CONSTRUCTION PLANS FOR LAKE PEARL

PARCEL ID:
013366-0000
HILLSBOROUGH COUNTY, FLORIDA

PREPARED FOR

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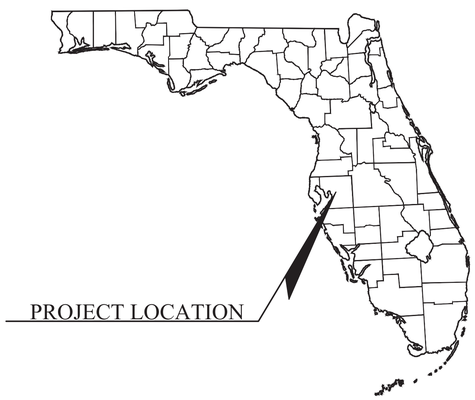

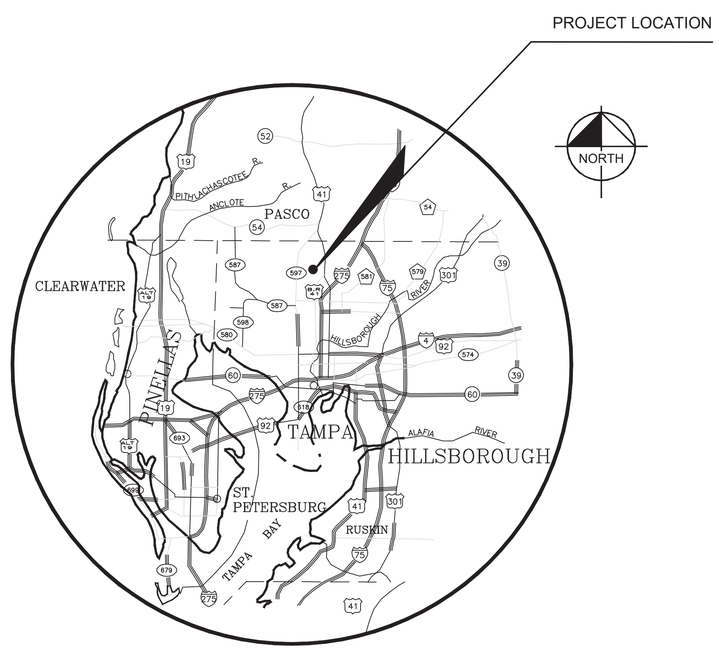

VICINITY MAP

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CALL 48 HOURS BEFORE YOU DIG

IT'S THE LAW! DIAL 811

811 Know what's below. Call before you dig.

SUNSHINE STATE ONE CALL OF FLORIDA, INC.

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COVER SHEET

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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GENERAL CONSTRUCTION NOTES

1. UNLESS OTHERWISE NOTED HEREIN, THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH THE FOLLOWING DOCUMENTS:
   A. HILLSBOROUGH COUNTY LAND DEVELOPMENT CODE (JAN 31, 2012)
   B. CURRENT WATER AND WASTEWATER STANDARDS OF HILLSBOROUGH COUNTY. THE WATER AND WASTEWATER SYSTEMS SHALL BE DEDICATED TO HILLSBOROUGH COUNTY FOR OWNERSHIP AND MAINTENANCE.
   C. THE STORMWATER DRAINAGE COLLECTION SYSTEM AND PROPOSED ROADWAY SHALL MEET HILLSBOROUGH COUNTY CURRENT SPECIFICATION FOR DESIGN. THE ABOVE NOTED DOCUMENTS SHALL BE THE TECHNICAL SPECIFICATIONS FOR THE CONSTRUCTION OF THIS PROJECT AND THE CONTRACTOR SHALL OBTAIN AND FULLY FAMILIARIZE HIMSELF WITH THE CONTENTS OF SAID SPECIFICATIONS. IN THE EVENT THAT A DISCREPANCY OCCURS BETWEEN THESE PLANS AND THE AFOREMENTIONED SPECIFICATIONS, THE SPECIFICATIONS SHALL TAKE PRECEDENCE, UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN WRITING. THE CONTRACTOR SHALL HAVE A SET OF THESE PLANS MARKED "APPROVED FOR CONSTRUCTION" ALONG WITH A COPY OF ALL THE DOCUMENTS NOTED ABOVE ON THE PROJECT SITE AT ALL
2. ALL SUBSURFACE CONSTRUCTION SHALL COMPLY WITH THE "TRENCH SAFETY ACT". IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSURE THAT ALL CONSTRUCTION IS IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.
3. PRIOR TO CONSTRUCTION COMMENCEMENT, THE CONTRACTOR SHALL OBTAIN FROM THE ENGINEER AND/OR THE DEVELOPER COPIES OF ALL PERTINENT PERMITS AND APPROVALS RELATED TO THIS PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY POST ALL PERMITS ON-SITE AND TO ASSURE ALL CONSTRUCTION ACTIVITIES ARE IN COMPLIANCE WITH THE CONDITIONS OF ALL PERMITS AND APPROVALS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES WHETHER OR NOT THEY ARE INDICATED ON THESE PLANS AND SHALL NOTIFY ALL UTILITY OWNERS A MINIMUM OF 48 HOURS IN ADVANCE OF CONSTRUCTION COMMENCEMENT. THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH ALL UTILITY COMPANIES AND GOVERNING AGENCIES NECESSARY FOR CONSTRUCTION OF THE PROJECT, INCLUDING BUT NOT LIMITED TO HILLSBOROUGH COUNTY UTILITIES, TECO, WREC, BRIGHTHOUSE NETWORKS. CALL SUNSHINE ONE (1-800-432-4770) PRIOR TO ANY EXCAVATION.
5. THE CONTRACTOR SHALL ASSURE AND BE RESPONSIBLE FOR THE PROPER PLACEMENT AND MAINTENANCE OF ALL TRAFFIC CONTROL DEVICES REQUIRED FOR THE CONSTRUCTION OF THIS PROJECT.
6. THE CONTRACTOR SHALL ASSURE AND BE RESPONSIBLE FOR THE PROPER PLACEMENT OF TREE BARRICADES PRIOR TO COMMENCING CONSTRUCTION AND SHALL MAINTAIN THE TREE BARRICADES THROUGH-OUT THE DURATION OF CONSTRUCTION. TREE BARRICADES SHALL BE PLACED IN ACCORDANCE WITH HILLSBOROUGH COUNTY REQUIREMENTS AND THE SITE SPECIFIC PERMIT ISSUED BY THE COUNTY.
7. DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE DRIPLINE OF TREES TO REMAIN ON THE SITE UNLESS OTHERWISE APPROVED BY HILLSBOROUGH COUNTY.
8. AREAS DISTURBED BY THE CONTRACTOR OUTSIDE OF THE CONSTRUCTION SITE SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION; THIS INCLUDES LANDS OWNED BY THE DEVELOPER.
9. THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO GUARD AGAINST FUGITIVE DUST DURING CONSTRUCTION.
10. ALL PRACTICAL AND NECESSARY EFFORTS SHALL BE TAKEN DURING CONSTRUCTION TO CONTROL AND PREVENT EROSION AND TRANSPORT OF SEDIMENT TO SURFACE DRAINS, SURFACE WATERS OR ONTO ADJACENT PROPERTIES. THESE EFFORTS SHALL INCLUDE THE PLACEMENT AND MAINTENANCE OF SILT SCREENS AS INDICATED ON THESE PLANS AND/OR AS REQUIRED BY CONSTRUCTION PERMITS AND APPROVALS. RE-VEGETATION AND STABILIZATION OF DISTURBED GROUND SURFACES SHALL BE ACCOMPLISHED AS RAPIDLY AS POSSIBLE TO PREVENT EROSION FROM OCCURRING AND TO REDUCE SEDIMENTATION IN RUN-OFF.
11. THE CONTRACTOR SHALL NOT UNDERTAKE ANY WORK HE FEELS WILL CONSTITUTE A CHANGE ORDER WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER AND THE DEVELOPER.
12. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, FOR HIS REVIEW, ALL SHOP DRAWINGS A MINIMUM OF SEVEN (7) WORKING DAYS IN ADVANCE OF THE CONTRACTOR'S NEED FOR SAME.
13. ALL EXISTING WELLS TO BE ABANDONED SHALL BE PROPERLY ABANDONED BY A LICENSED WATER WELL CONTRACTOR IN ACCORDANCE WITH SWFWMD RULES 40D-3 AND 17-21.10(4) F.A.C.
14. PRIOR TO BIDDING, CONTRACTOR SHALL VERIFY THE TOPOGRAPHICAL INFORMATION AS SHOWN ON THE CONSTRUCTION DRAWINGS AND ACCEPT THE SITE (ACCURATE TO 0.5 FEET OF THE CONTOUR INTERVAL AND 0.2 FEET OVERALL) AS REPRESENTED. COMMENCEMENT OF SITE IMPROVEMENTS SHALL BE INTERPRETED AS ACCEPTANCE BY CONTRACTOR OF ALL REPRESENTATIONS IN CONTRACT DOCUMENTS.
15. CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING OPERATIONS IN ACCORDANCE WITH STANDARD CONSTRUCTION PROCEDURES AS REQUIRED TO CONSTRUCT ALL FACILITIES SHOWN ON THE CONSTRUCTION DRAWINGS.
16. ALL UNSUITABLE MATERIAL SHALL BE REMOVED BY CONTRACTOR FROM STRUCTURAL AREAS AND PLACED ON SITE IN NON STRUCTURAL AREAS OR AS SPECIFIED BY THE DEVELOPER. ALL EXCESS FILL MATERIAL EXCAVATED FROM THE SITE SHALL BE STOCKPILED ON SITE AS DIRECTED BY THE DEVELOPER AND SHALL REMAIN THE PROPERTY OF THE DEVELOPER.
17. THE DEVELOPER SHALL PROVIDE 2 BENCH MARKS AND A COORDINATE CONTROL SHEET FROM THE ENGINEER FOR THE CONTRACTOR'S USE. ALL FIELD SURVEY LAYOUT FOR THE FACILITIES SHOWN ON THE CONSTRUCTION DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN A SET OF FIELD "AS BUILTS" FOR ALL IMPROVEMENTS NOTING ANY FIELD ADJUSTMENTS. THE "AS BUILT" SHALL ALSO INCLUDE LOT, POND AND MITIGATION AREA GRADING. PRIOR TO FINAL PAYMENT, THE CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT A CERTIFIED SET OF "AS BUILTS" TO THE ENGINEER. EACH SHEET OF THE PLANS SHALL BE SIGNED, SEALED AND DATED BY A PROFESSIONAL LAND SURVEYOR LICENSED TO PERFORM LAND SURVEYING SERVICES IN THE STATE OF FLORIDA. THE ENGINEER SHALL REVIEW THE "AS BUILTS" AND CONVERT THEM INTO RECORD DRAWINGS.
18. CONTRACTOR TO CONSTRUCT ALL BUILDING PADS IN A LINEAR GRADING FASHION AS SHOWN ON THE CONSTRUCTION DRAWINGS. ALL BUILDING PADS SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR VALUE (ASTM D-1557). AS PART OF THE AS BUILTS REQUIREMENTS UNDER #18 (ABOVE), THE CONTRACTOR SHALL ALSO AS BUILT THE BUILDING PADS AS SHOWN ON THE CONSTRUCTION DRAWINGS.
19. CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS FOR BURNING ON SITE.
20. DEVELOPER SHALL PROVIDE SOILS AND MATERIALS TESTING SERVICES FROM A LICENSED GEOTECHNICAL ENGINEER AT HIS OWN EXPENSE. CONTRACTOR SHALL COOPERATE WITH THE OWNER'S GEOTECHNICAL ENGINEER AND SHALL NOTIFY THE GEOTECHNICAL ENGINEER AT LEAST 24 HOURS PRIOR TO ANY TESTING REQUIRED BY THE DEVELOPER, GOVERNMENTAL AGENCY OR AS RECOMMENDED BY GEOTECHNICAL ENGINEER. IF A FAILURE IN ANY OF THE CONTRACTOR'S ACTIVITIES RELATED TO SOILS OR MATERIALS TESTING OCCURS, THE CONTRACTOR SHALL IMMEDIATELY REMEDY THE FAILURE AT HIS EXPENSE AND RE-SCHEDULE THE RE-TESTING AS NECESSARY. ALL RE-TESTING FEES FROM THE GEOTECHNICAL ENGINEER RESULTING FROM THE AFORESAID FAILURES SHALL BE AT THE CONTRACTOR'S EXPENSE.
21. WORK PERFORMED BY THE CONTRACTOR SHALL INTERFACE SMOOTHLY WITH OTHER WORK BEING PERFORMED ON SITE OR ADJACENT TO THE SITE BY OTHER CONTRACTORS AND UTILITY COMPANIES. IT WILL BE NECESSARY FOR THE CONTRACTOR TO COORDINATE AND SCHEDULE HIS ACTIVITIES, WHERE NECESSARY, WITH OTHER CONTRACTORS AND UTILITY COMPANIES, INCLUDING BUT NOT LIMITED TO TECO, WREC & VERIZON.
22. OVERALL CLEAN-UP SHALL BE ACCOMPLISHED BY THE CONTRACTOR IN ACCORDANCE WITH HILLSBOROUGH COUNTY STANDARDS OR AS DIRECTED BY THE ENGINEER AND OWNER.
23. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ACCESS TO PRIVATE PROPERTY. ANY DAMAGE CAUSED BY THE CONTRACTOR IN THE PERFORMANCE OF HIS WORK SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND THE OWNER AT THE CONTRACTOR'S EXPENSE.
24. ANY DAMAGE TO STATE, COUNTY, OR LOCAL ROADS CAUSED BY THE CONTRACTOR'S HAULING OR EXCAVATION EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, THE OWNER, AND THE APPLICABLE GOVERNMENTAL AGENCY.
25. ANY U.S.C. & G.S. MONUMENT WITHIN LIMITS OF CONSTRUCTION IS TO BE PROTECTED BY THE CONTRACTOR.
26. GATED ENTRIES REQUIRE SIREN OPENING SYSTEM, (SOS), OR 3M OPTICOM SYSTEM FOR EMERGENCY ACCESS.
27. PROVIDENCE RESERVE HOA WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM.

CONSTRUCTION SEQUENCE & MAINTENANCE SCHEDULE OF EROSION CONTROL

1. SEE BMP PLAN FOR SILT SCREEN BARRIER DETAILS & NOTES.
2. ALL EROSION CONTROL DEVICES AS INDICATED ON THESE PLANS SHALL BE INSTALLED PRIOR TO THE START OF ANY CONSTRUCTION.
3. DAILY INSPECTION OF THE EROSION CONTROL WILL BE REQUIRED BY THE CONTRACTOR. ANY DISTURBANCE OF THESE DEVICES SHALL BE REPAIRED IMMEDIATELY.
4. SILTATION ACCUMULATIONS GREATER THAN THE LESSER OF 12 INCHES OR ONE HALF THE DEPTH OF THE SILTATION CONTROL BARRIER SHALL BE IMMEDIATELY REMOVED AND PLACED IN UPLAND AREAS.
5. JURISDICTIONAL LINES SHALL BE MARKED IN THE FIELD FOR IDENTIFICATION AND LIMITS OF CONSTRUCTION.
6. MAINTENANCE OF ALL EROSION CONTROL DEVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR THE LIFE OF THE PROJECT OR UNTIL APPROVED FOR REMOVAL BY THE ENGINEER.
7. SEE NOTE 9 &10 OF THE GENERAL NOTES THIS DWG.

EROSION PROTECTION

THE CONTRACTOR IS RESPONSIBLE FOR SITE CONDITIONS FROM THE DATE OF NOTICE TO PROCEED, UNTIL THE PROJECT IS ACCEPTED BY THE OWNER, ENGINEER AND HILLSBOROUGH COUNTY. ACCORDINGLY, THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO CONTROL FUGITIVE DUST AND EROSION. PROTECTION FROM EROSION INTO EXISTING WETLANDS, DRAINAGE WAYS, CONSERVATION AREAS, NATURAL AREAS AND OFFSITE AREAS, AS WELL AS NEWLY CONSTRUCTED ROADWAYS, STORMWATER FACILITIES AND MITIGATION AREAS, IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL MANAGE HIS WORK SO AS TO PREVENT EROSION. THIS MAY REQUIRE ADDITIONAL MEASURES FROM THOSE SHOWN ON THE CONSTRUCTION PLANS, SUCH AS WINDROWS, DIVERSION SWALES, SEED & MULCH, STAKED HAY BALES, OR OTHER EROSION CONTROL MEASURES NECESSARY TO REACT TO VARYING SITE CONDITIONS OR INCLEMENT WEATHER. IF EROSION OCCURS, THE CONTRACTOR SHALL IMMEDIATELY REMEDY THE DAMAGE CAUSED BY SUCH EROSION BY CONTROLLED REMOVAL OF SEDIMENTS, REPLANTING IF NECESSARY AND RE-ESTABLISHMENT OF EROSION PROTECTION DEVICES, AT THE CONTRACTOR'S SOLE EXPENSE.

HISTORICAL PRESERVATION NOTE

IF DURING CONSTRUCTION ACTIVITIES, ANY EVIDENCE OF HISTORIC RESOURCES, INCLUDING BUT NOT LIMITED TO ABORIGINAL OR HISTORIC POTTERY, PREHISTORIC STONE TOOLS, BONE OR SHELL TOOLS, HISTORIC TRASH PITS, OR HISTORIC POTTERY, FOUNDATION, ARE DISCOVERED, WORK SHALL COME TO AN IMMEDIATE STOP AND THE FLORIDA DEPARTMENT OF HISTORIC RESOURCES (STATE HISTORIC PRESERVATION OFFICER) AND HILLSBOROUGH COUNTY SHALL BE NOTIFIED WITHIN TWO WORKING DAYS OF THE RESOURCES FOUND ON THE SITE.

PROTECTED PLANT/ANIMAL NOTE

IF DURING CONSTRUCTION ACTIVITIES, ANY EVIDENCE OF THE PRESENCE OF STATE AND/OR FEDERALLY PROTECTED PLANT AND/OR ANIMAL SPECIES ARE DISCOVERED, WORK SHALL COME TO AN IMMEDIATE STOP AND HILLSBOROUGH COUNTY SHALL BE NOTIFIED WITHIN TWO WORKING DAYS OF THE PLANT AND/OR ANIMAL SPECIES FOUND ON THE SITE.

STORMWATER MANAGEMENT SYSTEM MAINTENANCE

OPERATION/MAINTENANCE SCHEDULE

THE DEVELOPER OR HIS ASSIGNS SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE DETENTION AREA AND SUBSURFACE DRAINAGE SYSTEM. THIS WILL REQUIRE INSPECTION, ON AT LEAST AN ANNUAL BASES, OF THE ON-SITE DRAINAGE SYSTEM, INCLUDING BUT NOT LIMITED TO, INLETS, STORM MANHOLES, DETENTION AREAS, AND CONTROL STRUCTURES, MAKING SURE THAT THE SYSTEM IS FREE FROM EXCESS SILT, DEBRIS AND SEDIMENTATION BUILD-UP. THIS MAY REQUIRE PERIODIC FLUSHING OF THE SUBSURFACE DRAINAGE SYSTEM, CUTTING AND REMOVAL OF VEGETATION FROM AND AROUND STRUCTURES, AND REMOVAL OF ACCUMULATED SEDIMENTS FROM THE BOTTOM OF THE DETENTION AREAS AND STRUCTURES AS NEEDED TO MAINTAIN THE VIABILITY OF THE ORIGINAL DESIGN INTENT. THE DESIGNATED LITTORAL ZONE SHALL BE MAINTAINED AS A FUNCTIONAL BIOLOGICAL FILTRATION AREA (I.E. VEGETATED ZONE) AND SHALL NOT BE LESS THAN 35% OF THE POND SURFACE.

GENERAL MAINTENANCE

1. ALL STORM WATER PIPES, INLETS, CATCH BASINS, MANHOLES, FLUMES, POND INFLOW AND OUTFALL STRUCTURES (INCLUDING OIL SKIMMERS), AND DISCHARGE PIPES SHOULD BE INSPECTED ON A REGULAR BASIS (MONTHLY OR QUARTERLY) AND AFTER MAJOR RAINFALLS. THEY SHOULD BE MAINTAINED BY REMOVING BUILT-UP DEBRIS AND VEGETATION AND REPAIRING DETERIORATING STRUCTURES.
2. CHEMICALS, OILS, GREASES, OR SIMILAR WASTES ARE NOT TO BE DISPOSED OF DIRECTLY TO THE STORMWATER FACILITY OR THROUGH STORM SEWERS. TREATMENT PONDS ARE DESIGNED TO TREAT NORMAL ROAD, PARKING LOT, ROOF AND YARD RUNOFF ONLY. SOME CHEMICALS MAY INTERFERE WITH A TREATMENT POND'S FUNCTIONS OR KILL VEGETATION AND WILDLIFE. DISPOSE OF THESE POTENTIALLY DANGEROUS MATERIALS PROPERLY BY TAKING THEM TO RECYCLING FACILITIES OR TO LOCAL "AMNESTY DAYS" SPONSORED BY MANY LOCAL GOVERNMENTS. ALSO, DO NOT DISPOSE OF GRASS CLIPPINGS IN SWMS. GRASS CLIPPINGS POSE PROBLEMS BY SMOTHERING DESIRABLE VEGETATION, CLOGGING OUTFALL STRUCTURES, AND WHEN THEY DECOMPOSE, MAY CAUSE UNSIGHTLY ALGAE BLOOMS THAT CAN KILL FISH.
3. ACCUMULATED POND SEDIMENTS MAY CONTAIN HEAVY METALS SUCH AS LEAD, CADMIUM AND MERCURY, AS WELL AS OTHER POTENTIALLY HAZARDOUS MATERIALS. THEREFORE, SEDIMENTS REMOVED FROM STORM SEWERS, INLETS, PIPES AND PONDS SHOULD BE DISPOSED OF AT AN APPROVED FACILITY (CHECK WITH THE COUNTY SOLID WASTE DEPARTMENT OR THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR DISPOSAL FACILITIES APPROVED TO ACCEPT TREATMENT POND SEDIMENT).
4. DURING ANY REPAIR OR MAINTENANCE ACTIVITY USE CARE TO AVOID CAUSING EROSION OR SILTATION TO ADJACENT OR OFF-SITE AREAS.
5. REMEMBER, ALTERATIONS (FILLING, ENLARGING, ETC.) OF ANY PART OF THE STORMWATER FACILITY IS NOT PERMITTED WITHOUT PRIOR APPROVAL FROM ALL APPLICABLE GOVERNING AGENCIES.
6. THE APPROVED OPERATION AND MAINTENANCE PERMIT AND AS-BUILT DRAWINGS ARE AVAILABLE AT YOUR LOCAL DISTRICT SERVICE OFFICE. REFER TO THOSE PLANS AND PERMITS FOR ADDITIONAL RESTRICTIONS, INSTRUCTIONS AND CONDITIONS.
7. IT IS USUALLY MORE COST EFFECTIVE TO MONITOR AND PERFORM ROUTINE MAINTENANCE ON A SWMS, RATHER THAN LET IT FAIL AND HAVE TO RECONSTRUCT THE ENTIRE SYSTEM.
8. MOSQUITO GROWTH CAN BE MINIMIZED IN A SWMS BY THE FOLLOWING MEASURES:
   A. DO NOT DUMP GRASS CLIPPINGS OR OTHER ORGANIC DEBRIS INTO SWMS - DECAYING GRASS CLIPPINGS AND OTHER DECOMPOSING VEGETATION CREATE IDEAL CONDITIONS FOR BREEDING MOSQUITOS.
   B. CLEAN OUT ANY OBSTRUCTIONS WHICH GET INTO THE SYSTEM. DEBRIS CAN OBSTRUCT FLOW AND HARBOR MOSQUITO EGGS AND LARVAE.
   C. REMOVE WATER LETTUCE AND WATER HYACINTH, WHICH NOURISH AND SHELTER MOSQUITO LARVAE.
   D. STOCK PONDS WITH PREDATORY "MOSQUITOFISH"- GAMBUSIA MINNOWS

WET DETENTION POND MAINTENANCE

1. ALL SODDED SIDE SLOPES AND BERMS SHOULD BE MAINTAINED BY THE PROCEDURE OUTLINED FOR DITCHES AND SWALES. INFLOW STRUCTURES SHOULD BE MAINTAINED BY THE PROCEDURES OUTLINED UNDER "GENERAL MAINTENANCE".
2. MAINTAIN, RATHER THAN REMOVE, WETLAND VEGETATION THAT BECOMES ESTABLISHED IN THE LITTORAL ZONE. DO NOT CUT, MOW, USE HERBICIDE OR GRASS CARP TO REMOVE ANY OF THE VEGETATION IN THE LITTORAL ZONE WITHOUT PRIOR APPROVAL FROM THE DISTRICT. REFER TO THE CONDITIONS OF THE PERMIT AND CONSTRUCTION NOTES OF ANY FURTHER INSTRUCTIONS.
3. WHEN WET DETENTION POND LITTORAL ZONES ARE INTENTIONALLY PLANTED FOR AESTHETIC PURPOSES OR TO OFFSET WETLANDS IMPACTS, REMOVAL OF WEEDY OR EXOTIC VEGETATION MAY BE REQUIRED AND ACCOMPANIED BY REPLANTING OF DESIRABLE VEGETATION. CHECK WITH THE LOCAL DISTRICT SERVICE OFFICE TO DETERMINE SPECIFIC REQUIREMENTS.
4. ON A MONTHLY OR QUARTERLY BASIS AND AFTER SEVERE RAINFALL EVENTS, CHECK THE AREA IN FRONT OF THE OUTFALL CONTROL STRUCTURE FOR BUILT-UP SEDIMENTS AND VEGETATION THAT IMPAIR THE OPERATION OF THE STRUCTURE. REMOVE SEDIMENT AND VEGETATION TO AN APPROVED DISPOSAL SITE.
5. WHEN LITTORAL ZONE VEGETATION AND SEDIMENT ACCUMULATE TO SUCH AN EXTENT THAT WATER DEPTH DECREASES, THE LITTORAL ZONE MAY NEED TO BE REGRADED AND REVEGETATED. WHEN IT APPEARS THAT A POND HAS REACHED THIS STATE, IT IS BEST TO CONTACT A DISTRICT REPRESENTATIVE PRIOR TO LARGE SCALE MAINTENANCE.

DITCH & SWALE MAINTENANCE

SOME MSSW AND ERP PERMITS REQUIRE THAT THE VEGETATION IN SOME DITCHES BE PROTECTED TO OFFSET WETLAND IMPACTS PERMITTED DURING CONSTRUCTION OR FOR WATER QUALITY TREATMENT. THE PERMIT OR APPROVED CONSTRUCTION SHOULD CLEARLY IDENTIFY WHICH DITCH VEGETATION MUST BE PRESERVED. IF YOU'RE UNSURE, CONTACT THE LOCAL DISTRICT SERVICE OFFICE. IF VEGETATION IS NOT REQUIRED TO BE PROTECTED, DITCHES AND SWALES SHOULD BE PERIODICALLY MOWED AND CLEANED OF ACCUMULATED REFUSE. DURING THE MOWING OPERATIONS, DITCHES AND SWALES SHOULD BE INSPECTED FOR BARE SPOTS, DAMAGE OR EROSION. BARE AREAS SHOULD BE SODDED OR SEEDED TO REPLACE THE GRASS COVER. IN THE CASE OF EROSION, REPLACE THE MISSING SOILS AND BRING THE AREA BACK TO GRADE. SOME DITCHES ARE DESIGNED TO STORE RUNOFF FOR SHORT PERIODS OF TIME UTILIZING DITCH BLOCKS OR RAISED INLETS. THESE DITCH BLOCKS OR INLETS SHOULD NOT BE REMOVED OR ALTERED. IF YOU ARE UNABLE TO IDENTIFY WHAT TYPE OF TREATMENT METHOD SERVES YOUR DEVELOPMENT, CONTACT THE DISTRICT SERVICE OFFICE.

HOW TO OPERATE AND MAINTAIN THE STORMWATER MANAGEMENT SYSTEM

YOUR STORMWATER MANAGEMENT SYSTEM (SWMS) IS DESIGNED AND CONSTRUCTED TO COMPLY WITH CERTAIN ENVIRONMENTAL PROTECTION CRITERIA. STORMWATER PONDS AND THEIR ASSOCIATED SURFACE WATER MANAGEMENT FACILITIES ARE DESIGNED TO CAPTURE AND REMOVE POLLUTANTS FROM SPECIFIC VOLUMES OF STORMWATER RUNOFF THROUGH PROCESSES SUCH AS PERCOLATION, FILTERING AND/OR DETENTION. AS LONG AS THEY ARE CONSTRUCTED PROPERLY AND MAINTAINED IN AN EFFECTIVE STATE, WATER QUALITY STANDARDS ARE PRESUMED TO BE MET. STORMWATER MANAGEMENT SYSTEMS SHOULD BE INSPECTED ON A ROUTINE BASIS TO ENSURE THAT THEY ARE FUNCTIONING PROPERLY. INSPECTIONS SHOULD BE SCHEDULED ON A MONTHLY OR QUARTERLY BASIS AND FOLLOWING ANY MAJOR RAIN EVENT. MORE FREQUENT INSPECTIONS MAY BE NECESSARY DURING THE RAINY SEASON. KEEPING DETAILED NOTES ON MAINTENANCE ACTIVITIES WILL HELP WHEN PROVIDING A REPORT TO THE DISTRICT AT THE TIME OF YOUR 18 OR 24 MONTH INSPECTION. YOUR MANAGEMENT AND STORAGE OF SURFACE WATERS (MSSW) PERMIT OR ENVIRONMENTAL RESOURCES PERMIT (ERP) INCLUDES A CONDITION THAT SPECIFIES HOW OFTEN THE INSPECTION REPORTS ARE DUE. IT WOULD BE WISE TO DESIGNATE ONE INDIVIDUAL AS THE PERSON RESPONSIBLE FOR OVERSEEING OPERATION AND MAINTENANCE ACTIVITIES, MONITORING AND REPORTING. THIS WILL ALLOW THAT INDIVIDUAL TO BECOME WELL-ACQUAINTED WITH THE SWMS. A COPY OF THE PERMIT AND DISTRICT-APPROVED CONSTRUCTION DRAWINGS SHOULD BE MADE AVAILABLE TO THE RESPONSIBLE PERSON IF QUESTIONS OR ISSUES DEVELOP.

DRAINAGE

1. STANDARD INDICES REFER TO THE LATEST EDITION OF HILLSBOROUGH COUNTY & FDOT SPECIFICATIONS.
2. ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE CLASS III (ASTM 6-76-72A) UNLESS OTHERWISE NOTED ON PLANS. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH HILLSBOROUGH COUNTY ND FDOT DESIGN STANDARDS UNLESS OTHERWISE NOTED ON PLANS.
3. PIPE LENGTHS SHOWN ARE APPROXIMATE AND TO CENTER OF DRAINAGE STRUCTURE WITH THE EXCEPTION OF MITERED AND FLARED END SECTIONS, WHICH ARE NOT INCLUDED IN LENGTHS.
4. ALL DRAINAGE STRUCTURE TOPS AND COVERS SHALL BE TRAFFIC RATED FOR H-20 LOADINGS.
5. ALL STORM DRAINAGE PIPING SHALL BE SUBJECT TO A VISUAL INSPECTION BY THE OWNER'S ENGINEER PRIOR TO THE PLACEMENT OF BACKFILL. CONTRACTOR TO NOTIFY THE ENGINEER 48 HOURS IN ADVANCE TO SCHEDULE INSPECTION.
6. THE CONTRACTOR SHALL MAINTAIN AND PROTECT FROM MUD, DIRT, DEBRIS, ETC. THE STORM DRAINAGE SYSTEM UNTIL FINAL ACCEPTANCE OF THE PROJECT. THE CONTRACTOR MAY BE REQUIRED TO CLEAN PIPES AND INLETS PRIOR TO FINAL ACCEPTANCE.

National Pollution Discharge Elimination System (NPDES) Requirements

THE ENGINEER WILL COMPLETE APPROPRIATE SECTIONS OF THE NOTICE OF INTENT (NOI) AND NOTICE OF TERMINATION (NOT) APPLICATIONS AVAILABLE FROM FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP). THE ENGINEER WILL SUBMIT THE NOI AND THE NOT TO THE OWNER OR THE CONTRACTOR FOR COMPLETION, SIGNATURE AND TRANSMITTAL TO THE FDEP. THE ENGINEER WILL ALSO PREPARE A SUGGESTED DRAFT STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE SITE. THE ENGINEER WILL SUBMIT THE SUGGESTED DRAFT SWPPP TO THE OWNER OR THE CONTRACTOR FOR USE ONLY AS A GUIDE IN PREPARING THE FINAL SWPPP. THE FINAL SWPPP, AS PREPARED BY THE OWNER OR THE CONTRACTOR, WILL BE LOCATED ON SITE AND MONITORED AS DESCRIBED IN THE NOI.

THE OWNER OR THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR THE FOLLOWING:
1. SIGNING THE NOI, NOT, AND THE FINAL SWPPP AS THE "OPERATOR AND/OR RESPONSIBLE AUTHORITY" FOR THE PROJECT.
2. IMPLEMENTING THE "BEST MANAGEMENT PRACTICES" AS SHOWN IN THE FINAL SWPPP PREPARED BY OTHERS.
3. MAINTAINING THE "BEST MANAGEMENT PRACTICES" AS SHOWN IN THE SWPPP PREPARED BY OTHERS AS REQUIRED TO ACCOMMODATE CONDITIONS IN THE FIELD.
4. MONITORING THE SITE CONDITIONS AND PREPARING ALL REPORTS AS REQUIRED BY THE CONDITIONS OF THE GENERAL NPDES PERMIT.

WATER, WASTEWATER & REUSE WATER SYSTEM NOTES

1. HORIZONTAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, RECLAIMED WATER PIPELINES, AND ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS SHALL BE AS FOLLOWS:
   A. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED STORM SEWER, STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610,
   B. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST THREE FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED VACUUM-TYPE SANITARY SEWER.
   C. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE AT LEAST SIX FEET, AND PREFERABLY TEN FEET, BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF ANY EXISTING OR PROPOSED GRAVITY- OR PRESSURE-TYPE SANITARY SEWER, WASTEWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. THE MINIMUM HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND GRAVITY-TYPE SANITARY SEWERS SHALL BE REDUCED TO THREE FEET WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST SIX INCHES ABOVE THE TOP OF THE SEWER.
   D. NEW OR RELOCATED UNDERGROUND WATER MAINS SHALL BE LAID TO PROVIDE A HORIZONTAL DISTANCE OF AT LEAST TEN FEET BETWEEN THE OUTSIDE OF THE WATER MAIN AND ALL PARTS OF ANY EXISTING OR PROPOSED "ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEM" AS DEFINED IN SECTION 381.0065(2), F.S., AND RULE 64E-6.002, F.A.C.
2. VERTICAL SEPARATION BETWEEN UNDERGROUND WATER MAINS AND SANITARY OR STORM SEWERS, WASTEWATER OR STORMWATER FORCE MAINS, AND RECLAIMED WATER PIPELINES SHALL BE AS FOLLOWS:
   A. NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSE GRAVITY-OR VACUUM-TYPE SANITARY SEWER OR STORM SEWER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST SIX INCHES, AND PREFERABLY 12 INCHES, ABOVE OR AT LEAST 12 INCHES BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
   B. NEW OR RELOCATED UNDERGROUND WATER MAINS CROSSING ANY EXISTING OR PROPOSED PRESSURE-TYPE SANITARY SEWER, WASTEWATER OR STORMWATER FORCE MAIN, OR PIPELINE CONVEYING RECLAIMED WATER SHALL BE LAID SO THE OUTSIDE OF THE WATER MAIN IS AT LEAST 12 INCHES ABOVE OR BELOW THE OUTSIDE OF THE OTHER PIPELINE. HOWEVER, IT IS PREFERABLE TO LAY THE WATER MAIN ABOVE THE OTHER PIPELINE.
   C. AT THE UTILITY CROSSINGS DESCRIBED IN PARAGRAPHS (A) AND (B) ABOVE, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. ALTERNATIVELY, AT SUCH CROSSINGS, THE PIPES SHALL BE ARRANGED SO THAT ALL WATER MAIN JOINTS ARE AT LEAST THREE FEET FROM ALL JOINTS IN VACUUM-TYPE SANITARY SEWERS, STORM SEWERS, STORMWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C. AND AT LEAST SIX FEET FROM ALL JOINTS IN GRAVITY-OR PRESSURE-TYPE SANITARY SEWERS, WASTEWATER FORCE MAINS, OR PIPELINES CONVEYING RECLAIMED WATER NOT REGULATED UNDER PART III OF CHAPTER 62-610, F.A.C.
3. SEPARATION BETWEEN WATER MAINS AND SANITARY OR STORM SEWER MANHOLES.
   A. NO WATER MAIN SHALL PASS THROUGH, OR COME INTO CONTACT WITH, ANY PART OF A SANITARY SEWER MANHOLE, STORM SEWER MANHOLE OR INLET STRUCTURE.
4. ALL UTILITY MATERIAL AND WORKMANSHIP MUST COMPLY WITH "HILLSBOROUGH COUNTY STANDARDS FOR DESIGN AND CONSTRUCTION OF WATER, WASTEWATER, AND RECLAIMED WATER FACILITIES", OCTOBER 2015
5. ALL PVC WATER MAINS 4 - 12 INCHES SHALL BE IN ACCORDANCE WITH AWWA C-900. PIPE SHALL BE CLASS 200 AND MEET THE REQUIREMENTS OF DR-14.
6. ALL PVC WATER MAIN SMALLER THAN 4 INCHES SHALL BE CLASS 200 AND MEET THE REQUIREMENTS OF SDR 21 IN ACCORDANCE WITH ASTM D-2241.
7. ALL PVC SANITARY SEWER PIPE SHALL MEET THE REQUIREMENTS OF ASTM D-3034 WITH THICKNESS AS FOLLOWS: AT INVERTS FROM 0' - 12' SHALL BE SDR-26, INVERT DEPTHS FROM 12' - 18' SHALL BE SDR 26. FOR INVERTS DEEPER THAN18', DUCTILE IRON PIPE SHALL BE USED.
8. ALL DUCTILE IRON UTILITY WATER MAIN, SANITARY SEWER PIPE AND REUSE WATER MAINS SHALL BE CLASS 50 IN ACCORDANCE WITH ANSI A 21.52.
9. RECLAIMED WATER MAINS 4 - 12 INCHES SHALL BE IN ACCORDANCE WITH AWWA C-900, DR18. RECLAIMED WATER MAINS 14 - 24 INCHES SHALL BE IN ACCORDANCE WITH AWWA C-905, DR25. ALL PIPE SHALL BE CLASS 150.
10. ALL PVC REUSE WATER MAINS SMALLER THAN 4" SHALL BE CLASS 200 AND MEET THE REQUIREMENTS OF SDR 21 IN ACCORDANCE WITH ASTM D-2241.
11. ALL WATER MAINS, SANITARY SEWER MAINS AND RECLAIMED WATER MAINS SHALL HAVE A MINIMUM OF 36 INCHES OF COVER, EXCEPT AS NOTED.
12. PRIOR TO COMMENCING NEW WORK WHICH REQUIRES CONNECTING TO EXISTING LINES OR APPURTENANCES, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY AND SHALL VERIFY THE LOCATION AND ELEVATION OF THE EXISTING CONNECTION POINT AND NOTIFY THE DEVELOPER'S ENGINEER OF ANY CONFLICTS OR DISCREPANCIES.
13. CONNECTIONS INTO EXISTING COUNTY-OWNED SYSTEMS SHALL BE VIA WET TAP. WET TAPS SHALL BE PERFORMED BY THE HILLSBOROUGH COUNTY UTILITIES SERVICES BRANCH AT THE OWNER'S EXPENSE. MATERIALS FOR WET TAPS LARGER THAN 2" SHALL BE PROVIDED AND INSTALLED BY THE PROJECT CONTRACTOR. EXCAVATION, BACKFILL, AND SURFACE RESTORATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
14. LOCATION OF THE SANITARY SEWER SERVICE LATERALS, IF INDICATED ON THE PLANS ARE A DISTANCE FROM THE DOWNSTREAM MANHOLE.
15. LOCATION OF THE WATER SERVICE SLEEVE, IF INDICATED ON THE PLANS, ARE PER THE CENTERLINE ROAD STATIONING.
16. CONFLICTS BETWEEN REUSE WATER AND STORM, SANITARY SEWER OR WATER MAIN TO BE RESOLVED BY ADJUSTING THE REUSE WATER LINES AS NECESSARY.
17. JOINT RESTRAINTS SHALL BE PROVIDED AT ALL FITTINGS, JOINTS AND BENDS AS SHOWN ON DETAILS.
18. ALL PIPE AND FITTINGS SHALL BE CLEARLY MARKED WITH THE NAME OR TRADEMARK OF THE MANUFACTURER, THE BATCH NUMBER, THE LOCATION OF THE PLANT AND STRENGTH DESIGNATION, AS APPLICABLE . ALL PIPE SHALL BE LAID WITH A TWO INCH METALLIC TAPE APPROPRIATELY COLOR CODED AND IMPRINTED WITH THE TYPE OF SERVICE 12 INCHES TO 18 INCHES BELOW FINAL GRADE, DIRECTLY ABOVE THE UTILITY FOR IDENTIFICATION AND EASE OF LOCATION. THE APPROPRIATE TAPE COLOR CODES ARE AS FOLLOWS:
    GREEN SANITARY FORCE MAIN
    BLUE POTABLE WATER
    PURPLE TREATED EFFLUENT FOR REUSE
19. THE CONTRACTOR SHALL TEST ALL GRAVITY SEWERS IN ACCORDANCE WITH HILLSBOROUGH COUNTY REGULATIONS. IF ACCEPTABLE, SAID TESTS WILL BE CERTIFIED BY THE ENGINEER OF RECORD AS REQUIRED.
20. PIPE DEFLECTION SHALL BE IN ACCORDANCE WITH AWWA STANDARD C-600, LATEST EDITION.
21. THRUST BLOCKS ARE NOT ALLOWED! RESTRAINED JOINTS SHALL BE USED ON ALL PRESSURIZED PIPING.
22. FIRE HYDRANTS WILL REQUIRE FLOW TESTING AND COLOR-CODING BASED ON TEST RESULTS.

PAVING AND GRADING

1. ALL DELETERIOUS SUBSURFACE MATERIAL (I.E. MUCK, PEAT, BURIED DEBRIS) IS TO BE EXCAVATED IN ACCORDANCE WITH THESE PLANS OR AS DIRECTED BY THE OWNER, THE OWNER'S ENGINEER, OR OWNER'S SOIL TESTING COMPANY. DELETERIOUS MATERIAL IS TO BE STOCKPILED OR REMOVED FROM THE SITE AS DIRECTED BY THE OWNER. EXCAVATED AREAS TO BE BACK FILLED WITH APPROVED MATERIALS AND COMPACTED AS SHOWN ON THESE PLANS. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS THAT ARE NECESSARY FOR REMOVING DELETERIOUS MATERIAL FROM THE SITE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXCAVATIONS AGAINST COLLAPSE AND WILL PROVIDE BRACING, SHEETING OR SHORING AS NECESSARY. DEWATERING METHODS SHALL BE USED AS REQUIRED TO KEEP TRENCHES DRY WHILE PIPE AND APPURTENANCES ARE BEING PLACED.
3. ALL NECESSARY FILL AND EMBANKMENT THAT IS PLACED DURING CONSTRUCTION SHALL CONSIST OF MATERIAL SPECIFIED BY THE OWNER'S SOIL TESTING COMPANY OR ENGINEER AND BE PLACED AND COMPACTED ACCORDING TO THESE PLANS OR THE REFERENCED SOILS REPORT.
4. PROPOSED SPOT ELEVATIONS REPRESENT TOP OF FINISHED PAVEMENT OR GROUND SURFACE GRADE UNLESS OTHERWISE NOTED ON DRAWINGS.
5. CONTRACTOR SHALL TRIM, TACK AND MATCH EXISTING PAVEMENT AT LOCATIONS WHERE NEW PAVEMENT MEETS EXISTING PAVEMENT.
6. CONCRETE CURBING WILL BE PLACED AS SHOWN ON THE PLANS.
7. THE CONTRACTOR WILL STABILIZE BY SEED AND MULCH, SOD OR OTHER APPROVED MATERIALS ANY DISTURBED AREAS WITHIN ONE WEEK FOLLOWING CONSTRUCTION OF THE PAVEMENT AREAS. CONTRACTOR SHALL MAINTAIN SUCH AREAS UNTIL FINAL ACCEPTANCE BY OWNER.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING APPLICABLE TESTING WITH THE SOILS ENGINEER. TESTS WILL BE REQUIRED PURSUANT TO HILLSBOROUGH COUNTY. UPON COMPLETION OF PROPOSED CONSTRUCTION, SOILS ENGINEER WILL SUBMIT CERTIFICATIONS TO THE OWNER'S ENGINEER STATING THAT ALL REQUIREMENTS HAVE BEEN MET.
9. ALL UNDERGROUND UTILITIES, INCLUDING UTILITY SLEEVES, AND CONDUITS SHALL BE INSTALLED PRIOR TO BASE & PAVEMENT CONSTRUCTION.
10. THE CONTRACTOR SHALL PROVIDE A DEWATERING SEQUENCING PLAN TO SWFWMD FOR APPROVAL PRIOR TO ANY DEWATERING ACTIVITIES.

CLEARING/DEMOLITION

1. PRIOR TO ANY SITE CLEARING, ALL TREES SHOWN TO REMAIN AS INDICATED ON THE CONSTRUCTION PLANS SHALL BE PROTECTED IN ACCORDANCE WITH LOCAL TREE ORDINANCES AND DETAILS CONTAINED IN THESE PLANS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THESE TREES IN GOOD CONDITION. NO TREE SHOWN TO REMAIN SHALL BE REMOVED WITHOUT WRITTEN APPROVAL FROM HILLSBOROUGH COUNTY AND THE OWNER.
2. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE NECESSARY FOR CONSTRUCTION. DISTURBED AREAS, NOT OTHERWISE STABILIZED, WILL BE SEEDED, MULCHED, SODDED OR PLANTED WITH OTHER APPROVED LANDSCAPE MATERIAL IMMEDIATELY FOLLOWING CONSTRUCTION.
3. REMAINING MATERIAL THAT RESULTS FROM CLEARING AND GRUBBING OR SITE EXCAVATION IS TO BE UTILIZED ON-SITE IF REQUIRED, PROVIDED THAT THE MATERIAL IS DEEMED SUITABLE FOR CONSTRUCTION BY THE OWNER'S SOILS TESTING COMPANY. EXCESS MATERIAL IS TO BE EITHER STOCKPILED ON THE SITE AS DIRECTED BY THE OWNER OR OWNER'S ENGINEER, OR REMOVED FROM THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY PERMITS THAT ARE NECESSARY FOR REMOVING EXCESS EARTHWORK FROM THE SITE.
4. ALL CONSTRUCTION DEBRIS AND OTHER WASTE MATERIALS SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR IN ACCORDANCE WITH APPLICABLE REGULATORY AGENCY REQUIREMENTS.

SAFETY

1. DURING THE CONSTRUCTION AND MAINTENANCE OF THIS PROJECT, ALL SAFETY REGULATIONS ARE TO BE ENFORCED. THE CONTRACTOR SHALL BE TOTALLY RESPONSIBLE FOR THE CONTROL AND SAFETY OF THE TRAVELING PUBLIC AND THE SAFETY OF HIS PERSONNEL.
2. LABOR SAFETY REGULATIONS SHALL CONFORM TO THE PROVISIONS SET FORTH BY OSHA IN THE FEDERAL REGISTER OF THE DEPARTMENT OF TRANSPORTATION.
3. CONTRACTOR SHALL PROVIDE AND MAINTAIN ITS OWN SAFETY EQUIPMENT IN ACCORDANCE WITH ITS HEALTH & SAFETY PROGRAM AND ALL OTHER APPLICABLE LEGAL AND HEALTH AND SAFETY REQUIREMENTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING ITS EMPLOYEES AND SUBCONTRACTORS WITH ADEQUATE INFORMATION AND TRAINING TO ENSURE THAT ALL EMPLOYEES AND SUBCONTRACTORS AND SUBCONTRACTORS' EMPLOYEES COMPLY WITH ALL APPLICABLE REQUIREMENTS. CONTRACTOR SHALL REMAIN IN COMPLIANCE WITH ALL OCCUPATION SAFETY AND HEALTH REGULATIONS AS WELL AS THE ENVIRONMENTAL PROTECTION LAWS. THE FOLLOWING IS NOT TO BE PERCEIVED AS THE ENTIRE SAFETY PROGRAM BUT JUST BASIC REQUIREMENTS.
4. ALL EXCAVATIONS BY THE CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF THE DEPARTMENT OF LABOR'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION RULES AND REGULATIONS. PARTICULAR ATTENTION MUST BE PAID TO THE CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR PART 1926, SUBPART P.
5. THE MINIMUM STANDARDS AS SET FORTH IN THE CURRENT EDITION OF "THE STATE OF FLORIDA, MANUAL ON TRAFFIC CONTROL AND SAFE PRACTICES FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS" SHALL BE FOLLOWED IN THE DESIGN APPLICATION, INSTALLATION, MAINTENANCE AND REMOVAL OF ALL TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS NECESSARY TO PROTECT THE PUBLIC AND WORKMEN FROM HAZARDS WITHIN THE PROJECT LIMITS.
6. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO COMPLY AND ENFORCE ALL APPLICABLE SAFETY REGULATIONS. THE ABOVE INFORMATION HAS BEEN PROVIDED FOR THE CONTRACTOR'S INFORMATION ONLY AND DOES NOT IMPLY THAT THE OWNER OR ENGINEER WILL INSPECT AND/OR ENFORCE SAFETY REGULATIONS.
7. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN AREAS OF BURIED UTILITIES AND SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE UTILITY COMPANIES PRIOR TO CONSTRUCTION TO OBTAIN FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES. CALL SUNSHINE ONE (1-800-432-4770) TO ARRANGE FIELD LOCATIONS.

HILLSBOROUGH COUNTY FIRE PROTECTION NOTES

1. ALL PROJECTS MUST COMPLY WITH HILLSBOROUGH COUNTY FIRE HYDRANT ORDINANCE NO. 46-51
2. FIRE HYDRANTS SHALL BE INSTALLED AND IN SERVICE PRIOR TO THE ACCUMULATION OF COMBUSTIBLES
3. PER THE NATIONAL FIRE PROTECTION ASSOCIATION, NFPA-1 16.4.3.1.3. WHERE UNDERGROUND WATER MAINS AND HYDRANTS ARE TO BE PROVIDED, THEY SHALL BE INSTALLED, COMPLETED, AND IN SERVICE PRIOR TO CONSTRUCTION WORK.
4. PER NFPA-1 18.3.4.1; CLEARANCES OF 7.5 FT IN FRONT AND TO THE SIDES OF THE FIRE HYDRANT WITH A 4-FOOT CLEARANCE TO THE REAR MUST BE MAINTAINED AT ALL TIMES.
5. GATED ENTRIES REQUIRE A SIREN OPERATING SYSTEM OR 3M OPTICOM SYSTEM FOR EMERGENCY ACCESS.

GENERAL LDC NOTES

1. THE SOIL EROSION AND SEDIMENT CONTROL DEVISES SHALL BE INSTALLED PRIOR TO CONSTRUCTION, MAINTAINED THROUGHOUT CONSTRUCTION AND UNTIL THE SITE IS PERMANENTLY STABILIZED. (LDC 902.2)
2. PRIOR TO CONSTRUCTION, A BUILDING PERMIT SHALL BE OBTAINED FOR ALL STRUCTURES THAT HAVE FOOTER, REGARDLESS OF SIZE, THROUGH HILLSBOROUGH COUNTY CENTRAL PERMITTING. (IE. INCLUDING BUT NOT INCLUSIVE BUILDINGS, ACCESSORIES, AND RETAINING WALLS)
3. IT IS THE OWNER'S RESPONSIBILITY OR (CURRENT PARCEL OWNER: ESTANCIA AT WIREGRASS COMMUNITY DEVELOPMENT DISTRICT TO INSPECT AND MAINTAIN THE WATER RETENTION SYSTEM ON A REGULAR BASIS. (LDC 902.2.M)
4. ALL SODDED SLOPES OVER 4 TO 1, SHALL BE INSTALLED WITH SOD PEGS. (LDC 902.2)
5. ALL FIRST FLOOR ELEVATIONS (FF) SHALL BE A MINIMUM OF 1' ABOVE THE BASE FLOOD ELEVATION OR AS REQUIRED BY THE LDC1104) 18” ABOVE THE HIGHEST CROWN LINE OF THE STREET LYING BETWEEN THE PROJECTION OF THE SIDE BUILDING LINES(LDC902.2.K).
6. ANY OFF SITE DISTURBANCE SHALL BE RESTORED TO THE PRE OR BETTER CONDITION. (LDC 902.2)
7. AS APPLICABLE, THE OWNER/DEVELOPER WILL PROVIDE COPIES OF THE REQUIRED PERMITS FROM THE RESPECTIVE GOVERNING AGENCIES, PRIOR TO ISSUANCE OF THE SDP. (LDC 902.2.C)
8. ALL WORK WITHIN THE ROW WILL REQUIRE A ROW USE PERMIT. (LDC 406.5)/ DRIVEWAY CONNECTION PERMIT.
9. THE SITE SHALL BE GRADED TO WITHIN 12 INCHES OF THE FINAL GRADE. WHERE FILL IS PROPOSED IT SHALL BE PLACED IN COMPLIANCE WITH THE GEOTECHNICAL/GEOLOGICAL ENGINEERING REPORT RECOMMENDATIONS (INCLUDING ANY LIFT DEPTHS RECOMMENDED) AND COMPACTED TO A MINIMUM DENSITY OF 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY. DENSITY TESTS TO CONFIRM COMPACTION SHALL BE REQUIRED WITHIN THE BUILDING PAD AREA, BEFORE THE NEXT LIFT IS PLACED. UPON COMPLETION OF THE LAND DEVELOPMENT CONSTRUCTION, A PROFESSIONAL ENGINEER SHALL PROVIDE A CERTIFICATION TO HILLSBOROUGH COUNTY THAT THE PROJECT, INCLUDING EACH PAD AREA, COMPLIES WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL/GEOLOGICAL ENGINEERING REPORT”.

NATURAL RESOURCE NOTES

1. REQUIRED NATURAL RESOURCES NOTE: "DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE DRIPLINE OF A TREE TO REMAIN ON THE SITE UNLESS OTHERWISE APPROVED BY THE COUNTY.
2. ALL TRIMMING UNDERTAKEN ON A TREE PROTECTED BY THE PROVISIONS OF THE LAND DEVELOPMENT CODE SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A-300 PRUNING STANDARDS.
3. PRUNING OF A GRAND OAK, WITH THE EXCEPTION OF MINOR PRUNING, IS PROHIBITED UNLESS CONDUCTED IN ACCORDANCE WITH THE ANSI-A-300 PRUNING STANDARDS, AND PERFORMED BY AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) OR A REGISTERED CONSULTING ARBORIST WITH THE AMERICAN SOCIETY OF CONSULTING ARBORISTS (ASCA). A NOTARIZED AFFIDAVIT (ATTACHED) AFFIRMING AN ISA CERTIFIED ARBORIST OR AN ASCA REGISTERED CONSULTING ARBORIST WILL CONDUCT OR PROVIDE ONSITE SUPERVISION OF THE PRUNING SHALL BE SUBMITTED TO THE COUNTY PRIOR TO THE PRUNING OF A GRAND OAK. AN ISA CERTIFIED ARBORIST OR AN ASCA REGISTERED CONSULTING ARBORIST CONTRACTED BY A PROPERTY OWNER TO PRUNE A GRAND OAK SHALL ASSUME FULL RESPONSIBILITY FOR ALL PRUNING ACTIVITIES DETERMINED IN NONCOMPLIANCE WITH STANDARDS SPECIFIED WITHIN THE LAND DEVELOPMENT CODE.
4. THE CONSTRUCTION OF ALL ABOVE GROUND UTILITY APPURTENANCES VISIBLE FROM THE PUBLIC RIGHT-OF-WAY SUCH AS PEDESTALS, UTILITY METERS, TRANSFORMERS, BACK-FLOW PREVENTION DEVICES, ETC FOR NEW DEVELOPMENT OR REDEVELOPMENT ACTIVITIES SHALL CONFORM TO SCREENING REQUIREMENTS AS OUTLINED IN SECTION 6.06.06.C.10 OF THE LAND DEVELOPMENT CODE. PLANT LOCATION MUST BE CONSIDERATE OF REQUIRED SPATIAL SEPARATIONS FROM A FIRE FLOW PROTECTION APPLIANCE IN ACCORDANCE TO THE UNIFORM FIRE CODE.

EPC NOTE

NO EXCAVATION SHALL EXTEND BELOW THE PERMITTED DESIGN DEPTHS/ELEVATIONS SHOWN ON THE DRAWINGS, UNLESS ADDITIONAL TESTING SUPPORTS OTHERWISE; AND NO LOWER SEMI-CONFINING UNIT CLAYEY SOIL MATERIAL AND/OR LIMESTONE MATERIALS SHALL BE EXCAVATED, REGARDLESS IF THESE MATERIALS ARE ENCOUNTERED WITHIN THE PERMITTED EXCAVATION DEPTHS/ELEVATIONS. IF ANY LOWER SEMI-CONFINING UNIT CLAY SOIL MATERIALS OR LIMESTONE MATERIALS ARE ENCOUNTERED ABOVE THE PERMITTED DEPTHS/ELEVATIONS, THEN EXCAVATION OPERATIONS SHALL CEASE IN THE GENERAL AREA. EPC WETLANDS MANAGEMENT STAFF MUST BE CONTACTED PRIOR TO ANY EXCAVATION OF CLAYS. * IN THE ABSENCE OF ANY CONFINING OR SEMI-CONFINING UNIT CLAYEY SOILS, A MINIMUM OF FIVE FEET OF UNDISTURBED SOILS SHALL REMAIN ABOVE THE UNDERLYING LIMESTONE.

REVISIONS

Engineering ~ Environmental
Water Resource ~ Survey
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GENERAL CONSTRUCTION NOTES

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION\DETAILS_NOTES.DWG
Plot Date: 10/28/2022 9:50:41 AM
2022 WRA

STORM WATER POLLUTION PREVENTION PLAN

IN GENERAL: The requirements of Chapter 17-25, Florida Administrative Code, (Regulation of Storm water Discharge) must be met during construction.

Contained on these plans and within the following notes is a Storm Water Pollution Prevention Plan (SWPPP) which has been developed by Water Resource Associates, Inc. in accordance with the Florida Department of Environmental Protection's (FDEP) "National Pollutant Discharge Elimination System" (NPDES) Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

The following entities are identified as team members of "SWPPP": Water Resource Associates, the Developer as identified in the title box of these plans, and the site contractor and his sub-contractors. Each team member has specific responsibilities and obligations. In general, all team members, with regard to their involvement and responsibilities on the project, are to implement all necessary storm water management controls to assure compliance with the NPDES Generic Permit for Storm Water Discharges from Construction Activities, the Southwest Florida Water Management District Permit, the applicable local governing agency (i.e. Hillsborough County, etc.) and the guidelines listed in the SWPPP. The duties and responsibilities of the team members as they pertain to the SWPPP are as follows.

Water Resource Associates, Inc.

A. Develop SWPPP including, but not limited to, retention/detention ponds, control structures, erosion control methods and locations and stabilization criteria. This design is included within these construction plans and the following notes and instructions.

B. Develop SWPPP including, but not limited to, retention/detention ponds, control structures, erosion control methods and locations and stabilization criteria. This design is included within these construction plans and the following notes and instructions.

C. Upon notification by the developer of his intent to commence construction, submit a Notice of Intent to the FDEP on behalf of the developer and copy the contractor including SWPPP certification and copy of the permit.

D. Submit to SWFWMD and the operator of the municipal separate storm water system, if applicable, a letter of construction commencement.

E. Complete and submit a Notice of Termination and certification for developer.
The NOT's shall be submitted no more than 30 days after
(a) completion of the project and final stabilization of the site or
(b) when responsibility for the site has ended. Final stabilization as defined by EPA is when all soil disturbing activities at the site have been completed and a uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures. As an alternative, equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) may be employed. The client shall notify Water Resource Associates when one of these criteria has been met.

Contractor

A. Sign and return to WRA a Contractors Certification Form certifying your understanding of and willingness to comply with the Storm Water Pollution Prevention Plan no later than 48 hours prior to commencement of construction. Also, each subcontractor affected by the SWPPP must certify to the contractor that they understand and shall comply with the NPDES permit and SWPPP. A record of these certifications shall be maintained by the contractor on site.

B. During construction, assure compliance with the designed Storm Water Pollution Prevention Plans prepared by Water Resource Associates and the NPDES Generic Permit for Storm Water Discharges from Large and Small Construction Activities.

C. Maintain a copy of the construction plans, which include the Storm Water Pollution Prevention Plan, the NOT, and all inspections reports and certifications on site.

D. Undertake all reasonable Best Management Practices (BMP's) to assure that sited or otherwise polluted storm water is not allowed to discharge from the site during all phases of construction. Stabilization BMP's that may be used include: straw bale dikes, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drain, pipe slope drain, level spreaders, storm drain inlet protection, outlet protection, sediment traps, and temporary sediment basins. Detention ponds may also be used as temporary sediment basins. Additional BMP's that may need to be implemented include: providing protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials. Providing waste receptacles at convenient locations and providing regular collection of wastes, including building material wastes. Minimizing off-site tracking of sediments. Making adequate preparations, including training and equipment to contain spills of oil and hazardous materials. Complying with applicable state or local waste disposal, sanitary sewer or septic system regulations and the use of appropriate pollution prevention measures for allowable non-storm water components of discharge.

E. Notify Water Resource Associates and the developer in writing of any non-storm water pollution sources which are being stored, or otherwise used during the construction of the project, i.e., fertilizers, fuels, pesticides, other chemicals. The notification should be accompanied with the contractor's design and methods to prevent pollution run-off from these sources.

F. Develop a maintenance and inspection plan which includes, but is not limited to the following:

A. The specific areas to be inspected and maintained that includes all the disturbed areas and material storage areas of the site.

B. The erosion and sediment controls identified in the SWPPP to be maintained and inspected and those additional controls that the contractor deems necessary.

C. Maintenance procedures.

D. The procedure to follow if additional work is required or whom to call.

E. Inspections and maintenance forms.

F. The personnel assigned to each task.

The following shall be inspected a minimum of once a week or within 24 hours after 0.50 inches of rainfall:

Stabilization measures (once a month if fully stabilized).
Structural controls.
Discharge points.
Construction entrances and exits.
Areas used for storage of exposed materials.

An inspection form shall be completed for each inspection. Any permit violations should be noted and corrective measures shall be taken no later than 7 days after the inspection occurred. If revisions to the SWPPP are needed, a report form for changes in the SWPPP shall be completed and a copy sent to Water Resource Associates. The original shall be kept on-site as documentation of the change. If the inspection passes, a certification that the facility is in compliance with the SWPPP and the NPDES permit must be signed by a duly authorized representative of the principal executive official of the operator of the SWPPP with one of the following qualifications:

1. Has successfully completed the Florida Stormwater, Erosion and Sediment Control Inspector Training Program.

2. Successfully completed a similar training program.

3. Has enough practical on the job training to be qualified to perform the inspections.

Retain inspection reports and certifications for at least three years.

G. Site stabilization measures shall be initiated as soon as practical but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

H. Releases in Excess of Reportable Quantities.

1. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented or minimized in accordance with the applicable stormwater pollution prevention plan for the facility or activity. This permit does not relieve the operator of the reporting requirements of 40 CFR part 117 and 40 CFR part 302. Where a release containing a hazardous substance in amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302, occurs during a 24 hour period:

a. The operator is required to notify the State Warning Point (800-210-0519 or 850-413-9911) as soon as he or she has knowledge of the discharge;

b. The operator shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and remedial steps to be taken, to the Florida Department of Environmental Protection, NPDES Stormwater Section, Mail Station 2500, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and

c. The stormwater pollution prevention plan required under Part V of this permit must be modified within 14 calendar days of knowledge of the release: to provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

2. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

Developer

A. Notify WRA of your intent to commence construction. Sign the Notice of Intent form as operator of the storm water discharge facility and permittee and return to Water Resource Associates, Inc.

B. Sign a Certification of Storm Water Pollution Prevention Plan and return it to Water Resource Associates, Inc.

C. Notify WRA when it is time to submit a Notice of Termination as defined under Part E of the Water resource Associates section of the SWPPP. Sign and return to Water Resource Associates, Inc. for submittal to FDEP a Notice of Termination form and certification.

PRE-DEVELOPED SITE INFORMATION:

1. Total site acreage: 68.4± ac.
2. Land use: Pasture
3. Vegetation: Scrub Shrub, Trees (Oaks & Pines)
4. Receiving waters or municipal separate storm water system: Adjacent Water Body
5. 25 Year/24 Hour rainfall depth: 9.0"
6. Soil types: A/D (80%); B/D (12%);A (8%)

PROJECT INFORMATION:

1. Project type: Mass Grade/Stormwater/Residential
2. Anticipated construction sequence is as follows:
   1. Complete erosion control installation
   2. Clearing and grubbing
   3. Earthwork activities
   4. Storm water system construction
   5. Utility construction
   6. Base and pavement construction
   7. Final stabilization

   The BMP's listed in Part D of the Contractor section of the SWPPP shall be considered during all phases of construction.
3. Anticipated start date: December 2022
4. Anticipated completion date: July 2023
5. Total acres disturbed: 68.4± ac.
6. Pre-developed "CN" number: 85
7. Post-developed "CN" number: 94
8. The storm water management system, upon completion and appropriate certification and as-built submittals will be operated and maintained by: Lennar Homes LLC
9. The potential source of pollution from this project is on-site development and construction activity.

NPDES Notification (National Pollutant Discharge Elimination System)

Attention: The erosion/sedimentation locations and details set forth in this site plan have been devised by the project engineer to meet the requirements of the federal National Pollutant Discharge Elimination System (NPDES) program. Failure to maintain these controls, or an illicit discharge resulting from their failure will likely result in fine citations. Sec. 58-239 of the Pinellas County Code authorizes penalties of up to $10,000.00 for each offense.

GENERAL EROSION AND TURBIDITY CONTROL NOTES

1. The Site Subcontractor shall be responsible for installation and maintenance of all erosion and turbidity controls and the quality and quantity of offsite or wetland discharges.

2. Prior to construction, the Site Subcontractor is responsible for having his dewatering plan and turbidity control plan approved by the applicable reviewing agencies. Refer to the project's permit approvals and permit conditions for agencies requiring such review and approval. Questions concerning appropriate techniques should be addressed to those agencies and/or discussed with the project engineer and owner.

3. The appropriate turbidity and erosion control methodologies selected by the Site Subcontractor for the this project should be made following assessment of the plans and project site specific factors and after consultations as needed with the project engineer and appropriate agencies. The Site Subcontractor will be responsible for obtaining any and all necessary permits for such activity; several factors to consider are listed below:
   A. Clay content in excavated materials and/or permeabilities rates
   B. Depth of cut in ponds, trenches, or utility lines
   C. Ambient ground water levels
   D. Actual rainfall amounts and time of year relative to normal rainy seasons
   E. Proximity to wetlands, water bodies or offsite properties
   F. 'Class' designation of receiving water bodies (i.e., Outstanding Florida Waters, shellfish harvest areas, etc.)
   G. Density, type, and proximity of upland vegetation to be retained during construction (for use as possible filtration areas)
   H. Fill height relative to natural grade and length and steepness of the proposed slopes
   I. Existing topography and directions of surface flow
   J. Type of equipment used
   K. Project type
   L. Duration of construction activities
   M. Separation distance of onsite ponds
   N. Ambient quality of surface and groundwater
   O. Temporary stockpile locations and heights

4. At the onset of construction, the Site Subcontractor, as the party responsible for implementation of the erosion and sediment control plan, shall assess the above described conditions and factors with respect to relative cost effectiveness and select the appropriate methods of protetion. A fairly extensive list of techniques are presented below but it must be stressed that any or al of the following may be necessary to maintain water quality and quantity standards. The construction sequencing should be thought out in advance of initiation to provide adequate protection of water quality.

5. Discharges which exceed 29 N.T.U.'s over the background levels are in violation of state water quality standards. Discharges of water quantities which affect offsite properties or may damage wetlands are also prohibited by regulating agencies.

6. The erosion and turbidity control measures shown hereon are the minimum required for agency approval. Additional control and measures may be required due to the Site Subcontractor's construction sequence & unforeseen weather conditions. Any additional measures deemed necessary by the Site Subcontractor shall be included in the lump sum bid with no extras for materials and labor allowed.

7. Hay bales or silt screens shall be installed prior to land clearing to protect water quality and to identify areas to be protected from clearing activities and maintained for the duration of the project until all soil is stabilized.

8. Floating turbidity barriers shall be in place in flowing systems or in open water lake edges prior to initiation of earthwork and maintained for the duration of the project until all soil is stabilized.

9. No clay material shall be left exposed in any stormwater facility. If clay or sandy-clays are encountered during stormwater storage excavation, the Site Subcontractor shall notify the Engineer immediately before proceeding with further excavation. If the Engineer of Record has determined that such soils are non-confining and must be excavated to meet permit and design conditions, excavation may proceed after obtaining written authorization from the appropriate governing agency. If said soils are left exposed at the permitted and designed depth, the Site Subcontractor shall over-excavate the pond's bottom and side slopes by a minimum of twelve (12") inches and backfill with clean sands to help prevent suspension of fine particles in the water column.

10. The installation of temporary erosion control barriers shall be coordinated with the construction of the permanent erosion control features to the extent necessary to assure effective and continuous control of erosion and water pollution throughout the life of the construction phase.

11. The type of erosion control barriers used shall be governed by the nature of the construction operation and soil type that will be exposed. Silty and clayey material may require solid sediment barriers to prevent turbid water discharge, while sandy material may need only silt screens or have bales to prevent erosion. Floating turbidity curtains should generally be used in open water situations. Diversion ditches or swales may be required to prevent turbid stormwater runoff from being discharged to wetlands or other water bodies. It may be necessary to employ a combination of barriers, ditches and other erosion/turbidity control measures if conditions warrant.

12. Where pumps are to be used to remove turbid waters from construction areas, the water shall be treated prior to discharge to the wetlands. Treatment methods include, for example, turbid water being pumped into grassed swales or appropriate upland vegetated areas (other than upland preservation areas and wetland buffers), sediment basins, or confined by an appropriate enclosure such as turbidity barriers or low berms, and kept confined until turbidity levels meet State Water Quality Standards.

13. The Permittee shall schedule his operations such that the are unprotected erodible earth exposed at any one time is not larger that the minimum area necessary for efficient construction operation, and the duration of exposed, uncompleted construction to the elements shall be as short as practicable. Clearing and grubbing shall be so scheduled and performed such that grading operations can follow immediately thereafter. Grading operations shall be so scheduled and performed that permanent erosion control features can follow immediately thereafter if conditions on the project permit.

14. Water derived from various dewatering methods should be passed through sufficiently wide areas of existing upland vegetation to filter our excess turbidity. If this is not sufficient, the water shall be retained in previously constructed permanent stormwater ponds or else retained in temporary sedimentation basins until clarity is suitable to allow for its discharge. Plugging the outfalls from completed stormwater ponds may be needed to avoid discharge. However, such situations should be monitored closely to preclude berm failure if water levels rise too high.

15. Water can be transported around the site by the use of internal swales or by pumps and pipes.

16. Sheet flow of newly filled or scraped areas may be controlled or contained by the use of brush barriers, diversion swales, interceptor ditches or low berms. Flow should be directed toward areas where sediments can sufficiently settle out.

17. Exposed soils shall be stabilized as soon as possible, especially slopes leading to wetlands. Stabilization methods include solid sod, seeding and mulching or hydromulching to provide a temporary or permanent grass cover mulch blankets, filter fabrics, etc., can be employed to provide vegetative cover.

18. Energy dissipaters (such as rip rap, a gravel bed, hay bales, etc.) shall be installed at the discharge point of pipes or swales if scouring is observed.

19. Attempt to install roadway curb and gutters as soon as possible to reduce the surface area for erosion to occur.

20. Implement storm drain inlet protection (hay bales or gravel) to limit sedimentation within the stormwater system. Perform inspections and periodic cleaning of sediments which wash out into the streets until all soil is stabilized.

21. Water discharge velocities from impounded areas and temporary sedimentation basins shall be restricted to avoid scouring in receiving areas.

22. If water clarity does not reduce to state standards rapidly enough in holding ponds, it may be possible to use chemical agents such as alum to flocculate or coagulate the sediment particles.

23. Hay bales, silt screens, or gravel beds can be added around the pipe or swale discharge points to help clarify discharges. Spreader swales may help dissipate cloudy water prior to contact with wetlands.

24. All fuel storage areas or other hazardous storage areas shall conform to accepted state or federal criteria for such containment areas.

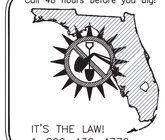
25. Vehicle or equipment washdown areas will be sufficiently removed from wetlands or offsite areas.

26. Fugitive dust controls (primarily by using water spray trucks) shall be employed as needed to control windborn emissions.

27. If the above controls remain ineffective in precluding release of turbid water, especially during pond or utility line dewatering, then the well points or sock drains to withdraw groundwater which may already be clear enough to allow for direct discharge to wetlands.

28. Ongoing inspections and periodic maintenance by the Site Subcontractor shall occur throughout construction as necessary to insure the above methods are working suitably. This may be needed daily, if conditions so warrant. Site Subcontractors are encouraged to obtain and thoroughly review The Florida Development Manual: A Guide to Sound Land and Water Management, which was developed by the State of Florida Department of Environmental Protection in 1988. This provides fairly in-depth discussions of recommended techniques and also provides specific design and technical standards. A copy of this document is available for review at Water Resource Associates, Inc.

Call 48 hours before you dig!



IT'S THE LAW!
1-800-432-4770

POND/LAKE EXCAVATION NOTE:

No excavation shall extend below the permitted design depths/elevations shown on the drawings, unless additional testing supports otherwise; and no lower semi-confining unit clayey soil material and/or no limestone materials shall be excavated, regardless if these materials are encountered within the permitted excavation depths/elevations. If any lower semi-confining unit clayey soil materials or limestone materials are encountered above the permitted depths/elevations, then excavation operations shall cease in the general area and the Engineer of Record shall be notified immediately.

ILLICIT DISCHARGE OF CONCRETE SLURRY

It is recommended that the general contractor for this project provide a suitable on-site wash down and concrete disposal area. Disposal of concrete slurry directly or indirectly into the County separate storm sewer system or onto a County right-of-way is a violation of Section 58-244 of the Pinellas County Land Development Code. Sec. 58-239 of the Pinellas County Code authorizes penalties of up to $10,000.00 for each offense.

NON-STORMWATER DISCHARGE:

Allowable (Potential) Non-Stormwater Discharges at the site: Waterline Flushing, Dust Control Water, External Building Washdown where no detergents are used, etc.

Prohibited Non-Stormwater Discharges at the site: Discharges from Dewatering, Vehicle washing with detergents, etc.

RESPONSIBILITIES:

The Contractor(s) and/or Sub-Contractor(s) that will implement this Stormwater Pollution Prevention Plan:

"I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND, AND SHALL COMPLY WITH, THE TERMS AND CONDITIONS OF THE STATE OF FLORIDA GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES AND THIS STORMWATER POLLUTION PREVENTION PLAN PREPARED THEREUNDER"

_____
CONTRACTOR(S) AND/OR SUB-CONTRACTOR(S) SIGNATURE:

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

_____
CONTRACTOR(S) AND/OR SUB-CONTRACTOR(S) SIGNATURE:

Owner/Applicant:
Lennar Homes
By: _____

CAD File Path: S:\-PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION DETAILS_SWPPP.DWG
Plot Date: 10/28/2022 9:50:51 AM
2022 WRA

REVISIONS

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave. Tampa, Florida 33624
7978 Cooper Creek Blvd. University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

STORMWATER POLLUTION PREVENTION PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

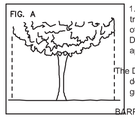
Datum: NAVD 88

010

PROTECTIVE BARRIERS are used during land alteration and construction activities to protect trees and natural areas to be retained on a site.

PROTECTIVE BARRIERS must be erected around TREES to be retained within an area where land alteration and construction activities will occur as well as along NATURAL AREAS where such areas are adjacent to permitted land alteration or construction activities. A PROTECTIVE BARRIER must remain in place until the land alteration and construction activities are completed or until commencement of grad finishing and sodding. No ground disturbance must occur within the barricaded area. The following represents the County's minimum protection barrier specifications.

FIG. A

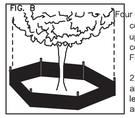


1. TREES - To restrict access into the area within the DRIPLINE of a tree, a physical structure not less than 3 feet in height, comprised of wood or other suitable material, is places around the tree at the DRIPLINE, except where land alteration or construction activities are approved within the DRIPLINE.

The DRIPLINE of a tree is the imaginary, vertical line that extends downward from the outermost tips of the tree's branches to the ground Fig. A

BARRIER SPECIFICATIONS FOR TREES:

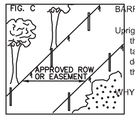
FIG. B



Four corner upright stakes of no less that 2" x 2" lumber connected by horizontal members of no less than 1" x 4" lumber; or upright stakes spaces at 5' intervals of no less than 2" x 2" lumber connected by silt screen fabric or material of comparable durability. Fig. B

2. NATURAL AREAS - To restrict access into areas where land alteration and construction activities are not authorized, a physical structure not less than 3 feet in height is placed along the perimeter of such areas.

FIG. C



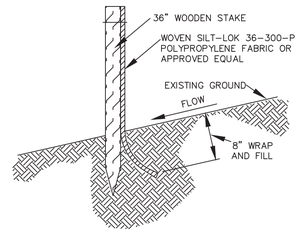
BARRIER SPECIFICATIONS FOR NATURAL AREAS:

Upright stakes of no less than 2" x 2" lumber spaced no more than 25' apart and connected by twine flagged with plastic surveying tape at regular intervals of 5-10'. Fig. C. Other methods of demarcation will be considered depending upon the characteristics of the site.

WHY A BARRIER

1. To protect all above ground portions of trees and other significant vegetation from mechanical damage.
2. To protect root systems from compaction.
3. To provide awareness of protected areas to equipment operators.

TREE BARRICADE DETAIL

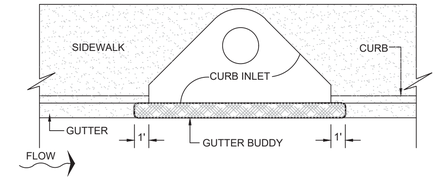


STAKED SILT FENCE

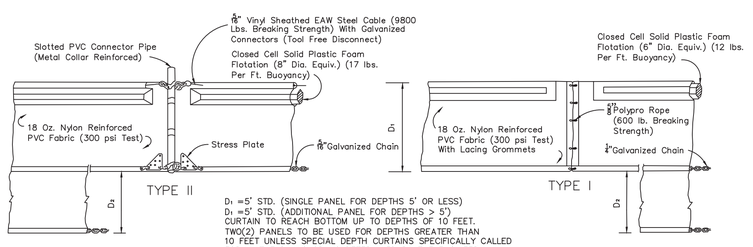
EROSION CONTROL NOTES:

1. TO PREVENT SEDIMENTARY RUNOFF DURING CONSTRUCTION, STAKED HAYBALES, STAKED SILT SCREENS OR INLET DEBRIS CONTROL SCREENS ARE TO BE PLACED AT STORM INLETS, OUTFALL LOCATIONS AND ADJACENT PROPERTY LINES AS REQUIRED PRIOR TO ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE SEDIMENTATION BARRIERS IN A WORKING MANNER FOR THE DURATION OF CONSTRUCTION AND SHOULD BE CHECKED DAILY. SILTATION ACCUMULATIONS GREATER THAN THE LESSER OF 12 INCHES OR ONE-HALF OF THE DEPTH OF THE SEDIMENTATION BARRIER SHALL BE IMMEDIATELY REMOVED AND REPLACED IN UPLAND AREAS. IN ADDITION TO SPECIFIED EROSION CONTROL LOCATIONS, THE CONTRACTOR SHALL PERFORM DAILY SITE INSPECTIONS FOR POTENTIAL EROSION PROBLEMS. IF PROBLEMS OCCUR, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING APPROPRIATE EROSION CONTROL IMMEDIATELY. STORMWATER TREATMENT FACILITIES INCLUDING OUTFALL PER DETAIL ARE TO BE CONSTRUCTED EARLY IN SITE DEVELOPMENT, WITH NO OFF-SITE UNTREATED RUN-OFF OCCURRING DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING TEMPORARY EROSION CONTROL DEVICES FOLLOWING COMPLETION OF ALL CONSTRUCTION AND FINAL STABILIZATION.
2. CONTRACTOR TO KEEP CONSTRUCTION ACTIVITIES AND EQUIPMENT TO A MINIMUM AT OUTFALL LOCATIONS WHICH DISCHARGE TO EXISTING JURISDICTIONAL AREAS. FLOATING OR STAKED TURBIDITY BARRIERS MAY BE USED IN LIEU OF STAKED HAYBALES/SILT SCREENS WHERE WARRANTED.
3. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN-PLACE UNTIL THE SITE HAS BEEN STABILIZED AND REVEGETATED.
4. CONSTRUCTION METHOD AND MATERIALS TO BE IN ACCORDANCE WITH SECTION 104-6 OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD CONSTRUCTION SPECIFICATIONS.
   a) JOINTS OF THE FILTER FABRIC MUST BE OVERLAPPED AND PROPERLY CONNECTED TO PREVENT ANY OPENING FROM OCCURRING.
5. SILT SCREENS MAY ALSO REPRESENT CONSTRUCTION LIMITS BARRIERS. THEY SHALL BE ERECTED PRIOR TO INITIATION OF SITE CLEARING OPERATIONS NEAR WETLANDS, BUFFER AREAS AND ANY OTHER AREAS SHOWN AS PRESERVED OR PROTECTED FROM CONSTRUCTION ACTIVITIES. FAILURE TO INSTALL AND MAINTAIN BARRIERS/SILT SCREENS SHALL BE CAUSE FOR PUNITIVE FINANCIAL PENALTIES. FINANCIAL PENALTIES (PUNITIVE AND REGULATORY), CONSULTING FEES AND ESTIMATED COST OF RESTORATION WILL BE DEDUCTED FROM SUBSEQUENT PAYMENT REQUESTS.

EROSION CONTROL DETAIL

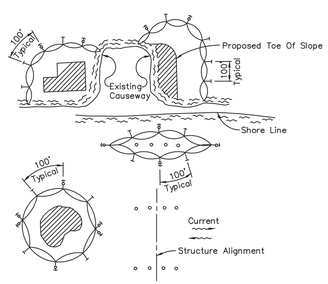


CURB INLET PROTECTION DETAIL



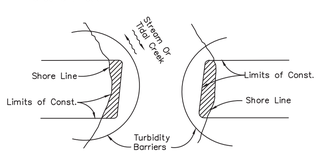
D_1 =5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS)
D_2 =5' STD. (ADDITIONAL PANEL FOR DEPTHS > 5')
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET.
TWO(2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

NOTICE: COMPONENTS OF TYPES I AND II 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 I AND II SHALL BE AS APPROVED BY THE ENGINEER.



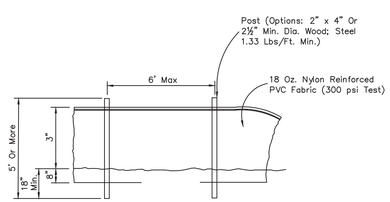
LEGEND

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



Note:
Turbidity barriers for flowing streams and tidal creeks may be either floating, or staked types or any combination 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 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.

NOTES:
1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
2. Namber 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.



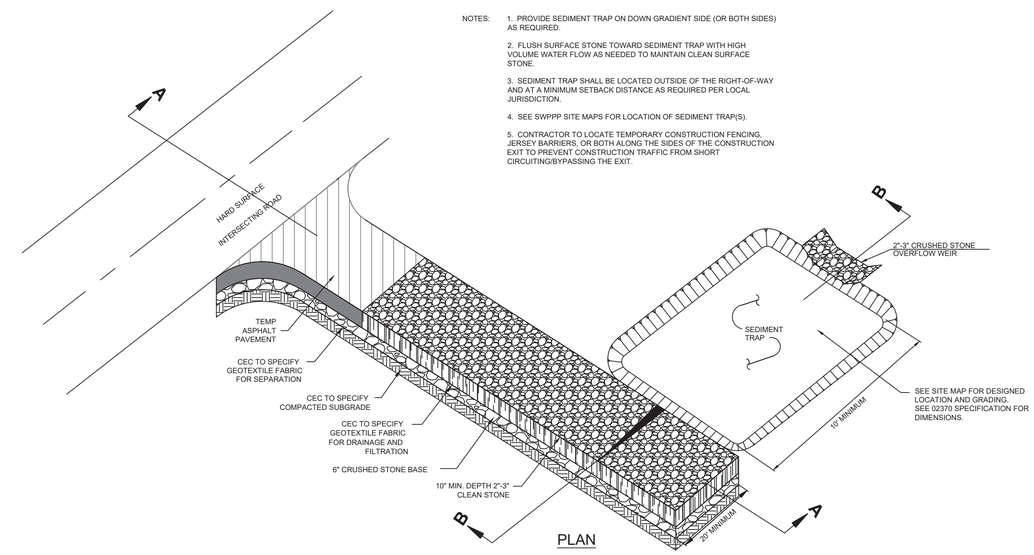
STAKED TURBIDITY BARRIER

GENERAL NOTES

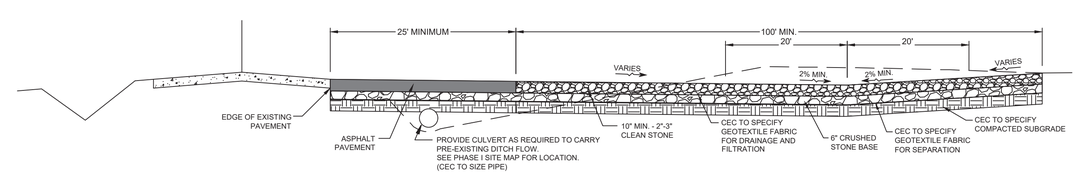
1. Floating turbidity barriers are to be paid for under the contract unit price for Floating Turbidity Barrier, LF.
2. Staked turbidity barriers are to be paid for under the contract unit price for Floating Turbidity Barrier, LF.

TURBIDITY BARRIER (FDOT INDEX 103)

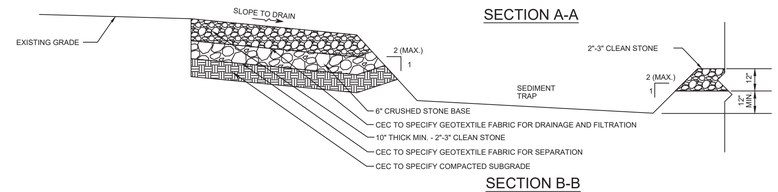
NOTES:
1. PROVIDE SEDIMENT TRAP ON DOWN GRADIENT SIDE (OR BOTH SIDES) AS REQUIRED.
2. FLUSH SURFACE STONE TOWARD SEDIMENT TRAP WITH HIGH VOLUME WATER FLOW AS NEEDED TO MAINTAIN CLEAN SURFACE STONE.
3. SEDIMENT TRAP SHALL BE LOCATED OUTSIDE OF THE RIGHT-OF-WAY AND AT A MINIMUM SETBACK DISTANCE AS REQUIRED PER LOCAL JURISDICTION.
4. SEE SWPPP SITE MAPS FOR LOCATION OF SEDIMENT TRAP(S).
5. CONTRACTOR TO LOCATE TEMPORARY CONSTRUCTION FENCING, JERSEY BARRIERS, OR BOTH ALONG THE SIDES OF THE CONSTRUCTION EXIT TO PREVENT CONSTRUCTION TRAFFIC FROM SHORT CIRCUITING/BYPASSING THE EXIT.



PLAN



SECTION A-A



SECTION B-B

CONSTRUCTION ACCESS

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave.
Tampa, Florida 33624
7978 Cooper Creek Blvd.
University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

REVISIONS

EROSION CONTROL DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY IMMO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\-PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION DETAILS_SWPPP.DWG
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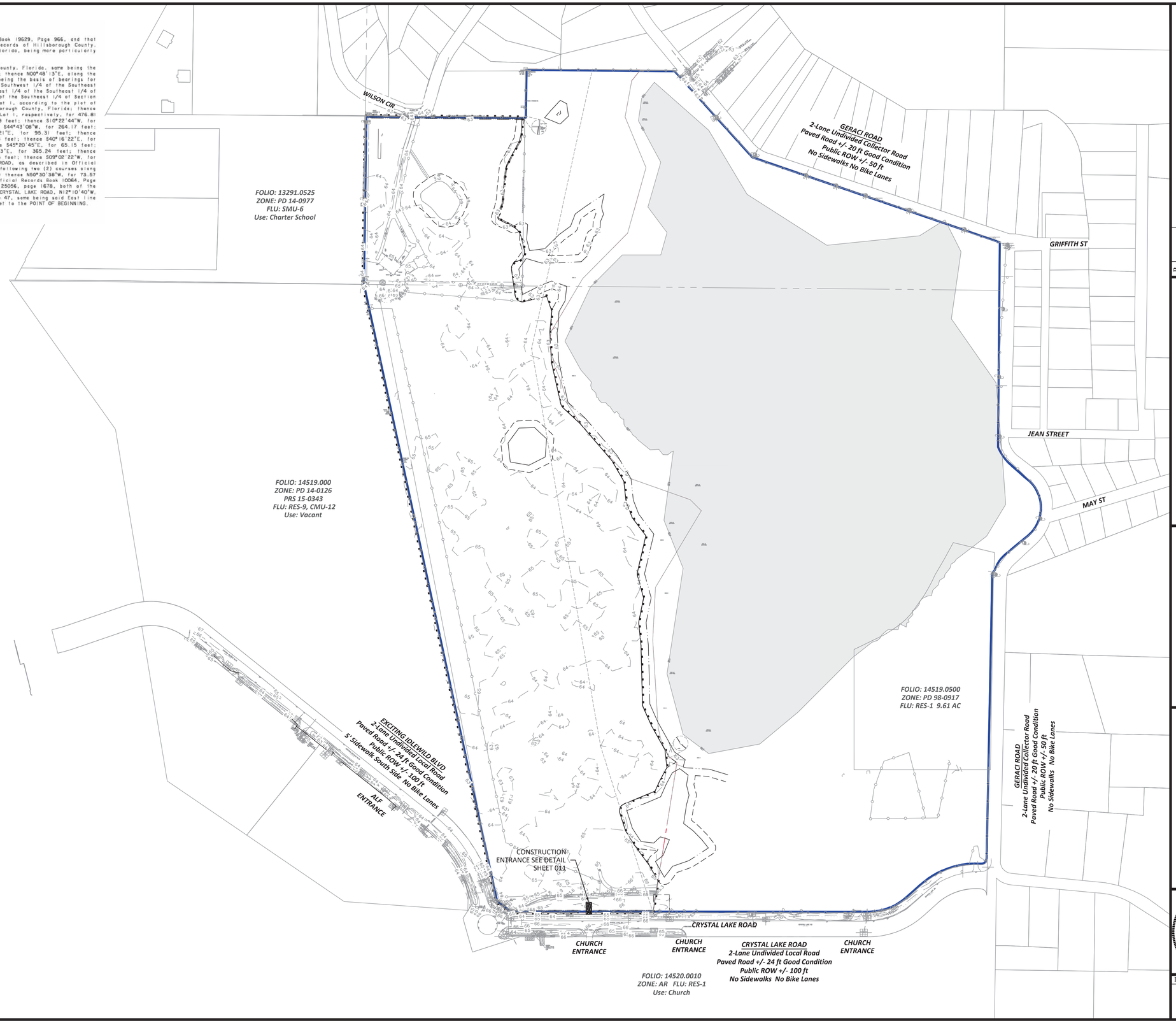
LEGAL DESCRIPTION: (SEE DATA SOURCES 2)

A parcel of land being a portion of that certain property as described in Official Records Book 19629, Page 966, and that certain property as described in Official Records Book 10064, Page 47, both of the Public Records of Hillsborough County, Florida, lying in Sections 10 and 15, Township 27 South, Range 18 East, Hillsborough County, Florida, being more particularly described as follows:

Begin at the North 1/4 corner of Section 15, Township 27 South, Range 18 East, Hillsborough County, Florida, same being the South 1/4 corner of Section 10, Township 27 South, Range 18 East, Hillsborough County, Florida; thence N00°48'13"E, along the West line of the Southwest 1/4 of the Southwest 1/4 of the Southeast 1/4 of said Section 10 (being the basis of bearings for this legal description), for 699.50 feet to the Northwest corner of said Southwest 1/4 of the Southwest 1/4 of the Southeast 1/4 of Section 10; thence S89°27'53"E, along the North line of said Southwest 1/4 of the Southwest 1/4 of the Southeast 1/4 of Section 10, for 661.14 feet to the Northeast corner of said Southwest 1/4 of the Southwest 1/4 of the Southeast 1/4 of Section 10; thence N00°58'28"E, for 199.94 feet to the point of intersection with the South line of Lot 1, according to the plat of LAKE WILSON ESTATES, as recorded in Plat Book 51, Page 69, of the Public Records of Hillsborough County, Florida; thence S89°28'58"E, along said South line of Lot 1, and the Easterly extension of said South line of Lot 1, respectively, for 476.81 feet; thence leaving said Easterly extension of the South line of Lot 1, S39°11'31"W, for 58.49 feet; thence S10°22'44"W, for 152.15 feet; thence S22°34'10"E, for 227.06 feet; thence S15°41'21"W, for 281.84 feet; thence S44°43'08"W, for 264.17 feet; thence S30°46'53"W, for 256.60 feet; thence S08°17'04"W, for 54.94 feet; thence S14°26'21"E, for 95.31 feet; thence S22°08'45"E, for 70.16 feet; thence S16°17'44"E, for 93.87 feet; thence S33°21'46"E, for 88.84 feet; thence S40°16'22"E, for 142.98 feet; thence S43°37'36"E, for 169.90 feet; thence S70°29'44"E, for 264.34 feet; thence S45°20'45"E, for 65.15 feet; thence S30°56'55"W, for 369.87 feet; thence S02°54'12"W, for 218.91 feet; thence S03°29'13"E, for 365.24 feet; thence S13°37'33"E, for 61.67 feet; thence S27°04'34"E, for 66.28 feet; thence S54°54'28"E, for 40.73 feet; thence S09°02'22"W, for 630.60 feet to the point of intersection with the North Right-of-Way line of CRYSTAL LAKE ROAD, as described in Official Records Book 20925, Page 728, of the Public Records of Hillsborough County, Florida; thence the following two (2) courses along said North Right-of-Way line of CRYSTAL LAKE ROAD; (1) thence N89°59'58"W, for 594.08 feet; (2) thence N50°30'38"W, for 73.57 feet to the point of intersection with the West line of that certain property as described in Official Records Book 10064, Page 47, same being the East line of that certain property as described in Official Records Book 25056, page 1678, both of the Public Records of Hillsborough County, Florida; thence leaving said North Right-of-Way line of CRYSTAL LAKE ROAD, N12°10'40"W, along said West line of that certain property as described in Official Records Book 10064, Page 47, same being said East line of that certain property as described in Official Records Book 25056, Page 1678, for 2,614.99 feet to the POINT OF BEGINNING.

Containing 3,061,375 square feet or 70.280 acres, more or less.



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SCALE: FEET

IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE

LEGEND

- PD 21-0877 BOUNDARY
- CONTIGUOUS PROPERTY BOUNDARY
- FEMA FLOODZONES
- WETLAND AND 30 FT BUFFER (UNIMPACTED)
- WETLAND & O.S.W's (IMPACTED)

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OVERALL EXISTING CONDITIONS SHEET

LAKE PEARL

ISSUED FOR: PERMITTING
JOB # 2129 SEC-10 TWN-27 RNG-18 DESIGNED-JAC DRAWN-JRO APPROVED-JAC

JOSEPH ANTHONY C. IAVINO
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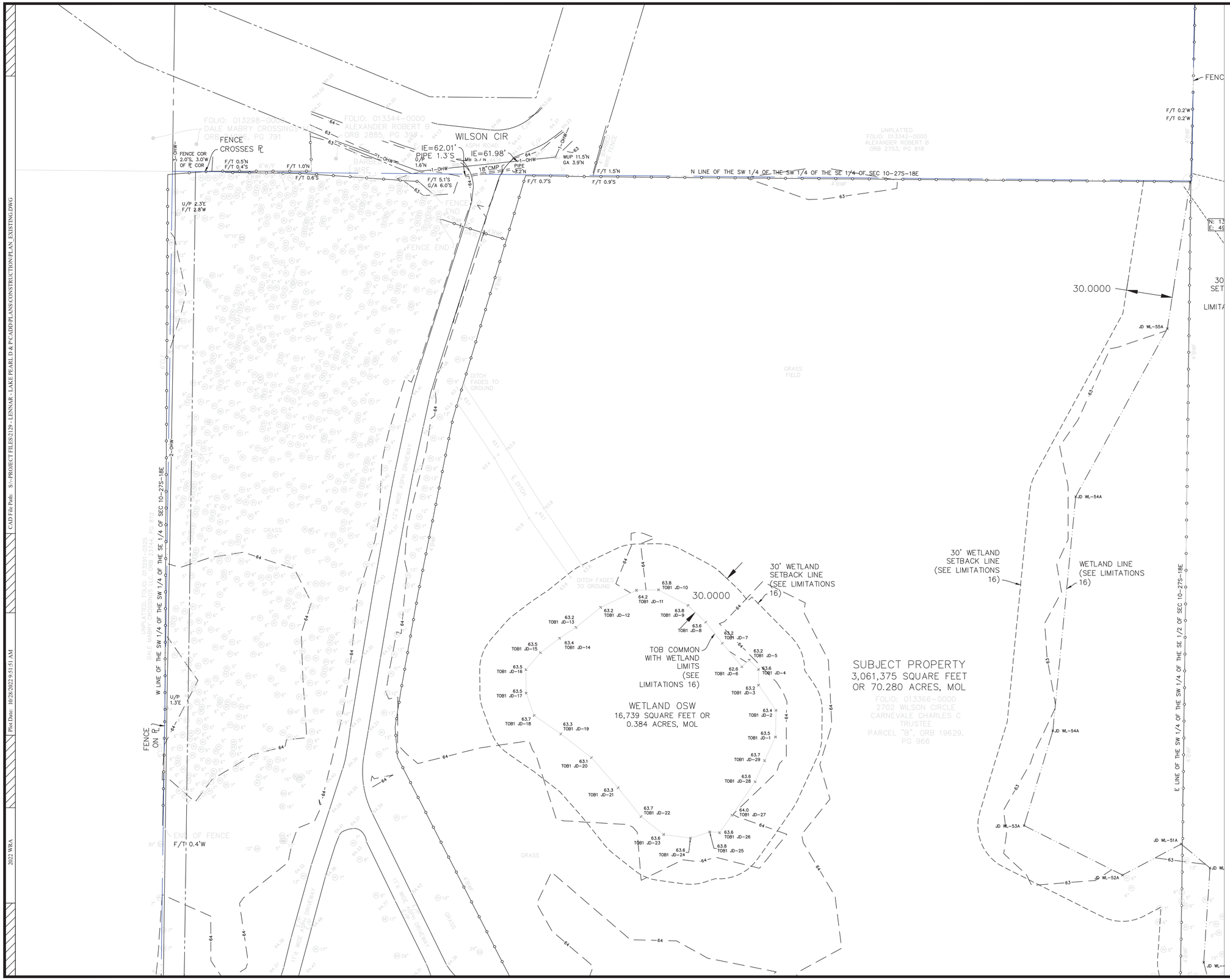
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88



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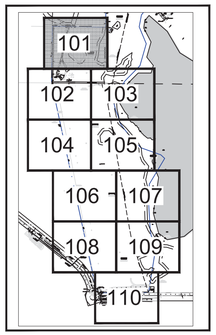

SITE MAP

LEGEND

- CONTIGUOUS PROPERTY BOUNDARY
- FEMA FLOODZONES
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WRA

EXISTING CONDITIONS PLAN

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JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY C. LIMTAO
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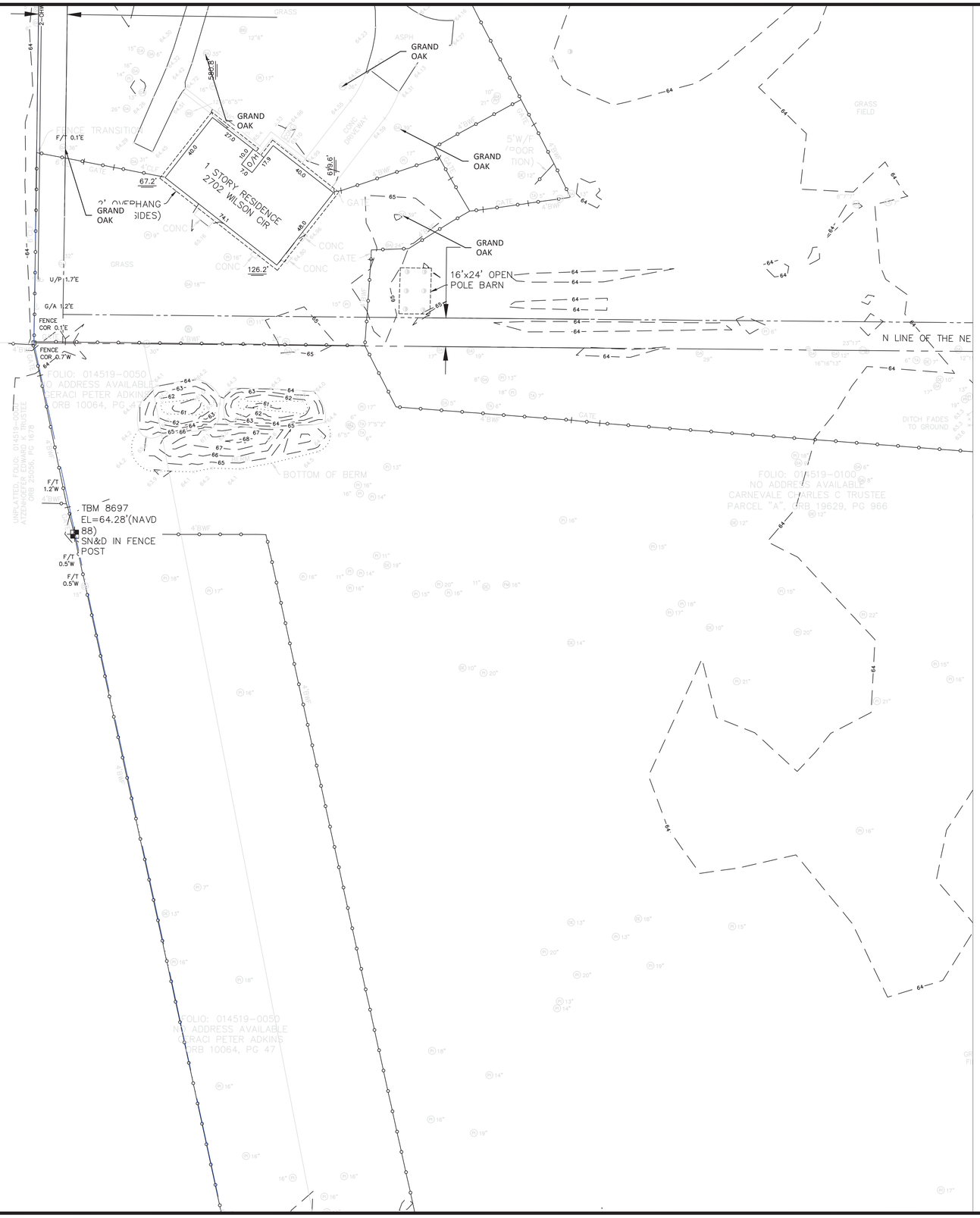

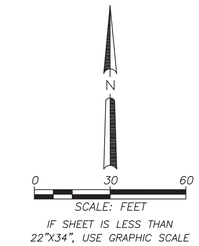

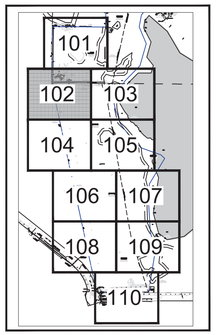

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JOSEPH ANTHONY CIMINO
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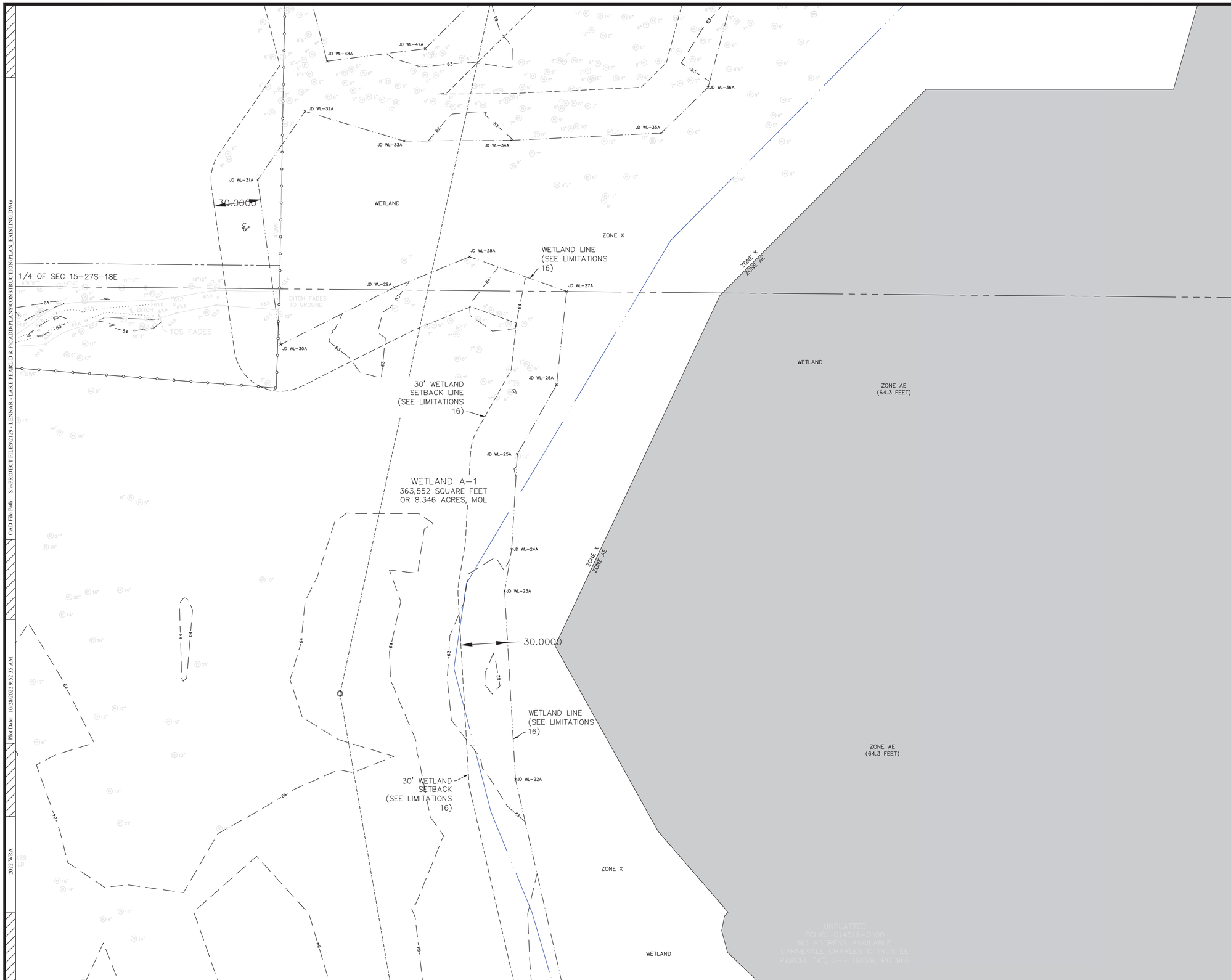

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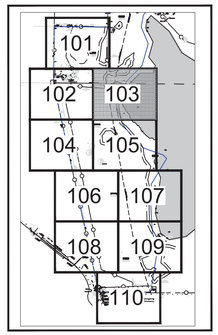

SITE MAP

LEGEND

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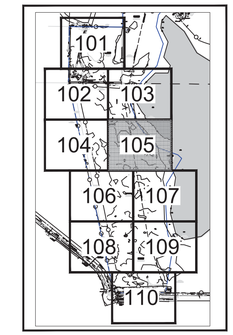

SITE MAP

LEGEND

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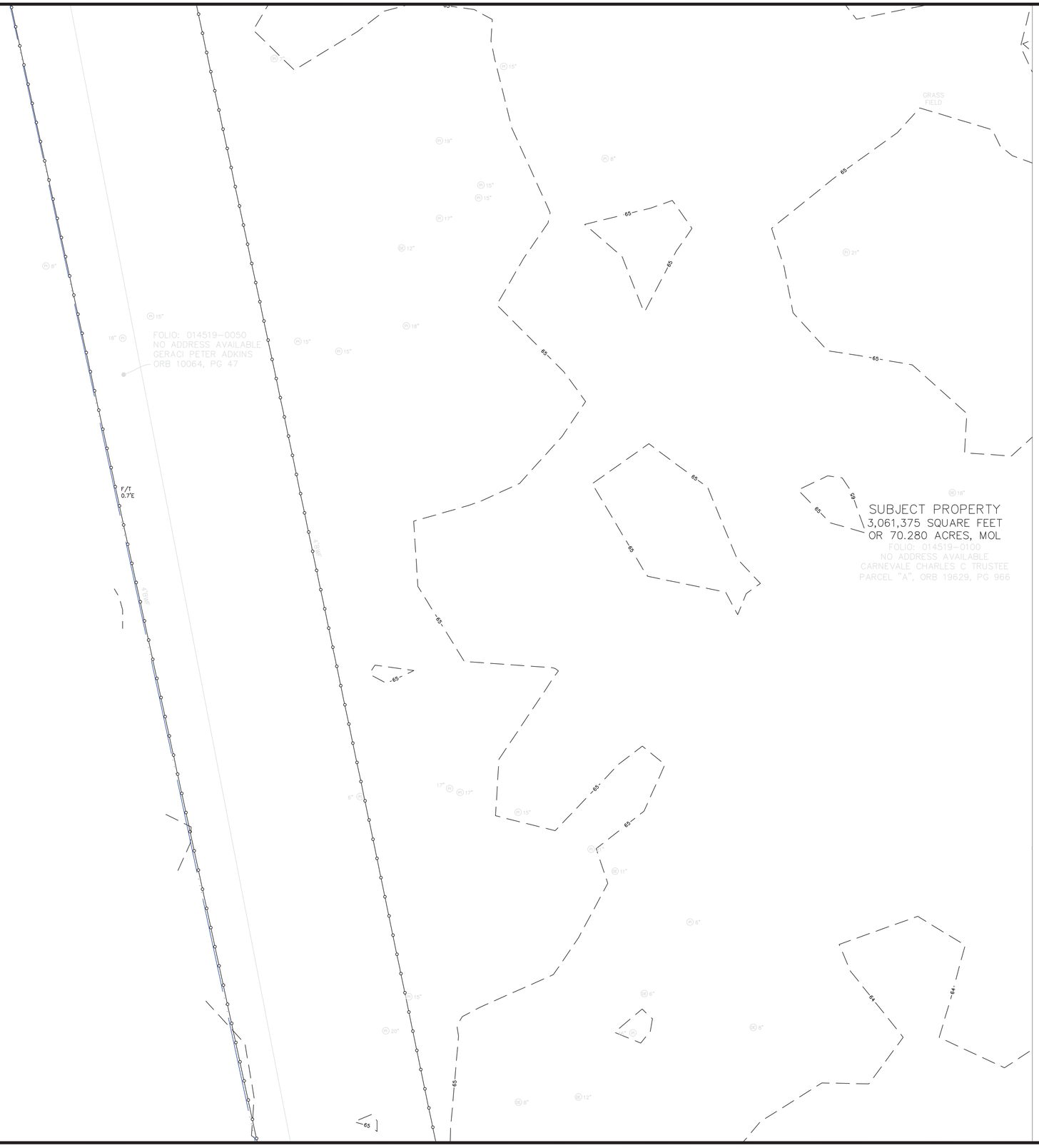

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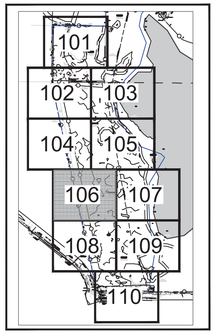

SITE MAP

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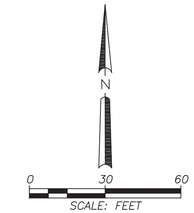

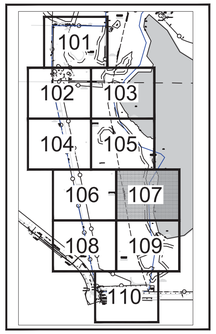

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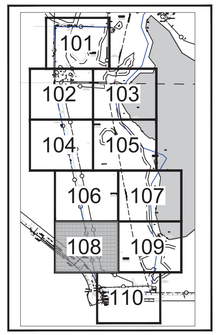

SITE MAP

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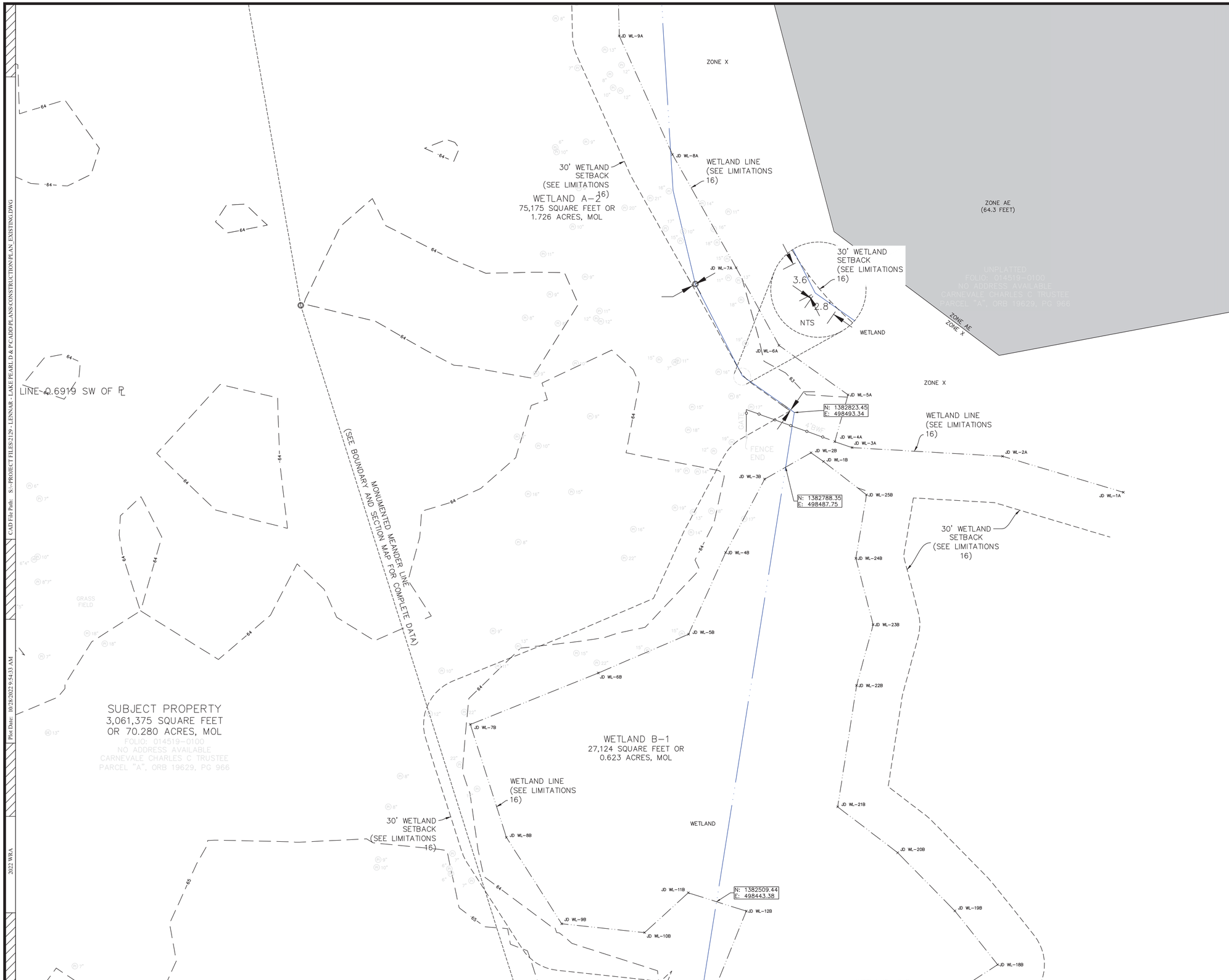

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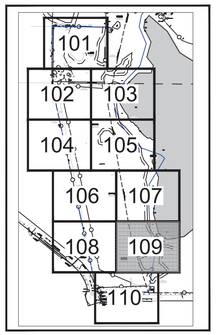

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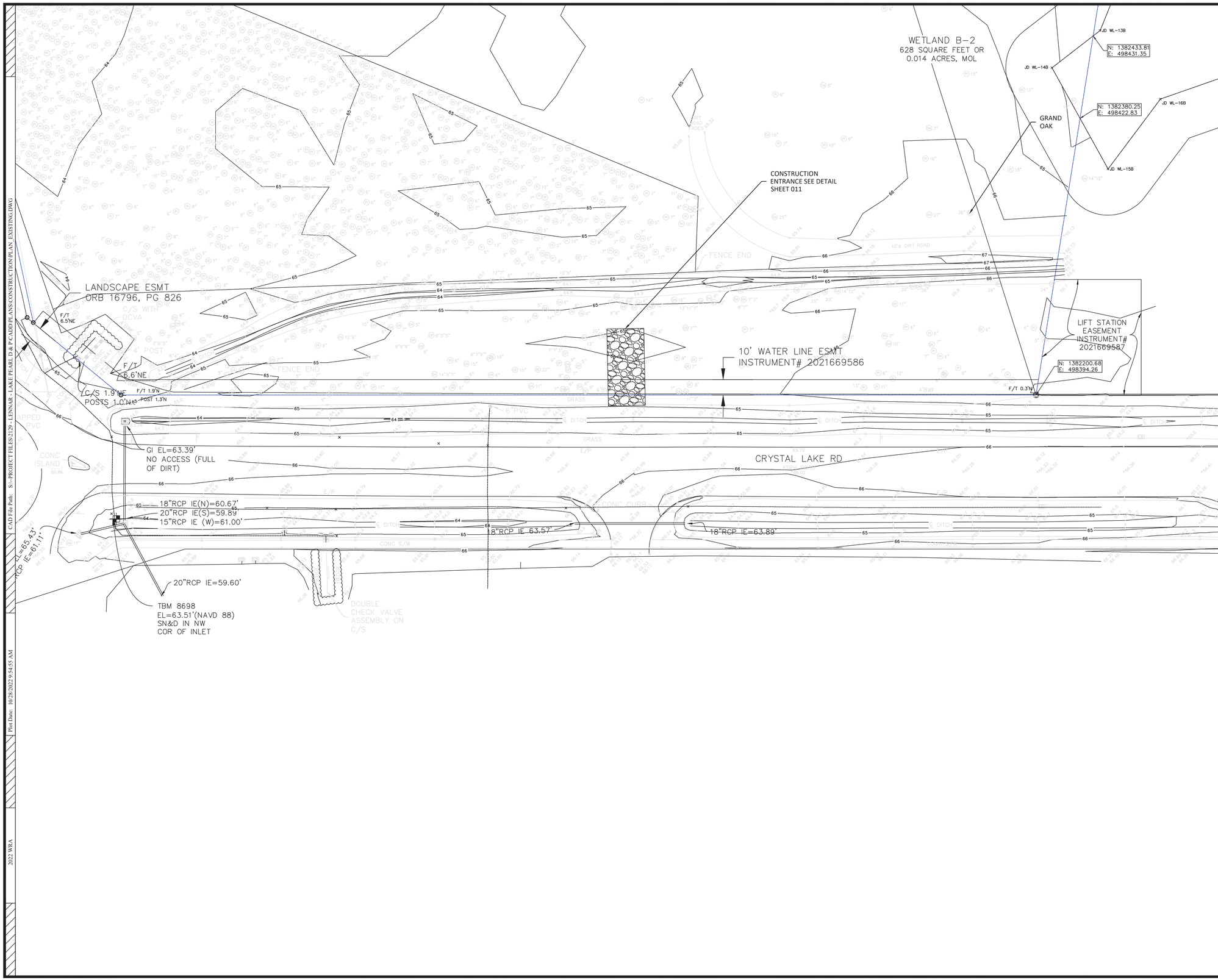

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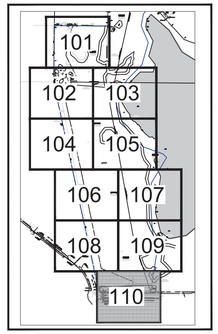

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- FEMA FLOODZONES
- WETLAND AND 30 FT BUFFER (UNIMPACTED)
- WETLAND & O.S.W's (IMPACTED)

REVISIONS

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave. Tampa, Florida 33624
7978 Cooper Creek Blvd. University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

WRA

EXISTING CONDITIONS PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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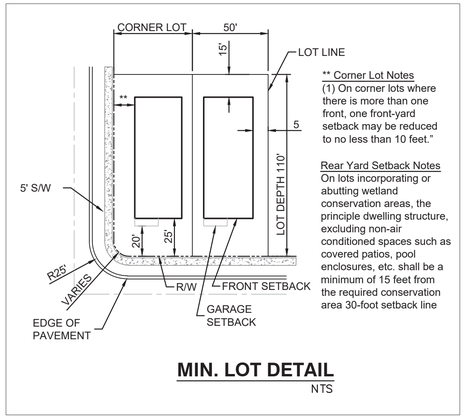
Plot Date: 10/28/2022 9:54:55 AM
2022 WRA

Minimum Lot Standards										
PRODUCT TYPE	MIN. WIDTH	MIN. DEPTH	MIN. Area (SF)	MINIMUM SETBACKS				MAX. HEIGHT	MAX LOT COVERAGE	MAXIMUM IMPERVIOUS
				FRONT	GARAGE	REAR (D)	SIDE (E)			
SF Detached	50	110	5,500	25	20	15	5	35	40%	NA



** Corner Lot Notes
(1) On corner lots where there is more than one front, one front-yard setback may be reduced to no less than 10 feet."

Rear Yard Setback Notes
On lots incorporating or abutting wetland conservation areas, the principle dwelling structure, excluding non-air conditioned spaces such as covered patios, pool enclosures, etc. shall be a minimum of 15 feet from the required conservation area 30-foot setback line

MIN. LOT DETAIL
NTS

NOTES:

1. POTABLE WATER BY HILLSBOROUGH COUNTY PER PD 21-0877
2. SEWAGE DISPOSAL BY HILLSBOROUGH COUNTY PER PD 21-0877 RECLAIMED WATER PER HILLSBOROUGH COUNTY PER
3. CONSTRUCTION PLANS TO BE SUBMITTED TO & APPROVED BY HILLSBOROUGH COUNTY
4. PROJECT LIES IN FLOOD ZONES "AE & "X" ACCORDING TO FLOOD INSURANCE RATE MAPS, MAP NO. 12057C0063H FOR HILLSBOROUGH COUNTY, FLORIDA, COMMUNITY NO. 120112, DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
5. DRAINAGE SHALL COMPLY WITH HILLSBOROUGH COUNTY AND SWFWMD REGULATIONS.
6. THIS PROJECT SHALL BE DESIGNED TO MEET EXISTING FEDERAL, STATE AND LOCAL REGULATIONS FOR BUILDINGS, STRUCTURES AND OTHER AMENITIES TO PROVIDE HANDICAP ACCESSIBILITY ON SITE.
7. NO OVERLAY DISTRICTS ARE CONTAINED IN THIS PROJECT
8. NORTHERN MOST LOTS SHALL BE 1-STORY IN HEIGHT

N

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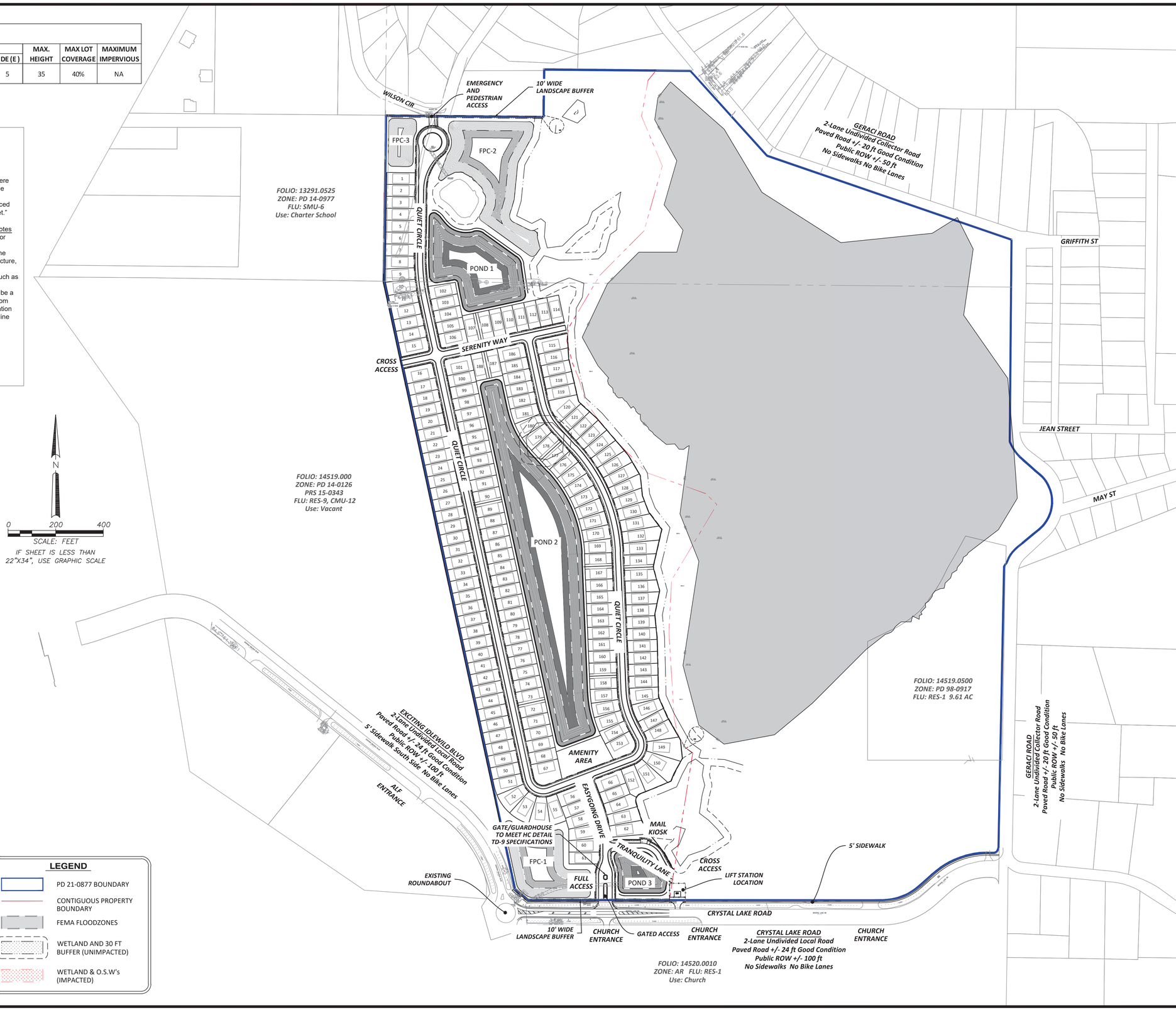
IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE



PROJECT DATA

PROJECT AREA:

Overall Property	70.3 Ac
PD Boundary	175.4 Ac
Upland Areas	58.8 Ac
Wetland Areas	11.5 Ac

PROPERTY ZONING:
ZONED: PD 21-0877

PROPERTY EXISTING LAND USE:
AGRICULTURE

PROPERTY FUTURE LAND USE:
CMU-12, R-1, R-9

PROPERTY PROPOSED LAND USE:
SINGLE FAMILY (188 LOTS)

FOLIO NUMBER:
13366.0000

LEGEND

- PD 21-0877 BOUNDARY
- CONTIGUOUS PROPERTY BOUNDARY
- FEMA FLOODZONES
- WETLAND AND 30 FT BUFFER (UNIMPACTED)
- WETLAND & O.S.W's (IMPACTED)

REVISIONS

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OVERALL SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB # 2129 SEC-10 TWN-27 RNG-18 DESIGNED-JAC DRAWN-JRO APPROVED-JAC

JOSEPH ANTHONY CHAMO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

200

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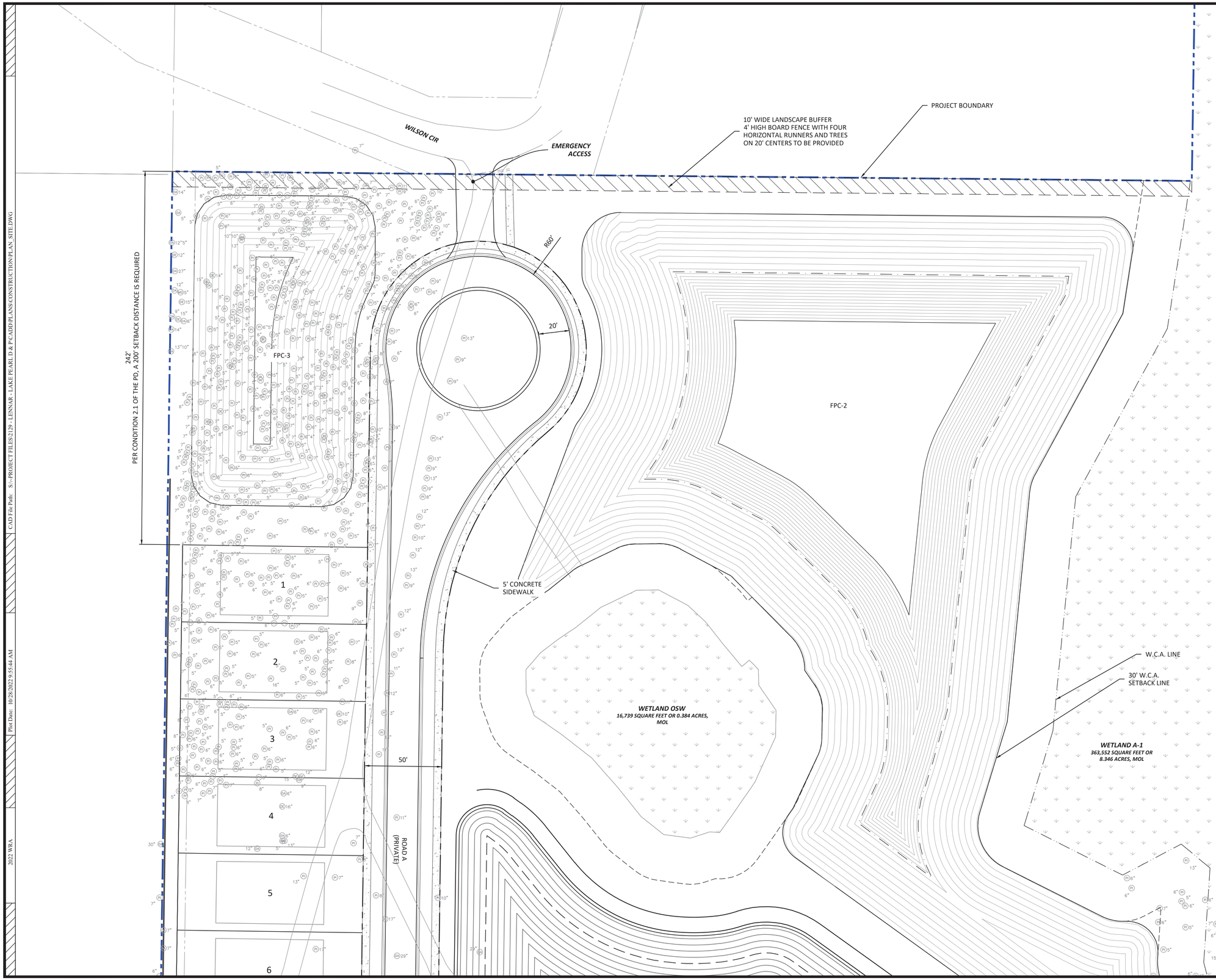
2022 WRA



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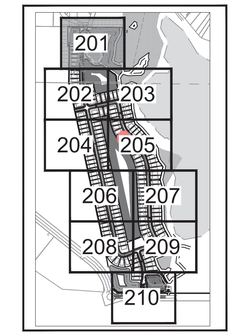

SITE MAP

LEGEND

- CONTIGUOUS PROPERTY BOUNDARY
- FEMA FLOODZONES
- WETLAND AND 30 FT BUFFER (UNIMPACTED)
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SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY C. LIVINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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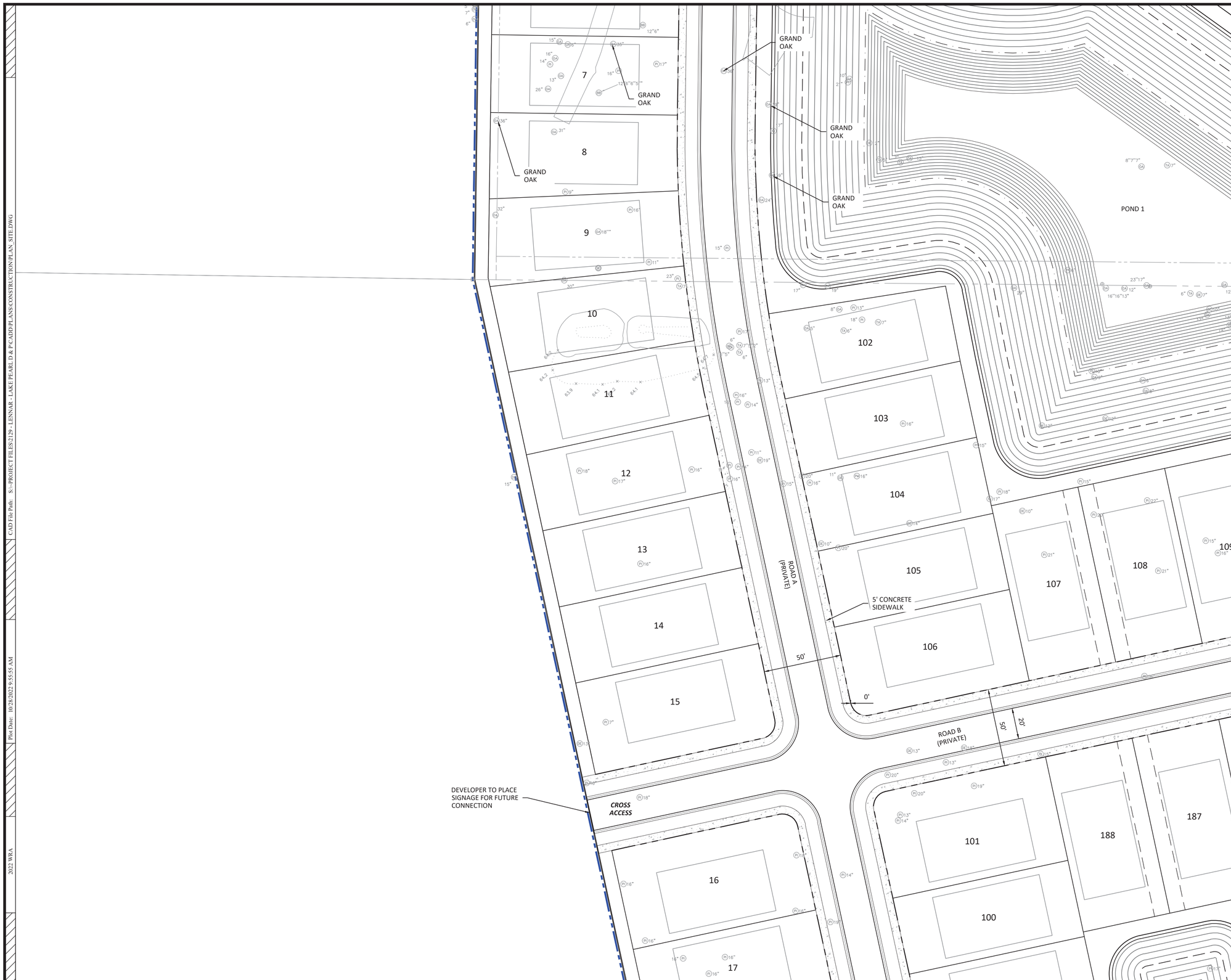

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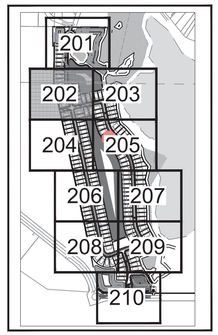

SITE MAP

LEGEND

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SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CAMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

202

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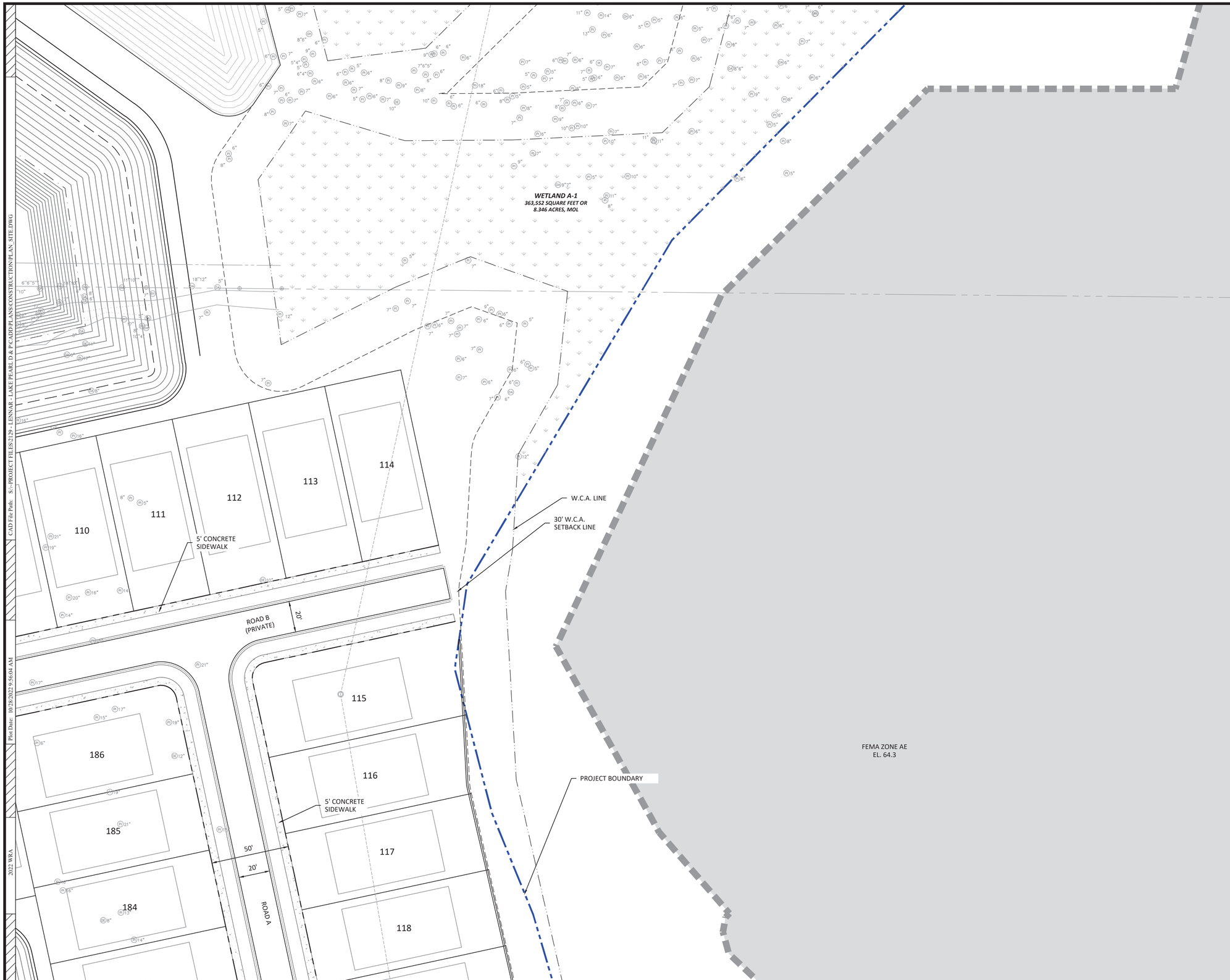

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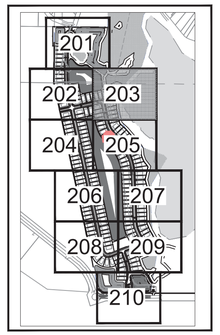

SITE MAP

LEGEND

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- FEMA FLOODZONES
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SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC - 10 TWN - 27 RNG - 18 DESIGNED - JAC DRAWN - JRO APPROVED - JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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2022 WRA

FOLIO: 14519.000
ZONE: PD 14-0126
PRS 15-0343
FLU: RES-9, CMU-12
Use: Vacant

N

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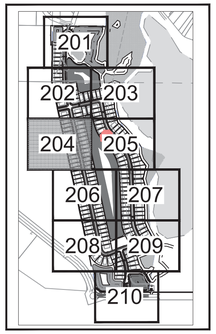

SITE MAP

LEGEND

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SITE PLAN

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JOSEPH ANTHONY CIMINO
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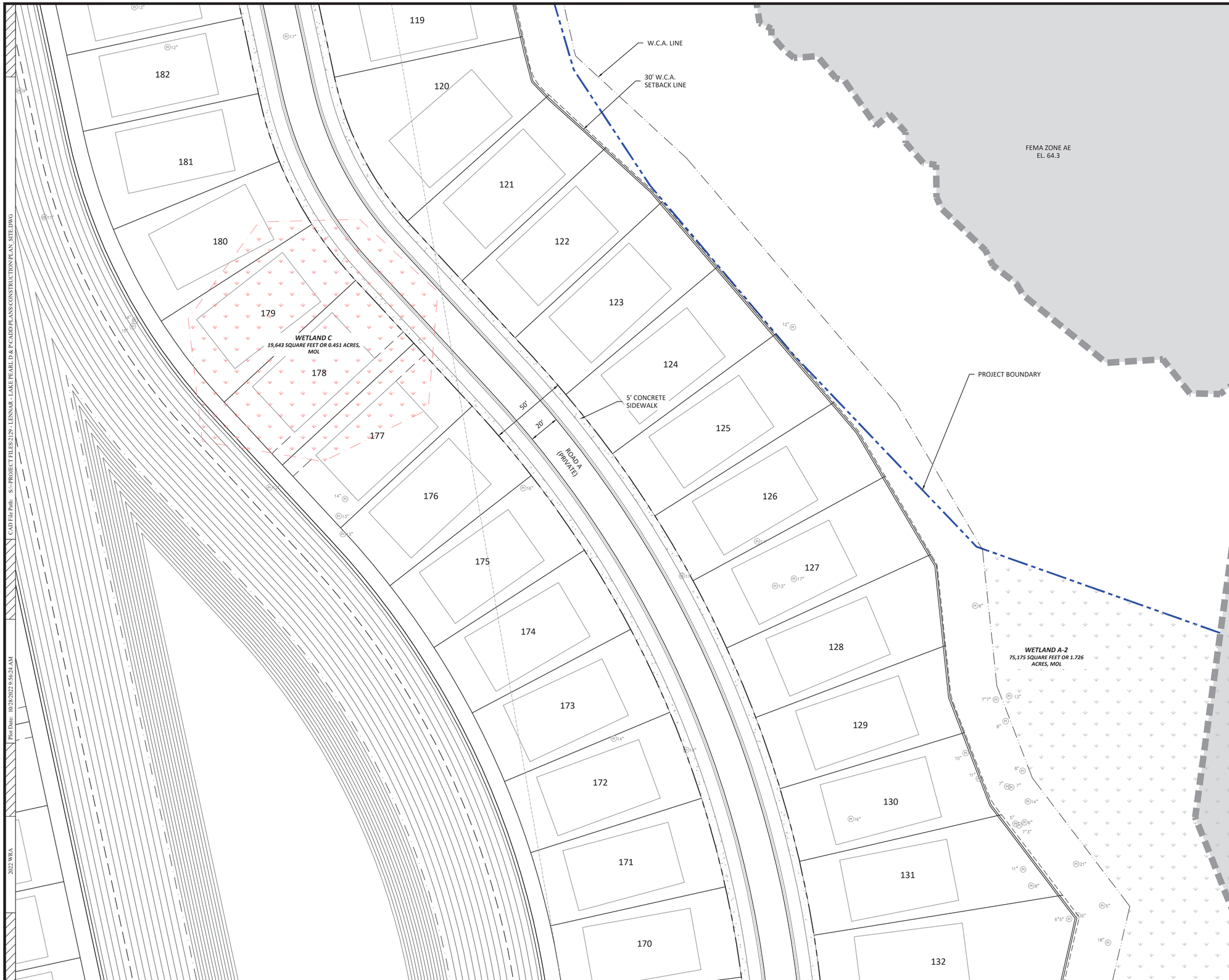

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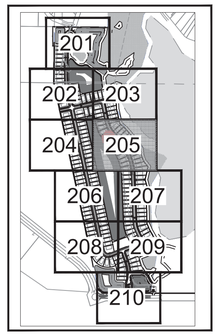

SITE MAP

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SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
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JOSEPH ANTHONY CARTINO
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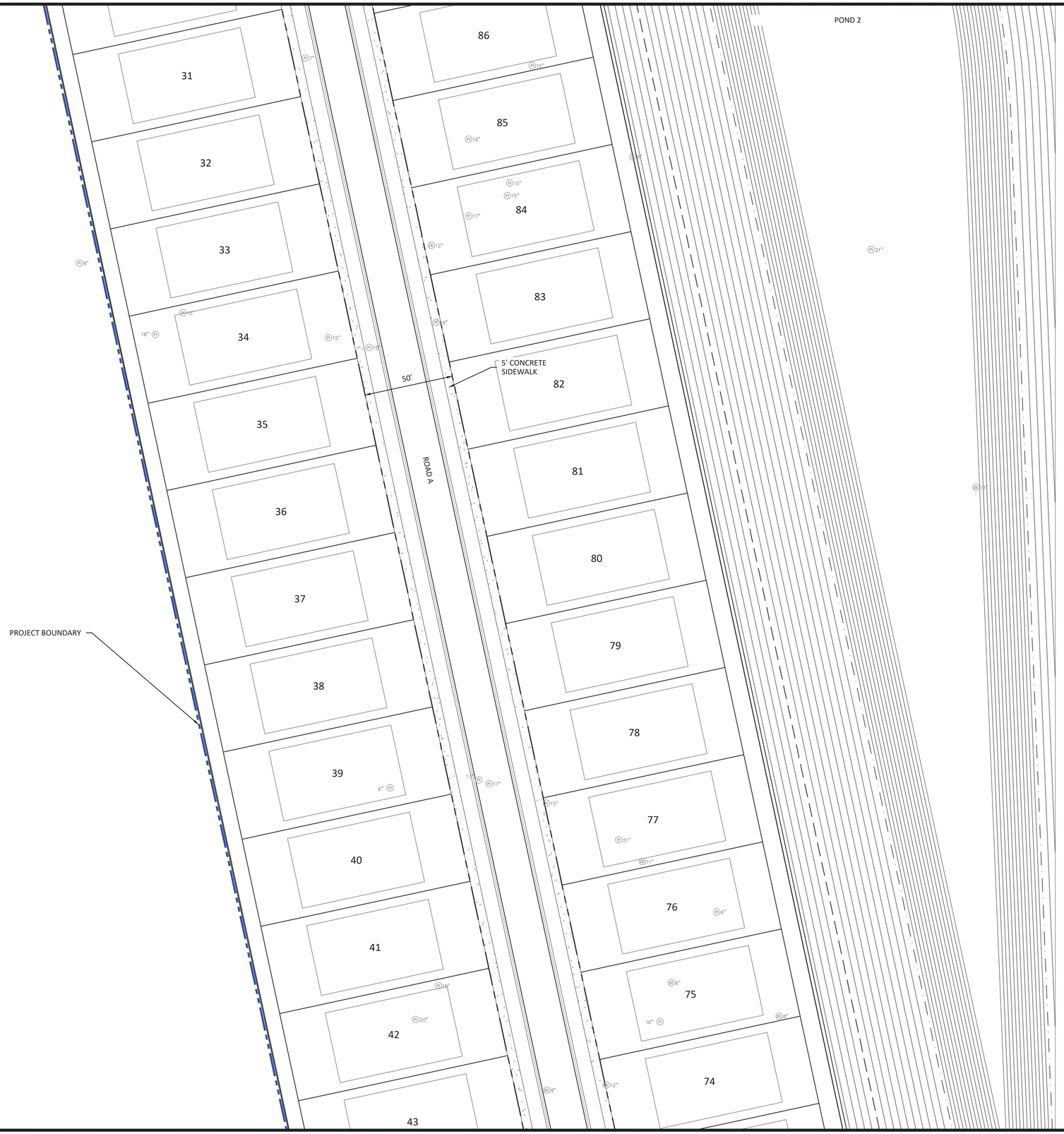

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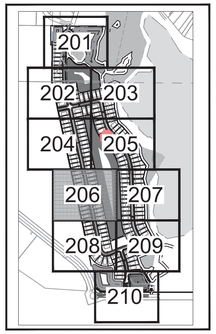

SITE MAP

LEGEND

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SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB # 2129 SEC-10 TWN-27 RNG-18 DESIGNED-JAC DRAWN-JRO APPROVED-JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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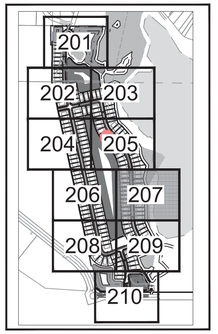

SITE MAP

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SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 21P2 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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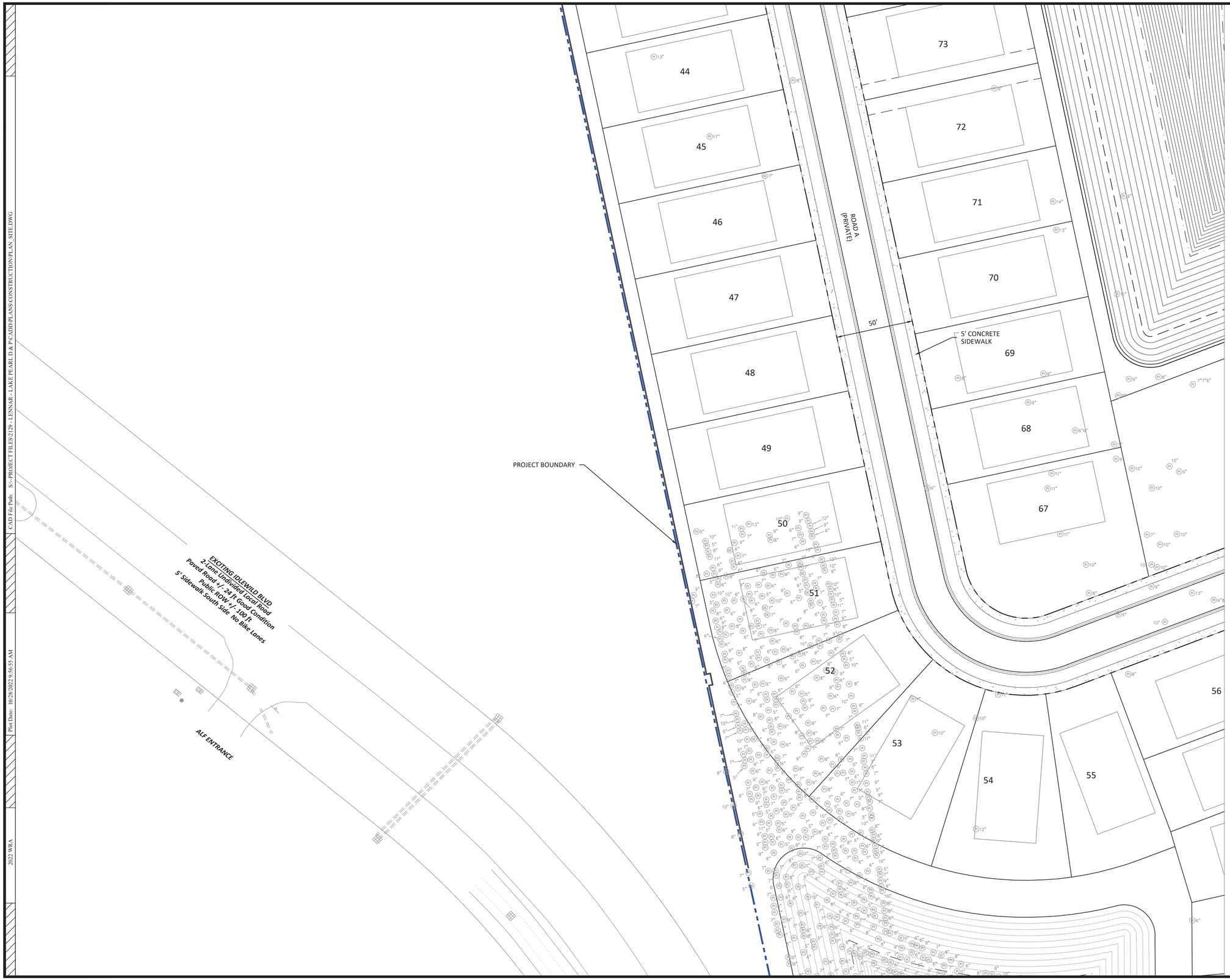

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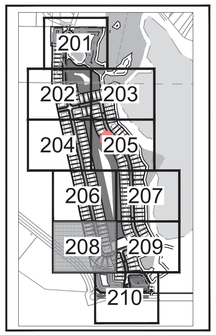

SITE MAP

LEGEND

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WRA

SITE PLAN

LAKE PEARL

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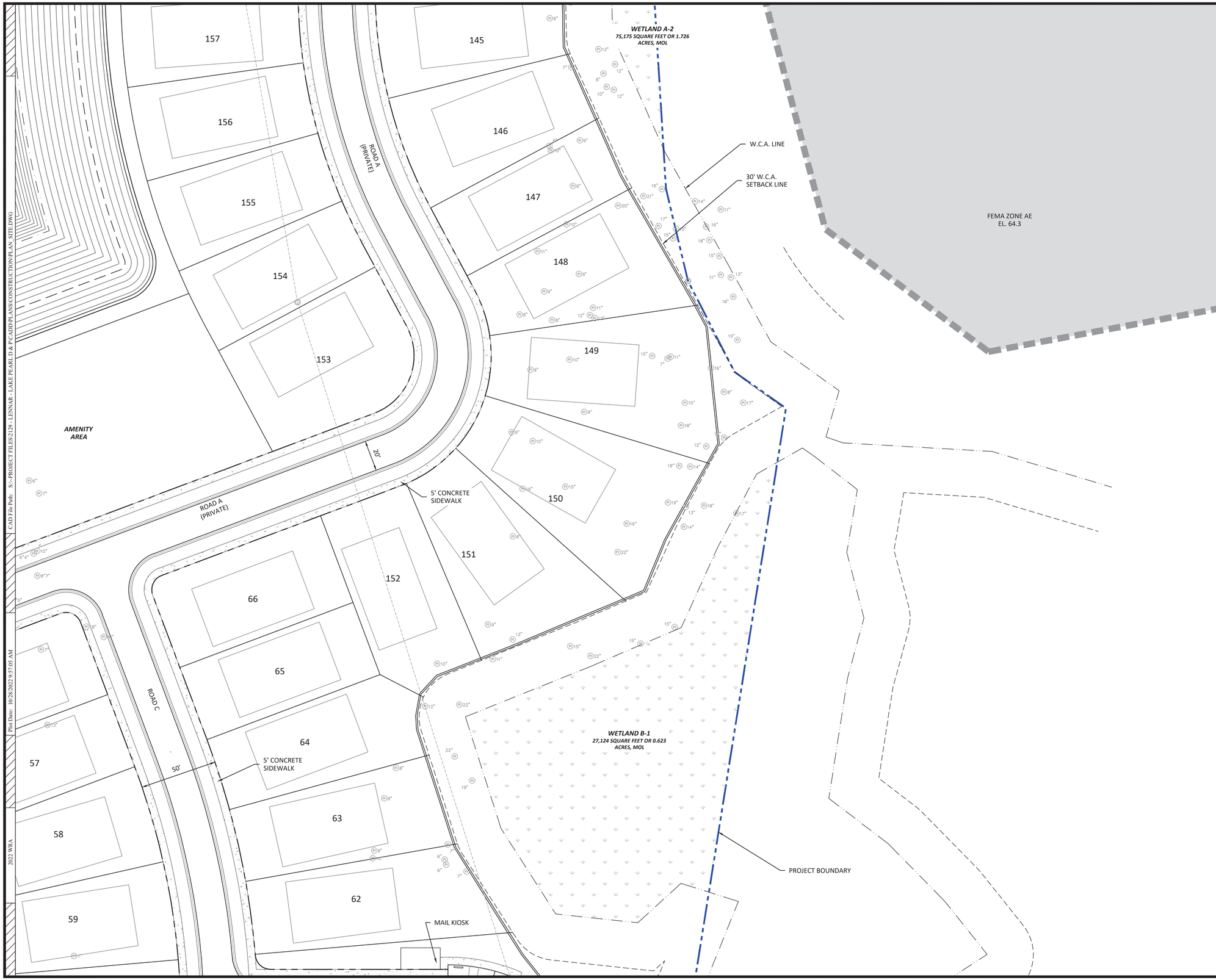

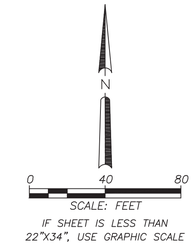

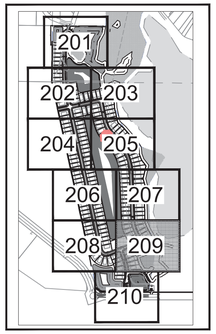

SITE MAP

LEGEND

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SITE PLAN

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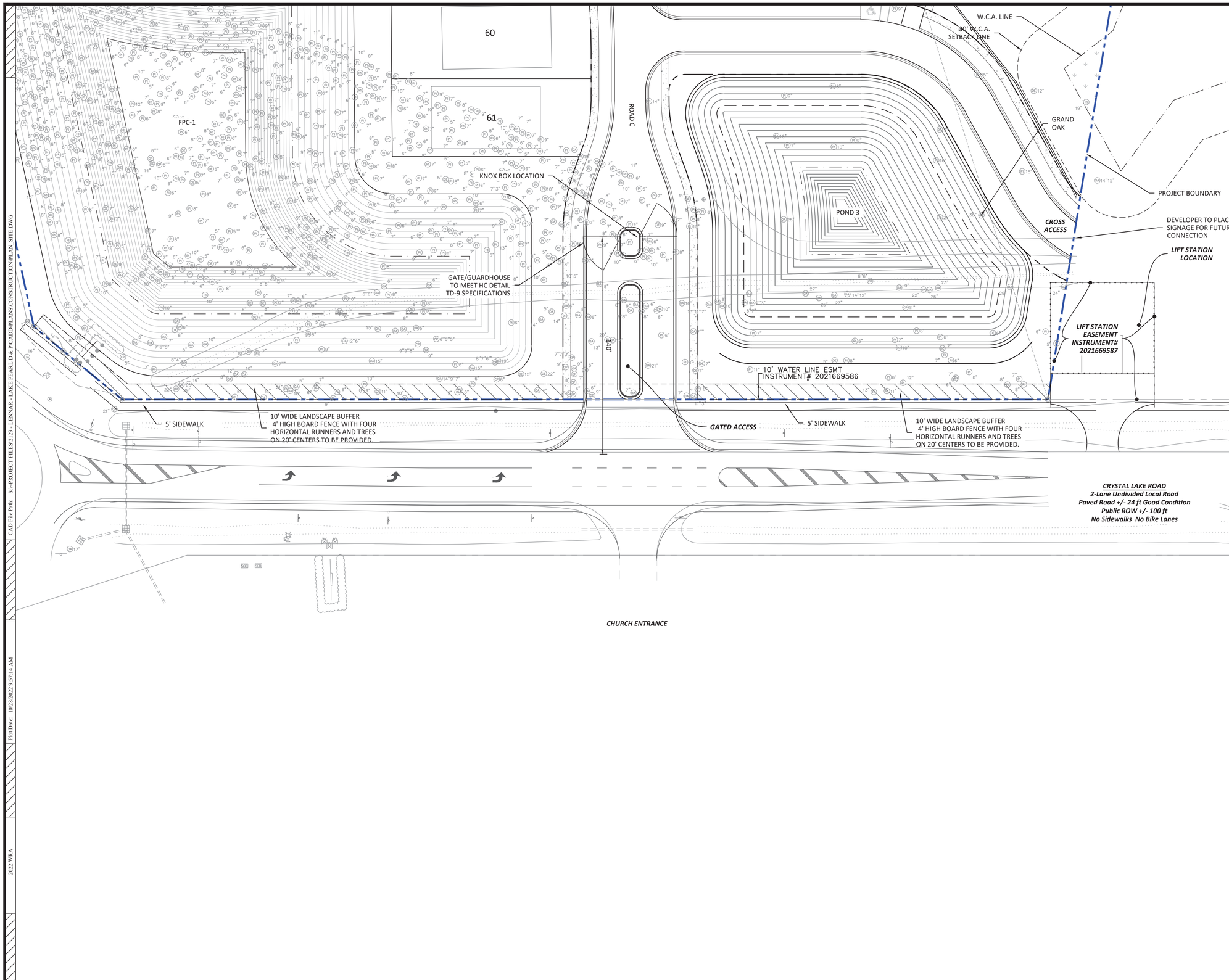

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SCALE: FEET

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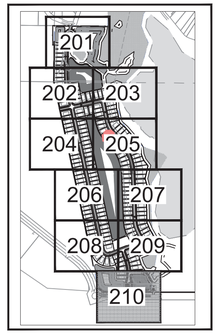

SITE MAP

LEGEND

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SITE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
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JOSEPH ANTHONY CIMINO
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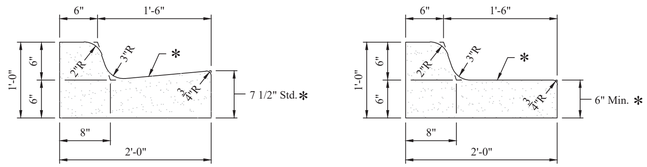
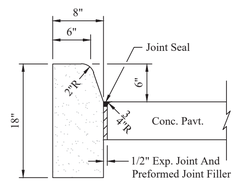


TYPE 'F' CURB DETAIL

F.D.O.T. INDEX NO. 520-001
NOT TO SCALE



TYPE 'D' CURB DETAIL

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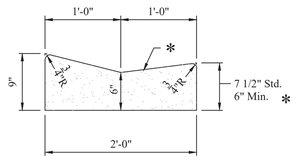
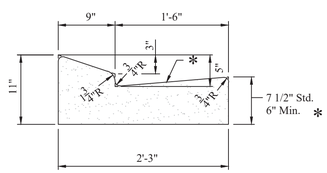


Note: To be paid for as parent curb.

MIAMI CURB DETAIL

NOT TO SCALE



TYPE 'E' CURB DETAIL

F.D.O.T. INDEX NO. 520-001
NOT TO SCALE

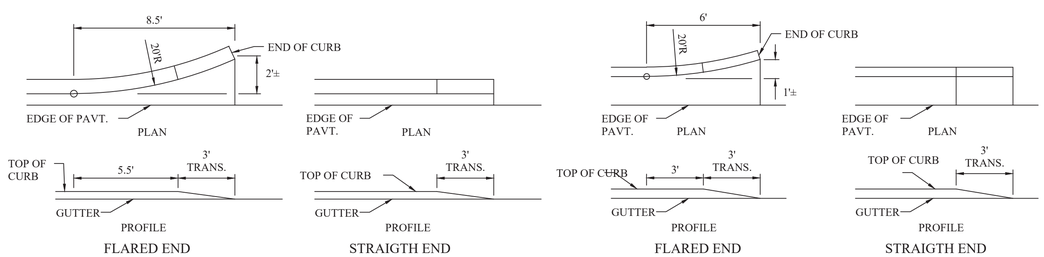
Note:
For use adjacent to concrete or flexible pavement, concrete shown.
Expansion joint, preformed joint filler and joint seal are required between curbs and concrete pavement only.

* When used on high side of roadways, the cross slope of the gutter shall match the cross slope of the adjacent pavement. The thickness of the lip shall be 6", unless otherwise shown on plans.

Note:
For use adjacent to concrete or flexible pavement, concrete shown.
For details depicting usage adjacent to flexible pavement, see diagram below. Expansion joint, preformed joint filler and joint seal are required between curbs and concrete pavement only.

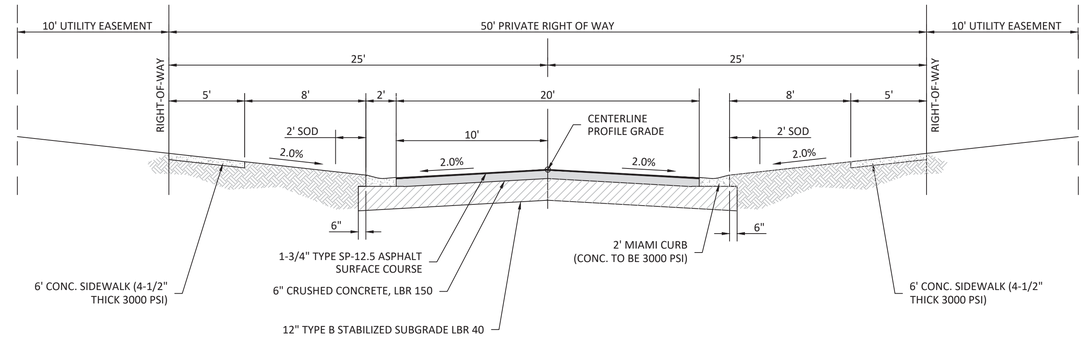
GENERAL NOTES:

1. For curb, gutter and curb and gutter provide 1/8" - 1/4" contraction joints at 10' centers (max.). Contraction joints adjacent to concrete pavement on tangents and flat curves are to match the pavement joints, with intermediate joints not to exceed 10' centers. Curb, gutter and curb & gutter expansion joints shall be located in accordance with Section 520 of the standard specifications.
2. Ends of Curbs Type D shall transition from full to zero heights in 3 feet.

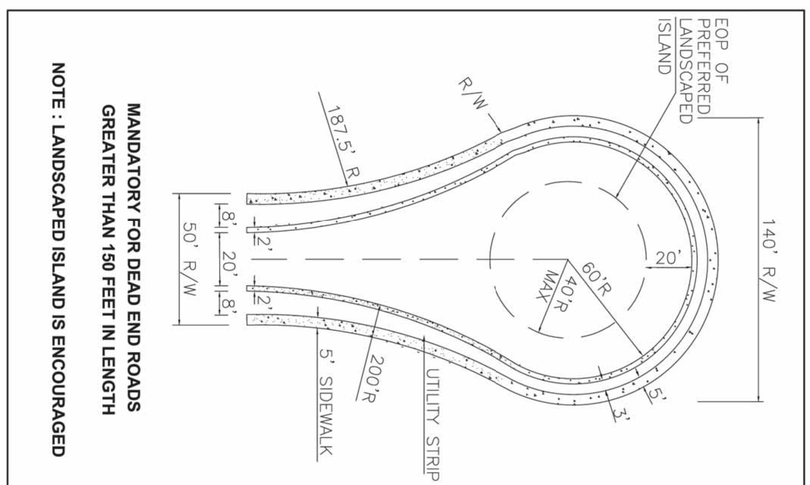


CURB & GUTTER ENDINGS

N.T.S.



TYPICAL ROADWAY SECTION



MANDATORY FOR DEAD END ROADS GREATER THAN 150 FEET IN LENGTH

NOTE : LANDSCAPED ISLAND IS ENCOURAGED

REVISION DATE:	TRANSPORTATION TECHNICAL MANUAL	Hillsborough County Florida	CUL-DE-SAC (MANDATORY FOR DEAD END ROADS GREATER THAN 150 FEET IN LENGTH) TYPICAL DETAILS	DRAWING NO. TD-4 / SHEET NO. 2 OF 2

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www.wraengineering.com
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Phone: 813.265.3130 941.275.9721

SITE PLAN DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB # 2129 SEC-10 TWN-27 RNG-18 DESIGNED-JAC DRAWN-FRO APPROVED-JAC

JOSEPH ANTHONY CATINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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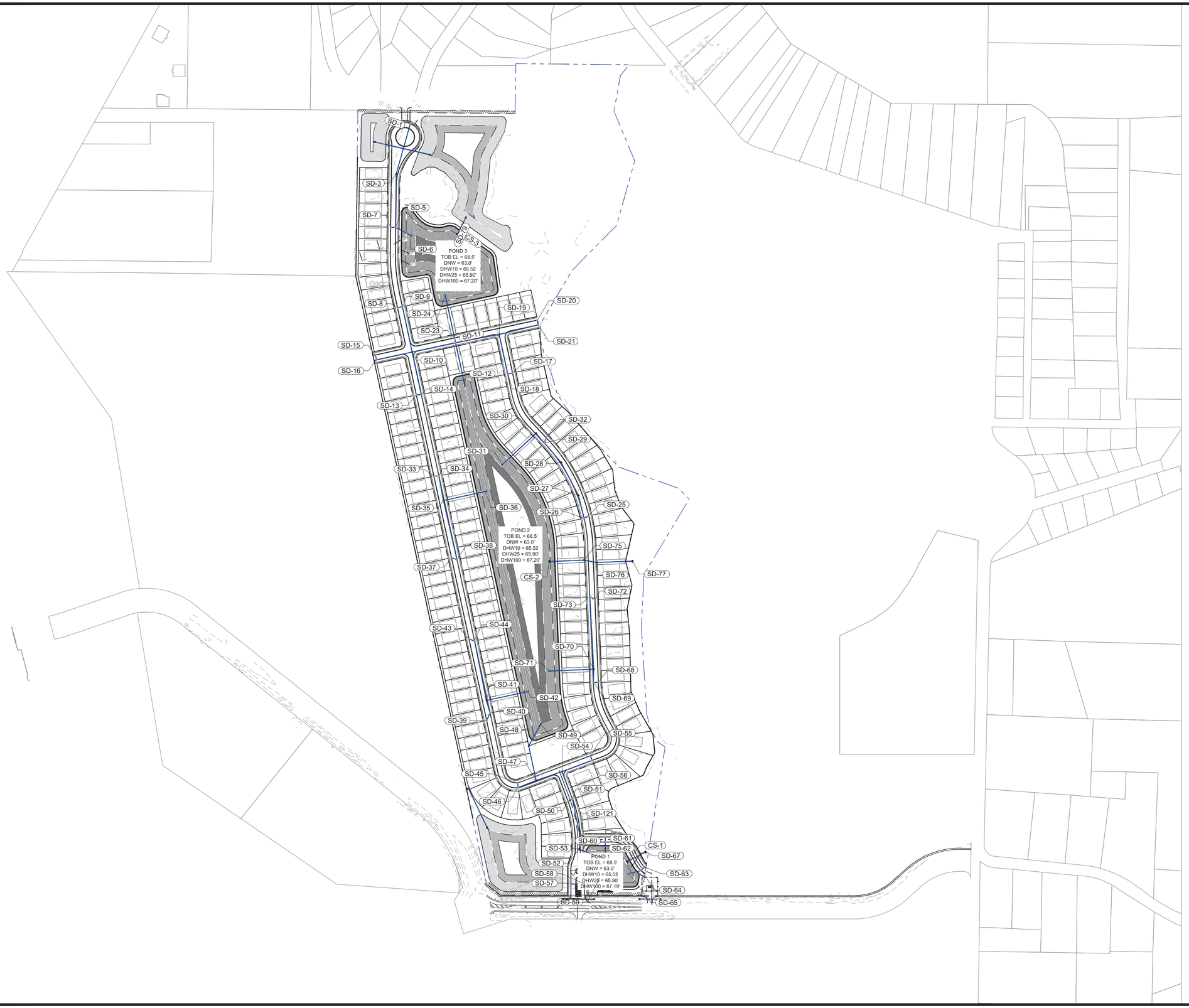

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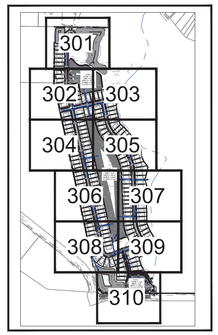
SCALE: FEET

IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE



SITE MAP

LEGEND

- CONTIGUOUS PROPERTY BOUNDARY
- FEMA FLOODZONES
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- WETLAND & O.S.W's (IMPACTED)

GRADING AND DRAINAGE INDEX

- MANHOLE
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- TYPE 9 INLET
- DRAINAGE PIPE
- SILT FENCE
- FLOW DIRECTION
- ⊠18.34 PROPOSED EOP ELEVATION
- ⊠17.64 EG MATCH EXISTING ELEVATION

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OVERALL GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18
DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

2022 WRA
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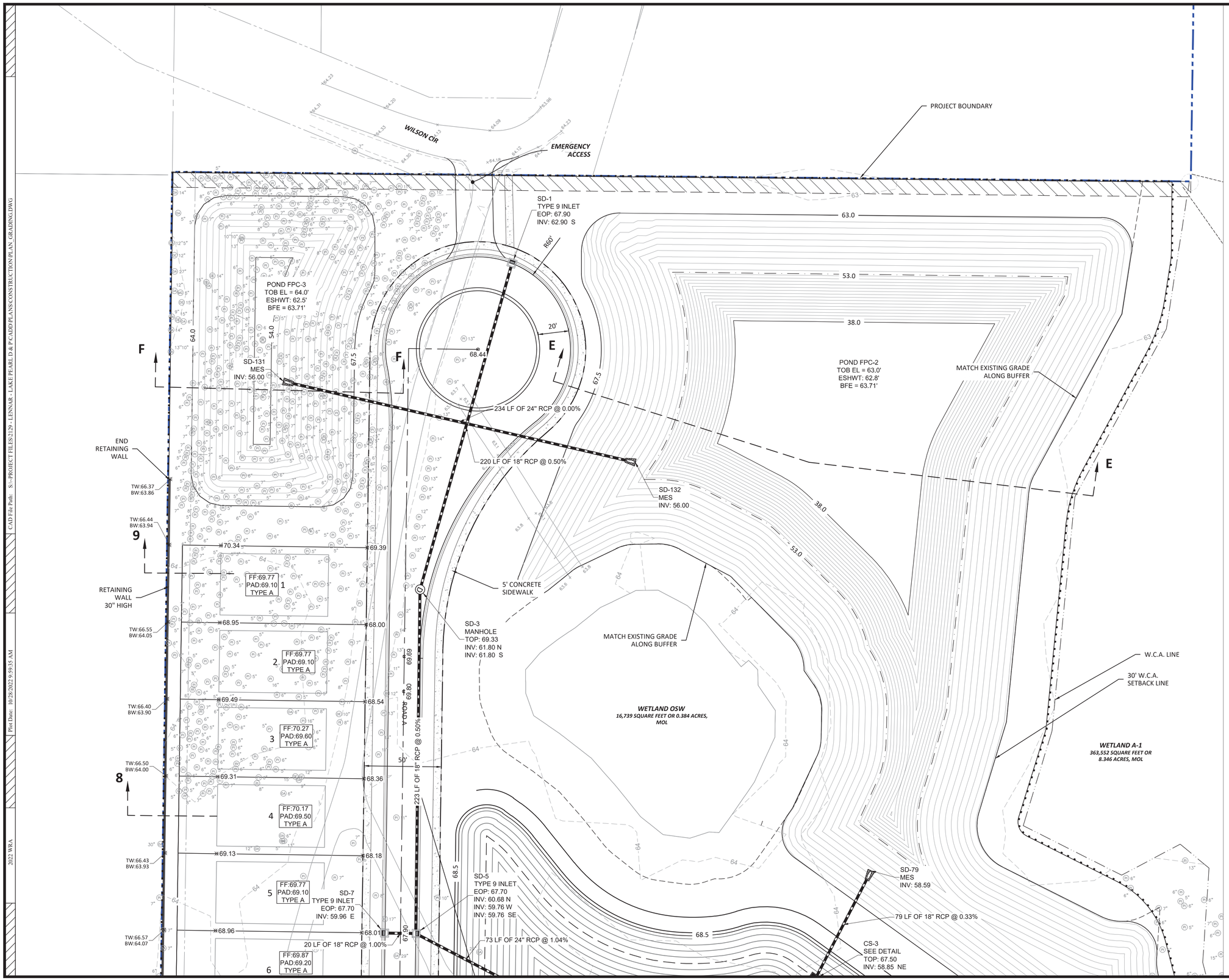

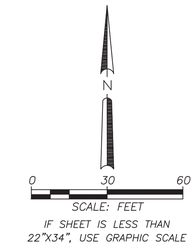

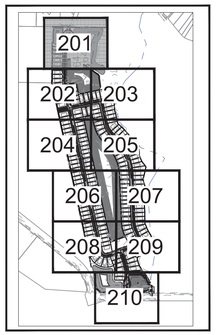

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18
DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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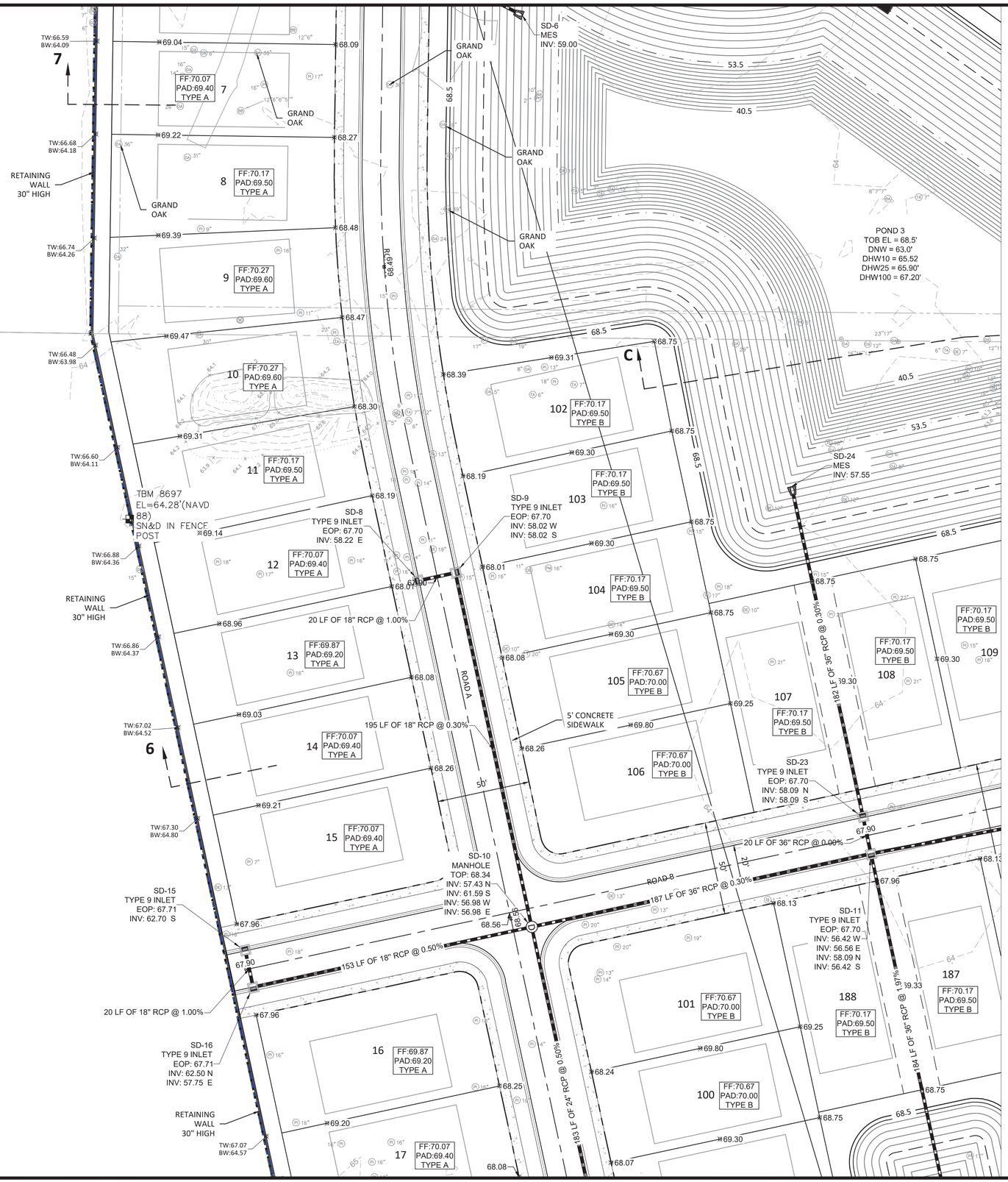

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SCALE: FEET

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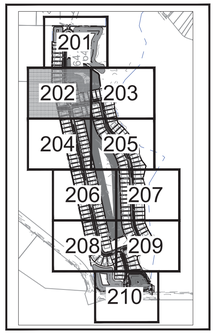

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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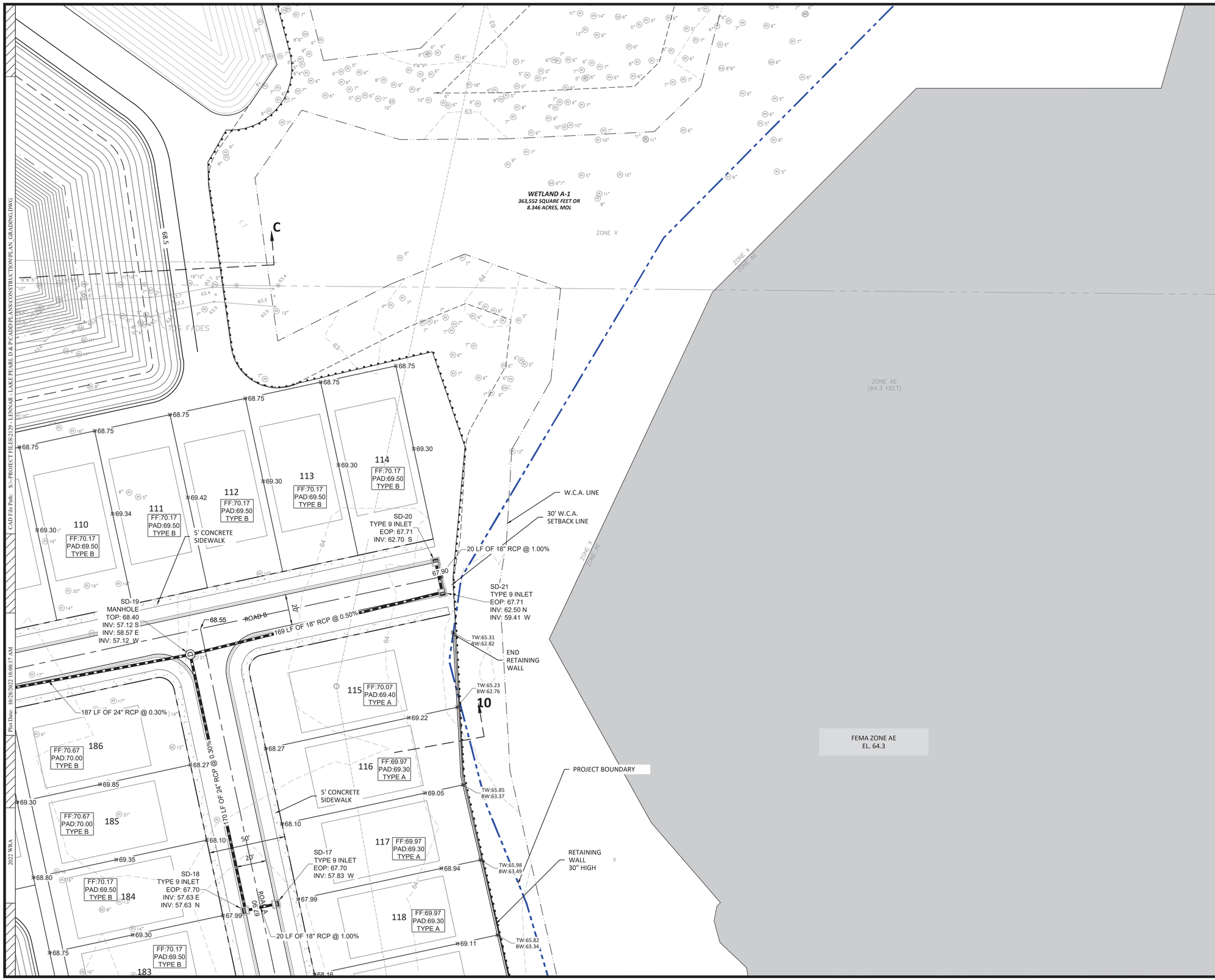

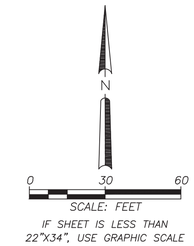

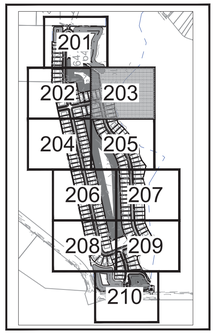

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GRADING AND DRAINAGE PLAN

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JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
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Datum: NAVD 88

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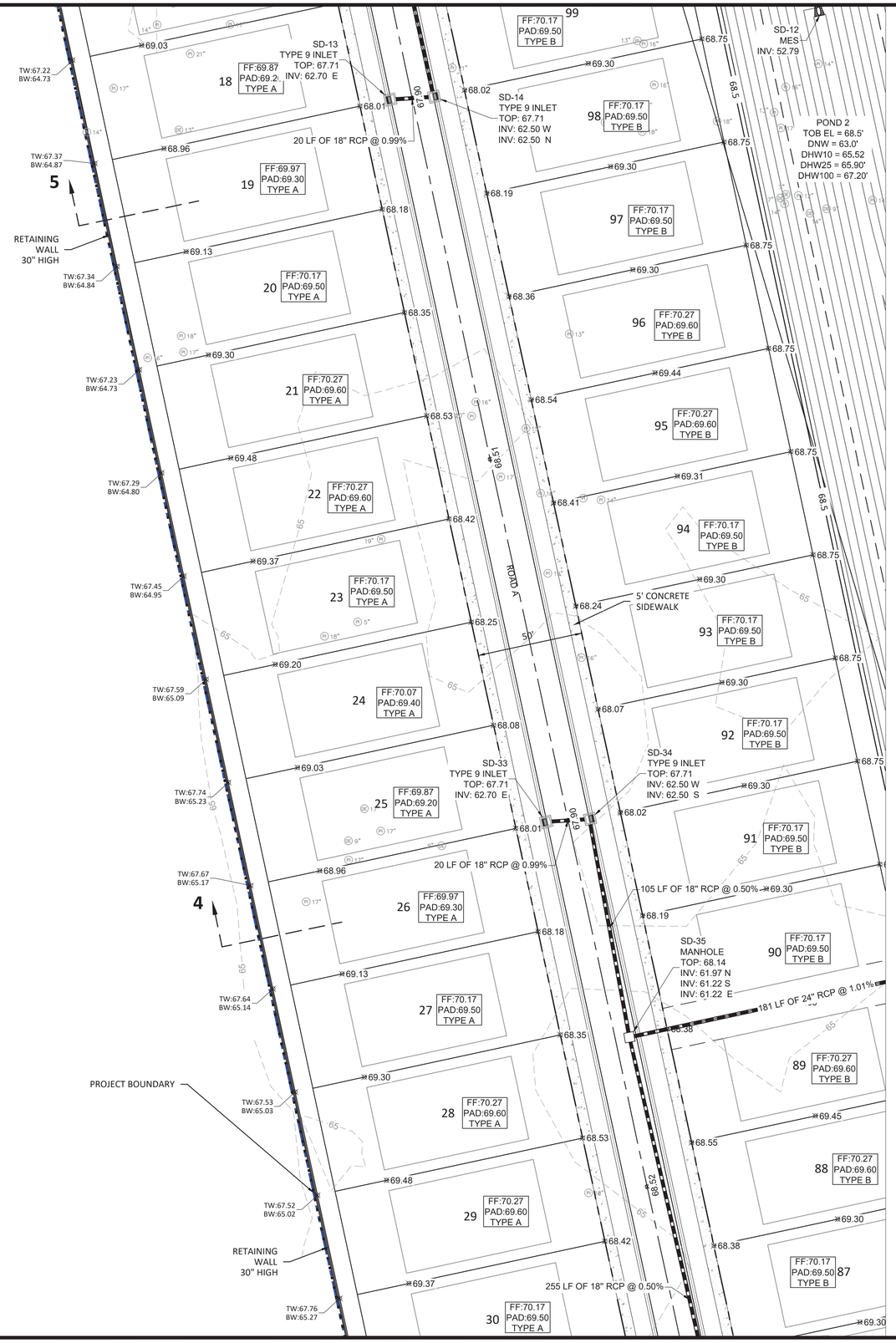

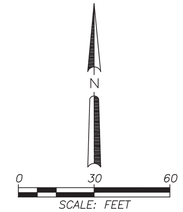

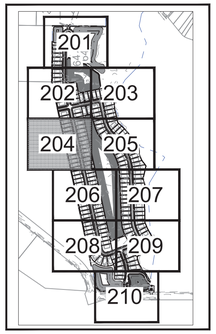

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18
DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY C. LIVIANO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION PLAN\ GRADING.DWG
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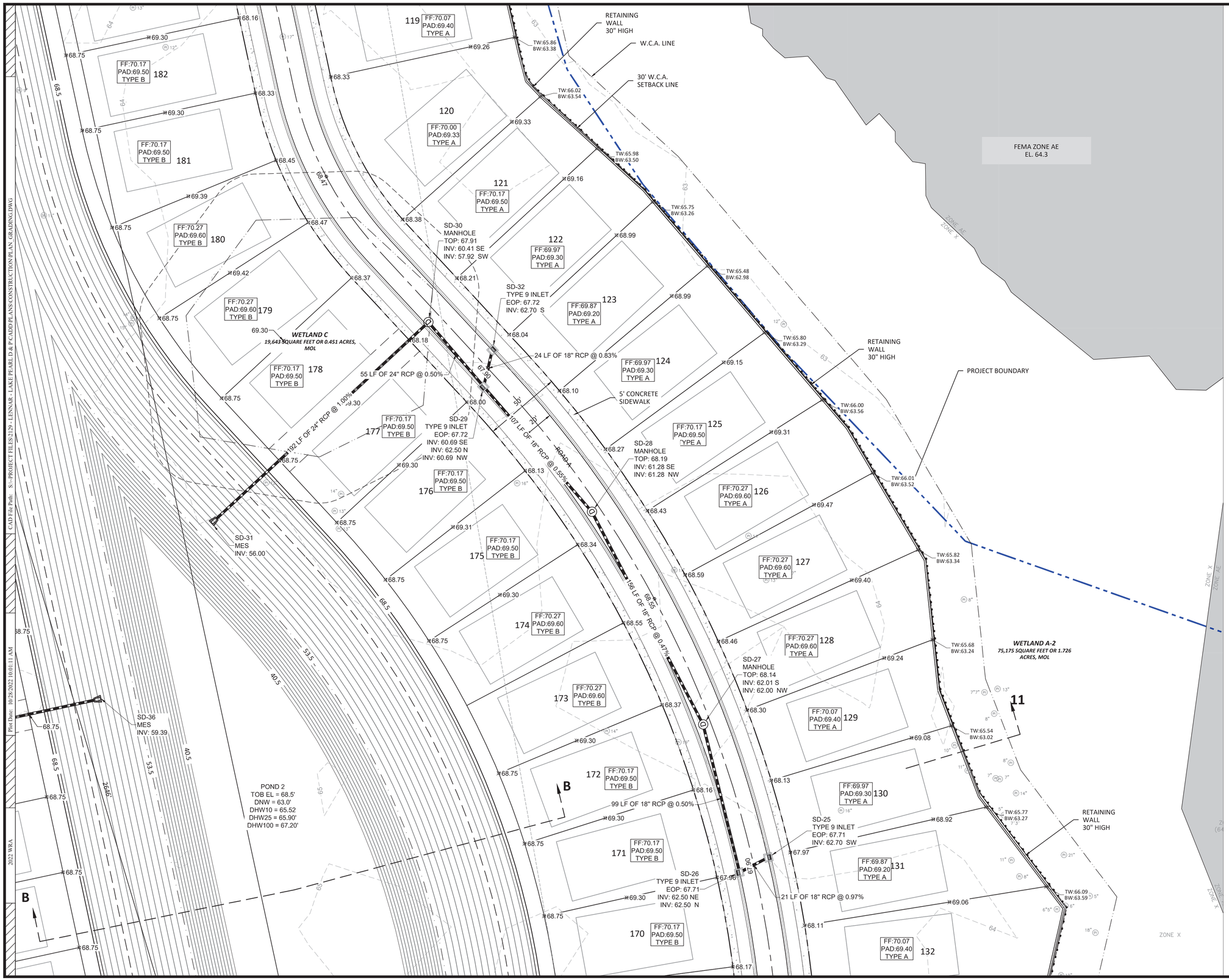

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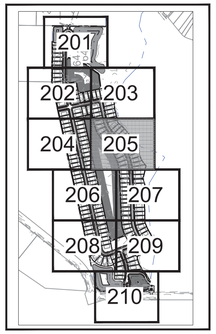

SITE MAP

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GRADING AND DRAINAGE PLAN

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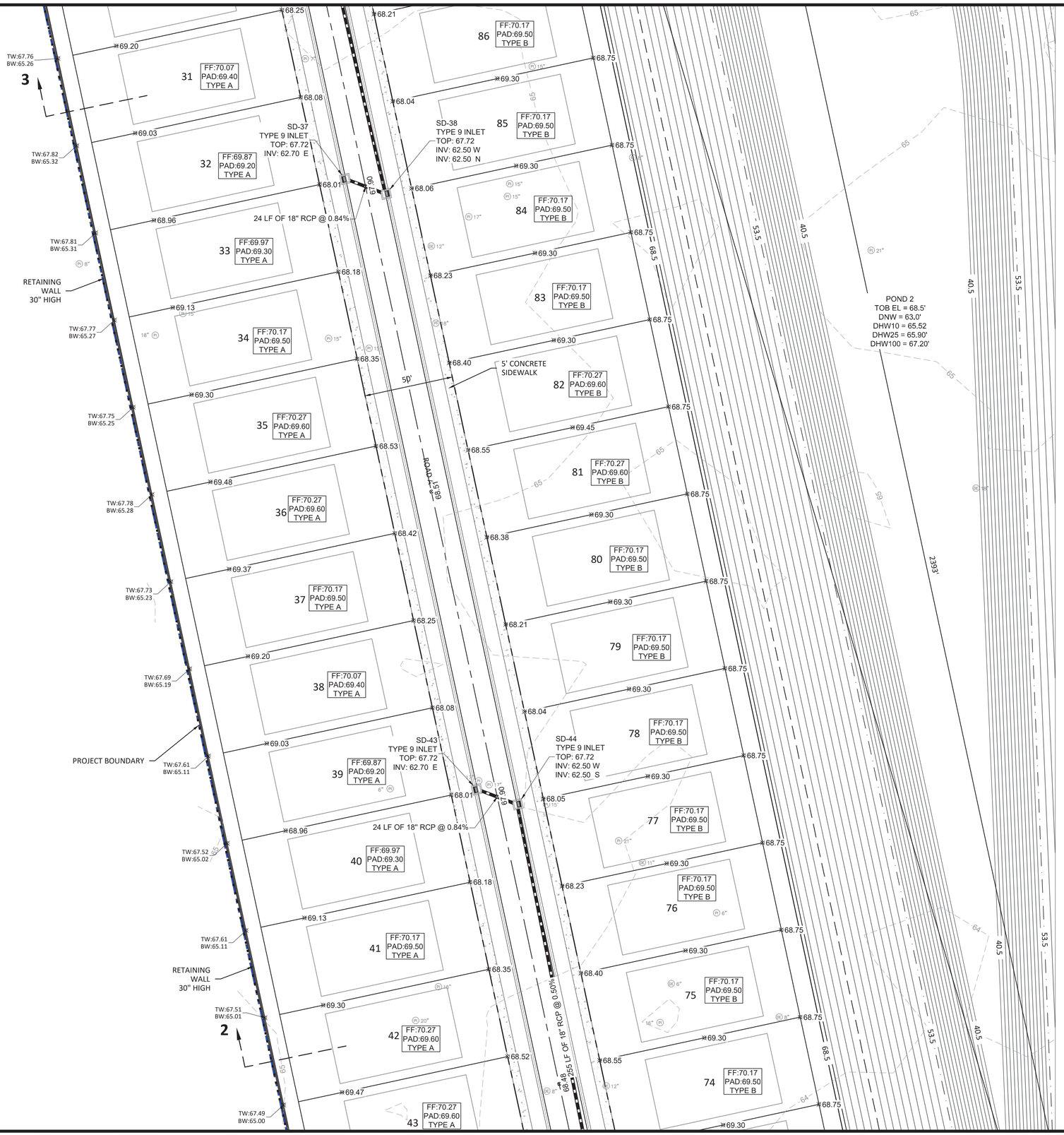

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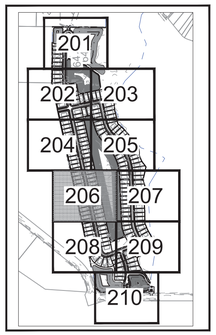

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 21P2 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CARTINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

2022 WRA Plot Date: 10/28/2022 10:01:32 AM CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION PLAN\ GRADING.DWG

N

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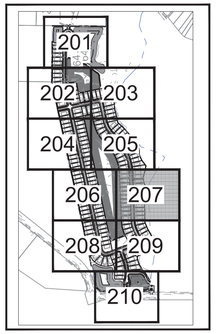
SCALE: FEET

IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE



SITE MAP

LEGEND

- CONTIGUOUS PROPERTY BOUNDARY
- FEMA FLOODZONES
- WETLAND AND 30 FT BUFFER (UNIMPACTED)
- WETLAND & O.S.W's (IMPACTED)

GRADING AND DRAINAGE INDEX

- MANHOLE
- FLARED/MES END SECTION
- TYPE 9 INLET
- DRAINAGE PIPE
- SILT FENCE
- FLOW DIRECTION
- 18.34 PROPOSED EOP ELEVATION
- 17.64 EG MATCH EXISTING ELEVATION

NOTES:

1. ELEVATIONS SHOWN HEREON ARE IN FEET AND BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
2. THE CONTRACTOR SHALL PROVIDE A DEWATERING SEQUENCING PLAN TO SWFWMD FOR APPROVAL PRIOR TO ANY DEWATERING ACTIVITIES.
3. FEMA FLOODMAP DATA: PROPERTY LIES IN FLOOD ZONES "A" "AE & "X" ACCORDING TO FLOOD INSURANCE RATE MAPS, MAP NO. 12057C0063H FOR HILLSBOROUGH COUNTY, FLORIDA, COMMUNITY NO. 120112, DATED AUGUST 28, 2008 AND ISSUED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18
DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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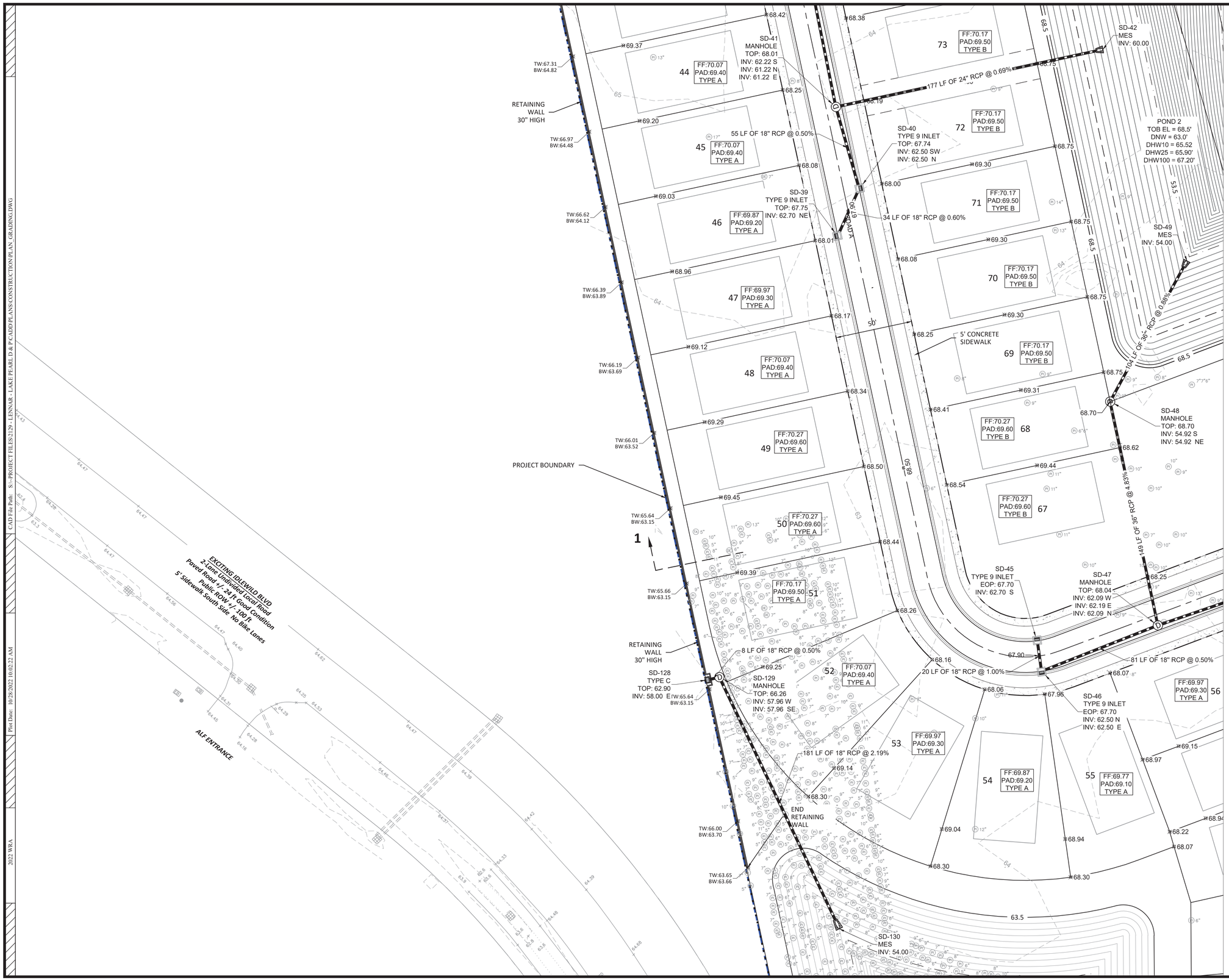

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SCALE: FEET

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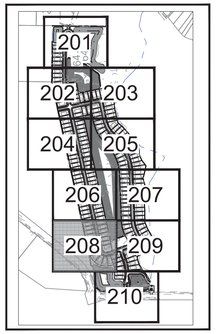

SITE MAP

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO LICENSE NO. 67540 STATE OF FLORIDA PROFESSIONAL ENGINEER

Datum: NAVD 88

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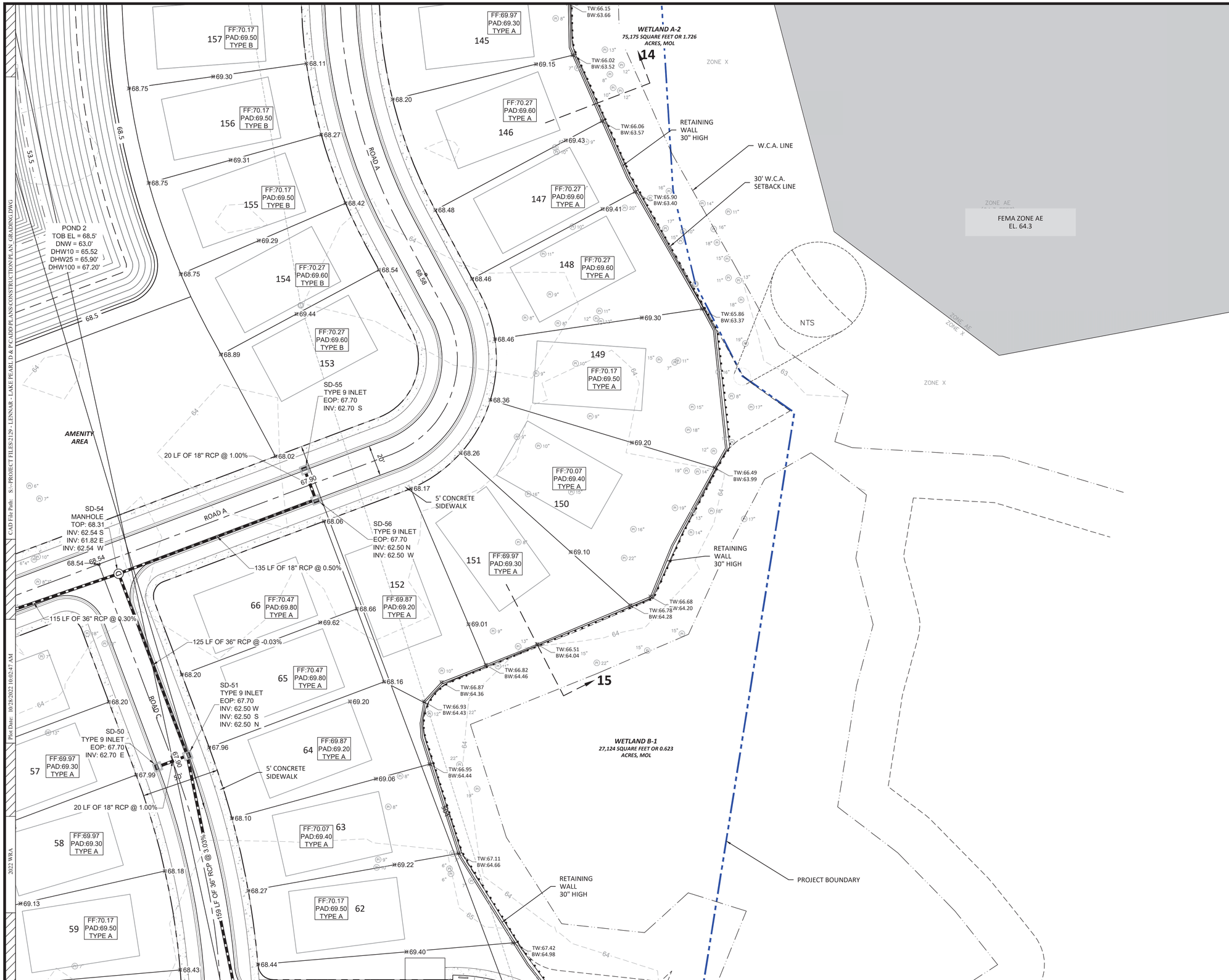

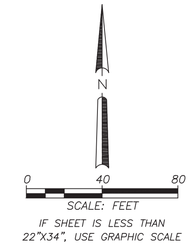

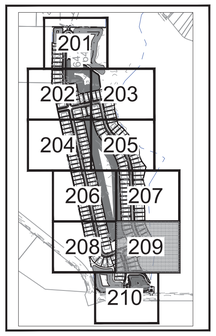

SITE MAP

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18
DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIAVARELLA
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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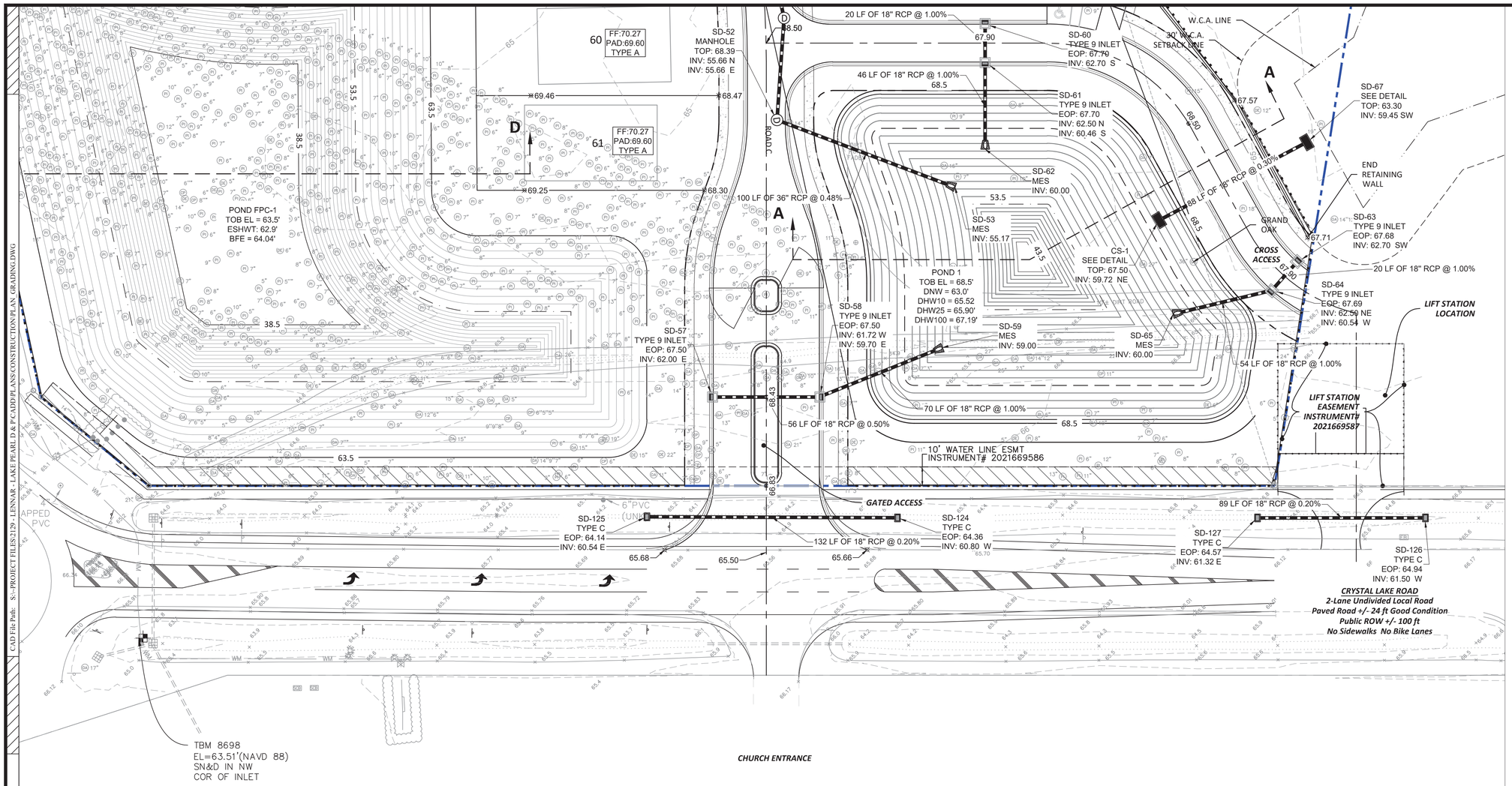

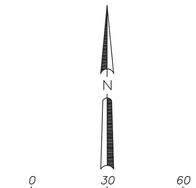

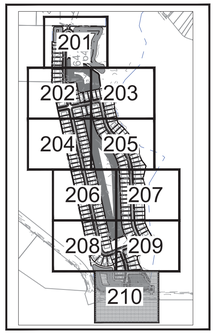

SITE MAP

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GRADING AND DRAINAGE PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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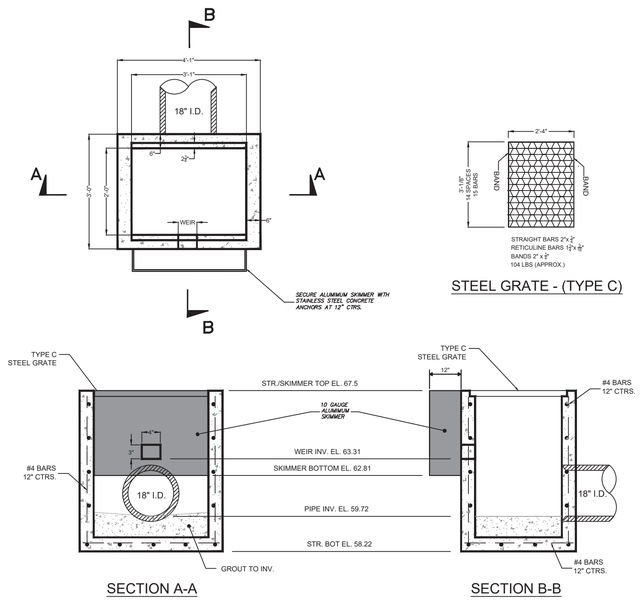
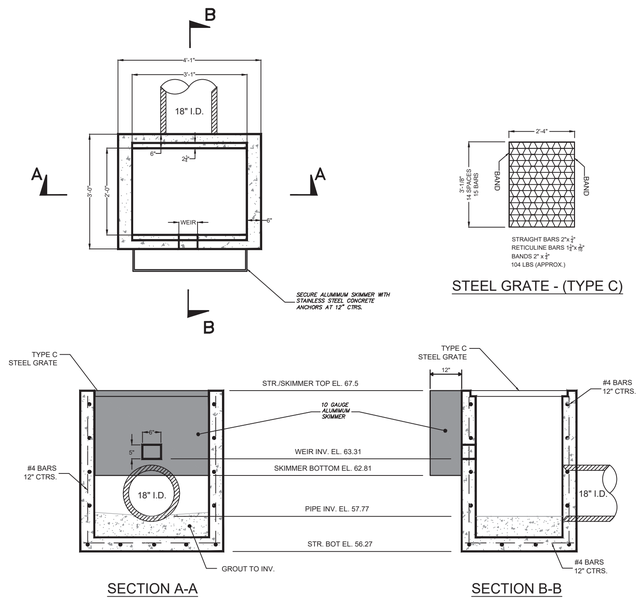


CS-1 CONTROL STRUCTURE DETAIL - MODIFIED FDOT TYPE C DBI

N.T.S

NOTE:

(1) TYPICAL DETAIL SHOWS MINIMUM DIMENSIONS FOR FDOT TYPE C INLET. ALL OTHER DIMENSIONAL AND STRUCTURAL REQUIREMENTS SHALL BE PER FDOT INDEX 425-052.



CS-2 CONTROL STRUCTURE DETAIL - MODIFIED FDOT TYPE C DBI

N.T.S

NOTE:

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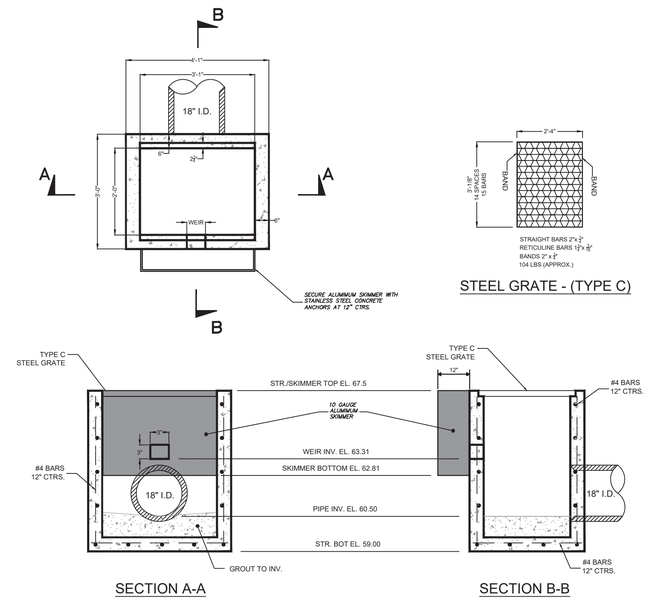

CS-3 CONTROL STRUCTURE DETAIL - MODIFIED FDOT TYPE C DBI

N.T.S

NOTE:

(1) TYPICAL DETAIL SHOWS MINIMUM DIMENSIONS FOR FDOT TYPE C INLET. ALL OTHER DIMENSIONAL AND STRUCTURAL REQUIREMENTS SHALL BE PER FDOT INDEX 425-052.

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CONTROL STRUCTURE DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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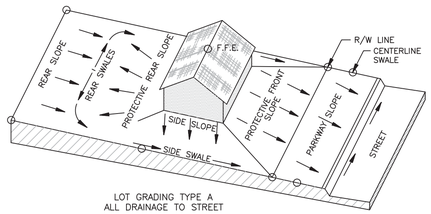
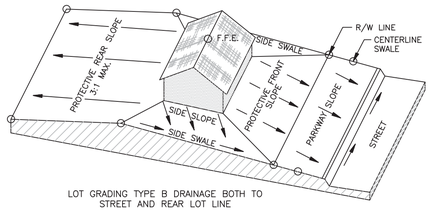


LOT GRADING TYPE A
ALL DRAINAGE TO STREET



LOT GRADING TYPE B DRAINAGE BOTH TO
STREET AND REAR LOT LINE

NOTES:
1. FINISH FLOOR ELEVATION TO BE A MIN. 16" ABOVE CENTERLINE OF ROAD GRADE AND BE AT A MIN 1 FT ABOVE THE 100 YEAR FLOOD PLAIN.
2. FINISH FLOOR ELEVATIONS OF ADJACENT STRUCTURES, IF EXISTING, SHALL BE PROVIDED.
3. ELEVATION OF SWALE AT CENTERLINE AT EACH PROPERTY LINE PROJECTION AND BOTH CULVERT INVERTS, IF EXISTING, SHALL BE PROVIDED.
4. ALL ROOF RUNOFF SHALL BE DIVERTED TOWARDS STREET AND/OR STORMWATER AREAS.

TYPICAL LOT GRADING DETAIL

NOT TO SCALE

○ ELEVATION REQUIRED

F.F.E. FINISH FLOOR ELEVATION

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GRADING DETAILS

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JOSEPH ANTHONY CARLINO
LICENSE
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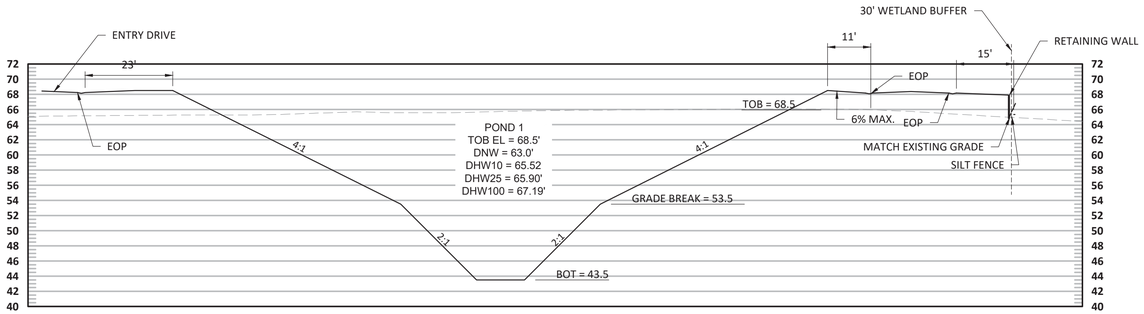
Datum: NAVD 88



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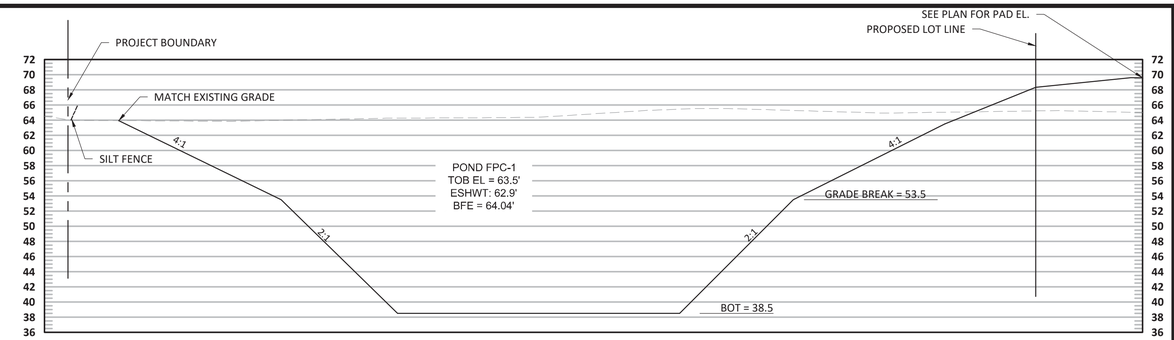

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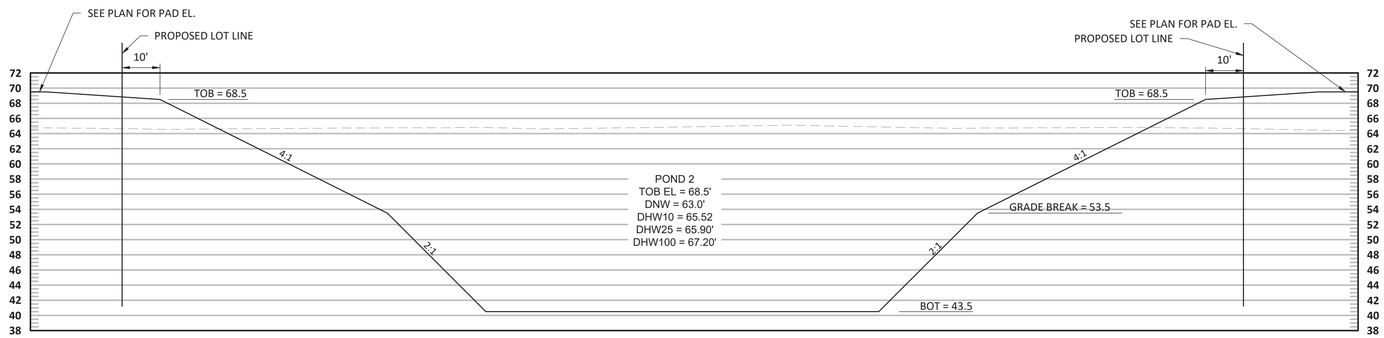

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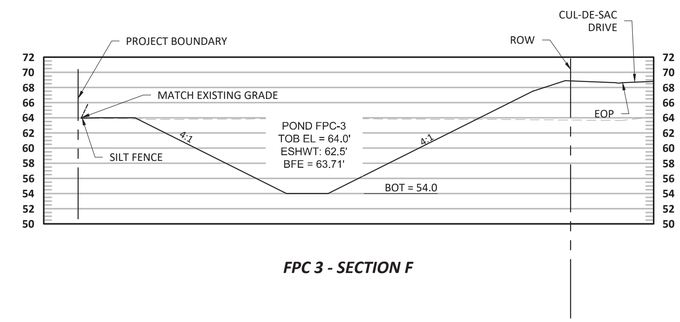

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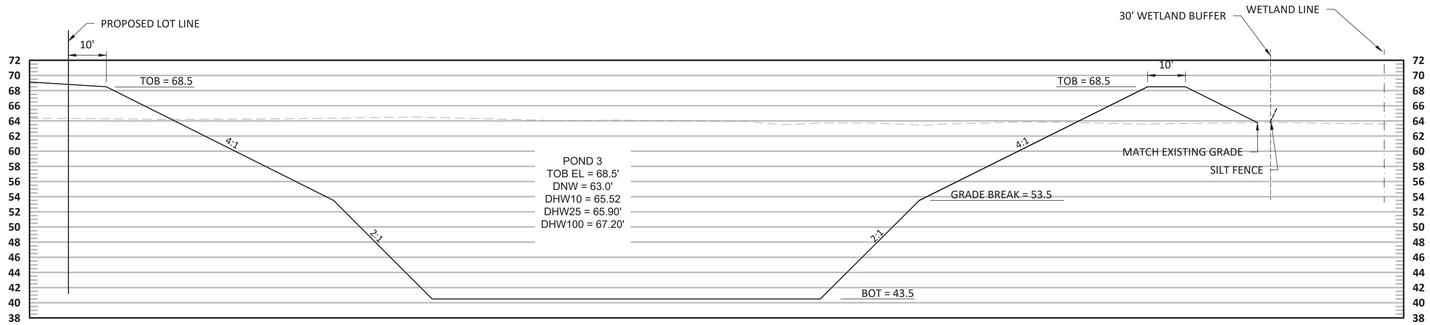

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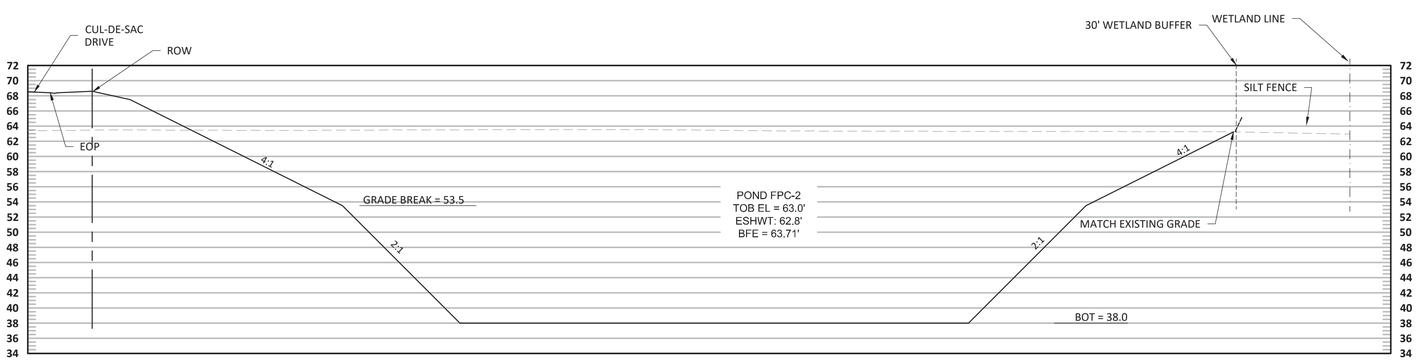

FPC 2 - SECTION E

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POND SECTIONS

LAKE PEARL

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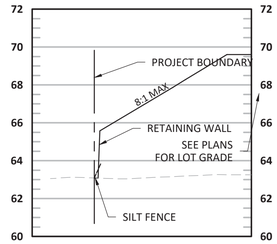

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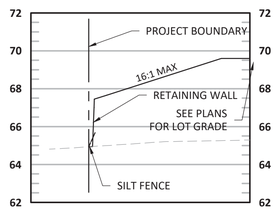

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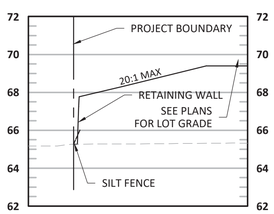

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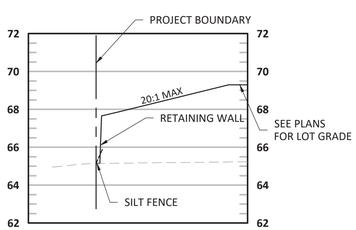

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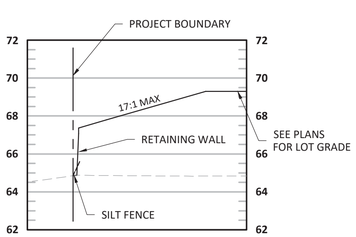

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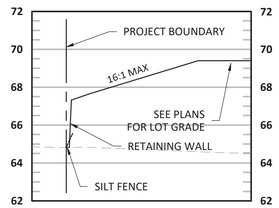

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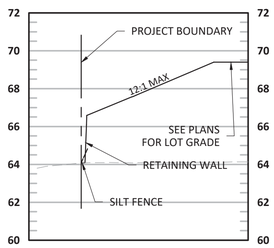
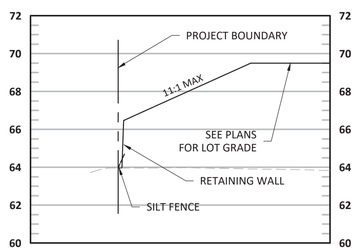
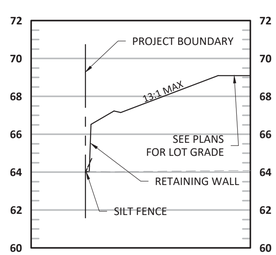


SECTION 7



SECTION 8



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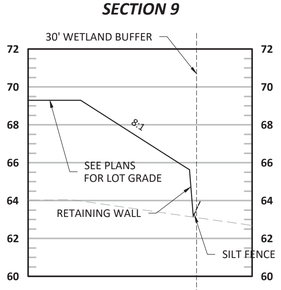

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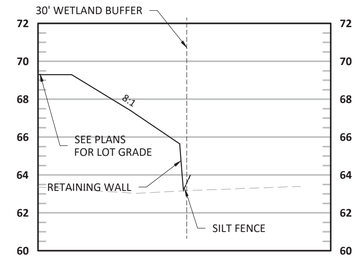

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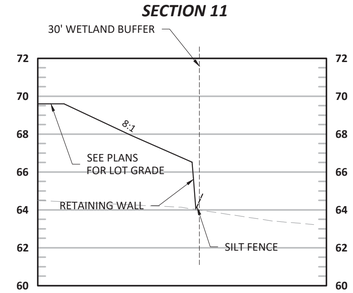

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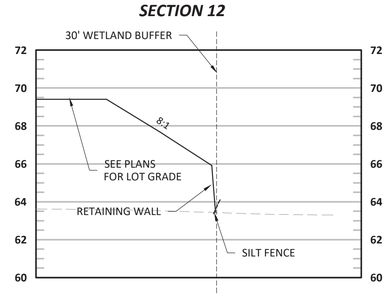

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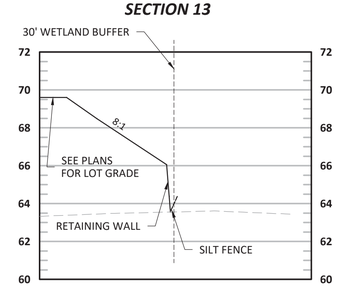

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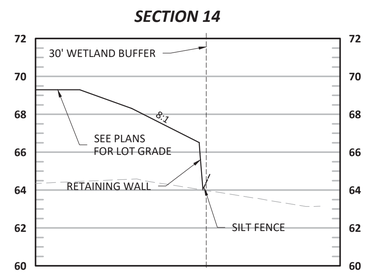

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Plot Date: 10/28/2022 10:04:11 AM

2022 WRA

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Phone: 813.265.3130 941.275.9721

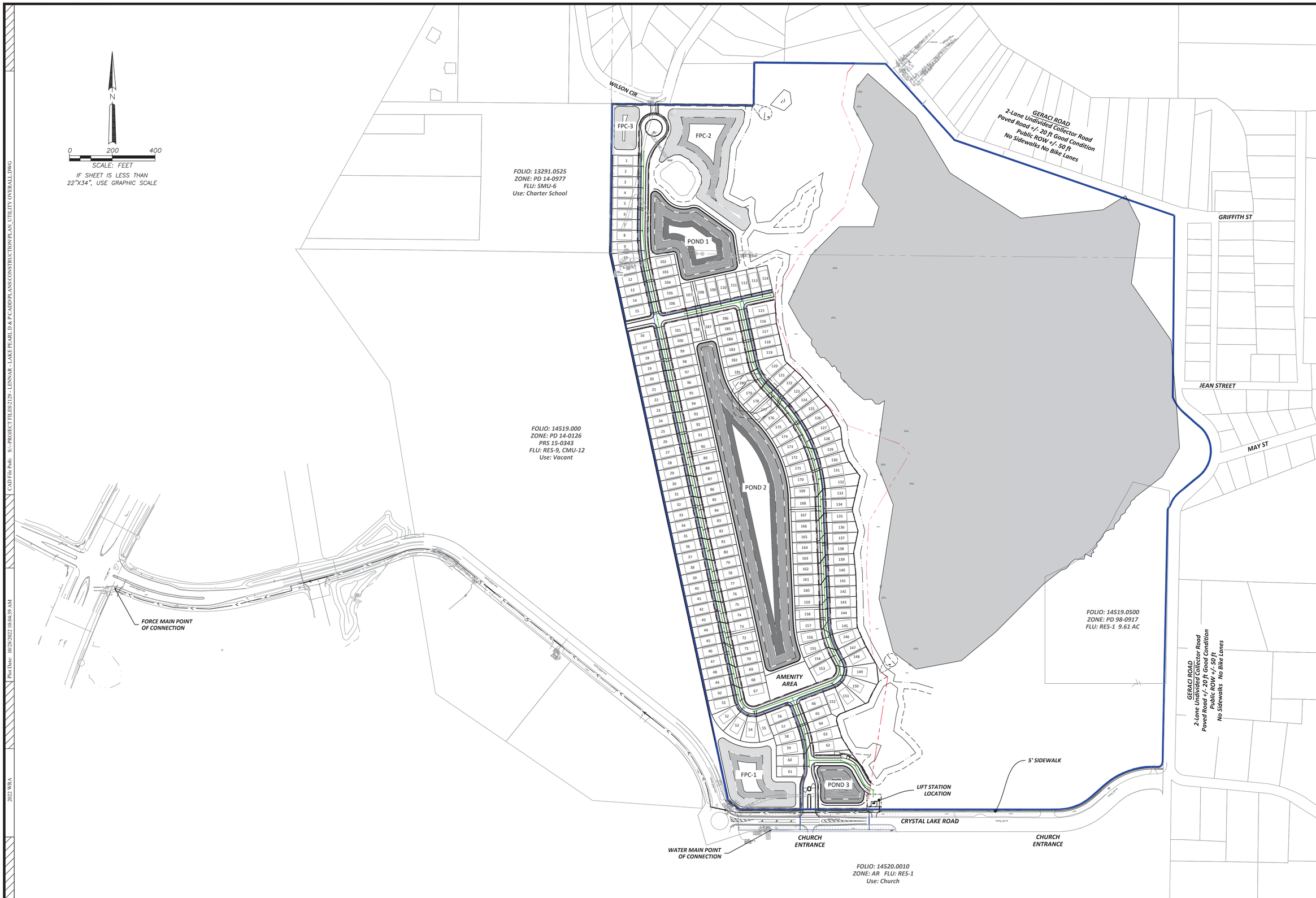
GRADING SECTIONS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88



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OVERALL UTILITY PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

400

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION PLAN\ UTILITY OVERALL.DWG

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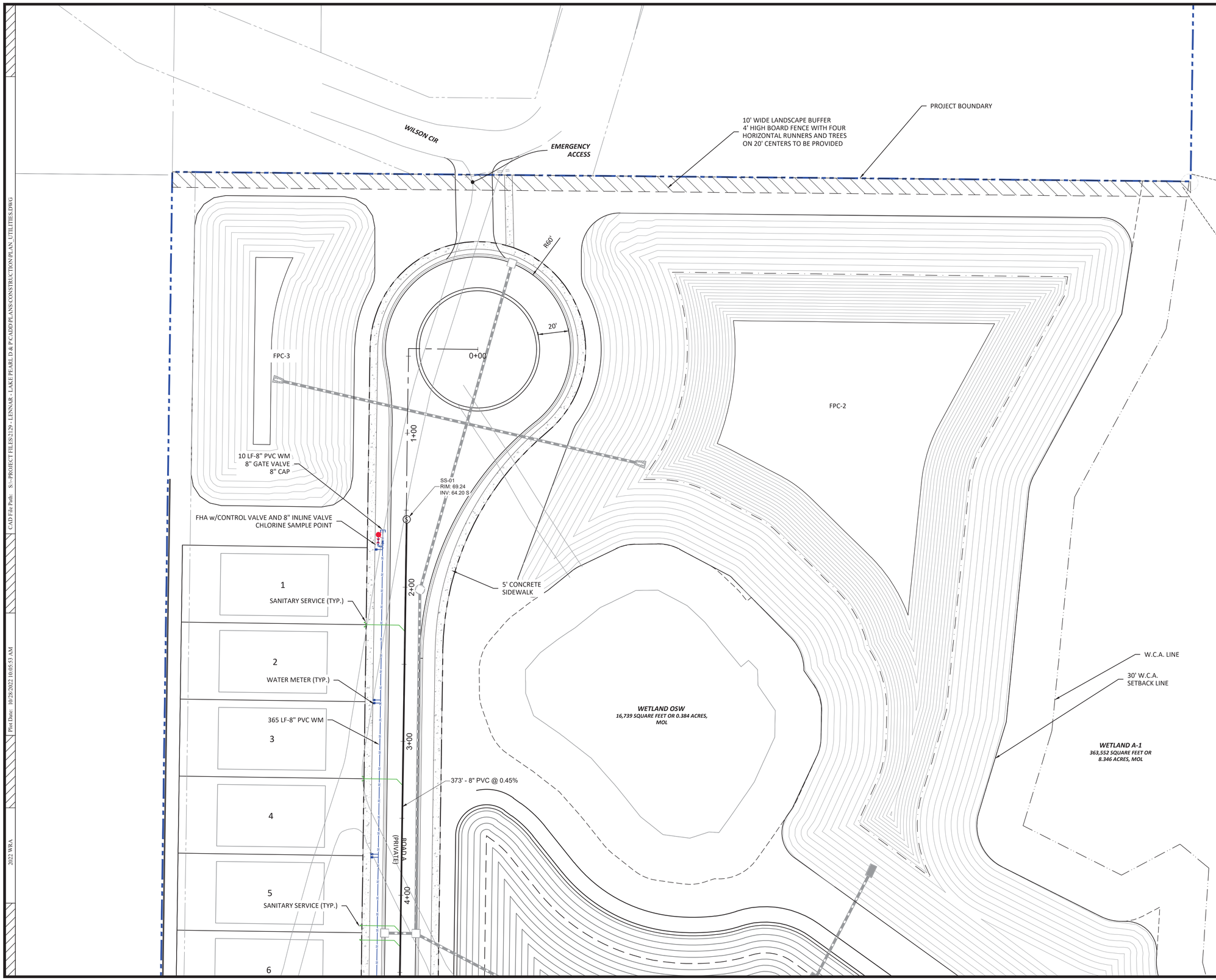
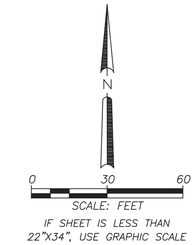
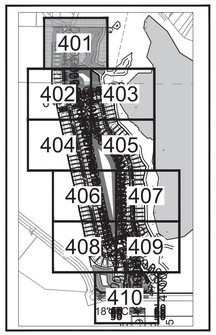
2022 WRA







SITE MAP

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UTILITY PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
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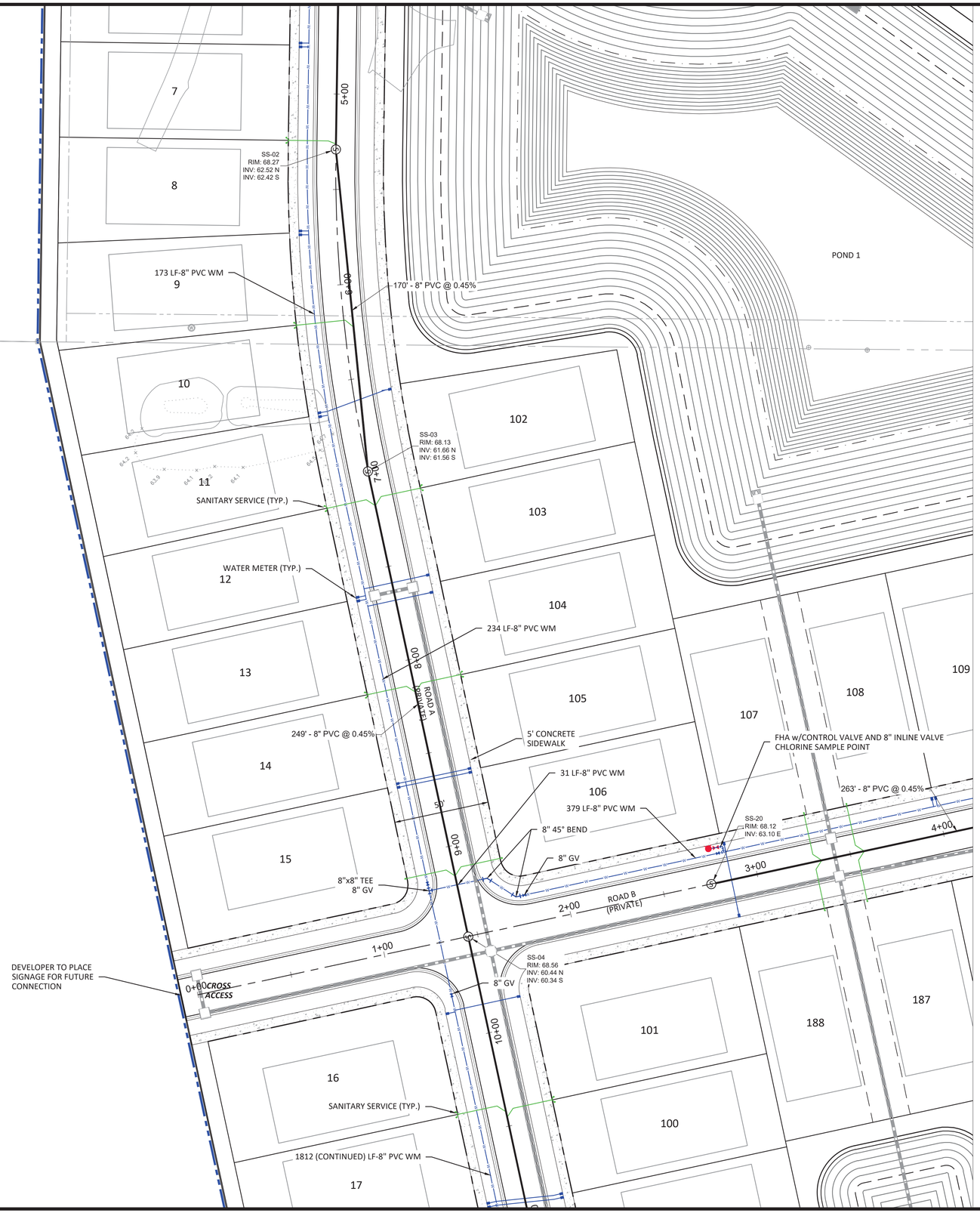
2022 WRA
Plot Date: 10/28/2022 10:05:53 AM
CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION PLAN_UTILITIES.DWG



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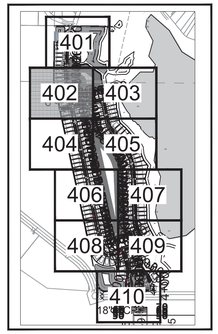
SCALE: FEET

IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE



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402

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SITE MAP

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UTILITY PLAN

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JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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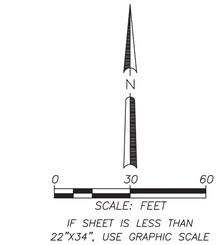

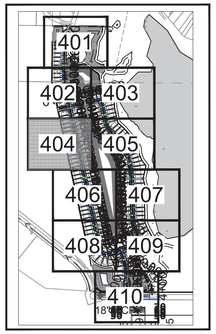

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UTILITY PLAN

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PROFESSIONAL ENGINEER

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2022 WRA

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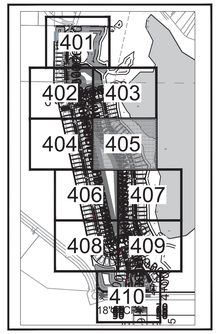

SITE MAP

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UTILITY PLAN

LAKE PEARL

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JOSEPH ANTHONY CIMINO
LICENSE
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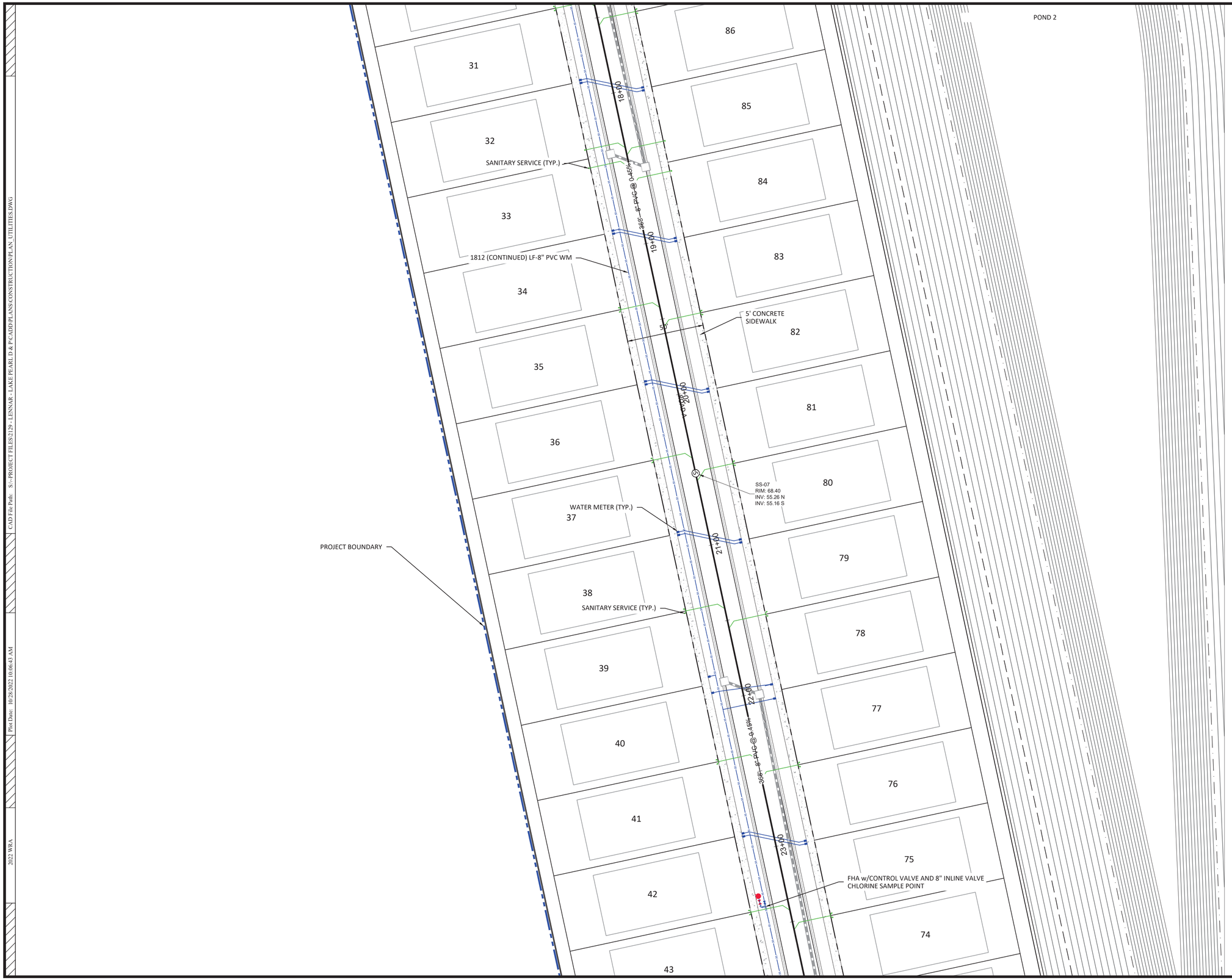

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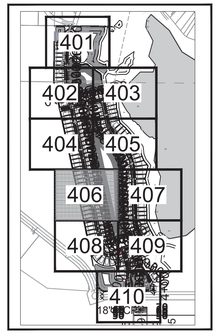

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UTILITY PLAN

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LICENSE
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Datum: NAVD 88

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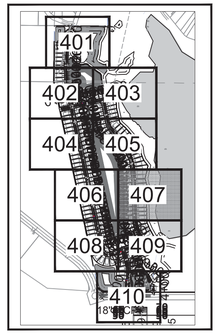

SITE MAP

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UTILITY PLAN

LAKE PEARL

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JOSEPH ANTHONY CALIANO
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PROFESSIONAL ENGINEER

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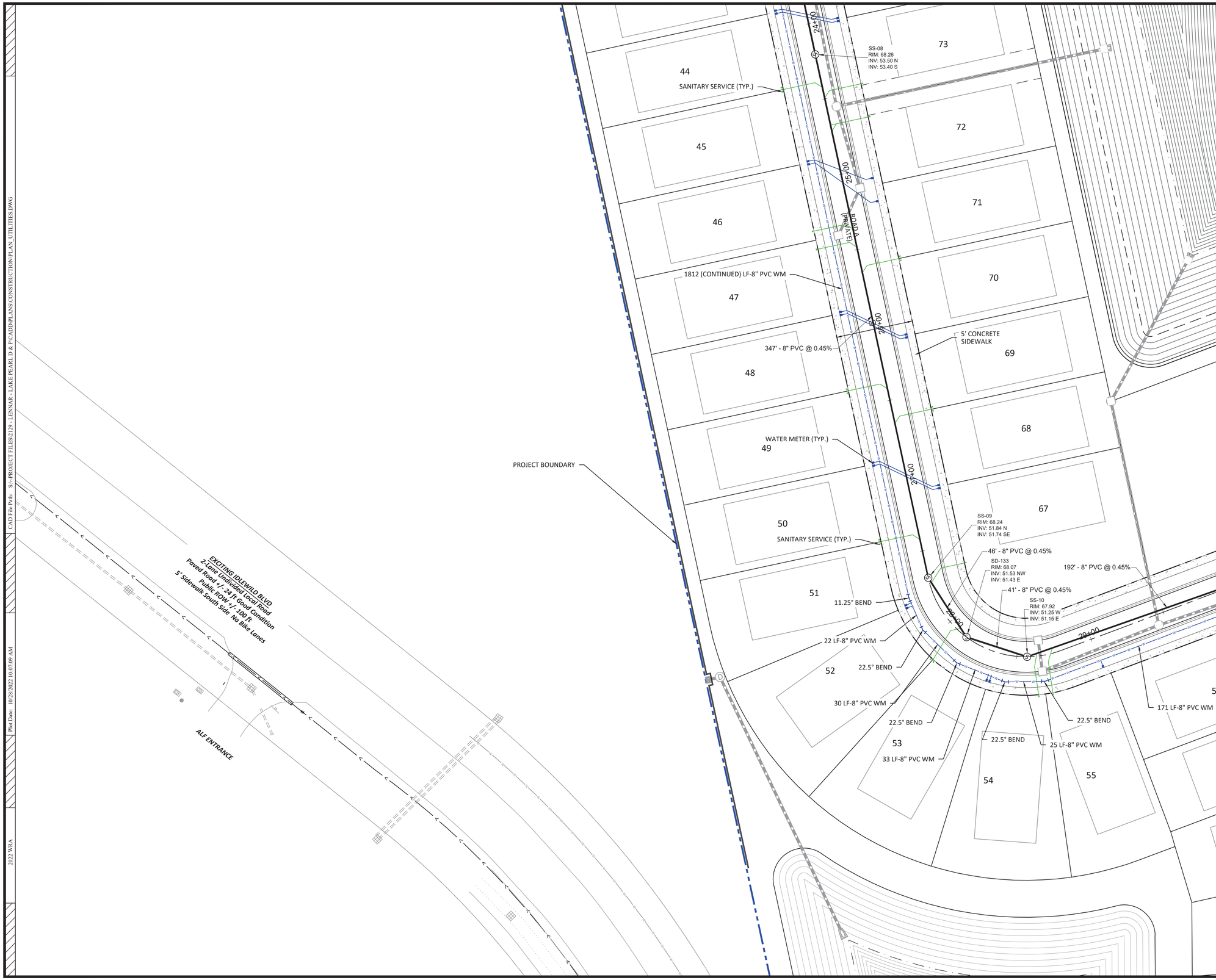

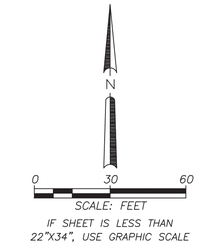

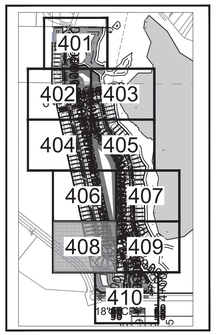

SITE MAP

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Plot Date: 10/28/2022 10:07:09 AM

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UTILITY PLAN

LAKE PEARL

ISSUED FOR: PERMITTING
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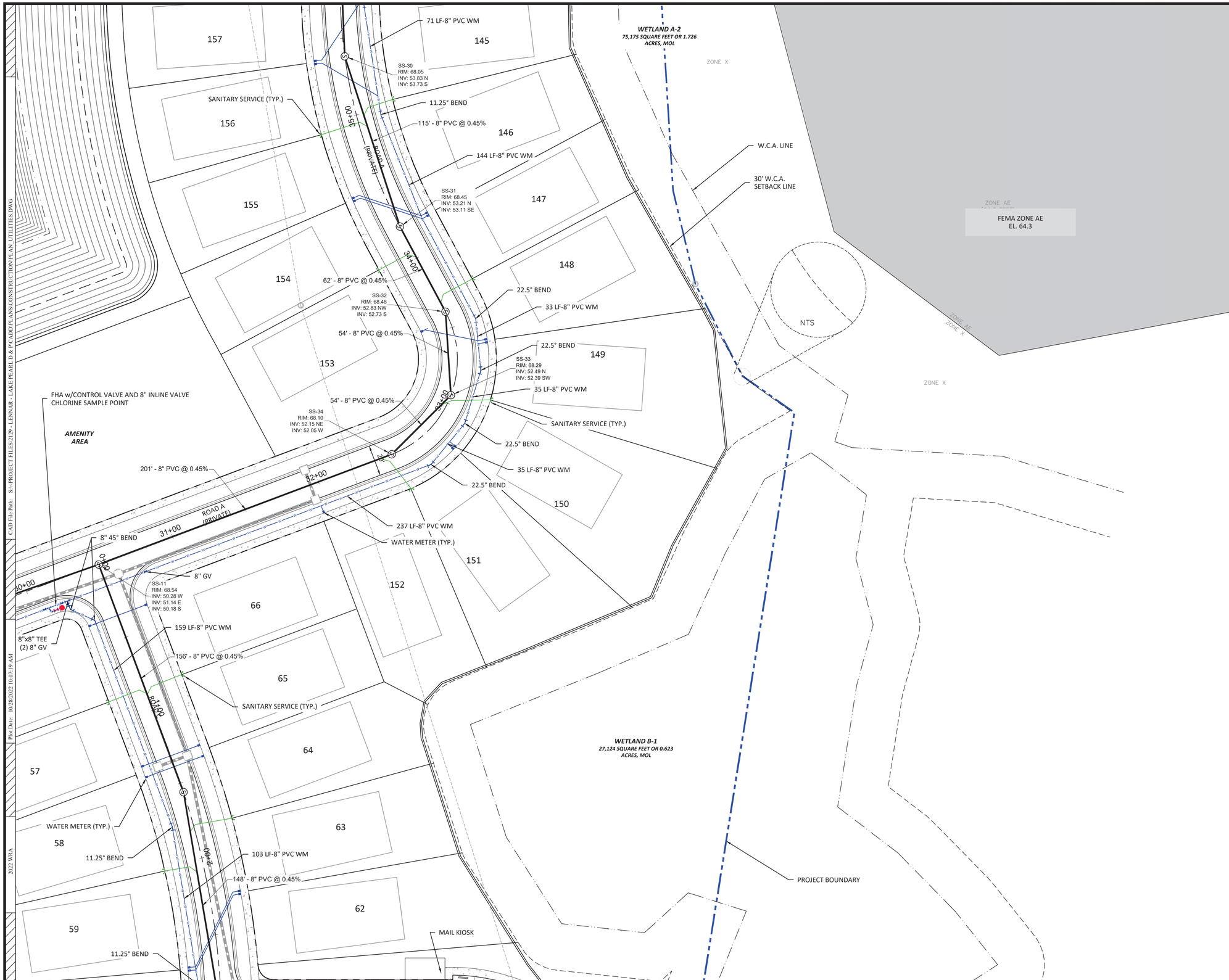
JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88



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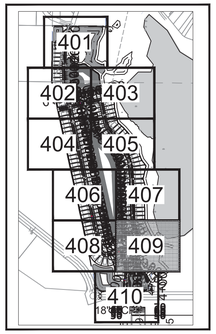

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UTILITY PLAN

LAKE PEARL

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JOSEPH ANTHONY CIMINO
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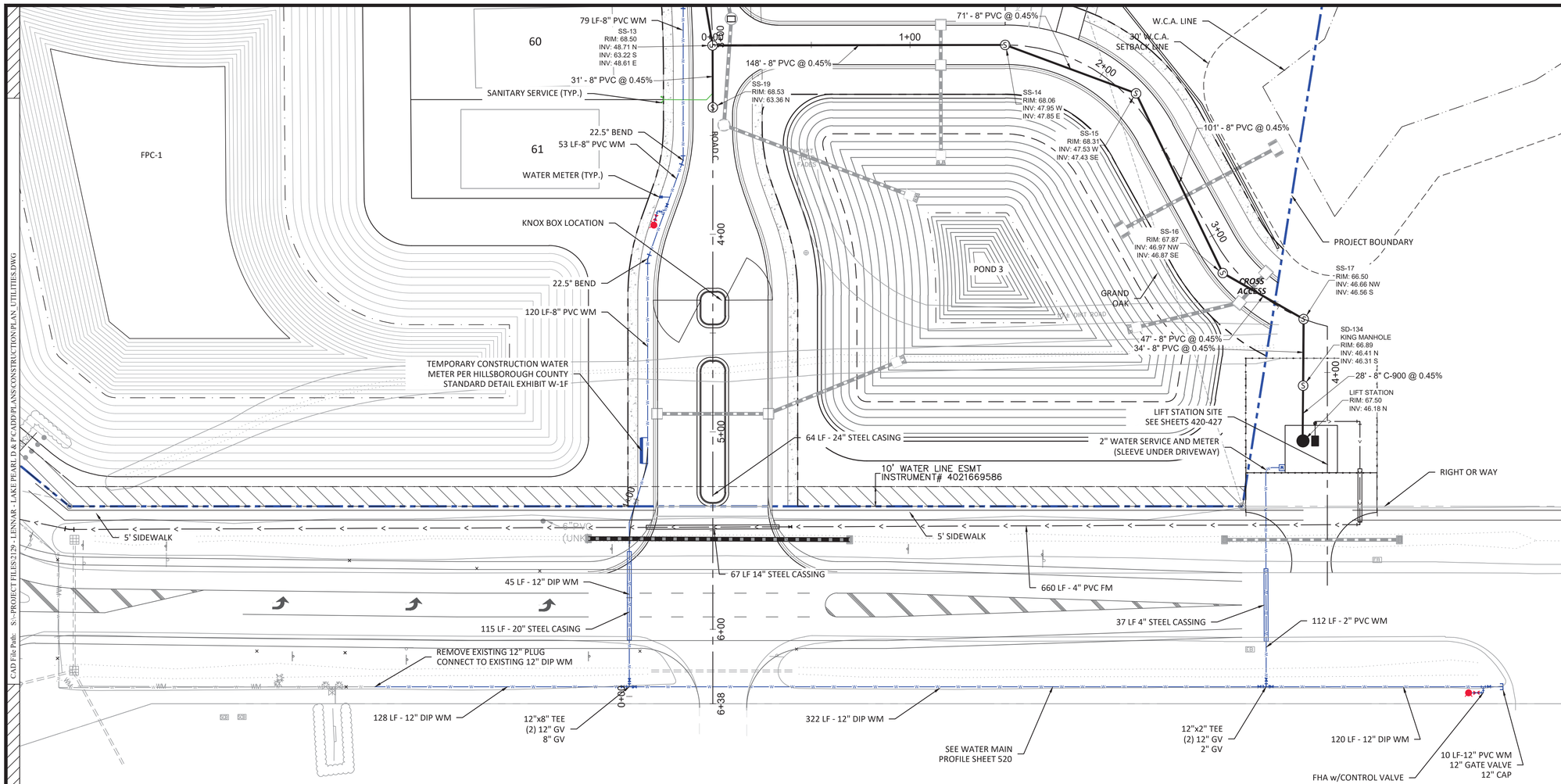
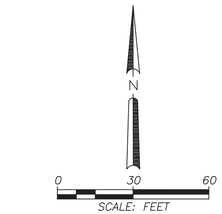
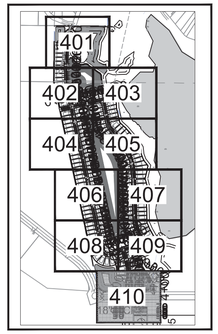
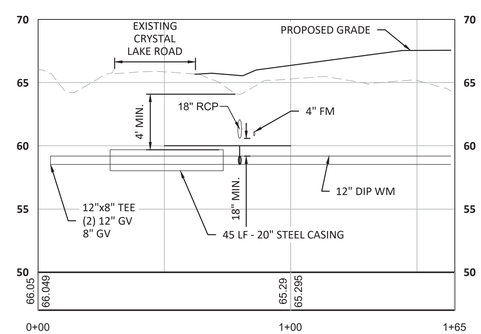






SITE MAP



WATER CROSSING

CAD File Path: S:\-PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION PLAN_UTILITIES.DWG

Plot Date: 10/28/2022 10:07:30 AM

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UTILITY PLAN

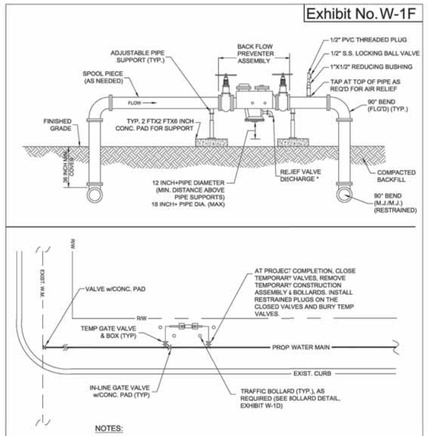
LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

Exhibit No. W-1F

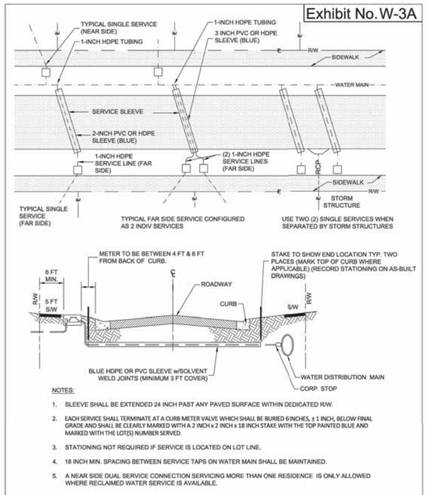


NOTES:

1. SEE EXHIBIT W-1G FOR CONNECTION ASSEMBLY WORKSHEET
2. NO TAPS ON PIPING UPSTREAM OF THE BACKFLOW PREVENTER AND NO MODIFICATION OR USE OF BACKFLOW PREVENTER TEST PORTS FOR ANYTHING OTHER THAN TESTING.

TEMPORARY CONSTRUCTION BACKFLOW ASSEMBLY FOR RESIDENTIAL OR COMMERCIAL DEVELOPMENT 6" AND LARGER	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-3A

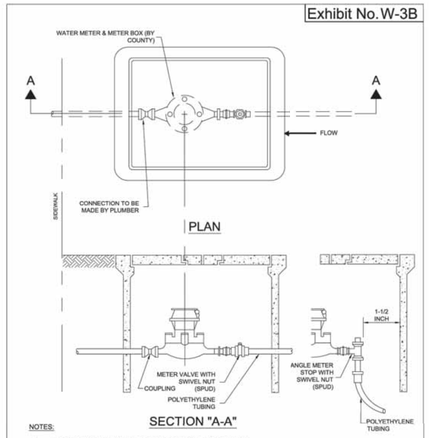


NOTES:

1. SLEEVE SHALL BE EXTENDED 24 INCH PAST ANY PAVED SURFACE WITHIN DEDICATED R/W.
2. EACH SERVICE SHALL TERMINATE AT A CURB METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT(S) NUMBER SERVED.
3. STATIONING NOT REQUIRED IF SERVICE IS LOCATED ON LOT LINE.
4. 18 INCH MIN. SPACING BETWEEN SERVICE TAPS ON WATER MAIN SHALL BE MAINTAINED.
5. A NEAR SIDE DUAL SERVICE CONNECTION SERVICING MORE THAN ONE RESIDENCE IS ONLY ALLOWED WHERE REGLAIMED WATER SERVICE IS AVAILABLE.

RESIDENTIAL SERVICE LAYOUT	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-3B

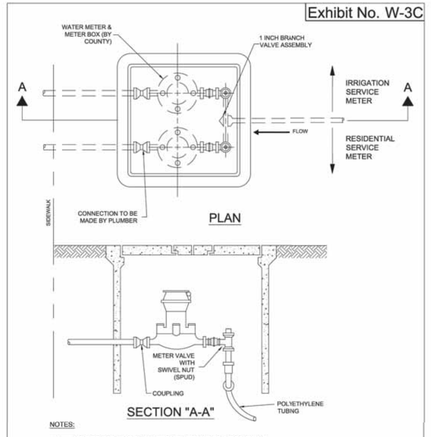


NOTES:

1. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
2. TEMPORARY INDENTIFICATION:EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

RESIDENTIAL SINGLE METER SERVICE (NEAR SIDE & FAR SIDE)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-3C

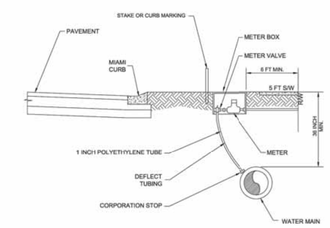


NOTES:

1. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
2. TEMPORARY INDENTIFICATION: EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

RESIDENTIAL DUAL METER SINGLE LOT SERVICE	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-3D

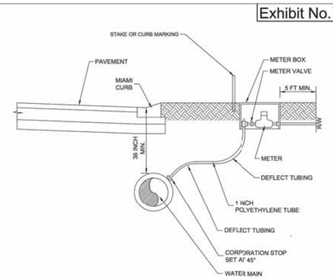


NOTE:

1. CAST BRONZE COMPRESSION FITTING CONNECTIONS SHALL BE USED & INSTALLED IN ACCORDANCE WITH COUNTY SPECIFICATIONS.
2. METER AND METER BOX SUPPLIED BY HILLSBOROUGH COUNTY.
3. USE 1 INCH DIAMETER HDPE FOR SINGLE SERVICE.
4. REDUCE HDPE AT THE METER WITH A BRASS REDUCER.
5. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
6. EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

RESIDENTIAL METER SERVICE INSTALLATION (METER OVER MAIN)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-3E

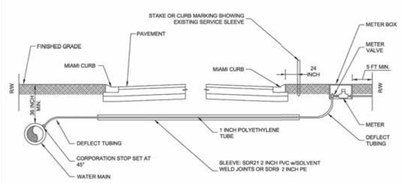


NOTE:

1. CAST BRONZE COMPRESSION FITTING CONNECTIONS SHALL BE USED & INSTALLED IN ACCORDANCE WITH COUNTY SPECIFICATIONS.
2. METER AND METER BOX SUPPLIED BY HILLSBOROUGH COUNTY.
3. USE 1 INCH DIAMETER HDPE FOR SINGLE SERVICE.
4. REDUCE HDPE AT THE METER WITH A BRASS REDUCER.
5. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
6. EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

RESIDENTIAL METER SERVICE INSTALLATION (NEAR SIDE)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-3F

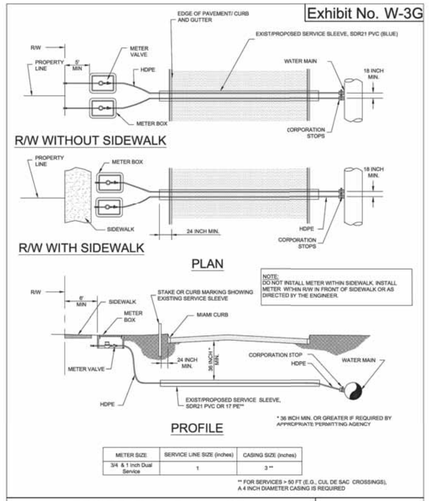


NOTE:

1. CAST BRONZE COMPRESSION FITTING CONNECTIONS SHALL BE USED & INSTALLED IN ACCORDANCE WITH COUNTY SPECIFICATIONS.
2. METER AND METER BOX SUPPLIED BY HILLSBOROUGH COUNTY.
3. USE 1 INCH DIAMETER HDPE FOR SINGLE SERVICE.
4. REDUCE HDPE AT THE METER WITH A BRASS REDUCER.
5. NO SERVICE LINE SHALL TERMINATE UNDER A DRIVEWAY.
6. EACH SERVICE SHALL TERMINATE AT A METER VALVE WHICH SHALL BE BURIED 6 INCHES, ± 1 INCH, BELOW FINAL GRADE AND SHALL BE CLEARLY MARKED WITH A 2 INCH x 2 INCH x 18 INCH STAKE WITH THE TOP PAINTED BLUE AND MARKED WITH THE LOT NUMBER SERVED.

RESIDENTIAL METER SERVICE INSTALLATION (FAR SIDE)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-3G

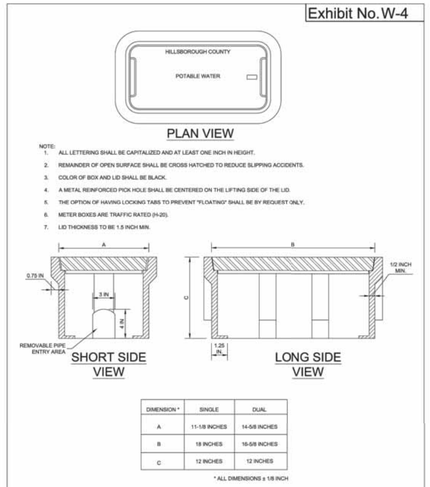


METER SIZE:	SERVICE LINE SIZE (inches)	CASING SIZE (inches)
3/4 & 1 inch Dual Service	1	3 **

** FOR SERVICES > 50 FT (E.G., CUL DE SAC CROSSINGS), A 4 INCH DIAMETER CASING IS REQUIRED

RESIDENTIAL DUAL LOT METERED SERVICE (FAR SIDE)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-4

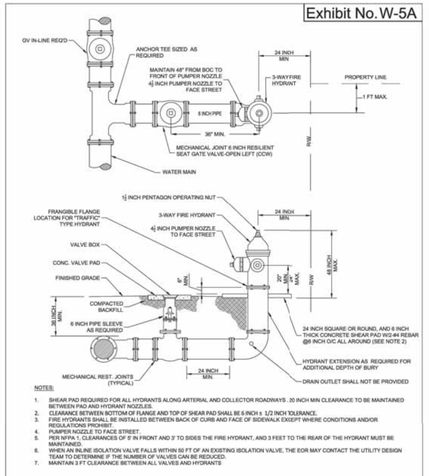


DIMENSION *	SINGLE	DUAL
A	11-1/8 INCHES	14-5/8 INCHES
B	18 INCHES	16-5/8 INCHES
C	12 INCHES	12 INCHES

* ALL DIMENSIONS ± 1/8 INCH

POTABLE WATER METER BOX	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-5A



NOTES:

1. SHEAR PAD REQUIRED FOR ALL HYDRANTS ALONG ARTERIAL AND COLLECTOR ROADWAYS . 20 INCH MIN CLEARANCE TO BE MAINTAINED BETWEEN PAD AND HYDRANT NOZZLES.
2. CLEARANCE BETWEN BOTTOM OF FLANGE AND TOP OF SHEAR PAD SHALL BE 6 INCH ± 1/2 INCH TOLERANCE.
3. FIRE HYDRANTS SHALL BE INSTALLED BETWEEN BACK OF CURB AND FACE OF SIDEWALK EXICEPT WHERE CONDITIONS AND/OR REGULATIONS PROHIBIT.
4. PUMPER NOZZLE TO FACE STREET
5. FIRE HYDRANT CLEARANCES OF 8 IN FRONT AND 3' TO SIDES THE FIRE HYDRANT, AND 3 FEET TO THE REAR OF THE HYDRANT MUST BE MAINTAINED.
6. WHEN AN INLINE ISOLATION VALVE FALLS WITHIN 50 FT OF AN EXISTING ISOLATION VALVE, THE EOR MAY CONTACT THE UTILITY DESIGN TEAM TO DETERMINE IF THE NUMBER OF VALVES CAN BE REDUCED.
7. MAINTAIN 3 FT CLEARANCE BETWEEN ALL VALVES AND HYDRANTS

FIRE HYDRANT (RESTRAINED)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

REVISIONS

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Water Resource ~ Survey
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www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

UTILITY DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

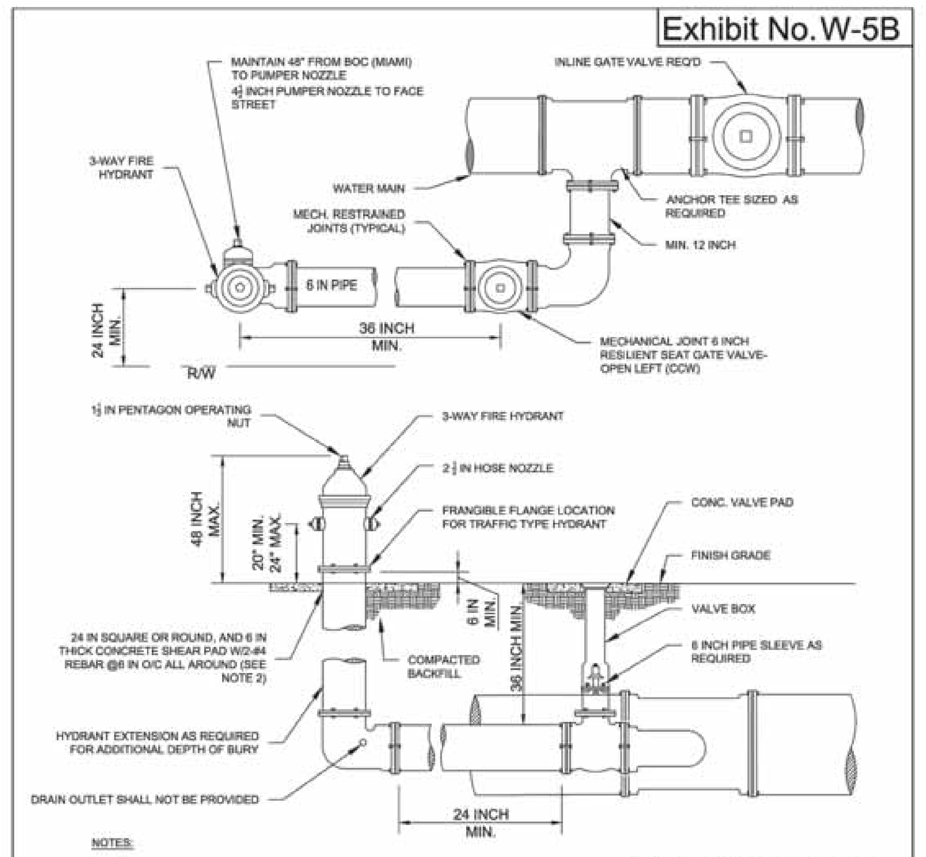
JOSEPH ANTHONY C. LIVINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION DETAILS_UTILITIES.DWG
Plot Date: 10/28/2022 10:07:50 AM
2022 WRA

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION\DETAILS_UTILITIES.DWG
Plot Date: 10/28/2022 10:07:56 AM
2022 WRA

Exhibit No. W-5B

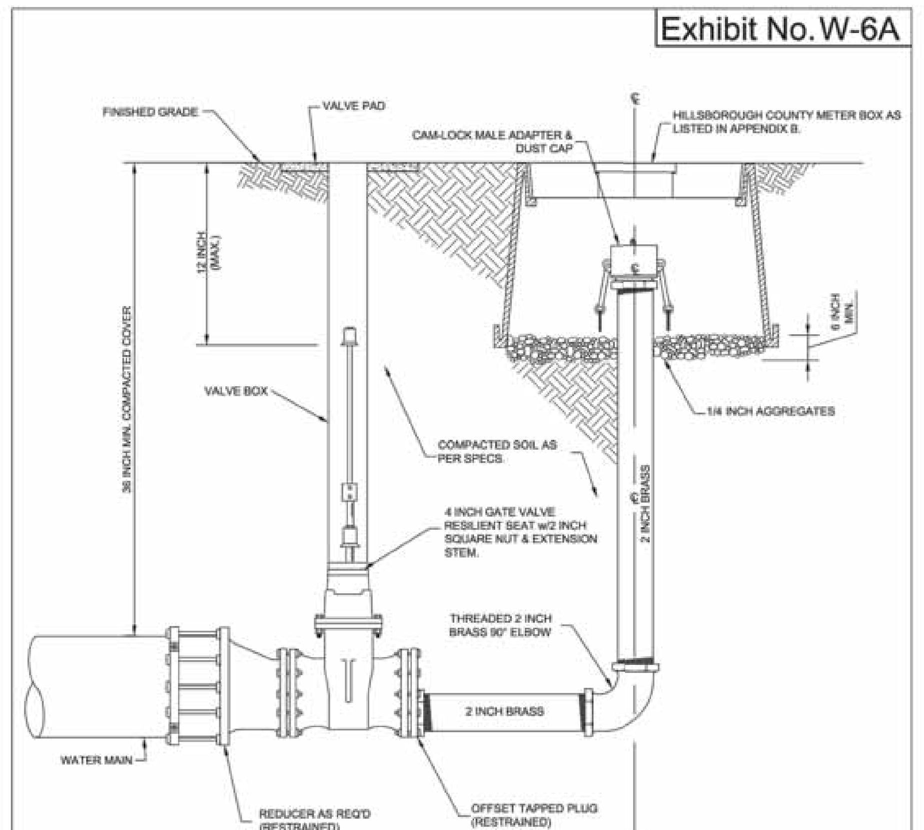


NOTES:

1. SHEAR PAD REQUIRED FOR ALL HYDRANTS ALONG ARTERIAL AND COLLECTOR ROADWAYS. 20 IN MIN CLEARANCE TO BE MAINTAINED BETWEEN PAD AND HYDRANT NOZZLES.
2. CLEARANCE BETWEEN BOTTOM OF FLANGE AND TOP OF SHEAR PAD SHALL BE 6 INCH ± 1/2 IN TOLERANCE.
3. FIRE HYDRANTS SHALL BE INSTALLED BETWEEN BACK OF CURB AND FACE OF SIDEWALK EXCEPT WHERE CONDITIONS AND/OR REGULATIONS PROHIBIT.
4. PUMPER NOZZLE TO FACE STREET.
5. PER NFPA 1, CLEARANCES OF 5 FEET TO FRONT AND 3 FT TO SIDES, AND 3 FT TO THE REAR OF THE HYDRANT MUST BE MAINTAINED.
6. WHEN AN INLINE ISOLATION VALVE FALLS WITHIN 50 FT OF AN EXISTING ISOLATION VALVE, THE EOR MAY CONTACT THE UTILITY DESIGN TEAM TO DETERMINE IF THE NUMBER OF VALVES CAN BE REDUCED.
7. MAINTAIN 3 FT CLEARANCE BETWEEN ALL VALVES AND HYDRANTS

FIRE HYDRANT FOR LIMITED SPACE (RESTRAINED)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-6A

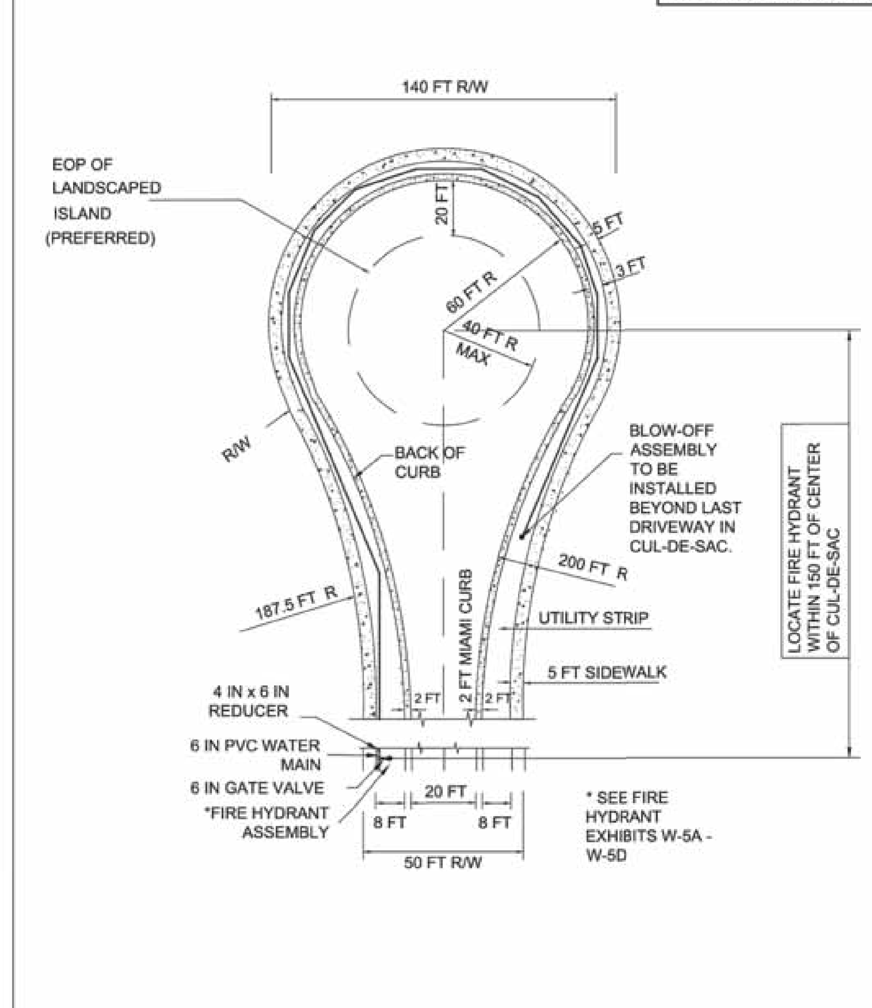


NOTES:

1. ALL BRASS PIPE AND FITTINGS SHALL BE THREADED SCH. 40.
2. CAM-LOCK MALE ADAPTER & DUST CAP SHALL BE STAINLESS STEEL/THREADED.
3. ACTUAL LENGTH OF THE BLOWOFF PIPING TO BE DETERMINED IN THE FIELD.
4. DEFLECT OR INSTALL FITTINGS AS REQUIRED TO MAINTAIN COVER AND TO SET BLOW-OFF ASSEMBLY PLUMB.
5. EXTENSION OF VALVE BOX SHALL BE SET SO AS TO RESERVE 1/2 OF THE ADJUSTMENT LENGTH FOR FUTURE USE.
6. A FULL SIZE IN-LINE VALVE MAY BE USED AT PROJECT PHASE LINES. THE VALVE MAY REQUIRE RELOCATION, IF THE VALVE FALLS WITHIN CONCRETE IN THE NEXT PHASE.

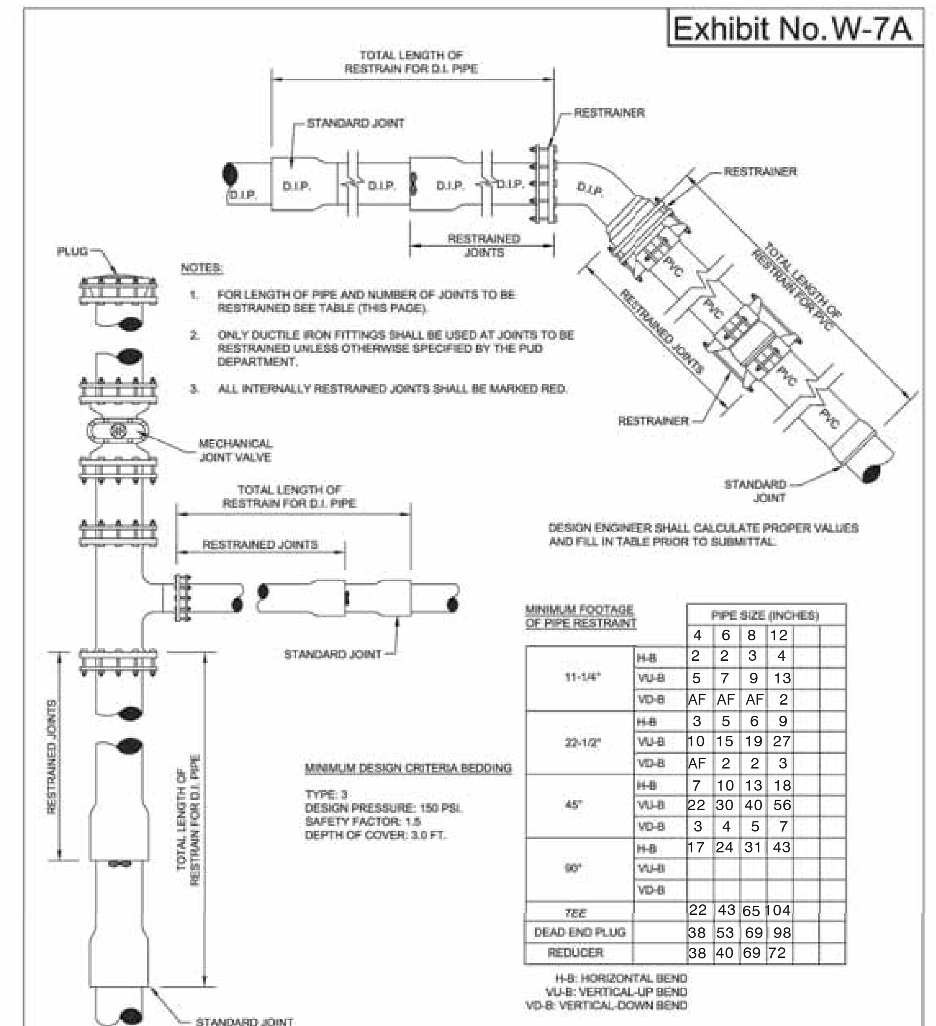
BLOWOFF ASSEMBLY	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-6C



BLOW-OFF ASSEMBLY AND FIRE HYDRANT @ CUL-DE-SAC GREATER THAN 150 FT IN LENGTH	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-7A



NOTES:

1. FOR LENGTH OF PIPE AND NUMBER OF JOINTS TO BE RESTRAINED SEE TABLE (THIS PAGE).
2. ONLY DUCTILE IRON FITTINGS SHALL BE USED AT JOINTS TO BE RESTRAINED UNLESS OTHERWISE SPECIFIED BY THE PUD DEPARTMENT.
3. ALL INTERNALLY RESTRAINED JOINTS SHALL BE MARKED RED.

DESIGN ENGINEER SHALL CALCULATE PROPER VALUES AND FILL IN TABLE PRIOR TO SUBMITTAL.

MINIMUM DESIGN CRITERIA BEDDING

TYPE: 3
DESIGN PRESSURE: 150 PSI.
SAFETY FACTOR: 1.5
DEPTH OF COVER: 3.0 FT.

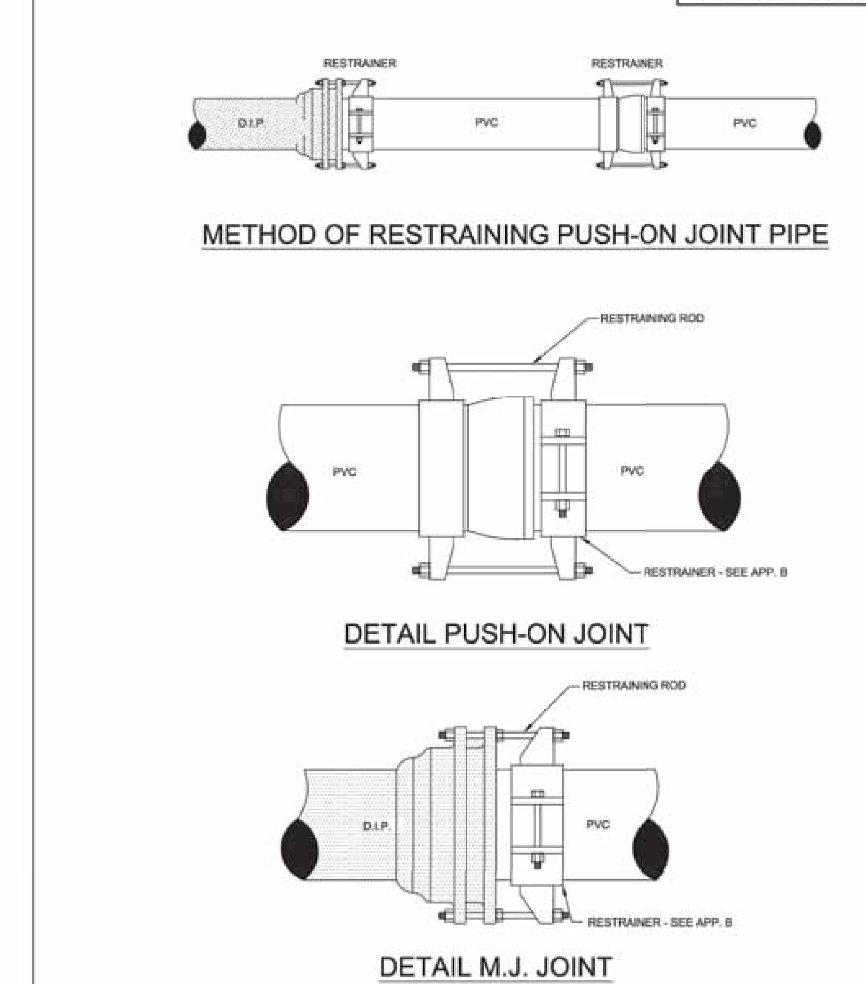
MINIMUM FOOTAGE OF PIPE RESTRAINT

		PIPE SIZE (INCHES)					
		4	6	8	12		
11-1/4°	H-B	2	2	3	4		
	VU-B	5	7	9	13		
	VD-B	AF	AF	AF	2		
22-1/2°	H-B	3	5	6	9		
	VU-B	10	15	19	27		
	VD-B	AF	2	2	3		
45°	H-B	7	10	13	18		
	VU-B	22	30	40	56		
	VD-B	3	4	5	7		
90°	H-B	17	24	31	43		
	VU-B						
	VD-B						
TEE		22	43	65	104		
DEAD END PLUG		38	53	69	98		
REDUCER		38	40	69	72		

H-B: HORIZONTAL BEND
VU-B: VERTICAL-UP BEND
VD-B: VERTICAL-DOWN BEND

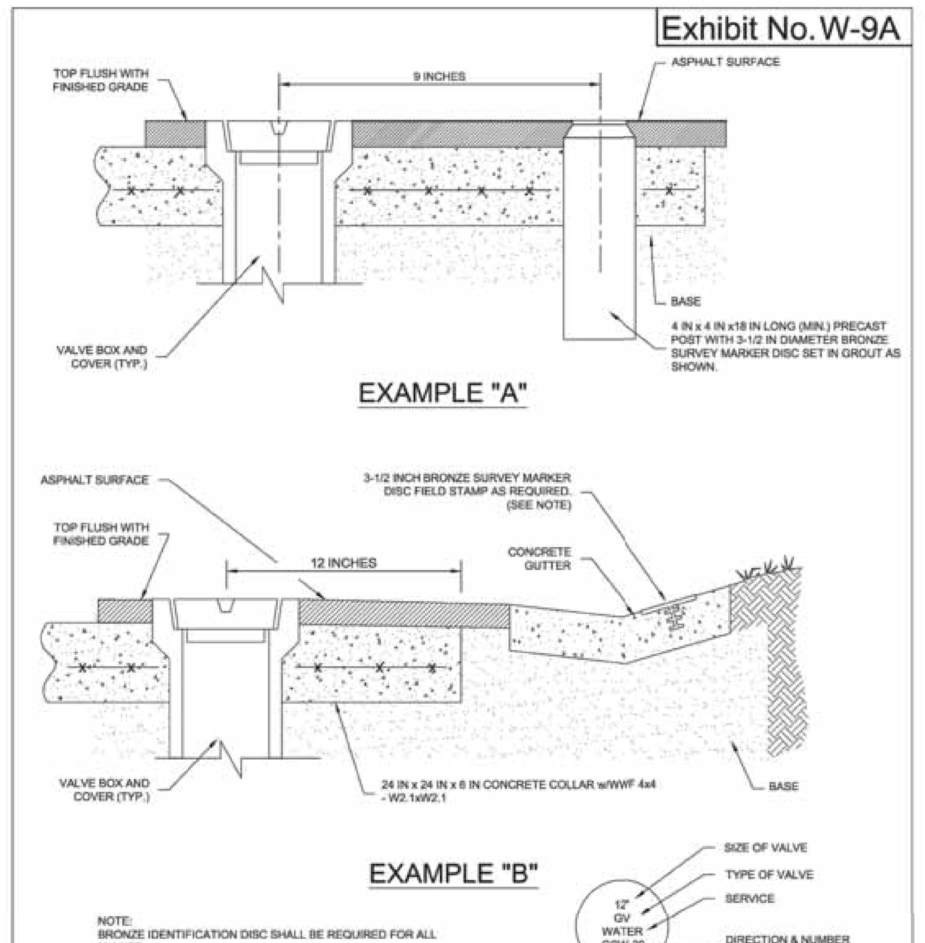
RESTRAINED JOINT-STANDARD	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-7B



RESTRAINED JOINT FOR PVC C-900 PIPE (4 IN TO 12 IN)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-9A

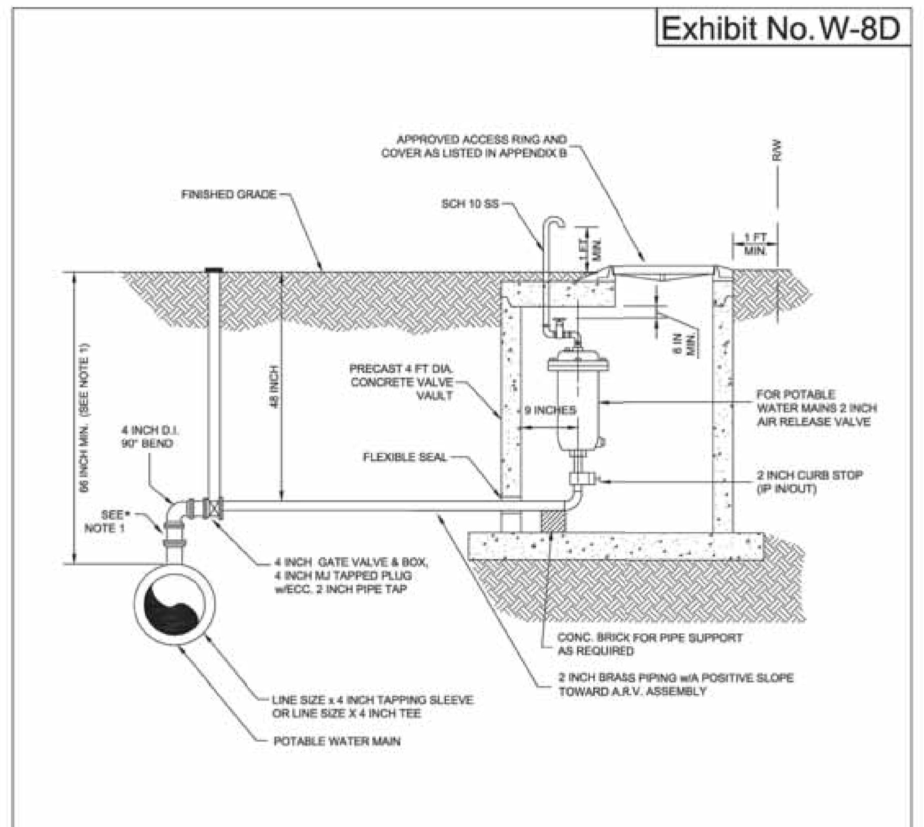


NOTE:
BRONZE IDENTIFICATION DISC SHALL BE REQUIRED FOR ALL VALVES.

MARKER DISC DETAIL

VALVE BOX & MARKER INSTALLATION FOR PAVED AREAS	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-8D

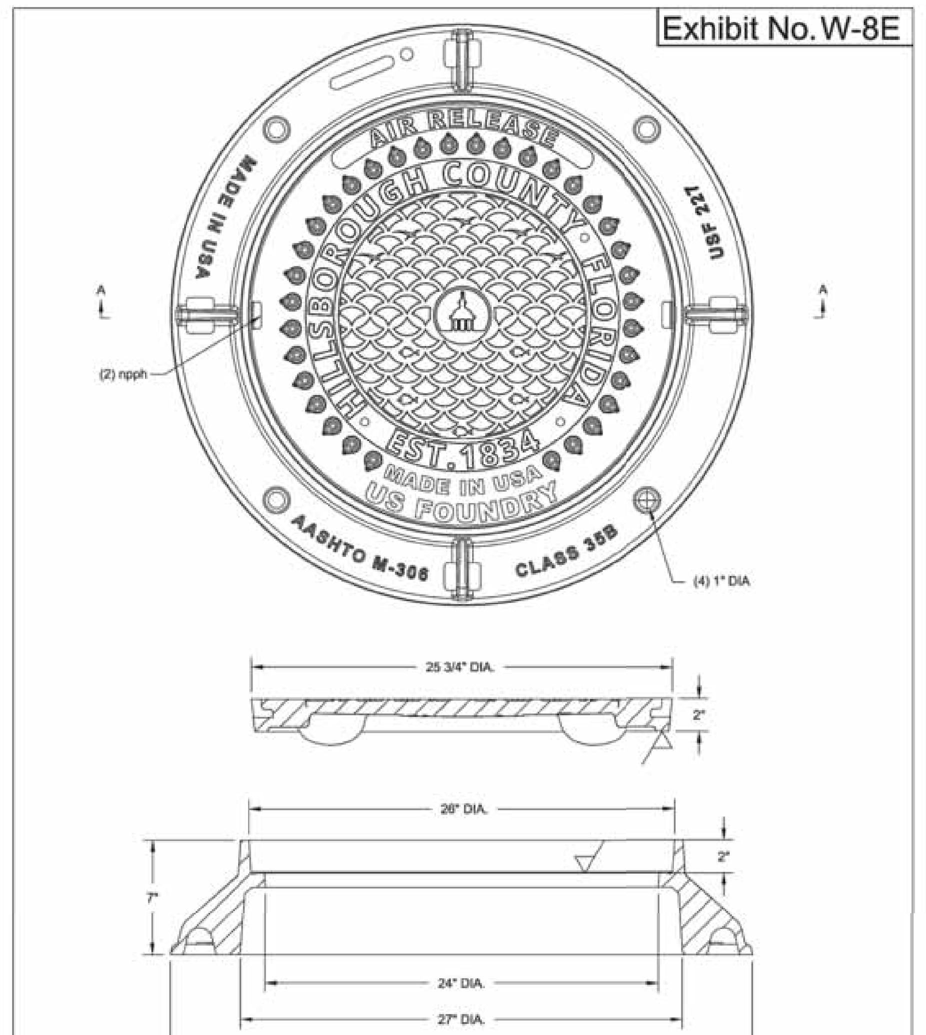


NOTE:

1. THE MINIMUM DEPTH OF THE ENTIRE PROPOSED WATER MAIN SHALL BE INCREASED AS SHOWN TO ENSURE THE VALVE VAULT FOR AN AUTOMATIC ARV CAN BE INSTALLED FLUSH WITH THE PROPOSED GRADE. *IF A FOSTER ADAPTER IS USED THE DEPTH OF BURY CAN BE DECREASED 10 INCHES.
2. ENGINEER SHALL SUBMIT A FLOTATION CALCULATION TO THE COUNTY. VAULT SHALL BE TRAFFIC BEARING (H-20).
3. THE OPEN END OF THE AIR RELIEF PIPE WILL BE PROVIDED WITH A SCREENED, DOWNWARD-FACING ELBOW.
4. SEE APPENDIX B FOR APPROVED PRODUCTS.

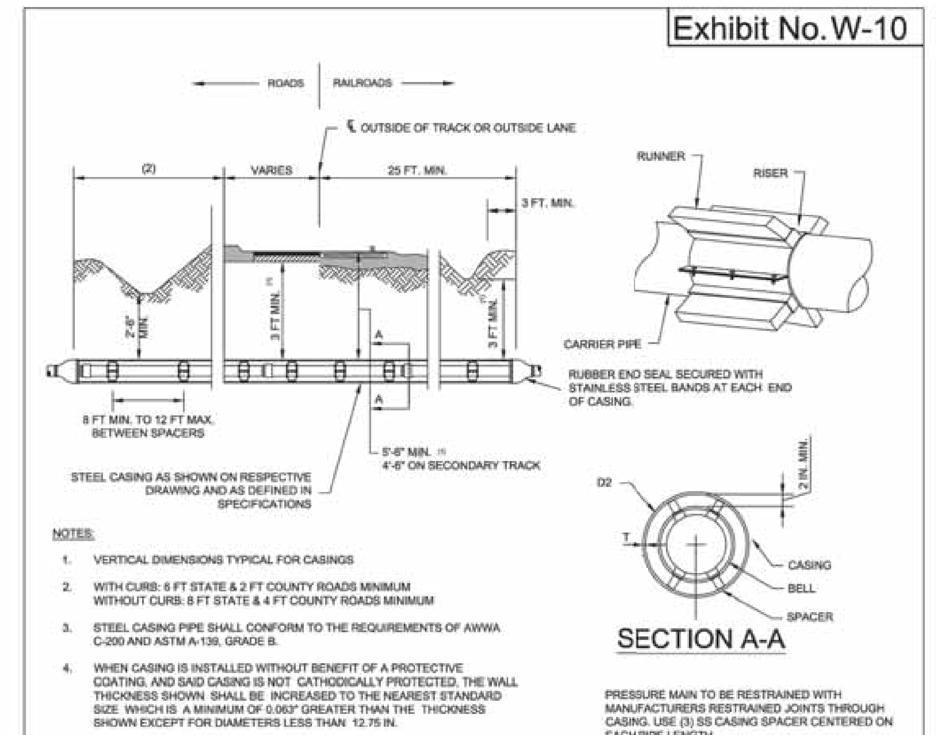
NEW CONSTRUCTION (NOT IN SERVICE) AIR RELIEF VALVE ASSEMBLY - OFFSET	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-8E



AIR RELEASE RING AND COVER	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-10



NOTES:

1. VERTICAL DIMENSIONS TYPICAL FOR CASINGS
2. WITH CURB: 6 FT STATE & 2 FT COUNTY ROADS MINIMUM
WITHOUT CURB: 8 FT STATE & 4 FT COUNTY ROADS MINIMUM
3. STEEL CASING PIPE SHALL CONFORM TO THE REQUIREMENTS OF AWWA C-200 AND ASTM A-139, GRADE B.
4. WHEN CASING IS INSTALLED WITHOUT BENEFIT OF A PROTECTIVE COATING, AND SAID CASING IS NOT CATHODICALLY PROTECTED, THE WALL THICKNESS SHOWN SHALL BE INCREASED TO THE NEAREST STANDARD SIZE WHICH IS A MINIMUM OF 0.063" GREATER THAN THE THICKNESS SHOWN EXCEPT FOR DIAMETERS LESS THAN 12.75 IN.
5. FOR REFERENCE ONLY.

PRESSURE MAIN TO BE RESTRAINED WITH MANUFACTURERS RESTRAINED JOINTS THROUGH CASING. USE (3) SS CASING SPACER CENTERED ON EACH PIPE LENGTH.

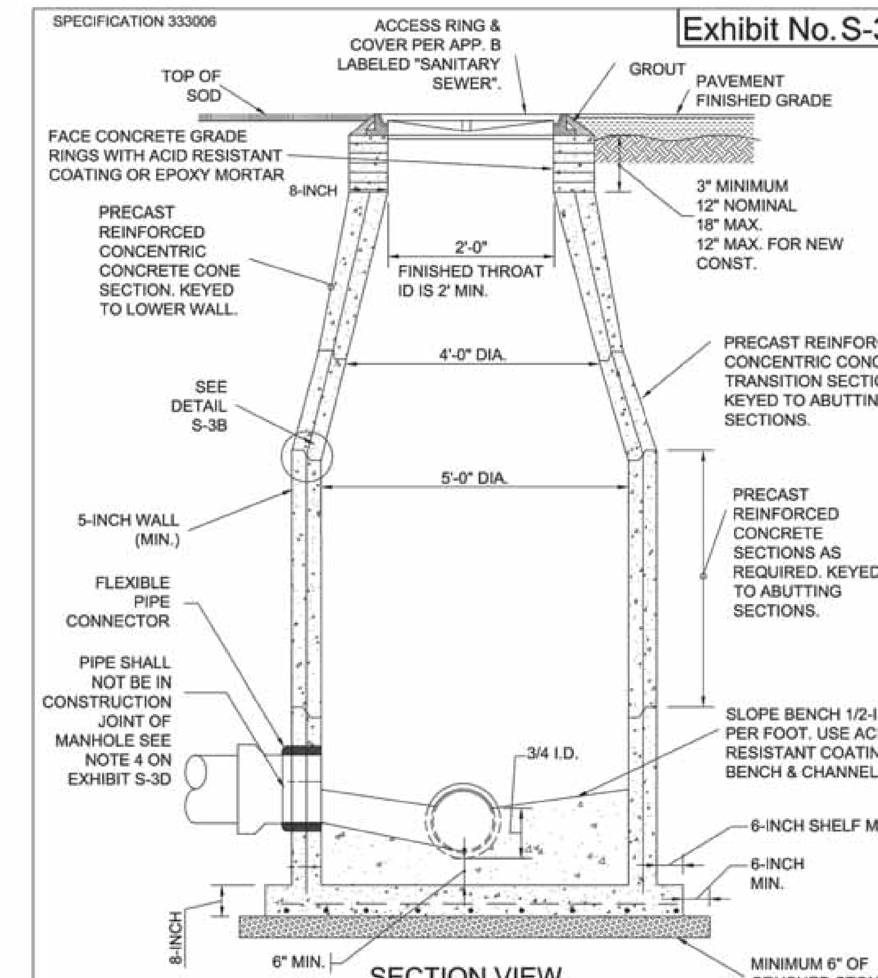
MINIMUM CASING SIZE AND THICKNESS (INCHES)

D.I.P.-M.J.	—	—	4	6	—	8	10	12	14	16	18	20	—	24	30	36	42	48
D.I.P.-P.O.	—	4	—	6	8	10	12	—	14	16	18	20	24	—	30	36	42	48
PVC	—	4	6	—	8	10	12	—	—	—	—	—	—	—	—	—	—	—
PVC FUSIBLE	4	6	8	10	12	—	—	—	—	—	—	—	—	—	—	—	—	—
(3) STEEL CASING PIPE (D2)	10 (5)	12	14	16	18	20	24	24	30	30	30	36	36	42	48	54	60	66
WALL THICKNESS (T) ROADS	.188	.188	.25	.25	.25	.25	.25	.25	.312	.312	.312	.375	.375	.5	.5	.5	.5	.5
(4) WALL THICKNESS (T) R.R.	.188	.188	.188	.219	.25	.281	.312	.312	.406	.406	.406	.469	.469	.562	.625	.719	.781	.875

CASING DETAILS JACK & BORE	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. S-3C

SPECIFICATION 333006



NOTE:
ALL STANDARD MANHOLE NOTES APPLY. REFER TO EXHIBIT S-3D. DETAIL APPLIES TO MANHOLES WITH DEPTHS GREATER THAN 15 FEET.

STANDARD 60" PRECAST MANHOLE FOR SEWERS >16" IN DIA OR >15' DEEP	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

REVISIONS

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UTILITY DETAILS

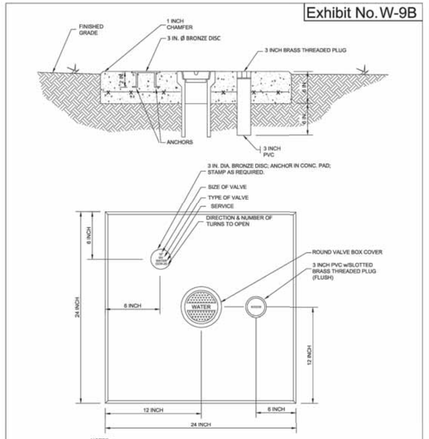
LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO LICENSE NO. 67540 STATE OF FLORIDA PROFESSIONAL ENGINEER

Datum: NAVD 88

Exhibit No. W-9B

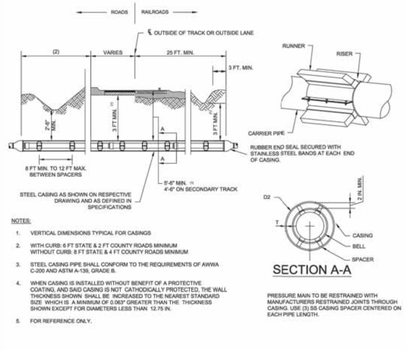


NOTES:

1. CONCRETE TO BE TYPE I GENERAL PORTLAND CEMENT WITH 3/4 IN. TOP SIZE AGGREGATE AND SHALL DEVELOP A 28-DAY STRENGTH OF 3000 psi
2. REINFORCING STEEL SHALL BE WELDED WIRE FABRIC 6x6 - W1.4 x W1.4
3. CONCRETE VALVE PAD SHALL BE POURED IN PLACE AND SHALL BE SET 1 IN. ABOVE FINISHED GRADE

CONCRETE VALVE PAD (FOR UNPAVED AREAS)	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-10



NOTES:

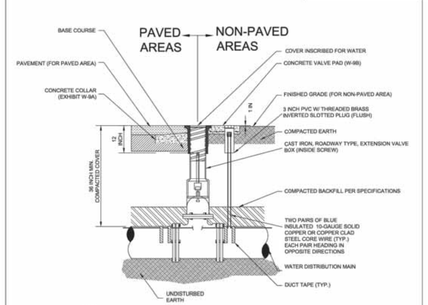
1. VERTICAL DIMENSIONS TYPICAL FOR CASINGS
2. WITH CURB: 6 FT STATE & 2 FT COUNTY ROADS MINIMUM
   WITHOUT CURB: 8 FT STATE & 4 FT COUNTY ROADS MINIMUM
3. STEEL CASING PIPE SHALL CONFORM TO THE REQUIREMENTS OF AWWA C-200 AND ASTM A-139, GRADE B.
4. WHEN CASING IS INSTALLED WITHOUT BENEFIT OF A PROTECTIVE COATING, AND SAID CASING IS NOT CATHODICALLY PROTECTED, THE WALL THICKNESS SHOWN SHALL BE INCREASED TO THE NEAREST STANDARD SIZE WHICH IS A MINIMUM OF 0.050" GREATER THAN THE THICKNESS SHOWN EXCEPT FOR DIAMETERS LESS THAN 12.75 IN.
5. FOR REFERENCE ONLY.

MINIMUM CASING SIZE AND THICKNESS (INCHES)

D.I.P.-M.J.	—	—	4	6	—	8	10	12	14	16	18	20	—	24	30	36	42	48
D.I.P.-P.O.	—	4	—	6	8	10	12	—	14	16	18	20	24	—	30	36	42	48
PVC	—	4	6	—	8	10	12	—	—	—	—	—	—	—	—	—	—	—
PVC FUSIBLE	4	6	8	10	12	—	—	—	—	—	—	—	—	—	—	—	—	—
(3) STEEL CASING PIPE (D2)	10	12	14	16	18	20	24	24	30	30	30	36	36	42	48	54	60	66
WALL THICKNESS (T) ROADS	.188	.188	.25	.25	.25	.25	.25	.312	.312	.312	.312	.375	.375	.5	.5	.5	.5	.5
(4) WALL THICKNESS (T) R.R.	.188	.188	.188	.219	.25	.281	.312	.312	.406	.406	.406	.469	.469	.562	.625	.719	.781	.875

CASING DETAILS JACK & BORE	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

Exhibit No. W-12A



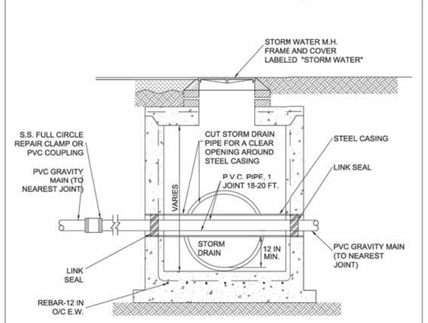
NOTES:

1. EXTENSION ON VALVE BOX SHALL BE SET SO AS TO RESERVE 1/2 OF THE ADJUSTMENT LENGTH FOR FUTURE USE.
2. OPERATING NUT SHALL BE SO AS TO BE WITHIN 12 INCHES OF GRADE. EXTENSION TO BE PROVIDED AS REQUIRED.
3. ALL NON-METALIC PIPE SHALL REQUIRE TWO INSULATED 10 GAUGE SOLID COPPER OR COPPER CLAD STEEL CORE LOCATING WIRES TAPED WITH 2 INCH WIDE DUCT TAPE AT THE 10:00 AND 2:00 POSITION ON THE PIPE AT EVERY JOINT AND 4 TO 5 FEET SPACING. WIRE FOR DIRECTIONAL DRILL APPLICATIONS SHALL BE COPPER CLAD "HARD DRAWN" STEEL CORE WITH A MINIMUM BREAKING STRENGTH OF 1000 PSI.
4. LOCATING WIRES TO TERMINATE 4 INCHES ABOVE CONCRETE VALVE PAD AND FOLDED BACK INSIDE 3 INCH PVC ACCESS PIPE AND PLUGGED.
5. LOCATING WIRES SHALL BE CAPABLE OF DETECTION BY A CABLE LOCATOR AND PASS A FIELD CONDUCTIVITY TEST THAT IS WITNESSED BY THE COUNTY FROM END TO END OF WIRES.
6. SPLICES SHALL BE CAPABLE OF COMPLETE SUBMERSION.
7. NO MORE THAN ONE SPLICE BETWEEN VALVES IS ALLOWED.

VALVE AND TRACER WIRE PAVED OR NON-PAVED AREAS	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-1A



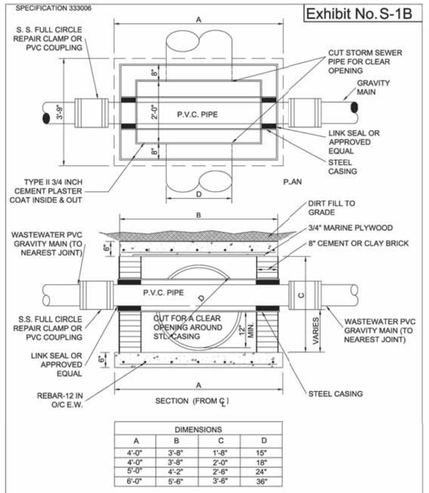
NOTE:

1. NO PIPE JOINT SHOULD BE INSIDE CONCRETE STRUCTURE.
2. MAINTAIN 12-INCH MINIMUM CLEARANCE BETWEEN STORM DRAIN PIPE FLOW CHANNEL AND BOTTOM OF STEEL CASING.

CONFLICT MANHOLE - TYPE 'A' WASTEWATER AND STORMWATER PIPES	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-1B

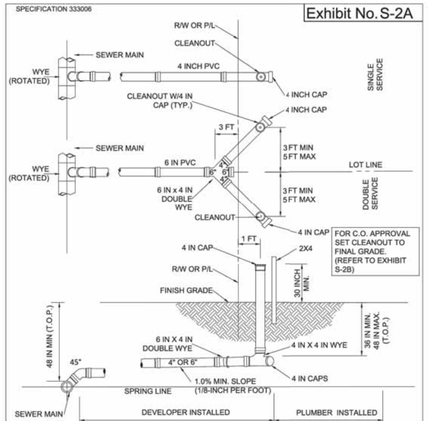


DIMENSIONS			
A	B	C	D
4'-0"	3'-8"	1'-8"	15"
4'-0"	3'-8"	2'-0"	18"
5'-0"	4'-2"	2'-6"	24"
6'-0"	5'-6"	3'-6"	36"

CONFLICT MANHOLE - TYPE 'B' WASTEWATER AND STORMWATER PIPES	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-2A



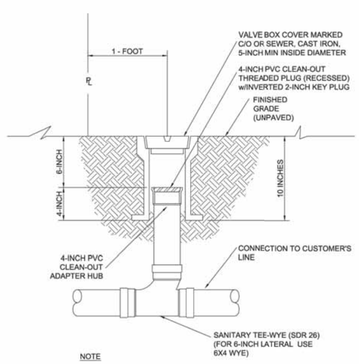
NOTES:

1. CENTER A DOUBLE WYE FITTING ON THE LOT LINE.
2. INVERT OF SERVICE LATERAL SHALL NOT ENTER SEWER BELOW SPRING LINE.
3. THE TOP OF THE CLEANOUT SHALL TERMINATE 30 TO 40 INCHES ABOVE DESIGN GRADE UNTIL CONNECTION TO A STRUCTURE IS MADE.
4. ALL LATERALS SHALL BE CONSTRUCTED OF SDR 26 PVC.
5. ALL LATERAL LOCATIONS SHALL BE MARKED WITH AN "S" SAW CUT INTO THE TOP OF CURB.
6. CLEANOUTS SHALL NOT BE INSTALLED IN CONCRETE (NO DRIVEWAYS OR SIDEWALKS).

TYPICAL PVC SANITARY SEWER NEW CONNECTION W/CLEANOUT	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-2B



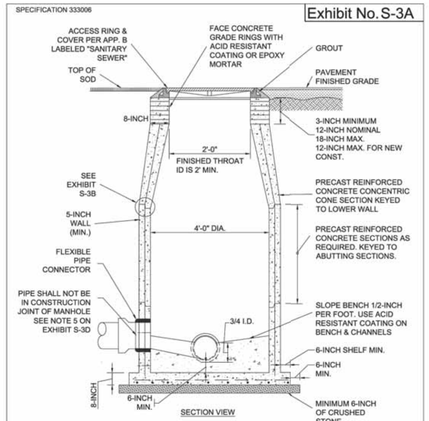
NOTE

1. ALL PIPING AND FITTINGS TO BE PVC SDR 26
2. CLEANOUT SHALL NOT BE INSTALLED IN CONCRETE

CLEAN-OUT DETAIL WITH VALVE BOX COVER	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-3A

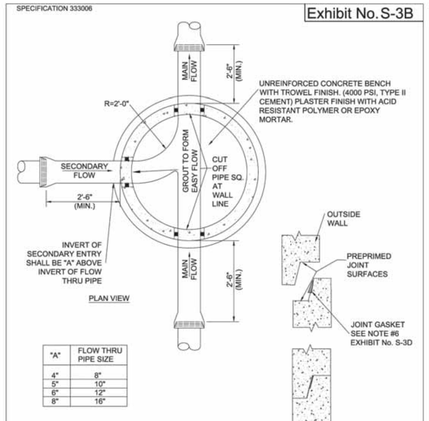


NOTE:
ALL STANDARD MANHOLE NOTES APPLY. REFER TO EXHIBIT No. S-3D. THIS DETAIL APPLIES TO MANHOLES WITH DEPTHS OF 5 FT TO 15 FT. IF DEPTH TO INVERT IS LESS THAN 5 FT, DESIGN EXCEPTION APPROVAL BY PUBLIC UTILITIES DEPARTMENT IS REQUIRED

STANDARD 48" PRECAST MANHOLE FOR SEWERS 16" OR LESS IN DIA	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-3B



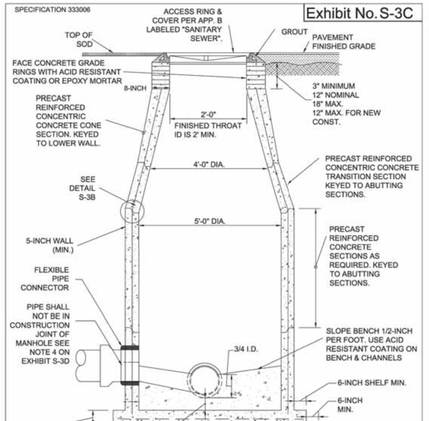
"A"	FLOW THRU PIPE SIZE
4"	8"
5"	10"
6"	12"
8"	16"

NOTE:
ALL STANDARD MANHOLE NOTES APPLY. REFER TO EXHIBIT No. S-3D.

STANDARD 48" PRECAST MANHOLE FOR SEWERS 16" OR LESS IN DIA	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-3C



NOTE:
ALL STANDARD MANHOLE NOTES APPLY. REFER TO EXHIBIT S-3D. DETAIL APPLIES TO MANHOLES WITH DEPTHS GREATER THAN 15 FEET.

STANDARD 60" PRECAST MANHOLE FOR SEWERS >16" IN DIA OR >15' DEEP	3/2020
HILLSBOROUGH COUNTY, FLORIDA	SCALE: N.T.S.

REVISIONS

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave.
Tampa, Florida 33624
7978 Cooper Creek Blvd.
University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

UTILITY DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY C. LATINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION DETAILS_UTILITIES.DWG
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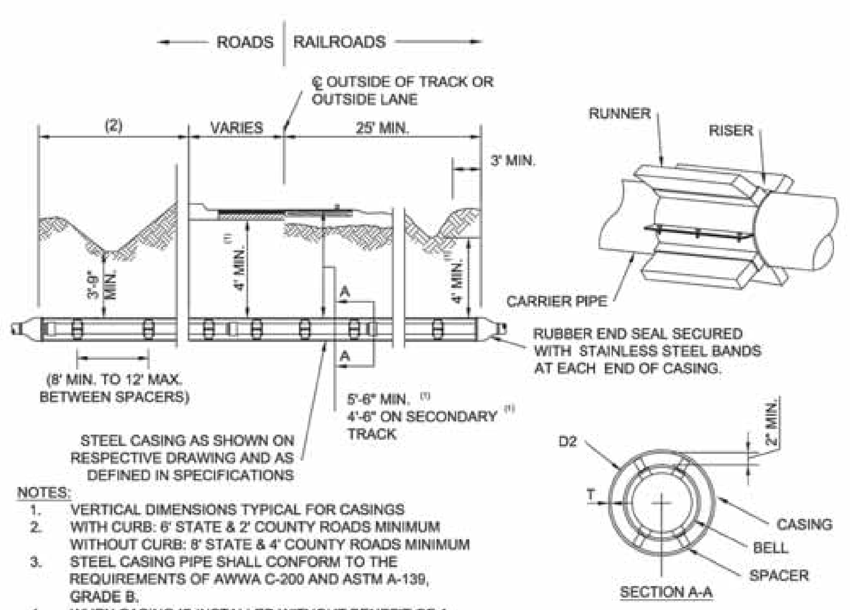
2022 WRA

SPECIFICATION 333006

Exhibit No. S-5



NOTES:
1. VERTICAL DIMENSIONS TYPICAL FOR CASINGS
2. WITH CURB: 6' STATE & 2' COUNTY ROADS MINIMUM
   WITHOUT CURB: 8' STATE & 4' COUNTY ROADS MINIMUM
3. STEEL CASING PIPE SHALL CONFORM TO THE REQUIREMENTS OF AWWA C-200 AND ASTM A-139, GRADE B.
4. WHEN CASING IS INSTALLED WITHOUT BENEFIT OF A PROTECTIVE COATING, AND SAID CASING IS NOT CATHODICALLY PROTECTED, THE WALL THICKNESS SHOWN SHALL BE INCREASED TO THE NEAREST STANDARD SIZE WHICH IS A MINIMUM OF 0.063" GREATER THAN THE THICKNESS SHOWN EXCEPT FOR DIAMETERS LESS THAN 12.75".
5. FOR REFERENCE ONLY.

PRESSURE MAIN TO BE RESTRAINED WITH MANUFACTURER'S RESTRAINED JOINTS THROUGH CASING. USE (3) SS CASING SPACER CENTERED ON EACH PIPE LENGTH.

MINIMUM CASING SIZE AND THICKNESS

D.I.P.-M.J.	—	—	4"	6"	—	8"	10"	12"	—	—	14"	16"	18"	20"	—	24"	30"	36"	42"	48"
D.I.P.-P.O.	—	4"	—	6"	8"	10"	12"	—	—	—	14"	16"	18"	20"	24"	—	30"	36"	42"	48"
PVC	—	4"	6"	—	8"	10"	12"	—	—	—	—	—	—	—	—	—	—	—	—	—
PVC FUSIBLE	4"	6"	8"	10"	12"	14"	16"	—	18"	20"	—	—	—	—	—	—	—	—	—	—
(3) STEEL CASING PIPE (D2)	10" (5)	12"	14"	16"	18"	20"	24"	24"	26"	28"	30"	30"	30"	36"	36"	42"	48"	54"	60"	66"
WALL THICKNESS (T) ROADS	.188"	.188"	.250"	.250"	.250"	.250"	.250"	.250"	.312"	.312"	.312"	.312"	.312"	.375"	.375"	.500"	.500"	.500"	.500"	.500"
(4) WALL THICKNESS (T) R.R.	.188"	.188"	.188"	.219"	.250"	.281"	.312"	.312"	.406"	.406"	.406"	.406"	.406"	.469"	.469"	.562"	.625"	.719"	.781"	.875"

CASING DETAILS
JACK & BORE
HILLSBOROUGH COUNTY, FLORIDA
3/2020
SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-3D

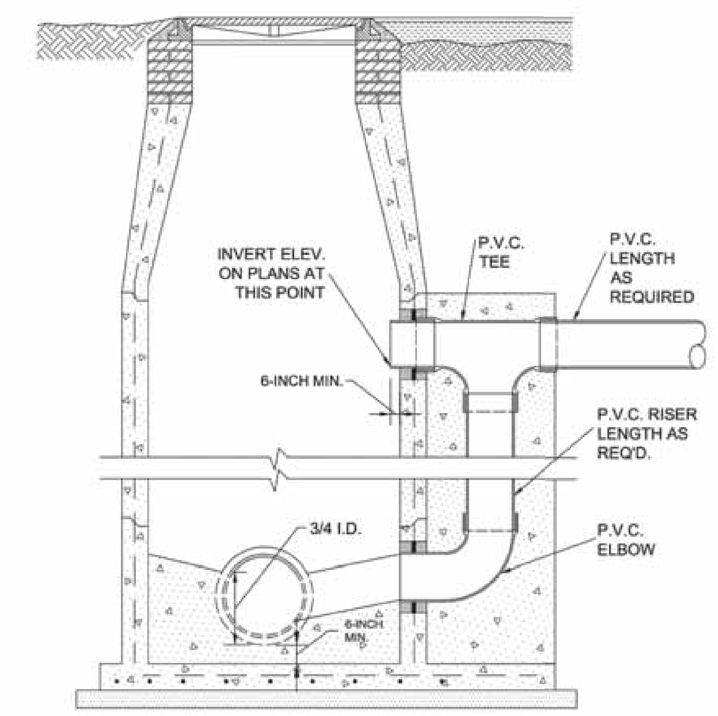
NOTES:

1. PRECAST MANHOLE SECTIONS & BASES SHALL BE MANUFACTURED IN ACCORDANCE WITH LATEST EDITION OF ASTM C478 WITH 4000 P.S.I., TYPE II CEMENT (ASTM C150) OR POLYMER CONCRETE (AS APPROVED BY THE COUNTY)
2. CONCRETE PLACED IN MANHOLE INVERTS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 P.S.I. AND SHALL UTILIZE TYPE II CEMENT.
3. LIFT HOLES THROUGH PRECAST STRUCTURES ARE NOT PERMITTED.
4. ALL PIPE PENETRATIONS SHALL BE PRECAST OR CORE-DRILLED. THE PERIMETER OF A PENETRATION SHALL NOT BE CLOSER THAN 12 INCHES TO A BARREL SECTION JOINT.
5. FLEXIBLE PIPE CONNECTORS (ASTM C293) SHALL BE USED AT ALL PIPE PENETRATIONS.
6. JOINT CONTACT SURFACES SHALL BE SEALED USING A RUBBER GASKET PER THE MANUFACTURER'S RECOMMENDATION. GASKETS SHALL BE 1/2 INCH THICK WITH WIDTH AT LEAST 1/2 THE WALL THICKNESS. BUTYL AND MASTIC SEALANTS ARE NOT ACCEPTABLE.
7. THE INTERIOR OF THE GRADE RINGS SHALL BE PLASTERED WITH AN ACID RESISTANT COATING, OR EPOXY MORTAR, WHEN CONCRETE RINGS ARE USED.
8. THE MANHOLE COVER SHALL BE EQUIPPED WITH AN INFLOW PROTECTOR AND SHALL COMPLY WITH SPECIFICATION 333001, PART 3.3.8 AND THE APPROVED PRODUCTS LIST IN APP. B.
9. BOTTOM BARREL AND BASE OF MANHOLE TO BE MONOLITHICALLY CAST.
10. SERVICE LATERALS SHALL NOT ENTER A MANHOLE UNLESS THE MANHOLE IS A TERMINAL MANHOLE, AND SPECIFIED ON THE PLANS. IF APPROVED, THE LATERAL MUST BE TREATED AS A MAIN (SHOW ELEVATIONS, PRECAST OR CORE-DRILLED PENETRATIONS, FLOW CHANNEL CONSTRUCTION, ETC.).
11. AN OUTSIDE DROP CONNECTION SHALL BE REQUIRED FOR ALL INFLUENT LINES WHICH HAVE AN INVERT 2-FOOT OR MORE ABOVE THE MANHOLE INVERT.
12. FOR NONSTANDARD MANHOLES, THE ENGINEER OF RECORD SHALL DESIGN ALL MANHOLE REINFORCEMENT STEEL AND JOINT DETAILS AND SHALL SUBMIT CALCULATIONS TO THE COUNTY FOR REVIEW.
13. PRECAST OR CORE-DRILLED PENETRATION DIAMETERS SHALL BE PER MANUFACTURER SPECIFICATIONS OR AS FOLLOWS: 12 INCH FOR 8 INCH DIAMETER PIPE. 14 INCH TO 16 INCH FOR 10 INCH DIAMETER PIPE. 16 INCH FOR 12 INCH DIAMETER PIPE.
14. MATERIALS OF CONSTRUCTION, PLACEMENT, AND COMPACTION REQUIREMENTS FOR BEDDING MATERIALS SHALL BE PER COUNTY SPECIFICATIONS.
15. FLOW CHANNELS SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO THE FLOW STREAM.
16. PROPERLY SHAPED SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS TO PROVIDE FOR SMOOTH FLOWS.

STANDARD NOTES PRECAST MANHOLES
HILLSBOROUGH COUNTY, FLORIDA
3/2020
SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-4



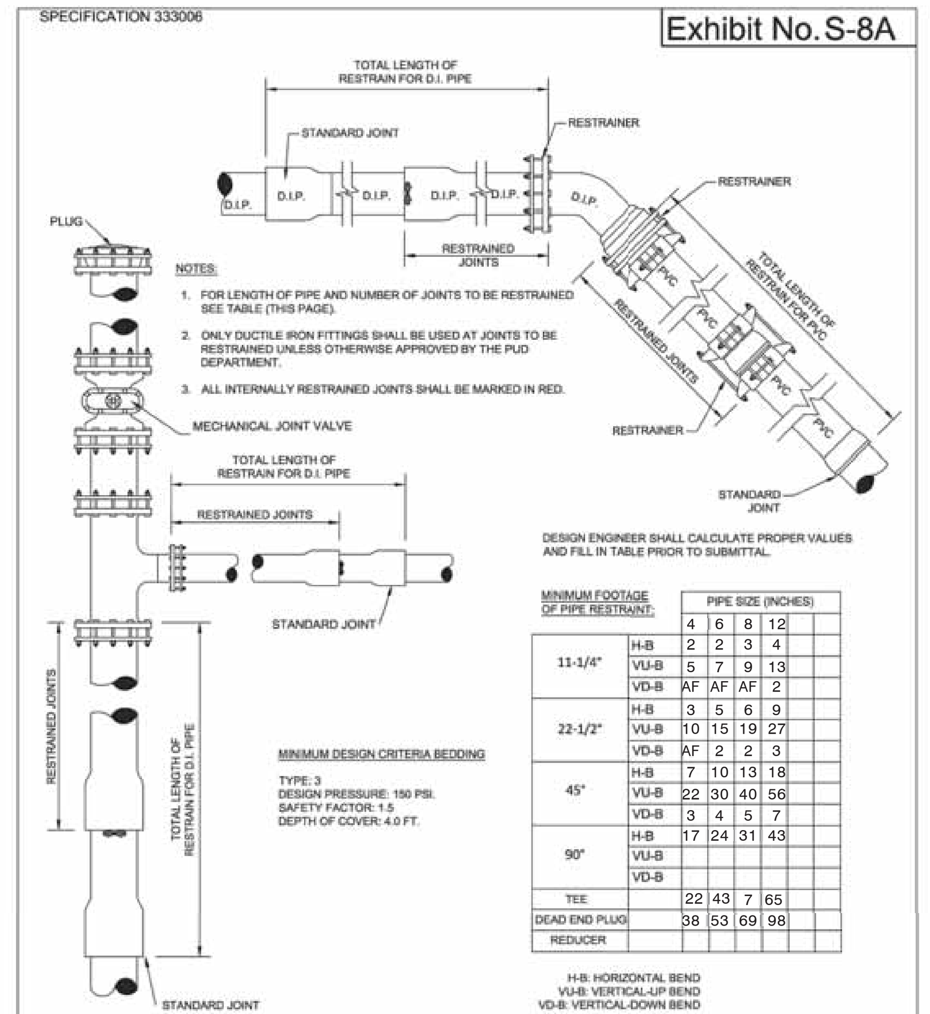
SECTION VIEW

NOTE:
ALL STANDARD MANHOLE NOTES AND DETAILS APPLY. REFER TO EXHIBITS S-3A THROUGH S-3D

TYPICAL DROP MANHOLE - OUTSIDE FOR GRAVITY INTO GRAVITY
HILLSBOROUGH COUNTY, FLORIDA
3/2020
SCALE: N.T.S.

SPECIFICATION 333006

Exhibit No. S-8A



NOTES:
1. FOR LENGTH OF PIPE AND NUMBER OF JOINTS TO BE RESTRAINED SEE TABLE (THIS PAGE).
2. ONLY DUCTILE IRON FITTINGS SHALL BE USED AT JOINTS TO BE RESTRAINED UNLESS OTHERWISE APPROVED BY THE PUD DEPARTMENT.
3. ALL INTERNALLY RESTRAINED JOINTS SHALL BE MARKED IN RED.

MINIMUM DESIGN CRITERIA BEDDING

TYPE: 3
DESIGN PRESSURE: 150 PSI.
SAFETY FACTOR: 1.5
DEPTH OF COVER: 4.0 FT.

DESIGN ENGINEER SHALL CALCULATE PROPER VALUES AND FILL IN TABLE PRIOR TO SUBMITTAL.

MINIMUM FOOTAGE OF PIPE RESTRAINT:

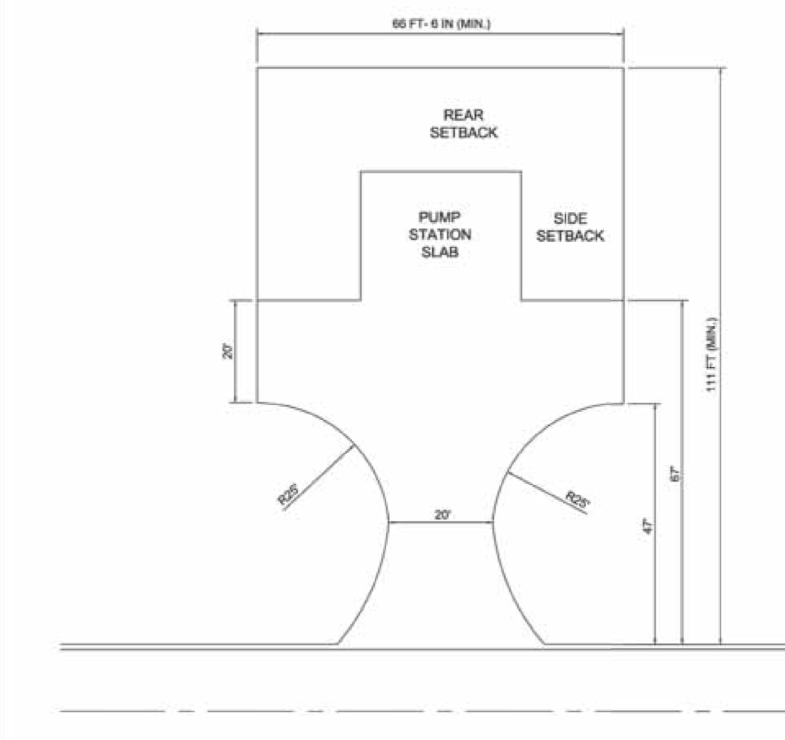
		PIPE SIZE (INCHES)					
		4	6	8	12		
11-1/4"	H-B	2	2	3	4		
	VU-B	5	7	9	13		
	VD-B	AF	AF	AF	2		
22-1/2"	H-B	3	5	6	9		
	VU-B	10	15	19	27		
	VD-B	AF	2	2	3		
45°	H-B	7	10	13	18		
	VU-B	22	30	40	56		
	VD-B	3	4	5	7		
90°	H-B	17	24	31	43		
	VU-B						
	VD-B						
TEE		22	43	7	65		
DEAD END PLUG		38	53	69	98		
REDUCER							

H-B: HORIZONTAL BEND
VU-B: VERTICAL-UP BEND
VD-B: VERTICAL-DOWN BEND

RESTRAINED JOINT-STANDARD
HILLSBOROUGH COUNTY, FLORIDA
3/2020
SCALE: N.T.S.

SPECIFICATION 333006

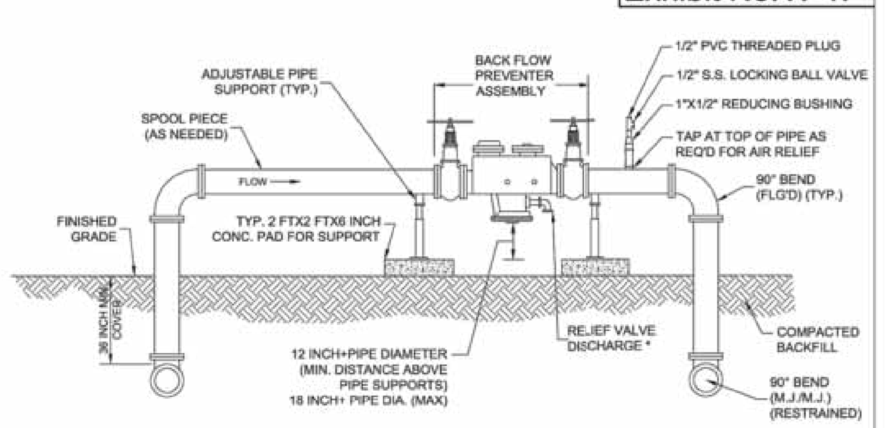
Exhibit No. S-14B

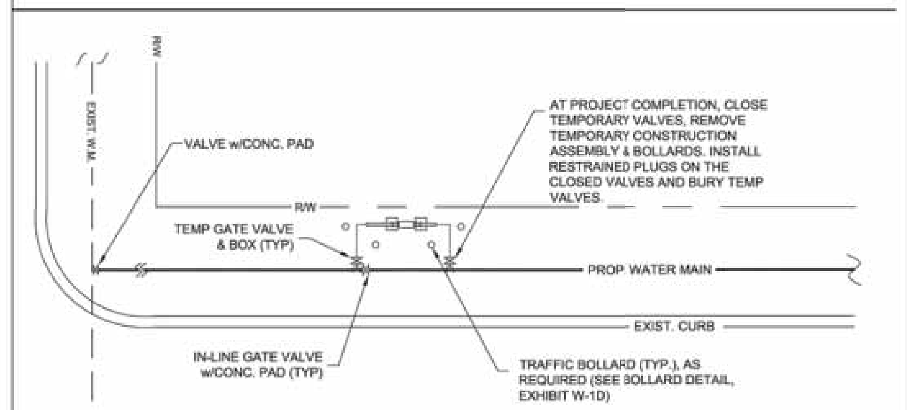


NOTE: THE DIMENSIONS ARE BASED ON THE MINIMUM PUMP STATION LAYOUT AS SHOWN IN EXHIBIT S-13A

TURNAROUND DETAIL
LAYOUT "B" (WHEN REQUIRED)
HILLSBOROUGH COUNTY, FLORIDA
3/2020
SCALE: N.T.S.

Exhibit No. W-1F





NOTES:
1. SEE EXHIBIT W-1G FOR CONNECTION ASSEMBLY WORKSHEET
2. NO TAPS ON PIPING UPSTREAM OF THE BACKFLOW PREVENTER AND NO MODIFICATION OR USE OF BACKFLOW PREVENTER TEST PORTS FOR ANYTHING OTHER THAN TESTING.

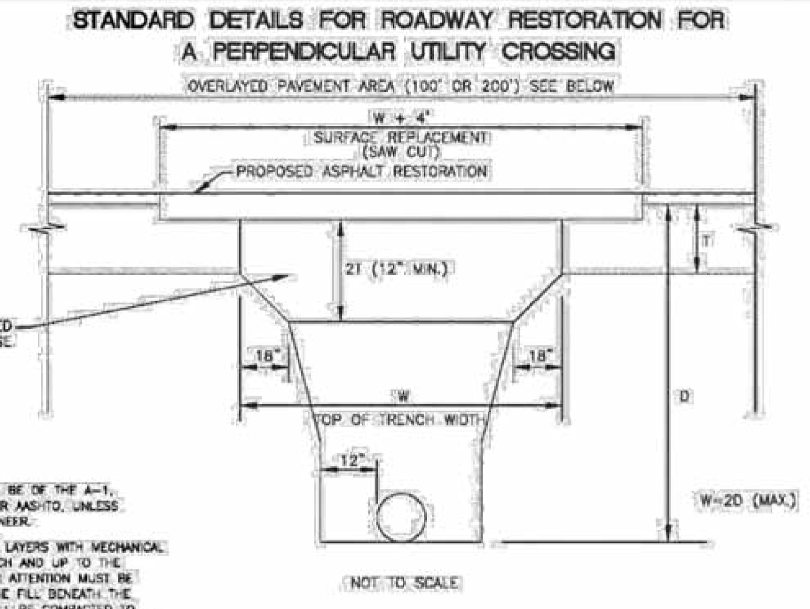
TEMPORARY CONSTRUCTION BACKFLOW ASSEMBLY
FOR RESIDENTIAL OR COMMERCIAL DEVELOPMENT 6" AND LARGER
HILLSBOROUGH COUNTY, FLORIDA
3/2020
SCALE: N.T.S.

October 2015

Utility Accommodation Guide and Rights-of-Way Use Procedures Manual

Hillsborough County Florida

STANDARD DETAILS FOR ROADWAY RESTORATION FOR A PERPENDICULAR UTILITY CROSSING



POSTED SPEED MPH	OVERLAY CENTERED ON TRENCH
35 MPH OR LESS	100 FEET
> 35 MPH	200 FEET

NOT TO SCALE

BACKFILL PROCEDURE

THE BACKFILL AND BEDDING MATERIAL SHALL BE OF THE A-1, A-2, A-3 OR A-2-4 CLASSIFICATION AS PER AASHTO, UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.

THE BACKFILL SHALL BE COMPACTED IN 12" LAYERS WITH MECHANICAL TAMPERS TO THE FULL WIDTH OF THE TRENCH AND UP TO THE BOTTOM OF THE ROADWAY BASE. PARTICULAR ATTENTION MUST BE GIVEN TO THE ADEQUATE COMPACTION OF THE FILL BENEATH THE HAUNCHES OF THE PIPE. THE BACKFILL SHALL BE COMPACTED TO 98% MAXIMUM DENSITY AS DETERMINED BY AASHTON T-180-57. ONE DENSITY TEST SHALL BE TAKEN AT THE SPRING LINE OF THE PIPE, AT ONE FOOT ABOVE THE CROWN OF THE PIPE, AND EVERY FOOT VERTICALLY THEREAFTER. A MINIMUM OF TWO COMPLETE SETS OF BACKFILL DENSITY TESTS ARE REQUIRED. FLOWABLE FILL IN ACCORDANCE WITH SECTION 121 OF THE F.D.O.T. STANDARD SPECIFICATIONS MAY BE SUBSTITUTED.

IF WELL POINTS ARE USED TO PROVIDE A DRY TRENCH FOR LAYING THE UTILITY, THEY SHALL REMAIN IN OPERATION UNTIL THE BACKFILL IS COMPLETE AND TESTED.

PAVEMENT and BASE REPLACEMENT

BASE, INSTALLED TO A THICKNESS OF TWO TIMES THE THICKNESS OF THE EXISTING BASE OR 12" WHICHEVER IS GREATER, SHALL BE INSTALLED IN 6" LIFTS. THE BASE SHALL BE COMPACTED TO 98% THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180-57. A MINIMUM OF TWO DENSITY TESTS PER LIFT IS REQUIRED. NINE (9) INCHES OF SUPERPAVE ASPHALT INSTALLED IN THREE (3) INCH LIFTS MAY BE SUBSTITUTED.

THE SURFACE COURSE SHALL BE F.D.O.T. SUPERPAVE AC WITH A THICKNESS EQUAL TO THE EXISTING OR 1-3/4", WHICHEVER IS GREATER. PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED. THE PATCH AREA SHALL BE A SMOOTH PLANE SUCH THAT A STRAIGHT EDGE PLACED ACROSS THE PATH, PARALLEL TO TRAFFIC FLOW AND EXTENDING TO UNDISTURBED PAVEMENT SHALL SHOW NO MORE THAN 1/4" IRREGULARITY. ANY IRREGULARITIES SHALL BE CORRECTED IN SUBSTANTIAL COMPLIANCE WITH F.D.O.T. SPECS. THE TRENCH SHALL BE OVERLAYED WITH 1" OF SUPERPAVE ASPHALT A MINIMUM OF 100 FEET CENTERED ON THE TRENCH FOR ROADWAYS WITH 35 MPH OR LESS SPEED LIMIT OR 200 FEET FOR ROADWAYS WITH SPEED LIMITS GREATER THAN 35 MPH.

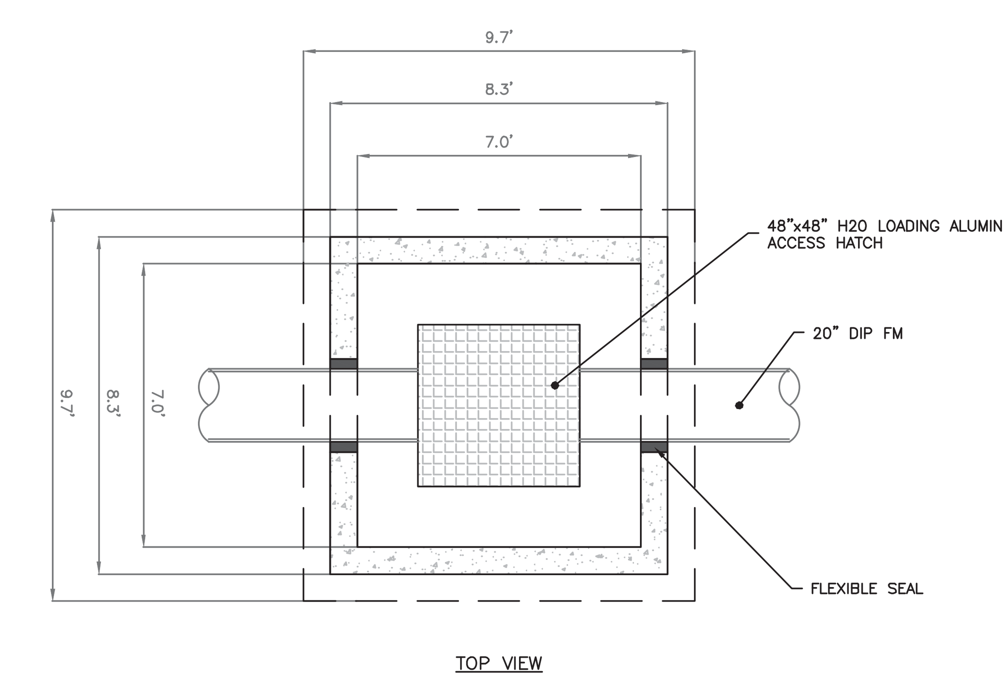
DISTURBED ROADWAYS CONSTRUCTED OF FULL DEPTH ASPHALT SHALL BE REPLACED IN KIND.

HILLSBOROUGH COUNTY

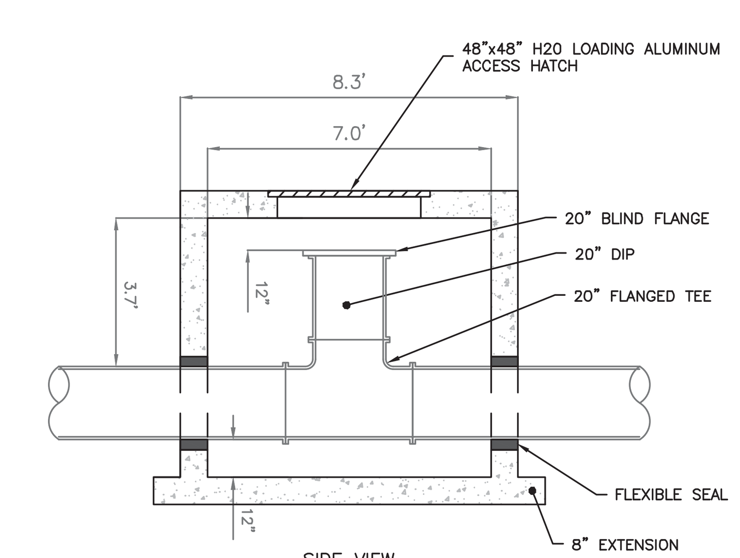
ROADWAY RESTORATION

FIGURE 1

Appendix K-1



TOP VIEW



SIDE VIEW

PIG LAUNCHING STATION VAULT DETAIL

NOTES:
1. LOADING SHALL BE H-20
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH CONCRETE AND STEEL DESIGN CERTIFIED BY A STRUCTURAL ENGINEER TO SUPPORT H-20 LOADING.

REVISIONS

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave. Tampa, Florida 33624
7978 Cooper Creek Blvd. University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

UTILITY DETAILS

LAKE PEARL

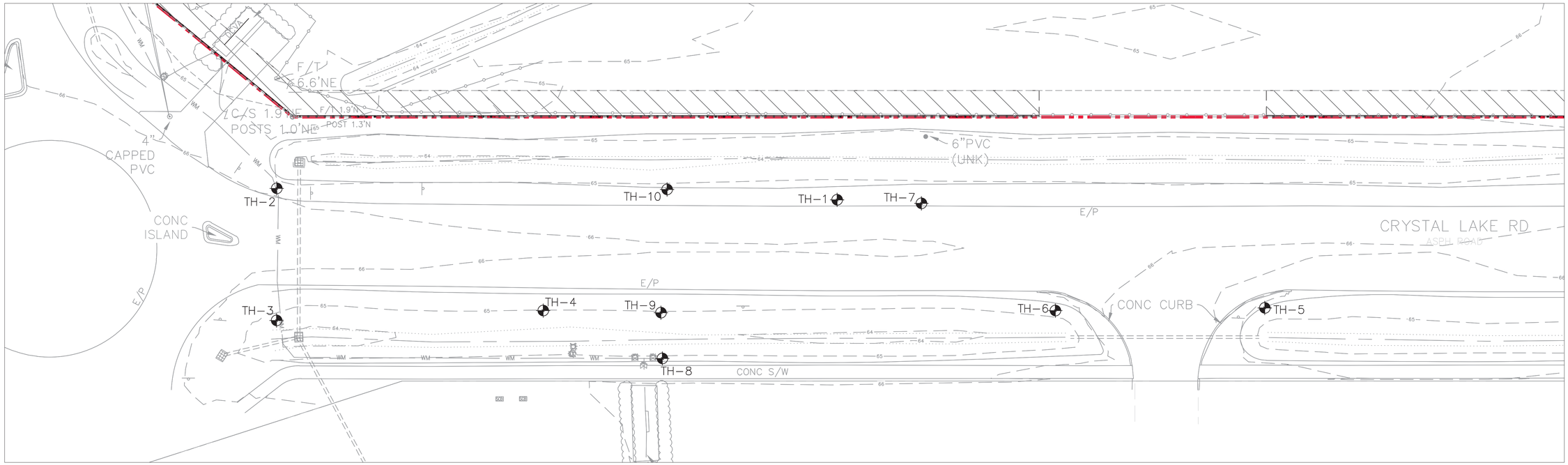
ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

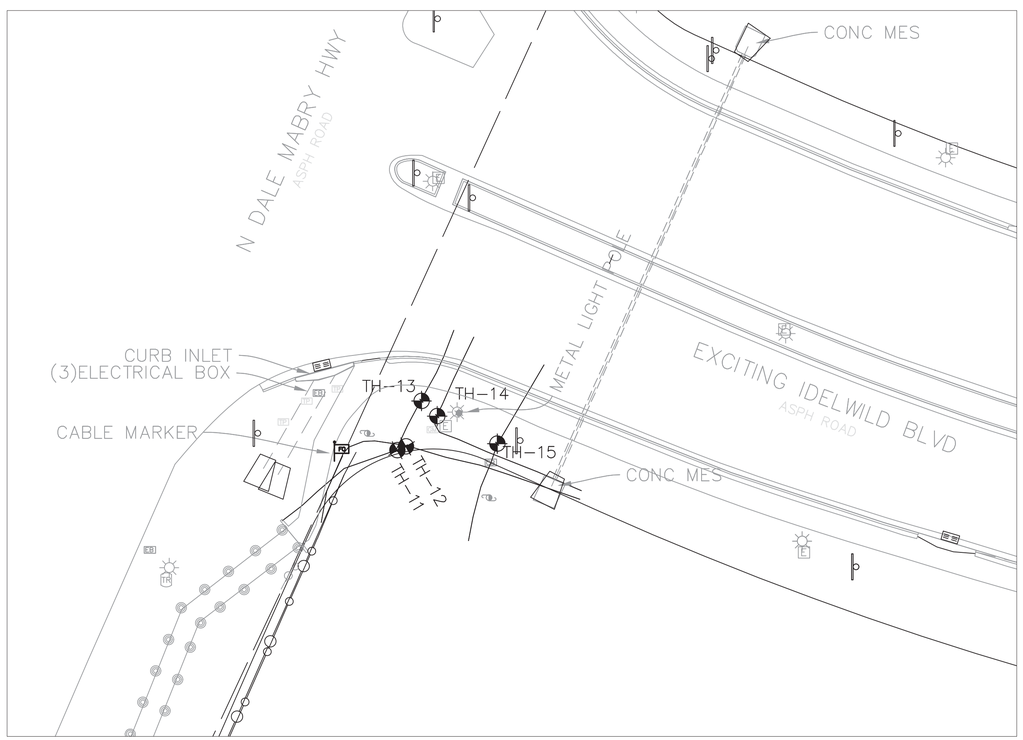
JOSEPH ANTHONY CIMINO LICENSE NO. 67540 STATE OF FLORIDA PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION\DETAILS_UTILITIES.DWG
Plot Date: 10/28/2022 10:08:05 AM

2022 WRA





TEST HOLE DATA
(WGI REPORT NO. 8540.00)

TEST HOLE	UTILITY	FIELD MARKING	GROUND EL (FEET)	TOP OF PIPE (FEET)
TH-01	NO UTILITY FOUND	FOUND HUB & LATH (C-10±)	65.72	——
TH-02	WATER MAIN – 12" DIP	FOUND HUB & LATH (C-5.38)	65.53	60.18
TH-03	WATER MAIN – 12" DIP	FOUND HUB & LATH (C-5.30)	64.78	59.38
TH-04	IRRIGATION – 2" PVC	FOUND HUB & LATH (C-3.22)	65.17	61.94
TH-05	IRRIGATION – 2" PVC	FOUND HUB & LATH (C-2.06)	65.75	63.70
TH-06	IRRIGATION – 2" PVC	FOUND HUB & LATH (C-2.72)	65.38	62.68
TH-07	UNKNOWN	FOUND HUB & LATH (C-4.84)	65.74	60.95
TH-08	WATER MAIN – 12" DIP	FOUND HUB & LATH (C-3.92)	65.20	61.38
TH-09	IRRIGATION – 2" PVC	FOUND HUB & LATH (C-3.34)	64.99	61.71
TH-10	IRRIGATION – 2" PVC	FOUND HUB & LATH (C-3.10)	65.30	62.26
TH-11	FORCE MAIN – 6" PVC	FOUND HUB & LATH (C-5.04)	63.32	58.34
TH-12	(3) FIBER OPTIC – 2"	FOUND HUB & LATH (C-3.10)	63.46	60.44
TH-13	FORCE MAIN – 6" PVC	FOUND HUB & LATH (C-5.50)	63.81	58.41
TH-14	GAS MAIN – 2" STEEL	FOUND HUB & LATH (C-2.82)	64.07	61.29
TH-15	(3) FIBER OPTIC – 1.5" PVC	FOUND HUB & LATH (C-2.56)	64.76	62.24

N

0 20 40
SCALE: FEET
IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE

REVISIONS

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave. Tampa, Florida 33624
7978 Cooper Creek Blvd. University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

SUE LOCATION PLAN

LAKE PEARL

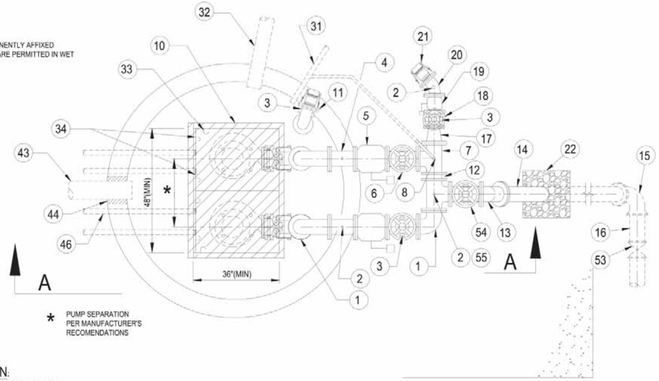
ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\~PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION PLAN_SUE.DWG
Plot Date: 10/28/2022 10:08:56 AM
2022 WRA

NOTE:
NO PERMANENTLY AFFIXED LADDERS ARE PERMITTED IN WET WELL.

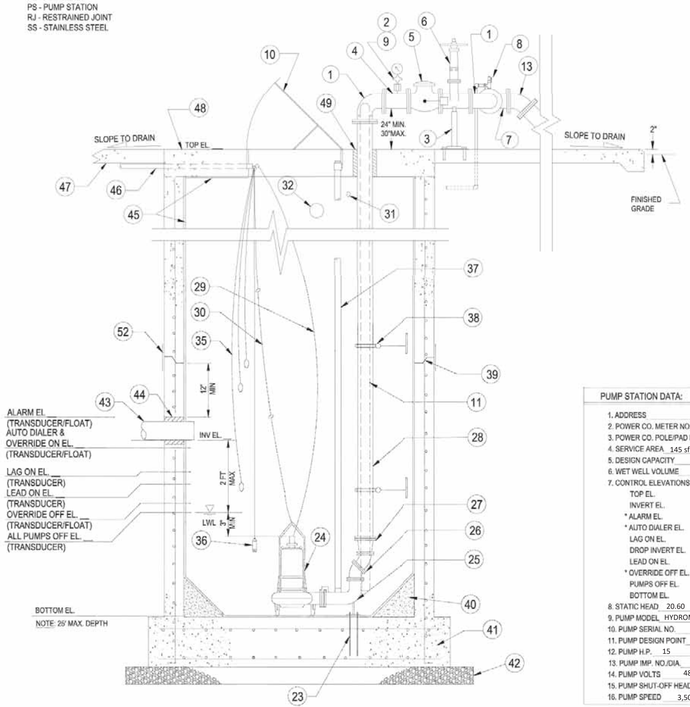


CAUTION:
COORDINATE PUMP MINIMUM SPACING W/ DISCHARGE PIPING LAYOUT

PLAN VIEW
NOT TO SCALE

ABBREVIATIONS:

BFP - BACK-FLOW PREVENTER
DI - DUCTILE IRON
FG - FLANGED
MJ - MECHANICAL JOINT
PE - PLAIN END
PS - PUMP STATION
RJ - RESTRAINED JOINT
SS - STAINLESS STEEL



SECTION A-A
NOT TO SCALE

KEY:

1. 2 " FG 90° DI BEND (3 REQ.)
2. 1/2" TAP w/ 1/2" x 2" 316 SS NIPPLE & 1/2" LOCKABLE BALL VALVE w/ SS BALL (4 REQ.)
3. ADJUSTABLE PIPE SUPPORT, SIZED AS REQUIRED (5 REQ) - SEE DETAIL, DRAWING M3
4. 4 " FG DI SPOOL PIECE, LENGTH AS REQUIRED (6" MIN)
5. 4 " FG IRON BODY SWING CHECK VALVE (2 REQ) PER APP. B
6. 4 " FG IRON BODY RESILIENT SEAT GATE VALVE (2 REQ.)
7. 4 " x 4 " FG DI TEE W/ BOSS (2 REQ.)
8. MANUAL AIR RELEASE ASSEMBLY TO INCLUDE 1" TAP W/ 1" x 2" 316 SS NIPPLE, 1" SS THREADED TEE, 1" x 1/2" SS REDUCING BUSHING, 1/2" SS BALL VALVE W/ 1/2" PVC THREADED PLUG, AND 1" SS BALL VALVE W/ 1" PVC UNDER-SLAB DRAIN TIED INTO 2" PVC DRAIN FOR FUTURE ODOR CONTROL - SEE DETAIL, DRAWING M3
9. COMPOUND PRESSURE GAUGE (STAINLESS STEEL, SILICONE FILLED, W/ SILICONE FILLED DIAPHRAGM SEAL), PROVIDE ONE PER STATION
10. ALUMINUM FRAME & DOUBLE ACCESS HATCHES, HINGED ON DISCHARGE PIPING SIDE CAPABLE OF BEING SECURED IN THE OPEN POSITION. CONTRACTOR SHALL DRILL FOUR 1/2" DIA. HOLES IN EACH HATCH COVER.
11. AUXILIARY SUCTION PIPE ASSEMBLY - SEE DETAIL, DRAWING M2
    NOTE: FOR PUMP STATIONS W/ 6" AND LARGER DISCHARGE PIPING, THE AUX. SUCTION PIPE ASSEMBLY SHALL UTILIZE 6" DIA. PIPE AND FITTINGS. IN ADDITION, ALL FITTINGS FOR BYPASS/ PUMP-IN ASSEMBLY SHALL BE UPSIZED TO 6" (I.E., ITEMS 18,19, 20, & 21 ON THIS SHEET). FOR PUMP STATIONS W/ 6" DIA. WETWELLS, AUX. SUCTION PIPE MAY NEED TO BE LOCATED BETWEEN THE DISCHARGE PIPES.
12. 4 " FG DIP, LENGTH AS REQUIRED
13. 4 " FG 45° BEND
14. 4 " FG x PE DIP, LENGTH AS REQUIRED
15. 4 " MJ 90° BEND W/ RESTRAINED JOINTS
16. 4 " PVC C900 W/ RESTRAINED JOINTS AS REQUIRED (MIN DEPTH OF 48" TO CROWN OF PIPE)
17. NA " x 6" FG REDUCER, AS NEEDED - ONLY FOR PUMP STATIONS W/ 8" OR LARGER DISCHARGE PIPING
18. 4 " FG RESILIENT SEAT GATE VALVE
19. 4 " FG SWING CHECK VALVE PER APP. B
20. 4 " FG 45° BEND
21. 4 " EMERGENCY BYPASS/ PUMP-IN CAMLOCK MALE COUPLER W/ CAP, THREADED NIPPLE AND FLANGE. SEE DETAIL, DRAWING M2.
22. OPENING IN CONCRETE SLAB, GRAVEL FILLED - MINIMUM 6" CLEARANCE AROUND PIPE
23. 3/4" DIA. SS ANCHOR BOLTS & NUTS (DOUBLE NUTS) PER PUMP MANUFACTURER'S RECOMMENDATIONS. EPOXIED INTO BASE SLAB
24. PUMP - HYDROMATIC NON-CLOG OR APPROVED EQUAL W/ FRONT LOAD RAIL SYSTEM (2 REQ)
25. BASE ELBOW TO BE PROVIDED BY PUMP SUPPLIER (2 REQ)
26. 2 " FG 45° BEND, AS REQUIRED FOR DISCHARGE PIPING OFFSET
27. " x " FG REDUCER, AS REQUIRED
28. 2 " 316L SS FLANGED DISCHARGE PIPING, LENGTH AS REQUIRED
29. PUMP POWER CABLE
30. PUMP LIFTING CABLE (3/8" 316 SS) W/ 4" 316 SS RINGS LOCATED @ 5 FT INTERVALS
31. 2" SCH 40 PVC DRAIN PIPE FOR FUTURE ODOR CONTROL - SEE DETAIL, DRAWING M3
32. 6" SCH 40 PVC VENT PIPE FOR FUTURE ODOR CONTROL - SEE DETAIL, DRAWING M3
33. 316 SS POWER AND TRANSDUCER CABLE HOOKS - SEE DETAIL, DRAWING M2 (2 TYP)
34. 316 SS LEVEL CABLE HANGER FOR LEVEL FLOAT SWITCH CABLES - SEE DETAIL, DRAWING M2
35. LEVEL FLOAT SWITCHES (3 REQ'D), TO SERVE AS BACK-UP TO PRESSURE TRANSDUCER
36. PRESSURE TRANSDUCER FOR WATER LEVEL CONTROL, SUSPENDED FROM CABLE HOOK.SET AT 18 INCHES ABOVE BOTTOM
37. 2" (O.D.) 316 SS GUIDE RAILS, FRONT MOUNT (2 PER PUMP), OR PER PUMP MANUFACTURER'S RECOMMENDATION
38. 316 SS INTERIOR PIPE SUPPORT - SEE DETAIL, DRAWING M3
39. ELASTOMERIC GASKET MATERIAL
40. NON-SHRINK GROUT FILLET ALL AROUND, 4000 PSI CONCRETE W/ MAX AGGREGATE SIZE OF 3/8" & MIN. SLOPE OF 1:1 (MAX WIDTH/HT. OF 2-FT), TO BE COATED W/ INTERIOR WETWELL PROTECTIVE COATING (SEE #45)
41. FIRST WETWELL RISER SECTION & BASE SLAB SHALL BE MONOLITHICALLY OR INTEGRALLY CAST PER ASTM C478 - REFER TO STRUCTURAL DRAWING S1 & S2
42. LEVEL COURSE OF CRUSHED STONE - 6" MIN. THICKNESS
43. PVC. C900. INFLUENT GRAVITY MAIN. TO EXTEND 4" INSIDE WETWELL
44. FLEXIBLE SEAL
45. WETWELL INTERIOR PROTECTIVE COATING
46. ELECTRICAL CONDUITS (SCH 80 PVC, 2" MIN.), INSTALLED UNDER GRADE SLAB AND CENTERED IN WETWELL TOP SLAB FOUR TOTAL - SEE ELECTRICAL DETAILS AND STRUCTURAL DRAWING S2
47. GRADE SLAB - REFER TO STRUCTURAL DRAWING S4
48. WETWELL TOP SLAB - REFER TO STRUCTURAL DRAWING S2
49. LINK SEAL
50. 1" BRASS WATER SERVICE W/ APPROVED BFP AND METER- TO BE INCREASED TO 2" SERVICE FOR ALL MASTER PUMP STATIONS AND/OR FOR PUMP STATIONS WITH WETWELLS DEEPER THAN 20-FT OR GREATER THAN 8-FT IN DIAMETER - SEE DETAIL, DRAWING M2
51. 1" PE WATER SERVICE FOR FUTURE ODOR CONTROL - SEE DETAIL, DRAWING M2
52. WRAP APPLIED AT EXTERIOR OF WETWELL JOINTS
53. 4 " MJ PLUG VALVE W/ RJ - ISOLATION VALVE, TO BE LOCATED ON PUMP STATION PROPERTY AT RIGHT OF WAY
54. 4 " FG IRON BODY RESILIENT SEATED GATE VALVE
55. ELECTRONIC PRESSURE TRANSMITTER WITH DIAPHRAGM SEAL (SILICONE FILLED)

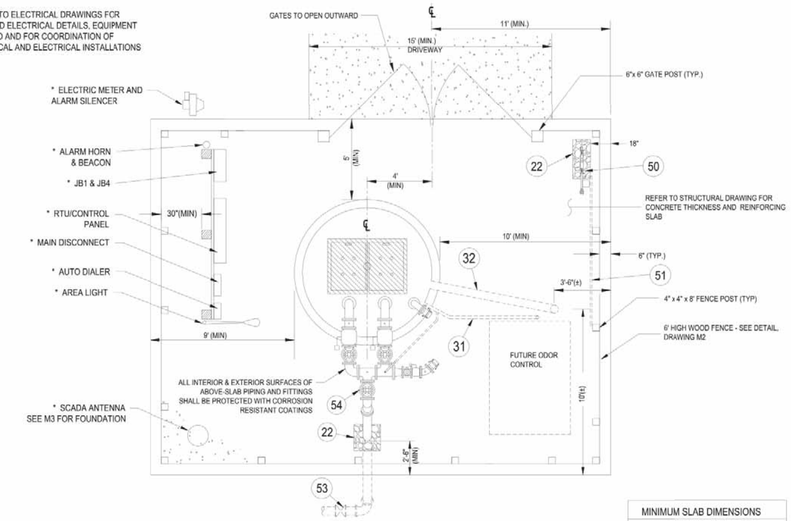
NOTE: REFER TO TECHNICAL SPECIFICATIONS AS APPLICABLE FOR MATERIALS REQUIREMENTS AND THE LIST OF APPROVED PRODUCTS

PUMP STATION DATA:

1. ADDRESS
2. POWER CO. METER NO.
3. POWER CO. POLE/PAD NO.
4. SERVICE AREA 145 sf DU at 200 gpd/DU = 29,000 gpd
5. DESIGN CAPACITY 80 GPM
6. WET WELL VOLUME 200 GALLONS 6.0 FT. DIA.
7. CONTROL ELEVATIONS:
   - TOP EL. 67.50
   - INVERT EL. 46.40
   - * ALARM EL. 45.90
   - * AUTO DIALER EL. 45.40
   - LAG ON EL. 45.40
   - DROP INVERT EL. na (IF REQUIRED)
   - LEAD ON EL. 44.90
   - * OVERRIDE OFF EL. 43.90
   - PUMPS OFF EL. 43.90
   - BOTTOM EL. 39.70
8. STATIC HEAD 20.60 FT.
9. PUMP MODEL HYDROMATIC - HPGB/HPGBX-1500
10. PUMP SERIAL NO.
11. PUMP DESIGN POINT 80 GPM @ 147 TDH
12. PUMP H.P. 15 PHASE 3
13. PUMP IMP. NO./DIA. 7"
14. PUMP VOLTS 480 AMPS 27
15. PUMP SHUT-OFF HEAD 185 FT.
16. PUMP SPEED 3,500 RPM

* LEVEL FLOAT SWITCHES
PUMP SHALL BE CAPABLE OF PASSING A MINIMUM 3-INCH SPHERE

* REFER TO ELECTRICAL DRAWINGS FOR STANDARD ELECTRICAL DETAILS, EQUIPMENT REQUIRED AND FOR COORDINATION OF MECHANICAL AND ELECTRICAL INSTALLATIONS

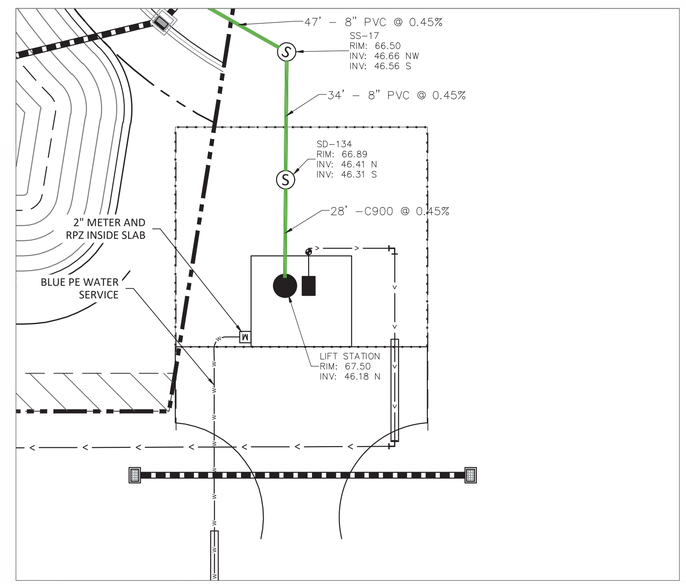


STANDARD FOOTPRINT - MIN. DIMENSIONS
NOT TO SCALE

MINIMUM SLAB DIMENSIONS
6' INSIDE DIA. WETWELL ... 21' x 26'6"
8' INSIDE DIA. WETWELL ... 22' x 28'6"
10' INSIDE DIA. WETWELL .. 24' x 31'

PUMP STATION DESIGN NOTES (TYP):

1. IN ORDER TO COORDINATE THE MECHANICAL, ELECTRICAL AND STRUCTURAL INSTALLATION, THE DESIGN ENGINEER SHALL REFER TO HILLSBOROUGH COUNTY'S MECHANICAL DRAWINGS (M1-M3), ELECTRICAL DRAWINGS (E 0.0-E 5.0), STRUCTURAL DRAWINGS (S1-S4), AND THE *"HC WATER, WASTEWATER & RECLAIMED WATER TECHNICAL MANUAL FOR SUBDIVISION AND SITE DEVELOPMENT"* (LATEST EDITION), AND THE *"HC WATER, WASTEWATER & RECLAIMED WATER TECHNICAL SPECIFICATIONS"* (LATEST EDITION).
2. THE DESIGN ENGINEER SHALL NOT USE THESE DRAWINGS FOR A SPECIFIC SITE INSTALLATION. A DETAILED SITE PLAN SHALL BE SHOWN IN THE BOX PROVIDED ON THIS SHEET, OR ON A SEPARATE SHEET AS NEEDED. THE SITE PLAN SHALL BE DRAWN TO SCALE AND INCLUDE CRITICAL SITE ELEVATIONS (SUCH AS ROAD, SLAB, DRIVEWAY, AND SURROUNDING AREAS - INCLUDING FINISHED FLOOR OF BUILDINGS ON ADJACENT LOTS), DIMENSIONS, HARDSCAPE ELEMENTS, AND THE PUMP STATION'S RELATIONSHIP TO THE SURROUNDING AREA.
3. THESE DRAWINGS REPRESENT THE STANDARD DESIGN FOR ALL HILLSBOROUGH COUNTY WASTEWATER PUMPING STATIONS. IT WAS DEVELOPED TO IMPROVE RELIABILITY AND MAINTAINABILITY, MINIMIZE SPARE PARTS AND INCREASE SERVICE LIFE. ALL REQUESTS FOR DEVIATIONS FROM THIS STANDARD MUST BE MADE IN WRITING TO THE DEVELOPMENT SERVICES DEPARTMENT FOR SUBDIVISION AND SITE DEVELOPMENT, AND TO THE PUBLIC UTILITIES DEPARTMENT (PUD) PROJECT MANAGER FOR ALL CAPITAL IMPROVEMENT PROJECTS. WRITTEN APPROVAL FROM PUD UTILITY DESIGN SECTION MGR. IS REQUIRED BEFORE MODIFICATIONS ARE MADE.
4. THE ENGINEER IS RESPONSIBLE FOR COORDINATING WITH THE PUMP SUPPLIER TO ENSURE THAT PROPER PUMP AND PIPE SPACING IS ACCOMMODATED.
5. PUMP STATION SLAB DIMENSIONS SHALL MEET OR EXCEED MINIMUM SHOWN.
6. THE ENGINEER IS ADVISED THAT COUNTY APPROVAL OF THE PUMP STATION DESIGN DOES NOT CONSTITUTE A RELEASE FROM PROFESSIONAL LIABILITY BY THE ENGINEER NOR SHIFT RESPONSIBILITY FOR ANY DESIGN DECISIONS REPRESENTED HEREIN TO THE COUNTY OR OTHER REGULATORY AGENCY. THE ENGINEER IS RESPONSIBLE FOR THE FINAL ELECTRICAL, MECHANICAL, AND STRUCTURAL DESIGNS.
7. DISCHARGE PIPE SUPPORTS ARE REQUIRED FOR WET WELL DEPTHS GREATER THAN 10 FEET.
8. IF THE INFLUENT INVERT ELEVATION IS GREATER THAN 2-FEET ABOVE LOW WATER LEVEL (LWL), A DROP INVERT CONNECTION SHALL BE REQUIRED. THE DROP INVERT TO BE SET AT THE LEAD-ON ELEVATION (SEE DROP CONNECTION DETAIL, DRAWINGS S2, S4 & M3).
9. LOW WATER LEVEL MUST BE AT LEAST 3" ABOVE TOP OF PUMP. FILL IN THE FOLLOWING INFORMATION: [INSTALLED HEIGHT (PER PUMP MFR.) + 3" <9.95FT] ≤ [LWL - BOTTOM EL. = 4.2 FT]
10. DUCTILE IRON IN THE WETWELL MUST BE BELOW THE LOW WATER LEVEL.



DETAILED SITE PLAN
(BY ENGINEER) SCALE: 1"=

REVISIONS		
REV.NO.	DESCRIPTION	DATE

SEAL

SEAL

Hillsborough County Florida
PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
601 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

STANDARD WASTEWATER DUPLEX PUMP STATION

MECHANICAL LAYOUT AND SITE PLAN

DATE: SEPTEMBER 2017	SCALE	FILE NUMBER
PROJ. #	HORIZONTAL:	DRAWING NUMBER
DRAWN		
DESIGNED	VERTICAL:	M1
CHECKED		
PROJ. MGR.	NA	

STATUS: FINAL DESIGN

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave. Tampa, Florida 33624
7978 Cooper Creek Blvd. University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

REVISIONS

LIFT STATION DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CARLAND
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\-PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION\DETAIL_LIFTSTATION.DWG
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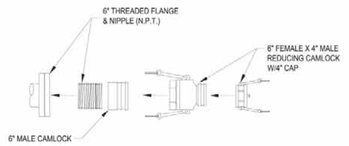
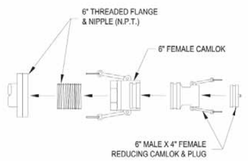
2022 WRA



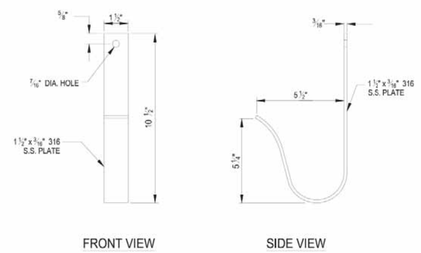
6" EMERGENCY BYPASS/ PUMP-IN CAMLOCK DETAIL

NOT TO SCALE



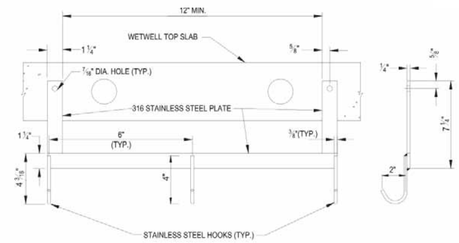
6" AUX. SUCTION CAMLOCK DETAIL

NOT TO SCALE



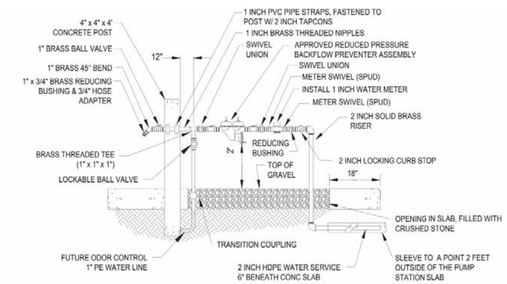
POWER & TRANSDUCER CABLE HOOK DETAIL

NOT TO SCALE



LEVEL CABLE HANGER DETAIL

NOT TO SCALE



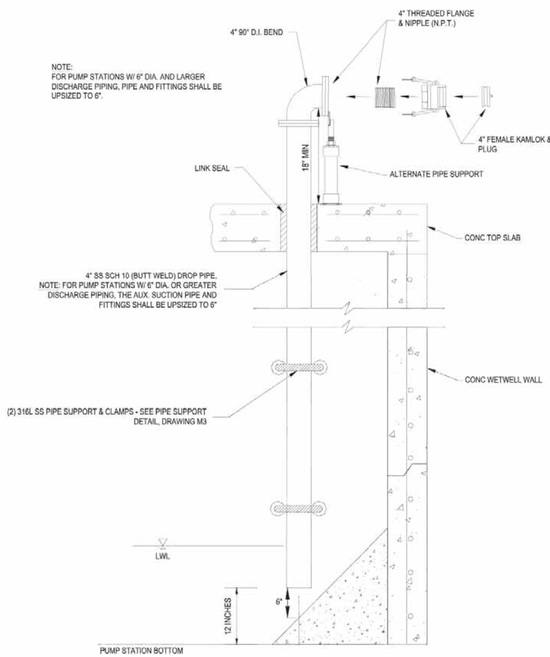
NOTES:

1. ALL PIPING TO BE 2-INCHES UP THROUGH THE LOCKING CURB STOP.
2. 2 INCH SERVICE LINE SHALL USE A 2 INCH TAPPING SLEEVE & VALVE AT THE WATER MAIN CONNECTION.
3. FOR LARGE PUMP STATIONS (WET WELLS 10 FT. DIA. OR GREATER, OR 20 FT. OR MORE DEPTH), A 2 INCH WATER METER AND SERVICE SHALL BE PROVIDED. HOSE CONNECTION TO BE 2 INCH MALE CAMLOCK CONNECTOR.

WATER SERVICE DETAIL

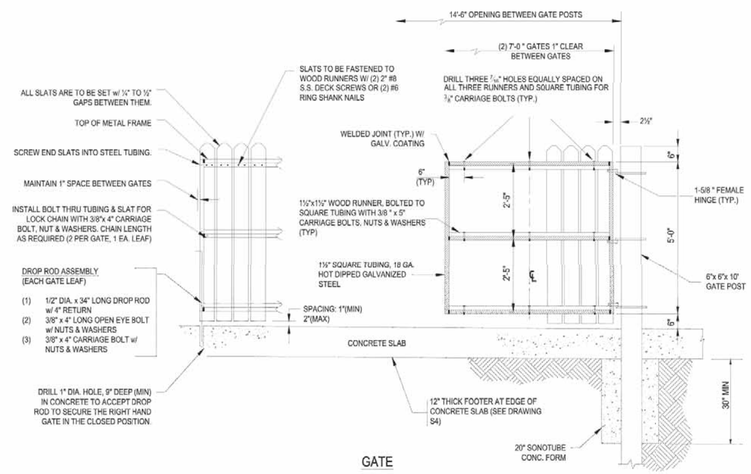
NOT TO SCALE

NOTE:
FOR PUMP STATIONS W/ 6" DIA. AND LARGER DISCHARGE PIPING, PIPE AND FITTINGS SHALL BE UPSIZED TO 6".



AUX. SUCTION PIPE DETAIL

NOT TO SCALE



FENCE & GATE CONSTRUCTION NOTES

1. ALL WOOD SHALL BE PRESSURE TREATED. POSTS SHALL BE RATED FOR BURIED WOOD.
2. ALL STRUCTURAL MEMBERS AND CROSS BRACING AS SHOWN.
3. CROSS BRACING SHALL BE ON INSIDE OF GATE.
4. USE HOT DIP GALVANIZED OR STAINLESS STEEL HARDWARE, FASTENERS, DROP RODS, CABLES, ETC. FOR ALL FENCE AND GATE CONSTRUCTION.
5. ALL NAIL & SCREW HEADS SHALL BE SET FLUSH W/ WOOD SURFACE (NOT COUNTER-SUNK).
6. USE TAMPER PROOF HEAVY DUTY HINGES AND LATCHES ON GATE (MINIMUM OF THREE HINGES PER GATE LEAF).
7. SOME PUMP STATION LOCATIONS MAY REQUIRE ARCHITECTURAL STYLE FENCING - CONSULT COUNTY.

PUMP STATION ENCLOSURE DETAIL

NOT TO SCALE

INSTALLATION NOTE:
CONTRACTOR TO REFER TO DRAWINGS M1-M3, E 0.0-E 5.0 AND S1-S4 IN ORDER TO COORDINATE ALL MECHANICAL, ELECTRICAL AND STRUCTURAL INSTALLATIONS.

REVISIONS		
REVISIONS	DESCRIPTIONS	DATE

SEAL

SEAL

Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
925 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH (813) 272-5977

STANDARD WASTEWATER DUPLEX PUMP STATION

MECHANICAL DETAILS

DATE: SEPTEMBER 2017
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER M2

STATUS: FINAL DESIGN

REVISIONS

Engineering ~ Environmental
Water Resource ~ Survey
4260 W. Linebaugh Ave. Tampa, Florida 33624
7978 Cooper Creek Blvd. University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

LIFT STATION DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE NO. 67540
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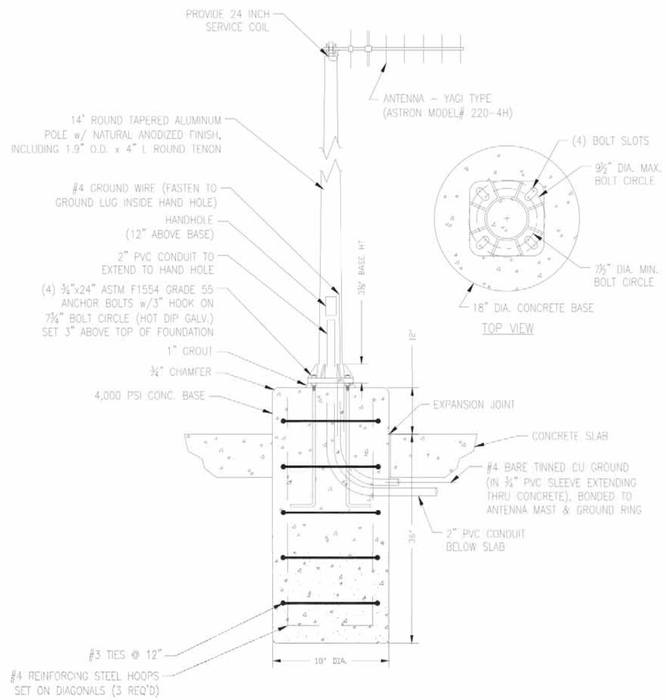
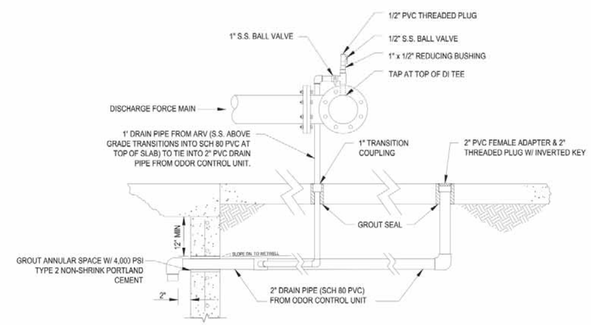


DETAIL NOTES:
1. PROVIDE ANCHORS, HARDWARE, CONCRETE SUPPORTS, ETC., AS NEEDED TO SECURE ANTENNA POLE.
2. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR CONDUIT AND GROUNDING DETAILS.

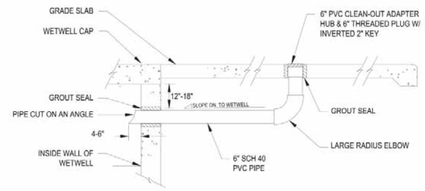
SCADA ANTENNA POLE SUPPORT

NOT TO SCALE



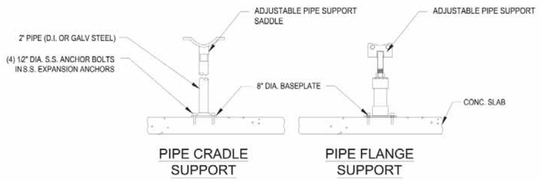
ARV & ODOR CONTROL DRAIN PIPE ASSY.

NOT TO SCALE



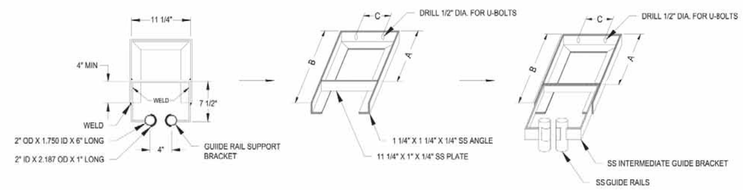
ODOR CONTROL PLENUM DETAIL

NOT TO SCALE



EXTERIOR PIPE SUPPORT DETAIL

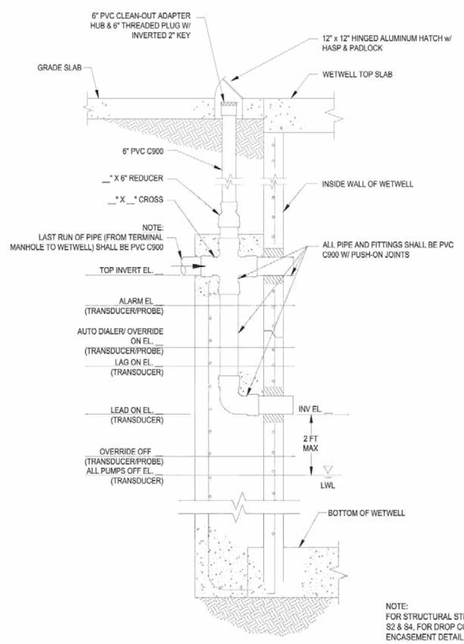
NOT TO SCALE



DISCHARGE PIPE DIA.	A	B	C
4"	5 5/8	9 3/4	5
6"	7	11 1/4	7
8"	7 3/4	12	9

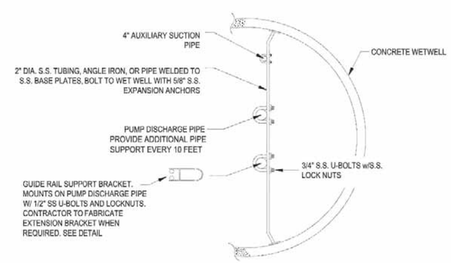
BRACKET EXTENSION DETAIL

NOT TO SCALE



DROP CONNECTION DETAIL

NOT TO SCALE



INTERIOR PIPE & GUIDE RAIL SUPPORTS - TOP VIEW

NOT TO SCALE

REV NO.	DESCRIPTIONS	DATE
	REVISIONS	

SEAL

SEAL

Hillsborough County Florida

PUBLIC UTILITIES DEPARTMENT
TECHNICAL SERVICES DIVISION
601 E. TWIGGS STREET/TAMPA FLORIDA 33602/PH. (813) 272-5977

STANDARD WASTEWATER DUPLEX PUMP STATION

MECHANICAL DETAILS

DATE: SEPTEMBER 2017
PROJ. #
DRAWN
DESIGNED
CHECKED
PROJ. MGR.

SCALE
HORIZONTAL:
VERTICAL: NA

FILE NUMBER
DRAWING NUMBER M3

STATUS: FINAL DESIGN

CAD File Path: S:\-PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION\DETAIL_LIFTSTATION.DWG
Plot Date: 10/28/2022 10:09:54 AM
2022 WRA

REVISIONS

Engineering ~ Environmental
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University Park, Florida 34201
www.wraengineering.com
CA 00007652 LB 8274
Phone: 813.265.3130 941.275.9721

LIFT STATION DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB # 2129
SEC- 10 TWN- 27 RNG- 18 DESIGNED-JAC DRAWN-JRO APPROVED-JAC

JOSEPH ANTHONY ORTMO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

1. COORDINATION:

CONTRACTOR TO COORDINATE ALL PIPE AND CONDUIT LOCATIONS WITH MECHANICAL AND ELECTRICAL DRAWINGS PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR EQUIPMENT AND ANCHOR BOLT LOCATIONS.

STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH MECHANICAL AND ELECTRICAL DRAWINGS TO PROPERLY LOCATE WALL PIPES, PIPE SLEEVES, ANCHOR BOLTS, BLOCKOUTS, ETC. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE COUNTY ENGINEER BEFORE PROCEEDING WITH THE WORK.

2. PRECAUTIONS:

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT FLOTATION OF STRUCTURES UNTIL FULLY CONSTRUCTED AND BACKFILL IS IN PLACE AND COMPACTED.

3. DESIGN CRITERIA AND LOADS:

ACI 350	CONCRETE SANITARY ENGINEERING STRUCTURES
ACI 318	BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE
ASTM C 478	STANDARD SPECIFICATION FOR CIRCULAR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
ASTM C 433	STANDARD SPECIFICATION FOR JOINTS FOR CONCRETE PIPE AND MANHOLES, USING RUBBER GASKETS

DESIGN LIVE LOADS:

WET WELL TOP SLAB	AASHTO HS20-44.
SITE PAD - VEHICULAR AREA BEARING	AASHTO HS20-44.
SITE PAD - NON-VEHICULAR AREA BEARING	300 PSF.

NET ALLOWABLE SOIL BEARING CAPACITY: 1500 PSF. (MINIMUM)
DESIGN ENGINEER TO CONFIRM

4. CAST-IN-PLACE CONCRETE:

CAST-IN-PLACE CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS:

SLABS ON GRADE	4,000 PSI
PIPE SUPPORTS, PUMPS PADS, ENCASEMENTS	4,000 PSI

5. PRECAST CONCRETE:

PRECAST WET WELL CONCRETE SHALL HAVE MINIMUM 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

6. REINFORCING STEEL:

REINFORCING STEEL FOR ALL BARS SHALL CONFORM TO ASTM 615, GRADE 60 OF UNITED STATES MANUFACTURE.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.

7. REINFORCEMENT CLEARANCE:

CLEARANCE OF REINFORCING STEEL FROM THE FACE OF CONCRETE TO THE OUTERMOST TIE OR BAR SHALL BE 2", UNLESS OTHERWISE NOTED ON THE DRAWINGS.

8. PIPE OPENINGS:

OPENINGS SHALL BE LOCATED BASED ON THE REQUIREMENTS SPECIFIED IN THE MECHANICAL DRAWINGS. MANUFACTURER RESPONSIBLE FOR COORDINATING SIZE AND LOCATION WITH ENGINEER.

9. ALUMINUM ACCESS HATCH:

ACCESS HATCH COVER SHALL BE ALUMINUM, MEET HILLSBOROUGH COUNTY SPECIFICATIONS AND BE SIZED AND DETAILED TO MEET THE REQUIREMENTS OF THE SELECTED PUMPS.

10. WATERSTOPS:

WATERSTOPS SHALL BE DUMBELL STYLE, MADE OF FLEXIBLE PVC AND MEASURING 6" x 3/8".

11. COATINGS:

THE WET WELL INTERIOR SHALL RECEIVE A FIELD APPLIED CORROSION RESISTANT COATING AS PER HILLSBOROUGH COUNTY SPECIFICATIONS.

12. SHOP DRAWINGS:

THE FOLLOWING SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW. FABRICATION SHALL NOT COMMENCE UNTIL ALL REVIEWS ARE COMPLETED.

- REINFORCING STEEL	- ANCHOR BOLTS FOR PUMPS
- PRECAST CONCRETE	- CONCRETE MIX DESIGNS
- GROUTS	- ACCESS HATCHS AND FRAMES
- WATERPROOF JOINTS	- EXPANSION JOINT MATERIAL
- LINKSEAL STYLE CONNECTION	- FLEXIBLE 'BOOT' CONNECTIONS
- GASKETS	- WATERSTOPS

13. FOUNDATIONS:

REMOVE ALL ORGANIC SOIL, CLAYS AND OTHER COMPRESSIBLE MATERIALS.

A MINIMUM OF 6 INCHES OF COMPACTED CRUSHED STONE (SEE HILLSBOROUGH COUNTY STANDARDS) SHALL BE PLACED UNDER THE WET WELL BASE SLAB AND DROP CONNECTION.

DEWATER EXCAVATION DURING WET WELL INSTALLATION. ALL WORK SHALL BE DONE IN THE "DRY".

14. DESIGN CONDITIONS VS SITE CONDITIONS:

THE WET WELL DESIGN WALL THICKNESS, BOTTOM SLAB THICKNESS AND DIMENSIONS, BOTTOM SLAB EXTENSION, AND FOUNDATION BASE COURSE ARE MINIMUM DIMENSIONS. THE STRUCTURAL DESIGN IS BASED ON THE LOADS AND CONDITIONS LISTED HERE. TO USE THESE PLANS AS-IS, THE ENGINEER SHALL VERIFY THAT THE SITE CONDITIONS MEET THE DESIGN CONDITIONS, INCLUDING THE GEOTECHNICAL CONDITIONS AND FLOTATION CALCULATIONS. IF THE SITE CONDITIONS VARY FROM THE DESIGN CONDITIONS, THE ENGINEER SHALL MODIFY THE DESIGN AS NEEDED AND PROVIDE SIGNED AND SEALED DRAWINGS TO THE COUNTY FOR APPROVAL.

15. WET WELL CONSTRUCTION NOTES:

A. GRAVITY PIPE, DISCHARGE PIPING, AUXILIARY SUCTION AND PROCESS PIPING SIZES TO BE DETERMINED BY THE ENGINEER. REFER TO MECHANICAL DRAWINGS.

B. OPENING REQUIREMENTS:

GRAVITY PIPE:	CAST-IN-PLACE OR CORED OPENING FOR FLEXIBLE 'BOOT' CONNECTION.
DISCHARGE PIPING:	LINK SEAL TYPE PIPE SEAL.
AUXILIARY PIPING:	LINK SEAL TYPE PIPE SEAL.
OTHER PIPING:	NON-SHRINK GROUT.

C. DROP CONNECTION SHALL BE USED WHEN THE ELEVATION DIFFERENCE BETWEEN THE INVERT OF THE INFLUENT PIPE AND THE PUMP LOW WATER LEVEL IS GREATER THAN 2 FEET.

D. WET WELL BARREL JOINTS SHALL BE SEALED WITH A SINGLE OFFSET OR O-RING STYLE GASKET PER ASTM C433.

E. TOP SLAB, BOTTOM SLAB AND WET WELL BARREL SHALL BE PRECAST.

USE OF DRAWINGS:

SUCCESSOR PROFESSIONAL ENGINEER UTILIZING THESE DRAWINGS MUST ABIDE BY THE RULES AND REGULATIONS CONTAINED IN 61G15-27.001 OF THE FLORIDA ADMINISTRATIVE CODE.

DAVID A. WILCOX
FLORIDA PE 34942
PROJECT MANAGER

WILLIAM N. HAUSHEER
FLORIDA PE 31715
STRUCTURAL ENGINEER

SCALE	REVISIONS			
AS SHOWN	No.	DATE	DESCRIPTION	APPV'D.

HILLSBOROUGH COUNTY
PUBLIC UTILITIES DEPARTMENT
925 E. TWIGGS STREET / TAMPA, FLORIDA 33602

PROJECT No.:	
FILE No.:	
DESIGNED BY:	RMA
DRAWN BY:	TRS
CHECKED BY:	DAW & WNH
DATE:	SEPTEMBER 2015
SCALE:	AS SHOWN

NOTES
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Florida Engineering Number: 000002

SHEET
S1
1 OF 4

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www.wraengineering.com
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Phone: 813.265.3130 941.275.9721

REVISIONS

LIFT STATION DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

CAD File Path: S:\-PROJECT FILES\2129 - LENNAR - LAKE PEARL D & P\CADD\PLANS\CONSTRUCTION\DETAIL_LIFTSTATION.DWG
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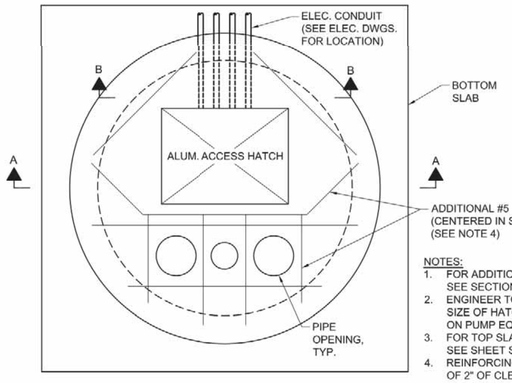
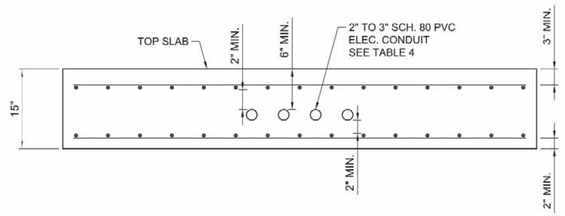
2022 WRA



NOTES:
1. FOR ADDITIONAL REINFORCING NOT SHOWN, SEE SECTION A-A.
2. ENGINEER TO DETERMINE LOCATION AND SIZE OF HATCH AND PIPE OPENINGS BASED ON PUMP EQUIPMENT SELECTED.
3. FOR TOP SLAB GENERAL ARRANGEMENTS, SEE SHEET S3.
4. REINFORCING STEEL SHALL HAVE A MINIMUM OF 2" OF CLEARANCE FROM PIPE OPENINGS.

TYPICAL TOP SLAB REINFORCING PLAN

N.T.S.



SECTION B-B

N.T.S.

TABLE 1 WET WELL DIMENSIONS		
A	B	C
6'	8"	12"
8'	9"	18"
10'	10"	18"

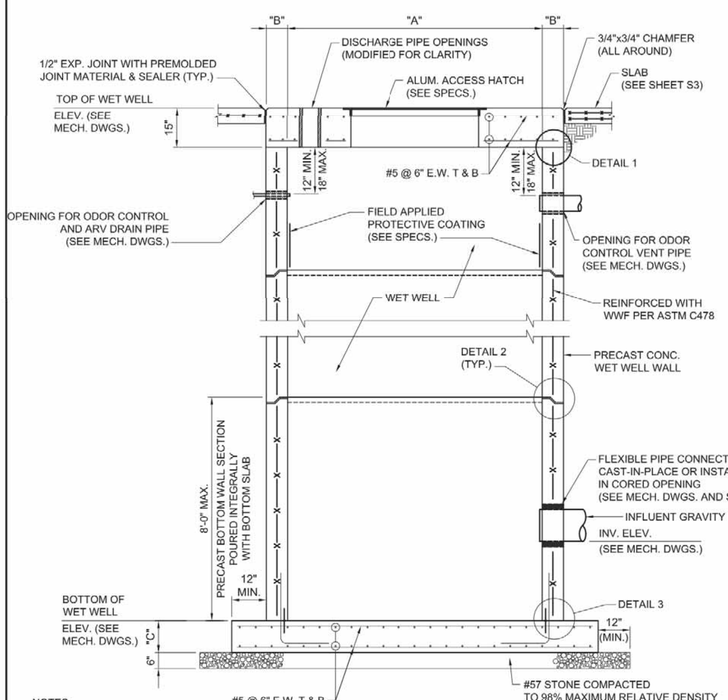
TABLE 2 WET WELL PIPE PENETRATION OPENING SIZES					
GRAVITY INLET		PUMP DISCHARGE		AUX SUCTION	
DIA	OPENING	DIA	OPENING	DIA	OPENING
8"	12"	4"	10"	4"	6"
10"	14" OR 16"	6"	12"	6"	10"
12"	16"	8"	16"	N/A	N/A
16"	20" OR 22"	10"	18"	N/A	N/A

TABLE 3 BOTTOM SLAB DIMENSIONS		
WET WELL	SLAB	REINFORCING
6'	9' - 4" SQ.	#5 @ 6" T & B EACH WAY
8'	11' - 6" SQ.	#5 @ 6" T & B EACH WAY
10'	13' - 8" SQ.	#5 @ 6" T & B EACH WAY

DIMENSIONS ARE MINIMUMS. ENGINEER TO DETERMINE BASED ON FLOTATION CALCULATIONS.

TABLE 4 CONDUIT SIZES	
PUMP HP	CONDUIT *
3 - 20	2"
25 - 50	2 1/2"
> 50 - 100	3"

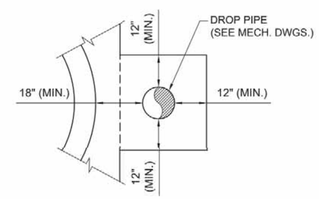
* 4 CONDUIT FOR DUPLEX PS.
5 CONDUIT FOR TRIPLEX PS.
CONFIRM CONDUIT SIZES WITH ELECTRICAL ENGINEER.



NOTES:
1. FOR DIMENSIONS AND PIPE PENETRATION OPENING SIZES REFER TO TABLES ON THIS SHEET.
2. SEE SHEET S1 FOR WET WELL CONSTRUCTION NOTES.

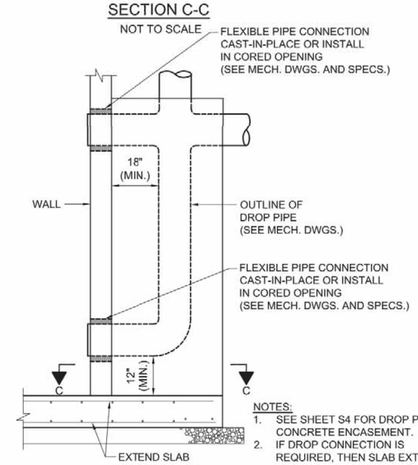
SECTION A-A

NOT TO SCALE



SECTION C-C

NOT TO SCALE

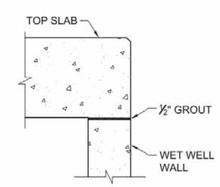


NOTES:
1. SEE SHEET S4 FOR DROP PIPE CONCRETE ENCASEMENT.
2. IF DROP CONNECTION IS REQUIRED, THEN SLAB EXTENSION SHALL BE INTEGRAL TO PRECAST WET WELL BOTTOM SLAB.

ELEVATION

DROP CONNECTION BOTTOM SLAB EXTENSION DETAIL

NOT TO SCALE



DETAIL 1

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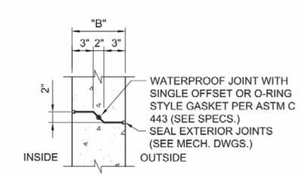
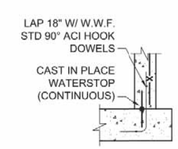


DETAIL 2

NOT TO SCALE



DETAIL 3

NOT TO SCALE

DAVID A. WILCOX
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WILLIAM N. HAUSHEER
FLORIDA PE 31715
STRUCTURAL ENGINEER

SCALE	REVISIONS			
AS SHOWN	No.	DATE	DESCRIPTION	APPV'D.

HILLSBOROUGH COUNTY
PUBLIC UTILITIES DEPARTMENT
925 E. TWIGGS STREET / TAMPA, FLORIDA 33602

PROJECT No.:	
FILE No.:	
DESIGNED BY:	RMA
DRAWN BY:	TRS
CHECKED BY:	DAW & WNH
DATE:	SEPTEMBER 2015
SCALE:	AS SHOWN

WET WELL PLAN, SECTIONS, and DETAILS
STRUCTURAL

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SHEET
S2
2 OF 4

REVISIONS

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LIFT STATION DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

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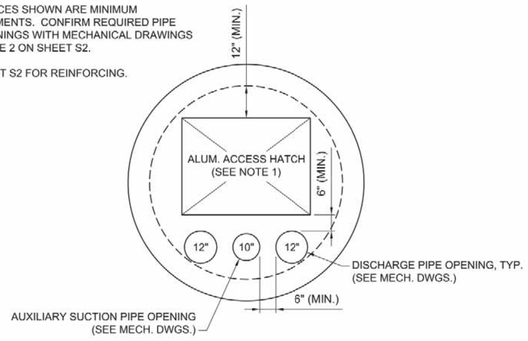
Plot Date: 10/28/2022 10:10:05 AM
2022 WRA

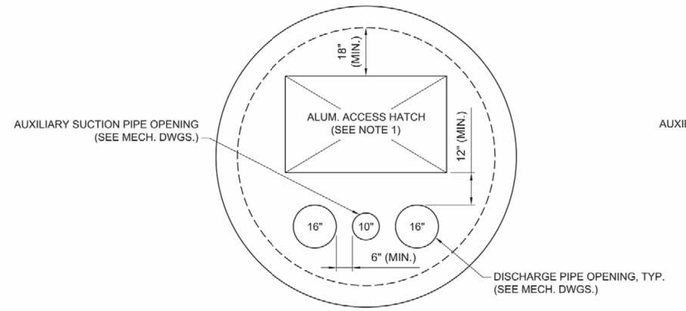
NOTES:

1. ACCESS HATCHES SHOWN ARE FOR GENERAL ARRANGEMENT REQUIREMENTS ONLY. ENGINEER TO SELECT ACCESS HATCH SIZE AND LOCATION. REFER TO SPECIFICATIONS FOR MINIMUM REQUIRED HATCH SIZES.
2. CLEARANCES SHOWN ARE MINIMUM REQUIREMENTS. CONFIRM REQUIRED PIPE SIZE OPENINGS WITH MECHANICAL DRAWINGS AND TABLE 2 ON SHEET S2.
3. SEE SHEET S2 FOR REINFORCING.



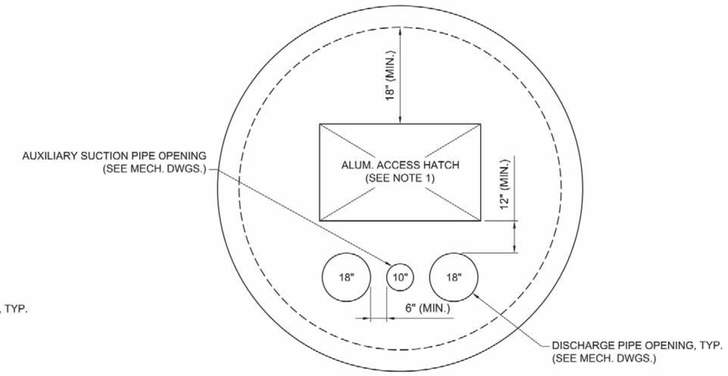
6' DUPLEX WET WELL TOP PLAN

SCALE: 1/2" = 1'-0"



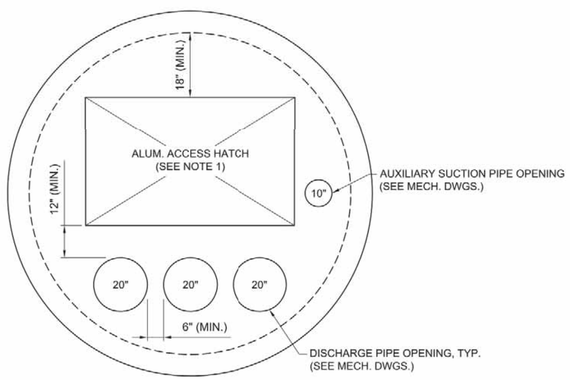
8' DUPLEX WET WELL TOP PLAN

SCALE: 1/2" = 1'-0"



10' DUPLEX WET WELL TOP PLAN

SCALE: 1/2" = 1'-0"



10' TRIPLEX WET WELL TOP PLAN

SCALE: 1/2" = 1'-0"

DAVID A. WILCOX
FLORIDA PE 34942
PROJECT MANAGER

SCALE			REVISIONS	
AS SHOWN	No.	DATE	DESCRIPTION	APPV'D.

HILLSBOROUGH COUNTY
PUBLIC UTILITIES DEPARTMENT
925 E. TWIGGS STREET / TAMPA, FLORIDA 33602

PROJECT No.:	
FILE No.:	
DESIGNED BY:	RMA
DRAWN BY:	TRS
CHECKED BY:	DAW & WNH
DATE:	SEPTEMBER 2015
SCALE:	AS SHOWN

WET WELL TOP SLAB GENERAL ARRANGEMENT
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Florida Engineering Number: 000002

SHEET
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3 OF 4

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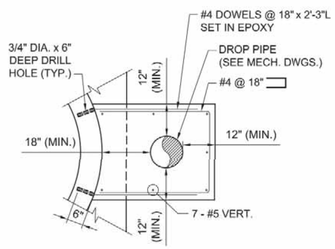
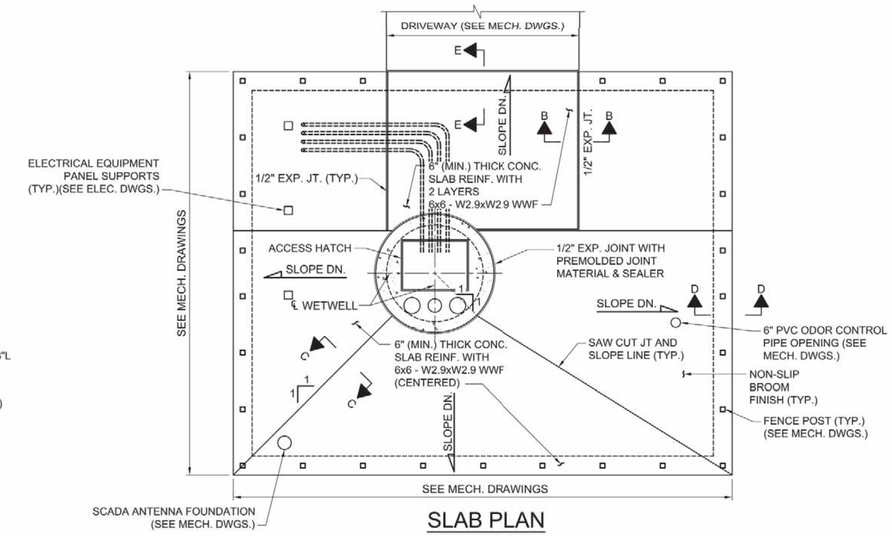


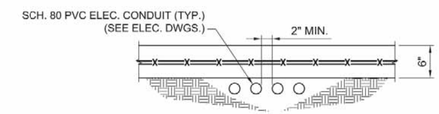
SECTION A-A

NOT TO SCALE



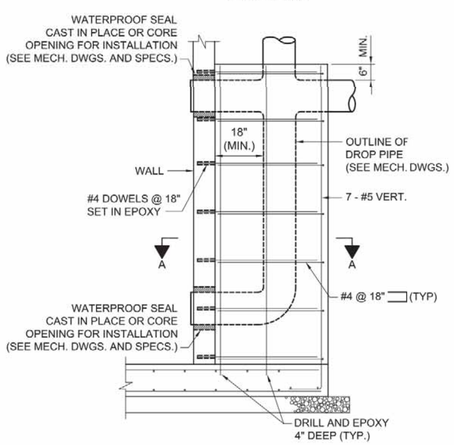
SLAB PLAN

NOTES:
1. SEE MECHANICAL DRAWINGS FOR LOCATION, SIZE AND ORIENTATION OF ALL PIPE OPENINGS AND SLAB DIMENSIONS.
2. DUPLEX PS IS SHOWN. SLAB IS THE SAME FOR TRIPLEX PS.



DRIVEWAY SLAB DETAIL WITH CONDUIT

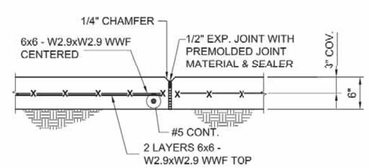
SCALE: 1" = 1'-0"



ELEVATION

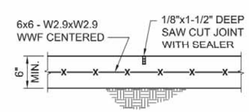
DROP CONNECTION
ENCASEMENT DETAIL

NOT TO SCALE



SECTION B-B

SCALE: 1" = 1'-0"



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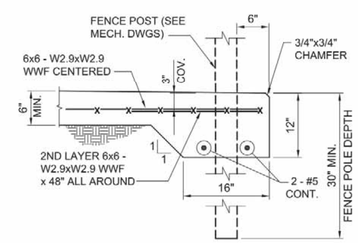

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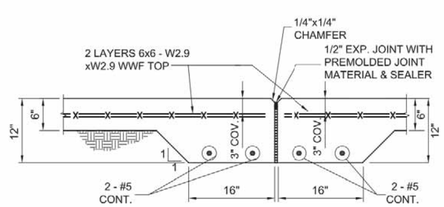
SCALE: 1" = 1'-0"



SECTION E-E

SCALE: 1" = 1'-0"

DAVID A. WILCOX
FLORIDA PE 34942
PROJECT MANAGER

WILLIAM N. HAUSHEER
FLORIDA PE 31715
STRUCTURAL ENGINEER

SCALE			REVISIONS	
AS SHOWN				
	No.	DATE	DESCRIPTION	APPV'D.

HILLSBOROUGH COUNTY
PUBLIC UTILITIES DEPARTMENT
925 E. TWIGGS STREET / TAMPA, FLORIDA 33602

PROJECT No.:	
FILE No.:	
DESIGNED BY:	RMA
DRAWN BY:	TRS
CHECKED BY:	DAW & WNH
DATE:	SEPTEMBER 2015
SCALE:	AS SHOWN

SITE PLAN, SECTIONS AND DETAILS
STRUCTURAL

URS
7650 West Courtney Campbell Causeway
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Ph: (813) 286-1711 Fax: (813) 286-6587
Florida Engineering Number: 000002

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S4
4 OF 4

REVISIONS

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LIFT STATION DETAILS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIRINO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Datum: NAVD 88

426

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WASTEWATER PUMPING STATION DESIGN PARAMETERS
(FOR COUNTY-OWNED STATIONS)

WASTEWATER PUMPING STATION: LAKE PEARL RESIDENTIAL (FACILITY NAME)

LOCATION: CRYSTAL LAKE & EXCITING IDLEWILD (NEAREST CROSS STREET) SECTION: 10 TOWNSHIP: 27 RANGE: 18

I. SERVICE AREA

- [x] NORTHWEST
- [ ] CENTRAL
- [ ] SOUTH

NAME OF WWTP SERVING THIS DEVELOPMENT: NORTHWEST REGIONAL

II. DESIGN CAPACITY

A. AVERAGE DAILY FLOW (A.D.F.):

193	x 200 GPD/UNIT (single-family units)	=	38,600	G.P.D.
	x 140 GPD/UNIT (multi-family units)	=		G.P.D.
	x	=		G.P.D.
	x	=		G.P.D.
	A.D.F TOTAL	=	38,600	G.P.D.

B. PEAK INFLUENT RATE (PEAK FACTOR = PER UTILITY TECHNICAL MANUAL, APPENDIX 5)

PEAK FACTOR = (PER UTILITY TECHNICAL MANUAL, APPENDIX 5)

$\frac{ADF \times PEAK\ FACTOR}{1440} = \frac{(3)\times(\ )38{,}600}{1440} = 80$ G.P.M.

C. DESIGN MINIMUM FLOW:

$\frac{ADF \times 0.20}{1440} = \frac{38{,}600(\ )\times 0.20}{1440} = 5.4$ G.P.M.

D. DESIGN PUMP CAPACITY (MINIMUM REQUIRED) = 80 G.P.M.

E. VELOCITY IN FORCE MAIN AT MAX. PUMPING RATE = 2.04 FEET/SECOND

III. WETWELL DESIGN (DUPLEX SYSTEM)

A. DESIGN CRITERIA:

1. MAXIMUM PUMP MOTOR CYCLE RATE = 6 STARTS PER HOUR
2. MAXIMUM DETENTION TIME AT MINIMUM FLOW = 30 MINUTES

B. PUMP CONTROL LEVEL SETTINGS:

1. PUMP CYCLING RATES ARE AT A MAXIMUM WHEN INFLOW EQUALS ONE-HALF THE DESIGN PUMPING RATE OF 40 (II.B.) G.P.M.
2. WETWELL VOLUME REQUIRED BETWEEN LEAD PUMP START AND PUMP SHUT OFF LEVEL =

$V = \frac{CYCLE\ PERIOD \times (1/2)\ PUMP\ RATE}{2}$

$V = \frac{10\ MIN. \times (1/2)\ (\ )\ G.P.M.}{2} = 200$ GALLONS

3. WETWELL DIAMETER (D) = 6 FEET

WETWELL VOLUME $= \frac{\pi(D)^2 \times 7.48\ GAL./C.F.}{4} = \frac{7.48(\pi)(D)^2}{4} = \frac{7.48(\pi)(6)^2}{4} = 211.4$ GALS./FT.DEPTH

4. WETWELL LEVEL CHANGE BETWEEN PUMP STOP AND LEAD PUMP START =

$\frac{200}{(III.B.2.-GAL.)} / \frac{211}{(III.B.3.-GAL./FT.DEPTH)} = 0.95$ FEET DESIGN FOR: 12 INCHES

5. CONTROL ELEVATIONS:

TOP OF SLAB	ELEV.	67.50
INFLUENT INVERT	ELEV.	46.40
HIGH WATER ALARM	ELEV.	45.90
LAG PUMP ON	ELEV.	45.40
LEAD PUMP ON	ELEV.	44.90
ALL PUMPS OFF	ELEV.	43.90
BOTTOM	ELEV.	39.70

IV. SYSTEM CURVE CALCULATIONS

A. FRICTION LOSS:

1. PUMPING STATION PIPING

ITEM	SIZE (INCHES)	QUANTITY		FRICTION LOSS (ea.)		TOTAL
a. TEE	2	1	x	4	=	7
b. 90° ELBOW	2	2	x	5.70	=	11.4
c. CHECK VALVE	2	1	x	18	=	18
d. GATE VALVE	2	1	x	1.4	=	1.4
e. SIDE OUTLET CROSS			x		=	
f. WYE			x		=	
g. OTHER:			x		=	
				TOTAL	=	34.80

2 (SIZE) " ø S.S. (TYPE) PIPE LENGTH = 29.80

TOTAL EQUIVALENT LENGTH = 65

2. FORCE MAIN PIPING:

ITEM	SIZE (INCHES)	QUANTITY		FRICTION LOSS (ea.)		TOTAL
a. TEE			x		=	
b. 90° ELBOW	4	6	x	11.40	=	68.40
c. CHECK VALVE			x		=	
d. GATE VALVE	4	4	x	2.70	=	10.8
e. SIDE OUTLET CROSS			x		=	
f. WYE			x		=	
g. OTHER: 45 deg	4	6	x	5.10	=	30.60
				TOTAL	=	109.80

4 (SIZE) " ø PVC (TYPE) PIPE LENGTH = 4315

TOTAL EQUIVALENT LENGTH = 4425

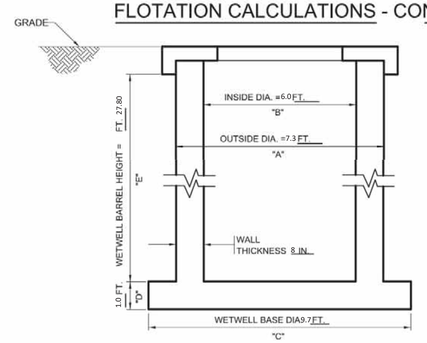
B. STATIC HEAD:

1. PIPE CENTER LINE AT DISCHARGE POINT	= ELEV.	64.50	FT.
2. LOW WATER LEVEL (ALL PUMPS OFF)	= ELEV.	43.90	FT.
3. TOTAL STATIC HEAD (B.1.- B.2.)	=	20.60	FT.

C. PRESSURES AT POINT OF CONNECTION:

BEST & WORST CASE SYSTEM CURVES PROVIDED BY WATER RESOURCE SERVIES, INFRASTRUCTURE PLANNING — 90.0 HIGH TDH, 10.5 LOW TDH — From North Dale Mabry Academy Approved Lift Station calcs for the Dale Mabry 6" FM

FLOTATION CALCULATIONS - CONCRETE WET WELL



ASSUMPTIONS:

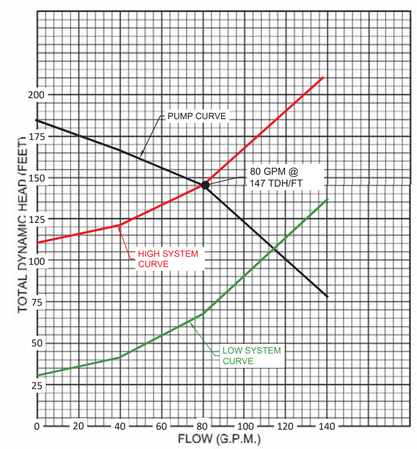
1. CONCRETE (REINFORCED) = 150 lbs./ft.^{3}
2. SATURATED SOIL = 120 lbs./ft.^{3}
3. WATER = 62.4 lbs./ft.^{3}
4. DIMENSIONS IN FEET
5. NO WATER IN WET WELL
6. NEGLECT TOP SLAB WEIGHT
7. NEGLECT SOIL FRICTION
8. ROUND WETWELL BARREL
9. CIRCULAR WETWELL BASE
10. THE WATER TABLE IS AT GRADE

(1)	BARREL WEIGHT	$= (A^2 - B^2)(\pi/4)(E)(150) = [(7.3)^2 - (6.0)^2](\pi/4)(27.8)(150) =$	58,195	lb.
(2)	BOTTOM SLAB WEIGHT	$= (C)^2(\pi/4)(D)(150) = (9.7)^2(\pi/4)(1.0)(150) =$	11,003	lb.
(3)	SOIL WEIGHT	$= (C^2 - A^2)(\pi/4)(E)(120-62.4) = [(9.7)^2 - (7.3)^2](\pi/4)(27.8)(57.6) =$	49,861	lb.
(4)	TOTAL WEIGHT	= (Barrel Weight) + (Bottom Slab Weight) + (Soil Weight) = (58,195) + (11,003) + (49,861) =	119,059	lb.
(5)	WT. OF WATER DISPLACED	$= [(A)^2(\pi/4)(E) + (C)^2(\pi/4)(D)](62.4)$		
		$= [(7.3)^2(\pi/4)(27.8) + (9.7)^2(\pi/4)(1.0)](62.4) =$	77,809	lb.

SAFETY FACTOR = $\frac{TOTAL\ WEIGHT}{WT.\ OF\ WATER\ DISPLACED} = \frac{(4)}{(5)} = \frac{119{,}059\ lb.}{77{,}809\ lb.} = 1.53$

SYSTEM vs. PUMP PERFORMANCE CURVE

PUMP MANUFACTURER:		PUMP MODEL:		RPM:	HP:
HYDROMATIC		SHPGBX-1500		3500	15
GPM: 80	TDH: 147	IMPELLER DIA./NO.: 7"	PHASE: 3	VOLTS: 480	AMPS: 27



SYSTEM HEAD COMPUTATION - TOTAL LOSSES IN FEET

FLOW RATE (G.P.M.)

ITEM	0	40	80	140
A. FRICTION LOSS:				
1. EQUIVALENT LENGTH PUMPING STATION PIPING: 64.6 L.F. OF 2" S.S. (SIZE) (TYPE) PIPE	0.0	3.0	10.9	30.7
2. EQUIVALENT LENGTH FORCE MAIN PIPING: 4424 L.F. OF 4" PVC (SIZE) (TYPE) PIPE	0.0	7.1	25.5	71.8
B. STATIC HEAD: 20.60 FEET	20.60	20.60	20.60	20.60
C. DESIGN PRESSURE AT POINT OF CONNECTION (BEST/WORST SYSTEM CURVES)	10.5 90.0	10.5 90.0	10.5 90.0	10.5 90.0
D. TOTAL LOSS (FEET): (BEST/WORST CASE)	31 111	41 121	68 147	134 213

NOTES:

SYSTEM HEAD VERSUS PUMP PERFORMANCE CURVES ARE TO BE SHOWN TO DETERMINE THE SYSTEM PERFORMANCE CAPABILITY AT THE FOLLOWING CONDITIONS:

A. CONVENTIONAL PUMPING STATION - FORCE MAIN (NON-MANIFOLD)

1. ONE PUMP RUNNING, IF DUPLEX STATION
2. ONE PUMP AND TWO PUMPS RUNNING, IF TRIPLEX STATION, ETC.
3. IF FORCE MAIN PROFILE RESULTS IN SIPHON, CURVES SHALL SHOW OPERATION AT START-UP (TO HIGH POINT OF PIPING) AS WELL AS FULL FLOW CONDITIONS

B. MANIFOLDED PUMPING STATIONS

ALL CONDITIONS OUTLINED UNDER (A) ABOVE, AND THE FOLLOWING ADDITIONAL CONDITIONS

1. SIMULTANEOUS OPERATION OF ALL PUMPING STATIONS ON SYSTEM (WORST CASE)
2. OPERATION WHILE ALL REMAINING STATIONS ARE OFF (BEST CASE)

C. VARIABLE SPEED PUMPING STATIONS

ALL APPLICABLE CONDITIONS UNDER (A) AND (B) ABOVE AND IN ADDITION:

1. OPERATING POINT, INCLUDING SPEED, AT PEAK, AVERAGE, AND MINIMUM FLOWS

SCALE			REVISIONS	
NONE	No.	DATE	DESCRIPTION	APPV'D.

HILLSBOROUGH COUNTY WATER RESOURCE SERVICES
925 E. TWIGGS STREET / TAMPA, FLORIDA 33602

PROJECT No.:	
FILE No.:	
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
DATE:	OCT. 2015
SCALE:	NONE

PUMP STATION DESIGN PARAMETERS

NOT VALID UNLESS EMBOSSED WITH ENGINEER'S SEAL

I hereby certify that the work contained herein was prepared under my direct supervision and complies with the requirements of Chapter 471, Florida Statutes and Chapter 61G15, F.A.C.

Signature:
Print Name:
Florida Professional Engineer's Registration Number:
Date

SHEET OF

REVISIONS

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CA 0000762 LB 8274
Phone: 813.265.3130 941.275.9721

LIFT STATION CALCULATIONS

LAKE PEARL

ISSUED FOR: PERMITTING
JOB #: 2129 SEC: 10 TWN: 27 RNG: 18 DESIGNED: JAC DRAWN: JRO APPROVED: JAC

JOSEPH ANTHONY CIMINO LICENSE NO. 67540 STATE OF FLORIDA PROFESSIONAL ENGINEER

Datum: NAVD 88

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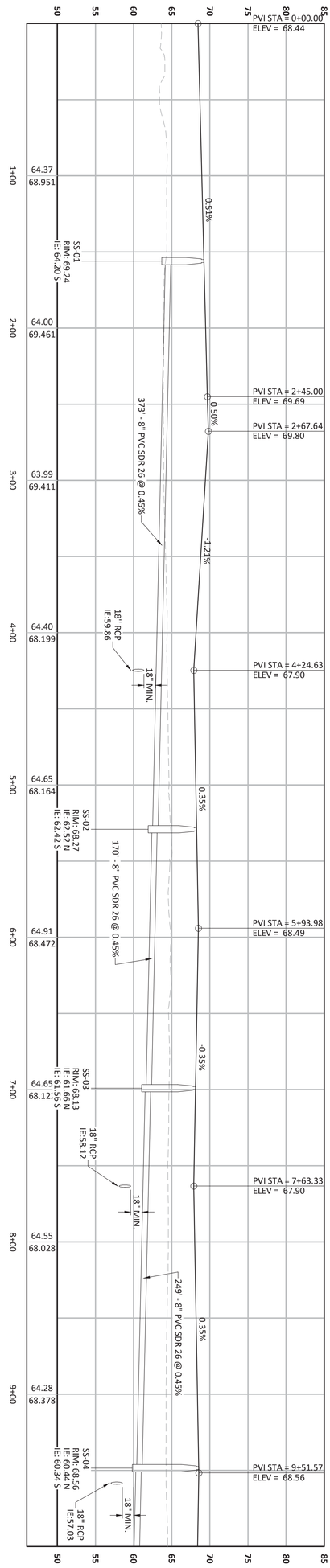

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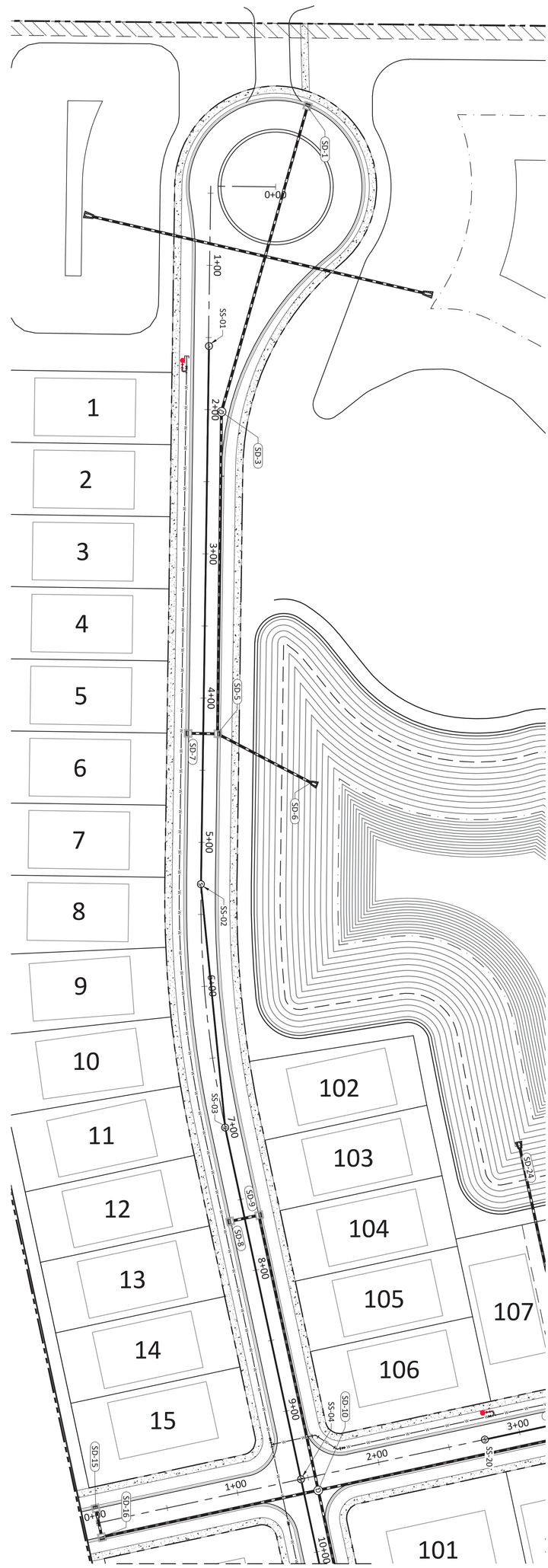

MATCH LINE
SEE SHEET 502

SCALE: FEET
HORIZONTAL SCALE
0 40 80

SCALE: FEET
VERTICAL SCALE
0 4 8

SCALE: FEET
0 40 80

N

501

Datum: NAVD 88

JOSEPH ANTHONY CIRILLO
LICENSE NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

LAKE PEARL

PLAN AND PROFILE ROAD A

ISSUED FOR: PERMITTING

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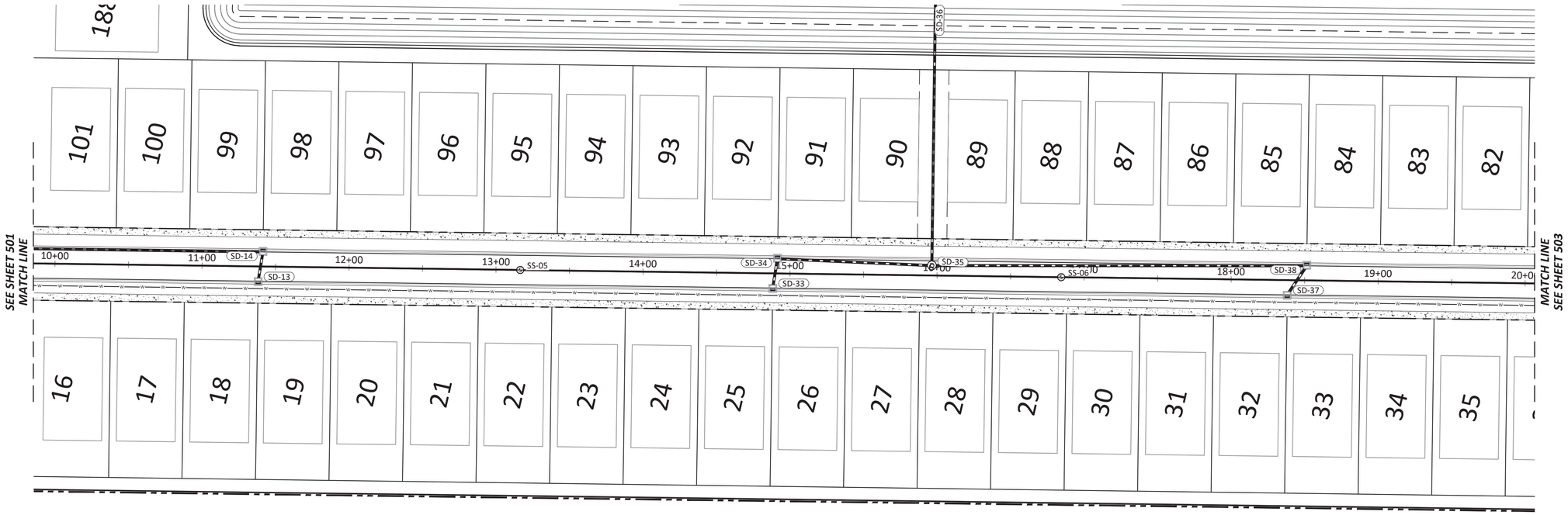

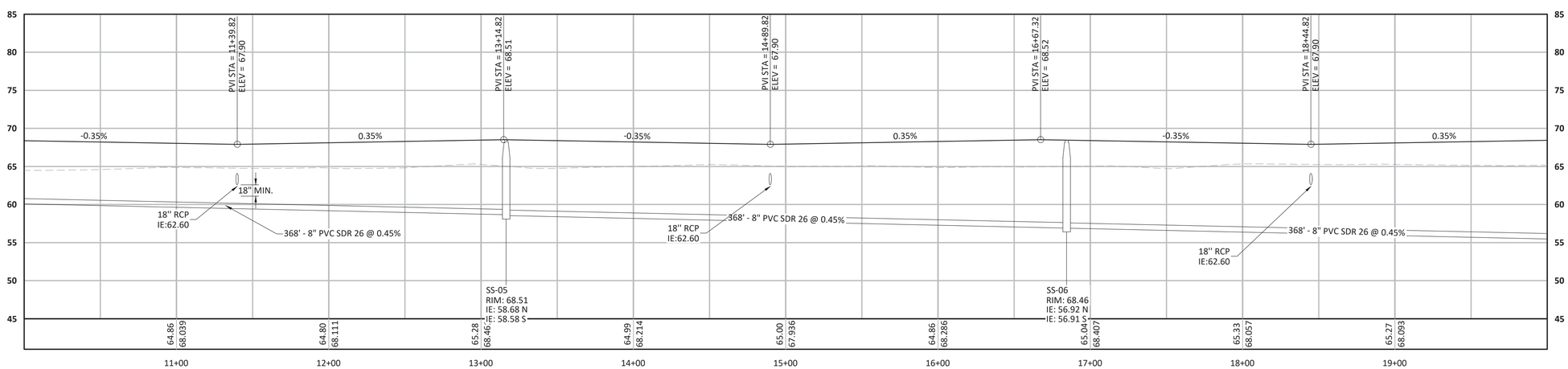

ROAD A

0 40 80
SCALE: FEET
HORIZONTAL SCALE

0 4 8
SCALE: FEET
VERTICAL SCALE

0 40 80
SCALE: FEET

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JOSEPH ANTHONY CIMINO
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STATE OF FLORIDA
PROFESSIONAL ENGINEER

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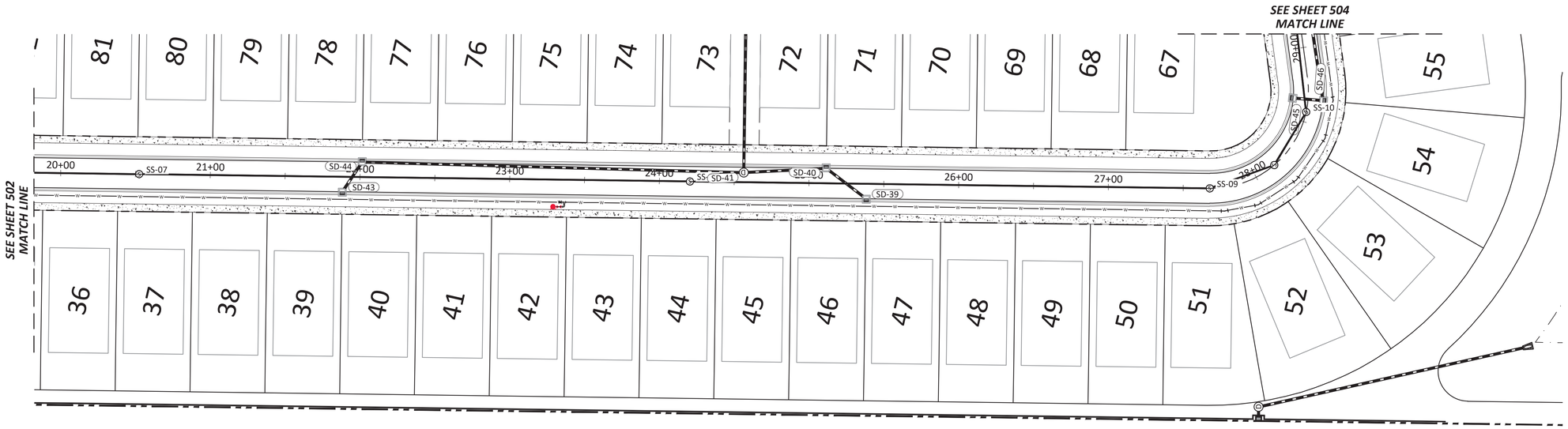

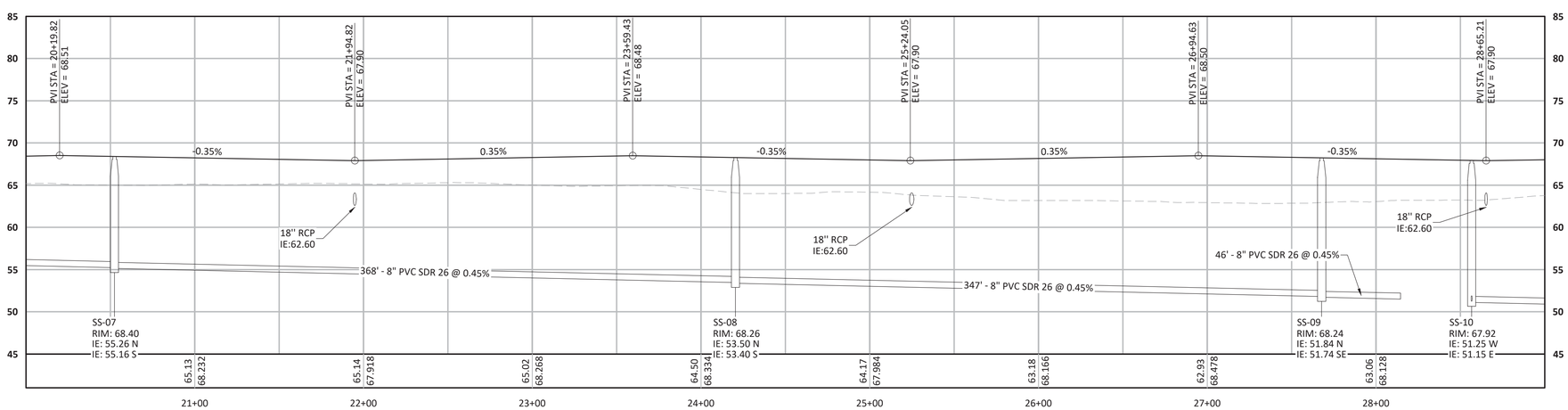

ROAD A

0 40 80
SCALE: FEET
HORIZONTAL SCALE

0 4 8
SCALE: FEET
VERTICAL SCALE

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STATE OF FLORIDA
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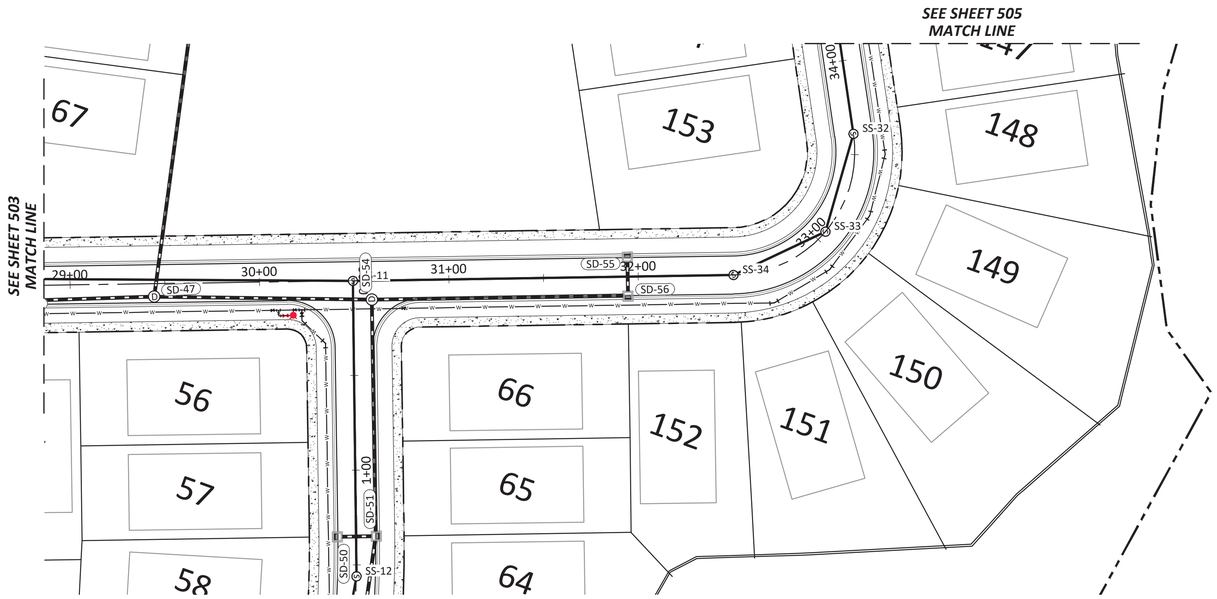

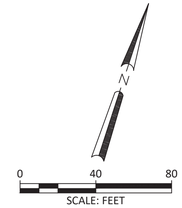

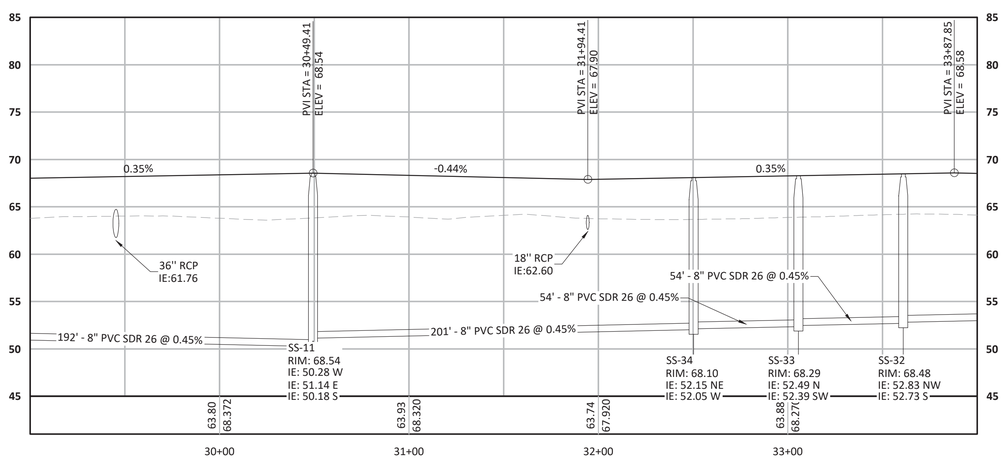

ROAD A

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PLAN AND PROFILE ROAD A

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JOSEPH ANTHONY CIMINO
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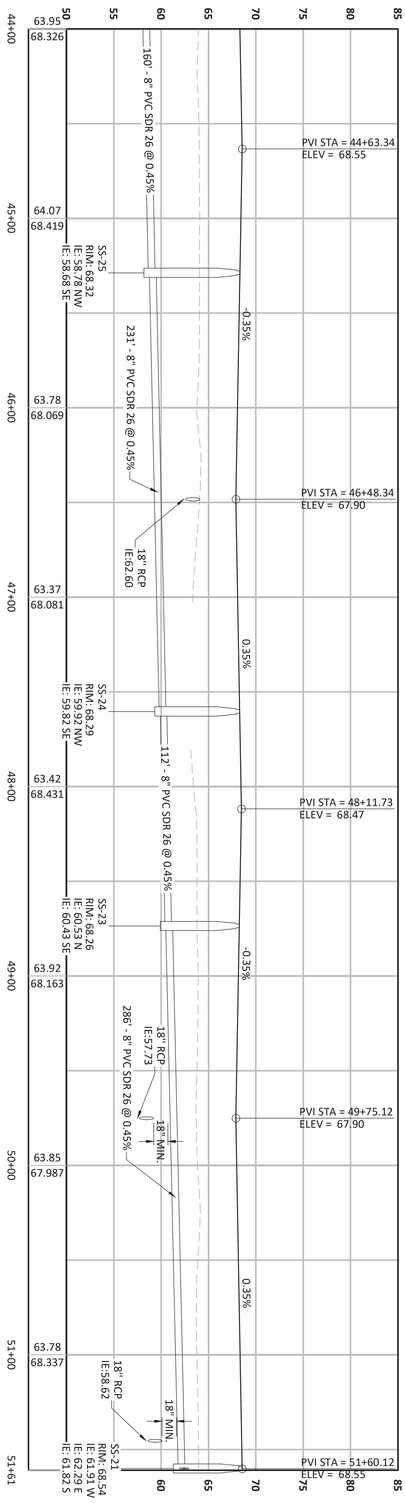

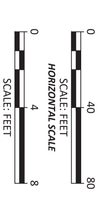

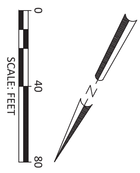

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LAKE PEARL

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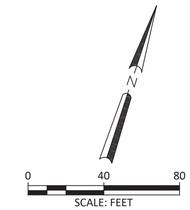

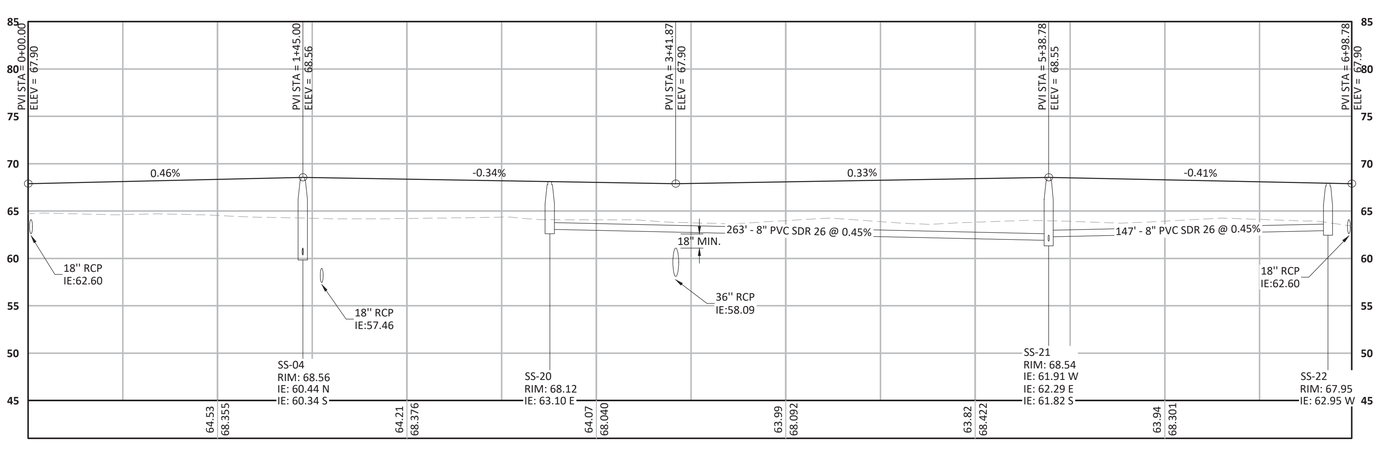

ROAD B

0 40 80
SCALE: FEET
HORIZONTAL SCALE

0 4 8
SCALE: FEET
VERTICAL SCALE

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PLAN AND PROFILE ROAD B

LAKE PEARL

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JOSEPH ANTHONY CIMINO
LICENSE
NO. 67540
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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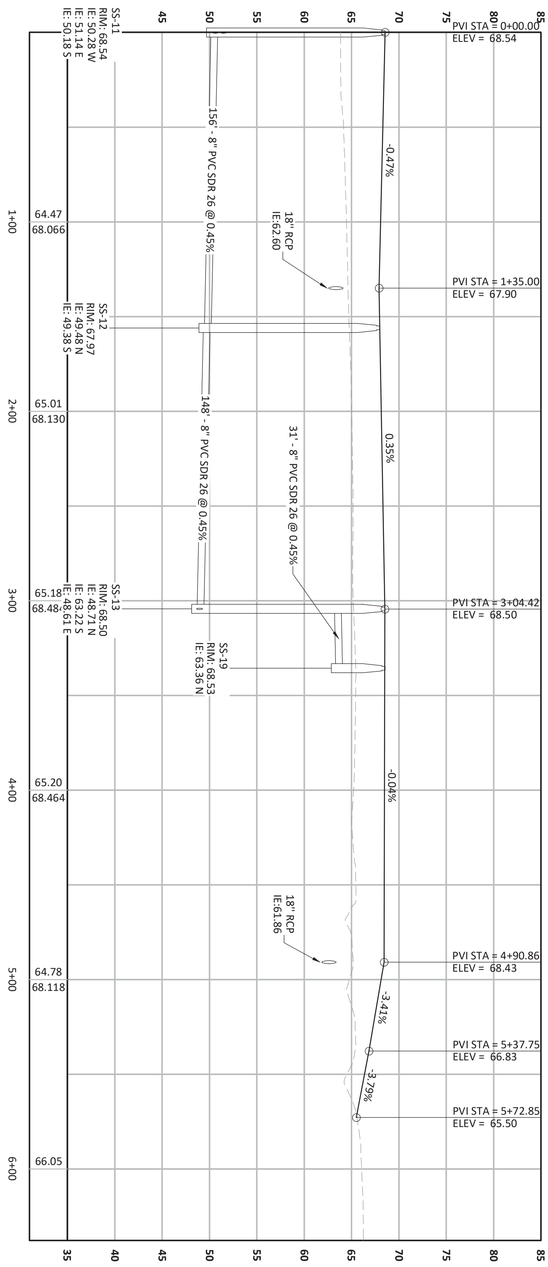

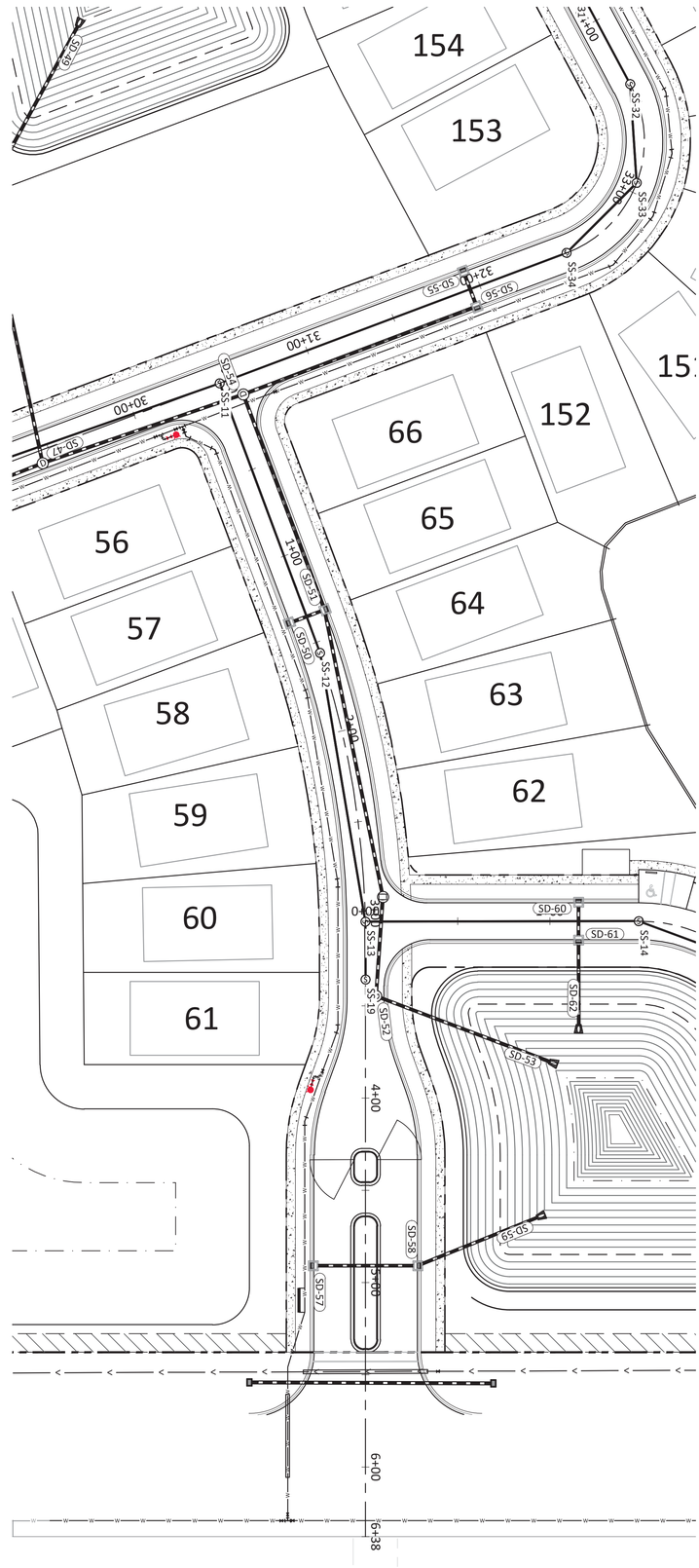

SCALE: FEET
HORIZONTAL SCALE
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SCALE: FEET
VERTICAL SCALE
0 4 8

SCALE: FEET
0 40 80

N

508

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LAKE PEARL

PLAN AND PROFILE ROAD C

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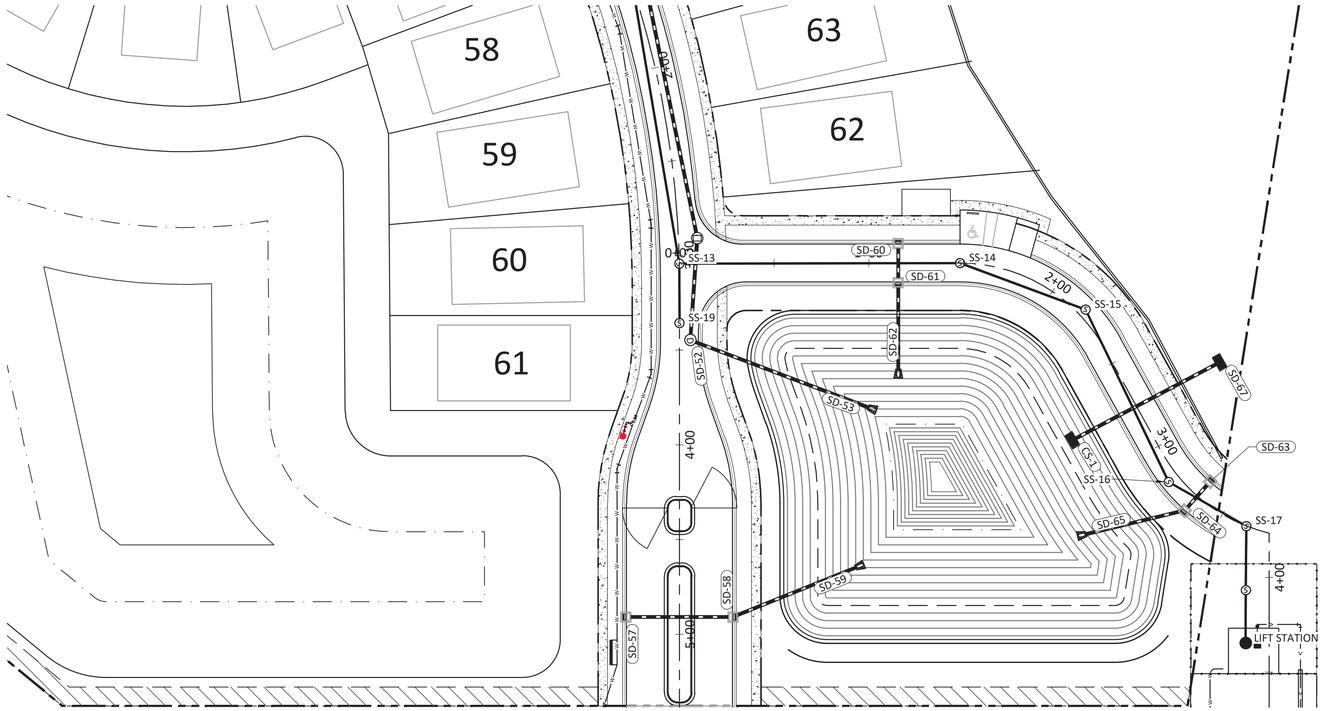

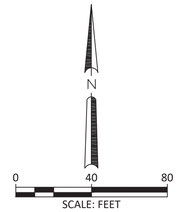

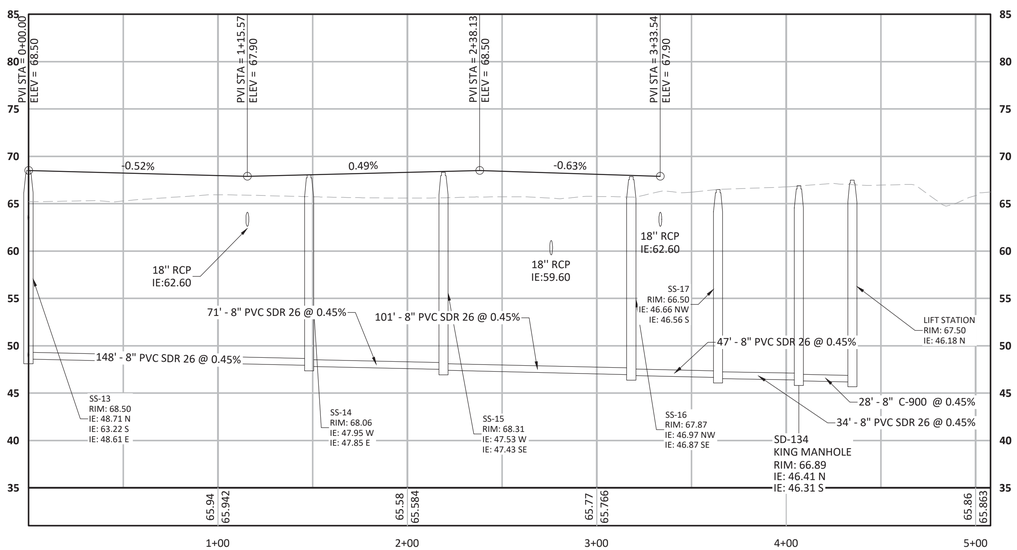

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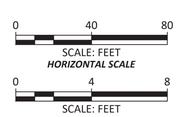

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PLAN AND PROFILE ROAD D

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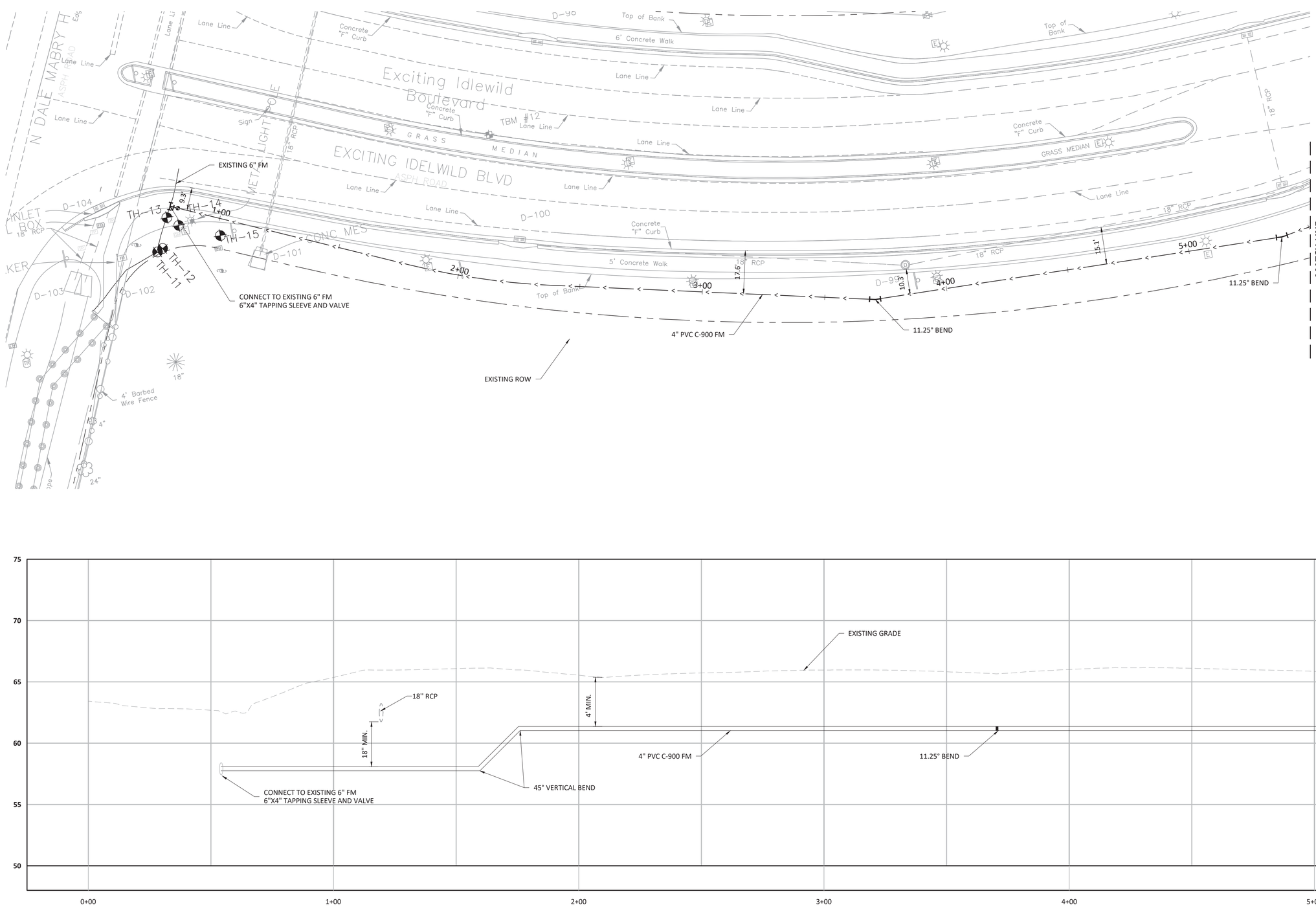

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LAKE PEARL

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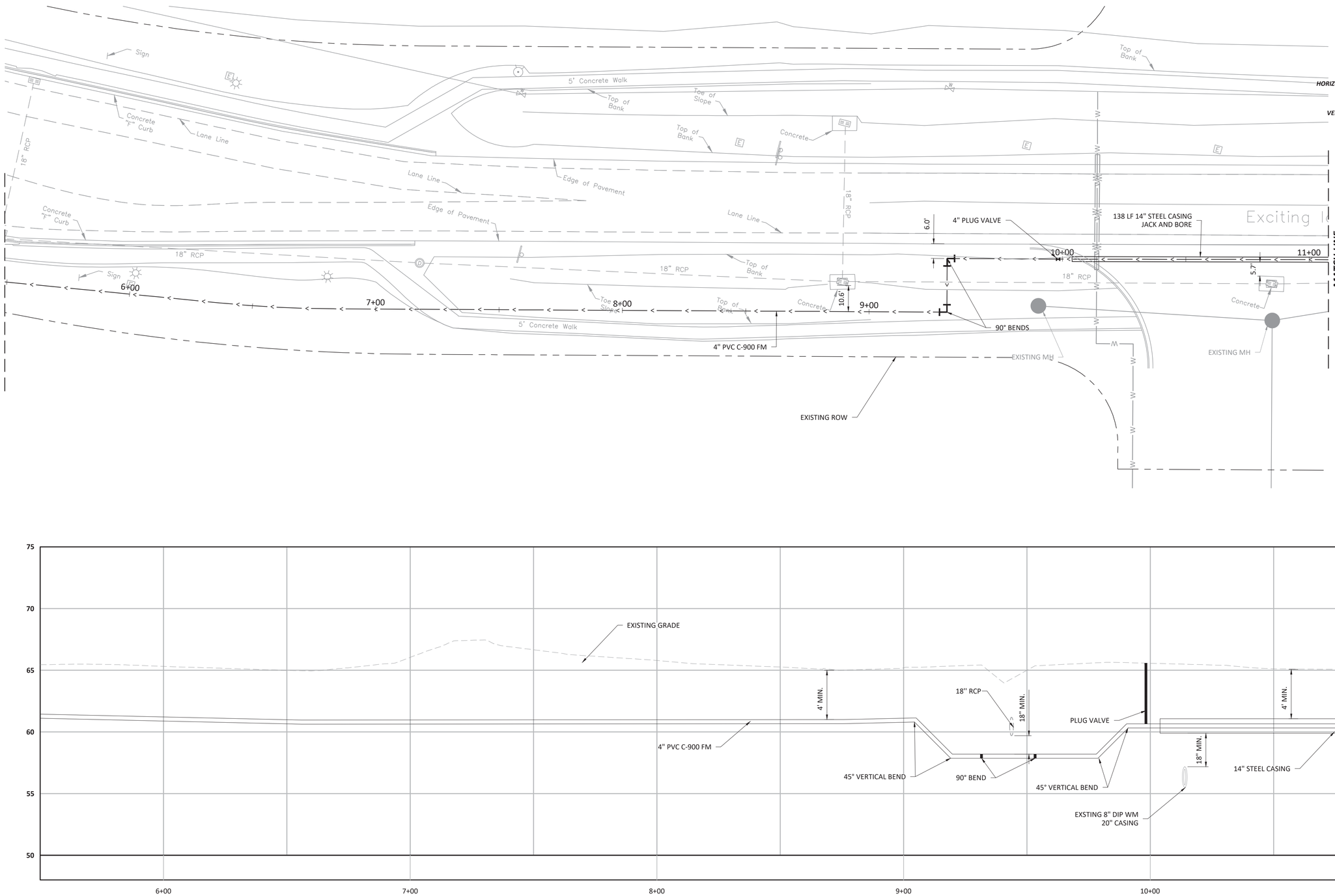

HORIZONTAL SCALE: 0 20 40
SCALE: FEET

VERTICAL SCALE: 0 5 10
SCALE: FEET

IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE

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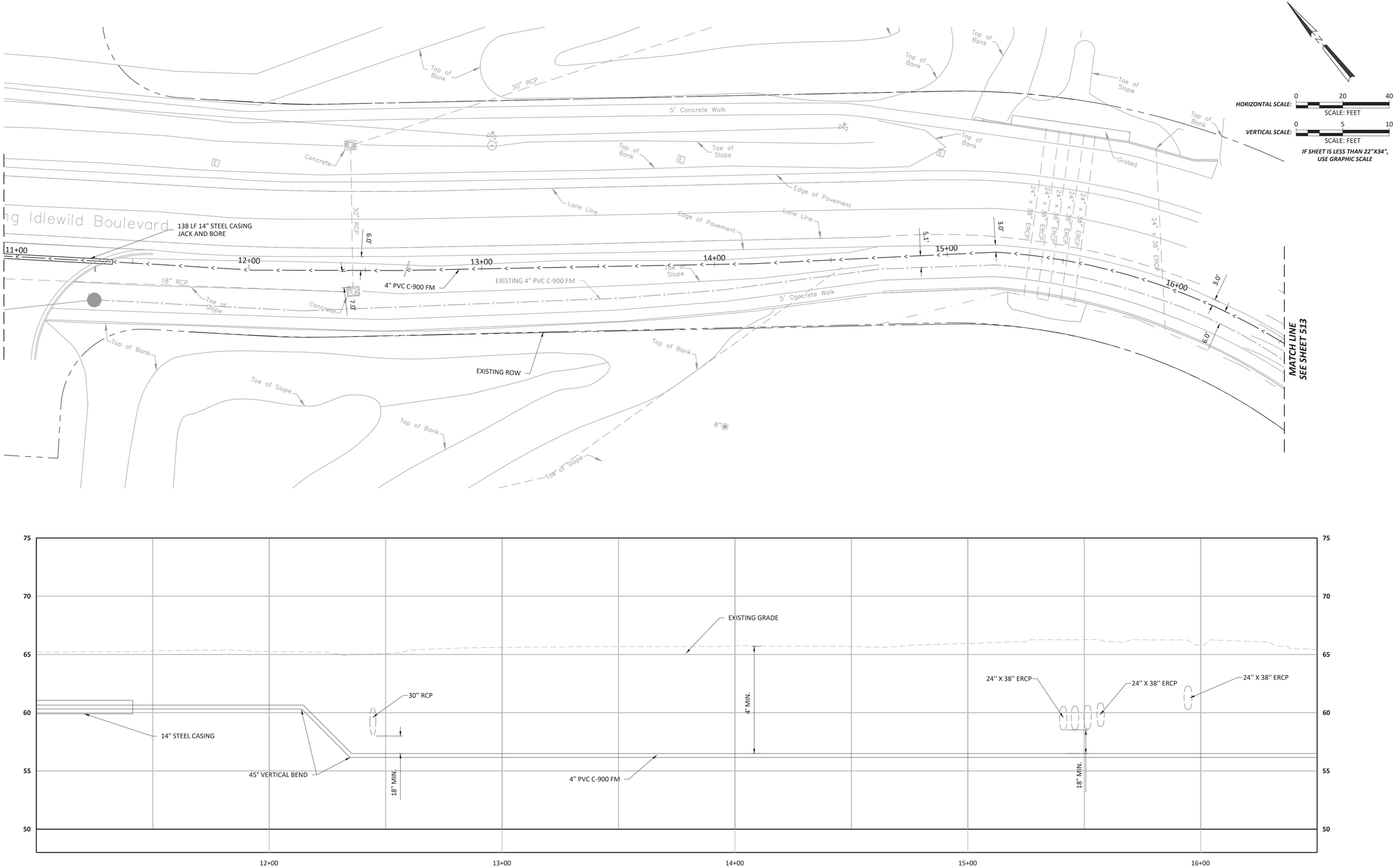

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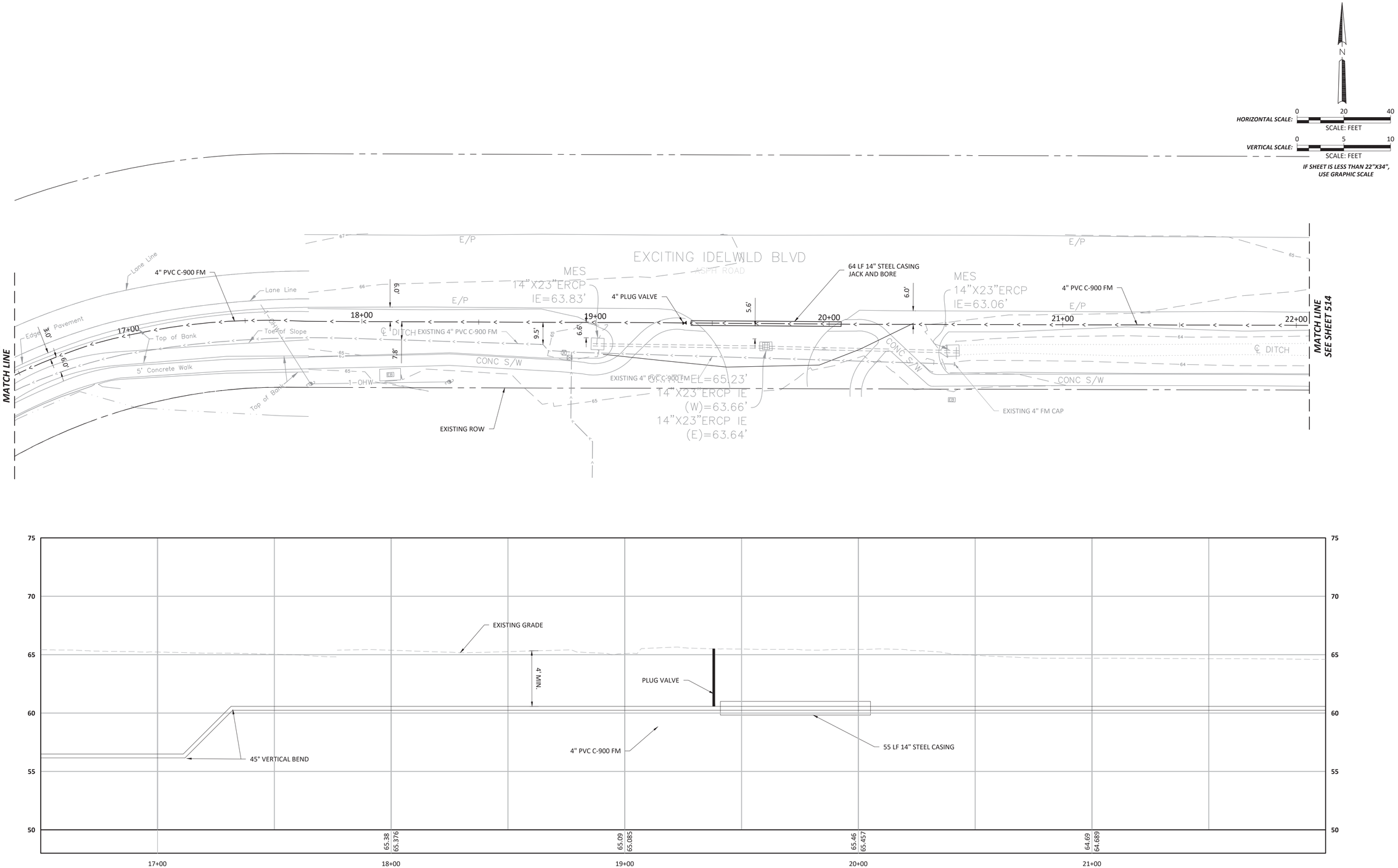

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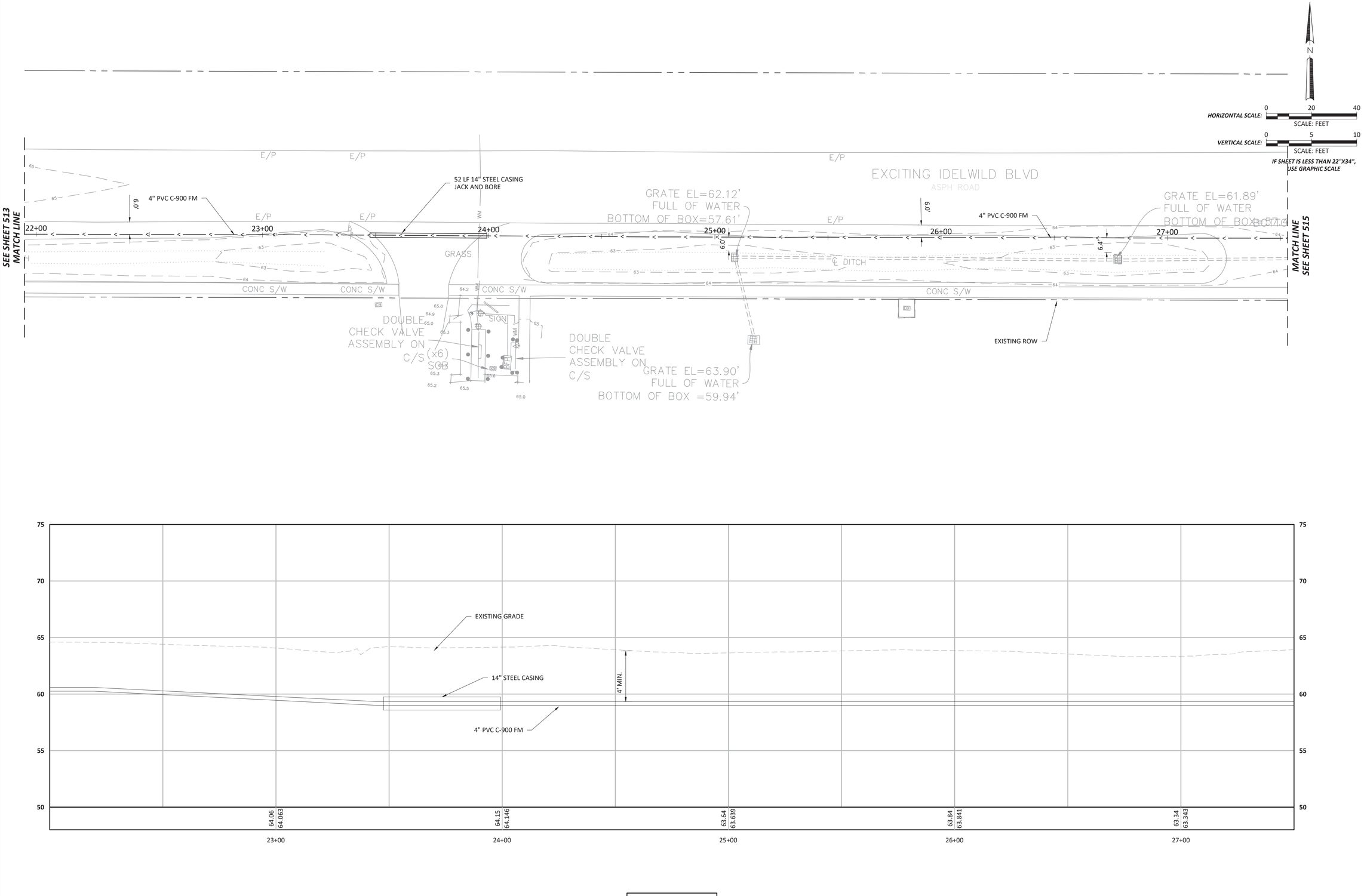

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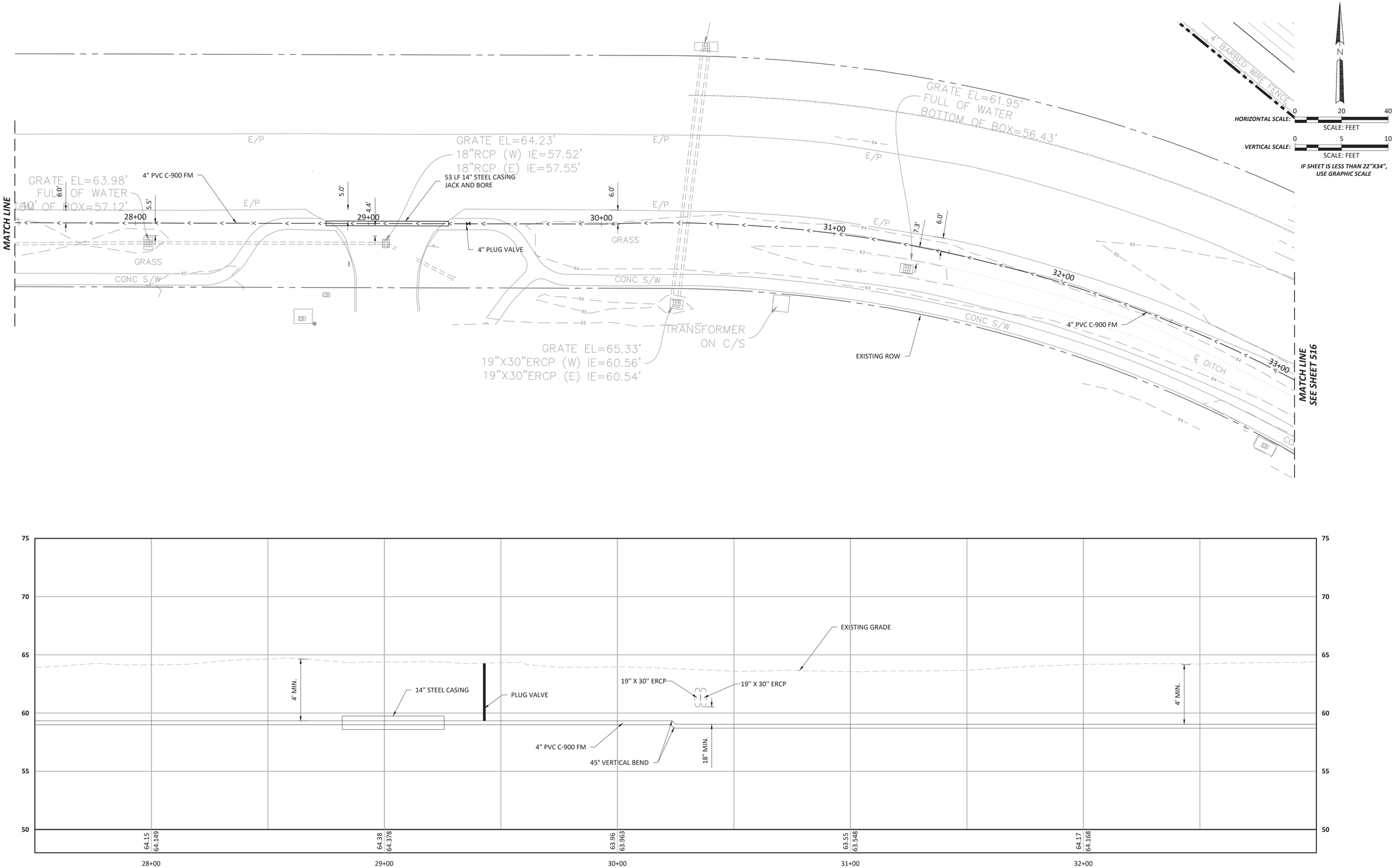

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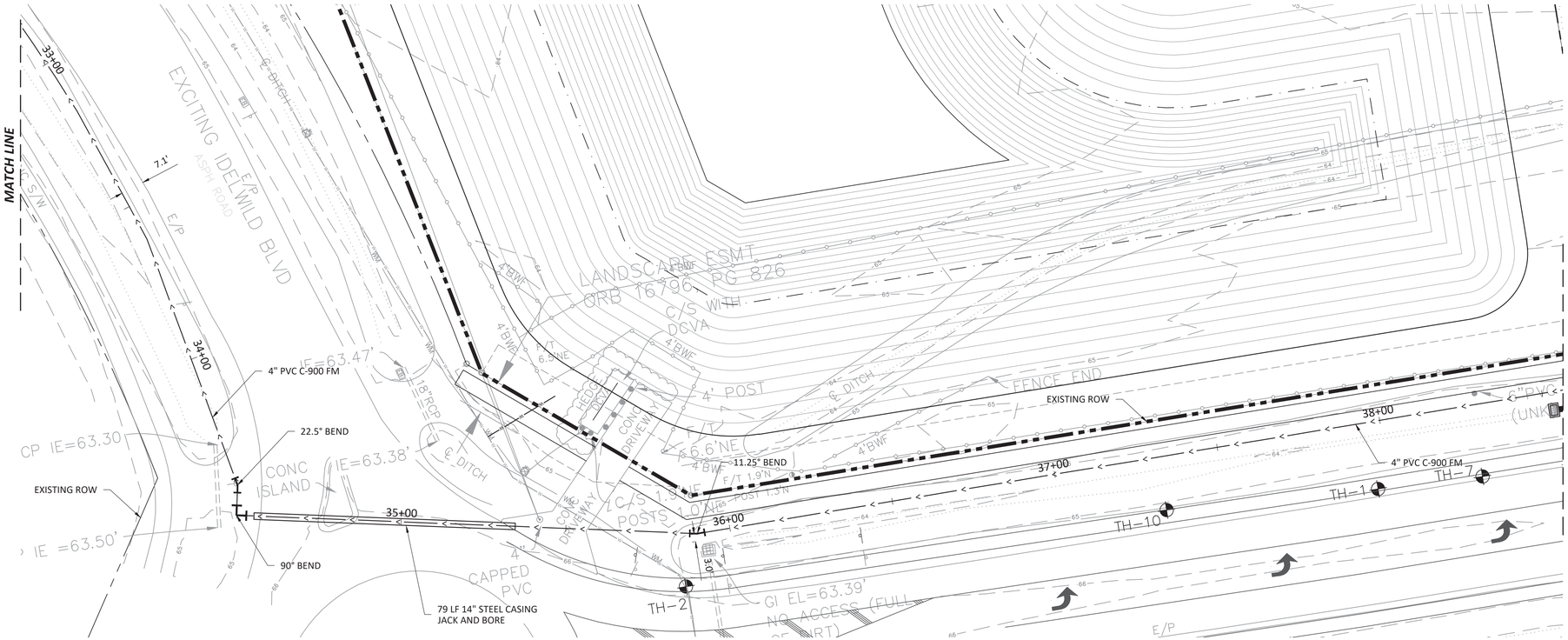

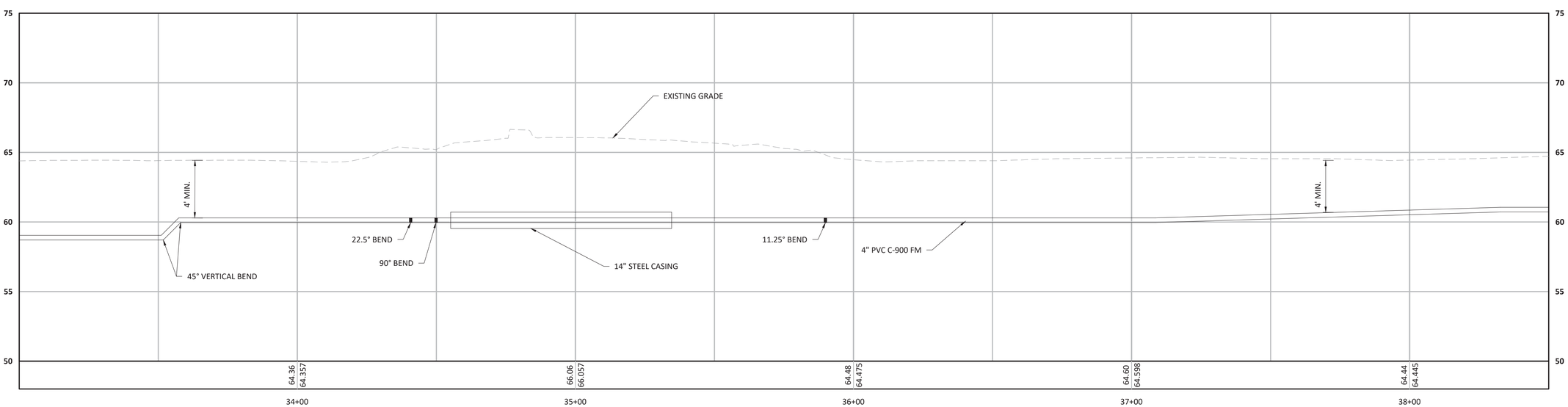

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N

HORIZONTAL SCALE: 0 20 40
SCALE: FEET

VERTICAL SCALE: 0 5 10
SCALE: FEET

IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE

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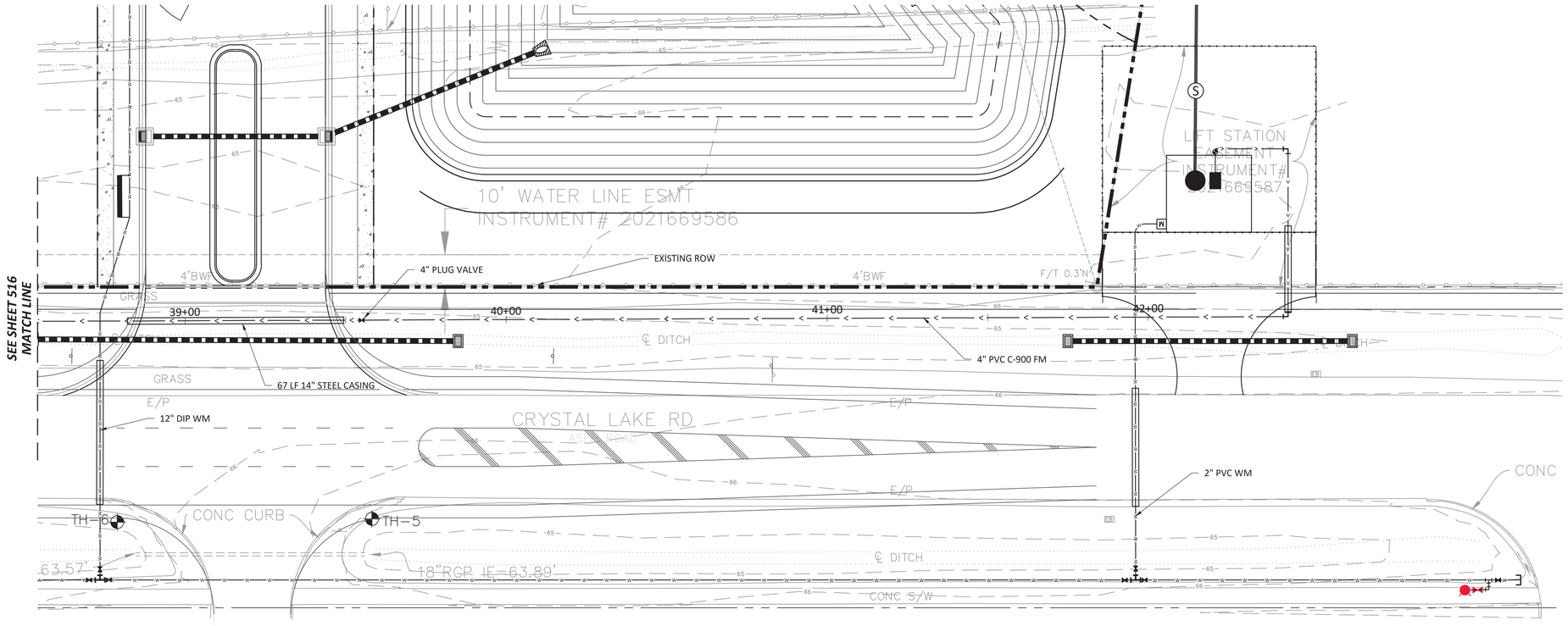

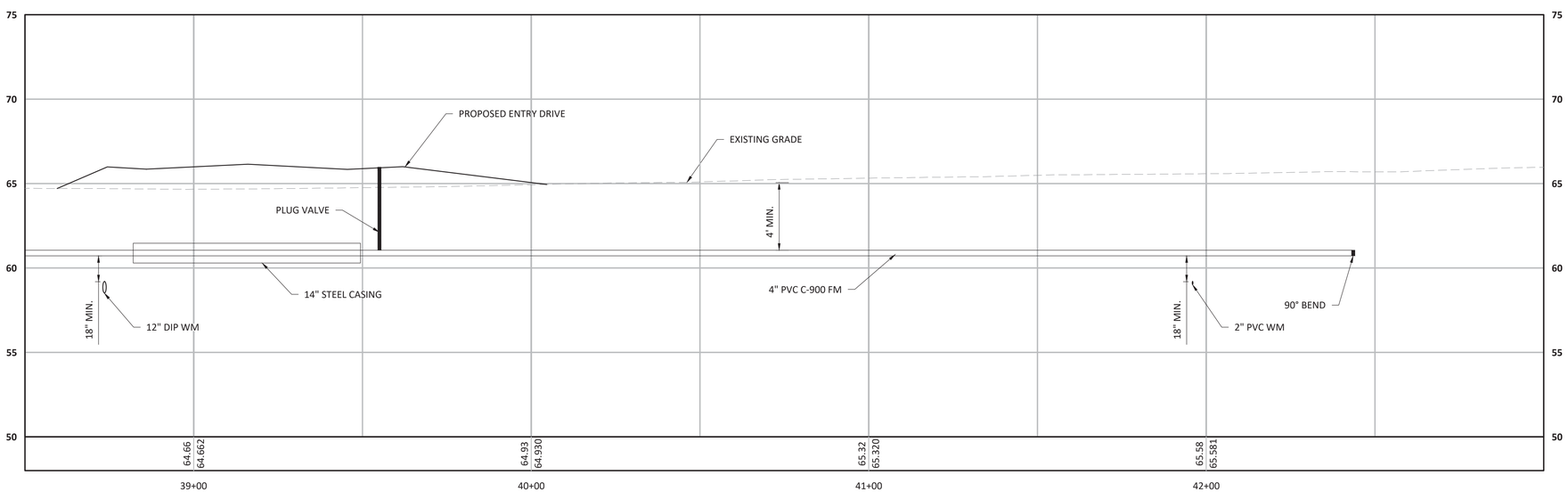

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N

HORIZONTAL SCALE: 0 20 40 SCALE: FEET

VERTICAL SCALE: 0 5 10 SCALE: FEET

IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE

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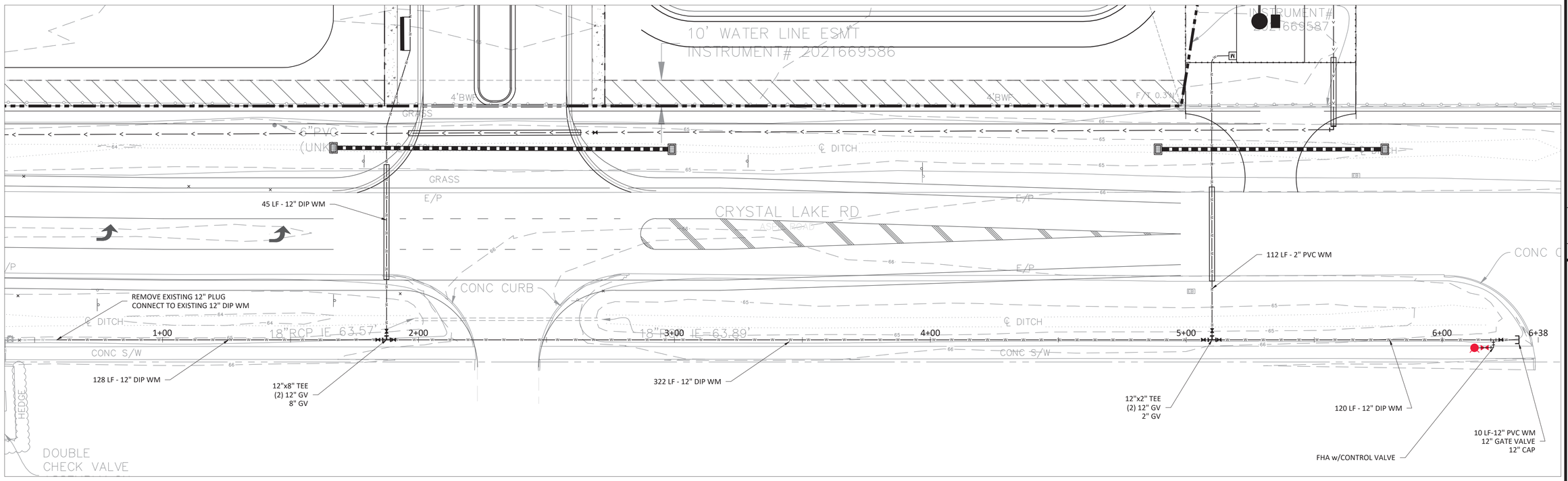

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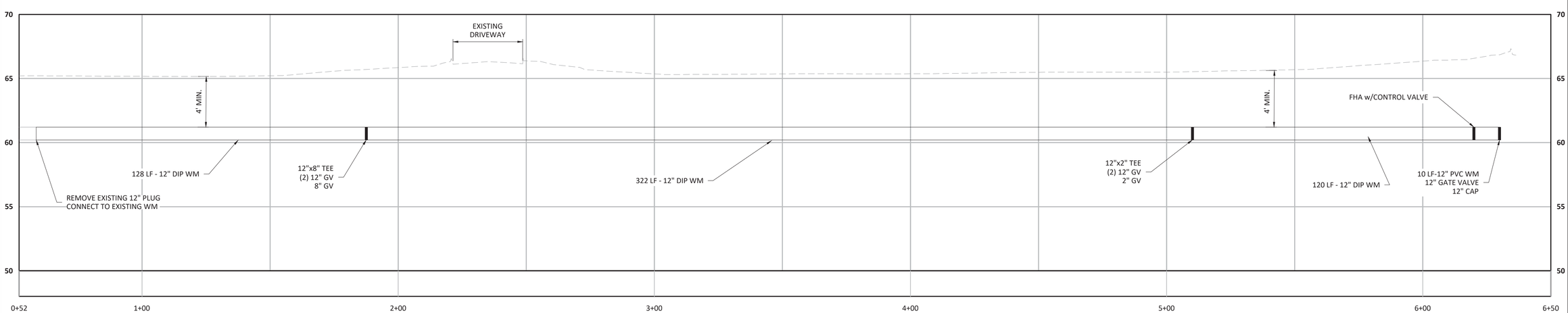
IF SHEET IS LESS THAN 22"X34", USE GRAPHIC SCALE



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WATER MAIN PLAN AND PROFILE

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