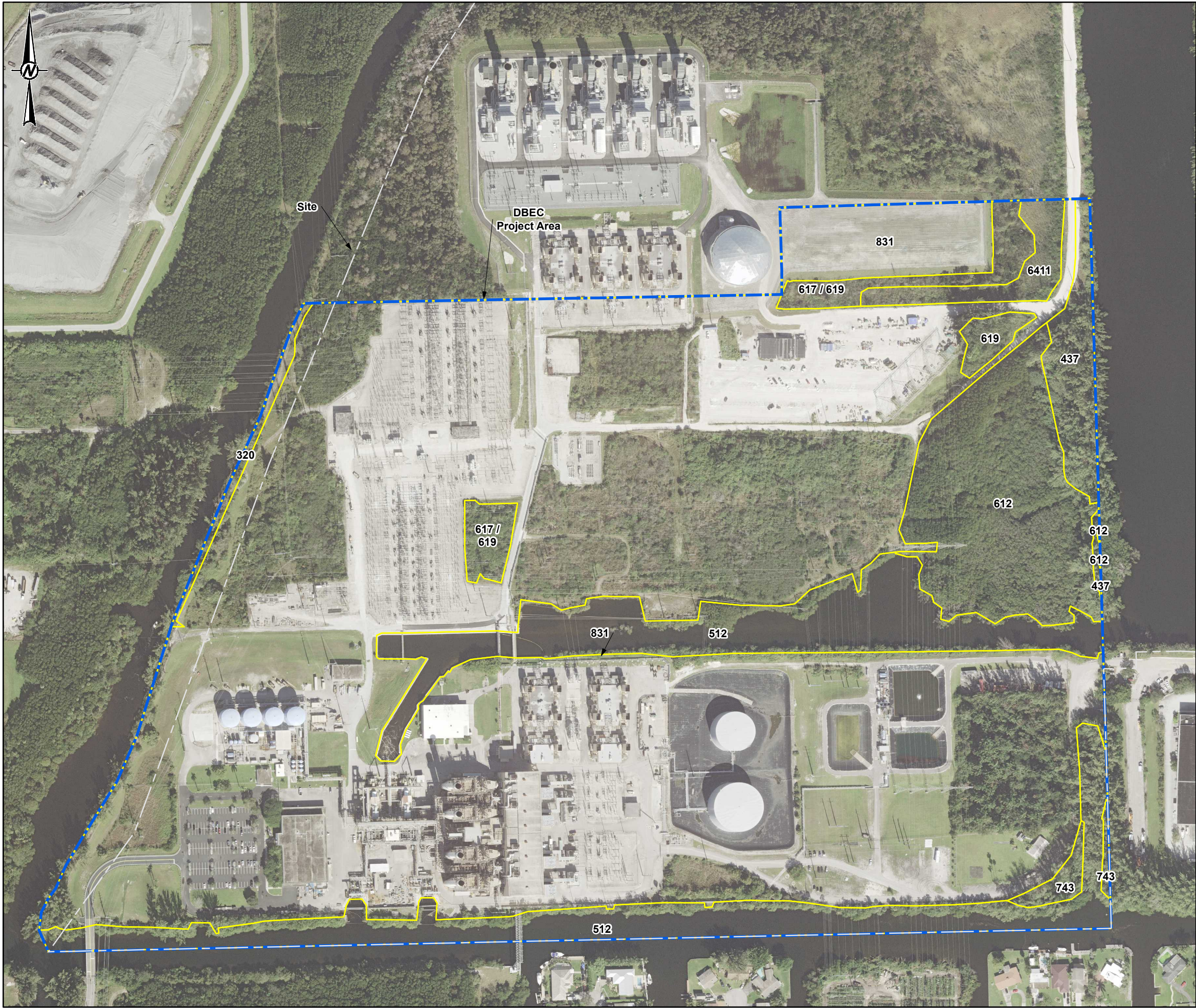
PROJECT NO.
1773823

CONTROL
F017

REV.
0

FIGURE
3

1" IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



- LEGEND**
- Site
 - DBEC Project Area
 - Proposed Land Use
 - 320- Upland Shrub and Brushland
 - 437- Australian Pine
 - 512- Channelized Waterway
 - 612- Mangrove Swamp
 - 617 / 619- Mixed Wetland Hardwoods / Exotic Wetland Hardwoods
 - 619- Exotic Wetland Hardwoods
 - 6411- Sawgrass
 - 743- Spoil Areas
 - 831- Electric Power Facilities

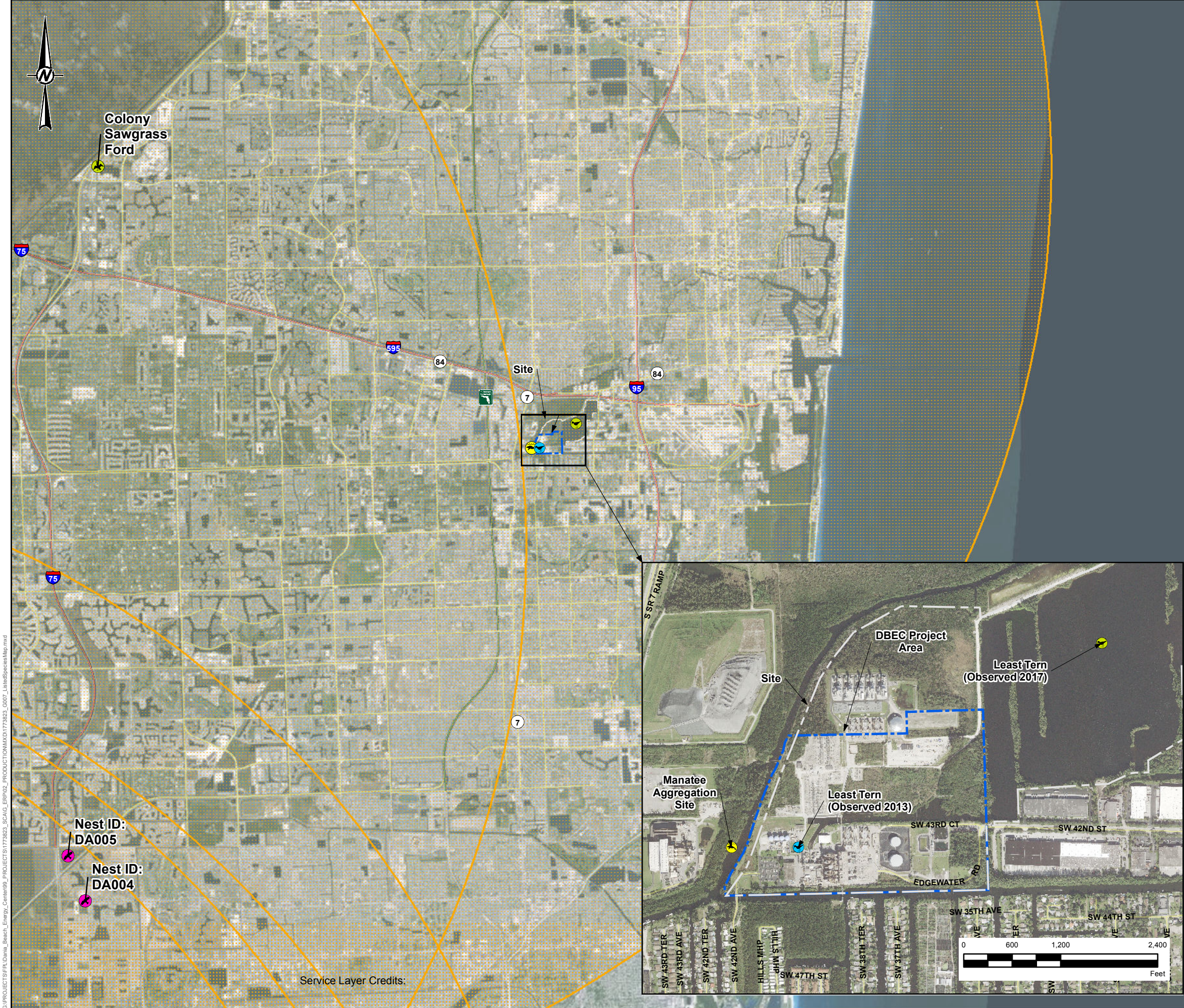
REFERENCE(S)
SITE, A.R. TOUSSAINT & ASSOCIATES, INC., 1989
DBEC PROJECT AREA, PROPOSED LAND USE; GOLDER ASSOCIATES INC., 2017

CLIENT
FPL

PROJECT
DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT
TITLE
PROPOSED LAND USE MAP

YYYY-MM-DD	2017-07-21
DESIGNED	NRL
PREPARED	JGW
REVIEWED	KAB
APPROVED	KAB

PROJECT NO. 1773823 CONTROL G005 REV. 0 FIGURE 4



LEGEND

- Site
- DBEC Project Area
- Bald Eagle Nests
- Manatee Aggregation Site
- Wood Stork Active Colonies
- Wood Stork Core Foraging Area (18.6 Miles)

Wildlife Observations

- Least Tern (Observed 2013)
- Least Tern (Observed 2017)

REFERENCE(S)

SITE, A.R. TOUSSAINT & ASSOCIATES, INC. 1989
DBEC PROJECT AREA, WILDLIFE OBSERVATIONS, GOLDER ASSOCIATES INC., 2017
BALD EAGLE NESTS: FWC 2016
MANATEE AGGREGATION SITE: FNAI 2017
WOOD STORK COLONY AND FORAGING,USFWS 2006-2015

CLIENT

FPL

PROJECT

DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT

TITLE

LISTED SPECIES MAP

YYYY-MM-DD	2017-06-19
DESIGNED	NRL
PREPARED	JGW
REVIEWED	KAB
APPROVED	KAB

PROJECT NO.
1773823

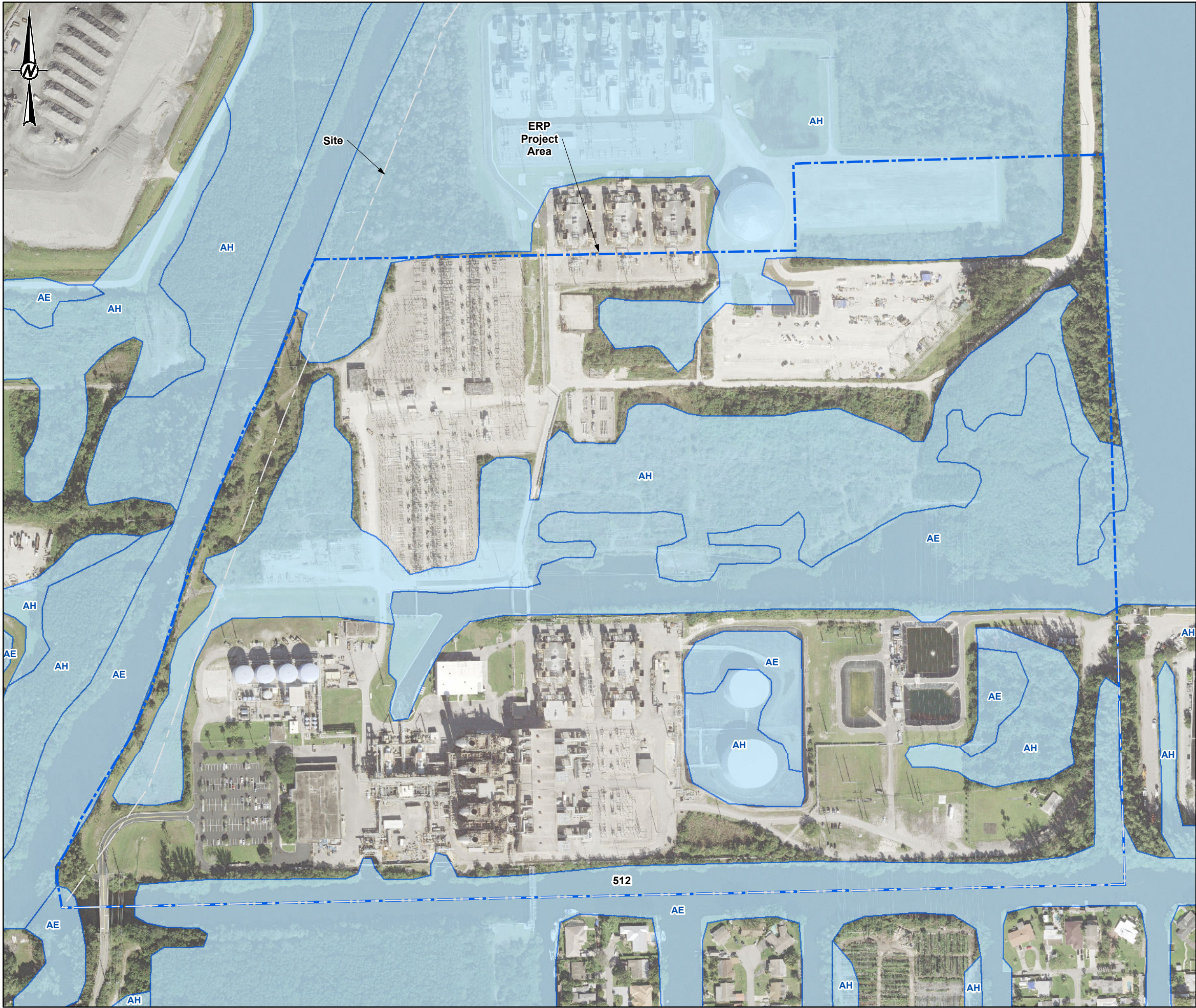
CONTROL
G007

REV.
0

FIGURE
5

G:\PROJECTS\FPL\Danish_Beach_Energy_Center\99_PROJECTS\1773823_SCAG_ERP\02_PRODUCTION\MXD\1773823_0007_ListedSpeciesMap.mxd

1" IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



LEGEND

— Site

DBEC Project Area

100-Year Flood Zone

AE - The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.

AH - Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

0 150 300 600
Feet

REFERENCE(S)

SITE, A.R. TOUSSAINT & ASSOCIATES INC., 1989
DBEC PROJECT AREA, GOLDER ASSOCIATES INC., 2017
FEMA FLOOD ZONE, FEMA 2014

CLIENT
FPL

PROJECT
DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT

TITLE
FEMA FLOOD ZONES

YYYY-MM-DD	2017-06-19
DESIGNED	NRL
PREPARED	JGW
REVIEWED	KAB
APPROVED	KAB

PROJECT NO.
1773823

CONTROL
G009

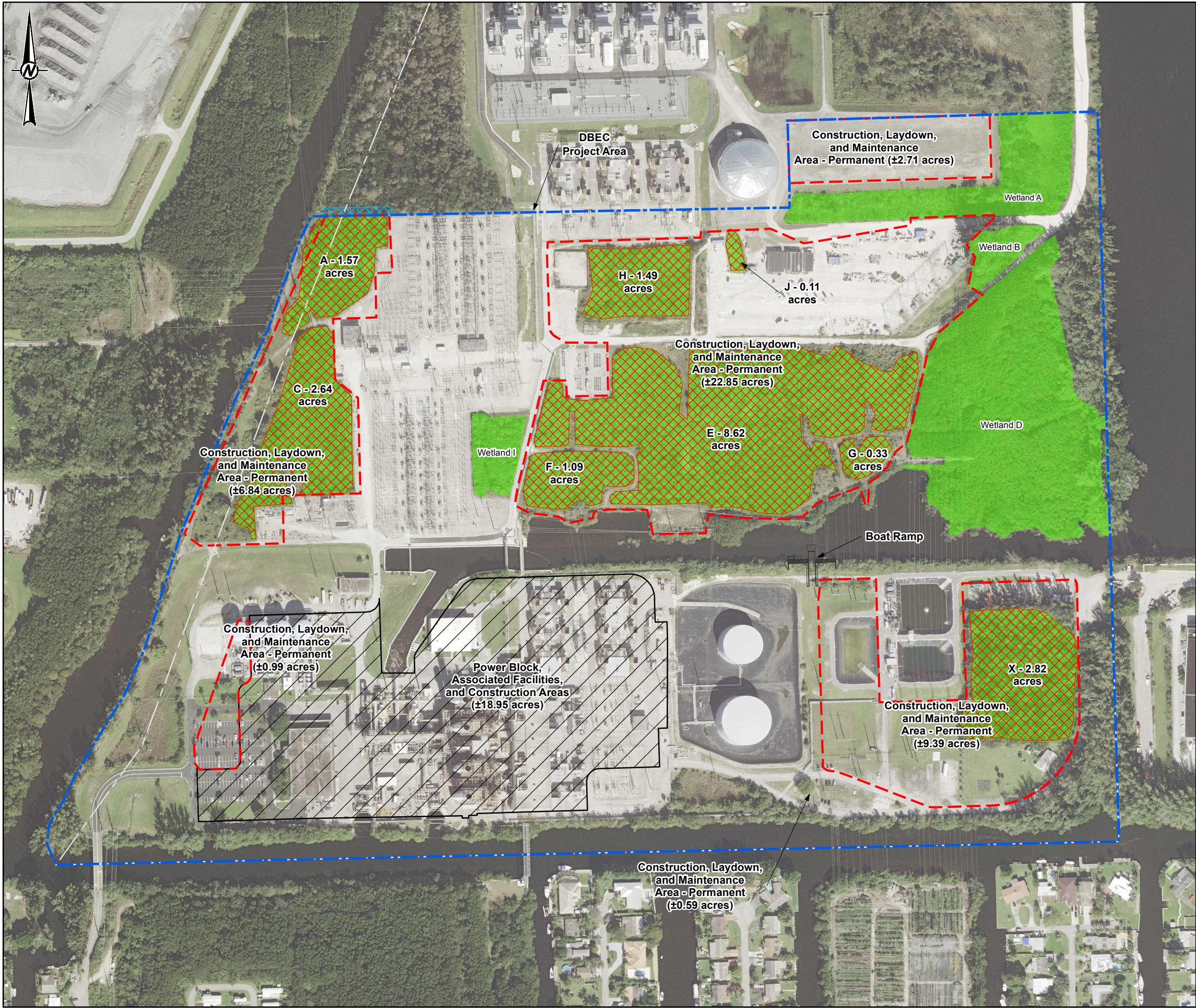
REV.
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FIGURE
6

G:\PROJECTS\FPL\Dania_Beach_Energy_Center\09_PROJECTS\1773823_SCAG_ERP\02_PRODUCTION\1773823_G003_Aerial.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

ATTACHMENT B
CONSTRUCTION PLANS



- LEGEND
- Site
 - DBEC Project
 - Construction, Laydown, and Maintenance Area - Permanent (±42.78 acres)
 - Power Block, Associated Facilities, and Construction Areas (±18.95 acres)
 - Wetlands
 - Permanent Wetland Impacts (±18.67 acres)
 - Secondary Wetland Impacts (±0.12 acres)



REFERENCE(S)
SITE, A.R. TOUSSAINT & ASSOCIATES INC., 1989
CONSTRUCTION LAYDOWN & MAINTENANCE AREAS, BLACK & VEATCH, 2017
DBEC PROJECT AREA, WETLAND BOUNDARIES, WETLAND IMPACTS; GOLDER ASSOCIATES INC., 2017

CLIENT
FPL

PROJECT
DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT

TITLE
WETLAND IMPACTS MAP

YYYY-MM-DD	2017-07-20
DESIGNED	NRL
PREPARED	JGW
REVIEWED	KAB
APPROVED	KAB

D

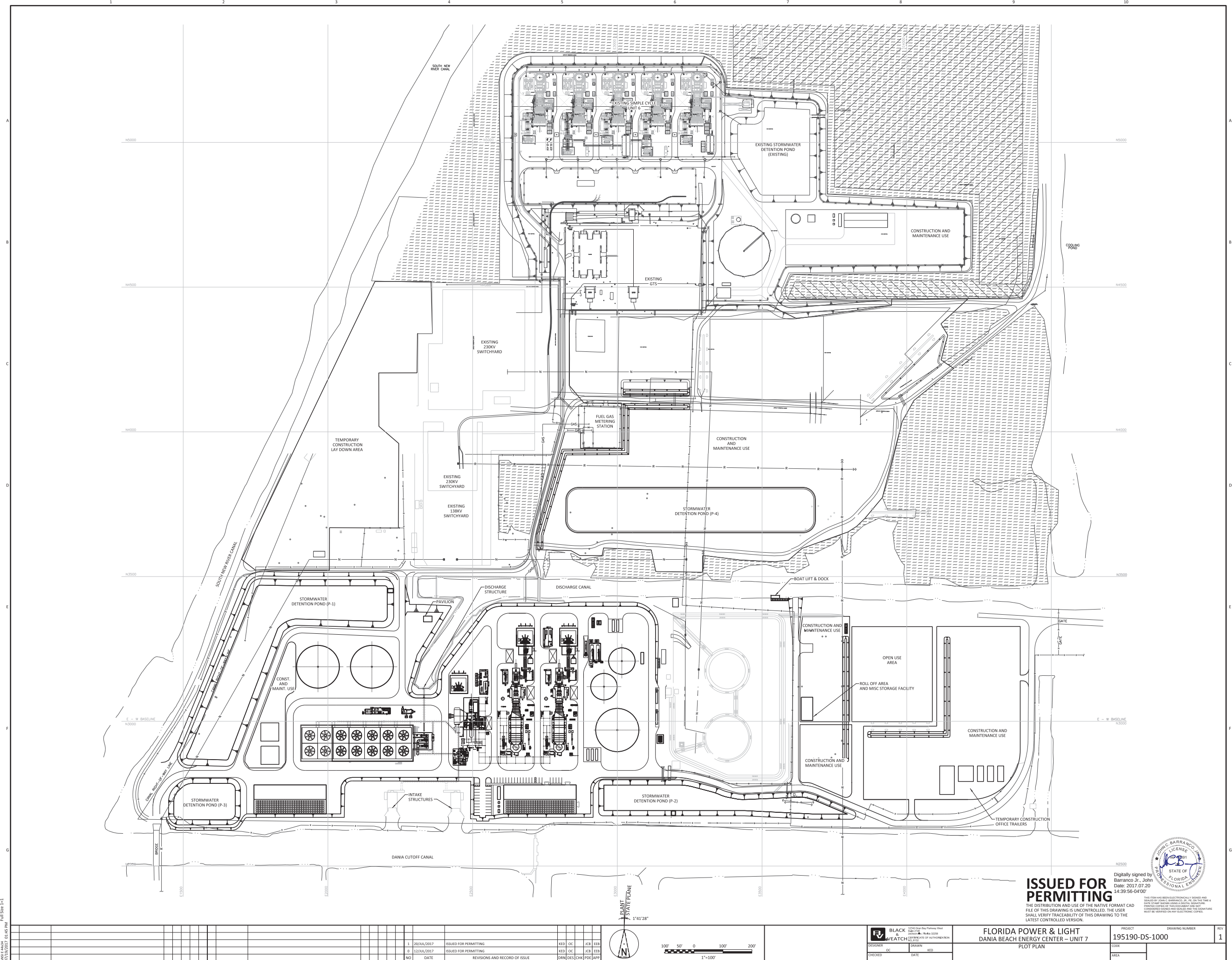
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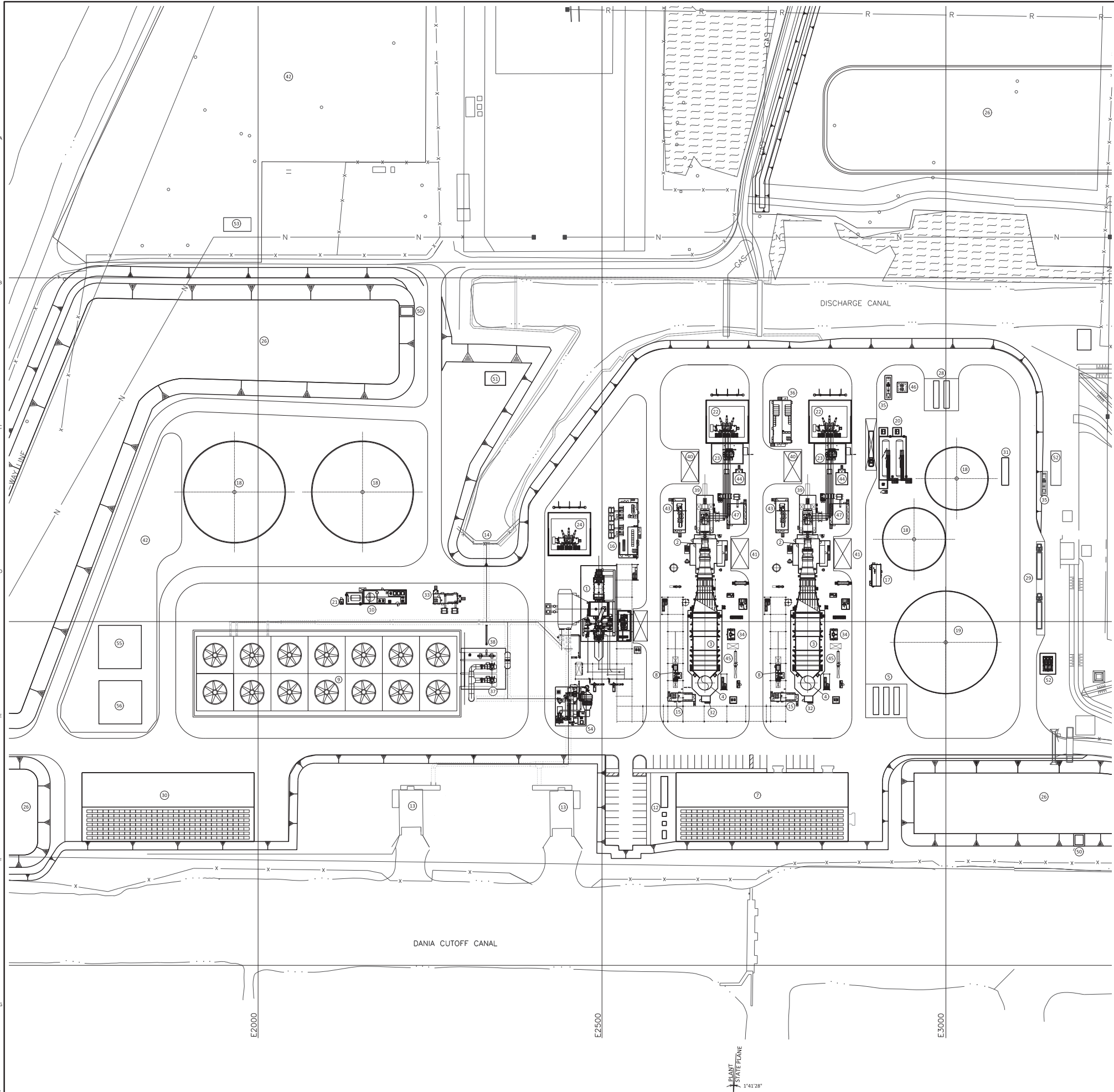
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THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND
SEALED BY JOHN C. BARRANCO, JR., PE, ON THE TIME
DATE STAMP SHOWN USING A DIGITAL SIGNATURE.
PRINTED COPIES OF THIS DOCUMENT ARE NOT
CONSIDERED SIGNED AND SEALED AND THE SIGNATURE

wa80885
NSI E 44x34
3/10/2017





FACILITY ID	
ID	DESCRIPTION
1	STEAM TURBINE
2	COMBUSTION TURBINE
3	HEAT RECOVERY STEAM GENERATOR (HRSG)
4	HEAT RECOVERY STEAM GENERATOR STACK
5	DEMIN WATER TREATMENT
6	EXISTING FUEL STORAGE AREA
7	ADMIN/CONTROL/WAREHOUSE/MAINT BUILDING
8	BOILER FEED PUMPS
9	AUXILIARY COOLER
10	CIRCULATING WATER CHEMICAL FEED
11	ADMIN/CONTROL WAREHOUSE/MAINTENANCE BUILDING PARKING
12	HURRICANE SHELTER
13	CIRCULATING WATER INTAKE STRUCTURE (EXISTING)
14	CIRCULATING WATER DISCHARGE STRUCTURE (EXISTING)
15	POWER DISTRIBUTION CENTER
16	STEAM TURBINE ELECTRICAL EQUIPMENT ENCLOSURE
17	FIRE PUMP ENCLOSURE
18	SERVICE FIRE WATER STORAGE TANK
19	DEMIN WATER STORAGE TANK
20	AMMONIA UNLOADING/STORAGE TANK AREA
21	ACID STORAGE TANK
22	COMBUSTION TURBINE STEP-UP TRANSFORMER
23	COMBUSTION TURBINE AUX TRANSFORMER
24	STEAM TURBINE STEP-UP TRANSFORMER
25	FUEL GAS METERING SKID
26	STORM WATER POND
27	SWITCH YARD
28	BULK HYDROGEN SYSTEM AND TUBE TRAILERS
29	FUEL OIL UNLOADING
30	WAREHOUSE / MAINTENANCE
31	EMERGENCY SHUTDOWN GENERATOR
32	CONTINUOUS EMISSIONS MONITORING SYSTEM
33	AUXILIARY COOLING SYSTEM MCC ENCLOSURE
34	AMMONIA VAPORIZATION SKID
35	OIL/WATER SEPARATOR
36	MEDIUM VOLTAGE SWITCHGEAR
37	CIRCULATING WATER PUMPS
38	AUXILIARY COOLING WATER PUMPS
39	GENERATOR REMOVAL AREA
40	GENERATOR REMOVAL CRANE PAD
41	TURBINE MAINTENANCE CRANE PAD
42	CONSTRUCTION AND MAINTENANCE USE
43	CT ELECTRICAL PACKAGE
44	CT BATTERY COMPARTMENT
45	CT PERFORMANCE GAS HEATERS
46	WASTE WATER COLLECTION SUMP
47	COMBUSTION TURBINE START PACKAGE
48	NOT USED
49	POTABLE WATER STORAGE TANK AND SKID
50	STORM WATER POND CONTROL STRUCTURE
51	PAVILION
52	FUEL OIL FORWARDING PUMPS
53	TELECOMMUNICATIONS ENCLOSURE
54	AUXILIARY BOILER
55	CTG SPARE GSSU PAD
56	STG SPARE GSSU PAD

KEY PLAN

DS-1001

ISSUED FOR PERMITTING

THE DISTRIBUTION AND USE OF THE NATIVE FORMAT CAD FILE OF THIS DRAWING IS UNCONTROLLED. THE USER SHALL VERIFY TRACEABILITY OF THIS DRAWING TO THE LATEST CONTROLLED VERSION.

Digitally signed by: **Barbara S. John**
Date: 2017.12.20 14:42:01 -0400

FLORIDA POWER & LIGHT
DANIA BEACH ENERGY CENTER -- UNIT 7
SITE ARRANGEMENT

PROJECT: 195190-DS-1001
CODE:
AREA:
DRAWING NUMBER: 1
REV: 1

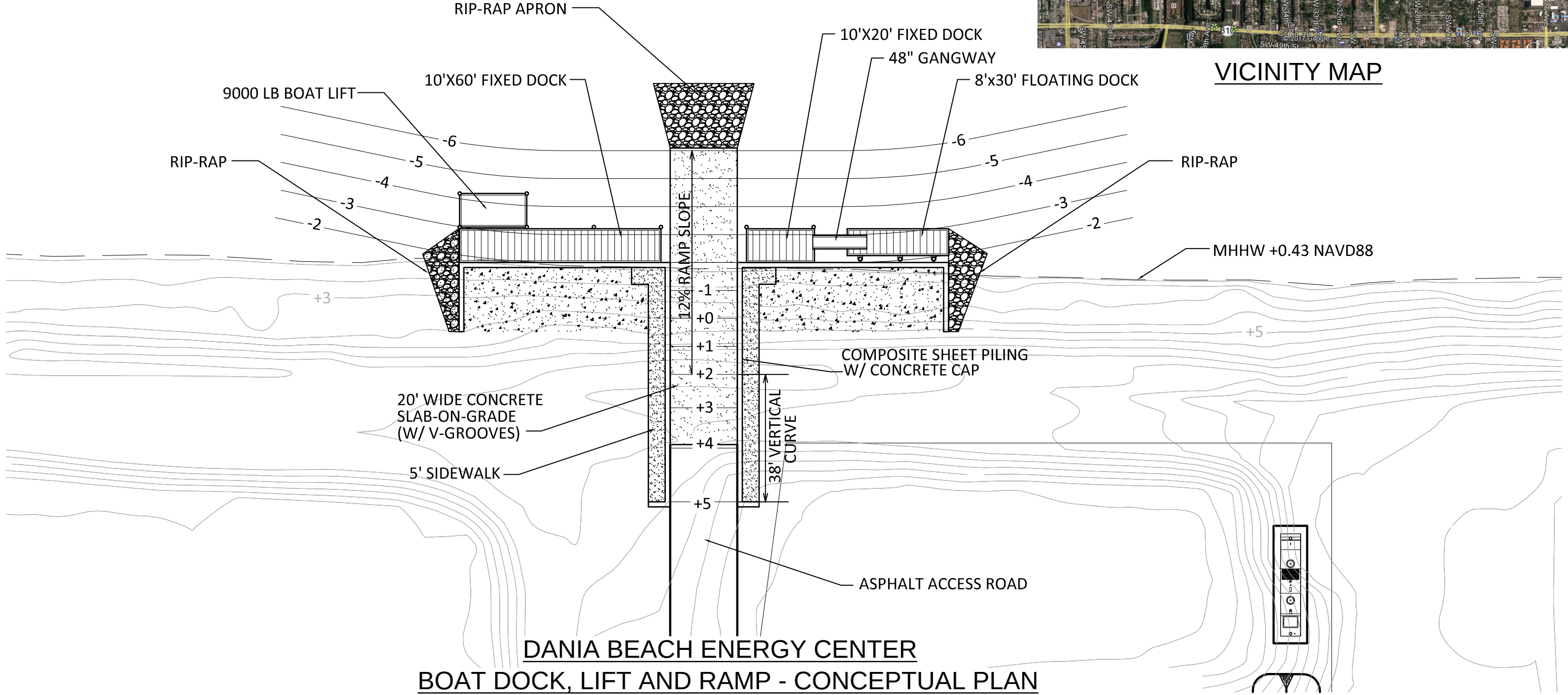
NO	DATE	REVISIONS AND RECORD OF ISSUE	DWG	DES	CHK	PDE	APP
1	20/04/2017	ISSUED FOR PERMITTING	KED	OC	KCR	KER	
2	12/06/2017	ISSUED FOR PERMITTING	KED	OC	KCR	KER	

BLACK & VEATCH
12745 Deer Run Parkway, Suite 200
Denver, CO 80231
PH: 303.755.1200
WWW.BLACK-VEATCH.COM

DESIGNER: OC
CHECKED:
DATE:
DRAWN: KED
DATE:



VICINITY MAP



SCALE 1"=30'

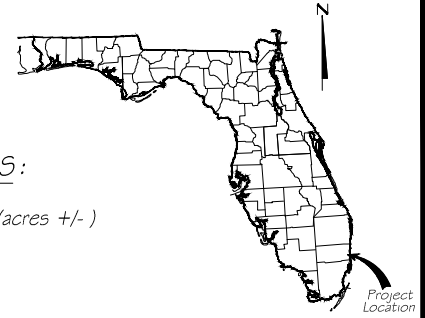
ATTACHMENT C

WETLAND SURVEY AND BOUNDARY SURVEY

Specific Purpose Survey of Wetland Jurisdictional Delineation (FPL) Florida Power and Light Dania Beach Clean Energy Center

SURVEYOR'S NOTES:

- 1) This Specific Purpose Survey is not valid without the signature and the original raised seal of the signing Florida licensed surveyor and mapper.
- 2) The Specific Purpose of this survey was to locate and map Wetland Jurisdictional Delineations (as determined by others) in conjunction with the Mapping of previously surveyed (by others) wetland jurisdictional delineations per digital files provided by the client, in conformance with Chapters 62-343 and 5J-17 Florida Administrative Code.
- 3) Lands shown hereon were not abstracted for ownership, rights-of-way, easements or other matters of title by this firm, nor were any such documents provided by client.
- 4) The boundary depicted hereon was provided by the client and is approximate. This specific purpose survey is Not a Boundary Survey of the site.
- 5) This survey was performed using Global Positioning System Technology. The horizontal accuracy is at the sub-meter level.
- 6) Coordinates of wetland flags shown hereon are relative to the Florida State Plane Coordinate System, East Zone (901), North American Datum of 1983/2011 Adjustment.
- 7) Wetland jurisdictional delineations were determined and flagged by Golder Associates, Gainesville, Florida.
- 8) The wetland flag descriptions shown hereon correspond to the numbers shown on each flag located in the field. The naming convention for the individual wetland areas was provided by Golder Associates, Inc.
- 9) This survey is certified to: Golder Associates, Inc.



WETLAND AREAS:

Wetland Designation / Area (acres +/-)

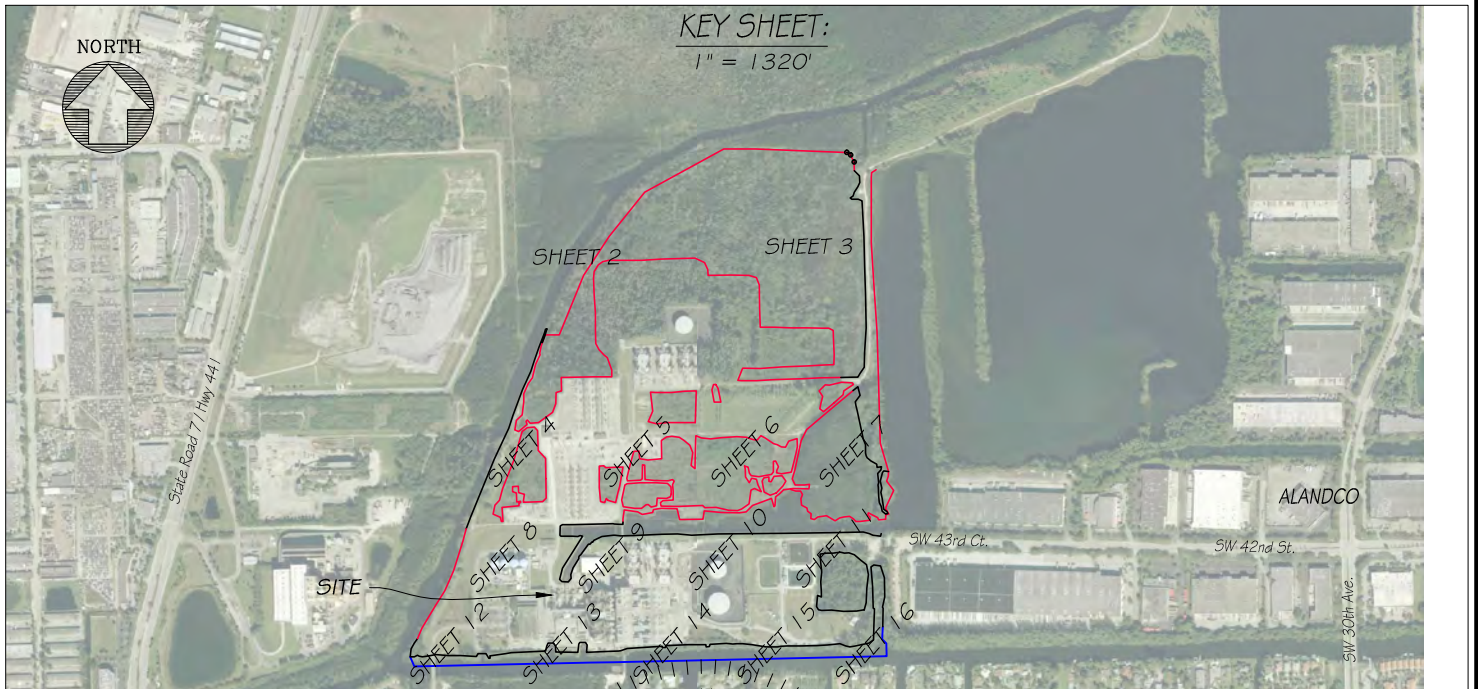
A / 43.59	H / 1.49
B / 0.54	I / 0.75
C / 2.64	J / 0.11
D / 8.65	X / 2.82
E / 8.62	Y / 7.38
F / 1.09	<u>TOTAL = 78.02</u>
G / 0.33	

SHEET INDEX:

SHEET	DESCRIPTION
1	Cover Sheet with Notes & Areas
2 - 9	Wetland Flag Coordinate Listings
10 - 60	Wetlands Flag Location

LEGEND:

- * AI = Wetland Flag Delineator
- SPCS = State Plane Coordinate System
- = Wetland Jurisdictional Delineations Survey performed by this firm
- = Previously Surveyed (by others) Wetland Jurisdictional Delineations per digital files provided by the client



KEY SHEET:
1" = 1320'

Photo Date: JANUARY, 2015

PROJECT TITLE:

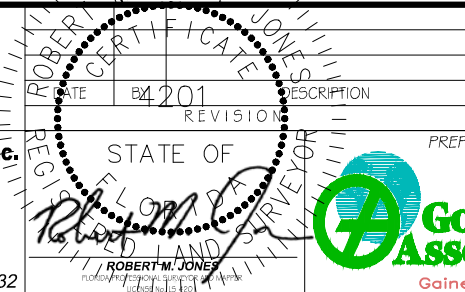
Wetland Locations
(FPL) Florida Power and Light
Dania Beach Clean Energy Center

Amec Foster Wheeler Environment & Infrastructure, Inc.



75 East Amelia Street, Suite 200
Orlando, FL 32801 USA
Phone: (407) 522-7570
Fax: (407) 522-7576

Certificate of Authorization Number LB-0007932



DRAWN BY: ADW	CHKD. BY: RMJ
DATE: 06/24/2017	DATE: 06/26/2017
JOB No. 6374171030	SCALE: 1" = 1320'
	SHT. OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg



GOLDER ASSOCIATES
6026 NW 1st PLACE
GAINESVILLE, FLORIDA 32607

WETLAND DETAIL SHEET

LEGEND:

- A1 = Wetland Flag Delineator
- = Wetland Jurisdictional Delineations Survey performed by this firm
- = Previously Surveyed (by others) Wetland Jurisdictional Delineations per digital files provided by the client



GRAPHIC SCALE
0 100 200
(IN FEET)
1 inch = 200 ft.

South New River Canal

Wetland locations marked with points A-69 through A-81 and Y-82 through Y-89. A-74 is marked as a POE (Point of Entry).

CONTINUED ON SHEET 3

CONTINUED ON SHEET 4 & 5

Photo Date: JANUARY, 2015

PROJECT TITLE:

**Wetland Locations
(FPL) Florida Power and Light
Dania Beach Clean Energy Center**

Amec Foster Wheeler Environment & Infrastructure, Inc.



75 East Amelia Street, Suite 200
Orlando, FL 32801 USA
Phone: (407) 522-7570
Fax: (407) 522-7576
Certificate of Authorization Number LB-0007932

DATE	BY	DESCRIPTION

REVISION

DRAWN BY: ADW	CHKD. BY: RMJ
DATE: 06/24/2017	DATE: 06/26/2017
JOB No. 6374171030	SCALE: 1" = 200'
	SHT. 2 OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

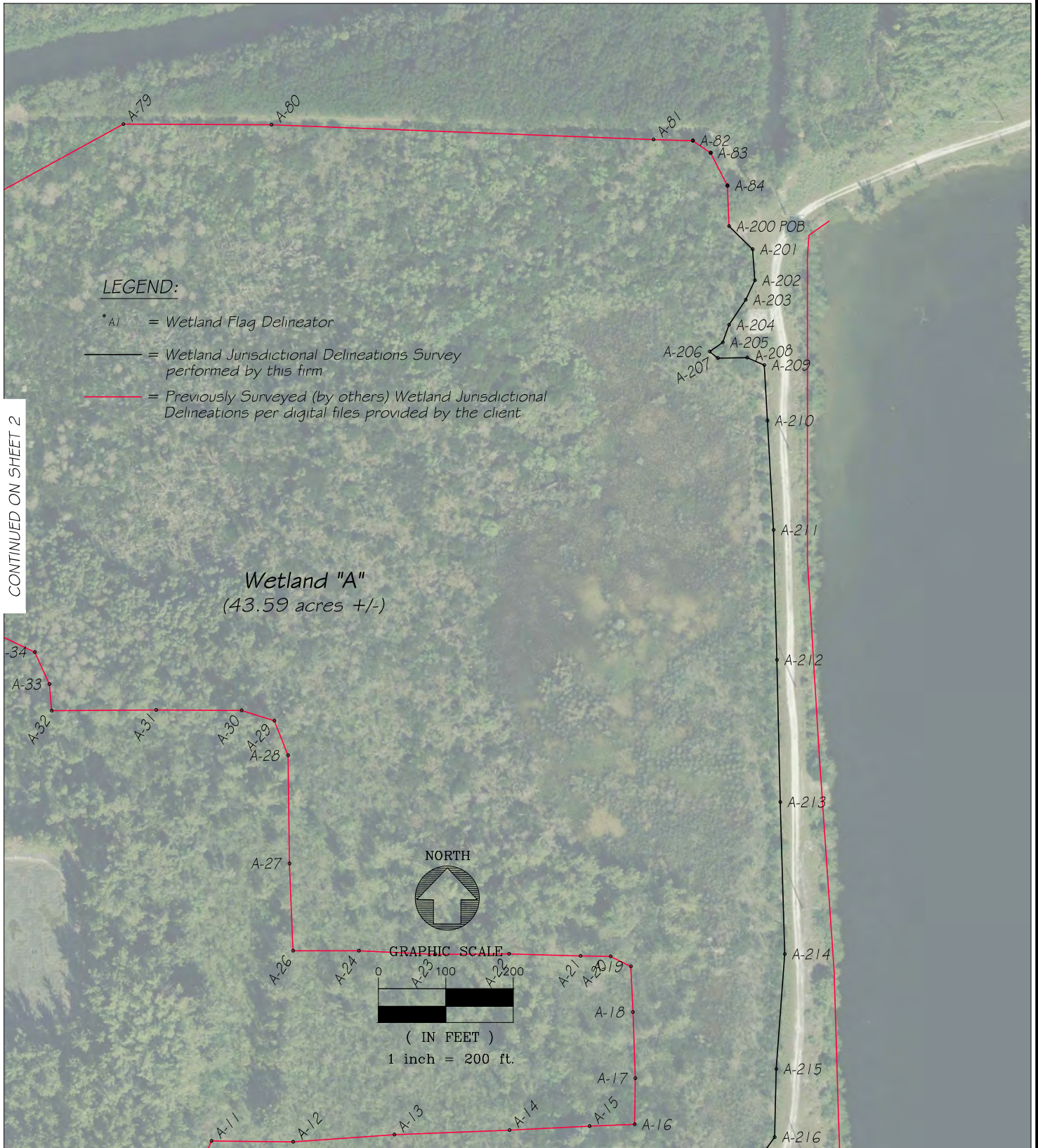
PREPARED FOR:



GOLDER ASSOCIATES
6026 NW 1st PLACE
GAINESVILLE, FLORIDA 32607

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
LICENSE NO. 15,450

WETLAND DETAIL SHEET



CONTINUED ON SHEET 2

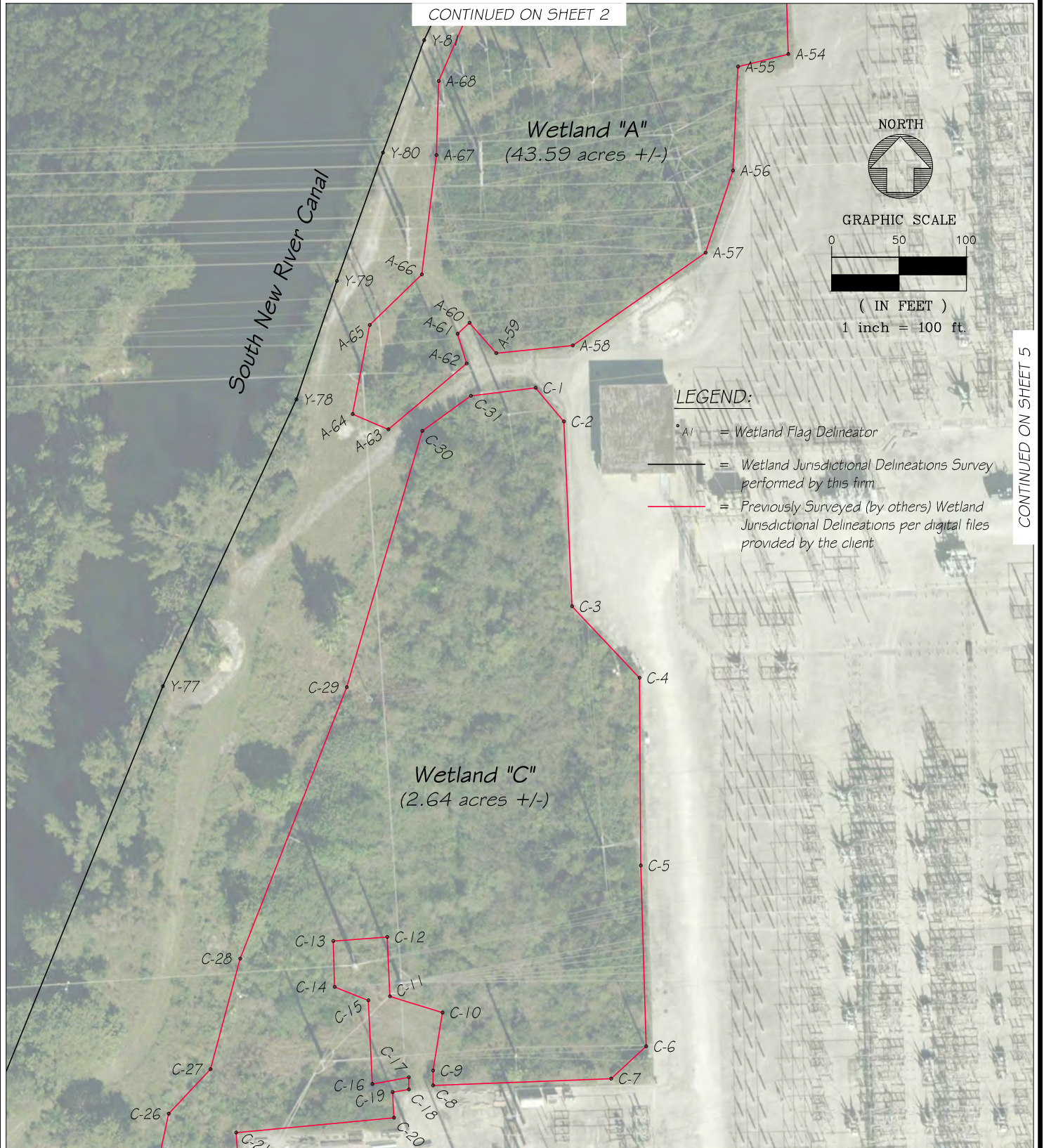
CONTINUED ON SHEET 6 & 7

Photo Date: JANUARY, 2015

PROJECT TITLE: Wetland Locations (FPL) Florida Power and Light Dania Beach Clean Energy Center		DRAWN BY: <u>ADW</u> DATE: <u>06/24/2017</u>		CHKD. BY: <u>RMJ</u> DATE: <u>06/26/2017</u>	
DATE		BY		DESCRIPTION	
REVISION		JOB NO. <u>6374171030</u>		SCALE: <u>1" = 200'</u>	
DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg		SHT. <u>3</u> OF <u>20</u>			
Amec Foster Wheeler Environment & Infrastructure, Inc.  75 East Amelia Street, Suite 200 Orlando, FL 32801 USA Phone: (407) 522-7570 Fax: (407) 522-7576 Certificate of Authorization Number LB-0007932		Robert M. Jones FLORIDA PROFESSIONAL SURVEYOR AND MAPPER LICENSE No. 15,450		PREPARED FOR:  GOLDER ASSOCIATES 6026 NW 1st PLACE GAINESVILLE, FLORIDA 32607	

WETLAND DETAIL SHEET

CONTINUED ON SHEET 2



LEGEND:

- AI = Wetland Flag Delineator
- = Wetland Jurisdictional Delineations Survey performed by this firm
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CONTINUED ON SHEET 5

CONTINUED ON SHEET 8 & 9

Photo Date: JANUARY, 2015

PROJECT TITLE:
Wetland Locations
(FPL) Florida Power and Light
Dania Beach Clean Energy Center

Amec Foster Wheeler Environment & Infrastructure, Inc.



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Fax: (407) 522-7576

Certificate of Authorization Number LB-0007932

DATE	BY	DESCRIPTION

REVISION

DRAWN BY: ADW	CHKD. BY: RMJ
DATE: 06/24/2017	DATE: 06/26/2017
JOB No. 6374171030	SCALE: 1" = 100'
	SHT. 4 OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

PREPARED FOR:



GOLDER ASSOCIATES

6026 NW 1st PLACE

GAINESVILLE, FLORIDA 32607

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
LICENSE NO. 15450

WETLAND DETAIL SHEET

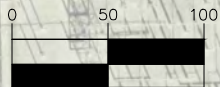
CONTINUED ON SHEET 2

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GRAPHIC SCALE

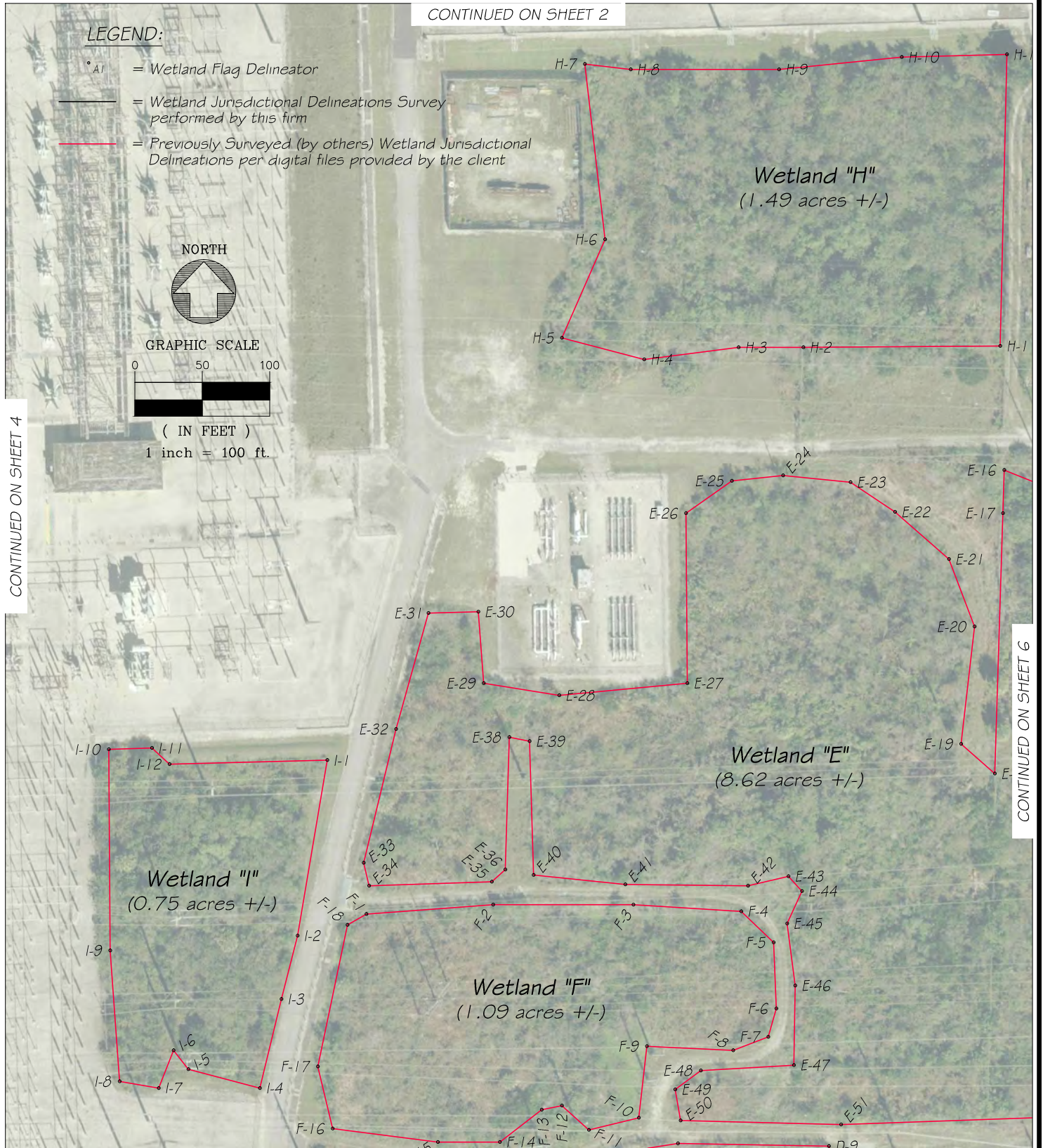


(IN FEET)

1 inch = 100 ft.

CONTINUED ON SHEET 4

CONTINUED ON SHEET 6



CONTINUED ON SHEET 9 & 10

Photo Date: JANUARY, 2015

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	SHT. 5 OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

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WETLAND DETAIL SHEET

CONTINUED ON SHEET 3

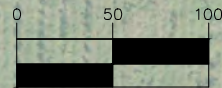
Wetland "A"
(43.59 acres +/-)

Wetland "J"
(0.11 acres +/-)

NORTH



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

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CONTINUED ON SHEET 10

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	SHT. 6 OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

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WETLAND DETAIL SHEET

CONTINUED ON SHEET 3

LEGEND:

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Wetland "B"
(0.54 acres +/-)

Wetland "D"
(8.65 acres +/-)



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

CONTINUED ON SHEET 11

Photo Date: JANUARY, 2015

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Wetland Locations
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CHKD. BY: RMJ
DATE: 06/26/2017

JOB No.
6374171030

SCALE:
1" = 100'

SHT.
7
OF
20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

PREPARED FOR:



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6026 NW 1st PLACE

GAINESVILLE, FLORIDA 32607

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LICENSE NO. 15451

WETLAND DETAIL SHEET

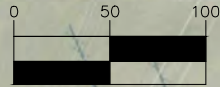
CONTINUED ON SHEET 4

Wetland "C"
(2.64 acres +/-)

C-25
C-24
C-23
C-22



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

Discharge Canal

D-271
D-272
D-273

Discharge Canal

D-279
D-280
D-281

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CONTINUED ON SHEET 12 & 13

Photo Date: JANUARY, 2015

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DATE: 06/24/2017	DATE: 06/26/2017
JOB No. 6374171030	SCALE: 1" = 100'
SHT. OF 20	

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

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ROBERT M. JONES
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LICENSE NO. 15,450

WETLAND DETAIL SHEET

CONTINUED ON SHEET 5



CONTINUED ON SHEET 8

CONTINUED ON SHEET 10

CONTINUED ON SHEET 13 & 14

Photo Date: JANUARY, 2015

PROJECT TITLE:

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	SHT. 9 OF 20

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WETLAND DETAIL SHEET

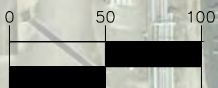
CONTINUED ON SHEET 6

Wetland "E"
(8.62 acres +/-)

Discharge Canal



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

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CONTINUED ON SHEET 14 & 15

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	SHT. 10 OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

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GOLDER ASSOCIATES
6026 NW 1st PLACE
GAINESVILLE, FLORIDA 32607

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
LICENSE NO. 15,450

CONTINUED ON SHEET 9

CONTINUED ON SHEET 11

WETLAND DETAIL SHEET

CONTINUED ON SHEET 7

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Wetland "D"
(8.65 acres +/-)

D-221
D-229
D-222
D-223
D-228
D-224
D-227
D-225
D-226

Discharge Canal

Discharge Canal

D-306

D-307

D-308

D-309

D-310

D-312 POE

D-311

CONTINUED ON SHEET 10

X-13
X-14
X-15
X-16
X-17
X-18
X-20
X-21
X-22
X-23

X-12
X-11
X-10
X-09
X-08
X-07

X-06

X-05

X-08

Y-07

Y-06

X-04

Wetland "X"
(2.82 acres +/-)

Dania Cutoff Canal

X-03

Y-09

X-02

Y-10

Y-11

Y-04

Y-03

X-01 POB POE

X-24

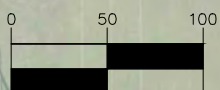
X-25

X-26

NORTH



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

CONTINUED ON SHEET 15 & 16

Photo Date: JANUARY, 2015

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DATE: 06/26/2017

JOB No.
6374171030

SCALE:
1" = 100'

SHT. 11
OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

PREPARED FOR:



GOLDER ASSOCIATES

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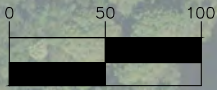
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LICENSE No. 15,450

WETLAND DETAIL SHEET

CONTINUED ON SHEET 8



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

South New River Canal



Dania Cutoff Canal

Boundary line
provided by client

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REVISION

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DATE: 06/24/2017	DATE: 06/26/2017
JOB No. 6374171030	SCALE: 1" = 100'
	SHT. 12 OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

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PREPARED FOR:

GOLDER ASSOCIATES

6026 NW 1st PLACE

GAINESVILLE, FLORIDA 32607

CONTINUED ON SHEET 13

WETLAND DETAIL SHEET

CONTINUED ON SHEET 8 # 9

Discharge Canal

D-279

D-285

D-284

D-280

D-283

D-281

D-282

Y-52

Y-51

Y-53

Y-50

Y-54

Y-49

Y-46

Y-47

Y-45

Y-44

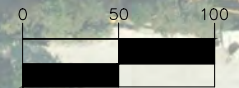
Y-48

Y-43

NORTH



GRAPHIC SCALE



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Dania Cutoff Canal

Boundary line provided by client

Photo Date: JANUARY, 2015

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JOB No. 6374171030

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SHT. 13 OF 20

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6026 NW 1st PLACE

GAINESVILLE, FLORIDA 32607

CONTINUED ON SHEET 12

CONTINUED ON SHEET 14

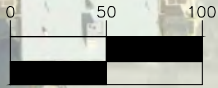
WETLAND DETAIL SHEET

CONTINUED ON SHEET 9 & 10

NORTH



GRAPHIC SCALE



(IN FEET)

1 inch = 100 ft.

CONTINUED ON SHEET 13

CONTINUED ON SHEET 15

Dania Cutoff Canal

Boundary line
provided by client

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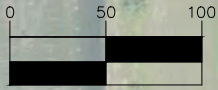
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LICENSE NO. 15,450

WETLAND DETAIL SHEET

CONTINUED ON SHEET 10 # 11



GRAPHIC SCALE

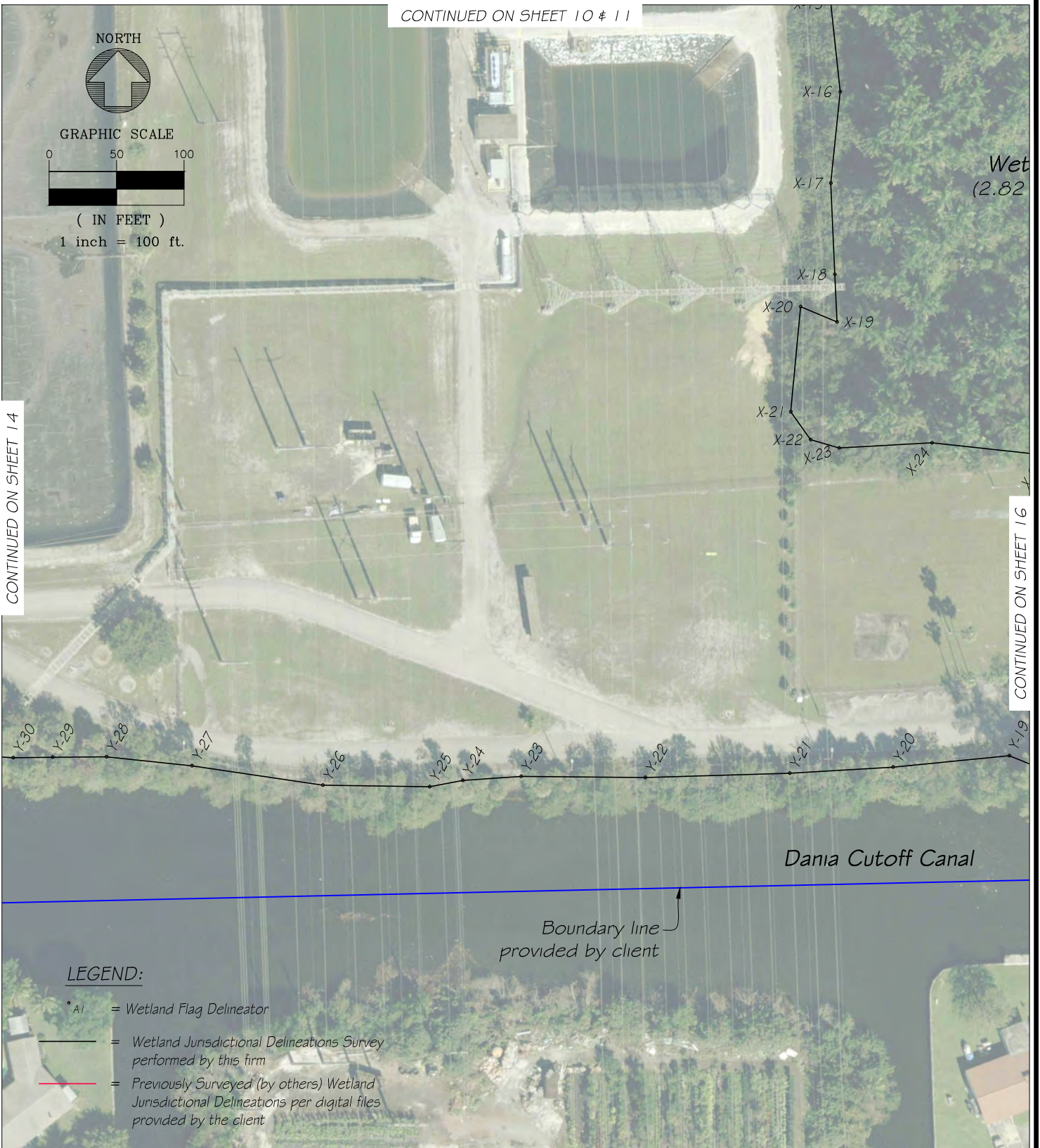


(IN FEET)

1 inch = 100 ft.

CONTINUED ON SHEET 14

CONTINUED ON SHEET 16



Dania Cutoff Canal

Boundary line
provided by client

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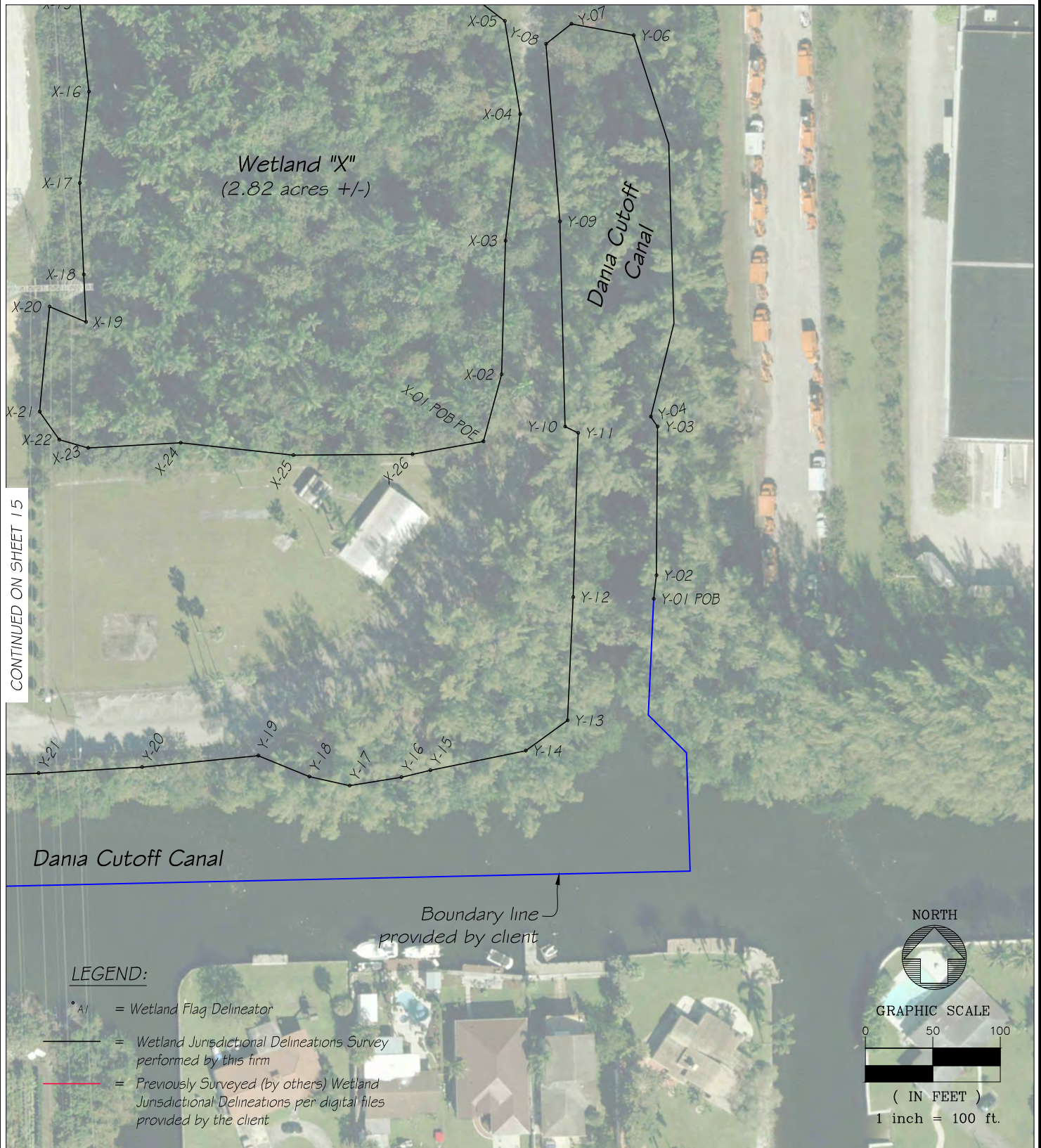


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WETLAND COORDINATE LISTINGS SURVEYED BY THIS FIRM

State Plane Florida East (901)

Wetland Flag # Northing Easting

A-200	634476	921087
A-201	634442	921122
A-202	634396	921125
A-203	634367	921111
A-204	634330	921087
A-205	634304	921077
A-206	634290	921058
A-207	634281	921070
A-208	634281	921114
A-209	634270	921139
A-210	634188	921144
A-211	634026	921152
A-212	633833	921158
A-213	633623	921163
A-214	633397	921169
A-215	633227	921157
A-216	633126	921154
A-217	633085	921126
A-218	633058	921111
A-219	633059	921082
A-220	633056	920994
D-200	632967	921077
D-201	632992	921111
D-202	632974	921116
D-203	632933	921126
D-204	632890	921094
D-205	632864	921098
D-206	632829	921106
D-207	632631	921149
D-208	632595	921163
D-209	632537	921164
D-210	632517	921168
D-211	632504	921175
D-212	632483	921201
D-213	632460	921241
D-214	632438	921243

D-215	632443	921273
D-216	632421	921269
D-217	632397	921248
D-218	632332	921254
D-219	632317	921249
D-220	632300	921251
D-221	632244	921254
D-222	632196	921258
D-223	632169	921272
D-224	632138	921279
D-225	632117	921303
D-226	632121	921317
D-227	632135	921310
D-228	632150	921290
D-229	632224	921277
D-230	632267	921268
D-231	632296	921276
D-232	632343	921265
D-233	632404	921280
D-234	632414	921289
D-235	632410	921321
D-300	631965	919580
D-301	631974	919667
D-302	631979	919763
D-303	631981	919873
D-304	631971	919970
D-305	631982	920150
D-306	631985	920616
D-307	631990	920934
D-308	631994	921149
D-309	631983	921189
D-310	631972	921214
D-311	631967	921266
D-312	631982	921270
D-300	631969	919569
D-299	631968	919492

D-298	631968	919479
D-297	631972	919441
D-296	631972	919430
D-295	631962	919351
D-294	631937	919296
D-293	631924	919288
D-292	631926	919282
D-291	631910	919269
D-290	631910	919259
D-289	631837	919206
D-288	631831	919197
D-287	631823	919191
D-286	631812	919192
D-285	631748	919154
D-284	631702	919137
D-283	631674	919140
D-282	631652	919119
D-281	631653	919076
D-280	631670	919061
D-279	631745	919081
D-278	631965	919218
D-277	631971	919201
D-276	631963	919185
D-275	631965	919149
D-274	631965	919138
D-273	631965	919070
D-272	631971	919064
D-271	632037	919064
D-270	632044	919080
D-269	632044	919138
D-268	632044	919149
D-267	632050	919428
D-266	632050	919437
D-265	632046	919476
D-264	632046	919488
D-263	632046	919496

PROJECT TITLE:

**Wetland Locations
(FPL) Florida Power and Light
Dania Beach Clean Energy Center**

Amec Foster Wheeler Environment & Infrastructure, Inc.



75 East Amelia Street, Suite 200
Orlando, FL 32801 USA
Phone: (407) 522-7570
Fax: (407) 522-7576

Certificate of Authorization Number LB-0007932

DATE	BY	DESCRIPTION

REVISION

DRAWN BY: ADW	CHKD. BY: RMJ
DATE: 06/24/2017	DATE: 06/26/2017
JOB NO. 6374171030	SCALE: N/A
	SHT. 17 OF 20

DRAWING NAME: 6374171030 - Golder FPL Dania Plant Wetlands.dwg

PREPARED FOR:



GOLDER ASSOCIATES
6026 NW 1st PLACE
GAINESVILLE, FLORIDA 32607

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
LICENSE NO. 10,490

WETLAND COORDINATE LISTINGS SURVEYED BY THIS FIRM

State Plane Florida East (901)

Wetland Flag # Northing Easting

D-262	632063	919496	Y-10	631470	921216	Y-44	631219	919249	Y-80	632890	918774
X-01	631459	921155	Y-11	631466	921226	Y-45	631235	919239	Y-81	632974	918804
X-02	631509	921169	Y-12	631344	921222	Y-46	631235	919200	Y-82	633098	918863
X-03	631608	921172	Y-13	631253	921218	Y-47	631224	919193	Y-83	633167	918884
X-04	631702	921183	Y-14	631230	921187	Y-48	631166	919187	Y-84	633268	918920
X-05	631771	921171	Y-15	631216	921116	Y-49	631168	919033	Y-85	633365	918957
X-06	631801	921131	Y-16	631211	921095	Y-50	631212	919033	Y-86	633388	918963
X-07	631839	921087	Y-17	631204	921056	Y-51	631231	919020	Y-87	633392	918974
X-08	631851	921050	Y-18	631211	921026	Y-52	631230	918982	Y-88	633381	918970
X-09	631850	921019	Y-19	631227	920989	Y-53	631211	918972	Y-89	633336	918956
X-10	631855	920992	Y-20	631218	920902	Y-54	631176	918964	Y-90	633296	918941
X-11	631849	920940	Y-21	631214	920826	Y-55	631165	918727			
X-12	631849	920897	Y-22	631210	920719	Y-56	631158	918690			
X-13	631843	920852	Y-23	631211	920627	Y-57	631143	918581			
X-14	631818	920853	Y-24	631208	920583	Y-58	631127	918582			
X-15	631784	920856	Y-25	631204	920559	Y-59	631125	918574			
X-16	631718	920863	Y-26	631205	920480	Y-60	631158	918554			
X-17	631651	920856	Y-27	631219	920383	Y-61	631159	918499			
X-18	631583	920859	Y-28	631226	920319	Y-62	631139	918489			
X-19	631548	920861	Y-29	631225	920279	Y-63	631145	918379			
X-20	631559	920834	Y-30	631225	920250	Y-64	631146	918292			
X-21	631481	920827	Y-31	631228	920207	Y-65	631153	918208			
X-22	631461	920841	Y-32	631222	920095	Y-66	631143	918163			
X-23	631455	920862	Y-32A	631207	920089	Y-67	631136	918116			
X-24	631458	920931	Y-32B	631205	920067	Y-68	631141	918095			
X-25	631449	921015	Y-33	631220	920066	Y-69	631147	918085			
X-26	631450	921103	Y-34	631220	919944	Y-70	631137	918062			
Y-01	631343	921281	Y-35	631213	919791	Y-71	631136	918033			
Y-02	631360	921283	Y-36	631201	919788	Y-72	631191	918040			
Y-03	631470	921284	Y-37	631201	919766	Y-73	631232	918061			
Y-04	631478	921279	Y-38	631209	919765	Y-74	631262	918083			
Y-05	631615	921314	Y-39	631192	919526	Y-75	632016	918419			
Y-06	631760	921267	Y-40	631178	919481	Y-76	632098	918449			
Y-07	631769	921221	Y-41	631177	919466	Y-77	632495	918611			
Y-08	631754	921202	Y-42	631174	919398	Y-78	632707	918710			
Y-09	631622	921212	Y-43	631168	919246	Y-79	632795	918740			

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PREPARED FOR:



GOLDER ASSOCIATES
6026 NW 1st PLACE
GAINESVILLE, FLORIDA 32607

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
LICENSE NO. 4921

WETLAND COORDINATE LISTINGS PREVIOUSLY SURVEYED BY OTHERS

Wetland State Plane
Flag # Florida East (901)
Northing Easting

A-04	633054	920860	A-41	633785	919298	A-77	634026	919401	C-16	632200	918766	D-21	632257	920574
A-05	633048	920733	A-42	633737	919294	A-78	634330	919646	C-17	632205	918793	D-22	632285	920601
A-06	633046	920650	A-43	633621	919298	A-79	634628	920188	C-18	632196	918793	D-23	632293	920667
A-07	633042	920525	A-44	633501	919307	A-80	634627	920408	C-19	632194	918781	D-24	632292	920774
A-08	633035	920416	A-45	633389	919308	A-81	634604	920974	C-20	632175	918782	D-25	632321	920778
A-09	633034	920309	A-46	633290	919309	A-82	634603	921033	C-21	632164	918665	D-26	632318	920744
A-10	633036	920285	A-47	633248	919331	A-83	634585	921059	C-22	632066	918672	D-27	632317	920679
A-11	633120	920319	A-48	633211	919365	A-84	634536	921084	C-23	632066	918660	D-28	632359	920660
A-12	633119	920440	A-49	633193	919388	B-01	632822	920875	C-24	632096	918653	D-29	632418	920677
A-13	633130	920590	A-50	633107	919419	B-02	632881	920946	C-25	632117	918602	D-30	632624	920721
A-14	633136	920761	A-51	633061	919419	B-03	632938	921009	C-26	632178	918615	D-31	632697	920759
A-15	633142	920880	A-52	633060	919296	B-04	632963	921015	C-27	632211	918646	D-32	632821	920903
A-16	633145	920946	A-53	633055	919071	B-05	633008	921080	C-28	632293	918668	E-01	632637	920692
A-17	633213	920948	A-54	632963	919074	B-06	633020	921073	C-29	632494	918747	E-02	632618	920635
A-18	633311	920944	A-55	632954	919037	B-07	633024	920999	C-30	632684	918803	E-03	632577	920614
A-19	633379	920941	A-56	632877	919033	B-08	633003	920914	C-31	632710	918839	E-04	632578	920585
A-20	633394	920911	A-57	632816	919013	B-09	633006	920886	D-01	632084	919495	E-05	632594	920557
A-21	633395	920866	A-58	632747	918914	B-10	632965	920844	D-02	632145	919505	E-06	632601	920532
A-22	633398	920760	A-59	632742	918858	B-11	632926	920869	D-03	632133	919598	E-07	632640	920473
A-23	633397	920650	A-60	632764	918838	B-12	632882	920857	D-04	632114	919629	E-08	632656	920445
A-24	633402	920538	A-61	632756	918829	B-13	632840	920848	D-05	632120	919654	E-09	632625	920417
A-26	633402	920440	A-62	632734	918836	C-01	632716	918887	D-06	632129	919701	E-10	632630	920389
A-27	633532	920434	A-63	632685	918778	C-02	632691	918908	D-07	632148	919705	E-11	632646	920345
A-28	633692	920432	A-64	632696	918751	C-03	632554	918914	D-08	632156	919755	E-12	632650	920280
A-29	633743	920412	A-65	632762	918764	C-04	632501	918964	D-09	632154	919867	E-13	632643	920176
A-30	633759	920364	A-66	632800	918803	C-05	632362	918965	D-10	632080	919885	E-14	632633	920098
A-31	633759	920237	A-67	632888	918814	C-06	632228	918969	D-11	632083	920046	E-15	632640	920035
A-32	633758	920082	A-68	632943	918815	C-07	632204	918943	D-12	632140	920054	E-16	632655	919997
A-33	633797	920079	A-69	633014	918846	C-08	632199	918811	D-13	632129	920173	E-17	632623	919996
A-34	633845	920057	A-70	633055	918874	C-09	632210	918811	D-14	632126	920296	E-18	632430	919990
A-35	633876	919991	A-71	633147	918895	C-10	632253	918818	D-15	632133	920342	E-19	632452	919965
A-36	633870	919762	A-72	633212	918926	C-11	632265	918779	D-16	632176	920388	E-20	632539	919975
A-37	633862	919624	A-73	633270	918933	C-12	632309	918777	D-17	632225	920517	E-21	632589	919956
A-38	633861	919397	A-74	633349	918960	C-13	632306	918737	D-18	632168	920534	E-22	632624	919916
A-39	633853	919358	A-75	633348	919058	C-14	632272	918738	D-19	632175	920542	E-23	632646	919883
A-40	633831	919326	A-76	633757	919226	C-15	632262	918763	D-20	632237	920545	E-24	632651	919833

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	SHT. 19 OF 20

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PREPARED FOR:



GOLDER ASSOCIATES
6026 NW 1st PLACE
GAINESVILLE, FLORIDA 32607

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
(LICENSE NO. 10,490)

WETLAND COORDINATE LISTINGS PREVIOUSLY SURVEYED BY OTHERS

Wetland State Plane
Flag # Florida East (901)
Northing Easting

E-25	632647	919795
E-26	632623	919761
E-27	632497	919762
E-28	632488	919667
E-29	632497	919611
E-30	632550	919607
E-31	632549	919570
E-32	632463	919546
E-33	632364	919522
E-34	632347	919526
E-35	632350	919617
E-36	632359	919627
E-38	632457	919630
E-39	632454	919645
E-40	632355	919648
E-41	632348	919716
E-42	632347	919807
E-43	632354	919837
E-44	632343	919847
E-45	632319	919836
E-46	632273	919842
E-47	632214	919841
E-48	632210	919772
E-49	632196	919753
E-50	632173	919757
E-51	632170	919876
E-52	632176	920044
E-53	632162	920060
E-54	632163	920136
E-55	632144	920221
E-56	632141	920284
E-57	632153	920312
E-58	632187	920362
E-59	632282	920376
E-60	632293	920401
E-61	632272	920447

E-62	632318	920425
E-63	632357	920414
E-64	632364	920380
E-65	632332	920366
E-66	632372	920339
E-67	632427	920336
E-68	632447	920333
E-69	632440	920356
E-70	632398	920364
E-71	632382	920378
E-72	632374	920430
E-73	632391	920517
E-74	632407	920531
E-75	632480	920531
E-76	632483	920546
E-77	632443	920565
E-78	632419	920554
E-79	632402	920553
E-80	632394	920584
E-81	632406	920654
E-82	632482	920673
E-83	632537	920687
E-84	632581	920696
F-01	632326	919524
F-02	632333	919618
F-03	632333	919722
F-04	632328	919802
F-05	632305	919826
F-06	632256	919828
F-07	632235	919822
F-08	632225	919796
F-09	632228	919732
F-10	632175	919726
F-11	632166	919689
F-12	632184	919669
F-13	632181	919654

F-14	632157	919623
F-15	632157	919577
F-16	632167	919499
F-17	632213	919488
F-18	632318	919510
G-01	632246	920507
G-02	632263	920550
G-03	632311	920596
G-04	632343	920615
G-05	632381	920589
G-06	632376	920535
G-07	632339	920514
G-08	632342	920500
G-09	632373	920499
G-10	632365	920464
G-11	632343	920454
G-12	632269	920467
H-01	632747	919994
H-02	632746	919848
H-03	632746	919800
H-04	632737	919730
H-05	632753	919669
H-06	632826	919701
H-07	632956	919686
H-08	632952	919720
H-09	632952	919830
H-10	632961	919921
H-11	632963	919999
I-01	632440	919495
I-02	632310	919473
I-03	632263	919461
I-04	632197	919445
I-05	632211	919392
I-06	632225	919381
I-07	632197	919370
I-08	632202	919341

I-09	632299	919334
I-10	632448	919333
I-11	632449	919365
I-12	632437	919378
J-1	633007	920135
J-2	632982	920149
J-3	632888	920169
J-4	632886	920124
J-6	632970	920107
J-7	633009	920119

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6026 NW 1st PLACE
GAINESVILLE, FLORIDA 32607

ROBERT M. JONES
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER
(LICENSE NO. 16,490)

LAUDERDALE PLANT BOUNDARY LEGAL DESCRIPTION:

A PORTION OF SECTION 25, TOWNSHIP 30 SOUTH, RANGE 41 EAST AND A PORTION OF SECTIONS 19, 20 AND 30, TOWNSHIP 30 SOUTH, RANGE 42 EAST OF BROWARD COUNTY, FLORIDA; BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCE AT THE CENTER OF SAID SECTION 30-50-42; THENCE S14°18'17"E, ALONG EAST LINE OF THE SW1/4 OF SAID SECTION 30, FOR 814.58 FEET TO THE APPROXIMATE CENTERLINE OF THE DANIA CUT-OFF CANAL, BEING THE POINT OF BEGINNING OF HEREINAFTER DESCRIBED BOUNDARY:

FROM SAID POINT OF BEGINNING, THENCE S88°44'30"W, ALONG SAID APPROXIMATE CENTERLINE, FOR 3241.52 FEET TO THE INTERSECTION WITH THE EASTERLY RIGHT-OF-WAY LINE OF THE SOUTH NEW RIVER CANAL, 12-11, 260 WIDE R.W., AS SHOWN ON "ROUTE 441 RESOURCE RECOVERY SITE" PLAT RECORDED IN PLAT BOOK 132 AT PAGE 41; P.B. 132 P. 41. THENCE S30°46'40"E, ALONG SAID EASTERLY RIGHT-OF-WAY LINE, FOR 450.45 FEET, (BEING 120°00'00"E, CONTINUING ALONG SAID EASTERLY RIGHT-OF-WAY LINE, FOR 1200.99 FEET TO A POINT ON THE COMMON SECTION LINE BETWEEN SECTION 25-50-41 AND SECTION 30-50-42; THENCE N22°11'50"E, FOR 847.75 FEET; THENCE N22°17'07"E, ALONG EASTERLY LINE OF PARCEL 2-A, AS DESCRIBED IN O.R.B. 15858 AT PAGE 344 P. 8 C.F.; THENCE N37°00'52"E, CONTINUING ALONG EASTERLY LINE OF SAID PARCEL 2-A, FOR 371.26 FEET; THENCE N38°52'20"E, ALONG LAST DESCRIBED LINE, FOR 390.68 FEET; THENCE N61°13'50"E, CONTINUING ALONG EASTERLY LINE OF SAID PARCEL 2-A, FOR 687.79 FEET TO A POINT ON THE NORTH LINE OF THE NW1/4 OF SECTION 30-50-42; THENCE S88°56'29"E, ALONG SAID NORTH LINE, ALSO BEING THE SOUTH LINE OF PARCEL 1, AS DESCRIBED IN O.R.B. 16063 AT PAGE 516 P. 8 C.F.; FOR 574.55 FEET TO THE NORTH LINE OF PARCEL 1; THENCE S12°20'17"E, ALONG THE EAST LINE OF THE NW1/4 OF SEC. 30-50-42, FOR 125.00 FEET; THENCE N66°27'10"E, CONTINUING ALONG THE SOUTHERLY LINE OF LAST DESCRIBED PARCEL 1, FOR 7444.55 FEET; THENCE N13°12'10"W, ALONG LINE 275 FEET WEST OF AND PARALLEL TO THE EAST LINE OF SECTION 19-50-42, FOR 400.00 FEET; THENCE S20°20'52"E, FOR 551.19 FEET TO A POINT ON THE NORTH LINE OF THE SW1/4 OF SAID SECTION 20; THENCE N37°32'19"W, ALONG WEST LINE OF SAID SECTION 20, FOR 460.00 FEET TO THE NORTHWEST CORNER OF THE SW1/4 OF SAID SECTION 20; THENCE N88°20'02"E, ALONG NORTH LINE OF SAID SECTION 20, FOR 460.00 FEET TO THE NORTHWEST CORNER OF THE SW1/4 OF SAID SECTION 20; THENCE S24°45'55"E, ALONG THE WEST LINE OF SAID SECTION 20, FOR 196.50 FEET TO A POINT ON THE NORTH LINE OF THE SW1/4 OF SAID SECTION 20; THENCE S88°18'50"W, ALONG THE NORTH LINE OF LAST DESCRIBED SECTION 20, ALSO BEING THE NORTH LINE OF PARCEL DESCRIBED IN O.R.B. 13396 AT PAGE 92 P. 8 C.F.; FOR 515.16 FEET TO THE NORTHWEST CORNER OF THE SW1/4 OF THE SW1/4 OF SAID SECTION 20; THENCE S37°01'47"E, ALONG THE WEST LINE OF THE SW1/4 OF SAID SECTION 20, ALSO BEING THE WEST LINE OF LAST DESCRIBED PARCEL, FOR 680.05 FEET TO THE SOUTHWEST CORNER OF SAID SW1/4 OF SAID SECTION 20; THENCE S88°48'27"W, ALONG THE SOUTH LINE OF THE SW1/4 OF SECTION 20, FOR 647.77 FEET TO THE SECTION CORNER COMMON TO SECTIONS 19, 20 AND 30; THENCE S14°47'55"E, ALONG THE EAST LINE OF THE NW1/4 OF SAID SECTION 30-50-42, FOR 618.19 FEET; THENCE S88°56'29"W, FOR 100.00 FEET; THENCE S14°15'E, ALONG THE EAST LINE OF LAST DESCRIBED PARCEL, FOR 150.00 FEET TO THE POINT OF CURVATURE OF A CIRCULAR CURVE TO THE LEFT; THENCE WESTERLY AND SOUTHWESTERLY ALONG THE ARC OF SAID CURVE TO THE LEFT, HAVING FOR ITS ELEMENTS: A CENTRAL ANGLE OF 24°15'20"; A RADIUS OF 500.00 FEET; FOR AN ARC DISTANCE OF 128.75 FEET TO THE POINT OF TANGENCY; THENCE S84°25'31"W, FOR 750.00 FEET; THENCE S85°12'10"W, FOR 144.62 FEET TO THE NORTHWEST CORNER OF PARCEL 105-DESCRIBED IN O.R.B. 15188 AT PAGE 453 P. 8 C.F.; THENCE S88°20'18"W, ALONG THE NORTH LINE OF LAST DESCRIBED PARCEL 105, FOR 976.52 FEET; THENCE S14°18'17"E, ALONG THE WEST LINE OF LAST DESCRIBED PARCEL 105, FOR 461.61 FEET; THENCE S88°12'52"W, ALONG A LINE 40 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF THE NW1/4 OF SAID SECTION 30, FOR 161.61 FEET; THENCE S88°09'10"W, FOR 100.00 FEET; THENCE S14°18'17"E, FOR 50.01 FEET; THENCE S88°09'10"W, FOR 100.01 FEET TO A POINT ON THE WEST LINE OF THE SW1/4 OF SAID SECTION 30; THENCE S14°18'17"E, ALONG THE WEST LINE OF SAID SW1/4, FOR 753.69 FEET TO THE POINT OF BEGINNING; LESS THAT PORTION OF THE DANIA CUT-OFF CANAL WHICH LIES BELOW THE MEAN HIGH WATER LINE.

THE ABOVE DESCRIBED BOUNDARY, INCLUSIVE OF SAID PORTION OF THE DANIA CUT-OFF CANAL, CONTAINS 391.947 ACRES, MORE OR LESS.

FLORIDA POWER & LIGHT COMPANY LAUDERDALE PLANT BROWARD COUNTY FLORIDA

ORDER NO. 3382
F. B. PGS.

DATE: JUNE 1989
SCALE: 1" = 200'

A. R. TOUSSAINT & ASSOCIATES, INC.
LAND SURVEYORS

620 N.E. 125th STREET NORTH, MIAMI, FLA. 33161

PH. (305) 891-7340 FAX. (305) 853-0325

SCALE IN FEET
0' 100' 200' 1000'

NORTH

SCALE: 1" = 200'

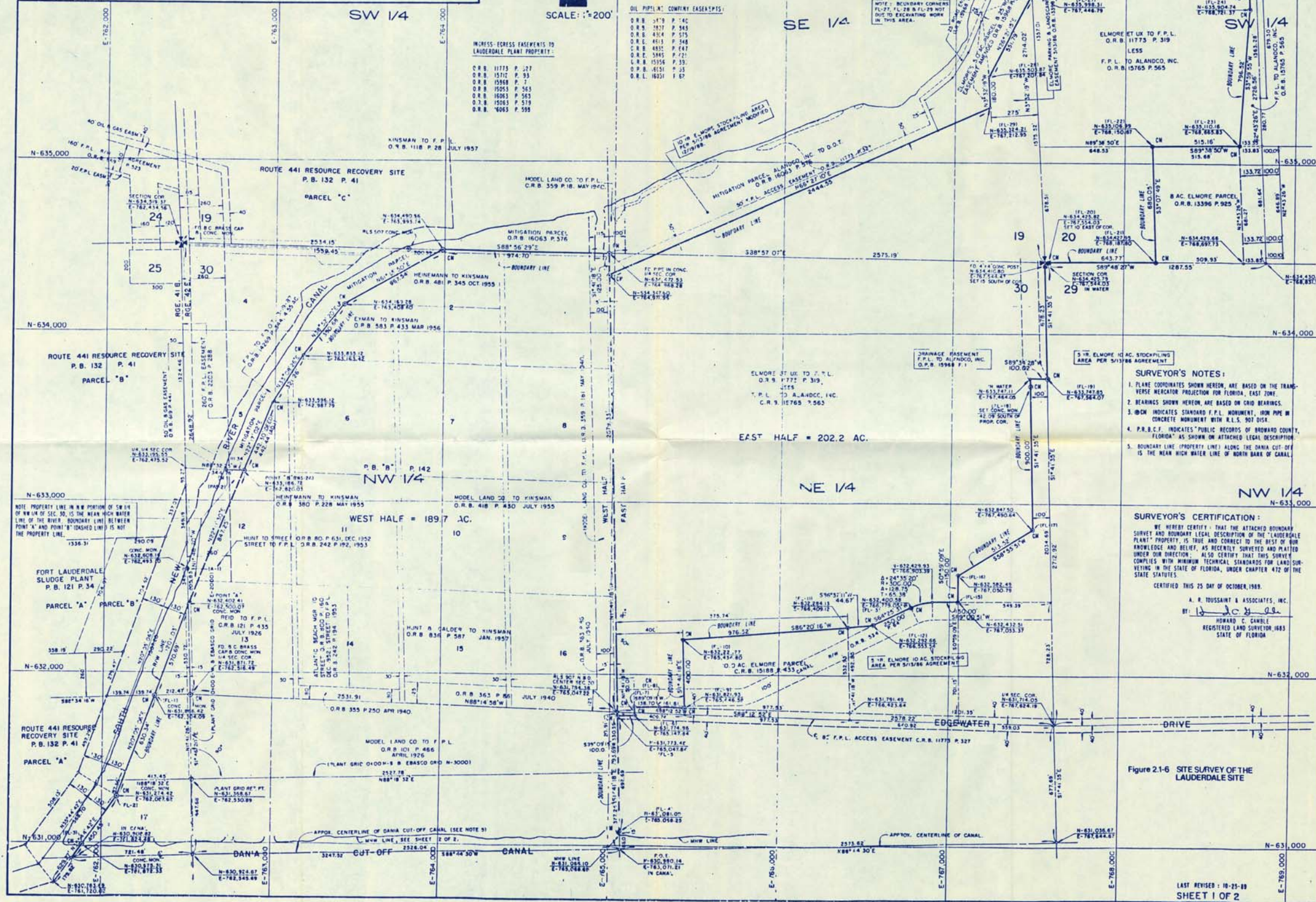
INCORPORATED EASEMENTS TO
LAUDERDALE PLANT PROPERTY:

O.R.B. 11773 P. 227
O.R.B. 15712 P. 33
O.R.B. 15968 P. 7
O.R.B. 15051 P. 563
O.R.B. 16063 P. 583
O.R.B. 15063 P. 519
O.R.B. 16063 P. 598

OIL PIPELINE COMPANY EASEMENTS:

O.R.B. 1478 P. 142
O.R.B. 1517 P. 348
O.R.B. 4184 P. 575
O.R.B. 4113 P. 348
O.R.B. 4835 P. 647
O.R.B. 5445 P. 721
O.R.B. 15156 P. 33
O.R.B. 4531 P. 11
O.R.B. 16031 P. 67

NOTE: BOUNDARY CORNERS
FL-27, FL-28 & FL-29 NOT
DUE TO EXCAVATING WORK
IN THIS AREA.



SURVEYOR'S NOTES:

1. PLANE COORDINATES SHOWN HEREON ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR FLORIDA, EAST ZONE.
2. BEARINGS SHOWN HEREON ARE BASED ON GRID BEARINGS.
3. CM INDICATES STANDARD F.P.L. MONUMENT, IRON PIPE IN CONCRETE MONUMENT WITH R.L.S. 90° DISK.
4. P.B., B.C.F. INDICATES "PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA" AS SHOWN ON ATTACHED LEGAL DESCRIPTION.
5. BOUNDARY LINE (PROPERTY LINE) ALONG THE DANIA CUT-OFF IS THE MEAN HIGH WATER LINE OF NORTH BANK OF CANAL.

SURVEYOR'S CERTIFICATION:

WE HEREBY CERTIFY THAT THE ATTACHED BOUNDARY SURVEY AND BOUNDARY LEGAL DESCRIPTION OF THE "LAUDERDALE PLANT" PROPERTY, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF, AS RECENTLY SURVEYED AND PLATTED UNDER OUR DIRECTION. ALSO CERTIFY THAT THIS SURVEY COMPLETES WITH MINIMUM TECHNICAL STANDARDS FOR LAND SURVEYING IN THE STATE OF FLORIDA, UNDER CHAPTER 472 OF THE STATE STATUTES.

CERTIFIED THIS 25 DAY OF OCTOBER, 1989.

A. R. TOUSSAINT & ASSOCIATES, INC.
BY: *[Signature]*
HOWARD C. CANNON
REGISTERED LAND SURVEYOR, 1983
STATE OF FLORIDA

Figure 21-6 SITE SURVEY OF THE LAUDERDALE SITE

ATTACHMENT D

**USACE WETLAND DATASHEETS AND W.A.T.E.R. WETLAND
FUNCTIONAL ASSESSMENT**

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site: <u>Dania Beach Energy Center</u>	Date: <u>August 2013 and May 2017</u>
Applicant/Owner: <u>FPL</u>	County: <u>Broward</u>
Investigator: <u>Arrants / Bullock / Zions</u>	State: <u>Florida</u>
Do Normal Circumstances exist on the site? ☒ Yes ☐ No	Community ID: <u>Wetlands A, E, F, G, H, I, X</u>
Is the site significantly disturbed (Atypical Situation)? ☐ Yes ☒ No	Transect ID: _____
Is Area a Potential Problem Area? (if needed, explain on reverse) ☐ Yes ☒ No	Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 <i>Casuarina equisetifolia</i>	C	FAC	8 <i>Acrostichum danaeifolium</i>	H	OBL
2 <i>Schinus terebinthifolia</i>	Shrub	FAC	9 <i>Chrysobalanus icaco</i>	Shrub	FACW
3 <i>Persea palustris</i>	C	FACW	10 <i>Myrsine guianensis</i>	Shrub	FAC
4 <i>Osmunda regalis</i>	H	OBL	11 <i>Ardisia escallonioides</i>	Shrub	FAC
5 <i>Melaleuca quinquenervia</i>	C	FAC	12 <i>Acer rubrum</i>	C	FAC
6 <i>Annona glabra</i>	SC	OBL	13 <i>Myrsine cubana</i>	C	FAC
7 <i>Cladium jamaicense</i>	H	OBL	14 <i>Psychotria nervosa</i>	Shrub	FAC

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100

Remarks: _____

HYDROLOGY

☒ Recorded Data (describe in Remarks) ☐ Stream, Lake, or Tide Gauge ☒ Aerial Photographs ☐ Other ☐ No recorded data available	Wetland Hydrology Indicators: Primary Indicators: ☒ Inundated ☒ Saturated in Upper 12 inches ☒ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☒ Drainage Patterns in Wetlands
Field Observations: Depth of Surface Water: <u>0"+</u> (In.) Depth to Free Water in Pit: _____ (In.) Depth to Saturated Soil: <u>0</u> (In.)	Secondary Indicators (2 or more required): ☒ Oxidized Root Channels in Upper 12" ☐ Water-Stained Leaves ☒ Local Soil Survey Data ☒ FAC-Neutral Test ☐ Other (explain in remarks)
Remarks: _____	

SOILS

Map Unit Name (Series and Phase): <u>Okeelanta Muck</u>	Drainage Class: <u>Very poorly drained</u> Circle				
Taxonomy (Subgroup): <u>Hyperthermic Terric Haplosaprists</u>	Field Observations Confirm Mapped Type? Yes No				
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-8"	Oap	N-2			Rubbed Sapric material muck
8-31	Oa	5YR 2/2	10YR 3/2		
Hydric Soil Indicators: ☐ Histosol ☐ Histic Epipedon ☐ Sulfidic Odor ☒ Aquic Moisture Regime ☒ Reducing Conditions ☒ Gleyed or Low-Chroma Colors ☐ Concretions ☐ Organic Streaking in Sandy Soils ☐ High Organic Content in Surface Layer in Sandy Soils ☐ Listed on National Hydric Soils List ☐ Listed on Local Hydric Soils List ☐ Other (explain in remarks)					
Remarks: _____					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No	Is this Sampling Point Within a Wetland? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No	
Hydric Soils Present? ☒ Yes ☐ No	
Remarks: _____	

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site: <u>Dania Beach Energy Center</u>	Date: <u>August 2013</u>
Applicant/Owner: <u>FPL</u>	County: <u>Broward</u>
Investigator: <u>Arrants / Bullock</u>	State: <u>Florida</u>
Do Normal Circumstances exist on the site? ☐ Yes ☐ No	Community ID: <u>Wetland B and C</u>
Is the site significantly disturbed (Atypical Situation)? ☐ Yes ☐ No	Transect ID: _____
Is Area a Potential Problem Area? (if needed, explain on reverse) ☐ Yes ☐ No	Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 <i>Casuarina equisetifolia</i>	C	FACU	8 <i>Acrostichum danaeifolium</i>	H	OBL
2 <i>Schinus terebinthifolia</i>	Shrub	FAC	9 <i>Osmunda regalis</i>	H	OBL
3 <i>Salix caroliniana</i>	Shrub	OBL	10 <i>Chrysobalanus icaco</i>	Shrub	FACW
4 <i>Cladium jamaicense</i>	H	OBL	11 <i>Pennisetum purpureum</i>	H	FAC
5 <i>Ardisia elliptica</i>	Shrub	FAC	12 _____		
6 <i>Annona glabra</i>	C	OBL	13 _____		
7 <i>Colocasia antiquorum</i>	H	OBL	14 _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 88%

Remarks: _____

HYDROLOGY

☒ Recorded Data (describe in Remarks) ☐ Stream, Lake, or Tide Gauge ☒ Aerial Photographs ☐ Other ☐ No recorded data available Field Observations: Depth of Surface Water: <u>0+</u> " (In.) Depth to Free Water in Pit: _____ (In.) Depth to Saturated Soil: _____)"+" (In.)	Wetland Hydrology Indicators: Primary Indicators: ☒ Inundated ☒ Saturated in Upper 12 inches ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☒ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ☒ Oxidized Root Channels in Upper 12" ☐ Water-Stained Leaves ☒ Local Soil Survey Data ☐ FAC-Neutral Test ☐ Other (explain in remarks)
Remarks: _____	

SOILS

Map Unit Name (Series and Phase): <u>Okeelanta Muck</u>	Drainage Class: <u>Very poorly drained</u> Circle				
Taxonomy (Subgroup): <u>Hyperthermic Terric Haplosaprists</u>	Field Observations Confirm Mapped Type? Yes No				
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-8"	Oap	N/2			Sapric material muck
8-31"	Oa	5YR 2/2	10YR 3/2		Sapric material muck
Hydric Soil Indicators: ☐ Histosol ☐ Histic Epipedon ☐ Sulfidic Odor ☒ Aquic Moisture Regime ☒ Reducing Conditions ☒ Gleyed or Low-Chroma Colors ☐ Concretions ☐ Organic Streaking in Sandy Soils ☐ High Organic Content in Surface Layer in Sandy Soils ☐ Listed on National Hydric Soils List ☐ Listed on Local Hydric Soils List ☐ Other (explain in remarks)					
Remarks: _____					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes	☐ No	Is this Sampling Point Within a Wetland?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No			
Hydric Soils Present?	☒ Yes	☐ No			
Remarks: _____					

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site: <u>Dania Beach Energy Center</u>	Date: <u>August 2013 and May 2017</u>
Applicant/Owner: <u>FPL</u>	County: <u>Broward</u>
Investigator: <u>Arrants / Bullock / Zions</u>	State: <u>Florida</u>
Do Normal Circumstances exist on the site? ☒ Yes ☐ No	Community ID: <u>Wetland D</u>
Is the site significantly disturbed (Atypical Situation)? ☒ Yes ☐ No	Transect ID: _____
Is Area a Potential Problem Area? (if needed, explain on reverse) ☐ Yes ☒ No	Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 <i>Laguncularia racemosa</i>	C	OBL	8 <i>Pennisetum purpureum</i>	H	FAC
2 <i>Annona glabra</i>	Shrub	OBL	9 <i>Fimbristylis spathacea</i>	H	FACW
3 <i>Avicennia germinans</i>	C	OBL	10 <i>Ardisia elliptica</i>	Shrub	FAC
4 <i>Schinus terebinthifolius</i>	Shrub	FAC	11 <i>Chrysobalanus icaco</i>	Shrub	FACW
5 <i>Baccharis angustifolia</i>	Shrub	FACW	12 _____		
6 <i>Rhizophora mangle</i>	C	OBL	13 _____		
7 <i>Casuarina equisetifolia</i>	C	FAC	14 _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100

Remarks: _____

HYDROLOGY

☐ Recorded Data (describe in Remarks) ☐ Stream, Lake, or Tide Gauge ☒ Aerial Photographs ☐ Other ☐ No recorded data available Field Observations: Depth of Surface Water: <u>72+</u> (In.) Depth to Free Water in Pit: _____ (In.) Depth to Saturated Soil: <u>0</u> (In.)	Wetland Hydrology Indicators: Primary Indicators: ☒ Inundated ☒ Saturated in Upper 12 inches ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☒ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ☒ Oxidized Root Channels in Upper 12" ☐ Water-Stained Leaves ☒ Local Soil Survey Data ☐ FAC-Neutral Test ☐ Other (explain in remarks)
Remarks: _____	

SOILS

Map Unit Name (Series and Phase): <u>Arents, Organic Sub-Urban Land Complex/ Okeelanta</u>	Drainage Class: Very poorly drained Circle																
Taxonomy (Subgroup): _____	Field Observations Confirm Mapped Type? Yes No																
Profile Description:																	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.												
0-8"	A				Gravely sand												
0-10"	Oa	N-5			Muck												
Hydric Soil Indicators: <table style="width: 100%;"> <tr> <td>☐ Histosol</td> <td>☒ Reducing Conditions</td> <td>☐ High Organic Content in Surface Layer in Sandy Soils</td> </tr> <tr> <td>☐ Histic Epipedon</td> <td>☒ Gleyed or Low-Chroma Colors</td> <td>☐ Listed on National Hydric Soils List</td> </tr> <tr> <td>☐ Sulfidic Odor</td> <td>☐ Concretions</td> <td>☐ Listed on Local Hydric Soils List</td> </tr> <tr> <td>☒ Aquic Moisture Regime</td> <td>☐ Organic Streaking in Sandy Soils</td> <td>☐ Other (explain in remarks)</td> </tr> </table>						☐ Histosol	☒ Reducing Conditions	☐ High Organic Content in Surface Layer in Sandy Soils	☐ Histic Epipedon	☒ Gleyed or Low-Chroma Colors	☐ Listed on National Hydric Soils List	☐ Sulfidic Odor	☐ Concretions	☐ Listed on Local Hydric Soils List	☒ Aquic Moisture Regime	☐ Organic Streaking in Sandy Soils	☐ Other (explain in remarks)
☐ Histosol	☒ Reducing Conditions	☐ High Organic Content in Surface Layer in Sandy Soils															
☐ Histic Epipedon	☒ Gleyed or Low-Chroma Colors	☐ Listed on National Hydric Soils List															
☐ Sulfidic Odor	☐ Concretions	☐ Listed on Local Hydric Soils List															
☒ Aquic Moisture Regime	☐ Organic Streaking in Sandy Soils	☐ Other (explain in remarks)															
Remarks: _____																	

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No	Is this Sampling Point Within a Wetland? ☒ Yes ☐ No
Wetland Hydrology Present? ☒ Yes ☐ No	
Hydric Soils Present? ☒ Yes ☐ No	
Remarks: _____	

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project Site: <u>FPL Dania Beach Energy Center</u>	Date: <u>August 2013</u>
Applicant/Owner: <u>Florida Power and Light Co.</u>	County: <u>Broward</u>
Investigator: <u>Arrants / Bullock</u>	State: <u>Florida</u>
Do Normal Circumstances exist on the site? ☐ Yes ☐ No	Community ID: <u>Wetland J</u>
Is the site significantly disturbed (Atypical Situation)? ☐ Yes ☐ No	Transect ID: _____
Is Area a Potential Problem Area? (if needed, explain on reverse) ☐ Yes ☐ No	Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 <i>Sagittaria lancifolia</i>	H	OBL	8		
2 <i>Ludwigia repens</i>	H	OBL	9		
3 <i>Annona glabra</i>	Scrub	OBL	10		
4 <i>Mikania scandens</i>	Vine	OBL	11		
5 <i>Ludwigia leptocarpa</i>	H	FACW	12		
6 <i>Polygonum spp.</i>	H	FACW	13		
7			14		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100

Remarks: _____

HYDROLOGY

☐ Recorded Data (describe in Remarks) ☐ Stream, Lake, or Tide Gauge ☒ Aerial Photographs ☐ Other ☐ No recorded data available Field Observations: Depth of Surface Water: <u>0</u> (In.) Depth to Free Water in Pit: _____ (In.) Depth to Saturated Soil: <u>0</u> (In.)	Wetland Hydrology Indicators: Primary Indicators: ☐ Inundated ☒ Saturated in Upper 12 inches ☐ Water Marks ☐ Drift Lines ☐ Sediment Deposits ☒ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ☒ Oxidized Root Channels in Upper 12" ☐ Water-Stained Leaves ☒ Local Soil Survey Data ☐ FAC-Neutral Test ☐ Other (explain in remarks)
Remarks: _____	

SOILS

Map Unit Name (Series and Phase): <u>Arents, Organic Substratum-Urban Land Complex</u>	Drainage Class: Poorly drained Circle				
Taxonomy (Subgroup): _____	Field Observations Confirm Mapped Type? Yes No				
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Size/Contrast	Texture, Concretions, Structure, etc.
0-8	A-1	10YR 4/2			Gravelly sand

Hydric Soil Indicators:		
☐ Histosol	☒ Reducing Conditions	☐ High Organic Content in Surface Layer in Sandy Soils
☐ Histic Epipedon	☒ Gleyed or Low-Chroma Colors	☐ Listed on National Hydric Soils List
☐ Sulfidic Odor	☐ Concretions	☐ Listed on Local Hydric Soils List
☐ Aquic Moisture Regime	☐ Organic Streaking in Sandy Soils	☐ Other (explain in remarks)

Remarks: _____

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No	Is this Sampling Point Within a Wetland?	☒ Yes ☐ No
Wetland Hydrology Present?	☒ Yes ☐ No		
Hydric Soils Present?	☒ Yes ☐ No		
Remarks: _____			

FPL Everglades Mitigation Bank

Mitigation Bank Site Suitability Evaluation (MBSE) Matrix

Page 1 of 1

Parameters			
(Site Suitability created by: Donaldson Hearing)		FPL Dania Beach Energy Center	
Parameter	Scoring Criteria	Ratings	Score
1. Adjacent to lands or waters of regional Importance and results in identifiable ecological benefits to adjacent lands or waters.	State Park, OFW, AP, and including but not limited to Special Waters on at least 1 boundary	1	0
	Adjacent lands contain no special designation or undesignated special value	0	
2. Property is within boundary of an acknowledged state, local or regional acquisition program	Property is within boundary of an acquisition program	1	0
	Property is not within boundary of an acquisition program	0	
3. Property contains ecological or geological features consistently considered by regional Scientist, or federal and state agencies to be unusual, unique or rare in the region and is of sufficient size	Property qualifies	1	0
	Property does not qualify	0	
4. Property designated as being of critical state or federal concern and/or contains special designations,	Property contains at least 1 special designation.	1	0
	Property contains no special designations.	0	
5. Property important to acknowledged restoration efforts	Property is important.	1	0
	Property is not important.	0	
6. Ownership and control of the property.	Property is privately owned.	1	1
	Property is publicly owned.	0	
7. Threatened , Endangered & Species of Special Concern Presence of animal species (faunal) found on site	Documented Presence of Species on site	1	1
	No documented Presence of species on site.	0	
8. Threatened , Endangered & Listed Species Presence of plant species (floral) found on site	Documented Presence of Species on site	1	0
	No documented Presence of species on site.	0	
9. Threat of loss or destruction from development activities. (Development Pressure)	High probability of development.	1	0
	Low probability of development.	0	
10. Extent to which lands are subject to Local, State, and Federal dredge and fill/ ERP Regulations	Property is regulated.	1	1
	Property is not regulated.	0	
Value Cumulative Score (CS)			3

The Mitigation Bank Site Suitability Evaluation Matrix is designed to provide a quantifiable means of determining the number of mitigation credits that should be assigned to a bank for "value" related parameters. Value related parameters are human values determined to be important to society; and therefore are not measurable in a purely functional analysis. Functional analysis will only measure the degree of functional ecological improvement (degree of ecological improvement) resulting from mitigation activities. The SS Evaluation measures and provides credit for societal values that separate one mitigation bank from another as required by Ch. 62-342 .470 (a) (b) (e) (f) (g) (h) (i) F.A.C.. The SS evaluation is not to be utilized in conjunction with a functional analysis methodology which also utilizes value related parameters in its analysis.

Evaluation Scale	
Site	Suitability
1.0	1.10
.9	1.09
.8	1.08
.7	1.07
.6	1.06
.5	1.05
.4	1.04
.3	1.03
.2	1.02
.1	1.01
0	0

Site Suitability Matrix		
Maximum Possible Score (MPS)		10
Cumulative Score (CS)		3

0.3

EPA, USACOE, USF & W, FDEP, NMFS, SFWMD, Dade DERM, FPL, CH

3-Apr-96

After Calculating the Site Suitability Score determine the Site Suitability Multiplier by utilizing the Evaluation Scale to the left. The Site Suitability Multiplier is to be multiplied times the number of the Functional Mitigation Credits, resulting from the (W.A.T.E.R.) Functional Assessment of the Mitigation Bank, to determine the number of Site Suitability Credits to be assigned to the Mitigation Bank.

Mitigation Bank Wetland Function -- Evaluation Matrix

Scoring conducted by: Karl Bullock

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Project: FPL Dania Beach Energy Center

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Dade County (W.A.T.E.R. created by: Bill L. Maus)

Parameter/ Function	Scoring Criteria	Ratings	Wetlands A, E, F, G, H, I, X		Wetland J		Wetlands B, C		Wetland D
			Native & Exotic Mixed Wetland Hardwoods (FLUCFCS 617/619) - Pre	Native & Exotic Mixed Wetland Hardwoods (FLUCFCS 617/619) - Post	Freshwater Marsh (FLUCFCS 641) - Pre	Freshwater Marsh (FLUCFCS 641) - Post	Exotic Wetland Hardwoods (FLUCFCS 619) - Pre	Exotic Wetland Hardwoods (FLUCFCS 619) - Post	Mangrove (FLUCFCS 612) Existing Condition
1. Fish & Wildlife Functions Apply to freshwater, saltwater, brackish and mitigation systems									
a. Waterfowl, wading birds, wetland dependent, or aquatic birds of prey. (Mit. Bank - High species count w/ low pop. #'s score 1)	7 or more species commonly observed	3	2	0	1	0	1	0	2.5
	3-6 species commonly observed	2							
	1-2 species commonly observed	1							
	0 species commonly observed	0							
b. Fish (Mit. Bank - High species count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	2	0	1	0	1	0	2
	3-6 species commonly observed	2							
	1-2 species commonly observed	1							
	0 species commonly observed	0							
c. Mammals (Mit. Bank - High species count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Top predator (carnivore) &/or large mammals	3	2	0	1	0	2	0	2
	Medium sized mammals , (adult weight > 6 lbs.)	2							
	Small animals (rodents, etc.) , (adult weight < 6 lbs.)	1							
	0 species present	0							
d. Aquatic macroinvertebrates, amphibians (Mit. Bank - High species count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	7 or more species commonly observed	3	2	0	2	0	2	0	3
	3-6 species commonly observed	2							
	1-2 species commonly observed	1							
	0 species commonly observed	0							
e. Aquatic reptiles (Mit. Bank - High species count w/ low pop. #'s score 1 Restoration that causes 12% pop. Increases-higher score)	Large species observed	3	1.5	0	1.5	0	1	0	2
	Aquatic turtles	2							
	Snakes & lizards	1							
	No evidence of species present	0							

Mitigation Bank Wetland Function -- Evaluation Matrix

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Dade County (W.A.T.E.R. created by: Bill L. Maus)

Scoring conducted by: Karl Bullock

Project: FPL Dania Beach Energy Center

Parameter/ Function	Scoring Criteria	Ratings	Wetlands A, E, F, G, H, I, X		Wetland J		Wetlands B, C		Wetland D
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2. Vegetative Functions Apply to freshwater, saltwater, brackish and mitigation systems									
a. Overstory/shrub canopy	Desirable trees/shrub healthy & providing appropriate habitat (seedlings present) & no inappropriate species	3	2	0	2	0	1.5	0	3
	Desirable trees/shrubs exhibit signs of stress (no seedlings) few inappropriate species present	2							
	Inappropriate trees/shrubs shading or overcoming desirable tree/shrubs	1							
	Very little or no desirable trees/shrubs present (evidence suggests there should be)	0							
b. Vegetative ground cover	Assessment area exhibits <2% inappropriate herbaceous ground cover for specific wetland systems and groundcover is present	3	2	0	2	0	1.5	0	2.5
	Assessment area contains >2% but <30% inappropriate herbaceous groundcover, or lack of groundcover >2% but < 30%	2							
	Assessment area contains >30% to <70% inappropriate herbaceous groundcover, or lack of ground cover >30% to <70%	1							
	Assessment area >70% inappropriate herbaceous groundcover or lack of groundcover >70%	0							
c. Periphyton mat coverage	Periphyton (Blue-green algae) present with average mat thickness >1 1/4 in. (measure active & dead layer)	3	2	0	1.5	0	1	0	2
	Periphyton (Blue-green algae) present with average mat thickness between 3/4 in. to 1 1/4 in. (active & dead layer)	2							
	Periphyton (Blue-green algae) present with average mat thickness between 1/4 in. to 3/4 in. (active & dead layer)	1							
	Periphyton (Blue-green algae) not present or if present with average thickness of 0.0 to 1/4 in. (active & dead layer)	0							
d. Category 1 and Category 2 exotic plants or (non-native) species	< (or = to) 1 % exotic plant cover	3	1.5	0	1.5	0	1	0	2
	>1 % to 10 % exotic plant cover	2							
	>10 % to 65 % exotic plant cover	1							
	> 65 % exotic plant cover	0							
e. Habitat diversity (vegetative) (within assessment area)	>3 native species communities on site within assessment area	3	1.5	0	1.5	0	1.5	0	2
	2 or 3 native species communities on site within assessment area	2							
	1 native species community with 75 % to 90 % coverage within assessment area	1							
	1 native species community has > 90 % coverage within assessment area	0							
f. Biological diversity within 3000 feet (approximately 1/2 mile from edge of assessment area)	> 3 alternative habitats available (including upland)	3	2	0	2	0	2	0	2
	2 to 3 alternative habitats	2							
	1 alternative habitat	1							
	Same habitat type, or inappropriate / impacted	0							

Mitigation Bank Wetland Function -- Evaluation Matrix

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Dade County (W.A.T.E.R. created by: Bill L. Maus)

Scoring conducted by: Karl Bullock

Project: FPL Dania Beach Energy Center

Parameter/ Function	Scoring Criteria	Ratings	Wetlands A, E, F, G, H, I, X		Wetland J		Wetlands B, C		Wetland D
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3. Hydrologic Functions									
a. Surface water hydrology / sheet flow <i>Apply to freshwater, saltwater, brackish and mitigation systems</i>	Major connection (<i>Flowing water/ river or floodplain/ uniform flow through natural systems</i>)	3	1	0	0	0	1	0	2
	Moderate connection (<i>Natural restriction of flow or Flowing water due to hydrologic engineering</i>)	2							
	Minor connection (<i>Runoff collection point, or uneven flow due to berms, ditches, roadways etc.</i>)	1							
	Hydrologically isolated, no net lateral movement	0							
b. Hydroperiod (normal year) fresh systems	> 8 months inundated with no reversals & every year drydown	3	2	0	2	0	1.5	0	2
	>5 months < 8 months or >5 years continuous inundation (look for strong water stains on persistent vegetation)	2							
	>1 month < 5 months, with possible reversals (look for soft or less distinct water stains on persistent vegetation)	1							
	< 4 weeks cumulative annual inundation or < 2 weeks continuous inundation	0							
b-1 Alternate to b. for Short Hydroperiod (normal year) fresh systems:	>10 weeks of continuous inundation including soil saturation	3							
	> 6 weeks but <10 weeks of continuous inundation including soil saturation	2							
	>2 weeks but <6 weeks of inundation, including soil saturation	1							
	<2 weeks of continuos inundation	0							
b-2 Alternate to b. for Saltwater, brackish (tidal) systems	Inundated by >90% high tides								
	Inundated by "spring" high tides (bi-monthly)	2							
	Inundated by "extreme high" tides only (biannually)	1							
	Inundated by storm surges only	0							
b-3 Alternate to b. for High Marsh (Juncus-Distichlis)	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 10 days average	3							
	Inundated by high "spring" tides (monthly) and flushed by fresh water sheetflow every 30 days on the average	2							
	Inundated by high "spring" tides (monthly)and exposed to rain only	1							
	Inundated by >50% high tides and exposed to rain only	0							
b-4 Alternate to b. for Riverine systems	Inundated by high tides (daily) and/or recieves and maintains fresh water at least into first half of dry season	3							
	Inundated by high tides (daily) and/or recieves and maintains fresh water during rainy season only	2							
	Inundated by high tides (daily) and/or recieves fresh water but does not maintain (reversal) during rainy season	1							
	Inundated by spring tides (bi-monthly) and/or experiences frequent reversals of fresh water (flashy)	0							

Mitigation Bank Wetland Function -- Evaluation Matrix

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

Based on WBI, WQI, WRAP, HGM and 4th Priority Project List (PPL) with technical advise from
EPA, FDEP, ACOE, NMFS, USF & W, SFWMD & Dade County (W.A.T.E.R. created by: Bill L. Maus)

Scoring conducted by: Karl Bullock

Project: FPL Dania Beach Energy Center

Parameter/ Function	Scoring Criteria	Ratings	Wetlands A, E, F, G, H, I, X		Wetland J		Wetlands B, C		Wetland D
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3. Hydrologic Functions continued									
c. Hydropattern (fresh system)	>1 ft. water depth for at least 2.5 months and <6 in. for >1 month (measure water mark/ lichen line), or water depth ideal for specific wetland system.	3	2	0	1	0	1	0	2
	>6 in to 1 ft. for at least 2.5 months (measure water mark/ lichen line) or water depth borderline over or under for specific wetland system	2							
	<6 in. for at least 2.5 months (measure water mark/ lichen line) or water depth incorrect for specific wetland system	1							
	<6 in. in association with either canals, ditches, swales, culverts, pumps, and/or wellfields, or these factors cause water depth to be too deep for specific system.	0							
c-1 Alternate to c. for Saltwater, brackish (tidal) systems	>1 ft. water depth <2 ft. on 90% high tides	3							
	> 6 in. water depth <1 ft. on >50% high tides	2							
	< 6 in. water depth , but > than saturated	1							
	Saturated by saline water table only	0							
c-2 Alternate to c. for High Marsh (Juncus-Distichlis)	>10 in. water depth <2 ft. on regular basis during growing season	3							
	>5 in. to 10in. water depth on regular basis during growing season	2							
	>1 in. to 5 in. water depth on regular basis during growing season	1							
	>0.0 in. to 1 in. water depth sporadically during growing season	0							
c-3 Alternate to c. for Riverine systems	>2 ft. water depth (main channel) <6 ft. for 8 months	3							
	>2 ft. water depth (main channel) <4 ft. for 6 months	2							
	>1 ft. water depth (main channel) <2.5 ft. for 4 months	1							
	<1 ft. water depth, but dry for >4 weeks (dry season)	0							

Mitigation Bank Wetland Function -- Evaluation Matrix

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3. Hydrologic Functions continued									
d. Water Quality	No indication of poor water quality (lab testing required, all values within acceptable range)	3	2.5	0	2.5	0	2.5	0	2.5
	No visual indicators of poor water quality observed (1 value just over or under acceptable range)	2							
	Visual indicators of poor water quality questionable (2 values over or under acceptable range)	1							
	Visual indicators of poor water quality observed or lab verified (values are out of acceptable range)	0							
e. Intactness of historic topography (soil disturbance)	Unaltered	3	1	0	0.5	0	1	0	2.5
	Slightly altered soil disturbance, < 10% of assessment area	2							
	Moderately altered soil disturbance, < 25% of assessment area	1							
	Extremely altered soil disturbance, may exceed 50% of assessment area	0							
f. Soils, organic (fresh systems)	Organic soil classified hydric soil >12 in. or any thickness over bedrock/caprock with perched water table and either condition covering >90% of surface area	3	3	0	2	0	2	0	3
	Organic soil classified hydric soil >6 in. but <12 in. and covering >90% of surface area	2							
	Organic soil classified hydric soil >1 in. but <6 in. and covering >50% but <90% of surface area	1							
	Organic soil classified non-hydric soil <1 in. for >50% of surface area	0							
f-1 Alternate to f. for <i>Freshwater, saltwater systems</i>	Sandy soil classified hydric soil with distinct mottling and concretions present in greater than 40% of horizon.	3							
	Sandy soil classified hydric soil with mottling and concretions present in > 20% but < 40% of horizon.	2							
	Sandy soil classified hydric soil with light or sparse mottling and concretions < 2 mm diameter or < 20% of horizon.	1							
	Sandy soil exhibits strong evidence of disturbance or mechanical manipulations or is fill material.	0							
f-2 Alternate to f. for <i>Freshwater, saltwater, brackish (tidal) systems</i>	Calcareous loam >12 in. and >90 % of surface area	3							
	Calcareous loam >6 in. to <12 in. and >90% of surface area	2							
	Calcareous loam >1 in. to <6 in. and covering >50% but <90% of surface area	1							
	Calcareous loam <1 in. for >50% of surface area	0							

Mitigation Bank Wetland Function -- Evaluation Matrix

W.A.T.E.R. - Wetland Assessment Technique for Environmental Reviews

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4. Salinity Parameters Apply to freshwater, saltwater, brackish, hypersaline and mitigation systems - Choose 1									
a. Optimum salinity for fresh systems during growing season based on mean high salinity for a normal year. <i>Apply to freshwater systems within 5 miles of the coast</i>	<2 parts per thousand (ppt)	3	2	0	2	0	2	0	2
	2 to 3 parts per thousand (ppt)	2							
	4 to 5 parts per thousand (ppt)	1							
	>5 parts per thousand (ppt)	0							
a-1. Alternate to a. Optimum salinity for brackish systems during growing season based on mean high salinity for a normal year. <i>Apply to brackish (tidal) systems only</i>	6 to 8 parts per thousand (ppt)	3							
	9 to 13 parts per thousand (ppt)	2							
	14 to 16 parts per thousand (ppt)	1							
	>16 parts per thousand (ppt)	0							
a-2. Alternate to a. Optimum salinity for saline systems during growing season based on mean high salinity for a normal year. <i>Apply to saline marsh (tidal) systems only</i>	17 to 19 parts per thousand (ppt)	3							
	20 to 22 parts per thousand (ppt)	2							
	23 to 25 parts per thousand (ppt)	1							
	>25 parts per thousand (ppt)	0							
a-3. Alternate to a. Optimum salinity for hypersaline systems during growing season based on mean high salinity for a normal year. <i>Apply to hypersaline (tidal) systems only</i>	26 to 41 parts per thousand (ppt)	3							
	42 to 46 parts per thousand (ppt)	2							
	47 to 51 parts per thousand (ppt)	1							
	>51 parts per thousand (ppt)	0							
a-4 Alternate to a. Optimum salinity for riverine/tidal creek system during growing season based on mean high slainity for a normal year. <i>Apply to riverine systems only</i>	bottom (lower) third between 12 to 25 ppt	3							
	middle third between 5 to 11 ppt.								
	upper (top) third between 0 to 4 ppt.								
	bottom (lower) third between 25 to 32 ppt	2							
	middle third between 6 to 24 ppt.								
	upper (top) third between 0 to 5 ppt.								
	bottom (lower) third between 30 to 40 ppt	1							
	middle third between 8 to 29 ppt.								
upper (top) third between 0 to 7 ppt.									
	bottom (lower) third between 35 to 50 ppt	0							
	middle third between 10 to 34 ppt.								
	upper (top) third between 0 to 9 ppt.								
Cumulative Score (SC)			34.0	0.0	27.0	0.0	26.5	0.0	41.0
Maximum Possible Score (MPS)			54.00	54.00	54.00	54.00	54.00	54.00	54.00
W.A.T.E.R. = Cumulative Score/Maximum Possible Score			0.63	0.00	0.50	0.00	0.49	0.00	0.76

W.A.T.E.R. created by: Bill L. Maus

11/1/1995

W.A.T.E.R. created by: Bill L. Maus

11/1/1995

ATTACHMENT E

USFWS EFFECT DETERMINATION KEYS

**FPL Dania Beach Energy Center
Wood Stork Effect Determination Key**

A	Project within 0.76 km (0.47 mile) ² of an active colony site ³	May effect ⁴	
	Project impacts suitable foraging habitat (SFH) ⁵ at a location greater than 0.76 km (0.47 mile) from a colony site	Go to B	
	Project does not affect suitable foraging habitat (SFH)	No effect ¹	X
B	Project impact to SFH less than 0.20 hectare (one-half acre) ⁶	NLAA ¹	
	Project impact to SFH is greater in scope than 0.20 hectare (one-half acre)	Go to C	
C	Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony site	Go to D	
	Project impacts to SFH within the CFA of a colony site	Go to E	
D	Project impacts to SFH have been avoided and minimized to the extent practicable; compensation (Service approved mitigation bank or as provided in accordance with Mitigation Rule 33 CFR Part 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines; and habitat compensation replaces the foraging value matching the hydroperiod ⁷ of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3, <i>Wood Stork Foraging Analysis</i> , for a detailed discussion of the hydroperiod foraging values, an example, and further guidance ⁸	NLAA	
	Project not as above	May affect ⁴	
E	Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the <i>Habitat Management Guidelines for the Wood Stork in the Southeast Region</i> ; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod ⁷ of the wetlands affected, and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3, <i>Wood Stork Foraging Analysis</i> , for a detailed discussion of the hydroperiod foraging values, an example, and further guidance ⁸	NLAA ¹	
	Project does not satisfy these elements	May effect ⁴	

¹ With an outcome of "no effect" or "NLAA" as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

² Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mile).

³ An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

⁴ Consultation may be concluded informally or formally depending on project impacts.

⁵ Suitable foraging habitat (SFH) includes wetlands that typically have shallow-open water areas that are relatively calm and have a permanent or seasonal water depth between 5 to 38 cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural

**FPL Dania Beach Energy Center
Eastern Indigo Snake Effect Determination Key**

A	Project is not located in open water or salt marsh	Go to B	X
	Project is located solely in open water or salt marsh	"no effect" ¹	
B	Permit will be conditioned for use of the Service's <i>Standard Protection Measures for the Eastern Indigo Snake</i> during site preparation and project construction	Go to C	X
	Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested ²	"may affect"	
C	There are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities	Go to D	
	There are no gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities	"not likely to adversely affect (NLAA)" ¹	X
D	The project will impact less than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or less than 25 active and inactive gopher tortoise burrows	Go to E	
	The project will impact more than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested ²	"may affect"	
E	Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be evacuated prior to site manipulation in the vicinity of the burrow ³ . If an indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.	"NLAA"¹	
	Permit will not be conditioned as outlined above and consultation with the Service is requested ²	"may affect"	

¹With an outcome of "no effect" or "NLAA" as outlined in this key, the requirements of Section 7 of the Act are fulfilled for the eastern indigo snake and no further action is required.

²Consultation may be concluded informally or formally depending on project impacts.

³ If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a FWC Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at <http://myfwc.com/gophertortoise>.

ditches, seasonally flooded pastures, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

⁶ *On an individual basis, SFH impacts to wetlands less than 0.20 hectare (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide ranging species, and individually, habitat change from impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.*

⁷ *Several researchers (Fleming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) than long hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these short hydroperiod wetlands within CFAs are avoided, minimized, and compensated for by enhancement/restoration of short hydroperiod wetlands.*

⁸ *For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Enclosure 3, Wood Stork Foraging Analysis, for projects with greater than 2.02 hectares (5 acres) of wetland impacts. For projects with less than 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.*

ATTACHMENT F
CUMULATIVE IMPACT EVALUATION

FPL Dania Beach Energy Center - Wetland Cumulative Impact Assessment

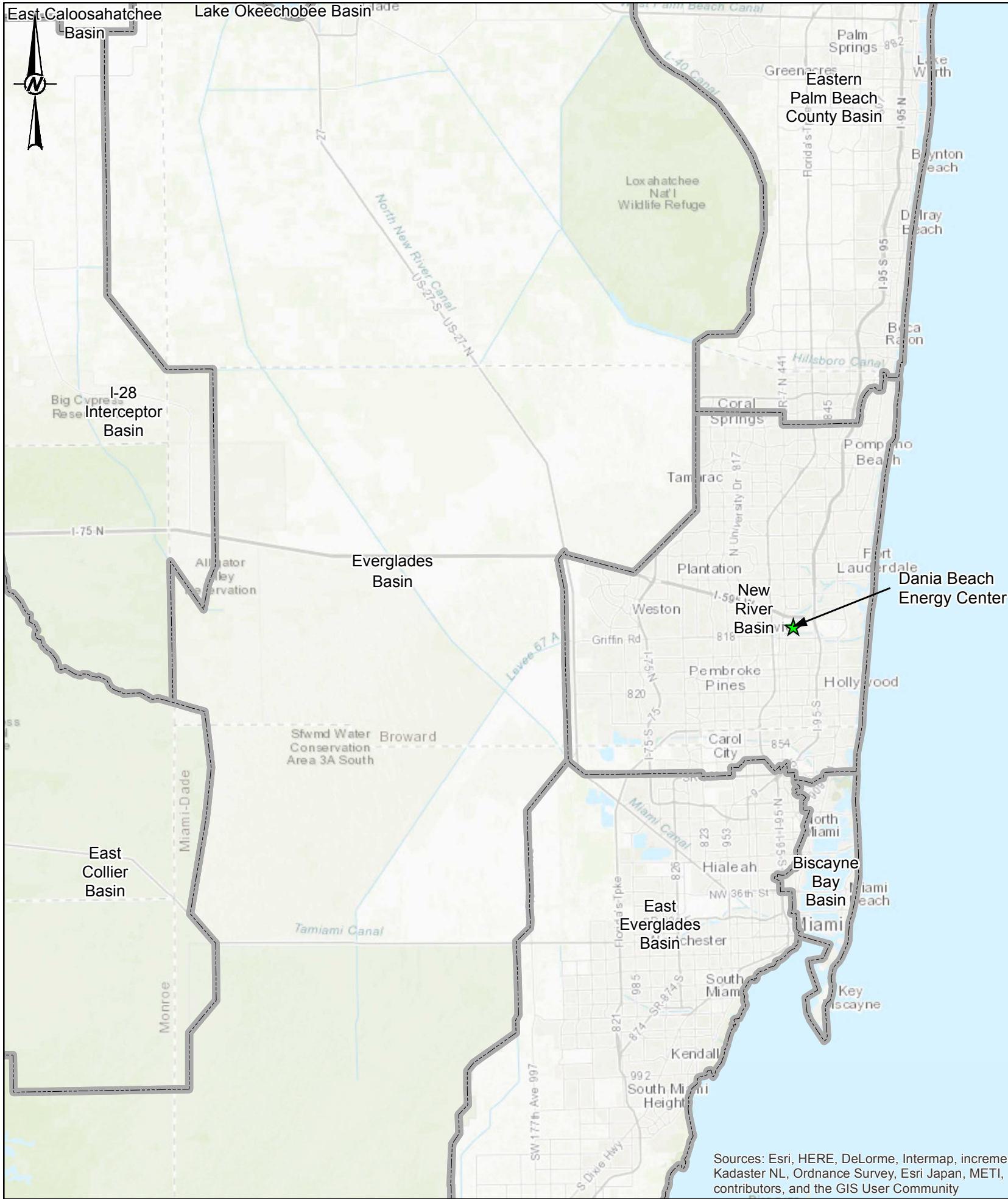
Unavoidable wetland impacts associated with construction of the proposed FPL Dania Beach Energy Center (DBEC) located at the existing FPL Lauderdale Site in Broward County, are proposed to be offset through purchase of credits from the Everglades Mitigation Bank (EMB). The DBEC involves replacement of existing Lauderdale Site Units 4 and 5 with a modern, highly efficient, lower-emission next generation clean energy center using the latest combined cycle technology. The modernized unit will be located wholly within the existing Lauderdale Site. Unavoidable wetland impacts associated with the construction of the DBEC include 18.67 acres of direct impact and 0.12 acres of secondary impact to relatively low-quality wetlands vegetated with a mixture of nuisance exotic and native species surrounded by existing electric utility infrastructure (Figure 1). Compensatory mitigation for permanent wetland impacts will be provided through purchase of 11.82 credits from the Everglades Mitigation Bank (EMB).

The DBEC is located within the New River drainage basin. The EMB is located within the East Everglades drainage basin, but the bank's agency-approved service area extends outside of the basin and includes the entirety of Miami-Dade and Broward counties. In accordance with 373.414(8), F.A.C. and Section 10.2.8 of the ERP Applicant's Handbook, an applicant must provide reasonable assurance that a regulated activity will not cause unacceptable cumulative impacts upon wetlands and other surface waters within the same drainage basin. If mitigation outside of the drainage basin is proposed, an applicant may demonstrate that the mitigation fully offsets impacts within the impacted drainage basin based on factors such as connectivity of waters, hydrology, habitat range of affected species, and water quality.

The New River basin encompasses approximately 278,237 acres (Figure 2), 16% of which (44,772 acres) are classified as wetlands or surface waters according to the Florida Land Use, Cover and Forms Classification System (FLUCFCS) data from the South Florida Water Management District (SFWMD). Areas of unavoidable wetland impacts at the DBEC are limited to low-quality wetlands within and surrounded by electric utility infrastructure, including transmission line rights-of-way. These previously-impacted wetlands do not provide significant wildlife habitat or water storage/treatment functions, as reflected in the functional assessment for these systems provided in the ERP application. The Project's wetland impacts from fill represents a loss of 0.0004% of the total acreage of wetlands within the New River basin.

There are no approved wetland mitigation banks within the New River basin. Unavoidable wetland impacts associated with the construction of 5 combustion turbine peaking units at the Site (Lauderdale Unit 6) were mitigated through purchase of credits from the EMB, as authorized by FDEP Conditions of Certification PA 89-26H (August 2015) and USACE permit SAJ-1990-04805 (June 2014). Due to the degraded quality of wetland habitat within the Lauderdale Site, specifically prevalence of exotic vegetation and surrounding industrial land uses, on-site mitigation is not likely to replace the loss of wetland functions or fulfill mitigation success criteria.

Due to the small acreage of unavoidable impacts relative to the total wetland acreage within the New River basin and the relatively low functional value of wetlands proposed for impact, no unacceptable cumulative impacts to water quality or the functions of wetlands and other surface waters within the New River basin are anticipated as a result of the construction of the DBEC. Use of a mitigation bank with a service area that encompasses the DBEC project area will support regional wetland restoration efforts and ensure that no net loss in wetland functions in southeast Florida will occur as a result of the DBEC.



LEGEND

- Dania Beach Energy Center
- Cumulative Impact Basins

REFERENCE(S)

SITE, A.R. TOUSSAINT & ASSOCIATES INC., 1989
CONSTRUCTION LAYDOWN & MAINTENANCE AREAS, BLACK & VEATCH, 2017
DBEC PROJECT AREA, WETLAND BOUNDARIES, WETLAND IMPACTS, GOLDBER ASSOCIATES INC., 2017

CLIENT

FPL

PROJECT

DANIA BEACH ENERGY CENTER
ENVIRONMENTAL RESOURCE PERMIT

TITLE

CUMULATIVE IMPACT BASIN MAP

YYYY-MM-DD	2017-07-24
DESIGNED	NRL
PREPARED	JGW
REVIEWED	KAB
APPROVED	KAB

PROJECT NO. 1773823	CONTROL G011	REV. 0	FIGURE 2
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Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

G:\PROJECTS\FPL\Dania_Beach_Energy_Center\09_PROJECTS\1773823_SCALG_ERP\02_PRODUCTION\MXD\1773823_G008_WetlandImpacts.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

APPENDIX 10.5
LAND USE PLAN DESCRIPTIONS

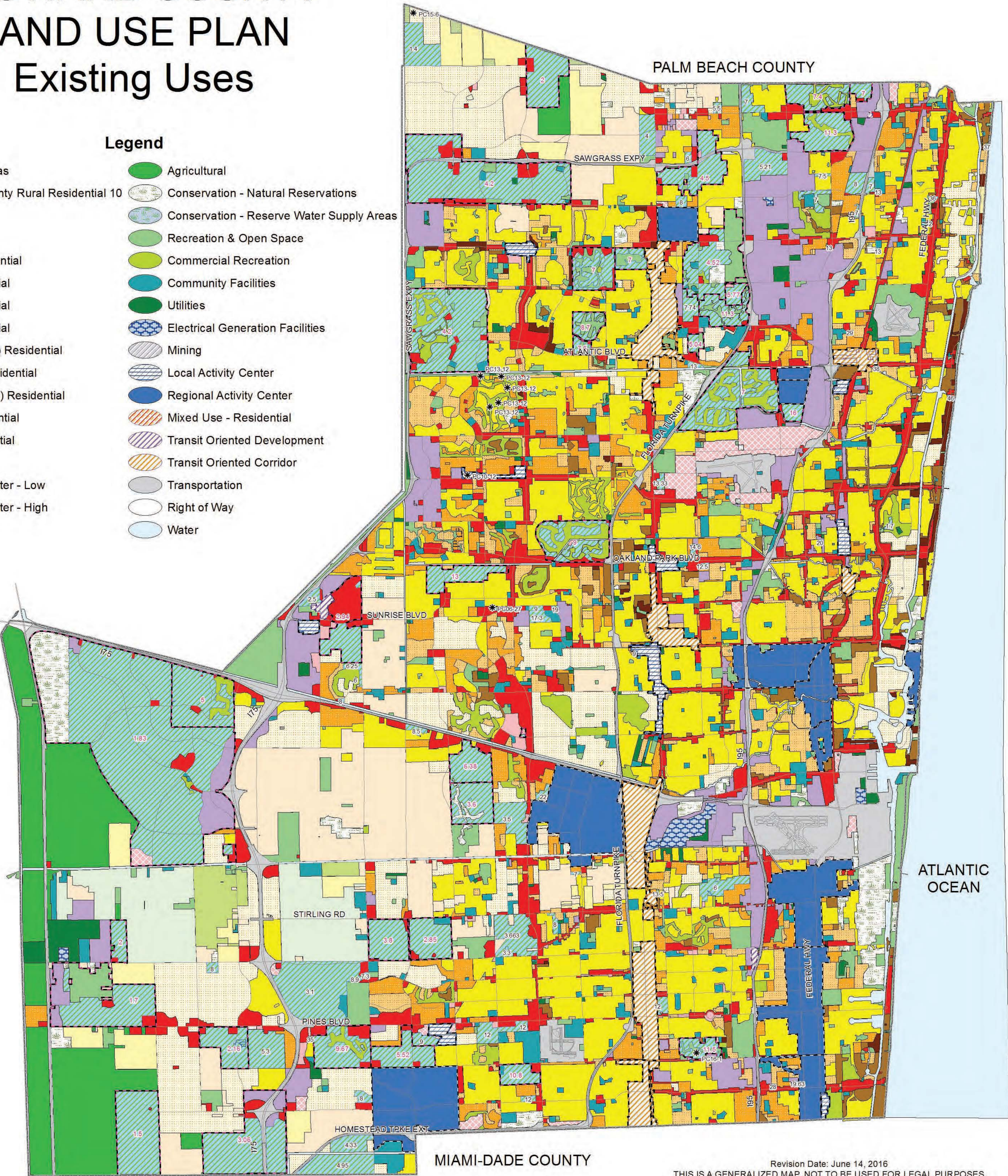
APPENDIX 10.5.1

BROWARD COUNTY FUTURE LAND USE

BROWARD COUNTY LAND USE PLAN Existing Uses

Legend

- 0.0 Dashed Line Areas
- Palm Beach County Rural Residential 10
- Rural Ranches
- Rural Estates
- Estate (1) Residential
- Low (2) Residential
- Low (3) Residential
- Low (5) Residential
- Low-Medium (10) Residential
- Medium (16) Residential
- Medium-High (25) Residential
- High (50) Residential
- Irregular Residential
- 0.0 Commercial
- Employment Center - Low
- Employment Center - High
- Office Park
- Industrial
- Agricultural
- Conservation - Natural Reservations
- Conservation - Reserve Water Supply Areas
- Recreation & Open Space
- Commercial Recreation
- Community Facilities
- Utilities
- Electrical Generation Facilities
- Mining
- Local Activity Center
- Regional Activity Center
- Mixed Use - Residential
- Transit Oriented Development
- Transit Oriented Corridor
- Transportation
- Right of Way
- Water



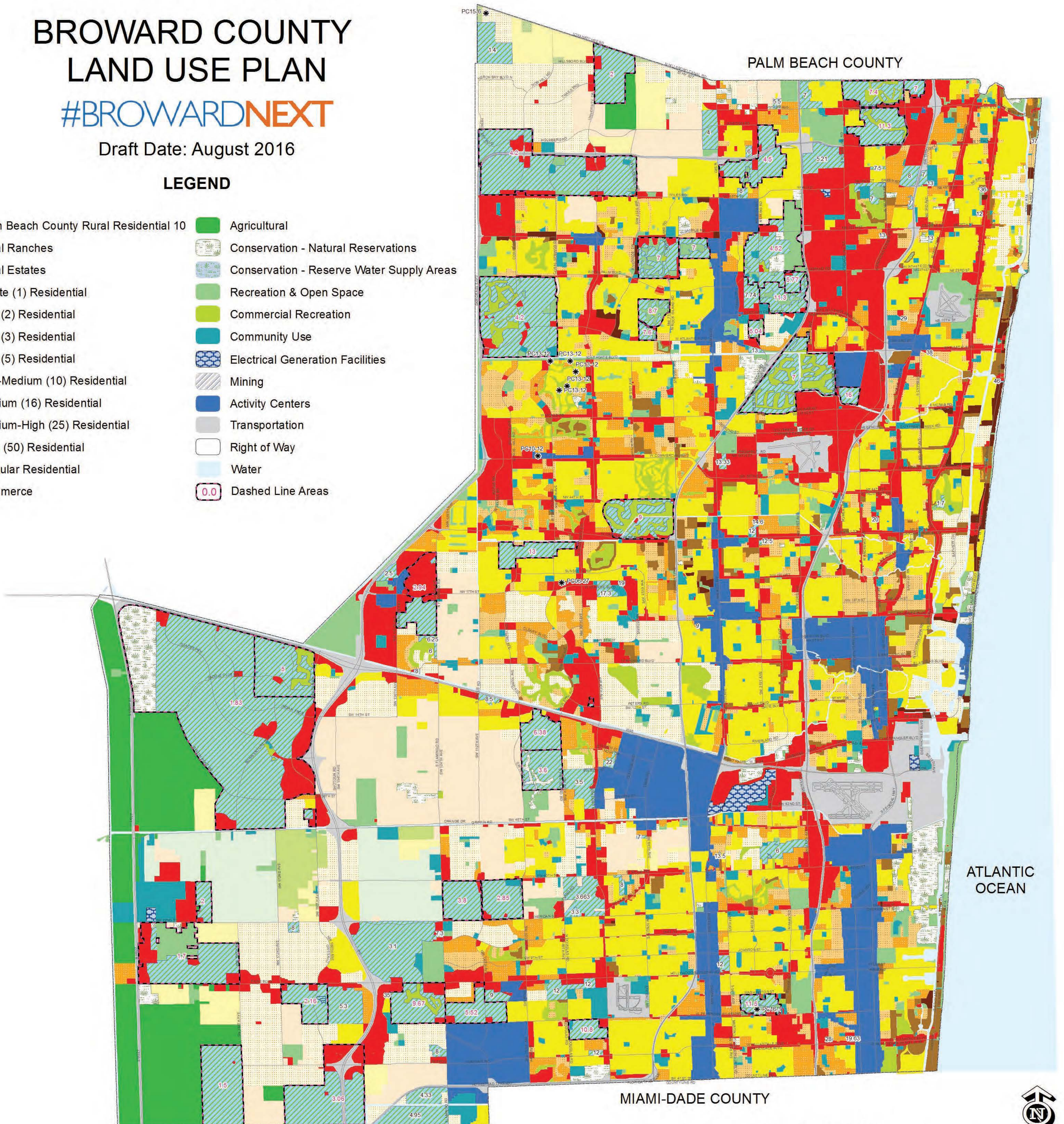
BROWARD COUNTY LAND USE PLAN

#BROWARDNEXT

Draft Date: August 2016

LEGEND

- | | | | |
|--|--|--|---|
| | Palm Beach County Rural Residential 10 | | Agricultural |
| | Rural Ranches | | Conservation - Natural Reservations |
| | Rural Estates | | Conservation - Reserve Water Supply Areas |
| | Estate (1) Residential | | Recreation & Open Space |
| | Low (2) Residential | | Commercial Recreation |
| | Low (3) Residential | | Community Use |
| | Low (5) Residential | | Electrical Generation Facilities |
| | Low-Medium (10) Residential | | Mining |
| | Medium (16) Residential | | Activity Centers |
| | Medium-High (25) Residential | | Transportation |
| | High (50) Residential | | Right of Way |
| | Irregular Residential | | Water |
| | Commerce | | Dashed Line Areas |



MIAMI-DADE COUNTY

Broward County Planning Council
THIS IS A GENERALIZED MAP, NOT TO BE USED FOR LEGAL PURPOSES
* Pending Recordation of Declaration of Restrictive Covenants



NOT TO SCALE

POLICY 8.08.06 Broward County should establish an ongoing process to evaluate with municipalities local zoning and building code requirements and make recommendations to improve the resiliency of existing and proposed structures in areas at risk to inundation, storm surge, and other potential impacts of climate change.

POLICY 8.08.07 Broward County shall work cooperatively with local governments and transportation agencies to identify and evaluate transportation infrastructure at risk and help coordinate adaptation efforts for infrastructure immediately landward of coastal high hazard areas, in order to ensure functional access to emergency evacuation routes for coastal populations.

OBJECTIVE 8.09.00 ELECTRICAL GENERATION FACILITY CATEGORY

Establish within the Future Broward County Land Use Plan Map (series) an Electrical Generation Facility land use category to ensure electrical power plants and associated ancillary uses are sited in a manner which is compatible with existing and planned land uses and meet the current and future needs of Broward County's population.

POLICY 8.09.01 Permit those land uses in designated electrical generation facility areas which are identified within the Electrical Generation Facility Permitted Uses subsection of the Plan Implementation Requirements section of the Broward County Land Use Plan.

POLICY 8.09.02 Broward County shall coordinate land use plan amendment proposals to designate sites to the Electrical Generation Facility land use category with the Florida Electrical Power Plant Siting Act, as amended, and ensure such amendments are consistent with the Act.

POLICY 8.09.03 Broward County shall ensure that all electrical power plant sitings are compatible with existing and planned land uses and environmental policies and cause minimum adverse land use, environmental and aesthetic impacts.

NATURAL, HISTORIC AND CULTURAL RESOURCES

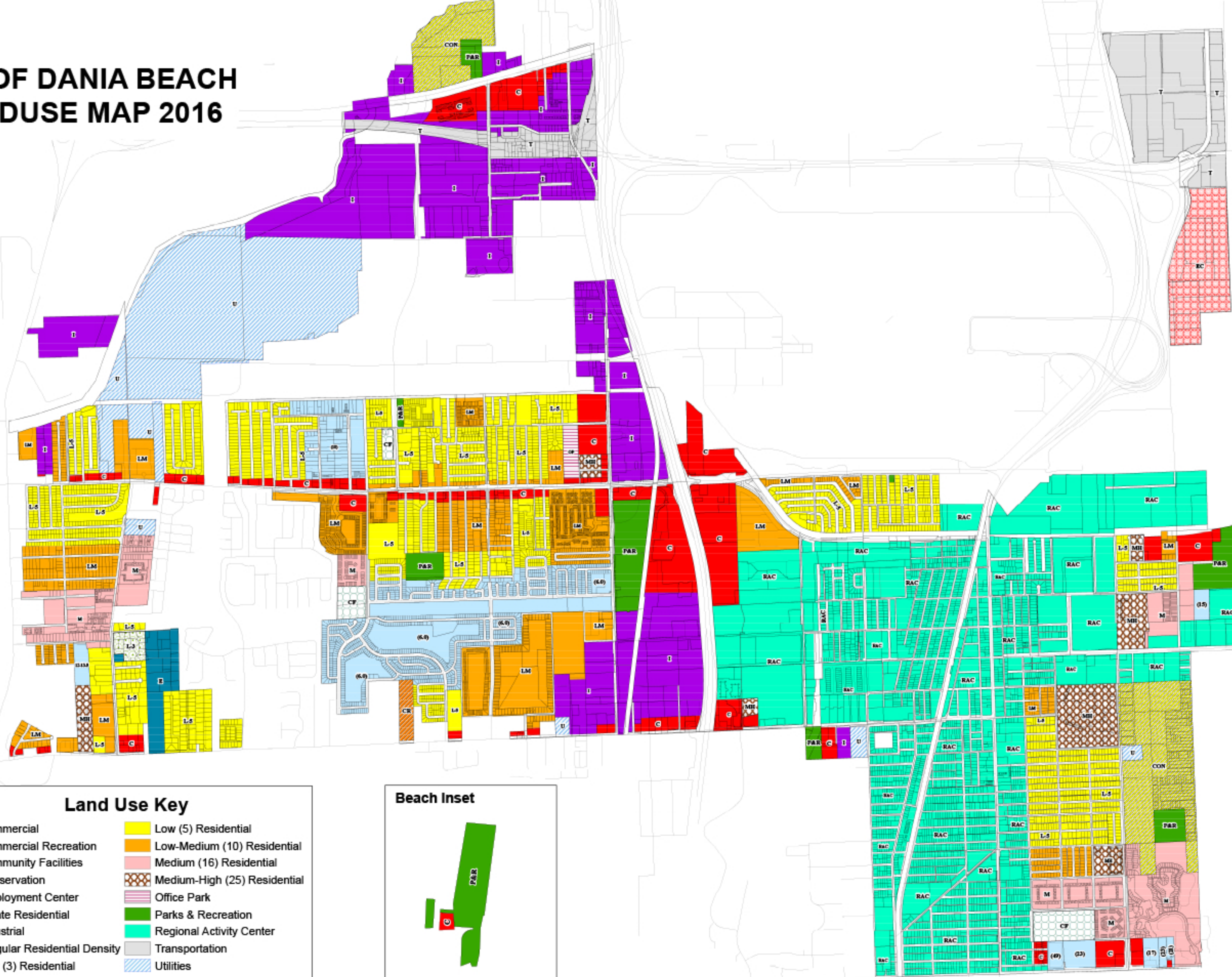
GOAL 9.00.00

PROTECT BROWARD COUNTY'S NATURAL AND HISTORIC RESOURCES AND PROMOTE CULTURAL RESOURCES THROUGH WELL-PLANNED PATTERNS OF GROWTH AND DEVELOPMENT.

APPENDIX 10.5.2

CITY OF DANIA BEACH FUTURE LAND USE

CITY OF DANIA BEACH LANDUSE MAP 2016



Land Use Key

- | | |
|-------------------------------|------------------------------|
| Commercial | Low (5) Residential |
| Commercial Recreation | Low-Medium (10) Residential |
| Community Facilities | Medium (16) Residential |
| Conservation | Medium-High (25) Residential |
| Employment Center | Office Park |
| Estate Residential | Parks & Recreation |
| Industrial | Regional Activity Center |
| Irregular Residential Density | Transportation |
| Low (3) Residential | Utilities |

Beach Inset



enterprises.

Those uses permitted in areas designated commercial recreation are as follows:

- Outdoor and indoor recreation facilities such as active recreation complexes, marinas, stadiums, jai-alai frontons, bowling alleys, golf courses, dog and horse racing facilities.
- Accessory facilities, including outdoor and indoor recreation facilities that are determined by the local government entity to be an integral part of and supportive to the primary recreation facility (excluding residential uses).
- Hotels, motels and similar lodging ancillary to the primary commercial recreation use.
- Other active and passive recreation uses.

k. Industrial Use

The purpose of reserving land for industrial uses is to provide opportunity for the retention and expansion of Dania Beach's economic base activities. Although other uses are permitted in areas designated industrial, at least eighty (80%) percent of such land area must be devoted to industrial use, such as manufacturing, warehouse distribution, research and development, or other substantial employment based activities.

Uses permitted in areas designated industrial are as follows

- Light and heavy industrial uses.
- Marine Industrial uses.
- Heavy commercial uses including new and used automobile, truck, motorcycle, boat and trailer display, sales, and service; newspaper, magazine, and printing plants; bakeries,

carpentry, cabinet shops and other trade shops; motion picture studios; ice houses; propane gas sales and repair; and salvage yards.

- Educational, scientific, and industrial research facilities, research laboratories, and medical or dental laboratories.
- Office uses.
- Transportation and communication facilities.
- Recreation and open space, cemeteries, and commercial recreation uses, as long as the location of these uses does not preclude or adversely affect the future use of surrounding areas for industry.
- Community facilities and utilities.
- Penal, correctional, and re-entry facilities are prohibited.
- Non-residential agricultural uses.
- Ancillary commercial uses within buildings devoted to primary industrial uses.
- Wholesaling uses.
- The following uses may also be permitted subject to the review and approval requirements of Policy 13.01.10 of the Broward County Land Use Plan as long as the total area of these uses does not consume more than twenty (20%) Percent of the industrial land designated on the Future Broward County Land Use Plan Map within a flexibility zone, and as long as the location of these uses do not preclude or adversely effect the future use of surrounding areas for industrial uses:
 - o Commercial and retail business uses.

- o Hotel, motel and similar lodging. Hotels, motels and similar lodging in the Coastal High Hazard Area are permitted at a density limitation of fifty (50) units per acre.
- o Communications facilities,
- Residential units within the same structure as industrial uses for the owner, manager, or caretaker of the industrial uses may be located in areas designated industrial without the application of flexibility units or reserve units.

I. Employment Center Use

Employment Center areas are designated on the Dania Beach Land Use Map to encourage non-residential development, compatible with residential and other less intensive land uses, and which would support the tourist-oriented segment of Dania Beach's economy as well as high technology and service-based activities.

Uses permitted in areas designated employment center are as follows:

1. Principal Uses

- Light Manufacturing.
- Office Uses.
- Research and Assembly.
- Hotels, Motels and similar Lodging. Hotels, motels and similar lodging in the Coastal High Hazard Area are permitted at a density limitation of fifty (50) units per acre.
- Restaurants and Personal Services.
- Community Facilities.

that the proposed expressway will not be constructed, the land uses permitted within the expressway corridor shall be those permitted by the adjacent Land use designation as determined by the appropriate local government entity through the Broward Planning Council (re) certification process.

p. Utilities Use

Utilities are designated on the Future Land Use Plan Map to ensure the availability of land necessary to provide an adequate level of utility service to meet the current and future needs of Dania Beach.

Utilities are also allowed in areas designated residential, commercial, office park, industrial, and employment center.

Uses permitted in areas designated utilities are as follows:

- Utilities, excluding landfills.
- Other uses determined to be ancillary to the primary uses described in above.

The following uses may also be permitted in the areas designated utilities as long as the location of these uses does not preclude or adversely affect the future use of the surrounding areas for utility facilities:

- Recreation and open space uses.
- Non-residential agricultural uses.
- Communication facilities.

q. Communication Facilities

Communication facilities such as television and radio stations and relay structures and telephone facilities are not specifically designated on the Future Land

1, south of Old Griffin Road, east of the C-10 Canal and north of the Sheridan Street. The 163 Plan addresses the need for redevelopment within this area including renewal of blighted areas and the elimination or reduction of uses inconsistent with the community's character.

In addition, the City of Dania Beach has significant opportunities for redevelopment within the other areas of the community. Many of these have been identified in a recent study prepared by the City of Dania Beach. These redevelopment activities are consistent with the Urban Infill amendments and Eastward Ho movements currently ongoing in Southern Florida, and particularly Broward County. The City will develop land development regulations that will be consistent with the permitted uses of the land use plan as it speaks to redevelopment and encouraging redevelopment in the City.

F. Flood Prone Areas

The City of Dania Beach has limited areas which are flood prone and any development or redevelopment within these areas would have to conform to the flood insurance rate maps. The City fully subscribes with the FEMA maps and all development must conform with those standards.

G. Definitions

Heavy Industrial. Business whose activities are predominantly connected with manufacturing, assembling, processing, or storage, which business is not included within the definition of Light Industrial or Marine Industrial. If a particular operation or use cannot be classified as a Light Industrial or Heavy Industrial, it shall be classified as Heavy Industrial. Heavy Industrial Uses can have outdoor operations or storage, and are not limited to the small machine parts, communications, and electronic businesses. Heavy industrial uses will also include tractor trailer truck operations and other heavy traffic generator type uses.

Hotel. A Building or part thereof, in which rental sleeping rooms are offered to the public where all charges for staying at the hotel (e.g. for food, lodging, and accessory services) are paid for by the room renter.

Hotels maintain an inner lobby through which all occupants must

pass to gain access. Hotel sleeping rooms are accessed solely through interior hallways, even when such units are on ground floors. Frequently guests stay more than one (1) night and typically hotels have amenities that cater to longer staying guests such as exercise rooms, spas, restaurants, meeting rooms, ballrooms, convention facilities, reading areas, and limited shopping areas. Hotels cater to transient occupancy, and may have limited kitchenette facilities (i.e., microwave, coffee maker, small sink, miniature refrigerator) for use by the occupants in rooms. Two hotel rooms are equivalent to one residential unit.

Light Industrial Use. Business activity which is predominantly connected with assembling or storage of small machine parts, electronics, and communications equipment where all activities are carried on within an enclosed building, and deliveries and pickups are made from enclosed trucks or vans. Light industrial operations are typically of a size, scale and character which are virtually indistinguishable from operations conducted in office buildings, commercial buildings and commercial-office parks and complexes. The equipment used in the light industrial manufacturing process do not typically contemplate large machines, generate significant emissions of toxic or regulated gases, or the use of bulk chemical combinations (i.e. light industrial buildings typically do not have smokestacks and on-site bulk chemical mixing is not contemplated). Light Industrial business operations are not objectionable because of noise, heavy truck traffic, fumes, vibration, glare, or other criteria which would be incompatible with residential or upscale commercial. Emphasis is primarily related to an activity other than manufacturing.

Marine Industrial. Marine industrial uses are designed to accommodate recreational marine and marine-related industries which, when necessary (for example, as a result of the size of the boat or yacht) and allowed, may take place outside of a building. Included are light industrial and research uses that are conducted within completely enclosed buildings and which have limited impact outside of buildings. Marine Industrial uses include: marinas; boat and yacht dealers and showrooms; boat and yacht brokers; repair and building of boats, yachts, and marine engines and equipment; sail making and repair; storage, repair, and building of marine parts and accessories; boat and yacht cleaning, maintenance, and painting; and, transportation

and ticketing facilities.

Motel. A building, or series of buildings, being attached, semi-detached, or detached, in which rental sleeping rooms are offered to the public where all charges for staying at the motel (e.g. for food, lodging, and accessory services) are paid for by the room renter, and where each unit has convenient exterior access to a parking space for the use of the unit's occupants. Access to sleeping rooms is from the exterior of the building as opposed to through the interior. The rental sleeping rooms, with the exception of a dwelling unit for the manager or caretaker, are devoted predominantly to the use of motor vehicle traveling transients who typically stay one night. These units may have limited kitchenette facilities (i.e., microwave, coffee maker, small sink, miniature refrigerator) for use by the occupants in rooms. Two motel sleeping rooms are equivalent to one residential unit.

Penal, Correctional, and Re-Entry Facilities. The following are not considered a "hotel" or "motel, or a "police protective facility," or a "Community Facility", and instead, are hereby defined as being "Penal, Correctional, and Re-Entry Facilities, regardless of whether the uses are publicly, privately or charitably owned, operated, or subsidized: jails, correctional facilities, detention facilities, prison release facilities, convict or prisoner rehabilitation or social re-introduction facilities (e.g. "halfway houses", supervised or structured living, working, or educational facilities), or facilities where residents are not confined or restrained but are free to leave the facility for work or personal needs subject to operative rules controlling residency on the premises and that provide community-based treatment to persons referred by the Federal Bureau of Prisons, a State Department of Corrections, or like federal or state agency, who need re-entry into the community, including drug and alcohol counseling and job placement assistance.

Solid waste facilities. The term "solid waste facilities" means structures or systems designed for the storage, collection, processing, recycling or disposal of solid waste, including hazardous waste, industrial waste, construction and demolition waste and biomedical waste. The term includes processing plants, recycling plants, disposal yards, landfills (of any class), compost areas (excluding residential backyard composting), composting facilities, construction and demolition debris recycling areas, construction and demolition debris recycling

facilities, materials recovery facilities, monofills, solid waste combustors, solid waste disposal facilities, solid waste management facilities, tire recycling areas or facilities, volume reduction plants, waste tire collection centers, waste tire collectors, waste tire processing facilities, and waste tire sites. See F. A. C. s. 62-701 for the definitions of the foregoing terms.

Utilities. The term "Utilities" means those facilities needed to serve or which constitute a public or private utility, limited to the following: lines, valves, wells, water treatment plants, and injection wells which comprise a water service utility needed to serve Dania Beach citizens; gravity mains, force mains, manholes, lift stations, monitoring stations, needed to serve Dania Beach residents; electrical lines, poles, substations and transmission facilities which comprise an electric power utility needed to service Dania Beach residents; lines, valves, and equipment which comprise a liquid gas utility infrastructure needed to serve Dania Beach residents; lines, switching facilities, poles, communications towers, antennas and other appurtenances for telephone utility infrastructure to service Dania Beach residents; and lines, hub facilities, and satellite earth station receiving facilities, and other appurtenances necessary to comprise a cable television utility to service Dania Beach residents. Unless expressly indicated within a Future Land Use Element, the word "utilities" will not include plants for electric, gas, or telephone service, or solid waste facilities.

IV. REQUIREMENTS FOR FUTURE LAND USE GOALS, OBJECTIVES AND POLICIES

The goal of the future land use element of the City of Dania Beach will be provision of land uses which will maximize economic benefits for the community, be sensitive of the natural environment and minimize any threat to the health, safety and welfare of the community and its residents.

Objective I

Land development regulations shall be maintained which promote orderly growth, development and placement of land uses, which will encourage a mix of residential types and provide good quality of life for the residents of the City of Dania Beach.

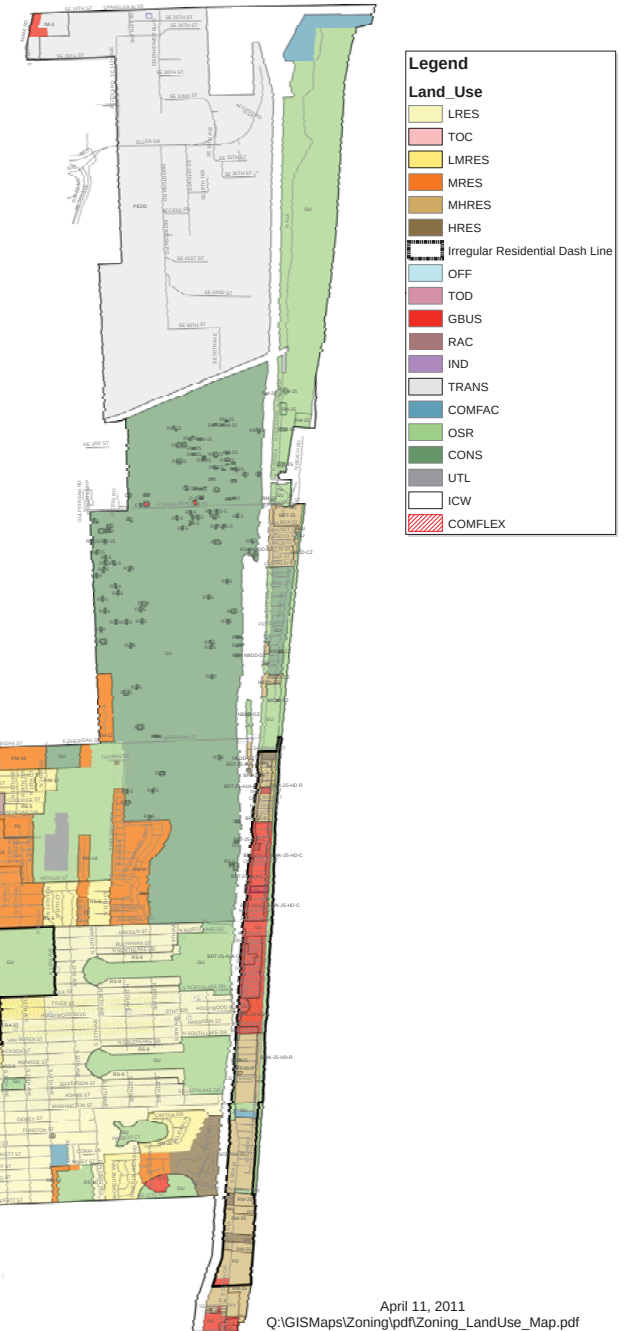
Policy 1.1 Provide for a mix of residential communities which

APPENDIX 10.5.3

CITY OF HOLLYWOOD FUTURE LAND USE



City of Hollywood, Florida Zoning and Land Use



0 2,150 4,300 8,600 Feet

April 11, 2011
Q:\GISMaps\Zoning\pdf\Zoning_LandUse_Map.pdf



Permitted Uses in the Area Designated Employment Center

Employment Center areas are designated in the Future Land Use Map, to encourage non-residential development, compatible with residential and other less intensive land uses, and which would support the tourist-oriented segment of the local economy as areas of high technology and service-based activities.

Uses permitted in areas designated employment center are as follows:

1. Principal Uses:
 - a. light manufacturing
 - b. office uses
 - c. research and assembly
 - d. hotels, motels and similar services
 - e. restaurants and personal services
 - f. community facilities
 - g. communication facilities
 - h. non-residential agricultural uses
2. Accessory Uses (Limited to less than fifty percent (50%) of the site):
 - a. transportation and utilities
 - b. storage
 - c. retail within buildings devoted to principal uses
 - d. recreation and open space uses
3. Commercial and retail business uses may also be permitted as long as the total area of these uses does not consume more than 20 percent of the employment center land designated on the Future Broward County Land Use Plan Map (Series) within a flexibility zone, and as long as the location of these uses do not preclude or adversely affect the future use of surrounding areas for employment center use.

Permitted Uses in Areas Designated Industrial

The following uses are allowed within Industrial areas to the degree and extent permitted by the applicable zoning regulations.

1. Industrial uses.
2. Heavy commercial uses, including wholesaling.
3. Office.
4. Educational, medical, scientific and industrial research facilities, and laboratories.
5. Utilities, transportation and communication facilities and easements.
6. Open space and recreation, commercial recreation, cemeteries, community facilities, as long as the location of these uses does not preclude or adversely affect the future use of surrounding areas for industry.
7. Non-residential agricultural uses permitted until the area is converted to an urban use.

8. The following additional uses are permitted as long as the total area of these uses does not consume more than twenty percent of the industrial land on the City's Future Land Use Plan within a flexibility zone and as long as the location of these uses does not preclude or adversely affect the future use of the surrounding areas for industry:
 - a) Office, service and retail business uses.
 - b) Hotel, motel and other tourist accommodations.
9. Ancillary business or office uses within buildings devoted primarily to industrial uses.

Permitted Uses in Areas Designated Utilities

The following uses are allowed within Utilities areas to the degree and extent permitted by the applicable zoning regulations.

1. Water and wastewater treatment plants, pumping stations, electrical power plants and substations, solid waste disposal and transfer sites and their customary accessory uses.
2. The following uses as long as their location does not preclude or adversely affect the future use of the surrounding areas for intended utility facilities:
 - a) Recreation and open space uses.
 - b) Communication facilities.
 - c) Non-residential agricultural uses.

Permitted Uses in Areas Designated Electrical Generating Facilities

Electrical Generation Facilities Uses are designated to ensure the availability of land for electrical power plants and associated ancillary uses is adequate to meet the current and future needs of City of Hollywood's population. Uses permitted in the areas designated Electrical Generation Facilities are as follows:

1. Electrical power plants - means an electrical generating facility where electricity is produced for the purpose of supplying twenty-five mega watts (MW) or more to utility power systems.
2. Other uses determined to be ancillary to the primary uses described in (1).

The following uses may also be permitted in the areas designated electrical generation facility as long as the location of the uses do not preclude or adversely affect the future use of the surrounding areas for electrical generation facilities:

Permitted Uses in Areas Designated Transportation

The following uses are allowed within areas designated for the Transportation Land Use to the degree and extent permitted by applicable zoning regulations.

APPENDIX 10.6

EXISTING STATE PERMITS

APPENDIX 10.6.1

SFWMD RIGHT-OF-WAY PERMIT



Form #0133
Rev 4/90

SEFWM D PERMIT NO. 9224

(NON-ASSIGNABLE)

September 13, 1990 DATE ISSUED

AUTHORIZING: VARIOUS FACILITIES LOCATED WITHIN THE SOUTH FORK OF NEW RIVER CANAL AND DANIA CUT-OFF CANAL RIGHTS OF WAY ASSOCIATED WITH THE FORT LAUDERDALE POWER PLANT AS SHOWN ON THE ATTACHED SHEET ENTITLED "LISTING OF AUTHORIZED FACILITIES."

LOCATED IN BROWARD COUNTY, SECTION 25, 30 TWP. 50S RGE. 41, 42E

ISSUED TO: Florida Power and Light Company
(owner) 6001 Village Boulevard
West Palm Beach, Florida 33407

Attn: Chas. D. Henderson

This permit is issued pursuant to Application No. 90-0625-1, 2, 3 dated June 4, 1990 and permittee's agreement to hold and save the South Florida Water Management District and its successors harmless from any and all damages, claims or liabilities which may arise by reason of the construction, maintenance or use of the work or structure involved in the Permit. Said application, including all plans and specifications attached thereto, is by reference made a part hereof. The permittee, by acceptance of this permit, hereby agrees that he shall promptly comply with all orders of the District and shall alter, repair or remove his use solely at his expense in a timely fashion. Permittee shall comply with all laws and rules administered by the District. This permit does not convey to permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation, or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit is issued by the District as a license to use or occupy District works or lands. It does not create any right or entitlement, either legal or equitable, to the continued use of the District works or lands. Since this permit conveys no right to the continued use of the District works or lands, the District is under no obligation to transfer this permit to any subsequent party. By acceptance of this permit, the permittee expressly acknowledges that the permittee bears all risks of loss as a result of revocation of this permit.

WORK PROPOSED, WILL BE COMPLETED ON OR BEFORE Existing 19 otherwise, this permit is voided and all rights thereunder are automatically cancelled unless an extension to the construction period is applied for and granted.

12 LIMITING CONDITIONS - (on reverse side of permit)

SPECIAL CONDITIONS (SPECIFIC LIMITING CONDITIONS) ARE AS FOLLOWS:

SPECIAL CONDITIONS ON THE ATTACHED SHEET ARE A PART OF THIS DOCUMENT.

THIS PERMIT REPLACES PREVIOUSLY ISSUED PERMITS EDD 1927-15, EDD 1939-4, EDD 1941-21, EDD 1941-22, 483, 502, 552, 6564, 6720 AND 7055 WHICH ARE INCORPORATED IN THIS PERMIT FOR REFERENCE PURPOSES.

**FILED WITH THE CLERK OF THE SOUTH
FLORIDA WATER MANAGEMENT DISTRICT
ON _____
BY _____**

Deputy Clerk

**SOUTH FLORIDA WATER MANAGEMENT
DISTRICT, BY ITS GOVERNING BOARD**

By: _____
Secretary

SCANNED

40E-6.381 Limiting Conditions

The District's authorization to utilize lands and other works constitutes a revocable license. In consideration for receipt of that license, permittees shall agree to be bound by the following standard limiting conditions, which shall be included within all permits issued pursuant to this chapter, unless expressly waived or modified by the Board as being not in furtherance of the objectives of Chapter 373, F.S.

(1) All structures on District works or lands constructed by permittee shall remain the property of permittee, who shall be solely responsible for ensuring that such structures and other uses remain in good and safe condition and comply with all applicable federal, state and local safety standards. The District assumes no duty with regard to ensuring that such uses are so maintained and assumes no liability with regard to injuries caused others by any such failure. The District further assumes no duty to ensure that the permitted use complies with the safety standards of other governmental entities.

(2) Permittee agrees to abide by all of the terms and conditions of this permit, including any representations made on the permit application and related documents. This permit shall be subject to the requirements of Chapter 373, Florida Statutes, and Chapter 40E-6, Florida Administrative Code, as presently existing or as modified in the future. Permittee agrees to pay all investigative costs, court costs and reasonable attorney's fees resulting from any successful action taken by the District to obtain compliance with the conditions of the permit or removal of the permitted use. If District legal action is taken by staff counsel, "reasonable attorney's fees" is understood to mean the fair market value of the services provided, based upon what a private attorney would charge.

(3) This permit does not create any vested rights, and except for governmental entities and public utilities, is revocable at will upon reasonable prior written notice. Permittee bears all risk of loss as to monies expended in furtherance of the permitted use. Upon revocation, the permittee shall promptly modify, relocate or remove the permitted use. In the event of failure to so comply within the specified time, the District may remove the permitted use and permittee shall be responsible for all removal costs.

(4) This permit does not convey any property rights nor any rights or privileges other than those specified herein. The District approves the permitted use only to the extent of its interest in the works of the District. The permittee shall obtain all other necessary federal, state, local, special district and private authorizations prior to the start of any construction or alteration authorized by the permit. The District, however, assumes no duty to ensure that any such authorizations have been obtained.

(5) Permittee agrees to hold and save the District harmless from any and all damages or claims which arise from the ownership, construction, maintenance or operation of the permitted use, whether caused by the injured person or permittee, and whether occurring within the area of the permitted use or outside such area, provided the activity originated from the permitted use. This obligation expressly includes any alleged or actual negligence by the District as to all permitting activities regarding the subject use, including enforcement of permit conditions. Permittee agrees to provide legal counsel, if requested, for the defense of any such claims.

(6) The permittee shall provide such assurances as may be deemed necessary to ensure financial integrity and compliance with permit conditions, including insurance coverage. The District does not waive sovereign immunity in any respect with regard to such coverage.

(7) The permittee shall not engage in any activity regarding the permitted use which interferes with the construction, alteration, maintenance or operation of the works of the District, including, but not limited to:

- (a) discharge of debris or aquatic weeds into the works of the District;
- (b) causing erosion or shoaling within the works of the District;
- (c) planting trees or shrubs or erecting structures which limit or prohibit access by District equipment and vehicles, except as may be authorized by the permit.

Permittee shall be responsible for any costs incurred by the District resulting from any such interference.

(8) Permittee shall allow the District to inspect the permitted use at any time.

(9) The District has the right to change, regulate, limit, schedule, or suspend discharges into, or withdrawals from, works of the District in accordance with criteria established by the District and/or the U.S. Army Corps of Engineers for the works of the District. Reasonable prior written notice shall be given to permittee.

(10) If the use involves the construction of facilities for a non exempt water withdrawal or surface water discharge, the applicant must apply for and obtain a water use or surface water management permit before any activities may be conducted pursuant to the right of way occupancy permit.

(11) As a condition of a lease, the Governing Board may require an annual inspection fee for use of works or lands of the District to recover the cost of ensuring that lease conditions are met.

(12) The District shall notify the local ad valorem taxing authority of the lands affected by the permitted use, where the permittee owns the underlying fee and derives a substantial benefit from the permitted use. The taxing authority may reinstate such lands on the tax roll.

Specific Authority 373.044, 373.113 F.S.

Law Implemented Chapters 25209 and 25270. Laws of Florida. 373.042, 373.083(1), 373.085(1), 196.199(1), 373.129, F.S.

History--New 9-3-81, Amended 5-30-82, 12-29-86.

Formerly 16K-5.01(2), 16K-5.02(2), 16K-5.03(2), 16K-5.04(4), 16K-5.05

Permit Number 9234
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September 13, 1990
Sheet 2 of 6

LISTING OF AUTHORIZED FACILITIES:

1. EXISTING 18' X 80' PLANT ACCESS BRIDGE CROSSING DANIA CUT-OFF CANAL APPROXIMATELY 2,100' EAST OF STATE ROAD 7. (FORMERLY AUTHORIZED BY EDD PERMIT NUMBER 1927-15).
2. EXISTING OPEN CHANNEL CONNECTIONS TO DANIA CUT-OFF CANAL LOCATED APPROXIMATELY 2,450' EAST OF STATE ROAD 7, SERVING AS THE ORIGINAL WATER INTAKES FOR THE PLANT. ALSO, ABUTMENTS FOR THE ORIGINAL TIDE GATE. (ORIGINAL TIDE GATE STRUCTURE HAS BEEN REMOVED WITH THE EXCEPTION OF ABUTMENTS). (FORMERLY AUTHORIZED BY EDD PERMIT 1939-4).
3. EXISTING 357' LONG MARGINAL DOCK (OIL UNLOADING DOCK) ALONG THE NORTH BANK OF DANIA CUT-OFF CANAL. (FORMERLY AUTHORIZED BY EDD PERMIT NUMBER 1941-21).
4. EXISTING TRASH RACK AT CONFLUENCE WITH THE OPEN CHANNEL CONNECTION TO DANIA CUT-OFF CANAL LOCATED APPROXIMATELY 2,450' EAST OF STATE ROAD 7. ALSO, OPEN CHANNEL CONNECTION AND BRIDGE APPROACHES WITHIN THE SOUTH FORK NEW RIVER EASTERLY RIGHT OF WAY LOCATED APPROXIMATELY 350' NORTH OF THE DANIA CUT-OFF CANAL. (TRASH SCREEN AND BRIDGE AT THE OPEN CHANNEL CONNECTION TO THE SOUTH FORK NEW RIVER CANAL HAVE BEEN REMOVED AND REPLACED BY CULVERT BRIDGE COVERED BY PERMIT NUMBER 6720). (FORMERLY AUTHORIZED BY EDD PERMIT NUMBER 1941-22).
5. EXISTING OIL UNLOADING DOCKS, DOLPHIN PILES AND ROAD ALONG THE NORTH BANK OF THE DANIA CUT-OFF. (FORMERLY AUTHORIZED BY PERMIT NUMBER 483).
6. EXISTING TIDE GATE IN DANIA CUT-OFF CANAL LOCATED APPROXIMATELY 3,400' EAST OF STATE ROAD 7. (CENTER GATE REMOVED). (FORMERLY AUTHORIZED BY PERMIT NUMBER 502).
7. EXISTING OPEN CHANNEL CONNECTIONS TO DANIA CUT-OFF CANAL LOCATED APPROXIMATELY 2,900' AND 3,125' EAST OF STATE ROAD 7 SERVING AS WATER INTAKES FOR UNITS 4 AND 5. (FORMERLY AUTHORIZED BY PERMIT NUMBER 552).
8. EXISTING SEAWALL, 310' ALONG THE NORTH BANK AND 55' ALONG THE SOUTH BANK OF DANIA CUT-OFF CANAL, ADJACENT TO THE TIDE GATE.
9. EXISTING 84" X 34' C.M.P. CULVERT BRIDGE WITHIN THE EAST RIGHT OF WAY OF THE SOUTH FORK OF NEW RIVER CANAL LOCATED APPROXIMATELY 350' NORTH OF THE DANIA CUT-OFF CANAL. (FORMERLY AUTHORIZED BY PERMIT NUMBER 6720).

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10. EXISTING AERIAL COMMUNICATIONS CABLE CROSSING DANIA CUT-OFF CANAL LOCATED APPROXIMATELY 2,400' EAST OF STATE ROAD 7. (FORMERLY AUTHORIZED BY PERMIT NUMBER 7055).
11. EXISTING VIDEO CAMERA AND 8" FUEL LINE ATTACHED TO TIDE GATE LOCATED APPROXIMATELY 3,400' EAST OF STATE ROAD 7. (FORMERLY UNAUTHORIZED; SUBJECT OF APPLICATION NUMBERS 90-0625-3 AND 90-0625-2, RESPECTIVELY).
12. EXISTING DUAL 4" WATER LINES, 4" FIBER OPTIC CABLE CONDUIT AND 4 - 2" TELEPHONE, POWER AND CONTROL CONDUITS ATTACHED TO BRIDGE CROSSING DANIA CUT-OFF CANAL APPROXIMATELY 2,100' EAST OF STATE ROAD 7. (FORMERLY UNAUTHORIZED; SUBJECT OF APPLICATION NUMBER 90-0625-1).

Permit Number 9234
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SPECIAL CONDITIONS ARE AS FOLLOWS:

1. THIS PERMIT IS ISSUED BY THE DISTRICT AS A LICENSE TO USE OR OCCUPY DISTRICT WORKS OR LANDS. IT IS REVOCABLE BY THE DISTRICT FOR CAUSE FOR THE REASONS STATED IN DISTRICT RULE 40E-6.341, FLORIDA ADMINISTRATIVE CODE. THE PERMITTEE EXPRESSLY ACKNOWLEDGES THAT THE PERMITTEE BEARS ALL RISKS OF LOSS AS A RESULT OF REVOCATION OF THIS PERMIT.
2. THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT IS NOT RESPONSIBLE FOR DAMAGE TO INSTALLATIONS LOCATED WITHIN ITS RIGHTS OF WAY.
3. ANY ADDITIONAL FACILITIES OR ALTERATIONS TO EXISTING FACILITIES WITHIN THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT'S RIGHTS OF WAY WILL REQUIRE A MODIFICATION OF THIS PERMIT.
4. CANAL RIGHT OF WAY DISTURBED DURING CONSTRUCTION, INSTALLATION AND/OR MAINTENANCE OF THE AUTHORIZED FACILITY SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION BY THE PERMITTEE.
5. ANY EROSION AND/OR SHOALING RESULTING FROM THE INSTALLATION AND/OR OPERATION OF THE AUTHORIZED FACILITIES SHALL BE CORRECTED BY THE PERMITTEE TO THE SATISFACTION OF THE DISTRICT, AT HIS SOLE EXPENSE.
6. THE PERMITTEE SHALL PLACE HIGH VISIBILITY REFLECTIVE DEVICES OR MATERIAL ON BOTH FACES OF THE AUTHORIZED PILE SUPPORTED CROSSING (BRIDGE). SAID REFLECTIVE DEVICES OR MATERIAL WILL BE PLACED SO AS TO BE SEEN FROM THE WATER AND SHALL BE IN ACCORDANCE WITH DOT INDEX NUMBER 600, SHEET 6, CODE "OM 3R", WITH EACH REFLECTIVE DEVICE OR MATERIAL INSTALLATION BEING APPROXIMATELY 1 FOOT BY 3 FEET HAVING A SURFACE AREA OF 430 SQUARE INCHES OR LARGER.

REFLECTIVE DEVICES OR MATERIAL SHALL BE PLACED ON BOTH THE UPSTREAM AND DOWNSTREAM FACES OF ALL PILES WITHIN THE CHANNEL. LIKEWISE, THE UPSTREAM AND DOWNSTREAM FACES OF EACH SPAN OVER THE CHANNEL SHALL BE EQUIPPED WITH REFLECTIVE DEVICES OR MATERIAL. REFLECTIVE DEVICES OR MATERIAL SHALL BE AFFIXED TO PILES WITH THE LONG AXIS ORIENTED VERTICALLY MIDWAY BETWEEN THE NORMAL WATER SURFACE AND ELEVATION AND THE LOW MEMBER ELEVATION OF THE ADJACENT SPANS. REFLECTIVE MATERIAL SHALL BE AFFIXED TO THE SPANS MIDWAY BETWEEN PILE BENTS WITH THE LONG AXIS ORIENTED HORIZONTALLY AND WITH THE LOWER EDGE NOT MORE THAN 1 INCH OF THE BOTTOM OF THE BRIDGE LOW MEMBER.

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THE PERMITTEE IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE AND REPLACEMENT OF THE REFLECTIVE DEVICES OR MATERIAL AS NEEDED.

7. ELEVATION OF THE BOTTOM OF THE CONDUITS AND WATER MAINS SHALL BE EQUAL TO OR HIGHER THAN THE LOW MEMBER ELEVATION OF THE BRIDGE TO WHICH THE CONDUIT IS ATTACHED.
8. TIDE GATE SHALL BE LIGHTED OR EQUIPPED WITH REFLECTORIZED MATERIAL AS REQUIRED IN THE ABOVE SPECIAL CONDITION (NUMBER 6).
9. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE BROWARD COUNTY OR STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL REGULATION'S TURBIDITY CONTROL STANDARDS, METHODS AND REQUIREMENTS.
10. THE BRIDGE AUTHORIZED BY THIS PERMIT IS FOR THE USE OF THE PERMITTEE AND HIS EMPLOYEES. MEASURES SHALL BE TAKEN AT ALL TIMES TO INSURE THAT THE GENERAL PUBLIC DOES NOT UTILIZE THE SUBJECT BRIDGE.
11. IT IS THE PERMITTEE'S RESPONSIBILITY TO ENSURE THAT THE BRIDGE'S LOAD CAPACITY IS NOT EXCEEDED.
12. INSURANCE COVERAGE IN THE AMOUNTS OUTLINED ON THE ATTACHED INSURANCE SCHEDULE SHALL BE MAINTAINED THROUGHOUT THE LIFE OF THIS PERMIT. IF THE PERMITTEE IS A SELF-INSURER UNDER APPLICABLE STATE STATUTES, THE DISTRICT WILL BE SUPPLIED WITH A CERTIFICATE OR OTHER EVIDENCE OF SELF INSURANCE.
13. TURBIDITY SCREENS SHALL BE USED DURING EXCAVATION AND BACKFILLING OPERATIONS.
14. IN ISSUING THIS PERMIT, THE DISTRICT RECOGNIZES THE PERMITTEE'S INTENTION TO FILL CERTAIN CHANNEL CONNECTIONS LEADING TO THE DANIA CUT-OFF CANAL AND TO REMOVE OR ABANDON THE CULVERT BRIDGE AND CHANNEL CONNECTION TO THE SOUTH FORK OF NEW RIVER CANAL THIS ACTIVITY IS PROPOSED PURSUANT TO THE POWER PLANT SITE CERTIFICATION APPLICATION, DOAH CASE NUMBER 89-6336. AS ACKNOWLEDGED BY THIS CONDITION, THE DISTRICT CONSIDERS THESE ACTIVITIES TO BE COVERED UNDER THIS PERMIT AUTHORIZATION SUBJECT TO PRIOR NOTIFICATION AND APPROVAL BY DISTRICT STAFF OF THE METHOD OF BACKFILLING.

ALL BACKFILLING SHALL BE PERFORMED IN SUCH A MANNER AS TO RETURN THE BACKFILLED AREAS TO THE SAME BANK SLOPE AND BERM LINE AND GRADE AS THE ADJACENT BANK AND BERM.

&2Permit Number 8234
Florida Power and Light Company
September 13, 1990
Sheet 6 of 6

15. THIS PERMIT DOES NOT RELEASE ANY EASEMENT OR OTHER LAND INTEREST BY THE DISTRICT NOR DOES IT CONSTITUTE AN INTENT TO DISPOSE OF ANY REAL PROPERTY INTEREST. ANY REQUEST TO HAVE A PORTION OF THE CANAL RIGHT OF WAY DECLARED SURPLUS OR TO HAVE RESERVATIONS RELEASED IS SEPARATE FROM THIS PERMIT AND WILL BE JUDGED ON ITS OWN MERITS PURSUANT TO APPLICABLE SECTIONS OF THE DISTRICT'S REAL ESTATE RULES (CHAPTER 40E-9).
16. WITHIN ONE YEAR FROM PERMIT ISSUANCE, THE PERMITTEE SHALL CAUSE THE OIL PIPELINE CROSSING TO BE INSPECTED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA, WHO IS FAMILIAR WITH THE DESIGN, CONSTRUCTION, TESTING AND OPERATION OF SIMILAR FACILITIES. WITHIN SAID ONE YEAR PERIOD, THE DISTRICT WILL BE PROVIDED WITH A LETTER CERTIFYING THAT THE FACILITY IS IN GOOD CONDITION AND MEETS ALL STATE AND LOCAL REQUIREMENTS OR INDUSTRY REQUIREMENTS FOR FACILITIES OF IT TYPE.
17. IN ISSUING THIS PERMIT, THE DISTRICT RECOGNIZES THE PERMITTEE'S INTENTION TO REMOVE THE REMAINING 2 TIDE GATES FROM THE DANIA CUT-OFF CANAL TIDE GATE STRUCTURE WHILE ALLOWING THE SUPPORTING STRUCTURE TO REMAIN. THIS REMOVAL OF THE 2 REMAINING TIDE GATES IS CONSIDERED TO BE AUTHORIZED BY THIS PERMIT. HOWEVER, THE PERMITTEE WILL NOTIFY THE DISTRICT 90 DAYS IN ADVANCE OF THE PROPOSED REMOVAL, THAT IT INTENDS TO PROCEED WITH THE REMOVAL AND WILL PROVIDE ITS BEST ESTIMATE OF THE STARTING DATE. WITHIN 30 DAYS THE PERMITTEE OR ITS CONTRACTOR WILL SUPPLY THE DISTRICT WITH AN ORDER OR WORK CLEARLY OUTLINING THE METHOD AND SEQUENCE OF THE REMOVAL OPERATIONS.



Form #0853
Rev. 1/91

SFWMD PERMIT NO. MOD 9234

(NON-ASSIGNABLE)
JUNE 9, 1994 DATE ISSUED

AUTHORIZING: RE-CONSTRUCTION OF THE PLANT ACCESS BRIDGE CROSSING DANIA CUT-OFF CANAL APPROXIMATELY 2,100' EAST OF STATE ROAD 7

LOCATED IN: BROWARD COUNTY, SECTION 25,30 TOWNSHIP 50S RANGE 41,42E

ISSUED TO:
(OWNER)

FLORIDA POWER AND LIGHT COMPANY
700 UNIVERSE BOULEVARD
JUNO BEACH, FLORIDA 33408

ATTN: ED MENZINGER, P.E.

This permit is issued pursuant to Application No. MOD 9234 dated MAY 20, 1994 and permittee's agreement to hold and save the South Florida Water Management District and its successors harmless from any and all damages, claims or liabilities which may arise by reason of the construction, maintenance or use of the work or structure involved in the Permit. Said application, including all plans and specifications attached thereto, is by reference made a part hereof. The permittee, by acceptance of this permit, hereby agrees that he shall promptly comply with all orders of the District and shall alter, repair or remove his use solely at his expense in a timely fashion. Permittee shall comply with all laws and rules administered by the District. This permit does not convey to permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation, or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit is issued by the District as a license to use or occupy District works or lands. It does not create any right or entitlement, either legal or equitable, to the continued use of the District works or lands. Since this permit conveys no right to the continued use of the District works or lands, the District is under no obligation to transfer this permit to any subsequent party. By acceptance of this permit, the permittee expressly acknowledges that the permittee bears all risk of loss as a result of revocation of this permit.

WORK PROPOSED, WILL BE COMPLETED ON OR BEFORE JUNE 30, 1996 otherwise, this permit is void and all rights thereunder are automatically canceled unless an extension to the construction period is applied for and granted.

12 LIMITING CONDITIONS - (on reverse side of permit)

SPECIAL CONDITIONS (SPECIFIC LIMITING CONDITIONS) ARE AS FOLLOWS:

SPECIAL CONDITIONS ON THE ATTACHED SHEET ARE PART OF THIS DOCUMENT.

FILED WITH THE CLERK OF THE SOUTH
FLORIDA WATER MANAGEMENT DISTRICT
ON 6/9/94

BY ORIGINAL SIGNED BY
BARBARA FRONCZEK
Deputy Clerk

SOUTH FLORIDA WATER MANAGEMENT
DISTRICT, BY ITS GOVERNING BOARD

BY ORIGINAL SIGNED BY
TONY BURNS
Assistant Secretary
Acting in absence of Secretary

SCANNED

40E-6.381 Limited Conditions

The District's authorization to utilize lands and other works constitutes a revocable license. In consideration for receipt of that license, permittees shall agree to be bound by the following standard limiting conditions, which shall be included within all permits issued pursuant to this chapter.

(1) All structures on District works or lands constructed by permittee shall remain the property of permittee, who shall be solely responsible for ensuring that such structures and other uses remain in good and safe condition. Permittees are advised that other federal, state and local safety standards may govern the occupancy and use of the District's lands and works. The District assumes no duty with regard to ensuring that such uses are so maintained and assumes no liability with regard to injuries caused others by any such failure. The District further assumes no duty to ensure that the permitted use complies with the safety standards of other governmental entities.

(2) Permittee agrees to abide by all of the terms and conditions of this permit, including any representations made on the permit application and related documents. This permit shall be subject to the requirements of Chapter 373, F.S., and Chapter 40E-6, F.A.C. Permittee agrees to pay all investigative costs, court costs and reasonable attorney's fees resulting from any successful action taken by the District to obtain compliance with the conditions of the permit or removal of the permitted use. If District legal action is taken by staff counsel, "reasonable attorney's fees" is understood to mean the fair market value of the services provided, based upon what a private attorney would charge.

(3) This permit does not create any vested rights, and except for governmental entities and public or private utilities, is revocable at will upon reasonable prior written notice. Permittee bears all risk of loss as to monies expended in furtherance of the permitted use. Upon revocation, the permittee shall promptly modify, relocate or remove the permitted use. In the event of failure to so comply within the specified time, the District may remove the permitted use and permittee shall be responsible for all removal costs.

(4) This permit does not convey any property rights nor any rights or privileges other than those specified herein. The District approves the permitted use only to the extent of its interest in the works of the District. Permittees shall obtain all other necessary federal, state, local, special district and private authorizations prior to the start of any construction or alteration authorized by the permit. The District, however, assumes no duty to ensure that any such authorizations have been obtained.

(5) Permittee agrees to hold and save the District harmless from any and all damages or claims which arise from the ownership, construction, maintenance or operation of the permitted use, whether caused by the injured person or permittee, and whether occurring within the area of the permitted use or outside such area, provided the activity originated from the permitted use. This obligation expressly includes any alleged or actual negligence by the District as to all permitting activities regarding the subject use, including enforcement of permit conditions. Permittee agrees to provide legal counsel, if requested, for the defense of any such claims.

(6) The permittee shall demonstrate that it possesses financial integrity to ensure compliance with permit conditions. The District does not waive sovereign immunity in any respect.

(7) The permittee shall not engage in any activity regarding the permitted use which interferes with the construction, alteration, maintenance or operation of the works of the District, including:

(a) discharge of debris or aquatic weeds into the works of the District;

(b) causing erosion or shoaling within the works of the District;

(c) planting trees or shrubs or erecting structures which limit or prohibit access by District equipment and vehicles, except as may be authorized by the permit.

Permittee shall be responsible for any costs incurred by the District resulting from any such interference.

(8) Permittee shall allow the District to inspect the permitted use at any reasonable time.

(9) The District has the right to change, regulate, limit, schedule, or suspend discharges into, or withdrawals from, works of the District in accordance with criteria established by the District and/or the U.S. Army Corps of Engineers for the works of the District. Reasonable prior written notice shall be given to permittee.

(10) If the use involves the construction of facilities for a non exempt water withdrawal or surface water discharge, the applicant must apply for and obtain a water use or surface water management permit before any activities may be conducted pursuant to the right of way occupancy permit.

(11) The District shall notify the local ad valorem taxing authority of the lands affected by the permitted use, where the permittee owns the underlying fee and derives a substantial benefit from the permitted use. The taxing authority may reinstate such lands on the tax roll.

(12) Permittees shall provide prior written notice to their successors in title of the permit and its terms and conditions. Such notice may be made through filing a copy of the permit or other appropriate notice agreed to by the District in the public records of the county or counties where the project is located and by providing the District with proof of filing or through an equivalent procedure. All costs associated with this requirement shall be the responsibility of the permittee. This requirement applies to permittees who are adjacent landowners.

Specific Authority 373.044, 373.113 F.S.

Law Implemented Chapters 252.09 and 252.70, Laws of Florida, 196-199 (1), 373.042, 373.083 (1), 373.085 (1), 373.103, 373.109, 373.129, F.S.

History--New 9-3-81, Amended 5-30-82, 12-29-86, 12-24-91

Formerly 16K-5 01 (2), 16K-5 02(2), 16K-5 03 (2), 16K-5 04 (4), 16K-5 05

PERMIT MODIFICATION NUMBER 9234
FLORIDA POWER AND LIGHT
JUNE 9, 1994
SHEET 2 OF 3

SPECIAL CONDITIONS ARE AS FOLLOWS:

1. THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT IS NOT RESPONSIBLE FOR DAMAGE TO INSTALLATIONS LOCATED WITHIN ITS RIGHTS OF WAY.
2. PERMITTEE SHALL BE RESPONSIBLE FOR THE REPAIR AND/OR REPLACEMENT OF EXISTING FACILITIES LOCATED WITHIN THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT'S RIGHTS OF WAY.
3. ANY ADDITIONAL FACILITIES OR ALTERATION TO EXISTING FACILITIES WITHIN THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT'S RIGHTS OF WAY WILL REQUIRE A MODIFICATION OF THIS PERMIT.
4. CANAL RIGHT OF WAY DISTURBED DURING CONSTRUCTION, INSTALLATION AND/OR MAINTENANCE OF THE AUTHORIZED FACILITY SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION BY THE PERMITTEE AT HIS SOLE EXPENSE.
5. PERMITTEE IS SOLELY RESPONSIBLE FOR ANY RELOCATION(S) WHICH MAY BE REQUIRED AS A RESULT OF THIS AUTHORIZATION. LIKEWISE, THE PERMITTEE IS RESPONSIBLE FOR ANY NOTIFICATION OR COORDINATION WITH THE OWNERS OF PREVIOUSLY PERMITTED FACILITIES LOCATED WITHIN THE DISTRICT'S RIGHTS OF WAY.
6. PERMITTEE RECOGNIZES THAT IN AN EMERGENCY SITUATION ANY OR ALL PERMITTED ITEMS WITHIN THE DISTRICT'S RIGHT OF WAY ARE SUBJECT TO IMMEDIATE ALTERATION, MODIFICATION OR REMOVAL BY DISTRICT FORCES. ANY DAMAGE RESULTING THEREFROM IS NOT THE RESPONSIBILITY OF THE DISTRICT.
7. A COPY OF THE PERMIT PACKAGE WILL BE KEPT AT THE JOB SITE UNTIL COMPLETION OF ALL PHASES OF CONSTRUCTION.
8. PERMITTEE RECOGNIZES THAT UPON THE SALE OR TRANSFER OF THE PROPERTY, IT IS THE PERMITTEE'S RESPONSIBILITY TO INFORM THE NEW OWNER THAT A PERMIT EXISTS AND THAT IMMEDIATELY FOLLOWING THE SALE OF THE PROPERTY, A REQUEST FOR TRANSFER OF SAID PERMIT MUST BE SUBMITTED TO THE DISTRICT.
9. THE BRIDGE AUTHORIZED BY THIS PERMIT IS FOR THE USE OF THE PERMITTEE AND HIS EMPLOYEES. MEASURES SHALL BE TAKEN AT ALL TIMES TO ENSURE THAT THE GENERAL PUBLIC DOES NOT UTILIZE THE SUBJECT BRIDGE.

PERMIT MODIFICATION NUMBER 9234
FLORIDA POWER AND LIGHT
JUNE 9, 1994
SHEET 3 OF 4

10. THE PERMITTEE SHALL PLACE HIGH VISIBILITY REFLECTIVE DEVICES OR MATERIAL ON BOTH FACES OF THE AUTHORIZED PILE-SUPPORTED CROSSING. SAID REFLECTIVE DEVICES OR MATERIAL WILL BE PLACED SO AS TO BE SEEN FROM THE WATER AND SHALL BE IN ACCORDANCE WITH DOT INDEX NUMBER 600, SHEET 9, CODE "OM 3R", (FDOT DESIGN STANDARDS, JANUARY, 1992). WITH EACH REFLECTIVE DEVICE OR MATERIAL INSTALLATION BEING APPROXIMATELY 1 FOOT BY 3 FEET AND HAVING A SURFACE AREA OF 430 SQUARE INCHES OR LARGER.

REFLECTIVE DEVICES OR MATERIAL SHALL BE PLACED ON ALL PILES WITHIN THE CHANNEL ON THE UPSTREAM AND DOWNSTREAM FACES OF THE BRIDGE. LIKEWISE, THE UPSTREAM AND DOWNSTREAM FACES OF EACH SPAN OVER THE CHANNEL SHALL BE EQUIPPED WITH REFLECTIVE DEVICES OR MATERIAL. REFLECTIVE DEVICES OR MATERIAL SHALL BE AFFIXED TO PILES WITH THE LONG AXIS ORIENTED VERTICALLY MIDWAY BETWEEN THE NORMAL WATER SURFACE ELEVATION AND THE LOW MEMBER ELEVATION OF THE ADJACENT SPANS. REFLECTIVE MATERIAL SHALL BE AFFIXED TO THE SPANS MIDWAY BETWEEN PILE BENTS WITH THE LONG AXIS ORIENTED HORIZONTALLY AND WITH THE LOWER EDGE NOT MORE THAN 1 INCH OF THE BOTTOM OF THE BRIDGE LOW MEMBER.

THE PERMITTEE IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE AND REPLACEMENT OF THE REFLECTIVE DEVICES OR MATERIAL AS NEEDED.

11. CANAL FLOWS SHALL IN NO WAY BE RESTRICTED IMPEDED OR BLOCKED DURING CONSTRUCTION.
12. NO DAMS OR FILLS ARE AUTHORIZED WITHIN THE CANAL DURING CONSTRUCTION OF THE AUTHORIZED FACILITY(IES).
13. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION'S TURBIDITY CONTROL STANDARDS, METHODS AND REQUIREMENTS.
14. THIS RIGHT OF WAY OCCUPANCY PERMIT IS NOT VALID WITHOUT A CONCURRENTLY ISSUED SURFACE WATER MANAGEMENT FROM THE DISTRICT'S DEPARTMENT OF REGULATION.
15. LOW MEMBER ELEVATION OF THE PROPOSED BRIDGE SHALL BE SET AT 19.4' N.G.V.D./M.S.L. OR HIGHER.

SCANNED

PERMIT MODIFICATION NUMBER 9234
FLORIDA POWER AND LIGHT
JUNE 9, 1994
SHEET 4 OF 4

16. THE PERMITTEE HAS CERTIFIED THE CONDITION OF THE SUBJECT BRIDGE WITH REGARD TO ITS LOAD CAPACITY. IT IS THE PERMITTEE'S RESPONSIBILITY TO ENSURE THAT THE BRIDGE'S CAPACITY IS NOT EXCEEDED.
17. PERMIT AUTHORIZATION EXPIRES JUNE 30, 1996, UNLESS AN EXTENSION TO THE EXPIRATION DATE IS APPLIED FOR AND GRANTED.
18. PERMITTEE SHALL SUBMIT "AS BUILT" DRAWINGS FOR THE PERMITTED/AUTHORIZED BRIDGE SIGNED AND SEALED BY AN ENGINEER CERTIFIED IN THE STATE OF FLORIDA WITHIN SIXTY (60) DAYS OF THE COMPLETION OF INSTALLATION AND/OR CONSTRUCTION.
19. INSURANCE COVERAGE IN THE AMOUNTS OUTLINED ON THE ATTACHED INSURANCE SCHEDULE SHALL BE MAINTAINED THROUGHOUT THE LIFE OF THIS PERMIT WITH THE DISTRICT BEING SUPPLIED WITH RENEWAL NOTICES, AS APPLICABLE.



Form #0122
Rev. 4/93
(RC-1)

South Florida Water Management District
Post Office Box 24680 • West Palm Beach, Florida 33416-4680
Telephone (407) 686-8800 • Florida WATS Line: 1-800-432-2045

APPLICATION NUMBER

(DO NOT WRITE IN THIS BLOCK)

mod
9234

**Application to the South Florida Water Management District
For Authority to Utilize Works or Land of the District**

—To Be Accompanied by 3 Copies of a Drawing of the Proposal—

SECTION 1

Applicant's Name Florida Power & Light Co.
Applicant's Address 700 Universe Blvd., Juno Beach, FL 33408
Applicant's Telephone Numbers (407) 691-2679 (Day) (407) 692-1163 (Evening)
Name of Person Filing Application Ed Preast ED menzinger
Address of Person Filing Application 700 Universe Blvd., Juno Beach, FL 33408
Telephone Numbers of Person Filing Application (407) 691-2679 (Day) (407) 692-1163 (Evening)

SECTION 2

LOCATION OF PROJECT:

Work or Land Involved Fort Lauderdale Power Plant County Broward
Section(s) 25, 30 Township(s) 505 South, Range(s) 41, 42 East
Lot _____ Block _____ Subdivision _____

SECTION 3

DESCRIPTION OF PROJECT:

- ☐ Boat Dock
☐ Utility Line Installation
☐ CATV Line Installation
☐ Beautification

- ☐ Domestic Irrigation Line
☐ Other Water Withdrawal Connection
☐ Drainage Connection

RECEIVED
MAY 20 1994

x ☒ Other (Describe Fully) Reconstruction of west parking lot and reconfiguration of a portion of the on-site access roads. Replacement of existing bridge over Dania cut-off canal, improvement of existing FPL-owned access road (SW 42nd Ave.) alternatives of surface water management systems to accommodate the refurbished areas.

Anticipated Start Date if Other than Date of Approval _____

Anticipated Completion Date _____

SECTION 4

In compliance with provisions of Chapter 373, Florida Statutes and Chapter 40E-6, Florida Administrative Code, application is hereby made for an occupancy permit in accordance with support drawings, data and incidental information filed with this application and made a part of this application. I hereby certify that all information contained in or made a part hereof is true and correct to the best of my knowledge, and acknowledge that any permit issued shall require that the permitted use be constructed and operated in accordance with such information. I further certify that I have read the "Standard Limiting Conditions" appearing on the reverse side and understand that said conditions will be incorporated within any permit issued pursuant to this application, unless expressly waived by the Governing Board. I further acknowledge that the Governing Board may incorporate additional special conditions as may be necessary in the best interest of the District.

Applicant's Name (Print or Type)

Edward Preast, Project Manager

Agent's Name (Print or Type)

Owner's Signature

I Hereby Certify that I am an Authorized Agent for the Owner

January 6, 1994

Date

Date

Edward Preast PROJECT MANAGER
as of 5/19/94 CANNED



Form #0137
Rev 2/94

South Florida Water Management District Miscellaneous Sales Receipt

Receipt No. 94-

1830

file

0004

Received:

Date

May 20, 1994

Prepared By

Penia

Date

05-20-94

Received By

ME

Date

5/20/94

From

Florida Power & Light Company

Address

700 Universe Blvd.

City

Juno Beach

State

FL

Zip

33408

Phone

(407) 1091-2679

Check One

☐ Cash

☒ Check No.

931000 0054

Description

Permit application fee

05-20-94

14,640.00

\$1,550.00

FUND	AGENCY	ORGN	ACTIVITY	OBJECT/ REV SOURCE/ BAL SHEET	SUB O/R	JOB NUMBER	REP CATG.

Description

FUND	AGENCY	ORGN	ACTIVITY	OBJECT/ REV SOURCE/ BAL SHEET	SUB O/R	JOB NUMBER	REP CATG.

\$

Description

FUND	AGENCY	ORGN	ACTIVITY	OBJECT/ REV SOURCE/ BAL SHEET	SUB O/R	JOB NUMBER	REP CATG.

\$

Description

FUND	AGENCY	ORGN	ACTIVITY	OBJECT/ REV SOURCE/ BAL SHEET	SUB O/R	JOB NUMBER	REP CATG.

\$

Description

FUND	AGENCY	ORGN	ACTIVITY	OBJECT/ REV SOURCE/ BAL SHEET	SUB O/R	JOB NUMBER	REP CATG.

\$

Description

FUND	AGENCY	ORGN	ACTIVITY	OBJECT/ REV SOURCE/ BAL SHEET	SUB O/R	JOB NUMBER	REP CATG.

\$

Subtotal \$ 1,550.00

Florida Sales Tax (6%)* \$

TOTAL \$ 1,550.00

Additional Comments:

MOD 9234

*N/A -- Copies of Public Records - F.S. 212.05

*Exemption Number, If Applicable

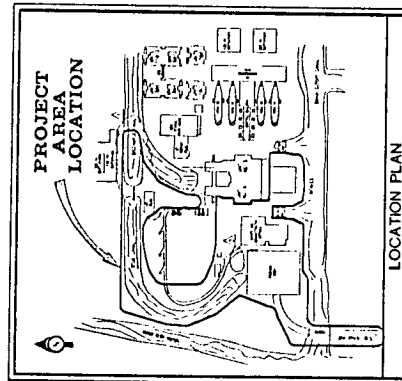
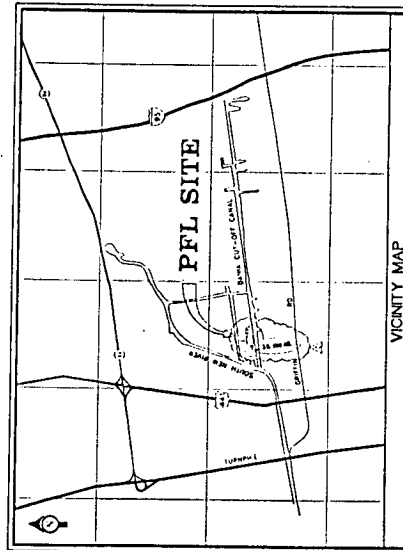
SCANNED

LAUDERDALE PLANT

UNITS 4 & 5

ENTRY ROAD, BRIDGE, PARKING LOT

AND STORMWATER MODIFICATIONS



REFERENCE DRAWINGS:

1. TOPOGRAPHIC SURVEY OF A PORTION OF THE LAUDERDALE PLANT SITE DEVELOPMENT
2. PFLA-C4350-22, SHT 1 & 2
3. PFLA-C4350-22, SHT 1 & 3
4. PFLA-C4350-22, SHT 1 & 4
5. PFLA-C4350-22, SHT 1 & 5
6. PFLA-C4350-22, SHT 1 & 6
7. PFLA-C4350-22, SHT 1 & 7
8. PFLA-C4350-22, SHT 1 & 8
9. PFLA-C4350-22, SHT 1 & 9
10. PFLA-C4350-22, SHT 1 & 10
11. PFLA-C4350-22, SHT 1 & 11
12. PFLA-C4350-22, SHT 1 & 12
13. PFLA-C4350-22, SHT 1 & 13
14. PFLA-C4350-22, SHT 1 & 14

RECEIVED
MAY 13 1994

GROUP	TITLE	INDEX	DWG NO.	SHEET
C-1	ENTRY ROAD		PFLA-C4350-22, SHT 1 & 1	1 OF 1
C-2	BRIDGE		PFLA-C4350-22, SHT 1 & 2	1 OF 1
C-3	PARKING LOT		PFLA-C4350-22, SHT 1 & 3	1 OF 1
C-4	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 4	1 OF 1
C-5	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 5	1 OF 1
C-6	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 6	1 OF 1
C-7	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 7	1 OF 1
C-8	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 8	1 OF 1
C-9	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 9	1 OF 1
C-10	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 10	1 OF 1
C-11	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 11	1 OF 1
C-12	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 12	1 OF 1
C-13	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 13	1 OF 1
C-14	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 14	1 OF 1

GROUP	TITLE	INDEX	DWG NO.	SHEET
C-1	ENTRY ROAD		PFLA-C4350-22, SHT 1 & 1	1 OF 1
C-2	BRIDGE		PFLA-C4350-22, SHT 1 & 2	1 OF 1
C-3	PARKING LOT		PFLA-C4350-22, SHT 1 & 3	1 OF 1
C-4	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 4	1 OF 1
C-5	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 5	1 OF 1
C-6	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 6	1 OF 1
C-7	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 7	1 OF 1
C-8	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 8	1 OF 1
C-9	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 9	1 OF 1
C-10	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 10	1 OF 1
C-11	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 11	1 OF 1
C-12	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 12	1 OF 1
C-13	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 13	1 OF 1
C-14	STORMWATER MODIFICATIONS		PFLA-C4350-22, SHT 1 & 14	1 OF 1

G-1

LAUDERDALE PLANT - UNITS 4 & 5

ENTRY ROAD, BRIDGE, PARKING LOT AND STORMWATER MODIFICATIONS COVER SHEET

DATE: 12/1/93

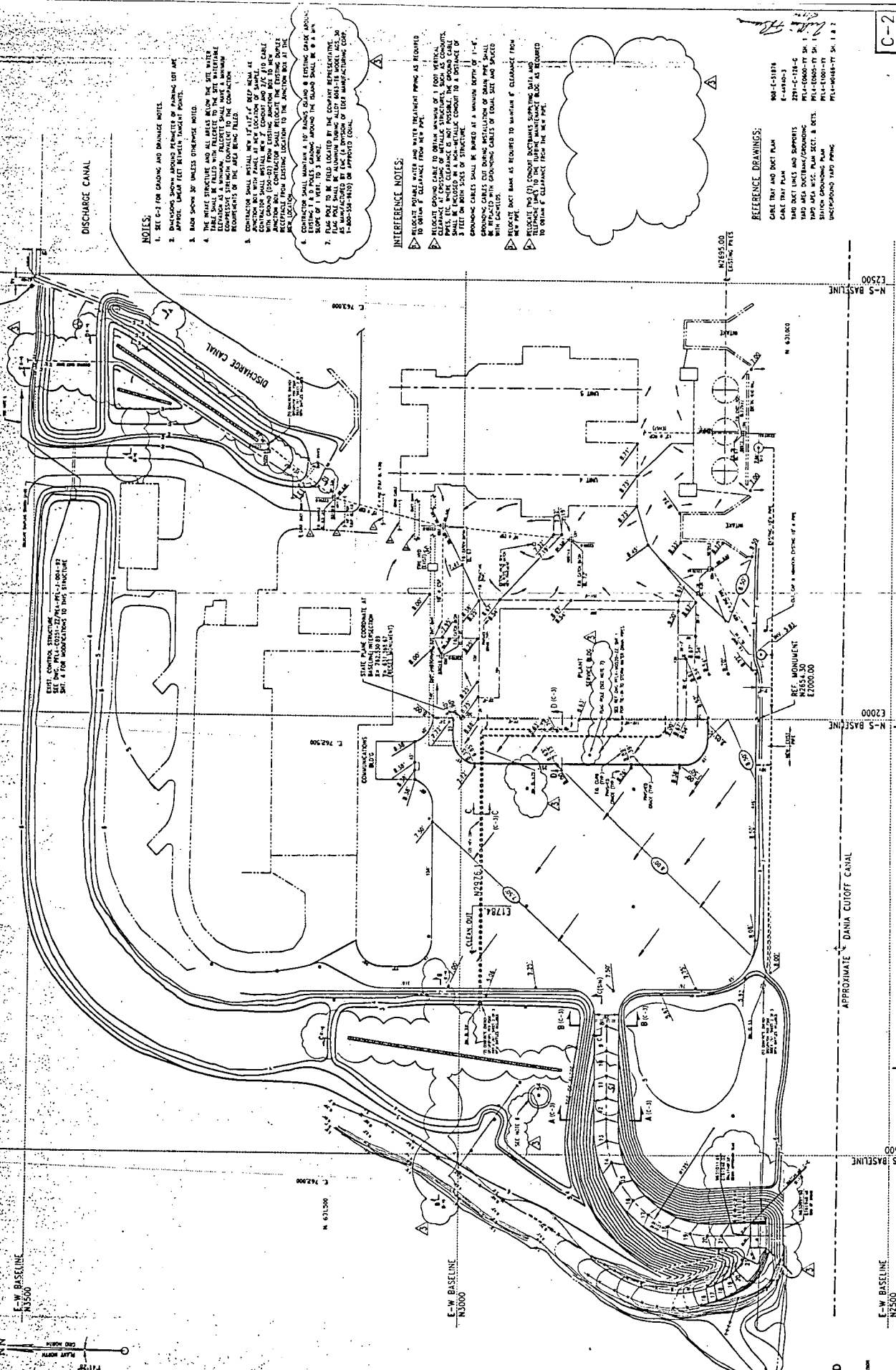
BY: [Signature]

FOR: [Signature]

PROJECT: PFLA-C0251-22/REA-PFL-J-004-92

SHEET 1 OF 7

SCANNED



NOTES:

1. SEE C-1 FOR GRADING AND DRAINAGE NOTES.
2. DIMENSIONS SHOWN AROUND PERIMETER OF PARKING LOT ARE APPROXIMATE. LOCATE LOT WITHIN TARGET POINTS.
3. ROAD SHOWN 30' UNLESS OTHERWISE NOTED.
4. THE EXISTING STRUCTURE AND ALL AREAS BELOW THE EXISTING GRADE SHALL BE REMOVED AND THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE.
5. CONTRACTOR SHALL MAINTAIN A 10' WIDE GRASSY AREA AROUND THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE.
6. CONTRACTOR SHALL MAINTAIN A 10' WIDE GRASSY AREA AROUND THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE.
7. ROAD PAVEMENT SHALL BE RECONSTRUCTED TO THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE.
8. CONTRACTOR SHALL MAINTAIN A 10' WIDE GRASSY AREA AROUND THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE. THE EXISTING GRADE SHALL BE RECONSTRUCTED TO THE EXISTING GRADE.

INTERFERENCE NOTES:

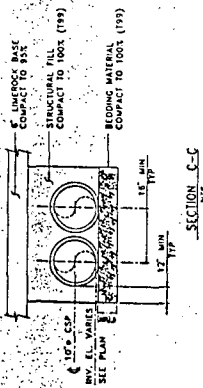
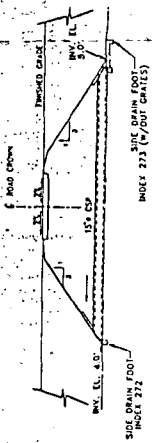
1. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.
2. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.
3. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.
4. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.
5. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.
6. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.
7. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.
8. RELOCATE POWER WATER AND WATER TREATMENT PLANT AS REQUIRED TO MAINTAIN 5' CLEARANCE FROM NEW PAVEMENT.

REFERENCE DRAWINGS:

- CABLE TRAY AND DUCT PLAN
- CABLE TRAY PLAN
- TRAD DUCT LINES AND SUPPORTS
- TRAD DUCT LINES AND SUPPORTS
- TRAD DUCT LINES AND SUPPORTS
- TRAD DUCT LINES AND SUPPORTS
- TRAD DUCT LINES AND SUPPORTS
- TRAD DUCT LINES AND SUPPORTS

C-2		LAUDERDALE PLANT - UNITS 4 & 5	
PARKING LOT		GRAVING AND DRAINAGE PLAN	
PFL4-C0251-22/REA-PFL-J-004-92		PFL4-C0251-22/REA-PFL-J-004-92	
DATE: 11/17/94		DATE: 11/17/94	
BY: [Signature]		BY: [Signature]	
CHECKED: [Signature]		CHECKED: [Signature]	
APPROVED: [Signature]		APPROVED: [Signature]	
SCALE: 1" = 40'		SCALE: 1" = 40'	
SHEET: 1 OF 1		SHEET: 1 OF 1	
PROJECT: [Project Name]		PROJECT: [Project Name]	
LOCATION: [Location]		LOCATION: [Location]	
DRAWN BY: [Name]		DRAWN BY: [Name]	
CHECKED BY: [Name]		CHECKED BY: [Name]	
APPROVED BY: [Name]		APPROVED BY: [Name]	
DATE: 11/17/94		DATE: 11/17/94	
BY: [Signature]		BY: [Signature]	
CHECKED: [Signature]		CHECKED: [Signature]	
APPROVED: [Signature]		APPROVED: [Signature]	

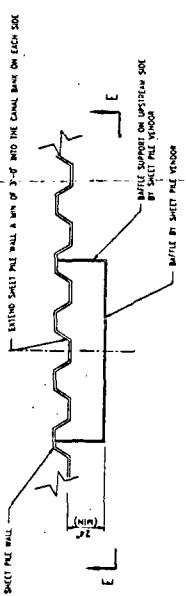
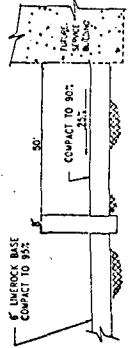
SCANNED



SECTION A-A
N.T.S.

SECTION B-B
N.T.S.

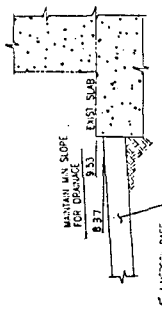
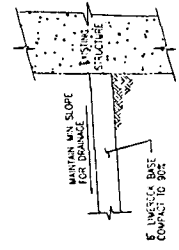
SECTION C-C
N.T.S.



SECTION D-D
N.T.S.

SECTION E-E
N.T.S.

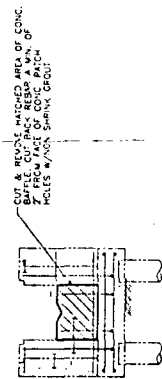
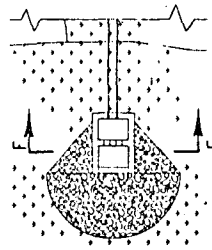
SECTION F-F
N.T.S.



SECTION G-G
N.T.S.

SECTION H-H
N.T.S.

SECTION I-I
N.T.S.



SECTION L-L
N.T.S.

SECTION M-M
N.T.S.

SECTION N-N
N.T.S.

SECTION O-O
N.T.S.

SECTION P-P
N.T.S.

SECTION Q-Q
N.T.S.

SECTION R-R
N.T.S.

SECTION S-S
N.T.S.

SECTION T-T
N.T.S.

SECTION U-U
N.T.S.

SECTION V-V
N.T.S.

SECTION W-W
N.T.S.

SECTION X-X
N.T.S.

SECTION Y-Y
N.T.S.

SECTION Z-Z
N.T.S.

RECEIVED - ABANDONED INTERNAL CONTROL STRUCTURE NO. 1
(FOR INFO NOT SHOWN SEE DWG. P14-0225-22)

REFERENCE DWGS:
P14-0225-22 SHEET 9
P14-0225-22 SHEET 10

NOTES:
1. SEE C-2 FOR NOTES.
2. THE BATTLE AND ITS SUPPORT SYSTEMS WILL BE WELDED OR WELDED SHALL CONFORM TO THE SPECIFICATIONS FOR ALUMINUM STRUCTURES - CONSTRUCTION MANUAL, SERIES - SECTION 30, BY THE ALUMINUM ASSOCIATION INCORPORATED.
3. BATTLE AND ITS SUPPORT SYSTEMS SHALL BE DESIGNED TO 50% BROWARD COUNTY EDITION, WHO LOADS SHALL BE 1.5 TIMES THE DESIGN LOADS.
4. FOR SHEET PILE WALLS, THICKNESS SHALL BE 1/2" THE DOWNSTREAM EDGE OF THE V - NOTCH HERE SHALL BE WELDED 1/2".
5. FOR THE PILE-LESS EDITIONS 1/2".

SHEET PILE NOTES:
1. THE BATTLE AND ITS SUPPORT SYSTEMS WILL BE WELDED OR WELDED SHALL CONFORM TO THE SPECIFICATIONS FOR ALUMINUM STRUCTURES - CONSTRUCTION MANUAL, SERIES - SECTION 30, BY THE ALUMINUM ASSOCIATION INCORPORATED.
2. THE BATTLE AND ITS SUPPORT SYSTEMS SHALL BE DESIGNED TO 50% BROWARD COUNTY EDITION, WHO LOADS SHALL BE 1.5 TIMES THE DESIGN LOADS.
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4. FOR SHEET PILE WALLS, THICKNESS SHALL BE 1/2" THE DOWNSTREAM EDGE OF THE V - NOTCH HERE SHALL BE WELDED 1/2".
5. FOR THE PILE-LESS EDITIONS 1/2".

LAUDERDALE PLANT - UNITS 4 & 5
GRADING & DRAINAGE
PROFILE, SECTIONS & DETAILS

P14-0225-22/REA-P14-J-004-92

REVISIONS

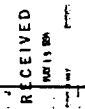
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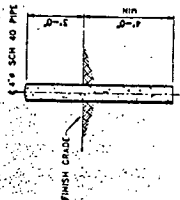
BY

FOR

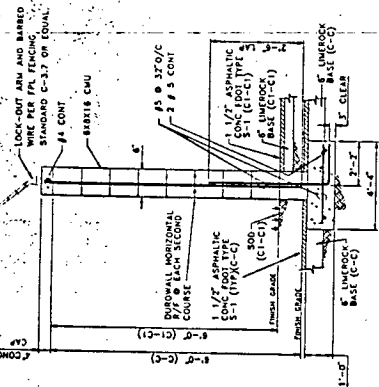
REVISIONS

SCANNED

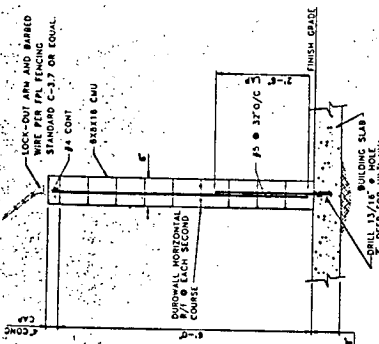
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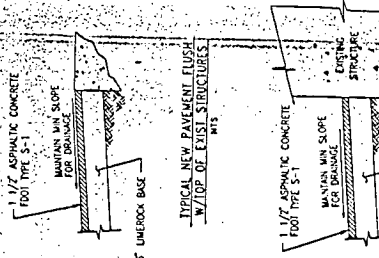
SECTION B-B
(FOR THE BUILDING FOUNDATION)



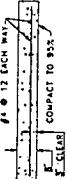
SECTION C-C



SECTION C-C

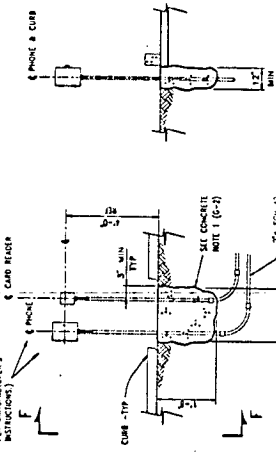


TYPICAL NEW PAVEMENT ABUTTING EXISTING STRUCTURES

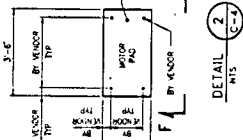


SECTION D-D

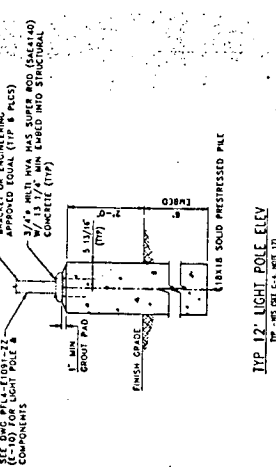
SECTION E-E



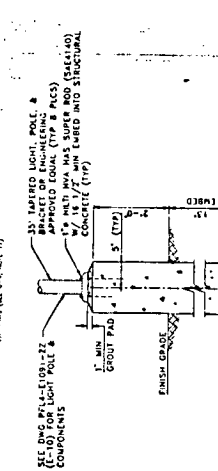
DETAIL C-3



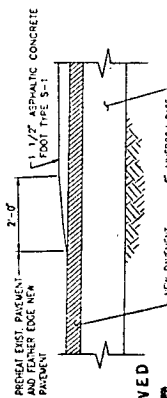
DETAIL C-2



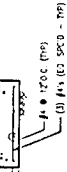
TYP 12' LIGHT POLE ELEV



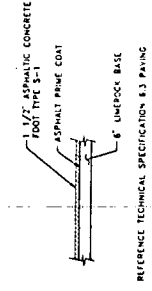
TYP 35' LIGHT POLE ELEV



TYP PAVEMENT FEATHERING SECTION



SECTION F-F



TYPICAL PAVEMENT DETAILS

- NOTES:
- SEE C-2 FOR PAVING NOTES.
 - INSTALL TURNSTILE BETWEEN THE ADJOINING CHW WALLS. LEVEL EACH SECTION, AND DRILL THE REQUIRED ANCHOR BOLT HOLES. SEVEN (7) HOLES ARE REQUIRED USING 3/8" x 12" ANCHOR BOLT x 1/2" x 1/2" MIN EMBED.

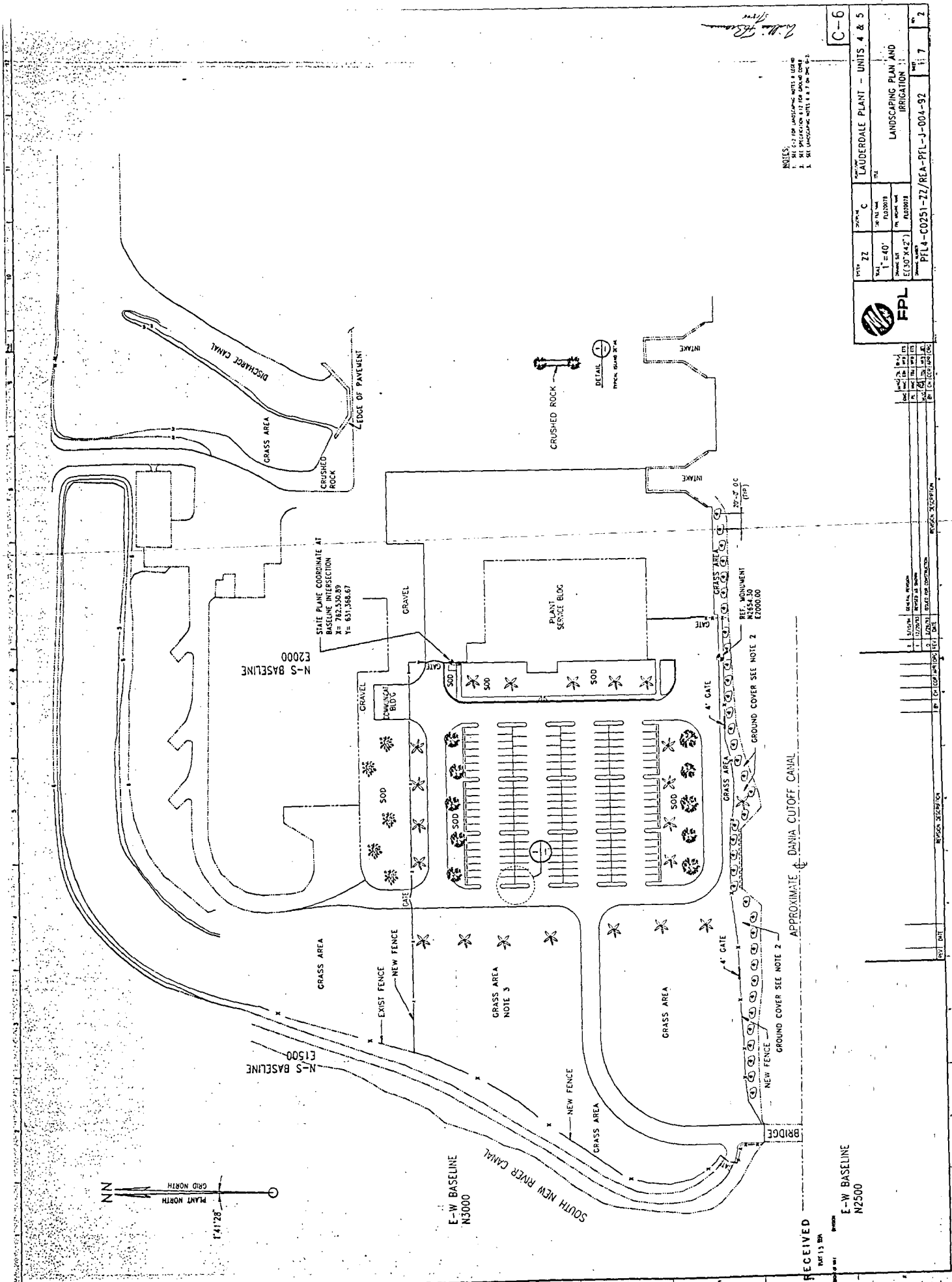
REFERENCE: DGS-1

PAVING LOT PAVING PLAN SEE C-4

C-5

LAUDERDALE PLANT - UNITS 4 & 5									
DATE	SCALE	BY	CHECKED	APPROVED	REVISION	DESCRIPTION	DATE	BY	DESCRIPTION
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	1	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	2	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	3	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	4	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	5	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	6	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	7	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	8	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	9	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5
11-12-81	1"=1'	J. J. J.	J. J. J.	J. J. J.	10	LAUDERDALE PLANT - UNITS 4 & 5	11-12-81	J. J. J.	LAUDERDALE PLANT - UNITS 4 & 5

SCANNED



NOTES:
 1. SEE E-2 FOR LANDSCAPING WITH A LUGER
 2. SEE SPECIFICATION 4.12 FOR GROUND COVER
 3. SEE LANDSCAPING WITH A LUGER

C-6		LAUDERDALE PLANT - UNITS 4 & 5	
DATE	2/2/92	SCALE	1"=40'
BY	FL02001	CHECKED	FL02001
PROJECT NO.		PL4-C0251-7Z/REA-PL-J-004-92	
PROJECT NAME		LANDSCAPING PLAN AND IRRIGATION	
SHEET NO.		17	
TOTAL SHEETS		2	

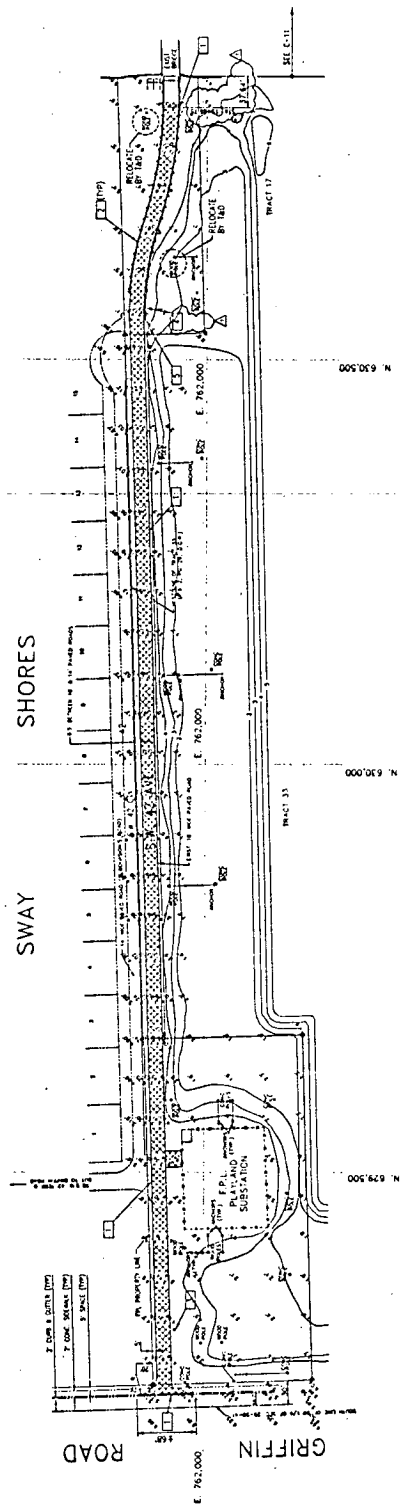
RECEIVED
 DATE 11/13/92
 BY [Signature]

E-W BASELINE N2500

SCANNED

DEMOLITION NOTES

1. SAW CUT AND REMOVE EXISTING ASPHALTIC CONCRETE TO DEPTH INDICATED
2. REMOVE AND SALVAGE FOR REUSE, EXISTING STEEL GUARDRAILS AND CONCRETE CURBS TO AND WITHIN LIMITS OF PROJECT PAVEMENT. SEE C-18 FOR LOCATION.
3. REMOVE AND SALVAGE EXISTING SIGNS AND SUPPORT POSTS.
4. RE-CUT GUT, ALLOW FOR FOUR (4) FOOT CLEARANCE FROM EDGE OF ROAD.
5. REMOVE AND SALVAGE WATER METER & BOLLARDS.

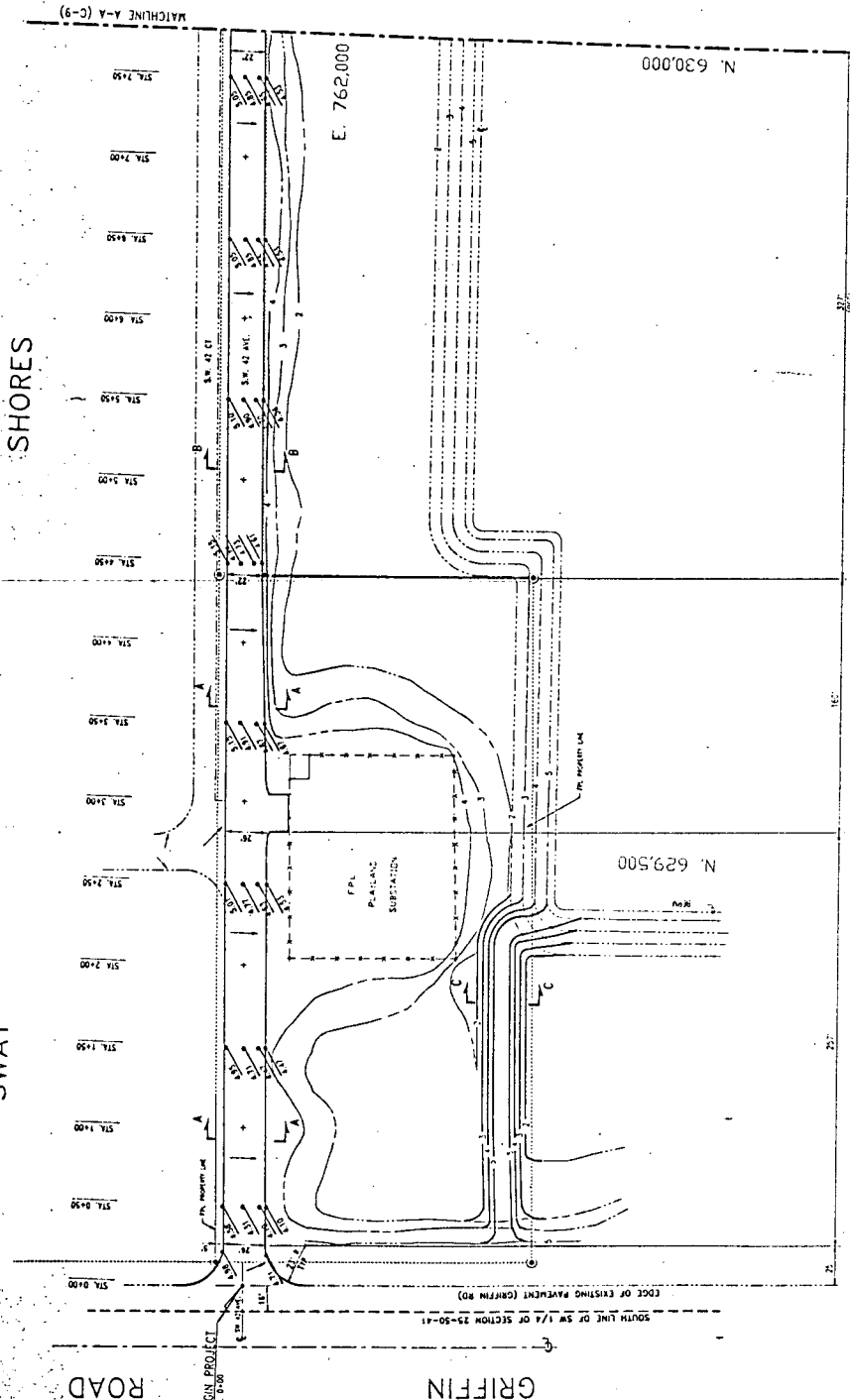


PLAN

RECEIVED
JAN 15 1994

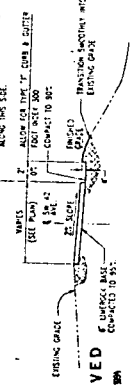
SCANNED

C-7		LAUDERDALE PLANT - UNITS 4 & 5	
DATE	1/15/94	SCALE	1"=60'
PROJECT	ZZ	DATE	1/15/94
DESIGNER	C	DATE	1/15/94
CHECKED	ZZ	DATE	1/15/94
APPROVED	ZZ	DATE	1/15/94
FPL		ENTRANCE RD (SW 42 AVE.) SITE PLAN & DEMOLITION	
PFL4-SK-C-001/REA-PFL-J-002-92		T of 1	

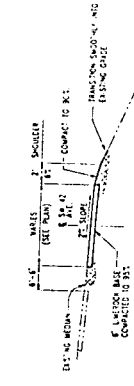


PLAN

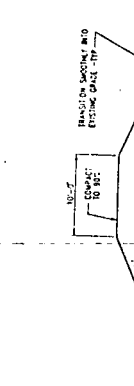
NOTES:
SEE C-1 FOR EXISTING AND PROPOSED NOTES AND LEGEND



SECTION A-A
(TYP. STA. 0+00 THRU 3+47)
NTS



SECTION B-B
(TYP. STA. 3+47 THRU 13+50)
NTS



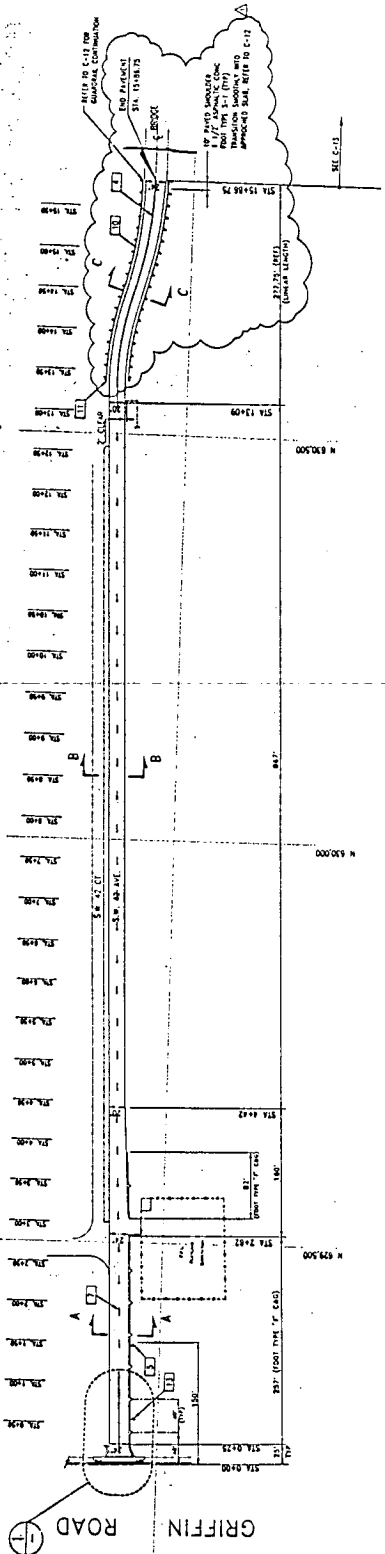
SECTION C-C
(NEW CROSS SECTION)
NTS

C-8		LAUDERDALE PLANT - UNITS 4 & 5	
DATE	2/2	SCALE	1" = 30'
PROJECT	PFL4-C0250-TZ/REA-PFL-J-002-92	DESIGNED BY	REVISION
FPL		ENTRANCE ROAD (S.W. 42 AVE.) DRAINAGE & GRADING	
1 OF 3		1	

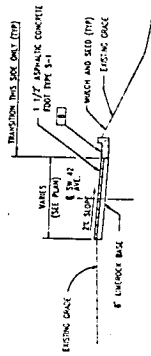
SCANNED



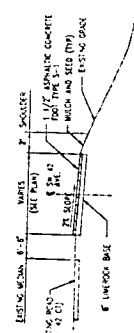
SWAY SHORES



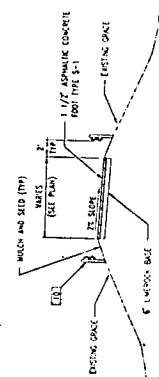
PAVING PLAN
P-402



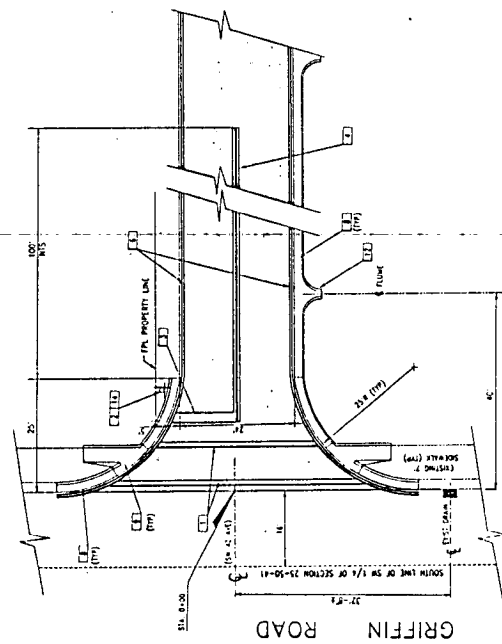
SECTION A-A
(TYP. STA. 13+87 THRU 14+87)
MS



SECTION B-B
(TYP. STA. 14+87 THRU 15+00)
MS



SECTION C-C
(TYP. STA. 13+00 THRU 14+00)
MS



DETAIL
1:10

- TRAFFIC CONTROL:**
- SOLID 1\"/>
 - STANDARD STOP SIGN (R-1-1) IN ACCORDANCE WITH MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LOCATE 1\"/>
 - SOLID 2\"/>
 - SOLID 6\"/>
 - STANDARD SPEED LIMIT SIGN (R-2-1) IN ACCORDANCE WITH MUTCD. SPEED SHALL BE 35 MPH PLACE 2\"/>
 - SOLID 6\"/>
 - 6\"/>
 - 2-TYPE \"Y\" CURB & GUTTER (C & G) FOOT WEAR 300
 - CURB CUT RAMP, FOOT WEAR 300
 - GUARDRAIL, BLOCK AND POST, FOOT WEAR 400 NEW MATERIALS AND WORKS IN ACCORDANCE WITH FOOT ROAD & BRIDGE CONSTRUCTION MANUAL. THE SPACING OF THE MATERIALS BEING SHALL BE RESET IN ACCORDANCE WITH FOOT ROAD & BRIDGE CONSTRUCTION MANUAL SECTION 538 PLACE 2\"/>
 - NOTED END SECTION WITH TUMBLER BECAUSE POST AND TYPE IN END
 - PLUMB, FOOT WEAR 400
 - STANDARD \"NO OUTLET\" SIGN TO BE INSTALLED 2\"/>
 - STANDARD STREET SIGN (S-4-4) TO BE INSTALLED ON STOP SIGN POST.
- NOTES:**
- SEE 6-2 FOR PAVING NOTES & LEGEND

C-10

LAUDERDALE PLANT - UNITS 4 & 5

ENTRANCE ROAD (SW 42 AVE.)
PAVING PLAN, SECTIONS, & DETAILS

PFL4-C0250-ZZ/REA-PFL-J-002-92

DATE	BY	CHKD	APP'D
11/12/2014	MS	MS	MS
11/12/2014	MS	MS	MS
11/12/2014	MS	MS	MS

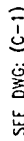
RECEIVED
JAN 13 2015



DEMOLITION/REMOVAL

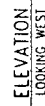
DEMOLITION NOTES:

1. REMOVE EXIST STEEL BRIDGE.
2. REMOVE WATER PRELINE.
3. REMOVE CONDUITS.
4. REMOVE ALL SIGNS.
5. REMOVE GUARD POST.
6. REMOVE AND SAVED FENCING AS NEEDED.
7. REMOVE BRIDGE SUPPORT SYSTEM TO TL - 1.0 OR 5' BELOW MIDLINE (WHICHEVER IS DEEPER).
8. CUT EXISTING SHEET PILE TO TL 13.00 NORTH ABUTMENT.
9. CUT EXISTING SHEET PILE TO TL 13.00 SOUTH ABUTMENT.
10. REMOVE ELECTRIC GATE, FENCING AND SUPPORT STRUCTURE.
11. REMOVE EXISTING ASPHALTIC CONCRETE TO EXTENT INDICATED.



125.3'
STEEL BRIDGE

PLAN



RECEIVED

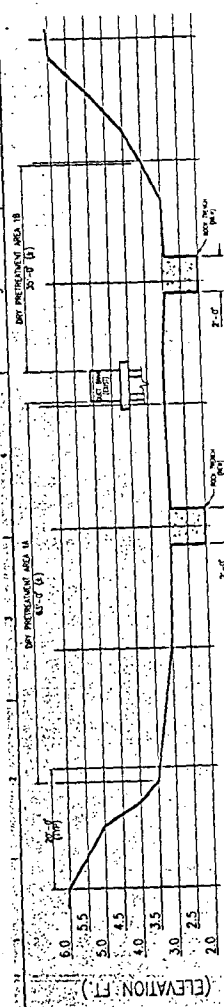
SCANNED

	UNIT	ZZ	C	LAUDERDALE PLANT - UNITS 4 & 5
	DATE 10/11/02	SW FILE NO FLD00991	SW 42 AVE BROCK PLANT ENTRANCE SITE PLAN & DEMOLITION	SW P/LG-SK-C-001/REA-P/LG-J-003-92
EXCISE NO E(307-4-27)	FLD00991	P/LG-SK-C-001/REA-P/LG-J-003-92	10/11/02	2

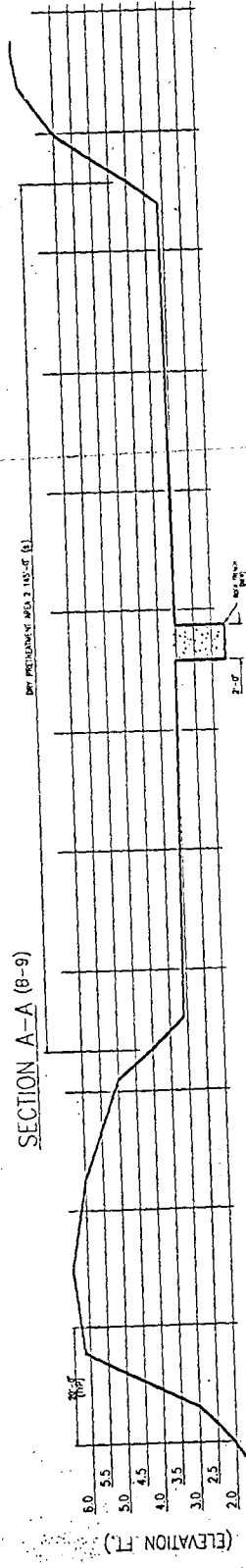
[illegible]

NOTES:

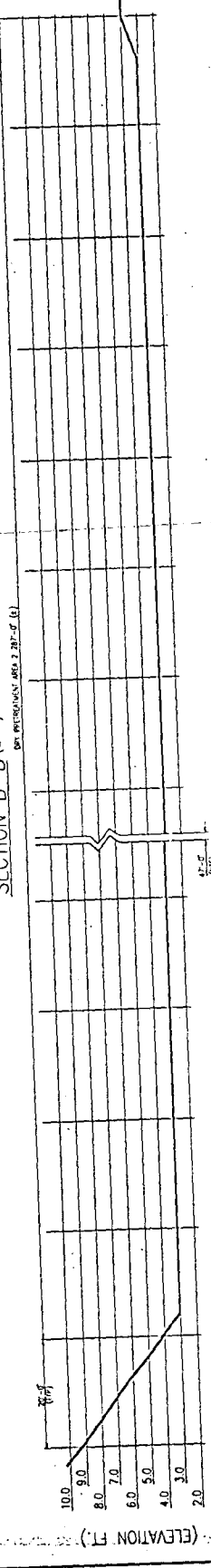
1. ROCK TRENCH SHALL BE FILLED WITH F80, SIZE #4 AGGREGATES. AGGREGATES SHALL CONFORM TO FDOT SECTION 901.



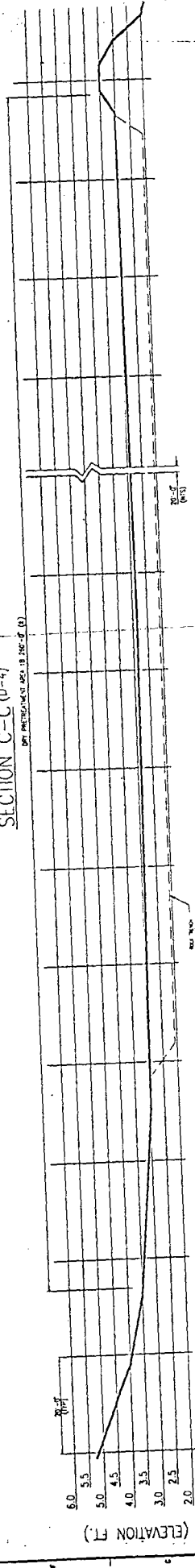
SECTION A-A (B-9)



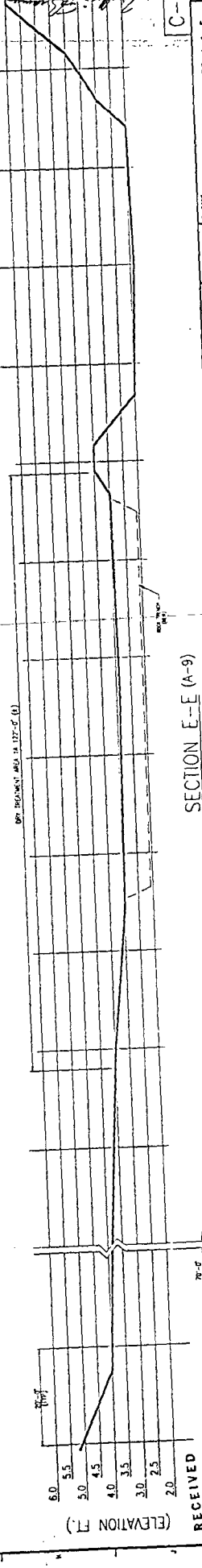
SECTION B-B (E-3)



SECTION C-C (D-4)



SECTION D-D (B-10)



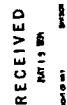
SECTION E-E (A-9)

RECEIVED
MAY 11 2011

SCANNED

		LAUDERDALE PLANT UNITS 4 & 5	
ZZ 1/8" = 1'-0" E (30° N 45° E)	SECTION C C-14	DRY PRE-TREATMENT AREAS GRADING PROFILES	PFL-C0250-21/REA-PFL-J-004-92 1 OF 1

1. FOR GENERAL NOTES SEE SHEET G-2
2. FOR PILE ELEVATION SEE SPECIFICATION SECTION 4.6.
3. REFLECTIVE DEVICE SHALL BE MADE OF ALUMINUM SHEET METAL 3/16" THICK AND SHALL BE ATTACHED TO THE METAL ANCHORS WITH 1/4" 3/8" DIA. X 1 1/2" LONG ALUMINUM ANCHORS. ALL ANCHORS SHALL BE INSTALLED AT THE CORNERS OF THE SIGN WITH 3" EMBEDMENT. ALL SIGNS SHALL BE INSTALLED IN A TRUE VERTICAL POSITION.
4. ALL CHAMBERS TO BE 3/4"

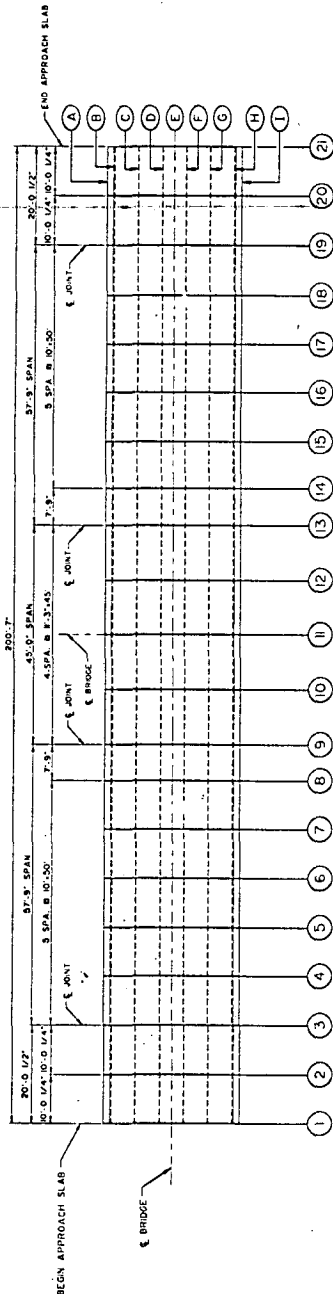


THIS DWG. SUPERCEDES DWG. PFL4-C2030-ZZ / REA-PFL-J-003-92
SHEET S-1 (SHEET 3)

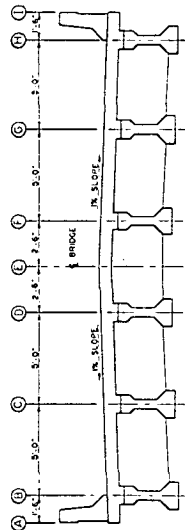
[illegible]

ISSUED FOR CONSTRUCTION

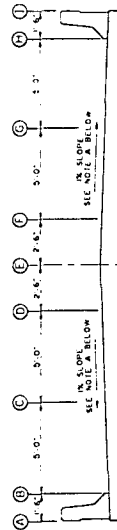
SCANNED



PLAN
FINISH GRADE ELEVATION POINTS
SCALE: 3/8"=1'-0"



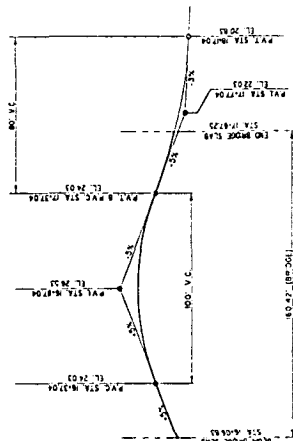
BRIDGE TYPICAL SECTION
SCALE: 3/8"=1'-0"



APPROACH SLAB TYPICAL SECTION
SCALE: 3/8"=1'-0"

APPROACH SLAB TYPICAL SECTION
SCALE: 3/8"=1'-0"

	A	B	C	D	E	F	G	H	I
1	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
2	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
3	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
4	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
5	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
6	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
7	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
8	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
9	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
10	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
11	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
12	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
13	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
14	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
15	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
16	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
17	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
18	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
19	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
20	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97
21	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97	25.97



VERTICAL CURVE DATA
N.T.S.

RECEIVED
MAY 13 1994

SCANNED

E. N. DECHAMPS AND ASSOCIATES, INC.		S-6	
LAUDERDALE PLANT - UNITS 4 & 5		SW. 42 AVE. BRIDGE	
NOTED		SCREEN ELEVATIONS	
FPL		PFLA-C2032-7Z/REA-PFL-J-003-92	
DATE: 5/17/94		BY: 6	
PROJECT NO: 84-45		SHEET: 6	
DRAWN BY: J. L. DECHAMPS		CHECKED BY: J. L. DECHAMPS	
APPROVED BY: J. L. DECHAMPS		DATE: 5/17/94	

ISSUED FOR CONSTRUCTION

REVISION DESCRIPTION

DATE

BY

DATE

BY

DATE

BY

DATE



Form #0137
Rev. 9/89

South Florida Water Management District Miscellaneous Sales Receipt

Receipt No. 90- 1733

Received:

Date 6/25, 1990

From FPL (Charles D. Henderson)

Address _____

City _____ State _____ Zip _____

Phone _____

Prepared By J. Skubbs

Date 6/25/90

Received By Ju

Date 6/25

Check One

☐ Cash

☒ Check No. 4113056 ✓

☐ VISA/MasterCard

Description

KIw occupancy Permit

Account Coding

DIST. 424.0000000000

FUND	ACCOUNT	DIV	PROJECT	SUPPLEMENTAL

\$ 225.00

Description

Account Coding

FUND	ACCOUNT	DIV	PROJECT	SUPPLEMENTAL

\$ _____

Subtotal \$ 225.00

Florida Sales Tax (6%)* \$ _____

TOTAL \$ 225.00 ✓

*N/A -- Copies of Public Records - F.S. 212.05

*Exemption Number, If Applicable _____

WHITE - Customer

YELLOW - Accounting

PINK - Department

GOLDENROD - Numerical File

90-0625-3

SCANNED



Form #0137
Rev. 9/89

Receipt No. 90- 1931

South Florida Water Management District Miscellaneous Sales Receipt

Received:

Date 6/25, 1990

Prepared By J. Skibbs Date 6/25/90

Received By _____ Date _____

From FPL (Charles D. Henderson)

Address 1001 Village Blvd.

City West Palm Beach State FL Zip 33407

Phone _____

Check One

☐ Cash

☒ Check No. 413056

☐ VISA/MasterCard

Description: PLU OCCUPANCY PERMIT

Account Coding DIST 424 000 000 0000 \$ 225.00
FUND ACCOUNT DIV PROJECT SUPPLEMENTAL

Description _____

Account Coding _____ \$ _____
FUND ACCOUNT DIV PROJECT SUPPLEMENTAL

Subtotal \$ 225.00

Florida Sales Tax (6%)* \$ _____

TOTAL \$ 225.00

*N/A -- Copies of Public Records - F.S. 212.05

*Exemption Number, If Applicable _____

WHITE - Customer

YELLOW - Accounting

PINK - Department

GOLDENROD - Numerical File

90-0625-1



FORM #0122
Rev 4/87
(RC-1)

South Florida Water Management District
Post Office Box 24680 • West Palm Beach, Florida 33416-4680
Telephone (305) 686-8800 • Florida WATS Line: 1-800-423-2045

APPLICATION NUMBER

90-0625-1

(DO NOT WRITE IN THIS BLOCK)

**Application to the South Florida Water Management District
For Authority to Utilize Works or Land of the District**

—To Be Accompanied by 3 Copies of a Drawing of the Proposal—

SECTION 1

Applicant's Name FPL
Applicant's Address 6001 Village Blvd., West Palm Beach, FL 33407
Applicant's Telephone Numbers (407) 640-2060 (Day) _____ (Evening) _____
Name of Person Filing Application Charles D. Henderson
Address of Person Filing Application c/o FFL 6001 Village Blvd. West Palm Beach, FL 33407
Telephone Numbers of Person Filing Application (407) 640-2060 (Day) _____ (Evening) _____

SECTION 2

LOCATION OF PROJECT:

Work or Land Involved Dania Cut-Off Canal County Broward
Section(s) 25 Township(s) 50 South, Range(s) 41 East
Lot _____ Block _____ Subdivision _____

SECTION 3

DESCRIPTION OF PROJECT:

- | | |
|--|--|
| ☐ Boat Dock | ☐ Domestic Irrigation Line |
| ☐ Utility Line Installation | ☐ Other Water Withdrawal Connection |
| ☐ CATV Line Installation | ☐ Drainage Connection |
| ☐ Beautification | |

☒ Other (Describe Fully) Two over-water 4 inch water lines located on
bridge (SFWMD ROW Permit #1927-15) crossing Dania Cut-Off Canal.

RECEIVED
JUN 25 1990
RIGHT-OF-WAY DIVISION

Anticipated Start Date if Other than Date of Approval Existing

Anticipated Completion Date _____

In compliance with provisions of Chapter 373, Florida Statutes and Chapter 40E-6, Florida Administrative Code, application is hereby made for an occupancy permit in accordance with support drawings, data and incidental information filed with this application and made a part of this application. I hereby certify that all information contained in or made a part hereof is true and correct to the best of my knowledge, and acknowledge that any permit issued shall require that the permitted use be constructed and operated in accordance with such information. I further certify that I have read the "Standard Limiting Conditions" appearing on the reverse side and understand that said conditions will be incorporated within any permit issued pursuant to this application, unless expressly waived by the Governing Board. I further acknowledge that the Governing Board may incorporate additional special conditions as may be necessary in the best interest of the District.

SECTION 4

Florida Power & Light Co.
Applicant's Name (Print or Type)

Charles D. Henderson
Agent's Name (Print or Type)

Owner's Signature

Charles D. Henderson
I Hereby Certify that I am an Authorized Agent for the Owner

Date

Date

SCANNED

40E-6.381 Limiting Conditions

The District's authorization to utilize lands and other works constitutes a revocable license. In consideration for receipt of that license, permittees shall agree to be bound by the following standard limiting conditions, which shall be included within all permits issued pursuant to this chapter, unless expressly waived or modified by the Board as being not in furtherance of the objectives of Chapter 373, F.S.

(1) All structures on District works or lands constructed by permittee shall remain the property of permittee, who shall be solely responsible for ensuring that such structures and other uses remain in good and safe condition and comply with all applicable federal, state and local safety standards. The District assumes no duty with regard to ensuring that such uses are so maintained and assumes no liability with regard to injuries caused others by any such failure. The District further assumes no duty to ensure that the permitted use complies with the safety standards of other governmental entities.

(2) Permittee agrees to abide by all of the terms and conditions of this permit, including any representations made on the permit application and related documents. This permit shall be subject to the requirements of Chapter 373, Florida Statutes, and Chapter 40E-6, Florida Administrative Code, as presently existing or as modified in the future. Permittee agrees to pay all investigative costs, court costs and reasonable attorney's fees resulting from any successful action taken by the District to obtain compliance with the conditions of the permit or removal of the permitted use. If District legal action is taken by staff counsel, "reasonable attorney's fees" is understood to mean the fair market value of the services provided, based upon what a private attorney would charge.

(3) This permit does not create any vested rights, and except for governmental entities and public utilities, is revocable at will upon reasonable prior written notice. Permittee bears all risk of loss as to monies expended in furtherance of the permitted use. Upon revocation, the permittee shall promptly modify, relocate or remove the permitted use. In the event of failure to so comply within the specified time, the District may remove the permitted use and permittee shall be responsible for all removal costs.

(4) This permit does not convey any property rights nor any rights or privileges other than those specified herein. The District approves the permitted use only to the extent of its interest in the works of the District. The permittee shall obtain all other necessary federal, state, local, special district and private authorizations prior to the start of any construction or alteration authorized by the permit. The District, however, assumes no duty to ensure that any such authorizations have been obtained.

(5) Permittee agrees to hold and save the District harmless from any and all damages or claims which arise from the ownership, construction, maintenance or operation of the permitted use, whether caused by the injured person or permittee, and whether occurring within the area of the permitted use or outside such area, provided the activity originated from the permitted use. This obligation expressly includes any alleged or actual negligence by the District as to all permitting activities regarding the subject use, including enforcement of permit conditions. Permittee agrees to provide legal counsel, if requested, for the defense of any such claims.

(6) The permittee shall provide such assurances as may be deemed necessary to ensure financial integrity and compliance with permit conditions, including insurance coverage. The District does not waive sovereign immunity in any respect with regard to such coverage.

(7) The permittee shall not engage in any activity regarding the permitted use which interferes with the construction, alteration, maintenance or operation of the works of the District, including, but not limited to:

- (a) discharge of debris or aquatic weeds into the works of the District;
- (b) causing erosion or shoaling within the works of the District;
- (c) planting trees or shrubs or erecting structures which limit or prohibit access by District equipment and vehicles, except as may be authorized by the permit.

Permittee shall be responsible for any costs incurred by the District resulting from any such interference.

(8) Permittee shall allow the District to inspect the permitted use at any time.

(9) The District has the right to change, regulate, limit, schedule, or suspend discharges into, or withdrawals from, works of the District in accordance with criteria established by the District and/or the U.S. Army Corps of Engineers for the works of the District. Reasonable prior written notice shall be given to permittee.

(10) If the use involves the construction of facilities for a non exempt water withdrawal or surface water discharge, the applicant must apply for and obtain a water use or surface water management permit before any activities may be conducted pursuant to the right of way occupancy permit.

(11) As a condition of a lease, the Governing Board may require an annual inspection fee for use of works or lands of the District to recover the cost of ensuring that lease conditions are met.

(12) The District shall notify the local ad valorem taxing authority of the lands affected by the permitted use, where the permittee owns the underlying fee and derives a substantial benefit from the permitted use. The taxing authority may reinstate such lands on the tax roll.

Specific Authority 373.044, 373.113 F.S.

Law Implemented Chapters 25209 and 25270, Laws of Florida, 373.042, 373.083(1), 373.085(1), 196.199(1), 373.129, F.S.

History--New 9-3-81, Amended 5-30-82, 12-29-86.

Formerly 16K-5.01(2), 16K-5.02(2), 16K-5.03(2), 16K-5.04(4), 16K-5.05



FORM #0122
Rev 4/87
(RC-1)

South Florida Water Management District
Post Office Box 24680 • West Palm Beach, Florida 33416-4680
Telephone (305) 686-8800 • Florida WATS Line: 1-800-423-2045

APPLICATION NUMBER

90-0625-2

(DO NOT WRITE IN THIS BLOCK)

**Application to the South Florida Water Management District
For Authority to Utilize Works or Land of the District**

—To Be Accompanied by 3 Copies of a Drawing of the Proposal—

SECTION 1

Applicant's Name FPL
Applicant's Address 6001 Village Blvd., West Palm Beach, FL 33407
Applicant's Telephone Numbers (407) 640-2060 (Day) _____ (Evening) _____
Name of Person Filing Application Charles D. Henderson
Address of Person Filing Application c/o FPL, 6001 Village Blvd. West Palm Beach, FL 33407
Telephone Numbers of Person Filing Application (407) 640-2060 (Day) _____ (Evening) _____

SECTION 2

LOCATION OF PROJECT:

Work or Land Involved Dania Cut-Off Canal County Broward
Section(s) 30 Township(s) 50 South, Range(s) 42 East
Lot _____ Block _____ Subdivision _____

SECTION 3

DESCRIPTION OF PROJECT:

- | | |
|--|--|
| ☐ Boat Dock | ☐ Domestic Irrigation Line |
| ☐ Utility Line Installation | ☐ Other Water Withdrawal Connection |
| ☐ CATV Line Installation | ☐ Drainage Connection |
| ☐ Beautification | |

☒ Other (Describe Fully) Over-water 8 inch fuel oil line located on tide gate (SFWMD ROW Permit #502) crossing Dania Cut-Off Canal.

RECEIVED

JUN 25 1990

Anticipated Start Date if Other than Date of Approval Existing

Anticipated Completion Date _____

RIGHT-OF-WAY DIVISION

SECTION 4

In compliance with provisions of Chapter 373, Florida Statutes and Chapter 40E-6, Florida Administrative Code, application is hereby made for an occupancy permit in accordance with support drawings, data and incidental information filed with this application and made a part of this application. I hereby certify that all information contained in or made a part hereof is true and correct to the best of my knowledge, and acknowledge that any permit issued shall require that the permitted use be constructed and operated in accordance with such information. I further certify that I have read the "Standard Limiting Conditions" appearing on the reverse side and understand that said conditions will be incorporated within any permit issued pursuant to this application, unless expressly waived by the Governing Board. I further acknowledge that the Governing Board may incorporate additional special conditions as may be necessary in the best interest of the District.

Florida Power & Light Co.

Applicant's Name (Print or Type)

Charles D. Henderson

Agent's Name (Print or Type)

Owner's Signature

Charles D. Henderson
I Hereby Certify that I am an Authorized Agent for the Owner

Date

Date

SCANNED

40E-6.381 Limiting Conditions

The District's authorization to utilize lands and other works constitutes a revocable license. In consideration for receipt of that license, permittees shall agree to be bound by the following standard limiting conditions, which shall be included within all permits issued pursuant to this chapter, unless expressly waived or modified by the Board as being not in furtherance of the objectives of Chapter 373, F.S.

(1) All structures on District works or lands constructed by permittee shall remain the property of permittee, who shall be solely responsible for ensuring that such structures and other uses remain in good and safe condition and comply with all applicable federal, state and local safety standards. The District assumes no duty with regard to ensuring that such uses are so maintained and assumes no liability with regard to injuries caused others by any such failure. The District further assumes no duty to ensure that the permitted use complies with the safety standards of other governmental entities.

(2) Permittee agrees to abide by all of the terms and conditions of this permit, including any representations made on the permit application and related documents. This permit shall be subject to the requirements of Chapter 373, Florida Statutes, and Chapter 40E-6, Florida Administrative Code, as presently existing or as modified in the future. Permittee agrees to pay all investigative costs, court costs and reasonable attorney's fees resulting from any successful action taken by the District to obtain compliance with the conditions of the permit or removal of the permitted use. If District legal action is taken by staff counsel, "reasonable attorney's fees" is understood to mean the fair market value of the services provided, based upon what a private attorney would charge.

(3) This permit does not create any vested rights, and except for governmental entities and public utilities, is revocable at will upon reasonable prior written notice. Permittee bears all risk of loss as to monies expended in furtherance of the permitted use. Upon revocation, the permittee shall promptly modify, relocate or remove the permitted use. In the event of failure to so comply within the specified time, the District may remove the permitted use and permittee shall be responsible for all removal costs.

(4) This permit does not convey any property rights nor any rights or privileges other than those specified herein. The District approves the permitted use only to the extent of its interest in the works of the District. The permittee shall obtain all other necessary federal, state, local, special district and private authorizations prior to the start of any construction or alteration authorized by the permit. The District, however, assumes no duty to ensure that any such authorizations have been obtained.

(5) Permittee agrees to hold and save the District harmless from any and all damages or claims which arise from the ownership, construction, maintenance or operation of the permitted use, whether caused by the injured person or permittee, and whether occurring within the area of the permitted use or outside such area, provided the activity originated from the permitted use. This obligation expressly includes any alleged or actual negligence by the District as to all permitting activities regarding the subject use, including enforcement of permit conditions. Permittee agrees to provide legal counsel, if requested, for the defense of any such claims.

(6) The permittee shall provide such assurances as may be deemed necessary to ensure financial integrity and compliance with permit conditions, including insurance coverage. The District does not waive sovereign immunity in any respect with regard to such coverage.

(7) The permittee shall not engage in any activity regarding the permitted use which interferes with the construction, alteration, maintenance or operation of the works of the District, including, but not limited to:

- (a) discharge of debris or aquatic weeds into the works of the District;
- (b) causing erosion or shoaling within the works of the District;
- (c) planting trees or shrubs or erecting structures which limit or prohibit access by District equipment and vehicles, except as may be authorized by the permit.

Permittee shall be responsible for any costs incurred by the District resulting from any such interference.

(8) Permittee shall allow the District to inspect the permitted use at any time.

(9) The District has the right to change, regulate, limit, schedule, or suspend discharges into, or withdrawals from, works of the District in accordance with criteria established by the District and/or the U.S. Army Corps of Engineers for the works of the District. Reasonable prior written notice shall be given to permittee.

(10) If the use involves the construction of facilities for a non exempt water withdrawal or surface water discharge, the applicant must apply for and obtain a water use or surface water management permit before any activities may be conducted pursuant to the right of way occupancy permit.

(11) As a condition of a lease, the Governing Board may require an annual inspection fee for use of works or lands of the District to recover the cost of ensuring that lease conditions are met.

(12) The District shall notify the local ad valorem taxing authority of the lands affected by the permitted use, where the permittee owns the underlying fee and derives a substantial benefit from the permitted use. The taxing authority may reinstate such lands on the tax roll.

Specific Authority 373.044, 373.113 F.S.

Law Implemented Chapters 25209 and 25270, Laws of Florida, 373.042, 373.083(1), 373.085(1), 196.199(1), 373.129, F.S.

History--New 9-3-81, Amended 5-30-82, 12-29-86.

Formerly 16K-5.01(2), 16K-5.02(2), 16K-5.03(2), 16K-5.04(4), 16K-5.05

South Florida Water Management District
Post Office Box 24680 • West Palm Beach, Florida 33416-4680
Telephone (305) 686-8800 • Florida WATS Line: 1-800-423-2045



FORM #0122
Rev 4/87
(RC-1)

APPLICATION NUMBER

90-0625-3

(DO NOT WRITE IN THIS BLOCK)

**Application to the South Florida Water Management District
For Authority to Utilize Works or Land of the District**

—To Be Accompanied by 3 Copies of a Drawing of the Proposal—

SECTION 1

Applicant's Name FPL
Applicant's Address 6001 Village Blvd. West Palm Beach, FL 33407
Applicant's Telephone Numbers (407) 640-2060 (Day) _____ (Evening) _____
Name of Person Filing Application Charles D. Henderson
Address of Person Filing Application c/o FPL 6001 Village Blvd, West Palm Beach, FL 33407
Telephone Numbers of Person Filing Application (407) 640-2060 (Day) _____ (Evening) _____

SECTION 2

LOCATION OF PROJECT:

Work or Land Involved Dania Cut-Off Canal County Broward
Section(s) 30 Township(s) 50 South, Range(s) 42 East
Lot _____ Block _____ Subdivision _____

SECTION 3

DESCRIPTION OF PROJECT:

- | | |
|---|--|
| ☐ Boat Dock | ☐ Domestic Irrigation Line |
| ☐ Utility Line Installation | ☐ Other Water Withdrawal Connection |
| ☐ CATV Line Installation | ☐ Drainage Connection |
| ☐ Beautification | |
| ☒ Other (Describe Fully) <u>Over-water installation of video camera for air quality monitoring, located on existing tide gate (SFWMD ROW Permit #502)</u> | |

RECEIVED
JUN 25 1990

Anticipated Start Date if Other than Date of Approval Existing

Anticipated Completion Date _____

In compliance with provisions of Chapter 373, Florida Statutes and Chapter 40E-6, Florida Administrative Code, application hereby made for an occupancy permit in accordance with support drawings, data and incidental information filed with this application and made a part of this application. I hereby certify that all information contained in or made a part hereof is true and correct to the best of my knowledge, and acknowledge that any permit issued shall require that the permitted use be constructed and operated in accordance with such information. I further certify that I have read the "Standard Limiting Conditions" appearing on the reverse side and understand that said conditions will be incorporated within any permit issued pursuant to this application, unless expressly waived by the Governing Board. I further acknowledge that the Governing Board may incorporate additional special conditions as may be necessary in the best interest of the District.

SECTION 4

Florida Power & Light Co.

Applicant's Name (Print or Type)

Charles D. Henderson

Agent's Name (Print or Type)

Charles D. Henderson

I Hereby Certify that I am an Authorized Agent for the Owner

Owner's Signature

6/4/90

Date

Date

SCANNED

40E-6.381 Limiting Conditions

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Law Implemented Chapters 25209 and 25270, Laws of Florida, 373.042, 373.083(1), 373.085(1), 196.199(1), 373.129, F.S.

History--New 9-3-81, Amended 5-30-82, 12-29-86.

Formerly 16K-5.01(2), 16K-5.02(2), 16K-5.03(2), 16K-5.04(4), 16K-5.05

P 630 203 263



Certified Mail Receipt
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to **RIGHT OF WAY - 1150**

Street & No.

P.O., State & ZIP Code

Postage \$ **1.44**

Certified Fee

Special Delivery Fee

Restricted Delivery Fee

Return Receipt Showing to Whom & Date Delivered

Return Receipt Showing to Whom, Date, & Address of Delivery

TOTAL Postage & Fees \$

Postmark or Date **FPL**

MOD 9234

PS Form 3800, June 1990

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

3. Article Addressed to:
Florida Power & Light Co
700 Universe Blvd.
Juno Beach, FL 33408
Attn: Ed Menzinger, P.E.

5. Signature (Addressee)

6. Signature (Agent)

MOD 9234
I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address

2. ☐ Restricted Delivery

Consult postmaster for fee.

4a. Article Number

P630 203 263

4b. Service Type

☐ Registered ☐ Insured

☒ Certified ☐ COD

☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery

8. Addressee's Address (Only if requested and fee is paid)

Thank you for using Return Receipt Service.



Form #0674
Rev. 06/96

South Florida Water Management District Field Inspection Report for Bridge

Permit No: 9234 Mod
Issued 6/9/1994

Inspector's Name: Jose Varon

Report No: Final

Field Station: Fort Lauderdale

Canal / Levee: Dania Cut-Off

Date of Report: 8/18/2004

Job Location: Approximately 2,100' east of the State Rd. 7 Bridge

Contractor or Owner: Florida Power and Light

Check or Fill in Following As Exists:

Location per C of E Station No. (or) No(s) showing Start to End

Vehicular

Type of bridge

Concrete

Type of construction (concrete, wood, steel, etc.)

**160 Ft. Per
Plans**

Bridge length

**28 Ft. Per
Plans**

Bridge width

N/A Ft.

Dimensions of removable center span

20.93+- Ft.

Low Member Elevation: As approved per Plans: 19.4 per Permit W.S. To L.M. = 20.50+-

**57' 8 1/2" Per
Plans**

Approach Bent Spacing: (As approved per Plans: feet) Tailwater at S-13 = .43+-

45' Measured

Center Bent Spacing: (As approved per Plans: feet) Low Member = 20.93+-

Yes ☒ No ☐

Bent spacing aligns with adjacent structures

Yes ☐ No ☒

Access to berm is available from this bridge

Yes ☐ No ☐

Is access to berm gated? N/A

Yes ☐ No ☐

Is gate lockable by District Lock? N/A

Yes ☐ No ☐

All banks, berms, right of way, are built per the Plans & Specs. N/A

Comments:

Installation:

Approved ☒

Rejected ☐

Other:

If Rejected:

Action taken or recommended: *see p 8 f*

This is on the open permit list - Please remove & update. Records

*posted
9-24-04
CS*

South Florida Water Management District
Field Inspection Report
General

76F

Date: 8/18/2004

Permit # 9234
Issued 9/13/1990
Final Inspection of Open Permit
Inspector: Jose Varon

Permittee: Florida Power & Light

Location: Within the South Fork of New River Canal and the Dania Cut-Off Canal

1. Existing 18' x 80' plant access bridge crossing the Dania Cut-Off Canal approximately 2,100' east of State Rd. 7. (Formerly EDD Permit 1927-15)

Replaced with New Bridge. Final Attached

2. Existing open channel connections to the DCO Canal located approximately 2,450' east of State Rd. 7, serving as the original water intakes for the plant. Also, abutments for the original tide gate. (Original tide gate structure has been removed with the exception of abutments). (Formerly authorized by EDD Permit 1939-4)

The 2 Open Channel Connections (Intakes for plant) Exist Per Permit

3. Existing 357' long Marginal dock (Oil unloading dock) Along the north bank of the DCO Canal. (Formerly EDD Permit 1941-21)

No Longer Exist

4. Existing trash rack at the confluence with the open channel connection to the DCO Canal approximately 2,450' east of State Rd. 7. Also, open channel connection and bridge approaches within the South Fork New River easterly r/w approximately 350' north of the DCO Canal. (Trash screen and bridge at the open channel connection to the SFNR Canal have been removed and replaced by culvert bridge covered by permit 6720). (Formerly EDD Permit 1941-22)

No Longer Exists

PH

This is on open Permit List.

PHIL

SCANNED

5. Existing oil unloading docks, dolphin piles and road along the north bank of the DCO Canal (Formerly EDD Permit 483)

No Longer Exists

6. Existing tide gate in the DCO Canal located approximately 3,400' east of State Rd. 7. (Center gate removed) Formerly EDD Permit 502).

Tide Gate Still Exists All Gates Have Been Removed.

7. Existing open channel connections to the DCO Canal located approximately 2,900' and 3,125' east of State Rd. 7 serving as water intakes for units 4 & 5. (Formerly EDD Permit 552).

Same As Item #2 Above. Still Exists.

8. Existing seawall, 310' along the north bank and 55' along the south bank of the DCO Canal, adjacent to the tide gate.

The 310' Seawall along the North Bank No Longer Exists. The 55' Seawall on the south side still exists.

9. Existing 84" x 34" C.M.P. culvert bridge within the east right of way of the south fork of the NFNR Canal located approximately 350' north of the DCO Canal. (Formerly EDD Permit 6720).

No Longer Exists

10. Existing aerial communications cable crossing DCO Canal approximately 2,400' east of State Rd. 7. (Formerly EDD Permit 7055).

No Longer Exists

11. Existing video camera and 8" fuel line attached to the tide gate located approximately 3,400' east of State Rd. 7. (Formerly unauthorized; subject of application numbers 90-0625-3 and 90-0625-2, respectively).

Could Not Locate Video Camera. 8" Fuel Line Still Exists On Tide Gate.

12. Existing dual 4" water lines , 4" fiber optic cable conduit and 4-2" telephone, power and control conduits attached to bridge crossing the DCO Canal approximately 2,100' east of State Rd 7. (Formerly unauthorized; subject of application number 90-0625-1).

No Longer Exists.

Permit Approved 



South Florida Water Management District

3301 Gun Club Road • P.O. Box 24680 • West Palm Beach, FL 33416-4680 • (407) 686-8800 • FL WATS 1-800-432-2045

LAN 04 06

June 30, 1994

Mr. Hamilton S. Oven, Jr., P.E.
Administrator, Office of Siting Coordination
Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Dear Mr. Oven:

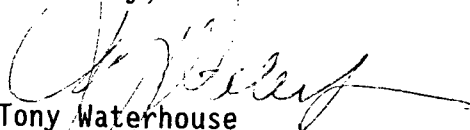
**Subject: FPL Ft. Lauderdale Repowering Project
Proposed Reconstruction of Bridge Over Dania Cutoff Canal and
Proposed Surface Water Management System Design
Authorization to Commence Construction**

South Florida Water Management District (SFWMD) staff has reviewed the information regarding the proposed reconstruction of the bridge over the Dania Cutoff Canal, the proposed surface water management system design for the 42nd Avenue entrance road, and the asphaltic concrete wear course to the existing central parking lot/construction laydown area at FPL's Ft. Lauderdale Plant, submitted on November 16, 1993 and revised on January 12, 1994 and May 19, 1994, pursuant to Certification Conditions IV.B.2.c.(1) and IV.B.2.e.(3).

The proposed bridge reconstruction, entrance road surface water management system design, and the asphaltic concrete wear course are consistent with SFWMD criteria and previous approvals for this project. Consequently, the proposed bridge reconstruction, surface water management system design, and the asphaltic concrete wear course are acceptable to the SFWMD, subject to compliance with the applicable Certification Conditions (including those conditions that address activities during and after construction) and the special conditions attached to Right-of-Way Occupancy Permit Modification No. 9234, issued by the SFWMD Governing Board on June 9, 1994, which authorizes reconstruction of the bridge over the Dania Cutoff Canal.

If any of the above requires additional clarification, please contact Susan Coughanour at (407) 687-6920.

Sincerely,


Tony Waterhouse
Area Manager-WPB
Regulation Department

TW/jg

Governing Board:

Valerie Boyd, Chairman
Frank Williamson, Jr., Vice Chairman
Annie Betancourt

William Hammond
Betsy Krant
Allan Milledge

Eugene K. Pettis
Nathaniel P. Reed
Leah G. Schad

Tilford C. Creel, Executive Director
Thomas K. MacVicar, Deputy Executive Director

SCANNED

Mr. Hamilton S. Oven
June 30, 1994
Page 2

c: Mark Sittig, DER-West Palm Beach
Ed Meinzinger, FPL
Dan MacDougall, FPL
Noel M. Pfieffer, Deputy County Attorney, Broward County
Commander, U.S. Coast Guard-Miami
Doug Roberts, Esquire

SCANNED

Mr. Hamilton S. Oven
June 30, 1994
Page 3

bc: Steve Lamb
Orlando Rubio
Eduardo Lopez
Tom Fratz
~~Beverly Miller~~
Joe Schweigart
John Adams
Ron Mierau
Victor Powell (FTL F.S.)
Sarah Nall
John Fumero

SCANNED



File 9234

South Florida Water Management District

3301 Gun Club Road • P.O. Box 24680 • West Palm Beach, FL 33416-4680 • (407) 686-8800 • FL WATS 1-800-432-2045

LAN 04 06

June 30, 1994

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Administrator, Office of Siting Coordination
Florida Department of Environmental Protection
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Dear Mr. Oven:

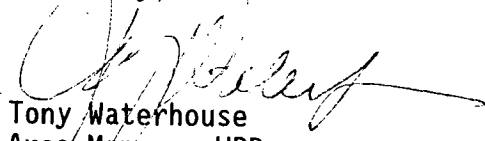
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SCANNED

Mr. Hamilton S. Oven
June 30, 1994
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Commander, U.S. Coast Guard-Miami
Doug Roberts, Esquire

SCANNED

Mr. Hamilton S. Oven
June 30, 1994
Page 3

bc: Steve Lamb
Orlando Rubio
Eduardo Lopez
~~Tom Fratz~~
Beverly Miller
Joe Schweigart
John Adams
Ron Mierau
Victor Powell (FTL F.S.)
Sarah Nall
John Fumero

SCANNED



File

South Florida Water Management District

3301 Gun Club Road • P.O. Box 24680 • West Palm Beach, FL 33416-4680 • (407) 686-8800 • FL WATS 1-800-432-2045

LAN 08-12
1010/Dania Cut-Off Canal

January 30, 1992

Mr. H.T. Young, Project General Manager
Florida Power and Light Company
3400 S.W. 26th Terrace, Box 4
Fort Lauderdale, FL 33312

Dear Mr. Young:

Subject: S.F.W.M.D. Right of Way Occupancy Permit Number 9234;
Broward County, Dania Cut-Off Canal

This letter is your official notice that the completion date of the above referenced Permit has been extended through September 30, 1992.

This extension is in response to your written request of January 10, 1992.

As discussed, District staff requests that Florida Power and Light contact Mr. Rusty Huckabee of the District's Fort Lauderdale Field Station (305 434-1100) for notification of the time you are ready to "pig" the line, so someone from the Field Station may be present.

Please update your records by attaching this letter to your Permit. Should you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Laura Ann Lythgoe
Laura Ann Lythgoe
Supervising Professional - Permits
Right of Way Division
Department of Land Management

FILED WITH THE CLERK OF THE SOUTH
FLORIDA WATER MANAGEMENT DISTRICT
ON January 30, 1992
BY Laura Ann Lythgoe
DEPUTY CLERK

/lal

c: Rusty Huckabee



3400 S.W. 26th Terrace, Box 4
Ft. Lauderdale, FL 33312

LRP-PGM-132-92-037

January 10, 1992

See OK to [illegible]

Ms. Laura A. Lythgoe
South Florida Water Management District
Right of Way Permitting
P.O. Box 24680
West Palm Beach, FL 33416-4680

SUBJECT: COMBUSTION TURBINE REPOWERING
LAUDERDALE UNITS #4 AND #5
S.F.W.M.D. RIGHT OF WAY OCCUPANCY
PERMIT NUMBER 9234

Dear Ms. Lythgoe:

Special condition number 16 of the above-referenced permit requires FPL to provide the SFWMD with an Engineer's certification that the fuel oil pipeline crossing the Dania Cutoff canal is in good condition and meets all state, local and industry requirements.

FPL requested and was granted an extension to the initial deadline for condition 16 which gave us until March 31, 1992 to submit the Engineer's certification.

FPL is now requesting an additional six-month extension of the deadline (to September 30, 1992) in order to avoid construction schedule impacts and avoid incurring extra costs to FPL.

The following rationale is offered in support of this second request:

- 1) FPL, as part of the ongoing construction activities associated with the Lauderdale Repowering Project, and in compliance with the new Above Ground Tank Rule (FAC 17-762) is planning to relocate portions of this same pipeline which are on the plant property and to perform enhancements to existing fuel storage tanks. As part of normal construction practice, these relocated sections of fuel line will be hydrostatically tested. FPL would prefer, if possible, and with SFWMD's agreement, to hydrostatically test the entire pipeline at one time, rather than to perform the test once for the purposes of this permit condition, and then once again for the relocated pipe sections.

- 2) The pipeline is currently disconnected from the Everglades pipeline. Therefore it cannot be pressurized unless the connection to the main pipeline is re-established. This minimizes the potential of a fuel leak into the Dania canal.
- 3) FPL plans, as part of the piping relocation work, to relocate a section of the fuel piping which currently enters the Dania canal water along the south boundary of FPL's plant property. Although no problems or spills have ever been found in this area by FPL, the potential for corrosion of this particular section of pipe is high, given the wet/dry conditions of the pipe due to tidal influence.

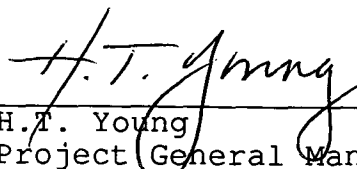
Test Procedure Information

FPL plans, as part of the test procedure, to first "pig" the line, and then to hydrostatically test it. The pig will serve to clean out any rust or other debris which may currently be in the line, and to push any residual fuel out. The "pig launching station" has already been installed in the line at the south end adjacent to where the line is normally connected to the Everglades pipeline. A "pig receiving station" is to be installed on the FPL plant property. The spent "hydro water" is also planned to be collected on the FPL plant property, where it will be sampled, analyzed and then sent offsite to be disposed of properly at a licensed disposal facility.

The latest construction schedule assures that the various piping relocations and associated projects will be complete in time for the line to be tested and certified by the September deadline, if the extension is granted by the SFWMD.

Please direct any questions you may have to Mike Wilburn at 797-1574, or Rich Piper at 797-1338.

Sincerely,


H.T. Young
Project General Manager

HTY/RP:sb

cc: K. Gordon (Fuels/GO)
D. MacDougall (JEN/NP)
R. Piper
P. Plotkin
M. Wilburn

Russ has no objection to extension; he requests FPL notify him of scheduled time to "pig" the line
UL

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JAN 16 1992

RIGHT-OF-WAY

DIVISION



South Florida Water Management District

P.O. Box 24680 • 5501 Gun Club Road • West Palm Beach, FL 33416-4680 • (407) 686-8800 • FL WATS 1-800-452-2045

LAN 08-12
1010/Dania Cut-off

August 26, 1991

Mr. Charles D. Henderson
Florida Power and Light Company
P. O. Box 078768
5500 Village Boulevard
West Palm Beach, FL 33407-0768

Dear Mr. Henderson:

Subject: S.F.W.M.D. Right of Way Occupancy Permit Number 9234;

This letter is your official notice that the an extension of six (6) months (through March 31, 1992), has been granted with regard to Special Condition Number 16 of the above referenced Permit. This Condition required FPL, within one year of Permit issuance, to provide District staff with a certified letter that the existing oil pipeline had been inspected, and was found to be in good condition, meeting all state, local and industry requirements.

This extension is in response to your letter dated August 16, 1991.

Should you require further assistance, please do not hesitate to contact this office.

Sincerely,

Laura A. Lythgoe
Laura A. Lythgoe
Supervising Professional
Right of Way Permitting
Department of Land Management

/lal

c: T. L. Fratz
Rusty Huckabee
Susan Coughanour

FILED WITH THE CLERK OF THE SOUTH
FLORIDA WATER MANAGEMENT DISTRICT
ON August 26, 1991
BY Laura A. Lythgoe
DEPUTY CLERK

Governing Board

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Frank Williamson - Ft. Okeechobee

Timothy E. Powers, Interim Executive Director
Filford C. Greer, Deputy Executive Director
Thomas A. MacVicar, Deputy Executive Director

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File
P.O. Box 078768, West Palm Beach, FL 33407-0768
5500 Village Blvd.

August 16, 1991

Ms. Laura Lythgoe
Department of Land Management
South Florida Water Management District
P.O. Box 24680
West Palm Beach, FL 33416-4680

Re: Lauderdale Plant
SFWMD Permit #9234
Extension of Time for Special Condition 16

OK to extend 6 months

thru
3-31-92

Lal

✓ w/ Rh
TLF

Dear Ms. Lythgoe:

Due to new information received on July 31, 1991 from the Buckeye Pipeline Company, FPL is hereby requesting a six month extension to complete Special Condition 16. Special Condition 16 required FPL to inspect the oil pipeline across the tide gate by September 13, 1991.

FPL had scheduled to inspect the pipeline on or about August 5, 1991. However, the new information requires FPL to modify both ends of the pipeline for insertion/retrieval of inline cleaning devices in order to accommodate new testing methods. FPL expects to have the line modified and inspected by March 15, 1992.

Please call me at 697-6960 if you have any questions about this request.

Sincerely,

C. D. Henderson
Charles D. Henderson

CDH:ku

cc: Susan Coughanour

FILED WITH THE CLERK OF THE SOUTH
FLORIDA WATER MANAGEMENT DISTRICT
ON Aug 26, 1991
BY Laura Ann Lythgoe
DEPUTY CLERK

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South Florida Water Management District

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LAN 08-12
1010/Dania Cut-Off Canal

CORRECTED COPY

April 30, 1991

Winifred G. Perkins, Senior Environmental Coordinator
Florida Power and Light Company
Post Office Box 078068
5500 Village Boulevard
West Palm Beach, FL 33407-0768

Dear Ms. Perkins:

Subject: Permit 9234; Lauderdale Repowering Project

Your April 18, 1991 letter to Ms. Susan Coughanour, regarding the necessity of remove the existing Australian Pine Trees located along the north bank of the Dania Cut-Off Canal, has been forwarded to this Division for a response.

Please be advised that staff has reviewed your proposal and considers it to be a maintenance operation associated with your existing Right of Way Occupancy Permit. No objection is offered to the removal of the subject trees as long as Florida Power and Light Company is in agreement with the conditions, as listed below:

1. Prior to the commencement of the proposed work, Florida Power and Light Company and/or its contractor(s) shall contact the Director of the District's Fort Lauderdale Field Station to set-up a pre-work meeting; Rusty Huckabee, Regional Operations and Maintenance Director (305) 434-1100.
2. Florida Power and Light Company shall be responsible for warning navigation interests during the course of this activity.
3. Florida Power and Light Company and/or its contractor(s) shall be responsible for the immediate removal of debris, materials, etc. which may fall into the water column during the removal operation.
4. During and following the removal process Florida Power and Light's contractor shall take such steps as are necessary to prevent erosion.

Governing Board:

Allan Milledge, Chairman - Miami
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Charles W. Causey - Islamorada
Annie Betancourt - Miami

Franklin B. Mann - Fort Myers
Leah G. Schad - West Palm Beach
Frank Williamson, Jr. - Okeechobee

John R. Wodraska, Executive Director
Tilford C. Creel, Deputy Executive Director
Thomas K. MacVicar, Deputy Executive Director

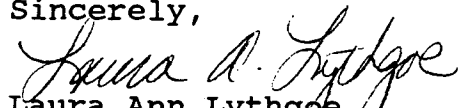
SCANNED

LAN 08-12
1010/Dania Cut-Off
Ms. Winifred Perkins
Fla. Power and Light Company
April 30, 1991
Page 2

5. Tree removal shall be limited to Australian Pine, Melaleuca and Brazilian Pepper (Florida Holly). Removal of other species is not authorized unless approved by Broward County. Removal or trimming of mangroves is not authorized and steps shall be taken to prevent damage to them if they are present.
6. Florida Power Light Company shall not release it's contractors performance bond until the District inspects and approves the completed work, which may include stabilization of the District's canal banks.
7. Florida Power and Light Company must obtain any other permits or approvals which may be necessary and shall comply with any conditions contained in those approvals.

Should you require further information, please do not hesitate to contact me.

Sincerely,


Laura Ann Lythgoe
Supervising Professional
Right of Way Permitting
Department of Land Management

/lal

cc: Tom Fratz
Rusty Huckabee
Susan Coughanour
Permit File 9236

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APR 18 1991

REGULATORY DEPT. 401

P.O. Box 078768, West Palm Beach, FL 33407-0768
5500 Village Blvd.

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APR 22 1991

RIGHT-OF-WAY

DIVISION

APR 18 1991

REGULATORY DEPT. 401

April 18, 1991

Ms. Susan Coughanour
South Florida Water Management District
P.O. Box 24680
West Palm Beach, FL. 33416

Re: **Lauderdale Repowering Project**
Broward County, Florida

Dear Ms. Coughanour:

As you know, Florida Power and Light Company (FPL) has initiated work on the Lauderdale Repowering Project. FPL has recently determined that it is necessary to remove some Australian Pine trees along the north bank of the Dania Cut-Off Canal. These trees are posing a threat to the stability of the bank and could become a potential navigational impediment if they fell into the Canal.

FPL is requesting the District's permission to remove these trees. The method of tree removal FPL is proposing to utilize may result in the trees falling into the Canal, since transmission lines are located in the vicinity and the trees will need to avoid these lines. FPL's contractor for this project proposes to warn boaters in the Canal of this activity. In addition, the contractor will be responsible for immediately removing all the trees from the Canal, to minimize navigational impacts. FPL has also notified the US Coast Guard of this proposed activity.

FPL anticipates commencing this work on or about May 8, 1991 and completing it by May 17. We would appreciate the District's concurrence on this activity and any comments you may have. I am not sure if the Right-of-Way Department was the appropriate department to notify or if there is another department at the District which would deal with this type of issue. Therefore, I decided to coordinate it through you.

Please feel free to call me at 697-6936 with your thoughts and comments.

Thank you for your continued support.

Sincerely,

Winifred G Perkins

Winifred G. Perkins
Senior Environmental Coordinator
Florida Power and Light Company

Copy to:
J. Schweigert
D. Williams
R. Huckabee
4/22/91
LCL

Tom -
Any problems with this request?
Anything special we would require?
Can you respond w/ a copy to me or do you want me to?
Susan

FPL

FACSIMILE COVER SHEET
FLORIDA POWER & LIGHT COMPANY

5500 Village Blvd.
West Palm Beach, FL 33407-0768

Facsimile Phone # 687-6896 Date: April 25

Send to: Susan Coughanour Phone: 687-6920

COMPANY: South Florida Water Management District

FROM: Winifred Perkins

Phone # (407) 697- 6936

Total Pages: 2
(Including Cover Sheet)

SPECIAL INSTRUCTIONS:

Please let me know if you or Tom
Fratz need anything else regarding
the tree removal at Lauderdale.

Thank you.
Winifred

Fax Operator's Name: _____

Phone # (407) 697- _____

Facsimile # (407) 697- _____

(Call Operator's # for confirmation)

an FPL Group company

FACED

P. No. 9234



3400 S.W. 26th Terrace, Box 4
Ft. Lauderdale, FL 33312

9234

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AUG 25 1992

August 19, 1992

Laura Lythgoe
South Florida Water Management District
P.O. Box 24680
West Palm Beach FL 33416-4680

RIGHT-OF-WAY

DIVISION

**Re: Hydrostatic Test of the Fuel Oil Pipeline
which crosses the Dania Cutoff Canal**

Attached for your use please find a copy of the engineer's test report summarizing the hydrostatic test of the subject fuel oil line.

This test was performed in order to satisfy Special Condition number 16 of Right-of-Way permit number 9234. As evidenced by the report, there was no evidence of leaks or ruptures in the fuel line, and it was found to be fully capable of operating at its maximum design pressure.

Thank-you for your assistance in extending the required completion date for this permit condition. If you have any questions about the report, please do not hesitate to call me at 797-1338.

Rich Piper

Richard Piper
Environmental Specialist
Lauderdale Repowering Project
Florida Power & Light Co.

*File w/
Permit No.*

9234

(Entire Report)

cc:

Susan Coughanour (w/o att)
Tom Fratz (w/o att)



FRT-92-121
July 30, 1992

Mr. R. P. Fritz, Plant Manager
FPL Lauderdale Power Plant
P.O. Box 155
Dania, FL 33004

Mr. Fritz;

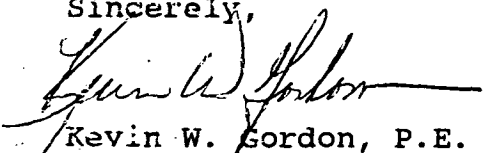
This is written notification that the Fuel Management Department has completed a hydrostatic pressure test of the 1.2 mile, 8" fuel oil pipeline serving the Lauderdale Power plant.

Piping from the Dania Spur Junction to the Pig Receiver station, located in the plant tank farm area, was pressurized to 1040 Psig. During the test, line pressure dropped to 950 psig and then returned to 1085 psig by the conclusion of the test. This pressure fluctuation can be attributed to thermal effects on the pipeline and its contents over the 24 hour test period.

No evidence of pipeline leakage or rupture was found and a copy of the test report is attached. Based on the hydrostatic test results, the Dania Spur Pipeline is in full working order for its maximum design pressure.

This test was conducted in accordance with industry codes and practices and the pipeline meets all Federal, State, and Local requirements for the operation of oil pipeline facilities. In addition, this pipeline was designed and built in accordance with ASME B31.1 and ASME B31.4 codes and no modifications or additions have been made to the pipeline facilities that are in violation of these industry standards.

Sincerely,



Kevin W. Gordon, P.E.
Florida Registration No. 44182

CC: T. V. Chalkley
R. Piper
File PL-PFL-HYDRO-SFWMD

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GULF SOUTH TANK SERVICES

A Division of Gulf South Systems, Inc.

2075 INDUSTRIAL PARK ROAD

MULBERRY, FLORIDA 33860

(813) 425-4787 • FAX (813) 425-0431

HYDROSTATIC TEST RECORD

CLIENT: Florida Power & Light

CONTACT: Kevin Gordon

JOB LOCATION: Florida Power & Light, Dania Spur Pipeline

PROJECT DESCRIPTION: Hydrostatic Test of 8" Pipeline

INSPECTORS: Dale Speedy
Allan Trovillion
Michael DalDegan

TEST EQUIPMENT DESCRIPTION: 2 Chart Pressure Recorders
2 Dead Weight Testers
1 Digital Pressure Gauge

CALIBRATION: Calibration certification reports by suppliers are attached.

RESULTS: Satisfactory. No pressure loss was attributed to leaks. The following charts, time, and pressure tables indicate actual measurements recorded. Testing pressures, procedures and re-pressurization were directed by a Florida Power and Light representative.

SUMMARY: 07/09/92 Mobilization began. The last crew arrived on site at 1230 hours. One frac tank is on site, the second frac tank arrived at 1445 hours. Two (2) 8" spectacle blinds were installed at sending end. Due to an inadequate water supply, it was decided to fill the frac tank at the power plant end of the pipeline.

**HYDROSTATIC TEST RECORD
FLORIDA POWER & LIGHT**

**GSTS JOB #FL-121
DWA #888362**

SUMMARY:

(cont.) 07/10/92 Installed the 2", 600 pound flange, one (1) 4" spectacle blind, and one (1) 8" spectacle blind at receiving end. All pumps, hoses, air compressors, testing equipment, 5 micron particulate filter, and related equipment were set up at both ends of pipeline.

07/11/92 At 0500 hours, the frac tank at sending end was full. After the pipeline was filled with water, the testing equipment was bled to eliminate air in lines. At 1000 hours, pumping of water and pig began at sending end. At 1140 hours, the pig was received at opposite end of pipeline. The pig was removed at 1230 hours, and testing began.

COMMENTS: 1. The dead weight testers gave the most accurate and uniform readings. Their readings corresponded directly with their respective pressure recorders.

2. The pressure recorder readings are accurate to approximately plus or minus 10 p.s.i., due to the width of the ink pens.

NOTE: Please review the following tables of readings recorded from the instruments located inside the power plant. Refer to the key below to interpret the type of instrument used.

KEY: DW = Dead Weight Tester
PR = Pressure Recorder

HYDROSTATIC TEST RECORD
FLORIDA POWER & LIGHT

GSTS JOB #FL-121
DWA #888362

<u>DATE</u>	<u>TIME</u> ¹	<u>INSTRUMENT</u>	<u>P.S.I.</u>
07/11/92	1330	DW	84
	1354	PR	88
	1357	DW	95
	1358	PR	120
	1358	DW	115
	1402	DW	245
	1406	PR	300
	1413	PR	380
	1415	DW	415
	1419	PR	450
	1500	PR	460
	1622	PR	790
	1623	DW	793
	1624	DW	835
	1628	DW	903
	1639	DW	915
	1639	PR	915
	1644	PR	935
	1646	PR	970
	1651	DW	1040
	1654: OFFICIAL START OF TEST		
	1654	DW	1045
	1759	DW	1036
	1759	PR	1035
	1810	PR	1030
	1814	DW	1030
	1841	DW	1026
	1841	PR	1025
	1847	DW	1018
	1850	DW	1020
	1851	PR	1020
	1900	DW	1017
	1903	PR	1015
	1947	DW	1000
	1947	PR	1000

¹ Military time

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**HYDROSTATIC TEST RECORD
FLORIDA POWER & LIGHT**

**GSTS JOB #FL-121
DWA #888362**

<u>DATE</u>	<u>TIME</u>	<u>INSTRUMENT</u>	<u>P.S.I.</u>
07/11/92 (cont.)	2011	DW	990
	2017	PR	990
	2033	DW	985
	2035:	PRESSURED UP	
	2036	DW	1050
	2036	PR	1050
	2101	DW	1050
	2101	PR	1050
	2115	DW	1047
	2115	PR	1050
	2130	DW	1042
	2130	PR	1040
	2145	DW	1038
	2145	PR	1040
	2158	DW	1032
07/12/92	2158	PR	1030
	2206:	PRESSURE UP	
	2208	DW	1040
	2209	PR	1045
	2230	PR	1035
	2233	DW	1035
	2245	PR	1035
	2245	DW	1032
	2300	PR	1030
	2300	DW	1029
	2330	PR	1025
	2330	DW	1022
	0000	PR	1020
	0000	DW	1017
	0030	DW	1012
	0030	PR	1010
	0100	DW	1005
	0100	PR	1005
	0130	DW	1000
	0130	PR	1000
	0200	DW	995
	0200	PR	995
	0230	DW	989
	0230	PR	985

SCANNED

HYDROSTATIC TEST RECORD
FLORIDA POWER & LIGHT

GSTS JOB #FL-121
DWA #888362

<u>DATE</u>	<u>TIME</u>	<u>INSTRUMENT</u>	<u>P.S.I.</u>
07/12/92 (cont.)	0300	 DW	985
	0300	 PR	985
	0330	 DW	980
	0330	 PR	980
	0415	 DW	975
	0415	 PR	974
	0430	 DW	972
	0430	 PR	970
	0500	 DW	970
	0500	 PR	968
	0545	 DW	966
	0545	 PR	965
	0600	 DW	964
	0630	 DW	961
	0630	 PR	963
	0700	 DW	957
	0700	 PR	956
	0730	 DW	957
	0730	 PR	955
	0800	 DW	956
	0800	 PR	955
	0830	 DW	954
	0830	 PR	950
	0900	 DW	955
	0900	 PR	957
	0930	 DW	965
	0930	 PR	962
	1000	 DW	975
	1000	 PR	975
	1030	 DW	986
	1030	 PR	985
	1100	 DW	995
	1100	 PR	993
	1130	 DW	1007
	1130	 PR	1005
	1200	 DW	1016
	1200	 PR	1015
	1230	 DW	1032
	1230	 PR	1020

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HYDROSTATIC TEST RECORD
FLORIDA POWER & LIGHT

GSTS JOB #FL-121
DWA #888362

<u>DATE</u>	<u>TIME</u>	<u>INSTRUMENT</u>	<u>P.S.I.</u>
07/12/92 (cont.)	1300	 DW	1035
	1300	 PR	1030
	1330	 DW	1047
	1330	 PR	1045
	1400	 DW	1054
	1400	 PR	1050
	1500	 DW	1066
	1500	 PR	1070
	1530	 PR	1070
	1530	 DW	1067
	1600	 DW	1072
	1600	 PR	1080
	1630	 DW	1076
	1630	 PR	1085
	1650	 DW	1080
	1650	 PR	1085
	1711:	END TEST	

5

7-11-92

p 1 of Record

<u>Time</u>	<u>Test End</u>	<u>Instrument</u>	<u>PSI</u>
1:30pm	S	DW	84
1:54pm	S	PR	88
1:57	S	DW	95
1:58	S	PR	120
1:58	S	DW	115
2:59	R	PG	147
2:01	R	PG	205
2:02	S	DW	245
2:06	R	PG	272
2:06	S	PR	300
2:07	R	DW	310
2:08	R	PR	310
2:09	R	DW	300
2:10	R	R	340
2:10 pm	S	PG	340
2:13	S	PR	380
2:14	R	PG	415
2:15	S	DW	415
2:17	S	PG	425
2:17	R	PR	425
2:18	R	PG	435
2:19	R	PG	450
2:19	S	PR	450
2:20	R	PG	462
2:20	S	PR	460
4:25	R	DW	461
4:26	R	PG	642
4:22 pm	R	PG	780

(6)

7-11-92

p. 2 of record

Time	TEST	Inst	Instrument	PSI
4:22pm	S		PR	790
4:23	S		DW	793
4:24	R		PG	825
4:24	S		DW	835
4:26	R		PG	880
4:27	S		PG	890
4:27	R		DW	890
4:28	S		DW	903
4:28	R		PG	904
4:29	R		PR	905
4:30	R		DW	905
4:39	S		DW	915
4:39	S		PR	915
4:43	R		PG	925
4:43	R		PR	925
4:44	S		PR	935
4:45	R		PG	940
4:46	R		PG	970
4:46	S		PR	970
4:50	R		PG	1030
4:51	S		DW	1040
4:51	R		PR	1040
4:54	R		DW	1041
4:54	S		DW	1045
5:59	S		DW	1036
5:59	S		PR	1035
6:05	R		PG	1030
6:05	R		DW	1030

official start
of 24 hr. test

SCANNED

①

7-11-92

p. 3 of record

Time	Test Field	Int.	PS
6:05 pm	R	PR	1025
6:10	S	PR	1030
6:14	S	DW	1030
6:14	R	DW	1020
6:34	R	PR	1010
6:34	R	PR	1010
6:41 pm	S	DW	1026
6:41	S	PR	1025
6:47	S	DW	1018
6:50	S	DW	1020
6:51	S	PR	1020
7:00 pm	S	DW	1017
7:03	R	DW	1012
7:03	S	PR	1015
7:03	R	PR	1015
7:47	S	DW	1000
7:47	S	PR	1000
7:48	R	DW	990
7:48	R	PR	982
8:03	R	DW	977
8:09	R	PR	973
8:10	R	PR	980
8:11	S	DW	990
8:17	S	PR	990
8:22	R	DW	980
8:22	R	DW	977
8:22	S	DW	985

8:35

Pressure = 100

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(8)

7-11-72

p. 4 of record

Time	Test E	Test	PSI
8:13.5pm	R	PG	1025
8:13	R	PR	1040
8:13.5	S	DW	1050
8:15	R	PG	1030
8:15.5	R	DW	1050
8:15.5	S	PR	1050
8:14.1	R	PG	1038
8:14.1	R	DW	1055
8:50	R	PG	1033
8:50	R	DW	1050
9:01	R	PG	1030
9:10.1	R	DW	1047
9:10.1	S	DW	1050
9:01	S	PR	1050
9:15	R	DW	1050
9:15	R	PG	1030
9:15	R	PR	1040
9:15	S	DW	1047
9:15	S	PR	1050
9:20	R	DW	1047
9:30	R	PG	1020
9:30	R	PR	1025
9:30	S	DW	1042
9:30	S	PR	1040
9:44	R	PR	1032
9:44pm	R	PG	1020

7-11-92

P. 5 of record

Time	Test Std	Instrument	PSI
9:45pm	S	DW	1038
9:45	S	PR	1040
9:57	R	DW	1027
9:57	R	PG	1010
9:57	R	PR	1015
9:58	S	DW	1032
9:58	S	PR	1030

10:06

Pressure up

10:06	R	DW	1020
10:06	R	PG	1020
10:08	R	DW	1037
10:08	S	DW	1040
10:09	S	PR	1045

10:30	S	PR	1035
10:32	S	DW	1035
10:45	S	PR	1035
10:45	S	DW	1032
11:00	S	PR	1030
11:00	S	DW	1029
11:30	S	PR	1025
11:30pm	S	DW	1022

7-12-92

12:00pm	S	PR	1020
12:00pm	S	DW	1017

TIME	TEST	TYPE	PSI
12:30am	S	DW	1012
12:30	S	PR	1010
1:00	S	DW	1005
1:00	S	PR	1005
1:30	S	DW	1000
1:30	S	PR	1000
2:00	S	DW	995
2:00	S	PR	995
2:30	S	DW	989
2:30	S	PR	985
3:00	S	DW	985
3:00	S	PR	985
3:30	S	DW	980
3:30	S	PR	980
4:00	R	PG	954
4:00	R	PR	970
4:00	R	DW	973
4:15	S	DW	975
4:15	S	PR	974
4:30	S	DW	972
4:30	S	PR	970
5:00	S	DW	970
5:00	S	PR	968
5:30	R	PG	943
5:30	R	PR	960
5:00	R	DW	965

Time	PS - End	Instrument	PSI	p. 7 of record
5:45 am	S	DW	966	
5:45	S	PR	665	
6:00	S	DW	964	
6:30	S	DW	961	
6:30	S	PR	963	
7:00	S	DW	957	
7:00	S	PR	956	
7:30	S	DW	955	
7:30	S	PR	955	
8:00	S	DW	956	
8:00	S	PR	955	
8:00	R	DW	955	
8:00	R	PR	955	
8:30	S	DW	954	
8:30	S	PR	950	
9:00	S	DW	955	
9:00	S	PR	957	
9:00	R	DW	956	
9:00	R	PR	956	
9:30	S	DW	965	
9:30	S	PR	962	
10:00	S	DW	975	
10:00	S	PR	975	
10:30	S	DW	986	
10:30 am	S	PR	985	

12 7-12-92

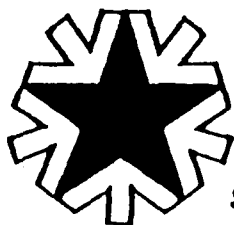
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11:30	S	DW	1007
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12:00	S	PR	1015
12:00	R	DW	1020
12:00	R	PR	1020
12:30	S	DW	1032
12:30	S	PR	1020
1:00	S	DW	1035
1:00	S	PR	1030
1:30	S	DW	1047
1:30	S	PR	1045
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2:00pm	S	PR	1050
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2:30	R	PR	1050
3:00	S	DW	1066
3:00	S	PR	1070
3:30	S	PR	1070
3:30	S	DW	1067
3:30	R	PR	1060
3:30	R	DW	1069
4:00	S	DW	1072
4:00	S	PR	1080

1-12-92

p. 9 of record

Time	Test End	Inst.	PST
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4:30	S	PR	1085
4:50	S	OW	1080
4:50	S	PR	1085
5:11	R	OW	1085
5:11	R	PR	1085

CALIBRATION CERTIFICATE



STAR
MEASUREMENT
SALES & SERVICE, INC.

312 WALL STREET
LAFAYETTE, LOUISIANA 70506

P.O. BOX 31704
LAFAYETTE, LOUISIANA 70593

PART NUMBER Beston 202A Pressure SERIAL NUMBER 202A-3967

PRESSURE ☒ TEMP. RANGE ☐ 1500[#] P.S.I. ACCURACY $\pm$.02 % FULL SCALE ($\pm$ _____ P.S.I.)

CALIBRATION

INCREASING PRESSURE ☒ TEMPERATURE ☐			DECREASING PRESSURE ☒ TEMPERATURE ☐		
APPLIED PRESS ☒ TEMP. ☐	INDICATED PRESS ☒ TEMP. ☐	DIFFERENCE	APPLIED PRESS ☒ TEMP. ☐	INDICATED PRESS ☒ TEMP. ☐	DIFFERENCE
0	0	0	1500	1500	0
300	300	0	1150	1150	0
600	600	0	950	950	0
900	900	0	750	750	0
1200	1200	0	450	450	0
1500	1500	0	150	150	0
			0	0	0

Calibrated In Up-Right Position. Temp. 80° °F.

This is to certify that this gauge has been inspected and tested against
Pressure/Temp Standard (Star Measurement) Deadweight Tester S/N 17203
traceable to the National Bureau of Standards, traceability reference _____
compensated to local acceleration due to gravity.

Special Conditions: NONE

DATE OF CALIBRATION

7/8/92

INSPECTOR

[Signature]

SCANNED

BOTTOM

HOLE

PRESSURE, INC.

INSTRUMENT RENTALS & REPAIRS

100 SOUTH CRUSE AVENUE • BHOUSSARD, LOUISIANA 70518 • 318/837-2755

CALIBRATION CERTIFICATE

SERIAL NUMBER A-470 PRESSURE RANGE 5000 P.S.I.

CALIBRATED IN _____ POSITION. TEMPERATURE 70° °F.

THIS IS TO CERTIFY THAT THIS GAUGE HAS BEEN INSPECTED AND TESTED AGAINST
PRESSURE STANDARD Chandler Engineering D.W.T. #58-200 S/N 16210 TRACEABLE TO THE
NATIONAL BUREAU OF STANDARDS, TRACEABILITY REFERENCE P-7223, COMPENSATED TO
LOCAL ACCELERATION DUE TO GRAVITY.

SPECIAL CONDITIONS: _____

DATE OF CALIBRATION: 6-25-92

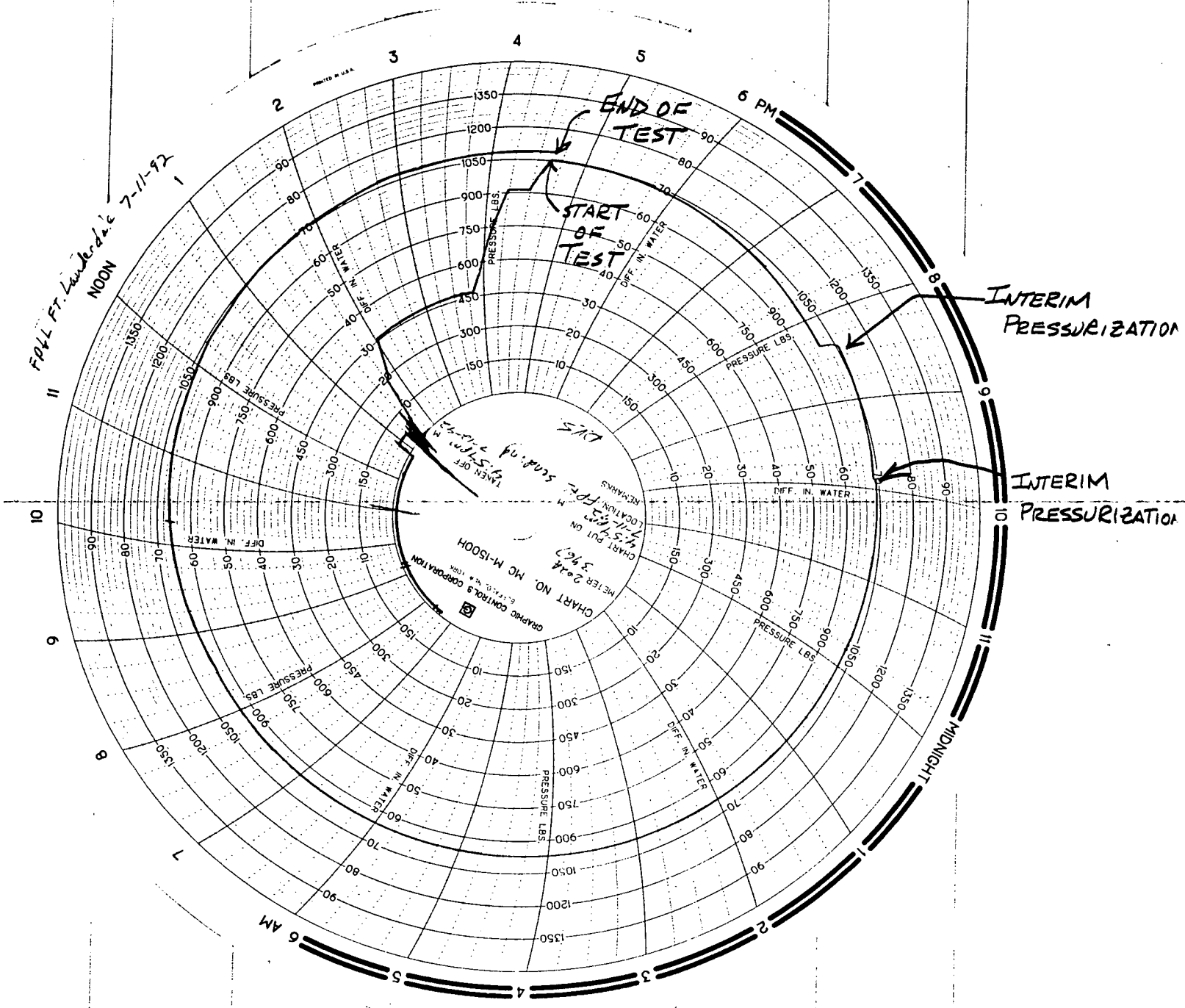
TECHNICIAN: Brian G. Broussard

Digital Pressure Gauge

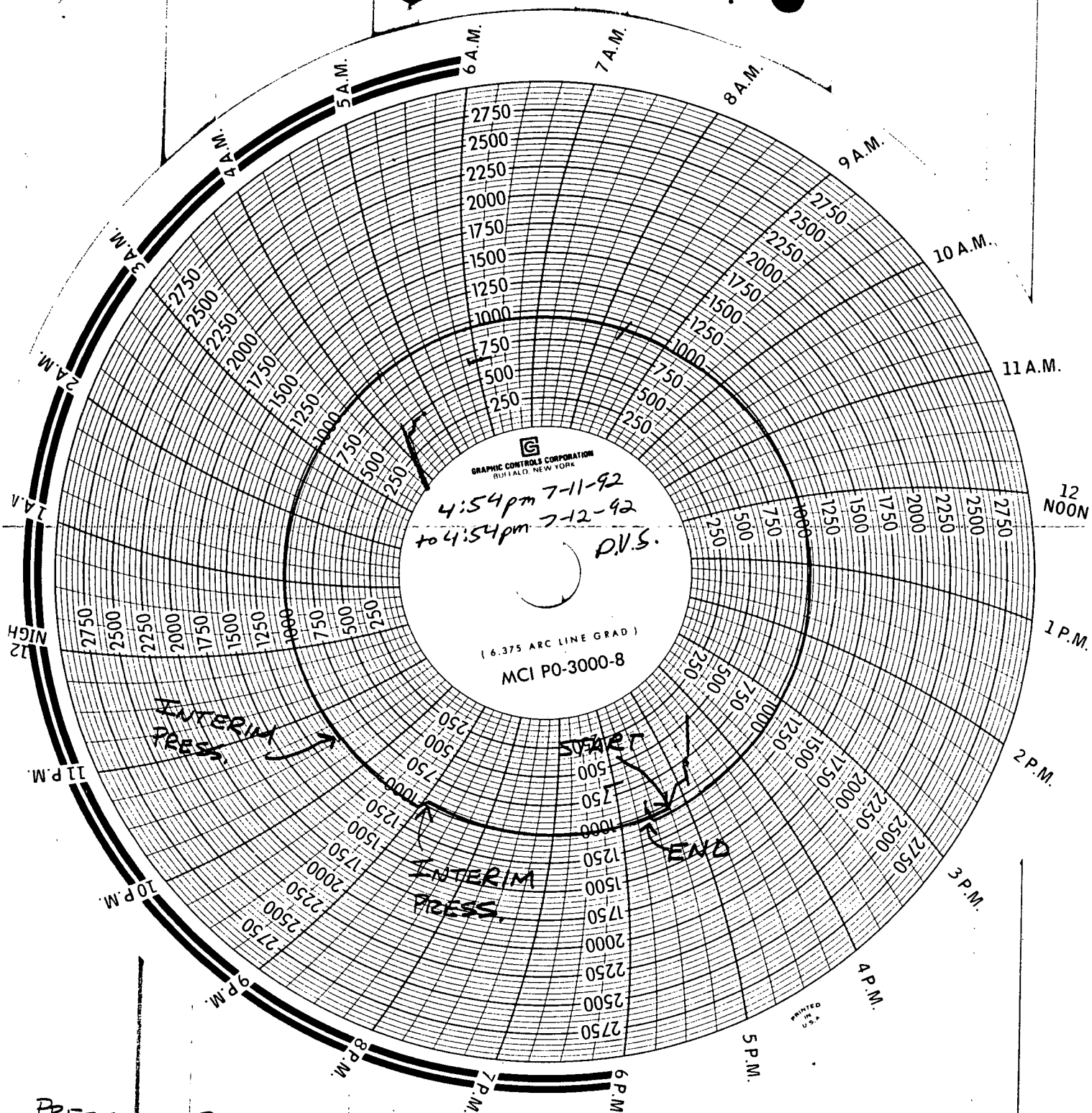
DVS.

7-13-92

SCANNED



PRESSURE RECORDER AT TANK FARM



PRESSURE RECORDER AT JUNCTION



FORM 0034
Rev. 9/87

WHILE YOU WERE OUT

TO: TOM
DATE: 8/28 TIME: 3:35
NAME: DAN Macdougall
OF: _____
PHONE NUMBER: 640-2055

☒ TELEPHONED

☐ CALLED TO SEE YOU

☐ WANTS TO SEE YOU

☒ PLEASE RETURN CALL

☐ WILL CALL AGAIN

☐ RETURNED YOUR CALL

MESSAGE None

FROM: _____

Long Roberts, ATTNY
FOR FPL (DCO PLANT)
(904) 222-7500
(HOPPING BOYD GREENE)
& SAMS

SCANNED

APPENDIX 10.6.2

**FDEP TITLE V AIR OPERATING PERMIT
(See Appendix 10.2.6)**

APPENDIX 10.6.3

**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

MANATEE PROTECTION PLAN



Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

In the matter of:

Approval of FPL Lauderdale Plant
Manatee Protection Plan

DEP Permit No. FL0001503
Broward County

Mr. Ron Hix
Florida Power & Light Company
P.O. Box 088801
North Palm Beach, FL 33408-08801

NOTICE OF AGENCY ACTION

The Department of Environmental Protection hereby gives notice of its approval of the enclosed Manatee Protection Plan for the FPL Lauderdale Plant, completed June 23, 1999 pursuant to Specific Condition 13 of Permit Number FL0001503.

A person whose substantial interests are affected by the Department action may petition for an administrative hearing in accordance with sections 120.569 and 120.57 of the Florida Statutes.

The petition must contain the information set forth below and must be filed (received) in the Department of Environmental Protection, Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within twenty-one days of receipt of this notice of intent. Petitions filed by any other person must be filed within twenty-one days of publication of the public notice or within twenty-one days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes, or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-5.207 of the Florida Administrative Code.

A petition must contain the following information:

- (a) The name, address, and telephone number of each petitioner; the Department case identification number and the county in which the subject matter or activity is located;
- (b) A statement of how and when each petitioner received notice of the Department action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department action;

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

- (d) A statement of the material facts disputed by the petitioner, if any;
- (e) A statement of facts that the petitioner contends warrant reversal or modification of the Department action;
- (f) A statement of which rules or statutes the petitioner contends require reversal or modification of the Department action; and
- (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department final action may be different from the position taken by it in this order. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under section 120.573 of the Florida Statutes is not available for this proceeding.

This action is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above. Upon the timely filing of a petition this order will not be effective until further order of the Department.

Any party to the order has the right to seek judicial review of the order under section 120.68 of the Florida Statutes, by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department of Environmental Protection, Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Mimi Drew

Director

Division of Water Resource Management

2600 Blair Stone Road
Tallahassee, FL 32399-2400
(850) 487-1855

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF AGENCY ACTION and all copies were mailed before the close of business on 08-18-99 to the listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, under section 120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

G. Shields 08-18-99
(Clerk) (Date)

Copies furnished to:

Tim Powell, DEP Southeast District
Kipp Frohlich, FWC Tallahassee
Jennifer Fitzwater, DEP Office of General Counsel
Scott Cowan, Chairman, Board of Broward County Commissioners
Jim Valade, U.S. Fish and Wildlife Service
Save the Manatee Club



Florida Fish and Wildlife Conservation Commission

NAS Tim
File

James L. "Jamie" Adams, Jr. Bushnell	Barbara C. Barsh Jacksonville	Patrick E. Geraghty Ft. Myers	Quinton L. Hedgepeth, DDS Miami	H.A. "Herky" Huffman Deltona	
Thomas B. Kilber Lakeland	David K. Meehan St. Petersburg	Julie K. Morris Sarasota	Tony Moss Miami	Edwin P. Roberts, DC Pensacola	John D. Rood Jacksonville

ALLAN L. EGBERT, Ph.D., Executive Director
VICTOR J. HELLER, Assistant Executive Director

620 South Meridian Street
Tallahassee, FL 32399-1600
www.state.fl.us/gfc
(850)487-3796
IDD (850)488-9542

July 6, 1999

Vince Seibold
Florida Department of Environmental Protection
Industrial Wastewater Section
Mail Station 3545
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RECEIVED
JUL 09 1999

Industrial Wastewater Section

Dear Vince;

I have attached the Manatee Protection Plan dated June 23, 1999 for Florida Power & Light's (FPL) Lauderdale facility. The Bureau of Protected Species Management has reviewed the attached plan and with this letter acknowledges our acceptance of this plan as that required by permit condition 13, of the FPL-Lauderdale's NPDES permit. Pursuant to the agreed upon approval protocol for the NPDES Manatee Protection Plans, I have provided the following chronological list recounting the submittal of Florida Power & Light-Lauderdale's draft Manatee Protection Plans and our corresponding responses.

July 17, 1998	The Bureau of Protected Species Management receives a draft manatee protection plan from Florida Power & Light for their Lauderdale facility.
September 10, 1998	The Bureau of Protected Species Management provides comments and recommends modifications to FPL regarding their Lauderdale facility's draft Manatee Protection Plan
December 17, 1998	FPL provides the Bureau of Protected Species Management a second draft of the FPL-Lauderdale Manatee Protection Plan
February 23, 1999	The Bureau of Protected Species Management provides recommended final changes to FPL-Lauderdale's Manatee Protection Plan
May 28, 1999	The Bureau of Protected Species Management provides the U. S. Fish and Wildlife Service (USFWS) with a copy of the FPL-Lauderdale draft Manatee Protection Plan for review and comment.

V. Seibold
July 6, 1999
Page 2

June 1, 1999	The USFWS provides several recommended modifications to the FPL-Ft Lauderdale final draft plan.
June 3, 1999	The Bureau of Protected Species receives a carbon copy of the USFWS letter to the Department's Industrial Wastewater Section providing their concurrence to the attached Manatee Protection Plan for the FPL-Ft Lauderdale facility dated June 23, 1999.
June 30, 1999	The Bureau of Protected Species Management receives concurrence from FPL-Lauderdale on the attached Manatee Protection Plan dated June 23, 1999.

If you have any questions or need further information, please call me at suncom 292-4330.

Sincerely,

OFFICE OF ENVIRONMENTAL SERVICES



R. Kipp Frohlich
Biological Administrator
Bureau of Protected Species Management

\rrm

NPDES.099\IWW-FPL-Lauderdale-ltr 706.doc

ENV 7-2

Attachment

cc: R Hix
J Valade

Florida Power & Light - Lauderdale Manatee Protection Plan

Purpose:

The purpose of the Lauderdale Plant Manatee Protection Plan is to set forth Florida Power & Light Company's (FPL) procedures to comply with Specific Condition 13 of the facility's State Industrial Wastewater Permit Number FL0001503 that was issued on January 16, 1998. This Specific Condition reads, in part:

13. The permittee, in so far as required to comply with Tasks 25 and 251 of the U.S. Fish and Wildlife Service (USFWS) "Florida Manatee Recovery Plan," shall develop a plan and procedures addressing potential manatee impacts. All plans, if required, shall include an implementation schedule and address, at a minimum:
- (a) Plans to minimize disruption to warm-water outflows during the winter and response procedures in case of disruptions.
 - (b) Strategy to maintain discharge temperatures that will sustain manatees during cold events
 - (c) Plan to monitor ambient and discharge temperatures
 - (d) Precautions to minimize hazards to manatees at intake and outfall areas.
 - (e) Timely communication to manatee recovery program personnel of any long term changes in the availability of warm water

Compliance with Specific Condition 13:

1. This Manatee Protection Plan will be in effect during the term of the permit mentioned above. In order for the plant's warm water discharge to provide a safe, warm water refuge for the manatees and to comply with Specific Condition 13, FPL will take the following actions:

- a) In the case of an unplanned shutdown or plant failure that will affect the warm water refuge from November 15 through March 31, when the ambient water temperature is below 61°F, the Florida Wildlife Conservation Commission (FWCC) and USFWS will be notified no later than four (4) hours after the event has occurred. The following agency representatives shall be notified in the above referenced event or if any distressed manatees are observed at any time:

FWCC - Florida Marine Research Institute - Marine Mammal Pathobiology Lab: (813)-893-2904
USFWS - Jacksonville Field Office: (904) 232-2580

The FWCC, Bureau of Protected Species Management (BPSM) shall be provided a schedule of any anticipated in-water work within the discharge canal or work that will affect the warm water refuge during the period of November 15 through March 31 each year. No routine in-water maintenance work shall occur in the discharge canal from November 15 through March 31, unless it is considered essential by FPL and approved by BPSM prior to the start of work. If emergency in-water work is needed, the BPSM will be notified and consulted no later than two weeks following the commencement of the activity. All vessels used in the operation or associated with the activity shall be operated pursuant to the attached standard manatee construction conditions.

- b) From November 15 through March 31 each year, to coincide with the time of greatest manatee abundance, if the ambient water temperature falls below 61°F, the FPL Lauderdale plant shall endeavor to operate in a manner that maintains the water temperature in an adequate portion of the discharge canal at or above 68°F, until such time as the ambient water temperature reaches 61°F, unless otherwise authorized by BPSM and the USFWS, or unless safety or reliability of the plant would be compromised.
 - c) The FPL Lauderdale power plant will provide personnel from the BPSM, USFWS, Florida Marine Research Institute, USGS-Sirenia Project, or a designee of these agencies, access to the FPL Lauderdale power plant property to conduct manatee research and monitoring activities which may include, placing, maintaining and downloading data from temperature data loggers. These temperature data loggers will be used to collect air and water temperature data in an ongoing research effort to better understand manatee behavior patterns in response to artificial warm water refugia and environmental variables. The temperature data loggers will be placed in the discharge canal and at ambient water and air locations. Access would be limited to normal business hours (8:00am - 5:00pm) unless arrangements are made in advance with the FPL Lauderdale power plant.
 - d) Intake Area: No special surveys will be required for the intake area.

Discharge Area: No special surveys will be required for the discharge canal.
 - e) Should FPL decide to retire these units, notice will be provided to FWCC and USFWS as soon as practical after a definite decision is made or, if possible, at least five years prior to the date of retirement.
 - f) To assist in documenting long-term use patterns of this facility, FPL should conduct periodic aerial surveys of manatees at the Lauderdale facility. The continuation of the ongoing statewide aerial survey that FPL has funded in the past years meets these criteria.
 - g) The FPL Lauderdale Power Plant will provide phone numbers for weekday and weekend notification of appropriate plant personnel for the purpose of allowing FWCC or USFWS to coordinate manatee rescue operations as necessary.
- 2.) FPL actions, pursuant to this plan, that will be conducted on a one-time basis unless there are significant physical or operational changes to the FPL Lauderdale power plant.
- a) Provide a site map of the facility as a part of the plan that includes the following information;
 - 1. The location of the intake pipes and outfall pipes.
 - 2. Proximate streams, rivers, bays, etc.
 - 3. The location of the condenser inlet and outlet temperature monitoring stations.
 - 4. The location of any fuel barge docking facilities in relation to the discharge canal.
 - 5. The delineation of the no-entry boundary at the discharge canal.
 - b) In order to evaluate and determine what portions of the thermal discharge will provide a sufficient warm water refuge for manatees under potential cold stress water conditions; the FPL Lauderdale power plant will, within two (2) years of the effective date of this plan, provide a profile of the thermal gradient (either actual or calculated) of the discharge canal waters, as well as its gross bathymetry, at the mean rate of discharge when the ambient water temperature reaches a seasonal low.

**FLORIDA POWER & LIGHT -- LAUDERDALE PLANT
MANATEE PROTECTION PLAN**

**1a) STANDARD MANATEE CONSTRUCTION CONDITIONS FOR ARTIFICIAL
WARM WATER REFUGIA DURING THE PERIOD OF NOVEMBER 15
THROUGH MARCH 31.**

The permittee shall comply with the following manatee protection conditions:

- a. The permittee shall instruct all personnel associated with in-water work within the discharge canal and/or the warm water refuge of the potential presence of manatees and the need to avoid collisions with manatees. All vessels used in the operation or in association with the in-water work shall have an observer on board responsible for identifying the presence and location of manatee(s).
- b. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act of 1972, The Endangered Species Act of 1973, and the Florida Manatee Sanctuary Act.
- c. All vessels associated with in-water work associated with the discharge canal and/or warm water refuge shall operate at "no wake/idle" speeds at all times while in the manatee warm water refuge area. All vessels will follow routes of deep water whenever possible.
- d. If manatee(s) are seen within the discharge canal and/or warm water refuge area all appropriate precautions shall be implemented to ensure protection of the manatee(s). These precautions shall include the immediate shutdown of equipment if necessary. Activities will not resume until the manatee(s) has departed to a safe distance on its own volition.
- e. Any collision with and/or injury to a manatee shall be reported immediately to the Florida Wildlife Conservation Commission at 1-888-404-FWCC (1-888-404-3922). Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-232-2580).

APPENDIX 10.6.4

**STATE OF FLORIDA
INDUSTRIAL WASTEWATER FACILITY
(See Appendix 10.2.2)**

APPENDIX 10.7
MONITORING PROGRAMS

APPENDIX 10.7.1
CULTURAL RESOURCES



A CULTURAL RESOURCE ASSESSMENT OF THE FPL DANIA BEACH ENERGY CENTER, BROWARD COUNTY, FLORIDA

ARCHAEOLOGICAL AND HISTORICAL CONSERVANCY, INC.



AHC TECHNICAL REPORT NO. 1159
AHC PROJECT NO. 2017.105
JUNE 2017

A CULTURAL RESOURCE ASSESSMENT OF THE FPL DANIA BEACH ENERGY CENTER, BROWARD COUNTY, FLORIDA

By:

Robert S. Carr, M.S.

Timothy A. Harrington

John Beriault, B.A.

ARCHAEOLOGICAL AND HISTORICAL CONSERVANCY, INC.

4800 SW 64th Avenue, Suite 107

Davie, Florida 33314

archlgcl@bellsouth.net

(954) 792-9776

For:

GOLDER ASSOCIATES INC.

AHC PROJECT NO. 2017.105

AHC TECHNICAL REPORT NO. 1159

JUNE 2017



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CONSULTANT SUMMARY

In June, 2017 the Archaeological and Historical Conservancy, Inc. (AHC), conducted a cultural resource assessment for Golder Associates Inc. of a proposed Dania Beach Energy Center (DBEC) at the Florida Power & Light (FPL) Lauderdale Site, the project parcel. The parcel is located in Township 43S, Ranges 41 and 42E, and Sections 25 and 30, in the City of Dania Beach in Broward County (Figure 1). The parcel is bordered by the South New River Canal and Pond Apple Slough to the west and north, water retention areas to the east, and Griffin Road to the south. FPL proposes to replace the existing Units 4 and 5 with a modern, highly efficient, lower-emission next generation clean energy center using the latest combined cycle technology.

This assessment was conducted in anticipation of historic resource requirements by concerned agencies in response to Section 106 of the National Historic Preservation Act (1966), State of Florida Statutes Chapter 267. The work and the report conform to the specifications set forth in Chapter 1A-46, Florida Administrative Code.

This cultural resource assessment included a review of aerial photographs and archival documents, and a pedestrian survey. The project parcel has been largely disturbed and altered by development.

In addition to the area of demolition/construction (construction plant area) several parts of the parcel are proposed to be used for staging (temporary construction laydown areas). These areas are together regarded as the Area of Direct Impact (ADI – see Figure 2). An area surrounding the ADI encompassing the adjacent canals to the east, south, and west of the ADI was considered to be the Area of Potential Effect. The proposed project upgrade (DBEC) will not result in potential secondary effects exceeding those of the existing facility that is to be replaced (see Figures 3 and 4).

It is the consultant's opinion based on available data that the overall project parcel (FPL Lauderdale site) has a low probability for significant archaeological resources because of extensive disturbance and the parcel's historical association with wetlands of the South Fork of the New River with no associated uplands. All parts of the parcel that will be affected by redevelopment (ADI) are either covered by several meters of limerock fill on top of the wetlands, or are areas of marsh or swamp. As a result no shovel testing was conducted.

Two previously recorded linear resources, 8BD3221 and 8BD4153, the Dania Cut-Off Canal and the South New River Canal, occur adjacent to its southern and eastern borders of the ADI within the APE. These segments of the two resources were newly recorded in this assessment. One historic structure occurs within the APE, a pair of steam turbines constructed ca. 1950, newly recorded for this assessment as 8BD6078.

8BD3221 was evaluated by the State Historic Preservation Officer (SHPO) in 1999 as not eligible for listing in the NHRP due to alterations. 8BD4153 was evaluated by SHPO in 2004 as potentially eligible for listing in the NRHP based on criterion A. In the

consultant's opinion, the newly assessed segment of 8BD3221 is not eligible for listing due to alterations, while that of 8BD4153 retains its potential eligibility based on criterion A. However, 8BD4153 is outside the ADI and will not be affected by the proposed project either directly or indirectly.

It is the consultant's opinion that 8BD6078, which will be replaced as part of the proposed project, is not eligible for listing in the NRHP due to its common form and the numerous alterations it underwent in order to adapt it to a succession of modifications to the power plant including a major alteration in the 1990s (Kosky 2017). It is the consultant's opinion, based on available data, that no historic properties will be affected by the proposed FPL DBEC redevelopment project.

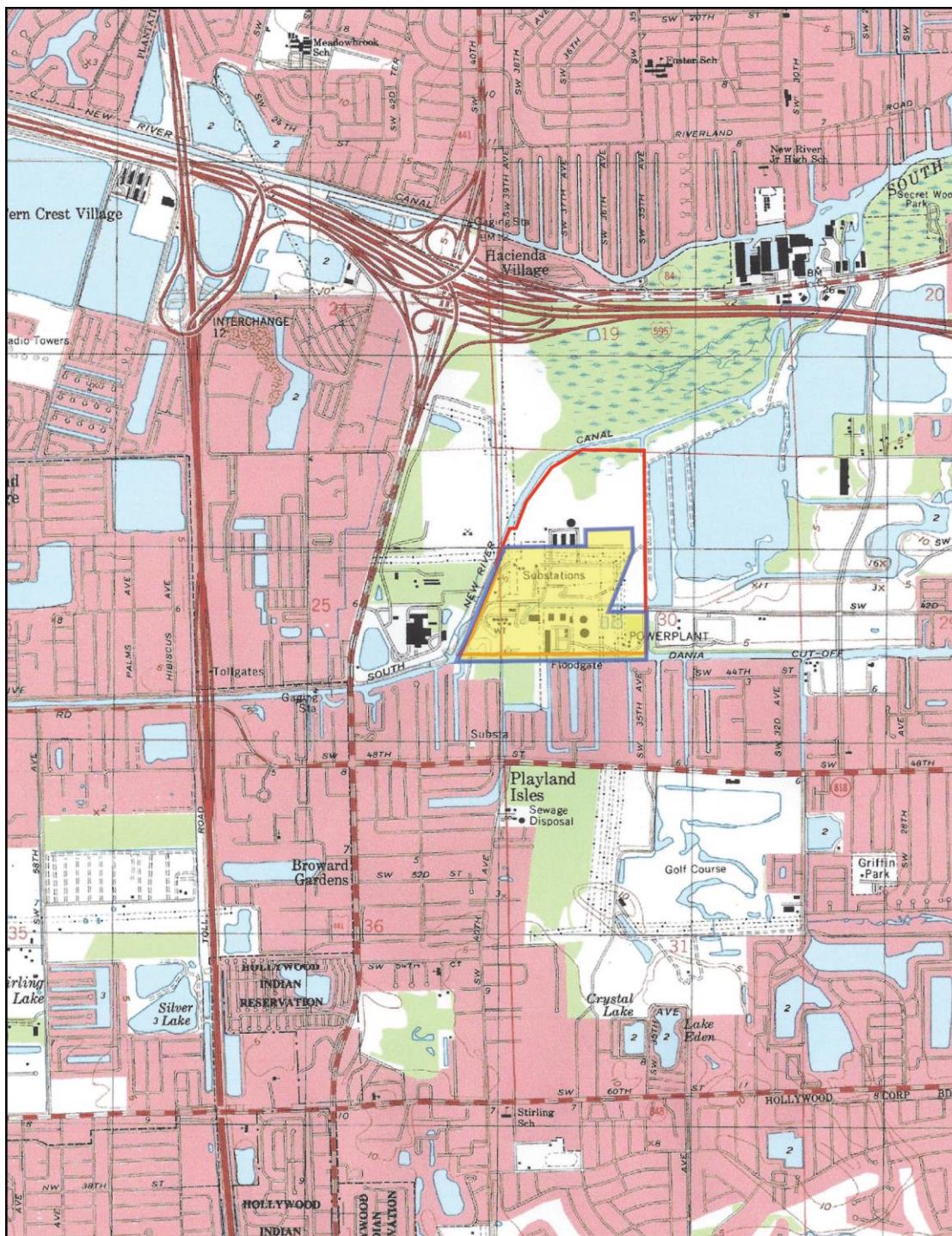
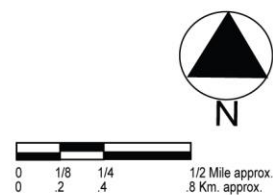


Figure 1. USGS map of the FPL Dania Beach Energy Center project parcel.

-  = FPL LAUDERDALE SITE
-  = AREA OF POTENTIAL EFFECT (APE)

TOWNSHIP 50S, RANGE 41E, SECTION 25
 TOWNSHIP 50S, RANGE 42E, SECTION 30
 USGS Map: FORT LAUDERDALE SOUTH, REV. 1994



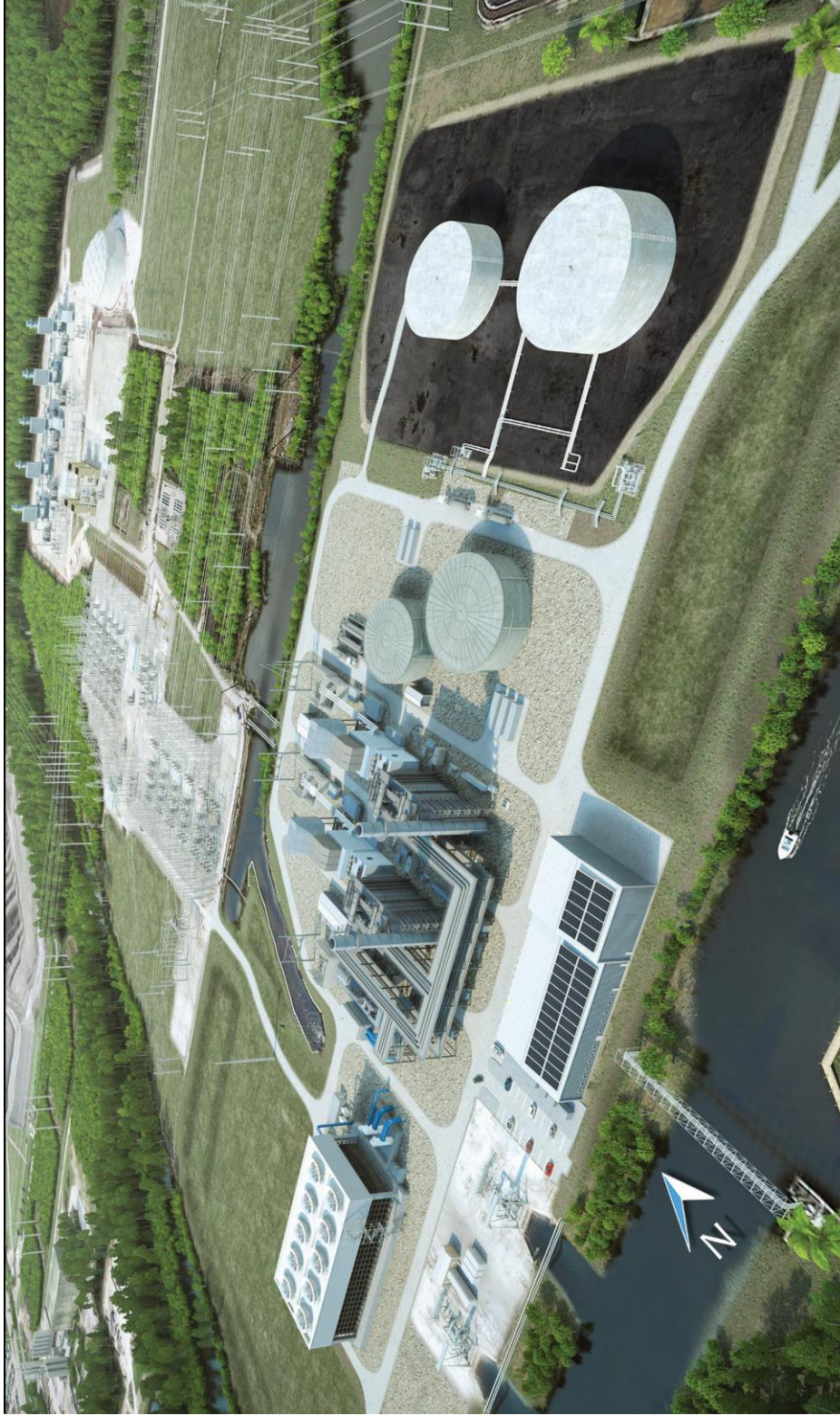


FPL Existing FPL Power Plant
Dania Beach, Florida

Rendering of existing plant

Truescape

Figure 3. 2017 rendering of existing FPL Lauderdale site.



FPL Dania Beach Clean Energy Center
Dania Beach, Florida

Conceptual rendering of proposed facility
Subject to final engineering

Truescape

Figure 4. 2017 rendering of proposed FPL Dania Beach Energy Center.

PROJECT SETTING

The FPL Lauderdale site lies east of the South New River Canal and north of the Dania Cut-off Canal in the City of Dania Beach. The facility is located in Township 50 South, Ranges 41 and 42 East, Sections 25 and 30. The overall FPL property encompasses 420 acres.

The property is partially developed with a power plant that has been expanded and renovated several times since its inception in 1926. Some portions of the parcel remain in a natural state.

The project parcel is located adjacent and east of the South New River Canal, and adjacent and north of the Dania Cutoff Canal where the canals branch. It was an area of fresh water marsh with mixed hardwood swamp and cypress forest in the watershed of the South Fork of the New River. Early surveys indicate that the area was characterized by cypress, cabbage palm, and sawgrass (Figure 5). Surveyor M. A. Williams noted that “lands in this vicinity are desirable on the account of rich soil and the apparent possibility of drainage” (Williams 1870). The 1947 aerial photograph (Figure 6) provides evidence of remnant ditching and abandoned farm fields suggesting that the project parcel may have been used for truck farming.

Vacant portions of the parcel are characterized by a mix of exotic and native species. Plants include woody weeds, grasses, sedges, and exotic upland species. The dominant plants are Australian pine (*Casuarina* sp.), scattered cabbage palms, and several Cuban royal palms, with an understory of sea grape and grasses.

Soil types include Okeelanta muck, Udorthents, and urban land (United States Department of Agriculture 2013).

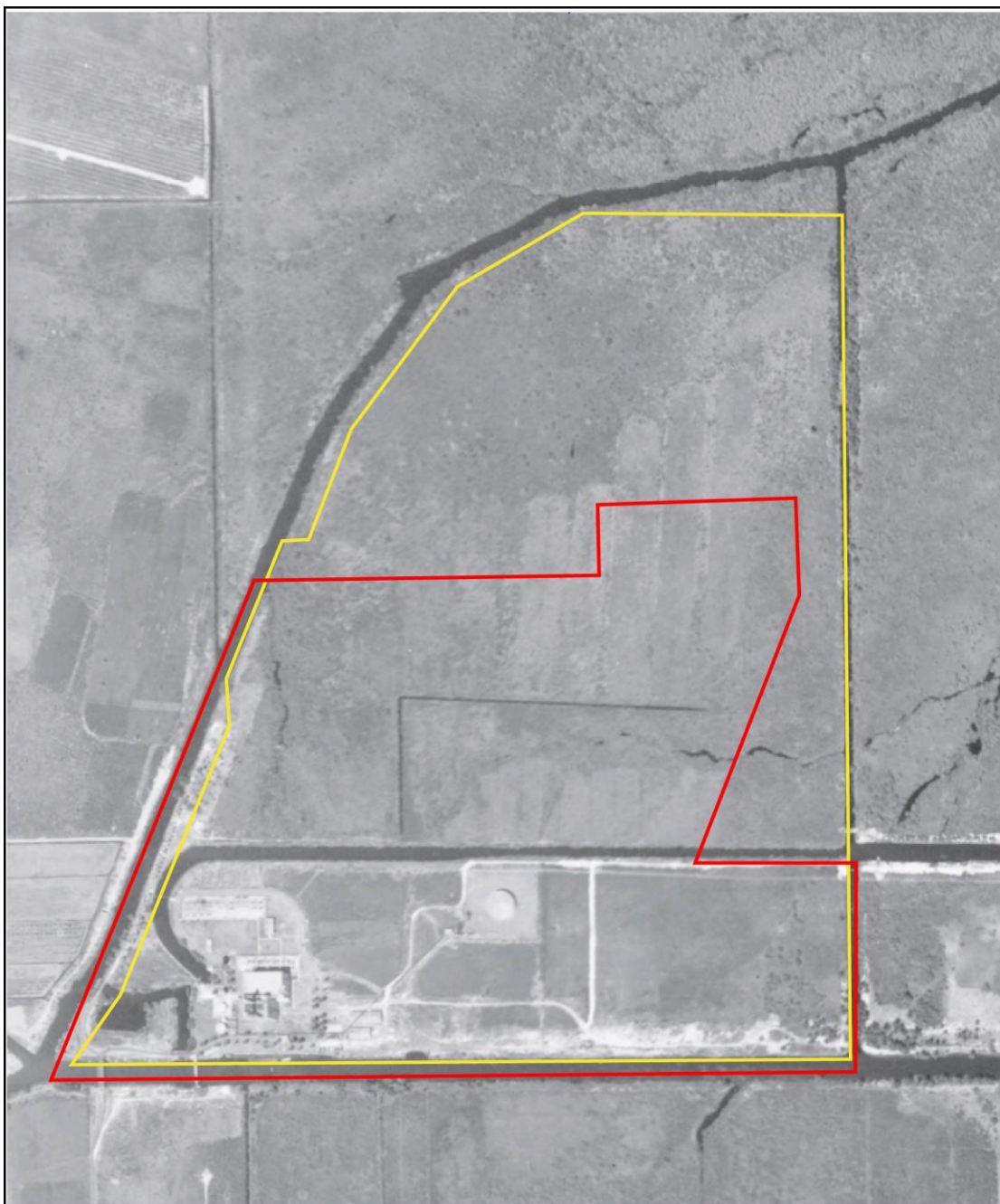


Figure 6. 1947 black and white aerial photograph of the project parcel.

 = FPL LAUDERDALE SITE

 = APE



0 330 660
0 91 182

1320 Feet approx.
364 Meters approx.



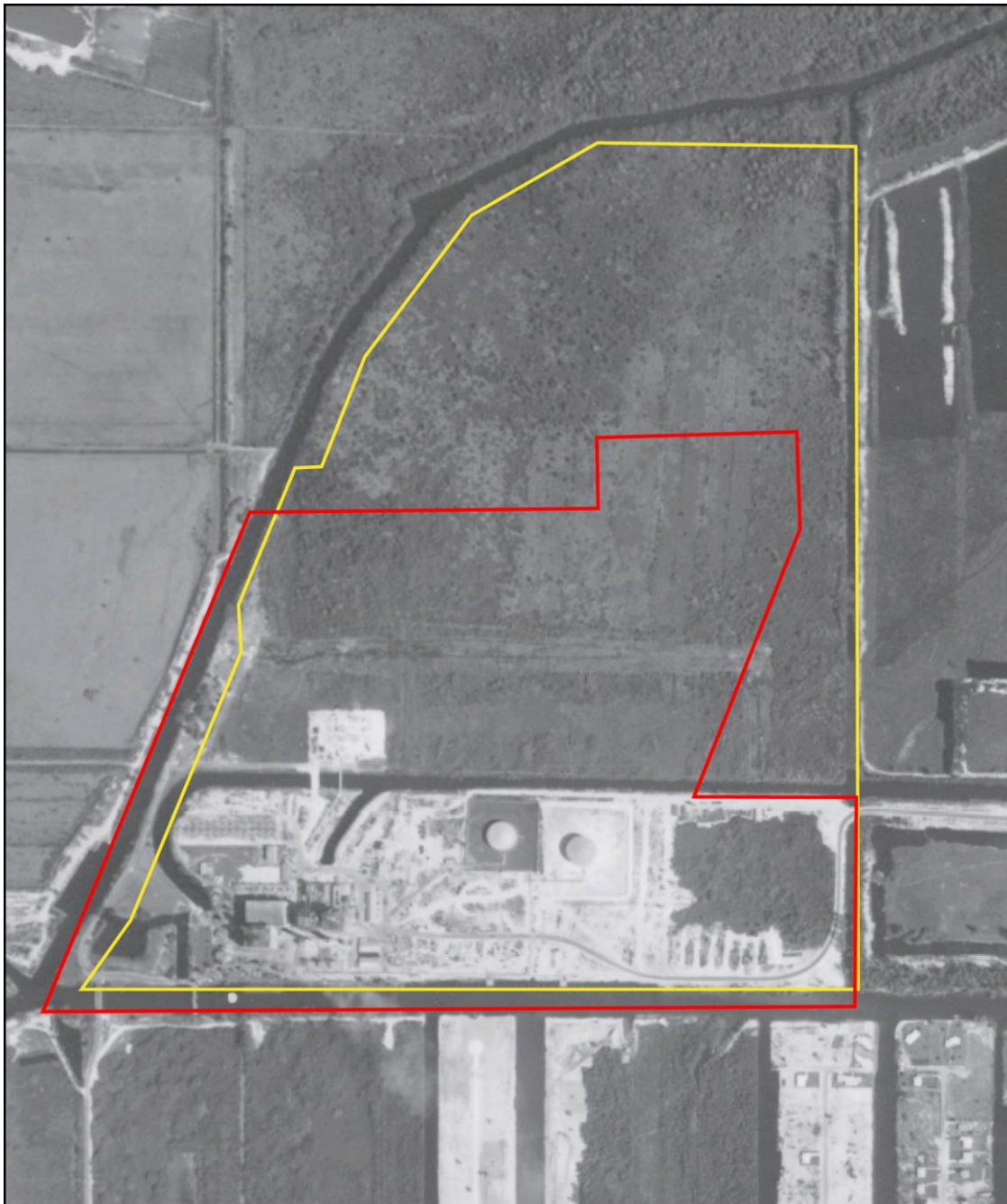


Figure 7. 1958 black and white aerial photograph of the project parcel.

 = FPL LAUDERDALE SITE
 = APE



0 330 660
0 91 182



1320 Feet approx.
364 Meters approx.

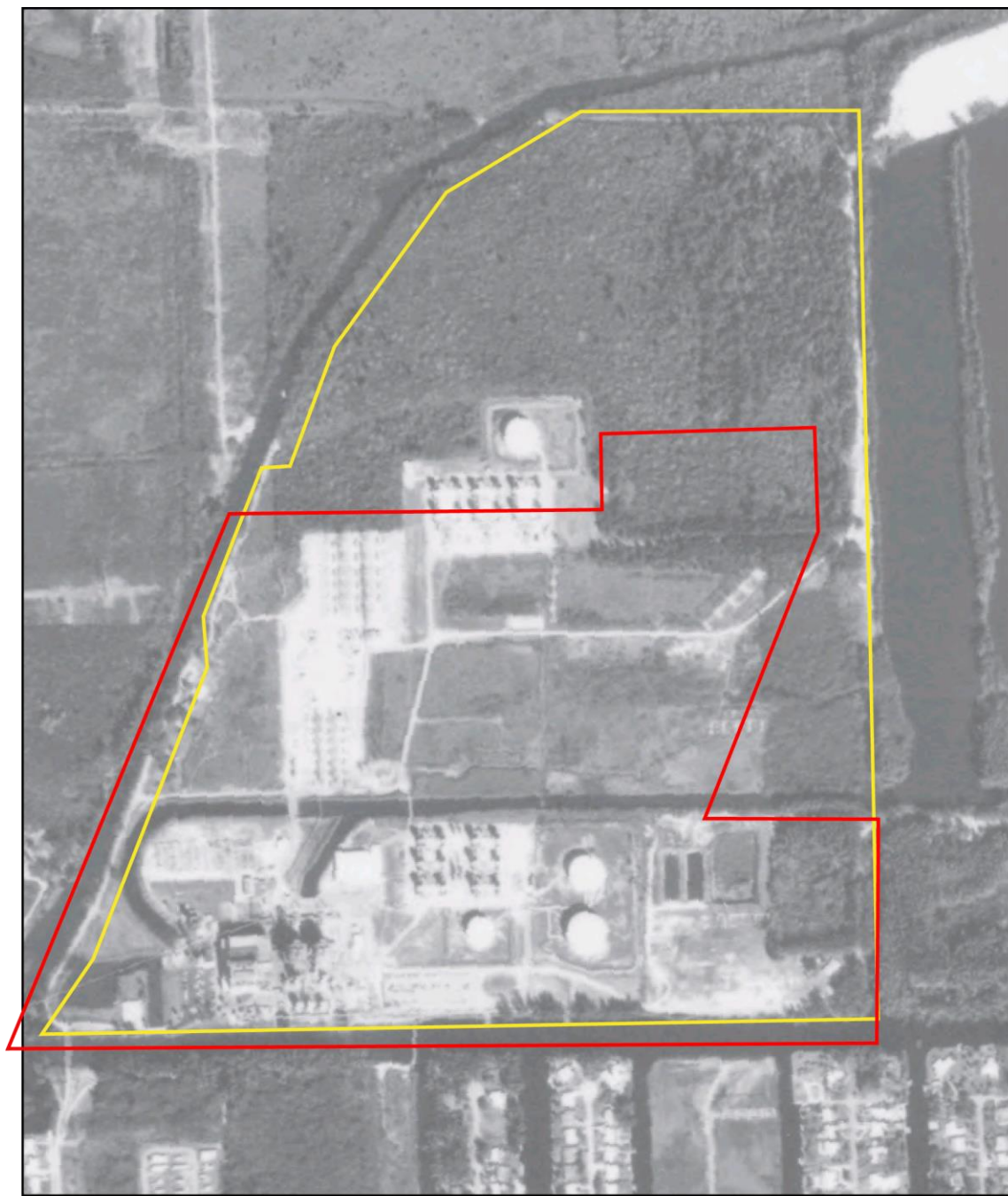


Figure 8. 1980 black and white aerial photograph of the project parcel.

 = FPL LAUDERDALE SITE

 = APE



0	330	660
0	91	182

1320 Feet approx.
364 Meters approx.



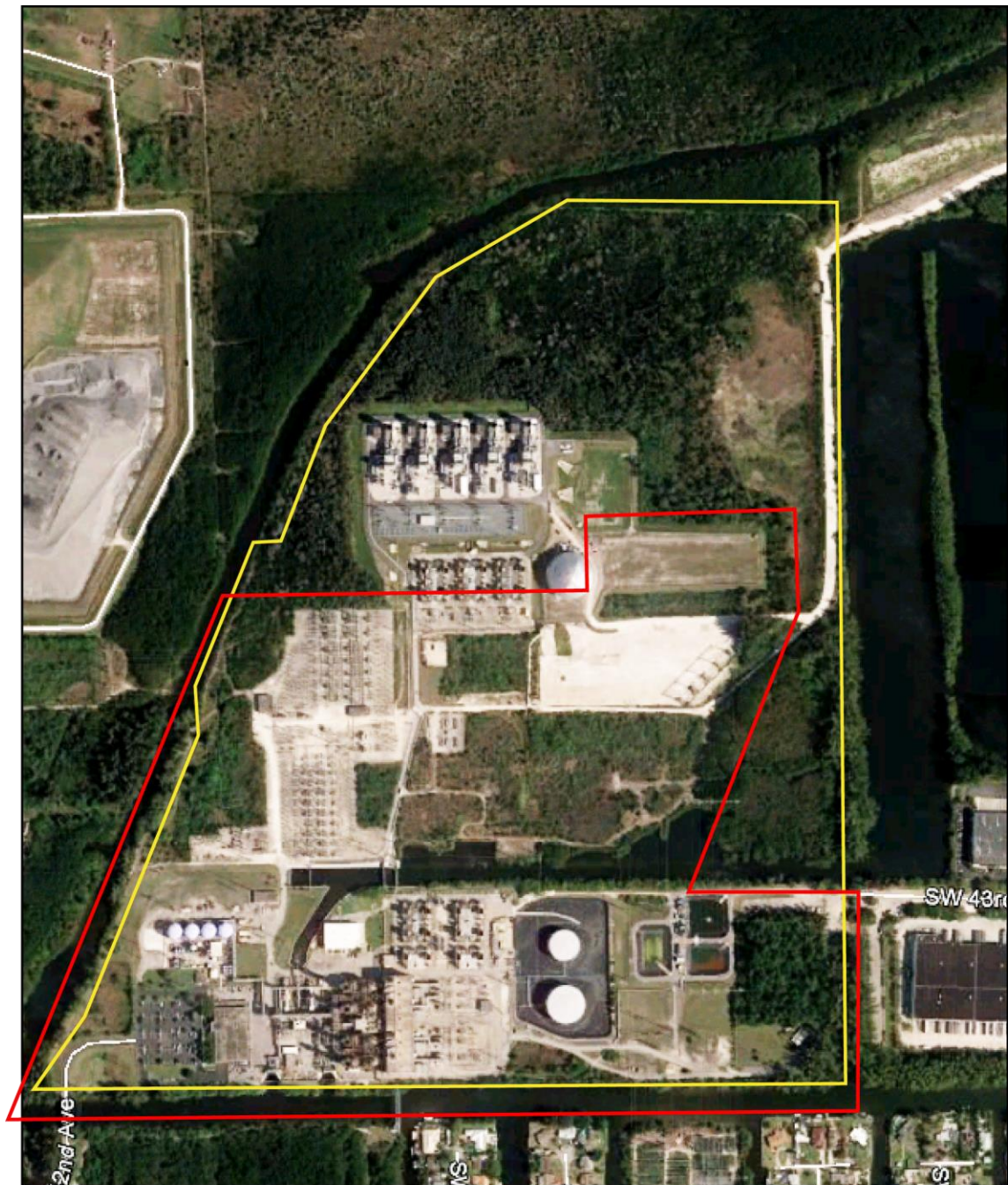


Figure 9. 2017 color aerial orthophotograph of the project parcel.

 = FPL LAUDERDALE SITE
 = APE



0	330	660
0	91	182



1320 Feet approx.
 364 Meters approx.



Figure 10. Project parcel looking north across temporary construction laydown area of from southeast corner of property; entrance at bridge over Dania Cut-Off Canal (8BD3221 – out of photo to right). Area proposed for new construction is visible on right horizon.



Figure 11. Project parcel looking east from a point east of South New River Canal (8BD4153 – behind photographer) across temporary construction laydown area.



Figure 12. Looking south-southeast from northwest corner of project parcel across temporary laydown area.



Figure 13. Project parcel looking southwest from northeastern portion of property across temporary construction laydown area – mitigation wetlands in background.



Figure 14. Project parcel looking northwest from southeast corner of property across temporary construction laydown areas (left and right of road.)



Figure 15. Looking northwest at existing plant (proposed for new construction.)

PREVIOUS RESEARCH

Cultural resource assessments in the Fort Lauderdale/Dania Beach area include general surveys of Broward County performed in 1981-1995 (Carr 1981, 1991, 1993, 1995; Archaeological and Historical Conservancy 1993, 1995; Kennedy 1988; Historic Properties Associates 1989; Southeastern Archaeological Research 2013); various road right-of-way surveys, cellular tower location surveys, pipeline surveys (N/A 1982; McMurray 1991; R. Christopher Goodwin and Assoc. 1992; Schwartz 2001; AES Ocean Express LLC 2002; Archaeological Consultants Inc. 2002; Baer 2002, Environmental Services 2004a, 2004b; Gifford 2004; Group Enterprises Inc. 2004, 2007a, 2007b; Janus Research 2001, 2003a, 2003b, 2005a, 2005b, 2012, 2013a, 2013b, 2014, 2015a, 2015b; Keel 2006, 2007; Southeastern Archaeological Research 2006; Panamerican Consultants 2006a, 2006b; EnviroBusiness 2010; CARDNO 2016), surveys and assessments of individual parcels, notably the Powell Site (AHC 1982); Trafalgar Property (AHC 1989); FPL Fort Lauderdale Parcel (AHC 2013); Hacienda Village (Eck and Carr 1998), Oakridge West (Eck 1998);

LITERATURE REVIEW

A search was requested on 6-14-17 with the Florida Division of Historic Resources for relevant archives and literature associated with the project area. This included, but was not limited to, site forms from the Master Site File in Tallahassee concerning previously recorded cultural resources within and immediately adjacent to the project parcel and reports for cultural resource investigations conducted within one mile of the project parcel (Table 1).

Table 1. Literature Review Summary	
Previously Recorded Sites:	12
In Project Parcel	0
Within One Mile of Project Parcel	12
Previous Assessments:	44
In Project Parcel	1 (Survey #20299)
Within One Mile of Project Parcel	44

A review of Florida site files determined that no previously-recorded archaeological or historic sites occur within the project parcel; however, five prehistoric middens and four historic canals occur within one mile of the project area.

Table 2. Previously Recorded Sites Summary¹					
Site No.		Site Type	References	In Project Parcel	Outside of Parcel
8BD99	Playland Isles	Prehistoric Midden	<i>Archaeological and Historical Conservancy 1995</i>		X
8BD100	Shady Oaks	Prehistoric Midden	<i>Archaeological and Historical Conservancy 1995</i>		X

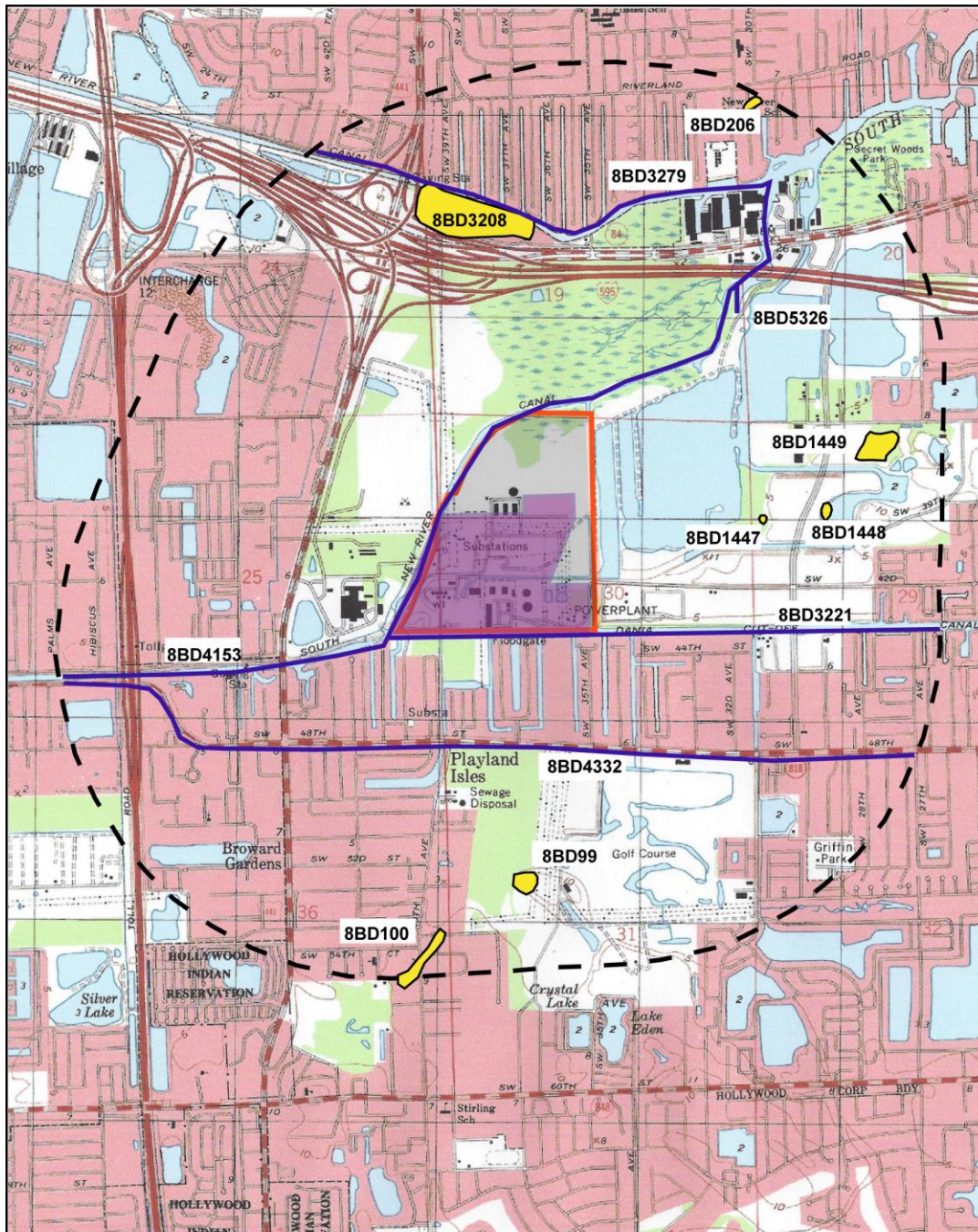
8BD206	Riverland	Prehistoric Midden	<i>Archaeological and Historical Conservancy 1995</i>		X
8BD1447	Alandco #1	Prehistoric Midden	<i>Wm. J. Kennedy, 1988</i>		X
8BD1448	Alandco #2	Prehistoric Midden	<i>Wm. J. Kennedy, 1988</i>		X
8BD1449	Alandco #3	Prehistoric Midden	<i>Wm. J. Kennedy, 1988</i>		X
8BD1871	Crystal Lakes	Prehistoric Midden	<i>Archaeological and Historical Conservancy 1995</i>		X
8BD3208	Hacienda Site	Prehistoric Midden	<i>Eck and Carr, 1998</i>		X
8BD3221	Dania Canal	Historic Canal	<i>Janus Research, Inc. 2005</i>		X
8BD3279	North New River Canal	Historic Canal	<i>Site Form on File, Division of Historic Resources, Tallahassee, Florida</i>		X
8BD4153	South New River Canal	Historic Canal	<i>Site Form on File, Division of Historic Resources, Tallahassee, Florida</i>		X
8BD4432	Griffin Road	Historic Road	<i>Archaeological Consultants, 2005</i>		X
8BD5236	FPL Cooling Canal	Linear Resource	<i>Janus Research Inc. 2014</i>		X
Note: ¹ Based on sites within one mile of the project parcel.					

In addition, a review of the state report files indicated 44 cultural resource assessments previously conducted within one mile of the project parcel (Table 3).

Table 3. Previous Cultural Resource Assessments¹					
Survey No.	Date	Author	Title	In Parcel	Out of Parcel
730	1981	Carr, Robert S.	<i>Broward County Comprehensive Survey, Phase I</i>		X
768	1982	Archaeological and Historical Conservancy	<i>Archaeological Survey of the Powell Site Sludge Management Plan</i>		X
769	1982	N/A	<i>Archaeological Survey of Properties Designated for Construction of the Wingate Road Sludge Processing/Disposal Facility and Connecting Pipeline Route to the NW 6th Street Pumping Station, Fort Lauderdale</i>		X
1628	1988	Kennedy, William J.	<i>Cultural Resources Assessment of the Alandco Corporation, Broward County Property</i>		X
2125	1989	Historic Properties Associates	<i>Historic Properties Survey of Fort Lauderdale, Florida</i>		X
2400	1989	Archaeological and Historical Conservancy	<i>An Archaeological Survey of the Trafalgar Property, Broward County, Florida</i>		X
2710	1991	McMurray, Carl	<i>Cultural Resource Assessment Survey of SR 7 (US 441) in Broward County, Florida</i>		X
2933	1991	Carr, Robert S.	<i>An Archaeological Survey of Broward County, Florida: Phase I</i>		X
3476	1992	R. Christopher Goodwin and Associates	<i>Archaeological Survey of the Planned 20-inch O.D. Port Everglades Loop and Meter Station</i>		X
3633	1993	Archaeological and Historical Conservancy	<i>An Archaeological Survey of Broward County, Florida, Phase II</i>		X
4075	1995	Archaeological and Historical Conservancy	<i>An Archaeological Survey of Southeast Broward County, Florida, Phase 3</i>		X

18855	1996	Group Enterprises, Inc.	<i>Cultural Resource Assessment of Proposed Jurisdictional Roadway Transfer of Riverland Road from Old Alignment to SR 7 at SW 20th Street – Section No. 86000076</i>		X
5133	1997	Group Enterprises, Inc.	<i>Cultural Resource Assessment, State Road 84 Bridge Rehabilitation</i>		X
5331	1997	Group Enterprises, Inc.	<i>Cultural Resource Assessment Griffin Road between Pine Island Road and Florida's Turnpike, Broward County, Florida</i>		X
5368	1998	Eck, Christopher R.	<i>An Archaeological Survey of the Oakridge West Parcel, Broward County, Florida</i>		X
6679	2001	Janus Research Inc.	<i>Resource Report 4, Cultural Resources for Calypso Pipeline, LLC, Calypso Natural Gas Pipeline Project</i>		X
6756	2001	Schwarz, Rebecca Spain	<i>Cultural Resource Assessment Survey Technical Memorandum Rail Bridge Over the South Fork of the New River, Broward County, Florida</i>		X
19293	2002	AES Ocean Express LLC	<i>Cultural Resource Overview of Onshore Segment of Proposed AES Ocean Express Pipeline, Southern Broward County, Florida and Archaeological Evaluation of Magnetometer and side-scan Sonar Targets in Florida State Territorial Waters Along the Offshore Navy Restricted Area</i>		X
19302	2002	Baer, Robert H.	<i>Underwater Archaeological Background Study and Remote Sensing Investigation and Associated Upland Route Corridor Survey Pursuant to the AES Ocean Express LLC Pipeline Project from Exclusive Economic Zone (EEZ) to Broward County, Florida</i>		X
8906	2003	Janus Research	<i>The Tractebel Calypso Natural Gas Pipeline, Supplemental Report #1</i>		X
9518	2003	Janus Research	<i>Cultural Resource Assessment Survey of the Widening of Florida's Turnpike Mainline PD&E Study From Griffin Road to Sunrise Boulevard, Broward County</i>		X
14102	2004	Gifford, John	<i>Offshore Archaeological Assessment Report: Archaeological Monitoring of Geotechnical Test Bore Program and Subsurface Archaeological Testing of Taylor Road Area for Onshore Portion of Proposed AES Ocean Express Pipeline, Southern Broward County, Florida</i>		X
10428	2004	Environmental Services, Inc.	<i>An Archaeological and Historical Assessment for the Existing 45th Street Cellular Tower, Broward County, Florida</i>		X
10433	2004	Environmental Services, Inc.	<i>An Archaeological and Historical Assessment for the Existing SW 23rd Terrace Cellular Tower, Broward County, Florida</i>		X
10627	1998	Eck, Christopher R. and Robert S. Carr	<i>An Archaeological Survey of the Hacienda Parcel, Broward County, Florida</i>		X
11530	2005	Archaeological Consultants	<i>Final Cultural Resource Assessment Survey Report, Widening of Florida's Turnpike from North of Johnson Street to Griffin Road, Broward County, Florida</i>		X
12275	2005	Janus Research	<i>Cultural Resource Assessment Survey and Desktop Analysis for the Fort Lauderdale-Hollywood International Airport, Broward County</i>		X
12945	2005	Janus Research	<i>Cultural Resource Assessment Survey I-595 (SR-862) Project Development & Environment Study FM No. 409354-1-22-01 FAP No. 5951 539 I From the I-75 Interchange West of 136 Avenue to the I-95 Interchange Broward County, Florida</i>		X

13095	2005	Janus Research	<i>Cultural Resource Assessment Survey of the SR91 Florida's Turnpike Widening - Griffin Road to HEFT (SR 821) and Atlantic Boulevard to West Hillsboro Boulevard Broward County, Florida</i>		X
12536	2006	Panamerican Consultants	<i>An Archaeological and Historical Survey of the Whale Harbor Tower in Broward County, Florida</i>		X
12553	2006	Panamerican Consultants	<i>An Archaeological and Historical Survey of the New River Tower in Broward County, Florida FCC Form 621</i>		X
17948	2006	Southeastern Archaeological Research, Inc.	<i>Cultural Resource Assessment Survey of State Road (SR) 7 from Lucky Street to SW 49th Court, Broward County, Florida</i>		X
13264	2006	Keel, Frank J.	<i>A Cultural Resources Assessment of the Proposed Stirling Road/Florida's Turnpike Interchange Project, Broward County, Florida</i>		X
14770	2007	Keel, Frank J.	<i>A Cultural Resources Assessment for Florida's Turnpike SunNav Southern Arterial Dynamic Sign Message (DMS) Project. Broward, Dade and Palm Beach Counties, Florida</i>		X
17225	2010	EnviroBusiness Inc.	<i>Submission Packet, FCC Form 620, for Proposed New Tower Project SW 26th Terrace, Dania Beach, Broward County, Florida 33312 6FB1195/Marina Mile Park</i>		X
18971	2012	Janus Research	<i>Cultural Resource Reconnaissance Survey of the I-595 Replacement Project, Broward County, Florida</i>		X
19754	2013	Janus Research	<i>Cultural Resource Assessment Survey SW30th Avenue from SR 818/Griffin Road to SW 45th Street, Dania Beach, Broward County, Florida</i>		X
20221	2013	Southeastern Archaeological Research	<i>Cultural Resource Assessment Survey of the Sterling Ranches Property, Broward County, Florida</i>		X
20299	2013	Archaeological and Historical Conservancy	<i>A Reconnaissance Cultural Resource Assessment of the FPL Fort Lauderdale Power Plant Repowering Project Parcel, Broward County, Florida</i>	X	
21126	2013	Janus Research	<i>CRAS Reevaluation of SR 862 (I-595) PD&E Study from the I-75 Interchange to the I-95 Interchange, Broward County, Florida</i>		X
21548	2014	Janus Research	<i>CRAS for Eight Potential Roadway Transfers from the FDOT, District 4, to Broward County: SR 824/Pembroke Road, SR 848 Stirling Road, Riverland Road, SR 736/Davie Boulevard, Las Olas Boulevard, SR 849/NE 31st Avenue, SR 844/NE 14th Street</i>		X
22382	2015	Janus Research	<i>Cultural Resource Assessment Survey Reevaluation off-6=595/I-95 Express Lanes Direct Connect, I-95 from Stirling Road to Broward Boulevard and I-595 from SR 7 to I-95, Broward County, Florida</i>		X
21503	2015	Janus Research	<i>Cultural Resource Assessment Survey Pond Apple Slough Mitigation Site, Broward County, Florida Financial Project ID #409354-3-52-01</i>		X
23604	2016	CARDNO Inc.	<i>Archaeological Survey of the Proposed 6FB1317M/FPL Playland Substation Cell Tower, Broward County, Florida</i>		X
Note: ¹ Based on sites within one mile of the survey area					



CULTURAL SUMMARY

The project area is located within the Glades archeological area, an area that encompasses the lower third of Florida. First classified by Stirling (1936:355) and later redefined by Goggin (1947:119) the Glades area includes all of tropical Florida. Goggin recognized three sub-areas: the Tequesta for southeast Florida, the Calusa for southwest Florida, and the Okeechobee for the area around Lake Okeechobee. These subdivisions have been questioned (Sears 1967; Griffin 1974). Sears (1974) had classified the area around Lake Okeechobee as the Belle Glade Area. The Calusa was re-named as the Caloosahatchee Area (Milanich and Fairbanks 1980), and the remaining southern portion has been designated as the Glades Area or according to Griffin (1974), the Circum-Glades Area. Griffin choose to classify southeastern Florida as the Circum-Glades Region because he contends that sites located within the interior are marginal hunting camps and that the term Glades focuses undue attention on “the sawgrass Glades as a center.” Carr and Beriault refer to this area as the Glades Area (Carr and Beriault 1984).

The New River and the adjacent barrier island is located approximately 35 miles north of the principal town of Tequesta, which was the political center for the Tequesta Indians during the sixteenth and seventeenth centuries. Archeological research and ethnographic accounts (i.e. Fontaneda 1944) indicate that the Tequesta Indians occupied an area from the Florida Keys northward to the vicinity of the Palm Beach County and Broward County line near present day Boca Raton.

PALEO-INDIAN PERIOD

Paleo-Indian sites are rare in southern Florida. Fragmentary human skeletons dating from 11,000 years ago were recovered from within Warm Mineral Springs in Sarasota County (Clausen et al. 1975). A late Paleo cemetery was documented in southeast Florida at the Cutler Fossil Site (Carr 1987, 2012). Limited test excavations of several sinkholes in south Miami-Dade County have recovered large quantities of bone of extinct Pleistocene fauna but most without cultural material (Ober 1978). It is also possible that Paleo sites are located offshore within the Atlantic Ocean (Cockrell 1978). Rising sea levels since Paleo-Indian times would have effectively inundated any coastal sites occupied during that period. The New River area may have Paleo-Indian sites located within any of the deeper sediments or solution holes that might exist there. Will (1965) reported such features based on soundings. However, the depth of these underwater features coupled with heavy silting would make any investigations difficult at best.

ARCHAIC PERIOD

Research at Little Salt Springs presents the best documented evidence of the Middle Archaic period within South Florida (Clausen et al. 1979). The discovery of a human cemetery dating from 4400 BC - 4900 BC at the Bay West nursery in Collier County indicates that Mid-Archaic Period cemeteries occur in South Florida (Beriault et al. 1981). Late Archaic sites occur through south Florida. Levels containing semi-fiber

tempered pottery occurring above a non-ceramic level dated to 3050 ± 140 BP have been reported at Peace Camp in Broward County (Mowers and Williams 1972). This date is several hundred years later than Cockrell's date for fiber tempered pottery at Key Marco (Cockrell 1970). Excavations of Everglades tree island middens in Miami-Dade County also have demonstrated Late Archaic period occupations associated with the 100-110 cm level of DA1043 that had a radiocarbon 14 date of 3945 ± 90 BP, and the 93-100 cm level of DA1057 that dated from 3770 ± 80 BP (Carr et al. 1979). Sixteen (out of a total of 24, 016) semi-fiber tempered sherds were recovered from the Peace Camp site in Broward County (Mowers and Williams, 1972: Table 1). No Archaic Period sites have been reported along the New River. Considering the paucity of archaeological research that has been conducted there, it is possible that future investigations will eventually uncover evidence of Late Archaic Period activities along the river.

GLADES PERIOD

By about 500 BC, the prehistoric cultural traits that were typical of the Native American's adaptation to South Florida had fully developed. Undoubtedly, the roots of these patterns were established during the earlier Archaic Period, but there is some indication that the Archaic Period tool assemblage may have been different in terms of certain tool types than those that were manufactured during the Glades Period. It is clear that by 500 BC, sand tempered pottery had replaced the fiber tempered and semi-fibered types.

Subsistence and technology during the Glades Period was defined by Goggin (1949:28) as the Glades tradition and was described as "based on the exploitation of the food resources of the tropical coastal waters, with secondary dependence on game and some use of wild food plants. Agriculture was apparently never practiced, but pottery was extensively used."

The Glades sequence was divided into a series of three periods based on ceramics by Goggin (1947:114-127). The Glades I Period, originally intended to be the period of undecorated sand tempered pottery, has been modified to include Ft. Drum decorated wares (Goggin 1950:63). The Glades I Period of undecorated pottery appears to date from 500 BC to 500 AD (Cockrell 1970). The Late Glades I Period is well represented within the New River area. Eight radiocarbon date determinations were made from the lowest eight arbitrary 10 cm levels of a test pit excavated at Site BD87. The four lowest cultural levels were situated upon sterile sand, and all four dates were statistically the same, having an average date of 1560 ± 40 BP, a date that coincides with the Late Glades I Period. No decorated pottery was recovered from the lowest levels of this test pit. A single sherd of Ft. Drum Incised, a marker type for the Late Glades I Period, was collected from construction spoil from across the river at site BD204.

The Glades II Period marks a time with increased decorated types. These types are markers for three subperiods within the Glades II Period, which dates from about 700 AD to 1200 AD. Decorated pottery types of this period include Key Largo Incised, Miami Incised, Plantation Pinched, and Opa Locka Incised. Two sherds of Opa Locka Incised

were recovered during a survey of the New River from sites BD87 and BD204. Also recovered from these sites were sherds of Belle Glade Plain pottery, apparently a trade ware from the Okeechobee area appearing during the Glades II period.

The Glades III Period, ranging from circa 1200 AD to the time of the end of Spanish contact, circa 1750 AD, has three decorated ceramic types: Surfside Incised, St. Johns Check Stamped, and Glades Tooled Rim. In addition, European wares occur reflecting the influence of European contact. The only evidence of the Glades III Period occupation in Broward County are several St. Johns Checked Stamped and St. Johns Plain pottery sherds that were collected from site BD203. This may reflect a sample bias due to the fact that Glades III Period material would be most recent and closest to the surface, and thus would be subject to considerable disturbances and removal by extensive modern development.

HISTORIC PERIOD

The earliest known historic document referring to the New River area is the French map, *Septemtrio America* of 1631, which depicts the “R. Nova” just north of the Bay of Biscayne. On the earlier Freducci map of 1514-1515, the geographer Cisco identifies the “Rio Salado” (Salty River) with the New River Inlet (True 1944). However, that interpretation cannot be certain because the Rio Raton (present day Oleta River) is situated along North Biscayne Bay and Snake Creek could have been the River Salado. The “R. Nuovo” is shown on an undated Dutch map of Florida and Cuba entitled “Pas Kaart Vande Norde Ooff Justvan Cuba en d’Ooft Kust van Florida”. The map is signed by the cartographer Van Kuelen who could be either Joannes Van Keulen (1654-1711) or his son, Joannes Van Keulen III (1676-1763). Although the exact identity of the cartographer is uncertain, comparisons between this map and other dated maps from the seventeenth century suggest the earlier Van Keulen. Despite the several attempts of placing Spanish missions at the mouth of the Miami River during the 16th through the 18th centuries, there is no mention within known accounts that indicate the Spaniards had ever visited the New River. Obviously, the Spanish must have known of the river because it is depicted on maps from as early as the 16th century. This knowledge may have resulted from Native American informants or from direct explorations, but until documents come to light indicating the source of the Spanish knowledge of this region, the earliest explorations of Europeans upon the New River remain a mystery. The discovery of a 16th century pile of conch shells at the Bonnett House is the only evidence uncovered thus far of early European contact in the New River area (Carr 1986).

The earliest Euro-American settlers along the New River were probably Bahamian “Conchs”, who began to settle Florida during the period of English rule of Florida between 1763 and 1783. Charles Lewis, arriving about 1789, is the earliest known Euro-American settler (Florida Title Company 1915). After the United States had taken possession of Florida in 1821, his wife, Frankee Lewis, petitioned the federal government for 640 acres of land as specified by the rules of the Donation Act of 1824. Her claim, based on demonstrating that she had either settled or cultivated the land prior to the American acquisition of Florida was successful and the land became known as the

“Frankie Lewis Donation.” This grant tract is now Section 11, Township 50 south, Range 42 east.

When Florida was returned to Spanish rule in 1783, the political loyalties of the Lewis family were of sufficient interest to Florida’s Spanish governor, Juan Nepomuceno de Quesada, that he ordered a covert information gathering expedition to the Lewis home in 1793 (Murdoch, 1952). In a report written by the governor’s “agent”, Sebastian Verezaluze, the Lewis homestead is described as consisting of a small house, a barn and/or a blacksmith shop, a chicken coop, and a 30 foot pier. The Lewises were not at home during the Spanish visit, but instead, Joseph Robbins, his wife, and child were living in the Lewis house. The Lewis plantation is described as being two miles further west. This means that the plantation was in the vicinity of the forks of the New River, probably along the northern bank.

Before the outbreak of the Second Seminole War there were reported to be as many as 60-70 people, including both Euro-Americans and enslaved African Americans, living on the New River (Kirk 1976:12). A study of Monroe County records by historian Arva Parks indicated that the depopulation of the New River caused many settlers to lose their land claims. Land rights were lost by William Cooley, Samuel Kemble, Edward Marr, Abraham Gallop, David Mellus, Joel Yancey Jr., David J. Williams, and Lewis F. Breaker (Bonawit 1980).

The area had gained a reputation for its beauty and richness, and it is not surprising that it had begun to attract a large number of new settlers. Steven R. Mallory, after staying on the New River in the 1830s, wrote a letter to Buckingham Smith in 1837 and reported the following:

In the neighborhood of New River, upon all its forks and branches, and between its two principal arms, there is much good land lying in small detached parcels and upon which tropical fruits will readily grow; the cocoanut, lemon, and lime have been successfully tried. This, just about New River, is a fine country for a man with small means, say three or four hands, who wished to be independent. The woods and streams abound with game and fish, frost is rarely seen, the county grows profusely...The most indolent man I ever knew prospered there (U.S. Senate 1911).

In 1823 William Cooley moved to the New River and occupied a plot of land, although he never laid claim to it. Cooley manufactured coontie starch, a major south Florida product during the early to mid-nineteenth century. The coontie plant, *Zamia integrifolia*, grew plentifully around the New River and after careful processing provided starch for the manufacture of bread and biscuits. Dr. Benjamin B. Strobel reported that Cooley had brought the coontie manufacturing process “to a great perfection”, processing as much as 450 pounds of starch daily (Hammond 1961). Cooley’s house was described as “twenty

feet by fifty feet, one story high, built of cypress logs, sealed and floored with 1 ½ - inch planks” (Kirk 1976:16). Cooley lived there with his wife and three children until 1836 when his family was killed by the Seminoles, and their home was burned. William Cooley was away during the incident, and he never resettled his homestead, although he continued to live in Florida. Cooley’s coontie mill was a structure of 27’ by 14’, and was attached to a fifty foot wharf. The machinery in the mill was not destroyed by the Indians in the first raid, but was destroyed at a later date. Cooley also describes his store as being destroyed, and it is not clear whether this refers to a store that conducted trade with the Indians and/or other settlers, or to the coontie factory. The location of the site of Cooley’s homestead has never been adequately established. Available archival information as reported by several historians (Kirk 1976:12; Weidling and Burghard 1966:5) suggests its location is on the north bank near the forks. This is contrary to the popular idea that the Cooley massacre occurred several miles to the east, at the present-day park known as Cooley’s Hammock, which is designated as the site of the massacre.

The Second Seminole War severely reduced the number of homesteads on the New River, and brought the inception of a military presence on the New River that lasted until the end of the Third Seminole Indian War in 1858. The first military contingent to arrive at the New River was Major William Lauderdale’s battalion of Tennessee Mounted Infantry on March 5, 1838. They constructed a blockhouse thirty feet square with a double tier for firing, and in April, constructed pickets 60 feet by 50 feet that were seven feet long, and sunk 1.5 feet into the ground. This fortification was named Ft. Lauderdale, and was situated on the north bank of the river one eighth of a mile above “Cooley’s patch” (Weidling and Burghard 1966:5).

A letter written on March 19 of that year by naval lieutenant L.M. Powell states: “This post is a good one-and I doubt not will be healthy-it commands the coontie grounds” (U.S. National Archives 1938). The fort was in use for about three months until the time that the Tennessee volunteers six month enlistment was over and they returned home. The abandoned fort was burned by the Indians some time between April 3, 1838 and February 14, 1839 when the second Fort Lauderdale was established several miles to the east along the north bank of the river.

A description of the second fort, complete with illustrations is provided in Dr. Hughes’ journal that he kept during his enlistment there (Camp 1978). The third Fort Lauderdale was constructed on the beach near the New River Inlet. It was occupied by September, 1839, and abandoned on February 15, 1842. The fort on Fort Lauderdale Beach, about one mile south of the project parcel, was briefly re-occupied during the Third Seminole War in 1856-57.

The most notable military action that occurred on the New River was the ambush of two soldiers and an African American interpreter in September, 1839, at the site of the first Fort Lauderdale (Kirk 1977). Other than this event, the area was quiet during the Seminole Wars, although the New River was an important access rout for military raids into the Everglades against the Indians.

It is not known when the Seminoles first arrived in the New River vicinity. Certainly they had camps along the river during the 1820s when Cooley lived there, but there is no documentation indicating what, if any, interaction these Indians had with the Lewis family or other Euro-Americans before and during that time period. After the cessation of hostilities the remaining Indians began to re-occupy villages and camps along the New River, and little history is recorded for the river from the years of the Civil War to the 1890s. Apparently settlers were scarce during this time, and the river was visited mainly by hunters and fishermen. J.A. Henshell wrote glowing accounts of the fishing there:

Rushing in and out with the tide, at New River, fishes can be seen by thousands, which snap at anything, even a bit of rag tied to the hook and thrown to them by a strong hand-line. We took crevall from ten to thirty pounds, always large one here, never less than ten pounds (Henshall 1884).

During this time period, two major government land surveys were completed of the river vicinity. In 1845 George McKay conducted a survey, and in 1870 M.A. Williams completed a similar survey. Both surveys identified the locations of the various fort sites of Fort Lauderdale. The Williams' map also shows the location of an "Indian camp", presumably Seminole, along the South Fork. Seminole camps were situated along the river throughout the late nineteenth century. Sturtevant (1956) reports that when the Seminole settlements on Pine Island dispersed near the turn of the century, some of the Indians resettled on the New River.

This second period of peaceful co-existence between Indians and Euro-American settlers was highlighted by extensive trade between the Seminoles and the Stranahan trading post that was located along the north bank of the river in what is now downtown Fort Lauderdale. Trade was conducted there from about 1893 through 1912 (Kersey 1975). However, by the mid-1920s the Florida boom accomplished what the soldiers during the Seminole Indian Wars could not: the permanent displacement of Seminoles from the New River. Roy Nash (1931) reports that pressure from land development caused some of the last remaining families, the Osceolas and the Tommies, to be crowded out of their Fort Lauderdale hammocks and into the Dania Reservation. The present day Seminole village on the South Fork visited by the Jungle Queen boat tour is a modern tourist attraction with no previous history as a Seminole campsite.

The Seminole Indian Wars caused an increase of public awareness about the nature of the Everglades. In 1847, Buckingham Smith was sent by the Secretary of the Treasury to secure "authentic information in relation to what are called the 'Ever Glade' on the peninsula of Florida," for the purpose of determining the expediency of drainage and reclamation of these wetlands for agriculture and settlements. In 1850 the federal government, under the Federal Swamp and Overflow Lands Act, deeded about twenty million acres of wetlands to the State of Florida to help promote drainage. In 1855, Florida's first official state agency, the Internal Improvement Trust Fund, was created to administer the Act. The agency had limited success in draining parts of South Florida through privately financed projects such as those of Hamilton Disston. It was not until

Napoleon Bonaparte Broward was elected governor in 1904 that drainage of the Everglades began to be fully realized. The governor initiated studies and surveys toward this goal and soon followed by expediting the dredging of canals from Lake Okeechobee to the Atlantic Ocean. With the channelization of the New River's most westerly portions of the South Fork into the South New River Canal and North New River Canal, Fort Lauderdale became an important center for the sale of vegetables and fish from the Lake Okeechobee vicinity.

The City of Fort Lauderdale was incorporated in 1911. A land boom grew around the railroad and the agricultural produce industry. By the 1920's, development had expanded eastward to the barrier island and to fill-covered mangrove islands.

The beach area was first platted into subdivisions and developed in the late 1920s. Several hotels were built in the 1930s and 1940s in Art Deco and Moderne styles. Some of these hotels were occupied by the U.S. armed forces during World War II. Postwar, business boomed as servicemen returned with their families. Fort Lauderdale became a popular destination for "spring breakers" during the 1960s through the 1990s. The cities of Dania, Dania Beach, Hollywood, and Hollywood Beach experienced growth from the early 1950s through the 1960s. Only limited areas of undeveloped land remain around Port Everglades/Hollywood Beach.

In 1927 General George Goethals, builder of the Panama Canal, was hired by Joseph W. Young, founder of the City of Hollywood, to design and construct Port Everglades on the site of Lake Mabel, a southern estuary of the New River Inlet. The port opened in 1931. The port was actively used during World War II to supply the Caribbean area and as an entry for military supplies. At the end of the war more than 800 ships were arriving at Port Everglades per year. With the post war boom in south Florida the port expanded and was used extensively both for shipping and as a passenger destination. By 2008, arrivals at Port Everglades and sister Port Dania numbered around 5000. Port Everglades has the deepest entrance channel in Florida and over five miles of navigable water, including Port Dania. It is the second largest non-refinery oil storage port in the United States.

FPL LAUDERDALE POWER PLANT HISTORY

FPL's roots go back to Thomas Edison and the General Electric Company. GE created EBASCO (Electric Bond and Share Co.), owner of the American Power & Light Company that held many utilities in the western hemisphere. American Power & Light created Florida Power & Light in 1925 to consolidate many smaller companies across Florida during the first Florida land boom. FPL weathered the Great Depression, expanded after World War II, and in 1950 was spun off as an independent company. Continuing to consolidate and diversify, FPL opened two nuclear power plants at Turkey Point south of Miami in 1973.

In response to a series of power failures and problems with its nuclear plants, FPL adopted a Japanese management style in the 1980s. In 1984 a holding company, FPL Group, Inc. was formed with FPL—by then the fourth largest electric utility in the

U.S.—as its primary subsidiary. In 1989 FPL Group became the first company outside Japan to receive the prestigious Deming Prize for quality control. In 2009 FPL Group became NextEra Energy, Inc. to reflect a reorientation toward renewable resources, with Florida Power & Light as one of its two subsidiaries. The other subsidiary, Nextera Energy Resources, operates wind and solar energy power plants in the U.S. and Canada.

Lauderdale was FPL's first power generation construction project, breaking ground on January 28, 1926. The plant used a steam powered turbine. The project parcel was redeveloped with gas turbines in 1972, with two steam turbines built in the 1950s still in use. The plant was modernized further in the 1990s.

METHODOLOGY

ARCHIVAL REVIEW

Prior to conducting the field assessment relevant archives and literature were reviewed. This included studying the previous cultural resource reports completed in the project area, reviewing information from the Master Site File in Tallahassee concerning nearby sites, and examining USGS maps of the project area. Color and black and white aerial photographs from the project area, which could aid in revealing anthropogenic changes to the topography were interpreted. A site search with the Florida Division of Historic Resources was completed to determine whether any previously recorded sites occur within and adjacent to the project parcel.

RESEARCH DESIGN

The archaeological portion of this assessment incorporated the use of certain predictive archaeological site models postulating that elevated cabbage palm and hardwood hammocks are areas of high probability for association with archaeological sites. It was determined that the project parcel had a low probability for archaeological sites because it is an area of remnant wetlands with no natural upland features.

The historical architectural assessment included a review of aerial photographs, site history, and a pedestrian survey by an architectural historian.

FIELDWORK

The project parcel was assessed and photo documented by pedestrian survey by an archaeologist and an architectural historian. No archaeological testing was conducted because of the deep fill covering the parcel.

COLLECTIONS

No cultural material was observed or collected during this assessment.

INFORMANTS

Tammy L. Richards, Senior Environmental Specialist for the FPL Lauderdale Power Plant, provided useful information on the power plant and its history. Ken Kosky, an engineering consultant to FPL, also provided information on the steam turbines.

SUMMARY OF SITES

Site Name:	Dania Cut-Off Canal
Site Number:	8BD3221
Location:	Township 50 South, Ranges 41, 42 East, Sections 25, 30
Environmental Setting:	Urban
Site Type:	Linear Resource
Site Function:	Canal
Description:	The resource is a 4.5 mile-long spur of the South New River Canal (8BD4153) branching off at SW 42nd Avenue north of Griffin Road in Dania Beach and flowing east to empty into the Intracoastal Waterway. Assessed was a segment extending from SW 42nd Avenue 3000 feet eastward, varying from 90 to 150 feet wide. The canal was built in 1913-1927 as part of the Everglades Drainage District. The canal has been repeatedly improved for boating access, re-dredged to 15 feet deep in 2013.
Chronology:	Historic: 20th century
Collections:	N/A
Ownership:	Federal
Preservation Quality:	Poor
Significance:	The resource was evaluated by SHPO in 1999 as ineligible for listing in the National Register of Historic Places because the historic context has been compromised and the original design modified. This segment of the canal manifests the same alterations.



Figure 17. 8BD3221, Dania Cut-Off Canal looking west toward junction with 8BD4253, South New River Canal, from bridge to main entrance.



Figure 18. 8BD3221 looking east from bridge; project parcel on left bank.



Figure 19. 8BD3221 looking southeast from central area of project parcel.

Site Name:	South New River Canal
Site Number:	8BD4153
Location:	Township 50 South, Ranges 41, 42 East, Sections 25, 30
Environmental Setting:	Urban
Site Type:	Linear Resource
Site Function:	Canal
Description:	Built in 1907-1915, the resource was one of six major canals dredged as part of the Everglades Drainage District. The 25 mile-long, 6+ feet-deep canal flows from Water Conservation Area 3A near Weston along the north side of Griffin Road eastward to Dania Beach, bending sharply to the north-northeast at SW 42nd Avenue (where the Dania Cut-Off Canal, 8BD3221, branches off and continues east) eventually to join the New River. The assessed segment begins at SW 42nd Avenue and extends north-northeast about 2000 feet. The canal varies from 60 to 150 feet wide along this segment, bordering the undeveloped easements of industrial properties. This segment of the canal has remained relatively unaltered since the mid-1920s.
Chronology:	Historic: 20 th century
Collections:	N/A
Ownership:	Federal
Preservation Quality:	Good
Significance:	The resource was evaluated by SHPO as potentially eligible for listing on the National Register of Historic Places in the areas of engineering, transportation, agriculture, and commerce, based on criterion A, as one of six primary canals associated with the Everglades drainage project.



Figure 20. 8BD4153 South New River Canal looking north midway along project parcel border.



Figure 21. 8BD4153 looking south midway along project parcel border.



Figure 22. 8BD4153 view south of brick house remains.

Site Name:	Steam Turbine Units 4 and 5
Site Number:	8BD6078
Location:	Township 50 South, Range 42 East, Section 30
Environmental Setting:	Urban
Site Type:	Structure
Site Function:	Industrial: electric power generation
Description:	The last remaining steam turbines in use at the FPL Lauderdale site, this pair was installed in the 1950s, and were adapted for reuse in successive modifications to power generating equipment as the facility modernized from the 1950s through the 1990s.
Chronology:	Historic: mid 20 th century, post World War II
Collections:	None
Ownership:	Private
Preservation Quality:	Good
Significance:	Based on available data the resource is not considered potentially eligible for listing in the National Register of Historic Places due to its relatively common form and excessive alterations including a major modification in the 1990s.



Figure 23. 8BD6078, Steam Turbine Units 4 and 5, looking south.



Figure 24. 8BD6078 looking west, buried in equipment, barely visible.



Figure 25. 8BD9078 looking east.

RESULTS AND RECOMMENDATIONS

In June, 2017, the Archaeological and Historical Conservancy completed a cultural resource assessment of a proposed repowering project located within the project parcel: the FPL Lauderdale Site. The parcel is partially developed with an existing power generation facility. Most of the vacant portions of the parcel are low remnant wetlands without adjacent uplands. The parcel is considered a low probability area for archaeological sites.

It is the consultant's opinion based on available data that the project parcel has a negative probability for significant archaeological resources because of extensive disturbance and the parcel's historical association with wetlands and the absence of hammock islands. All of the area to be affected by development, the ADI, is covered by several meters of limerock fill.

Two previously recorded linear resources, 8BD3221 and 8BD4153, the Dania Cut-Off Canal and the South New River Canal, occur adjacent to the parcel's southern and eastern borders; the segments of these resources adjacent within the APE were newly recorded in this assessment. One historic structure occurs within the APE: a pair of steam turbines constructed ca. 1950, newly recorded for this assessment as 8BD6078.

8BD3221 was evaluated by the State Historic Preservation Officer (SHPO) in 1999 as not eligible for listing in the NHRP because the historic context has been compromised and the original design modified. This newly recorded segment of the canal manifests the same alterations. 8BD4153 was evaluated by SHPO in 2004 as potentially eligible for listing in the NRHP in the areas of engineering, transportation, agriculture, and commerce, based on criterion A, as one of six primary canals associated with the Everglades drainage project. Comparing the newly recorded segment to archival aerial photos, it appears to be relatively unchanged since at least the 1920s.

In the consultant's opinion, the newly assessed segment of 8BD3221 is not eligible for listing based on its alterations, while that of 8BD4153 retains its potential eligibility based on criterion A and the retention of its historical integrity. It is the consultant's opinion that 8BD6078 is not eligible for listing in the NRHP due to its relatively common form and excessive alterations into modern times. While the locations nearly coincide, the proposed facility is more compact and less obtrusive than the existing facility it replaces (Figures 3, 4), and it is the consultant's opinion that the proposed project will not affect the historical integrity of 8BD4153.

It is the consultant's opinion, based on available data, that no historic properties will be affected by the proposed FPL Dania Beach Clean Energy Center redevelopment project.

In the unlikely event that development there uncovers human remains then the provisions of Florida Statute 872.05, the unmarked human burials act, will prevail.

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APPENDIX I: FLORIDA SURVEY LOG

Ent D (FMSF only) _____



Survey Log Sheet

Florida Master Site File
Version 4.1 1/07

Survey # (FMSF only) _____

Consult *Guide to the Survey Log Sheet* for detailed instructions.

Identification and Bibliographic Information

Survey Project (name and project phase) FPL Dania Beach Cultural Resource Assessment

Report Title (exactly as on title page) A Cultural Resource Assessment of the FPL Dania Beach Clean Energy Center Project Parcel, Broward County, Florida

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2. Harrington, Timothy A. 4. _____

Publication Date (year) 2017 Total Number of Pages in Report (count text, figures, tables, not site forms) 44

Publication Information (Give series, number in series, publisher and city. For article or chapter, cite page numbers. Use the style of *American Antiquity*.)
AHC Technical Report #1159

Supervisors of Fieldwork (even if same as author) Names Carr, Robert S.

Affiliation of Fieldworkers: Organization Archaeological and Historical Conservancy, Inc. City Davie, Florida

Key Words/Phrases (Don't use county name, or common words like *archaeology, structure, survey, architecture, etc.*)

1. Fort Lauderdale 3. New River 5. _____ 7. _____
2. Dania Beach 4. _____ 6. _____ 8. _____

Survey Sponsors (corporation, government unit, organization or person directly funding fieldwork)

Name _____ Organization _____

Address/Phone/E-mail _____

Recorder of Log Sheet Carr, Robert S. Date Log Sheet Completed _____

Is this survey or project a continuation of a previous project? ☐ No ☐ Yes: Previous survey #s (FMSF only)

Mapping

Counties (List each one in which field survey was done; attach additional sheet if necessary)

1. Broward 3. _____ 5. _____
2. _____ 4. _____ 6. _____

USGS 1:24,000 Map Names/Year of Latest Revision (attach additional sheet if necessary)

1. Name FORT LAUDERDALE SOUTH Year 1994 4. Name _____ Year _____
2. Name _____ Year _____ 5. Name _____ Year _____
3. Name _____ Year _____ 6. Name _____ Year _____

Description of Survey Area

Dates for Fieldwork: Start 6-16-17 End 6-30-2017 Total Area Surveyed (fill in one) _____ hectares 420 acres

Number of Distinct Tracts or Areas Surveyed _____

If Corridor (fill in one for each) Width: _____ meters _____ feet Length: _____ kilometers _____ miles

Research and Field Methods

Types of Survey (check all that apply): ☒ archaeological ☒ architectural ☒ historical/archival ☐ underwater
☐ damage assessment ☐ monitoring report ☐ other(describe): _____

Scope/Intensity/Procedures Pedestrian survey

Preliminary Methods (check as many as apply to the project as a whole)

☐ Florida Archives (Gray Building) ☐ library research- *local public* ☒ local property or tax records ☐ other historic maps
☐ Florida Photo Archives (Gray Building) ☐ library-special collection - *nonlocal* ☐ newspaper files ☒ soils maps or data
☒ Site File property search ☐ Public Lands Survey (maps at DEP) ☒ literature search ☐ windshield survey
☒ Site File survey search ☒ local informant(s) ☐ Sanborn Insurance maps ☒ aerial photography
☐ other (describe): _____

Archaeological Methods (check as many as apply to the project as a whole)

☐ Check here if **NO** archaeological methods were used.
☐ surface collection, controlled ☐ shovel test-other screen size ☐ block excavation (at least 2x2 m)
☐ surface collection, uncontrolled ☐ water screen ☐ soil resistivity
☐ shovel test-1/4" screen ☐ posthole tests ☐ magnetometer
☐ shovel test-1/8" screen ☐ auger tests ☐ side scan sonar
☐ shovel test 1/16" screen ☐ coring ☒ pedestrian survey
☐ shovel test-unscreened ☐ test excavation (at least 1x2 m) ☐ unknown
☐ other (describe): _____

Historical/Architectural Methods (check as many as apply to the project as a whole)

☐ Check here if **NO** historical/architectural methods were used.
☐ building permits ☐ demolition permits ☐ neighbor interview ☐ subdivision maps
☐ commercial permits ☒ exposed ground inspected ☒ occupant interview ☐ tax records
☐ interior documentation ☒ local property records ☐ occupation permits ☐ unknown
☐ other (describe): _____

Survey Results (cultural resources recorded)

Site Significance Evaluated? ☒ Yes ☐ No

Count of Previously Recorded Sites 2 Count of Newly Recorded Sites 1

Previously Recorded Site #'s with Site File Update Forms (List site #'s without "8". Attach additional pages if necessary.) BD3221, BD4153

Newly Recorded Site #'s (Are all originals and not updates? List site #'s without "8". Attach additional pages if necessary.) BD6078

Site Forms Used: ☐ Site File Paper Form ☒ Site File Electronic Recording Form

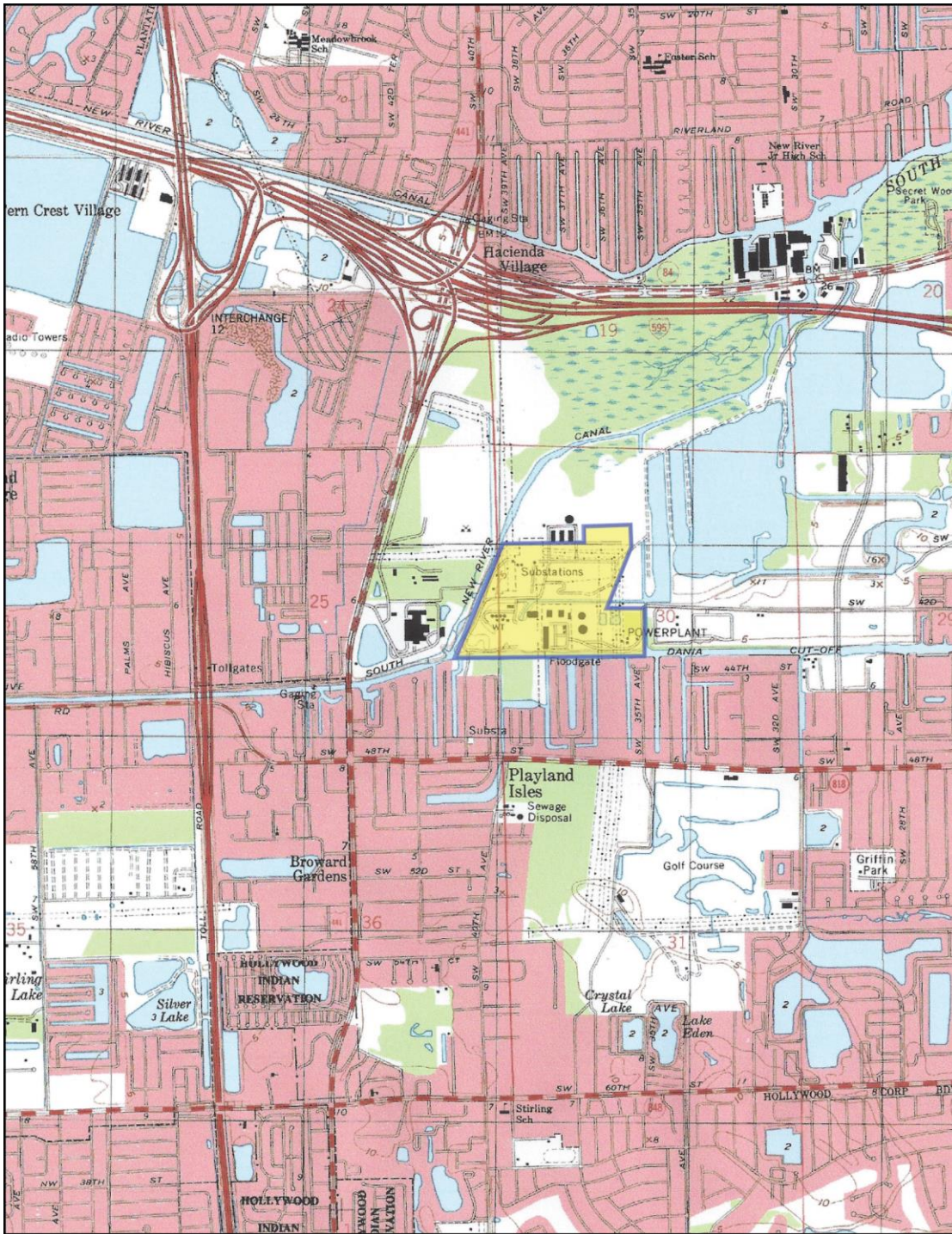
*****REQUIRED: ATTACH PLOT OF SURVEY AREA ON PHOTOCOPY OF USGS 1:24,000 MAP(S)*****

SHPO USE ONLY

SHPO USE ONLY

SHPO USE ONLY

Origin of Report: ☐ 872 ☐ CARL ☐ UW ☐ 1A32 # _____ ☐ Academic ☐ Contract ☐ Avocational
☐ Grant Project # _____ ☐ Compliance Review: CRAT # _____
Type of Document: ☐ Archaeological Survey ☐ Historical/Architectural Survey ☐ Marine Survey ☐ Cell Tower CRAS ☐ Monitoring Report
☐ Overview ☐ Excavation Report ☐ Multi-Site Excavation Report ☐ Structure Detailed Report ☐ Library, Hist. or Archival Doc
☐ MPS ☐ MRA ☐ TG ☐ Other: _____
Document Destination: _____ Plotability: _____



USGS map of the FPL Dania Beach Energy Center project parcel.

 = AREA OF POTENTIAL EFFECT (APE)

TOWNSHIP 50S, RANGE 41E, SECTION 25
TOWNSHIP 50S, RANGE 42E, SECTION 30
USGS Map: FORT LAUDERDALE SOUTH, REV. 1994



0 1/8 1/4 1/2 Mile approx.
0 .2 .4 8 Km. approx.

**APPENDIX II: FLORIDA SITE FORMS – 8BD3221, 8BD4153
8BD60781**

☐ Original
☒ Update



RESOURCE GROUP FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 BD03221
 Field Date 6-28-17
 Form Date 6-28-17
 Recorder# _____

NOTE: Use this form to document districts, landscapes, building complexes and linear resources as described in the box below. Cultural resources contributing to the Resource Group should also be documented individually at the Site File. **Do not use this form for National Register multiple property submissions (MPSs).** National Register MPSs are treated as Site File manuscripts and are associated to the individual resources included under the MPS cover using the Site File manuscript number.

Check ONE box that best describes the Resource Group:

- ☐ **Historic district** (NR category "district"): buildings and NR structures only: NO archaeological sites
- ☐ **Archaeological district** (NR category "district"): archaeological sites only: NO buildings or NR structures
- ☐ **Mixed district** (NR category "district"): includes more than one type of cultural resource (example: archaeological sites and buildings)
- ☐ **Building complex** (NR category usually "building(s)"): multiple buildings in close spatial and functional association
- ☐ **Designed historic landscape** (NR category usually "district" or "site"): can include multiple resources (see *National Register Bulletin #18*, page 2 for more detailed definition and examples: e.g. parks, golf courses, campuses, resorts, etc.)
- ☐ **Rural historic landscape** (NR category usually "district" or "site"): can include multiple resources and resources not formally designed (see *National Register Bulletin #30, Guidelines for Evaluating and Documenting Rural Historic Landscapes* for more detailed definition and examples: e.g. farmsteads, fish camps, lumber camps, traditional ceremonial sites, etc.)
- ☒ **Linear resource** (NR category usually "structure"): Linear resources are a special type of rural historic landscape and can include canals, railways, roads, etc.

Resource Group Name Dania Cut-Off Canal Multiple Listing [DHR only] _____
 Project Name CRAS FPL Dania Bch Energy Center FMSF Survey # _____
 National Register Category (please check one): ☐ building(s) ☐ structure ☐ district ☐ site ☐ object
 Linear Resource Type (if applicable): ☒ canal ☐ railway ☐ road ☐ other (describe): _____
 Ownership: ☐ private-profit ☐ private-nonprofit ☐ private-individual ☐ private-nonspecific ☐ city ☐ county ☐ state ☒ federal ☐ Native American ☐ foreign ☐ unknown

LOCATION & MAPPING

Address: Street Number Direction Street Name Street Type Suffix Direction
 City/Town (within 3 miles) Dania Beach In Current City Limits? ☒ yes ☐ no ☐ unknown
 County or Counties (do not abbreviate) Broward
 Name of Public Tract (e.g., park) _____
 1) Township 50S Range 41E Section 25 ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE Irregular-name: _____
 2) Township 50S Range 42E Section 30 ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE
 3) Township _____ Range _____ Section _____ ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE
 4) Township _____ Range _____ Section _____ ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE
 USGS 7.5' Map(s) 1) Name FORT LAUDERDALE SOUTH USGS Date 1994
 2) Name _____ USGS Date _____
 Plat, Aerial, or Other Map (map's name, originating office with location) _____
 Landgrant _____
 Verbal Description of Boundaries (description does not replace required map) Assessed segment extends about 3000' along S border of FPL Lauderdale plant & N bank of residential lots from approx SW 42 Ave eastward to approx SW 35 Ave.

DHR USE ONLY

OFFICIAL EVALUATION

DHR USE ONLY

NR List Date _____	SHPO – Appears to meet criteria for NR listing: ☐ yes ☐ no ☐ insufficient info	Date _____	Init. _____
☐ Owner Objection	KEEPER – Determined eligible: ☐ yes ☐ no	Date _____	
	NR Criteria for Evaluation: ☐ a ☐ b ☐ c ☐ d (see <i>National Register Bulletin 15</i> , p. 2)		

HISTORY & DESCRIPTIONConstruction Year: 1913 ☐ approximately ☐ year listed or earlier ☒ year listed or later

Architect/Designer(last name first): _____ Builder(last name first): _____

Total number of individual resources included in this Resource Group: # of contributing 1 # of non-contributing _____Time period(s) of significance (choose a period from the list or type in date range(s), e.g. *1895-1925*)1. American 1821-present

3. _____

2. _____

4. _____

Narrative Description (*National Register Bulletin 16A* pp. 33-34; fit a summary into 3 lines or attach supplementary sheets if needed) Built 1913-1927 as part of Everglades Drainage District, begins as spur off S New River Canal at SW 42 Ave, runs east emptying into Intracoastal. 90-150' wide, recently dredged to 15' (2013), canal is grassy-banked interspersed w shipyards & marinas.

RESEARCH METHODS (check all that apply)☒ FMSF record search (sites/surveys)☐ library research☐ building permits☐ Sanborn maps☐ FL State Archives/photo collection☐ city directory☐ occupant/owner interview☐ plat maps☒ property appraiser / tax records☒ newspaper files☐ neighbor interview☐ Public Lands Survey (DEP)☒ cultural resource survey☐ historic photos☐ interior inspection☐ HABS/HAER record search☐ other methods (specify) _____Bibliographic References (give FMSF Manuscript # if relevant) AHC Technical Report #1159, FMSF survey #s 5844, 10176, 12275, 18932, 20575**OPINION OF RESOURCE SIGNIFICANCE**Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient informationPotentially eligible as contributor to a National Register district? ☐ yes ☒ no ☐ insufficient informationExplanation of Evaluation (required, see *National Register Bulletin 16A* p. 48-49. Attach longer statement, if needed, on separate sheet.) Evaluated by SHPO in 1999 as ineligible due to alterations which continue to modern period.Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)1. Community planning & development

3. _____

5. _____

2. Transportation

4. _____

6. _____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

1) Document type All materials at one locationMaintaining organization Archaeological and Historical Conservancy, Inc.Document description Field notes, maps, photosFile or accession #'s 2017.105

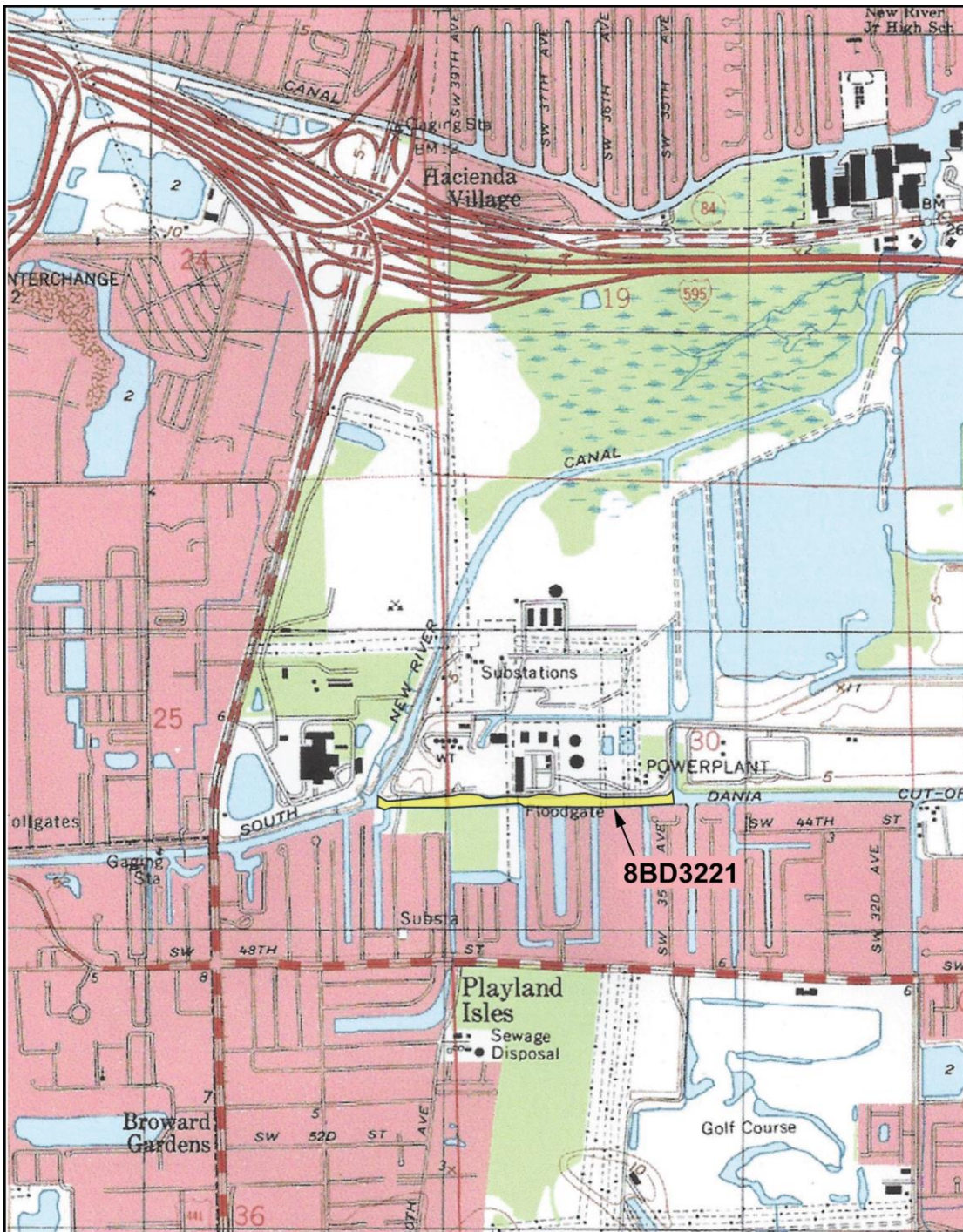
2) Document type _____

Maintaining organization _____

Document description _____

File or accession #'s _____

RECORDER INFORMATIONRecorder Name Harrington, Timothy AAffiliation Archaeological and Historical Conservancy, Inc.Recorder Contact Information 4800 SW 64 Ave Ste 107 Davie FL 33314 archlgcl@bellsouth.net (954) 792-9776/9954
(address / phone / fax / e-mail)**Required Attachments****① PHOTOCOPY OF USGS 7.5' MAP WITH DISTRICT BOUNDARY CLEARLY MARKED****② LARGE SCALE STREET, PLAT OR PARCEL MAP WITH RESOURCES MAPPED & LABELED****③ TABULATION OF ALL INCLUDED RESOURCES** (name, FMSF #, contributing? Y/N, resource category, street address or township-range-section if no address)**④ PHOTOS OF GENERAL STREETSCAPE OR VIEWS** (Optional: aerial photos, views of typical resources)Photos may be archival B&W prints OR digital image files. If submitting digital image files, they must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital images must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.



USGS map of the Dania Cut-Off Canal 8BD3221.

 = BD3221 (SEGMENT ASSESSED JUNE 2017)

TOWNSHIP 50S, RANGE 42E, SECTION 30

USGS MAP: FORT LAUDERDALE SOUTH, REV. 1994





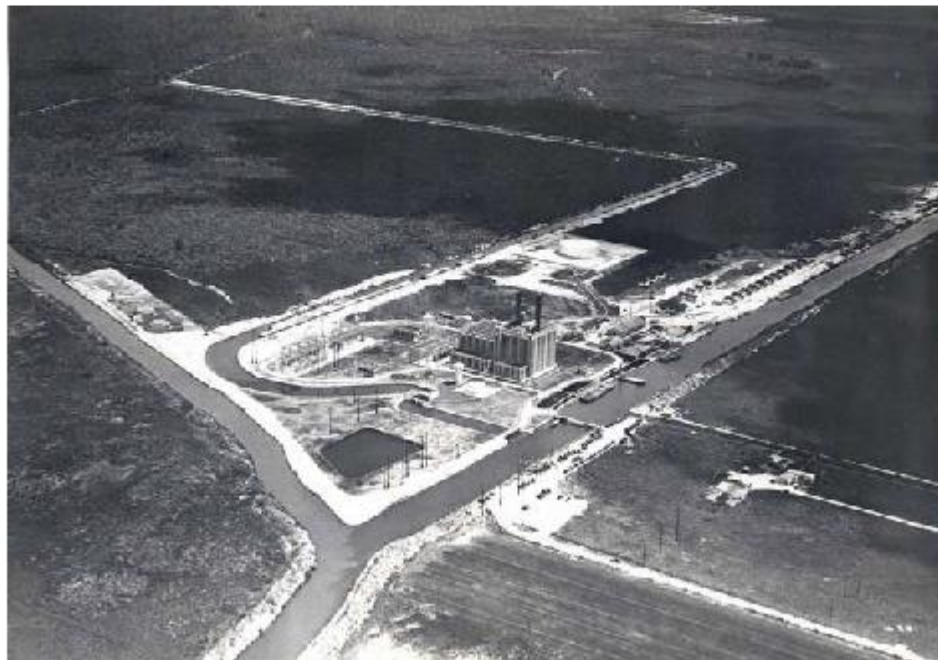
BD3221 Dania Cut-Off Canal looking west from bridge at end of SW 42nd Avenue (entrance to FPL Lauderdale at southwest corner of property) toward junction with BD4153, South New River Canal, 6/28/17.



BD3221 looking east from bridge at entrance to FPL Lauderdale, 6/28/17.



BD 3221 looking southeast from midway along south border of FPL Lauderdale, 6/30/17.



1926 aerial photograph looking northeast. BD3221 flows east branching off from BD4153 which flows east to turn north-northeast at junction. Photo shows FPL Lauderdale newly constructed.

☐ Original
☒ Update



RESOURCE GROUP FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 BD04153
 Field Date 6-28-17
 Form Date 6-28-17
 Recorder# _____

NOTE: Use this form to document districts, landscapes, building complexes and linear resources as described in the box below. Cultural resources contributing to the Resource Group should also be documented individually at the Site File. **Do not use this form for National Register multiple property submissions (MPSs).** National Register MPSs are treated as Site File manuscripts and are associated to the individual resources included under the MPS cover using the Site File manuscript number.

Check ONE box that best describes the Resource Group:

- ☐ **Historic district** (NR category "district"): buildings and NR structures only: NO archaeological sites
- ☐ **Archaeological district** (NR category "district"): archaeological sites only: NO buildings or NR structures
- ☐ **Mixed district** (NR category "district"): includes more than one type of cultural resource (example: archaeological sites and buildings)
- ☐ **Building complex** (NR category usually "building(s)"): multiple buildings in close spatial and functional association
- ☐ **Designed historic landscape** (NR category usually "district" or "site"): can include multiple resources (see *National Register Bulletin #18*, page 2 for more detailed definition and examples: e.g. parks, golf courses, campuses, resorts, etc.)
- ☐ **Rural historic landscape** (NR category usually "district" or "site"): can include multiple resources and resources not formally designed (see *National Register Bulletin #30, Guidelines for Evaluating and Documenting Rural Historic Landscapes* for more detailed definition and examples: e.g. farmsteads, fish camps, lumber camps, traditional ceremonial sites, etc.)
- ☒ **Linear resource** (NR category usually "structure"): Linear resources are a special type of rural historic landscape and can include canals, railways, roads, etc.

Resource Group Name South New River Canal Multiple Listing [DHR only] _____
 Project Name CRAS FPL Dania Bch Energy Center FMSF Survey # _____
 National Register Category (please check one): ☐ building(s) ☐ structure ☐ district ☐ site ☐ object
 Linear Resource Type (if applicable): ☒ canal ☐ railway ☐ road ☐ other (describe): _____
 Ownership: ☐ private-profit ☐ private-nonprofit ☐ private-individual ☐ private-nonspecific ☐ city ☐ county ☐ state ☐ federal ☐ Native American ☐ foreign ☐ unknown

LOCATION & MAPPING

Address: Street Number Direction Street Name Street Type Suffix Direction
 City/Town (within 3 miles) Dania Beach In Current City Limits? ☒ yes ☐ no ☐ unknown
 County or Counties (do not abbreviate) Broward
 Name of Public Tract (e.g., park) _____
 1) Township 50S Range 41E Section 25 ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE Irregular-name: _____
 2) Township 50S Range 42E Section 30 ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE
 3) Township _____ Range _____ Section _____ ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE
 4) Township _____ Range _____ Section _____ ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE
 USGS 7.5' Map(s) 1) Name _____ USGS Date _____
 2) Name _____ USGS Date _____
 Plat, Aerial, or Other Map (map's name, originating office with location) _____
 Landgrant _____
 Verbal Description of Boundaries (description does not replace required map) Assessed segment extends from bridge that crosses canal leading to FPL Lauderdale plant at SW 42 Ave about 2000' north-northwestward along FPL border (to E) and undeveloped buffer bordering industrial properties (to W).

DHR USE ONLY

OFFICIAL EVALUATION

DHR USE ONLY

NR List Date _____	SHPO – Appears to meet criteria for NR listing: ☐ yes ☐ no ☐ insufficient info	Date _____	Init. _____
☐ Owner Objection	KEEPER – Determined eligible: ☐ yes ☐ no	Date _____	
	NR Criteria for Evaluation: ☐ a ☐ b ☐ c ☐ d (see <i>National Register Bulletin 15</i> , p. 2)		

HISTORY & DESCRIPTIONConstruction Year: 1907 ☐ approximately ☐ year listed or earlier ☐ year listed or later

Architect/Designer(last name first): _____ Builder(last name first): _____

Total number of individual resources included in this Resource Group: # of contributing _____ # of non-contributing _____

Time period(s) of significance (choose a period from the list or type in date range(s), e.g. 1895-1925)

1. American 1821-present

3. _____

2. _____

4. _____

Narrative Description (*National Register Bulletin 16A* pp. 33-34; fit a summary into 3 lines or attach supplementary sheets if needed) Built 1907-1915 as part of Everglades Drainage District, C-11 flows 25 mi, 6+' deep, from WCA 3A thru Weston along Griffin Rd to Dania Bch & N to New River. Assessed part, 60-150' wide x 2000' long, was left in relatively natural state since 1920s.

RESEARCH METHODS (check all that apply)☒ FMSF record search (sites/surveys)☐ library research☐ building permits☐ Sanborn maps☐ FL State Archives/photo collection☐ city directory☐ occupant/owner interview☐ plat maps☒ property appraiser / tax records☐ newspaper files☐ neighbor interview☐ Public Lands Survey (DEP)☒ cultural resource survey☒ historic photos☐ interior inspection☐ HABS/HAER record search☒ other methods (specify) Pedestrian surveyBibliographic References (give FMSF Manuscript # if relevant) AHC Technical Report #1159, FMSF survey #s 11530, 14306, 18165, 18295, 20328, 21503**OPINION OF RESOURCE SIGNIFICANCE**

Potentially eligible individually for National Register of Historic Places?

☒ yes☐ no☐ insufficient information

Potentially eligible as contributor to a National Register district?

☐ yes☒ no☐ insufficient informationExplanation of Evaluation (required, see *National Register Bulletin 16A* p. 48-49. Attach longer statement, if needed, on separate sheet.) Evaluated by SHPO as eligible under Criterion C in 2004, assessed segment remains largely unaltered.Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)1. Community planning & development

3. _____

5. _____

2. Transportation

4. _____

6. _____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

1) Document type All materials at one locationMaintaining organization Archaeological and Historical Conservancy, Inc.Document description Field notes, maps, photosFile or accession #'s 2017.105

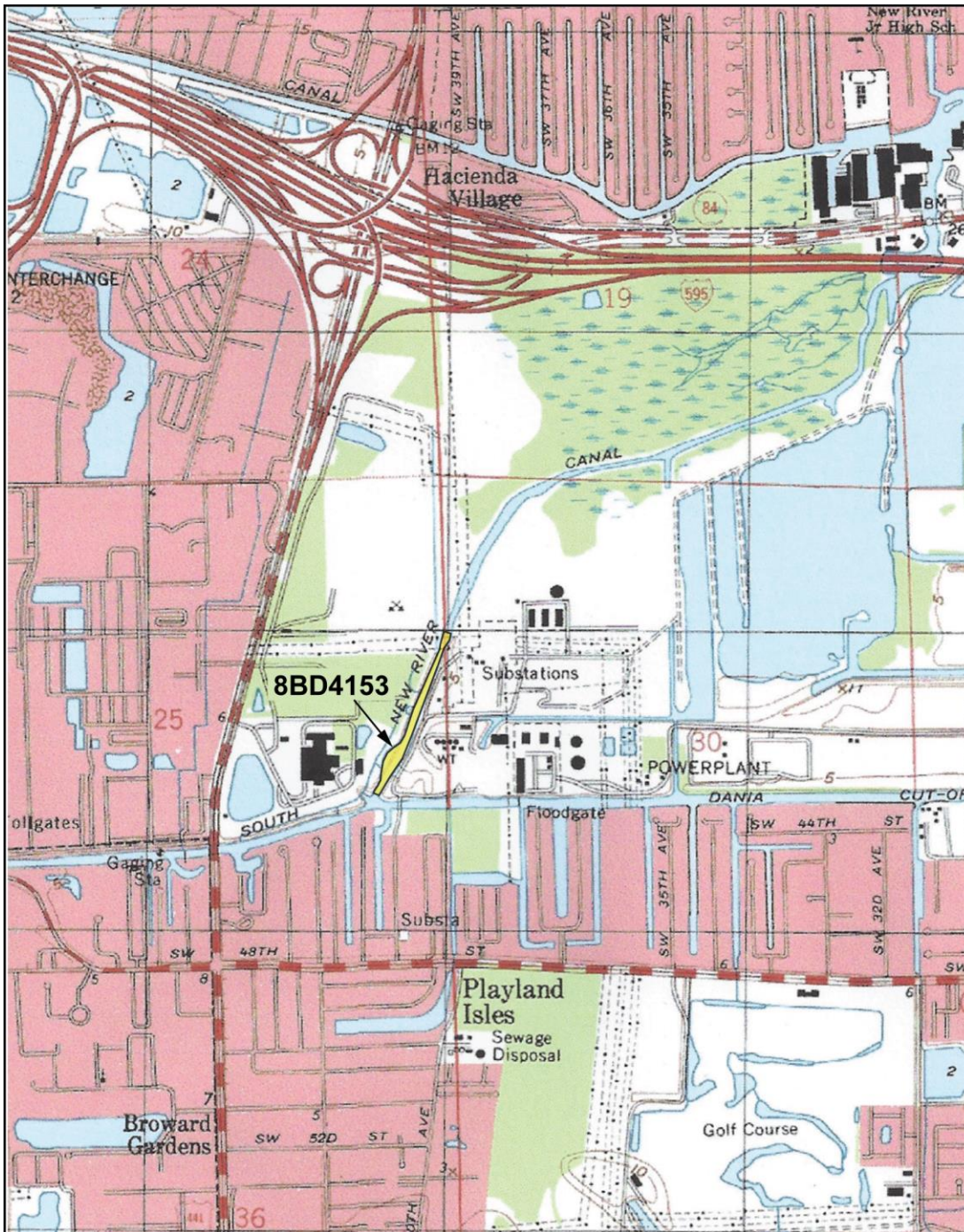
2) Document type _____

Maintaining organization _____

Document description _____

File or accession #'s _____

RECORDER INFORMATIONRecorder Name Harrington, Timothy AAffiliation Archaeological and Historical Conservancy, Inc.Recorder Contact Information 4800 SW 64 Ave Ste 107 Davie FL 33314 archlgcl@bellsouth.net (954) 792-9776/9954
(address / phone / fax / e-mail)**Required Attachments****① PHOTOCOPY OF USGS 7.5' MAP WITH DISTRICT BOUNDARY CLEARLY MARKED****② LARGE SCALE STREET, PLAT OR PARCEL MAP WITH RESOURCES MAPPED & LABELED****③ TABULATION OF ALL INCLUDED RESOURCES** (name, FMSF #, contributing? Y/N, resource category, street address or township-range-section if no address)**④ PHOTOS OF GENERAL STREETSCAPE OR VIEWS** (Optional: aerial photos, views of typical resources)Photos may be archival B&W prints OR digital image files. If submitting digital image files, they must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital images must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.



USGS map of the South New River Canal 8BD4153.

 = 8BD4153 (SEGMENT ASSESSED JUNE 2017)

TOWNSHIP 50S, RANGE 42E, SECTION 30

USGS MAP: FORT LAUDERDALE SOUTH, REV. 1994





BD4153 South New River Canal (background, flowing east and turning north-northeast) looking west along BD3221, Dania Cut-Off Canal (foreground flowing east), taken from bridge at southwestern corner of FPL Lauderdale property, 6/28/17.



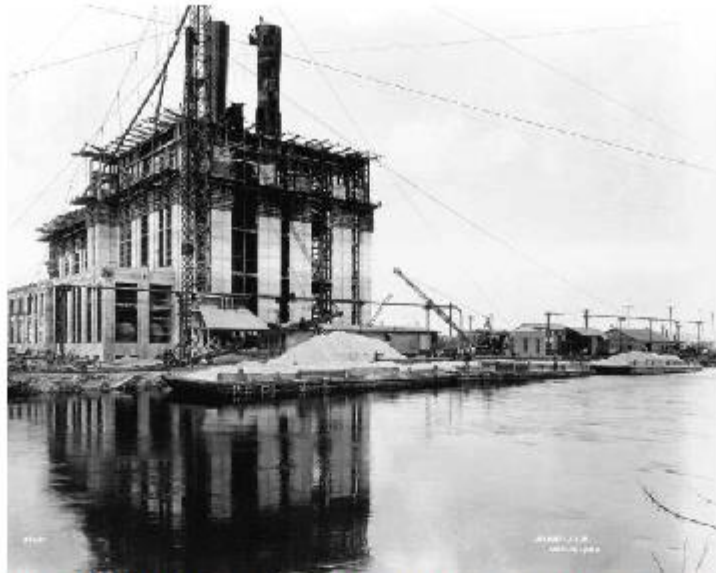
BD4153 looking north-northeast midway along east border of FPL Lauderdale property, 6/30/17.



BD4153 looking southwest from midway along east border of FPL Lauderdale property, 6/30/17.



Brick chimney remains from demolished house along eastern bank of BD4153, view southwest from midway along east border of FPL Lauderdale property, 6/30/17.



FPL Lauderdale Power Plant nearing completion in 1926, looking north with BD3221, Dania Cut-Off Canal, in foreground (photo: FPL archives.)



Aerial view looking east of 1926 flood with FPL Lauderdale newly constructed. BD4153 turns north where BD3221 cuts off to the east. The Dania Cut-Off Canal was the primary conveyance for supplies during construction of the power plant, leaving the main canal relatively untouched (photo: FPL archives).

☒ Original
☐ Update



HISTORICAL STRUCTURE FORM

FLORIDA MASTER SITE FILE

Version 4.0 1/07

Site #8 **BD06078**
 Field Date 6-16-2017
 Form Date 7-5-2017
 Recorder # _____

Shaded Fields represent the minimum acceptable level of documentation.
 Consult the *Guide to Historical Structure Forms* for detailed instructions.

Site Name(s) (address if none) Steam Turbine Units 4 & 5 Multiple Listing (DHR only) _____
 Survey Project Name CRAS FPL Dania Beach Energy Ctr Survey # (DHR only) _____
 National Register Category (please check one) ☐ building ☒ structure ☐ district ☐ site ☐ object
 Ownership: ☒ private-profit ☐ private-nonprofit ☐ private-individual ☐ private-nonspecific ☐ city ☐ county ☐ state ☐ federal ☐ Native American ☐ foreign ☐ unknown

LOCATION & MAPPING

Street Number 3801 Direction SW Street Name 43 Street Type Court Suffix Direction _____
 Address: _____
 Cross Streets (nearest / between) _____
 USGS 7.5 Map Name FORT LAUDERDALE SOUTH USGS Date 1994 Plat or Other Map _____
 City / Town (within 3 miles) Dania Beach In City Limits? ☒ yes ☐ no ☐ unknown County Broward
 Township _____ Range _____ Section _____ ¼ section: ☐ NW ☐ SW ☐ SE ☐ NE Irregular-name: _____
 Tax Parcel # 5042-30-00-0053 Landgrant _____
 Subdivision Name _____ Block _____ Lot _____
 UTM Coordinates: Zone ☐ 16 ☐ 17 Easting ☐ ☐ ☐ ☐ ☐ ☐ Northing ☐ ☐ ☐ ☐ ☐ ☐
 Other Coordinates: X: _____ Y: _____ Coordinate System & Datum _____
 Name of Public Tract (e.g., park) _____

HISTORY

Construction Year: 1950 ☐ approximately ☐ year listed or earlier ☒ year listed or later
 Original Use Electrical plant From (year): 1950 To (year): 2017
 Current Use Electrical plant From (year): _____ To (year): _____
 Other Use _____ From (year): _____ To (year): _____
 Moves: ☐ yes ☐ no ☒ unknown Date: _____ Original address _____
 Alterations: ☐ yes ☐ no ☒ unknown Date: _____ Nature _____
 Additions: ☐ yes ☐ no ☒ unknown Date: _____ Nature _____
 Architect (last name first): _____ Builder (last name first): _____
 Ownership History (especially original owner, dates, profession, etc.) Florida Power and Light Company

Is the Resource Affected by a Local Preservation Ordinance? ☒ yes ☐ no ☐ unknown Describe Municipal: Dania Beach

DESCRIPTION

Style _____ Exterior Plan _____ Number of Stories _____
 Exterior Fabric(s) 1. _____ 2. _____ 3. _____
 Roof Type(s) 1. _____ 2. _____ 3. _____
 Roof Material(s) 1. _____ 2. _____ 3. _____
 Roof secondary strucs. (dormers etc.) 1. _____ 2. _____
 Windows (types, materials, etc.) _____

Distinguishing Architectural Features (exterior or interior ornaments) Unadorned mechanical equipment - though each turbine has a small metal gable roof protecting a central portion of the turbine.

Ancillary Features / Outbuildings (record outbuildings, major landscape features; use continuation sheet if needed.) Structures are attached to and surrounded by ancillary power components and superstructure on concrete deck within 420-acre FPL Lauderdale plant.

DHR USE ONLY		OFFICIAL EVALUATION		DHR USE ONLY	
NR List Date _____	SHPO – Appears to meet criteria for NR listing: ☐ yes ☐ no ☐ insufficient info Date _____ Init. _____				
☐ Owner Objection	KEEPER – Determined eligible: ☐ yes ☐ no Date _____				
	NR Criteria for Evaluation: ☐ a ☐ b ☐ c ☐ d (see <i>National Register Bulletin 15</i> , p. 2)				

DESCRIPTION (continued)

Chimney: No. _____ Chimney Material(s): 1. _____ 2. _____
 Structural System(s): 1. _____ 2. _____ 3. _____
 Foundation Type(s): 1. _____ 2. _____
 Foundation Material(s): 1. _____ 2. _____
 Main Entrance (stylistic details) _____

Porch Descriptions (types, locations, roof types, etc.) _____

Condition (overall resource condition): ☒ excellent ☐ good ☐ fair ☐ deteriorated ☐ ruinous

Narrative Description of Resource 20' x 80' in plan, basically cylindrical in shape, these twin turbines generate electricity by capturing exhaust from fossil-fueled gas turbines as part of combined cycle power generation system.

Archaeological Remains _____ ☐ Check if Archaeological Form Completed

RESEARCH METHODS (check all that apply)

☒ FMSF record search (sites/surveys) ☒ library research ☐ building permits ☐ Sanborn maps
☐ FL State Archives/photo collection ☐ city directory ☒ occupant/owner interview ☐ plat maps
☒ property appraiser / tax records ☐ newspaper files ☐ neighbor interview ☐ Public Lands Survey (DEP)
☒ cultural resource survey (CRAS) ☒ historic photos ☐ interior inspection ☐ HABS/HAER record search
☐ other methods (describe) Pedestrian survey

Bibliographic References (give FMSF manuscript # if relevant, use continuation sheet if needed) AHC Technical Report #1159

OPINION OF RESOURCE SIGNIFICANCE

Appears to meet the criteria for National Register listing individually? ☐ yes ☒ no ☐ insufficient information

Appears to meet the criteria for National Register listing as part of a district? ☐ yes ☒ no ☐ insufficient information

Explanation of Evaluation (required, whether significant or not; use separate sheet if needed) Resources are of a relatively common type and have been altered by adaptation to successively modernized power generation systems from the 1950s through the 1990s.

Area(s) of Historical Significance (see *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Engineering 3. _____ 5. _____
 2. Industry 4. _____ 6. _____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field notes, analysis notes, photos, plans and other important documents

1) Document type All materials at one location Maintaining organization Archaeological and Historical Conservancy, Inc.
 Document description Field notes, photographs File or accession #'s 2017.105
 2) Document type _____ Maintaining organization _____
 Document description _____ File or accession #'s _____

RECORDER INFORMATION

Recorder Name Harrington, Timothy A Affiliation Archaeological and Historical Conservancy, Inc.

Recorder Contact Information 4800 SW 64 Ave, Ste 107, Davie FL 33314 (954) 792-9776/9954 archlgcl@bellsouth.net
 (address / phone / fax / e-mail)

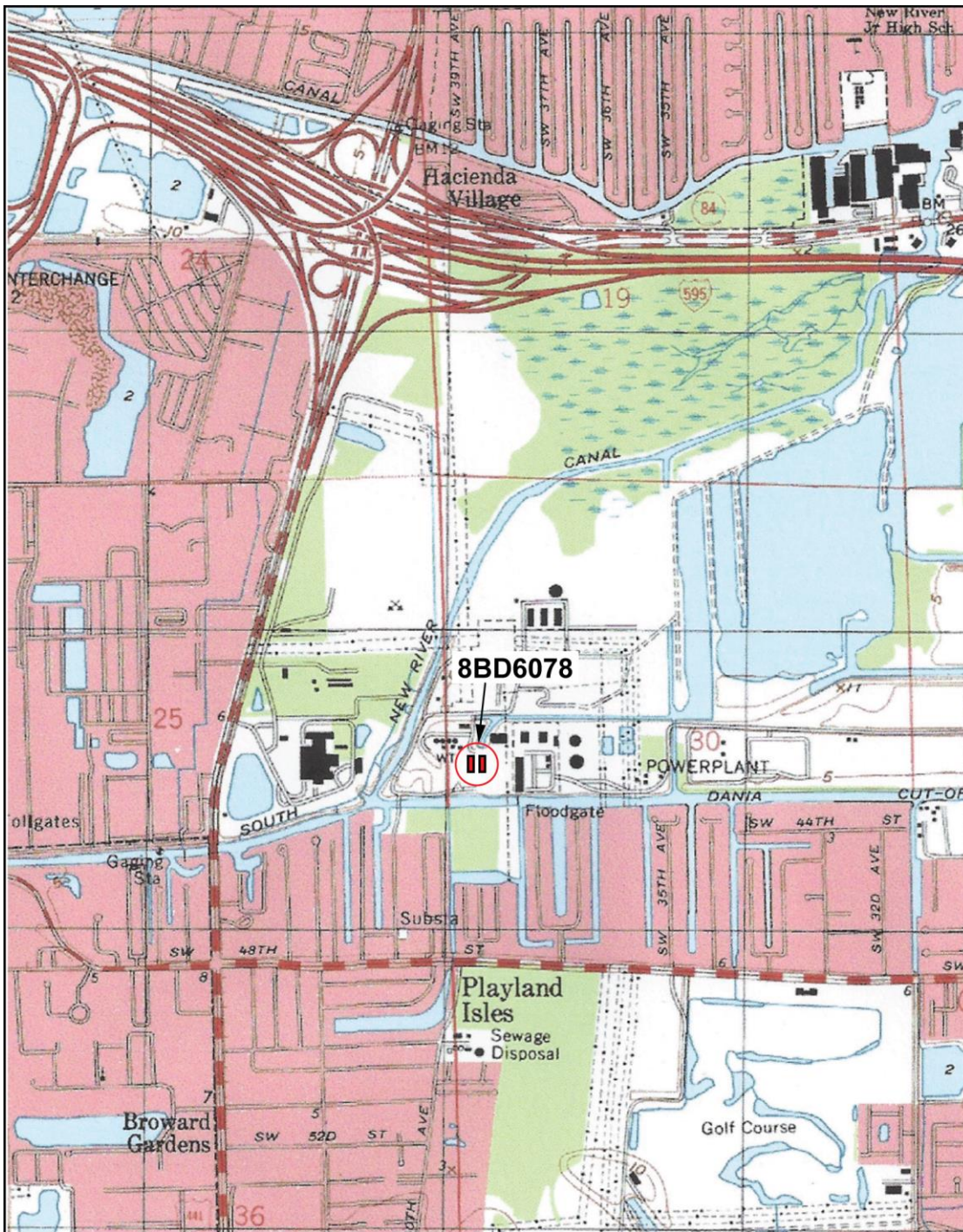
Required Attachments

❶ USGS 7.5' MAP WITH STRUCTURE LOCATION PINPOINTED IN RED

❷ LARGE SCALE STREET, PLAT OR PARCEL MAP (available from most property appraiser web sites)

❸ PHOTO OF MAIN FACADE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE

If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable).
 Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.



USGS map of 8BD6078, Steam Turbine Units 4 and 5.

■ ■ = 8BD6078

TOWNSHIP 50S, RANGE 42E, SECTION 30

USGS MAP: FORT LAUDERDALE SOUTH, REV. 1994





BD6978 Steam Turbine Units 4 & 5, (green painted cylindrical equipment) looking southwest (photo: FPL archives - date not recorded.)



BD6078 (tan painted cylindrical equipment under gabled roofing) looking south, 6/16/17.



BD6078 looking east, 6/16/17.



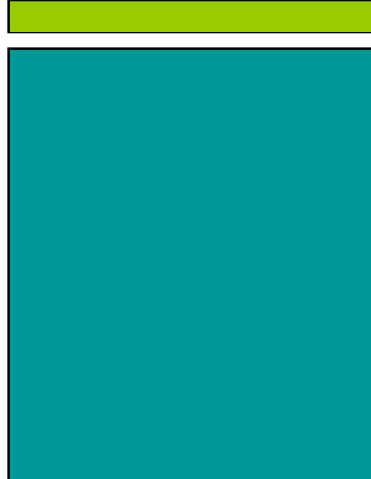
BD6078 looking west, 6/16/17.

APPENDIX 10.7.2

TRAFFIC STUDY

Florida Power & Light Dania Beach Energy Center

traffic study



prepared for:
Golder Associates, Inc.

Traf Tech
ENGINEERING, INC.

July 24, 2017

July 25, 2017

Mr. Karl Bullock (MS)
Associate and Senior Scientist
Golder Associates, Inc.
6026 NW 1st Place
Gainesville, Florida 32607

Re: Dania Beach Energy Center – Traffic Study

Dear Karl:

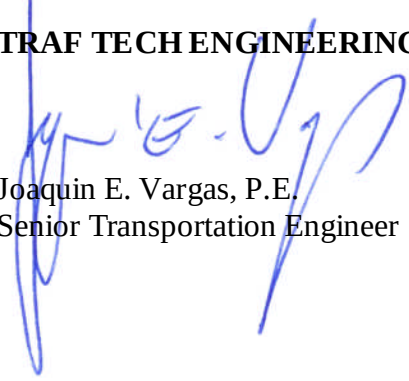
Traf Tech Engineering, Inc. is pleased to provide you with the results of the traffic study undertaken for the Dania Beach Energy Center project generally located east of State Road 7, north of Griffin Road and south of State Road 84 (on the west terminus of SW 42nd Street) in the City of Dania Beach, Broward County, Florida.

It has been a pleasure working with Golder Associates, Inc. on this project.

Sincerely,

TRAF TECH ENGINEERING, INC.

Joaquin E. Vargas, P.E.
Senior Transportation Engineer



July 25, 2017

INTRODUCTION

The Dania Beach Energy Center is a proposed energy-generating power plant to be constructed at the existing FPL Lauderdale Site generally located east of State Road 7, north of Griffin Road and south of State Road 84 (on the west terminus of SW 42nd Street) in the City of Dania Beach, Broward County, Florida. Figure 1 on the following page shows the location of the proposed Dania Beach Energy Center facility and its relationship to the existing street system surrounding the subject utility plant.

Traf Tech Engineering, Inc. was retained by Golder Associates, Inc. to conduct a traffic study associated with the Dania Beach Energy Center. The traffic study evaluates the traffic impacts during the construction phase of the project.

This study is divided into six (6) sections, as listed below:

1. Inventory
2. Traffic Counts
3. Trip Generation
4. Trip Distribution and Traffic Assignment
5. Traffic Analysis
6. Conclusions and Recommendations



INVENTORY

Land Use and Access

The existing site consists of a utility power plant. The primary construction access to the Dania Beach Energy Center site is via SW 42nd Street. A secondary construction entrance will be provided via Marina Road, a 2-lane access roadway located near State Road 84 off of SW 30th Avenue.

Roadway System

The primary roadway system providing access to and from the Dania Beach Energy Center includes Griffin Road, State Road 84, SW 30th Avenue and SW 42nd Street. Griffin Road is a 6-lane divided east-west arterial roadway with a posted speed limit of 45 miles per hour. According to Broward County, the peak hour capacity of Griffin Road is 5,390 vehicles per hour. State Road 84 is a principal arterial roadway with four (4) through lanes, west of SW 30th Avenue, and six (6) through lanes from SW 30th Avenue to I-95. The posted speed limit on State Road 84 is 45 miles per hour and the peak hour capacity is 3,580 vehicles per hour on the four-lane section and 5,390 vehicles per hour on the 6-lane segment. SW 30th Avenue is a major collector roadway linking Griffin Road on the south with State Road 84 on the north. This north-south collector facility provides four (4) lanes, plus auxiliary lanes, between Griffin Road and SW 42nd Street and four (4) lanes between SW 42nd Street and State Road 84. The posted speed limit on SW 30th Avenue is 35 miles per hour. The capacity on SW 30th Avenue is 2,628 vehicles per hour. SW 42nd Street is a collector street east and west of SW 30th Avenue. SW 42nd Street generally provides two (2) through lanes and expands to four lanes near SW 30th Avenue.

TRAFFIC COUNTS

Traf Tech Engineering, Inc., in association with Video Data Solutions, Inc., collected traffic data at the following locations:

- SW 30th Avenue and SW 42nd Street

The intersection turning movement counts performed by Video Data Solutions, Inc., were collected on Tuesday, June 20, 2017 during the AM and PM peak periods (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively). Appendix A contains the intersection turning movement counts, as collected in the field. Supplemental traffic counts were obtained from the Florida Department of Transportation (FDOT) for Griffin Road and State Road 84. The FDOT traffic counts are also contained in Appendix A.

TRIP GENERATION

The trip generation during the critical construction phase of the project was determined as presented below:

Construction Traffic

Peak construction is estimated at approximately 650 workers. Assuming an automobile occupancy of 1.3 workers per vehicle, approximately 500 vehicles are anticipated during the peak construction period. That is, 500 inbound vehicles during the AM peak hour and 500 exiting vehicles during the PM peak hour. For purposes of this traffic study, only the worse construction-period scenario was evaluated (650 workers). Table 1 summarizes the trip generation associated with the construction phase of the project.

TABLE 1 Dania Beach Energy Center Trip Generation Summary			
Workers	Vehicles¹	AM Peak Hour Inbound	PM Peak Hour Outbound
650	500	500	500

SOURCE: FPL and Traf Tech Engineering, Inc.

Normal Operation

After the construction period, normal operation traffic volumes are projected to be as those reflected in the existing traffic counts (refer to Appendix A).

¹ Based on an automobile occupancy of 1.3 people per vehicle.

TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

The trip distribution and traffic assignment for the project was based on the existing traffic patterns and examination of the surrounding street system located in the immediate vicinity of the project site. Based on traffic count data published by the Florida Department of Transportation, a comparison between peak period traffic counts traveling along State Road 84 (north of the site) versus Griffin Road (south of the site) indicate that approximately 55 percent of the peak period east-west traffic volumes travel along State Road 84 (north of the site). Based on this information, the following traffic assignment was assumed for the subject project:

- o 55% to and from the north (to/from State Road 84)
- o 45% to and from the south (to/from Griffin Road)

TRAFFIC ANALYSIS AND SUMMARY

This section of the study is divided into two parts. The first part evaluates the roadway segments that will be impacted by the construction work-force. The second part evaluates the future operating conditions of the main access for construction traffic. For both analyses, the following two scenarios were evaluated.

- 1) All construction traffic entering/exiting via the SW 42nd Street entrance
- 2) All construction traffic entering/exiting via a north access route located just south of State Road 84

Roadway Segment Analyses

Tables 2 through 5 summarize the existing and future operating conditions of the roadway segments impacted during the peak construction-phase of the project. Tables 2 and 3 present the results of the analyses assuming all construction traffic enter and exit via SW 42nd Street (East Entrance). Tables 4 and 5 document the results of the analysis assuming all construction traffic enters and exits via the north access roadway. As indicated in the tables, acceptable levels of services will be maintained for either access option. The additional traffic created by the peak construction work-force will not degrade the operating conditions of the nearby transportation network (Griffin Road, SW 42nd Street, State Road 84 and SW 30th Avenue).

Evaluation of East Access (via SW 42nd Street) and North Access

Intersection capacity/level of service analyses were performed for the north and east entrances (via SW 42nd Street). The analyses were undertaken assuming all peak construction traffic will either enter via the north access roadway or via the east entrance. The analyses were undertaken following the capacity/level of service procedures outlined in the Highway Capacity Manual.

TABLE 2 Dania Beach Energy Center Existing and Future Traffic Conditions (AM Peak Hour) - Access Via SW 42nd Street										
Roadway	From	To	# of Lanes	Capacity	Existing Conditions		Construction Traffic		During Peak Construction	
					Volume	v/c	%	Trips	Volume	v/c
Griffin Road	SR 7	SW 30th Ave	6	5390	2,923	0.5	20%	100	3,023	0.6
	SW 30th Ave	I-95	6	5390	2,422	0.4	25%	125	2,547	0.5
State Road 84	Florida Tpke	SW 30th Ave	4 *	5,740	3,642	0.6	25%	125	3,767	0.7
	SW 30th Ave	I-95	6	5390	3,548	0.7	30%	150	3,698	0.7
SW 30th Avenue	Griffin Road	SW 42nd St	4	2,628	1,391	0.5	45%	225	1,616	0.6
	SW 42nd St	SR 84	4	2628	1,089	0.4	55%	275	1,364	0.5
SW 42nd Street	West	SW 30th Av	2	1197	437	0.4	100%	500	937	0.8

Source: Florida Department of Transportation and Traf Tech Engineering, Inc.

* Not typical 4-lane segment (westbound direction is uninterrupted flow with directional LOS "D" capacity of 3,240 vph and eastbound direction has an additional through lane at SW 30th Avenue for 2.5 lanes per 2013 Quality/LOS Handbook, or LOS "D" capacity of 2,500 vph.

TABLE 3 Dania Beach Energy Center Existing and Future Traffic Conditions (PM Peak Hour) - Access Via SW 42nd Street										
Roadway	From	To	# of Lanes	Capacity	Existing Conditions		Construction Traffic		During Peak Construction	
					Volume	v/c	%	Trips	Volume	v/c
Griffin Road	SR 7	SW 30th Ave	6	5390	3,253	0.6	20%	100	3,353	0.6
	SW 30th Ave	I-95	6	5390	2,818	0.5	25%	125	2,943	0.5
State Road 84	Florida Tpke	SW 30th Ave	4 *	5,740	4,062	0.7	25%	125	4,187	0.7
	SW 30th Ave	I-95	6	5390	3,642	0.7	30%	150	3,792	0.7
SW 30th Avenue	Griffin Road	SW 42nd St	4	2,628	1,546	0.6	45%	225	1,771	0.7
	SW 42nd St	SR 84	4	2628	1,209	0.5	55%	275	1,484	0.6
SW 42nd Street	West	SW 30th Av	2	1197	559	0.5	100%	500	1,059	0.9

Source: Florida Department of Transportation and Traf Tech Engineering, Inc.

* Not typical 4-lane segment (westbound direction is uninterrupted flow with directional LOS "D" capacity of 3,240 vph and eastbound direction has an additional through lane at SW 30th Avenue for 2.5 lanes per 2013 Quality/LOS Handbook, or LOS "D" capacity of 2,500 vph.

TABLE 4 Dania Beach Energy Center Existing and Future Traffic Conditions (AM Peak Hour) - Access Via North Access Road										
Roadway	From	To	# of Lanes	Capacity	Existing Conditions		Construction Traffic		During Peak Construction	
					Volume	v/c	%	Trips	Volume	v/c
Griffin Road	SR 7	SW 30th Ave	6	5390	2,923	0.5	20%	100	3,023	0.6
	SW 30th Ave	I-95	6	5390	2,422	0.4	25%	125	2,547	0.5
State Road 84	Florida Tpke	SW 30th Ave	4 *	5,740	3,642	0.6	25%	125	3,767	0.7
	SW 30th Ave	I-95	6	5390	3,548	0.7	30%	150	3,698	0.7
SW 30th Avenue	Griffin Road	SW 42nd St	4	2,628	1,391	0.5	45%	225	1,616	0.6
	SW 42nd St	North Access	4	2628	1,089	0.4	45%	225	1,314	0.5
	North Access	SR 84	4	2628	1,089	0.4	55%	275	1,364	0.5
North Access	West	SW 30th Av	2	1197	30	0.0	100%	500	530	0.4

Source: Florida Department of Transportation and Traf Tech Engineering, Inc.

* Not typical 4-lane segment (westbound direction is uninterrupted flow with directional LOS "D" capacity of 3,240 vph and eastbound direction has an additional through lane at SW 30th Avenue for 2.5 lanes per 2013 Quality/LOS Handbook, or LOS "D" capacity of 2,500 vph.

TABLE 5 Dania Beach Energy Center Existing and Future Traffic Conditions (PM Peak Hour) - Access Via North Access Road										
Roadway	From	To	# of Lanes	Capacity	Existing Conditions		Construction Traffic		During Peak Construction	
					Volume	v/c	%	Trips	Volume	v/c
Griffin Road	SR 7	SW 30th Ave	6	5390	3,253	0.6	20%	100	3,353	0.6
	SW 30th Ave	I-95	6	5390	2,818	0.5	25%	125	2,943	0.5
State Road 84	Florida Tpke	SW 30th Ave	4 *	5,740	4,062	0.7	25%	125	4,187	0.7
	SW 30th Ave	I-95	6	5390	3,642	0.7	30%	150	3,792	0.7
SW 30th Avenue	Griffin Road	SW 42nd St	4	2,628	1,546	0.6	45%	225	1,771	0.7
	SW 42nd St	North Access	4	2628	1,209	0.5	45%	225	1,434	0.5
	North Access	SR 84	4	2628	1,209	0.5	55%	275	1,484	0.6
North Access	West	SW 30th Av	2	1197	30	0.0	100%	500	530	0.4

Source: Florida Department of Transportation and Traf Tech Engineering, Inc.

* Not typical 4-lane segment (westbound direction is uninterrupted flow with directional LOS "D" capacity of 3,240 vph and eastbound direction has an additional through lane at SW 30th Avenue for 2.5 lanes per 2013 Quality/LOS Handbook, or LOS "D" capacity of 2,500 vph.

The results of the capacity analyses are summarized in Table 6 and 7. As Indicated in the tables, level of service deficiencies are projected to occur at the north access roadway and the east entrance option. In order to eliminate the projected capacity deficiencies during the peak construction period, the following improvements or traffic management strategies should be considered:

MORNING ARRIVAL PERIOD

- o Allow all entering vehicles to use the North Access entrance (via Marina Road),
or
- o Allow all entering vehicles to use the East Access entrance (via SW 42nd Street) in multiple shifts separated by at least one hour with no shift with a work force greater than 50% of the total number of workers (up to 325 workers), or
- o Allow all entering vehicles to use the East Access entrance (via SW 42nd Street) and have a police officer control the intersection of SW 30th Avenue and SW 42nd Street during the entering peak hour, or
- o Allow up to 50% of the peak construction work force to use the East Access entrance (via SW 42nd Street) and the remaining work force would be instructed to enter via the north access entrance (Marina Road)

AFTERNOON DIMISSAL PERIOD

- o Provide a police officer² at the intersection of SW 30th Avenue and SW 42nd Street and allow all or a portion of the peak construction workers to exit via SW 42nd Street, and
- o Provide a police officer at the intersection of SW 30th Avenue and Marina Road and allow all or a portion of the peak construction workers to exit via Marina Road

² If all exiting traffic is assigned to Marina Road then the intersection of SW 30th Avenue and SW 42nd Street does not need to be controlled by a police officer.

-
- o If feasible and approved by the City of Dania Beach, re-stripe the west leg (eastbound approach) of the intersection of SW 30th Avenue and Marina Road to include one inbound lane and two exit lanes. The two exit lanes should be marked to include one exclusive left-turn lane and one dedicated right-turn lane. The length of the two eastbound lanes should be approximately 200 feet. The width of the north access driveway appears to be sufficient to accommodate the 3-lane recommendations. It is important to note that without the re-striping of the westbound leg of this intersection, the intersection of SW 30th Avenue and Marina Road is projected to operate adequately with the current configuration during the PM peak hour with a police officer controlling traffic.

TABLE 6 Dania Beach Energy Center Intersection Level of Service Summary					
Intersection of SW 30th Avenue & SW 42nd Street (East Access)					
Scenarion	Approach				Intersection
	Northbound	Southbound	Eastbound	Westbound	Overall
AM Peak - Existing	C	C	B	C	C
AM Peak - w/50% Peak Construction Traffic	D	C	C	C	D
AM Peak - w/Peak Construction Traffic	F	F	C	C	F
AM Peak - w/Peak Construction Traffic & Police Control	A	A	B	B	A
PM Peak - Existing	C	E	D	F	F
PM Peak - w/Peak Construction Traffic	C	F	F	F	F
PM Peak - w/Peak Construction Traffic & Police Control	C	C	A	C	C

SOURCE: SYNCHRO

TABLE 7 Dania Beach Energy Center Intersection Level of Service Summary				
Intersection of SW 30th Avenue & North Access Road				
Scenarion	Approach/Movement			
	NB Left	EB Left	EB Right	Eastbound
AM Peak - Existing	A	n/a	n/a	B
AM Peak - w/Peak Construction Traffic	B	n/a	n/a	D
PM Peak - Existing	A	n/a	n/a	C
PM Peak - w/Peak Construction Traffic	A	n/a	n/a	F
PM Peak - w/Peak Construction Traffic and 2 EB Lanes	A	F	B	F
PM Peak - w/Peak Construction Traffic, 1 EB Lane & Police Control	A	B	B	B
PM Peak - w/Peak Construction Traffic, 2 EB Lanes & Police Control	A	B	B	B

SOURCE: SYNCHRO

APPENDIX A

Traffic Counts

COUNTY: 86
STATION: 0074
DESCRIPTION: SR 818 / GRIFFIN RD - E OF SR 7/441
START DATE: 05/10/2016
START TIME: 1400

TIME	DIRECTION: E					DIRECTION: W					COMBINED TOTAL	
	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL		
0000	53	51	25	42	171	50	40	39	30	159	330	
0100	32	27	30	29	118	26	20	29	21	96	214	
0200	17	19	22	24	82	14	16	24	24	78	160	
0300	17	17	14	31	79	13	16	15	12	56	135	
0400	17	30	41	36	124	16	14	25	25	80	204	
0500	42	52	72	94	260	26	36	75	57	194	454	
0600	92	130	232	295	749	67	90	121	177	455	1204	
0700	289	415	424	493	1621	218	256	275	271	1020	2641	
0800	445	386	441	383	1655	302	322	263	266	1153	2808	
0900	271	271	247	229	1018	230	208	194	220	852	1870	
1000	249	251	201	232	933	161	198	176	190	725	1658	
1100	204	256	225	250	935	203	175	220	234	832	1767	
1200	234	261	283	255	1033	242	242	242	193	919	1952	
1300	234	292	236	236	998	241	253	285	269	1048	2046	
1400	256	243	266	221	986	295	227	286	323	1131	2117	
1500	242	310	278	288	1118	302	284	345	330	1261	2379	
1600	268	258	336	286	1148	379	340	378	464	1561	2709	
1700	330	346	315	328	1319	462	539	491	438	1930	3249	
1800	337	272	281	255	1145	459	390	299	312	1460	2605	
1900	225	217	177	192	811	225	199	187	167	778	1589	
2000	157	172	156	152	637	207	166	147	138	658	1295	
2100	151	163	127	105	546	140	120	115	103	478	1024	
2200	100	95	100	75	370	113	105	88	76	382	752	
2300	64	73	51	43	231	76	72	69	54	271	502	
24-HOUR TOTALS:					18087						17577	35664

PEAK VOLUME INFORMATION				COMBINED DIRECTIONS			
DIRECTION: E		DIRECTION: W		DIRECTION: E		DIRECTION: W	
A.M.	HOUR	VOLUME		A.M.	HOUR	VOLUME	
P.M.	1715	1326		P.M.	1715	3253	
DAILY	715	1777		DAILY	715	3253	
TRUCK PERCENTAGE		6.11		TRUCK PERCENTAGE		4.85	
						5.49	

CLASSIFICATION SUMMARY DATABASE																
DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK
E	80	13633	3269	147	606	84	8	122	64	73	0	0	1	0	0	1105
W	35	13724	2966	99	475	56	44	113	65	0	0	0	0	0	0	852

COUNTY: 86
STATION: 0199
DESCRIPTION: SR 84 - W OF SR 9/I-95 & RAVENSWOOD/E OF SW 30 AVE
START DATE: 04/28/2016
START TIME: 0000

TIME	DIRECTION: E					DIRECTION: W					COMBINED TOTAL	
	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL		
0000	50	40	29	29	148	63	45	43	32	183	331	
0100	24	20	24	21	89	33	24	27	21	105	194	
0200	21	14	18	20	73	23	26	36	36	121	194	
0300	17	17	14	18	66	33	33	33	23	122	188	
0400	27	27	34	32	120	38	43	38	55	174	294	
0500	33	50	87	82	252	65	80	103	174	422	674	
0600	106	165	245	331	847	200	220	295	335	1050	1897	
0700	402	457	533	540	1932	304	315	303	370	1292	3224	
0800	509	575	556	556	2196	307	336	355	325	1323	3519	
0900	378	331	306	318	1333	303	270	308	269	1150	2483	
1000	304	273	248	230	1055	280	293	279	295	1147	2202	
1100	247	251	273	272	1043	260	247	310	276	1093	2136	
1200	295	273	274	315	1157	265	305	315	337	1222	2379	
1300	323	295	306	295	1219	312	302	346	292	1252	2471	
1400	308	328	281	314	1231	339	331	327	341	1338	2569	
1500	335	321	325	336	1317	382	406	456	381	1625	2942	
1600	346	343	319	330	1338	417	429	473	533	1852	3190	
1700	395	376	386	322	1479	506	562	554	445	2067	3546	
1800	275	283	283	226	1067	434	390	325	249	1398	2465	
1900	225	245	187	185	842	244	233	217	189	883	1725	
2000	151	97	100	134	482	154	174	158	158	644	1126	
2100	124	138	108	88	458	146	129	121	118	514	972	
2200	94	91	88	78	351	128	112	80	88	408	759	
2300	72	54	72	50	248	98	83	85	74	340	588	
24-HOUR TOTALS:					20343						21725	42068

PEAK VOLUME INFORMATION						
DIRECTION: E			DIRECTION: W		COMBINED DIRECTIONS	
A.M.	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
	800	2196	745	1368	745	3548
P.M.	1645	1487	1645	2155	1645	3642
DAILY	800	2196	1645	2155	1645	3642

COUNTY: 86
STATION: 0122
DESCRIPTION: SR 84 - W OF NEW RIVER BR
START DATE: 03/15/2016
START TIME: 0000

TIME	DIRECTION: E					DIRECTION: W					COMBINED TOTAL	
	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL		
0000	37	28	28	27	120	39	56	32	32	159	279	
0100	17	13	36	19	85	20	25	13	16	74	159	
0200	28	16	16	15	75	30	19	21	18	88	163	
0300	23	21	27	26	97	13	11	18	11	53	150	
0400	34	43	62	63	202	14	15	22	18	69	271	
0500	76	129	169	178	552	28	41	36	48	153	705	
0600	285	363	526	500	1674	61	95	106	145	407	2081	
0700	661	662	735	551	2609	184	196	232	228	840	3449	
0800	609	737	688	522	2556	266	274	289	242	1071	3627	
0900	421	404	409	358	1592	239	205	214	232	890	2482	
1000	307	284	288	310	1189	200	230	227	219	876	2065	
1100	269	289	267	274	1099	244	245	245	270	1004	2103	
1200	255	292	281	322	1150	289	252	228	245	1014	2164	
1300	199	304	276	314	1093	269	208	285	276	1038	2131	
1400	273	314	280	264	1131	257	283	343	305	1188	2319	
1500	272	279	292	286	1129	343	368	451	476	1638	2767	
1600	281	266	276	238	1061	513	536	640	664	2353	3414	
1700	299	287	318	286	1190	762	738	729	643	2872	4062	
1800	258	247	245	183	933	649	512	411	296	1868	2801	
1900	183	147	145	134	609	252	240	158	170	820	1429	
2000	131	112	112	118	473	184	151	168	156	659	1132	
2100	95	105	90	86	376	136	96	90	87	409	785	
2200	77	72	74	72	295	100	105	85	75	365	660	
2300	53	40	34	33	160	80	58	62	62	262	422	
24-HOUR TOTALS:					21450						20170	41620

PEAK VOLUME INFORMATION					
DIRECTION: E		DIRECTION: W		COMBINED DIRECTIONS	
A.M.	HOUR	VOLUME	HOUR	VOLUME	HOUR
	730	2632	800	1071	745
P.M.	1700	1190	1645	2893	1700
DAILY	730	2632	1645	2893	1700
					4062

COUNTY: 86
STATION: 0199
DESCRIPTION: SR 84 - W OF SR 9/I-95 & RAVENSWOOD/E OF SW 30 AVE
START DATE: 04/28/2016
START TIME: 0000

TIME	DIRECTION: E					DIRECTION: W					COMBINED TOTAL	
	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL		
0000	50	40	29	29	148	63	45	43	32	183	331	
0100	24	20	24	21	89	33	24	27	21	105	194	
0200	21	14	18	20	73	23	26	36	36	121	194	
0300	17	17	14	18	66	33	33	33	23	122	188	
0400	27	27	34	32	120	38	43	38	55	174	294	
0500	33	50	87	82	252	65	80	103	174	422	674	
0600	106	165	245	331	847	200	220	295	335	1050	1897	
0700	402	457	533	540	1932	304	315	303	370	1292	3224	
0800	509	575	556	556	2196	307	336	355	325	1323	3519	
0900	378	331	306	318	1333	303	270	308	269	1150	2483	
1000	304	273	248	230	1055	280	293	279	295	1147	2202	
1100	247	251	273	272	1043	260	247	310	276	1093	2136	
1200	295	273	274	315	1157	265	305	315	337	1222	2379	
1300	323	295	306	295	1219	312	302	346	292	1252	2471	
1400	308	328	281	314	1231	339	331	327	341	1338	2569	
1500	335	321	325	336	1317	382	406	456	381	1625	2942	
1600	346	343	319	330	1338	417	429	473	533	1852	3190	
1700	395	376	386	322	1479	506	562	554	445	2067	3546	
1800	275	283	283	226	1067	434	390	325	249	1398	2465	
1900	225	245	187	185	842	244	233	217	189	883	1725	
2000	151	97	100	134	482	154	174	158	158	644	1126	
2100	124	138	108	88	458	146	129	121	118	514	972	
2200	94	91	88	78	351	128	112	80	88	408	759	
2300	72	54	72	50	248	98	83	85	74	340	588	
24-HOUR TOTALS:					20343						21725	42068

PEAK VOLUME INFORMATION						
DIRECTION: E			DIRECTION: W		COMBINED DIRECTIONS	
A.M.	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
	800	2196	745	1368	745	3548
P.M.	1645	1487	1645	2155	1645	3642
DAILY	800	2196	1645	2155	1645	3642

Video Data Solutions, Inc.

A Traffic Data Collection Company
O.(305)235-1553 F.(305)235-7703

CLIENT : Traff Tech Engineering
JOB NO : 2017-49
PROJECT: Alandco
COUNTY: Broward County

File Name : SW 30th Ave & SW 42nd St
Site Code : 00000000
Start Date : 6/20/2017
Page No : 1

Groups Printed- Auto - Heavy Vehicles

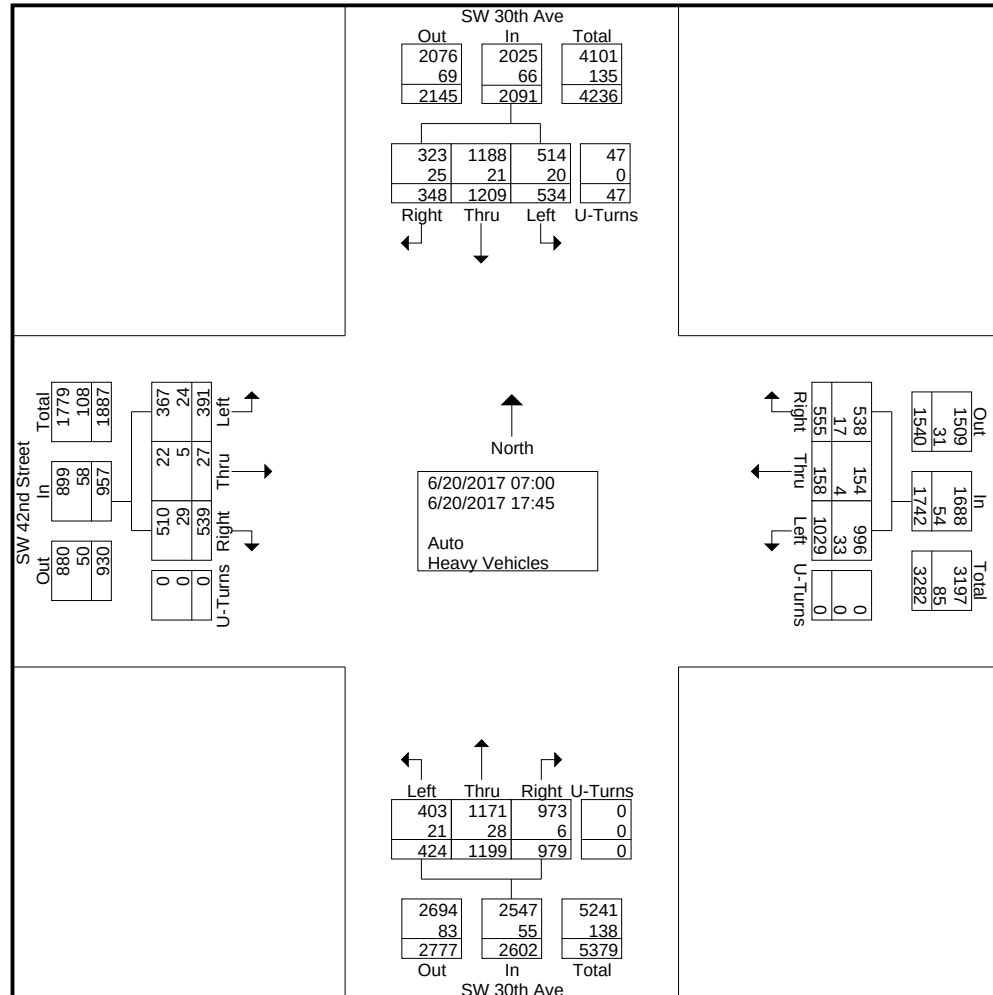
	SW 30th Ave From North					SW 42nd Street From East					SW 30th Ave From South					SW 42nd Street From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
07:00	41	26	46	1	114	25	3	30	0	58	78	72	39	0	189	8	1	15	0	24	385
07:15	49	39	59	1	148	10	3	22	0	35	86	77	56	0	219	14	1	17	0	32	434
07:30	46	45	50	3	144	16	2	36	0	54	83	114	55	0	252	19	1	13	0	33	483
07:45	31	49	48	4	132	7	0	25	0	32	90	138	44	0	272	14	0	19	0	33	469
Total	167	159	203	9	538	58	8	113	0	179	337	401	194	0	932	55	3	64	0	122	1771
08:00	22	33	47	1	103	12	3	29	0	44	100	125	50	0	275	16	2	7	0	25	447
08:15	27	37	44	3	111	26	4	44	0	74	83	112	34	0	229	16	2	10	0	28	442
08:30	30	29	56	2	117	21	4	40	0	65	87	82	40	0	209	19	5	8	0	32	423
08:45	31	50	52	1	134	16	4	26	0	46	83	72	29	0	184	6	2	12	0	20	384
Total	110	149	199	7	465	75	15	139	0	229	353	391	153	0	897	57	11	37	0	105	1696
*** BREAK ***																					
16:00	8	86	18	6	118	57	12	102	0	171	40	57	13	0	110	48	2	45	0	95	494
16:15	9	97	25	3	134	52	15	100	0	167	43	38	10	0	91	37	3	29	0	69	461
16:30	15	115	19	3	152	51	11	93	0	155	45	43	6	0	94	62	1	36	0	99	500
16:45	8	88	16	1	113	43	10	77	0	130	38	51	8	0	97	35	5	26	0	66	406
Total	40	386	78	13	517	203	48	372	0	623	166	189	37	0	392	182	11	136	0	329	1861
17:00	8	121	12	8	149	71	23	98	0	192	29	46	14	0	89	67	0	57	0	124	554
17:15	12	120	18	4	154	53	30	99	0	182	27	69	10	0	106	90	0	51	0	141	583
17:30	3	132	16	4	155	60	25	102	0	187	31	57	11	0	99	57	0	28	0	85	526
17:45	8	142	8	2	160	35	9	106	0	150	36	46	5	0	87	31	2	18	0	51	448
Total	31	515	54	18	618	219	87	405	0	711	123	218	40	0	381	245	2	154	0	401	2111
Grand Total	348	1209	534	47	2138	555	158	1029	0	1742	979	1199	424	0	2602	539	27	391	0	957	7439
Apprch %	16.3	56.5	25	2.2		31.9	9.1	59.1	0		37.6	46.1	16.3	0		56.3	2.8	40.9	0		
Total %	4.7	16.3	7.2	0.6	28.7	7.5	2.1	13.8	0	23.4	13.2	16.1	5.7	0	35	7.2	0.4	5.3	0	12.9	
Auto	323	1188	514	47	2072	538	154	996	0	1688	973	1171	403	0	2547	510	22	367	0	899	7206
% Auto	92.8	98.3	96.3	100	96.9	96.9	97.5	96.8	0	96.9	99.4	97.7	95	0	97.9	94.6	81.5	93.9	0	93.9	96.9
Heavy Vehicles	25	21	20	0	66	17	4	33	0	54	6	28	21	0	55	29	5	24	0	58	233
% Heavy Vehicles	7.2	1.7	3.7	0	3.1	3.1	2.5	3.2	0	3.1	0.6	2.3	5	0	2.1	5.4	18.5	6.1	0	6.1	3.1

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	SW 30th Ave From North					SW 42nd Street From East					SW 30th Ave From South					SW 42nd Street From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	46	45	50	3	144	16	2	36	0	54	83	114	55	0	252	19	1	13	0	33	483
07:45	31	49	48	4	132	7	0	25	0	32	90	138	44	0	272	14	0	19	0	33	469
08:00	22	33	47	1	103	12	3	29	0	44	100	125	50	0	275	16	2	7	0	25	447
08:15	27	37	44	3	111	26	4	44	0	74	83	112	34	0	229	16	2	10	0	28	442
Total Volume	126	164	189	11	490	61	9	134	0	204	356	489	183	0	1028	65	5	49	0	119	1841
% App. Total	25.7	33.5	38.6	2.2		29.9	4.4	65.7	0		34.6	47.6	17.8	0		54.6	4.2	41.2	0		
PHF	.685	.837	.945	.688	.851	.587	.563	.761	.000	.689	.890	.886	.832	.000	.935	.855	.625	.645	.000	.902	.953
Auto	122	156	184	11	473	56	9	122	0	187	353	478	179	0	1010	49	5	42	0	96	1766
% Auto	96.8	95.1	97.4	100	96.5	91.8	100	91.0	0	91.7	99.2	97.8	97.8	0	98.2	75.4	100	85.7	0	80.7	95.9
Heavy Vehicles	4	8	5	0	17	5	0	12	0	17	3	11	4	0	18	16	0	7	0	23	75
% Heavy Vehicles	3.2	4.9	2.6	0	3.5	8.2	0	9.0	0	8.3	0.8	2.2	2.2	0	1.8	24.6	0	14.3	0	19.3	4.1

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Page No : 4

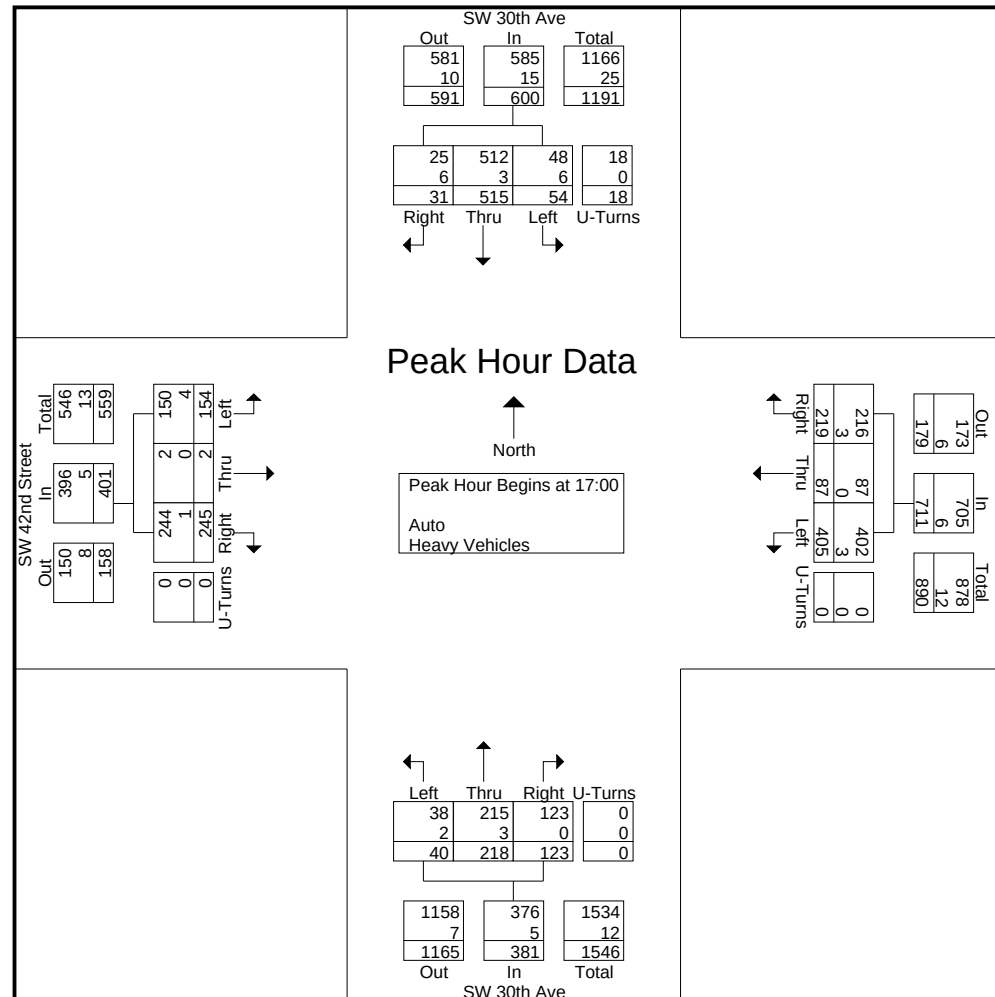
	SW 30th Ave From North					SW 42nd Street From East					SW 30th Ave From South					SW 42nd Street From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	8	121	12	8	149	71	23	98	0	192	29	46	14	0	89	67	0	57	0	124	554
17:15	12	120	18	4	154	53	30	99	0	182	27	69	10	0	106	90	0	51	0	141	583
17:30	3	132	16	4	155	60	25	102	0	187	31	57	11	0	99	57	0	28	0	85	526
17:45	8	142	8	2	160	35	9	106	0	150	36	46	5	0	87	31	2	18	0	51	448
Total Volume	31	515	54	18	618	219	87	405	0	711	123	218	40	0	381	245	2	154	0	401	2111
% App. Total	5	83.3	8.7	2.9		30.8	12.2	57	0		32.3	57.2	10.5	0		61.1	0.5	38.4	0		
PHF	.646	.907	.750	.563	.966	.771	.725	.955	.000	.926	.854	.790	.714	.000	.899	.681	.250	.675	.000	.711	.905
Auto	25	512	48	18	603	216	87	402	0	705	123	215	38	0	376	244	2	150	0	396	2080
% Auto	80.6	99.4	88.9	100	97.6	98.6	100	99.3	0	99.2	100	98.6	95.0	0	98.7	99.6	100	97.4	0	98.8	98.5
Heavy Vehicles	6	3	6	0	15	3	0	3	0	6	0	3	2	0	5	1	0	4	0	5	31
% Heavy Vehicles	19.4	0.6	11.1	0	2.4	1.4	0	0.7	0	0.8	0	1.4	5.0	0	1.3	0.4	0	2.6	0	1.2	1.5

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APPENDIX B

Future Turning Movement Volumes (North and East Access Options)

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

SW 30th Avenue and SW 42nd Street AM Peak Hour Analysis (**Peak Construction Period**)

Description	SW 30th Avenue Northbound			SW 30th Avenue Southbound			SW 42nd Street Eastbound			SW 42nd Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Existing Traffic (6/20/17)	183	489	356	200	164	126	49	5	65	134	9	61
Season Adjustment Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2017 Peak Season Traffic	194	518	377	212	174	134	52	5	69	142	10	65
Peak Construction Traffic	225			275								
Total Traffic	419	518	377	212	174	409	52	5	69	142	10	65

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

SW 30th Avenue and SW 42nd Street PM Peak Hour Analysis (**Peak Construction Period**)

Description	SW 30th Avenue Northbound			SW 30th Avenue Southbound			SW 42nd Street Eastbound			SW 42nd Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Existing Traffic (6/20/17)	40	218	123	72	515	31	154	2	245	405	87	219
Season Adjustment Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
2017 Peak Season Traffic	42	231	130	76	546	33	163	2	260	429	92	232
Peak Construction Traffic							275		225			
Total Traffic	42	231	130	76	546	33	438	2	485	429	92	232

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

SW 30th Avenue and North Access Road AM Peak Hour Analysis (**Peak Construction Period**)

Description	SW 30th Avenue Northbound			SW 30th Avenue Southbound			North Access Road Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Existing Traffic (6/20/17)	10	599			490	10	10		10			
Season Adjustment Factor	1.00	1.06	1.06	1.06	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2017 Peak Season Traffic	10	635	0	0	519	10	10	0	10	0	0	0
Peak Construction Traffic	225			275								
Total Traffic	235	635	0	0	519	285	10	0	10	0	0	0

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

SW 30th Avenue and North Access Road PM Peak Hour Analysis (**Peak Construction Period**)

Description	SW 30th Avenue Northbound			SW 30th Avenue Southbound			North Access Road Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
2017 Existing Traffic (6/20/17)	10	591			618	10	10		10			
Season Adjustment Factor	1.00	1.06	1.06	1.06	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2017 Peak Season Traffic	10	626	0	0	655	10	10	0	10	0	0	0
Peak Construction Traffic							275		225			
Total Traffic	10	626	0	0	655	10	285	0	235	0	0	0

APPENDIX C

Access Capacity/Level of Service Analyses

Intersection												
Intersection Delay, s/veh 20.6												
Intersection LOS C												

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↰	↱			↰	↱	↰		↰	↱	↰
Traffic Vol, veh/h	0	52	5	69	0	142	6	65	0	194	285	377
Future Vol, veh/h	0	52	5	69	0	142	6	65	0	194	285	377
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	57	5	75	0	154	7	71	0	211	310	410
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	3
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	3	3	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	3	3	3
HCM Control Delay	13.8	16.7	24.2
HCM LOS	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	2%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	98%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	194	285	377	52	3	71	142	6	65	212	96
LT Vol	194	0	0	52	0	0	142	0	0	212	0
Through Vol	0	285	0	0	3	2	0	6	0	0	96
RT Vol	0	0	377	0	0	69	0	0	65	0	0
Lane Flow Rate	211	310	410	57	4	77	154	7	71	230	104
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.466	0.641	0.769	0.156	0.009	0.184	0.406	0.016	0.163	0.555	0.237
Departure Headway (Hd)	7.952	7.452	6.752	9.916	9.416	8.632	9.481	8.981	8.281	8.676	8.176
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	451	483	533	364	382	413	378	397	431	415	437
Service Time	5.721	5.221	4.521	7.616	7.116	6.432	7.277	6.777	6.077	6.458	5.958
HCM Lane V/C Ratio	0.468	0.642	0.769	0.157	0.01	0.186	0.407	0.018	0.165	0.554	0.238
HCM Control Delay	17.5	22.7	28.7	14.4	12.2	13.4	18.7	11.9	12.7	21.8	13.5
HCM Lane LOS	C	C	D	B	B	B	C	B	B	C	B
HCM 95th-tile Q	2.4	4.4	6.9	0.5	0	0.7	1.9	0	0.6	3.3	0.9

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations		↰	↑	↱
Traffic Vol, veh/h	0	212	96	134
Future Vol, veh/h	0	212	96	134
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	230	104	146
Number of Lanes	0	1	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	3
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	17.5
HCM LOS	C

HCM Unsignalized Intersection Capacity Analysis

6: SW 30th Avenue & North Access

7/6/2017

							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	10	10	10	635	519	10	
Future Volume (Veh/h)	10	10	10	635	519	10	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	11	11	11	690	564	11	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	931	282	575				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	931	282	575				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	96	98	99				
cM capacity (veh/h)	263	715	994				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	22	11	345	345	282	282	11
Volume Left	11	11	0	0	0	0	0
Volume Right	11	0	0	0	0	0	11
cSH	384	994	1700	1700	1700	1700	1700
Volume to Capacity	0.06	0.01	0.20	0.20	0.17	0.17	0.01
Queue Length 95th (ft)	5	1	0	0	0	0	0
Control Delay (s)	14.9	8.7	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	A					
Approach Delay (s)	14.9	0.1			0.0		
Approach LOS	B						
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization			27.6%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection												
Intersection Delay, s/veh 63.7												
Intersection LOS F												

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↰	↱↰			↰	↱	↰		↰	↱	↰
Traffic Vol, veh/h	0	163	2	260	0	429	51	232	0	42	127	130
Future Vol, veh/h	0	163	2	260	0	429	51	232	0	42	127	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	177	2	283	0	466	55	252	0	46	138	141
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	3
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	3	3	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	3	3	3
HCM Control Delay	30.2	112.6	19
HCM LOS	D	F	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	127	130	163	1	261	429	51	232	76	300
LT Vol	42	0	0	163	0	0	429	0	0	76	0
Through Vol	0	127	0	0	1	1	0	51	0	0	300
RT Vol	0	0	130	0	0	260	0	0	232	0	0
Lane Flow Rate	46	138	141	177	1	283	466	55	252	83	326
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.137	0.396	0.379	0.513	0.004	0.729	1.276	0.144	0.606	0.237	0.893
Departure Headway (Hd)	11.206	10.706	10.006	10.735	10.235	9.537	9.854	9.354	8.654	10.727	10.227
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	322	338	362	338	352	382	368	384	419	337	355
Service Time	8.906	8.406	7.706	8.435	7.935	7.237	7.604	7.104	6.404	8.427	7.927
HCM Lane V/C Ratio	0.143	0.408	0.39	0.524	0.003	0.741	1.266	0.143	0.601	0.246	0.918
HCM Control Delay	15.7	20.3	18.7	24.2	13	34	172.4	13.7	23.9	16.7	57.3
HCM Lane LOS	C	C	C	C	B	D	F	B	C	C	F
HCM 95th-tile Q	0.5	1.8	1.7	2.8	0	5.6	20.9	0.5	3.9	0.9	8.8

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations		↰	↑	↱
Traffic Vol, veh/h	0	76	300	33
Future Vol, veh/h	0	76	300	33
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	83	326	36
Number of Lanes	0	1	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	3
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	46.2
HCM LOS	E

HCM Unsignalized Intersection Capacity Analysis

6: SW 30th Avenue & North Access

7/6/2017

							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	10	10	10	626	655	10	
Future Volume (Veh/h)	10	10	10	626	655	10	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	11	11	11	680	712	11	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1074	356	723				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1074	356	723				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	95	98	99				
cM capacity (veh/h)	212	640	875				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	22	11	340	340	356	356	11
Volume Left	11	11	0	0	0	0	0
Volume Right	11	0	0	0	0	0	11
cSH	319	875	1700	1700	1700	1700	1700
Volume to Capacity	0.07	0.01	0.20	0.20	0.21	0.21	0.01
Queue Length 95th (ft)	6	1	0	0	0	0	0
Control Delay (s)	17.1	9.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	C	A					
Approach Delay (s)	17.1	0.1			0.0		
Approach LOS	C						
Intersection Summary							
Average Delay			0.3				
Intersection Capacity Utilization		28.1%			ICU Level of Service		A
Analysis Period (min)		15					

Intersection	
Intersection Delay, s/veh	63
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↰	↱			↰	↱	↰		↰	↱	↰
Traffic Vol, veh/h	0	52	5	69	0	142	6	65	0	419	285	377
Future Vol, veh/h	0	52	5	69	0	142	6	65	0	419	285	377
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	57	5	75	0	154	7	71	0	455	310	410
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	3
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	3	3	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	3	3	3
HCM Control Delay	17.4	23.1	75.7
HCM LOS	C	C	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	2%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	98%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	419	285	377	52	3	71	142	6	65	212	96
LT Vol	419	0	0	52	0	0	142	0	0	212	0
Through Vol	0	285	0	0	3	2	0	6	0	0	96
RT Vol	0	0	377	0	0	69	0	0	65	0	0
Lane Flow Rate	455	310	410	57	4	77	154	7	71	230	104
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	1.161	0.747	0.91	0.19	0.012	0.234	0.507	0.021	0.209	0.629	0.271
Departure Headway (Hd)	9.174	8.682	7.993	12.323	11.823	11.14	12.063	11.563	10.863	9.987	9.487
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	396	415	455	293	305	324	301	311	333	364	381
Service Time	6.943	6.443	5.743	10.023	9.523	8.84	9.763	9.263	8.563	7.687	7.187
HCM Lane V/C Ratio	1.149	0.747	0.901	0.195	0.013	0.238	0.512	0.023	0.213	0.632	0.273
HCM Control Delay	126.5	33.1	51.4	17.9	14.7	17.2	26.5	14.5	16.4	28.2	15.7
HCM Lane LOS	F	D	F	C	B	C	D	B	C	D	C
HCM 95th-tile Q	17.5	6	10.1	0.7	0	0.9	2.7	0.1	0.8	4.1	1.1

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations		↰	↑	↱
Traffic Vol, veh/h	0	212	96	409
Future Vol, veh/h	0	212	96	409
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	230	104	445
Number of Lanes	0	1	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	3
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	63.8
HCM LOS	F

HCM Unsignalized Intersection Capacity Analysis

6: SW 30th Avenue & North Access

7/6/2017

							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	10	10	235	635	519	285	
Future Volume (Veh/h)	10	10	235	635	519	285	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	11	11	255	690	564	310	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1419	282	874				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1419	282	874				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	87	98	67				
cM capacity (veh/h)	85	715	768				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	22	255	345	345	282	282	310
Volume Left	11	255	0	0	0	0	0
Volume Right	11	0	0	0	0	0	310
cSH	152	768	1700	1700	1700	1700	1700
Volume to Capacity	0.14	0.33	0.20	0.20	0.17	0.17	0.18
Queue Length 95th (ft)	12	36	0	0	0	0	0
Control Delay (s)	32.6	12.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	D	B					
Approach Delay (s)	32.6	3.2			0.0		
Approach LOS	D						
Intersection Summary							
Average Delay			2.1				
Intersection Capacity Utilization			40.7%		ICU Level of Service		A
Analysis Period (min)			15				

Intersection												
Intersection Delay, s/veh	165											
Intersection LOS	F											

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↰	↱			↰	↱	↰		↰	↱	↰
Traffic Vol, veh/h	0	438	2	485	0	429	51	232	0	42	127	130
Future Vol, veh/h	0	438	2	485	0	429	51	232	0	42	127	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	476	2	527	0	466	55	252	0	46	138	141
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	3
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	3	3	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	3	3	3
HCM Control Delay	249.6	166.7	23.7
HCM LOS	F	F	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	127	130	438	1	486	429	51	232	76	300
LT Vol	42	0	0	438	0	0	429	0	0	76	0
Through Vol	0	127	0	0	1	1	0	51	0	0	300
RT Vol	0	0	130	0	0	485	0	0	232	0	0
Lane Flow Rate	46	138	141	476	1	528	466	55	252	83	326
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.157	0.457	0.441	1.465	0.004	1.453	1.466	0.167	0.71	0.269	1.018
Departure Headway (Hd)	13.144	12.644	11.944	11.446	10.946	10.247	11.643	11.143	10.443	12.8	12.3
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	274	287	304	324	329	359	317	324	348	283	297
Service Time	10.844	10.344	9.644	9.146	8.646	7.947	9.343	8.843	8.143	10.5	10
HCM Lane V/C Ratio	0.168	0.481	0.464	1.469	0.003	1.471	1.47	0.17	0.724	0.293	1.098
HCM Control Delay	18.3	25.6	23.7	254.8	13.7	245.6	255.8	16.1	35	20.1	94.2
HCM Lane LOS	C	D	C	F	B	F	F	C	D	C	F
HCM 95th-tile Q	0.5	2.3	2.1	25.2	0	27	24.9	0.6	5.2	1.1	10.9

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations		↰	↑	↱
Traffic Vol, veh/h	0	76	300	33
Future Vol, veh/h	0	76	300	33
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	83	326	36
Number of Lanes	0	1	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	3
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	74.1
HCM LOS	F

HCM Unsignalized Intersection Capacity Analysis

6: SW 30th Avenue & North Access

7/6/2017

							
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	275	225	10	626	655	10	
Future Volume (Veh/h)	275	225	10	626	655	10	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	299	245	11	680	712	11	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage (veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1074	356	723				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1074	356	723				
tC, single (s)	6.8	6.9	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	0	62	99				
cM capacity (veh/h)	212	640	875				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	544	11	340	340	356	356	11
Volume Left	299	11	0	0	0	0	0
Volume Right	245	0	0	0	0	0	11
cSH	303	875	1700	1700	1700	1700	1700
Volume to Capacity	1.79	0.01	0.20	0.20	0.21	0.21	0.01
Queue Length 95th (ft)	894	1	0	0	0	0	0
Control Delay (s)	398.8	9.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	A					
Approach Delay (s)	398.8	0.1			0.0		
Approach LOS	F						
Intersection Summary							
Average Delay		110.9					
Intersection Capacity Utilization		53.8%		ICU Level of Service		A	
Analysis Period (min)		15					

HCM 2010 Signalized Intersection Summary
3: SW 42nd Street & SW 30th Avenue

7/6/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	5	69	142	6	65	419	285	377	212	96	409
Future Volume (veh/h)	52	5	69	142	6	65	419	285	377	212	96	409
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	57	5	75	154	7	71	455	310	410	230	104	445
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	409	366	327	361	385	327	649	1148	976	535	1148	976
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.62	0.62	0.62	0.62	0.62	0.62
Sat Flow, veh/h	1316	1770	1583	1313	1863	1583	855	1863	1583	729	1863	1583
Grp Volume(v), veh/h	57	5	75	154	7	71	455	310	410	230	104	445
Grp Sat Flow(s),veh/h/ln	1316	1770	1583	1313	1863	1583	855	1863	1583	729	1863	1583
Q Serve(g_s), s	1.8	0.1	2.0	5.6	0.2	1.9	23.5	3.9	6.8	10.8	1.2	7.6
Cycle Q Clear(g_c), s	2.0	0.1	2.0	7.6	0.2	1.9	24.7	3.9	6.8	14.7	1.2	7.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	409	366	327	361	385	327	649	1148	976	535	1148	976
V/C Ratio(X)	0.14	0.01	0.23	0.43	0.02	0.22	0.70	0.27	0.42	0.43	0.09	0.46
Avail Cap(c_a), veh/h	606	629	563	557	663	563	675	1204	1024	557	1204	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	16.1	16.8	20.0	16.1	16.8	9.0	4.5	5.0	7.9	4.0	5.2
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.8	0.0	0.3	3.1	0.1	0.3	0.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.9	2.1	0.1	0.9	6.0	2.0	3.0	2.2	0.6	3.3
LnGrp Delay(d),s/veh	17.0	16.1	17.2	20.8	16.1	17.1	12.1	4.6	5.3	8.4	4.0	5.5
LnGrp LOS	B	B	B	C	B	B	B	A	A	A	A	A
Approach Vol, veh/h	137				232		1175				779	
Approach Delay, s/veh	17.1				19.5		7.8				6.2	
Approach LOS	B				B		A				A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	35.9		15.0		35.9		15.0					
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5					
Max Green Setting (Gmax), s	32.9		18.1		32.9		18.1					
Max Q Clear Time (g_c+I1), s	26.7		4.0		16.7		9.6					
Green Ext Time (p_c), s	4.7		1.2		9.8		0.9					
Intersection Summary												
HCM 2010 Ctrl Delay			9.0									
HCM 2010 LOS			A									

HCM Unsignalized Intersection Capacity Analysis

6: SW 30th Avenue & North Access

7/6/2017

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	10	10	235	635	519	285		
Future Volume (Veh/h)	10	10	235	635	519	285		
Sign Control	Stop			Free	Free			
Grade	0%			0%	0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	11	11	255	690	564	310		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)								
Median type				None	None			
Median storage (veh)								
Upstream signal (ft)				1115				
pX, platoon unblocked								
vC, conflicting volume	1419	282	874					
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1419	282	874					
tC, single (s)	6.8	6.9	4.1					
tC, 2 stage (s)								
tF (s)	3.5	3.3	2.2					
p0 queue free %	87	98	67					
cM capacity (veh/h)	85	715	768					
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	11	11	255	345	345	282	282	310
Volume Left	11	0	255	0	0	0	0	0
Volume Right	0	11	0	0	0	0	0	310
cSH	85	715	768	1700	1700	1700	1700	1700
Volume to Capacity	0.13	0.02	0.33	0.20	0.20	0.17	0.17	0.18
Queue Length 95th (ft)	11	1	36	0	0	0	0	0
Control Delay (s)	53.4	10.1	12.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	B	B					
Approach Delay (s)	31.8	3.2				0.0		
Approach LOS	D							
Intersection Summary								
Average Delay			2.0					
Intersection Capacity Utilization			40.7%	ICU Level of Service			A	
Analysis Period (min)			15					

HCM 2010 Signalized Intersection Summary

3: SW 42nd Street & SW 30th Avenue

7/6/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	438	2	485	429	51	232	42	127	130	76	300	33
Future Volume (veh/h)	438	2	485	429	51	232	42	127	130	76	300	33
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	476	2	527	466	55	252	46	138	141	83	326	36
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	773	1149	1028	504	1209	1028	168	442	376	284	442	376
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1068	1770	1583	871	1863	1583	1016	1863	1583	1096	1863	1583
Grp Volume(v), veh/h	476	2	527	466	55	252	46	138	141	83	326	36
Grp Sat Flow(s),veh/h/ln	1068	1770	1583	871	1863	1583	1016	1863	1583	1096	1863	1583
Q Serve(g_s), s	23.1	0.0	13.9	37.6	0.8	5.3	3.5	4.8	5.9	5.4	12.8	1.4
Cycle Q Clear(g_c), s	23.9	0.0	13.9	51.5	0.8	5.3	16.3	4.8	5.9	10.2	12.8	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	773	1149	1028	504	1209	1028	168	442	376	284	442	376
V/C Ratio(X)	0.62	0.00	0.51	0.93	0.05	0.25	0.27	0.31	0.38	0.29	0.74	0.10
Avail Cap(c_a), veh/h	773	1149	1028	504	1209	1028	176	458	389	293	458	389
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	4.9	7.3	23.0	5.0	5.8	35.5	24.9	25.3	29.1	28.0	23.6
Incr Delay (d2), s/veh	1.5	0.0	0.4	23.2	0.0	0.1	0.9	0.4	0.6	0.6	6.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	6.1	13.3	0.4	2.3	1.0	2.5	2.6	1.7	7.3	0.6
LnGrp Delay(d),s/veh	10.8	4.9	7.8	46.2	5.0	5.9	36.4	25.3	25.9	29.7	33.9	23.7
LnGrp LOS	B	A	A	D	A	A	D	C	C	C	C	C
Approach Vol, veh/h	1005				773			325			445	
Approach Delay, s/veh	9.2				30.1			27.2			32.3	
Approach LOS	A				C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	23.3		56.0		23.3		56.0					
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5					
Max Green Setting (Gmax), s	19.5		51.5		19.5		51.5					
Max Q Clear Time (g_c+I1), s	18.3		25.9		14.8		53.5					
Green Ext Time (p_c), s	0.5		12.6		1.7		0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	21.9											
HCM 2010 LOS	C											

HCM Unsignalized Intersection Capacity Analysis

6: SW 30th Avenue & North Access

7/6/2017

									
Movement	EBL	EBR	NBL	NBT	SBT	SBR			
Lane Configurations									
Traffic Volume (veh/h)	275	225	10	626	655	10			
Future Volume (Veh/h)	275	225	10	626	655	10			
Sign Control	Stop			Free	Free				
Grade	0%			0%	0%				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92			
Hourly flow rate (vph)	299	245	11	680	712	11			
Pedestrians									
Lane Width (ft)									
Walking Speed (ft/s)									
Percent Blockage									
Right turn flare (veh)									
Median type			None	None					
Median storage (veh)									
Upstream signal (ft)				1115					
pX, platoon unblocked									
vC, conflicting volume	1074	356	723						
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol	1074	356	723						
tC, single (s)	6.8	6.9	4.1						
tC, 2 stage (s)									
tF (s)	3.5	3.3	2.2						
p0 queue free %	0	62	99						
cM capacity (veh/h)	212	640	875						
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3	
Volume Total	299	245	11	340	340	356	356	11	
Volume Left	299	0	11	0	0	0	0	0	
Volume Right	0	245	0	0	0	0	0	11	
cSH	212	640	875	1700	1700	1700	1700	1700	
Volume to Capacity	1.41	0.38	0.01	0.20	0.20	0.21	0.21	0.01	
Queue Length 95th (ft)	434	45	1	0	0	0	0	0	
Control Delay (s)	253.3	14.1	9.2	0.0	0.0	0.0	0.0	0.0	
Lane LOS	F	B	A						
Approach Delay (s)	145.6	0.1				0.0			
Approach LOS	F								
Intersection Summary									
Average Delay			40.5						
Intersection Capacity Utilization			40.0%		ICU Level of Service		A		
Analysis Period (min)			15						

HCM 2010 Signalized Intersection Summary
6: SW 30th Avenue & North Access

7/6/2017

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	275	225	10	626	655	10		
Future Volume (veh/h)	275	225	10	626	655	10		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	299	245	11	680	712	11		
Adj No. of Lanes	1	1	1	2	2	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	462	412	458	1572	1572	703		
Arrive On Green	0.26	0.26	0.44	0.44	0.44	0.44		
Sat Flow, veh/h	1774	1583	727	3632	3632	1583		
Grp Volume(v), veh/h	299	245	11	680	712	11		
Grp Sat Flow(s),veh/h/ln	1774	1583	727	1770	1770	1583		
Q Serve(g_s), s	4.6	4.1	0.3	4.0	4.3	0.1		
Cycle Q Clear(g_c), s	4.6	4.1	4.6	4.0	4.3	0.1		
Prop In Lane	1.00	1.00	1.00			1.00		
Lane Grp Cap(c), veh/h	462	412	458	1572	1572	703		
V/C Ratio(X)	0.65	0.59	0.02	0.43	0.45	0.02		
Avail Cap(c_a), veh/h	1048	935	564	2091	2091	935		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	10.0	9.9	7.5	5.8	5.9	4.7		
Incr Delay (d2), s/veh	1.5	1.4	0.0	0.2	0.2	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.4	1.9	0.1	1.9	2.1	0.1		
LnGrp Delay(d),s/veh	11.6	11.2	7.5	6.0	6.1	4.7		
LnGrp LOS	B	B	A	A	A	A		
Approach Vol, veh/h	544			691	723			
Approach Delay, s/veh	11.4			6.0	6.1			
Approach LOS	B			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		18.0		12.4		18.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		18.0		18.0		18.0		
Max Q Clear Time (g_c+I1), s		6.6		6.6		6.3		
Green Ext Time (p_c), s		6.9		1.4		7.1		
Intersection Summary								
HCM 2010 Ctrl Delay			7.5					
HCM 2010 LOS			A					

Intersection												
Intersection Delay, s/veh 28.2												
Intersection LOS D												

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations		↰	↱↰			↰	↱	↰		↰	↱	↰
Traffic Vol, veh/h	0	52	5	69	0	142	6	65	0	307	285	377
Future Vol, veh/h	0	52	5	69	0	142	6	65	0	307	285	377
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	57	5	75	0	154	7	71	0	334	310	410
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	3
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	3	3	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	3	3	3
HCM Control Delay	15.4	19.4	34.6
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	2%	0%	100%	0%	0%	100%
Vol Right, %	0%	0%	100%	0%	0%	98%	0%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	307	285	377	52	3	71	142	6	65	212	96
LT Vol	307	0	0	52	0	0	142	0	0	212	0
Through Vol	0	285	0	0	3	2	0	6	0	0	96
RT Vol	0	0	377	0	0	69	0	0	65	0	0
Lane Flow Rate	334	310	410	57	4	77	154	7	71	230	104
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.794	0.694	0.838	0.172	0.011	0.209	0.455	0.018	0.185	0.594	0.255
Departure Headway (Hd)	8.565	8.065	7.365	10.958	10.458	9.774	10.618	10.118	9.418	9.284	8.784
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	424	449	492	327	342	366	340	353	380	389	409
Service Time	6.314	5.814	5.114	8.734	8.234	7.55	8.396	7.896	7.196	7.041	6.541
HCM Lane V/C Ratio	0.788	0.69	0.833	0.174	0.012	0.21	0.453	0.02	0.187	0.591	0.254
HCM Control Delay	37.3	27.3	37.9	16	13.4	15.1	22	13.1	14.3	24.8	14.5
HCM Lane LOS	E	D	E	C	B	C	C	B	B	C	B
HCM 95th-tile Q	7	5.2	8.4	0.6	0	0.8	2.3	0.1	0.7	3.7	1

Intersection

Intersection Delay, s/veh

Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations		↰	↑	↱
Traffic Vol, veh/h	0	212	96	272
Future Vol, veh/h	0	212	96	272
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	230	104	296
Number of Lanes	0	1	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	3
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	23.4
HCM LOS	C

HCM Signalized Intersection Capacity Analysis

6: SW 30th Avenue & North Access

7/24/2017

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	275	225	10	626	655	10
Future Volume (vph)	275	225	10	626	655	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	1.00		1.00	0.95	0.95	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	0.97		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1703		1770	3539	3539	1583
Flt Permitted	0.97		0.34	1.00	1.00	1.00
Satd. Flow (perm)	1703		625	3539	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	245	11	680	712	11
RTOR Reduction (vph)	63	0	0	0	0	7
Lane Group Flow (vph)	481	0	11	680	712	4
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Actuated Green, G (s)	14.4		13.8	13.8	13.8	13.8
Effective Green, g (s)	14.4		13.8	13.8	13.8	13.8
Actuated g/C Ratio	0.39		0.37	0.37	0.37	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	659		231	1312	1312	587
v/s Ratio Prot	c0.28			0.19	c0.20	
v/s Ratio Perm			0.02			0.00
v/c Ratio	0.73		0.05	0.52	0.54	0.01
Uniform Delay, d1	9.7		7.5	9.1	9.2	7.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	4.1		0.1	0.3	0.5	0.0
Delay (s)	13.8		7.6	9.5	9.7	7.4
Level of Service	B		A	A	A	A
Approach Delay (s)	13.8			9.4	9.6	
Approach LOS	B			A	A	
Intersection Summary						
HCM 2000 Control Delay			10.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.64			
Actuated Cycle Length (s)			37.2		Sum of lost time (s)	9.0
Intersection Capacity Utilization			54.6%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

APPENDIX 10.7.3

**FISCAL AND ECONOMIC IMPACTS OF FPL'S
DANIA BEACH ENERGY CENTER**



The Fiscal and Economic Impacts of FPL's Dania Beach Clean Energy Center

March 29, 2017

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Executive Summary

Florida Power & Light Company ("FPL") is planning to demolish an existing power generation plant and replace it with a new electrical generating facility (Dania Beach Clean Energy Center ("Project")) in the City of Dania Beach, FL ("City"). Fishkind & Associates, Inc. ("Consultant") was retained to quantify the fiscal & economic impacts of the Project on the City of Dania Beach.

The economic impacts of the proposed Project will be substantial during the construction period. The cumulative 3.5-year construction period, that represents total site buildout, yields an average of 444 direct and indirect jobs per year with total construction period payroll of \$85.2 million and total construction period economic output for the County of \$310.2 million.

The permanent operating economic impacts will be a major benefit to the Broward County economy. Based on the assumed buildout date of 2022, the Project is projected to generate an annual total of 103 direct and indirect jobs with a payroll of \$5.9 million annually. The overall economic benefit to the County at that time is projected to be \$27.6 million per year.

The Dania Beach Clean Energy Center will generate significant fiscal benefits that yield revenue directly into the City's General Fund. Ad valorem property tax makes up the vast majority of revenue generated by this project. As is typical with power generation facilities, significant fiscal benefits will be produced by the Project, while relatively few costs accrue to the local government.

Based on the assumed construction timeframe, the electrical generation facility will provide an annual net fiscal benefit of \$4.2 million by 2023. The total project has a 40-year net present value of \$28.9 million. This level of revenue generation is significant for the City of Dania Beach and the net fiscal impact could not likely be replicated by other types of development.

The Dania Beach Clean Energy Center will also have a very positive fiscal impact on Broward County government, the School District and other taxing authorities by substantially increasing the overall tax base and providing a significant economic stimulus for the area.

By 2023, the Dania Beach Clean Energy Center will generate a total of \$13.5 million in annual ad valorem revenue for all taxing authorities combined.

1.0 Introduction

Florida Power & Light Company ("FPL") is planning to demolish an existing power generation plant and replace it with a new electrical generating facility (Dania Beach Clean Energy Center ("Project")) in the City of Dania Beach, FL ("City"). Fishkind & Associates, Inc. ("Consultant") was retained to quantify the fiscal & economic impacts of the Project on the City of Dania Beach.

2.0 Economic Impacts for The City of Dania Beach

2.1 Economic Impacts

Economic activity refers to the total goods and services produced by a firm. The economic impact analysis focuses on the economic output, payroll earnings and employment impacts of the proposed electrical generating facilities on the County's economy. The analysis is divided into two time periods; the construction period and the permanent operations. The construction impacts are based upon the anticipated local expenditures for material and wages. The permanent impact analysis begins with an inventory of the various direct economic impacts of the facilities, which includes spending on wages, materials, and taxes.

The direct economic factors analyzed include local expenditures for goods and services by FPL, the taxes paid to local governmental authorities and the projected employment and total employee payroll. These direct economic impacts, also known as economic output, result in downstream effects, also known as indirect impacts, as the facilities' expenditures and employee wages are spent and re-spent in the community. At each level of spending, additional goods and services are purchased creating a multiplier effect on the economy. The total of all these direct and indirect expenditures is called the economic output. These multiplier impacts are estimated using the RIMS II Regional Input-Output Modeling System.¹ The multipliers used are specific for Broward County, Florida. These multipliers project the total number of indirect jobs, wages and expenditures resulting from the operations of the facility. RIMS multipliers are widely used by economists to estimate the total economic impacts flowing from direct employment and expenditures. The Broward County economy is closely linked with that of Miami-Dade County and Palm Beach County. As such, there is leakage of economic benefits (spending) into these other counties.

¹ U.S. Department of Commerce, Bureau of Economic Analysis, [Regional Multipliers A User Handbook for the Regional Input-Output Modeling System \(RIMS II\)](#), U.S. Government Printing Office.

2.2 Economic Impacts from Construction

Table 1 provides the economic impacts of the Project during the assumed construction phase of 2019 through mid-2022. FPL is proposing a total construction budget of \$784.4 million over a 3.5-year construction period (2017 dollars). FPL estimates that the total direct local labor component will reach \$80 million. The Project will generate an average of 444 direct and indirect jobs per year with an average annual payroll of \$24.3 million per year (Table 1, 2017 dollars). The average economic output from construction is projected to be \$88.6 million per year. The cumulative local economic output from construction is projected to reach \$310.2 million.

Table 1: Construction Impacts (2017 dollars)

Construction 2019-2022	Jobs	Payroll	Output
Average Annual	444	\$24,356,270	\$88,631,922
Avg Annual Direct	229	\$14,300,000	\$45,445,276
Avg Annual Indirect	215	\$10,056,270	\$43,186,646
Total Construction (3.5 Yrs)	444	\$85,246,944	\$310,211,729
Direct	229	\$50,050,000	\$159,058,467
Indirect	215	\$35,196,944	\$151,153,261

2.3 Economic Impacts from Operations

Over the proposed Project's 40-year operating lifetime, a very significant amount of economic stimulus will be generated for the local economy. Employees will generate economic output by spending their wages at retail stores, restaurants, entertainment establishments, recreation facilities, etc. In addition, up to \$13.5 million in ad valorem taxes will be paid to local taxing authorities each year allowing for possible increases in government employment and services. As with the direct output during the construction period, there will be a very significant indirect economic impact related to the churning of these dollars through the economy. These indirect economic impacts for jobs and output were calculated using the RIMS II multipliers for power generating facilities.

Table 2 displays the economic impacts that will be generated from operating the Project in the City of Dania Beach. FPL estimates there will be twenty-five (25) positions associated with the power plant. In 2023, the first full year of operations, the economic output is projected to be \$27.6 million

including a total of 103 direct and indirect jobs with combined payroll earnings of \$5.9 million. Over time, the indirect impacts will decrease slightly as lower property tax revenues reduce the overall economic output. However, the impact of the permanent economic impacts of the proposed electric generating facilities in the City of Dania Beach will be substantial and will provide significant beneficial economic impacts for the local economy over the entire life of the project.

Table 2. Permanent Economic Impacts (2017 dollars)

Permanent Impacts	Jobs	Payroll	Output
<u>2023</u>	<u>103</u>	<u>\$5,982,359</u>	<u>\$27,659,183</u>
Direct	25	\$2,339,676	\$22,895,751
Indirect	78	\$3,642,683	\$4,763,432
<u>2033</u>	<u>96</u>	<u>\$5,660,532</u>	<u>\$23,700,674</u>
Direct	25	\$2,339,676	\$19,180,236
Indirect	71	\$3,320,856	\$4,520,437
<u>2043</u>	<u>89</u>	<u>\$5,338,920</u>	<u>\$19,744,811</u>
Direct	25	\$2,339,676	\$15,467,206
Indirect	64	\$2,999,244	\$4,277,605

3.0 Fiscal Impacts

3.1 Fiscal Impact Analysis Model Calibration

The FIAM model used in the development scenario has been calibrated based on the latest adopted budget and demographics for the City. In this way, FIAM is properly calibrated to reflect the specific environment of the City of Dania Beach with its unique budget and characteristics.

3.2 Property Tax Generation-The City of Dania Beach

Property taxes will be generated for the various taxing authorities based upon the Project's taxable value. The total FPL property consists of several parcels. For this analysis, only the parcel impacted by the demolition and construction is used (Parcel ID# 504230000053). The taxable values are assumed to be equal to the construction cost plus the land value. The project's full taxable value is assumed to appear on the tax roll the year following the completion of the construction. The project is depreciated on a 40-year, straight-line basis with a 27.5% residual value. Table 3 shows a breakdown of the forecast taxable value and associated property tax

revenue for the City over 10-year increments. The initial taxable value is projected to be \$713.5 million. This will generate about \$4.2 million in ad valorem tax revenue for the City of Dania (assumes the 4% early payment discount).

The projected total ad valorem revenue for the City over the life time of the entire Project is \$93.6 million. Year-by-year details for taxable value and ad valorem revenue are provided in Appendix Table 1.

Table 3. Taxable Value and Ad Valorem Revenue

	2023	2033	2043	2053	2063
Taxable Value	\$713,501,714	\$518,364,699	\$323,358,157	\$226,561,051	\$227,992,922
Ad Valorem @ 96%					
City of Dania Beach	\$4,278,407	\$3,108,297	\$1,938,969	\$1,358,540	\$1,367,126
Broward County	\$3,883,048	\$2,821,065	\$1,759,793	\$1,233,000	\$1,240,792
Broward School Board	\$4,730,551	\$3,436,783	\$2,143,880	\$1,502,111	\$1,511,604
Children's Services Council	\$334,398	\$242,943	\$151,549	\$106,183	\$106,854
FI Inland Navigation	\$21,919	\$15,924	\$9,934	\$6,960	\$7,004
South FL Water Mgt. District	<u>\$226,517</u>	<u>\$164,566</u>	<u>\$102,657</u>	<u>\$71,927</u>	<u>\$72,381</u>
Total Ad Valorem Taxes	\$13,474,839	\$9,789,579	\$6,106,782	\$4,278,720	\$4,305,761

Table 3 provides the ad valorem projections for the other taxing authorities impacted by this project. Broward County and the School Board are significant beneficiaries of this project's tax revenue generation.

3.3 Fiscal Impact on The City of Dania Beach

The fiscal impacts of the proposed Project on the County are summarized in Table 4. As detailed above, the Project generates significant ad valorem revenue for the City. Other City budget revenues (e.g. utility taxes, business licenses, gas taxes, franchise fees charges for service) and expenditures (general government, public safety, public works, etc.) are calculated using the modified per capita methodology detailed in Section 4 of this report. Total annual revenues flowing from the project to the City are projected to reach \$4.2 million by 2023.

Table 4: Fiscal Impact Summary – City of Dania Beach

Year	Parcel Taxable Value	Ad Valorem	Total Operating Revenue	Total Operating Expenditure	Net Fiscal Impact
2023	\$713,501,714	\$4,278,407	\$4,282,475	\$5,945	\$4,276,531
2033	\$518,364,699	\$3,108,297	\$3,113,803	\$7,101	\$3,106,701
2043	\$323,358,157	\$1,938,969	\$1,945,060	\$8,209	\$1,936,851
2053	\$226,561,051	\$1,358,540	\$1,365,309	\$9,494	\$1,355,815
2063	\$227,992,922	\$1,367,126	\$1,374,683	\$10,986	\$1,363,697

Expenditures will be made by the City on behalf of the power generation plant and its employees. With 25 total employees, the additional demand for County services is quite small. These expenditures are also calculated using the modified per capita methodology and include general government services, police, fire, transportation, economic development, etcetera. Total expenditures are projected to be \$5,945 in 2023.

Revenues produced by the power generation plant for the City are projected to far exceed the expenditures made on behalf of the Project and its employees. The annual net fiscal benefit for the City of Dania Beach will be \$4.2 million by 2023, based upon the current operating budget. The Project is forecast to have a significantly positive impact on the City's operational budget. The 40-year Net Present Value of the net fiscal benefit is \$28.9 million (Appendix Table 1). Year-by-year details for City revenues and expenditures are provided in Appendix Table 3.

4.0 Fiscal Methodology

4.1 Modified Per Capita Methodology

Local governments receive revenues from the land, development and the activities of their residents, workers and visitors. The major portion of these revenues is in the form of taxes, fees, assessments, and charges for service. Local governments also render services to all residents, to all who are working in the jurisdiction, and to all visitors. Therefore, on the cost side of the equation, local governments incur costs to provide services to residents, employees, and visitors. At some point during a 24-hour period, a resident may become a person employed in the jurisdiction and then later in the day may be a resident again. To such an individual, the local government has rendered services for a full 24 hours. Other residents may leave the jurisdiction to work somewhere else. In this case, the local

government only provides services to that person when they are physically in its jurisdiction. The same is true for those that work in the jurisdiction, but live somewhere else. Finally, visitors receive service during the whole time period of their visit.

To properly measure the services provided to each of these groups, a weighting procedure is used that reflects the duration of time each group is resident within the City. This calculation provides us with the full-time equivalent (FTE) population, employees and visitors. For both residents and workers, a working period assumption of 2,000 hours per year is applied. In this way, the fiscal impact of the FTE residents, employees and visitors can be properly identified. A variety of methods exist for quantifying the revenue and cost impacts flowing from a development opportunity such as the Project presented here. The approach used in this FIAM is the modified per capita approach. When possible, the revenues and expenditures that can be identified from the subject population(s) are directly estimated or calculated. For this project, property tax revenues were calculated using current millage rates. The remaining cost and revenue categories were estimated based on modified per capita estimates. The modified per capita approach involves the calculation of revenues using the latest published budgets for the appropriate population basis (i.e. per person, per employee, per tourist.)

From an economic perspective, this is equivalent to assuming that average revenue generation applies to the particular situation being evaluated. This is a reasonable assumption in most cases for two reasons. First, local governments must run balanced budgets, so that current costs and current revenues balance and are appropriate for current circumstances. Second, using long-term averages means that any excess capital is maintained in the various systems and not allocated to the project. Furthermore, there is nothing peculiar about the location or type of this particular project that indicates per capita parameters estimated from the latest budgets would not be reflective of actual costs and revenues.

The numerator for each cost or revenue item is the cost or revenue shown in the City's budget. The denominator depends upon the type of cost or revenue. Each category of cost and revenue was examined to determine the impact of population and/or employment. Each category was then divided by the appropriate divisor (FTE population, or FTE population + FTE employment + FTE Visitors) to yield the average per capita revenues and expenditures for all budget categories.

4.2 Fiscal Impact Calculations

Property taxes were calculated from information provided by Florida Power and Light. Likewise, the "business license" revenues for the City were estimated by FP&L. The other budget revenues and expenditures were calculated using the per capita methodology described above. The revenues and expenditures were calculated by multiplying the FTE employees generated by the Project by the per capita revenue and expenditure amounts from the budget.

4.3 Net Present Value (NPV)

NPV is a common tool used by the public and private sectors to gauge a project's net effect on operations and capital in order to make sound business decisions. NPV uses a discount rate which takes into account various systematic and unsystematic risk factors in order to discount the future cash flows back to the present. Once each annual amount has been adjusted, the values are summed in order to obtain the net present value of the future costs or revenues. Next, by deducting the expenses from the revenues, a net present value impact can be determined. A positive NPV indicates a good investment. The greater the number, the greater the positive impact the development will have on the City.

5.0 Summary Conclusion

The economic impacts of the proposed Project will be substantial during both the construction period and the permanent operating period.

The 3.5 year construction period will yield an average of 1444 jobs per year with total construction period payroll earnings of \$85.2 million and total economic output for the City of \$310.2 million.

The operations of the entire proposed Dania Beach Clean Energy Center are projected to generate a total of 103 direct and indirect jobs with payroll earnings of \$5.9 million annually. The economic benefit to the City is projected to be \$27.6 million per year.

The Dania Beach Clean Energy Center will generate significant fiscal benefits for all affected local governments.

The Project will generate a net fiscal benefit for the City of \$4.2 million in 2023. Total ad valorem revenue to the City through 2063 is projected to be \$93.6 million with a 40-year net present value of \$28.9 million.

The Project will generate a total of \$84.9 million in ad valorem revenue for Broward County government through 2063.

The Project will generate a total of \$103.5 million in ad valorem revenue for the Broward County School District through 2063.

South Broward Hospital will receive a total \$2.4 million in ad valorem through 2063.

Broward Children's Services Council will receive a total \$7.3 million in ad valorem through 2063.

Florida Inland Navigation will receive \$479,706 in ad valorem over the same period.

South Florida Water Management District will receive \$4.9 million in ad valorem over the same period.

Ad Valorem @ 96%	2023	40-Yr Total
City of Dania Beach	\$4,278,407	\$93,635,516
Broward County	\$3,883,048	\$84,982,828
Broward School Board	\$4,730,551	\$103,530,941
South Broward Hospital	\$110,621	\$2,421,014
Children's Services Council	\$334,398	\$7,318,507
FI Inland Navigation	\$21,919	\$479,706
South FL Water Mgt. District	<u>\$226,517</u>	<u>\$4,957,457</u>
Total Ad Valorem Taxes	\$13,585,461	\$297,325,968

Appendix A

Appendix Table 1 - Summary of Fiscal Impacts, Tax Values, Revenues

Appendix Table 2 - Fiscal Impact Detail

Appendix Table 3 - Assumptions

Appendix Table 1
FPL Power Plant-Dania Beach
Development Impact Summary

City of Dania Beach Fiscal Impacts	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
City Ad Valorem Revenue	\$1,947,126	\$43,082	\$43,620	\$44,165	\$4,278,407	\$4,161,364	\$4,044,327
Total Operating Revenues Generated	\$1,947,126	\$43,082	\$43,620	\$48,188	\$4,282,475	\$4,165,478	\$4,048,488
Total Operating Expenditures Generated	\$0	\$0	\$0	\$5,857	\$5,945	\$6,034	\$6,124
Net Fiscal Impact of Operations	\$1,947,126	\$43,082	\$43,620	\$42,331	\$4,276,531	\$4,159,444	\$4,042,364

	<u>5 Years</u>	<u>10 Years</u>	<u>20 Years</u>	<u>30 Years</u>	<u>40 Years</u>
Net Present Value of Operating Impact	\$11,896,142	\$20,361,134	\$26,963,698	\$28,484,170	\$28,962,065

Taxing Authorities Ad Valorem @ 96%	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
City of Dania Beach	\$1,947,126	\$43,082	\$43,620	\$44,165	\$4,278,407	\$4,161,364	\$4,044,327
Broward County	\$1,767,196	\$39,100	\$39,589	\$40,084	\$3,883,048	\$3,776,820	\$3,670,598
Broward County School Board	\$2,152,899	\$47,634	\$48,230	\$48,833	\$4,730,551	\$4,601,138	\$4,471,733
South Broward Hospital	\$50,344	\$1,114	\$1,128	\$1,142	\$110,621	\$107,595	\$104,569
Children's Services Council	\$152,186	\$3,367	\$3,409	\$3,452	\$334,398	\$325,250	\$316,103
FI Inland Navigation	\$9,975	\$221	\$223	\$226	\$21,919	\$21,319	\$20,720
South FL Water Mgt. District	\$103,089	\$2,281	\$2,309	\$2,338	\$226,517	\$220,320	\$214,124
Total Ad Valorem Taxes	\$6,182,816	\$136,799	\$138,509	\$140,240	\$13,585,461	\$13,213,806	\$12,842,173

Taxable Value	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>
Dania Beach Parcel							
C00002861551	\$312,852,639	\$0	\$0	\$0	\$706,044,290	\$686,431,948	\$666,819,607
504230-00-0053	<u>\$11,865,800</u>	<u>\$7,184,619</u>	<u>\$7,274,427</u>	<u>\$7,365,357</u>	<u>\$7,457,424</u>	<u>\$7,550,642</u>	<u>\$7,645,025</u>
Total Dania Beach	\$324,718,439	\$7,184,619	\$7,274,427	\$7,365,357	\$713,501,714	\$693,982,590	\$674,464,632
Total Broward County Value	\$324,718,439	\$7,184,619	\$7,274,427	\$7,365,357	\$713,501,714	\$693,982,590	\$674,464,632

Taxable values are shown in the year following construction; (\$763,994,155 + \$20,499,500 = \$764,493,655) value @ 9
Parcel Taxable Values equals land less existing building with value of \$4,769,880.
Land value increases at 1.25% per year.
\$215,735,755 = Average Residual value (27.5% of total cost)

Appendix Table 1
FPL Power Plant-Dania Beach
Development Impact Summary

<u>City of Dania Beach Fiscal Impacts</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
City Ad Valorem Revenue	\$3,927,298	\$3,810,276	\$3,693,260	\$3,576,253	\$3,459,253	\$3,342,260	\$3,225,275
Total Operating Revenues Generated	\$3,931,506	\$3,814,532	\$3,697,566	\$3,580,607	\$3,463,657	\$3,346,716	\$3,229,783
Total Operating Expenditures Generated	\$6,216	\$6,310	\$6,404	\$6,500	\$6,598	\$6,697	\$6,797
Net Fiscal Impact of Operations	\$3,925,290	\$3,808,222	\$3,691,161	\$3,574,107	\$3,457,060	\$3,340,019	\$3,222,985

Net Present Value of Operating Impact

<u>Taxing Authorities Ad Valorem @ 96%</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
City of Dania Beach	\$3,927,298	\$3,810,276	\$3,693,260	\$3,576,253	\$3,459,253	\$3,342,260	\$3,225,275
Broward County	\$3,564,383	\$3,458,175	\$3,351,973	\$3,245,778	\$3,139,589	\$3,033,408	\$2,927,233
Broward County School Board	\$4,342,336	\$4,212,946	\$4,083,565	\$3,954,192	\$3,824,827	\$3,695,471	\$3,566,122
South Broward Hospital	\$101,543	\$98,517	\$95,492	\$92,467	\$89,441	\$86,417	\$83,392
Children's Services Council	\$306,956	\$297,809	\$288,663	\$279,518	\$270,374	\$261,229	\$252,086
FI Inland Navigation	\$20,120	\$19,520	\$18,921	\$18,322	\$17,722	\$17,123	\$16,523
South FL Water Mgt. District	\$207,928	\$201,732	\$195,537	\$189,342	\$183,147	\$176,953	\$170,760
Total Ad Valorem Taxes	\$12,470,563	\$12,098,976	\$11,727,412	\$11,355,871	\$10,984,353	\$10,612,860	\$10,241,391

<u>Taxable Value</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>
<u>Dania Beach Parcel</u>							
C00002861551	\$647,207,265	\$627,594,924	\$607,982,583	\$588,370,241	\$568,757,900	\$549,145,559	\$529,533,217
504230-00-0053	\$7,740,588	\$7,837,345	\$7,935,312	\$8,034,503	\$8,134,935	\$8,236,621	\$8,339,579
Total Dania Beach	\$654,947,853	\$635,432,269	\$615,917,894	\$596,404,744	\$576,892,834	\$557,382,180	\$537,872,796
Total Broward County Value	\$654,947,853	\$635,432,269	\$615,917,894	\$596,404,744	\$576,892,834	\$557,382,180	\$537,872,796

Appendix Table 1
FPL Power Plant-Dania Beach
Development Impact Summary

<u>City of Dania Beach Fiscal Impacts</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>2039</u>
City Ad Valorem Revenue	\$3,108,297	\$2,991,328	\$2,874,366	\$2,757,412	\$2,640,467	\$2,523,529	\$2,406,600
Total Operating Revenues Generated	\$3,112,858	\$2,995,942	\$2,879,034	\$2,762,135	\$2,645,246	\$2,528,365	\$2,411,494
Total Operating Expenditures Generated	\$6,899	\$7,003	\$7,108	\$7,214	\$7,323	\$7,432	\$7,544
Net Fiscal Impact of Operations	\$3,105,959	\$2,988,939	\$2,871,926	\$2,754,921	\$2,637,923	\$2,520,933	\$2,403,950

Net Present Value of Operating Impact

<u>Taxing Authorities Ad Valorem @ 96%</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>2039</u>
City of Dania Beach	\$3,108,297	\$2,991,328	\$2,874,366	\$2,757,412	\$2,640,467	\$2,523,529	\$2,406,600
Broward County	\$2,821,065	\$2,714,904	\$2,608,751	\$2,502,605	\$2,396,466	\$2,290,335	\$2,184,211
Broward County School Board	\$3,436,783	\$3,307,452	\$3,178,130	\$3,048,816	\$2,919,512	\$2,790,217	\$2,660,930
South Broward Hospital	\$80,367	\$77,343	\$74,319	\$71,295	\$68,271	\$65,248	\$62,224
Children's Services Council	\$242,943	\$233,801	\$224,659	\$215,518	\$206,378	\$197,238	\$188,099
FI Inland Navigation	\$15,924	\$15,325	\$14,726	\$14,127	\$13,527	\$12,928	\$12,329
South FL Water Mgt. District	\$164,566	\$158,373	\$152,181	\$145,989	\$139,797	\$133,606	\$127,416
Total Ad Valorem Taxes	\$9,869,946	\$9,498,526	\$9,127,131	\$8,755,762	\$8,384,418	\$8,013,100	\$7,641,809

<u>Taxable Value</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>	<u>2039</u>
<u>Dania Beach Parcel</u>							
C00002861551	\$509,920,876	\$490,308,534	\$470,696,193	\$451,083,852	\$431,471,510	\$411,859,169	\$392,246,828
504230-00-0053	<u>\$8,443,824</u>	<u>\$8,549,371</u>	<u>\$8,656,239</u>	<u>\$8,764,442</u>	<u>\$8,873,997</u>	<u>\$8,984,922</u>	<u>\$9,097,234</u>
Total Dania Beach	\$518,364,699	\$498,857,906	\$479,352,432	\$459,848,293	\$440,345,507	\$420,844,091	\$401,344,061
Total Broward County Value	\$518,364,699	\$498,857,906	\$479,352,432	\$459,848,293	\$440,345,507	\$420,844,091	\$401,344,061

Appendix Table 1
FPL Power Plant-Dania Beach
Development Impact Summary

<u>City of Dania Beach Fiscal Impacts</u>	<u>2040</u>	<u>2041</u>	<u>2042</u>	<u>2043</u>	<u>2044</u>	<u>2045</u>	<u>2046</u>
City Ad Valorem Revenue	\$2,289,680	\$2,172,768	\$2,055,864	\$1,938,969	\$1,822,083	\$1,705,207	\$1,588,339
Total Operating Revenues Generated	\$2,294,631	\$2,177,778	\$2,060,935	\$1,944,101	\$1,827,278	\$1,710,464	\$1,593,660
Total Operating Expenditures Generated	\$7,657	\$7,772	\$7,888	\$8,007	\$8,127	\$8,249	\$8,373
Net Fiscal Impact of Operations	\$2,286,974	\$2,170,007	\$2,053,047	\$1,936,095	\$1,819,151	\$1,702,215	\$1,585,287

Net Present Value of Operating Impact

<u>Taxing Authorities Ad Valorem @ 96%</u>	<u>2040</u>	<u>2041</u>	<u>2042</u>	<u>2043</u>	<u>2044</u>	<u>2045</u>	<u>2046</u>
City of Dania Beach	\$2,289,680	\$2,172,768	\$2,055,864	\$1,938,969	\$1,822,083	\$1,705,207	\$1,588,339
Broward County	\$2,078,095	\$1,971,986	\$1,865,885	\$1,759,793	\$1,653,708	\$1,547,631	\$1,441,563
Broward County School Board	\$2,531,654	\$2,402,386	\$2,273,128	\$2,143,880	\$2,014,642	\$1,885,413	\$1,756,195
South Broward Hospital	\$59,201	\$56,178	\$53,156	\$50,133	\$47,111	\$44,089	\$41,068
Children's Services Council	\$178,960	\$169,822	\$160,685	\$151,549	\$142,413	\$133,278	\$124,144
FI Inland Navigation	\$11,730	\$11,131	\$10,532	\$9,934	\$9,335	\$8,736	\$8,137
South FL Water Mgt. District	\$121,225	\$115,035	\$108,846	\$102,657	\$96,469	\$90,281	\$84,093
Total Ad Valorem Taxes	\$7,270,545	\$6,899,307	\$6,528,097	\$6,156,915	\$5,785,761	\$5,414,635	\$5,043,538

<u>Taxable Value</u>	<u>2040</u>	<u>2041</u>	<u>2042</u>	<u>2043</u>	<u>2044</u>	<u>2045</u>	<u>2046</u>
<u>Dania Beach Parcel</u>							
C00002861551	\$372,634,486	\$353,022,145	\$333,409,803	\$313,797,462	\$294,185,121	\$274,572,779	\$254,960,438
504230-00-0053	\$9,210,949	\$9,326,086	\$9,442,662	\$9,560,695	\$9,680,204	\$9,801,207	\$9,923,722
Total Dania Beach	\$381,845,435	\$362,348,231	\$342,852,465	\$323,358,157	\$303,865,325	\$284,373,986	\$264,884,159
Total Broward County Value	\$381,845,435	\$362,348,231	\$342,852,465	\$323,358,157	\$303,865,325	\$284,373,986	\$264,884,159

Appendix Table 1
FPL Power Plant-Dania Beach
Development Impact Summary

<u>City of Dania Beach Fiscal Impacts</u>	<u>2047</u>	<u>2048</u>	<u>2049</u>	<u>2050</u>	<u>2051</u>	<u>2052</u>	<u>2053</u>
City Ad Valorem Revenue	\$1,471,480	\$1,354,631	\$1,355,393	\$1,356,165	\$1,356,947	\$1,357,738	\$1,358,540
Total Operating Revenues Generated	\$1,476,866	\$1,360,082	\$1,360,911	\$1,361,751	\$1,362,602	\$1,363,463	\$1,364,335
Total Operating Expenditures Generated	\$8,498	\$8,626	\$8,755	\$8,886	\$9,020	\$9,155	\$9,292
Net Fiscal Impact of Operations	\$1,468,368	\$1,351,457	\$1,352,156	\$1,352,865	\$1,353,582	\$1,354,308	\$1,355,043

Net Present Value of Operating Impact

<u>Taxing Authorities Ad Valorem @ 96%</u>	<u>2047</u>	<u>2048</u>	<u>2049</u>	<u>2050</u>	<u>2051</u>	<u>2052</u>	<u>2053</u>
City of Dania Beach	\$1,471,480	\$1,354,631	\$1,355,393	\$1,356,165	\$1,356,947	\$1,357,738	\$1,358,540
Broward County	\$1,335,503	\$1,229,452	\$1,230,144	\$1,230,844	\$1,231,554	\$1,232,272	\$1,233,000
Broward County School Board	\$1,626,986	\$1,497,788	\$1,498,631	\$1,499,485	\$1,500,349	\$1,501,225	\$1,502,111
South Broward Hospital	\$38,046	\$35,025	\$35,045	\$35,065	\$35,085	\$35,105	\$35,126
Children's Services Council	\$115,010	\$105,877	\$105,937	\$105,997	\$106,058	\$106,120	\$106,183
FI Inland Navigation	\$7,539	\$6,940	\$6,944	\$6,948	\$6,952	\$6,956	\$6,960
South FL Water Mgt. District	\$77,906	\$71,720	\$71,760	\$71,801	\$71,842	\$71,884	\$71,927
Total Ad Valorem Taxes	\$4,672,471	\$4,301,433	\$4,303,854	\$4,306,305	\$4,308,788	\$4,311,301	\$4,313,846

<u>Taxable Value</u>	<u>2047</u>	<u>2048</u>	<u>2049</u>	<u>2050</u>	<u>2051</u>	<u>2052</u>	<u>2053</u>
<u>Dania Beach Parcel</u>							
C00002861551	\$235,348,097	\$215,735,755	\$215,735,755	\$215,735,755	\$215,735,755	\$215,735,755	\$215,735,755
504230-00-0053	<u>\$10,047,768</u>	<u>\$10,173,365</u>	<u>\$10,300,532</u>	<u>\$10,429,289</u>	<u>\$10,559,655</u>	<u>\$10,691,651</u>	<u>\$10,825,296</u>
Total Dania Beach	\$245,395,865	\$225,909,120	\$226,036,287	\$226,165,044	\$226,295,410	\$226,427,406	\$226,561,051
Total Broward County Value	\$245,395,865	\$225,909,120	\$226,036,287	\$226,165,044	\$226,295,410	\$226,427,406	\$226,561,051

Appendix Table 1
FPL Power Plant-Dania Beach
Development Impact Summary

<u>City of Dania Beach Fiscal Impacts</u>	<u>2054</u>	<u>2055</u>	<u>2056</u>	<u>2057</u>	<u>2058</u>	<u>2059</u>	<u>2060</u>
City Ad Valorem Revenue	\$1,359,351	\$1,360,173	\$1,361,005	\$1,361,847	\$1,362,700	\$1,363,563	\$1,364,437
Total Operating Revenues Generated	\$1,365,219	\$1,366,113	\$1,367,019	\$1,367,937	\$1,368,866	\$1,369,807	\$1,370,759
Total Operating Expenditures Generated	\$9,432	\$9,573	\$9,717	\$9,862	\$10,010	\$10,160	\$10,313
Net Fiscal Impact of Operations	\$1,355,787	\$1,356,540	\$1,357,302	\$1,358,074	\$1,358,855	\$1,359,646	\$1,360,447

Net Present Value of Operating Impact

<u>Taxing Authorities Ad Valorem @ 96%</u>	<u>2054</u>	<u>2055</u>	<u>2056</u>	<u>2057</u>	<u>2058</u>	<u>2059</u>	<u>2060</u>
City of Dania Beach	\$1,359,351	\$1,360,173	\$1,361,005	\$1,361,847	\$1,362,700	\$1,363,563	\$1,364,437
Broward County	\$1,233,736	\$1,234,482	\$1,235,237	\$1,236,001	\$1,236,775	\$1,237,559	\$1,238,352
Broward County School Board	\$1,503,008	\$1,503,916	\$1,504,836	\$1,505,767	\$1,506,710	\$1,507,665	\$1,508,631
South Broward Hospital	\$35,147	\$35,168	\$35,190	\$35,212	\$35,234	\$35,256	\$35,279
Children's Services Council	\$106,246	\$106,310	\$106,375	\$106,441	\$106,508	\$106,575	\$106,644
FI Inland Navigation	\$6,964	\$6,968	\$6,973	\$6,977	\$6,981	\$6,986	\$6,990
South FL Water Mgt. District	\$71,970	\$72,013	\$72,057	\$72,102	\$72,147	\$72,193	\$72,239
Total Ad Valorem Taxes	\$4,316,422	\$4,319,031	\$4,321,672	\$4,324,346	\$4,327,054	\$4,329,796	\$4,332,572

<u>Taxable Value</u>	<u>2054</u>	<u>2055</u>	<u>2056</u>	<u>2057</u>	<u>2058</u>	<u>2059</u>	<u>2060</u>
<u>Dania Beach Parcel</u>							
C00002861551	\$215,735,755	\$215,735,755	\$215,735,755	\$215,735,755	\$215,735,755	\$215,735,755	\$215,735,755
504230-00-0053	\$10,960,613	\$11,097,620	\$11,236,340	\$11,376,795	\$11,519,005	\$11,662,992	\$11,808,780
Total Dania Beach	\$226,696,368	\$226,833,375	\$226,972,096	\$227,112,550	\$227,254,760	\$227,398,747	\$227,544,535
Total Broward County Value	\$226,696,368	\$226,833,375	\$226,972,096	\$227,112,550	\$227,254,760	\$227,398,747	\$227,544,535

Appendix Table 1
FPL Power Plant-Dania Beach
Development Impact Summary

<u>City of Dania Beach Fiscal Impacts</u>	<u>2061</u>	<u>2062</u>	<u>2063</u>
City Ad Valorem Revenue	\$1,365,322	\$1,366,218	\$1,367,126
Total Operating Revenues Generated	\$1,371,724	\$1,372,702	\$1,373,691
Total Operating Expenditures Generated	\$10,468	\$10,625	\$10,784
Net Fiscal Impact of Operations	\$1,361,257	\$1,362,077	\$1,362,907

Net Present Value of Operating Impact

<u>Taxing Authorities Ad Valorem @ 96%</u>	<u>2061</u>	<u>2062</u>	<u>2063</u>	<u>40-Year Total (2023-2063)</u>
City of Dania Beach	\$1,365,322	\$1,366,218	\$1,367,126	\$93,635,516
Broward County	\$1,239,155	\$1,239,969	\$1,240,792	\$84,982,828
Broward County School Board	\$1,509,610	\$1,510,601	\$1,511,604	\$103,530,941
South Broward Hospital	\$35,301	\$35,325	\$35,348	\$2,421,014
Children's Services Council	\$106,713	\$106,783	\$106,854	\$7,318,507
FI Inland Navigation	\$6,995	\$6,999	\$7,004	\$479,706
South FL Water Mgt. District	\$72,286	\$72,333	\$72,381	\$4,957,457
Total Ad Valorem Taxes	\$4,335,382	\$4,338,228	\$4,341,109	\$297,325,968

<u>Taxable Value</u>	<u>2061</u>	<u>2062</u>	<u>2063</u>
<u>Dania Beach Parcel</u>			
C00002861551	\$215,735,755	\$215,735,755	\$215,735,755
504230-00-0053	\$11,956,389	\$12,105,844	\$12,257,167
Total Dania Beach	\$227,692,144	\$227,841,599	\$227,992,922
Total Broward County Value	\$227,692,144	\$227,841,599	\$227,992,922

Appendix Table 2
FPL Power Plant-Dania Beach
Fiscal Impact Detail

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>
<u>Revenues</u>										
Ad Valorem Taxes	\$1,947,126	\$43,082	\$43,620	\$44,165	\$4,278,407	\$4,161,364	\$4,044,327	\$3,927,298	\$3,810,276	\$3,693,260
Local Option Fuel Taxes	\$0	\$0	\$0	\$87	\$88	\$90	\$91	\$92	\$94	\$95
Franchise Fees	\$0	\$0	\$0	\$359	\$365	\$370	\$376	\$381	\$387	\$393
Utility Taxes	\$0	\$0	\$0	\$662	\$672	\$682	\$693	\$703	\$714	\$724
Business Licenses	\$0	\$0	\$0	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Sales Tax - Half Cent	\$0	\$0	\$0	\$482	\$489	\$496	\$504	\$511	\$519	\$527
Charges for Services	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$1,432</u>	<u>\$1,454</u>	<u>\$1,476</u>	<u>\$1,498</u>	<u>\$1,520</u>	<u>\$1,543</u>	<u>\$1,566</u>
Total Revenues	\$1,947,126	\$43,082	\$43,620	\$48,188	\$4,282,475	\$4,165,478	\$4,048,488	\$3,931,506	\$3,814,532	\$3,697,566
<u>Expenditures</u>										
Legislative-General	\$0	\$0	\$0	\$67	\$68	\$69	\$70	\$71	\$72	\$73
Executive-General	\$0	\$0	\$0	\$126	\$128	\$130	\$132	\$134	\$136	\$138
Financial and Administrative	\$0	\$0	\$0	\$177	\$179	\$182	\$185	\$188	\$190	\$193
Legal Counsel	\$0	\$0	\$0	\$159	\$161	\$164	\$166	\$169	\$171	\$174
Comprehensive Planning	\$0	\$0	\$0	\$190	\$193	\$196	\$199	\$202	\$205	\$208
Other General Government	\$0	\$0	\$0	\$303	\$308	\$313	\$317	\$322	\$327	\$332
Law Enforcement	\$0	\$0	\$0	\$1,772	\$1,799	\$1,826	\$1,853	\$1,881	\$1,909	\$1,938
Fire Control	\$0	\$0	\$0	\$2,294	\$2,328	\$2,363	\$2,399	\$2,435	\$2,471	\$2,508
Garbage/Solid Waste	\$0	\$0	\$0	\$365	\$371	\$376	\$382	\$388	\$393	\$399
Road/Street Facilities	\$0	\$0	\$0	\$240	\$244	\$247	\$251	\$255	\$258	\$262
Industry Development	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$164</u>	<u>\$166</u>	<u>\$168</u>	<u>\$171</u>	<u>\$174</u>	<u>\$176</u>	<u>\$179</u>
Total Expenditures	\$0	\$0	\$0	\$5,857	\$5,945	\$6,034	\$6,124	\$6,216	\$6,310	\$6,404
Net Fiscal Impact	\$1,947,126	\$43,082	\$43,620	\$42,331	\$4,276,531	\$4,159,444	\$4,042,364	\$3,925,290	\$3,808,222	\$3,691,161

Appendix Table 2
FPL Power Plant-Dania
Fiscal Impact Detail

	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	<u>2038</u>
<u>Revenues</u>										
Ad Valorem Taxes	\$3,576,253	\$3,459,253	\$3,342,260	\$3,225,275	\$3,108,297	\$2,991,328	\$2,874,366	\$2,757,412	\$2,640,467	\$2,523,529
Local Option Fuel Taxes	\$97	\$98	\$99	\$101	\$102	\$104	\$106	\$107	\$109	\$110
Franchise Fees	\$399	\$405	\$411	\$417	\$423	\$430	\$436	\$443	\$449	\$456
Utility Taxes	\$735	\$746	\$757	\$769	\$780	\$792	\$804	\$816	\$828	\$840
Business Licenses	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Sales Tax - Half Cent	\$535	\$543	\$551	\$559	\$567	\$576	\$585	\$593	\$602	\$611
Charges for Services	<u>\$1,590</u>	<u>\$1,613</u>	<u>\$1,638</u>	<u>\$1,662</u>	<u>\$1,687</u>	<u>\$1,712</u>	<u>\$1,738</u>	<u>\$1,764</u>	<u>\$1,791</u>	<u>\$1,817</u>
Total Revenues	\$3,580,607	\$3,463,657	\$3,346,716	\$3,229,783	\$3,112,858	\$2,995,942	\$2,879,034	\$2,762,135	\$2,645,246	\$2,528,365
<u>Expenditures</u>										
Legislative-General	\$74	\$75	\$76	\$77	\$78	\$80	\$81	\$82	\$83	\$84
Executive-General	\$140	\$142	\$145	\$147	\$149	\$151	\$153	\$156	\$158	\$160
Financial and Administrative	\$196	\$199	\$202	\$205	\$208	\$211	\$214	\$218	\$221	\$224
Legal Counsel	\$176	\$179	\$182	\$184	\$187	\$190	\$193	\$196	\$199	\$202
Comprehensive Planning	\$211	\$214	\$217	\$220	\$224	\$227	\$230	\$234	\$237	\$241
Other General Government	\$337	\$342	\$347	\$352	\$357	\$363	\$368	\$374	\$379	\$385
Law Enforcement	\$1,967	\$1,997	\$2,027	\$2,057	\$2,088	\$2,119	\$2,151	\$2,183	\$2,216	\$2,249
Fire Control	\$2,546	\$2,584	\$2,623	\$2,662	\$2,702	\$2,743	\$2,784	\$2,826	\$2,868	\$2,911
Garbage/Solid Waste	\$405	\$411	\$418	\$424	\$430	\$437	\$443	\$450	\$457	\$463
Road/Street Facilities	\$266	\$270	\$274	\$278	\$283	\$287	\$291	\$296	\$300	\$304
Industry Development	<u>\$181</u>	<u>\$184</u>	<u>\$187</u>	<u>\$190</u>	<u>\$193</u>	<u>\$196</u>	<u>\$198</u>	<u>\$201</u>	<u>\$204</u>	<u>\$208</u>
Total Expenditures	\$6,500	\$6,598	\$6,697	\$6,797	\$6,899	\$7,003	\$7,108	\$7,214	\$7,323	\$7,432
Net Fiscal Impact	\$3,574,107	\$3,457,060	\$3,340,019	\$3,222,985	\$3,105,959	\$2,988,939	\$2,871,926	\$2,754,921	\$2,637,923	\$2,520,933

Appendix Table 2
FPL Power Plant-Dania
Fiscal Impact Detail

	<u>2039</u>	<u>2040</u>	<u>2041</u>	<u>2042</u>	<u>2043</u>	<u>2044</u>	<u>2045</u>	<u>2046</u>	<u>2047</u>	<u>2048</u>
<u>Revenues</u>										
Ad Valorem Taxes	\$2,406,600	\$2,289,680	\$2,172,768	\$2,055,864	\$1,938,969	\$1,822,083	\$1,705,207	\$1,588,339	\$1,471,480	\$1,354,631
Local Option Fuel Taxes	\$112	\$114	\$115	\$117	\$119	\$121	\$123	\$124	\$126	\$128
Franchise Fees	\$463	\$470	\$477	\$484	\$491	\$499	\$506	\$514	\$521	\$529
Utility Taxes	\$853	\$866	\$879	\$892	\$905	\$919	\$933	\$947	\$961	\$975
Business Licenses	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Sales Tax - Half Cent	\$620	\$630	\$639	\$649	\$659	\$668	\$678	\$689	\$699	\$709
Charges for Services	<u>\$1,845</u>	<u>\$1,872</u>	<u>\$1,901</u>	<u>\$1,929</u>	<u>\$1,958</u>	<u>\$1,987</u>	<u>\$2,017</u>	<u>\$2,047</u>	<u>\$2,078</u>	<u>\$2,109</u>
Total Revenues	\$2,411,494	\$2,294,631	\$2,177,778	\$2,060,935	\$1,944,101	\$1,827,278	\$1,710,464	\$1,593,660	\$1,476,866	\$1,360,082
<u>Expenditures</u>										
Legislative-General	\$86	\$87	\$88	\$90	\$91	\$92	\$94	\$95	\$97	\$98
Executive-General	\$163	\$165	\$168	\$170	\$173	\$175	\$178	\$181	\$183	\$186
Financial and Administrative	\$228	\$231	\$234	\$238	\$242	\$245	\$249	\$253	\$256	\$260
Legal Counsel	\$205	\$208	\$211	\$214	\$217	\$221	\$224	\$227	\$231	\$234
Comprehensive Planning	\$245	\$248	\$252	\$256	\$260	\$263	\$267	\$271	\$276	\$280
Other General Government	\$391	\$397	\$403	\$409	\$415	\$421	\$427	\$434	\$440	\$447
Law Enforcement	\$2,283	\$2,317	\$2,352	\$2,387	\$2,423	\$2,459	\$2,496	\$2,534	\$2,572	\$2,610
Fire Control	\$2,955	\$2,999	\$3,044	\$3,090	\$3,136	\$3,183	\$3,231	\$3,279	\$3,328	\$3,378
Garbage/Solid Waste	\$470	\$477	\$485	\$492	\$499	\$507	\$514	\$522	\$530	\$538
Road/Street Facilities	\$309	\$314	\$318	\$323	\$328	\$333	\$338	\$343	\$348	\$353
Industry Development	<u>\$211</u>	<u>\$214</u>	<u>\$217</u>	<u>\$220</u>	<u>\$224</u>	<u>\$227</u>	<u>\$230</u>	<u>\$234</u>	<u>\$237</u>	<u>\$241</u>
Total Expenditures	\$7,544	\$7,657	\$7,772	\$7,888	\$8,007	\$8,127	\$8,249	\$8,373	\$8,498	\$8,626
Net Fiscal Impact	\$2,403,950	\$2,286,974	\$2,170,007	\$2,053,047	\$1,936,095	\$1,819,151	\$1,702,215	\$1,585,287	\$1,468,368	\$1,351,457

Appendix Table 2
FPL Power Plant-Dania
Fiscal Impact Detail

	<u>2049</u>	<u>2050</u>	<u>2051</u>	<u>2052</u>	<u>2053</u>	<u>2054</u>	<u>2055</u>	<u>2056</u>	<u>2057</u>	<u>2058</u>
<u>Revenues</u>										
Ad Valorem Taxes	\$1,355,393	\$1,356,165	\$1,356,947	\$1,357,738	\$1,358,540	\$1,359,351	\$1,360,173	\$1,361,005	\$1,361,847	\$1,362,700
Local Option Fuel Taxes	\$130	\$132	\$134	\$136	\$138	\$140	\$142	\$144	\$146	\$149
Franchise Fees	\$537	\$545	\$553	\$562	\$570	\$579	\$587	\$596	\$605	\$614
Utility Taxes	\$990	\$1,005	\$1,020	\$1,035	\$1,051	\$1,067	\$1,083	\$1,099	\$1,115	\$1,132
Business Licenses	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Sales Tax - Half Cent	\$720	\$731	\$742	\$753	\$764	\$776	\$787	\$799	\$811	\$823
Charges for Services	<u>\$2,141</u>	<u>\$2,173</u>	<u>\$2,206</u>	<u>\$2,239</u>	<u>\$2,272</u>	<u>\$2,306</u>	<u>\$2,341</u>	<u>\$2,376</u>	<u>\$2,412</u>	<u>\$2,448</u>
Total Revenues	\$1,360,911	\$1,361,751	\$1,362,602	\$1,363,463	\$1,364,335	\$1,365,219	\$1,366,113	\$1,367,019	\$1,367,937	\$1,368,866
<u>Expenditures</u>										
Legislative-General	\$100	\$101	\$103	\$104	\$106	\$107	\$109	\$110	\$112	\$114
Executive-General	\$189	\$192	\$195	\$198	\$201	\$204	\$207	\$210	\$213	\$216
Financial and Administrative	\$264	\$268	\$272	\$276	\$280	\$285	\$289	\$293	\$298	\$302
Legal Counsel	\$238	\$241	\$245	\$248	\$252	\$256	\$260	\$264	\$268	\$272
Comprehensive Planning	\$284	\$288	\$292	\$297	\$301	\$306	\$310	\$315	\$320	\$325
Other General Government	\$453	\$460	\$467	\$474	\$481	\$489	\$496	\$503	\$511	\$518
Law Enforcement	\$2,649	\$2,689	\$2,730	\$2,770	\$2,812	\$2,854	\$2,897	\$2,940	\$2,985	\$3,029
Fire Control	\$3,429	\$3,480	\$3,533	\$3,586	\$3,639	\$3,694	\$3,749	\$3,806	\$3,863	\$3,921
Garbage/Solid Waste	\$546	\$554	\$562	\$571	\$579	\$588	\$597	\$606	\$615	\$624
Road/Street Facilities	\$359	\$364	\$370	\$375	\$381	\$386	\$392	\$398	\$404	\$410
Industry Development	<u>\$244</u>	<u>\$248</u>	<u>\$252</u>	<u>\$256</u>	<u>\$259</u>	<u>\$263</u>	<u>\$267</u>	<u>\$271</u>	<u>\$275</u>	<u>\$279</u>
Total Expenditures	\$8,755	\$8,886	\$9,020	\$9,155	\$9,292	\$9,432	\$9,573	\$9,717	\$9,862	\$10,010
Net Fiscal Impact	\$1,352,156	\$1,352,865	\$1,353,582	\$1,354,308	\$1,355,043	\$1,355,787	\$1,356,540	\$1,357,302	\$1,358,074	\$1,358,855

Appendix Table 2
FPL Power Plant-Dania
Fiscal Impact Detail

	<u>2059</u>	<u>2060</u>	<u>2061</u>	<u>2062</u>	<u>2063</u>
<u>Revenues</u>					
Ad Valorem Taxes	\$1,363,563	\$1,364,437	\$1,365,322	\$1,366,218	\$1,367,126
Local Option Fuel Taxes	\$151	\$153	\$155	\$158	\$160
Franchise Fees	\$623	\$633	\$642	\$652	\$662
Utility Taxes	\$1,149	\$1,166	\$1,184	\$1,201	\$1,219
Business Licenses	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Sales Tax - Half Cent	\$836	\$848	\$861	\$874	\$887
Charges for Services	<u>\$2,485</u>	<u>\$2,522</u>	<u>\$2,560</u>	<u>\$2,598</u>	<u>\$2,637</u>
Total Revenues	\$1,369,807	\$1,370,759	\$1,371,724	\$1,372,702	\$1,373,691
<u>Expenditures</u>					
Legislative-General	\$115	\$117	\$119	\$121	\$123
Executive-General	\$219	\$223	\$226	\$229	\$233
Financial and Administrative	\$307	\$311	\$316	\$321	\$325
Legal Counsel	\$276	\$280	\$284	\$288	\$293
Comprehensive Planning	\$329	\$334	\$339	\$344	\$350
Other General Government	\$526	\$534	\$542	\$550	\$559
Law Enforcement	\$3,075	\$3,121	\$3,168	\$3,215	\$3,263
Fire Control	\$3,980	\$4,039	\$4,100	\$4,161	\$4,224
Garbage/Solid Waste	\$634	\$643	\$653	\$662	\$672
Road/Street Facilities	\$416	\$422	\$429	\$435	\$442
Industry Development	<u>\$284</u>	<u>\$288</u>	<u>\$292</u>	<u>\$297</u>	<u>\$301</u>
Total Expenditures	\$10,160	\$10,313	\$10,468	\$10,625	\$10,784
Net Fiscal Impact	\$1,359,646	\$1,360,447	\$1,361,257	\$1,362,077	\$1,362,907

Appendix Table 3
FPL Power Plant-Dania Beach
Fiscal Impact Assumptions

Millage

City of Dania Beach	6.2462 Mills
Broward County	5.6690 Mills
Broward County School Board	6.9063 Mills
South Broward Hospital	0.1615 Mills
Children's Services Council	0.4882 Mills
FI Inland Navigation	0.0320 Mills
South FL Water Mgt. District	0.3307 Mills

Existing Tangible Personal Property is eliminated and replaced.

New equipment is valued at 90% of \$784.4 million cost.

New equipment is depreciated straight-line over 40 years.

New equipment has residual value of 27.5% of initial cost.

Land appreciates at 1.25% annually

Power plant begins operations in mid-2022

APPENDIX 10.8

STORMWATER MANAGEMENT SYSTEM DESIGN, DEWATERING PLANS, AND CALCULATIONS

**(Note: Stormwater Management and Dewatering Calculations can be
found on the attached CD in Appendix 10.8)**



July 20th, 2017

FPL Dania Beach Energy Center Storm Water Management Summary Report

Overall Project Description

Florida Power & Light Company (FPL) is proposing to modernize the existing two (2) 2x1 combined cycles, Units 4 and 5, with a latest technology 2x1 Combined Cycle plant at FPL's existing Lauderdale Site in Dania Beach, FL. The proposed plant consists of two (2) natural gas fired combustion turbines and one (1) steam turbine to produce energy for FPL customers.

The proposed portion of the facility to be modernized is made up of two (2) main areas that are proposed to be redeveloped. The area that lies south of the existing cooling water discharge canal is proposed to be developed in to the Main Plant Area, and the area that lies north of the existing cooling water discharge canal is proposed to be developed in to a permanent Construction and Maintenance Use Area. See Figure 1 for a pictorial representation of the areas.



Figure 1 – Site Redevelopment Areas

The existing area of the proposed project Main Plant Area is currently an existing electric generating facility consisting of a two (2) 2x1 combined cycle units known as Unit 4 and 5; along with supporting facilities such as water treatment areas, water and fuel oil tank areas, substation areas, and other auxiliary equipment areas. The surfacing of the proposed Main Plant Area to be redeveloped mostly consists of paved areas, existing storm water ponds, and some aggregate and grassed areas. The proposed Main Plant Area is made up of approximately 39.72 acres to be permanently redeveloped that will be managed by the proposed Storm Water Management System (SWMS).

The existing area of the proposed Permanent Construction and Maintenance Use Area mainly consists of existing wetlands and an existing construction laydown area. The proposed Permanent Construction and Maintenance Use Area is made up of 23.12 acres with a total basin area of 25.64 acres that contributes to the proposed Stormwater Water Management System. An additional 6.9 acres will be temporarily developed to support construction activities, but will later be allowed to return to a natural state.

Site Soil and Ground Water Table Conditions

Soils located within the proposed development area are generally classified as Class C soils according to the National Resources Conservation Service (NRCS) hydrologic soils group classifications. NRCS Class C soils are generally found to have low infiltration rates and consist of sandy soils with significant levels of fine soils. Soils in the previous developed areas of the proposed site area are generally composed of 4 to 5 feet of loose to medium dense granular and sandy limerock fill material over soft compressible organics underlain by a thin layer of sand.

The *Broward County Water Table – Average Wet Season Map* estimates the antecedent wet ground water table to be at +0.5feet NAVD88, and will be used as the basis for establishing the bottom of the proposed dry detention ponds and discharge elevations. Within the existing wetland areas, the geotechnical investigation conducted by Ardaman and Associates (*Subsurface Exploration of Dania Beach Energy Center* June 9, 2017) noted water observed at the surface. Although this is believed to be perched water due to the poor infiltration rates of the wetlands, the antecedent wet ground water table within the wetlands will be conservatively used as +1.5feet NAVD88 based on this observation.

Pre-Development Storm Water System – Main Plant Area

The existing site currently has two permitted outfall locations for stormwater discharge to offsite surface waters; D-001 and D-0B1. D-001 discharges to the South Fork of New River and D-0B1 discharges to the Dania Cutoff Canal. Existing internal Outfalls I-1B4 (Pond 1), I-1B3 (Pond 2) and I-1B2 (Pond 3) discharge to the existing plant cooling water discharge canal which ultimately discharges through the D-001 discharge location to the South Fork of New River. Existing Pond 5 discharges through existing Outfall D-0B1. The proposed modernized site will be discharging the site runoff from the storm water management system via the same two outfalls to offsite surface waters. Additional stormwater runoff from the existing areas contributes to D-001 and D-0B1, but is outside the limits of the area to be redeveloped.

The existing stormwater basin area within the proposed Main Plant Area modernization area is made up of six main storm water sub-basins, contributing runoff to five existing storm water ponds. The pre-development storm water conveyance system consists of storm sewer inlet systems, culverts, storm water lift stations and overland flow. The four existing ponds in the west plant area contribute runoff to D-001. The fifth existing pond located in the southeast area of the Main Plant

Area, contributes runoff to D-0B1. The total pre-development basin area within proposed Main Plant Area modernization area that contributes runoff to offsite surface waters is 39.72 acres. The sub-basin areas and their impervious and pervious makeup in the pre-development state are summarized in the table below.

Pre Development Phase Site Acreage & Surfacing – Main Plant Area						
Sub Basin	Total Area		Pervious (Acres)	Impervious - other (Acres)	Impervious - Building (Acres)	Impervious - Water Surface (Acres)
	(Acres)	(% Impervious)*				
SB-1	9.49	82%	1.70	4.49	0.78	2.52
SB-2	2.82	80%	0.55	1.71	0.10	0.46
SB-3	6.94	91%	0.60	4.64	1.47	0.23
SB-4A	2.02	88%	0.25	0.83	0.00	0.94
SB-4B	0.94	100%	0.00	0.94	0.00	0.00
SB-5	8.15	100%	0.00	6.40	1.25	0.50
SB-6	9.36	13%	8.10	0.48	0.00	0.78
Total Area Contributing to D-001 (SB 1 thru 4)	22.21	86%	3.10	12.61	2.35	4.15
Total Area Contributing to D-0B1 (SB-5)	8.15	100%	0.00	6.40	1.25	0.50
Total Area Contributing to onsite wetlands with no offsite discharge (SB-6)	9.36	13%	8.10	0.48	0.00	0.78
Total Main Plant Area	39.72	72%	3.10	19.49	3.60	5.43

* % Impervious includes Impervious - Other, Impervious - Building, and Impervious - Water Surfaces.

In addition, the Pre-Development discharged rates for the Main Plant Area are summarized in the table below.

Pre-Development Discharge Rate – Main Plant Area				
Pond	Discharge Location	Storm Event	Rainfall Depth* (in)	Discharge Rate (cfs)
Pond 1	Cooling Water Discharge Canal	25YR-72HR	13.5	19.82
Pond 2	Cooling Water Discharge Canal	25YR-72HR	13.5	18.04
Pond 3	Cooling Water Discharge Canal	25YR-72HR	13.5	55.79
Pond 4	Pond 1	25YR-72HR	13.5	-
Pond 5	Dania Cutoff Canal	25YR-72HR	13.5	48.86
Total Discharge to Cooling Water Discharge Canal		25YR-72HR	13.5	89.01
Total Discharge to Dania Cutoff Canal		25YR-72HR	13.5	48.86

*Rainfall depths based on NOAA Atlas 14 – Precipitation Frequency Atlas of the United States

Reference Black & Veatch Calculation 58.5406.1101 “Pre-Development Storm Water Analysis – Main Plant Area” for further details.

Pre-Development Storm Water System – Construction and Maintenance Use Area

The area to be converted to the Permanent Construction and Maintenance use area lies east of the existing substation and south of the existing GT Park Site No. 2 area, and has a total stormwater basin area of 25.64 acres. The area consists of existing wetlands with some aggregate surfaced access roads, in addition to an aggregate surfaced area that was used as a Construction Use area during the Unit 6 construction. The storm water runoff from within the area is collected by the wetlands within the area and discharges to the existing plant cooling water discharge Canal. The existing wetlands within the area also collect storm water from the southern portions of the GT Park Site No. 2 and the existing fuel gas regulation yard within the area. Due to the natural saturated conditions of the wetlands, the wetlands are considered nearly impervious. The table below provides a summary of the existing surfacing conditions within the Construction and Maintenance Use Area.

Existing Construction and Maintenance Use Site Acreage & Surfacing						
Sub Basin	Total Area		Pervious	Impervious - other	Impervious - Wetlands	Impervious - Water Surface
	(Acres)	(% Impervious)*	(Acres)	(Acres)	(Acres)	(Acres)
SB-T1	5.29	89%	0.56	3.21	1.52	0.00
SB-T2	6.17	100%	0.00	6.06	0.11	0.00
SB-T3	14.18	100%	0.00	3.85	10.33	0.00
Total Basin	25.64	98%	0.56	13.12	11.96	0.00

* % Impervious includes Impervious - Other, Impervious - Building, and Impervious - Water Surfaces.

Reference Black & Veatch Calculation 58.5406.1103 "Construction and Maintenance Use Area Pond Treatment Volume Analysis" for further details.

Proposed Storm Water Management System – Main Plant Area

The proposed Main Plant Area to be redeveloped is located in Broward County therefore the storm water management system (SWMS) is governed by Environmental Resource Permitting (ERP) (Chapter 62-330, F.A.C.) and the Florida Department of Environmental Protection (FDEP) regulations for Storm Water Discharge (Chapter 62-25, F.A.C.). According to these regulations, the rules of the local water management district are adopted by reference for FDEP ERP requirements. Volume II and portions of Volume I are adopted by reference in chapter 62-330, F.A.C., and are therefore rules of the FDEP. In accordance with paragraph 373.4131(2)(a), F.S. (2012), they are also rules of the South Florida Water Management District (SFWMD). The storm water management regulations for the Project site location in Broward County is administered by the SFWMD. Thus, the SWMS for this project is designed to meet or exceed the criteria set forth in the SFWMD ERP Information Manual, Volume I and Volume II. The proposed storm water management system design was also designed in accordance with local code requirements, including the Broward County, City of Dania Beach, and City of Hollywood Land Development Codes.

The Main Plant Area has been designed in accordance with the SFWMD regulations and established Best Management Practices (BMPs). The storm water runoff from the proposed re-development area is designed to be routed via overland flow, ditches, and an underground storm sewer system to two proposed dry detention ponds, identified as Pond P-1 and Pond P-2 within the design drawings and calculations. The proposed storm water dry detention ponds are each designed with an outfall control structure to provide post-development vs pre-development attenuation of storm events up to the 25 year – 72 hour design storm event. As a best practice for power plant design, the ponds were also checked for the 100 year – 72 hour storm event to verify that equipment foundations, buildings, and roads would not flood during this event. The tables below provide a summary of the proposed sub-basin areas for the Post-Development condition in the modernized Main Plant Area.

Post Development Phase Site Acreage & Surfacing – Main Plant Area						
Sub Basin	Total Area		Pervious	Impervious - other	Impervious - Building	Impervious - Water Surface
	(Acres)	(% Impervious)*	(Acres)	(Acres)	(Acres)	(Acres)
SB-1	9.05	93%	0.60	4.47	0.00	3.98
SB-2	8.55	95%	0.45	8.10	0.00	0.00
SB-3	1.05	0%	1.05	0.00	0.00	0.00
SB-4	9.01	78%	2.00	6.75	0.26	0.00
SB-5	4.13	96%	0.17	1.44	0.57	1.95
SB-6	1.05	100%	0.00	1.05	0.00	0.00
SB-7	3.09	38%	1.91	0.66	0.52	0.00
SB-8	3.79	100%	0.00	2.91	0.00	0.88

Total Area Contributing to D-001 from Main Plant Area	25.53	84%	4.01	16.14	0.52	4.86
Total Area Contributing to D-0B1 from Main Plant Area	14.19	85%	2.17	9.24	0.83	1.95
Total Main Plant Basin Area	39.72	84%	6.18	25.38	1.35	6.81
* % Impervious includes Impervious - Other, Impervious - Building, and Impervious - Water Surfaces.						

The proposed dry detention ponds were also designed to provide water quality treatment through residence time. The storm water pond design criterion is to provide treatment for the greater of either 1.0 inch of runoff over the total disturbed area, or 2.5 inches over the impervious areas with a 25% allowable reduction for dry detention ponds. The 2.5 inches over the impervious area criteria was determined to be the governing design case for the Project, therefore the proposed storm water pond detention treatment volume was analyzed to accommodate this condition. The analysis represented that both pond P-1 and pond P-2 provides more than the required treatment volume between the bottom of pond and the invert of the weirs. The orifices on the pond were set below the bottom of the pond, to allow the pond to fully drain, and sized to meet the criteria that no more than ½ of the required treatment volume is discharged within 24 hours.

The storm water system was also designed to attenuate the 25-year/72-hour storm event to meet the SFWMD requirements to provide discharges to the existing outfall locations at a rate less than the pre-development condition as summarized in the table above. The ponds were also checked to ensure they are capable of providing a controlled discharge of the 100-year/72-hour storm event runoff without over topping the equipment/building foundations and the top of embankments. The Post-Development discharge rates for the modernization area are summarized in the table below.

Post Development Discharge Rate – Main Plant Area				
Discharge Location	Storm Event	Rainfall Depth * (in)	Allowable Discharge Rate (cfs)	Proposed Discharge Rate (cfs)
Cooling Water Discharge Canal	25yr-72hr	13.50	89.01	45.37
Dania Cutoff Canal	25yr-72hr	13.50	48.86	46.62
*Rainfall depths based on NOAA Atlas 14 – Precipitation Frequency Atlas of the United States				

A plant loop road will surround the main equipment areas (power block), and will be asphalt surfaced. Maintenance access roads will also be asphalt surfaced. The area inside the plant loop road around the equipment foundations will be aggregate surfaced, along with the switchyard, balance of plant equipment, and maintenance/laydown areas outside of the plant loop road. Areas outside the equipment areas will be grass vegetated along with the long term laydown areas except for access roads. The exterior embankment of the plant area and the pond slopes will be vegetated with a bahia grass mix.

Non-Contact storm water (non-oil/water sources) from the power block and associated balance of plant equipment areas will be conveyed to the dry detention ponds via stormwater sewer system, ditches and culverts. Non-Contact stormwater from the areas outside of the power block including the permanent Construction Laydown/Maintenance areas will be conveyed to the ponds via the combination of overland flow, ditches, and the storm sewer system.

See Black & Veatch Drawing 195190-DS-1103 and 195190-DS-1104 for a layout of the proposed Storm Water Management System Plan, and Black & Veatch Calculation 58.5406.1102 Post Development Stormwater Analysis, for analysis of the storm water management system.

Contact Storm Water (Oily Waste Water): Contact storm water from areas with oil containing sources will be routed to oil/water separators via an oil/water waste piping system. Secondary containment at the source will be provided for areas with large oil storage volumes. A normally closed valve will be provided on the secondary containments. After storm events in excess of 0.5 inches, secondary containments will be inspected for large presence of free-product or organic phase hydrocarbons. In the event no large presence is observed, the valve will be opened and the secondary containment will be drained to the oil/water separators for treatment. If a large presence is observed, it will be determined to either drain the containment to the oil/water separator or provide cleanup directly at the containment. The oil/water separators will be also used as the secondary containment for smaller oil storage volumes and sources, with the exception of minor containment areas with very small oil storage volumes and sources which will be contained, verified as oil free following a rain event and then discharged to the surrounding surface. The oil/water separators will be sized during detail design to handle the largest single emergency spill from an open curbed area (non-normally closed valve containment), with allowance for fire water and precipitation. The oil/water separator will be designed to provide treatment with an effluent concentration of 15 ppm or less within the effluent. The oily waste will be retained in the oil/water separator and transported offsite as required to an approved disposal or recycling facility in accordance with local regulatory requirements. The treated oil/water separator effluent will be discharged to the waste water collection sump and/or the onsite stormwater ponds and ultimately discharged to the outfalls in to the existing cooling water discharge canal. The oil/water separator will be equipped with oil content monitoring on the discharge. In the event the oil/water separator effluent approaches 15ppm, the valve on the oil/water discharge will be closed. In the extreme event one of the secondary containment areas are breached, dry detention pond discharge structures will be blocked off to prevent discharge, and immediate cleanup will be provided. A detailed Spill Prevention Control and Countermeasure (SPCC) plan will be maintained on-Site during construction activities, and further revised for plant operation.

Reference Black & Veatch Drawing 195190-DS-1106 "Contact Storm Water Management Plan" for further details

Earthwork Fill Operations: The plant area will be filled to a nominal elevation of 10.0 (NAVD88), with the "Top of Concrete" of the buildings and structures set at 10.5 (NAVD88) at a minimum. In addition the roads are proposed with a nominal Top of Pavement elevation of 10.0 (NAVD88).

The proposed site elevations are designed to raise the site above Base Flood Elevations (BFE) including the predicted storm surge tide elevations, and to facilitate site drainage. Suitable clean fill material will be imported from offsite to raise the site to the design elevation. The construction contractor will be required to appropriately test the imported fill material to assure that it is free of contamination per applicable requirements.

Dewatering Operations: During installation of deeper foundations and underground utilities, well point and sock systems will be utilized to dewater the excavations to facilitate installation and backfill operations. The dewatering effluent waters will be released to the storm water detention ponds or temporary ponds. The ponds will allow for settlement of the sediment in the dewatering effluent, prior to release through the pond outfalls. The pond outfalls will be monitored to assure that discharge turbidity levels are below 29 NTU against background. In the event turbidity levels

approach 29 NTU against background, the construction contractor will be required to implement additional BMPs to lower turbidity levels to acceptable levels. Surface waters entering excavations will be collected in turbidity filtered sumps and released to the storm water detention ponds for further treatment prior to release. Further specific dewatering means and methods will be determined by the construction contractor.

Construction Storm Water Management – Main Plant Area: The storm water detention ponds within the Main Plant Area will be developed as soon as work progress allows for their build out. In the interim, stormwater from construction activities will be routed to the existing storm water management ponds. Proposed Ponds P-1, P-2 and P-3 were designed considering the surfacings of the craft parking area, construction office trailer area, and the construction laydown areas within the Main Plant Area will be left permanently in place to support future maintenance activities. Temporary sumps, lift stations, and ditches will be used during construction to manage the storm water until the permanent storm water management system is established.

At the end of construction once the proposed ponds are fully operational and the majority of the grass vegetation and surfacing has been established; the temporary BMP devices will be removed. In addition, the construction contractor will be required to remove any sediment build up within the ponds that occurred during construction activities, prior to placing the pond in to permanent operation.

Flood Protection – Permanent Modernization Area: The proposed equipment and buildings are located outside the 100 year flood plain as represented on FEMA Flood Insurance Rate Map 121011C0554H (See attached). The existing west detention ponds are shown on the FEMA FIRM maps as located within the Zone AH (1% annual chance flood), but it has been determined through topographic surveys that the pond embankments are above the Base Flood Elevation (BFE) elevation, and the pond is only hydrologically connected to the flood plain through the existing control structure. The proposed nominal site elevation of 10 feet NAVD88 (8.5 NGVD29) is above the surrounding BFE of 3.0 and 4.0 feet NAVD88 (1.5 and 2.5 NGVD29). The proposed dry detention pond is designed to provide a controlled discharge of the 100 year – 72 hour design storm event without overtopping the perimeter pond embankments. As a power plant design best practice, the storm water management system is also designed to stage the 100 year – 72 hour storm event below the road elevation of 9.5 feet NAVD88 (8.0 NGVD 29) without flooding of the equipment or building foundations at 10.5 NAVD88 minimum (8.9 NGVD29). In addition, Broward County Land Development Code requires that the critical facilities be located a minimum of 3 feet above the elevations provided on the Broward County 100 year Flood Plain Map. The aforementioned map provides a 100 year flood elevation of 5.5 feet NAVD88 based on the site location (see attached).

The proposed site elevation was also analyzed against the data published in the report “Unified Sea Level Rise Projection - South East Florida” (Seal Level Rise Work Group, October 2015). Based on the publication the seal level rise may be between 6 to 10 inches by 2030 and 14 to 26 inches by 2060. Considering the plant design life, an additional 27 inches was considered on top of the current base flood elevation (5.5 feet NAVD88) to determine a potential future flood elevation of approximately 7.75 feet NAVD 88. Based on this potential flood elevation the proposed top of concrete elevation of 10.5 NAVD 88 would be well above the potential future flood elevation by approximately 33 inches.

Flood Protection – Temporary Construction Areas: Portions of the Temporary Construction Areas are located within Zone AH (1% annual flood chance). Minimum fill will be placed in these areas to

allow the areas to be useable as construction laydown and parking areas during construction, and to minimize the probability of flooding during construction.

Reference Black & Veatch Drawing 195190-DS-1110 "Flood Plain Overlay" for an overlay of the FEMA FIRM Flood Plain Boundaries on the proposed project site.

Proposed Storm Water Management System – Construction and Maintenance Use Area

The existing area within the permanent Construction and Maintenance Use Area will be cleared and grubbed, stabilized and filled to a nominal elevation of 5 feet NAVD88. The area will be used as construction laydown and fabrication areas during construction, and will be used as maintenance use areas post construction. Aggregate surfaced roads will be installed throughout the area to support construction and maintenance access within the area. The table below provides a summary of the proposed final surfacing conditions for the Construction and Maintenance Use Area.

Final Construction and Maintenance Use Acreage & Surfacing						
Sub Basin	Total Area		Pervious	Impervious - other	Impervious - Building	Impervious - Water Surface
	(Acres)	(% Impervious)*	(Acres)	(Acres)	(Acres)	(Acres)
SB-T1	5.29	43%	3.00	2.29	0.00	0.00
SB-T2	6.17	0%	6.17	0.00	0.00	0.00
SB-T3	14.18	25%	10.60	0.48	0.00	3.10
Total	25.64	23%	19.77	2.77	0.00	3.10
* % Impervious includes Impervious - Other, Impervious - Building, and Impervious - Water Surfaces.						

The Construction and Maintenance area in the post development condition will be graded south, and this stormwater will be collected via overland flow in proposed Pond 4 for water quality treatment. Pond 4 is proposed as a dry detention pond and will discharge to the south to the existing discharge canal at a peak discharge rate of 85.95 cfs during the post development condition for the 25 year – 72 hour design storm event. The Main Plant Area contributes a peak discharge rate of 45.37 cfs to the existing discharge canal during the post development condition for the 25 year – 72 hour design storm event, for a combined post development peak discharge rate of 131.32 cfs to the existing discharge canal. The Post vs. Pre development rates for the Main Plant Area and the Construction and Maintenance Use Area is summarized in the table below.

Due to the combined discharge rate from the Main Plant Area and the Construction and Maintenance Use Area being less than the combined pre-development discharge rate, further stormwater attenuation is not required for the storm water discharge from the Construction and Maintenance Use Area. The proposed Pond 4 is designed a dry detention pond to provide water quality treatment through residence time. Pond 4 will also provide a controlled discharge point with an orifice to draw down the treatment volume, and a broad crested weir to control the discharge above the treatment volume.

Combined Pre vs Post Development Peak Discharge (25 year – 72 hour)			
	Basin Area	Pre-Development	Post Development
Main Plant Area Basin	39.72 acres	89.01 cfs	45.37 cfs
Construction and Maintenance Use Area Basin	25.64 acres ¹	81.61 cfs	85.95 cfs
Total ²		170.62 cfs	131.32 cfs
- Includes 2.52 acres of existing facilities (southern portion of GT Park No. 2, Fuel Gas Regulation Area), that contributes runoff to the Construction and Maintenance Use Area stormwater basin. - An additional 6.9 acres will be temporary developed for laydown areas during construction and later restored, but does not contribute stormwater runoff to the Main Plant Area or Construction and Maintenance Use Area storm water basins.			

Reference Black & Veatch Calculation 58.5406.1103 "Construction and Maintenance Use Area Pond Treatment Volume Analysis" for further details.

Construction Storm Water Management - Permanent Construction and Maintenance Use Area. During construction activities, as a best management practice for water quality treatment, the stormwater runoff from the permanent Construction and Maintenance Use Area will be routed via overland flow to perimeter swales with overflow to a natural vegetated buffer, separated by a silt fence. Temporary outfall structures with manually operated normally closed valves will be located in the perimeter swales to allow discharge to the existing discharge canal after large storm events once site management has determined the water quality in the perimeter swales will not raise the turbidity level at the discharge point above 29 NTU against background. Additional erosion and sediment control measures will be implemented by site management as necessary.

Construction Storm Water Management – Temporary Construction Use Areas. Additional temporary construction laydown and maintenance areas are proposed within the SCA boundary, but outside the limits of the permanent modernization area. As a best management practice for water quality treatment, the stormwater runoff from the temporary construction areas will be routed to perimeter swales with overflow to a natural vegetated buffer, separated by a silt fence. Temporary outfall structures with manually operated normally closed valves will be located in the perimeter swales to allow discharge to the existing discharge canal after large storm events once site management has determined the water quality in the perimeter swales will not raise the turbidity level at the discharge point above 29 NTU against background. Additional erosion and sediment control measures will be implemented by site management as necessary. Impervious surfacing within the temporary laydown areas will be minimized to the extent practical, and for the most part will be limited to access roads and smaller aggregate pad areas.

At the end of construction the aggregate surfacing within the temporary construction areas will be removed and the areas allowed to reestablish vegetation. Once the vegetation has established sufficiently the temporary BMP devices will be removed.

Attachments

Drawings

The following listed drawings are included as supporting documents to the storm water design

Drawing No.	Title
195190-DS-1000	Overall Plot Plan
195190-DS-1001	Site Arrangement
195190-DS-1101	Pre-Development Storm Water Management Plan – Permanent Modernization Area
195190-DS-1102	Pre-Development Storm Water Management Plan – Construction and Maintenance Use Area
195190-DS-1103	Proposed Storm Water Management Plan– Main Plant Area – Area 1
195190-DS-1104	Proposed Storm Water Management Plan– Main Plant Area – Area 2
195190-DS-1105	Temporary Storm Water Management Plan– Construction and Maintenance Use Area
195190-DS-1105B	Proposed Storm Water Management Plan– Construction and Maintenance Use Area
195190-DS-1106	Contact Storm Water Management Plan
195190-DS-1107	Proposed Storm Water Management - Sections and Details
195190-DS-1108	Erosion and Sediment Control Plan
195190-DS-1109	Erosion and Sediment Control Plan – Sections and Details
195190-DS-1110	Flood Plain Overlay

Calculations

The following listed Calculations are included as supporting documents to the storm water design

Calculation File No.	Title
195190.58.5406.1101	Pre-Development Storm Water Analysis – Main Plant Area
195190.58.5406.1102	Post- Development Storm Water Analysis – Main Plant Area
195190.58.5406.1103	Construction and Maintenance Use Area Pond Treatment Volume Analysis

Reference Maps

The following listed Reference Maps are included as supporting documents to the storm water design

Title
FEMA Flood Insurance Rate Map No. 121011C0554H
Broward County 100 Year Flood Plain Map



BLACK & VEATCH

Client FPL
Project Dania Beach **Unit** 7
Project No. 195190 **File No.** 58.4300.1101
Title Dewatering System Design and Flow Rate
Estimate

Computed By G. Mergia
Date 07/05/2017
Verified By B. Gomer
Date 07/06/2017
Page 3

gpm= gallons per minute

ho = the total head of the dewatered
aquifer in feet,

s = wellpoint spacing in feet,

Ro = radius of influence in feet,

k = hydraulic conductivity,

b = wellpoint diameter in inches,

D = Aquifer depth in feet

H = Aquifer thickness in feet,

5.0 Analysis

Subsurface Conditions

Subsurface lithology was established from subsurface investigation boring logs and geotechnical report (Ref 1). The investigation boring and piezometer location are shown in Figure 1 below.

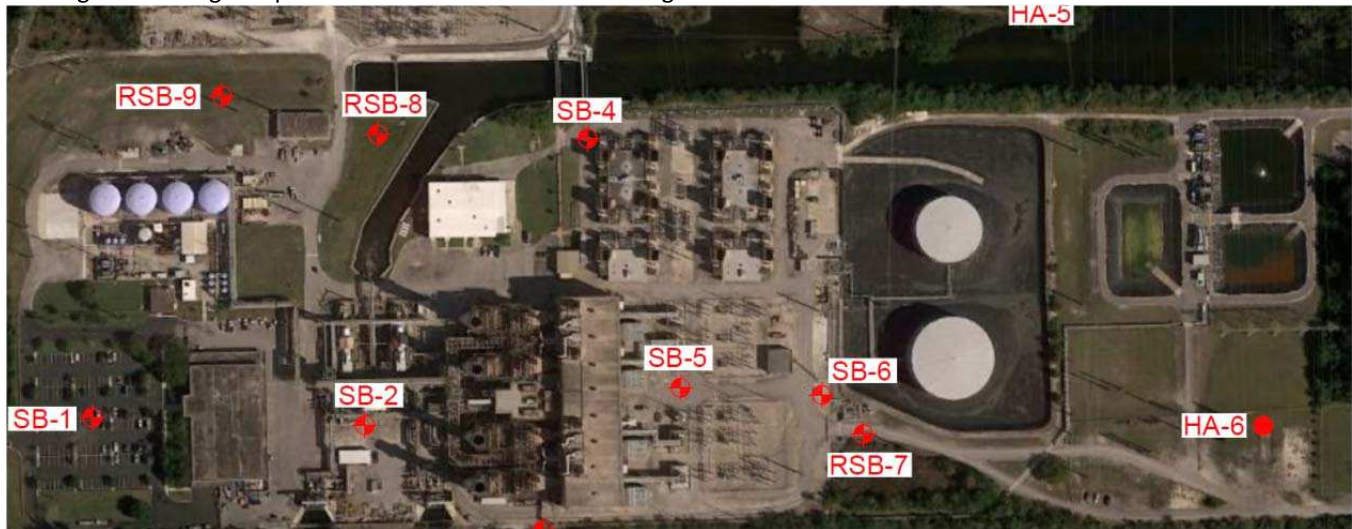


Figure 1: Investigation Boring Locations

Existing ground elevation at the power block area is approximately 7 feet NAVD88 (Ref 1). The soil profile consists of approximate 5 to 7 feet of sandy material underlain by 4 to 5 feet of brown organic soft silty clay layer underlain by sand. The maximum depth of boring investigation was 60 feet below the current ground surface. The depth to water table varied between 2 and 5 feet below ground surface. Shallower water table was noted at borings close to the water impoundments where the ground surface elevation is about 3 feet NAVD88. The average water table within the power block area is at 5 feet below current ground surface which is elevation of 2 feet NAVD88 (Ref 2).

Dewatering Required

The excavations highlighted on Figure 2 are planned within the power block area. The depths of excavations stated on Figure 2 are from the final grade elevation of 10 feet NAVD88 (Ref 2). Several of the long trench excavations required are planned for construction of underground utilities and sumps. Deeper excavations are planned to construct sump foundations at the Auxiliary Cooling System and the Waste Water sumps shown on Figure 2.

The shallow trench excavations including the 10 foot wide by 6 feet deep Underground corridor and the Circulating water pipe corridor excavation are assumed not to require dewatering since the bottom of the excavations will be above the water table (Ref 2). This dewatering calculation is prepared for all other excavations listed on Figure 2.

- 10' wide x 6' deep U/G Utility Corridor
- 20' wide x 12' deep U/G Utility Corridor
- 6' wide x 10' deep Storm Sewer Pipe Corridor
- Circ Water Pipe Corridor - Varies (See Plan)

Note: Foundation and Powerblock Bathtub
Excavations to be above water table unless noted
otherwise in plan.

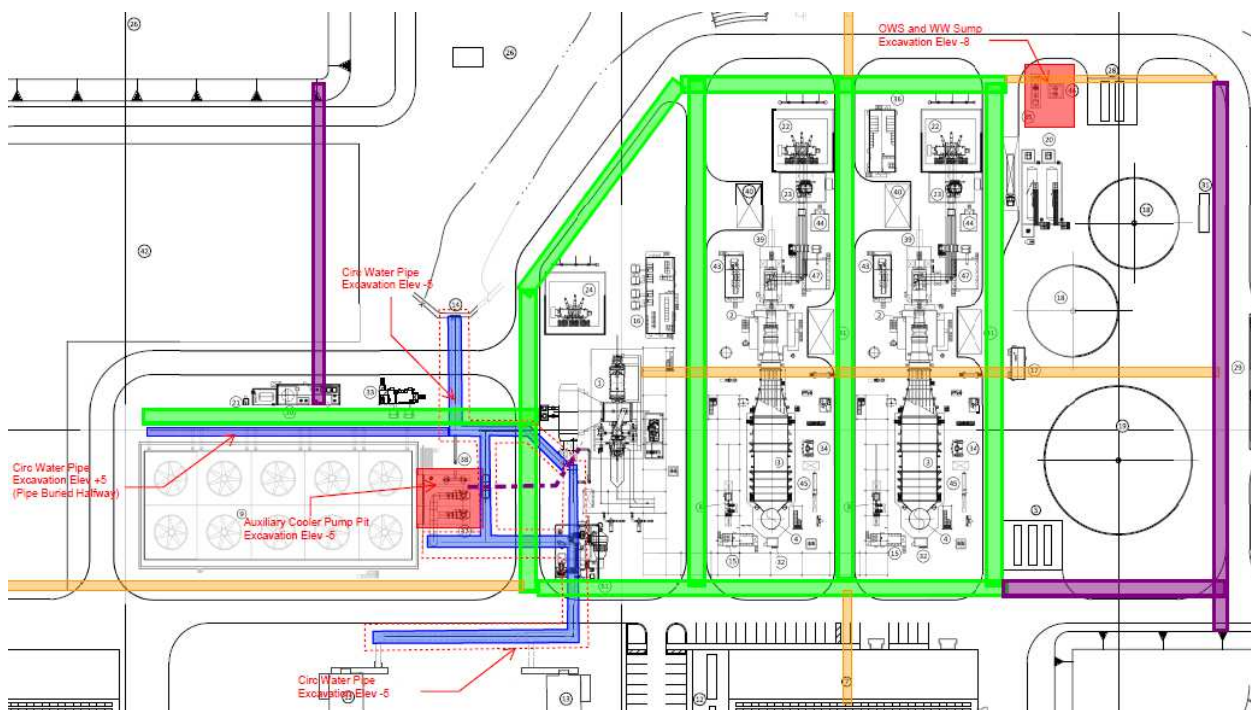


Figure 2: Excavation Areas

Site Aquifer characteristics and Subsurface Condition

The site soils consist of 5 to 7 ft of loose to medium dense granular and sandy lime rock fill material followed by 4 to 5 ft soft compressible organics, underlain by soft, slightly silty sandy fragmented limestone to depths of 43 to 48 feet. Hard limestone was encountered at depths of 53 to 58 feet and extended to the deepest boring depth of 60 feet (Ref 1).

The water table at the power block area is the top of the unconfined aquifer. The Biscayne Aquifer is the highly permeable water table aquifer in Broward and Dade Counties in Florida (Ref-3). The aquifer is the thickest in the Atlantic Coastal areas and wedges out in the western Dade and Broward counties. From the aquifer thickness provided in Ref 3, the aquifer thickness may be up to 120 feet. An aquifer thickness of 60 feet is used based on the anticipated use of wellpoints and the depth to hard limestone (53 to 58 feet) encountered in the borings (Ref 1).

At piezometers installed on site the water table was at approximately 2 to 5 feet depths. Shallower water table was noted at borings close to the water impoundments where the ground surface elevation is about 3 feet NAVD88. The average water table within the power block area is at 5 feet below current ground surface which is elevation of 2 feet NAVD88 (Ref

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2). As indicated in Ref 2, the mapped seasonal high water table is anticipated to be closer to 0.5 feet NAVD88 and elevation 2 feet NAVD88 is considered conservative. The higher observed groundwater may be due to the drilling methods, proximity of stormwater ponds, and the water content of the organic/peat layer.

Horizontal hydraulic conductivity of the aquifer (K_h) at the site was evaluated from site slug test results at 3 piezometers (Ref -1). The slug tested piezometers were screened between 5 ft and 15 ft depth range which is a good representative range of the upper zone of the aquifer to be dewatered. The horizontal hydraulic conductivities from the test results ranged between 17.4 and 212 feet/day. Average $k_h = (67.1+212.2+17.4)/3 = 98.9$ feet/day (use 99 feet/day).

Dewatering Design for 20 foot wide x 12' Deep U/G Utility Corridor

This U/G utility corridor excavation occurs between and surrounding the power units and over the northern part of the Auxiliary Cooling System area. The excavation is expected to take place in sequences of 500 feet lengths. A typical 500 foot excavation is designed for dewatering.

Bottom of excavation elevation = -2 ft NAVD88, 9 feet from existing grade during excavation.

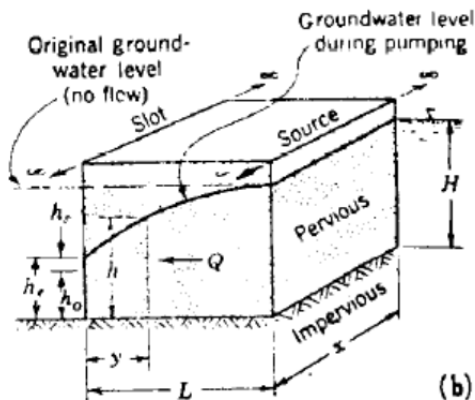
Soil from boring logs consists of fine sand and silty lime rock (Ref 1). Soil is Type C based on OSHA classification (Ref 4). For short-term excavation a slope of 1 ½ :1 is allowed by OSHA.

Excavation width at top = $20 + 2 \times 9 \times 1.5 = 47$ ft

Assume header pipes at 2 feet distance from excavation edge,

Distance between well point lines = $47 + 2 \times 2 = 51$ feet.

Use the average k_h value of 99 feet/day for design. This gives 0.06875 feet/minute ($= 99 \text{ ft/day} \times 1 \text{ day}/24 \text{ hr} \times 1 \text{ hr}/60 \text{ min}$).



FLOW

$$Q = \frac{kx}{2L} (H^2 - h_o^2)$$

Where

Q = pumping rate in cu-ft/day

H = static (no pumping) ground water head in feet

h_o = pumping water level within the pumping well

kx = horizontal hydraulic conductivity in feet/day

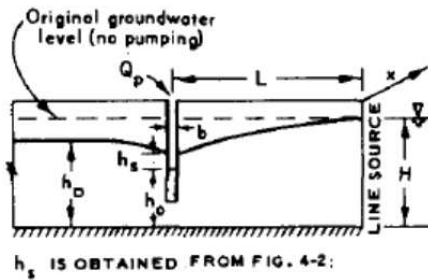
L = Distance from the pumping well to the point of no drawdown (radius of influence) in feet

The flow to a partially penetrating wellpoint is described by the following equation (Ref 5):

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(c)

$$Q_p = \left(0.73 + 0.27 \frac{H - h_0}{H} \right) \frac{kx}{2L} (H^2 - h_0^2) \quad (3)$$

WHERE $L \geq 3H$

GRAVITY FLOW

Where,

Q_p = pumping rate at the wellpoint

H = The static water table aquifer head in feet

h_0 = pumping water level head inside the wellpoint

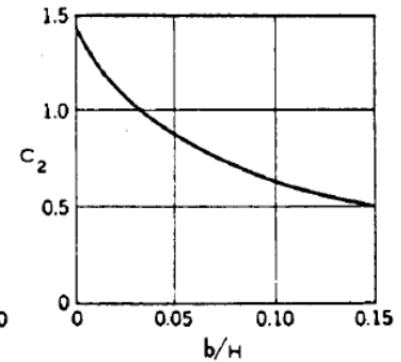
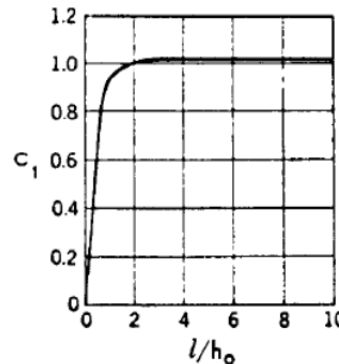
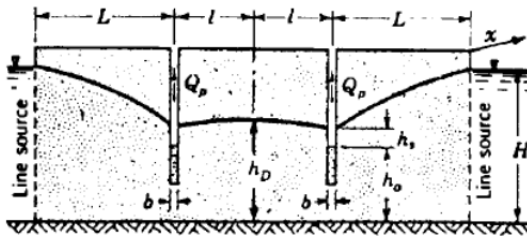
kx = horizontal hydraulic conductivity of the aquifer

L = radius of influence of a pumping well (distance from wellpoint to point of zero drawdown)

When two lines of partially penetrating wellpoints along each side of a long excavation are used, the flow for one slot with one line source in a water table aquifer is described with the following equation.

$$h_D = h_0 \left[\frac{C_1 C_2}{L} (H - h_0) + 1 \right]$$

The values of C_1 and C_2 are obtained from the following:



Where

h_D = head at midpoint of the trench in feet

b = wellpoint diameter in feet

l = half the distance between the wellpoints on each side of the trench

L = distance to a line source or radius of influence in feet

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The Radius of Influence of a well is estimated using the following equation (Ref 5)

RADIUS OF INFLUENCE, R, CAN BE ESTIMATED FOR
BOTH ARTESIAN AND GRAVITY FLOWS BY

$$R = C (H - h_w) \sqrt{k} \quad (1)$$

WHERE R, H, AND h_w ARE DEFINED PREVIOUSLY
AND EXPRESSED IN FEET. COEFFICIENT
OF PERMEABILITY, k, IS EXPRESSED IN
 10^{-4} CM/SEC.

AND C = 3 FOR ARTESIAN AND GRAVITY FLOWS
TO A WELL.

C = 1.5 TO 2.0 FOR A SINGLE LINE OF
WELLPOINTS.

The value of h_w is set equal to the required drawdown at the wellpoint, which is appropriate for small drawdowns (Ref 5).

A spreadsheet program was used for design. Two lines wellpoints (64 wells on each side at 8 foot spacing) should be used for the excavation. Wellpoint should be 20 feet deep with 6 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 802gpm. The estimated daily discharge is about 1.2 million gallons.

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MODEL DATA

500 feet long, 20 feet wide, 12 feet deep UG Utility Corridor				
Excavation Area		a' Width	ft	51
		b' Length	ft	500
Excavation Time Length		t = 7 days	months	0.2333
Time of excavation		t	min	10080
Ground Surface Elevation			ft	7
Groundwater Depth			ft	5
Groundwater Elevation		H	ft	2
Elev. Bottom of Excavation			ft	-2
Required Drawdown at Mid Excavation		H-hd	ft	5
Required Lowered Water Table Elev.			ft	-3
Estimated Required Drawdown at Wellpoint		H-ho	ft	7
Estimated Water Level at Wellpoint		ho	ft	53.0
Elevation of bottom of Unconfined Aquifer			ft	-58
Aquifer Depth		B	ft	65
Aquifer Thickness		H	ft	60
		hd required mid-excavation	ft	55
Coefficient of Permeability		kh=kv=	ft/min	0.0688
		kh=kv=	cm/s	0.03493
Transmissivity		T=kH	ft ² /min	4.125
		T=kH	gpd/ft	44431
Estimate flow and drawdown at mid-excavation with two lines of slots				
Estimate Influence distance from wellpoint line Sichardt Form		$L=1.5(H-h)\text{SQRT}(k \text{ in microns/sec})$	ft	196
Estimate l/ho		l=	ft	26
		l/ho=		0.5
Determine C1 from Graph c, fig 4-5, Ref. #4		C1=		0.6
Estimate b/H		b = wellpoint diameter	ft	0.167
		b/H=		0.003
Determine C2 from Graph d, fig 4-5, Ref. #4		C2=		1.40
Estimate Excavation drawdown due to one line WP		$hd=ho*(C1*C2*(H-ho)/L+1)$	ft	54.59
Excavation drawdown			ft	5.4
Note within the excavation the combined drawdown of well points is expected to dewater the area to below the depth of excavation				
Well spacing		s	ft	8
Estimate flow/wellpoint		$Qp=(0.73+0.27(H-ho)/H)*(ks(H^2-ho^2)/2)$	ft ³ /mi	0.8
Estimate flow/wellpoint		Qp=	gpm	6.31
Estimate Limiting flow rate per foot of well screen		$qc = 2*PI*rw*SQRT(kh)*7.48/1.07$	gpm	1.92
Minimum wellpoint screen length required			ft	3.29
Depth of well point required			ft	15.29
Approximate suction lift with wellpoint required			ft	13
Single stage wellpoint has practical maximum suction lift of 22 feet				
Use 20 feet deep well point with 6 foot screen at the bottom				
Required number of wellpoints on each side of excavation		n		64
Estimated total flow from two wellpoint lines		Qt	gpm	802
Estimated daily total flow			gpd	1,154,754

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Dewatering Design for 6 foot wide x 10' Deep Storm Sewer Pipe Corridor

Three trench excavations are required for the storm sewer corridor. The excavations consist of 500, 212 feet segments on the east side of the power block area and a 330 feet segment on the west side of the power block area. Two lines of well points on each side of the excavations are evaluated.

Bottom of excavation elevation = 0 ft NAVD88, 7 feet from existing grade.

Using a slope of 1 ½ :1 is allowed by OSHA.

Excavation width at top = $6 + 2 \times 7 \times 1.5 = 27$ ft

Assume header pipes at 2 feet distance from excavation edge,

Distance between well point lines = $27 + 2 \times 2 = 31$ feet.

Average K_h value = 99 feet/day

Results of the wellpoint system analyses using spreadsheet program are outlined below for the three excavations.

For a 500 foot segment, two lines wellpoints (51 wells on each side at 10 foot spacing) should be used. Wellpoint should be 18 feet deep with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 810 gpm. The estimated daily discharge is about 1.2 million gallons.

For a 212 foot segment, two lines wellpoints (25 wells on each side at 9 foot spacing) should be used. Wellpoint should be 18 feet deep with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 351 gpm. The estimated daily discharge is about 510,000 gallons.

For a 330 foot segment, two lines wellpoints (38 wells on each side at 9 foot spacing) should be used. Wellpoint should be 18 feet deep with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 538 gpm. The estimated daily discharge is about 780,000 gallons.

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MODEL DATA

500' long 6' wide x 10' deep Storm Sewer Pipe Corridor

Excavation Area	a' Width	ft	31
	b' Length	ft	500
Excavation Time Length	t = 7 days	months	0.2333
Time of excavation	t	min	10080
Ground Surface Elevation		ft	7
Groundwater Depth		ft	5
Groundwater Elevation	H	ft	2
Elev. Bottom of Excavation		ft	0
Required Drawdown at Mid Excavation	H-hd	ft	3
Required Lowered Water Table Elev.		ft	-1
Estimated Required Drawdown at Wellpoint	H-ho	ft	5
Estimated Water Level at Wellpoint	ho	ft	55.0
Elevation of bottom of Unconfined Aquifer		ft	-58
Aquifer Depth	B	ft	65
Aquifer Thickness	H	ft	60
	hd required mid-excavation	ft	57
Coefficient of Permeability	kh=kv=	ft/min	0.0688
	kh=kv=	cm/s	0.03493
Transmissivity	T=kH	ft ² /min	4.125
	T=kH	gpd/ft	44431

Estimate flow and drawdown at mid-excavation with two lines of slots

Estimate Influence distance from wellpoint line Sichardt Form	$L=1.5(H-h)\text{SQRT}(k \text{ in microns/sec})$	ft	140
Estimate l/ho	l=	ft	16
	l/ho=		0.3
Determine C1 from Graph c, fig 4-5, Ref. #4	C1=		0.5
Estimate b/H	b = wellpoint diameter	ft	0.167
	b/H=		0.003
Determine C2 from Graph d, fig 4-5, Ref. #4	C2=		1.35
Estimate Excavation drawdown due to one line WP	$hd=ho*(C1*C2*(H-ho)/L+1)$	ft	56.32
Excavation drawdown		ft	3.7

Note within the excavation the combined drawdown of well points is expected to dewater the area to below the depth of excavation

Well spacing	s	ft	10
Estimate flow/wellpoint	$Qp=(0.73+0.27(H-ho)/H)*(ks(H^2-ho^2)/2)$	ft ³ /mi	1.1
Estimate flow/wellpoint	Qp=	gpm	7.94
Estimate Limiting flow rate per foot of well screen	$qc = 2*PI*rw*SQRT(kh)*7.48/1.07$	gpm	1.92
Minimum wellpoint screen length required		ft	4.14
Depth of well point required		ft	14.14
Approximate suction lift with wellpoint required		ft	11

Single stage wellpoint has practical maximum suction lift of 22 feet

Use 18 feet deep well point with 5 foot screen at the bottom

Required number of wellpoints on each side of excavation	n		51
Estimated total flow from two wellpoint lines	Qt	gpm	810
Estimated daily total flow		gpd	1,165,875

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MODEL DATA

212' long 6' wide x 10' deep Storm Sewer Pipe Corridor

Excavation Area	a' Width	ft	31
	b' Length	ft	212
Excavation Time Length	t = 7 days	months	0.2333
Time of excavation	t	min	10080
Ground Surface Elevation		ft	7
Groundwater Depth		ft	5
Groundwater Elevation	H	ft	2
Elev. Bottom of Excavation		ft	0
Required Drawdown at Mid Excavation	H-hd	ft	3
Required Lowered Water Table Elev.		ft	-1
Estimated Required Drawdown at Wellpoint	H-ho	ft	5
Estimated Water Level at Wellpoint	ho	ft	55.0
Elevation of bottom of Unconfined Aquifer		ft	-58
Aquifer Depth	B	ft	65
Aquifer Thickness	H	ft	60
	hd required mid-excavation	ft	57
Coefficient of Permeability	kh=kv=	ft/min	0.0688
	kh=kv=	cm/s	0.03493
Transmissivity	T=kH	ft ² /min	4.125
	T=kH	gpd/ft	44431

Estimate flow and drawdown at mid-excavation with two lines of slots

Estimate Influence distance from wellpoint line Sichardt Form	$L=1.5(H-h)\text{SQRT}(k \text{ in microns/sec})$	ft	140
Estimate l/ho	l=	ft	16
	l/ho=		0.3
Determine C1 from Graph c, fig 4-5, Ref. #4	C1=		0.5
Estimate b/H	b = wellpoint diameter	ft	0.167
	b/H=		0.003
Determine C2 from Graph d, fig 4-5, Ref. #4	C2=		1.40
Estimate Excavation drawdown due to one line WP	$hd=ho*(C1*C2*(H-ho)/L+1)$	ft	56.37
Excavation drawdown		ft	3.6

Note within the excavation the combined drawdown of well points is expected to dewater the area to below the depth of excavation

Well spacing	s	ft	9
Estimate flow/wellpoint	$Qp=(0.73+0.27(H-ho)/H)*(ks(H^2-ho^2)/2)$	ft ³ /mi	1.0
Estimate flow/wellpoint	Qp=	gpm	7.14
Estimate Limiting flow rate per foot of well screen	$qc = 2*PI*rw*SQRT(kh)*7.48/1.07$	gpm	1.92
Minimum wellpoint screen length required		ft	3.72
Depth of well point required		ft	13.72
Approximate suction lift with wellpoint required		ft	11

Single stage wellpoint has practical maximum suction lift of 22 feet

Use 18 feet deep well point with 5 foot screen at the bottom

Required number of wellpoints on each side of excavation	n		25
Estimated total flow from two wellpoint lines	Qt	gpm	351
Estimated daily total flow		gpd	505,212

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MODEL DATA

330' long 6' wide x 10' deep Storm Sewer Pipe Corridor

Excavation Area	a' Width	ft	31
	b' Length	ft	330
Excavation Time Length	t = 7 days	months	0.2333
Time of excavation	t	min	10080
Ground Surface Elevation		ft	7
Groundwater Depth		ft	5
Groundwater Elevation	H	ft	2
Elev. Bottom of Excavation		ft	0
Required Drawdown at Mid Excavation	H-hd	ft	3
Required Lowered Water Table Elev.		ft	-1
Estimated Required Drawdown at Wellpoint	H-ho	ft	5
Estimated Water Level at Wellpoint	ho	ft	55.0
Elevation of bottom of Unconfined Aquifer		ft	-58
Aquifer Depth	B	ft	65
Aquifer Thickness	H	ft	60
	hd required mid-excavation	ft	57
Coefficient of Permeability	kh=kv=	ft/min	0.0688
	kh=kv=	cm/s	0.03493
Transmissivity	T=kH	ft ² /min	4.125
	T=kH	gpd/ft	44431

Estimate flow and drawdown at mid-excavation with two lines of slots

Estimate Influence distance from wellpoint line Sichardt Form	$L=1.5(H-h)\text{SQRT}(k \text{ in microns/sec})$	ft	140
Estimate l/ho	l=	ft	16
	l/ho=		0.3
Determine C1 from Graph c, fig 4-5, Ref. #4	C1=		0.5
Estimate b/H	b = wellpoint diameter	ft	0.167
	b/H=		0.003
Determine C2 from Graph d, fig 4-5, Ref. #4	C2=		1.35
Estimate Excavation drawdown due to one line WP	$hd=ho*(C1*C2*(H-ho)/L+1)$	ft	56.32
Excavation drawdown		ft	3.7
Note within the excavation the combined drawdown of well points is expected to dewater the area to below the depth of excavation			
Well spacing	s	ft	9
Estimate flow/wellpoint	$Qp=(0.73+0.27((H-ho)/H))*(ks(H^2-ho^2)/2)$	ft ³ /min	1.0
Estimate flow/wellpoint	Qp=	gpm	7.14
Estimate Limiting flow rate per foot of well screen	$qc = 2*PI*rw*SQRT(kh)*7.48/1.07$	gpm	1.92
Minimum wellpoint screen length required		ft	3.72
Depth of well point required		ft	13.72
Approximate suction lift with wellpoint required		ft	11
Single stage wellpoint has practical maximum suction lift of 22 feet			
Use 18 feet deep well point with 5 foot screen at the bottom			
Required number of wellpoints on each side of excavation	n		38
Estimated total flow from two wellpoint lines	Qt	gpm	538
Estimated daily total flow		gpd	774,964

Dewatering Design for 16' Wide x 15' Deep Circ Water Pipe Trench

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Two Trench systems are required to install the Circ Water Pipe System, one on the south side of intake (620 feet long) and another on the north side of the intake (380 feet long) trench excavations will be required for the storm sewer corridor. The trenches will be 16 feet wide at the bottom.

Bottom of excavation elevation = -5 ft NAVD88, 12 feet from existing grade.

Using a slope of 1 ½ :1 is allowed by OSHA.

Excavation width at top = $16 + 2 \times 12 \times 1.5 = 52$ ft

Assume header pipes at 2 feet distance from excavation edge,

Distance between well point lines = $52 + 2 \times 2 = 56$ feet.

Average K_h value = 99 feet/day

Results of the wellpoint system analyses using spreadsheet program for the two excavation systems are outlined below

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MODEL DATA

620 feet long, 16 feet wide, 15 feet deep Circ. Water Pipe Corridor				
Excavation Area		a' Width	ft	56
		b' Length	ft	620
Excavation Time Length		t = 42 days	months	1.4000
Time of excavation		t	min	60480
Ground Surface Elevation			ft	7
Groundwater Depth			ft	5
Groundwater Elevation		H	ft	2
Elev. Bottom of Excavation			ft	-5
Required Drawdown at Mid Excavation		H-hd	ft	8
Required Lowered Water Table Elev.			ft	-6
Estimated Required Drawdown at Wellpoint		H-ho	ft	11
Estimated Water Level at Wellpoint		ho	ft	49.0
Elevation of bottom of Unconfined Aquifer			ft	-58
Aquifer Depth		B	ft	65
Aquifer Thickness		H	ft	60
		hd required mid-excavation	ft	52
Coefficient of Permeability		kh=kv=	ft/min	0.0688
		kh=kv=	cm/s	0.03493
Transmissivity		T=kH	ft ² /min	4.125
		T=kH	gpd/ft	44431
Estimate flow and drawdown at mid-excavation with two lines of slots				
Estimate Influence distance from wellpoint line Sichardt Formula		$L=1.5(H+h)\sqrt{K}$ (k in microns/sec)	ft	308
Estimate l/ho		l=	ft	28
		l/ho=		0.6
Determine C1 from Graph c, fig 4-5, Ref. #4		C1=		0.7
Estimate b/H		b = wellpoint diameter	ft	0.167
		b/H=		0.003
Determine C2 from Graph d, fig 4-5, Ref. #4		C2=		1.40
Estimate Excavation drawdown due to one line WP		$hd=ho*(C1*C2*(H-ho)/L+1)$	ft	50.71
Excavation drawdown			ft	9.3
Note within the excavation the combined drawdown of well points is expected to dewater the area to below the depth of excavation				
Well spacing		s	ft	8
Estimate flow/wellpoint		$Qp=(0.73+0.27(H-ho)/H)*(ks(H^2-ho^2)/2L)$	ft ³ /min	0.8
Estimate flow/wellpoint		Qp=	gpm	6.23
Estimate Limiting flow rate per foot of well screen		$qc = 2*PI*rw*\sqrt{K}*(H-ho)/L$	gpm	1.92
Minimum wellpoint screen length required			ft	3.25
Depth of well point required			ft	19.25
Approximate suction lift with wellpoint required			ft	17
Single stage wellpoint has practical maximum suction lift of 22 feet				
Use 20 feet deep well point with 6 foot screen at the bottom				
Required number of wellpoints on each side of excavation		n		79
Estimated total flow from two wellpoint lines		Qt	gpm	979
Estimated daily total flow			gpd	1,409,547

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MODEL DATA

380 feet long, 16 feet wide, 15 feet deep Circ Water Pipe Corridor				
Excavation Area		a' Width	ft	56
		b' Length	ft	380
Excavation Time Length		t = 42 days	months	1.4000
Time of excavation		t	min	60480
Ground Surface Elevation			ft	7
Groundwater Depth			ft	5
Groundwater Elevation		H	ft	2
Elev. Bottom of Excavation			ft	-5
Required Drawdown at Mid Excavation		H-hd	ft	8
Required Lowered Water Table Elev.			ft	-6
Estimated Required Drawdown at Wellpoint		H-ho	ft	11
Estimated Water Level at Wellpoint		ho	ft	49.0
Elevation of bottom of Unconfined Aquifer			ft	-58
Aquifer Depth		B	ft	65
Aquifer Thickness		H	ft	60
		hd required mid-excavation	ft	52
Coefficient of Permeability		kh=kv=	ft/min	0.0688
		kh=kv=	cm/s	0.03493
Transmissivity		T=kH	ft ² /min	4.125
		T=kH	gpd/ft	44431
Estimate flow and drawdown at mid-excavation with two lines of slots				
Estimate Influence distance from wellpoint line Sichardt Formula		$L=1.5(H-h)\sqrt{K}$ (k in microns/sec)	ft	308
Estimate l/ho		l=	ft	28
		l/ho=		0.6
Determine C1 from Graph c, fig 4-5, Ref. #4		C1=		0.7
Estimate b/H		b = wellpoint diameter	ft	0.167
		b/H=		0.003
Determine C2 from Graph d, fig 4-5, Ref. #4		C2=		1.40
Estimate Excavation drawdown due to one line WP		$hd=ho*(C1*C2*(H-ho)/L+1)$	ft	50.71
Excavation drawdown			ft	9.3
Note within the excavation the combined drawdown of well points is expected to dewater the area to below the depth of excavation				
Well spacing		s	ft	8
Estimate flow/wellpoint		$Qp=(0.73+0.27(H-ho)/H)*(ks(H^2-ho^2)/2L)$	ft ³ /mi	0.8
Estimate flow/wellpoint		Qp=	gpm	6.23
Estimate Limiting flow rate per foot of well screen		$qc = 2*PI*rw*\sqrt{K}h$	gpm	1.92
Minimum wellpoint screen length required			ft	3.25
Depth of well point required			ft	19.25
Approximate suction lift with wellpoint required			ft	17
Single stage wellpoint has practical maximum suction lift of 22 feet				
Use 20 feet deep well point with 6 foot screen at the bottom				
Required number of wellpoints on each side of excavation		n		49
Estimated total flow from two wellpoint lines		Qt	gpm	605
Estimated daily total flow			gpd	870,867

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Auxiliary Cooling System Pump Pit Dewatering Design for 64' x 66' excavation to -5 foot elevation,

Bottom of excavation elevation = -5 ft NAVD88, 12 feet from existing grade.

Using a slope of 1 ½ :1 allowed by OSHA.

Excavation width at top = 64 + 2*12*1.5 = 100 ft

Excavation length at top = 66 + 2*12*1.5 = 102 ft

Assume 104' x 106' excavation (add 2' on each side of the excavation to reach the wells)

Average Kh value = 99 feet/day

Because of the large width of excavation, wellpoints with relatively short radius of influence will not work to lower the water level to below excavation desired depth. A few equally spaced larger wells will be analyzed. Since the wells are not expected to be as deep as the aquifer, partially penetrating wells should be evaluated.

The pumping rate and drawdown of partially penetrating well in unconfined aquifer can be established with the following equations:

FULLY OR PARTIALLY PENETRATING WELL

FLOW, Q_w , FOR ANY GRAVITY WELL WITH A CIRCULAR SOURCE

$$Q_w = \frac{\pi k [(H - s)^2 - t^2]}{\ln (R/r_w)} \left[1 + \left(0.30 + \frac{10r_w}{H} \right) \sin \frac{1.8s}{H} \right] \quad (3)$$

DRAWDOWN, $H - h$ OR $H^2 - h^2$, WHERE h' IS ACCOUNTED FOR (OBTAIN Q_w FROM EQ 3)

WHERE $r > 1.5H$,
$$H^2 - h^2 = \frac{Q_w}{\pi k} \ln \frac{R}{r} \quad (4)$$

WHERE $r < 1.5H$,
 FOR $r/h > 1.5$,
 FOR $r/h < 1.5$,
 USE EQ 4

$$H - h = \frac{Q_w P \ln (10R/H)}{\pi k H [1 - 0.8(s/H)^{1.5}]} \quad (5)$$

FOR $0.3 < r/h < 1.5$,
$$P = 0.13 \ln R/r \quad (6)$$

FOR $r/h < 0.3$,
$$P = \bar{C}_x + \Delta C \quad (7)$$

WHERE
$$\bar{C}_x = 0.13 \ln \frac{R}{r} - 0.0123 \ln^2 \frac{R}{10r} \quad (8)$$

AND
$$\Delta C = \frac{s}{h} \left[\left(\frac{1}{2.3} \ln \frac{R}{10r} \right) \left(1.2 \frac{s}{H} - 0.48 \right) + 0.113 \ln \frac{2.4H}{R} \ln \frac{R}{34r} \right] \quad (9)$$

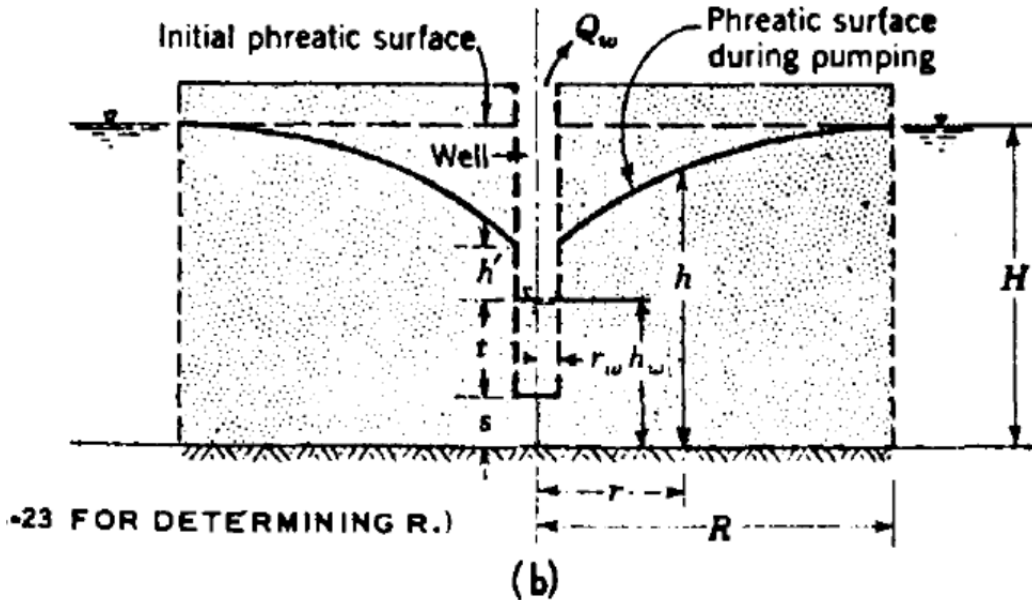
The dimensions in the equations are shown in the below figure.



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A spreadsheet program solution is shown below.

Four dewatering wells can be used at each corner of the approximate 105 x 103 feet excavation. Each well will be 10-inch ID, 55 feet deep, with 35 feet, continuous 20-slot screen. 2-inch gravel pack over the bottom 40 feet of the well should be used. A pumping rate of 170 gpm at each well will result in about 14 feet of drawdown that is greater than the 13 feet of required drawdown at the excavation. Daily pumping rate from the pit will be about 1.0mgd.

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MODEL DATA				
Aux Cooling System Pit				
Excavation,	Length L	66	ft	
	Width B	64	ft	
GROUND SURFACE ELEVATION		7	ft	
GROUNDWATER DEPTH		5	ft	
ELEV. BOTTOM OF EXCAVATION		-5	ft	
Assume groundwater 1 feet below excavation				
Excavation Time Length	t	42	days	
DEPTH TO CONFINING LAYER		65	ft	
ESTIMATED REQ'D DRAWDOWN AT EXCAVATION	H-ho	13	ft	
COEFFICIENT OF PERMEABILITY	kh-kv	0.0688	ft/min	
Dewatered Excavation Area				
Aquifer thickness at excavation	ho	46	ft	
EXCAVATION AREA Length (Assumed 1.5:1 side slope)	L'	102	ft	
EXCAVATION AREA Width (Assumed 1.5:1 side slope)	B'	100	ft	
Time of excavation	t	60,480	min	
GROUNDWATER ELEVATION		2	ft	
Estimated drawdown at pumping well		20	ft	
REQ'D LOWERED GROUNDWATER LEVEL ELEV.		-6	ft	
Bottom confining layer elevation		-58	ft	
Aquifer thickness before dewatering	H	60	ft	
Hydraulic conductivity	kh-kv	99	ft/day	
	kh-kv	741	gpd/ft ²	
	kh-kv	0.0349	cm/s	
ASSUME UNCONFINED AQUIFER				
Storage Coefficient (Specific Yield)		0.18		
TRANSMISSIVITY	T-kH	4.1	ft ² /min	
	T-kH	44,431	gpd/ft	
Estimate drawdown at mid-excitation and total flow assuming multiple partially penetrating pumping wells				
Estimate Radius of influence for pumping time	$R = \text{SQRT}(0.3 \cdot T \cdot t / S)$	1,764	ft	
Pumping time required to influence R -	$t = S \cdot R^2 / (0.3 \cdot T)$	42.0	days	
Well Screen Length		37.0	ft	
Unconfined Aquifer				
Equivalent radius for multiple wells r -		57.0	ft	
Planned Well Depth below existing ground		55.0	ft	
Height of water in well	S =	10.0	ft	
Initial estimate total dewatering pumping (single well), use $r = L/2$	$Q_p = \frac{\pi k [(H-S)^2 \cdot t^2] \cdot [1 + (0.3 \cdot 10 \pi v H) \cdot \sin 1.8 \cdot S / H]}{\ln(R/rw)}$	243	gpm	
Assumed pumping well radius		0.416666667	ft	
Required Number of wells	n	4		
Pumping rate per well		161	gpm	
Increased pumping to get desired excavation drawdown		100	gpm	
Daily pumping rate		925,490	gpd	
Dewatering Well spacing		104	ft	
Excavation Perimeter		404	ft	
Equivalent radius		57		
	r/H =	0.95		
	$P = 0.13 \ln R/r$	0.45		
Excavation Drawdown	Drawdown at distance r from 4 wells	17.78		
	$H-h = 4 \cdot Q_p \cdot P \ln(10R/H) / (\pi \cdot k \cdot H [1 - 0.8(s/H)^{1.5}])$			
use 4, 10-inch ID, 55 feet deep wells on each corner of the excavation with 35 feet 20 slot screen, continuous slot				
use 2 inch sand pack around screen				
A pumping rate of 170 gpm at each well will result in more than the 13 feet drawdown at the excavation				

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OWS and WW Sump Dewatering Design for 52' x 64' excavation to -8 foot elevation,

Bottom of excavation elevation = -8 ft NAVD88, 15 feet from existing grade.

Using a slope of 1 ½ :1 allowed by OSHA.

Excavation width at top = $52 + 2 \times 15 \times 1.5 = 97$ ft

Excavation length at top = $64 + 2 \times 15 \times 1.5 = 109$ ft

Assume 101' x 113' excavation

Average Kh value = 99 feet/day

Because of the large width of excavation, wellpoints with relatively short radius of influence will not work to lower the water level to below excavation desired depth. A few equally spaced larger wells will be analyzed. Since the wells are not expected to be as deep as the aquifer, partially penetrating wells are evaluated using a spreadsheet program.

Four dewatering wells can be used at each corner an approximate 112 x 101 feet excavation. Each well will be 10-inch ID, 55 feet deep, with 35 feet, 20-slot continuous slot screen. 2-inch gravel pack over the bottom 40 feet of the well should be used. A pumping rate of 210 gpm at each well will result in about 17 feet of drawdown that is greater than the 16 feet of required drawdown at the excavation. Daily pumping rate from the pit will be about 1.2mgd.

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MODEL DATA**OUS and VW Sump**

Excavation,	Length L	64	ft
	Width B	52	ft
GROUND SURFACE ELEVATION		7	ft
GROUNDWATER DEPTH		5	ft
ELEV. BOTTOM OF EXCAVATION		-8	ft
Assume groundwater 1 feet below excavation			
Excavation Time Length	t	15	days
DEPTH TO CONFINING LAYER		65	ft
ESTIMATED REQ'D DRAWDOWN AT EXCAVATION	H-ho	16	ft
COEFFICIENT OF PERMEABILITY	kh-kv	0.069	ft/min
Dewatered Excavation Area			
Aquifer thickness at excavation	ho	43	ft
EXCAVATION AREA Length (Assumed 1.5:1 side slope)	L'	112	ft
EXCAVATION AREA Width (Assumed 1.5:1 side slope)	B'	100	ft
Time of excavation	t	21,600	min
GROUNDWATER ELEVATION		2	ft
Estimated drawdown at pumping well		20	ft
REQ'D LOWERED GROUNDWATER LEVEL ELEV.		-9	ft
Bottom confining layer elevation		-58	ft
Aquifer thickness before dewatering	H	60	ft
Hydraulic conductivity			
	kh-kv	99	ft/day
	kh-kv	741	gpd/ft ²
	kh-kv	0.03	cm/s
ASSUME UNCONFINED AQUIFER			
Storage Coefficient (Specific Yield)		0.18	
TRANSMISSIVITY	T-kH	4.1	ft ² /min
	T-kH	44,431	gpd/ft

Estimate drawdown at mid-excavation and total flow assuming multiple partially penetrating pumping wells

Estimate Radius of influence for pumping time	$R = \text{SQRT}(0.3 * T * t / S)$	1,054	ft
Pumping time required to influence R =	$t = S * R^2 / (0.3 * T)$	15.0	days
Approx Max Well Screen Length		34.0	ft
Unconfined Aquifer			
Equivalent radius for multiple wells r =		59.7	ft
Planned Well Depth below existing ground		55.0	ft
Height of water in well	S =	10.0	ft
Initial estimate total dewatering pumping (single well), use r = L/2	$Q_s = \frac{\pi * K * [(H - S)^2 - t^2] * [1 + (0.3 * 10 * r_w / H) * \sin 1.8 * S / H]}{(\ln(R / r_w))}$	307	gpm
Assumed pumping well radius		0.416666667	ft
Required Number of wells	n	4	
Pumping rate per well		202	gpm
Increased pumping to get desired excavation drawdown		125	gpm
Daily pumping rate		1,162,595	gpd
Dewatering Well spacing		104	ft
Excavation Perimeter		424	ft
Equivalent radius		60	
	r/H =	1.00	
	$P = 0.13 \ln R / r$	0.37	
Excavation Drawdown	Drawdown at distance r from 4 wells	16.99	
use 4, 10-inch ID, 55 feet deep wells on each corner of the excavation with 35 feet 20 slot screen, continuous slot			
use 2 inch sand pack around screen			
A pumping rate of 210 gpm at each well will result in more than the required 16 feet of drawdown at excavation			

6.0 Conclusions

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Dewatering of 500 ft long, 20 foot wide x 12' Deep U/G Utility Corridor

Two lines wellpoints (64 wells on each side at 8 foot spacing). Wellpoint should be 20 feet deep from existing grade with 6 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 802 gpm. The estimated daily discharge is 1.2 million gallons.

Dewatering of 500 ft long, 6 foot wide x 10' Deep Storm Sewer Utility Corridor

Two lines wellpoints (51 wells on each side at 10 foot spacing). Wellpoint should be 18 feet deep from existing grade with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 810 gpm. The estimated daily discharge is about 1.2 million gallons.

Dewatering of 212 ft long, 6 foot wide x 10' Deep Storm Sewer Utility Corridor

Two lines wellpoints (25 wells on each side at 9 foot spacing). Wellpoint should be 18 feet deep from existing grade with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 351 gpm. The estimated daily discharge is 510,000 gallons.

Dewatering of 330 ft long, 6 foot wide x 10' Deep Storm Sewer Utility Corridor

Two lines wellpoints (38 wells on each side at 9 foot spacing). Wellpoint should be 18 feet deep from existing grade with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 538 gpm. The estimated daily discharge is 780,000 gallons.

Dewatering of 620 ft long, 16 foot wide x 15' Deep Circ Water Pipe Corridor

Two lines wellpoints (79 wells on each side at 8 foot spacing). Wellpoint should be 20 feet deep from existing grade with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 979 gpm. The estimated daily discharge is 1,409,600 gallons.

Dewatering of 380 ft long, 16 foot wide x 15' Deep Circ Water Pipe Corridor

Two lines wellpoints (49 wells on each side at 8 foot spacing). Wellpoint should be 20 feet deep from existing grade with 5 foot long screen zone at the bottom. Total estimated pumping rate for the excavation is approximately 605 gpm. The estimated daily discharge is 870,900 gallons.

Dewatering of Auxiliary Cooling System Pit

Four dewatering wells to be used at each corner an approximate 105 x 103 feet excavation. Each will be 10-inch ID, 55 feet deep, with 35 feet, 20-slot continuous slot screen. 2-inch gravel pack over the bottom 40 feet of the well should be used. A pumping rate of 170 gpm at each well will result in more than the 13 feet required drawdown at the excavation. Daily pumping rate from the pit will be about 1.0mgd.

OUS and WW Sump

Four dewatering wells to be used at each corner an approximate 112 x 101 feet excavation. Each will be 10-inch ID, 55 feet deep, with 35 feet, 20-slot continuous slot screen. 2-inch gravel pack over the bottom 40 feet of the well should be used. A pumping rate of 210 gpm at each well will result in more than the 16 feet required drawdown at the excavation. Daily pumping rate from the pit will be 1.2mgd.

The estimated radius of influence during dewatering pumping of the OUS and WW Sump is about 1504 feet. The Auxiliary Cooling System Pit dewatering is expected to last 6 weeks and the estimated radius of influence is 1764 feet. Additional well points may be needed at select locations if constant head water bodies at the site reduce the radius of influence during excavation dewatering.

About 6 weeks dewatering period is estimated to dewater each Circ. Water Pipe System trench. All other trench excavation periods are estimated to take about a week.

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Even though the excavations in the calculation are assumed to occur at different times, the contractor may choose to combine some of excavations and dewatering. Under those circumstances the combined pumping rate may be less to dewater areas because of drawdown interferences.

Note:

For proper header and discharge pipes and fittings should be used to minimize head losses. Install wellpoint header pipes as close as practical to prevailing groundwater elevation and in accessible locations. Locate wellpoint pumps centrally so that head losses to ends of system are balanced. Install valves to permit isolation of a portion of the system. Size discharge lines so that the head losses do not create excessive back pressure on the pump.



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7.0 List of Attachments

None

APPENDIX 10.9
WATER ALTERNATIVE ANALYSIS



WATER ALTERNATIVES STUDY AND WATER CONSERVATION PLAN

Florida Power & Light Company

Dania Beach Energy Center

Submitted to: Florida Power & Light Company
700 Universe Boulevard
Juno Beach, Florida 33408

Submitted by: Golder Associates Inc.
9428 Baymeadows Road, Suite 400
Jacksonville, FL 32256

July 2017

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EXECUTIVE SUMMARY

The Florida Power & Light Company (FPL) Lauderdale Site is located at 4300 SW 42nd Avenue, Fort Lauderdale, Broward County, Florida and includes Units 4 and 5, consisting of four 1990's vintage combustion turbines, four heat recovery steam generators, and two 1950s vintage steam turbines; and Unit 6, consisting of five new combustion turbines and two 1970's vintage gas turbines. FPL proposes to modernize Units 4 and 5 with a modern, highly efficient, lower-emission next generation clean energy center using the latest combined cycle technology. The modernized unit, Dania Beach Energy Center (DBEC), will be located wholly within the existing Lauderdale Site. The modernization will result in an increase in power generation without using additional land or water. The DBEC has an in-service date in June 2022. An important component of constructing a modernized plant is to determine the most appropriate water supplies to meet the water requirements of DBEC.

This Water Alternatives Study has been conducted to evaluate the environmental, technical, and economic feasibility of utilizing various potential water sources, as required by Sections 3.2 and 3.2.3 of the SFWMD Basis of Review for Water Use Applications (2013). DBEC will have four primary water requirements: cooling water to condense steam in the steam generator and for auxiliary cooling of other equipment; process water for service water, steam cycle makeup, and air pollution control; potable water for employees; and landscape irrigation.

Section 1 provides an introduction to the water alternatives study. Section 2 discusses the power plant water demands, the most efficient cooling technology, and the potable supply. Section 3 discusses potential water supply sources for process and irrigation. Section 4 discusses the technical, economic and environmental feasibility of the options. Section 5 summarizes the conclusions of the water alternatives study. Section 6 discusses water conservation methods and procedures that will be used to minimize water use at DBEC.

The conclusions discussed in Section 5 are summarized below:

1. The only feasible alternative for cooling water at DBEC is to continue using the existing intakes from the Dania Cutoff Canal and the once-through cooling system with discharge to the cooling pond. An auxiliary cooling system will be used to maintain the water withdrawal rate from the Dania Cutoff Canal and the heat load to the cooling pond. Since the DBEC will be designed such that the heat load to the cooling pond does not increase, the heat load to the South Fork New River will not increase.
2. The once-through cooling water system at the Lauderdale Site has been in operation since 1927; and the system offers several environmental benefits. The high efficiency combined cycle technology with the once-through cooling system minimizes fuel use, consumptive water use and air emissions. This cooling system uses water from the Dania Cutoff Canal, which is not a fresh water or potable source.



During high flow periods, the power plant captures some of the water released to tide from the regional canal system. During low flow periods, the power plant withdrawal induces flow in the Dania Cutoff Canal from east-to-west, which helps to maintain circulation and water quality in the Dania Cutoff Canal, the adjacent finger canals, the cooling pond, and the South Fork New River.

3. Reclaimed water is not technically or economically feasible for a cooling water supply at DBEC.
4. Currently, no reclaimed water supplies are available at the DBEC site with acceptable quantity and quality required for process or irrigation water uses.
5. The preferred alternative for process water is to continue to treat raw water provided by Broward County.
6. The preferred alternative for potable and irrigation supplies is to continue using the City of Hollywood potable water system.



1.0 INTRODUCTION

The Florida Power & Light Company (FPL) Lauderdale Site includes two combined cycle units (Units 4 & 5), five combustion turbines (Units 6A through 6E), and two 1970's vintage gas turbines.

Units 4 and 5 began operation in May 1993 and June 1993, respectively. Units 6A through 6E that began commercial operation in 2016 replaced 22 gas turbines at the Lauderdale Site and 12 gas turbines at the nearby Port Everglades Plant.

FPL plans to remove the existing Units 4 & 5 and construct a next generation clean energy center at the same site, the Dania Beach Energy Center (DBEC), with an in-service date of June 2022. The DBEC will use high-efficiency combined cycle natural gas technology to produce electricity. The modernized unit will be located wholly within the existing Lauderdale Site. The modernization will result in an improvement in technology allowing the reduction of the allocation of process water for power generation. The modernization also will be more energy efficient, increasing the generating capacity without increasing the amount of cooling water required.

DBEC will be a net 1200 MW, nominal 2-on-1 combined cycle electrical generating unit that will consist of two new advanced-technology combustion turbine/electric generators (CTs), two new heat recovery steam generators (HRSGs), and one steam turbine/electric generator, along with on-site supporting facilities. Natural gas will be the primary fuel for DBEC. Ultra low-sulfur distillate (ULSD) "light oil" will be used as a backup fuel for the CTs.

An important component of constructing a modernized plant is to determine the most appropriate water supply to meet the cooling, process, potable and irrigation water requirements for the plant. Therefore, a water supply alternatives study has been conducted to evaluate the environmental, technical and economic aspects of utilizing various potential water sources, as required by the SFWMD Basis of Review for Water Use Permit Applications (SFWMD BOR 2013). The results of the study are provided herein.



2.0 PROJECT WATER DEMANDS

DBEC has four primary water requirements, as summarized below.

- Cooling water is used to condense steam from the steam turbine and for auxiliary cooling of other equipment. The cooling water demand depends on the plant heat load, the cooling technology used and the selected water source.
- Process water is used for service water, and to make demineralized water for steam cycle makeup and air pollution control when the unit is fired with oil.
- Potable water for use by employees.
- Landscape irrigation.

Table 1 below summarizes the water demand requirements. The largest component of the power plant water demand is cooling water, and the smallest demand is for potable water.

Table 1: Estimated DBEC (Unit 7) Water Demand

Water Use	Water Source	Annual Average Daily Demand (MGD)	Annual Average Peak Demand (MGD)
Cooling Water	Dania Cutoff Canal	368.64	368.64
Process Water	Broward County	0.5	3.00
Potable Water	City of Hollywood	0.003	0.009
Irrigation Water	City of Hollywood	0.033	0.066
Total		369.176	371.715

Data Source: FPL Figure 4.5-1 (Water Balance for DBEC, Unit 7 only)

The advantages and features of the proposed DBEC cooling system and the feasibility of using reclaimed water for cooling are discussed further in Section 2.1. The potable water alternatives are discussed in Section 2.2. The remainder of this alternatives study focuses on water sources that may be feasible for process and irrigation water supplies. Section 3 discusses potential water sources and Section 4 discusses the feasibility of using those sources for process and irrigation supply.

2.1 DBEC Cooling Water System and Cooling Water Supply

The advanced combined cycle technology proposed for DBEC offers several advantages. This generating technology, with once-through cooling, provides the highest efficiency with respect to conversion of fuel energy to electricity. In combined-cycle power plants, steam electric generation is only about 30 to 35 percent of the total generating capacity. The remaining 65 to 70 percent is produced by combustion turbines, which do not use water for condenser cooling. Consequently, this technology significantly reduces the requirement for cooling per megawatt of energy production. Also, because the combined cycle technology reduces the steam electric portion of the generating facility, it also reduces the amount of water required to make steam; thus, reducing the requirements for process water. In addition, cooling ponds, or



cooling canals, are some of the most water efficient heat dissipation systems. This is because evaporative cooling, or consumptive use, is a smaller fraction of the total cooling capacity since additional cooling is provided in cooling ponds through conduction, convection and radiative heat transfer. The high efficiency minimizes fuel, consumptive water use and air emissions.

The Lauderdale Site has used once-through cooling since 1927. The DBEC cooling system will use a hybrid design -- once-through steam cycle cooling, with an auxiliary cooling system and the existing cooling pond to dissipate heat. This hybrid design takes advantage of the efficiencies discussed above without increasing the water withdrawal rate, or the heat load to the cooling pond or the receiving water body (i.e., South Fork New River). The once-through cooling system for the existing Lauderdale facility has a maximum and an annual average daily allocation from the Dania Cutoff Canal of 368.64 million gallons per day (MGD). The proposed maximum daily and annual average allocation from the Dania Cutoff Canal for DBEC is expected to remain the same. Furthermore the heat load to the cooling pond will be no greater than the existing system.

To accomplish this, the auxiliary cooling system will be designed to evaporate between 0.5 percent and 1.0 percent of the once-through cooling water flow. The cooling system water losses (evaporation and drift) are expected to be between 1,223 gallons per minute (gpm) and 2,418 gpm. This design ensures that DBEC will have no new or expanded discharge, no adverse thermal impact on the receiving waters, and will continue to meet current water quality effluent limits (i.e. no water quality degradation).

The Dania Cutoff Canal has been the source of once-through cooling water for the Lauderdale Plant since 1927; and it continues to be environmentally, technically, and economically the best choice available for this purpose. The circulating flow produced by the cooling system helps to maintain water quality in the Dania Cutoff Canal, the adjacent canals, the cooling pond and the South Fork New River.

Reclaimed water is not economically feasible for supplying cooling water at DBEC. The Port Everglades Energy Center (PEEC), which is located about 5 miles east-northeast of DBEC, is nominally the same size power plant (1,200 MW) that also uses a once-through cooling system. Based on previous studies conducted for PEEC (FPL SCA, 2012), to use reclaimed water for cooling would require cooling towers, an approximately 10 million gallon (MG) water storage tank and a 15 MGD injection well system for disposal of wastewater (cooling tower blowdown) into the Boulder Zone. The capital costs, the operations and maintenance costs, the parasitic load imposed by cooling towers and injection pumps, and the backup cooling water supply that would be required make the cost of using reclaimed water for cooling prohibitive, regardless of the price for reclaimed water. Therefore, even if reclaimed water could be delivered to the DBEC site, it would not be economically feasible to use reclaimed water for cooling.



Due to the economic and environmental benefits of using the existing once through cooling system, and the larger quantities of water required for once-through cooling, the only feasible and reliable source for DBEC cooling water is the Dania Cutoff Canal.

2.2 Potable Water Supply

The potable water supply must be reliable and must meet strict regulatory requirements for protection of human health. The City of Hollywood has been providing potable water for years, and is currently providing potable water to the Lauderdale Site. The quantities of potable water required for DBEC are very small (estimated average 2 gpm, maximum 6 gpm). Due to the limited quantities, the significant regulatory requirements and the fact that the City of Hollywood has been and is currently providing potable water, it is not reasonable, appropriate or economically feasible for DBEC to self-supply potable water from any other source. Potable water will continue to be obtained from the City of Hollywood.



3.0 POTENTIAL PROCESS & IRRIGATION WATER SOURCES

Potential water sources in the vicinity of DBEC to provide process and irrigation water include the following:

- Marine Water from the Atlantic Ocean or the Intracoastal Waterway
- Water from the Dania Cutoff Canal
- Fresh water from regional drainage canals
- Groundwater from on-site wells in the Biscayne Aquifer
- Groundwater from the Upper Floridan Aquifer
- Raw water from Broward County
- Potable water from the City of Hollywood
- Stormwater reuse
- Reclaimed water from a reuse system.

The characteristics, benefits and limitations of these water sources are discussed individually below.

3.1 Marine Water

Marine water sources could include the Atlantic Ocean, the Intracoastal Waterway or other tidal canals east of the site (not including the Dania Cutoff Canal, which is discussed below). However, this option is not environmentally, technically or economically feasible for several reasons. First and most importantly, this source would have no significant environmental, technical, or economic advantage over simply withdrawing water from the tidally-influenced and brackish Dania Cutoff Canal. As discussed below, the Dania Cutoff canal is a better low-quality water source alternative. Second, water from this source is saline; it could not be used without significant, technically and operationally complex and costly treatment (i.e., desalination). The treatment process would significantly increase DBEC water demand; and the reject water from the treatment system would degrade water quality at the discharge, due to the concentrated salinity. Third, the Atlantic Ocean and Intracoastal Waterway are 5.5 miles east of DBEC and significant problems likely would be encountered in obtaining access to construct miles of pipeline through or around active airport property, highways, wetlands, sovereign submerged lands, and/or high density commercial/residential property. The cost of constructing a pipeline, intake structure, pumping facilities and a treatment plant would be prohibitive. For these reasons, the Atlantic Ocean and other tidal canals are not considered feasible water sources for DBEC.

3.2 Dania Cutoff Canal

The existing cooling water intake structure for the Lauderdale Site is located on the Dania Cutoff Canal downstream of canal C-11 and water control structure S-13. This canal receives significant stormwater runoff from urban areas, is tidally influenced, and the salinity varies widely from fresh to brackish or saline (typical values: $400 \text{ mg/L} \leq \text{TDS} \leq 20,000 \text{ mg/L}$, average TDS approximately 10,200 mg/L), depending on



the discharge from the regional canal at S-13 and local rainfall. Because of the variable salinity and the urban stormwater inflows, this water source is not used for potable supply by any entity in the region.

Releases of fresh water from the upstream control structure (S-13) flow into the South New River Canal and into the Dania Cutoff Canal. These flows are variable in timing and quantity. During high flow periods, the power plant captures some of the water released to tide from the regional canal system. However, as discussed in the FPL Lauderdale Repowering Project SCA (1989), flows in the Dania Cutoff Canal and the South New River Canal can be less than or equal to zero (i.e., flowing west due to back pumping) in all months of the year. The greatest probability of flows zero or less is during months of February through June. Approximately 99 percent of the time fresh water releases from S-13 are less than the power plant withdrawal rate. Consequently, a large portion of the water withdrawn by the plant is from east-to-west flow in the Dania Cutoff Canal.

The Dania Cutoff canal has been used since 1927 as a source of cooling water for the Lauderdale Site, and it remains economically, technically, and environmentally feasible, for that purpose. Using the Dania Cutoff Canal for cooling water means that the vast majority of water used at the Site is drawn from brackish and marine waters rather than less abundant groundwater or fresh surface water. Because this source is hydraulically connected to the ocean, via the Intracoastal Waterway, water is always available and reliable. Since DBEC is located at the upper limits of the tidal system, the salinity is less than for sea water. During dry periods when there is little flow from S-13, the power plant withdrawal induces flow from east-to-west and helps to maintain circulation and water quality in the Dania Cutoff Canal and in the numerous adjacent finger canals. Similarly, it provides a beneficial circulating flow in the South Fork New River, downstream of the discharge from the cooling pond. The feasibility of using the Dania Cutoff canal for process or irrigation water is discussed in Section 4.

3.3 Regional Drainage Canals

Regional drainage canals are fresh surface water sources in the vicinity of DBEC. These canals are part of the flood control water conveyance system that is managed by the South Florida Water Management District (SFWMD).

Regional fresh water canals in the vicinity of the Site include:

- The C-12 basin (a.k.a., North Fork New River Canal) upstream of control structure S-33. The control structure is located about 4.7 miles north of DBEC.
- North New River Canal upstream of control structure G-54. The control structure is located approximately 2.7 miles northwest of DBEC.



- The C-11 Canal upstream of control structure S-13. The control structure is located approximately 0.65 miles west-southwest of DBEC.

Downstream of these structures, the canals are tidally influenced and likely would be brackish or saline during low flow periods.

The C-12 basin upstream of structure S-33, has a small drainage area of only 19 square miles. Consequently, available flows from the C-12 basin are too small to supply DBEC. Furthermore, this source is difficult to reach and far away.

The last two freshwater access points also are difficult to reach from DBEC. To access the North New River Canal upstream of structure G-54 a pipeline would have to be constructed across at least four major highways (I-595, SR-84, Florida Turnpike and SR-7) and at least one canal. To access C-11 from DBEC the pipeline would have to cross SR-7 and the South New River Canal. From an engineering standpoint, it would be very difficult to construct a pipeline without substantial adverse impact to existing infrastructure. Also, flows from these sources are episodic, with extended low-flow periods between potentially available flow events. Consequently, a large pipeline and pumping facility, and very large water storage facility would be required to utilize these sources. The costs would be prohibitive. Furthermore, since these canals originate in Lake Okeechobee and flow through the Water Conservation Areas, the SFWMD is unlikely to allocate additional water, except when the system needs to discharge to tide. Therefore, the regional fresh water canals are not environmentally, technically, or economically feasible as a potential water source for DBEC for any purpose.

3.4 Groundwater from Onsite Biscayne Aquifer Wells

The Biscayne Aquifer is an unconfined surficial aquifer that underlies approximately 4,000 square miles within Palm Beach, Broward, Miami-Dade, and Monroe Counties. In Broward County, the surficial aquifer is comprised primarily of sands, shell beds, and sandy limestone. The Biscayne Aquifer is a major source of drinking water for Broward County (see SCA Figure 3.3.3-a), and is designated as a Sole Source Aquifer under the Safe Drinking Water Act. Due to the proximity of DBEC to the coast, the surrounding tidal canals and the cooling pond, the surficial aquifer at DBEC is brackish (TDS concentrations between 5,000 and 6,000 mg/L).

While the Biscayne Aquifer is generally a good source of high-quality fresh water, at the Lauderdale Plant the aquifer has elevated TDS concentrations; and increased pumping may cause salinity intrusion into the aquifer from the tidal boundaries near the site (e.g., cooling canal, South Fork New River or Dania Cutoff Canal). In fact, the Lauderdale Plant previously had surficial aquifer supply wells, and use of those wells was discontinued due to water quality limitations. For this reason, wells on the Site, withdrawing from the



Biscayne Aquifer, are not environmentally feasible, and are not considered a potential water source for DBEC for any purpose.

3.5 Upper Floridan Aquifer

Near the coast in Broward County, the Upper Floridan Aquifer (UFA) exists at depths between approximately -1,000 feet (NAVD29) and -1,300 feet (NAVD29) (Reese & Richardson, 2008). Water at this depth is not potable, but brackish with TDS concentrations near the Site ranging from 1,000 to 5,000 mg/L. Water from the UFA could be used for process and irrigation water supplies, but only after significant treatment (i.e., desalination). The feasibility of using this source for process or irrigation water is discussed in Section 4.0. The Upper Floridan Aquifer also is being used, with desalination, for public supplies. There are currently at least three large well fields within 4.5 miles of DBEC using this source (see SCA Figure 3.3.3-1c). Consequently, depending on the pumping rate, using the UFA at the Site could impact existing users.

3.6 City of Hollywood Water Supply

The existing Lauderdale Site uses water supplied by the City of Hollywood for potable and irrigation purposes. The average combined potable and irrigation water demand for DBEC is no more than the existing facility demand. While the ultimate source for this water is the Biscayne Aquifer, the quantity and quality is more reliable and consistent than water withdrawn from onsite wells because it is produced by an integrated water supply system that is further away from salinity sources. Therefore, this option remains feasible for both potable and irrigation water supply at DBEC.

3.7 Broward County Water Supply

Raw water supplied by Broward County could be used for process and/or irrigation water supply. While the ultimate source for this water is the Biscayne Aquifer, the quantity and quality is more reliable and consistent than water withdrawn from onsite wells because it is produced by an integrated water supply system that is further away from salinity sources.

3.8 Stormwater Reuse

Stormwater is usually only available in significant quantities for a relatively short period of time following a significant runoff event. Stormwater runoff from the site could potentially supply a small fraction of the DBEC process and irrigation water demand. By regulation, the stormwater management system must recover the required treatment volume within 72 hours. Consequently, stormwater reuse requires significant onsite storage capacity (at least 0.5 million gallons for irrigation supply only and 10 million gallons or more for process and irrigation). The reuse storage would have to be separate from the storage volume required for stormwater management. If stormwater were reused for process water, this supply would require significant additional treatment.



At DBEC, treated stormwater will be discharged to the Dania Cutoff Canal just east of the intakes, or to the cooling pond. As discussed above, a very high percentage of the flow to the intake comes from east-to-west flow in the Dania Cutoff Canal. Therefore, stormwater discharged from the Site to the Dania Cutoff Canal is already being reused effectively as a cooling water source. Treated stormwater discharged to the cooling pond helps to maintain water quality in the pond and at the discharge to the receiving water body. Therefore, all stormwater from DBEC will be beneficially used or reused.

The cost of collecting, pumping, treating and storing stormwater through an engineered reuse system to supply process or irrigation water is not justified by any environmental benefit because this water source is already being beneficially reused; and it is not economically feasible.

3.9 Reclaimed Water

In 2008, Florida legislature passed legislation that requires phasing out of ocean outfalls as a disposal mechanism for wastewater treatment plant effluent. The legislation requires that at least 60 percent of the current ocean outfall flow be converted to reuse. The following describes some of the larger wastewater facilities in the region and the potential of each to provide reclaimed water.

The George T. Lohmeyer Regional Wastewater Treatment Plant (GTLWTP) is located approximately 4.7 miles northeast of DBEC. According to the Ocean Outfall Study, conducted by the University of Florida for FDEP (April 2006) and the most recent Reuse Inventory Report (FDEP, 2016), GTLWTP has a treatment capacity of 55.7 MGD and disposes treated effluent into the Boulder Zone via five 24-inch diameter deep injection wells, each 3,500 feet deep. GTLWTP currently does not supply reclaimed water (FDEP Reuse Inventory Report, May 2016). Furthermore, this facility has no ocean outfall and all the wastewater is currently discharged through deep injection wells. GTLWTP is not currently a supplier of reclaimed water. Therefore, GTLWTP is not a potential source of reclaimed water for DBEC.

The Broward/North Wastewater Treatment Plant (BNWTP) is located approximately 13.7 miles north-northwest of DBEC. BNWTP has a wastewater treatment capacity of 95 MGD, a reuse capacity of 14 MGD and a reuse flow of 4.2 MGD. Currently, 25.8 MGD of treated wastewater is discharged to the Atlantic Ocean via a 54-inch diameter pipeline at a distance of approximately 7,300 feet offshore. Also, 37.2 MGD of wastewater is disposed of in the Boulder Zone through Class I injection wells. It would be very difficult and costly to construct a pipeline 14 miles through a heavy residential/commercial area without substantial impacts to existing infrastructure. Therefore, BNWTP is not a potential source of water for process or irrigation supply for DBEC.

The Miami-Dade/North Wastewater Treatment Plant (MDNWTP) is located approximately 13 miles south-southeast of DBEC. According to the FDEP Reuse study and the Ocean Outfall Study, MDNWTP has a



treatment capacity of 120 MGD and a flow of 89.7 MGD. Currently, approximately 40.5 MGD of treated wastewater is discharged to the Atlantic Ocean via a 90-inch diameter pipeline at a distance of approximately 11,700 feet offshore and 46.5 MGD is discharged through deep wells. The remaining treated wastewater (2.7 MGD) is reclaimed for water reuse at Florida Atlantic University. It would be very difficult and costly to construct a pipeline 12 miles through a heavy residential/commercial area without substantial impacts to existing infrastructure. Therefore, MDNWTP is not a potential source of water for process or irrigation supply for DBEC.

The Hollywood Wastewater Treatment Plant (HWTP) is located approximately 5 miles east-southeast of DBEC. According to the FDEP Reuse Study (2016) and the Ocean Outfall Study, HWTP has a treatment capacity of 55.5 MGD and a flow of 37.8 MGD. The Hollywood Reuse System also includes two smaller facilities (Davie and Cooper City) with a combined flow of 2.65 MGD. Currently, most of the wastewater from HWTP is treated and discharged either to the Atlantic Ocean (14.28 MGD) or to the Boulder Zone by deep well injection (23.61 MGD). The remaining 5.7 MGD is utilized as reclaimed water. The current reuse system has a permitted capacity of 8.1 MGD.

The City of Hollywood and FPL have been discussing the use of reclaimed water at the Lauderdale Site since 2009. However, water quality analysis utilizing 2014-2015 data indicates that the reclaimed water does not meet FPL water quality requirements/specifications, particularly for dissolved solids and nitrogen (FPL, March 18, 2016). Therefore, use of reclaimed water from this system is not feasible.

There are 6 other facilities in Broward County that provide some reclaimed water, but the available reclaimed flows are small (less than 2 MGD) and/or too far away to be a potential source of reuse water for DBEC.

There are significant potential sources of reclaimed wastewater along the Atlantic Coast, but it would be very difficult and costly to transport the reclaimed water from these sources to DBEC.



4.0 FEASIBILITY (ENVIRONMENTAL, TECHNICAL, AND ECONOMIC)

Process and irrigation water could be obtained from several available sources: 1) Broward County raw water supply, 2) the City of Hollywood potable supply, 3) the UFA, and 4) the Dania Cutoff Canal. Although currently not available, a fifth source may be reclaimed water -- if the supply is reliable, the quality and quantity are acceptable for process or irrigation use, and it can be delivered to DBEC.

Process water uses require a reliable high-quality finished water, with very low dissolved solids. Irrigation water can have higher TDS than process water, but it should not be brackish or saline. The cost of water treatment goes up as the source water quality goes down or as TDS concentrations increase.

Water obtained from the Broward County raw water supply or the City of Hollywood potable supply, or properly treated reclaimed water (if available) can be used without further treatment for irrigation purposes. However, irrigation water obtained from the UFA or the Dania Cutoff Canal will require significant treatment. Due to the high costs of treatment and water storage and the relatively small quantity of irrigation water required for the DBEC, the UFA or the Dania Cutoff Canal are not feasible for irrigation supply.

Process water will require additional treatment for any of the five sources discussed above. However, the treatment costs will be greatest for water from the Dania Cutoff Canal because the average salinity is greatest and the salinity variability is high, which makes treatment infeasible. This source is not technically or economically feasible for process or irrigation supply because salinity and water quality are highly variable, requiring significant treatment to achieve a high level of purity and reliability.

The Broward County raw water supply is a feasible source for both process and irrigation supply because the source is reliable and the water quality is stable; therefore, the cost of treatment is minimized.

Use of the UFA would require installation of at least two 1,000-feet deep UFA well(s) and the treatment costs will be much higher. Therefore, compared to the use of Broward County raw water supply, the UFA is not an economically feasible source for process or irrigation supply at DBEC.



5.0 CONCLUSIONS

The conclusions reached through the water alternatives analysis are as follows:

1. The only feasible alternative for cooling water at DBEC is to continue using the existing intakes and the once-through cooling system with discharge to the cooling pond. An auxiliary cooling system will be used to maintain the water withdrawal rate from the Dania Cutoff Canal and the heat load to the cooling pond. Since the DBEC will be designed such that the heat load to the cooling pond does not increase, the heat load to the South Fork New River will not increase.
2. The once-through cooling water system at the Lauderdale Plant has been in operation since 1927; and the system offers several environmental benefits. The high efficiency combined cycle technology with the once-through cooling system minimizes fuel use, consumptive water use and air emissions. This cooling system uses water from the Dania Cutoff Canal, which is not a fresh water or potable source. During high flow periods, the power plant captures some of the water released to tide from the regional canal system. During low flow periods, the power plant withdrawal induces flow in the Dania Cutoff Canal from east-to-west, which helps to maintain circulation and water quality in the Dania Cutoff Canal, the adjacent finger canals, the cooling pond, and the South Fork New River.
3. Reclaimed water is not technically or economically feasible for a cooling water supply at DBEC.
4. Currently, no reclaimed water supplies are available at the DBEC site, with acceptable quantity and quality required for process or irrigation water uses.
5. The preferred alternative for process water is to continue to treat raw water provided by Broward County.
6. The preferred alternative for potable and irrigation supplies is to continue using the City of Hollywood potable water system.



6.0 WATER CONSERVATION PLAN

Combined cycle technology will be used at DBEC. With this technology, steam electric generation is only about 30 to 35 percent of the total generating capacity. The remaining 65 to 70 percent is produced by combustion turbines, which do not use water for condenser cooling. Consequently, this technology significantly reduces the cooling requirement per unit of electrical power. Because the combined cycle technology reduces the steam electric portion of the generating facility, it also reduces the amount of water required to make steam; thus, reducing the requirements for process water. Combined cycle technology with once through cooling provides the highest generation efficiency, with respect to conversion of fuel energy to electricity. This high efficiency minimizes fuel, consumptive water use and air emissions.

DBEC will not use fresh water for cooling. However, since DBEC will be among the most efficient in the FPL system, operation of DBEC may offset fresh water use at other plants in Florida.

DBEC will use demineralized water for makeup to replace blowdown from the Heat Recovery Steam Generators (HRSGs), which is necessary to maintain low dissolved solids in the HRSGs. The required makeup water to the HRSGs will be minimized by using good engineering design and best operating practices that reduce the required blowdown and by the recovery and reprocessing of water for reuse.

All systems that involve the use of water will be designed and operated to minimize water loss. This will include an in-service leak test, inspection, or hydro-test to ensure the system is leak tight. After commissioning, procedures will be in place to ensure that the systems are inspected on a regular basis and that a repair program is in place to repair any leaks quickly. Other features in the design will include the following:

- Automatic shutoff valves
- Flow restrictors
- Low-volume sanitary facilities
- Drought-resistant landscape design

FPL will implement an awareness program for both construction and operational employees on water conservation for the project. The awareness program will educate employees on water conservation methods, techniques, and requirements on in-place construction and operation procedures. Procedures for conservation during plant operation will be developed prior to commissioning the modernized plant. Procedures will be reviewed on a periodic basis and updated as necessary.



7.0 REFERENCES

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