CONSTRUCTION PLANS FOR THE CITY OF ROCKMART, GEORGIA HISTORIC ROCKMART EVENT CENTER SEPTEMBER 2024

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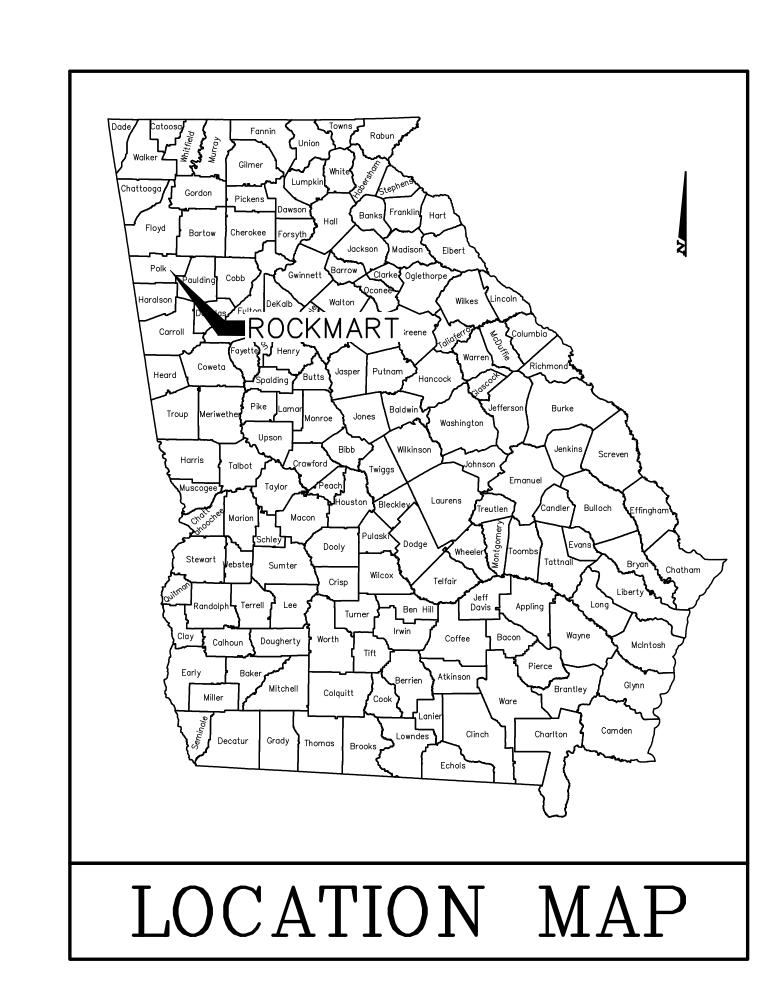
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INDEX OF DRAWINGS

SHEET	<u>TITLE</u>
C101	COVER SHEET
C102	PROJECT MAP
C201	PROJECT NOTES (1 OF 4)
C202	PROJECT NOTES (2 OF 4)
C203	PROJECT NOTES (3 OF 4)
C204	PROJECT NOTES (4 OF 4)
C301	EXISTING CONDITIONS
C302	DEMOLITION PLAN
C401	SITE PLAN
C501	GRADING AND DRAINAGE PLAN
C502	GRADING PLAN DETAILED VIEW
C601	WATER AND SEWER PLAN
C602	PUMP STATION DETAILS
C603	PUMP STATION NOTES
C604	ELECTRICAL NOTES
C605	STANDARD WATER AND SEWER DETAILS
C701	INITIAL EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN
C702	INTERMEDIATE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN
C703	FINAL EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN
C704	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST
C705	EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST, CONT.
C706	EROSION, SEDIMENTATION AND POLLUTION CONTROL DETAILS
C707	SOILS MAP AND FLOOD MAP
C708	STORMWATER MONITORING PLAN
C801	CONSTRUCTION DETAILS
C802	DROP INLET DETAIL
C803	HEADWALL DETAIL

FUNDING: APPALACHIAN REGIONAL COMMISSION (ARC) GRANT

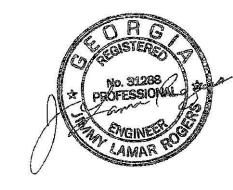
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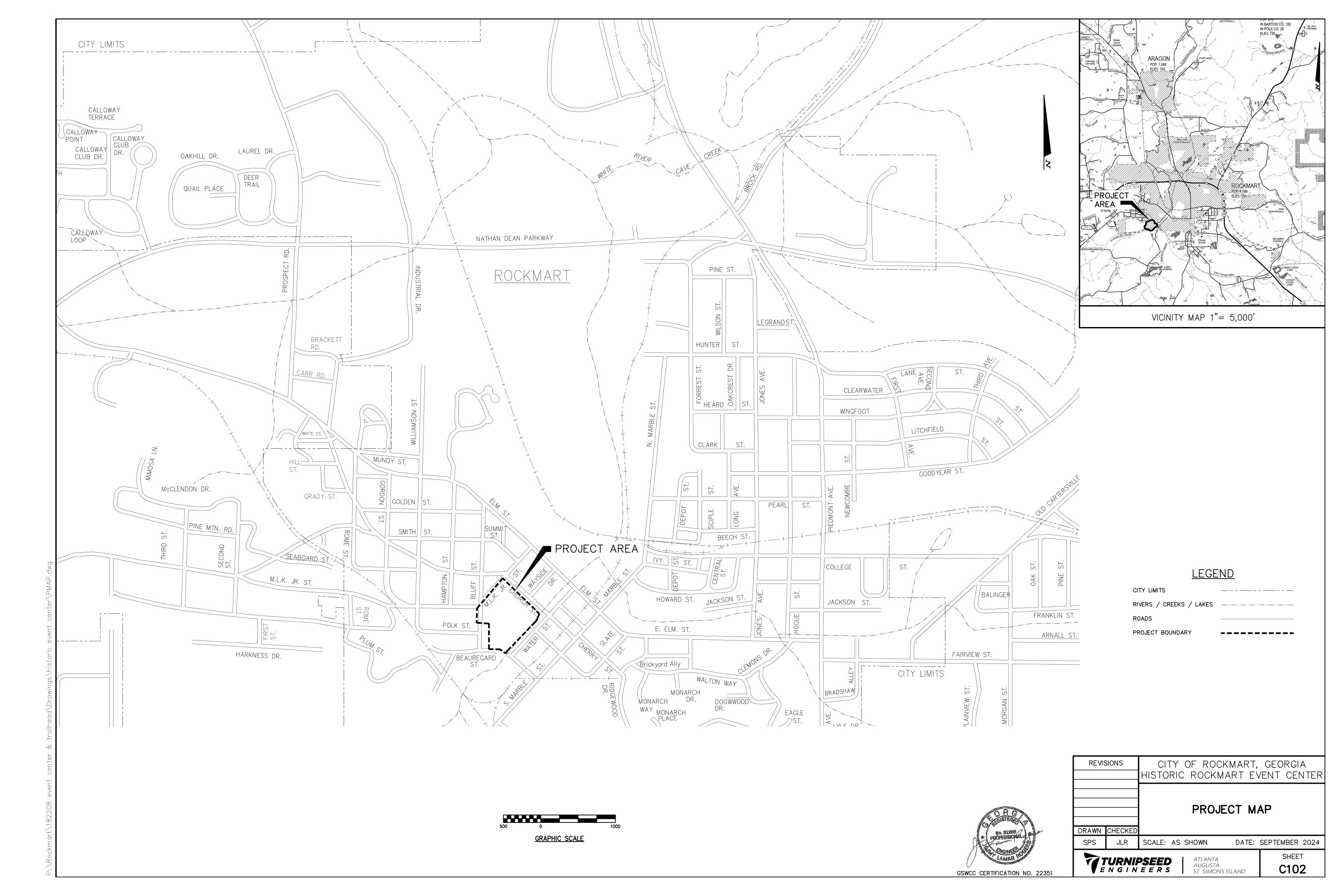


ATLANTA AUGUSTA ST. SIMONS ISLAND



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GENERAL NOTES

- THE LOCATION OF ALL EXISTING UTILITY LINES ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR MUST CALL UTILITIES PROTECTION, INC. "CALL BEFORE YOU DIG" TELEPHONE NUMBER 811.
- 2. ALL WORK TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION OF GEORGIA, CURRENT EDITION, AND SUPPLEMENTS THERETO AS APPLICABLE TO THIS PROJECT.
- CONSTRUCTION DETAILS ARE PER GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD DETAILS. THE CONTRACTOR CAN PURCHASE THE STANDARD DETAILS FROM THE DEPARTMENT OF TRANSPORTATION, ATLANTA, GEORGIA.
- 4. THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS, OR INDICATED IN ANY WAY THEREBY, WHETHER BY DRAWINGS OR NOTES OR IN ANY OTHER MATTER. ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE CITY OF ROCKMART, GEORGIA IN ANY WAY. ONLY THE ACTUAL QUANTITIES COMPLETED AND ACCEPTED WILL BE PAID FOR.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL CONSTRUCTION ELEMENTS WITH FIELD ADJUSTMENTS AS NECESSARY.
- 6. ALL DIMENSION ANGLES ARE 90° (DEGREES) UNLESS NOTED OTHERWISE. WRITTEN DIMENSIONS PREVAIL OVER SCALED DIMENSIONS.
- 7. ALL STORM DRAIN PIPE, SIDE DRAIN PIPE, PIPE CULVERT WINGWALLS, STEPS, RETAINING WALLS, CURBS AND GUTTER, HEADWALLS, ALL TYPES OF PAVEMENT, WOODEN STRUCTURES, EXCEPT THOSE SPECIFICALLY SHOWN AS A REMOVAL PAY ITEM WILL BE REMOVED AS CLEARING AND GRUBBING, GRADING COMPLETE, GRADING PER MILE OR LUMP SUM CONSTRUCTION.
- 8. ALL TEMPORARY SIGNS, BARRICADES, FLASHING LIGHTS, STRIPING AND ANY OTHER TRAFFIC CONTROL DEVICES REQUIRED DURING CONSTRUCTION OF THIS PROJECT SHALL BE FURNISHED BY THE CONTRACTOR WITH PAYMENT INCLUDED IN HIS/HER BID PRICE FOR THE
- THE CONTRACTOR WILL NOT BE PAID FOR ANY DELAYS OR EXTRA EXPENSE CAUSED BY UTILITIES FACILITIES, OBSTRUCTIONS OR ANY OTHER ITEMS NOT BEING REMOVED OR RELOCATED TO CLEAR CONSTRUCTION IN ADVANCE OF WORK.
- 10. ALL DEBRIS, CONCRETE, RUBBLE, ETC. EXCAVATION OR CLEARED FOR CONSTRUCTION SHALL BE LEGALLY DISPOSED OF OFF SITE. THIS WORK AND CLEARING SHALL BE INCLUDED IN GRADING COMPLETE LUMP SUM.
- 11. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AROUND EXISTING STRUCTURES, FOUNDATIONS, WALLS, AND UTILITIES, AND PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL INCLUDE IN THE PRICE FOR THE WORK ANY TEMPORARY BRACING AND SHORING REQ'D TO CONSTRUCT THE PROPOSED FACILITY. NO ADDITIONAL PAYMENT WILL BE MADE FOR REPAIRING DAMAGE CAUSED BY CONSTRUCTION.
- NO ADDITIONAL PAYMENT WILL BE MADE FOR CUT/FILL DIRT FOR CONSTRUCTION.
- 13. ALL SLOPE AREAS ARE TO BE GRASSED UNLESS SHOWN OTHERWISE ON PLANS.
- 14. THE TOTAL SHOWN ON THE PLANS FOR GRASSING IS FOR INFORMATION ONLY. CITY OF ROCKMART ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY. THE CONTRACTOR SHALL BID ON GRASSING, LUMP SUM, AND IT SHALL BE HIS RESPONSIBILITY TO DETERMINE THE ACTUAL AREA TO BE GRASSED. NO CLAIMS WILL BE CONSIDERED FOR EXTRA COMPENSATION IF THE CONTRACTOR RELIES ON THE AREA SHOWN ON THE PLANS.
- 15. SOIL EROSION AND SEDIMENT CONTROL DEVICES ARE TO BE PLACED AS REQUIRED OR AS DIRECTED BY THE CITY OF ROCKMART, OR THE ENGINEER. CARE SHALL BE TAKEN TO PREVENT SOIL EROSION OR SEDIMENT TRANSFER FROM THE PROJECT ONTO ADJACENT
- 16. CONTRACTOR SHALL CLEAN AND MAINTAIN SILT FENCE IN ACCORDANCE WITH GSWCC GUIDELINES. ALL COSTS SHALL BE INCLUDED IN THE PRICE FOR WHICH THE WORK PERTAINS. THE WORK SHALL BE INCLUDED IN THE GRADING COMPLETE LUMP SUM.
- 17. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH LAND DISTURBING ACTIVITIES.
- 18. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
- 19. CONTRACTOR SHALL REGRASS ALL DISTURBED AREAS IMMEDIATELY AFTER CONSTRUCTION. LOCATIONS OF SILT FENCE AND CHECK DAMS SHOWN ARE APPROXIMATE. FINAL LOCATION TO BE DETERMINED IN FIELD IN ACCORDANCE WITH GSWCC BMPS.
- 20. EXISTING ROAD SIGNS SHALL BE REMOVED AND RESET AS NECESSARY, NO ADDITIONAL PAYMENT WILL BE MADE FOR RESETTING SIGNS. THE COST SHALL BE INCLUDED IN THE PRICE FOR WHICH THE WORK PERTAINS. ALL EXISTING ROADWAY SIGNS ARE TO BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION.
- 21. ALL EXISTING MAILBOXES AND SIGNS IN CONFLICT WITH CONSTRUCTION SHALL BE OFFSET LATERALLY TO CLEAR THE WAY FOR CONSTRUCTION. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN CLEARING AND GRUBBING, GRADING COMPLETE, GRADING PER MILE OR LUMP SUM CONSTRUCTION.
- 22. ITEMS LISTED AS "EXTRA WORK. IF ORDERED BY ENGINEER" ARE INCLUDED IN THE BID SHOULD THEY BE NECESSARY. IF NECESSARY, APPROVAL FROM THE ENGINEER IS REQUIRED BEFORE WORK PROCEEDS.
- 23. THE CONTRACTOR SHALL SCHEDULE THE WORK TO MINIMIZE INTERRUPTIONS OR SHUTDOWNS OF THE EXISTING UTILITY SYSTEMS DURING THE WORK WITHOUT PRIOR APPROVAL OF BOTH THE OWNER AND ENGINEER. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER BEFORE STARTING ANY NEW PHASE OF CONSTRUCTION TO VERIFY THAT NO INTERRUPTION OF SERVICE WILL BE ENCOUNTERED.
- 24. PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CALL THE UTILITIES PROTECTION INC. "CALL BEFORE YOU DIG" NUMBER (811). ANY DAMAGE DONE TO EXISTING UTILITY LINES, DRAINS, POWER AND TELEPHONE CABLE, POLES, AND STRUCTURES OF EVERY NATURE, NOT INDICATED TO BE REPLACED AND/OR ABANDONED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE. THE APPROXIMATE POSITION OF CERTAIN KNOWN UNDERGROUND LINES AND STRUCTURES ARE SHOWN ON THE DRAWINGS ACCORDING TO THE BEST AVAILABLE INFORMATION. EXISTING SMALL LINES ARE NOT SHOWN. THE CONTRACTOR SHALL LOCATE. EXCAVATE AND EXPOSE ALL EXISTING UNDERGROUND LINES IN ADVANCE OF TRENCHING AND OTHER CONSTRUCTION OPERATIONS. WHERE CONNECTIONS ARE TO BE MADE AT UNDERGROUND STRUCTURES AND PIPELINES, ELEVATIONS AND LOCATIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION OF THE PERTINENT WORK. WHERE UNDERGROUND UTILITIES OR OBSTRUCTIONS ARE ENCOUNTERED WHICH CONFLICT WITH THE NEW WORK, THE LOCATION AND/OR ALIGNMENT OF THE NEW OR EXISTING LINES MAY BE CHANGED TO AVOID INTERFERENCE UPON WRITTEN APPROVAL OF THE ENGINEER.

- 25. A SUBSURFACE INVESTIGATION HAS BEEN MADE ON THE WORK. THE PROSPECTIVE BIDDER MUST FORM HIS OWN OPINION OF THE CHARACTER OF THE SUBSURFACE MATERIALS TO BE ENCOUNTERED IN EXCAVATING FOR AND THE CONSTRUCTION OF THE VARIOUS FACILITIES.
- 26. THE CONTRACTOR SHALL CHECK ALL WORKING DRAWINGS FOR ACCURACY OF DIMENSIONS AND DETAILS AND FOR CONFORMATION WITH THE DRAWINGS AND SPECIFICATIONS BEFORE SUBMITTING WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL INDICATE THAT WORKING DRAWINGS HAVE BEEN CHECKED BY HIM BY AFFIXING AN APPROPRIATE STAMP OR NOTATION ON THE FACE OF EACH OF THE WORKING DRAWINGS. APPROVAL BY THE ENGINEER OF THE CONTRACTOR'S WORKING DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR ACCURACY OF DIMENSIONS AND DETAILS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AGREEMENT AND CONFORMITY OF WORKING DRAWINGS WITH THE DRAWINGS AND SPECIFICATIONS.
- 27. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DETAILS COVERING THE REQUIRED ITEMS OF WORK AND SUCH OTHER ITEMS WHICH MAY BE NECESSARY FOR THE SUCCESSFUL COMPLETION OF THIS CONTRACT TO THE ENGINEER FOR CHECKING AND APPROVAL BEFORE ANY FABRICATION, ERECTION OR INSTALLATION SHALL COMMENCE. AN APPROVED SET OF SHOP DRAWINGS WITH STAMP OF APPROVAL SHALL BE KEPT ON THE JOB AT ALL TIMES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING ABOUT ANY INFORMATION IN THE SHOP DRAWINGS WHICH DEVIATES FROM THE CONTRACT DOCUMENTS. SHOP DRAWINGS, PRODUCT DATA AND ENGINEERING CALCULATIONS COVERING ALL EQUIPMENT, MATERIAL, FABRICATIONS AND SIMILAR ITEMS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. SUBMITTALS SHALL VERIFY COMPLIANCE WITH THE CONTRACT DOCUMENTS WITH ANY DEVIATIONS NOTED BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT A DIGITAL COPY OF DRAWINGS AND DETAILS TO ADEQUATELY DESCRIBE THE FUNCTION, PERFORMANCE CHARACTERISTICS, DIMENSIONS, ARRANGEMENT, SUPPORT, ANCHORAGE AND OTHER SIMILAR INFORMATION TO ALLOW FOR INSTALLATION, OPERATION AND MAINTENANCE. AFTER REVIEW, THE ENGINEER WILL RETURN THE DIGITAL COPY TO THE CONTRACTOR. THE CONTRACTOR WILL FORWARD THREE PRINTED COPIES, EXACTLY AS MARKED IN THE RETURNED DIGITAL COPY, TO THE ENGINEER.
- 28. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL REGULARLY RECORD ON ONE SET OF DRAWINGS ALL CHANGES AND DEVIATIONS FROM THE CONTRACT DRAWINGS AND RECORD THE EXACT FINAL LOCATIONS OF ANY DEVIATION AND ORIGINAL WORK. UPON COMPLETION, THE CONTRACTOR SHALL HAVE THESE DRAWINGS AND RECORDS CERTIFIED AS TO THEIR COMPLETENESS AND CORRECTNESS BY THE RESIDENT INSPECTOR AND DELIVER THEM TO THE ENGINEER FOR INCORPORATION IN THE TRACINGS. FINAL AS-BUILT ALIGNMENT, INVERT ELEVATIONS AND LOCATIONS ARE TO BE SUPPLIED BY THE CONTRACTOR.
- 29. UPON COMPLETION OF THE WORK, ALL EXCESS MATERIAL AND RUBBISH SHALL BE REMOVED FROM THE JOB SITE AND DISPOSED OF AS DIRECTED BY THE ENGINEER. THE SURROUNDING CONSTRUCTION AREA SHALL BE LEFT IN ESSENTIALLY AS GOOD A CONDITION AS EXISTED PRIOR TO CONSTRUCTION. ALL UNSUITABLE EXCAVATED MATERIAL MUST BE PROPERLY DISPOSED OF IN A MANNER ACCEPTABLE TO THE ENGINEER AND IN A MANNER THAT WILL NOT ADVERSELY IMPACT THE ENVIRONMENT.



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

SIDEWALK NOTES

- CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE TO THE CREEK WITHIN THE ENTIRE LIMITS OF DISTURBANCE.
- SIDEWALK SHALL BE SET ONE INCH ABOVE GRADE AND SLOPE AT 1/4-INCH PER FOOT CROSS-SLOPE TO THE DOWNHILL SIDE UNLESS OTHERWISE SHOWN.
- 4. 3/4-INCH CONTRACTION JOINTS SHALL BE PROVIDED EVERY FIVE (5') FEET. 1/2-INCH EXPANSION JOINTS SHALL BE PROVIDED EVERY FIFTY (50') FEET.
- 5. ALL SIDEWALKS AND CONCRETE PAVING SHALL HAVE SIX (6") INCHES OF GRADED AGGREGATE BASE COURSE AND WOVEN GEOTEXTILE FABRIC FOR SUBGRADE.
- 6. SUBGRADE SHALL BE COMPACTED TO THE STANDARD PROCTOR DRY DENSITY.

MATERIALS NOTES

1. <u>SOURCE OF SUPPLY AND QUALITY OF MATERIALS</u>: THE SOURCE OF SUPPLY FOR ALL MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE ORDERS ARE PLACED. SUPPLIERS OF REINFORCING STEEL, FABRICATED METAL WORK, AND METAL CASTINGS MAY BE REQUIRED TO SUBMIT GUARANTEES OF CONFORMITY WITH DRAWINGS AND SPECIFICATIONS. REPRESENTATIVE PRELIMINARY SAMPLES OF THE CHARACTER AND QUANTITY PRESCRIBED SHALL BE SUBMITTED BY THE CONTRACTOR OR PRODUCER FOR EXAMINATION AND TESTED IN ACCORD WITH THE METHODS REFERRED TO UNDER THE SAMPLES AND TESTING MATERIALS SECTION OF THESE SPECIFICATIONS. ONLY MATERIALS CONFORMING TO THE REQUIREMENTS OF THE SPECIFICATIONS AND APPROVED BY THE ENGINEER SHALL BE USED IN THE WORK. ALL MATERIALS PROPOSED TO BE USED MAY BE INSPECTED OR TESTED AT ANY TIME DURING THEIR PREPARATION AND USE. IF, AFTER TRIAL, IT IS FOUND THAT SOURCES OF SUPPLY WHICH HAVE BEEN APPROVED DO NOT FURNISH A UNIFORM PRODUCT, OR IF THE PRODUCT FROM ANY SOURCE PROVES UNACCEPTABLE AT ANY TIME, THE CONTRACTOR SHALL FURNISH MATERIALS FROM OTHER APPROVED SOURCES. NO MATERIAL, WHICH AFTER APPROVAL HAS IN ANY WAY BECOME UNFIT FOR USE, SHALL BE USED IN THE WORK.

2. SAMPLES AND TESTING OF MATERIALS: UNLESS OTHERWISE SPECIFIED, STANDARD TESTS OF MATERIALS SHALL BE MADE IN ACCORD WITH THE SPECIFICATIONS AND TESTS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS, BY A COMMERCIAL TESTING LABORATORY APPROVED BY THE ENGINEER. REPORTS OF THE TESTS SHALL PROMPTLY BE FURNISHED TO THE ENGINEER. TESTS SHALL BE ARRANGED BY THE CONTRACTOR. THE COST OF ALL TESTS WILL BE PAID FOR BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.

3. SCHEDULE OF MATERIALS AND STANDARD TESTS: THE FOLLOWING SCHEDULE OF MATERIALS AND THE STANDARD TEST TO WHICH EACH IS TO BE SUBJECTED IS GIVEN FOR THE CONTRACTOR'S GUIDANCE.

- A. CEMENT (ANY QUANTITY): CERTIFICATE OF MILL TEST TO BE FURNISHED BY PRODUCERS OF LABORATORY TESTS MADE AS PER ASTM C-1
- B. <u>FLY ASH: INDEPENDENT LABORATORY TEST AS PER ASTM C 618</u>
- C. <u>SAND (ANY QUANTITY FOR USE IN CEMENT CONCRETE)</u>: TESTS TO INDICATE CONFORMITY WITH ASTM
- D. STONE AND GRAVEL (ANY QUANTITY FOR USE IN CEMENT): COARSE AGGREGATE, SIMILAR TO SAND
- E. CONCRETE: CYLINDER COMPRESSION TESTS OF CONCRETE PLACED IN THE WORK FROM 4 CYLINDERS MADE FOR EACH DAY'S PLACING OF EACH CLASS OF CONCRETE OF EACH 50 CUBIC YARDS OR FRACTION THEREOF. ONE CYLINDER SHALL BE BROKEN AT 7 DAYS, 2 CYLINDERS SHALL BE BROKEN AT 28 DAYS, AND ONE CYLINDER SHALL BE HELD IN RESERVE.
- BRICK (1 TO 5,000): VISUAL INSPECTION FOR SHAPE, COLOR SOUNDNESS, FREEDOM FROM CRACKS, BALLS OF CLAY, AND PARTICLES OF LIME
- G. CONCRETE MASONRY UNITS: VISUAL INSPECTION FOR SHAPE, SOUNDNESS AND FREEDOM FROM CRACKS AND FRACTURES. LABORATORY TESTS ARE REQUIRED ON AT LEAST 5 UNITS AS PER ASTM C-140.
- H. <u>STRUCTURAL</u> <u>TILE:</u> VISUAL INSPECTION FOR SHAPE, SOUNDNESS, COLOR, TEXTURE AND CRAZING. LABORATORY TESTS ARE REQUIRED ON AT LEAST 5 UNITS AS PER ASTM C-126.

1 TO 5 TONS: VISUAL INSPECTION FOR SHAPE AND COLOR

FOR EACH ADDITIONAL 5 TONS OR PART THEREOF: VISUAL INSPECTION FOR SHAPE AND COLOR AND

TEST FOR COMPRESSION AS PER ASTM C-97 AND C-170 J. CAST IRON PIPE AND DUCTILE CAST IRON PIPE:

FIELD INSPECTION: VISUAL INSPECTION FOR DIMENSIONS, COATING, CEMENT LINING, HOLES, HAMMER

LABORATORY TESTS: CERTIFIED TEST REPORTS BY FOUNDRY

K. STEEL PIPE: ASTM A-134 AND A-139

L. POLYVINYL CHLORIDE PIPE:

VISUAL INSPECTION: TO ENSURE THAT PIPE IS HOMOGENOUS THROUGHOUT, FREE FROM CRACKS, NICKS, GOUGES, SEVERE SCRATCHES, VOIDS, INCLUSIONS AND OTHER DEFECTS, REASONABLY UNIFORM IN COLOR DENSITY AND OTHER PHYSICAL PROPERTIES. QUALITY CONTROL CERTIFICATION SEAL AND MARKINGS TO INCLUDE MANUFACTURER'S NAME OR TRADEMARK, NOMINAL PIPE SIZE AND SIZE BASE, PVC CELL CLASSIFICATION OR MATERIAL CODE, DIMENSION RATIO OR STANDARD DIMENSION RATIO NUMBER, PRODUCT TYPE, PRESSURE CLASS OR PRESSURE RATING STANDARD

SPECIFICATION DESIGNATION, PRODUCTION RECORDS CODE. LABORATORY TESTS: IN AMOUNTS AND CHARACTER AS PER ASTM D-3034 FOR SEWER PIPE AND

AWWA C 900 FOR WATER PIPE M. <u>STRUCTURAL STEEL:</u>

> ANY QUANTITY: FIELD INSPECTION FOR RUST, SHAPE, AND DIMENSIONS 25 TO 200 TONS: INDEPENDENT SHOP INSPECTION AND CERTIFIED COPIES OF MILL TESTS

FOR STRUCTURES AND BUILDINGS: SEE ASTM A-36 N. CONCRETE REINFORCEMENT STEEL:

UP TO 50,000 POUNDS: FIELD INSPECTION FOR RUST, SHAPE AND DIMENSIONS

50,000 POUNDS AND UP: INDEPENDENT LABORATORY INSPECTION AS FOLLOWS: a. BILLET STEEL: ASTM A-615

ASTM A-616 b. ROLL STEEL:

c. COLD-DRAWN STEEL WIRE: ASTM A-82 ASTM A-185

d. WIRE FABRIC: O. <u>CAST IRON CASTINGS:</u>

FIELD INSPECTION: FOR DIMENSIONS, COATINGS, HOLES, HAMMER TEST

LABORATORY TESTS: CERTIFIED TEST REPORTS BY FOUNDRY

GDOT CONSTRUCTION STANDARDS AND DETAILS ARE AVAILABLE ON THE FOLLOWING GDOT WEBSITE: http://mydocs.dot.ga.gov/info/gdotpubs/ConstructionStandardsAndDetails/Forms/AllItems.aspx



CITY OF ROCKMART, GEORGIA REVISIONS HISTORIC ROCKMART EVENT CENTER PROJECT NOTES (1 OF 4)DRAWN CHECKE SPS JLR SCALE: AS SHOWN DATE: SEPTEMBER 2024 SHEET ATLANTA

AUGUSTA

ST. SIMONS ISLAND

C201

TATURNIPSEED ENGINEERS

WATER NOTES

- 1. SCOPE: THE WORK DESCRIBED BY THIS SECTION CONSISTS OF FURNISHING ALL MATERIALS AND EQUIPMENT AND PERFORMING ALL LABOR NECESSARY TO PUT IN COMPLETE WORKING ORDER THE PIPE LINES AND APPURTENANCES SHOWN ON THE DRAWINGS AND/OR SPECIFIED. ALL STANDARD TEST DESIGNATIONS REFER TO THE LATEST REVISION OF THOSE STANDARDS IN EFFECT ON THE DATE OF ISSUE OF THE CONTRACT DOCUMENTS, EXCEPT WHEN A SPECIFIC REVISION IS SPECIFIED THE WORK SHALL INCLUDE ALL CLEARING, TRENCHING AND EXCAVATION, PUMPING, BAILING AND DRAINING, SHEETING, PIPE LAYING, BACKFILLING, FLUSHING, TESTING AND STERILIZATION OF LINES AND ALL PROVISIONS NECESSARY TO PROTECT AND MAINTAIN BUILDINGS, FENCES, WATER AND GAS LINES, POWER AND TELEPHONE LINES AND CABLES. DRAINAGE AND OTHER STRUCTURES, THE FURNISHING AND MAINTENANCE OF SUITABLE BRIDGES AND FOOTWAYS ACROSS INTERCEPTED STREETS, THE CLEANING
- MATERIALS: ALL MATERIALS THAT COME INTO CONTACT WITH THE DRINKING WATER DURING ITS TREATMENT, STORAGE, TRANSMISSION OR DISTRIBUTION SHALL NOT ADVERSELY AFFECT DRINKING WATER QUALITY AND PUBLIC HEALTH AND MUST BE CERTIFIED FOR CONFORMANCE WITH NATIONAL SANITATION FOUNDATION/AMERICAN NATIONAL STANDARDS INSTITUTE STANDARD 61 (NSF/ANSI STANDARD 61).

AWAY OF ALL RUBBISH AND SURPLUS EXCAVATED MATERIAL, AND ALL SUCH OTHER WORK AS MAY BE NECESSARY TO COMPLETE THE PROJECT.

ANY PIPE, PIPE FITTINGS, PIPE FIXTURES, SOLDER OR FLUX USED IN THE INSTALLATION OR REPAIR OF A PUBLIC WATER SYSTEM SHALL BE LEAD FREE WITH NOT MORE THAN 0.2% LEAD IN SOLDERS AND FLUX AND NOT MORE THAN A WEIGHTED AVERAGE OF 0.25% LEAD WHEN USED WITH RESPECT TO THE WETTED SURFACES OF PIPES, PIPE FITTINGS AND FIXTURES.

- 3. POLYVINYL CHLORIDE PIPE: POLYVINYL CHLORIDE PIPE SHALL CONFORM TO REQUIREMENTS OF AWWA C900, LATEST REVISION, STANDARD FOR POLYVINYL CHLORIDE (PVC) PRESSURE PIPE 4" THROUGH 12" FOR WATER." PRESSURE CLASS 235 (SDR 18), UNLESS OTHERWISE NOTED SHALL HAVE IRON PIPE OUTSIDE DIAMETERS, MUST BE UNDERWRITERS LABORATORIES, INC. LISTED, AND MUST CONFORM TO ASTM D-2241 LATEST REVISION. PIPE 2" IN SIZE SHALL BE SDR 21 (CLASS 200) CONFORMING TO ASTM D-2241. ALL PIPE SHALL BE JOINTED WITH INTEGRAL THICKENED BELL AND ELASTOMERIC GASKETS. ALL GASKET MATERIALS MUST CONFORM TO ASTM F477. LUBRICANT USED WITH PVC PIPE MUST BE NON-TOXIC AND SUPPLIED OR APPROVED FOR USE BY THE PIPE MANUFACTURER. PIPE SHALL BE FURNISHED IN STANDARD 20'
- A. MARKINGS: PIPE AND COUPLINGS SHALL BEAR IDENTIFICATION MARKINGS IN ACCORDANCE WITH AWWA C 900, AS AMENDED TO DATE, THAT WILL REMAIN LEGIBLE DURING NORMAL HANDLING, STORAGE AND INSTALLATION AND WHICH HAVE BEEN APPLIED IN A MANNER THAT WILL NOT REDUCE THE STRENGTH OF THE PIPE OR COUPLING OR OTHERWISE DAMAGE THEM.
- B. TESTING AND INSPECTION; ALL PIPE SHALL BE TESTED AND INSPECTED AT THE PLACE OF MANUFACTURER FOR ALL REQUIREMENTS OF THE AWWA C900 STANDARDS LATEST REVISION. CERTIFIED COPIES OF THE TEST REPORTS COVERING EACH SHIPMENT SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO LAYING.
- RESILIENT SEATED GATE VALVES; THE CONTRACTOR SHALL FURNISH AND INSTALL ALL RESILIENT SEATED GATE VALVES AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. RESILIENT SEATED GATE VALVES SIZE 2" THROUGH 12" SHALL CONFORM, IN GENERAL, WITH AWWA C509 LATEST REVISION, SHALL BE EQUIPPED WITH "O" RING PACKING AND SHALL BE AS FOLLOWS: A. GENERAL CONSTRUCTION: GATE VALVES SHALL BE MECHANICAL JOINT END, RESILIENT SEAT, IRON BODY, BRONZE MOUNTED, NON-RISING STEM WITH O-RING STEM
- SEALS, OPEN LEFT. RESILIENT SEATED GATE VALVES SHALL EMBODY THE BEST CLASS OF WORKMANSHIP AND FINISH AND SHALL OPEN AND CLOSE FREELY AND EASILY. WITH THE VALVE OPEN, AN UNOBSTRUCTED WATERWAY SHALL BE AFFORDED, THE DIAMETER WHICH SHALL NOT BE LESS THAN THE FULL NOMINAL DIAMETER OF THE VALVE. THE MATING SURFACE OF THE RESILIENT SEAT SHALL BE MACHINED TO A SMOOTH EVEN FINISH. ALL STEMS SHALL BE FORGED BRONZE STEMS. VALVES 2" THROUGH 12" SHALL BE DESIGNED FOR INSTALLING IN A VERTICAL POSITION. VALVES LARGER THAN 14" SHALL BE DESIGNED FOR A HORIZONTAL INSTALLATION AND EQUIPPED WITH BEVEL GEARING, GEAR CASE VALVES. GATE VALVES SHALL CONFORM TO AWWA C515, LATEST REVISION.
- B. WORKING PRESSURE: GATE VALVES 2" THRU 12" SHALL BE DESIGNED FOR 200-PSI, WATER WORKING PRESSURE. VALVES 14" AND LARGER SHALL BE DESIGNED FOR A WATER WORKING PRESSURE OF 150-PSI.
- C. OPERATION: ALL VALVES SHALL OPEN LEFT. VALVES SHALL BE OPERATED BY NUT. OPERATING NUTS SHALL CONFORM TO THE PRESENT STANDARD OF THE OWNER, AND SHALL HAVE AN ARROW CAST ON THEM, INDICATING THE DIRECTION FOR OPENING THE VALVE.
- D. MARKING: EACH VALVE SHALL BE PLAINLY MARKED WITH THE MANUFACTURER'S NAME OR PARTICULAR MARK, THE YEAR OF MANUFACTURE, THE SIZE OF THE VALVE, AND DESIGNATION INDICATING WORKING PRESSURE, ALL CAST ON THE BONNET OR BODY.
- E. <u>TESTING</u>; ALL GATE VALVES SHALL BE TESTED IN ACCORDANCE WITH AMERICAN WATER WORKS ASSOCIATION STANDARDS. INTERNAL TEST IS REQUIRED IN FIELD. F. JOINTING: ALL EXTERIOR GATE VALVES SHALL BE FURNISHED WITH MECHANICAL JOINTS, AND NECESSARY BOLTS, GLANDS AND GASKETS UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR SPECIFIED.
- G. MANUFACTURER: THE VALVES SHALL BE U.S. PIPE METROSEAL, M&H, MUELLER, AMERICAN FLOW CONTROL, CLOW, OR APPROVED EQUAL.
- 5. TAPPING SLEEVES AND VALVES: THE CONTRACTOR SHALL FURNISH AND INSTALL TAPPING SLEEVES AND VALVES FOR CONNECTIONS INTO EXISTING PIPE LINES AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED.
- A. GENERAL CONSTRUCTION; UNLESS OTHERWISE SHOWN AND/OR INDICATED, TAPPING SLEEVES SHALL BE SPLIT-SLEEVE, MECHANICAL JOINT TYPE WITH FLANGED VALVE END CONNECTION AS FURNISHED BY MUELLER, AMERICAN-DARLING OR EQUAL. GATE VALVES FURNISHED WITH TAPPING SLEEVES SHALL BE FURNISHED IN ACCORDANCE WITH THE SPECIFICATIONS ABOVE FOR STANDARD GATE VALVES WHERE APPLICABLE. HUB CONNECTION OF VALVE FURNISHED WITH TAPPING SLEEVE SHALL BE
- B. TAPPING MACHINE: THE CONTRACTOR SHALL FURNISH THE VALVE TAPPING MACHINE AND ALL OTHER EQUIPMENT REQUIRED FOR INSTALLATION OF THE TAPPING SLEEVE AND VALVE. TAPPING SLEEVES AND VALVES SHALL BE INSTALLED UNDER THE SUPERVISION OF SKILLED MECHANICS. 6. VALVE BOXES; THE CONTRACTOR SHALL FURNISH AND INSTALL VALVE BOXES FOR BUTTERFLY AND GATE VALVES AND BYPASS VALVES.
- VALVE BOXES SHALL BE HEAVY ROADWAY TYPES. THE VALVE BOXES SHALL BE CAST IRON TWO-PIECE SLIDE TYPES WITH DROP COVERS. THE WORD "WATER" SHALL BE CAST IN RAISED LETTERS ON THE COVERS. THE VALVE BOXES SHALL BE ADJUSTABLE TO 6" UP OR DOWN FROM THE NOMINAL REQUIRED COVER OVER THE PIPE. A CONCRETE PROTECTING SLAB SHALL BE REQUIRED WHEN VALVE BOX IS NOT LOCATED ON A PAVED AREA. INSTALLATION SHALL BE SO THAT THE TOP IS FLUSH WITH THE PROTECTING SLAB. CONCRETE PROTECTING SLABS SHALL NOT BE SMALLER THAN 18" SQUARE BY 6" THICK.
- EXTENSION STEMS: IN ALL LOCATIONS WHERE THE VALVE OPERATING NUT IS 3'-6" OR MORE BENEATH THE GROUND SURFACE, THE CONTRACTOR SHALL FURNISH AND INSTALL AN EXTENSION STEM FOR THE VALVE TO TERMINATE AT 1'-6" BENEATH THE GROUND SURFACE. NO EXTRA PAYMENT WILL BE MADE FOR EXTENSION STEMS.
- 8. LOCATING WIRE: SERVICES CONSTRUCTED OF NONMETALLIC PIPE SHALL BE INSTALLED WITH 12-GAUGE COPPER LOCATING WIRE FIRMLY ATTACHED TO THE TOP OF PIPE. THE WIRE SHALL BE ONE CONTINUOUS PIECE FROM WATER MAIN TO METER BOX. BARE END WIRE SHALL BE CONNECTED TO TRACER WIRE ALONG WATER MAIN AND TERMINATED INSIDE METER BOX FOR EASE OF ACCESS AND CONNECTION FOR LOCATING EQUIPMENT. THE WIRE SHALL BE ATTACHED TO SERVICE LINE USING ADHESIVE TAPE OR CABLE TIES AS NECESSARY.
- 9. <u>UNLOADING, HAULING, DISTRIBUTING AND STORING POLYVINYL CHLORIDE PIPE AND RELATED MATERIALS</u>; THE CONTRACTOR SHALL UNLOAD, HAUL, DISTRIBUTE AND STORE PVC PIPE AND RELATED MATERIALS AS FOLLOWS:
- A. UNLOADING: EQUIPMENT AND FACILITIES FOR UNLOADING, HAULING, DISTRIBUTING AND STORING MATERIALS SHALL BE FURNISHED BY THE CONTRACTOR AND SHALL AT ALL TIMES BE AVAILABLE FOR USE IN UNLOADING MATERIALS. DELAYS IN UNLOADING RAILROAD CARS, UNLOADING TRUCKS, HAULING FROM FREIGHT TERMINAL WHICH INCUR DEMURRAGE, TRUCK WAITING CHARGES OR TERMINAL CHARGES SHALL ALL BE AT THE EXPENSE OF THE CONTRACTOR.
- B. HANDLING: PIPE, FITTINGS AND OTHER MATERIALS SHALL BE CAREFULLY HANDLED TO PREVENT BREAKING AND TO PREVENT DAMAGE TO THE CEMENT LINING IN THE FITTINGS. PIPE MAY BE UNLOADED INDIVIDUALLY BY HAND BUT <u>SHALL NOT</u> BE UNLOADED BY ROLLING OR DROPPING OFF OF TRUCKS OR CARS. PREFERRED UNLOADING IS IN UNITS USING MECHANICAL EQUIPMENT, SUCH AS FORKLIFTS, CHERRY PICKERS, OR FRONT-END LOADERS WITH FORKS. IF FORK LIFT EQUIPMENT IS NOT AVAILABLE, UNITS MAY BE UNLOADED WITH USE OF A SPREADER BAR ON TOP AND NYLON STRIPS OR CABLES LOOPED UNDER THE UNIT. THE NYLON STRIPS SHOULD BE CUSHIONED WITH RUBBER HOSE SLEEVES AND APPROXIMATELY 8' APART.
- DISTRIBUTING: MATERIALS SHALL BE DISTRIBUTED AND PLACED SO AS TO LEAST INTERFERE WITH TRAFFIC. NO STREET OR ROADWAY MAY BE CLOSED WITHOUT FIRST OBTAINING PERMISSION OF THE PROPER AUTHORITIES. THE CONTRACTOR SHALL FURNISH AND MAINTAIN PROPER WARNING SIGNS AND OBSTRUCTION LIGHTS FOR THE PROTECTION OF TRAFFIC ALONG HIGHWAYS, STREETS AND ROADWAYS UPON WHICH MATERIAL IS DISTRIBUTED. NO DISTRIBUTED MATERIALS SHALL BE PLACED IN DRAINAGE DITCHES.
- D. STORAGE: ALL PIPE, FITTINGS AND OTHER MATERIALS WHICH CANNOT BE DISTRIBUTED ALONG THE ROUTE OF THE WORK SHALL BE STORED FOR SUBSEQUENT USE WHEN NEEDED. PIPE MUST BE STOCKPILED ON LEVEL GROUND. IF PIPE IS UNLOADED INDIVIDUALLY BY HAND, TIMBERS MUST BE USED UNDER THE PIPE FOR A BASE, SPACED THE SAME AS FACTORY LOAD, WITH STOP BLOCKS NAILED AT EITHER END. STOCKPILE MUST BE BUILT UP THE SAME MANNER AS IT WAS STOCKED FOR SHIPMENT, TRANSFERRING DUNNAGE AND CHOCK-BLOCKS FROM LOAD TO STOCKPILE. INDIVIDUAL LENGTHS OF PIPE SHALL NOT BE STACKED ANY HIGHER THAN 5'. IF PIPE IS UNLOADED IN UNITS, THE UNITS MUST BE PLACED ON LEVEL GROUND AND SHALL NOT BE STACKED MORE THAN TWO UNITS HIGH. UNITS MUST BE PROTECTED BY DUNNAGE IN THE SAME WAY THEY WERE PROTECTED WHILE LOADED ON THE TRUCK OR CAR. THE DUNNAGE MUST SUPPORT THE WEIGHT OF ALL UNITS, SO PIPE LENGTHS DO NOT CARRY THE WEIGHT OF THE UNIT LOADED ABOVE.

IF PIPE IS TO BE STORED OUTSIDE AND EXPOSED TO SUNLIGHT FOR A NUMBER OF MONTHS, THE PIPE MUST BE PROTECTED BY COVERING WITH CANVAS OR OTHER OPAQUE MATERIAL. THE COVER SHALL BE LOOSE ENOUGH TO ALLOW FOR AIR CIRCULATION AROUND THE PIPE. THE USE OF CLEAR PLASTIC SHEETS WILL NOT BE

- PERMITTED. THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR THE USE OF STORAGE AREAS. 10. CLEARING: THE CONTRACTOR SHALL PERFORM ALL CLEARING WORK REQUIRED FOR THE INSTALLATION OF THE COMPLETE WORK. CLEARING SHALL CONSIST OF THE REMOVAL AND DISPOSAL OF ALL TREES, STUMPS, ROOTS, BRUSH OR DEBRIS IN THE WAY OF THE WORK. ALL COMBUSTIBLE MATERIAL SHALL BE COMPLETELY BURNED OR OTHERWISE DISPOSED OF IN A SATISFACTORY MANNER, AND SHALL BE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF BOTH THE AIR QUALITY AND THE SOLID WASTE MANAGEMENT SECTIONS OF THE GEORGIA ENVIRONMENTAL PROTECTION DIVISION. BURNING SHALL BE IN ACCORDANCE WITH LOCAL REGULATIONS.
- A. REMOVAL OF PRIVATE OR PUBLIC FACILITIES: ANY PRIVATE OR PUBLIC FACILITIES, INCLUDING FENCES, REMOVED FOR CONSTRUCTION PURPOSES SHALL BE PROMPTLY TREES OR SHRUBBERY ALONG HIGHWAYS, ROADWAYS AND STREETS SHALL NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY AND MUST BE APPROVED BY THE ENGINEER. ANY SUCH TREES OR SHRUBBERY NECESSARY TO BE REMOVED SHALL BE HEELED IN AND REPLANTED. HEELING IN AND REPLANTING SHALL BE DONE UNDER THE DIRECTION OF AN EXPERIENCED LANDSCAPER.
- EXCAVATION FOR TRENCHES: EXCAVATION OF PIPE TRENCHES SHALL INCLUDE ALL EXCAVATION OF EVERY DESCRIPTION AND WHATEVER SUBSTANCE ENCOUNTERED AND SHALL INCLUDE DISPOSAL OF ALL ROCK EXCAVATION AND SHALL INCLUDE DISPOSAL OF EXCESS EARTH EXCAVATION NOT REQUIRED FOR BACKFILLING OF TRENCHES. THE AREA DIRECTLY SURROUNDING THE EXCAVATION SHALL BE GRADED TO DIRECT STORM WATER RUNOFF AWAY FROM THE TRENCH.
- A. DEPTH OF TRENCHES: THE MINIMUM COVER OVER THE TOP OF THE PIPE SHALL BE 4' UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WHERE OBSTRUCTIONS ARE ENCOUNTERED, MINIMUM DEPTH MAY BE CHANGED TO AVOID INTERFERENCE.
- B. WIDTH OF TRENCHES: TRENCHES SHALL BE EXCAVATED SUFFICIENTLY WIDE TO ALLOW PROPER INSTALLATION OF PIPE, FITTINGS AND OTHER MATERIALS AND TO NOT LESS THAN 6" CLEAR OF THE OUTSIDE BARREL OF THE PIPE ON ANY SIDE AT ANY POINT.
- C. BELL HOLES: BELL HOLES OF AMPLE DEPTH AND WIDTH SHALL BE EXCAVATED IN PIPE TRENCHES AT THE LOCATION OF EACH JOINT TO PERMIT THE JOINT TO BE PROPERLY MADE. D. EARTH EXCAVATION; EARTH EXCAVATION SHALL INCLUDE ALL EXCAVATION OF WHATEVER SUBSTANCE ENCOUNTERED, EXCEPT ROCK EXCAVATION, AS FURTHER PROVIDED FOR IN THESE SPECIFICATIONS. IN LOCATIONS WHERE PIPE IS TO BE BEDDED IN EARTH EXCAVATED TRENCHES, THE BOTTOM OF SUCH TRENCHES SHALL BE
- FINE GRADED TO ALLOW FIRM BEARING FOR THE BOTTOM OF THE PIPE ON UNDISTURBED EARTH. WHERE ANY PART OF THE TRENCH HAS BEEN EXCAVATED BELOW THE GRADE OF THE TRENCH, THE PART EXCAVATED BELOW SUCH GRADE SHALL BE FILLED IN WITH BANK SAND AND COMPACTED AT THE CONTRACTOR'S EXPENSE. ROCK EXCAVATION: ROCK EXCAVATION SHALL COMPRISE SOLID ROCK IN THE ORIGINAL BED OR IN WELL-DEFINED LEDGES, THE REMOVAL OF WHICH IN THE OPINION OF HE ENGINEER REQUIRES DRILLING, BLASTING, OR THE USE OF JACK HAMMERS OR BULL—POINTS, AND SHALL ALSO INCLUDE BOULDERS OR DETACHED PIECES OF ROCK
- 8 CUBIC FEET OR MORE IN CONTENT. BLASTING OPERATIONS SHALL BE CONDUCTED IN STRICT ACCORDANCE WITH ALL BLASTING ORDINANCES AND REGULATIONS AND ALL BLASTING SHALL BE DONE AS DIRECTED BY THE ENGINEER. ALL EXPOSED STRUCTURES SHALL BE CAREFULLY PROTECTED FROM THE EFFECTS OF BLAST, AND ALL BLASTS SHALL BE COVERED WITH HEAVY TIMBERS, MATS OR SUITABLE PROTECTION. THE BLASTING SHALL BE DONE ONLY BY EXPERIENCED MEN. VERY LIGHT CHARGES MUST BE USED TO PREVENT
- NO BLASTING OPERATION SHALL BE STARTED WITHOUT THE ENGINEER'S APPROVAL OF METHOD AND QUANTITY OF EXPLOSIVE TO BE USED. ANY DAMAGE DONE SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE. WHERE THERE ARE NO LOCAL ORDINANCES GOVERNING BLASTING AND THE STORAGE OF EXPLOSIVES, ALL BLASTING SUPPLIES SHALL BE STORED IN A MANNER APPROVED BY THE ENGINEER, AND A WATCHMAN SHALL BE STATIONED AT ALL TIMES AT THE PLACE OF STORAGE. IN NO CASE SHALL CAPS OR OTHER EXPLOSIVES BE KEPT AT THE PLACE WHERE DYNAMITE OR OTHER EXPLOSIVES ARE STORED.
- F. CRUSHED STONE STABILIZATION: WHEREVER THE SUBGRADE IS BY NATURE TOO SOFT OR MUCKY IN THE OPINION OF THE ENGINEER FOR THE PROPER INSTALLATION OF THE PIPE, THE ENGINEER MAY ORDER THE CONTRACTOR TO UNDERCUT THE TRENCH AND BACKFILL WITH CRUSHED STONE OR GRAVEL, 💯 IN SIZE AND LESS. THE STONE SHALL BE PLACED AND BROUGHT TO THE GRADE REQUIRED FOR THE PARTICULAR LOCATION AND COMPACTED.
- 12. EXISTING PIPE LINES: WHERE NEW PIPE LINE PARALLELS OR CROSSES EXISTING PIPE LINES THE CONTRACTOR SHALL TAKE PRECAUTIONS AS NECESSARY TO INSURE THAT SUCH EXISTING PIPE LINES ARE NOT DISTURBED. ANY DAMAGE TO EXISTING PIPE LINES SHALL BE PROMPTLY REPAIRED AT THE CONTRACTOR'S EXPENSE. 13. CONNECTIONS TO EXISTING PIPE LINES; CONNECTIONS TO EXISTING PIPE LINES SHALL BE MADE WITH THE NECESSARY FITTINGS AND VALVES AS INDICATED ON THE
- A. LOCATION: THE CONTRACTOR SHALL, BEFORE OPENING PIPE LINE TRENCHES, LOCATE THE VARIOUS POINTS OF CONNECTIONS TO BE MADE INTO EXISTING PIPE LINES AND SHALL UNCOVER AS NECESSARY FOR THE ENGINEER TO PRESCRIBE THE TYPE OF CONNECTIONS AND FITTINGS TO BE INSTALLED. INTERRUPTION OF SERVICE: CONNECTIONS TO EXISTING PIPE LINES SHALL BE MADE ONLY AT SUCH TIMES AND IN SUCH MANNER TO MEET OPERATING REQUIREMENTS.

CONNECTIONS. ALL EXISTING VALVES SHALL BE OPERATED ONLY BY AUTHORIZED REPRESENTATIVES OF THE OWNER.

CUT SHALL BE MADE IN EXISTING LINES UNTIL THE PERMISSION OF THE OWNER HAS BEEN OBTAINED AS TO TIME AND MANNER OF MAKING THE CUTS AND

EXISTING UNDERGROUND UTILITIES AND OBSTRUCTIONS: CERTAIN EXISTING WATER LINES, CULVERTS AND CROSS DRAINS ARE SHOWN ON THE DRAWINGS ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEER. THE DRAWINGS INDICATED THE PIPE LINES TO BE LAID OVER, UNDER OR AROUND UNDERGROUND UTILITIES OR OBSTRUCTIONS WHERE SUCH UTILITIES OR OBSTRUCTIONS ARE KNOWN TO EXIST. WHERE THESE OR UNFORESEEN UNDERGROUND UTILITIES OR OBSTRUCTIONS ARE ENCOUNTERED, MINIMUM DEPTH OF COVER OR THE LOCATION AND ALIGNMENT MAY BE CHANGED UPON WRITTEN APPROVAL OF THE ENGINEER TO AVOID INTERFERENCE. THE LOCATIONS OF THE EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE BEGINNING CONSTRUCTION. DAMAGE TO EXISTING UTILITY LINES, SERVICES, POLES AND STRUCTURES SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE. WATER MAINS SHALL BE LAID AT LEAST 10' HORIZONTALLY FROM ANY EXISTING OR PROPOSED SANITARY SEWER, STORM SEWER OR SEWER MANHOLE. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. WHEN LOCAL CONDITIONS PREVENT A HORIZONTAL SEPARATION OF 10', THE WATER MAIN MAY BE LAID CLOSER TO A SEWER (ON A CASE BY CASE BASIS) PROVIDED THE WATER MAIN IS LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18" ABOVE THE TOP OF THE SEWER. IT IS ADVISED THAT THE SEWER BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS OF CONSTRUCTION AND BE PRESSURE TESTED TO ASSURE WATER MAIN STANDARDS OF CONSTRUCTION AND BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING. WATER MAINS CROSSING HOUSE SEWERS, STORM SEWERS OR SANITARY SEWERS SHALL BE LAID TO PROVIDE A SEPARATION OF AT LEAST 18" BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE SEWER. AT THE CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. SPECIAL STRUCTURAL SUPPORT FOR THE WATER AND SEWER PIPES MAY BE REQUIRED. WHEN LOCAL CONDITIONS PREVENT A VERTICAL SEPARATION OF 18", THE SEWER PASSING OVER OR

UNDER WATER MAINS SHALL BE CONSTRUCTED OF MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS OF CONSTRUCTION AND SHALL BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING. WHEN WATER MAINS CROSS UNDER SEWERS, ADDITIONAL MEASURES SHALL BE TAKEN BY PROVIDING A VERTICAL SEPARATION OF AT LEAST 18" BETWEEN THE BOTTOM OF THE SEWER AND THE TOP OF THE WATER MAIN, PROVIDING ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING ON AND BREAKING THE WATER MAINS, AND THAT THE LENGTH OF WATER PIPE BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR POSSIBLE FROM THE SEWER. BOTH THE SEWER AND THE WATER MAIN SHALL BE CONSTRUCTED OF WATER PIPE MATERIALS AND SUBJECTED TO HYDROSTATIC TESTS AS PRESCRIBED IN THIS SPECIFICATION. ENCASEMENT OF THE WATER PIPE IN CONCRETE SHALL ALSO BE CONSIDERED.

- A. THE CONTRACTOR SHALL FURNISH AND HAVE AVAILABLE AT ALL TIMES AN ELECTRONIC PIPE AND CABLE LOCATOR IN WORKING ORDER FOR THE PURPOSE OF LOCATING EXISTING PIPE LINES OR OTHER OBSTRUCTIONS IN THE WAY OR ARE ALONG THE ROUTE OF THE NEW WORK.
- UTILITIES' SERVICES; UTILITIES' SERVICE LINES ARE NOT SHOWN ON THE DRAWINGS. BEFORE A PIPE LINE IS LAID ON ANY STREET, THE CONTRACTOR SHALL LOCATE WATER, SEWER, GAS AND OTHER UTILITIES SERVICES AS NECESSARY FOR THE ENGINEER TO DETERMINE THE DEPTH AT WHICH THE PIPE LINES SHALL BE LAID TO AVOID INTERFERENCE WITH EXISTING UTILITIES OR PIPE LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL REPAIR ANY DAMAGE DONE TO UTILITIES SERVICES OR ANY DAMAGE RESULTING FROM THE CONSTRUCTION OPERATIONS.
- A. THE ENGINEER SHALL HAVE THE RIGHT TO DETERMINE THE SERVICES WHICH ARE TO REMAIN IN PLACE AND THE SERVICES WHICH SHALL BE RELOCATED AS BEST SUITS CONDITIONS AS FOUND IN ACCORDANCE WITH THE FOLLOWING:
- B. SERVICES TO REMAIN IN PLACE: WHERE THE ENGINEER DETERMINES THE SERVICES SHALL REMAIN IN PLACE, MINIMUM SPECIFIED DEPTHS OF COVER FOR THE PIPE LINES MAY BE CHANGED TO AVOID INTERFERENCE WITH SUCH SERVICES. C. SERVICES TO BE RELOCATED: WHERE THE ENGINEER DETERMINES THE SERVICES SHALL BE RELOCATED, THE UTILITY OWNER WILL MAKE THE NECESSARY CHANGES
- WITHOUT COST TO THE CONTRACTOR. I6. <u>ASSEMBLING, LAYING AND JOINTING DUCTILE IRON AND/OR POLYVINYL CHLORIDE PIPE AND IRON FITTINGS</u>; THE CONTRACTOR SHALL ASSEMBLE, JOINT AND LAY ALL PIPE AND FITTINGS TO ACCURATELY CONFORM TO THE LINES AND GRADES ESTABLISHED BY THE ENGINEER AS FOLLOWS. ALL INSTALLATION/CONSTRUCTION SHALL BE CONDUCTED IN ACCORDANCE WITH AWWA C605 (LATEST VERSION) "UNDERGROUND INSTALLATION OF PVC PRESSURE PIPE AND FITTINGS FOR WATER", AND/OR AWWA C600
- INSTALLATION OF DUCTILE IRON WATER MAINS AND THEIR APPURTENANCES". A. HANDLING: PROPER AND SUITABLE TOOLS AND EQUIPMENT FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF PIPE SHALL BE USED, AND GREAT CARE SHALI BE TAKEN TO PREVENT THE PIPE AND COATINGS FROM DAMAGE. DUCTILE IRON PIPE AND FITTINGS SHALL BE CAREFULLY EXAMINED FOR CRACKS, BROKEN LINING OR OTHER DEFECTS. PVC PIPE SHALL BE CAREFULLY EXAMINED TO INSURE THAT PIPE IS HOMOGENOUS THROUGHOUT AND FREE FROM CRACKS, NICKS, GOUGES, SEVERE SCRATCHES, ETC. NO PIPE OR OTHER CASTINGS SHALL BE LAID WHICH ARE KNOWN TO BE DEFECTIVE. IF PIPE AND OTHER CASTINGS ARE DISCOVERED TO BE CRACKED, BROKEN OR DEFECTIVE AFTER BEING LAID, IT SHALL BE REMOVED AND REPLACED WITH SOUND MATERIAL AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL
- PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE BEING LAID AND SHALL BE KEPT CLEAN UNTIL ACCEPTED IN THE COMPLETE WORK. B. SEQUENCE OF WORK: EXCAVATION, CLEANING, LAYING, JOINTING AND BACKFILLING SHALL BE KEPT UP AS CLOSELY AS IS POSSIBLE SO-AS-TO PROGRESS THE WORK IN A UNIFORM WORKMANLIKE MANNER. IN NO CASE SHALL PIPE BE LEFT IN THE TRENCH OVERNIGHT WITHOUT COMPLETING THE JOINTING. THE COMPLETED PIPE LINE SHALL NOT BE LEFT EXPOSED IN THE TRENCH UNNECESSARILY; THE CONTRACTOR SHALL BACKFILL AND COMPACT THE TRENCH AS SOON AS IS POSSIBLE AFTER LAYING AND JOINTING IS COMPLETED. EACH DAY AT THE CLOSE OF WORK AND AT ALL TIMES WHEN LAYING IS NOT IN PROGRESS, THE EXPOSED END OF THE PIPE LINE IN THE TRENCH SHALL BE CLOSED WITH AN APPROVED HEAD OR BARRIER OF WOOD OR METAL. IF AT ANY TIME IT BECOMES NECESSARY TO COVER THE END OF AN INCOMPLETE PIPE LINE WITH BACKFILL, THE END OF THAT PIPE SHALL BE CLOSED WITH A MECHANICAL JOINT PLUG.
- C. CLEANING: THE CONTRACTOR SHALL CLEAN EACH JOINT OF PIPE WHILE IT IS SUSPENDED BEFORE IT IS LOWERED INTO THE TRENCH. THE CONTRACTOR SHALL KEEP EXPOSED ENDS OF THE PIPE PROPERLY PLUGGED DURING LAYING TO PREVENT DIRT AND OTHER MATERIALS FROM ENTERING THE LINE AND SHALL THOROUGHLY CLEAN ALL LINES BEFORE THE SYSTEM IS ACCEPTED.
- D. <u>DUCTILE IRON PIPE</u>: WHEN LAYING PIPE IN TRENCHES, CARE SHALL BE TAKEN TO GIVE THE PIPE SOLID BEARING THROUGHOUT ITS ENTIRE LENGTH. BELL HOLES SHALL BE EXCAVATED IN A MANNER WHICH WILL RELIEVE PIPE BELLS OF ALL LOAD.
- E. <u>CUTTING DUCTILE IRON PIPE</u>: WHENEVER DUCTILE IRON PIPE OR SPECIAL CASTINGS ARE REQUIRED TO BE CUT, THE CUTTING SHALL BE DONE BY SKILLED WORKMEN USING AN ABRASIVE WHEEL CUTTER. USE OF AN OXYACETYLENE TORCH WILL NOT BE PERMITTED. THE PLAIN END SHALL BE BEVELED AND INSPECTED, AND ANY SHARP EDGES WHICH MIGHT DAMAGE THE GASKET SHALL BE REMOVED BY MEANS OF A FILE OR POWER GRINDER. PIPE THAT IS CUT IN THE FIELD MUST BE GROUND
- F. <u>ALIGNMENT AND GRADIENT</u>: IN GENERAL, ALIGNMENT AND GRADIENT FOR DUCTILE IRON PIPE SHALL BE STRAIGHT. HOWEVER, PIPE LINE MAY BE LAID ON A CURVE BUT MUST BE WITHIN THE LIMITS OF BOTH HORIZONTAL AND VERTICAL CURVATURE AS RECOMMENDED BY THE PIPE MANUFACTURER.
- G. PIPE LINES IN EARTH TRENCHES: WHERE PIPES ARE LAID IN EARTH EXCAVATED TRENCHES, THE BOTTOM OF SUCH TRENCHES SHALL BE FINE GRADED BY SKILLED WORKMEN TO A TRUE LINE. PIPE SHALL NOT BE LAID ON LOOSE ROCK OR OTHER HARD MATERIALS BUT SHALL BE BEDDED ON FINE, CLEAN UNDISTURBED EARTH. OVER EXCAVATION IN THE BOTTOM OF TRENCHES SHALL BE FILLED TO GRADE WITH GRANULAR MATERIAL AND COMPACTED. BACKFILL SHALL BE PERFORMED AS SPECIFIED IN THE SELECT BACKFILLING AND GENERAL BACKFILLING PARAGRAPHS OF THESE SPECIFICATIONS.
- H. PIPE LINE IN ROCK TRENCHES: WHERE PIPE IS LAID IN ROCK TRENCHES THE BOTTOM OF SUCH TRENCHES SHALL BE UNDERCUT AND THE PIPE SHALL BE BEDDED IN AT LEAST 6" OF CRUSHED STONE CONFORMING TO ASTM C33, GRADATION #67. BACKFILL SHALL BE PERFORMED AS SPECIFIED IN THE BACKFILLING PARAGRAPHS OF
- DEWATERING TRENCHES: ALL EXCAVATION SHALL BE DEWATERED PROPERLY BEFORE LAYING PIPE. WHERE RUNNING SAND IS ENCOUNTERED, DEWATERING SHALL BE DONE BY THE USE OF WELL POINT WHENEVER POSSIBLE. WHERE SOIL CONDITIONS ARE NOT FAVORABLE FOR USE OF WELL POINT, FRENCH DRAINS OF GRADED STONE SHALL BE CONSTRUCTED TO SUITABLY LOCATED SUMPS AND THE WATER REMOVED BY BAILING OR PUMPING. ALL COSTS OF EQUIPMENT, LABOR AND MATERIALS REQUIRED FOR DEWATERING SHALL BE INCLUDED IN THE PRICES BID FOR PIPE LINES.
- J.A. MECHANICAL JOINTING: MECHANICAL JOINTS SHALL BE MADE ONLY BY EXPERIENCED MECHANICS. SOCKETS AND SPIGOTS SHALL BE WASHED WITH SOAPY WATER BEFORE SLIPPING GLAND AND GASKET OVER SPIGOT. THE SPIGOT SHALL BE INSERTED IN THE SOCKET FULL DEPTH. THE GASKET SHALL BE BRUSHED WITH SOAPY WATER AND SHAII BE PUSHED INTO POSITION, MAKING SURE THE GASKET IS EVENLY SEATED IN THE SOCKET. THE GLAND SHALL BE LAID INTO POSITION FOR COMPRESSING GASKET. ALL BOLTS AND NUTS SHALL BE TIGHTENED 'FINGERTIGHT," AFTER WHICH BOLTS SHALL BE TIGHTENED TO A UNIFORM PERMANENT TIGHTNESS USING A TORQUE WRENCH FOR TIGHTENING. BOLTS SHALL BE TIGHTENED ALTERNATELY 180° APART. SOCKETS, SPIGOTS, GASKETS, GLANDS AND BOLTS SHALL BE KEPT CLEAN AND WET WITH SOAPY WATER UNTIL EACH JOINT IS COMPLETED. SUITABLE BELL HOLES SHALL BE CUT IN THE BOTTOM OF THE TRENCH AT THE LOCATION OF JOINTS IN ORDER TO SECURE A UNIFORM BEARING OF THE PIPE IN THE TRENCH.
- J.B. <u>Push-on type joints</u>: The groove and bell socket shall be thoroughly cleaned and lubricated before the gasket is inserted. Before INSERTING THE GASKET IT SHALL BE THOROUGHLY LUBRICATED AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED FOR PROPER FACING AND SEATING OF GASKET, AFTER THE GASKET IS IN PLACE AND JUST PRIOR TO JOINT ASSEMBLY A GENEROUS COATING OF LUBRICANT SHALL BE APPLIED TO THE EXPOSED GASKET SURFACE. PRIOR TO INSERTING THE PLAIN END OF THE PIPE INTO BELL SOCKET, LUBRICANT SHALL BE APPLIED TO THE BEVELED NOSE OF THE PIPE. THE LUBRICANT USED SHALL BE A STERILE LUBRICANT SUPPLIED BY THE PIPE MANUFACTURER. SPECIAL EFFORT SHALL BE TAKEN TO SEE THAT LUBRICANT IS KEPT SEALED AND DOES NOT BECOME CONTAMINATED. SMALL PIPE MAY BE PUSHED HOME WITH A LONG BAR, BUT LARGE PIPE WILL REQUIRE ADDITIONAL POWER SUCH AS A JACK, LEVER OR BACKHOE. A TIMBER HEADER SHALL BE USED BETWEEN THE BELL AND BAR OR OTHER POWER TO AVOID DAMAGE TO THE PIPE. DURING ASSEMBLY OF THE PIPE, THE JOINT MUST BE KEPT STRAIGHT WHILE PUSHING. PIPE MAY BE DEFLECTED IF DESIRED BUT ONLY AFTER THE ASSEMBLY IS
- ASSEMBLING, LAYING AND JOINTING POLYVINYL CHLORIDE PIPE: THE CONTRACTOR SHALL ASSEMBLE, JOINT AND LAY ALL PIPE AND FITTINGS TO ACCURATELY CONFORM TO THE LINES AND GRADES ESTABLISHED BY THE ENGINEER AND AS FOLLOWS:
- K.A. HANDLING: PROPER AND SUITABLE TOOLS AND EQUIPMENT FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPE SHALL BE USED. CARE SHALL BE TAKEN TO PREVENT THE PIPE OR FITTINGS FROM BEING DAMAGED. PVC PIPE SHALL BE CAREFULLY EXAMINED TO INSURE THAT PIPE IS HOMOGENOUS THROUGHOUT AND FREE FROM CRACKS, NICKS, GOUGES, SEVERE SCRATCHES, ETC. NO PIPE OR FITTING SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE. IF ANY PIPE OR FITTING IS DISCOVERED TO BE CRACKED, BROKEN OR DEFECTIVE AFTER BEING LAID, IT SHALL BE REMOVED AND REPLACED WITH SOUND MATERIAL WITHOUT FURTHER CHARGE. ALL PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE BEING LAID AND SHALL BE KEPT CLEAN UNTIL ACCEPTED IN THE COMPLETE WORK.
- K.B. CUTTING PVC PIPE: WHENEVER PVC PIPE IS REQUIRED TO BE CUT, THE CUTTING SHALL BE DONE BY SKILLED WORKMEN USING A HACKSAW, A FINE TOOTHED HAND SAW OR A POWER SAW WITH A STEEL BLADE OR ABRASIVE DISCS. PIPE MUST BE MARKED AROUND ITS ENTIRE CIRCUMFERENCE PRIOR TO CUTTING TO ASSURE A SQUARE CUT. AFTER CUTTING IS COMPLETE, PIPE SHALL BE BEVELED WITH A BEVELING TOOL OR SIMILAR EQUIPMENT. BEFORE JOINTING SECTION OF PIPE, REFERENCE MARK MUST BE LOCATED ON SPIGOT END TO INSURE PROPER JOINTING.
- K.C. <u>ALIGNMENT AND GRADIENT</u>; PVC PIPE MAY FOLLOW TRUE CURVES BUT MUST BE WITHIN THE ALLOWABLE HORIZONTAL AND VERTICAL LAYING RADIUS AS RECOMMENDED BY THE PIPE MANUFACTURER. K.D. <u>CLEANING</u>: ALL DIRT OR FOREIGN MATERIAL MUST BE CLEANED FROM EACH JOINT OF PIPE OR FITTING WHILE IT IS SUSPENDED PRIOR TO BEING LOWERED INTO
- HE TRENCH. THE CONTRACTOR SHALL ALSO THOROUGHLY CLEAN ALL LINES BEFORE THE SYSTEM IS ACCEPTED. K.E. SEQUENCE OF WORK: EXCAVATION, CLEANING, LAYING, JOINTING AND BACKFILLING SHALL BE KEPT UP AS CLOSELY AS POSSIBLE TO PROGRESS IN A UNIFORM WORKMANLIKE MANNER. IN NO CASE SHALL PIPE BE LEFT IN THE TRENCH OVERNIGHT WITHOUT COMPLETING JOINTING. THE COMPLETED PIPE LINE SHALL NOT BE LEFT EXPOSED IN THE TRENCH UNNECESSARILY; THE CONTRACTOR WILL BE REQUIRED TO BACKFILL AND COMPACT THE TRENCH AS SOON AS POSSIBLE AFTER LAYING AND JOINTING IS COMPLETED. THE CONTRACTOR SHALL KEEP EXPOSED ENDS OF PIPE PROPERLY PLUGGED DURING LAYING TO PREVENT DIRT AND OTHER MATERIALS ENTERING THE LINE. EACH DAY AT THE CLOSE OF WORK AND AT ALL TIMES WHEN LAYING IS NOT IN PROGRESS, THE EXPOSED END OF THE PIPE LINE IN THE TRENCH SHALL BE CLOSED BY THE USE OF AN APPROVED HEADER OR BARRIER OF WOOD OR METALS. IF AT ANY TIME IT BECOMES NECESSARY TO COVER THE ENDS OF AN UNCOMPLETED PIPE LINE WITH BACKFILL, THE END OF SUCH PIPE LINE SHALL BE CLOSED USING A HEADER WITH MECHANICAL JOINT
- K.F. LAYING POLYVINYL CHLORIDE PIPE IN TRENCHES; WHEN LAYING PIPE IN TRENCHES, CARE SHALL BE TAKEN TO GIVE THE PIPE SOLID BEARING THROUGHOUT ITS
- ENTIRE LENGTH. BELL HOLES SHALL BE EXCAVATED IN A MANNER WHICH WILL RELIEVE PIPE BELLS OF ALL LOAD. K.G. PIPE LINES IN EARTH TRENCHES: WHERE PIPES ARE LAID IN EARTH EXCAVATED TRENCHES, THE BOTTOM OF SUCH TRENCHES SHALL BE FINE GRADED BY SKILLED WORKMEN TO A TRUE LINE. PIPE SHALL NOT BE LAID ON LOOSE ROCK OR OTHER HARD MATERIALS BUT SHALL BE BEDDED ON FINE, CLEAN UNDISTURBED EARTH. OVER EXCAVATION IN THE BOTTOM OF TRENCHES SHALL BE FILLED TO GRADE WITH GRANULAR MATERIAL AND COMPACTED. BACKFILL SHALL BE PERFORMED AS SPECIFIED IN THE SELECT BACKFILLING AND GENERAL BACKFILLING PARAGRAPHS OF THESE SPECIFICATIONS.
- K.H. PIPE LINE IN ROCK TRENCHES: WHERE PIPE IS LAID IN ROCK TRENCHES THE BOTTOM OF SUCH TRENCHES SHALL BE UNDERCUT AND THE PIPE SHALL BE BEDDED IN AT LEAST 6" OF CRUSHED STONE CONFORMING TO ASTM C33, GRADATION #67. BACKFILL SHALL BE PERFORMED AS SPECIFIED IN THE BACKFILLING PARAGRAPHS OF THESE SPECIFICATIONS.
- <u>DEWATERING TRENCHES</u>: ALL EXCAVATION SHALL BE DEWATERED PROPERLY BEFORE LAYING PIPE. WHERE RUNNING SAND IS ENCOUNTERED, DEWATERING SHALL BE DONE BY THE USE OF WELL POINT WHENEVER POSSIBLE. WHERE SOIL CONDITIONS ARE NOT FAVORABLE FOR USE OF WELL POINT, FRENCH DRAINS OF GRADED STONE SHALL BE CONSTRUCTED TO SUITABLY LOCATED SUMPS AND THE WATER REMOVED BY BAILING OR PUMPING. ALL COSTS OF EQUIPMENT, LABOR AND
- MATERIALS REQUIRED FOR DEWATERING SHALL BE INCLUDED IN THE PRICES BID FOR PIPE LINES K.J. JOINTING PVC PIPE: ALL DIRT OR FOREIGN MATERIAL MUST BE REMOVED FROM THE GROOVE OF PIPE. IF NECESSARY, GROOVE SHALL BE WIPED WITH A CLEAN, DRY CLOTH. CARE SHALL BE TAKEN TO INSURE THAT THE PROPER RING IS USED. THE RUBBER RING SHALL BE WIPED CLEAN BEFORE IT IS INSERTED IN TO THE GROOVE. THE GROOVE OR RUBBER RING MUST NOT BE LUBRICATED. APPLY LUBRICANT TO BEVELED SPIGOT AND PUSH LUBRICATED END PAST THE GASKET INTO THE BELL HOUSING. MANUFACTURER'S RECOMMENDATIONS MUST BE STRICTLY ADHERED TO IN ASSEMBLING RUBBER RING IN GROOVE AND INSTALLING PIPE INTO
- K.K. BACKFILL AND TRACING WIRE: BEFORE BACKFILLING, AN UNDERGROUND LOCATING WIRE SHALL BE INSTALLED LONGITUDINALLY ALONG THE TOP OF THE WATER LINE. LOCATING WIRE SHALL BE 12-GAUGE COPPER WIRE AND SHALL BE WRAPPED AROUND THE PIPE AT EVERY 100 LINEAR FEET AND BROUGHT TO WITHIN 24" OF THE FINISHED GRADE. THE BACKFILL SHALL BE AS SPECIFIED IN PARAGRAPHS ON BACKFILLING OF THESE SPECIFICATIONS. PIPE SHALL HAVE AT LEAST 30" OF COVER BEFORE WHEEL LOADING AND AT LEAST 48" OF COVER BEFORE USING HEAVY DUTY TAMPING EQUIPMENT SUCH AS A HYDRO-HAMMER.
- VALVES SHALL INCLUDE THE INSTALLATION OF VALVE BOXES. 18. CONCRETE BLOCKING: THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL LABOR AS NECESSARY FOR INSTALLING CONCRETE BLOCKING FOR FITTINGS, INCLUDING ELBOWS, TEES AND OTHER FITTINGS, AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED HEREIN. CONCRETE BLOCKING SHALL BE FORMED AND POURED AT THE BACKS OF FITTINGS, INCLUDING ELBOWS, TEES AND OTHER FITTINGS AS SHOWN ON THE DRAWINGS AND AS

INSTALLATION OF GATE VALVES: GATE VALVES, IN GENERAL, SHALL BE INSTALLED AND JOINTED AS SPECIFIED ABOVE FOR PIPE AND FITTINGS. THE INSTALLATION OF

- DIRECTED BY THE ENGINEER. CONCRETE MIX SHALL BE 1:2-1/2:3-1/3 AND HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 2,500-PSI AFTER 28 DAYS. BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH. 19. <u>BACKFILLING:</u> THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AND LABOR, AND WHEN NECESSARY THE MATERIAL, REQUIRED FOR BACKFILLING THE PIPE LINE TRENCHES AS FOLLOWS:
- A. <u>ELECTED BACKFILLING</u>; ALL TRENCHES SHALL BE BACKFILLED IMMEDIATELY AFTER PIPES ARE LAID THEREIN, AND JOINTS HAVE BEEN INSPECTED BY THE ENGINEER UNLESS OTHER PROTECTION OF THE PIPE LINE IS DIRECTED. SELECTED BACKFILL MATERIAL SHALL CONSIST OF FINELY DIVIDED EARTHSTONE DUST, SAND, CRUSHED STONE OR OTHER APPROVED MATERIAL CAREFULLY PLACED ABOUT THE PIPE AND UP TO A HEIGHT OF AT LEAST 12" ABOVE THE TOP OF THE PIPE BARREL, AND IN UNIFORM LAYERS NOT EXCEEDING 6" IN THICKNESS. EACH LAYER THOROUGHLY COMPACTED WITH PROPER HAND TOOLS IN A MANNER WHICH WILL NOT DISTURB AND/OR INJURE THE PIPE. BACKFILLING SHALL BE CARRIED ON SIMULTANEOUSLY ON BOTH SIDES OF THE PIPE AND IN A MANNER WHICH WILL PREVENT INJURIOUS SIDE PRESSURES. IF SUITABLE SELECT MATERIALS ARE NOT AVAILABLE FROM THE TRENCH EXCAVATION, THE CONTRACTOR WILL BE REQUIRED TO OBTAIN THE SELECT MATERIALS ELSEWHERE. WHEN TESTING FOR LEAKS IN OPEN TRENCHES, BACKFILLING SHALL NOT BE DONE UNTIL AFTER ALL TESTING HAS BEEN COMPLETED AND ALL
- B. GENERAL BACKFILLING: AFTER SELECTED BACKFILL MATERIAL HAS BEEN PLACED AND TAMPED, THE REMAINDER OF THE TRENCH MAY BE BACKFILLED WITH GENERAL EXCAVATED MATERIAL PROVIDED SUCH MATERIAL DOES NOT CONTAIN MORE THAN ½ BROKEN ROCK OF WHICH NO SINGLE STONE OR BOULDER SHALL BE LARGER THAN CAN EASILY BE REMOVED WITH A HAND SHOVEL. BACKFILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT EXCEEDING 12" IN THICKNESS; EACH LAYER SHALL BE THOROUGHLY COMPACTED WITH HEAVY-DUTY POWER TAMPING TOOLS OF THE FULL SATISFACTION OF THE ENGINEER. THE USE OF PNEUMATIC POWER "JUMPING JACK" TAMPERS WILL NOT BE PERMITTED. WHEREVER THE TRENCHES HAVE NOT BEEN PROPERLY FILLED OR IF SETTLEMENT OCCURS, THEY SHALL BE REFILLED, SMOOTHED OFF, AND MADE TO CONFORM TO THE SURFACE OF THE GROUND. BACKFILLING SHALL BE CAREFULLY PERFORMED, AND THE ORIGINAL SURFACE RESTORED TO THE FULL SATISFACTION OF THE ENGINEER. $\,$ SURPLUS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.
- C. <u>OUTSIDE STREETS, ROADS, ETC.</u>: AT LOCATIONS OUTSIDE STREETS, ROADS, WALKS OR OTHER TRAVELED WAYS OPEN TO VEHICULAR OR PEDESTRIAN TRAVEL, THE BACKFILL MATERIAL SHALL BE WINDROWED AND MAINTAINED IN A SUITABLE MANNER TO CONCENTRATE AND POND RAINFALL RUNOFF OVER THE TRENCH. AFTER SUFFICIENT SETTLEMENT HAS BEEN OBTAINED, THE CONTRACTOR SHALL COMPLETE SURFACE DRESSING, REMOVE SURPLUS MATERIAL, AND CLEAN UP IN ACCORDANCE WITH THESE SPECIFICATIONS. WHEREVER THE TRENCHES HAVE NOT BEEN PROPERLY FILLED OR IF SETTLEMENT OCCURS, THEY SHALL BE REFILLED, SMOOTHED OFF, AND MADE TO CONFORM TO THE SURFACE OF THE GROUND. BACKFILLING SHALL BE CAREFULLY PERFORMED, AND THE ORIGINAL SURFACE RESTORED TO THE FULL SATISFACTION OF THE ENGINEER. SURPLUS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.
- D. AREAS REQUIRING PAVEMENT REPLACEMENT: MECHANICAL TAMPING WILL BE REQUIRED OF ALL BACKFILLING OF EXCAVATED PORTIONS. AFTER BACKFILLING AND TAMPING AS DESCRIBED ABOVE IS COMPLETED THE TOP 6" OF THE DITCH SHALL BE BACKFILLED WITH COMPACTED CRUSHED STONE, ASTM C33 GRADATION #67 OR #57 AS AMENDED TO DATE, WITH SUFFICIENT FINES FOR COMPACTION. FURTHER COMPACTION SHALL BE ACCOMPLISHED BY LEAVING THE BACKFILLED TRENCH OPEN TO TRAFFIC WHILE MAINTAINING THE SURFACE WITH STONE. SETTLEMENT IN TRENCHES SHALL BE REFILLED WITH STONE AND SUCH MAINTENANCE SHALL CONTINUE UNTIL REPLACEMENT OF PAVEMENT IS AUTHORIZED BY THE ENGINEER.

- 38. TESTING: WHEN A SECTION OF PIPE OF A LENGTH DEEMED ADEQUATE BY THE ENGINEER IS READY FOR TESTING, THE LINE SHALL BE THOROUGHLY BLOWN FREE FROM AIR AND A LEAKAGE TEST MADE. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT FOR CARRYING OUT THESE TESTS. WHEREVER CONDITIONS WILL PERMIT. IN THE OPINION OF THE ENGINEER, PIPE LINES SHALL BE TESTED BEFORE THE TRENCH IS BACKFILLED. ALL JOINTS THEN SHALL BE EXAMINED DURING OPEN TRENCH TEST AND ALL LEAKS ENTIRELY STOPPED. THE CONTRACTOR SHALL FURNISH A TEST PUMP AND MEANS FOR ACCURATE MEASUREMENT OF WATER INTRODUCED INTO A LINE DURING TESTING. THE CONTRACTOR SHALL ALSO FURNISH AND INSTALL CORPORATION STOPS AT ALL HIGH POINTS IN THE LINE AS REQUIRED FOR BLOWING LINES FREE FROM AIR AND AT THE TEST PUMP LOCATION.
- A. TEMPORARY BULKHEADS: THE CONTRACTOR SHALL FURNISH, INSTALL AND REMOVE ALL TEMPORARY BULKHEADS, FLANGES OR PLUGS TO PERMIT THE REQUIRED PRESSURE TEST AND SHALL FURNISH ALL EQUIPMENT AND LABOR TO PROPERLY CARRY OUT SUCH TESTS AND TO REPLACE DEFECTIVE MATERIAL.
- B. TEST PRESSURE AND LEAKAGE; PRESSURE AND LEAKAGE TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH AWWA C605 (LATEST VERSION) 'UNDERGROUND INSTALLATION OF PVC PRESSURE PIPE AND FITTINGS FOR WATER" AND/OR AWWA C600 "INSTALLATION OF DUCTILE IRON WATER MAINS AND THEIR APPURTENANCES". TEST PRESSURES SHALL BE 200 POUNDS PER SQUARE INCH FOR WATER LINES MEASURED AT THE PIPE LINE LOW POINT. TEST PRESSURES SHALL NOT VARY BY MORE THAN ± 5-PSI FOR THE DURATION OF THE TEST. LEAKAGE ALLOWED DURING THE TEST SHALL BE CALCULATED USING THE FOLLOWING FORMULA:
 - WHERE: L IS ALLOWABLE LEAKAGE IN GALLONS/HOUR,
 - S IS THE LENGTH OF PIPE TESTED IN FEET,
 - D IS PIPE DIAMETER IN INCHES, AND
 - P IS TEST PRESSURE IS POUNDS PER SQUARE INCH (PSI)
- MINIMUM TEST PERIOD SHALL BE 2 HOURS. HOWEVER, IF IN THE OPINION OF THE ENGINEER ADDITIONAL TESTING IS REQUIRED, SUCH ADDITIONAL TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
- DEFECTIVE MATERIALS AND WORKMANSHIP: ANY CRACKED OR BROKEN MATERIAL SUCH AS PIPE, FITTINGS, VALVES OR HYDRANTS SHALL BE REMOVED AND REPLACED ITH SOUND PIECES, AT THE EXPENSE OF THE CONTRACTOR. LEAKING JOINTS SHALL BE CAREFULLY REMADE. REMADE JOINTS AND REPLACED MATERIAL SHALL BE RE-TESTED UNDER THE SAME CONDITIONS OF OPERATION. IF JOINTS OR MATERIALS ARE THEN FOUND TO BE DEFECTIVE, THEY SHALL BE REMADE AND REPLACED UNTIL THE LINE PASSES THE REQUIRED TEST.
- SURFACING OF TRENCHES IN UNPAVED STREETS AND DRIVEWAYS: WHERE PIPE LINES ARE CONSTRUCTED ON UNPAVED STREETS, ROADS OR DRIVEWAYS, THE SURFACING MATERIAL SHALL BE STRIPPED AND WINDROWED SEPARATELY FROM THE GENERAL MATERIAL EXCAVATED FROM TRENCHES. AFTER THE LINE HAS BEEN INSTALLED AND THE BACKFILL COMPLETED WITHIN 6" OF THE ORIGINAL STREET GRADE, THE SALVAGED SURFACE SHALL BE REPLACED. THIS WORK SHALL BE CONSIDERED AS GENERAL CLEANUP ALONG WITH THE REMOVAL OF SURPLUS EXCAVATION MATERIALS FROM THE STREET SURFACE AND THE RESTORING OF THE TOPSOIL SURFACING OUTSIDE TRENCH LIMITS TO ITS ORIGINAL CONDITION.
- ALL COST OF EQUIPMENT, LABOR AND MATERIALS REQUIRED FOR SUCH WORK SHALL BE INCLUDED IN THE PRICES BID FOR REPLACING PAVEMENT. O. <u>SURFACING OF TRENCHES IN PAVED STREETS AND DRIVEWAYS</u>: WHERE TRENCHES ARE IN PAVED STREETS AND DRIVEWAYS, THE REMAINING 6" OF BACKFILL UP TO THE TRAVELED SURFACE SHALL BE MADE WITH CRUSHED STONE, ASTM C33 GRADATION #67 OR #57 AS AMENDED TO DATE, WITH SUFFICIENT FINES FOR COMPACTION.
- TRENCHES SHALL BE COMPACTED AND MAINTAINED UNTIL PAVEMENT IS REPLACED. ALL COST OF EQUIPMENT, LABOR, AND MATERIALS REQUIRED FOR SUCH WORK SHALL BE INCLUDED IN THE PRICES BID FOR REPLACING PAVEMENT.
- I. <u>STERILIZING PIPE LINES</u>; ALL PIPE LINES AND ALL APPURTENANCES, INCLUDING HOUSE SERVICE CONNECTIONS WHICH HAVE BEEN EXPOSED TO CONTAMINATION BY REASON OF THIS CONSTRUCTION, SHALL BE STERILIZED BY THE CONTRACTOR BEFORE BEING PLACED IN SERVICE SUBJECT TO THE APPROVAL AND DIRECT SUPERVISION OF THE ENGINEER. BEFORE THE MAIN IS CHLORINATED, IT SHALL BE FILLED TO ELIMINATE AIR POCKETS AND SHALL BE FLUSHED TO REMOVE PARTICULATES. A FLUSHING VELOCITY OF NOT LESS THAN 2.5' PER SECOND IS USUALLY MAINTAINED IN PIPE SIZES LESS THAN 24" IN DIAMETER. FOR LARGER DIAMETER MAINS, AN ALTERNATIVE TO FLUSHING SUCH AS BROOM-SWEEPING OF THE MAIN IS ACCEPTABLE PRIOR TO CHLORINATING THE MAIN. THE NEW WATER MAIN SHALL BE KEPT ISOLATED FROM THE ACTIVE DISTRIBUTION SYSTEM BY PHYSICAL SEPARATION UNTIL SATISFACTORY BACTERIOLOGICAL TESTING HAS BEEN COMPLETED AND THE DISINFECTANT WATER FLUSHED OUT. WATER REQUIRED TO FILL THE NEW MAIN FOR HYDROSTATIC PRESSURE TESTING, DISINFECTION AND FLUSHING SHALL BE SUPPLIED THROUGH A TEMPORARY CONNECTION BETWEEN THE DISTRIBUTION SYSTEM AND THE NEW MAIN. THE TEMPORARY CONNECTION SHALL INCLUDE AN APPROPRIATE CROSS-CONNECTION CONTROL DEVICE CONSISTENT WITH THE DEGREE OF HAZARD AND SHALL BE DISCONNECTED (PHYSICALLY SEPARATED) FROM THE NEW MAIN DURING THE HYDROSTATIC PRESSURE TEST. IT WILL BE NECESSARY TO REESTABLISH THE TEMPORARY CONNECTION AFTER COMPLETION OF THE HYDROSTATIC PRESSURE TEST TO FLUSH OUT THE DISINFECTANT WATER PRIOR TO FINAL CONNECTION OF THE NEW MAIN TO THE DISTRIBUTION SYSTEM.
- A. STERILIZATION: PIPE LINES SHALL REMAIN FILLED FOR A 24-HOUR PERIOD WITH A SOLUTION OF WATER AND CHLORINE IN AMOUNTS TO PROVIDE A FREE CHLORINE RESIDUAL OF NOT LESS THAN 25-MG/L. THE TABLET METHOD, DISINFECTION WHICH CONSISTS OF PLACING CALCIUM HYPOCHLORITE GRANULES OR TABLETS IN THE WATER MAIN AS IT IS BEING INSTALLED AND THEN FILLING THE MAIN WITH POTABLE WATER WHEN INSTALLATION IS COMPLETE, IS NOT ALLOWED. DISINFECTION OF THE NEW MAIN AND THE DISPOSAL OF THE HEAVILY CHLORINATED WATER FOLLOWING DISINFECTION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST REVISION OF AWWA STANDARD C651, "STANDARD FOR DISINFECTING WATER MAINS." THE QUALITY OF THE WATER USED DURING THE DISINFECTION PROCEDURES SHALL MEET THE REQUIRED DRINKING WATER STANDARDS. THE HEAVILY CHLORINATED WATER SHALL BE RETAINED IN THE MAIN FOR AT LEAST 24-HOURS DURING WHICH TIME ALL VALVES AND HYDRANTS SHALL BE OPERATED TO ENSURE DISINFECTION OF THE APPURTENANCES. AT THE END OF THE 24-HOUR PERIOD, THE TREATED WATER IN ALL PORTIONS OF THE MAIN SHALL HAVE A RESIDUAL OF NOT LESS THAN 10 MG/L FREE CHLORINE.
- THE CONTRACTOR SHALL OBTAIN BACTERIOLOGICAL ANALYSIS OF WATER SAMPLES TAKEN FROM THE DISTRIBUTION SYSTEM WHICH ARE SATISFACTORY TO THE ENGINEER BEFORE THE LINES WILL BE ACCEPTED BY THE OWNER. THE CONTRACTOR SHALL FURNISH ALL LIQUID CHLORINE REQUIRED FOR STERILIZATION, ALL EQUIPMENT AND LABOR REQUIRED FOR THE WORK, AND SHALL PROVIDE FOR THE BACTERIOLOGICAL TEST WHICH WILL BE PAID FOR BY THE OWNER. SAMPLES MUST BE TAKEN AND ANALYZED BY AN ENVIRONMENTAL PROTECTION DIVISION APPROVED TESTING LABORATORY.
- FLUSHING: UPON COMPLETION OF THE STERILIZATION, ALL MAINS AND PIPING SHALL BE THOROUGHLY FLUSHED BEFORE PLACING IN SERVICE. ALL CHLORINATED WATER SHALL BE DISPOSED OF IN A PROCEDURE ACCEPTABLE TO THE GEORGIA ENVIRONMENTAL PROTECTION DIVISION. THE HEAVILY CHLORINATED WATER MUST NOT BE DISPOSED IN A MANNER THAT WILL HARM THE ENVIRONMENT. NEUTRALIZING CHEMICALS SUCH AS SULFUR DIOXIDE, SODIUM BISULFITE, SODIUM SULFITE OR SODIUM IHIOSULFATE CAN BE USED TO NEUTRALIZE THE CHLORINE RESIDUAL REMAINING IN THE WATER TO BE WASTED. FLUSH ALL LINES UNTIL RESIDUAL IS EQUAL TO EXISTING SYSTEM. AFTER FINAL FLUSHING AND BEFORE THE WATER MAIN IS PLACED INTO SERVICE, WATER SAMPLES SHALL BE COLLECTED FROM THE MAIN AND TESTED FOR MICROBIOLOGICAL QUALITY BY A GEORGIA ENVIRONMENTAL PROTECTION DIVISION APPROVED LABORATORY IN ACCORDANCE WITH GEORGIA RULES FOR SAFE DRINKING WATER, CHAPTER 391-3-5. THE LABORATORY RESULTS MUST SHOW THE ABSENCE OF COLIFORM ORGANISMS IN THE WATER. CONTRACTOR REFLUX AND REDISINFECT THE LINES AS NECESSARY UNTIL SATISFACTORY BACTERIOLOGICAL RESULTS ARE OBTAINED.
- . CLEANING UP: BEFORE THE WORK SHALL BE CONSIDERED COMPLETE, ALL MATERIAL NOT USED AND RUBBISH OF EVERY CHARACTER MUST BE REMOVED FROM THE STREETS AND PLACED AT POINT DESIGNATED BY THE OWNER; ALL STREETS, SIDEWALKS, CURBS, FENCES AND OTHER PRIVATE OR PUBLIC FACILITIES AND STRUCTURES DISTURBED MUST BE ESSENTIALLY IN AS GOOD CONDITION AS EXISTED BEFORE THE WORK WAS DONE. ANY SUBSEQUENT SETTLEMENT OF BACKFILL OR PAVEMENT OVER
- IRENCHES SHALL BE REPLACED BY THE CONTRACTOR AND THE SURFACES BROUGHT TO GRADE. 43. TRACER WIRE INSTALLATION: CONTRACTOR SHALL INSTALL WIRE ON TOP OR INSIDE THE ASBESTOS CEMENT WATER LINE FOR THE FULL LENGTH OF PIPE. LOCATING WIRE
- A. IF CONTRACTOR CHOOSES TO INSTALL THE TRACER WIRE INSIDE THE PIPE BY ACCESSING THE EXISTING VALVES, CONTRACTOR SHALL REMOVE THE EXISTING VALVE AND VALVE BOX. THE BACKFILL AND PAVEMENT REPLACEMENT SHALL BE AS SPECIFIED IN THE CONSTRUCTION SPECIFICATIONS FOR THE PROJECT.



CITY OF ROCKMART, GEORGIA REVISIONS HISTORIC ROCKMART EVENT CENTER PROJECT NOTES DRAWN CHECKEI SPS JLR SCALE: AS SHOWN DATE: SEPTEMBER 2024 SHEET **TATURNIPSEED** ATIANTA

AUGUSTA

ST. SIMONS ISLAND

ENGINEERS

<u>SEWER PIPE</u>; PIPE FOR SEWERS SHALL BE FURNISHED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS: A. QUALITY AND INSPECTION: LATITUDES IN WORKMANSHIP AND FINISH ALLOWED BY ASTM NOTWITHSTANDING, ALL PIPE SHALL HAVE SMOOTH EXTERIOR AND INTERIOR SURFACES; BE FIRST QUALITY; BE FREE FROM CRACKS, BLISTERS AND OTHER IMPERFECTIONS; AND BE TRUE TO THEORETICAL SHAPES AND FORMS THROUGHOUT EACH LENGTH. PIPE SHALL BE SUBJECT TO INSPECTION BY THE ENGINEER AT THE PIPE PLANT, TRENCH AND OTHER POINTS OF DELIVERY FOR THE PURPOSE OF CULLING AND REJECTING PIPE INDEPENDENT OF LABORATORY TESTS WHICH DO NOT CONFORM TO THE REQUIREMENTS OF THIS SECTION. PIPE, WHICH DOES NOT CONFORM, WILL BE SO MARKED BY THE ENGINEER AND SHALL NOT BE USED IN THE WORK. ON THE JOB REPAIRING OF REJECTED PIPE WILL NOT BE PERMITTED.

B. EXPERIENCE OF MANUFACTURER: THE PIPE MANUFACTURER SHALL SUBMIT EVIDENCE, IF REQUESTED BY THE ENGINEER, OF HAVING CONSISTENTLY PRODUCED PIPE AND JOINTS OF THE QUALITY SPECIFIED HEREIN, AND WHICH HAVE EXHIBITED SATISFACTORY PERFORMANCE RESULTS IN SERVICE OVER A PERIOD OF NOT FEWER THAN 2 YEARS. THE PIPE MANUFACTURER AND THE PIPE MANUFACTURING PROCESS SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.

C. POLYVINYL CHLORIDE (PVC) SEWER PIPE AND FITTINGS: POLYVINYL CHLORIDE (PVC) SEWER PIPE SHALL BE BELL AND SPIGOT PIPE, SHALL BE IN LENGTHS NOT EXCEEDING 12' LAYING LENGTHS AND SHALL HAVE MINIMUM WALL THICKNESS CONFORMING TO ASTM D 3034 UNDER THE CLASSIFICATION FOR DR 26 PIPE FOR PIPE UP TO 15" AND ASTM F679 UNDER THE CLASSIFICATION FOR PS 115 PIPE DIAMETERS 18" AND LARGER, AS AMENDED TO DATE.

POLYVINYL CHLORIDE (PVC) SEWER PIPE FITTINGS SHALL BE BELL AND SPIGOT OR BELL AND PLAIN END AND SHALL CONFORM TO ASTM D 3034, AS AMENDED TO

MARKINGS: PVC PIPE SHALL BE MARKED AT INTERVALS OF 5' OR LESS WITH THE FOLLOWING INFORMATION: MANUFACTURER'S NAME OR TRADEMARK, PLANT CODE, DATE OF MANUFACTURER, NOMINAL PIPE SIZE, PVC CELL CLASSIFICATION, T_____HE LEGEND "TYPE PSM DR 26 PVC SEWER PIPE," AND ASTM DESIGNATION D 3034 FITTINGS SHALL BE MARKED WITH THE FOLLOWING INFORMATION: MANUFACTURER'S NAME OR TRADEMARK, NOMINAL SIZE, DESIGNATIONS PVC AND PSM AND ASTM DESIGNATION D 3034 ALL MARKINGS SHALL REMAIN LEGIBLE DURING NORMAL HANDLING, STORAGE AND INSTALLATION. CERTIFICATION: THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH A WRITTEN STATEMENT FROM THE MANUFACTURER THAT ALL PIPE AND FITTINGS FURNISHED HAVE BEEN SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH ASTM D 3034, AS AMENDED TO DATE. EACH CERTIFICATION SO FURNISHED SHALL BE SIGNED

BY AN AUTHORIZED AGENT OF THE MANUFACTURER. <u>Joints</u>; all pipe shall have elastomeric joints with an integral belled gasket coupler. Rubber gaskets shall comply with the physical REQUIREMENTS SPECIFIED IN THE LATEST REVISION OF ASTM F 477, AS AMENDED TO DATE. JOINTS SHALL MEET THE REQUIREMENTS SPECIFIED IN ASTM D 3212, AS AMENDED TO DATE. ALL EXISTING PVC, CONCRETE AND CLAY PIPE TO BE REPLACED SHALL BE REPLACED WITH PVC PIPE UNLESS OTHERWISE INDICATED ON THE

drawings or required by these specifications. Refer to the "Iron Pipe and Fitting" section of these specifications. OCATING WIRE AND DETECTOR TAPE: THE CONTRACTOR SHALL INSTALL MYLAR MARKING TAPE AND DETECTION WIRE 1' ABOVE ALL NON-FERROUS PIPE AND

D. IRON PIPE AND FITTINGS: CAST IRON OR DUCTILE IRON PIPE SHALL BE USED IN SIZES 3" THROUGH 8", AND DUCTILE IRON PIPE SHALL BE USED IN SIZES 10" THROUGH 64" WHERE SHOWN OR INDICATED ON THE DRAWINGS. ALL CAST IRON AND DUCTILE IRON PIPE SHALL BE DESIGNED FOR A MINIMUM 150-PSI WORKING PRESSURE, 100-PSI SURGE ALLOWANCE, A 2 TO 1 FACTOR OF SAFETY ON THE SUM OF WORKING PRESSURE PLUS SURGE PRESSURE, SINGLE AASHTO H-20 TRUCK LOADING, LAYING CONDITION 2 AND COVER REQUIRED. EACH PIPE SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST OF AT LEAST 500-PSI AT THE POINT OF MANUFACTURE. CAST IRON PIPE SHALL BE OF THE THICKNESS ACCORDING TO ANSI A21.1. CAST IRON PIPE SHALL CONFORM TO ANSI A21.6 OR ANSI A21.8. DUCTILE IRON PIPE SHALL CONFORM TO ANSI A21.51. THE CLASS OR NOMINAL THICKNESS, NET WEIGHT WITHOUT LINING AND CASTING PERIOD SHALL BE CLEARLY MARKED ON EACH LENGTH OF PIPE. ADDITIONALLY, THE MANUFACTURER'S MARK, YEAR IN WHICH THE PIPE WAS PRODUCED AND THE LETTERS 'D.I. / C.I." OR 'DUCTILE / GRAY IRON' SHALL BE CAST OR STAMPED ON THE PIPE. FITTINGS SHALL BE CAST FROM GRAY OR DUCTILE IRON. DUCTILE IRON FITTINGS SHALL CONFORM TO AWWA C 110 (ANSI A 21.10), OR ANSI/AWWA C153/A21.53, GRAY IRON FITTINGS SHALL CONFORM TO ANSI/AWWA C110/A21.10, OR LATEST REVISION. ALL FITTINGS SHALL HAVE STANDARD MECHANICAL JOINTS. EXTERIOR JOINTS FOR CAST IRON AND DUCTILE IRON SHALL BE PUSH-ON TYPE UNLESS OTHERWISE SHOWN. INTERIOR JOINTS SHALL BE FLANGED IN ACCORDANCE WITH ANSI A21.15 AND ANSI A21.10. ALL PIPE AND FITTINGS EXTERIORS SHALL BE COATED WITH AN APPROVED COAL TAR COATING. THE LINING FOR ALL GRAVITY SEWER PIPE SHALL BE AWWA C104 CEMENT LINING. LINING SHALL BE APPLIED ACCORDING TO THE

CERTIFICATION: THE MANUFACTURER OF IRON PIPE AND FITTINGS SHALL FURNISH BOTH THE ENGINEER AND THE OWNER WITH CERTIFIED REPORTS STATING THAT INSPECTION AND SPECIFIED TESTS HAVE BEEN MADE AND THAT THE RESULTS THEREOF COMPLY WITH THE APPLICABLE ANSI SPECIFICATIONS FOR EACH. <u>DUCTILE IRON PIPE</u>: DUCTILE IRON PIPE SHALL BE USED FOR SANITARY SEWER AT ALL AERIAL CROSSINGS, ROAD CROSSINGS, SHALLOW CUTS AND ALL LOCATIONS DIRECTED BY THE DRAWINGS OR ENGINEER.

RESTRAINED PIPE: ALL RESTRAINED JOINT DUCTILE IRON PIPE SHALL UTILIZE RESTRAINED GASKETS ACCORDING TO THE FOLLOWING: U.S. PIPE (UP TO 24") - U.S. PIPE "FIELD-LOK"

GRIFFIN PIPE (UP TO 24") — U.S. PIPE "FIELD—LOK"

MCWANE PIPE (UP TO 24") - U.S. PIPE "FIELD-LOK"

3. <u>HIGH DENSITY POLYETHYLENE</u>; THE CONTRACTOR SHALL FURNISH HIGH DENSITY POLYETHYLENE PIPE AS FOLLOWS:

A. QUALITY AND INSPECTION; ALL PIPE SHALL BE SMOOTH ON BOTH THE INTERIOR AND EXTERIOR SURFACE; BE FREE OF NOTICEABLE IMPERFECTIONS SUCH AS CRACKS, BLISTERS, OR KINKS IN THE PIPE. THE ENGINEER SHALL HAVE THE RIGHT TO REJECT ANY AND ALL PIPING NOT CONFORMING TO THESE STATED REQUIREMENTS. FIELD REPAIR OF ANY DAMAGED PIPING SHALL NOT BE PERMITTED. THE ENGINEER RESERVES THE RIGHT TO REQUIRE THE REMOVAL OF FUSED CONNECTIONS FOR DESTRUCTIVE TESTING TO VERIFY THE INTEGRITY OF FUSED JOINTS, ETC.

B. EXPERIENCE OF MANUFACTURER: THE PIPE MANUFACTURER SHALL PROVIDE EVIDENCE OF HAVING PROVIDED QUALITY PIPE AND JOINTS, WHICH HAVE SHOWN SATISFACTORY RESULTS IN SERVICE FOR A PERIOD OF NO LESS THAN TWO YEARS.

C. POLYETHYLENE PIPE; POLYETHYLENE PIPE SHALL CONFORM TO ANSI/AWWA STANDARD C-906-90. THE PIPE SHALL BE PE 4710 WITH AN SDR OF 11 AND BE RATED FOR A PRESSURE OF 200-PSI. THE CARBON BLACK CONTENT SHALL MEASURE 2% TO 3% BY WEIGHT WHEN TESTED ACCORDING TO ANSI/ASTM D 1603 OR ASTM D4211. THE PIPE SHALL BE PROVIDED IN DUCTILE IRON PIPE SIZES. THE PIPE SHALL BE PRODUCED BY JM EAGLE, PLEXCO, DRISCO PIPE, OR EQUAL.

4. CONCRETE WORK: CONCRETE OF THE RESPECTIVE CLASSES FOR BEDDING, BLOCKING, WALKS, ROADS, HEADWALLS, PIERS AND OTHER MISCELLANEOUS STRUCTURES SHALL

BE AS CALLED FOR IN THE WORK TO WHICH THEY PERTAIN.

A. <u>CEMENT</u>: CEMENT SHALL SATISFY THE REQUIREMENTS OF ASTM C 150, TYPE I OR TYPE II, AS AMENDED TO DATE.

B. <u>AGGREGATE</u>: AGGREGATE SHALL SATISFY THE REQUIREMENTS OF ASTM C 33, AS AMENDED TO DATE. C. WATER: WATER SHALL BE FRESH, CLEAN AND FREE FROM INJURIOUS AMOUNTS OF OIL, ACID, ALKALI AND ORGANIC MATERIALS.

D. MIXING: MIXING SHALL BE ACCOMPLISHED AT A CENTRAL MIX PLANT UNLESS PRIOR APPROVAL IS GIVEN BY THE ENGINEER FOR MIXING ON THE JOB SITE.

E, CONCRETE FROM A CENTRAL MIX PLANT: CONCRETE SUPPLIED FROM A CENTRAL MIX PLANT SHALL HAVE 28-DAY COMPRESSIVE STRENGTHS NOT LESS THAN THOSE

1. CLASS 'A' - 3,000-PSI 2. CLASS 'B' - 2,200 PSI

3. CLASS 'C' - 1,500 PSI

CONCRETE MIXED ON JOB SITE; CONCRETE MIXED ON THE JOB SITE SHALL HAVE 28-DAY COMPRESSIVE STRENGTHS AS ABOVE AND SHALL CONTAIN NOT LESS THAN THE FOLLOWING QUANTITIES OF CEMENT PER CUBIC YARD:

1. CLASS 'A' - 564 POUNDS (6 BAGS) 2. CLASS 'B' - 479 POUNDS (5 BAGS)

3. CLASS 'C' - 376 POUNDS (4 BAGS) G, CONCRETE CYLINDERS: CONCRETE CYLINDERS FOR TESTING PURPOSES SHALL BE MADE IN ACCORDANCE WITH THE PROCEDURE DESCRIBED IN ASTM C 31, AS AMENDED TO DATE. COMPRESSION TESTS SHALL BE MADE AT THE AGE OF 7 DAYS AND 28 DAYS BY THE TESTING LABORATORY AS PER ASTM C 39, AS AMENDED TO DATE. TESTING SHALL BE DONE BY A LABORATORY APPROVED BY THE ENGINEER. EACH TEST SHALL CONSIST OF AT LEAST 4 SPECIMENS: 2 FOR FIELD CONTROL AND 2 FOR LABORATORY CONTROL. ONE INITIAL TEST WILL BE REQUIRED AND THEN ONE FOR EACH 100 YARDS THEREAFTER. CONTRACTOR SHALL PROVIDE ALL MATERIAL NECESSARY TO MAKE CYLINDERS.

H. PLACING OF CONCRETE; PLACING CONCRETE SHALL BE DONE DURING THE DAYLIGHT HOURS. CONCRETE MIXED AT A CENTRAL PLANT SHALL BE TRANSPORTED TO THE JOB SITE AS PER ASTM C 94, AS AMENDED TO DATE. CONCRETE WHEN PLACED SHALL BE COMPACTED WITH MECHANICAL, INTERNAL VIBRATING EQUIPMENT AND/OR WITH HAND SPADING WITH A SLICING ROD. NO CONCRETE SHALL BE PLACED WHEN THE ATMOSPHERIC TEMPERATURE IS BELOW 35'F. IF THE TEMPERATURE DROPS BELOW 35'F AFTER CONCRETE IS PLACED THE CONTRACTOR SHALL ENCLOSE, HEAT AND PROTECT THE CONCRETE. EARTH FILL SHALL NOT BE PLACED ON CONCRETE UNTIL CONCRETE HAS BEEN ALLOWED TO SET FOR 24 HOURS.

FORM WORK: FORM WORK, WHERE REQUIRED, SHALL BE BUILT TO CONFORM TO THE SHAPE, LINES AND DIMENSIONS OF THE CONCRETE WORK AS SHOWN. FORMS SHALL BE SET TO LINE AND GRADE AND SHALL BE BRACED. TIED AND SECURED IN A MANNER WHICH WILL WITHSTAND PLACING OF THE CONCRETE AND WHICH WILL MAINTAIN SHAPE AND POSITION. FORMS SHALL BE TIGHT AND BE SUBSTANTIALLY ASSEMBLED TO PREVENT BULGING AND THE LEAKING OF CONCRETE. JOINTS SHALL BE ARRANGED VERTICALLY OR HORIZONTALLY. TEMPORARY OPENINGS SHALL BE ARRANGED, WHERE REQUIRED, AT THE BOTTOMS OF WALL FORMS AND ELSEWHERE TO FACILITATE CLEANING AND INSPECTING. LUMBER USED ONCE IN FORMS SHALL HAVE NAILS REMOVED AND SURFACES IN CONTACT WITH CONCRETE WORK THOROUGHLY CLEANED BEFORE REUSE. WALL SLEEVES, INSERTS AND OPENINGS REQUIRED IN CONCRETE WORK SHALL BE PROPERLY SET IN FORM WORK. CHAMFER STRIPS SHALL BE PLACED IN FORMS FOR ALL EXTERIOR CORNERS.

J. <u>REMOVING FORMS</u>; UNDER NORMAL CONDITIONS, THE TIME ELAPSING BEFORE THE FORMS MAY BE STRIPPED SHALL NOT BE LESS THAN THE FOLLOWNG: 1. SLABS - 14 DAYS

2. PIERS - 7 DAYS 3. WALLS - 2 DAYS

SURFACE TO A SMOOTH TEXTURE AND TO REMOVE ALL FORM AND OTHER MARKS. THE PASTE FORMED BY THE RUBBING MAY BE RUBBED DOWN BY FLOATING WITH A CANVAS, CARPET-FACED OR CORK FLOAT, OR MAY BE RUBBED DOWN WITH DRY BURLAP.

K. FINISHING: ALL EXPOSED CONCRETE WORK SHALL BE KEPT WETTED WITH WATER AND SHALL BE FINENESS OR OTHER EQUALLY AS GOOD ABRASIVE TO BRING THE

5. UNLOADING. HAULING. DISTRIBUTING AND STORING PIPE AND RELATED MATERIALS: THE CONTRACTOR SHALL UNLOAD, HAUL, DISTRIBUTE AND STORE PIPE AND RELATED

UNLOADING: EQUIPMENT AND FACILITIES FOR UNLOADING, HAULING, DISTRIBUTING AND STORING MATERIALS SHALL BE FURNISHED BY THE CONTRACTOR AND SHALL AT ALL TIMES BE AVAILABLE FOR USE IN UNLOADING MATERIALS. DELAYS IN UNLOADING RAILROAD CARS, UNLOADING TRUCKS OR HAULING FROM FREIGHT TERMINAL, WHICH INCUR DEMURRAGE, TRUCK WAITING CHARGES OR TERMINAL CHARGES SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

B. HANDLING: PIPE, FITTINGS AND OTHER MATERIAL SHALL BE CAREFULLY HANDLED SO AS TO PREVENT BREAKING AND/OR DAMAGE. PIPE MAY BE UNLOADED INDIVIDUALLY BY HAND BUT SHALL NOT BE UNLOADED BY ROLLING OR DROPPING OFF OF TRUCKS OR CARS. PREFERRED UNLOADING IS IN UNITS USING MECHANICAL EQUIPMENT, SUCH AS FORKLIFTS, CHERRY PICKERS OR FRONT-END LOADERS WITH FORKS. IF FORKLIFT EQUIPMENT IS NOT AVAILABLE, UNITS MAY BE UNLOADED

WITH USE OF SPREADER BAR ON TOP AND NYLON STRIPS OR CABLES (CUSHIONED WITH RUBBER HOSE SLEEVE) LOOPED UNDER THE UNIT. C. <u>DISTRIBUTING</u>: MATERIALS SHALL BE DISTRIBUTED AND PLACED SO AS TO LEAST INTERFERE WITH TRAFFIC. NO STREET OR ROADWAY MAY BE CLOSED WITHOUT FIRST ORTAINING PERMISSION OF THE PROPER AUTHORITIES. THE CONTRACTOR COLUMN TENTERS AND THE PROPERTY AND TH OBTAINING PERMISSION OF THE PROPER AUTHORITIES. THE CONTRACTOR SHALL FURNISH AND MAINTAIN PROPER WARNING SIGNS AND OBSTRUCTION LIGHTS FOR THE PROTECTION OF TRAFFIC ALONG HIGHWAYS, STREET AND ROADWAYS UPON WHICH MATERIAL IS DISTRIBUTED. NO DISTRIBUTED MATERIALS SHALL BE PLACED IN DRAINAGE DITCHES.

D. STORAGE: ALL PIPE, FITTINGS AND OTHER MATERIALS WHICH CANNOT BE DISTRIBUTED ALONG THE ROUTE OF THE WORK SHALL BE STORED FOR SUBSEQUENT USE WHEN NEEDED. THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR THE USE OF STORAGE AREAS, EXCEPT THAT WITH PERMISSION, HE MAY MAKE

REASONABLE USE OF THE OWNER'S STORAGE YARDS. E. DUCTILE IRON PIPE; DUCTILE IRON PIPE MUST BE STOCKPILED ON LEVEL GROUND. TIMBERS MUST BE PLACED UNDER THE PIPE FOR A BASE AND TO PREVENT DIRT

AND DEBRIS FROM WASHING INTO THE PIPE.

PVC PIPE: PVC PIPE MUST BE STOCKPILED ON LEVEL GROUND. IF PIPE IS UNLOADED INDIVIDUALLY BY HAND, TIMBERS MUST BE USED UNDER THE PIPE FOR A BASE, SPACED THE SAME AS FACTORY LOAD, WITH STOP BLOCKS NAILED AT EITHER END. STOCKPILE MUST BE BUILT UP THE SAME MANNER AS IT WAS STOCKED FOR SHIPMENT, TRANSFERRING DUNNAGE AND CHOCK-BLOCKS FROM LOAD TO STOCKPILE. INDIVIDUAL LENGTHS OF PIPE SHALL NOT BE STACKED IN PILES ANY HIGHER THAN 5'. IF PIPE IS UNLOADED IN UNITS, THE UNITS MUST BE PLACED ON LEVEL GROUND AND SHALL NOT BE STACKED MORE THAN 2 UNITS HIGH. UNITS MUST BE PROTECTED BY DUNNAGE IN THE SAME WAY THEY WERE PROTECTED WHILE LOADED ON THE TRUCK OR CAR. THE DUNNAGE MUST SUPPORT THE WEIGHT OF ALL UNITS, SO PIPE LENGTHS DO NOT CARRY THE WEIGHT OF THE UNIT LOADED ABOVE. IF PIPE IS TO BE STORED OUTSIDE AND EXPOSED TO SUNLIGHT FOR A NUMBER OF MONTHS. THE PIPE MUST BE PROTECTED BY COVERING WITH CANVAS OR OTHER OPAQUE MATERIAL. THE COVER SHALL BE LOOSE ENOUGH TO ALLOW FOR AIR CIRCULATION AROUND THE PIPE. THE USE OF CLEAR PLASTIC SHEETS WILL NOT BE PERMITTED.

6. LOCATION AND GRADES: THE LINE AND GRADE OF THE SEWER AND DRAIN, AND THE POSITIONS OF ALL MANHOLES AND OTHER STRUCTURES AND OTHER APPURTENANCES SHALL BE LAID OUT BY THE CONTRACTOR. THE CONTRACTOR SHALL LOCATE EXISTING MANHOLES TO DETERMINE ALIGNMENT AND GRADE. ALIGNMENT AND GRADE SHALL MATCH THE EXISTING UNLESS OTHERWISE APPROVED. ALL LINES AND GRADES SHALL BE SUBJECT TO CHECKING BY THE ENGINEER, BUT THAT CHECKING SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE CORRECTNESS. THE CONTRACTOR SHALL PROVIDE SUCH FIELD MEN AND ASSISTANCE AS THE ENGINEER MAY REQUEST AND SUCH HUBS, STAKES, SPIKES, NAIL AND OTHER FASTENINGS AS MAY BE REQUIRED IN ESTABLISHING AND CHECKING ALL CONTROLLING LINES AND GRADES. THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH CUT SHEETS FOR EACH LINE. CUT SHEETS SHALL SHOW LINE NUMBER AND IN 50' INCREMENTS INVERT, CENTER LINE ELEVATION AND CENTER LINE CUT. SAMPLE CUT SHEET WILL BE PROVIDED BY THE ENGINEER. EXISTING SEWER LINES AND SERVICE LINES SHALL BE REPLACED TO MATCH EXISTING LINE AND GRADE UNLESS OTHERWISE SHOWN OR APPROVED BY THE ENGINEER.

7. <u>Inspection</u>; all work done and materials furnished shall be subject to inspection by the engineer; all improper work shall be reconstructed, and ALL MATERIALS WHICH DO NOT CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS SHALL BE REMOVED FROM THE WORK UPON NOTICE BEING RECEIVED FROM THE ENGINEER OF THE REJECTION OF THOSE MATERIALS. THE ENGINEER SHALL HAVE THE RIGHT TO MARK REJECTED MATERIALS, AND TO DISTINGUISH THEM AS

8. CLEARING AND GRUBBING: THE CONTRACTOR SHALL CLEAR AND GRUB ONLY THE AREAS FOR WHICH A PERMANENT SEWER EASEMENT HAS BEEN OBTAINED WHICH IS A STRIP 10' ON EITHER SIDE OF THE SEWER CENTERLINE OR AS SHOWN ON THE DRAWINGS. TREES OR LOOSE OBJECTS BETWEEN THE PERMANENT SEWER EASEMENT AND CONSTRUCTION EASEMENT LINES MAY BE REMOVED IF NECESSARY FOR CONSTRUCTION PURPOSES UNLESS REMOVAL IS SPECIFICALLY PROHIBITED ON THE DRAWINGS. WRITTEN APPROVAL BY THE ENGINEER FOR REMOVAL OF SUCH NOTED TREES OR OBJECTS WILL BE REQUIRED. IN NO CASE IS THE CONTRACTOR TO GO OUTSIDE THE CONSTRUCTION EASEMENT, 20' ON EACH SIDE OF THE SEWER LINE OR AS SHOWN ON THE DRAWINGS, WITH MEN, MACHINERY OR MATERIAL. ALL MATERIAL AND DEBRIS

resulting from clearing and grubbing operations shall be disposed of in accordance with the rules and regulations of the georgia environmental PROTECTION DIVISION. BURNING SHALL BE IN ACCORDANCE WITH LOCAL REGULATIONS AND AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL OBTAIN ANY BURNING PERMITS REQUIRED AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO SURROUNDING PROPERTY CAUSED BY HIS BURNING OPERATION. ALL CLEARING DEBRIS HAULED FROM THE SITE MUST BE DISPOSED OF IN A GEORGIA ENVIRONMENTAL PROTECTION DIVISION APPROVED INERT LANDFILL OR MULCHING OPERATION. 9. REMOVING AND RESETTING FENCES: AT ALL LOCATIONS WHERE EXISTING FENCES MUST BE REMOVED TO PERMIT CONSTRUCTION OF THE SEWER, THE CONTRACTOR SHALL REMOVE THE FENCES AND AS THE SEWER CONSTRUCTION PROGRESSES RESET THE FENCES IN THEIR ORIGINAL LOCATION AND TO THEIR ORIGINAL CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING OR EMPLOY OTHER SAFEGUARDS WHICH WILL PREVENT

10. PROTECTING TREES, SHRUBBERY AND LAWNS; TREES AND SHRUBBERY ALONG TRENCH LINES CROSSING DEVELOPED PRIVATE PROPERTY SHALL NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY SUBJECT TO APPROVAL BY THE ENGINEER. TREES AND SHRUBBERY TO BE REMOVED SHALL BE PROPERLY HEELED-IN AND HEELING-IN AND REPLANTING SHALL BE DONE UNDER THE DIRECTION OF AN EXPERIENCED NURSERYMAN. WHERE SEWER TRENCHES ESTABLISHED LAWNS, SOD SHALL BE CUT, REMOVED, STACKED AND MAINTAINED IN SUITABLE CONDITION UNTIL REPLACEMENT IS APPROVED BY THE ENGINEER. TOPSOIL UNDERLYING LAWN AREAS SHALL LIKEWISE BE REMOVED AND KEPT SEPARATE FROM GENERAL EXCAVATED MATERIALS AND SHALL BE REPLACED AT THE SURFACE OF THE

TRENCH IN BACKFILLING. IN LIEU OF REMOVING AND REPLACING SOD, THE CONTRACTOR MAY, IF APPROVED BY THE ENGINEER, REGRASS LAWNS BY SEEDING OR SPRIGGING WITH GRASS OF THE SAME TYPE AS THE ESTABLISHED LAWN. BEFORE PLANTING, A FERTILIZER OF 16:4:8 COMPOSITION OR APPROVED EQUAL SHALL BE EVENLY APPLIED AT THE RATE OF 20 POUNDS PER 1,000 SQUARE FEET AND DISKED OR HARROWED INTO THE DAMPENED SOIL. AN ACCEPTABLE DATE FOR SEEDING SHALL BE AS RECOMMENDED BY THE LOCAL SOIL CONSERVATION AGENT. AREAS SOWN WITH GRASS SEED SHALL BE MULCHED AND KEPT WATERED UNTIL ALL GROWTH IS THOROUGHLY ESTABLISHED. ALL COST OF EQUIPMENT. LABOR AND MATERIALS REQUIRED FOR THE WORK SHALL BE INCLUDED IN THE PRICE BID FOR SAME. THE REMOVAL AND REPLACING OF SOD OR REGRASSING BY SEEDING AND ALL OTHER RELATED WORK WILL BE PAID FOR ON A LINEAR FOOT BASIS OF PIPE LINES AND SHALL INCLUDE. IN ADDITION TO THE PIPE TRENCH WIDTH, ALL AREAS ADJACENT TO THE PIPE TRENCH WHERE EXISTING GRASS HAS BEEN DISTURBED OR DESTROYED BY THE CONTRACTOR'S

I1.<u>Protection of other utilities and structures</u>: damage to existing utility lines, services, poles and structures shall be repaired or replaced by the CONTRACTOR AT HIS OWN EXPENSE. THE APPROXIMATE POSITIONS OF CERTAIN KNOWN UNDERGROUND LINES ARE SHOWN FOR INFORMATION. A MINIMUM CLEARANCE OF 10' HORIZONTAL AND 18" VERTICAL MUST BE MAINTAINED BETWEEN NEW SEWER LINES AND EXISTING WATER MAINS. EXISTING SMALL LINES ARE NOT SHOWN. THE CONTRACTOR SHALL LOCATE EXISTING SMALL LINES AND OTHER POSSIBLE UNKNOWN EXISTING UTILITY LINES WITH AN ELECTRONIC PIPE FINDER AND SHALL EXCAVATE AND EXPOSE ALL EXISTING UNDERGROUND LINES IN ADVANCE OF TRENCHING OPERATIONS. REMOVING AND RELAYING OF THOSE LINES AND APPURTENANCES WHICH CONSTITUTE AN OBSTRUCTION TO THE COMPLETED LINE AND GRADE OF THE NEW WORK, IN THE OPINION OF THE ENGINEER, WILL BE MADE AT THE EXPENSE OF THE OWNER, UNLESS

OTHERWISE SHOWN ON DRAWINGS TO BE ALTERED BY THE CONTRACTOR. 12. CUTTING AND REMOVING PAVEMENT: THE FOLLOWING SPECIFICATION FOR PAVEMENT CUTTING APPLIES TO CONCRETE PAVEMENTS, ASPHALT, SURFACED PAVEMENTS HAVING A RIGID BASE, CONCRETE CURB, WALK, GUTTERS AND DRIVEWAYS. BRICK, GRAVEL, OIL AND CHIPS, AND ASPHALT MAT (ASPHALT LESS THAN 11/2" THICK) PAVEMENTS ARE EXCLUDED FROM THE FOLLOWING REQUIREMENTS.

A. MARKING: PAVEMENT CUTS FOR TRENCH EXCAVATION IN HIGH-TYPE PAVEMENTS SHALL BE MADE BY MEANS OF A PAVEMENT-SAWING MACHINE. ALL SAW CUTS SHALL BE PERPENDICULAR TO THE PAVEMENT SURFACE AND SHALL BE TRULY AND ACCURATELY MADE ALONG A PREDETERMINED AND CAREFULLY MARKED CHALK LINE. IF NECESSARY, A SUITABLE STATIONARY GUIDE SHALL BE USED TO PREVENT SIDE SWAYING OF THE MACHINE TO INSURE THAT THE CUT WILL BE STRAIGHT. ASPHALT PAVEMENT SHALL BE BROKEN ALONG THE MARKED CUTS WITH A JACKHAMMER OR OTHER SUITABLE TOOL. CONCRETE PAVEMENT AND ASPHALT PAVEMENT ON CONCRETE BASE SHALL BE SCORED TO A DEPTH OF APPROXIMATELY 2" BELOW THE SURFACE OF THE CONCRETE ALONG THE MARKED CUTS. SCORING SHALL BE DONE BY USE OF A ROTARY SAW, AFTER WHICH THE PAVEMENT MAY BE BROKEN BELOW THE SCORING WITH A JACKHAMMER OR OTHER SUITABLE TOOL. MACHINE PULLING: PAVEMENT SHALL NOT BE MACHINE PULLED UNTIL COMPLETELY BROKEN AND SEPARATED ALONG THE MARKED CUTS.

DAMAGE TO ADJACENT PAVEMENT: THE PAVEMENT ADJACENT TO PIPE LINE TRENCHES SHALL BE NEITHER DISTURBED NOR DAMAGED. IF THE ADJACENT PAVEMENT IS DISTURBED OR DAMAGED, IRRESPECTIVE OF CAUSE, THE CONTRACTOR SHALL REMOVE THE DAMAGED PAVEMENT AND SHALL REPLACE WITH NEW PAVEMENT AT HIS

3.EXCAVATION: EXCAVATION FOR SEWER LINES SHALL BE BY OPEN-CUT, UNLESS OTHERWISE SHOWN OR SPECIFIED. TRENCHES SHALL BE OPENED UP FAR ENOUGH AHEAD OF PIPE LAYING TO REVEAL OBSTRUCTIONS BUT SHALL NOT INCLUDE MORE THAN 400' OF CONTINUOUS OPEN TRENCH AT ANY TIME. NO TUNNELING SHALL BE DONE WITHOUT APPROVAL BY THE ENGINEER TO TUNNEL CROSS SECTION AND DETAILS OF CONSTRUCTION. THE TOP PORTION OF TRENCHES MAY HAVE

SIDES TO ANY WIDTH WHICH WILL NOT CAUSE DAMAGE TO ADJOINING STRUCTURES, ROADWAYS, PAVEMENTS, UTILITIES AND PRIVATE PROPERTY. FOR UNTIMBERED TRENCHES AND TRENCHES HELD BY STAY BRACING ONLY, THE WIDTH OF THE LOWER PORTION OF THE TRENCH, TO A HEIGHT OF 2' ABOVE THE TOP OF THE PIPE, SHALL NOT EXCEED THE TRENCH WIDTHS SPECIFIED FOR THE RESPECTIVE PIPE SIZE IN THE "TRENCH WIDTH: SECTION OF THESE SPECIFICATIONS. THE WIDTH OF TRENCHES WHERE SKELETON OR SOLID SHEETING IS USED MAY BE INCREASED TO DIMENSIONS APPROVED BY THE ENGINEER BUT SHALL BE NOT GREATER THAN THAT NECESSARY TO CLEAR THE WALERS WHEN LOWERING PIPE INTO THE TRENCH. IF TRENCHES ARE EXCAVATED TO WIDTHS IN EXCESS OF THE ABOVE LIMITATIONS OR IF TRENCHES COLLAPSE BECAUSE OF INSUFFICIENT BRACING AND SHEETING, THE CONTRACTOR SHALL USE SPECIAL METHODS OF CONSTRUCTING PIPE FOUNDATIONS, AS SPECIFIED IN THE 'BEDDING OF PIPE" SECTION OF THESE SPECIFICATIONS AT HIS OWN EXPENSE. EXCAVATION IN EXCESS OF THE DEPTHS REQUIRED FOR MANHOLE AND OTHER STRUCTURES SHALL BE CORRECTED BY POURING A SUBFOUNDATION OF CLASS 'C' CONCRETE, AT THE CONTRACTOR'S EXPENSE.

14. EXCAVATION IN SOLID ROCK: SOLID ROCK IS DEFINED AS THOSE MATERIALS IN THE ORIGINAL BED AND IN WELL-DEFINED LEDGES WHICH, IN THE OPINION OF THE ENGINEER, CANNOT BE REMOVED WITH PICK, SHOVEL, DITCHING MACHINE, 1/8 CUBIC YARD BACKHOE AND OTHER SIMILAR DEVICES, AND WHICH REQUIRES JACK HAMMERING WITH BULL POINT OR DRILLING AND BLASTING. CONCRETE AND MASONRY STRUCTURES TO BE REMOVED, WHICH REQUIRE DRILLING AND BLASTING FOR REMOVAL, SHALL BE CONSIDERED ROCK UNLESS OTHERWISE PROVIDED FOR HEREIN. BOULDERS, AND DETACHED PIECES OF ROCK, HAVING VOLUMES OF MORE THAN 8 CUBIC FEET, SHALL BE CONSIDERED AS ROCK.

A. WHERE EXCAVATION OF ROCK, BOULDERS OR LARGE STONES IS REQUIRED, A CLEARANCE OF NOT LESS THAN 6" IN EVERY DIRECTION FROM ALL PARTS OF PIPE AND APPURTENANCES SHALL BE PROVIDED.

B. WHERE ROCK IS ENCOUNTERED AT GRADE IN TRENCHES, THE TRENCH SHALL BE EXCAVATED NOT LESS THAN 6" BELOW THE BOTTOM OF THE PIPE BELL, REFILLED WITH CRUSHED STONE THOROUGHLY TAMPED IN-PLACE, AND SHAPED TO THE PIPE. NO ADDITIONAL PAYMENT WILL BE MADE FOR CRUSHED STONE BEDDING IN ROCK

EXCAVATION; THE COST SHALL BE INCLUDED IN THE UNIT PRICE STATED FOR ROCK EXCAVATION. EXCAVATED ROCK SHALL NOT BE MIXED WITH MATERIAL SELECTED FOR TAMPED BACKFILLING UNDER AND AROUND THE PIPE UP TO A LEVEL AT LEAST 2' ABOVE THE

D. WHERE SEWERS ARE CONSTRUCTED ACROSS STREETS, PASTURES AND CULTIVATED FIELDS, EXCAVATED ROCK SHALL NOT BE MIXED WITH BACKFILL MATERIAL USED TO COMPLETE THE FINAL 12" LAYER OF BACKFILL AT THE ORIGINAL GROUND SURFACE. SURPLUS ROCK SHALL BE REMOVED AND WASTED AT LOCATIONS APPROVED BY

15.<u>blasting</u>: Blasting operations shall be conducted in accordance with existing ordinances and regulations and shall be done subject to the ENGINEER'S APPROVAL OF THE METHOD AND QUANTITY OF EXPLOSIVE TO BE USED. EXPOSED STRUCTURES SHALL BE PROTECTED FROM THE EFFECTS OF BLASTS. BLASTS SHALL BE COVERED WITH SUITABLE MATS AND SHALL BE RESTRICTED TO THE EXTENT THAT NO APPRECIABLE SHOCK WILL BE TRANSMITTED TO EXISTING STRUCTURES, PIPE LINES, SEWERS AND OTHER PUBLIC OR PRIVATE FACILITIES. ALL BLASTING SUPPLIES SHALL BE STORED IN A MANNER APPROVED BY THE ENGINEER, AND A WATCHMAN SHALL BE STATIONED AT ALL TIMES AT THE PLACE OF STORAGE.

16.DEWATERING TRENCHES: WHERE GROUNDWATER IS ENCOUNTERED, THE CONTRACTOR SHALL MAKE THE EFFORT NECESSARY TO SECURE A DRY TRENCH BOTTOM BEFORE LAYING PIPE. IN SANDY AND IN OTHER SUITABLE TYPE SOILS, DEWATERING SHALL BE DONE BY WELL POINTING. IF, IN THE OPINION OF THE ENGINEER, THE CONTRACTOR HAS FAILED TO OBTAIN AN ABSOLUTELY DRY TRENCH BOTTOM BY INSUFFICIENT USE OF ALL KNOWN METHODS OF TRENCH DEWATERING, THE ENGINEER MAY ORDER THE CONTRACTOR TO EXCAVATE BELOW GRADE AND PLACE NOT LESS THAN 6" OF GRADED CRUSHED STONE FILL MATERIAL OVER THE TRENCH BOTTOM TO FORM TRENCH DRAINS TO SUITABLE LOCATED SUMPS AND THE WATER REMOVED BY BAILING OR PUMPING. THE GRADED CRUSHED STONE FILL MATERIAL SHALL BE PLACED AT THE CONTRACTOR'S OWN EXPENSE AND SHALL BE OF SUCH DEPTH THAT THERE SHALL BE NO WATER IN BELL HOLES AT THE TIME OF COUPLING PIPE. ALL UNSUITABLE EXCAVATED MATERIAL MUST BE PROPERLY DISPOSED OF IN A MANNER ACCEPTABLE TO THE ENGINEER AND IN A MANNER THAT WILL NOT ADVERSELY IMPACT THE ENVIRONMENT. ALL COSTS OF EQUIPMENT, LABOR AND MATERIALS REQUIRED FOR DEWATERING SHALL BE INCLUDED IN THE BID PRICE FOR SEWERS AND/OR DRAINS. 17. CRUSHED STONE STABILIZATION: WHEREVER THE SUBGRADE IS BY NATURE TOO SOFT OR MUCKY FOR THE PROPER INSTALLATION OF THE PIPE, IN THE OPINION OF THE ENGINEER, HE MAY ORDER THE CONTRACTOR TO UNDERCUT THE TRENCH AND BACKFILL WITH CRUSHER RUN STONE OR CRUSHED STONE 34" IN SIZE AND LESS. THE

STONE SHALL BE BROUGHT TO THE SUBGRADE REQUIRED BY THE CLASS OF BEDDING FOR THE PARTICULAR LOCATION AND COMPACTED. ALL UNSUITABLE EXCAVATED MATERIAL MUST BE PROPERLY DISPOSED OF IN A MANNER ACCEPTABLE TO THE OWNER IN A MANNER THAT WILL NOT ADVERSELY IMPACT THE ENVIRONMENT. 18.BEDDING OF PVC AND DUCTILE IRON PIPE; ALL PIPE SHALL BE LAID ON FOUNDATIONS PREPARED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS. A. PVC PIPE; PVC PIPE SHALL BE LAID AS SPECIFIED USING THE FOLLOWING CLASSES OF BEDDING REQUIRED FOR THE VARIOUS TYPES OF SOILS AND CONDITIONS ENCOUNTERED. BEDDING FOR PVC PIPE SHALL BE IN ACCORDANCE WITH ASTM D 2321, AS AMENDED TO DATE, THE MANUFACTURER'S RECOMMENDATIONS AND THESE

BEDDING MATERIAL: CLASS I MATERIALS SHALL BE USED FOR BEDDING AND HAUNCHING IN ALL CONDITIONS. CLASS II, III, IV AND V MATERIALS WILL NOT BE PERMITTED FOR BEDDING AND HAUNCHING UNDER ANY CONDITION. DEPTH OF BEDDING: BEDDING MATERIAL SHALL BE USED TO PROVIDE UNIFORM LONGITUDINAL SUPPORT FOR THE PIPE. TRENCH SHALL BE UNDERCUT TO ALLOW FOR A MINIMUM OF 6" OF BEDDING MATERIAL. BELL HOLES SHALL BE EXCAVATED IN THE BEDDING MATERIAL TO ALLOW FOR UNOBSTRUCTED ASSEMBLY OF THE JOINT, BUT CARE SHALL BE TAKEN TO ASSURE THAT BELL HOLE IS NO LARGER THAN NECESSARY TO ACCOMPLISH PROPER JOINT ASSEMBLY. AFTER JOINT ASSEMBLY, MATERIAL SHALL BE PLACED UNDERGROUND AROUND THE ENTIRE LENGTH OF PIPE AND COMPACTED. COMPACTION TO THE SPRING LINE OF THE PIPE SHALL BE OF THE SAME MATERIAL USED IN THE BEDDING. BACKFILL WITH CLASS I, II, III OR IV MATERIAL SHALL THEN BE CARRIED TO A POINT 6" ABOVE THE TOP OF PIPE, USING HAND TOOLS FOR TAMPING, CLASS IV MATERIAL WILL NOT BE ALLOWED IN A WET DITCH. IF THE REMAINING BACKFILL MATERIAL CONTAINS LARGE PARTICLES WHICH COULD DAMAGE THE PIPE FROM IMPACT DURING PLACEMENT THE INITIAL BACKFILL SHALL BE INCREASED TO 12" ABOVE THE TOP OF THE PIPE. PUDDLING WILL NOT BE ALLOWED AS A METHOD OF COMPACTION. THE REMAINING BACKFILL SHALL BE AS SPECIFIED IN "SELECTED BACKFILL" AND "GENERAL

BACKFILL" PARAGRAPHS OF THESE SPECIFICATIONS. PIPE SHALL HAVE AT LEAST 30" OF COVER BEFORE WHEEL LOADING AND AT LEAST 48" OF COVER BEFORE

USING HEAVY-DUTY TAMPING EQUIPMENT SUCH AS A HYDROHAMMER. DEFINITION OF BEDDING MATERIAL: CLASS I, II, III, IV AND V MATERIALS ARE DEFINED AS FOLLOWS: CLASS I ANGULAR 1/4" TO 3/4" GRADED STONE. LATEST REVISION OF ASTM C 33 — GRADATION #67 (ASTM #67) OR #57 (ASTM #57) ARE ACCEPTABLE. CLASS II COARSE SANDS AND GRAVELS WITH MAXIMUM PARTICLE SIZE OF 3/4" INCLUDING VARIOUSLY GRADED SANDS AND GRAVELS CONTAINING SMALL PERCENTAGES

OF FINES, GENERALLY GRANULAR AND NON-COHESIVE, EITHER WET OR DRY. CLASS III FINE SAND AND CLAYEY (CLAY FILLED) GRAVELS, INCLUDING FINE SANDS, SAND—CLAY MIXTURES AND GRAVEL—CLAY MIXTURES. CLASS IV SILT, SILTY CLAYS AND CLAYS, INCLUDING INORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY AND LIQUID LIMITS.

CLASS V THIS CLASS INCLUDES ORGANIC SOILS AS WELL AS SOILS CONTAINING FROZEN EARTH, DEBRIS, ROCKS LARGER THAN 1½" IN DIAMETER AND OTHER FOREIGN MATERIALS. DUCTILE IRON PIPE: DUCTILE IRON PIPE FOR GRAVITY SEWERS AND FORCE MAINS SHALL BE LAID AS SPECIFIED USING THE FOLLOWING TYPE OF BEDDING REQUIRED

FOR THE DEPTH OF COVER FOR THE VARIOUS SIZES OF PIPE TO BE INSTALLED. TYPE 4 AND 5 BEDDING AS SHOWN AND DESCRIBED IN DUCTILE/CAST IRON HANDBOOK - FOURTH ADDITION PAGE 182-208 MAY BE USED FOR ADDITIONAL DEPTHS IF APPROVED BY THE ENGINEER. <u>TYPE 1 - FLAT BOTTOM TRENCH:</u>

a. FLAT BOTTOM TRENCH ON UNDISTURBED EARTH WITH EXCAVATION FOR BELLS b. Loose Backfill shall be as specified in the "selected Backfilling" and "general Backfilling" paragraphs,

TYPE 2 - FLAT BOTTOM TRENCH:

a. FLAT BOTTOM TRENCH ON UNDISTURBED EARTH WITH EXCAVATION FOR BELLS

b. Lightly consolidated backfill to centerline of Pipe, additional backfill shall be as specified in the "select backfilling" and "general BACKFILLING" PARAGRAPHS. TYPE 3 - LOOSE SOIL BEDDING:

a. PIPE BEDDED IN 4" MINIMUM LOOSE SOIL

b. BACKFILL LIGHTLY CONSOLIDATED TO TOP OF PIPE

c. Additional Backfill shall be as specified in the "select backfill" and "general backfill" paragraphs. COVER: MAXIMUM DEPTH OF COVER FOR DUCTILE IRON PIPE OF THE VARIOUS CLASSES AND SIZES TO BE INSTALLED ARE AS FOLLOWS: a. 4" - 350 PSI PRESSURE CLASS, 0.25" NOMINAL THICKNESS, TYPE 1 - 53 FEET, TYPE 2 - 61 FEET, TYPE 3 - 69 FEET

b. 4" - 350 PSI PRESSURE CLASS, 0.25" NOMINAL THICKNESS, TYPE 1 - 26 FEET, TYPE 2 - 31 FEET, TYPE 3 - 37 FEET c. 4" - 350 PSI PRESSURE CLASS, 0.25" NOMINAL THICKNESS, TYPE 1 - 16 FEET, TYPE 2 - 20 FEET, TYPE 3 - 25 FEET d. 4" - 350 PSI PRESSURE CLASS, 0.26" NOMINAL THICKNESS, TYPE 1 - 11 FEET, TYPE 2 - 15 FEET, TYPE 3 - 19 FEET e. 4" - 350 PSI PRESSURE CLASS, 0.28" NOMINAL THICKNESS, TYPE 1 - 10 FEET, TYPE 2 - 15 FEET, TYPE 3 - 19 FEET

C. PAYMENT: NO EXTRA PAYMENT WILL BE MADE FOR BEDDING, THEREFORE, THE COST IS TO BE INCLUDED IN THE PRICES BID FOR SEWERS. 19. TRENCH WIDTHS; THE MAXIMUM TRENCH WIDTHS WITH THE VARIOUS CLASSES OF BEDDING AND REQUIRED COMPACTION SHALL BE AS FOLLOWS (WHERE APPLICABLE) FOR

A. TRENCH WIDTH: THE MAXIMUM CLEAR TRENCH WIDTH AT THE TOP OF THE PIPE SHALL NOT EXCEED A WIDTH EQUAL TO THE NOMINAL PIPE DIAMETER PLUS 18". IF THIS WIDTH IS EXCEEDED OR THE PIPE IS INSTALLED IN A COMPACTED EMBANKMENT, PIPE EMBEDMENT SHALL BE COMPACTED TO A POINT AT LEAST 2.5 PIPE DIAMETERS FROM THE PIPE ON BOTH SIDES OF THE PIPE OR TO THE TRENCH WALLS, WHICHEVER IS LESS. COMPACTION: IF THE PROPER COMPACTION CANNOT BE OBTAINED WITH MATERIALS FROM TRENCH EXCAVATION, THE CONTRACTOR WILL BE REQUIRED TO OBTAIN

20. LAYING GRAVITY SEWER PIPE: ALL SEWER PIPE SHALL BE LAID UPGRADE; THE SPIGOTS SHALL POINT DOWNGRADE. MINIMUM COVER SHALL BE 4'. WHERE COVER IS LESS THAN 4', DUCTILE IRON PIPE MUST BE USED. THE PIPE AND SPECIALS SHALL BE LAID IN THE TRENCH SO THAT, AFTER THE LINE IS COMPLETED, THE INTERIOR SURFACE SHALL CONFORM ON THE BOTTOM ACCURATELY TO THE GRADES AND ALIGNMENT FIXED OR GIVEN BY THE ENGINEER AND LAID OUT BY THE CONTRACTOR. THE INTERIOR OF ALL PIPES SHALL BE CAREFULLY FREED OF ALL DIRT AND SUPERFLUOUS MATERIAL OF EVERY DESCRIPTION. AS PIPE LAYING PROCEEDS. DEFECTIVE JOINTS DISCOVERED AFTER LAYING SHALL BE REPAIRED AND MADE TIGHT. DEFECTIVE PIPE SHALL BE REMOVED AND PROPER REPLACEMENT A. PVC PIPE WITH ELASTOMERIC JOINTS: PROPER IMPLEMENTS, TOOLS AND EQUIPMENT SHALL BE USED FOR PLACEMENT OF THE PIPE IN THE TRENCH TO PREVENT DAMAGE. UNDER NO CIRCUMSTANCES MAY THE PIPE BE DROPPED INTO THE TRENCH. IN SUBFREEZING TEMPERATURES, CAUTION SHALL BE EXERCISED IN HANDLING PIPE TO PREVENT IMPACT DAMAGE. ALL PIPE SHALL BE CAREFULLY EXAMINED FOR CRACKS, NICKS, GOUGES, SEVERE SCRATCHES, VOIDS, INCLUSIONS AND OTHER DEFECTS BEFORE LAYING. IF ANY PIPE IS DISCOVERED TO BE DEFECTIVE AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH SOUND MATERIAL AT THE EXPENSE OF THE CONTRACTOR

ASSEMBLY OF GASKETED JOINT: THE ASSEMBLY OF THE GASKETED JOINT SHALL BE PERFORMED AS RECOMMENDED BY THE PIPE MANUFACTURER. THE ELASTOMERIC GASKETS MAY BE SUPPLIED SEPARATELY IN CARTONS OR PRE-POSITIONED IN THE BELL JOINT OR COUPLING AT THE FACTORY. WHEN GASKETS ARE COLOR CODED, THE CONTRACTOR SHALL CONSULT THE PIPE MANUFACTURER OR HIS LITERATURE FOR THE SIGNIFICANCE. IN ALL CASES, THE GASKET, THE BELL OR COUPLING INTERIOR, ESPECIALLY THE GROOVE AREA (EXCEPT WHEN GASKET IS PERMANENTLY INSTALLED) AND THE SPIGOT AREA SHALL BE CLEANED WITH A CLOTH, BRUSH OR PAPER TOWEL TO REMOVE ANY DIRT OR FOREIGN MATERIAL BEFORE THE ASSEMBLING. THE GASKET PIPE SPIGOT BEVEL, GASKET GROOVE, AND SEALING SURFACES SHALL BE INSPECTED FOR DAMAGE OR DEFORMATION. WHEN GASKETS ARE SEPARATE, ONLY GASKETS, WHICH ARE DESIGNED FOR AND SUPPLIED WITH THE PIPE SHALL BE USED. THEY SHALL BE INSERTED AS RECOMMENDED BY THE MANUFACTURER. LUBRICANT USED SHALL BE SUPPLIED BY THE PIPE MANUFACTURER AND SHALL BE APPLIED AS SPECIFIED BY THE PIPE MANUFACTURER.

ASSEMBLY OF PIPE JOINTS: AFTER LUBRICATION, THE PIPE IS READY TO BE JOINED. GOOD ALIGNMENT OF THE PIPE IS ESSENTIAL FOR EASE OF ASSEMBLY. ALIGN THE SPIGOT TO THE BELL AND INSERT THE SPIGOT INTO THE BELL UNTIL IT CONTACTS THE GASKET UNIFORMLY. DO NOT SWNG OR "STAB" THE JOINT; THAT IS, DO NOT SUSPEND THE PIPE AND SWING IT INTO THE BELL. THE SPIGOT END OF THE PIPE IS MARKED BY THE MANUFACTURER TO INDICATE THE PROPER DEPTH OF INSERTION. THE PIPE SHOULD BE INSERTED UP TO THIS LINE. IF UNDUE RESISTANCE TO INSERTION OF THE PIPE END IS ENCOUNTERED OR THE REFERENCE MARK DOES NOT POSITION PROPERLY, THE JOINT SHALL BE DISASSEMBLED AND THE POSITION OF THE GASKET CHECKED. IF IT IS TWISTED OR PUSHED OUT OF ITS SEAT ("FISHMOUTHED"), THE CONTRACTOR SHALL INSPECT COMPONENTS, REPAIR OR REPLACE DAMAGED ITEMS, CLEAN THE COMPONENTS AND REPEAT THE ASSEMBLY STEPS. BOTH PIPE LÉNGTHS MUST BE CONCENTRIC ALIGNMENT. IF THE GASKET WAS NOT OUT OF POSITION, THE CONTRACTOR SHALL VERIFY PROPER LOCATION OF THE REFERENCE MARK. THE REFERENCE MARK SHALL BE RELOCATED IF IT IS OUT OF POSITION.

FIELD CUT: FIELD CUT PIPE TO BE JOINED SHALL BE SQUARE CUT USING A HACKSAW, HANDSAW OR POWER SAW WITH A STEEL BLADE OR ABRASIVE DISC. THE PIPE SHALL BE MARKED AROUND ITS ENTIRE CIRCUMFERENCE PRIOR TO CUTTING TO ASSURE A SQUARE CUT. A FACTORY-FINISHED BEVELED END SHALL BE USED AS A GUIDE FOR PROPER BEVEL ANGLE, AND DEPTH OF BEVEL PLUS THE DISTANCE TO THE INSERTION REFERENCE MARK. THE END MAY BEVELED USING A PIPE BEVELING TOOL OR A WOOD RASP TO CUT THE CORRECT TAPER. A PORTABLE SANDER OR ABRASIVE DISC MAY BE USED TO BEVEL THE PIPE END. ANY SHARP EDGES ON

B. <u>DUCTILE IRON PIPE WITH MECHANICAL OR PUSH-ON JOINTS</u>; PROPER AND SUITABLE TOOLS AND EQUIPMENT SHALL BE USED FOR THE SAFE AND CONVENIENT HANDLING AND LYING OF DUCTILE IRON PIPE. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO THE EXTERIOR COATING AND INTERIOR CEMENT LINING. ALL PIPE SHALL BE CAREFULLY EXAMINED FOR CRACKS AND OTHER DEFECTS BEFORE LAYING. IF ANY PIPE OR FITTING IS DISCOVERED TO BE DEFECTIVE AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH SOUND MATERIAL AT THE EXPENSE OF THE CONTRACTOR. WHENEVER PIPE IS REQUIRED TO BE CUT, THE CUTTING SHALL BE DONE BY SKILLED WORKMEN USING AN ABRASIVE WHEEL CUTTER. USE OF A COLD CHISEL OR OXYACETYLENE TORCH WILL NOT BE PERMITTED.

THE LEADING EDGE OF THE BEVEL MUST BE ROUNDED OFF WITH A POCKETKNIFE OR A FILE.

ASSEMBLY IS COMPLETED.

MECHANICAL JOINTS: MECHANICAL JOINTS SHALL BE MADE ONLY BY EXPERIENCED MECHANICS. SOCKETS AND SPIGOTS SHALL BE WASHED WITH SOAPY WATER BEFORE SLIPPING THE GLAND AND GASKET OVER THE SPIGOT END OF THE PIPE. THE SPIGOT SHALL BE INSERTED INTO THE SOCKET FULL DEPTH, THEN BACKED OFF 1/4" TO PROVIDE CLEARANCE FOR EXPANSION. THE GASKET SHALL BE BRUSHED WITH SOAPY WATER AND SHALL BE PUSHED INTO POSITION MAKING SURE THAT IT IS EVENLY SEATED IN THE SOCKET. THE GLAND SHALL THEN BE MOVED INTO POSITION FOR COMPRESSING THE GASKET. ALL BOLTS AND NUTS SHALL BE MADE "FINGER- TIGHT." FOR JOINTS MADE IN TRENCHES, THE BOLTS SHALL BE TIGHTENED TO A UNIFORM PERMANENT TIGHTNESS USING A TORQUE WRENCH FOR TIGHTENING. BOLTS SHALL BE TIGHTENED ALTERNATELY 180° APART.

<u>PUSH-ON JOINTS</u>: THE GROOVE AND BELL SOCKET SHALL BE THOROUGHLY CLEANED AND LUBRICATED BEFORE THE GASKET IS INSERTED. BEFORE INSERTING THE GASKET, IT SHALL BE THOROUGHLY LUBRICATED AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED FOR PROPER FACING AND SEATING OF GASKET. AFTER THE GASKET IS IN PLACE AND JUST PRIOR TO JOINT ASSEMBLY, A GENEROUS COATING OF LUBRICANT SHALL BE APPLIED TO THE EXPOSED GASKET SURFACE. THE LUBRICANT USED SHALL BE A LUBRICANT SUPPLIED BY THE PIPE MANUFACTURER. THE PLAIN END SHALL BE INSPECTED AND ANY SHARP EDGES WHICH MIGHT DAMAGE THE GASKET SHALL BE REMOVED BY MEANS OF A FILE OR POWER GRINDER. PIPE THAT IS CUT IN THE FIELD MUST BE GROUND AND BEVELED BEFORE ASSEMBLY. PRIOR TO INSERTING THE PLAIN END OF THE PIPE INTO BELL SOCKET LUBRICANT SHALL BE APPLIED TO THE BEVELED NOSE OF THE PIPE. SMALL PIPE MAY BE PUSHED HOME WITH A LONG BAR, BUT LARGE PIPE MAY REQUIRE ADDITIONAL POWER SUCH AS A JACK, LEVER OR BACKHOE. A TIMBER HEADER SHALL BE USED BETWEEN THE BELL AND BAR OR OTHER POWER TO AVOID DAMAGE TO THE PIPE. DURING ASSEMBLY OF THE PIPE, THE JOINT MUST BE KEPT STRAIGHT WHILE PUSHING. PIPE MAY BE DEFLECTED IF DESIRED BUT ONLY AFTER THE ASSEMBLY IS COMPLETED.

MECHANICAL JOINT OR PUSH-ON JOINT PIPE ON PIERS: MECHANICAL OR PUSH-ON JOINT PIPE MAY BE USED ON PIERS IN GRAVITY SEWER LINES. PIPE SHALL BE LAID WITH 1/4" CLEARANCE IN EACH JOINT TO PROVIDE FOR EXPANSION. JOINTING OF PIPE SHALL BE AS DESCRIBED ABOVE. ON MECHANICAL JOINT PIPE, THE BOLTS SHALL BE TIGHTENED ALTERNATELY 180° APART BUT BE LEFT "FINGER-TIGHT" UNTIL THE SEWAGE IS DIVERTED INTO THE SEWERS; THEN BOLTS SHALL BE FURTHER TIGHTENED A SUFFICIENT AMOUNT WHICH WILL PREVENT LEAKAGE OF THE JOINT BUT WHICH WILL NOT PREVENT SLIPPAGE THAT MAY OCCUR

BECAUSE OF TEMPERATURE STRESSES.

21. ASSEMBLING, JOINTING AND LAYING PIPE AND FITTINGS FOR FORCE MAIN; THE CONTRACTOR SHALL ASSEMBLE, JOINT AND LAY ALL PIPE AND FITTINGS TO ACCURATELY CONFORM TO THE LINES AND GRADES ESTABLISHED BY THE ENGINEER AND AS FOLLOWS: A. HANDLING: PROPER AND SUITABLE TOOLS AND EQUIPMENT FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF PIPE SHALL BE USED. CARE SHALL BE TAKEN TO PREVENT DUCTILE IRON PIPE OR FITTINGS COATING FROM BEING DAMAGED, PARTICULARLY THE CEMENT LINING ON THE INTERIOR OF THE DUCTILE IRON PIPE. ALL PIPE SHALL BE CAREFULLY EXAMINED FOR CRACKS, BROKEN LINING OR OTHER DEFECTS. PVC PIPE SHALL BE CAREFULLY EXAMINED FOR CRACKS, NICKS, GOUGES, SEVERE SCRATCHES, VOIDS, INCLUSIONS AND OTHER DEFECTS BEFORE LAYING. NO PIPE OR FITTING SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE. IF ANY PIPE OR FITTING IS DISCOVERED TO BE DEFECTIVE AFTER BEING LAID IT SHALL BE REMOVED AND REPLACED WITH SOUND MATERIAL WITHOUT FURTHER CHARGE.

B. ALIGNMENT AND GRADIENT: IN GENERAL, PIPE LINE ALIGNMENT AND GRADIENT SHALL BE STRAIGHT; HOWEVER, PIPE LINE MAY BE LAID ON A CURVE BUT MUST BE WITHIN THE LIMITS OF CURVATURE AS RECOMMENDED BY THE PIPE MANUFACTURER. ALL FORCE MAINS SHALL BE LAID ON A MINIMUM RISING GRADE OF 0.10% UNLESS OTHERWISE SHOWN ON THE DRAWINGS. MINIMUM COVER SHALL BE 4'. WHERE COVER IS LESS THAN 4', DUCTILE IRON PIPE MUST BE USED.

C. <u>DEWATERING TRENCHES</u>: ALL EXCAVATION SHALL BE DEWATERED PROPERLY BEFORE LAYING PIPE. WHERE RUNNING SAND IS ENCOUNTERED, DEWATERING SHALL BE DONE BY WELL POINTING WHENEVER POSSIBLE. WHERE SOIL CONDITIONS ARE NOT FAVORABLE FOR USE OF WELL POINT, FRENCH DRAINS OF GRADED STONE SHALL BE CONSTRUCTED TO SUITABLY LOCATED SUMPS, AND THE WATER REMOVED BY BAILING OR PUMPING. ALL COSTS OF EQUIPMENT, LABOR AND MATERIALS REQUIRED FOR DEWATERING SHALL BE INCLUDED IN THE PRICES BID FOR PIPE LINES.

D. SEQUENCE OF WORK: EXCAVATION, LAYING, JOINTING AND BACKFILLING SHALL BE KEPT UP AS CLOSELY AS IS POSSIBLE TO PROGRESS IN A UNIFORM, WORKMANLIKE MANNER. THE CONTRACTOR WILL BE REQUIRED TO BACKFILL AND COMPACT THE TRENCH AS SOON AS IS POSSIBLE AFTER LYING AND JOINTING IS COMPLETED. E. LAYING PIPE IN TRENCHES: WHEN LAYING PIPE IN TRENCHES, CARE SHALL BE TAKEN TO GIVE THE PIPE SOLID BEARING THROUGHOUT ITS ENTIRE LENGTH. BELL

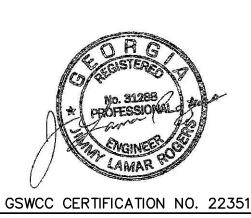
HOLES SHALL BE EXCAVATED IN A MANNER WHICH WILL RELIEVE PIPE BELLS OF ALL LOAD. F. ASSEMBLING AND INSTALLING DUCTILE IRON PIPE AND FITTINGS: PROPER CARE SHALL BE EXERCISED IN THE ASSEMBLY AND INSTALLATION OF DUCTILE IRON PIPE

PIPE LINES IN EARTH TRENCHES: WHERE PIPES ARE LAID IN EARTH EXCAVATED TRENCHES, THE BOTTOM OF SUCH TRENCHES SHALL BE FINE GRADED BY SKILLED WORKMEN TO A TRUE LINE AND SHALL NOT BE LAID ON LOOSE ROCK OR OTHER HARD MATERIALS BUT BE BEDDED ON FINE, CLEAN UNDISTURBED EARTH. OVER EXCAVATION IN THE BOTTOM OF TRENCHES SHALL BE FILLED TO GRADE WITH GRANULAR MATERIAL AND COMPACTED. BACKFILL SHALL BE PERFORMED AS SPECIFIED

PIPE LINE IN ROCK TRENCHES: WHERE PIPE IS LAID IN ROCK TRENCHES THE BOTTOM OF SUCH TRENCHES SHALL BE UNDERCUT AND THE PIPE SHALL BE BEDDED IN AT LEAST 6" OF CRUSHED STONE CONFORMING TO ASTM C 33, AS AMENDED TO DATE, GRADATION #67, AND THE TRENCH SHALL BE BACKFILLED WITH EARTH, ROCK

<u>ING DUCTILE IRON PIPE WITH MECHANICAL JOINTS;</u> PIPE AND FITTINGS WITH MECHANICAL JOINTS SHALL BE INSTALLED BY EXPERIENCED MECHANICS. SOCKETS AND SPIGOTS SHALL BE WASHED WITH SOAPY WATER BEFORE SLIPPING GLAND AND GASKET OVER SPIGOT. THE SPIGOT SHALL BE INSERTED IN THE SOCKET FULL DEPTH. THE GASKET SHALL BE BRUSHED WITH SOAPY WATER AND SHALL BE PUSHED INTO POSITION, MAKING SURE THE GASKET IS EVENLY SEATED IN THE SOCKET. THE GLAND SHALL BE SLID INTO POSITION FOR COMPRESSIVE GASKET. ALL BOLTS AND NUTS SHALL BE TIGHTENED "FINGERTIGHT." AFTER WHICH BOLTS SHALL BE TIGHTENED TO A UNIFORM PERMANENT TIGHTNESS USING A TORQUE WRENCH FOR TIGHTENING. BOLTS SHALL BE TIGHTENED ALTERNATELY 180° APART. SOCKETS, SPIGOTS, GLANDS AND BOLTS SHALL BE KEPT WET WITH SOAPY WATER UNTIL EACH JOINT IS COMPLETED. ANY JOINTS WHICH LEAK SHALL BE REMADE. INSTALLING DUCTILE IRON PIPE WITH "PUSH-ON" TYPE JOINTS: THE GROOVE AND BELL SOCKET SHALL BE THOROUGHLY CLEANED AND LUBRICATED BEFORE THE GASKET IS INSERTED. BEFORE INSERTING THE GASKET IT SHALL BE THOROUGHLY LUBRICATED, AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED FOR PROPER FACING AND SEATING OF GASKET. AFTER THE GASKET IS IN PLACE AND JUST PRIOR TO JOINT ASSEMBLY, A GENEROUS COATING OF LUBRICANT SHALL BE APPLIED TO THE EXPOSED GASKET SURFACE. THE LUBRICANT USED SHALL BE A LUBRICANT SUPPLIED BY THE PIPE MANUFACTURER. THE PLAIN END SHALL BE BEVELED AND INSPECTED, AND ANY SHARP EDGES WHICH MIGHT DAMAGE THE GASKET SHALL BE REMOVED BY MEANS OF A FILE OR POWER GRINDER. PIPE THAT IS CUT IN THE FIELD MUST BE GROUND AND BEVELED BEFORE ASSEMBLY. PRIOR TO INSERTING THE PLAIN END OF THE PIPE INTO BELL SOCKET, LUBRICANT SHALL BE APPLIED TO THE BEVELED NOSE OF THE PIPE. MALL PIPE MAY BE PUSHED HOME WITH A LONG BAR. BUT LARGE PIPE WILL REQUIRE ADDITIONAL POWER SUCH AS A JACK, LEVER OR BACKHOE. A TIMBER HEADER SHALL BE USED BETWEEN THE BELL AND BAR OR OTHER POWER TO AVOID DAMAGE TO THE PIPE. URING ASSEMBLY OF THE PIPE, THE JOINT MUST BE KEPT STRAIGHT WHILE PUSHING. PIPE MAY BE DEFLECTED IF NECESSARY BUT ONLY AFTER THE

22. SELECTED BACKFILLING: ALL TRENCHES SHALL BE BACKFILLED IMMEDIATELY AFTER PIPES ARE LAID THEREIN, AND JOINTS HAVE BEEN INSPECTED BY THE ENGINEER, UNLESS OTHER PROTECTION OF THE PIPE LINE IS DIRECTED. SELECTED BACKFILL MATERIAL SHALL CONSIST OF FINELY DIVIDED EARTH, STONE DUST, SAND, CRUSHED STONE, OR OTHER APPROVED MATERIAL CAREFULLY PLACED ABOUT THE PIPE AND UP TO A HEIGHT OF AT LEAST 12" ABOVE THE TOP OF THE PIPE BARREL, AND IN UNIFORM LAYERS NOT EXCEEDING 6" IN THICKNESS, EACH LAYER THOROUGHLY COMPACTED WITH PROPER HAND TOOLS IN A MANNER WHICH WILL NOT DISTURB AND/OR INJURE THE PIPE. BACKFILLING SHALL BE CARRIED ON SIMULTANEOUSLY ON BOTH SIDES OF THE PIPE AND IN A MANNER, WHICH WILL PREVENT INJURIOUS SIDE PRESSURES. IF SUITABLE SELECT MATERIALS ARE NOT AVAILABLE FROM THE TRENCH EXCAVATION, THE CONTRACTOR WILL BE REQUIRED TO OBTAIN THE SELECT MATERIALS ELSEWHERE, O EXTRA PAYMENT WILL BE MADE FOR SELECTED BACKFILL UNLESS ON-SITE MATERIAL IS NOT ACCEPTABLE. IF BORROW MATERIAL IS REQUIRED FOR ROAD CUT BACKFILL, THE COST OF FURNISHING, INSTALLING AND WASTING BAD MATERIAL SHALL BE PAID PER CUBIC YARD AS



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ATIANTA TA TURNIPSEED AUGUSTA *| ENGINEERS*

ST. SIMONS ISLAND

A. STREET AND ROAD RIGHT OF WAY, YARDS AND OTHER TRAVELED AREAS: IN STREETS AND ROAD RIGHT OF WAYS, YARDS AND OTHER TRAVELED AREAS OPEN TO VEHICULAR OR PEDESTRIAN TRAVEL THE DITCH SHALL BE BACKFILLED AND EACH LAYER SHALL BE TAMPED TO A DENSITY EQUIVALENT TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D 698, AS AMENDED TO DATE.

('WHACKER" OR EQUAL) TO A HEIGHT OF AT LEAST 36" OR 48" ABOVE THE TOP OF THE PIPE BARREL. THE REMAINDER OF THE DITCH MAY BE BACKFILLED AND TAMPED IN THE SAME MANNER OR IF THE CONTRACTOR SO ELECTS HE MAY PLACE BACKFILL IN LAYERS NOT EXCEEDING 12" AND USE WHEEL LOADING OR HEAVY DUTY POWER TAMPING EQUIPMENT ("HYDRO-HAMMER" OR EQUAL). PIPE SHALL HAVE AT LEAST 36" OF COVER BEFORE WHEEL LOADING AND AT LEAST 48" OF COVER BEFORE USING HEAVY DUTY TAMPING EQUIPMENT ("HYDRO-HAMMER" OR EQUAL).

BACKFILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT EXCEEDING 6" IN THICKNESS WITH EACH LAYER THOROUGHLY COMPACTED WITH HEAVY DUTY TAMPERS

AREAS REQUIRING PAVEMENT REPLACEMENT: MECHANICAL TAMPING WILL BE REQUIRED OF ALL BACKFILLING OF EXCAVATED PORTIONS. AFTER BACKFILLING AND TAMPING AS DESCRIBED ABOVE IS COMPLETED THE TOP 6" OF THE DITCH SHALL BE BACKFILLED WITH COMPACTED CRUSHED STONE, ASTM C 33, AS AMENDED TO DATE, GRADATION #67 OR #57, WITH SUFFICIENT FINES FOR COMPACTION. FURTHER COMPACTION SHALL BE ACCOMPLISHED BY LEAVING THE BACKFILLED TRENCH OPEN TO TRAFFIC WHILE MAINTAINING THE SURFACE WITH STONE. SETTLEMENT IN TRENCHES SHALL BE REFILLED WITH STONE, AND SUCH MAINTENANCE SHALL CONTINUE UNTIL REPLACEMENT OF PAVEMENT IS AUTHORIZED BY THE ENGINEER.

OTHER AREAS: OTHER AREAS, INCLUDING WOODLANDS, FIELDS, PASTURES AND AREAS NOT OPEN TO VEHICULAR TRAVEL AND THE REMAINDER OF THE DITCH, MAY BE BACKFILLED BY PLACING FILL IN THE DITCH AND "WALKING-IN" THE FILL WITH WHEEL LOADED EQUIPMENT. BACKFILL MATERIAL MAY BE WINDROWED AND MAINTAINED IN A SUITABLE MANNER SO AS TO CONCENTRATE AND POND RAINFALL RUNOFF OVER THE TRENCH. AFTER SUFFICIENT SETTLEMENT HAS BEEN OBTAINED, THE CONTRACTOR SHALL COMPLETE SURFACE DRESSING, REMOVE SURPLUS MATERIAL AND CLEAN UP IN ACCORDANCE WITH THESE SPECIFICATIONS. WHEREVER TRENCHES HAVE NOT BEEN PROPERLY FILLED OR IF SETTLEMENT OCCURS, THEY SHALL BE REFILLED, SMOOTHED OFF AND FINALLY MADE TO CONFORM TO THE SURFACE OF THE GROUND. BACKFILLING SHALL BE CAREFULLY PERFORMED AND THE ORIGINAL SURFACE RESTORED AS SPECIFIED HEREIN. SURPLUS MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.

- CONNECTIONS TO STRUCTURES; AT ALL STRUCTURES, INCLUDING MANHOLES, PROVIDE A FLEXIBLE JOINT FOR ALL PIPE NOT MORE THAN 24" FROM THE FACE OF THE STRUCTURE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT DETAILS OF THE PROPOSED CONNECTION TO THE ENGINEER FOR APPROVAL. CONNECTIONS NOT APPROVED WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AN APPROVED FLEXIBLE JOINT. NO SEPARATE PAYMENT WILL BE MADE FOR THE ABOVE WORK. THE COST OF SUCH WORK, AND ALL COSTS INCIDENTAL THERETO, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE ITEM TO WHICH THE WORK
- CONNECTIONS TO EXISTING MANHOLES: AT LOCATIONS WHERE NEW SEWERS ARE SHOWN TO BE CONNECTED TO EXISTING MANHOLES THE CONTRACTOR MAY TEMPORARILY BLOCK AND/OR DIVERT SEWAGE FLOWS TO FACILITATE CONSTRUCTION OPERATIONS. THE WORK SHALL CONSIST OF CORING THE OPENING IN THE MANHOLE WALL, INSTALLING A FLEXIBLE RUBBER BOOT, INSERTING THE NEW PIPE TO THE ELEVATION SHOWN, FILLING THE SPACE IN THE WALL AROUND THE PIPE WITH MORTAR, AND CONSTRUCTING AND REMODELING MANHOLE INVERTS. THE BYPASSING OF RAW WASTEWATER ONTO THE GROUND OR INTO A RECEIVING STREAM IS PROHIBITED

HIGH-EARLY STRENGTH CEMENT SHALL BE USED FOR MORTAR IN ORDER THAT PROPER CHANNELS MAY BE FORMED IN MANHOLE BOTTOMS WITH A MINIMUM INTERRUPTION OF SERVICE TO THE EXISTING SEWER.

- CONNECTIONS TO EXISTING SEWERS: AT LOCATIONS WHERE NEW SEWERS ARE SHOWN TO BE CONNECTED TO EXISTING SEWERS AT A NEW MANHOLE, THE CONTRACTOR SHALL FIRST EXPOSE THE EXISTING SEWER AND REMOVE ALL SOIL TO A MINIMUM OF 6" BELOW THE EXISTING PIPE. SUPPORT SHALL BE PROVIDED AS REQUIRED TO PREVENT THE EXISTING SEWER FROM SAGGING. THE NEW PRECAST DOGHOUSE MANHOLE SECTION SHOULD BE PLACED OVER THE EXISTING SEWER AND THE INVERT AND BENCH SUBSEQUENTLY POURED WITH CLASS 'A' CONCRETE. THE ENDS OF THE MANHOLE SHOULD BE SEALED WATERTIGHT WITH CONCRETE OR HYDRAULIC CEMENT. UNDER SPECIAL CONDITIONS, AND WITH APPROVAL BY THE ENGINEER, THE CONTRACTOR MAY TEMPORARILY BLOCK AND/OR DIVERT SEWAGE FLOWS TO FACILITATE CONSTRUCTION OPERATIONS. ACTUAL PHYSICAL CONNECTION OF THE SEWERS WILL BE MADE AT A LATER DATE AS DIRECTED BY THE ENGINEER.
- SERVICE LINES: SERVICE LINES SHALL BE INSTALLED TO CONNECT ALL BUILDINGS AND DWELLINGS DETERMINED BY THE OWNER TO THE SEWER LINE IN ACCORDANCE WITH THE FOLLOWING:
- A. <u>SERVICE LINE</u>: THE SERVICE LINE SHOULD EXTEND TO BUILDING.
- B. SERVICE LATERALS SHALL NOT BE LESS THAN 6" IN DIAMETER.
- C. THE SEWER SERVICE PIPE SHALL CONFORM TO ASTM D 3034 UNDER THE CLASSIFICATION FOR DR 26 PIPE, AS AMENDED TO DATE.
- D. ALL JOINTS SHALL BE PUSH-ON CONFORMING TO ASTM D3212. ALL GASKETS SHALL CONFORM TO ASTM F477. LUBRICANT FURNISHED FOR LUBRICANT JOINTS SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
- E. THE PVC PIPE SHALL BE MARKED AT INTERVALS OF 5' OR LESS WITH THE FOLLOWING INFORMATION: MANUFACTURER'S NAME OR TRADEMARK, PLANT CODE, DATE OF MANUFACTURER, NOMINAL PIPE SIZE, PVC CELL CLASSIFICATION, THE LEGEND "TYPE PSM DR 26 PVC SEWER PIPE," AND ASTM DESIGNATION D 3034 F. SEWER SERVICE LINES SHALL HAVE A MINIMUM COVER OF 31/2'.
- G. ALL SEWER FITTINGS SHALL BE MOLDED AND CONFORM TO ASTM F1336 AND ASTM D3034-00 AND SHALL BE MANUFACTURED FROM HIGH MOLECULAR WEIGHT COMPOUND HAVING A MINIMUM CELL CLASSIFICATION OF 12454 OR 13343 AS PRESCRIBED IN ASTM D1784. FITTINGS SHALL BE FACTORY MADE. NO 90° ELBOWS SHALL BE USED. ONLY 45° OR 22.5° BENDS SHALL BE USED. NO GLUING JOINTS ARE ALLOWED. WHERE REQUIRED. SHORT RADIUS BENDS SHALL BE USED TO CONNECT THE SERVICE BRANCH TO THE HOUSE SERVICE LINE. PIPE SERVICE BRANCHES, TOGETHER WITH BENDS, SHALL BE PLACED ON A COMPACTED BED OF CRUSHED STONE IN SUCH A MANNER AS TO BE SELF- SUPPORTING AND TO RELIEVE THE STRAIN ON BRANCHES AND BENDS.
- H. THE SEWER LATERAL SHALL BE INSTALLED ON THE LOW POINT OF THE PROPERTY BEING SERVED AND SHALL BE SUFFICIENTLY DEEP TO RECEIVE WASTEWATER. I. THE SERVICE LINE SHALL RUN IN A STRAIGHT LINE BETWEEN CONNECTION AND FITTINGS ALONG THE SHORTEST ROUTE FROM CLEANOUT AT RIGHT OF WAY TO CONNECTION AT BUILDING OR DWELLING. PREFERRED SLOPE SHALL BE 1/4" PER FOOT (2% GRADE) BUT NOT LESS THAN 1/4" PER FOOT (1% GRADE). CONTRACTOR SHALL VERIFY ELEVATIONS AND DETERMINE SLOPE TO BE USED AND NOTIFY ENGINEER PRIOR TO INSTALLING SERVICE LATERAL.
- J. A 2-WAY CLEANOUT SHALL BE INSTALLED AT THE JUNCTION OF THE BUILDING DRAIN AND THE SEWER LATERAL. ADDITIONAL CLEANOUTS SHALL BE INSTALLED AT INTERVALS NOT TO EXCEED 100'IN STRAIGHT RUNS AND FOR EACH CHANGE IN DIRECTION. ALL CLEANOUTS SHALL BE EXTENDED TO GRADE AND PROVIDED WITH AN ADAPTER AND SCREW PLUG.
- K. ONLY FIXTURES THAT USE POTABLE WATER SHALL BE CONNECTED TO THE SEWER LATERAL. CONNECTIONS TO GUTTERS, SUMP PUMPS OR POOL DRAINS WILL NOT BE L. SEWER LATERALS SHALL HAVE DETECTABLE MARKING TAPE LAID 2' ABOVE THE LATERAL. THE TAPE SHALL BE 2" IN WIDTH IMPRINTED WITH THE WORDS BURIED SEWER", AND SHALL BE AS MANUFACTURED BY REEF INDUSTRIES, INC., ALLEN SYSTEMS, INC. OR EQUAL.
- M. ALL SEWER SERVICE PIPES SHALL BE TESTED IN ACCORDANCE WITH ASTM D2122, D2152 AND D2444. N. A BACKFLOW PREVENTER SHALL BE INSTALLED ON THE SEWER SERVICE LINE. THE BACKFLOW PREVENTER SHALL BE A PVC ONE-WAY FLAPPER TYPE VALVE WITH
- ACCESS PORT. THE LOCATION SHALL BE AS DIRECTED BY THE ENGINEER. LOCATION AND PROTECTION OF EXISTING UNDERGROUND UTILITIES; UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS ARE FOR THE CONTRACTOR'S INFORMATION ONLY AND IT IS NOT THE INTENTION OF THE ENGINEER TO CONVEY THE OPINION THAT ALL UTILITIES ARE SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO
- LOCATE THE UNDERGROUND UTILITIES AND TO PROTECT SAME. UTILITY LINES OR SERVICES DAMAGED BY THE CONSTRUCTION SHALL BE THE CONTRACTOR'S OWN
- CLOSING PIPE: WHEN THE WORK OF PIPE LAYING IS SUSPENDED FOR THE NIGHT AND AT OTHER TIMES, THE END OF THE SEWER SHALL BE CLOSED WITH A TIGHT COVER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE SEWER FREE FROM OBSTRUCTIONS.
- TESTING AND CLEANING: BEFORE ACCEPTANCE OF ANY SEWER OR SYSTEMS OF SEWERS, LINES SHALL BE CLEANED AND TESTED IN ACCORDANCE WITH THESE SPECIFICATIONS. WHERE ANY OBSTRUCTION IS MET, THE CONTRACTOR WILL BE REQUIRED TO CLEAN THE SEWERS BY MEANS OF RODS, SWABS, OR OTHER INSTRUMENTS. LINES AND MANHOLES SHALL BE CLEAN BEFORE FINAL INSPECTION. PIPE LINES SHALL BE STRAIGHT AND SHOWN A UNIFORM GRADE BETWEEN MANHOLES. THE CONTRACTOR SHALL BE REQUIRED TO CORRECT ANY VARIATIONS THEREFROM WHICH MAY BE DISCLOSED DURING THE INSPECTION.
- B. <u>DEFLECTION TESTING</u>: THE MAXIMUM DEFLECTION IN THE INSTALLED PVC PIPE LINE SHALL NOT EXCEED 5% OF THE PIPES ORIGINAL INTERNAL DIAMETER. THE SEWER ALIGNMENT SHALL BE CHECKED BY A VISUAL INSPECTION INCLUDING EITHER LASER OR LAMPING ALIGNMENT. DEFLECTION TESTING WILL BE REQUIRED USING EITHER A DEFLECTOMETER OR A "GO-NO-GO" MANDREL. THE ENGINEER SHALL RANDOMLY SELECT PORTIONS OF THE PROJECT TO BE DEFLECTION TESTED AFTER A PERIOD OF 30 DAYS HAS ELAPSED AFTER BACKFILLING HAS OCCURRED. SUCH PORTIONS SHALL CONSIST OF NOT LESS THAN 5% OF THE TOTAL REACHES (REACH BEING LENGTH OF PIPE BETWEEN 2 MANHOLES) IN THE PROJECT (EXCLUDING HOUSE LEADS).

THE CONTRACTOR WHEN USING A MANDREL SHALL USE A PULL LINE AND A RETRIEVE LINE. THE PULL LINE SHALL BE BLOWN IN THE LINE BY MEANS OF AIR OR WATER. THE MANDREL SHALL BE PLACED IN THE PIPE AND BE PULLED UP OR DOWN THE PIPE TO THE NEXT MANHOLE OR DEFECT. TESTING SHALL BE DONE IN ACCORDANCE WITH ASTM D 3034 STANDARDS. WHERE DEFLECTION IS FOUND TO BE IN EXCESS OF 5% OF THE ORIGINAL PIPE DIAMETER, THE CONTRACTOR SHALL EXCAVATE TO THE POINT OF EXCESS DEFLECTION AND CAREFULLY COMPACT AROUND THE POINT WHERE EXCESS DEFLECTION WAS FOUND. THE LINE SHALL THEN BE RETESTED FOR DEFLECTION. HOWEVER, SHOULD AFTER THE INITIAL TESTING THE DEFLECTION PIPE FAIL TO RETURN TO THE ORIGINAL SIZE (INSIDE DIAMETER) THE LINE SHALL BE REPLACED.

- IN THE EVENT THAT DEFLECTION OCCURS BEYOND THE 5% LIMIT IN ANY SECTION OF 5% OR MORE OF THE REACHES TESTED, THE ENTIRE SYSTEM SHALL BE TESTED. C. LEAKAGE TESTS: ALL NEW OR REHABILITATED SEWER LINES, INCLUDING HOUSE SERVICE LINES, SHALL BE TESTED FOR LEAKAGE, IN THE PRESENCE OF THE ENGINEER
- OR HIS REPRESENTATIVE, BEFORE BEING PLACED INTO SERVICE. TESTS SHALL BE CONDUCTED BY ONE OR A COMBINATION OF THE FOLLOWING THREE METHODS: LOW PRESSURE AIR TEST METHOD: LOW PRESSURE AIR TESTING SHALL BE PERFORMED IN ACCORDANCE WITH ASTM F1417 OR UNI-B-6-90, AS AMENDED TO DATE. PRIOR TO AIR TESTING THE SECTION OF SEWER BETWEEN MANHOLES SHALL BE THOROUGHLY CLEANED AND WETTED. IMMEDIATELY AFTER CLEANING OR WHILE THE PIPE IS WATER SOAKED, THE SEWER SHALL BE TESTED WITH LOW-PRESSURE AIR. AT THE CONTRACTOR'S OPTION, SEWERS MAY BE TESTED IN LENGTHS BETWEEN MANHOLES OR IN SHORT SECTIONS (25' OR LESS) USING AIR-LOCK BALLS PULLED THROUGH THE LINE FROM MANHOLE TO MANHOLE. AIR SHALL BE SLOWLY SUPPLIED TO THE PLUGGED SEWER SECTION UNTIL INTERNAL AIR PRESSURE REACHES APPROXIMATELY 4.0-PSI. AFTER THIS PRESSURE IS REACHED AND THE PRESSURE ALLOWED TO STABILIZE (APPROXIMATELY 2 TO 5 MINUTES), THE PRESSURE MAY BE REDUCED TO 3.5-PSI BEFORE STARTING THE TESTS. IF A 1.0 PSI DROP DOES NOT OCCUR WITHIN THE TEST TIME, THEN THE LINE HAS PASSED THE TEST. IF THE PRESSURE DROPS MORE THAN 1.0 PSI DURING THE TEST TIME, THE LINE IS PRESUMED TO HAVE FAILED THE TEST. AND THE CONTRACTOR WILL BE REQUIRED TO LOCATE THE FAILURE, MAKE NECESSARY REPAIRS AND RETEST THE LINE. MINIMUM TEST TIME FOR VARIOUS PIPE SIZES, IN ACCORDANCE WITH UNI-BELL PVC PIPE ASSOC. UNI-B-6-90, AS AMENDED TO DATE, IS AS FOLLOWS:

SPECIFICATION TIME REQUIRED FOR A 1.0 PSIG PRESSURE DROP FOR SIZE AND LENGTH OF PIPE INDICATED FOR Q = 0.0015

- a. 4" 3:46 MINIMUM TIME (MINUTES: SECOND), 597 FEET LENGTH FOR MINIMUM TIME, 0.380 TIME FOR LONGER LENGTH (SECOND)
- b. 6" 5:40 MINIMUM TIME (MINUTES: SECOND), 398 FEET LENGTH FOR MINIMUM TIME, 0.854 TIME FOR LONGER LENGTH (SECOND)
- c. 8" 7:34 MINIMUM TIME (MINUTES: SECOND), 298 FEET LENGTH FOR MINIMUM TIME, 1.520 TIME FOR LONGER LENGTH (SECOND) d. 10" - 9:26 MINIMUM TIME (MINUTES: SECOND), 239 FEET LENGTH FOR MINIMUM TIME, 2.374 TIME FOR LONGER LENGTH (SECOND)
- e. 12" 11:20 MINIMUM TIME (MINUTES: SECOND), 199 FEET LENGTH FOR MINIMUM TIME, 3.418 TIME FOR LONGER LENGTH (SECOND)
- f. 15" 14:10 MINIMUM TIME (MINUTES: SECOND), 159 FEET LENGTH FOR MINIMUM TIME, 5.342 TIME FOR LONGER LENGTH (SECOND)
- g. 18" 17:00 MINIMUM TIME (MINUTES: SECOND), 133 FEET LENGTH FOR MINIMUM TIME, 7.692 TIME FOR LONGER LENGTH (SECOND)

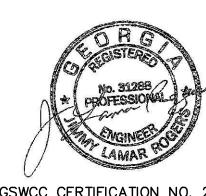
SHALL SHOW DATE, LINE NUMBER AND STATIONS, OPERATOR AND SUCH OTHER PERTINENT INFORMATION AS REQUIRED BY THE ENGINEER.

h. 21" — 19:50 MINIMUM TIME (MINUTES: SECOND), 114 FEET LENGTH FOR MINIMUM TIME, 10.470 TIME FOR LONGER LENGTH (SECOND) i. 24" - 22:40 MINIMUM TIME (MINUTES: SECOND), 99 FEET LENGTH FOR MINIMUM TIME, 13.674 TIME FOR LONGER LENGTH (SECOND) REQUIRED TEST EQUIPMENT INCLUDES AIR-LOCK BALLS, BRACES, AIR HOSE, AIR SOURCE, TIMER, ROTOMETER AS APPLICABLE, CUT-OFF VALVES, PRESSURE REDUCING VALVE, 0-15 PRESSURE GAUGE, 0-5 PRESSURE GAUGE WITH GRADATIONS IN 0.1 PSI AND ACCURACY OF \pm 2 PERCENT.

THE CONTRACTOR SHALL KEEP RECORDS OF ALL TESTS MADE. COPY OF SUCH RECORDS WILL BE GIVEN TO THE ENGINEER OR THE OWNER. SUCH RECORDS

- THE CONTRACTOR IS CAUTIONED TO OBSERVE PROPER SAFETY PRECAUTIONS IN PERFORMANCE OF THE AIR TESTING. IT IS IMPERATIVE THAT PLUGS BE PROPERLY SECURED AND THAT CARE BE EXERCISED IN THEIR REMOVAL. EVERY PRECAUTION SHALL BE TAKEN TO AVOID THE POSSIBILITY OF OVER-PRESSURIZING THE SEWER
- REPAIRS; ALL VISIBLE LEAKS SHALL BE REPAIRED REGARDLESS OF WHETHER THE AIR TEST IS WITHIN ALLOWABLE LIMITS. NO SEWER WILL BE ACCEPTED UNTIL LEAKAGE TESTS DEMONSTRATE COMPLIANCE WITH THE LEAKAGE TEST METHOD. k. PAYMENT: THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR AND EQUIPMENT AND NECESSARY FOR TESTING AND RETESTING AS REQUIRED AND SHALL MAKE ALL NECESSARY REPAIRS. NO EXTRA PAYMENT WILL BE MADE FOR TESTING AND REPAIRS, THE COST THEREOF TO BE INCLUDED IN THE UNIT
- PRICES BID FOR SEWERS. 31. TESTING FORCE MAIN: WHEN A SECTION OF PIPE OF A LENGTH DEEMED ADEQUATE BY THE ENGINEER IS READY FOR TESTING, THE LINE SHALL BE THOROUGHLY BLOWN FREE FROM AIR AND A LEAKAGE TEST MADE. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT FOR CARRYING OUT THESE TESTS. WHEREVER CONDITIONS WILL PERMIT, IN THE OPINION OF THE ENGINEER, PIPE LINES SHALL BE TESTED BEFORE THE TRENCH IS BACKFILLED. ALL JOINTS THEN SHALL BE EXAMINED DURING OPEN TRENCH TEST AND ALL LEAKS ENTIRELY STOPPED. THE CONTRACTORS SHALL FURNISH A TEST PUMP AND MEANS FOR ACCURATE MEASUREMENT OF WATER INTRODUCED INTO A LINE DURING TESTING, AND SHALL FURNISH AND INSTALL CORPORATION STOPS AT ALL HIGH POINTS IN THE LINE AS
 - REQUIRED FOR BLOWING LINES FREE FROM AIR AND AT THE TEST PUMP LOCATION. a. TEMPORARY BULKHEADS: THE CONTRACTOR SHALL FURNISH, INSTALL AND REMOVE ALL TEMPORARY BULKHEADS, FLANGES OR PLUGS TO PERMIT THE REQUIRED PRESSURE TEST AND SHALL FURNISH ALL EQUIPMENT AND LABOR TO PROPERLY CARRY OUT SUCH TESTS AND TO REPLACE DEFECTIVE MATERIAL.

- b. <u>Test pressure and leakage</u>; pressure and leakage testing shall be conducted in accordance with the latest version of awwa standard C-600. TEST PRESSURES SHALL BE AT LEAST 1.5 TIMES THE SHUTOFF HEAD OF THE PUMP OR 150 POUNDS PER SQUARE INCH, WHICHEVER IS GREATER, FOR FORCE MAINS MEASURED AT THE PIPE LINE LOW POINT. TEST PRESSURE SHALL NOT BE LESS THAN 1.25 TIMES THE WORKING PRESSURE AT THE HIGHEST POINT ALONG THE TEST SECTION. TEST PRESSURES SHALL NOT VARY BY MORE THAN ± 5-PSI FOR THE DURATION OF THE TEST. LEAKAGE ALLOWED DURING THE TEST SHALL BE CALCULATED USING THE FOLLOWING FORMULA:
- L IS ALLOWABLE LEAKAGE IS GALLONS/HOUR S IS THE LENGTH OF PIPE TESTED IN FEET
 - D IS PIPE DIAMETER IN INCHES
 - P IS TEST PRESSURE IS POUNDS PER SQUARE INCH (PSI)
- MINIMUM TEST PERIOD SHALL BE 2-HOURS; HOWEVER, IN THE OPINION OF THE ENGINEER, IF ADDITIONAL TESTING IS REQUIRED, SUCH ADDITIONAL TESTING SHALL BE PERFORMED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. c. <u>DEFECTIVE MATERIALS AND WORKMANSHIP</u>: ANY CRACKED OR BROKEN MATERIAL SUCH AS PIPE, FITTINGS, VALVES OR HYDRANTS SHALL BE REMOVED AND REPLACED WITH SOUND PIECES AT THE EXPENSE OF THE CONTRACTOR. JOINTS WHICH LEAK SHALL BE CAREFULLY REMADE. REMADE JOINTS AND REPLACED MATERIAL SHALL BE RETESTED UNDER THE SAME CONDITIONS OF OPERATION. IF JOINTS OR MATERIALS ARE THEN FOUND TO BE DEFECTIVE THEY SHALL BE
- REMADE AND REPLACED UNTIL THE LINE PASSES THE REQUIRED TEST. d. PAYMENT: NO SEPARATE PAYMENT WILL BE MADE FOR THE ABOVE WORK. THE COST OF THE ABOVE WORK AND ALL COST INCIDENTALS THERETO, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE ITEM TO WHICH THE WORK PERTAINS.
- CLEANING UP: BEFORE THE WORK IS CONSIDERED COMPLETE, ALL MATERIAL NOT USED AND RUBBISH OF EVERY CHARACTER MUST BE REMOVED FROM THE PROJECT. ALL STREETS, SIDEWALKS, CURBS, FENCES AND OTHER PRIVATE OR PUBLIC FACILITIES AND STRUCTURES DISTURBED MUST BE IN ESSENTIALLY AS GOOD CONDITION AS EXISTED BEFORE THE WORK WAS DONE. ANY SUBSEQUENT SETTLEMENT OF BACKFILL OR PAVEMENT OVER TRENCHES SHALL BE REPLACED BY THE CONTRACTOR AND THE SURFACES BROUGHT TO GRADE.
- ACCEPTANCE OF WORK: SEWER LINES AND APPURTENANCES WILL NOT BE CONSIDERED READY FOR ACCEPTANCE UNTIL ALL PROVISIONS OF THE SPECIFICATIONS HAVE BEEN COMPLIED WITH, UNTIL ALL TESTS HAVE BEEN SATISFACTORILY COMPLETED, AND UNTIL INSPECTION OF THE WORK HAS BEEN MADE. SEWAGE FLOWS SHALL NOT BE DIVERTED INTO NEW SEWERS UNTIL AFTER SUCH TIME AS FINAL INSPECTION OF THE LINES HAS BEEN MADE BY THE ENGINEER, AND PERMISSION



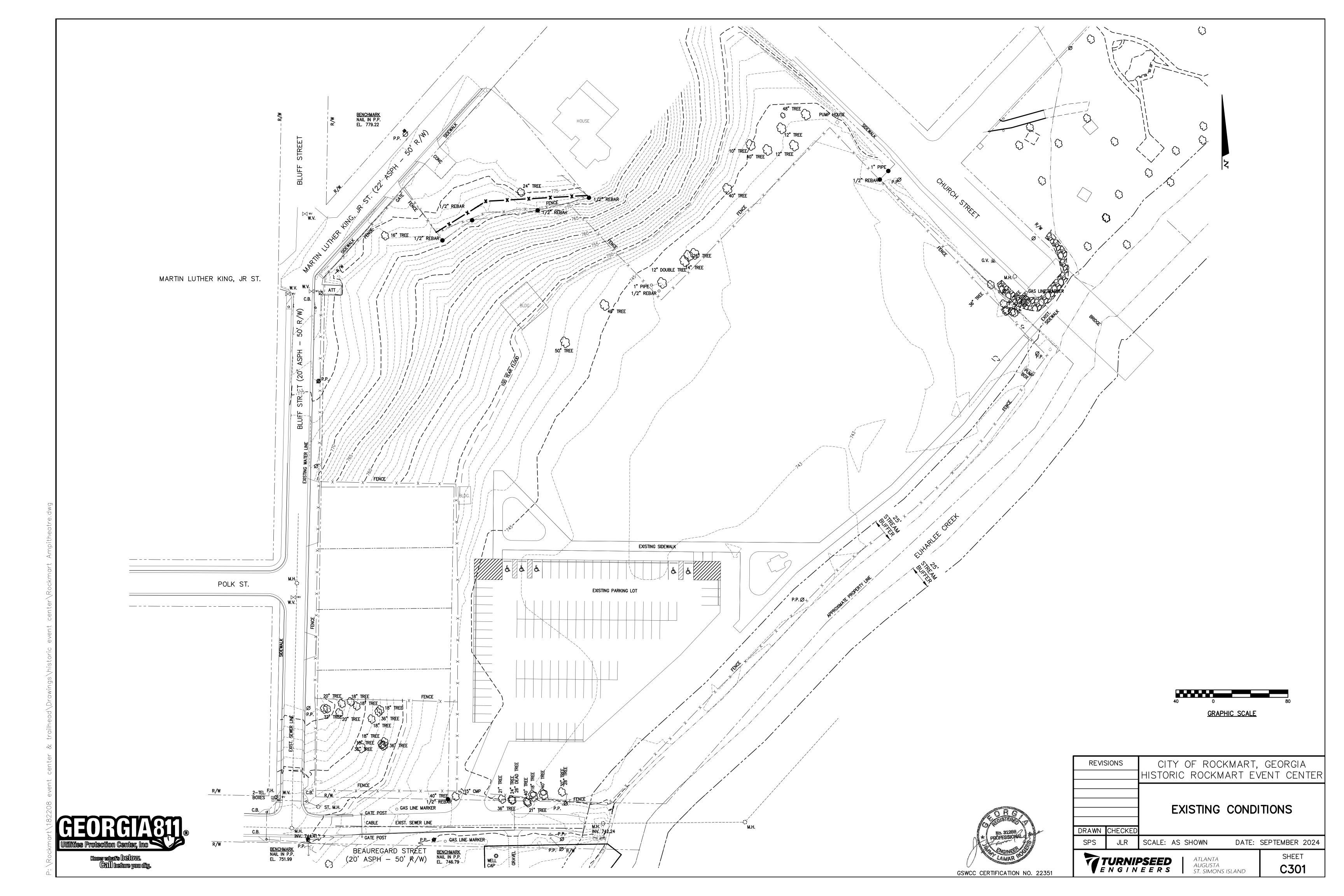
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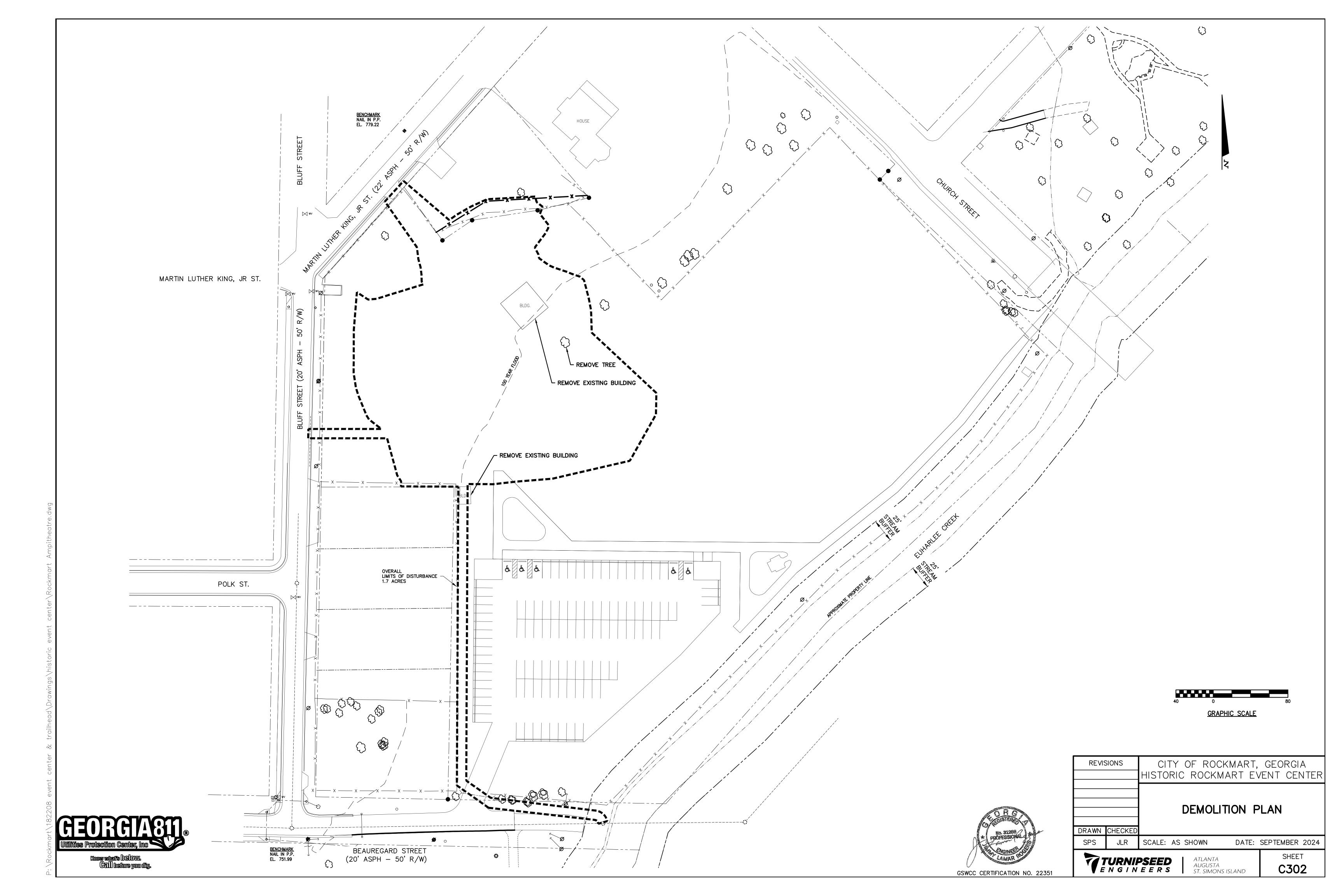
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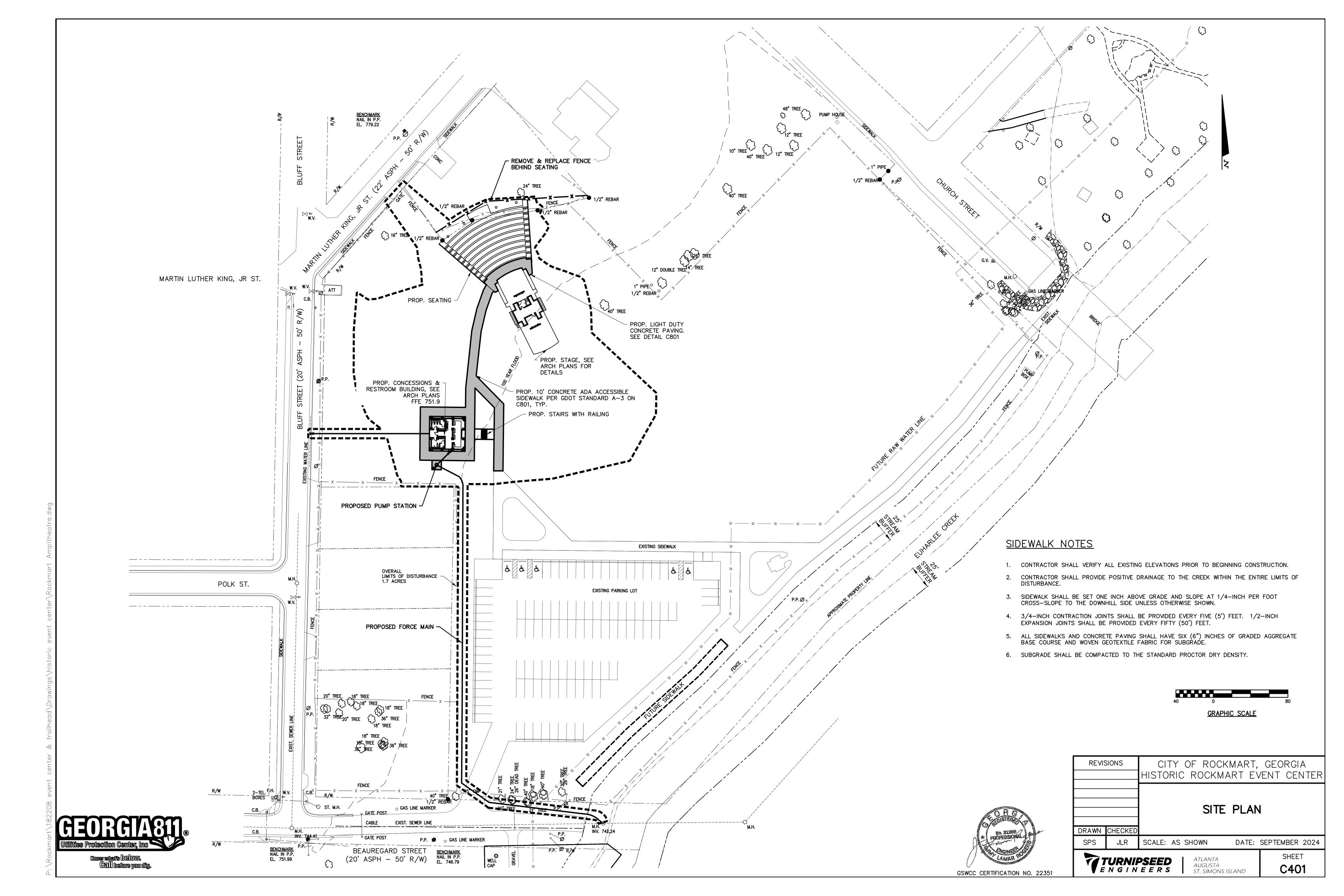
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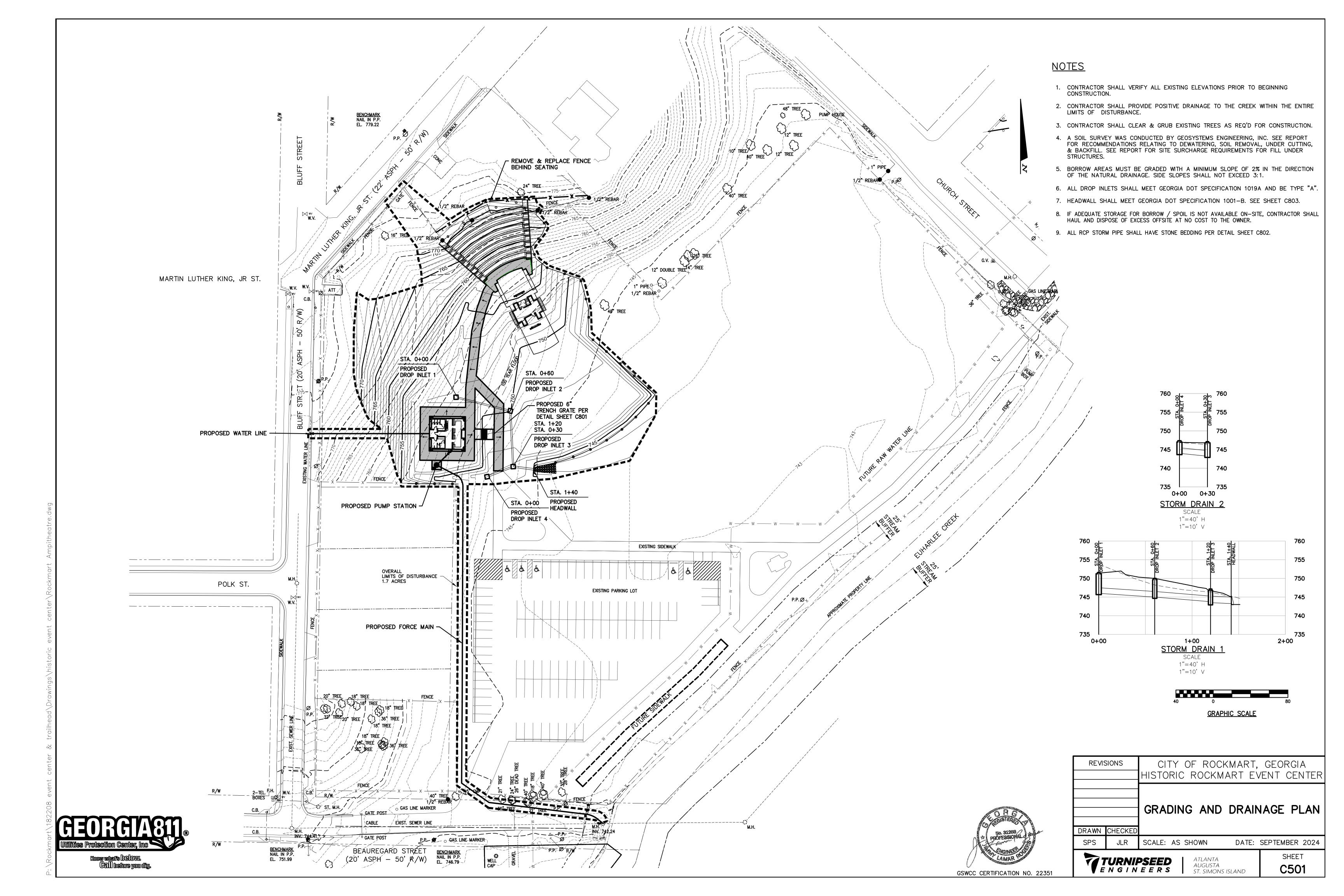
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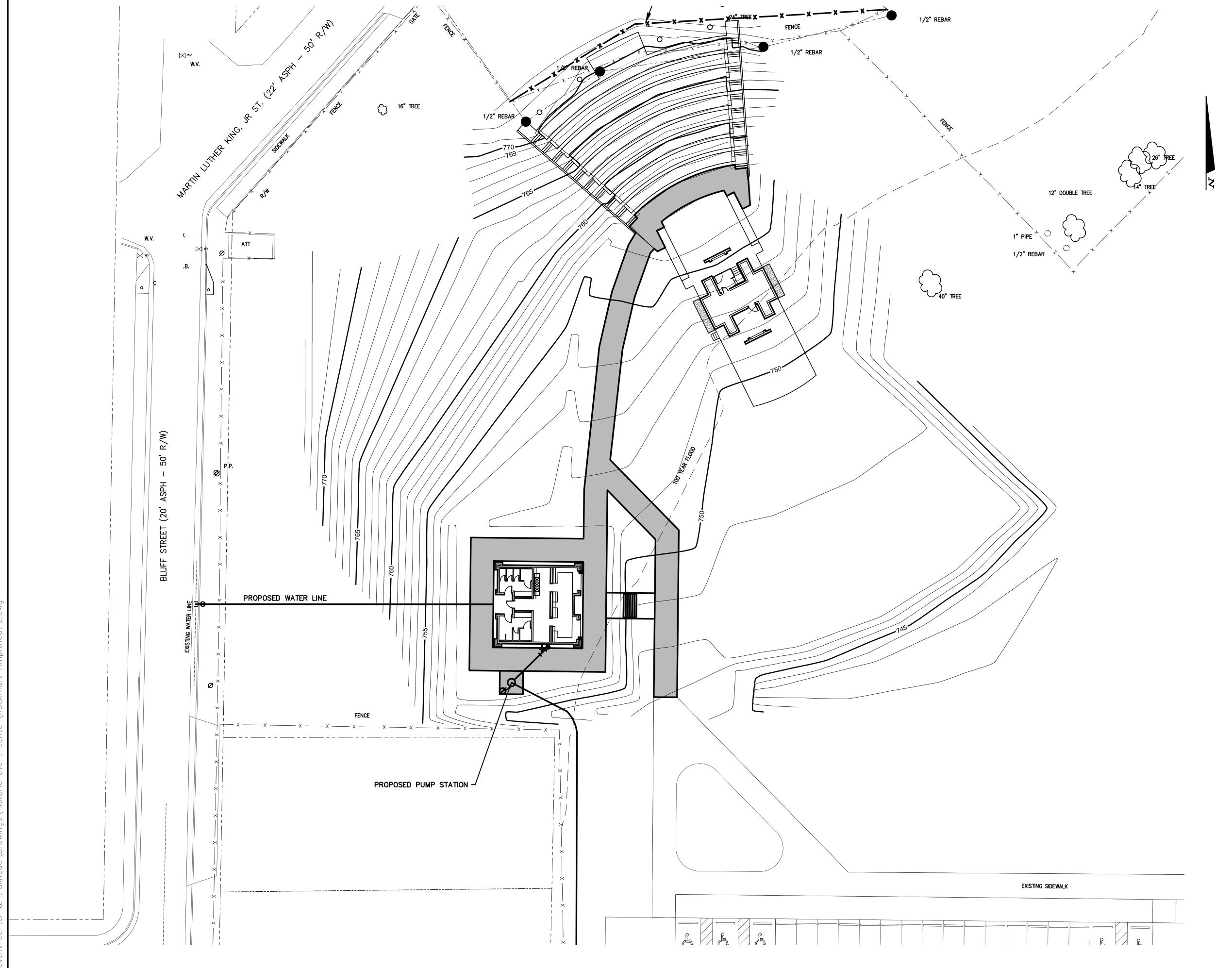
▼ ENGINEERS













- 1. CONTRACTOR SHALL VERIFY ALL EXISTING ELEVATIONS PRIOR TO BEGINNING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE TO THE CREEK WITHIN THE ENTIRE LIMITS OF DISTURBANCE.
- 3. CONTRACTOR SHALL CLEAR & GRUB EXISTING TREES AS REQ'D FOR CONSTRUCTION.
- 4. A SOIL SURVEY WAS CONDUCTED BY GEOSYSTEMS ENGINEERING, INC. SEE REPORT FOR RECOMMENDATIONS RELATING TO DEWATERING, SOIL REMOVAL, UNDER CUTTING, & BACKFILL. SEE REPORT FOR SITE SURCHARGE REQUIREMENTS FOR FILL UNDER STRUCTURES.
- 5. BORROW AREAS MUST BE GRADED WITH A MINIMUM SLOPE OF 2% IN THE DIRECTION OF THE NATURAL DRAINAGE. SIDE SLOPES SHALL NOT EXCEED 3:1.
- 6. ALL DROP INLETS SHALL MEET GEORGIA DOT SPECIFICATION 1019A AND BE TYPE "A".
- 7. HEADWALL SHALL MEET GEORGIA DOT SPECIFICATION 1001-B. SEE SHEET C803.
- 8. IF ADEQUATE STORAGE FOR BORROW / SPOIL IS NOT AVAILABLE ON—SITE, CONTRACTOR SHALL HAUL AND DISPOSE OF EXCESS OFFSITE AT NO COST TO THE OWNER.
- 9. ALL RCP STORM PIPE SHALL HAVE STONE BEDDING PER DETAIL SHEET C802.

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GRAPHIC SCALE

CITY OF ROCKMART, GEORGIA
HISTORIC ROCKMART EVENT CENTER

GRADING PLAN

GRADING PLAN DETAILED VIEW

DRAWN CHECKED

S JLR SCALE: AS SHOWN

TURNIPSEED ENGINEERS DATE: SEPTEMBER 2024
SHEET

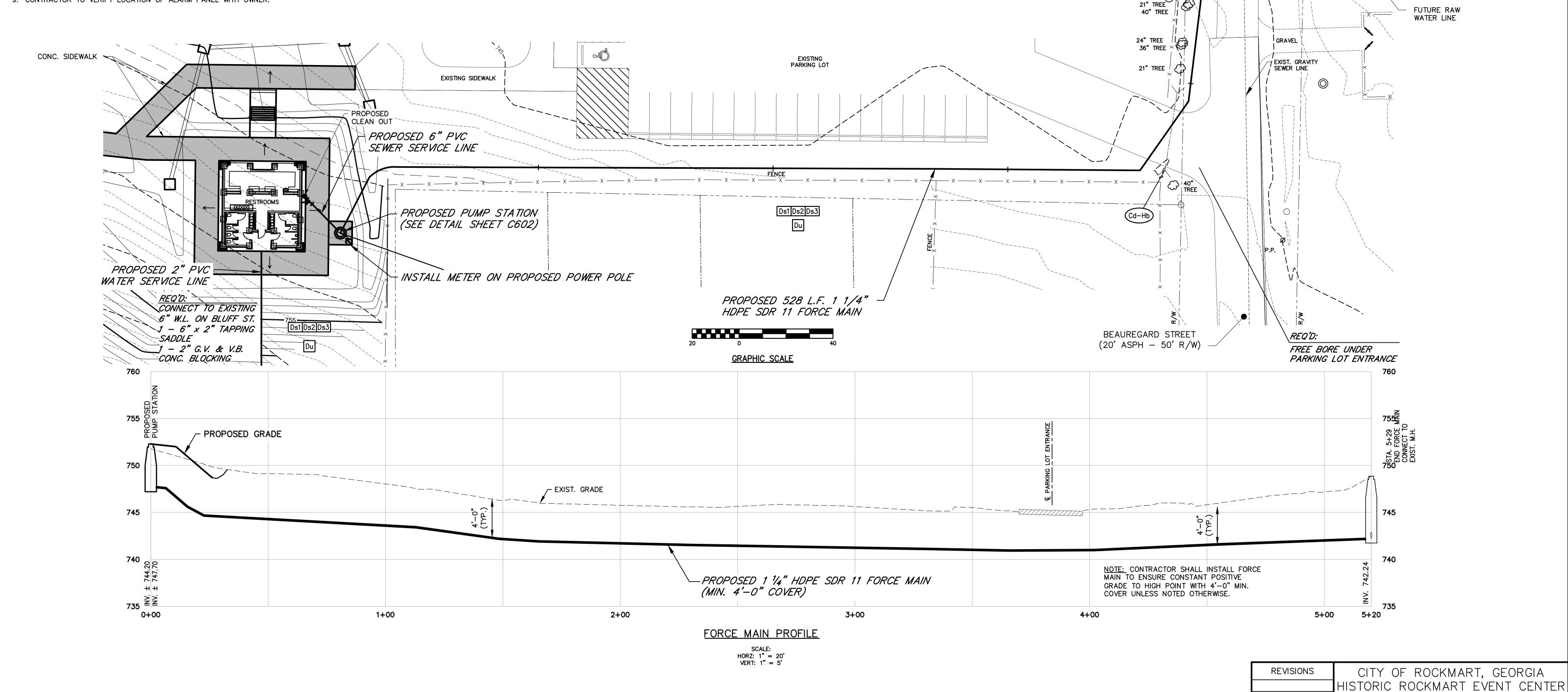
C502

Protection Center, Inc.

Know what's below.

Gall before you dig.

- 8. CONTRACTOR SHALL CONNECT PLUMBING FROM BUILDING TO PROPOSED PUMP STATION AND INSTALL CLEANOUT ON SERVICE LINE.
- 9. CONTRACTOR TO VERIFY LOCATION OF ALARM PANEL WITH OWNER.



WATER AND SEWER PLAN

DRAWN CHECKED SPS JLR

GSWCC CERTIFICATION NO. 22351

18" TREE(

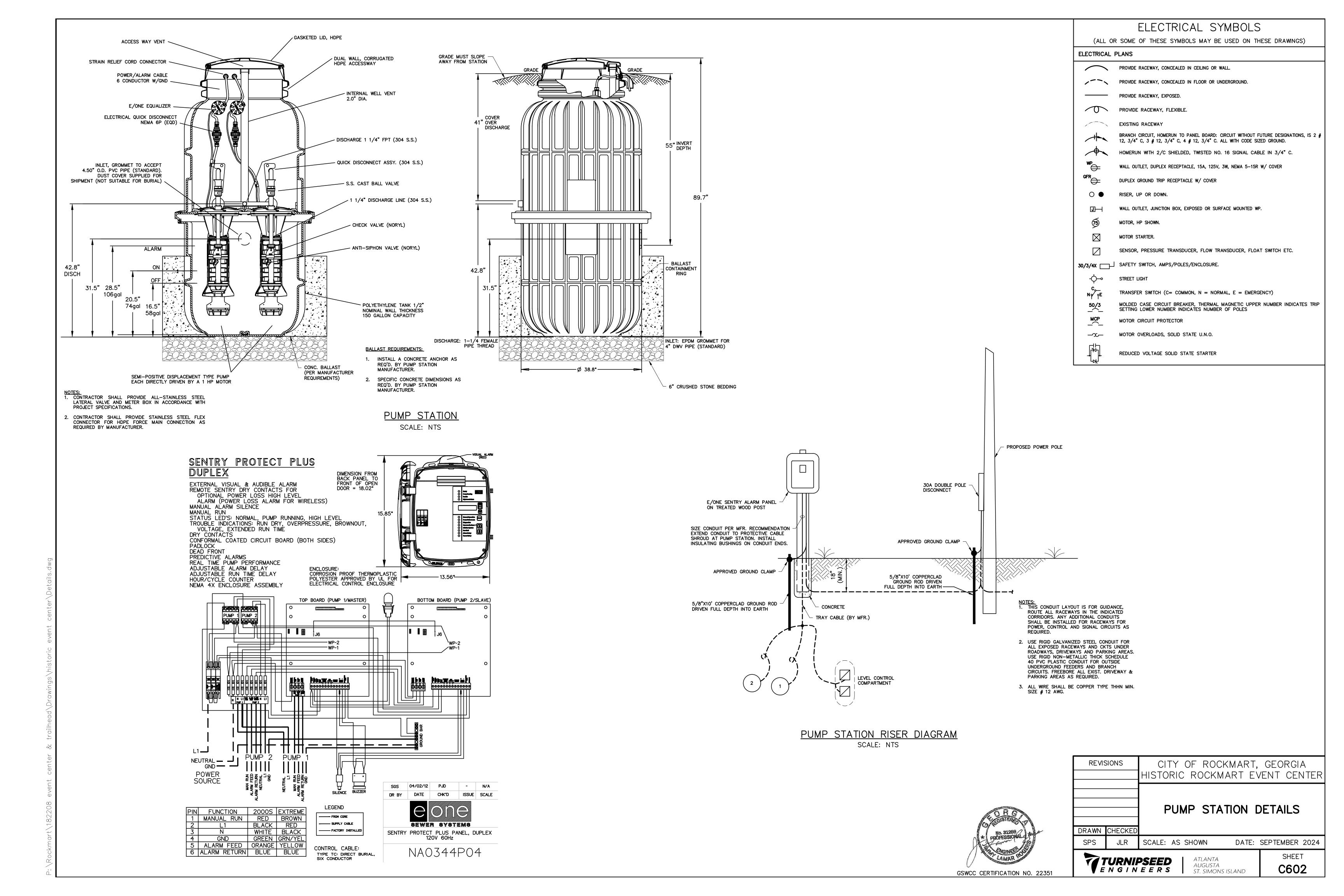
SCALE: AS SHOWN DATE: SEPTEMBER 2024

TURNIPSEED ENGINEERS

ATLANTA AUGUSTA ST. SIMONS ISLAND

SHEET

C601



1.02 SUBMITTALS: AFTER RECEIPT OF NOTICE TO PROCEED, THE CONTRACTOR SHALL FURNISH SHOP DRAWINGS IN PDF FORMAT DETAILING THE EQUIPMENT TO BE FURNISHED INCLUDING DIMENSIONAL DATA AND MATERIALS OF CONSTRUCTION. THE ENGINEER SHALL PROMPTLY REVIEW THIS DATA, AND RETURN AS ACCEPTED, OR WITH REQUESTED MODIFICATIONS. UPON RECEIPT OF ACCEPTED SHOP DRAWINGS, THE MANUFACTURER SHALL PROCEED IMMEDIATELY WITH FABRICATION OF THE EQUIPMENT.

1.03 MANUFACTURER: GRINDER PUMP STATION, COMPLETE WITH ALL APPURTENANCES, FORM AN INTEGRAL SYSTEM, AND AS SUCH, SHALL BE SUPPLIED BY ONE GRINDER PUMP STATION MANUFACTURER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SATISFACTORY OPERATION OF THE ENTIRE SYSTEM. THE EQUIPMENT SPECIFIED SHALL BE A PRODUCT OF A COMPANY EXPERIENCED IN THE DESIGN AND MANUFACTURE OF GRINDER PUMPS FOR SPECIFIC USE IN LOW PRESSURE SEWAGE SYSTEMS. THE COMPANY SHALL SUBMIT DETAILED INSTALLATION AND USER INSTRUCTIONS FOR ITS PRODUCT AND BE RESPONSIBLE FOR MAINTAINING A CONTINUING INVENTORY OF GRINDER PUMP REPLACEMENT PARTS. THE MANUFACTURER SHALL PROVIDE, UPON REQUEST, A REFERENCE AND CONTACT LIST FROM TEN OF ITS LARGEST CONTIGUOUS GRINDER PUMP INSTALLATIONS OF THE TYPE OF GRINDER PUMPS DESCRIBED WITHIN THIS SPECIFICATION.

THE MANUFACTURER OF THE GRINDER PUMP STATION SHALL BE ENVIRONMENT ONE CORPORATION (E/ONE).

- 1.04 EXPERIENCE CLAUSE: THE EQUIPMENT FURNISHED HEREUNDER SHALL BE THE PRODUCT OF A COMPANY EXPERIENCED IN THE DESIGN AND MANUFACTURE OF GRINDER PUMPS SPECIFICALLY DESIGNED FOR USE IN LOW PRESSURE SYSTEMS. ALL MANUFACTURERS PROPOSING EQUIPMENT FOR THIS PROJECT SHALL HAVE AT LEAST 10 YEARS OF EXPERIENCE IN THE DESIGN AND MANUFACTURE OF UNITS OF IDENTICAL SIZE(S) AND PERFORMANCE TO THE SPECIFIED UNITS. ALL MANUFACTURERS PROPOSING EQUIPMENT FOR THIS PROJECT MUST ALSO HAVE NOT LESS THAN 500 SUCCESSFUL INSTALLATIONS OF LOW PRESSURE SEWER SYSTEMS UTILIZING GRINDER PUMPS OF LIKE TYPE TO THE GRINDER PUMPS SPECIFIED HEREIN. AN INSTALLATION IS DEFINED AS A MINIMUM OF 25 PUMPS DISCHARGING INTO A COMMON FORCE MAIN WHICH FORMS A LOW PRESSURE SEWER SYSTEM. THE CONTRACTOR (SUPPLIER) PROPOSING ALTERNATE EQUIPMENT SHALL ALSO SUBMIT, AS PART OF THE BID SCHEDULE, AN INSTALLATION LIST WITH CONTACT PERSON(S), PHONE NUMBER(S) AND DATE(S) OF AT LEAST 10 INSTALLATIONS OF THE TYPE OF PUMP SPECIFIED HEREIN THAT HAVE BEEN IN OPERATION FOR AT
- 1.05 OPERATING CONDITIONS: THE PUMPS SHALL BE CAPABLE OF DELIVERING 15 GPM AGAINST A RATED TOTAL DYNAMIC HEAD OF 0 FEET (0 PSIG), 11 GPM AGAINST A RATED TOTAL DYNAMIC HEAD OF 92 FEET (40 PSIG), AND 7.8 GPM AGAINST A RATED TOTAL DYNAMIC HEAD OF 185 FEET (80 PSIG). THE PUMP(S) MUST ALSO BE CAPABLE OF OPERATING AT NEGATIVE TOTAL DYNAMIC HEAD WITHOUT OVERLOADING THE MOTOR(S). UNDER NO CONDITIONS SHALL IN-LINE PIPING OR VALVING BE ALLOWED TO CREATE A
- 1.06 WARRANTY: THE GRINDER PUMP MANUFACTURER SHALL PROVIDE A PART(S) AND LABOR WARRANTY ON THE COMPLETE STATION AND ACCESSORIES, INCLUDING, BUT NOT LIMITED TO, THE PANEL FOR A PERIOD OF 60 MONTHS AFTER NOTICE OF OWNER'S ACCEPTANCE, BUT NO GREATER THAN 63 MONTHS AFTER RECEIPT OF SHIPMENT. ANY MANUFACTURING DEFECTS FOUND DURING THE WARRANTY PERIOD WILL BE REPORTED TO THE MANUFACTURER BY THE OWNER AND WILL BE CORRECTED BY THE
- 1.07 WARRANTY PERFORMANCE CERTIFICATION: UPON REQUEST A WARRANTY CERTIFICATION SHALL BE PROVIDED. A WARRANTY PERFORMANCE CERTIFICATION STATEMENT EXECUTED BY THE MOST SENIOR EXECUTIVE OFFICER OF THE GRINDER PUMP MANUFACTURER. WHICH CERTIFIES A MINIMUM OF A 60-MONTH WARRANTY. THEY MUST FURTHER DETAIL ANY EXCLUSIONS FROM THE WARRANTY OR ADDITIONAL COST ITEMS REQUIRED TO MAINTAIN THE EQUIPMENT IN WARRANTABLE CONDITION, INCLUDING ALL ASSOCIATED LABOR AND SHIPPING FEES, AND CERTIFY THAT THE MANUFACTURER WILL BEAR ALL COSTS TO CORRECT ANY ORIGINAL EQUIPMENT DEFICIENCY FOR THE EFFECTIVE PERIOD OF THE WARRANTY. ALL PREVENTIVE MAINTENANCE TYPE REQUIREMENTS SHALL BE INCLUDED IN THIS FORM AS EXCLUSIONS.
- SINGLE MECHANICAL SEAL DOUBLE RADIAL O-RING SEALS ARE REQUIRED AT ALL CASTING JOINTS TO MINIMIZE CORROSION AND CREATE A PROTECTIVE BARRIER. ALL PUMP CASTINGS SHALL BE CAST IRON, FULLY EPOXY COATED TO 8-10 MIL NOMINAL DRY THICKNESS, WET APPLIED. THE ROTOR SHALL BE THROUGH-HARDENED, HIGHLY POLISHED, PRECIPITATION HARDENED STAINLESS STEEL. THE STATOR SHALL BE OF A SPECIFICALLY COMPOUNDED ETHYLENE PROPYLENE SYNTHETIC ELASTOMER. THIS MATERIAL SHALL BE SUITABLE FOR DOMESTIC WASTEWATER SERVICE. ITS PHYSICAL PROPERTIES SHALL INCLUDE HIGH TEAR AND ABRASION RESISTANCE, GREASE RESISTANCE, WATER AND DETERGENT RESISTANCE, TEMPERATURE STABILITY, EXCELLENT AGING PROPERTIES, AND OUTSTANDING WEAR RESISTANCE. BUNA-N IS NOT ACCEPTABLE AS A STATOR
- 2.02 GRINDER: THE GRINDER SHALL BE PLACED IMMEDIATELY BELOW THE PUMPING ELEMENTS AND SHALL BE DIRECT-DRIVEN BY A SINGLE, ONE-PIECE MOTOR SHAFT. THE GRINDER IMPELLER (CUTTER WHEEL) ASSEMBLY SHALL BE SECURELY FASTENED TO THE PUMP MOTOR SHAFT BY MEANS OF A THREADED CONNECTION ATTACHING THE GRINDER IMPELLER TO THE MOTOR SHAFT. ATTACHMENT BY MEANS OF PINS OR KEYS WILL NOT BE ACCEPTABLE. THE GRINDER IMPELLER SHALL BE A ONE-PIECE, 4140 CUTTER WHEEL OF THE ROTATING TYPE WITH INDUCTIVELY HARDENED CUTTER TEETH. THE CUTTER TEETH SHALL BE INDUCTIVELY HARDENED TO ROCKWELL 50 - 60C FOR abrasion resistance. The shredder ring shall be of the stationary type and the material shall be white cast iron. The teeth shall be ground into the MATERIAL TO ACHIEVE EFFECTIVE GRINDING. THE SHREDDER RING SHALL HAVE A STAGGERED TOOTH PATTERN WITH ONLY ONE EDGE ENGAGED AT A TIME, MAXIMIZING THE CUTTING TORQUE. THESE MATERIALS HAVE BEEN CHOSEN FOR THEIR CAPACITY TO PERFORM IN THE INTENDED ENVIRONMENT AS THEY ARE MATERIALS WITH WEAR AND
- THIS ASSEMBLY SHALL BE DYNAMICALLY BALANCED AND OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION OVER THE ENTIRE RANGE OF RECOMMENDED OPERATING PRESSURES. THE GRINDER SHALL BE CONSTRUCTED SO AS TO MINIMIZE CLOGGING AND JAMMING UNDER ALL NORMAL OPERATING CONDITIONS INCLUDING STARTING. SUFFICIENT VORTEX ACTION SHALL BE CREATED TO SCOUR THE TANK FREE OF DEPOSITS OR SLUDGE BANKS WHICH WOULD IMPAIR THE OPERATION OF THE PUMP. THESE
- 2. THE MAXIMUM FLOW RATE THROUGH THE CUTTING MECHANISM MUST NOT EXCEED 4 FEET PER SECOND. THIS IS A CRITICAL DESIGN ELEMENT TO MINIMIZE JAMMING AND AS
- 3. THE INLET SHROUD SHALL HAVE A DIAMETER OF NO LESS THAN 5 INCHES. INLET SHROUDS THAT ARE LESS THAN 5 INCHES IN DIAMETER WILL NOT BE ACCEPTED DUE TO THEIR INABILITY TO MAINTAIN THE SPECIFIED 4 FEET PER SECOND MAXIMUM INLET VELOCITY WHICH BY DESIGN PREVENTS UNNECESSARY JAMMING OF THE CUTTER MECHANISM AND MINIMIZES BLINDING OF THE PUMP BY LARGE OBJECTS THAT BLOCK THE INLET SHROUD.
- THE GRINDER SHALL BE CAPABLE OF REDUCING ALL COMPONENTS IN NORMAL DOMESTIC SEWAGE, INCLUDING A REASONABLE AMOUNT OF "FOREIGN OBJECTS," SUCH AS PAPER, WOOD, PLASTIC, GLASS, WIPES, RUBBER AND THE LIKE, TO FINELY-DIVIDED PARTICLES WHICH WILL PASS FREELY THROUGH THE PASSAGES OF THE PUMP AND THE
- TYPE WITH CLASS F INSTALLATION, LOW STARTING CURRENT NOT TO EXCEED 30 AMPERES AND HIGH STARTING TORQUE OF 8.4 FOOT POUNDS. THE MOTOR SHALL BE PRESS-FIT INTO THE CASTING FOR BETTER HEAT TRANSFER AND LONGER WINDING LIFE. INHERENT PROTECTION AGAINST RUNNING OVERLOADS OR LOCKED ROTOR CONDITIONS FOR THE PUMP MOTOR SHALL BE PROVIDED BY THE USE OF AN AUTOMATIC-RESET, INTEGRAL THERMAL OVERLOAD PROTECTOR INCORPORATED INTO THE MOTOR. THIS MOTOR PROTECTOR COMBINATION SHALL HAVE BEEN SPECIFICALLY INVESTIGATED AND LISTED BY UNDERWRITERS LABORATORIES, INC., FOR THE APPLICATION. NON-CAPACITOR START MOTORS OR PERMANENT SPLIT CAPACITOR MOTORS WILL NOT BE ACCEPTED BECAUSE OF THEIR REDUCED STARTING TORQUE AND CONSEQUENT DIMINISHED GRINDING CAPABILITY. THE WET PORTION OF THE MOTOR ARMATURE MUST BE 300 SERIES STAINLESS. TO REDUCE THE POTENTIAL OF ENVIRONMENTAL CONCERNS,
- THE EXPENSE OF HANDLING AND DISPOSING OF OIL, AND THE ASSOCIATED MAINTENANCE COSTS, OIL-FILLED MOTORS WILL NOT BE ACCEPTED. 2.04 MECHANICAL SEAL: THE PUMP/CORE SHALL BE PROVIDED WITH A MECHANICAL SHAFT SEAL TO PREVENT LEAKAGE BETWEEN THE MOTOR AND PUMP. THE SEAL SHALL HAVE A STATIONARY CERAMIC SEAT AND CARBON ROTATING SURFACE WITH FACES PRECISION LAPPED AND HELD IN POSITION BY A STAINLESS-STEEL SPRING.
- 2.05 TANK & INTEGRAL ACCESSWAY: (E/ONE MODEL DH152-93 150 GALLON DUPLEX) POLYETHYLENE CONSTRUCTION. THE TANK SHALL BE A WETWELL/DRYWELL DESIGN MADE DOUBLE WALL CONSTRUCTION WITH THE INTERNAL WALL BEING GENERALLY SMOOTH TO PROMOTE SCOURING. THE CORRUGATIONS OF THE OUTSIDE WALL ARE TO BE A MINIMUM AMPLITUDE OF 1-1/2" TO PROVIDE NECESSARY TRANSVERSE STIFFNESS. ANY INCIDENTAL SECTIONS OF A SINGLE WALL CONSTRUCTION ARE TO BE 0.250" THICK (MINIMUM). ALL SEAMS CREATED DURING TANK CONSTRUCTION ARE TO BE THERMALLY WELDED AND FACTORY TESTED FOR LEAK TIGHTNESS. THE TANK WALL AND BOTTOM MUST WITHSTAND THE PRESSURE EXERTED BY SATURATED SOIL LOADING AT MAXIMUM BURIAL DEPTH. ALL STATION COMPONENTS MUST FUNCTION NORMALLY WHEN EXPOSED
- THE TANK SHALL BE FURNISHED WITH ONE EPDM GROMMET FITTING TO ACCEPT A 4.50" OD DWV OR SCHEDULE 40 PIPE. THE TANK CAPACITIES SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.
- OR SEALANTS REQUIRING CURE TIME BEFORE INSTALLATION CAN BE COMPLETED.
- WILL NOT BE ACCEPTED. THE BULKHEAD PENETRATION SHALL BE FACTORY INSTALLED AND WARRANTED BY THE MANUFACTURER TO BE WATERTIGHT. THE ACCESSWAY SHALL INCLUDE A SINGLE NEMA 6P ELECTRICAL QUICK DISCONNECT (EQD) FOR ALL POWER AND CONTROL FUNCTIONS, FACTORY INSTALLED WITH ACCESSWAY PENETRATIONS WARRANTED BY THE MANUFACTURER TO BE WATERTIGHT. THE EQD WILL BE SUPPLIED WITH 32', 25' OF USEABLE ELECTRICAL SUPPLY CABLE
- REQUIRED. THE ACCESSWAY SHALL ALSO INCLUDE AN INTEGRAL 2-INCH VENT TO PREVENT SEWAGE GASES FROM ACCUMULATING IN THE TANK 2.06 CHECK VALVE: THE PUMP DISCHARGE SHALL BE EQUIPPED WITH A FACTORY INSTALLED, GRAVITY OPERATED, FLAPPER-TYPE INTEGRAL CHECK VALVE BUILT INTO THE 6 INCHES OF WATER AT MAXIMUM RATED FLOW. MOVING PARTS WILL BE MADE OF A 300 SERIES STAINLESS STEEL AND FABRIC REINFORCED SYNTHETIC ELASTOMER TO ENSURE CORROSION RESISTANCE, DIMENSIONAL STABILITY, AND FATIGUE STRENGTH. A NONMETALLIC HINGE SHALL BE AN INTEGRAL PART OF THE FLAPPER ASSEMBLY OF AN ENGINEERED THERMOPLASTIC RESIN. THE VALVE SHALL BE RATED FOR CONTINUOUS OPERATING PRESSURE OF 235 PSI. BALL-TYPE CHECK VALVES ARE
- 2.07 ANTI-SIPHON VALVE: THE PUMP DISCHARGE SHALL BE EQUIPPED WITH A FACTORY-INSTALLED, GRAVITY-OPERATED, FLAPPER-TYPE INTEGRAL ANTI-SIPHON VALVE BUILT INTO THE STAINLESS STEEL DISCHARGE PIPING. MOVING PARTS WILL BE MADE OF 300 SERIES STAINLESS STEEL AND FABRIC-REINFORCED SYNTHETIC ELASTOMER TO ENSURE CORROSION RESISTANCE, DIMENSIONAL STABILITY, AND FATIGUE STRENGTH. A NONMETALLIC HINGE SHALL BE AN INTEGRAL PART OF THE FLAPPER ASSEMBLY, PROVIDING A MAXIMUM DEGREE OF FREEDOM TO ENSURE PROPER OPERATION EVEN AT A VERY LOW PRESSURE. THE VALVE BODY SHALL BE INJECTION-MOLDED FROM AN ENGINEERED THERMOPLASTIC RESIN. HOLES OR PORTS IN THE DISCHARGE PIPING ARE NOT ACCEPTABLE ANTI-SIPHON DEVICES DUE TO THEIR TENDENCY TO CLOG FROM THE SOLIDS IN
- 2.08 CORE UNIT: THE GRINDER PUMP STATION SHALL HAVE A CARTRIDGE TYPE, EASILY REMOVABLE CORE ASSEMBLY CONSISTING OF PUMP, MOTOR, GRINDER, ALL MOTOR CONTROLS, CHECK VALVE, ANTI-SIPHON VALVE, LEVEL CONTROLS, ELECTRICAL QUICK DISCONNECT AND WIRING. THE CORE UNIT SHALL BE INSTALLED IN THE BASIN BY THE MANUFACTURER. FIELD ASSEMBLY OF THE PUMP AND CONTROLS INTO THE BASIN IS NOT ACCEPTABLE BECAUSE OF POTENTIAL WORKMANSHIP ISSUES AND INCREASED INSTALLATION TIME. IN SOME CASES, STATIONS TALLER THAN 96" MAY BE SHIPPED ON THEIR SIDE WITHOUT THE CORES ASSEMBLED IN THE BASIN FOR FREIGHT PURPOSES BUT THIS IS THE ONLY EXCEPTION. THE CORE UNIT SHALL SEAL TO THE TANK DECK WITH A STAINLESS—STEEL LATCH ASSEMBLY. THE LATCH ASSEMBLY MUST BE ACTUATED UTILIZING A SINGLE QUICK RELEASE MECHANISM REQUIRING NO MORE THAN A HALF TURN OF A WRENCH. THE WATERTIGHT INTEGRITY OF EACH CORE UNIT SHALL BE
- 2.09 CONTROLS: ALL NECESSARY MOTOR STARTING CONTROLS SHALL BE LOCATED IN THE CAST IRON ENCLOSURE OF THE CORE UNIT SECURED BY STAINLESS STEEL SEPARATE ENCLOSURE FROM MOTOR STARTING CONTROLS. THE LEVEL SENSOR HOUSING MUST BE SEALED VIA A RADIAL TYPE SEAL; SOLVENTS OR GLUES ARE NOT ACCEPTABLE. THE LEVEL SENSING CONTROL HOUSING MUST BE INTEGRALLY ATTACHED TO PUMP ASSEMBLY SO THAT IT MAY BE REMOVED FROM THE STATION WITH THE PUMP AND IN SUCH A WAY AS TO MINIMIZE THE POTENTIAL FOR THE ACCUMULATION OF GREASE AND DEBRIS ACCUMULATION, ETC. THE LEVEL SENSING HOUSING MUST BE A HIGH-IMPACT THERMOPLASTIC COPOLYMER OVER-MOLDED WITH A THERMO PLASTIC ELASTOMER. THE USE OF PVC FOR THE LEVEL SENSING HOUSING IS NOT ACCEPTABLE. NON-FOULING WASTEWATER LEVEL CONTROLS FOR CONTROLLING PUMP OPERATION SHALL BE ACCOMPLISHED BY MONITORING THE PRESSURE CHANGES IN AN INTEGRAL AIR COLUMN CONNECTED TO A PRESSURE SWITCH. THE AIR COLUMN SHALL BE INTEGRALLY MOLDED FROM A THERMOPLASTIC ELASTOMER SUITABLE FOR USE IN WASTEWATER AND WITH EXCELLENT IMPACT RESISTANCE. THE AIR COLUMN SHALL HAVE ONLY A SINGLE CONNECTION BETWEEN THE WATER LEVEL BEING MONITORED AND THE PRESSURE SWITCH. ANY CONNECTIONS ARE TO BE SEALED RADIALLY WITH REDUNDANT O-RINGS. THE LEVEL DETECTION DEVICE SHALL HAVE NO MOVING PARTS IN DIRECT CONTACT WITH THE WASTEWATER AND SHALL BE INTEGRAL TO THE PUMP CORE ASSEMBLY IN A SINGLE, READILY-EXCHANGED UNIT. DEPRESSING THE PUSH TO RUN BUTTON MUST
- SEPARATE AIR COLUMN SENSOR AND PRESSURE SWITCH OF THE SAME TYPE. CLOSURE OF THE HIGH-LEVEL SENSING DEVICE WILL ENERGIZE AN ALARM CIRCUIT AS WELL AS A REDUNDANT PUMP-ON CIRCUIT. FOR INCREASED RELIABILITY, PUMP ON/OFF AND HIGH-LEVEL ALARM FUNCTIONS SHALL NOT BE CONTROLLED BY THE SAME SWITCH. FLOAT SWITCHES OF ANY KIND, INCLUDING FLOAT TREES, WILL NOT BE ACCEPTED DUE TO THE PERIODIC NEED TO MAINTAIN (RINSING, CLEANING) SUCH DEVICES AND THEIR TENDENCY TO MALFUNCTION BECAUSE OF INCORRECT WIRING, TANGLING, GREASE BUILDUP, AND MECHANICAL CORD FATIGUE. TO ASSURE RELIABLE OPERATION OF THE PRESSURE SWITCHES, EACH CORE SHALL BE EQUIPPED WITH A FACTORY INSTALLED EQUALIZER DIAPHRAGM THAT COMPENSATES FOR ANY ATMOSPHERIC PRESSURE OR TEMPERATURE CHANGES. TUBE OR PIPING RUNS OUTSIDE OF THE STATION TANK OR INTO TANK—MOUNTED JUNCTION BOXES PROVIDING PRESSURE SWITCH EQUALIZATION WILL NOT BE PERMITTED DUE TO THEIR SUSCEPTIBILITY TO CONDENSATION, KINKING, PINCHING, AND INSECT INFESTATION. THE GRINDER PUMP WILL BE FURNISHED WITH A 6 CONDUCTOR 14 GAUGE, TYPE SJOW CABLE, PRE-WIRED AND WATERTIGHT TO MEET UL REQUIREMENTS WITH A FACTORY INSTALLED NEMA 6P EQD HALF ATTACHED TO IT

- 2.12 STAINLESS STEEL CURB STOP/CHECK VALVE ASSEMBLY (UNI-LATERAL): THE CURB STOP SHALL BE PRESSURE-TIGHT IN BOTH DIRECTIONS. THE BALL VALVE ACTUATOR SHALL INCLUDE POSITION STOP FEATURES AT THE FULLY OPENED AND CLOSED POSITIONS. THE CURB STOP/CHECK VALVE ASSEMBLY SHALL BE DESIGNED TO WITHSTAND A WORKING PRESSURE OF 235 PSI.
- THE STAINLESS-STEEL CHECK VALVE SHALL BE INTEGRAL WITH THE CURB STOP VALVE. THE CHECK VALVE WILL PROVIDE A FULL-PORTED 1-1/4" PASSAGEWAY AND SHALL INTRODUCE MINIMAL FRICTION LOSS AT MAXIMUM RATED FLOW. THE FLAPPER HINGE DESIGN SHALL PROVIDE A MAXIMUM DEGREE OF FREEDOM AND ENSURE SEATING AT LOW
- ENGINEERED THERMOPLASTIC FITTINGS ALL PLASTIC FITTING COMPONENTS ARE TO BE IN COMPLIANCE WITH APPLICABLE ASTM STANDARDS. ALL PIPE CONNECTIONS SHALL BE MADE USING COMPRESSION FITTING CONNECTIONS INCLUDING A BUNA-N O-RING FOR SEALING TO THE OUTSIDE DIAMETER OF THE PIPE. A SPLIT-COLLET LOCKING DEVICE SHALL BE INTEGRATED INTO ALL PIPE CONNECTION FITTINGS TO SECURELY RESTRAIN THE PIPE FROM HYDRAULIC PRESSURE AND EXTERNAL
- CURB BOX / METER BOX CURB BOX OR METER BOX SHALL BE CONSTRUCTED OF ABS, CONFORMING TO ASTM-D 1788. LID TOP CASTING SHALL BE CAST IRON, CONFORMING TO ASTM A-48 CLASS 25, PROVIDING MAGNETIC DETECTABILITY, AND BE PAINTED BLACK. ALL COMPONENTS SHALL BE INHERENTLY CORROSION-RESISTANT TO ENSURE DURABILITY IN THE GROUND. CURB BOXES SHALL PROVIDE HEIGHT ADJUSTMENT DOWNWARD (SHORTER) FROM THEIR NOMINAL HEIGHT. FACTORY TEST - THE STAINLESS STEEL, COMBINATION CURB STOP/CHECK VALVE COMPONENT SHALL BE 100 PERCENT HYDROSTATICALLY TESTED TO 150 PSI IN THE
- DUPLEX PROTECT PLUS: EACH GRINDER PUMP STATION SHALL INCLUDE A NEMA 4X, UL-LISTED ALARM PANEL SUITABLE FOR WALL OR POLE MOUNTING. THE NEMA 4X ENCLOSURE SHALL BE MANUFACTURED OF THERMOPLASTIC TO ENSURE CORROSION RESISTANCE. THE ENCLOSURE SHALL INCLUDE A HINGED, LOCKABLE COVER WITH PADLOCK, PREVENTING ACCESS
- TO ELECTRICAL COMPONENTS, AND CREATING A SECURED SAFETY FRONT TO ALLOW ACCESS ONLY TO AUTHORIZED PERSONNEL. THE STANDARD ENCLOSURE SHALL NOT EXCEED 12.5" W X 16" H X 7.5" D. THE PANEL SHALL CONTAIN ONE 15-AMP SINGLE POLE CIRCUIT BREAKER FOR THE ALARM CIRCUIT AND ONE 15-AMP DOUBLE POLE CIRCUIT BREAKER PER CORE FOR THE POWER CIRCUIT. THE PANEL SHALL CONTAIN A PUSH-TO-RUN FEATURE, AN INTERNAL RUN INDICATOR, AND A COMPLETE ALARM CIRCUIT. ALL CIRCUIT BOARDS IN THE ALARM PANEL ARE TO BE PROTECTED WITH A CONFORMAL COATING ON BOTH SIDES AND THE AC POWER CIRCUIT SHALL INCLUDE AN AUTO RESETTING FUSE. THE VISUAL ALARM LAMP SHALL BE INSIDE A RED, OBLONG LENS AT LEAST 3.75" L X 2.38" W X 1.5" H. VISUAL ALARM SHALL BE MOUNTED TO THE TOP OF THE ENCLOSURE IN SUCH A MANNER AS TO MAINTAIN NEMA 4X RATING. THE AUDIBLE ALARM SHALL BE EXTERNALLY MOUNTED ON THE BOTTOM OF THE ENCLOSURE, CAPABLE OF 93 DB @ 2 FEET. THE AUDIBLE ALARM SHALL BE CAPABLE OF BEING DEACTIVATED BY DEPRESSING A PUSH-TYPE SWITCH THAT IS ENCAPSULATED IN A WEATHERPROOF
- 1. THE PANEL WILL GO INTO ALARM MODE IF EITHER PUMP'S ALARM SWITCH CLOSES, DURING THE INITIAL ALARM MODE BOTH PUMPS WILL RUN AND THE ALARM LIGHT AND BUZZER WILL BE DELAYED FOR A PERIOD OF TIME BASED ON USER SETTINGS (DEFAULT IS 3-1/2 MINUTES). IF THE STATION IS STILL IN HIGH-LEVEL ALARM AFTER THE DELAY, THE LIGHT AND BUZZER WILL BE ACTIVATED.
- 2. THE AUDIBLE ALARM MAY BE SILENCED BY MEANS OF THE EXTERNALLY MOUNTED PUSH-TO-SILENCE BUTTON. 3. THE VISUAL ALARM REMAINS ILLUMINATED UNTIL THE SEWAGE LEVEL IN THE WET WELL DROPS BELOW THE "OFF" SETTING OF THE ALARM SWITCH FOR BOTH PUMPS.
- THE ENTIRE ALARM PANEL, AS MANUFACTURED AND INCLUDING ANY OF THE FOLLOWING OPTIONS SHALL BE LISTED BY UNDERWRITERS LABORATORIES, INC. CONTAINS THE FOLLOWING FEATURES: ALARM ACTIVATED DRY CONTACTS — NORMALLY OPEN RELAY CONTACT CLOSES UPON ALARM ACTIVATION.
- ALARM ACTIVATED CONTACTS FOR REMOTE INDOOR ALARM MODULE WILL WORK WITH OR WITHOUT POWER TO THE ALARM PANEL AND IS DESIGNED TO WORK WITH E/ONE'S REMOTE SENTRY. INCLUDES INNER DOOR DEAD FRONT

THE HIGH-LEVEL ALARM SYSTEM SHALL OPERATE AS FOLLOWS:

SILICONE BOOT AND MOUNTED ON THE BOTTOM OF THE ENCLOSURE (PUSH-TO-SILENCE BUTTON).

- SEPARATE LED'S FOR EACH CONDITION PROVIDES PROTECTION FROM THE FOLLOWING OPERATING CONDITIONS:
- LOW VOLTAGE (BROWNOUT) PROTECTION A LOCKOUT CYCLE WILL PREVENT THE MOTOR FROM OPERATING AND WILL ILLUMINATE THE TROUBLE LED IF: O THE INCOMING AC MAINS VOLTAGE DROPS BELOW A PREDETERMINED MINIMUM, TYPICALLY 12% OF NAMEPLATE (211 VOLTS FOR A 240 VOLT SYSTEM) FOR 2 TO 3
- SECONDS, REGARDLESS OF WHETHER THE MOTOR IS RUNNING THE LOCKOUT CYCLE WILL END IF THE INCOMING AC MAINS VOLTAGE RETURNS TO A PREDETERMINED VALUE, TYPICALLY 10% OF NAMEPLATE (216 VOLTS FOR A 240 VOLT
- THE SYSTEM CONTINUES TO RETEST THE VOLTAGE EVERY SECOND INDEFINITELY. IF THE LOCKOUT CYCLE HAS BEEN INITIATED AND THE VOLTAGE COMES BACK ABOVE THE PREDETERMINED STARTING VOLTAGE, THE SYSTEM WILL FUNCTION NORMALLY. THE TROUBLE LED REMAINS ILLUMINATED DURING A BROWNOUT CONDITION AND A CORRESPONDING BROWNOUT MESSAGE WILL BE DISPLAYED ON THE LCD SCREEN. THE LED WILL TURN OFF WHEN THE BROWNOUT CONDITION ENDS AND THE LCD MESSAGE REMAINS LATCHED UNTIL THE PANEL IS RESET. THE AUDIBLE AND VISUAL ALARM WILL NOT BE ACTIVATED UNLESS THERE IS A HIGH WASTEWATER LEVEL IN
- RUN DRY PROTECTION A 20-MINUTE LOCKOUT CYCLE WILL PREVENT THE MOTOR FROM OPERATING AND WILL ILLUMINATE THE TROUBLE LED WHEN THE WASTEWATER LEVEL IN THE TANK IS BELOW THE PUMP INLET SHROUD. A CORRESPONDING RUN DRY MESSAGE WILL BE DISPLAYED ON THE LCD SCREEN. THE CONDITION IS RECHECKED EVERY 20 MINUTES AND THE LCD MESSAGE REMAINS LATCHED. IF THE CONDITION IS SATISFIED, THE PUMP IS ALLOWED TO CYCLE NORMALLY AND THE TROUBLE LED WILL GO OUT, BUT THE LCD MESSAGE REMAINS LATCHED. THE LCD MESSAGE WILL REMAIN LATCHED UNTIL THE PANEL IS RESET. IF THE CONDITION IS NOT SATISFIED AFTER 3 CONSECUTIVE ATTEMPTS, THE VISUAL ALARM WILL BE ACTIVATED UNTIL THE PANEL IS RESET OR UNTIL THERE IS ONE CYCLE OF NORMAL OPERATION. IF A HIGH LEVEL CONDITION IS PRESENTED AT ANY TIME, A PUMP RUN CYCLE WILL BE ACTIVATED.
- HIGH SYSTEM PRESSURE PROTECTION A 20-MINUTE LOCKOUT CYCLE WILL PREVENT THE MOTOR FROM OPERATING AND WILL ILLUMINATE THE TROUBLE LED WHEN THE PRESSURE IN THE DISCHARGE LINE IS ATYPICALLY HIGH (CLOSED VALVE OR ABNORMAL LINE PLUG). A CORRESPONDING OVERPRESSURE MESSAGE WILL BE DISPLAYED ON THE LCD SCREEN. THE CONDITION IS RECHECKED EVERY 20 MINUTES. IF THE CONDITION IS SATISFIED, THE PUMP IS ALLOWED TO CYCLE NORMALLY AND THE TROUBLE LED WILL TURN OFF, BUT THE LCD MESSAGE REMAINS LATCHED. THE LCD MESSAGE WILL REMAIN LATCHED UNTIL THE PANEL IS RESET. IF THE CONDITION IS NOT SATISFIED AFTER 3 CONSECUTIVE ATTEMPTS, THE PUMP IS LOCKED OUT INDEFINITELY AND THE AUDIBLE AND VISUAL ALARM WILL BE ACTIVATED. THE LCD MESSAGE AND ALARMS WILL REMAIN LATCHED UNTIL THE CONDITION IS REMOVED AND THE PANEL IS RESET.
- IN ALL OF THE ABOVE CASES, IF MORE THAN ONE ERROR CONDITION IS PRESENTED, THE LCD MESSAGE DEPICTING THE MOST RECENT ERROR CONDITION WILL BE DISPLAYED. PROTECT PLUS FEATURES:
- HIGH/LOW VOLTAGE MONITORING WITH TROUBLE INDICATION • HIGH/LOW WATTAGE (WATTAGE IS USED INSTEAD OF CURRENT BECAUSE IT IS A BETTER INDICATOR OF PUMP PERFORMANCE) MONITORING WITH TROUBLE INDICATION
- EXTENDED RUN TIME MONITORING WITH TROUBLE INDICATION CYCLE/EVENT COUNTER
- RUN TIME COUNTER (HOUR METER)
- RUN TIME LIMIT -- TIME ADJUSTABLE, USER-SELECTED OPTIONS: 10 MINUTES (DEFAULT) TO 120 MINUTES IN 1-MINUTE INTERVALS • POWER-UP DELAY -- TIME ADJUSTABLE, USER-SELECTED OPTIONS: NONE (DEFAULT), TO 300 MINUTES IN 1-MINUTE INTERVALS
- ALARM DELAY -- TIME ADJUSTABLE, USER-SELECTED OPTIONS: ZERO TO 10 MINUTES IN 30-SECOND INCREMENTS; 4 MINUTES IS DEFAULT
- USER-SELECTABLE ALARM LATCH
- USER-SELECTABLE PROTECT MODE DISABLE • USER-SELECTABLE BUZZER TIMER
- SPECIFIC DUPLEX PROTECT PLUS INDICATORS AND PROGRAMMING FEATURES SHALL INCLUDE:
- READY LED TO INDICATE AC POWER TO THE STATION IS SATISFACTORY • PUMP RUN LED TO INDICATE PUMP IS OPERATING (LCD INDICATES WHICH PUMP IS RUNNING)
- TROUBLE LED INDICATOR AND PREDICTIVE VISUAL ALARM NOTIFICATION ("BLINKING" ALARM LAMP: CLEARS ON NORMAL CYCLE)
- HIGH LEVEL ALARM LED INDICATOR (LCD INDICATES WHICH PUMP IS IN ALARM) • MANUAL RUN SWITCH TO MANUALLY ACTIVATE PUMPS
- LEAD/LAG INDICATION (LCD INDICATES WHICH PUMP IS LEAD)
- MENU-DRIVEN PROGRAMMABLE CONTROLLER WITH NAVIGATION OVERLAY-TYPE BUTTONS (ENTER, SCROLL, UP, DOWN) • NORMAL OPERATION LED AND MODE BUTTON FOR MODE STATUS
- PUMP PERFORMANCE MENU LED WITH LCD DISPLAY OF THE FOLLOWING PUMP PERFORMANCE STATISTICS: • REAL-TIME VOLTAGE
- REAL-TIME AMPERAGE
- REAL-TIME WATTAGE MINIMUM/MAXIMUM/AVERAGE VOLTAGE
- MINIMUM/MAXIMUM/AVERAGE AMPERAGE MINIMUM/MAXIMUM/AVERAGE WATTAGE
- MINIMUM /MAXIMUM RUN-TIME AVERAGE RUN-TIME
- LAST RUN-TIME CYCLE/EVENT COUNTER
- RUN TIME COUNTER (HOUR METER) DIAGNOSTICS MENU LED
- INITIALIZE SYSTEM MENU LED
- RUN LIMIT MENU LED
- ALARM DELAY MENU LED
- POWER DELAY MENU LED
- PUMP ALTERNATING OPTIONS (NO ALTERNATION, ADJUSTABLE TIME BASED AND TEST) • PUMP ALTERNATING TIME OPTIONS -- 24 HOURS TO 72 HOURS IN 12-HOUR INCREMENTS
- 2.14 SERVICEABILITY: THE GRINDER PUMP CORE, INCLUDING LEVEL SENSOR ASSEMBLY, SHALL HAVE TWO LIFTING HOOKS COMPLETE WITH LIFT-OUT HARNESS CONNECTED TO ITS TOP HOUSING TO FACILITATE EASY CORE REMOVAL WHEN NECESSARY. THE LEVEL SENSOR ASSEMBLY MUST BE EASILY REMOVED FROM THE PUMP ASSEMBLY FOR SERVICE OR REPLACEMENT. ALL MECHANICAL AND ELECTRICAL CONNECTIONS MUST PROVIDE EASY DISCONNECT CAPABILITY FOR CORE UNIT REMOVAL AND INSTALLATION. EACH EQD HALF MUST INCLUDE A WATER-TIGHT COVER TO PROTECT THE INTERNAL ELECTRICAL PINS WHILE THE EQD IS UNPLUGGED. A PUMP PUSH-TO-RUN FEATURE WILL BE PROVIDED FOR FIELD TROUBLE SHOOTING. THE PUSH-TO-RUN FEATURE MUST OPERATE THE PUMP EVEN IF THE LEVEL SENSOR ASSEMBLY HAS BEEN REMOVED FROM THE PUMP ASSEMBLY. ALL MOTOR CONTROL COMPONENTS SHALL BE MOUNTED ON A READILY REPLACEABLE BRACKET FOR EASE OF FIELD SERVICE.
- 2.15 OSHA CONFINED SPACE: ALL MAINTENANCE TASKS FOR THE GRINDER PUMP STATION MUST BE POSSIBLE WITHOUT ENTRY INTO THE GRINDER PUMP STATION (AS PER OSHA 1910.146, PERMIT-REQUIRED CONFINED SPACES). ENTRY MEANS THE ACTION BY WHICH A PERSON PASSES THROUGH AN OPENING INTO A PERMIT-REQUIRED CONFINED SPACE. ENTRY INCLUDES ENSUING WORK ACTIVITIES IN THAT SPACE AND IS CONSIDERED TO HAVE OCCURRED AS SOON AS ANY PART OF THE ENTRANT'S BODY BREAKS THE PLANE OF AN OPENING INTO THE SPACE.
- 2.16 SAFETY: THE GRINDER PUMP SHALL BE FREE FROM ELECTRICAL AND FIRE HAZARDS AS REQUIRED IN A RESIDENTIAL ENVIRONMENT. AS EVIDENCE OF COMPLIANCE WITH THIS REQUIREMENT, THE COMPLETELY ASSEMBLED AND WIRED GRINDER PUMP STATION SHALL BE LISTED BY UNDERWRITERS LABORATORIES, INC. TO BE SAFE AND APPROPRIATE FOR THE INTENDED USE. UL LISTING OF COMPONENTS OF THE STATION, OR THIRD—PARTY TESTING TO UL STANDARD ARE NOT ACCEPTABLE. UL LISTING AS A COMPLETE STATION IS MANDATORY-NO EXCEPTION.
- THE GRINDER PUMP SHALL MEET ACCEPTED STANDARDS FOR PLUMBING EQUIPMENT FOR USE IN OR NEAR RESIDENCES, SHALL BE FREE FROM NOISE, ODOR, OR HEALTH HAZARDS, AND SHALL HAVE BEEN TESTED BY AN INDEPENDENT LABORATORY TO CERTIFY ITS CAPABILITY TO PERFORM AS SPECIFIED IN EITHER INDIVIDUAL OR LOW-PRESSURE SEWER SYSTEM APPLICATIONS. AS EVIDENCE OF COMPLIANCE WITH THIS REQUIREMENT, THE GRINDER PUMP SHALL BEAR THE SEAL OF NSF INTERNATIONAL. THIRD-PARTY TESTING TO NSF STANDARD IS NOT ACCEPTABLE.
- 3.01 FACTORY TEST: EACH GRINDER PUMP SHALL BE SUBMERGED AND OPERATED FOR 1.5 MINUTES (MINIMUM). INCLUDED IN THIS PROCEDURE WILL BE THE TESTING OF ALL ANCILLARY COMPONENTS SUCH AS, THE ANTI-SIPHON VALVE, CHECK VALVE, DISCHARGE ASSEMBLY AND EACH UNIT'S DEDICATED LEVEL CONTROLS AND MOTOR CONTROLS. ALL FACTORY TESTS SHALL INCORPORATE EACH OF THE ABOVE LISTED ITEMS. ACTUAL APPURTENANCES AND CONTROLS WHICH WILL BE INSTALLED IN THE FIELD SHALL BE PARTICULAR TO THE TESTED PUMP ONLY. A COMMON SET OF APPURTENANCES AND CONTROLS FOR ALL PUMPS IS NOT ACCEPTABLE. CERTIFIED TEST RESULTS SHALL BE AVAILABLE UPON REQUEST SHOWING THE OPERATION OF EACH GRINDER PUMP AT TWO DIFFERENT POINTS ON ITS CURVE. ADDITIONAL VALIDATION TESTS INCLUDE: INTEGRAL LEVEL CONTROL PERFORMANCE, CONTINUITY TO GROUND AND ACOUSTIC TESTS OF THE ROTATING COMPONENTS.

THE ENGINEER RESERVES THE RIGHT TO INSPECT SUCH TESTING PROCEDURES WITH REPRESENTATIVES OF THE OWNER, AT THE GRINDER PUMP MANUFACTURER'S FACILITY.

ALL COMPLETED STATIONS SHALL BE FACTORY LEAK TESTED TO ASSURE THE INTEGRITY OF ALL JOINTS, SEAMS AND PENETRATIONS. ALL NECESSARY PENETRATIONS SUCH AS INLETS, DISCHARGE FITTINGS AND CABLE CONNECTORS SHALL BE INCLUDED IN THIS TEST ALONG WITH THEIR RESPECTIVE SEALING MEANS (GROMMETS, GASKETS ETC.). 3.02 CERTIFIED SERVICE PROGRAM: THE GRINDER PUMP MANUFACTURER SHALL PROVIDE A PROGRAM IMPLEMENTED BY THE MANUFACTURER'S PERSONNEL AS DESCRIBED IN THIS SPECIFICATION TO CERTIFY THE SERVICE COMPANY AS AN AUTHORIZED SERVICED CENTER. AS EVIDENCE OF THIS, THE MANUFACTURER SHALL PROVIDE, WHEN REQUESTED, SUFFICIENT EVIDENCE THAT THEY HAVE MAINTAINED THEIR OWN SERVICE DEPARTMENT FOR A MINIMUM OF 30 YEARS AND CURRENTLY EMPLOY A MINIMUM OF FIVE EMPLOYEES SPECIFICALLY IN THE SERVICE DEPARTMENT.

- AS PART OF THIS PROGRAM, THE MANUFACTURER SHALL EVALUATE THE SERVICE TECHNICIANS AS WELL AS THE SERVICE ORGANIZATION ANNUALLY. THE SERVICE COMPANY WILL BE AUTHORIZED BY THE MANUFACTURER TO MAKE INDEPENDENT WARRANTY JUDGMENTS. THE AREAS COVERED BY THE PROGRAM SHALL INCLUDE, AS A MINIMUM: 1. PUMP POPULATION INFORMATION -- THE SERVICE COMPANY WILL MAINTAIN A DETAILED DATABASE FOR THE GRINDER PUMPS IN THE TERRITORY THAT TRACKS SERIAL NUMBERS BY ADDRESS.
- 2. INVENTORY MANAGEMENT -- THE SERVICE COMPANY MUST MAINTAIN AN APPROPRIATE LEVEL OF INVENTORY (PUMPS, TANKS, PANELS, SERVICE PARTS, ETC.) INCLUDING REGULAR INVENTORY REVIEW AND PROPER INVENTORY LABELING. SERVICE TECHNICIANS WILL ALSO MAINTAIN APPROPRIATE PARTS INVENTORY AND SPARE CORE(S) ON
- 3. SERVICE PERSONNEL CERTIFICATION -- SERVICE TECHNICIANS WILL MAINTAIN THEIR LEVEL-SPECIFIC CERTIFICATION ANNUALLY. THE CERTIFICATIONS ARE GIVEN IN FIELD TROUBLESHOOTING, REPAIR, AND TRAINING. 4. SERVICE DOCUMENTATION AND RECORDS -- START UP SHEETS, SERVICE CALL RECORDS, AND CUSTOMER FEEDBACK WILL BE RECORDED AND AVAILABLE BY THE SERVICE
- 5. SHOP ORGANIZATION -- THE SERVICE COMPANY WILL KEEP ITS SERVICE SHOP ORGANIZED AND PUMPS WILL BE TAGGED WITH SITE INFORMATION AT ALL TIMES. THE SHOP WILL HAVE ALL REQUIRED EQUIPMENT, A TEST TANK, AND CLEANING TOOLS NECESSARY TO SERVICE PUMPS PROPERLY.
- 3.03 DELIVERY: DH152-93 GRINDER PUMP STATION WILL BE DELIVERED TO THE JOB SITE 100 PERCENT COMPLETELY ASSEMBLED, INCLUDING TESTING, READY FOR INSTALLATION. FIELD INSTALLATION OF THE PUMP IN TANKS UNDER 96 INCHES IS NOT ALLOWED. FIELD INSTALLATION OF THE LEVEL SENSOR INTO THE TANK IS NOT ALLOWED. GRINDER
- PUMP STATIONS WILL BE INDIVIDUALLY MOUNTED ON WOODEN PALLETS. 3.04 INSTALLATION: EARTH EXCAVATION AND BACKFILL ARE SPECIFIED UNDER SITE WORK, BUT ARE ALSO TO BE DONE AS A PART OF THE WORK UNDER THIS SECTION, INCLUDING ANY NECESSARY SHEETING AND BRACING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HANDLING GROUND WATER TO PROVIDE A FIRM, DRY SUBGRADE FOR THE STRUCTURE, AND SHALL GUARD AGAINST FLOTATION OR OTHER DAMAGE RESULTING FROM GENERAL WATER OR FLOODING. THE GRINDER PUMP STATIONS SHALL NOT BE SET INTO THE EXCAVATION UNTIL THE INSTALLATION PROCEDURES AND EXCAVATION HAVE BEEN APPROVED BY THE ENGINEER REMOVE PACKING MATERIAL. USER INSTRUCTIONS MUST BE GIVEN TO THE OWNER. HARDWARE SUPPLIED WITH THE UNIT, IF REQUIRED, WILL BE USED AT INSTALLATION. THE
- INSTALLATION SHALL BE ACCOMPLISHED SO THAT 1 INCH TO 4 INCHES OF ACCESSWAY, BELOW THE BOTTOM OF THE LID, EXTENDS ABOVE THE FINISHED GRADE LINE. THE FINISHED GRADE SHALL SLOPE AWAY FROM THE UNIT. THE DIAMETER OF THE EXCAVATED HOLE MUST BE LARGE ENOUGH TO ALLOW FOR THE CONCRETE ANCHOR. A 6" INCH (MINIMUM) LAYER OF NATURALLY ROUNDED AGGREGATE, CLEAN AND FREE FLOWING, WITH PARTICLE SIZE OF NOT LESS THAN 1/8" OR MORE THAN 3/4" SHALL
- BE USED AS BEDDING MATERIAL UNDER EACH UNIT. A CONCRETE ANTI-FLOTATION COLLAR, AS DETAILED ON THE DRAWINGS, AND SIZED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS, SHALL BE REQUIRED AND SHALL BE PRE-CAST TO THE GRINDER PUMP OR POURED IN PLACE. EACH GRINDER PUMP STATION WITH ITS PRE-CAST ANTI-FLOTATION COLLAR SHALL HAVE A MINIMUM OF
- THREE LIFTING EYES FOR LOADING AND UNLOADING PURPOSES. IF THE CONCRETE IS POURED IN PLACE, THE UNIT SHALL BE LEVELED, AND FILLED WITH WATER, TO THE BOTTOM OF THE INLET, TO HELP PREVENT THE UNIT FROM SHIFTING WHILE THE CONCRETE IS BEING POURED. THE CONCRETE MUST BE MANUALLY VIBRATED TO ENSURE THERE ARE NO VOIDS. IF IT IS NECESSARY TO POUR THE CONCRETE TO A LEVEL HIGHER THAN THE INLET PIPING, AN 8" SLEEVE IS REQUIRED OVER THE INLET PRIOR TO THE CONCRETE BEING POURED.
- E/ONE REQUIRES THAT AN E/ONE UNI-LATERAL ASSEMBLY (E/ONE-PART NUMBER NB0184PXX OR NC0193GXX) OR E/ONE REDUNDANT CHECK VALVE (E/ONE-PART NUMBER PC0051GXX) BE INSTALLED IN THE PIPE LATERAL OUTSIDE THE HOME BETWEEN THE PUMP DISCHARGE AND THE STREET MAIN ON ALL INSTALLATIONS. THE ELECTRICAL ENCLOSURE SHALL BE FURNISHED, INSTALLED AND WRED TO THE GRINDER PUMP STATION BY THE CONTRACTOR. AN ALARM DEVICE IS REQUIRED ON EVERY
- INSTALLATION, THERE SHALL BE NO EXCEPTIONS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND THE ENGINEER TO COORDINATE WITH THE INDIVIDUAL PROPERTY OWNER TO DETERMINE THE OPTIMUM LOCATION FOR THE ALARM PANEL. THE CONTRACTOR SHALL MOUNT THE ALARM DEVICE IN A CONSPICUOUS LOCATION, AS PER NATIONAL AND LOCAL CODES. THE ALARM PANEL WILL BE CONNECTED TO THE GRINDER PUMP STATION BY A LENGTH OF 6-CONDUCTOR TYPE TC CABLE AS SHOWN ON THE CONTRACT DRAWINGS. THE POWER AND ALARM CIRCUITS MUST BE ON
- SEPARATE POWER CIRCUITS. THE GRINDER PUMP STATION WILL BE PROVIDED WITH 25 FEET OF USEABLE, ELECTRICAL SUPPLY CABLE TO CONNECT THE STATION TO THE ALARM PANEL. THIS CABLE SHALL BE SUPPLIED WITH A FACTORY INSTALLED EQD HALF TO CONNECT TO THE MATING EQD HALF ON THE CORE. 3.05 BACKFILL REQUIREMENTS: PROPER BACKFILL IS ESSENTIAL TO THE LONG—TERM RELIABILITY OF ANY UNDERGROUND STRUCTURE. SEVERAL METHODS OF BACKFILL ARE AVAILABLE TO PRODUCE FAVORABLE RESULTS WITH DIFFERENT NATIVE SOIL CONDITIONS. THE MOST HIGHLY RECOMMENDED METHOD OF BACKFILLING IS TO SURROUND THE UNIT TO GRADE USING CLASS I OR CLASS II BACKFILL MATERIAL AS DEFINED IN ASTM 2321. CLASS 1A AND CLASS 1B ARE RECOMMENDED WHERE FROST HEAVE IS A CONCERN, CLASS 1B IS A BETTER CHOICE WHEN THE NATIVE SOIL IS SAND OR IF A HIGH, FLUCTUATING WATER TABLE IS EXPECTED. CLASS 1, ANGULAR CRUSHED STONE
- OFFERS AN ADDED BENEFIT IN THAT IT DOESN'T NEED TO BE COMPACTED. CLASS II, NATURALLY ROUNDED STONE, MAY REQUIRE MORE COMPACTIVE EFFORT, OR TAMPING, TO ACHIEVE THE PROPER DENSITY. IF THE NATIVE SOIL CONDITION CONSISTS OF CLEAN COMPACTIBLE SOIL, WITH LESS THAN 12 PERCENT FINES, FREE OF ICE, ROCKS, ROOTS AND ORGANIC MATERIAL, IT MAY BE AN ACCEPTABLE BACKFILL. SOIL MUST BE COMPACTED IN LIFTS NOT TO EXCEED ONE FOOT TO REACH A FINAL PROCTOR DENSITY OF BETWEEN 85 PERCENT AND 90 PERCENT. HEAVY, NON-COMPACTIBLE CLAYS AND SILTS ARE NOT SUITABLE BACKFILL FOR THIS OR ANY UNDERGROUND STRUCTURE SUCH AS INLET OR DISCHARGE LINES.
- IF YOU ARE UNSURE OF THE CONSISTENCY OF THE NATIVE SOIL, IT IS RECOMMENDED THAT A GEOTECHNICAL EVALUATION OF THE MATERIAL IS OBTAINED BEFORE SPECIFYING BACKFILL. ANOTHER OPTION IS THE USE OF A FLOWABLE FILL (I.E., LOW SLUMP CONCRETE). THIS IS PARTICULARLY ATTRACTIVE WHEN INSTALLING GRINDER PUMP STATIONS IN
- AUGURED HOLES WHERE TIGHT CLEARANCES MAKE IT DIFFICULT TO ASSURE PROPER BACKFILLING AND COMPACTION WITH DRY MATERIALS. FLOWABLE FILLS SHOULD NOT BE DROPPED MORE THAN 4 FEET FROM THE DISCHARGE TO THE BOTTOM OF THE HOLE TO AVOID SEPARATION OF THE CONSTITUENT MATERIALS. BACKFILL OF CLEAN NATIVE EARTH, FREE OF ROCKS, ROOTS, AND FOREIGN OBJECTS SHALL BE THOROUGHLY COMPACTED IN LIFTS NOT EXCEEDING 12" TO A FINAL PROCTOR DENSITY OF NOT LESS THAN 85 PERCENT. IMPROPER BACKFILLING MAY RESULT IN DAMAGED ACCESSWAYS. THE GRINDER PUMP STATION SHALL BE INSTALLED AT A MINIMUM DEPTH FROM GRADE TO THE TOP OF THE 1 1/4" DISCHARGE LINE, TO ASSURE MAXIMUM FROST PROTECTION. THE FINISH GRADE LINE SHALL BE 1" TO 4" BELOW THE
- BOTTOM OF THE LID, AND FINAL GRADE SHALL SLOPE AWAY FROM THE GRINDER PUMP STATION. ALL RESTORATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. PER UNIT COSTS FOR THIS ITEM SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE FOR THE INDIVIDUAL GRINDER PUMP STATION. THE PROPERTIES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION IN ALL RESPECTS, INCLUDING, BUT NOT LIMITED TO, CURB AND
- SIDEWALK REPLACEMENT, LANDSCAPING, LOAMING AND SEEDING, AND RESTORATION OF THE TRAVELED WAYS, AS DIRECTED BY THE ENGINEER. 3.06 START-UP AND FIELD TESTING: THE SUPPLIER SHALL PROVIDE THE SERVICES OF QUALIFIED FACTORY TRAINED TECHNICIAN WHO SHALL INSPECT THE PLACEMENT AND WIRING OF THE STATION, PERFORM FIELD TESTS AS SPECIFIED HEREIN, AND INSTRUCT THE OWNER'S PERSONNEL IN THE OPERATION AND MAINTENANCE OF THE EQUIPMENT
- ALL EQUIPMENT AND MATERIALS NECESSARY TO PERFORM TESTING SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. THIS INCLUDES, AS A MINIMUM, A PORTABLE GENERATOR AND POWER CABLE (IF TEMPORARY POWER IS REQUIRED), WATER IN EACH BASIN (FILLED TO A DEPTH SUFFICIENT TO VERIFY THE HIGH-LEVEL ALARM IS OPERATING), AND OPENING OF ALL VALVES IN THE SYSTEM. THESE STEPS SHALL BE COMPLETED PRIOR TO THE QUALIFIED FACTORY TRAINED TECHNICIAN(S) ARRIVAL ON
- UPON COMPLETION OF THE INSTALLATION, THE AUTHORIZED FACTORY TECHNICIAN WILL PERFORM THE FOLLOWING TEST:
- 1. MAKE CERTAIN THE DISCHARGE SHUT-OFF VALVE IN THE STATION IS FULLY OPEN. 2. TURN ON THE ALARM POWER CIRCUIT AND VERIFY THE ALARM IS FUNCTIONING PROPERLY.
- 3. TURN ON THE PUMP POWER CIRCUIT. INITIATE THE PUMP OPERATION TO VERIFY AUTOMATIC "ON/OFF" CONTROLS ARE OPERATIVE. THE PUMP SHOULD IMMEDIATELY TURN
- 4. CONSULT THE MANUFACTURER'S SERVICE MANUAL FOR DETAILED START-UP PROCEDURES. UPON COMPLETION OF THE START-UP AND TESTING, THE SUPPLIER SHALL SUBMIT TO THE ENGINEER THE START-UP AUTHORIZATION FORM DESCRIBING THE RESULTS OF THE TESTS PERFORMED FOR THE GRINDER PUMP STATION. FINAL ACCEPTANCE OF THE SYSTEM WILL NOT OCCUR UNTIL AUTHORIZATION FORMS HAVE BEEN RECEIVED FOR
- PUMP STATION INSTALLED AND ANY INSTALLATION DEFICIENCIES CORRECTED. 4.01 MANUALS: THE MANUFACTURER SHALL SUPPLY A COPY OF OPERATION AND MAINTENANCE MANUAL IN PDF FORMAT TO THE ENGINEER.



REVISIONS CITY OF ROCKMART, GEORGIA HISTORIC ROCKMART EVENT CENTER PUMP STATION NOTES DRAWN CHECKE SPS SCALE: AS SHOWN JLR DATE: SEPTEMBER 2024

TURNIPSEED ATLANTA *AUGUSTA* ENGINEERS

ST. SIMONS ISLAND

SHEET

C603

2.01 PUMP: THE PUMPS SHALL BE A CUSTOM DESIGNED, INTEGRAL, VERTICAL ROTOR, MOTOR DRIVEN, SOLIDS HANDLING PUMP OF THE PROGRESSING CAVITY TYPE WITH A

MATERIAL BECAUSE IT DOES NOT EXHIBIT THE PROPERTIES AS OUTLINED ABOVE AND REQUIRED FOR WASTEWATER SERVICE.

REQUIREMENTS SHALL BE ACCOMPLISHED BY THE FOLLOWING, IN CONJUNCTION WITH THE PUMP: 1. THE GRINDER SHALL BE POSITIONED IN SUCH A WAY THAT SOLIDS ARE FED IN AN UPWARD FLOW DIRECTION.

4. THE IMPELLER MECHANISM MUST ROTATE AT A NOMINAL SPEED OF NO GREATER THAN 1800 RPM.

1-1/4" DIAMETER STAINLESS STEEL DISCHARGE PIPING. 2.03 ELECTRIC MOTOR: AS A MAXIMUM, THE MOTOR SHALL BE A 1 HP, 1725 RPM, 240 VOLT 60 HERTZ, 1 PHASE, CAPACITOR START, BALL BEARING, AIR-COOLED INDUCTION

OF POLYETHYLENE, WITH A GRADE SELECTED TO PROVIDE THE NECESSARY ENVIRONMENTAL STRESS CRACKING RESISTANCE. CORRUGATED SECTIONS ARE TO BE MADE OF A

TO 150 PERCENT OF THE MAXIMUM EXTERNAL SOIL AND HYDROSTATIC PRESSURE.

THE DRYWELL ACCESSWAY SHALL BE AN INTEGRAL EXTENSION OF THE WETWELL ASSEMBLY AND SHALL INCLUDE A LOCKABLE COVER ASSEMBLY PROVIDING LOW PROFILE MOUNTING AND WATERTIGHT CAPABILITY. THE COVER SHALL BE HIGH DENSITY POLYETHYLENE, GREEN IN COLOR, WITH A LOAD RATING OF 150 LBS PER SQUARE FOOT. THE ACCESSWAY DESIGN AND CONSTRUCTION SHALL ENABLE FIELD ADJUSTMENT OF THE STATION HEIGHT IN INCREMENTS OF 3" OR LESS WITHOUT THE USE OF ANY ADHESIVES THE STATION SHALL HAVE ALL NECESSARY PENETRATIONS MOLDED IN AND FACTORY SEALED. TO ENSURE A LEAK FREE INSTALLATION NO FIELD PENETRATIONS WILL BE

ALL DISCHARGE PIPING SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL. THE DISCHARGE SHALL TERMINATE OUTSIDE THE ACCESSWAY BULKHEAD WITH A STAINLESS STEEL, 1-1/4" FEMALE NPT FITTING. THE DISCHARGE PIPING SHALL INCLUDE A STAINLESS-STEEL BALL VALVE RATED FOR 235 PSI WOG; PVC BALL VALVES OR BRASS BALL/GATE (ESC) OUTSIDE THE STATION, TO CONNECT TO THE ALARM PANEL. THE ESC SHALL BE INSTALLED IN THE BASIN BY THE MANUFACTURER. FIELD ASSEMBLY OF THE ESC INTO THE BASIN IS NOT ACCEPTABLE BECAUSE OF POTENTIAL WORKMANSHIP ISSUES. THE EQD SHALL REQUIRE NO TOOLS FOR CONNECTING, SEAL AGAINST WATER BEFORE THE ELECTRICAL CONNECTION IS MADE, AND INCLUDE RADIAL SEALS TO ASSURE A WATERTIGHT SEAL REGARDLESS OF TIGHTENING TORQUE. PLUG-TYPE CONNECTIONS OF THE

POWER CABLE ONTO THE PUMP HOUSING WILL NOT BE ACCEPTABLE DUE TO THE POTENTIAL FOR LEAKS AND ELECTRICAL SHORTS. A JUNCTION BOX SHALL NOT BE PERMITTED IN THE ACCESSWAY DUE TO THE LARGE NUMBER OF POTENTIAL LEAK POINTS. THE EQD SHALL BE SO DESIGNED TO BE CONDUCIVE TO FIELD WIRING AS STAINLESS STEEL DISCHARGE PIPING. THE CHECK VALVE WILL PROVIDE A FULL-PORTED PASSAGEWAY WHEN OPEN, AND SHALL INTRODUCE A FRICTION LOSS OF LESS THAN PROVIDING A MAXIMUM DEGREE OF FREEDOM TO ASSURE SEATING EVEN AT A VERY LOW BACK-PRESSURE. THE VALVE BODY SHALL BE AN INJECTION MOLDED PART MADE

UNACCEPTABLE DUE TO THEIR LIMITED SEALING CAPACITY IN SLURRY APPLICATIONS. THE SLURRY BEING PUMPED. THE ANTI—SIPHON PORT DIAMETER SHALL BE NO LESS THAN 60% OF THE INSIDE DIAMETER OF THE PUMP DISCHARGE PIPING

ESTABLISHED BY A 100 PERCENT FACTORY TEST AT A MINIMUM OF 5 PSIG. FASTENERS. LOCATING THE MOTOR STARTING CONTROLS IN A PLASTIC ENCLOSURE IS NOT ACCEPTABLE. THE WASTEWATER LEVEL SENSING CONTROLS SHALL BE HOUSED IN A

OPERATE THE PUMP EVEN WITH THE LEVEL SENSOR HOUSING REMOVED FROM THE PUMP. ALL FASTENERS THROUGHOUT THE ASSEMBLY SHALL BE 300 SERIES STAINLESS STEEL. HIGH—LEVEL SENSING WILL BE ACCOMPLISHED IN THE MANNER DETAILED ABOVE BY A

ELECTRICAL NOTES

1. SCOPE OF WORK:

- A. WORK COVERED BY THIS SPECIFICATION CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, SUPPLIES AND MATERIALS, AND PERFORMING ALL OPERATIONS INCLUDING CUTTING, TRENCHING AND BACKFILLING, ETC., NECESSARY FOR THE INSTALLATION OF COMPLETE WIRING SYSTEMS AS SHOWN ON DRAWINGS AND AS HEREINAFTER
- B. WORK SHALL INCLUDE POWER DISTRIBUTION AND CONTROLS, LIGHTING SYSTEMS, INSTRUMENTATION AND METERING, WIRING AND TELEPHONE SERVICE (WHERE REQUIRED). 2. QUALITY ASSURANCE: INSTALLATION SHALL COMPLY WITH ALL LAWS APPLICABLE TO ELECTRICAL INSTALLATIONS WHICH ARE ENFORCED BY LOCAL AUTHORITIES, WITH THE REGULATIONS OF NATIONAL ELECTRICAL CODE WHERE SUCH REGULATIONS DO NOT CONFLICT WITH LOCAL LAWS, AND WITH REGULATIONS OF THE UTILITY COMPANY THAT SERVES THE FACILITY. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED BY LOCAL AUTHORITIES AND, AFTER COMPLETION OF WORK, SHALL FURNISH ENGINEER AND OWNER, A CERTIFICATE OF FINAL INSPECTION AND APPROVAL FROM INSPECTION BUREAU HAVING JURISDICTION. CONTRACTOR SHALL NOTIFY ENGINEER AND OWNER THAT CERTIFICATE HAS BEEN FURNISHED TO UTILITY COMPANY AND THAT APPLICATION FOR SERVICE CAN BE FILED.
- ALL MATERIALS SHALL BE NEW AND SHALL BEAR A U.L. LABEL OR BE LISTED BY UNDERWRITER'S LABORATORIES AS CONFORMING TO ITS STANDARDS WHERE SUCH A STANDARD HAS BEEN ESTABLISHED FOR THE PARTICULAR TYPE OF MATERIAL IN QUESTION. 3. <u>REFERENCE</u>; ALL WORK SHALL CONFORM TO APPLICABLE STANDARDS OF ANSI, IEEE, ISA, NEMA, UL AND NEC.

4. SUBMITTALS:

- A. CONTRACTOR'S SUBMITTAL SHALL INCLUDE A LIST OF MANUFACTURERS OF PRINCIPAL ITEMS OF EQUIPMENT AND MATERIAL INCLUDING WIRE, RACEWAYS, DEVICES, BOXES, PANELBOARDS, CONNECTORS, ETC. FULL INFORMATION SHALL BE FURNISHED ON PRODUCTS OF MANUFACTURERS NOT NAMED IN THE CONTRACT DOCUMENTS.
- B. SHOP DRAWNGS SHALL BE SUBMITTED GIVING PERFORMANCE DATA, PHYSICAL SIZE, WRING DIAGRAMS, MATERIALS, ETC., FOR CONTROL CENTERS, LIGHTING FIXTURES, MOTOR CONTROLLERS, PANELBOARDS, CONDUIT AND DUCT, AND CABLE AND WIRE IN ACCORDANCE WITH THE GENERAL REQUIREMENTS OF THESE SPECIFICATIONS.
- C. THE REQUIREMENTS OF EACH ELECTRICAL SYSTEM SHALL BE IDENTIFIED BY THE CONTRACTOR BEFORE SUBMISSION OF SHOP DRAWINGS, AND ALL NECESSARY ACCESSORY PARTS REQUIRED BETWEEN ITEMS OF ELECTRICAL EQUIPMENT SHALL BE IDENTIFIED IN SUFFICIENT DETAIL TO PROVE THAT THE TOTAL EQUIPMENT FURNISHED AND INSTALLED WILL OPERATE AS SPECIFIED AND SHOWN ON THE DRAWINGS.
- D. SHOP DRAWINGS AND SAMPLES SHALL BE THOROUGHLY CHECKED AND COORDINATED BY THE CONTRACTOR FOR DETAILS AND FULFILLMENT OF CONTRACT REQUIREMENTS PRIOR TO SUBMITTAL. APPROVAL OF ANY ITEM DOES NOT RELIEVE CONTRACTOR OF RESPONSIBILITY FOR COORDINATING DIMENSIONS AND WORK REQUIRED BY OTHER TRADES.
- 5. <u>DELIVERY. STORAGE AND HANDLING</u>: ALL MATERIALS SHALL BE UNLOADED AND STORED IN A MANNER TO AVOID PHYSICAL DAMAGE OR DETRIMENTAL EFFECTS OF EXPOSURE TO WEATHER.
- A. <u>ACCEPTABLE MANUFACTURERS</u>: CATALOG NUMBERS OF DEVICES, FIXTURES, EQUIPMENT, ETC., ARE USED FOR EASE IN DESCRIBING STANDARD OF QUALITY DESIRED. DEVICES, FIXTURES, EQUIPMENT, ETC., BY OTHER MANUFACTURERS, PERFORMING THE SAME FUNCTIONS AND CONSIDERED EQUAL IN QUALITY BY THE ENGINEER WILL BE
- B. <u>CONDUITS</u>: ALL WIRING SHALL BE IN A RACEWAY OR CONDUIT, AND THE FOLLOWING SHALL GOVERN TYPE USED THROUGHOUT THE PROJECT EXCEPT AS OTHERWISE SPECIFIED.
- 1. RIGID GALVANIZED STEEL CONDUIT: USE FOR ALL EXPOSED RACEWAYS, EXCEPT AS OTHERWISE NOTED
- 2. <u>FLECTRICAL METALLIC TUBING (EMT)</u>; USE FOR ALL CONCEALED RACEWAYS IN CEILINGS AND WALLS
- 3. LIQUID-TIGHT FLEXIBLE STEEL CONDUIT: USE FOR FINAL CONNECTIONS TO ALL MOTORS, VIBRATING EQUIPMENT AND IN WET OR DAMP INSTALLATIONS. OUTER COVERING SHALL BE POLYVINYL CHLORIDE AND INNER CORE SHALL BE GALVANIZED STEEL.
- 4. RIGID NON-METALLIC PVC PLASTIC CONDUIT: USE FOR OUTSIDE UNDERGROUND FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS OTHERWISE NOTED AND WHERE SPECIFICALLY INDICATED ON DRAWINGS. A GROUNDING CONDUCTOR SHALL BE INSTALLED IN EACH NON-METALLIC CONDUIT TO MAINTAIN GROUNDING CONTINUITY, FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR HEAT BENDS AND CEMENT APPLICATION. INSTALL PLASTIC TO RIGID ADAPTER BEFORE EMERGING FROM GROUND OR RUNNING UNDER BUILDING. INSTALL EXPANSION FITTINGS FOR EACH 100' OF UNBROKEN PVC RUN.
- 5. WHERE NON-METALLIC PVC PLASTIC CONDUIT IS INSTALLED UNDERGROUND IN GROUPS OF 3 OR MORE, IT SHALL BE INSTALLED IN DUCT BANKS AS INDICATED ON THE
- 6. ALL CONDUITS ENTERING BOXES, CABINETS, PANELS OF SIMILAR EQUIPMENT SHALL HAVE DOUBLE LOCKNUTS AND INSULATING BUSHING.
- 7. IN ALL LIQUID-TIGHT FLEXIBLE STEEL CONDUIT, PROVIDE A GREEN GROUNDING CONDUCTOR SIZED PER NEC. BOND AT FIXTURE, MOTOR, ETC., AND ALSO BOND AT BOX WHERE FLEXIBLE CONDUIT ORIGINATES OR THE NEXT BOX IN LINE.
- 8. A CODE SIZED GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL RACEWAYS.

7. RACEWAYS:

- A. ALL RACEWAYS SHALL CONFORM TO UNDERWRITER'S LABORATORIES AND NEMA STANDARDS AND BE FULLY UL LABELED.
- B. RIGID STEEL AND EMT GALVANIZED RACEWAYS SHALL HAVE A SHERADIZED, BONDERIZED, GALVANIZED OR SIMILAR APPROVED COATING.
- C. RIGID NON-METALLIC PVC (POLYVINYL CHLORIDE) PLASTIC RACEWAYS SHALL CONFORM TO FEDERAL SPEC. W-C-1094 AND BE THICKWALL, SCHEDULE 40.
- 1. ALL CONDUCTORS SHALL BE TYPE THW, XHHW, THHN, THHW OR RHW #12 AWG MINIMUM, INSULATED, COLOR CODED, AND BE OF 98% CONDUCTIVITY COPPER WITH #10 AWG
- AND SMALLER SOLID EXCEPT CONTROL WIRING WHICH SHALL BE STRANDED, AND #8 AWG AND ABOVE STRANDED. 2. CONDUCTOR SPLICES AND CONNECTIONS SHALL BE MADE WITH APPROVED SOLDERLESS LUGS AND MECHANICAL CONNECTIONS TO INSURE POSITIVE ELECTRICALLY AND
- MECHANICALLY STRONG JOINTS. USE OF CONNECTORS WITHOUT INTERNAL SPIRAL SPRING, SO CALLED WRENUTS, ARE NOT ACCEPTABLE.
- 3. WHERE BOLTED CONNECTORS ARE USED FOR MAKEUP OF CABLES OR FOR TERMINATION, THEY MUST BE EXACT SIZE TO SUIT CABLE BEING USED. TRIMMING, SHIMMING OR CUTTING OF CONDUCTOR STRANDS IS NOT PERMITTED. WHERE BRANCH CIRCUIT CONDUITS ARE JOINTED OR SPLICED USING CRIMP-ON OR TWIST-ON CONNECTORS, WIRES MUST FIRST BE TWISTED TOGETHER FULL LENGTH AND THEN CONNECTOR INSTALLED.
- 4. CONTROL CABLE SHALL BE MINIMUM #14 AWG SINGLE OR MULTIPLE CONDUCTOR, 600V INSULATION.
- 1. BOXES FOR EXPOSED WORK SHALL BE OF CAST ALLOY OR CAST STEEL TYPE WITH THREADED HUBS.
- 2. PULL OR JUNCTION BOXES SHALL BE CONSTRUCTED OF CODE GAUGE GALVANIZED STEEL SIZED PER NEC OR AS NOTED, CONTINUOUSLY WELDED ALONG SEAMS, AND FITTED WITH SCREW ON COVER PLATE SECURED WITH STAINLESS STEEL COVERS.
- 3. ALL OUTLET OR JUNCTION BOXES OF PRESSED OR SHEET STEEL TYPE SHALL BE GALVANIZED, SHERADIZED, BONDERIZED OR TREATED WITH A SIMILAR APPROVED CORROSION
- 4. OUTSIDE, UNDERGROUND PULL AND JUNCTION BOXES SHALL BE CAST IRON WITH BOLTED RECESSED COVERS SIMILAR TO SIDEWALK TYPE BOXES WITH THREADED HUBBS.
- 1. ALL EQUIPMENT, BUILDING STEEL AND MAIN SERVICE MUST BE EFFECTIVELY AND PERMANENTLY GROUNDED WITH A CROSS SECTION AS REQUIRED BY THE NEC AND OF CAPACITY SUFFICIENT TO INSURE EFFECTIVENESS OF THE GROUND CONNECTIONS FOR FAULT CURRENT. GROUND CONDUCTORS MUST BE AS SHORT AND STRAIGHT AS
- POSSIBLE, PROTECTED FROM MECHANICAL INJURY, IF PRACTICAL, WITHOUT SPLICE OR JOINT. 2. RACEWAYS, BOXES, OUTLETS, CABINETS, ETC., SHALL BE BONDED TOGETHER TO FORM A CONTINUOUS METALLIC GROUNDING CIRCUIT IN ACCORDANCE WITH NEC.
- 3. MAIN SERVICE CONDUITS, ENTERING SWITCHGEAR, PANELS, CONTROL CENTER, SWITCHES, ETC., SHALL BE PROVIDED WITH INSULATING BUSHINGS WITH GROUND LUG AND CONNECTED TO BUILDING GROUND SYSTEM.
- 4. ALL FLEXIBLE CONDUITS MAKING FINAL CONNECTIONS TO MOTORS, LIGHTS, VIBRATING EQUIPMENT, ETC., SHALL CONTAIN A GREEN COPPER BONDING CONDUCTOR WHICH SHALL
- EXTEND FROM OUTLET BOX WHERE FLEXIBLE CONDUIT ORIGINATES OR FROM NEAREST BOX IN LINE TO THE EQUIPMENT SERVED. G. <u>LIGHTING AND DISTRIBUTION PANELBOARDS</u>: PANELBOARDS SHALL BE FACTORY ASSEMBLED, DEAD FRONT, COPPER OR TIN PLATED ALUMINUM BUS, CIRCUIT BREAKER TYPE FOR SOLID NEUTRAL SERVICES WITH LUGS OR MAIN BREAKER TYPE AND IN A FLUSH OR SURFACE MOUNTING CABINET HAVING A MINIMUM WIDTH OF 20" AND DEPTH OF 5-3/4" AND HAVING HINGED LOCKING DOOR. PANELBOARDS WITH PLUG-IN-CIRCUIT BREAKERS WILL NOT BE ACCEPTABLE. CIRCUIT BREAKERS SHALL BE BOLT-IN, QUICK MAKE, QUICK BREAK, TRIP FREE, WITH COMBINATION THERMAL AND MAGNETIC TRIP WITH COMMON TRIP POLE BREAKERS, MEETING FEDERAL SPEC. W-C-357A. MULTIPOLE BREAKERS SHALL HAVE ONE OPERATING HANDLE. TIE HANDLES WILL NOT BE ACCEPTABLE. CIRCUIT BREAKER ARRANGEMENTS, PHASE,

VOLTAGE, WIRES, AND SPECIAL FEATURES SHALL BE AS SHOWN ON DRAWINGS. THIN, TWIN OR TANDEM BREAKERS ARE NOT ACCEPTABLE. BREAKERS TO HAVE 10,000

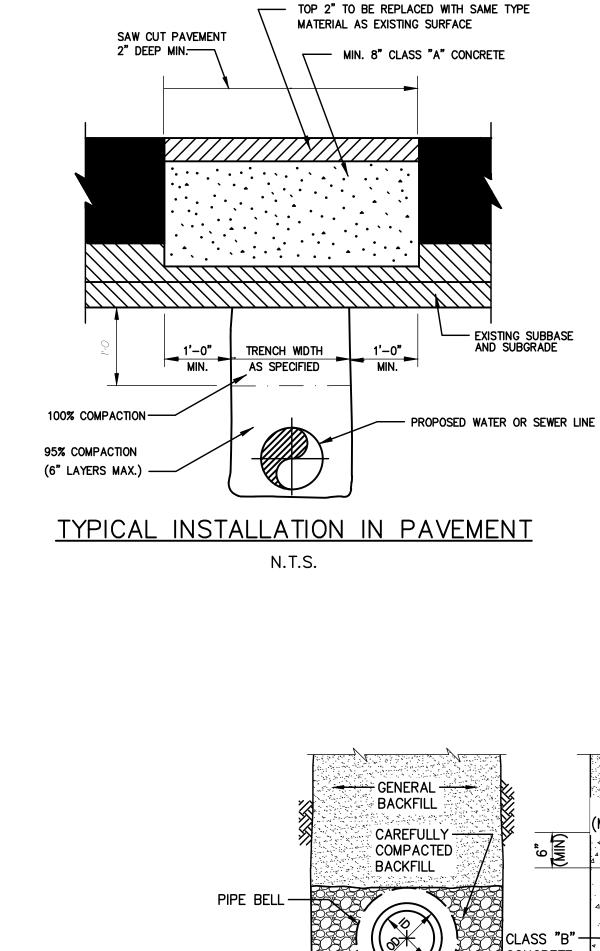
- A.I.C. RATING UNLESS OTHERWISE INDICATED
- A. INSPECTION; INSPECT PRECEDING WORK TO INSURE SATISFACTORY COMPLETION PRIOR TO ELECTRICAL WORK.
- B. <u>Preparation</u>; coordinate work with power company and owner to minimize delays in operation of New Facilities.
- C. WRING LAYOUTS OR SCHEMATICS ARE NOT INTENDED TO SHOW EXACT LOCATION OF RACEWAYS, OUTLETS, ETC. CONTRACTOR SHALL REFER TO BUILDING PLANS AND DETAILS FOR DIMENSIONS AND SHALL FIT HIS WORK TO CONFORM TO DETAILS OF BUILDING CONSTRUCTION. THE RIGHT IS RESERVED TO SHIFT ANY SWITCH, RECEPTACLE, CEILING OR OTHER OUTLET A MAXIMUM OF 10' FROM ITS LOCATION AS SHOWN ON DRAWINGS, BEFORE IT IS PERMANENTLY INSTALLED, WITHOUT INCURRING
- 9. INSTALLATION: CONTRACTOR SHALL FURNISH ALL LABOR AND FURNISH, INSTALL, CONNECT, TEST AND ADJUST ALL EQUIPMENT AND MATERIALS TO FORM A COMPLETE OPERATING INSTALLATION, INCLUDING WIRING HANGERS, SUPPORTS FOR EQUIPMENT, CABLES, CONDUITS, CABLE TRAY, CABLE TRENCH, PULL BOXES ANCHORS AND INSERTS, IDENTIFICATION PLATES, SIGNS, AND TAGS FOR EQUIPMENT, CONDUITS, WIRING AND WIRING LABELS.
- THE ELECTRICAL WORK SHALL BE INSTALLED IN SUCH A MANNER AND AT SUCH TIMES AS WILL REQUIRE A MINIMUM OF CUTTING AND PATCHING OF THE BUILDING STRUCTURE.

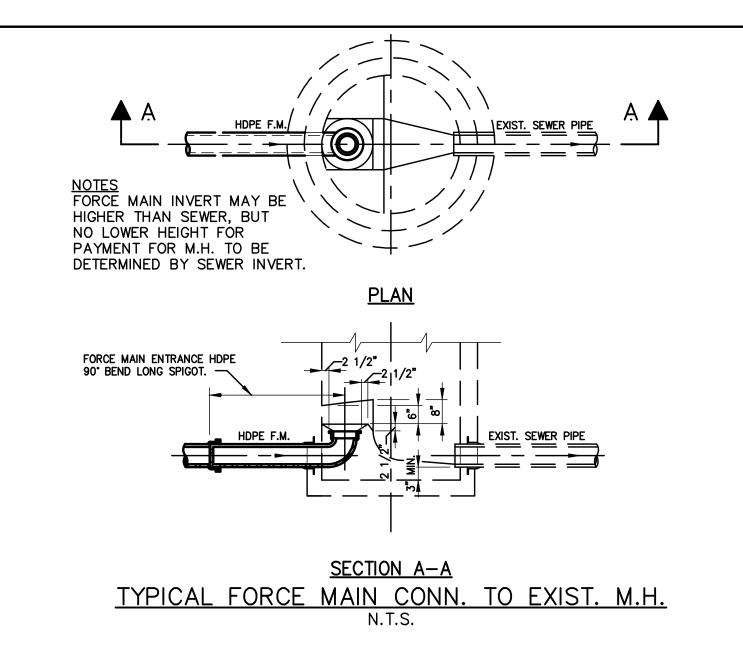
10. RACEWAYS AND CONDUCTORS:

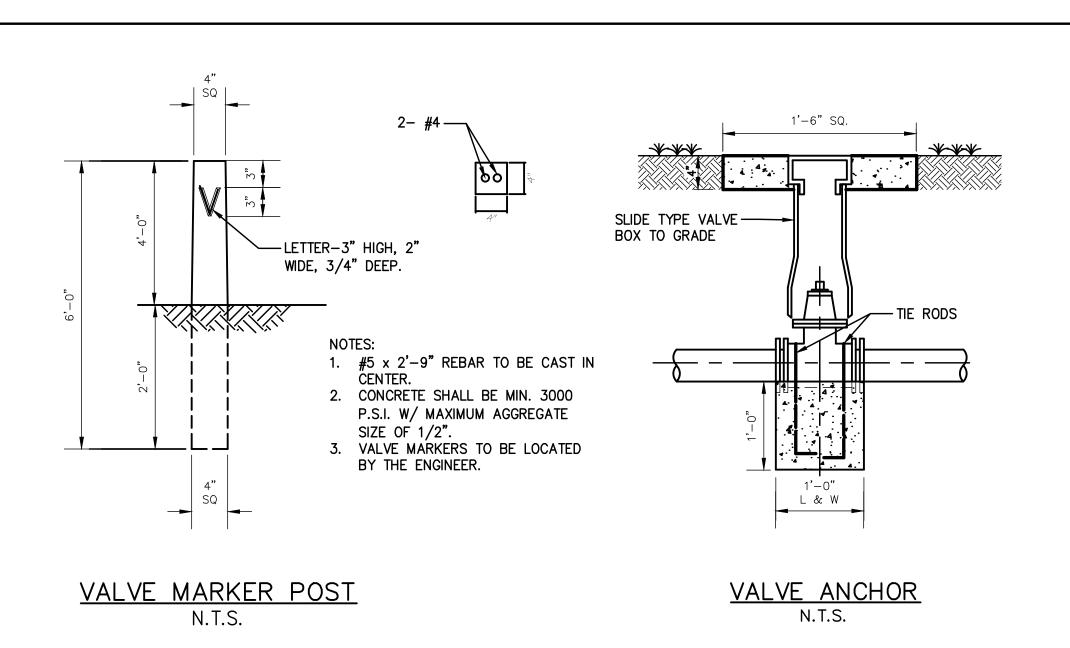
- A. RACEWAYS SHALL BE SUPPORTED FROM BUILDING CONSTRUCTION AT INTERVALS NOT EXCEEDING 8' WITH STRAPS AND EXPANSION BOLTS FOR MASONRY OR CONCRETE
- B. ALL RACEWAYS SHALL BE RIGIDLY SUPPORTED FROM BUILDING STRUCTURE BY RODS OR HANGERS ATTACHED TO BUILDING STRUCTURE. RACEWAYS SHALL NOT BE ATTACHED TO ANY RODS OR HANGERS REQUIRED BY OTHER TRADES.
- C. ALL RACEWAYS ENTERING CABINETS, PANELS, SWITCHBOXES, SWITCHGEAR, JUNCTION BOXES, ETC. SHALL BE FITTED WITH DOUBLE LOCKNUTS AND BUSHINGS. ONE LOCKNUT INSIDE AND ONE OUTSIDE BOX SHALL BE USED.
- D. ALL RACEWAY STUBS SHALL BE SUFFICIENTLY PLUGGED OR CAPPED DURING CONSTRUCTION TO PREVENT ENTRY OF WATER, DEBRIS, MORTAR, ETC. E. FEEDER CABLE CONDUCTORS SHALL BE PULLED INTO RACEWAYS USING AN APPROVED SOAPSTONE PRODUCT LUBRICANT. PULL CONDUCTORS WITH A PULLING EYE
- ATTACHED TO CONDUCTOR SO NOT TO STRETCH OR INJURE INSULATION. CONDUCTORS WITHIN SWITCHBOARDS, PANELBOARDS, TERMINAL CABINETS, STARTERS, CONTROL CENTERS, ETC., SHALL BE NEATLY FORMED AND TRAINED TO RUN
- PARALLEL TO OR AT RIGHT ANGLES TO THE DEVICE. CONDUCTORS SHALL BE BUNDLED TOGETHER AND LACED USING NYLON TIE STRAPS. G. BOXES AND OUTLETS SHALL BE CAST ALLOY TYPE AND SECURELY ATTACHED TO BUILDING STRUCTURE USING EXPANSION BOLTS FOR MASONRY OR CONCRETE
- H. SWITCHES SHALL BE INSTALLED 4' ABOVE FLOOR TO TOP OF BOXES EXCEPT AS OTHERWISE NOTED.
- I. RECEPTACLES SHALL, IN GENERAL, BE INSTALLED VERTICALLY 1'-4" ABOVE THE FLOOR EXCEPT AS NOTED OTHERWISE.
- J. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING PROPER CONNECTION AT EACH ITEM OF EQUIPMENT REQUIRING SERVICE AND CONNECT ACCORDINGLY. THE TERM "STUB-UP AND CONNECT" OR "CONNECT" USED ON DRAWINGS IMPLIES A FULL CONNECTION AS REQUIRED FOR EACH PIECE OF EQUIPMENT TO PLACE IT IN SATISFACTORY OPERATION. IF EQUIPMENT COMES EQUIPPED WITH CORD AND PLUG, INSTALL PROPER MATCHING RECEPTACLE.
- K. CONTROL RACEWAY AND WIRING SHALL BE INSTALLED AND FULLY CONNECTED TO MAKE SYSTEM OPERATIONAL. LIGHTING PROTECTION SHALL BE INSTALLED AT EACH SITE AS INDICATED ON THE DRAWINGS. THE LIGHTNING ARRESTERS SHALL BE GROUNDED TO A SEPARATELY DRIVEN GROUND ROD PLUS CONNECTION TO THE METALLIC WATER SUPPLY AND GROUNDING SYSTEM
 - A. CLEAN AND LAMP ALL LIGHTING FIXTURES AFTER INSTALLATION AND WIRING. INSTALL ALL FUSES. ALL LIGHTING FIXTURES SHALL BE CLEAN AT TIME OF FINAL
 - B. PROVIDE ALL WIRING FOR TESTING AND TRIALS, FOR ALL REQUIRED CORRECTIONS, CHANGES, ADDITIONS, COMPLETIONS AND ADJUSTMENTS UNTIL FINAL ACCEPTANCE OF
 - C. COORDINATE NUMBERS AND LABEL ALL FIELD WIRING BETWEEN EQUIPMENT OF THE VARIOUS ELECTRICAL EQUIPMENT SUPPLIERS.
 - D. ANY DAMAGE TO WORK ALREADY IN PLACE AS A RESULT OF ELECTRICAL WORK SHALL BE REPAIRED AND MADE GOOD AT NO EXPENSE TO THE OWNER. 12. TESTING AND ACCEPTANCE: PRIOR TO ACCEPTANCE BY THE OWNER, ALL CONTROL SYSTEMS SHALL FUNCTION AS REQUIRED; ALL MOTORS SHALL BE CONNECTED TO
 - PROTECTIVE DEVICES AND CONTROL DEVICES ASSOCIATED WITH A MACHINE OR A GROUP OF MACHINES TO PRODUCE THE CORRECT OPERATING, TIMING AND SEQUENCING NECESSARY FOR THE PROPER FUNCTIONING OF THE MECHANICAL EQUIPMENT.
 - 13. AS-BUILT DRAWINGS; SUBMIT ONE BLUELINE PRINT OF THE CONTRACT DRAWINGS MARKED TO SHOW AS-BUILT LOCATIONS AND DESCRIPTION OF ALL ELECTRICAL WORK.

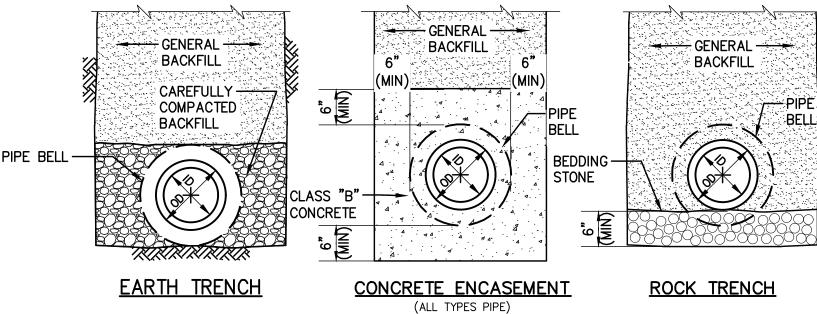


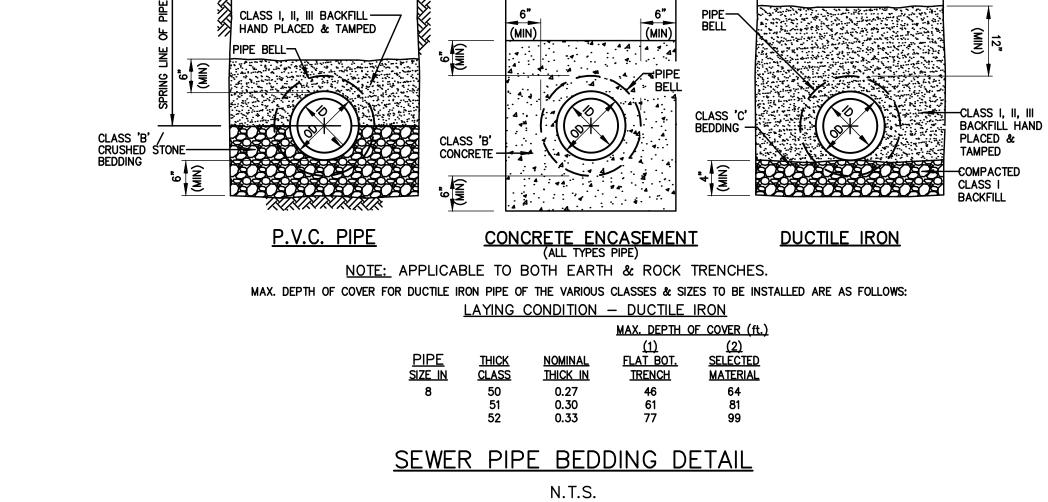
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		ELECTRICAL NOTES	
DRAWN	CHECKED		
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→ GENERAL

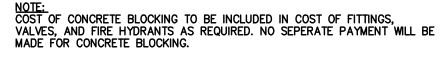
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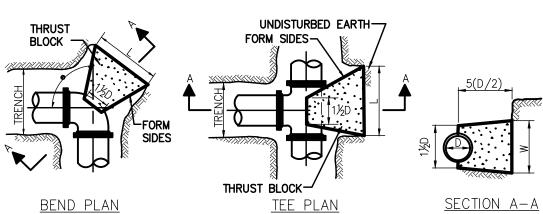
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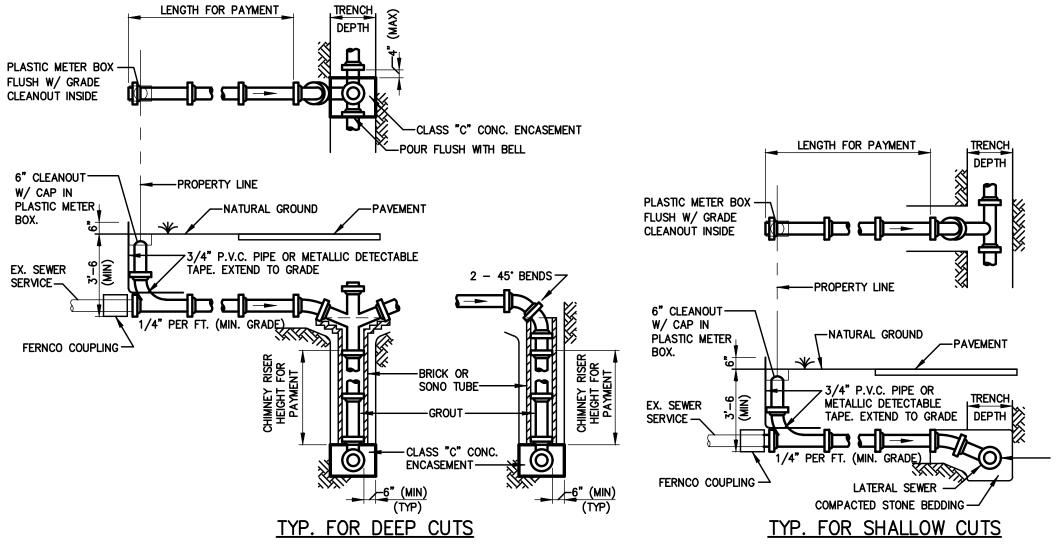




- THRUST BLOCKING TO BE CLASS "B" CONCRETE.
 THESE DIMENSIONS WERE CALCULATED USING A SOIL BEARING CAPACITY OF 1500 PSF IF CAPACITY IS FOUND TO BE LESS THAN 1500 PSF THE DIMENSIONS SHALL BE REVISED ACCORDING TO THE ENGINEER.

 3. DIMENSIONS TO BE STRICTLY ADHERED TO.
- 4. BLOCKS SHALL BEAR AGAINST UNDISTURBED SOIL.
- 5. DESIGN PRESSURE 4" THRU 24" 150 P.S.I. 6. ALL BOLTS TO REMAIN ACCESSIBLE. DO NOT COVER WITH CONCRETE.

		S &		BENDS						
PIPE SIZE	PLUGS		0=22-1/2°		0=45°		0=90°			
0.22	W	L	W	L	W	L	W	L		
4"	1'-0"	1'-3"	8"	9"	10"	1'-2"	1'-2"	1'-7		
6"	1'-6"	1'-11"	1'-0"	1'-2"	1'-2"	1'-11"	1'-8"	2'-5		
8"	2'-0"	2'-7"	1'-2"	1'-9"	1'-6"	2'-7"	2'-2"	3'-4		
10"	2'-6"	3'-2"	1'-4"	2'-4"	1'-10"	3'-4"	2'-8"	4'-2		
12"	3'-0"	3'-10"	1'-8"	2'-8"	2'-2"	4'-0"	3'-2"	5'-1		
14"	3'-6"	4'-8"	2'-0"	3'-1"	2'-8"	4'-8"	3'-8"	6'-2		
16"	4'-0"	5'-1"	2'-3"	3'-5"	2'-11"	5'-4"	4'-2"	6'-10		
24"	5'-11"	7'-8"	3'-5"	5'-2"	4'-4"	8'-0"	5'-0"	12'-9		



TYP. DET.-HOUSE SERVICE LINE

N.T.S.

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GSWCC CERTIFICATION	NO.

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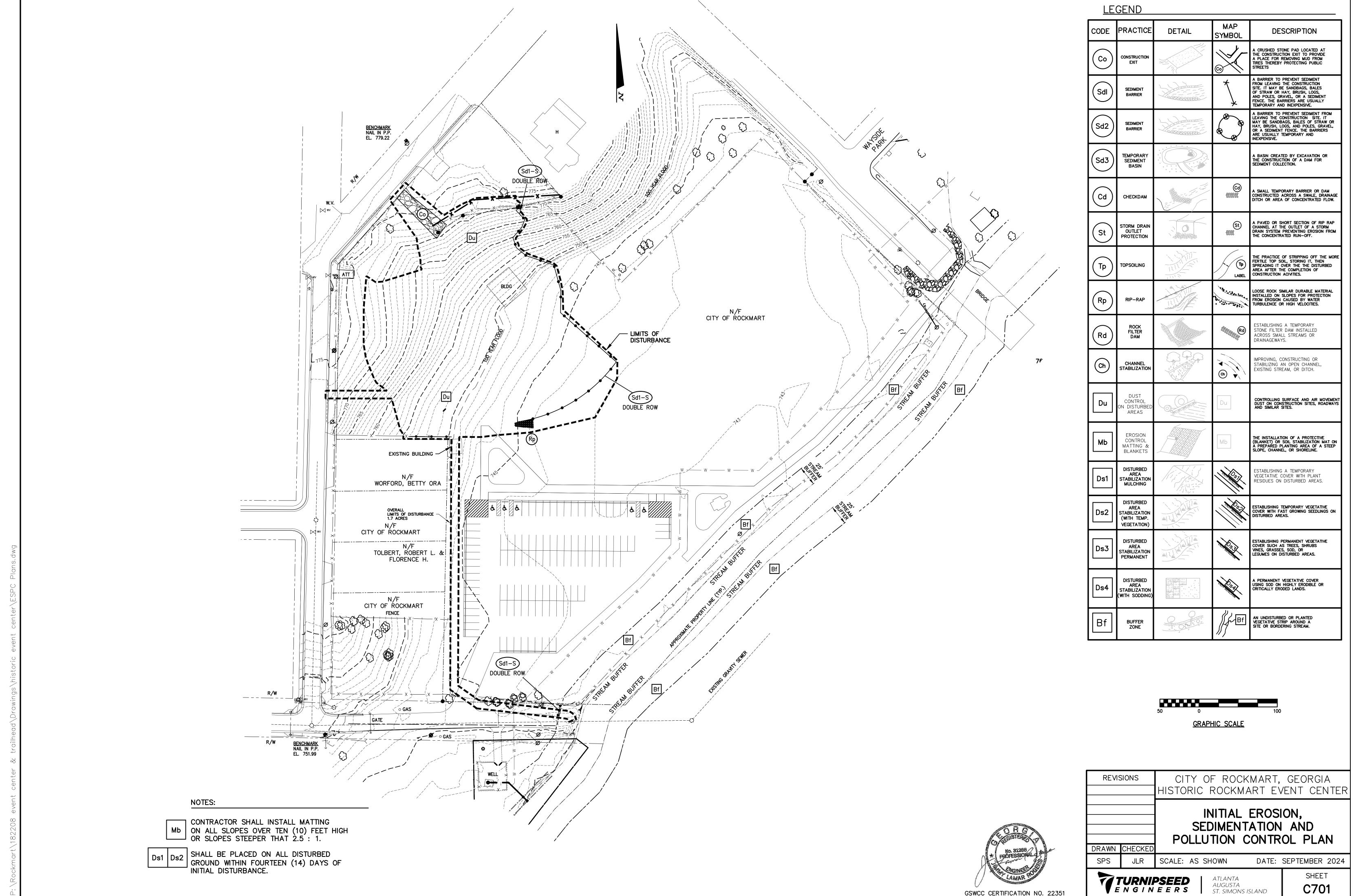
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CONCRETE BLOCKING DETAILS

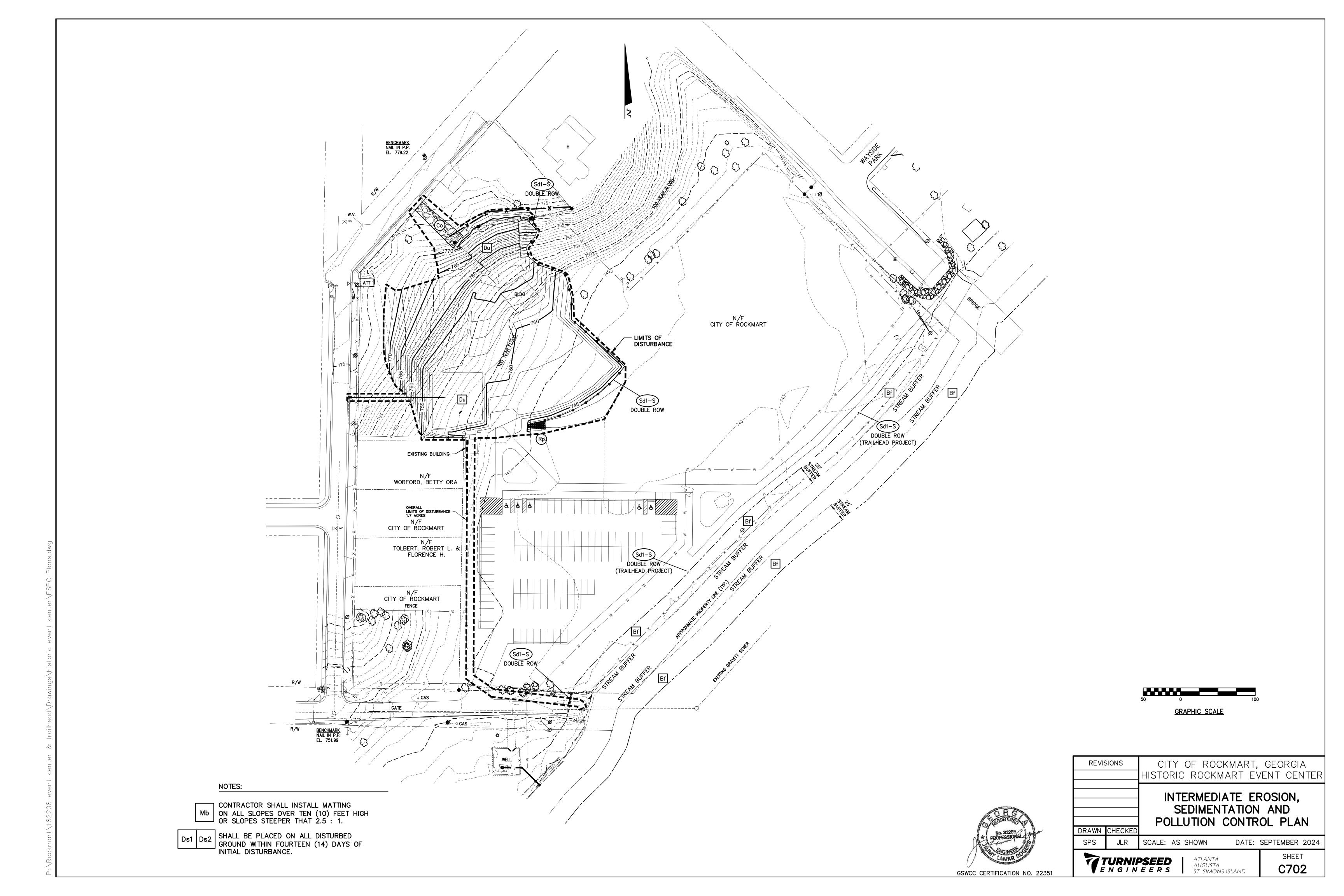
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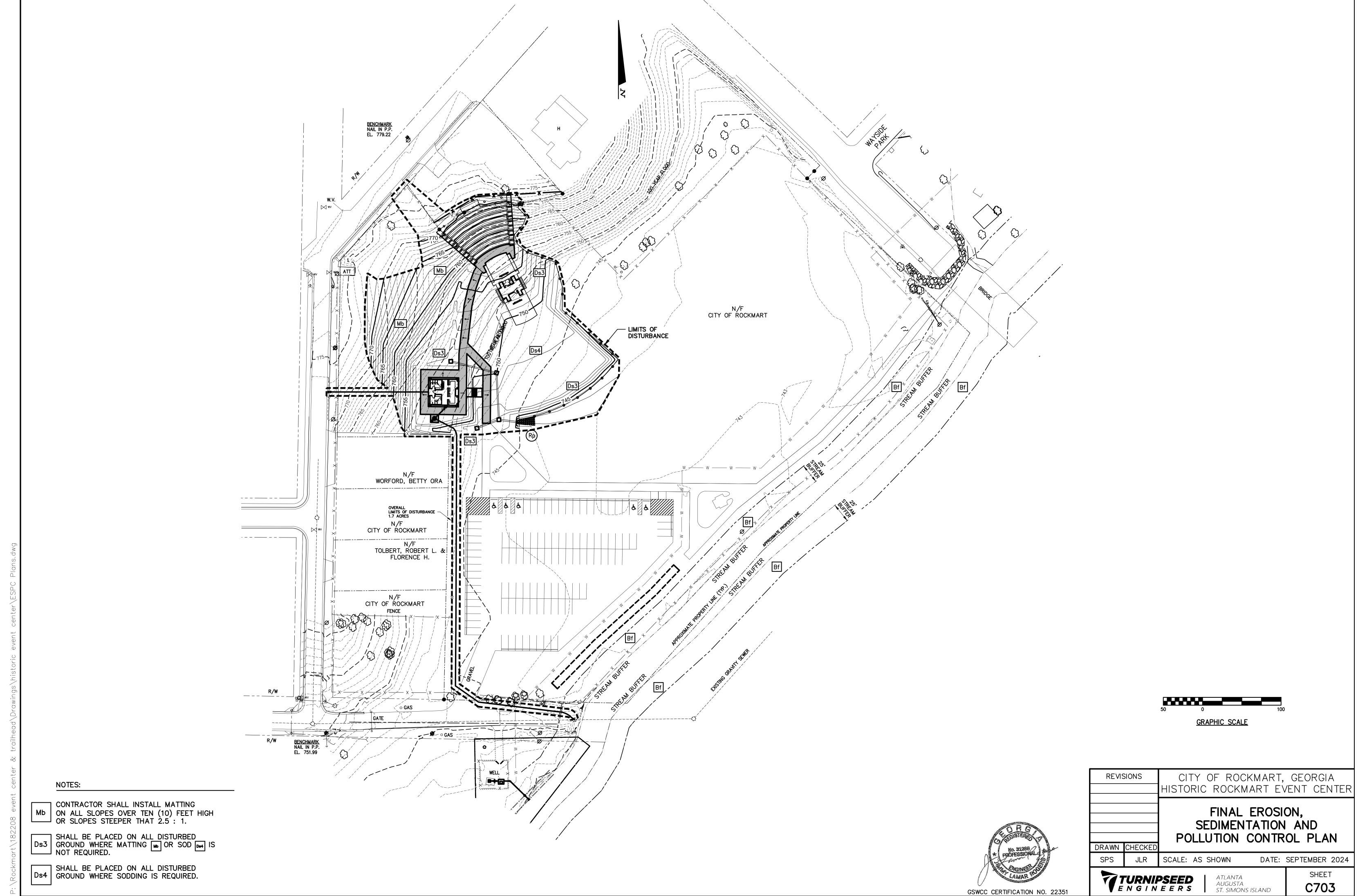
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	INITIAL EROSION,
	HISTORIC ROCKMART EVENT CENTER
REVISIONS	CITY OF ROCKMART, GEORGIA





EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST

STAND ALONE CONSTRUCTION PROJECTS

- THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST ESTABLISHED BY THE COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED. PROVIDED ON THIS SHEET AND SHEET C705.
- LEVEL II CERTIFICATION NUMBER ISSUED BY THE COMMISSION, SIGNATURE AND SEAL OF THE CERTIFIED DESIGN PROFESSIONAL. SHOWN ON ALL SHEETS WHERE APPLICABLE.
- LIMITS OF DISTURBANCE SHALL BE NO GREATER THAN 50 ACRES AT ANY ONE TIME WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE EPD DISTRICT OFFICE. IF EPD APPROVES THE <u>REQUEST TO DISTURB 50 ACRES OR MORE AT ANY ONE TIME, THE PLAN MUST INCLUDE AT</u> LEAST 4 OF THE BMPs LISTED IN APPENDIX 1 OF THIS CHECKLIST.* NOT APPLICABLE. TOTAL LAND DISTURBANCE IS 1.7 ACRES
- THE NAME AND PHONE NUMBER OF 24-HOUR LOCAL CONTACT RESPONSIBLE FOR EROSION. SEDIMENTATION AND POLLUTION CONTROLS.

OWNER:

CITY OF ROCKMART P.O. BOX 231 ROCKMART, GA 30153-0231

STACEY SMITH, CITY MANAGER 24-HOUR CONTACT:

(770) 684-5454

PROVIDE THE NAME, ADDRESS, EMAIL ADDRESS AND PHONE NUMBER OF PRIMARY PERMITTEE.

THE PRIMARY PERMITEE (CONTRACTOR) IS UNKNOWN AT THIS TIME. AFTER ALL PERMITS ARE OBTAINED. THE PROJECT WILL BID AND A CONTRACTOR WILL BE SELECTED. THE PRIMARY PERMITEE WILL BE LISTED ON THE SUBMITTED NOI AND FILLED IN BELOW ON PLANS TO BE RETAINED ON SITE.

PRIMARY PERMITEE:

ADDRESS:

EMAIL ADDRESS:

TELEPHONE:

- NOTE TOTAL AND DISTURBED ACREAGE OF THE PROJECT OR PHASE UNDER CONSTRUCTION. THE SITE ACREAGE IS SHOWN BELOW: THE TOTAL SITE ACREAGE IS APPROXIMATELY 8.01 ACRES. THE TOTAL DISTURBED ACREAGE IS
- APPROXIMATELY 1.7 ACRES.
- PROVIDE THE GPS LOCATION OF THE CONSTRUCTION EXIT FOR THE SITE. GIVE THE LATITUDE AND LONGITUDE IN DECIMAL DEGREES. THE CONSTRUCTION EXIT IS LOCATED AT APPROXIMATELY: 33.99791°N. 85.05614°W
- INITIAL DATE OF THE PLAN AND THE DATES OF ANY REVISIONS MADE TO THE PLAN INCLUDING THE ENTITY WHO REQUESTED THE REVISIONS. SHOWN ON ALL SHEETS WHERE APPLICABLE.
- DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY. THE PROJECT CONSISTS OF THE CONSTRUCTION OF TWO STRUCTURES, AN AMPITHEATER, A SIDEWALK, AND A PUMP STATION. A FORCE MAIN WILL BE CONNECTED TO AN EXISTING SANITARY SEWER MANHOLE. AND A WATER SERVICE LINE WILL BE CONNECTED TO THE NEARBY EXISTING WATER SYSTEM.
- PROVIDE VICINITY MAP SHOWING SITE'S RELATION TO SURROUNDING AREAS. INCLUDE DESIGNATION OF SPECIFIC PHASE, IF NECESSARY, VICINITY MAP IS SHOWN ON SHEET C102.
- IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL SENSITIVE ADJACENT AREAS INCLUDING STREAMS, LAKES, RESIDENTIAL AREAS, WETLANDS, MARSHLANDS ETC. WHICH MAY BE AFFECTED. THE RECEIVING WATERS FOR THIS PROJECT IS EUHARLEE CREEK. AREAS ADJACENT TO THE SITE ARE RESIDENTIAL
- 12. <u>DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE SITE WAS</u> VISITED PRIOR TO DEVELOPMENT OF THE ES&PC PLAN AS STATED ON PART IV PAGE 19 OF THE PERMIT. SEE "LICENSED PROFESSIONAL CERTIFICATION" ON THIS SHEET.
- 13. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE PERMITTEE'S ES&PC PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BMPs AND SAMPLING TO MEET PERMIT REQUIREMENTS AS STATED ON PART IV PAGE 19 OF THE PERMIT*. SEE "LICENSED PROFESSIONAL CERTIFICATION" ON THIS SHEET.
- CLEARLY NOTE THE STATEMENT THAT "THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC <u>PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND</u> <u>PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION IN ACCORDANCE WITH PART</u> IV.A.5 PAGE 25 OF THE PERMIT."* THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN 7 DAYS AFTER INSTALLATION IN ACCORDANCE WITH PART IV.A.5 PAGE 25 OF THE PERMIT.
- CLEARLY NOTE THE STATEMENT THAT "NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS." NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
- PROVIDE A DESCRIPTION OF ANY BUFFER ENCROACHMENTS AND INDICATE WHETHER A BUFFER VARIANCE IS REQUIRED." PROPOSED FORCE MAIN WILL BE INSTALLED WITHIN THE BUFFER BUT WILL BE INSTALLED WITHIN 25 DEGREES OF PERPENDICULAR TO THE CREEK. ALL OTHER CONSTRUCTION IS OUTSIDE OF ALL STREAM BUFFERS. NO BUFFER VARIANCE WILL BE REQUIRED.
- CLEARLY NOTE THE STATEMENT THAT "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL."* AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL
- CLEARLY NOTE THE STATEMENT THAT "WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT."* WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT
- CLEARLY NOTE THE STATEMENT THAT "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES." THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
- 20. CLEARLY NOTE THE STATEMENT THAT "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE." EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT

- 21. CLEARLY NOTE THE STATEMENT "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING." ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
- 22. ANY CONSTRUCTION ACTIVITY WHICH DISCHARGES STORM WATER INTO AN IMPAIRED STREAM <u>SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY</u> PORTION OF AN BIOTA IMPAIRED STREAM SEGMENT MUST COMPLY WITH PART III. C. OF THE PERMIT. INCLUDE THE COMPLETED APPENDIX 1 LISTING ALL THE BMPs THAT WILL BE USED FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO THE IMPAIRED STREAM SEGMENT*. NOT APPLICABLE. THE PROJECT SITE DISCHARGES INTO EUHARLAEE CREEK, WHICH ACCORDING TO GEORGIA'S 2016 305(B)/303(D) REPORT, IS NOT IMPAIRED AND IS NOT WITHIN ONE (1) MILE OF A BIOTA IMPAIRED STREAM.
- 23. IF A TMDL IMPLEMENTATION PLAN FOR SEDIMENT HAS BEEN FINALIZED FOR THE IMPAIRED <u>STREAM SEGMENT (IDENTIFIED IN ITEM 22 ABOVE) AT LEAST SIX MONTHS PRIOR TO SUBMITTAL</u> OF NOI, THE ES&PC PLAN MUST ADDRESS ANY SITE-SPECIFIC CONDITIONS OR REQUIREMENTS INCLUDED IN THE TMDL IMPLEMENTATION PLAN*. NOT APPLICABLE. SEE ITEM 22 ABOVE.
- 24. BMPs FOR CONCRETE WASHDOWN OF TOOLS, CONCRETE MIXER CHUTES, HOPPERS AND THE REAR OF THE VEHICLES. WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED*. NOT APPLICABLE. CONCRETE WASHDOWN IS NOT ALLOWED WITHIN THE PROJECT SITE.
- 25. PROVIDE BMPs FOR THE REMEDIATION OF ALL PETROLEUM SPILLS AND LEAKS.

SOIL CLEANUP AND CONTROL PRACTICES

- LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND PROCEDURES SHALL BE MADE AVAILABLE TO SITE PERSONNEL. MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO. BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND
- PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS. SPILL PREVENTION PRACTICES AND PROCEDURES SHALL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.
- ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS SHALL BE REPORTED AS REQUIRED BY LOCAL, STATE AND FEDERAL REGULATIONS.
- FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) SHALL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675.
- FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL CENTER (NRC) SHALL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675. FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD
- SHALL BE CONTACTED WITHIN 24 HOURS. FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL SHALL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.

THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ONSITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY OF GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND

COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

- 26. <u>DESCRIPTION OF THE MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS</u> TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED.* BEST MANAGEMENT PRACTICES (BMPS) IN ACCORDANCE WITH THE MANUAL FOR EROSION AND SEDIMENT CONTROL SHALL BE EMPLOYED TO PREVENT EROSION IN AREAS OF BARE SOILS AND CONCENTRATED WATER FLOWS. PERMANENT GRASSING SHALL BE USED TO STABILIZE THE SITE AND PREVENT EROSION AND SEDIMENT IN STORMWATER RUNOFF FROM THE SITE. A PERVIOUS PAVER SYSTEM WILL BE PROVIDED TO RETAIN THE RUNOFF REDUCTION VOLUME ONSITE.
- 27. DESCRIPTION OF PRACTICES TO PROVIDE COVER FOR BUILDING MATERIALS AND BUILDING PRODUCTS ON SITE. CONTRACTOR SHALL PROVIDE COVER FOR BUILDING MATERIALS AND PRODUCTS AS REQUIRED TO PREVENT EROSION, SEDIMENTATION AND POLLUTION.
- DESCRIPTION OF THE PRACTICES THAT WILL BE USED TO REDUCE THE POLLUTANTS IN STORM WATER DISCHARGES.*

PRODUCT SPECIFIC PRACTICES

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS AND LARS SHALL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ON-SITE VEHICLE AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS SHALL BE LOCATED AWAY FROM STATE WATER, NATURAL DRAINS AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS SHALL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED

PAINTS/FINISHES/SOLVENTS - ALL PRODUCTS SHALL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT SHALL NOT BE DISCHARGED TO STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS AND PRODUCT CONTAINERS SHALL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING - NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.

FERTILIZER/HERBICIDES - THESE PRODUCTS SHALL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS SHALL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS - NO BUILDING OR CONSTRUCTION MATERIALS SHALL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIALS SHALL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

- 29. <u>DESCRIPTION AND CHART OR TIMELINE OF THE INTENDED SEQUENCE OF MAJOR ACTIVITIES</u> WHICH DISTURB SOILS FOR THE MAJOR PORTIONS OF THE SITE (I.E., INITIAL PERIMETER AND SEDIMENT STORAGE BMPs, CLEARING AND GRUBBING ACTIVITIES, EXCAVATION ACTIVITIES, UTILITY ACTIVITIES, TEMPORARY AND FINAL STABILIZATION). SEE CONSTRUCTION SCHEDULE ON SHEET
- 30. PROVIDE COMPLETE REQUIREMENTS OF INSPECTIONS AND RECORD KEEPING BY THE PRIMARY PERMITTEE.*

PRIMARY PERMITTEE

(1). EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT; (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING; THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.

(2). MEASURE RAINFALL ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY UNTIL A NOTICE OF TERMINATION IS SUBMITTED. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.

(3). CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE

END OF A STORM THAT IS 0.5 INCHES RAINFALL OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00 PM ON ANY FRIDAY OR ON ANY NONWORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST): (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE; (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION: AND (C) STRUCTURAL CONTROL MEASURES. EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR

THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.A.(3). THESE INSPECTIONS MUST

BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED. (4). CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTED) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION IS RECEIVED BY EPD) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). (5). BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES

SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR

(6). A REPORT OF EACH INSPECTION THAT INCLUDES THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E. INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.A.(5). OF THE PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY END OF THE SECOND BUSINESS DAY AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT.

PROVIDE COMPLETE REQUIREMENTS OF SAMPLING FREQUENCY AND REPORTING OF SAMPLING

SEE STORMWATER MONITORING PLAN ON SHEET C708 FOR SAMPLING LOCATIONS.

DAYS FOLLOWING EACH INSPECTION.

1. THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED OUTFALL LOCATION WITHIN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE. 2. HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS

PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE. 3. SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:

(A). FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED. BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATINS SELECTED AS THE SAMPLING LOCATION:

(B). IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;

(C). AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPS IN ÀNY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED. INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FRM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVEN THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE

THAT BMPS ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED; (D). WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART 1V.D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE;

(E). EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR MONITORING AT ANY TIME OF THE DAY OR WEEK.

1. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORM WATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBBMITTED IN ACCORDANCE WITH PART VI.

- 2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION: A. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
- B. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS:
- C. THE DATE(S) ANALYSES WERE PERFORMED;
- D. THE TIME(S) ANALYSES WERE INITIATED;
- E. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES; F. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL
- TECHNIQUES OR METHODS USED; G. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS,
- COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS; H. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND I. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN
- 3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL

RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT IF AN ELECTRONIC SUBMITTAL IS PROVIDED BY EPD THEN THE WRITTEN CORRESPONDENCE MAY BE SUBMITTED ELECTRONICALLY: IF REQUIRED A PAPER CORY MUST ALSO BE SUBMITTED. RETURN RECEIPT CERTIFIED MAIL OR SIMILAR SERVICE.

32. PROVIDE COMPLETE DETAILS FOR RETENTION OF RECORDS AS PER PART IV.F. OF THE PERMIT*.

1. THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:

A. A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;

B. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT: C. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT:

D. A COPY OF ALL MONITORING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT:

E. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT: F. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN

ACCORDANCE WITH PART III.D.2. OF THIS PERMIT; AND G. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(1)(C) OF THIS PERMIT.

2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, REPORTS, PLANS, MONITORING REPORTS, MONITORING INFORMATION, INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

DESIGN PROFESSIONAL 7-DAY VISIT CERTIFICATION

DATE OF INSPECTION: I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ES&PC PLAN ON THE DATE OF INSPECTION.

THESE DISCREPANCIES MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE SITE UNTIL THE DESIGN PROFESSIONAL CERTIFICATION IS

LICENSED PROFESSIONAL CERTIFICATION

(1) "I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT. UNDER MY DIRECT SUPERVISION.

(2) "I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001."

J. LAMAR ROGERS, P.E.	DAT
GEORGIA REGISTERED PROFESSIONAL ENGINEER NO. 31288	
GSWCC LEVEL II CERTIFICATION NO. 22351	
EXPIRES 11/09/24	

REVISIONS CITY OF ROCKMART, GEORGIA HISTORIC ROCKMART EVENT CENTER SEPT. 2024 EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN

SCALE: AS SHOWN

TATURNIPSEED ENGINEERS

DRAWN CHECKEI

JLR

SPS

ATLANTA *AUGUSTA* ST. SIMONS ISLAND

CHECKLIST

DATE: SEPTEMBER 2024

SHEET

C704

GSWCC CERTIFICATION NO. 22351

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STAND ALONE CONSTRUCTION PROJECTS

33. <u>DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION.*</u>

STORMWATER SAMPLING ANALYSIS: THIS PERMIT REQUIRES THE MONITORING OF NEPHELOMETRIC TURBITY IN RECEIVING WATER(S) OR OUTFALLS IN ACCORDANCE WITH THIS PERMIT. THIS PARAGRAPH SHALL NOT APPLY TO ANY LAND DISTURBANCE ASSOCIATED WITH THE CONSTRUCTION OF SINGLE—FAMILY HOMES WHICH ARE NOT PART OF A SUBDIVISION OR PLANNED COMMON DEVELOPMENT UNLESS FIVE (5) ACRES OR MORE WILL BE DISTURBED. THE FOLLOWING PROCEDURES CONSTITUTE EPD'S GUIDELINES FOR SAMPLING TURBIDITY.

SAMPLE REQUIREMENTS-

- (1) A USGS TOPOGRAPHIC MAP, A TOPOGRAPHIC MAP OR DRAWING (REFERRED TO AS A TOPOGRAPHIC MAP) THAT IS SCALE EQUAL TO OR MORE DETAILED THAN A 1:24,000 MAP SHOWING THE LOCATION OF THE SITE OR THE STAND ALONE CONSTRUCTION; (A) THE LOCATION OF ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES AS SHOWN ON A USGS TOPOGRAPHIC MAP, AND ALL OTHER PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES LOCATED DURING MANDATORY FIELD VERIFICATION, INTO WHICH THE TORM WATER IS DISCHARGED AND (B THE RECEIVING WATER AND/OR OUTFALL SAMPLING LOCATIONS. WHEN THE PERMITTEE HAS CHOSEN TO USE A USGS TOPOGRAPHIC MAP AND THE RECEIVING WATER(S) IS NOT SHOWN ON THE USGS TOPOGRAPHIC MAP, THE LOCATION OF THE RECEIVING WATER(S) MUST BE HANDWRITTEN ON THE USGS TOPOGRAPHIC MAP FROM WHERE THE STORM WATER(S) ENTERS THE RECEIVING WATER(S) TO THE POINT WHERE THE RECEIVING WATER(S) COMBINES WITH THE FIRST BLUE LINE STREAM SHOWN ON THE USGS TOPOGRAPHIC MAP;
- (2) A WRITTEN NARRATIVE OF SITE SPECIFIC ANALYTICAL METHODS USED TO COLLECT, HANDLE AND ANALYZE THE SAMPLES INCLUDING QUALITY CONTRO/QUAILTY ASSURANCE PROCEDURES. THIS NARRATIVE MUST INCLUDE PRECISE SAMPLING METHODOLOGY FOR EACH SAMPLING LOCATION:
- (3) WHEN THE PERMITTEE HAS DETERMINED THAT SOME OR ALL OUTFALLS WILL BE SAMPLED, A RATIONALE MUST BE INCLUDED ON THE PLAN FOR THE NTU LIMIT(S) SELECTED FROM APPENDIX B. THIS RATIONALE MUST INCLUDE THE SIZE OF THE CONSTRUCTION SITE, THE CALCULATION OF THE SIZE OF THE SURFACE WATER DRAINAGE AREA AND THE TYPE OF RECEIVING WATER(S) (I.E., TROUT STREAM OR SUPPORTING WARM WATER FISHERIES); AND
- (4) ANY ADDITIONAL INFORMATION EPD DETERMINES NECESSARY TO BE PART OF THE PLAN. EPD WILL PROVIDE WRITTEN NOTICE TO THE PERMITTEE OF THE INFORMATION NECESSARY AND THE TIME LINE FOR SUBMITTAL.

SAMPLE TYPE-

ALL SAMPLING SHALL BE COLLECTED BY 'GRAB SAMPLES' AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER; SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.

- (1) SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTION THE SAMPLES.
- (2) SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.
 (3) LARGEMOUTH, WELL CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTION SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.
- (4) MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.
- (5) SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E.

SAMPLE POINTS-

- (1) FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S), OR ALL OUTFALL(S), OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORM WATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:
- (A) THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.
- (B) THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.
- (C) IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORM WATER OUTFALL CHANNEL(S).
- (D) CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER CHANNEL.
- (E) THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.
- (F) THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.
- (G) PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES AND AREAS LOCATED OUTSIDE THE WASTE DISPOSAL LIMITS OF A LANDFILL CELL THAT HAS BEEN CERTIFIED BY EPD FOR WASTE DISPOSAL, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPED AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE REGION).
- (H) ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III.D.3 OR III.D.4., WHICHEVER IS APPLICABLE.

- 34. APPENDIX B RATIONALE FOR NTU VALUES AT ALL OUTFALL SAMPLING POINTS WHERE APPLICABLE.* THE RECEIVING WATERS, EUHARLEE CREEK IS BEING SAMPLED. ACCORDING TO THE GENERAL NPDES STORMWATER PERMIT FOR CONSTRUCTION SITES, A DISCHARGE OF STORMWATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH DISCHARGE RESULTS IN THE TURBIDITY OF RECEIVING WATER(S) BEING INCREASED BY MORE THAN TWENTY—FIVE (25) NEPHELOMETRIC TURBIDITY UNITS FOR WATERS SUPPORTING WARM WATER FISHERIES, REGARDLESS OF A PERMITTEE'S CERTIFICATION UNDER PART II.B.1.I.
- 35. <u>DELINEATE ALL SAMPLING LOCATIONS, PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED.*</u> SEE THE STORMWATER MONITORING PLAN, THIS SHEET.
- 36. A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE INCLUDING: (1) INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs, (2) INTERMEDIATE GRADING AND DRAINAGE BMPs, AND (3) FINAL BMPs. FOR CONSTRUCTION SITES WHERE THERE WILL BE NO MASS GRADING AND THE INITIAL PERIMETER CONTROL BMPs, INTERMEDIATE GRADING AND DRAINAGE BMPS, AND FINAL BMPs ARE THE SAME, THE PLAN MAY COMBINE ALL OF THE BMPS INTO A SINGLE PHASE.* INITIAL, INTERMEDIATE AND FINAL EROSION CONTROL PLANS ARE SHOWN ON SHEETS C701 THROUGH C703.
- 37. GRAPHIC SCALE AND NORTH ARROW. SHOWN ON ALL SHEETS WHERE APPLICABLE.
- 38. EXISTING AND PROPOSED CONTOUR LINES WITH CONTOUR LINES DRAWN AT AN INTERVAL IN ACCORDANCE WITH THE CHECKLIST. EXISTING CONTOURS AND PROPOSED CONTOURS ARE SHOWN ON SHEETS C301 THROUGH C502 AND SHEETS C701 THROUGH C703.
- 39. USE OF ALTERNATIVE BMPs WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMPs AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY EPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION). PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT WWW.GASWCC,GEORGIA,GOV. NO ALTERNATIVE BMPs HAVE BEEN SELECTED FOR THIS PROJECT.
- 40. <u>USE OF ALTERNATIVE BMP FOR APPLICATION TO THE EQUIVALENT BMP LIST. PLEASE REFER TO APPENDIX A-2 OF THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA 2016 EDITION.*</u>
 NO ALTERNATIVE BMPs HAVE BEEN SELECTED FOR THIS PROJECT.
- 41. <u>DELINEATION OF THE APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS REQUIRED BY THE LOCAL ISSUING AUTHORITY. CLEARLY NOTE AND DELINEATE ALL AREAS OF IMPACT.</u> DELINEATION OF THE APPLICABLE 25-FOOT BUFFER IS SHOWN ON SHEETS C301 THROUGH C502 AND C701 THROUGH C703.
- 42. <u>DELINEATION OF ON-SITE WETLANDS AND ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE.</u> STATE WATERS ARE SHOWN ON SHEETS C301 THROUGH C502 AND C701 THROUGH C703. THERE ARE NO ON-SITE WETLANDS.
- 43. <u>DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE.</u>
 DRAINAGE BASINS ARE SHOWN ON THE STORMWATER MONITORING PLAN ON SHEET C708.
- 44. PROVIDE HYDROLOGY STUDY AND MAPS OF DRAINAGE BASINS FOR BOTH THE PRE— AND POST—DEVELOPED CONDITIONS.* HYDROLOGY STUDY HAS BEEN PROVIDED. MAPS OF BOTH THE PRE—AND POST—DEVELOPED CONDITIONS ARE IN THE HYDROLOGY STUDY.
- 45. AN ESTIMATE OF THE RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW OF THE SITE PRIOR TO AND AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED.

RUNOFF COEFFICIENT

- WEIGHTED PRE-CONSTRUCTION CN CURVE NUMBER: 53
- · WEIGHTED POST-CONSTRUCTION CN CURVE NUMBER: 65
- 46. <u>STORM-DRAIN PIPE AND WEIR VELOCITIES WITH APPROPRIATE OUTLET PROTECTION TO ACCOMMODATE DISCHARGES WITHOUT EROSION. IDENTIFY/DELINEATE ALL STORM WATER DISCHARGE POINTS.</u> OUTLET PROTECTION IS SHOWN ON SHEET C501.
- 47. <u>SOIL SERIES FOR THE PROJECT SITE AND THEIR DELINEATION.</u> SEE SHEET C707.
- 48. THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION. LIMITS OF DISTURBANCE ARE SHOWN ON SHEETS C301 THROUGH C502.
- 49. PROVIDE A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED USING A TEMPORARY SEDIMENT BASIN, RETROFITTED DETENTION POND, AND/OR EXCAVATED INLET SEDIMENT TRAPS FOR EACH COMMON DRAINAGE LOCATION. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED. A WRITTEN JUSTIFICATION EXPLAINING THE DECISION TO USE EQUIVALENT CONTROLS WHEN A SEDIMENT BASIN IS NOT ATTAINABLE MUST BE INCLUDED IN THE PLAN FOR EACH COMMON DRAINAGE LOCATION IN WHICH A SEDIMENT BASIN IS NOT PROVIDED. A WRITTEN JUSTIFICATION AS TO WHY 67 CUBIC YARDS OF STORAGE IS NOT ATTAINABLE MUST ALSO BE GIVEN. WORKSHEETS FROM THE MANUAL MUST BE INCLUDED FOR STRUCTURAL BMPS AND ALL CALCULATIONS USED BY THE DESIGN PROFESSIONAL TO OBTAIN THE REQUIRED SEDIMENT STORAGE WHEN USING EQUIVALENT CONTROLS. WHEN DISCHARGING FROM SEDIMENT BASINS AND IMPOUNDMENTS, PERMITTEES ARE REQUIRED TO UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE, UNLESS INFEASIBLE, IF OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE ARE NOT FEASIBLE, A WRITTEN JUSTIFICATION EXPLAINING THIS DECISION MUST BE INCLUDED IN THE PLAN.

TOTAL SEDIMENTATION STORAGE CALCULATIONS

SEDIMENTATION STORAGE REQUIRED

TOTAL DISTURBED ACRES = 1.7 AC * 67 = 114 CY

SEDIMENTATION STORAGE PROVIDED

Sd1-S STORAGE = 630 LF * 0.1675 CY/LF = 105 CY

- 50. LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH AND NO LESS STRINGENT THAN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. USE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6, WITH LEGEND. LOCATION OF BMPs ARE SHOWN ON SHEETS C701 AND C703. A LEGEND OF THE CODING SYMBOLS FROM THE MANUAL, ARE SHOWN ON SHEETS C701 THROUGH C703.
- 51. PROVIDE DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES. SPECIFICATIONS MUST, AT A MINIMUM, MEET THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. SEE DETAILS ON SHEET C706.
- 52. PROVIDE VEGETATIVE PLAN, NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES.

 INCLUDE SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES.

 VEGETATIVE PLAN SHALL BE SITE SPECIFIC FOR APPROPRIATE TIME OF YEAR THAT SEEDING WILL

 TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA. SEE THIS SHEET.

VEGETATIVE COVER

ALL BARE AREAS RESULTING FROM CONSTRUCTION OPERATIONS WILL BE ESTABLISHED TO VEGETATION AS SOON AS POSSIBLE AFTER FINAL GRADING IS COMPLETE AS FOLLOWS:

A. TEMPORARY/ INTERMEDIATE GRASSING - (Ds2, REQUIRED ON AREAS TO BE EXPOSED)

<u>SEEDBED PREPARATION</u> — FINISH GRADE ACCORDING TO PLANS. REMOVE LARGE ROCKS OR OTHER OBJECTS THAT WILL INTERFERE WITH VEGETATION ESTABLISHMENT.

<u>FERTILIZER</u> — APPLY AGRICULTURAL LIME AT THE RATE OF 1 TO 2 TONS PER ACRE. SPREAD LIME AND FERTILIZER UNIFORMLY OVER SURFACE.

<u>SEEDING</u> – SEE CHART

B. PERMANENTLY EXPOSED AREAS - (Ds3, FINISH GRADES)

INITIAL TREATMENT:

SEEDING PREPARATION — PREPARE SEEDBED TO DEPTH OF AT LEAST 4—INCHES ON ALL AREAS WHERE A GOOD SEEDBED IS NOT PRESENT. REMOVE ROCKS, ROOTS AND OTHER OBJECTS THAT WILL INTERFERE WITH VEGETATION ESTABLISHMENT OR MAINTENANCE OPERATIONS.

FERTILIZER — APPLY AGRICULTURE LIME AT MINIMUM RATE OF 1 TO 2 TONS PER ACRE. APPLY 1500

POUNDS 6-12-12 ANALYSIS FERTILIZER (OR EQUIVALENT) PER ACRE. SPREAD LIME AND FERTILIZER UNIFORMLY OVER ALL AREAS IMMEDIATELY BEFORE FINAL LAND PREPARATION AND MIX WITH THE SOIL. APPLY TOP DRESSING OF 50-100 POUNDS PER ACRE OF AMMONIUM NITRATE (OR EQUIVALENT) WHEN PLANTS ARE 2 TO 4-INCHES TALL.

SEEDING — SEE CHART

SEED WILL BE DISTRIBUTED UNIFORMLY OVER THE AREA AND COVERED TO A DEPTH OF ABOUT 1/4 INCH.

IF AREA IS TO BE SPRIGGED, PLANT ONLY FRESHLY DUG SPRIGS AND KEEP THEM COOL AND MOIST UNTIL

PLANTED. FIRM SEEDED OR SODDED AREAS WITH CULTPACKER OR ROLLER IMMEDIATELY FOLLOWING

PLANTING.

MULCHING — ALL UNSEEDED SLOPES STEEPER THAN 3 PERCENT AND ALL SEEDED AREAS WILL BE MULCHED IMMEDIATELY AFTER SPREADING UNIFORMLY DRY STRAW OR HAY, FREE OF COMPETING WEEDS, AT THE RATE OF ABOUT 2.5 TONS PER ACRE OR TO COVER APPROXIMATELY 75 PERCENT OF THE GROUND SURFACE. WHEN FEASIBLE, ANCHOR MULCH WITH A PACKED OR DISK HARROW WITH BLADES SET STRAIGHT OR WITH EMULSIFIED ASPHALT (GRADE AE5 OR SS1) AT RATE OF 100 GALLONS EMULSION MIXED WITH 100 GALLONS WATER FOR EACH TON OF MULCH.

MOUNTAIN VEGETATIVE COVERS

	MONTH	TEMPORARY SEED	RATE/ ACRE	PERMANENT SEED	RATE/ ACRE
1.	January	Ryegrass	40-50 lbs.	Unhulled Bermuda Sericea Lespedeza	8-10 lbs. 30-40 lbs.
2.	February	Ryegrass	40-50 lbs.	Unhulled Bermuda Sericea Lespedeza	8-10 lbs. 30-40 lbs.
3.	March	Rye Annual Lespedeza Weeping Lovegrass	2–3 bu. 20–25 lbs. 4–6 lbs.	Unhulled Bermuda Sericea Lespedeza Fescue	8-10 lbs. 30-40 lbs. 30-50 lbs.
4.	April	Rye Brown Top Millet Annual Lespedeza Weeping Lovegrass	2–3 bu. 30–40 lbs. 20–25 lbs. 4–6 lbs.	Bermuda (hulled) Weeping Lovegrass Bahia Sercia Lespedeza	10 lbs. 4-6 lbs. 40-60 lbs. 30-40 lbs.
5.	May	Weeping Lovegrass Sudan Grass Brown Millet	4–6 lbs. 35 lbs. 30–40 lbs.	Weeping Love Grass Sericea Lespedeza Bahia	4-6 lbs. 30-40 lbs. 40-60 lbs.
6.	June	Sudan Grass Brown Top Millet	35 lbs. 30–40 lbs.	Weeping Love Grass Sericea Lespedeza Bahia	4-6 lbs. 30-40 lbs. 40-60 lbs.
7.	July	Sudan Grass Brown Top Millet	35 lbs. 30–40 lbs.	Bahia	40-60 lbs.
8.	August	Ryegrass	40-50 lbs.	Fescue	50 lbs.
9.	September	Ryegrass	40-50 lbs.	Fescue	50 lbs.
10.	October	Wheat Barley Ryegrass	2–3 bu. 3 bu. 40–50 lbs.	Sericea Lespedeza Fescue	30-40 lbs. 30-50 lbs.
11.	November	Wheat Ryegrass	2–3 bu. 40–50 lbs.	Fescue Sericea Lespedeza	30-50 lbs. 30-40 lbs.
12.	December	Rye Ryegrass Wheat	2-3 bu. 40-50 lbs. 2-3 bu.	Unhulled Bermuda Sericea Lespedeza Fescue	10 lbs. 30–40 lbs. 30–50 lbs.

NOTE: TYPE OF GRASS APPLIED SHALL BE DETERMINED BY SITE COMPATIBLE CONDITIONS AND OWNER DISCRETION. SHOULD CONSTRUCTION EXTEND BEYOND THE ALLOTTED TIME, THE CONTRACTOR SHALL REFER TO THE ENGINEER AND THE GEORGIA MANUAL FOR EROSION AND SEDIMENT

MULCHING REQUIREMENTS, DS1						
MATERIAL	RATE	DEPTH				
STRAW OR HAY	2 1/2 TON/ACRE	6" to 10"				
WOOD WASTE CHIPS, SAWDUST, BARK	6 TO 9 TON/ACRE	2" to 3"				
POLYETHYLENE FILM	SECURE WITH SOIL, ANCHORS, WEIGHTS					
CUTBACK ASPHALT	SEE MANUFACTURER'S RECOMMENDATIONS					
GEOTEXTILES, JUTE MATTING, NETTING, ETC.	SEE MANUFACTURER'S RECOMMENDATIONS					

	PROFESSIONAL AMAR P	1	
GSWCC	CERTIFICATION	NO.	2

REVISIONS
SEPT. 2024

CITY OF ROCKMART, GEORGIA
HISTORIC ROCKMART EVENT CENTER

EROSION, SEDIMENTATION AND
POLLUTION CONTROL PLAN
CHECKLIST, CONT.

DRAWN CHECKED

SPS JLR SCALE: AS SHOWN DATE: SEPTEMBER 2024

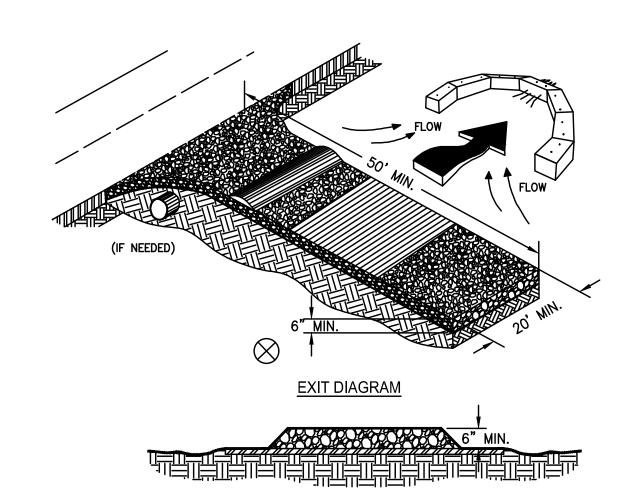
TURNIPSEED ENGINEERS

ATLANTA AUGUSTA ST. SIMONS ISLAND SHEET **C705**

GEORGIA UNIFORM CODING SYSTEM FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES

STATE SOIL AND WATER CONSERVATION COMMISSION OF GEORGIA

OODE DEADTOE DETAIL MAP DECORPTION								
CODE	PRACTICE	DETAIL	SYMBOL	DESCRIPTION				
Cq	CHECKDAM	FLOW		A SMALL TEMPORARY BARRIER OR DAM CONSTRUCTED ACROSS A SWALE DRAINAGE DITCH OR AREA OF CONCENTRATED FLOW. CONSISTS OF 20# TO 50# STONE 24" DEEP (MAX.) 3:1 SLOPES ON UPSTREAM & DOWNSRTREAM FACES.				
Co	CONSTRUCTION EXIT			A CRUSHED STONE PAD LOCATED AT THE CONSTRUCTION EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES THEREBY PROTECTING PUBLIC STREETS				
Rp	RIP-RAP	W W W W W W W W W W W W W W W W W W W		LOOSE ROCK OR SIMILAR DURABLE MATERIAL INSTALLED ON SLOPES FOR PROTECTION FROM EROSION CAUSED BY WATER TURBULENCE OR HIGH VELOCITIES				
(Sdl)	SEDIMENT BARRIER	20000000000000000000000000000000000000	⊗ Sd1	A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALES OF STRAW OR HAY, BRUSH, LOGS, AND POLES, GRAVEL, OR A SEDIMENT FENCE. THE BARRIERS ARE USUALLY TEMPORARY AND INEXPENSIVE.				
(d2)	INLET SEDIMENT TRAP		Sd2 Sd2	AN IMPOUNDING AREA CREATED BY EXCAVATING AROUND A STORM DRAIN DROP INLET. THE EXCAVATED AREA WILL BE FILLED AND STABILIZED ON COMPLETION OF CONSTRUCTION ACTIVITIES.				
St	STORM DRAIN OUTLET PROTECTION		St	A PAVED OR SHORT SECTION OF RIPRAP CHANNEL AT THE OUTLET OF A STORM DRAIN SYSTEM PREVENTING EROSION FROM THE CONCENTRATED RUNOFF.				
	V	EGETATIVE	MEASURE	ES				
Bf	BUFFER ZONE		Bf	STRIP OF UNDISTURBED ORIGINAL VEGETATION, ENHANCED OR RESTORED EXISTING VEGETATION OR THE REESTABLISHMENT OF VEGETATION SURROUNDING AN AREA OF DISTURBANCE OR BORDERING STREAMS.				
Ds1	DISTURBED AREA STABILIZATION MULCHING		The STATE OF THE S	ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH PLANT RESIDUES ON DISTURBED AREAS.				
Ds2	DISTURBED AREA STABILIZATION TEMPORARY		The Salar	ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.				
Ds3	DISTURBED AREA STABILIZATION PERMANENT	THE	PARTIE SOL	ESTABLISHING PERMANENT VEGETATIV COVER SUCH AS TREES, SHRUBS VINES, GRASSES, SOD, OR LEGUMES ON DISTURBED AREAS.				
Ds4	DISTURBED AREA STABILIZATION (WITH SODDING)	Dept.	Confidence of the Confidence o	A PERMANENT VEGETATIVE COVER USING SODS ON HIGHLY ERODIBLE OR CRITICALLY ERODED LANDS.				
Du	DUST CONTROL ON DISTURBED AREAS		Du	CONTROLLING SURFACE AND AIR MOVEMENT OF DUST CONSTRUCTION SITES, ROADWAYS AND SIMILAR SITES				
Sb	STREAMBANK STABILIZATION (USING PERM VEGETATION)		Sb	THE USE OF READILY AVAILABLE NATIVE PLANT MATERIALS TO MAINTAIN AND ENHANCE STREAMBANKS, OR TO PREVENT, OR RESTORE AND REPAIR SMALL STREAMBANK EROSION PROBLEMS.				
Ss	SLOPE STABILIZATION		Ss	A PROTECTIVE COVERING USED TO PREVENT EROSION AND ESTABLISH TEMPORARY OR PERMANENT VEGETATION ON STEEP SLOPES, SHORE LINES, OR CHANNELS.				
Tac	TACKIFIERS AND BINDERS		Taq	SUBSTANCE USED TO ANCHOR STRAW OR HAY MULCH BY CAUSING THE ORGANIC MATERIAL TO BIND TOGETHER.				



ENTRANCE ELEVATION

NOTES:

1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.

2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.

7. 1000004TE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE). 3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6". 5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.

8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT

DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE). 9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL <u>SUITABLE</u> FOR TRUCK TRAFFIC THAT 10.MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES



SECTION B-B

NOTES:

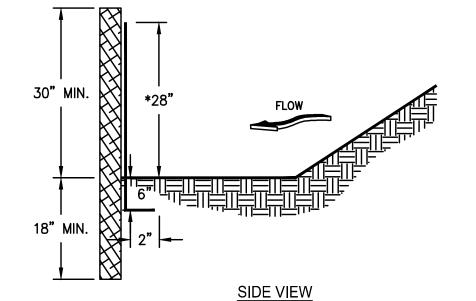
1. BALES SHOULD BE BOUND WITH WIRE OR NYLON STRING AND SHOULD BE PLACED IN ROWS WITH BALE ENDS <u>TIGHTLY</u> ABUTTING THE ADJACENT BALES.

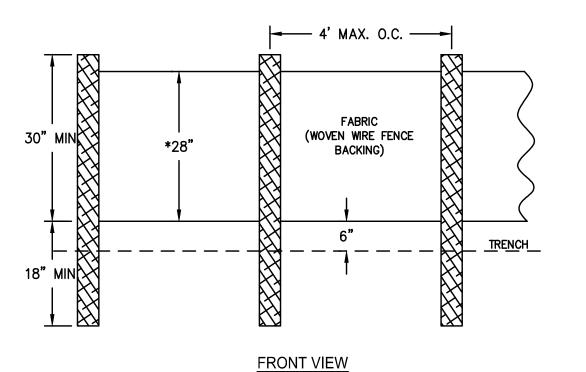
2. <u>REMOVE</u> #4 REBAR AFTER STRAW BALES ARE NO LONGER IN PLACE.

3. POINT C OF SECTION B-B SHOULD <u>ALWAYS</u> BE HIGHER THAN POINT D.

HAYBALE CHECK DAM N.T.S.

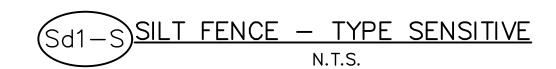
SEE DETAIL FOR PLACEMENT OF BALE

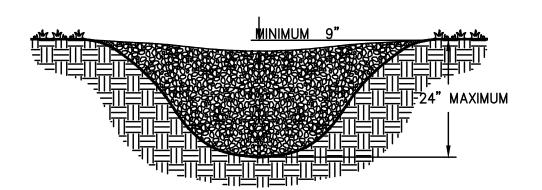




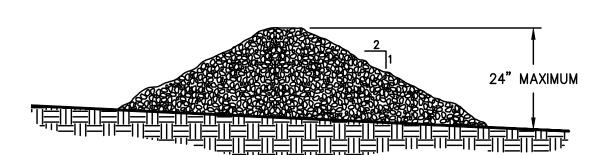
NOTES:

1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN. 2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.





CROSS SECTION



PROFILE VIEW

1. CHECK DAMS ARE TO BE USED ONLY IN SMALL OPEN CHANNELS (THEY ARE NOT TO BE USED IN LIVE STREAMS).

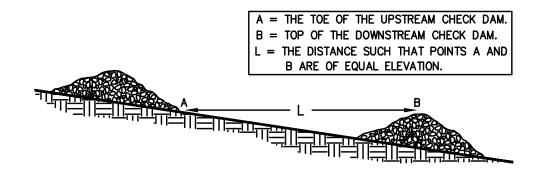
THE DRAINAGE AREA FOR STONE CHECK DAMS SHALL NOT EXCEED TWO ACRES.

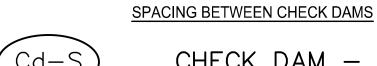
THE CENTER OF THE CHECK DAM MUST BE AT LEAST 9 INCHES LOWER THAN THE OUTER EDGES.

4. THE DAM HEIGHT SHOULD BE A MAXIMUM OF 2 FEET FROM CENTER TO RIM EDGE.

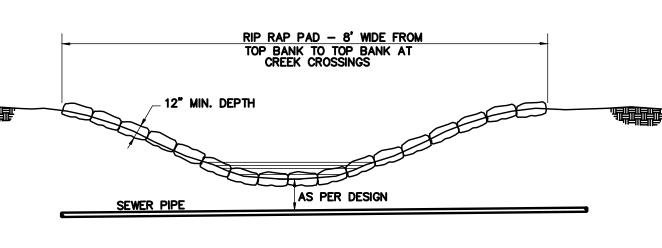
5. THE SIDE SLOPES OF THE CHECK DAM SHALL NOT EXCEED A 2:1 SLOPE.

6. GEOTEXTILE SHALL BE USED TO PREVENT THE MITIGATION OF SUBGRADE SOIL PARTICLES INTO THE STONES (REFER TO AASHTO M288–96, SECTION 7.3, TABLE 3).

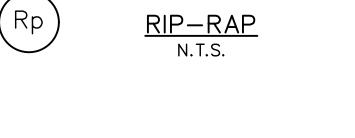




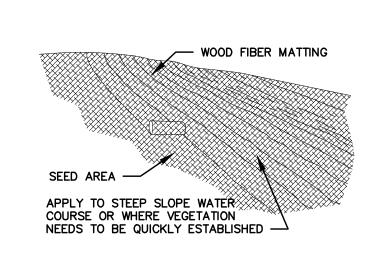








SLOPE STABILIZATION

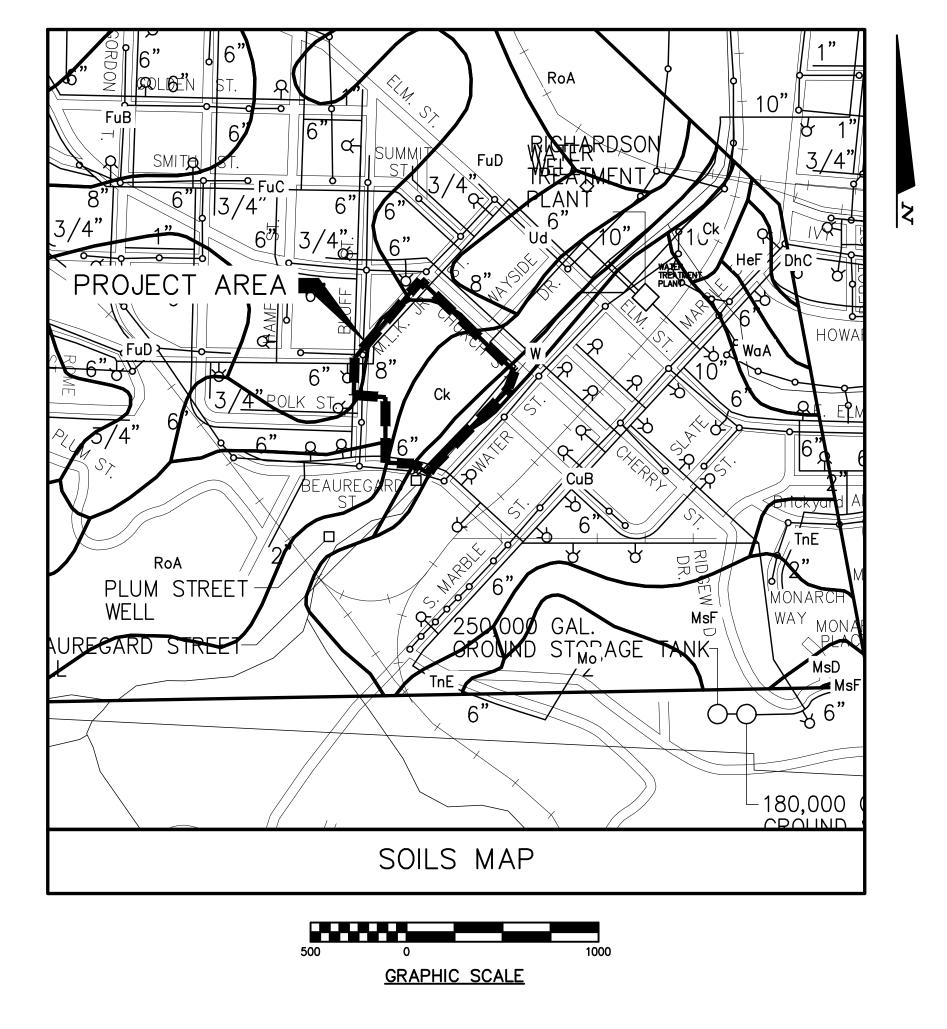


GSWCC CERTIFICATION NO. 22351

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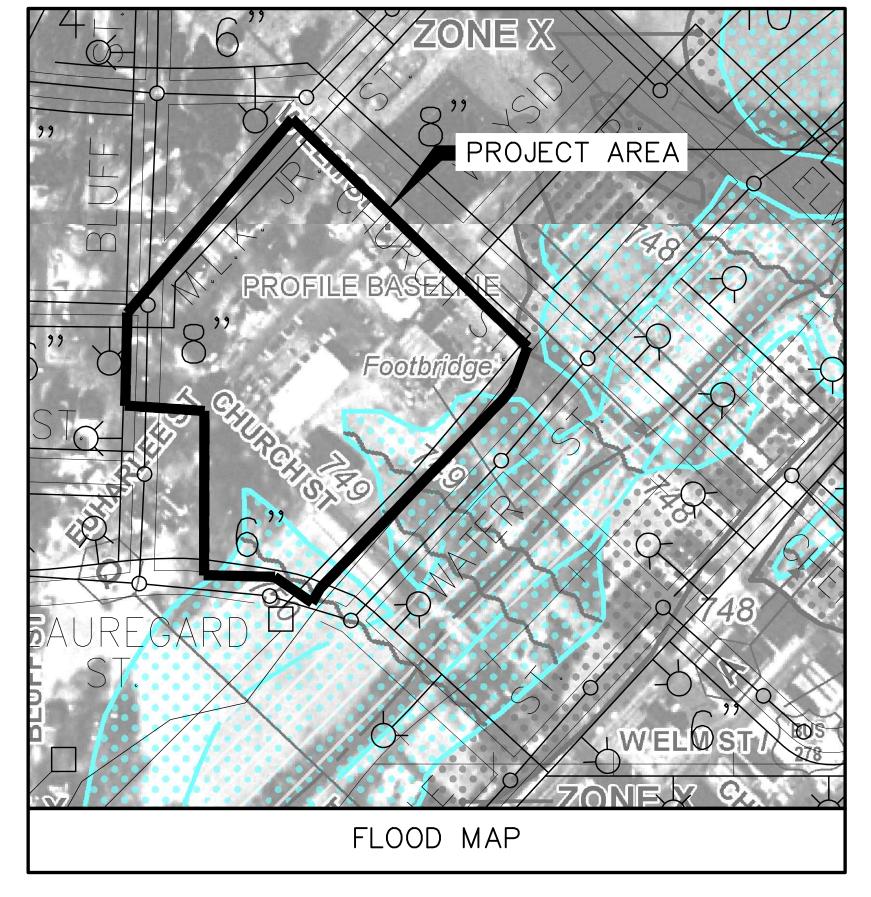
TURNIPSEED ENGINEERS ATLANTA AUGUSTA

SHEET ST. SIMONS ISLAND



<u>LEGEND</u>

SYMBOL	DESCRIPTION
Ck	Chewacla silt loam, 0 to 2 percent slopes, frequently flooded
CuB	Cunningham loam, 2 to 6 percent slopes
DhC	Dewey silt loam, 6 to 10 percent slopes
FuB	Fullerton gravelly silt loam, 2 6 percent slopes
FuC	Fullerton cherty silt loam, 6 t 10 percent slopes
FuD	Fullerton cherty silt loam, 10 15 percent slopes
FuE	Fullerton cherty silt loam, 15 25 percent slopes
HeF	Hector stony fine sandy loan 15 to 40 percent slopes
Мо	Mine pits
MsD	Montevallo very shaly silt loa 6 to 15 percent slopes
MsF	Montevallo very shaly silt loa 15 to 45 percent slopes
RoA	Rome fine sandy loam, 0 to percent slopes
ShB	Shack cherty silt loam, 2 to 6 percent slopes
ShC	Shack cherty silt loam, 6 to of percent slopes
ShD	Shack cherty silt loam, 10 to 15 percent slopes
TnE	Townley silt loam, 10 to 25 percent slopes
Ud	Udorthents
W	Water
WaA	Wax loam, 0 to 2 percent slopes
Wh	Whitwell silt loam

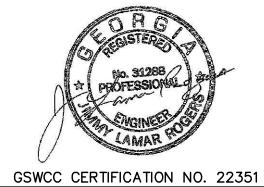


GRAPHIC SCALE

OTHER FLOOD AREAS

ZONE X

AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1%
ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS
THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1
SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM
1% ANNUAL CHANCE FLOOD.

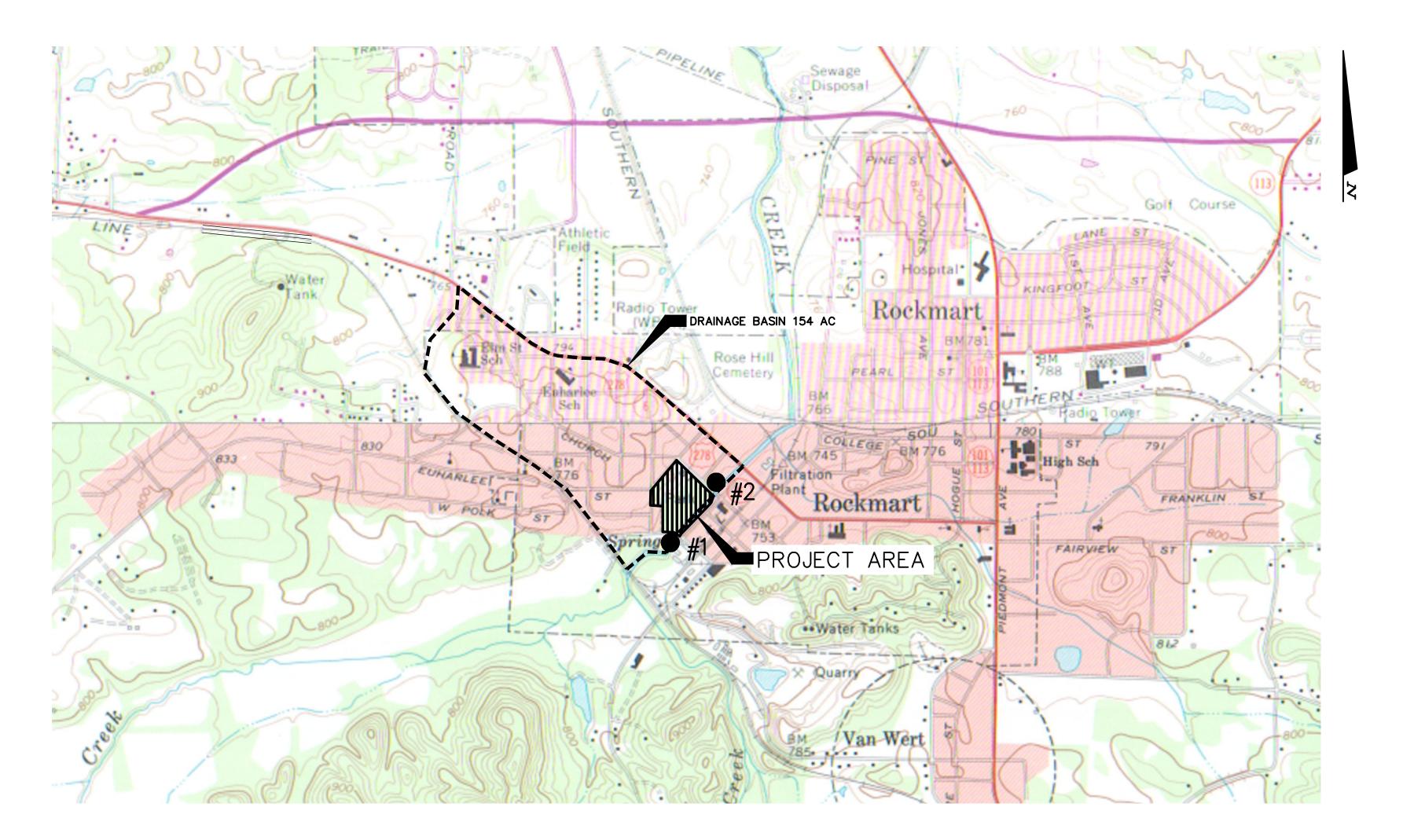


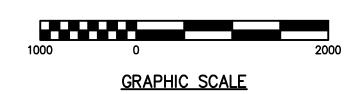
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TURNIPSEED ENGINEERS ATLANTA AUGUSTA ST. SIMONS ISLAND





GENERAL NOTES

- EUHARLEE CREEK IS THE RECEIVING WATERS FOR THIS PROJECT WHICH SUPPORTS WARM WATER FISHERIES.
- 2. WATER SAMPLING POINT 1 IS THE LOCATION FOR UPSTREAM SAMPLING. THE CONTRACTOR SHALL SAMPLE THE UPSTREAM SAMPLING POINT. THE UPSTREAM SAMPLE FOR THE RECEIVING WATER MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY.
- 3. WATER SAMPLING POINT 2 IS THE DOWNSTREAM SAMPLE POINT. THE CONTRACTOR SHALL SAMPLE THE DOWNSTREAM SAMPLING POINT. A SAMPLE FOR THE RECEIVING WATER MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.
- 4. THE SAMPLING POINT LOCATIONS HAVE BEEN DETERMINED BY THE DESIGN PROFESSIONAL. IN THE OPINION OF THE DESIGN PROFESSIONAL AN INCREASE IN THE TURBIDITY AT THE LOCATIONS SHOWN WILL BE REPRESENTATIVE OF THE INCREASE IN THE TURBIDITY OF BOTH BASINS. THE TOPOGRAPHY DOES NOT ALLOW PROPER SAMPLING AT ANY OTHER LOCATIONS (OTHER THAN THE ONES SHOWN) WITHIN THE PROJECT AREA.

<u>LEGEND</u>

DRAINAGE BASIN

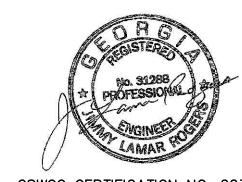
IS ESTABLISHED

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WATER SAMPLING POINT NO. & LOCATION



CONSTRUCTION SCHEDULE 2025									
MONTH									
ACTIVITY DESCRIPTION	1	2	3	4					
INSTALLATION OF SE&SC MEASURES	Sd1-C Cd-Hb								
CONSTRUCTION									
TEMPORARY GRASSING	Da1 Da2								
PERMANENT GRASSING	Da3								
REMOVE TEMPORARY MEASURES									
* TEMPORARY MEASURES SHALL NOT BE REMOVED UNTIL PERMANENT GRASSING					<u> </u>				



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SPS	JLR	SCALE:	AS SHOWN	DATE:	SEPTEMBER	2024

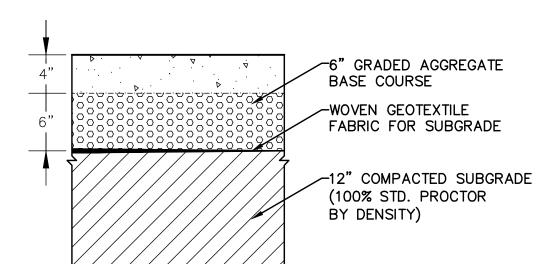
GSWCC CERTIFICATION NO. 22351

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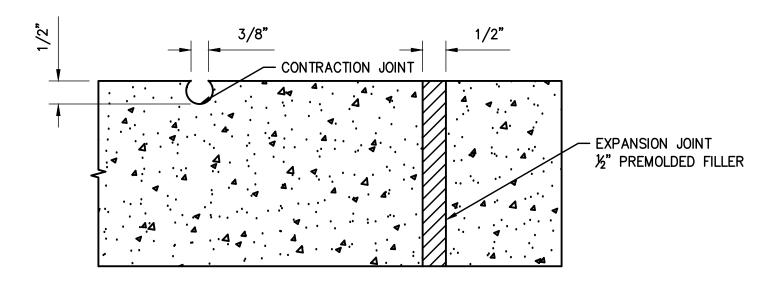
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AUGUSTA
ST. SIMONS ISLAND

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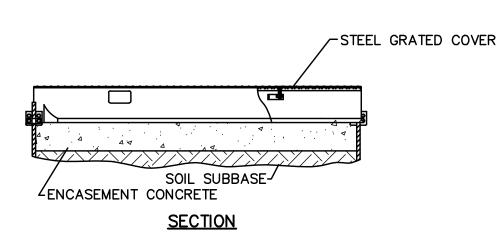
PROPOSED SIDEWALK/LIGHT DUTY CONCRETE PAVING DETAIL N.T.S.

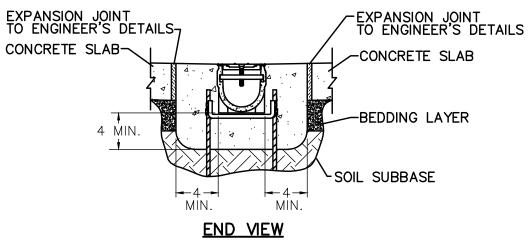


NOTES FOR CONCRETE SIDEWALK:

- 1. CONCRETE TO BE PLACED 4" THICK AND FINISHED WITH TAMPS, WOOD FLOATS AND STIFF-BRISTLE BROOMS.
- 2. TRANSVERSE CONTRACTION JOINTS SHALL BE PLACED AT 20' INTERVALS. ALL EDGES TO BE ROUNDED TO 1/4" RADIUS.
- 3. 1/2" EXPANSION JOINTS SHALL BE PLACED, WHERE SIDEWALK TIE INTO A STRUCTURE OR TERMINATE AT CURB, RAMPS OR DRIVEWAYS AND AT 60' INTERVALS.

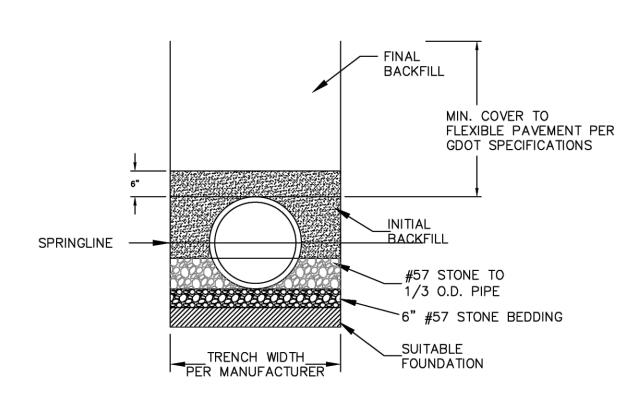
CONCRETE SIDEWALK JOINING DETAIL



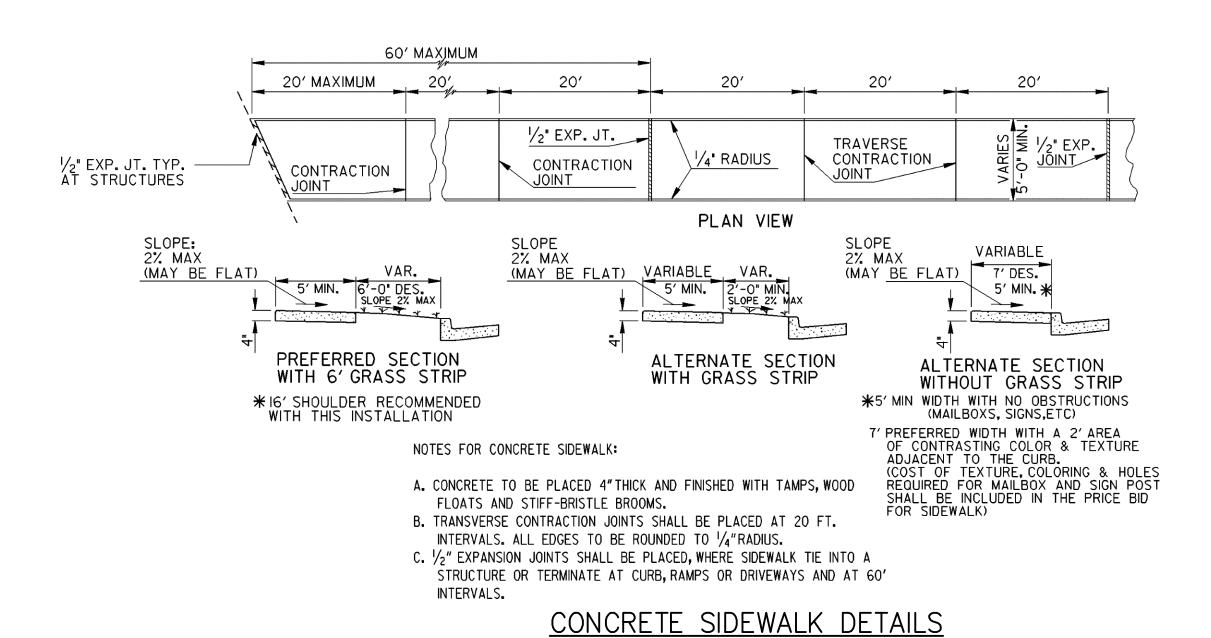


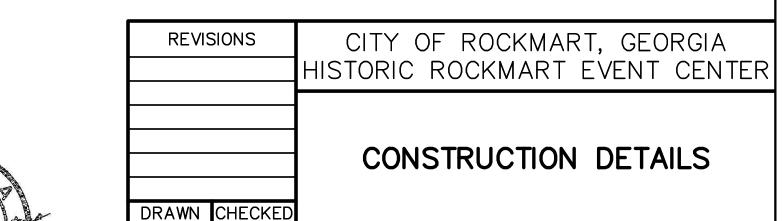
- 1. CONTRACTOR MAY INSTALL RECTANGULAR SHAPED FRAME IN LIEU OF U SHAPED FRAME. 2. CONCRETE STRENGTH, THICKNESS AND REINFORCEMENT SHALL BE DETERMINED BY THE MANUFACTURER.
- 3. INSTALLATION SHALL BE COMPLETED IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
- 4. EXPANSION JOINTS SHOULD BE USED TO PROTECT THE CHANNEL AND CONCRETE ENCASEMENT.
- 5. TRENCH GRATE SHALL BE INSTALLED PER ADA STANDARDS.
- 6. VERTICAL SURFACE DISCONTINUITIES SHALL BE ½ INCH MAXIMUM. VERTICAL SURFACE DISCONTINUITIES BETWEEN ¼ INCH AND ½ INCH SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 50 PERCENT. THE BEVEL SHALL BE APPLIED ACROSS THE ENTIRE VERTICAL SURFACE DISCONTINUITY.
- 7. HORIZONTAL OPENINGS IN GRATINGS AND JOINTS SHALL NOT PERMIT PASSAGE OF A SPHERE MORE THAN ½ INCH DIAMETER. ELONGATED OPENINGS IN GRATINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

TRENCH GRATE DETAIL N.T.S.



RCP STORM PIPE BEDDING DETAIL WHERE GROUNDWATER IS PRESENT





SCALE: AS SHOWN



GSWCC CERTIFICATION NO. 22351

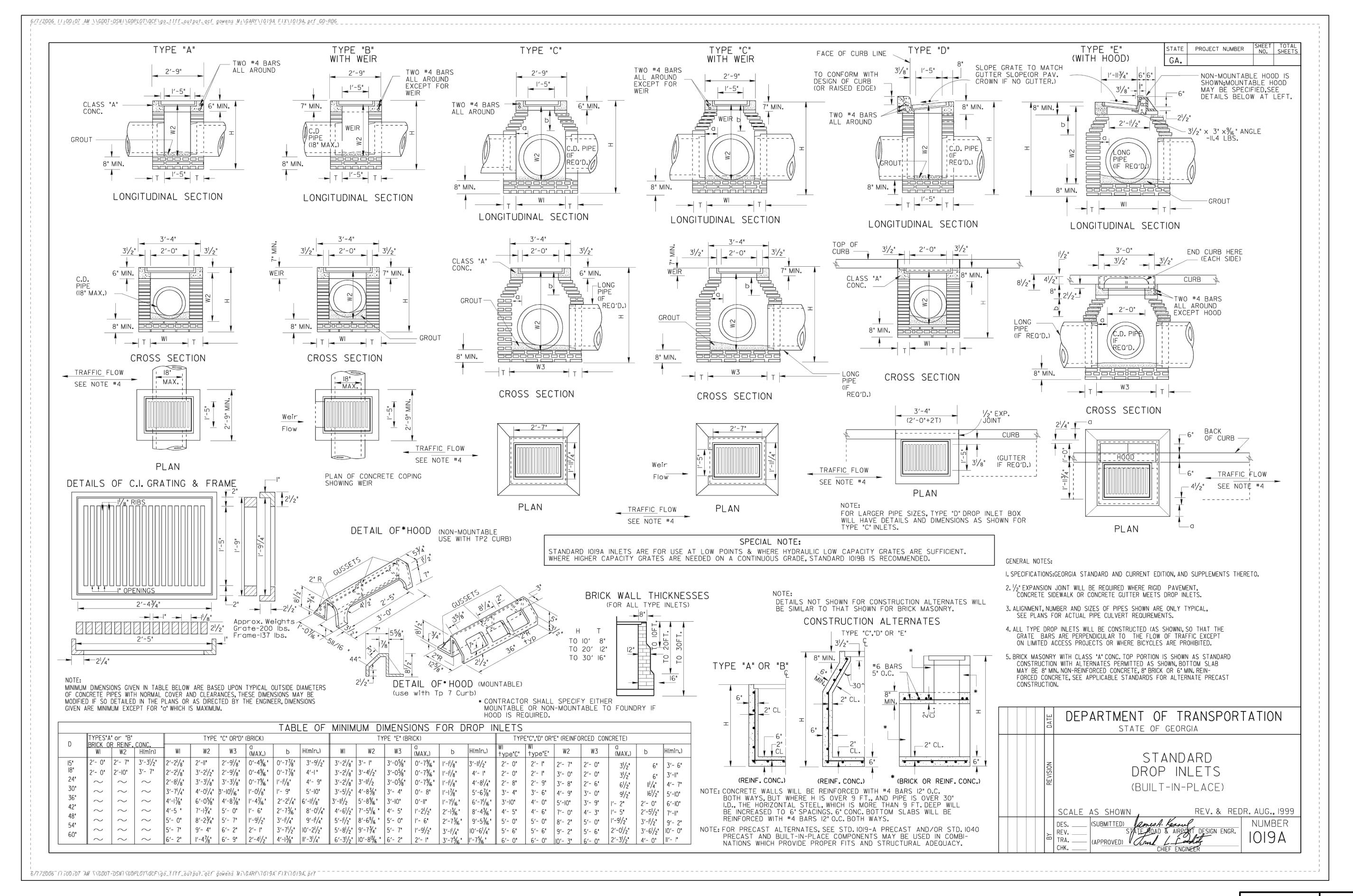
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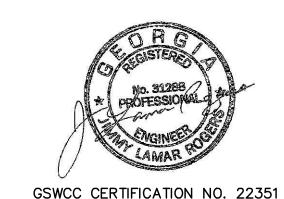
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SPS

SHEET ATLANTA AUGUSTA C801 ST. SIMONS ISLAND

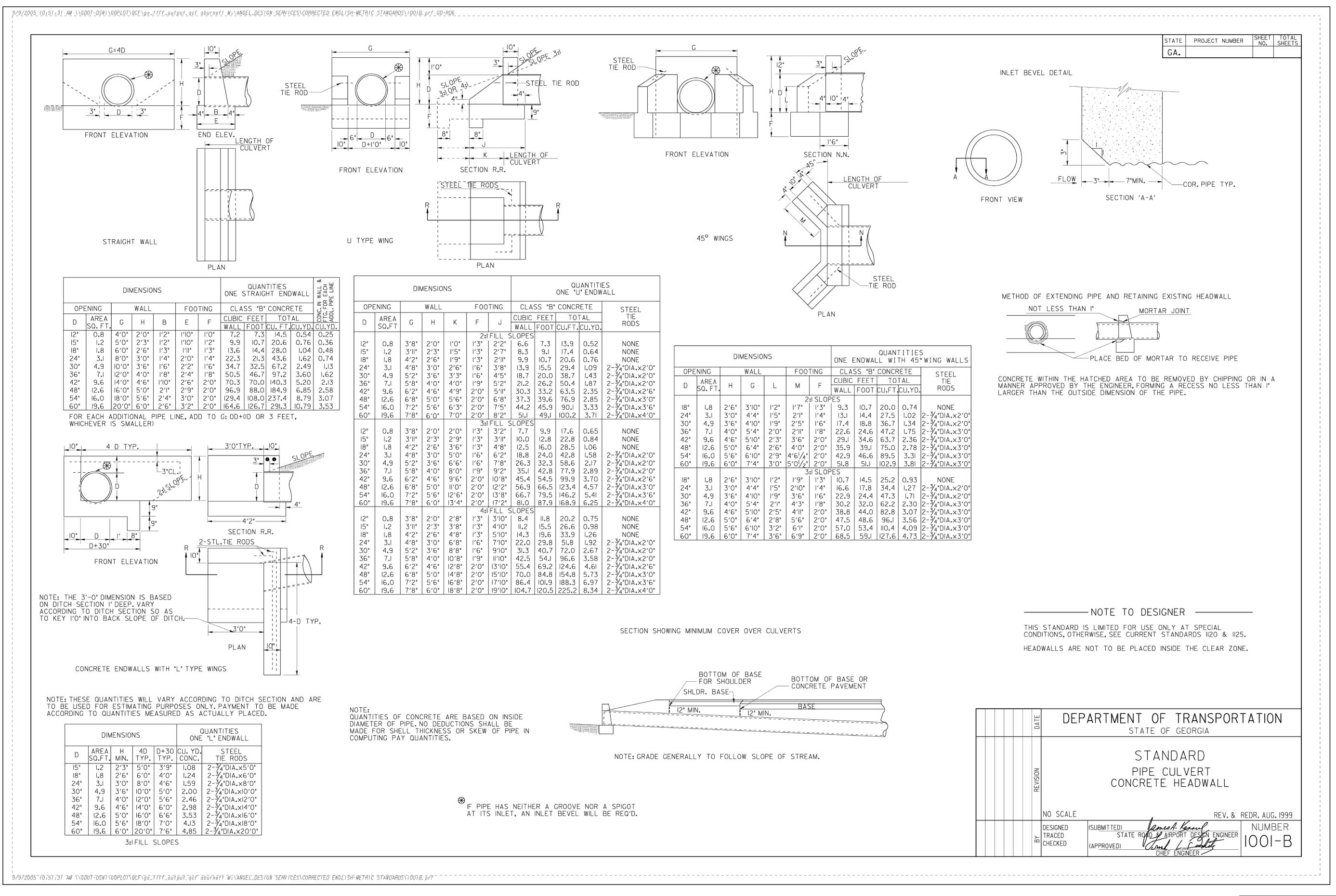
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P:\Rockmart\182208 event center & trailhead\Drawings\historic event center\Project Notes.d



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VENGINEERS | ST. SIMONS ISLAND

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