Stolley Engineering Group, Inc.
2101 North Andrews Avenue
Suite 103
Fort Lauderdale, Florida 33311
(954) 565-9450

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	NAME	MODEL #	TYPE	FINISH	REMARKS
P-1	Urinal	American Standard	Washbrook 1.0	6501.010	Vitreous China	White	1,2
	Flush Valve	Sloan	Optima Plus	Royal 8186-1-MC	Battery Powered Sensor Operated	Chrome Plated	3
P-2	Water Closet	American Standard	Madera EL 1.6 Elongated	2334.015	Vitreous China	White	4
	Flush Valve	Sloan	Optima Plus	Royal 8113-1.6-Override-MC-TP	Battery Powered Sensor Operated	Chrome Plated	5
P-2A	Handicapped Water Closet	American Standard	Cadet 17" HEL 1.6 G.P.F. Elongated	3043.102	Vitreous China	White	4
	Flush Valve	Sloan	Optima Plus	Royal 8111-1.6-Override-MC-TP	Battery Powered Sensor Operated	Chrome Plated	5
P-3	Handicapped Lav. Wall Hung	American Standard	Lucerne	0356.015	Vitreous China	White	6,7,8,19
	Faucet	Delta	Washerless with wrist handles	3549HDF	0.5 GPM Max	Chrome Plated	Hot and Cold Water
P-3A	Handicapped Lavatory	American Standard	Lucerne	0356.421	Vitreous China	White	7,8,9
	Faucet	Delta	Washerless with Single Lever Handle	23T1053HDF	0.5 GPM Max.	Chrome Plated	Cold Water Only
P-4	Lav. Counter Mounted	Corian	See Architectural Drawings for model, size, & color	---	---	---	10,14
	Faucet	Delta	Washerless, Two Handles	3548HDF	0.5 GPM Max.	Chrome Plated	Hot and Cold Water
P-5	Shower	Delta	Scald-guard Pressure, Balance Mixing Valve	1325-WSHDF	2.5 GPM Max.	Chrome Plated	11
	---	---	---	---	---	---	---
P-5A	Handicapped Shower	Delta	Scald-guard Pressure, Balance Mixing Valve	11T5143	2.5 GPM Max.	Chrome Plated	12
	Shower Seat	---	See Architectural Drawings	---	---	---	---
P-6	Hot Water Mixing Valve	Leonard	High-Low Manifold Systems Cabinet	TM-186-5015PRV-RF-EXP	Exposed Cabinet, Wall Mounted	Rough Bronze	13
	Circulating Pump	Taco	Cartridge Circulator	006BT Series	115V/60/1, 0.52 AMP, 1/40 HP, 3240 RPM	---	---
P-7	Laundry Sink	Corian	See Architectural Drawings for model, size, & color	---	---	---	14, 15
	Faucet	Delta	Rigid spout and wrist handles 8" on center	23T633 Modified W/16320-1 Spout	2.0 GPM Max.	Chrome Plated	Hot and Cold Water
P-8	Bar Sink	Corian	See Architectural Drawings for model, size, & color	---	---	---	14,15
	Faucet	Delta	Rigid spout and wrist handles 6" on center	23T633 Modified W/16320-1 Spout	2.0 GPM Max.	Chrome Plated	Hot and Cold Water
P-9	Service Sink	American Standard	Lake Well	7692.049	Enameled Cast Iron	White	16
	Faucet	American Standard	Heritage	8340.234	---	Rough Chrome	Hot and Cold Water
P-10	Hose Bibb	Chicago Faucet	---	No. 387	---	Chrome Plated	---
	Vacuum Breaker	Chicago Faucet	---	E27	---	Chrome Plated	---
P-11	Wall Hydrant	Zurn	Ecolotrol, W/Loose key Integral vacuum breaker	Z-1330	Recessed, Wall Mounted	Stainless Steel	---
	---	---	---	---	---	---	---
P-12	Electric Water Coolers	Elkay	Two Level Wheelchair Access	EBFATL-8 W/ LKAPR-188	Wall Mounted	Stainless Steel	14, 17
	---	---	---	---	---	---	---
P-13	Washing Machine Supply	Guy Gray	Space Saver	T-200	Recessed, Wall Mounted	White Enamel	18
	---	---	---	---	---	---	---

REMARKS:

1. Provide with floor mounted carrier 'Josam' series 17825,
2. Provide with stainless steel strainer 047068-007A.
3. Provide flush valve with chrome plated metal cover (MC). 1 GPF Max.
4. Provide with 'Beneke' 527-SS elongated, open front plastic seatless cover, self-sustaining feature with check hinges.
5. Provide flush valve with manual override, chrome plated metal cover (MC), YK support, 1.6 G.P.F. Max., where indicated on the drawings flush valve to be provided with a trap primer connection (TP).
6. Provide with floor-mount, concealed arms carrier 'Josam' series 17100.
7. Provide with 'McGuire' offset lavatory strainer (ADA) #155WC, cast brass joint swivel P-trap and slip nuts #8088, wrought brass box flange #WE150B.
8. Provide with 'McGuire' 3/8" angle support supply stops #158LK offset fail pieces #TPC20FR, wrought brass shallow flanges #WE038.
9. Provide with floor mount, concealed arms double carrier 'Josam' series 17105.
10. Provide with 'McGuire' solid top open grid P.D. plug #155A, chrome plated cast brass body P-trap with cleanout and slip nuts #B8872, wrought brass deep bell flange #WE125D.
11. Provide with vandal resistant blade handle, 1/2" screwdriver stops and shower head.
12. Provide with vandal resistant blade handle, 1/2" screwdriver stops and hand held shower head.
13. Exposed cablent to be provided with a baked enamel finish (color to be selected by architect). Set high temperature limit stops at 110°F Max., 2 GPM minimum flow.
14. Provide with 'McGuire' 3/8" angle supply stops #167 wrought brass shallow flanges #WE038.
15. Provide with 'McGuire' solid top open grid P.D. Plug #155A2, chrome plated cast brass body P-trap with cleanout and slip nuts #B8912, wrought brass deep bell flange #WE125D.
16. Provide with 'American Standard' 3" enameled cast iron trap.
17. Provide with 'McGuire' chrome plated cast brass body P-trap with cleanout and slip nuts #B8912, wrought brass deep bell flange #WE125D.
18. Install top of supply box at 40" above finish floor.
19. Insulate exposed hot water and waste piping under handicapped lavatory with pre-molded removable and reusable insulation 'Truebro Inc.' Handi Lav-Guard insulation kit.

FIRE EXTINGUISHER SCHEDULE

MARK	MODEL NO.	UL RATING	MOUNTING	NOTES
FE-1	COSMIC-6E	3A40BC	SEMI-RECESSED	1,2,5,6
FE-2	COSMIC-6E	3A40BC	SEMI-RECESSED	1,3,5,6
FE-3	COSMIC-10E	4A60BC	SURFACE	1,4,5,6

NOTES:

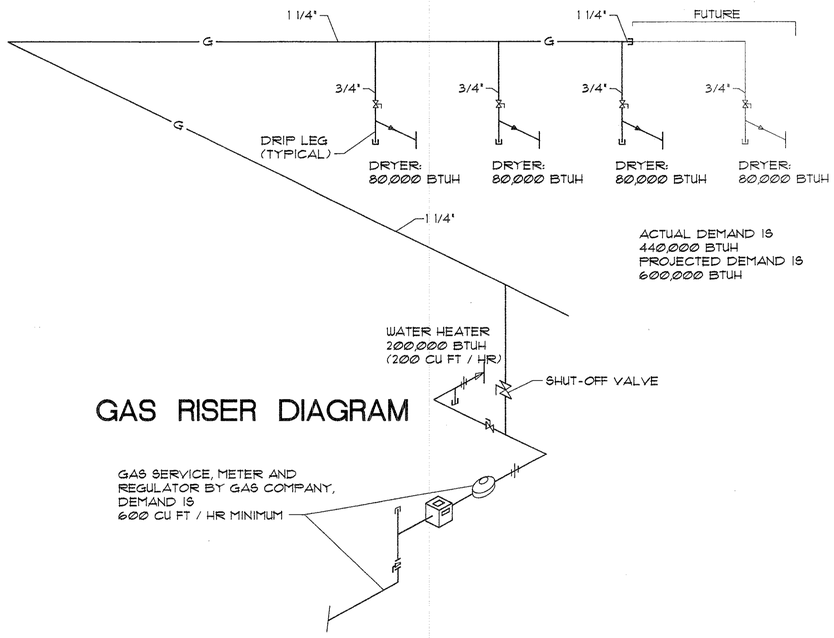
1. Fire Extinguisher Manufacturer is 'J. L. Industries'.
2. Stainless steel cabinet, Cosmopolitan 1036F10FX with fire rated tub option.
3. Fire rated stainless steel cabinet, Cosmopolitan 1036F10FX
4. Mounting bracket MB846.
5. Install top of cabinet/extinguisher at 5'-0" above finish floor.
6. Coordinate exact location of all fire extinguishers with architect.

FLOOR DRAIN SCHEDULE

MARK	MANUFACTURER	SERIES NO.	NOTES
FD-1	JOSAM	30000-S-17	1,2
FD-2	JOSAM	30000-S-17-50	1,2,3
FD-3	JOSAM	30000-S-17-50-80	1,2,3,4

NOTES:

1. Provide with 6" x 6" square satin nikaloy grates.
2. Provide with secured grate, vandal-proof screws.
3. Provide with 1/2" trap primer connection.
4. Provide with perforated stainless steel basket.



GAS RISER DIAGRAM

PLUMBING SCHEDULES

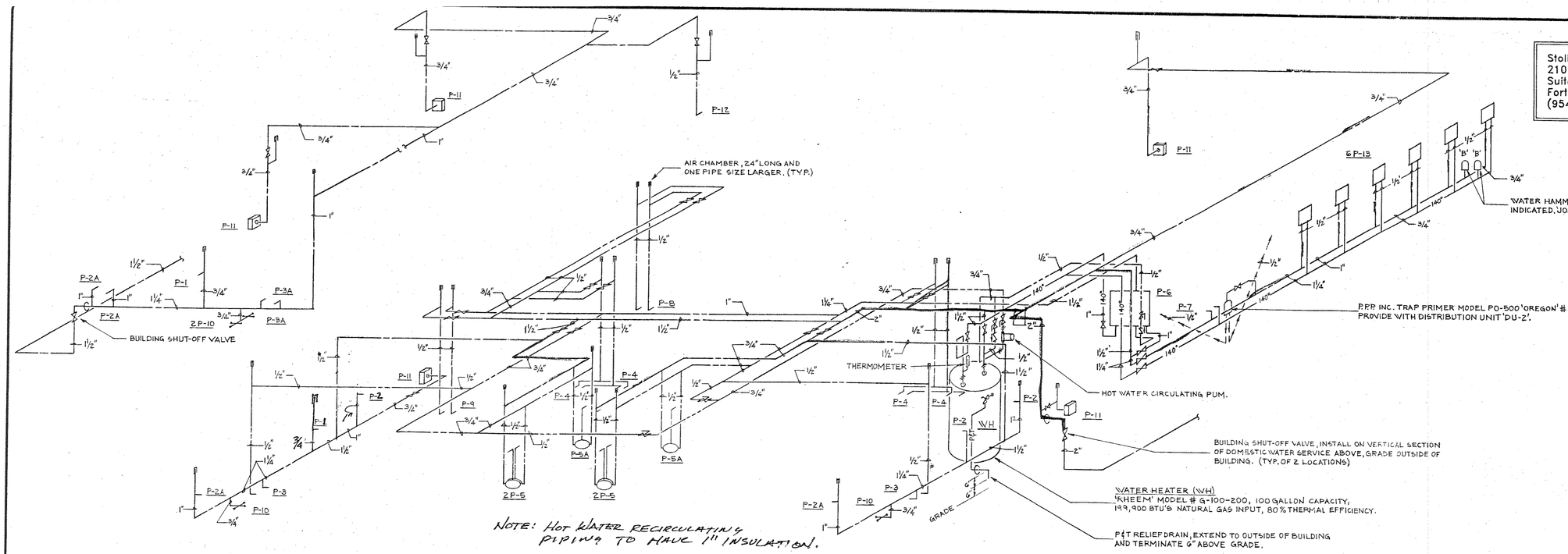
ARCHITECTURAL DESIGN GROUP
DEPARTMENT OF PUBLIC SERVICES
CITY OF FORT LAUDERDALE
Architecture Landscape Architecture Project Management
100 North Andrews Avenue, Fort Lauderdale, Florida 33301
TEL: (305) 761-5079 FAX: (305) 761-5070

REVISIONS:

DATE: 2-3-97
DRAWN BY: J.R., K.C.S.
CHECKED BY: K.C.S.
CAD FILE: G9611/P-2

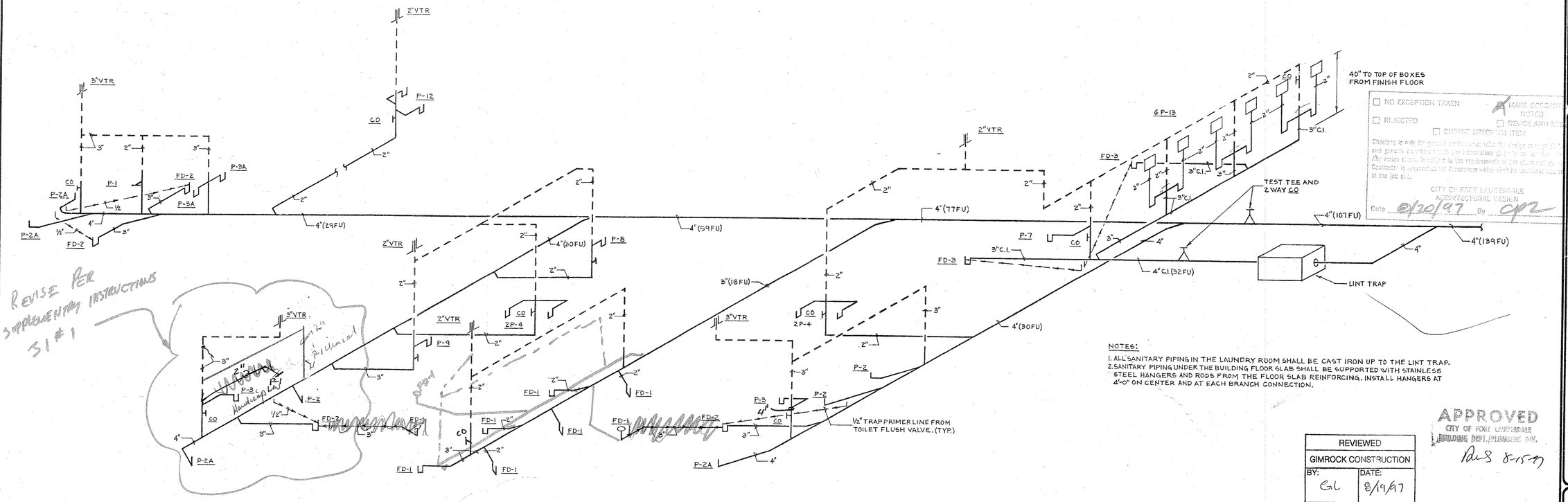
PROJECT #P9419
COMFORT STATION FOR
LAS OLAS MARINA
LAS OLAS CIRCLE, FORT LAUDERDALE, FLORIDA

SHEET NO.
P-2
OF 4
DRAWING FILE NO.



DOMESTIC WATER RISER DIAGAM

NO SCALE



NOTES:
1. ALL SANITARY PIPING IN THE LAUNDRY ROOM SHALL BE CAST IRON UP TO THE LINT TRAP.
2. SANITARY PIPING UNDER THE BUILDING FLOOR SLAB SHALL BE SUPPORTED WITH STAINLESS STEEL HANGERS AND RODS FROM THE FLOOR SLAB REINFORCING. INSTALL HANGERS AT 4'-0" ON CENTER AND AT EACH BRANCH CONNECTION.

SANITARY RISER DIAGRAM

NO SCALE

REVIEWED
GIMROCK CONSTRUCTION
BY: GL DATE: 8/19/97

APPROVED
CITY OF FORT LAUDERDALE
BUILDING DEPT./PLUMBING DIV.
8-15-97

PLUMBING RISER DIAGRAMS

Stolley Engineering Group, Inc.
2101 North Andrews Avenue
Suite 103
Fort Lauderdale, Florida 33311
(954) 565-9450

11 Stolley 02-04-97

ARCHITECTURAL DESIGN GROUP
DEPARTMENT OF PUBLIC SERVICES
CITY OF FORT LAUDERDALE
Architecture Landscape Architecture Project Management
100 North Andrews Avenue, Fort Lauderdale, Florida 33301
TEL. (305) 761-5079 FAX. (305) 761-5070

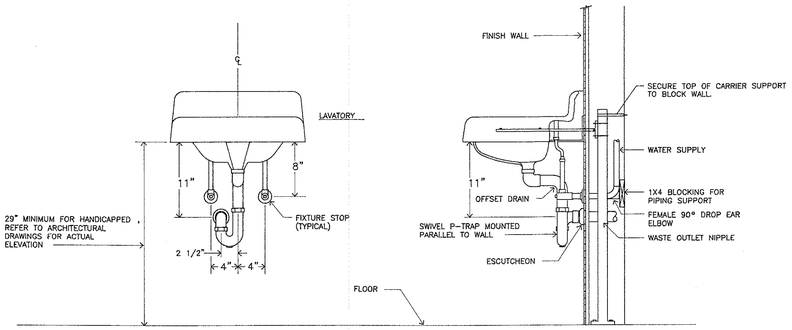
REVISIONS:

DATE:	DRAWN BY:	CHECKED BY:	CAD FILE:
02-03-97	J.R., K.C.S.	K.C.S.	G9611/P-3

PROJECT #P9419
COMFORT STATION FOR
LAS OLAS MARINA
LAS OLAS CIRCLE, FORT LAUDERDALE, FLORIDA

SHEET NO. P-3
OF 4
DRAWING FILE NO.

Stolley Engineering Group, Inc.
2101 North Andrews Avenue
Suite 103
Fort Lauderdale, Florida 33311
(954) 565-9450

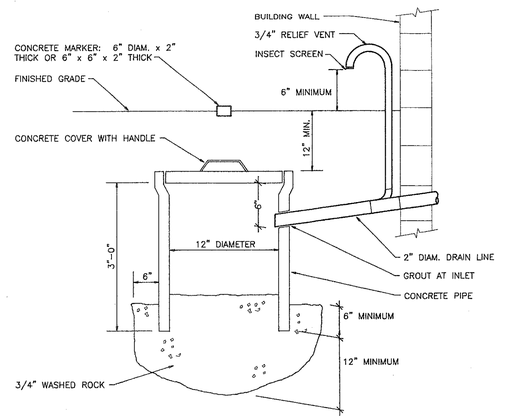


FRONT ELEVATION SIDE ELEVATION

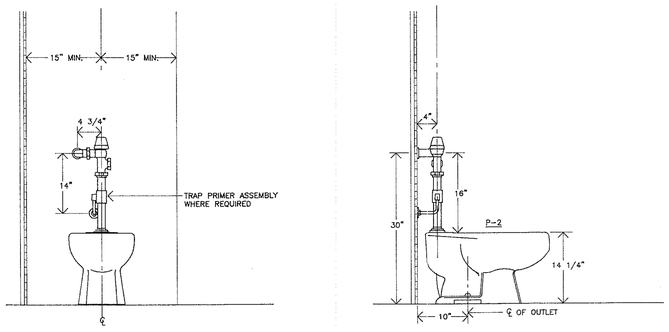
NOTE
CONTRACTOR MUST VERIFY ALL DIMENSIONS WITH EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN

HOT AND COLD WATER

HANDICAPPED LAVATORY MOUNTING DETAIL
NO SCALE

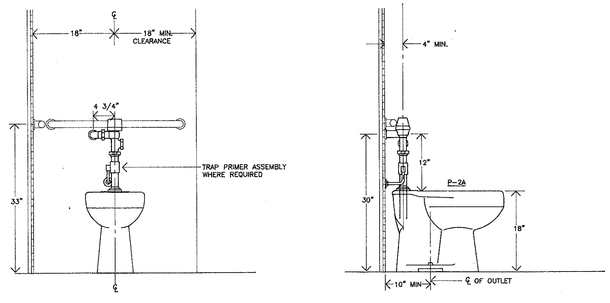


DRYWELL DETAIL
N.T.S. DRYWELL



NOTE
CONTRACTOR MUST VERIFY ALL DIMENSIONS WITH EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN

STANDARD TOILET INSTALLATION DETAIL
NO SCALE



NOTE
CONTRACTOR MUST VERIFY ALL DIMENSIONS WITH EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN

HANDICAPPED TOILET INSTALLATION DETAIL
NO SCALE

PLUMBING DETAILS

ARCHITECTURAL DESIGN GROUP
DEPARTMENT OF PUBLIC SERVICES
CITY OF FORT LAUDERDALE
Architecture Landscape Architecture Project Management
100 North Andrews Avenue, Fort Lauderdale, Florida 33301
TEL: (305) 761-5079 FAX: (305) 761-5070

REVISIONS:

DATE: 2-3-97
DRAWN BY: JR, K.C.S.
CHECKED BY: K.C.S.
CAD FILE: G9611/P-4

PROJECT #P9419
COMFORT STATION FOR
LAS OLAS MARINA
LAS OLAS CIRCLE, FORT LAUDERDALE, FLORIDA

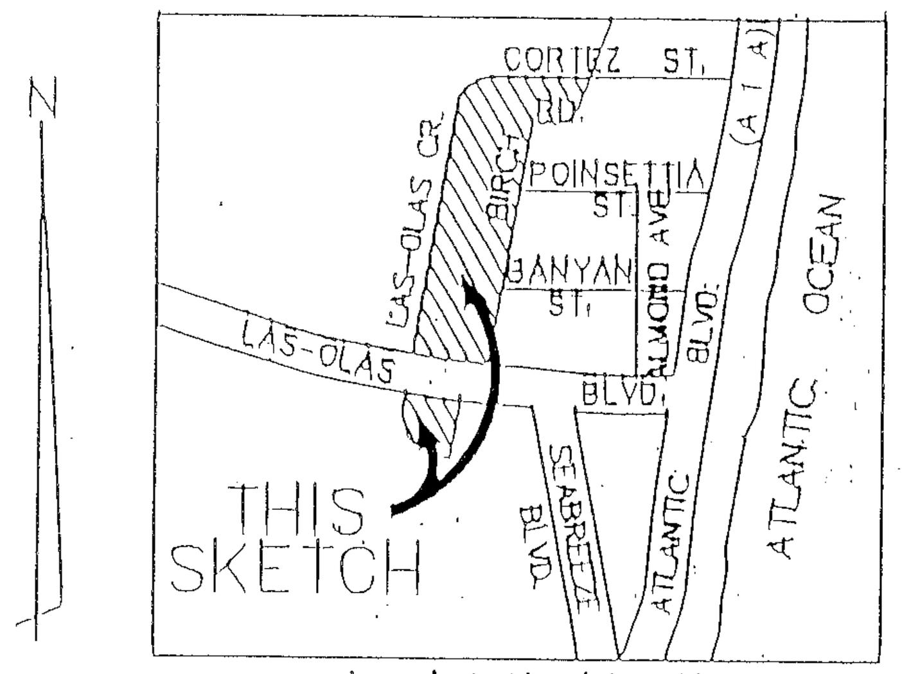
SHEET NO.
P-4
OF 4
DRAWING FILE NO.

EXHIBIT D7
EXISTING UNDERGROUND UTILITY INFORMATION

LAS OLAS PARKING LOT

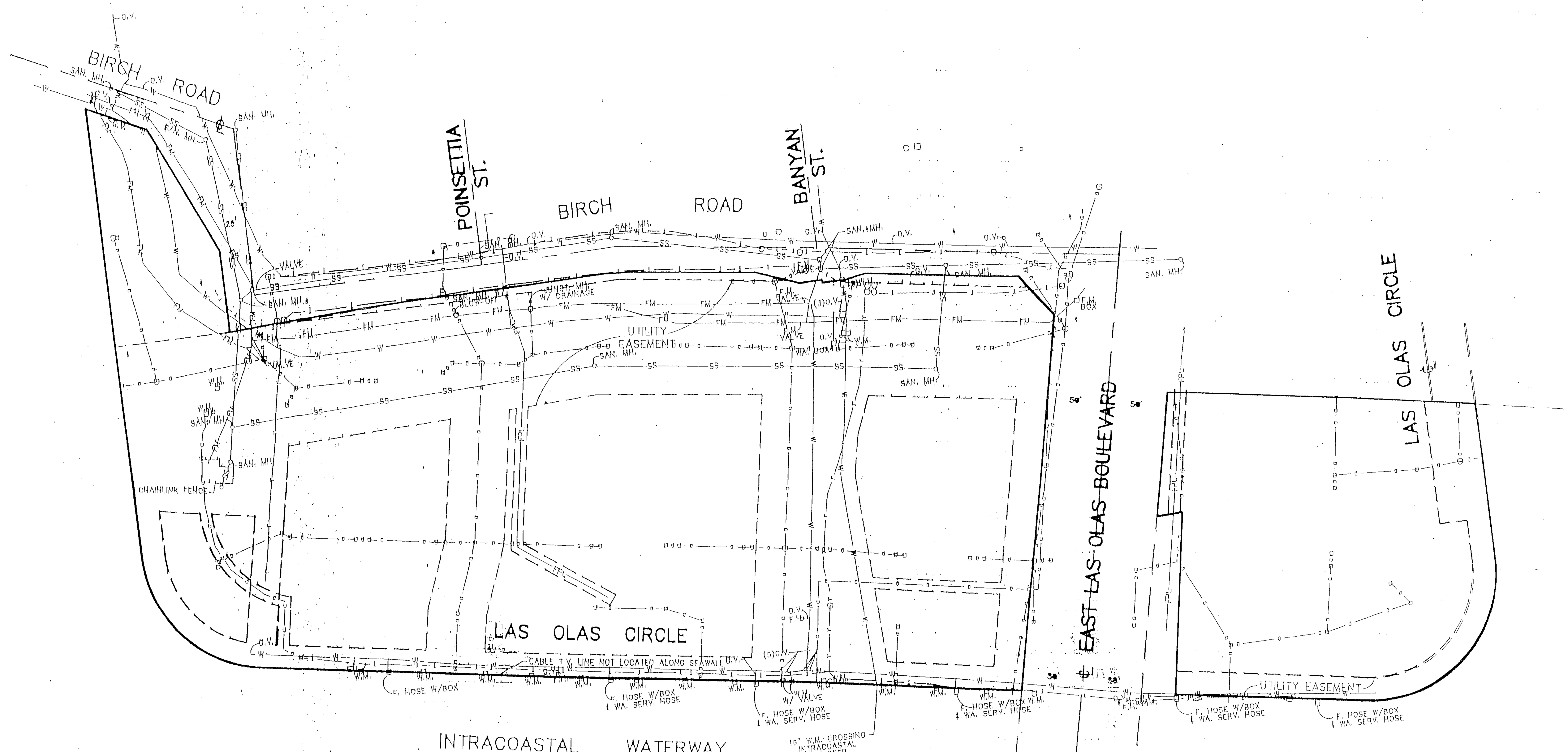
Note: The data provided herein are provided for informational purposes only. The drawings provided represent the best available information regarding existing City of Fort Lauderdale owned underground utilities. All utilities are not necessarily shown. Neither the City of Fort Lauderdale nor the Design Criteria Professional warrant the accuracy of the information contained herein. The Contractor shall perform exploratory excavations as required to verify the location and elevation of existing underground utilities that may interfere with the work. Protect all utilities.

UTILITY PLAN



LOCATION SKETCH

GRAPHIC SCALE: 1" = 50'



LEGEND OF SYMBOLS

SYMBOL	DEFINITION	SYMBOL	DEFINITION
-SS-	Centerline Sanitary Sewer	-T-	Centerline Telephone Line (Underground)
-FM-	Centerline Force Main	-G-	Centerline Gas (Underground)
-W-	Centerline Waterline	-C-	Centerline Cable TV (Underground)
F.H.	Fire Hydrant	-FPL-	Centerline Florida Power and Light (Underground)
G.V.	Gate Valve	℄	Centerline
M.H.	Manhole		Utility Pole
San.	Sanitary	O	Manhole
O	Manhole		
F.HOSE	Fire Hose		Catch Basin
W.M.	Water Meter	-D-	Centerline Storm Drainage
WA.	Water	℄	Centerline
		O	Storm Manhole

NOTES:

1. FOR ADDITIONAL INFORMATION SEE PLAT OF LAS OLAS DEL MAR I (P.B. 147, PG. 30, B.C.R.)
2. THIS DRAWING IS AVAILABLE IN AutoCAD FORMAT, AND MAY BE OBTAINED FROM THE CITY OF FORT LAUDERDALE ENGINEERING DEPARTMENT.
3. ALL UNDERGROUND UTILITIES WERE LOCATED BY OTHERS

No.	REVISIONS	BY	CH'D	DATE

UTILITY PLAN

WATER AND SEWER

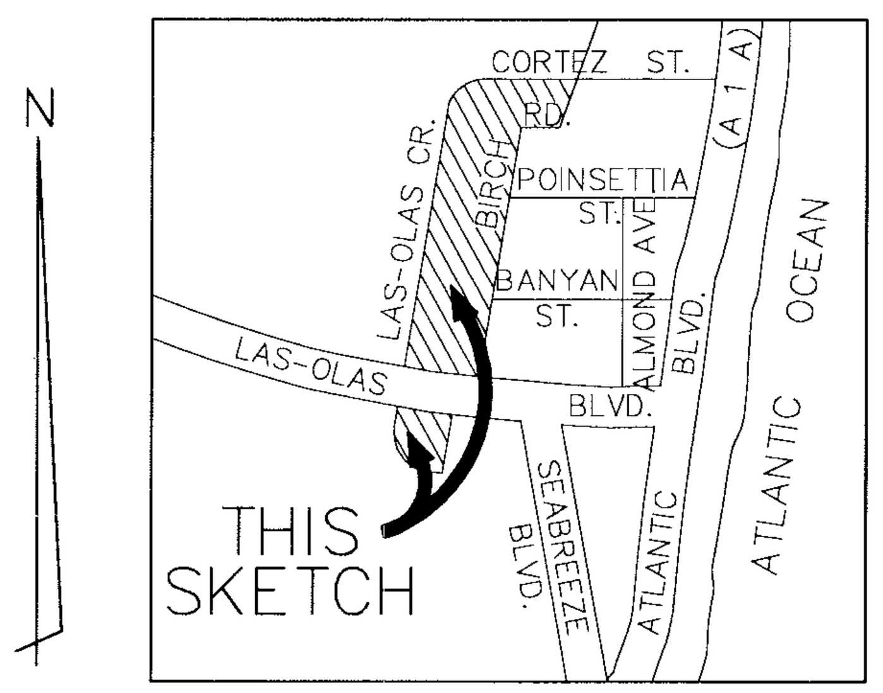
BIRCH / LAS OLAS PARKING LOT

C162C
FILE NO.

4-115-62

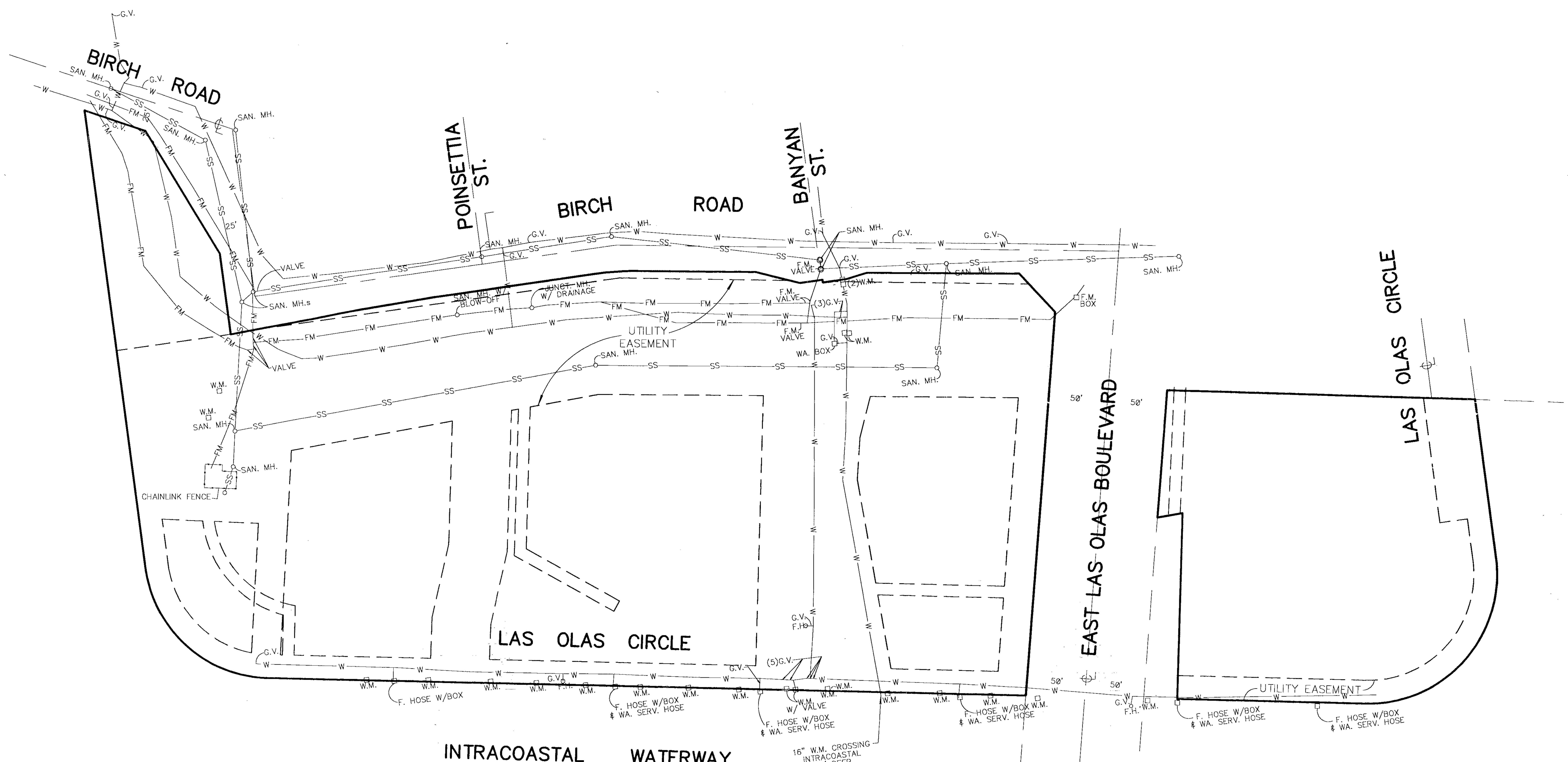
UTILITY PLAN

WATER AND SEWER



LOCATION SKETCH

GRAPHIC SCALE: 1" = 50'



LEGEND OF SYMBOLS

SYMBOL	DEFINITION
-SS-	Centerline Sanitary Sewer
-FM-	Centerline Force Main
-W-	Centerline Waterline
F.H.	Fire Hydrant
G.V.	Gate Valve
M.H.	Manhole
San.	Sanitary
○	Manhole
F.HOSE	Fire Hose
W.M.	Water Meter
WA.	Water

NOTES:

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REVISIONS — No. | BY | CH'D | DATE

SCALE: 1" = 50'
DATE: 3-8-91
DRAWN BY: B.F.
CHECKED BY: D.E.R.
APPROVED BY:
FIELD BOOK: 260 & 249

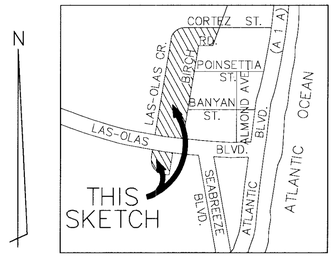
Darby and Way, Inc.
PROFESSIONAL
ENGINEERING, SURVEYING & PLANNING
1439 S. POMPANO PARKWAY, POMPANO BEACH, FLORIDA 33069
FT. LAUDERDALE (305)975-8588 • ORLANDO (407)894-6883

UTILITY PLAN
WATER AND SEWER
BIRCH / LAS OLAS PARKING LOT

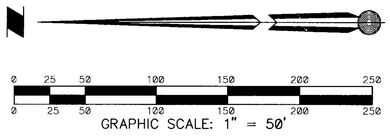
C162C

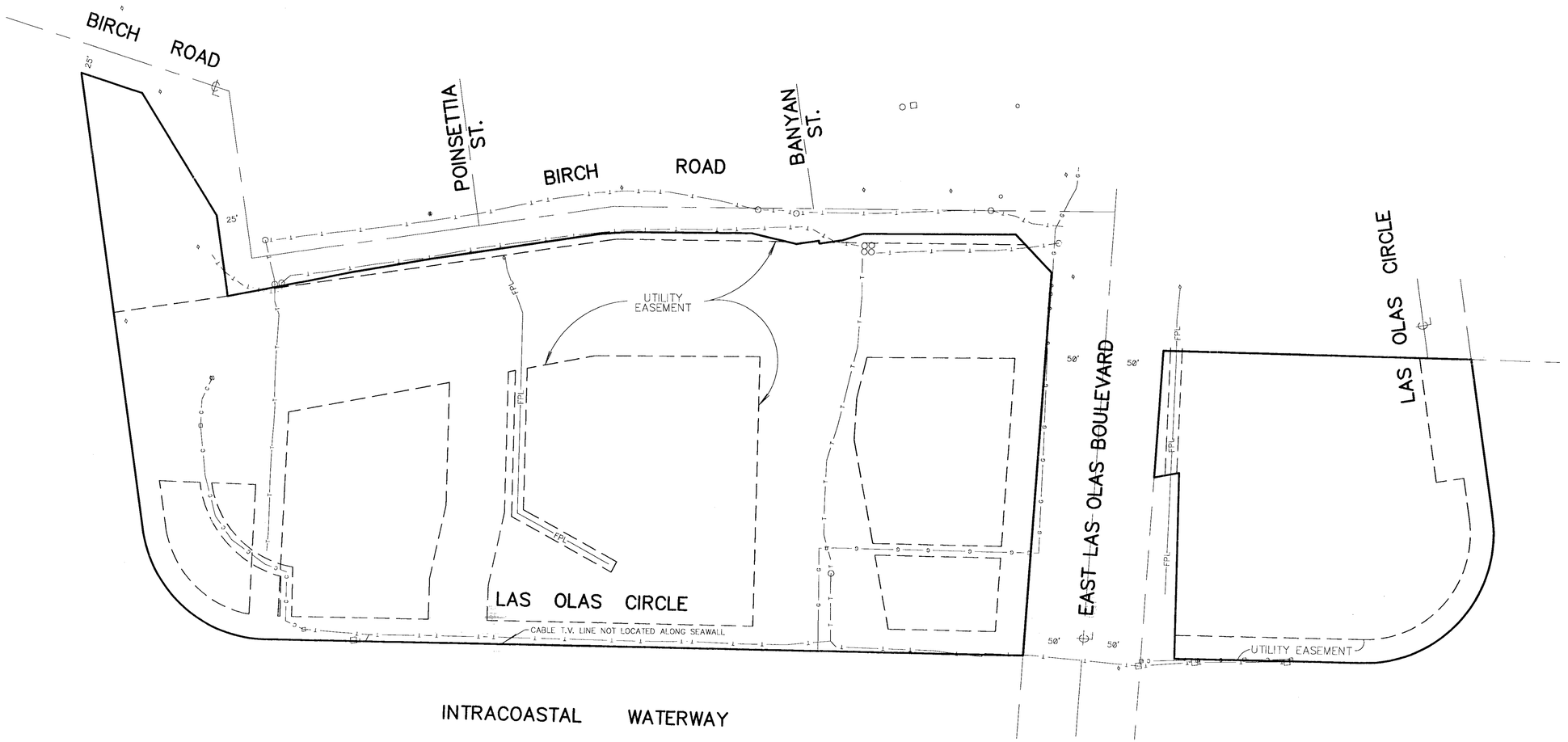
UTILITY PLAN

CABLE, GAS, F.P.& L. AND SO.BELL



LOCATION SKETCH





LEGEND OF SYMBOLS

SYMBOL	DEFINITION
-T-	Centerline Telephone Line (Underground)
-G-	Centerline Gas (Underground)
-C-	Centerline Cable TV. (Underground)
-FPL-	Centerline Florida Power and Light (Underground)
℄	Centerline
⋄	Utility Pole
O	Manhole

NOTES:

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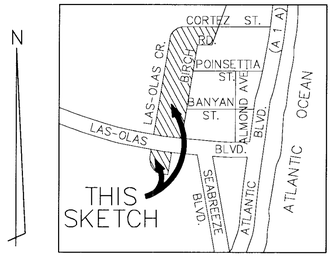
UTILITY PLAN
CABLE, GAS, F.P.& L. AND SO.BELL
BIRCH / LAS OLAS PARKING LOT

C162C

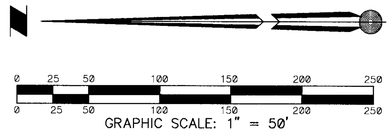
FILE NO. CAM 16-0742
Exhibit 1
Page 150 of 571

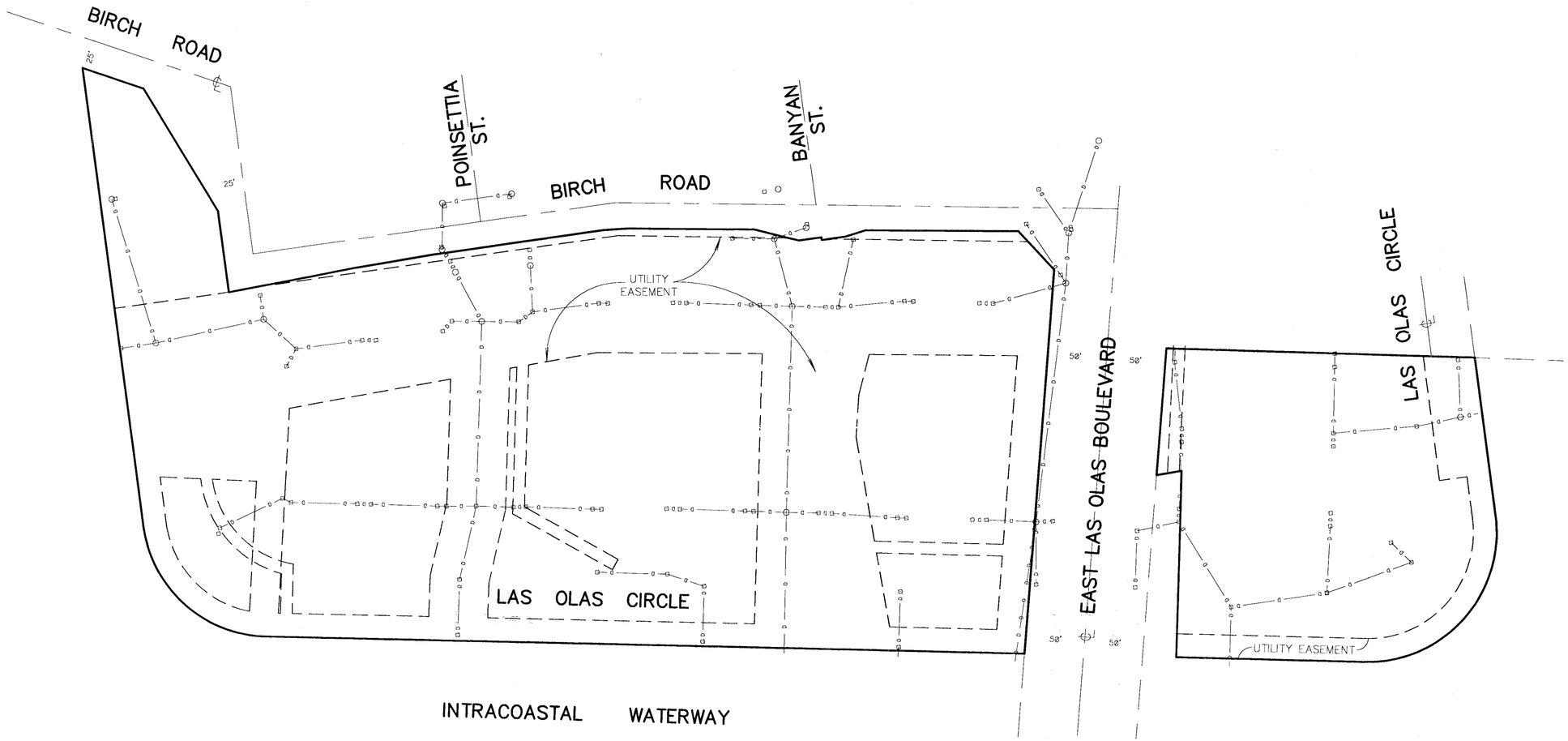
UTILITY PLAN

DRAINAGE



LOCATION SKETCH





LEGEND OF SYMBOLS

SYMBOL	DEFINITION
▫	Catch Basin
-D-	Centerline Storm Drainage
℄	Centerline
○	Storm Manhole

NOTES:

1. FOR ADDITIONAL INFORMATION SEE PLAT OF LAS OLAS DEL MAR I (P.B. 147, PG. 30; B.C.R.)
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3. ALL UNDERGROUND UTILITIES WERE LOCATED BY OTHERS

No.	REVISIONS	BY	CH'D	DATE

SCALE: 1" = 50'
DATE: 3-8-91
DRAWN BY: B.F.
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Dasky and Way, Inc.
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1439 S. POMPANO PARKWAY, POMPANO BEACH, FLORIDA 33069
FT. LAUDERDALE (305)975-8588 • ORLANDO (407)894-6883

UTILITY PLAN
DRAINAGE
BIRCH / LAS OLAS PARKING LOT

C162C
FILE CAM #16-0742 EXHIBIT

Utility Location Coordinates

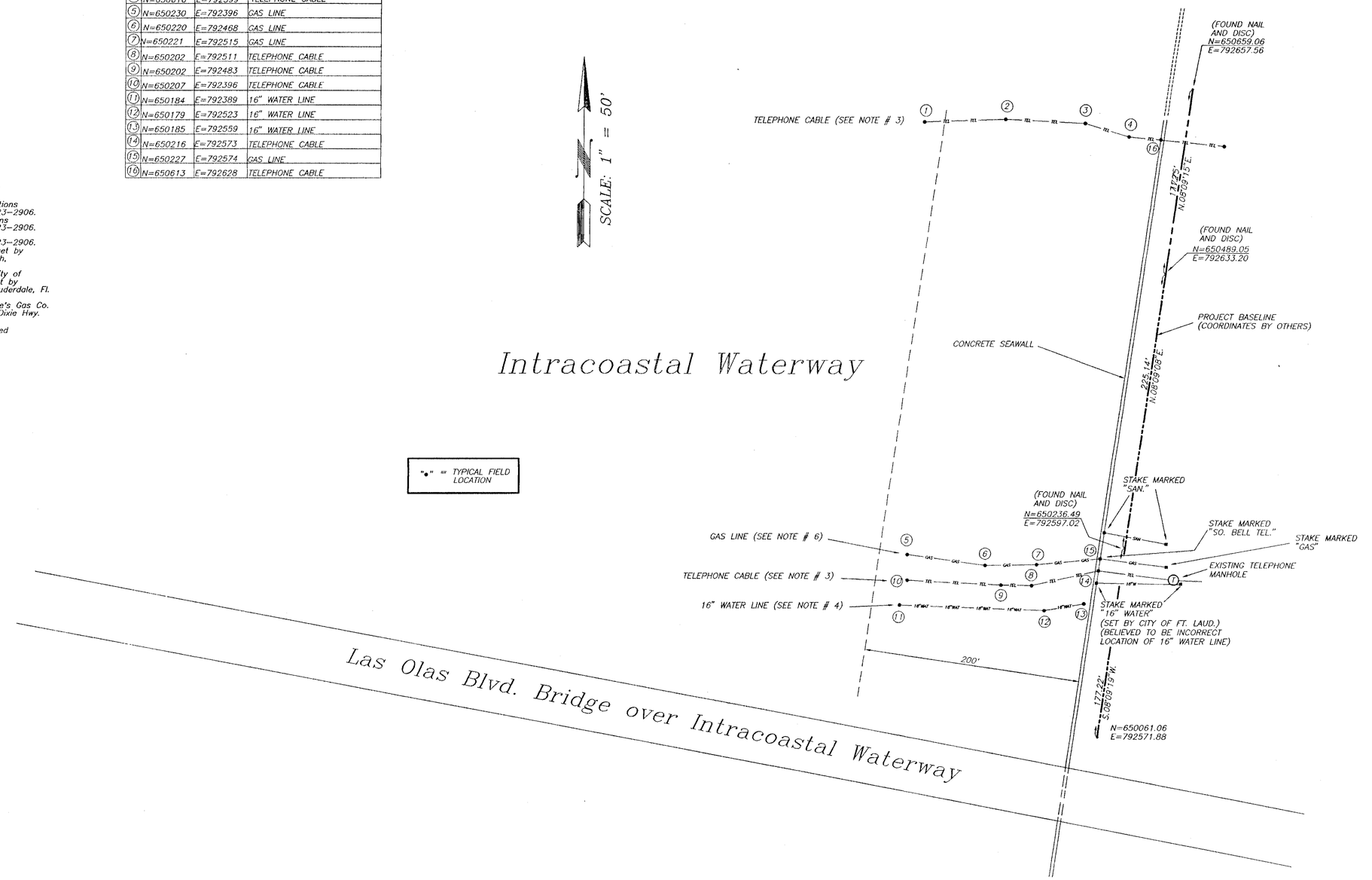
#	NORTHING	EASTING	DESCRIPTION
(1)	N=650629	E=792410	TELEPHONE CABLE
(2)	N=650631	E=792485	TELEPHONE CABLE
(3)	N=650628	E=792559	TELEPHONE CABLE
(4)	N=650616	E=792599	TELEPHONE CABLE
(5)	N=650230	E=792396	GAS LINE
(6)	N=650220	E=792468	GAS LINE
(7)	N=650221	E=792515	GAS LINE
(8)	N=650202	E=792511	TELEPHONE CABLE
(9)	N=650202	E=792483	TELEPHONE CABLE
(10)	N=650207	E=792396	TELEPHONE CABLE
(11)	N=650184	E=792389	16" WATER LINE
(12)	N=650179	E=792523	16" WATER LINE
(13)	N=650185	E=792559	16" WATER LINE
(14)	N=650216	E=792573	TELEPHONE CABLE
(15)	N=650227	E=792574	GAS LINE
(16)	N=650613	E=792628	TELEPHONE CABLE

Surveyor's Notes

1) The specific and ONLY purpose for this survey is to map the locations of underground utilities as located by others.
2) Coordinates shown hereon are taken from information provided by the contractor.
3) Subaqueous telephone cable shown hereon are per electronic locations provided by Industrial Divers Corporation, Port Everglades.(305) 523-2906.
4) Subaqueous water line shown hereon are per physical field locations provided by Industrial Divers Corporation, Port Everglades.(305) 523-2906.
5) Subaqueous gas line shown hereon is per physical field locations provided by Industrial Divers Corporation, Port Everglades.(305) 523-2906.
6) Shoreside telephone cables shown hereon are per field markings set by Bell South and certified to be correct by Dave Williams, Bell South, 4401 Davie Blvd., Plantation Fl. (954) 797-9524.
7) Shoreside water line shown hereon is per field markings set by City of Fort Lauderdale Water and Sewer Dept. and certified to be correct by Louis Coons, City of Ft. Lauderdale, 949 N.W. 38th Street, Ft. Lauderdale, Fl. (305) 492-7834.
8) Shoside gas line shown hereon is per field markings set by People's Gas Co. and certified to be correct by Al Day, Peoples Gas, 16101 West Dixie Hwy. N. Miami Beach, Fl. (305) 763-8900, Ext. 7251.
9) This survey is not valid unless it bears the signature and embossed seal of the surveyor.

SCALE: 1" = 50'

"●" = TYPICAL FIELD LOCATION



THIS IS TO CERTIFY that I have recently surveyed the property shown hereon and that this above ground survey is accurate to the best of my knowledge. I FURTHER CERTIFY that this survey meets the Minimum Technical Standards as set forth by the Florida Board of Land Surveyors in Chapter 61G17-6, Florida Administrative Code.

By: _____
William O. High
Professional Land Surveyor No. 4632
State of Florida

REVIEWED
GIMROCK CONSTRUCTION
BY: GL DATE: 9/18/97

9419-29-1

4-115-62

792-G1.DWG

SPECIFIC PURPOSE SURVEY
Las Olas Blvd./Intracoastal Waterway
Underground Utilities Locations

DATE: 9-12-97
PROJ. 792-G
F.B. 91
PG. 76

NO. | DATE

HIGH SURVEYING & MAPPING
Certificate of Authorization No. LB 6086
12360 S.W. 132nd Court, Suite 216, Miami, Florida 33186
Tel:(305) 252-0698, Fax:(305) 252-9551

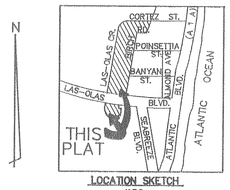
SHEET 1 OF 1

LAS OLAS DEL MAR I

A REPLAT OF A PORTION OF THE AMENDED PLAT OF LAS OLAS BY THE SEA SUBDIVISION (P.B. 1, PG. 6, B.C.R.) TOGETHER WITH A REPLAT OF A PORTION OF LAUDER DEL MAR (P.B. 7, PG 30, B.C.R.) TOGETHER WITH PORTIONS OF THOSE CERTAIN LANDS OF THE NEW RIVER SOUND LYING IN SECTION 12, TOWNSHIP 50 SOUTH, RANGE 42 EAST

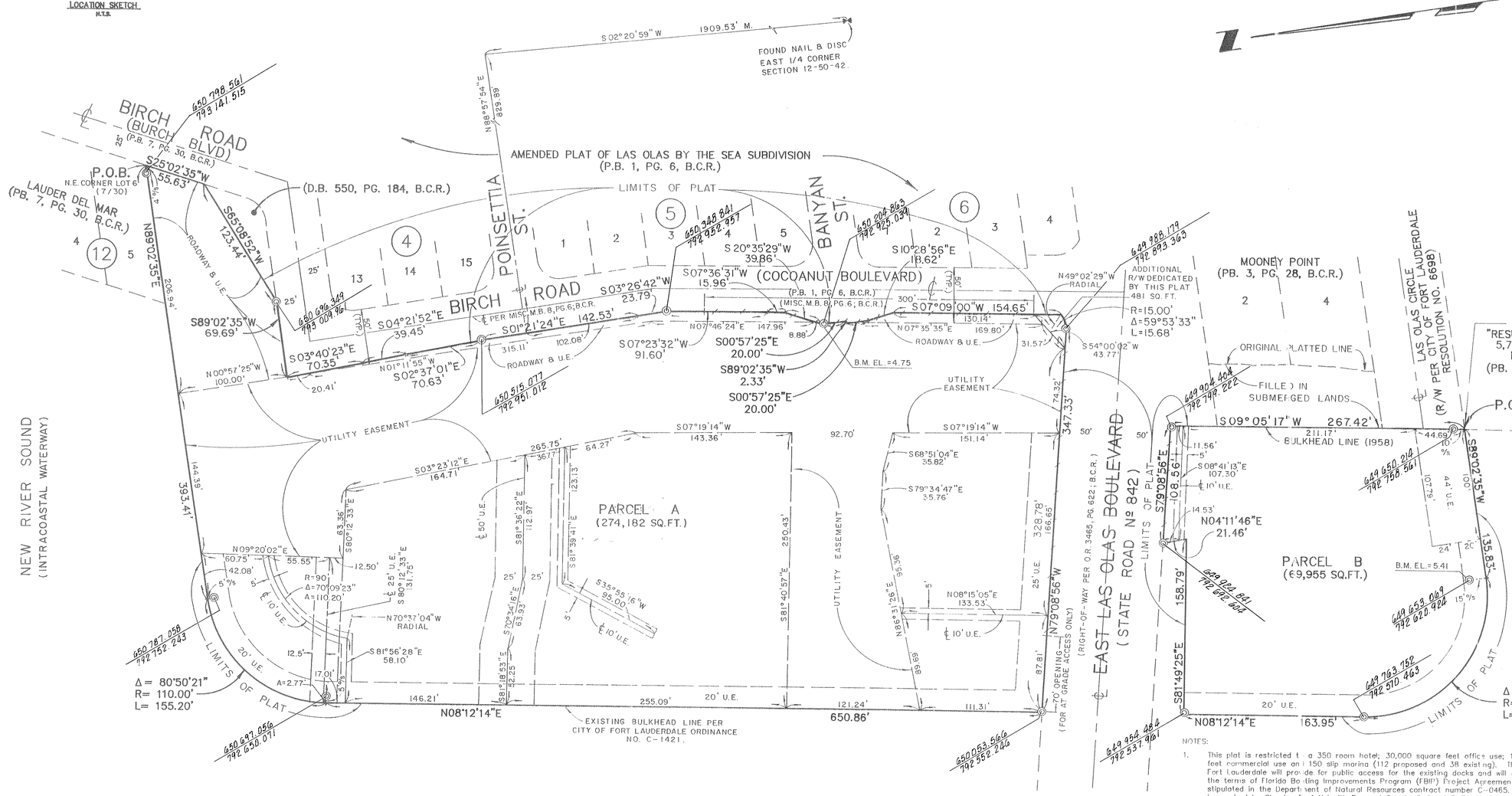
CITY OF FORT LAUDERDALE, BROWARD COUNTY, FLORIDA

MAY, 1989



LOCATION SKETCH
N.T.S.

0 25 50 100 150 200 250
GRAPHIC SCALE: 1" = 50'



NEW RIVER SOUND
(INTRACOASTAL WATERWAY)

NOTES:

The City will provide for public access to the existing docks and will comply with the terms of the Florida Boating Improvement Program (FBIP) Project Agreement, as stipulated in DNR Contract No. C0465.

NOTES:

1. This plat is restricted to a 350 room hotel; 30,000 square feet office use; 169,000 square feet commercial use and 150 slip marina (112 proposed and 38 existing). The City of Fort Lauderdale will provide for public access for the existing docks and will comply with the terms of Florida Boating Improvements Program (FBIP) Project Agreement, as stipulated in the Department of Natural Resources contract number C-0465. This note is required by Chapter 5 Article IX, Broward County Code of Ordinances, and may be amended by agreement with Broward County.
2. Benchmark of origin: Brass disc set in the Northeast corner of the bridge abutment of the East Las Olas Boulevard bridge over the Intracoastal Waterway. Elevation = 9.305
3. Bearing Reference: Bearings shown hereon are relative to the Transverse Mercator Projection, Florida East Zone, Grid North. The bearing South 04°14'39" West is between Coastal Construction Control line offset monuments R-75 and R-76 per Misc. Map Book 6, Page 10, Broward County Records.
4. ◎ Indicates P.R.M. (Permanent Reference Monuments) set by this plat.
5. B.M. EL.=0.0 Indicates (N.G.V.D.) Elevation and are referenced to the National Geodetic Vertical Datum (N.G.V.D.) of 1929.
6. Notice: There may be additional restrictions that are not recorded on this plat that may be found in the public records of this county.
7. SQ.FT. Indicates square feet
8. Indicates Non – Vehicular Access Line.
9. M. Indicates Field Measurement.
10. U.E. Indicates UTILITY EASEMENT

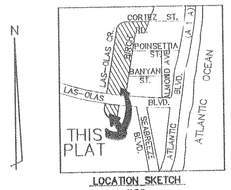
Darby and Way, Inc.
PROFESSIONAL
ENGINEERING, SURVEYING & PLANNING
1439 S. POMPANO PARKWAY, POMPANO BEACH, FLORIDA 33069
(305) 975-8588

LAS OLAS DEL MAR I

A REPLAT OF A PORTION OF THE AMENDED PLAT OF LAS OLAS BY THE SEA SUBDIVISION (P.B. 1, PG. 6, B.C.R.) TOGETHER WITH A REPLAT OF A PORTION OF LAUDER DEL MAR (P.B. 7, PG 30, B.C.R.) TOGETHER WITH PORTIONS OF THOSE CERTAIN LANDS OF THE NEW RIVER SOUND LYING IN SECTION 12, TOWNSHIP 50 SOUTH, RANGE 42 EAST

CITY OF FORT LAUDERDALE, BROWARD COUNTY, FLORIDA

MAY , 1989



LOCATION SKETCH
N.T.S.

BROWARD COUNTY PLANNING COUNCIL

This is to certify that the Broward County Planning Council approved this plat subject to its compliance with dedication of rights – of – way for trafficways this 31st day of August, 1989 A.D.

By: Jean Cook Date: 10/19/89
Chairperson

This plat complies with the approval of the Broward County Planning Council of the above date and is approved and accepted for record this 27th day of February, 1991 A.D.

By: Patricia Ross
Administrator or Designee

BROWARD COUNTY OFFICE OF PLANNING

This plat is approved and accepted for record this 27 day of FEB, 1991 A.D.

By: Donald Bansell
Director

BROWARD COUNTY ENGINEERING DIVISION

This plat is approved and accepted for record.

By: Henry P. Cook Date: 2-28-91
Henry P. Cook
Director of Engineering
Florida P.E., Reg. No. 12506

By: Emilio V. Llufrio Date: 2-27-91
Emilio V. Llufrio
County Surveyor
Florida P.L.S. Reg. No. 4429

BROWARD COUNTY FINANCE AND ADMINISTRATIVE SERVICES DEPARTMENT, COUNTY RECORDS DIVISION–MINUTES SECTION

This is to certify that this plat complies with the provisions of Chapter 177, Florida Statutes, and was accepted for record by the Board of County Commissioners of Broward County, Florida, this 5th day of September, 1989 A.D.

Attest: L.A. Hester
County Administrator

By: Phyllis Hughes
Deputy

By:
Chairperson – County Commission

BROWARD COUNTY FINANCE AND ADMINISTRATIVE SERVICES DEPARTMENT, COUNTY RECORDS DIVISION–RECORDING SECTION

This Instrument was filed for record this 4th day of March, 1991 A.D. and recorded in Plat Book 147, Page 30, record verified.

Attest: L.A. Hester
County Administrator

By: Carole A. Doyle
Deputy

CITY ENGINEER APPROVAL

This Plat was approved and accepted for record on this 27 day of Feb 1991 A.D.

By: A. J. Dilione
A.J. Dilione
City Engineer P.E. No. 9700

CITY COMMISSION APPROVAL

This Plat was approved and accepted for record by the City Commission in and by Ordinance C-89-81 adopted this 18th day of July, 1989 A.D.

By: Lisa J. Cunt
City Clerk

CITY PLANNING AND ZONING BOARD

This is to certify that the City Planning and Zoning Board approved and accepted this Plat for record on this 21 day of JUNE, 1989 A.D.

By:
Chairman

Description:

Portions of those unnumbered blocks lying West of Cocoanut Boulevard (aka Birch Road) as shown on the AMENDED PLAT OF LAS OLAS BY THE SEA SUBDIVISION, according to the Plat thereof, as recorded in Plat Book 1, Page 6 of the Public Records of Broward County, Florida, TOGETHER WITH Lot 6 and a portion of Lot 7, Block 12, LAUDER DEL MAR, according to the Plat thereof, as recorded in Plat Book 7, Page 30 of said Public Records, TOGETHER WITH portions of Banyan Ave. (aka Banyan Street), Poinsettia Ave. (aka Poinsettia Street), and Birch Boulevard (aka Birch Road) as vacated by City of Fort Lauderdale Ordinance No.C-89-71, C-89-72, and C-89-73, respectively, and recorded in Official Records Book 16638, Pages 765 through 770, inclusive, of said Public Records, TOGETHER WITH portions of those certain lands of the New River Sound lying in Section 12, Township 50 South, Range 42 East, Broward County, Florida, being described as follows:

BEGINNING at the Northeast corner of said Lot 6, thence South 25°02'35" West, along the East line of said Lot 6, a distance of 55.63 feet to the Northeast corner of said Lot 7; thence South 65°08'52" West, along the Northwesterly right-of-way line of Birch Road as described in Deed Book 550, Page 184 of said Public Records, a distance of 123.44 feet; thence South 89°02'35" West, along the South line of said Lot 7 and the Westerly extension thereof, 69.69 feet; thence South 03°40'23" East, a distance of 70.35 feet; thence South 04°21'52" East, a distance of 39.45 feet; thence South 02°37'01" East, a distance of 70.63 feet; thence South 01°21'24" East, a distance of 142.53 feet; thence South 03°26'42" West, a distance of 23.79 feet; thence South 07°23'32" West, a distance of 91.60 feet; thence South 07°36'31" West, a distance of 15.96 feet, the last seven (7) courses being coincident with the West right-of-line of Birch Road as recorded in Miscellaneous Map Book 8, Page 6 of said Public Records; thence South 20°35'29" West, a distance of 39.86 feet; thence South 00°57'25" East, a distance of 20.00 feet; thence South 89°02'35" West, a distance of 2.33 feet; thence South 00°57'25" East, a distance of 20.00 feet; thence South 10°28'56" East, a distance of 18.62 feet; thence South 07°09'00" West, along the said West right-of-way line of Birch Road, a distance of 154.65 feet to an intersection with the arc of a curve concave to the Northwest and whose radius point bears North 49°02'29" West from the last described point; thence Southwesterly and Westerly along the arc of said curve, having a radius of 15.00 feet, a central angle of 59°53'33", an arc distance of 15.68 feet to a point of tangency; thence North 79°08'56" West, along the North right-of-way line of East Las Olas Boulevard, as described in Official Records Book 3465, Page 622 of said Public Records, a distance of 347.33 feet; thence North 08°12'14" East, along the existing bulkhead line as described in City of Fort Lauderdale Ordinance No. C-1421, a distance of 650.86 feet to a point of curvature of a curve concave to the Southeast; thence Northerly and Easterly along the arc of said curve and said bulkhead line, said curve having a radius of 110.00 feet, a central angle of 80°50'21", an arc distance of 155.20 feet to a point of tangency; thence North 89°02'35" East, and continuing along said bulkhead line, being the Westerly extension of the North line of said Lot 6, a distance of 393.41 feet to the POINT OF BEGINNING.

TOGETHER WITH

BEGINNING at the Northwest corner of the "RESUBDIVISION OF LOTS 5,7,8,9,10,11 and 12, MOONEY POINT" according to the Plat thereof, as recorded In Plat Book 68, Page 27, of said Public Records; thence South 89°02'35" West, along the existing bulkhead line as described in said City of Fort Lauderdale Ordinance C-1421, a distance of 135.83 feet to a point of curvature of a curve concave to the Northeast; thence Westerly and Northerly along the arc of said curve and said bulkhead line, said curve having a radius of 110.00 feet, a central angle of 99°09'39", an arc length of 190.38 feet to a point of tangency; thence North 08°12'14" East, and continuing along said bulkhead line, a distance of 163.95 feet; thence South 81°49'25" East, along the North line of Parcel 2 as described in Deed Book 289, Page 450 of said Public Records, a distance of 158.79 feet; thence North 04°11'46" East, along the West line of those lands described in Official Records Book 1275, Page 403 of said Public Records, a distance of 21.46 feet; thence South 79°08'56" East, along the South right-of-way line of East Las Olas Boulevard as described in said Official Records Book 3465, Page 622, a distance of 108.56 feet to an intersection with a line being the Northerly extension of the face of a bulkhead line as it existed on May 5, 1958 and shown on the City of Fort Lauderdale's Engineering plan entitled "Bulkhead Line and Fill Plan – Birch – Las Olas Parking Lot and Adjoining Area"; thence South 09°05'17" West, along said bulkhead line and its northerly extension, a distance of 267.42 feet to the POINT OF BEGINNING.

Subject to all easements, rights-of-way, and reservations of record.

This plat contains 7.911 acres, more or less.

Darby and Way, Inc.
PROFESSIONAL
ENGINEERING, SURVEYING & PLANNING
1439 S. POMPANO PARKWAY, POMPANO BEACH, FLORIDA 33069
(305) 975-8588

DEDICATION

STATE OF FLORIDA s.s.
COUNTY OF BROWARD

KNOW ALL MEN BY THESE PRESENTS that the City of Fort Lauderdale, Florida, a Municipal Corporation of the State of Florida, owner of the lands described and shown hereon has caused said lands to be surveyed and platted as shown hereon, said plat to be known as LAS OLAS DEL MAR I , a replat. The additional rights-of-way and easements included in this plat are hereby dedicated to the public for proper purposes.

IN WITNESS WHEREOF the City of Fort Lauderdale, Florida, has caused these presents to be signed by its Vice Mayor-Commissioner, City Manager and attested by its City Clerk and its corporate seal to be affixed hereto by and with the authority of the City Commission this 19th day of July, 1989 A.D.

WITNESSES C. Jane Cochran as to all
Susan M. Royal as to all

BY:
Carlton B. Moore, Vice Mayor

BY:
Constance Hoffmann, City Manager

Attest:
Kris Anderson, City Clerk

ACKNOWLEDGEMENT

STATE OF FLORIDA s.s.
COUNTY OF BROWARD

I HEREBY CERTIFY that on this day personally appeared before me, an officer duly authorized to administer oaths and take acknowledgements, Carlton B. Moore, Constance Hoffmann and Kris Anderson, Vice Mayor-Commissioner, City Manager and City Clerk, respectively, of the City of Fort Lauderdale and they acknowledged to and before me the execution of the foregoing plat and instrument of dedication for the purposes and uses therein expressed.

WITNESS my hand and official seal this 19 day of July 1989 A.D.

My commission expires: 7/19/92 By:
Notary Public State of Florida at Large

SURVEYOR'S CERTIFICATE

STATE OF FLORIDA
COUNTY OF BROWARD s.s.

I HEREBY CERTIFY that the attached plat is a true and correct representation of the lands recently surveyed, subdivided, and platted under my responsible direction and supervision, that the survey data shown conforms to the applicable requirements of Chapter 177, Florida Statutes, and with the applicable sections of Chapter 21HH-6, Florida Administrative Code. The Permanent Reference Monuments (P.R.M's) were set in accordance with section 177.091 of said Chapter 177, on this 18th day of January, 1990. The Benchmarks shown are referenced to the National Geodetic Vertical Datum (N.G.V.D.) of 1929 in conformity with standards adopted by the National Ocean Survey for third order control standards.

DARBY and WAY, INC. By:
Gregory B. Darby
Registered Land Surveyor #2990
State of Florida

LEGEND

BUILDINGS
ROADS
SIDEWALK
CULVERT, BRIDGE, & HEADWALL STRUCTURE
WALLS
GUARDRAIL
STREAM OR SHORE LINE
LAKE OR POND
WOODED AREA
BRUSH AREA
GROVE AREA
FENCE
TREE
PALM
SWAMP
UTILITY POLE
LIGHT POLE
DOUBLE LIGHT POLE
TRAFFIC LIGHT POLE
LAMP POLE
TRANSMISSION POWER POLE
FLAG POLE
MAILBOX
ANTENNAE
MANHOLE
UTILITY OBJECT
FIRE HYDRANT
POST
SIGN
HORIZONTAL CONTROL POINT
VERTICAL CONTROL POINT

N 651,000
N 650,750
N 650,500
N 650,250
N 650,000
N 649,750
N 649,500
E 793,250
E 793,000
E 792,750
E 792,500

SCALE 1"=50'

DATE OF PHOTOGRAPHY 8-25-89

PROJECT # 89972

Darby and Way, Inc.
Professional
Engineering, Surveying & Planning
1439 S. POMPANO PARKWAY POMPANO BEACH, FLORIDA 33069
FT. LAUDERDALE (305) 975-8588 • ORLANDO (407) 894-6883

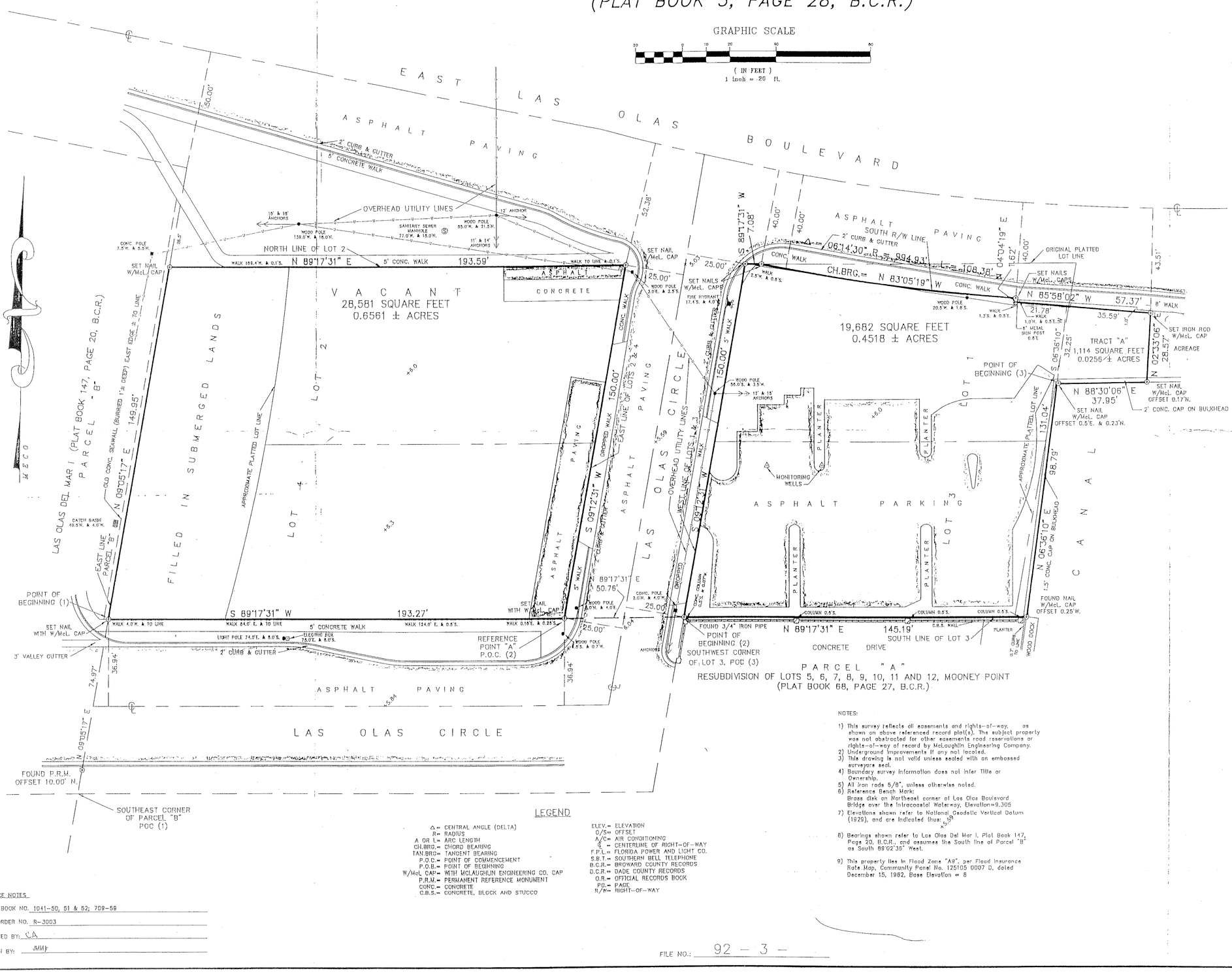
prepared by:
McLAUGHLIN ENGINEERING COMPANY
400 N.E. 3rd AVENUE FORT LAUDERDALE, FLORIDA
PHONE: (305) 763-7611

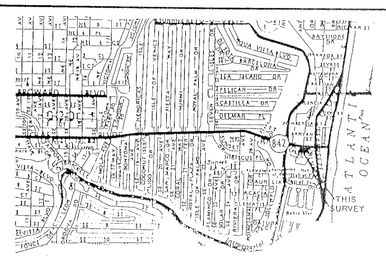
RECORD LAND SURVEY

LOTS 1, 2, 3 & 4, MOONEY POINT
(PLAT BOOK 3, PAGE 28, B.C.R.)

GRAPHIC SCALE

30 0 10 20 40 60
(IN FEET)
1 inch = 20 ft.





VICINITY MAP

LEGAL DESCRIPTION

Lot 1, LESS right-of-way for East Las Olas Boulevard; All of Lots 2, 3 and 4, MOONEY POINT, according to the plat thereof, as recorded in Plat Book 3, Page 28, of the public records of Broward County, Florida; Together with that certain strip of formerly submerged land lying West of and adjacent to said Lots 2 and 4, and East of Parcel "B", LAS OLAS DEL MAR I, according to the plat thereof, as recorded in Plat Book 147, Page 20, of the public records of Broward County, Florida, all more fully described as follows:

Commencing (1) at the Southeast corner of said Parcel "B", LAS OLAS DEL MAR I; thence North 09°05'17" East, on the East line of said Parcel "B", a distance of 74.97 feet, to the POINT OF BEGINNING (1); thence continuing North 09°05'17" East, on said East line, a distance of 149.95 feet; thence North 89°17'31" East, on the Westerly extension of the North line of said Lot 2, and on the North line of said Lot 2, a distance of 193.59 feet; thence South 09°12'31" West, on the East line of said Lots 2 and 4, a distance of 150.00 feet, to a Reference Point "A"; thence South 89°17'31" West, on the South line and Westerly extension of the South line of said Lot 4, a distance of 193.27 feet, to the POINT OF BEGINNING (1).

TOGETHER WITH:

Commencing (2) at aforementioned Reference Point "A"; thence North 89°17'31" East, on the Easterly extension of the South line of said Lot 4, a distance of 50.76 feet, to the Southwest corner of said Lot 3 and the POINT OF BEGINNING (2); thence North 89°17'31" East, on the South line of said Lot 3, a distance of 145.19 feet, to a point on the East face of an existing concrete cap; thence North 06°36'10" East, on said East face and Northerly extension thereof, a distance of 131.04 feet, to a point on the South right-of-way line of East Las Olas Boulevard; thence Northwesterly on said South right-of-way line the following four [4] courses and distances; [1] North 85°58'02" West, a distance of 21.78 feet; [2] thence North 04°04'19" East, a distance of 1.62 feet; to a point on a curve; [3] thence Northwesterly on a curve to the right, whose chord bears North 83°05'19" West, with a radius of 994.93 feet, a central angle of 06°14'30", an arc distance of 108.38 feet, to a point; [4] thence North 89°17'31" West, a distance of 7.08 feet, to the end of said four [4] courses and distances; thence South 09°12'31" West, on the West line of said Lots 1 and 3, a distance of 150.00 feet, to the POINT OF BEGINNING.

ALSO TOGETHER WITH:

A portion of Section 12, Township 50 South, Range 42 East, Broward County, Florida, lying East of and adjacent to said Lot 1, and lying South of East Las Olas Boulevard, also known as Tract "A", more fully described as follows:
Commencing (3) at the Southwest corner of Lot 3, MOONEY POINT, according to the plat thereof, as recorded in Plat Book 3, Page 28, of the public records of Broward County, Florida; thence North 89°17'31" East, on the South line of said Lot 3, a distance of 145.19 feet, to a point on the East face of an existing concrete cap; thence North 06°36'10" East, on said East face, a distance of 98.79 feet, to a point on the South face of an existing concrete cap, and the POINT OF BEGINNING (3); thence North 88°30'06" East, on said South face, a distance of 37.95 feet; thence North 02°33'06" East, a distance of 28.57 feet, to a point on the South right-of-way line of East Las Olas Boulevard; thence North 85°58'02" West, on said South right-of-way line, a distance of 35.59 feet, to a point on the Northerly extension of the East face of an existing concrete cap, being generally accepted as the East line of Lot 1, of said MOONEY POINT; thence South 06°36'10" West, on said Northerly extension and said East line, a distance of 32.25 feet, to the POINT OF BEGINNING (3).

Said lands situate, lying and being in the City of Fort Lauderdale, Broward County, Florida, and containing 49,377 square feet or 1.1335 acres more or less.

CERTIFICATION

We hereby certify that this survey meets the minimum technical standards as set forth by the Florida Board of Professional Land Surveyors in Chapter 21HH-6 Florida Administrative Code, pursuant to Section 472.027, Florida Statutes.

Dated at Fort Lauderdale, Florida, this 18th of August ,1992.

McLAUGHLIN ENGINEERING COMPANY

Robert C. McLaughlin
Registered Land Surveyor No. 3356
State of Florida.

NOTES:

1) This survey reflects all easements and rights-of-way, as shown on above referenced record plat(s). The subject property was not abstracted for other easements road reservations or rights-of-way of record by McLaughlin Engineering Company.
2) Underground improvements if any not located.
3) This drawing is not valid unless sealed with an embossed surveyors seal.
4) Boundary survey information does not infer Title or Ownership.
5) All iron rods 5/8", unless otherwise noted.
6) Reference Bench Mark:
Brass disk on Northeast corner of Las Olas Boulevard Bridge over the Intracoastal Waterway, Elevation=9.305
7) Elevations shown refer to National Geodetic Vertical Datum (1929), and are indicated thus: x5.5
8) Bearings shown refer to Las Olas Del Mar I, Plat Book 147, Page 20, B.C.R., and assumes the South line of Parcel "B" as South 89°02'35" West.
9) This property lies in Flood Zone "AH", per Flood Insurance Rate Map, Community Panel No. 125105 0007 D, dated December 15, 1982, Base Elevation = 8

LEGEND

Δ= CENTRAL ANGLE (DELTA)
R= RADIUS
A OR L= ARC LENGTH
CH.BRG.= CHORD BEARING
TAN.BRG= TANGENT BEARING
P.O.C.= POINT OF COMMENCEMENT
P.O.B.= POINT OF BEGINNING
W/McL CAP= WITH McLAUGHLIN ENGINEERING CO. CAP
P.R.M.= PERMANENT REFERENCE MONUMENT
CONC.= CONCRETE
C.B.S.= CONCRETE, BLOCK AND STUCCO
ELEV.= ELEVATION
O/S= OFFSET
A/C= AIR CONDITIONING
℄ = CENTERLINE OF RIGHT-OF-WAY
F.P.L.= FLORIDA POWER AND LIGHT CO.
S.B.T.= SOUTHERN BELL TELEPHONE
B.C.R.= BROWARD COUNTY RECORDS
D.C.R.= DADE COUNTY RECORDS
O.R.= OFFICIAL RECORDS BOOK
PG.= PAGE
R/W= RIGHT-OF-WAY

OFFICE NOTES

FIELD BOOK NO. 1041-50, 51 & 52; 709-59
JOB ORDER NO. R-3003
CHECKED BY: CA
DRAWN BY: JMM

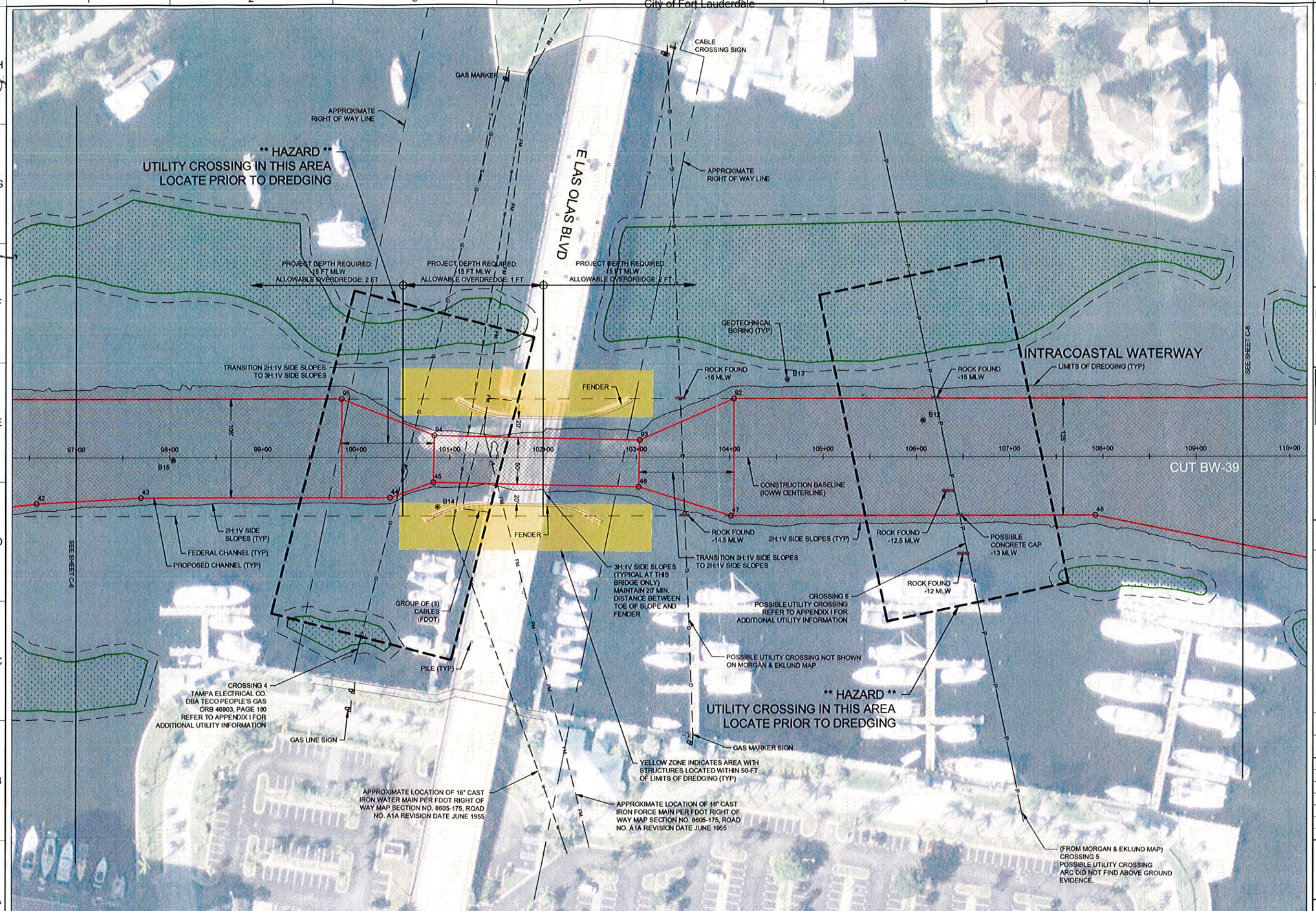
FILE NO.: 92 - 3 -

EXHIBIT D8
EXISTING UNDERGROUND UTILITY INFORMATION

TAYLOR ENGINEERING DRAWING C-7

Note: The data provided herein are provided for informational purposes only. The drawings provided represent the best available information regarding existing City of Fort Lauderdale owned underground utilities. All utilities are not necessarily shown. Neither the City of Fort Lauderdale nor the Design Criteria Professional warrant the accuracy of the information contained herein. The Contractor shall perform exploratory excavations as required to verify the location and elevation of existing underground utilities that may interfere with the work. Protect all utilities.

What is the Density Coverage for seagrass?



NOTE: ROCK FOUND DURING DIVER INVESTIGATION ON 5/6/15.
REFER TO APPENDIX I FOR ADDITIONAL UTILITY INFORMATION

SEE SHEET C-2 FOR GENERAL NOTES. THIS PAGE NOT VALID WITHOUT SHEET C-2.

SITE PLAN - STA. 97+00 THRU 109+50

22X34: 1" = 50'
11X17: 1" = 100'

0 50 100'

PROPOSED CHANNEL
FEDERAL CHANNEL
HALOPHILA DECIPIENS AND/OR HALOPHILA JOHNSONII
10-FT REQUIRED BUFFER

TAYLOR ENGINEERING INC.
10151 DEERWOOD PARK BLVD.
BLDG. 300, SUITE 300
JACKSONVILLE, FLORIDA 32256
(904)-731-7040
1675 PALM BEACH LAKES, SUITE 210
WEST PALM BEACH, FLORIDA 33401
(561)-640-7310
CERTIFICATE OF AUTHORIZATION # 4 815

SEAL

JOHN F. ADAMS P.E.# 20298

PROJECT TITLE

INTRACOASTAL WATERWAY DEEPENING
BROWARD COUNTY, FLORIDA

A ways call 811 two full business days before you dig
Sunshine811.com

NO	ZONE	REVISIONS / SUBMISSIONS	DATE

PROJECT NO	C2005-076-11
DATE	JUNE 2015
DESIGNED	JFA
DRAWN	CAS
CHECKED	LSB
REVIEWED	JTA
SCALE	AS SHOWN

DRAWING TITLE

SITE PLAN - STA. 97+00 THRU 109+50

C-7

SHEET 7 OF 29

CATHY SHELL 6/17/2015 8:57:29 AM X:\ops\Projects\c2005-076 Brevard County Deepening\Construction\ICWW\C2005-076-C-ICWW Site Plans.dwg

CAM #16-0742
EXHIBIT 1
Page 158 of 571

EXHIBIT D9
EXISTING UNDERGROUND UTILITY INFORMATION

JET PROBE INVESTIGATION

Note: The data provided herein are provided for informational purposes only. The drawings provided represent the best available information regarding existing City of Fort Lauderdale owned underground utilities. All utilities are not necessarily shown. Neither the City of Fort Lauderdale nor the Design Criteria Professional warrant the accuracy of the information contained herein. The Contractor shall perform exploratory excavations as required to verify the location and elevation of existing underground utilities that may interfere with the work. Protect all utilities.

LOGAN DIVING & SALVAGE

2815 SAINT JOHNS BLUFF
JACKSONVILLE, FLORIDA 32246
TEL: (904) 731-0000 FAX: (904) 731-5493
MARINE SPECIALTY CONTRACTOR
FL SCC131151014

LAS OLAS BRIDGE
16"CIP WATER MAIN CROSSING
SUB GROUNDLINE
PROBING INVESTIGATION
FOR
FLORIDA INLAND NAVIGATION DISTRICT
SEPTEMBER 8 -12, 2015

Professional commercial diving services were requested to attempt to determine the presence of the 16"CIP Water Main within -8' of the existing underwater ground line with water jet probing methods. The 16" CIP Water Main subaqueous crossing is located north of the Las Olas Bridge in the ICW / Ft. Lauderdale, Florida.

Divers utilizing surface supplied dive gear, hard wire communications, 24' dive boat, RD 7000 U/W Pipe tracker, DD U/W antenna (300'), jet pumps, jet probes, buoys, and ancillary equipment, mobilized to the site Sept 8, 2014.

Water Main horizontal alignment was located with a RD 7000 Underwater Pipe Tracker on September 9, 2015 directly North of Las Olas Bridge Bent 3, Piers 1,2,3,4, West Fender, Center Channel, and East Fender. Buoys and clump weights were placed at the horizontal locate stations (0+00) as indicated by the locator to guide the jetting investigation. Subsurface buoys and clump weights were left on Bent 3, Pier 1, 2, 3 & 4 after the jetting investigation was completed. No buoys were left at the West Fender, Center Channel and East Fender stations.

Jet probing at each station was accomplished on September 10 and 11, 2015. The dive team jet probed at the 0+00 station indicated by the RD 7000 Pipe tracker (horizontal alignment). The dive team then probed on 1' centers up stream (North) and downstream (South) for 10 feet each direction covering a 20' wide swath (21 total probing's per stations).

Pipeline alignment stations (0+00) are directly North of Bent 3, Pier1, Pier 2, Pier 3, Pier 4, West Fender, Center Channel and East Fender .

Jet probing results are as shown on the following field data sheets.

Findings:

1) Probing Investigation evidenced no definitive pipe / top of pipe locations due to crushed stone/rock fill and gravel. Jet probing could not penetrate the compacted crushed large stone /rock fill.

2) Probing Investigation did evidence a distinct previously disturbed area at the West Fender, Center Channel and East Fender stations where probing was accomplished deeper than the adjacent stations up and down stream (North and South). These areas are possibly the original previously disturbed trench and fill area.

   West Fender: probing stations North 1 & 2, 0+00, South 1 & 2

   Center Channel: probing stations North 1, 0+00, South 1, 2 & 3

   East Fender: 0+00 South 1, 2 & 3

3) Shallow hard/solid rock (limestone type material) was evidenced during the jet probing investigation on what appears to be the North and South side of the original trench at the West Fender, Center Channel and East Fender.

4) Diver's jet washed off some of the areas where they were hitting solid rock/slab both North and South of the crossings baseline. Dive team confirmed solid rock/slab north and south sides (see field data sheets).

5) On the Pipelines projected electronically located baseline/possible trench, the shallowest probing's to stop at obstruction/objects/refusal sub ground line are as follows:

   a. West Fender -4'
   b. Center Channel -6.5'
   c. East Fender -6'

6) Utility Conduits were located @ -2' sub ground line at Pier 1 Station 0+00 and Pier 3 station North 8 (4" diameter conduit bundle possible/communication cables). These live utilities likely have rendered the RD 7000 Depth of Cover readings of August 4, 2015 unreliable and inaccurate due to interference with induced tone signals.

7) Additional supplemental grounds were added to the RD 7000 transmitter and Depth of Cover (DOC) readings were attempted again.

DOC Reading results of Sept 9, 2015:

a. West Fender -8' sub ground line
b. Center Channel -8 sub ground line
c. East Fender -9' sub ground line

Electronic horizontal locates are believed to be accurate as proven by the disturbed area of potential trench found during jetting investigation. *Depth of cover electronic locate readings cannot be relied upon as accurate due to the existence of adjacent and nearby utilities found during the jet probing investigation.

Subsurface buoys and clump weights were left on Bent 3, Pier 1, 2, 3 & 4 after the jetting investigation was completed to aid others in future surveys if needed. No buoys were left at the West Fender, Center Channel and East Fender 0+00 stations due to marine interest.

Synopsis:

While we believe we have located the Water Mains trench, both with remote electronic sensing and physical jet probing, to definitively locate and establish the exact depth of cover and horizontal alignment, the pipeline will need to be physically excavated underwater.

Cast iron gasketed pipe can be located underwater with induced tone technology but it is not ideal due to continuity issues. Given that there are now known live utilities crossing over this WM further degrading remote electronic location capabilities, physical excavation location is the only known way to provide definitive location.

/Scott C. Anderson/

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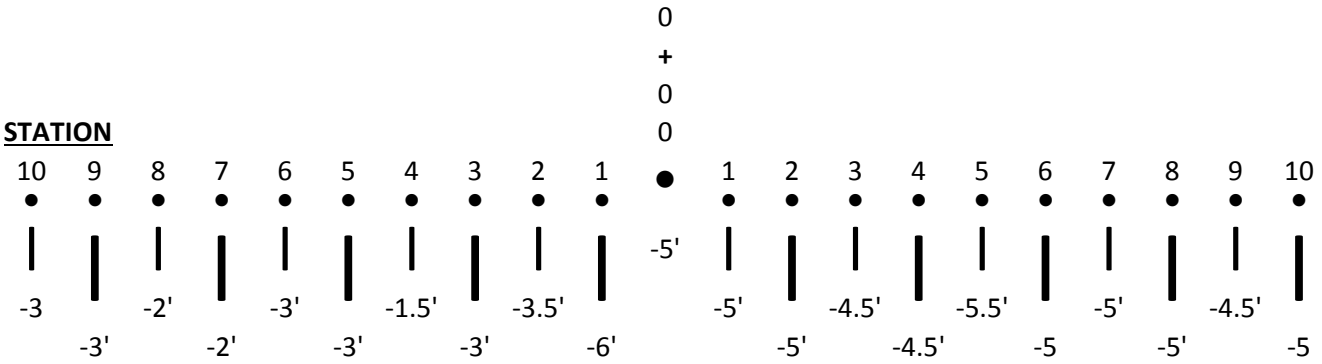
LOGAN DIVING & SALVAGE

2815 ST. JOHNS BLUFF RD. S. JACKSONVILLE, FL. 32246

← **N** **S** →

DATE: 9/10 & 9/11, 2015
PROJECT NAME: LAS OLAS 16" WM
SKETCH BY: SCA

BENT #3



NOTES:		NOTES: NORTH		NOTES: SOUTH	
0+00	SOLID/HARD	1'	SAND/GRAVEL	1'	SOLID/HARD
		2'	SOLID/HARD	2'	SOLID/HARD
		3'	SOLID/HARD	3'	SOLID/HARD
		4'	DEBRIS	4'	SOLID/HARD
		5'	SOLID/HARD	5'	SOLID/HARD
		6'	SOLID/HARD	6'	SOLID/HARD
		7'	SOLID/HARD	7'	SOLID/HARD
		8'	SOLID/HARD	8'	SOLID/HARD
		9'	SOLID/HARD	9'	SOLID/HARD
		10'	SOLID/HARD	10'	SOLID/HARD

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

0+00 = HORIZONTAL PIPELINE CROSSING ALIGNMENT AS INDICATED BY A RD-7000 U/W PIPE CABLE TRACKER 9/9/2015

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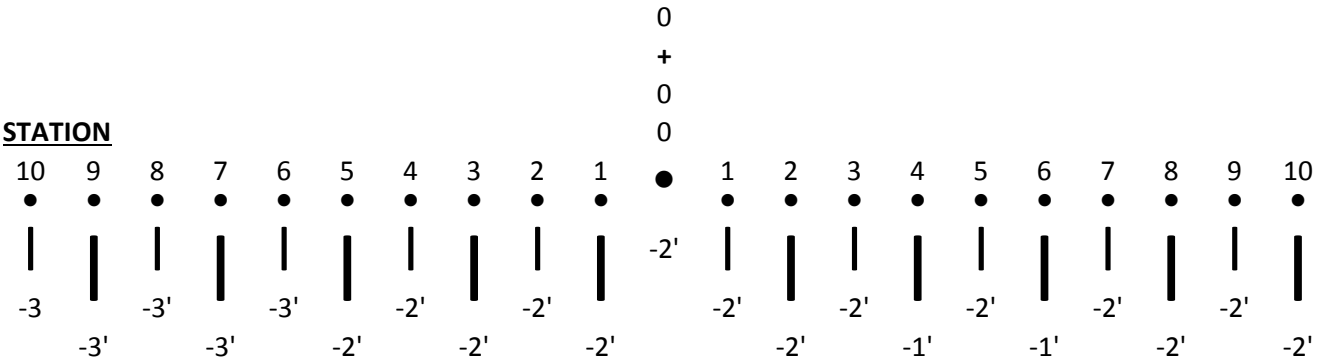
LOGAN DIVING & SALVAGE
2815 ST. JOHNS BLUFF RD. S. JACKSONVILLE, FL. 32246

DATE: 9/10 & 9/11, 2015
PROJECT NAME: LAS OLAS 16" WM
SKETCH BY: SCA

← **N** **S** →

PIER 1



NOTES:	NOTES: NORTH		NOTES: SOUTH	
0+00	1'	1" TO 2" GRAVEL	1'	1" TO 2" GRAVEL
FOUND 4" CONDUIT	2'	1" TO 2" GRAVEL	2'	1" TO 2" GRAVEL
BUNDLE @ -2'	3'	1" TO 2" GRAVEL	3'	1" TO 2" GRAVEL
	4'	1" TO 2" GRAVEL	4'	1" TO 2" GRAVEL
	5'	1" TO 2" GRAVEL	5'	1" TO 2" GRAVEL
	6'	SOFTBALL SIZE ROCK/GRAVEL	6'	1" TO 2" GRAVEL
	7'	SOFTBALL SIZE ROCK/GRAVEL	7'	GRAVEL & LARGER ROCK
	8'	SOFTBALL SIZE ROCK/GRAVEL	8'	GRAVEL & LARGER ROCK
	9'	SOFTBALL SIZE ROCK/GRAVEL	9'	GRAVEL & LARGER ROCK
	10'	SOFTBALL SIZE ROCK/GRAVEL	10'	GRAVEL & LARGER ROCK

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

0+00 = HORIZONTAL PIPELINE CROSSING ALIGNMENT AS INDICATED BY A RD-7000 U/W PIPE CABLE TRACKER 9/9/2015

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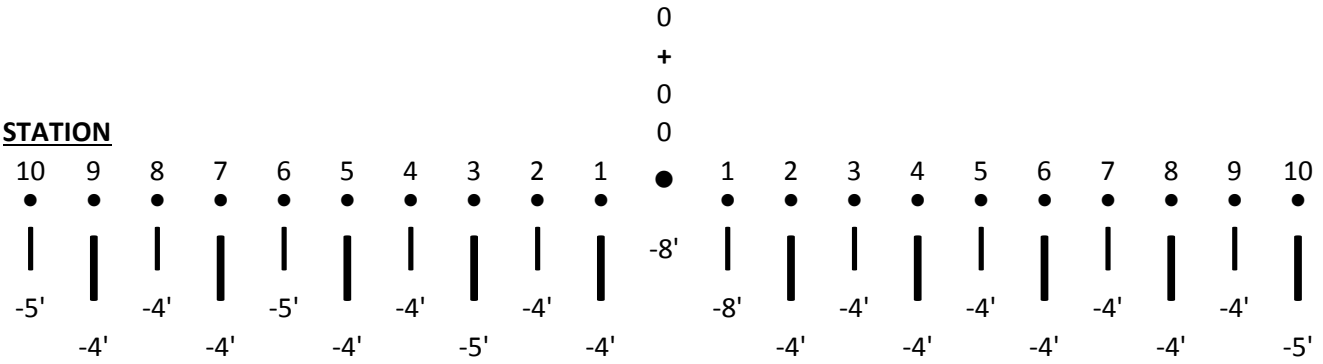
← **N** **S** →

DATE: 9/10 & 9/11, 2015
PROJECT NAME: LAS OLAS 16" WM
SKETCH BY: SCA

PIER 2



NOTES:

0+00
PROBED TO -8'
SAND/SILT

NOTES:
NORTH

1'	SOLID REFUSAL
2'	SOLID REFUSAL
3'	SOLID REFUSAL
4'	SOLID REFUSAL
5'	SOLID REFUSAL
6'	SOLID REFUSAL
7'	SOLID REFUSAL
8'	SOLID REFUSAL
9'	SOLID REFUSAL
10'	SOLID REFUSAL

NOTES:
SOUTH

1'	SAND/SILT
2'	SOLID REFUSAL
3'	SOLID REFUSAL
4'	SOLID REFUSAL
5'	SOLID REFUSAL
6'	SOLID REFUSAL
7'	SOLID REFUSAL
8'	SOLID REFUSAL
9'	SOLID REFUSAL
10'	SOLID REFUSAL

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

0+00 = HORIZONTAL PIPELINE CROSSING ALIGNMENT AS INDICATED BY A RD-7000 U/W PIPE CABLE TRACKER 9/9/2015

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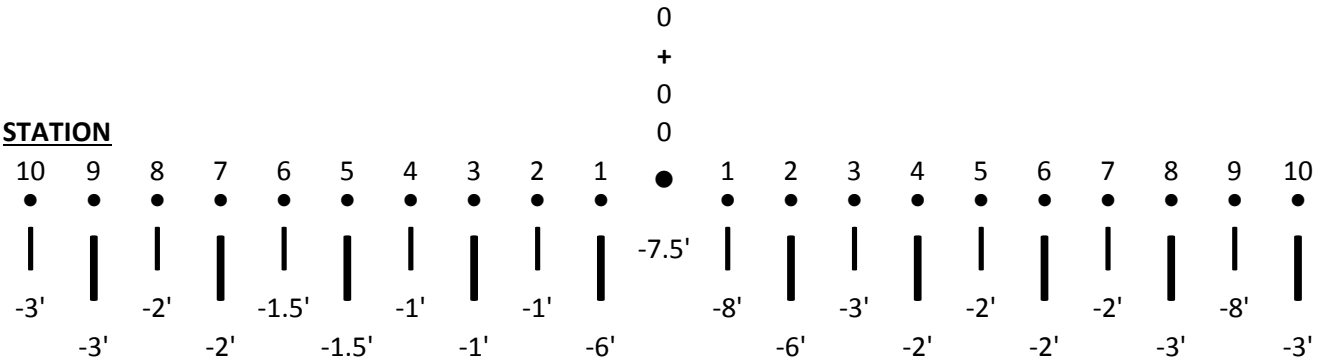
← **N** **S** →

DATE: 9/10 & 9/11, 2015
PROJECT NAME: LAS OLAS 16" WM
SKETCH BY: SCA

PIER 3



NOTES:

0+00
SAND & GRAVEL
TO REFUSAL

NOTES:
NORTH

1'	SAND/GRAVEL
2'	SOLID ROCK
3'	SOLID ROCK
4'	SOLID ROCK
5'	SOLID ROCK
6'	SOLID ROCK
7'	SOLID ROCK
8'	4" DIAMETER CONDUIT (3) @ -2'
9'	SOLID ROCK
10'	SOLID ROCK

NOTES:
SOUTH

1'	SAND & GRAVEL TO -8'
2'	SAND & GRAVEL TO -6'
3'	SOLID ROCK
4'	SOLID ROCK
5'	SOLID ROCK
6'	SOLID ROCK
7'	SOLID ROCK
8'	SOLID ROCK
9'	SAND/SHELL
10'	HARD

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

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← **N** **S** →

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PROJECT NAME: LAS OLAS 16" WM
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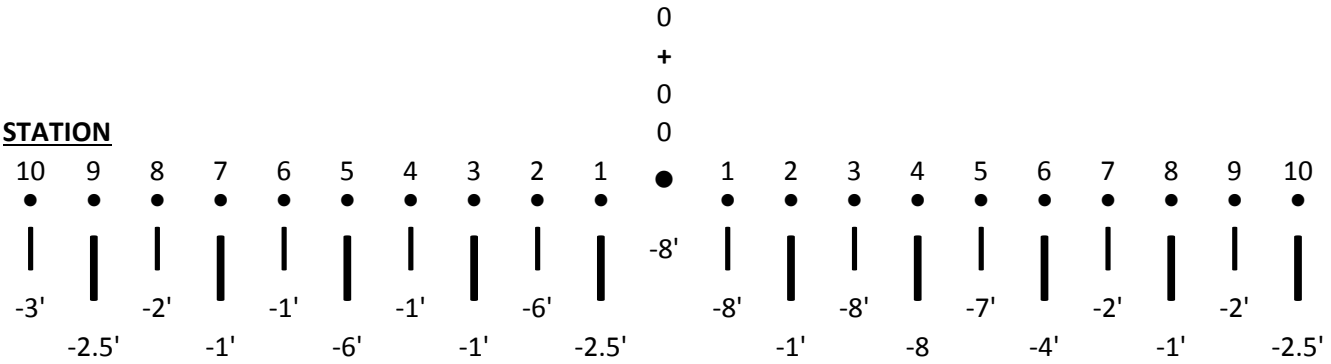
PIER 4



NOTES:

0+00
SAND & GRAVEL
TO -8'

NOTES:
NORTH

1'	SAND/GRAVEL
2'	SAND/GRAVEL
3'	SOLID ROCK/FIST SIZE ROCK
4'	SOLID ROCK/FIST SIZE ROCK
5'	SOLID ROCK/FIST SIZE ROCK
6'	SOLID ROCK/FIST SIZE ROCK
7'	SOLID ROCK/FIST SIZE ROCK
8'	SOLID ROCK/FIST SIZE ROCK
9'	SOLID ROCK/FIST SIZE ROCK
10'	SOLID ROCK/FIST SIZE ROCK

NOTES:
SOUTH

1'	SAND/GRAVEL
2'	ROCK/OBSTRUCTION
3'	SAND/GRAVEL
4'	SAND/GRAVEL
5'	SAND/GRAVEL
6'	FIST SIZE ROCK & GRAVEL
7'	FIST SIZE ROCK & GRAVEL
8'	FIST SIZE ROCK & GRAVEL
9'	FIST SIZE ROCK & GRAVEL
10'	FIST SIZE ROCK & GRAVEL

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

0+00 = HORIZONTAL PIPELINE CROSSING ALIGNMENT AS INDICATED BY A RD-7000 U/W PIPE CABLE TRACKER 9/9/2015

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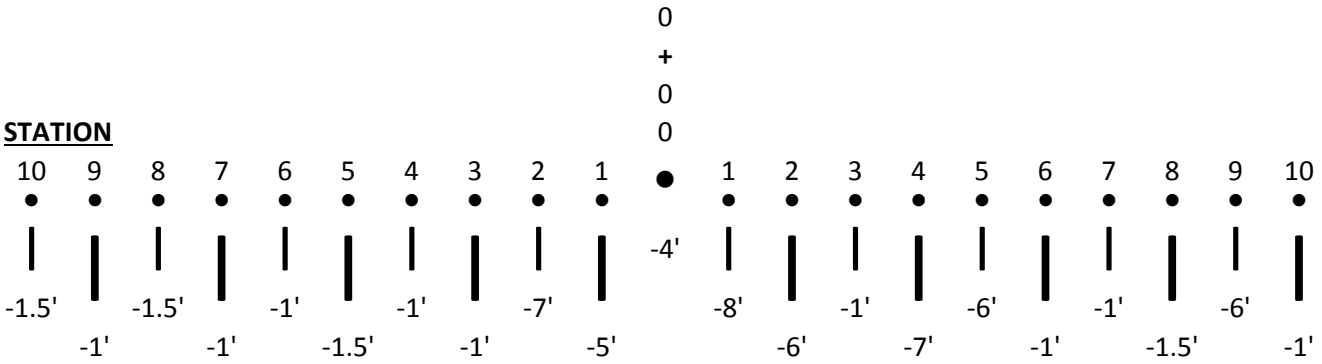
DATE: 9/10 & 9/11, 2015
PROJECT NAME: LAS OLAS 16" WM
SKETCH BY: SCA

← **N** **S** →

WEST
FENDER



NOTES:

0+00
HARD LAYER
@ -4' SUB GL

NOTES:
NORTH

1'	HARD LAYER
2'	HARD LAYER
3'	FIST/SOFTBALL SIZE ROCK
4'	FIST/SOFTBALL SIZE ROCK
5'	FIST/SOFTBALL SIZE ROCK
6'	FIST/SOFTBALL SIZE ROCK
7'	FIST/SOFTBALL SIZE ROCK
8'	FIST/SOFTBALL SIZE ROCK
9'	FIST/SOFTBALL SIZE ROCK
10'	FIST/SOFTBALL SIZE ROCK

NOTES:
SOUTH

1'	GRAVEL
2'	GRAVEL
3'	SOLID OBSTRUCTION
4'	SOLID OBSTRUCTION
5'	GRAVEL
6'	SOLID ROCK
7'	SOLID ROCK
8'	SOLID ROCK
9'	SOLID ROCK
10'	SOLID ROCK

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

0+00 = HORIZONTAL PIPELINE CROSSING ALIGNMENT AS INDICATED BY A RD-7000 U/W PIPE CABLE TRACKER 9/9/2015

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← **N** **S** →

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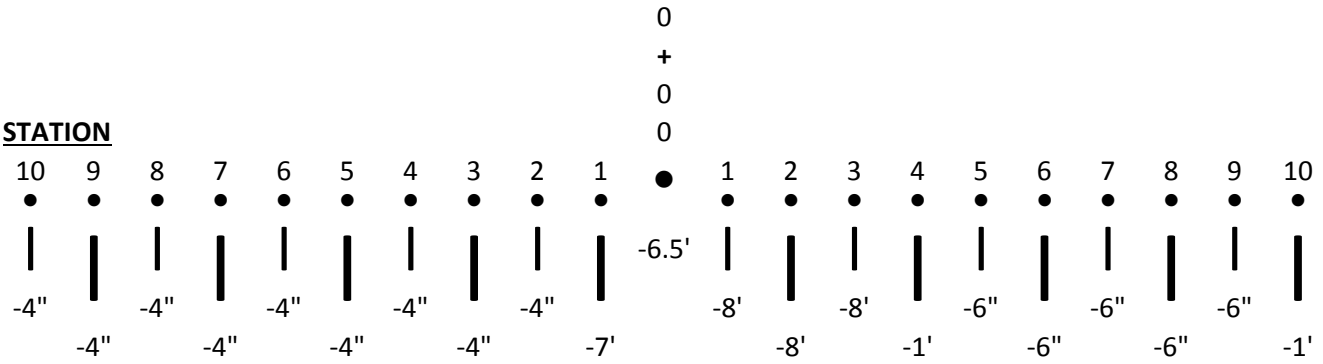
PROJECT NAME: LAS OLAS 16" WM
SKETCH BY: SCA

CENTER OF CHANNEL



NOTES:

0+00
HARD LAYER
@-6'5"

NOTES:
NORTH

1'	HARD LAYER
2'	SOLID ROCK/SLAB
3'	SOLID ROCK/SLAB
4'	SOLID ROCK/SLAB
5'	SOLID ROCK/SLAB
6'	SOLID ROCK/SLAB
7'	SOLID ROCK/SLAB
8'	SOLID ROCK/SLAB
9'	SOLID ROCK/SLAB
10'	SOLID ROCK/SLAB

NOTES:
SOUTH

1'	PROBED TO -8'
2'	PROBED TO -8'
3'	PROBED TO -8'
4'	SOLID ROCK/SLAB
5'	SOLID ROCK/SLAB
6'	SOLID ROCK/SLAB
7'	SOLID ROCK/SLAB
8'	SOLID ROCK/SLAB
9'	SOLID ROCK/SLAB
10'	SOLID ROCK/SLAB

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

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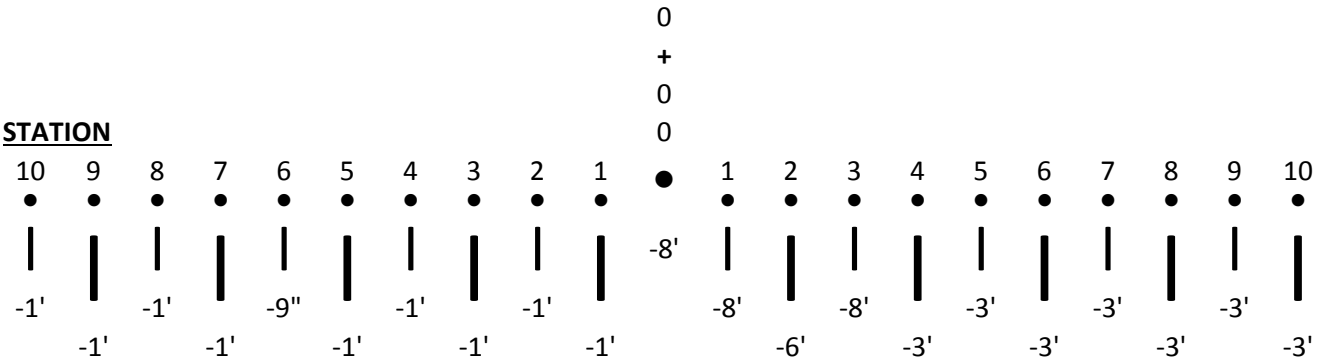
← **N** **S** →

DATE: 9/10 & 9/11, 2015
PROJECT NAME: LAS OLAS 16" WM
SKETCH BY: SCA

EAST FENDER



NOTES:

0+00
PROBED TO -8'

NOTES:
NORTH

1'	SOLID ROCK/SLAB
2'	SOLID ROCK/SLAB
3'	SOLID ROCK/SLAB
4'	SOLID ROCK/SLAB
5'	SOLID ROCK/SLAB
6'	SOLID ROCK/SLAB
7'	SOLID ROCK/SLAB
8'	SOLID ROCK/SLAB
9'	SOLID ROCK/SLAB
10'	SOLID ROCK/SLAB

NOTES:
SOUTH

1'	SAND/SILT
2'	SAND/SILT
3'	SAND/SILT
4'	SOLID ROCK/SLAB
5'	SOLID ROCK/SLAB
6'	SOLID ROCK/SLAB
7'	SOLID ROCK/SLAB
8'	SOLID ROCK/SLAB
9'	SOLID ROCK/SLAB
10'	SOLID ROCK/SLAB

STATIONS N & S = 1' ON CENTER

ELEVATIONS = JETTING DEPTH ACHIEVED TO REFUSAL BELOW EXISTING U/W GROUNDLINE

0+00 = HORIZONTAL PIPELINE CROSSING ALIGNMENT AS INDICATED BY A RD-7000 U/W PIPE CABLE TRACKER 9/9/2015

Y=651,000 Y=650,750 Y=650,500 Y=650,250 Y=650,000 Y=649,750 Y=649,500

STA. 110+00 STA. 109+00 STA. 108+00 STA. 107+00 STA. 106+00 STA. 105+00 STA. 104+00 STA. 103+00 STA. 102+00 STA. 100+00 STA. 99+00 STA. 98+00 STA. 97+00 STA. 96+00 STA. 95+00

(FROM MORGAN & EKLUND MAP)
CROSSING 5
POSSIBLE UTILITY CROSSING
ARC DID NOT FIND ABOVE
GROUND EVIDENCE.

POSSIBLE UTILITY CROSSING
NOT SHOWN ON MORGAN & EKLUND MAP

GAS MARKER

SIGNS LOCATED
BY ARC SURVEY

PAINT MARK

SIGNS LOCATED
BY ARC SURVEY

GAS MARKER

(FROM MORGAN & EKLUND MAP)
CROSSING 4
TAMPA ELECTRIC COMPANY
DBA TECO PEOPLE'S GAS
ORB 46903, PAGE 180

GROUP OF (3) CABLES

ELEVATION COLOR TABLE

0	
-2'	
-4'	
-6'	
-8'	
-10'	
-12'	
-14'	
-16'	
-18'	

X=948,750

X=948,500

X=948,250

X=948,000

BASCULE PIER 2

BASCULE PIER 1

C-1 C-2 C-3 C-4 C-5 C-6 C-7 C-8

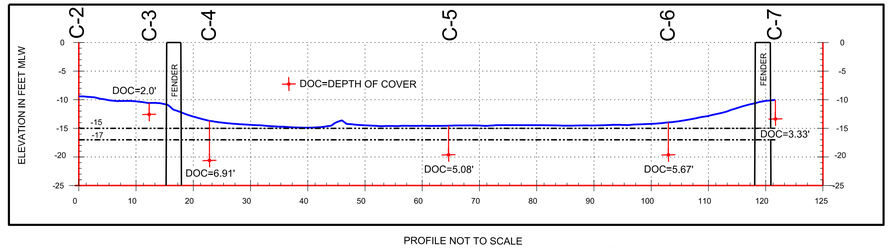
CABLE
CROSSING SIGN

GAS MARKER

SIGNS LOCATED
BY ARC SURVEY

GAS
MARKER

SIGNS LOCATED
BY ARC SURVEY



PROFILE NOT TO SCALE

CABLE LOCATION TABULATION

ID#	NORTHING (Y)	EASTING (X)	DOC
C-1	650204.46	948452.00	START
C-2	650179.75	948449.65	P.I.
C-3	650177.67	948461.70	2.00
C-4	650175.61	948472.07	6.91
C-5	650165.16	948512.50	5.08
C-6	650155.58	948549.66	5.67
C-7	650152.75	948568.18	3.33
C-8	650182.45	948571.71	END

ARC SURVEYING & MAPPING, INC.
5202 SAN JUAN AVENUE,
JACKSONVILLE, FLORIDA 32210
PHONE: 904/384-8377
LICENSED BUSINESS NO. 6487

LOGAN DIVING & SALVAGE
2815 ST. JOHNS BLUFF RD
JACKSONVILLE, FL 32246
PHONE: 904-731-0000

GRAPHIC SCALE
50 0 50 100
HORIZONTAL SCALE IN FEET
1"=50'

NOTES
1. SEE SHEET 1 FOR SURVEY NOTES

LEGEND/ABBREVIATIONS
= APPROXIMATE SHORELINE
= APPROXIMATE BRIDGE CENTERLINE
= MAJOR CONTOURS
= MINOR CONTOURS
= APPROXIMATE FOOTER CAP/PILE

ATLANTIC INTRACOASTAL
FLORIDA NAVIGATION DISTRICT INLAND

BROWARD COUNTY, FLORIDA
BRIDGE 860018
CABLE LOCATION
&
HYDROGRAPHIC SURVEY
OCTOBER 21, 2014
PLAN VIEW

Party Chief: R. DUNNINGTON	Dwn by: D. TRABITS	Drawing Date 10/31/14
Field Bk/Pg	Ckd by: J. SAWYER	Survey Date: SEE NOTES

Survey Performed for:
FLORIDA INLET
NAVIGATION DISTRICT
1314 MARCINSKI ROAD
JUPITER, FL 33477-9488

No.	Symbol	Date	Description	Approved

PROJECT NO.
14-10-06

FILE NO.
C-14-50

SHEET 2 OF 4

OAM #16-0742
EXHIBIT 1
Page 171 of 571

EXHIBIT D10
EXISTING UNDERGROUND UTILITY INFORMATION

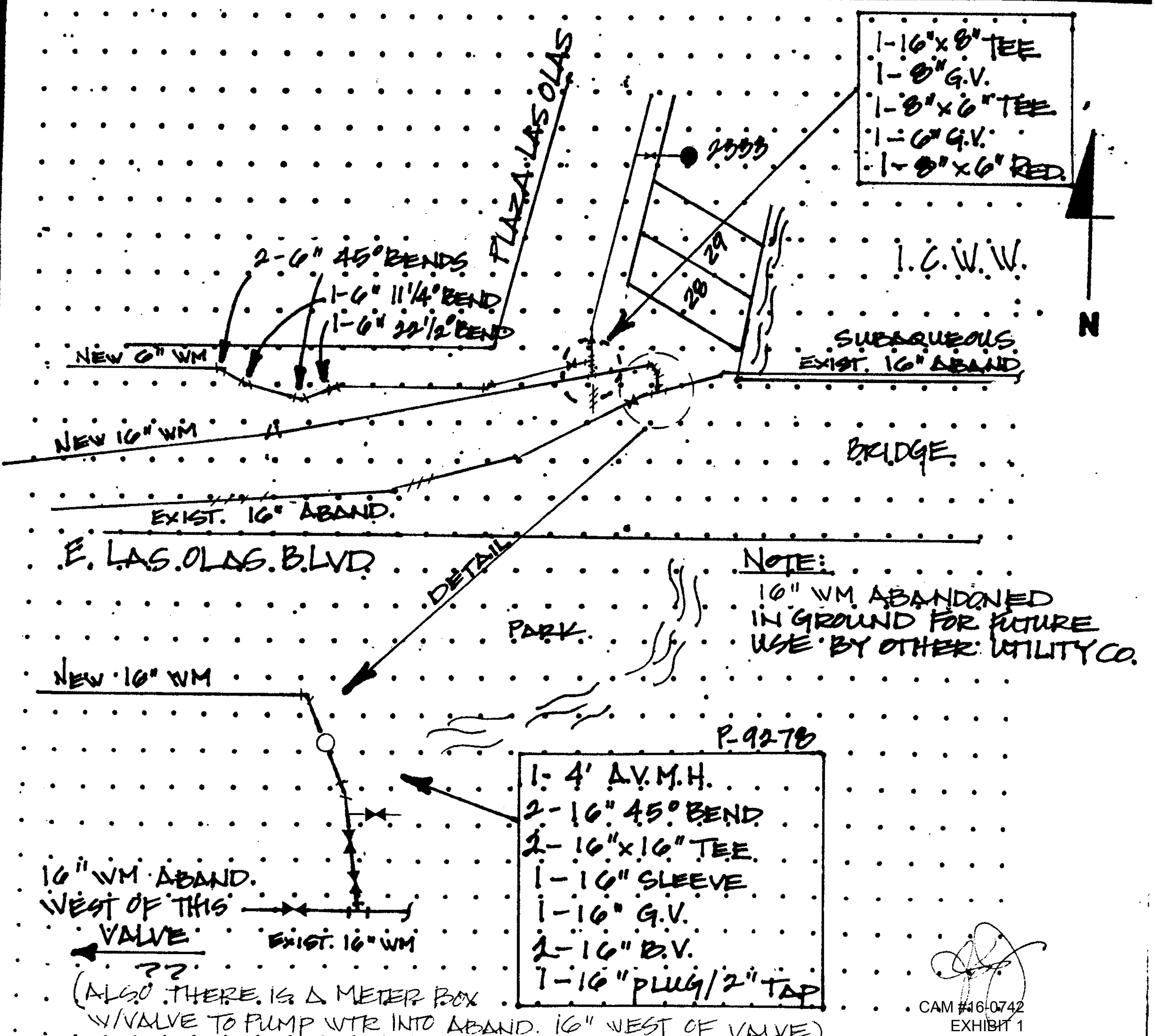
16-INCH WATER MAIN AT LAS OLAS AND POINCIANA DRIVE

Note: The data provided herein are provided for informational purposes only. The drawings provided represent the best available information regarding existing City of Fort Lauderdale owned underground utilities. All utilities are not necessarily shown. Neither the City of Fort Lauderdale nor the Design Criteria Professional warrant the accuracy of the information contained herein. The Contractor shall perform exploratory excavations as required to verify the location and elevation of existing underground utilities that may interfere with the work. Protect all utilities.

CITY OF FORT LAUDERDALE
UTILITIES DEPARTMENT
LOCATION DETAIL SHEET

CREW ______________________
DATE THIS DWG. 12-16-98
ADDRESS PLAZA LAS OLAS & ELO AT I.C.W.W.
APPROVED P-9278 DE-3052

MAP 12-50-42
56
UPDATE 12-16-98
(FOR OFFICE USE ONLY)



CITY OF FORT LAUDERDALE
UTILITIES DEPARTMENT
LOCATION DETAIL SHEET

Bid 465-11765

10-2-92

CREW 62-11

DATE SEPT 1 1988

ADDRESS E. LAS OLAS + POINCIANNA / IDLEWYLDER

APPROVED JK 6/22/89

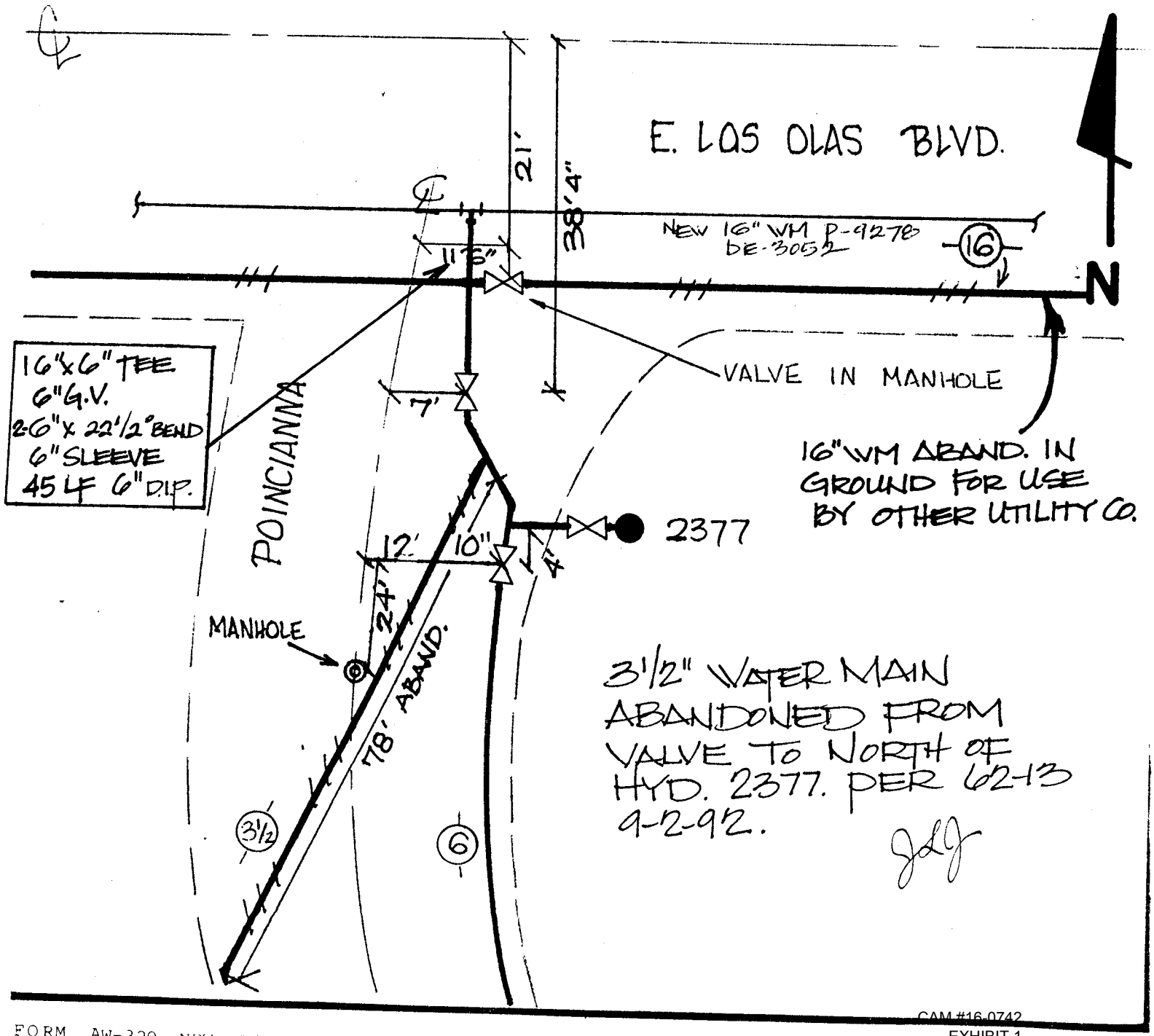
MAP 12-50-42

20

UPDATE 9/92

UPDATE 11-17-98 JG

(FOR OFFICE USE ONLY)



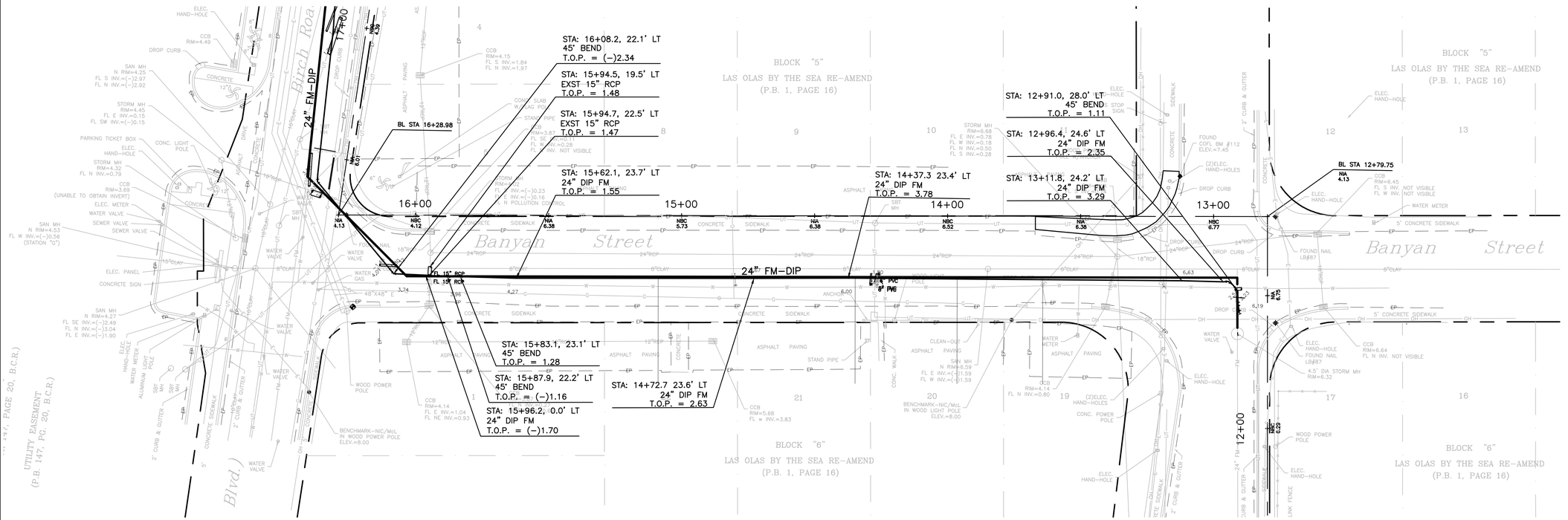
FORM AW-329 NEW 9/86

EXHIBIT D11
EXISTING UNDERGROUND UTILITY INFORMATION

24-INCH FORCE MAIN
CITY PROJECT P11119A

Note: The data provided herein are provided for informational purposes only. The drawings provided represent the best available information regarding existing City of Fort Lauderdale owned underground utilities. All utilities are not necessarily shown. Neither the City of Fort Lauderdale nor the Design Criteria Professional warrant the accuracy of the information contained herein. The Contractor shall perform exploratory excavations as required to verify the location and elevation of existing underground utilities that may interfere with the work. Protect all utilities.

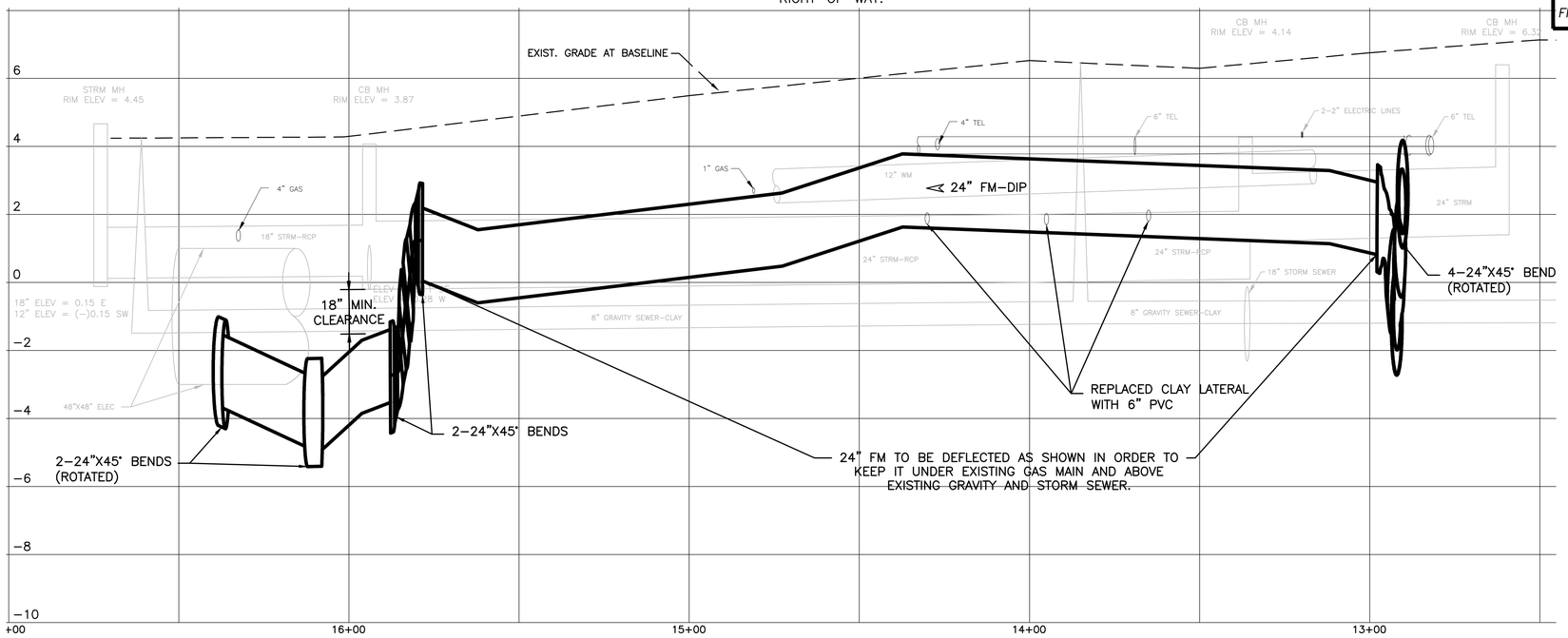
FOR CONT. ON BIRCH ROAD
SEE SHEET NO. C-6



FOR CONT. ON SEABREEZE BLVD.
SEE SHEET NO. C-4

NOTES:

PAVEMENT RESTORATION MARKINGS AND SIGNAGE SHALL BE IN ACCORDANCE WITH FDOT REQUIREMENTS WITHIN ALL FDOT RIGHT-OF-WAY.



NOTES:

1. ALL PIPE AND FITTINGS TO BE RESTRAINED.
2. PAVEMENT RESTORATION WITHIN BANYAN ST. AND BIRCH ROAD SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEET NO. CD-1. AREAS OF UNDISTURBED ASPHALT SHALL BE MILLED TO RECEIVE NEW ASPHALT OVERLAY AND ALL TRAFFIC MARKINGS SHALL BE RESTORED IN KIND.
3. PAVEMENT RESTORATION WITHIN THE RIGHT-OF-WAY OF SEABREEZE BLVD. SHALL BE IN ACCORDANCE WITH THE REQUIREMENT OF STATE DOT STANDARDS.

LEGEND:

LIMITS OF ASPHALT PAVEMENT RESTORATION.

AS BUILT
ALL FIELD INFORMATION
ENTERED BY: S.M.P DATE: 9/9/2011
FIELD BOOK 2016 PAGE Various

BY:
ANTHONY R IRVINE
PROFESSIONAL SURVEYOR AND MAPPER
NO. 4420 STATE OF FLORIDA

CDM PROJECT NO. 6017-52769-49A

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations
6363 N.W. 6th Way
Fort Lauderdale, Florida 33309
Certificate of Authorization No. 20

FINAL APPROVAL
FLA. P.E. NO. 32599
EDWARD A. HAUSE, P.E.

SCALE: 1" = 20' 1" = 2'
DATE: 08/18/06
FIELD BOOK: 0000/00-00
DRAWN BY: AGC
DESIGNED BY: EAH
CHECKED BY: JZG

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
FORT LAUDERDALE, FLORIDA

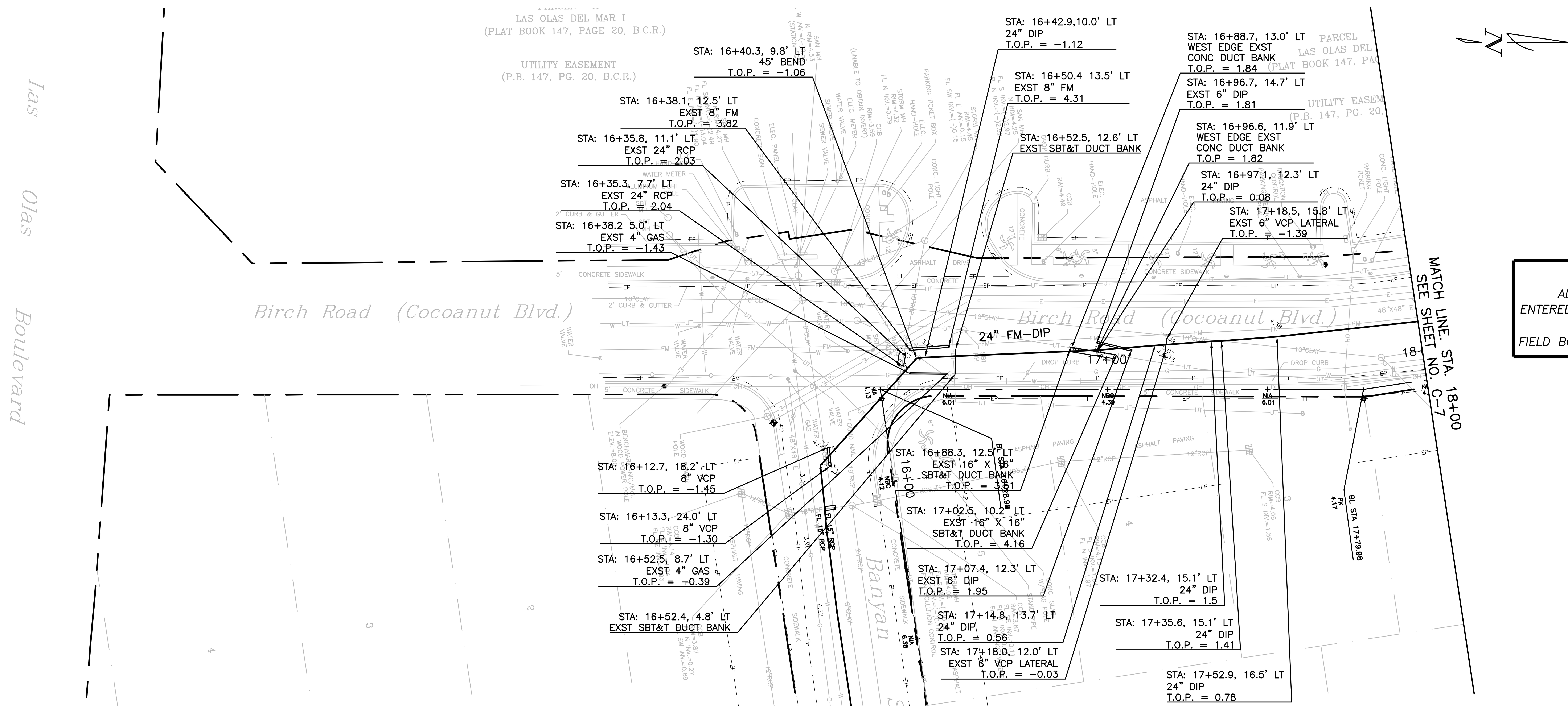
REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

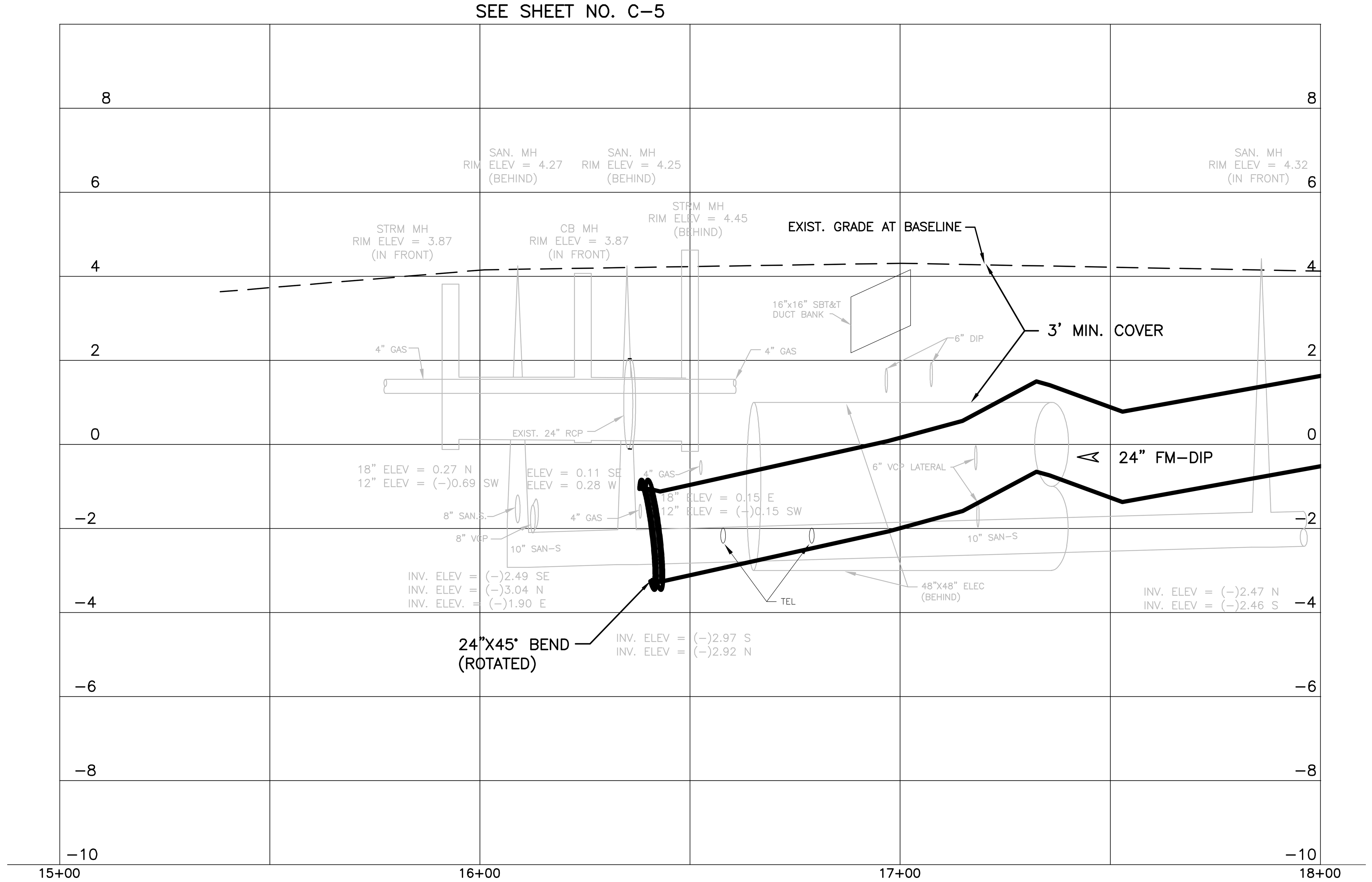
PROJECT #11119A
CITY-WIDE FM, SYSTEM INTERCONNECTS, WW TRANS. SYSTEM IMP. BANYAN ST.
PLAN AND PROFILE

NO. OF SHEETS: 20
SHEET NO.: C-5
CAD FILE NO. 11119A-C05-020PLAN
FILE NO. WS-06-09

DWG: P:\ASBUILTS\STAND-BY\11119A\11119a Craig BY\11119A-C05-020PLAN.dwg USER: SteveP
DATE: Sep 12, 2011 8:52am
xx/xx/9x



AS BUILT
ALL FIELD INFORMATION
ENTERED BY: C.B DATE: 9/9/2011
FIELD BOOK 2016 PAGE Various



NOTES:

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LEGEND:

LIMITS OF ASPHALT PAVEMENT RESTORATION.

BY:
ANTHONY R IRVINE
PROFESSIONAL SURVEYOR AND MAPPER
NO. 4420 STATE OF FLORIDA

CDM PROJECT NO. 6017-52769-49A

CDM Camp Dresser & McKee Inc.
6365 N.W. 6th Way
Fort Lauderdale, Florida 33309
Tel: 954-776-1731
Cert. of Authorization No. 20

FINAL APPROVAL
FLA. P.E. NO. 32599
EDWARD A. HAUSE, P.E.

DRAWN BY: AGC	SCALE: 1" = 20' 1" = 2'
DESIGNED BY: EAH	DATE: 08/18/06
CHECKED BY: JZG	FIELD BOOK: 0000/00-00

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
FORT LAUDERDALE, FLORIDA

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

PROJECT #11119A
CITY-WIDE FM, SYSTEM INTERCONNECTS, WW TRANS. SYSTEM IMP. BIRCH RD. PLAN AND PROFILE

NO. OF SHEETS: 20
SHEET NO.: C-6
CAD FILE NO. 11119A-C06-020PLAN
FILE NO. WS-06-09

DWG: P:\ASBUILTS\STAND-BY\11119A\11119a Orig B\11119A-C06-020PLAN.dwg USER: StevePi
DATE: Sep 12, 2011 9:51am
xx/xx/9x

EXHIBIT E
CADD STANDARDS

WATER MAIN AND FORCE MAIN
INTRACOASTAL WATERWAY CROSSINGS AT LAS OLAS BLVD
CITY PROJECT NO. 12196

CITY OF FORT LAUDERDALE PUBLIC WORKS ENGINEERING & ARCHITECTURAL DEPARTMENT CADD SPECIFICATIONS FOR PROJECT DRAWINGS

CITY OF FORT LAUDERDALE

OCTOBER 2015

THIS DOCUMENT WAS PREPARED IN THE CITY OF FORT LAUDERDALE ENGINEERING& ARCHITECTURAL DEPARTMENT BY THE CADD STANDARDS COMMITTEE

THIS DOCUMENT MAY BE DOWNLOADED FROM HTTP://WWW.FORTLAUDERDALE.GOV/ENGINEERING/INDEX.HTM

CONTENTS

1. PURPOSE

The Engineering division provides engineering, architectural, landscaping and project management services; and has put together a set of drafting standards to be used in all computer-aided drawings. The intent is to standardize the way electronic drawing files are produced and to make all drawing files regardless of who produced them, familiar in look and content to all the production staff in the division.

Consultants are encouraged to familiarize themselves with recent existing City project files prior to commencing a project for the City of Fort Lauderdale, in order to achieve true conformity with the way drawing files are to be produced. Below are some of the criteria, **which must be followed**. This document may not cover all circumstances; therefore it is up to the consultant to secure the pertinent information to any situation that may arise in a particular case that is not covered here. All files submitted to the City shall be free of passwords or any other impediment to their free use. The City of Fort Lauderdale's Engineering Division reserves the right to direct a consultant as to the desired manner to proceed when a situation is not addressed here.

2. VERSION

2.1. All drawings shall be produced in an AutoCAD® based product and saved in AutoCAD® 2013 format. Software included but, not limited to:

2.1.1. AutoCAD
2.1.2. AutoCAD LT
2.1.3. AutoCAD Civil 3D
2.1.4. AutoCAD Map 3D
2.1.5. Revit

Please see CADD Coordinator prior to creating drawings with software not listed.

2.2. Drawing files submitted will be 100% AutoCAD (dwg) format and 100% editable.

2.3. The current version of AutoCAD at the time these standards are established is AutoCAD 2016. These standards can only address those issues pertaining to that version of AutoCAD. If a new version of AutoCAD is released prior to revising these standards, projects shall still be submitted in AutoCAD 2013. Once the City upgrades to the newer version of AutoCAD, that version shall be the official version and at the time the City shall determine if submittals in earlier versions are acceptable. All drawing files in a project shall be saved in the same version of AutoCAD.

3. COVER SHEETS AND TITLE BLOCKS

3.1. The City's title block/sheet border symbol shall be used on all drawings except the cover sheet. No modifications shall be made except for values of the attributes present in the block.

3.2. All projects shall have a cover sheet. For the cover sheet, consultants shall use the City's cover sheet symbol. Consultants shall not make any modifications to the city's cover sheet, including renaming the block. The cover sheet shall be inserted at an XYZ scale of 1; and plotted with a final size of 36"X24" at scale 1:1, in PAPERSPACE.

3.3. The standard title block/sheet border shall be inserted in ''paper space" and shall be inserted at an XYZ scale of 1. The viewports can be zoomed to produce the desired final scale within the viewport and will be plotted with a final size of 36X24 at scale 1:1.

3.4. All projects will be made to plot in a standard ARCH D 36" X 24" sheet. The City's standard title block/sheet border SHALL NOT be inserted with dissimilar 'x' and 'y' scales in order to plot in a final size other than the standard.

4. SCALES

4.1. All drawing plan-views and horizontal scale of profiles and cross-sections will be drawn in scale 1:1 in model space, and drawing accuracy shall be 0.01' or better. That is, on a 'DIST' inquiry between consecutive 100-foot stations on a baseline, the result should be 100.00'.

4.2. Details will be drawn 1:1 and then scaled in a paper space window. Certain details need to be drawn with different horizontal and vertical scales for clarity (e.g. typical roadway cross- section). There are however very few instances where it is not practical to draw details to any scale e.g. where drawings are intended to be diagrammatic or schematic; and for those instances only, a scale will not be required. Such drawings will be noted "NOT TO SCALE" or "NO SCALE".

4.3. Plots for projects will be produced at a scale commonly used by the engineering/architectural profession; (e.g. 1" = 20', 1" = 30', 1/4"= 1', etc). Following are examples of unacceptable scales: 1" = 27', 1"=70', etc.

4.4. Vertical scale for cross-sections and profiles will be drawn to a scale in the same ratio as the final plotted product i.e.: if the final plot is horizontal 1"= 20', and the vertical 1"= 2', then the vertical scale is 10 times that of the horizontal.

4.5. Drawing files that are not scale relevant, like index sheet, notes and schedules, shall fill the scale attribute box with the notation "N/A". The notation "NTS or "NOT TO SCALE shall be left to those drawing files that are scalable, but are shown in a scale not measurable with a typical engineering or architectural scale, like details, schematics, etc.

5. EXTERNAL REFERENCES

5.1. Projects shall make use of external reference files (x-refs) to separate different disciplines and sub-consultants or design teams involved.

5.1.1. X-ref files shall be limited to one per discipline. There shall be no more than one consultant's work into a single x-ref file i.e.: no design shall be placed directly on a survey file, or electrical design on an architectural file, etc.

5.1.1.1. Within each discipline, all entities shall be drawn in the same file: line work, text, notes, dimensions, leaders, etc. shall all be placed in the same file and space (MODELSPACE). Exception: Revision clouds.

5.1.2. In engineering projects, all civil work (demolition, concrete, asphalt, pavers) may be placed in one x-ref per discipline, per consultant, per building (if project is multi building), or at the discretion of the project manager may be further segregated into several x-refs.

5.1.3. Larger projects that involve multiple buildings and/or sites may make use of more than 1 x-ref per discipline upon approval of x-ref list by the city.

5.1.4. Details, general notes, logos, etc. SHALL not be x-referenced.

5.1.5. If during the course of a project design a consultant decides to make use of x-ref for anything other than background support, the final product shall not contain x-ref and layer names with x-ref file name prefixes will not be accepted.

5.2. Survey information shall be in its own x-ref's (see **Base Drawing** section in these standards).

5.2.1. The base drawing shall be x-referenced into all x-refs drawings.

5.2.2. There shall be no duplicate base information. Footprints to be used as a base for design shall not be duplicated. Example: Two or more footprints of a building drawn side by side in an x-ref.

5.3. Underground utilities (more than one in a project) may be placed in a single x-ref, or each in its own.

5.3.1. In underground utilities where a profile is needed, the area shall be in the same x-ref as the plan view for the profiled area.

5.4. Architectural projects shall also be segregated by specialty.

5.5. Electrical, mechanical, foundation, plumbing, roof, etc. shall be either in its own x-ref file, or grouped by sub-consultant, or design group at the discretion of the project manager.

5.6. X-ref files shall have no paths. Project drawing files, which contain x- refs with paths, will not be accepted. Consultants will have to strip all paths from x-refs, or initially x-ref with no paths.

5.7. If an x-ref is "bound" it shall be "insert" and not "bind" type of x-ref thereby no extraneous layer names are created.

5.8. Profiles shall be drawn in the same file as the plan view and all entities of a profile shall remain together in the same file. Line work, grid, all text, notes, leaders, etc. shall be all together.

6. BASE DRAWING

6.1. The base survey shall be made of 4 base files:
- *#####SURV.DWG*
- *#####BSLN.DWG*
- *#####TOPO.DWG*
- *#####UTIL.DWG*

The «#'s" are place-holders for the project number. If utility markings are gathered at a later date from the original survey, then this information can be added to the «#####UTIL.DWG"

6.1.1. The #####SURV.DWG" file shall be the main file and the others shall be XREFED into it. This shall contain any notes which are not location sensitive, and may be moved modified, rotated to accommodate clearer design drawings.

6.1.2. The ####BSLN.DWG shall contain the baselines of survey, including stationing and descriptions of points set, the lot and block, boundaries and relevant information. All survey markers, found or set.

6.1.3. The ####TOPO.DWG shall contain all topography, elevations and other field collected information, not related to horizontal survey control. All survey benchmarks, descriptions and elevations shall be included in this file. Above ground evidence of utilities and any directly measured utility information, such as inverts and pipe sizes shall be included in this file.

6.1.4. The ####UTIL.DWG shall contain the field location of paint marks, stakes or other utility markings, which indicate the presence of an approximate location of underground utilities. Test holes or borings shall also be included. Any other inferred or extrapolated locations shall also be placed in this file.

6.1.5. Any issues not clearly covered in this paragraph shall be referred to the city surveyor for clarification prior to the commencement of any survey work.

6.2. Topographical surveys in AutoCAD format shall not be cut or disseminated into several files in order to create individual sheets.

6.3. Topographic survey files shall not have parts deleted because proposed project does not cover those portions. In that case open a paper space window that will show just the portion of survey needed or use XCLIP.

6.4. Topographic surveys SHALL NOT BE MOVED SPATIALLY within the drawing file, nor shall the consultant or city staff, change the coordinate system to anything other than what was received from survey, UNDER ANY CIRCUMSTANCE. If a consultant furnished the survey it shall be in 'WCS' and the survey shall have the north at 12 o'clock.

6.5. Files of topographic survey shall only have topographic information. These files shall be x-referenced into a new file where the proposed project will be designed.

6.6. The base topographical survey file shall be produced in several files, x-referenced, one within the other. This will make possible to make adjustments to some aspects of the file without the possibility of making changes to the more critical parts of the survey. The following paragraph is a description of what each file holds and a procedural explanation on how to create such a file. It is not intended directly to the designer, but to the survey personnel responsible for creating the survey base file.

6.7. In projects that use a base drawing other than a survey, like an architectural project of plant facility, all disciplines shall make use of a common base drawing, inserted as an x-ref. If there is an update then it is simple to update drawings from all disciplines. No design group shall take the base drawing and modify it in any manner. Through the use of x-referencing, all permitted changes (layer color, line type, etc.) can be accomplished.

7. UNITS

7.1. Engineering projects shall use:

7.1.1. Decimal as linear units at all times.

7.1.2. Angular units shall be surveyor (bearings) units.

7.1.3. Angles shall be measured counter-clockwise and 0 shall be to the east.

7.2. Architectural projects shall use:

7.2.1. Architectural units.

7.2.2. Angular units shall be degrees, minutes, seconds.

7.2.3. Angles shall be measured counterclockwise and 0 shall be to the right (east).

7.2.4. 1" grid, and entities snap to the grid.

7.3. Dimensions shall:

7.3.1. Have a scale factor of 1

7.3.1.1. The scale factor may be changed to 12 or 1/12 when integrating engineering and architectural line work; example site plans, or architectural details displayed in an engineering drawing with decimal units.

7.3.1.2. The scale factor can also be changed to 1/10 in profiles that are drawn 10 times larger vertically than horizontally. Accuracy for plan view design in water, sewer, storm and site electrical projects can be 0.1'.

7.3.2. Precision of 0.01' for decimal units and 1/8 for architectural units, with the default value displayed.

8. SYMBOLS & ENTITIES

8.1. *Blocks will be issued* with the most common symbols used in City projects. From time to time these symbols will be revised and/or new symbols will be added. If for any reason there is a need to create a block either for local use or to keep for future projects, that block shall comply with all City CAD standards.

8.2. Standard issue symbols shall NOT be exploded, renamed or changed in any way. Objects that are repeated throughout and/or that are depicted in an exaggerated scale for clarity (fire hydrants, power poles, catch basins, street lamps, etc.) shall be represented by a symbol. If a symbol CAN be used it SHALL be used.

8.3. Whenever possible, make use of the City's standard symbols and blocks. If a new symbol or block is created, it shall be submitted to the City for approval. Approved symbols and blocks will be made part of the City's symbols library, royalty free. North arrows, graphical scales, logos, location maps and other similar symbols shall be inserted as blocks and left unexploded.

8.4. Consultants may insert their company logo or identification information in the form of a block (symbol) and left unexploded. This block can be placed in all sheets including the cover sheet within the drawing area of each sheet.

8.5. Dimensions shall be associative at all times and left at their default value, and shall NOT be exploded.

8.6. Hatch patterns shall NOT be exploded. Hatch patterns and closed polylines forming the hatch boundary shall be the only entities permitted on hatch layers.

9. PAPERSPACE

9.1. Paper space shall be used for title block/sheet border and viewports. No other entities shall be placed there, especially notes that describe parts of model space entities (notes with a leader). Exceptions: logos, captions, legends, general notes and revision clouds.

9.2. Title block/sheet borders or cover sheets shall NOT be x-refed.

9.3. All drawing entities will be confined within the sheet border. Extents of the drawing files shall be to the edge of title block/sheet border. Multiple layouts are permitted, however only one sheet border per layout is allowed.

10. COLORS AND LINE WEIGHTS

10.1. The City will provide a line weight chart (CTB) to be used.

10.2. Submitted drawings shall make use of one of the city's templates, which have the "Layout'' page setup, configured with the city's configuration files (PC3, CTB and PMP).

10.3. All entities shall be located in their appropriate layer, and have a color and line type "BYLAYER". The ONLY exception to this rule is a Utility XREF drawing (e.g.: 10272XREFUTIL) where the color of the layers continues to be "BYLAYER", but different line types may be used in the same layer to identify different utility types and sizes.

10.4. Colors are not fixed to layers; they are dependent on the discipline. When entities for a particular discipline need to be displayed in drawing files for other disciplines, colors may be setup differently in

order for features to stand out. E.g. Survey drawings will show survey features solid and stand-out. The same survey features will look dimmed in landscape drawings.

10.5. The project manager shall be the final judge of the plotted appearance of the drawings. Consultant shall furnish a printed copy of all drawing files using the City's line weight chart (CTB) file for color approval by the City.

10.6. There are certain entities which make use of custom line types, and that rely on the line type to be identified. If the line type is changed, then the entity loses its identity. Examples are fences: they can make use of a custom line type that identifies them. These entities can be placed in a layer with a different line type and the identity of the fence is preserved. For these cases, it is permissible to make these entities non- ByLayer. There are other examples in electrical drawings.

11. FONTS

11.1. Since fonts are not carried with the drawing files and depends on the computer that is running AutoCAD to find and use these font files. No third party or proprietary fonts shall be used. Drawing files shall not make use of SHAPE files.

11.2. It is possible to automatically substitute fonts not found in the AutoCAD path. The City may (at their discretion) substitute odd fonts with ROMANS.SHX.

12. LAYERS

12.1. The engineer or technician working on the project must determine what color to use from the "LINE WEIGHTS AND GREY SCALE CHART" supplied by the City, in order to get the desired effect, and the City will give the final approval.

12.2. The list of layer names used in all City of Fort Lauderdale projects is a separate document in the form of a MS Excel spreadsheet.

12.3. The City of Fort Lauderdale Engineering Division adheres for the most part (but not totally) to the CAD Layer Guidelines and has adopted the long format; it has up to 16 alphanumeric characters, and is divided in fields or groups.

X-XXXX-XXXX-XXXX

Above is an example of the format, also known as the 1-4-4-4.

12.4. The City will provide a list of layer names to be used. If there is a project for which there are no layer names (which pertain to that discipline), the consultant shall provide a list of proposed layer names based on the layer guidelines, for the City's approval, prior to their use. Once approved by the City, those layer names will become part of the City's list of layer names for all projects thereon or until revised.

12.5. No layer names, other than those in the City's layer name list, will be present in drawing files. Exceptions are those layer names automatically created by AutoCAD; "0", "DEFPOINTS", "ASHADE".

12.6. Layering:

12.6.1. All text, labels, mtext, etc. that is placed in paper space shall be in layers: #-SHBD-TEXT and/or #-SHBD-NOTE;

12.6.2. Consultants' logo shall be placed in layer #-SHBD-LOGO;

12.6.3. Viewports shall be placed in layer: #-SHBD-VPRT;

12.6.4. General line work in paper space like lines to separate areas or viewports, etc. shall be placed in layer: #-SHBD.

12.6.5. All general text shall be placed in a single layer, unless there is a justification for the contrary.

12.6.6. North arrows and graphic scales shall be placed in layer: #-SHBD-NARW.

12.6.7. Leaders shall be placed in a ''TEXT" or "NOTE" layer together with the accompanying text.

12.7. Layer names that duplicate the discipline and the major group shall not be used. Examples are: E-ELEC, D-DEMO, H-HVAC, 1-INST, F-FIRE, Q-EQPM.

12.8. Details, sections elevations, do not in general need layer management. Since there is seldom layer manipulation (on, off), the minor group names that distinguish line weight were created. The City uses the discipline, major group designating the object to draw (DETL, SECT, ELEV, etc) and then the minor group designating the line weight. The minor group names are: XFIN, FINE, MEDM, HEVY AND XHEV.

13. GENERAL ISSUES BEFORE SUBMITTAL

13.1. Complete drawing set (DWG) shall be submitted no later than the 60% project submittal for design review and fully compliant with the City's CAD standards' drawing set shall be submitted prior to submittal to the building department for permit. All drawing files shall have all tabs (layouts)zoomed to EXTENTS, prior to any submittal to the City, whether it is the final or a working submittal; XREF drawing files shall be saved with the model tab active and zoomed to EXTENTS. All other drawing files shall be saved with the first paper space layout tab active. All final files shall be fully purged prior to submittal. All files shall be saved and submitted with the current layer set to "0".

13.2. Consultants shall obtain a file number for the project and make sure that the appropriate information is completed in the title block. File numbers can be obtained from the Project Engineer.

13.3. Consultants shall fill in total number of sheets in the tile block, prior to final submittal of drawing files.

13.4. Consultants shall submit a hardcopy (bond, 36" X 24"), DWG and PDF files of the project drawings together with any submittal in electronic format (CD, etc), when making partial and final submittal of drawing files. Prior to all submittals, consultants shall coordinate with the City's file room as to the method of creating PDF files, which will make prints satisfactory to the City. All files submitted to the City shall be free of passwords or any other impediment to their free use. PDFs shall be combined into a single file. Sheets shall be oriented landscape with the title block to the right of the screen, arranged in the order that they are to be printed and the set assembled matching the drawing index order. The PDF binder shall contain bookmarks for all of the sheets, displaying the name of each plot file as described in paragraph 70.

13.5. DWG AutoCAD files shall not be compressed using zip or rar or any other compression scheme when submitting files in an optical media (CD, DVD).

13.6. Submittals via FTP sites are not official submittals; and optical media (CD, DVD)is required.

13.7. When a project is assigned to a consultant who utilizes the collaboration of other sub-consultants, said prime-consultant shall be responsible for all submittals of drawing files and plot files. Said submittals shall be in the form of a single media (1 CD/DVD) to include the entire project.

14. MISCELLANEOUS

14.1. "MTEXT" (multiline text) shall be used in all cases where more than one line of text occurs and where leaders are used.

14.2. These standards are a detailed description of aspects in the creation of drawing files within Engineering. It is by no means the complete description of all the methods used, and it is the consultant's responsibility to alert the City of any point or situation which is not described in these specifications, and which should be addressed. Also if a consultant, after reading these standards and prior to commencing any drafting work, feels that there are points or items in these standards which are not logical, or are onerous to abide by, they should notify the City's Engineering Division at their earliest convenience and their views will be open to discussion.

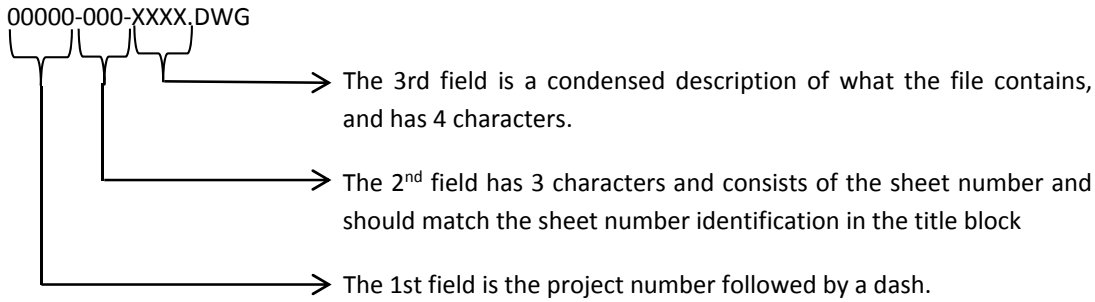
14.3. This document does not address layer colors or line weights. The consultant shall coordinate with the City's project manager on how these items are treated.

15. DWG FILE NAMES

15.1. All drawing files shall conform to the City of Fort Lauderdale's file naming convention, as described in the following pages. The names shall be accurate to reflect the desired information as per the naming convention. All file names shall be CAPITALIZED.

15.2. The City of Fort Lauderdale Engineering Division has adopted the following file naming convention for project drawings:

15.2.1. The format for single layout drawing files looks like this:



15.2.2. The first field represents the project number.

15.2.3. The second field represents the sheet number and reflects the sheet number as shown in the title block. If sheet numbers have dashes or dots, they shall be stripped: example for C-11, use C11. Drawing sheets shall not be numbered using the ConDoc system (i.e. A1.01, A1.02, A2.01, A2.02).

15.3. The third field is a 4-letter description of what the project drawing file depicts. There is a list of descriptions used in previous projects. Consultant shall check the list prior to creating a new description. The City will need to approve descriptions prior to their use.

15.4. This proposed 3-field format is only for files that contain final drawing with 1 title block/sheet border.

15.5. Examples for this naming format are the following:

- **09585-001-WATR.DWG**
- **10256-021-SEWR.DWG**
- **10855-M10-HVAC.DWG**
- **10325-A01-PLAN.DWG**

15.6. A drawing index should appear on the cover sheet. If there are too many sheets in the set of drawings to fit on the cover sheet, a separate index sheet or sheets shall be included immediately following the cover sheet. When index sheets are utilized the drawing file name shall be 00000-001-INDX.DWG. The first five digits shall be the project number and the next three digits shall be (001), (002), etc. An example is:

- **10325-001-INDX.DWG indicating the first index sheet.**
- **10325-002-INDX.DWG indicating the second index sheet.**

15.7. X-ref files will have a slightly different format. It will have 3 fields, and will look like this: **OOOOOXREFXXXX.DWG**

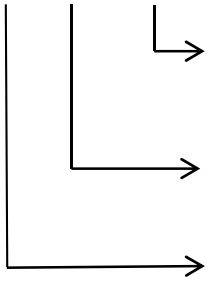
15.7.1. The 1st field (5 characters) will be the project number; the second field shall be the word XREF". The third field shall be a 4-character description for the file or discipline found in the file. This convention is valid for all XREFS except for the survey XREFS. These shall remain as received by the survey department.

15.7.2. Sheets shall be numbered in a sequential manner and there shall not be any voids in the numbering for any given discipline. All numbering shall start with "1", regardless of the numbering system used, except for the cover sheet which is "0". Example: 1,2,3,4, or A01, A02, A03, BUT NEVER A01, A02, A05.

15.8. The Cover Sheet will follow this drawing naming convention with one small exception. The drawing files will contain additional characters denoting the total number of sheets in a project set, including all disciplines.

15.9. The total number of sheets shall NOT include the cover sheet.

15.10. The format for the coversheet drawing files looks like this:
00000-000-000COVR.DWG



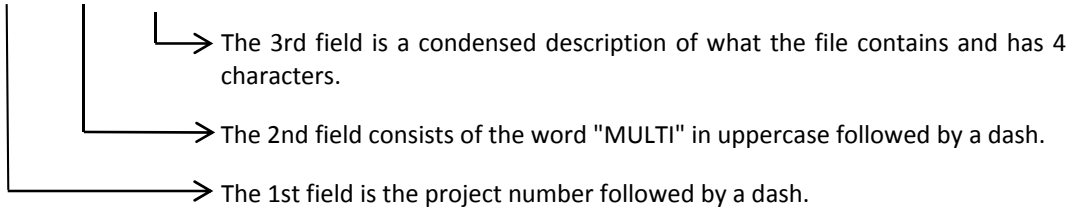
The 3rd field is 7 characters, the first three numerals denoting the total number of sheets in the full set, followed by (COVR) indicating that this is the cover sheet.

The 2nd field consists of three zeros (000)followed by a dash and the total number of sheets for the project without the cover.

The 1st field is the project number followed by a dash.

15.10 For drawing files that contain multiple layouts, the files shall be named as follows:

00000-MULTI-XXXX.DWG



Examples for this naming format are the following:

- **XXXXX-MULTI-DETL.DWG: detail sheets.**
- **XXXXX-MULTI-ELEC.DWG: Electrical sheets.**

15.11. Layout Tab names shall be named with the sheet number and an optional description for the sheet content.

15.12. Additional drawing descriptive information may be placed in comments section of the file "properties" of the drawing file. Access this by right- clicking the file and selecting properties then the "summary" tab.

15.13. Names for sheet description to be used as the third field for file names:

BSRV	Boundary Surveys
COVR	Cover Sheets
DEMO	Demolition
DETL	Details
ELEV	Elevations
EQPM	Equipment
FLOR	Floor Plans
GRAD	Paving and grading
INST	Instrumentation
IRRG	Irrigation
KMAP	Key map
LEGN	Legend, symbols and schedule sheets
LITE	Lighting plans
MOTP	Maintenance of traffic plans
NAID	Navigational Aids
NOTE	General Notes
PILE	Piles
PLAN	Plan and profile sheets
PLNT	Plant material
PLUM	Plumbing
POWR	Power
RISR	Riser diagrams
RNWY	Runway
ROAD	Roadway projects incl. Widening, narrowing, special projects
SECT	Cross Sections
SSWR	Sanitary sewer lines
SGNL	Signalization
SIGN	Sign project files
SITE	Site-plans
STRM	Storm water (drainage)
STRP	Pavement Striping
TSRV	Topographic Surveys
TXWY	Taxiway
WALK	Sidewalk project file (asphalt or concrete or other)
WATR	Potable water lines

16. PDF FILE NAMES

Note: Project Manager: Please refer to Memo No. 11-06 for the new procedure for submitting electronic drawings and documents to the Plans Room. The date format YYYYMMDD shall be used when needed.

XXXXX <- Project number
PERMIT <- Sub Folder

16.1. **Permit drawing PDF naming:**

16.1.1. XXXXX-DRC-BINDER-date.PDF
XXXXX-P&Z-BINDER-date.PDF
XXXXX-PERMIT-BINDER-date.PDF

16.2. **Bid drawing PDF naming:**

16.2.1. XXXXX-BID-SPEC-date.PDF
XXXXX-BID PLANS-BINDER-date.PDF
XXXXX-BID ADDENDUM1-SPEC-date.PDF
XXXXX-BID ADDENDUM1-BINDER-date.PDF
File as many addendums as needed

16.3. **Final Permit Construction plan naming:**

16.3.1. XXXXX-CONSTRUCTION-BINDER-date.PDF
XXXXX-REV1-CONSTRUCTION-BINDER-date.PDF
File as many revisions as needed
XXXXX-FIELD CHANGE-BINDER-date.PDF
File as many changes as needed

16.4. **AS BUILT –SETS**

XXXXX-ASBUILT-BINDER-date.PDF

16.5. **DRAWING-SETS**

File all the CADD drawings

16.6. **ARCHIVES**

File all project files from the Z: drive (Project manager to coordinate with CAD Manager)

17. STANDARDS SPECIFIC TO ARCHITECTURAL PROJECTS

17.1. Drawings scales are to be as follows:

17.1.1. LTScale=1

17.1.2. PSLTScale=1=on

17.1.3. Precision=1/8"

17.2. Snap Grid settings:

17.2.1. 1/16"=1'-0" scale to 3/8"=1'-0" scale drawings to be drawn with a maximum snap of 1".

17.2.2. 1/2"=1'-0" scale to 3"=1'-0" scale drawings to be drawn with a maximum snap of 1/8".

17.2.3. All drawings shall be created with SNAP ON.

17.3. Dimensions:

17.3.1. Associative DIMASSOC=1.

17.3.2. Dimensions shall not be forced without prior approval from the CAD Administrator.

17.3.3. Dimstyles have been established in the "CFLSTDARCH2007.dwt" file. Dimstyles are to be used as defined and are not to be modified under any circumstances.

17.3.4. Dimension Round-off:

17.3.4.1. 3/8" scale and less round off to 1/2"

17.3.4.2. 1/2" scale to 3" scale round off to 1/8"

17.3.4.3. Fractions to be diagonal stacked when used in conjunction with a whole number (i.e. 3") and not stacked when used as a stand-alone fraction (3/4"). The text sizes of diagonal stacked fractions are to be 75%. The text sizes of non-stacked fractions are to be 100%.

17.4. Drawings sheets shall be:

17.4.1. Numbered sequentially using the traditional numbering system (i.e. A-1, A-2, A-3).

17.4.2. Drawing sheets shall not be numbered using the ConDoc system (i.e. A1.01, A1.02, A2.01, A2.02). This applies to all engineering disciplines within a set of drawings.

17.5. Text heights – see next page:

ARCHITECTURAL AND LANDSCAPING TEXT FONTS AND HEIGHTS

DRAWING SCALE	TEXT HEIGHT					DIMSTYLE
	Notes (Romans)	Room Names (Romans)	Small Title's (Swis721BT)	Large Title's (Swis721BT)	Title Polyline	
1/16"	16"	24"	48"	64"	8"	ARCH 192
3/32"	10 2/3"	16"	32"	42 2/3"	5 1/3"	ARCH 128
1/8"	8"	12"	24"	32"	4"	ARCH 96
3/16"	5 1/3"	8"	16"	21 1/3"	2 2/3"	ARCH 64
1/4"	4"	6"	12"	16"	2"	ARCH 48
3/8"	2 2/3"	4"	8"	10 2/3"	1 1/3"	ARCH 32
1/2"	2"	3"	6"	8"	1"	ARCH 24
3/4"	1 1/3"	2"	4"	5 1/3"	2/3"	ARCH 16
1"	1"	1 1/2"	3"	4"	1/2"	ARCH 12
1 1/2"	2/3"	1"	2"	2 2/3"	1/3"	ARCH 8
3"	1/3"	1/2"	1"	1 1/3"	1/6"	ARCH 4
Paper Space	1/12"	1/8"	1/4"	1/3"	1/24"	ARCH 1

DRAWING SCALE	TEXT HEIGHT					DIMSTYLE
	Notes (Romans)	Room Names (Romans)	Small Title's (Swis721BT)	Large Title's (Swis721BT)	Title Polyline	
1"=10'	10"	15"	30"	40"	5"	ARCH 120
1"=20'	20"	30"	60"	80"	10"	ARCH 240
1"=30'	30"	45"	90"	120"	25"	ARCH 360
1"=40'	40"	60"	120"	160"	20"	ARCH 480
1"=50'	50"	75"	150"	200"	25"	ARCH 600
1"=60'	60"	90"	180"	240"	30"	ARCH 720
Paper Space	1/12"	1/8"	1/4"	1/3"	1/24"	ARCH 1

EXHIBIT F
SUBMERGED LAND EASEMENT SKETCH AND DESCRIPTION

WATER MAIN AND FORCE MAIN
INTRACOASTAL WATERWAY CROSSINGS AT LAS OLAS BLVD
CITY PROJECT NO. 12196

DESCRIPTION: UTILITY EASEMENT

A 50-FOOT WIDE STRIP OF THE FLORIDA EAST COAST CANAL, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 17, PAGE 15, OF THE PUBLIC RECORDS OF BROWARD COUNTY, FLORIDA, LYING IN SECTION 12, TOWNSHIP 50 SOUTH, RANGE 42 EAST, BROWARD COUNTY, FLORIDA. THE CENTERLINE OF SAID STRIP DESCRIBED AS FOLLOWS:

COMMENCE AT THE NORTHWEST CORNER OF PARCEL B, LAS OLAS DEL MAR I, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 147, PAGE 20, OF SAID PUBLIC RECORDS; THENCE SOUTH 08°12'14" WEST, ALONG THE WEST BOUNDARY OF SAID PARCEL B, A DISTANCE OF 138.34 FEET TO THE POINT OF BEGINNING, SAID POINT BEING 216.92 FEET SOUTH OF, AS MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF EAST LAS OLAS BOULEVARD; THENCE NORTH 69°54'37" WEST, A DISTANCE OF 697.16 FEET TO THE POINT OF TERMINUS, SAID POINT BEING 104.96 FEET SOUTH OF AS MEASURED AT RIGHT ANGLES TO THE CENTERLINE OF SAID EAST LAS OLAS BOULEVARD.

THE SIDELINES OF SAID STRIP ARE LENGTHENED OR SHORTENED TO INTERSECT WITH THE WEST BOUNDARY OF SAID PARCEL B AND ARE LENGTHENED OR SHORTENED TO INTERSECT WITH THE FACE OF AN EXISTING SEAWALL AT THE POINT OF TERMINUS.

SAID LANDS SITUATE IN THE CITY OF FORT LAUDERDALE, BROWARD COUNTY, FLORIDA. CONTAINING 35,188 SQUARE FEET OR 0.808 ACRES MORE OR LESS.

THE BEARINGS REFERENCED HEREIN ARE ASSUMED AND BASED ON A BEARING OF SOUTH 08°12'14" WEST, ALONG THE WEST BOUNDARY OF SAID PARCEL B.

CERTIFICATE:

WE HEREBY CERTIFY THAT THIS SKETCH AND DESCRIPTION AND OTHER PERTINENT DATA SHOWN HEREON, OF THE ABOVE DESCRIBED PROPERTY, CONFORMS TO THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF FLORIDA, AS OUTLINED IN RULES 5J-17.051 AND 5J-17.052, (FLORIDA ADMINISTRATIVE CODE) AS ADOPTED BY THE DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN SEPTEMBER, 1981, AS AMENDED, PURSUANT TO CHAPTER 472.027, FLORIDA STATUTES AND THAT SAID SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

CRAVEN THOMPSON & ASSOCIATES, INC.
CERTIFICATE OF AUTHORIZATION NUMBER 271

_____

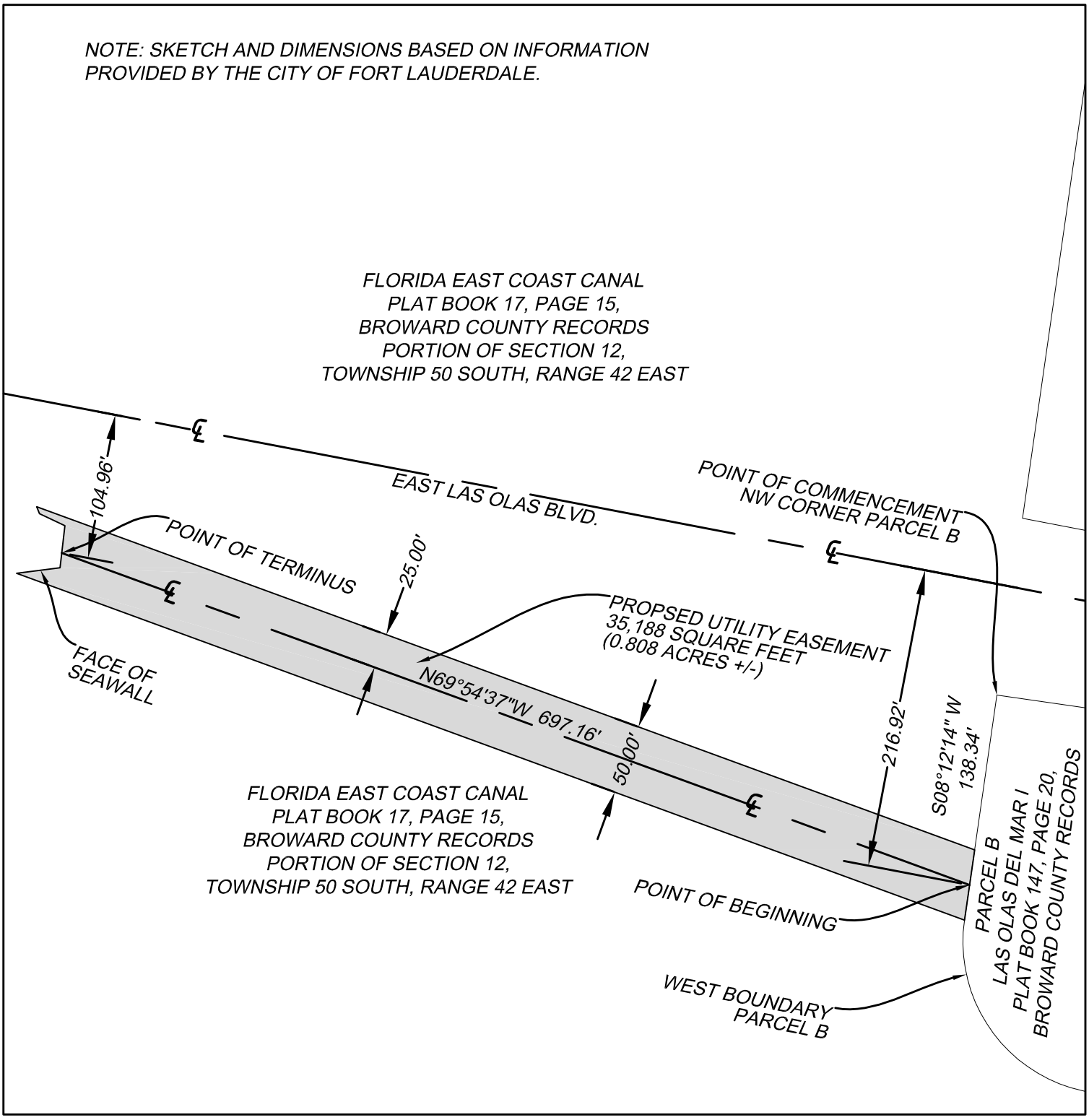
DOUGLAS M. DAVIE.
PROFESSIONAL SURVEYOR AND MAPPER NO. 4343
THIS SKETCH AND DESCRIPTION OR THE COPIES THEREOF ARE NOT VALID WITHOUT THE SIGNATURE AND RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

Sheet 1 of 2
G:\2016\16-0006\16-0006 SD UTILITY EASEMENT.doc
Created on 3/21/2016 3:43:00 PM
DMD/dmd

FOR: CITY OF FORT LAUDERDALE

SKETCH AND DESCRIPTION
UTILITY EASEMENT

NOTE: SKETCH AND DIMENSIONS BASED ON INFORMATION PROVIDED BY THE CITY OF FORT LAUDERDALE.



G:\2016\16-0006\DRAWINGS\16-0006 BASE FOR SD

THIS IS NOT A SKETCH OF SURVEY, but only a graphic depiction of the description shown hereon. There has been no field work, viewing of the subject property, or monuments set in connection with the preparation of the information shown hereon.

The undersigned and CRAVEN·THOMPSON & ASSOCIATES, INC. make no representations or guarantees as to the information reflected hereon pertaining to easements, rights-of-way, set back lines, reservations, agreements and other similar matters, and further, this instrument is not intended to reflect or set forth all such matters. Such information should be obtained and confirmed by others through appropriate title verification. Lands shown hereon were not abstracted for right-of-way and/or easements of record.

UPDATES and/or REVISIONS	DATE	BY	CK'D
ADD EASEMENT AREA	5/18/16	DMD	DMD

CRAVEN • THOMPSON & ASSOCIATES, INC.
ENGINEERS · PLANNERS · SURVEYOR'S
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309 FAX: (954) 739-6409 TEL.: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271

JOB NO.: 16-0006	SHEET 2 OF 2 SHEETS	
DRAWN BY: DMD	F.B. N/A	PG. N/A
CHECKED BY: RAY	DATED: 3/21/16	

EXHIBIT G
PERMIT APPLICATIONS

WATER MAIN AND FORCE MAIN
INTRACOASTAL WATERWAY CROSSINGS AT LAS OLAS BLVD
CITY PROJECT NO. 12196

EXHIBIT G1
PERMIT APPLICATION FOR ARMY CORPS OF ENGINEERS

WATER MAIN AND FORCE MAIN
INTRACOASTAL WATERWAY CROSSINGS AT LAS OLAS BLVD
CITY PROJECT NO. 12196

Hazen and Sawyer
4000 Hollywood Boulevard, Suite 750N, North Tower
Hollywood, FL 33021 • 954.987.0066

March 15, 2016

Robert Compton
US Army Corps of Engineers
Palm Beach Gardens Permits Section
440 PGA Blvd, Suite 500
Palm Beach Gardens, FL 33410-6557

Re: Application for Department of the Army Permit (Permit No. SAJ-2016-00427)

Dear Mr. Robert Compton:

As per our pre-application meeting on February 18, 2016, enclosed is the Application for Department of the Army Permit (Permit No. SAJ-2016-00427) and supplemental information regarding the City of Fort Lauderdale Water Main Relocation and New Wastewater Force Main at Las Olas Boulevard. This application pertains to the horizontal directional drilling regarding this proposed project.

Obtaining the permission required to begin construction is critical to the City of Fort Lauderdale's project schedule. This project is urgently required to relocate water piping that will be impacted by the Intracoastal Waterway Deepening Project being implemented by Florida Inland Navigation District (USACE Permit No. SAJ-2009-03523). An expedited permit application review is requested to ensure that the City of Fort Lauderdale's piping relocation is constructed in advance of the dredging.

Please respond by confirming your receipt of this package. If there are any questions regarding this application, please contact me, George A. Brown, at (954) 987-0066.

Very truly yours,

George A. Brown, PE
Senior Associate

Enclosure:
Agent Authorization Letter
Completed ENG FORM 4345, DEC 2014
Appendix A – Location Maps
Appendix B – Conceptual Plan and Staging Areas
Appendix C – Project Plan and Cross-sections
Appendix D – Construction Methodology
Appendix E – Benthic Characterization Survey
Appendix F – Construction Schedule
Appendix G – Land Ownership Summary
Appendix H – Proposed Methods for Protection of Water Quality
Appendix I – Soil Removal Volume Calculation

cc:
P. Berg (City of Fort Lauderdale)
D. Lizarazo (City of Fort Lauderdale)
J. Holguin (City of Fort Lauderdale)
P. Aquart (CTA)
P. Gibney (CTA)
L. Alvarez (HAZEN)

CITY OF
FORT LAUDERDALE

All-America City

February 10, 2016

City of Fort Lauderdale
Water Main Relocation and
New Wastewater Force Main
at Las Olas Blvd
Permit Application Submittal Agent

To Whom It May Concern:

The City Fort Lauderdale Public Works Department is proposing the relocation of an existing 16-inch diameter subaqueous water main located on the north side of the Las Olas Boulevard Bridge crossing the Intercostal Waterway in Fort Lauderdale, FL. The new water main would be located on the south side of the bridge. This pipeline relocation is necessary to perform the scheduled dredging in association with the Intracoastal Waterway Deepening Project planned by the Florida Inland Navigation District. Additionally, a new 16-inch wastewater force main would be designed parallel with the proposed water main. The City of Fort Lauderdale has selected the horizontal directional drilling method for the construction of the proposed subaqueous crossings.

The City of Fort Lauderdale has retained Hazen and Sawyer, (HAZEN) to provide engineering services to prepare design criteria package documents and permit applications for directional drilling of the Water Main Relocation and New Wastewater Force Main at Las Olas Blvd. The City of Fort Lauderdale authorizes George A. Brown with HAZEN to submit permit applications, on behalf of the City Fort Lauderdale Public Works Department to regulatory agencies with jurisdiction over this project.

If you any questions, please contact me or George A. Brown (HAZEN) at 954-987-0066.

Sincerely,

Paul A. Berg, ICMA-CM
Acting Public Works Director
City of Fort Lauderdale
Public Works Department

U.S. ARMY CORPS OF ENGINEERS

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 30-SEPTEMBER-2015

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Paul Middle - A. Last - Berg	First - George Middle - A. Last - Brown
Company - City of Fort Lauderdale	Company - Hazen and Sawyer
E-mail Address - PBerg@fortlauderdale.gov	E-mail Address - gbrown@hazenandsawyer.com
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 100 N Andrews Avenue	Address- 4000 Hollywood Blvd., Suite 750N
City - Fort Lauderdale State - FL Zip - 33301 Country - U.S.	City - Hollywood State - FL Zip - 33021 Country - U.S.
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence (b) Business c. Fax	a. Residence (b) Business c. Fax
954-828-5806	954-987-0066

STATEMENT OF AUTHORIZATION

11. I hereby authorize, George A. Brown (HAZEN) to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Paul A. Berg — SIGNATURE OF APPLICANT

2016-02-19 — DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

City of Fort Lauderdale/ Water Main Relocation and New Wastewater Force Main/ Las Olas Blvd

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
New River Sound (Intracoastal Waterway)	Address Approximate Location: E Las Olas Blvd.
15. LOCATION OF PROJECT Latitude: ◦N 26° 7' 9.63"N Longitude: ◦W 80° 6' 33.80"W	City - Fort Lauderdale State- FL Zip- 33316

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID 504212000090; 504212340020 Municipality City of Fort Lauderdale

Section - 12 Township - 50S Range - 42E

CAM #16-0742
EXHIBIT 1
Page 201 of 571

17. DIRECTIONS TO THE SITE

Go west on Las Olas Blvd. if you are coming from the intersection of Las Olas Blvd. and Seabreeze Blvd. in Fort Lauderdale, FL. The project is located just south of the Las Olas Blvd. bridge, crossing the Intracoastal Waterway.

18. Nature of Activity (Description of project, include all features)

The City of Fort Lauderdale is applying to the U.S. Army Corps of Engineers for the required permit associated with performing the installation via horizontal directional drill (HDD) of two HDPE pipelines: 1.) a 20-inch nominal diameter water main and 2.) a new 16-inch nominal diameter wastewater force main. The subaqueous pipelines are proposed to commence at Merle Fogg Park, cross the Intracoastal Waterway and terminate in the right-of-way for Las Olas Circle. The subaqueous portions of the proposed pipelines is approximately 700 linear feet. The City of Fort Lauderdale owns the uplands that the HDD impact.

See the following Appendix A for Location Maps, Appendix B for Conceptual Plan and Staging Areas, and Appendix C for Project Plan and Cross-sections.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The City of Fort Lauderdale currently owns and operates a 16-inch diameter subaqueous water main located on the north side of the Las Olas Boulevard Bridge crossing the Intracoastal Waterway. The location of this subaqueous water main is scheduled to be dredged as a part of the Intracoastal Waterway Deepening Project as proposed by the Florida Inland Navigation District (F.I.N.D.), USACE Permit No. SAJ-2009-03523. The City of Fort Lauderdale plans to abandon this 16-inch water main and in turn replace it with a 20-inch nominal diameter water main that will be constructed on the south side of Las Olas Boulevard Bridge. In addition to the new water main, the City of Fort Lauderdale is proposing a new 16-inch nominal diameter wastewater force main, also to be to be located on the south side of Las Olas Boulevard Bridge. Both of these subaqueous pipelines will be constructed by means ofHDD and will service residents of the City of Fort Lauderdale.

See Appendix D for Construction Methodology, Appendix E for the Benthic Characterization Survey, Appendix F for the Construction Schedule, and Appendix H for Proposed Methods for Protection of Water Quality

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

NA

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
NA	NA	NA

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet NA

23. Description of Avoidance, Minimization, and Compensation (see instructions)

NA

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

a. Address- * See Appendix G for Land Ownership Summary

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
FDEP	ERP General Permit	TBD	in progress		
BC EPGMD	EGL	0000017651	2016-03-14	pending	

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT 3/15/16 DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

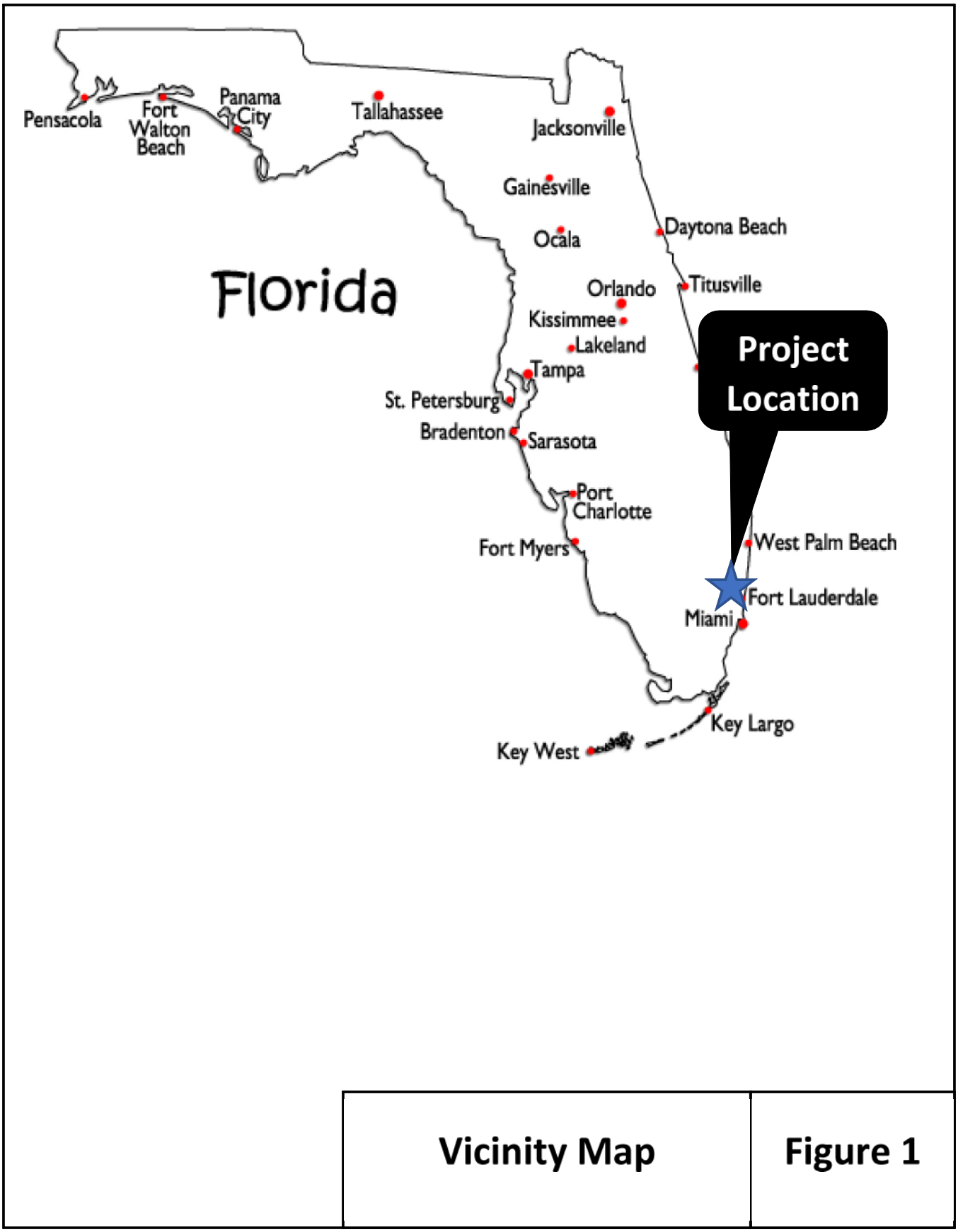
18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

APPENDIX A – LOCATION MAPS:

Figure 1 – Vicinity Map

Figure 2 – Project Location Map

Figure 3 – USGS Quadrangle Map



Vicinity Map | **Figure 1**

CAM #16-0742
EXHIBIT 1
Page 205 of 571

Project Location Map	Figure 2

CAM #16-0742
EXHIBIT 1
Page 206 of 571

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

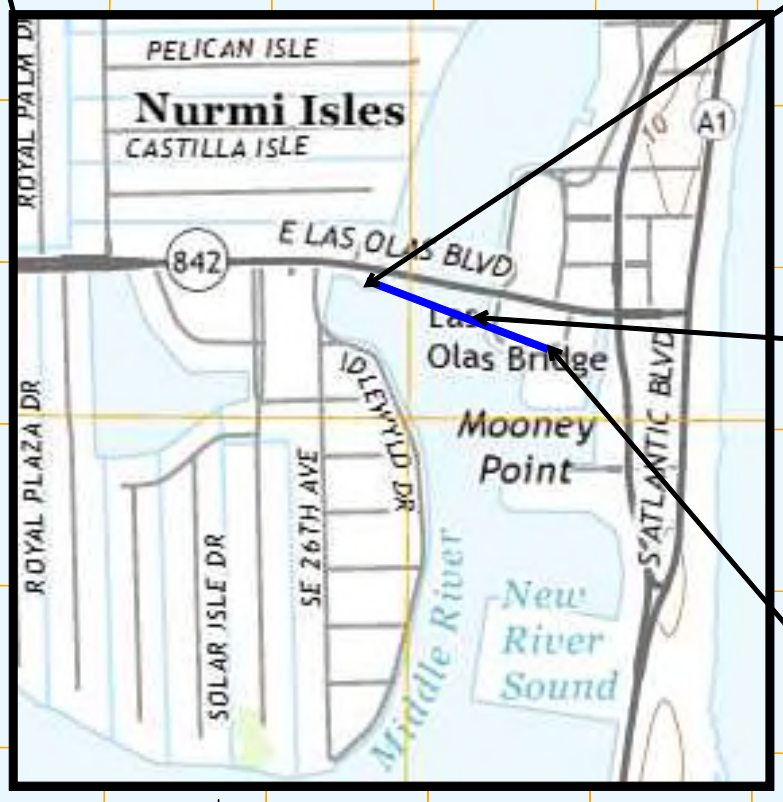
PORT EVERGLADES QUADRANGLE
FLORIDA-BROWARD CO.
7.5-MINUTE SERIES

PROJECT LOCATION

APPROXIMATE DRILL ENTRY IN MERLE FOGG PARK

APPROXIMATE LOCATION OF HORIZONTAL DIRECTIONAL DRILL

APPROXIMATE DRILL EXIT IN RIGHT-OF-WAY FOR LAS OLAS CIRCLE



ENLARGED PLAN

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 17R
10 000-foot ticks: Florida Coordinate System of 1983 (east zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, October 2013
Roads.....HERE, ©2013 - 2014
Names.....GNIS, 2015
Hydrography.....National Hydrography Dataset, 2013
Contours.....National Elevation Dataset, 1999
Boundaries.....Multiple sources; see metadata file 1972 - 2015
Public Land Survey System.....BLM, 2015

UTM GRID AND 2015 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
17R PJ
Grid Zone Designation 17R

SCALE 1:24 000

KILOMETERS 0 0.5 1 2
METERS 1000 0 1000 2000
MILES 0 0.5 1
FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

QUADRANGLE LOCATION

ADJOINING QUADRANGLES
1 Fort Lauderdale North
2 Pompano Beach
3
4 Fort Lauderdale South
5
6 North Miami
7 North Miami OE E
8

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

PORT EVERGLADES, FL
2015

APPENDIX B – CONCEPTUAL PLAN AND STAGING AREAS:

Sketch 1 – Staging Area Conceptual Plan Drill Entry Area

Sketch 2 – Staging Area Conceptual Plan Drill Exit Area

Sketch 3 – HDD Conceptual Plan

Equipment:

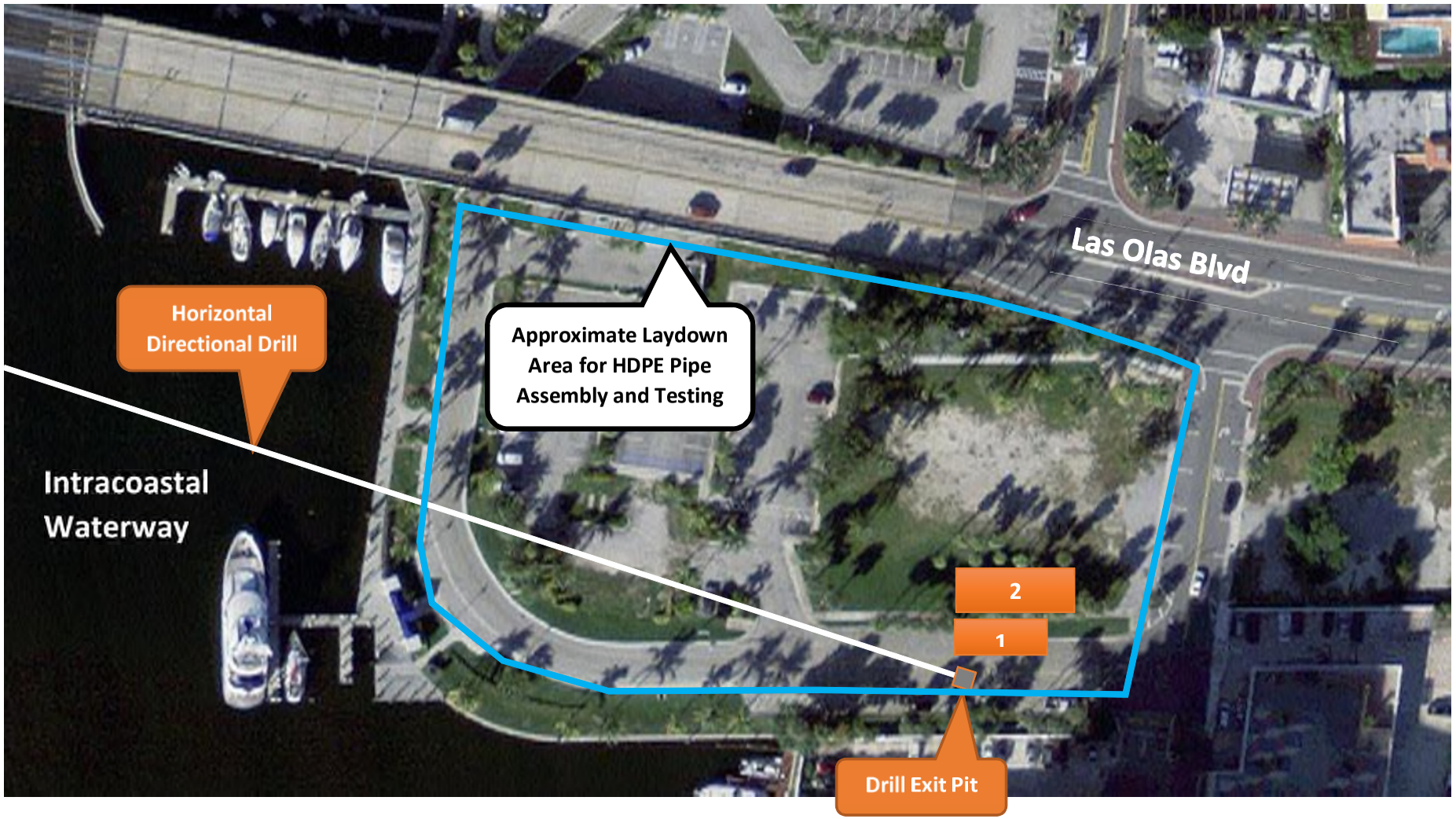
1. Drill Rig
2. Drill Pipe Laydown
3. HDPE Lined Drill Cuttings Settlement Pit
4. Mud Tanks and Pumps

Note:

1. This plan is provided for conceptual purposes. The actual staging area plan shall be developed by the engineer retained by the design build firm.

Hazen

Approximate Scale 1" = 50' When printed on 8.5"x11" paper	Staging Area Conceptual Plan Drill Entry Area	SKETCH SK-1



Equipment:

1. Drill Pipe Laydown
2. HDPE Lined Drill Cuttings Holding Pit

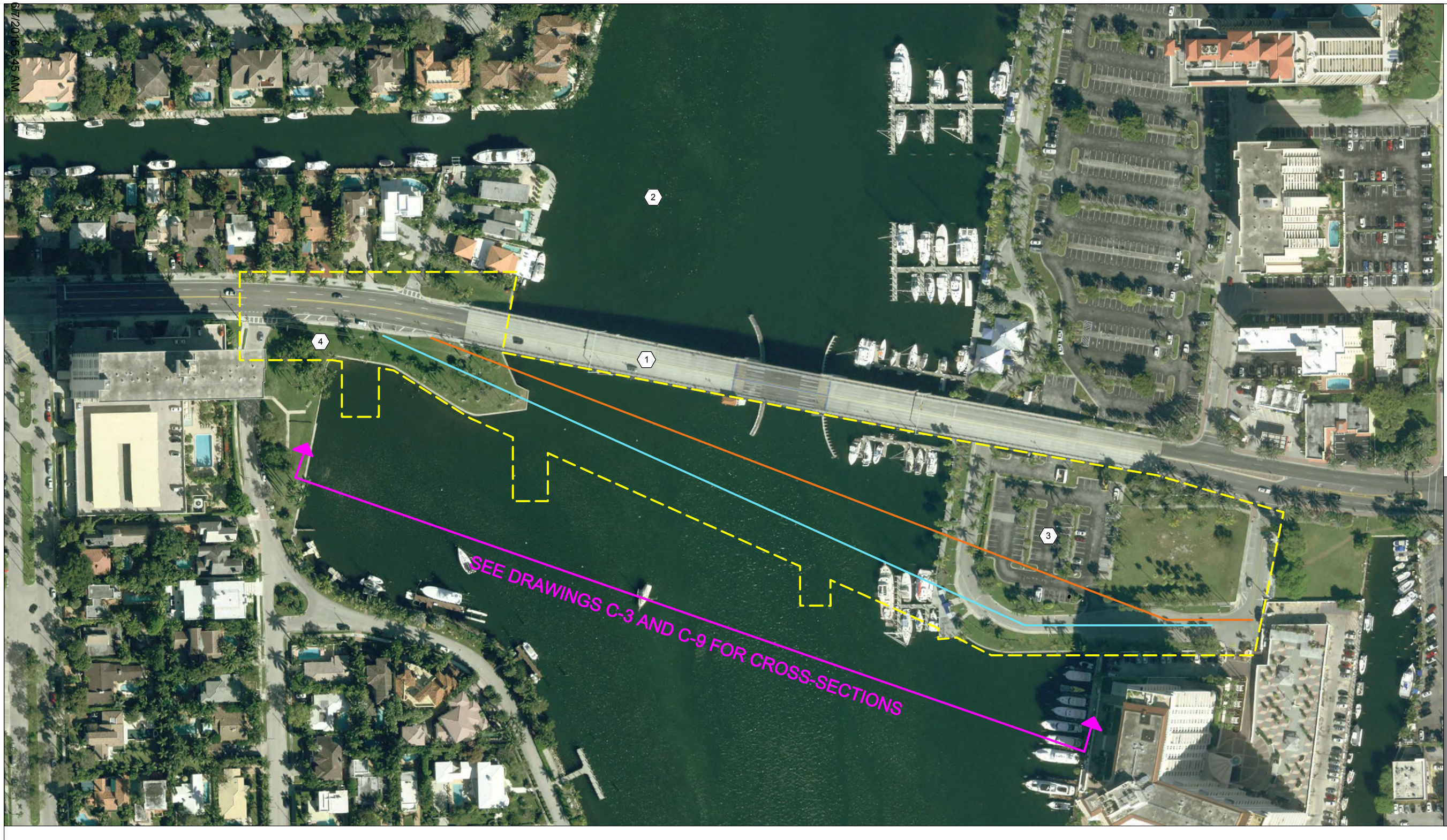
Note:

1. This plan is provided for conceptual purposes. The actual staging area plan shall be developed by the engineer retained by the design build firm.

Hazen

Approximate Scale 1" = 65' When printed on 8.5"x11" paper	Staging Area Conceptual Plan Drill Exit Area	SKETCH SK-2

6/7/2016 8:45 AM



Hazen

HAZEN AND SAWYER
4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO. : 2771

KEY NOTES

1. E. Las Olas Blvd.
2. Intracoastal Waterway
3. City of Fort Lauderdale Parking Lot
4. Merle Fogg Park

LEGEND

- Proposed Force Main HDD
- Proposed Water Main HDD
- Project area (8.3 ac)

HDD Horizontal Directional Drill

Location Information:
Township: 50S
Range: 42E
Section: 12

City of Fort Lauderdale
Water Main Relocation and
New Wastewater Force Main at Las Olas Blvd

HDD CONCEPTUAL PLAN
Sketch 3

APPENDIX C

PROJECT PLAN AND CROSS-SECTIONS

G-1, C-1 – C-12

DRAWING INDEX

CITY OF FORT LAUDERDALE

PROJECT #12196

E. LAS OLAS WATER MAIN & FORCE MAIN WATER MAIN RELOCATION & FORCE MAIN

E. LAS OLAS BLVD.

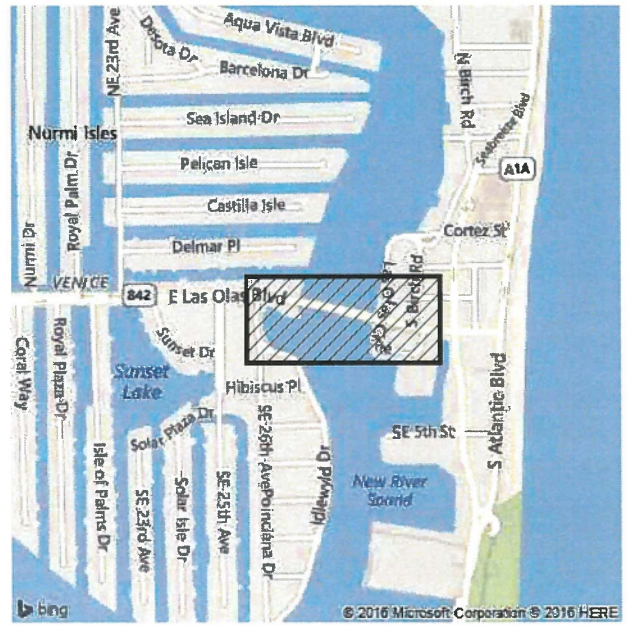
FORT LAUDERDALE, FLORIDA

GEORGE A. BROWN LICENSE No. 56076 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/14/16

Hazen

HAZEN AND SAWYER
4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO. : 2771

CRAVEN • THOMPSON AND ASSOCIATES, INC.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL.: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114



LOCATION SKETCH

PROJECT #12196
E. LAS OLAS WATER MAIN & FORCE MAIN
WATER MAIN RELOCATION & FORCE MAIN
E. LAS OLAS BLVD.

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

FORT LAUDERDALE CITY COMMISSION

JOHN P. "JACK" SEILER	MAYOR
BRUCE G. ROBERTS	COMMISSIONER - DISTRICT I
DEAN J. TRANTALIS	COMMISSIONER - DISTRICT II
ROBERT L. McKINZIE	COMMISSIONER - DISTRICT III
ROMNEY ROGERS	COMMISSIONER - DISTRICT IV

PETER AQUART	SENOIR ENGINEER	954-739-6400
GEORGE BROWN	SENOIR ASSOCIATE	954-987-0066

DATE: MM/DD/YY

CAD FILE: XXXXX-XXX-XXX0000

DRAWING FILE No.: 4-XXX-XX

NOT FOR CONSTRUCTION

G:\2016\16-0006-001-01 LAS OLAS\DRAWINGS\12196-000-COVR.DWG

STAGING PLAN

NTS

LOCATION INFORMATION:

TOWNSHIP:	50 S
RANGE:	42 E
SECTION:	12
LATITUDE:	26° 07' 9"N
LONGITUDE:	80° 06' 29"W

KEYED NOTES:

1. THE AREA INDICATED IS OWNED BY THE CITY OF FORT LAUDERDALE. CITY PROJECT No. 11900 IS TITLED "LAS OLAS CORRIDOR IMPROVEMENTS". A COPY OF DESIGN DRAWINGS WILL BE SUPPLIED BY THE OWNER TO THE BIDDERS UPON REQUEST. THE OWNER WILL PROVIDE A CONSTRUCTION SCHEDULE FOR PROJECT No. 11900 UPON REQUEST.
2. THE AREA INDICATED IS OWNED BY THE CITY OF FORT LAUDERDALE. THIS AREA CAN BE USED FOR STAGING THE HDPE PIPE FOR WELDING AND THE PULL BACK OF THE SUBAQUEOUS PIPING.
3. THE AREA INDICATED IS OWNED BY THE CITY OF FORT LAUDERDALE. THIS AREA CAN BE USED FOR STAGING OF THE DIRECTIONAL DRILLING EQUIPMENT.

LEGEND:

- AREA FOR CITY PROJECT No. 11900 (1)
- AREA FOR CITY PROJECT No. 11900 AND No. 12196 (2)
- AREA FOR CITY PROJECT No. 12196 (3)

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HAZEN AND SAWYER
4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO : 2771

GEORGE A. BROWN LICENSE No 56076 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/14/16

NOT FOR CONSTRUCTION OR BID

ENGINEER: GEORGE A. BROWN, PE
REG. No: 56076
DATE: 3/4/16
TEL: 954-987-0068
FAX:

DRAWN BY: LMS	DATE: 02/20/16		
DESIGNED BY: GAB	SCALE: NTS		
CHECKED BY: PJC	FIELD BOOK: N/A		

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
RELOCATION OF 16" WATER MAIN
E. LAS OLAS BLVD.

SHEET NO.	OF
G-1	1
TOTAL:	13
CAD FILE: 12196-001-GEN	
DRAWING FILE NO. 4-139-41	

NOTE:
THE PURPOSE OF THIS SHEET IS TO PROVIDE AN OVERALL CONCEPTUAL PLAN OF THE PROPOSED FORCE MAIN AND WATER MAIN DIRECTION DRILLS.

0 80' 160'

NOT FOR CONSTRUCTION OR BID

SHEET NO.	C-1
OF	12
TOTAL:	13
CAD FILE:	12196-001-SITE
DRAWING FILE NO.	4-139-41

PROJECT # 12196
RELOCATION OF EX. 16" WM & INSTALLATION OF 16" FM
OVERALL PLAN
E. LAS OLAS BLVD.

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DRAWN BY:	DATE: MM/DD/YY
DESIGNED BY:	SCALE: 1"=80'
CHECKED BY:	
FIELD BOOK:	

ENGINEER:
#Name
REG. No: #NO.
DATE: #DATE

TEL: #Tel
FAX: #Fax

GENERAL NOTES FOR WATER PIPELINE:

1) ALL ELEVATIONS ARE IN NAVD88.

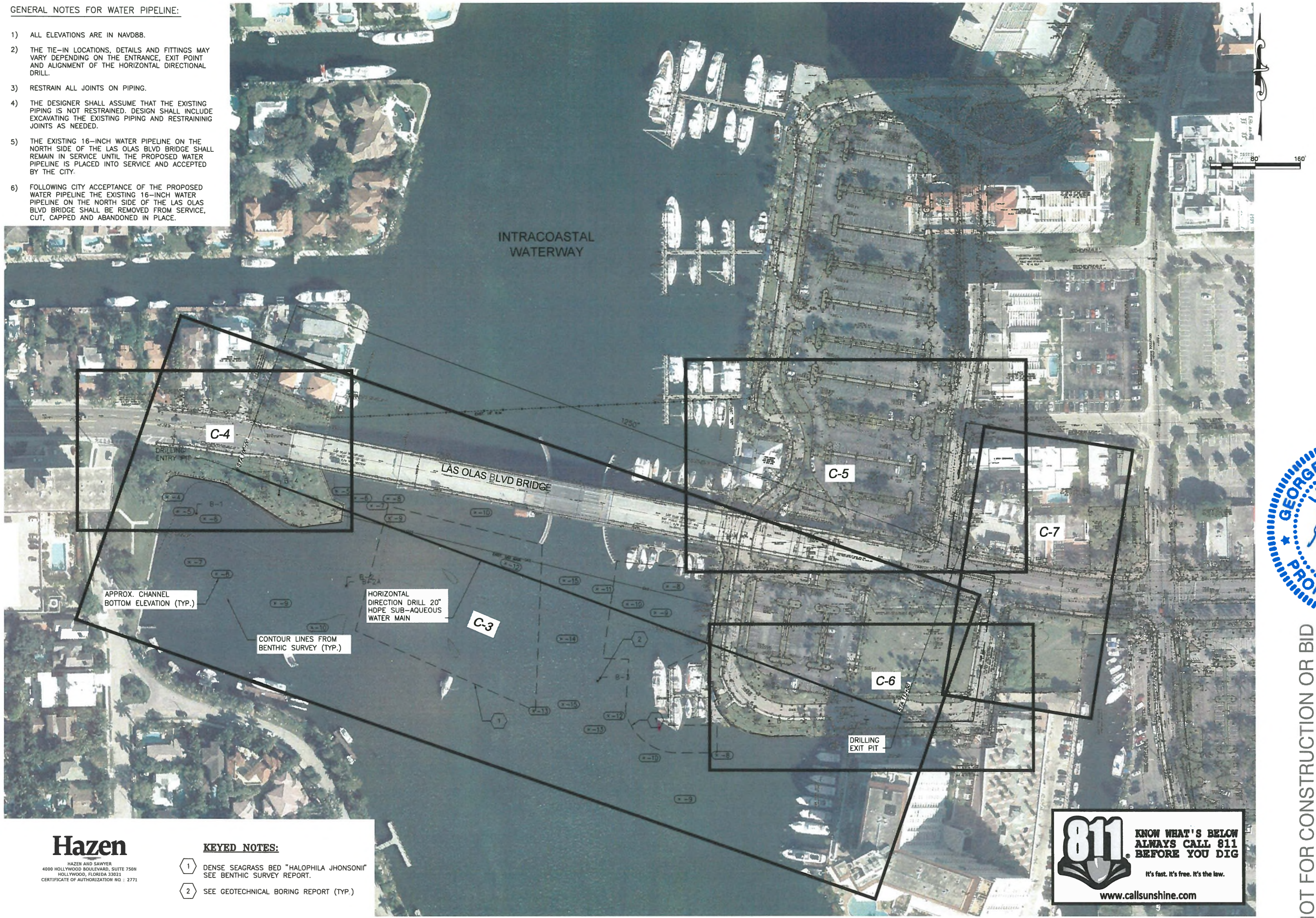
2) THE TIE-IN LOCATIONS, DETAILS AND FITTINGS MAY VARY DEPENDING ON THE ENTRANCE, EXIT POINT AND ALIGNMENT OF THE HORIZONTAL DIRECTIONAL DRILL.

3) RESTRAIN ALL JOINTS ON PIPING.

4) THE DESIGNER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN SHALL INCLUDE EXCAVATING THE EXISTING PIPING AND RESTRAININIG JOINTS AS NEEDED.

5) THE EXISTING 16-INCH WATER PIPELINE ON THE NORTH SIDE OF THE LAS OLAS BLVD BRIDGE SHALL REMAIN IN SERVICE UNTIL THE PROPOSED WATER PIPELINE IS PLACED INTO SERVICE AND ACCEPTED BY THE CITY.

6) FOLLOWING CITY ACCEPTANCE OF THE PROPOSED WATER PIPELINE THE EXISTING 16-INCH WATER PIPELINE ON THE NORTH SIDE OF THE LAS OLAS BLVD BRIDGE SHALL BE REMOVED FROM SERVICE, CUT, CAPPED AND ABANDONED IN PLACE.



Hazen

HAZEN AND SAWYER
4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO : 2771

KEYED NOTES:

1. DENSE SEAGRASS BED "HALOPHILA JHONSONII" SEE BENTHIC SURVEY REPORT.
2. SEE GEOTECHNICAL BORING REPORT (TYP.)

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ENGINEER: GEORGE A. BROWN, PE
REG. No: 56076
DATE: 3/4/16
TEL: 954-987-0066
FAX:

DRAWN BY: LMS | DATE: 02/20/16
DESIGNED BY: GAB | SCALE: 1"=80'
CHECKED BY: PJC | FIELD BOOK: N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

GEORGE A. BROWN LICENSE NO. 56076 STATE OF FLORIDA PROFESSIONAL ENGINEER

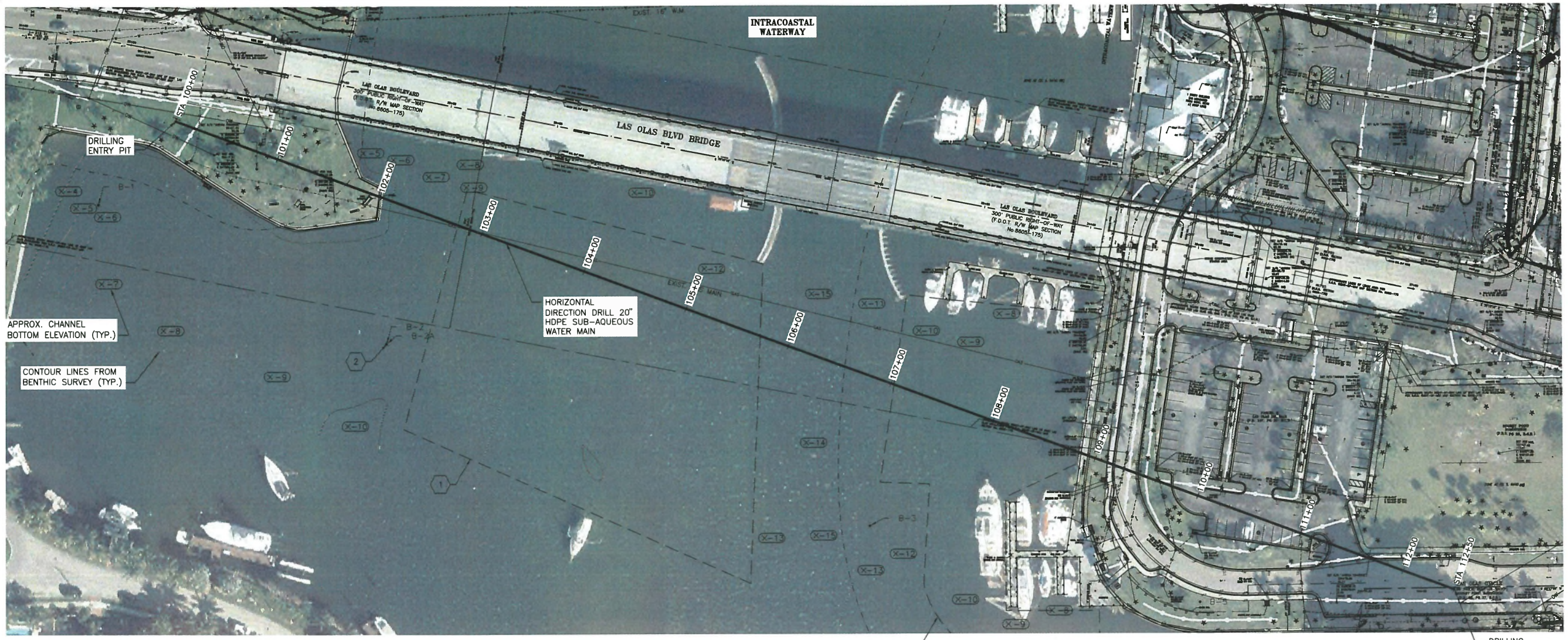
REVISIONS	DESCRIPTION	DATE	CHK

PROJECT # 12196
RELOCATION OF EX. 16" WM & INSTALLATION OF 16" FM
RELOCATION OF 16" WATER MAIN
E. LAS OLAS BLVD.

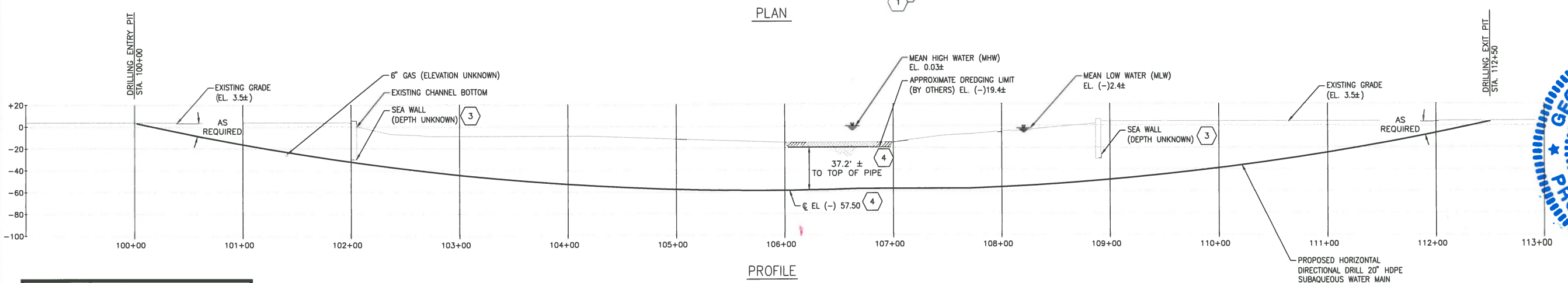
SHEET NO. C-2 | OF 3
TOTAL: 13
CAD FILE: 12196-002-KMAP
DRAWING FILE NO. 4-139-41

City of Fort Lauderdale

Bid 465-11765



PLAN



PROFILE

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HAZEN AND SAWYER
4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO.: 2771

GENERAL NOTES FOR WATER PIPELINE:

1) ALL ELEVATIONS ARE IN NAVD88.
2) THE TIE–IN LOCATIONS, DETAILS AND FITTINGS MAY VARY DEPENDING ON THE ENTRANCE, EXIT POINT AND ALIGNMENT OF THE HORIZONTAL DIRECTIONAL DRILL.
3) RESTRAIN ALL JOINTS ON PIPING.
4) THE DESIGN ENGINEER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN SHALL INCLUDE EXCAVATING THE EXISTING PIPING AND RESTRAININIG JOINTS AS NEEDED.
5) THE EXISTING 16–INCH WATER PIPELINE ON THE NORTH SIDE OF THE LAS OLAS BLVD BRIDGE SHALL REMAIN IN SERVICE UNTIL THE PROPOSED WATER PIPELINE IS PLACED INTO SERVICE AND ACCEPTED BY THE CITY.
6) FOLLOWING CITY ACCEPTANCE OF THE PROPOSED WATER PIPELINE THE EXISTING 16–INCH WATER PIPELINE ON THE NORTH SIDE OF THE LAS OLAS BLVD BRIDGE SHALL BE REMOVED FROM SERVICE, CUT, CAPPED AND ABANDONED IN PLACE.
7) THE HORIZONTAL DIRECTIONAL DRILL ILLUSTRATED IS FOR CONCEPTUAL PURPOSES. THE DESIGN OF THE HORIZONTAL DIRECTIONAL DRILL IS THE RESPONSIBILITY OF THE DESIGN ENGINEER RETAINED BY THE DESIGN BUILD FIRM.
8) UPLAND PIPING FOLLOWING TERMINATION OF THE DIRECTIONAL DRILL IS NOT SHOWN ON THE PROFILE FOR CLARITY.

KEYED NOTES:

1. DENSE SEAGRASS BED "HALOPHILA JHONSONII" SEE BENTHIC SURVEY REPORT.
2. SEE GEOTECHNICAL BORING REPORT (TYP.)
3. NO RECORD DRAWING DATA ON EXISTING SEAWALLS AREA AVAILABLE FROM THE CITY.
4. ALIGNMENT DEPTH SHOWN IS FOR CONCEPTUAL PURPOSES. THE ACTUAL ALIGNMENT DEPTH SHALL BE SELECTED BY THE DESIGN BUILD FIRM'S ENGINEER. THE MINIMUM DEPTH OF THE PROPOSED WATER MAIN SHALL BE 25–FEET BELOW THE DESIGN BOTTOM OF THE INTRACOASTAL WATERWAY NAVIGATION CHANNEL (ESTIMATED AT EL. (–)19.4± NAVD 88).

LEGEND:

EXISTING
APPROX. ALIGNMENT OF PROPOSED HDD
(X) APPROX. CHANNEL BOTTOM ELEVATION

0 50' 100'

NOT FOR CONSTRUCTION OR BID

ENGINEER: GEORGE A. BROWN, PE
REG. No: 56076
DATE: 3/4/16
TEL: 954-987-0066
FAX:

DRAWN BY: GPB
DESIGNED BY: GAB
CHECKED BY: PJC
DATE: 02/20/16
SCALE: 1"=50'-0"
FIELD BOOK: N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DESCRIPTION	BY	CHK'D

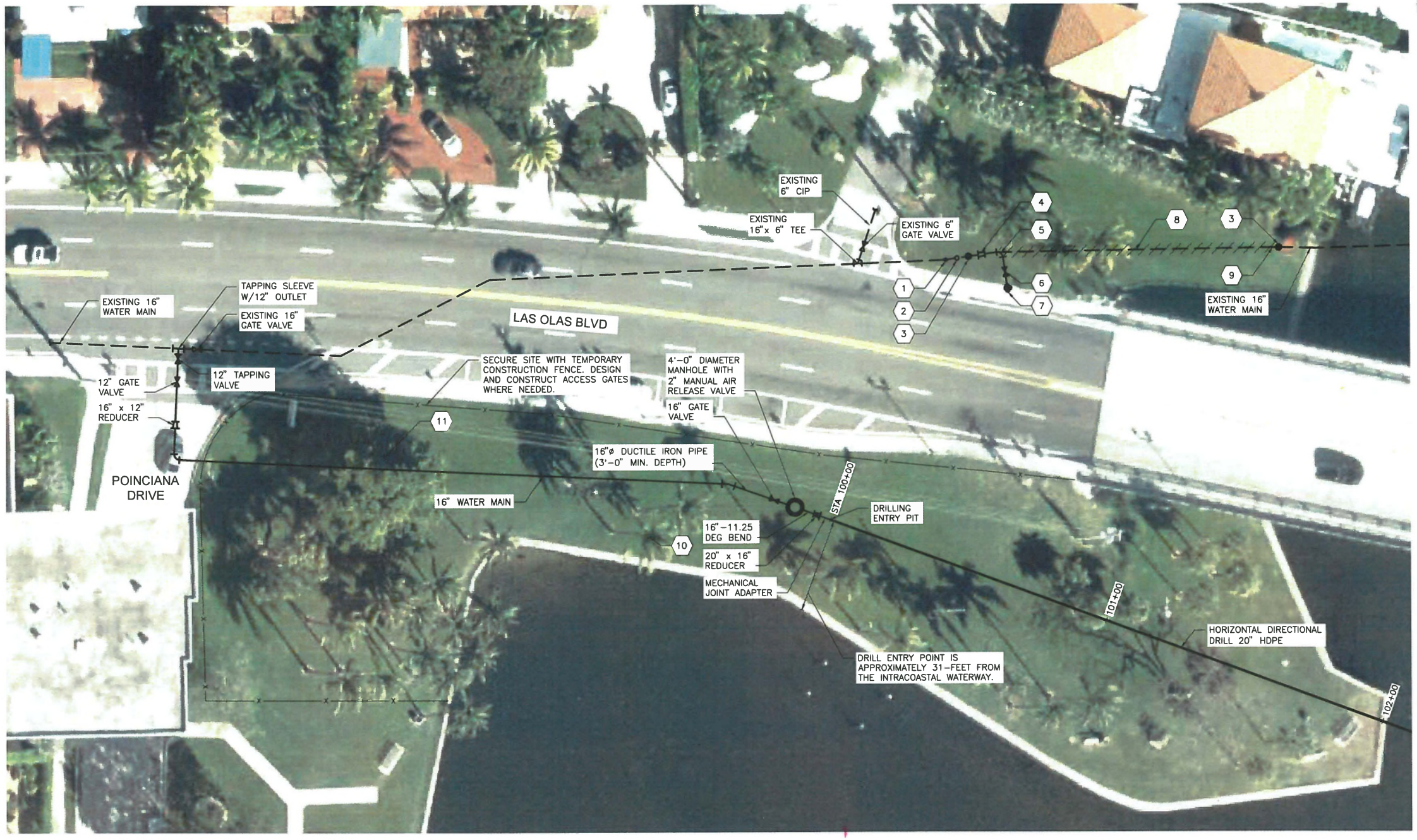
PROJECT # 12196-003-WATR
RELOCATION OF EX 16" WATER MAIN
& INSTALLATION OF 16" FM
RELOCATION OF 16" WATER MAIN
E. LAS OLAS BLVD

GEORGE A. BROWN LICENSE No 56076 STATE OF FLORIDA PROFESSIONAL ENGINEER

SHEET NO. C-3 OF 4
TOTAL: 13
CAD FILE: 12196-003-WATR
DRAWING FILE NO. 4-139-41

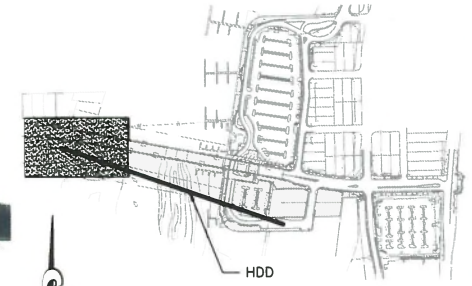
City of Fort Lauderdale

Bid 465-11765



AERIAL PHOTO 1

NTS



KEY MAP

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4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO. : 2771

GENERAL NOTES FOR WATER PIPELINE:

1) ALL ELEVATIONS ARE IN NAVD88.
2) THE TIE-IN LOCATIONS, DETAILS AND FITTINGS MAY VARY DEPENDING THE ENTRANCE, EXIT POINT AND ALIGNMENT OF THE HORIZONTAL DIRECTIONAL DRILL.
3) RESTRAIN ALL JOINTS ON PIPING.
4) THE DESIGNER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN SHALL INCLUDE EXCAVATING THE EXISTING PIPING AND RESTRAININIG JOINTS AS NEEDED.
5) THE EXISTING 16-INCH WATER PIPELINE ON THE NORTH SIDE OF THE LAS OLAS BLVD BRIDGE SHALL REMAIN IN SERVICE UNTIL THE PROPOSED WATER PIPELINE IS PLACED INTO SERVICE AND ACCEPTED BY THE CITY.
6) FOLLOWING CITY ACCEPTANCE OF THE PROPOSED WATER PIPELINE THE EXISTING 16-INCH WATER PIPELINE ON THE NORTH SIDE OF THE LAS OLAS BLVD BRIDGE SHALL BE REMOVED FROM SERVICE, CUT, CAPPED AND ABANDONED IN PLACE.
7) UNLESS INDICATED AS "EXISTING" ITEMS SHOWN AREA PROPOSED.
8) NOT ALL EXISTING UTILITIES ARE SHOWN FOR CLARITY. AVAILABLE UNDERGROUND UTILITY INFORMATION IS INCLUDED AS EXHIBITS IN THE DESIGN CRITERIA PACKAGE DOCUMENTS.
9) A TOPOGRAPHIC SURVEY FOR CITY PROJECT 11900 THAT CONTAINS EXISTING UNDERGROUND UTILITY INFORMATION IS AVAILABLE FROM THE CITY UPON REQUEST.

KEYED NOTES:

1. EXISTING VALVE BOX FOR VALVE ON EXISTING 16" WATER MAIN.
2. EXISTING AIR RELEASE VALVE MANHOLE.
3. INSTALL TEMPORARY LINE STOP.
4. INSTALL 16" x 6" REDUCER.
5. INSTALL FITTINGS, NIPPLES AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
6. INSTALL 6" GATE VALVE.
7. INSTALL FIRE HYDRANT.
8. REMOVE EXISTING 16" WATER MAIN (ASSUMED 3'± BELOW GRADE) AND RESTORE SURFACE.
9. INSTALL CUT AND CAP ON EXISTING 16" WATER MAIN.
10. RELOCATE TREES AS REQUIRED.
11. REMOVE TREE IF REQUIRED FOR ACCESS.

LEGEND:

- EXISTING
- PROPOSED
- TEMPORARY CONSTRUCTION FENCE
- TO BE REMOVED

NOT FOR CONSTRUCTION OR BID

GEORGE A. BROWN LICENSE No 56076 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/4/16

ENGINEER: GEORGE A. BROWN, PE
REG. No: 56076
DATE: 5/4/16
TEL: 954-697-0066
FAX:

DRAWN BY:	DATE: 02/20/16
GPB	
DESIGNED BY: GAB	SCALE: NTS
CHECKED BY: PJC	FIELD BOOK: N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

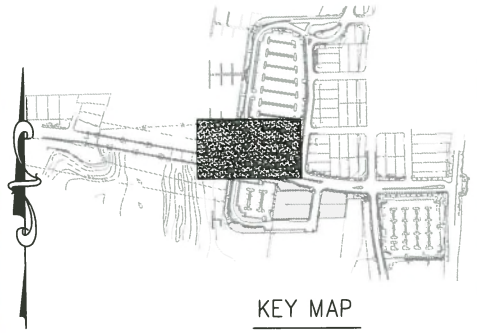
REVISIONS			
NO.	DATE	BY	CHK'D	DESCRIPTION

PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
RELOCATION OF 16" WATER MAIN
E. LAS OLAS BLVD.

SHEET NO.	OF
C-4	5
TOTAL:	13
CAD FILE: 12196-004-WATR	
DRAWING FILE NO. 4-139-41	

AERIAL PHOTO 2

NTS



KEY MAP

GENERAL NOTES FOR WATER PIPELINE:

1) ALL ELEVATIONS ARE IN NAVD88.
2) THE TIE–IN LOCATIONS, DETAILS AND FITTINGS MAY VARY DEPENDING THE ENTRANCE, EXIT POINT AND ALIGNMENT OF THE HORIZONTAL DIRECTIONAL DRILL.
3) RESTRAIN ALL JOINTS ON PIPING.
4) THE DESIGNER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN SHALL INCLUDE EXCAVATING THE EXISTING PIPING AND RESTRAININIG JOINTS AS NEEDED.
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6) FOLLOWING CITY ACCEPTANCE OF THE PROPOSED WATER PIPELINE THE EXISTING 16–INCH WATER PIPELINE ON THE NORTH SIDE OF THE LAS OLAS BLVD BRIDGE SHALL BE REMOVED FROM SERVICE, CUT, CAPPED AND ABANDONED IN PLACE.
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8) NOT ALL EXISTING UTILITIES ARE SHOWN FOR CLARITY. AVAILABLE UNDERGROUND UTILITY INFORMATION IS INCLUDED AS EXHIBITS IN THE DESIGN CRITERIA PACKAGE DOCUMENTS.
9) A TOPOGRAPHIC SURVEY FOR CITY PROJECT 11900 THAT CONTAINS EXISTING UNDERGROUND UTILITY INFORMATION IS AVAILABLE FROM THE CITY UPON REQUEST.

KEYED NOTES:

(1) CUT CAP EXISTING 16" WATER MAIN.

(2) REMOVE EXISTING 16" WATER MAIN (ASSUMED 3'± BELOW GRADE) AND RESTORE SURFACE.

LEGEND:

- EXISTING
- PROPOSED
- TO BE REMOVED

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HAZEN AND SAWYER
4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO. : 2271

GEORGE A. BROWN LICENSE No 56076 3/14/16 STATE OF FLORIDA PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION OR BID

ENGINEER: GEORGE A. BROWN, PE
REG. No: 56076
DATE: 3/4/16
TEL: 954-987-0068
FAX:

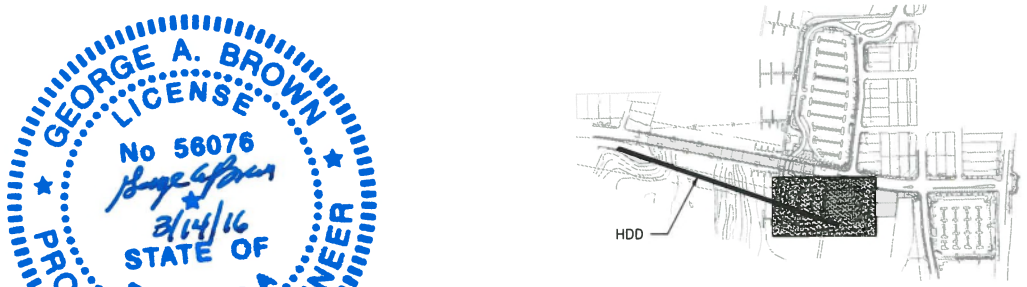
DRAWN BY:	DATE:
GPB	02/20/16
DESIGNED BY:	SCALE:
GAB	NTS
CHECKED BY:	
PJC	
FIELD BOOK:	
N/A	

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS			
NO	DATE	BY	CHK'D	DESCRIPTION

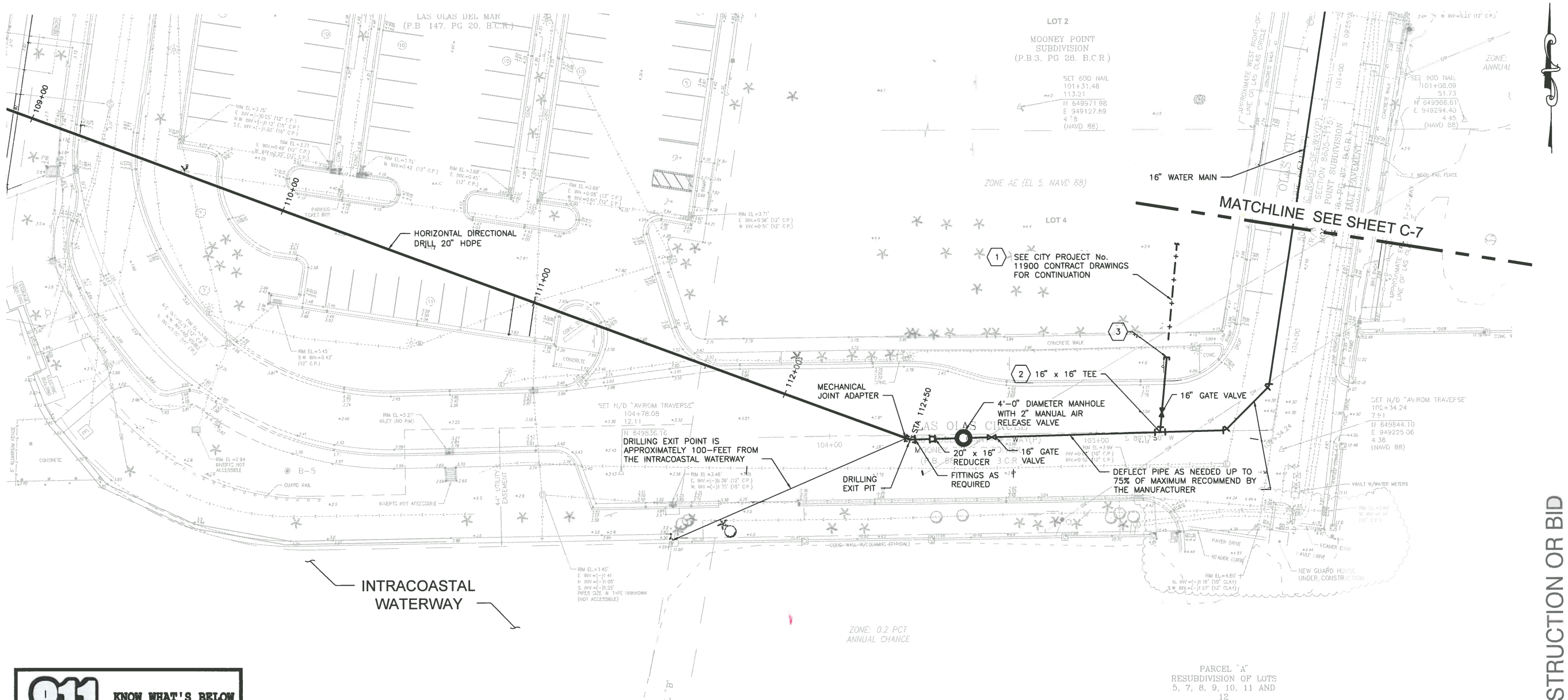
PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
RELOCATION OF 16" WATER MAIN
E. LAS OLAS BLVD.

SHEET NO.	OF
C-5	6
TOTAL:	13
CAD FILE: 12196–005–WATR	
DRAWING FILE NO. 4–139–41	



KEY MAP

GEORGE A. BROWN
LICENSE
No 56076
2/14/16
STATE OF FLORIDA
PROFESSIONAL ENGINEER



PARTIAL PLAN 1
1"=20'-0"

GENERAL NOTES FOR WATER PIPELINE:

1) ALL ELEVATIONS ARE IN NAVD88.
2) THE TIE-IN LOCATIONS, DETAILS AND FITTINGS MAY VARY DEPENDING ON THE ENTRANCE, EXIT POINT AND ALIGNMENT OF THE HORIZONTAL DIRECTIONAL DRILL.
3) RESTRAIN ALL JOINTS.
4) THE DESIGN ENGINEER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN SHALL INCLUDE EXCAVATING THE EXISTING PIPING AND RESTRAININIG JOINTS AS NEEDED.

KEYED NOTES:

1. THE LOCATION SHOWN FOR THE WATER PIPING TO BE CONSTRUCTED UNDER CITY PROJECT No. 11900 IS APPROXIMATE. COORDINATE WITH THE CITY TO DETERMINE FINAL DESIGN LOCATION.
2. ADJUST LOCATION OF TEE AS REQUIRED TO COORDINATE WITH THE LOCATION OF THE WATER PIPING TO BE CONSTRUCTED UNDER CITY PROJECT No. 11900.
3. FURNISH AND INSTALL SOLID SLEEVE COUPLING AND PIPING AS REQUIRED TO MAKE THE CONNECTION WITH THE PIPING TO BE CONSTRUCTED UNDER CITY PROJECT No. 11900.

LEGEND:

EXISTING
PROPOSED
16" WATER MAIN TO BE CONSTRUCTED UNDER PROJECT No. 11900

0 20' 40'

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www.callsunshine.com

Hazen
HAZEN AND SAWYER
4000 HOLLYWOOD BOULEVARD, SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO. : 2771

NOT FOR CONSTRUCTION OR BID

ENGINEER: GEORGE A. BROWN, PE
REG. No: 56076
DATE: 5/4/16
TEL: 954-987-0068
FAX:

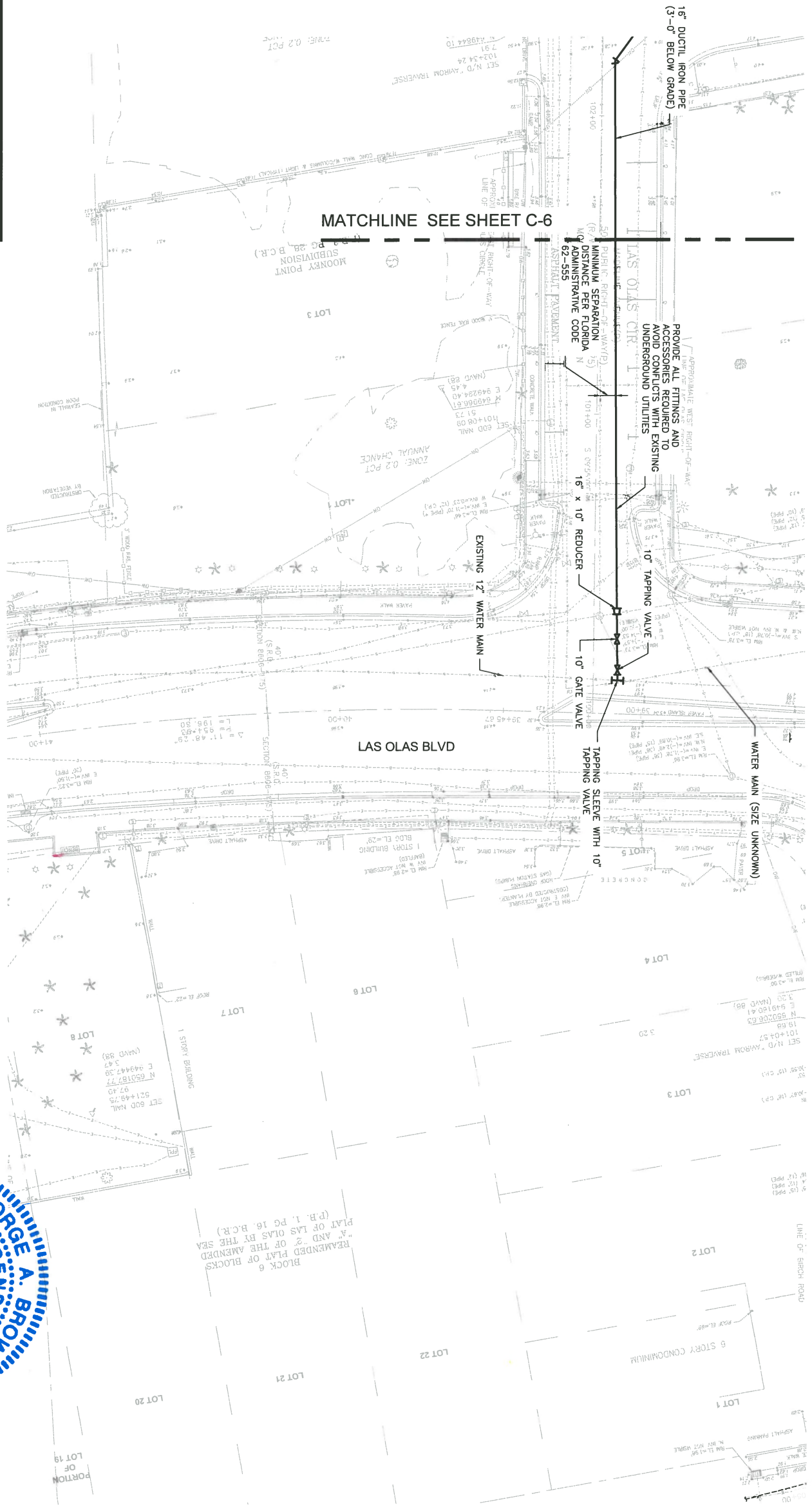
DRAWN BY:	DATE:	02/20/16
LMS	DESIGNED BY:	SCALE: 1"=20'
	GAB	
	CHECKED BY:	
	PJC	
	FIELD BOOK:	N/A

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS			
NO.	DATE	BY	CHK'D	DESCRIPTION

PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
RELOCATION OF 16" WATER MAIN
E. LAS OLAS BLVD.

SHEET NO.	OF
C-6	7
TOTAL:	13
CAD FILE: 12196-006-WATR	
DRAWING FILE NO. 4-139-41	



GENERAL NOTES FOR WATER PIPELINE:

1) ALL ELEVATIONS ARE IN NAVD88.
2) RESTRAIN ALL JOINTS ON PIPING.
3) THE DESIGN ENGINEER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN SHALL INCLUDE EXCAVATING THE EXISTING PIPING AND RESTRAINING JOINTS AS NEEDED.

PARTIAL PLAN 2

1"=20'-0"

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Hazen
HAZEN AND SAWYER
4000 HOLLYWOOD BLVD SUITE 750N
HOLLYWOOD, FLORIDA 33021
CERTIFICATE OF AUTHORIZATION NO: 2771

GEORGE A. BROWN LICENSE No 56076 STATE OF FLORIDA PROFESSIONAL ENGINEER
George Gabriel Brown 3/14/16

NOT FOR CONSTRUCTION OR BID

SHEET NO.	C-7
OF	8
TOTAL:	13
CAD FILE:	12196-007-WATR
DRAWING FILE NO.	4-139-41

PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
RELOCATION OF 16" WATER MAIN
E. LAS OLAS BLVD.

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DRAWN BY: LMS	DATE: 02/20/16
DESIGNED BY: GAB	SCALE: 1"=20'
CHECKED BY: PJC	
FIELD BOOK: N/A	

ENGINEER:
GEORGE A. BROWN, PE
REG. No: 56076
DATE: 3/4/16
TEL: 954-987-0066
FAX:

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

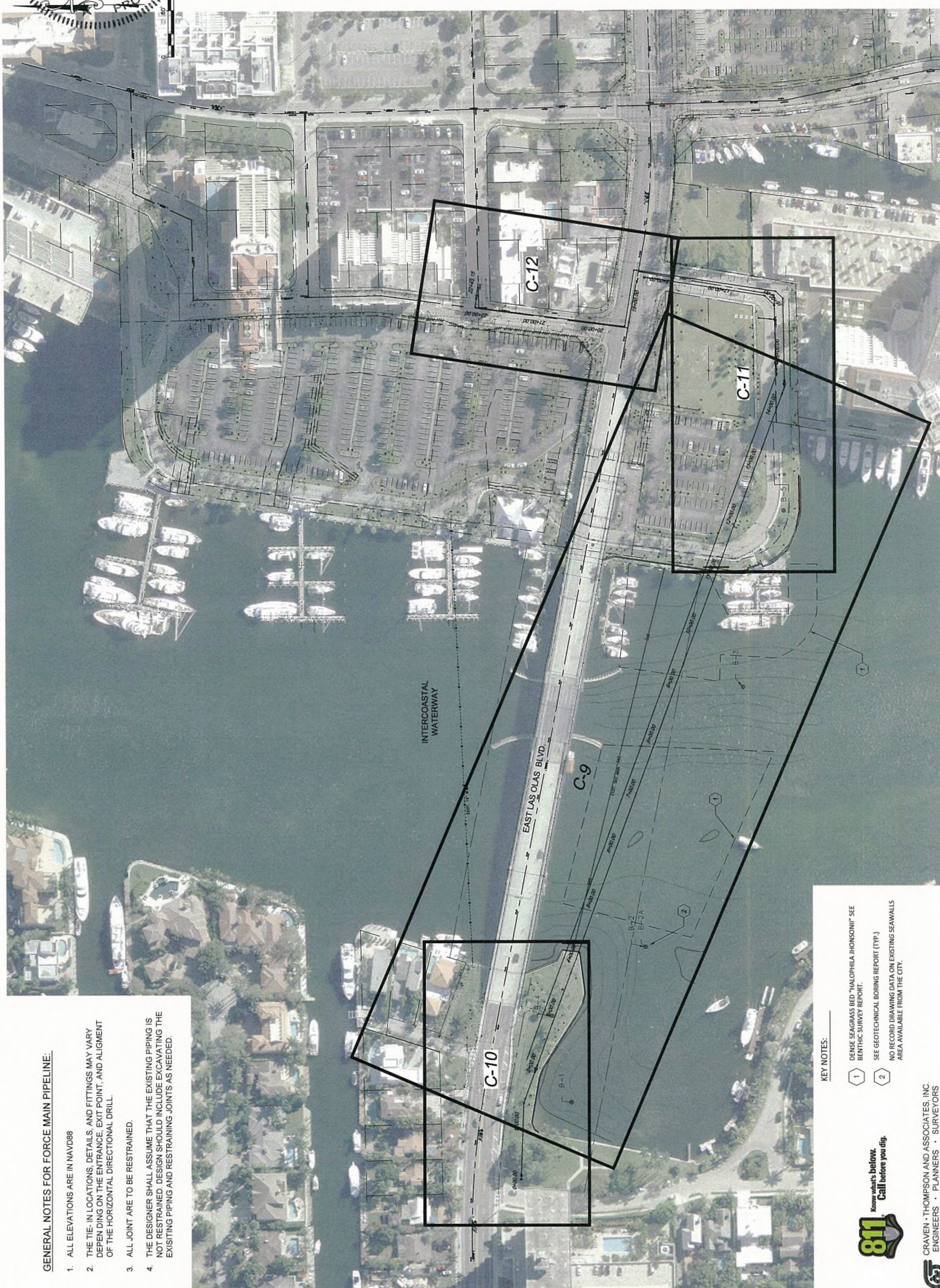
PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
PROPOSED FORCE MAIN KEY MAP
E. LAS OLAS BLVD.

SHEET NO. C-8 | 12 OF 13

CAD FILE: 12196-008-KMAP

DRAWING FILE NO. 4-139-41

NOT FOR CONSTRUCTION OR BID



GENERAL NOTES FOR FORCE MAIN PIPELINE:

1. ALL ELEVATIONS ARE IN NAVD88
2. THE TIE- IN LOCATIONS, DETAILS, AND FITTINGS MAY VARY DEPEN DING ON THE ENTRANCE, EXIT POINT, AND ALIGMENT OF THE HORIZONTAL DIRECTIONAL DRILL.
3. ALL JOINT ARE TO BE RESTRAINED.
4. THE DESIGNER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN SHOULD INCLUDE EXCAVATING THE EXISTING PIPING AND RESTRAINING JOINTS AS NEEDED.

KEY NOTES:

1. DENSE SEAGRASS BED "HALOPHILA JHONSONI" SEE BENTHIC SURVEY REPORT.
2. SEE GEOTECHNICAL BORING REPORT (TYP.)
3. NO RECORD DRAWING DATA ON EXISTING SEAWALLS AREA AVAILABLE FROM THE CITY.

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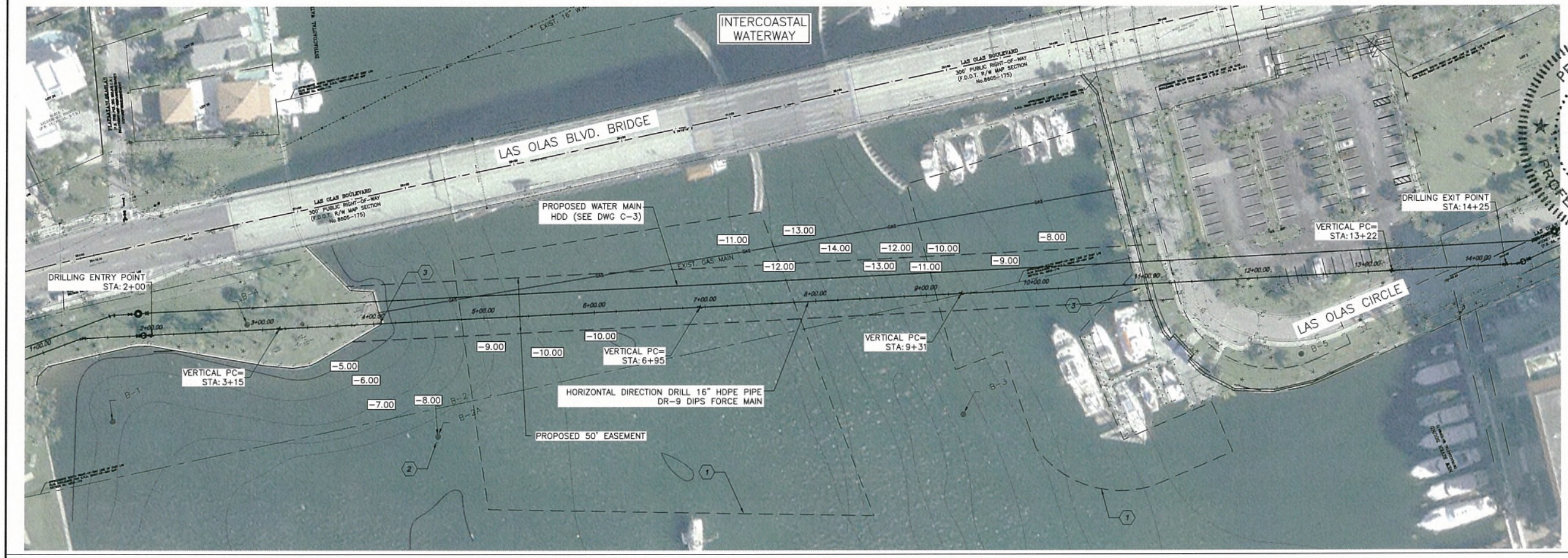

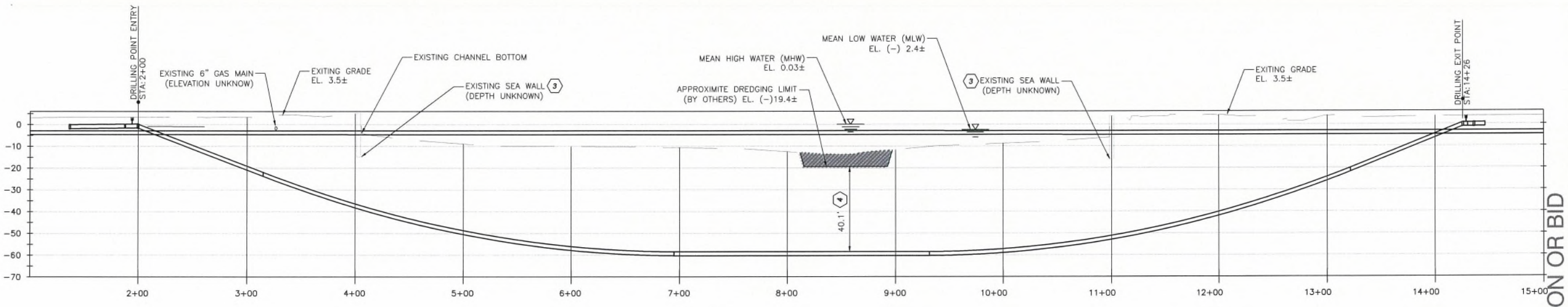

GENERAL NOTES FOR WATER PIPELINE:

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3. RESTRAIN ALL JOINTS ON PROPOSED PIPING.
4. THE DESIGNER SHALL ASSUME THAT THE EXISTING PIPING IS NOT RESTRAINED. DESIGN EXCAVATING THE EXISTING PIPING AND RESTRAINING JOINTS AS NEEDED.
5. THE HORIZONTAL DIRECTIONAL DRILL ILLUSTRATED IS FOR CONCEPTUAL PURPOSES. THE DESIGN OF THE HORIZONTAL DIRECTIONAL DRILL IS THE RESPONSIBILITY OF THE DESIGN ENGINEER RETAINED BY THE DESIGN BUILD FIRM.

KEYED NOTES:

(1) DENSE SEAGRASS BED "HALOPHILA JHONSONII" SEE BENTHIC SURVEY REPORT.

(2) SEE GEOTECHNICAL BORING REPORT (TYP.)

(3) NO RECORD DRAWING DATA ON EXISTING SEAWALLS AREA AVAILABLE FROM THE CITY.

(4) ALIGNMENT DEPTH SHOWN IS FOR CONCEPTUAL PURPOSES. THE ACTUAL ALIGNMENT DEPTH SHALL BE SELECTED BY THE DESIGN BUILD FIRM'S ENGINEER. THE MINIMUM DEPTH OF THE PROPOSED FORCE MAIN SHALL BE 40.1-FEET BELOW THE DESIGN BOTTOM OF THE INTERCOASTAL WATERWAY NAVIGATION CHANNEL (ESTIMATED AT EL. (1)19.4± NAVD 88).

LEGEND:

- EXISTING GAS LINE
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED FORCE MAIN
- -9.00 APPROXIMATE CHANNEL BOTTOM ELEVATION

0 50' 100'

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FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114

PETER WAYNE QUART
LICENSED
No 34176
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

ENGINEER: Peter Wayne Quart
REG. NO. 34176
DATE: 03/09/2016
TEL: 954-739-6400
FAX: 954-739-6409

DATE: 03/09/2016
SCALE: H: 1"=50' V: 1"=25'
DRAWN BY: JW
CHECKED BY: PA
FIELD BOOK:

REVISIONS

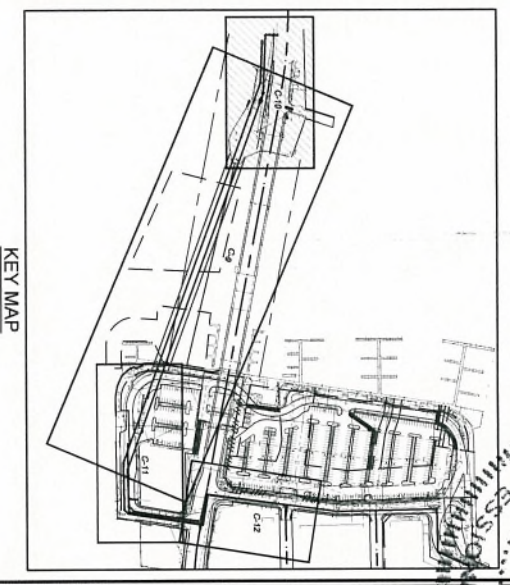
NO.	DATE	BY	CHK'D	DESCRIPTION

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
PROPOSED 16" FORCE MAIN
E. LAS OLAS BLVD.

SHEET NO. C-9 OF 12
TOTAL: 13
CAD FILE: 12196-009-SSWR
DRAWING FILE NO. 4-139-41

KEY MAP



KEYED NOTES:

1. SEE GEOTECHNICAL BORING REPORT (TYP.)
2. NO RECORD DRAWING DATA ON EXISTING SEAWALLS AREA AVAILABLE FROM THE CITY.

LEGEND:

- EXISTING GAS LINE
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED FORCE MAIN

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PHONE: (954) 739-6400 FAX: (954) 739-6409
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
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PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
PROPOSED 16" FORCE MAIN
E. LAS OLAS BLVD.

REVISIONS				
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CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DRAWN BY: JW | DATE: 03/09/2016
DESIGNED BY: JW | SCALE: 1"=20'
CHECKED BY: PAR
FIELD BOOK:

ENGINEER: Peter Wayne Aquart
REG. No. 34176
DATE: 06/20/2016
TEL: 954-739-6400
FAX: 954-739-6409

SHEET NO. C-10 OF 12
TOTAL: 13
CAD FILE: 12196-010-SSWR
DRAWING FILE NO. 4-139-41

SEE SHEET C-9

SEE SHEET C-12

PARCEL B
LAS OLAS DEL MAR
(P.B. 147, PG. 20, B.C.R.)

LOT 2
MOONEY POINT
SUBDIVISION
(P.B.3, PG. 28, B.C.R.)

LOT 4

ZONE AE (EL 5, NAVD 88)

PROPOSED 16" WATER MAIN
HDD (SEE SHEET C-6)

HORIZONTAL DIRECTION
DRILL 16" HDPE PIPE
DR-9 DIPS FORCE MAIN

16" DIP FORCE MAIN
(3'-0" MIN. DEPTH)

PROPOSED WATER MAIN
(SEE SHEET C-6)

16" DIP FORCE MAIN
(3'-0" MIN. DEPTH)

LAS OLAS CIRCLE

104+52.23

104+00

103+00

S 89°17'50" W

102+00

102+34.24

(1) 16" 22.5° BEND

(1) 16" 45° BEND

B-5

MECHANICAL
JOINT ADAPTER

DRILLING EXIT POINT
16" – 11.25° BEND

(1) 16" PLUG VALVE

4'ø MANHOLE WITH 2"
MANUAL AIR RELEASE VALVE

ZONE: 0.2 PCT
ANNUAL CHANCE

DRILLING EXIT POINT IS APPROXIMATELY
71' FROM INTERCOASTAL WATERWAY

NEW GUARD HOUSE
UNDER CONSTRUCTION

PARCEL "A"
RESUBDIVISION OF LOTS
5, 7, 8, 9, 10, 11 AND
12
MOONEY POINT
SUBDIVISION

0 20' 40

GENERAL NOTES FOR WATER PIPELINE:

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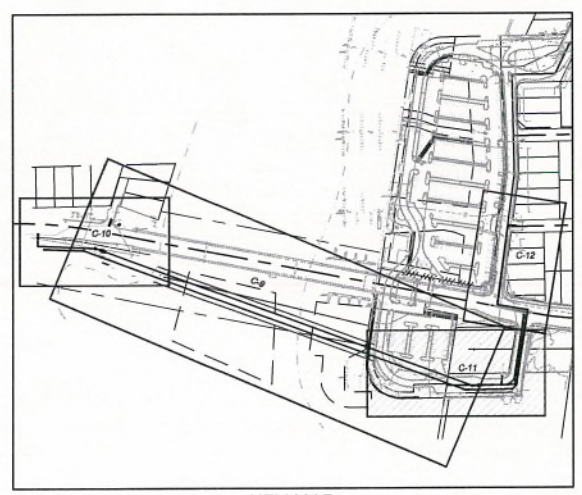
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED FORCE MAIN



KEY MAP

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FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114

NOT FOR CONSTRUCTION OR BID

ENGINEER: Peter Wayne Aguiar
REG. No. 39176
DATE: 03/09/2016
TEL: 954-828-5400
FAX: 954-828-5409

DATE: 03/09/2016
SCALE: 1"=20'
DESIGNED BY: JW
DRAWN BY: JW
CHECKED BY: PWA
FIELD BOOK: P.U.

CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

REVISIONS

NO.	DATE	BY	CHK'D	DESCRIPTION

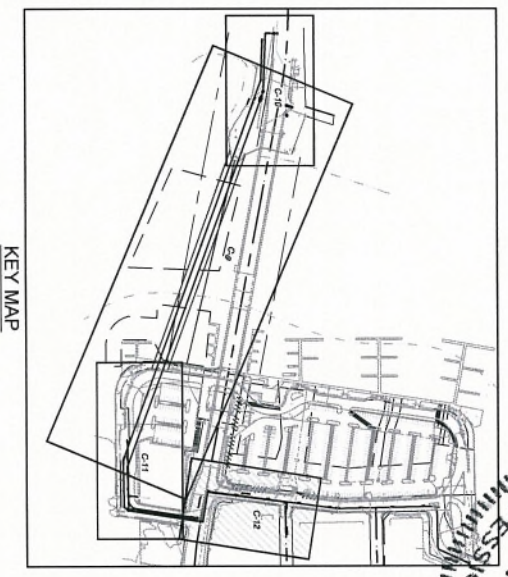
PROJECT # 12196
RELOCATION OF EX. 16" WM
& INSTALLATION OF 16" FM
PROPOSED 16" FORCE MAIN
E. LAS OLAS BLVD.

SHEET NO.	OF
C-11	12
TOTAL:	13
CAD FILE: 12196-011-SSWR	
DRAWING FILE NO. 4-139-41	

City of Fort Lauderdale

Bid 465-11765

KEY MAP



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- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED FORCE MAIN

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PROJECT # 12196
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& INSTALLATION OF 16" FM
PROPOSED 16" FORCE MAIN
E. LAS OLAS BLVD.

REVISIONS				
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CITY OF FORT LAUDERDALE
PUBLIC WORKS DEPARTMENT
ENGINEERING & ARCHITECTURE
100 North Andrews Avenue, Fort Lauderdale, Florida 33301

DRAWN BY: JW
DESIGNED BY: JW
CHECKED BY: PA
FIELD BOOK:
DATE: 03/09/2016
SCALE:

ENGINEER:
Peter Wayne Quan
REG. No. 34176
DATE 03/09/2016
PETER WAYNE QUAN LICENSE No 34176 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/14/10
TEL: 954-739-6400
FAX: 954-739-6409

SHEET NO. C-12 OF 12
TOTAL: 13
CAD FILE: 12196-012-SSWR
DRAWING FILE NO. 4-139-41

APPENDIX D

CONSTRUCTION METHODOLOGY

CONSTRUCTION METHODOLOGY

City of Fort Lauderdale
Water Main Relocation and New Wastewater Force Main at Las Olas Boulevard

1.0 Project Background

The City of Fort Lauderdale currently owns and operates a 16-inch diameter subaqueous water main located on the north side of the Las Olas Boulevard Bridge crossing the Intracoastal Waterway. The location of this subaqueous water main is scheduled to be dredged as a part of the Intracoastal Waterway Deepening Project as proposed by the Florida Inland Navigation District (F.I.N.D.), FDEP Permit No. 06-0283683-002 and USACE Permit No. SAJ-2009-03523. The City of Fort Lauderdale plans to abandon this 16-inch water main and in turn replace it with a 20-inch nominal diameter water main that will be constructed on the south side of Las Olas Boulevard Bridge. In addition to the new water main, the City of Fort Lauderdale is proposing a new 16-inch nominal diameter wastewater force main, also to be to be located on the south side of Las Olas Boulevard Bridge. Both of these subaqueous pipelines will be constructed by means of Horizontal Directional Drilling (HDD).

Given that this project is to meet a strict schedule to complete construction prior to the start of any dredging in the area as scheduled by the Intracoastal Waterway Deepening Project, the City of Fort Lauderdale is developing the Design Criteria Package in parallel to applying for certain permits required to commence construction of this project. The project will be bid out using the Design Criteria Package to a Design Build Firm (DBF). Permits not applied for by the Design Criteria Professional (Hazen and Sawyer) are the responsibility of the DBF selected to design and construct the project. The Construction Methodology presented in this document is an assumption based on past project experiences. Once the design criteria package is finalized and bid, the successful DBF will determine more specific construction methods based on the final design.

2.0 Introduction

The project consists of the installation via horizontal directional drill (HDD) of two HDPE pipelines: 1.) a 20-inch nominal diameter water main and 2.) a new 16-inch nominal diameter wastewater force main. The subaqueous pipelines are proposed to commence at Merle Fogg Park, cross the Intracoastal Waterway and terminate in the right-of-way for Las Olas Circle. The subaqueous portions of the proposed pipelines is approximately 700 linear feet for each pipeline as shown in the project plan and cross-sections, presented in this permit application. Tie-ins to the existing pipelines would be made at the uplands. The existing 16-inch water main pipe crossing will be capped and abandoned in place. Characteristics of the proposed installation are as follows:

- HDPE will be used in this project and is commonly used in HDD operations for its ability to withstand the construction loads imposed during pipe pulling operations.

- The DBF's drilling operation will be fully instrumented to record the drill force, torque, drill fluid pump rates, drill fluid use and loss during the drilling process. This information will be tracked and recorded and acts as a Quality Control check along with allowing for rapid assessment of unexpected drilling responses. The recorded data will be available for review on-site by the drill engineer.

- The down hole annular drill fluid pressure will be measured during pilot drilling operations and the data will be used by the drill engineer to compare with predicted values calculated based on drill fluid properties and drill hole geometry. This technique provides a proactive monitoring system that quickly responds to drill fluid loss from a drill hole in order for mitigating actions to be taken to reduce the risk for inadvertent drill fluid returns reaching sensitive, waterway habitat.

- Drill fluid management consisting of a dedicated drill fluid specialist (mud technician) to continually monitor drill fluid properties and provide the data to the drill superintendent for assessment.

- A drill superintendent will be on site at all times during the drilling and pipe installation operations to assess the data developed and adjust key installation parameters as necessary.

Based on preliminary geological studies and past HDD experience in this area, the bore path will be deep and likely located in sediments with intermittent soft to medium layers of rock and weathered rock.

3.0 HDD Methodology

The HDD process involves guiding a drill string along a design path to a desired exit point using tracking devices to locate the drill head and a steerable drill string. Construction using this process for this project is expected to include three primary phases: (1) drilling of the pilot hole; (2) enlargement of the pilot hole to accommodate the pipe diameter being installed; and (3) pipe pullback. The following provides a brief description of each drilling phase:

Pilot Hole Drilling – The pilot hole is drilled following a previously designed profile and alignment. Bentonite is used during the drilling, reaming, and pullback operations to reduce friction along the drill string, to remove cuttings and to balance the drill hole pressures to keep the bore hole stable. During the pilot hole drilling, a sophisticated directional guidance system is used to navigate the pilot hole along its pre-designed profile. The borehole is then reamed to the appropriate size and the product pipe is pulled.

Hole Enlargement – Once the pilot hole has been completed, it is enlarged by a reaming process. Reaming is required to provide a bore diameter large enough so that the pipeline can be installed in the drilled crossing. For installing the 20-inch nominal diameter pipe, a maximum bore hole size of up to 34 inches is desired. Up to a 28-inch bore hole size will be used for installation of the 16-inch nominal diameter pipe. The number of reaming passes will be based on the desired diameter and soil conditions encountered.

Pullback – Once the drilled hole has been enlarged to the required diameter and cleaned adequately (swabbed), the pipeline is installed. When applicable, the pipeline will be pre-assembled in a single string and placed on rollers prior to pullback. For pullback, a reamer is connected to the drill pipe. Behind the reamer a swivel is connected allowing the drill pipe to rotate the reamer without allowing the transfer of torque to the product pipe. For this project, HDPE pipe will be fused and staged as indicated per the construction staging.

Tracking - All of the above-grade work will occur outside of the Intracoastal Waterway. A tracking system will be used which does not require wires on the seafloor or above ground surface to track the progress of the drill. The tracking system will accurately measure the azimuth and inclination which provides the drilling crew a real-time survey of the drilling progress and facilitates corrective steering actions when necessary. During the pilot hole operation, the contractor will limit the torque and push/pull of the drill rig in order to not exceed the maximum allowable limits. The exact technology used for tracking will be selected by the DBF.

4.0 Construction Staging

The proposed construction method locates the main drill rig end of the bore path in Merle Fogg Park. The drill will require a relatively flat firm ground work pad with an area for staging and drilling. Trucks servicing the construction would be entering and leaving the staging area daily along owner-defined site access routes.

The Drill Entry Staging Area is anticipated to include the key elements described below:

Staging Area Conceptual Plan - Drill Entry Area

- Drill rig
- Drill fluid mud tank and cleaning/recycling system
- HDPE-lined drill cutting pit for containing drill cuttings from the recycling system
- Dumpster for containing trash (such as bentonite bags)
- Drill rig control house
- Drill pipe laydown and storage
- Bentonite delivery and storage
- Excavator for digging drill fluid containment pit and for loading drill pipe
- Tractor trailer tool storage and shop

The drill will enter the ground in the northwestern side of Merle Fogg Park. The vicinity of the project drill entry pit consists of flat, pervious land. The exit side of the bore is located in the right-of-way for Las Olas Circle. The vicinity of the project drill exit pit consists of flat, impervious land.

Pipe assembly is anticipated to take place in the green space on the north side of the drill exit pit. Assembly requires a relatively flat and secure work area for fusion welding and testing HDPE pipe. Refer to **Appendix B** for the approximate laydown area for HDPE pipe assembly and testing as shown in SK-2.

The Drill Exit Staging Area is anticipated to include the key elements described below:

Staging Area Conceptual Plan - Drill Exit Area

- Pipe Storage
- Fusion machine for HDPE assembly
- Excavator or backhoe for moving and supporting the pipe and for excavating the HDPE lined drill cutting holding pit
- Storage of portable equipment and erosion control and drill fluid spill equipment and materials such as a vac-truck for drill fluid clean up and containment.
- Backhoe for supporting the pipe during the installation process
- Pipe rollers

Bentonite drill fluid is used to cool the tracking equipment and to remove the drill cuttings from the bore. As such, the drill hole will be filled with drill fluid consisting of bentonite clay and water, with additives necessary to maintain drill fluid density. Additives may include several products produced by the manufacturer of the bentonite that are appropriate for maintaining the proper drill fluid consistency. At the drill rig, the drill fluid is contained within a pit located at the drill rod ground entry point. A small pit will then be excavated around the exit rod to contain drill fluids used during the reaming process. The contained fluid is typically pumped from the exit pit by a vacuum truck and the truck then transports the drill fluid back to the drill rig for recycling. After the first pipe has been installed, a temporary pipe may be installed inside the pipe for sending drill fluid from the exit to the main drill.

The DBF is responsible for the design of the project's staging areas.

5.0 Security

Both the drill entry and exit sites will be secured at all times with temporary construction fencing with privacy screen material to minimize the potential for vandalism. Entry gates will be locked when the sites are not active. The sites will be equipped with adequate lighting to deter vandalism during non-daylight hours when the facility is not in operation. The lighting will be sufficient to see evidence of a fluid spill after sundown. The DBF is responsible incorporate additional security measures as needed.

APPENDIX E

BENTHIC CHARACTERIZATION SURVEY

November, 2 2015

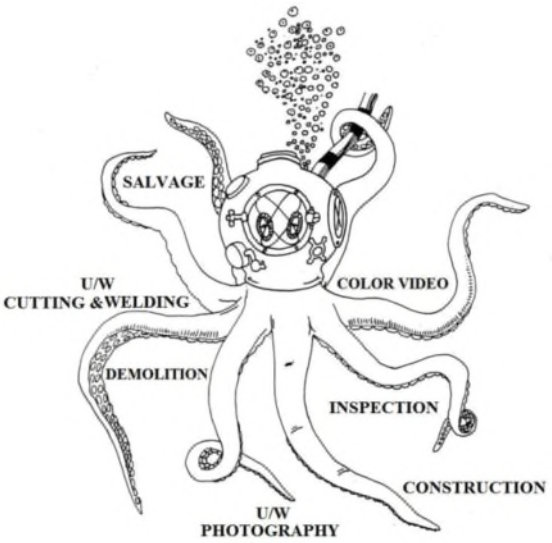
Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

Subject: Benthic Characterization Survey, September 2015	
Industrial Divers Corporation	**Page 1**

Benthic Characterization Survey

For Proposed Water Main Route

Across the ICWW at the New River Sound
Fort Lauderdale, Florida



Prepared for: Hazen & Sawyer
Environmental Engineers & Scientists
4000 Hollywood Blvd Suite 750N
Hollywood, FL 33021

Prepared by: Industrial Divers Corp., Inc.
2901 SW 3rd Ave, Suite 5
Fort Lauderdale, FL 33315
Tel: 954-523-2906
Fax: 954-525-6521

November 2, 2015

Contents

1.0 Introduction

Industrial Divers Corporation (IDC) was contracted by Hazen and Sawyer to conduct a benthic characterization survey for one proposed water main route across the ICWW in the area referred to as the New River Sound on current nautical charts. This proposed crossing is on the south side of the Las Olas Blvd. causeway bridge. Currently the City of Fort Lauderdale has an aging water main on the North side of Las Olas Blvd. Causeway Bridge. The proposed water main will be directionally drilled well below the bottom of the ICWW sea bed, unlike the much older sectional water main which was installed in an open cut ditch. The purpose of this survey is to identify biological resources which would be impacted by core boring locations, associated barge spud sites, and any potential drill mud spill, or other construction related activity that might impact the biological resources present at the proposed location.

Qualitative video data were collected, reviewed, and analyzed to identify substrate types and characterize benthic communities within a large proposed impact zone provided by Hazen and Sawyer to delineate the survey area. This entire survey area was investigated including adjacent areas to the south of the designated polygon boundaries, to include all of the ten Las Olas City Moorings. Fieldwork commenced on Monday 09/14/15 with the mobilization of the Dive Support Vessel (DSV). Fieldwork was completed on Monday 09/28/15 with the survey of the navigational channel using a video and sonar equipped ROV to investigate this part of the total survey area polygon, which is subject to a large volume of vessel traffic.

2.0 Methods

2.1 Video and Photographic Data

IDC has conducted the benthic characterization survey at the proposed Las Olas Blvd. water main crossing (directionally drilled) across the ICWW at New River Sound. The proposed site is a large polygon shaped area of sea bed bounded on the north side by Las Olas Causeway and Bridge; on the west side by a 125’ long pre-cast concrete sea wall running north/south from Guide Point #1 to Guide Point #2. The south boundary runs from Guide Point #2 at the south end of the west seawall shoreline 950’ to Guide Point #3 just south of the southern most of the Las Olas City Marina "T-piers”. From Guide Point #3 the south boundary of the survey polygon extends 200’ to Guide Point #4 on a steel sheet piling bulkhead which is the southeast corner point of the survey polygon. The east boundary of the survey polygon is the seawall that runs south from the Las Olas Blvd Bridge around the corner to the east and Guide Point #4. The total area encompassed in the survey polygon is 252,500 square feet. The latitude and longitude of the four Guide Points is included on Appendix A.

The survey was performed by a surface supplied diver/biologist R.P. Galletta with a communications equipped dry diving helmet. The survey transects were documented using a Sony HDR-SR12 camcorder in a Light and Motion Bluefin housing. The same camera was used for the video transects and the HD photographs taken to document the biological resources and benthic habitats observed. SOLA Video 2500F lights were used to enhance the video and photographs where low light conditions where encountered. Marine Biologist B.

Ettinger was in communication with the survey diver at all times observing the transect runs from the surface, logging the DGPS data, depth, sediment type, and benthic community type. D. Gillis provided for tending the diver and stand by diver. Captain Alex Galletta provided for DSV operations and Hypack/Trimble DGPS tracking of the transects. The large square foot area of the survey polygon and the presence of the ICWW navigation channel crossing the middle of the polygon from north to south, from the bridge, made the surface supplied method with communications essential for the safety of the dive team. The segment of the survey polygon which encompasses the navigation channel bottom was surveyed by the use of a Video Ray ROV with HD Camera and sonar capabilities. The east side of the ICWW channel to the Las Olas Marina sea wall including the boat slips, right up to the sea wall was surveyed 9/15/15 and 9/16/15. The west side of the channel and the Las Olas City Moorings areas was surveyed 09/17/15. The hard bottom edge mapping on both sides of the ICWW channel was completed on 09/17/15. The survey of the ICWW navigation channel bottom was completed on 9/28/15.

2.2 DGPS Mapping & Transects

Appendix B depicts the DGPS mapping of the perimeters of three benthic habitats. Type 1, shown in green, is the large high-density seagrass beds on soft sand substrate composed of Halophila johnsonii. Type 6, shown in brown, is the much smaller low-density Halophila johnsonii beds which were observed on a softer mud and sand mixed substrate. Type 2, shown in red, is the DGPS mapped hard bottom habitat which is composed of a vertical limestone ledge, 1' – 2.5' in vertical profile, topped with a limestone hard bottom which has accumulated loose rubble on top of it. The hard bottom and rubble is colonized by macro algae and sessile invertebrates such as hydrozoa and bryozoa. No sea grasses, stony corals, or octocorals were observed on this hard bottom habitat. The other habitats listed in this report were not mapped at all. The Type 4, shown in orange, riprap habitat, which is limestone gravel with macro algae, filamentous algae, and sessile invertebrates was observed during the survey to start along the west seawall and is continuous all along the seawall around the peninsula to the west bridge abutment. The same habitat was observed on the east side seawall in a narrow band extending from the toe of the vertical structure out a distance of 4 to 6 feet in depths ranging from a minimum of 4' to a maximum of 6' on the west side of the polygon and from a minimum of 5' to a maximum of 8' on the east side. This habitat is a sloped pile of limestone rocks ranging from 1' - 2' in diameter. The beginning and end points were marked but not mapped with DGPS. The Type 3, Type 5, and Type 7 habitats in Table 1 were not mapped with DGPS.

The bottom survey was conducted by visual survey. The visual survey was conducted with a series of transects run by a surface supplied diver with all data transmitted via hardwire communications to a data logger topside on the boat. The boat was tied securely to the dock or moored to the Las Olas Moorings during this

phase of the field work. These mooring locations that were used during the survey transects are provided in Table 3. The divers position and location on each transect run was controlled by the tenders topside communicating with the data logger on the diver's radio. The diver's bubbles reliably locate the diver's position. The diver's umbilical is marked with colored tape measurements in 10' increments. The transect arcs were run on 10' centers. Visibility on the bottom was sufficiently good to see horizontally up to 10' in every direction. The diver remained on the bottom at all times. The transects overlap and extend south of the actual polygon perimeter to ensure complete coverage.

The transects were not mapped individually by DGPS because the DGPS antenna would have to be towed by the diver the entire time, which would severely limit the areas that could be covered by each transect. The size of the area would require anchoring in the seagrass bed or live boating that would follow the diver with the boat under power. Live boating in a body of water with significant current and heavy vessel traffic would be unsafe and inefficient for the purpose of having DGPS track lines for the transect runs. The transects run by tended surface supplied diving with communications method allowed the large area to be covered and the edges of the 3 habitat types to be located for subsequent mapping. Some transects and mapped perimeters are continuously documented with video but not all of the transects and perimeters are continuously documented on video due to the very large amount of video data that would result from the 20 hours of bottom time consumed in covering the area encompassed by the survey polygon. HD photographic documentation was performed to provide documentation of the typical benthic types encountered in a more detailed and close up format than the video format provides.

2.3 Data Analysis

The large size of the survey polygon and the discovery of extensive dense seagrass beds in all of the surveyed areas except for the ICWW navigation channel, and parts of the Las Olas City Moorings, has required IDC to break the survey area into discrete "shaded" subsets or "grass beds" and map the perimeter of these areas. Where the perimeter mapping lines are adjacent or overlapping the sea grass coverage is continuous and uninterrupted. Where the shaded subsets are not continuous between grass beds the sea grass is completely absent or in an extremely low density. The presence of small pieces of broken drifted seagrass in these extremely low density areas along with masses of drifted macro algae and other flotsam and debris is typical of what was found in the Las Olas City Moorings where patches of very soft mud sediments were found. The field data including the video, photographs, and mapped perimeter lines were reviewed to identify substrate types and characterize biological communities. Substrate was found to be a key determinate in the type of biological community found. Water quality was similar in all of the locations. Available light varied directly with depth, but because most of the areas in the survey polygon were between 8 and 12 feet; except right along the sea wall where depth was 4 to 8 feet, and the centerline of the navigation channel where depth was 12'-14'; the variation in the available light to the benthic biological community did not vary much. The following categories combine the bottom sediment type with the biological community because this association was found to be pervasive in this surveyed area.

Types

1. Predominantly sand with less than 10% shell/rock rubble with a dense coverage of the sea grass, Halophila johnsonii, (referred to as sea grass bed), 8' - 11' depth. (Green on Appendix C)
2. Exposed limestone hard bottom with coarse limestone rubble on top, covered with attached macro algae. ICWW Channel margins, 10' - 12' depth. (Red on Appendix C)
3. Sand bottom with very small thin patches of Halophilia sp.; ICWW navigation channel with highest water flow rates and greatest depth 11' - 14' depth. (Blue on Appendix C)
4. Seawall or bulkhead margins with limestone rip rap slopes from 4'-8' depth. (Orange on Appendix C)
5. Soft sediment mud bottoms with debris, loose drifted macro algae and small amounts of drifted broken Halophilia sp., 4' – 10' depth. (Gray on Appendix C)
6. Sand and mud mixed substrate with thin patchy Halophilia sp. coverage, 6' – 8' depth. (Brown on Appendix C)
7. Sand with rubble patches around the bridge piers, piles, fenders, and other structures. Shaded by the bridge and structures, and subjected to scouring currents. These areas had no seagrass coverage. Patchy macro algae and sessile invertebrates were found on the rubble and structures. (No color designation on Appendix C)

3.0 Results

The locations of seagrass beds with a high density of continuous coverage of the Type-1, (green) benthic habitat which has a sandy bottom with a depth range of 8' – 10' was also the largest area in the survey polygon. On the East side of the ICWW the entire area with the exception of the hard bottom edge of the channel (Type-2, red), the areas along the sea walls, (Type-4, orange); under the finger dock pier, T-pier, bridge fender system, and bridge structure (all Type 7, no color designation), was covered by a dense growth of the seagrass Halophila johnsonii. The same Type 1 benthic habitat was found on the west side of the ICWW channel well into the Las Olas City Moorings (10 mooring buoy locations). The first and second row Moorings #10-#5 were all in this zone. Moorings #4-#1 were west of this Type-1 seagrass bed. This second large area described was similar to that on the east side of the ICWW because it also included a narrow band of hard bottom edge and associated rubble with macro algae along the ICWW channel edge (Type-2). The west side sea grass bed was also similar in the way it thinned out and disappeared to the north, close to the Las Olas Bridge structures, and fender system (Type-7). This large sea grass bed on the west side of the ICWW channel is twice the size in area as the one on the East side, and also transitions into a Type-4 zone of rip rap all along the old concrete sea wall that runs from the bridge abutment on the west side of the bridge around a noticeable peninsula shaped utility easement or swale that is on the south side of the Las Olas Causeway. Both of these large dense sea grass beds were substantially continuous without significant breaks. This is clearly observable in the extensive video footage documenting these areas. The two large Type 1 are areas were surveyed and mapped as several patches due to the large size of each patch but the mapped edges of the patches are either adjacent and contiguous or overlapping. These two large sea grass beds are segregated by a markedly different zone which is the deeper ICWW navigational

channel between the two narrow strips of Type-2 hard bottom on either side of the channel. This Type-3 (blue) benthic zone has a sandy bottom with very small sparse patches of Halophilia johnsonii right along the inside edge of the hard bottom edge but nothing but light tan medium grain sand along most of this channel bottom. Tidal flows elicit visible evidence of periodic scour and deposition in this area of dynamic bottom sediments. The two large sea grass beds are similar in sediment type which is fine tan sand with less than 10% shell and rock rubble with a uniform depth of 8’ to 10’ in depth. Both areas are subject to very similar tidal water movement, water quality, and isolation (light penetration), macro algae and sessile invertebrates were observed only on isolated rocks or small pieces of rubble. The fine sand is quite soft and not compacted at all but is sufficiently scour resistant to provide a good substrate for Halophilia johnsonii. No other sea grass Genera were observed at all. No other species of Halophilia is suspected because the sea grass observed was consistent with the description in the NOAA Fisheries Office of Protected Resources website. “The Johnson’s sea grass can be identified by its smooth margins, spatulate leaves in pairs, a creeping rhizome with petioles, sessile female flowers, and long necked fruits. Male flowers are unknown.” HD photographs and video documentation confirm the identity of the sea grass observed in the surveyed area, and referred to in this report as sea grass beds. This Type 1 habitat encompasses over 50% of the area surveyed in the survey polygon.

The other significant benthic habitat observed is described in this report as a Type-2. It is observed as a hard bottom edge along the sides of the ICWW navigation channel. This long narrow margin of exposed hard bottom is delineated by a sharp vertical ledge that is 1’ - 2.5’ in vertical relief with soft coarse sand toward the channel centerline (Type 7), and tapers into the sandy sea grass bed that abuts this small strip of hard bottom on either side of the channel. This strip varies from only 3’ wide to no more than 10’ wide at the widest point. The hard bottom strip does not extend north to the bridge. The north end of both of the hard bottom patches was mapped and observed to end well south of the bridge

on both sides of the channel. North of the hard bottom patches the channel edges were observed to be a sandy slope which has very little sea grass coverage below 10 feet of water. The hard bottom is either buried under the sand or was dredged out by the bridge construction many years ago. This hard bottom in this area appears at first to be a rubble and macro algae patch but under the thin rubble and macro algae, the limestone hard bottom is apparent close to the edge of the channel where it was broken and dredged out when the ICWW was created. This Type-2 (red) habitat encompasses 5% of the areas surveyed in the survey polygon.

The next significant benthic habitat is a thin patchy sea grass bed which is found in the west part of the Las Olas Moorings to the west of the Type-1 sea grass bed. It is described here as Type-6 (brown). This area is a mud and sand mixture with just enough firmness to support thin patchy sea grass with a uniform depth of 6-8 feet. This area is in a zone of much lower tidal water flow because it is in a pocket shaped cove on the west side of the New River Sound south of the Las Olas Causeway where the Las Olas Moorings #1-4 are located. The sea grass observed is Halophilia johnsonii, no other sea grass Genera were observed. Some soft sediment macro algae were observed mixed in with the Halophilia sp. in this area. This Type-6 habitat encompasses 10% of the surveyed area.

The ICWW channel area which is classified as a Type-3 (blue) habitat is a rectangular box within the survey polygon with the long axis north to south. This benthic zone is uniformly medium grain sand, with very little sea grass or macro algae and has the highest velocity water movement and the greatest depth 10-14 feet. This Type-3 habitat encompasses 10% of the total surveyed area.

The benthic habitat west of the Las Olas Moorings and including the areas around Moorings #1 and #2 is of the Type-5 (gray) soft sediment mud bottom. Water movement and circulation patterns are slow and patches of drifted decaying macro algae, white

fungus or bacterial slime; and leaf litter lawn clippings and tree debris were observed; no sea grasses or macro algae were observed. This location is well into the pocket or cove on the west side of the surveyed area south of the bridge. The water depth is shallower, 4-8 feet in depth. This Type-5 habitat encompasses 10% of the surveyed area.

The benthic habitat referred to Type 4 (orange) is a consistent band of rip rap rubble that extends from the toe of all of the vertical sea walls and bulkheads out a distance of 3-6 feet and is characterized by a slope of loose limestone rip rap of 1-2 feet diameter rocks covered with macro algae, filamentous algae and encrusting invertebrates. No sea grasses were observed in this benthic habitat. The Type-4 long narrow margin adds up to five percent of the surveyed area.

The last benthic habitat referred to is Type-7 (no color designation), and includes all of the areas south of the bridge right up to the bridge piles, fender system, boat docks, finger piers and boat slips. The bottom here is sandy with patches of rubble and debris around the bases of the piles and structures. The structures and piles create enhanced bottom scour and rubble deposition and these areas do not support sea grasses. These areas are also shaded by boats, docks, piles, piers, and the bridge. No sea grasses were observed in the boat slips on the sand bottoms. Rubble rocks and debris patches were colonized by filamentous algae and sessile invertebrates with very little macro algae observed. These Type-7 habitats encompass 10% of the total surveyed areas.

4.0 Summary

IDC has completed a benthic characterization survey at the proposed Las Olas Blvd Causeway water main crossing. The dive team documented and mapped two extensive, dense, sea grass beds of Halophilia johnsonii on either side of the barren ICWW channel that total at least 50% of the total area of surveyed polygon. The dive team has documented and mapped two similar long narrow strips of exposed limestone hard bottom running parallel to the axis of the ICWW channel on either side of the channel. The well defined edge was marked with only 5% of the total surveyed area. The hard bottom is covered in loose rubble and macro algae. No stony corals, octocorals, or sea grasses were observed. The other bottom type/ benthic habitats observed documented and mapped were detailed in section 3.0. These included barren mud bottom at the west end of the survey polygon; rip rap slopes along the toe of the sea walls; shaded and scoured zones along the bridge and docks on the north and east perimeter of the survey polygon which is totaled up to 25% coverage. When the barren ICWW channel bottom is included the total comes up to 35%. The remaining 10% of surveyed polygon is a transitional area of thin patchy sea grass coverage on a muddy sand bottom around the Las Olas Moorings #3,#4, and #5 between the high density areas to the east and the barren mud bottom in the west end of the cul-de-sac cove west of the Las Olas Moorings. This transitional area referred to as Type 6 includes long narrow strips of thin patchy Halophilia johnsonii sea grasses. These areas were observed along the west end sea wall and the northwest corner of the polygon along the old sea wall that forms the peninsula shaped projection on the South West side of the Las Olas Blvd. Bridge. The combined total of the three habitats: Type 1; Type 2; and Type 6, which are seagrass beds and hard bottom patches total 65% of the total surveyed area polygon.

5.0 Tables

5.1 Table 1 – Typical Photos

Image	Description	Habitat Type	Color Designation
1	Close up view of *Halophila johnsonii*	Type 1	Green
2	Typical exposed hard bottom limestone rubble with macro algae	Type 2	Red
3	Typical seagrass beds documented	Type 1	Green
4	Typical mud bottom areas with debris and drift macro algae (Las Olas City Moorings)	Type 5	Gray
5	Typical mud sand with thin patchy *Halophila johnsonii*	Type 6	Brown

5.2 Table 2 – Benthic Habitat Type & Color Code for Appendices

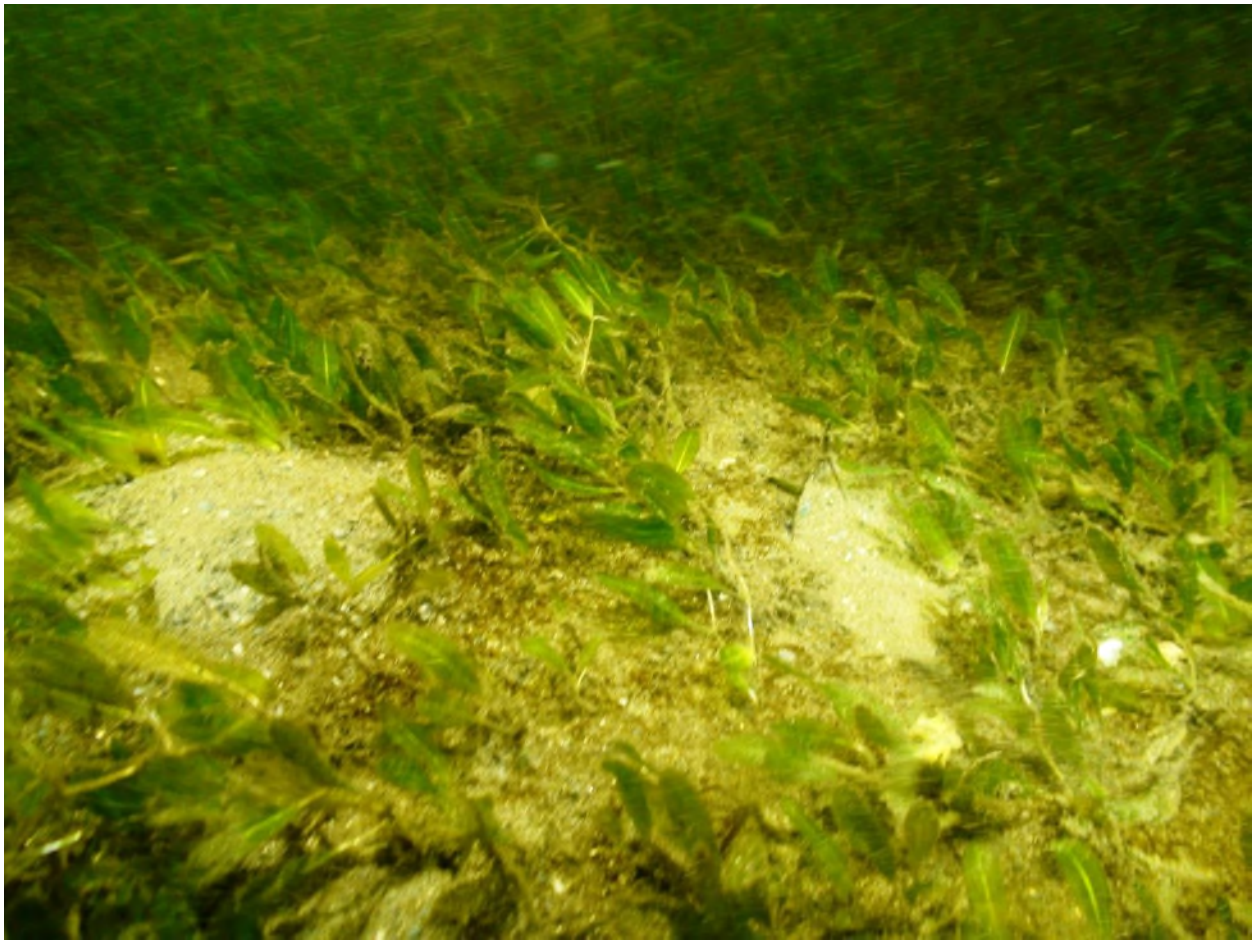
Type	Description	Color Designation	Percent Coverage
Type 1	Dense Seagrass Bed *Halophila johnsonii*	Green	50
Type 2	Hard Bottom with rubble and macro algae	Red	5
Type 3	ICWW Channel Bottom mobile sand sediment	Blue	10
Type 4	Rip Rap on Seawall and Bulkheads with macro algae and sessile invertebrates	Orange	5
Type 5	Typical mud and sand with thin patchy *Halophila johnsonii*	Gray	10
Type 6	Mud Bottom with drift algae and debris	Brown	10
Type 7	Sand with Rubble Patches around bridge, structures piles and piers	No color designation	10

5.3 Table 3 – DSV Mooring Location During Diver Transects and ROV Operations

Map Designation	Description	Latitude	Longitude
A	First anchor 091615	26.11896832 N	80.1085824 W
B	Second anchor 091615	26.11870985 N	80.10858567 W
C	Third anchor 091615	26.11949412 N	80.10982565 W
D	Fourth anchor 091615	26.11884579 N	80.10979795 W
E	First anchor 091715	26.11955104 N	80.11020447 W
F	Second anchor 091715	26.11897788 N	80.11010285 W
G	Third anchor 091715	26.11936202 N	80.11077688 W
NW	Channel Marks	26.11897294 N	80.10924068 W
SW	Channel Marks	26.11869084 N	80.10925888 W
SE	Channel Marks	26.118583 N	80.10876936 W
NE	Channel Marks	26.1190127 N	80.10880136 W

6.0 Typical Photos

6.1 Photo 1 - Type 1 - Typical Seagrass Bed



Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

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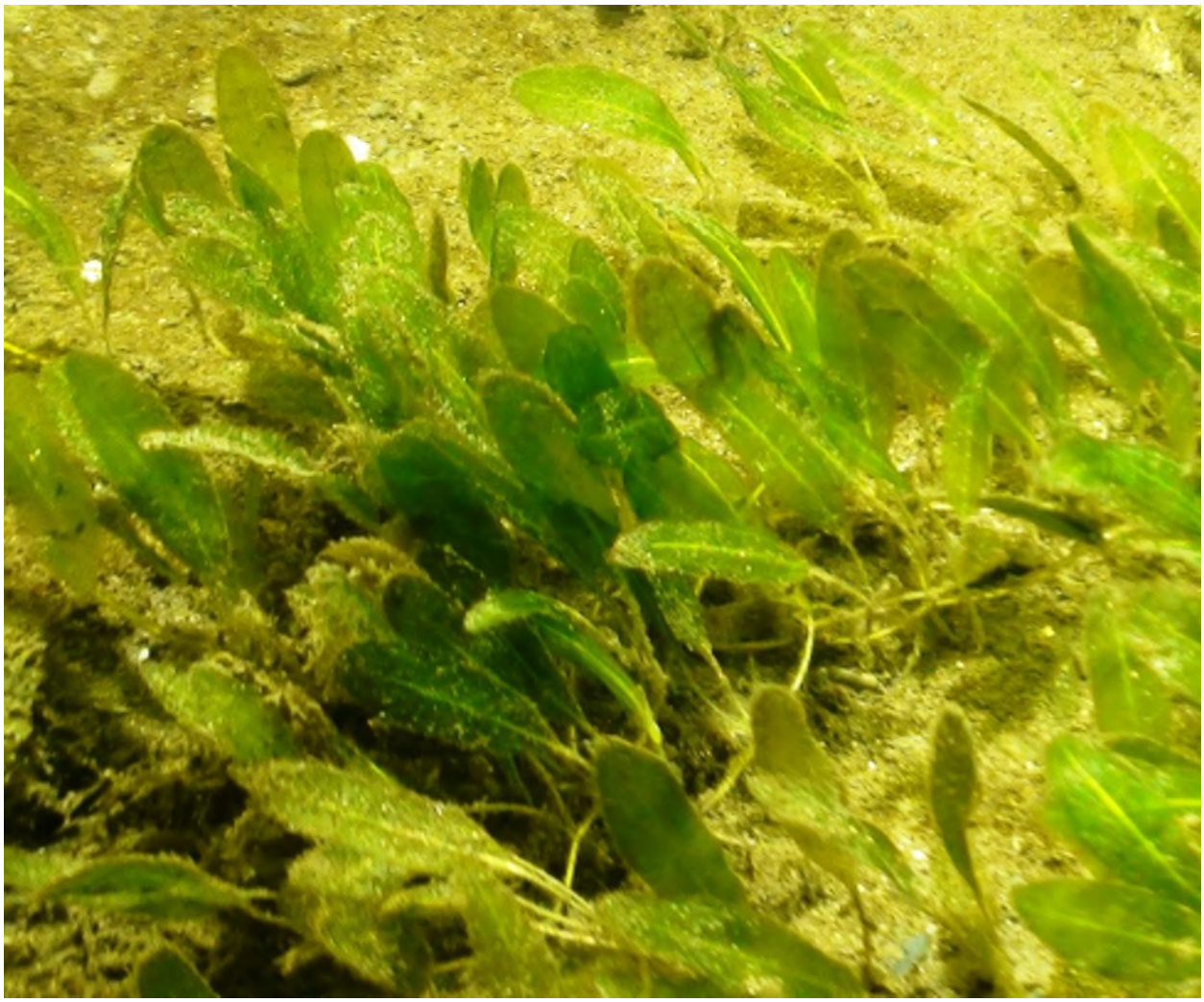
6.2 Photo 2 - Type 1 Close up Halophila johnsonii



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6.3 Photo 3 - Typical Type 2

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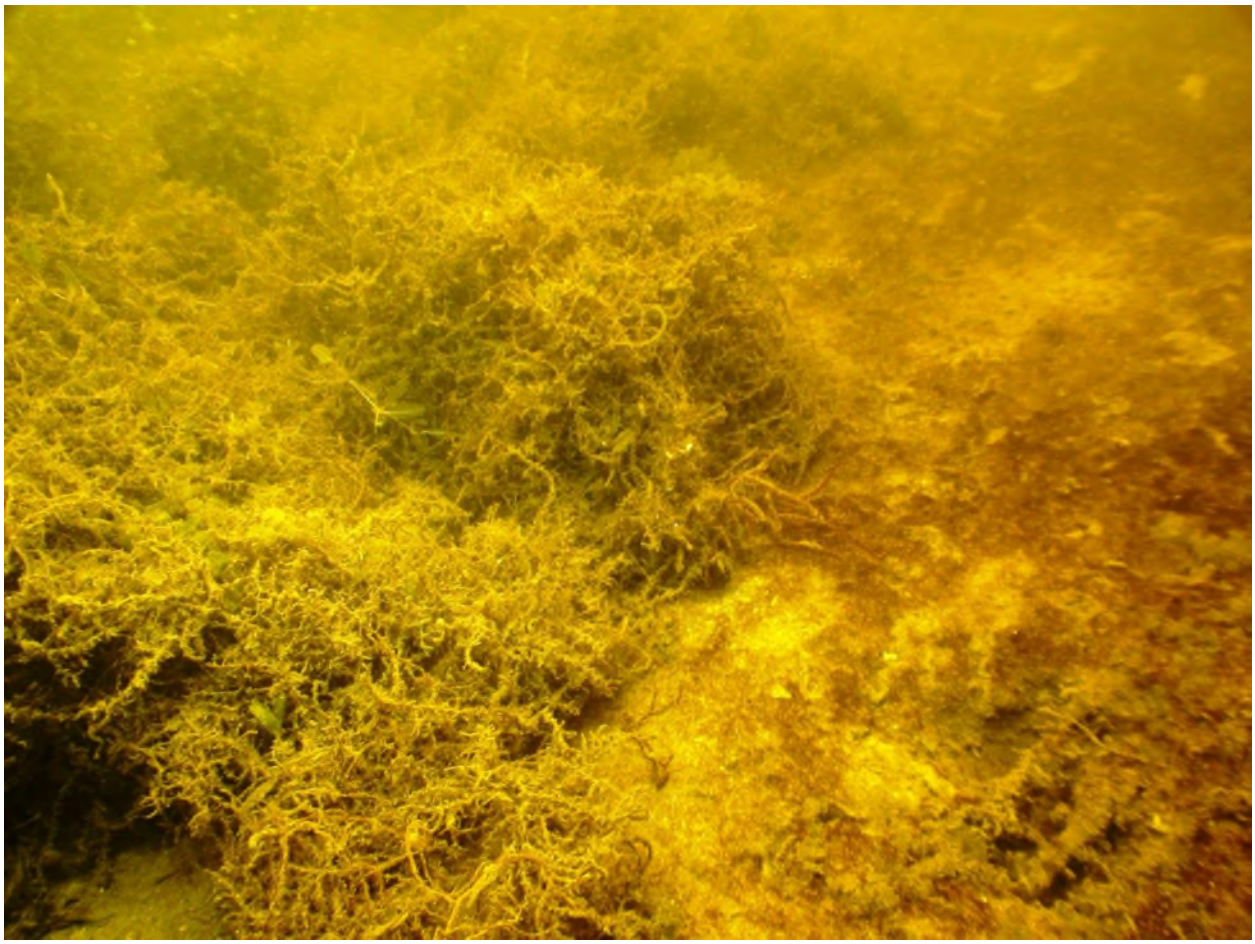
6.4 Photo 4 - Typical Type 5



Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

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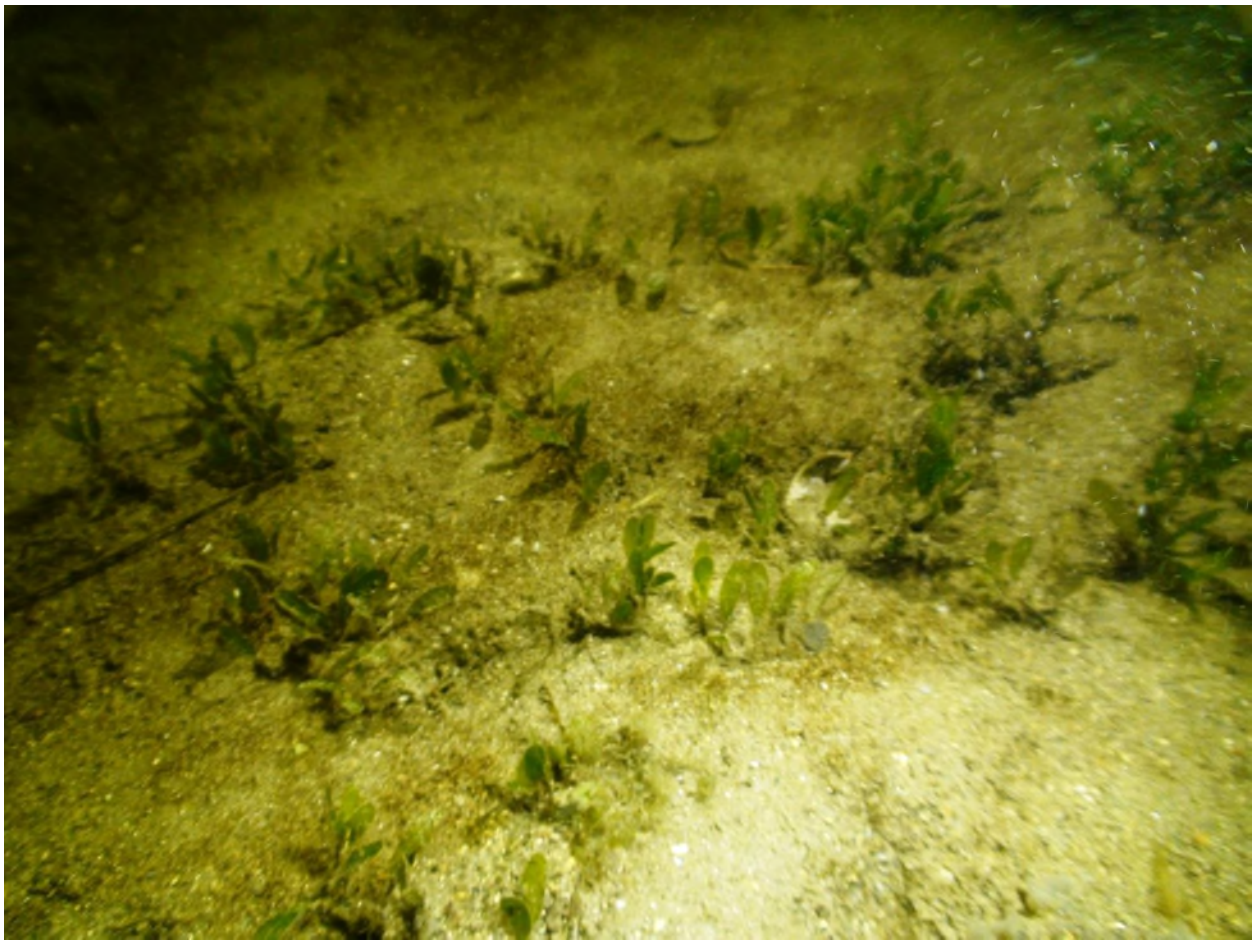
6.5 Photo 5 - Typical Type 6



Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

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Appendix A – Project Site Location

Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

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Appendix B – DGPS Track Lines

Legend:

- Survey Polygon
- Proposed Pipeline
- Type 1
- Type 2
- Type 6

Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

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Appendix C – Color Coded Benthic Habitat Types

Legend:

- Proposed Pipeline
- Type 1
- Type 2
- Type 3
- Type 4
- Type 5
- Type 6

Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

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Appendix D – Bathymetric Data Overlay for Survey Polygon Area

Legend:

Bathymetric Contour Lines

Proposed Water Main Route Across the ICWW at the Las Olas Blvd. Causeway (New River Sound)

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Appendix E – Transect Search Pattern Used with DSV Mooring Locations, Logged with DGPS Track Line Data

Legend:

- Survey Lines
- A - G: DSV Mooring Sites

APPENDIX F

CONSTRUCTION SCHEDULE

CITY OF FORT LAUDERDALE

WATER MAIN RELOCATION AND NEW WASTEWATER FORCE MAIN AT LAS OLAS BLVD.

ESTIMATED CONSTRUCTION SCHEDULE

Prepared by: George Brown

Prepared on: February 1, 2016

Task No.	Description	Estimated Duration (months)	Schedule												
			2016							2017					
			Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
	Design	4													
	Construction	5													
	Substantial Completion	Milestone													
	Punch list and Site Cleanup	1													
	Final Completion	Milestone													

Notes:
1. This project will be procured through a design/build procurement process.

2. Contractor to be determined following bid of the project documents by the City of Fort Lauderdale. Estimated project bid date is approximately May 2016.

APPENDIX G

LAND OWNERSHIP SUMMARY

LAND OWNERSHIP SUMMERY

City of Fort Lauderdale Water Main Relocation and New Wastewater Force Main at Las Olas Blvd.

Adjoining Property Information - City of Fort Lauderdale Parking Lot (1/3):

FOLIO:	504212340020
OWNER:	CITY OF FORT LAUDERDALE
SITUS ADDRESS:	240 E LAS OLAS CIR FORT LAUDERDALE 33316
LEGAL:	LAS OLAS DEL MAR I 147-20 B PARCEL B
MILLAGE CODE:	0312
USE CODE:	89

LORI PARRISH BROWARD COUNTY PROPERTY APPRAISER

Site Address	300 LAS OLAS CIRCLE, FORT LAUDERDALE	ID #	5042 12 34 0020
Property Owner	CITY OF FORT LAUDERDALE	Millage	0312
Mailing Address	100 N ANDREWS AVE FORT LAUDERDALE FL 33301	Use	89

Abbreviated Legal Description	LAS OLAS DEL MAR I 147-20 B PARCEL B

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

Property Assessment Values
Click here to see 2015 Exemptions and Taxable Values as reflected on the Nov. 1, 2015 tax bill.

Year	Land	Building	Just / Market Value	Assessed / SOH Value	Tax
2016	$3,847,530	$134,890	$3,982,420	$3,982,420	
2015	$3,847,530	$134,890	$3,982,420	$3,982,420	
2014	$3,847,530	$134,890	$3,982,420	$3,982,420	

IMPORTANT: The 2016 values currently shown are "roll over" values from 2015. These numbers will change frequently online as we make various adjustments until they are finalized on June 1. Please check back here AFTER June 1, 2016, to see the actual proposed 2016 assessments and portability values.

2016 Exemptions and Taxable Values by Taxing Authority

	County	School Board	Municipal	Independent
Just Value	$3,982,420	$3,982,420	$3,982,420	$3,982,420
Portability	0	0	0	0
Assessed/SOH	$3,982,420	$3,982,420	$3,982,420	$3,982,420
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 14	$3,982,420	$3,982,420	$3,982,420	$3,982,420
Taxable	0	0	0	0

Sales History

Date	Type	Price	Book/Page or CIN

Land Calculations

Price	Factor	Type
$55.00	69,955	SF
Adj. Bldg. S.F. (Card, Sketch)		

Special Assessments

Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
X								
1								

Adjoining Property Information - Merle Fogg Park (2/3):

FOLIO:	504212000090
OWNER:	CITY OF FORT LAUDERDALE
SITUS ADDRESS:	E LAS OLAS BLVD FORT LAUDERDALE 33316
LEGAL:	12-50-42 THAT PT OF BOTTOM OF NEW RIVER SOUND AS DESC'D IN OR 2611/314 & THAT PT LYING W OF NEW RIVER
MILLAGE CODE:	0312
USE CODE:	94

LORI PARRISH BROWARD COUNTY PROPERTY APPRAISER

Site Address	E LAS OLAS BOULEVARD, FORT LAUDERDALE	ID #	5042 12 00 0090
Property Owner	CITY OF FORT LAUDERDALE	Millage	0312
Mailing Address	100 N ANDREWS AVE FORT LAUDERDALE FL 33301	Use	94

Abbreviated Legal Description	12-50-42 THAT PT OF BOTTOM OF NEW RIVER SOUND AS DESC'D IN OR 2611/314 & THAT PT LYING W OF NEW RIVER SOUND AS DESC'D IN OR 1417/566 & THAT PT LYING E OF NEW RIVER SOUND AS DESC'D IN OR 1275/403, ALL LYING IN NE 1/4 OF SEC 12, LESS THEREFROM P/P/A "LAS OLAS DEL MAR I" & INTERNATIONAL SWIMMING HALL OF FAME COMPLEX

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

Property Assessment Values
Click here to see 2015 Exemptions and Taxable Values as reflected on the Nov. 1, 2015 tax bill.

Year	Land	Building	Just / Market Value	Assessed / SOH Value	Tax
2016	$288,130	$27,850	$315,980	$315,980	
2015	$288,130	$27,850	$315,980	$315,980	
2014	$288,130	$27,850	$315,980	$315,980	

IMPORTANT: The 2016 values currently shown are "roll over" values from 2015. These numbers will change frequently online as we make various adjustments until they are finalized on June 1. Please check back here AFTER June 1, 2016, to see the actual proposed 2016 assessments and portability values.

2016 Exemptions and Taxable Values by Taxing Authority

	County	School Board	Municipal	Independent
Just Value	$315,980	$315,980	$315,980	$315,980
Portability	0	0	0	0
Assessed/SOH	$315,980	$315,980	$315,980	$315,980
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 14	$315,980	$315,980	$315,980	$315,980
Taxable	0	0	0	0

Sales History

Date	Type	Price	Book/Page or CIN

Land Calculations

Price	Factor	Type
$0.51	48,301	SF
$20.00	13,175	SF
Adj. Bldg. S.F. (Card, Sketch)		

Special Assessments

Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
X								
1								

Adjoining Property Information - Open Lot (3/3):

FOLIO:	504212070030
OWNER:	FORT LAUDERDALE COMMUNITY REDEVELOPMENT AGENCY
SITUS ADDRESS:	LAS OLAS CIR FORT LAUDERDALE 33316
LEGAL:	MOONEY POINT 3-28 B LOT 2,4
MILLAGE CODE:	0312
USE CODE:	80

Site Address	LAS OLAS CIRCLE, FORT LAUDERDALE
Property Owner	FORT LAUDERDALE COMMUNITY REDEVELOPMENT AGENCY
Mailing Address	PO BOX 14250 FORT LAUDERDALE FL 33302

ID #	5042 12 07 0030
Millage	0312
Use	80

Abbreviated Legal Description	MOONEY POINT 3-28 B LOT 2,4

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

Property Assessment Values
Click here to see 2015 Exemptions and Taxable Values as reflected on the Nov. 1, 2015 tax bill.

Year	Land	Building	Just / Market Value	Assessed / SOH Value	Tax
2016	$1,286,150		$1,286,150	$1,286,150	
2015	$1,286,150		$1,286,150	$1,286,150	
2014	$1,286,150		$1,286,150	$1,286,150	

IMPORTANT: The 2016 values currently shown are "roll over" values from 2015. These numbers will change frequently online as we make various adjustments until they are finalized on June 1. Please check back here AFTER June 1, 2016, to see the actual proposed 2016 assessments and portability values.

2016 Exemptions and Taxable Values by Taxing Authority

	County	School Board	Municipal	Independent
Just Value	$1,286,150	$1,286,150	$1,286,150	$1,286,150
Portability	0	0	0	0
Assessed/SOH	$1,286,150	$1,286,150	$1,286,150	$1,286,150
Homestead	0	0	0	0
Add. Homestead	0	0	0	0
Wid/Vet/Dis	0	0	0	0
Senior	0	0	0	0
Exempt Type 15	$1,286,150	$1,286,150	$1,286,150	$1,286,150
Taxable	0	0	0	0

Sales History

Date	Type	Price	Book/Page or CIN
11/25/1992	QC*	$100	20214 / 314
11/25/1992	QC*		20214 / 311
11/25/1992	WD*	$1,442,700	20214 / 308

* Denotes Multi-Parcel Sale (See Deed)

Land Calculations

Price	Factor	Type
$45.00	28,581	SF
Adj. Bldg. S.F.		

Special Assessments

Fire	Garb	Light	Drain	Impr	Safe	Storm	Clean	Misc
03								
X								
1								

CAM #16-0742
EXHIBIT 1
Page 268 of 571

APPENDIX H

PROPOSED METHOD FOR PROTECTION

OF WATER QUALITY

FOR DIRECTIONAL BORED WATER CROSSINGS

Proposed Method for Protection of Water Quality
For Directional Bored Water Crossings

City of Fort Lauderdale
Water Main Relocation and New Wastewater Force Main at Las Olas Boulevard

1.0 Project Background

The City of Fort Lauderdale currently owns and operates a 16-inch diameter subaqueous water main located on the north side of the Las Olas Boulevard Bridge crossing the Intracoastal Waterway. The location of this subaqueous water main is scheduled to be dredged as a part of the Intracoastal Waterway Deepening Project as proposed by the Florida Inland Navigation District (F.I.N.D.), FDEP Permit No. 06-0283683-002 and USACE Permit No. SAJ-2009-03523. The City of Fort Lauderdale plans to abandon this 16-inch water main and in turn replace it with a 20-inch nominal diameter water main that will be constructed on the south side of Las Olas Boulevard Bridge. In addition to the new water main, the City of Fort Lauderdale is proposing a new 16-inch nominal diameter wastewater force main, also to be to be located on the south side of Las Olas Boulevard Bridge. Both of these subaqueous pipelines will be constructed by means of Horizontal Directional Drilling (HDD).

Given that this project is to meet a strict schedule to complete construction prior to the start of any dredging in the area as scheduled by the Intracoastal Waterway Deepening Project, the City of Fort Lauderdale is developing the Design Criteria Package in parallel to applying for certain permits required to commence construction of this project. The project will be bid out using the Design Criteria Package to a Design Build Firm (DBF). Permits not applied for by the Design Criteria Professional (Hazen and Sawyer) are the responsibility of the DBF selected to design and construct the project. This document is to be reviewed and implemented by the DBF awarded the project.

2.0 Introduction and Purpose

HDD operations have the potential to release drilling fluids into the surface environment through inadvertent returns or “frac-outs”. A frac-out is a situation where drilling fluids or mud is released through fractured subsurface formations out of the bore path, into the surrounding subsurface and travels toward the surface. Drilling mud consists mostly of bentonite clay, a soda ash water mixture, and as such, is not classified as a toxic or hazardous substance. However, if drilling mud is released into water bodies, bentonite does have the potential to adversely impact fish and invertebrates. While drilling fluid seepage associated with a frac-out is most likely to occur near the bore entry and exit points where the drill head is shallow, frac-outs can occur in any location along a directional bore path.

This document presents the proposed method for protection of water quality during construction of subaqueous pipelines. The DBF is to establish operational procedures and responsibilities for the prevention, containment, and clean-up of frac-outs associated with any proposed directional

drilling project. All DBF personnel including the project manager, drilling company personnel, the marine biologist, and the emergency response dive team must adhere to this document during HDD operations.

The specific objectives of the DBF are to:

- Minimize the potential for a frac-out associated with HDD activities;
- Provide for timely detection of frac-outs;
- Protect the environmentally sensitive surface waters and residing habitats;
- Ensure organized, timely, and minimal-impact response in the event of a frac-out; and
- Ensure that all appropriate notifications are made immediately to federal, state, and local regulatory agencies such as the United States Army Corps of Engineers (USACE), Florida Department of Environmental Protection (FDEP), and Broward County Environmental Protection and Growth Management Department (BCEPGMD), and the City of Fort Lauderdale.

3.0 Project Details and Site-Specific Conditions

- The project consists of the installation via horizontal directional drill (HDD) of two HDPE pipelines: 1.) a 20-inch nominal diameter water main and 2.) a new 16-inch nominal diameter wastewater force main. The subaqueous pipelines are proposed to commence at Merle Fogg Park, cross the Intracoastal Waterway and terminate in the right-of-way for Las Olas Circle. The subaqueous portions of the proposed pipelines is approximately 700 linear feet.
- The City of Fort Lauderdale owns the uplands that the HDD impact.
- Depth of water along the directional bore path varies from approximately 4 feet to 15 feet.
- Boring depths for the water main and wastewater force main are conceptually illustrated in the drawings included in this permit application. It is noted that these drawings were prepared for bidding to a DBF and are conceptual in nature. The DBF is responsible for the design of the HDD.

4.0 Best Management Practices

The DBF will implement the following Best Management Practices (BMPs) to minimize the potential for adverse environmental impacts during activities:

- BMPs for erosion control within the staging area shall be implemented and maintained at all times during the drilling and back-reaming operations to prevent siltation and turbid discharges in excess of State Water Quality Standards pursuant to Rule 62-302, F.A.C.

- BMPs shall include, but are not limited to, the immediate placement of turbidity containment devices such as turbidity screen, silt containment fence, hay bales, and earthen berms, etc. to contain the drilling mud. Earthen berms shall be utilized; however, they will not impact surface waters.

5.0 Frac-Out Monitoring

To provide an additional level of resource protection, the following measures shall be taken to monitor any potential releases of drilling fluid:

- Measures used to prevent frac-out during the drilling operation include maintaining the proper depth for the soil conditions along the drilling route as well as proper management of drilling fluids circulation pressure. Under the waterway the minimum distance between the pipe and the bottom of the waterway will be 30 feet, as shown on the profile.
- The volume of bentonite in the drill string will be monitored by the DBF at all times during the directional drilling operation. Should a drop of the volume of bentonite occur, immediately conduct a visual inspection of both terrestrial and subaqueous portions of the horizontal directional drilling corridor and the DBF will follow the Release Procedures outlined below.
- The DBF shall identify, prior to commencement of construction, an environmental scientist/biologist with experience in water quality monitoring and habitat protection to be used in the event of a frac-out.
- The DBF shall have divers on call, with a response time less than one hour, during drilling operations in order to respond to a potential frac-out release.
- All drilling fluids associated with the HDD operation will be contained on site. The volume of the drilling fluids recirculation/solids settlement pit will be determined by the DBF at the Pre-Construction meeting. Periodically during the drilling process settled solids will be removed from the pit by a backhoe and disposed of at a site of the DBF's choice in accordance with applicable regulations. At the conclusion of drilling operations, drilling fluid remaining in the pit will be settled and hauled to a disposal site of the DBF's choice in accordance with applicable regulations. After back-reaming, drilling materials will be removed from the inside of the pipeline by pigging it from the exit point towards the rig area.
- At all times, adequate protection will be taken by the DBF to avoid adverse impacts to Waters of the State. This shall include, but is not limited to halting of construction/drilling and/or placement of turbidity containment devices.
- The DBF shall have a vacuum truck onsite and available at all times.
- The DBF shall have a Spill Kit (i.e., absorbent pads/brooms, goggles, gloves, etc.) onsite and available at all times.

6.0 Release Procedure:

- If a frac-out is confirmed, the DBF shall immediately cease all construction activity contributing to the frac-out.
- If the return drilling mud/fluid is less than the projected amount to be recovered, the DBF's divers shall begin searching for the missing material within one hour of potential release. Once the drilling mud and frac-out is located, then the drilling mud containment plan shall be immediately implemented.
- If a frac-out occurs during construction activities, the DBF shall notify the Florida Department of Environmental Protection and the Corps of Engineers, Palm Beach Gardens Regulatory office, and the City of Fort Lauderdale within 24 hours of the occurrence. The notification shall include the time of the frac-out, the response time of the underwater diver, and the environmental conditions of the affected area.

7.0 Drilling Mud Containment Plan:

- Should the release of drilling materials occur on land, a sediment fence shall be constructed around the site and the material shall be removed by vacuum truck. Clean-up with a vacuum system shall commence within 24 hours.
- Should the release of drilling materials occur in-water, clean-up with a vacuum system shall commence within 24 hours.
- The DBF's scientist/biologist divers will guide the suction hose of the pump to minimize both the removal of natural bottom material and the disturbance of any existing vegetation.
- Any escaped drilling lubricant must be pumped by the DBF into filter bags or directly into a vacuum truck.
- A barge company will be contacted by the DBF to transport a vacuum truck should it be needed to respond "in-water".
- Once the spill is contained, the escaped drilling lubricant shall be properly disposed of in an approved upland disposal site.
- After containment/recovery of the drilling material/resources, a detailed written report shall be submitted by the DBF to the FDEP and the USACE, within 10 business days, indicating the location of the frac-out, amount of drilling material discharged and the amount of drilling mud recovered, the process in which the drilling mud was recovered, and the area that was affected by the drilling discharge.

APPENDIX I

SOIL REMOVAL CALCULATION

CITY OF FORT LAUDERDALE

WATER MAIN RELOCATION AND
NEW WASTEWATER FORCE MAIN AT LAS OLAS BLVD.

Prepared by: Lucia Alvarez

SOIL REMOVAL VOLUME CALCULATION - HDD

Prepared on: March 15, 2016

Pipeline	Max Borehole Diameter		Approximate Length of Pipeline	HDD Soil Removal Volume	
	[inches]	[ft]	[ft]	[ft^3]	[yd^3]
20" Water Main	34	2.83	1300	8196.50	303.57
16" Force Main	28	2.33	1300	5558.87	205.88
				HDD Soil Removal Volume [yd^3]:	**509.46**

EXHIBIT G2
PERMIT APPLICATION FOR BROWARD COUNTY ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT

WATER MAIN AND FORCE MAIN
INTRACOASTAL WATERWAY CROSSINGS AT LAS OLAS BLVD
CITY PROJECT NO. 12196

Hazen and Sawyer
4000 Hollywood Boulevard, Suite 750N, North Tower
Hollywood, FL 33021 • 954.987.0066

March 14, 2016

Linda Sunderland, NRS IV
Aquatic and Wetland Resources Program Manager
Environmental Protection and Growth Management Department
1 North University Drive, Suite 201
Plantation, FL 33324

Re: Application for Environmental Resource License

Dear Ms. Linda Sunderland:

As per our pre-application meeting on March 9, 2016, enclosed is the Application for Environmental Resource License and supplemental information regarding the City of Fort Lauderdale Water Main Relocation and New Wastewater Force Main at Las Olas Boulevard. This application pertains to the horizontal directional drilling regarding this proposed project.

Obtaining the permission required to begin construction is critical to the City of Fort Lauderdale's project schedule. This project is urgently required to relocate water piping that will be impacted by the Intracoastal Waterway Deepening Project being implemented by Florida Inland Navigation District (FDEP Permit No. 06-0283683-002). An expedited permit application review is requested to ensure that the City of Fort Lauderdale's piping relocation is constructed in advance of the dredging.

Please respond by confirming your receipt of this package. The $450.00 application fee has been mailed in form of a corporate check to the address indicated. If there are any questions regarding this application, please contact me, George A. Brown, at (954) 987-0066.

Very truly yours,

George A. Brown, PE
Senior Associate

Enclosure:
Agent Authorization Letter
Application for Environmental Resource License (ePermit)
Appendix A – Location Maps
Appendix B – Conceptual Plan and Staging Areas
Appendix C – Project Plan and Cross-sections
Appendix D – Land Ownership Summary
Appendix E – Benthic Characterization Survey
Appendix F – Construction Schedule

cc:
M. Decker (BCEPGMD)
P. Berg (City of Fort Lauderdale)
D. Lizarazo (City of Fort Lauderdale)
J. Holguin (City of Fort Lauderdale)
P. Aquart (CTA)
P. Gibney (CTA)
L. Alvarez (HAZEN)

CITY OF
FORT LAUDERDALE

All-America City

February 10, 2016

City of Fort Lauderdale
Water Main Relocation and
New Wastewater Force Main
at Las Olas Blvd
Permit Application Submittal Agent

To Whom It May Concern:

The City Fort Lauderdale Public Works Department is proposing the relocation of an existing 16-inch diameter subaqueous water main located on the north side of the Las Olas Boulevard Bridge crossing the Intercostal Waterway in Fort Lauderdale, FL. The new water main would be located on the south side of the bridge. This pipeline relocation is necessary to perform the scheduled dredging in association with the Intracoastal Waterway Deepening Project planned by the Florida Inland Navigation District. Additionally, a new 16-inch wastewater force main would be designed parallel with the proposed water main. The City of Fort Lauderdale has selected the horizontal directional drilling method for the construction of the proposed subaqueous crossings.

The City of Fort Lauderdale has retained Hazen and Sawyer, (HAZEN) to provide engineering services to prepare design criteria package documents and permit applications for directional drilling of the Water Main Relocation and New Wastewater Force Main at Las Olas Blvd. The City of Fort Lauderdale authorizes George A. Brown with HAZEN to submit permit applications, on behalf of the City Fort Lauderdale Public Works Department to regulatory agencies with jurisdiction over this project.

If you any questions, please contact me or George A. Brown (HAZEN) at 954-987-0066.

Sincerely,

Paul A. Berg, ICMA-CM
Acting Public Works Director
City of Fort Lauderdale
Public Works Department

BROWARD COUNTY
ENVIRONMENTAL PROTECTION AND GROWTH MANAGEMENT DEPARTMENT
ENVIRONMENTAL RESOURCE LICENSE APPLICATION FORM

SUBMIT HARDCOPY APPLICATIONS TO:
Env. Licensing & Building Permitting Division
Aquatic & Wetland Resources Program
1 North University Dr, Suite 201
Plantation, Florida 33324

SUBMIT ELECTRONIC APPLICATIONS VIA:
E-permits Electronic Permitting Uploader

SECTION I: Application Checklist

The following information is required for works in surface waters or wetlands of Broward County or the creation of same. Initial application packages that do not include all applicable information requested below may not be accepted. Upon review of the application, additional information may be required. If you have questions regarding the application form or required information, please call (954) 519-1483 for assistance.

Basic information to be included with all applications:

- ☒ a completed and notarized application form with all the requested applicable information;
- ☒ the appropriate application fee according to the Aquatic & Wetland Resources Fee Schedule;
- ☒ proof of ownership or legal interest in the property (i.e. Warranty Deed) where the project will occur (Include corporate records showing authorized individuals for corporate owners);
- ☒ a location / street map with the project site identified (maps);
- ☒ a sketch and legal description of the subject property, preferably sealed, clearly depicting the existing site conditions; and
- ☒ one (1) set of legible plan view and cross-sectional drawings clearly depicting both the ~~existing~~ and ~~proposed~~ site conditions (final engineered plans and/or additional sets may be required prior to issuance).

SECTION II- Project Summary

Site and Background Information:

Project name: City of Fort Lauderdale Water Main Relocation and New Wastewater Force Main at Las Olas Blvd.

Total site acreage: TBD by Design/Build Firm

Total project acreage: 8.3 acres

Folio number(s): 504212340020; 504212000090; 504212070030

Nearby Street: E Las Olas Blvd. **City:** Fort Lauderdale, Fl **Zip Code:** 33316

Drainage District: Dependant Drainage District

Provide details of the proposed activities in, on, over surface waters or wetlands:
The City Fort Lauderdale Public Works Department is proposing the relocation of an existing 16-inch diameter subaqueous water main located on the north side of the Las Olas Boulevard Bridge crossing the Intracoastal Waterway in Fort Lauderdale, FL. The new, 20-inch water main would be located on the south side of the bridge. This pipeline relocation is necessary to perform the scheduled dredging in association with the Intracoastal Waterway Deepening Project planned by the Florida Inland Navigation District. Additionally, a new 16-inch wastewater force main would be designed parallel with the proposed water main. The City of Fort Lauderdale has selected the horizontal directional drilling method for the construction of the proposed subaqueous crossings. See the **Appendix A** for Location Maps **Appendix B** for Conceptual Plan and Staging Areas, **Appendix C** for Project Plan and Cross-sections

List any previous Federal (USACOE), State (FDEP/SFWMD), County, or Local permits, licenses, or enforcement actions for the project site:
USACOE (Permit No. SAJ-2016-00427) and FDEP HDD permits in progress.
Geotechnical Investigations permits: FDEP No. 06-241598-001; BCEPGMD FT1602-038

Times, dates and attendees for any pre-application meetings or correspondence with County staff: Pre-App: March 9th, 2016

SECTION III- Contact Information

Owner of land

Name: Paul A. Berg
Title and Company: Acting Public Works Director, City of Fort Lauderdale
Street address: 100 N. Andrews Avenue
City: Fort Lauderdale State: FL Zip: 33301
Telephone: (954) 828-5806 Fax: N/A E-mail: PBerg@fortlauderdale.gov

Applicant (if different from owner – provide proof of authorization; e.g. easement, lease, etc.)

Name: _____
Title and Company: _____ **Same as 'Owner'**
Street address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____ E-mail: _____

Authorized representative (e.g. agent, consultant, contractor, attorney, etc.)

Name: George A. Brown
Title and Company: Senior Associate, Hazen and Sawyer
Street address: 4000 Hollywood Blvd., Suite 750N
City: Hollywood State: FL Zip: 33021
Telephone: (954) 987-0066 Fax: (954) 987-2949 E-mail: gbrown@hazenandsawyer.com

Contractor to do work (If different from above - must be provided prior to commencement)

Name: _____
Title and Company: _____ **Not Applicable**
Street address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____ E-mail: _____

SECTION IV: Project Details

PART 1: DOCKS **Not applicable: ☒**

A - Provide the following information for any existing docks at the site:

Marginal dock/terminal platform dimensions: Length: _____ ft.; width: _____ ft.; area: _____ sq. ft.
Over-water width of structure as measured from the wet face of the seawall panel: _____ ft.
Number (_____), length, and width of existing finger/access piers (if applicable): _____ X _____ ft.
Over-water area of existing structures (measured from MHW line or seawall wet face): _____ sq. ft.
Number of existing mooring slips at the site: _____ Maximum draft of vessels at the site: _____ft.
Existing structures: ☐ **to be removed** / ☐ **to remain** / ☐ **to be modified** (check all that apply)

B - Provide the following information for any proposed/new dock construction at the site:

Marginal dock/terminal platform dimensions: Length: _____ ft.; width: _____ ft.; area: _____sq. ft.
Over-water width of structure as measured from the wet face of the seawall panel: _____ ft.
Number (_____), length, and width of new finger/access piers (if applicable): _____X _____ ft.
Over-water area of new structures (measured from the MHW line or seawall wet face): _____ sq. ft.
Number of new mooring slips at the site: _____ Maximum draft of vessels at the site: _____ ft.

C – Finished Project Configuration:

Maximum length: _____ ft. Maximum width: _____ ft. Square footage: _____ square ft.
Maximum width of structure as measured from the wet face of the seawall panel: _____ ft.
Number (_____), length, and width of all finger/access piers (if applicable): _____ X _____ ft.
Total over-water area of the finished dock configuration (measured from the MHW line or seawall wet face): _____ square ft.
# of vessels/mooring areas at the site:_____ Maximum draft of vessels at the site: _____ ft.

Note: Large docks may also require installation of a riprap footer at the base of the seawall. Refer to the County's riprap policy for further guidance. If required, depict the riprap on the plans.

Additional information to be included on the project drawings/exhibits (if applicable):

☐ accurate dimensions (length and width) for all structures over water **measured from the wet face of the seawall panel** (i.e. seawall cap, fixed/floating docks, piers, boatlifts, floating platforms, etc.)
☐ Mean High Water Level (MHW), Mean Low Water Level (MLW), and the **elevation of the substrate in the mooring area(s)** (referenced to NGVD, NAVD, or Mean Sea Level);
☐ the maximum elevation (or height above MHW) of the proposed dock or seawall cap;
☐ the width of the adjacent water body;
☐ the total linear feet of shoreline owned by the applicant;
☐ the volume of riprap to be installed; and
☐ a benthic resources (seagrasses, corals, oysters, etc.) survey for projects east of US-1.

Additional information needed for multifamily docking facilities, marinas and dry stacks:

☐ the current Marine Facility Operating License Number (MFOL#_____);
☐ the required New Slip Fees (25% of the total new slip fee is due at time of application);
☐ the number of existing wet, dry, and/or trailer slips shown on an "existing conditions" drawing (documentation of historical use is required for any existing slips);
☐ the number of proposed wet, dry, and/or trailer slips shown on a "proposed conditions" drawing;
☐ the locations of any sewage pump-out facilities, fueling facilities, fish cleaning stations, and/or liveaboard dockage proposed;
☐ the proposed upland site plan if upland development/redevelopment/modification is proposed; and
☐ a bathymetric survey of the project area referenced to mean low water, NGVD, or NAVD.

PART 2: SHORELINE STABILIZATION

Not applicable: ☒

Type of construction (check all applicable):

☐ Geo-tube
☐ Riprap
☐ Interlocking revetment
☐ Footer
☐ Batter/T/King piles
☐ Cap
☐ Sheet pile
☐ New seawall in front of existing
☐ Seawall removal and replacement
☐ New wall where no wall previously existed
☐ Existing wall to remain
☐ Existing wall to be removed

_____

Structural Dimensions:

Distance from existing seawall wet face to the new seawall wet face (show on the drawings): _____ft.
Existing Seawall Type: _____ New seawall length: _____ feet. Width of new cap over water: _____ ft.

Additional information necessary for shoreline stabilization projects:

☐ the location of and distance from the existing seawall face in relation to the adjacent seawalls or permanent structures;
☐ project plans depicting a natural limerock riprap footer with (1-3 ft. dia.) at a 2:1 (horizontal:vertical) slope beginning one foot above mean high water for projects in tidal waters where no wall previously existed; and
☐ a detailed discussion of project methodology and turbidity control measures.

PART 3: CREATION OR ALTERATION OF SURFACE WATERS

Not applicable: ☒

Fill area: _____ acres
Fill volume: _____ cubic yards
Dredge area: _____ acres
Dredge volume: _____ cubic yards
Upland excavation area: _____ acres
Upland excavation volume: _____ cubic yards
Max. dredge depth: _____ (NGVD/NAVD/ or MLW)
Total/gross earthwork volume: _____ cu. yards
Seasonal HWL (for fresh water projects) or MHW (for tidal projects): _____ NGVD/NAVD

Reason for dredging and/or filling: _____

The following additional information is also needed for dredge and fill projects:

☐ a detailed description of the methodology and sequencing of dredging activities, turbidity control and monitoring, and disposal of spoil material (including locations, volumes, retention plans and locations/dimensions of disposal cells);
☐ the required lake slopes of 4:1 (horizontal: vertical) to a minimum of 4 feet below the ordinary high water elevation clearly labeled on the drawings; and
☐ a detailed description of the baseline bathymetry/topography for the project and adjacent waters.

PART 4: MANGROVE TRIMMING OR ALTERATION

Not applicable: ☒

Number, square footage, or acreage of mangroves to be trimmed: _____
Number, square footage, or acreage of mangroves to be altered: _____
Current maximum height: _____ ft. _____ inches
Aerial coverage present: _____ sq. ft.
Proposed trimmed height: _____ ft. _____ inches
Aerial coverage removed: _____ sq. ft.

Description of the proposed project/scope of work: _____

Additional information needed for mangrove trimming/alteration projects:

☐ copies of any prior licenses for mangrove trimming, alteration, and/or mitigation at the site;
☐ copies of any prior enforcement actions/cases;
☐ linear footage of mangrove dominated shoreline owned/controlled by the applicant _____ l.f.;
☐ the percentage of mangroves on-site to be trimmed (as measured by canopy) _____ s.f.;
☐ Will a Professional Mangrove Trimmer be conducting the work? ☐ No ☐ Yes;
☐ a description of the type and scope of trimming will be conducted? (check any/all that apply):
☐ window trim ☐ height reduction ☐ thinning ☐ lateral trim ☐ other _____;
☐ a detailed discussion of impact avoidance/minimization measures considered/implemented; and
☐ a detailed mitigation plan for altered mangroves (lost canopy must be replaced within 5 years).

PART 5: WETLANDS (FRESHWATER OR TIDAL)

Not applicable: ☒

Amount of wetlands on site: _____square feet / _____ acres (must depict wetlands on drawings)
How wetland limits were determined: _____
Has the County conducted a wetland jurisdictional determination on the property? ☐ No ☐ Yes
If yes, attach a copy of the determination and/or provide the file number [WD_____-_____]
Wetland to be Filled: _____ acres Fill volume: _____ cubic yards
Wetland to be Dredged: _____ acres Dredge volume: _____ cubic yards
Max. Depth of Dredging: _____ NGVD/NAVD Seasonal HWL: _____ NGVD/NAVD

Additional information necessary for wetland mitigation projects:

☐ a detailed discussion of all site development constraints, design alternatives considered, and impact avoidance/minimization measures implemented prior to arriving at the current site plan;
☐ preliminary UMAM, WATER, or M-WRAP calculations;
☐ a draft mitigation plan which, at a minimum, includes details of the mitigation area, proposed grading contours at 1-foot intervals, and monitoring, maintenance and planting plans; and
☐ the required monitoring fee (40% of the initial license fee for each of the 5 years of the monitoring period) is required before license issuance for all projects which are required to provide mitigation.

PART 6: VOLUNTARILY CREATED WETLANDS

Not applicable: ☒

Current site conditions: _____
Seasonal High Water Elevation or Control Water Elevation: _____ (NGVD or NAVD)
Excavation area: _____ square feet _____ acres
Excavation volume: _____ cubic yards Maximum depth of excavation: _____ NGVD/NAVD
Final disposal location of excavated material: _____
Is a connection to existing surface waters proposed? Yes _____ No _____
Is the proposed wetland part of the stormwater treatment system? Yes _____ No _____

Additional information needed for voluntary wetland creation projects:

☐ a proposed planting plan, and
☐ a copy of a sketch and legal description of the voluntary creation area.

SECTION V- Certifications and Signatures

Part 1: Owner/Applicant Certification

By signing below I Paul A. Berg certify the following:

a) I understand this is an application and not a license, and that work prior to approval is a violation
b) I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete and accurate.
c) I further certify that I possess the authority to undertake the proposed activities.
d) I understand that I may have to provide additional information/data that may be necessary to show that the proposed project will comply with Sections 27-331 through 27-341, titled Aquatic and Wetland Resource Protection, of the Natural Resource Protection Code.
e) Should the information I provide not be adequate for review, I understand that the Department is not obligated to issue a comprehensive Completeness Summary.
f) In addition, I agree to provide entry to the project site, for inspectors with proper identification, for the purpose of reviewing the site as covered by the scope of Sections 27-331 through 27-341, titled Aquatic and Wetland Resource Protection, of the Natural Resource Protection Code.
g) Further, I hereby acknowledge the obligation and responsibility for obtaining all of the required federal, state and local permits before commencement of construction activities.
h) If a license is issued, I agree, or I agree on behalf of the applicant, to construct and maintain the project in compliance with the license conditions, unless the Department authorizes transfer of the license to another entity.
i) **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.**
j) Should a County Environmental Resource License be granted, I hereby certify that I will comply with all general and specific conditions of that license and with the Broward County Natural Resource Protection Code (Chapter 27, Ord. 90-49, as amended.

Paul G. Berg — 2-10-16

Signature of Owner/Applicant — Date

Paul A. Berg — Public Works Director

Typed / Printed Name of Owner/Applicant — Corporate Title (if applicable)

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Part 2: Designation of Authorized Representative

(The applicant/owner should sign this section if he/she is authorizing an agent, consultant, contractor or other individual to act on his/her behalf)

By signing below I hereby designate:

Individual Name (printed): George A. Brown

Company Name: Hazen and Sawyer

as my representative in the processing of this application, and authorize the representative to furnish supplemental information and documentation in support of the application on my behalf. In addition, I authorized this representative to bind me, or my Corporation, to perform any requirements which may be necessary to procure the license for authorization as indicated above.

Signature of Owner/Applicant — Date: 2-10-16

Part 3: Authorized Representative Certification

(If Part 2 above is completed by the applicant this section should be certified by the agent/contractor authorized in Part 2 above)

By signing below I George A. Brown, Hazen and Sawyer **certify the following:**

a) I understand this is an application and not a license, and that work prior to approval is a violation
b) I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete and accurate.
d) I understand that I may have to provide additional information/data that may be necessary to show that the proposed project will comply with Sections 27-331 through 27-341, titled Aquatic and Wetland Resource Protection, of the Natural Resource Protection Code.
e) Should the information I provide not be adequate for review, I understand that the Department is not obligated to issue a comprehensive Completeness Summary.
f) In addition, I agree to provide entry to the project site, for inspectors with proper identification, for the purpose of reviewing the site as covered by the scope of Sections 27-331 through 27-341, titled Aquatic and Wetland Resource Protection, of the Natural Resource Protection Code.
g) Further, I hereby acknowledge the obligation and responsibility for obtaining all of the required federal, state and local permits before commencement of construction activities.
h) If a license is issued, I agree on behalf of the applicant, to construct and maintain the project in compliance with the license conditions, unless the Department authorizes transfer of the license to another entity.
i) **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.**
j) Should a County Environmental Resource License be granted, I hereby certify that I will comply with all general and specific conditions of that license and with the Broward County Natural Resource Protection Code (Chapter 27, Ord. 90-49, as amended).

Signature of Authorized Representative — Date: 3/14/2016

Name of Corporation/Business Corporate Title (if applicable)

Part 4: Contractor Certification

Not Applicable

(If different from the authorized representative in Part 3 above)

By signing below I _____ certify the following:

a) I understand this is an application and not a license, and that work prior to approval is a violation.
b) I hereby acknowledge the obligation and responsibility for obtaining all of the required federal, state and local licenses before commencement of construction activities.
c) If a license is issued, I agree on behalf of the applicant, to construct and maintain the project in compliance with the license conditions, unless the Department authorizes transfer of the license to another entity.
d) **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.**
e) Should a County Environmental Resource License be granted, I hereby certify that I will comply with all general and specific conditions of that license and with the Broward County Natural Resource Protection Code (Chapter 27, Ord. 90-49, as amended).

Signature of Contractor Date

_____ _____

Name of Corporation/Business Corporate Title (if applicable)

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