



DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT  
P.O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019

February 21, 2019

REPLY TO  
ATTENTION OF

Regulatory Division  
North Permits Branch  
Jacksonville Permits Section  
SAJ-2019-00361(NW-PRJ)

Mr. Andrew Sears  
Jacksonville Electric Authority  
21 West Church Street  
Jacksonville, Florida 32202

Dear Mr. Sears:

Your application for a Department of the Army permit received on February 5, 2019, has been assigned number SAJ-2019-00361. A review of the information and drawings provided shows that you propose to place fill material in 0.25 acre of waters of the United States in association with the installation of a utility line. After the utility line has been installed the impact areas will be returned to the original grade and allowed to naturally revegetate. The project site extends approximately 2 miles, and runs east to west between Latitude 30.264834°, Longitude -81.531179°, and Latitude 30.264818°, Longitude -81.542405°; and runs north to south between Latitude 30.264818°, Longitude -81.542405°, and Latitude 30.249564°, Longitude -81.542092°. The project site is located in Sections 6 and 7, Township 3 South, Range 28 East, Jacksonville, Duval County, Florida.

Your project, as depicted on the enclosed drawings, is authorized by Nationwide Permit (NWP) Number 12. In addition, project specific conditions have been enclosed. This verification is valid until **March 18, 2022**. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit. Please access the U.S. Army Corps of Engineers' (Corps) Jacksonville District's Regulatory Internet page to access Internet links to view the Final Nationwide Permits, Federal Register Vol. 82, dated January 6, 2017, specifically pages 1983 to 2008, and the table of Regional Conditions. The Internet page address is:

<http://www.saj.usace.army.mil/Missions/Regulatory.aspx>

Please be aware this Internet address is case sensitive and should be entered as it appears above. Once there you will need to click on "Source Book"; and, then click on "Nationwide Permits." These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 12. Enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required.

The following special conditions are included with this verification:

1. **Reporting Address:** The Permittee shall submit all reports, notifications, documentation and correspondence required by the general and special conditions of this permit to the following address:

a. For standard mail: U.S. Army Corps of Engineers, Regulatory Division, Special Projects and Enforcement Branch, P.O. Box 4970, Jacksonville, Florida 32232-0019.

b. For electronic mail SAJ-RD-Enforcement@usace.army.mil (not to exceed 10 MB). The Permittee shall reference this permit number, SAJ-2019-00361, on all submittals.

2. **Self-Certification:** Within 60 days of completion of the work authorized by this permit, the Permittee shall complete the enclosed "Self-Certification Statement of Compliance" form and submit it to the Corps. In the event that the completed work deviates in any manner from the authorized work, the Permittee shall describe the deviations between the work authorized by this permit and the work as constructed on the "Self-Certification Statement of Compliance" form. The description of any deviations on the "Self-Certification Statement of Compliance" form does not constitute approval of any deviations by the Corps.

3. **Cultural Resources/Historic Properties:**

a. No structure or work shall adversely affect impact or disturb properties listed in the *National Register of Historic Places* (NRHP) or those eligible for inclusion in the NRHP.

b. If during the ground disturbing activities and construction work within the permit area, there are archaeological/cultural materials encountered which were not the subject of a previous cultural resources assessment survey (and which shall include, but not be limited to: pottery, modified shell, flora, fauna, human remains, ceramics,

stone tools or metal implements, dugout canoes, evidence of structures or any other physical remains that could be associated with Native American cultures or early colonial or American settlement), the Permittee shall immediately stop all work and ground-disturbing activities within a 100-meter diameter of the discovery and notify the Corps within the same business day (8 hours). The Corps shall then notify the Florida State Historic Preservation Officer (SHPO) and the appropriate Tribal Historic Preservation Officer(s) (THPO(s)) to assess the significance of the discovery and devise appropriate actions.

c. Additional cultural resources assessments may be required of the permit area in the case of unanticipated discoveries as referenced in accordance with the above Special Condition; and if deemed necessary by the SHPO, THPO(s), or Corps, in accordance with 36 CFR 800 or 33 CFR 325, Appendix C (5). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume on non-federal lands without written authorization from the SHPO for finds under his or her jurisdiction, and from the Corps.

d. In the unlikely event that unmarked human remains are identified on non-federal lands, they will be treated in accordance with Section 872.05 Florida Statutes. All work and ground disturbing activities within a 100-meter diameter of the unmarked human remains shall immediately cease and the Permittee shall immediately notify the medical examiner, Corps, and State Archeologist within the same business day (8-hours). The Corps shall then notify the appropriate SHPO and THPO(s). Based, on the circumstances of the discovery, equity to all parties, and considerations of the public interest, the Corps may modify, suspend or revoke the permit in accordance with 33 CFR Part 325.7. Such activity shall not resume without written authorization from the State Archeologist and from the Corps.

This letter of authorization does not obviate the necessity to obtain any other Federal, State, or local permits, which may be required. Prior to the initiation of any construction, projects qualifying for this Nationwide permit must qualify for an exemption under section 403.813(1), Florida Statutes or 373.406, Florida Statutes, or otherwise be authorized by the applicable permit required under Part IV of Chapter 373, Florida Statutes, by the Department of Environmental Protection, a water management district under section 373.069, Florida Statutes, or a local government with delegated authority under section 373.441, Florida Statutes, and receive Water Quality Certification and applicable Coastal Zone Consistency Concurrence or waiver thereto, as well as any authorizations required for the use of state-owned submerged lands under Chapter 253,

Florida Statutes, and, as applicable, Chapter 258, Florida Statutes. You should check State-permitting requirements with the Florida Department of Environmental Protection or the appropriate water management district.

This letter of authorization does not include conditions that would prevent the 'take' of a state-listed fish or wildlife species. These species are protected under sec. 379.411, Florida Statutes, and listed under Rule 68A-27, Florida Administrative Code. With regard to fish and wildlife species designated as species of special concern or threatened by the State of Florida, you are responsible for coordinating directly with the Florida Fish and Wildlife Conservation Commission (FWC). You can visit the FWC license and permitting webpage (<http://www.myfwc.com/license/wildlife/>) for more information, including a list of those fish and wildlife species designated as species of special concern or threatened. The Florida Natural Areas Inventory (<http://www.fnai.org/>) also maintains updated lists, by county, of documented occurrences of those species.

This letter of authorization does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact Paula R. Johnson by telephone at 904-232-2503.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to complete our automated Customer Service Survey at

[http://corpsmapu.usace.army.mil/cm\\_apex/f?p=regulatory\\_survey](http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey). Please be aware this Internet address is case sensitive; and, you will need to enter it exactly as it appears above. Your input is appreciated – favorable or otherwise.

Sincerely,



Susan R. Kaynor  
Chief, Jacksonville Permits Section

Enclosures

Copies Furnished:

Mr. Ryan Carter, Carter Environmental Services, 7 Waldo Street, Suite C, St.  
Augustine, Florida 32084

CESAJ-RD-PE

GENERAL CONDITIONS  
33 CFR PART 320-330

1. The time limit for completing the work authorized ends on **March 18, 2022**.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representative from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST**

**PERMIT NUMBER: SAJ-2019-00361(NW-PRJ)**

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Section, Post Office Box 4970, Jacksonville, FL 32232-0019 or electronic mail at [saj-rd-enforcement@usace.army.mil](mailto:saj-rd-enforcement@usace.army.mil).

\_\_\_\_\_  
**(TRANSFEREE-SIGNATURE)**

\_\_\_\_\_  
**(SUBDIVISION)**

\_\_\_\_\_  
**(DATE)**

\_\_\_\_\_  
**(LOT)**

\_\_\_\_\_  
**(BLOCK)**

\_\_\_\_\_  
**(NAME-PRINTED)**

\_\_\_\_\_  
**(STREET ADDRESS)**

\_\_\_\_\_  
**(MAILING ADDRESS)**

\_\_\_\_\_  
**(CITY, STATE, ZIP CODE)**

**SELF-CERTIFICATION STATEMENT OF COMPLIANCE**

**Permit Number: SAJ-2019-00361-PRJ**

Permittee's Name & Address (please print or type): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Location of the Work: \_\_\_\_\_

\_\_\_\_\_

Date Work Started: \_\_\_\_\_ Date Work Completed: \_\_\_\_\_

**PROPERTY IS INACCESSIBLE WITHOUT PRIOR NOTIFICATION: YES \_\_\_\_\_ NO \_\_\_\_\_**

**TO SCHEDULE AN INSPECTION PLEASE CONTACT \_\_\_\_\_**  
**AT \_\_\_\_\_**

Description of the Work (e.g. bank stabilization, residential or commercial filling, docks, dredging, etc.): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Acreage or Square Feet of Impacts to Waters of the United States: \_\_\_\_\_

Describe Mitigation completed (if applicable): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Describe any Deviations from Permit (attach drawing(s) depicting the deviations):

\_\_\_\_\_  
\_\_\_\_\_

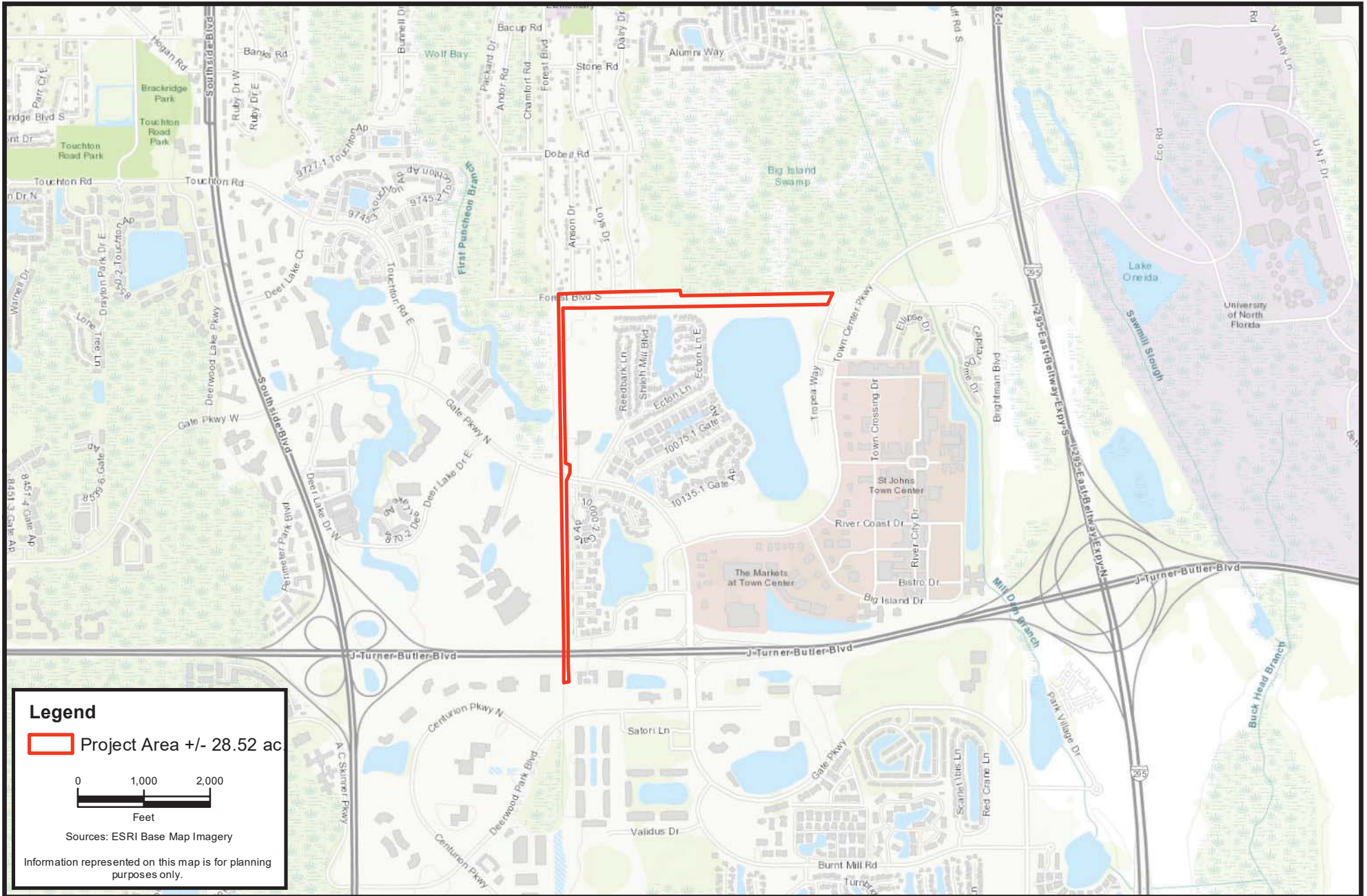
\*\*\*\*\*

I certify that all work, and mitigation (if applicable) was done in accordance with the limitations and conditions as described in the permit. Any deviations as described above are depicted on the attached drawing(s).

\_\_\_\_\_  
Signature of Permittee

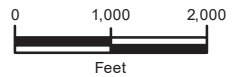
\_\_\_\_\_  
Date





**Legend**

 Project Area +/- 28.52 ac



Sources: ESRI Base Map Imagery

Information represented on this map is for planning purposes only.

**CARTER ENVIRONMENTAL SERVICES, INC.**

**CES** 7 Waldo Street  
St. Augustine, FL 32084  
904-540-1786  
www.carterenv.com

Location Map  
**JTB Force Main**

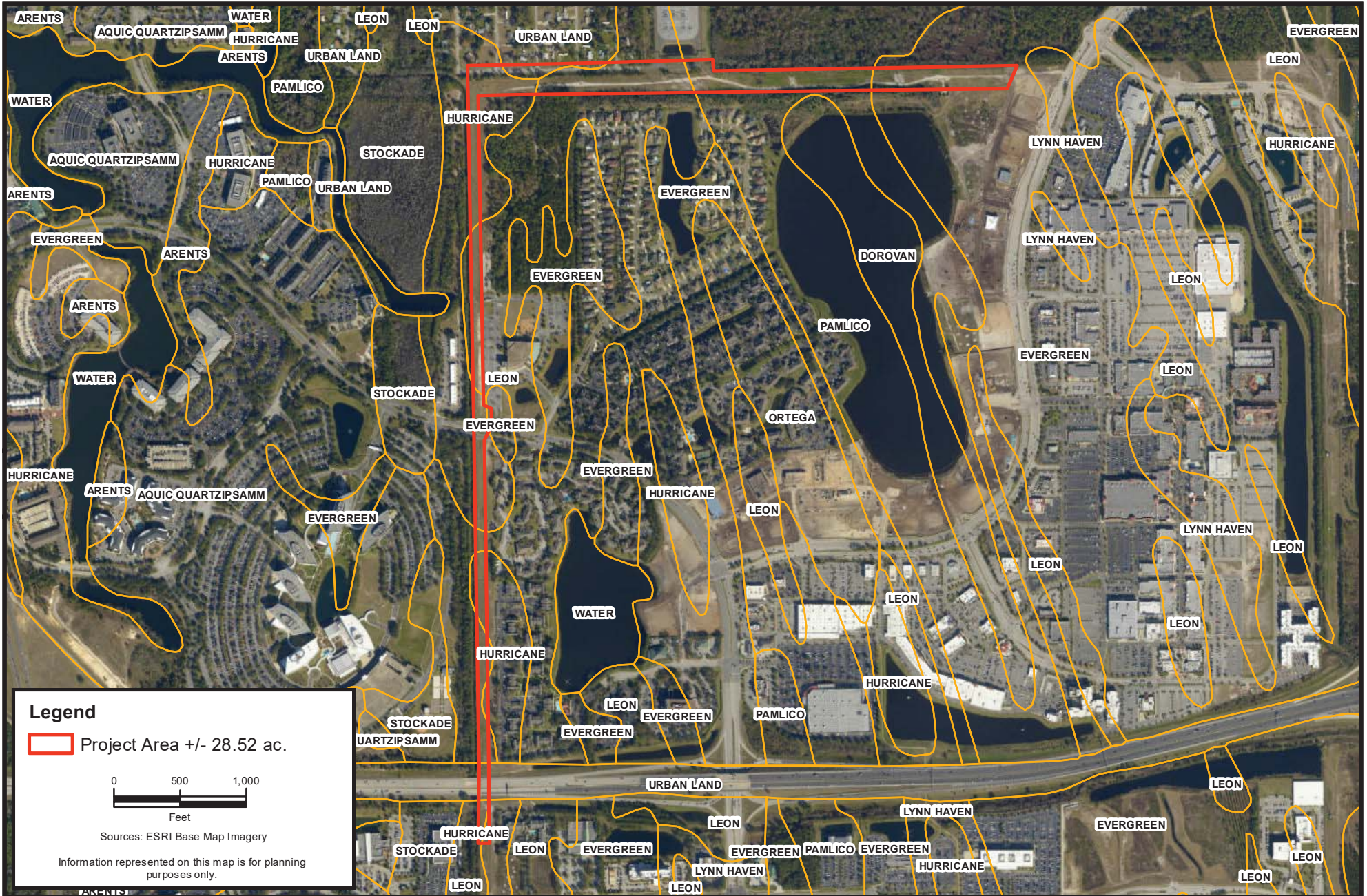
Project: 5.17156

Duval County, FL

Date: Jan 22 2019

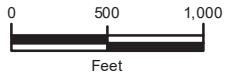
Figure: 1





**Legend**

 Project Area +/- 28.52 ac.



Sources: ESRI Base Map Imagery

Information represented on this map is for planning purposes only.

**CARTER ENVIRONMENTAL SERVICES, INC.**



7 Waldo Street  
St. Augustine, FL 32084  
904-540-1786

[www.carterenv.com](http://www.carterenv.com)

Soils Map  
**JTB Force Main**

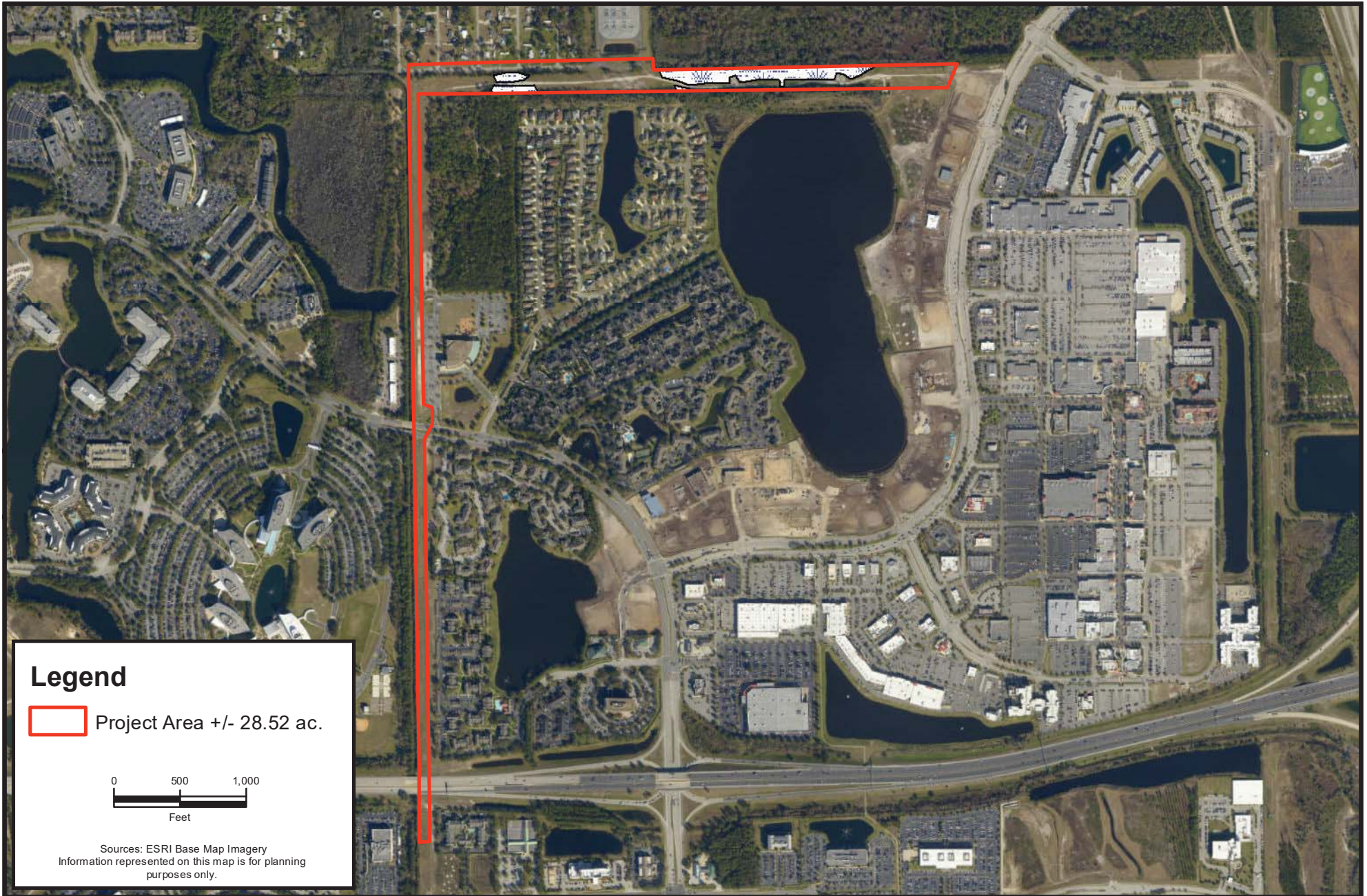


Project: 5.17156

Duval County, FL

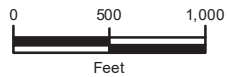
Date: Jan 22 2019

Figure: 2



**Legend**

 Project Area +/- 28.52 ac.



Sources: ESRI Base Map Imagery  
 Information represented on this map is for planning purposes only.

**CARTER ENVIRONMENTAL SERVICES, INC.**

**CES** 7 Waldo Street  
 St. Augustine, FL 32084  
 904-540-1786  
[www.carterenv.com](http://www.carterenv.com)

Existing Site Conditions

**JTB Force Main**

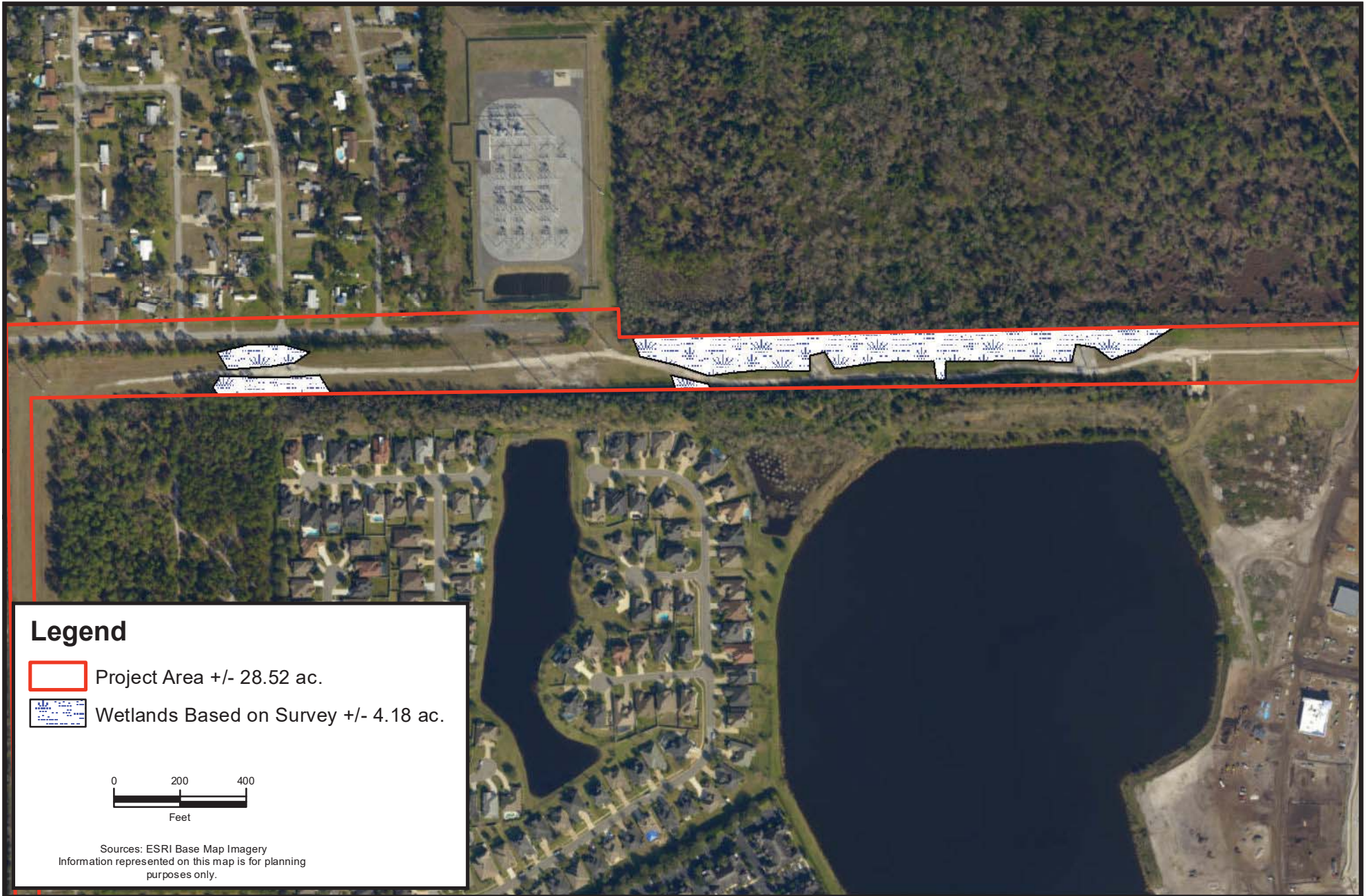


Project: 5.17156

Duval County, FL


Date: Jan 22 2019

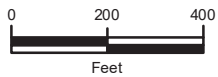
Figure: 3a



**Legend**

 Project Area +/- 28.52 ac.

 Wetlands Based on Survey +/- 4.18 ac.



Sources: ESRI Base Map Imagery  
 Information represented on this map is for planning purposes only.

**CARTER ENVIRONMENTAL SERVICES, INC.**

**CES** 7 Waldo Street  
 St. Augustine, FL 32084  
 904-540-1786  
[www.carterenv.com](http://www.carterenv.com)

Existing Site Conditions - Wetlands Close-Up

**JTB Force Main**

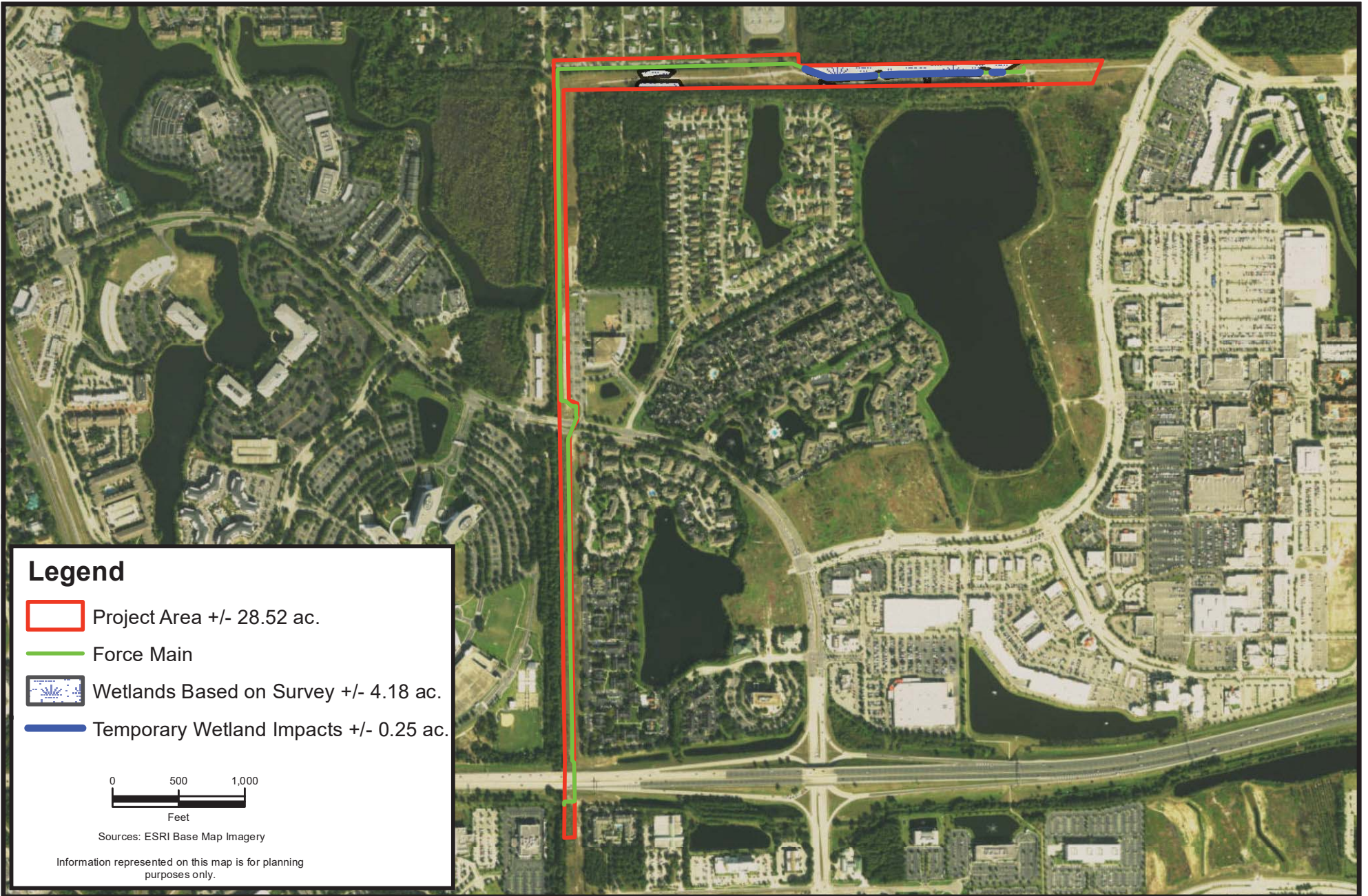


Project: 5.17156

Duval County, FL

Date: Jan 22 2019

Figure: 3b



**CARTER ENVIRONMENTAL SERVICES, INC.**



7 Waldo Street  
St. Augustine, FL 32084  
904-540-1786

[www.carterenv.com](http://www.carterenv.com)

Proposed Site Conditions

**JTB Force Main**



Project: 5.17156

Duval County, FL





Date: Jan 23 2019

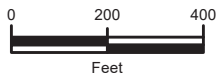
Figure:

4a



**Legend**

-  Project Area +/- 28.52 ac.
-  Force Main
-  Wetlands Based on Survey +/- 4.18 ac.
-  Temporary Wetland Impacts +/- 0.25 ac.



Sources: ESRI Base Map Imagery

Information represented on this map is for planning purposes only.

Proposed Site Conditions - Wetlands Close-Up

**JTB Force Main**



**CARTER ENVIRONMENTAL SERVICES, INC.**

**CES** 7 Waldo Street  
St. Augustine, FL 32084  
904-540-1786  
www.carterenv.com

Project: 5.17156

Duval County, FL

Date: Jan 22 2019

Figure:

**4b**

**CITY OF JACKSONVILLE NOTES  
GENERAL**

All construction shall be performed in accordance with the approved plans and comply with all standard city policies and practices. City approval is contingent upon any required state or federal permit approvals such as those from the Department of Environmental Protection or the St. Johns River Water Management District (SRWMD).

**UTILITY WORK**

Plan approval through Development Services does not include utilities. Proposed water, sewer or electric construction must be approved separately through the respective utility company. In most cases, this will be:

JEA  
JEA Tower - 4th Floor  
21 W. Church Street  
Jacksonville, FL 32202  
904.784.3744

**WORK WITHIN THE RIGHT-OF-WAY**

**CITY:** Except for new subdivision infrastructure construction, all work performed within a City of Jacksonville right-of-way or easement requires a Right-of-way Permit. The contractor performing the proposed work must have a current Right-of-way Bond on file with Development Services. Right-of-way Permit applications are processed at:

Development Services Customer Service Center  
Essex Ball Building, 3rd Floor  
214 N. Hogan St.  
Jacksonville, FL 32202  
(904) 356-6272

**STATE:** All work performed within a state right-of-way requires a permit from the Florida Department of Transportation (FDOT). It is the developer's responsibility to obtain required FDOT permits or maintenance-of-traffic approvals for work within FDOT right-of-ways. The FDOT regional office can be contacted at (904) 360-5200. Any changes to the approved plans needed for FDOT approval must be submitted to Development Services as revisions.

**Adjacent State Roads:** \_\_\_\_\_

**RAILROAD:** Railroad companies may require special approvals or permits to work within their right-of-ways. It is the developer's responsibility to obtain permission from any railroad right-of-way owner before performing any work within their right-of-way.

**STORMWATER**

Annual reports in compliance with the SRWMD stormwater permits are required from the maintenance entity of all stormwater management facilities. Send copies of the reports to:

Engineering and Construction Management  
Essex Ball Building, 16th Floor  
214 N. Hogan St.  
Jacksonville, FL 32202  
http://www.cityofjacksonville.com/development/Engineering-and-Construction-Management

The owner of any project one (1) acre or larger is required to provide a Notice of Intent (NOI) in accordance with criteria set forth in the city's NPDES permit within 48 hours of beginning construction. Send NOI and NOI fee to:

Florida Department of Environmental Protection  
NPDES Stormwater Notice Center, Mail Station 62181  
3000 Mar-a-Lago Blvd.  
Bellaire, Florida 33426-3012  
(888) 336-4372  
http://www.dep.state.fl.com/stormwater/notice

The contractor shall contact the Environmental Quality Division, Erosion and Sedimentation Control Section (ESCS) to provide verification that applicable stormwater permits have been obtained and to schedule a pre-construction ESCS site inspection:

Environmental Quality Division  
407 North Lyons Street, Third Floor  
Jacksonville, FL 32202  
(904) 356-7222

**FIRE MARSHALL**

Plan review and approval does not relieve the contractor of complying with all applicable State Fire Codes.

Underground mains and hydrants shall be installed, completed, and in service prior to construction work.

Underground contractor shall submit to the Fire Marshall for approval complete specs for all underground pipe and fittings relating to fire protection PRIOR to installation and inspection. Contractor shall include manufacturer's name and pipe ID along with contractor's state license number.

**LANDSCAPE**

A Site Work Permit is required for this project.

Tree Fund payment is due: \_\_\_\_\_ inches at \$ \_\_\_\_\_ = \$ \_\_\_\_\_  
 Article 25 funds are due: \_\_\_\_\_ inches at \$ \_\_\_\_\_ = \$ \_\_\_\_\_

**TRAFFIC ENGINEERING**

**TRAFFIC SIGNS**

Metro Name	\$55.00	ea.	_____
Standard	\$55.00	ea.	_____
Stop/Yield	\$55.00	ea.	_____
Design	\$55.00		_____
Installation	\$55.00	/hr.	_____
TOTAL			_____

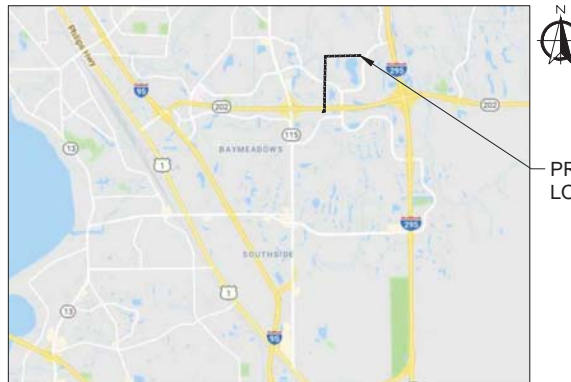
Streetlights Required

NOTE: Traffic sign costs change from time to time. If the costs change after plan approval but prior to payment for installation, the developer must pay the for the signs at the current costs. The above total assumes the subdivision will be planted as one phase. If the development is planted as separate phases, design and installation will be calculated separately for each phase.

No lane closures allowed from 7 a.m. till 9 a.m. and from 4 p.m. till 6 p.m.

**CONSTRUCTION DRAWINGS  
FOR  
T-LINE - JTB TO TOWN CENTER  
PARKWAY- TRANSMISSION  
FORCE MAIN**

JEA PROJECT NO.: 8004196



**VICINITY MAP**

**PREPARED BY:**  
**JACOBS**  
JACOBS PROJECT No. EEXJ0300  
200 W FORSYTH STREET, SUITE 1520  
JACKSONVILLE, FL 32202  
TEL.: (904) 636-5432  
FAX: (904) 636-5433  
COA # 2822

**IFB BID NO.:** - - -  
**BID DUE DATE:** M D, 2019 (Tuesday)  
**TIME OF RECEIPT:** 12:00 PM  
**TIME OF OPENING:** 2:00 PM  
**BID PLACE:** 21 W. CHURCH ST.  
TOWER LOBBY, SUITE 103  
JACKSONVILLE, FL 32202

**PREPARED FOR:**  
**JEA**<sup>sm</sup>  
**Building Community**<sup>sm</sup>

JANUARY 2019

**PLAN APPROVAL**

Date \_\_\_\_\_ Development Services Division (Chief)

Date \_\_\_\_\_ Review Group (Reviewer)

Plan approval is valid for five years after the initial approval date. Revisions made after the initial approval date do not extend this five-year time frame.

PLAN APPROVAL IS SUBJECT TO THE FOLLOWING NOTES AND CONDITIONS:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**GENERAL PROJECT INFORMATION**

<b>GENERAL</b>		
City Development Number	4161.271	
Concurrency Application Number	N/A	
Property Appraiser Number (RE #)	N/A	
Zoning Designation	PUD, RMD-D, RLD-60	
PUD Ordinance Number	1994-1121-1352; 1998-0769-E	
FIRM - Community - Panel	12031 C0393 H	
Flood Zones (Show in Plans)	X, AE	
Base Flood Elev. (Show in Plans)	33 FT	
Vertical Datum Used for Project	NAVD 88	
JEA Availability Number	N/A	
<b>SUBDIVISION</b>		
PSD Number	N/A	
City or Private Inspection	N/A	
Public or Private Roads	N/A	
Subdivision ("911") Disk Provided?	N/A	
<b>NON-SUBDIVISION</b>		
North American Industry Classification System (NAICS)	2371	
Impervious Area (Sq. Ft.)	0	

200 WEST FORSYTH STREET, T: 904.636.5432, F: 904.636.5433, JACKSONVILLE, FL 32202  
**JACOBS**  
 PROJECT NO. EEXJ0300  
 DATE: JANUARY 2019  
 SCALE: AS SHOWN  
 DRAWING NO. 1  
 SHEET NO. 1

APPROVED BY: CHRISTINE S. ELLERBEGER, FLORIDA REGISTRATION NO. 56418  
 PROJECT ENGINEER  
**JEA** Building Community

PROJECT TITLE: T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
 COVER SHEET

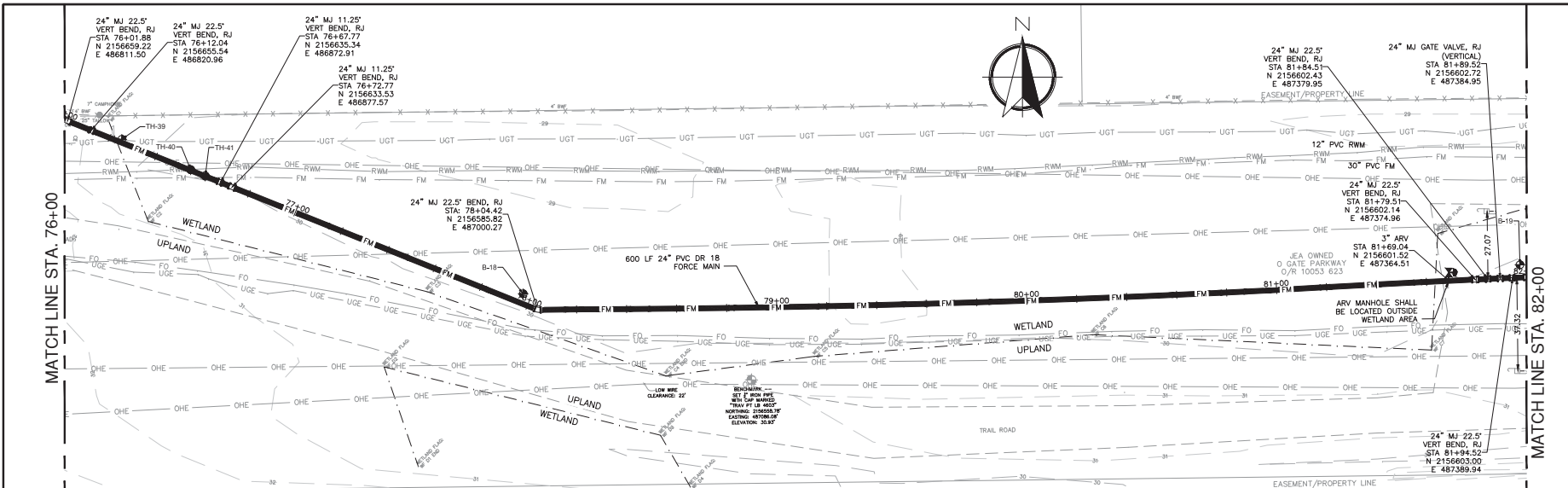




C:\working\jacobs\_bak\issd\jma2833\JTb P&P - 11 - End forest.dwg

Thu Jun 24, 2019 - 13:48

Current Layout Tab = FORCE MAIN PLAN AND PROFILE 14

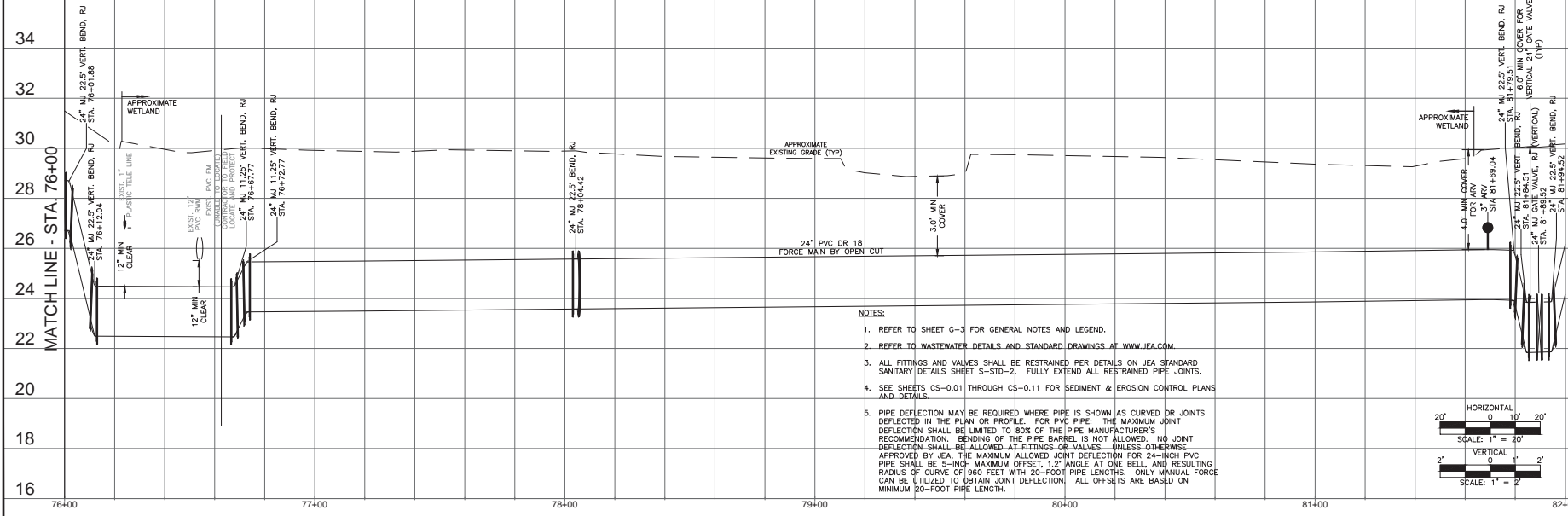


LOT 135  
4479 ECTON LANE EAST

TRACT E  
OLD MILL BRANCH UNIT 3  
PLAT BOOK 56 PAGE 18  
O/R 9760 879

TRACT E  
OLD MILL BRANCH UNIT 3  
PLAT BOOK 56 PAGE 18  
O/R 9760 879

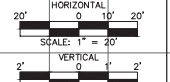
EASEMENT/PROPERTY LINE



76+00 77+00 78+00 79+00 80+00 81+00 82+00

NOTES:

1. REFER TO SHEET G-3 FOR GENERAL NOTES AND LEGEND.
2. REFER TO WASTEWATER DETAILS AND STANDARD DRAWINGS AT WWW.JEA.COM
3. ALL FITTINGS AND VALVES SHALL BE RESTRAINED PER DETAILS ON JEA STANDARD SANITARY DETAILS SHEET S-STD-2. FULLY EXTEND ALL RESTRAINED PIPE JOINTS.
4. SEE SHEETS CS-0.01 THROUGH CS-0.11 FOR SEDIMENT & EROSION CONTROL PLANS AND DETAILS.
5. PIPE DEFLECTION MAY BE REQUIRED WHERE PIPE IS SHOWN AS CURVED OR JOINTS DEFLECTED IN THE PLAN OR PROFILE. FOR PVC PIPE, THE MAXIMUM JOINT DEFLECTION SHALL BE LIMITED TO 30% OF THE PIPE MANUFACTURER'S RECOMMENDATION. BENDING OF THE PIPE BARREL IS NOT ALLOWED. NO JOINT DEFLECTION SHALL BE ALLOWED AT FITTINGS OR VALVES, UNLESS OTHERWISE APPROVED BY JEA. THE MAXIMUM ALLOWED JOINT DEFLECTION FOR 24-INCH PVC PIPE SHALL BE 5-INCH MAXIMUM OFFSET, 1.2° ANGLE AT ONE BELL AND RESULTING RADIUS OF CURVE OF 960 FEET WITH 20-FOOT PIPE LENGTHS. ONLY MANUAL FORCE CAN BE UTILIZED TO OBTAIN JOINT DEFLECTION. ALL OFFSETS ARE BASED ON MINIMUM 20-FOOT PIPE LENGTH.



**JACOBS**  
200 WEST FORSTH STREET, SUITE 1500  
JACKSONVILLE, FL 32202  
T: (904) 636-6432  
F: (904) 636-6433

NO.	BY	DATE	REVISIONS

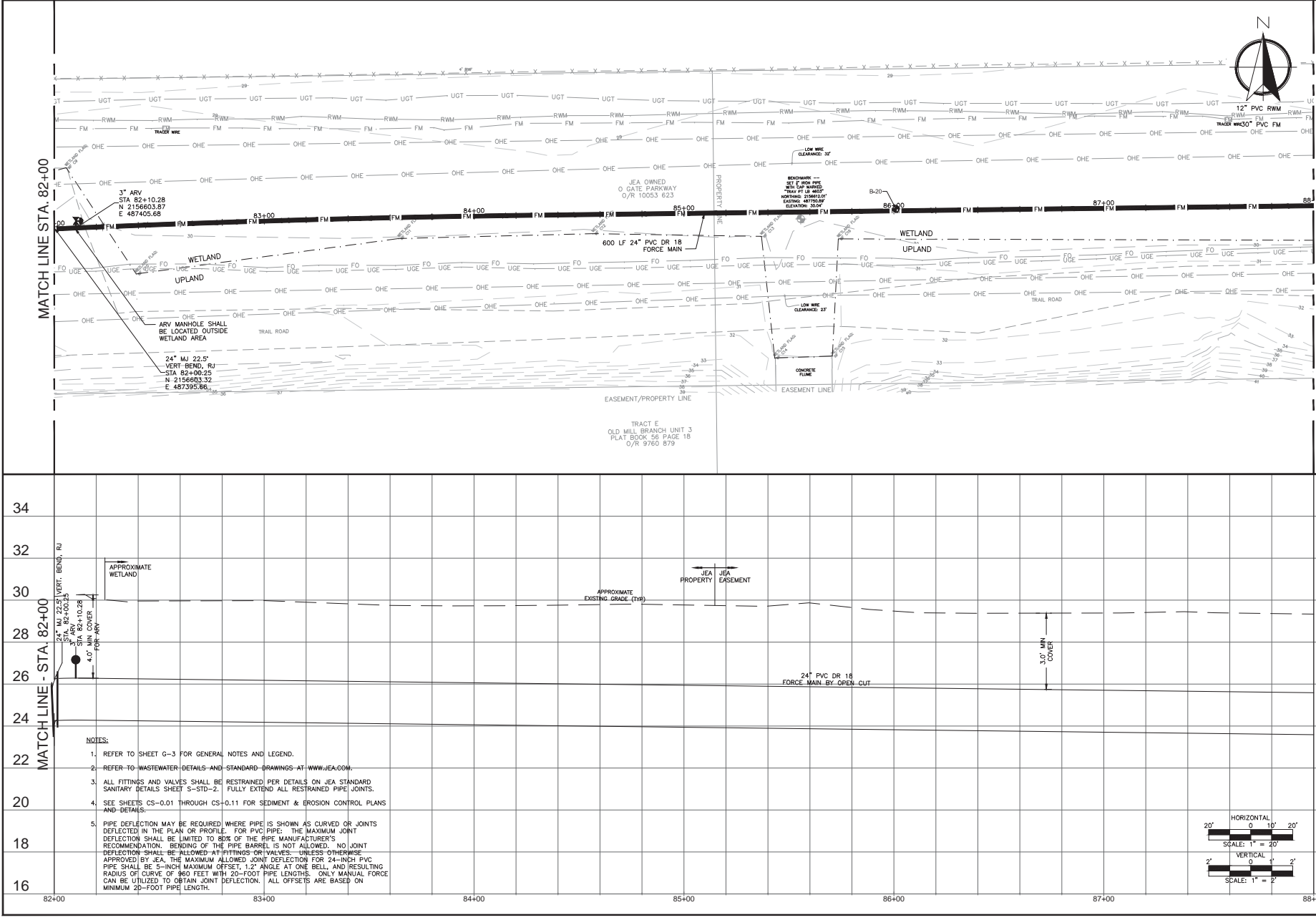
DESIGNED BY	CHARLES ELLINGER
CHECKED BY	FLORIAN TROST
DATE	5/8/18

**JEA**  
Baldwin Community

T-LINE - JTb TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
FORCE MAIN PLAN AND PROFILE 14

NO. SHEETS	14 OF 14
PROJECT NO.	8004199
DATE	JANUARY 2018
DRAWING NO.	WEST T-2
SCALE	VERT 1" = 2'

JEA PROJ. NO. : 8004199 PROJ. TITLE : T-LINE - JTb TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN



JACOBS  
200 WEST FORSTH STREET, SUITE 1500  
JACKSONVILLE, FL 32202  
DATE: 01/24/2019

PROJECT NO. 15060  
JOB NO. 15060-01  
PROJECT NAME: TRANSMISSION FORCE MAIN  
DATE: 01/24/2019

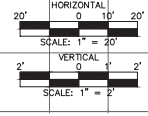
DESIGNED BY: JMA  
CHECKED BY: JMA  
DATE: 01/24/2019

PROJECT TITLE: T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN

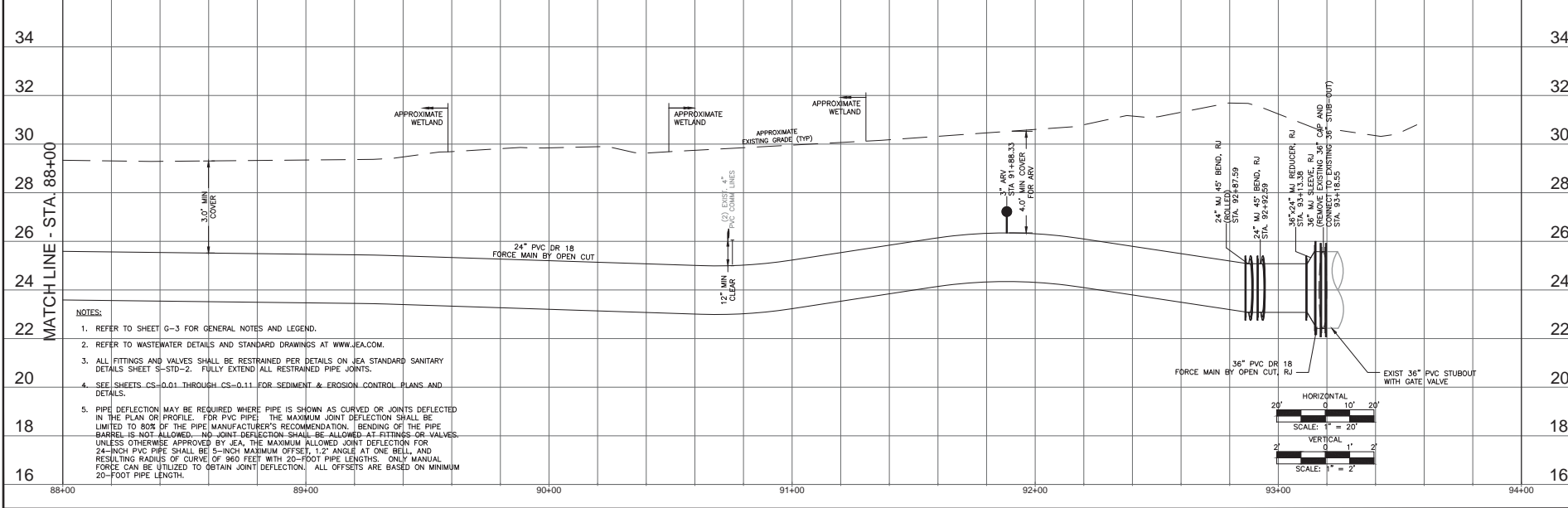
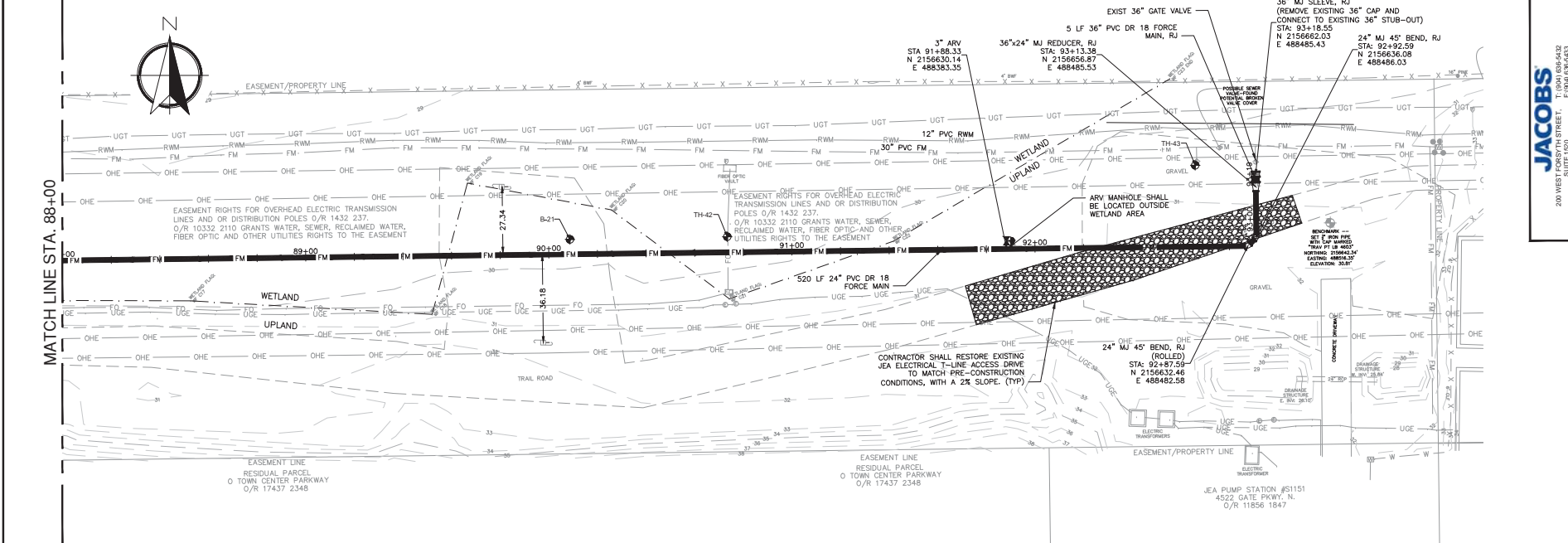
PROJ. NO. ECA00000  
DATE: JANUARY 2019  
SCALE: HORIZ. 1" = 20'  
SCALE: VERT. 1" = 2'

NO. SHEETS	PROJ. NO.	ECA00000	DATE:	JANUARY 2019	SCALE:	HORIZ. 1" = 20'	SCALE:	VERT. 1" = 2'
SHEET NO. 11	DRAWING NO.	15060-01	DATE:	01/24/2019	SCALE:	HORIZ. 1" = 20'	SCALE:	VERT. 1" = 2'
DRAWN BY:		JMA	CHECKED BY:	JMA	DATE:	01/24/2019	PROJECT NO.:	15060
DESIGNED BY:		JMA	CHECKED BY:	JMA	DATE:	01/24/2019	PROJECT NAME:	TRANSMISSION FORCE MAIN
PROJECT TITLE:		T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN						

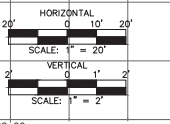
- NOTES:
- REFER TO SHEET G-3 FOR GENERAL NOTES AND LEGEND.
  - REFER TO WASTEWATER DETAILS AND STANDARD DRAWINGS AT [WWW.JEA.COM](http://WWW.JEA.COM).
  - ALL FITTINGS AND VALVES SHALL BE RESTRAINED PER DETAILS ON JEA STANDARD SANITARY DETAILS SHEET S-STD-2. FULLY EXTEND ALL RESTRAINED PIPE JOINTS.
  - SEE SHEETS CS-0.01 THROUGH CS-0.11 FOR SEDIMENT & EROSION CONTROL PLANS AND DETAILS.
  - PIPE DEFLECTION MAY BE REQUIRED WHERE PIPE IS SHOWN AS CURVED OR JOINTS DEFLECTED IN THE PLAN OR PROFILE. FOR PVC PIPE: THE MAXIMUM JOINT DEFLECTION SHALL BE LIMITED TO 80% OF THE PIPE MANUFACTURER'S RECOMMENDATION. BENDING OF THE PIPE BARREL IS NOT ALLOWED. NO JOINT DEFLECTION SHALL BE ALLOWED AT FITTINGS OR VALVES, UNLESS OTHERWISE APPROVED BY JEA. THE MAXIMUM ALLOWED JOINT DEFLECTION FOR 24-INCH PVC PIPE SHALL BE 5-INCH MAXIMUM OFFSET, 1.2° ANGLE AT ONE BELL, AND RESULTING RADIUS OF CURVE OF 960 FEET WITH 20-FOOT PIPE LENGTHS. ONLY MANUAL FORCE CAN BE UTILIZED TO OBTAIN JOINT DEFLECTION. ALL OFFSETS ARE BASED ON MINIMUM 20-FOOT PIPE LENGTH.



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- NOTES:
1. REFER TO SHEET G-3 FOR GENERAL NOTES AND LEGEND.
  2. REFER TO WASTEWATER DETAILS AND STANDARD DRAWINGS AT WWW.JEA.COM.
  3. ALL FITTINGS AND VALVES SHALL BE RESTRAINED PER DETAILS ON JEA STANDARD SANITARY DETAILS SHEET S-STD-2. FULLY EXTEND ALL RESTRAINED PIPE JOINTS.
  4. SEE SHEETS CS-0.01 THROUGH CS-0.11 FOR SEDIMENT & EROSION CONTROL PLANS AND DETAILS.
  5. PIPE DEFLECTION MAY BE REQUIRED WHERE PIPE IS SHOWN AS CURVED OR JOINTS DEFLECTED IN THE PLAN OR PROFILE. FOR PVC PIPE THE MAXIMUM JOINT DEFLECTION SHALL BE LIMITED TO 80% OF THE PIPE MANUFACTURER'S RECOMMENDATION. BENDING OF THE PIPE BARREL IS NOT ALLOWED. NO JOINT DEFLECTION SHALL BE ALLOWED AT FITTINGS OR VALVES. UNLESS OTHERWISE APPROVED BY JEA, THE MAXIMUM ALLOWED JOINT DEFLECTION FOR 24-INCH PVC PIPE SHALL BE 5-INCH MAXIMUM OFFSET, 1.2° ANGLE AT ONE BELL, AND RESULTING RADIUS OF CURVE OF 960 FEET WITH 20-FOOT PIPE LENGTHS. ONLY MANUAL FORCE CAN BE UTILIZED TO OBTAIN JOINT DEFLECTION. ALL OFFSETS ARE BASED ON MINIMUM 20-FOOT PIPE LENGTH.



NO.	DATE	BY	CHECKED	SCALE
	DATE			
1	05/04/10	JACOBSON	REVISIONS	

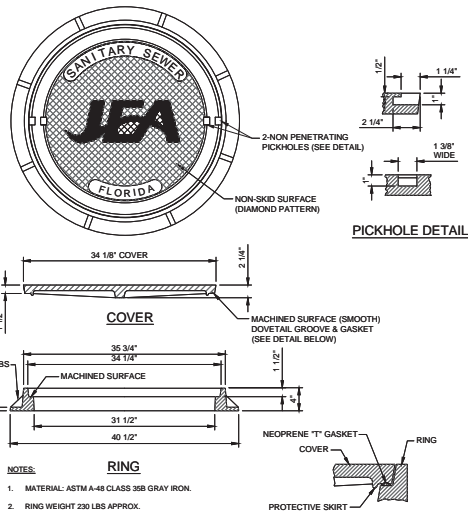
PROJECT NO.	105666843
DATE	05/04/10
DRAWING NO.	11-020
DATE	
PROJECT NAME	CHARLOTTE ELLERRE BOULEVARD
CLIENT	FLORIDA HOUSING FINANCE CORPORATION
DATE	05/19/09
SCALE	5/8"=1'

**JEA**  
BUILDING COMMUNITY

T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
TRANSMISSION FORCE MAIN  
FORCE MAIN PLAN AND PROFILE 16

NO. SHEETS	16
PROJ. NO.	105666843
DATE	05/04/10
SCALE	HORIZ. 1" = 20'
	VERT. 1" = 2'

JACOBS ENGINEERING, INC. 200 WEST FORSTH STREET, SUITE 1500 JACKSONVILLE, FL 32202  
T: (904) 633-5432 F: (904) 633-5433  
JEA PROJECT NO.: 8004196 PROJECT TITLE: T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
JOB NO.:

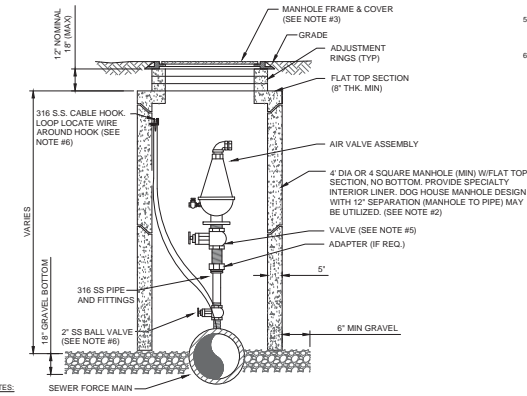


- NOTES:**
- MATERIAL: ASTM A-48 CLASS 35B GRAY IRON.
  - RING WEIGHT 230 LBS APPROX.
  - COVER WEIGHT 230 LBS APPROX.
  - ALL DIMENSIONS ARE SHOWN IN INCHES.
  - FOR MANHOLES WHICH WILL BE MAINTAINED BY JEA (INCLUDING UTILITY DEDICATION PROJECTS), THE COVER SHALL INCLUDE THE "JEA" LOGO AND A NEOPRENE GASKET.
  - FOR MANHOLES WHICH WILL BE MAINTAINED BY PARTIES OTHER THAN JEA (SUCH AS PRIVATE SEWER COLLECTION SYSTEMS, PRIVATE FORCE MAIN PUMP OUT BOX AND SYSTEMS NOT MAINTAINED BY JEA), THE COVER SHALL INCLUDE "SANITARY SEWER" GENERIC LETTERING (NO "JEA" LOGO OR NEOPRENE GASKET).

### SANITARY SEWER MANHOLE FRAME AND COVER

JANUARY 2019

PLATE S-1

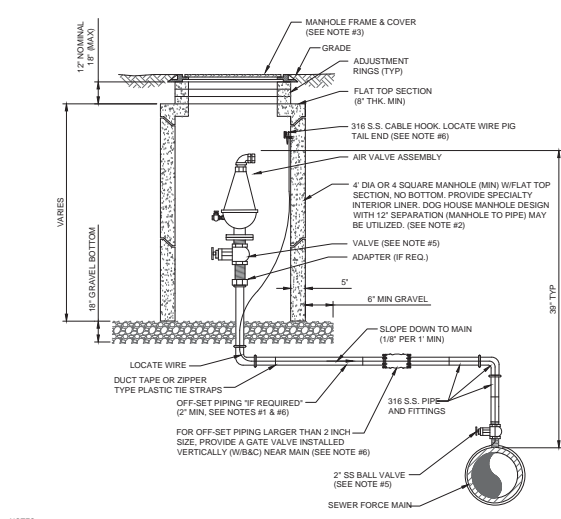


- NOTES:**
- THE AIR ASSEMBLY MANHOLE SHALL BE LOCATED OUTSIDE OF THE ROADWAY PAVEMENT AREA (I.E. LOCATED IN NON-TRAFFIC AREAS).
  - THE CONCRETE MANHOLE SHALL INCLUDE A POLYURETHANE SPECIALTY LINER (PER SPEC SECTION 446) TO BE INSTALLED ON THE INTERIOR SURFACES INCLUDING THE RISER SECTION TOP AND THE ADJUSTMENT RINGS. A BITUMINOUS WATERPROOFING MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SURFACES OF THE MANHOLE.
  - FRAME AND COVER SHALL BE JEA STANDARD. THE COVER SHALL HAVE NO GASKET TO ALLOW AIR TO EXIT VAULT (REMOVE GASKET IF NECESSARY FROM THE UNDER SIDE OF STANDARD JEA COVER). THE COVER (WHEN FLOPPED OPEN) MUST CLEAR THE AIR VALVE ASSEMBLY AT ALL TIMES OR A SQUARE TOP WITH ALUMINUM DOOR SHALL BE PROVIDED (NON-TRAFFIC LOCATIONS ONLY).
  - FOR PIPE SIZES 3 INCH AND SMALLER, PROVIDE A STAINLESS STEEL BALL VALVE (2" MIN); FOR PIPE SIZES 4 INCH AND LARGER, PROVIDE A FLANGE GATE VALVE (WHEEL OPERATOR) OR PLUG VALVE. (LEVER ARM OPERATOR) SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
  - FOR A 2" AIR VALVE, PROVIDE 2" STAINLESS STEEL BALL VALVE AT THE MAIN. FOR AIR VALVES LARGER THAN 2" SIZE, PROVIDE A TAPPING SLEEVE OR DUCTILE IRON TEE FITTING. ALSO, FOR OFF-SET PIPING LARGER THAN 2 INCH SIZE, PROVIDE A GATE VALVE (INSTALLED VERTICALLY NEAR MAIN). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
  - LOCATE WIRE SHALL HAVE ENOUGH SLACK TO REACH 4" ABOVE FINAL GRADE.

### AIR VALVE ASSEMBLY INSIDE MANHOLE IN ROW

JANUARY 2019

PLATE S-29B

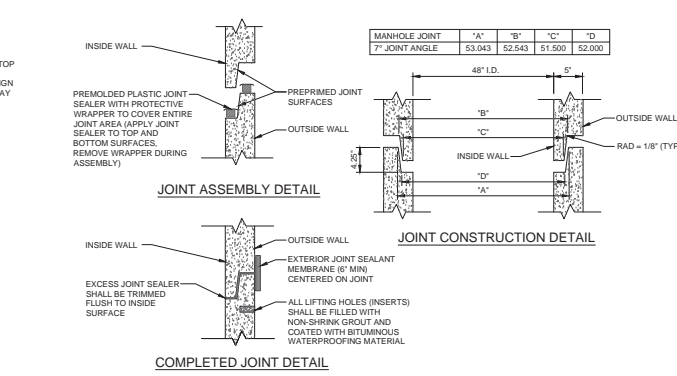


- NOTES:**
- THE AIR ASSEMBLY MANHOLE SHALL BE LOCATED OUTSIDE OF THE ROADWAY PAVEMENT AREA (I.E. LOCATED IN NON-TRAFFIC AREAS). IF OFF-SET PIPING IS REQUIRED, THE PIPING SHALL BE 2 INCH MINIMUM (SAME SIZE AS AIR VALVE INLET). FOR PIPE SIZES 3 INCH AND SMALLER, PIPING SHALL BE 316 STAINLESS STEEL, SCH. 40, STD GRADE, THREADED. FOR PIPE SIZES 4 INCH AND LARGER, PIPING SHALL BE 316 STAINLESS STEEL, SCH. 10 MIN, WELDED OR PVC DR 18 PIPE AND FITTINGS RESTRAINED.
  - THE CONCRETE MANHOLE SHALL INCLUDE A POLYURETHANE SPECIALTY LINER (PER SPEC SECTION 446) TO BE INSTALLED ON THE INTERIOR SURFACES INCLUDING THE RISER SECTION TOP AND THE ADJUSTMENT RINGS. A BITUMINOUS WATERPROOFING MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SURFACES OF THE MANHOLE.
  - FRAME AND COVER SHALL BE JEA STANDARD. THE COVER SHALL HAVE NO GASKET TO ALLOW AIR TO EXIT VAULT (REMOVE GASKET IF NECESSARY FROM THE UNDER SIDE OF STANDARD JEA COVER). THE COVER (WHEN FLOPPED OPEN) MUST CLEAR THE AIR VALVE ASSEMBLY AT ALL TIMES OR A SQUARE TOP WITH ALUMINUM DOOR SHALL BE PROVIDED (NON-TRAFFIC LOCATIONS ONLY).
  - FOR PIPE SIZES 3 INCH AND SMALLER, PROVIDE A STAINLESS STEEL BALL VALVE (2" MIN); FOR PIPE SIZES 4 INCH AND LARGER, PROVIDE A FLANGE GATE VALVE (WHEEL OPERATOR) OR PLUG VALVE. (LEVER ARM OPERATOR) SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
  - FOR A 2" AIR VALVE, PROVIDE 2" STAINLESS STEEL BALL VALVE AT THE MAIN. FOR AIR VALVES LARGER THAN 2" SIZE, PROVIDE A TAPPING SLEEVE OR DUCTILE IRON TEE FITTING. ALSO, FOR OFF-SET PIPING LARGER THAN 2 INCH SIZE, PROVIDE A GATE VALVE (INSTALLED VERTICALLY NEAR MAIN). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
  - LOCATE WIRE SHALL HAVE ENOUGH SLACK TO REACH 4" ABOVE FINAL GRADE.

### AIR VALVE ASSEMBLY INSIDE MANHOLE

JANUARY 2019

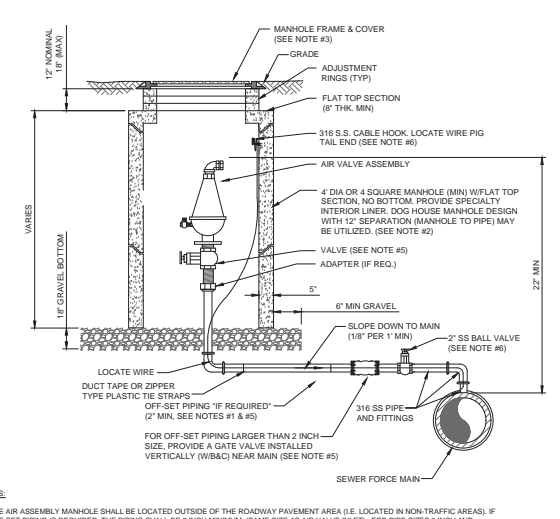
PLATE S-29



### PRECAST CONCRETE SEWER MANHOLE JOINT DETAIL

JANUARY 2019

PLATE S-17



- NOTES:**
- THE AIR ASSEMBLY MANHOLE SHALL BE LOCATED OUTSIDE OF THE ROADWAY PAVEMENT AREA (I.E. LOCATED IN NON-TRAFFIC AREAS). IF OFF-SET PIPING IS REQUIRED, THE PIPING SHALL BE 2 INCH MINIMUM (SAME SIZE AS AIR VALVE INLET). FOR PIPE SIZES 3 INCH AND SMALLER, PIPING SHALL BE 316 STAINLESS STEEL, SCH. 40, STD GRADE, THREADED. FOR PIPE SIZES 4 INCH AND LARGER, PIPING SHALL BE 316 STAINLESS STEEL, SCH. 10 MIN, WELDED OR PVC DR 18 PIPE AND FITTINGS RESTRAINED.
  - THE CONCRETE MANHOLE SHALL INCLUDE A POLYURETHANE SPECIALTY LINER (PER SPEC SECTION 446) TO BE INSTALLED ON THE INTERIOR SURFACES INCLUDING THE RISER SECTION TOP AND THE ADJUSTMENT RINGS. A BITUMINOUS WATERPROOFING MATERIAL SHALL BE PROVIDED ON THE OUTSIDE SURFACES OF THE MANHOLE.
  - FRAME AND COVER SHALL BE JEA STANDARD. THE COVER SHALL HAVE NO GASKET TO ALLOW AIR TO EXIT VAULT (REMOVE GASKET IF NECESSARY FROM THE UNDER SIDE OF STANDARD JEA COVER). THE COVER (WHEN FLOPPED OPEN) MUST CLEAR THE AIR VALVE ASSEMBLY AT ALL TIMES OR A SQUARE TOP WITH ALUMINUM DOOR SHALL BE PROVIDED (NON-TRAFFIC LOCATIONS ONLY).
  - FOR PIPE SIZES 3 INCH AND SMALLER, PROVIDE A STAINLESS STEEL BALL VALVE (2" MIN); FOR PIPE SIZES 4 INCH AND LARGER, PROVIDE A FLANGE GATE VALVE (WHEEL OPERATOR) OR PLUG VALVE. (LEVER ARM OPERATOR) SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
  - FOR A 2" AIR VALVE, PROVIDE 2" STAINLESS STEEL BALL VALVE AT THE MAIN. FOR AIR VALVES LARGER THAN 2" SIZE, PROVIDE A TAPPING SLEEVE OR DUCTILE IRON TEE FITTING. ALSO, FOR OFF-SET PIPING LARGER THAN 2 INCH SIZE, PROVIDE A GATE VALVE (INSTALLED VERTICALLY NEAR MAIN). SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
  - LOCATE WIRE SHALL HAVE ENOUGH SLACK TO REACH 4" ABOVE FINAL GRADE.

### OPTIONAL LOW PROFILE AIR VALVE ASSEMBLY INSIDE MANHOLE

JANUARY 2019

PLATE S-29A

**JACOBS**  
200 WEST FORSTH STREET, SUITE 1500 JACKSONVILLE, FL 32202  
T: (904) 435-5432 F: (904) 696-6433

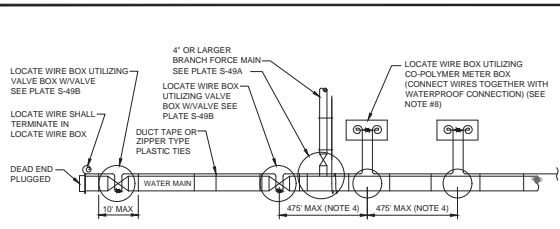
NO.	DATE	BY	REVISIONS

PROJECT: T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
DRAWING NO: 22  
SCALE: AS SHOWN  
DATE: JANUARY 2019  
PROJECT NO.: 8004199

JEA logo: JEA Building Authority

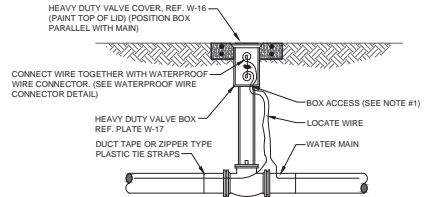


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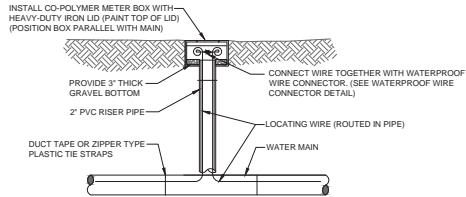


- LOCATE WIRE SYSTEM**
- NOTES:**
- LOCATING WIRE TO BE INSTALLED IN EITHER THE ONE OR ELEVEN O'CLOCK POSITION ON ALL DUCTILE IRON OR PVC (PRESSURE MAINS). LOCATE WIRE SHALL ALSO BE INSTALLED ON ALL (HDPE) POLY MAIN PIPING (1:50 OR 1:100 POSITION, IF POSSIBLE).
  - SECURE LOCATING WIRE TO PVC FORCE MAIN BY USE OF DUCT TAPE OR ZIPPER TYPE PLASTIC TIE STRAPS SPACED AT A MAXIMUM DISTANCE OF TEN (10) AND AT EACH SIDE OF BELL JOINT OR FITTING.
  - THE ENTIRE LOCATING SYSTEM SHALL BE SUBJECTED TO TESTING TO DETERMINE ITS RELIABILITY. WHERE INSTALLED UNDER PAVEMENT AREAS, TESTING SHALL BE DONE PRIOR TO THE PLACEMENT OF PAVEMENT, UNLESS APPROVED OTHERWISE BY JEA.
  - LOCATING WIRE SHALL TERMINATE WITHIN AN ACTIVE VALVE BOX (WITH A VALVE) OR A METER BOX (IF NO VALVE) AT 475' INTERVALS. SEE DETAIL PLATE S-49B. WIRE CONNECTIONS BELOW GROUND (OUTSIDE OF A BOX) SHALL BE AVOIDED.
  - LOCATING WIRE SHALL BE 12 GAUGE COPPER WIRE WITH .03 INCHES (MINIMUM) HDPE INSULATION THICKNESS, 0.141 INCHES (MINIMUM) O.D. RATED BREAK LOAD 250LBS. UP RATED (DIRECT BURIAL). GREEN COLOR. FOR HDD INSTALLATIONS, THE LOCATE WIRE SHALL BE COPPER COATED STEEL AS SPECIFIED IN SPEC. SECTION 702.
  - INDICATES THAT THE WIRES ARE CONNECTED TOGETHER WITH WATERPROOF CONNECTION. (SEE DETAIL W-49B)
  - INDICATES A WIRE PIG-TAIL (2" LONG)
  - AN 1/8" CUT SHALL BE CARVED IN THE CONCRETE CURB AND PAINTED AT ALL LOCATE WIRE BOXES.
  - FOUR LANES OF TRAFFIC (HAVING TWO LANES OF TRAFFIC IN EACH DIRECTION) OR GREATER THE LOCATE WIRE AND VALVE BOX SHALL BE OFF-SET TO THE RIGHT OF WAY.

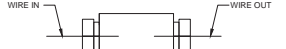
**LOCATE WIRE CONSTRUCTION FOR FORCE MAINS**  
 JANUARY 2019 PLATE S-49



**LOCATE WIRE BOX UTILIZING VALVE BOX**



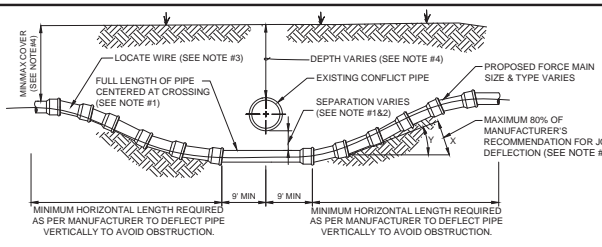
**LOCATE WIRE BOX UTILIZING METER BOX**



**WATERPROOF WIRE CONNECTOR DETAIL**

- NOTES:**
- LOCATE WIRE SHALL ENTER THE VALVE BOX THROUGH A "V" CUT IN THE 6" PVC RISER PIPE (SEE W-18).
  - LOCATE WIRE SHALL HAVE ENOUGH SLACK TO REACH 4" ABOVE FINAL GRADE AND LOCATE POINTS.
  - LOCATE WIRE CONNECTION SHALL ONLY BE A 2-WAY CONNECTION.

**LOCATE WIRE BOX**  
 JANUARY 2019 PLATE S-49B



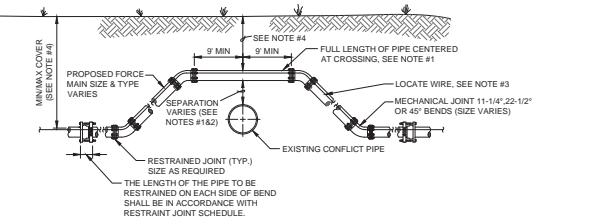
- CASE "B" CROSSING**
- NOTES:**
- IF EXISTING CONFLICT PIPE IS A WATER MAIN OR RECLAIM WATER MAIN, 12-INCHES OF SEPARATION IS REQUIRED. A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
  - FOR OTHER LOCATION LIMITATIONS SEE DETAIL (S-26 & S-27).
  - LOCATING WIRE REQUIRED. SEE DETAIL S-49.
  - THE COVER OVER ALL PIPING LESS THAN 24" SIZE SHALL BE A MINIMUM OF 30" IN UNPAVED AREAS AND 36" IN PAVED AREAS WITH A MAXIMUM COVER OF 60" UNLESS APPROVED OTHERWISE BY JEA. THE COVER FOR PIPING 24" SIZE AND LARGER SHALL BE MINIMUM OF 36" (PAVED AND UNPAVED) AND MAXIMUM OF 84" UNLESS APPROVED OTHERWISE BY JEA. THE SOLS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.
  - JEA ONLY ALLOWS 80% OF THE PIPE MANUFACTURER'S RECOMMENDATION FOR JOINT DEFLECTION. BENDING THE PIPE BARREL IS NOT ALLOWED, UNLESS OTHERWISE APPROVED BY JEA. THE MAXIMUM ARE LISTED IN TABLE BELOW. ONLY MANUAL FORCE CAN BE UTILIZED TO OBTAIN THESE JOINT DEFLECTION. ALL OFFSETS ARE BASED ON MINIMUM 20LF PIPE LENGTH.

**MAXIMUM ALLOWED OFFSET FOR PIPE BY JOINT DEFLECTION**

PVC PIPE			
PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS
2	30	7°	158 FT
4	10	2.4°	480 FT
6	10	2.4°	480 FT
8	10	2.4°	480 FT
10	10	2.4°	480 FT
12	8.5	2°	564 FT
14-24	5	1.2°	960 FT
30-48	3.25	0.8°	1477 FT

**ADJUSTMENT UNDER EXISTING UTILITIES PIPE JOINT DEFLECTION**

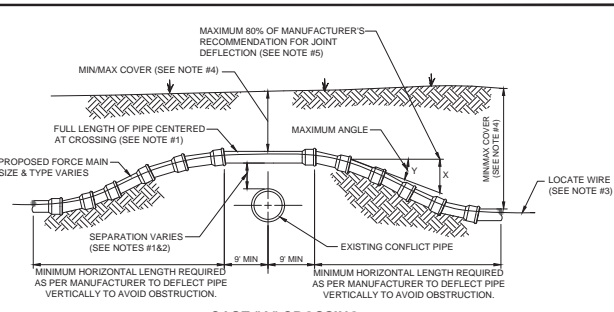
JANUARY 2019 PLATE S - 47



- CASE "A" CROSSING**
- NOTES:**
- IF EXISTING CONFLICT PIPE IS A WATER OR RECLAIMED WATER MAIN, 12-INCHES OF SEPARATION IS REQUIRED. A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
  - FOR OTHER LOCATION LIMITATIONS SEE DETAIL (S-26 & S-27).
  - LOCATING WIRE REQUIRED. SEE DETAIL S-49.
  - THE COVER FOR PIPING LESS THAN 24" SIZE SHALL BE 30" (MIN) IN UNPAVED AREAS, 36" (MIN) IN PAVED AREAS AND A MAXIMUM COVER OF 60" UNLESS PRE-APPROVED BY JEA. THE COVER FOR PIPING 24" SIZE AND LARGER SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84" UNLESS APPROVED BY JEA.
  - THE SOLS BETWEEN THE MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.

**ADJUSTMENT OVER EXISTING UTILITIES MECHANICAL RESTRAINTS**

JANUARY 2019 PLATE S-39



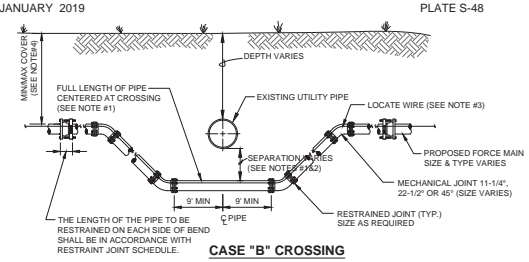
**CASE "A" CROSSING**

- NOTES:**
- IF EXISTING CONFLICT PIPE IS A WATER MAIN OR RECLAIM WATER MAIN, 12-INCHES OF SEPARATION IS REQUIRED. A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
  - FOR OTHER LOCATION LIMITATIONS SEE DETAIL (S-26 & S-27).
  - LOCATING WIRE REQUIRED. SEE DETAIL S-49.
  - THE COVER OVER ALL PIPING LESS THAN 24" SIZE SHALL BE A MINIMUM OF 30" IN UNPAVED AREAS AND 36" IN PAVED AREAS WITH A MAXIMUM COVER OF 60" UNLESS APPROVED OTHERWISE BY JEA. THE COVER FOR PIPING 24" SIZE AND LARGER SHALL BE MINIMUM OF 36" (PAVED AND UNPAVED) AND MAXIMUM OF 84" UNLESS APPROVED OTHERWISE BY JEA. THE SOLS BETWEEN THE NEW MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.
  - JEA ONLY ALLOWS 80% OF THE PIPE MANUFACTURER'S RECOMMENDATION FOR JOINT DEFLECTION. BENDING THE PIPE BARREL IS NOT ALLOWED, UNLESS OTHERWISE APPROVED BY JEA. THE MAXIMUM ARE LISTED IN TABLE BELOW. ONLY MANUAL FORCE CAN BE UTILIZED TO OBTAIN THESE JOINT DEFLECTION. ALL OFFSETS ARE BASED ON MINIMUM 20LF PIPE LENGTH.

**MAXIMUM ALLOWED OFFSET FOR PIPE BY JOINT DEFLECTION**

PVC PIPE			
PIPE SIZE (IN.)	(X) MAX. OFFSET (IN.)	(Y) ANGLE AT ONE BELL	RESULTING RADIUS OF CURVE WITH 20FT. LENGTHS
2	30	7°	158 FT
4	10	2.4°	480 FT
6	10	2.4°	480 FT
8	10	2.4°	480 FT
10	10	2.4°	480 FT
12	8.5	2°	564 FT
14-24	5	1.2°	960 FT
30-48	3.25	0.8°	1477 FT

**ADJUSTMENT OVER EXISTING UTILITIES PIPE JOINT DEFLECTION**



- CASE "B" CROSSING**
- NOTES:**
- IF EXISTING CONFLICT PIPE IS A WATER OR RECLAIMED WATER MAIN, 12-INCHES OF SEPARATION IS REQUIRED. A FULL LENGTH OF PIPE SHALL BE CENTERED OVER EXISTING UTILITY MAIN TO PROVIDE MAXIMUM JOINT SPACING FOR ALL CROSSINGS.
  - FOR OTHER LOCATION LIMITATIONS SEE DETAIL (S-26 & S-27).
  - LOCATING WIRE REQUIRED. SEE DETAIL S-49.
  - THE COVER FOR PIPING LESS THAN 24" SIZE SHALL BE 30" (MIN) IN UNPAVED AREAS, 36" (MIN) IN PAVED AREAS AND A MAXIMUM COVER OF 60" UNLESS PRE-APPROVED BY JEA. THE COVER FOR PIPING 24" SIZE AND LARGER SHALL BE 36" (MIN) IN PAVED AND UNPAVED AREAS AND A MAXIMUM COVER OF 84" UNLESS APPROVED BY JEA.
  - THE SOLS BETWEEN THE MAIN AND THE CONFLICT PIPE SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST ASTM D 1557.

**ADJUSTMENT UNDER EXISTING UTILITIES MECHANICAL RESTRAINTS**

JANUARY 2019 PLATE S-41

**JACOBS**  
 200 WEST FORSTH STREET, SUITE 1500  
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NO. BY DATE  
 REVISIONS

PROJECT: T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
 DRAWING NO. 24  
 SCALE: AS SHOWN

DATE: JANUARY 2019  
 SCALE: AS SHOWN

PROJECT MANAGER: JACOBSON, JEFFREY  
 PROJECT ENGINEER: JACOBSON, JEFFREY  
 PROJECT SUPERVISOR: JACOBSON, JEFFREY  
 PROJECT DESIGNER: JACOBSON, JEFFREY  
 PROJECT CHECKER: JACOBSON, JEFFREY  
 PROJECT DATE: 5/8/19

**JEA**  
 Building Community

T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
 JEA STANDARD SANITARY DETAILS 3

PROJECT NO. 8004199  
 PROJECT DATE: JANUARY 2019  
 SCALE: AS SHOWN

NO. SHEETS: 10  
 SHEET NO.: 24  
 DRAWING NO.: 24

# HORIZONTAL & VERTICAL SEPARATION REQUIREMENTS

PROPOSED UTILITY												
CONFLICTING UTILITY	POTABLE WATER			WASTEWATER GRAVITY AND FORCE MAIN			RECLAIMED WATER			VACUUM SEWERS		
	HORIZ.	VERT.	JOINT SPACING*	HORIZ.	VERT.	JOINT SPACING*	HORIZ.	VERT.	JOINT SPACING*	HORIZ.	VERT.	JOINT SPACING*
POTABLE WATER	3' NOTE 1	12"	3' NOTE 2	6' to 10'	12"	6' NOTE 5	3'	12"	6' NOTE 2	3' to 10'	12"	3' NOTE 2
RECLAIMED WATER	3'	12"	6' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3'	12"	6' NOTE 2	3' NOTE 1	12"	3' NOTE 2
WASTEWATER (GRAVITY AND FORCE MAIN)	6' to 10'	12"	6' NOTE 2	3' NOTE 1	12"	6' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
VACUUM SEWERS	3' to 10'	12"	3' NOTE 2	3' NOTE 1	12"	6'	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
RIGHT OF WAYS	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A	3' NOTE 1	N/A	N/A
PERMANENT STRUCTURES (BUILDINGS, SIGNS, POLES, ETC.)	SEE NOTE 7	N/A	N/A	SEE NOTE 7	N/A	N/A	SEE NOTE 7	N/A	N/A	SEE NOTE 7	N/A	N/A
STORM SEWERS	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
GAS	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2
TREES	3'-6" NOTE 6	N/A	N/A	3'-6" NOTE 6	N/A	N/A	3'-6" NOTE 6	N/A	N/A	3'-6" NOTE 6	N/A	N/A
ALL OTHER UTILITIES	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2	3' NOTE 1	12"	3' NOTE 2

- NOTES:**
1. THIS SEPARATION REQUIREMENT IS TO PROVIDE ACCESSIBILITY FOR CONSTRUCTION AND MAINTENANCE. THREE FEET OF HORIZONTAL SEPARATION IS THE MINIMUM FOR PIPES WITH THREE FEET OF COVER. FOR PIPES INSTALLED AT GREATER DEPTH, PROVIDE AN ADDITIONAL FOOT OF SEPARATION FOR EACH ADDITIONAL FOOT OF DEPTH.
  2. THE MINIMUM JOINT SPACING REQUIRED FROM CROSSING FROM OTHER UTILITIES WHILE STILL MAINTAINING MINIMUM VERTICAL SEPARATION.
  3. DISTANCES GIVEN ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.
  4. NO WATER PIPE SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF SANITARY OR STORM WATER MANHOLE OR STRUCTURES.
  5. WATER MAIN SHOULD CROSS ABOVE OTHER PIPES WHENEVER POSSIBLE. WHEN WATER MAIN MUST BE BELOW OTHER UTILITY PIPING, THE MINIMUM SEPARATION SHALL BE 12 INCHES.
  6. REFER TO SECTION 429, III.4.3.
  7. REFER TO SECTION 429, III.4.2 FOR MINIMUM SEPARATION REQUIREMENTS FROM PIPE TO STRUCTURES.

**SEPARATION REQUIREMENTS FOR  
WATER, WASTEWATER AND RECLAIMED WATER MAINS**  
JANUARY 2019 PLATE S-26

- WATER MAIN AND NON-WATER MAIN SEPARATION REQUIREMENTS - NOTES**
1. IT IS REQUIRED THAT "WATER MAINS" BE INSTALLED, CLEANED, DISINFECTED AND HAVE A SATISFACTORY BACTERIOLOGICAL SURVEY PERFORMED IN ACCORDANCE WITH THE LATEST APPLICABLE AWWA STANDARDS, CHAPTER 62-505, F.A.C. AND LATEST JEA WATER AND SEWER STANDARDS. FOR THE PURPOSE OF THIS SECTION, THE PHRASE "WATER MAINS" SHALL MEAN MAINS INCLUDING TREATMENT PLANT PROCESS PIPING, CONVEYING EITHER RAW, PARTIALLY TREATED, OR FINISHED DRINKING WATER; FIRE HYDRANT LEADS, AND SERVICE LINES THAT HAVE AN INSIDE DIAMETER OF THREE (3) INCHES OR GREATER. IN ADDITION, THE PHRASE "RECLAIMED WATER" REFERS TO THE WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
  2. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE (3) FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER.
  3. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST SIX (6) FEET AND PREFERABLY TEN (10) FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS MAY BE REDUCED TO THREE (3) FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX (6) INCHES ABOVE THE TOP OF THE SEWER (SPECIAL CASE).
  4. NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED GRAVITY OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX (6) INCHES, AND PREFERABLY TWELVE (12) INCHES, ABOVE OR AT LEAST TWELVE (12) INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
  5. NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST TWELVE (12) INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
  6. AT THE UTILITY CROSSINGS DESCRIBED IN NOTES 4 AND 5 ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE (3) FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER, AND AT LEAST SIX (6) FEET FROM ALL JOINTS IN GRAVITY OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINE CONVEYING RECLAIMED WATER.
  7. NEW OR RELOCATED FIRE HYDRANTS SHALL BE LOCATED SO THAT THE HYDRANTS ARE AT LEAST THREE (3) FEET FROM ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER, AT LEAST THREE (3) FEET, AND PREFERABLY TEN (10) FEET, FROM ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER, AT LEAST SIX (6) FEET, AND PREFERABLY TEN (10) FEET, FROM ANY EXISTING OR PROPOSED GRAVITY OR PRESSURE-TYPE SANITARY SEWER OR WASTEWATER FORCE MAIN.
  8. WHERE AN UNDERGROUND WATER MAIN IS BEING LAID LESS THAN THE REQUIRED MINIMUM HORIZONTAL DISTANCE FROM ANOTHER PIPELINE AND WHERE AN UNDERGROUND WATER MAIN IS CROSSING ANOTHER PIPELINE AND JOINTS IN THE WATER MAIN ARE BEING LOCATED LESS THAN THE REQUIRED MINIMUM DISTANCE FROM JOINTS IN THE OTHER PIPELINE, THE CONTRACTOR SHALL CONSULT THE DESIGN ENGINEER TO OBTAIN APPROVAL OF ANY ALTERNATIVE CONSTRUCTION METHODS, PRIOR TO CONSTRUCTION.

## NOTES ON UTILITY SEPARATION REQUIREMENTS - SEWER

JANUARY 2019 PLATE S-27

**JACOBS**  
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JACKSONVILLE  
REVISEMENTS

**JEA**  
BIRMINGHAM UNIVERSITY  
FOR  
TRANSMISSION FORCE MAIN

OWNER/ENGINEER: CHRISTOPHERS ELLIOTT ENGINEERING LLC  
LOCAL REGISTRATION NO.: 58419  
DATE: 1/19/2019  
DRAWN BY: JLV  
CHECKED BY: JLV  
DATE: 1/19/2019

T-LINE - JT-B TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
JEA STANDARD SANITARY DETAILS 4

PROJ. NO.: E604000  
SHEET NO.: 25  
DATE: JANUARY 2019  
SCALE: AS SHOWN

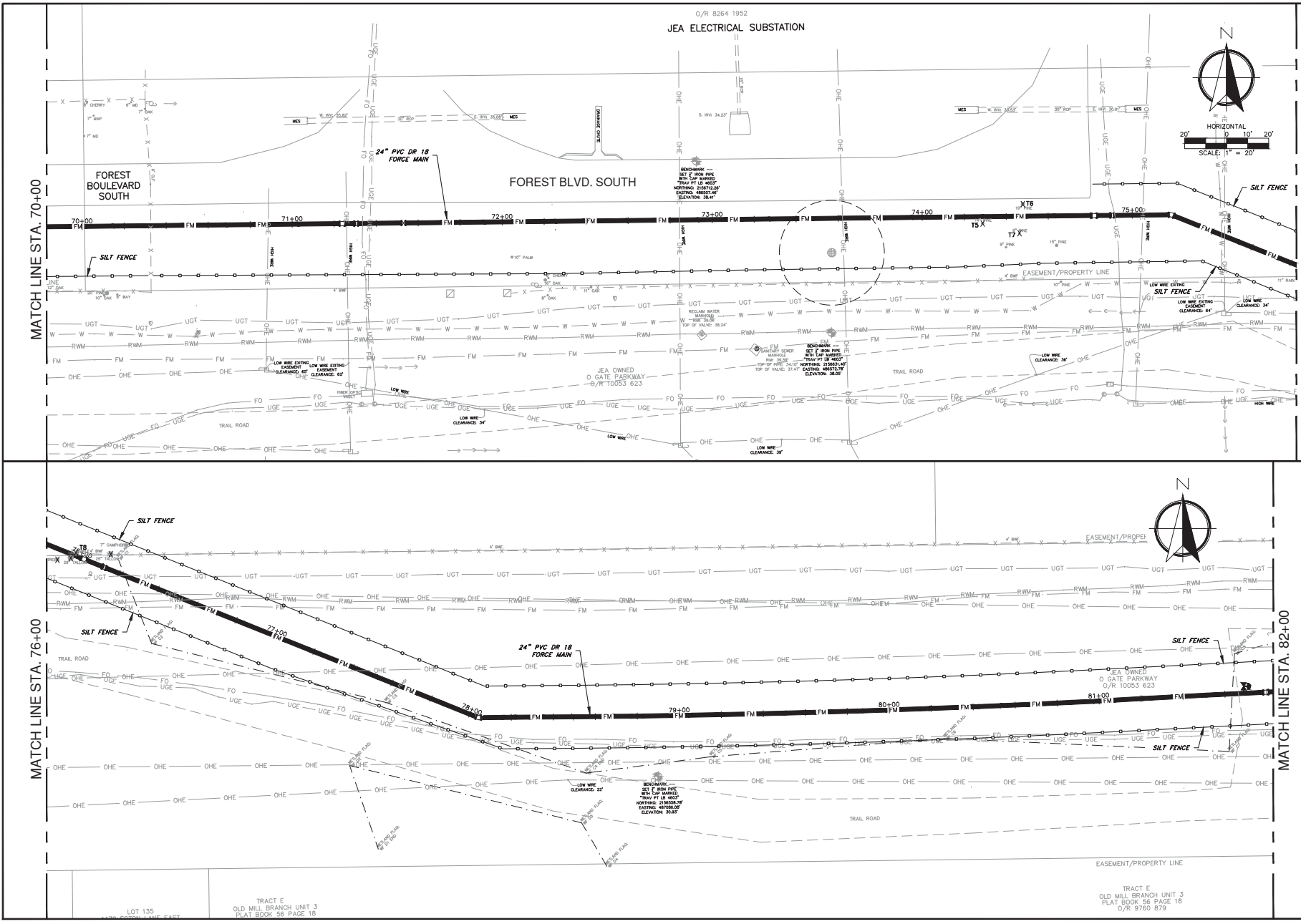
NO. SHEETS: 25  
OF 25  
DRAWING NO.: 052823-01

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 Date Plotted: 1/23/2019 10:53:00 AM  
 Plotter: HP DesignJet T1100e  
 Scale: 1" = 20'  
 User: jacobson

2:\Projects\8005 JTB to Town Center Parkway\Drawings\8005 JTB Erosion - Edt forest.dwg  
 Date Plotted: 1/23/2019 10:53:00 AM  
 Plotter: HP DesignJet T1100e  
 Scale: 1" = 20'  
 User: jacobson

Current Layout Tab = CS-008

Wed Jan 23, 2019 - 13:21



MATCH LINE STA. 76+00  
 MATCH LINE STA. 82+00

**JACOBS**

200 WEST FORSTHER STREET, SUITE 1500  
 JACKSONVILLE, FL 32202  
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 F: (904) 636-6433  
 JACOBSON DATE: 1/23/2019

PROJECT NO.	8005	DATE	1/23/2019
PROJECT NAME	JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN	CLIENT	JEA
PROJECT LOCATION	TRACT E, OLD MILL BRANCH UNIT 3	PROJECT NO.	8005
PROJECT SHEET NO.	35	PROJECT DATE	1/23/2019
PROJECT SCALE	1" = 20'	PROJECT STATUS	FOR CONSTRUCTION
PROJECT DRAWING NO.	CS-008	PROJECT SHEET NO.	35
PROJECT DATE	1/23/2019	PROJECT SCALE	1" = 20'
PROJECT STATUS	FOR CONSTRUCTION	PROJECT SHEET NO.	35
PROJECT NO.	8005	DATE	1/23/2019
PROJECT NAME	JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN	CLIENT	JEA
PROJECT LOCATION	TRACT E, OLD MILL BRANCH UNIT 3	PROJECT NO.	8005
PROJECT SHEET NO.	35	PROJECT DATE	1/23/2019
PROJECT SCALE	1" = 20'	PROJECT STATUS	FOR CONSTRUCTION
PROJECT DRAWING NO.	CS-008	PROJECT SHEET NO.	35
PROJECT DATE	1/23/2019	PROJECT SCALE	1" = 20'
PROJECT STATUS	FOR CONSTRUCTION	PROJECT SHEET NO.	35

**C&S CONSULTANTS, INC.**

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 JACOBSON DATE: 1/23/2019

**JEA Building Community**

T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN  
 SEDIMENT AND EROSION CONTROL PLAN

NO. SHEETS	35	PROJECT NO.	8005
DATE	1/23/2019	PROJECT NAME	JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN
SCALE	1" = 20'	PROJECT LOCATION	TRACT E, OLD MILL BRANCH UNIT 3
DRAWING NO.	CS-008	PROJECT SHEET NO.	35
DATE	1/23/2019	PROJECT SCALE	1" = 20'
STATUS	FOR CONSTRUCTION	PROJECT SHEET NO.	35

JEA PROJ. NO. : 80041919 PROJ. TITLE : T-LINE - JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN

TRACT E  
 OLD MILL BRANCH UNIT 3  
 PLAT BOOK 56 PAGE 18  
 O/R 9760 878



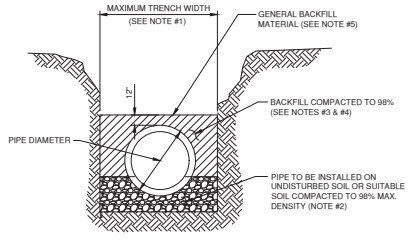


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- SEDIMENT AND EROSION CONTROL NOTES:**
1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL UTILIZE THE FDEP BEST MANAGEMENT PRACTICES.
  2. ALL EXISTING TREES TO BE REMOVED ARE SHOWN IN THE DRAWINGS AND THE TABLE BELOW. ALL OTHER EXISTING TREES ARE TO REMAIN AND SHALL BE PRESERVED AND PROTECTED.
  3. BURNING OF TREES, BRUSH AND OTHER MATERIAL IS NOT ALLOWED.
  4. EROSION CONTROL MEASURES SHALL REMAIN IN PLACE AND MAINTAINED PROPERLY UNTIL PERMANENT VEGETATIVE COVER HAS BEEN ESTABLISHED.
  5. ANY DAMAGE INCURRED BY EROSION SHALL BE RECTIFIED IMMEDIATELY.
  6. AFTER RESTORATION IS COMPLETE, TEMPORARY CONTROL MEASURES SHALL BE REMOVED AND DISPOSED OF PROPERLY.

PROTECTED TREES - REMOVAL AND MITIGATION						
TREE NUMBER	TREE TYPE	DBH (INCHES)	MITIGATION RATIO	MITIGATION REQUIRED (INCHES)	COST FOR MITIGATION PER INCH	MITIGATION FEE
T1	6" OAK	6	3	2.00	\$ 155.00	\$ 310.00
T2	13" OAK	13	3	4.33	\$ 155.00	\$ 671.67
T3	10" OAK	10	3	3.33	\$ 155.00	\$ 516.67
T4	9" PINE	9	3	3.00	\$ 155.00	\$ 465.00
T5	14" PINE	14	3	4.67	\$ 155.00	\$ 723.33
T6	19" PINE	19	3	6.33	\$ 155.00	\$ 981.67
T7	9" PINE	9	3	3.00	\$ 155.00	\$ 465.00
T8	7" MAPLE	7	3	2.33	\$ 155.00	\$ 361.67
T9	7" OAK	7	3	2.33	\$ 155.00	\$ 361.67
T10	6" OAK	6	3	2.00	\$ 155.00	\$ 310.00
<b>TOTAL</b>				<b>33.33</b>		<b>\$ 5,166.67</b>

SUMMARY OF PROTECTED TREE REMOVAL AND MITIGATION						
TREE TYPE	INCHES TO BE REMOVED	MITIGATION RATIO	MITIGATION REQUIRED (INCHES)	COST FOR MITIGATION PER INCH	MITIGATION FEE	
OAK (6"-23")	42	3	14.00	\$ 155.00	\$ 2,170.00	
PINE (6"-23")	51	3	17.00	\$ 155.00	\$ 2,635.00	
BAY (6"-23")	7	3	2.33	\$ 155.00	\$ 361.67	
<b>TOTAL</b>				<b>33.33</b>		<b>\$ 5,166.67</b>

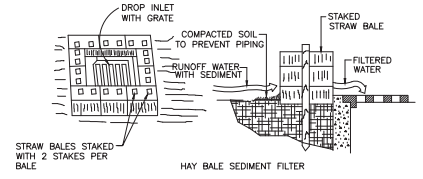


**TYPICAL TRENCH**

- NOTES:**
1. TRENCH SIDES SHALL BE APPROXIMATELY VERTICAL BETWEEN AN ELEVATION OF 1 FOOT ABOVE THE TOP OF THE PIPE AND THE CENTERLINE OF THE PIPE. OTHERWISE, TRENCH SIDES SHALL BE AS VERTICAL AS POSSIBLE OR AS REQUIRED BY OSHA STANDARDS. REFER TO THE MEASUREMENT AND PAYMENT SECTION (SECTION #801, PARAGRAPH #4) TO DETERMINE MAXIMUM PAYLINE WIDTHS.
  2. BELL HOLE SHALL BE DUG TO PERMIT THE ENTIRE STRAIGHT BARREL OF THE PIPE TO REST ON THE UNDISTURBED TRENCH BOTTOM. BOLLERS OR LOOSE ROCKS LARGER THAN 3/4 INCH IN SIZE WILL NOT BE PERMITTED IN BACKFILL UP TO 1 FOOT ABOVE THE TOP OF THE PIPE.
  3. BACKFILL MATERIAL UP TO A LEVEL OF 1 FOOT OVER THE PIPE SHALL CONSIST OF AASHTO CLASS A-3 SOIL (SUITABLE SOIL) AND SHALL EXCLUDE CLAY MATERIALS AND LOOSE ROCKS LARGER THAN 3/4 INCH SIZE.
  4. BACKFILL MATERIAL UP TO A LEVEL 1 FOOT OVER THE TOP OF PIPE OR BOTTOM OF STRUCTURES SHALL BE PLACED IN 6 INCH COMPACTED THICKNESS LAYERS AND SHALL BE COMPACTED TO 98% OF ITS MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D1557.
  5. SEE "EXCAVATION AND EARTHWORK" SECTION 408 FOR ADDITIONAL REQUIREMENTS INCLUDING REMOVAL AND REPLACEMENT OF UNSUITABLE SOILS, DEWATERING, COMPACTOR REQUIREMENTS AND DENSITY TESTING OF COMPACTED SOILS.

**OPEN CUT TRENCH FOR PRESSURE PIPE**

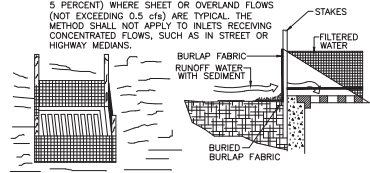
JANUARY 2019                      IN CITY RIGHT -OF-WAY                      PLATE W-42



**HAY BALE SEDIMENT FILTER**

**SPECIFIC APPLICATION**

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 cfs) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

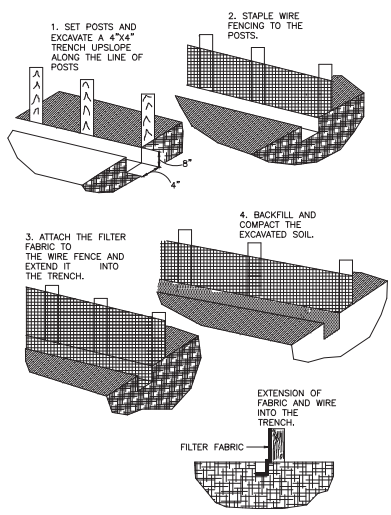


**FABRIC SEDIMENT FILTER**

**SPECIFIC APPLICATION**

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5 PERCENT) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 cfs) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

**DROP INLET SEDIMENT TRAP**  
N.T.S.



**CONSTRUCTION DETAILS FOR SILT FENCES**  
N.T.S.

		PROJECT NO.: 18005 JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN SHEET NO.: W-42 DRAWING NO.:	
		DATE: JANUARY 2019 SCALE: NONE	
PROJECT NO.: 18005 JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN SHEET NO.: W-42 DRAWING NO.:		PROJECT NO.: 18005 JTB TO TOWN CENTER PARKWAY - TRANSMISSION FORCE MAIN SHEET NO.: W-42 DRAWING NO.:	
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