

McADAMS

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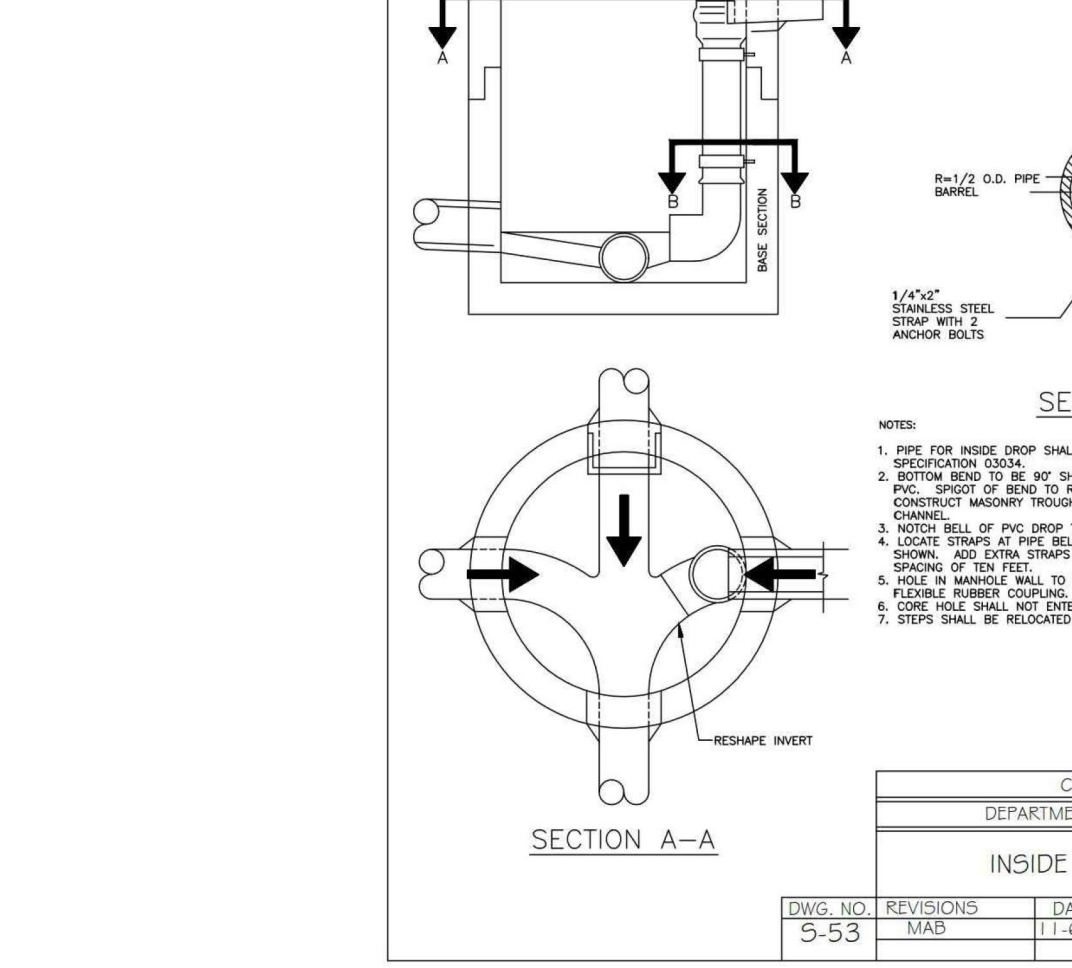
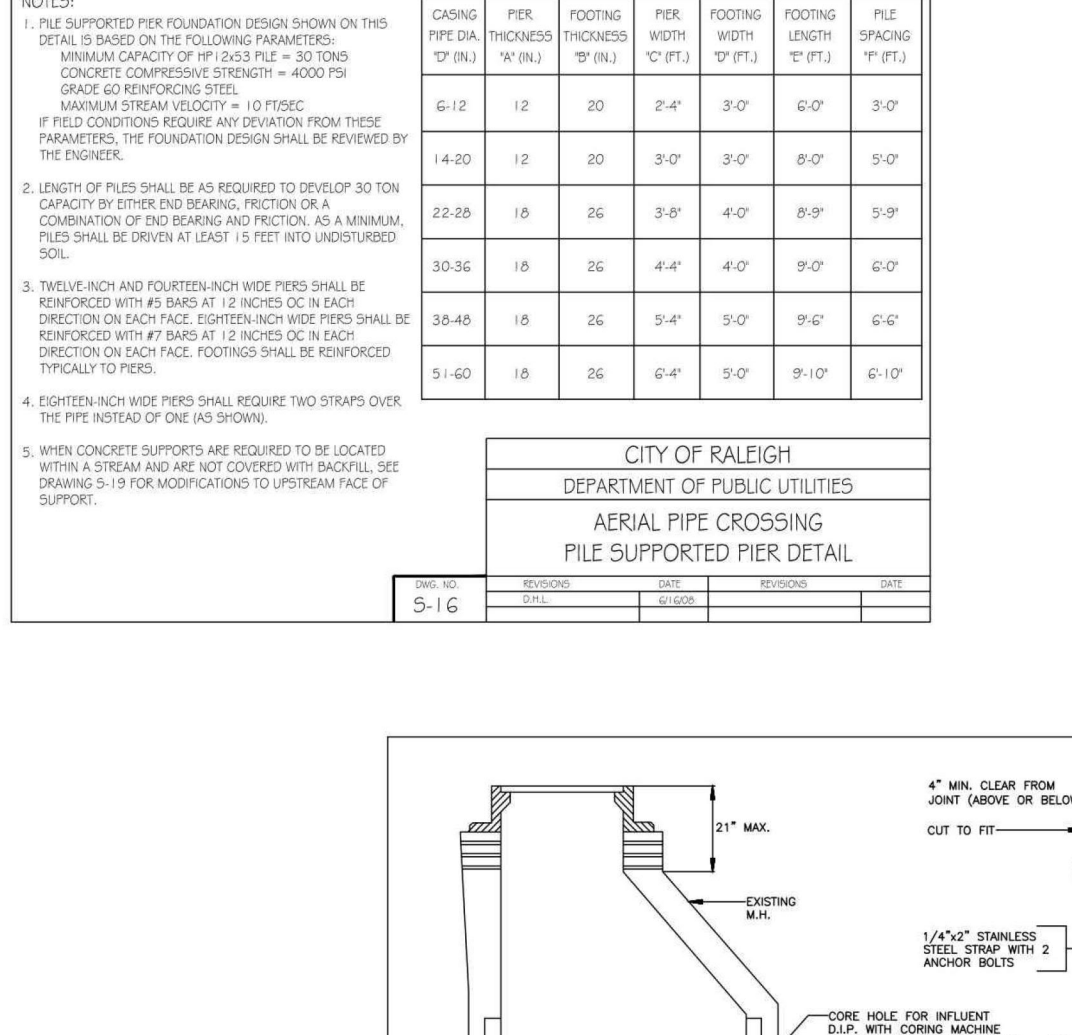
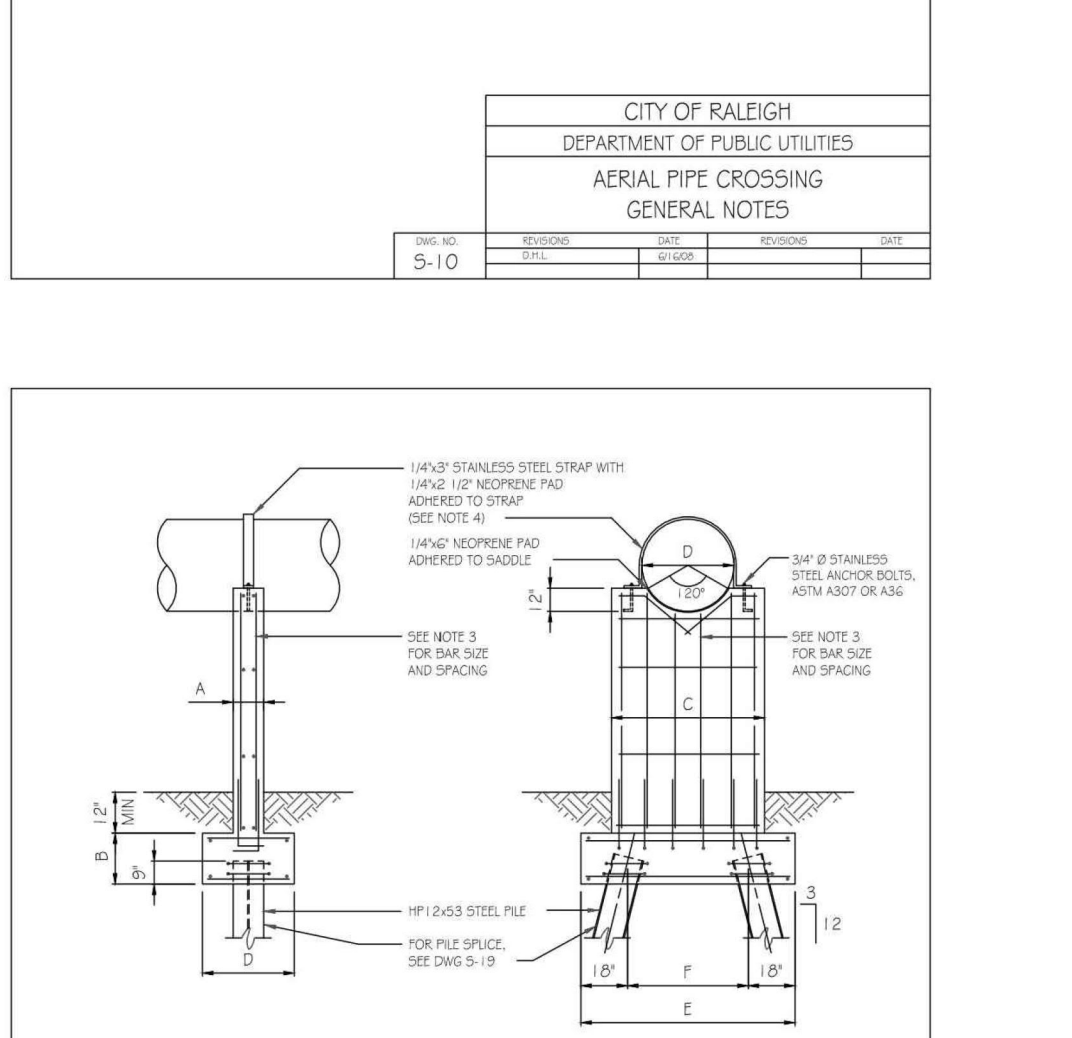
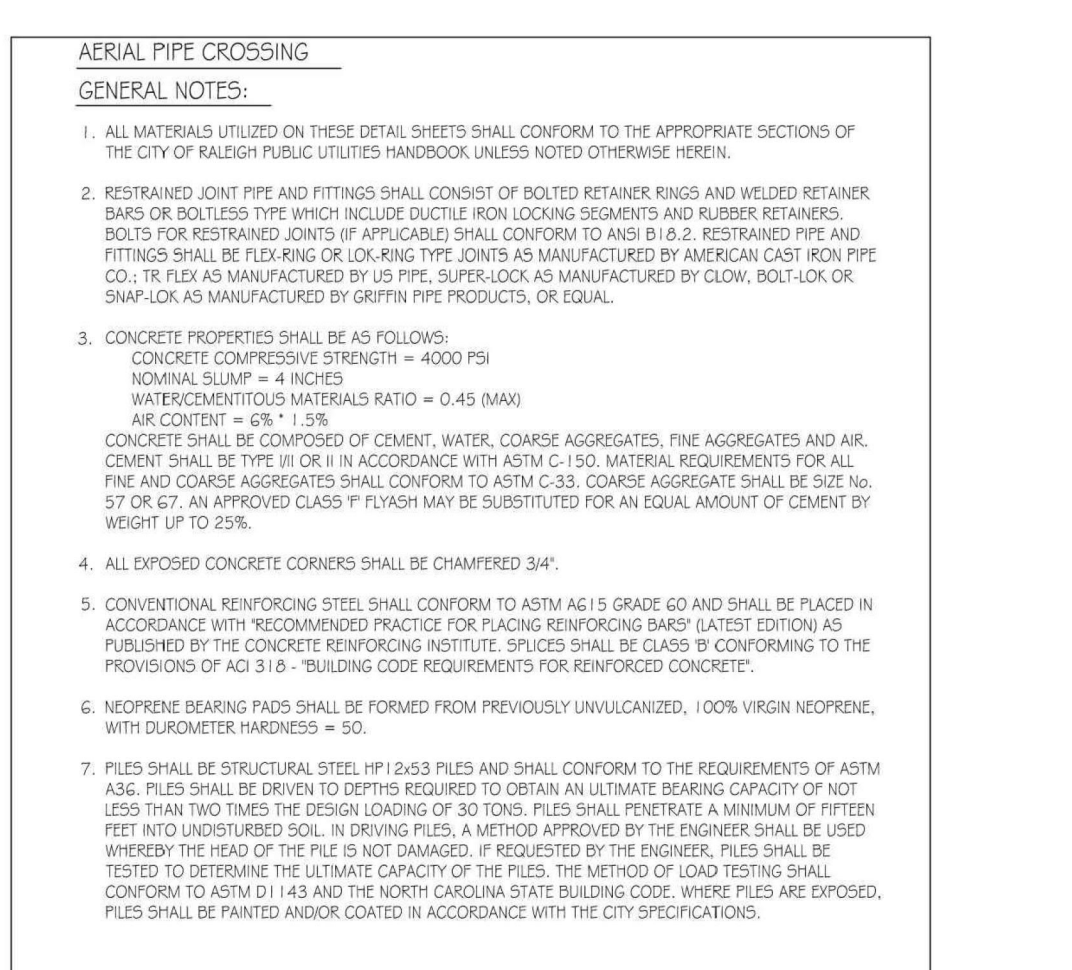
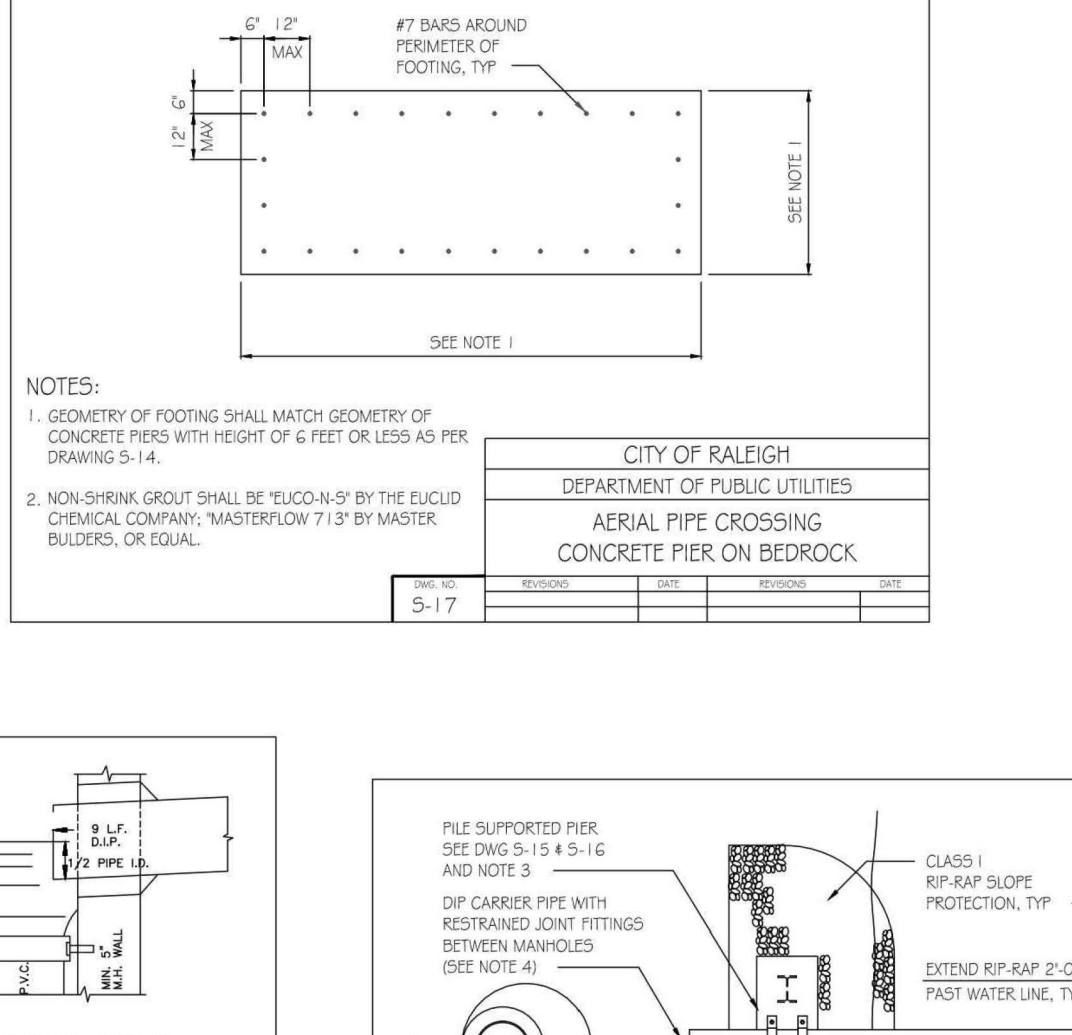
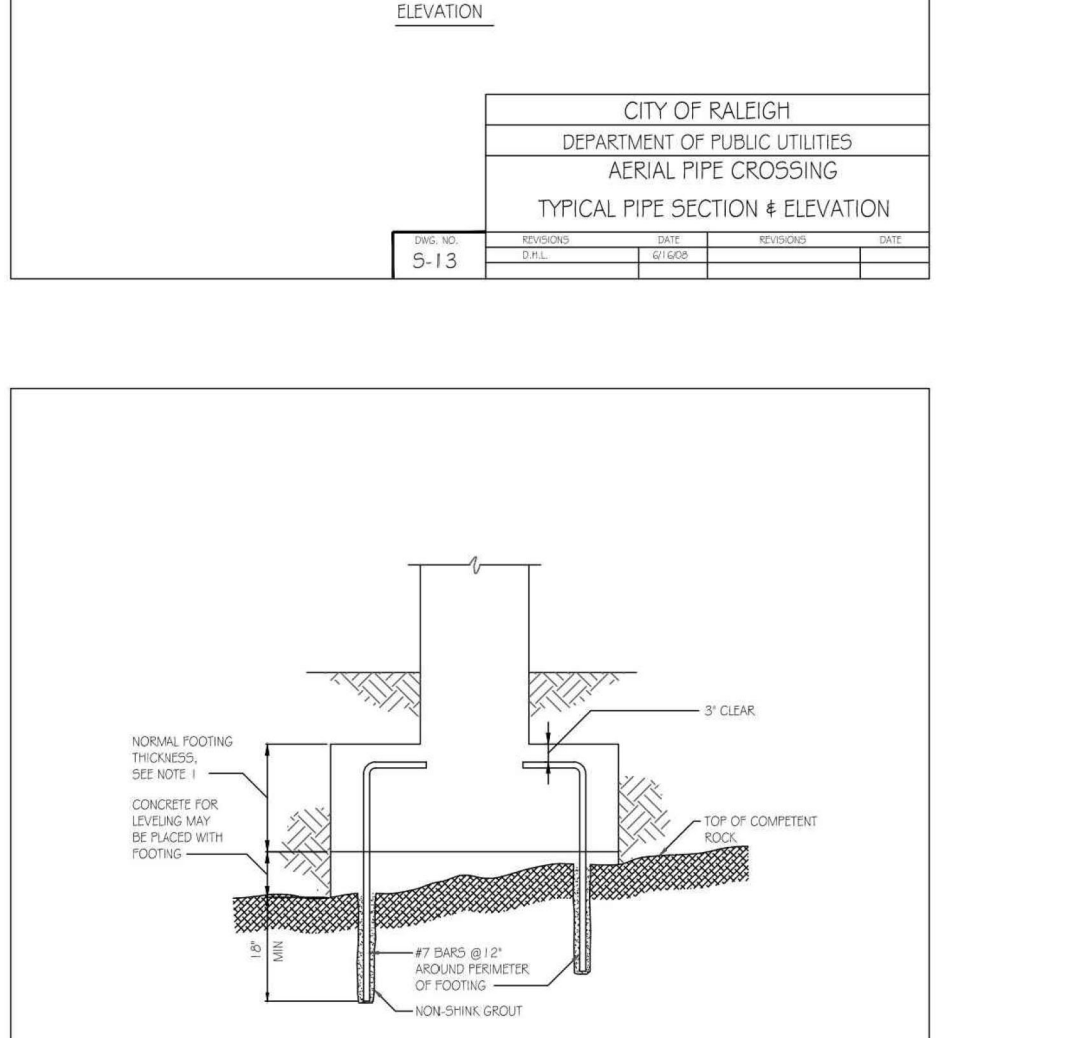
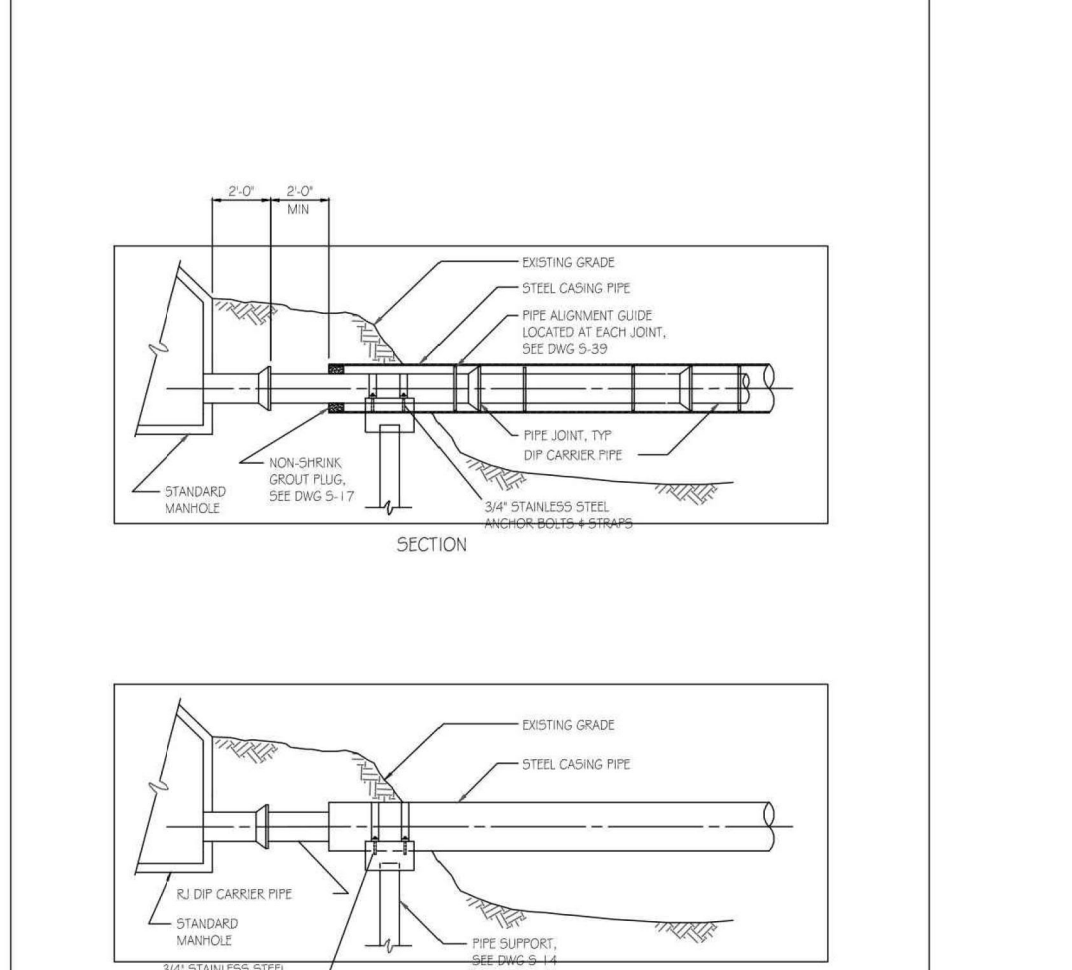
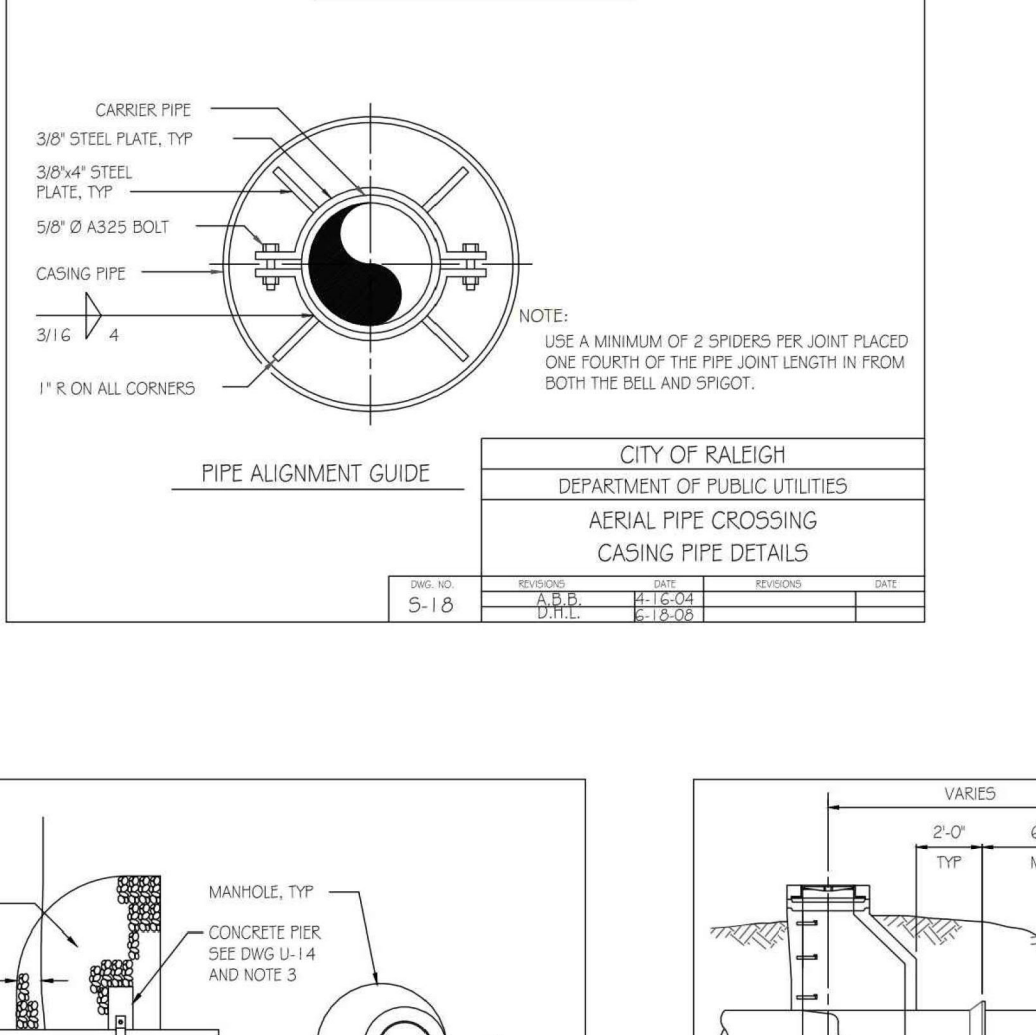
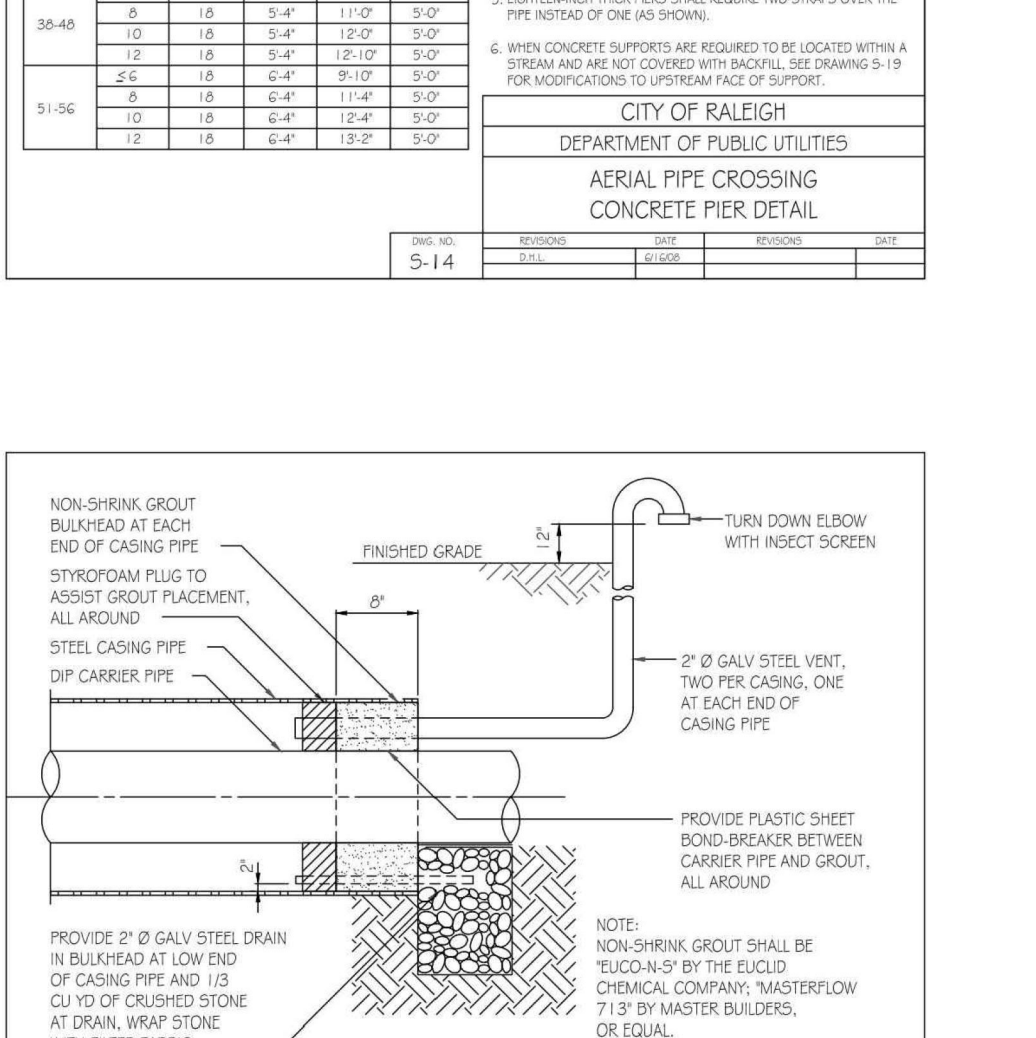
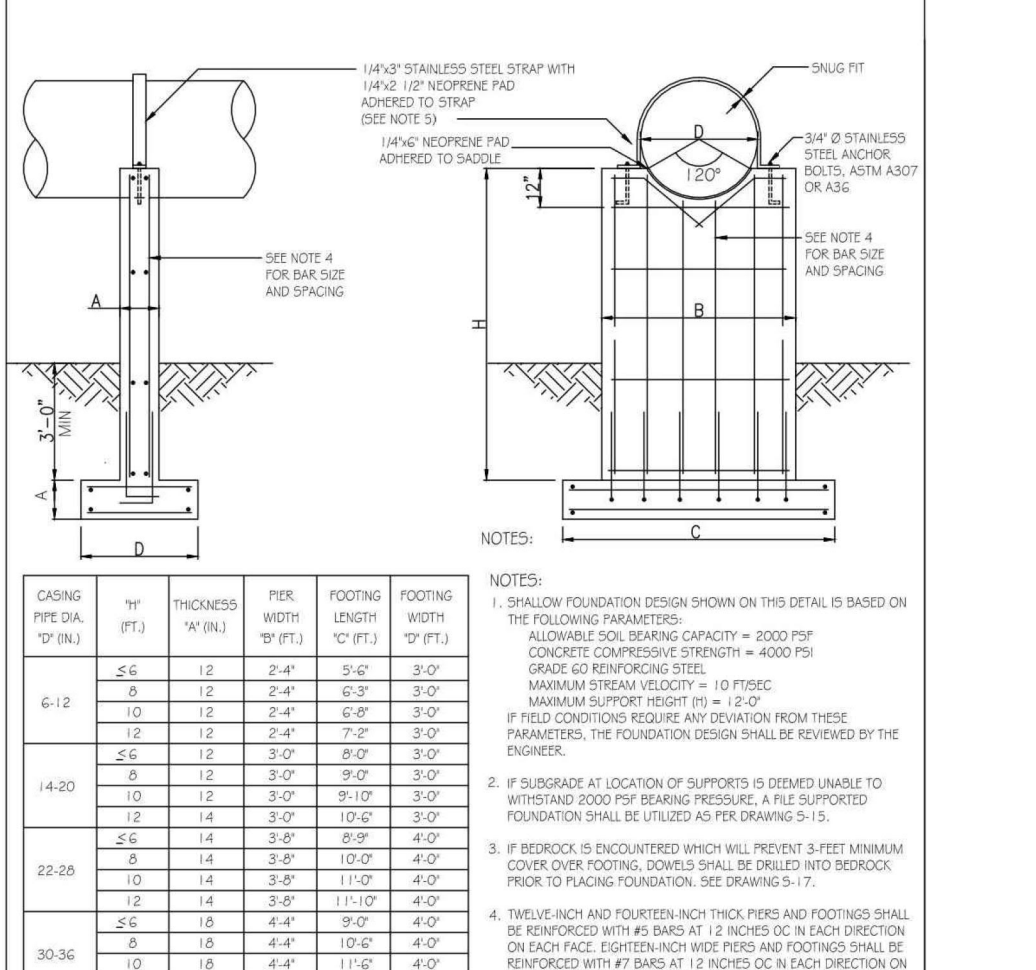
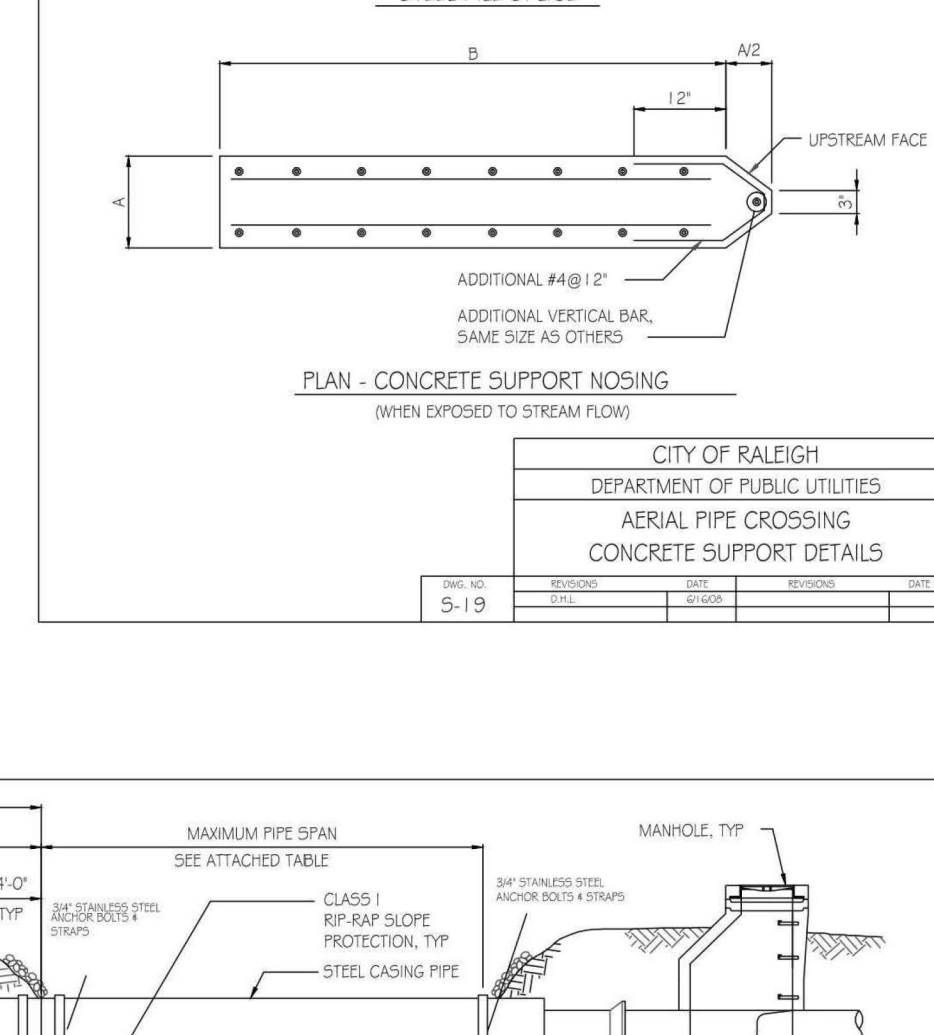
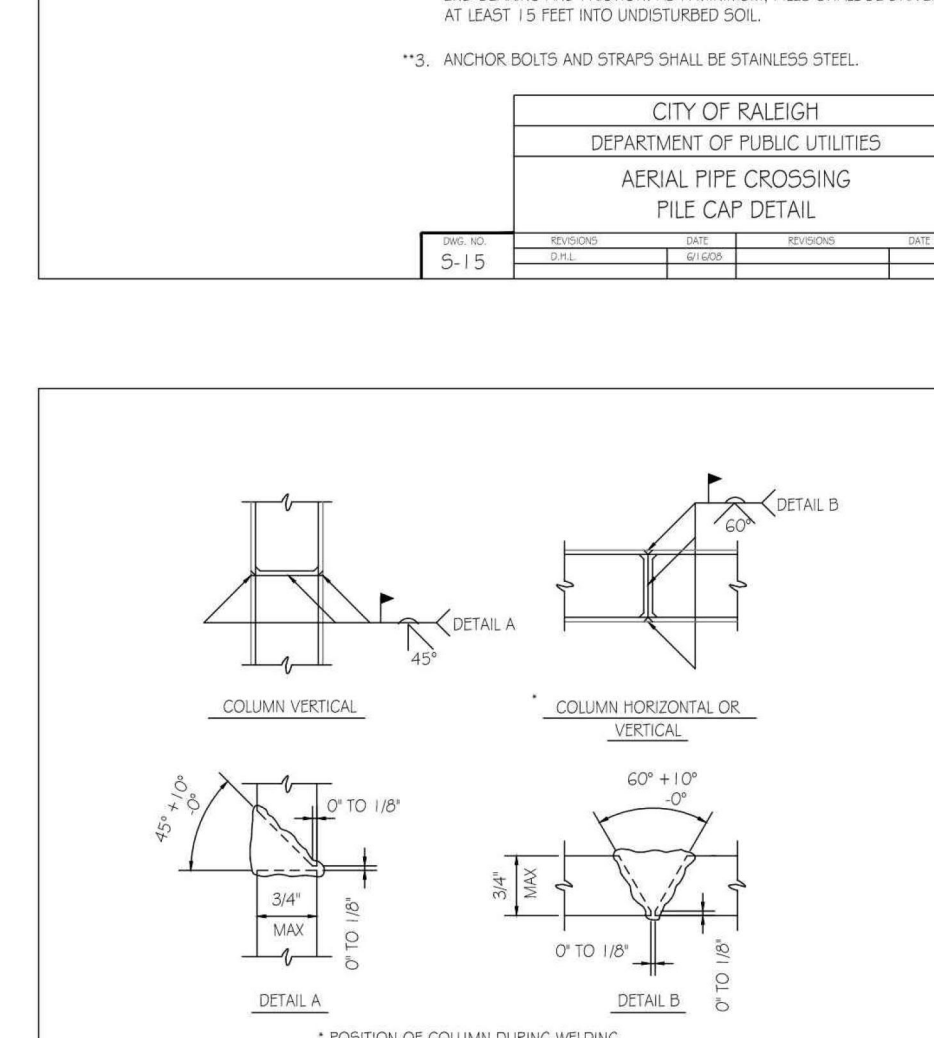
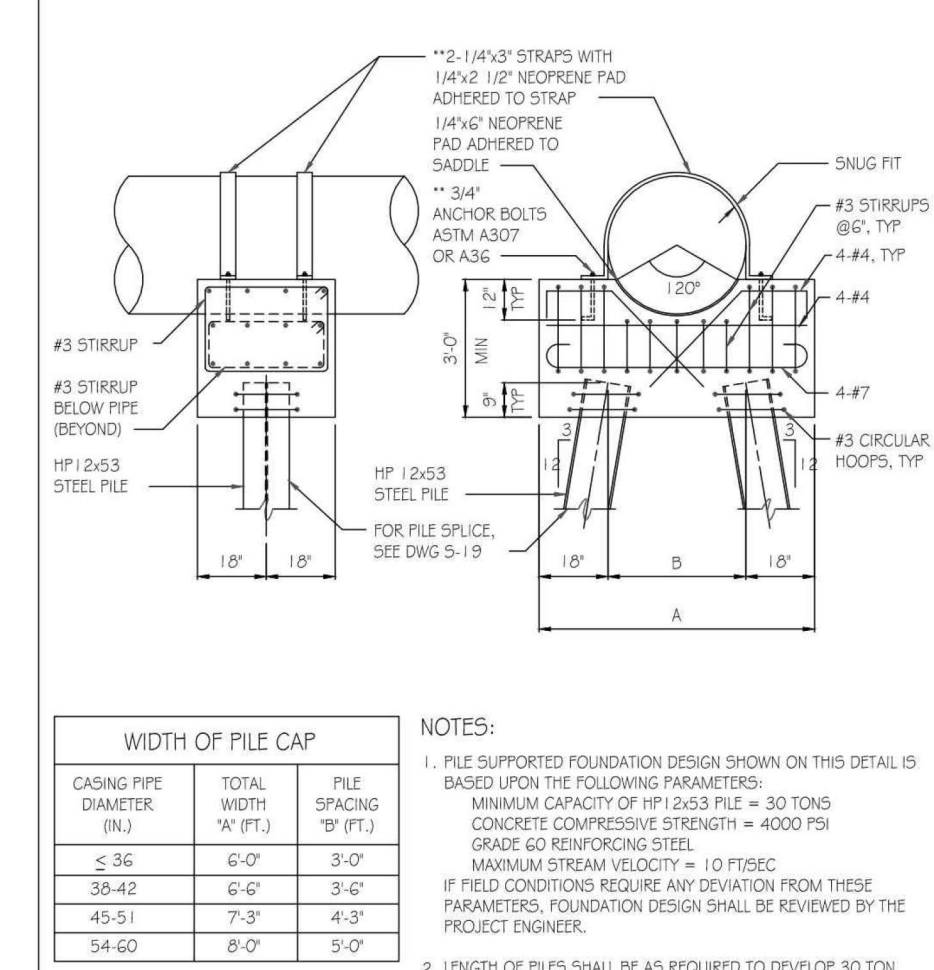
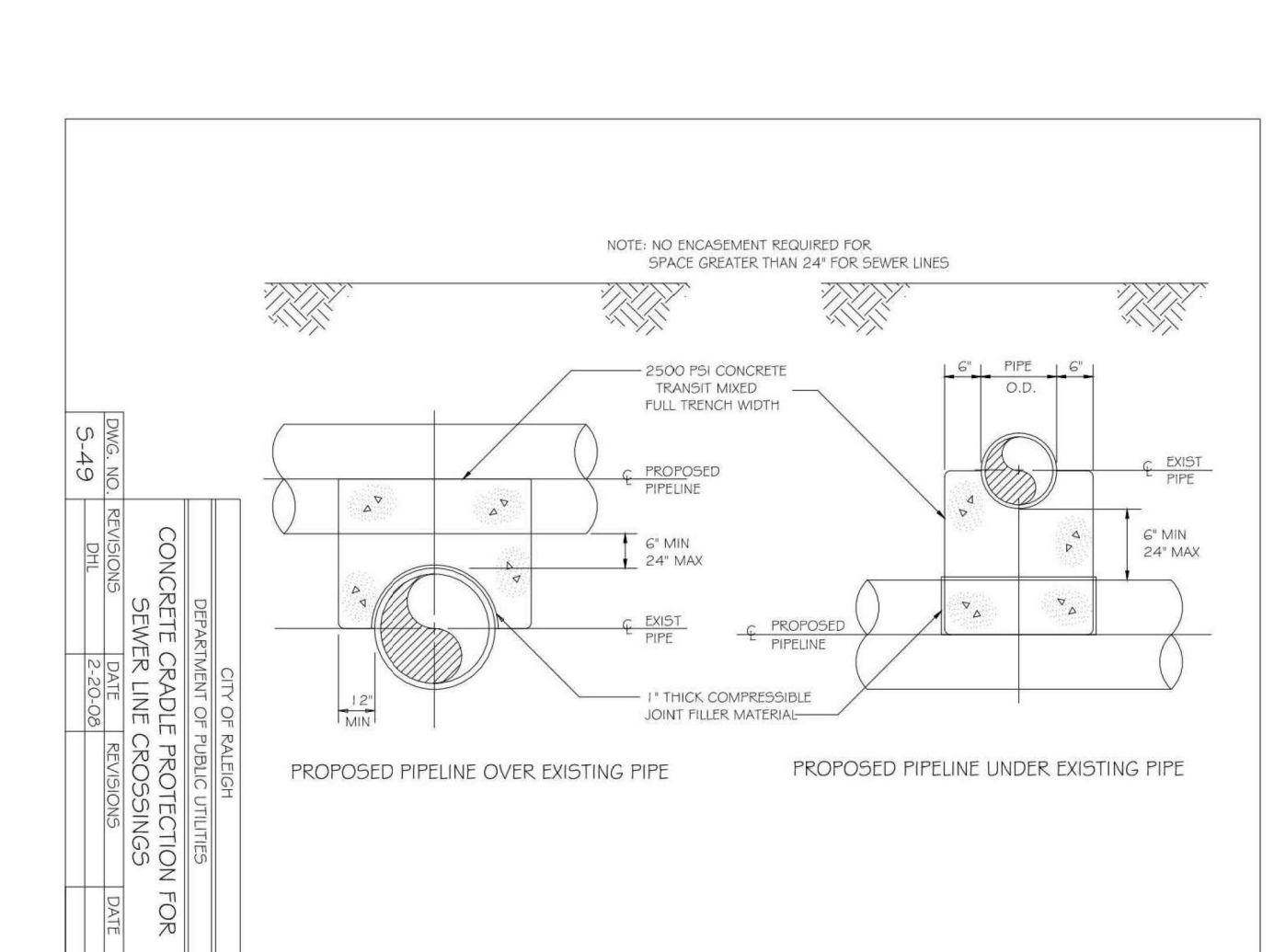
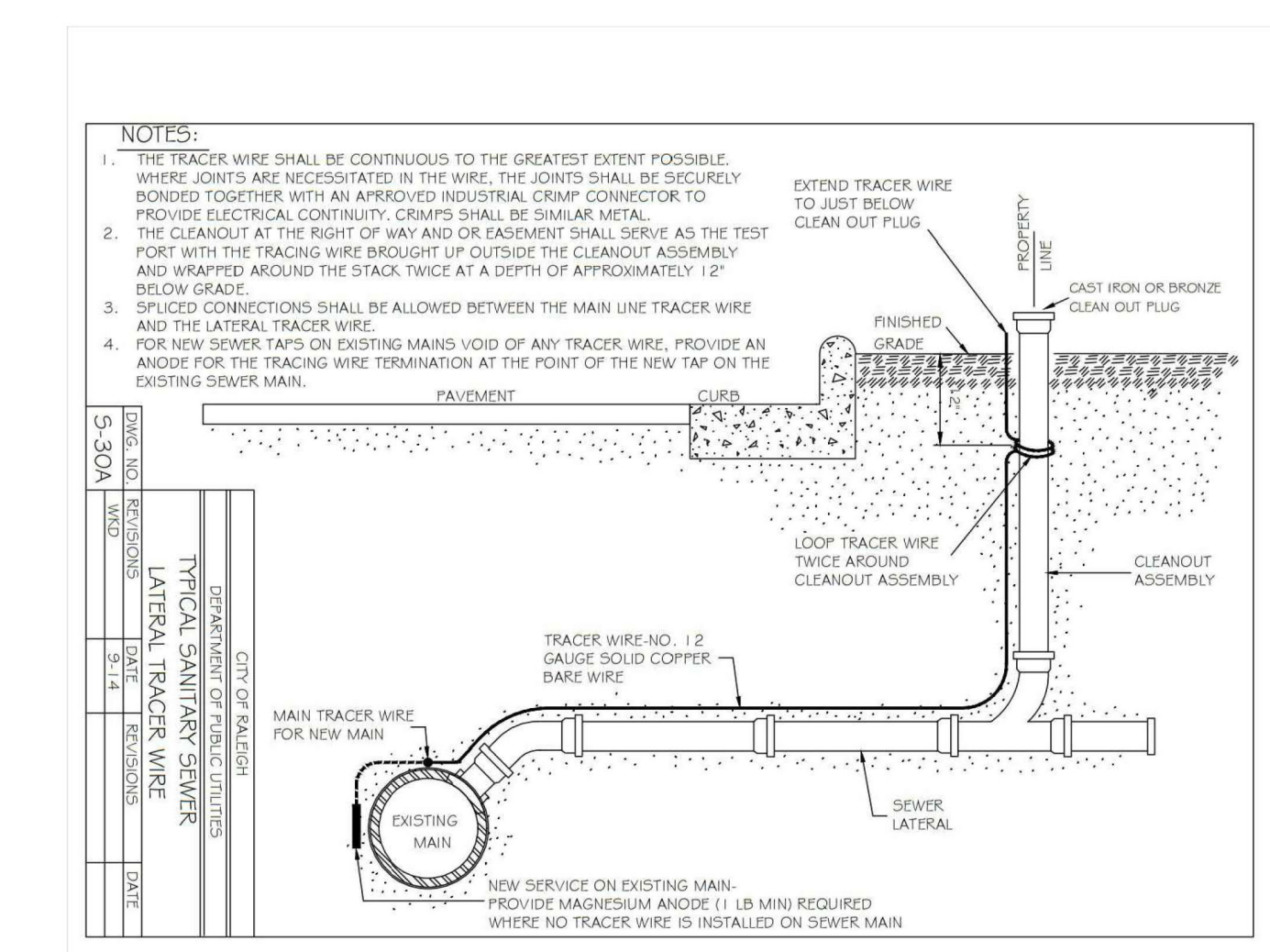
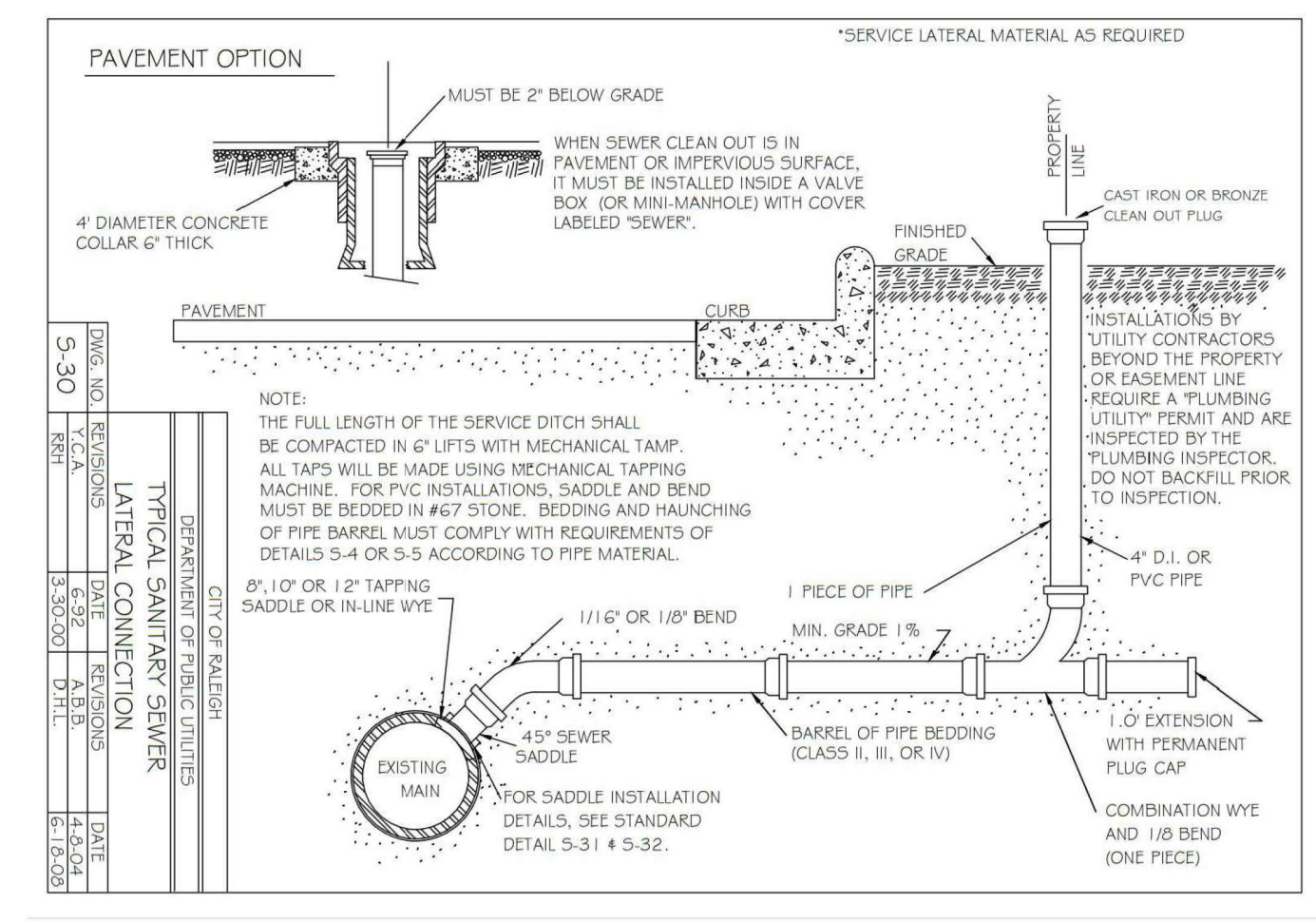
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WALLBROOK
CONSTRUCTION DRAWINGS
ROLESVILLE, NORTH CAROLINA



William T. O'Daniel
Professional Engineer
c/o North Carolina
email: wtdaniel@mcadamsco.com
2023.03.31 13:23:20 -0400



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# STORMWATER CONTROL MEASURE 'A' CONSTRUCTION SPECIFICATIONS

## GENERAL NOTES

1. CONSTRUCTION SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION IMMEDIATELY.
2. THE PRECAST WALL SHALL BE CONSTRUCTED TO BEST MANAGEMENT PRACTICES AND ENGINEERED STORMWATER CONTROL STRUCTURES AS OUTLINED IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY STORMWATER DESIGN MANUAL.
3. THE FINAL CERTIFICATION FOR THIS FACILITY WILL INCLUDE A CERTIFICATION BY THE ON-SITE GEOTECHNICAL ENGINEER THAT THE PROJECT WAS CONSTRUCTED PER THE APPROVED PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE DESIGN ENGINEER FOR THE CONSTRUCTION OF THE DAM EMBANKMENT AND SPILLWAY. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY.
4. ALL CONSTRUCTION ACTIVITY RELATED TO THE PROPOSED STORMWATER CONTROL MEASURE SHALL BE PER THE DETAILS AND SPECIFICATIONS SHOWN IN THESE DRAWINGS. SOILS, COMPACTOR, AND OTHER MISCELLANEOUS DETAILS AND SPECIFICATIONS MAY BE MODIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR ANY PROPOSED CHANGES TO THE ORIGINAL DESIGN.
5. DURING THE INITIAL STAGES OF CONSTRUCTION, THE STORMWATER CONTROL MEASURE MAY BE USED AS A TEMPORARY BASIN FOR EROSION CONTROL PURPOSES. IF SO, THE CONTRACTOR SHALL FOLLOW THE GENERAL CONSTRUCTION SEQUENCE BELOW:
  - A. THE INTERIOR GRADING FOR THE FACILITY INCLUDING THE STORMWATER CONTROL MEASURE SHALL BE COMPLETED PRIOR TO THE CONSTRUCTION OF THE STORMWATER CONTROL MEASURE.
  - B. THE PRECAST WALL SHALL BE CONSTRUCTED TO THE PERMANENT FINISHED GRADE AND NOT STROPPED IN AN AREA WHERE THE BASH IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED. THE CONTRACTOR SHALL CONSTRUCT THE PERMANENT FINISHED GRADE AND ALL EROSION CONTROL DEVICES REMOVED. THE CONTRACTOR SHALL CONSTRUCT THE PERMANENT FINISHED GRADE AND ALL EROSION CONTROL DEVICES REMOVED. THE CONTRACTOR SHALL CONSTRUCT THE PERMANENT FINISHED GRADE AND ALL EROSION CONTROL DEVICES REMOVED.
  - C. THE CONTRACTOR SHALL REMOVE THE TEMPORARY DRAIN DOWN RISER (OR SKIMMER) AND CLEAN OUT IN AN AREA WHERE THE BASH IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED. THE CONTRACTOR SHALL CONSTRUCT THE PERMANENT FINISHED GRADE AND ALL EROSION CONTROL DEVICES REMOVED.
  - D. ONCE THE BASH IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED, THE CONTRACTOR SHALL CONSTRUCT THE PERMANENT FINISHED GRADE AND ALL EROSION CONTROL DEVICES REMOVED.
  - E. THE CONTRACTOR SHALL REMOVE THE TEMPORARY DRAIN DOWN RISER (OR SKIMMER) AND CLEAN OUT IN AN AREA WHERE THE BASH IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED.
  - F. ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER CONTROL MEASURE PLANTS SHOWN ON THE LANDSCAPE PLAN FOR THE FACILITY. AFTER COMPLETION OF THE PLANTING, THE CONTRACTOR SHALL PROVIDE AN EXCAVATION PLAN TO BE SEALED BY A N.C.P.E. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS FOR ANY PROPOSED CHANGES TO THE ORIGINAL DESIGN.
6. ALL OSHA REQUIREMENTS FOR EXCAVATIONS (SHOULDER, BEFTL, ETC.) ARE THE RESPONSIBILITY OF THE CONTRACTOR. IF REQUIRED, THE CONTRACTOR SHALL PROVIDE AN EXCAVATION PLAN TO BE SEALED BY A N.C.P.E. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS FOR ANY PROPOSED CHANGES TO THE ORIGINAL DESIGN.
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## OUTLET STRUCTURE MATERIAL SPECIFICATIONS

1. THE 36" RCP OUTLET BARREL SHALL BE CLASS III RCP, MODIFIED BELL AND SPIGOT, MEETING THE REQUIREMENTS OF ASTM C774/L41. THE RCP SHALL HAVE COMBINED RUBBER GASKET JOINTS MEETING ASTM C443-LATEST. THE PIPE JOINTS SHALL BE TYPE R-41.
2. THE STRUCTURAL DESIGN FOR THE 6' X 6' (INTERNAL DIMENSIONS) RISER BOX WITH EXTENDED BASE SHALL BE BY OTHERS. PRIOR TO ORDERING, SUPPORTING STRUCTURAL CALCULATIONS SEALED BY A P.E. REGISTERED IN NORTH CAROLINA SHOWING THE PERMANENT VERTICAL LOADS ARE SUPPORTED BY THE CONCRETE RISER STRUCTURE.
3. THE RISER BOX OUTLET STRUCTURE SHALL BE PROVIDED WITH STEPS 16" ON CENTER. STEPS SHALL BE PROVIDED ON THE INNER WALL OF THE RISER BOX. STEPS SHALL BE IN ACCORDANCE WITH NC DOT STD. 840.66. PLEASE REFER TO SHEET C9.A3 FOR LOCATION OF THE RISER STEPS. NOTE THE STEPS SHALL LINE UP WITH THE ACCESS HATCH OF THE TRASH BACK.
4. THE CONCRETE ANTI-FLOTATION BLOCK SHALL BE CAST-IN-PLACE. STEEL REINFORCEMENT AND CONNECTION TO THE RISER SHALL BE STRUCTURE IS GREATER THAN OR EQUAL TO 300 LBS. IN LIEU OF CAST-IN-PLACE. THE CONTRACTOR SHALL PROVIDE THE WEIGHT OF THE ANTI-FLOTATION BLOCKS SHALL HAVE A SHIPPING WEIGHT OF 21,300 LBS.
5. RISER BOX JOINTS SHALL BE SEALED USING BUTYL RUBBER SEALANT CONFORMING TO ASTM C920-LATEST. IF NECESSARY, THE CONTRACTOR SHALL PROVIDE AN EXCAVATION PLAN TO BE SEALED BY A N.C.P.E. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS FOR ANY PROPOSED CHANGES TO THE ORIGINAL DESIGN.
6. PRIOR TO ORDERING, THE CONTRACTOR SHALL SUBMIT TRASH BACK SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. THE CONTRACTOR SHALL ENSURE THAT AN ACCESS HATCH IS PROVIDED WITHIN THE TRASH BACK (SEE DETAIL FOR LOCATION) THAT WILL ALLOW FOR ACCESS HATCH SHALL LINE UP WITH THE ACCESS STEPS AFTER INSTALLATION. AND LOCK FOR SECURING THE ACCESS HATCH. NOTE THE ACCESS HATCH SHALL BE 48" WIDE.
7. ALL POURED CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED:
  - MINIMUM 3000 PSI (28 DAY)
  - SUMP = 3" - 5"
  - ENTRANCED AIR = 5% - 7%

## STATEMENT OF RESPONSIBILITY

1. ALL REQUIRED MAINTENANCE AND INSPECTIONS OF THE STORMWATER CONTROL MEASURE SHALL BE THE RESPONSIBILITY OF THE OWNER, PER THE EXECUTED OPERATION AND MAINTENANCE AGREEMENT FOR THIS FACILITY.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR ANY PROPOSED CHANGES TO THE ORIGINAL DESIGN.
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## CONSTRUCTION SEQUENCE

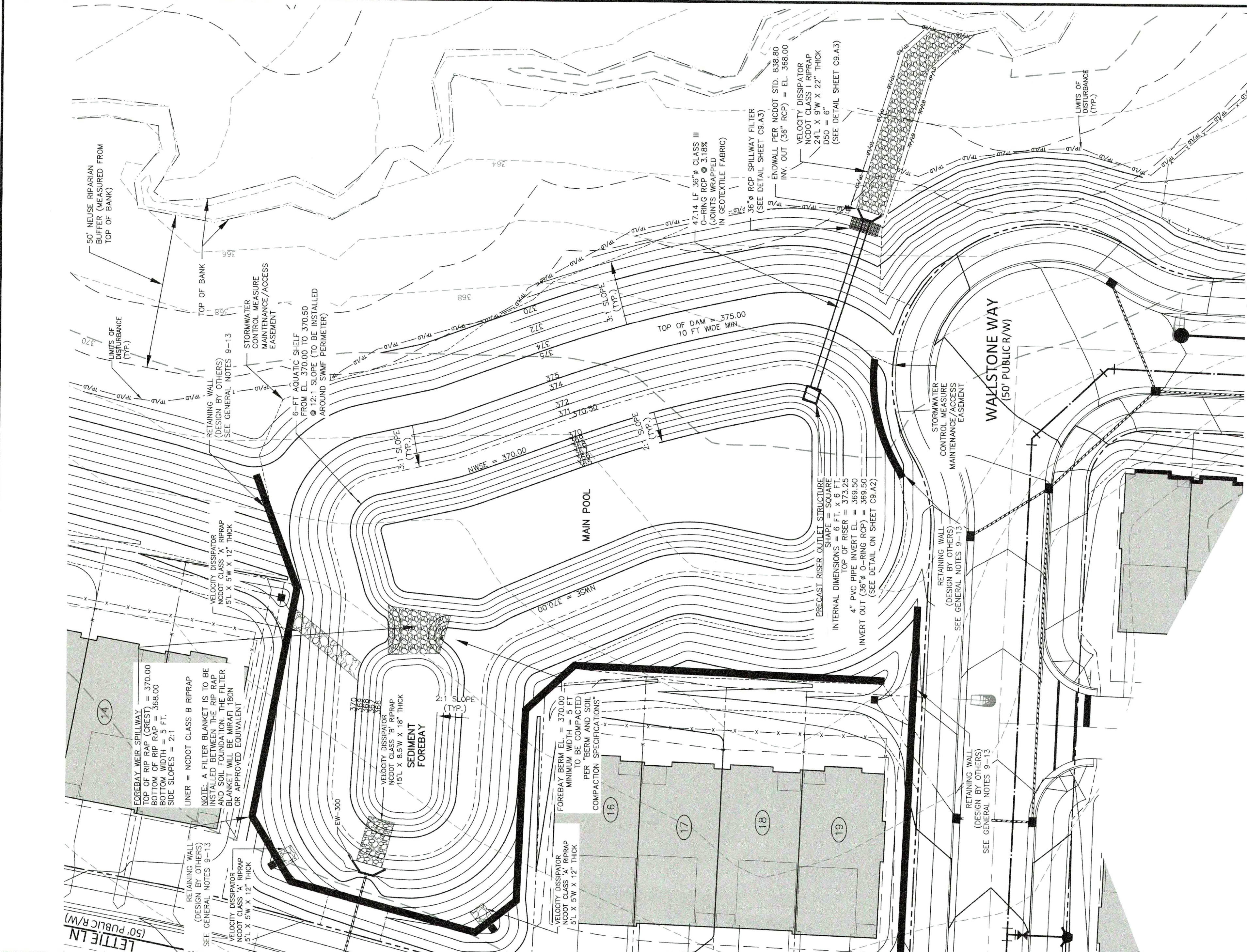
1. PRIOR TO CONSTRUCTION, THE OWNER SHALL OBTAIN A LAND DISTURBING GRADING PERMIT AND AN "APPROVAL TO CONSTRUCT" FROM THE TOWN OF ROLESVILLE AND ALL OTHER NECESSARY PERMITS FROM APPLICABLE AGENCIES (E.G. 401 PERMITS).
2. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT THE ENTIRE PROJECT, AS AGENCIES, PRIOR TO ANY CLEARING.
3. CLEAR AND GRUB AREA WITHIN THE LIMITS OF THE PROPOSED DAM CONSTRUCTION. ALL TREES AND OTHER VEGETATION SYSTEMS MUST BE REMOVED FROM THE DAM FOOTPRINT AREA AND BACKFILLED WITH SUITABLE SOIL MATERIAL. THE BACKFILLED AREAS SHALL BE STRIPPED TO A SUBSTRATE OF THE SAME STANDARD AS THE DAM EMBANKMENT. THE REMAINING AREA OF THE EMBANKMENT SHALL BE STRIPPED TO A SUBSTRATE OF THE SAME STANDARD AS THE DAM EMBANKMENT. THE REMAINING AREA OF THE EMBANKMENT SHALL BE STRIPPED TO A SUBSTRATE OF THE SAME STANDARD AS THE DAM EMBANKMENT. THE REMAINING AREA OF THE EMBANKMENT SHALL BE STRIPPED TO A SUBSTRATE OF THE SAME STANDARD AS THE DAM EMBANKMENT.
4. EXCAVATE FOR THE NEW KEY TRENCH ALONG THE CENTERLINE OF THE PROPOSED DAM EMBANKMENT. THE TRENCH SHALL EXTEND A MINIMUM OF 5 FT BELOW EXISTING GRADE OR 2 FT BELOW THE 36" RCP OUTLET BARREL AND SHALL HAVE A MINIMUM BOTTOM DIMENSION OF 18" X 18" X 12" THICK. THE TRENCH SHALL BE CONSTRUCTED TO THE PERMANENT FINISHED GRADE AND NOT STROPPED IN AN AREA WHERE THE BASH IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED. THE CONTRACTOR SHALL CONSTRUCT THE PERMANENT FINISHED GRADE AND ALL EROSION CONTROL DEVICES REMOVED. THE CONTRACTOR SHALL CONSTRUCT THE PERMANENT FINISHED GRADE AND ALL EROSION CONTROL DEVICES REMOVED.
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## BERM AND SOIL COMPACTION SPECIFICATIONS

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**WALLBROOK**  
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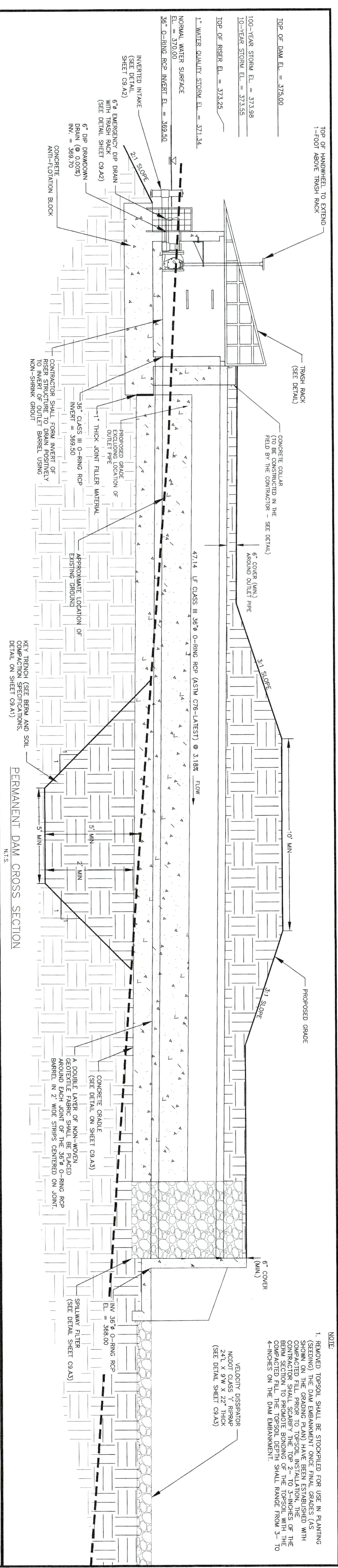
Professional Engineer Seal  
DAVID L. WILSON  
043300  
3-31-23

NO.	DATE	REVISIONS
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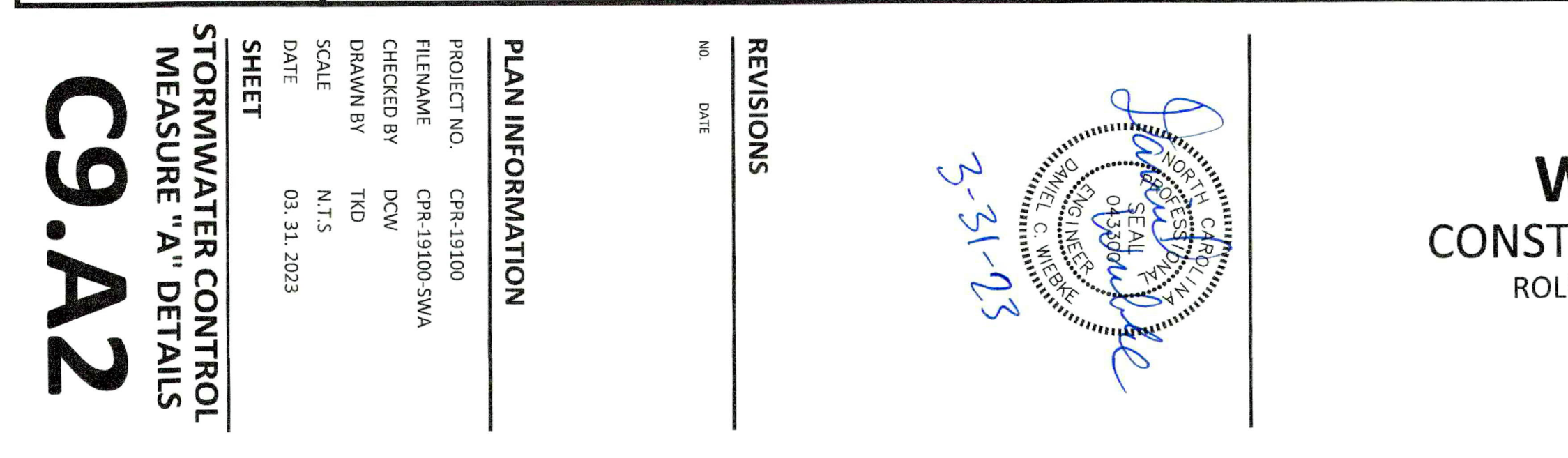
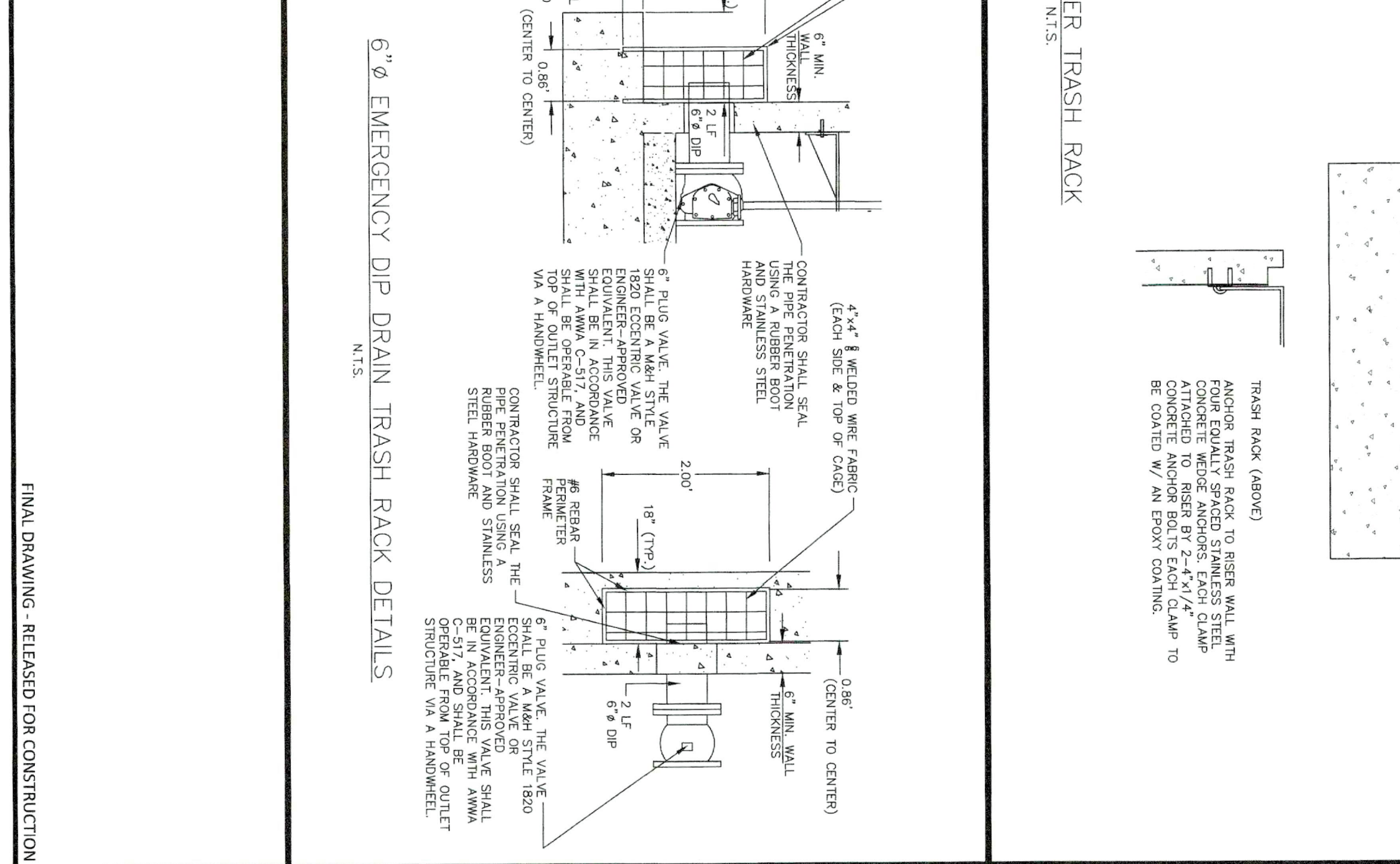
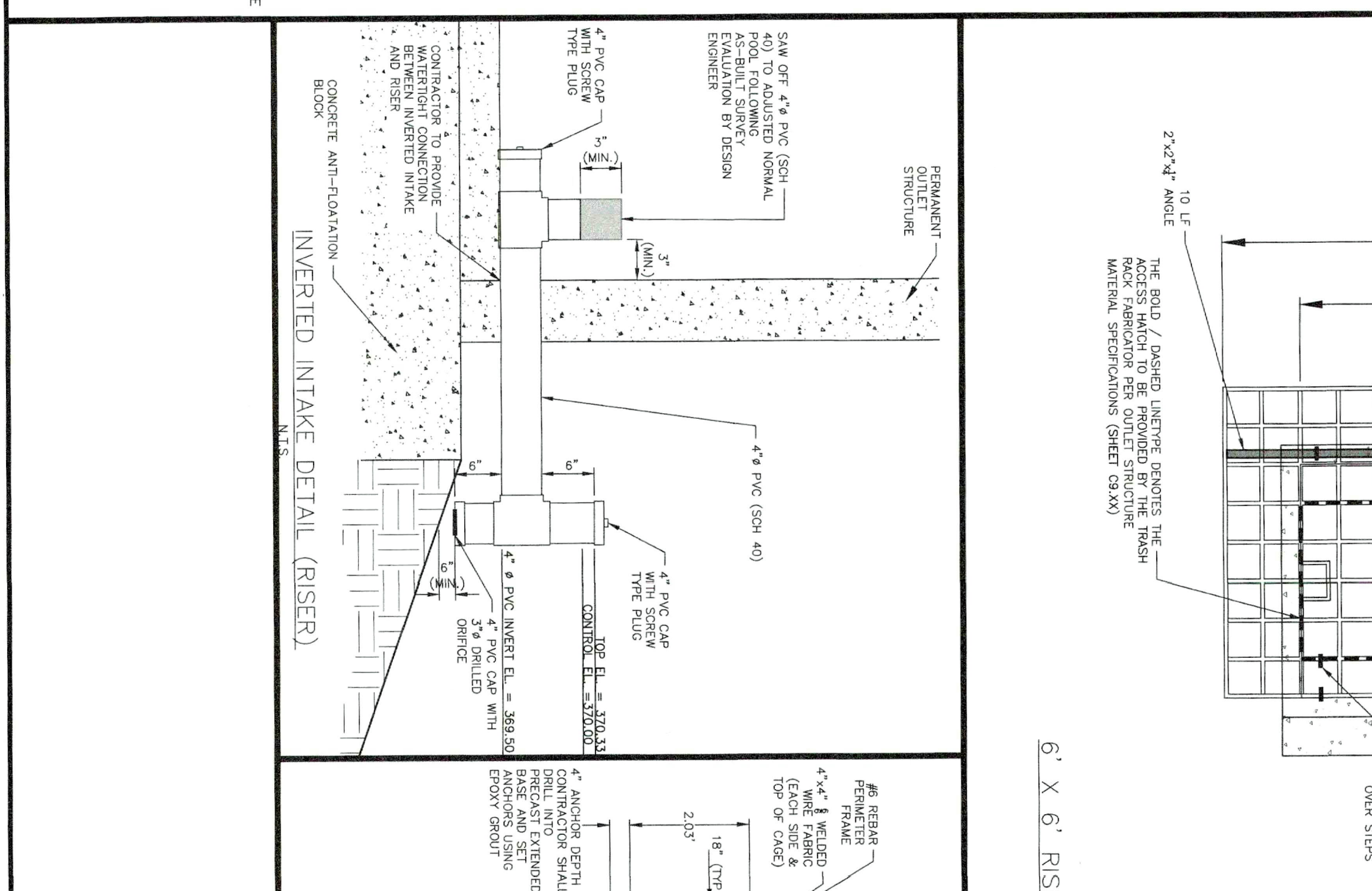
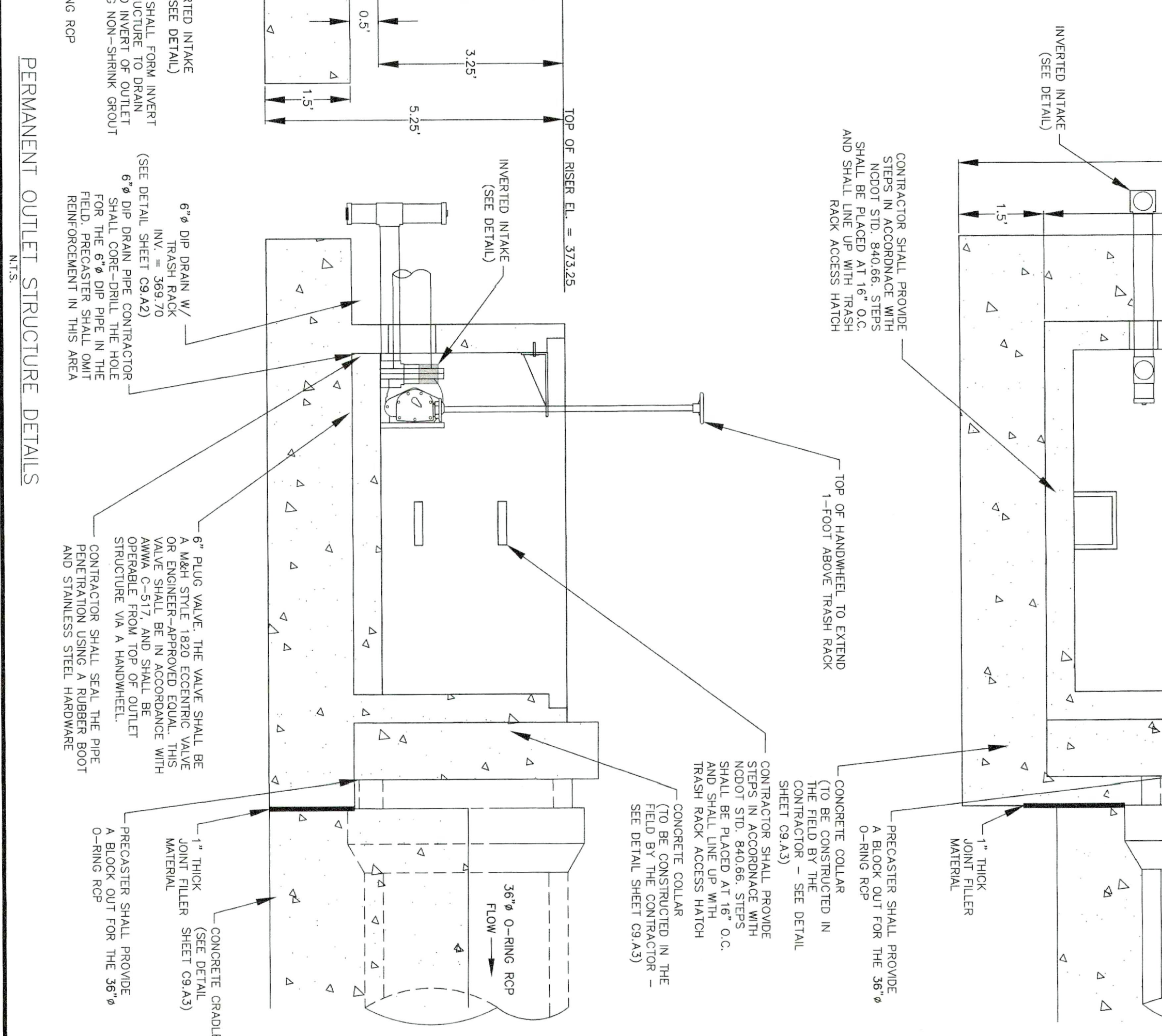
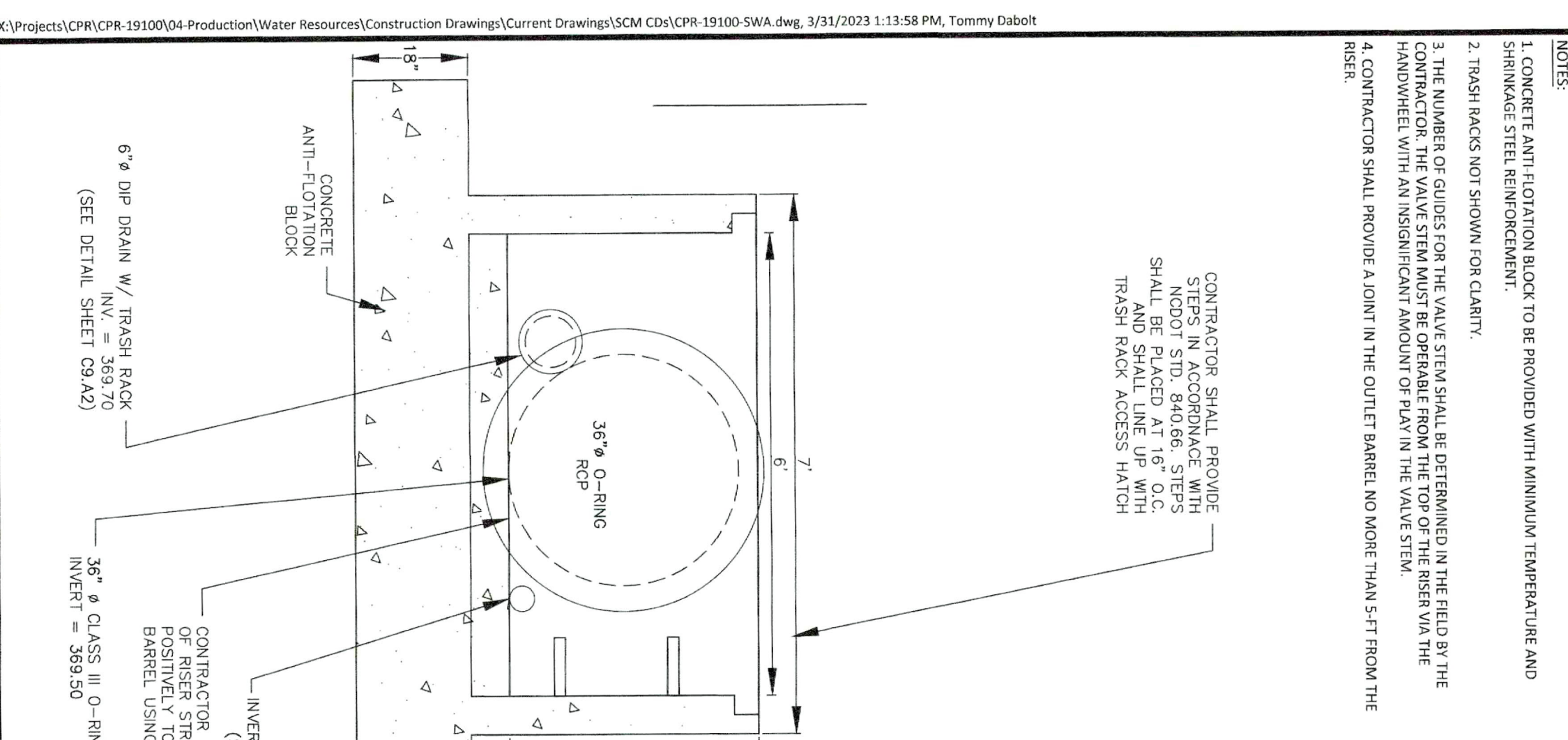
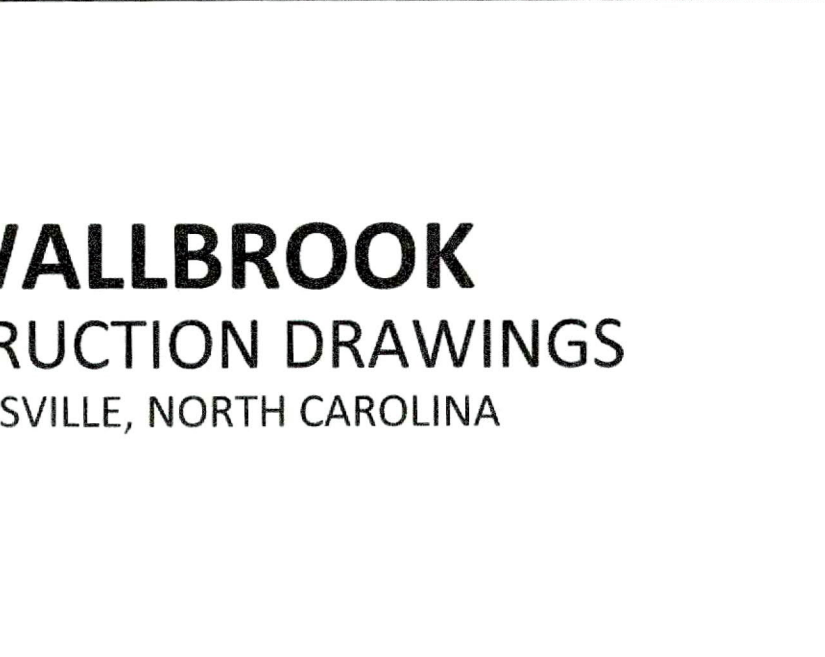
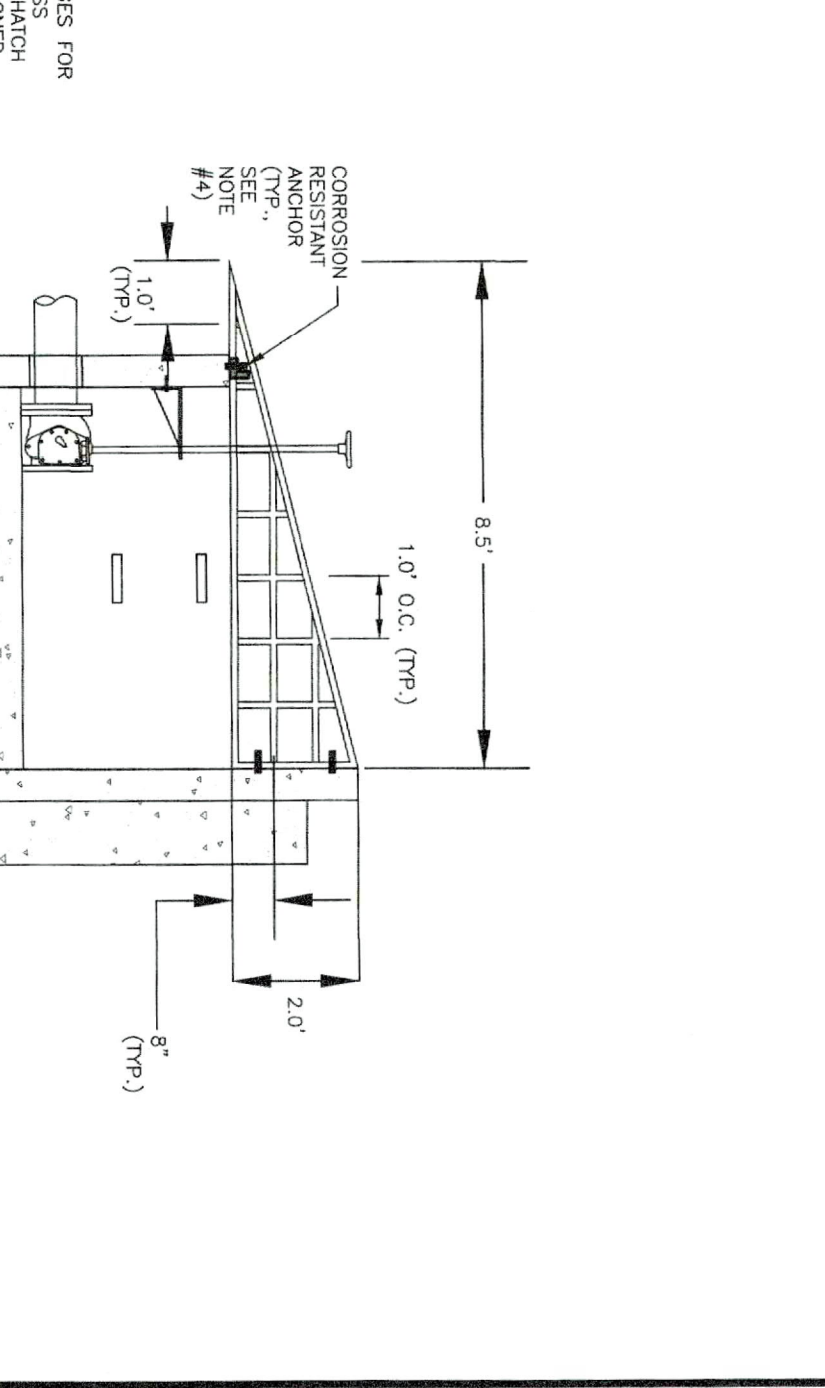
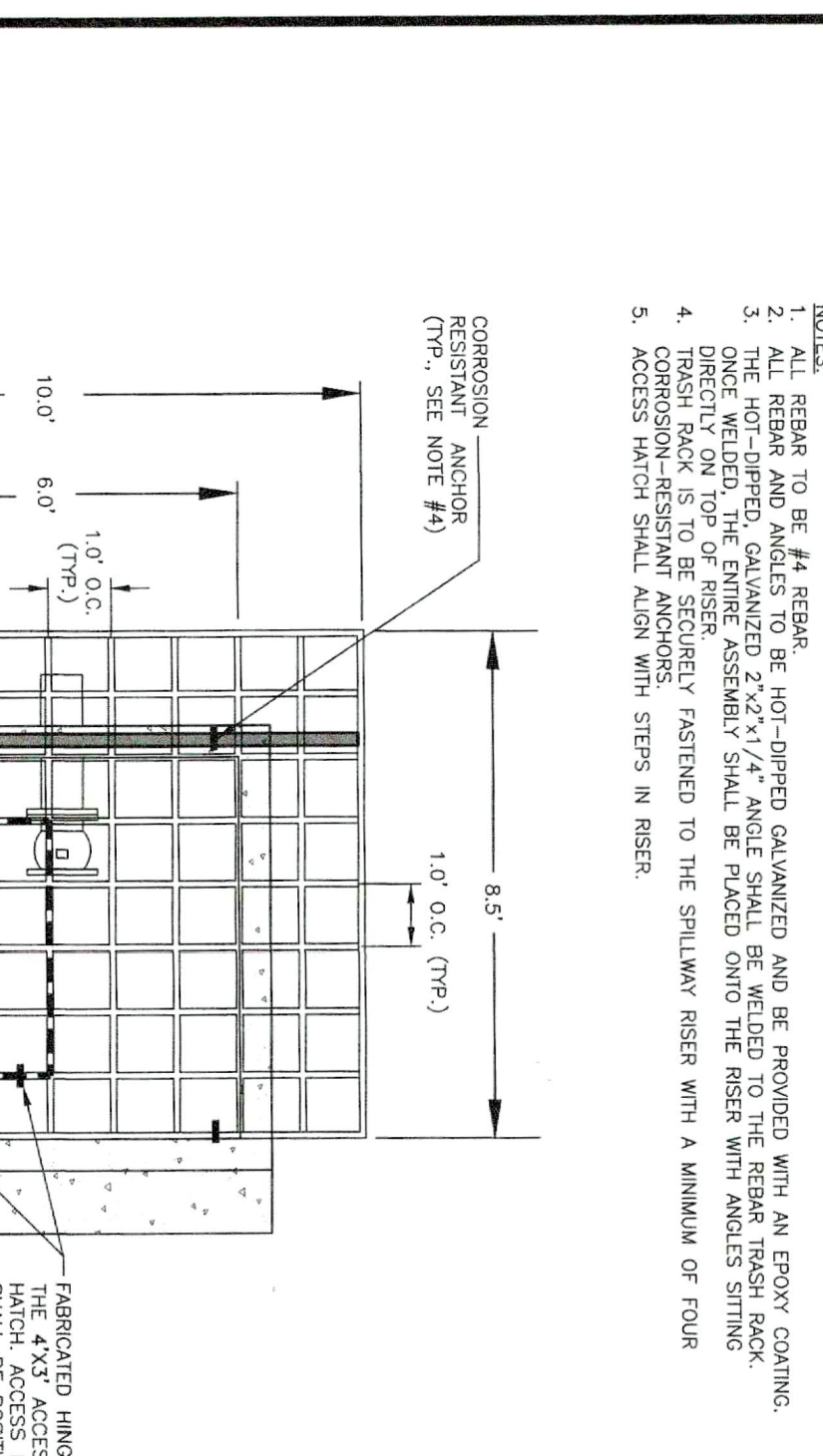
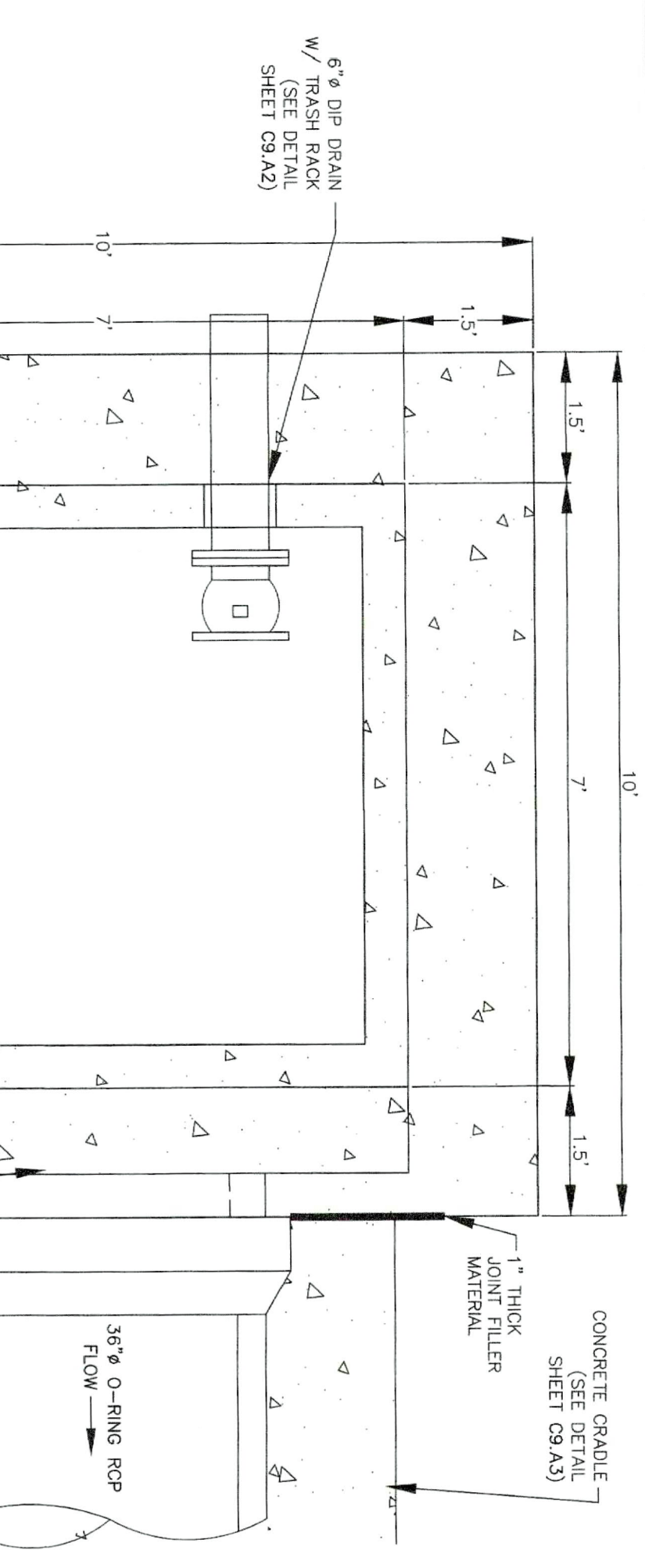
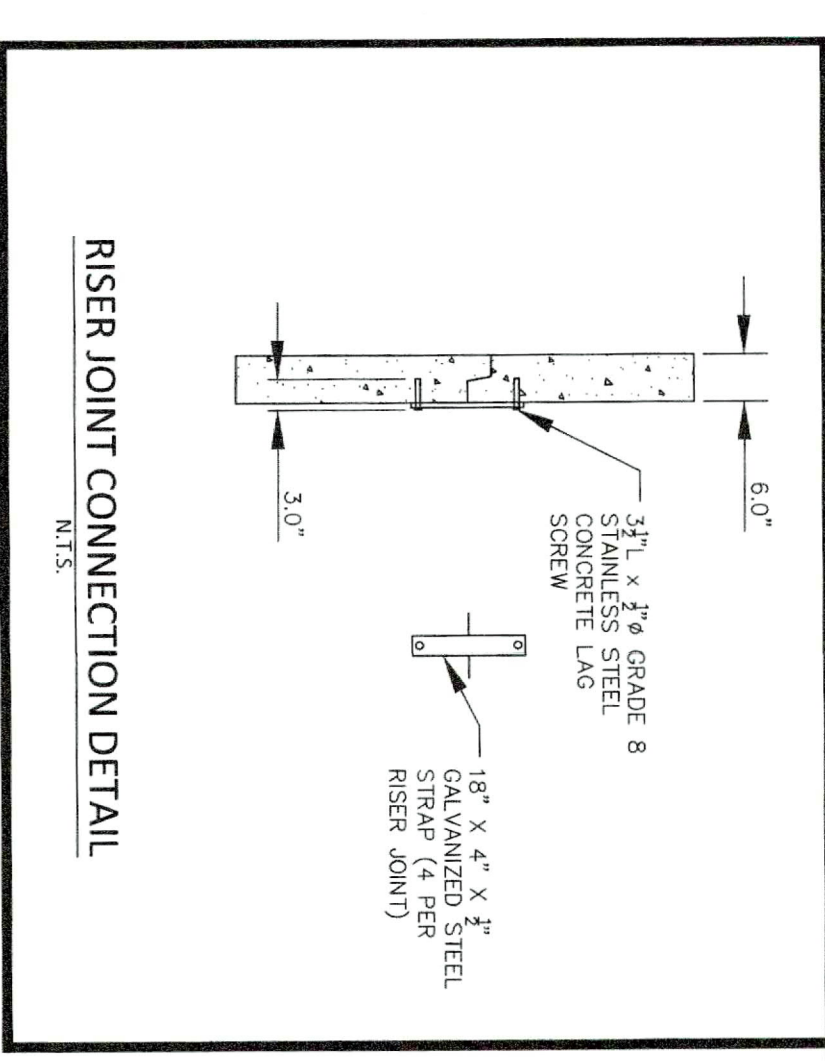
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PROJECT NO.	CPR-19100
FILENAME	CPR-19100 SWA
CHECKED BY	DCW
DRAWN BY	TKD
SCALE	1" = 20'
DATE	03.31.2023
SHEET	

**STORMWATER CONTROL**  
MEASURE "A" PLAN VIEW  
**C9.A1**

FINAL DRAWING - RELEASED FOR CONSTRUCTION



NOTE:  
 1. ROUNDED TOPS OF SHALL BE SPECIFIED FOR USE IN PLANTING (SEE THE DAM EMBANKMENT ONE FINAL GRADES AS SHOWN ON THE GRADING PLAN) HAVE BEEN ESTABLISHED WITH COMPACTED FILL PRIOR TO TOPSOIL INSTALLATION. THE TOPSOIL SHALL BE PLACED IN 4" LAYERS TO PROMOTE BONDING OF THE BERM SECTION TO PROMOTE BONDING OF THE TOPSOIL WITH THE COMPACTED FILL. THE TOPSOIL DEPTH SHALL RANGE FROM 3" TO 4" THICK ON THE DAM EMBANKMENT.  
 2. ALL REBAR TO BE #4 REBAR UNLESS OTHERWISE NOTED AND BE PROVIDED WITH AN EPOXY COATING.  
 3. ALL REBAR AND ANCHORS SHALL BE #4 REBAR UNLESS OTHERWISE NOTED AND BE PROVIDED WITH AN EPOXY COATING.  
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 10. ALL REBAR AND ANCHORS SHALL BE #4 REBAR UNLESS OTHERWISE NOTED AND BE PROVIDED WITH AN EPOXY COATING.



FINAL DRAWING - RELEASED FOR CONSTRUCTION

**WALLBROOK CONSTRUCTION DRAWINGS**  
 ROLESVILLE, NORTH CAROLINA

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 29480-2709

PROJECT NO: CPR-19100  
 FILENAME: CPR-19100-SWA  
 CHECKED BY: DCV  
 DRAWN BY: TND  
 SCALE: N.T.S.  
 DATE: 03.31.2023

**SHEET**  
**STORMWATER CONTROL**  
**MEASURE "A" DETAILS**  
**C9.A2**

REVISIONS  
 NO. DATE  
 1 3-31-23

PLANNING & DESIGN  
 ENGINEERING & CONSTRUCTION  
 CONSTRUCTION MANAGEMENT



# STORMWATER CONTROL MEASURE 'A' LANDSCAPE SPECIFICATIONS

QTY.	SYM.	SCIENTIFIC NAME	COMMON NAME	MATCH	TYPE	SPACING
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## SHALLOW WATER

166	IV	IRIS VIRGINIANA	BLUE FLAG IRIS		4-INCH CONTAINER	24" O.C.
151	PC	PONTEDEBERIA CORDATA	PICKEREL WEED		4-INCH CONTAINER	24" O.C.
136	ST	SCHROBNOPLECTUS TAHERIMONTANI	SOFT-STEM BULRUSH		4-INCH CONTAINER	24" O.C.

## SHALLOW LAND

137	CS	CAREX SPP.	SEDGES		4-INCH CONTAINER	24" O.C.
155	CA	CERILLUM AMERICANUM	AMERICAN CRINUM LILY		4-INCH CONTAINER	24" O.C.
115	HA	HIBISCUS ACULATUS	PINELANDS MALLOW		4-INCH CONTAINER	24" O.C.

## SEEDBED PREPARATION

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3-4 INCHES DEEP OVER EXPOSED SOIL CONDITIONS. TOPSOIL SHOULD BE INCORPORATED INTO THE FINAL GRADING OF THE BASIN SLOPES AND AQUATIC SHELF. CONTRACTOR SHOULD SCARIFY THE TOP 3-4 INCHES OF THE COMPACTED FILL TO PROMOTE BONDING WITH TOPSOIL.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- PER ONE TIME ONLY, APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL.
- CONTINUE TILLAGE UNTIL A WELL-PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDBED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. AFTER PERMANENT COVER IS ESTABLISHED.
- CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT.

## TEMPORARY SEEDING SCHEDULE

SEEDING DATE	SEEDING MIXTURE	APPLICATION RATE
JAN 1 - MAY 1	RYE (GRAIN)	120 LBS/AC
MAY 1 - AUG 15	RYE (GRAIN) / BERMUDA (SEED)	50 LBS/AC
AUG 15 - DEC 30	GRASS/MILLET	40 LBS/AC
AUG 15 - DEC 30	RYE (GRAIN)	120 LBS/AC

SOIL AMENDMENTS: 60 LBS/AC TEXAS OR APPLY 100 LBS/AC AGRICULTURE LIMESTONE AND 750 LBS/AC 10-10-10 FERTILIZER (FROM AUG 15 - DEC 30). INCREASE TO 10-10-10 FERTILIZER TO 1000 LBS/AC.

MULCH: APPLY 4000 LBS/AC STRAW, ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

## MAINTENANCE

- JAN 1 - AUG 15:  
 REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE, AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.
- AUG 15 - DEC 30:  
 REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY. TOP DRESS WITH 50 LBS/AC OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LBS/AC NOBLE LESPEDeza IN LATE FEBRUARY OR EARLY MARCH.

NOTE: USE THE TEMPORARY SEEDING SCHEDULE ONLY WHEN DATE IS NOT CORRECT TO USE THE PERMANENT SEEDING SCHEDULE.

## PERMANENT SEEDING SCHEDULE (DAM EMBANKMENTS)

SEEDING DATE	SEEDING MIXTURE (CHOOSE ONE)	APPLICATION RATE
MAY 1 - AUG 31	CENTPEEE MIX	30 LBS/AC
APRIL 1 - SEPT 1	SUMMER MIX	200 LBS/AC
OCT 1 - MARCH 1	100% TALLE BEAMUDA (20% MILLET) (80% TALLE FESCUE (20% ANNUAL RYEGRASS))	200 LBS/AC

## SOIL AMENDMENTS

RECOMMENDATIONS OF SOIL TESTS OR APPLY 4000 LBS/AC GROUND AGRICULTURE LIMESTONE AND 1000 LBS/AC 10-10-10 FERTILIZER.

## MULCH

APPLY 4000 LBS/AC STRAW, ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

## MAINTENANCE

INSPECT AND REPAIR MULCH FREQUENTLY. REFERTILIZE IN LATE WINTER OF THE FOLLOWING YEAR. USE SOIL TESTS OR APPLY 150 LBS/AC 10-10-10 FERTILIZER. MOW REGULARLY TO A HEIGHT OF 2.4 INCHES.

NOTE: PERMANENT SEEDING SCHEDULE IS FOR SLOPES OF THE BASIN AND TOP OF BEAM.

## PLANTING INSTRUCTIONS

- PLANTING TECHNIQUES
- ENSURE THAT ROOTS, ONCE REMOVED FROM POT, ARE STRAIGHTENED AND FACE DOWNWARD.
  - CREATE PLANTING AREA FOR EACH PLANT AND EXCAVATE PIT.
  - REMOVE MULCH FROM PLANTING AREA AND HEEL IN SOIL AROUND PLANT AND PROCEED TO NEXT PLANTING LOCATION.
  - NEWLY PLANTED PLANTS NEED TO BE FASTENED TO THE SUBSTRATE FOR THE ESTABLISHMENT OF ROOTS.
  - OFF-CLEANLINE OF THE PITS FOR ALL VEGETAL STOCK SHALL BE AT LEAST THREE TIMES THE DIAMETER OF THE ROOT MASS. PLANT PIT WALL SHALL BE SCARIFIED PRIOR TO PLANT INSTALLATION.
  - SET THE PLANTS UPRIGHT, WITH THE CENTER OF THE PIT, THE BOTTOM OF THE ROOT MASS SHOULD BE PLACED THE BACKFILL AROUND THE BASE AND SIDES OF THE ROOT MASS, AND WORK EACH LAYER TO SETTLE BACKFILL AND TO ELIMINATE VOIDS AND AIR POCKETS. WHEN PIT IS APPROXIMATELY 2/3 FULL, PLACE THE BACKFILL AROUND THE PITCHING REMAINDER OF THE BACKFILL. WATER AGAIN AFTER PLACING FINAL LAYER OF BACKFILL.
  - BROKEN OR DAMAGED PARTS WILL BE CUT BACK TO UNDAUNAGED TISSUE, LEAVING AS MUCH GREEN TISSUE AS POSSIBLE. POTTED PLANTS SHALL BE WATERED REGULARLY TO 100 PERCENT (100%) OF THE PLANT'S DAMAGED THEN CONTRACTOR SHALL REPLACE THE PLANT.

- CONTAINER STOCK, BARE ROOT
- STOCK SHALL HAVE BEEN GROWN IN A CONTAINER LONG ENOUGH FOR THE ROOT SYSTEM TO HAVE DEVELOPED SUFFICIENTLY TO HOLD ITS SOIL TOGETHER ONCE REMOVED FROM THE CONTAINER.
  - STOCK SHALL BE WATERED REGULARLY AND PLACED IN SHADE CONDITIONS UNTIL PLANTING OCCURS.
  - BARE ROOT PLANTS ARE FOR IMMEDIATE PLANTING. OTHERWISE SEE (D) BELOW.
  - STOCK SHALL BE STORED IN A SHADY AREA. MULCH SHALL BE COVERED REGULARLY BY A SUITABLE MEDIUM, LETC. SOIL, SAND/DIRT, MULCH OR THE LIKE AND WATERED REGULARLY SO AS TO NOT DRY OUT.

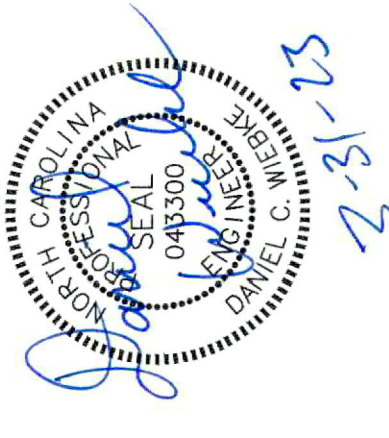
- PLANT LOCATIONS
- NEW PLANTINGS SHALL BE LOCATED WHERE SHOWN ON PLAN EXCEPT WHERE CHANGES HAVE BEEN MADE BY THE CONTRACTOR.
  - NECESSARY ADJUSTMENTS SHALL BE MADE ONLY AFTER APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.

## WATER

WATER SHALL BE POTABLE AND SHALL NOT CONTAIN ELEMENTS TOXIC TO PLANT LIFE.

## PLANTING SCHEDULE

- MAKE THE CONTRACTOR SURE THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND MAKE THE SCHEDULING FROM THE INSPECTION REPORT TO THE CONTRACTOR. THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND MAKE THE SCHEDULING FROM THE INSPECTION REPORT TO THE CONTRACTOR. THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND MAKE THE SCHEDULING FROM THE INSPECTION REPORT TO THE CONTRACTOR. THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND MAKE THE SCHEDULING FROM THE INSPECTION REPORT TO THE CONTRACTOR.
- ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PLANTS. AFTER COMPLETION OF THE PLANTING, THE LANDSCAPE CONTRACTOR SHALL PROVIDE LETTERS TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED SOIL AMENDMENTS AND MULCHING PLAN.
- PLANTING PERIODS RANGE FROM APPROXIMATELY FROM APRIL 15<sup>TH</sup> THRU JUNE 30<sup>TH</sup> AND THE CONTRACTOR SHALL COORDINATE WITH A LANDSCAPE PROFESSIONAL REGARDING SCHEDULING FOR PLANT INSTALLATION.
- IT IS RECOMMENDED THAT THE CONTRACTOR TAKE MEASURES TO PREVENT WILDLIFE FROM DAMAGING OR CONSUMING WETLAND PLANTINGS.



## REVISIONS

NO.	DATE
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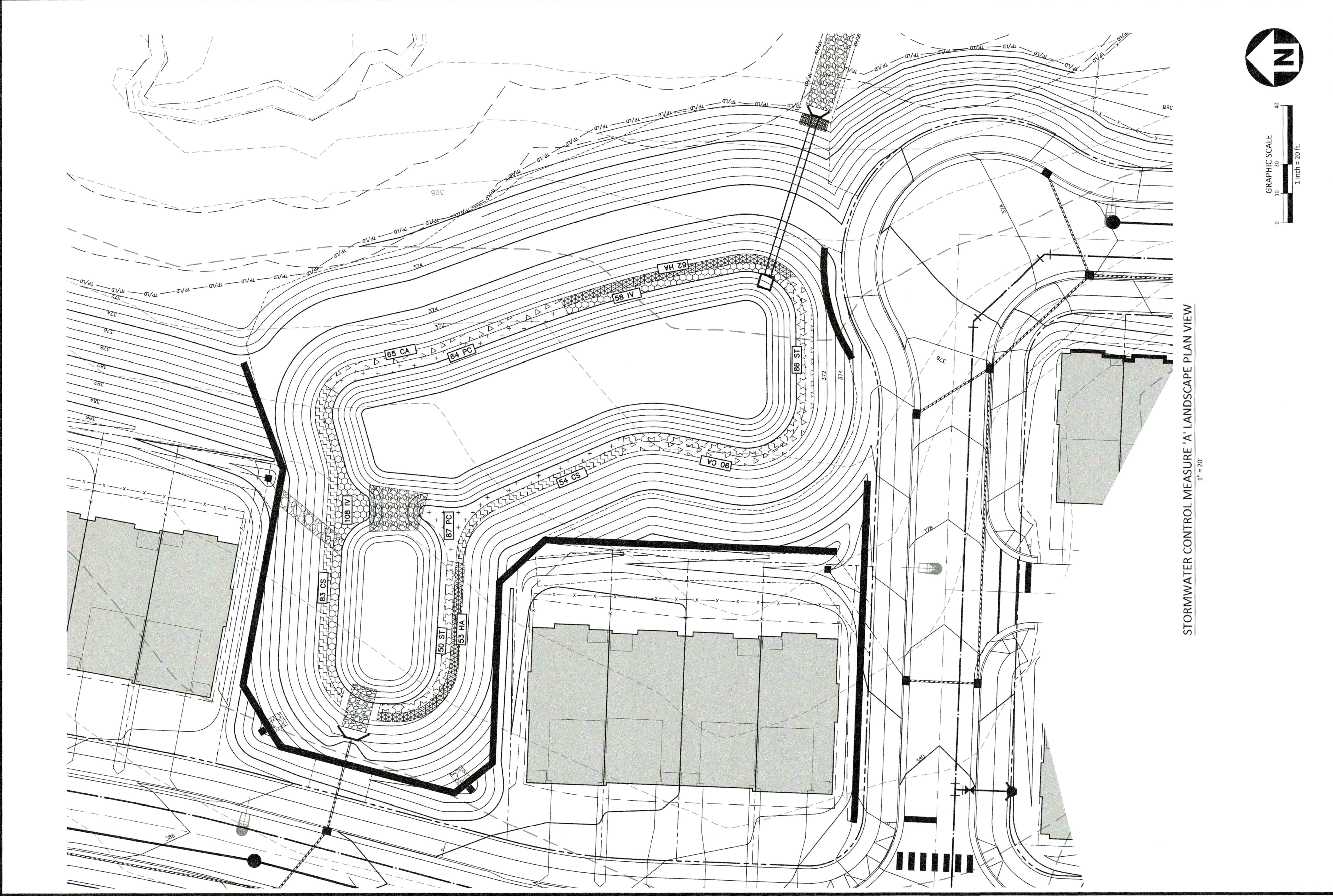
## PLAN INFORMATION

PROJECT NO.	CPR-19100
FILENAME	CPR-19100-SWA
CHECKED BY	DCW
DRAWN BY	TRD
SCALE	1"=20'
DATE	03.31.2023

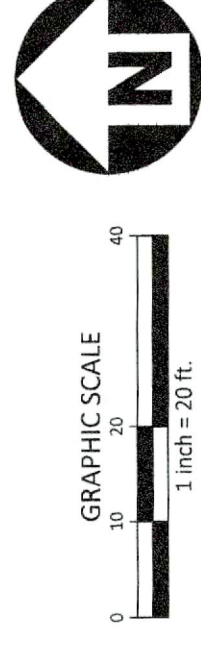
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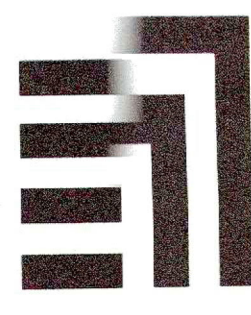
STORMWATER CONTROL  
 MEASURE "A" LANDSCAPE PLAN

**C9.A4**



STORMWATER CONTROL MEASURE 'A' LANDSCAPE PLAN VIEW  
 1" = 20'

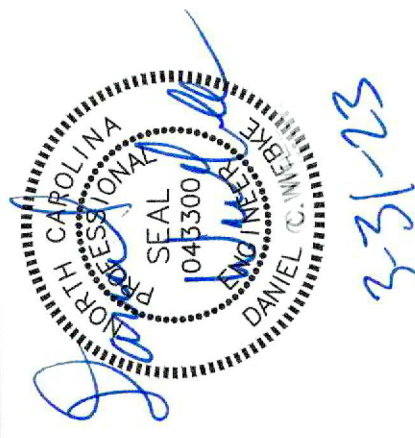




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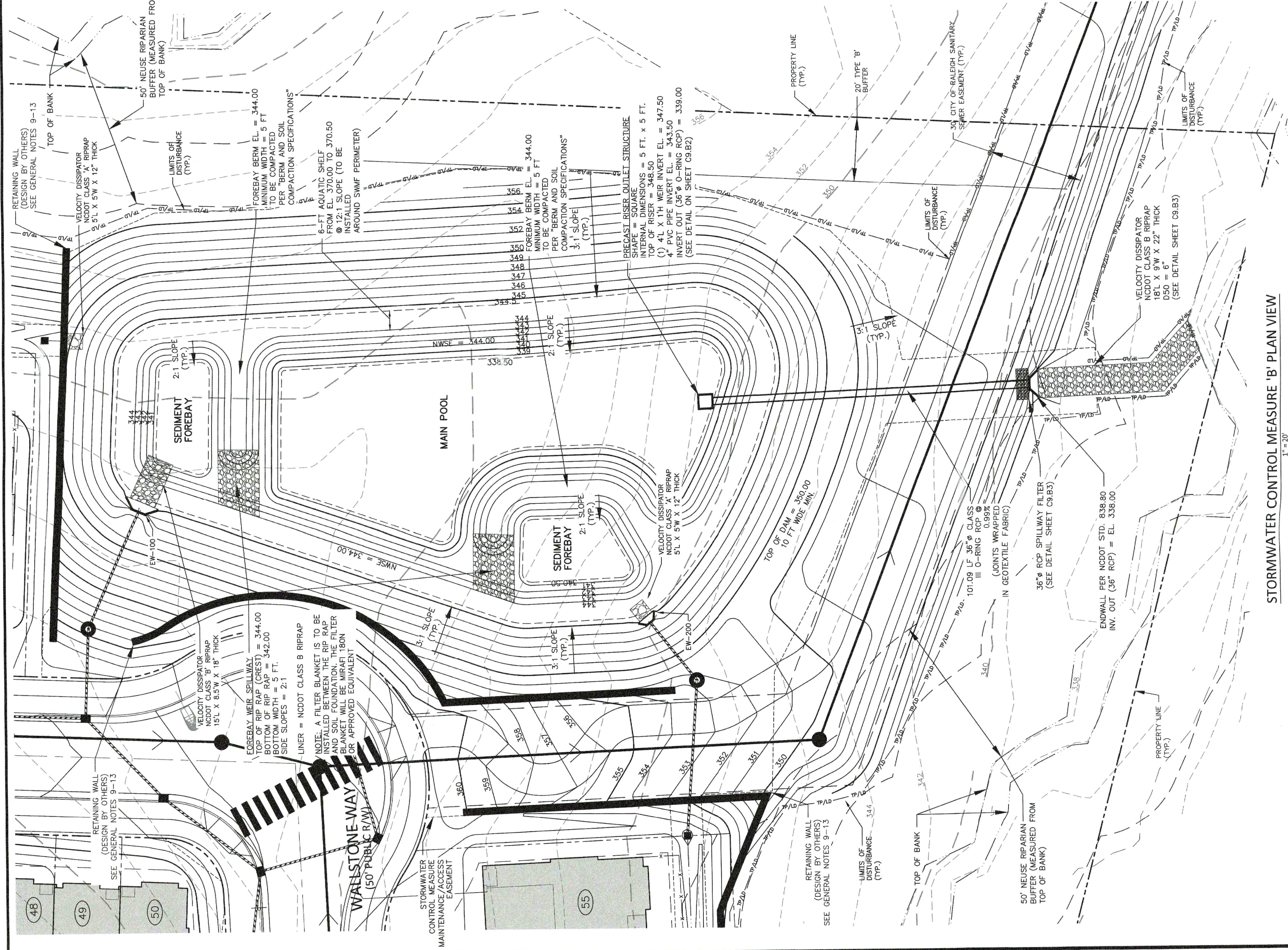
**REVISIONS**

NO.	DATE

**PLAN INFORMATION**

PROJECT NO. CPR-19100  
FILENAME CPR-19100-SWB  
CHECKED BY DCW  
DRAWN BY TKO  
SCALE 1" = 20'  
DATE 03.31.2023  
SHEET

**STORMWATER CONTROL MEASURE "B" PLAN VIEW**  
**C9.B1**



STORMWATER CONTROL MEASURE "B" PLAN VIEW  
T-7-20



FINAL DRAWING - RELEASED FOR CONSTRUCTION

**STORMWATER CONTROL MEASURE 'B' CONSTRUCTION SPECIFICATIONS**

**GENERAL NOTES**

1. CONSTRUCTION, ANY DISCREPANCIES IN THE PLANS AND NOTES SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION IMMEDIATELY.
2. THE PROJECT WILL MEET ALL OF THE REQUIREMENTS RELATIVE TO BEST MANAGEMENT PRACTICES AND ENGINEERED STORMWATER CONTROL STRUCTURES AS OUTLINED IN THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY STORMWATER DESIGN MANUAL.
3. THE FINAL CERTIFICATION FOR THIS FACILITY WILL INCLUDE A CERTIFICATION BY THE ON-SITE GEOTECHNICAL ENGINEER THAT THE PROJECT WAS CONSTRUCTED PER THE PROVIDED PLANS. IT IS THE RESPONSIBILITY OF THE ON-SITE GEOTECHNICAL ENGINEER TO OBTAIN THE CERTIFICATION OF THE DAM EMBANKMENT AND SPILLWAY. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY.
4. ALL CONSTRUCTION ACTIVITY RELATED TO THE PROPOSED STORMWATER CONTROL MEASURE SHALL BE PER THE DETAILS AND SPECIFICATIONS SHOWN IN THESE DRAWINGS. SOILS, COMPACTON AND CONSTRUCTION DRAWINGS, INCLUDING SPOD DRAWINGS FOR ANY PROPOSED MODIFICATION.
5. DURING THE INITIAL STAGES OF CONSTRUCTION, THE STORMWATER CONTROL MEASURE MAY BE USED AS A SEDIMENT BASIN FOR EROSION CONTROL PURPOSES. IF SO, THE CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT PRACTICES AND ENGINEERED STORMWATER CONTROL MEASURE SPECIFICATIONS. THE INTERIOR FINE GRADING WILL BE CONSTRUCTED ONCE THE EROSION CONTROL PHASE IS COMPLETE.
6. THE ONSITE GEOTECHNICAL ENGINEER SHALL BE NOTIFIED OF ANY DEVIATION FROM THESE DESIGN DRAWINGS FOR ANY PROPOSED MODIFICATION.
7. ONCE THE UPSTREAM DRAINAGE AREA IS STABILIZED AND THE EROSION CONTROL INSPECTOR APPROVES THE REMOVAL OF THE SEDIMENT BASIN, THE CONTRACTOR SHALL REMOVE THE TEMPORARY DRAIN DOWN RISER (OR SUMMER AND CLEAN DOWN RISER) AND WORKER WATER QUALITY COULD BE ADVERSELY AFFECTED.
8. ONCE THE BASIN IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED, THE CONTRACTOR SHALL CONSTRUCT THE INSTALLATION OF THE STORMWATER CONTROL MEASURE PLANTS. IF THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR TO ANY FACTORS EXPENSE, (AND SUBSEQUENT APPROVAL), ANY CHANGES TO THE ORIGINAL / RE-PLANTING OF PLANTS WILL BE AT THE CONTRACTOR'S EXPENSE.
9. ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER CONTROL MEASURE PLANTS. THE CONTRACTOR SHALL PROVIDE A LETTER TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED STORMWATER CONTROL MEASURE PLANTING PLAN.
10. ALL OSHA REQUIREMENTS FOR EXCAVATIONS (SHORING, DEPTH, ETC.) ARE THE RESPONSIBILITY OF THE CONTRACTOR. IF REQUIRED, THE CONTRACTOR SHALL PROVIDE AN EXCAVATION PLAN TO BE SEALED BY A P.E. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE IF ANY OSHA REQUIREMENTS ARE APPLICABLE TO THIS PROJECT AND ASSUME ANY RESPONSIBILITY FOR ANY EXCAVATION DESIGN RELATED TO ANY OSHA REQUIREMENTS.
11. ONCE THE PERMANENT POOL IS DESIGNED, A CHAIN LINK MAY BE REQUIRED TO MAINTAIN A PERMANENT POOL OF WATER IN THE STORMWATER CONTROL MEASURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE CHAIN LINK AND PROVIDE A LETTER TO THE ON-SITE GEOTECHNICAL ENGINEER WILL INFORM THE DESIGN ENGINEER AND DETERMINE THE ON-SITE GEOTECHNICAL ENGINEER WILL.
12. IT IS ANTICIPATED THAT DEWATERING WILL BE NECESSARY IN THE EXCAVATION AREAS (E.G., EMBANKMENT SUB GRADE, INTERIOR OPERATE, AND MAINTAIN ACCESSIBLE DURING PLACEMENT OF FILL WITHIN THESE AREAS. THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION / CONSTRUCTION AREAS. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES REMAIN STABLE. THE CONTRACTOR SHALL PROVIDE A LETTER TO THE ON-SITE GEOTECHNICAL ENGINEER APPROVED EQUIVALENT, PRIOR TO DISCHARGE.
13. THE RETAINING WALL ALIGNMENT SHOWN ON THESE PLANS DEPICTS THE LOCATION OF THE FRONT FACE OF THE RETAINING WALL AT THE BOTTOM.
14. THE RETAINING WALL SHALL BE TO BE DESIGNED AND CONSTRUCTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FINAL CONSTRUCTION DRAWINGS FROM A REGISTERED PROFESSIONAL ENGINEER AND GAIN ALL REQUIRED APPROVALS NECESSARY FOR THE CONSTRUCTION OF THE RETAINING WALL.
15. THE RETAINING WALL SHALL BE ASSUMED TO BE BAGGED WITH OFF-SITE BORROW MATERIAL OR PROCESSED FILL UNLESS THE CONTRACTOR CAN PROVIDE OWNER WITH CONFIRMATION FROM THE GEOTECHNICAL ENGINEER AND THE RETAINING WALL DESIGNER THAT READY AVAILABLE ON-SITE SOIL CAN BE USED.
16. THE TOP AND BOTTOM OF WALL ELEVATIONS SHOWN ON THESE PLANS INDICATE FINISHED GRADE ELEVATIONS ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE FINISHED GRADE ELEVATIONS FROM THE GEOTECHNICAL ENGINEER AND THE RETAINING WALL CONSTRUCTION DRAWINGS.
17. THE ON-SITE GEOTECHNICAL ENGINEER SHOULD BE GIVEN AN OPPORTUNITY TO REVIEW ALL RETAINING WALL PLANS AND DESIGNS RELEVANT TO GEOTECHNICAL CONSIDERATIONS PRIOR TO FINAL DESIGN OF THE WALLS.
18. THE GRASSES SHOWN ON THE PLAN ARE FINISHED GRADES. IF THE EXISTING SOIL LAYER AFTER CONSTRUCTION / COMPACTION IS NOT DETERMINED SUITABLE BY A LANDSCAPE PROFESSIONAL FOR THE WET POND PLANTINGS, THEN THE CONTRACTOR SHALL AMEND THE PLANTING AREA OF THE WET POND AS DIRECTED BY A LANDSCAPE PROFESSIONAL.
19. PRIOR TO TOPSOIL INSTALLATION, THE CONTRACTOR SHALL SCARRY THE TOP 2" OF THE BERMS SECTION TO PROMOTE BONDING OF THE TOPSOIL WITH THE COMPACTED FILL. THE TOPSOIL DEPTH SHALL BE MINIMUM 2" AND SHALL BE PLANTED WITH APPROPRIATE PLANTINGS AND ADAPTIVE FILL.
20. THE CONTRACTOR SHALL REFER TO THE LANDSCAPE PLAN FOR THE PERMANENT PLANTING SCHEDULE FOR PLANT INSTALLATION. PLEASE NOTE THAT NO TREES/SHRUBS OF ANY TYPE MAY BE PLANTED ON THE PROPOSED DAM EMBANKMENT (FILL AREAS).

**OUTLET STRUCTURE MATERIAL SPECIFICATIONS**

1. THE 36" RCP OUTLET BARREL SHALL BE CLASS II RCP, MODIFIED BELL AND SPIGOT, MEETING THE REQUIREMENTS SET FORTH IN LIST 1.
2. THE STRUCTURAL DESIGN FOR THE 6' X 6' (INTERNAL DIMENSIONS) RISER BOX WITH EXTENDED BASE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE RISER BOX SHALL BE SUPPORTED BY STRUCTURAL CALCULATIONS SEALED BY A P.E. REGISTERED IN NORTH CAROLINA DEMONSTRATING THE PERTINENT VERTICAL LOADS ARE SUPPORTED BY THE CONCRETE RISER STRUCTURE.
3. THE RISER BOX OUTLET STRUCTURE SHALL BE PROVIDED WITH STEPS 16" ON CENTER. STEPS SHALL BE PROVIDED ON THE INNER WALL OF THE RISER BOX. STEPS SHALL BE IN ACCORDANCE WITH NCDOT STD. 840.06. PLEASE REFER TO SHEET CS.B3 FOR LOCATION OF THE RISER STEPS. NOTE THE STEPS SHALL LINE UP WITH THE ACCESS HATCH OF THE TRASH RACK.
4. THE CONCRETE ANTI-ELEVATION BLOCK SHALL BE CAST-IN-PLACE, STEEL REINFORCED AND CONNECTION TO THE RISER SHALL BE STRUCTURE IS GREATER THAN OR EQUAL TO 45,100 LBS. IN LIEU OF CAST-IN-PLACE, THE CONTRACTOR MAY OPT FOR A PRECAST ANTI-ELEVATION BLOCK. SHOP DRAWINGS FOR THE PRECAST BLOCK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE PRECAST ANTI-ELEVATION BLOCK SHALL HAVE A SHIPPING WEIGHT OF 50,345 LBS.
5. THE RISER BOX JOINTS SHALL BE SEALED USING BUTYL RUBBER SEALANT CONFORMING TO ASTM C827. IT IS RECOMMENDED THAT THE CONTRACTOR SHALL PAGE JOINTS ON BOTH THE INSIDE AND OUTSIDE WITH NON-SHRINK GROUT AND INSTALL GALVANIZED STEEL STRAPS PER DETAIL ON SHEET CS.B2.
6. PRIOR TO ORDERING, THE CONTRACTOR SHALL SUBMIT TRASH RACK SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. CONTRACTOR SHALL INSURE THAT AN ACCESS HATCH IS PROVIDED WITHIN THE TRASH RACK (SEE DETAIL FOR LOCATION) THAT WILL ALLOW FOR THE TRASH RACK TO BE REMOVED FROM THE FACILITY AND FOR ACCESS TO THE ACCESS HATCH. THE ACCESS HATCH SHALL LINE UP WITH THE ACCESS STEPS AFTER INSTALLATION.
7. ALL POURED CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED:  
- MINIMUM 3000 PSI (28 DAY)  
- SLUMP = 3" - 5"  
- ENTRAINED AIR = 5% - 7%  
PLEASE NOTE NO CONCRETE SHALL BE POURED WHEN THE AMBIENT AIR TEMPERATURES ARE EXPECTED TO BE ABOVE 85°F OR BELOW 40°F. CAST-IN-PLACE CONCRETE SHALL BE "WET CURED" AFTER FINISHING FOR A MINIMUM OF 48 HOURS.

ON-SITE GEOTECHNICAL ENGINEER TO INSURE AND CERTIFY ALL POURED CONCRETE MEETS THE ABOVE SPECIFICATIONS.

8. GEOTEXTILE FABRIC FOR THE 36" RCP OUTLET BARREL JOINTS SHALL BE MIRAFIB 180N OR ENGINEER APPROVED EQUAL (NON-WOVEN FABRIC).
9. EROSION CONTROL MATS SHALL BE INSTALLED ON BOTH SLOPES OF THE DAM EMBANKMENT. THE MATS SHALL BE A MIRA STYLE 1820 GEOTEXTILE MAT OR APPROVED EQUAL. THIS VALUE IS IN ACCORDANCE WITH AWWA C 517. AND SHALL BE OBTAINABLE FROM TOP OF OUTLET STRUCTURE VIA A HAND WHEEL (SEE DETAIL SHEET CS.B2). THE CONTRACTOR SHALL PROVIDE A REMOVABLE VALVE WRENCH WITH A HAND WHEEL ON TOP FOR OPERATION OF THE 6" RCP VALVE.

**CONSTRUCTION SEQUENCE**

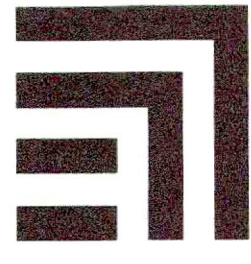
1. PRIOR TO CONSTRUCTION, THE OWNER SHALL OBTAIN A LAND DISTURBING (GRADING) PERMIT AND AN "APPROVAL TO CONSTRUCT" FROM THE TOWN OF ROLESVILLE AND ALL OTHER NECESSARY PERMITS FROM APPLICABLE AGENCIES (E.G., 401 PERMITS).
2. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION.
3. CLEAR AND GRUB AREAS WITHIN THE LIMITS OF THE PROPOSED DAM CONSTRUCTION. ALL TREES AND THEIR ENTIRE ROOT SYSTEMS MUST BE REMOVED FROM THE DAM FOOTPRINT AREA AND BACKFILLED WITH SUITABLE SOIL MATERIAL. THE BACKFILLED AREAS SHALL BE COMPACTED TO THE SAME STANDARDS AS THE DAM EMBANKMENT. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION.
4. EXCAVATE FOR THE NEW KEY TRENCH ALONG THE CENTERLINE OF THE PROPOSED DAM EMBANKMENT. THE TRENCH SHALL EXTEND A MINIMUM OF 5 FT BELOW EXISTING GRADE OR 2 FT BELOW THE 36" RCP OUTLET BARREL AND BE 10 FT WIDE. THE TRENCH SHALL BE 15 FT X 8.5 FT X 16" THICK. THE TRENCH SHALL BE COMPACTED TO THE SAME STANDARDS AS THE DAM EMBANKMENT. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION.
5. BEGIN PLACEMENT OF BACKFILL WITHIN THE KEY TRENCH. THE KEY TRENCH SHALL BE COMPACTED TO THE SAME STANDARDS AS THE DAM EMBANKMENT. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION.
6. PRIOR TO INSTALLATION, SUBGRADE CONDITIONS ALONG THE SPILLWAY RIPS SHOULD BE EVALUATED BY THE ON-SITE GEOTECHNICAL ENGINEER TO ASSESS WHETHER SUITABLE BEARING CONDITIONS EXIST AT THE SUBGRADE LEVEL. SHOULD SOFT OR OTHERWISE UNSUITABLE CONDITIONS BE ENCOUNTERED ALONG THE RIP RAP ALIGNMENTS, THESE MATERIALS SHOULD BE REMOVED AND REPLACED WITH SUITABLE MATERIAL AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER.
7. IN ORDER TO HELP PROTECT THE SOIL STRONGS FROM RETROBODICATION (DUE TO EXPOSURE, RAINFALL, SEEPAGE, AND RUNOFF) BEFORE THE CRADLE CAN BE POURED, IT IS STRONGLY RECOMMENDED THAT A 3" TO 4" THICK CONCRETE MAT BE POURED OVER THE SUBGRADE ONCE IT IS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE MAT SHALL BE 15 FT X 8.5 FT X 16" THICK. THE MAT SHALL BE SUPPORTED BY THE PIPE PROVIDED BY THE CONTRACTOR. THE MAT SHALL BE SUBMITTED TO THE JOHN R. MCADAMS COMPANY FOR REVIEW.
8. BEGIN CONSTRUCTION OF THE NEW EMBANKMENT. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8" THICK LIFTS PRIOR TO CONSTRUCTION. UNLESS DIRECTED OTHERWISE BY THE ON-SITE GEOTECHNICAL ENGINEER, FILL LIFTS SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF FILL. IT IS RECOMMENDED THAT THE EMBANKMENT FILL MATERIAL WILL BE OVERLIFT IN HORIZONTAL LIFTS AND OUT BACK TO FINAL GRADE IN ORDER TO ACHIEVE PROPER COMPACTION.
9. AS CONSTRUCTION OF THE EMBANKMENT MOVES FORWARD, IT WILL BE NECESSARY TO INSTALL THE CONCRETE CRADLE. SEE NOTE ON GRADE DETAIL SHEET CS.B3. THIS MAT BE CONSTRUCTED USING ONE OF THE FOLLOWING METHODS:  
A. IF THE PROPOSED STRUCTURAL FILL MATERIAL IS UTILIZED AS THE PERFORMING MATERIAL, THEN THE STRUCTURAL FILL REQUIRES THE NEXT DOWNSTREAM FUNCTION BOX OR HEADWALL AND IS COMPACTED TO THE ELEVATION OF THE TOP OF THE CONCRETE CRADLE. ELEVATE THE CONCRETE CRADLE PER THE PROVIDED DETAILS AND CONSTRUCT THE CONCRETE CRADLE AS PER THE PROVIDED CONCRETE CRADLE DETAIL.  
B. IF THE PROPOSED STRUCTURAL FILL IS NOT UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADLE, THEN PRIOR TO INSTALLATION OF THE CONCRETE CRADLE, THE CONTRACTOR SHALL CONSTRUCT THE CONCRETE CRADLE USING ONE OF THE FOLLOWING METHODS:  
1. INSTALL AREA / BARREL ASSEMBLY, ALONG WITH THE EMERGENCY DRAIN SYSTEM. INSTALL 36" RCP OUTLET BARREL SPILLWAY FILTER FROM THE DETAILS SHOWN ON SHEET CS.B3.  
2. IF THE PROPOSED STRUCTURAL FILL IS NOT UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADLE, THEN PRIOR TO CONSTRUCTION OF THE CONCRETE CRADLE, THE CONTRACTOR SHALL CONSTRUCT THE CONCRETE CRADLE USING ONE OF THE FOLLOWING METHODS:  
1. INSTALL AREA / BARREL ASSEMBLY, ALONG WITH THE EMERGENCY DRAIN SYSTEM. INSTALL 36" RCP OUTLET BARREL SPILLWAY FILTER FROM THE DETAILS SHOWN ON SHEET CS.B3.
10. CONSTRUCTION OF DAM EMBANKMENT SHALL BE TAKEN FROM BORROW AREAS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. ALL CHARACTERISTICS OF THE EMBANKMENT FILL MATERIAL SHALL MEET THE STANDARDS SET FORTH IN "BERM AND SOIL COMPACTION SPECIFICATIONS", INCLUDING COMPACTION AND MOISTURE REQUIREMENTS. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION.
11. DURING COMPACTION OF DAM EMBANKMENT, PROPERLY SEPARATE AND SEED DAM EMBANKMENT PER SCHEDULING. PERMANENT GROUND COVER SHALL BE ESTABLISHED PRIOR TO THE COMPACTION OF THE DAM EMBANKMENT.
12. SURVEY A FINAL AS-BUILT INSPECTION AND AS-BUILT SURVEY WITH THE ENGINEER AND SURVEYOR. HAS AS-BUILT INSPECTION AND SURVEY SHALL BE SCHEDULED BEFORE IMPOUNDING WATER IN THE FACILITY AND A MINIMUM OF 60 DAYS PRIOR TO THE ANTICIPATED DATE OF CERTIFICATION. APPROVAL, ANY COMMENTS OR DISCREPANCIES IN THE SOIL CONSTRUCTION MUST BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND OWNER BEFORE CONSTRUCTION SHALL BE GRANTED.

**BERM AND SOIL COMPACTION SPECIFICATIONS**

1. THE BERM AND SOIL COMPACTION SPECIFICATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE TOWN OF ROLESVILLE AND ALL OTHER NECESSARY PERMITS FROM APPLICABLE AGENCIES (E.G., 401 PERMITS).
2. ALL FILL MATERIALS TO BE USED FOR THE DAM EMBANKMENT SHALL BE TAKEN FROM BORROW AREAS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION.
3. FILL PLACEMENT FOR THE EMBANKMENT SHALL NOT EXCEED A MAXIMUM 8" LIFT (UNCOMPACTED). EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF EMBANKMENT. BEFORE PLACEMENT OF FILL FOR THE BERM SECTION, ALL UNDESIRABLE MATERIALS SHALL BE REMOVED FROM THE EMBANKMENT. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS NECESSARY TO PREVENT EROSION.
4. ALL FILL SOILS USED IN THE EMBANKMENT CONSTRUCTION SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698). THE FILL SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN 1 TO 4 PERCENT OF ITS OPTIMUM MOISTURE CONTENT. COMPACTON SHALL BE PERFORMED TO A MINIMUM OF 2000 SQUARE FEET OF AREA FOR EVERY LIFT SHEEPSOFT TYPE COMPACTOR. IN ORDER TO PREVENT DAMAGE TO THE RCP, NO COMPACTOR EQUIPMENT SHALL CROSS ANY PIPE UNTIL MINIMUM COVER IS ESTABLISHED ALONG THE PIPE.
5. THE DESIGN ENGINEER SHALL BE PROVIDED WITH REPORTS AND CERTIFICATION BY THE ON-SITE GEOTECHNICAL ENGINEER THAT THE GEOTECHNICAL ASPECTS OF THE FACILITY HAVE BEEN MET AND SHALL MAINTAIN THESE RECORDS AND CERTIFICATION WILL BE NEEDED DURING AS-BUILT CERTIFICATION PROCESS FOR THE STORMWATER CONTROL MEASURE. THEREFORE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE TESTING AND OBSERVATION WITH THE ON-SITE GEOTECHNICAL ENGINEER.
6. TESTING OF THE NEW FILL MATERIALS SHALL BE PERFORMED TO VERIFY THAT THE RECOMMENDED LEVEL OF COMPACTION IS ACHIEVED DURING CONSTRUCTION. THEREFORE, ONE DENSITY TEST SHALL BE PERFORMED FOR EVERY 2,500 SQUARE FEET OF AREA FOR EVERY LIFT OF FILL OR AS RECOMMENDED BY THE ON-SITE GEOTECHNICAL ENGINEER.
7. TESTING WILL BE REQUIRED ALONG THE 36" RCP OUTLET BARREL AT A FREQUENCY OF ONE TEST PER 25 LF OF PIPE PER VERTICAL FOOT OF FILL OR AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER.

**STATEMENT OF RESPONSIBILITY**

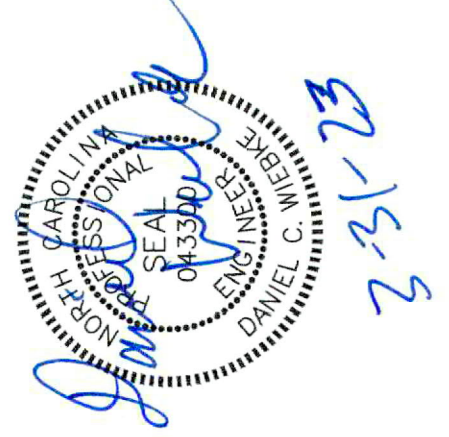
1. ALL REQUIRED MAINTENANCE AND INSPECTIONS OF THE STORMWATER CONTROL MEASURE SHALL BE THE RESPONSIBILITY OF THE OWNER, PER THE EXECUTED OPERATION AND MAINTENANCE AGREEMENT FOR THIS FACILITY.



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28480-1709

**WALLBROOK**  
CONSTRUCTION DRAWINGS  
ROLESVILLE, NORTH CAROLINA



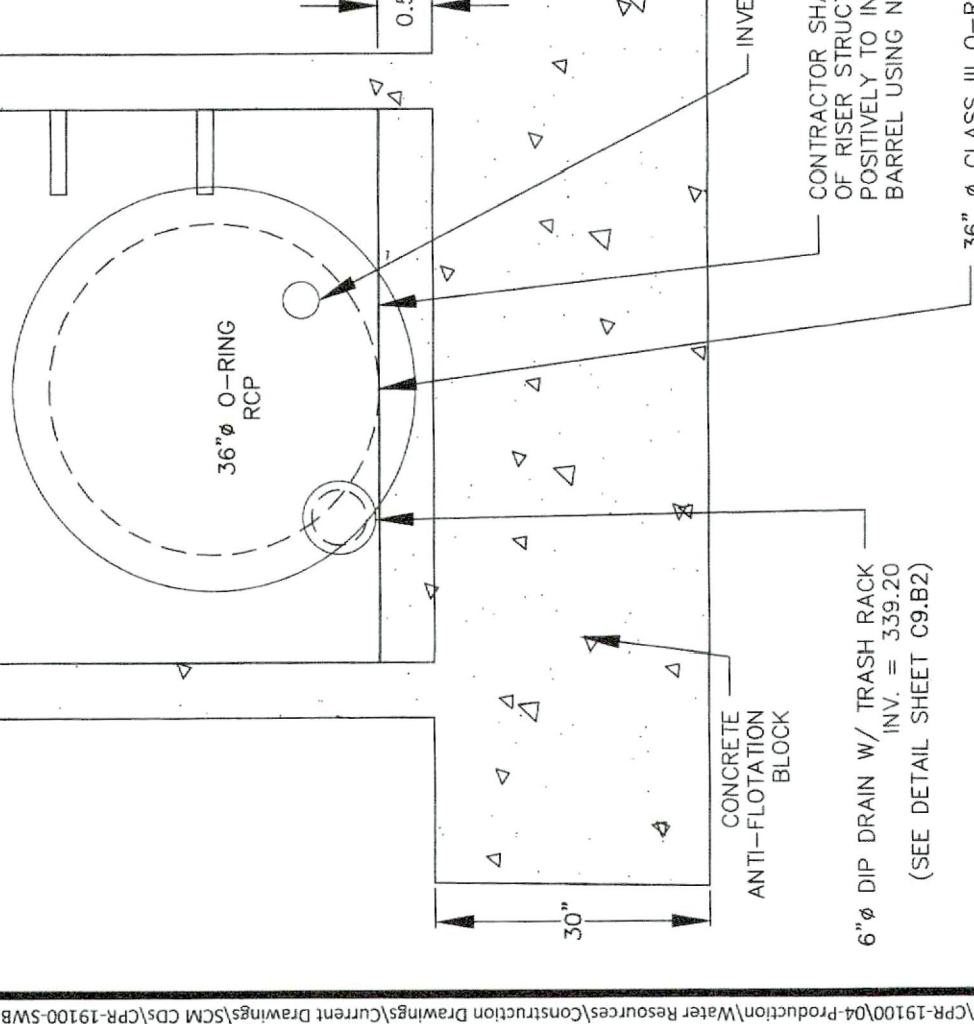
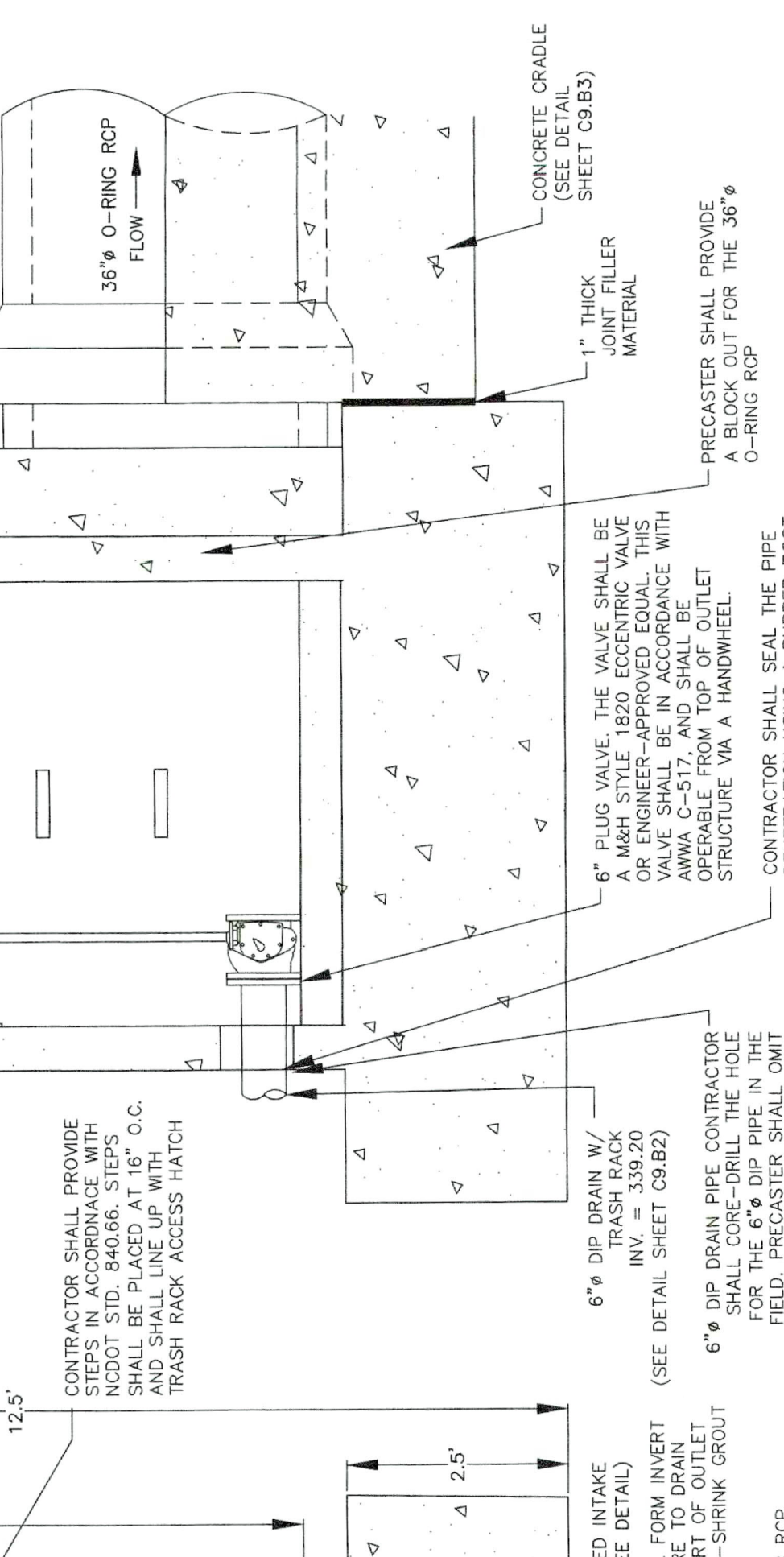
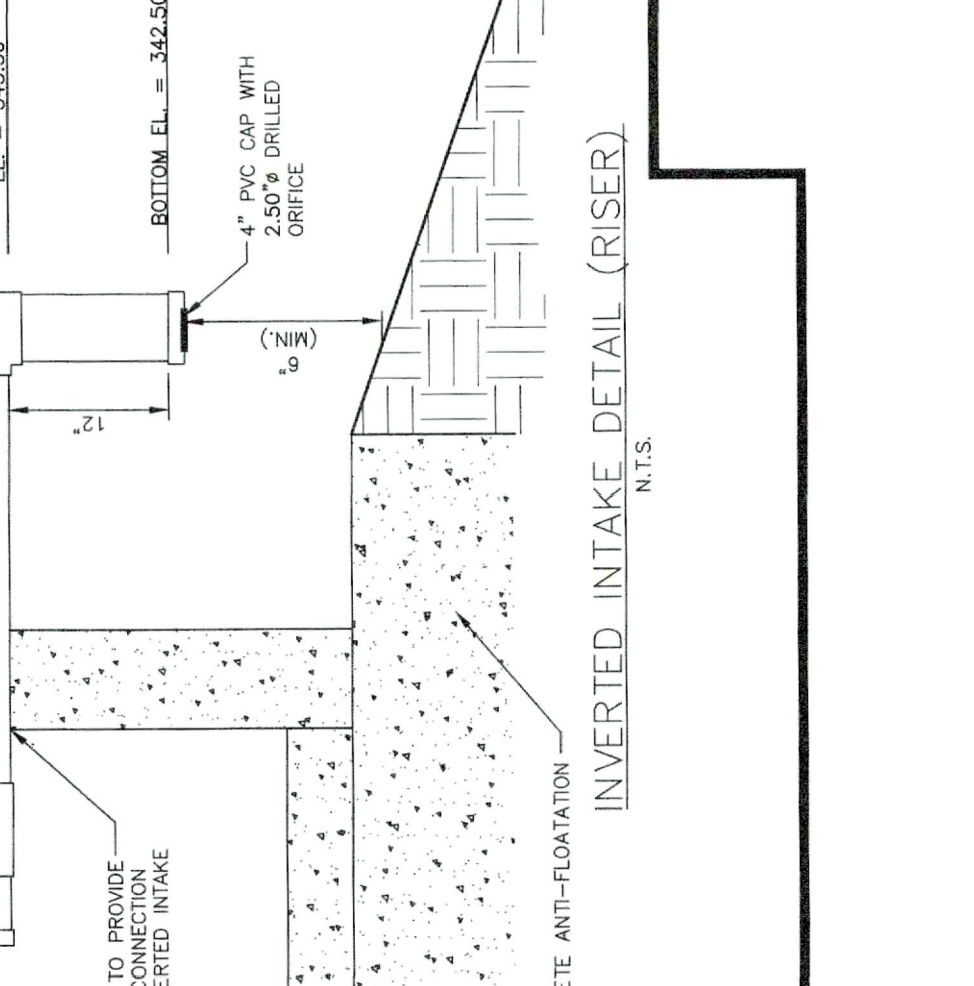
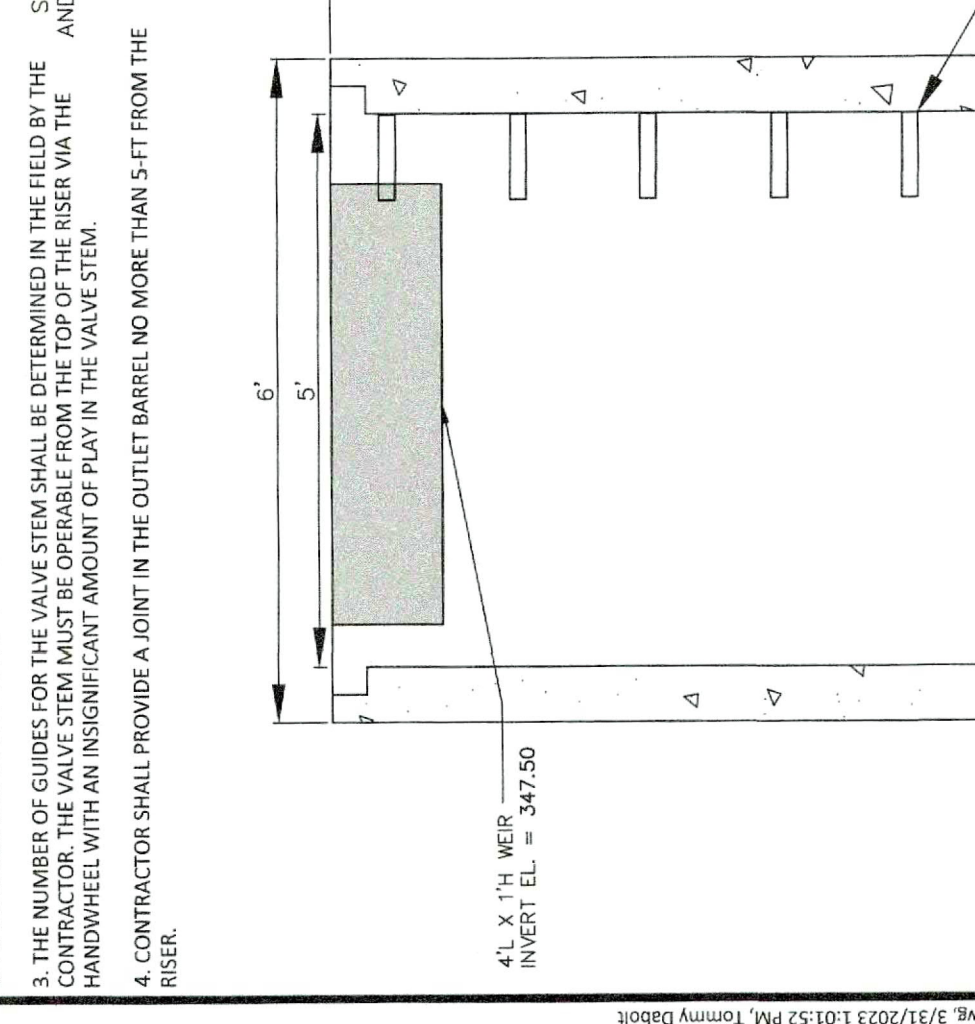
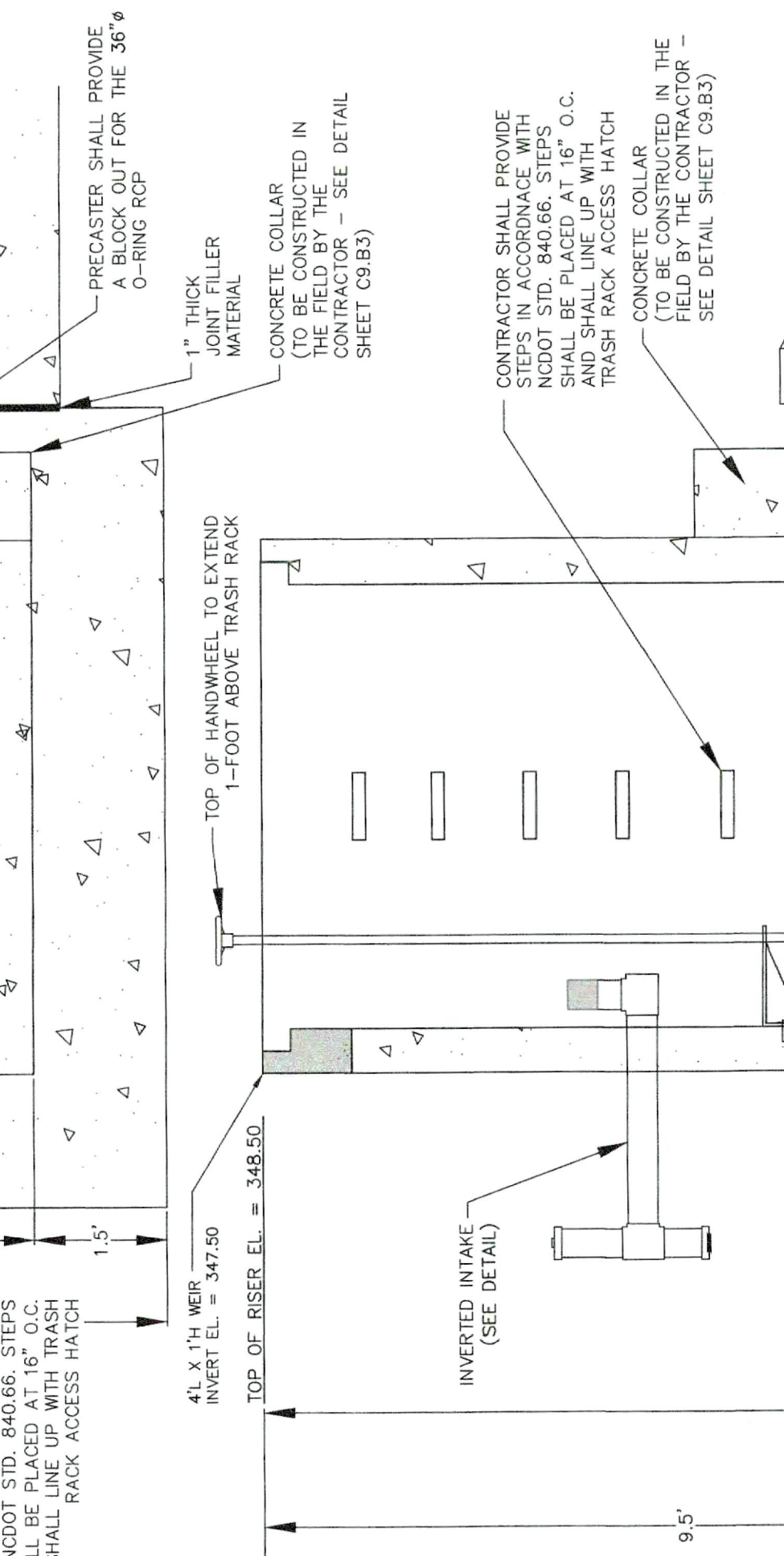
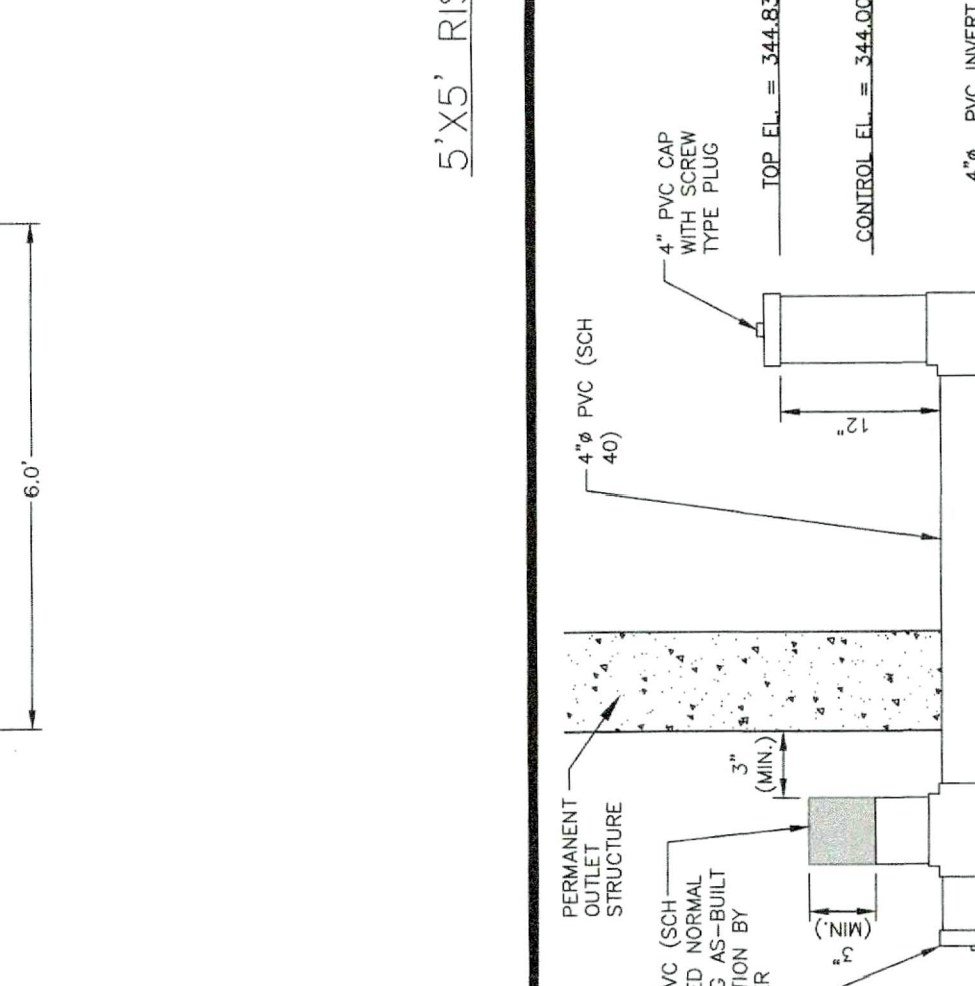
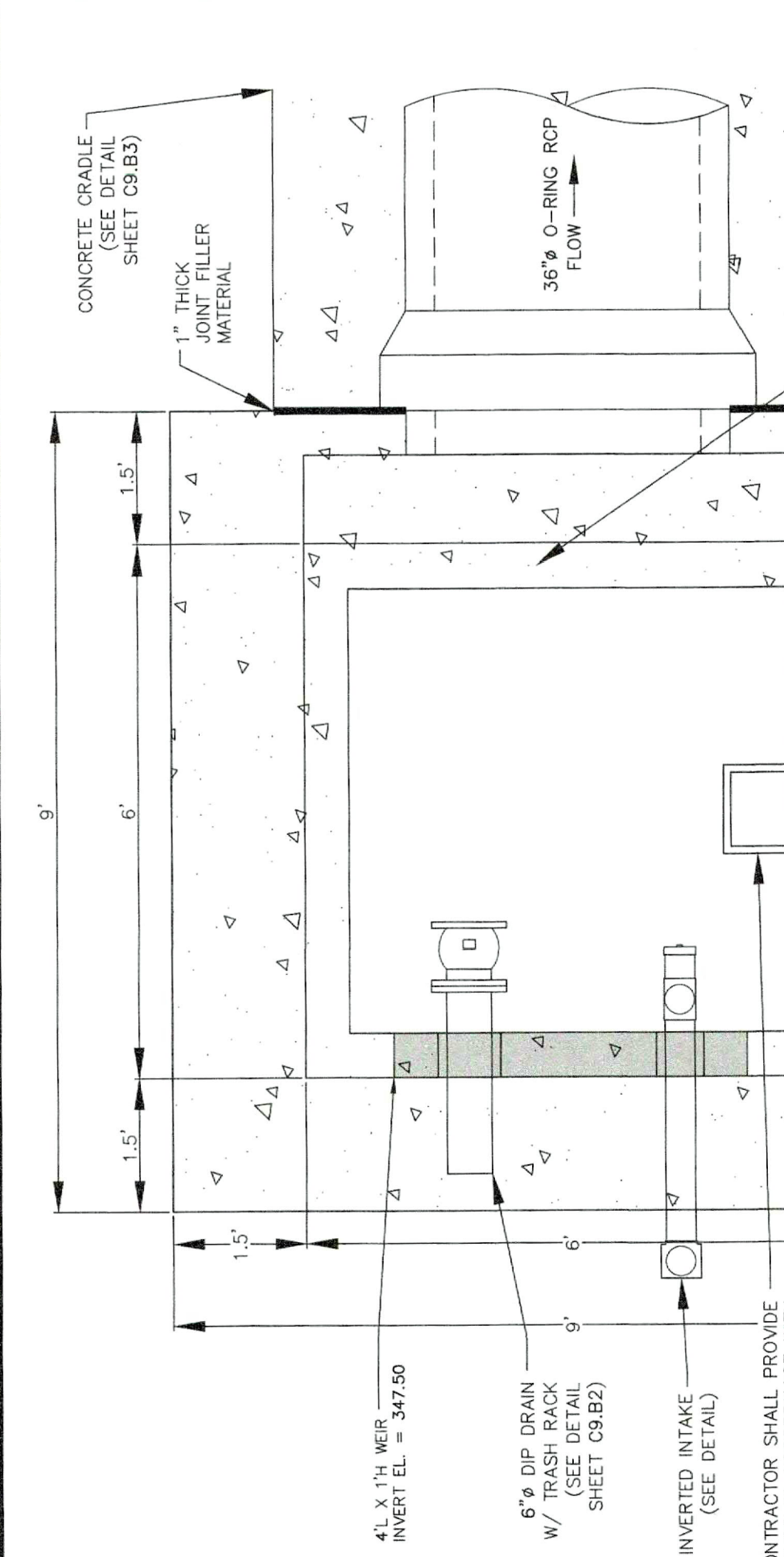
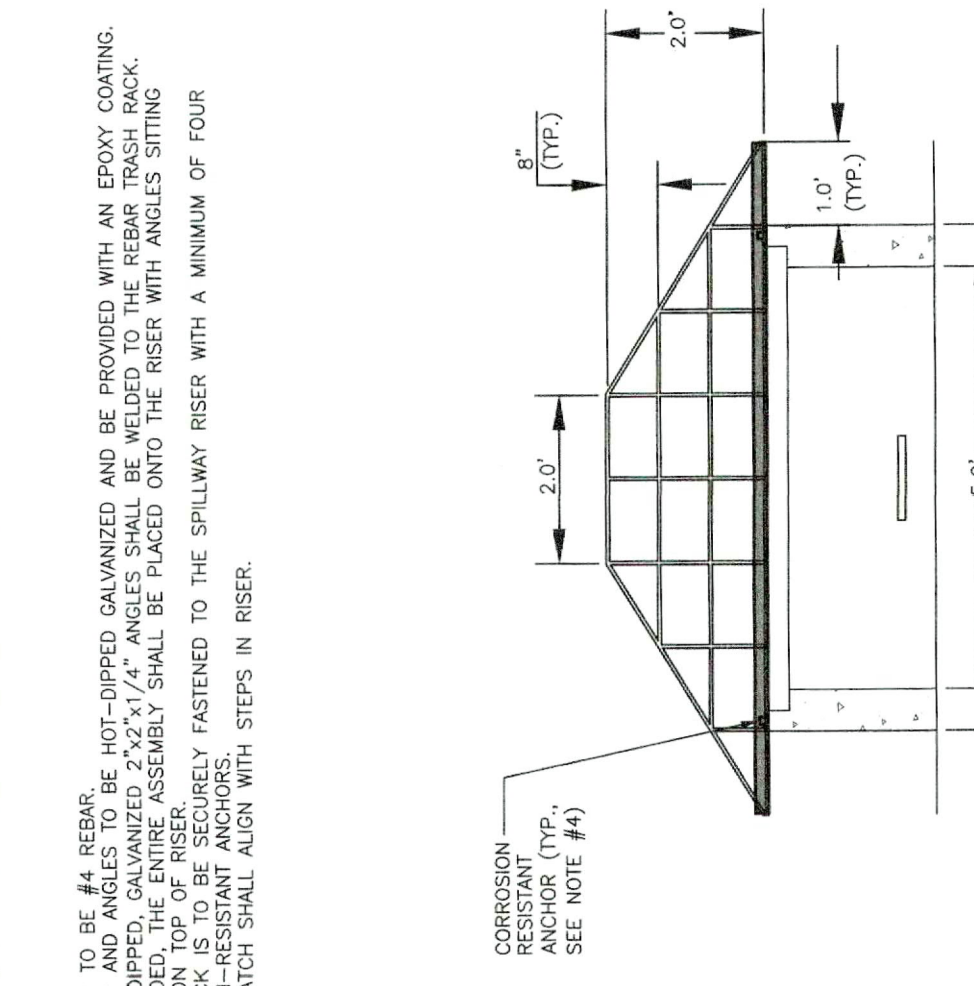
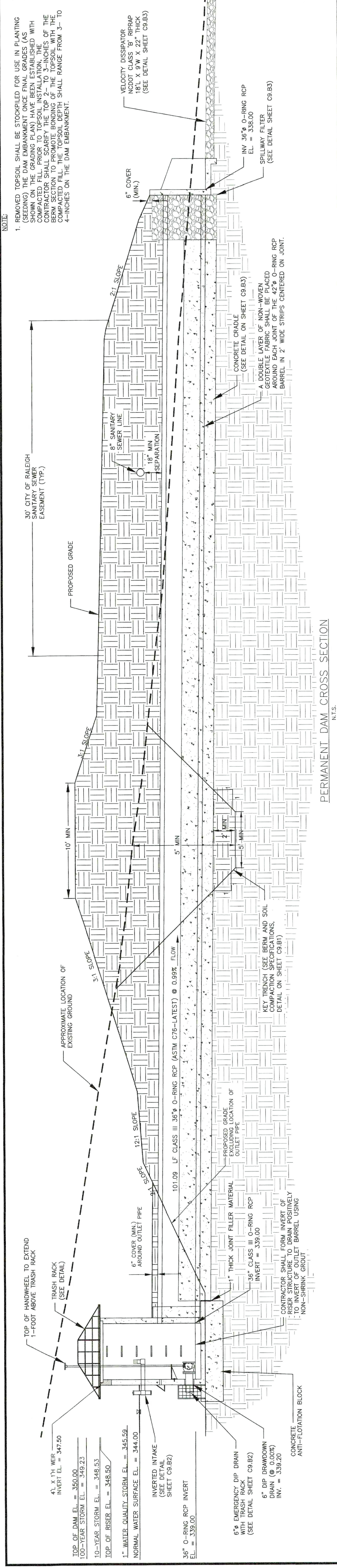
**REVISIONS**  
NO. DATE

**PLAN INFORMATION**

PROJECT NO. CPR-19100  
FILENAME CPR-19100-SWB  
CHECKED BY DCW  
DRAWN BY TKD  
SCALE N.T.S.  
DATE 03.31.2023  
SHEET

**STORMWATER CONTROL**  
**MEASURE "B" DETAILS**  
**C9.B2**

FINAL DRAWING - RELEASED FOR CONSTRUCTION

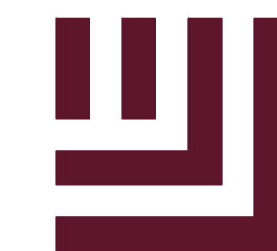


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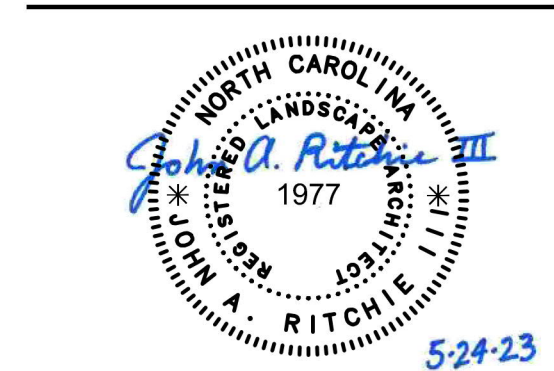
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CONSTRUCTION DRAWINGS  
ROLESVILLE, NORTH CAROLINA



REVISIONS

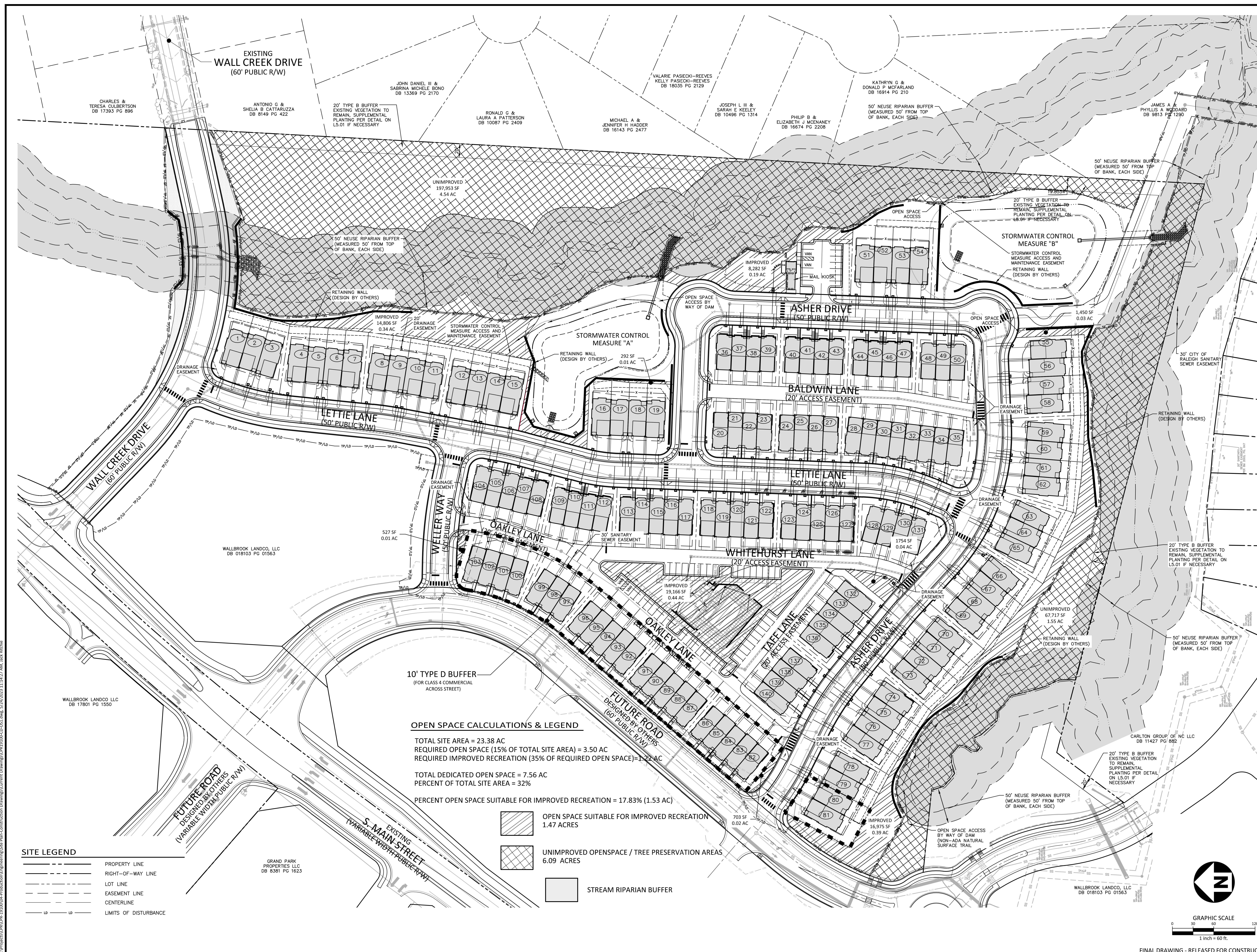
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PLAN INFORMATION




PROJECT NO. CPR-19100  
FILENAME CPR19100-051  
CHECKED BY SRD  
DRAWN BY JAR  
SCALE 1"=60'  
DATE 05.22.2023  
SHEET







OPEN SPACE  
PLAN

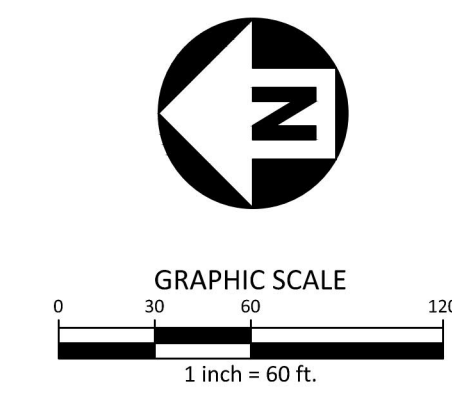
C10.01



**OPEN SPACE CALCULATIONS & LEGEND**  
TOTAL SITE AREA = 23.38 AC  
REQUIRED OPEN SPACE (15% OF TOTAL SITE AREA) = 3.50 AC  
REQUIRED IMPROVED RECREATION (35% OF REQUIRED OPEN SPACE) = 1.22 AC  
TOTAL DEDICATED OPEN SPACE = 7.56 AC  
PERCENT OF TOTAL SITE AREA = 32%  
PERCENT OPEN SPACE SUITABLE FOR IMPROVED RECREATION = 17.83% (1.53 AC)

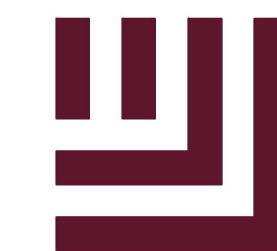
-  OPEN SPACE SUITABLE FOR IMPROVED RECREATION  
1.47 ACRES
-  UNIMPROVED OPENSACE / TREE PRESERVATION AREAS  
6.09 ACRES
-  STREAM RIPARIAN BUFFER

- SITE LEGEND**
-  PROPERTY LINE
  -  RIGHT-OF-WAY LINE
  -  LOT LINE
  -  EASEMENT LINE
  -  CENTERLINE
  -  LIMITS OF DISTURBANCE



FINAL DRAWING - RELEASED FOR CONSTRUCTION

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WALLBROOK  
CONSTRUCTION DRAWINGS  
ROLESVILLE, NORTH CAROLINA



REVISIONS

NO. DATE

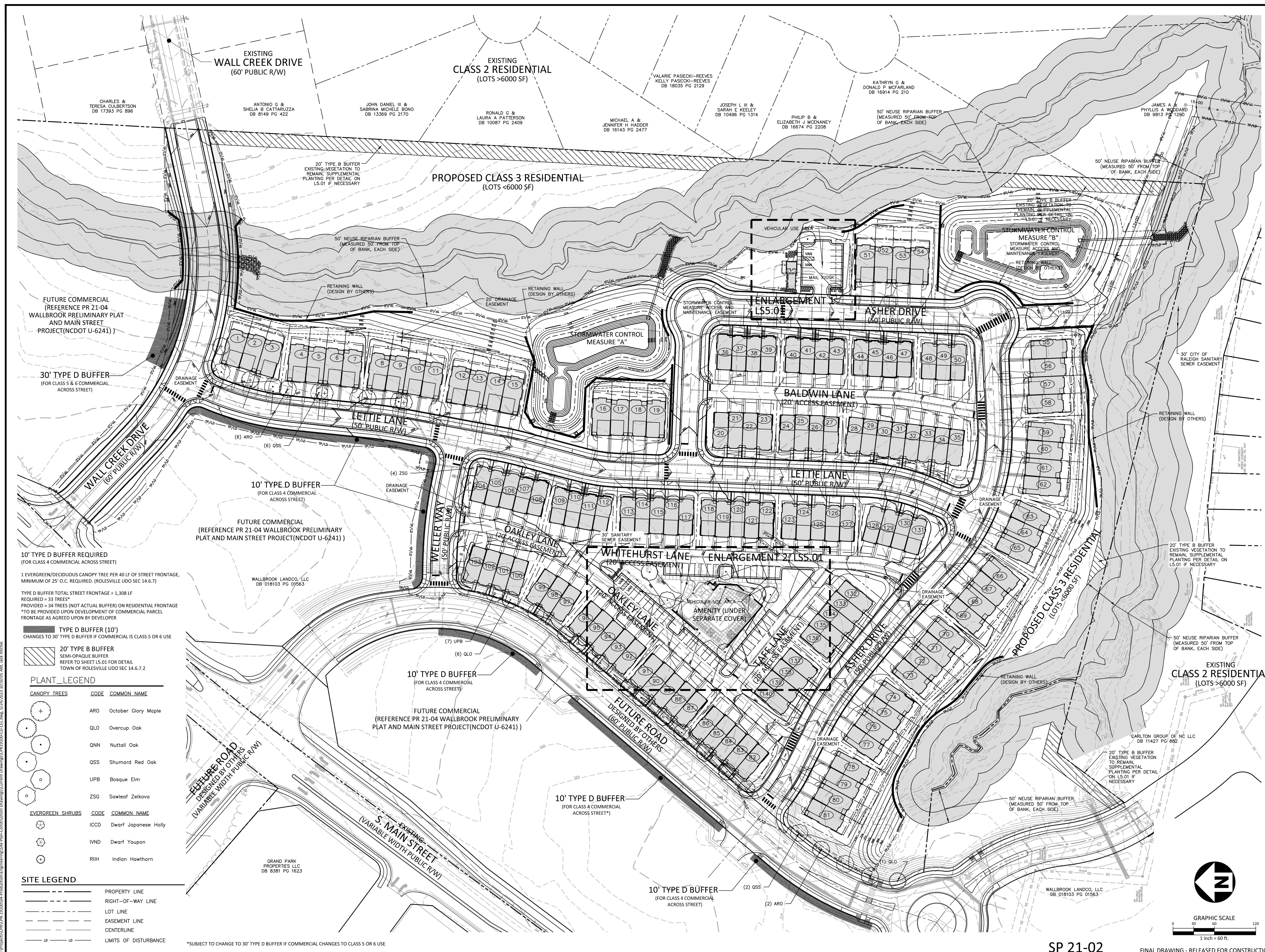
PLAN INFORMATION

PROJECT NO. CPR-19100  
FILENAME CPR19100-L51  
CHECKED BY SRD  
DRAWN BY JAR  
SCALE 1"=60'  
DATE 05.22.2023

SHEET

OVERALL CODE  
LANDSCAPE PLAN

L5.00



1 EVERGREEN/DECIDUOUS CANOPY TREE PER 40 LF OF STREET FRONTAGE, MINIMUM OF 25' O.C. REQUIRED. (ROLESVILLE UDD SEC 14.6.7)  
TYPE D BUFFER TOTAL STREET FRONTAGE = 1,308 LF  
REQUIRED = 33 TREES\*  
PROVIDED = 34 TREES (NOT ACTUAL BUFFER) ON RESIDENTIAL FRONTAGE  
\*TO BE PROVIDED UPON DEVELOPMENT OF COMMERCIAL PARCEL FRONTAGE AS AGREED UPON BY DEVELOPER

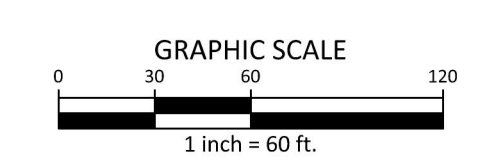
**TYPE D BUFFER (10')**  
CHANGES TO 30' TYPE D BUFFER IF COMMERCIAL IS CLASS 5 OR 6 USE

**20' TYPE B BUFFER**  
SEMI-OPAQUE BUFFER  
REFER TO SHEET L5.01 FOR DETAIL  
TOWN OF ROLESVILLE UDD SEC 14.6.7.2

PLANT LEGEND table with columns for Canopy Trees, Evergreen Shrubs, and Common Name. Includes entries like October Glory Maple, Overcup Oak, Nuttall Oak, Shumard Red Oak, Bosque Elm, Sawleaf Zelkova, Dwarf Japanese Holly, Dwarf Yaupon, and Indian Hawthorn.

SITE LEGEND table with symbols for Property Line, Right-of-Way Line, Lot Line, Easement Line, Centerline, and Limits of Disturbance.

\*SUBJECT TO CHANGE TO 30' TYPE D BUFFER IF COMMERCIAL CHANGES TO CLASS 5 OR 6 USE



SP 21-02

FINAL DRAWING - RELEASED FOR CONSTRUCTION



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ROLESVILLE, NORTH CAROLINA



REVISIONS

NO. DATE

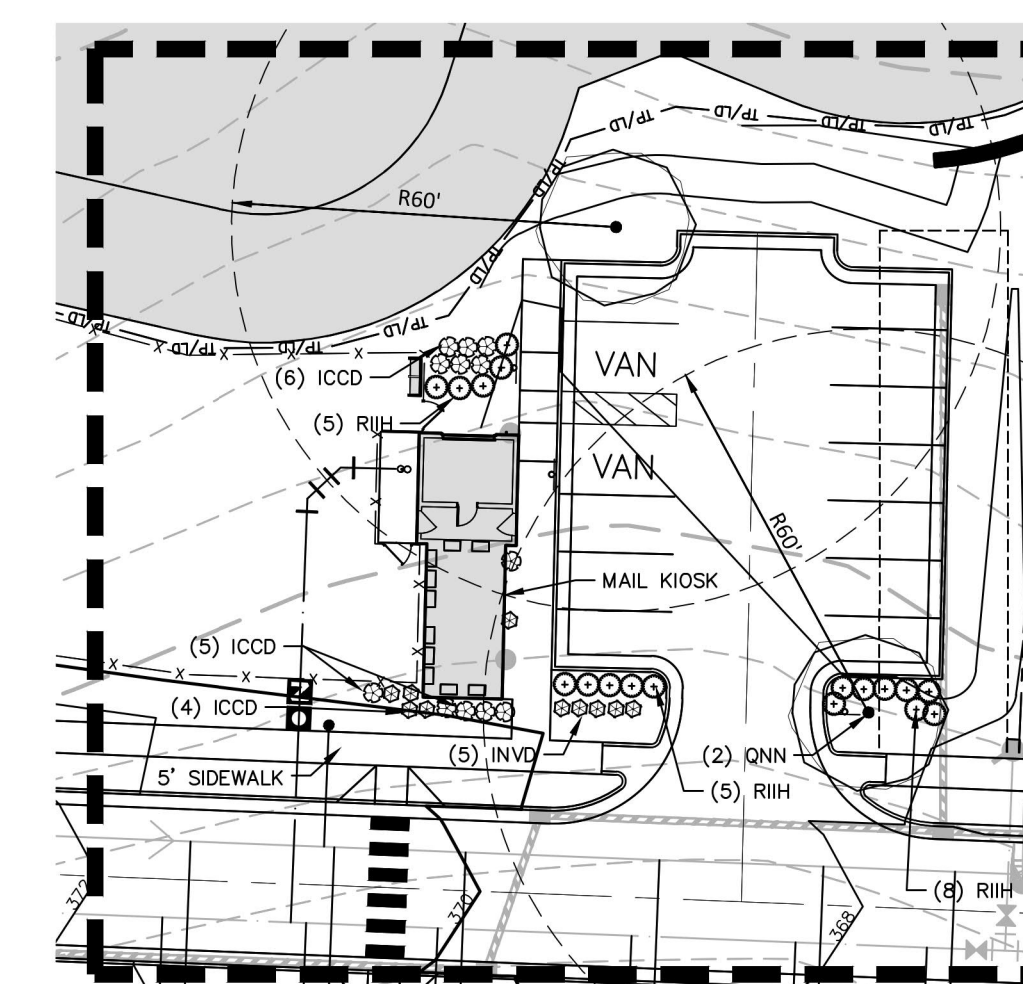
PLAN INFORMATION

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FILENAME CPR19100-L51
CHECKED BY SRD
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SCALE 1"=30'
DATE 05.22.2023

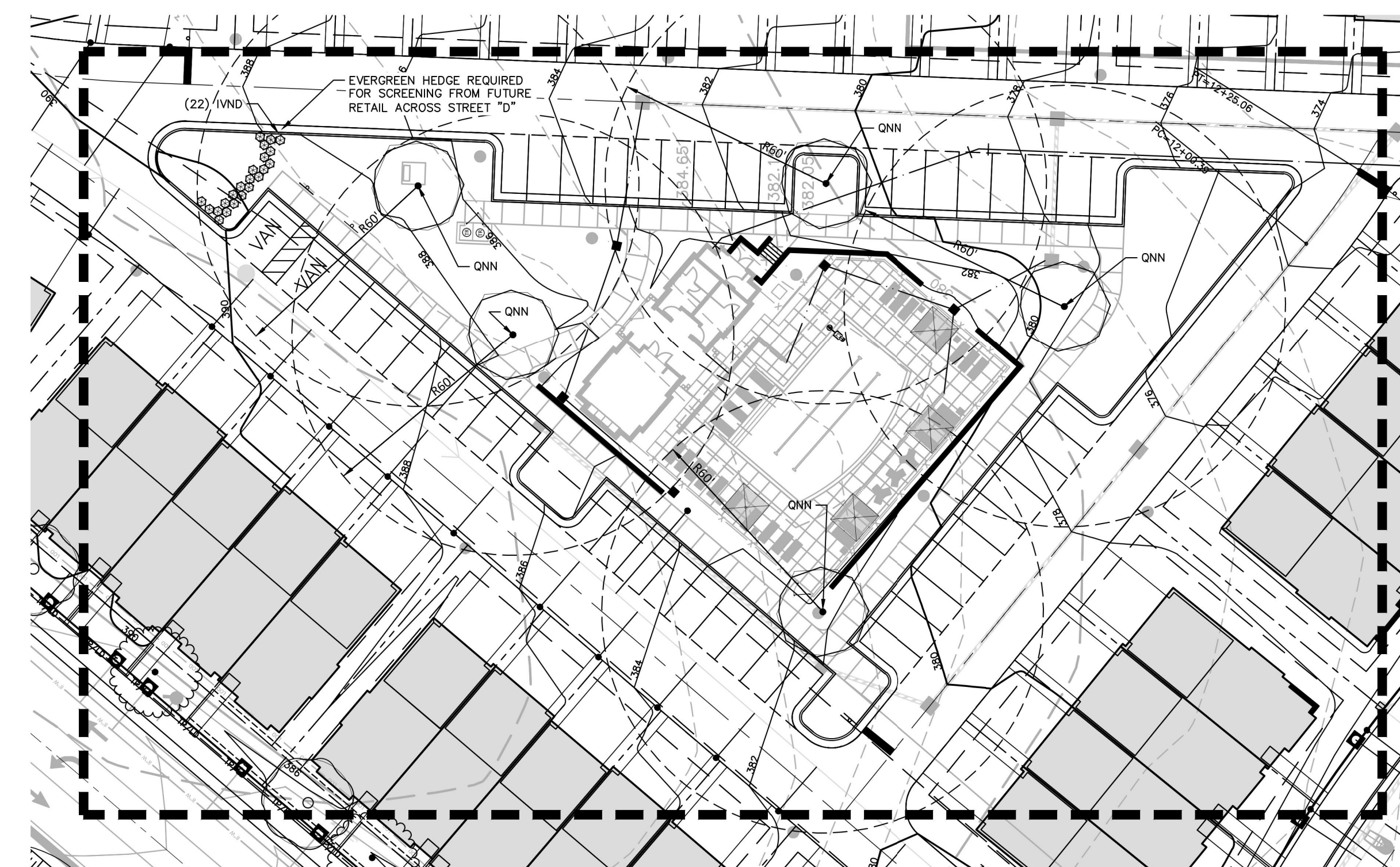
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ENLARGED CODE
LANDSCAPE PLAN

L5.01

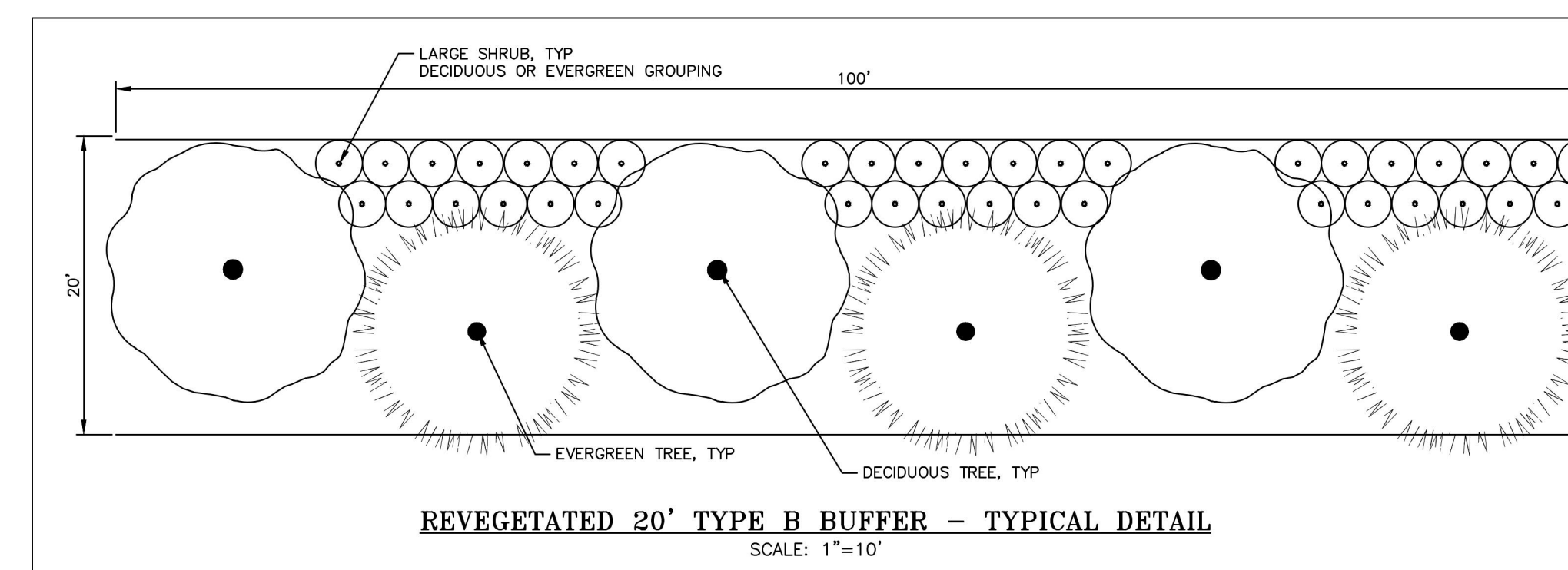


ENLARGEMENT 1
VEHICULAR USE AREA LANDSCAPING
SCALE: 1"=30'



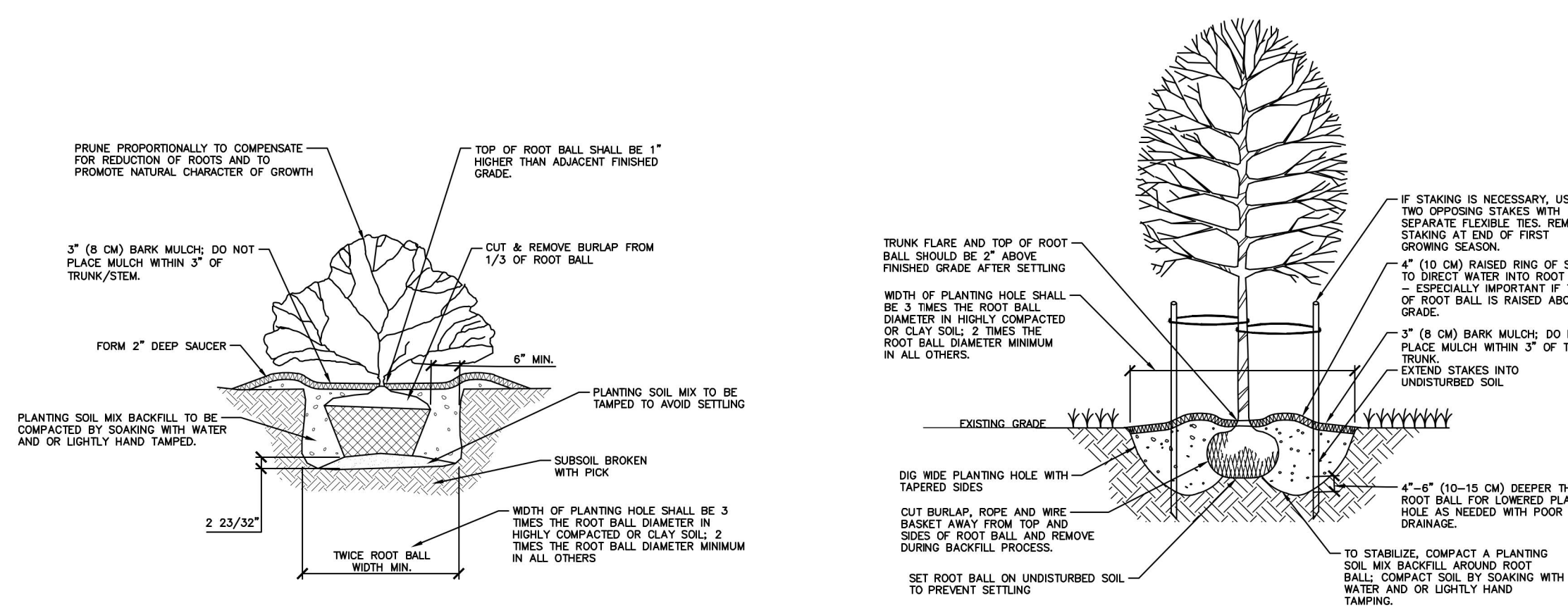
NOTE: THIS VEHICULAR USE AREA IS INTERNAL AND NOT VISIBLE FROM OFF-SITE, THEREFORE NO EVERGREEN HEDGE IS REQUIRED EXCEPT WHERE NOTED.

ENLARGEMENT 2
VEHICULAR USE AREA LANDSCAPING
SCALE: 1"=30'



BUFFER NOTES:

NEW PLANTING TO OCCUR ONLY WHERE EXISTING VEGETATION INSUFFICIENT OR NOT AS DENSE AS BUFFER DETAIL. WHERE EXISTING TREES REMAIN, PLANT TREES BETWEEN THEM ONLY WHEN A SPACE OF 40' MINIMUM EXISTS. ALTERNATE EXISTING AND DECIDUOUS TREES/SHRUBS WHEN SUPPLEMENTING EXISTING VEGETATION WITHIN BUFFER.



01 SHRUB INSTALLATION
SCALE: 3/8"=1'-0"

02 TREE INSTALLATION
SCALE: 3/8"=1'-0"

PLANT SCHEDULE

Table with columns: CANOPY TREES, CODE, QTY, COMMON NAME, BOTANICAL NAME, CAL, REMARKS. Includes plants like October Glory Maple, Overcup Oak, Nuttall Oak, Shumard Red Oak, Bosque Elm, Sawleaf Zelkova, Dwarf Japanese Holly, Dwarf Yaupon, and Indian Hawthorn.

Table with columns: EVERGREEN SHRUBS, CODE, QTY, COMMON NAME, BOTANICAL NAME, HEIGHT, REMARKS. Includes Dwarf Japanese Holly and Dwarf Yaupon.

BUFFER SUPPLEMENTAL PLANT MATERIAL

Table listing supplemental plant material for deciduous and evergreen shrubs, including species like American Beautyberry, Bottlebrush Buckeye, Forsythia spp., Florida Leucothoe, Camelia, Florida Anise, Leatherleaf Viburnum, Wax Myrtle, and Yaupon Holly.

GENERAL LANDSCAPE NOTES:

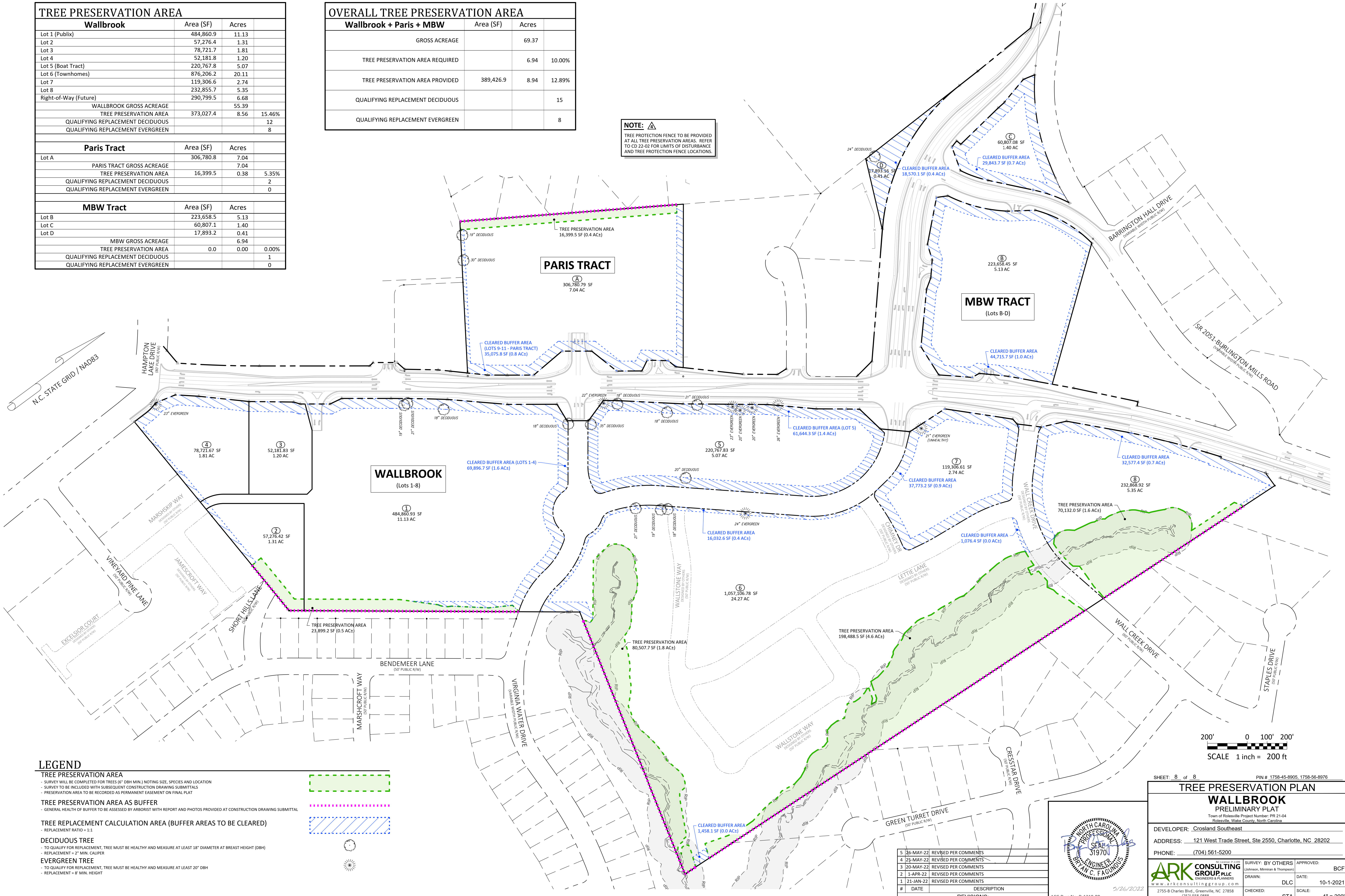
- 1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF ROLESVILLE AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR IS RESPONSIBLE FOR THE SITE INSPECTION BEFORE LANDSCAPE CONSTRUCTION AND INSTALLATION IN ORDER TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS.
3. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE BEGINNING DEMOLITION OR INSTALLATION.
4. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE NOTES, SPECIFICATIONS, DRAWINGS OR SITE CONDITIONS FOR RESOLUTION PRIOR TO INSTALLATION.
5. ANY DAMAGE TO UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. THIS PLAN IS FOR PLANTING PURPOSES ONLY. FOR INFORMATION REGARDING BUILDINGS, GRADING, WALLS, ETC., REFER TO ARCHITECTURE, SITE AND GRADING PLANS.
7. VERIFICATION OF TOTAL PLANT QUANTITIES AS SHOWN IN THE PLANT SCHEDULE SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
8. CONTRACTOR TO ENSURE PROPER STABILIZATION AND SEEDING OF THE SITE IN ACCORDANCE WITH APPLICABLE REGULATIONS.
9. LANDSCAPE MATERIAL SHALL BE WELL FORMED, VIGOROUS, GROWING SPECIMENS WITH GROWTH TYPICAL OF VARIETIES SPECIFIED AND SHALL BE FREE FROM DAMAGE, INSECTS AND DISEASES. MATERIAL SHALL EQUAL OR SURPASS #1 QUALITY AS DEFINED IN THE CURRENT ISSUE OF "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
10. ALL PLANT MATERIAL IS TO BE CAREFULLY HANDLED BY THE ROOT BALL, NOT THE TRUNK, BRANCHES AND/OR FOLIAGE OF THE PLANT. MISHANDLED PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT.
11. ALL PLANT MATERIAL IS TO BE WELL ROOTED, NOT ROOT BOUND, SUCH THAT THE ROOT BALL REMAINS INTACT THROUGHOUT THE PLANTING PROCESS. DEFICIENT PLANT MATERIAL MAY BE REJECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
12. ALL PLANTS TO BE A MINIMUM OF WHAT IS SPECIFIED IN THE PLANT SCHEDULE. ANY CHANGES OR SUBSTITUTIONS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT AND GOVERNING JURISDICTION PRIOR TO ANY HOLE BEING DUG.
13. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT TO ESTABLISH THE EXTENTS OF MULCH/SEED/SOD IF NOT SPECIFICALLY SHOWN ON PLANS.
14. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE IN ALL PLANTING AREAS.
15. PROPOSED TREES TO BE PLANTED A MINIMUM 10 FEET FROM ANY LIGHT POLE AS MEASURED FROM TRUNK OF THE TREE TO THE POLE.
16. PROPOSED TREES TO BE PLANTED A MINIMUM 5 FEET FROM ANY FIRE HYDRANT AS MEASURED FROM TRUNK OF THE TREE TO THE HYDRANT.
17. CONTRACTOR SHALL COMPLETE SOIL TEST IN ALL PLANTING AREAS TO DETERMINE SOIL AMENDMENT REQUIREMENTS UNLESS WAIVED BY OWNER'S REPRESENTATIVE. CONTRACTOR SHALL ADJUST PH AND FERTILITY BASED UPON THE SOIL TEST RESULTS.
18. TOPSOIL SHALL BE FREE OF MATERIAL LARGER THAN 1.0 INCH IN DIAMETER OR LENGTH AND SHALL NOT CONTAIN SLAG, CINDERS, STONES, LUMPS OF SOIL, STICKS, ROOTS, TRASH, OR OTHER EXTRANEIOUS MATERIAL.
19. LOOSEN SUBGRADE / SURFACE SOIL TO A MINIMUM DEPTH OF 6 INCHES. APPLY SOIL AMENDMENTS AND FERTILIZERS AS REQUIRED BY THE SOIL TEST RESULTS TO ACHIEVE A HEALTHY GROWING MEDIA AND MIX THOROUGHLY INTO TOP 4 INCHES OF SOIL. SPREAD PLANTING SOIL MIX TO A DEPTH OF 6 INCHES BUT NOT LESS THAN REQUIRED TO MEET FINISH GRADES AFTER NATURAL SETTLEMENT. DO NOT SPREAD IF PLANTING SOIL OR SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET.
20. IF IMPORTED TOPSOIL IS REQUIRED, THE SUBGRADE SHALL BE SCARIFIED OR TILLED TO A DEPTH OF AT LEAST 6 INCHES PRIOR TO INSTALLATION OF IMPORTED TOPSOIL. FOLLOWING INSTALLATION OF IMPORTED TOPSOIL, THE TOPSOIL SHALL BE TILLED TO INTEGRATE THE SOIL PROFILES.
21. PLANT MATERIALS ARE TO BE GUARANTEED FOR A PERIOD OF 12 MONTHS. PLANT MATERIALS WHICH REMAIN UNHEALTHY WILL BE REPLACED BY THE LANDSCAPE CONTRACTOR BEFORE THE EXPIRATION OF THE GUARANTEE PERIOD OR IMMEDIATELY IF SO DIRECTED BY THE OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT.
22. ALL TREE PLANTINGS SHALL BE MULCHED TO A DEPTH OF 3 INCHES, AND WITH A MINIMUM 3 FOOT RADIUS FROM BASE OF TREE OR TO DRIFLINE. MULCH SHALL BE FREE OF TRASH AND MAINTAINED WEED FREE. MULCH SHALL NOT COVER THE ROOT FLARE. CONFIRM MULCH SPECIFICATIONS WITH OWNER'S REPRESENTATIVE OR LANDSCAPE ARCHITECT.
23. DO NOT PRUNE TREES AND SHRUBS BEFORE DELIVERY. PROTECT BARK, BRANCHES, AND ROOT SYSTEMS FROM SUN SCALD, DRYING, SWEATING, WHIPPING, AND OTHER HANDLING AND TYING DAMAGE. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DESTROY THEIR NATURAL SHAPE. PROVIDE PROTECTIVE COVERING OF EXTERIOR PLANTS DURING DELIVERY. DO NOT DROP EXTERIOR PLANTS DURING DELIVERY AND HANDLING.
24. DELIVER EXTERIOR PLANTS AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND INSTALL IMMEDIATELY. IMMEDIATELY AFTER UNLOADING, STAND THE TREES UP TO REDUCE THE RISK OF SUN SCALD. PROPERLY STAGED TREES ARE STANDING, UNITED AND SPACED. UNLESS IMMEDIATELY INSTALLED, SET EXTERIOR PLANTS AND TREES IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST.
25. SEE LANDSCAPE DETAILS FOR TREE STAKING REQUIREMENTS.
26. EXCAVATE EDGES OF ALL PLANTING BEDS TO 2 INCH DEPTH TO FORM A NEAT AND CRISP DEFINITION.
27. CONTRACTOR SHALL REMOVE DEBRIS AND FINE GRADE ALL PLANTING AREAS PRIOR TO INSTALLATION.
28. REMOVE GUY WIRES AND STAKES AT END OF WARRANTY PERIOD OR ESTABLISHMENT.
29. FINISH GRADING: GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. GRADE TO WITHIN PLUS OR MINUS 1/2 INCH OF FINISH ELEVATION. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES. LIMIT FINISHED GRADING TO AREAS THAT CAN BE PLANTED IN THE IMMEDIATE FUTURE.

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TREE PRESERVATION AREA			
<b>Wallbrook</b>	Area (SF)	Acres	
Lot 1 (Publix)	484,860.9	11.13	
Lot 2	57,276.4	1.31	
Lot 3	78,721.7	1.81	
Lot 4	52,181.8	1.20	
Lot 5 (Boat Tract)	220,767.8	5.07	
Lot 6 (Townhomes)	876,206.2	20.11	
Lot 7	119,306.6	2.74	
Lot 8	232,855.7	5.35	
Right-of-Way (Future)	290,799.5	6.68	
WALLBROOK GROSS ACREAGE	55.39		
TREE PRESERVATION AREA	373,027.4	8.56	15.46%
QUALIFYING REPLACEMENT DECIDUOUS			12
QUALIFYING REPLACEMENT EVERGREEN			8
<b>Paris Tract</b>	Area (SF)	Acres	
Lot A	306,780.8	7.04	
PARIS TRACT GROSS ACREAGE	7.04		
TREE PRESERVATION AREA	16,399.5	0.38	5.35%
QUALIFYING REPLACEMENT DECIDUOUS			2
QUALIFYING REPLACEMENT EVERGREEN			0
<b>MBW Tract</b>	Area (SF)	Acres	
Lot B	223,658.5	5.13	
Lot C	60,807.1	1.40	
Lot D	17,893.2	0.41	
MBW GROSS ACREAGE	6.94		
TREE PRESERVATION AREA	0.0	0.00	0.00%
QUALIFYING REPLACEMENT DECIDUOUS			1
QUALIFYING REPLACEMENT EVERGREEN			0

OVERALL TREE PRESERVATION AREA			
<b>Wallbrook + Paris + MBW</b>	Area (SF)	Acres	
GROSS ACREAGE		69.37	
TREE PRESERVATION AREA REQUIRED		6.94	10.00%
TREE PRESERVATION AREA PROVIDED	389,426.9	8.94	12.89%
QUALIFYING REPLACEMENT DECIDUOUS			15
QUALIFYING REPLACEMENT EVERGREEN			8

**NOTE:** TREE PROTECTION FENCE TO BE PROVIDED AT ALL TREE PRESERVATION AREAS. REFER TO CD 22-02 FOR LIMITS OF DISTURBANCE AND TREE PROTECTION FENCE LOCATIONS.



**LEGEND**

- TREE PRESERVATION AREA**
  - SURVEY WILL BE COMPLETED FOR TREES (6" DBH MIN.) NOTING SIZE, SPECIES AND LOCATION
  - SURVEY TO BE INCLUDED WITH SUBSEQUENT CONSTRUCTION DRAWING SUBMITTALS
  - PRESERVATION AREA TO BE RECORDED AS PERMANENT EASEMENT ON FINAL PLAT
- TREE PRESERVATION AREA AS BUFFER**
  - GENERAL HEALTH OF BUFFER TO BE ASSESSED BY ARBORIST WITH REPORT AND PHOTOS PROVIDED AT CONSTRUCTION DRAWING SUBMITTAL
- TREE REPLACEMENT CALCULATION AREA (BUFFER AREAS TO BE CLEARED)**
  - REPLACEMENT RATIO = 1:1
- DECIDUOUS TREE**
  - TO QUALIFY FOR REPLACEMENT, TREE MUST BE HEALTHY AND MEASURE AT LEAST 18" DIAMETER AT BREAST HEIGHT (DBH)
  - REPLACEMENT = 2" MIN. CALIPER
- EVERGREEN TREE**
  - TO QUALIFY FOR REPLACEMENT, TREE MUST BE HEALTHY AND MEASURE AT LEAST 20" DBH
  - REPLACEMENT = 8" MIN. HEIGHT

SHEET: 8 of 8 PIN # 1758-45-8905, 1758-56-8976

**TREE PRESERVATION PLAN**

**WALLBROOK**

PRELIMINARY PLAT

Developer: Crosland Southeast

Address: 121 West Trade Street, Ste 2550, Charlotte, NC 28202

Phone: (704) 561-5200

Survey By Others: APPROVED: BCF

Drawn: DLG DATE: 10-1-2021

Checked: STA SCALE: 1" = 200'

ACG Dwg No. D-1219-PP


#	DATE	DESCRIPTION
5	16-MAY-22	REVISED PER COMMENTS
4	25-MAY-22	REVISED PER COMMENTS
3	20-MAY-22	REVISED PER COMMENTS
2	1-APR-22	REVISED PER COMMENTS
1	21-JAN-22	REVISED PER COMMENTS



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### Autobahn Series AT80 Roadway Lighting

**PRODUCT OVERVIEW**



**Applications:** Roadways, Off ramps, Roundabout areas, Parking lots

**FEATURES:**

- OPTICAL:** The adjustable, low-profile, aluminum fixture provides superior performance. Glass optics are superior to other polymer materials in the area of optical efficiency, thermal performance, and resistance to UV radiation. All fixtures can be used for both roadway applications as well as off-street applications. Also, because fixtures allow for the mounting of the fixture as well as the fixture, it provides the most cost-effective and most efficient lighting solution available. Glass optics paired with modern LED allow the fixture to use full advantage of light technology.
- SAFETY:** Light Performance is comparable to 100-4000 RPM roadway luminaires.
- White Light:** Correlated color temperature: 4000K, or optional 2700K, 3000K, or 5000K, all 70-CRI minimum.
- Unique P10 and LED light engines:** provide 100% light and extend backlights to white roadway work, providing optimal application coverage and optimal pole spacing. Available in Type R, R1, R2, and R3 roadway distributions.
- Lowest Energy:** Lenses are expected to be 40-45% more comparable to LED luminaires.
- Robust Large Protection:** Two different large protection options provide a minimum of ANSI C136.23/13075A protection. 2000-1700 protection also available.
- Luminaire ships with 0-10% dimmable down:** Luminaire is continuous and dimming capable via 0-10V option or switch installed on P7 photocell receptacle option.
- MECHANICAL:** Includes standard 802 (between 4000K and 5000K) and 803 (between 2700K and 3000K) terminal block and quick disconnects. Bubble level located inside the electrical compartment for each lighting application.
- Supports die-cast aluminum housing and door:** an optional powder coat for durability and corrosion resistance. Supports 1000 lb. static load and 2000 lb. dynamic load. Includes a 1/2" x 1/2" x 1/2" stainless steel support bar for mounting and 1/2" x 1/2" x 1/2" stainless steel support bar for mounting.
- Heat sink:** Heat sink is adjustable for areas from 1.5 ft<sup>2</sup> to 2.5 ft<sup>2</sup> (3.0 ft<sup>2</sup> to 3.0 ft<sup>2</sup> diameter). Provides a 3% heat sink rating per ANSI C136.23.
- Mounts:** Mounts on the existing pole or separate pole.
- CONTROL:** 8000 1/2 pin photocell receptacle is standard, with the factory designed 802 standard 7 pin receptacle optionally available.
- Photocell:** Photocell is standard (P10) or optional (P11). Photocell is standard (P10) or optional (P11). Photocell is standard (P10) or optional (P11).
- Adjustable Output (AO) module:** - Onboard device that adjusts the light output and input voltage to meet site specific requirements. The AO module is present at the factory by position number 8 (see chart).
- Long Life Photocell (P11):** - 20 Year Life
- 1 pin receptacle:** 1 pin receptacle is standard. 2 pin P7 or 3 pin P10 are optional.

**STANDARDS:** Design light distribution (DL) qualified product. Not all versions of this product may be DL qualified. Please check the DL Qualified Products List at [www.on-site-lighting.com](http://www.on-site-lighting.com) for details which fixtures are qualified.

Color temperature of a 2000K must be specified for International Dark-Sky Association certification.

Rated for 40°C to ambient.

CE/UL/ETL/CSA and Canadian standards.

Complies with ANSI C136.23, C136.24, C136.25, C136.26, C136.27, C136.28, C136.29, C136.30, C136.31, C136.32, C136.33.


Notes: Specifications subject to change without notice. Actual performance may differ in a field of use and environment and application.

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## 2 POLE MOUNT FIXTURE TYPE R1 SPECIFICATION SHEET

### Hartsfield AcornLED Series HTFL

**PRODUCT OVERVIEW**



**MECHANICAL:**

- Heavy grade 6061 aluminum (1 1/2" support)
- Optional internal or external ADA compliant back photometric average. Housing contains a tempered glass window to allow light to reach the road for roadway use.
- Mount to 4" dia. hole that will accept 1" high by 2.5" dia. 1/2" dia. pole base
- Super durable polymer powder coat finish with regular maintenance process every 1000 hours will give ratings per ANSI B115
- Luminaire is 30" tall
- Mounts to 1 1/2" x 1 1/2" pole top bracket
- Base and optics ship separately

**ELECTRICAL:**

- All lamp protection meets ANSI/IESNA E12.1.2.1/180/178A
- Standard SPD meets IESNA/SAE per ANSI C136.2.2015
- 200V SPD Option meets IESNA/SAE per ANSI C136.2.2015
- Back disconnect complies for use of installation and maintenance
- LED drivers meet maximum total harmonic distortion
- EMC of 20% and an EMC compliant. Maximum operating temperature is 40°C. See note for maximum ambient temperature of 100,000 hours at 27°C ambient.
- LED: 277V 50/60 Hz and 147-480V 60 Hz

**OPTICAL:**

- Color temperature options of 2700K, 3000K, 4000K, and 5000K CCT with 70-CRI minimum
- Optical distribution: Non-Photopic Type R1 Type R in both Photometric and Acrylic R1 and R2 Glass Optics
- LED at 100,000 hours at 40°C ambient

**CONTROL OPTIONS:**

- Adjust Output (AO) module - Onboard device that adjusts the light output and input voltage to meet site specific requirements. The AO module is present at the factory by position number 8 (see chart).
- Long Life Photocell (P11) - 20 Year Life
- 1 pin receptacle is standard. 2 pin P7 or 3 pin P10 are optional.

**TESTING / COMPLIANCE:**

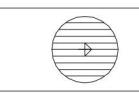

- UL 1598 - Wet Location Safety Listing
- Suitable for ambient temperatures: -40°C - 40°C
- Design light distribution (DL) qualified product. Not all versions of this product may be DL qualified. Please check the DL Qualified Products List at [www.on-site-lighting.com](http://www.on-site-lighting.com) for details which fixtures are qualified.
- DL Number: 01042023

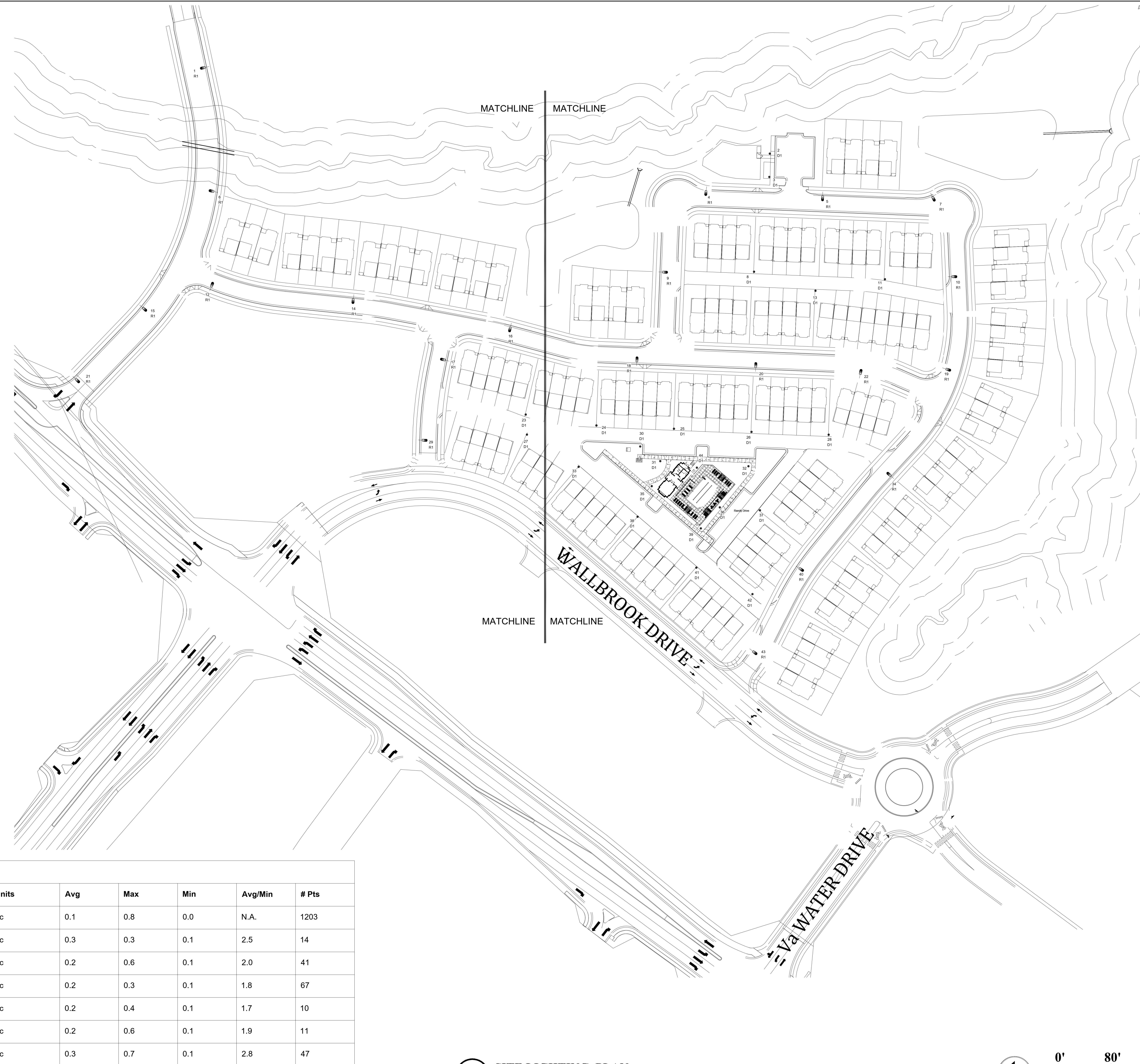
Notes: Specifications subject to change without notice. Actual performance may differ in a field of use and environment and application.

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## 3 POLE MOUNT FIXTURE TYPE D1 SPECIFICATION SHEET

Label	CalcType	Units	Avg	Max	Min	Avg/Min	# Pts
All CALC Points Shown 20'x20'AFG	Illuminance	Fc	0.1	0.8	0.0	N.A.	1203
Chimney Drive	Illuminance	Fc	0.3	0.3	0.1	2.5	14
Deep Oak Drive	Illuminance	Fc	0.2	0.6	0.1	2.0	41
Lettie Lane	Illuminance	Fc	0.2	0.3	0.1	1.8	67
Mail Kiosk	Illuminance	Fc	0.2	0.4	0.1	1.7	10
Randy Drive	Illuminance	Fc	0.2	0.6	0.1	1.9	11
Roles Way	Illuminance	Fc	0.3	0.7	0.1	2.8	47
Wall Creek Drive	Illuminance	Fc	0.2	0.3	0.1	2.0	54
Wallstone Way	Illuminance	Fc	0.2	0.4	0.1	2.0	101
Ziggy Lane	Illuminance	Fc	0.2	0.5	0.1	1.7	20

Symbol	Label	Qty	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens	BUG Rating
	D1	23	SINGLE	0.950	AEL HTFL P10 XX 40K R3VC AP 8R Post Top Decorative Fixture / Pole - 14'-0" Pole	25.3	3221	B1-U5-G2
	R1	21	SINGLE	0.950	AEL ATBM 247L P25 XX 40K R3 AY LED Street Light / Pole - 35'-0" Mounting Height	34	3335	B1-U3-G2



## 1 SITE LIGHTING PLAN SCALE: 1"= 80'-0"



BASED ON THE INFORMATION PROVIDED, ALL DIMENSIONS AND LUMINAIRE LOCATIONS SHOWN REPRESENT RECOMMENDED POSITIONS. THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING OR FUTURE FIELD CONDITIONS.

THE LIGHTING PATTERN REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER THE CONTROLLED CONDITIONS UTILIZING CURRENT INDUSTRY STANDARD LAMP RATINGS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS.

FOR ADDITIONAL LIGHTING INFORMATION CONTACT:

**On-Site Lighting & Survey, LLC**  
PH: 763.684.1548

**On-Site Lighting & Survey, LLC**

1111 HIGHWAY 25 NORTH  
SUITE 201  
BUFFALO MN 55313

PH: 763.684.1548  
FAX: 763.682.9048

**McADAMS**  
The John R. McAdams Company, Inc.  
2905 Meridian Parkway  
Durham, NC 27713

phone 919.361.5000  
fax 919.361.2269  
license number: C-0293, C-187  
www.mcadamsco.com

**ENGINEER**

**PROPERTY OWNER**

**WALLBROOK LANDCO, LLC**  
4700 SIX FLAGS RD  
RALEIGH, NC 27609

**PROJECT INFO**

**WALLBROOK PROJECT**  
ROLESVILLE, NC

REVISIONS	DESCRIPTION	DATE	INIT
1	ROW AREA	03.31.22	WRT
2	ADD STREET LABELS	04.20.22	WRT
3	ADJUSTED LIGHT LOCATIONS DUE TO UTILITY CONFLICTS	06.24.22	WRT
4	ADDED & REVISED LIGHTING AT NEW AMENITY AREA	03.28.2023	CDH
5	MOVED POLES #11 & 44 AT NEW AMENITY AREA	03.29.2023	CDH
6			

**SHEET DESCRIPTION**

**SITE LIGHTING & SPECIFICATIONS**

**PROJECT #**

**ISSUE DATE**

**03.25.2022**

**DESIGN LEVEL**

**N.A.**

**AGI**

**W.TOKKESDAL**

**CAD**

**C.D.HEANER**

**REVISIONS**

**SL2.0**

**REV #**

**5**



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ENGINEER

PROPERTY OWNER

**WALLBROOK LANDCO, LLC**  
4700 SIX FLAGS RD  
RALEIGH, NC 27609

PROJECT INFO

**WALLBROOK PROJECT**  
ROLESVILLE, NC

REVISIONS

#	DATE	INIT	DESCRIPTION
1	03.31.22	WRT	ROW AREA
2	04.20.22	WRT	ADD STREET LABELS
3	08.24.22	WRT	ADJUSTED LIGHT LOCATIONS DUE TO UTILITY CONFLICTS
4	03.28.2023	CDH	ADDED & REVISED LIGHTING AT NEW AMENITY AREA
5	03.29.2023	CDH	MOVED POLES #1 & #4 AT NEW AMENITY AREA
6			

SHEET DESCRIPTION

**PHOTOMETRIC PLAN**

PROJECT #

ISSUE DATE

**03.25.2022**

DESIGN LEVEL

**N.A.**

AGI

W.TOKKESDAL

CAD

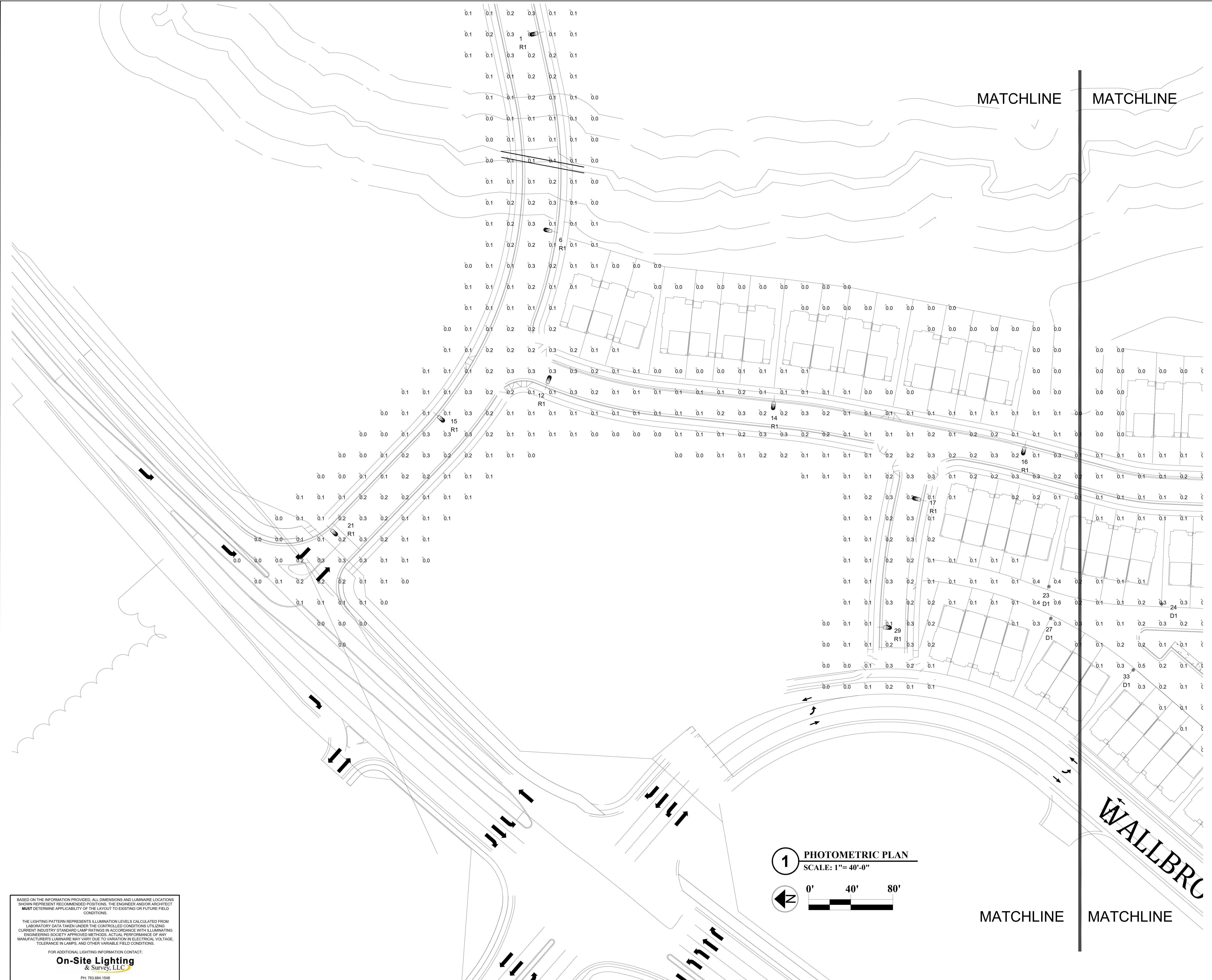
C.D.HEANER

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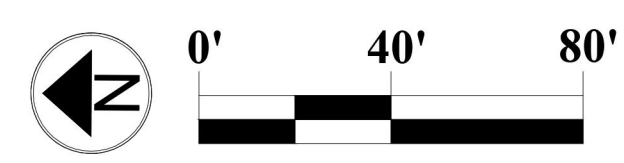
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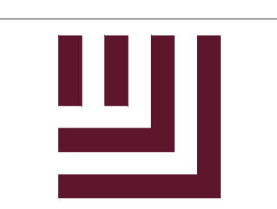
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**1 PHOTOMETRIC PLAN**  
SCALE: 1"=40'-0"



BASED ON THE INFORMATION PROVIDED, ALL DIMENSIONS AND LUMINAIRE LOCATIONS SHOWN REPRESENT RECOMMENDED POSITIONS. THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING OR FUTURE FIELD CONDITIONS.  
THE LIGHTING PATTERN REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER THE CONTROLLED CONDITIONS UTILIZING CURRENT INDUSTRY STANDARD LAMP RATINGS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS.  
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**PROPERTY OWNER**  
WALLBROOK  
LANDCO, LLC  
4700 SIX FLAGS RD  
RALEIGH, NC 27609

**PROJECT INFO**  
WALLBROOK  
PROJECT  
ROLESVILLE, NC

REVISIONS	
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6	

**PHOTOMETRIC PLAN**

**ISSUE DATE**  
03.25.2022

**DESIGN LEVEL**  
N.A.

**AGI**  
W.TOKKESDAL

**CAD**  
C.D.HEANER

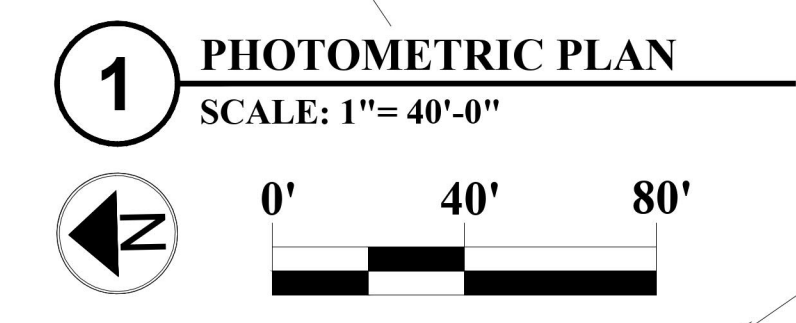
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**REV #**  
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MATCHLINE

MATCHLINE

WALLBROOK DRIVE



BASED ON THE INFORMATION PROVIDED, ALL DIMENSIONS AND LUMINAIRE LOCATIONS SHOWN REPRESENT RECOMMENDED POSITIONS. THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING OR FUTURE FIELD CONDITIONS.  
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