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# SITE PLAN FOR

# ZAXBY'S EUSTIS

SECTION 22, TOWNSHIP 19 SOUTH, RANGE 26 EAST LAKE COUNTY, FLORIDA CITY OF EUSTIS

### LEGAL DESCRIPTION:

(PER TITLE COMMITMENT NO. CD212308007)

### PARCEL

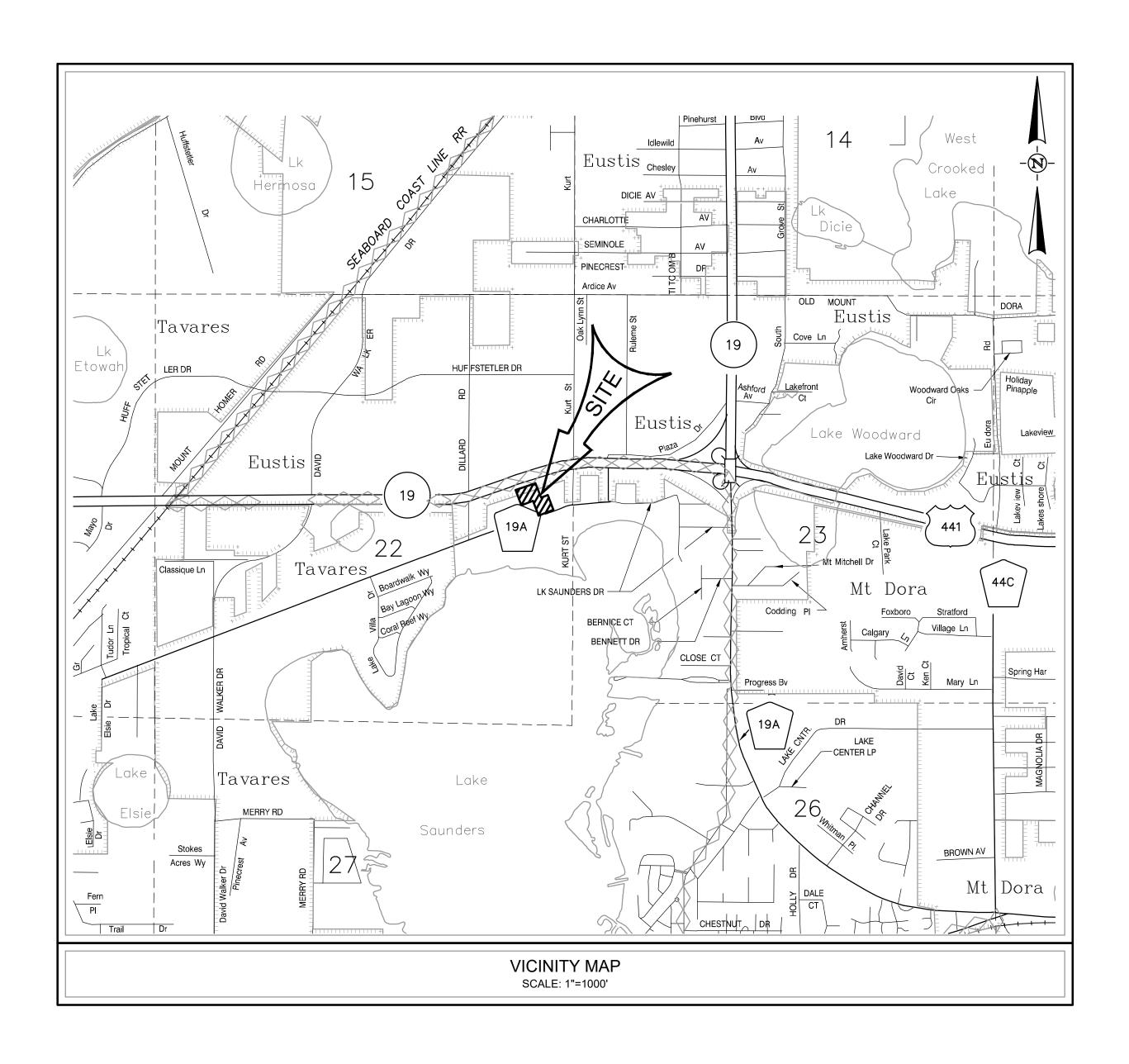
COMMENCING AT THE SOUTHWEST CORNER OF THE NORTHWEST 1/4 OF SECTION 23, TOWNSHIP 19 SOUTH, RANGE 26 EAST, THENCE RUN N64°02'24"W FOR 334.76 FEET TO AN IRON PIN (NO LD), THENCE RUNNING WITH THE NORTHERLY LINE OF LAKE SAUNDERS SUBDIVISION (P.B. 4, PG. 30) S69°01'33"W FOR 262.84 FEET TO A IRON PIN (LB 7064) AND THE POINT OF BEGINNING; THENCE CONTINUING WITH SAID SUBDIVISION S69°01'33"W FOR 266.93 FEET TO AN IRON PIN (LB 7064), PASSING AN IRON PIN FOUND (RLS 1916) AT 108.68 FEET; THENCE TURNING AND RUNNING N20°46'46"W FOR 204.57 FEET TO A CONCRETE MONUMENT FOUND (NO. LD.) ON THE SOUTHERLY RIGHT-OF-WAY LINE OF U.S. HIGHWAY 411/S.R. 500; THENCE RUNNING WITH THE SOUTHERLY RIGHT-OF-WAY LINE OF U.S. HIGHWAY 411/S.R. 500 FOR FOUR (4) COURSES TO WIT: (1) N70°43'07"E FOR 227.20 FEET TO AN IRON PIN (FDOT); THENCE (2) S66°24'00"E FOR 25.07 FEET TO AN IRON PIN (FDOT); THENCE (3) A NON RADIAL CURVE TO THE RIGHT (CONCAVE EASTERLY) WITH A CHORD BEARING OF N18°06'35"E FOR A CHORD DISTANCE OF 21.48 FEET (R=117.50'; L=21.51') TO AN IRON PIN (FDOT); THENCE (4) A NON RADIAL CURVE TO THE RIGHT (CONCAVE SOUTHERLY) WITH A CHORD BEARING OF N70°33'35"E FOR A CHORD DISTANCE OF 7.74 FEET (R=2814.93'; L=7.74') TO AN IRON PIN (FDOT); THENCE LEAVING SAID RIGHT-OF-WAY RUN S20°58'26"E FOR 196.75 FEET TO THE POINT OF BEGINNING. ALL LYING AND BEING IN LAKE COUNTY, FLORIDA.

### PARCEL 2

ALSO TOGETHER WITH:

- LOT 15, LAKE SAUNDERS SUBDIVISION, ACCORDING TO THE MAP OR PLAT THEREOF AS RECORDED IN PLAT BOOK 4, PAGE 30, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA.
- LOT 16, LAKE SAUNDERS SUBDIVISION, ACCORDING TO THE MAP OR PLAT THEREOF AS RECORDED IN PLAT BOOK 4, PAGE 30, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA.

  TOGETHER WITH:
- ACCESS EASEMENT FOR INGRESS AND EGRESS OVER AND ACROSS AS IS MORE PARTICULARLY SET FORTH IN THAT CERTAIN COVENANTS AND CONDITIONS OF THAT CERTAIN DECLARATION OF EASEMENTS AND RESTRICTIVE COVENANTS RECORDED IN OFFICIAL RECORDS BOOK 1566, PAGE 756, AS AFFECTED BY: WATER RETENTION AREA PARTICIPATION AGREEMENT RECORDED IN OFFICIAL RECORDS BOOK 5022, PAGE 2355, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA. (AS TO PARCELS 1, 2 AND 3)
- A PERPETUAL, NONEXCLUSIVE EASEMENT FOR INGRESS AND EGRESS UNDER, OVER AND ON THAT PORTION OF THE SERVIENT PROPERTY AS IS MORE PARTICULARLY DESCRIBED IN THAT CERTAIN GRANT OF EASEMENT FOR INGRESS, EGRESS AND UTILITIES RECORDED IN OFFICIAL RECORDS BOOK 4 724, PAGE 12, PUBLIC RECORDS OF LAKE COUNTY, FLORIDA. (AS



### **DEVELOPER**

INSIGNIS PARTNERS, LLC 110 EAST COURT STREET, SUITE 203 GREENVILLE, SC 29607 PHONE 864-630-8688 CONTACT: SEPH WUNDER

### **ENGINEER**

HALFF ASSOCIATES
902 N. SINCLAIR AVENUE
TAVARES, FLORIDA 32778
PHONE (352) 343-8481
CONTACT: CHARLES C. HIOTT, P.E.

### SURVEYOR

CANVAS LAND SURVEYING 300 N. RONALD REAGAN BLVD. LONGWOOD, FLORIDA 32750 PHONE (321) 689-5330 CONTACT: LUKE P. FULFORD, PSM

# VARIANCES: PER COMMERCIAL BUILDING LOT 110.4.13 1. STREET SETBACK FROM 75' MAX. TO 90' MAX.

2. FRONTAGE BUILD OUT FROM 50' MIN. TO 32% MIN. PER BUILDING DESIGN STANDARDS 115-6

1. ALL DISTRICTS (115-6.1)

2. DRIVE THROUGH SERVICES AND AUTOMOTIVE LIFTS (115-6.1.3)

### **INDEX OF SHEETS:**

C100 COVER SHEET

C101 EROSION CONTROL & DEMOLITION PLAN

C102 AERIAL PHOTOGRAPH

C200 SITE PLAN

300 GRADING & DRAINAGE PLAN

C400 UTILITY PLAN

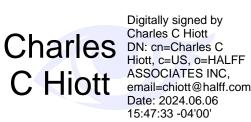
C401 TRUCK TURNING MOVEMENTS

C500 PAVING & DRAINAGE DETAILS

C501 WATER & SEWER DETAILS

C502 CITY OF EUSTIS WATER & SEWER SPECIFICATIONS

NOTE:
APPARENT ERRORS, DISCREPANCIES, OR OMISSIONS SHALL BE BROUGHT
TO THE ENGINEER OF RECORD'S ATTENTION WITHIN A REASONABLE TIME
FRAME, LESS THAN 48 HOURS AFTER DISCOVERED. ADVANTAGE WILL NOT
BE TAKEN OF APPARENT ERROR OR OMISSION IN THE DRAWINGS OR
SPECIFICATIONS, AND THE ENGINEER SHALL BE PERMITTED TO MAKE
CORRECTIONS AND INTERPRETATIONS AS MAY BE DEEMED NECESSARY
FOR FULFILLMENT OF THE INTENT OF THE DESIGN.



PREPARED BY:



LEGEND:

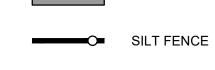
**ASPHALT CONCRETE** (TO REMAIN)



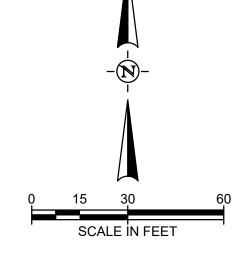
EXISTING ASPHALT



PAVEMENT (TO REMAIN)



ASPHALT PAVEMENT OR CONCRETE (TO BE REMOVED)



**EXISTING TREE** (TO BE REMOVED)

### **EROSION & SEDIMENT CONTROL NOTES:**

THE FOLLOWING LIST REPRESENTS A BASIC EROSION AND SEDIMENT CONTROL PROGRAM WHICH IS TO BE IMPLEMENTED TO HELP PREVENT OFF-SITE SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROJECT.

**EROSION AND SEDIMENT CONTROL** 

### A. EROSION CONTROL DURING CONSTRUCTION.

1. TEMPORARY EROSION CONTROL STRUCTURES SHALL BE UTILIZED DURING CONSTRUCTION AT AREAS ON-SITE WHERE UNSTABILIZED GRADES MAY CAUSE EROSION PROBLEMS. EROSION CONTROL STRUCTURES MAY BE REMOVED AFTER UPSLOPE AREA HAS BEEN STABILIZED BY SOD OR COMPACTED AS DETERMINED BY THE CONTRACTOR.

2. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE COORDINATED WITH PERMANENT MEASURES TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS CONTROL THROUGHOUT THE CONSTRUCTION PHASE. TEMPORARY MEASURES SHALL NOT BE CONSTRUCTED FOR EXPEDIENCY IN LIEU OF PERMANENT MEASURES.

3. PERMANENT EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AT THE EARLIEST PREDICTABLE TIME CONSISTENT WITH GOOD CONSTRUCTION PRACTICES. ONE OF THE FIRST CONSTRUCTION ACTIVITIES SHOULD BE THE PLACEMENT OF PERMANENT AND TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AROUND THE PERIMETER OF THE PROJECT OR THE INITIAL WORK AREA TO PROTECT THE PROJECT, ADJACENT PROPERTIES AND WATER RESOURCES.

4. STORM WATER MANAGEMENT AREAS, STORM SEWER SYSTEM AND CONTROL STRUCTURES SHALL BE EXCAVATED TO ROUGH GRADE PRIOR TO BUILDING CONSTRUCTION OR PLACEMENT OF IMPERVIOUS SURFACES WITHIN THE AREA TO BE SERVED BY THOSE FACILITIES. TO PREVENT REDUCTION IN STORAGE VOLUME AND PERCOLATION RATE, ALL ACCUMULATED SEDIMENT WILL BE REMOVED FROM THE STORM WATER FACILITIES PRIOR TO FINAL GRADING, STABILIZATION AND

5. EROSION CONTROL STRUCTURES, SUCH AS SILT FENCE AND BERMS, SHALL BE INSTALLED AROUND INLETS AND IN SWALES TO TRAP ERODED MATERIAL, PREVENT SEDIMENTATION IN DOWN STREAM AREAS AND KEEP RUNOFF VELOCITIES LOW.

6. THE CONTRACTOR SHALL MINIMIZE THE EXTENT OF AREA EXPOSED AT ANY ONE TIME AND THE DURATION OF EXPOSURE.

7. STABILIZATION MEASURES SHALL BE INITIATED FOR EROSION AND SEDIMENT CONTROL ON DISTURBED AREAS NO MORE THAN FOURTEEN (14) DAYS AFTER THE CONSTRUCTION ACTIVITY IN ANY PORTION OF THE SITE THAT HAS CEASED

8. THE CONTRACTOR WILL INSTALL A PERMANENT VEGETATIVE COVER FOR EROSION AND SEDIMENT CONTROL ON ALL LAND SURFACES DISTURBED BY CONSTRUCTION. THIS PROTECTIVE COVER MUST BE INSTALLED WITHIN FOURTEEN (14) DAYS AFTER FINAL GRADING OF THE EFFECTED LAND SURFACES. A PERMANENT VEGETATIVE COVER MUST BE ESTABLISHED WITHIN SIXTY (60) DAYS AFTER PLANTING OR INSTALLATION.

9. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ADEQUATELY MAINTAINED TO PERFORM THEIR INTENDED FUNCTION DURING CONSTRUCTION OF THE PROJECT. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

10. PLACEMENT OF BARRIERS OR NECESSARY REPAIRS TO BARRIERS SHALL BE ACCOMPLISHED

11. MATERIAL FROM SEDIMENT TRAPS SHALL NOT BE STOCK PILED OR DISPOSED OF IN A MANNER WHICH MAKES THEM READILY SUSCEPTIBLE TO BEING WASHED INTO ANY WATER COURSE BY RUNOFF OR HIGH WATER.

12. ANY ACCUMULATED SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIERS ARE NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED, AND

13. TO PROVIDE DUST CONTROL, A CONTRACTOR SHALL PROVIDE A WATER TRUCK OR IRRIGATION SYSTEM AS NEEDED, TO MAINTAIN SOIL MOISTURE.

14. IF SITE SPECIFIC CONDITIONS REQUIRE ADDITIONAL MEASURES DURING ANY PHASE OF CONSTRUCTION OR OPERATION TO PREVENT EROSION OR CONTROL SEDIMENT, BEYOND THOSE SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN, THE CONTRACTOR MUST IMPLEMENT ADDITIONAL BEST MANAGEMENT PRACTICES AS NECESSARY, IN ACCORDANCE WITH THE SPECIFICATION IN SECTION 6 OF THE FLORIDA LAND DEVELOPMENT MANUAL: A GUIDE TO LAND AND WATER MANAGEMENT (FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION, 1988).

### B. PERMANENT STABILIZATION

WHERE CONSTRUCTION IS COMPLETE, PERMANENT VEGETATION SHALL BE INSTALLED AS SPECIFIED ON THE CONSTRUCTION PLANS AND IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATION DOCUMENTS. PERMANENT VEGETATION WILL INCLUDE SOD OR SEED AND MULCH.

### STORMWATER MANAGEMENT SYSTEM

THE STORMWATER RETENTION PONDS SHALL BE EXCAVATED TO ROUGH GRADE PRIOR TO BUILDING CONSTRUCTION OR PLACEMENT OF IMPERVIOUS SURFACES WITHIN THE DRAINAGE AREA SERVED BY THIS FACILITY. ALL ACCUMULATED SEDIMENT MUST BE REMVOED FROM THE RETENTION POND PRIOR TO FINAL GRADING, STABILIZING AND GRASSING.

### OTHER CONTROLS

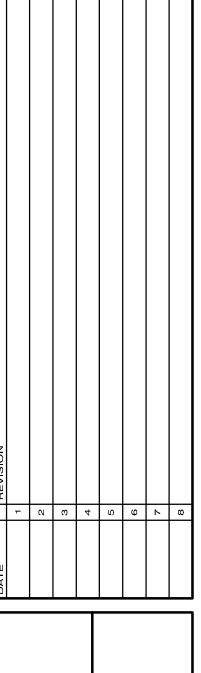
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### A. OFFSITE VEHICLE TRACKING

PAVED STREETS ADJACENT TO THE CONSTRUCTION SITE ENTRANCE WILL BE SWEPT AS NEEDED TO PREVENT EXCESS MUD, DIRT OR ROCK FROM LEAVING THE CONSTRUCTION SITE. ALL DUMP TRUCKS HAULING MATERIAL TO AND FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARP. TEMPORARY STABILIZED OR ROCK CONSTRUCTION ENTRANCE MAY BE REQUIRE TO REMOVE EXCESS DIRT AND MUD FROM TIRES BEFORE CONSTRUCTION VEHICLES ENTER ADJACENT PAVED STREETS.

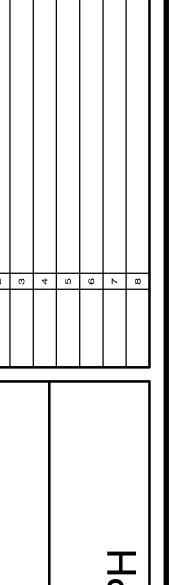
### TIMING OF SEDIMENT AND EROSION CONTROL MEASURES

A SILT FENCE SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. A RETENTION POND AND STORM WATER CONVEYANCE SYSTEM SHALL BE CONSTRUCTED PRIOR TO THE PLACEMENT OF ANY IMPERVIOUS AREA. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN 14-DAYS SHALL BE STABILIZED WITH TEMPORARY SEED AND MULCH. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN ANY AREA, THAT AREA WILL BE STABILIZED WITH PERMANENT SEED AND MULCH OR SOD. AFTER THE ENTIRE SITE IS STABILIZED, THE ACCUMULATED SEDIMENT WITHIN ANY CATCH BASIN, STORM PIPES, OR RETENTION PONDS WILL BE REMOVED.





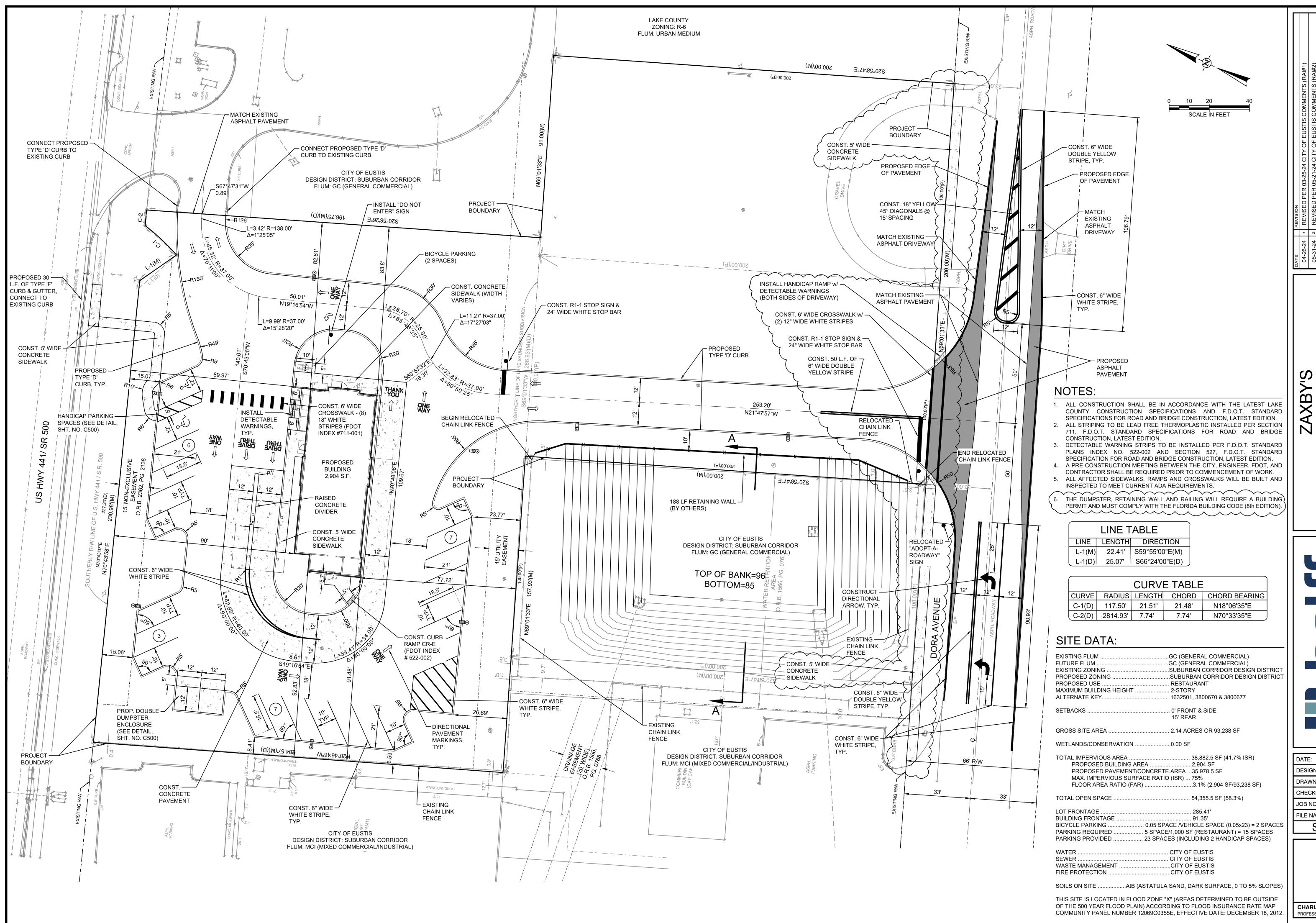
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EUSTIS AERIAL PHOTOGRAPI



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902 North Sinclair Ave.
Tavares, Florida 32778
Certificate of Authorization Number: 33380

DATE: DECEMBER 2023

DESIGNED BY: RLG

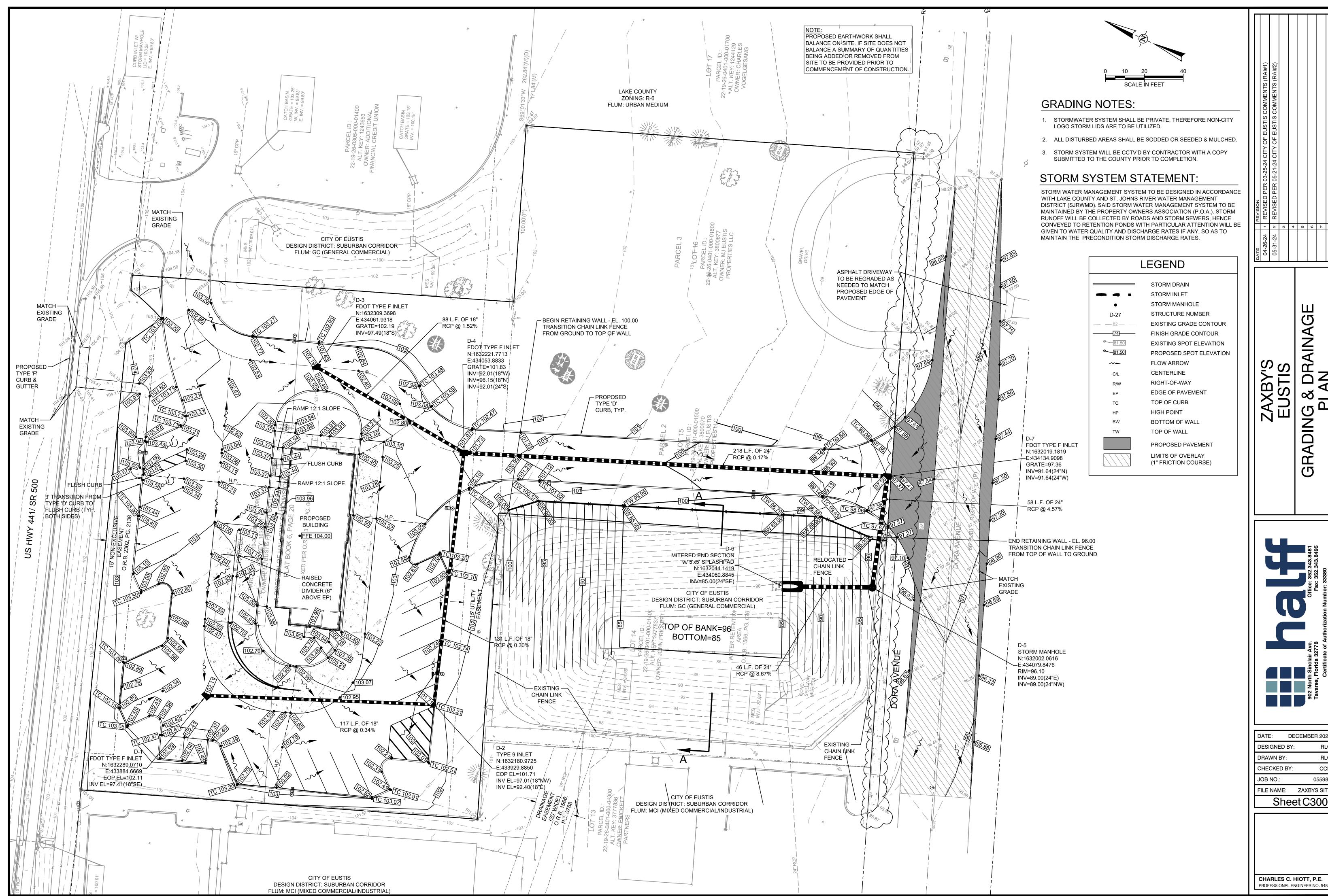
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JOB NO.: 055986

FILE NAME: ZAXBYS SITE

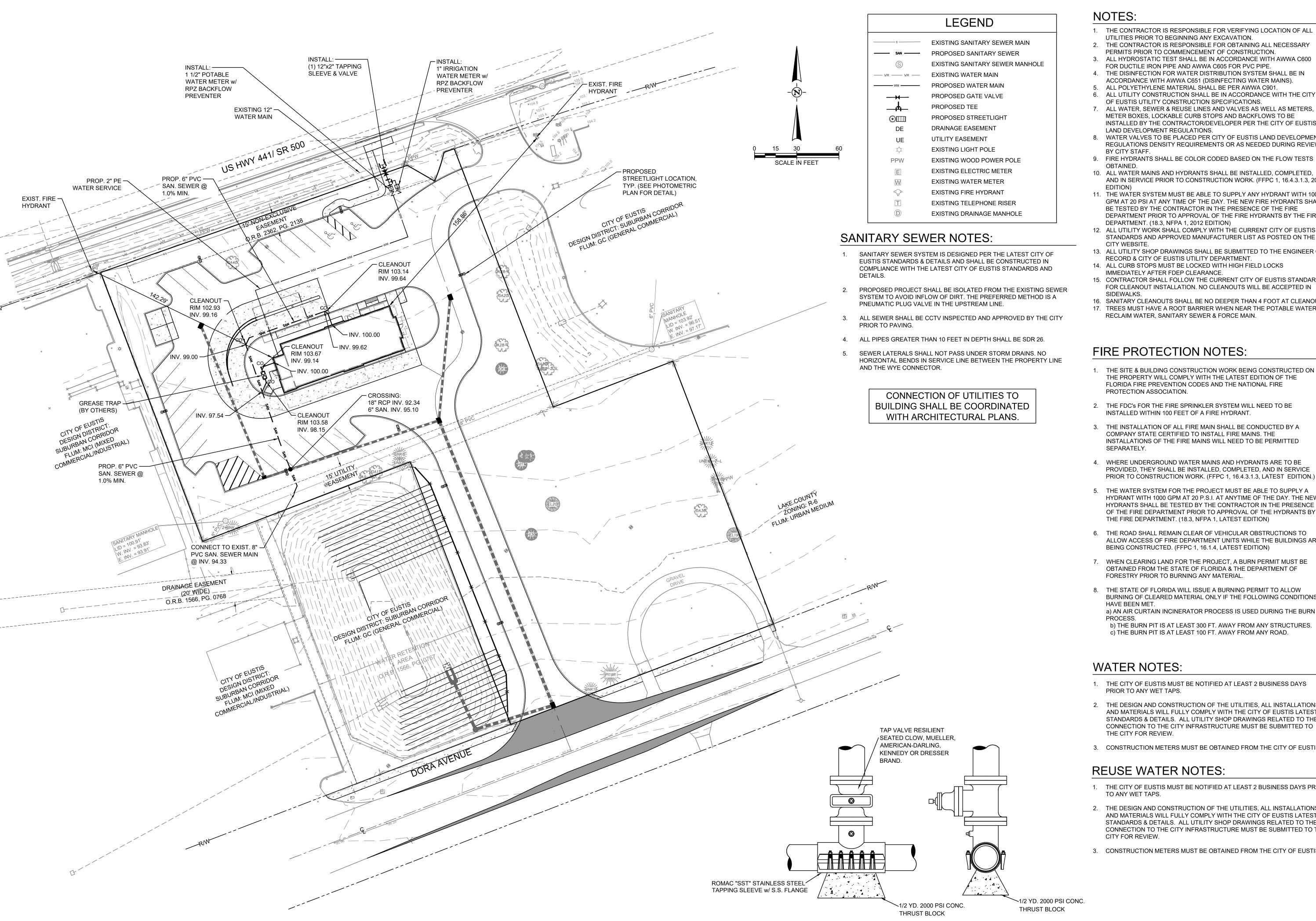
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JOB NO.:	055986	
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Sheet C300		

CHARLES C. HIOTT, P.E.

PROFESSIONAL ENGINEER NO. 54813



NOTES:

- 1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF ALL UTILITIES PRIOR TO BEGINNING ANY EXCAVATION.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY
- PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 3. ALL HYDROSTATIC TEST SHALL BE IN ACCORDANCE WITH AWWA C600 FOR DUCTILE IRON PIPE AND AWWA C605 FOR PVC PIPE
- 4. THE DISINFECTION FOR WATER DISTRIBUTION SYSTEM SHALL BE IN ACCORDANCE WITH AWWA C651 (DISINFECTING WATER MAINS).
- 5. ALL POLYETHYLENE MATERIAL SHALL BE PER AWWA C901. 6. ALL UTILITY CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY
- OF EUSTIS UTILITY CONSTRUCTION SPECIFICATIONS. 7. ALL WATER, SEWER & REUSE LINES AND VALVES AS WELL AS METERS, METER BOXES, LOCKABLE CURB STOPS AND BACKFLOWS TO BE INSTALLED BY THE CONTRACTOR/DEVELOPER PER THE CITY OF EUSTIS
- LAND DEVELOPMENT REGULATIONS. 8. WATER VALVES TO BE PLACED PER CITY OF EUSTIS LAND DEVELOPMENT REGULATIONS DENSITY REQUIREMENTS OR AS NEEDED DURING REVIEW
- 9. FIRE HYDRANTS SHALL BE COLOR CODED BASED ON THE FLOW TESTS
- 10. ALL WATER MAINS AND HYDRANTS SHALL BE INSTALLED, COMPLETED, AND IN SERVICE PRIOR TO CONSTRUCTION WORK. (FFPC 1, 16.4.3.1.3, 2012
- 11. THE WATER SYSTEM MUST BE ABLE TO SUPPLY ANY HYDRANT WITH 1000 GPM AT 20 PSI AT ANY TIME OF THE DAY. THE NEW FIRE HYDRANTS SHALL BE TESTED BY THE CONTRACTOR IN THE PRESENCE OF THE FIRE DEPARTMENT PRIOR TO APPROVAL OF THE FIRE HYDRANTS BY THE FIRE DEPARTMENT. (18.3, NFPA 1, 2012 EDITION)
- 12. ALL UTILITY WORK SHALL COMPLY WITH THE CURRENT CITY OF EUSTIS STANDARDS AND APPROVED MANUFACTURER LIST AS POSTED ON THE
- 13. ALL UTILITY SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF
- **RECORD & CITY OF EUSTIS UTILITY DEPARTMENT** 14. ALL CURB STOPS MUST BE LOCKED WITH HIGH FIELD LOCKS
- IMMEDIATELY AFTER FDEP CLEARANCE. 15. CONTRACTOR SHALL FOLLOW THE CURRENT CITY OF EUSTIS STANDARDS FOR CLEANOUT INSTALLATION. NO CLEANOUTS WILL BE ACCEPTED IN
- SIDEWALKS. 16. SANITARY CLEANOUTS SHALL BE NO DEEPER THAN 4 FOOT AT CLEANOUT.
- 17. TREES MUST HAVE A ROOT BARRIER WHEN NEAR THE POTABLE WATER, RECLAIM WATER, SANITARY SEWER & FORCE MAIN.

### FIRE PROTECTION NOTES:

- 1. THE SITE & BUILDING CONSTRUCTION WORK BEING CONSTRUCTED ON THE PROPERTY WILL COMPLY WITH THE LATEST EDITION OF THE FLORIDA FIRE PREVENTION CODES AND THE NATIONAL FIRE PROTECTION ASSOCIATION.
- 2. THE FDC's FOR THE FIRE SPRINKLER SYSTEM WILL NEED TO BE INSTALLED WITHIN 100 FEET OF A FIRE HYDRANT.
- 3. THE INSTALLATION OF ALL FIRE MAIN SHALL BE CONDUCTED BY A COMPANY STATE CERTIFIED TO INSTALL FIRE MAINS. THE INSTALLATIONS OF THE FIRE MAINS WILL NEED TO BE PERMITTED SEPARATELY.
- 4. WHERE UNDERGROUND WATER MAINS AND HYDRANTS ARE TO BE PROVIDED, THEY SHALL BE INSTALLED, COMPLETED, AND IN SERVICE PRIOR TO CONSTRUCTION WORK. (FFPC 1, 16.4.3.1.3, LATEST EDITION.)
- 5. THE WATER SYSTEM FOR THE PROJECT MUST BE ABLE TO SUPPLY A HYDRANT WITH 1000 GPM AT 20 P.S.I. AT ANYTIME OF THE DAY. THE NEW HYDRANTS SHALL BE TESTED BY THE CONTRACTOR IN THE PRESENCE OF THE FIRE DEPARTMENT PRIOR TO APPROVAL OF THE HYDRANTS BY THE FIRE DEPARTMENT. (18.3. NFPA 1. LATEST EDITION)
- 6. THE ROAD SHALL REMAIN CLEAR OF VEHICULAR OBSTRUCTIONS TO ALLOW ACCESS OF FIRE DEPARTMENT UNITS WHILE THE BUILDINGS ARE BEING CONSTRUCTED. (FFPC 1, 16.1.4, LATEST EDITION)
- 7. WHEN CLEARING LAND FOR THE PROJECT, A BURN PERMIT MUST BE OBTAINED FROM THE STATE OF FLORIDA & THE DEPARTMENT OF FORESTRY PRIOR TO BURNING ANY MATERIAL.
- 8. THE STATE OF FLORIDA WILL ISSUE A BURNING PERMIT TO ALLOW BURNING OF CLEARED MATERIAL ONLY IF THE FOLLOWING CONDITIONS HAVE BEEN MET.
  - b) THE BURN PIT IS AT LEAST 300 FT. AWAY FROM ANY STRUCTURES. c) THE BURN PIT IS AT LEAST 100 FT. AWAY FROM ANY ROAD.

## **WATER NOTES:**

- 1. THE CITY OF EUSTIS MUST BE NOTIFIED AT LEAST 2 BUSINESS DAYS PRIOR TO ANY WET TAPS.
- 2. THE DESIGN AND CONSTRUCTION OF THE UTILITIES, ALL INSTALLATIONS AND MATERIALS WILL FULLY COMPLY WITH THE CITY OF EUSTIS LATEST STANDARDS & DETAILS. ALL UTILITY SHOP DRAWINGS RELATED TO THE CONNECTION TO THE CITY INFRASTRUCTURE MUST BE SUBMITTED TO THE CITY FOR REVIEW.
- 3. CONSTRUCTION METERS MUST BE OBTAINED FROM THE CITY OF EUSTIS.

### **REUSE WATER NOTES:**

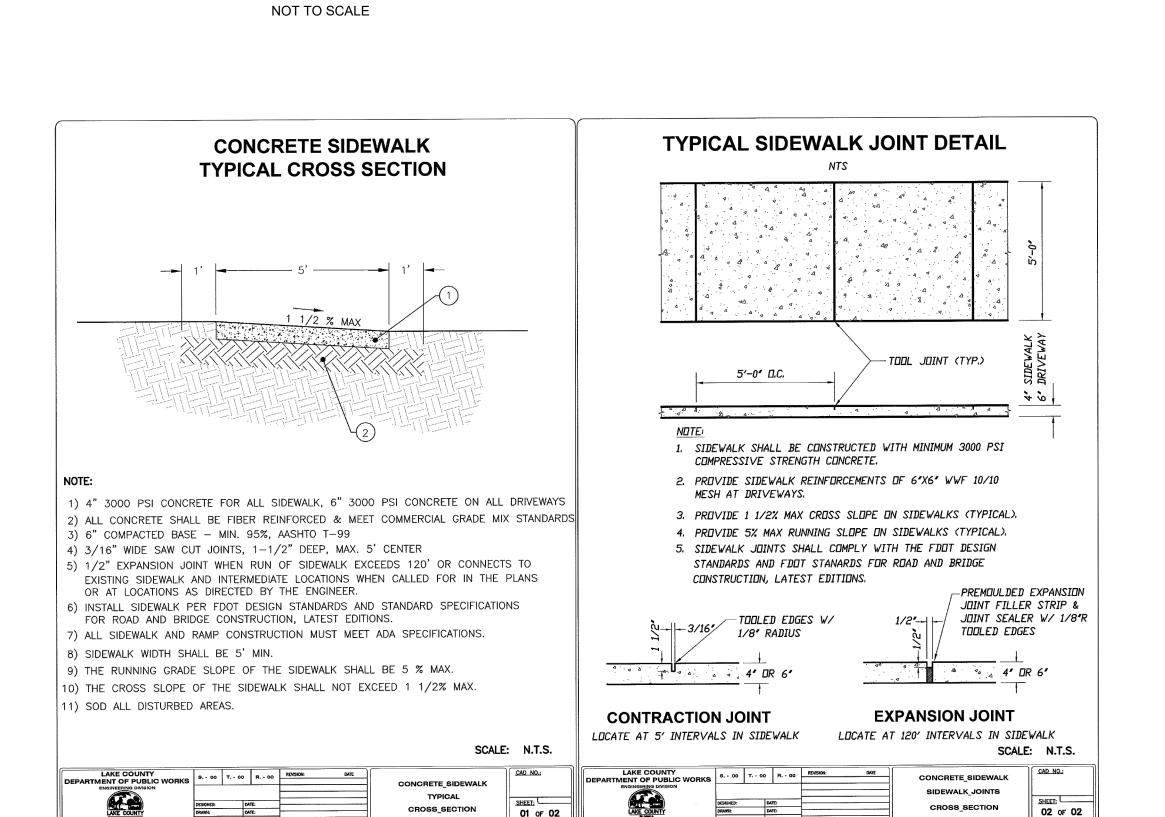
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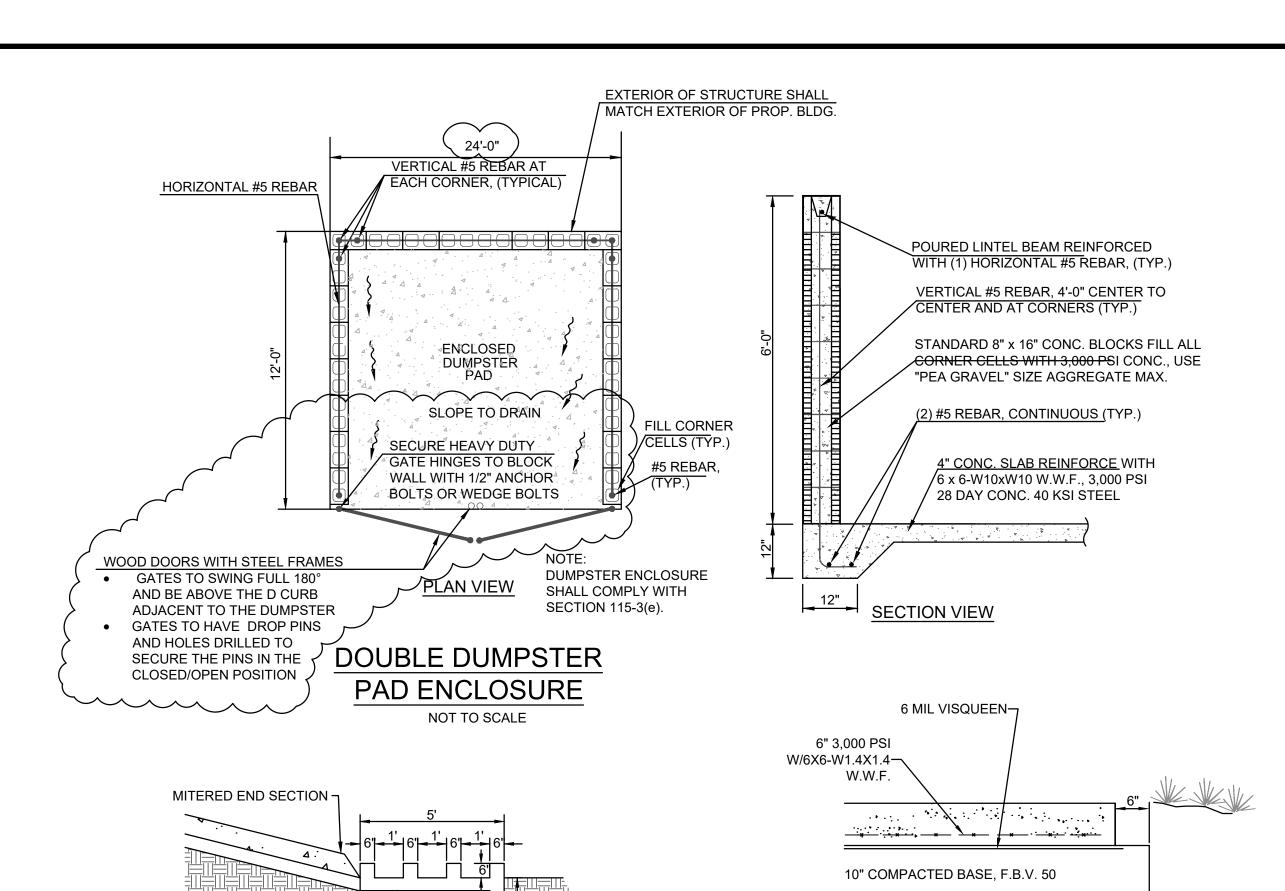


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TYPICAL PAVEMENT SECTION



- 4" THICK, 3000 PSI

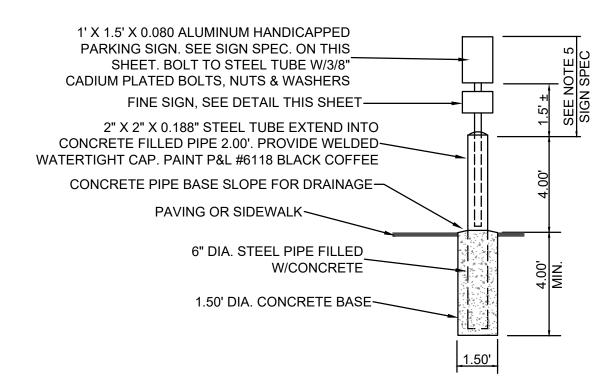
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CONC. SPLASH PAD

# CONCRETE APRON AT DUMPSTER ENCLOSURE APPROACH PAD

NOT TO SCALE



### HANDICAP PARKING SIGN

NOT TO SCALE HANDICAP RESERVED PARKING SIGNAGE AN ACCESSIBI PARKING BY DISABLED ONLY 4" WHITE (TYP.) \$250.00 MAX. FINE HANDICAP SIGN SPEC 12' MIN. NOTES: 1. ALL LETTERS SHALL BE BLACK AND 1" IN HEIGHT. LETTERS ARE TO BE SERIES "B" OR **DISABLED SYMBOL** "C", PER MUTCD LATEST EDITION. FDOT INDEX 17358 2. TOP PORTION OF SIGN SHALL HAVE

2. TOP PORTION OF SIGN SHALL HAVE REFLECTORIZED (ENGINEERING GRADE) BLUE BACKGROUND WITH WHITE REFLECTORIZED LEGEND AND BORDER.

3. BOTTOM PORTION OF SIGN SHALL HAVE A REFLECTORIZED (ENGINEERING GRADE) WHITE BACKGROUND WITH BLACK BORDER.

4. ONE SIGN REQUIRED FOR EACH PARKING SPACE.

5. HEIGHT OF SIGN SHALL BE IN ACCORDANCE WITH SECTION 24-23 OF THE MANUAL OF UNIFORMED TRAFFIC CONTROL

DEVICES (MUTCD) LATEST EDITION.

1. EACH SUCH PARKING SPACE SHALL BE CONSPICUOUSLY OUTLINED IN BLUE PAINT AND SHALL BE POSTED AND MAINTAINED WITH A PERMANENT, ABOVE GRADE SIGN BEARING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY, OR THE CAPTION "PARKING BY DISABLED PERMIT ONLY." OR BEARING BOTH SUCH SYMBOL AND CAPTION. SUCH SIGNS SHALL NOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE. ALL HANDICAPPED PARKING SPACES MUST BE SIGNED AND MARKED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION.

2. FDOT RECOMMENDS MEASURING PARKING SPACE WIDTH FROM CENTER TO CENTER BETWEEN BLUE AND WHITE STRIPES.

HANDICAP PARKING STRIPING DETAIL

NOT TO SCALE



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DATE: DECEMBER 2023

DESIGNED BY: RLG

DRAWN BY: RLG

CHECKED BY: CCH

JOB NO.: 055986

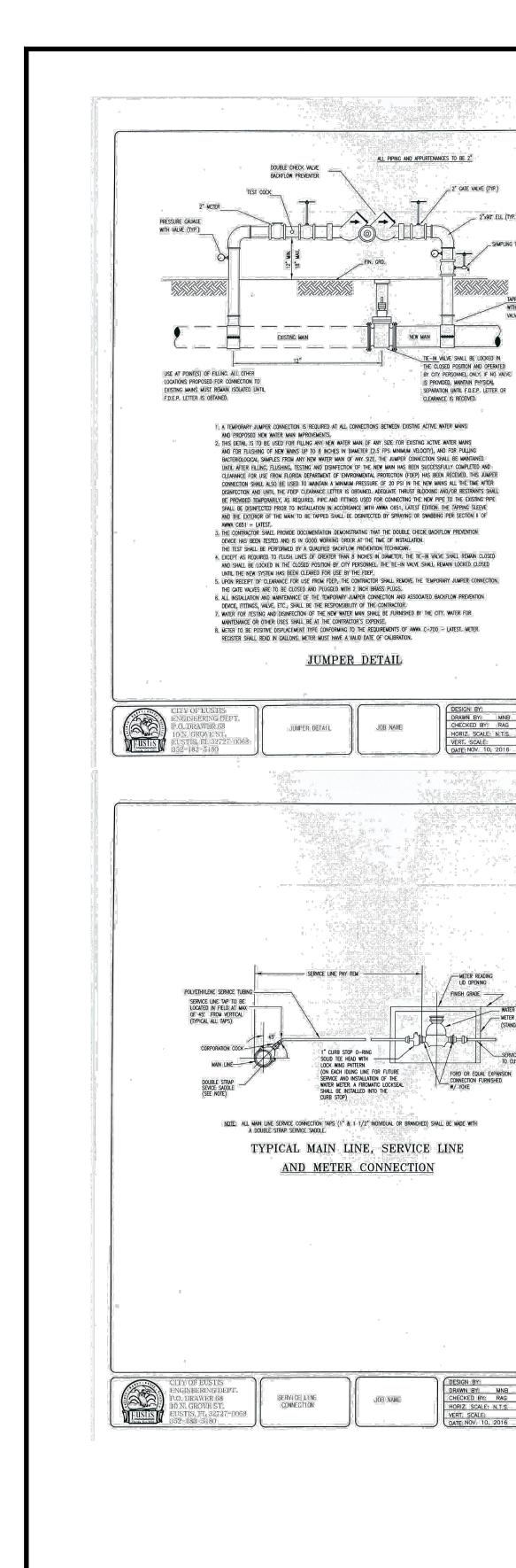
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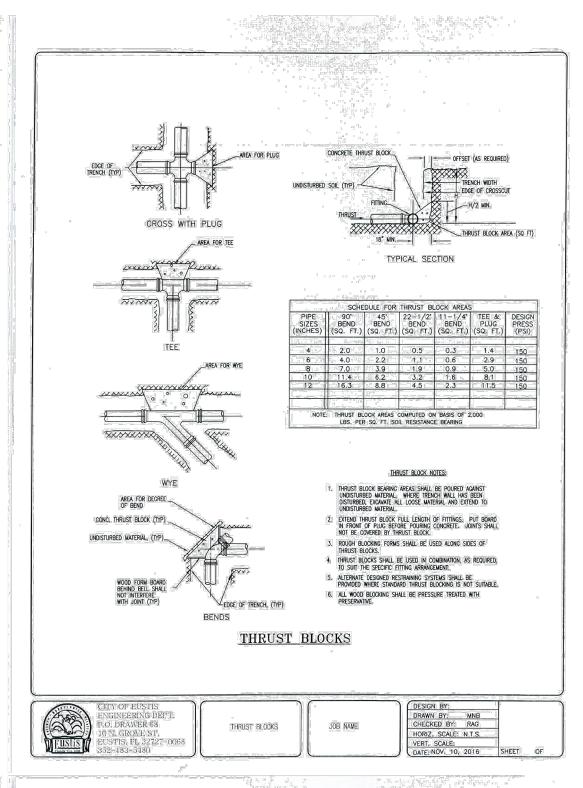
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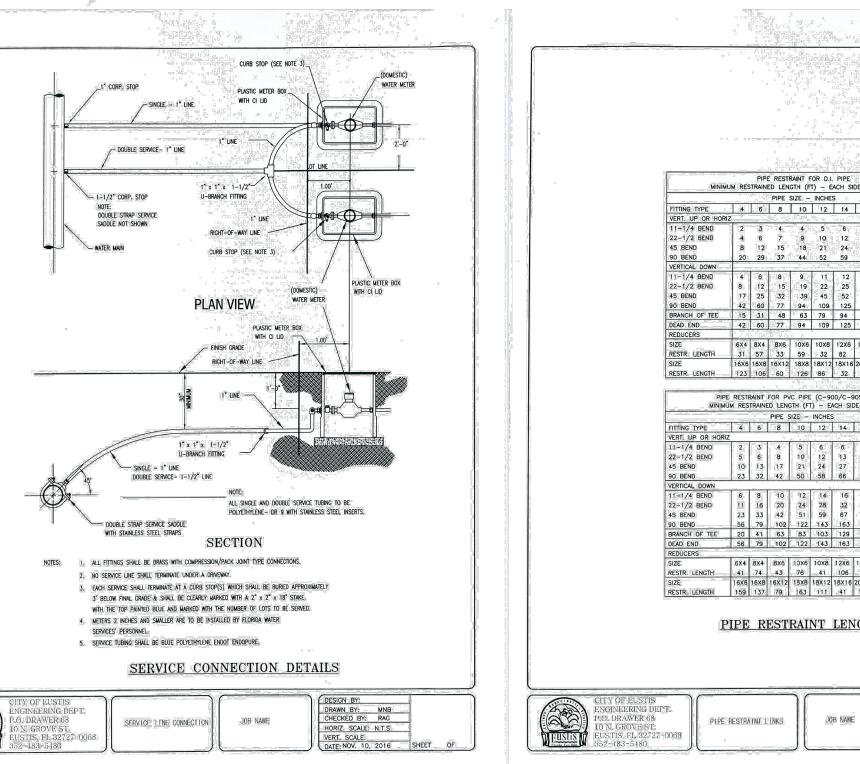
CHARLES C. HIOTT, P.E.
PROFESSIONAL ENGINEER NO. 54813

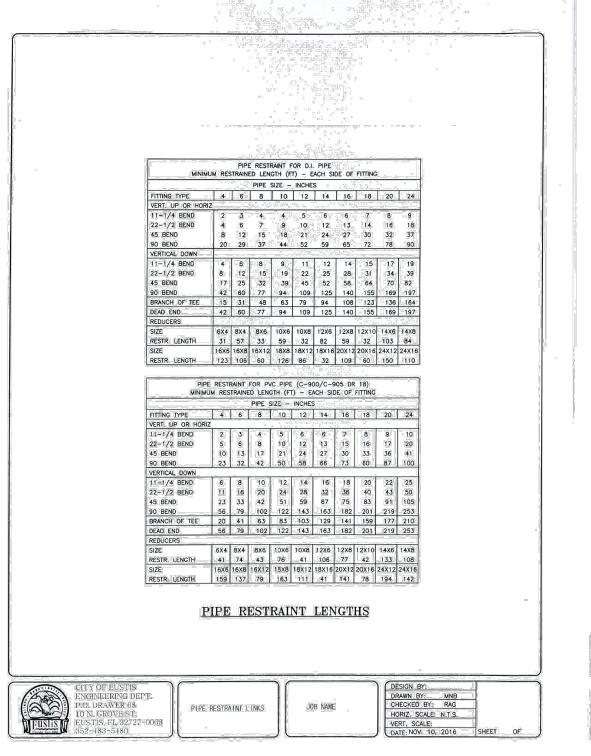
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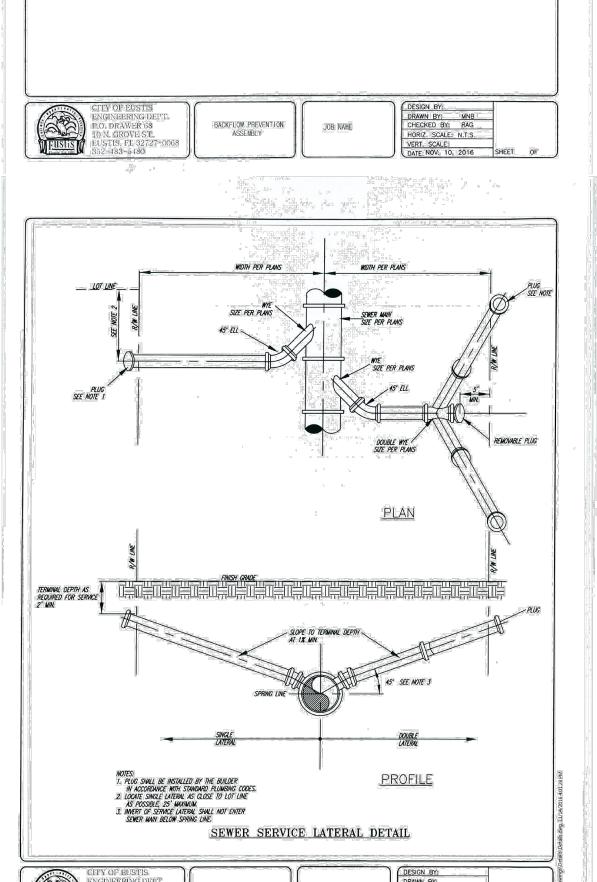
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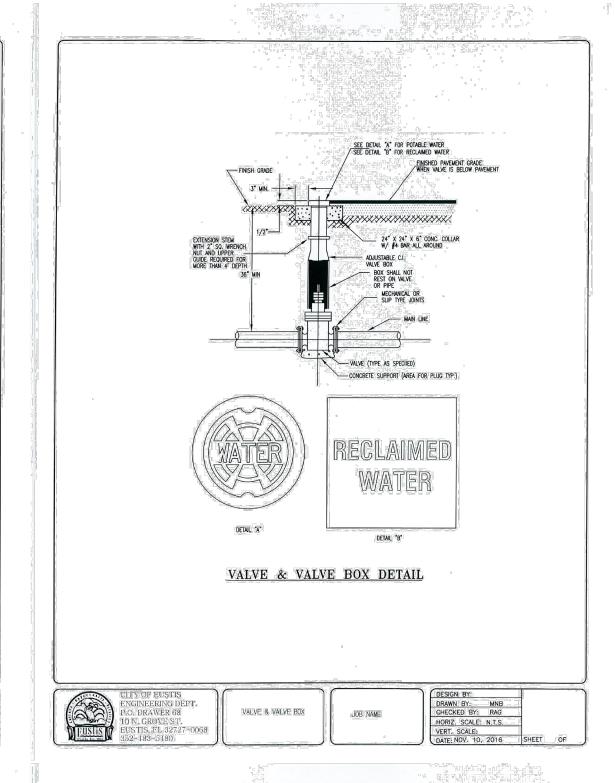


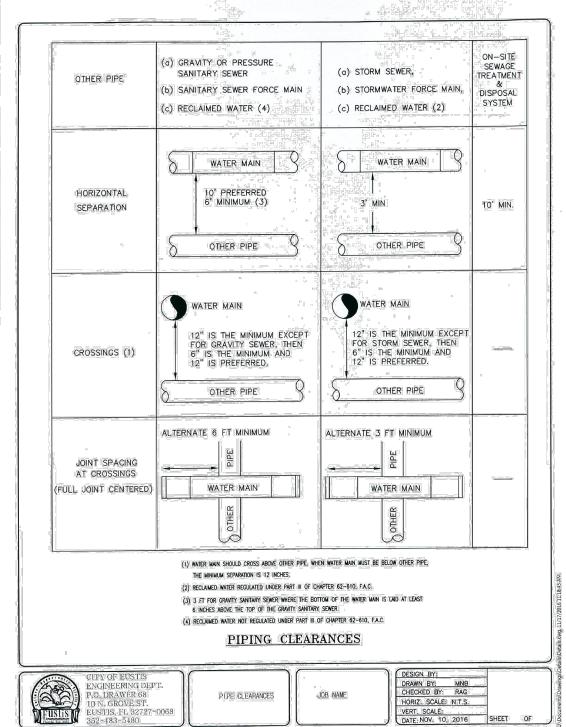


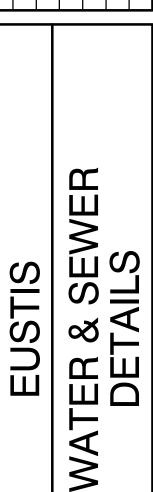


ALL PIPE AND FITTINGS SHALL BE THREADED SCHEDULE 40 GALVANIZED STEEL.

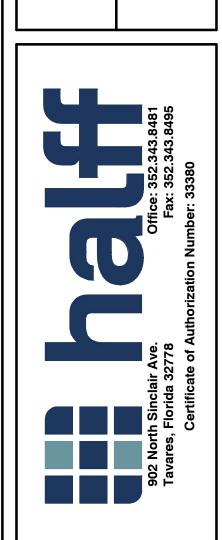
BACKFLOW PREVENTION ASSEMBLY







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FILE NAME	: ZAXBYS	SITE	
Sheet C501			

CHARLES C. HIOTT, P.E. PROFESSIONAL ENGINEER NO. 54813

NOTE:

THE DETAILS AND SPECIFICATIONS SHOWN ON THIS SHEET WERE SUPPLIED BY THE CITY OF EUSTIS AND NOT BY HALFF ASSOCIATES. HALFF ASSOCIATES ASSUMES NO LIABILITY FOR THE ACCURACY OF THE DETAILS, DESIGNS AND SPECIFICATIONS SHOWN ON THIS SHEET.

SEWER LATERAL

JOB NAME

OF TWELVE (12) OVERLAPPING PASSES IN EACH OF TWO (2) PERPENDICULÁR DIRECTIONS. THIS PROCESS SHALL BE RÉVIEWED AND INSPECTED BY THE PROJECT ENGINEER. ANY MATERIALS WHICH YIELD EXCESSIVELY DURING THE PROOFROLLING SHALL BE UNDER: CUT AND REPLACED WITH WELL COMPACTED STRUCTURAL FILL 3 ALL SUBGRADES RECEIVING FILL SHALL BE COMPACTED TO A MIN IMUM NINETY-FIVE PERCENT (95%) OF THE SOILS MODIFIED PROC TOR MAXIMUM DRY DENSITY (ASTM D-1557) FOR A DEPTH OF TWE

LVF (12) INCHES 1.4 ALL STRUCTURAL FILL SHALL CONSIST OF INORGANIC, NON-PLAST IC. GRANDULAR SOIL WHICH CONTAINS LESS THAN TEN PERCENT (10%) FINES PASSING THE NO. 200 SIEVE (CLEAN SAND). ALL FILI MATÉRIAL SHALL BE PLACED IN LEVELS NOT TO EXCEÉD TWELVE (12) INCHES BELOW THE COMPACTION SURFACE ATTAINING A MINIMUM DENSITY OF NINETY-FIVE PERCENT (95%) OF THE MINIMUM MOD-IFIED PROCTOR DENSITY (ASTM D-1557) I.5 CONTRACTOR SHALL INSTALL TEMPORARY RETENTION PONDS, SWALES

AND/OR BERMS NECESSARY TO PREVENT DISCHARGE OF STORM-WATER RUNOFF FROM THE SITE DURING CONSTRUCTION. 1.6 THE CITY SHALL BE NOTIFIED IN WRITING OF THE PROPOSED DATE OF THE BEGINING OF CONSTRUCTION OF THE WATER AND SANITARY SEWER FACILITIES. ANY TIME THAT WORK IS TO STOP FOR A PERIOD OF TIME IN EXCESS OF TWO (2) WORKING DAYS, THE CITY SHALL BE NOTIFIED OF SUCH INTERRUPTION. 7 THE CONTRACTOR SHALLL PROVIDE DOWNSTREAM SILTATION PRO FECTION DURING CONSTRUCTION. IN THE EVENT SUCH PROCTECTION

IS INADEQUATE, THE CONTRACTOR SHALL REMOVE ANY DOWNSTREAM SILTATION PRIOR TO THE TIME OF FINAL INSPECTION. I.8 CERTIFICATES OF COMPLIANCE WITH THE SPECIFICATIONS FURNISH ED BY THE MATERIAL SUPPLIER SHALL BE SUBMITTED ON ALL MAT-ERIALS USED IN THE COMPLETION OF THIS WORK. 1.9 ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTED BEFORE COMMENCING CONSTRUCTION WORK, UNLESS SPECIFICALLY EXEMPTED BY THE PLANS. COST TO BE INCIDENTAL TO OTHER CONSTRUCTION AND SHALL NOT BE SUBJECT TO EXTRA

COMPENSATION

1.10 THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. TH ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY, IT SHALL BE FHE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTIL ITIES AND TO MAKE THE NECESSARY ARRANGEMENTS FOR ACTUAL FIELD LOCATION AND ANY RELOCATIONS OF THOSE UTILITIES WITI THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLANS OR LOCATED BY THE UTILITY COMPANY. AL UTILITIES THAT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE UTILITY COMPANY. AND THE CONTRACTOR SHALL COOPERATE WITH THEM DURING RELOCAT ION OPERATIONS. ANY DELAY OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE RELOCATION OF VARIOUS UTILITIES, SHALL BE

11 UTILITY CONTACTS THE WATER AND SEWER UTILITY COMPANY THAT WILL OPERATE THE SYSTEMS AFTER CONSTRUCTION IS THE CITY. THE CONTRACTOR WILI BE EXPECTED TO MEET ALL REQUIREMENTS OF THE UTILITY COM-PANY INCLUDING A FORTY-EIGHT (48) HOUR ADVANCE NOTIFICATION TO THE UTILITY COMPANY AND THE ENGINEER SO THAT THEY CAN WITNESS ALL REQUIRED TESTS OF THE WATER AND SEWER SYSTEMS

INCIDENTIAL TO THE CONTRACT, AND NO EXTRA COMPENSATION WILL

UTILITY EXCAVATION, TRENCHING AND BACKFILLING

THE PROVISIONS SET FORTH IN THIS SECTION SHALL BE APPLICATION. ABLE TO ALL LINDERGROUND SEWER AND WATER PIPING INSTALL ATIONS REGARDLESS OF LOCATION UNLESS PRIOR APPROVAL IS RECEIVED FROM THE CITY FOR SPECIAL DESIGN CONSIDERATION.

2.21 SHEETING AND BRACING: A) WOOD SHEETING TO BE LEFT IN PLACE SHALL BE PRES B) STEEL SHEETING TO BE LEFT IN PLACE SHALL BE AS SPECIFIED IN ASTM DESIGNATION A328. 2.3 WORKMANSHIP

2.31 TRENCH DIMENSIONS: THE MINIMUM WIDTH OF THE TRENCH SHALL BE EQUAL TO THE OUTSIDE DIAMETER OF THE PIPE AT THE JOINT PLUS 8 INCHES FOR UNSHEETED TRENCH, OR 12 INCHES FOR SHEET ED TRENCH, AND THE MAXIMUM WIDTH OF TRENCH, MEASURED AT THE TOP OF THE PIPE, SHALL NOT EXCEED THE OUTSIDE PIPE DIAMETER PLUS 2 FEET, UNLESS OTHERWISE SHOWN ON THE DRAWING DETAILS. OR APPROVED BY THE CITY.

2.32 UTILITY BEDDING: A) CLASS B (MINIMUM UTILITY BEDDING): THE BOTTOM OF THE TRENCH SHALL BE SHAPED TO PROVIDE A FIRM BED DING FOR THE PIPE THE PIPE SHALL BE FIRMLY BEDDED IN LINDISTLIBRED SOIL OR HAND SHAPED SO THAT THE PIPE WILL BE IN CONTINUOUS CONTACT THEREWITH FOR ITS FULL LENGTH.

B) CLASS A (SPECIAL UTILITY BEDDING): SHOULD SPECIAL BEDDING BE REQUIRED DUE TO DEPTH OF COVER, IMPACT LOADINGS, OR OTHER CONDITIONS, "CLASS A" BEDDING METHODS SHALL RECEIVE PRIOR APPROVAL OF THE CITY 2.33 UNSUITABLE MATERIAL BELOW TRENCH GRADE: SOIL UNSUITABLE FOR PROPER FOUNDATION ENCOUNTERED AT

OR BELOW TRENCH GRADE, SUCH AS MUCK OR OTHER DELET-ERIOUS MATERIAL, SHALL BE REMOVED FOR THE FULL WIDTH OF THE TRENCH AND TO THE DEPTH REQUIRED TO REACH SUITABLE FOUNDATION MATERIAL LINEESS SPECIAL DESIGN CON-SIDERATIONS RECEIVED PRIOR APPROVAL FROM THE CITY BACK FILLING BELOW TRENCH GRADE SHALL BE IN COMPLIANCE WITH THF APPLICABLE PROVISIONS OF SUBSECTION 2.41 "BACKFILL" 2 34 EXTRA LITILITY-BEDDING MATERIAL

WHEN ROCK OR OTHER NON-CUSHIONING MATERIAL IS ENCOUN TERED AT TRENCH GRADE, EXCAVATION SHALL BE EXTENDED TO 6 INCHES BELOW THE OUTSIDE OF THE BOTTOM OF THE UTILITY AND A CUSHION OF SAND OR SUITABLE CRUSHED ROCK SHALL BE PROVIDED 2.35 SHEETING AND BRACING

IN ORDER TO PREVENT DAMAGE TO PROPERTY, INJURY TO PER-SONS, EROSION, CAVE-INS, OR EXCESSIVE TRENCH WIDTHS. ADEQUATE SHEETING AND BRACING SHALL BE PROVIDED IN AC-CORDANCE WITH STANDARD PRACTICE AND IN ACCORDANCE WITH ALL SAFETY, PROCTECTION OF PROPERTY, AND OTHER APPLIC-ABLE LAWS AND REGULATIONS. 2.36 EXCAVATED MATERIAL:

EXCAVATED MATERIAL TO BE USED FOR BACKFILL SHALL BE NEATLY DEPOSITED AT THE SIDES OF THE TRENCHES WHERE SPACE IS AVAILABLE. WHERE STOCKPILINGS OF EXCAVATED MAT ERIAL IS REQUIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE SITES TO BE USED. 2 37 MATERIAL DISPOSAL: EXCESS. UNSUITABLE. OR CLEARED OR GRUBBED MATERIAL RE-

SULTING FROM THE UTILITY INSTALLTION. SHALL BE REMOVED FROM THE WORK SITE AND DISPOSED OF AT LOCATIONS SEC-URED BY THE CONTRACTOR, EXCESS EXCAVATED MATERIAL SHALL BE SPREAD ON THE DISPOSAL SITE AND GRADED IN A MANNER O DRAIN PROPERLY AND NOT DISTURB EXISTING DRAINAGE CONDITIONS.

SHOULD THERE BE INSUFFICIENT SATISFACTORY MATERIAL FROM THE EXCAVATIONS TO MEET THE REQUIREMENTS FOR FILL MAT IAL, BORROW SHALL BE OBTAINED FROM PITS SECURED BY THE CONTRACTOR 2 39 DEWATERING

UTILITIES SHALL BE LAID "IN THE DRY" UNLESS OTHERWISE APPROVED DEWATERING SYSTEMS SHALL BE UTILIZED IN ACCORDANCE WITH GOOD STANDARD PRACTICE AND MUST BE EFFICIENT ENOUGH TO LOWER THE WATER LEVEL IN ADVANCE OF THE EXCAVATION AND MAINTAIN IT CONTINUOUSLY TO KEEP THE TRENCH BOTTOM AND SIDES FIRM AND DRY.

2 40 OBSTRUCTIONS IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ACQUAINT HIMSELF WITH ALL EXISTING CONDITIONS AND TO LOCATE ALL STRUCTURES AND UTILITIES ALONG THE PROPOSED UTILITY ALIGNMENT IN ORDER TO AVOID CONFLICTS. WHERE ACTUAL CONFLICTS ARE UNAVOIDABLE, WORK SHALL B COORDINATED WITH THE FACILITY OWNER AND PERFORMED SO AS TO CAUSE AS LITTLE INTERFERENCE AS POSSIBLE WITH THE

SERVICE RENDERED BY THE FACILITY DISTURBED.

2 41 BACKFILL A) BACKFILL MATERIAL SHALL BE CLEAN EARTH FILL COMPOS-ED OF SAND, CLAY AND SAND, SAND AND ROCK, CRUSHED ROCK, OR AN APPROVED COMBINATION THEREOF. B) WHEN TRENCHES ARE CUT IN PAVEMENTS OR AREAS TO BE PAVED, COMPACTION AS DETERMINED BY AASHTO SPEC-IFICATION T-180, SHALL BE, FOR EACH 6 INCH BACKFILL LIFT, EQUAL TO 98 PERCENT OF MAXIMUM DENSITY, WITH COMPACTION IN OTHER AREAS, WITH PRIOR CITY OR COOR-DINATING AGENCY APPROVAL, NOT LESS THAN 90 PERCENT OF MAXIMUM DENSITY DENSITY TESTS SHALL BE PROVIDED FOR TRENCHES WITHIN PAVEMENT OR ACROSS ROADS BACKFILLING OF PIPE TRENCHES OR UNDER AND AROUND STRUCTURES SHALL BE, FOR EACH 12 INCH BACKFILL LIFT, COMPACTED TO 95 PERCENT OF MAXIMUM DENSITY AS DE-**TERMINED BY ASSHTO T-180** 

ONE COMPACTION TEST SHALL BE CARRIED OUT FOR EACH 300 LINEAR FEET OF PIPE AND FOR EVERY 100 SQUARE FEET OF THE BACKFILL UNDER AND AROUND STRUCTURES AND PAVEMENT AS A MINIMUM. C) IF. IN THE OPINION OF THE CITY, DENSITIES ARE QUES-TIONABLE. DENSITY TESTS FOR DETERMINATION OF THE ABOVE SPECIFIED (SEC. 2.41) COMPACTION SHALL BE MADE BY A TESTING I ABORÁTORY APPROVED BY THE CITY AT THE EXPENSE OF THE CONTRACTOR. TEST LOCATIONS WILL BE DETERMINED BY THE CITY D) IF ANY TEST RESULTS ARE UNSATISFACTORY, THE CONTRAC-

TOR SHALL RE-EXCAVATE AND RE-COMPACT THE BACKFILL AT HIS EXPENSE UNTIL THE DESIRED COMPACTION IS OB-E) PROTECTIVE CONCRETE SLABS SHALL BE INSTALLED OVER THE TOP OF TRENCHES, WHERE REQUIRED, TO PROTECT THE INSTALLED PIPE AGAINST EXCESSIVE LOADS ACROSS ROADWAYS AND RIVER/SWAMP AREAS.

F) EXISTING SIDEWALKS AND DRIVEWAYS REMOVED, DISTURBED OR DESTROYED BY CONSTRUCTION SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT HIS EXPENSE. G) ALL WATER AND SEWER LINES MUST HAVE A METALLIC TAPE TRACE PLACED ABOVE THEM, NO DEEPER THAN EIGHT INCHES FROM THE FINISHED GRADE. H) ALL WATER MAINS AND SEWER FORCE MAINS MUST HAVE A #16 COPPER WIRE STRAPPED TO THE PIPING AND PULLED

2.42 ROADWAY AND PAVEMENT RESTORATION A) PAVEMENT OR ROADWAY SURFACES OUT OR DAMAGED SHALL BE REPLACED BY THE CONTRACTOR IN EQUAL OR BETTER CONDITION THAN THE ORIGINAL, INCLUDING STABILIZATION BASE COURSE SURFACE COURSE CURB AND GUTTER OR OTHER APPURTENANCES THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS AND ALL APPLICABLE AUTH-ORIZATIONS FROM THE PROPER AGENCIES PRIOR TO ANY ROADWAY WORK. ADDITIONALLY, THE CONTRACTOR SHALL PROVIDE ADVANCE NOTICE TO THE APPROPRIATE AUTHORITY, AS REQUIRED. PRIOR TO CONSTRUCTION OPERATIONS

UP INTO ALL VALVE BOXES AND ALL METER BOXES

B) RESTORATION SHALL BE IN ACCORDANCE WITH REQUIRE MENTS SET FORTH BY THE CITY. THE MATERIALS OF CON-STRUCTION AND METHOD OF INSTALLATION, ALONG WITH THE PROPOSED RESTORATION DESIGN FOR ITEMS NOT REFERRED TO OR SPECIFIED HEREIN, SHALL RECEIVE PRIOR APPROVAL FROM THE CITY C) WHERE EXISTING PAVEMENT IS REMOVED, THE SURFACING SHALL BE MECHANICAL SAW CUT PRIOR TO TRENCH EXCAV-

ATION, LEAVING A UNIFORM AND STRAIGHT EDGE, WITH MIN-

MUM DISTURBANCE TO THE REMAINING ADJACENT SURFAC-NG. THE WIDTH OF CUT FOR THIS PHASE OF EXISTING PAVEMENT REMOVAL SHALL BE MINIMAL D) IMEDIATELY FOLLOWING THE SPECIFIED BACKFILLING AND COMPACTION, A TEMPORARY SAND SEAL COAT SURFACE SHALL BE APPLIED TO THE CUT AREAS. THE TEMPORARY SURFACING SHALL PROVIDE A SMOOTH TRAFFIC SURFACE WITH THE EXISTING ROADWAY AND SHALL BE MAINTAINED UNTIL FINAL RESTORATION. F) DENSITY TESTS SHALL BE PROVIDED FOR TRENCHES IN PAVEMENT ACROSS ROADWAYS AS SPECIFIED IN SECTION

2.43 PROTECTION AND RESTORATION OF PROPERTY DURING THE COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE SPECIAL CARE AND PROVIDE ADEQUATE PROTECT ION IN ORDER TO MIMIMIZE DAMAGE TO VEGETATION, SURFACED AREAS, AND STRUCTURES WITHIN THE CONSTRUCTION RIGHT-OF WAY, EASEMENT OR SITE, AND TAKE FULL RESPONSIBILITY FOR REPAIR THEREOF 2.44 CLEANUP:

WORK SITE CLEANUP AND PROPERTY RESTORATION SHALL FOL-

SECTION 4

PIPE, FITTINGS, VALVES, AND APPURTENANCES A) THIS SECTION INCLUDES THE MATERIAL AND INSTALLATION STAN-DARDS FOR PIPE, FITTINGS, VALVES, AND APPURTENANCES, AS APPLICABLE TO SEWERAGE AND WATER INSTALLATIONS. B) SPECIALTY ITEMS NOT INCLUDED UNDER THIS SECTION SHALL BE HIGH QUALITY AND CONSISTENT WITH APPROVED STAN-DARDS OF THE INDUSTRY FOR THE APPLICABLE SERVICE INSTAL

C) ALL MATERIAL TO BE FURNISHED BY THE CONTRACTOR OR DEV-ELOPER, WITH EXCEPTION OF METERS AND METER COUPLINGS. 4.2 PIPE AND FITTINGS 4.21 GENERAL:

ALL PIPE AND FITTINGS SHALL BE CLEARLY MARKED WITH THE NAME OR TRADEMARK OF THE MANUFACTURER ALL PIPE AND FITTINGS SHALL BE SUITABLE FOR 200 PSI WORKING PRESSURE ALL PIPE INSTALLATIONS SHALL HAVE INDICATOR TAPE RUN WITH PIPE TO INDICATE THE PURPOSE OF PIPING (WATER, SEWER FORCE MAIN) 4.22 DUCTILE IRON PIPE:

A) DUCTILE IRON PIPE SHALL BE IN ACCORDANCE WITH AWWA C160/C151. PIPE SHALL BE LAID IN ACCORDANCE WITH ANSI STANDARD A21.50. THICKNESS CLASS SHALL BE GOVERNED BY DESIGN CONDITIONS; MINIMUM THICKNESS CLASS SHALL BE 50. B) CAST AND DUCTILE IRON PIPE FITTINGS SHALL CONFORM TO ANSI STANDARD A21.10. C) JOINTS:

1) "PUSH-ON" AND MECHANICAL TYPE JOINTS SHALL BE IN ACCORDANCE WITH ANSI STANDARD A21 11 RESTRAINED JOINT ASSEMBLIES WITH MECHANICAL JOINT PIPE SHALL BE MECHANICAL JOINT RETAINER. GLANDS "LOCKED TYPE" JOINTS OF MEGALUG OR APP-ROVED EQUAL 3) FLANGED CONNECTIONS SHALL BE IN ACCORDANCE WITH ANSI STANDARD B16.1, 125 LB. STANDARD. 4) NO LEADED JOINTS OR CONNECTION OF ANY KIND

WILL BE PERMITTED. 5) PVC FITTINGS PROHIBITED ABOVE 3 INCHES IN DIAM-ETER, UNLESS SPECIFICALLY APPROVED BY THE CITY. COATINGS AND LININGS: 1) DUCTILE IRON PIPE AND FITTINGS FOR FORCE MAINS OR WHEN USED AS GRAVITY SEWER SERVICE SHALL RECEIVE AN INTERIOR EXPOXY LINING OF 40 MILS

NOMINAL, 35 MILS MINIMUM FOR BOTH PIPE AND 2) DUCTILE IRON PIPE AND FITTINGS FOR WATER SERVICE SHALL RECEIVE AN EXTERIOR BITUMINOUS COATING AS SPECIFIED ABOVE UNDER PARAGRAPH 1 AND SHALL BE CEMENT MORTAR LINED IN ACCORDANCE WITH ANSI STANDARD A21.4.

4.23 POLYVINYL CHLORIDE (PVC):

A) PIPE SHALL BE MANUFACTURED FROM CLEAN VIRGIN TYPE 1, GRADE 1, RIGID, UNPLASTICIZED POLYVINYL CHLORIDE RESIN CONFORMING TO ASTM DESIGNATION D1784 AND AWWA STANDARD C900. PIPE MATERIAL SHALL CONFORM TO ASTM DESIGNATION D1785. THE PIPE SHALL BEAR THE NAT IONAL SANITATION FOUNDATION (NSF) SEAL FOR POTABLE WATER PIPE. PIPE SHALL HAVE A MINIMUM DIMENSION RATIO (DR) OF 18, 150 PSI FOR WATER AND DR OF

25 100 PSI FOR SEWER FORCE MAINS A MINIMUM DR OF 35 (ASTM 3034) FOR GRAVITY SEWER MAINS WILL BE REQ

B) CONNECTIONS FOR PIPE 2 INCHES IN DIAMETER AND LAR-GER SHALL BE RUBBER COMPRESSION RING TYPE. PIPE SHALL BE EXTRUDED WITH INTEGRAL THICKENED WALL BELLS VITHOUT INCREASE IN SDR. RUBBER RING GASKETS SHALL CONSIST OF SYNTHETIC COMPOUNDS MEETING THE REQUIR MENTS OF ASTM DESIGNATION D1869, AND SUITABLE FOR THE DESIGNATED SERVICE. OTHER CONNECTIONS FOR PIPE SHALL BE SOLVENT WELDED SLEEVED TYPE JOINT. FITTINGS FOR 2 INCH AND SMALLER PIPE SHALL BE P.V.C. SOLVENT

LINES OR SEWAGE FORCE MAINS) WILL BE CAST IRON OR DUCTILE IRON WITH MECHANICAL JOINT RUBBER COMPRES SION RING TYPE JOINTS FOR ALL PIPE 3 INCHES AND LARGER. NO PVC FITTINGS WILL BE ALLOWED EXCEPT ON PIPE AND FITTINGS SMALLER THAN 3 INCHES. C) ALL NON-METALLIC PIPING (PVC, POLYETHYLENE TUBING) SHALL HAVE A #16 COPPER ARMORED POLYGUARD WIRE THAT STRAP AND RUN WITH THE PIPE. 4.24 POLYETHYLENE PLASTIC PIPE:

WELDED JOINTS. FITTINGS FOR USE WITH P.V.C. PIPE (WATER

PIPE OR TUBING SHALL COMPLY WITH AWWA C901 AND AWWA C800 FOR VALVES AND FITTINGS AND BE APPROVED FOR POTABLE WATER SERVICE BY THE NATIONAL SANITATION FOUNDATION AND BEAR NSF SEAL. THE PRODUCT SHALL B RATED FOR A MINIMUM WORKING PRESSURE OF 200 PSI, FITTINGS SHALL BE BRASS, EQUIPPED WITH COMPRESSION TYPE CONNECTIONS.

PIPE OR TUBING SHALL MEET AWWA C800. FITTINGS SHALL BE BRASS, WITH APPROVED COMPRESSION CONNECTIONS. A) TAPPING SADDLES SHALL BE OF TWO (2) TYPES. 1) STAINLESS STEEL FULL CIRCLE SLEEVE AS MANUFACT URED BY RO-MAC TYPE SST, ASSURING A FULL CIR-CUMFERENTIAL SEAL, OR APPROVED EQUAL.

**ED EQUAL** B) SERVICE SADDLES: SHALL BE AS MANUFACTURED BY SMITH & BLAIR, INC., OR APPROVED EQUAL. UNITS FOR CAST OR DUCTILE IRON, PVC OR CEMMENT PIPE SHALL BE DOUBLE STRAP. SEALING GASKET SHALL BE BUNA-N RUBBER AND STRAPS SHALL B CORRSION RESISTANT STAINLESS STEEL OR EQUIVALENT

4.3 VALVES

ALLOY STEEL.

4.25 COPPER PIPE AND TUBING

4.31 GENERAL THE VALVE TYPE .SIZE, RATING, FLOW DIRECTION ARROW, IF APPLICABLE, AND MANUFACTURER SHALL BE CLEARLY MARKED ON EACH UNIT. VALVES SHALL OPEN LEFT (COUNTERCLOCK-WISE) WITH AN ARROW CAST IN THE METAL OF OPERATION HANDWHEELS AND NUTS INDICATING THE DIRECTION OF OPENING. A) VALVES FOR UNDERGROUND SERVICE:

VALVES FROM 2 INCH THRU 12 INCH FOR UNDERGROUND

SERVICE SHALL BE IRON BODY GATE VALVES. NON-RISING STEM TYPE AND SHALL BE EQUIPPED WITH A 2 INCH SQ-UARE CAST IRON OPERATING NUT WITH CORROSION PRO-TECTION COATING INSIDE AND OUT, RESILIENT SEATED VALVE WHICH MEETS ALL C509 REQUIREMENTS OF AWWA (WATER AND SEWER) MUFILER A2370-20 AMERICAN-DARLING CRS-80. OR APPROVED EQUAL, VALVES 12 INCHES AND LARGER FOR UNDERGROUND SERVICE, SHALL BE IRON BODY GATE VALVES. BRONZE MOUNTED. CONFORMING TO AWWA C500, SOLID WEDGE DOUBLE DISC (WATER OR SEWER) SQUARE CAST IRON OPERATING NUT, MUELLER #2380-20, AMERICAN-DARLING MODEL #55, OR APPROVED EQUAL. AI

NON-RISING STEM, AND SHALL BE EQUIPPED WITH 2 INCH DEAD END LINES WILL HAVE VALVES AT THE END THE SIZE OF THE MAIN LINE PIPE WITH BLOWOFF ATTACHED. END LINE VALVES SHALL BE ADEQUATELY RESTRAINED TO PIPE LINE SUCH THAT THEY MAY BE EXCAVATED AND THE LINE EXT TENDED WITHOUT SHUTTING OFF LINE PRESSURE B) VALVES FOR ABOVE-GROUND SERVICE FOR FIRE SYSTEMS VALVES SHALL BE IRON BODY, BRONZE MOUNTED GATE

VALVES, CONFORMING TO AWWA C500, SOLID WEDGE (SEWAGE) OR DOUBLE DISC (WATER) WITH THE EXCEPTION THAT VALVES SHALL BE OUTSIDE SCREW AND YOKE (O & Y) RISING STEM TYPE. VALVES SHALL HAVE CAST IRON HAND WHEELS OR CHAIN OPERATORS WITH GALVANIZED STEEL CHAINS, AS REQUIRED. VALVES FOR FIRE SUPPRESSION SYSTEM SHALL BE APPROVED BY CITY FIRE OFFICIALS AND A DETECTOR VALVE MAY BE REQUIRED C) VALVES SMALLER THAN 2 INCHES: VALVES SMALLER THAN 2 INCHES SHALL BE BRONZE BODY GATE VALVES CONFORMING TO FEDERAL SPECIFICATIONS 15 PSI MINIMUM WORKING PRESSURE WITH THREADED JOINTS EQUAL TO AMERICAN 3 FG OR RED AND WHITE 280. THE

USE OF THIS TYPE OF VALVE WOULD HAVE TO BE APPRO-VED BY THE CITY. 4 32 BACKFI OW DEVICES A) DOUBLE CHECK VALVE ASSEMBLY SHALL BE DESIGNED TO SPECIFICATION OF THE USC CROSS CONNECTION CONTROL LABORATORY, AWWA C506 AND A.S.S.E. #1015. DOUBLE CHECK VALVES SHALL BE HERSEY MODEL FDC FOR 3/4 INCHES THROUGH 2 INCHES AND MODEL #2 FOI 2-1/2 INCHES THROUGH 10 INCHES, WATTS #709 SERIES 3/4 INCHES THROUGH 10 INCHES, OR APPROVED EQUAL

DOUBLE CHECK VALVE ASSEMBLIES FROM 2-1/2 INCHES AND UP SHALL BE FURNISHED WITH OS & Y GATE VALVE SHUT-OFFS B) REDUCED PRESSURE ZONE VALVE SHALL BE DESIGNED TO SPECIFICATION OF THE USC CROSS CONNECTION CONTROL LABORATORY, AWWA C506 AND A.S.S.E. #1013, REDUCED PRESSURE ZONE VALVE SHALL BE HERSEY MODEL FRP-II FOR SIZES 3/4 INCHES THROUGH 2 INCHES AND MODEL #6CM FOR SIZES 2-1/2 INCHES THROUGH 10 INCHES WATTS SERIES 909 FOR SIZES 3/4 INCHES THROUGH 10 INCHES, OR APPROVED EQUAL. REDUCED PRESSURE ZONE VALVE ASSEMBLY FROM 2-1/2 INCHES AND UP SHALL BE FURNISHED WITH OS & Y GATE VALVE SHUT-OFFS. C) PRESSURE VACUUM BREAKER SHALL BE DESIGNED TO

SPECIFICATION OF USC CROSS CONNECTION CONTROL LAB ORATORY ASSE #1020 SPRING LOADED SINGLE FLOAT AND DISC WITH INDEPENDENT WATER INLET AND AIR INLET VALVES, FURNISHED WITH SHUT-OFF VALVES AND BALL TYPE TEST COCKS. PRESSURE VACUUM BREAKER SHALL BE WATTS #800, FEBCO #765, OR APPROVED EQUAL. D) SHUT-OFF VALVES ON BACKFLOW ASSEMBLY FOR SIZES 3/4 INCHES THROUGH 2 INCHES SHALL BE PROVIDED VITH BALL VALVES, ASSEMBLIES ABOVE 2 INCHES SHALL BE PROVIDED WITH RESILIENT SEAT FULL FLOW GATE

4.33 CHECK VALVES: VALVES FOR WASTEWATER APPLICATION SHALL BE IRON BODY BRONZE MOUNTED STAINLESS STEEL HINGE PIN OUTSIDE LEVER AND SPRING OPERATED. SWING TYPE . AND EQUIPPED WITH REMOVABLE INSPECTION COVERS. UNITS SHALL BE RATED FOR 150 PSI MINIMUM WORKING PRESSURE AND SHALL PERMIT FULL FLOW AREA EQUAL TO THAT OF THE CONNECTING PIPE; MUELLER #2600-6-02, OR APPROVED EQUAL. 4.34 PLUG VALVES (PV): VALVES FOR WASTEWATER APPLICATION SHALL BE SEMI-STEEL

VALVES.

BODY NON-LUBRICATED ECCENTRIC TYPE WITH RESILIENT FACED PLUGS, AND CAPABLE OF DRIP TIGHT SHUT-OFF AT THE RATED PRESSURE IF APPLIED AT FITHER PORT, OPERATION OF ALL VALVES 8 INCHES OR LARGER AND SMALLER SIZES IN EXPOSED LOCATIONS WHICH REQUIRE HANDWHEELS OF CHAINWHEELS, SHALL BE BY APPROVED GEAR ACTUATORS, EQ. UIPPED WITH POSITION INDICATOR AND STOP, AND SHALL BE URNISHED BY THE VALVE MANUFACTURER. GEAR ACTUATORS FOR BURIED OR SUBMERGED INSTALLATIONS SHALL BE FURN ISHED WITH SEALED ENCLOSURES. VALVES SHALL BE EQUIPPED WITH ACTUATING NUTS. CAST IRON HANDWHEELS OR CHAIN OPERATORS, WITH GALVANIZED STEEL CHAINS, AS APPROPRIATE FOR THE INSTALLATION AND TYPE OF OPERATOR. VALVES AND APPURTENANCES SHALL BE SERIES 100, AS MANUFACTURED BY DEZURIK CORP., OR APPROVED EQUAL. 4 35 BUTTERFLY VALVES:

VALVES SHALL BE CAST IRON BODY, SELF LUBRICATED, RUB-BER SEATED, ONE-PIECE STAINLESS STEEL SHAFT, AND CAP-ABLE OF DRIP TIGHT SHUT-OFF AT THE RATED PRESSURE AND MEET AWWA C504. VALVE OPERATORS SHALL CONFORM TO AWWA C504, VALVE OPERATOR FOR BURIED OR SUBMER-GED INSTALLATIONS SHALL BE FURNISHED WITH SEALED EN-CLOSURES. VALVES SHALL BE EQUIPPED WITH ACTUATING NUTS, CAST IRON HANDWHEELS OR CHAIN OPERATOR AS

APPROPRIATE FOR THE INSTALLATION AND TYPE OF OPERATOR VALVES SHALL BE INSTALLED IN A VERTICAL POSITION, VALVES AND APPURTENANCES SHALL BE DEZURIK, SERIES 130, AMER-ICAN-DARLING 150, OR APPROVED EQUAL.

4.36 VALVE BOXES: UNITS SHALL BE ADJUSTABLE, CAST IRON, MINIMUM INTERIOR DIAMETER OF 5 INCHES, WITH COVERS CAST WITH THE APPLI-CABLE INSCRIPTION IN LEGIBLE LETTERING ON THE TOP: "SEWER" OR "WATER". BOXES SHALL BE SUITABLE FOR THE APPLICABLE SURFACE LOADING AND VALVE SIZE. VALVE BOXES NOT IN THE PAVEMENT SHALL HAVE THE TOP CONCRETE PADS FLUSH WITH THE FINISH GRADE, WITH MINIMUM DIMENSIONS OF 24 INCHES X 24 INCHES X 6 INCHES. 4 37 METER BOXES:

BOXES SHALL BE CONCRETE CONSTRUCTION AS MANUFACTURED BY BROOKS, MODEL 37, OR APPROVED EQUAL. 4.38 FIRE HYDRANTS: FIRE HYDRANTS SHALL BE OF MUELLER, SUPER CENTURIAN 200 OIL RESERVOIR, AMERICAN-DARLING 6 INCH B-84-B, KENNEDY GUARDIAN #K-81A OR APPROVED EQUAL. SEE SEC-

TION 8.22 FOR DETAILS. 4.39 SERVICE LINE: SERVICE LINES SHALL BE 1 INCH FOR SINGLE AND 1-1/2 INCH WITH 1 INCH BRANCH OFF FOR DOUBLE SERVICE, AL FITTINGS SHALL BE MUFILER OR FORD BRASS, CURB STOPS TO BE MUELLER #15317 OR FORD #BM-41-444, CORPORAT-

ION STOPS TO BE MUELLER #H-15008 OR FORD #F 1000. 4.41 GENERAL REQUIREMENTS: A) PIPING, FITTINGS, VALVES AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THESE STANDARDS

B) PIPING SHALL BE INSTALLED ALONG STRAIGHT LINE AND GRADE BETWEEN FITTINGS, MANHOLES, OR OTHER DEFINED POINTS, UNLESS DEFINITE LINES OF ALIGNMENT, DEFLECTION OR GRADE CHANGE HAVE BEEN ESTABLISHED. 2) MECHANICAL JOINT TYPE WITH OUTLET, FLANGE ANSI MODIFICATION TO APPROVED ALIGNMENT OR GRADE DURING B16 1 125 LB STANDARD MUFILER #615 OR #715 CONSTRUCTION SHALL RECEIVE PRIOR APPROVAL FROM THE ASSURING A FULL CIRCUMFERENTIAL SEAL, OR APPROV-CITY AND ALL RESULTING DESIGN CONSIDERATIONS SHALL BE RESOLVED BY THE CONTRACTOR.

> C) MATERIALS SHALL BE CLEANED AND MAINTAINED CLEAN WITH ALL COATINGS PROTECTED FROM DAMAGE. THE INTER-IOR OF THE PIPE SHALL BE FREE OF DIRT AND DEBRIS, AND WHEN WORK IS NOT IN PROGRESS, ALL OPEN ENDS SHALL BE PLUGGED D) PIPE VALVES FITTINGS OR OTHER ITEMS SHALL BE IN

SPECTED PRIOR TO INSTALLATION, AND ANY ITEMS SHOW ING A FRACTURE OR OTHER DEFECT SHALL BE REJECTED HOWEVER, DUCTILE IRON PIPE SHOWING AN END CRACK WITH NO FRACTURE INDICATED BEYOND THAT VISIBLE MAY BE SALVAGED BY CUTTING OFF THE DAMAGED SECTION 12 INCHES PAST, PROVIDING THE REMAINING PIPE IS SOUNI E) UNDERGROUND PIPING SHALL NOT BE DRIVEN TO GRADE BY STRIKING IT WITH AN UNYIELDING OBJECT. WHEN THE PIPE HAS BEEN PROPERLY BEDDED, ENOUGH COMPACTED BACKFILL SHALL BE PLACED TO HOLD THE PIPE IN CORR-ECT ALIGNMENT. IF NECESSARY, PRECAUTION SHOULD BE TAKEN TO PREVENT FLOTATION

F) JOINTING SHALL BE BY AN APPROVED METHOD AND SHALL NOT REQUIRE UNDUE FORCE TO ACCOMPLISH FULL SATIS FACTORY SEATING AND ASSEMBLY. CONNECTIONS AT STRUC-TURES SHALL BE CUT ACCURATELY AND WORKED INTO PLACE WITHOUT FORCING AND SHALL ALIGN WITH THE CON-G) UNDERGROUND PRESSURE PIPING SYSTEMS SHALL BE THO-ROUGHLY BRACED WITH CONCRETE THRUST BLOCKS AT FIT-

TINGS, VALVES AND PLUGS, FITTINGS SHALL NOT BE ENCAS ED IN CONCRETE OR THRUST BLOCKS COVERED PRIOR TO INSPECTION IF THE SOIL DOES NOT PROVIDE FIRM SUPPORT THEN SUITABLE TIE RODS AND CLAMPS OR RESTRAINED. JOINT ASSEMBLIES TO SUPPORT THE FITTING PROPERLY SHALL BE PROVIDED. WHEN TIE RODS AND/OR CLAMPS ARE USED, THEY SHALL RECEIVE TWO HEAVY COATS OF BITUM-INOUS PAINT TO MINIMIZE CORROSION. H) SUBAQUEOUS PIPE LAYING MAY BE PERMITTED WHERE CON-DITIONS MAKE IT IMPRACTICAL TO LAY PIPE IN THE "DRY PROVIDED THE CONTRACTOR SUBMITS HIS PLANS FOR LAY-

ING PIPE UNDER WATER TO THE CITY AND OBTAINS ADVANCE

APPROVAL THEREOF.

I) DUCTILE IRON PIPE IS REQUIRED AT ALL STREET CROSSINGS DITCH, STREAM OR SWAMP CROSSINGS, CULVERT CROSSINGS OR WITH BORF AND JACK CROSSINGS J) DISINEECTING OF ALL POTABLE WATER PIPES SHALL BE AC-COMPLISHED BY THE CONTRACTOR FOLLOWING APPROVED PRESSURE TESTING. UNLESS ALTERNATE PROCEDURES ARE SET FORTH UNDER THE APPLICABLE SERVICE STANDARD, SAID DISINFECTING PROCEDURES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C651. K) DUCTILE IRON PIPE INSTALLATION SHALL BE PERFORMED IN

ACCORDANCE WITH THE APPLICABLE PROVISIONS OF AWWA STANDARD C600. L) POLYVINYL CHLORIDE (PVC) PIPE-LUBRICATION AND/OR SOLVENT FOR PIPE AND FITTING JOINTS SHALL BE NON-TOXIC (NSF APPROVED FOR POTABLE WATER) SOLVENT TYPE JOINTS SHALL NOT BE DISTURBED FOR 5 MINUTES. AFTER ASSEMBLY AND SHALL NOT HAVE INTERNAL PRES SURE APPLIED FOR 24 HOURS, OR AS RECOMMENDED BY THE PIPE MANUFACTURER.

4.42 UTILITY SEPERATION: VERTICAL CLEARANCE-WHERE POTABLE WATER AND GRAVITY SEWER MAINS CROSS WITH LESS THAN EIGHTEEN (18) INCHES OF VERTICAL CLEARANCE OR WHERE THE SEWER MAIN IS ABOVE THE WATER MAIN THE SEWER MAIN SHALL P ABOVE THE WATER MAIN, THE SEWER MAIN SHALL BE ENCASED WITH CONCRETE OR ENCLOSED IN A WATER TIGHT CARRIER PIPE, OR UPGRADED TO DUCTILE IRON PIPE OR PRESSURE RATED PVC PIPE (MEETING THE AWWA C-900 OR C-905 SPECIFICATION) FOR A MINIMUM LENGTH OF TWENTY 20) FEET, CENTERED ON THE POINT OF CROSSING. WHERE WATER MAINS AND STORM SEWER PIPES CROSS WITH LESS THAN 18 INCHES OF VERTICAL CLEARANCE, THE WATER MAIN SHALL BE 20 FEET OF DUCTILE IRON PIPE CENTERED ON THE POINT OF CROSSING. WHERE WATER AND FORCEMAIN CROSS

HORIZONTAL CLEARANCE-WHERE A WATER MAIN PARALLELS A GRAVITY SANITARY SEWER MAIN, A SEPERATION (MEASURED EDGE TO EDGE) OF AT LEAST TEN (10) FEET SHOULD BE MAINTAINED. WHEN THE 10-FEET HORIZONTAL SEPERATION CANNOT BE MAINTAINED, THE WATER MAIN SHALL BE INSTALLED IN A SEPERATE TRENCH OR ON AN UNDISTURBED EARTH SHELF AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN. ALTERNATELY. THE SEWER MAIN SHALL BE ENCASED WITH CONCRETE OR ENCLOSED IN A WATER TIGHT CARRIER PIPE, OR UPGRADED TO DUCTILE IRON PIPE OR PRESSURE RATED PVC PIPE (MEETING THE AWWA C-900 OR C-905 SPECIFICATION) AND PRESSURE TESTED. IF THE SANITARY SEWER IS EXISTING AND THE POTABLE WATER MAIN IS PROPOSED, THE WATER MAIN SHALL, AT A MINIMUM, BE UPGRADED TO DUCTILE IRON PIPE, CONSTRUCTED IN SEPERATE TRENCHES, LAID AT A HIGHER ELEVATION THAN THE SANITARY SEWER, AND UTILIZE STAGGERED JOINTS.

18 INCHES OF VERTICAL CLEARANCE MUST BE MAINTAINED.

SECTION 5 SANITARY GRAVITY SEWERS

5.1 GENERAL

THIS SECTION INCLUDES GENERAL TECHNICAL CRITERIA FOR THE DE-SIGN AND INSTALLATION OF SANITARY GRAVITY SEWER SYSTEMS. 5.11 STANDARD REQUIREMENTS A) GENERAL THE MATERIALS OF CONSTRUCTION AND GENERAL INSTALLA-

TION PROCEDURES SHALL COMPLY WITH THE SPECIFIC APP-LICABLE STANDARDS SET FORTH UNDER SECTION 2. "UTILITY EXCAVATION, TRENCHING AND BACKFILLING", SECTION 3, "BORING AND JACKING" AND SECTION 4, "PIPE FITTINGS, VALVES AND APPURTENANCES". 5.12 MANHOLES: A) MANHOLES SHALL BE PRECAST CONCRETE. THE MINUMUM

INSIDE DIAMETER OF MANHOLES SHALL BE 48 INCHES FOR

SEWER SIZED TO 21 INCHES IN DIAMETER OR LESS. WITH SUBMITTAL OF SPECIAL DESIGNS FOR LARGER PIPES. MAN HOLES ARE TO BE PLACED AT THE ENDS OF JACK AND BORINGS SECTION FOR GRAVITY SEWER LINES B) PRECAST REINFORCED MANHOLES SHALL BE IN ACCORD ANCE WITH ASTM DESIGNATION C478, WITH PRE-FORMED FLEXIBLE PLASTIC JOINT SEALER CONFORMING TO FEDERAL SPECIFICATION SS-S-0210 (GSA-FSS), "RAM-NEK", AS

MANUFACTURED BY THE K.T. SNYDER CO., INC., HOUSTON, TEXAS, OR APPROVED EQUAL C) MANHOLES ARE GENERALLY TO BE LOCATED IN DEDICATED RIGHT-OF-WAY OR UTILITY EASEMENT.

)) MANHOLE FRAMES AND COVERS SHALL BE GRAY CAST IRON CONFORMING TO ASTM DESIGNATION A48, CLASS 30, AND SHALL HAVE A MINIMUM 24 INCH OPENING. COVERS SHAL HAVE NO PERFORATIONS AND SHALL BE MARKED WITH THE WORD "SEWER". FRAMES AND COVERS SHALL BE FULLY BEDDED IN MORTAR TO THE CORRECT FINISH GRADE ELEV ATION WITH ADJUSTMENT BRICK COURSES PLACED BELOW AS DETAILED FOR PRECAST MANHOLES. THERE WILL BE NO STEPS ALLOWED IN MANHOLES. MANHOLE FLOW CHANNELS SHALL HAVE SMOOTH AND CARE-FULLY SHAPED BOTTOMS, BUILT UP SIDES AND BENCHING

CONSTRUCTED FROM CONCRETE. CHANNELS SHALL CONFORM

TO THE DIMENSIONS OF THE ADJACENT PIPE AND PROVIDE CHANGES IN SIZE, GRADE AND ALIGNMENT EVENLY. F) THE INTERIOR SURFACES OF ALL MANHOLES SHALL BE PRO-TECTED BY THE APPLICATION OF TWO (2) COATS OF KOPPERS BITUMASTIC NO 300M OR APPROVED FOUA EXTERIOR SURFACES SHALL RECEIVE TWO (2) COATS OF KOPPERS BITUMASTIC BLACK SOLUTION, OR EQUAL. G) SEWER CLEANOUTS NOT IN THE PAVEMENT SHALL HAVE AROUND THEIR TOPS CONCRETE PADS, WHICH WILL BE

FLUSH WITH THE TOP OF THE CURB, WITH MINUMUM DIM-ENSIONS OF 18 TO 18 BY 3 INCHES. ) MANHOLES SHALL NOT BE LOCATED IN DRAINAGE SWALES OR ANY OTHER LOW AREA LIKELY TO COLLECT OR POND WATER DURING RAINS. 5.13 PIPE DEPTH AND PROTECTION:

BE 3 FEET FROM THE TOP OF THE PIPE TO FINISH GRADE. 5.14 PIPE BEDDING: SPECIAL CARE SHALL BE EXERCISED IN THE DESIGN AND IN-STALLATION TO PROVIDE ADEQUATE BEDDING FOR THE TYPE OF PIPE USED, TAKING INTO CONSIDERATION TRENCH WIDTH AND DEPTH, SUPERIMPOSED LOADINGS ABOVE GRADE AND THE MATERIAL BELOW TRENCH GRADE. PIPE LOADING CAPABILITIES SHALL BE COMPUTED IN ACCORD-ANCE WITH ESTABLISHED DESIGN CRITERIA AND SPECIAL SUP-PORTING BEDDING OF FACILITIES SHALL BE PROVIDED AS REQUIRED

THE MINIMUM ALLOWABLE COVER FOR GRAVITY SEWERS SHALL

5 15 CONNECTIONS AT STRUCTURES: WHERE SANITARY SEWERS CONNECT TO STRUCTURES, PIPE JOINT BELL SHALL NOT BE INSTALLED AT THE WALL FACE. CORE BORE INTO THE EXISTING MANHOLES AND USE KOR-N-SEAL FLEXIBLE CONNECTORS OR APPROVED EQUAL WITH STAIN-LESS STEEL STRAPS ON ALL PIPE TO MANHOLE CONNECTORS. 5 16 TRANSITION CONNECTIONS: WHERE PIPES OF ALTERNATE MATERIALS ARE TO BE CONNECT

ED BETWEEN MANHOLES, SUITABLE APPROVED TRANSITION COUPLINGS SHALL BE INSTALLED. 5.17 PIPE CUTTING: THE CUTTING OF PIPE SHALL BE PERFORMED BY THE PROPER

TOOLS AND METHODS A) SERVICE CONNECTIONS: INSTALLATION SHALL BE PERFORMED BY THE PROPER METH ODS, INCLUDING THE WYE BRANCHES INSTALLED IN THE SEWER MAIN AT THE POINT OF CONNECTION, AND THE SER VICE PIPE, AND REQUIRED FITTINGS EXTENDED TO THE PRO-PERTY LINE, PERPENDICULAR TO SAID LINE, TERMINATING WITH STOPPERED ENDS OF FITTINGS. THE MINIMUM SERVICE PIPE SIZE SHALL BE 6 INCHES IN DIAMETER AND MAY PRO-VIDE FOR SINGLE OR DOUBLE CONNECTIONS, ON CURBER STREETS, THE EXACT LOCATION FOR EACH INSTALLED SER VICE SHALL BE MARKED BY ETCHING OR CUTTING AS "S" IN

THE CONCRETE CURB AND PAINTED RED. WHERE NO CURP EXISTS OR IS PLANNED, LOCATIONS SHALL BE ADEQUATELY MARKED BY A METHOD APPROVED BY THE CITY. B) PROTECTION OF WATER SYSTEMS: THE HORIZONTAL SEPARATION BETWEEN SANITARY SEWERS AND EXISTING OR PROPOSED WATER MAINS SHALL NOT BE LESS THAN 10 FEET. UNLESS SEWER PIPES CROSS BELOW WATER MAINS WITH A VERTICAL SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER PIPE AND THE TOP

OF THE SEWER, OR WHEN THE WATER LINE CROSSES BE-NEATH THE SEWER LINE AT ANY DEPTH. THE SEWER LINE SHALL BE ENCASED IN CONCRETE OR THE SEWER SHALL BE DUCTILE IRON PIPE FOR A DISTANCE OF 10 FEET EITHER SIDE OF THE CROSSING. 5.18 TESTING: A) THE CONTRACTOR SHALL PERFORM TESTING OF ALL SAN-ITARY SEWERS, AS SET FORTH IN THE FOLLOWING AND SHALL CONDUCT SAID TESTS IN THE PRESENCE OF REPRE SENTATIVES FROM THE CITY AND/OR OTHER AUTHORIZED AGENCIES WITH 48 HOURS ADVANCE NOTICE PROVIDED

R) SANITARY SEWERS TO BE TESTED SHALL BE WITHIN SEC

TIONS. TESTING SHALL NOT PROCEED UNTIL ALL FACILITIES

ARE IN PLACE AND CONCRETE CURED. ALL PIPING SHALL BE THOROUGHLY CLEANED PRIOR TO TESTING TO CLEAR HE LINES OF ALL FOREIGN MATTER. C) INFILTRATION SHALL NOT EXCEED 300 GALLONS PER DAY PER INCH OF DIAMETER PER MILE AS MEASURED BETWEEN MANHOLES. TESTING SHALL PROCEED FOR A CONTINUOUS PERIOD OF TWO (2) HOURS, WITH INFILTRATION AMOUNTS MEASURED BY METHODS APPROVED BY THE WATER AND SEWER DEPARTMENTS D) SHOULD ANY TEST FAIL. NECESSARY REPAIRS SHALL BE ACCOMPLISHED BY THE CONTRACTOR, AND THE TEST RE PEATED UNTIL THE ESTABLISHED LIMITS ANY REPAIRS SHALL

BE PERFORMED UNDER THE SUPERVISION OF THE CITY FORCES AND BY METHODS RECEIVING PRIOR APPROVAL BY E) IF DURING FINAL INSPECTION THE CITY HAS REASON TO DOUBT THE INTEGRITY OF THE SEWER LINES DUE TO IN-FILTRATION OR POOR LINE ALIGNMENT. THE CITY MAY RE QUIRE INTERNAL INSPECTION (TELEVISING) OF THE SEWER

> SECTION 6 SANITARY SEWAGE FORCE MAINS

6.1 GENERAL

LINES AT THE EXPENSE OF THE DEVELOPER.

A) THIS SECTION INCLUDES THE GENERAL REQUIREMENTS FOR DE SIGN AND INSTALLATION OF FORCE MAIN SYSTEMS SERVING SAN-ITARY SEWAGE PLIMPING STATIONS 3) THE RELEVANT PROVISIONS OF OTHER SECTIONS OF THIS SPECI FICATION SHALL BE APPLICABLE TO THIS SECTION UNLESS OTHER-WISE INDICATED HEREIN OR APPROVED BY THE CITY

6.2 STANDARD REQUIREMENTS

THE MATERIALS OF CONSTRUCTION AND GENERAL INSTALLATION PROCEDURES SHALL COMPLY WITH THE SPECIFIC APPLICABLE STANDARDS SET FORTH UNDER SECTION 2, "UTILITY EXCAVATION, TRENCHING AND BACKFILLING", SECTION 3, "BORING AND JACK-ING", AND SECTION 4, "PIPE, FITTINGS, VALVES AND APPURT-ENANCES". B) JOINT RESTRAINING

PRESSURE PIPING FITTINGS AND OTHER ITEMS REQUIRING RE-STRAINT SHALL BE BRACED WITH THRUST BLOCKS OR RESTRAIN-ING ASSEMBLIES AS REQUIRED BY DESIGN. RESTRAINING DEVICES SHALL BE DESIGNED FOR THE MAXIMUM PRESSURE CONDITION TESTING) AND THE SAFE BEARING LOADS FOR THE HORIZONTAL HRUST, IF THRUST BLOCKING IS USED. C) PIPE DEPTH AND PROTECTION: THE STANDARD MINIMUM COVER FOR SEWAGE FORCE MAIN SYS-

FINISH GRADE. WHERE THIS CONDITION CANNOT BE MET. SPECIA CONSIDERATION WILL BE GIVEN. ADDITIONAL DEPTH MAY BE RE-QUIRED WHERE FUTURE SURFACE IMPROVEMENTS ARE PLANNED OR ANTICIPATED. D) AIR AND VACUUM VENTING: WHERE THE FORCE MAIN PROFILE IS SUCH THAT AIR POCKETS OR ENTRAPMENT COULD OCCUR RESULTING IN FLOW BLOCKAGE, PROVISIONS FOR AIR RELEASE AND/OR VENTING SHALL BE PRO-

VIDED. WHERE FREE FLOW WILL OCCUR DURING OPERATION OR

AFTER PUMPING STOPS, COMBINED AIR RELEASE AND VACUUM

TEMS SHALL BE 36 INCHES FROM THE TOP OF THE PIPE TO

VALVE ASSEMBLIES SHALL BE PROVIDED. E) VALVE LOCATIONS: VALVES SHALL BE INSTALLED ON ALL SUBSIDIARY FORCE MAINS AT THE POINT OF CONNECTION TO THE MAJOR MAIN AND WHERE FORCE MAINS ARE TO BE EXTENDED. AT FUTURE CONNECTION BRANCHES OR ENDS. THE VALVES SHALL BE RESTRAINED BY METHODS OTHER THAN THRUST BLOCKING IN ORDER TO FAC-ILITATE SAID CONNECTION WITHOUT SYSTEM SHUT DOWN.

F) BRANCH CONNECTIONS THE FITTING CONNECTIONS ARE ACCEPTABLE PROVIDED THE CON-NECTION IS ADEQUATELY BLOCKED OR OTHERWISE RESTRAINED. G) CLEAN OUT CONNECTIONS SHOULD FORCE MAINS APPEAR TO BE SUSCEPTIBLE TO SEDI-MENTATION CLOGGING, AS CREATED BY DEPRESSED CROSSINGS OR EXTENDED LOW FLOW (VELOCITY) PERIODS, SUITABLE CLEAN

OUT CONNECTIONS SHALL BE PROVIDED. H) TERMINAL DISCHARGE: FORCE MAINS SHALL ENTER THE TERMINAL FACILITY (GRAVITY SEWER MANHOLE, PUMPING STATION WET WELL, OR OTHER) AT A POINT EQUAL TO THE OPERATIONAL WATER LEVEL OF SAID RECEIVING UNIT. SHOULD AN ELEVATION DROP BE REQUIRED TO OBTAIN THE OUTLET CONNECTION, THE PRIOR DOWN-SLOPE OF THE FORCE MAIN SHALL NOT EXCEED 45 DEGREES, AND ADE-QUATE AIR VENTING SHALL BE PROVIDED AT THE PROFILE BREAK-I) IDENTIFICATION:

IN ORDER TO PRECLUDE POSSIBLE DOMESTIC WATER TAPPING. ALL INSTALLED UNDERGROUND SANITARY SEWAGE FORCE MAINS SHALL BE MARKED WITH CONTINUOUS YELLOW STRIPE LOCATED WITHIN THE TOP 90 DEGREES OF THE PIPE.

A) THE CONTRACTOR SHALL PERFORM HYDROSTATIC TESTING OF ALL SANITARY SEWAGE FORCE MAINS, AS SET FORTH IN THE FOLLOW-ING, AND SHALL CONDUCT SAID TESTS IN THE PRESENCE OF REPRESENTATIVES FROM THE CITY AND/OR OTHER AUTHORIZED AGENCIES WITH 48 HOURS ADVANCE NOTICE PROVIDED. B) PIPING AND APPURTENANCES TO BE TESTED SHALL BE WITH

IN SECTIONS BETWEEN VALVES OR ADEQUATE PLUGS, NOT EX CEEDING 2000 FEET WITH PRIOR APPROVAL FROM THE CITY. TESTING SHALL NOT PROCEED UNTIL CONCRETE THRUST BLOCKS ARE IN PLACE AND CURED, OR OTHER RESTRAINING DEVICES IN-STALLED. ALL PIPING SHALL BE THOROUGHLY CLEANED AND FLUSHED PRIOR TO TESTING TO CLEAR THE LINES OF ALL FOR EIGN MATTER. WHILE THE PIPING IS BEING FILLED WITH WATER CARE SHALL BE EXERCISED TO PERMIT THE ESCAPE OF AIR FROM EXTREMITIES OF THE TEST SECTION, WITH ADDITIONAL RE-LEASE COCKS PROVIDED IF REQUIRED. C) HYDROSTATIC TESTING SHALL BE PERFORMED AT 150 POUNDS PER SQUARE INCH PRESSURE, UNLESS OTHERWISE APPROVED BY THE CITY, FOR A PERIOD OF NOT LESS THAN TWO (2) HOURS. TESTING SHALL BE IN ACCORDANCE WITH THE APPLICABLE PRO-VISIONS AS SET FORTH IN SECTION 13, AWWA STANDARD C600. TEST LEAKAGE SHALL BE LESS THAN THE ALLOWABLE LEAKAGE IN

GALLONS PER HOUR DETERMINED BY THE FOLLOWING FORMULA:

 $L(PVC) = \frac{ND(P)^{1/2}}{7.400}$ 

L = ALLOWABLE LEAKAGE IN GALLONS PER HOUR N = NUMBER OF JOINTS S = LENGTH OF PIPE TESTED IN FEET D = NOMINAL DIAMETER OF THE PIPE IN INCHES P = AVERAGE TEST PRESSURE MAINTAINED DURING

THE LEAKAGE TEST IN POUNDS PER SQUARE

[NOTE: LEAKAGE FOR PVC ON L(DIP) FORMULA, USE 0.9 L(DIP)]

D) THE TESTING PROCEDURE SHALL INCLUDE THE CONTINUED APPLICATION OF THE SPECIFIED PRESSURE TO THE TEST SYS-TEM. FOR THE TWO HOUR PERIOD. BY WAY OF A PIPE TAKING SUPPLY FROM A CONTAINER SUITABLE FOR MEASURING WATER LOSS. THE AMOUNT OF LOSS SHALL BE DETERMINED BY MEAS SURING THE VOLUME DISPLACED FROM SAID CONTAINER. E) SHOULD THE TEST FAIL, NECESSARY REPAIRS SHALL BE AC-COMPLISHED BY THE CONTRACTOR AND THE TEST REPEATED UNTIL WITHIN THE ESTABLISHED LIMITS. THE CONTRACTOR SHAL FURNISH THE NECESSARY LABOR, WATER, PUMPS, GAUGES AND

WATER DISTRIBUTION SYSTEMS

THIS SECTION SETS FORTH THE GENERAL REQUIREMENTS FOR DESIGN AND INSTALLATION OF WATER DISTRIBUTION SYSTEMS FOR POTABLE WATER SERVICE.

ALL OTHER ITEMS REQUIRED TO CONDUCT THE REQUIRED WATER

DISTRIBUTION SYSTEM TESTING AND PERFORM NECESSARY REPAIRS.

8.2 STANDARD REQUIREMENTS

THE MATERIALS OF CONSTRUCTION AND GENERAL INSTALLATION PROCEDURES, WITH THE EXCEPTION OF FIRE HYDRANTS SHALL COMPLY WITH THE SPECIFIC APPLICABLE STANDARDS SET FORTH UNDER SECTION 2. "UTILITY EXCAVATION. TRENCHING AND BACK-FILLING". SECTION 3 "BORING AND JACKING". AND SECTION 4. "PIPE\_FITTINGS\_VALVES AND APPURTENANCES" AS WELL AS "STANDARD DETAILS-WATER DISTRIBUTION SYSTEMS". 8.22 FIRE HYDRANTS: HYDRANTS SHALL COMPLY WITH AWWA STANDARD C502. "FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE", AND SHALL BE EQUIPPED WITH A MINIMUM OF ONE (1) PUMPER OUTLET

NOZZLE 4-1/2 INCHES IN DIAMETER AND TWO (2) HOSE NOZ-ZLES 2-1/2 INCHES IN DIAMETER THREADS NOZZLE CAPS OPERATING NUTS AND COLOR SHALL CONFORM TO CITY STAN DARDS. UNITS SHALL BE TRAFFIC TYPE WITH BREAKABLE SAFETY CLIPS OR FLANGE AND STEM WITH SAFETY COLIPLING LOCATED BELOW BARREL BREAK LINE TO PRECLUDE VALVE OPENING. HY DRANTS SHALL BE DRY TOP TYPE. OUTLET NOZZLES SHALL BE ON THE SAME PLAIN, WITH MINIMUM DISTANCE OF 18 INCHES FROM CENTER OF NOZZLES TO GROUND LINE. VALVE SHALL BE COMPRESSION TYPE WITH 5-1/4 INCHES MINIMUM OPENING UNLESS OTHERWISE REQUESTED AND SHOW INLET CONNECTION

TO BE 6 INCHES MINUMUM. A) HYDRANTS SHALL BE INSTALLED PLUMB AND IN TRUE ALIGN-MENT WITH THE CONNECTION PIPES TO THE WATER MAIN. THEY SHALL BE SECURELY BRACED AGAINST THE END OF THE TRENCH (UNDISTURBED SOIL) WITH CONCRETE THRUST BLOCKS. THE GRAVEL OR CRUSHED STONE FOR THE DRAIN SUMP, FOLLOWED BY BACKFILLING, SHALL BE CAREFULLY PLACED AND COMPACTED INSTALLED HYDRANTS SHALL BE PAINTED RED FOR THE FINAL COAT. B) HYDRANT PLACEMENT IS TO BE AMINIMUM OF 6 FEET AND

A MAXIMUM OF 9 FEET FROM THE CURB OR PAVED ROAD SURFACE UNLESS OTHERWISE APPROVED. THE CENTER OF THE STEAMER PORT SHALL BE 18 INCHES MINIMUM AND 24 INCHES MAXIMUM ABOVE FINAL GRADE. STEAMER PORT SHALL BE CORRECTLY POSITIONED FOR THE PROPER CONNECTION. 8.23 JOINT RESTRAINING: PRESSURE PIPING, FITTINGS AND OTHER ITEMS REQUIRING RF-

STRAINT SHALL BE BRACED WITH THRUST BLOCKS OR OTHER RESTRAINING ASSEMBLIES. SAID RESTRAINING DEVICES SHALL BE DESIGNED FOR THE MAXIMUM PRESSURE CONDITION (TESTING) AND THE SAFE BEARING LOADS FOR HORIZONTAL THRUST, IF THRUST BLOCKING IS USED. 8.24 PIPE DEPTH AND PROTECTION THE STANDARD MINIMUM COVER FOR WATER DISTRIBUTION SYS-

TEMS SHALL BE 3 FEET FROM THE TOP OF THE FINISH GRADE. HOWEVER, SHOULD THIS DESIGN NOT BE FEASIBLE, PROTECTIVE CONCRETE SLABS SHALL BE PROVIDED OVER THE PIPE WITHIN THE LIMITS OF THE LESSER COVER. WHERE WATERWAYS, CANALS DITCHES OR OTHER CUTS ARE CROSSED. PROTECTIVE CONCRET SLABS SHALL ALSO BE INSTALLED ACROSS AND TO 10 FEET FACH SIDE OF THE BOTTOM ADDITIONALLY APPROVED LITH ITY CROSSING SIGNS SHALL BE PLACED ON THE PIPE ALIGNMENT AT EACH SIDE OF THE CANAL FTC ALL WATER LINES AND SEWER LINES MUST HAVE METALLIC TAPE TRACE PLACED ABOVE THEM NO DEEPER THAN EIGHT INCHES. 8.25 CONNECTIONS AT STRUCTURES: WHERE PIPES ARE TO EXTEND INTO OR THROUGH STRUCTURES,

FLEXIBLE JOINTS ARE TO BE PROVIDED AT THE WALL FACE.

8.26 SPECIAL EXTERIOR PROTECTION FOR CORROSION EXTRA PROTECTION SHALL BE PROVIDED FOR UNDERGROUND CAST OF DUCTILE IRON PIPE AND FITTINGS WITHIN AREAS OF SEVERE CORROSIVE CONDITIONS THIS SHALL BE ACCOMPLISH ED BY THE INSTALLATION OF POLYETHYLENE ENCASEMENT. THROUGH THE AREA OF CONCERN. THE SOIL TEST EVALUATION TO DETERMINE THE NECESSITY FOR EXTRA PROTECTION IN SUSPECT AREAS SHALL BE SET FORTH IN ANSI STANDARD A21.5. ADDITIONALLY, WHERE OTHER EXISTING UTILITIES ARE KNOWN TO BE CATHODICALLY PROTECTED, CAST OR DUCTILE IRON PIPE CROSSING SAID UTILITY SHALL BE INSTALLED RAR-ALLEL TO AND WITHIN 10 FEET OF, PROTECTION SHALL ALSO

BE PROVIDED. STEEL PIPE SHALL NOT BE INSTALLED IN SEVERE CORROSION AREAS

8.27 AIR VENTING AND BLOW OFFS: WHERE THE WATER MAIN PROFILE IS SUCH THAT AN AIR POCKET OR ENTRAPMENT SHOULD OCCUR, RESULTING IN FLOW BLOCK AGE, METHODS FOR AIR RELEASE SHALL BE PROVIDED. AIR VEN-TING CAPABILITIES SHALL BE PROVIDED FOR DISTRIBUTION MAINS BY APPROPRIATELY PLACING FIRE HYDRANTS, BLOW-OFFS, OR OTHER MANUAL DEVICES. AT CRITICAL POINTS ON MAJOR MAINS AUTOMATIC AIR RELEASE ASSEMBLIES SHALL BE INSTALLED SPECIAL CARE SHALL BE TAKEN TO PRECLUDE ANY CROSS-CON NECTION POSSIBILITY IN THE DESIGN OF AUTOMATIC AIR RELEASE VALVE APPLICATION, ALL DEAD-END WATER MAINS, TEMPORARY OR PERMANENT, SHALL BE EQUIPPED WITH A MANUALLY OPERATED BLOW-OFF AT THE TERMINAL. ALL AIR/VACUUM RELEASE VALVES MUST END IN A DOWNTURNED ELBOW WITH AT LEAST 12 INCHES

ABOVE THE SURROUNDING GRADE UNLESS THE WET SEASON

WATER TABLE CAN BE SHOWN TO BE BELOW THE VAULT BOTTOM. 8.28 SERVICE CONNECTIONS CONNECTIONS TO WATER MAINS 4 INCHES AND LARGER SHALL BE MADE BY DRILLING THE APPROPRIATE SIZE HOLE AND INSTALLATION OF SERVICE SADDLES, WITH SERVICES TO SMALLER SIZES ACCOM-PLISHED BY IN-LINE FITTINGS. A FITTING WITH THE SERVICE LINE EXTENDED TO THE PROPERTY LINE, PERPENDICULAR TO SAID LINE, AND TERMINATING WITH A PLUGGED CURB STOP, PENDING METER INSTALLATION. ON CURBED STREETS THE EXACT LOCATION FOR EACH INSTALLED SERVICE SHALL BE MARKED BY ETCHING OR CUTTING A "W" IN THE CONCRETE CURB AND PAINTED BLUE. WHERE NO CURB EXISTS OR IS PLANNED, LOCATIONS SHALL BE ADEQUATELY MARKED BY A METHOD APPROVED BY THE CITY.

8.29 POTABLE WATER PIPES SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C160/C151 FOR DUCTILE IRON PIPE (3 IN. TO 54 IN.) AWWA C900/ASTM 1784 (4 IN. TO 12 IN.) WITH DR25 MINIMUM AND AWWA C905 (14 IN. TO 36 IN.) FOR PVC (WITH NATIONAL SANITAR) FOUNDATION SEAL), ASTM 1785 OR AWWA C905 (LESS THAN 4 IN.) SCHEDULES 40, 80, AND 120 OR ASTM 2241 (SDR 21 MINIMUM) FOR PVC, AWWA C901 WITH VALVES AND FITTINGS (AWWA C800) FOR POLY-ETHYLENE PIPE, AND AWWA C902 FOR POLYBUTYLENE PIPE.

8.30 CONNECTION AND FILLING OF WATER MAINS IF CONNECTION OF THE PROPOSED ACTIVITY TO THE WATER MAIN RESULT IN A DEPRESSURIZATION OF THE EXISTING SYSTEM BELOW 20 PSI, PRECAUTIONARY BOIL WATER NOTICES MUST BE ISSUED IN CASES OF PLANNED DISTRIBUTION INTERRUPTIONS, OR ADVISORIES (NOT BOIL WATER NOTICES) SHALL BE ISSUED IF TEMPORARY CHANGES IN WATER QUALITY ARE EXPECTED TO OCCUR AND NOT DEEMED AN IMMINENT PUBLIC HEALTH RISK. FILLING OF PROPOSED WATER MAINS FROM EXISTING WATER MAINS SHALL BE DONE IN ACCORDANCE WITH AWWA SPECIFICATION C651

A) THE CONTRACTOR SHALL PERFORM HYDROSTATIC TESTING OF ALL WATER DISTRIBUTION SYSTEMS, AS SET FORTH IN THE FOLLOWING AND SHALL CONDUCT SAID TESTS IN THE PRESENCE OF REPRO-SENTATIVES FROM THE CITY AND/OR OTHER AUTHORIZED AGENCIES, WITH 48 HOURS ADVANCE NOTICE PROVIDED. B) PIPING AND APPURTENANCES TO BE TESTED SHALL BE WITHIN

SECTIONS BETWEEN VALVES. UNLESS ALTERNATE METHODS HAVE RECEIVED PRIOR APPROVAL OF THE CITY, TESTING SHALL NOT PROCEED UNTIL CONCRETE THRUST BLOCKS ARE IN PLACE AND CURED, OR OTHER RESTRAINING DEVICES INSTALLED. ALL PIPING SHALL BE THOROUGHLY CLEANED AND FLUSHED PRIOR TO TEST ING TO CLEAR THE LINES OF ALL FOREIGN MATTER. WHILE THE PIPING IS BEING FILLED WITH WATER, CARE SHALL BE EXERCISED TO PERMIT THE ESCAPE OF AIR FROM EXTREMITIES OF THE TEST SECTION, WITH ADDITIONAL RELEASE COCKS PROVIDED, IF REQ C) HYDROSTATIC TESTING SHALL BE PERFORMED AT 150 POUNDS PER SQUARE INCH PRESSURE. UNLESS OTHERWISE APPROVED BY

THE CITY, FOR A PERIOD OF NOT LESS THAN TWO (2) HOURS.

TEST LEAKAGE SHALL BE LESS THAN THE ALLOWABLE LEAKAGE IN

GALLONS PER HOUR DETERMINED BY THE FOLLOWING FORMULA:

 $L(DIP) = S D (P)^{1/2}$ 

SYSTEM TESTING AND PERFORM NECESSARY REPAIRS

 $L(PVC) = N D (P)^{1/2}$ L = ALLOWABLE LEAKAGE IN GALLONS PER HOUR N = NUMBER OF JOINTS S = I FNGTH OF PIPE TESTED IN FEET

P = AVERAGE TEST PRESSURE MAINTAINED DURING THE LEAKAGE TEST IN POUNDS PER SQUARE **INCH GAUGE** [NOTE: LEAKAGE FOR PVC ON L(DIP) FORMULA, USE 0.9 L(DIP)]

D = NOMINAL DIAMETER OF THE PIPE IN INCHES

D) THE TESTING PROCEDURE SHALL INCLUDE THE CONTINUED APP-I ICATION OF THE SPECIFIC PRESSURE TO THE TEST SYSTEM, FOR THE TWO HOUR PERIOD BY WAY OF A PIPE TAKING SUPPLY FROM A CONTAINER SUITABLE FOR MEASURING WATER LOSS, THE AMOUNT OF LOSS SHALL BE DETERMINED BY MEASURING THE OLUME DISPLACED FROM SAID CONTAINER E) SHOULD THE TEST FAIL NECESSARY REPAIRS SHALL BE ACCOM PLISHED BY THE CONTRACTOR AND THE TEST REPEATED UNTIL WITHIN THE ESTABLISHED LIMITS. THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR, WATER, PUMPS, GAUGES AND ALL OTHER ITEMS REQUIRED TO CONDUCT THE REQUIRED WATER DISTRIBUTION

ACCORDANCE WITH SPECIFICATION NUMBERS C600 AND C603/M23 FOR

F) POTABLE WATER PIPES SHALL BE HYDROSTATICALLY TESTED IN

DUCTILE PIPE AND PVC PIPE. RESPECTIVELY. 8.4 DISINFECTING

8 41 FOLLOWING THE PRESSURE TESTING: THE CONTRACTOR SHALL DISINFECT ALL SECTIONS OF THE WATER DISTRIBUTION SYSTEM AND RECEIVE APPROVAL THEREOF FROM THE APPROPRIATE AGENCIES, PRIOR TO PLACING IN SERVICE, ADVANCE NOTICE SHALL BE PROVIDED TO THE CITY BEFORE DISINFECTING PRO-CEDURES START. THE DISINFECTION SHALL BE ACCOMPLISHED WITH THE APPLICABLE PROVISIONS OF AWWA STANDARD C651, "STANDARD PROCEDURES FOR DISINFECTING WATER MAINS" AND ALL APPROPRIATE AGENCY APPROVALS. A) CARE SHALL BE TAKEN TO PROVIDE DISINFECTION TO THE TOTAL SYSTEM AND THE EXTREMITIES SHALL BE CAREFULLY FLUSHED PRIOR TO CHLORINATION. AFTER DISINFECTION AND FINAL FLUSHING HAVE BEEN AC-COMPLISHED SAMPLES OF WATER FOR BACTERIOLOGICAL ANALYSIS SHALL BE COLLECTED AND SUBMITTED TO AND AS DIRECTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION OR OTHER APPROPRIATE APPROVAL AGENCY SHOULD THESE SAMPLES OR SUBSEQUENT SAMPLES PROVE TO BE UNSATISFACTORY. THEN THE PIPING SHALL BE DIS-INFECTED UNTIL SUFFICIENT NUMBER OF SATISFACTORY

TERIALS AND PERFORM THE WORK NECESSARY FOR THE DIS-INFECTING PROCEDURES, INCLUDING ADDITIONAL DISINFECTION 8.42 POTABLE WATER PIPES SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA SPECIFICATIONS C651.

B) THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND MA-

SURVEYS AND RECORD DRAWINGS

SECTION 9

SURVEYOR FOR LOCATING THE PROPOSED UTILITY LINES, MANHOLES,

TO THE CITY AFTER COMPLETION OF WORK, THE MARKED- UP PLANS.

INCORPORATE THE ACTUAL LAYOUT FROM THE CONTRACTOR TO

WILL SHOW THE ACTUAL LAYOUT OF THE WORK AT SITE. THE CITY WILL

9.1 SURVEYS 9.11 THE CONTRACTOR SHALL BE RESPONSIBLE, WITHOUT ADDITIONAL

GENERATE THE "RECORD DRAWINGS"

SAMPLES ARE OBTAINED

VALVES, ETC. IN ACCORDANCE WITH THE APPROVED PLANS IN ORDER TO LAYOUT THE WORK IN AN ORDERLY MANNER. 9.2 RECORD DRAWINGS 9.21 THE CONTRACTOR SHALL PROVIDE, WITHOUT ADDITIONAL COST TO THE CITY, A COPY OF THE HANDWRITTEN MARKED-UP PLANS.

INCORPORATING THE SURVEY BY A REGISTERED SURVEYOR

COST TO THE CITY, FOR THE SITE SURVEYS BY A REGISTERED

NOTE: SECTION 3 "BORING AND JACKING" AND SECTION 7 " SEWAGE PUMPING STATIONS" OF THE CITY OF EUSTIS STANDARD WATER AND SEWER CONSTRUCTION SPECIFICATIONS ARE NOT INCLUDED - 0 0 4 0 0 h ER ON

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DATE: DECEMBER 2023 DESIGNED BY: RLG DRAWN BY: CHECKED BY: CCH JOB NO.: 055986 FILE NAME: ZAXBYS SITE Sheet C502

CHARLES C. HIOTT, P.E. PROFESSIONAL ENGINEER NO. 54813

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