## **General Notes**

Notes and specifications on this sheet refer to paving, grading, drainage, water, and sanitary sewer, and are intended for this projects scope of work and for reference purposes for other work items that may be required due to unforeseen existing conditions or required remedial work.

### 1. Specific Site Notes

- 1.1. County and "City" in these notes refers to County and City in which project resides.
- 1.2. State in these notes refers to the State of Florida.
- 1.3. Existing topographic information in the plans is based on survey data and best available information. See project survey and notes on plan sheets regarding the source of the topographic information.

### 2. Applicable Codes

- 2.1. The contractor shall be responsible for reading and familiarizing themselves with all of the permits previously acquired for this project. The conditions outlined in the permits are in force and full effect as part of the proposed improvements. The contractor is responsible to ensure all work associated with this project is in compliance with all of the requirements of these permits as well as any governing agency having jurisdiction over the project.
- 2.2. All construction and materials shall conform to the standards and specifications of the city, county, and all other jurisdictional, State and national codes where applicable.
- 2.3. In the event of a conflict between the general notes and construction specifications in these plans, and the contract documents and specifications in the specification booklet, the contractor shall submit written request for clarification. However, at a minimum the more stringent standard shall control.
- 2.4. All construction shall be done in a safe manner and in strict compliance with all the requirements of the Federal occupational safety and health act of 1970, and all State and jurisdictional safety and health regulations.
- 2.5. The contractor shall be required to comply with Federal, State, County, and City laws, codes, and regulations.
- 2.6. All handicap accessible areas to conform to the requirements of the Americans with Disabilities Act (ADA), State ADA codes, and Florida Building Code ADA codes latest edition
- 2.7. Trench safety act
- 2.7.1. All trench excavation shall be performed in accordance with chapter 90-96 of the laws of Florida (the trench safety act).
- 2.7.2. All trench excavation in excess of 5 feet in depth shall be undertaken in accordance with O.S.H.A. standard 29 cfr. Section 1926.650 subpart p.
- 2.7.3. The contractor shall submit with his contract a completed, signed, and notarized copy of the trench safety act compliance statement. The contractor shall also submit a separate cost item identifying the cost of compliance with the applicable trench safety codes
- 2.7.4. A trench safety system, if required, shall be designed by the excavation contractor utilizing a specialty engineer as required.
- 3. Construction Notes:
- 3.1. Contractor shall tie to existing grade by evenly sloping from closest proposed grade provided to existing grade at limits of construction, unless otherwise noted on the plans. If no limit of work line is indicated, slope to adjacent property line or right-of-way line, as applicable.
- 3.2. Unless otherwise indicated on the plans, all existing manholes, catch basins, meters and other structures, whether indicated on the plans or not shall be adjusted to match the new grade, by the contractor.
- 3.3. The curb shall be sloped to accommodate the new pavement, catch basin and grate, and the surface flow pattern.
- 3.4. The contractor shall use care when cutting the existing asphalt pavement and during excavations, so that the existing catch basins and grates that are to remain will not be damaged.
- 3.5. The contractor shall maintain the roadway slope when resurfacing the roadway. The edge of pavement shall match the new gutter lip per FDOT index 300.
- 3.6. The new sidewalk shall be constructed in accordance with the given elevations and at the proper slopes depicted in the specifications, details and standards. Existing driveways and other features shall be matched when possible as directed by the engineer.
- 3.7. Radii shown are to the edge of pavement.
- 3.8. All bench mark monuments within the limits of construction shall be protected and referenced by the contractor in the same way as public land corners.
- 3.9. All excess material is to be disposed by the contractor within 72 hours.
- 3.10. In areas where the base is exposed by the milling operation, the contractor shall restore the base to its original thickness and structural capacity before paving over such areas. This includes but is not limited to restoring original degree of compaction, moisture content, composition, stability, and intended slope. If paving will not take place the same day the base is exposed and reworked, the base shall be sealed according to the governing standards and specifications. Any additional work resulting from the contractor's failure to protect the exposed base as stated above in order to restore the original structural capacity shall be the contractor's cost.
- 3.11. The contractor is to maintain existing signage during construction operations, in order to facilitate emergency vehicle traffic.
- 3.12. The topographic survey included with this set of plans reflects pre-demolition conditions and does not reflect the site

conditions after demolition. The contractor is fully and solely responsible in determining the required earthwork for the proposed development of the site. This includes, but is not limited to, any excavation/dredge and fill activities required at any phase of the project. The contractor shall use the final approved (released for construction) plans, surveys, geotechnical reports, and any other available information for determining the amount of excavation/dredging and filling required. Any quantities included in the approved permits were estimated by the engineer for purposes of obtaining the permit and under no circumstances shall be used by the contractor in lieu of performing their own earthwork calculations required for cost estimating and bidding the project.

- 3.13. The contractor shall be responsible for reading and familiarizing themselves with any and all available geotechnical reports prepared by others and/or any recommendations written or implied by the geotechnical engineer for this project. The geotechnical conditions and recommendations outlined in these reports are in force and in full effect as part of the proposed improvements. The contractor is responsible for ensuring that all the work associated with this project is in compliance with the geotechnical engineer's recommendations. Keith and associates, Inc. is not responsible for the suitability or unsuitability of the soils encountered. It is the contractor's responsibility to ensure that the means and methods of construction used can and will allow for the successful completion of the required site improvements.
- 3.14. The contractor shall ensure that the available geotechnical information is sufficient for his complete understanding of the soil conditions for the site. If additional geotechnical investigation is required by the contractor, this additional work shall be considered incidental to the contract and no additional compensation shall be allowed.
- 3.15. The contractor shall be responsible for the repair and restoration of existing pavement, pipes, conduits, sprinkler heads, cables, etc., and landscaped areas damaged as a result of the contractor's operations and/or those of his subcontractors and shall restore at no additional cost.
- 3.16. The contractor shall not bring any hazardous materials onto the project. Should the contractor require such for performing the contracted work, the contractor shall request, in writing, permission from the owner, city and engineer. The contractor shall provide the owner, city and engineer with a copy of the material safety data sheet (MSDS) for each hazardous material proposed for use. The project engineer shall coordinate with the owner and city prior to issuing written approval to the contractor.
- 3.17. Any known or suspected hazardous material found on the project by the contractor shall be immediately reported to the city and/or engineer, who shall direct the contractor to protect the area of known or suspected contamination from further access. The city and/or engineer are to notify the owner/engineer of the discovery. The owner/engineer will arrange for investigation, identification, and remediation of the hazardous material. The contractor shall not return to the area of contamination until approval is provided by the engineer.
- 3.18. The contractor shall contact the appropriate city engineering inspector and engineer 48 hours in advance of the event to notify the city of construction start up, or to schedule all required tests and inspections including final walk-throughs.

#### 4. Preconstruction Responsibilities

- 4.1. All utility / access easements to be secured prior to construction.
- 4.2. No construction may commence until the appropriate permits have been obtained from all municipal, State, County, and Federal agencies.
- 4.3. All required governmental agency building permits to be obtained by the contractor prior to any construction activity.
- 4.4. Contractor to coordinate construction scheduling for connection to the existing water and sewer lines with the utility department that owns and/or maintains the water and sewer lines.
- 4.5. Prior to the start of construction, the Contractor shall submit an NPDES construction general permit (CGP) "notice of intent (N.O.I.) to use Generic Permit for storm water discharge from construction activities form (DEP form 62-621.300(4)(b)) to FDEP notices center. The contractor will be responsible for (1) implementation of the storm water pollution prevention plan (SWPPP) that was required to be developed prior to NOI submittal, and (2) retention of records required by the permit, including retention of a copy of the SWPPP at the construction site from the date of project initiation to the date of final site stabilization. A "notice of termination (N.O.T.) of generic permit coverage" form (DEP form 62-621.300(6)) must be submitted to FDEP to discontinue permit coverage, subsequent to completion of construction. For additional information see FDEP website:

http://www.dep.state.fl.us/water/storm water/npdes

4.6. Prior to construction or installation, shop drawings shall be submitted for review as required for the following items listed below, but not limited to:

Drainage: Catch basins, manholes, headwalls,

grates/tops, yard drains.

Water: Fire hydrants, valves, backflow preventer, DDCV, meter box.

Sewer: Manholes, lift stations (wetwell, hatches, valves, pump data, electrical panel)

- 4.6.1. Catalogue literature shall be submitted for drainage, water and sewer pipes, fittings, and appurtenances.
- 4.6.2. Prior to submitting shop drawings to the engineer, the contractor shall review and approve the drawings, and shall note in red any

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- 4.6.3. Individual shop drawings for all precast structures are required. Catalogue literature will not be accepted for precast structures.
- 4.7. Contractor to submit maintenance of traffic plan(s) in accordance with FDOT and Broward county requirements, and submit for approval prior to beginning construction.
- 5. Inspections / Testing:
- 5.1. The contractor shall notify in writing the owner, the County, the engineer of record, & any other governmental agencies having jurisdiction at least 48 hours prior to beginning construction and prior to required inspections of the following items, where applicable:

  - Clearing and earthwork
  - Storm drainage systems
  - Sanitary sewer systems
  - Water distribution systems
  - Subgrade
  - Limerock base
  - Asphalt or concrete pavement Sidewalks, concrete flatwork/curbing
  - Landscaping
  - Pavement marking and signage
  - Signalization
  - Site lighting
  - Electrical and communication lines
  - Utility conduits
  - Irrigation
  - Final
- 5.2. The owner, engineer, and jurisdictional permitting agencies may make inspections of the work at any time. The contractor shall cooperate fully with all inspections.
- 5.3. Testing all testing required by the plans and specifications shall be performed by a licensed / FDOT qualified testing company. Required test for asphalt and limerock shall be taken at the direction of the engineer or the jurisdictional governmental agency in accordance with the plans and specifications.

## 6. Temporary Facilities

- 6.1. It shall be the contractor's responsibility to arrange for or supply temporary water service, sanitary facilities, communications, and electricity, for his operations and works, cost included under mobilization.
- 6.2. Contractor shall construct temporary fencing to secure construction areas at all times, cost included in mobilization.
- 6.3. Contractor to obtain a secure staging area and obtain all necessary approvals from the owner.
- 6.4. Contractor shall construct and maintain temporary lighting as required to light the construction project limits at all times, to at least the same lighting intensity levels as the existing conditions.
- 6.5. The contractor shall maintain access to adjacent properties at all times.
- 6.6. Contractor must make all the necessary provisions to provide and maintain utility service to the area throughout the construction of the project. Any temporary shutdown of utilities in the area must be closely coordinated with the city or utility company. The contractor may need to provide temporary measures to maintain utility service in the area until permanent installation of these utilities are completed per the plans. All temporary measures must be approved by the engineer prior to implementation.

## 7. Project Progress and Closeout

- 7.1. During construction, the project site and all adjacent areas shall be maintained in a neat and clean manner, and upon final clean-up, the project site shall be left clear of all surplus material or trash. The paved areas shall be broom swept clean.
- 7.2. The contractor shall restore or replace any public or private property (such as highway, driveway, walkway, and landscaping), damaged by his work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of construction. Suitable materials and methods shall be used for such restoration.
- 7.3. Material or debris shall be hauled in accordance with NPDES permit and jurisdictional laws.
- 7.4. All land survey property monuments or permanent reference markers, removed or destroyed by the contractor during construction shall be restored by a State of Florida registered land surveyor at the contractor's expense.
- 7.5. All unpaved surfaces disturbed as a result of construction activities shall be graded, sodded, & restored to a condition equal to or better than that which existed before the construction.

## 8. Project record documents:

- 8.1. During the daily progress of the job, the contractor shall record on his set of construction drawings the location, length, material and elevation of any facility not built according to plans. This copy of the "as-built" shall be submitted to engineer for project record.
- 8.2. Contractor to maintain an up-to-date record drawing set concurrently with the construction progress. The record documents shall be made available for review during each regular project meeting/inspections. All Addendums and RFI numbers (Revised Plans) must be maintained on the record drawing set in order to facilitate meetings/inspections and the review and approval of the project "As-Built" drawing submittals, so as to indicate any and all deviations from the "Approved Drawings".
- 8.3. Upon completion of drainage improvements and limerock base

construction (at least 48 hours before placing asphalt pavement) the contractor shall furnish the engineer of record "as-built" plans for these improvements, showing the locations and pertinent grades of all drainage installations and the finished rock grades of the road crown and edges of pavement at 50 foot intervals, including locations and elevations of all high and low points.

- 8.4. Upon completion of construction, and prior to final acceptance, the contractor shall submit to the engineer of record one complete set of all "as-built" contract drawings. These drawings shall be marked to show "as-built" construction changes, dimensions, locations, and elevations of all improvements.
- 8.5. "As-built" drawings of water lines and force mains shall include the following information:
- 8.5.1. Top of pipe elevations every 100 LF
- 8.5.2. Locations and elevations of all fittings including bends, tees, gate valves, double detector check valves, fire hydrants, and appurtenances.
- 8.5.3. All connections to existing lines.
- 8.5.4. Ends of all water services at the buildings where the water service terminates.
- 8.6. "As-built" drawings of gravity sanitary sewer lines shall include the following information:
- 8.6.1. Rim elevations, invert elevations, length of piping between structures, and slopes
- 8.6.2. The stub ends and cleanouts of all sewer laterals shall be located horizontally and vertically.
- 8.7. "As-built" drawings of all drainage lines shall include the following information:
- 8.7.1. Rim elevation, invert elevation, length of piping between structures, and control structure elevations if applicable.
- 8.7.2. The size of the lines.
- 8.7.3. Drainage well structure shall include, but not be limited to, top of casing elevation, top and bottom elevations of the structure and baffle walls, rim elevations and pipe inverts.
- 8.8. "As-built" drawings of construction areas shall include the following:
- 8.8.1. Rock elevations at all high, and low points, and at enough intermediate points to confirm slope consistency.
- 8.8.2. Rock elevations and concrete base elevations shall be taken at all locations where there is a finish grade elevation shown on the design plans.
- 8.8.3. All catch basin and manhole rim elevations.
- 8.8.4. Finish grade elevations in island areas
- 8.8.5. "As-built" elevations shall be taken on all paved and unpaved swales, at enough intermediate points to confirm slope consistency and conformance to the plan details.
- 8.8.6. Lake and canal bank "as-built" drawings shall include a key sheet of the lake for the location of cross sections. Lake and canal bank cross sections shall be plotted at a minimum of every 100 lf, unless otherwise specified. "as-built" drawings shall consist of the location and elevation of the top of bank, edge of water, and the deep cut line, with the distance between each shown on the drawing.
- 8.8.7. Retention area "as-built" elevations shall be taken at the bottom of the retention area and at the top of bank. If there are contours indicated on the design plans, then they shall be included in "as-built" drawings as well.
- 8.9. Upon completion of the work, the contractor shall prepare "as-built" drawings on full size sheets. All "as-built" information shall be put on the latest engineering drawings. Three (3) sets, or as required, of blue or black line drawings shall be submitted. These drawings shall be signed and sealed by a Florida registered professional engineer or land surveyor.
- 8.10. An electronic copy of these "as-built" drawings shall be submitted to the engineer of record in AutoCAD, version 2010 or later.

## 9. Utility Notes

- 9.1. Contractor is responsible for utility verification prior to fabrication.
- 9.2. Information as to the location of existing utilities has been collected from various sources. The results of such investigations as shown on the drawings are not guaranteed as to the accuracy. The contractor shall be responsible for investigating conflicts between all existing utilities with proposed improvements prior to construction and shall immediately notify the engineer in writing of all conflicts. The contractor shall be responsible for repairing any damage to said utilities as a result of construction activities.
- 9.3. The contractor is advised that properties adjacent to the project have electric, telephone, gas, water and/or sewer service laterals which may not be shown in plans. The contractor must request the location of these lateral services from the utility companies.
- 9.4. The contractor shall use hand digging when excavating near existing utilities. Extreme caution shall be exercised by the contractor while excavating, installing, backfilling or compacting around the utilities
- 9.5. The contractor shall notify and obtain an underground clearance from all utility companies and governmental agencies at least 48 hours prior to beginning any construction. The contractor shall obtain a Sunshine811.com Certification clearance number and field markings at least 48 hours prior to beginning any excavation.

Prior to commencement of any excavation, the

contractor shall comply with Florida statute 553.851 for

- the protection of underground gas pipelines. 9.6. For street excavation or closing or for alteration of access to
- public or private property, the contractor shall notify: Roadway jurisdictional engineering / public works authority.

- lines.
- - construction.

markings without damaging the asphalt. 10.6. Place all retro-reflective pavement markers in accordance with standard index 17352 and / or as shown in the plans

- - standard.

10.10. The contractor shall provide an inventory of existing signs to remain or to be relocated prior to starting the job and forward this list to the engineer. Contractor shall notify if there are any missing or damage signs that the plans show to remain or to be relocated. 10.11. All roadway pavement markings shall be thermoplastic in

10.13. All signs shall meet all of the following:

- MUTCD

10.14.Patch attachment hardware, such as countersunk screws or rivet heads, with retro reflective buttons that match the color and sheeting material of the finished sign panel including the background, legend or border.

County transit authority

School board transportation authority

Jurisdictional fire department dispatch

Jurisdictional police department(s)

9.7. The contractor shall use extreme caution working under, over, and around existing electric lines. The contractor shall contact the electric provider company to verify locations, voltage, and required clearances, onsite, in right-of-ways, and in easements, prior to any construction in the vicinity of existing

9.8. Location and size of all existing utilities and topography (facilities) as shown on construction drawings are drawn from available records. The engineer assumes no responsibility for the accuracy of the facilities shown or for any facility not shown. It is the contractor's responsibility to determine the exact location (vertical & horizontal) of any existing utilities and topography prior to construction. The contractor shall verify the elevations and locations of all existing facilities, in coordination with all utility companies, prior to beginning any construction operations. If an existing facility is found to conflict with the proposed construction, the contractor shall immediately notify the engineer so that appropriate measures can be taken to resolve the conflict.

9.9. The contractor shall coordinate the work with other contractors in the area and any other underground utility companies required. The contractor shall coordinate relocation of all existing utilities with applicable utility companies.

## 10. Signing and Pavement Markings

10.1. All signing and pavement markings installed as part of these plans shall conform to the Federal highway administration (FHWA) "manual on uniform traffic control devices" (MUTCD), County Traffic Design Standards and FDOT design standards as a minimum criteria.

10.2. All sign locations shall be field verified prior to sign post fabrication, to ensure proper location and spacing is achieved (i.e., offset from travel lines. The field verification shall ensure that there are no utility conflicts. Adjustments shall and can be made if proper location and spacing is not met or if utility conflicts are incurred.

10.3. Match existing pavement markings at the limits of

10.4. Removal of the existing pavement markings shall be accomplished by water blasting or other approved methods determined by the engineer.

10.5. Incorrectly placed paint or thermoplastic pavement markings over friction course will be removed by milling and replacing the friction course a minimum width of 18 in at the contractor's expense. The engineer may approve an alternative method if it can be demonstrated to completely remove the

10.7. Caution should be exercised while relocating existing signs to prevent unnecessary damage to signs. If the sign is damaged beyond use, as determined by the engineer, signs shall be replaced by the contractor at his expense.

10.8. All existing signs that conflict with construction operations shall be removed, stockpiled, and relocated by the contractor. Sign removal shall be directed by the engineer.

10.9. Relocated sign support system must meet the current design

accordance with FDOT specifications section 711.

10.12. Hand dig the first four feet of sign foundation.

Meet the criteria outlined in Section 2A.08 of the 2009

Meet the specifications outlined in Section 700 and 994 of the latest FDOT Standard Specifications.

Consist of materials certified to meet the retroreflective sheeting requirements outlined in the current version of ASTM D4956 for type-XI retroreflective sheeting materials made with prisms, except for school zone and pedestrian signs which shall be comprised of retroreflective fluorescent yellow-green sheeting certified to meet ASTM D4956 Type IV retroreflective sheeting materials.

Consist of retroreflective sheeting materials that have a valid FDOT Approved Product List (APL) certification for specification 700 Highway Signing for FDOT sheeting Type XI (or type IV for school and pedestrian signs).

10.15.Ensure the outside corner of sign is concentric with border. Ensure white borders are mounted parallel to the edge of the sign. Ensure black borders are recessed from the edge of the

10.16.Lay out permanent final striping that leaves no visible marks at time of final acceptance.

KEITH 301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643

> 2160 NW 82<sup>nd</sup> Avenue Doral, Florida 33122

PH: (954) 788-3400

Florida Certificate of Authorization # - 7928

DATE

BID / CONTRACT NO.

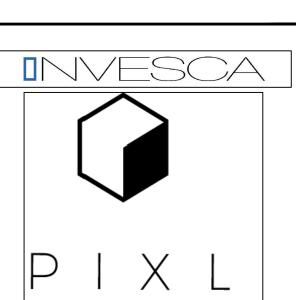
REVISIONS

NO.

DESCRIPTION

## PRELIMINARY PLAN NOT FOR CONSTRUCTION

RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.



4400 NW 8th CT PLANTATION, FL 33317

SCALE: AS NOTED DATE ISSUED: NOVEMBER, 2017 DRAWN BY: FA DESIGNED BY: SB CHECKED BY: JT

JAMES A. THIELE, P.E. FLORIDA REG. NO. 33256 (FOR THE FIRM)

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GI-001

**CITY COMMISSION SUBMITTAL** 

PROJECT NO. 08808.01

## **EROSION CONTROL NOTES:**

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- 1. The contractor shall install and maintain erosion control and sedimentation control measures in accordance with the standards for soil erosion and sediment control in Florida (hereafter referred to as fl guidelines).
- 2. Maintenance measures shall be applied as needed during the entire construction cycle. After each rainfall, a visual inspection shall be made of all installed erosion control measures and repairs shall be conducted to ensure their continuing function as designed.
- 3. Catch basin, inlets, storm sewer manholes structures, etc. Shall be protected during construction operations from sediment runoff and debris by placing a filter fabric material in the frame and grate/manhole cover. preventive methods must be utilized around these structures (during construction operations) by grading to drain away from structures and any other methods approved by the agency having jurisdiction or design engineer of record.
- 4. The contractor shall install a soil tracking prevention device as per the Florida stormwater erosion and sedimentation control inspector's manual. The contractor shall take measures to insure the cleanup of sediments that have been tracked by vehicles or have been transported by wind or storm water about the site or onto nearby roadways. Stabilized construction entrances and construction roads, if appropriate, shall be implemented in order to reduce offsite tracking.
- All areas of disturbance that are not within building or pavement limits shall be sodded, refer to landscape plans for sod specification and requirements.
- 6. Remove all erosion control improvements after all disturbed areas are stabilized with the final ground cover.

## **DEMOLITION NOTES**

- 1. For asphalt removal where proposed landscape areas are proposed, remove all debris and deleterious material (36" max. depth) and replace with clean fill.
- 2. Contractor shall be responsible for the protection and maintenance of all active existing utilities that are to remain in service. Owner / Contractor to coordinate with franchise utilities for removals, adjustments and future services.
- 3. The Contractor shall verify the existence and location of existing utilities prior to the commencement of construction.
- 4. Demolition work to be performed in accordance with the minimum standards of the regulatory agencies having jurisdiction.
- 5. Specific demolition notes/items are not to be considered all inclusive or complete in themselves. Additional demolition might reasonably be required for the site preparation.
- 6. Demolition work to be closely coordinated with proposed work to minimize any possible delays and/or inconveniences.
- 7. Demolition work to cause as little inconvenience to adjacent occupied areas. Demolish in an orderly and careful manner as required to accommodate proposed work and prevent damage and excessive noise or vibration so as not to disturb adjacent occupied areas. Any operation that may cause disturbance to the residential areas and office/school facility shall be coordinated.
- 8. The Contractor is responsible for scheduling the demolition work with the existing facilities administration prior to start of work to minimize the disruption of services and provide for the functioning of these facilities.
- 9. All waste material/debris to be disposed of by contractor.
- 10. Contractor is responsible for clearing/grubbing within the project limits. Refer to landscape plans for vegetation and tree removal requirements.
- 11. The contractor shall immediately report any hazardous or toxic materials discovered during demolition work to the Engineer, Owner and authorities having jurisdiction.
- 12. All existing fire hydrants being removed shall be returned to the City of Plantation Utilities Department.
- 13. All utilities and/or improvements to remain shall be protected, including those temporarily remaining, and erosion control measures shall be installed and maintained during construction activities.
- 14. Acces/egress to and from the existing facilities shall be provided and maintained throughout construction. Contractor shall provide temporary restoration as necessary.

## **PAVING AND GRADING NOTES:**

- 1. The finish surface of base course and that of the wearing surface shall not vary more than 0.04 feet from the approved grading plan (template) and all areas shall be graded to drain. Any deficiencies to these limits shall be corrected.
- 2. The asphalt surface course shall not be placed until as-built drawings of all utilities and the limerock base have been submitted and approved by the engineer of record.
- Refer to water & sewer sheets for proposed utility and access easements. 3.
- 4. Refer to FDOT index 304 for curb ramp details (current edition).
- Landscape and irrigation improvements shall be coordinated and installed to 5. allow the grading as proposed on the civil drawings.

#### **SEWER NOTES:**

- 1. Minimum sewer main cover shall be 36 inches
- 2. Water and sewer crossings must maintain minimum vertical separation per detail W-2 on sheet CU-502.
- 3. Sewer services to be installed per details 331 & 341 on sheet CU-505 & 506 with minimum cover of 36" and minimum slope of 1.0%.
- 4. Sewer main and sewer services as-built information shall be provided for verification of minimum requirements compliance.
- 5. All sanitary sewer pipe to be SDR 26.
- 6. Any existing manholes to remain must be rehabilitated and coated with Mainstav.
- All existing gravity mains to remain must be TV inspected and will be required to to be lined at the City's discretion (including existing manholes).
- 8. All sanitary sewer to be clear of construction debris.

## WATER NOTES:

- 1. Minimum water main cover shall be 30 inches for DIP and 36 inches for PVC.
- 2. Water and sewer crossings must maintain minimum vertical separation per detail W-2 on sheet CU-502.
- 3. The fire hydrant 4 1/2 inch outlet shall face the roadway.
- 4. Fire hydrants and fire department connections shall have a clearance of 6 feet to the front, with 3 feet to the rear and to the sides.
- 5. Please refer to fire sprinkler design drawings (by others) for service connections and locations of the private fire lines. The underground private fire line shall have a minimum cover of 48". All utility crossings with the private fire line must maintain a minimum 12" of vertical separation.
- 6. Fire hydrant shall be located between 6 to 25 feet of fire department connection, within the same side of the road.
- 7. All automatic fire sprinkler piping, including the underground fire service shall be installed by a certified contractor as per Florida administrative code rule 69a-46 and state statue 489,105(n).
- 8. Contractor to fill and flush the proposed water main per city details. location and methodology to be provided to the engineer for acceptance.
- 9. All fire hydrants to be American Darling B84B with security check valve.
- 10. All restraints to be Mega-Lug.
- 11. The existing fire hydrant to remain must be replaced with a new hydrant and security check valve. All existing fire hydrants being removed shall be returned to the City of Plantation Utilities Department.
- 12. All new water main to be pigged as required by the City of Plantation Utilities Department.
- 13. All new water meters to be installed in green areas.
- 14. No planting of any trees within proposed Water Easement.

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#### **PAVEMENT MARKING AND SIGNAGE NOTES:**

- 1. Existing markings shall be removed by water blasting or sandblasting only.
- 2. All existing traffic control signage and pavement markings in conflict with the proposed traffic control signage and pavement markings will be removed or relocated by the Contractor.
- 3. Use note 10.1 (general notes), and add Broward County Traffic Engineering Division Standards (current edition).
- 4. All on-site markings shall be paint except 24" solid white stop bar which shall be thermoplastic or as indicated on plans.
- 5. Verify location of all underground utilities prior to installation of sign posts.
- 6. All pavement markings and signing damaged during construction, shall be restored to Broward County Traffic Engineering Division standards (current addition).
- 7. The Contractor shall provide a copy of their Broward County Certificate of Competency prior to submitting final inspection request to Broward County Traffic Engineering Division.
- 8. All FDC signage shall be installed pursuant to City standards and shall have red lettering, not less than 3 inches in height, on white background. Each sign shall be 18 inches wide by 24 inches in height, and shall be consistent with the Manual on Uniform Traffic Control Devices (current edition).
- All fire hydrants require blue reflectors in the roadway to indicate fire hydrant locations.
- 10. Fire department connection per City requirements, refer to plumbing plan. Install "FIRE DEPARTMENT CONNECTION, NO PARKING" sign to be FDOT and City compliant as required . Refer to sheet GI-001 and CM-501 for more information.
- 11. Stop bars shall be a minimum of 4 feet behind the crosswalk.

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-	301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643		
		/ 82 <sup>nd</sup> Ave Iorida 331	
	PH: (95	4) 788-34	00
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SPECIAL CONSTRUCTION NOTES			
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PR	OJECT NO.	08808	3.01

Elevations shown on these plans are based on the North American Vertical Datum 1988 (NAVD)

# **CONSTRUCTION SPECIFICATIONS**

#### Section 20 - Paving Grading Drainage and Earthwork

20.General

D

- 20.1. It is the intent of these specifications to describe the minimum acceptable technical requirements for the materials and workmanship for construction of site improvements for this project. Such improvements shall generally include, but not to be limited to, clearing, grading, paving, removal of existing pavement storm drainage, water lines and sanitary sewers.
- 20.2. It is the intent that the Florida Department of Transportation (FDOT) "Standard Specifications for Road and Bridge Construction: (current edition) together with "Supplemental Specifications to the Standard Specifications for Road and Bridge Construction" (current edition), and the FDOT Roadway and Traffic Design Standards (current edition) be used where applicable for the various work, and that where such wording therein refers to the State of Florida and its Department of Transportation and personnel, such wording is intended to be replaced with the wording which would provide proper terminology; thereby making such "Standard Specifications for Road and Bridge Construction" together with the "FDOT Roadway and Traffic Design Standards" as the "Standard Specifications" for this project. If within a particular section, another section, article or paragraph is referred to, it shall be part of the Standard Specifications also. The Contractor shall abide by all local and State laws, regulations and building codes which have jurisdiction in the area.
- 20.3. The Contractor shall furnish all labor, materials and equipment and perform all operations required to complete the construction of a paving and drainage system as shown on the plans, specified herein, or both. It is the intent to provide a complete and operating facility in accordance with these specifications and the construction drawings. The material and equipment shown or specified shall not be taken to exclude any other incidentals necessary to complete the work.
- 20.4. All labor, materials, and methods of construction shall be in strict accordance with the plans and construction specifications and the minimum engineering and construction standards adopted by the unit of government which has jurisdiction and responsibility for the construction. Where conflicts or omissions exist, the jurisdictional government Engineering Department's standards shall govern. Substitutions and deviations from plans and specifications shall be permitted only when written approval has been issued by the Engineer.
- 20.5. Guarantee all materials and equipment to be furnished and/or installed by the Contractor under this contract, shall be guaranteed for a period of (I) one year from the date of final acceptance thereof, against defective materials, design and workmanship. Upon receipt of notice from the owner of failure of any part of the guaranteed equipment or materials, during the guarantee period, the affected part or materials shall be replaced promptly with new parts or materials by the contractor, at no expense to the owner. In the event the Contractor fails to make necessary replacement or repairs within (7) seven days after notification by the owner, the owner may accomplish the work at the expense of the contractor.
- 21.Earthwork
- 21.1. All areas within the right-of-way shall be cleared and grubbed prior to construction. This shall consist of the complete removal and disposal of all trees, brush, stumps, roots, grass, weeds, rubbish and all other obstructions resting on or protruding through the surface of the existing ground to a depth of 1'. Items designated to remain or to be relocated or to be adjusted shall be so designated on the drawings. All work shall be in accordance with section 110 of the Standard Specifications.
- 21.2. None of the existing limerock material from demolished pavement is to be incorporated in the new limerock base. The existing limerock material from demolished pavement may be incorporated into the stabilized subgrade / subbase, or stabilized shoulder.
- 21.3. Fill material shall be classified as A-I, A-3, or A-2-4 in accordance with AASHTO N--145 and shall be free from vegetation and organic material. Not more than 12% by weight of fill material shall pass the no. 200 sieve.
- 21.4. All fill material in areas not to be paved shall be compacted to 95% of the maximum density as determined by AASHTO T-99.
- 21.5. All material of construction shall be subject to inspection and testing to establish conformance with the specifications and suitably for the uses intended. The Contractor shall notify the Engineer at least 24 hours prior to the time he will be ready for an inspection or test. The Contractor shall follow City and County inspection procedures. The Contractor shall not proceed with any phase of work dependent on an inspection or test of an earlier phase of work, prior to that test or inspection passing. The Contractor shall be responsible for providing certified material test results to the Engineer of record prior to the release of final certification by the Engineer. Test results must include, but may not be limited to, densities for subgrade and limerock, utilities, excavation, asphalt gradation reports, concrete cylinders, etc.
- 21.6. When encountered, muck shall be completely removed from the center line (10) ten feet beyond the edge of pavement each side. All such material shall be replaced by approved granular fill, compacted to 98% of maximum density (AASHTO T-180).
- 21.7. When encountered within drainage swales, hardpan shall be removed for a width of (5) five feet at the invert and replaced with granular materials.
- 21.8. All underground utilities and drainage installations shall be in place prior to subgrade compaction and pavement construction.
- 21.9. Ground adjacent to roadway/pavement having runoff shall be graded (2) two inches lower than the edge of pavement to allow for the placement of sod.
- 21.10. Site grading elevations shall be within 0.1' of the required elevation in grass areas and 0.04 of the required elevation in paved areas. All areas shall be graded to drain without ponding.
- 21.11. The Contractor shall perform all excavation, fill, embankment and grading to achieve the proposed plan grades including typical road sections, side slopes and canal sections. All work shall be in accordance with section 120 of the Standard Specifications. If fill material is required in excess of that generated by the excavation, the Contractor shall supply this material as required from off-site.
- 21.12. A 2" blanket of top soil shall be placed over all areas to be sodded or seeded and mulched within the right-of-way and drainage easements. Unless otherwise indicated on the plans.
- 21.13. Sod shall be St. Augustine, Bitter Blue or Floratam, unless otherwise indicated on the plans, and shall be placed on the graded top soil and watered to insure satisfactory condition upon final acceptance of the project.

22.Drainage

- 22.1. Inlets all inlets shall be the type designated on the plans, and shall be constructed in accordance with section 425 of the Standard Specifications. All inlets and pipe shall be protected during construction to prevent siltation in the drainage systems by way of temporary plugs and plywood or plastic covers over the inlets. The entire drainage system shall be cleaned of all debris prior to final acceptance.
- 22.2. Pipe specifications: the material type is shown on the drawings by one of the following designations:
- RCP = reinforced concrete pipe, ASTM designation C--76, section 941 of the Standard Specifications.
- CMP = corrugated metal (aluminum) pipe, ASTM designation M-196.
- CMP (smooth lined) = corrugated metal aluminum pipe, (smooth lined) ASTM designation M-196.
- SCP = slotted concrete pipe, sections 941 and 942, of the Standard Specifications.
- PVC = polyvinyl chloride pipe.
- PCMP = perforated cmp, section 945, of the Standard Specifications
- Corrugated High Density Polyethylene Pipe (HDPE) (12 Inches to 60 Inches), shall meet the requirements of FDOT Specification section 948-2.3.

22.3. Pipe backfill - requirements for pipe backfill crossing roads or parking areas shall be as defined in the section 125-8, of the Standard Specifications. Pipeline backfill shall be placed in 6 inch lifts and compacted to 100% of the standard proctor (AASHTO T--99 specifications)

- 22.4. Location of drainage structures shall govern, and pipe length may have to be
- adjusted to accomplish construction as shown on these plans. 22.5. Distance and lengths shown on plans and profile drawings are referenced to the center of structures.
- 22.6. Filter fabric shall be Mirafi, Typar or equal conforming to section 985 of the FDOT Standard Specifications
- 23. Asphalt Paving
- 23.1. Where new asphalt meets existing asphalt, the existing asphalt shall be saw cut to provide a straight even line. Prior to removing curb or gutter, the adjacent asphalt shall be saw cut to provide a straight even line.
- 23.2. Internal asphalt paving constructed on existing sandy soils shall be constructed with a 12" subgrade, compacted to a minimum density of 98% maximum density as determined by AASHTO T-180. The compacted subgrade shall be constructed in the limits shown on the plans. All subgrade shall have an LBR of 40 unless otherwise noted.
- 23.3. Asphaltic concrete surface course shall be constructed to the limits shown on the plans. The surface course shall consist of the thickness and type asphaltic concrete as specified in the plans. All asphaltic concrete shall be in accordance with sections 320, 327, 330, 331, 334, 336, 338, and 339 of the FDOT Standard Specifications.
- 23.4. Limerock base shall be prepared, compacted and graded and shall be in accordance with section 200 of the Standard Specifications. All limerock shall be compacted to 98% per AASHTO T-180 and have not less than 70% of carbonates of calcium and magnesium unless otherwise designated. All limerock shall be primed. The Engineer shall inspect the completed base course and the Contractor shall correct any deficiencies and clean the base course prior to the placement of the prime coat. A tack coat will also be required if the Engineer finds that the primed base has become excessively dirty or the prime coat has cured to the extent of losing bounding effect prior to placement of the asphaltic concrete surface course. The prime and tack coats shall be in accordance with section 300 of the FDOT Standard Specifications.
- 23.5. Limerock base material shall be placed in maximum 6" lifts. Bases greater than 6" shall be placed in two equal lifts. If, through field tests, the Contractor can demonstrate that the compaction equipment can achieve density for the full depth of a thicker lift, and if approved by the engineer, the base may be constructed in successive courses of not more than 8 inches (200 mm) compacted thickness.
- 23.6. Asphalt edges that are not curbed shall be saw cut to provide a straight even line to the dimensions shown on the horizontal control plan. 24.Concrete Construction
- 24.1. Concrete sidewalk shall be in accordance with section 522 of the Standard Specifications and in accordance with F.D.O.T. Roadway and Traffic Design Standards, index no. 310. Concrete sidewalk shall be 4" thick and constructed on compacted subgrade, with 1/2" expansion joints placed at a maximum of 75'. Crack control joints shall be 5' on center. The back of sidewalk elevation shall be 3" higher than the edge of pavement, unless otherwise specified by local codes, or shown on the drawings. All concrete sidewalks that cross driveways shall be 6" thick and have a minimum of 3000 p.s.i. concrete.
- 24.2. Sidewalk Curb ramps hall be in accordance with F.D.O.T. Roadway and Traffic Design Standards, index no. 304.
- 24.3. Concrete curb shall be constructed to the limits shown on the plans. The concrete shall have a minimum compressive strength of 4000 p.s.i. at 28 days and shall be in accordance with section 520 of the Standard Specifications. Concrete curbing shall be in accordance with F.D.O.T. Roadway and Traffic Design Standards, index no. 300.

Section 30 - Water distribution and sanitary sewer force mains 30. Materials:

Note: where more than one specified material exists for an item, it is the contractor's option to use either material.

- 30.1. All water main pipe, including fittings, shall be color coded or marked using blue as a predominant color to differentiate drinking water from reclaimed or other water. Underground plastic pipe shall be solid-wall blue pipe, shall have a co-extruded blue external skin, or shall be white or black pipe with blue stripes incorporated into, or applied to, the pipe wall; and underground metal or concrete pipe shall have blue stripes applied to the pipe wall. Pipe striped during manufacturing of the pipe shall have continuous stripes that run parallel to the axis of the pipe, that are located at no greater than 90-degree intervals around the pipe, and that will remain intact during and after installation of the pipe. If tape or paint is used to stripe pipe during installation of the pipe, the tape or paint shall be applied in a continuous line that runs parallel to the axis of the pipe and that is located along the top of the pipe; for pipes with an internal diameter of 24 inches or greater, tape or paint shall be applied in continuous lines along each side of the pipe as well as along the top of the pipe.
- 30.2. Ductile iron pipe for water distribution mains shall conform to ANSI/AWWA standard C151/A21.51 latest revision, "ductile iron pipe centrifugally cast in metal molds or sand-lined molds" with a minimum wall thickness of class 51 (pressure class 350) unless otherwise noted in the plans. Ductile iron pipe shall be cement lined and seal coated in accordance with ANSI/AWWA standard C104/A21.4 latest revision. The pipe shall be adapted for use with class 250 fittings for all sizes. Water main shall be colored blue in accordance with Florida State Statutes.
- 30.3. Ductile iron pipe for sewage force mains shall conform to ANSI/AWWA standard C151/A21.51 latest revision, "ductile iron pipe centrifugally cast in metal molds or sand-lined molds" with a minimum wall thickness of class 51 (pressure class 350) unless otherwise noted in the plans. Ductile iron pipe shall be interior ceramic epoxy lined and exterior coated with the manufacturer's coating system (Protecto 401 ceramic epoxy with a minimum dry film thickness of 40 mils and an outside coating of either coal tar epoxy or asphalt). Cement mortared linings are not appropriate for this application.
- 30.4. All pipe & fittings on the lift station sites shall be ductile iron conforming to the same specifications as above for sewage force mains except that flanged ductile iron pipe & fittings shall be used inside valve pits and wet wells. Flanged pipe and fittings shall conform to ANSI/AWWA C115/a21.15 latest revision and ANSI/AWWA C110/A21.10 latest revision. The following thickness classes shall be adhered to: 4" - 12" - class 52, 14" & larger - class 51.
- 30.5. PVC pressure pipe is permissible for sizes 4" through 12" and shall conform to ANSI/AWWA standard C900 latest revision. PVC pressure pipe shall be made from class 12454-a or class 12454-b virgin material and conform with the outside diameter of cast iron pipe with a minimum wall thickness of dr series 18. Ultra violet degradation or sun bleached pipe will be cause for rejection. Water main shall be colored blue in accordance with Florida state statutes. Force main shall be impregnated with green pigment. Reuse main shall be impregnated with purple pigment.
- 30.6. Ductile iron fittings for water distribution mains shall conform to ANSI/AWWA standard C110/A21.10 latest revision. Fittings 4" and larger shall be cement lined and seal coated in accordance with ANSI/AWWA standard C104/A21.4 latest revision. Water Main fitting shall be colored blue in accordance with Florida state statutes.
- 30.7. Cast iron and ductile iron fittings for sewage force mains shall conform to ANSI/AWWA standard C110/A21.10 latest revision. Fittings 4" and larger shall be coated in accordance with the requirements of ductile iron pipe for sewage force mains
- 30.8. Joints for bell and spigot ductile iron pipe and fittings shall conform to ANSI/AWWA standard C111/A21.11 latest revision. Mechanical joint or push-on joint to be rubber gasket compression-type. Special fittings and joints shall be

by the manufacturer.

32.8. All valves shall be installed with adjustable cast iron valve boxes with the word "water" or "sewer", as applicable, cast in the cover. U.S. foundry or approved equal.

33. Testing:

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- the engineer of record.
- plans.
- follows:

- 40.General:
- appropriate by the Contractor.
- center of structures. 41. Materials:
- option to use either material.
- appropriate for this application.
- and specifications.
- equal no molding plaster.

- 7635).
- 42. Installation:
- pipe."

- uniform bearing under the base.

- prior to inspection. 43.Testing:
- thereof
- engineer
- leakage allowed.

considered for specific installation subject to the approval of the engineer. 30.9. Joints for PVC pressure pipe shall be bell and spigot push-on rubber gasket type only. No solvent weld or threaded joints will be permitted.

30.10. Water distribution system restraint: all fittings and specific pipe joints shall be restrained as outlined below:

- · Joint restraint
- Push-on P.V.C. EBAA iron series 1600
- Push-on D.I.P. EBAA iron series 1700 tr-flex by U.S. Pipe or
- flex ring by American •
- Fittings w/ D.I.P. EBAA iron series 1100 megalug
- Fittings w/ P.V.C. EBAA iron series 2000 megalug
- Length of restrained pipe shall be as indicated on restrained joint pipe detail. (see water & sewer detail sheet)

30.11. Sewage force main system restraint: all fittings and specific pipe joints shall be restrained as outlined below

- Joint restraint
- Push-on P.V.C. EBAA iron series 1600 . Push-on D.I.P. EBAA iron series 1700 •
- tr-flex by U.S. Pipe or •
- flex ring by American
- Fittings w/ D.I.P. EBAA iron series 1100 megalug
- Fittings w/ P.V.C. EBAA iron series 2000 megalug
- Length of restrained pipe shall be as indicated on restrained joint pipe detail. (see water & sewer detail sheet)
- 30.12. Water distribution valves shall be gate valves, iron body, fully resilient seat bronzed mounted non-rising stem, rated at 200 p.s.i. and conforming to ANSI/AWWA C509 latest revision, and shall have mechanical joints.
- 30.12.1. Gate valves 4" and larger shall be Mueller A-2360, American 250 line or Clow F-6100, conforming to ANSI/AWWA C500 latest revision or approved equal
- 30.12.2. Tapping valves shall be Mueller T-2360 or approved equal.
- 30.12.3. Gate valves 3" or less shall be Nibco T-133 or T-136 with malleable hand wheels. No substitutions allowed.
- 30.13. Tapping sleeves shall be Mueller H615, Clow F- 2505 or approved equal.
- 30.14. Valve boxes shall be U.S. foundry 7500 or approved equal painted blue with the designation "water".
- 30.15. Retainer glands for D.I.P. shall conform to ANSI/AWWA C111/A21.11 latest revision. All glands shall be manufactured from ductile iron as listed by underwriters laboratories for 250 psi minimum water pressure rating. Clow corporation model f-1058, standard fire protection equipment company or approved equal.
- 30.16.Metallic tape shall be installed one (1) foot above installed PVC pressure pipe to ensure that the pipe can be located after burial.
- 30.17. Dresser couplings shall be regular black couplings with plain gaskets for galvanized steel pipe. They shall be dresser style 90. No substitutions allowed.
- 30.18. Fire hydrants shall be American Darling B84B with security check valve. Pumper nozzle to be 18" from finished grade. All hydrants to be installed with control valve. Retainer glands are preferred for restraining. Fire hydrant shall comply with ANSI/AWWA C502 latest revision. Fire hydrants shall be painted in accordance with NFPA #291 or per jurisdictional/county standards having jurisdiction. Blue raised reflective pavement marker (rpm) shall be used to identify fire hydrant location. The placement of the rpm to be at the centerline of the outside roadway lane.
- 30.19. Sewage force main valves shall be plug valves which shall be of the non-lubrisated, eccentric type with resilient faced plugs, port areas for valves 20 inches and smaller shall be at least 80% of full pipe area. Port area of valves 24 inches and larger shall be at least 70% of full pipe area. The body shall be of semi-steel (ASTM A-126 CT-b) and shall have bolted bonnet which gives access to the internals of the valve. Seats shall be welded overlay of high nickel content or a stainless steel plate locked in the boay cavity. If a plate is used, it shall be replaceable through the bonnet access. Bearings shall be permanently lubricated of stainless steel, bronze or Teflon lined, fiber glass backed Duralon. Bearing areas shall be isolated from the flow with grit seals. Valves shall have packing bonnets where the shaft protrudes from the valve and the packing shall be self-adjusting chevron type which can be replaced without removing the bonnet. All nuts, bolts, springs and washers shall be stainless steel.
- 30.20. Plug valves shall be designed for a working pressure of 150 p.s.i. the valve and actuator shall be capable of satisfactory operation in either direction of flow against pressure drops up to and including 100 p.s.i (for plug valves over 12" in diameter). Valves shall be bubble tight in both directions at 100 psi differential. Plug valves over 12" in diameter shall have worm gear operators. The operating mechanism shall be for buried service with a 2 inch square operating nut.
- 30.21. Plug valves are to be installed with the seat pointed towards the upstream flow, when specified.
- 30.22. Swing check valves for water, sewage, sludge, and general service shall be of the outside lever and spring or weight type, in accordance with ANSI/AWWA C 508 latest revision swing-check valves for waterworks service, 2" through 24" NPS, unless otherwise indicated, with full-opening passages, designed for a water-working pressure of 150 PSI they shall have a flanged cover piece to provide access to the disc.
- 30.23. High density polyethylene pipe (HDPE) for water distribution mains shall conform to AWWA C906 standard, latest revision. Pipes shall be color-coded blue, minimum 40 feet standard lengths, DR 11 minimum, dips size.
- 31.Service connection:
- 31.1. Service saddles shall be fusion bonded plastic coated ductile iron (ASTM A536) with stainless steel straps, saddles shall be double strap type
- 31.2. Service lines shall be polyethylene (PE 3408), 200 p.s.i rated, DR9. Pipe joints shall be of the compression type totally confined grip seal and coupling nut.
- 31.3. Corporation stops shall be manufactured of brass alloy in accordance with ASTM B-62 with threaded ends, as manufactured by Ford ballcorp, catalog # 1100 or approved equal.
- 31.4. Curb stops shall be Ford v63-44w-x" latest revision or approved equal.
- 31.5. Meter stops shall be 90 degree lockwing type and shall be of bronze construction in accordance FV63-777W-X" latest revision with ASTM B-62. Meter stops shall be closed bottom design and resilient "0" ring sealed against external leakage at the top. Stops shall be equipped with a meter coupling nut on the outlet sides, as manufactured by ford or approved equal.
- 31.6. Locator tape and wire needed on all new plastic pipe water main color coded 14 strand. 32. Installation:
- 32.1. Where restrained pipe joints are required due to fittings, appurtenances, etc., pipe material shall be D.I.P.
- 32.2. All PVC pipe shall be installed in accordance with the uni-bell plastic pipe association "guide for installation of PVC pressure pipe for municipal water distribution system," and ANSI/AWWA C605 latest revision standard.
- 32.3. All dip shall be installed in accordance with ANSI/ C600 latest revision. 32.4. All water mains shall typically be laid with a minimum 36" cover for PVC and 30" cover for dip.
- 32.5. Detector tape shall be laid 18 inches above all water and sewer lines. A 14 gauge multi-strand wire shall be attached to all nonconductive water mains to facilitate location. An extra 4 feet of wire shall be provided at all valves, blow-offs, hydrants, etc. The wire shall be tested for continuity at the pressure test.

32.6. Pipe deflection shall not exceed 50% of the maximum deflection recommended

32.7. A continuous and uniform bedding shall be provided. Backfill material shall be placed in accordance with the plans and specifications.

33.1. Before any physical connections and acceptance for operation to the existing water mains are made, the complete water system shall be pressure tested and disinfected. Copies of passing bacteriological results and pressure test results must be submitted to, and approved by, the engineer, utility owner, and health department. Hydrostatic testing of new mains shall be performed at a minimum starting pressure of 150 p.s.i. for two hours in accordance with ANSI/AWWA C600-05 (hydrostatic test). The pressure test shall not vary more than 5 p.s.i. during the test. The allowable leakage during the pressure test shall be less than the number of gallons per hour as determined by the formula:

In which I equals the allowable leakage in gallons per hour. S equals length of pipe (linear feet), d equals nominal diameter of pipe (inches) and p equals the average test pressure (pounds per square inch gauge). Maximum length of test pipe section should be 2000 feet. Re-pumping of line during pressure test is not allowed. The water system shall be disinfected in accordance with the ANSI/AWWA C651-05 (water main bacteriological tests).

33.2. The pressure test shall be witnessed by a representative of the utility owner and

33.3. Sampling points shall be provided by the contractor at the locations shown on the

33.4. Bacteriological testing shall be in accordance with ANSI/AWWA C651-05 (water main bacteriological tests). Maximum distance between sampling points shall be as

Transmission mains: every 1200 feet Branch mains: every 1000 feet Isolated mains < 1000 feet: 2 sample points Isolated mains > 1000 feet: 3 sample points

#### Section 40 - Gravity Sanitary Sewer Collection System

40.1. Manhole, inlet valve box, meter box and other structure rim elevations within the limits of construction are to be adjusted to conform to plan grades proposed in these plans. If no other individual cost item is included in the contract schedule for a particular structure adjustment, the cost shall be included in the item deemed most

40.2. Distance and lengths shown on plans and profile drawings are referenced to the

Note: where more than one specified material exists for an item, it is the City's

41.1. All PVC sewer pipe and fittings shall be non-pressure polyvinyl chloride (PVC) pipe conforming to ASTM D 3034, SDR 26, with push-on rubber gasket joints.

41.2. Ductile iron pipe shall conform to ANSI/AWWA C151/A21.51 latest revision, "ductile iron pipe centrifugally cast in metal molds or sand-lined molds" with wall thickness class 51 for 8" and above, class 52 for 4" and 6", unless otherwise directed by the engineer. Ductile iron pipe shall be epoxy lined or coated with the manufacturer's coating system as approved by the engineer of record and the local municipality or utility owner. In either case, the engineer's review and approval is required for either alternative prior to construction. Cement mortared linings are not

41.3. All ductile iron fittings shall conform to ANSI/AWWA standard C110/A21.10 latest revision. All fittings and accessories shall be epoxy lined and as manufactured or supplied by the pipe manufacturer or approved equal.

41.4. Manholes shall be precast per ASTM C 478 and in accordance with the plans

41.5. Manholes are to be sealed with type II sulphate resistant cement or approved

41.6. Joints for bell and spigot ductile iron pipe and fittings shall conform to ANSI/AWWA standard C111/A21.11 latest revision. Mechanical joint or push-on joint to be rubber gasket compression- type. Special fittings and joints shall be considered for specific installation subject to the approval of the engineer.

41.7. PVC clean-outs to have screw type access plug. Long radius wye connections and fittings shall be used in order to access clean-out operations.

41.8. Cleanouts shall be installed at all sewer services exceeding 75' in length (every 75') with a clean out at the property line, easement line, or 5' from a building. The contractor shall coordinate the location of the building cleanout (5' from the building) and elevation of the end of the sewer service with the building plumbing contractor. Cleanouts shall be the same size as the service lateral in which they are installed.

41.9. Cleanouts shall be installed in Miami-Dade County No. 53 valve box and lid (USF

42.1. PVC sewer pipe shall be laid in accordance with ASTM D 2321 and the Uni-Bell plastic pipe association's "recommended practice for the installation of PVC sewer

42.2. D.I.P. shall be installed in accordance with ANSI/AWWA C-600 latest revision.

42.3. Pipe to manhole connection to be Fernco neoprene boot couplings with stainless steel accessories or approved equal.

42.4. Manholes shall be set plumb to line and grade on firm subgrade providing

42.5. All openings and joints shall be sealed watertight.

42.6. Two coats of Koppers 300-m, first red, second one black, shall be applied to the inside of all manholes and shall be applied in accordance with the manufacturer's specifications (16 mils per coat). One coat of black Koppers 300-m shall be applied to the outside of the manhole. The interior coats shall be applied after sewer lamping of lines. After the application of each coat, the utility owner and engineer shall inspect the manholes. The inspection shall be scheduled a minimum of 48 hours

43.1. After construction of the sewer system, the engineer may require a visual infiltration and/or exfiltration test to be performed on the entire system or any part

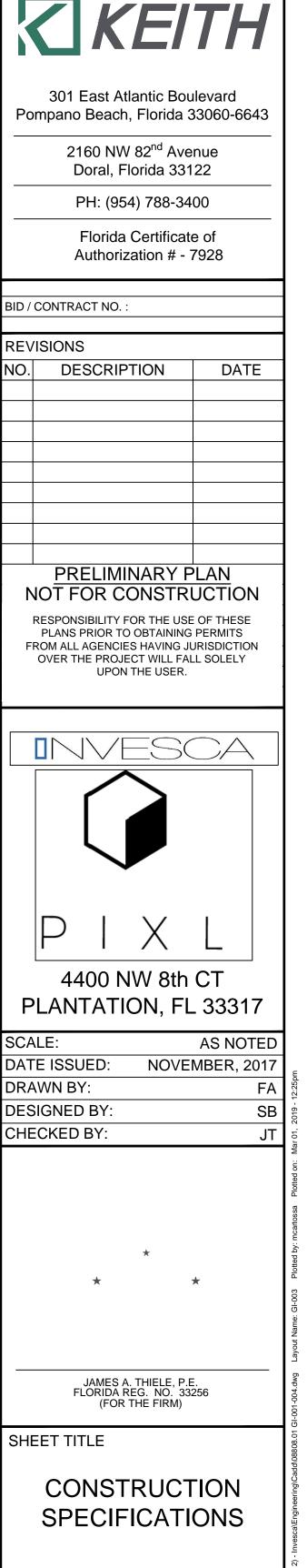
43.2. An air test may be substituted for the water exfiltration test, upon approval of the

43.3. Manhole leakage test shall not exceed four gallons per day per unit. No visible

43.4. The allowable limits of sewer pipe leakage for gravity sewer mains shall not exceed 100 gallons per inch of inside pipe diameter per mile per day for any section tested. No visible leakage shall be allowed.

43.5. Testing of gravity sewer mains and laterals shall be in accordance with the utility owner's minimum design and construction standards latest revision.

43.6. The installed sewers shall undergo two (2) video inspections. The first shall be prior to the final acceptance by the utility owner and the other shall be just prior to the release of the one-year maintenance bond.



SHEET NUMBER

**CITY COMMISSION SUBMITTAL** 

PROJECT NO. 08808.01

-	1	 2		3		4
					Gen	eral Abbreviations
		LEGEND		_	ABAN	Abandon
						Approximate Asphalt Concrete
			PROPOSED PAVERS		BC	Bottom of Curb
						Building Benchmark
			PROPOSED CONCRETE			Bottom of Pipe
						Corrugated Aluminum Pipe
			PROPOSED WOOD DECK (BY OTHERS)			Catch Basin Coastal Construction Control Line
					CEM	Cement
						Curb Inlet Cast Iron Pipe
			PROPOSED CURB INLET (CI)			Centerline
			PROPOSED DRAINAGE MANHOLE (MH)			Chain Link Fence Clearance
					CMP	Corrugated Metal Pipe
			PROPOSED CATCH BASIN (CB)			Concrete Construct
						Cleanout To Grade
		0	PROPOSED JUNCTION BOX (JB)			Drop Inlet Diameter
			PROPOSED EXFILTRATION TRENCH		DIP	Ductile Iron Pipe
		<u>9.80</u>	PROPOSED GRADE ELEVATION (NAVD)			Driveway Elevation
						Edge of Pavement
		MEG×	MATCH EXISTING GRADE (MEG)			Endwall
		10.30 9.80	PROPOSED TOP OF CURB ELEVATION (N PROPOSED PAVEMENT ELEVATION (NA			Existing Florida Department of Transportation
						Finish Floor Elevation
		0.50%	PROPOSED FLOW ARROW			Finished Grade Fire Hydrant
		ullet	PROPOSED SANITARY MANHOLE		FM	Force Main
			PROPOSED SANITARY SEWER LATERAL			Gutter Inlet Galvanized Iron Pipe
			W/ CLEAN OUT TO GRADE (C.O.T.G.)			Gravel
		$\neg$	DOMESTIC WATER SERVICE ASSEMBLY		GRD G.V.	Ground Gate Valve
		+++++++++	PROPOSED FIRE SERVICE $(\widehat{A})$			High-Density Polyethelyne Pipe
		E-e(	PROPOSED FIRE DEPARTMENT CONNEC	TION (SEE PLUMBING PLANS)		Horizontal
		- <del>• ו</del> ‡	PROPOSED FIRE HYDRANT ASSEMBLY			Hydrant Invert Elevation
		M	PROPOSED GATE VALVE (G.V.)		LF	Linear Feet
		<b>•</b>	TEST HOLE LOCATION		LP LT	Light Pole Left
		(21)	PROPOSED UTILITY CROSSING			Maximum
			PROPOSED SAMPLE POINT		MEG MH	Meet Existing Grade Manhole
			PROPOSED UTILITY EASEMENT		MIN	Minimum
			EXISTING UTILITY EASEMENT			North American Vertical Datum
						Non-Vehicle Access Line
		WM	EXISTING UTILITIES TO BE REMOVED			Overhead Wire Point of Curvature
		— WM — WM —	EXISTING WATER MAIN			Paving, Grading and Drainage
		—— SAN ——— SAN ——	EXISTING SANITARY SEWER			Point On Connection
		SD	EXISTING STORM DRAIN			Pollution Retardant Baffle Project
		OHW	EXISTING OVERHEAD LINE			Proposed
		ELECELEC	EXISTING ELECTRICAL			Point of Tangency Poly-Vinyl-Chloride Pipe
		TEL TEL	EXISTING TELEPHONE			Pavement
		S	EXISTING SANITARY SEWER MANHOLE			Radius of Curvature         Reinforced Concrete Pipe
					RD	Road
			EXISTING DRAINAGE STRUCTURES			Roadway Right of Way
		é, ()	EXISTING SPOT ELEVATION			Right
			PROPERTY LINE			Shoulder Sanitary Sewer
		CR-A	PROPOSED RAMP PER FDOT INDEX NO. 3	304		Street
						Station
						Sidewalk Tangent
					тс	Top of Curb
					ТЕМР ТН	Temporary Test Hole
						Top of Bank
					TOW	Top of Wall
					TOW TYP	
					TOW TYP UP VERT	Top of Wall Typical

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301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643

> 2160 NW 82<sup>nd</sup> Avenue Doral, Florida 33122

PH: (954) 788-3400

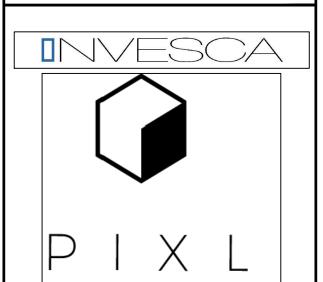
Florida Certificate of Authorization # - 7928

BID / CONTRACT NO. :

REVISIONS
NO. DESCRIPTION DATE

PRELIMINARY PLAN NOT FOR CONSTRUCTION

RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.



# 4400 NW 8th CT PLANTATION, FL 33317

SCALE: AS NOTED DATE ISSUED: NOVEMBER, 2017 DRAWN BY: FA DESIGNED BY: SB CHECKED BY: JT \*

> JAMES A. THIELE, P.E. FLORIDA REG. NO. 33256 (FOR THE FIRM)

SHEET TITLE

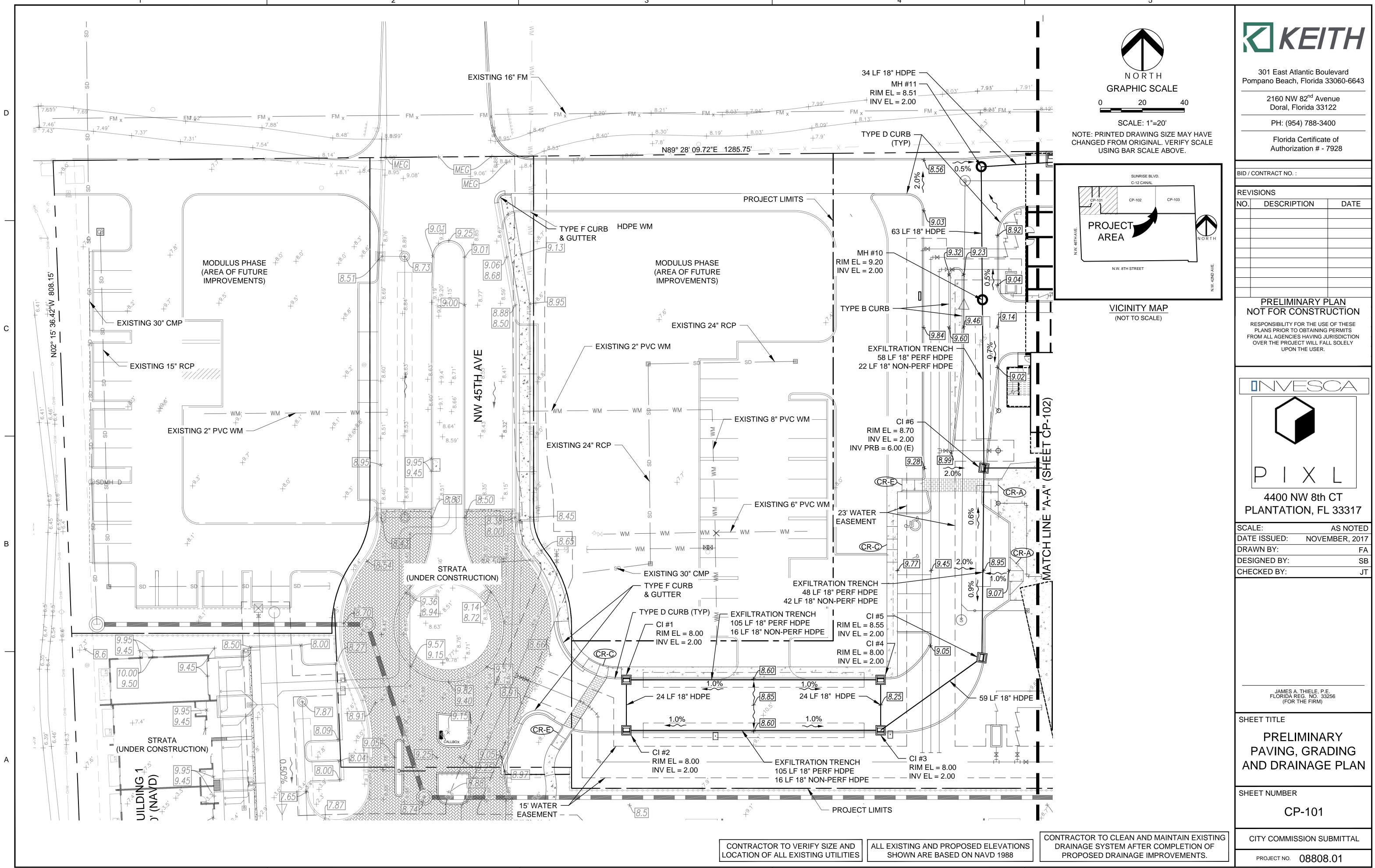
LEGEND & ABBREVIATIONS

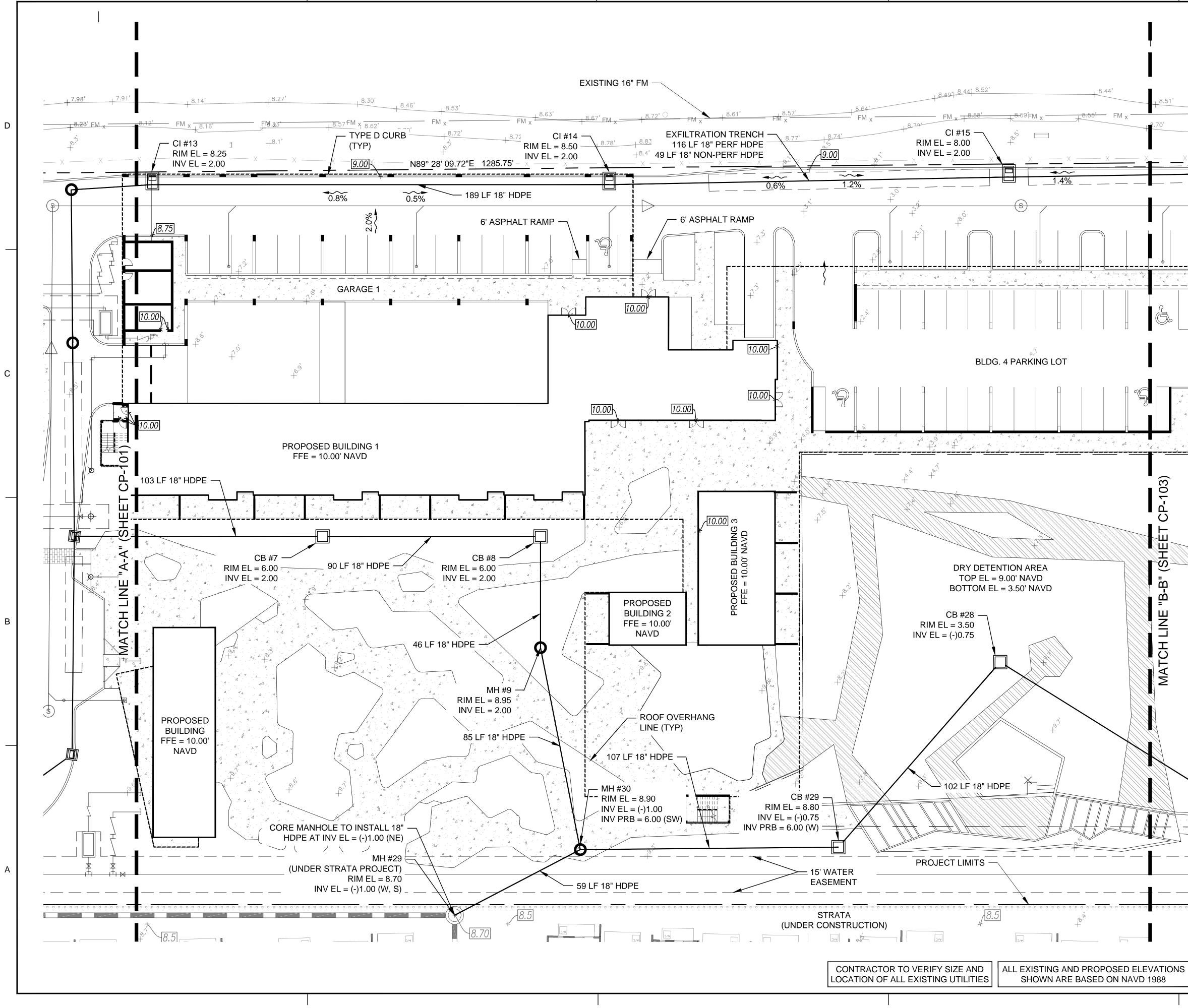
SHEET NUMBER GI-004

CITY COMMISSION SUBMITTAL

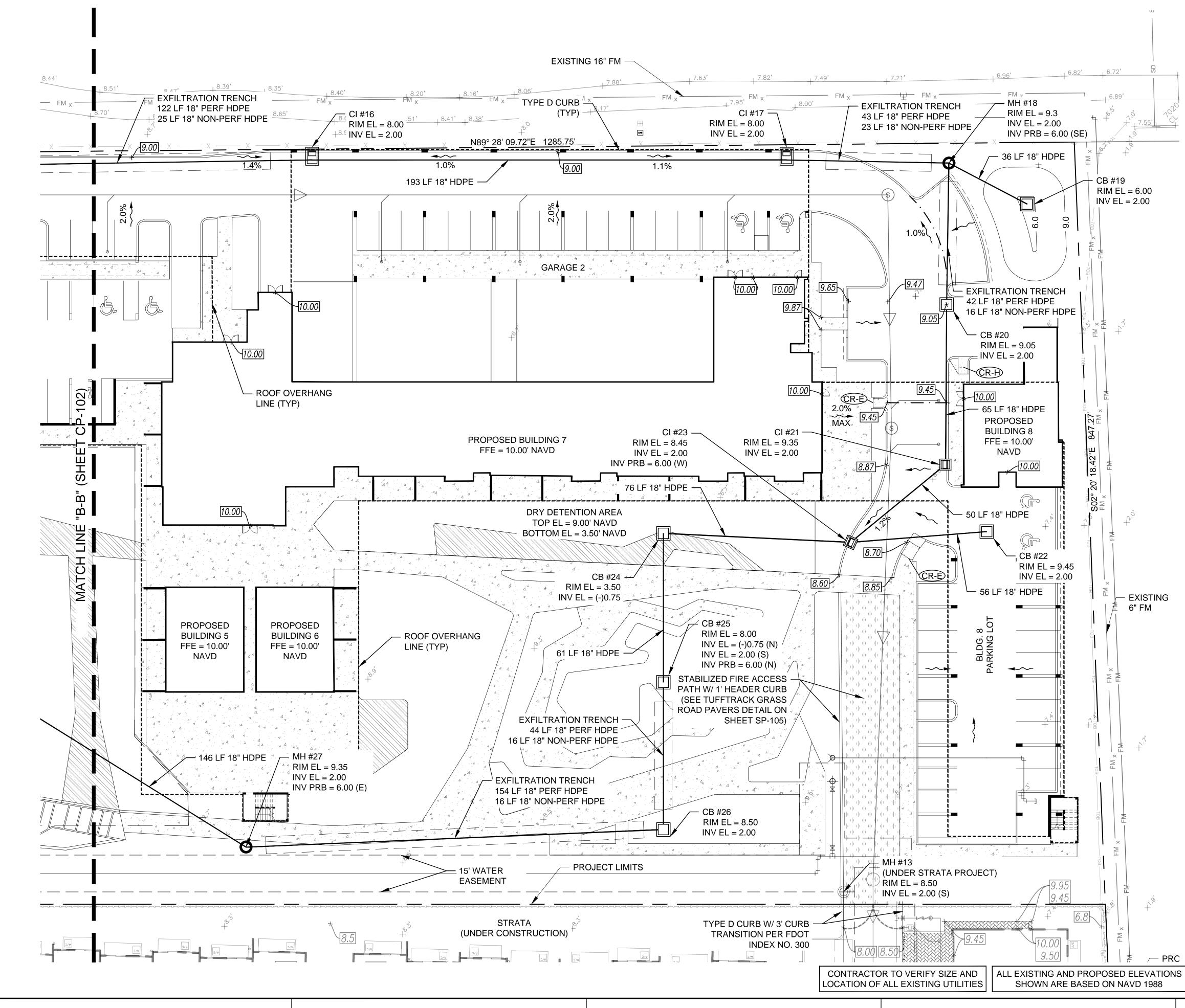
PROJECT NO. 08808.01

wing name: N:08/08808.01 - PIXL (Strata Phase 2) - Invesca/Engineering/Cadd/08808.01 GI-001-004.dwg Layout Name: GI-004 Plotted by: mcartossa Plotted on: Mar 01, 2019 - 12:25pm



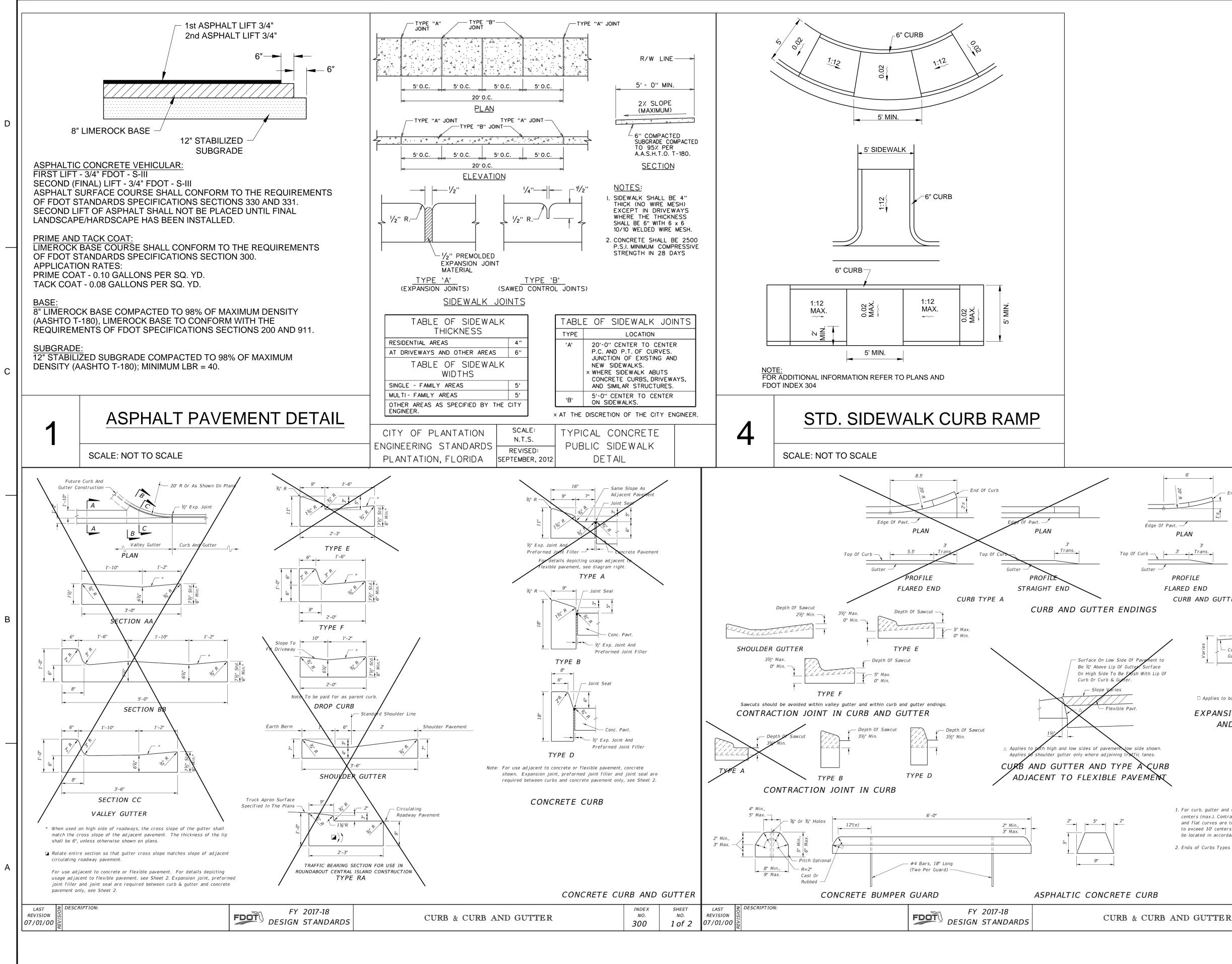


FN   C <th>Sol East Atlantic Boulevard Pompano Beach, Florida 33060-6643 2160 NW 82<sup>nd</sup> Avenue Doral, Florida 33122 PH: (954) 788-3400 Florida Certificate of Authorization # - 7928</th>	Sol East Atlantic Boulevard Pompano Beach, Florida 33060-6643 2160 NW 82 <sup>nd</sup> Avenue Doral, Florida 33122 PH: (954) 788-3400 Florida Certificate of Authorization # - 7928
THE STREET CP-103 CP-103 CP-103 CP-103 CP-103 CP-103 N.W. 8TH STREET	REVISIONS NO. DESCRIPTION DATE
	PRELIMINARY PLAN NOT FOR CONSTRUCTION RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.
DRAINAGE SYSTEM AFTER COMPLETION OF PROPOSED DRAINAGE IMPROVEMENTS.	PROJECT NO. 08808.01



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NORTH GRAPHIC SCALE 0 20 40	301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643 2160 NW 82 <sup>nd</sup> Avenue Doral, Florida 33122
SCALE: 1"=20'	PH: (954) 788-3400
NOTE: PRINTED DRAWING SIZE MAY HAVE CHANGED FROM ORIGINAL. VERIFY SCALE USING BAR SCALE ABOVE.	Florida Certificate of Authorization # - 7928
SUNRISE BLVD.	BID / CONTRACT NO. :
C-12 CANAL CU-101 CU-102 CU-103 PROJECT AREA NORTH	REVISIONS NO. DESCRIPTION DATE
N.W. 8TH STREET	
VICINITY MAP (NOT TO SCALE)	PRELIMINARY PLAN NOT FOR CONSTRUCTION RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS FROM ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT WILL FALL SOLELY UPON THE USER.
	PIXL 4400 NW 8th CT PLANTATION, FL 33317
	SCALE: AS NOTED DATE ISSUED: NOVEMBER, 2017
	DRAWN BY: FA
	DESIGNED BY: SB CHECKED BY: JT
	JAMES A. THIELE, P.E.
	FLORIDA REG. NO. 33256 (FOR THE FIRM)
	SHEET TITLE PRELIMINARY PAVING, GRADING AND DRAINAGE PLAN
	SHEET NUMBER
	CP-103
CONTRACTOR TO CLEAN AND MAINTAIN EXISTING DRAINAGE SYSTEM AFTER COMPLETION OF	CITY COMMISSION SUBMITTAL
PROPOSED DRAINAGE IMPROVEMENTS.	PROJECT NO. 08808.01



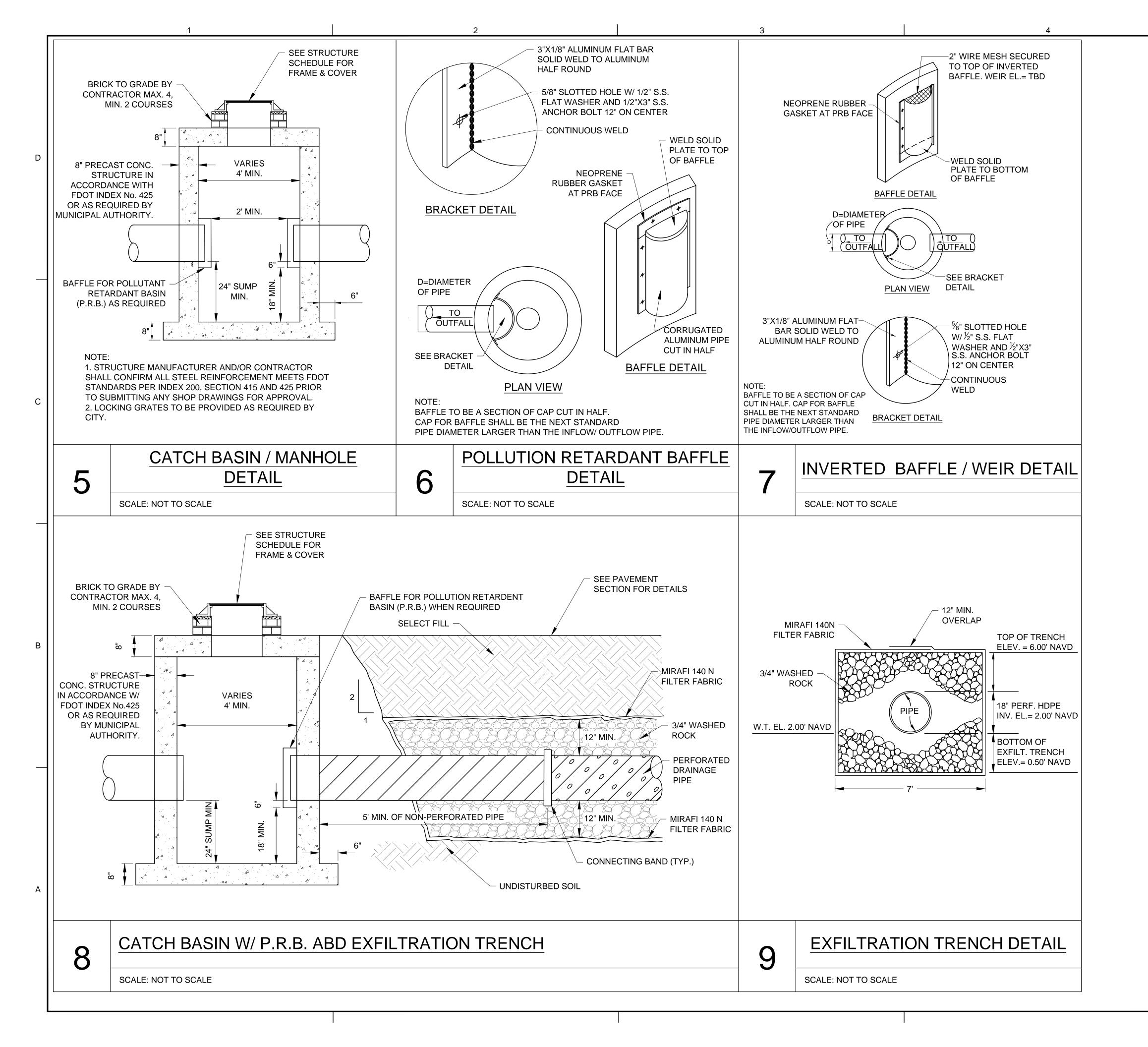
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-	301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643 		
-	Doral, Florida 3312		
-	PH: (954) 788-340		
	Florida Certificate Authorization # - 7	-	
BI	D / CONTRACT NO. :		
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$\vdash$	PRELIMINARY PI	LAN	
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	OVER THE PROJECT WILL FALL UPON THE USER.	_ SOLELY	
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	4400 NW 8th (		
	PLANTATION, FL	33317	
		AS NOTED IBER, 2017	
D	RAWN BY:	FA	
	ESIGNED BY: HECKED BY:	SB JT	
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		r.	
	JAMES A. THIELE, P.E. FLORIDA REG. NO. 332 (FOR THE FIRM)		
S	JAMES A. THIELE, P.E. FLORIDA REG. NO. 332 (FOR THE FIRM) HEET TITLE		
S	(FOR THE FIRM)	56	
S	(FOR THE FIRM) HEET TITLE PAVING & GRA	56	
S	(FOR THE FIRM)	56	
	(FOR THE FIRM) SHEET TITLE PAVING & GRA DETAILS	56	
	(FOR THE FIRM) HEET TITLE PAVING & GRA	56	

— End Of Curb Edge Of Pavt. -PLAN PLAN Trans. Top Of Curb — PROFILE PROFILE FLARED END STRAIGHT END CURB AND GUTTER TYPES E & F – Joint Seal 🗆 └─ Concrete अषे — Concrete Gutter — Pavement → ½" Exp. Joint And Preformed Joint Filler 🗆  $\hfill\square$  Applies to both high and low sides of pavement, low side shown. EXPANSION JOINT BETWEEN GUTTER AND CONCRETE PAVEMENT GENERAL NOTES 1. For curb, gutter and curb & gutter provide  ${}^{\prime}_{
m B}$ " -  ${}^{\prime}_{
m A}$ " contraction joints at 10' centers (max.). Contraction joints adjacent to concrete pavement on tangents and flat curves are to match the pavement joints, with intermediate joints to exceed 10' centers. Curb, gutter and curb & gutter expansion joints sha be located in accordance with Section 520 of the Standard Specifications. 2. Ends of Curbs Types B and D shall transition from full to zero heights in 3 INDEX NO. NC 300 2 of





301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643

> 2160 NW 82<sup>nd</sup> Avenue Doral, Florida 33122

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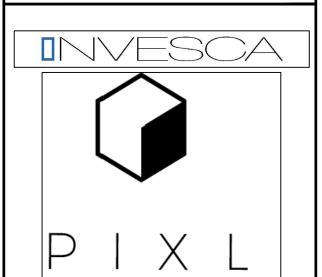
Florida Certificate of Authorization # - 7928

BID / CONTRACT NO.

REVISIONS
NO. DESCRIPTION DATE

PRELIMINARY PLAN NOT FOR CONSTRUCTION

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# 4400 NW 8th CT PLANTATION, FL 33317

SCALE: AS NOTED DATE ISSUED: NOVEMBER, 2017 DRAWN BY: FA DESIGNED BY: SB CHECKED BY: JT \* \*

> JAMES A. THIELE, P.E. FLORIDA REG. NO. 33256 (FOR THE FIRM)

SHEET TITLE

PAVING & GRADING DETAILS

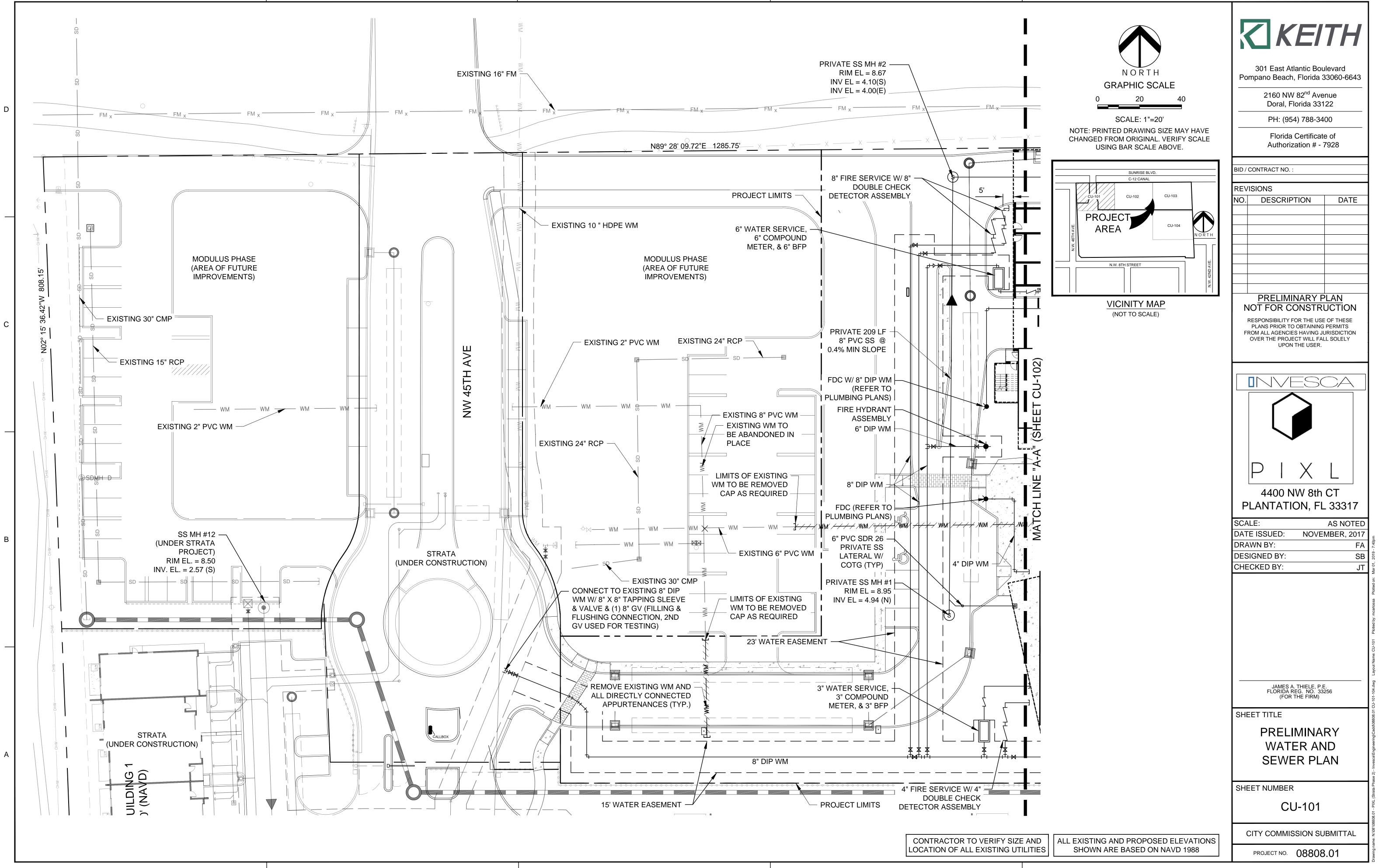
SHEET NUMBER

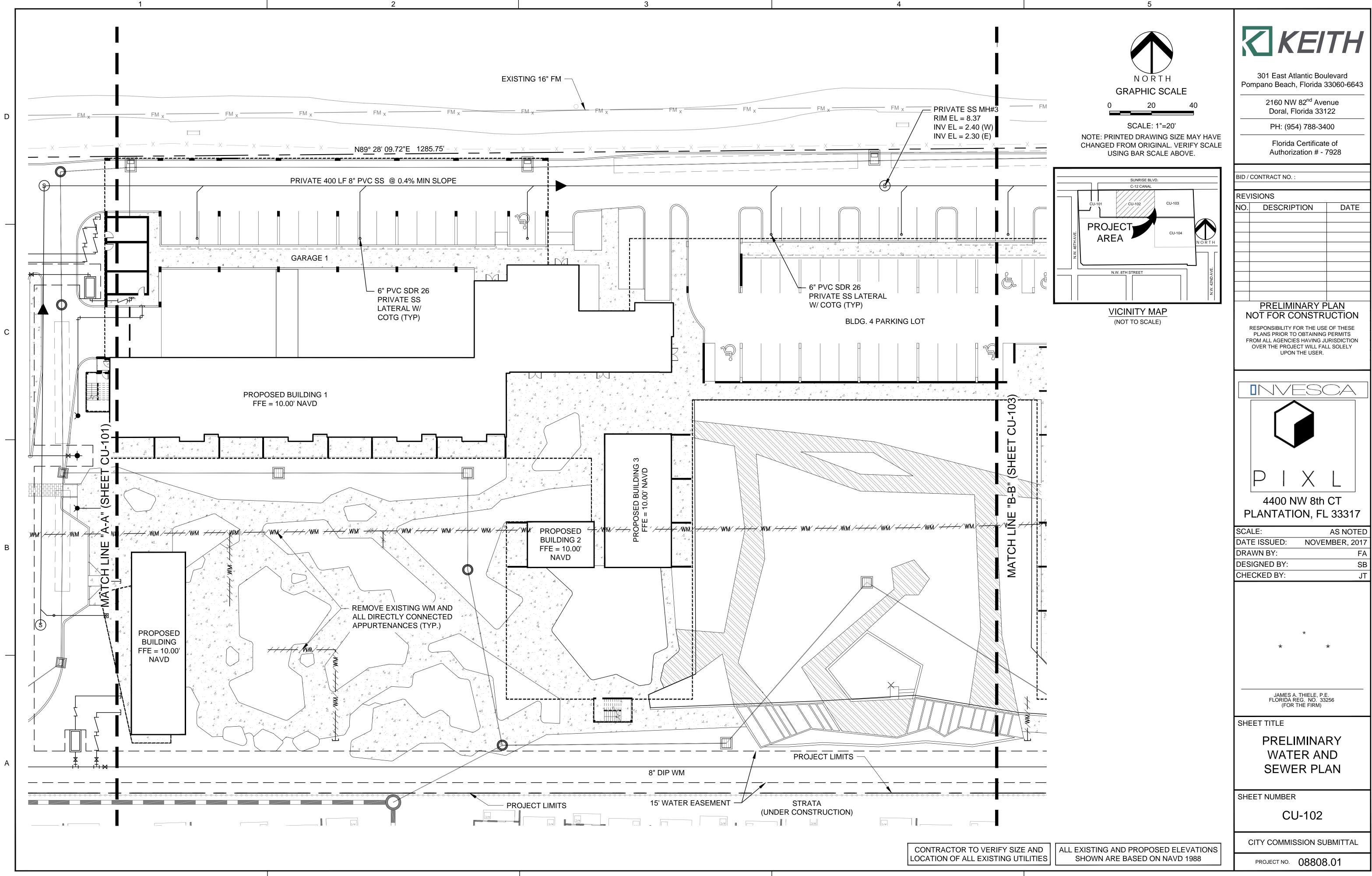
CP-502

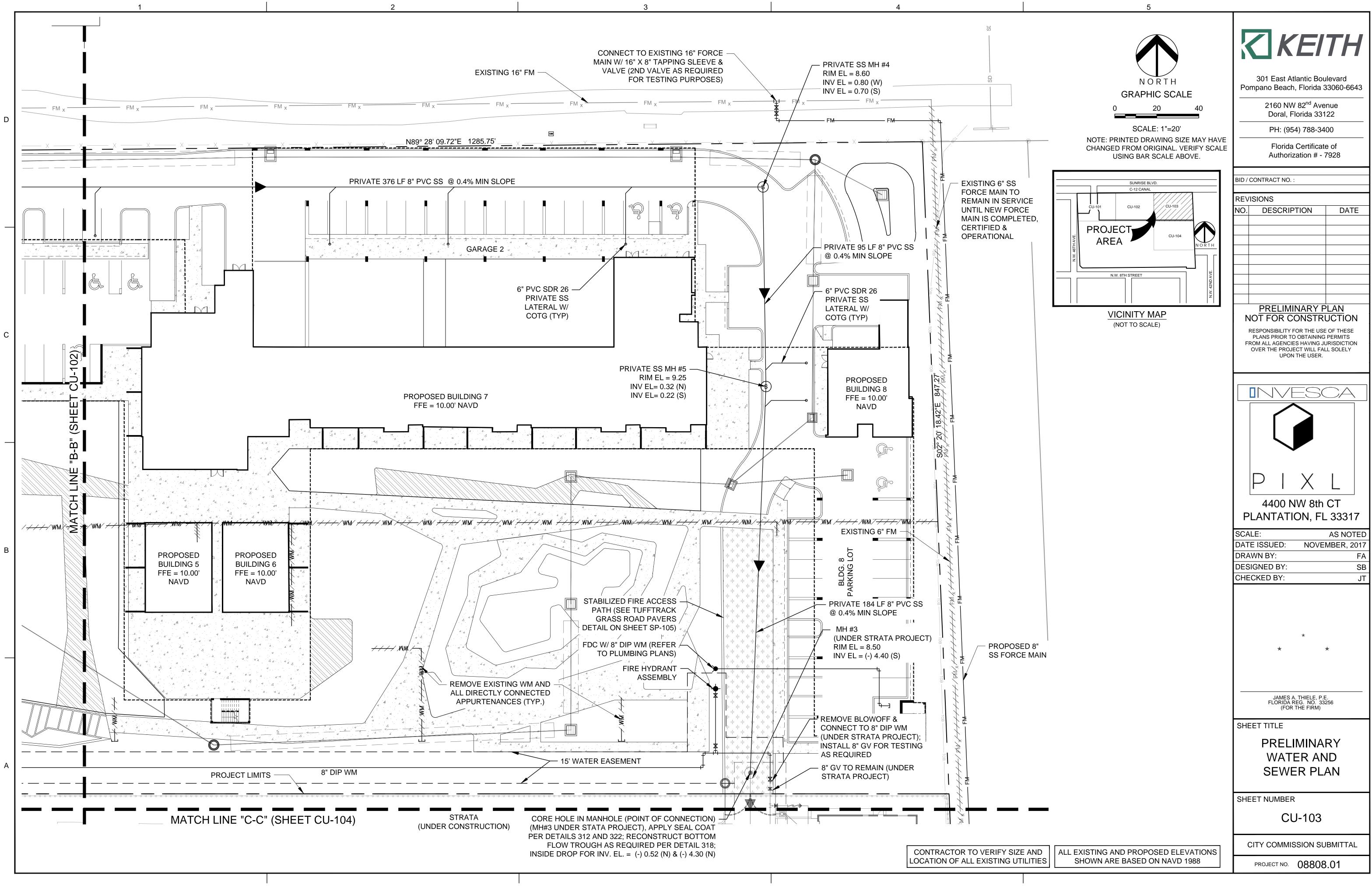
CITY COMMISSION SUBMITTAL

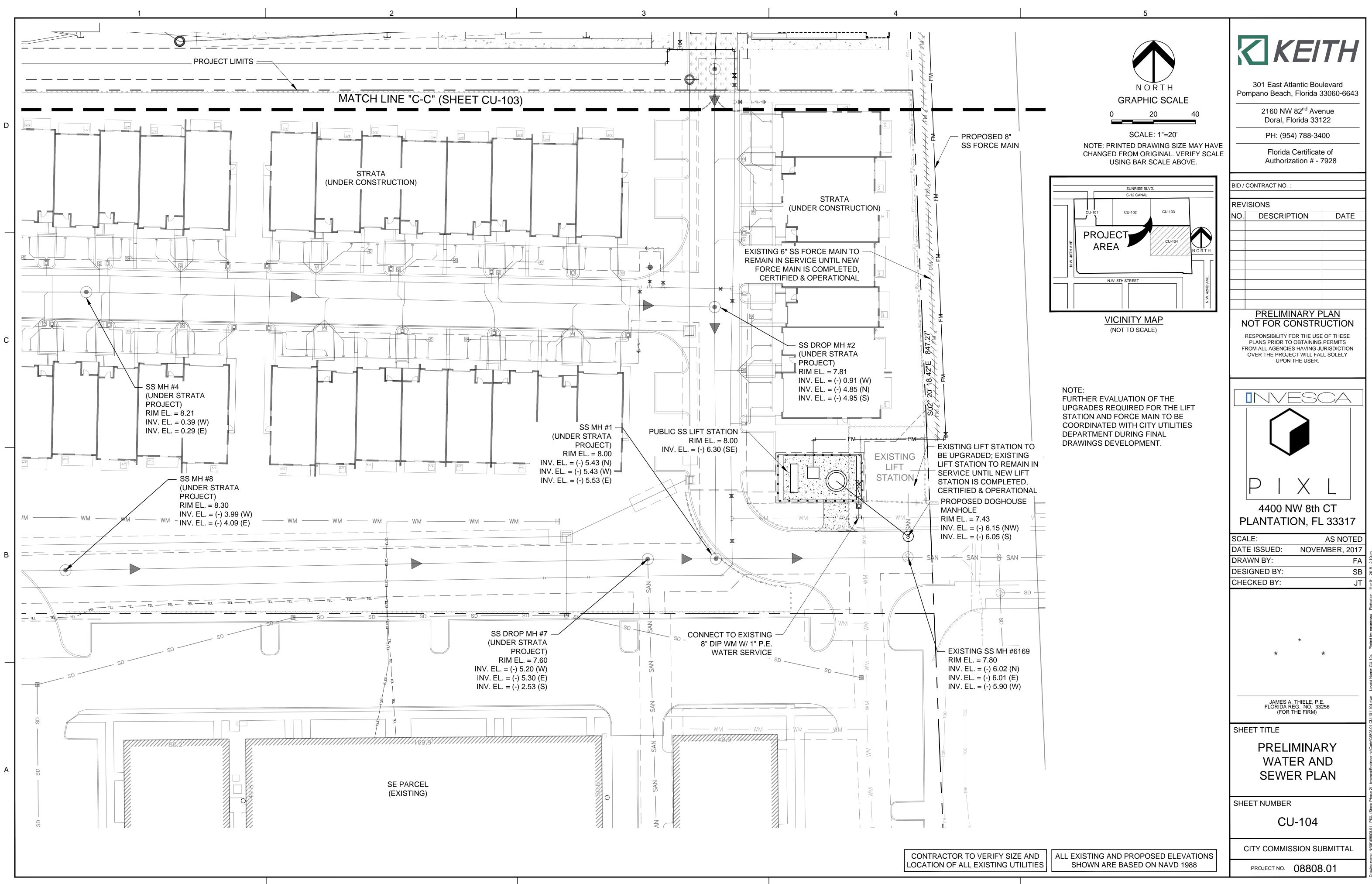
PROJECT NO. 08808.01

rrawing name: N:08'08808.01 - PIXL (Strata Phase 2) - InvescalEngineering/Cadd/08808.01 CP-501-502.dwg Layout Name: CP-502 Plotted by: mcartossa Plotted on: Mar 01, 2019 - 12:26pm

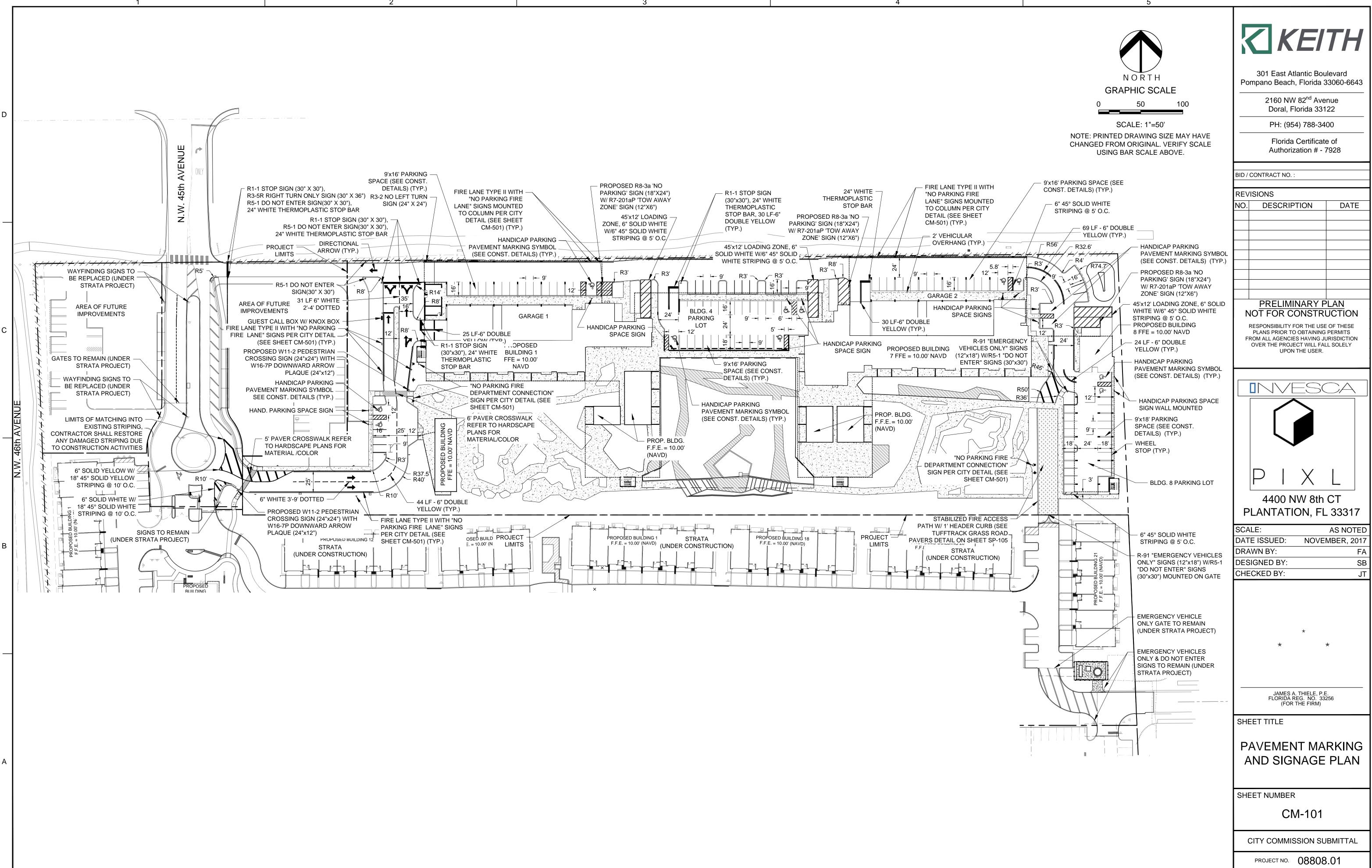




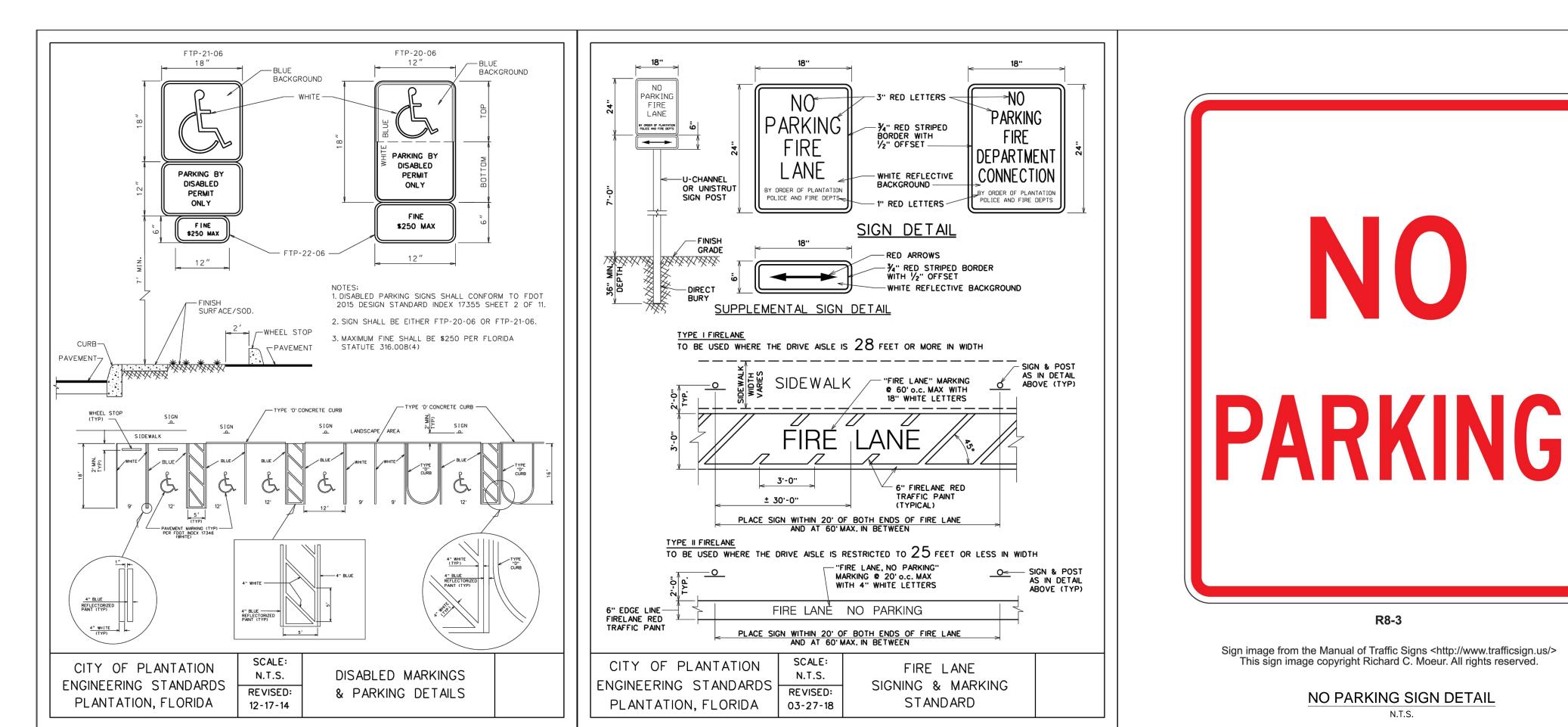


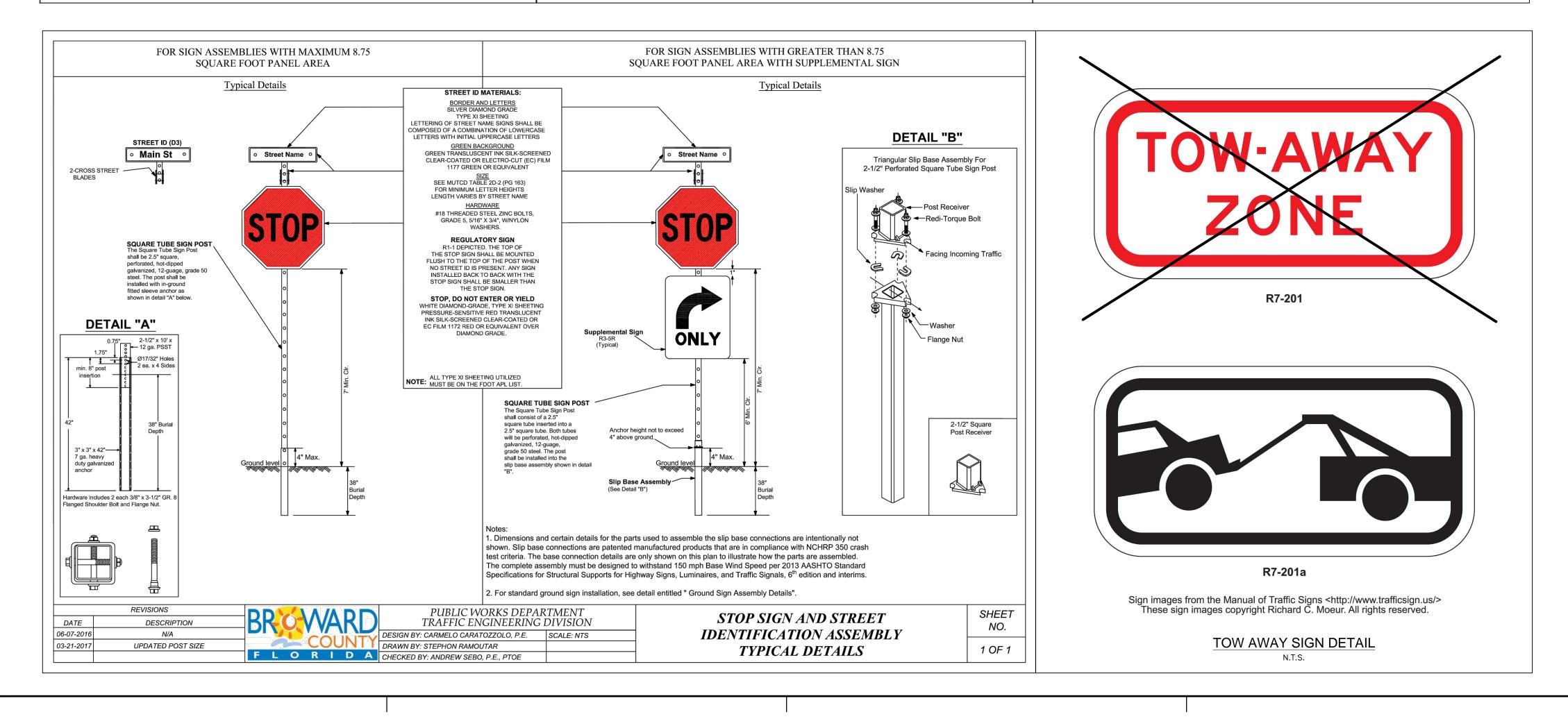








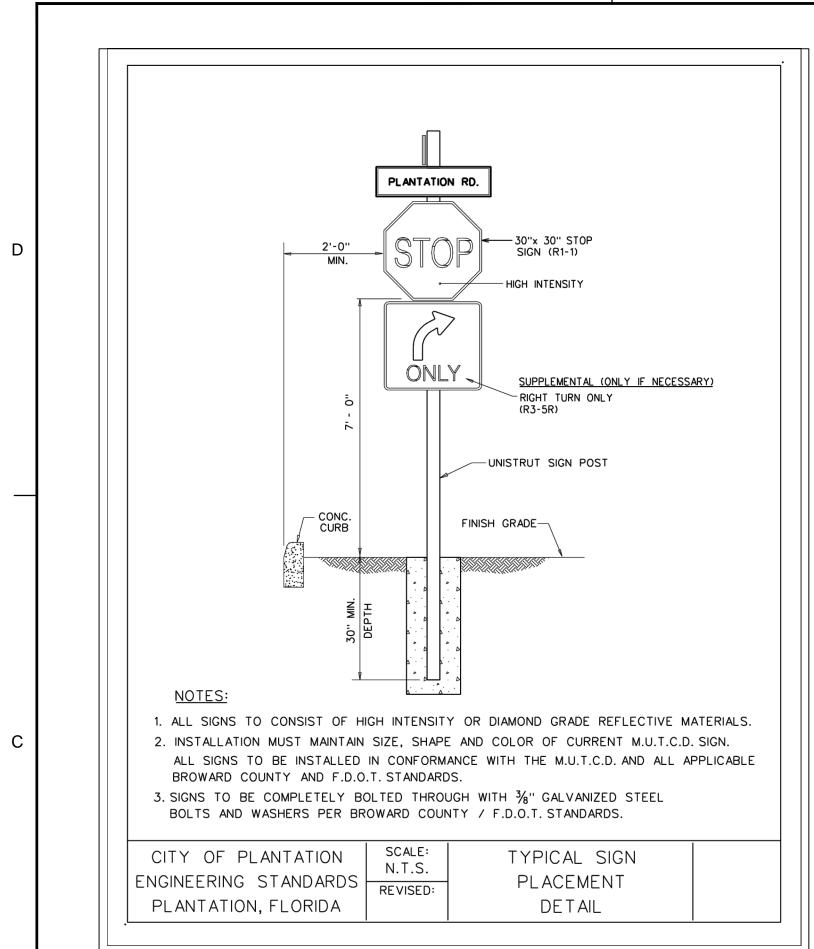




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KEITH
301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643
2160 NW 82 <sup>nd</sup> Avenue Doral, Florida 33122
PH: (954) 788-3400
Florida Certificate of Authorization # - 7928
BID / CONTRACT NO. :
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PRELIMINARY PLAN
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RESPONSIBILITY FOR THE USE OF THESE PLANS PRIOR TO OBTAINING PERMITS
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4400 NW 8th CT
PLANTATION, FL 33317
SCALE: AS NOTED DATE ISSUED: NOVEMBER, 2017
DRAWN BY: FA
DESIGNED BY: SB
CHECKED BY: JT
* *
JAMES A. THIELE, P.E. FLORIDA REG. NO. 33256 (FOR THE FIRM)
SHEET TITLE
PAVEMENT
MARKING AND
SIGNAGE DETAILS
SHEET NUMBER
CM-501
CITY COMMISSION SUBMITTAL
PROJECT NO. 08808.01

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301 East Atlantic Boulevard Pompano Beach, Florida 33060-6643

> 2160 NW 82<sup>nd</sup> Avenue Doral, Florida 33122

PH: (954) 788-3400

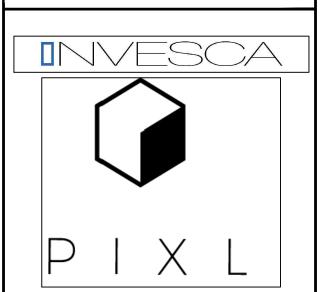
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BID / CONTRACT NO. :

REVISIONS					
NO.	DESCRIPTION	DATE			

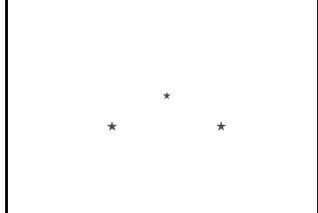
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# 4400 NW 8th CT PLANTATION, FL 33317

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JAMES A. THIELE, P.E. FLORIDA REG. NO. 33256 (FOR THE FIRM)

SHEET TITLE PAVEMENT MARKING AND

MARKING AND SIGNAGE DETAILS

SHEET NUMBER

CM-502

CITY COMMISSION SUBMITTAL

PROJECT NO. 08808.01