Town of Southwest Ranches
13400 Griffin Road
Southwest Ranches, FL 33330-2628
(954) 434-0008 Town Hall
(954) 434-1490 Fax
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August 6, 2024

IFB No. 24-002 Dykes Road Piping - Federal Grant Funded ARPA Project

Addendum #2

Clarifications

Addendum based on South Broward Drainage District (SBDD) Permitting Comments
– Reference attached updated Plan Sheets

1. SBDD Comment: On Section A-A, label the Fabric Form revetment at the end of the culvert and across the canal.

   R: Please refer to the revised Section A-A sheet C-6.0

2. SBDD Comment: On the Fabric Form Revetment Detail, the invert for the twin 48" RCP culverts should be consistent at (-)2.00'. Label the anchor trench.

   R: Please refer to the revised Detail sheet C-6.0

3. SBDD Comment: On the Demolition Plan, the existing tree to be relocated should be noted as "By Others".

   R: Please refer to the revised Note on sheet C-1.0

4. SBDD Comment: Please note that both 48" RCP culverts will need to be dive inspected upon completion of construction. If SBDD performs this dive inspection, there will be a $500 dive inspection fee.

   R: Please refer to the revised Note 19 on sheet C-6.0

5. SBDD Comment: Suggest adding a note to the plan, or include in the bid documents, the specific requirements for density testing (ie: backfill on the twin 48" culverts, Type "F" curb & gutter, and pavement restoration).

R: Please refer to the revised Section A-A sheet C-6

6. SBDD Comment: Suggest adding a Note to the plans indicating that the MOT Plan shall include a requirement for two-way traffic to be maintained on Dykes Road at all times, which may require a temporary by-pass lane to be constructed.

   R: Please refer to the revised Section A-A sheet C-6

7. SBDD Comment: Excess material will be removed from the site by contractor.

   R: See Note 10. On sheet C-6

Reviewed by:

Christina Semeraro
_____
Christina Semeraro, NIGP-CPP, CPPO, CPPB
Procurement Officer

TWIN 48" CULVERT PROJECT AT DYKES ROAD

TOWN OF SOUTHWEST RANCHES
FL 33332

CIVIL ENGINEERING PLANS

LOCATION MAP

N.T.S.

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TOWN OF SOUTHWEST RANCHES
13400 GRIFFIN ROAD
SOUTHWEST RANCHES, FLORIDA 33330

SOUTH BROWARD DRAINAGE DISTRICT
6591 SW 160th AVE.
SOUTHWEST RANCHES, FLORIDA 33331

ADDENDUM 1 DATED 8-2-2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

COVER SHEET

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
614 S. MILITARY TRAIL DEERFIELD BEACH, FLORIDA 33442
PHONE: (954) 972-3959 FAX: (954) 972-4178

FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
DRAWN BY:	P.K.
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

COVER

WILLIAM R. BARBARO LICENSE No. 64761 STATE OF FLORIDA PROFESSIONAL ENGINEER

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

I. APPLICABLE CODES

A. GENERAL:

ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY OF SOUTHWEST RANCHES, BROWARD COUNTY DEPARTMENT OF PLANNING AND ENVIRONMENTAL PROTECTION (BCDPEP), FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), SOUTH BROWARD DRAINAGE DISTRICT (SBDD), SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD), AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.

B. CONSTRUCTION SAFETY:

ALL CONSTRUCTION SHALL BE DONE IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE STRICTLY OBSERVED.

C. TRENCH SAFETY ACT

1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE STATE OF FLORIDA TRENCH SAFETY ACT.
2. WHERE EXCAVATIONS TO A DEPTH IN EXCESS OF FIVE FEET (5') ARE REQUIRED THE CONTRACTOR SHALL INCLUDE THE FOLLOWING INFORMATION IN THE BID.
   - A. A REFERENCE TO THE SAFETY STANDARDS THAT WILL BE IN EFFECT DURING THE PERIOD OF CONSTRUCTION OF THE PROJECT.
   - B. WRITTEN ASSURANCES BY THE CONTRACTOR PERFORMING THE TRENCH EXCAVATION THAT SUCH CONTRACTOR WILL COMPLY WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
   - C. A SEPARATE ITEM IDENTIFYING THE COST OF COMPLIANCE WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
3. WHERE A BID IS NOT SUBMITTED, THE CONTRACTOR SHALL SUBMIT THE INFORMATION LISTED IN ITEM 2, TO THE ENGINEER PRIOR TO STARTING WORK.

D. SURVEY DATA:

ALL ELEVATIONS ON THE PLANS OR REFERENCED IN THE SPECIFICATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

II. PRECONSTRUCTION RESPONSIBILITY

A. UPON RECEIPT OF NOTICE OF AWARD, THE CONTRACTOR SHALL ARRANGE A PRECONSTRUCTION CONFERENCE TO INCLUDE THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION, THE OWNER, AND THE ENGINEER, AFTER OBTAINING A CONSTRUCTION PERMIT FROM THE ENGINEERING DIVISION

B. THE CONTRACTOR SHALL OBTAIN A "SUNSHINE CERTIFICATION NUMBER" AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.

C. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, ELEVATION, AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES FOR WHICH HE FAILS TO REQUEST LOCATIONS SUNSHINE CERTIFICATION NUMBER. HE IS RESPONSIBLE AS WELL FOR DAMAGE TO ANY EXISTING UTILITIES WHICH ARE PROPERLY LOCATED.

E. IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, WHO WILL IN TURN NOTIFY THE TOWN OF SOUTHWEST RANCHES UTILITIES DEPARTMENT.

III. INSPECTIONS

THE CONTRACTOR SHALL NOTIFY THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION 954-434-0008, SBDD 954-680-3337, AND THE ENGINEER OF RECORD AT LEAST 24 HOURS PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS:

A.
1. STORM DRAINAGE.
2. SANITARY SEWER.
3. WATER SYSTEM.
4. SUBGRADE; SUBMIT AND HAVE APPROVED DENSITIES PRIOR TO PLACEMENT OF ROCK.
5. LIMEROCK BASE; SUBMIT AND HAVE APPROVED DENSITIES AND AS-BUILT PRIOR TO THE PLACEMENT OF ANY ASPHALT.
6. ASPHALTIC CONCRETE.
7. FINAL.

B. ALL INSPECTIONS MADE BY THE TOWN OF SOUTHWEST RANCHES, SBDD, AND FDOT THE ENGINEER OF RECORD WILL PROVIDE CONSTRUCTION OBSERVATION SERVICES.

IV. SHOP DRAWINGS

A. PRIOR TO ISSUANCE OF A CONSTRUCTION PERMIT, A MATERIAL LIST SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER OF RECORD AND THE TOWN OF SOUTHWEST RANCHES FOR SANITARY MANHOLES, HYDRANTS, VALVES, PIPING, LIFT STATIONS AND OTHER ACCESSORIES. CATALOGUE LITERATURE SHALL BE SUBMITTED FOR WATER AND SEWER PIPES, FITTINGS AND APPURTENANCES.

B. ANY PRODUCT THAT IS NOT ON THIS LIST MUST BE APPROVED IN ADVANCE BY THE ENGINEER OF RECORD AND THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION. SUCH APPROVAL REQUIRES THE SUBMISSION OF A SHOP DRAWING (SIX COPIES) FOR EACH PRODUCT. SHOP DRAWINGS WILL ALSO BE REQUIRED FOR ALL NON-STANDARD ITEMS

C. INDIVIDUAL SHOP DRAWINGS FOR ALL PRECAST STRUCTURES ARE REQUIRED. CATALOGUE LITERATURE WILL NOT BE ACCEPTED FOR PRECAST STRUCTURES.

V. TEMPORARY FACILITIES

A. TEMPORARY UTILITIES:

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY TO HIS EMPLOYEE AND SUBCONTRACTORS FOR THEIR USE DURING CONSTRUCTION.
2. OBTAIN CONSTRUCTION METER FOR ALL WATER USED ON JOB. ALL WATER USED FOR CLEANING, TESTING, ETC. WILL BE PAID FOR BY THE CONTRACTOR. IF WATER CAN NOT BE METERED THEN IT WILL BE CALCULATED.

B. TRAFFIC REGULATION:

1. MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE MUTCD AND BCTED.
2. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.
3. NO TRENCHES OR HOLES NEAR WALKWAYS OR IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT EXPRESS PERMISSION OF THE TOWN OF SOUTHWEST RANCHES.

VI. PROJECT CLOSE OUT

A. CLEANING UP:

1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER. UPON FINAL CLEAN UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEPT BROOM CLEAN.
2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED BY THE ENGINEER OR THE TOWN OF SOUTHWEST RANCHES, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY HIS WORK, EQUIPMENT, EMPLOYEES OR THOSE OF HIS SUBCONTRACTORS TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS. TO THIS END, THE CONTRACTOR SHALL DO AS REQUIRED, ALL NECESSARY HIGHWAY OR DRIVEWAY, SIDEWALK AND LANDSCAPING WORK. SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.
3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR BEEN PLACED IN WATER WATER COURSES, GRAVITY SEWER, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING PROGRESS OF THE WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION.
4. WHEN WORKING IN AND AROUND EXISTING DRAINAGE CANALS, APPROPRIATE SILT BARRIERS SHALL BE INSTALLED AS REQUIRED BY SOUTH BROWARD DRAINAGE DISTRICT.

B. PROJECT RECORD DOCUMENTS:

1. THE CONTRACTOR SHALL MAINTAIN ACCURATE AND COMPLETE RECORDS OF ALL WORK ITEMS COMPLETED.
2. ALL "AS-BUILT" INFORMATION SUBMITTED TO THE ENGINEER SHALL BE SUFFICIENTLY ACCURATE, CLEAR AND LEGIBLE TO SATISFY THE ENGINEER THAT THE INFORMATION PROVIDED A TRUE REPRESENTATION OF THE IMPROVEMENTS CONSTRUCTED.
3. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD ONE COMPLETE SET OF "AS-BUILT" CONSTRUCTION DRAWINGS. THESE DRAWINGS SHALL BE MARKED TO SHOW "AS-BUILT" CONSTRUCTION CHANGES AND DIMENSIONED LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS AND SHALL BE SIGNED BY THE CONTRACTOR.
4. ALL "AS-BUILT" INFORMATION ON ELEVATIONS, STATIONING OFFSETS AND TIES OF THE WATER, SANITARY SEWER, PAVING AND DRAINAGE SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR.
5. "AS-BUILT" INFORMATION ON THE WATER SYSTEM SHALL INCLUDE, BUT IS NOT LIMITED TO LOCATIONS OF ALL VALVES, FITTINGS, FIRE HYDRANTS AND WATER SERVICES AND TOP-OF-PIPE ELEVATION ON 100-FOOT INTERVALS AT A MINIMUM.
6. PRIOR TO A FINAL INSPECTION BY THE TOWN OF SOUTHWEST RANCHES, THE ENGINEER SHALL SUBMIT TWO (2) SETS OF BLUEPRINTS OF "AS-BUILT" CONSTRUCTION DRAWINGS.
7. UPON A FINAL INSPECTION BY THE TOWN OF SOUTHWEST RANCHES, THE ENGINEER SHALL SUBMIT TO THE CITY ONE (1) COMPLETE SET OF REPRODUCIBLE MYLARS AND THREE (3) SETS OF BLUEPRINTS OF "AS-BUILT" CONSTRUCTION DRAWINGS THAT HAVE BEEN CERTIFIED BY A REGISTERED LAND SURVEYOR AND THE ENGINEER OF RECORD AND COMPUTER FILES OF "AS-BUILT" CONSTRUCTION DRAWINGS ON 3-1/2" FLOPPY DISKS IN AUTOCAD RELEASE 14 FORMAT OR LATEST REVISION.
8. PRIOR TO PLACEMENT OF ANY ASPHALT OR CONCRETE PAVEMENT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER "AS-BUILT" PLANS SHOWING LIMEROCK BASE GRADES AND ALL DRAINAGE, WATER, AND SEWER IMPROVEMENTS. PAVING OPERATIONS SHALL NOT COMMENCE UNTIL THE ENGINEER AND THE TOWN OF SOUTHWEST RANCHES HAVE REVIEWED AND APPROVED THE "AS-BUILTS".
9. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR SUBGRADE SHALL BE PROVIDED TO AND AND APPROVED BY THE ENGINEER AND THE TOWN OF SOUTHWEST RANCHES PRIOR TO THE PLACING THE LIMEROCK BASE MATERIAL.
10. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR LIMEROCK SHALL BE PROVIDED TO AND APPROVED BY THE ENGINEER AND THE TOWN OF SOUTHWEST RANCHES PRIOR TO PLACING ASPHALT.

VII. WATER DISTRIBUTION AND/OR SEWAGE FORCE MAIN SYSTEM

A. GENERAL:

1. THE CONTRACTOR SHALL NOTIFY THE CITY OF SOUTHWEST RANCHES UTILITIES DEPARTMENT AND THE ENGINEER OF RECORD NO LATER 24 HOUR PRIOR TO MAKING CONNECTIONS TO EXISTING SYSTEMS. A TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION REPRESENTATIVE AND THE ENGINEER OF RECORD MUST BE PRESENT.
2. SEPARATION OF WATER AND SEWER MAINS:
   - A. PARALLEL WATER AND SEWER MAINS SHALL HAVE A MINIMUM 10 FEET HORIZONTAL SEPARATION. WHERE THIS IS NOT POSSIBLE, THE SEWER MAIN SHALL BE IN A SEPARATE TRENCH AND BE AT LEAST 18 INCHES BELOW THE WATER MAIN AND BOTH MAINS SHALL BE DUCTILE IRON PER PRESSURE PIPE SPECIFICATIONS.
   - B. THE SEWER MAIN SHALL CROSS BELOW ALL WATER MAINS WITH A MINIMUM OF 18 INCHES VERTICAL CLEARANCE. WHERE THE CLEARANCE IS LESS THAN 18 INCHES, THE SEWER MAIN AND THE WATER MAIN SHALL BE DUCTILE IRON PIPE, WITH A MINIMUM 12" CLEARANCE, FOR 20 FEET CENTERED ON THE POINT OF CROSSING. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING SHALL BE MECHANICALLY RESTRAINED.
   - C. IF A SEWER MAIN MUST CROSS ABOVE A WATER MAIN, REGARDLESS OF VERTICAL CLEARANCE, THE PRECAUTION IN ITEM (B.) ABOVE SHALL BE TAKEN.
3. NO CONNECTIONS TO THE EXISTING LINES SHALL BE MADE UNTIL PRESSURE TESTS FOR THE WATER MAINS AND SEWER FORCE MAINS, AND BACTERIOLOGICAL TESTS HAVE BEEN PERFORMED AND THE SYSTEM IS ACCEPTABLE TO THE TOWN OF SOUTHWEST RANCHES AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP).
4. CLEANING OF NEWLY INSTALLED PIPING SYSTEMS SHALL BE ACCOMPLISHED USING PIPE PIGGING METHODS. OPEN FLUSHING SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF THE UTILITIES DEPARTMENT. ALL WATER WILL BE ACCOUNTED FOR.
5. ALL EFFORTS SHALL BE MADE SO THAT WATER AND FORCE MAINS CROSS ABOVE DRAINAGE LINES WITH ADEQUATE COVER AND SEPARATION. IF THIS IS NOT POSSIBLE, IT SHALL BE INDICATED ON THE PLANS.
6. A THREE (3) FOOT LATERAL SEPARATION SHALL BE MAINTAINED BETWEEN WATER/SEWER LINES AND OBSTRUCTIONS (I.E.., CATCH BASINS, CONCRETE POLES, ETC.), FIVE (5) FEET FROM TREES.
7. THE MAXIMUM DEPTH TO THE BOTTOM OF THE PRESSURE MAIN INSTALLED SHALL NOT EXCEED SIX (6) FEET UNLESS APPROVED BY THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION.
8. RESTRAINED JOINTS SHALL BE USED, IN LIEU OF CONCRETE THRUST BLOCKS, AT ALL CHANGES IN DIRECTION OF WATER MAINS, SEWAGE FORCE MAINS AND ELSEWHERE AS INDICATED ON THE DRAWINGS. RESTRAIN ALL PIPE JOINTS WITHIN THE DISTANCES ON EACH SIDE OF FITTINGS AS REQUIRED TO PROPERLY RESTRAIN AND SUPPORT BENDS, TEES, VALVES, DEAD ENDS AN OTHER SUCH FITTINGS WITH THE EXCEPTION OF FIRE HYDRANTS.

B. MATERIALS:

1. PIPE:

THE WATER MAIN AND/OR SEWAGE FORCE MAIN SHALL BE EITHER POLYVINYL CHLORIDE (PVC) OR DUCTILE IRON PIPE (DIP) AND SHALL BE DESIGNED FOR A MINIMUM WORKING PRESSURE OF 150 PSI.

   - A. PVC PIPE SHALL BE ASTM 1120 PRESSURE PIPE WITH IRON O.D., CLASS 150 (DR 18), CONFORMING TO ANSI/AWWA C900-97 OR C905-97 AND SHALL HAVE PUSH RUBBER GASKET JOINTS.
   - B. DIP SHALL BE CLASS 350 WALL THICKNESS (UP TO 12"), CLASS 300 (14"-18"), CLASS 250 (20" OR GREATER) WITH INTERIOR CEMENT LINING AND EXTERIOR COAL TAR COATING CONFORMING TO ANSI/AWWA C151/A21.51-02, OR LATEST REVISION. SEWAGE PIPE SHALL BE EITHER DOUBLE CEMENT CONFORMING TO ANSI/AWWA C104/A21.4-95 OR LATEST REVISION, OR POLYETHYLENE LINED CONFORMING TO ANSI/AWWA C105/A21.5-99 OR LATEST REVISION, OR APPROVED EQUAL. THE PIPE SHALL WITHSTAND A WORKING PRESSURE OF 350 PSI. THE JOINTS SHALL BE BELL AND SPIGOT PUSH ON TYPE, MECHANICAL JOINT OR FLANGED. FLANGED PIPE SHALL CONFORM WITH THE PHYSICAL AND CHEMICAL REQUIREMENTS AS SET FORTH IN THE HANDBOOK OF DUCTILE IRON PIPE OF THE CAST IRON PIPE RESEARCH ASSOCIATION.

2. FITTINGS:

FITTINGS SHALL BE DUCTILE IRON COMPACT MECHANICAL JOINT AND SHALL BE CLASS 350 THROUGH 24" CONFORMING TO ANSI/AWWA C153/A21.53-00, OR LATEST REVISION, AND CLASS 250 IN SIZES 24" AND LARGER, CONFORMING TO ANSI/AWWA C110/A21.10 -98, OR LATEST REVISION, COMPLETE WITH GLANDS, GASKETS, BOLTS AND NUTS. ALL FITTINGS SHALL BE CEMENT LINED AND SEAL COATED WITH THE SAME AS PIPE.

3. VALVES:

   - A. VALVES SHALL BE GATE VALVES FOR WATER (4"-12" SIZE), BUTTERFLY VALVES FOR FOR WATER (16" AND UP SIZE) OR PLUG VALVES FOR FORCE MAIN (ALL SIZES).
     - I. GATE VALVES SHALL BE IRON BODY, FULLY RESILIENT SEAT, BRONZE MOUNTED NON-RISING STEM, DOUBLE DISC, RATED AT 200 PSI AND CONFORMING TO ANSI/AWWA C509-01 OR LATEST REVISION. EXPOSED VALVES SHALL BE OUTSIDE SCREW AND YOKE TYPE.
     - II. BUTTERFLY VALVES AND OPERATORS SHALL CONFORM TO ANSI/AWWA C504-00 STANDARD FOR RUBBER SEATED BUTTERFLY VALVES, OR LATEST REVISIONS. VALVES SHALL BE CLASS 150 A OR B.
     - III. PLUG VALVES SHALL BE SEMI-STEEL BODY, NON-LUBRICATED, ECCENTRIC TYPE, WITH RESILIENT FACED PLUGS, AND CAPABLE OF DRIP-TIGHT SHUT OFF AT THE RATED PRESSURE IF APPLIED AT EITHER PORT. VALVES ARE TO BE EQUIPPED WITH ACTUATING NUTS, CAST IRON HANDWHEELS OR CHAIN OPERATORS, WITH GALVANIZED STEEL CHAINS, AS APPROPRIATE FOR THE INSTALLATION AND TYPE OF OPERATOR.
   - B. AIR RELEASE VALVES
     - I. SEWER FORCE MAIN AIR RELEASE VALVES – SYSTEM SHALL BE A COMBINATION OF ONE SEWAGE AIR RELEASE VALVE AND ONE SEWAGE AIR/VACUUM VALVE WITH DUAL ISOLATION PLUG VALVES. BOTH VALVE BODIES AND COVERS SHALL BE OF CAST IRON CONSTRUCTION, ASTM A126-B. ALL INTERNAL PARTS SHALL BE STAINLESS STEEL, ASTM A-240 – TYPE 304 AND ASTM A276 – TYPE 303. THE VENTING ORIFICE SHALL BE 5/16" IN DIAMETER WITH STAINLESS STEEL SEAT. THE INLET OPENINGS SHALL BE A MINIMUM OF 2" NPT SCREWED CONNECTION FOR BOTH VALVES. THE VALVES SHALL FULLY CAPABLE OF OPERATION IN SEWAGE FORCE MAIN. BOTH VALVES SHALL INCLUDE A BACK-FLUSHING FEATURE FOR PERIODIC CLEANING OF THE INTERNAL MECHANISM. THE OVERALL HEIGHT SHALL NOT EXCEED 22-1/2 INCHES.
     - II. WATER MAIN AIR RELEASE VALVES – VALVE BODY AND COVER SHALL BE OF CAST IRON CONSTRUCTION, ASTM A126-B, ALL INTERNAL WORKING PARTS SHALL BE OF STAINLESS STEEL ASTM A240, TYPE 303 FOR THE FLOAT AND ASTM A296 – TYPE 316 FOR THE LINKAGE. THE VENTING ORIFICE SHALL BE 3/16' IN DIAMETER WITH BRASS SEAT. THE INLET OPENING SHALL BE A 2" NPT SCREWED CONNECTION. THE OVERALL HEIGHT SHALL NOT EXCEED 13 INCHES.
   - C. A REFLECTIVE PAVEMENT MARKER SHALL BE INSTALLED IN THE CENTER OF THE NEAREST LANE OF ROAD PAVEMENT ADJACENT TO ALL VALVE LOCATIONS OUTSIDE THE ROAD PAVEMENT. WATER MARKERS SHALL BE WHITE, SEWER MARKERS SHALL BE GREEN.

4. FIRE HYDRANTS:
   - A. FIRE HYDRANTS SHALL HAVE A MINIMUM 5 1/4" VALVE OPENING AND SHALL OPEN AGAINST THE PRESSURE AND CLOSE WITH THE FLOW. HYDRANTS SHALL MEET OR EXCEED ANSI/AWWA C502-94, C503-97 OR LATEST REVISION, AND SHALL COMPLY WITH FACTORY MUTUAL RESEARCH CORPORATION AND UNDERWRITERS LABORATORIES UL246 STANDARD.
   - B. A BLUE REFLECTIVE PAVEMENT MARKER SHALL BE PROVIDED IN THE CENTER OF THE NEAREST LANES OF ROAD PAVEMENT ADJACENT TO ALL FIRE HYDRANT LOCATIONS.

5. DETECTOR TAPE:

DETECTOR TAPE SHALL BE 3" WIDE BLUE TAPE FOR WATER MAIN AND BROWN TAPE FOR FORCE MAIN, WITH A METALLIZED FOIL CORE LAMINATED BETWEEN 2 LAYERS OF PLASTIC FILM. THE WORDS "CAUTION WATER LINE BURIED BELOW" OR "CAUTION FORCE MAIN BURIED BELOW" SHALL BE PRINTED AT 30"INTERVALS ALONG THE TAPE. TAPE SHALL BE PLACED 18" BELOW GRADE ABOVE ALL PVC MAINS AND SERVICES OR AS RECOMMENDED BY MANUFACTURER. NONMETALLIC TAPE SHALL BE USED ABOVE DUCTILE IRON PIPE. ALL WATER MAIN INSTALLATIONS SHALL COMPLY WITH THE COLOR CODING REQUIREMENTS OF CHAPTER 62-555.320, FAC.

6. SERVICE CONNECTIONS:
   - A. SERVICE SADDLES SHALL BE DUCTILE IRON EPOXY OR NYLON COATED WITH DOUBLE STAINLESS STEEL STRAPS OR SINGLE WIDE STRAP. SADDLES SHALL CONFORM TO ANSI/AWWA C111/21.11-00 AND ASTM A-588 OR LATEST REVISION.
   - B. SERVICE LINES SHALL BE POLYETHYLENE (PE) TUBING AS DESCRIBED IN ANSI/AWWA C901-02 OR LATEST REVISION, WITH A WORKING PRESSURE OF 200 PSI (DR 9). PIPE JOINTS SHALL BE OF THE COMPRESSION TYPE TOTALLY CONFINED GRIP SEAL AND COUPLING NUT. POLYETHYLENE SHALL BE EXTRUDED FROM PE 3408 HIGH MOLECULAR WEIGHT MATERIAL AND MUST CONFORM TO ASTM D-2737.
   - C. CORPORATION STOPS SHALL BE MANUFACTURED OF BRASS ALLOY IN ACCORDANCE ASTM B-62 WITH THREADED ENDS.
   - D. METER STOPS SHALL BE THE 90 DEGREE LOCKWING TYPE AND SHALL BE OF BRONZE CONSTRUCTION IN ACCORDANCE WITH ASTM B-62. METER STOPS SHALL BE CLOSED BUTTON DESIGN AND RESILIENT "O" RING SEALED AGAINST EXTERNAL LEAKAGE AT THE TOP. STOPS SHALL BE EQUIPPED WITH A METER COUPLING NUT ON THE OUTLET SIDES.
   - E. METER AND METER BOXES 2" OR LESS ARE SUPPLIED BY THE TOWN OF SOUTHWEST RANCHES AT THE OWNER'S EXPENSE.

7. TAPPING SLEEVES:

TAPPING SLEEVES SHALL BE DUCTILE IRON, ASTM GRADE 65-45-12, MECHANICAL JOINT.

8. VALVE BOXES:
   - A. VALVE BOXES FOR WATER MAINS AND SEWER FORCE MAINS SHALL BE ADJUSTABLE SCREW TYPE WITH 5-1/4" SHAFT, 18 TO 24 INCH EXTENSION, CAST IRON ASTM-A48 CLASS 30 MARKED "WATER" OR "SEWER".
   - B. VALVE BOXES FOR BLOW-OFF ASSEMBLY SHALL BE CAST IRON ASTM A-48 CLASS 30 MARKED "W".

9. RETAINER GLANDS:

RETAINER GLANDS SHALL CONFORM TO ANSI/AWWA C111/A21.11-00 OR LATEST REVISION. ALL GLANDS SHALL BE MANUFACTURED FROM DUCTILE IRON AS LISTED BY UNDERWRITERS LABORATORIES FOR 250 PSI MINIMUM WATER PRESSURE RATING.

10. DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY:

THE ASSEMBLY SHALL CONFORM TO ANSI/AWWA C510-97, OR LATEST REVISION, AND CAPABLE OF WITHSTANDING A WORKING PRESSURE OF AT LEAST 150 PSI WITHOUT DAMAGE TO WORKING PARTS OR IMPAIRMENT OF FUNCTION. IT SHALL CONSIST OF TWO INTERNALLY LOADED, INDEPENDENTLY OPERATING CHECK VALVES, LOCATED BETWEEN TWO TIGHTLY CLOSING RESILIENT-SEATED SHUT OFF VALVES, WITH FOUR PROPERLY PLACED RESILIENT-SEATED TEST COCKS.

C. INSTALLATION:

1. GENERAL:

CONNECTION OF ALL NEW SYSTEMS TO EXISTING MAINS SHALL BE DONE USING ONE OF THE THREE FOLLOWING METHODS:

   - A. METHOD "A" PER FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) STANDARDS, WHICH INVOLVES A REDUCED SIZE TEMPORARY CONNECTION BETWEEN THE EXISTING MAIN AND THE NEW MAIN.
   - B. METHOD "B" PER FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) STANDARDS, WHICH INVOLVES A DIRECT CONNECTION BETWEEN THE NEW AND EXISTING MAINS USING TWO GATE VALVES SEPARATED BY A SLEEVE WITH A VENT PIPE.
   - C. METHOD "C" APPROVED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), WHICH INVOLVES A TAP WITH ONE GATE VALVE REQUIRING DISINFECTION OF THE NEW SYSTEM PRIOR TO CONDUCTING THE PRESSURE TEST.

2. BEDDING:

BEDDING AND INITIAL BACKFILL (12 INCHES ABOVE PIPE) FOR ALL PIPES SHALL BE SAND WITH NO ROCK LARGER THAN 1" IN DIAMETER. PEA ROCK OR 3/4" WASHED ROCK WILL BE IN WATER OR WHERE UNSUITABLE BEDDING EXISTS AT THE DISCRETION OF THE TOWN OF SOUTHWEST RANCHES. ALL OTHER FILL SHALL NOT HAVE ROCK LARGER THAN 6" IN DIAMETER.

3. PVC PIPE:
   - A. PVC PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE UNI-BELL PLASTIC PIPE ASSOCIATION'S GUIDE FOR INSTALLATION OF PVC PRESSURE PIPE FOR MUNICIPAL WATER DISTRIBUTION SYSTEMS.
   - B. PVC PIPE SHALL BE INSTALLED WITH A MINIMUM OF 36" COVER.
   - C. DETECTOR TAPE SHALL BE INSTALLED THE FULL LENGTH OF ALL PVC MAINS APPROXIMATELY 18" BELOW GRADE, COLOR SIDE UP.

4. DUCTILE IRON PIPE:
   - A. DIP SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600-99 OR LATEST REVISION.
   - B. DIP SHALL BE INSTALLED WITH A MINIMUM OF 30" COVER.
   - C. IDENTIFICATION TAPE SHALL BE INSTALLED THE FULL LENGTH OF ALL DIP MAINS APPROXIMATELY 18" ABOVE THE MAIN, COLOR SIDE UP.

5. VALVES:
   - A. ALL VALVES SHALL BE INSTALLED WITH ADJUSTABLE CAST IRON VALVE BOXES WITH THE WORD "WATER" OR "SEWER" CAST IN THE COVER.
   - B. MAIN VALVES SHALL BE LOCATED ON AN EXTENSION OF THE RIGHT-OF-WAY LINE UNLESS DIMENSIONED OTHERWISE.
   - C. MAIN VALVES SHALL BE INSTALLED AWAY FROM PARKING AREAS. IF THIS IS UNAVOIDABLE, PROPER MEASURES SHALL BE TAKEN TO AVOID THE PARKING OF VEHICLES OVER THE VALVES. HYDRANT VALVES SHALL BE INSTALLED AS CLOSE TO THE MAIN AS POSSIBLE. VALVES LOCATED IN NON-PAVED AREAS OR IN PARKING STALLS REQUIRE A REFLECTIVE PAVEMENT MARKER ON THE CENTER OF THE NEAREST LANE OF ROAD PAVEMENT. WHITE REFLECTORS FOR WATER MAIN VALVES, GREEN REFLECTORS FOR FORCE MAIN VALVES.
   - D. THE DISTANCE FROM THE TOP OF THE VALVE ACTUATOR NUT TO FINAL GRADE SHALL BE A MINIMUM OF 12 INCHES AND A MAXIMUM OF 18 INCHES.

6. SERVICE:
   - A. COVER OVER SERVICE LINES SHALL BE 18 INCHES MINIMUM, 24 INCHES MAXIMUM BELOW FINISHED GRADE AND 24 INCHES UNDER PAVEMENT.
   - B. POLYETHYLENE SHALL BE BEDDED IN BACKFILL OF SAND WITH NO ROCK GREATER THAN 1 INCH IN DIAMETER.
   - C. METER STOPS SHALL HAVE 8 INCHES TO 10 INCHES COVER OR AS REQUIRED FOR PROPER METER/BOX INSTALLATION.
   - D. WATER SERVICES UNDER PAVEMENT SHALL BE ENCASED IN A SCHEDULE 80 PVC SLEEVE FOR THE FULL LENGTH OF THE PAVEMENT AND FOR 2 FEET BEYOND THE EDGE.
   - E. THE END OF EACH SERVICE CONNECTION SHALL BE MARKED WITH A 2" X 4" TREATED STAKE, PAINTED BLUE, EXTENDING 18 INCHES (MINIMUM) ABOVE GRADE UNLESS INDICATED OTHERWISE.

D. TESTING:

1. THE PHYSICAL CONNECTION OF THE NEW SYSTEM TO THE EXISTING SYSTEM SHALL BE DONE IN ACCORDANCE WITH SECTION "C.-1." (THIS DOCUMENT) WHICH WILL DICTATE THE ORDER OF THE PRESSURE TESTING AND DISINFECTION.
2. THE COMPLETE WATER SYSTEM SHALL BE PRESSURE TESTED AND DISINFECTED. THE PRESSURE TEST SHALL BE FOR TWO HOURS AT 150 PSI MINIMUM TEST PRESSURE IN ACCORDANCE WITH ANSI/AWWA C600-05 OR LATEST REVISION. THE PRESSURE TEST SHALL NOT VARY MORE THAN 5 PSI DURING THE TEST. LEAKAGE ALLOWANCES WILL NOT BE MADE FOR FITTINGS OR VALVES.
3. ALLOWABLE LEAKAGE SHALL NOT EXCEED THE FORMULA OF:

$$L \text{ (GALLONS PER HOUR)} = \frac{S\,D\,(P)^{0.5}}{148{,}000}$$

L = ALLOWABLE LEAKAGE IN GALS/HR (NO ALLOWABLE LEAKAGE FOR VALVES)
S = LENGTH OF PIPE TESTED IN FEET
D = NOMINAL DIAMETER OF PIPE IN INCHES
P = AVERAGE TEST PRESSURE DURING TEST IN LBS/SQ. IN.

4. THE PRESSURE TEST SHALL BE WITNESSED BY A REPRESENTATIVE OF THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION AND THE ENGINEER OF RECORD.
5. SAMPLING POINTS SHALL BE PROVIDED AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE BROWARD COUNTY HEALTH DEPARTMENT. IF NOT SPECIFIED, SAMPLING POINTS SHALL BE PROVIDED AT INTERVALS OF 1200 FEET MAXIMUM FOR LINES GREATER THAN 1200 FEET IN LENGTH. PROVIDE A MINIMUM OF TWO SAMPLING POINTS FOR ALL OTHER TEST SEGMENTS.
6. BEFORE ACCEPTANCE FOR OPERATION, THE WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH ANSI/AWWA C651-05 OR LATEST REVISION WITH APPROVED BACTERIOLOGICAL SAMPLES AND PROPER DOCUMENTATION BY FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP). COLLECTION OF SAMPLES IS THE CONTRACTOR'S RESPONSIBILITY AND WILL BE WITNESSED BY A TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION REPRESENTATIVE.

VIII. GRAVITY SEWAGE COLLECTION SYSTEM

A. MATERIALS:

1. SEWER PIPE AND FITTINGS:
   - A. PVC SEWER PIPE AND FITTINGS SHALL BE NON-PRESSURE POLYVINYL CHLORIDE PIPE CONFORMING TO ASTM D-3034, SDR 35, WITH PUSH-ON RUBBER GASKET JOINTS UNLESS OTHERWISE NOTED.
   - B. DUCTILE IRON PIPE (DIP) SHALL BE DOUBLE CEMENT CONFORMING TO ANSI/AWWA C104/A21.4-95, OR LATEST REVISION, OR POLYETHYLENE LINED INSIDE CONFORMING TO ANSI/AWWA C105/A21.5-93, OR APPROVED EQUAL AND SHALL HAVE A COAL TAR EPOXY COATING, MANUFACTURED IN ACCORDANCE TO ANSI/AWWA C151/A21.51-96, OR LATEST REVISION, MINIMUM WALL THICKNESS CLASS 350 (UNLESS OTHERWISE SPECIFIED).
   - C. ALL FITTINGS AND ACCESSORIES SHALL BE AS MANUFACTURED OR SUPPLIED BY THE PIPE MANUFACTURER.
2. MANHOLES:
   - A. MANHOLES SHALL BE PRECAST PER ASTM C-478 TYPE II WITH 4000 PSI CONCRETE AND GRADE 40 STEEL. MONOLITHICALLY POURED BASES ONLY.
   - B. MANHOLE OPENINGS ARE TO BE SEALED WITH ANTI-HYDRO CEMENT OR APPROVED EQUAL. NO MOLDING PLASTER WILL BE ALLOWED.
   - C. MANHOLE JOINTS SHALL BE SEALED WITH "RAMNEK" GASKETS OR APPROVED EQUAL AND WITH ANTI-HYDRO CEMENT ON THE INSIDE AND OUTSIDE.

B. INSTALLATION

1. PIPE AND FITTINGS:
   - A. SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321, AND THE UNI-BELL PLASTIC PIPE ASSOCIATION'S "RECOMMENDED PRACTICE FOR THE INSTALLATION OF PVC SEWER PIPE".
   - B. DIP SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600-93, OR LATEST REVISION.
   - C. BEDDING AND INITIAL BACKFILL 12 INCHES OVER SEWER MAINS AND SERVICES SHALL BE SAND WITH NO ROCK LARGER THAN 1 INCH IN DIAMETER. PEA ROCK OR 3/4" WASHED ROCK WILL BE USED IN WATER OR WHERE UNSUITABLE BEDDING EXISTS AT THE DISCRETION OF THE TOWN OF SOUTHWEST RANCHES. ALL OTHER FILL SHALL NOT HAVE ROCK LARGER THAN 6 INCH IN DIAMETER.
   - D. PIPE CONNECTION INTO MANHOLE WALL SHALL BE DUCTILE IRON PIPE, GROUTED IN PLACE, OR CAST-IN NEOPRENE RUBBER BOOT, OR EQUAL AS APPROVED BY THE TOWN OF SOUTHWEST RANCHES.
   - E. GRAVITY SEWER MAINS INSTALLED DEEPER THAN TWELVE (12) FEET SHALL BE D.I.P. AND SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600-93 OR LATEST REVISION.
2. MANHOLES:
   - A. MANHOLES SHALL BE SET PLUMB TO LINE AND GRADE ON FIRM CLEAN SUBGRADE PROVIDING UNIFORM BEARING UNDER THE BASE.
   - B. ALL OPENINGS AND JOINTS SHALL BE SEALED WATER-TIGHT.
   - C. THE ENTIRE INSIDE OF THE MANHOLES SHALL BE PAINTED WITH TWO COATS (8 MILS EACH, DRY) OF KOPPER'S 300-M BITUMASTIC COATING, OR APPROVED EQUAL. FIRST COAT RED, SECOND COAT BLACK. THE OUTSIDE OF EACH MANHOLE REQUIRES ONLY ONE COAT (8 MILS, DRY) OF THE SAME TYPE OF COATING.
   - D. MANHOLES SHALL BE INSTALLED AWAY FROM PARKING AREAS ON THE CENTERLINE OF THE ROADWAY. IF THIS IS UNAVOIDABLE, PROPER MEASURES SHALL BE TAKEN TO PROHIBIT THE PARKING OF VEHICLES OVER MANHOLES.
   - E. ORANGE REFLECTIVE PAVEMENT MARKERS SHALL BE PROVIDED ON THE CENTER OF THE NEAREST LANE OF ROAD PAVEMENT ADJACENT TO ALL MANHOLE LOCATIONS OUTSIDE THE ROAD PAVEMENT.
   - F. ALL LIDS SHALL BE PROVIDED WITH A POLYETHYLENE WATER TIGHT MANHOLE INSERT. THE COVER BODY SHALL BE MANUFACTURED TO THE DIMENSIONS AS SHOWN ON THE CONTRACT DRAWINGS TO ALLOW EASY INSTALLATION IN THE MANHOLE FRAME. THE INSERT SHALL BE PROVIDED WITH A LIFT STRAP ATTACHED TO THE COVER BODY.
3. SERVICE:
   - A. MINIMUM SLOPE OF ALL SERVICE LINES SHALL BE AS INDICATED IN THE "SOUTH FLORIDA BUILDING CODE" BROWARD COUNTY EDITION.
   - B. SERVICE LATERALS SHALL TERMINATE AT A DEPTH 30" BELOW FINISHED GRADE.
   - C. EACH SERVICE CONNECTION SHALL BE PLUGGED WATERTIGHT WITH AN APPROVED PLUG.
   - D. THE END OF EACH SERVICE CONNECTION SHALL BE MARKED WITH A 2" X 4" TREATED STAKE PAINTED RED, EXTENDING 18 INCHES (MINIMUM) ABOVE GRADE.
   - E. CONTRACTOR SHALL ROUGH IN RISER TO 1 FOOT ABOVE FINISHED GRADE AND PLUG. AT PROJECT COMPLETION, CUT BACK TO FINISHED GRADE.
   - F. CONNECTION OF SERVICES TO BUILDING'S PLUMBING SHALL BE COORDINATED WITH THE CITY'S BUILDING AND ZONING DEPARTMENT, PLUMBING SECTION.

C. TESTING:

1. AFTER CONSTRUCTION OF THE SEWER SYSTEM, THE ENTIRE SYSTEM SHALL BE LAMPED. SEWER LAMPING SHALL BE WITNESSED BY THE ENGINEER OF RECORD AND A REPRESENTATIVE FROM THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION.
2. AFTER CONSTRUCTION OF THE SEWER SYSTEM, THE TOWN OF SOUTHWEST RANCHES OR THE ENGINEER OF RECORD MAY REQUIRE A VISUAL INFILTRATION AND/OR EXFILTRATION TEST TO BE PERFORMED ON THE ENTIRE SYSTEM OR ANY PART THEREOF.
3. AN AIR TEST MAY BE SUBSTITUTED FOR THE WATER EXFILTRATION TEST, UPON APPROVAL OF THE TOWN OF SOUTHWEST RANCHES.
4. MANHOLE EXFILTRATION LEAKAGE SHALL NOT EXCEED 4 GALLONS PER DAY PER UNIT.
5. SEWER PIPE EXFILTRATION LEAKAGE SHALL NOT EXCEED 10 GALLONS PER DAY PER INCH DIAMETER PER MILE IN A TWO HOUR TEST PERIOD FOR ANY SECTION TESTED.
6. VISIBLE MANHOLE AND SEWER PIPE INFILTRATION LEAKAGE SHALL NOT BE PERMITTED.
7. SANITARY SEWER SHALL BE TELEVISED, AT DEVELOPER'S EXPENSE, PRIOR TO FINAL APPROVAL OF CONSTRUCTION. VIDEO TAPE AND REPORT SHALL BE EXAMINED BY THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION. OWNER / CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING OF ANY DEFICIENCIES PRIOR TO THE CITY'S CERTIFICATION OF COMPLETION TO ANY AGENCY.

ADDENDUM 1 DATED 8-2-2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

GENERAL NOTES

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
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FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
DRAWN BY:	P.K.
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

GN-1

WILLIAM R. BARBARO PROFESSIONAL ENGINEER LICENSE No. 64761 STATE OF FLORIDA

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

8/5/24 P:\Projects_2023\230303 - TOSWR Dykes Road 48 Culvert Project\Cad\ld\Plan Sets\CP\PLAN.dwg

BROWARD COUNTY DEPARTMENT OF PLANNING AND ENVIRONMENTAL PROTECTION

1. NOTES ON WATER SEWER SEPARATION:

   A. SANITARY SEWERS AND FORCE MAINS SHOULD CROSS UNDER WATER MAINS WHENEVER POSSIBLE. SANITARY SEWERS AND FORCE MAINS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE WHENEVER POSSIBLE.

   WHERE SANITARY SEWERS OR FORCE MAINS MUST CROSS A WATER MAIN WITH LESS THAN 18 INCHES OF VERTICAL DISTANCE, BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (D.I.P.) AT THE CROSSING. SUFFICIENT LENGTHS OF D.I.P. MUST BE USED TO PROVIDE A MINIMUM SEPARATION OF 10 FEET BETWEEN ANY TWO JOINTS. ALL JOINTS ON THE WATER MAIN WITHIN 20 FEET OF THE CROSSING MUST BE MECHANICALLY RESTRAINED. A MINIMUM VERTICAL CLEARANCE OF 6 INCHES MUST BE MAINTAINED AT ALL CROSSINGS WHEN THE WATER MAIN IS ABOVE THE SEWER MAIN. A MINIMUM VERTICAL CLEARANCE OF 12 INCHES MUST BE MAINTAINED AT ALL CROSSINGS WHEN THE WATER MAIN IS BELOW THE SEWER MAIN.

   ALL CROSSING SHALL BE ARRANGED SO THAT THE SEWER PIPE JOINTS AND THE WATER MAIN PIPE JOINTS ARE EQUAL DISTANCE FROM THE POINT OF CROSSING (PIPES CENTERED ON THE CROSSING).

   WHERE A NEW PIPE CONFLICTS WITH AN EXISTING PIPE WITH LESS THAN 18 INCHES VERTICAL CLEARANCE, THE NEW PIPE SHALL BE ARRANGED TO MEET THE CROSSING REQUIREMENTS ABOVE.

   B. A MINIMUM 10-FOOT HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN ANY TYPE OF SEWER AND WATER MAIN PARALLEL INSTALLATIONS WHENEVER POSSIBLE.

   IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN 10-FOOT HORIZONTAL SEPARATION, THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER OR FORCE MAIN AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER.

   WHERE IT IS NOT POSSIBLE TO MAINTAIN A VERTICAL DISTANCE OF 18 INCHES IN PARALLEL INSTALLATIONS, THE WATER MAIN SHALL BE CONSTRUCTED OF D.I.P. AND THE SANITARY SEWER OR THE FORCE MAIN SHALL BE CONSTRUCTED OF D.I.P. WITH A MINIMUM VERTICAL DISTANCE OF 6 INCHES. IN THAT CASE THE WATER MAIN SHOULD BE ABOVE THE SEWER. JOINTS ON THE WATER SHALL BE LOCATED AS FAR APART AS POSSIBLE FROM JOINTS ON THE SEWER OR FORCE MAIN (STAGGERED JOINTS).

   C. ALL D.I.P. SHALL BE CLASS 50 OR HIGHER. ADEQUATE PROTECTIVE MEASURE AGAINST CORROSION SHALL BE USED AS DETERMINED BY DESIGN.

GENERAL NOTE:

THE CONTRACTOR SHALL CONFORM TO THE MOST CURRENT AND MOST STRINGENT STANDARDS AND SPECIFICATION REQUIREMENTS FOR THE BROWARD COUNTY DEPARTMENT OF PLANNING AND ENVIRONMENTAL REGULATION AND THE TOWN OF SOUTHWEST RANCHES, PERTAINING TO ALL UTILITY PIPE SEPARATIONS.

X. EARTHWORK AND COMPACTION

A. GENERAL

1. NONE OF THE EXISTING MATERIAL IS TO BE INCORPORATED IN THE LIMEROCK BASE.
2. ALL SUBGRADE UNDER PAVED AREAS SHALL HAVE A MINIMUM LBR VALUE OF 40 AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
3. ALL FILL MATERIAL IN AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
4. A 2" BLANKET OF TOP SOIL SHALL BE PLACED OVER ALL AREAS TO BE SODDED.
5. SOD SHALL BE ST. AUGUSTINE, BITTER BLUE OR FLORATAM AND SHALL BE PLACED ON THE GRADED TOP SOIL AND WATERED TO INSURE SATISFACTORY CONDITION UPON FINAL ACCEPTANCE OF THE PROJECT.
6. WHEN WORKING IN AND AROUND EXISTING DRAINAGE CANALS OR LAKES, APPROPRIATE SILT BARRIERS SHALL BE INSTALLED.

B. ON-SITE:

1. ALL ORGANIC AND OTHER UNSUITABLE MATERIAL WITHIN THREE FEET OF AREAS TO BE PAVED SHALL BE REMOVED.
2. SUITABLE BACKFILL SHALL BE MINIMUM LBR 40 MATERIAL COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 FOR THREE (3) FEET BEYOND THE PERIMETER OF THE PAVING.

XI. STORM DRAINAGE

A. CONTRACTOR MAY UTILIZE ONE OF THE FOLLOWING MATERIALS.

1. ALUMINUM:
   - A. PIPE SHALL BE ALUMINUM, MANUFACTURED IN CONFORMANCE WITH ASTM B209.
   - B. PIPE SHALL BE SPIRAL RIB DRAINAGE PIPE WITH 3/4" BY 3/4" RIBS, APPROXIMATELY 7-1/2" ON CENTER. GAUGE THICKNESS SHALL MEET FDOT STANDARD 945-1.
   - C. PIPE COUPLING BANDS SHALL BE 12" WIDE STANDARD SPLIT BANDS OF THE SAME ALLOY AS THE PIPE AND MAY BE ONE GAUGE LIGHTER THAN THE PIPE.
   - D. POLYURETHANE OR OTHER SEALANT SHALL BE USED WITH COUPLING BANDS ON ALL NON-PERFORATED PIPE.
2. REINFORCED CONCRETE PIPE (RCP):

   CONCRETE PIPE FOR STORM SEWERS SHALL CONFORM TO ASTM L70-79, TABLE III, WALL B, OR LATEST REVISION. ALL PIPE SHALL HAVE MODIFIED TONGUE AND GROOVE JOINTS, AND HAVE RUBBER GASKETS, UNLESS OTHERWISE SPECIFIED.
3. POLYPROPYLENE PIPE (PPP):

   POLYPROPYLENE PIPE SHALL HAVE A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS. MANNING'S "N" VALUE FOR USE IN DESIGN SHALL BE 0.012. POLYPROPYLENE PIPE MEETS OR EXCEEDS AASHTO M330 OR ASTM F2881 (12"-60"). PIPE SHALL BE JOINED BY WATERTIGHT, GASKETED INTEGRAL BELL, REINFORCED BY A POLYMER COMPOSITE BAND & SPIGOT. THE JOINT SHALL BE WATERTIGHT ACCORDING TO THE REQUIREMENTS OF ASTM D3212. POLYPROPYLENE COMPOUND SHALL BE IMPACT MODIFIED COPOLYMER MEETING AASHTO M330 OR ASTM F2881 (12"-60"). INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321.
4. MISCELLANEOUS:
   - A. BEDDING AND INITIAL BACKFILL OVER DRAINAGE PIPES SHALL BE SAND WITH NO ROCK LARGER THAN 1" DIAMETER.
   - B. BACKFILL MATERIAL UNDER PAVED AREAS SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
   - C. BACKFILL MATERIAL UNDER AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
   - D. CATCH BASINS SHALL BE PRECAST MINIMUM 3000 PSI CONCRETE AND GRADE 40 REINFORCED STEEL.
5. INSTALLATION:
   - A. PIPE SHALL BE PLACED ON STABLE GRANULAR MATERIAL FREE OF ROCK FORMATION OTHER FOREIGN FORMATIONS, AND CONSTRUCTED TO UNIFORM GRADE AND LINE.
   - B. BACKFILL MATERIAL SHALL BE WELL GRADED GRANULAR MATERIAL WELL TAMPED IN LAYERS NOT TO EXCEED SIX INCHES (6").
   - C. PROVIDE A MINIMUM PROTECTIVE COVER OF 18 INCHES OVER STORM SEWER AND AVOID UNNECESSARY CROSSING BY HEAVY CONSTRUCTION VEHICLES DURING CONSTRUCTION.
   - D. THE CONTRACTOR SHALL NOTIFY THE LOCAL WATER CONTROL DISTRICT AT LEAST 24 HOURS PRIOR TO THE START OF THE CONSTRUCTION AND INSPECTION.

XII. STORM DRAINAGE PRE-TREATMENT/EXFILTRATION SYSTEM

A. ANY CONFLICT WITH EXISTING OR PROPOSED UTILITIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER. ANY IMPERMEABLE MATERIAL ENCOUNTERED IN THE EXCAVATION FOR THE DRAIN FIELD SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.

B. THE TRENCH LINER SHALL BE TYPAR SPUN BONDED POLYPROPYLENE FILTER FABRIC AS MANUFACTURED BY THE DUPONT COMPANY, OR APPROVED EQUAL. IT SHALL BE USED ON THE SIDES AND TOP OF DRAIN FIELD DITCH. THE TOP SECTION OF THE MATERIAL SHALL BE LAPPED A MINIMUM OF 24 INCHES AND THE CONTRACTOR SHALL TAKE EXTREME CARE IN BACKFILLING TO AVOID BUNCHING OF THE FABRIC.

C. PERFORATED PIPE WITHIN THE DRAIN FIELD SHALL HAVE 3/8 INCH PERFORATIONS 360° AROUND THE PIPE WITH APPROXIMATELY 120 PERFORATIONS PER FOOT OF PIPE.

D. PERFORATED PIPE SHALL TERMINATE FIVE FEET (5') FROM THE DRAINAGE STRUCTURE. THE REMAINING FIVE FEET (5') SHALL BE NON-PERFORATED PIPE.

E. PIPES SHALL TERMINATE TWO FEET (2') FROM THE END OF THE TRENCH OR CONNECT TO ADDITIONAL CATCH BASINS.

XIII. PAVING

A. GENERAL:

1. ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO THE CONSTRUCTION OF LIMEROCK BASE AND PRIOR TO PLACEMENT OF THE PAVEMENT.
2. ALL EXISTING PAVEMENT CUT OR DAMAGED BY CONSTRUCTION SHALL BE PROPERLY RESTORED AT THE CONTRACTOR'S EXPENSE.
3. WHERE PROPOSED PAVEMENT IS TO BE CONNECTED TO EXISTING PAVEMENT, THE EXISTING EDGE OF PAVEMENT SHALL BE SAW CUT.
4. ALL STREET CORNER PAVEMENT RADII SHALL BE 25 FEET UNLESS OTHERWISE NOTED ON THE PLANS.
5. UPON COMPLETION OF DRAINAGE IMPROVEMENTS AND LIMEROCK BASE CONSTRUCTION (AND BEFORE PLACING ASPHALT PAVEMENT) THE CONTRACTOR SHALL FURNISH THE ENGINEER OF RECORD AND THE TOWN OF SOUTHWEST RANCHES "AS-BUILT" PLANS FOR THESE IMPROVEMENTS, SHOWING THE LOCATIONS AND THE PERTINENT GRADES OF ALL DRAINAGE INSTALLATIONS AND THE FINISHED ROCK GRADES OF THE ROAD CROWN AND EDGE OF PAVEMENT AT 50 FEET INTERVALS. THESE "AS-BUILTS" SHALL BE APPROVED BY THE CITY PRIOR TO THE PLACEMENT OF ASPHALT.
6. REFER TO ARCHITECTURAL PLANS FOR BRICK PAVERS DESIGN, AS APPLICABLE.

B. MATERIALS:

1. BASE COURSE SHALL BE CRUSHED LIMEROCK MIAMI OOLITE WITH A MINIMUM OF 70% CARBONATES OF CALCIUM AND MAGNESIUM (60% FOR LOCAL STREETS AND PARKING AREAS) AND A MINIMUM LIMEROCK BEARING RATIO 100.
2. PRIME COAT AND TACK COAT SHALL MEET F.D.O.T. STANDARDS.
3. SURFACE COURSE SHALL BE EQUAL TO F.D.O.T. TYPE S-3 ASPHALT.
4. REINFORCED CONCRETE SLABS SHALL BE CONSTRUCTED OF CLASS I CONCRETE WITH A MINIMUM STRENGTH OF 3,000 PSI AND SHALL BE REINFORCED WITH A 6" X 6" NO. 6 GAUGE WIRE MESH.
5. REFER TO ARCHITECTURAL PLANS FOR BRICK PAVERS DESIGN, AS APPLICABLE.

C. INSTALLATION:

1. LIMEROCK BASE MATERIAL SHALL BE 8 INCHES THICK AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T80-C.
2. LIMEROCK BASE MATERIAL SHALL BE PLACED IN MAXIMUM 6" LIFTS. BASES GREATER THAN 6" SHALL BE PLACED IN TWO OR MORE EQUAL LIFTS.
3. ASPHALTIC CONCRETE SHALL BE A MINIMUM OF 1 1/2" THICK AND SHALL BE PLACED TWO 3/4" LIFTS. (NOTE: SECOND LIFT TO BE PLACED AFTER A MINIMUM OF 80% OF THE HOUSES HAVE BEEN COMPLETED OR AS DIRECTED BY THE CITY ENGINEER).
4. PRIME COAT SHALL BE PLACED ON ALL LIMEROCK BASES IN ACCORDANCE WITH F.D.O.T. STANDARDS.
5. TACK COAT SHALL BE PLACED AS REQUIRED IN ACCORDANCE WITH F.D.O.T. STANDARDS.
6. REFER TO ARCHITECTURAL PLANS FOR BRICK PAVERS DESIGN, AS APPLICABLE.

D. TESTING:

ALL SUBGRADE, LIMEROCK AND ASPHALT TESTS REQUIRED SHALL BE TAKEN AT THE DIRECTION OF THE ENGINEER AND/OR THE TOWN OF SOUTHWEST RANCHES.

1. THE FINISHED SURFACE OF THE BASE COURSE AND THAT OF THE WEARING SURFACE SHALL NOT VARY MORE THAN 1/4" FROM THE TEMPLATE. ANY IRREGULARITIES EXCEEDING THIS LIMIT SHALL BE CORRECTED.
2. DENSITY TESTS SHALL BE TAKEN BY AN INDEPENDENT TESTING LABORATORY, CERTIFIED BY THE STATE OF FLORIDA, AND TAKEN AS DIRECTED BY THE ENGINEER AND THE CITY OF SOUTHWEST RANCHES.
3. ALL TESTING COSTS (PAVING) SHALL BE PAID FOR BY THE OWNER EXCEPT THOSE TESTS FAILING TO MEET THE SPECIFIED REQUIREMENTS, WHICH ARE TO BE PAID BY THE CONTRACTOR.

XIV. SIGNING AND MARKING

A. ALL PAVEMENT MARKINGS SHALL BE HOT APPLIED THERMOPLASTIC MANUFACTURED AND APPLIED IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATION'S SECTION 711 AND BROWARD COUNTY TRAFFIC ENGINEERING DIVISION STANDARDS WHERE APPLICABLE.

B. ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND BROWARD COUNTY TRAFFIC ENGINEERING DIVISION STANDARDS.

C. REFLECTIVE PAVEMENT MARKERS SHALL BE CLASS B MARKERS MANUFACTURED IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATIONS 706 AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PROCEDURES.

ADDENDUM 1 DATED 8-2-2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

GENERAL NOTES

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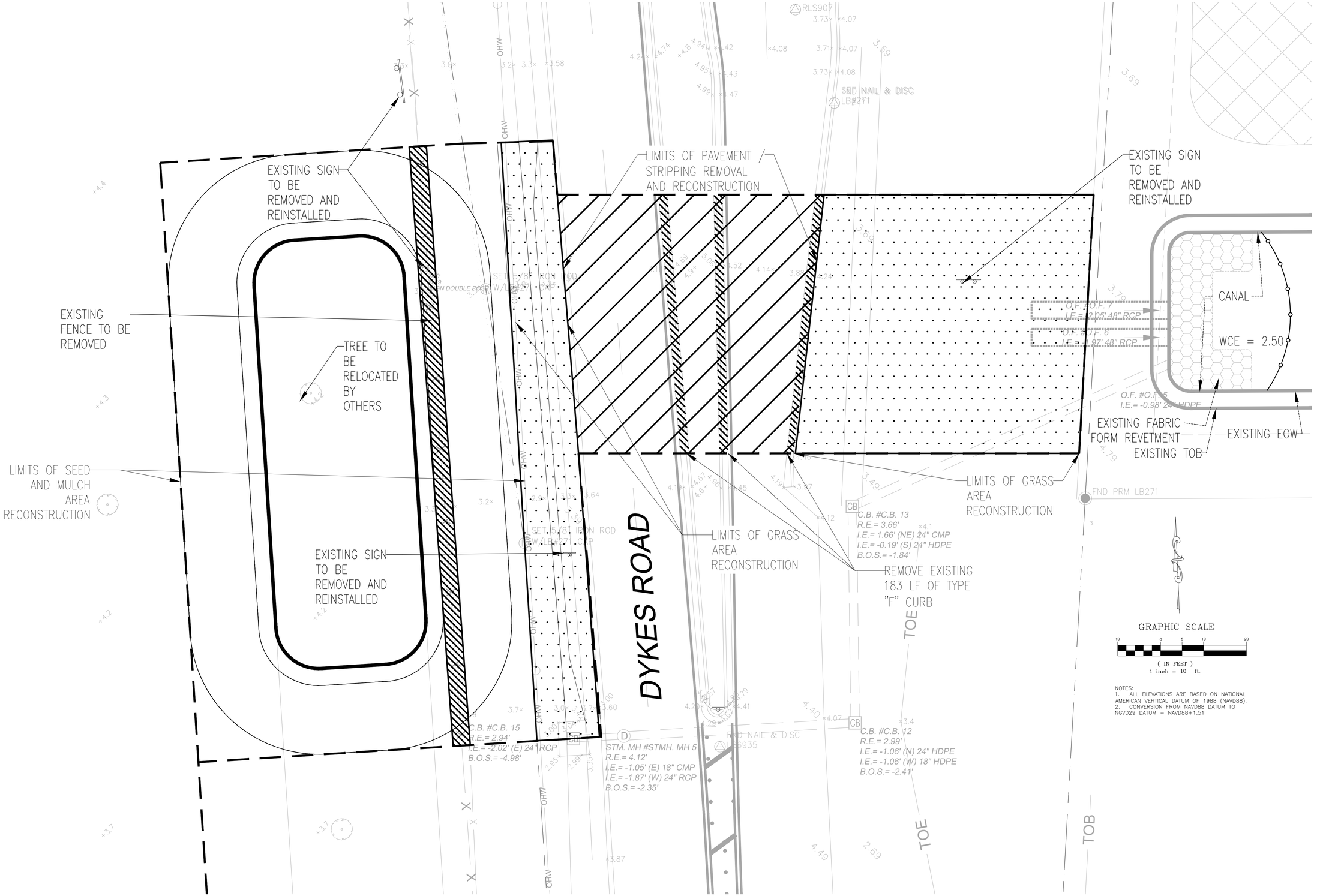
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

GN-2

WILLIAM R. BARBARO LICENSE No. 64761 STATE OF FLORIDA PROFESSIONAL ENGINEER

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

8/5/24 P:\Projects_2023\230303 - TOSWR Dykes Road 48 Culvert Project\Cad\Id\Plan Sets\CP\PLAN.dwg



GRAPHIC SCALE

10 0 5 10 20

(IN FEET)
1 inch = 10 ft.

NOTES:
1. ALL ELEVATIONS ARE BASED ON NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. CONVERSION FROM NAVD88 DATUM TO NGVD29 DATUM = NAVD88+1.51

ADDENDUM 1 DATED 8-2-2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

DEMOLITION PLANS

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
614 S. MILITARY TRAIL DEERFIELD BEACH, FLORIDA 33442
PHONE: (954) 972-3959 FAX: (954) 972-4178

FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
DRAWN BY:	P.K.
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

C-1.0

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

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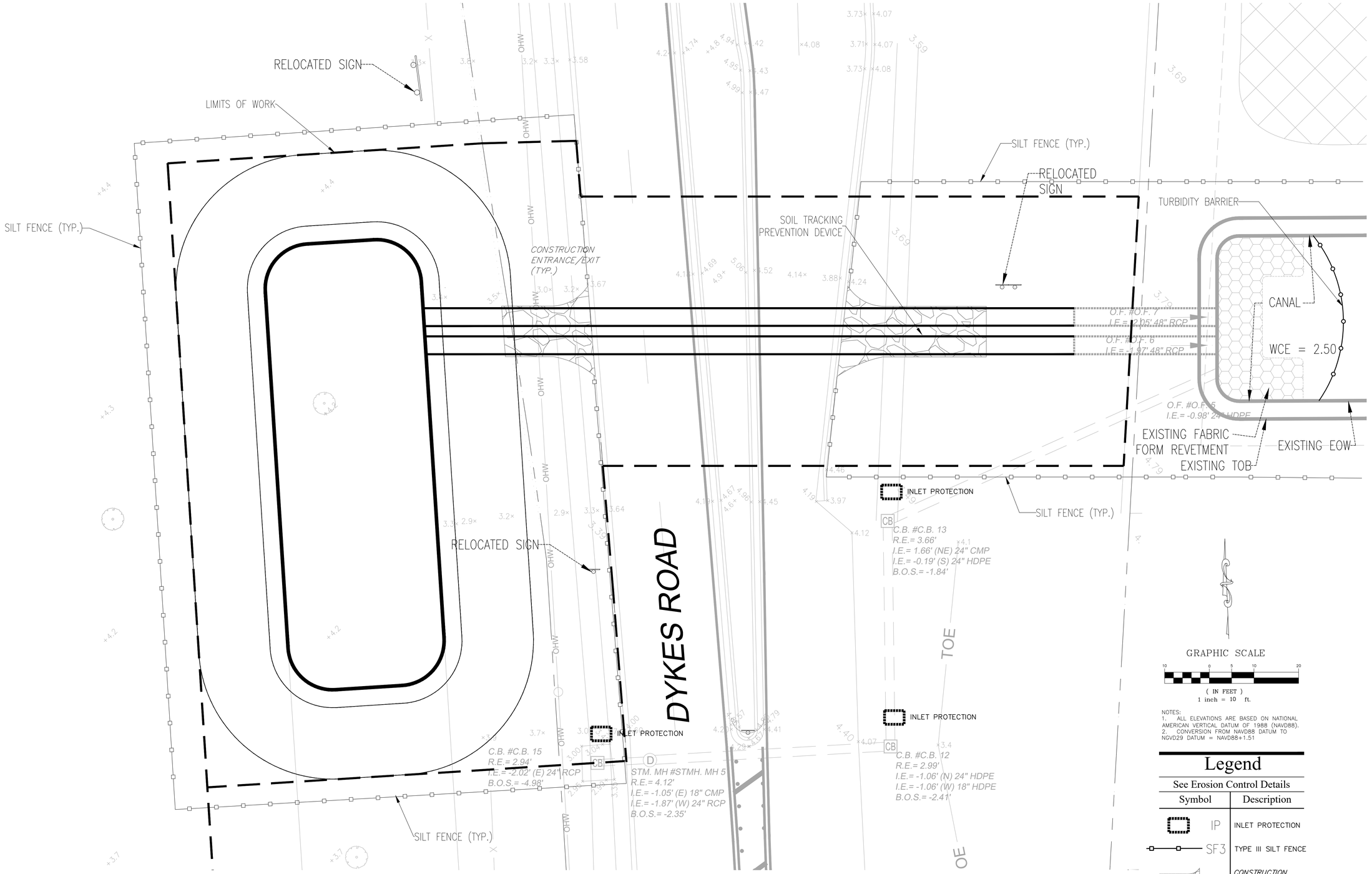

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)
1 inch = 10 ft.

NOTES:
1. ALL ELEVATIONS ARE BASED ON NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. CONVERSION FROM NAVD88 DATUM TO NGVD29 DATUM = NAVD88+1.51

Legend

See Erosion Control Details

Symbol	Description
IP	INLET PROTECTION
SF3	TYPE III SILT FENCE
CE	*CONSTRUCTION ENTRANCE/EXIT*
TB	TURBIDITY BARRIER

ADDENDUM 1 DATED 8-2-2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

EROSION CONTROL PLANS

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
814 S. MILITARY TRAIL, DEERFIELD BEACH, FLORIDA 33442
PHONE: (954) 972-3959 FAX: (954) 972-4178

FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
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DESIGNED BY:	C.D.

C-2.0

WILLIAM R. BARBARO PROFESSIONAL ENGINEER LICENSE No. 64761 STATE OF FLORIDA

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

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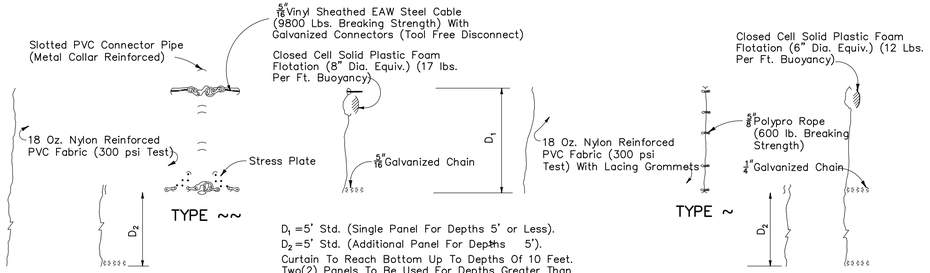
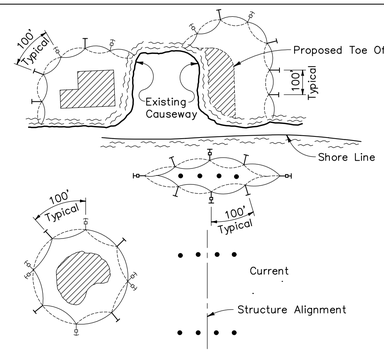


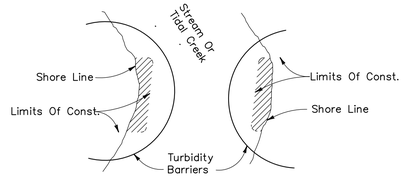
D_1 = 5' Std. (Single Panel For Depths 5' or Less).
D_2 = 5' Std. (Additional Panel For Depths 5').
Curtain To Reach Bottom Up To Depths Of 10 Feet. Two(2) Panels To Be Used For Depths Greater Than 10 Feet Unless Special Depth Curtains Specifically Called For In The Plans Or As Determined By The Engineer.

NOTICE: COMPONENTS OF TYPES ~ AND ~~ MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES ~ AND ~~ SHALL BE AS APPROVED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS



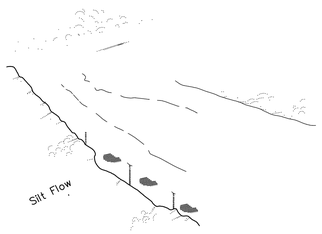
LEGEND
- Pile Locations
- Dredge Or Fill Area
- Mooring Buoy w/Anchor
- Anchor
- Barrier Movement Due To Current Action



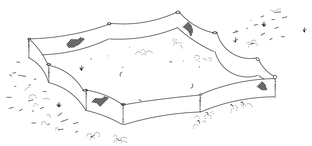
NOTES:
1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
2. Number and spacing of anchors dependent on current velocities.
3. Deployment of barrier around pile locations may vary to accommodate construction operations.
4. Navigation may require segmenting barrier during construction operations.
5. For additional information see Section 104 of the Standard Specifications.

Note:
Turbidity barriers for flowing streams and tidal creeks may be either floating, or staked types or any combinations of types that will suit site conditions and meet erosion control and water quality requirements. The barrier type(s) will be at the Contractors option unless otherwise specified in the plans, however payment will be under the pay item(s) established in the plans for Floating Turbidity Barrier and/or Staked Turbidity Barrier. Posts in staked turbidity barriers to be installed in vertical position unless otherwise directed by the Engineer.

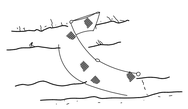
TURBIDITY BARRIER APPLICATIONS



Type III Silt Fence

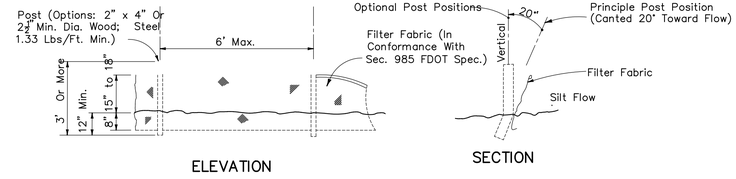


Type III Silt Fence Protection Around Ditch Bottom Inlets.



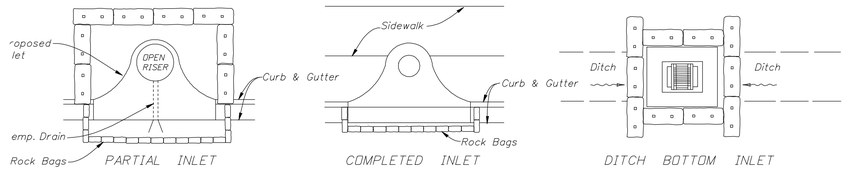
Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations and turbidity barriers used at permanent bodies of water.

SILT FENCE APPLICATIONS

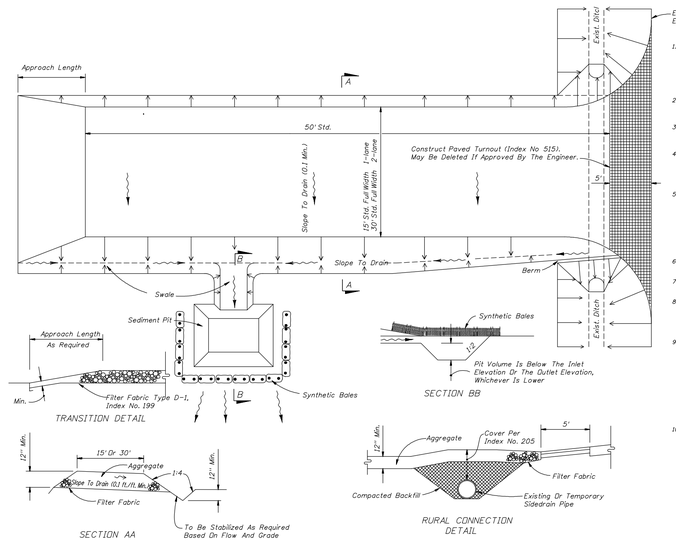


Note: Silt Fence to be paid for under the contract unit price for Staked Silt Fence (LF).

TYPE III SILT FENCE



INLET PROTECTION DETAIL



GENERAL NOTES

1. A Soil Tracking Prevention Device (STPD) shall be constructed at locations designated by the engineer for points of egress from unstabilized areas of the project to public roads where off-site tracking of mud could occur. Traffic from unstabilized areas of the construction project shall be directed thru a STPD. Barriers, flagging, or other positive means shall be used as required to limit and direct vehicular egress across the STPD.
2. The Contractor may propose an alternative technique to minimize off-site tracking of sediment. The alternative must be reviewed and approved by the Engineer prior to its use.
3. All materials spilled, dropped, or tracked onto public roads (including the STPD aggregate and construction mud) shall be removed daily, or more frequently if so directed by the Engineer.
4. Aggregates shall be as described in Section 901 excluding 901-2.3. Aggregates shall be FDOT size #1. If this size is not available, the next available smaller size aggregate may be substituted with the approval of the Engineer. Sizes containing excessive small aggregate will track off the project and are unsuitable.
5. The sediment pit should provide a retention volume of 3600 cubic feet/acre of surface area draining to the pit. When the STPD is isolated from other drainage areas, the following pit volumes will satisfy this requirement:
   15' x 50'=100 ft.² 30' x 50'=200 ft.²
   As an option to the sediment pit, the width of the swale bottom can be increased to obtain the volume. When the sediment pit or swale volume has been reduced to one half, it shall be cleaned. When a swale is used, synthetic bales or silt fence shall be placed along the entire length.
6. The swale ditch draining the STPD shall have a 0.02% minimum and a 1.0% maximum grade along the STPD and to the sediment pit.
7. Mitered end sections are not required when the sidedrain pipe satisfies the clear zone requirements.
8. The STPD shall be maintained in a condition that will allow it to perform its function. To prevent off-site tracking, the STPD shall be rinsed daily when in use to move accumulated mud downward thru the stone. Additional stabilization of the vehicular route leading to the STPD may be required to limit the mud tracked.
9. A STPD shall be paid for under the contract unit price for Soil Tracking Prevention Device, EA. The unit price shall constitute full compensation for construction, maintenance, replacement of materials, removal, and restoration of the area utilized for the STPDs including but not limited to excavation, grading, temporary pipe (including MES when required), filter fabric, aggregate, paved turnout (including asphalt and base construction), ditch stabilization, approach route stabilization, sediment removal and disposal, water, rinsing and cleaning of the STPD and cleaning of public roads, grassing and sod. Synthetic Bale or Bale Type Barrier shall be paid for under the contract unit price for Synthetic Bales, LF. Silt fence shall be paid for under the contract unit price for Staked Silt Fence, LF.
10. The nominal size of a standard STPD is 15' x 50' unless otherwise shown in the plans. If the volume of entering and existing vehicles warrant, a 30' width STPD may be used if approved by the Engineer. When a double width (30') STPD is used, the pay quantity shall be 2 for each location.

SOIL TRACKING DETAIL

ADDENDUM 1 DATED 8-2-2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

EROSION CONTROL DETAILS

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
814 S. MILITARY TRAIL, DEERFIELD BEACH, FLORIDA 33442
PHONE: (954) 972-2959 FAX: (954) 972-4178

FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
DRAWN BY:	P.K.
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

C-3.0

WILLIAM R. BARBARO PROFESSIONAL ENGINEER LICENSE No. 64761 STATE OF FLORIDA

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

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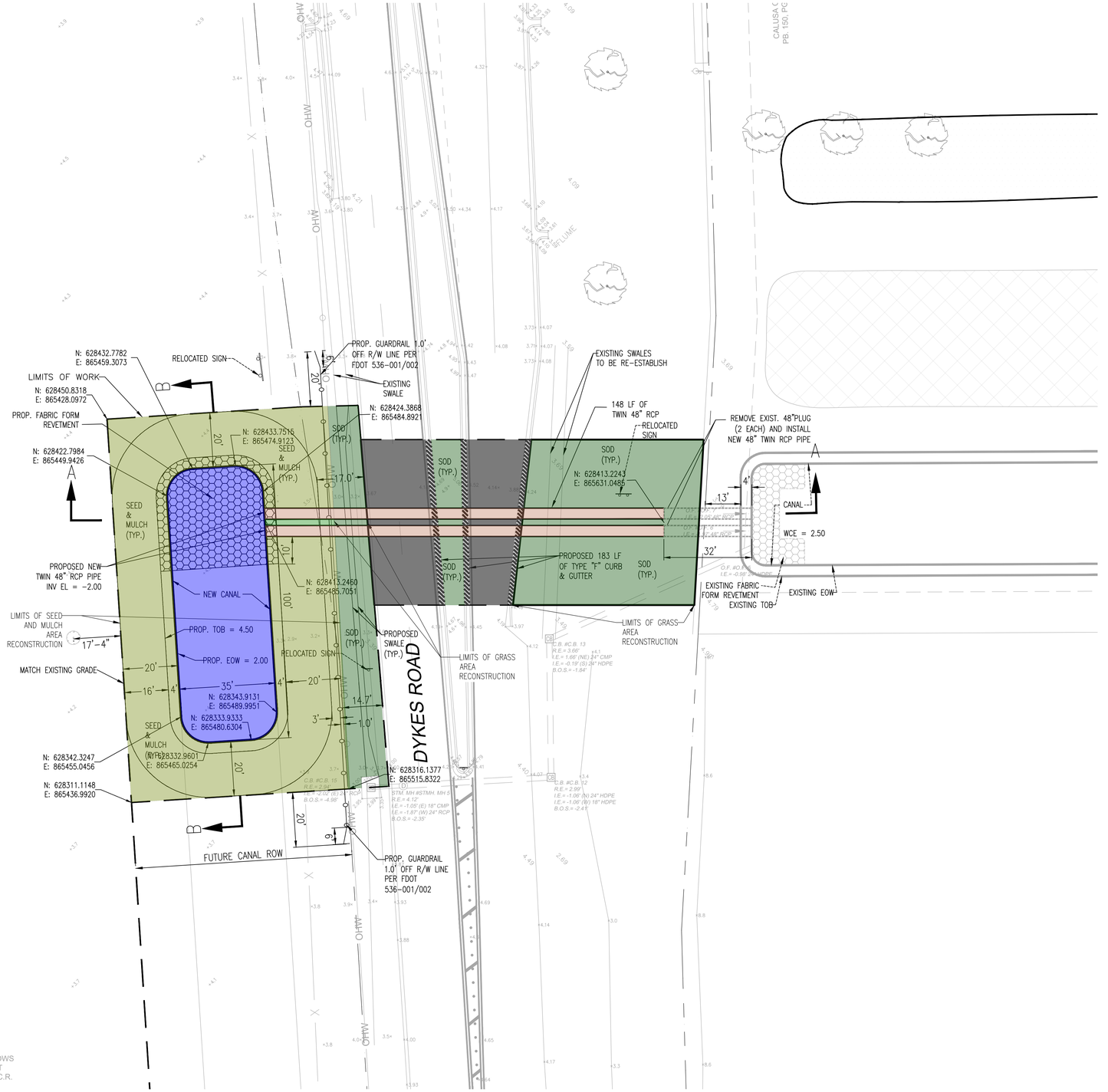

GRAPHIC SCALE

40 0 10 20 40

(IN FEET)
1 inch = 20 ft.

Legend

Symbol	Description
	PROPERTY–R/W LINE
	EASEMENT
	CENTERLINE
	PROPOSED 48" CULVERT PIPE
	PROPOSED FABRIC REVETMENT
	LIMITS OF WORK
MG	MATCH EXISTING GRADES
EL=4.00	PROPOSED GRADE
EOP	EDGE OF PAVEMENT
TOB	TOP OF BANK
EOW	EDGE OF WATER
WCE	WATER CONTROL ELEVATION
	SEED AND MULCH AREA
	GRASS AREA RECONSTRUCTION
	ASPHALT & PAVEMENT MARKING RECONSTRUCTION
	TYPE "F" RECONSTRUCTION

NOTES:
1. ALL ELEVATIONS ARE BASED ON NATIONAL AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. CONVERSION FROM NAVD88 DATUM TO NGVD29 DATUM = NAVD88+1.51
3. CONTRACTOR TO PROVIDE MAINTENANCE OF TRAFFIC
4. THE MOT PLAN SHALL INCLUDE A REQUIREMENT FOR TWO–WAY TRAFFIC TO BE MAINTAINED ON DYKES ROAD AT ALL TIMES, WHICH MAY REQUIRE A TEMPORARY BY–PASS LANE TO BE CONSTRUCTED
5. CONTRACTOR TO PROVIDE DENSITY TESTING (IE: BACKFILL ON THE TWIN 48" CULVERTS, TYPE "F" CURB & GUTTER, AND PAVEMENT RESTORATION).

ADDENDUM 1 DATED 8–2–2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

MASTER CIVIL PLAN

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
814 S. MILITARY TRAIL, DEERFIELD BEACH, FLORIDA 33442
PHONE: (954) 972-3959 FAX: (954) 972-4178

FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
DRAWN BY:	P.K.
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

C-4.0

LICENSE No. 64761 STATE OF FLORIDA
WILLIAM R. BARBARO PROFESSIONAL ENGINEER

WILLIAM R. BARBARO, P.E.
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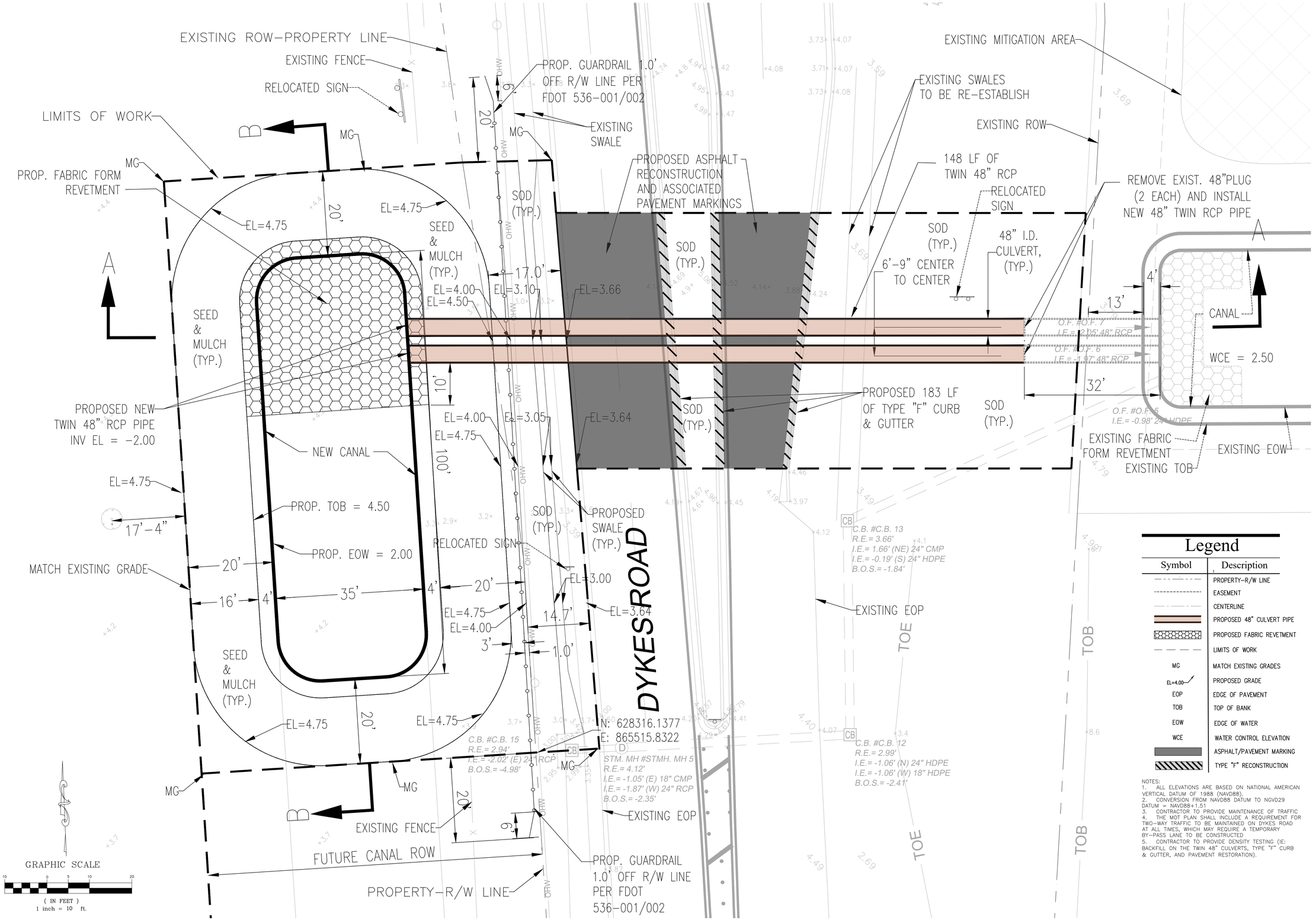

Legend

Symbol	Description
	PROPERTY–R/W LINE
	EASEMENT
	CENTERLINE
	PROPOSED 48" CULVERT PIPE
	PROPOSED FABRIC REVETMENT
	LIMITS OF WORK
MG	MATCH EXISTING GRADES
EL=4.00	PROPOSED GRADE
EOP	EDGE OF PAVEMENT
TOB	TOP OF BANK
EOW	EDGE OF WATER
WCE	WATER CONTROL ELEVATION
	ASPHALT/PAVEMENT MARKING
	TYPE "F" RECONSTRUCTION

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ADDENDUM 1 DATED 8-2-2024

BID SET

NO	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

CIVIL PLANS

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
814 S. MILITARY TRAIL, DEERFIELD BEACH, FLORIDA 33442
PHONE: (954) 972-3959 FAX: (954) 972-4178

FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
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CHECKED BY:	W.B.
DESIGNED BY:	C.D.

C-5.0

WILLIAM R. BARBARO, P.E.
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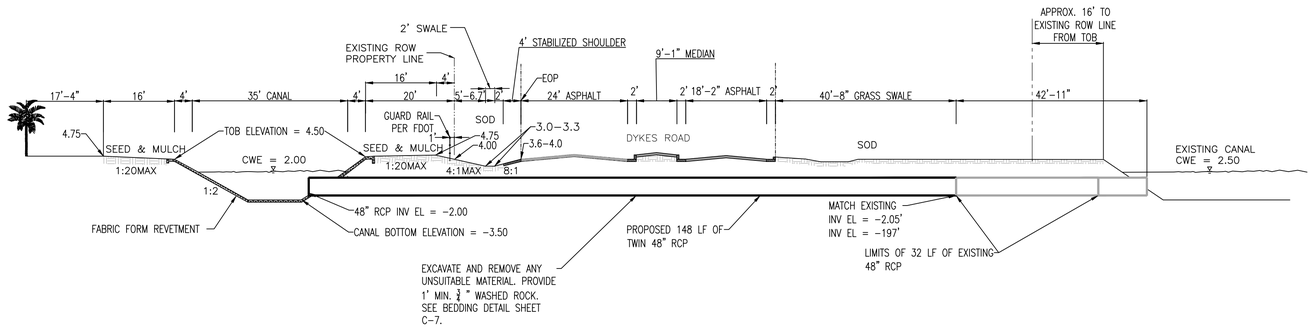
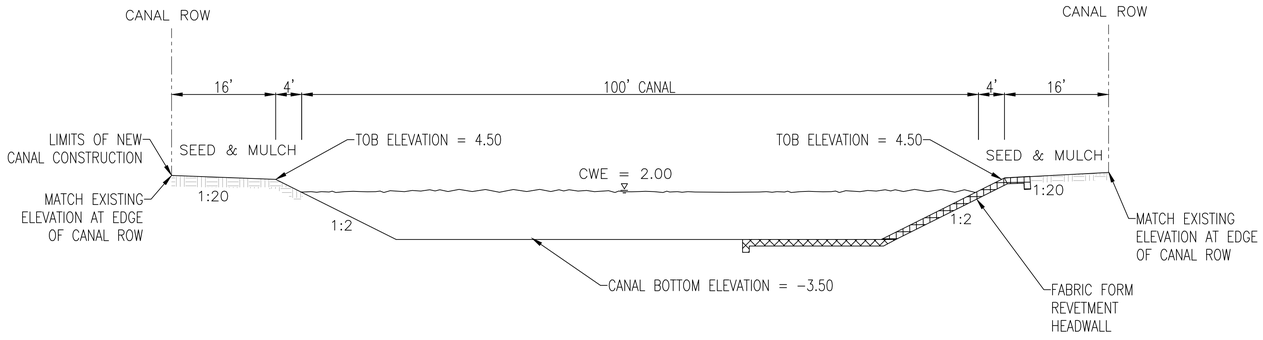
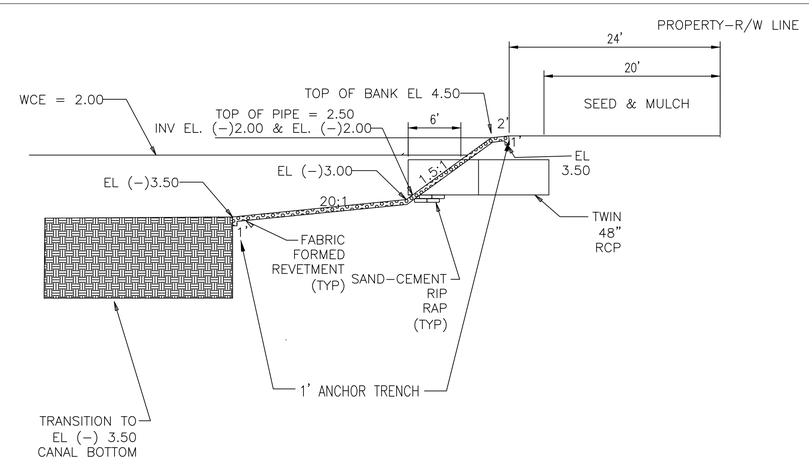


SECTION A-A



SECTION B-B



FABRIC FORM REVETMENT DETAIL

NOTES:

1. See Soils Report prepared by East Coast Testing & Engineering, Inc, dated January 1, 2019 for locations and data on existing subsurface conditions, including the depth and hardness of the underlying soils.
2. There shall be no Change Orders or additional payments under this contract due to the hardness of the underlying rock or the depth to the water table. The Contractor shall perform any site investigations and obtain any additional information as they deem necessary to determine the extent of the work and equipment required to excavate the canal and to install the drainage culverts and structures as indicated in the Contract Documents.
3. See topographic survey prepared by Craven & Thompson, Inc., dated 8/26/2022, for information and data on existing ground elevations.
4. All existing tress within the limits of construction shall be removed by other. The Contractor shall remove all the tree stumps.
5. The existing fence within the limits of construction shall be removed.
6. All elevations shown on this plan are based on the National American Vertical Datum of 1988 (NAVD 88)
7. Contractor shall verify the location, size, material, and depth of all existing underground utility lines prior to beginning the work.
8. Contractor shall exercise extreme caution when working under and around existing overhead electric lines. Contractor shall notify and coordinate with FPL on any safety or other issues regarding overhead power lines.
9. Contractor shall submit a Maintenance of Traffic (MOT) Plan to the Town of Southwest Ranches for approval for any impacts to the flow of traffic on Dykes Road.
10. All excess fill from the canal excavation and drainage installation shall be removed from the site by the Contractor.
11. The limits of the Project area shall be completely restored. The Dykes Road right-of-way shall be Restored with Bahia sod. All other areas shall be restored with seed and mulch. Contractor shall be responsible for watering of the sod until final acceptance of the work.
12. The canal banks shall be seeded and mulched down to the edge of water.
13. The canal maintenance areas shall be seeded and mulched.
14. Contractor shall be responsible to completely restore the limits of construction including, but not limited to, sod, irrigation, seed and mulch, pavement, curbing, fence, and signs.
15. Contractor shall be responsible to obtain a dewatering permit from the South Florida Water Management District (SFWMD) for the any dewatering activities (at the sole cost to the Contractor).
16. Any required density tests or material testing shall be paid for by the Contractor.
17. All required survey layouts and as-built surveys shall be paid for by the Contractor.
18. Contractor shall comply with all requirements of Section 403.0885, Florida Statutes for NPDES, including, but not limited to, filing a Notice of Intent.
19. Both 48" RCP culverts will need to be dive inspected upon completion of construction.
If SBDD performs this dive inspection, there will be a $500 dive inspection fee

ADDENDUM 1 DATED 8-2-2024

BID SET

NO.	DATE	BY	APRV	REVISIONS

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

CROSS SECTIONS

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
814 S. FEDERAL HIGHWAY, SUITE 201, STUART, FLORIDA 33442
PHONE: (954) 972-3959 FAX: (954) 972-4178
FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
DRAWN BY:	P.K.
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

C-6.0

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

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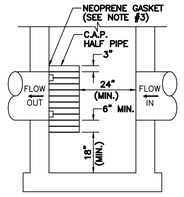
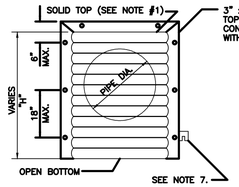
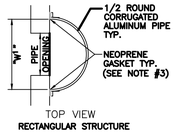


SIDE VIEW



FRONT VIEW



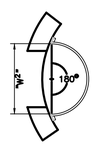
TOP VIEW
RECTANGULAR STRUCTURE

NOTES:

1. ALUMINUM SHEET OF SAME THICKNESS (GAUGE) AS PIPE SHALL BE WELDED TO CLOSE OPENING AT THE TOP.
2. NEOPRENE ADHESIVE BACKED GASKET, OR APPROVED EQUAL (1" x 3") SHALL BE INSTALLED ON THE SIDES AND TOP OF ALL BAFFLES.
3. POLLUTION RETARDANT BAFFLE TO BE FASTENED IN PLACE WITH 3/8"x4" STAINLESS STEEL "RED HEADS", OR APPROVED EQUAL.
4. ALL EXFILTRATION TRENCHES SHALL HAVE A POLLUTION RETARDANT BAFFLE AT EACH CONNECTION POINT TO A STRUCTURE. (SEE EXFILTRATION TRENCH DETAIL). THE BOTTOM OF THE BAFFLE SHALL BE A MIN. OF 12" BELOW C.W.E.
5. FIBERGLASS BAFFLES ARE NOT PERMITTED.
6. MOUNTING BRACKETS MAY BE ADDED TO FLAT BARS TO EASE INSTALLATION IN ROUND STRUCTURES. SPACING TO MATCH HOLES IN FLAT BARS.
7. FOR POLLUTION RETARDANT BASINS THE BOTTOM ELEVATION OF THE BAFFLE MUST BE A MINIMUM OF 2' BELOW THE CONTROL WATER ELEVATION.

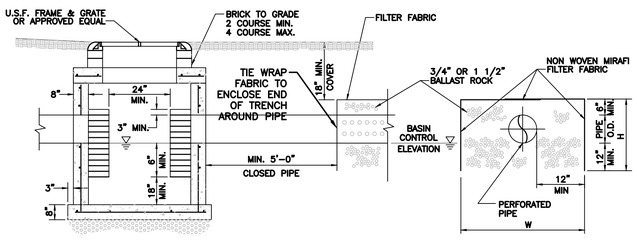
PIPE DIA.	W[1] (IN)	W[2] (IN)	T (GAUGE)	H (IN)
15"	21"	21"	16	VARIES
18"	24"	24"	16	VARIES
21"	30"	30"	16	VARIES
24"	30"	36"	16	VARIES
30"	36"	42"	14	VARIES
36"	42"	48"	14	VARIES
42"	48"	54"	14	VARIES
48"	54"	60"	14	VARIES
54"	60"	66"	14	VARIES

1. RECTANGULAR STRUCTURE
2. ROUND STRUCTURE



TOP VIEW
ROUND STRUCTURE

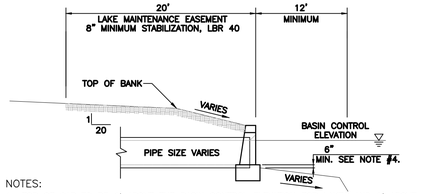
POLLUTION RETARDANT BAFFLE DETAIL



NOTES:

1. SIDES AND TOP OF TRENCH ONLY TO BE LINED WITH FILTER FABRIC. OVERLAP LINER A MINIMUM OF 2' AT THE TOP OF THE TRENCH.
2. BALLAST ROCK SHALL BE FROM FRESH WATER, WASHED AND FREE OF DELETERIOUS MATTER.
3. ALL EXFILTRATION TRENCHES SHALL HAVE A POLLUTION RETARDANT BAFFLE AT EACH CONNECTION POINT TO A STRUCTURE. (SEE POLLUTION RETARDANT BAFFLE DETAIL, EXHIBIT 28)
4. GASKETS SHALL BE USED WITH RCP IN EXFILTRATION TRENCH.

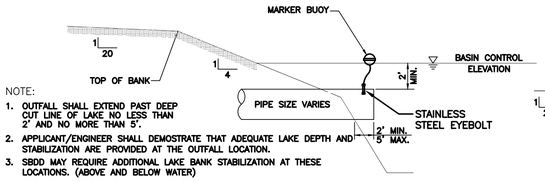
EXFILTRATION TRENCH DETAIL



NOTES:

1. TOP OF CAP TO BE 1' ABOVE THE BASIN CONTROL ELEVATION FOR LAKES AND 2' ABOVE BASIN CONTROL ELEVATION FOR CANALS, UNLESS OTHERWISE APPROVED BY THE DISTRICT.
2. HEADWALLS ARE REQUIRED FOR ALL LAKE AND CANAL INTERCONNECTS.
3. CONCRETE AND RIP-RAP ENDWALLS ARE ACCEPTED PER FDOT INDEX 250-255 AND INDEX 258 WITH EXCEPTIONS AS NOTED IN SECTION 3.7.7 OF THE SBDD DESIGN CRITERIA MANUAL.
4. CHANNEL IN FRONT OF PIPE TO BE MIN 6" BELOW THE INVERT OF THE PIPE AND AT LEAST 1 1/2 TIMES THE DIA. OF THE PIPE TO THE DEEP CUT LINE AND CENTERED ON THE PIPE.
5. FACE OF HEADWALL TO BE LOCATED AT DESIGN EDGE OF WATER.

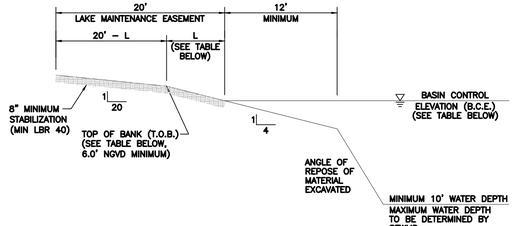
LAKE OUTFALL DETAIL WITH HEADWALL



NOTE:

1. OUTFALL SHALL EXTEND PAST DEEP CUT LINE OF LAKE NO LESS THAN 2' AND NO MORE THAN 5'.
2. APPLICANT/ENGINEER SHALL DEMOSTRATE THAT ADEQUATE LAKE DEPTH AND STABILIZATION ARE PROVIDED AT THE OUTFALL LOCATION.
3. SBDD MAY REQUIRE ADDITIONAL LAKE BANK STABILIZATION AT THESE LOCATIONS. (ABOVE AND BELOW WATER)
4. IF DISSIMILAR PIPE MATERIAL ARE TO BE USED REFER TO EXHIBIT 29.
5. OUTFALL PIPE SHALL HAVE A STAINLESS STEEL EYEBOLT AND MARKER BUOY.

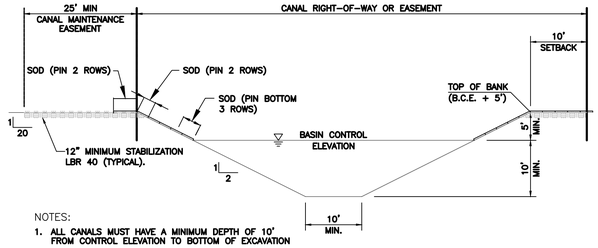
LAKE OUTFALL DETAIL WITHOUT HEADWALL



BASIN No.	B.C.E. (FT-NAVD)	T.O.B. (FT-NAVD)	L (FT)	BASIN No.	B.C.E. (FT-NAVD)	T.O.B. (FT-NAVD)	L (FT)
S-1	0.99	4.99	16.00	S-8	1.99	4.49	10.00
S-2 & S-7	1.19	4.49	13.20		2.49	4.99	10.00
S-3	1.49	4.99	14.00	S-9 & S-10	1.99	4.99	12.00
S-4	1.99	4.49	10.00		2.49	4.99	10.00
S-5	2.49	4.49	8.00	S-12	1.49	4.99	14.00
	2.74	4.99	9.00	S-13	1.49	4.99	14.00
	2.99	4.99	8.00				

* EXISTING LAKE BANKS AND SLOPES SHALL BE CLEARED AND REGRADED AS PER SBDD CRITERIA ALONG THE ENTIRE LIMITS OF ALL DEVELOPMENT AND REDEVELOPMENT PROJECTS.

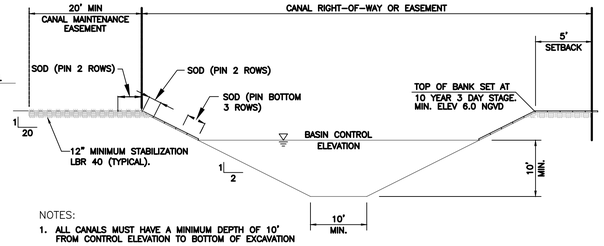
LAKE CROSS SECTION AND LAKE MAINTENANCE EASEMENT



NOTES:

1. ALL CANALS MUST HAVE A MINIMUM DEPTH OF 10' FROM CONTROL ELEVATION TO BOTTOM OF EXCAVATION
2. MINIMUM CANAL BOTTOM IS 10' WIDE
3. ALL PROPERTIES ADJACENT TO THE CANAL MUST SLOPE BANKS, SOD AND PROVIDE AS-BUILTS TO THE ABOVE DESIGN.
4. THERE SHALL BE NO MUCK WITHIN THE CANAL RIGHT OF WAY AND MAINTENANCE EASEMENT.
5. SOD PINS MUST BE WOOD.

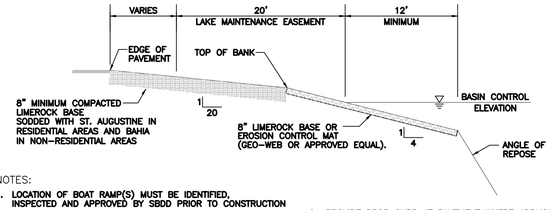
PRIMARY CANAL MINIMUM DESIGN SECTION AND CANAL MAINTENANCE EASEMENT



NOTES:

1. ALL CANALS MUST HAVE A MINIMUM DEPTH OF 10' FROM CONTROL ELEVATION TO BOTTOM OF EXCAVATION
2. MINIMUM CANAL BOTTOM IS 10' WIDE
3. ALL PROPERTIES ADJACENT TO THE CANAL MUST SLOPE BANKS, SOD AND PROVIDE AS-BUILTS TO THE ABOVE DESIGN.
4. THERE SHALL BE NO MUCK WITHIN THE CANAL RIGHT OF WAY AND MAINTENANCE EASEMENT.
5. SOD PINS MUST BE WOOD.

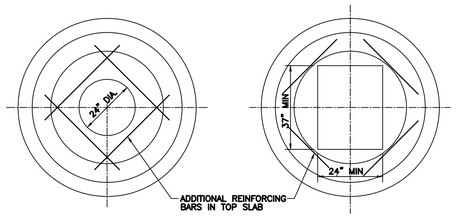
SECONDARY CANAL MINIMUM DESIGN SECTION AND CANAL MAINTENANCE EASEMENT

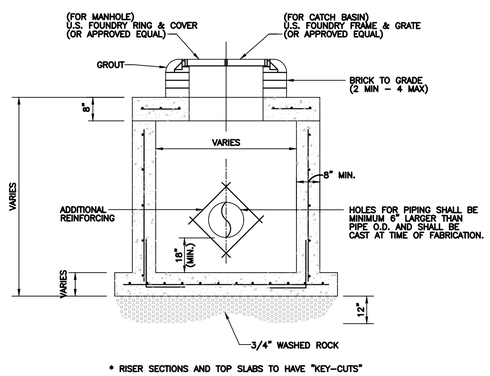


NOTES:

1. LOCATION OF BOAT RAMP(S) MUST BE IDENTIFIED, INSPECTED AND APPROVED BY SBDD PRIOR TO CONSTRUCTION
2. SLOPE DETAILS AS OUTLINED ABOVE MUST BE INSPECTED AND APPROVED BY THE DISTRICT PRIOR TO INSTALLATION OF EROSION CONTROL MAT.
3. UPON COMPLETION OF BOAT RAMP, DISTRICT MUST BE NOTIFIED FOR FINAL APPROVAL.
4. BOAT RAMP MUST INTERSECT ADJACENT ROAD AND WATER BODY AT 90° ANGLE UNLESS OTHERWISE APPROVED.
5. THE BOAT RAMP(S) MUST BE MINIMUM 12' WIDE.
6. PROVIDE DROP CURB AT PAVEMENT WHERE APPLICABLE.
7. FOR BOAT RAMP CONSTRUCTED ON AN SBDD CANAL A SLOPE OF 3:1 CAN BE USED FROM EDGE OF WATER UP TO TOP OF BANK.
8. BOAT RAMPS SHALL BE CONSTRUCTED OF LIMEROCK OR EROSION CONTROL MAT, AT THE DISCRETION OF THE DISTRICT.
9. IF SBDD OPTS FOR AN EROSION CONTROL MAT, THE MAT SHALL BE FILLED WITH AT LEAST 4" OF 3/4" ROCK.

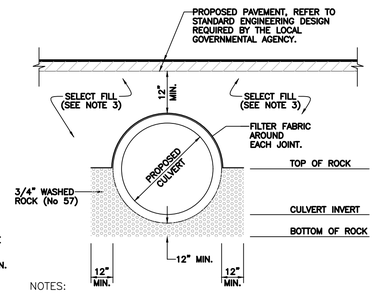
BOAT RAMP DETAIL





* RISER SECTIONS AND TOP SLABS TO HAVE "KEY-CUTS"

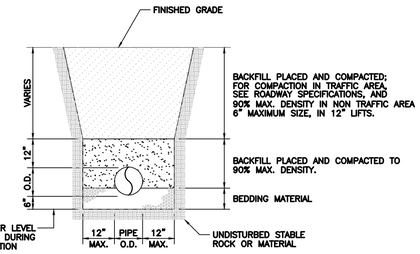
PRECAST CATCH BASIN AND MANHOLE DETAIL



NOTES:

1. WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. BACKFILL IN 6"-12" LAYERS, TO 95% COMPACTION, WITH MATERIALS NOT LARGER THAN 3 1/2".
4. IF A CULVERT IS CORRUGATED ALUMINUM STRUCTURAL PLATE, FILTER FABRIC SHALL BE PLACED THE ENTIRE LENGTH OF THE PIPE.
5. FILTER FABRIC SHALL BE PLACED THE FULL LENGTH OF ANY SECTION OF CULVERT UNDER ASPHALT.

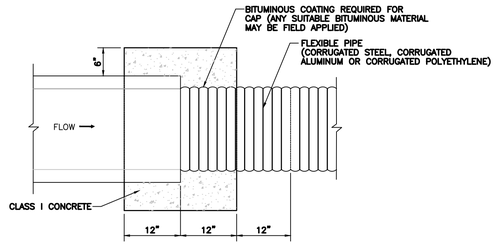
LAKE/CANAL INTERCONNECT BEDDING DETAIL



NOTES:

1. WHERE SOIL CONDITION CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED MEANS OF CONSTRUCTION.
2. WHERE REQUIRED SHEETING AND SHORING SHALL BE IN ACCORDANCE WITH THE LOCAL GOVERNMENTAL AGENCY.
3. MUCK OR OTHER UNSUITABLE MATERIAL SHALL BE COMPLETELY REMOVED.
4. WHEN THE PIPE IS LAID IN THE PREPARED TRENCH, TRUE TO LINE AND GRADE, THE PIPE BARREL SHALL RECEIVE CONTINUOUS UNIFORM SUPPORT. WHERE NECESSARY, COURSE SAND, PEA ROCK OR 3/4" LIMESTONE GRAVEL SHALL BE USED TO PROVIDE UNIFORM BEDDING.
5. JOINTS MAY BE REQUIRED TO BE WRAPPED AT THE DISCRETION OF THE DISTRICT AND THE SITE CONDITIONS.
6. BACKFILL MATERIAL SHALL BE NON-COHESIVE AND NON-PLASTIC SOIL THAT IS FREE OF ALL DEBRIS, LUMPS, WOOD BROKEN PAVING OR ANY ORGANIC OR UNSUITABLE MATERIAL. BACKFILL MATERIAL PLACED WITHIN 12" OF THE PIPE SHALL CONTAIN NO ROCKS OR STONES LARGER THAN 3-1/2" INCHES IN DIAMETER. NO ROCKS OR STONES LARGER THAN 6" IN DIAMETER WILL BE PERMITTED IN THE REMAINING BACKFILL UNLESS OTHERWISE SPECIFIED.
7. TRENCH BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED BY AASHTO T-180. BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE TO THE STANDARD ENGINEERING DESIGN REQUIRED BY THE LOCAL GOVERNMENTAL AGENCY.

TRENCH EXCAVATION DETAIL



NOTES:

1. A CONCRETE JACKET SHALL NOT BE USED TO JOIN:
   a) METAL PIPE OF DISSIMILAR MATERIALS.
   b) FLEXIBLE PIPE WHEN THE MAXIMUM COVER REQUIRED IN ACCORDANCE WITH F.D.O.T. INDEX No. 205 CANNOT BE OBTAINED.
2. OPTIONAL FOR LAKE OR CANAL OUTFALL.
3. WHEN USED FOR LAKE OUFALL, JACKET SHALL BE CENTERED 8' LANDWARD OF THE BASIN CONTROL ELEVATION.

(PER FDOT INDEX 280)

CONCRETE JACKET DETAIL

GENERAL NOTES

THE FOLLOWING GENERAL NOTES ARE REQUIRED BY THE SOUTH BROWARD DRAINAGE DISTRICT (SBDD). THEY ARE NOT MEANT TO BE ALL INCLUSIVE. IT IS THE ENGINEER'S RESPONSIBILITY TO ADD ANY NOTES WHICH WILL INFORM THE OWNER AND THE CONTRACTOR OF ANY ADDITIONAL REQUIREMENTS OF SBDD.

1 THE CONTRACTOR SHALL CONTACT SBDD 48 HOURS OR TWO (2) WORKING DAYS PRIOR TO ANY REQUIRED INSPECTION. TO SCHEDULE INSPECTIONS, PLEASE CALL SBDD AT (954)980-3317. SBDD'S WORKING HOURS ARE FROM 8:00 AM TO 4:30 PM. MONDAY THROUGH FRIDAY EXCEPT HOLIDAYS.

2 ANY REVISIONS TO PLANS PERMITTED BY SBDD MUST BE APPROVED BY THE DISTRICT ENGINEER PRIOR TO CONSTRUCTION.

3 A PRECONSTRUCTION MEETING SHALL BE SCHEDULED AND HELD AT LEAST FIVE (5) DAYS PRIOR TO BEGINNING CONSTRUCTION.

4 A SET OF SHOP DRAWINGS SHALL BE SUBMITTED TO SBDD AFTER APPROVAL BY THE ENGINEER OF RECORD, PRIOR TO BEGINNING CONSTRUCTION

5 DURING CONSTRUCTION, SBDD PERSONNEL WILL INSPECT THE FOLLOWING:
- .. INSTALLATION OF ALL UNDERGROUND DRAINAGE FACILITIES BEFORE BACKFILLING,
- .. BACKFILLING OF DRAINAGE TRENCHES,
- .. SHAPING OF CANAL AND LAKE BANKS FROM THE DEEP CUT TO THE UPLAND EASEMENT LINE OR AS REQUIRED BY SBDD,

AND ANY OTHER DRAINAGE RELATED CONSTRUCTION WORK.
RE-INSPECTIONS, EXTRAORDINARY INSPECTIONS AND FINAL INSPECTIONS WILL BE SUBJECT TO ADDITIONAL FEE CHARGES BY SBDD.

6 THE CONTRACTOR CONSTRUCTING OR EXCAVATING LAKES OR OTHER WATER BODIES SHALL EXCERCISE EXTREME CAUTION TO ENSURE THAT THE SIDE SLOPES AND DEEP CUT LINES ARE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS FOR THE DEVELOPMENT. THE CONTRACTOR OR OWNER SHALL PERIODICALLY, OR AS REQUIRED BY SBDD, OBTAIN A SURVEY, FROM A FLORIDA REGISTERED SURVEYOR OF THE LOCATION OF THE DEEP CUT LINES PRIOR TO FORMING THE SIDE SLOPES. THIS SURVEY SHALL BE PERFORMED PRIOR TO THE OWNER/CONTRACTOR BEGINNING CONSTRUCTION OF ANY BUILDING PADS ADJACENT TO THE WATER BODY. IN THE EVENT THAT THE CONTRACTOR OVER DIGS THE WATER BODY, THE OWNER/CONTRACTOR SHALL SUBMIT TO SBDD ITS SOLUTION TO CORRECT THE OVER DIGGING. ANY SUGGESTED REMEDY OR CORRECTION MUST BE APPROVED BY SBDD BEFORE THE CONTRACTOR BEGINS THE PROPOSED CORRECTION/REMEDY.

7 PAVING AND DRAINAGE "AS-BUILT" PLANS CERTIFIED BY THE ENGINEER OF RECORD AND APPROVED BY THE DISTRICT'S ENGINEER SHALL BE REQUIRED BEFORE THE RELEASE OF THE BOND OR LETTER OF CREDIT. AS-BUILTS SHALL BE PROVIDED AS AN OVERLAY OF THE APPROVED CONSTRUCTION DRAWINGS AND AT THE SAME SCALE AS ORIGINALLY SUBMITTED. AS-BUILT SUBMITTALS SHALL CONFORM TO THE REQUIREMENTS OF SBDD'S CRITERIA MANUAL. AS-BUILTS MUST ALSO BE PROVIDED IN ELECTRONIC FORMAT.

8 AS-BUILT DRAWINGS OF WATER BODIES SHALL INCLUDE THE DATA REQUIRED UNDER EXHIBIT 39 OF SBDD'S CRITERIA MANUAL. THE AS-BUILT CROSS SECTIONS SHALL BE PROVIDED AT NOT MORE THAN 100 FOOT INTERVALS AND AT ALL OUTFALL PIPES CONSTRUCTED WITHOUT HEADWALLS.

9 SBDD WILL NOT COMPLETE THE FINAL INSPECTION UNTIL RECEIPT OF THE AS-BUILT PACKAGE WHICH MUST INCLUDE THE ENGINEER'S CERTIFICATION AND TEST RESULTS FOR STABILIZATION OF LAKE/CANAL MAINTENANCE EASEMENTS, ARE RECEIVED.

ADDENDUM 1 DATED 8-2-2024

BID SET

TWIN 48" CULVERT PROJECT AT DYKES ROAD
TOWN OF SOUTHWEST RANCHES, FL 33332

STANDARD DETAILS

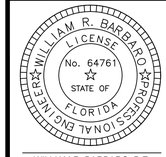
NO	DATE	BY	APRV	REVISIONS

CARNAHAN PROCTOR & CROSS
CIVIL ENGINEERING | CONSTRUCTION SERVICES | GEOMATICS
814 S. MILITARY TRAIL, DEERFIELD BEACH, FLORIDA 33442
PHONE: (954) 972-3959 FAX: (954) 972-4178

FILE NO. 230303

SCALE:	AS SHOWN
DATE:	8/5/2024
DRAWN BY:	P.K.
CHECKED BY:	W.B.
DESIGNED BY:	C.D.

C-7.0



WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

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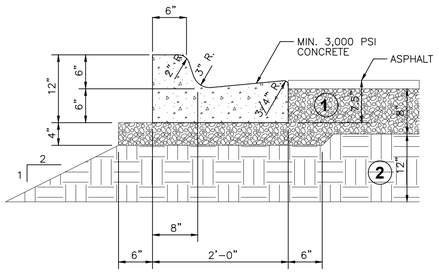


NOTE:

WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT AND THE THICKNESS OF THE LIP SHALL BE 6".

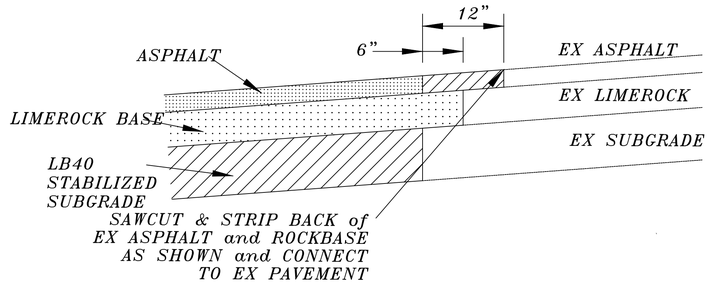
GENERAL NOTES:

1. LIMEROCK BASE SHALL BE COMPACTED TO NOT LESS THAN 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T–180 WITH MINIMUM LBR 100 AND MAXIMUM OF 6" LIFTS.
2. SUB GRADE SHALL BE COMPACTED TO NOT LESS THAN 98% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T–180 WITH MINIMUM LBR 40 AND A MAXIMUM OF 6" LIFTS.

ADDITIONAL CURBING NOTES:

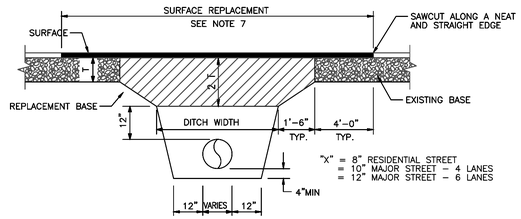
1. DENSITY TESTS SHALL BE REQUIRED AT A MINIMUM OF ONE PER 5,000 SQUARE FEET, AND PERFORMED BY AN APPROVED INDEPENDENT LABORATORY AT THE CONTRACTOR'S EXPENSE.
2. CURB SHALL BE POURED MONOLITHICALLY AND CONSTRUCTED IN ACCORDANCE WITH THIS DETAIL.
3. CONTROL JOINTS SHALL BE TOOLED OR CUT EVERY TEN (10) FEET.
4. ALL AREAS BEHIND CURBS SHALL BE BACKFILLED WITHIN 72 HOURS OF PLACEMENT.

TYPE 'F' CURB AND GUTTER



CONNECTION TO EX PVMT DETAIL

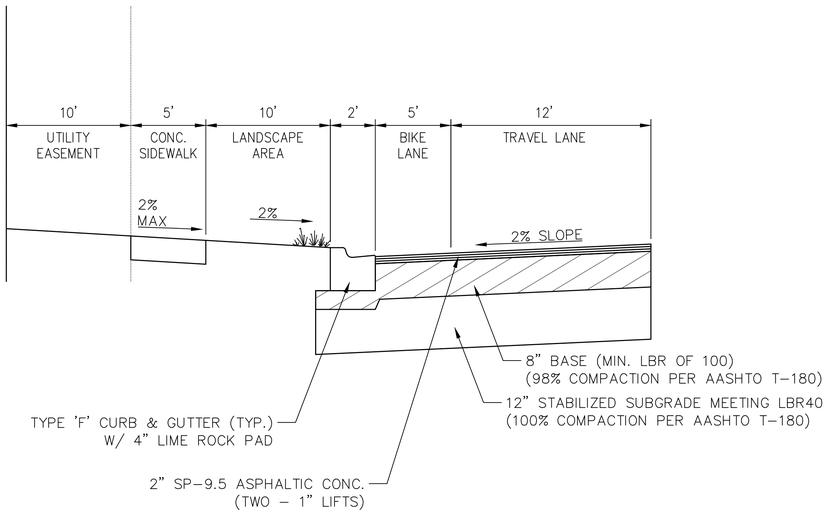
N.T.S.



GENERAL NOTES :

1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE. BUT NOT LESS THAN "X" SCHEDULE.
2. BASE MATERIAL SHALL BE PLACED IN 6 INCH MAXIMUM LAYERS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 98% OF MAXIMUM DENSITY, PER AASHTO T–180. BASE MATERIAL SHALL HAVE A MINIMUM LBR OF 100.
3. ASPHALTIC CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE TREATED PAVEMENT JOINTS SHALL BE LAPPED AND FEATHERED.
5. SURFACE MATERIAL WILL BE CONSISTENT WITH THE EXISTING SURFACE.
6. IF THE DITCH IS FILLED TEMPORARILY, IT SHALL BE COVERED WITH A 2 INCH ASPHALTIC CONCRETE PATCH TO KEEP THE FILL MATERIAL FROM RAVELING UNTIL PLACED WITH A PERMANENT PATCH.
7. MINIMUM WIDTH OF PAVEMENT RESTORATION SHALL BE ONE LANE WIDTH.

PAVEMENT RESTORATION



ROAD SECTION DETAIL

ADDENDUM 1 DATED 8–2–2024

BID SET

NO	DATE	BY	APRV	REVISIONS

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DESIGNED BY:	C.D.

C-8.0

WILLIAM R. BARBARO LICENSE No. 64761 STATE OF FLORIDA PROFESSIONAL ENGINEER

WILLIAM R. BARBARO, P.E.
FL. REGISTRATION NO. - 64761

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