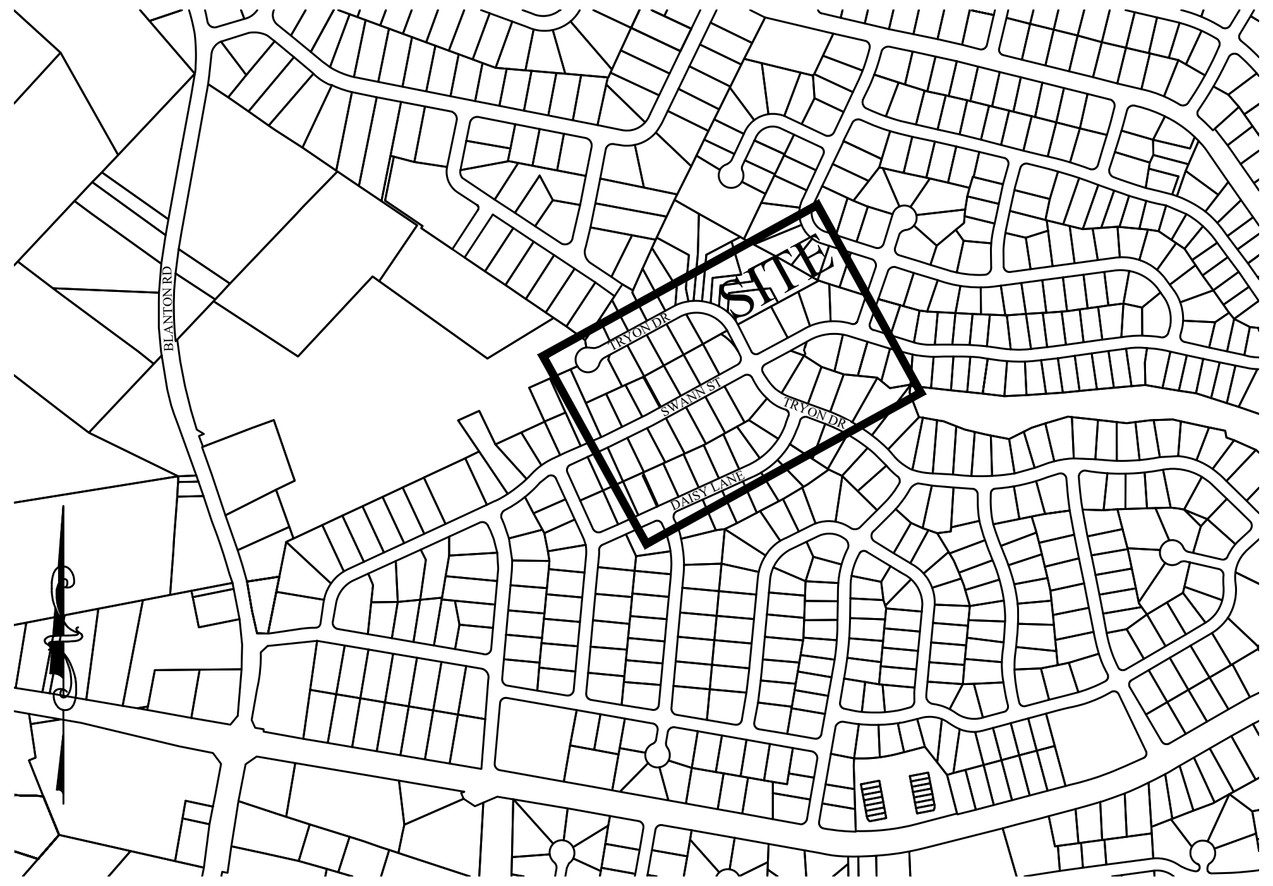
Tryon Drive Drainage Improvements

APPENDIX F

Construction Drawings

FAYETTEVILLE NC

AMERICA'S CAN DO CITY



VICINITY MAP

FAYETTEVILLE NC
PUBLIC SERVICES

TRYON DRIVE
DRAINAGE IMPROVEMENTS
100% DESIGN DRAWINGS

PROJECT SCOPE

**THIS PROJECT CONSISTS OF:
REPLACEMENT OF EXISTING DRAINAGE PIPING, REPLACEMENT OF EXISTING ASBESTOS CEMENT WATERLINE, PAVEMENT, GRADING, ETC.**

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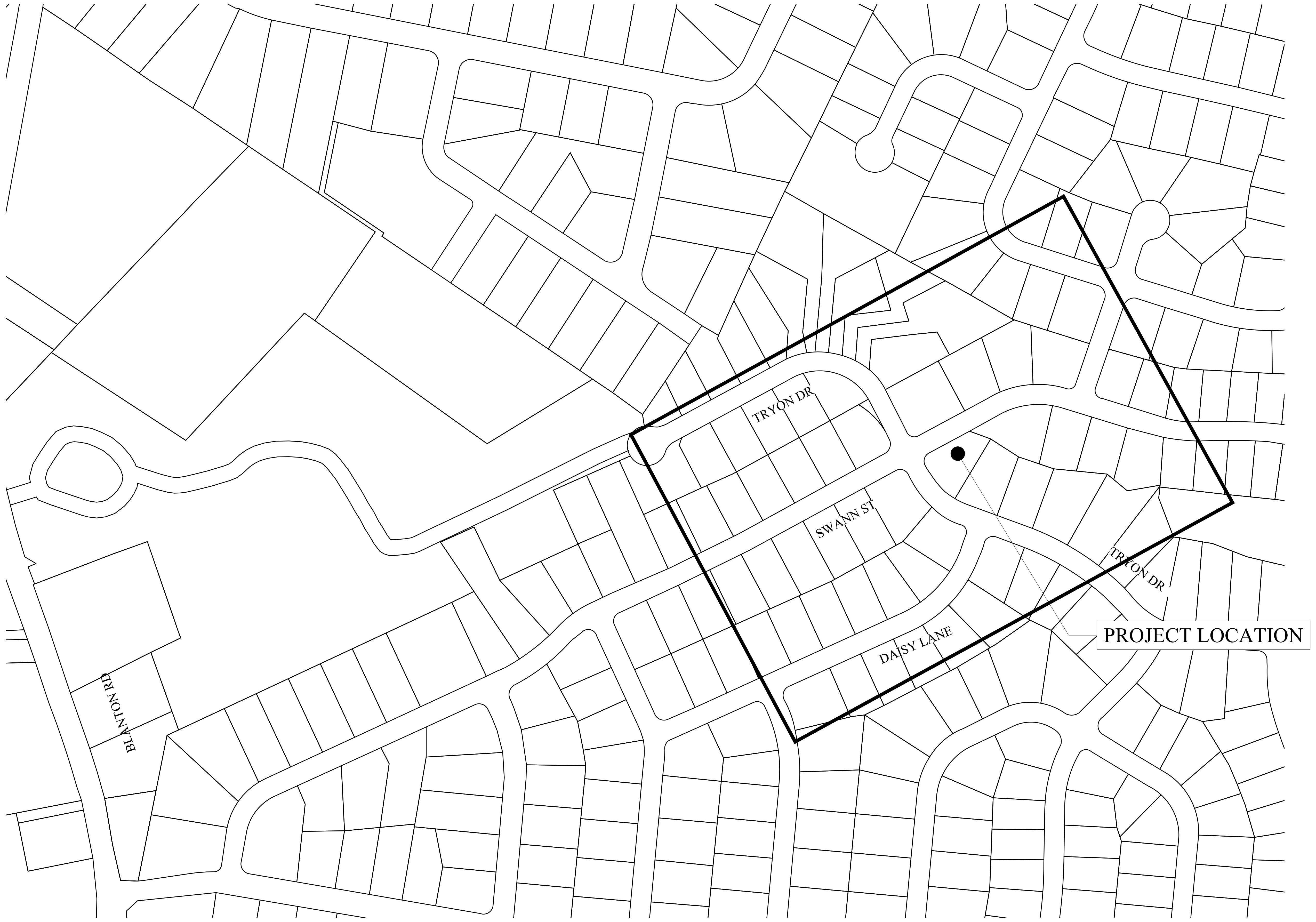

LOCATION MAP

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

PROJECT CONTACTS
CITY OF FAYETTEVILLE

Engineering	Byron Reeves, PE, CFM Assistant Public Services Director - Engineering 433 Hay Street, Fayetteville, NC 28301 (910) 433-1301 byronreeves@fayettevillenc.gov
Construction Management	Jeff Riddle, PLS Construction Manager 339 Alexander Street, Fayetteville, NC 28301 (910) 433-1661 jeffreyriddle@fayettevillenc.gov
Traffic Services	Brian McGill Interim Assistant Public Services Director - Traffic Services 339 Alexander Street, Fayetteville, NC 28301 (910) 433-1170 brianmcgill@fayettevillenc.gov

COVER

PLAN TYPE:

SHEET NUMBER
1 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FED6A6D47D...
030525
TRAVIS CRISSMAN
5/14/2025

REVISIONS REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

ABBREVIATIONS

AC - ASBESTOS CEMENT
ASPH - ASPHALT
B/C - BACK OF CURB
BM - BENCHMARK
CB - CATCH BASIN
CP - CABLEVISION PEDISTAL
C&G - CURB AND GUTTER
C/L - CHAIN LINK
CMP - CORRUGATED METAL PIPE
CO - CLEANOUT
COF - CITY OF FAYETTEVILLE
CONC - CONCRETE
CONST - CONSTRUCTION
CP - CONTROL POINT
CTR - CENTER
DB - DEED BOOK
DEPT - DEPARTMENT
DI - DROP INLET
DIP - DUCTILE IRON PIPE
DWA - DRIVEWAY ASPHALT
DWB - DRIVEWAY BRICK
DWC - DRIVEWAY CONCRETE
DWD - DRIVEWAY DIRT
DWG - DRIWEWAY GRAVEL
E - EAST/EASTING
EOP - EDGE OF PAVEMENT
ESMT - EASEMENT
EV - ELECTRICAL VAULT
F/C - FACE OF CURB
FES - FLARED END SECTION
FH - FIRE HYDRANT
FOB - FIBER OPTIC BURIED
FP - FLAG POLE
GV - GAS VALVE
GW - GUY WIRE
GWV - GATE WATER VALVE
HDPE - HIGH DENSITY POLYETHYLENE
INV - INVERT
JB - JUNCTION BOX
LF - LINEAR FOOT
LOD - LIMITS OF DISTURBANCE
LP - LIGHT POLE
MAX - MAXIMUM
MB - MAILBOX
MHEL - MANHOLE ELECTRIC
MHSD - MANHOLE STORM DRAIN
MHSS - MANHOLE SANITARY SEWER
MHTP - MANHOLE TELEPHONE
N - NORTH/NORTHING
O.C. - ON CENTER
O/H - OVERHEAD
PVMT - PAVEMENT
PC - POINT OF CURVATURE
PERM -PERMANENT
PG - PAGE
PI - POINT OF INTERSECTION
PVC - POLYVINYL CHLORIDE
PP - POWER POLE
RCBC - REINFORCED CONCRETE BOX CULVERT
RCP - REINFORCED CONCRETE PIPE
R/W - RIGHT OF WAY
S- SOUTH
SC - SAWCUT
SD - STORM DRAIN
S/R - SPLIT RAIL
SS - SANITARY SEWER
STA - STATION
STB - SIGNAL TRAFFIC BOX
STD - STANDARD
SWA - SIDEWALK ASPHALT
SWB - SIDEWALK BRICK
SWC - SIDEWALK CONCRETE
SY - SQUARE YARD
TC - TRASH CAN
TD - TRUNCATED DOME
TCE - TEMPORARY CONSTRUCTION EASEMENT
TCP - TERRA COTTA PIPE
TP - TELEPHONE PEDISTAL
TVP - TRAVERSE POINT
TYP - TYPICAL
U.O.N. - UNLESS OTHERWISE NOTED
UP - UTILITY POLE
W - WEST
WCR - WHEELCHAIR RAMP
WL - WATERLINE
WM - WATER METER
WV - WATER VAULT

LEGEND

— R/W —	PROPOSED RIGHT-OF-WAY
—□——□—	PROPOSED FENCE
— GAS —	PROPOSED UNDERGROUND GAS
— TCE —	PROPOSED TEMPORARY CONSTRUCTION EASEMENT
— W — W —	PROPOSED UNDERGROUND WATER
— PE —	PROPOSED EASEMENT
— SS — SS —	PROPOSED SANITARY SEWER
— SD — SD —	PROPOSED STORM DRAIN
—— < ——	PROPOSED SWALE
Ⓢ	PROPOSED SANITARY SEWER MAN HOLE
Ⓓ	PROPOSED STORM SEWER MAN HOLE
▬	PROPOSED CATCH BASIN
▤	PROPOSED DROP INLET
EV	PROPOSED ELECTRICAL VAULT
Ⓔ	PROPOSED ELECTRICAL MAN HOLE
W	PROPOSED WATER METER
WV	PROPOSED WATER VAULT
C/O	PROPOSED SANITARY SEWER CLEAN OUT
✿	PROPOSED TREE
❁	PROPOSED SHRUB
═	PROPOSED CONCRETE CURB AND GUTTER
▒	PROPOSED SIDEWALK
⁘	PROPOSED CONCRETE
●	PROPOSED POWER POLE
⊠	INLET PROTECTION
⊏	PROPOSED FLAIRED END SECTION
⏢	PROPOSED HEADWALL
WV ⋈	PROPOSED GATE WATER VALVE
GV ⋈	PROPOSED GAS VALVE
✱	PROPOSED FIRE HYDRANT
☀	PROPOSED LIGHT POLE
▨	PROPOSED ABANDON PIPE
— PDE —	PROPOSED PERMANENT DRAINAGE EASEMENT
▭	REMOVE AND REPLACE DRIVEWAY
— PDE —o— LOD —o—	PERMANENT DRAINAGE EASEMENT, LIMITS OF DISTURBANCE, AND SILT FENCE
— TCE —x— LOD —x—	TEMPORARY CONSTRUCTION EASEMENT, LIMITS OF DISTURBANCE, AND TEMPORARY CHAIN LINK FENCE
— TCE —o— LOD —o—	TEMPORARY CONSTRUCTION EASEMENT, LIMITS OF DISTURBANCE, AND SILT FENCE

— - - —	EXISTING RIGHT-OF-WAY
— OHE —	EXISTING OVERHEAD ELECTRIC
— UGE —	EXISTING UNDERGROUND ELECTRIC
— FOB —	EXISTING FIBER OPTIC BURIED
—o——o—	EXISTING FENCE
— GAS —	EXISTING UNDERGROUND GAS
— W — W —	EXISTING UNDERGROUND WATER
— TEL —	EXISTING TELEPHONE CABLE
— CTV —	EXISTING CABLEVISION
— EE —	EXISTING EASEMENT
— SS — SS —	EXISTING SANITARY SEWER
┼┼┼┼┼┼┼┼	EXISTING TRAIN TRACKS
— SD — SD —	EXISTING STORM SEWER
—— < ——	EXISTING SWALE
Ⓢ	EXISTING SANITARY SEWER MAN HOLE
Ⓓ	EXISTING STORM SEWER MAN HOLE
Ⓣ	EXISTING TELEPHONE MAN HOLE
▬	EXISTING CATCH BASIN
▤	EXISTING DROP INLET
EV	EXISTING ELECTRICAL VAULT
Ⓔ	EXISTING ELECTRICAL MAN HOLE
□	EXISTING WATER METER
ECM ⊠	EXISTING CONCRETE MONUMENT
△	SURVEY CONTROL MARKER
◎ EIP	PROPERTY CORNER (EIR/ERBR/SIR/EIP)
WV ⋈	EXISTING WATER VALVE
FO	EXISTING FIBER OPTIC MARKER
C/O	EXISTING SANITARY SEWER CLEAN OUT
MB	EXISTING MAILBOX
═	EXISTING CONCRETE CURB AND GUTTER
⁘	EXISTING CONCRETE/SIDEWALK
⁚	WETLANDS
○	EXISTING POWER POLE
▭	EXISTING MAILBOX

⊏	EXISTING FLAIRED END SECTION
⏢	EXISTING HEADWALL
WV ⋈	EXISTING GATE WATER VALVE
GV ⋈	EXISTING GAS VALVE
✱	EXISTING FIRE HYDRANT
☼	EXISTING LIGHT POLE
✿	EXISTING TREE
❁	EXISTING SHRUB

SHEET NUMBER
2 of 45

PLAN TYPE:
LEGEND

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

SEAL
030525
TRAVIS CRISSMAN
DocuSigned by:
3A2C08FD6A6D47D...
5/14/2025
NAME:
DATE:

REVISIONS

REV. #	DESCRIPTION	REV.BY DATE
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DRAWN : G. SEITZ
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APPROVED : T. CRISSMAN

PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

GENERAL NOTES:

ACCESS TO SITES SHALL BE BY PUBLIC RIGHT-OF-WAYS AND UTILITY EASEMENTS. OTHER ACCESS LOCATIONS REQUIRED SHALL BE SECURED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. SUPPLEMENTAL EROSION CONTROL MEASURES SHALL BE REQUIRED TO INCLUDE CONSTRUCTION ENTRANCES, SILT FENCING, RESTORATION, ETC.

THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE CONSTRUCTION STAGING AREA AT IT'S EXPENSE. A TEMPORARY USE PERMIT IS REQUIRED FOR THE STAGING AREA (ZONING 433-1705).

THE CONTRACTOR IS EXPECTED AND REQUIRED TO COOPERATE WITH THE PROPERTY OWNERS AFFECTED BY THE WORK. PRIVATE AGREEMENTS WITH PROPERTY OWNERS MUST BE IN WRITING ON A FORM APPROVED BY THE ENGINEER AND A COPY SHALL BE PROVIDED TO THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES AFFECTED BY SAID AGREEMENT. THE AGREEMENT MUST SPECIFY THAT THE CITY AND THE ENGINEER SHALL BE HELD HARMLESS AGAINST ALL CLAIMS ARISING FROM THE AGREEMENT. THE OWNER DISCOURAGES PRIVATE AGREEMENTS. BEFORE FINAL ACCEPTANCE, A RELEASE FROM EACH PROPERTY OWNER THAT THE CONTRACTOR MADE AN AGREEMENT WITH SHALL BE REQUIRED. THE PROPERTY OWNER'S RELEASE IS A CONDITION OF FINAL ACCEPTANCE.

CONTRACTOR SHALL MAINTAIN A NEAT AND CLEAN JOB-SITE TO INCLUDE STAGING/STORAGE AREAS AS FOLLOWS:

- PERFORM DUST CONTROL BY WATERING DAILY OR AS DIRECTED BY THE ENGINEER.
- SWEEP STREETS A MINIMUM OF ONCE WEEKLY (FRIDAY) OR AS DIRECTED BY THE ENGINEER.
- BLADE, LEVEL AND RE-COMPACT ALL EXPOSED TRENCHES WEEKLY (OR AS DIRECTED BY THE ENGINEER) TO PRODUCE A SMOOTH "RIDE".
- PERFORM DAILY CLEAN-UP OF ALL DIRT, DEBRIS AND SCRAP MATERIALS.
- REMOVE EXCESS EQUIPMENT, MATERIALS, TOOLS, ETC. NOT NEEDED.

CONTRACTOR SHALL PROVIDE MEASURES DURING CONSTRUCTION TO SECURE THE SITE AND EXCAVATION FROM THE GENERAL PUBLIC AND COMPLY WITH ALL OSHA REGULATIONS. JOB SITE SAFETY IS THE EXCLUSIVE AND SOLE RESPONSIBILITY OF THE CONTRACTOR. OPEN EXCAVATION LEFT UNATTENDED OR OVER NIGHT IS NOT ACCEPTABLE AND SHALL BE FILLED IMMEDIATELY.

CONTRACTOR SHALL REPAIR OR REPLACE DRIVES DISTURBED BY CONSTRUCTION TO EXISTING OR BETTER CONDITIONS. NO SEPARATE PAYMENT UNLESS OTHERWISE INDICATED.

CONTRACTOR SHALL PROVIDE TEMPORARY FENCING WHERE FENCES ARE REMOVED FOR CONSTRUCTION. CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING FENCE AND INSTALLATION OF TEMPORARY FENCE WITH PROPERTY OWNER PRIOR TO CONSTRUCTION. REMOVAL OF TEMPORARY FENCE AND INSTALLATION OF PERMANENT FENCE MUST ALSO BE COORDINATED WITH PROPERTY OWNER. ALL REMOVAL, TEMPORARY, AND REPLACEMENT FENCING SHALL BE CONSIDERED INCIDENTAL TO THE CITY INSTALLATION AND NO SEPARATE PAYMENT SHALL BE MADE. CONTRACTOR SHALL REINSTALL ALL SHEDS, FENCES, ETC. TO AS GOOD OR BETTER THAN EXISTING CONDITIONS UNLESS OTHERWISE INDICATED. (NO SEPARATE PAYMENT).

CONTRACTOR SHALL REPLACE ALL DISTURBED MAILBOXES, SIGNS, ETC. DISTURBED DURING CONSTRUCTION WITHIN 24 HOURS OF DISTURBANCE. PERMANENT ROAD SIGNAGE DISTURBED SHALL BE REPLACED IMMEDIATELY AND IF NECESSARY ROADWAY SIGNS SHALL BE TEMPORARILY INSTALLED IN A LOCATION CONSISTENT WITH THE NCMUTCD TO PROVIDE CONTINUOUS TRAFFIC AWARENESS OF ROADWAY CONDITIONS. (NO SEPARATE PAYMENT).

CONTRACTOR SHALL PROVIDE SECURITY FENCING, SECURITY GUARD, AND ANY AND ALL OTHER MEASURES CONTRACTOR DEEMS NECESSARY TO PROTECT EQUIPMENT AND MATERIALS STORED ON THE PROJECT. (NO SEPARATE PAYMENT).

WHERE CONTRACTOR CEASES WORK OPERATION FOR A 72 HOUR PERIOD OR LONGER, SUCH AS HOLIDAYS, ETC., THE FOLLOWING SHALL BE ACCOMPLISHED PRIOR TO THE WORK STOPPAGE.

- CONTRACTOR WILL STORE ALL EQUIPMENT IN THE CONTRACTOR STAGING AREA OR OFF SITE.
- THE CONTRACTOR SHALL SWEEP ALL STREETS, PERFORM GENERAL CLEANUP AND SHALL PERFORM MAINTENANCE ON ALL EXPOSED PATCHES.
- CONTRACTOR SHALL RETURN SERVICES AND ACCESS TO PROPERTY OWNER.

CONTRACTOR SHALL SCHEDULE WORK AND MATERIAL DELIVERIES SO THAT STORED MATERIAL QUANTITIES ON THE JOB SITE SHALL BE MINIMIZED.

CONTRACTOR SHALL STORE ALL MATERIALS IN THE CONTRACTOR STAGING AREA 72 HOURS PRIOR TO INCORPORATING INTO THE WORK TO REDUCE OBSTRUCTIONS TO TRAFFIC AND INCONVENIENCE TO RESIDENTS.

GENERAL NOTES FOR RESIDENT RELATIONS (MANDATORY):

THE PROPOSED WORK WILL BE CONSTRUCTED WITHIN A TWO BLOCK SECTION OF PERSON STREET FROM COOL SPRING STREET TO OLD WILMINGTON ROAD. THE CONTRACTOR IS REQUIRED TO DEVELOP GOOD RELATIONS WITH THE RESIDENTS WHICH INCLUDE THE FOLLOWING MANDATORY MINIMUM REQUREMENTS:

- NO SPEEDING WITH EQUIPMENT AND/OR VEHICLES (25 MPH MAX.)
- DO NOT BLOCK DRIVEWAYS AT ANY TIME
- DO NOT LITTER AT ANY TIME
- DO NOT USE RESIDENT'S WATER WITHOUT THEIR PERMISSION (SIGNED AGREEMENT REQUIRED)
- ALL PLUMBING CODE REQUIREMENTS FOR BACK FLOW PREVENTION WILL BE ADHERED TO
- RESPOND TO RESIDENT'S COMPLAINTS WITHIN 24 HOURS
- DO NOT USE ABUSIVE LANGUAGE, PROFANITY OR CAT-CALLING
- WEAR PROPER PROTECTIVE CLOTHING (HARD HATS, PROPER SHOES, SHIRTS, ETC.) AT ALL TIMES.
- MAINTAIN PROPER SAFETY MEASURES, PARTICULARLY ALONG OPEN TRENCHES, PLACING CONES ON RAISED MANHOLES AND BACK FILLING OPEN TRENCHES IF CONSTRUCTION IS STOPPED AND THE OPEN TRENCH IS NOT MANNED.
- PERSONNEL MUST WEAR CITY APPROVED SAFETY VEST AT ALL TIMES WHILE WORKING IN THE CITY AND/OR NCDOT RIGHT-OF-WAY
- ALL TRAFFIC CONTROL FLAG PERSONS AND AT LEAST ONE PERSON ON EACH WORK CREW MUST BE FLUENT IN THE ENGLISH LANGUAGE

IF THE CONTRACTOR AND/OR SUBCONTRACTORS CANNOT ADQUATELY PERFORM AND/OR COMPLY WITH THESE REQUIREMENTS, THE INDIVIDUAL, SUBCONTRACTOR, OR EMPLOYEES MAY BE DIRECTED TO LEAVE THE PROJECT PERMANENTLY. INCONSIDERATE, NON-COOPERATIVE ATTITUDES AND ACTIONS WILL NOT BE TOLERATED.

UTILITIES:

UTILITIES ARE ILLUSTRATED FOR INFORMATION PURPOSES ONLY. THE CITY OR ENGINEER WILL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF UTILITY LOCATIONS, SIZES, DEPTHS, OR FOR COMPLETENESS OF UTILITY INFORMATION SHOWN.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY AND MEET WITH ALL UTILITY OWNERS. THE CONTRACTOR SHALL PROTECT ALL UTILITIES FROM DAMAGE CAUSED BY HIS OPERATIONS OR THOSE OF HIS AGENTS. THE CONTRACTOR SHALL HOLD THE CITY HARMLESS FOR ANY THIRD-PARTY INCONVENIENCE CREATED BY WORK OF HIS OWN FORCES OR THAT OF HIS AGENTS. ANY DAMAGES INCURRED SHALL BE THE CONTRACTORS FINANCIAL RESPONSIBILITY.

ADJUSTMENTS/RELOCATIONS WILL BE PERFORMED BY THE VARIOUS UTILITY OWNERS. THE CONTRACTOR SHALL COORDINATE WORK WITH UTILITY OWNERS SO AS NOT TO ADVERSELY AFFECT THE PROJECT SCHEDULE. THE CITY WILL NOT BE HELD RESPONSIBLE FOR ANY DELAYS OR DISRUPTIONS TO THE WORK SCHEDULE OF OTHER UTILITY OWNERS.

- FOR UTILITY LOCATES CALL NORTH CAROLINA ONE-CALL @ 811.
- FOR LOCATES OF UTILITIES NOT MEMBERS OF NORTH CAROLINA ONE-CALL CONTACT PROJECT MANAGER OR UTILITY COORDINATOR.

THE CONTRACTOR SHALL ADJUST ALL WATER VALVES, WATER METER BOXES AND WATER VAULTS TO FINISHED GRADE. WATER METERS, MANHOLES, AND CLEANOUTS LOCATED IN SIDEWALKS OR CONCRETE DRIVEWAYS SHALL BE INSTALLED IN ACCORDANCE WITH PWC REQUIREMENTS. NO ABOVE GROUND UTILITY BOXES, POWER POLE, OR OTHER STRUCTURES ARE TO BE LOCATED WITHIN THE SIDEWALK AREA. THE SIDEWALK AREA IS TO BE FREE OF OBSTACLES.

PRIOR TO COMMENCEMENT OF ANY WORK WITHIN EASEMENTS OR RIGHT-OF-WAYS, THE CONTRACTOR IS REQUIRED TO NOTIFY CONCERNED UTILITY COMPANIES IN ACCORDANCE WITH GS 87-102. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. NO SEPARATE PAYMENT. EXISTING UTILITIES SHOWN ARE TAKEN FROM MAPS FURNISHED BY VARIOUS UTILITY COMPANIES AND HAVE NOT BEEN PHYSICALLY LOCATED (i.e. GAS, FIBER OPTIC, ETC.).

THE CONTRACTOR SHALL LOCATE EACH UTILITY WHICH MAY CONFLICT WITH CONSTRUCTION 14 DAYS IN ADVANCE TO VERIFY LOCATIONS (HORIZONTALLY AND VERTICALLY) TO ALLOW THE ENGINEER AN OPPORTUNITY TO ADJUST THE DESIGN TO AVOID CONFLICTS (NO SEPARATE PAYMENT).

WHERE DEEMED NECESSARY BY THE ENGINEER THAT A SUBSURFACE DRAINAGE SYSTEM IS REQUIRED, THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, TOOLS, LABOR, EQUIPMENT, TIE-IN'S TO EXISTING DRAINAGE STRUCTURES AND ALL OTHER INCIDENTALS NECESSARY TO PROVIDE COMPLETE INSTALLATION IN ACCORDANCE WITH CITY OF FAYETTEVILLE STANDARDS. IMPROPERLY INSTALLED AND NON-FUNCTIONING DRAINAGE SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. EXISTING FRENCH DRAINAGE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AND/OR REPAIRED AT NO ADDITIONAL EXPENSE TO THE OWNER.

STORM DRAINAGE REPAIRS BY CONTRACTOR DUE TO CONSTRUCTION DAMAGE AND JOINTS EXPOSED DURING CONSTRUCTION SHALL BE INSPECTED BY THE OWNER PRIOR TO BACKFILLING.

MAIL BOXES:

THE CONTRACTOR SHALL RELOCATE ALL MAIL BOXES AS REQUIRED BY SECTION 107-12 OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. COORDINATE THIS WORK WITH THE U.S. POSTAL SERVICE.

TREES, SHRUBS, AND HEDGES:

ALL TREES THAT ARE TO REMAIN ARE TO BE PROTECTED WITH TREE PROTECTION BARRIERS ACCEPTABLE TO THE CITY ARBORIST OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY ARBORIST OR LANDSCAPE ARCHITECT PRIOR TO ROOT PRUNING. WHEN ROOT PRUNING IS ABSOLUTELY NECESSARY, CUT ROOTS CLEANLY USING A DISC TRENCHER OR OTHER APPROVED METHOD.

CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY PRIOR TO REMOVING ANY TREES. ALL TREES LOCATED WITHIN THE LOT THAT ARE TO REMAIN AFTER CONSTRUCTION SHALL BE INSPECTED BY THE CITY TO VERIFY THEY ARE SUITABLE TO REMAIN.

GRADING:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BORROW MATERIAL REQUIRED TO CONSTRUCT PROJECT AS SHOWN ON THE CONTRACT DOCUMENTS.

ALL EXCAVATED MATERIALS THAT ARE NOT REQUIRED OR ARE UNSUITABLE FOR THE PROJECT SHALL BE CONSIDERED WASTE AND SHALL BE HAULED OFF SITE AND DISPOSED IN A SAFE AND LEGAL MANNER AT THE CONTRACTOR'S EXPENSE.

EROSION CONTROL:

CONTRACTOR SHALL NOT DISTURB ANY AREAS OUTSIDE OF THE DESIGNATED EASEMENT AREAS.

THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL DEVICES IN ACCORDANCE WIH THE APPROPRIATE CITY AND STATE EROSION AND SEDIMENT CONTROL ORDINANCES. THE CONTRACTOR SHALL PREVENT STANDING WATER DUE TO CONSTRUCTION.

SAWCUTS:

THE CONTRACTOR SHALL SAWCUT EXISTING ASPHALT AND/OR CONCRETE SURFACES PRIOR TO REMOVAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SAW CUT WIDTH SHALL BE 1 FOOT MINIMUM FOR THE EXISTING EDGE OF PAVEMENT. SAWCUT PAVEMENT SHALL BE REPLACED AS WELL AS ADDITIONAL PAVEMENT REQUIRED TO TIE-IN TO FACE OF PROPOSED CURB OR GUTTER.

STORM DRAINAGE STRUCTURE, PIPE & GRADING NOTES:

PIPE INVERT ELEVATIONS HAVE PRECEDENCE OVER SLOPES. HOWEVER, SLOPES SHALL NOT BE DECREASED FROM THOSE SHOWN ON PLAN WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

ALL STORM DRAINAGE PIPE TO BE CLASS III REINFORCED CONCRETE UNLESS OTHERWISE NOTED. PIPE LENGTHS INDICATED ON PLAN ARE APPROXIMATE ONLY.

NO SOIL DISTURBANCE OR COMPACTION, CONSTRUCTION MATERIALS, TRAFFIC, TRENCHING, OR OTHER LAND DISTURBING ACTIVITY SHALL BE PERMITTED BEYOND LIMITS OF GRADING WITHOUT PRIOR APPROVAL FROM THE OWNER AND CITY ENGINEERING DEPT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER OF RECORD (EOR) ANY DISCREPANCIES FOUND BETWEEN ACTUAL CONDITION AND CONSTRUCTION DOCUMENTS AND SHALL WAIT FOR INSTRUCTION FROM THE EOR PRIOR TO PROCEEDING.

MANHOLE RIM ELEVATIONS SHOWN ON THE PLANS ARE APPROXIMATE. NEW MANHOLE RING AND COVERS SHALL BE INSTALLED FLUSH WITH THE SURROUNDING GRADE SO AS TO AVOID DAMAGE TO MOTOR VEHICLES DURING CONSTRUCTION. THEY ARE TO BE ADJUSTED TO MATCH THE SURROUNDING PROPOSED GRADE PRIOR TO PLACING THE NEW SURFACE COURSE.

THE CONTRACTOR SHALL DESIGN, FURNISH, AND INSTALL ANY TRENCH STABILIZATION NECESSARY TO MAINTAIN EXCAVATION FOR PIPE AND DRAINAGE STRUCTURE INSTALLATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND REMOVAL OF ANY TRENCH STABILIZATION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY DAMAGE TO ADJACENT STRUCTURES RESULTING FROM THE INSTALLATION, REMOVAL OR ABSENCE OF TRENCH STABILIZATION.

GRADES, ELEVATIONS AND LOCATIONS SHOWN ARE APPROXIMATE, AS DIRECTED BY THE ENGINEER. THEY MAY BE ADJUSTED TO ACCOMMODATE UNFORESEEN CONDITIONS. ALL PROPOSED GRADES ARE FINISH GRADES.

THE CONTRACTOR SHALL BACKFILL OPEN EXCAVATIONS AT THE END OF EACH WORKING DAY. AT DRAINAGE STRUCTURE LOCATIONS, THE EXCAVATION SHALL BE COVERED WITH METAL PLATES WHEN PRACTICAL OR COMPLETELY ENCLOSED WITH SAFETY NETTING.

ALL STRUCTURES (JUNCTION BOXES, MANHOLES, ENDWALLS, HEADWALLS, CATCH BASINS, DROP INLETS, ETC.) DESIGNATED HEREIN AS BEING DESIGNED BY THE CONTRACTOR REQUIRE SUBMITTAL OF NC PROFESSIONAL ENGINEER SEALED SHOP DRAWINGS TO THE OWNER FOR REVIEW AND APPROVAL.

STOCKPILING NOTE:

ANY ONSITE STOCKPILING IS TO BE COORDINATED AND APPROVED BY A CITY INSPECTOR. THE STOCKPILE WILL BE PROVIDED WITH GROUND COVER WITHIN 15 WORKING DAYS OF PROJECT COMPLETION.

EXCESS SUITABLE SOIL EXCAVATED DURING CONSTRUCTION SHALL BE STOCKPILED FOR USE ON THE PROJECT OR DISPOSED OF OFF-SITE AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL NOT BE ALLOWED TO STOCKPILE MATERIALS OR EXCESS MATERIALS IN THE STREET RIGHT-OF-WAYS AT ANY TIME UNLESS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE A SUFFICIENT AND SUITABLE STOCKPILE AREA AND LOCATION AT THE CONTRACTOR'S EXPENSE.

ORDER OF PRECEDENCE GENERAL NOTES/TECHNICAL SPECIFICATIONS/PHOTOS:

THE NOTES CONTAINED HEREIN ARE INTENDED TO SUPPLEMENT THE TECHNICAL SPECIFICATIONS AND PROVIDE EASY REFERENCE FOR THE CONTRACTOR. IN NO CASE SHALL THESE NOTES VOID ANY PART, SECTION OR REQUIREMENT OUTLINED IN THE TECHNICAL SPECIFICATIONS CONTAINED IN THE CONTRACT DOCUMENTS. IF CONFLICTS OCCUR BETWEEN THE TECHNICAL SPECIFICATIONS AND THE NOTES CONTAINED HEREIN, THE TECHNICAL SPECIFICATIONS SHALL SUPERSEDE.

TRAFFIC CONTROL

CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS FOR WORK ZONE TRAFFIC CONTROL TO CITY TRAFFIC SERVICES DEPARTMENT (910-433-1660) FOR CITY STREETS AND TO MR. TROY BAKER (910-364-0601) FOR NCDOT STREETS. CONTRACTOR SHALL NOT PLACE ANY TRAFFIC CONTROL DEVICES WITHOUT HAVING APPROVAL FROM APPLICABLE TRANSPORTATION DEPARTMENT EITHER NCDOT OR THE CITY OF FAYETTEVILLE.

CONTRACTOR SHALL INSURE ACCESS TO ALL PROPERTIES BY PROPERTY OWNERS AT ALL TIMES.

CONTRACTOR SHALL NOTIFY CITY ENGINEERING OFFICE ONE WEEK IN ADVANCE OF ANY ROAD CLOSING AND COORDINATE ALL ROAD CLOSINGS/UTILITY INTERRUPTIONS WITH PROPERTY OWNERS AFFECTED 48 HOURS PRIOR TO CLOSING/INTERRUPTING SERVICES.

MINIMUM ONE WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES UNLESS ROAD CLOSURE IS APPROVED BY CITY OF FAYETTEVILLE TRAFFIC SERVICES DEPARTMENT IN WRITING, 5 DAYS IN ADVANCE OF ROAD CLOSURE. AN APPROVED DETOUR PLAN PREPARED BY THE CONTRACTOR SHALL BE REQUIRED AND THE MEASURES INSTALLED PRIOR TO CLOSURE.

CONTRACTOR SHALL COORDINATE/NOTIFY TRAFFIC SERVICES DAILY (BEFORE 2:00 P.M.) AS TO WHICH STREETS WILL BE UNDER CONSTRUCTION IMPEDING TRAFFIC FLOW THE FOLLOWING DAY.

THE CONTRACTOR SHALL NOT IMPEDE TRAFFIC AT ANY TIME UNTIL THE APPROVED TRAFFIC CONTROL DEVICES ARE IN PLACE.

ALL TRAFFIC CONTROL MEASURES, DEVICES, INSTALLATION, METHODS, SEQUENCING AND PLANS SHALL BE IN STRICT ACCORDANCE WITH MUTCD, NCDOT, AND CITY OF FAYETTEVILLE TRAFFIC SERVICES.

NOTES

PLAN TYPE:

SHEET NUMBER
3 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD0A6D47D...
SEAL
030525
TRAVIS CRISSMAN
NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED
FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

Because traffic signal equipment is not located through the 811 utility locate process, the contractor shall contact Mr. Bob Gardner, Traffic Signal Maintenance Supervisor, (910) 433-1660, 72 hours prior to performing any work within 500' of a signalized intersection.

LEGEND

GENERAL

◀	DIRECTION OF TRAFFIC FLOW
◀🚶▶	DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- - - - -	EXIST. PVMT.
➤	NORTH ARROW
——	PROPOSED PVMT.
——	TEMP. SHORING (LOCATION PURPOSES ONLY)
■	WORK AREA
▨	REMOVAL
☐	USER DEFINED (IF NEEDED)
☐	USER DEFINED (IF NEEDED)

SIGNALS

●	EXISTING
◌	PROPOSED
T E M P	TEMPORARY

PAVEMENT MARKINGS

——	EXISTING LINES
━━	TEMPORARY LINES

TRAFFIC CONTROL DEVICES

▨	BARRICADE (TYPE III)
▲	CONE
●	DRUM
◉	SKINNY DRUM
○	TUBULAR MARKER
∿	TEMPORARY CRASH CUSHION
●	FLASHING ARROW BOARD
■	FLAGGER
	LAW ENFORCEMENT
	TRUCK MOUNTED ATTENUATOR (TMA)
	CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

◁	PORTABLE SIGN
⊢	STATIONARY SIGN
○	STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

□	CRYSTAL/CRYSTAL
◧	CRYSTAL/RED
◇	YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

↑↰↰	PAVEMENT MARKING SYMBOLS

TRAFFIC CONTROL NOTES

PLAN TYPE:

SHEET NUMBER
4 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
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FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
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433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
030525
TRAVIS CRISSMAN
3/14/2025
NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

TRYON DRIVE GENERAL TRAFFIC CONTROL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITIONS OF THE NCDOT STANDARD SPECIFICATIONS, STANDARD DRAWINGS, MUTCD AND CITY ORDINANCES.
2. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCEPTABLE CONDITION AND SHALL BE MAINTAINED IN ACCEPTABLE CONDITION DURING THE DURATION OF THE PROJECT.
3. ROAD CLOSURES SHOULD BE AVOIDED BUT REQUESTS FOR CLOSURES MUST BE APPROVED BY THE CITY TRAFFIC ENGINEER AND BE REQUESTED A MINIMUM OF 10 WORKING DAYS PRIOR TO THE CLOSURE.
4. TWO-LANE, TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES OF CONSTRUCTION INACTIVITY.
5. TIME RESTRICTIONS: DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS (REDUCE FROM TWO-LANE, TWO-WAY TRAFFIC) AS FOLLOWS:
   a. SWANN STREET (CROSSING 4) 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
   b. DAISY LANE (CROSSING 5) 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
   c. ALL OTHER CROSSINGS - MINIMIZE DURATION OF FULL CLOSURES
6. THE WORK ZONE MUST BE SECURED TO VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE DURATION OF THE PROJECT.
7. HOLIDAY TIME RESTRICTIONS:
   a. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
   b. FOR NEW YEAR'S BETWEEN THE HOURS OF 4:00 PM DECEMBER 31ST TO 9:00 AM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY, THEN UNTIL (TIME) THE FOLLOWING TUESDAY.
   c. FOR EASTER BETWEEN THE HOURS OF 4:00 PM THURSDAY AND 9:00 AM MONDAY.
   d. FOR MEMORIAL DAY BETWEEN THE HOURS OF 4:00 PM FRIDAY TO 9:00 AM TUESDAY.
   e. FOR INDEPENDENCE DAY BETWEEN THE HOURS OF 4:00 PM THE DAY BEFORE INDEPENDENCE DAY AND 9:00 AM THE DAY AFTER INDEPENDENCE DAY.
   f. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY, THEN BETWEEN THE HOURS OF 4:00 PM THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 AM THE TUESDAY AFTER INDEPENDENCE DAY.
   g. FOR LABOR DAY BETWEEN THE HOURS OF 4:00 AM FRIDAY TO 9:00 AM THE FOLLOWING TEUSDAY.
   h. FOR THANKSGIVING DAY BETWEEN THE HOURS OF 4:00 PM TUESDAY TO 9:00 AM MONDAY.
   i. FOR CHRISTMAS BETWEEN THE HOURS OF 4:00 PM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 AM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
   j. FOR THE INTERNATIONAL FOLK FESTIVAL BETWEEN THE HOURS OF 4:00 PM THE THURSDAY BEFORE THE FESTIVAL UNTIL 9:00 AM THE MONDAY FOLLOWING THE FESTIVAL.
   k. FOR DOGWOOD FESTIVAL BETWEEN THE HOURS OF 4:00 PM THE THURSDAY BEFORE THE FESTIVAL UNTIL 9:00 AM THE MONDAY FOLLOWING THE FESTIVAL.
   l. NO WORK SHALL OCCUR ON WEEKENDS (BEGINNING AT 4:00 PM ON FRIDAY) UNLESS APPROVED BY THE ENGINEER.
8. PLACEMENT OF INTERIM PAVEMENT MARKINGS WILL NOT BE A DIRECT LINE ITEM AND WILL BE CONSIDERED TO INSTALLATION OF THERMOPLASTIC PAVEMENT MARKINGS.

CONSTRUCTION PHASING

SUBMIT TRAFFIC CONTROL PLAN TO OWNER FOR APPROVAL.

TRAFFIC CONTROL PLAN PHASING

1. INSTALL ALL REQUIRED SIGNAGE AS NEEDED FOR CROSSINGS.
2. OBTAIN OWNER APPROVAL FOR SIGNAGE BEFORE ROAD OR LANE CLOSURE.
3. UPON OWNER APPROVAL, BEGIN CONSTRUCTION ON CROSSING.
4. PROVIDE FLAG MEN, SIGNAGE, CONES, BARRELS, BARRICADES, AND ALL OTHER APPURTENANCES REQUIRED FOR MUTCD COMPLIANT TRAFFIC CONTROL.
5. COMPLETE STORM PIPE AND UTILITY WORK IN AN EXPEDITIOUS MANNER.
6. RESURFACE ROADWAY. INSTALL FINAL PAVEMENT MARKINGS AND MARKERS.

TRAFFIC CONTROL PHASING

SHEET NUMBER
5 of 45

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
030525
TRAVIS CRISSMAN
5/14/2025
NAME:
DATE:

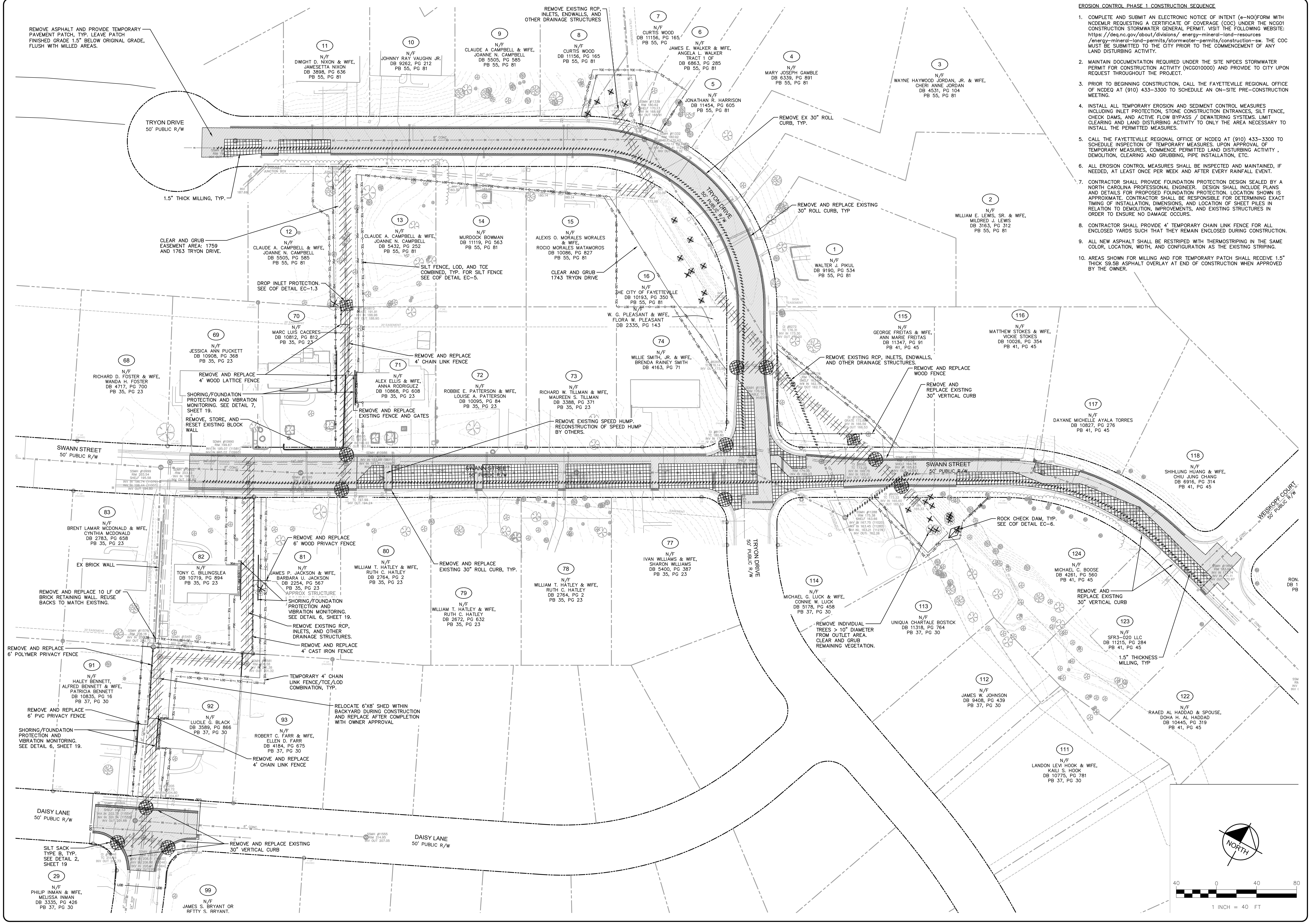
REVISIONS

REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED
FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 0110017025
SUB-LEDGER NO.


REMOVE ASPHALT AND PROVIDE TEMPORARY PAVEMENT PATCH, TYP. LEAVE PATCH FINISHED GRADE 1.5" BELOW ORIGINAL GRADE, FLUSH WITH MILLED AREAS.
TRYON DRIVE 50' PUBLIC R/W
1.5" THICK MILLING, TYP.
CLEAR AND GRUB EASEMENT AREA: 1759 AND 1763 TRYON DRIVE.
DROP INLET PROTECTION. SEE COF DETAIL EC-1.3
11 N/F DWIGHT D. NIXON & WIFE, JAMESETTA NIXON DB 3898, PG 636 PB 55, PG 81
10 N/F JOHNNY RAY VAUGHN JR. DB 9262, PG 212 PB 55, PG 81
9 N/F CLAUDE A CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5505, PG 585 PB 55, PG 81
8 N/F CURTIS WOOD DB 11156, PG 165 PB 55, PG 81
REMOVE EXISTING RCP, INLETS, ENDWALLS, AND OTHER DRAINAGE STRUCTURES
7 N/F CURTIS WOOD DB 11156, PG 165 PB 55, PG
6 N/F JAMES E. WALKER & WIFE, ANGELA L. WALKER TRACT 1 OF DB 6863, PG 285 PB 55, PG 81
5 N/F JONATHAN R. HARRISON DB 11454, PG 605 PB 55, PG 81
4 N/F MARY JOSEPH GAMBLE DB 6339, PG 891 PB 55, PG 81
3 N/F WAYNE HAYWOOD JORDAN, JR. & WIFE, CHERI ANNE JORDAN DB 4531, PG 104 PB 55, PG 81
2 N/F WILLIAM E. LEWIS, SR. & WIFE, MILDRED J. LEWIS DB 3163, PG 312 PB 55, PG 81
1 N/F WALTER J. PIKUL DB 9190, PG 534 PB 55, PG 81
REMOVE EX 30" ROLL CURB, TYP.
REMOVE AND REPLACE EXISTING 30" ROLL CURB, TYP
TRYON DRIVE 50' PUBLIC R/W
12 N/F CLAUDE A. CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5505, PG 585 PB 55, PG 81
13 N/F CLAUDE A. CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5432, PG 252 PB 55, PG 81
14 N/F MURDOCK BOWMAN DB 11119, PG 563 PB 55, PG 81
15 N/F ALEXIS O. MORALES MORALES & WIFE, ROCIO MORALES MATAMOROS DB 10086, PG 827 PB 55, PG 81
SILT FENCE, LOD, AND TCE COMBINED, TYP. FOR SILT FENCE SEE COF DETAIL EC-5.
CLEAR AND GRUB 1743 TRYON DRIVE
16 N/F THE CITY OF FAYETTEVILLE DB 10193, PG 350 PB 55, PG 81
N/F W. G. PLEASANT & WIFE, FLORA W. PLEASANT DB 2335, PG 143
74 N/F WILLIE SMITH, JR. & WIFE, BRENDA RAINEY SMITH DB 4163, PG 71
115 N/F GEORGE FREITAS & WIFE, ANN MARIE FREITAS DB 11347, PG 91 PB 41, PG 45
116 N/F MATTHEW STOKES & WIFE, VICKIE STOKES DB 10026, PG 354 PB 41, PG 45
REMOVE EXISTING RCP, INLETS, ENDWALLS, AND OTHER DRAINAGE STRUCTURES.
REMOVE AND REPLACE WOOD FENCE
REMOVE AND REPLACE EXISTING 30" VERTICAL CURB
117 N/F DAYANE MICHELLE AYALA TORRES DB 10827, PG 276 PB 41, PG 45
70 N/F MARC LUIS CACERES DB 10812, PG 812 PB 35, PG 23
69 N/F JESSICA ANN PUCKETT DB 10908, PG 368 PB 35, PG 23
68 N/F RICHARD D. FOSTER & WIFE, WANDA H. FOSTER DB 4717, PG 700 PB 35, PG 23
REMOVE AND REPLACE 4' CHAIN LINK FENCE
REMOVE AND REPLACE 4' WOOD LATTICE FENCE
SHORING/FOUNDATION PROTECTION AND VIBRATION MONITORING. SEE DETAIL 7, SHEET 19.
REMOVE, STORE, AND RESET EXISTING BLOCK WALL
71 N/F ALEX ELLIS & WIFE, ANNA RODRIGUEZ DB 10868, PG 608 PB 35, PG 23
REMOVE AND REPLACE EXISTING FENCE AND GATES
72 N/F ROBBIE E. PATTERSON & WIFE, LOUISE A. PATTERSON DB 10095, PG 84 PB 35, PG 23
73 N/F RICHARD W. TILLMAN & WIFE, MAUREEN S. TILLMAN DB 3388, PG 371 PB 35, PG 23
REMOVE EXISTING SPEED HUMP. RECONSTRUCTION OF SPEED HUMP BY OTHERS.
SWANN STREET 50' PUBLIC R/W
SWANN STREET 50' PUBLIC R/W
SWANN STREET 50' PUBLIC R/W
118 N/F SHIHLUNG HUANG & WIFE, CHIU JUNG CHANG DB 6916, PG 314 PB 41, PG 45
WEISKOPF COURT 50' PUBLIC R/W
ROCK CHECK DAM, TYP. SEE COF DETAIL EC-6.
83 N/F BRENT LAMAR MCDONALD & WIFE, CYNTHIA MCDONALD DB 2783, PG 658 PB 35, PG 23
REMOVE AND REPLACE 6' WOOD PRIVACY FENCE
82 N/F TONY C. BILLINGSLEA DB 10719, PG 894 PB 35, PG 23
81 N/F JAMES P. JACKSON & WIFE, BARBARA U. JACKSON DB 2254, PG 567 PB 35, PG 23
APPROX STRUCTURE
80 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2764, PG 2 PB 35, PG 23
REMOVE AND REPLACE EXISTING 30" ROLL CURB, TYP.
78 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2764, PG 2 PB 35, PG 23
79 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2672, PG 632 PB 35, PG 23
77 N/F IVAN WILLIAMS & WIFE, SHARON WILLIAMS DB 5400, PG 387 PB 35, PG 23
TRYON DRIVE 50' PUBLIC R/W
EX BRICK WALL
REMOVE AND REPLACE 10 LF OF BRICK RETAINING WALL. REUSE BACKS TO MATCH EXISTING.
SHORING/FOUNDATION PROTECTION AND VIBRATION MONITORING. SEE DETAIL 6, SHEET 19.
REMOVE EXISTING RCP, INLETS, AND OTHER DRAINAGE STRUCTURES.
REMOVE AND REPLACE 4' CAST IRON FENCE
114 N/F MICHAEL G. LUCK & WIFE, CONNIE W. LUCK DB 5178, PG 458 PB 37, PG 30
113 N/F UNIQUA CHARTALE BOSTICK DB 11318, PG 764 PB 37, PG 30
REMOVE INDIVIDUAL TREES > 10" DIAMETER FROM OUTLET AREA. CLEAR AND GRUB REMAINING VEGETATION.
124 N/F MICHAEL C. BOOSE DB 4261, PG 560 PB 41, PG 45
REMOVE AND REPLACE EXISTING 30" VERTICAL CURB
123 N/F SFR3-020 LLC DB 11215, PG 284 PB 41, PG 45
1.5" THICKNESS MILLING, TYP
RON. DB 1 PB
REMOVE AND REPLACE 6' POLYMER PRIVACY FENCE
91 N/F HALEY BENNETT, ALFRED BENNETT & WIFE, PATRICIA BENNETT DB 10835, PG 16 PB 37, PG 30
TEMPORARY 4' CHAIN LINK FENCE/TCE/LOD COMBINATION, TYP.
RELOCATE 6'X8' SHED WITHIN BACKYARD DURING CONSTRUCTION AND REPLACE AFTER COMPLETION WITH OWNER APPROVAL
REMOVE AND REPLACE 6' PVC PRIVACY FENCE
SHORING/FOUNDATION PROTECTION AND VIBRATION MONITORING. SEE DETAIL 6, SHEET 19.
92 N/F LUCILE G. BLACK DB 3589, PG 866 PB 37, PG 30
93 N/F ROBERT C. FARR & WIFE, ELLEN D. FARR DB 4184, PG 675 PB 37, PG 30
REMOVE AND REPLACE 4' CHAIN LINK FENCE
112 N/F JAMES W. JOHNSON DB 9408, PG 439 PB 37, PG 30
122 N/F RAAED AL HADDAD & SPOUSE, DOHA H. AL HADDAD DB 10445, PG 319 PB 41, PG 45
111 N/F LANDON LEVI HOOK & WIFE, KAILI S. HOOK DB 10775, PG 781 PB 37, PG 30
DAISY LANE 50' PUBLIC R/W
DAISY LANE 50' PUBLIC R/W
REMOVE AND REPLACE EXISTING 30" VERTICAL CURB
SILT SACK TYPE B, TYP. SEE DETAIL 2, SHEET 19
29 N/F PHILIP INMAN & WIFE, MELISSA INMAN DB 3335, PG 426 PB 37, PG 30
99 N/F JAMES S. BRYANT OR BETTY S. BRYANT.
NORTH
40 0 40 80
1 INCH = 40 FT

EROSION CONTROL PHASE 1 CONSTRUCTION SEQUENCE

1. COMPLETE AND SUBMIT AN ELECTRONIC NOTICE OF INTENT (e-NOI)FORM WITH NCDEMLR REQUESTING A CERTIFICATE OF COVERAGE (COC) UNDER THE NCG01 CONSTRUCTION STORMWATER GENERAL PERMIT. VISIT THE FOLLOWING WEBSITE: https: //deq.nc.gov/about/divisions/ energy-mineral-land-resources /energy-mineral-land-permits/stormwater-permits/construction-sw. THE COC MUST BE SUBMITTED TO THE CITY PRIOR TO THE COMMENCEMENT OF ANY LAND DISTURBING ACTIVITY.
2. MAINTAIN DOCUMENTATION REQUIRED UNDER THE SITE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY (NCG010000) AND PROVIDE TO CITY UPON REQUEST THROUGHOUT THE PROJECT.
3. PRIOR TO BEGINNING CONSTRUCTION, CALL THE FAYETTEVILLE REGIONAL OFFICE OF NCDEQ AT (910) 433-3300 TO SCHEDULE AN ON-SITE PRE-CONSTRUCTION MEETING.
4. INSTALL ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES INCLUDING INLET PROTECTION, STONE CONSTRUCTION ENTRANCES, SILT FENCE, CHECK DAMS, AND ACTIVE FLOW BYPASS / DEWATERING SYSTEMS. LIMIT CLEARING AND LAND DISTURBING ACTIVITY TO ONLY THE AREA NECESSARY TO INSTALL THE PERMITTED MEASURES.
5. CALL THE FAYETTEVILLE REGIONAL OFFICE OF NCDEQ AT (910) 433-3300 TO SCHEDULE INSPECTION OF TEMPORARY MEASURES. UPON APPROVAL OF TEMPORARY MEASURES, COMMENCE PERMITTED LAND DISTURBING ACTIVITY , DEMOLITION, CLEARING AND GRUBBING, PIPE INSTALLATION, ETC.
6. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED, IF NEEDED, AT LEAST ONCE PER WEEK AND AFTER EVERY RAINFALL EVENT.
7. CONTRACTOR SHALL PROVIDE FOUNDATION PROTECTION DESIGN SEALED BY A NORTH CAROLINA PROFESSIONAL ENGINEER. DESIGN SHALL INCLUDE PLANS AND DETAILS FOR PROPOSED FOUNDATION PROTECTION. LOCATION SHOWN IS APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT TIMING OF INSTALLATION, DIMENSIONS, AND LOCATION OF SHEET PILES IN RELATION TO DEMOLITION, IMPROVEMENTS, AND EXISTING STRUCTURES IN ORDER TO ENSURE NO DAMAGE OCCURS.
8. CONTRACTOR SHALL PROVIDE 4' TEMPORARY CHAIN LINK FENCE FOR ALL ENCLOSED YARDS SUCH THAT THEY REMAIN ENCLOSED DURING CONSTRUCTION.
9. ALL NEW ASPHALT SHALL BE RESTRIPED WITH THERMOSTRIPING IN THE SAME COLOR, LOCATION, WIDTH, AND CONFIGURATION AS THE EXISTING STRIPING.
10. AREAS SHOWN FOR MILLING AND FOR TEMPORARY PATCH SHALL RECEIVE 1.5" THICK S9.5B ASPHALT OVERLAY AT END OF CONSTRUCTION WHEN APPROVED BY THE OWNER.

EXISTING CONDITIONS EROSION CONTROL PHASE 1 AND DEMOLITION PLAN

PLAN TYPE:

SHEET NUMBER
6 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
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433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
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TRAVIS S. CRISSMAN
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1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN :	G. SEITZ	PROJECT NAME :	TRYON DRAINAGE
DESIGN :		SCALE :	SCALE
CHECK :		DATE :	MAY 2025
APPROVED :	T. CRISSMAN		

PROJECT NO. KH 011017025
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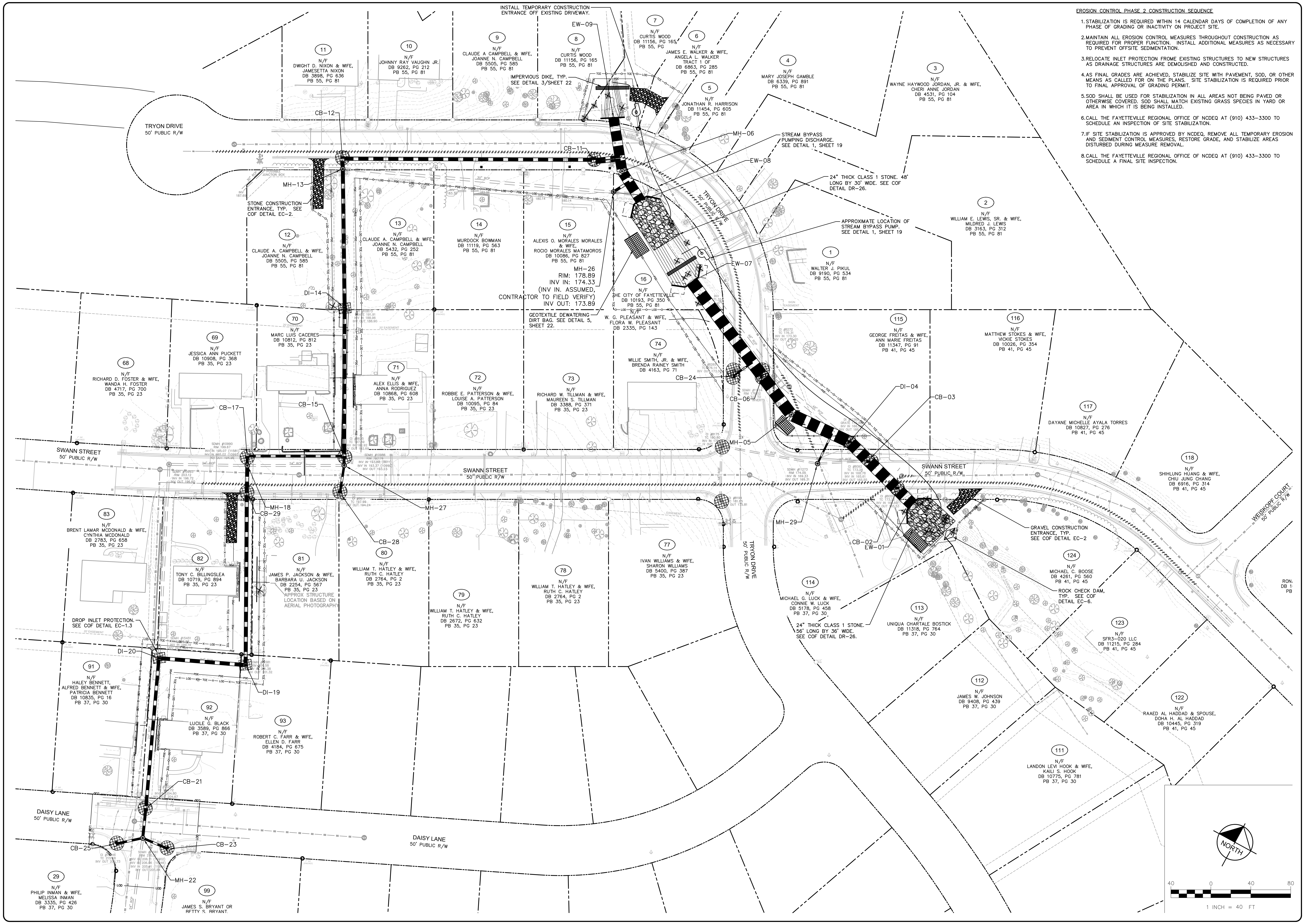

INSTALL TEMPORARY CONSTRUCTION ENTRANCE OFF EXISTING DRIVEWAY.
EW-09
IMPERVIOUS DIKE, TYP. SEE DETAIL 3/SHEET 22
TRYON DRIVE 50' PUBLIC R/W
CB-12
CB-11
MH-13
STONE CONSTRUCTION ENTRANCE, TYP. SEE COF DETAIL EC-2.
MH-06
STREAM BYPASS PUMPING DISCHARGE. SEE DETAIL 1, SHEET 19
EW-08
24" THICK CLASS 1 STONE. 48' LONG BY 30' WIDE. SEE COF DETAIL DR-26.
APPROXIMATE LOCATION OF STREAM BYPASS PUMP. SEE DETAIL 1, SHEET 19
EW-07
MH-26 RIM: 178.89 INV IN: 174.33 (INV IN. ASSUMED, CONTRACTOR TO FIELD VERIFY) INV OUT: 173.89
GEOTEXTILE DEWATERING DIRT BAG. SEE DETAIL 5, SHEET 22.
DI-14
CB-24
CB-06
DI-04
CB-03
CB-15
CB-17
MH-05
SWANN STREET 50' PUBLIC R/W
MH-18
CB-29
MH-27
CB-28
MH-29
CB-02
EW-01
GRAVEL CONSTRUCTION ENTRANCE, TYP. SEE COF DETAIL EC-2
ROCK CHECK DAM, TYP. SEE COF DETAIL EC-6.
24" THICK CLASS 1 STONE. 56' LONG BY 36' WIDE. SEE COF DETAIL DR-26.
WEISKOPF COURT 50' PUBLIC R/W
TRYON DRIVE 50' PUBLIC R/W
APPROX STRUCTURE LOCATION BASED ON AERIAL PHOTOGRAPHY
DROP INLET PROTECTION. SEE COF DETAIL EC-1.3
DI-20
DI-19
CB-21
DAISY LANE 50' PUBLIC R/W
CB-25
CB-23
MH-22
7 N/F CURTIS WOOD DB 11156, PG 165 PB 55, PG
8 N/F CURTIS WOOD DB 11156, PG 165 PB 55, PG 81
6 N/F JAMES E. WALKER & WIFE, ANGELA L. WALKER TRACT 1 OF DB 6863, PG 285 PB 55, PG 81
5 N/F JONATHAN R. HARRISON DB 11454, PG 605 PB 55, PG 81
4 N/F MARY JOSEPH GAMBLE DB 6339, PG 891 PB 55, PG 81
3 N/F WAYNE HAYWOOD JORDAN, JR. & WIFE, CHERI ANNE JORDAN DB 4531, PG 104 PB 55, PG 81
2 N/F WILLIAM E. LEWIS, SR. & WIFE, MILDRED J. LEWIS DB 3163, PG 312 PB 55, PG 81
1 N/F WALTER J. PIKUL DB 9190, PG 534 PB 55, PG 81
9 N/F CLAUDE A CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5505, PG 585 PB 55, PG 81
10 N/F JOHNNY RAY VAUGHN JR. DB 9262, PG 212 PB 55, PG 81
11 N/F DWIGHT D. NIXON & WIFE, JAMESETTA NIXON DB 3898, PG 636 PB 55, PG 81
12 N/F CLAUDE A. CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5505, PG 585 PB 55, PG 81
13 N/F CLAUDE A. CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5432, PG 252 PB 55, PG 81
14 N/F MURDOCK BOWMAN DB 11119, PG 563 PB 55, PG 81
15 N/F ALEXIS O. MORALES MORALES & WIFE, ROCIO MORALES MATAMOROS DB 10086, PG 827 PB 55, PG 81
16 N/F THE CITY OF FAYETTEVILLE DB 10193, PG 350 PB 55, PG 81
N/F W. G. PLEASANT & WIFE, FLORA W. PLEASANT DB 2335, PG 143
115 N/F GEORGE FREITAS & WIFE, ANN MARIE FREITAS DB 11347, PG 91 PB 41, PG 45
116 N/F MATTHEW STOKES & WIFE, VICKIE STOKES DB 10026, PG 354 PB 41, PG 45
117 N/F DAYANE MICHELLE AYALA TORRES DB 10827, PG 276 PB 41, PG 45
118 N/F SHIHLUNG HUANG & WIFE, CHIU JUNG CHANG DB 6916, PG 314 PB 41, PG 45
70 N/F MARC LUIS CACERES DB 10812, PG 812 PB 35, PG 23
69 N/F JESSICA ANN PUCKETT DB 10908, PG 368 PB 35, PG 23
68 N/F RICHARD D. FOSTER & WIFE, WANDA H. FOSTER DB 4717, PG 700 PB 35, PG 23
71 N/F ALEX ELLIS & WIFE, ANNA RODRIGUEZ DB 10868, PG 608 PB 35, PG 23
72 N/F ROBBIE E. PATTERSON & WIFE, LOUISE A. PATTERSON DB 10095, PG 84 PB 35, PG 23
73 N/F RICHARD W. TILLMAN & WIFE, MAUREEN S. TILLMAN DB 3388, PG 371 PB 35, PG 23
74 N/F WILLIE SMITH, JR. & WIFE, BRENDA RAINEY SMITH DB 4163, PG 71
83 N/F BRENT LAMAR MCDONALD & WIFE, CYNTHIA MCDONALD DB 2783, PG 658 PB 35, PG 23
82 N/F TONY C. BILLINGSLEA DB 10719, PG 894 PB 35, PG 23
81 N/F JAMES P. JACKSON & WIFE, BARBARA U. JACKSON DB 2254, PG 567 PB 35, PG 23
80 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2764, PG 2 PB 35, PG 23
79 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2672, PG 632 PB 35, PG 23
78 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2764, PG 2 PB 35, PG 23
77 N/F IVAN WILLIAMS & WIFE, SHARON WILLIAMS DB 5400, PG 387 PB 35, PG 23
114 N/F MICHAEL G. LUCK & WIFE, CONNIE W. LUCK DB 5178, PG 458 PB 37, PG 30
113 N/F UNIQUA CHARTALE BOSTICK DB 11318, PG 764 PB 37, PG 30
124 N/F MICHAEL C. BOOSE DB 4261, PG 560 PB 41, PG 45
123 N/F SFR3-020 LLC DB 11215, PG 284 PB 41, PG 45
112 N/F JAMES W. JOHNSON DB 9408, PG 439 PB 37, PG 30
122 N/F RAAED AL HADDAD & SPOUSE, DOHA H. AL HADDAD DB 10445, PG 319 PB 41, PG 45
111 N/F LANDON LEVI HOOK & WIFE, KAILI S. HOOK DB 10775, PG 781 PB 37, PG 30
91 N/F HALEY BENNETT, ALFRED BENNETT & WIFE, PATRICIA BENNETT DB 10835, PG 16 PB 37, PG 30
92 N/F LUCILE G. BLACK DB 3589, PG 866 PB 37, PG 30
93 N/F ROBERT C. FARR & WIFE, ELLEN D. FARR DB 4184, PG 675 PB 37, PG 30
29 N/F PHILIP INMAN & WIFE, MELISSA INMAN DB 3335, PG 426 PB 37, PG 30
99 N/F JAMES S. BRYANT OR BETTY S. BRYANT
RON DB 1 PB
NORTH
40 0 40 80
1 INCH = 40 FT

ERosion CONTROL PHASE 2 CONSTRUCTION SEQUENCE

1. STABILIZATION IS REQUIRED WITHIN 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING OR INACTIVITY ON PROJECT SITE.
2. MAINTAIN ALL EROSION CONTROL MEASURES THROUGHOUT CONSTRUCTION AS REQUIRED FOR PROPER FUNCTION. INSTALL ADDITIONAL MEASURES AS NECESSARY TO PREVENT OFFSITE SEDIMENTATION.
3. RELOCATE INLET PROTECTION FROME EXISTING STRUCTURES TO NEW STRUCTURES AS DRAINAGE STRUCTURES ARE DEMOLISHED AND CONSTRUCTED.
4. AS FINAL GRADES ARE ACHIEVED, STABILIZE SITE WITH PAVEMENT, SOD, OR OTHER MEANS AS CALLED FOR ON THE PLANS. SITE STABILIZATION IS REQUIRED PRIOR TO FINAL APPROVAL OF GRADING PERMIT.
5. SOD SHALL BE USED FOR STABILIZATION IN ALL AREAS NOT BEING PAVED OR OTHERWISE COVERED. SOD SHALL MATCH EXISTING GRASS SPECIES IN YARD OR AREA IN WHICH IT IS BEING INSTALLED.
6. CALL THE FAYETTEVILLE REGIONAL OFFICE OF NCDEQ AT (910) 433-3300 TO SCHEDULE AN INSPECTION OF SITE STABILIZATION.
7. IF SITE STABILIZATION IS APPROVED BY NCDEQ, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, RESTORE GRADE, AND STABILIZE AREAS DISTURBED DURING MEASURE REMOVAL.
8. CALL THE FAYETTEVILLE REGIONAL OFFICE OF NCDEQ AT (910) 433-3300 TO SCHEDULE A FINAL SITE INSPECTION.

PHASE 2 EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER
7 of 45

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

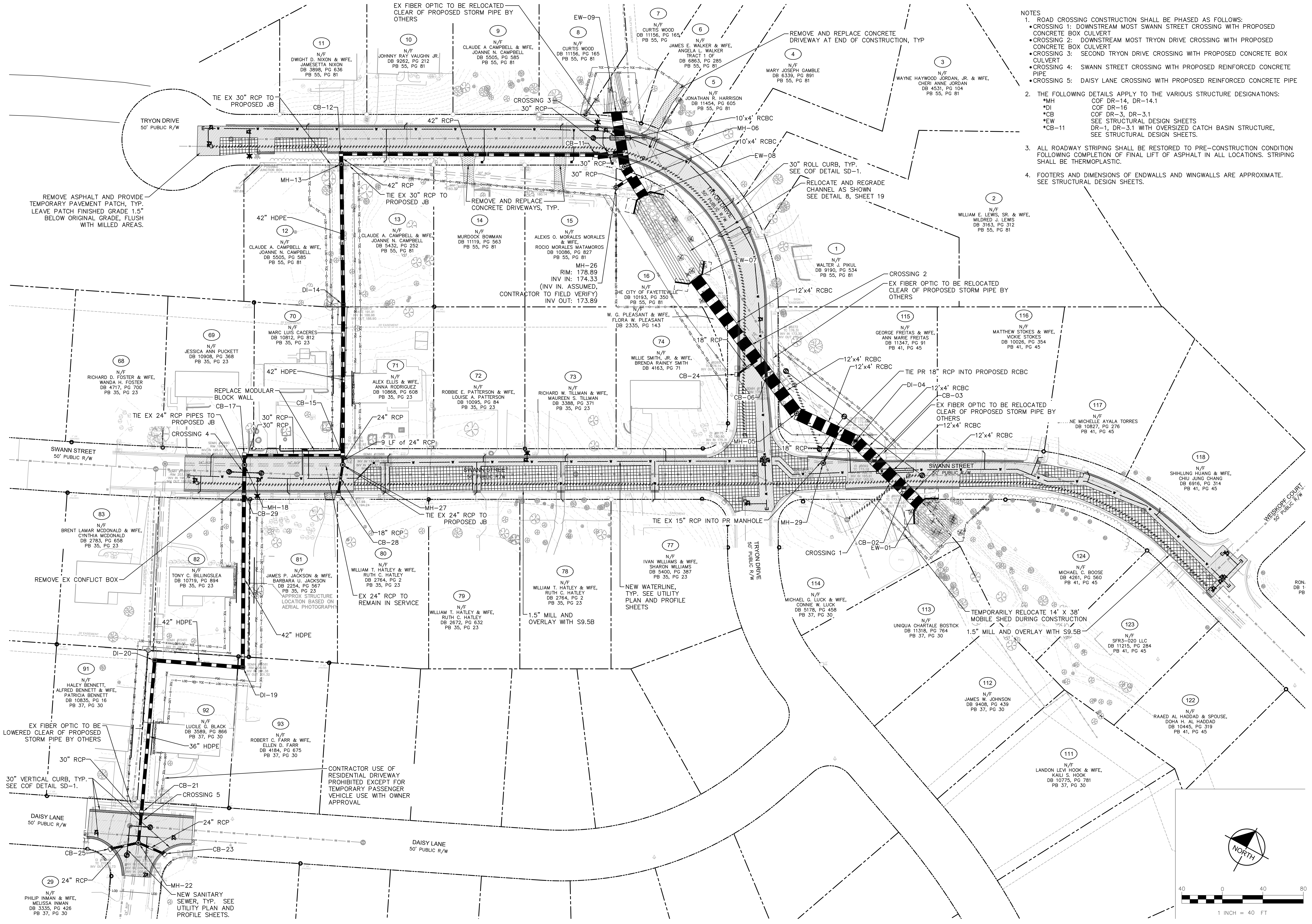
DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
030525
TRAVIS CRISSMAN
5/14/2025
NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.


EX FIBER OPTIC TO BE RELOCATED CLEAR OF PROPOSED STORM PIPE BY OTHERS
TIE EX 30" RCP TO PROPOSED JB
CB-12
42" RCP
CROSSING 3
30" RCP
EW-09
CB-11
10'x4' RCBC
MH-06
10'x4' RCBC
EW-08
30" RCP
30" RCP
REMOVE AND REPLACE CONCRETE DRIVEWAY AT END OF CONSTRUCTION, TYP
30" ROLL CURB, TYP. SEE COF DETAIL SD-1.
RELOCATE AND REGRADE CHANNEL AS SHOWN SEE DETAIL 8, SHEET 19
TRYON DRIVE 50' PUBLIC R/W
MH-13
42" RCP
TIE EX 30" RCP TO PROPOSED JB
REMOVE AND REPLACE CONCRETE DRIVEWAYS, TYP.
REMOVE ASPHALT AND PROVIDE TEMPORARY PAVEMENT PATCH, TYP. LEAVE PATCH FINISHED GRADE 1.5" BELOW ORIGINAL GRADE, FLUSH WITH MILLED AREAS.
42" HDPE
MH-26
RIM: 178.89
INV IN: 174.33
(INV IN. ASSUMED, CONTRACTOR TO FIELD VERIFY)
INV OUT: 173.89
EW-07
DI-14
12'x4' RCBC
CROSSING 2
EX FIBER OPTIC TO BE RELOCATED CLEAR OF PROPOSED STORM PIPE BY OTHERS
18" RCP
42" HDPE
CB-24
12'x4' RCBC
12'x4' RCBC
TIE PR 18" RCP INTO PROPOSED RCBC
DI-04
12'x4' RCBC
CB-03
EX FIBER OPTIC TO BE RELOCATED CLEAR OF PROPOSED STORM PIPE BY OTHERS
12'x4' RCBC
12'x4' RCBC
CB-06
MH-05
18" RCP
REPLACE MODULAR BLOCK WALL
CB-17
CB-15
TIE EX 24" RCP PIPES TO PROPOSED JB
30" RCP
30" RCP
CROSSING 4
24" RCP
9 LF of 24" RCP
SWANN STREET 50' PUBLIC R/W
SWANN STREET 50' PUBLIC R/W
SWANN STREET 50' PUBLIC R/W
MH-18
CB-29
MH-27
TIE EX 24" RCP TO PROPOSED JB
18" RCP
CB-28
TIE EX 15" RCP INTO PR MANHOLE
MH-29
CB-02
EW-01
CROSSING 1
WEISKOPF COURT 50' PUBLIC R/W
REMOVE EX CONFLICT BOX
APPROX STRUCTURE LOCATION BASED ON AERIAL PHOTOGRAPHY
EX 24" RCP TO REMAIN IN SERVICE
1.5" MILL AND OVERLAY WITH S9.5B
NEW WATERLINE, TYP. SEE UTILITY PLAN AND PROFILE SHEETS
TRYON DRIVE 50' PUBLIC R/W
TEMPORARILY RELOCATE 14' X 38' MOBILE SHED DURING CONSTRUCTION
1.5" MILL AND OVERLAY WITH S9.5B
42" HDPE
42" HDPE
DI-20
DI-19
EX FIBER OPTIC TO BE LOWERED CLEAR OF PROPOSED STORM PIPE BY OTHERS
36" HDPE
30" RCP
30" VERTICAL CURB, TYP. SEE COF DETAIL SD-1.
CB-21
CROSSING 5
CONTRACTOR USE OF RESIDENTIAL DRIVEWAY PROHIBITED EXCEPT FOR TEMPORARY PASSENGER VEHICLE USE WITH OWNER APPROVAL
DAISY LANE 50' PUBLIC R/W
24" RCP
DAISY LANE 50' PUBLIC R/W
CB-25
CB-23
24" RCP
MH-22
NEW SANITARY SEWER, TYP. SEE UTILITY PLAN AND PROFILE SHEETS.
11 N/F DWIGHT D. NIXON & WIFE, JAMESETTA NIXON DB 3898, PG 636 PB 55, PG 81
10 N/F JOHNNY RAY VAUGHN JR. DB 9262, PG 212 PB 55, PG 81
9 N/F CLAUDE A. CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5505, PG 585 PB 55, PG 81
8 N/F CURTIS WOOD DB 11156, PG 165 PB 55, PG 81
7 N/F CURTIS WOOD DB 11156, PG 165 PB 55, PG
6 N/F JAMES E. WALKER & WIFE, ANGELA L. WALKER TRACT 1 OF DB 6863, PG 285 PB 55, PG 81
5 N/F JONATHAN R. HARRISON DB 11454, PG 605 PB 55, PG 81
4 N/F MARY JOSEPH GAMBLE DB 6339, PG 891 PB 55, PG 81
3 N/F WAYNE HAYWOOD JORDAN, JR. & WIFE, CHERI ANNE JORDAN DB 4531, PG 104 PB 55, PG 81
2 N/F WILLIAM E. LEWIS, SR. & WIFE, MILDRED J. LEWIS DB 3163, PG 312 PB 55, PG 81
1 N/F WALTER J. PIKUL DB 9190, PG 534 PB 55, PG 81
12 N/F CLAUDE A. CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5505, PG 585 PB 55, PG 81
13 N/F CLAUDE A. CAMPBELL & WIFE, JOANNE N. CAMPBELL DB 5432, PG 252 PB 55, PG 81
14 N/F MURDOCK BOWMAN DB 11119, PG 563 PB 55, PG 81
15 N/F ALEXIS O. MORALES MORALES & WIFE, ROCIO MORALES MATAMOROS DB 10086, PG 827 PB 55, PG 81
16 N/F THE CITY OF FAYETTEVILLE DB 10193, PG 350 PB 55, PG 81
N/F W. G. PLEASANT & WIFE, FLORA W. PLEASANT DB 2335, PG 143
70 N/F MARC LUIS CACERES DB 10812, PG 812 PB 35, PG 23
69 N/F JESSICA ANN PUCKETT DB 10908, PG 368 PB 35, PG 23
68 N/F RICHARD D. FOSTER & WIFE, WANDA H. FOSTER DB 4717, PG 700 PB 35, PG 23
71 N/F ALEX ELLIS & WIFE, ANNA RODRIGUEZ DB 10868, PG 608 PB 35, PG 23
72 N/F ROBBIE E. PATTERSON & WIFE, LOUISE A. PATTERSON DB 10095, PG 84 PB 35, PG 23
73 N/F RICHARD W. TILLMAN & WIFE, MAUREEN S. TILLMAN DB 3388, PG 371 PB 35, PG 23
74 N/F WILLIE SMITH, JR. & WIFE, BRENDA RAINEY SMITH DB 4163, PG 71
115 N/F GEORGE FREITAS & WIFE, ANN MARIE FREITAS DB 11347, PG 91 PB 41, PG 45
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117 N/F ...NE MICHELLE AYALA TORRES DB 10827, PG 276 PB 41, PG 45
118 N/F SHIHLUNG HUANG & WIFE, CHIU JUNG CHANG DB 6916, PG 314 PB 41, PG 45
83 N/F BRENT LAMAR MCDONALD & WIFE, CYNTHIA MCDONALD DB 2783, PG 658 PB 35, PG 23
82 N/F TONY C. BILLINGSLEA DB 10719, PG 894 PB 35, PG 23
81 N/F JAMES P. JACKSON & WIFE, BARBARA U. JACKSON DB 2254, PG 567 PB 35, PG 23
80 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2764, PG 2 PB 35, PG 23
79 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2672, PG 632 PB 35, PG 23
78 N/F WILLIAM T. HATLEY & WIFE, RUTH C. HATLEY DB 2764, PG 2 PB 35, PG 23
77 N/F IVAN WILLIAMS & WIFE, SHARON WILLIAMS DB 5400, PG 387 PB 35, PG 23
114 N/F MICHAEL G. LUCK & WIFE, CONNIE W. LUCK DB 5178, PG 458 PB 37, PG 30
113 N/F UNIQUA CHARTALE BOSTICK DB 11318, PG 764 PB 37, PG 30
124 N/F MICHAEL C. BOOSE DB 4261, PG 560 PB 41, PG 45
123 N/F SFR3-020 LLC DB 11215, PG 284 PB 41, PG 45
112 N/F JAMES W. JOHNSON DB 9408, PG 439 PB 37, PG 30
122 N/F RAAED AL HADDAD & SPOUSE, DOHA H. AL HADDAD DB 10445, PG 319 PB 41, PG 45
111 N/F LANDON LEVI HOOK & WIFE, KAILI S. HOOK DB 10775, PG 781 PB 37, PG 30
91 N/F HALEY BENNETT, ALFRED BENNETT & WIFE, PATRICIA BENNETT DB 10835, PG 16 PB 37, PG 30
92 N/F LUCILE G. BLACK DB 3589, PG 866 PB 37, PG 30
93 N/F ROBERT C. FARR & WIFE, ELLEN D. FARR DB 4184, PG 675 PB 37, PG 30
29 N/F PHILIP INMAN & WIFE, MELISSA INMAN DB 3335, PG 426 PB 37, PG 30
NORTH
40 0 40 80
1 INCH = 40 FT

NOTES

1. ROAD CROSSING CONSTRUCTION SHALL BE PHASED AS FOLLOWS:
   - CROSSING 1: DOWNSTREAM MOST SWANN STREET CROSSING WITH PROPOSED CONCRETE BOX CULVERT
   - CROSSING 2: DOWNSTREAM MOST TRYON DRIVE CROSSING WITH PROPOSED CONCRETE BOX CULVERT
   - CROSSING 3: SECOND TRYON DRIVE CROSSING WITH PROPOSED CONCRETE BOX CULVERT
   - CROSSING 4: SWANN STREET CROSSING WITH PROPOSED REINFORCED CONCRETE PIPE
   - CROSSING 5: DAISY LANE CROSSING WITH PROPOSED REINFORCED CONCRETE PIPE
2. THE FOLLOWING DETAILS APPLY TO THE VARIOUS STRUCTURE DESIGNATIONS:

*MH	COF DR-14, DR-14.1
*DI	COF DR-16
*CB	COF DR-3, DR-3.1
*EW	SEE STRUCTURAL DESIGN SHEETS
*CB-11	DR-1, DR-3.1 WITH OVERSIZED CATCH BASIN STRUCTURE, SEE STRUCTURAL DESIGN SHEETS.

3. ALL ROADWAY STRIPING SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION FOLLOWING COMPLETION OF FINAL LIFT OF ASPHALT IN ALL LOCATIONS. STRIPING SHALL BE THERMOPLASTIC.
4. FOOTERS AND DIMENSIONS OF ENDWALLS AND WINGWALLS ARE APPROXIMATE. SEE STRUCTURAL DESIGN SHEETS.

IMPROVEMENTS PLAN

PLAN TYPE:

SHEET NUMBER
8 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FDD6A6D47D...
030525
5/14/2025

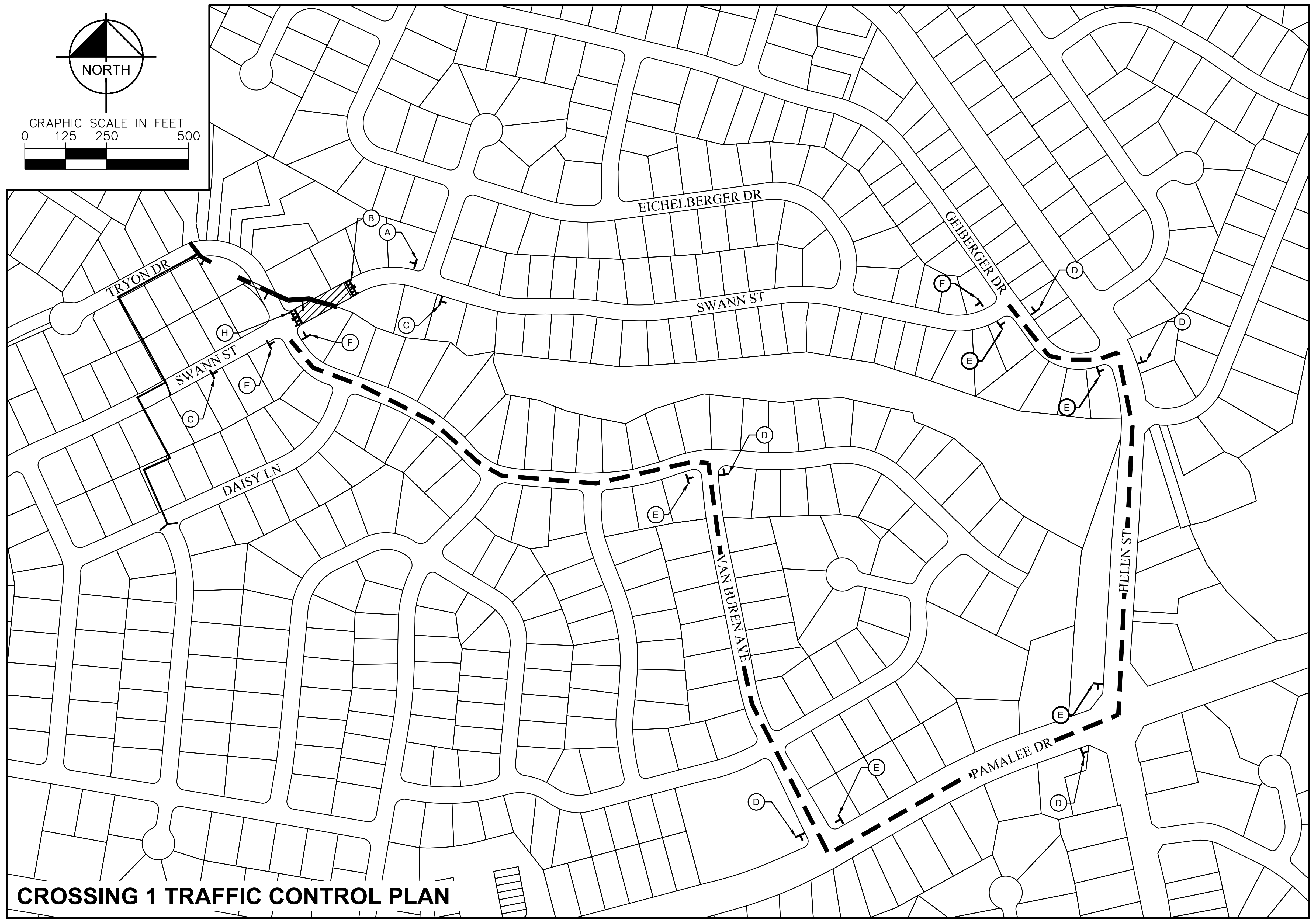
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

REVISIONS

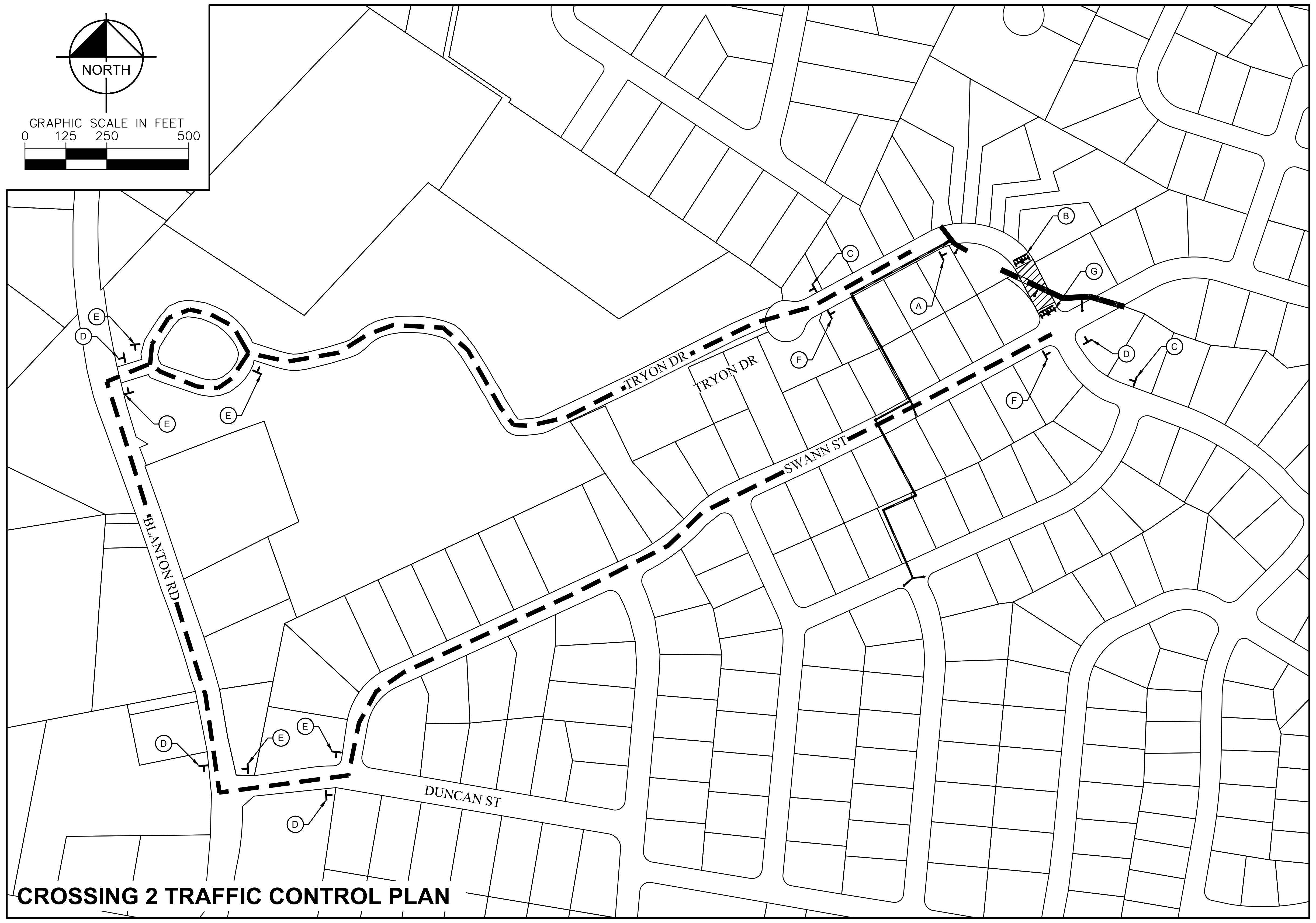
ISSUED FOR CONSTRUCTION

DRAWN :	G. SEITZ	PROJECT NAME :	TRYON DRAINAGE
DESIGN :		SCALE :	SCALE
CHECK :		DATE :	MAY 2025
APPROVED :	T. CRISSMAN		

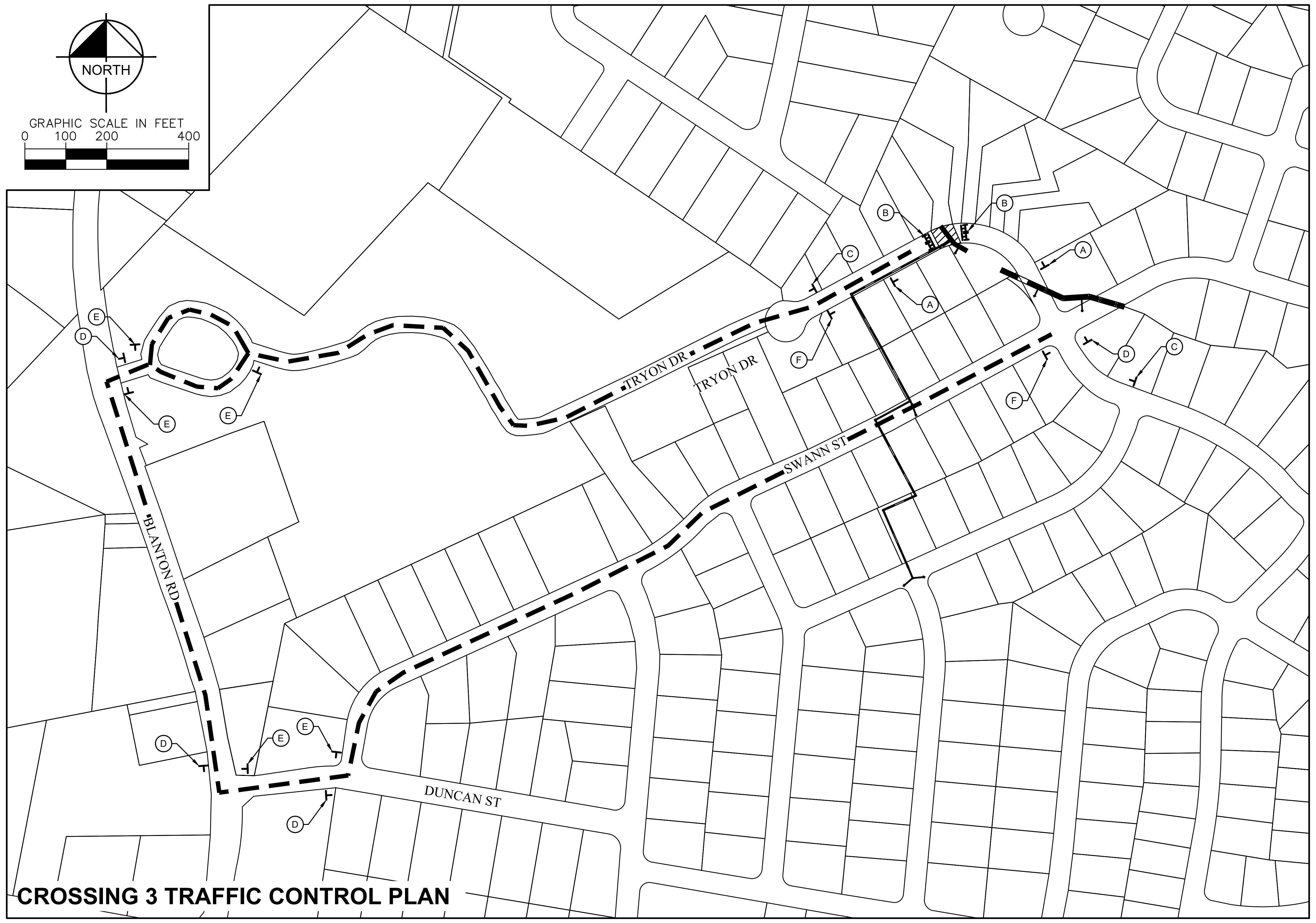
PROJECT NO. KH 011017025
SUB-LEDGER NO.


NORTH
GRAPHIC SCALE IN FEET
0 125 250 500
TRYON DR
SWANN ST
EICHELBERGER DR
GEIBERGER DR
SWANN ST
DAISY LN
VAN BUREN AVE
HELEN ST
PAMALEE DR
A
B
C
D
E
F
H

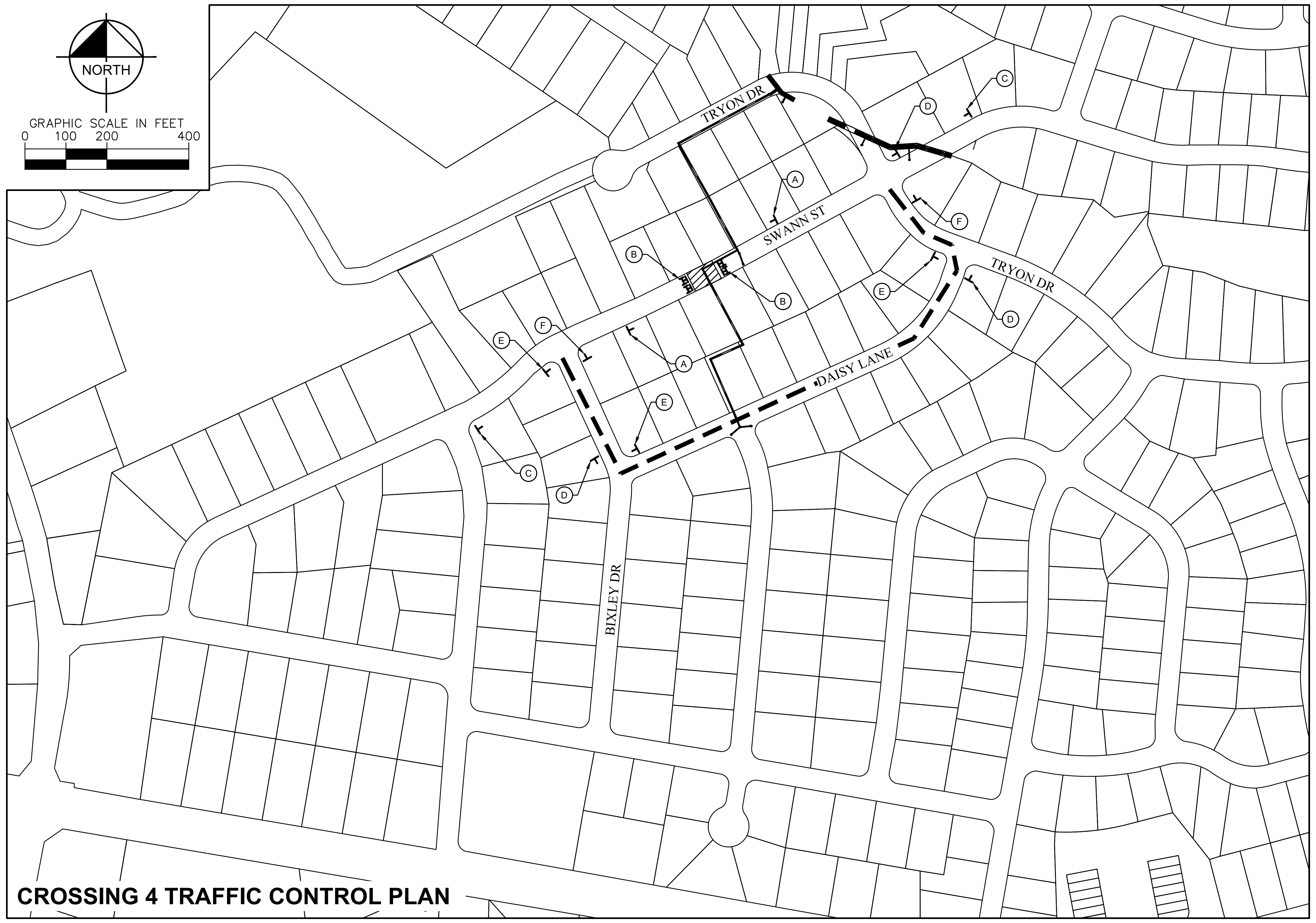
CROSSING 1 TRAFFIC CONTROL PLAN


NORTH
GRAPHIC SCALE IN FEET
0 125 250 500
TRYON DR
TRYON DR
SWANN ST
BLANTON RD
DUNCAN ST
A
B
C
D
E
F
G

CROSSING 2 TRAFFIC CONTROL PLAN


NORTH
GRAPHIC SCALE IN FEET
0 100 200 400
TRYON DR
TRYON DR
SWANN ST
BLANTON RD
DUNCAN ST
A
B
C
D
E
F

CROSSING 3 TRAFFIC CONTROL PLAN


NORTH
GRAPHIC SCALE IN FEET
0 100 200 400
TRYON DR
SWANN ST
TRYON DR
DAISY LANE
BIXLEY DR
A
B
C
D
E
F

CROSSING 4 TRAFFIC CONTROL PLAN

TRAFFIC CONTROL PLAN

PLAN TYPE:

SHEET NUMBER
9 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL SEAL 030525 ENGINEER TRAVIS CRISSMAN
DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
5/14/2025
NAME:
DATE:

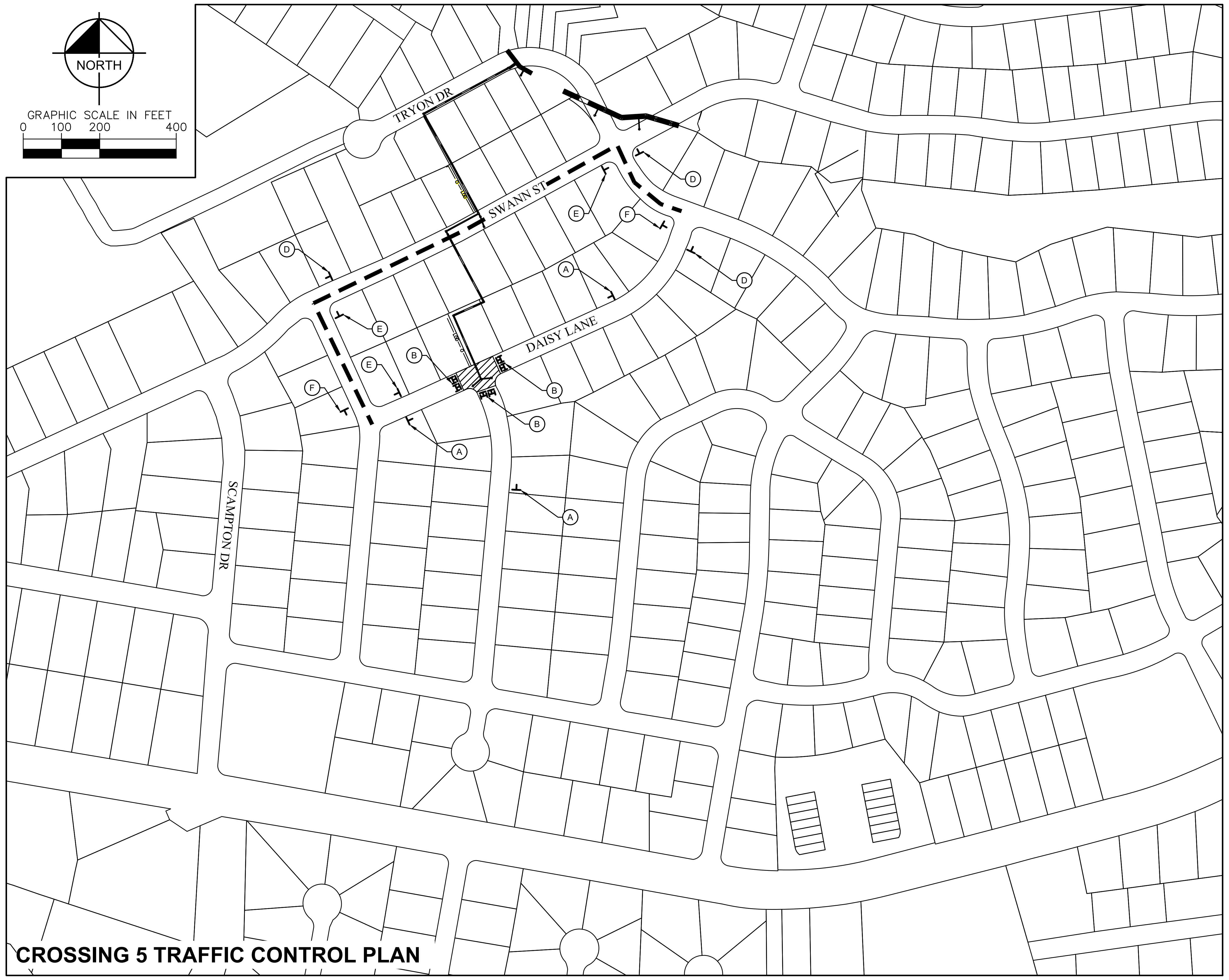
REVISIONS			
REV. #	DESCRIPTION	REV.BY	DATE
1	BID SET		MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.


NORTH
GRAPHIC SCALE IN FEET
0
100
200
400
TRYON DR
SWANN ST
DAISY LANE
SCAMPTON DR
A
B
C
D
E
F

CROSSING 5 TRAFFIC CONTROL PLAN

A

ROAD
CLOSED
AHEAD

W20-3

B

R11-2

ROAD
CLOSED

TYPE III BARRICADE

C

DETOUR
AHEAD

W20-2

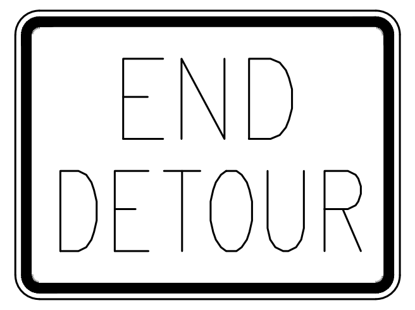
D

M4-9L

E

M4-9R

F



M4-8A

G

R11-2, M4-9L

ROAD
CLOSED
DETOUR

TYPE III BARRICADE

H

R11-2, M4-9R

ROAD
CLOSED
DETOUR

TYPE III BARRICADE

TRAFFIC CONTROL PLAN

PLAN TYPE:

SHEET NUMBER
10 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
SEAL
030525
TRAVIS CRISSMAN
3/14/2025

REVISIONS

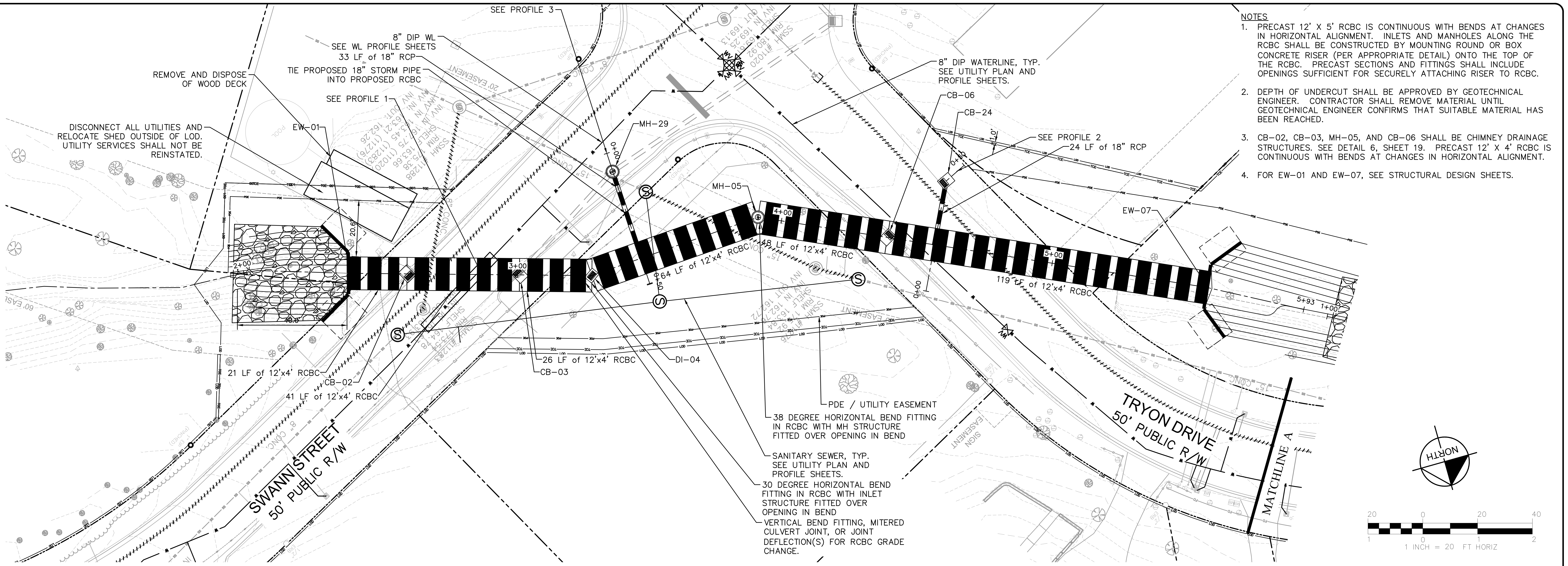
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

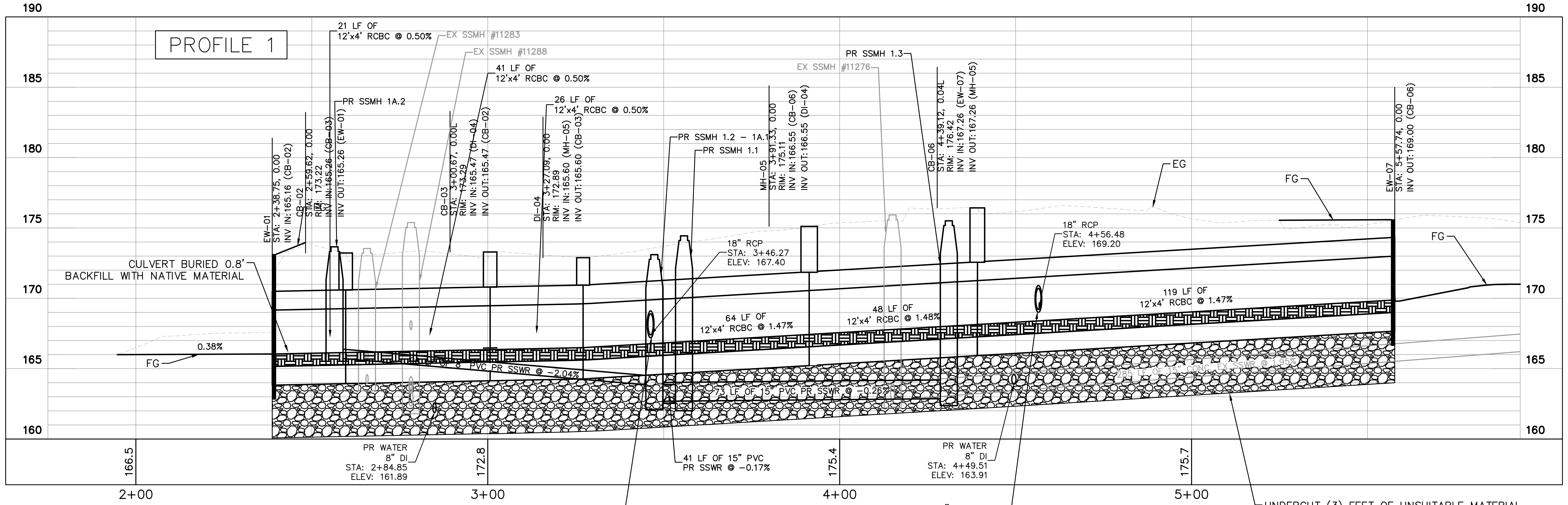
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

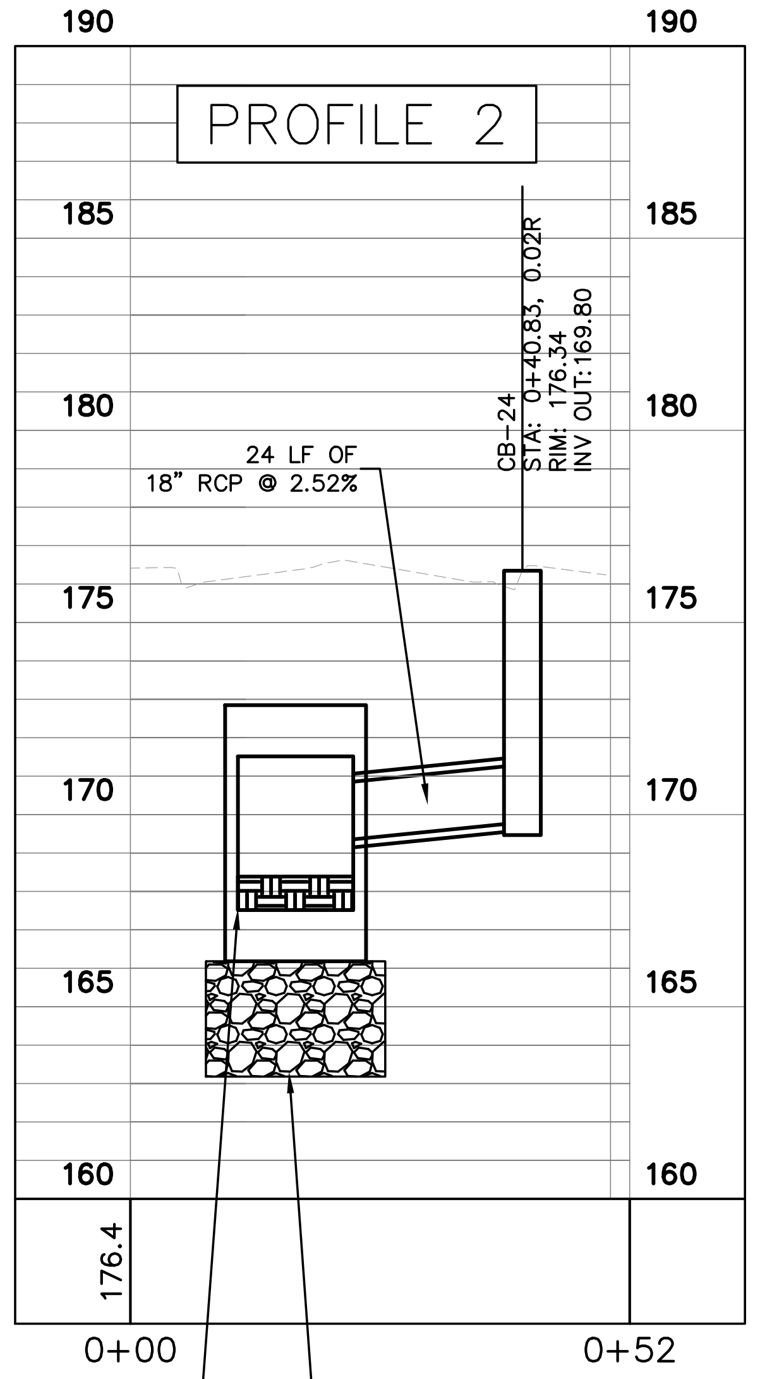
PROJECT NO. KH 011017025
SUB-LEDGER NO.

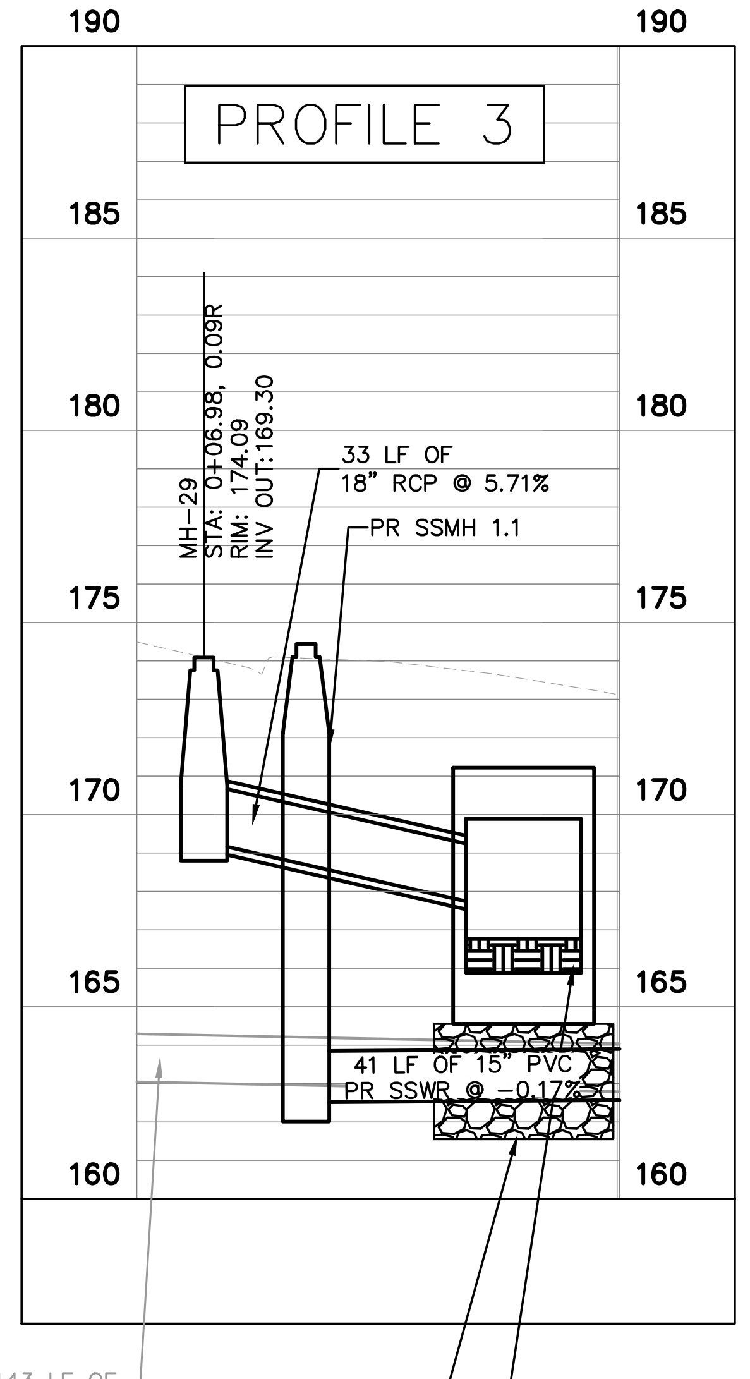

SEE PROFILE 3
8" DIP WL
SEE WL PROFILE SHEETS
33 LF of 18" RCP
REMOVE AND DISPOSE OF WOOD DECK
TIE PROPOSED 18" STORM PIPE INTO PROPOSED RCBC
SEE PROFILE 1
DISCONNECT ALL UTILITIES AND RELOCATE SHED OUTSIDE OF LOD. UTILITY SERVICES SHALL NOT BE REINSTATED.
EW-01
MH-29
20.6'
40.6'
2+00
3+00
0+00
0+50
POOL
20' EASEMENT
SSMH #11288 RIM 175.38 SHELF 163.66 INV IN 167.75 (11020) INV IN 163.45 (11283) INV IN 163.21 (11276) INV OUT 162.26
SSMH #11283 RIM 173.54 SHELF 164.78
21 LF of 12'x4' RCBC
CB-02
41 LF of 12'x4' RCBC
26 LF of 12'x4' RCBC
CB-03
SWANN STREET
50' PUBLIC R/W
8" DIP WATERLINE, TYP. SEE UTILITY PLAN AND PROFILE SHEETS.
SSMH #11020 RIM 180.92 SHELF 169.61 INV IN 169.25 INV OUT 169.13
CB-06
CB-24
SEE PROFILE 2
24 LF of 18" RCP
1.0'
MH-05
4+00
5+00
5+93
1+00
64 LF of 12'x4' RCBC
48 LF of 12'x4' RCBC
119 LF of 12'x4' RCBC
EW-07
DI-04
SSMH #11276 RIM 175.84 SHELF 162.76 INV OUT 162.72
PDE / UTILITY EASEMENT
38 DEGREE HORIZONTAL BEND FITTING IN RCBC WITH MH STRUCTURE FITTED OVER OPENING IN BEND
SANITARY SEWER, TYP. SEE UTILITY PLAN AND PROFILE SHEETS.
30 DEGREE HORIZONTAL BEND FITTING IN RCBC WITH INLET STRUCTURE FITTED OVER OPENING IN BEND
VERTICAL BEND FITTING, MITERED CULVERT JOINT, OR JOINT DEFLECTION(S) FOR RCBC GRADE CHANGE.
SIGN EASEMENT
TRYON DRIVE
50' PUBLIC R/W
MATCHLINE A
NORTH
20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ

NOTES

1. PRECAST 12' X 5' RCBC IS CONTINUOUS WITH BENDS AT CHANGES IN HORIZONTAL ALIGNMENT. INLETS AND MANHOLES ALONG THE RCBC SHALL BE CONSTRUCTED BY MOUNTING ROUND OR BOX CONCRETE RISER (PER APPROPRIATE DETAIL) ONTO THE TOP OF THE RCBC. PRECAST SECTIONS AND FITTINGS SHALL INCLUDE OPENINGS SUFFICIENT FOR SECURELY ATTACHING RISER TO RCBC.
2. DEPTH OF UNDERCUT SHALL BE APPROVED BY GEOTECHNICAL ENGINEER. CONTRACTOR SHALL REMOVE MATERIAL UNTIL GEOTECHNICAL ENGINEER CONFIRMS THAT SUITABLE MATERIAL HAS BEEN REACHED.
3. CB-02, CB-03, MH-05, AND CB-06 SHALL BE CHIMNEY DRAINAGE STRUCTURES. SEE DETAIL 6, SHEET 19. PRECAST 12' X 4' RCBC IS CONTINUOUS WITH BENDS AT CHANGES IN HORIZONTAL ALIGNMENT.
4. FOR EW-01 AND EW-07, SEE STRUCTURAL DESIGN SHEETS.


PROFILE 1
190
185
180
175
170
165
160
21 LF OF 12'x4' RCBC @ 0.50%
EX SSMH #11283
EX SSMH #11288
41 LF OF 12'x4' RCBC @ 0.50%
26 LF OF 12'x4' RCBC @ 0.50%
PR SSMH 1A.2
EW-01 STA: 2+38.75, 0.00 INV IN:165.16 (CB-02)
CB-02 STA: 2+59.62, 0.00 RIM: 173.22 INV IN:165.26 (CB-03) INV OUT:165.26 (EW-01)
CB-03 STA: 3+00.67, 0.00L RIM: 173.29 INV IN:165.47 (DI-04) INV OUT:165.47 (CB-02)
DI-04 STA: 3+27.09, 0.00 RIM: 172.89 INV IN:165.60 (MH-05) INV OUT:165.60 (CB-03)
PR SSMH 1.2 – 1A.1
PR SSMH 1.1
MH-05 STA: 3+91.33, 0.00 RIM: 175.11 INV IN:166.55 (CB-06) INV OUT:166.55 (DI-04)
EX SSMH #11276
PR SSMH 1.3
CB-06 STA: 4+39.12, 0.04L RIM: 176.42 INV IN:167.26 (EW-07) INV OUT:167.26 (MH-05)
EW-07 STA: 5+57.74, 0.00 INV OUT:169.00 (CB-06)
EG
FG
CULVERT BURIED 0.8' BACKFILL WITH NATIVE MATERIAL
0.38%
FG
18" RCP STA: 3+46.27 ELEV: 167.40
64 LF OF 12'x4' RCBC @ 1.47%
48 LF OF 12'x4' RCBC @ 1.48%
18" RCP STA: 4+56.48 ELEV: 169.20
119 LF OF 12'x4' RCBC @ 1.47%
LF OF 8" PVC PR SSWR @ -2.04%
73 LF OF 15" PVC PR SSWR @ -0.26%
285 LF OF 15" CONC. EX SSWR @ 1.95%
PR WATER 8" DI STA: 2+84.85 ELEV: 161.89
41 LF OF 15" PVC PR SSWR @ -0.17%
PR WATER 8" DI STA: 4+49.51 ELEV: 163.91
166.5
172.8
175.4
175.7
2+00
3+00
4+00
5+00
TIE PROPOSED 18" RCP INTO SIDE OF BOX CULVERT
TIE PROPOSED 18" RCP INTO SIDE OF BOX CULVERT
UNDERCUT (3) FEET OF UNSUITABLE MATERIAL SEE DETAIL 1, SHEET 18 FOR CULVERT FOUNDATION DETAIL. SEE NOTE 2, THIS SHEET.


PROFILE 2
190
185
180
175
170
165
160
24 LF OF 18" RCP @ 2.52%
CB-24 STA: 0+40.83, 0.02R RIM: 176.34 INV OUT:169.80
176.4
0+00
0+52
CULVERT BURIED 0.8' BACKFILL WITH NATIVE MATERIAL
UNDERCUT (3) FEET OF UNSUITABLE MATERIAL SEE DETAIL 1, SHEET 18 FOR CULVERT FOUNDATION DETAIL. SEE NOTE 2, THIS SHEET.


PROFILE 3
190
185
180
175
170
165
160
MH-29 STA: 0+06.98, 0.09R RIM: 174.09 INV OUT:169.30
33 LF OF 18" RCP @ 5.71%
PR SSMH 1.1
41 LF OF 15" PVC PR SSWR @ -0.17%
143 LF OF 15" CONC. EX SSWR @ -0.34%
UNDERCUT (3) FEET OF UNSUITABLE MATERIAL SEE DETAIL 1, SHEET 18 FOR CULVERT FOUNDATION DETAIL. SEE NOTE 2, THIS SHEET.
CULVERT BURIED 0.8' BACKFILL WITH NATIVE MATERIAL

20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ
1 INCH = 5 FT VERT

STORM PLAN PROFILE (1)

PLAN TYPE:

SHEET NUMBER
11 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
SEAL 030525
TRAVIS CRISSMAN
NAME:
DATE:

REVISIONS			
REV. #	DESCRIPTION	REV.BY	DATE
1	BID SET		MAY 2025

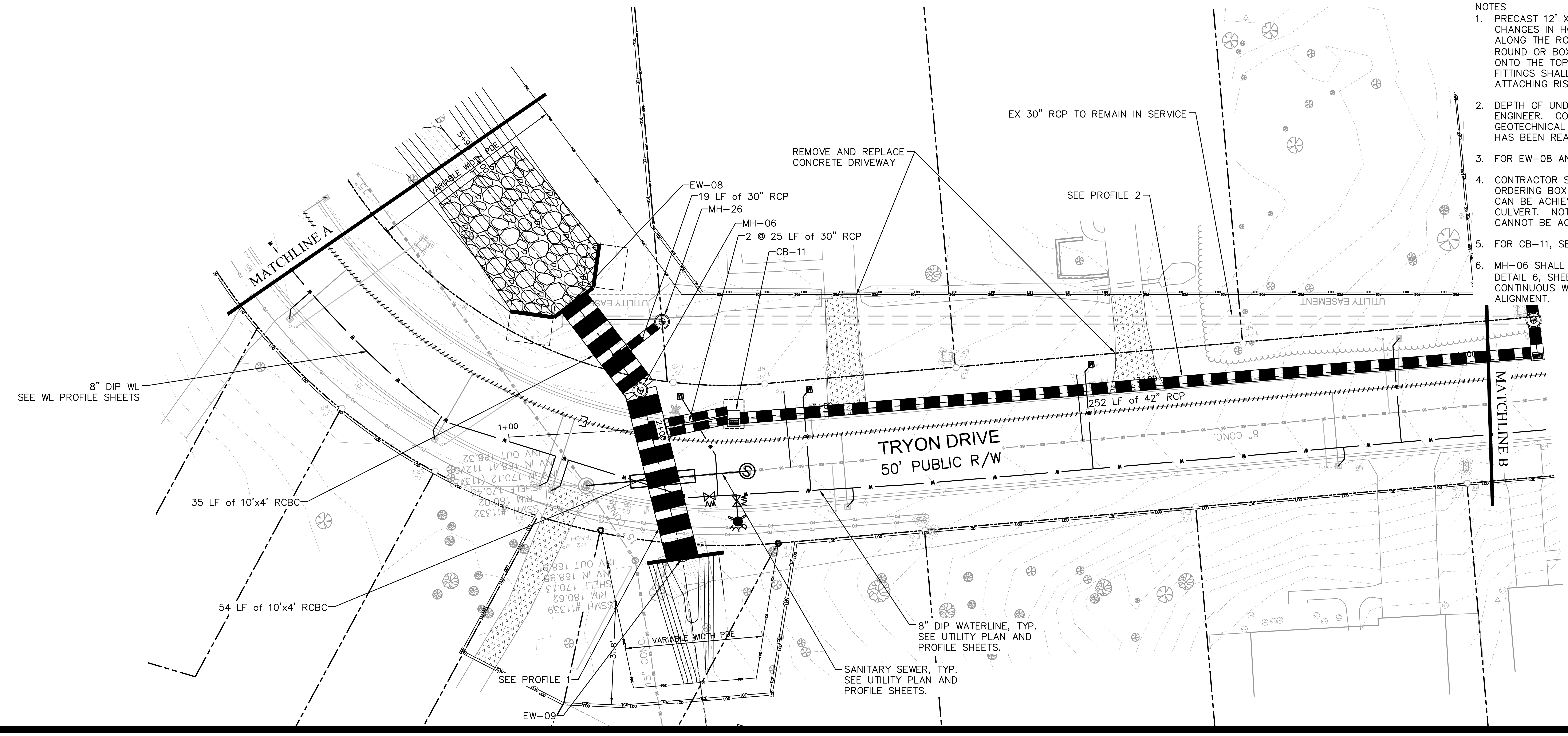
ISSUED FOR CONSTRUCTION

DRAWN :	G. SEITZ	PROJECT NAME :	TRYON DRAINAGE
DESIGN :		SCALE :	SCALE
CHECK :		DATE :	MAY 2025
APPROVED :	T. CRISSMAN		

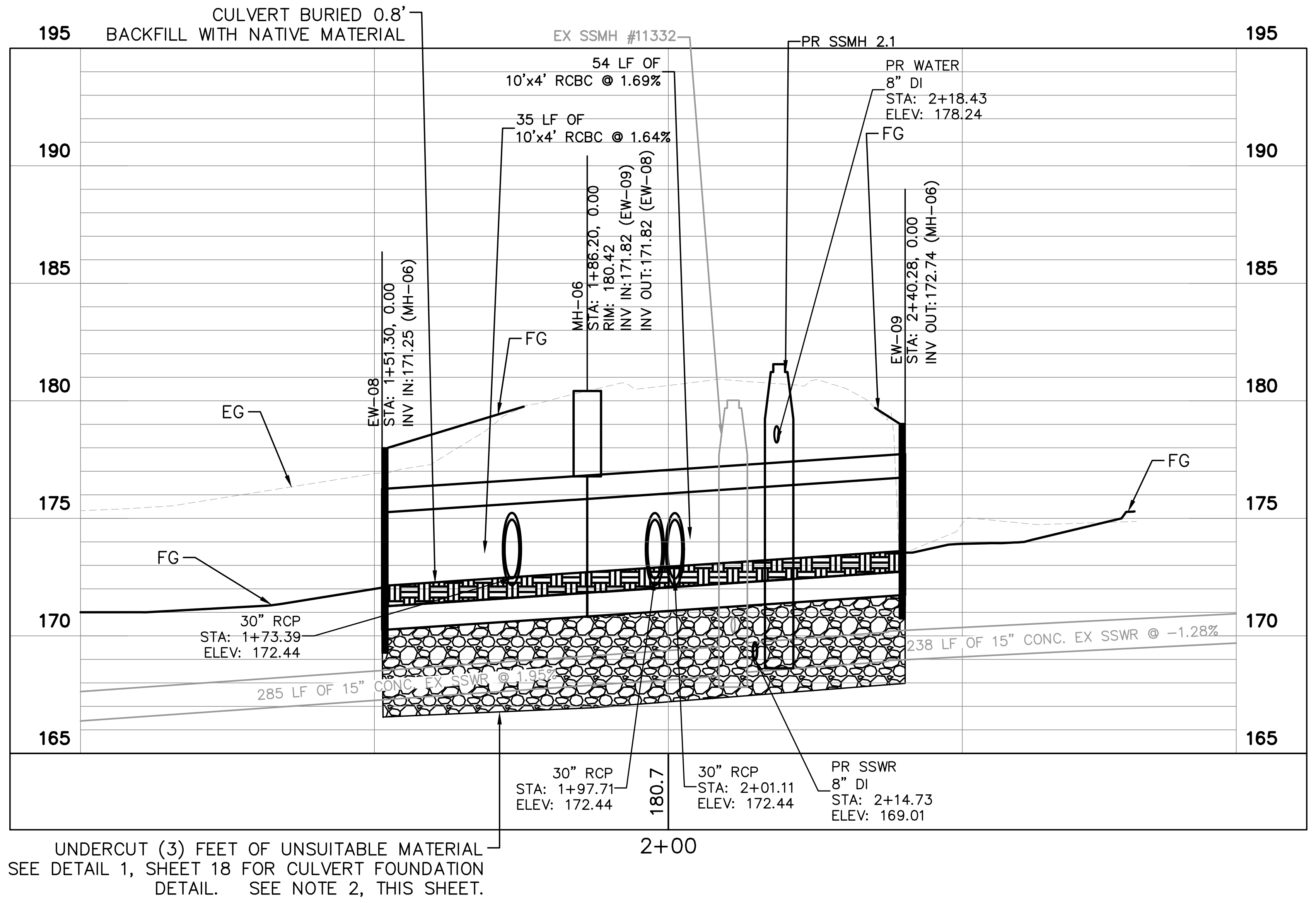
PROJECT NO. KH 011017025
SUB-LEDGER NO. ____

NOTES

1. PRECAST 12' X 5' RCBC IS CONTINUOUS WITH BENDS AT CHANGES IN HORIZONTAL ALIGNMENT. INLETS AND MANHOLES ALONG THE RCBC SHALL BE CONSTRUCTED BY MOUNTING ROUND OR BOX CONCRETE RISER (PER APPROPRIATE DETAIL) ONTO THE TOP OF THE RCBC. PRECAST SECTIONS AND FITTINGS SHALL INCLUDE OPENINGS SUFFICIENT FOR SECURELY ATTACHING RISER TO RCBC.
2. DEPTH OF UNDERCUT SHALL BE APPROVED BY GEOTECHNICAL ENGINEER. CONTRACTOR SHALL REMOVE MATERIAL UNTIL GEOTECHNICAL ENGINEER CONFIRMS THAT SUITABLE MATERIAL HAS BEEN REACHED.
3. FOR EW-08 AND EW-09, SEE STRUCTURAL DESIGN SHEETS.
4. CONTRACTOR SHALL CHECK INVERT OF MH-26 PRIOR TO ORDERING BOX CULVERT TO ENSURE THAT POSITIVE SLOPE CAN BE ACHIEVED FROM MH-26 TO THE PROPOSED BOX CULVERT. NOTIFY ENGINEER IMMEDIATELY IF POSITIVE SLOPE CANNOT BE ACHIEVED.
5. FOR CB-11, SEE STRUCTURAL DESIGN SHEETS.
6. MH-06 SHALL BE CHIMNEY DRAINAGE STRUCTURE. SEE DETAIL 6, SHEET 19. PRECAST 10' X 4' RCBC IS CONTINUOUS WITH BENDS AT CHANGES IN HORIZONTAL ALIGNMENT.

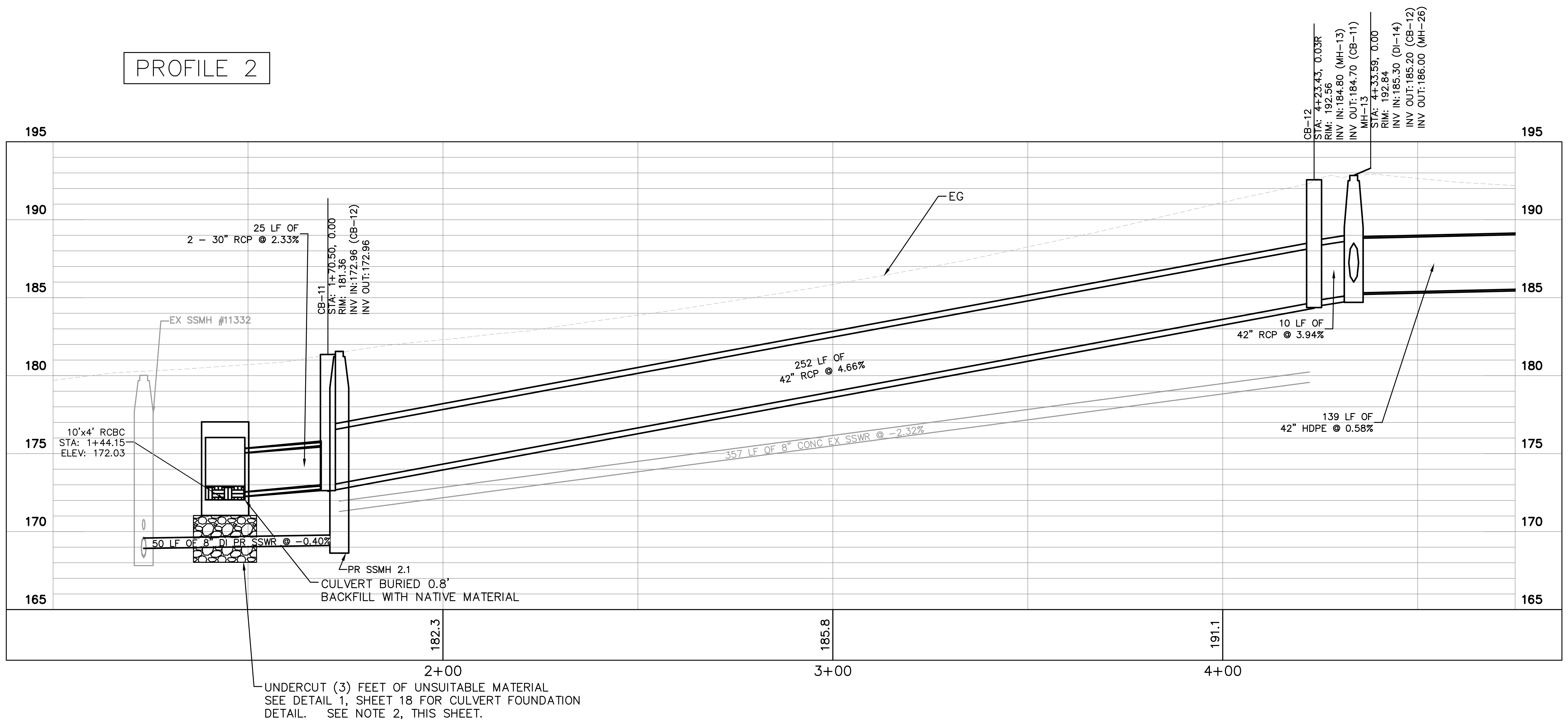

MATCHLINE A
VARIABLE WIDTH PDE
EW-08
19 LF of 30" RCP
MH-26
MH-06
2 @ 25 LF of 30" RCP
CB-11
REMOVE AND REPLACE CONCRETE DRIVEWAY
EX 30" RCP TO REMAIN IN SERVICE
SEE PROFILE 2
UTILITY EASEMENT
252 LF of 42" RCP
TRYON DRIVE
50' PUBLIC R/W
MATCHLINE B
8" DIP WL
SEE WL PROFILE SHEETS
1+00
2+00
35 LF of 10'x4' RCBC
54 LF of 10'x4' RCBC
SSMH #11332
RIM 180.02
SHELF 170.43
INV IN 170.12
INV IN 168.41
INV OUT 168.32
SSMH #11339
RIM 180.62
SHELF 170.13
INV IN 168.95
INV OUT 168.
8" CONC.
15" CONC.
31.8'
VARIABLE WIDTH PDE
SEE PROFILE 1
EW-09
8" DIP WATERLINE, TYP.
SEE UTILITY PLAN AND PROFILE SHEETS.
SANITARY SEWER, TYP.
SEE UTILITY PLAN AND PROFILE SHEETS.
NORTH
20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ

PROFILE 1


CULVERT BURIED 0.8'
BACKFILL WITH NATIVE MATERIAL
EX SSMH #11332
PR SSMH 2.1
54 LF OF
10'x4' RCBC @ 1.69%
35 LF OF
10'x4' RCBC @ 1.64%
PR WATER
8" DI
STA: 2+18.43
ELEV: 178.24
FG
EG
EW-08
STA: 1+51.30, 0.00
INV IN:171.25 (MH-06)
MH-06
STA: 1+86.20, 0.00
RIM: 180.42
INV IN:171.82 (EW-09)
INV OUT:171.82 (EW-08)
EW-09
STA: 2+40.28, 0.00
INV OUT:172.74 (MH-06)
30" RCP
STA: 1+73.39
ELEV: 172.44
285 LF OF 15" CONC. EX SSWR @ 1.95%
238 LF OF 15" CONC. EX SSWR @ -1.28%
30" RCP
STA: 1+97.71
ELEV: 172.44
30" RCP
STA: 2+01.11
ELEV: 172.44
PR SSWR
8" DI
STA: 2+14.73
ELEV: 169.01
180.7
2+00
195
190
185
180
175
170
165

UNDERCUT (3) FEET OF UNSUITABLE MATERIAL
SEE DETAIL 1, SHEET 18 FOR CULVERT FOUNDATION DETAIL. SEE NOTE 2, THIS SHEET.

PROFILE 2


CB-12
STA: 4+23.43, 0.03R
RIM: 192.56
INV IN:184.80 (MH-13)
INV OUT:184.70 (CB-11)
MH-13
STA: 4+33.59, 0.00
RIM: 192.84
INV IN:185.30 (DI-14)
INV OUT:185.20 (CB-12)
INV OUT:186.00 (MH-26)
EG
25 LF OF
2 – 30" RCP @ 2.33%
CB-11
STA: 1+70.50, 0.00
RIM: 181.36
INV IN:172.96 (CB-12)
INV OUT:172.96
EX SSMH #11332
10'x4' RCBC
STA: 1+44.15
ELEV: 172.03
252 LF OF
42" RCP @ 4.66%
10 LF OF
42" RCP @ 3.94%
139 LF OF
42" HDPE @ 0.58%
357 LF OF 8" CONC EX SSWR @ -2.32%
50 LF OF 8" DI PR SSWR @ -0.40%
PR SSMH 2.1
CULVERT BURIED 0.8'
BACKFILL WITH NATIVE MATERIAL
182.3
185.8
191.1
2+00
3+00
4+00
195
190
185
180
175
170
165

UNDERCUT (3) FEET OF UNSUITABLE MATERIAL
SEE DETAIL 1, SHEET 18 FOR CULVERT FOUNDATION DETAIL. SEE NOTE 2, THIS SHEET.

20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ
1 INCH = 5 FT VERT

STORM PLAN PROFILE (2)

PLAN TYPE:

SHEET NUMBER
12 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
SEAL
030525
TRAVIS CRISSMAN
5/14/2025

REVISIONS

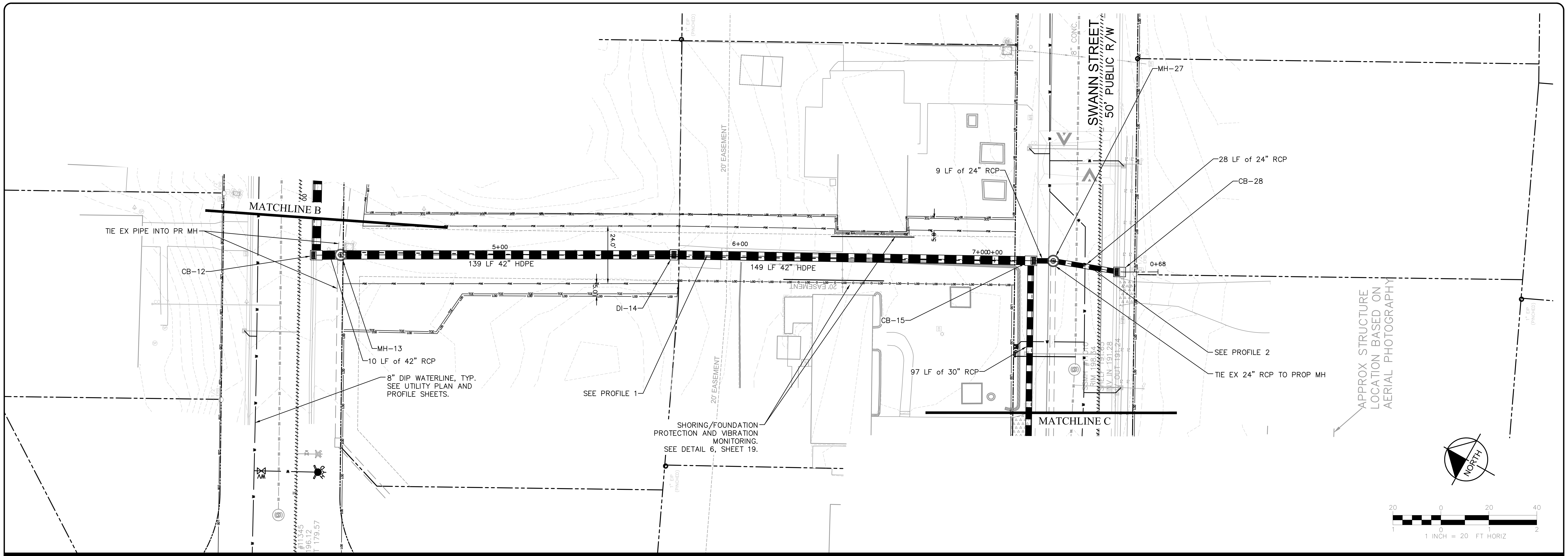
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

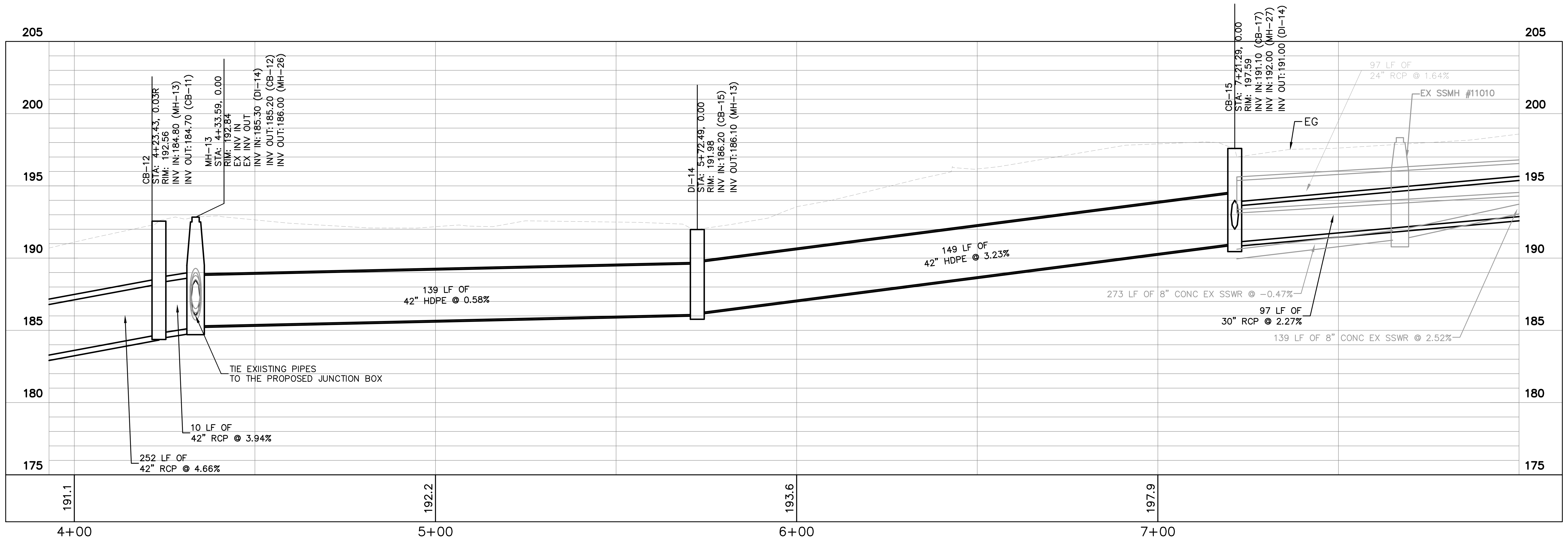
ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

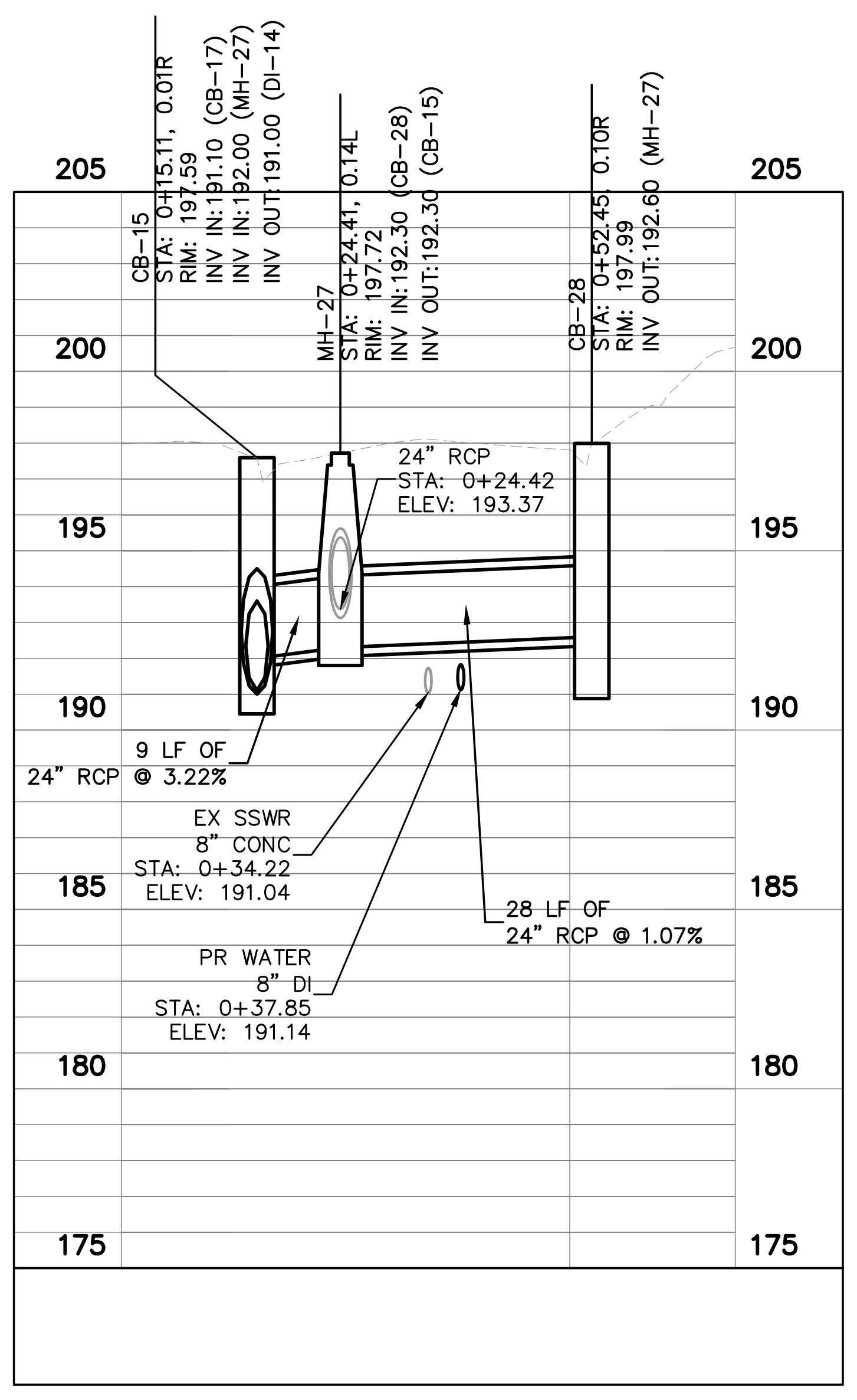
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.


MATCHLINE B
TIE EX PIPE INTO PR MH
CB-12
5+00
139 LF 42" HDPE
24.0'
6+00
149 LF 42" HDPE
7+00+00
0+68
DI-14
MH-13
10 LF of 42" RCP
8" DIP WATERLINE, TYP. SEE UTILITY PLAN AND PROFILE SHEETS.
SEE PROFILE 1
SHORING/FOUNDATION PROTECTION AND VIBRATION MONITORING. SEE DETAIL 6, SHEET 19.
20' EASEMENT
9 LF of 24" RCP
CB-15
97 LF of 30" RCP
MATCHLINE C
SWANN STREET
50' PUBLIC R/W
8" CONC.
MH-27
28 LF of 24" RCP
CB-28
SEE PROFILE 2
TIE EX 24" RCP TO PROP MH
APPROX STRUCTURE LOCATION BASED ON AERIAL PHOTOGRAPHY
NORTH
20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ


205
200
195
190
185
180
175
CB-12
STA: 4+23.43, 0.03R
RIM: 192.56
INV IN:184.80 (MH-13)
INV OUT:184.70 (CB-11)
MH-13
STA: 4+33.59, 0.00
RIM: 192.84
EX INV IN
EX INV OUT
INV IN:185.30 (DI-14)
INV OUT:185.20 (CB-12)
INV OUT:186.00 (MH-26)
DI-14
STA: 5+72.49, 0.00
RIM: 191.98
INV IN:186.20 (CB-15)
INV OUT:186.10 (MH-13)
CB-15
STA: 7+21.29, 0.00
RIM: 197.59
INV IN:191.10 (CB-17)
INV IN:192.00 (MH-27)
INV OUT:191.00 (DI-14)
97 LF OF 24" RCP @ 1.64%
EX SSMH #11010
EG
149 LF OF 42" HDPE @ 3.23%
139 LF OF 42" HDPE @ 0.58%
273 LF OF 8" CONC EX SSWR @ -0.47%
97 LF OF 30" RCP @ 2.27%
139 LF OF 8" CONC EX SSWR @ 2.52%
TIE EXISTING PIPES TO THE PROPOSED JUNCTION BOX
10 LF OF 42" RCP @ 3.94%
252 LF OF 42" RCP @ 4.66%
191.1
192.2
193.6
197.9
4+00
5+00
6+00
7+00

PROFILE 1


205
200
195
190
185
180
175
CB-15
STA: 0+15.11, 0.01R
RIM: 197.59
INV IN:191.10 (CB-17)
INV IN:192.00 (MH-27)
INV OUT:191.00 (DI-14)
MH-27
STA: 0+24.41, 0.14L
RIM: 197.72
INV IN:192.30 (CB-28)
INV OUT:192.30 (CB-15)
CB-28
STA: 0+52.45, 0.10R
RIM: 197.99
INV OUT:192.60 (MH-27)
24" RCP
STA: 0+24.42
ELEV: 193.37
9 LF OF 24" RCP @ 3.22%
EX SSWR 8" CONC
STA: 0+34.22
ELEV: 191.04
PR WATER 8" DI
STA: 0+37.85
ELEV: 191.14
28 LF OF 24" RCP @ 1.07%

PROFILE 2

20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ
1 INCH = 5 FT VERT

STORM PLAN PROFILE (3)

PLAN TYPE:

SHEET NUMBER
13 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
030525
7/14/2025
NAME:
DATE:

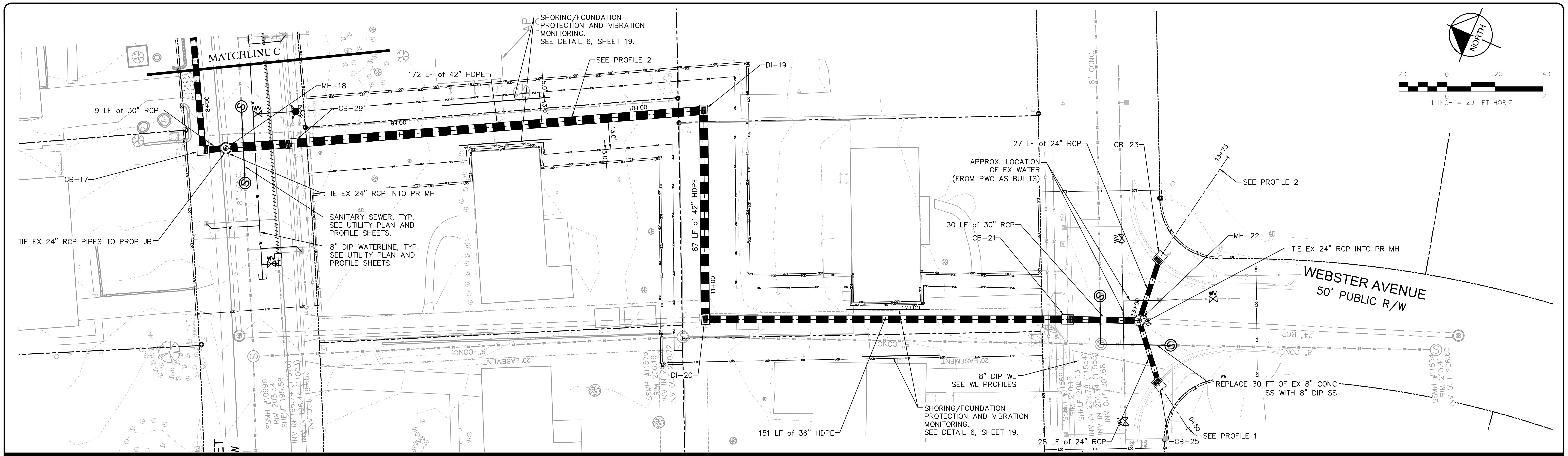
REVISIONS		
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN :	G. SEITZ	PROJECT NAME :	TRYON DRAINAGE
DESIGN :		SCALE :	SCALE
CHECK :		DATE :	MAY 2025
APPROVED :	T. CRISSMAN		

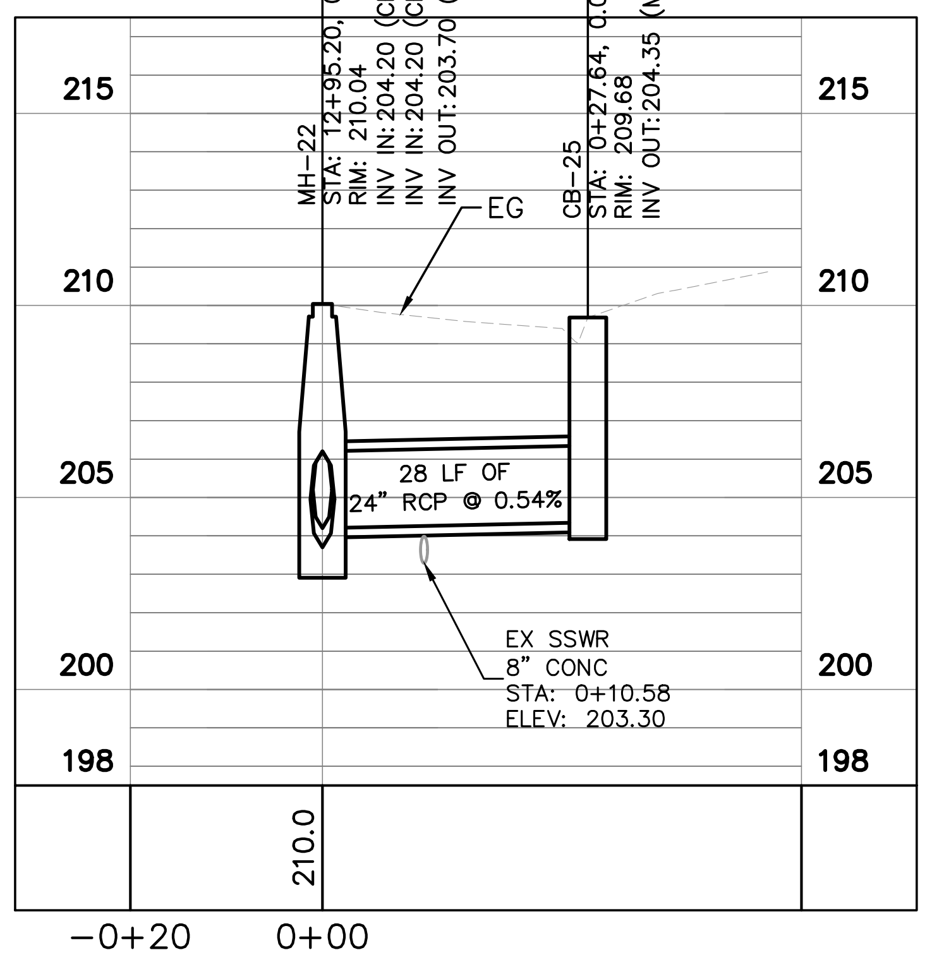
PROJECT NO. KH 011017025
SUB-LEDGER NO.

Docusign Envelope ID: DA960C4E-7E29-4D1D-B64E-80E212A2C3BA



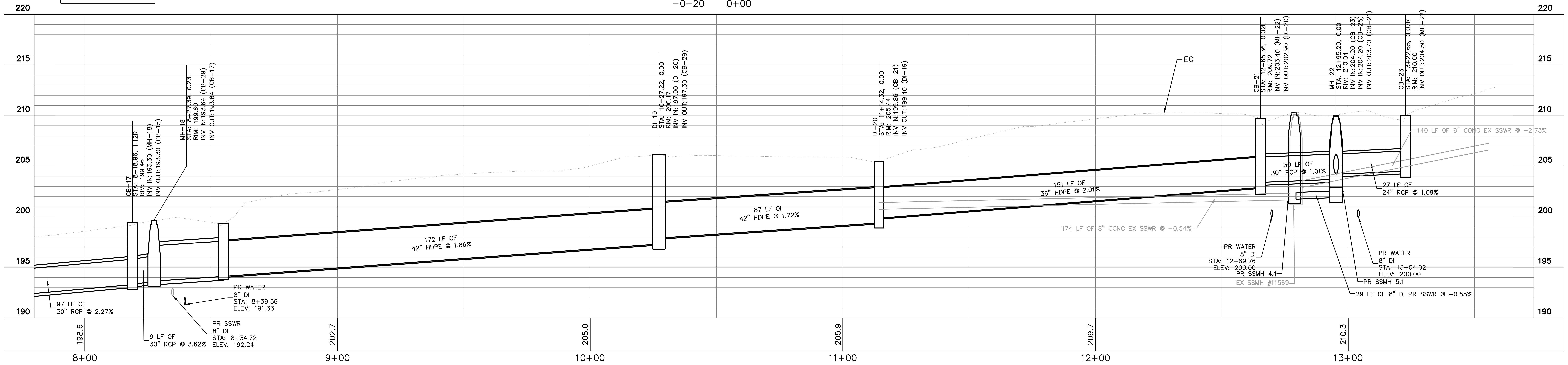
MATCHLINE C
NORTH
20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ
SHORING/FOUNDATION PROTECTION AND VIBRATION MONITORING. SEE DETAIL 6, SHEET 19.
SEE PROFILE 2
DI-19
172 LF of 42" HDPE
MH-18
CB-29
9 LF of 30" RCP
8+00
9+00
10+00
13.0'
15.0'
10.0'
CB-17
TIE EX 24" RCP INTO PR MH
SANITARY SEWER, TYP. SEE UTILITY PLAN AND PROFILE SHEETS.
8" DIP WATERLINE, TYP. SEE UTILITY PLAN AND PROFILE SHEETS.
TIE EX 24" RCP PIPES TO PROP JB
87 LF of 42" HDPE
11+00
DI-20
27 LF of 24" RCP
CB-23
13+73
APPROX. LOCATION OF EX WATER (FROM PWC AS BUILTS)
SEE PROFILE 2
30 LF of 30" RCP
CB-21
MH-22
TIE EX 24" RCP INTO PR MH
WEBSTER AVENUE
50' PUBLIC R/W
12+00
13+00
20' EASEMENT
8" CONC
24" RCP
8" DIP WL SEE WL PROFILES
SHORING/FOUNDATION PROTECTION AND VIBRATION MONITORING. SEE DETAIL 6, SHEET 19.
151 LF of 36" HDPE
28 LF of 24" RCP
CB-25
0+50
SEE PROFILE 1
REPLACE 30 FT OF EX 8" CONC SS WITH 8" DIP SS
SSMH #10999 RIM 203.54 SHELF 195.58 INV IN 196.74 (11576) INV IN 196.44 (11003) INV OUT 194.80
SSMH #11576 RIM 206.16 INV IN 200.72 INV OUT 200.72
SSMH #11569 RIM 210.13 SHELF 202.53 INV IN 202.75 (11554) INV IN 201.75 (11555) INV OUT 201.68
SSMH #11554 RIM 213.41 INV OUT 206.60

PROFILE 1



215
210
205
200
198
MH-22 STA: 12+95.20, 0.00 RIM: 210.04 INV IN: 204.20 (CB-23) INV IN: 204.20 (CB-25) INV OUT: 203.70 (CB-21)
CB-25 STA: 0+27.64, 0.00 RIM: 209.68 INV OUT: 204.35 (MH-22)
EG
28 LF OF 24" RCP @ 0.54%
EX SSWR 8" CONC STA: 0+10.58 ELEV: 203.30
210.0
-0+20
0+00

PROFILE 2



220
215
210
205
200
195
190
CB-17 STA: 8+18.86, 1.12R RIM: 199.46 INV IN: 193.30 (MH-18) INV OUT: 193.30 (CB-15)
MH-18 STA: 8+27.39, 0.23L RIM: 199.60 INV IN: 193.64 (CB-29) INV OUT: 193.64 (CB-17)
DI-19 STA: 10+27.22, 0.00 RIM: 206.17 INV IN: 197.90 (DI-20) INV OUT: 197.30 (CB-29)
DI-20 STA: 11+14.32, 0.00 RIM: 205.44 INV IN: 199.86 (CB-21) INV OUT: 199.40 (DI-19)
CB-21 STA: 12+65.36, 0.02L RIM: 209.72 INV IN: 203.40 (MH-22) INV OUT: 202.90 (DI-20)
MH-22 STA: 12+95.20, 0.00 RIM: 210.04 INV IN: 204.20 (CB-23) INV IN: 204.20 (CB-25) INV OUT: 203.70 (CB-21)
CB-23 STA: 13+22.65, 0.07R RIM: 210.00 INV OUT: 204.50 (MH-22)
EG
140 LF OF 8" CONC EX SSWR @ -2.73%
97 LF OF 30" RCP @ 2.27%
9 LF OF 30" RCP @ 3.62%
PR WATER 8" DI STA: 8+39.56 ELEV: 191.33
PR SSWR 8" DI STA: 8+34.72 ELEV: 192.24
172 LF OF 42" HDPE @ 1.86%
87 LF OF 42" HDPE @ 1.72%
151 LF OF 36" HDPE @ 2.01%
174 LF OF 8" CONC EX SSWR @ -0.54%
30 LF OF 30" RCP @ 1.01%
27 LF OF 24" RCP @ 1.09%
PR WATER 8" DI STA: 12+69.76 ELEV: 200.00
PR SSMH 4.1
EX SSMH #11569
PR WATER 8" DI STA: 13+04.02 ELEV: 200.00
PR SSMH 5.1
29 LF OF 8" DI PR SSWR @ -0.55%
198.6
202.7
205.0
205.9
209.7
210.3
8+00
9+00
10+00
11+00
12+00
13+00

20 0 20 40
1 0 1 2
1 INCH = 20 FT HORIZ
1 INCH = 5 FT VERT

STORM PLAN PROFILE (4)

SHEET NUMBER
14 of 45

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
SEAL
030525
TRAVIS CRISSMAN
3/14/2025
NAME:

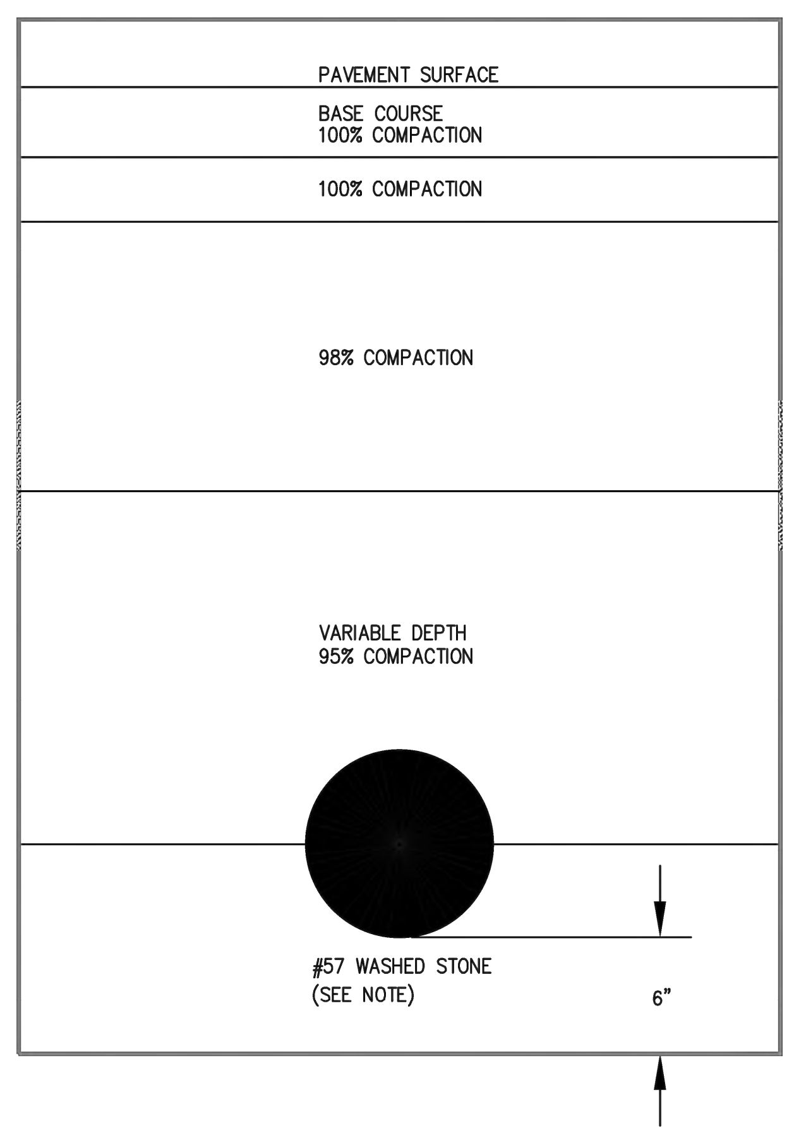
REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

Docusign Envelope ID: DA960C4E-7E29-4D1D-B64E-80E212A2C3BA


PAVEMENT SURFACE
BASE COURSE 100% COMPACTION
100% COMPACTION
98% COMPACTION
VARIABLE DEPTH 95% COMPACTION
#57 WASHED STONE (SEE NOTE)
1'-0"
2'-0"
6"

NOTES:
1. STONE BEDDING FOR PIPE IS REQUIRED UNLESS OTHERWISE APPROVED BY CITY ENGINEER OR THEIR DESIGNEE.

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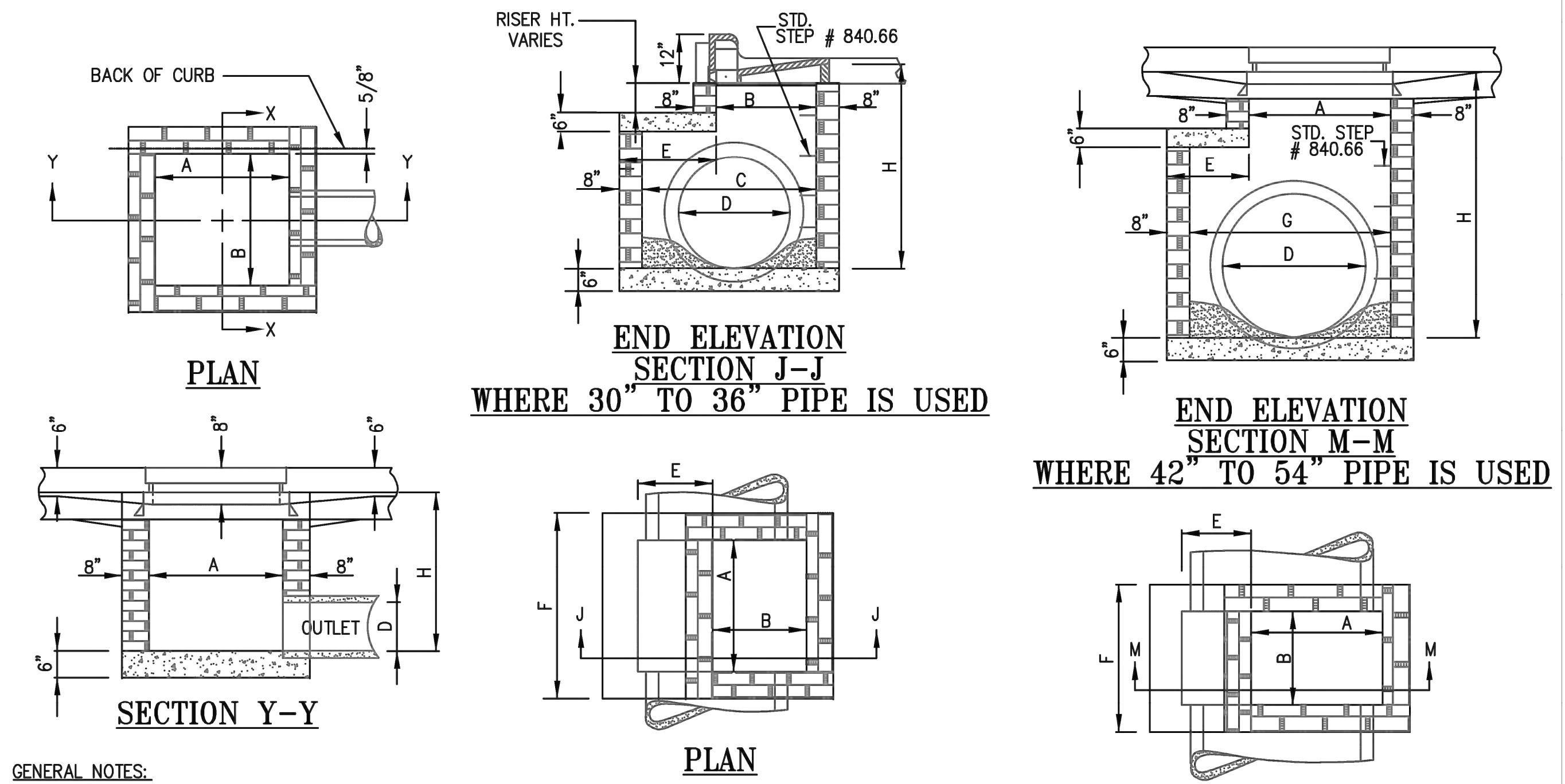
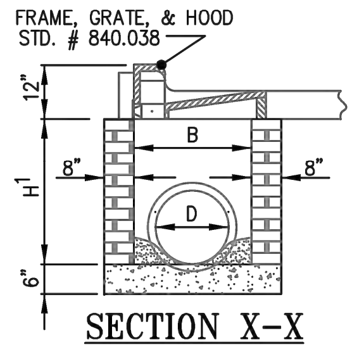
TYPICAL STORM DRAIN COMPACTION

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-1


BACK OF CURB
RISER HT. VARIES
STD. STEP # 840.66
PLAN
END ELEVATION SECTION J-J WHERE 30" TO 36" PIPE IS USED
END ELEVATION SECTION M-M WHERE 42" TO 54" PIPE IS USED
STD. STEP # 840.66
SECTION Y-Y
OUTLET
PLAN
PLAN
A
B
C
D
E
F
H
J
8"
6"

GENERAL NOTES:
1. MORTAR JOINTS 1/2" ± 1/8" THICK.
2. 3000 P.S.I. CONCRETE TO BE USED.
3. USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
4. DEDUCT FOR PIPE(S) TOTAL CU. YDS. OF BRICK MASONRY.
5. USE #4 BAR DOWELS AT 12" CENTERS FOR ALL PIPE SIZES.
6. ALL CATCH BASINS OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 12" ON CENTERS.
7. USE TYPE "E", "F", & "G" GRATE UNLESS OTHERWISE INDICATED.
8. JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICKS.
9. FOR 8'-0" IN HEIGHT OR LESS USE 8" WALL. OVER 8'-0" IN HEIGHT USE 12" WALL TO 6'-0" FROM TOP OF WALL, 8" WALL FOR THE UPPER 6'-0".
10. INVERTS SHALL BE SHAPED TO FORM A SMOOTH, REGULAR SURFACE, SLOPED TO PREVENT SEDIMENTATION.
11. FOR VARIABLE DIMENSIONS, SEE STANDARD DETAIL DR-3.1.
12. CONSTRUCT WITH PIPE CROWNS MATCHING.
13. CHAMFER ALL EXPOSED CORNERS 1".


FRAME, GRATE, & HOOD STD. # 840.038
SECTION X-X
12"
H1
6"
8"
B
D

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STANDARD BRICK CATCH BASIN (15" THRU 54" PIPE) ADOPTED FROM NCDOT STANDARD NO. 840.01 PAGE 1 OF 2

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

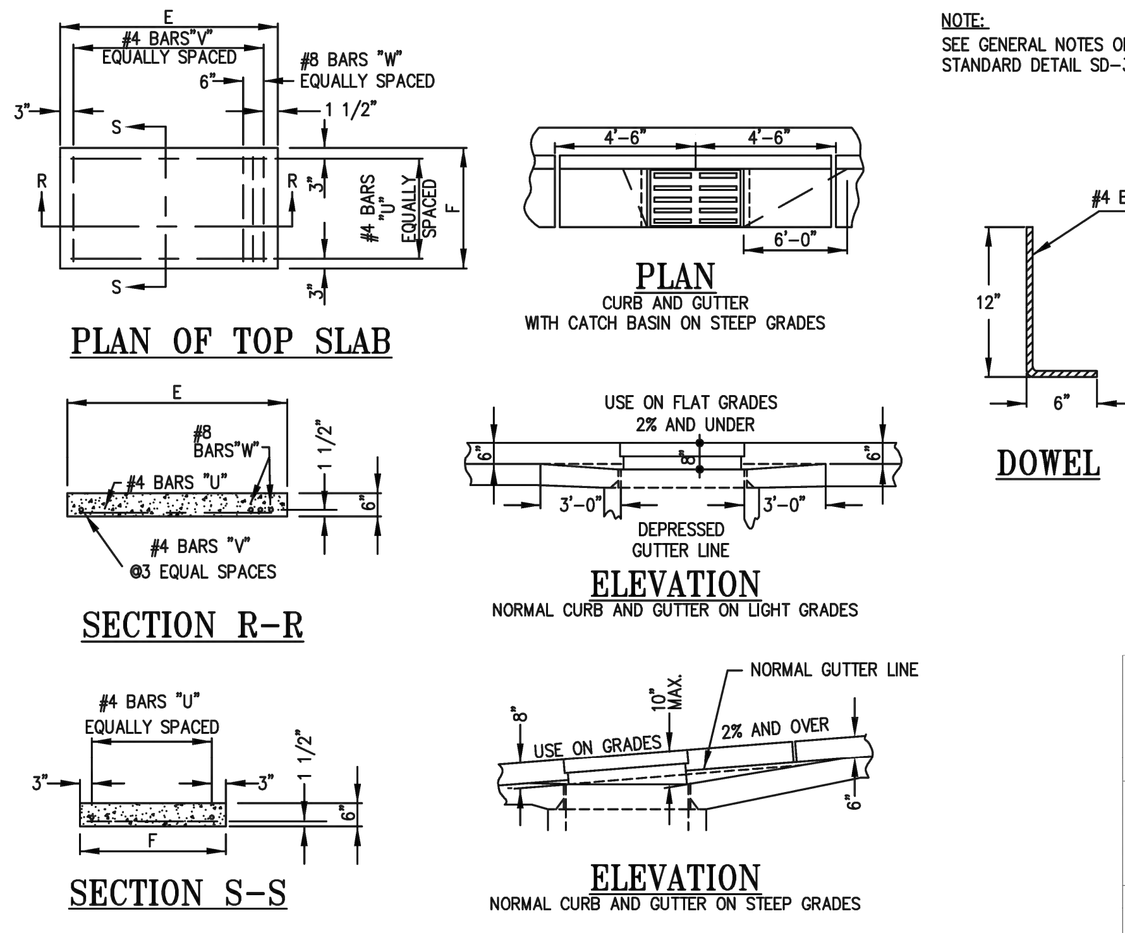
DR-3

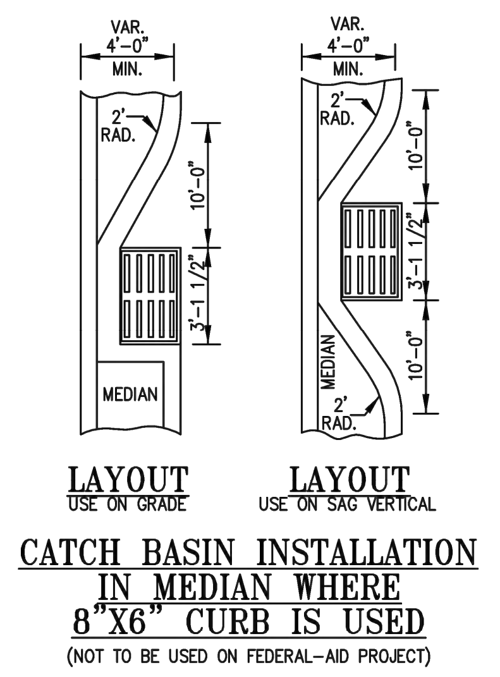
DIMENSIONS AND QUANTITIES FOR BRICK CATCH BASIN
(LOCATION OF SOME VARIABLES SHOWN IN STANDARD DETAIL SD-3)

DIMENSIONS OF BOX AND PIPE: PIPE D	SPAN A	WIDTH B	WIDTH C	SPAN G	HEIGHT H	COVER DIMENSION E	COVER DIMENSION F	REINFORCING BARS-U NO	BARS-U LENGTH	BARS-V NO	BARS-V LENGTH	BARS-W NO	BARS-W LENGTH	TOTAL LBS.	* CUBIC YARDS OF CONCRETE IN BOX: TOP SLAB	FLOOR	TOTAL	BRICK MASON: BRICK MSNR IN WALLS	TOTAL BRICK & CONCRETE	DEDUCTIONS FOR ONE PIPE: C.M.	R.C.
15"	3'-0"	2'-2"	–	–	3'-0"	–	–	–	–	–	–	–	–	–	–	0.281	0.281	0.963	1.244	0.0308	0.047
18"	3'-0"	2'-2"	–	–	3'-3"	–	–	–	–	–	–	–	–	–	–	0.281	0.281	1.043	1.324	0.0442	0.065
24"	3'-0"	2'-2"	–	–	3'-9"	–	–	–	–	–	–	–	–	–	–	0.281	0.281	1.204	1.485	0.0784	0.121
30"	3'-0"	2'-2"	3'-4"	–	4'-3"	1'-2"	4'-4"	4	1'-6"	3	4'-1"	3	4'-1"	45	0.147	0.374	0.521	1.606	2.217	0.1224	0.184
36"	3'-0"	2'-2"	3'-10"	–	4'-9"	1'-8"	4'-4"	4	2'-0"	4	4'-1"	3	4'-1"	49	0.187	0.415	0.602	1.914	2.516	0.1760	0.261
42"	3'-0"	2'-2"	–	4'-5"	5'-3"	1'-5"	3'-6"	4	1'-9"	3	3'-3"	3	3'-3"	38	0.135	0.373	0.508	2.152	2.660	0.2400	0.371
48"	3'-0"	2'-2"	–	5'-0"	5'-9"	2'-0"	3'-6"	4	2'-6"	4	3'-3"	3	3'-3"	41	0.173	0.410	0.583	2.415	2.998	0.3131	0.477
54"	3'-0"	2'-2"	–	5'-7"	6'-3"	2'-7"	3'-6"	4	3'-0"	6	3'-3"	3	3'-3"	47	0.211	0.448	0.659	2.806	3.465	0.3958	0.595

* CONCRETE TO BE PAID FOR AS BRICK MASONRY

NOTE:
SEE GENERAL NOTES ON STANDARD DETAIL SD-3


#4 BARS "V" EQUALLY SPACED
#8 BARS "W" EQUALLY SPACED
#4 BARS "U" EQUALLY SPACED
PLAN OF TOP SLAB
SECTION R-R
#4 BARS "U" @3 EQUAL SPACES
SECTION S-S
PLAN
CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES
USE ON FLAT GRADES 2% AND UNDER
DEPRESSED GUTTER LINE
ELEVATION
NORMAL CURB AND GUTTER ON LIGHT GRADES
NORMAL GUTTER LINE
USE ON GRADES
2% AND OVER
ELEVATION
NORMAL CURB AND GUTTER ON STEEP GRADES
#4 BAR
DOWEL
4'-6"
3'-0"
1 1/2"
3"


VAR. 4'-0" MIN.
2' RAD.
10'-0"
MEDIAN
LAYOUT
USE ON GRADE
LAYOUT
USE ON SAG VERTICAL
CATCH BASIN INSTALLATION IN MEDIAN WHERE 8"X6" CURB IS USED
(NOT TO BE USED ON FEDERAL-AID PROJECT)

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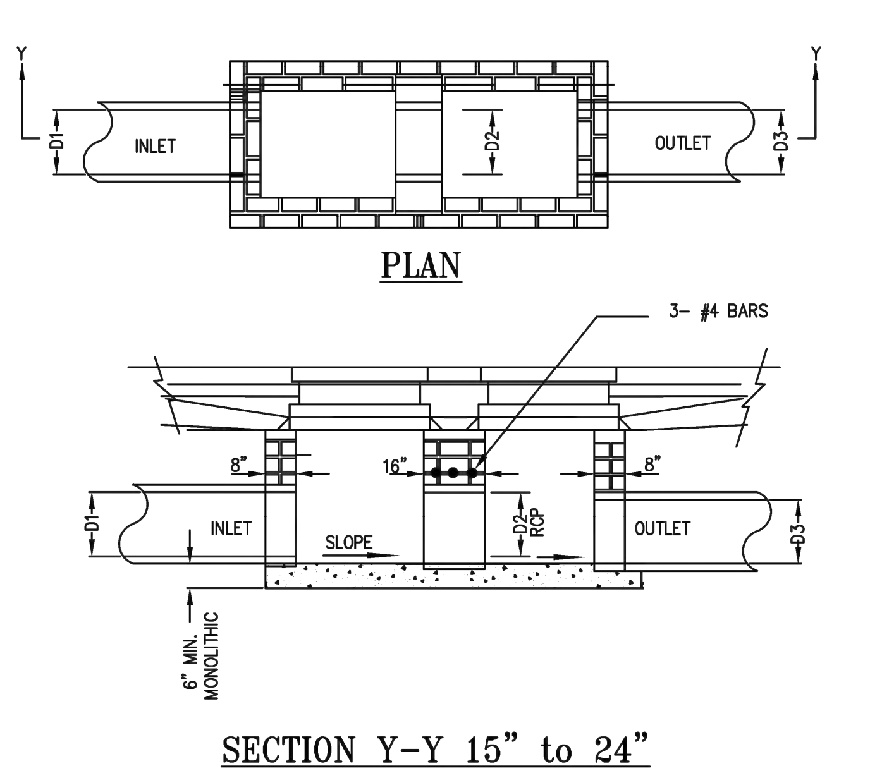
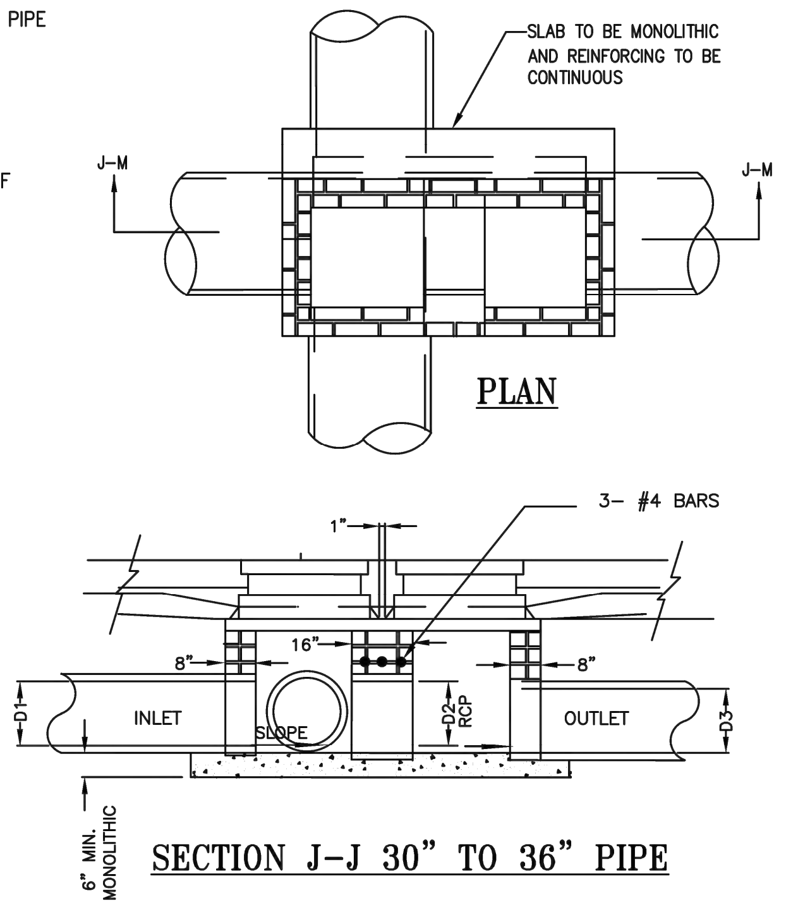
STANDARD BRICK CATCH BASIN (15" THRU 54" PIPE) ADOPTED FROM NCDOT STANDARD NO. 840.01 PAGE 2 OF 2

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-3.1

GENERAL NOTES:
1. INSTALLATION REQUIRES A MINIMUM OF ONE 4'-0" LONG SECTION OF REINFORCED CONCRETE PIPE BETWEEEN CATCH BASINS.
2. SEE NCDOT STANDARD 840.01 FOR DETAILS BASED ON PIPE SIZE PER CROSS SECTION.
3. CONSTRUCT TWO SINGLE BASINS PER NCDOT STANDARD WITH DOUBLE INTERIOR WALL.
4. ALL CONCRETE TO BE 3000 P.S.I COMPRESSIVE STRENGTH.
5. BASE SLAB SHALL BE MONOLITHIC.
6. SEE CITY OF FAYETTEVILLE STANDARDS SD-4 AND SD-5 FOR PLACEMENT OF CATCH BASIN.
7. PIPE SECTION D2 CONNECTING CATCH BASINS SHALL HAVE A MINIMUM DIAMETER SAME AS OF OUTLET PIPE D3.
8. ALL REINFORCING STEEL SHOWN ON NCDOT STANDARDS IS TO BE PROVIDED AS CONTINUOUS MEMBERS. (NO LAPS, USED AS A SINGLE CONTINUOUS BAR IN THE SLAB)


INLET
OUTLET
PLAN
3- #4 BARS
INLET
SLOPE
OUTLET
6" MIN. MONOLITHIC
SECTION Y-Y 15" to 24"


SLAB TO BE MONOLITHIC AND REINFORCING TO BE CONTINUOUS
J-M
PLAN
3- #4 BARS
INLET
SLOPE
OUTLET
6" MIN. MONOLITHIC
SECTION J-J 30" TO 36" PIPE

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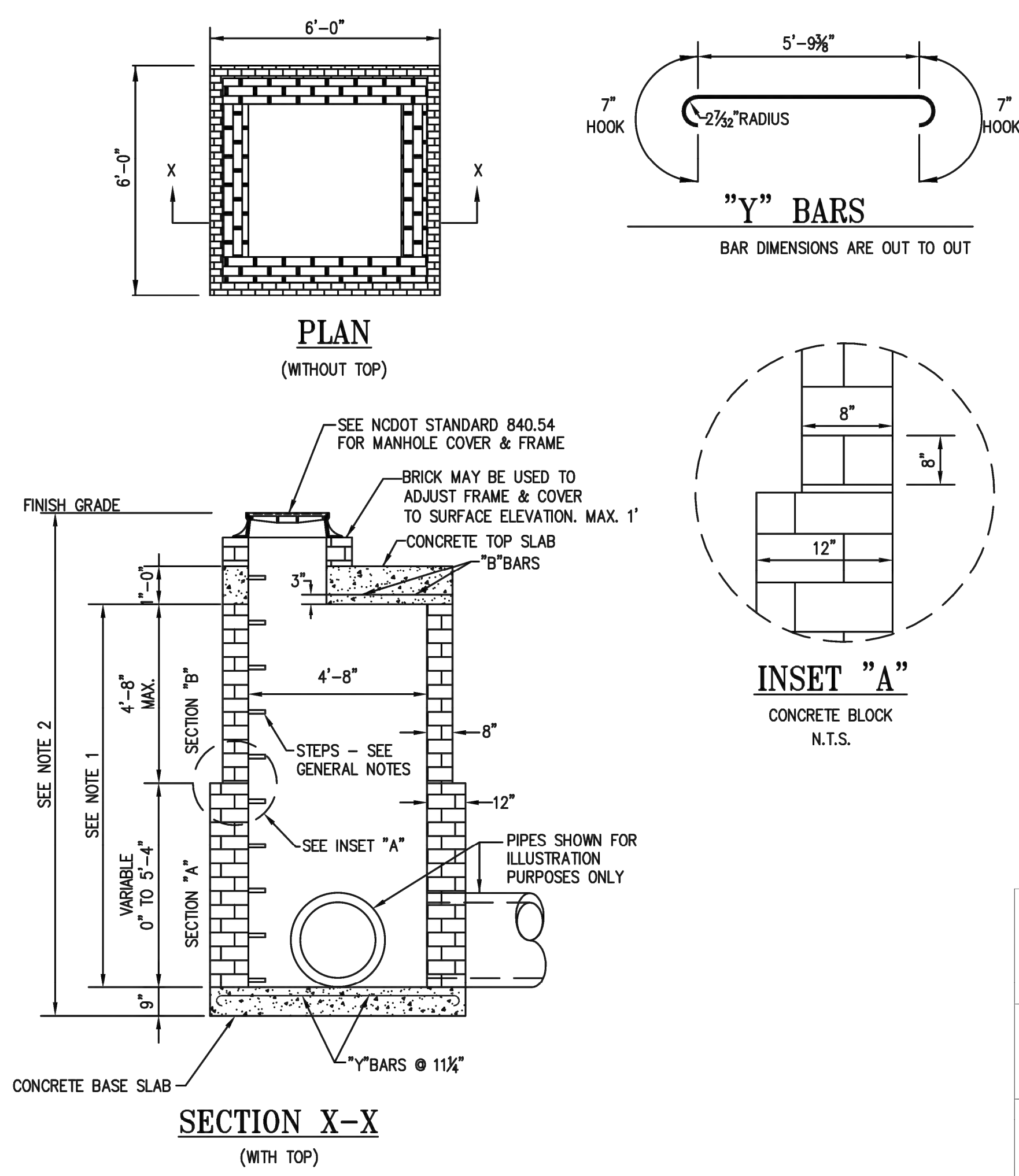
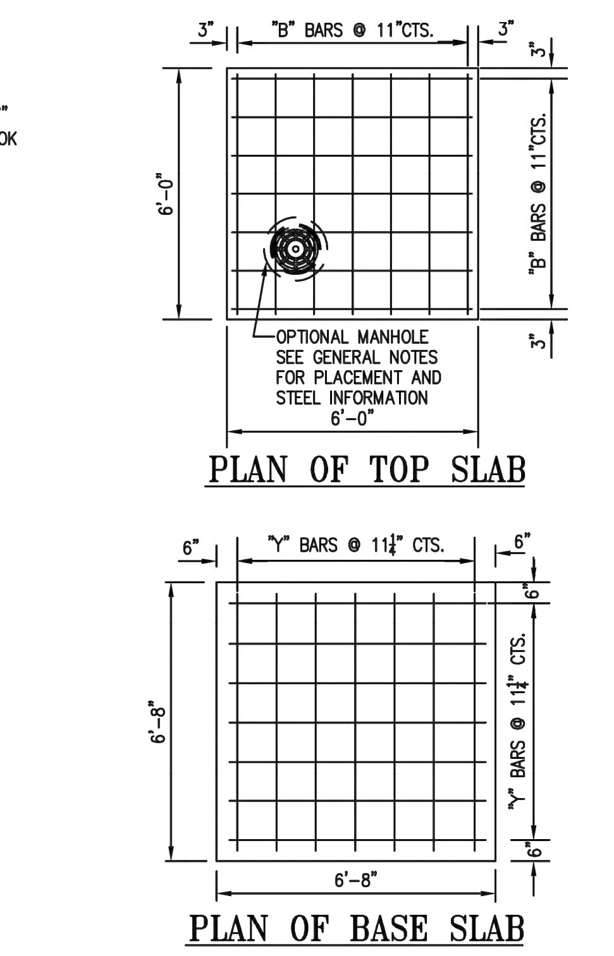
TYPICAL BRICK DOUBLE CATCH BASIN 15" THRU 36" PIPE

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-4


6'-0"
PLAN
(WITHOUT TOP)
5'-9⅜"
2½" RADIUS
HOOK
"Y" BARS
BAR DIMENSIONS ARE OUT TO OUT
SEE NCDOT STANDARD 840.54 FOR MANHOLE COVER & FRAME
BRICK MAY BE USED TO ADJUST FRAME & COVER TO SURFACE ELEVATION. MAX. 1'
CONCRETE TOP SLAB
"B" BARS
FINISH GRADE
STEPS - SEE GENERAL NOTES
SEE INSET "A"
PIPES SHOWN FOR ILLUSTRATION PURPOSES ONLY
INSET "A"
CONCRETE BLOCK N.T.S.
CONCRETE BASE SLAB
"Y" BARS @ 11¼"
SECTION X-X
(WITH TOP)
VARIABLE 0" TO 5'-4"
SEE NOTE 1
SEE NOTE 2


"B" BARS @ 11"CTS.
OPTIONAL MANHOLE SEE GENERAL NOTES FOR PLACEMENT AND STEEL INFORMATION
6'-0"
PLAN OF TOP SLAB
"Y" BARS @ 11⅛" CTS.
6'-8"
PLAN OF BASE SLAB

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STANDARD TRAFFIC BEARING JUNCTION BOX – 42" AND UNDER PIPES NCDOT STANDARD # 840.34 SHEET 1 OF 2

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-6

GENERAL NOTES:

STANDARD OR JUMBO BRICK SHALL BE USED FOR WALL CONSTRUCTION. SOLID CONCRETE BRICK OR BLOCK ARE OPTIONAL WALL CONSTRUCTION MATERIAL.

PRECAST UNITS MADE OF CLASS "AA" CONCRETE MAY BE USED IN LIEU OF BRICK MASONRY CONSTRUCTION. DESIGN OF PRECAST UNITS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.

ALL ADJUSTMENTS TO WALLS, SLABS OR REINFORCING MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH UNIT.

OPTIONAL MANHOLE SHALL BE INSTALLED IN POSITION AS DIRECTED BY THE ENGINEER. ALL REBAR CROSSING THIS OPENING SHALL BE CUT OR BENT TO ALLOW 2" MINIMUM CONCRETE COVERAGE. THE OPENING SHALL BE ENCLOSED WITH 8 "A" BARS TIED TO THE REBAR MAT AND SET SO A MINIMUM OF A 3" CONCRETE COVERAGE IS OBTAINED. REFERENCE NCDOT STD. NO. 840.54 FOR ALL MANHOLE INFORMATION.

JUNCTION BOXES OVER 3'-6" IN DEPTH WITH MANHOLES SHALL REQUIRE STEPS TO BE PLACED ON 12" – 16" CENTERS. REFERENCE NCDOT STD. NO. 840.66.

DOWEL "C" BARS SHALL BE SPACED AT A MINIMUM OF 12" CENTERS.

MAXIMUM DEPTH OF THIS UNIT AS SHOWN IS 12'.

BILL OF MATERIALS

BAR	QTY.	SIZE	LENGTH	WEIGHT
A	8	#5	1'-2"	9.7
B	14	#5	5'-6"	80.3
C	26	#4	1'-6"	26.1
Y	14	#5	6'-11 3/8"	101.5
			STEEL TOTAL WEIGHT	217.6
CU. YDS. CLASS "AA" CONC.				2.6
CU. YDS. BRICK/FT. HT. (8")				0.53
CU. YDS. BRICK/FT. HT. (12")				0.84

NOTE 1: SECTION "B" OF THE PROPOSED WALL SHALL BE 8" THICK. SECTION "A" SHALL BE 12" THICK.

NOTE 2: IF PROPOSED STRUCTURE EXCEEDS 12'-0" VERTICAL HEIGHT A DESIGN WILL BE REQUIRED FOR APPROVAL.

NOTE 3: ALL REINFORCING STEEL SHALL BE SINGLE MAT; EXCEPT DOUBLE MAT STEEL MAY BE USED IN LIEU OF HOOK BARS IN BASE SLAB.

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STANDARD TRAFFIC BEARING JUNCTION BOX – 42" AND UNDER PIPES NCDOT STANDARD # 840.34 SHEET 2 OF 2

Rev. Date: 26 JAN 21
Not to Scale
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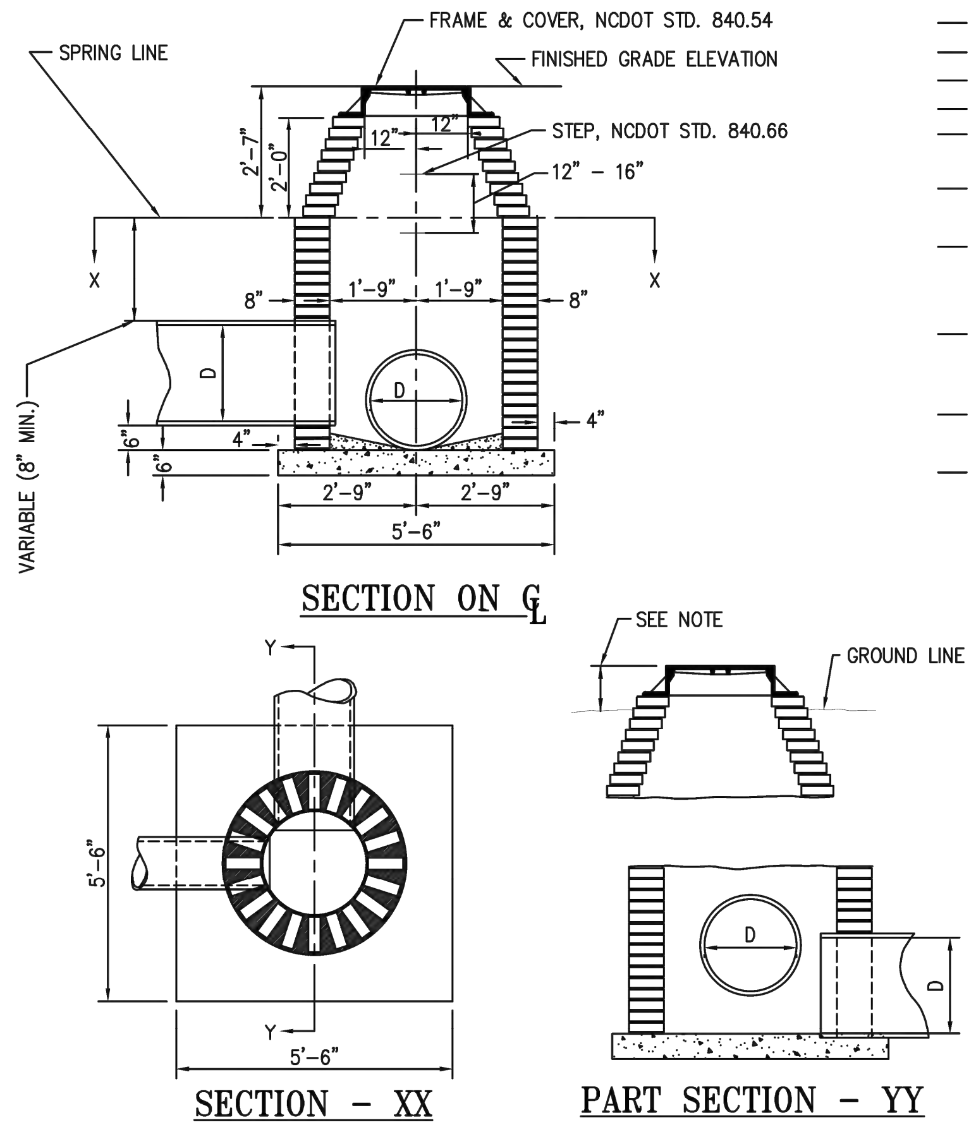
DR-6.1


SPRING LINE
FRAME & COVER, NCDOT STD. 840.54
FINISHED GRADE ELEVATION
STEP, NCDOT STD. 840.66
12" - 16"
VARIABLE (8" MIN.)
SECTION ON ℄
SEE NOTE
GROUND LINE
SECTION - XX
PART SECTION - YY
2'-9"
5'-6"
1'-9"
D
X
Y

GENERAL NOTES:
- ALL MORTAR JOINTS ARE TO BE 1/2" ± 1/8".
- ALL EXPOSED JOINTS WILL BE CONCAVE TOOLED.
- 3000 PSI CONCRETE TO BE USED.
- THE POURING OF FLOOR SLAB TO BE ACCOMPLISHED BY FORMING.
- JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.
- IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD DR-9.
- WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, THE TOP OF THE MANHOLE IS TO BE FLUSH WITH THE GROUND. AT OTHER LOCATIONS, IT SHOULD BE A MINIMUM OF 9" ABOVE THE GROUND.
- MANHOLES OVER 3'-6" IN DEPTH SHALL BE PROVIDED WITH STEPS 12" – 16' ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH NCDOT STD. 840.66.
- FOR 8' HEIGHT OR LESS USE 8" WALL. OVER 8' HEIGHT USE 12" WALL TO 6' FROM TOP OF WALL, 8" WALL FOR REMAINING 6'.
- INVERTS SHALL BE SHAPED TO FORM A SMOOTH, REGULAR SURFACE, SLOPED TO PREVENT SEDIMENTATION.

MIN. DIMENSIONS & QUANTITIES FOR MANHOLE

PIPE DIM	CU. YDS. CONC.	TOTAL BRICK MASONRY CU. YDS.	CU YDS BRICK MASONRY PER FT. HT.	DEDUCTIONS FOR ONE PIPE (CU YDS)	
D	BASE	ABOVE S-L	BELOW S-L	C. M.	R. C.
	0.560	0.530	0.323		
15"				0.031	0.047
18"				0.044	0.065
24"				0.078	0.113
30"				0.122	0.170
36"	0.560	0.530	0.323	0.176	0.238

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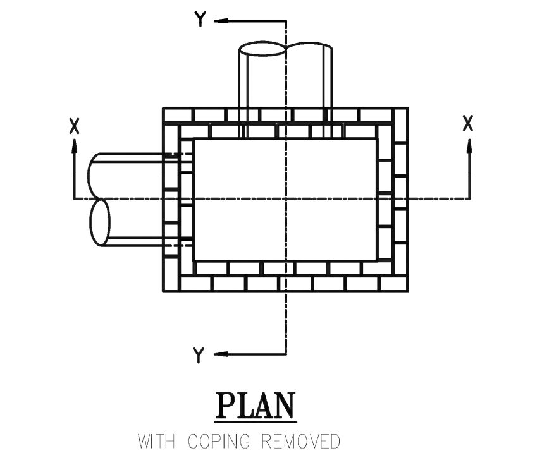
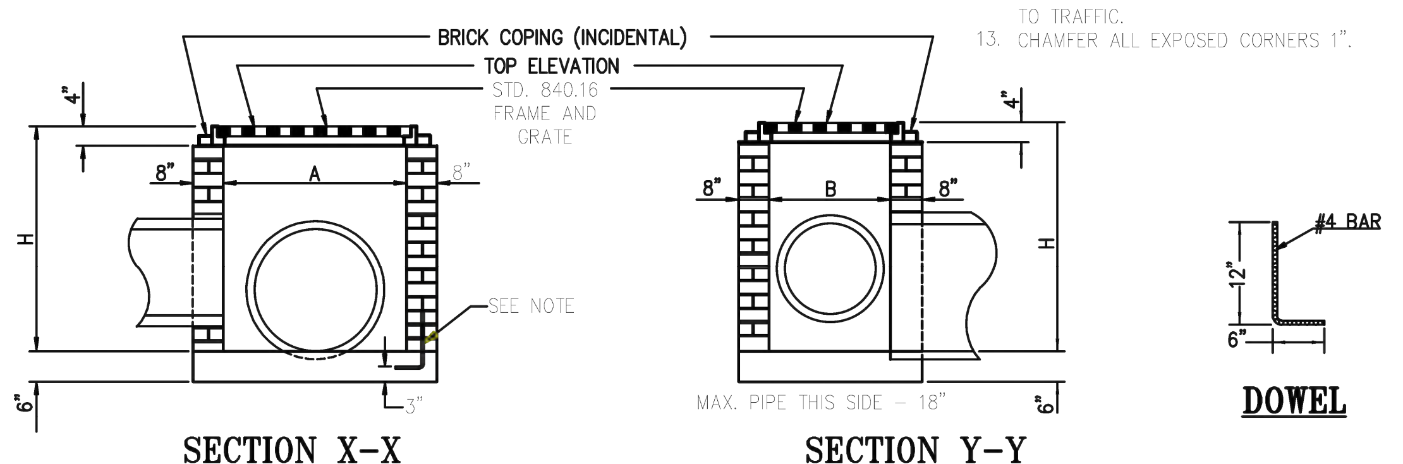
STANDARD BRICK MANHOLE 12" THRU 36" PIPE ADOPTED FROM N.C.D.O.T. STANDARD NO. 840.51

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-7


PLAN
WITH COPING REMOVED
X
Y

GENERAL NOTES:
1. MORTAR JOINTS 1/2" +/- 1/8" THICK.
2. USE CLASS "B" CONCRETE THROUGHOUT.
3. USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
4. USE #4 BAR DOWELS AT 12" CENTERS.
5. DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
6. PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
7. USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
8. IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
9. FOR 8'-0" IN HEIGHT OR LESS, USE 8" WALL. OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE UPPER 6'-0". QUANTITES TO BE ADJUSTED ACCORDINGLY.
10. CONSTRUCT WITH PIPE CROWNS MATCHING.
11. SEE NCDOT STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.
12. DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.
13. CHAMFER ALL EXPOSED CORNERS 1".


BRICK COPING (INCIDENTAL)
TOP ELEVATION
STD. 840.16 FRAME AND GRATE
SEE NOTE
MAX. PIPE THIS SIDE – 18"
SECTION X-X
SECTION Y-Y
#4 BAR
12"
6"
DOWEL
A
B
H
4"
8"
3"

DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX & PIPE: PIPE D	SPAN A	WIDTH B	MIN. HEIGHT H	CUBIC YARDS CONCRETE: BOTTOM SLAB	CUBIC YARDS BRICK MASONRY: WALL PER FOOT HT.	TOTAL BRICK MASONRY FOR MIN. HEIGHT, H	DEDUCTIONS FOR ONE PIPE: C.S.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	0.522	0.020	0.032
15"			2'-3"	0.268	0.313	0.600	0.031	0.047
18"			2'-6"	0.268	0.313	0.678	0.044	0.065
24"			3'-0"	0.268	0.313	0.835	0.078	0.113
30"	3'-0"	2'-0"	3'-6"	0.268	0.313	0.991	0.122	0.170

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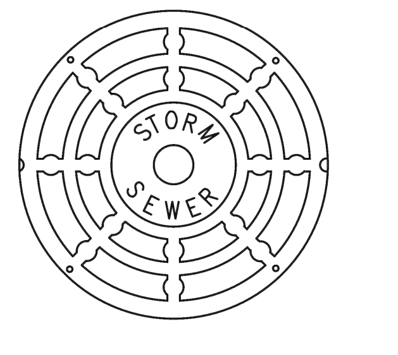
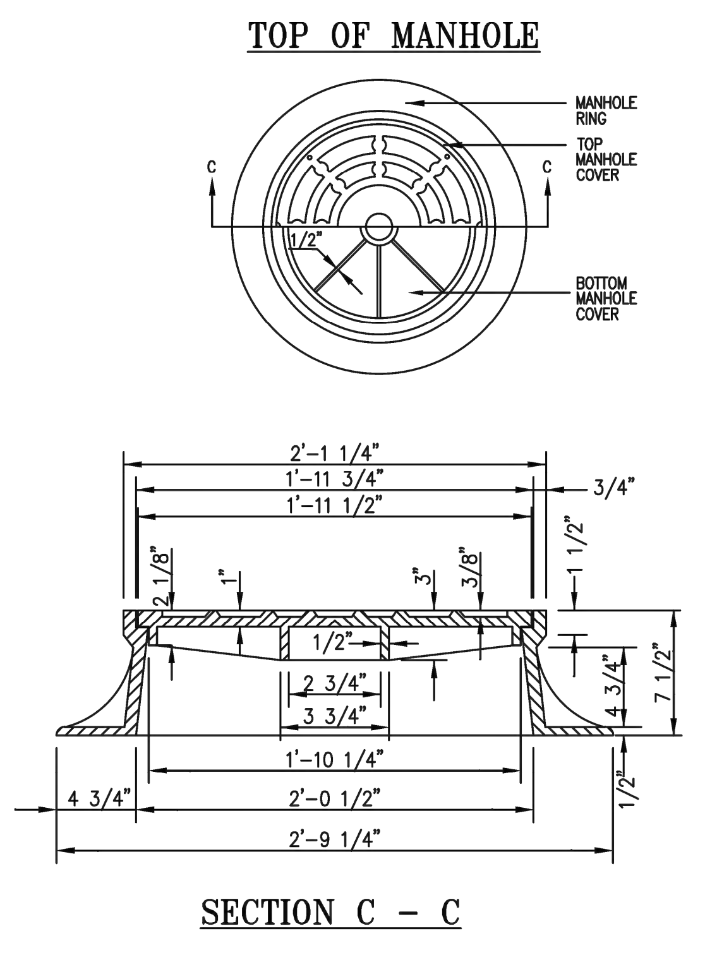
DROP INLET WITH GRATE 12" TO 30" PIPE NCDOT STANDARD NO. 840.15

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-11


STORM
SEWER


TOP OF MANHOLE
MANHOLE RING
TOP MANHOLE COVER
BOTTOM MANHOLE COVER
C
2'-1 1/4"
1'-11 3/4"
1'-11 1/2"
3/4"
2 1/8"
3/8"
1 1/2"
1/2"
2 3/4"
3 3/4"
4 3/4"
1'-10 1/4"
2'-0 1/2"
2'-9 1/4"
7 1/2"
SECTION C – C

SPECIFICATIONS

1. MANHOLE RING AND COVER TO BE MADE OF GREY CAST IRON CONFORMING TO ASTM SPECIFICATIONS A 48-74, CLASS 30. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT WITHOUT BLOW OR SANDHOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
2. MANHOLE RING AND COVER TO WITHSTAND VEHICULAR TRAFFIC WITHOUT OBJECTIONABLE NOISE.
3. MINIMUM AVERAGE WEIGHT:

FRAME: 180 LBS
COVER: 120 LBS

US FOUNDRY 669-KL RING & COVER
OR APPROVED EQUAL

FAYETTEVILLE!
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STANDARD MANHOLE RING AND COVER ADOPTED FROM NCDOT STANDARD NO. 840.54

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR-13

STANDARD DETAILS

SHEET NUMBER
15 of 45
PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE! NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
SEAL 030525
5/14/2025
NAME:
DATE:

REVISIONS

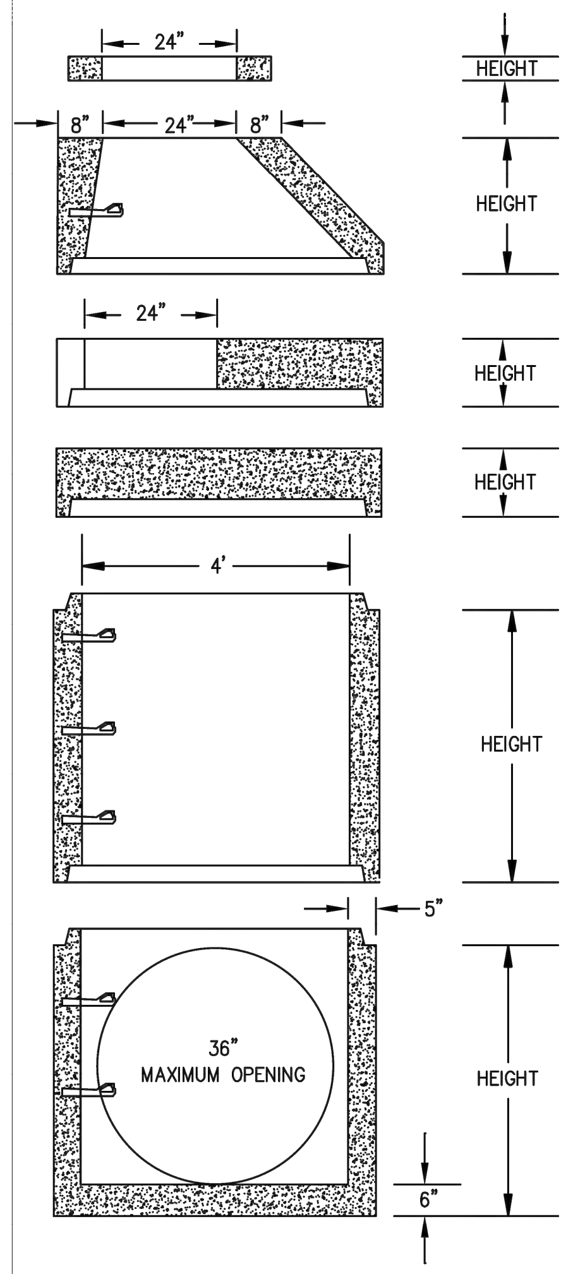
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

Docusign Envelope ID: DA960C4E-7E29-4D1D-B64E-80E212A2C3BA



FUQUAY VARINA PLANT SPECIFICATIONS:

ASTM C 478 – LATEST
AASHTO M 199 – LATEST

WITH AASHTO M–198B PREFORMED PLASTIC OR ASTM C–443 RUBBER GASKET JOINTS. REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS.

HEIGHT FEET	HEIGHT INCHES	WEIGHT POUNDS
GRADING RING		
.33'	4"	150
.50'	6"	235
ECCENTRIC CONE		
2.00'	24"	1695
3.00'	36"	2550
4.00'	48"	3400
FLAT TOP		
1.00'	12"	1700
SOLID FLAT TOP		
1.00'	12"	2000
RISER		
1.00'	12"	865
1.33'	16"	1150
2.67'	32"	2310
4.00'	48"	3460
5.33'	64"	4610
REGULAR MONOLITHIC BASE		
2.67'	32"	3250
4.00'	48"	4400
5.33'	60"	5265

FLAT TOPS ARE AVAILABLE IN ECCENTRIC (AS SHOWN) AND CONCENTRIC UNITS. FLAT TOPS MEET H–20 LOADING.

SOLID FLAT TOP: CUSTOM VENT OR METER OPENINGS PLACED PER CUSTOMER REQUEST. FLAT TOPS MEET H–20 LOADING.

REGULAR MONOLITHIC BASE: WITH 6" BASE INCLUDED IN HEIGHT SHOWN.

NOTES:

1. PRECAST MANHOLES MAY BE USED WITH PRIOR APPROVAL FROM THE CITY ENGINEER.
2. PRECAST MANHOLES ARE NOT PERMITTED INSIDE RIGHT–OF–WAY OR EASEMENTS.

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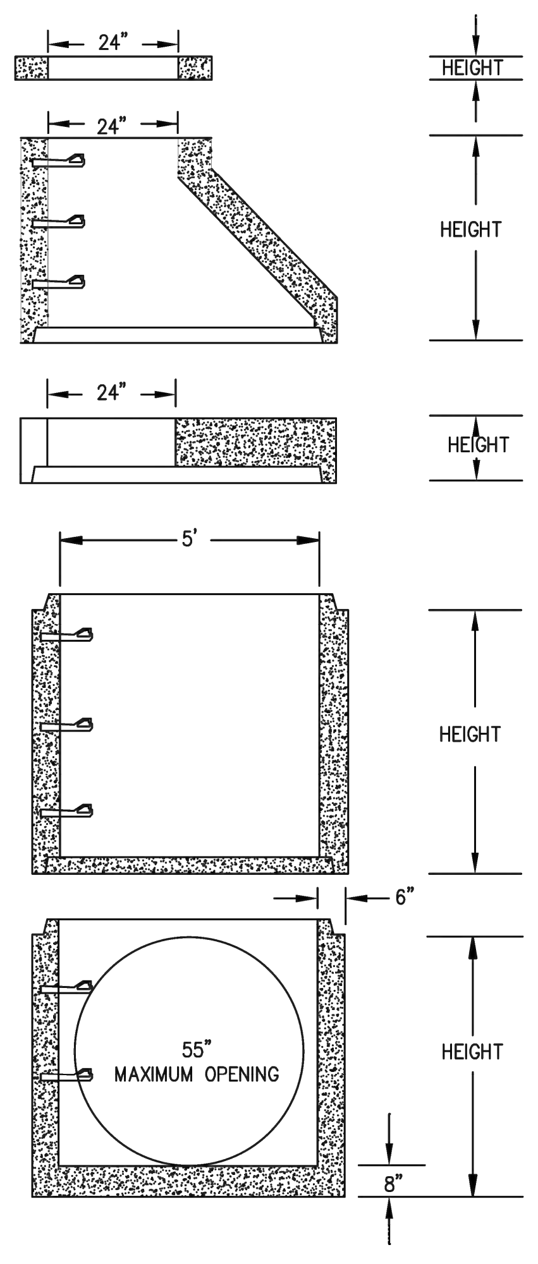
4–FOOT DIAMETER PRECAST REINFORCED CONCRETE MANHOLE SECTIONS

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR–14



FUQUAY VARINA PLANT SPECIFICATIONS:

ASTM C 478 – LATEST
AASHTO M 199 – LATEST

WITH AASHTO M–198B PREFORMED PLASTIC OR ASTM C–443 RUBBER GASKET JOINTS. REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS.

HEIGHT FEET	HEIGHT INCHES	WEIGHT POUNDS
GRADING RING		
.33'	4"	150
.50'	6"	235
ECCENTRIC CONE		
4.00'	48"	4360
FLAT TOP		
1.00'	12"	2825
RISER		
1.00'	12"	1290
1.33'	16"	1716
2.67'	32"	3444
4.00'	48"	5160
REGULAR MONOLITHIC BASE		
2.67'	32"	5394
3.00'	36"	5820
3.33'	40"	6245
3.67'	44"	6684
4.00'	48"	7110
4.33'	52"	7535
4.67'	56"	7974
5.00'	60"	8400
5.33'	64"	8825
5.67'	68"	9264
6.00'	72"	9690
6.33'	76"	10115
6.67'	80"	10554

FLAT TOPS ARE AVAILABLE IN ECCENTRIC (AS SHOWN) AND CONCENTRIC UNITS. FLAT TOPS MEET H–20 LOADING.

REGULAR MONOLITHIC BASE: WITH 8" BASE INCLUDED IN HEIGHT SHOWN.

NOTES:

1. PRECAST MANHOLES MAY BE USED WITH PRIOR APPROVAL FROM THE CITY ENGINEER.
2. PRECAST MANHOLES ARE NOT PERMITTED INSIDE RIGHT–OF–WAY OR EASEMENTS.

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ENGINEERING DIVISION
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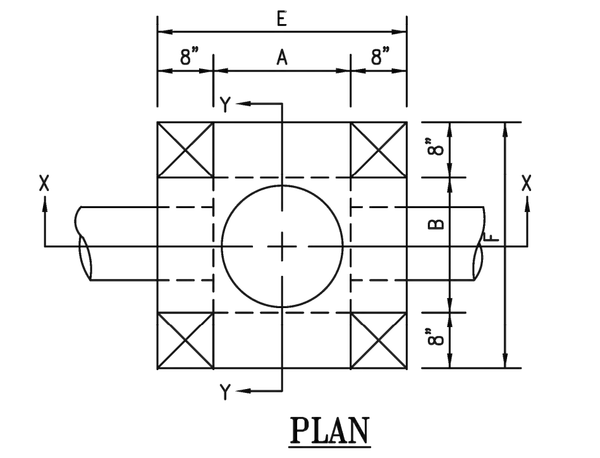
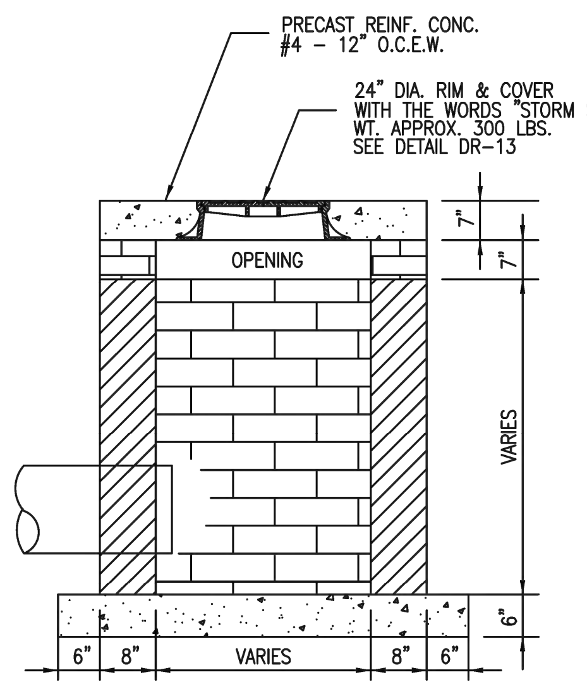
5–FOOT DIAMETER PRECAST REINFORCED CONCRETE MANHOLE SECTIONS

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

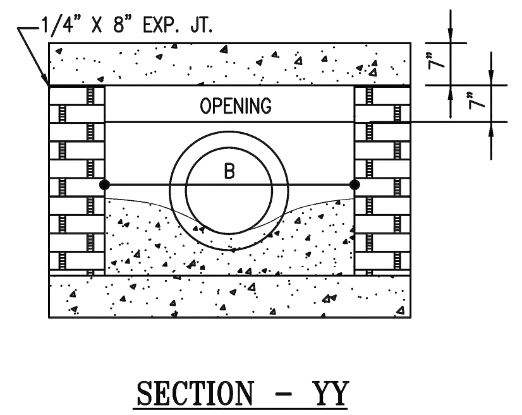
DR–14.1



PLAN


PRECAST REINF. CONC. #4 – 12" O.C.E.W.
24" DIA. RIM & COVER WITH THE WORDS "STORM SEWER" WT. APPROX. 300 LBS. SEE DETAIL DR–13
OPENING
7"
7"
VARIES
6"
6"
8"
VARIES
8"
6"

SECTION – XX



SECTION – YY

GENERAL NOTES:

1. CONCRETE BASES TO BE CLASS "A" (3000 P.S.I.) PLACES ON A FIRM FOUNDATION.
2. FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
3. ALL MORTAR JOINTS ARE TO BE 1/2" +/– 1/8".
4. ALL EXPOSED JOINTS SHALL BE CONCAVE TOOLED.
5. CEMENT MORTAR SHALL BE ASTM C–270, TYPE "M".
6. JUMBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.
7. FOR 8'–0" IN HEIGHT OR LESS USE 8" WALL; OVER 8'–0" IN HEIGHT USE 12" WALL TO 6'–0" FORM TOP OF WALL, AND 8" WALL FOR THE REMAINING 6'–0'.
8. ALL JUNCTION BOXES OVER 3'–6" IN DEPTH SHALL BE PROVIDED WITH STEPS 12" TO 16" ON CENTERS.
9. INVERTS SHALL BE SHAPED TO FORM A SMOOTH, REGULAR SURFACE, SLOPED TO PREVENT SEDIMENTATION.

DIMENSIONS AND QUANTITIES FOR BRICK JUNCTION BOXES

DIM'S OF BOX & PIPE				REINFORCEMENT BARS		COVER DIMENSIONS		CUBIC YARDS			DEDUCTIONS FOR ONE PIPE CU. YDS.	
PIPE	SPAN	WIDTH	HEIGHT					CONC.	BRICK MASONRY			
D	A	B	H	NO.	LENGTH	E	F	BASE & COVER CU. YD.	MIN. HEIGHT CU. YD.	WALL PER FT. HT. CU. YD.	C.S.	R.C.
15"	2'–0"	2'–0"	2'–6"	12	3'–1"	3'–4"	3'–4"	0.412	0.657	0.263	0.031	0.047
18"	2'–4"	2'–4"	2'–9"	14	3'–5"	3'–8"	3'–8"	0.498	0.814	0.296	0.044	0.065
24"	3'–0"	3'–0"	3'–3"	16	4'–1"	4'–4"	4'–4"	0.695	1.176	0.362	0.078	0.113
30"	3'–4"	3'–4"	3'–9"	16	4'–5"	4'–8"	4'–8"	0.807	1.481	0.395	0.122	0.170
36"	4'–0"	4'–0"	4'–3"	20	5'–1"	5'–4"	5'–4"	1.053	1.959	0.461	0.176	0.238
42"	4'–8"	4'–8"	4'–9"	22	5'–9"	6'–0"	6'–0"	1.333	2.503	0.527	0.240	0.323
48"	5'–4"	5'–4"	5'–3"	26	6'–5"	6'–8"	6'–8"	1.646	2.940	0.560	0.313	0.422
54"	5'–10"	5'–10"	5'–9"	28	6'–11"	7'–2"	7'–2"	1.902	3.502	0.609	0.396	0.535
60"	6'–6"	6'–6"	6'–3"	30	7'–7"	7'–10"	7'–10"	2.272	4.113	0.658	0.489	0.660
66"	7'–1"	7'–1"	6'–9"	32	8'–2"	8'–5"	8'–5"	2.624	4.778	0.708	0.591	0.798

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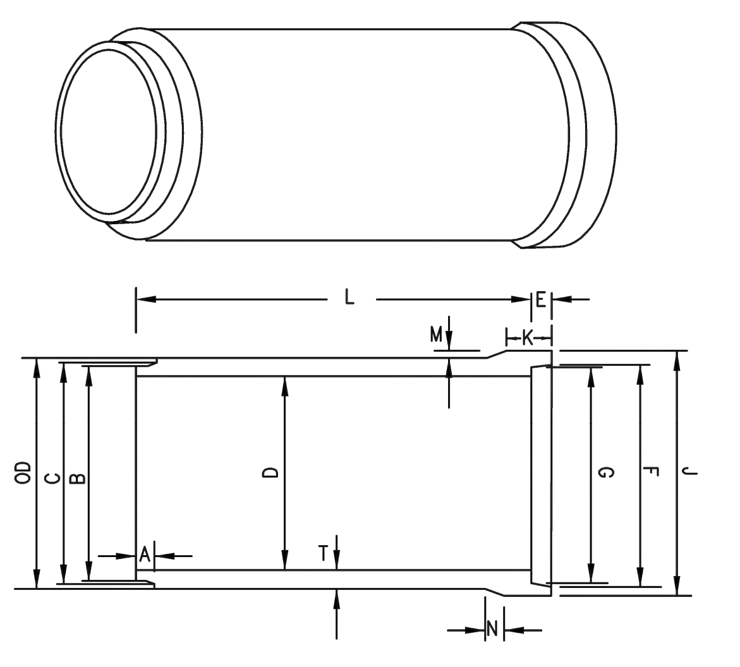
OPEN THROAT JUNCTION BOX

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR–16

SIZE D	T	L	POUNDS PER FOOT	ASTM SPEC. & CLASS	OD	A	B	C	E	F	G	J	K	M	N	PLANT
15	B2 1/4	8'	134	ASTM C76 III IV V	19 1/2	2	16 15/16	17 1/4	2	17 3/4	17	21 3/8	4 1/2	7/16	1 1/4	SR VN–KN
18	B2 1/2	8'	173	ASTM C76 III IV V	23	2	20	20 3/4	2	21 1/4	20 1/2	23 1/2	6 1/2	3/4	1 1/4	SR VN–KN
24	B3	8'	268	ASTM C76 III IV V	30	2 1/2	26 3/16	26 7/8	2 13/16	27 3/4	27	31 1/32	4 1/4	1/2	1 1/2	VN–KN SR
30	B3 1/2	8'	396	ASTM C76 III IV V	37	2 15/16	32 1/16	33 1/8	3	34 1/32	33 1/32	38 1/2	5 1/2	3/4	1 1/2	SR–K
36	B4	8'	543	ASTM C76 III IV V	44	3 3/4	39 1/4	39 29/32	3 13/16	40 19/32	40 5/16	46 1/2	6	1 1/4	2 11/16	SR–K



A MINIMUM OF 6" OF #57 WASHED STONE IS REQUIRED FOR ALL PIPE INSTALLATION. SEE CITY CITY OF FAYETTEVILLE STANDARD DETAIL DR–1.

MODIFIED TONGUE AND GROOVE

8 FOOT LENGTH

MORTAR OF FLEXIBLE PLASTIC TYPE JOINT

SPECIFICATIONS:

ASTM C 76–LATEST
NCDOT
REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS

LIFT HOLES STANDARD ON 36" AS ALLOWED PER ASTM SPECIFICATIONS

MINIMUM FILL UNDER ROADWAYS	
PIPE CLASS	MINIMUM FILL
CLASS III	2'
CLASS IV	1'
CLASS V	1'

FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE.

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REINFORCED CONCRETE SEWER, STORM DRAIN AND CULVERT 15" THRU 36" PIPE

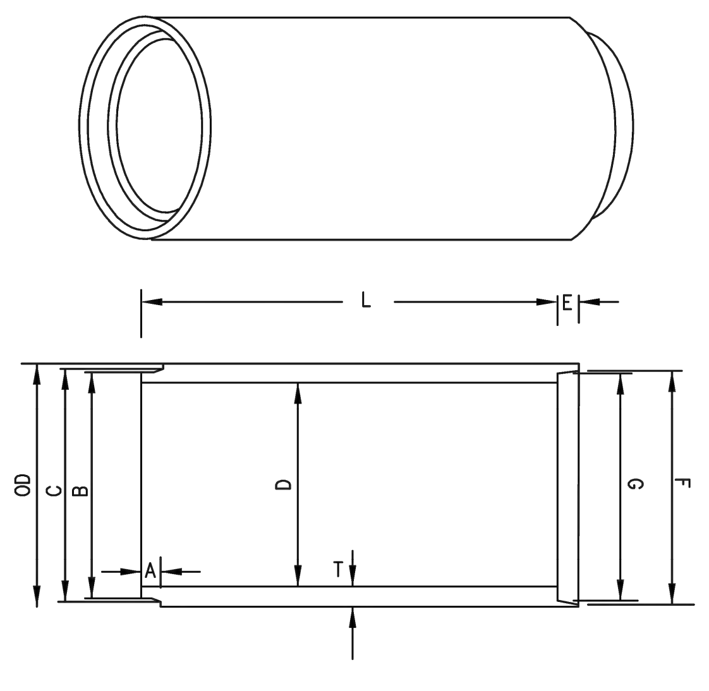
Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR–19

SIZE D	T	L	POUNDS PER FOOT	ASTM SPEC. & CLASS	OD	A	B	C	E	F	G	PLANT
42	C5 1/4	8'	807	ASTM C76 III IV V	52 1/2	4 1/4	45 15/32	46 17/32	4 5/16	47 3/16	46 7/8	SR
48	C5 3/4	8'	1018	ASTM C76 III IV V	59 1/2	4 1/4	51 3/4	52 1/2	4 5/16	53 3/16	52 7/8	SR
54	C6 1/4	8'	1228	ASTM C76 III IV V	66 1/2	4 1/4	57 1/2	58 1/4	4 5/16	58 19/32	58 19/32	SR
60	C6 3/4	8'	1488	ASTM C76 III IV V	73 1/2	4 3/4	63 15/16	64 25/32	4 13/16	65 3/32	65 7/8	SR
66	C7 1/4	8'/12'	1791	ASTM C76 III IV V	80 1/2	5	71	71 11/16	5 1/16	71 7/8	71 19/32	SR
72	C7 3/4	8'/12'	2052	ASTM C76 III IV V	87 1/2	5	77 9/32	77 15/16	5 1/16	78 1/8	77 7/8	SR

MINIMUM FILL UNDER ROADWAYS	
PIPE CLASS	MINIMUM FILL
CLASS III	2'
CLASS IV	1'
CLASS V	1'

FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE.



A MINIMUM OF 6" OF #57 WASHED STONE IS REQUIRED FOR ALL PIPE INSTALLATION. SEE CITY CITY OF FAYETTEVILLE STANDARD DETAIL DR–1.

MODIFIED TONGUE AND GROOVE

8 FOOT LENGTH

MORTAR OF FLEXIBLE PLASTIC TYPE JOINT

SPECIFICATIONS:

ASTM C 76–LATEST
NCDOT
REINFORCED IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS

LIFT HOLES STANDARD ON 36" AS ALLOWED PER ASTM SPECIFICATIONS

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REINFORCED CONCRETE SEWER, STORM DRAIN AND CULVERT 42" THRU 72" PIPE

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR–19.1

SIZE D IN.	MIN. SLOPE (FT)		CLEARANCE DIST. (FT)	
	RCP	CMP	RCP	CMP
15	0.00325	0.01107	2.4	2.3
18	0.00255	0.00868	2.7	2.6
24	0.00174	0.00592	3.3	3.1
30	0.00129	0.00439	3.8	3.6
36	0.00101	0.00345	4.3	4.1
42	0.00082	0.00281	4.9	4.6
48	0.00069	0.00235	5.4	5.1

MINIMUM FILL UNDER ROADWAYS	
PIPE CLASS	MINIMUM FILL
CLASS III	2'
CLASS IV	1'
CLASS V	1'

FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE.

NOTES:

1. THE MAXIMUM PIPE VELOCITY SHALL NOT EXCEED 20 FT PER SEC., BUT SHALL NOT CAUSE SCOUR OR OTHER EROSION PROBLEMS IN THE RECEIVING CHANNEL.
2. SLOPES REQUIRED TO MAINTAIN MINIMUM VELOCITY OF 3 FT PER SEC. AT FULL FLOW.
3. THE MINIMUM SIZE STORM DRAIN PIPE SHALL BE 15 IN.
4. ALL STORM DRAINAGE PIPE USED WITHIN CITY RIGHT–OF–WAY SHALL BE REINFORCED CONCRETE PIPE (RCP). ALL RCP SHALL BE CLASS III OR HIGHER.
5. CLEARANCE DISTANCE IS DETERMINED FROM THE PIPE INVERT ELEVATION UP.
6. A MINIMUM OF 6" OF #57 WASHED STONE IS REQUIRED FOR ALL PIPE INSTALLATION. SEE CITY OF FAYETTVILLE STANDARD DETAIL DR–1.

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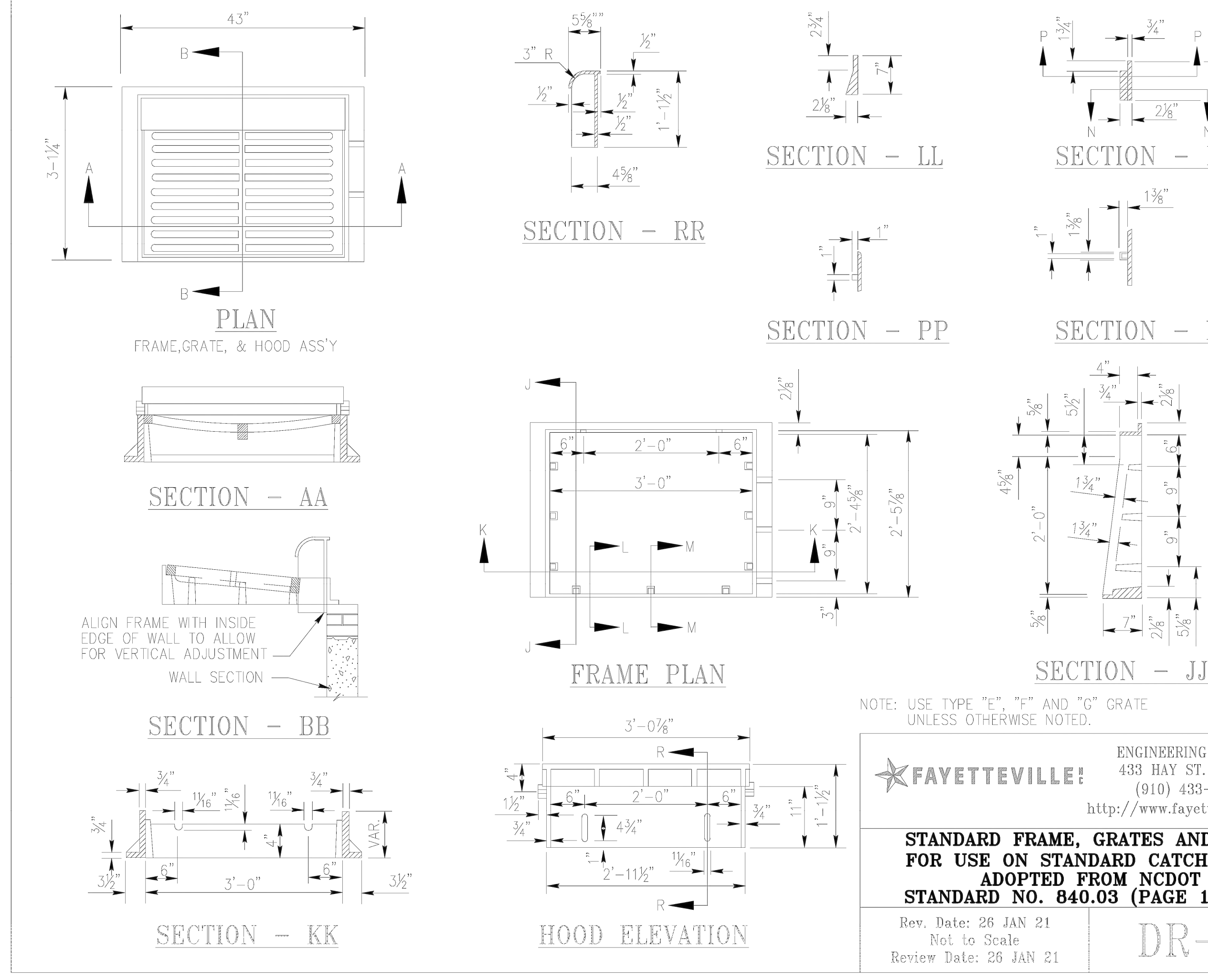
MINIMUM SLOPE & COVER FOR STORM DRAIN AND CULVERT PIPE

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR–19.2



NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

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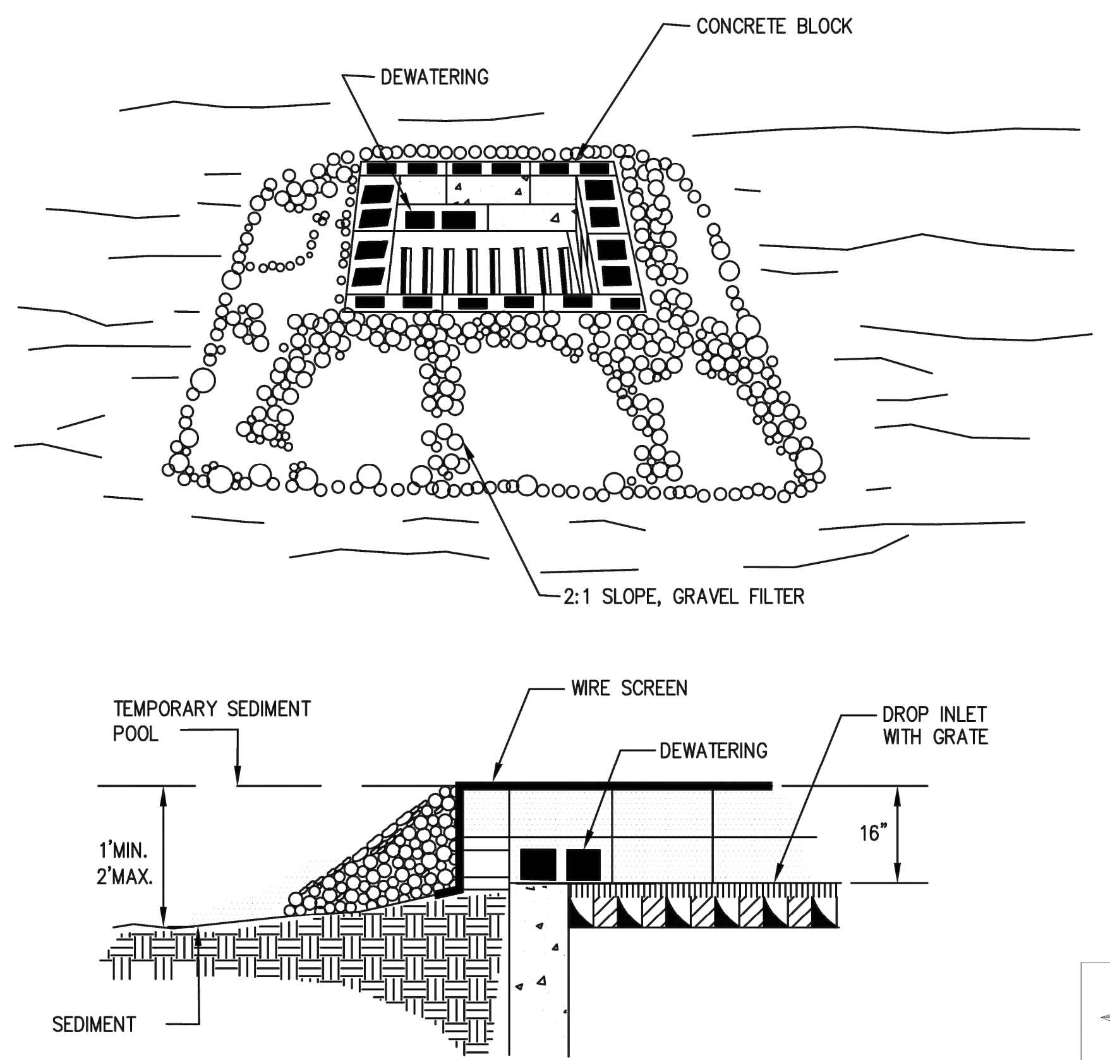
STANDARD FRAME, GRATES AND HOOD FOR USE ON STANDARD CATCH BASIN ADOPTED FROM NCDOT STANDARD NO. 840.03 (PAGE 1 OF 2)

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

DR–26



CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE ON THE BOTTOM ROW TO ALLOW POOL DRAINAGE. THE FOUNDATION SHOULD BE EXCAVATED AT LEAST 2 INCH BELOW THE CREST OF THE STORM DRAIN. PLACE THE BOTTOM ROW OF THE BLOCK AGAINST THE EDGE OF THE STORM DRAIN FOR LATERAL SUPPORT AND TO AVOID WASHOUTS WHEN OVERFLOW OCCURS. IF NEEDED, GIVE LATERAL SUPPORT TO SUBSEQUENT ROWS BY PLACING 2x4 WOOD STUDS THROUGH BLOCK OPENINGS.
2. CAREFULLY FIT HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2–INCH OPENING OVER ALL BLOCK OPENING TO HOLD GRAVEL IN PLACE.
3. USE CLEAN GRAVEL,3/4–TO 1/2–INCH IN DIAMETER, PLACED 2 INCHES BELOW THE TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER AND SMOOTH IT TO AN EVEN GRADE. DOT #57 WASHED STONE IS RECOMMENDED.

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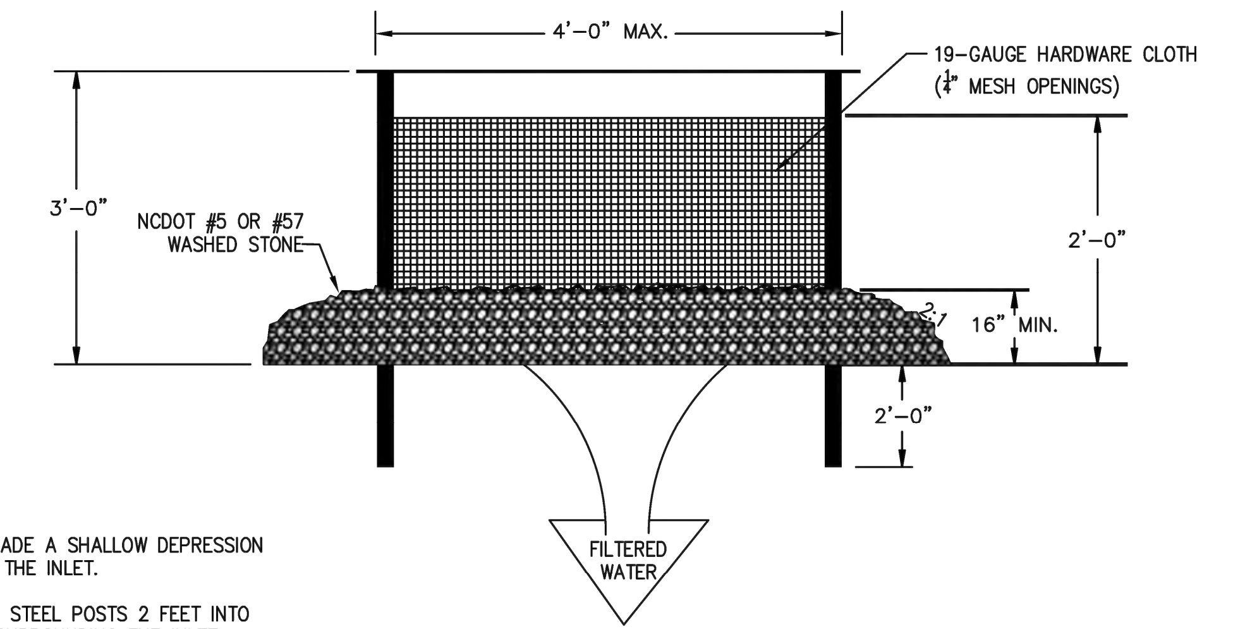
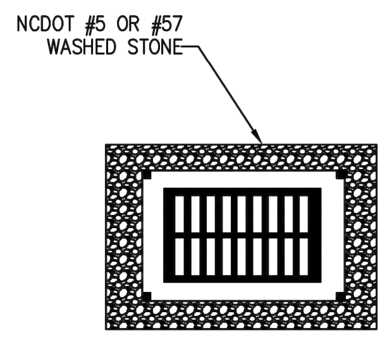
TYPICAL BLOCK AND GRAVEL DROP INLET PROTECTION

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

EC–1


4'–0" MAX.
19–GAUGE HARDWARE CLOTH (¼" MESH OPENINGS)
3'–0"
NCDOT #5 OR #57 WASHED STONE
2'–0"
16" MIN.
2:1
2'–0"
FILTERED WATER



GENERAL NOTES:

1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5–FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
3. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 2–FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZED IT WITH GROUNDCOVER.

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TYPICAL HARDWARE CLOTH AND GRAVEL DROP INLET PROTECTION

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

EC–1.3

STANDARD DETAILS

PLAN TYPE:

SHEET NUMBER
16 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F–0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
T. Crissman
3A2C08FD6A6D47D...
SEAL
030525
5/14/2025
NAME:
DATE:

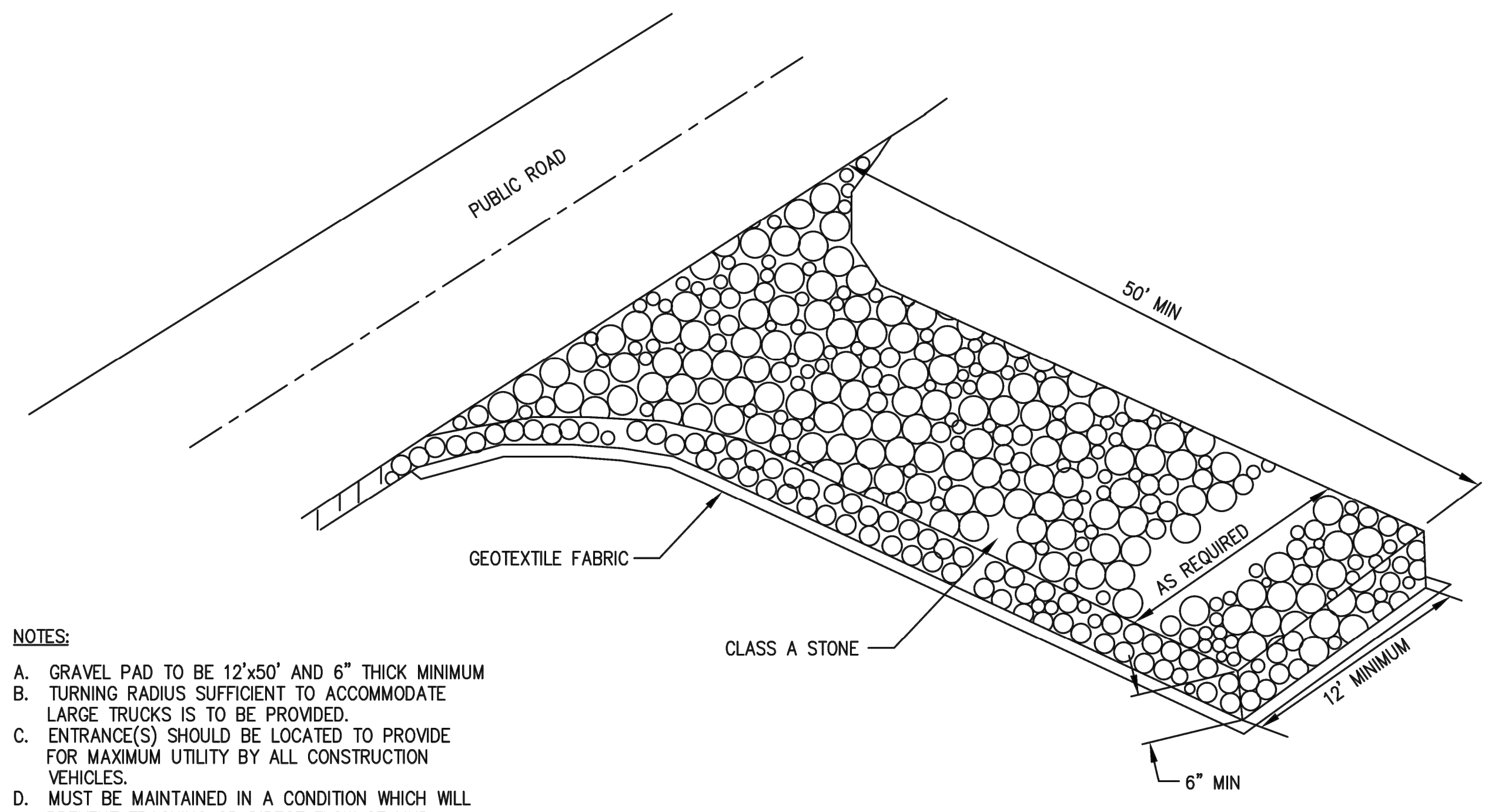
REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.


PUBLIC ROAD
50' MIN
GEOTEXTILE FABRIC
CLASS A STONE
AS REQUIRED
12' MINIMUM
6" MIN

NOTES:

A. GRAVEL PAD TO BE 12'x50' AND 6" THICK MINIMUM
B. TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
C. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
D. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY; KEEP SOME HANDY.
E. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROAD MUST BE CLEANED UP IMMEDIATELY.
F. GEOTEXTILE FABRICS SHALL BE USED BENEATH STONE TO IMPROVE STABILITY OF THE FOUNDATION.
G. APPLICABLE AT ALL POINTS OF INGRESS & EGRESS UNTIL SITE IS STABLIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTTENANCE MUST BE PROVIDED.

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GRAVEL CONSTRUCTION
ENTRANCE/EXIT

Rev. Date: 26 JAN 21
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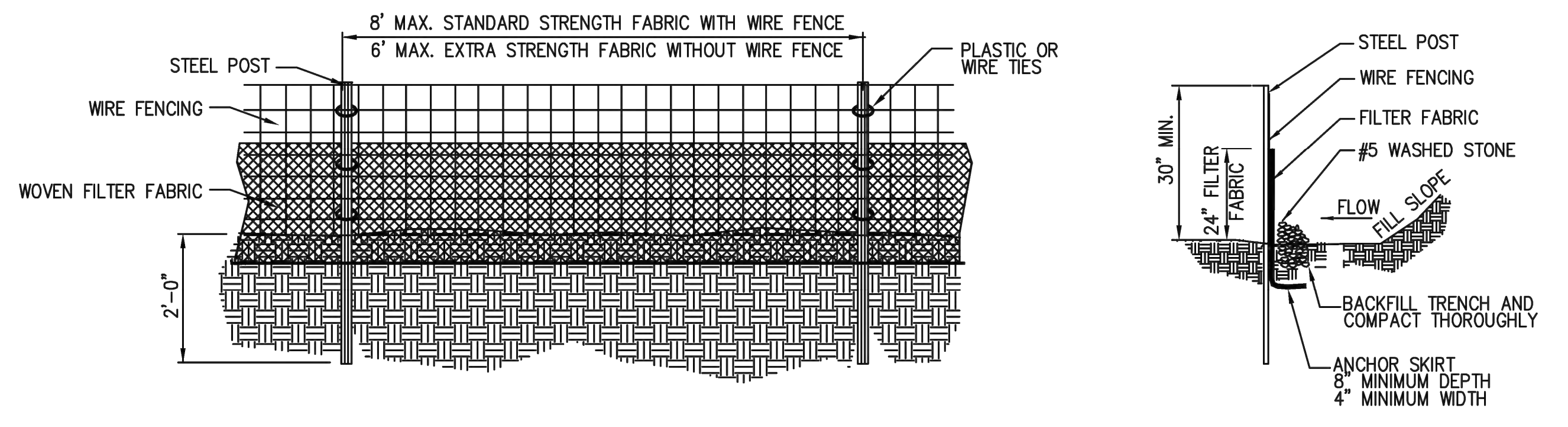
Review Date: 26 JAN 21

EC-2


8' MAX. STANDARD STRENGTH FABRIC WITH WIRE FENCE
6' MAX. EXTRA STRENGTH FABRIC WITHOUT WIRE FENCE
STEEL POST
WIRE FENCING
WOVEN FILTER FABRIC
PLASTIC OR WIRE TIES
2'-0"
30" MIN.
24" FILTER FABRIC
STEEL POST
WIRE FENCING
FILTER FABRIC
#5 WASHED STONE
FLOW
FILL SLOPE
BACKFILL TRENCH AND COMPACT THOROUGHLY
ANCHOR SKIRT
8" MINIMUM DEPTH
4" MINIMUM WIDTH

GENERAL NOTES:

1. FILTER FABRIC FENCE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
2. WOVEN FILTER FABRIC BE USED WHERE SILT FENCE IS TO REMAIN FOR A PERIOD OF MORE THAN 30 DAYS.
3. STEEL POSTS SHALL BE 5'-0" IN HEIGHT AND BE OF THE SELF-FASTENER ANGLE STEEL TYPE.
4. WIRE FENCING SHALL BE AT LEAST #10 GAGE WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
5. TURN SILT FENCE UP SLOPE AT ENDS.
6. WIRE MESH SHALL BE MIN. 13 GAGE WITH MAXIMUM 12" OPENINGS.
7. WIRE AND WASHED STONE IS REQUIRED TO BE SHOWN ON PLANS AT THE TOE OF SLOPES GREATER THAN 10 FEET VERTICAL (2:1 SLOPE)
8. ORANGE SAFETY FENCE IS REQUIRED AT BACK OF SILT FENCE WHEN GRADING IS ADJACENT TO SWIM BUFFERS, STREAMS OR WETLANDS THE COLOR ORANGE IS RESERVED FOR VISUAL IDENTIFICATION OF ENVIRONMENTALLY SENSITIVE AREAS.
9. DRAINAGE AREA CAN NOT BE GREATER THAN 1/4 ACRE PER 100 FT OF FENCE.
10. SLOPE LENGTHS CAN NOT EXCEED CRITERIA SHOWN IN TABLE 6.62A NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.
11. DO NOT INSTALL SEDIMENT FENCE ACROSS STREAMS, DITCHES, WATERWAYS OR OTHER AREAS OF CONCENTRATED FLOW.

MAINTENANCE NOTES:

1. FILTER BARRIERS SHALL BE INSPECTED BY THE FINANCIALLY RESPONSIBLE PARTY OR HIS AGENT IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS NEEDED SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE BARRIER. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS REMOVED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

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HIGH HAZARD
TEMPORARY SILT FENCE

Rev. Date: 26 JAN 21
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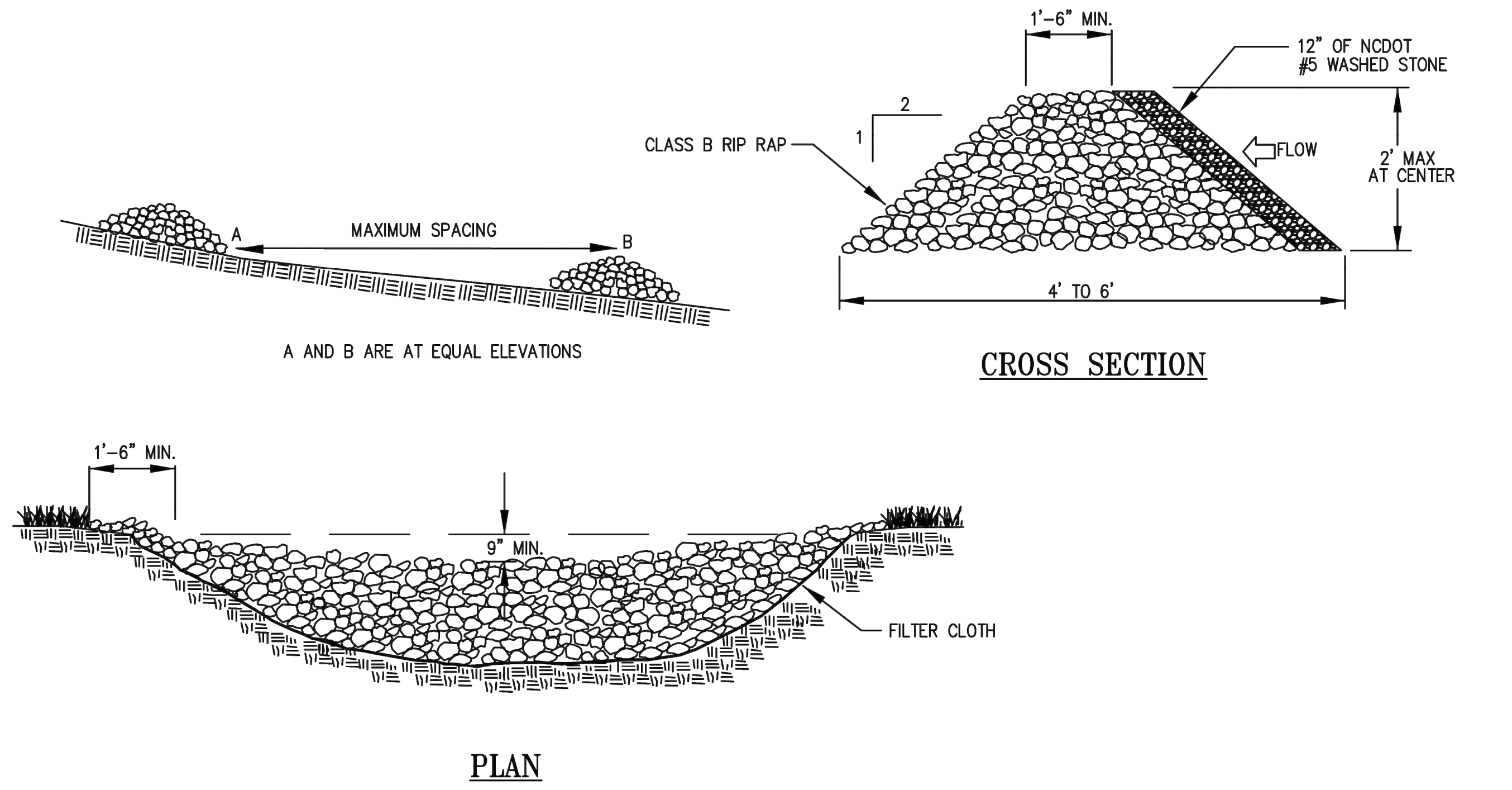
Review Date: 26 JAN 21

EC-5


MAXIMUM SPACING
A
B
A AND B ARE AT EQUAL ELEVATIONS
1'-6" MIN.
12" OF NCDOT #5 WASHED STONE
CLASS B RIP RAP
2
1
FLOW
2' MAX AT CENTER
4' TO 6'
CROSS SECTION
1'-6" MIN.
9" MIN.
FILTER CLOTH
PLAN

GENERAL NOTES:

1. RIPRAP SIZE TO BE CLASS B RIPRAP
2. CHECK DAMS MAY BE USED IN SLOPING DITCHES OR CHANNELS TO SLOW VELOCITY OR TO CREATE SEDIMENT TRAPS.
3. ENSURE THAT MAXIMUM SPACING BETWEEN DAMS PLACES THE TOE OF THE UPSTREAM DAM AT THE SAME ELEVATION AS THE DOWNSTREAM DAM (SEE DIAGRAM BELOW).
4. REFER TO NCESCPDM SECTION #6.83 FOR ADDITIONAL SPECIFICATIONS.

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TEMPORARY ROCK
CHECK DAM

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Not to Scale
Review Date: 01JAN19

EC-6

	WARMER SEASON	COOL SEASON
SEEDING MIXTURE	100 lbs/acre of tall fesue 25 lbs/acre of german millet 25 lbs/acre of hulled bermuda	100 lbs/acre of tall fesue 30 lbs/acre of wheat 25 lbs/acre of unhulled bermuda
SEEDING DATES	March 15 – September 15	September 15 – March 15
SEEDING AMENDMENTS	Apply lime and fertilizer per soil tests, or 4000 lbs/acre limestone and 1000 lbs/acre 10–10–10 fertilizer.	Apply lime and fertilizer per soil tests, or 4000 lbs/acre limestone and 1000 lbs/acre 10–10–10 fertilizer.

STABILIZATION TIMEFRAMES

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

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PERMANENT SEEDING SCHEDULE

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EC-7

	EARLY SUMMER SEASON	FALL/WINTER SEASON
SEEDING MIXTURE	40 lbs/acre of German millet 80 lbs/acre of tall fesue	120 lbs/acre Rye (grain) 80 lbs/acre tall fesue
SEEDING DATES	May 1 – August 15 Refertilize if growth is not fully adequate. Apply 4000 lbs/acre straw or equivalent hydroseeding.	October 25 – December 30 Between December 30 – February 15, add 50 lbs/acre of annual Kobe lespedeza. Apply 4000 lbs/acre straw or equivalent hydroseeding.
SEEDING AMENDMENTS	Apply lime and fertilizer per soil tests, or 2000 lbs/acre limestone and 750 lbs/acre 10–10–10 fertilizer.	Apply lime and fertilizer per soil tests, or 2000 lbs/acre limestone and 750 lbs/acre 10–10–10 fertilizer.

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TEMPORARY SEEDING SCHEDULE
(SEASONAL)

Rev. Date: 26 JAN 21
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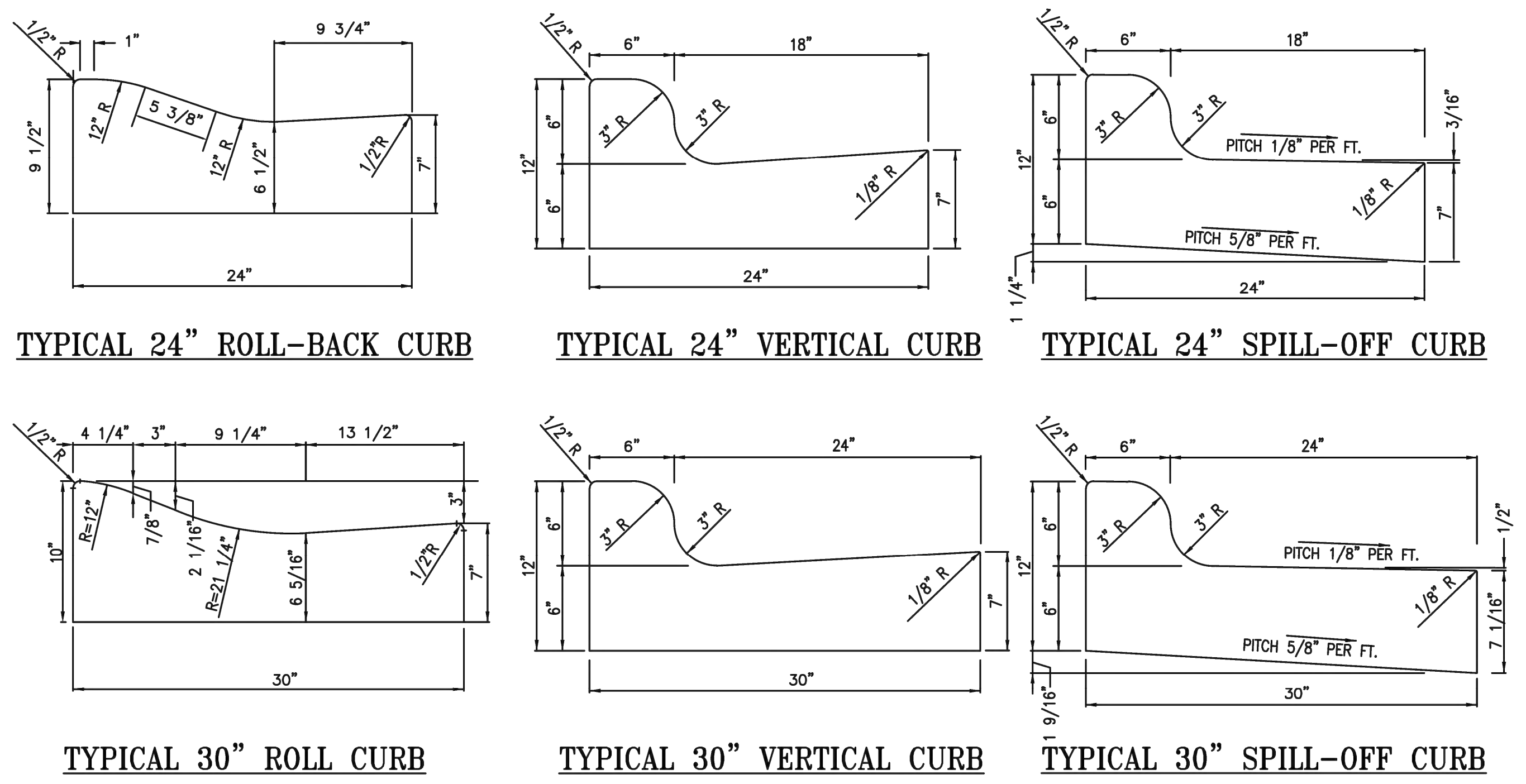
EC-8


1/2" R
1"
9 3/4"
9 1/2"
12" R
5 3/8"
12" R
6 1/2"
1/2"R
7"
24"
6"
18"
12"
3" R
1/8" R
PITCH 1/8" PER FT.
PITCH 5/8" PER FT.
3/16"
1 1/4"
4 1/4"
3"
9 1/4"
13 1/2"
10"
R=12"
7/8"
2 1/16"
R=21 1/4"
6 5/16"
30"
24"
1/2"
7 1/16"
1 9/16"

TYPICAL 24" ROLL-BACK CURB

TYPICAL 24" VERTICAL CURB

TYPICAL 24" SPILL-OFF CURB

TYPICAL 30" ROLL CURB

TYPICAL 30" VERTICAL CURB

TYPICAL 30" SPILL-OFF CURB

NOTES

1. ALL CURBS CONSTRUCTED OF 3000 PSI CONCRETE.
2. CONTRACTION JOINTS EVERY 10'; EXPANSION JOINTS EVERY 30'.
3. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
4. TOP 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

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24" AND 30"
CURB DETAILS

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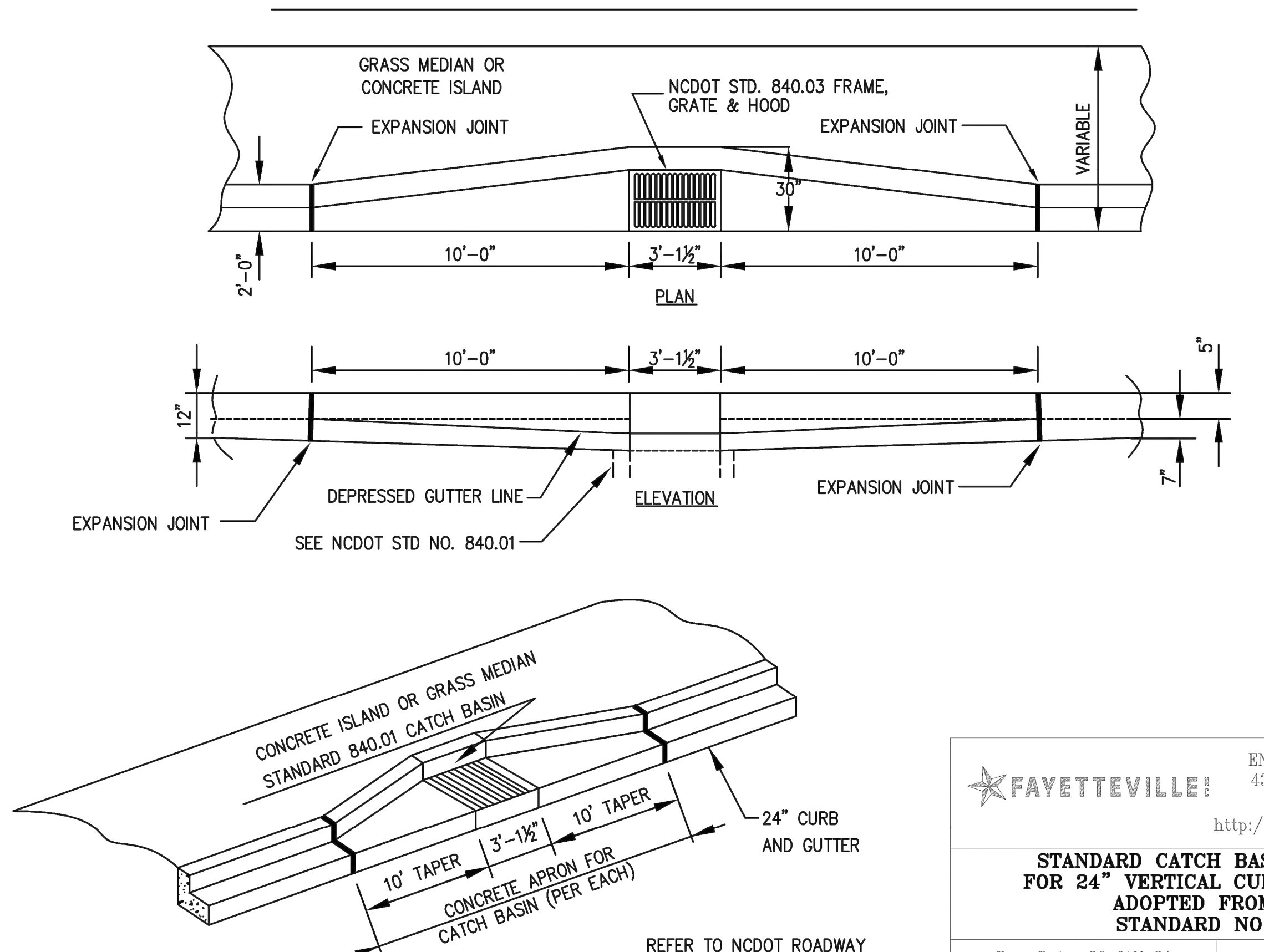
SD-1

STANDARD CATCH BASIN TRANSITION FOR 24" VERTICAL CURB AND GUTTER


GRASS MEDIAN OR CONCRETE ISLAND
EXPANSION JOINT
NCDOT STD. 840.03 FRAME, GRATE & HOOD
EXPANSION JOINT
VARIABLE
30"
2'-0"
10'-0"
3'-1½"
10'-0"
PLAN
10'-0"
3'-1½"
10'-0"
12"
5"
7"
EXPANSION JOINT
DEPRESSED GUTTER LINE
SEE NCDOT STD NO. 840.01
ELEVATION
EXPANSION JOINT
CONCRETE ISLAND OR GRASS MEDIAN
STANDARD 840.01 CATCH BASIN
10' TAPER
3'-1½"
10' TAPER
CONCRETE APRON FOR CATCH BASIN (PER EACH)
24" CURB AND GUTTER

REFER TO NCDOT ROADWAY STANDARD DRAWINGS CURRENT EDITION

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STANDARD CATCH BASIN TRANSITION
FOR 24" VERTICAL CURB AND GUTTER
ADOPTED FROM NCDOT
STANDARD NO. 852.05

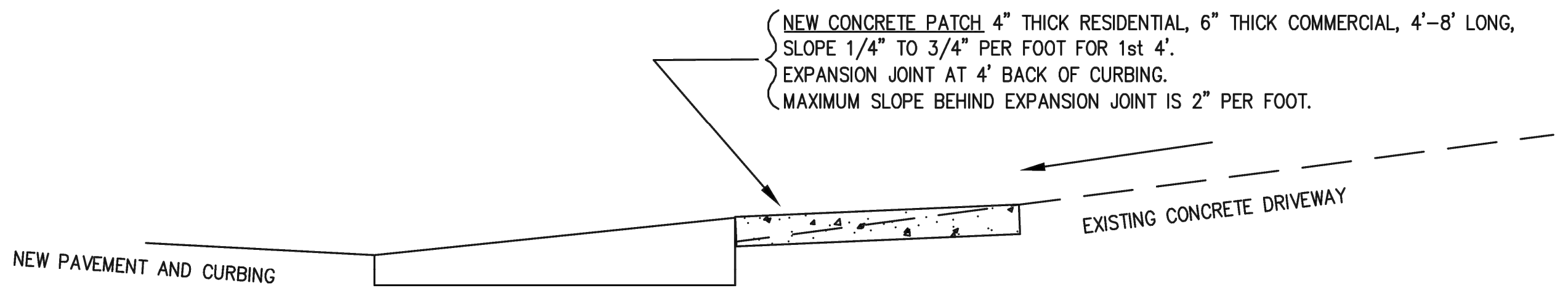
Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

SD-5

(CONCRETE PATCH FOR DRIVEWAY UPHILL FROM NEW ASPHALT CURBING)

DETERMINE SAWCUT LOCATION: CHECK SLOPE FROM BACK OF CURBING TO 4' BACK OF CURBING, IF DIFFERENCE IS 1" TO 3"(1/4" TO 3/4" PER FOOT) CUT AND FORM AT 4' BEHIND BACK OF CURBING. IF SLOPE IS TOO FLAT OR STEEP, CONSULT INSPECTOR TO DETERMINE SAWCUT.

NEW CONCRETE PATCH 4" THICK RESIDENTIAL, 6" THICK COMMERCIAL, 4'-8' LONG, SLOPE 1/4" TO 3/4" PER FOOT FOR 1st 4'. EXPANSION JOINT AT 4' BACK OF CURBING. MAXIMUM SLOPE BEHIND EXPANSION JOINT IS 2" PER FOOT.


NEW PAVEMENT AND CURBING
EXISTING CONCRETE DRIVEWAY

NOTE:

UPHILL DRIVEWAYS: ASPHALT CURB HEIGHT CAN BE LOWERED TO REDUCE PATCHING NEED. FOR FURTHER INFORMATION ON DRIVEWAY CONNECTIONS, CONTACT CONSTRUCTION MANAGEMENT AT (910) 433-1661.

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DRIVEWAY CONNECTIONS TO
OVERLAID OR
RAISED CURBING (UPHILL DRIVEWAY)
PAGE 1 OF 2

Rev. Date: 26 JAN 21
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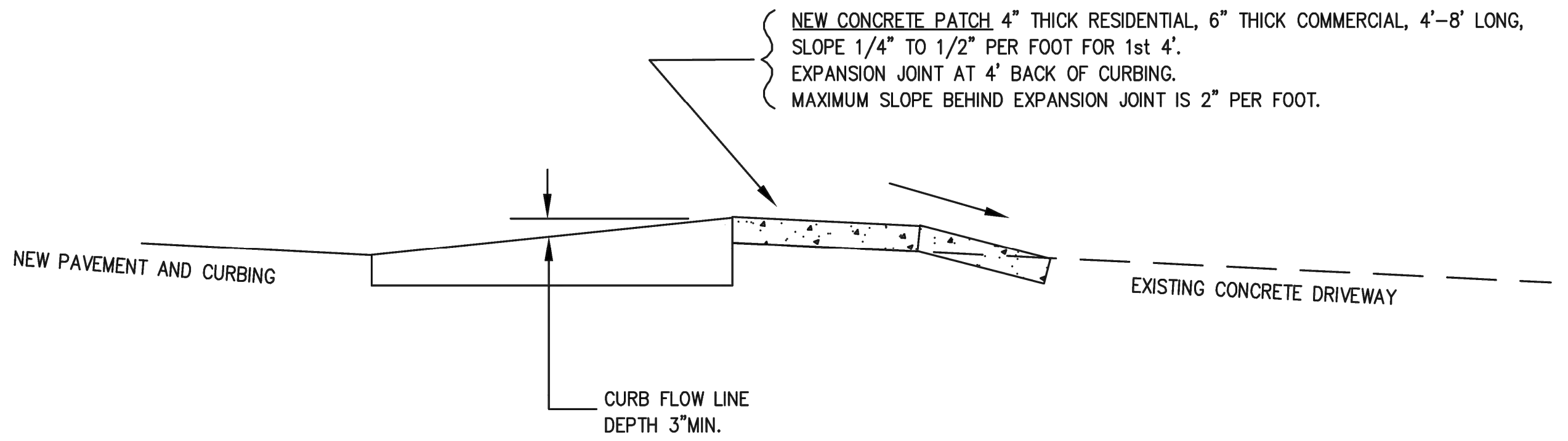
SD-6

(CONCRETE PATCH FOR DRIVEWAY DOWNHILL FROM NEW ASPHALT CURBING)

1st CHECK AND MAKE SURE CURB HEIGHT IS 3" MINIMUM

DETERMINE SAWCUT LOCATION: 1st CHECK SLOPE FROM BACK OF CURBING TO TO 4' BACK OF CURBING, IF DIFFERENCE IS 1" TO 2"(1/4" TO 1/2" PER FOOT) CUT AND FORM AT 4' BEHIND BACK OF CURBING. IF SLOPE IS TOO FLAT OR STEEP, CONSULT INSPECTOR TO DETERMINE SAWCUT.

NEW CONCRETE PATCH 4" THICK RESIDENTIAL, 6" THICK COMMERCIAL, 4'-8' LONG, SLOPE 1/4" TO 1/2" PER FOOT FOR 1st 4'. EXPANSION JOINT AT 4' BACK OF CURBING. MAXIMUM SLOPE BEHIND EXPANSION JOINT IS 2" PER FOOT.


NEW PAVEMENT AND CURBING
EXISTING CONCRETE DRIVEWAY
CURB FLOW LINE DEPTH 3"MIN.

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DRIVEWAY CONNECTIONS TO
OVERLAID OR
RAISED CURBING (DOWNHILL DRIVEWAY)
PAGE 2 OF 2

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21

SD-6.1

STANDARD DETAILS

PLAN TYPE:

SHEET NUMBER
17 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030525 TRAVIS CRISSMAN
5/14/2025
NAME:
DATE:

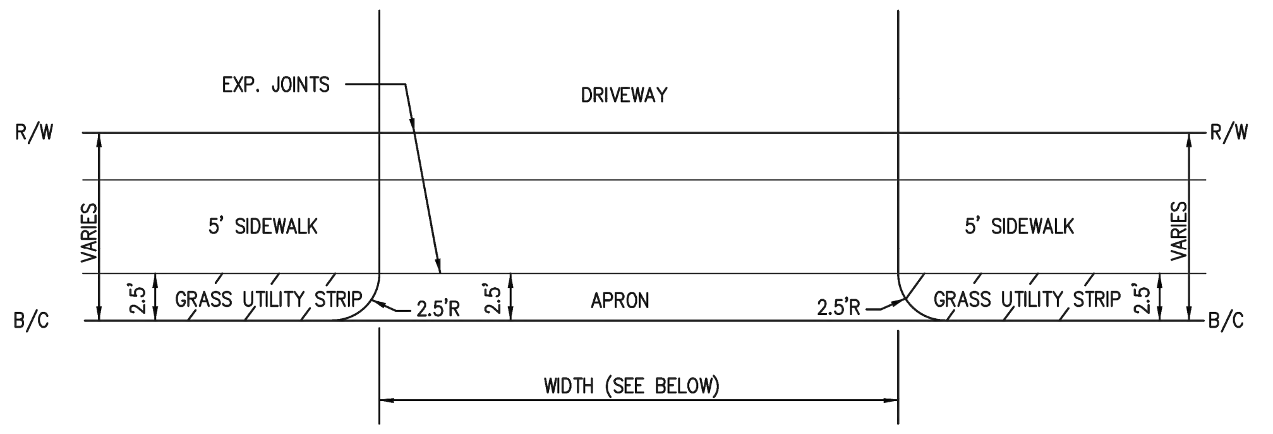
REVISIONS

REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.


EXP. JOINTS
DRIVEWAY
R/W
R/W
VARIES
5' SIDEWALK
5' SIDEWALK
VARIES
B/C
2.5'
GRASS UTILITY STRIP
2.5'R
2.5'
APRON
2.5'R
GRASS UTILITY STRIP
2.5'
B/C
WIDTH (SEE BELOW)

DRIVEWAY APRON
12'(MIN) WIDTH
20'(MAX) WIDTH (DOUBLE)
4" THICK(MIN) CONCRETE

NOTE: DISTANCE FROM B/C TO R/W VARIES ON DIFFERENT STREETS.

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TYPICAL RESIDENTIAL DRIVEWAY APRON

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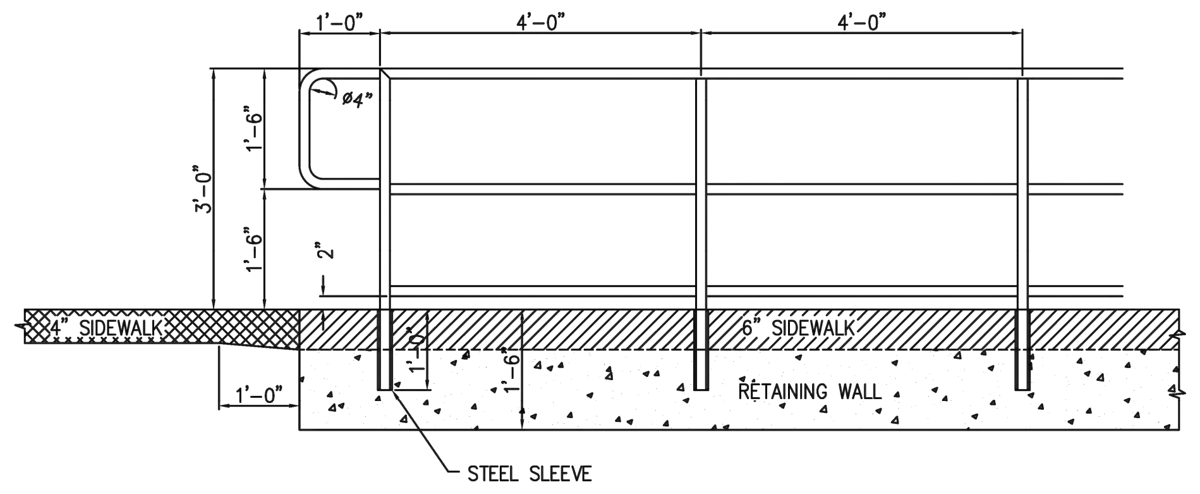
SD-9


1'-0"
4'-0"
4'-0"
Ø4"
1'-6"
3'-0"
1'-6"
2"
4" SIDEWALK
6" SIDEWALK
1'-0"
1'-0"
1'-6"
RETAINING WALL
STEEL SLEEVE

NOTES:

1. HORIZONTAL RAIL TO BE 1-1/4" (ADA) I.D. - SCHEDULE 40-TYPE E, GRADE A OR STRONGER (MIN. YIELD STRESS TO BE 30 KSI, WHICH ALLOWS 21.6 KSI DESIGN STRESS.)
2. POSTS TO BE 1-1/2" I.D. - SCHEDULE 80-TYPE E, GRADE A OR STRONGER (MIN. YIELD STRESS TO BE 30 KSI, WHICH ALLOWS 21.6 KSI DESIGN STRESS.)
3. ALL JOINTS TO BE WELDED AND GROUND TO A SMOOTH SURFACE. PREFABRICATED CONNECTIONS MAY BE USED IF APPROVED BY CITY ENGINEER. WELDS ARE REQUIRED TO MEET AMERICAN WELDING SOCIETY SPECIFICATIONS.
4. POSTS TO EMBEDDED A MIN. OF 12" IN A CORE DRILLED HOLE OR PRESET PIPE SLEEVE. SLEEVE SHALL BE SCHEDULE 40, TYPE E, GRADE A STEEL OR STRONGER.
5. FINISH WITH 1 COAT OF PRIMER AND 2 COATS OF ALL WEATHER ENAMEL USE PAINT. A NEUTRAL COLOR TO BE APPROVED BY PROJECT ENGINEER.
6. CONTRACTOR SHALL WARRANT PAINT AND HANDRAIL FOR 1 YEAR.
7. ANY CHANGES FROM ABOVE RAIL DESIGN SHALL BE SUBMITTED OVER SEAL OF REGISTERED N.C. ENGINEER WITH DESIGN CRITERIA AND STRESS CALCULATIONS.
8. ALL CONCRETE TO BE 3000 PSI COMPRESSIVE STRENGTH
9. STEEL SLEEVE TO ACCOMMODATE 1-1/2" I.D. SCHEDULE 80 TYPE E POST.
10. ALLOW A 12" TRANSITION FROM A 4" SIDEWALK TO A 6" SIDEWALK AND VICE VERSA.

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PIPE HANDRAIL

Rev. Date: 26 JAN 21
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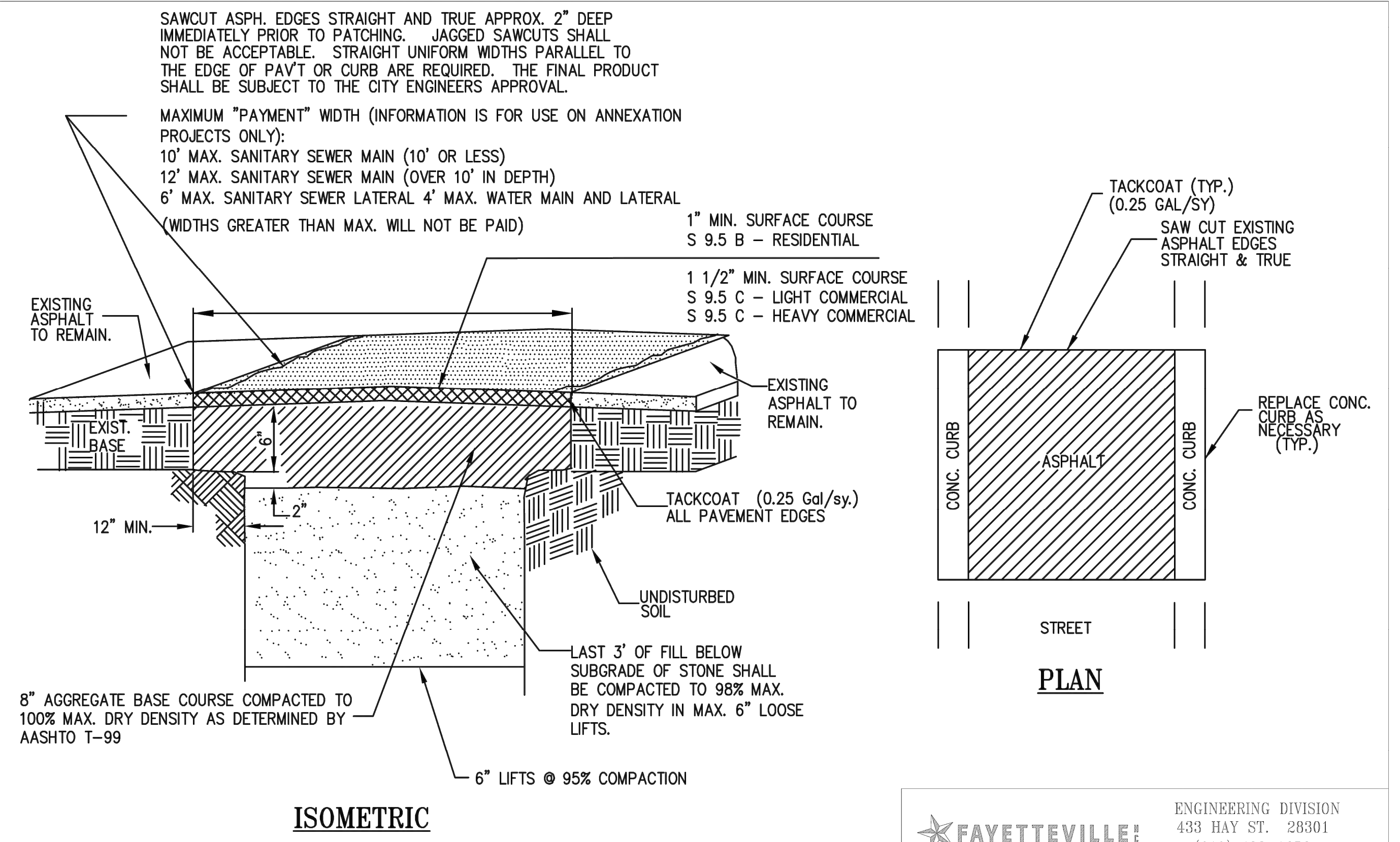
SD-10


SAWCUT ASPH. EDGES STRAIGHT AND TRUE APPROX. 2" DEEP IMMEDIATELY PRIOR TO PATCHING. JAGGED SAWCUTS SHALL NOT BE ACCEPTABLE. STRAIGHT UNIFORM WIDTHS PARALLEL TO THE EDGE OF PAV'T OR CURB ARE REQUIRED. THE FINAL PRODUCT SHALL BE SUBJECT TO THE CITY ENGINEERS APPROVAL.

MAXIMUM "PAYMENT" WIDTH (INFORMATION IS FOR USE ON ANNEXATION PROJECTS ONLY):
10' MAX. SANITARY SEWER MAIN (10' OR LESS)
12' MAX. SANITARY SEWER MAIN (OVER 10' IN DEPTH)
6' MAX. SANITARY SEWER LATERAL 4' MAX. WATER MAIN AND LATERAL
(WIDTHS GREATER THAN MAX. WILL NOT BE PAID)

1" MIN. SURFACE COURSE
S 9.5 B - RESIDENTIAL
1 1/2" MIN. SURFACE COURSE
S 9.5 C - LIGHT COMMERCIAL
S 9.5 C - HEAVY COMMERCIAL
EXISTING ASPHALT TO REMAIN.
EXIST. BASE
6"
12" MIN.
2"
EXISTING ASPHALT TO REMAIN.
TACKCOAT (0.25 Gal/sy.) ALL PAVEMENT EDGES
UNDISTURBED SOIL
LAST 3' OF FILL BELOW SUBGRADE OF STONE SHALL BE COMPACTED TO 98% MAX. DRY DENSITY IN MAX. 6" LOOSE LIFTS.
8" AGGREGATE BASE COURSE COMPACTED TO 100% MAX. DRY DENSITY AS DETERMINED BY AASHTO T-99
6" LIFTS @ 95% COMPACTION
ISOMETRIC
TACKCOAT (TYP.) (0.25 GAL/SY)
SAW CUT EXISTING ASPHALT EDGES STRAIGHT & TRUE
CONC. CURB
ASPHALT
CONC. CURB
REPLACE CONC. CURB AS NECESSARY (TYP.)
STREET
PLAN

NOTE:
TEMPORARY PATCH IS ONLY ALLOWED TO BE USED IF CONVERTED TO PERMANENT PATCH WITHIN 12 MONTHS. SEE DETAIL SD-11.1

SEE ADDITIONAL NOTES ON DETAIL SD-11.2

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TYPICAL TEMPORARY SAWCUT AND PAVEMENT PATCH
PAGE 1 OF 3

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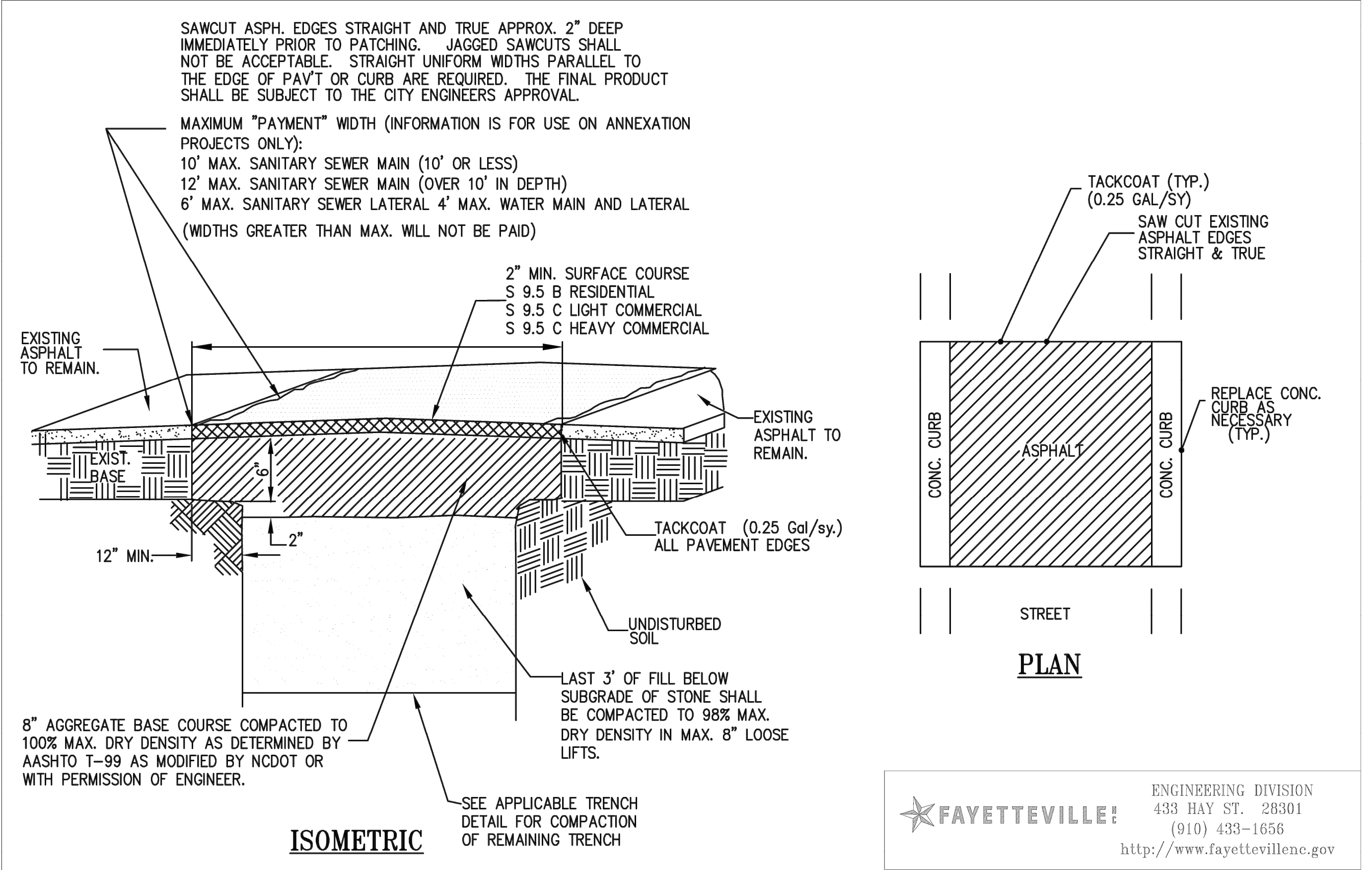
SD-11


SAWCUT ASPH. EDGES STRAIGHT AND TRUE APPROX. 2" DEEP IMMEDIATELY PRIOR TO PATCHING. JAGGED SAWCUTS SHALL NOT BE ACCEPTABLE. STRAIGHT UNIFORM WIDTHS PARALLEL TO THE EDGE OF PAV'T OR CURB ARE REQUIRED. THE FINAL PRODUCT SHALL BE SUBJECT TO THE CITY ENGINEERS APPROVAL.

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10' MAX. SANITARY SEWER MAIN (10' OR LESS)
12' MAX. SANITARY SEWER MAIN (OVER 10' IN DEPTH)
6' MAX. SANITARY SEWER LATERAL 4' MAX. WATER MAIN AND LATERAL
(WIDTHS GREATER THAN MAX. WILL NOT BE PAID)

2" MIN. SURFACE COURSE
S 9.5 B RESIDENTIAL
S 9.5 C LIGHT COMMERCIAL
S 9.5 C HEAVY COMMERCIAL
EXISTING ASPHALT TO REMAIN.
EXIST. BASE
6"
12" MIN.
2"
EXISTING ASPHALT TO REMAIN.
TACKCOAT (0.25 Gal/sy.) ALL PAVEMENT EDGES
UNDISTURBED SOIL
LAST 3' OF FILL BELOW SUBGRADE OF STONE SHALL BE COMPACTED TO 98% MAX. DRY DENSITY IN MAX. 8" LOOSE LIFTS.
8" AGGREGATE BASE COURSE COMPACTED TO 100% MAX. DRY DENSITY AS DETERMINED BY AASHTO T-99 AS MODIFIED BY NCDOT OR WITH PERMISSION OF ENGINEER.
SEE APPLICABLE TRENCH DETAIL FOR COMPACTION OF REMAINING TRENCH
ISOMETRIC
TACKCOAT (TYP.) (0.25 GAL/SY)
SAW CUT EXISTING ASPHALT EDGES STRAIGHT & TRUE
CONC. CURB
ASPHALT
CONC. CURB
REPLACE CONC. CURB AS NECESSARY (TYP.)
STREET
PLAN

NOTE:
SEE DETAIL SD-16.2 FOR TYPICAL CROSS SECTION OF PAVEMENT STRUCTURE

SEE ADDITIONAL NOTES ON DETAIL SD-11.2

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TYPICAL PERMANENT SAWCUT AND PAVEMENT PATCH
PAGE 2 OF 3

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21
SD-11.1

NOTES:

1. CONTRACTOR SHALL PATCH PAVEMENT TO THE SAME PAVEMENT CROSS SECTION AS EXISTED PRIOR TO REMOVING PAVEMENT. THE STREET CROWN SHALL BE RESTORED. PATCH SHALL MATCH EXISTING PAVEMENT WITHIN .02' WHEN CHECKED WITH A 10' STRAIGHT EDGE. ADJUST PAVER AS REQUIRED. PATCH PAVING MAY OCCUR PRIOR TO PULLING MANDREL THRU SS PROVIDED DENSITY TEST OF TRENCH BACKFILL MEET THE REQUIRED DENSITY AND ENGINEER APPROVES PATCHING STREET PRIOR TO MANDREL TESTING SANITARY SEWER MAIN.
2. WHERE PATCH OF CURBING OCCURS CONTRACTOR SHALL MATCH EXISTING CURB GRADES WITHIN 0.02 FEET. PATCHES THAT ARE ABOVE THE CURB GRADE LINE WILL NOT BE ACCEPTABLE AND SHALL BE REMOVED AND REPATCHED AT NO EXPENSE TO THE OWNER. CURB PATCH SHALL BE THE SAME SHAPE/TEMPLATE AS THE EXISTING CURB.
3. CONTRACTOR SHALL BE REQUIRED TO PROVIDE TRAFFIC CONTROL AND DEVICES AS REQUIRED BY THE MUTCD OR N.C. SUPPLEMENT. WORK CAN NOT PROCEED UNTIL THE MEASURES ARE IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT NEW PAVEMENT FROM TRAFFIC AND OTHER SOURCES OF DAMAGE UNTIL ASPHALT HAS SUFFICIENTLY COOLED TO PREVENT DAMAGE FROM SURFACE DEFLECTIONS.
4. CONTRACTOR SHALL SAWCUT EXIST. PAVEMENT STRAIGHT AND TRUE PRIOR TO REMOVING ASPHALT FOR UTILITY INSTALLATION. THE ENGINEER MAY APPROVE THE USE OF A MILLING MACHINE FOR REMOVAL OF THE EXISTING PAVEMENT WITHIN TRENCH LIMITS. WHERE MILLING IS APPROVED THE CONTRACTOR SHALL PLACE AND COMPACT MILLINGS IN MILLED AREA TO PROVIDE AN INTERIM TRAFFIC SURFACE. MILLING WHERE APPROVED BY ENGINEER IS AN ALTERNATE TO CUTTING ASPHALT AND DISPOSING OFF-SITE.

* 5. AFTER UTILITY IS INSTALLED AND TESTED AND THE EXCESS BASE MATERIAL REMOVED (APPROX. 2") CONTRACTOR SHALL AGAIN SAWCUT EXISTING PAVEMENT STRAIGHT AND TRUE IMMEDIATELY PRIOR TO PAVING AS NOTED ABOVE.

6. MILLING OPERATIONS SHALL BE LIMITED TO 1800 FEET PER MAIN LINE CREW NOT TO EXCEED 3000 FEET IN TOTAL OF DISTURBED ROADWAY FOR THE ENTIRE PROJECT AT ONE TIME WHERE. CONTRACTOR SHALL PATCH PAVE DISTURBED AREA OF ROADWAY PRIOR TO DISTURBING ADDITIONAL ROADWAY.
7. AT NO TIME SHALL THE TRENCH BE LEFT UNATTENDED WITH A VERTICAL DROP GREATER THAN 1 INCH FROM ASPHALT SURFACE TO TOP OF BACKFILLED TRENCH.
8. IF PAVEMENT SETTLEMENT OCCURS WITHIN WARRANTY PERIOD (SEE PROJECT SPECIFICATIONS), THE CONTRACTOR SHALL REPATCH AT NO ADDITIONAL EXPENSE TO THE OWNER.

* 9. NCDOT WILL REQUIRE FULL DEPTH ASPHALT PATCH TO MATCH EXISTING ASPHALT THICKNESS ON STATE MAINTAINED ROADS. NCDOT REQUIRES PATCH PAVING SAME DAY AS REMOVAL.

10. TEST FOR DENSITY OF COMPACTION MAY BE MADE AT THE OPTION OF THE ENGINEER AND DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE ENGINEER MAY HAVE COMPACTION TEST PERFORMED AFTER THE BACKFILL IS COMPLETE. CONTRACTOR SHALL BE REQUIRED TO EXCAVATE TO VARIOUS ELEVATIONS FOR DENSITY TESTING EXCAVATION, BACKFILL AND RECOMPACTION SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER.

* -- NOTES 5 & 9 APPLY TO PERMANENT PAVEMENT PATCHES ONLY.

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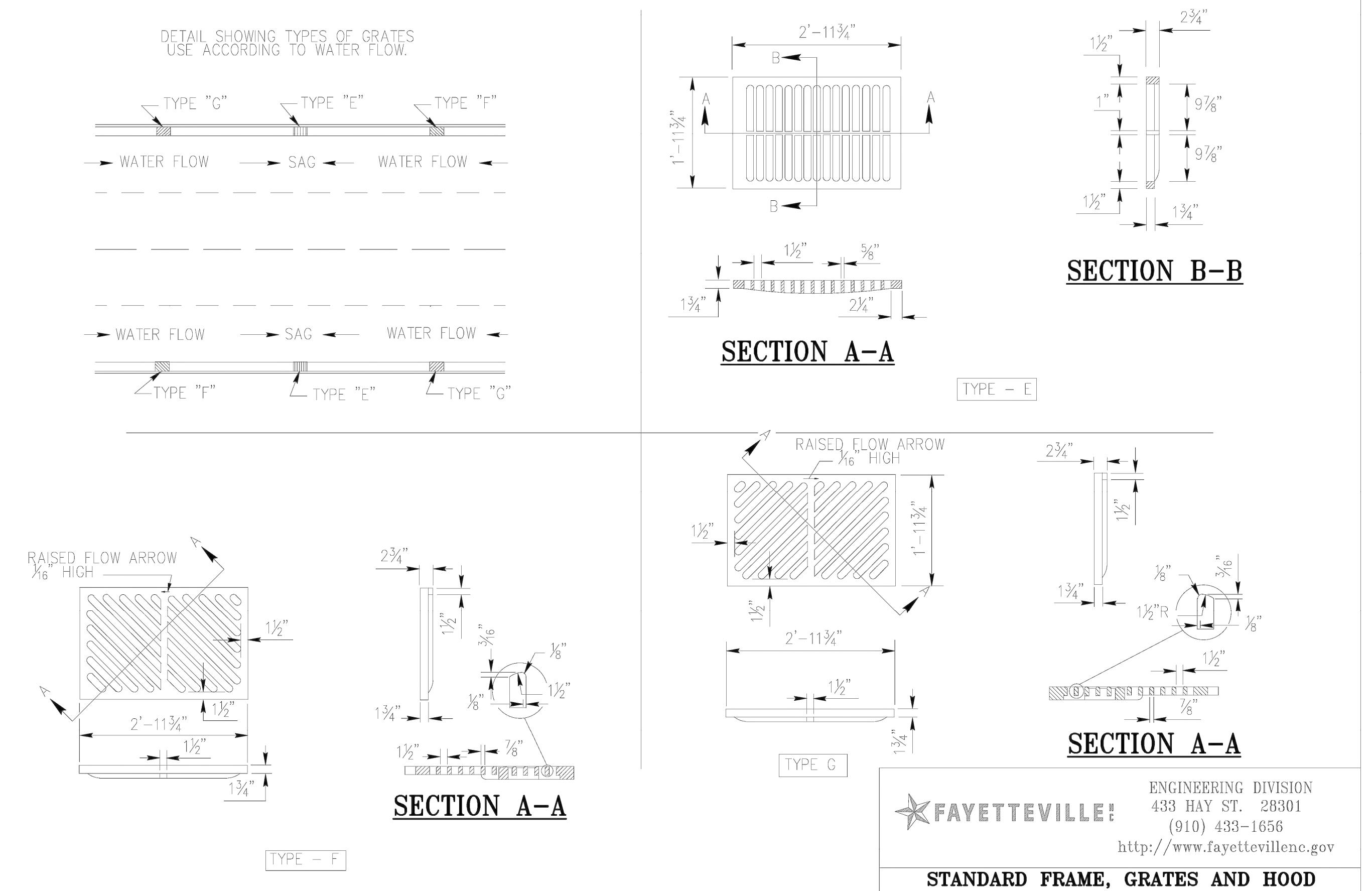
http://www.fayettevillenc.gov

NOTES FOR TYPICAL PERMANENT AND TEMPORARY SAWCUT AND PAVEMENT PATCH
PAGE 3 OF 3

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21
SD-11.2


DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.
TYPE "G"
TYPE "E"
TYPE "F"
WATER FLOW
SAG
WATER FLOW
WATER FLOW
SAG
WATER FLOW
TYPE "F"
TYPE "E"
TYPE "G"
2'-11¾"
1'-11¾"
B
A
A
B
1½"
⅝"
1¾"
2¼"
SECTION A-A
TYPE - E
2¾"
1½"
1"
9⅞"
9⅞"
1½"
1¾"
SECTION B-B
RAISED FLOW ARROW 1/16" HIGH
1½"
2'-11¾"
1½"
1½"
1¾"
TYPE - F
2¾"
1½"
3/16"
⅛"
1½"
⅛"
1¾"
1½"
⅞"
SECTION A-A
RAISED FLOW ARROW 1/16" HIGH
1½"
1'-11¾"
1½"
2'-11¾"
1½"
1¾"
TYPE G
2¾"
1½"
⅛"
3/16"
1¾"
1½"R
⅛"
1½"
⅞"
SECTION A-A

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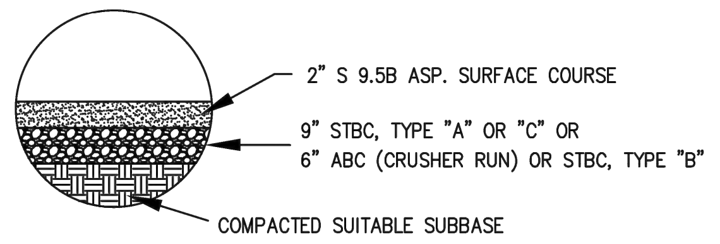
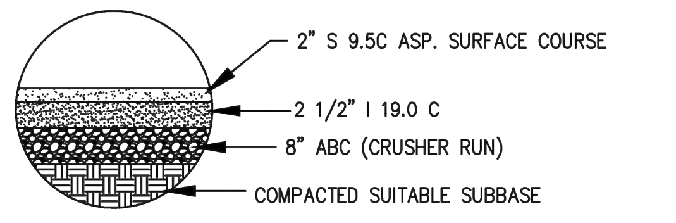
STANDARD FRAME, GRATES AND HOOD FOR USE ON STANDARD CATCH BASIN ADOPTED FROM NCDOT STANDARD NO. 840.03 (PAGE 2 OF 2)

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21
DR-26.1

TYPICAL RESIDENTIAL CROSS SECTION


2" S 9.5B ASP. SURFACE COURSE
9" STBC, TYPE "A" OR "C" OR
6" ABC (CRUSHER RUN) OR STBC, TYPE "B"
COMPACTED SUITABLE SUBBASE

TYPICAL LIGHT & HEAVY COMMERCIAL CROSS SECTION


2" S 9.5C ASP. SURFACE COURSE
2 1/2" I 19.0 C
8" ABC (CRUSHER RUN)
COMPACTED SUITABLE SUBBASE

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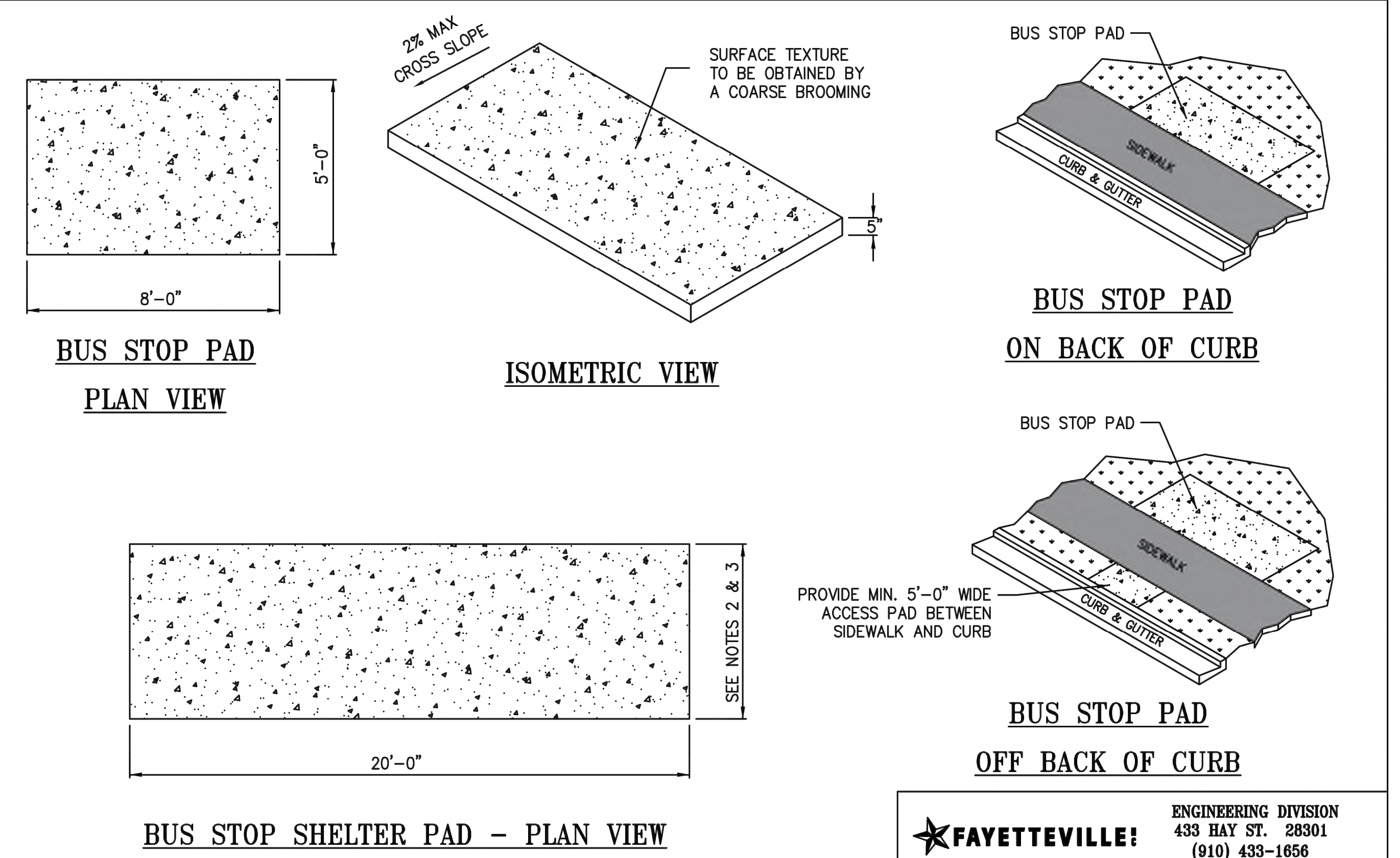
TYPICAL CROSS SECTIONS FOR ALL CITY PAVEMENT

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21
SD-16.2


5'-0"
8'-0"
BUS STOP PAD
PLAN VIEW
2% MAX CROSS SLOPE
SURFACE TEXTURE TO BE OBTAINED BY A COARSE BROOMING
5"
ISOMETRIC VIEW
BUS STOP PAD
SIDEWALK
CURB & GUTTER
BUS STOP PAD
ON BACK OF CURB
BUS STOP PAD
SIDEWALK
CURB & GUTTER
PROVIDE MIN. 5'-0" WIDE ACCESS PAD BETWEEN SIDEWALK AND CURB
BUS STOP PAD
OFF BACK OF CURB
SEE NOTES 2 & 3
20'-0"
BUS STOP SHELTER PAD - PLAN VIEW

NOTES:
1. BUS STOP PAD SHALL BE PLACED BEHIND THE SIDEWALK.
2. IF SIDEWALK IS OFF THE BACK OF CURB, THE BUS STOP SHELTER PAD WIDTH SHALL BE 5'-0"
3. IF SIDEWALK IS ON THE BACK OF CURB, THE BUS STOP SHELTER PAD WIDTH SHALL BE 5'-0" FOR SPEED LIMITS UP TO 35 MPH; FOR SPEED LIMITS ABOVE 35 MPH, WIDTH SHALL BE 8'-0".
4. CONCRETE SHALL DEVELOP AT 28 DAYS A MIN COMPRESSIVE STRENGTH OF 3000 PSI.

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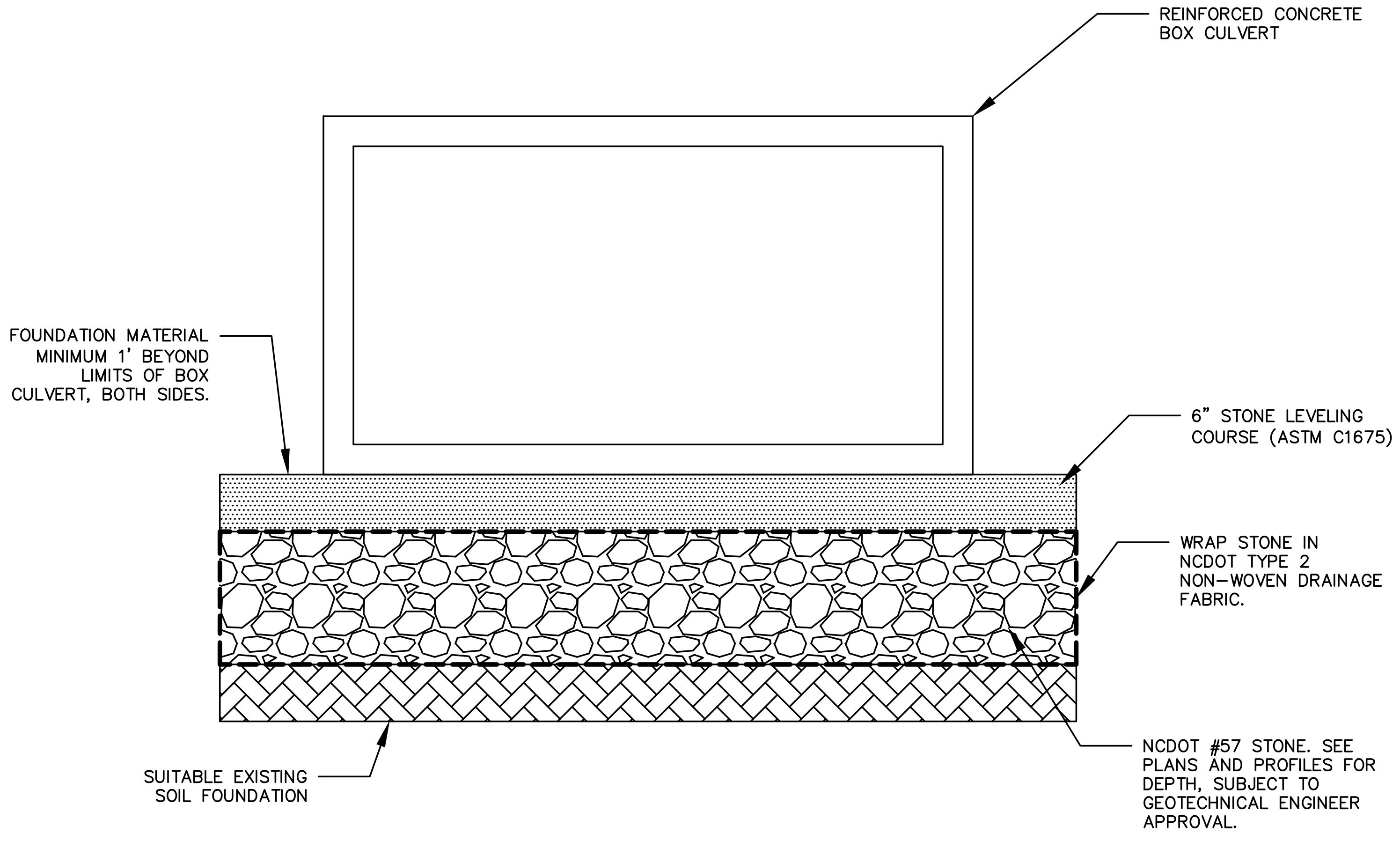
(910) 433-1656
http://www.fayettevillenc.gov

DETAIL OF BUS STOP PAD

Rev. Date: 26 JAN 21
Not to Scale
Review Date: 26 JAN 21
SD-17


REINFORCED CONCRETE BOX CULVERT
FOUNDATION MATERIAL MINIMUM 1' BEYOND LIMITS OF BOX CULVERT, BOTH SIDES.
6" STONE LEVELING COURSE (ASTM C1675)
WRAP STONE IN NCDOT TYPE 2 NON-WOVEN DRAINAGE FABRIC.
SUITABLE EXISTING SOIL FOUNDATION
NCDOT #57 STONE. SEE PLANS AND PROFILES FOR DEPTH, SUBJECT TO GEOTECHNICAL ENGINEER APPROVAL.

BOX CULVERT FOUNDATION DETAIL

NOT TO SCALE

1
18

STANDARD DETAILS
CULVERT
FOUNDATION DETAIL

PLAN TYPE:

SHEET NUMBER
18 of 45

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL SEAL 030525 ENGINEER TRAVIS CRISSMAN
DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
3/14/2025
NAME:
DATE:

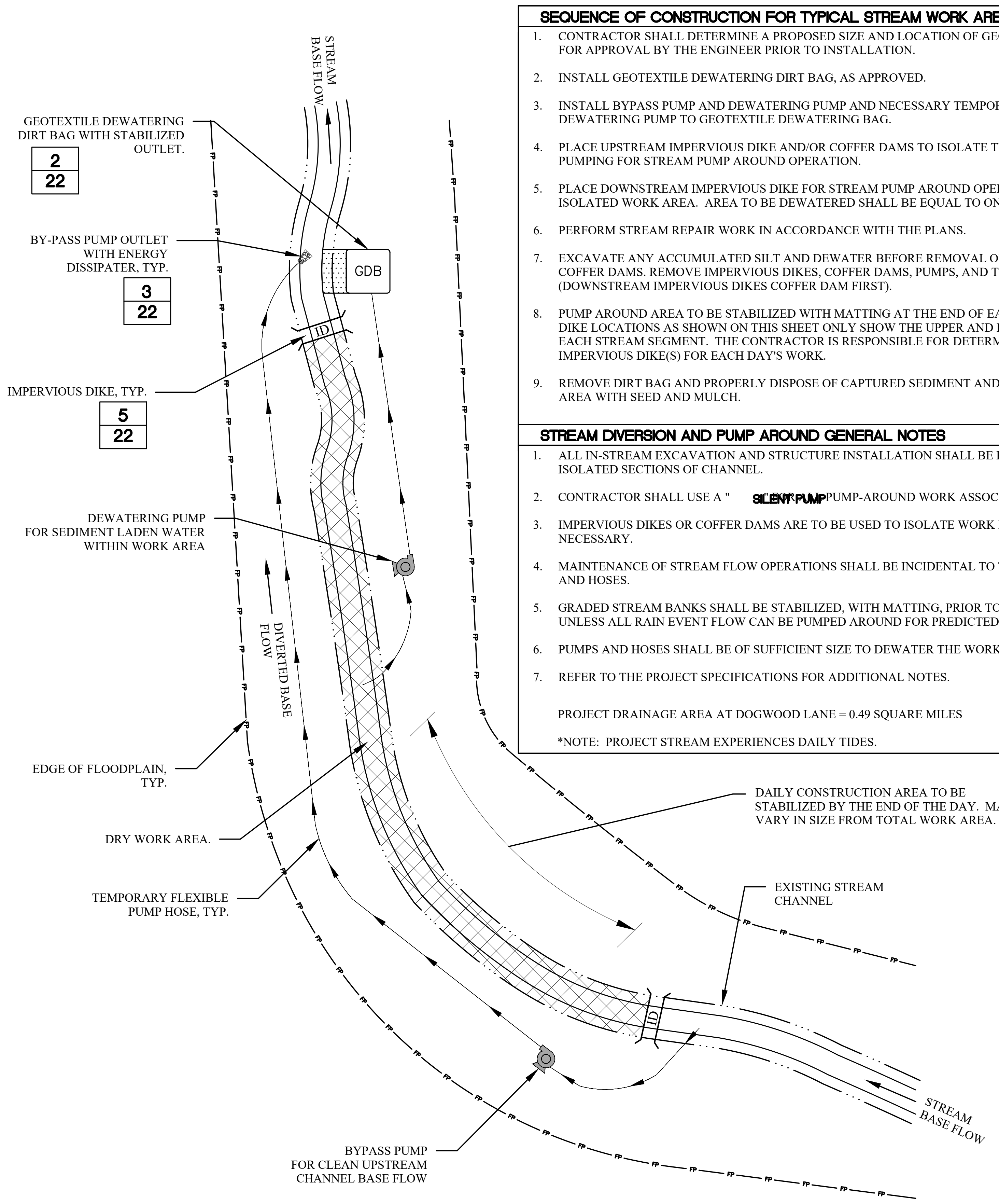
REV. #	DESCRIPTION	DATE	REV.BY
1	BID SET	MAY 2025	

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN

PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.


STREAM BASE FLOW
GEOTEXTILE DEWATERING DIRT BAG WITH STABILIZED OUTLET.
2
22
BY-PASS PUMP OUTLET WITH ENERGY DISSIPATER, TYP.
3
22
GDB
ID
IMPERVIOUS DIKE, TYP.
5
22
DEWATERING PUMP FOR SEDIMENT LADEN WATER WITHIN WORK AREA
DIVERTED BASE FLOW
EDGE OF FLOODPLAIN, TYP.
DRY WORK AREA.
TEMPORARY FLEXIBLE PUMP HOSE, TYP.
DAILY CONSTRUCTION AREA TO BE STABILIZED BY THE END OF THE DAY. MAY VARY IN SIZE FROM TOTAL WORK AREA.
EXISTING STREAM CHANNEL
ID
STREAM BASE FLOW
BYPASS PUMP FOR CLEAN UPSTREAM CHANNEL BASE FLOW
FP

SEQUENCE OF CONSTRUCTION FOR TYPICAL STREAM WORK AREA

1. CONTRACTOR SHALL DETERMINE A PROPOSED SIZE AND LOCATION OF GEOTEXTILE DEWATERING DIRT BAG FOR APPROVAL BY THE ENGINEER PRIOR TO INSTALLATION.
2. INSTALL GEOTEXTILE DEWATERING DIRT BAG, AS APPROVED.
3. INSTALL BYPASS PUMP AND DEWATERING PUMP AND NECESSARY TEMPORARY FLEXIBLE HOSE. CONNECT DEWATERING PUMP TO GEOTEXTILE DEWATERING BAG.
4. PLACE UPSTREAM IMPERVIOUS DIKE AND/OR COFFER DAMS TO ISOLATE THE WORK AREA. BEGIN BYPASS PUMPING FOR STREAM PUMP AROUND OPERATION.
5. PLACE DOWNSTREAM IMPERVIOUS DIKE FOR STREAM PUMP AROUND OPERATION. BEGIN DEWATERING THE ISOLATED WORK AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
6. PERFORM STREAM REPAIR WORK IN ACCORDANCE WITH THE PLANS.
7. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES AND/OR COFFER DAMS. REMOVE IMPERVIOUS DIKES, COFFER DAMS, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES COFFER DAM FIRST).
8. PUMP AROUND AREA TO BE STABILIZED WITH MATTING AT THE END OF EACH WORK DAY. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
9. REMOVE DIRT BAG AND PROPERLY DISPOSE OF CAPTURED SEDIMENT AND DIRT BAG. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

STREAM DIVERSION AND PUMP AROUND GENERAL NOTES

1. ALL IN-STREAM EXCAVATION AND STRUCTURE INSTALLATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
2. CONTRACTOR SHALL USE A " SILENT PUMP " FOR ALL PUMP-AROUND WORK ASSOCIATED WITH THIS PROJECT.
3. IMPERVIOUS DIKES OR COFFER DAMS ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW WHEN NECESSARY.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES PUMPS AND HOSES.
5. GRADED STREAM BANKS SHALL BE STABILIZED, WITH MATTING, PRIOR TO PREDICTED RAIN FALL EVENTS, UNLESS ALL RAIN EVENT FLOW CAN BE PUMPED AROUND FOR PREDICTED EVENT.
6. PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.
7. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL NOTES.

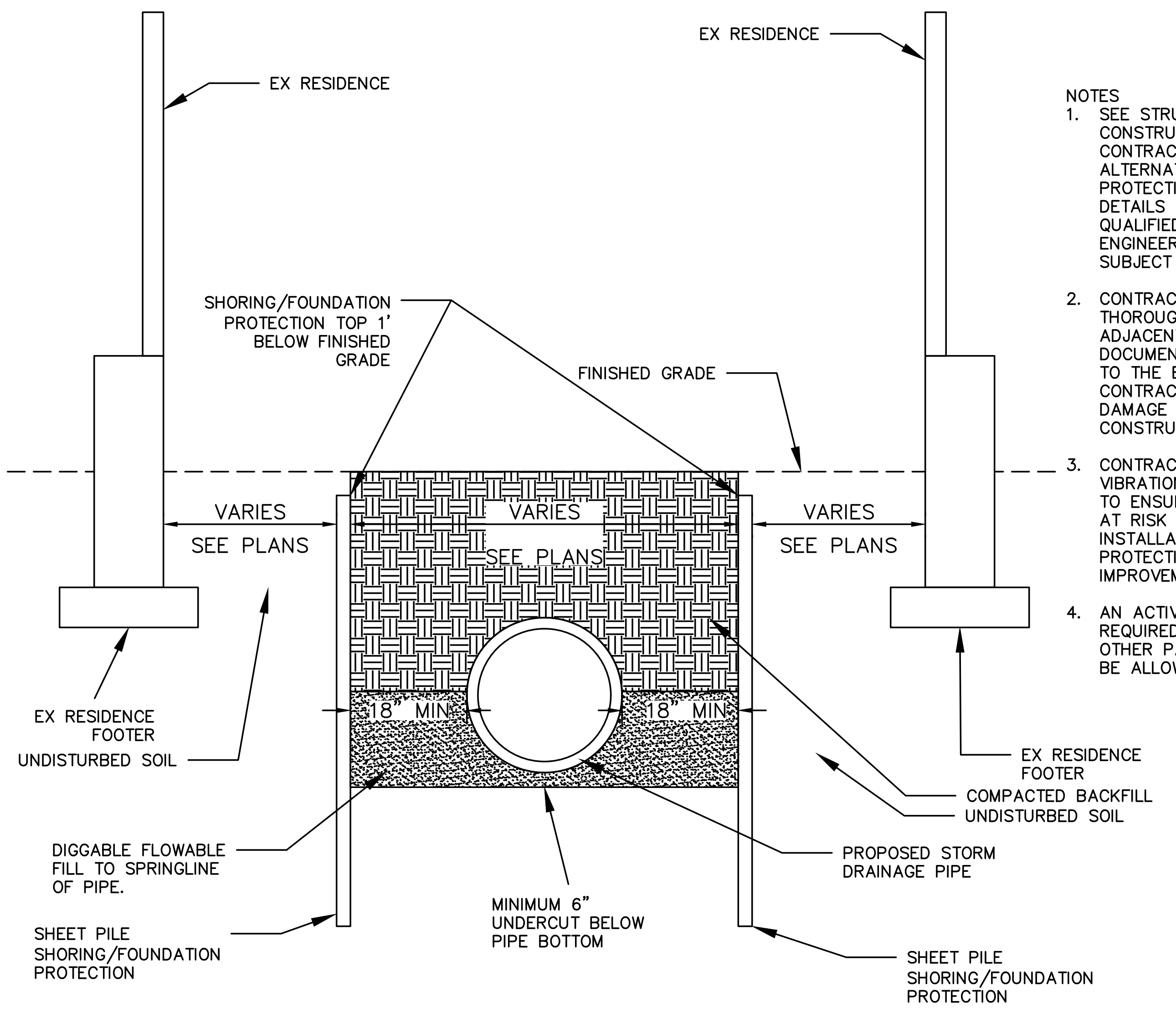
PROJECT DRAINAGE AREA AT DOGWOOD LANE = 0.49 SQUARE MILES

*NOTE: PROJECT STREAM EXPERIENCES DAILY TIDES.

EXAMPLE OF PUMP-AROUND OPERATION

NOT TO SCALE

1
19


EX RESIDENCE
EX RESIDENCE
SHORING/FOUNDATION PROTECTION TOP 1' BELOW FINISHED GRADE
FINISHED GRADE
VARIES
SEE PLANS
VARIES
SEE PLANS
VARIES
SEE PLANS
18" MIN
18" MIN
EX RESIDENCE FOOTER
UNDISTURBED SOIL
DIGGABLE FLOWABLE FILL TO SPRINGLINE OF PIPE.
SHEET PILE SHORING/FOUNDATION PROTECTION
MINIMUM 6" UNDERCUT BELOW PIPE BOTTOM
EX RESIDENCE FOOTER
COMPACTED BACKFILL
UNDISTURBED SOIL
PROPOSED STORM DRAINAGE PIPE
SHEET PILE SHORING/FOUNDATION PROTECTION

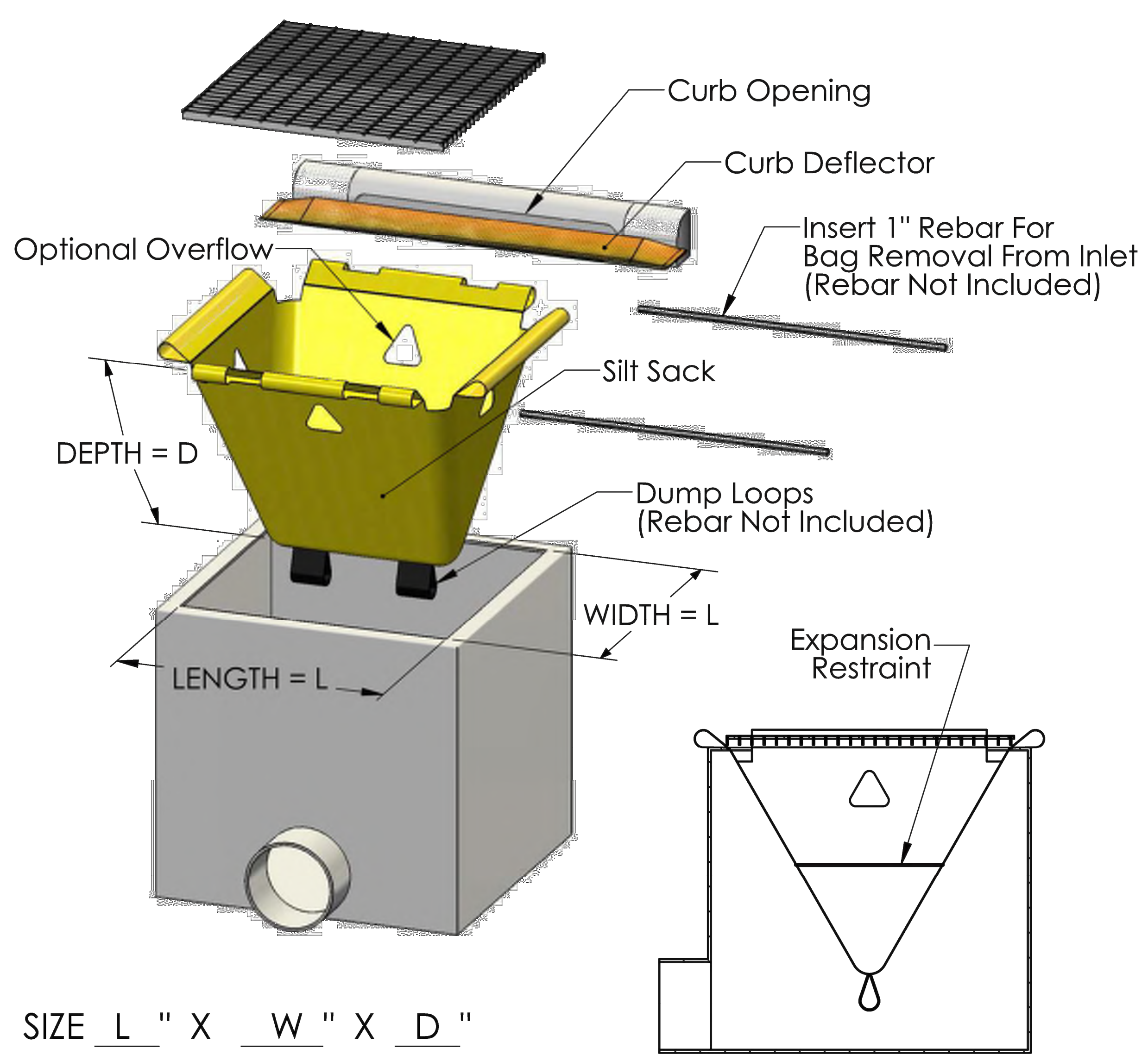
NOTES
1. SEE STRUCTURAL SHEETS FOR CONSTRUCTION DETAILS. IF CONTRACTOR PROPOSES ALTERNATIVE FOUNDATION PROTECTION DESIGN, PLAN AND DETAILS SHALL BE SEALED BY A QUALIFIED NC PROFESSIONAL ENGINEER. ALTERNATIVE DESIGN SUBJECT TO OWNER APPROVAL.
2. CONTRACTOR SHALL CONDUCT THOROUGH PRE-WORK SURVEY OF ADJACENT STRUCTURES TO DOCUMENT THEIR CONDITION PRIOR TO THE BEGINNING OF WORK. CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO STRUCTURES DURING CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE VIBRATION MONITORING EQUIPMENT TO ENSURE STRUCTURES ARE NOT AT RISK OF DAMAGE DURING INSTALLATION OF FOUNDATION PROTECTION AND OTHER IMPROVEMENTS.
4. AN ACTIVE SHORING SYSTEM IS REQUIRED. TRENCH BOXES OR OTHER PASSIVE SYSTEMS SHALL NOT BE ALLOWED.

FOUNDATION PROTECTION SCHEMATIC

NOT TO SCALE

7
19

Silt Sack - Type B

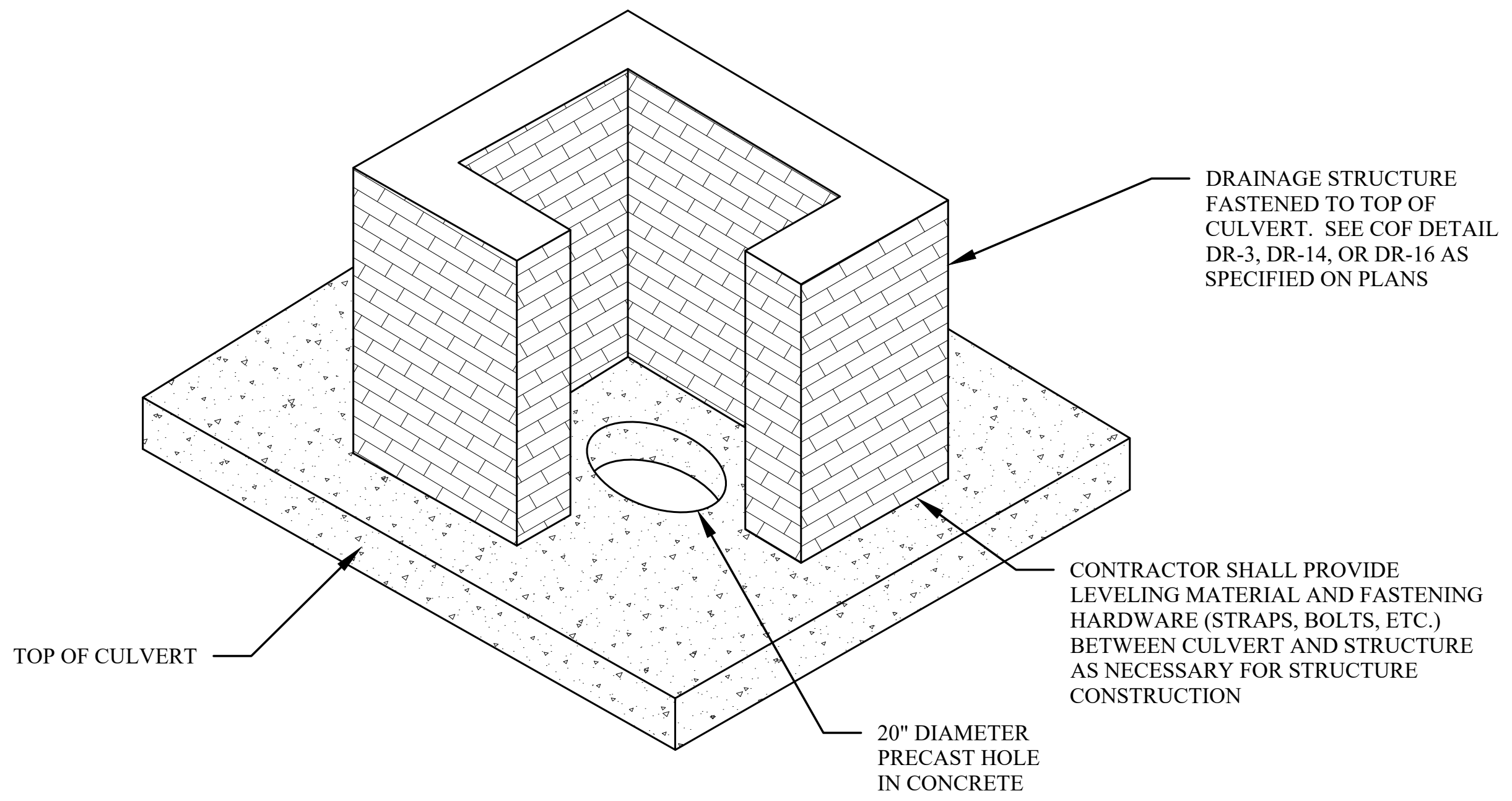

Curb Opening
Curb Deflector
Optional Overflow
Insert 1" Rebar For Bag Removal From Inlet (Rebar Not Included)
Silt Sack
DEPTH = D
Dump Loops (Rebar Not Included)
WIDTH = L
LENGTH = L
Expansion Restraint
SIZE L " X W " X D "

SILT SACK TYPE B

NOT TO SCALE

2
19

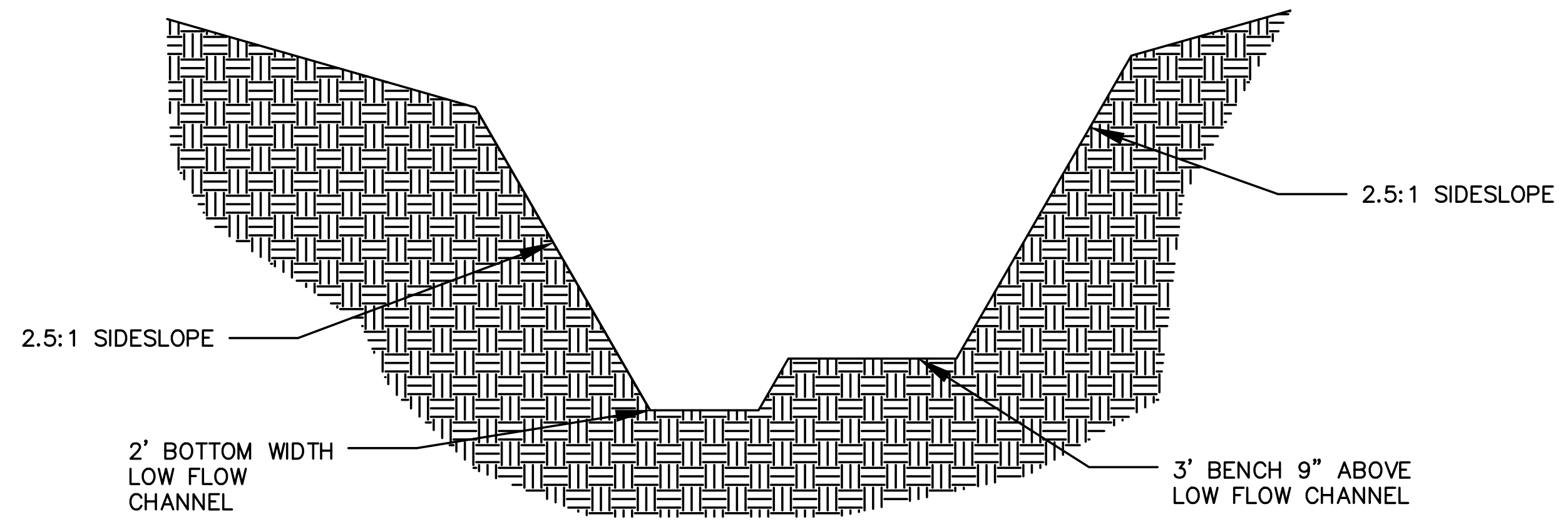
2831 Cardwell Road
Richmond, VA 23234
WWW.ACFENVIRONMENTAL.COM


DRAINAGE STRUCTURE FASTENED TO TOP OF CULVERT. SEE COF DETAIL DR-3, DR-14, OR DR-16 AS SPECIFIED ON PLANS
TOP OF CULVERT
CONTRACTOR SHALL PROVIDE LEVELING MATERIAL AND FASTENING HARDWARE (STRAPS, BOLTS, ETC.) BETWEEN CULVERT AND STRUCTURE AS NECESSARY FOR STRUCTURE CONSTRUCTION
20" DIAMETER PRECAST HOLE IN CONCRETE

CHIMNEY DRAINAGE STRUCTURE

NOT TO SCALE

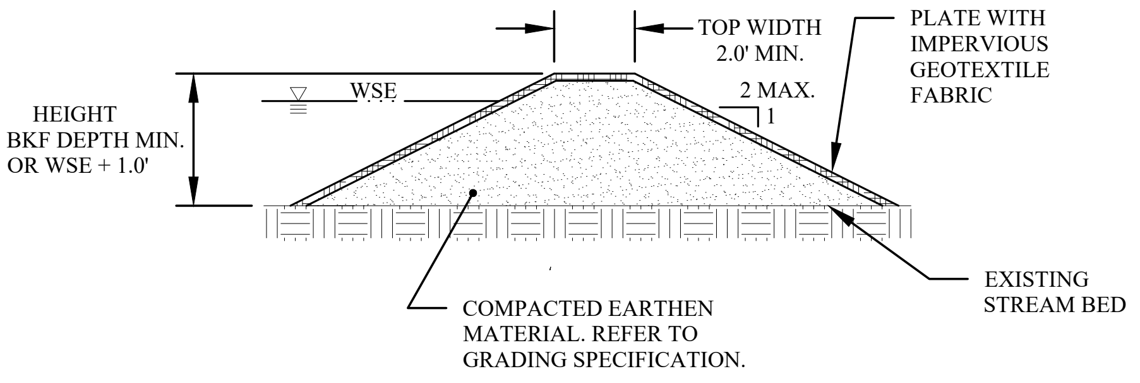
6
19


2.5:1 SIDESLOPE
2.5:1 SIDESLOPE
2' BOTTOM WIDTH LOW FLOW CHANNEL
3' BENCH 9" ABOVE LOW FLOW CHANNEL

REGRADED CHANNEL CROSS-SECTION

NOT TO SCALE

8
19


TOP WIDTH 2.0' MIN.
PLATE WITH IMPERVIOUS GEOTEXTILE FABRIC
HEIGHT 1/2 BKF DEPTH MIN. OR WSE + 1.0'
WSE
2 MAX.
1
COMPACTED EARTHEN MATERIAL. REFER TO GRADING SPECIFICATION.
EXISTING STREAM BED

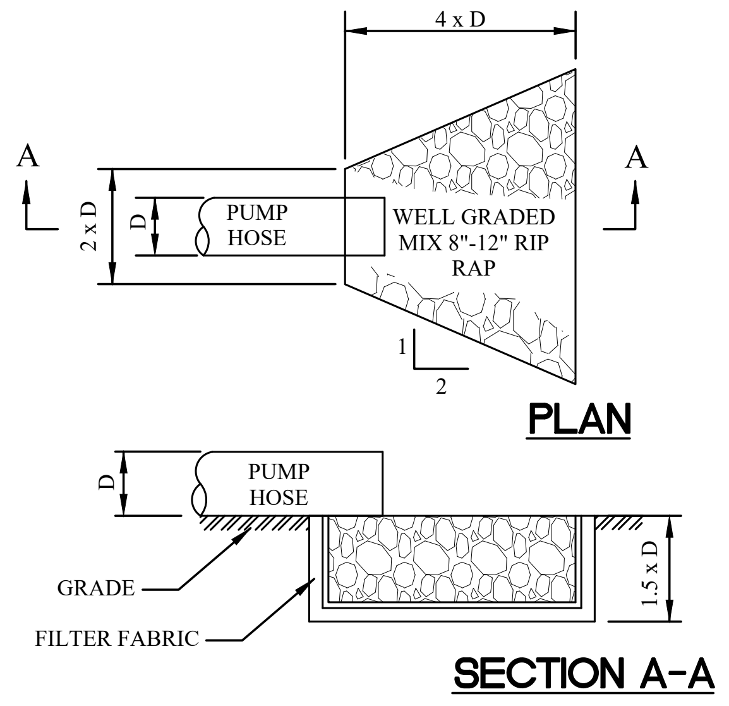
IMPERVIOUS DIKE

NOT TO SCALE

3
19

SEQUENCE OF CONSTRUCTION FOR TYPICAL CULVERT WORK AREA

1. CONTRACTOR SHALL DETERMINE A PROPOSED SIZE AND LOCATION OF DEWATERING FILTER BAG AND DEWATERING WORK AREA FOR APPROVAL BY THE ENGINEER PRIOR TO INSTALLATION. AREA TO BE DEWATERED SHALL BE DETERMINED BY THE WORK AREA REQUIRED TO INSTALL THE CULVERT.
2. INSTALL DEWATERING FILTER BAG, AS APPROVED.
3. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE, AS APPROVED.
4. PLACE UPSTREAM IMPERVIOUS DIKE/COFFER DAM AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
5. PLACE DOWNSTREAM IMPERVIOUS DIKE/COFFER DAM AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA.
6. BEGIN CULVERT INSTALLATION IN ACCORDANCE WITH THE APPROVED PLANS.
7. PUMP-AROUND OPERATION SHALL RUN CONTINUOUSLY UNTIL THE CULVERTS ARE COMPLETELY INSTALLED, THE WORK AREA IS STABILIZED AT FINAL STREAM GRADE, AND, APPROVAL HAS BEEN RECEIVED.
8. THE CONTRACTOR SHALL PLAN THE CULVERT INSTALLATION SO THAT SEVERE WEATHER AND RAINFALL ARE NOT LIKELY TO OCCUR DURING THE ANTICIPATED WORK DURATION. IF UNEXPECTED RAINFALL OR SEVERE WEATHER IS TO OCCUR DURING OPERATION OF THE PUMP-AROUND, THE CONTRACTOR SHALL STABILIZE THE WORK AREA WITH COIR FIBER MATING, SECURE THE INSTALLED WORK, AND PROVIDE ADDITIONAL MEASURES NECESSARY TO REDUCE EROSION AND SEDIMENT LOSS FROM THE WORK AREA.
9. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
10. PUMP AROUND AREA TO BE STABILIZED WITH MATTING AT THE END OF EACH WORK DAY. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
11. REMOVE DEWATERING FILTER BAG AND PROPERLY DISPOSE OF CAPTURED SEDIMENT AND DEWATERING FILTER BAG. STABILIZE DISTURBED AREA WITH SEED AND MULCH.


4 x D
A
A
2 x D
D
PUMP HOSE
WELL GRADED MIX 8"-12" RIP RAP
1
2
D
PUMP HOSE
GRADE
FILTER FABRIC
1.5 x D

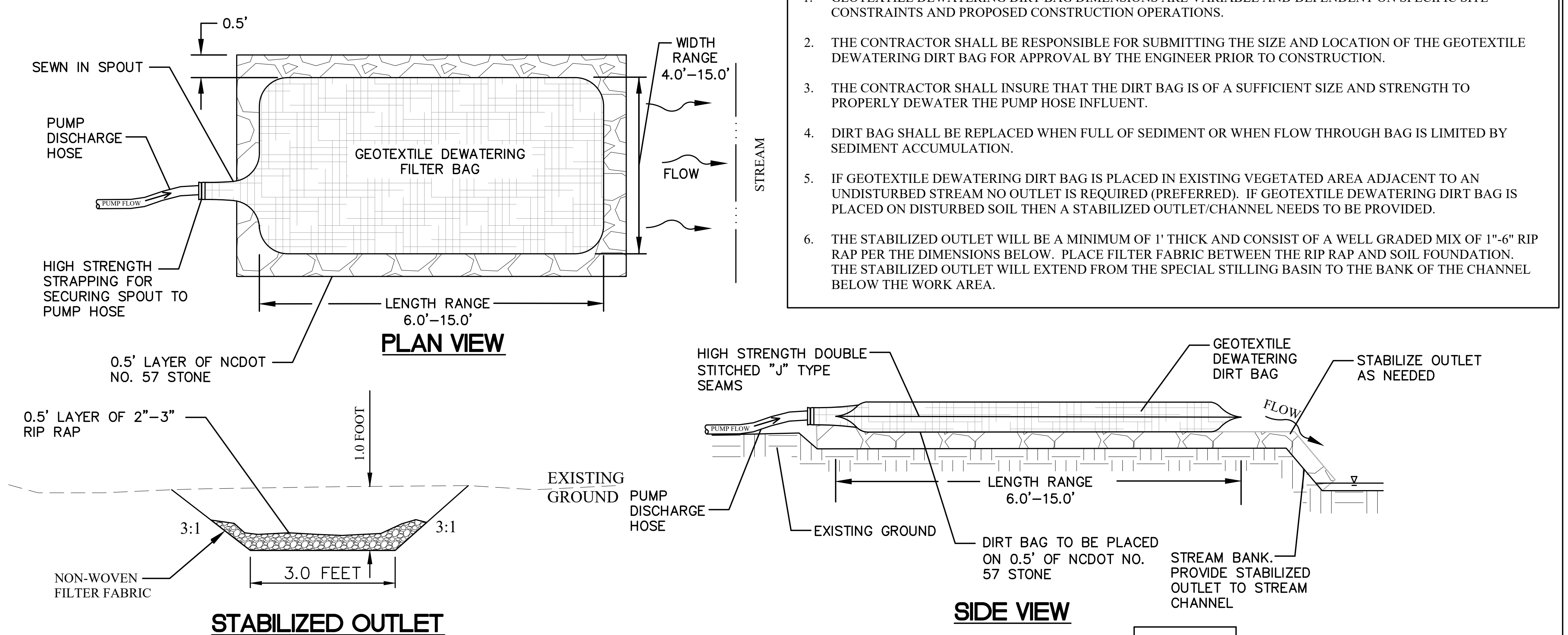
PLAN

SECTION A-A

ENERGY DISSIPATOR FOR PUMP AROUND HOSE (IF CLEAN WATER)

NOT TO SCALE

4
19


0.5'
SEWN IN SPOUT
WIDTH RANGE 4.0'–15.0'
PUMP DISCHARGE HOSE
GEOTEXTILE DEWATERING FILTER BAG
FLOW
STREAM
PUMP FLOW
HIGH STRENGTH STRAPPING FOR SECURING SPOUT TO PUMP HOSE
LENGTH RANGE 6.0'–15.0'
0.5' LAYER OF NCDOT NO. 57 STONE
0.5' LAYER OF 2"–3" RIP RAP
1.0 FOOT
EXISTING GROUND
3:1
3:1
NON-WOVEN FILTER FABRIC
3.0 FEET
HIGH STRENGTH DOUBLE STITCHED "J" TYPE SEAMS
GEOTEXTILE DEWATERING DIRT BAG
STABILIZE OUTLET AS NEEDED
FLOW
PUMP FLOW
PUMP DISCHARGE HOSE
LENGTH RANGE 6.0'–15.0'
EXISTING GROUND
DIRT BAG TO BE PLACED ON 0.5' OF NCDOT NO. 57 STONE
STREAM BANK. PROVIDE STABILIZED OUTLET TO STREAM CHANNEL

PLAN VIEW

STABILIZED OUTLET

SEE NOTES 5-6

SIDE VIEW

GEOTEXTILE DEWATER DIRT BAG GENERAL NOTES

1. GEOTEXTILE DEWATERING DIRT BAG DIMENSIONS ARE VARIABLE AND DEPENDENT ON SPECIFIC SITE CONSTRAINTS AND PROPOSED CONSTRUCTION OPERATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUBMITTING THE SIZE AND LOCATION OF THE GEOTEXTILE DEWATERING DIRT BAG FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL INSURE THAT THE DIRT BAG IS OF A SUFFICIENT SIZE AND STRENGTH TO PROPERLY DEWATER THE PUMP HOSE INFLUENT.
4. DIRT BAG SHALL BE REPLACED WHEN FULL OF SEDIMENT OR WHEN FLOW THROUGH BAG IS LIMITED BY SEDIMENT ACCUMULATION.
5. IF GEOTEXTILE DEWATERING DIRT BAG IS PLACED IN EXISTING VEGETATED AREA ADJACENT TO AN UNDISTURBED STREAM NO OUTLET IS REQUIRED (PREFERRED). IF GEOTEXTILE DEWATERING DIRT BAG IS PLACED ON DISTURBED SOIL THEN A STABILIZED OUTLET/CHANNEL NEEDS TO BE PROVIDED.
6. THE STABILIZED OUTLET WILL BE A MINIMUM OF 1' THICK AND CONSIST OF A WELL GRADED MIX OF 1"-6" RIP RAP PER THE DIMENSIONS BELOW. PLACE FILTER FABRIC BETWEEN THE RIP RAP AND SOIL FOUNDATION. THE STABILIZED OUTLET WILL EXTEND FROM THE SPECIAL STILLING BASIN TO THE BANK OF THE CHANNEL BELOW THE WORK AREA.

GEOTEXTILE DEWATERING DIRT BAG

NOT TO SCALE

5
19

STANDARD DETAILS

SHEET NUMBER
19 of 45

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Travis Crissman
3A2C08FD6A6D47D...
030525
TRAVIS CRISSMAN
5/14/2025

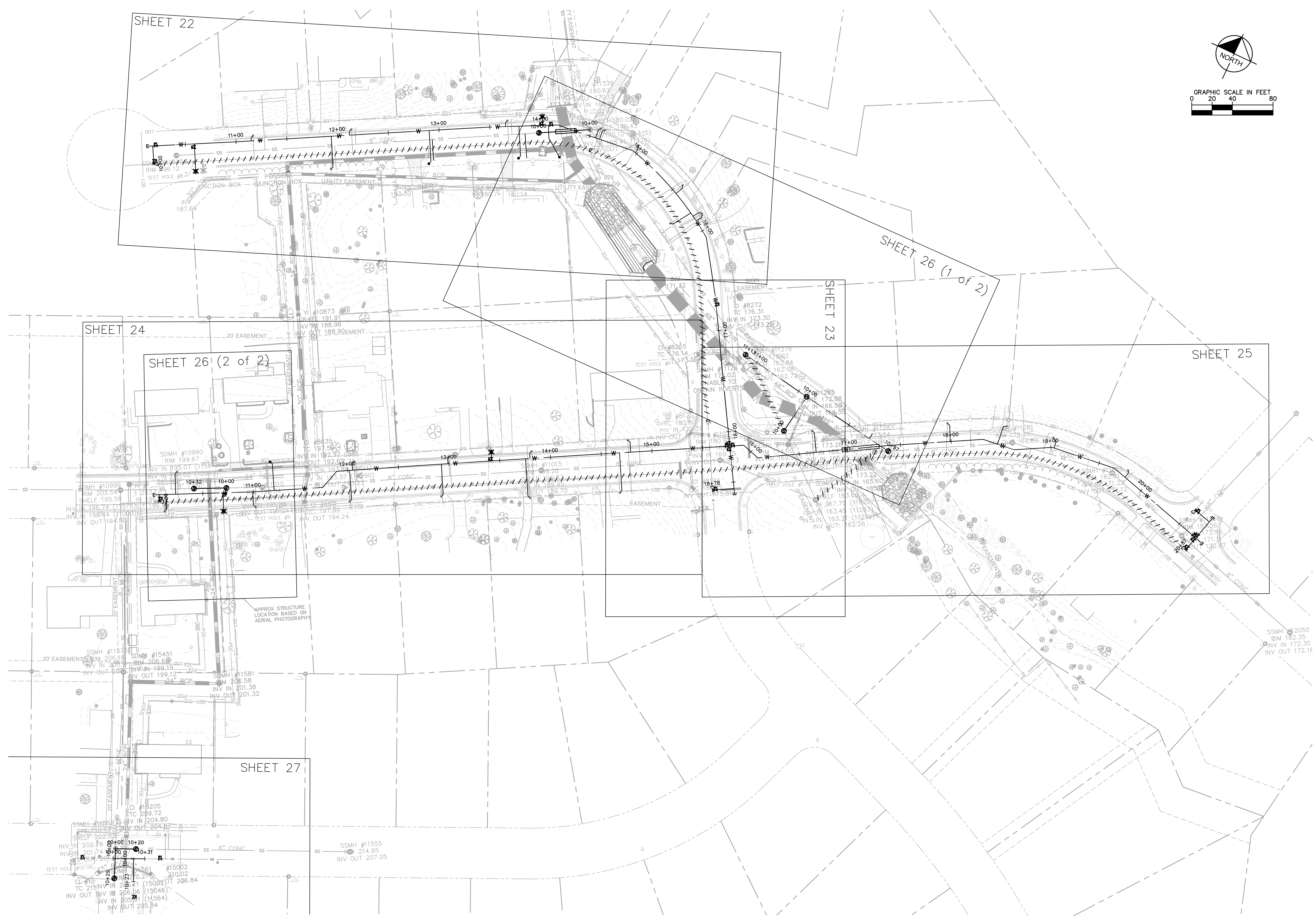
REVISIONS

REV. #	DESCRIPTION	DATE	REV.BY
1	BID SET	MAY 2025	

ISSUED FOR CONSTRUCTION

DRAWN : G. SEITZ
DESIGN :
CHECK :
APPROVED : T. CRISSMAN
PROJECT NAME : TRYON DRAINAGE
SCALE : SCALE
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.


SHEET 22
SHEET 23
SHEET 24
SHEET 25
SHEET 26 (1 of 2)
SHEET 26 (2 of 2)
SHEET 27
NORTH
GRAPHIC SCALE IN FEET
0
20
40
80
APPROX STRUCTURE LOCATION BASED ON AERIAL PHOTOGRAPHY
UTILITY EASEMENT
20' EASEMENT
8" CONC
30" RCP
24" RCP
SSMH #11555
RIM 214.95
INV OUT 207.05
SSMH #12050
RIM 182.35
INV IN 172.30
INV OUT 172.16

UTILITY OVERALL PLAN

PLAN TYPE: 100% PLANS

SHEET NUMBER 21 OF 45

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

SEAL 045249
NATHANIEL L. HARVEY
DocuSigned by:
2AFE0F1BD88840D...
7/15/2025

REV. #	REVISIONS DESCRIPTION	REV. BY DATE

ISSUED FOR CONSTRUCTION

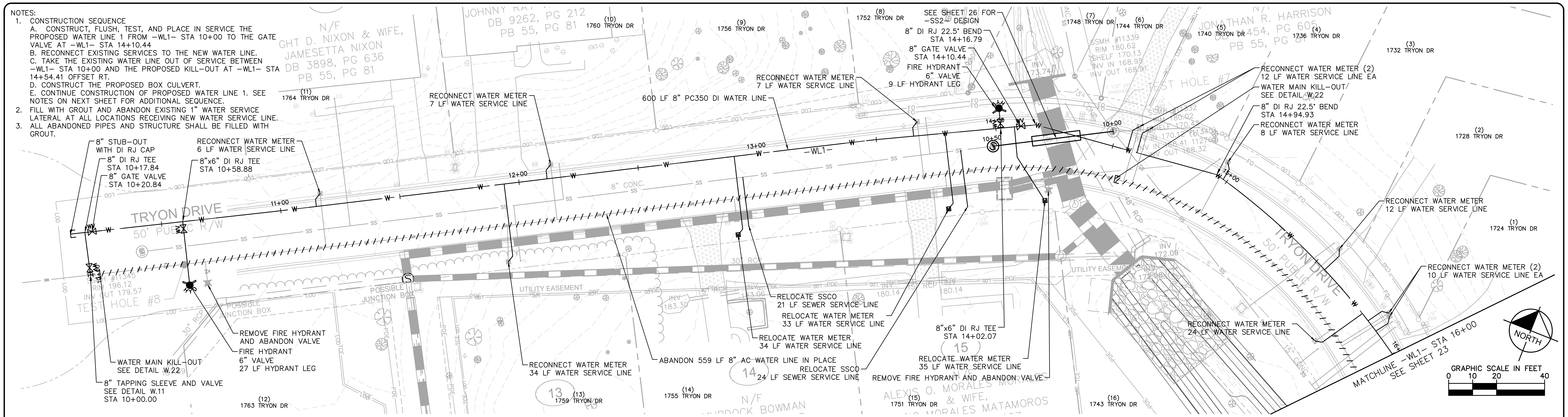
DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH
PROJECT NAME : TRYON DRAINAGE
SCALE : 1:40
DATE : APRIL 2024

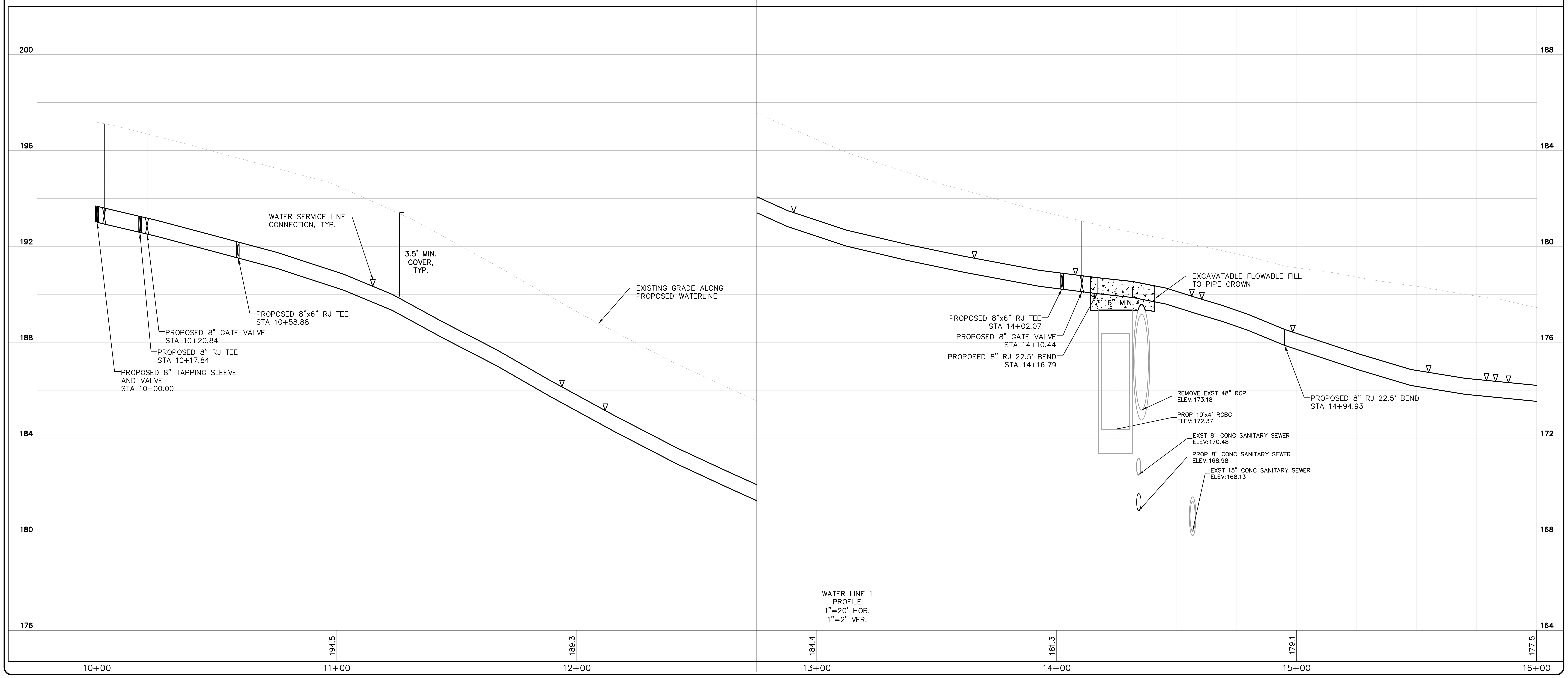
PROJECT NO. KH 011017025
SUB-LEDGER NO. ____

Docusign Envelope ID: DA960C4E-7E29-4D1D-B64E-80E212A2C3BA

NOTES:

1. CONSTRUCTION SEQUENCE
   A. CONSTRUCT, FLUSH, TEST, AND PLACE IN SERVICE THE PROPOSED WATER LINE 1 FROM -WL1- STA 10+00 TO THE GATE VALVE AT -WL1- STA 14+10.44
   B. RECONNECT EXISTING SERVICES TO THE NEW WATER LINE.
   C. TAKE THE EXISTING WATER LINE OUT OF SERVICE BETWEEN -WL1- STA 10+00 AND THE PROPOSED KILL-OUT AT -WL1- STA 14+54.41 OFFSET RT.
   D. CONSTRUCT THE PROPOSED BOX CULVERT.
   E. CONTINUE CONSTRUCTION OF PROPOSED WATER LINE 1. SEE NOTES ON NEXT SHEET FOR ADDITIONAL SEQUENCE.
2. FILL WITH GROUT AND ABANDON EXISTING 1" WATER SERVICE LATERAL AT ALL LOCATIONS RECEIVING NEW WATER SERVICE LINE.
3. ALL ABANDONED PIPES AND STRUCTURE SHALL BE FILLED WITH GROUT.


8" STUB-OUT WITH DI RJ CAP
8" DI RJ TEE STA 10+17.84
8" GATE VALVE STA 10+20.84
RECONNECT WATER METER 6 LF WATER SERVICE LINE
8"x6" DI RJ TEE STA 10+58.88
TRYON DRIVE 50' PUBLIC R/W
N/F
GHT D. NIXON & WIFE, JAMESETTA NIXON DB 3898, PG 636 PB 55, PG 81
JOHNNY RAY DB 9262, PG 212 PB 55, PG 81
(11) 1764 TRYON DR
(10) 1760 TRYON DR
(9) 1756 TRYON DR
(8) 1752 TRYON DR
(7) 1748 TRYON DR
(6) 1744 TRYON DR
(5) 1740 TRYON DR
(4) 1736 TRYON DR
(3) 1732 TRYON DR
(2) 1728 TRYON DR
(1) 1724 TRYON DR
(12) 1763 TRYON DR
(13) 1759 TRYON DR
(14) 1755 TRYON DR
(15) 1751 TRYON DR
(16) 1743 TRYON DR
JONATHAN R. HARRISON DB 454, PG 605 PB 55, PG 81
ALEXIS O. MORALES MORALES & WIFE, MORALES MATAMOROS
N/F MURDOCK BOWMAN
RECONNECT WATER METER 7 LF WATER SERVICE LINE
600 LF 8" PC350 DI WATER LINE
RECONNECT WATER METER 7 LF WATER SERVICE LINE
SEE SHEET 26 FOR -SS2- DESIGN
8" DI RJ 22.5° BEND STA 14+16.79
8" GATE VALVE STA 14+10.44
FIRE HYDRANT 6" VALVE 9 LF HYDRANT LEG
RECONNECT WATER METER (2) 12 LF WATER SERVICE LINE EA
WATER MAIN KILL-OUT SEE DETAIL W.22
8" DI RJ 22.5° BEND STA 14+94.93
RECONNECT WATER METER 8 LF WATER SERVICE LINE
RECONNECT WATER METER 12 LF WATER SERVICE LINE
RECONNECT WATER METER (2) 10 LF WATER SERVICE LINE EA
RECONNECT WATER METER 24 LF WATER SERVICE LINE
NORTH
MATCHLINE -WL1- STA 16+00 SEE SHEET 23
GRAPHIC SCALE IN FEET
0 10 20 40
WATER MAIN KILL-OUT SEE DETAIL W.22
8" TAPPING SLEEVE AND VALVE SEE DETAIL W.11 STA 10+00.00
REMOVE FIRE HYDRANT AND ABANDON VALVE
FIRE HYDRANT 6" VALVE 27 LF HYDRANT LEG
RECONNECT WATER METER 34 LF WATER SERVICE LINE
ABANDON 559 LF 8" AC WATER LINE IN PLACE
RELOCATE SSCO 21 LF SEWER SERVICE LINE
RELOCATE WATER METER 33 LF WATER SERVICE LINE
RELOCATE WATER METER 34 LF WATER SERVICE LINE
RELOCATE SSCO 24 LF SEWER SERVICE LINE
8"x6" DI RJ TEE STA 14+02.07
RELOCATE WATER METER 35 LF WATER SERVICE LINE
REMOVE FIRE HYDRANT AND ABANDON VALVE
TEST HOLE #8
TEST HOLE #7
POSSIBLE JUNCTION BOX
UTILITY EASEMENT
-WL1-
10+00
11+00
12+00
13+00
14+00
15
16
8" CONC.
30" RCP
INV 183.30
INV 172.09
SSMH #11339 RIM 180.62
WV
W
SS


200
196
192
188
184
180
176
188
184
180
176
172
168
164
WATER SERVICE LINE CONNECTION, TYP.
3.5' MIN. COVER, TYP.
EXISTING GRADE ALONG PROPOSED WATERLINE
PROPOSED 8"x6" RJ TEE STA 10+58.88
PROPOSED 8" GATE VALVE STA 10+20.84
PROPOSED 8" RJ TEE STA 10+17.84
PROPOSED 8" TAPPING SLEEVE AND VALVE STA 10+00.00
EXCAVATABLE FLOWABLE FILL TO PIPE CROWN
6" MIN.
PROPOSED 8"x6" RJ TEE STA 14+02.07
PROPOSED 8" GATE VALVE STA 14+10.44
PROPOSED 8" RJ 22.5° BEND STA 14+16.79
PROPOSED 8" RJ 22.5° BEND STA 14+94.93
REMOVE EXST 48" RCP ELEV:173.18
PROP 10'x4' RCBC ELEV:172.37
EXST 8" CONC SANITARY SEWER ELEV:170.48
PROP 8" CONC SANITARY SEWER ELEV:168.98
EXST 15" CONC SANITARY SEWER ELEV:168.13
194.5
189.3
184.4
181.3
179.1
177.5
10+00
11+00
12+00
13+00
14+00
15+00
16+00

-WATER LINE 1-
PROFILE
1"=20' HOR.
1"=2' VER.

TRYON DR - WATER LINE 1
10+00 TO 16+00

PLAN TYPE:
100% PLANS

SHEET NUMBER
22 OF 45

Kimley»Horn
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421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
SEAL 045249
NATHANIEL HARVEY
2AFE0F1BD88840D...
7/15/2025

REV. #	REVISIONS DESCRIPTION	REV.BY DATE

ISSUED
FOR CONSTRUCTION

DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH

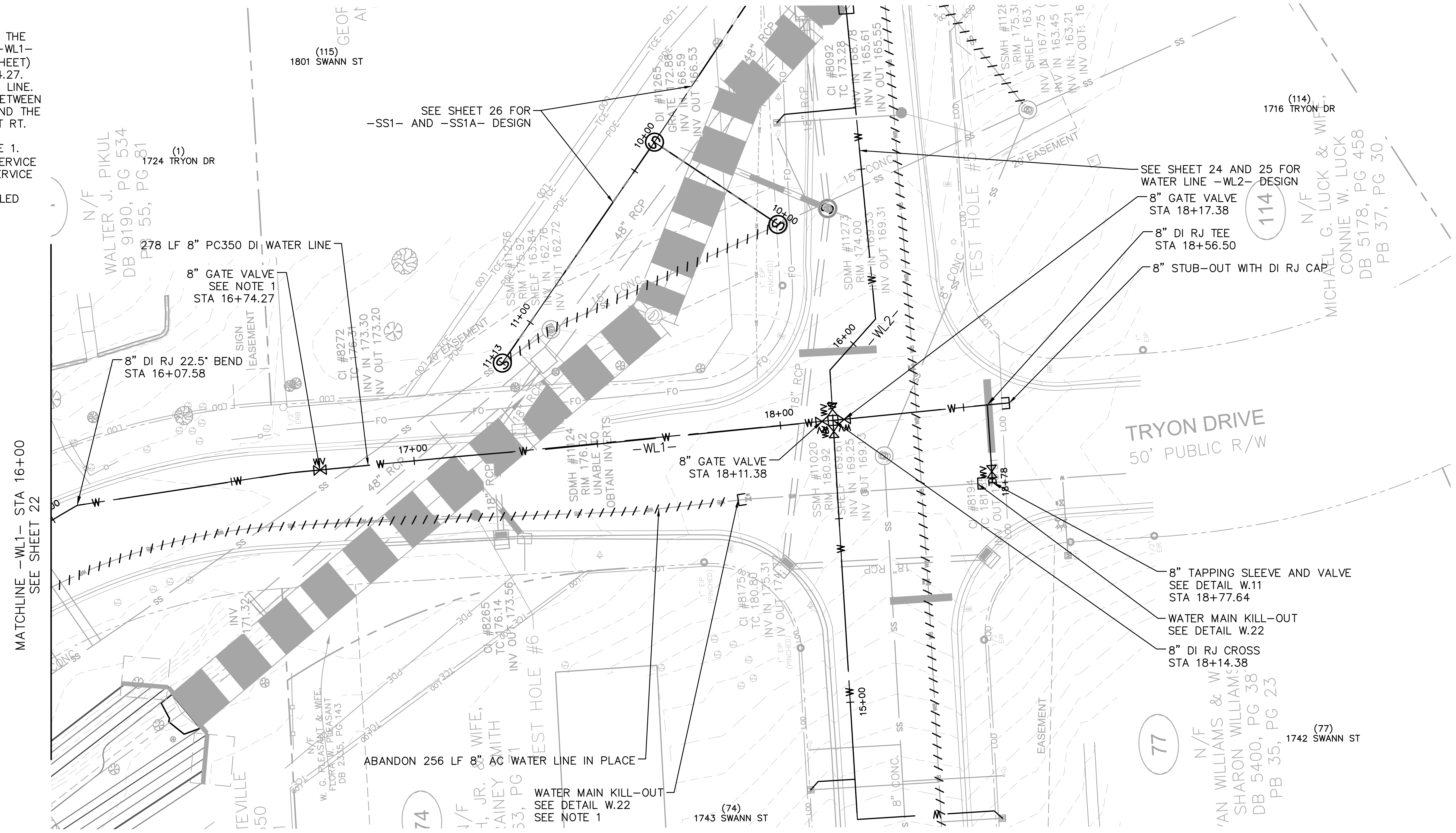
PROJECT NAME : TRYON DRAINAGE
SCALE : 1:20
DATE : APRIL 2024

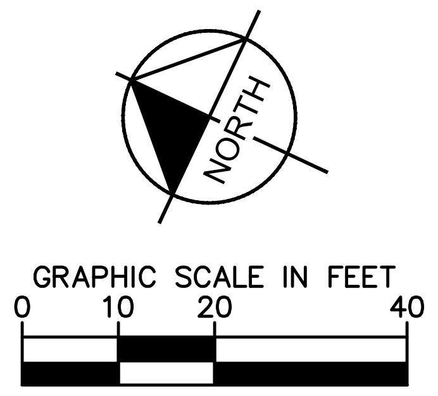
PROJECT NO. KH 011017025
SUB-LEDGER NO.

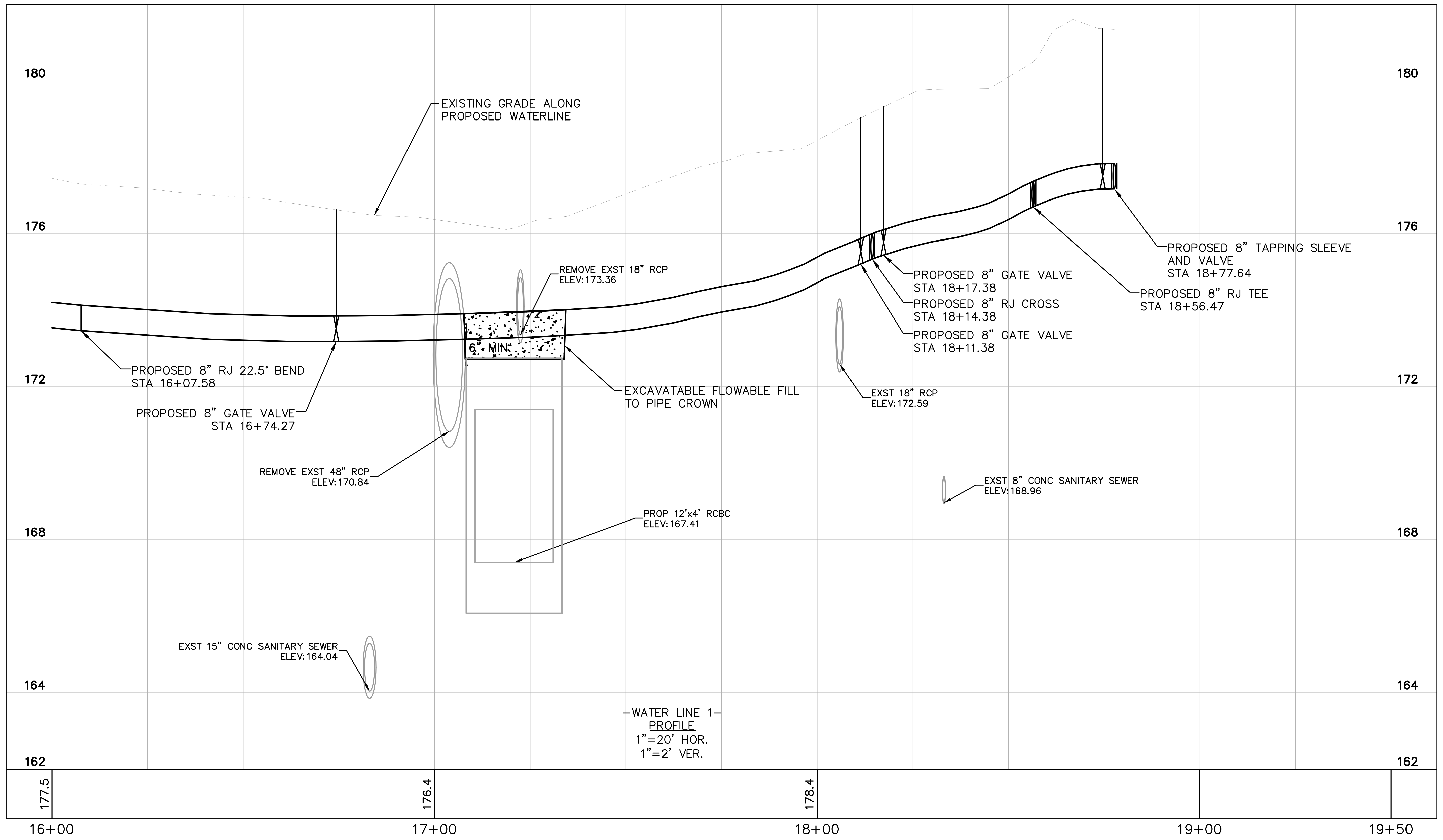
Plotted By:Anderson, Nolen Sheet Set:Tryon Drainage UC Layout:22 TRYON DR - WATER LINE 1 10+00 TO 16+00 July 14, 2025 09:42:13am K:\RAL_Roadway\011017025_Tryon_Drainage\Utilities\UC\Plan Sheets\UTILITY PLANS.dwg

NOTES:

1. CONSTRUCTION SEQUENCE
   A. CONSTRUCT, FLUSH, TEST, AND PLACE IN SERVICE THE PROPOSED WATER LINE 1 FROM THE GATE VALVE AT –WL1– STA 14+10.44 (SEE SEQUENCE NOTES ON PREVIOUS SHEET) TO THE PROPOSED GATE VALVE AT –WL1– STA 16+74.27.
   B. RECONNECT EXISTING SERVICES TO THE NEW WATER LINE.
   C. TAKE THE EXISTING WATER LINE OUT OF SERVICE BETWEEN THE KILL–OUT AT –WL1– STA 14+54.41 OFFSET RT AND THE PROPOSED KILL–OUT AT –WL1– STA 17+86.59 OFFSET RT.
   D. CONSTRUCT THE PROPOSED BOX CULVERT.
   E. CONTINUE CONSTRUCTION OF PROPOSED WATER LINE 1.
2. FILL WITH GROUT AND ABANDON EXISTING 1" WATER SERVICE LATERAL AT ALL LOCATIONS RECEIVING NEW WATER SERVICE LINE.
3. ALL ABANDONED PIPES AND STRUCTURE SHALL BE FILLED WITH GROUT.


(115)
1801 SWANN ST
(114)
1716 TRYON DR
(1)
1724 TRYON DR
SEE SHEET 26 FOR –SS1– AND –SS1A– DESIGN
SEE SHEET 24 AND 25 FOR WATER LINE –WL2– DESIGN
8" GATE VALVE STA 18+17.38
8" DI RJ TEE STA 18+56.50
8" STUB–OUT WITH DI RJ CAP
278 LF 8" PC350 DI WATER LINE
8" GATE VALVE SEE NOTE 1 STA 16+74.27
8" DI RJ 22.5° BEND STA 16+07.58
N/F WALTER J. PIKUL DB 9190, PG 534 PB 55, PG 81
N/F MICHAEL G. LUCK & WIFE, CONNIE W. LUCK DB 5178, PG 458 PB 37, PG 30
TRYON DRIVE
50' PUBLIC R/W
–WL1–
–WL2–
17+00
18+00
8" GATE VALVE STA 18+11.38
MATCHLINE –WL1– STA 16+00 SEE SHEET 22
8" TAPPING SLEEVE AND VALVE SEE DETAIL W.11 STA 18+77.64
WATER MAIN KILL–OUT SEE DETAIL W.22
8" DI RJ CROSS STA 18+14.38
ABANDON 256 LF 8" AC WATER LINE IN PLACE
WATER MAIN KILL–OUT SEE DETAIL W.22 SEE NOTE 1
(74)
1743 SWANN ST
(77)
1742 SWANN ST
N/F VAN WILLIAMS & WIFE, SHARON WILLIAMS DB 5400, PG 38 PB 35, PG 23
TEST HOLE #6
TEST HOLE #5
SIGN EASEMENT
EASEMENT


NORTH
GRAPHIC SCALE IN FEET
0
10
20
40


180
176
172
168
164
162
EXISTING GRADE ALONG PROPOSED WATERLINE
REMOVE EXST 18" RCP ELEV:173.36
6" MIN.
PROPOSED 8" GATE VALVE STA 18+17.38
PROPOSED 8" RJ CROSS STA 18+14.38
PROPOSED 8" GATE VALVE STA 18+11.38
PROPOSED 8" TAPPING SLEEVE AND VALVE STA 18+77.64
PROPOSED 8" RJ TEE STA 18+56.47
PROPOSED 8" RJ 22.5° BEND STA 16+07.58
PROPOSED 8" GATE VALVE STA 16+74.27
EXCAVATABLE FLOWABLE FILL TO PIPE CROWN
EXST 18" RCP ELEV:172.59
REMOVE EXST 48" RCP ELEV:170.84
PROP 12'x4' RCBC ELEV:167.41
EXST 8" CONC SANITARY SEWER ELEV:168.96
EXST 15" CONC SANITARY SEWER ELEV:164.04
177.5
176.4
178.4
16+00
17+00
18+00
19+00
19+50

–WATER LINE 1–
PROFILE
1"=20' HOR.
1"=2' VER.

TRYON DR - WATER LINE 1
16+00 TO 18+78

PLAN TYPE:
100% PLANS

SHEET NUMBER
23 OF 45

Kimley»Horn
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421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F–0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
2AFE0F1BD88840D...
SEAL 045249
NATHANIEL L. HARVEY
7/15/2025

REV. #	REVISIONS DESCRIPTION	REV.BY DATE

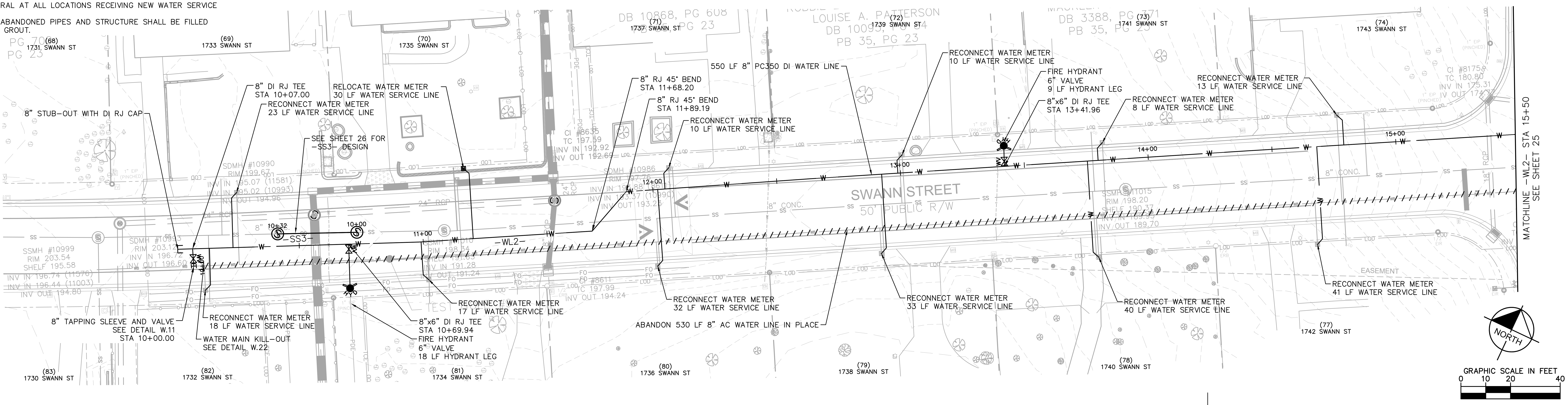
ISSUED
FOR CONSTRUCTION

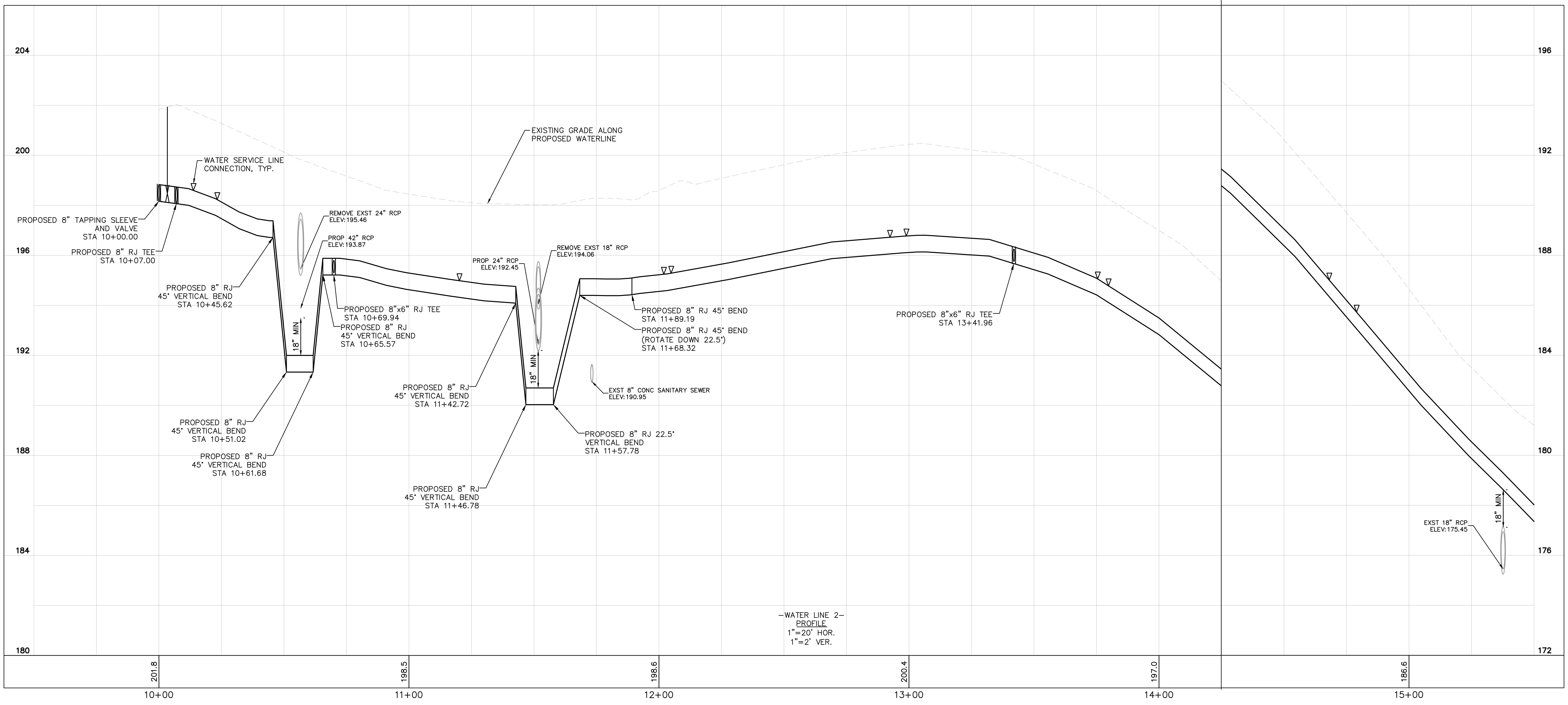
DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH

PROJECT NAME : TRYON DRAINAGE
SCALE : 1:20
DATE : APRIL 2024

PROJECT NO. KH 011017025
SUB-LEDGER NO.

NOTES:
1. FILL WITH GROUT AND ABANDON EXISTING 1" WATER SERVICE LATERAL AT ALL LOCATIONS RECEIVING NEW WATER SERVICE LINE.
2. ALL ABANDONED PIPES AND STRUCTURE SHALL BE FILLED WITH GROUT.


(68) 1731 SWANN ST
(69) 1733 SWANN ST
(70) 1735 SWANN ST
(71) 1737 SWANN ST
DB 10868, PG 608
PB 23
LOUISE A. PATTERSON
DB 10093
PB 35, PG 23
(72) 1739 SWANN ST
DB 3388, PG 71
PB 35, PG 23
(73) 1741 SWANN ST
(74) 1743 SWANN ST
8" STUB-OUT WITH DI RJ CAP
8" DI RJ TEE
STA 10+07.00
RECONNECT WATER METER
23 LF WATER SERVICE LINE
RELOCATE WATER METER
30 LF WATER SERVICE LINE
SEE SHEET 26 FOR
-SS3- DESIGN
8" RJ 45° BEND
STA 11+68.20
8" RJ 45° BEND
STA 11+89.19
RECONNECT WATER METER
10 LF WATER SERVICE LINE
550 LF 8" PC350 DI WATER LINE
RECONNECT WATER METER
10 LF WATER SERVICE LINE
FIRE HYDRANT
6" VALVE
9 LF HYDRANT LEG
8"x6" DI RJ TEE
STA 13+41.96
RECONNECT WATER METER
8 LF WATER SERVICE LINE
RECONNECT WATER METER
13 LF WATER SERVICE LINE
SDMH #10990
RIM 199.67
INV IN 195.07 (11581)
INV IN 195.02 (10993)
INV OUT 194.96
CI #8635
TC 197.59
INV IN 192.92
INV OUT 192.69
SDMH #10986
INV OUT 193.25
SWANN STREET
50' PUBLIC R/W
8" CONC.
24" RCP
SSMH #11015
RIM 198.20
SHELF 190.37
INV OUT 189.70
CI #8175
TC 180.80
INV IN 175.31
INV OUT 17
8" CONC.
SSMH #10999
RIM 203.54
SHELF 195.58
INV IN 196.74 (11576)
INV IN 196.44 (11003)
INV OUT 194.80
SDMH #10992
RIM 203.14
INV IN 196.72
INV OUT 196.66
SSMH 010
INV IN 191.28
INV OUT 191.24
CI #8611
TC 197.99
INV OUT 194.24
10+32
10+00
11+00
12+00
13+00
14+00
15+00
-SS3-
-WL2-
EASEMENT
MATCHLINE -WL2- STA 15+50
SEE SHEET 25
8" TAPPING SLEEVE AND VALVE
SEE DETAIL W.11
STA 10+00.00
RECONNECT WATER METER
18 LF WATER SERVICE LINE
WATER MAIN KILL-OUT
SEE DETAIL W.22
RECONNECT WATER METER
17 LF WATER SERVICE LINE
8"x6" DI RJ TEE
STA 10+69.94
FIRE HYDRANT
6" VALVE
18 LF HYDRANT LEG
RECONNECT WATER METER
32 LF WATER SERVICE LINE
ABANDON 530 LF 8" AC WATER LINE IN PLACE
RECONNECT WATER METER
33 LF WATER SERVICE LINE
RECONNECT WATER METER
40 LF WATER SERVICE LINE
RECONNECT WATER METER
41 LF WATER SERVICE LINE
(77) 1742 SWANN ST
(78) 1740 SWANN ST
(79) 1738 SWANN ST
(80) 1736 SWANN ST
(81) 1734 SWANN ST
(82) 1732 SWANN ST
(83) 1730 SWANN ST
NORTH
GRAPHIC SCALE IN FEET
0
10
20
40


EXISTING GRADE ALONG
PROPOSED WATERLINE
WATER SERVICE LINE
CONNECTION, TYP.
PROPOSED 8" TAPPING SLEEVE
AND VALVE
STA 10+00.00
PROPOSED 8" RJ TEE
STA 10+07.00
PROPOSED 8" RJ
45° VERTICAL BEND
STA 10+45.62
18" MIN
PROPOSED 8" RJ
45° VERTICAL BEND
STA 10+51.02
PROPOSED 8" RJ
45° VERTICAL BEND
STA 10+61.68
REMOVE EXST 24" RCP
ELEV:195.46
PROP 42" RCP
ELEV:193.87
PROPOSED 8"x6" RJ TEE
STA 10+69.94
PROPOSED 8" RJ
45° VERTICAL BEND
STA 10+65.57
PROP 24" RCP
ELEV:192.45
REMOVE EXST 18" RCP
ELEV:194.06
PROPOSED 8" RJ
45° VERTICAL BEND
STA 11+42.72
18" MIN
PROPOSED 8" RJ
45° VERTICAL BEND
STA 11+46.78
PROPOSED 8" RJ 45° BEND
STA 11+89.19
PROPOSED 8" RJ 45° BEND
(ROTATE DOWN 22.5°)
STA 11+68.32
EXST 8" CONC SANITARY SEWER
ELEV:190.95
PROPOSED 8" RJ 22.5°
VERTICAL BEND
STA 11+57.78
PROPOSED 8"x6" RJ TEE
STA 13+41.96
EXST 18" RCP
ELEV:175.45
18" MIN
-WATER LINE 2-
PROFILE
1"=20' HOR.
1"=2' VER.
204
200
196
192
188
184
180
196
192
188
184
180
176
172
201.8
198.5
198.6
200.4
197.0
186.6
10+00
11+00
12+00
13+00
14+00
15+00

SWANN ST - WATER LINE 2
10+00 TO 15+50

SHEET NUMBER
24 OF 45

PLAN TYPE:
100% PLANS

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421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
SEAL
045249
NATHANIEL L. HARVEY
2AFE0F1BD88840D...
7/15/2025
NAME:

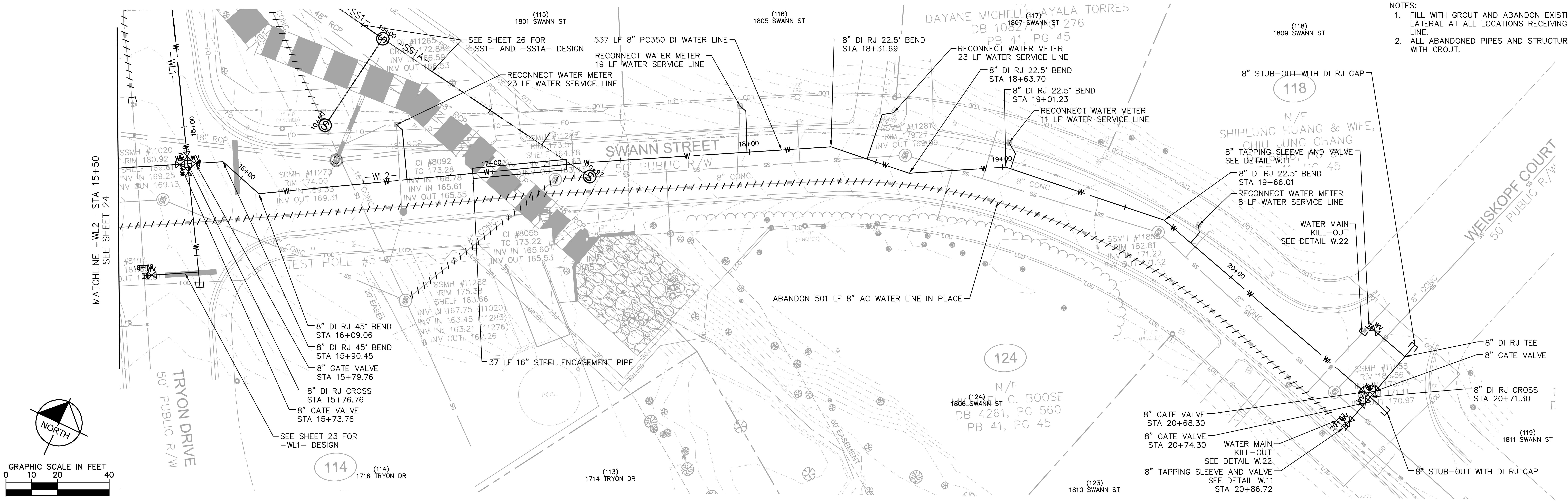
REV. #	REVISIONS DESCRIPTION	REV.BY	DATE

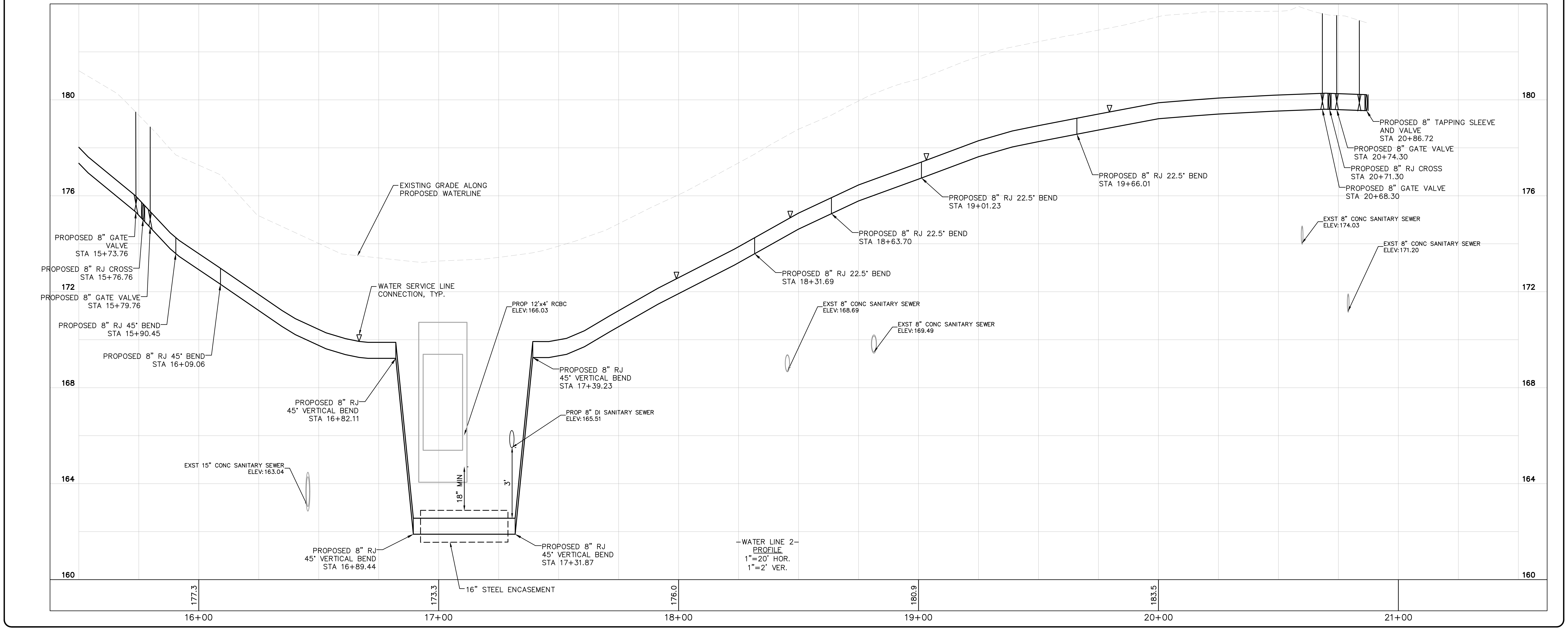
ISSUED
FOR CONSTRUCTION

DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH
PROJECT NAME : TRYON DRAINAGE
SCALE : 1:20
DATE : APRIL 2024

PROJECT NO. KH 011017025
SUB-LEDGER NO.

NOTES:
1. FILL WITH GROUT AND ABANDON EXISTING 1" WATER SERVICE LATERAL AT ALL LOCATIONS RECEIVING NEW WATER SERVICE LINE.
2. ALL ABANDONED PIPES AND STRUCTURE SHALL BE FILLED WITH GROUT.


(115)
1801 SWANN ST
(116)
1805 SWANN ST
DAYANE MICHELLE AYALA TORRES
DB 10827, PG 276
PB 41, PG 45
(117)
1807 SWANN ST
(118)
1809 SWANN ST
SEE SHEET 26 FOR -SS1- AND -SS1A- DESIGN
537 LF 8" PC350 DI WATER LINE
RECONNECT WATER METER 19 LF WATER SERVICE LINE
RECONNECT WATER METER 23 LF WATER SERVICE LINE
8" DI RJ 22.5° BEND STA 18+31.69
RECONNECT WATER METER 23 LF WATER SERVICE LINE
8" DI RJ 22.5° BEND STA 18+63.70
8" DI RJ 22.5° BEND STA 19+01.23
RECONNECT WATER METER 11 LF WATER SERVICE LINE
8" STUB-OUT WITH DI RJ CAP
118
N/F
SHIHLUNG HUANG & WIFE,
CHIU JUNG CHANG
8" TAPPING SLEEVE AND VALVE SEE DETAIL W.11
8" DI RJ 22.5° BEND STA 19+66.01
RECONNECT WATER METER 8 LF WATER SERVICE LINE
WATER MAIN KILL-OUT SEE DETAIL W.22
WEISKOPF COURT
50' PUBLIC R/W
-SS1-
-SS1A-
10+00
DI #11265
GRATE 172.88
INV IN 166.59
INV OUT 166.53
48" RCP
-WL1-
18+00
18" RCP
1" EIP (PINCHED)
SSMH #11020
RIM 180.92
SHELF 169.61
INV IN 169.25
INV OUT 169.13
16+00
SDMH #11273
RIM 174.00
INV IN 169.33
INV OUT 169.31
-WL2-
CI #8092
TC 173.28
INV IN 168.78
INV IN 165.61
INV OUT 165.55
17+00
SSMH #11283
RIM 173.54
SHELF 164.78
SWANN STREET
50' PUBLIC R/W
8" CONC
18+00
19+00
SSMH #11281
RIM 179.27
INV OUT 169.99
CI #8055
TC 173.22
INV IN 165.60
INV OUT 165.53
TEST HOLE #5
#8194
18+78
SSMH #11288
RIM 175.38
SHELF 163.66
INV IN 167.75 (11020)
INV IN 163.45 (11283)
INV IN: 163.21 (11276)
INV OUT: 162.26
20' EASEMENT
MATCHLINE -WL2- STA 15+50
SEE SHEET 24
8" DI RJ 45° BEND STA 16+09.06
8" DI RJ 45° BEND STA 15+90.45
8" GATE VALVE STA 15+79.76
8" DI RJ CROSS STA 15+76.76
8" GATE VALVE STA 15+73.76
SEE SHEET 23 FOR -WL1- DESIGN
37 LF 16" STEEL ENCASEMENT PIPE
ABANDON 501 LF 8" AC WATER LINE IN PLACE
POOL
TRYON DRIVE
50' PUBLIC R/W
NORTH
GRAPHIC SCALE IN FEET
0
10
20
40
114
(114)
1716 TRYON DR
(113)
1714 TRYON DR
124
N/F
MICHAEL C. BOOSE
DB 4261, PG 560
PB 41, PG 45
(124)
1806 SWANN ST
60' EASEMENT
(123)
1810 SWANN ST
SSMH #11858
RIM 182.81
INV IN 171.22
INV OUT 171.12
20+00
SSMH #11858
RIM 183.56
INV IN 173.74
INV IN 171.11
INV OUT 170.97
8" DI RJ TEE
8" GATE VALVE
8" DI RJ CROSS STA 20+71.30
8" GATE VALVE STA 20+68.30
8" GATE VALVE STA 20+74.30
WATER MAIN KILL-OUT SEE DETAIL W.22
8" TAPPING SLEEVE AND VALVE SEE DETAIL W.11 STA 20+86.72
8" STUB-OUT WITH DI RJ CAP
(119)
1811 SWANN ST


180
176
172
168
164
160
EXISTING GRADE ALONG PROPOSED WATERLINE
PROPOSED 8" GATE VALVE STA 15+73.76
PROPOSED 8" RJ CROSS STA 15+76.76
PROPOSED 8" GATE VALVE STA 15+79.76
PROPOSED 8" RJ 45° BEND STA 15+90.45
PROPOSED 8" RJ 45° BEND STA 16+09.06
WATER SERVICE LINE CONNECTION, TYP.
PROPOSED 8" RJ 45° VERTICAL BEND STA 16+82.11
EXST 15" CONC SANITARY SEWER ELEV:163.04
PROP 12'x4' RCBC ELEV:166.03
18" MIN
3'
PROP 8" DI SANITARY SEWER ELEV:165.51
PROPOSED 8" RJ 45° VERTICAL BEND STA 17+39.23
PROPOSED 8" RJ 45° VERTICAL BEND STA 16+89.44
PROPOSED 8" RJ 45° VERTICAL BEND STA 17+31.87
16" STEEL ENCASEMENT
EXST 8" CONC SANITARY SEWER ELEV:168.69
EXST 8" CONC SANITARY SEWER ELEV:169.49
PROPOSED 8" RJ 22.5° BEND STA 18+31.69
PROPOSED 8" RJ 22.5° BEND STA 18+63.70
PROPOSED 8" RJ 22.5° BEND STA 19+01.23
PROPOSED 8" RJ 22.5° BEND STA 19+66.01
PROPOSED 8" TAPPING SLEEVE AND VALVE STA 20+86.72
PROPOSED 8" GATE VALVE STA 20+74.30
PROPOSED 8" RJ CROSS STA 20+71.30
PROPOSED 8" GATE VALVE STA 20+68.30
EXST 8" CONC SANITARY SEWER ELEV:174.03
EXST 8" CONC SANITARY SEWER ELEV:171.20
-WATER LINE 2- PROFILE 1"=20' HOR. 1"=2' VER.
177.3
173.3
176.0
180.9
183.5
16+00
17+00
18+00
19+00
20+00
21+00

SWANN ST - WATER LINE 2
15+50 TO 20+87

PLAN TYPE:
100% PLANS

SHEET NUMBER
25 OF 45

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SUITE 600
RALEIGH, NC 27601
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FAYETTEVILLE
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
2AFE0F1BD88840D...
SEAL
045249
NATHANIEL L. HARVEY
7/15/2025

REV. #	REVISIONS DESCRIPTION	REV.BY DATE

ISSUED
FOR CONSTRUCTION

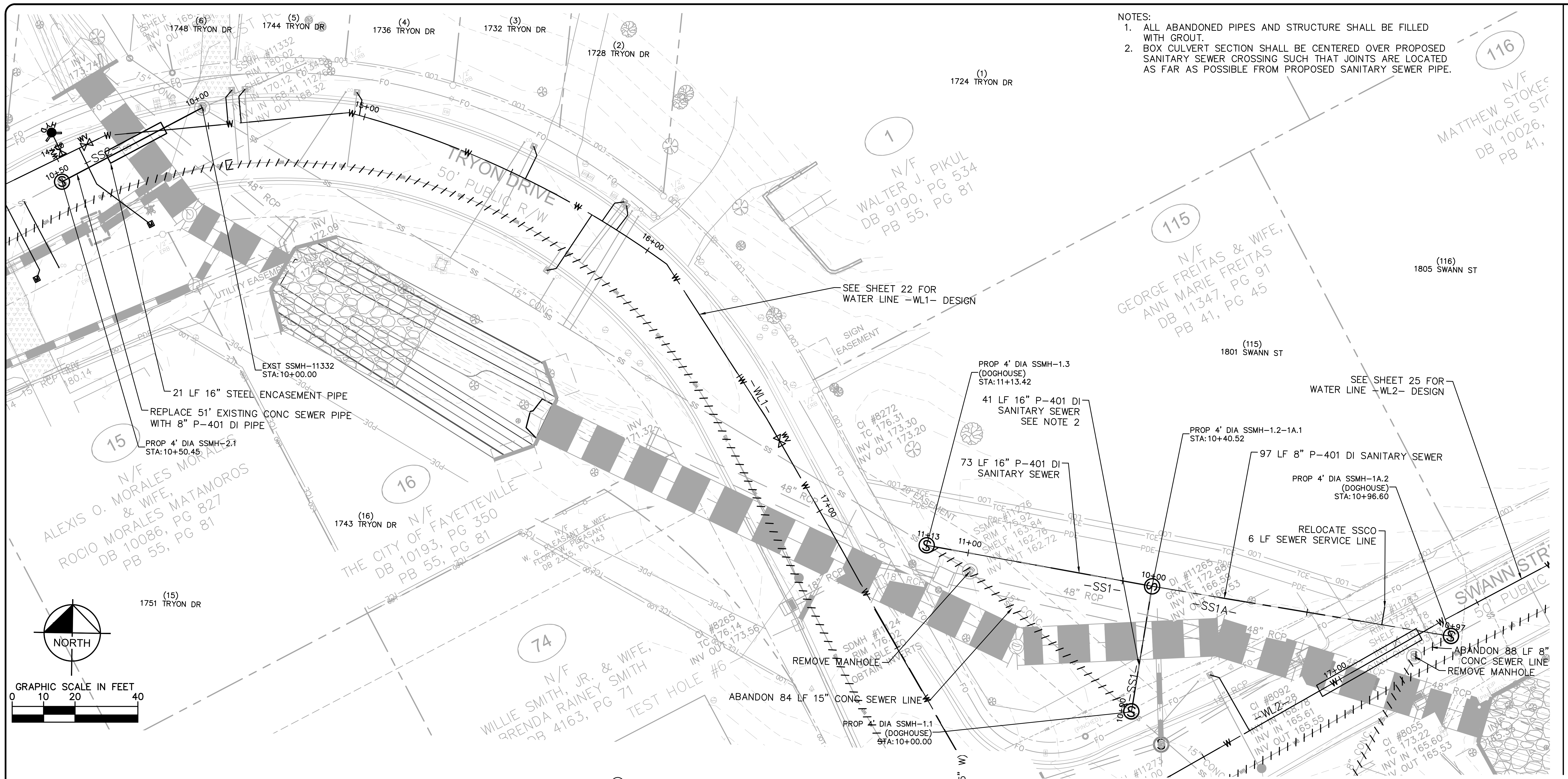
DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH

PROJECT NAME : TRYON DRAINAGE
SCALE : 1:20
DATE : APRIL 2024

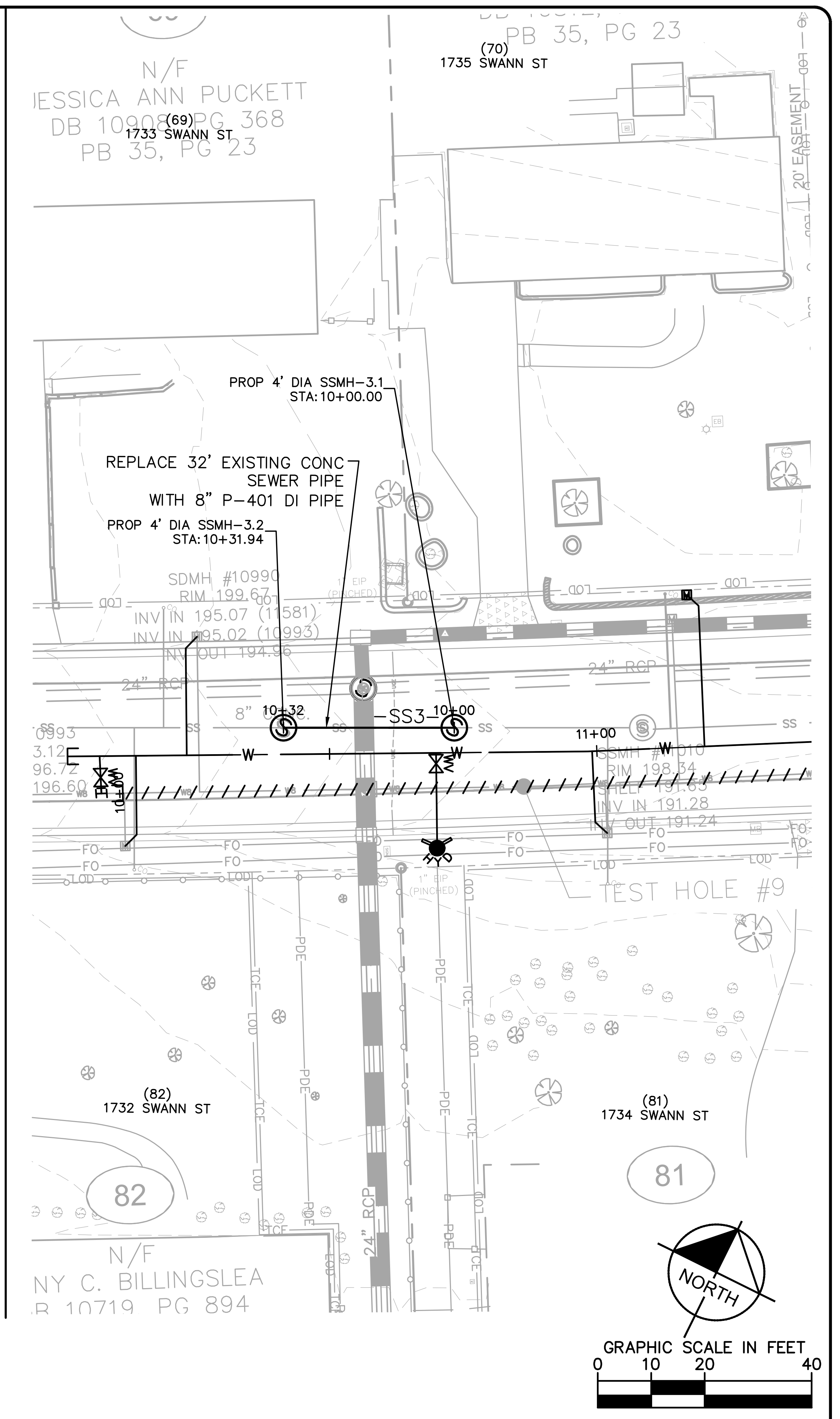
PROJECT NO. KH 011017025
SUB-LEDGER NO.

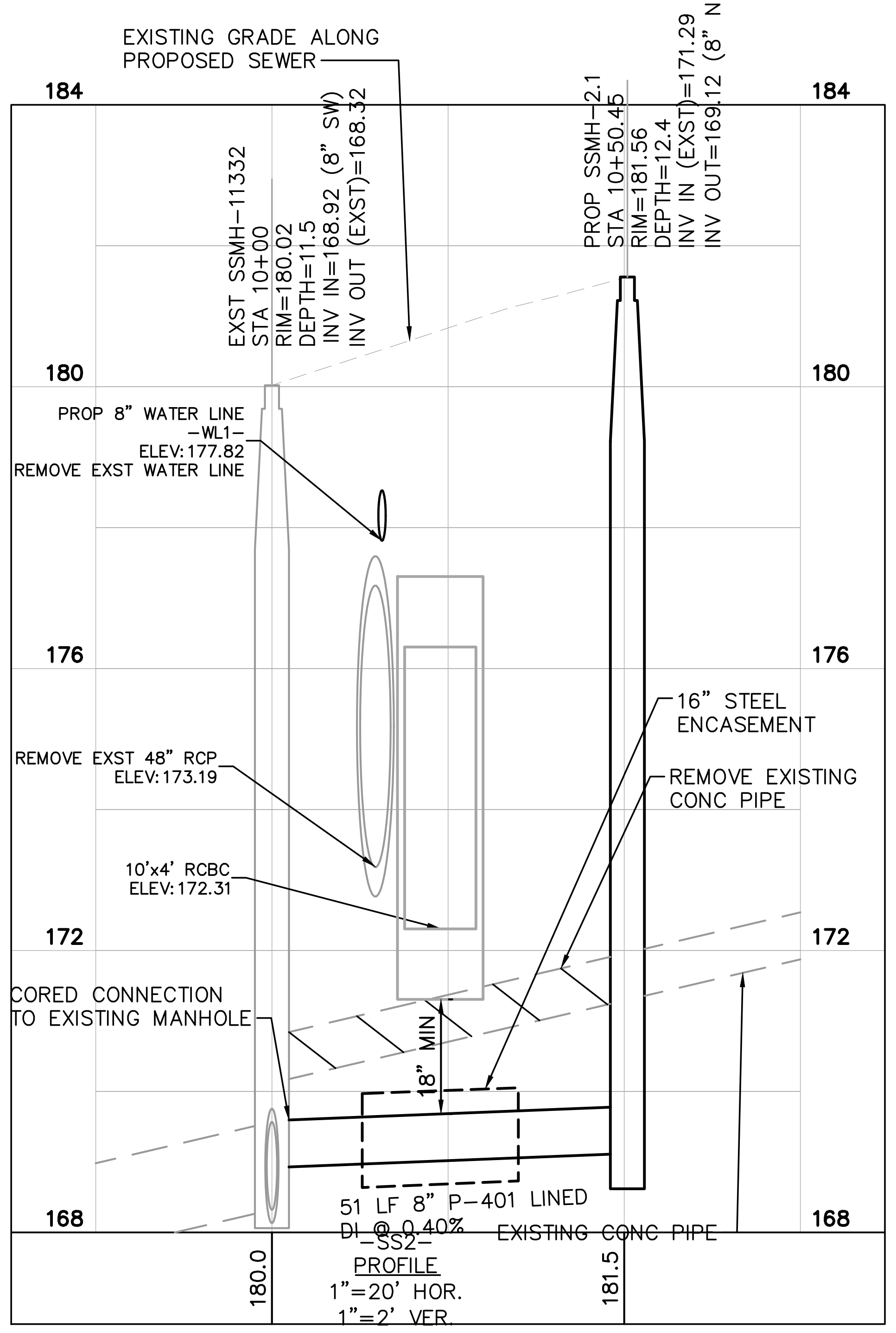
Plotted By: Anderson, Nolen Sheet Set: Tryon Drainage UC Layout: 25 SWANN ST - WATER LINE 2 15+50 TO 20+87 July 14, 2025 09:42:27am K:\RAL_Roadway\011017025_Tryon_Drainage\Utilities\UC\Plan Sheets\UTILITY PLANS.dwg

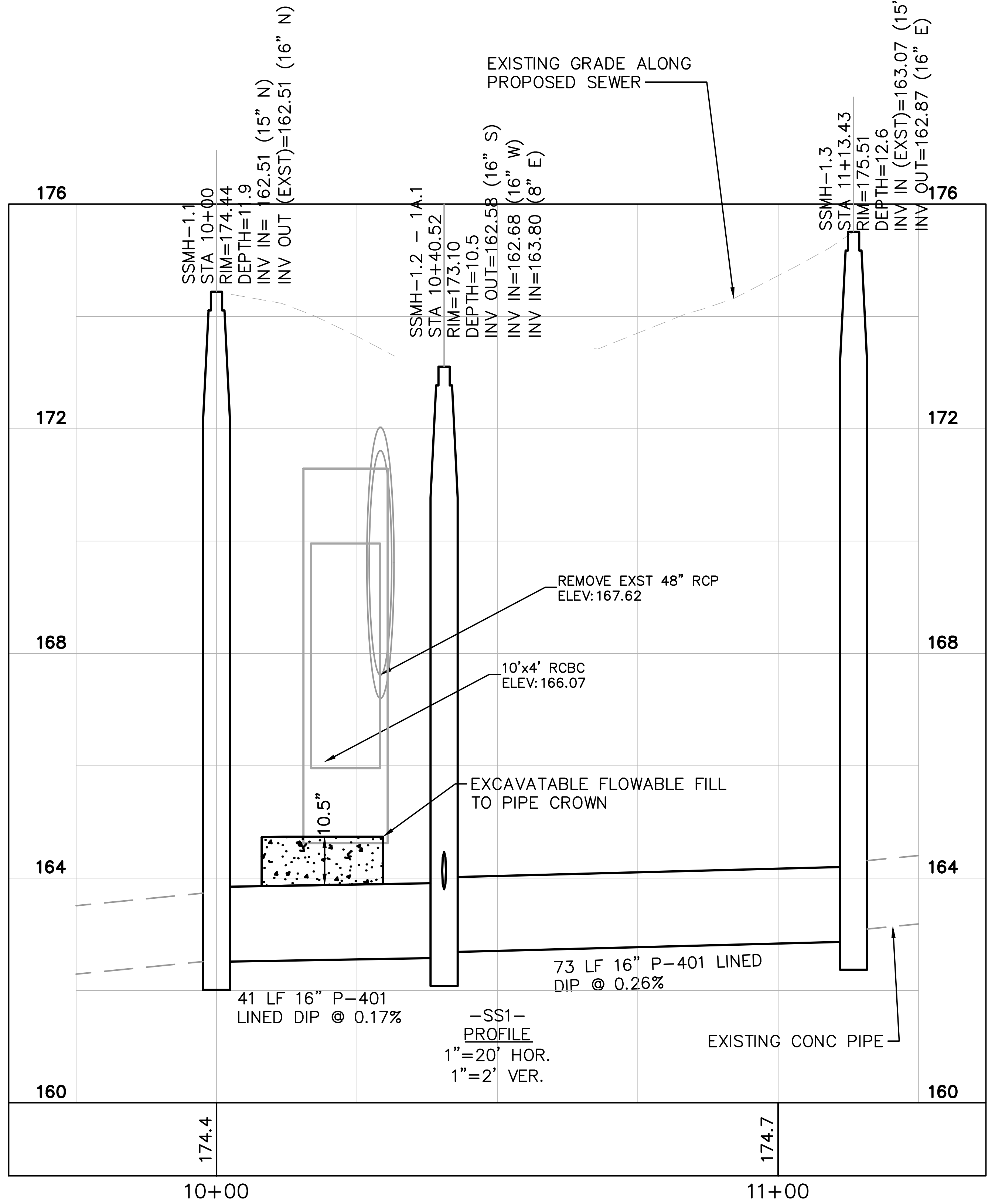
Plotted By:Anderson, Nolen Sheet Set:Tryon Drainage UC Layout:26 SANITARY SEWER - RELOCATION (-SS1- -SS1A -SS2- -SS3-) July 14, 2025 09:42:39am K:\RAL_Roadway\011017025_Tryon_Drainage\Utilities\UC\Plan Sheets\UTILITY PLANS.dwg

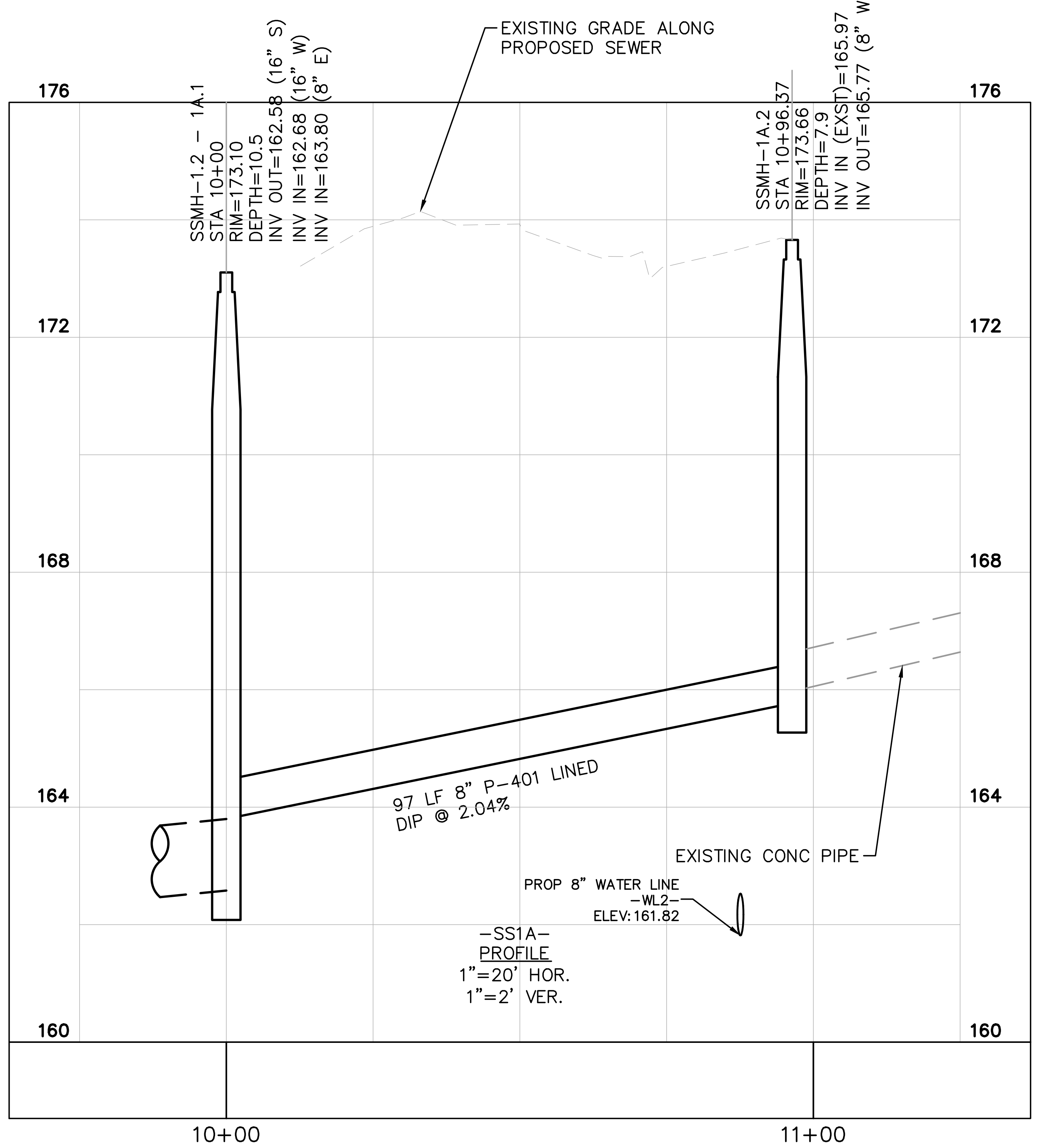

TRYON DRIVE
50' PUBLIC R/W
SWANN STREET
50' PUBLIC
(6) 1748 TRYON DR
(5) 1744 TRYON DR
(4) 1736 TRYON DR
(3) 1732 TRYON DR
(2) 1728 TRYON DR
(1) 1724 TRYON DR
(16) 1743 TRYON DR
(15) 1751 TRYON DR
(116) 1805 SWANN ST
(115) 1801 SWANN ST
N/F WALTER J. PIKUL DB 9190, PG 534 PB 55, PG 81
N/F GEORGE FREITAS & WIFE, ANN MARIE FREITAS DB 11347, PG 91 PB 41, PG 45
N/F MATTHEW STOKES VICKIE STO DB 10026, PB 41,
N/F ALEXIS O. MORALES MORALES & WIFE, ROCIO MORALES MATAMOROS DB 10086, PG 827 PB 55, PG 81
N/F THE CITY OF FAYETTEVILLE DB 10193, PG 350 PB 55, PG 81
N/F WILLIE SMITH, JR. & WIFE, BRENDA RAINEY SMITH DB 4163, PG 71
SEE SHEET 22 FOR WATER LINE -WL1- DESIGN
SEE SHEET 25 FOR WATER LINE -WL2- DESIGN
EXST SSMH-11332 STA:10+00.00
21 LF 16" STEEL ENCASEMENT PIPE
REPLACE 51' EXISTING CONC SEWER PIPE WITH 8" P-401 DI PIPE
PROP 4' DIA SSMH-2.1 STA:10+50.45
PROP 4' DIA SSMH-1.3 (DOGHOUSE) STA:11+13.42
41 LF 16" P-401 DI SANITARY SEWER SEE NOTE 2
73 LF 16" P-401 DI SANITARY SEWER
PROP 4' DIA SSMH-1.2-1A.1 STA:10+40.52
97 LF 8" P-401 DI SANITARY SEWER
PROP 4' DIA SSMH-1A.2 (DOGHOUSE) STA:10+96.60
RELOCATE SSCO 6 LF SEWER SERVICE LINE
ABANDON 88 LF 8" CONC SEWER LINE
REMOVE MANHOLE
REMOVE MANHOLE
ABANDON 84 LF 15" CONC SEWER LINE
PROP 4' DIA SSMH-1.1 (DOGHOUSE) STA:10+00.00
-SS1-
-SS1A-
-SS2-
-WL1-
-WL2-
48" RCP
TEST HOLE #6
NORTH
GRAPHIC SCALE IN FEET
0 10 20 40

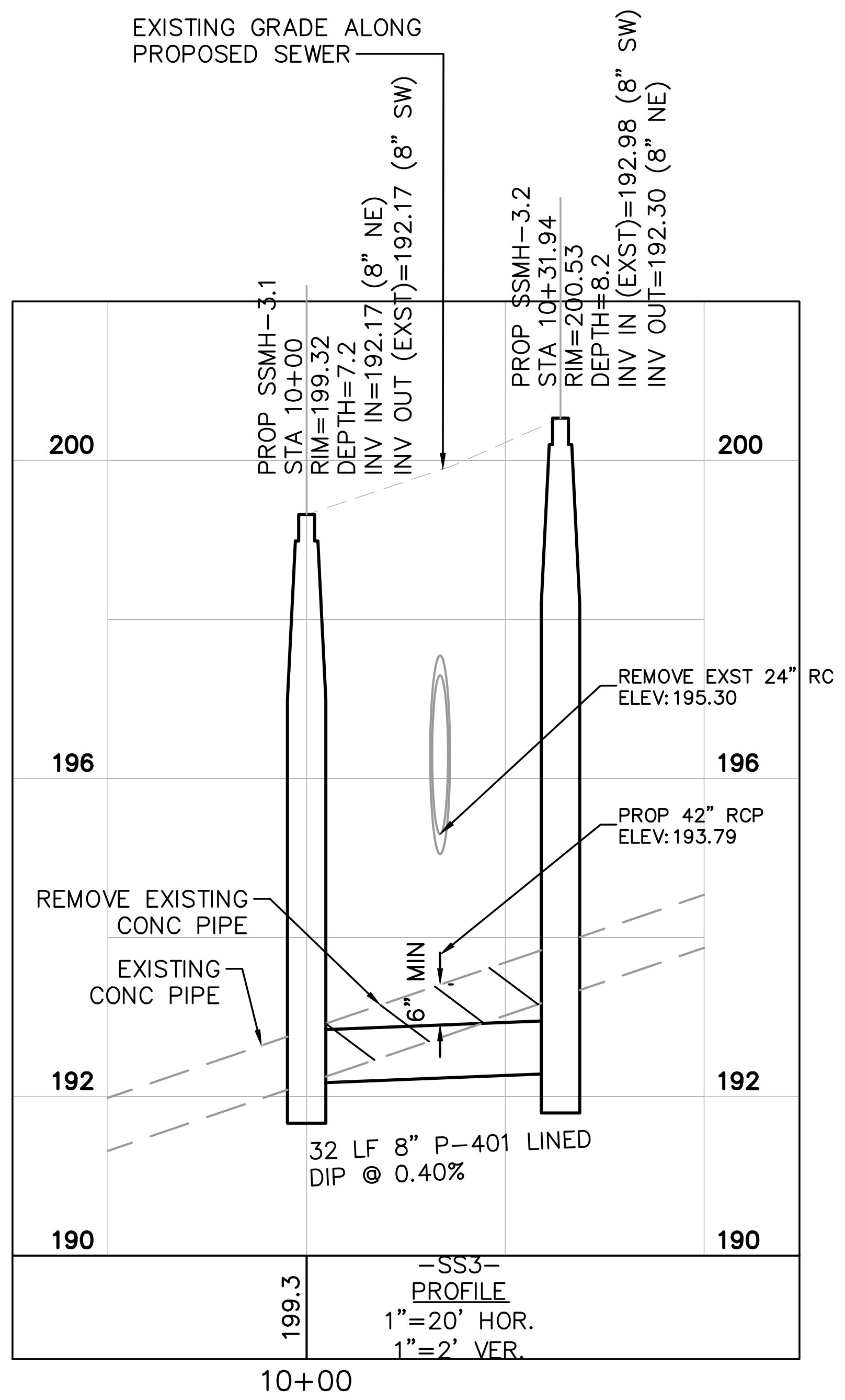
NOTES:
1. ALL ABANDONED PIPES AND STRUCTURE SHALL BE FILLED WITH GROUT.
2. BOX CULVERT SECTION SHALL BE CENTERED OVER PROPOSED SANITARY SEWER CROSSING SUCH THAT JOINTS ARE LOCATED AS FAR AS POSSIBLE FROM PROPOSED SANITARY SEWER PIPE.


(70) 1735 SWANN ST
N/F JESSICA ANN PUCKETT DB 10909, PG 368 PB 35, PG 23
(69) 1733 SWANN ST
PB 35, PG 23
PROP 4' DIA SSMH-3.1 STA:10+00.00
REPLACE 32' EXISTING CONC SEWER PIPE WITH 8" P-401 DI PIPE
PROP 4' DIA SSMH-3.2 STA:10+31.94
-SS3-
TEST HOLE #9
(82) 1732 SWANN ST
(81) 1734 SWANN ST
N/F NY C. BILLINGSLEA R 10719, PG 894
20' EASEMENT
NORTH
GRAPHIC SCALE IN FEET
0 10 20 40


EXISTING GRADE ALONG PROPOSED SEWER
EXST SSMH-11332 STA 10+00 RIM=180.02 DEPTH=11.5 INV IN=168.92 (8" SW) INV OUT (EXST)=168.32
PROP SSMH-2.1 STA 10+50.45 RIM=181.56 DEPTH=12.4 INV IN (EXST)=171.29 (8" SW) INV OUT=169.12 (8" NE)
PROP 8" WATER LINE -WL1- ELEV:177.82
REMOVE EXST WATER LINE
REMOVE EXST 48" RCP ELEV:173.19
10'x4' RCBC ELEV:172.31
16" STEEL ENCASEMENT
REMOVE EXISTING CONC PIPE
CORED CONNECTION TO EXISTING MANHOLE
18" MIN
51 LF 8" P-401 LINED DI @ 0.40%
EXISTING CONC PIPE
184 180 176 172 168
180.0 181.5
10+00 10+50
-SS2-
PROFILE
1"=20' HOR.
1"=2' VER.


EXISTING GRADE ALONG PROPOSED SEWER
SSMH-1.1 STA 10+00 RIM=174.44 DEPTH=11.9 INV IN= 162.51 (15" N) INV OUT (EXT)=162.51 (16" N)
SSMH-1.2 - 1A.1 STA 10+40.52 RIM=173.10 DEPTH=10.5 INV OUT=162.58 (16" S) INV IN=162.68 (16" W) INV IN=163.80 (8" E)
SSMH-1.3 STA 11+13.43 RIM=175.51 DEPTH=12.6 INV IN (EXST)=163.07 (15" W) INV OUT=162.87 (16" E)
REMOVE EXST 48" RCP ELEV:167.62
10'x4' RCBC ELEV:166.07
EXCAVATABLE FLOWABLE FILL TO PIPE CROWN
10.5"
41 LF 16" P-401 LINED DIP @ 0.17%
73 LF 16" P-401 LINED DIP @ 0.26%
EXISTING CONC PIPE
176 172 168 164 160
174.4 174.7
10+00 11+00
-SS1-
PROFILE
1"=20' HOR.
1"=2' VER.


EXISTING GRADE ALONG PROPOSED SEWER
SSMH-1.2 - 1A.1 STA 10+00 RIM=173.10 DEPTH=10.5 INV OUT=162.58 (16" S) INV IN=162.68 (16" W) INV IN=163.80 (8" E)
SSMH-1A.2 STA 10+96.37 RIM=173.66 DEPTH=7.9 INV IN (EXST)=165.97 (8" E) INV OUT=165.77 (8" W)
97 LF 8" P-401 LINED DIP @ 2.04%
EXISTING CONC PIPE
PROP 8" WATER LINE -WL2- ELEV:161.82
176 172 168 164 160
10+00 11+00
-SS1A-
PROFILE
1"=20' HOR.
1"=2' VER.


EXISTING GRADE ALONG PROPOSED SEWER
PROP SSMH-3.1 STA 10+00 RIM=199.32 DEPTH=7.2 INV IN=192.17 (8" NE) INV OUT (EXST)=192.17 (8" SW)
PROP SSMH-3.2 STA 10+31.94 RIM=200.53 DEPTH=8.2 INV IN (EXST)=192.98 (8" SW) INV OUT=192.30 (8" NE)
REMOVE EXST 24" RC ELEV:195.30
PROP 42" RCP ELEV:193.79
REMOVE EXISTING CONC PIPE
EXISTING CONC PIPE
6" MIN
32 LF 8" P-401 LINED DIP @ 0.40%
200 196 192 190
199.3
10+00
-SS3-
PROFILE
1"=20' HOR.
1"=2' VER.

SANITARY SEWER - RELOCATION
(-SS1-, -SS1A, -SS2-, -SS3-)

PLAN TYPE:
100% PLANS

SHEET NUMBER
26 OF 45

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SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
2AFE0F1BD88840D...
SEAL
045249
NATHANIEL L. HARVEY
7/15/2025
NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV. BY DATE

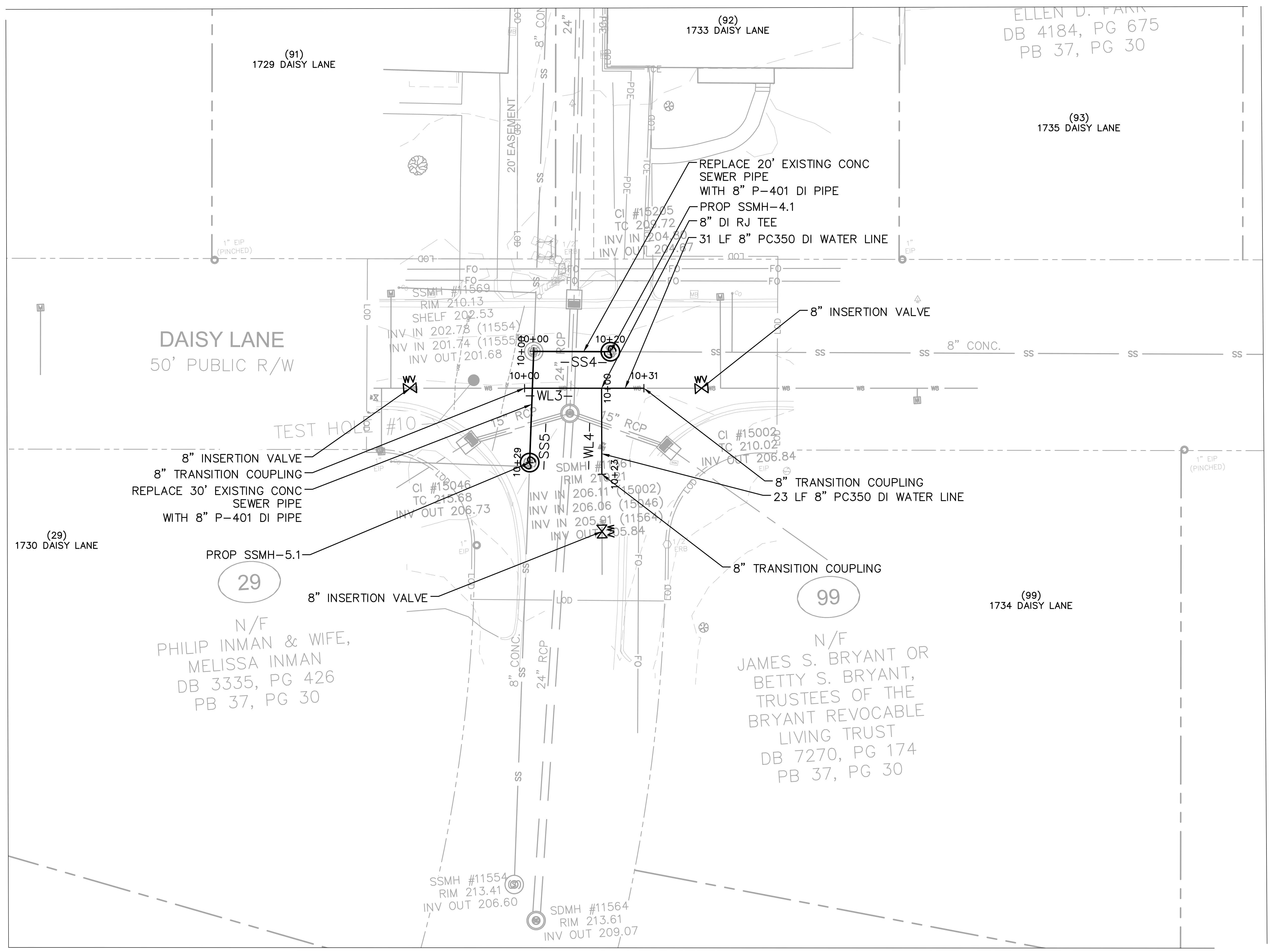
ISSUED
FOR CONSTRUCTION

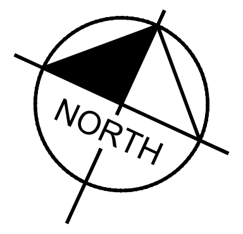
DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH

PROJECT NAME : TRYON DRAINAGE
SCALE : 1:20
DATE : APRIL 2024

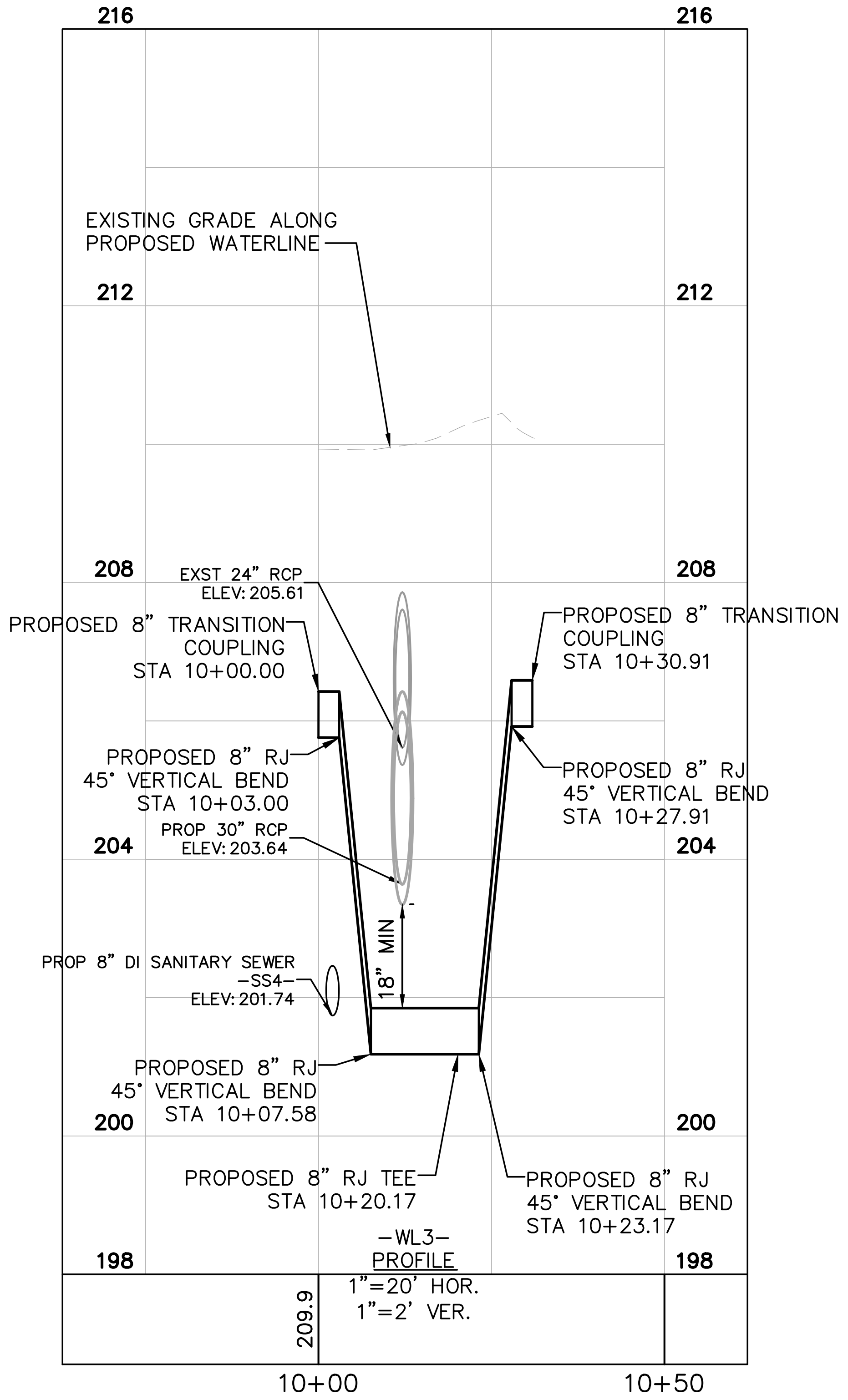
PROJECT NO. KH 011017025
SUB-LEDGER NO. ____

NOTES:
1. ALL ABANDONED PIPES AND STRUCTURE SHALL BE FILLED WITH GROUT.

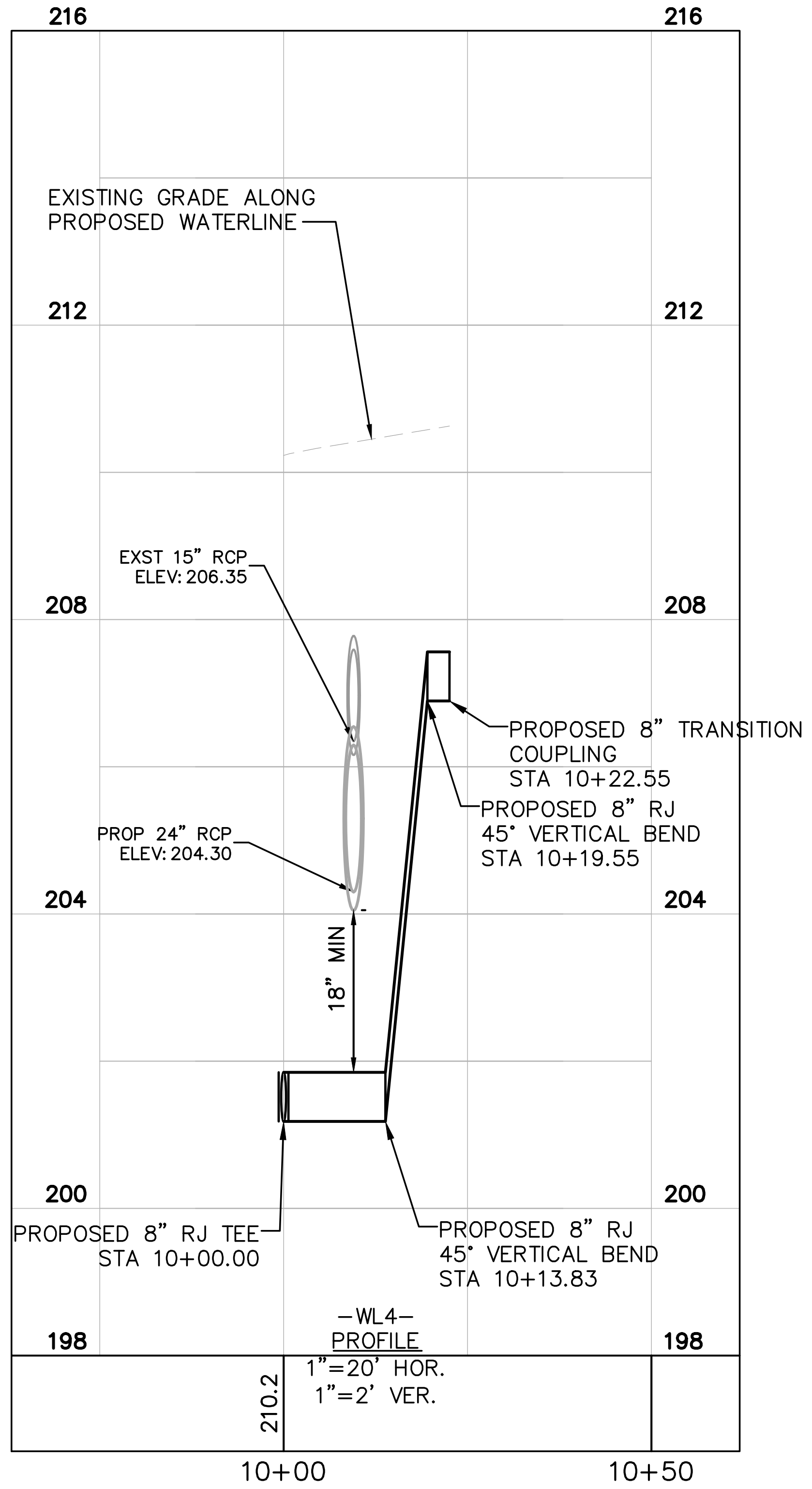

(91)
1729 DAISY LANE
(92)
1733 DAISY LANE
ELLEN D. FARR
DB 4184, PG 675
PB 37, PG 30
(93)
1735 DAISY LANE
20' EASEMENT
REPLACE 20' EXISTING CONC SEWER PIPE WITH 8" P-401 DI PIPE
PROP SSMH-4.1
8" DI RJ TEE
31 LF 8" PC350 DI WATER LINE
CI #15205
TC 209.72
INV IN 204.80
INV OUT 204.67
SSMH #11569
RIM 210.13
SHELF 202.53
INV IN 202.78 (11554)
INV IN 201.74 (11555)
INV OUT 201.68
DAISY LANE
50' PUBLIC R/W
8" INSERTION VALVE
8" CONC.
10+00
10+20
10+31
SS4
WL3
WL4
SS5
10+29
10+23
WV
TEST HOLE #10
15" RCP
24" RCP
CI #15002
TC 210.02
INV OUT 206.84
8" INSERTION VALVE
8" TRANSITION COUPLING
REPLACE 30' EXISTING CONC SEWER PIPE WITH 8" P-401 DI PIPE
CI #15046
TC 215.68
INV OUT 206.73
SDMH #11561
RIM 210.21
INV IN 206.11 (15002)
INV IN 206.06 (15046)
INV IN 205.91 (11564)
INV OUT 205.84
8" TRANSITION COUPLING
23 LF 8" PC350 DI WATER LINE
(29)
1730 DAISY LANE
PROP SSMH-5.1
8" TRANSITION COUPLING
8" INSERTION VALVE
29
99
(99)
1734 DAISY LANE
N/F
PHILIP INMAN & WIFE,
MELISSA INMAN
DB 3335, PG 426
PB 37, PG 30
N/F
JAMES S. BRYANT OR
BETTY S. BRYANT,
TRUSTEES OF THE
BRYANT REVOCABLE
LIVING TRUST
DB 7270, PG 174
PB 37, PG 30
8" CONC.
24" RCP
SSMH #11554
RIM 213.41
INV OUT 206.60
SDMH #11564
RIM 213.61
INV OUT 209.07
1" EIP (PINCHED)
FO
SS
LOD



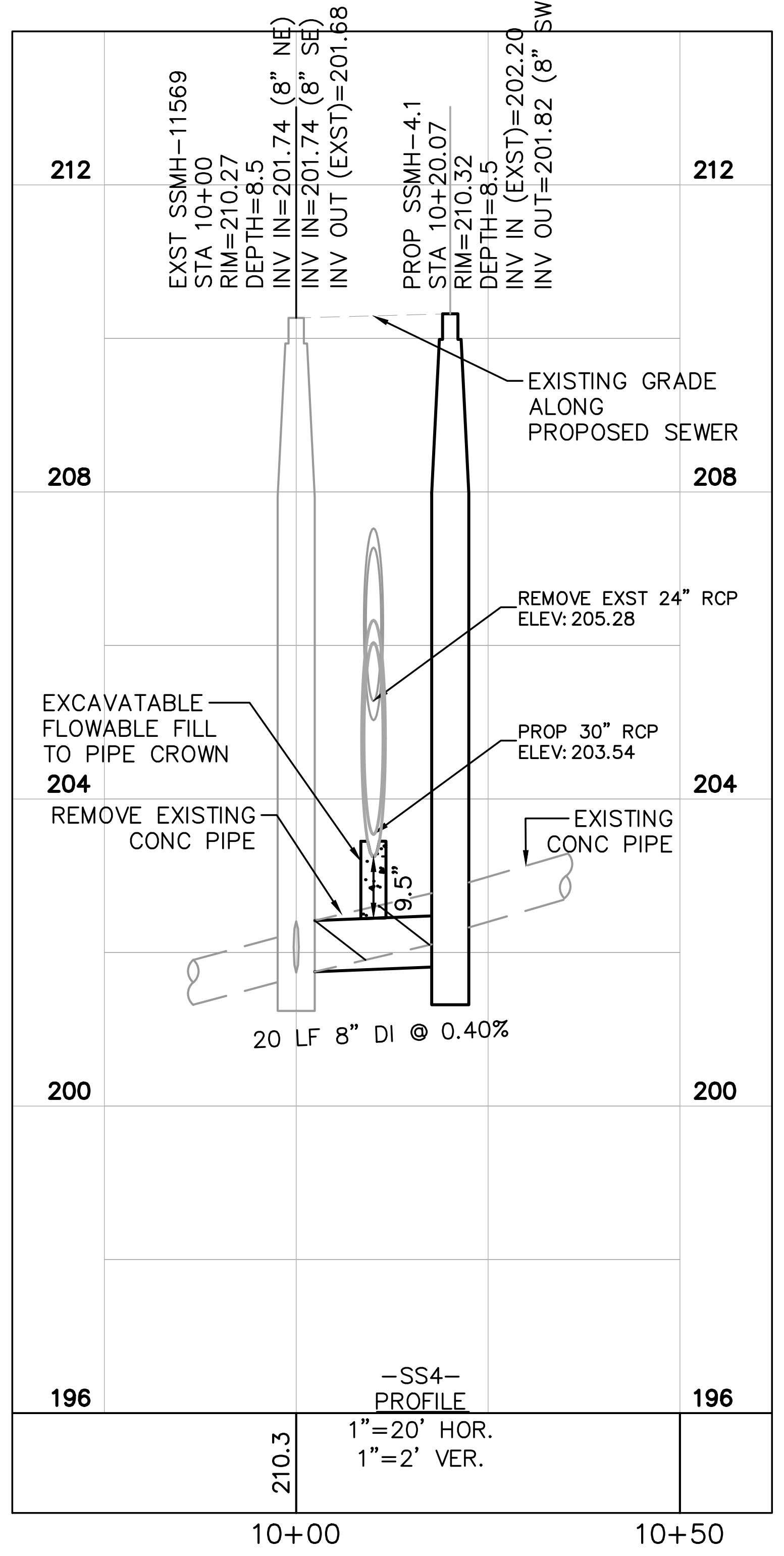
GRAPHIC SCALE IN FEET
0 10 20 40


216
212
208
204
200
198
EXISTING GRADE ALONG PROPOSED WATERLINE
EXST 24" RCP
ELEV: 205.61
PROPOSED 8" TRANSITION COUPLING
STA 10+00.00
PROPOSED 8" RJ 45° VERTICAL BEND
STA 10+03.00
PROP 30" RCP
ELEV: 203.64
PROP 8" DI SANITARY SEWER
-SS4-
ELEV: 201.74
18" MIN
PROPOSED 8" RJ 45° VERTICAL BEND
STA 10+07.58
PROPOSED 8" RJ TEE
STA 10+20.17
PROPOSED 8" TRANSITION COUPLING
STA 10+30.91
PROPOSED 8" RJ 45° VERTICAL BEND
STA 10+27.91
PROPOSED 8" RJ 45° VERTICAL BEND
STA 10+23.17
209.9
10+00
10+50

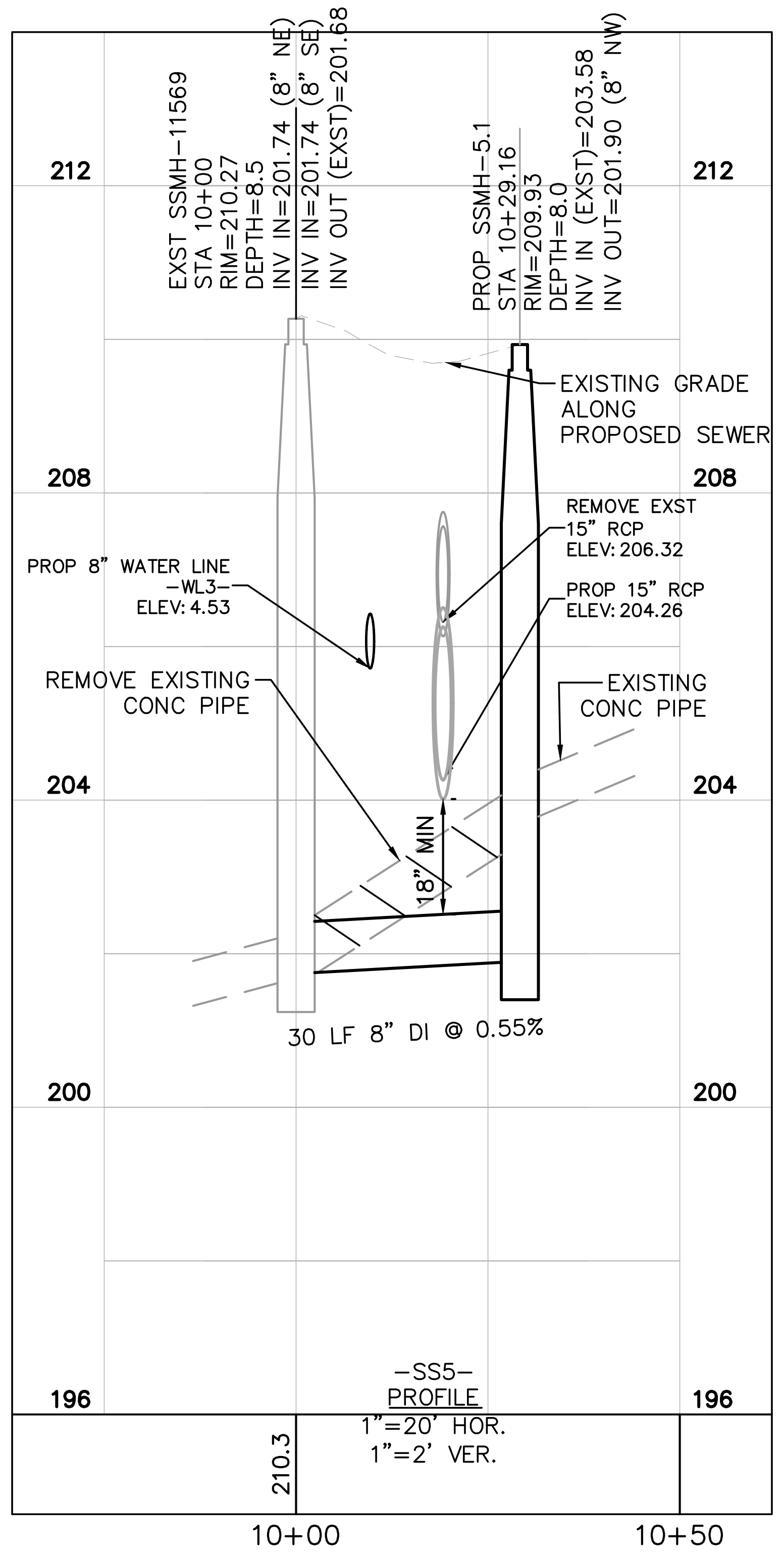
-WL3-
PROFILE
1"=20' HOR.
1"=2' VER.


216
212
208
204
200
198
EXISTING GRADE ALONG PROPOSED WATERLINE
EXST 15" RCP
ELEV: 206.35
PROP 24" RCP
ELEV: 204.30
18" MIN
PROPOSED 8" TRANSITION COUPLING
STA 10+22.55
PROPOSED 8" RJ 45° VERTICAL BEND
STA 10+19.55
PROPOSED 8" RJ TEE
STA 10+00.00
PROPOSED 8" RJ 45° VERTICAL BEND
STA 10+13.83
210.2
10+00
10+50

-WL4-
PROFILE
1"=20' HOR.
1"=2' VER.


212
208
204
200
196
EXST SSMH-11569
STA 10+00
RIM=210.27
DEPTH=8.5
INV IN=201.74 (8" NE)
INV IN=201.74 (8" SE)
INV OUT (EXST)=201.68
PROP SSMH-4.1
STA 10+20.07
RIM=210.32
DEPTH=8.5
INV IN (EXST)=202.20
INV OUT=201.82 (8" SW)
EXISTING GRADE ALONG PROPOSED SEWER
REMOVE EXST 24" RCP
ELEV: 205.28
EXCAVATABLE FLOWABLE FILL TO PIPE CROWN
PROP 30" RCP
ELEV: 203.54
REMOVE EXISTING CONC PIPE
EXISTING CONC PIPE
9.5"
20 LF 8" DI @ 0.40%
210.3
10+00
10+50

-SS4-
PROFILE
1"=20' HOR.
1"=2' VER.


212
208
204
200
196
EXST SSMH-11569
STA 10+00
RIM=210.27
DEPTH=8.5
INV IN=201.74 (8" NE)
INV IN=201.74 (8" SE)
INV OUT (EXST)=201.68
PROP SSMH-5.1
STA 10+29.16
RIM=209.93
DEPTH=8.0
INV IN (EXST)=203.58
INV OUT=201.90 (8" NW)
EXISTING GRADE ALONG PROPOSED SEWER
REMOVE EXST 15" RCP
ELEV: 206.32
PROP 15" RCP
ELEV: 204.26
PROP 8" WATER LINE
-WL3-
ELEV: 4.53
REMOVE EXISTING CONC PIPE
EXISTING CONC PIPE
18" MIN
30 LF 8" DI @ 0.55%
210.3
10+00
10+50

-SS5-
PROFILE
1"=20' HOR.
1"=2' VER.

Plotted By: Anderson, Nolen Sheet Set: Tryon Drainage UC Layout: 27 DAISY LANE - (WL3 WL4 SS4 SS5) July 14, 2025 09:42:47am K:\RAL_Roadway\011017025_Tryon_Drainage\Utilities\UC\Plan Sheets\UTILITY PLANS.dwg

DAISY LANE - (WL3, WL4, SS4, SS5)

PLAN TYPE: 100% PLANS

SHEET NUMBER 27 OF 45

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RALEIGH, NC 27601
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FAYETTEVILLE N.C.
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
2AFE0F1BD88840D...
SEAL
045249
NATHANIEL L. HARVEY
7/15/2025

REV. #	REVISIONS DESCRIPTION	REV. BY DATE

ISSUED FOR CONSTRUCTION

DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH
PROJECT NAME : TRYON DRAINAGE
SCALE : 1:20
DATE : APRIL 2024

PROJECT NO. KH 011017025
SUB-LEDGER NO. ____

1. ALL WATER MAINS, LATERALS AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
2. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE FOR ALL WATER OUTAGES.
4. CONSTRUCTION STAKING IS REQUIRED FOR ALL PWC WATER AND SEWER UTILITY INSTALLATIONS. CUT SHEETS, SIGNED AND SEALED BY A NC PLS, SHALL BE PROVIDED TO THE PWC WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR PWC WATER AND SEWER UTILITIES.
5. CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONSTRUCTION ON PWC WATER AND SEWER UTILITIES CANNOT BEGIN UNTIL THE CONTRACTOR POSSESSES, ON SITE, A SIGNED AND SEALED CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.
6. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/OR DISINFECTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS PRIOR TO PLACING INTO SERVICE.
7. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE PWC PROJECT COORDINATOR.
8. CONTRACTOR SHALL REPAIR ALL WATER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL REPORT IMMEDIATELY ALL WATER MAIN AND LATERAL BREAKS TO THE PWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH PWC STANDARDS. CONTRACTOR SHALL NOT OPERATE PWC WATER MAIN VALVES WITHOUT PWC APPROVAL AND SHALL COORDINATE ALL VALVE CLOSINGS WITH PWC.
9. THE CONTRACTOR SHALL NOT USE HOUSE HOSE BIBBS OR ANY OTHER METHOD OF BLOW OFF WHICH ALLOWS DOMESTIC WATER CONTAINING SEDIMENTS OR HIGH LEVELS OF CHLORINE TO PASS THRU RESIDENT'S METERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES RESULTING FROM ALLOWING "DIRTY" WATER TO ENTER RESIDENT'S PLUMBING SYSTEM, SUCH AS WATER HEATERS, STAINED CLOTHING, CLOGGED SCREENS, ETC.
10. TRANSFER OF WATER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
    A. INSTALL, TEST AND STERILIZE NEW MAIN AND LATERALS. LATERALS SHALL BE INSTALLED 18" INSIDE RIGHT-OF-WAY UNLESS OTHERWISE DIRECTED BY PWC.
    B. TRANSFER EXISTING METER TO NEW METER BOX AND TIE NEW WATER LATERAL TO EXISTING DOMESTIC SERVICE UTILIZING BRASS FITTINGS. SAME METER NUMBER SHALL BE INSTALLED ON SAME ADDRESS AND/OR CUSTOMER. BLOW OFF SERVICE AT HOSE BIBB ON HOUSE ONLY AFTER METER HAS BEEN TRANSFERRED.
    C. AFTER ALL SERVICES ARE TRANSFERRED TO THE NEW SYSTEM, SHUT OFF VALVE ON EXISTING SYSTEM AND ABANDON EXISTING MAINS IN ACCORDANCE WITH PWC REQUIREMENTS.
    D. CONTRACTOR SHALL SUPPLY NEW METER BOXES AND DISPOSE OF EXISTING METER BOXES.
11. CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING WATER SERVICES THAT WILL NOT BE UTILIZED BY CUTTING THE SERVICE AT THE MAIN, PLUGGING THE CORPORATION, AND TURNING OFF THE CORPORATION AT THE METER BOX, THE ABANDONED SERVICE IS TO BE CUT OR CRIMPED, AND BURIED A MINIMUM OF 3 FEET BELOW GRADE.
12. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH PWC REQUIREMENTS.
13. ALL WORK ON PWC WATER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON PWC WATER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH PWC REQUIREMENTS.
14. SEPARATION REQUIREMENTS:
    A. **LATERAL SEPARATION OF SEWERS AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
        i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
        ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
    B. **CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
    C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, A MINIMUM OF 18-INCHES OF SEPARATION SHALL BE PROVIDED. BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE POINT OF CROSSING, A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.

WATER UTILITY NOTES	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.1	DWG. BY: FAYPWC	1	01/01/18	ADDED NOTES 6, 8
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	2	06/01/21	ADDED NOTES 1-7 AND RENUMBERED
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	3	11/23	REVISED NOTES 10, 14

W1-WATER-UTILITY-NOTES.dwg

D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A WATER LINE CROSSING OVER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IN ADDITION, THREE AND A HALF (3.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN OR IT SHALL BE DUCTILE IRON. IF DUCTILE IRON PIPE IS USED THEN TWO AN A HALF (2.5) FEET OF COVER MUST BE MAINTAINED OVER THE WATER MAIN AND A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE STORM DRAINAGE LINE. WHERE A WATER MAIN CROSSES UNDER A STORM DRAINAGE LINE THE MINIMUM OF TWELVE (12) INCHES OF VERTICAL SEPARATION SHALL BE MAINTAINED AND THE WATER MAIN SHALL BE DUCTILE IRON FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE CROSSING.

15. **WATER OUTAGES:** THE CONTRACTOR SHALL SCHEDULE A COORDINATION MEETING WITH THE PWC PROJECT COORDINATOR AND PROJECT ENGINEER A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO ANY PLANNED WATER OUTAGE. THE COORDINATION MEETING SHALL BE CONDUCTED PRIOR TO ANY NOTICES BEING ISSUED. ADDITIONALLY, THE CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) ANY UTILITIES WITHIN THE WORK AREA, IN ACCORDANCE WITH THESE CONTRACT DOCUMENTS. THE LOCATIONS OF ALL UTILITIES WITHIN THE WORK AREA SHALL BE DETERMINED PRIOR TO THE COORDINATION MEETING. ANY CONFLICTS WITH THE PENDING WORK AND THE EXISTING UTILITIES SHALL BE IDENTIFIED AND A PLAN FOR RESOLVING ANY CONFLICTS SHALL BE PRESENTED. THE PURPOSE OF THIS COORDINATION MEETING IS TO ENSURE THAT THE CONTRACTOR HAS A GOOD UNDERSTANDING OF THE REQUIREMENTS RELATED TO THE PENDING OUTAGE, VERIFY THAT THERE ARE NO UTILITY CONFLICTS THAT WILL PREVENT THE WORK FROM BEING COMPLETED, ALL EQUIPMENT IS IN GOOD WORKING ORDER, ALL EQUIPMENT IS FUNCTIONAL, ALL MATERIALS ARE ON SITE, ALL NECESSARY TOOLS ARE ON SITE, DISCUSS ANY NECESSARY CONTINGENCY PLANS, AND ANY OTHER ITEMS NECESSARY TO ENSURE THAT THE FAYETTEVILLE PUBLIC WORKS COMMISSION HAS CONFIDENCE THAT THE WORK CAN BE ACCOMPLISHED WITHIN THE GIVEN TIME PERIOD. SHOULD, FOR ANY REASON, THE FAYETTEVILLE PUBLIC WORKS COMMISSION DEEM THAT THE CONTRACTOR IS NOT PREPARED FOR THE PROPOSED OUTAGE, THE OUTAGE NOTIFICATIONS WILL NOT BE DISTRIBUTED AND THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. THE FAYETTEVILLE PUBLIC WORKS COMMISSION WILL PROVIDE WRITTEN NOTIFICATION TO THE CONTRACTOR OF THIS DECISION. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

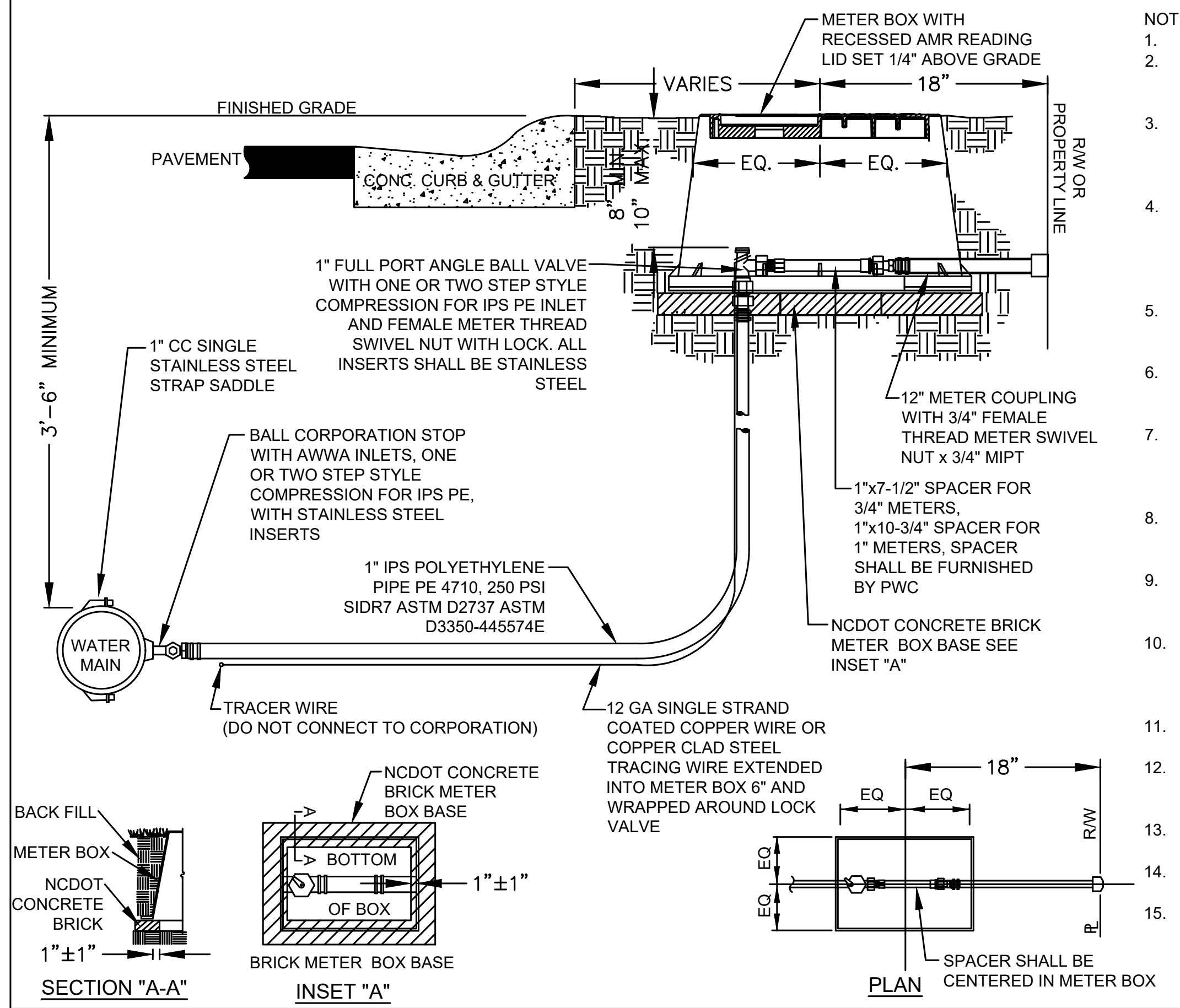
ONCE THE WATER OUTAGE NOTIFICATIONS HAVE BEEN ISSUED, A FOLLOW-UP COORDINATION MEETING WITH THE PWC PROJECT COORDINATOR AND PROJECT ENGINEER SHALL BE HELD A MINIMUM OF 24 HOURS PRIOR TO THE SCHEDULED THE PURPOSE OF THIS MEETING IS TO VERIFY THAT THE CONTRACTOR IS PREPARED TO PROCEED WITH THE OUTAGE, AND THAT ALL EQUIPMENT, MATERIALS, TOOLS, AND ALL OTHER INCIDENTALS ARE ON THE PROJECT SITE AND FUNCTIONING. IF FOR ANY REASON THE FAYETTEVILLE PUBLIC WORKS COMMISSION DEEMS THAT THE CONTRACTOR IS NOT PREPARED, THE OUTAGE SHALL BE POSTPONED AND ALL CUSTOMERS IMMEDIATELY NOTIFIED OF THE CANCELLATION. THE OUTAGE SHALL BE POSTPONED A MINIMUM OF TWO (2) WEEKS. NO ADDITIONAL CONTRACT TIME WILL BE GRANTED FOR THIS DELAY. SHOULD THE CONTRACT TIME EXPIRE WITHIN THAT TWO (2) WEEK PERIOD, THE FAYETTEVILLE PUBLIC WORKS COMMISSION RESERVES THE RIGHT TO ASSESS LIQUIDATED DAMAGES, AS OUTLINED IN THESE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL COMPLETE THE REQUIRED WORK AND RESTORE WATER SERVICE WITHIN THE GIVEN TIME PERIOD FOR THE OUTAGE. IF THE FAYPWC PROJECT COORDINATOR DETERMINES THAT THE CONTRACTOR WILL NOT RESTORE WATER SERVICE WITHIN THE APPROVED TIMEFRAME, THE FAYPWC PROJECT COORDINATOR WILL DIRECT THE CONTRACTOR ON HOW TO RESTORE WATER SERVICE. THE CONTRACTOR SHALL ADHERE TO ALL INSTRUCTIONS GIVEN BY THE PWC PROJECT COORDINATOR.

SHOULD THE CONTRACTOR FAIL TO COMPLETE THE WORK WITHIN THE ALLOTTED TIME, THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL ASSESS A PENALTY OF $500 PER 15-MINUTE INTERVAL OR ANY PORTION THEREOF UNTIL WATER SERVICE IS RESTORED. THIS PENALTY WILL BE DEDUCTED FROM THE CONTRACTOR'S PAY APPLICATION OR BE BILLED DIRECTLY TO THE CONTRACTOR. THE PENALTY MAY BE WAIVED FOR CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL, AS DEEMED BY THE FAYETTEVILLE PUBLIC WORKS COMMISSION. THE PWC PROJECT COORDINATOR AND/OR PROJECT ENGINEER RESERVE THE RIGHT TO CANCEL OR POSTPONE THE OUTAGE AT ANY GIVEN TIME, IF DEEMED NECESSARY.

WATER UTILITY NOTES	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.1	DWG. BY: FAYPWC	1	01/01/18	ADDED NOTES 6, 8
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	2	06/01/21	ADDED NOTES 1-7 AND RENUMBERED
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	3	11/23	REVISED NOTES 10, 14

W1-WATER-UTILITY-NOTES.dwg

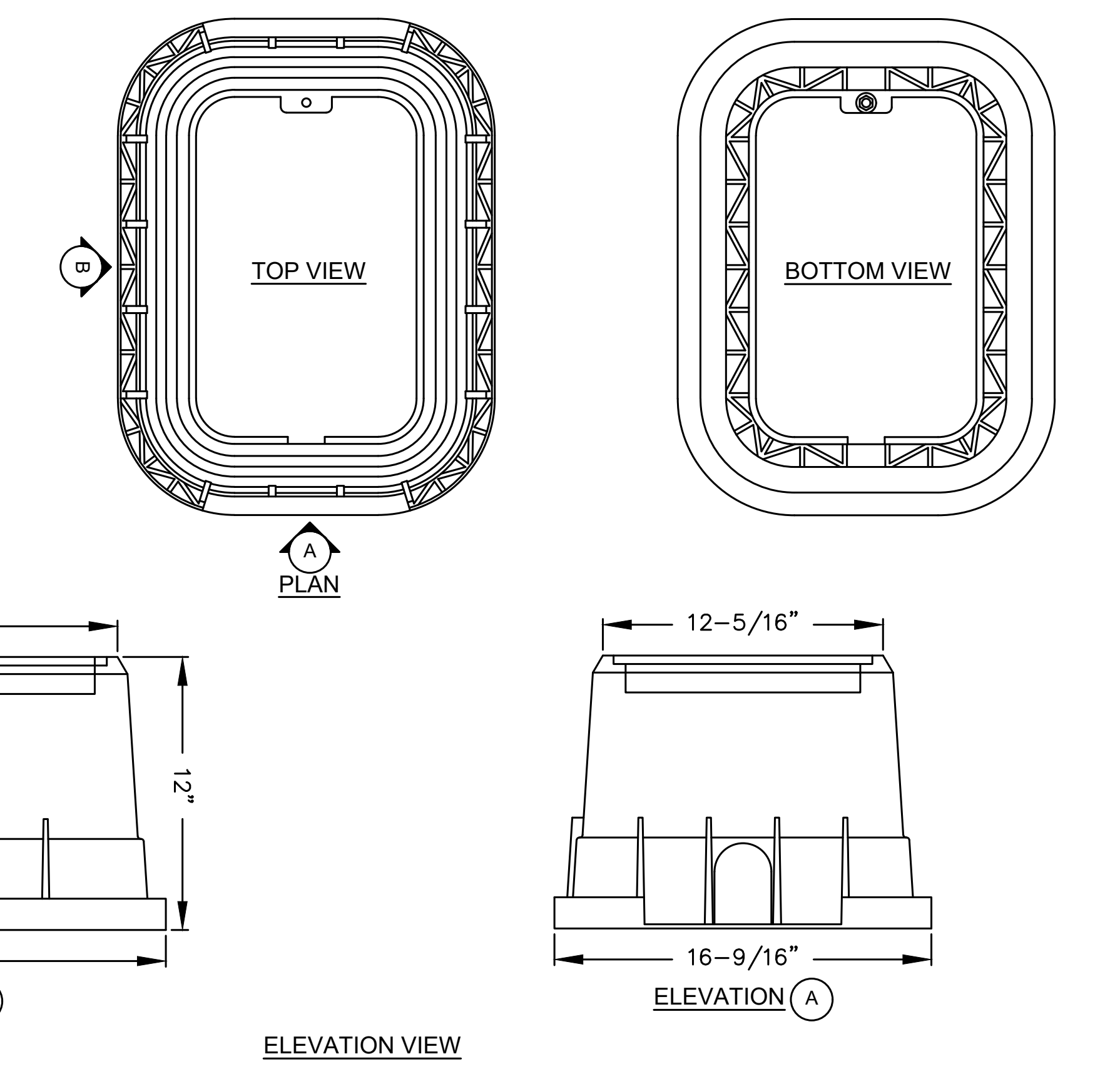

METER BOX WITH RECESSED AMR READING LID SET 1/4" ABOVE GRADE
VARIES
18"
FINISHED GRADE
PAVEMENT
CONC. CURB & GUTTER
8" MIN
10" MAX
EQ.
EQ.
R/W OR PROPERTY LINE
3'-6" MINIMUM
1" FULL PORT ANGLE BALL VALVE WITH ONE OR TWO STEP STYLE COMPRESSION FOR IPS PE INLET AND FEMALE METER THREAD SWIVEL NUT WITH LOCK. ALL INSERTS SHALL BE STAINLESS STEEL
1" CC SINGLE STAINLESS STEEL STRAP SADDLE
12" METER COUPLING WITH 3/4" FEMALE THREAD METER SWIVEL NUT x 3/4" MIPT
BALL CORPORATION STOP WITH AWWA INLETS, ONE OR TWO STEP STYLE COMPRESSION FOR IPS PE, WITH STAINLESS STEEL INSERTS
1"x7-1/2" SPACER FOR 3/4" METERS, 1"x10-3/4" SPACER FOR 1" METERS, SPACER SHALL BE FURNISHED BY PWC
1" IPS POLYETHYLENE PIPE PE 4710, 250 PSI SIDR7 ASTM D2737 ASTM D3350-445574E
NCDOT CONCRETE BRICK METER BOX BASE SEE INSET "A"
WATER MAIN
TRACER WIRE (DO NOT CONNECT TO CORPORATION)
12 GA SINGLE STRAND COATED COPPER WIRE OR COPPER CLAD STEEL TRACING WIRE EXTENDED INTO METER BOX 6" AND WRAPPED AROUND LOCK VALVE
BACK FILL
METER BOX
NCDOT CONCRETE BRICK
1"±1"
SECTION "A-A"
NCDOT CONCRETE BRICK METER BOX BASE
A
A
BOTTOM OF BOX
1"±1"
BRICK METER BOX BASE
INSET "A"
18"
EQ
EQ
EQ
EQ
R/W
℄
SPACER SHALL BE CENTERED IN METER BOX
PLAN

NOTES:
1. ALL MATERIALS TO BE APPROVED BY PWC.
2. SERVICE LATERAL SIZE 1" IPS POLYETHYLENE UNLESS OTHERWISE SPECIFIED.
3. WATER SERVICE LOCK VALVE TO BE LOCATED 18" FROM SANITARY SEWER CLEANOUT STACK WHEN INSTALLED IN SAME DITCH.
4. WHEN INSTALLED IN A PAVED AREA, METER BOX TO BE SET 1/4" ABOVE FINISHED PAVEMENT GRADES AND PAVEMENT FEATHERED TO TOP OF BOX TO PROVIDE DRAIN AWAY FROM BOX.
5. COMPOSITE METER BOXES SHALL BE USED IN TRAFFIC AREAS SEE PWC DETAIL W.4B.
6. INSTALL NCDOT CONCRETE BRICK BASE WITH NO GAPS. DO NOT LAY BRICK ON PIPE. SEE INSET "A".
7. WHERE ASPHALT CURB OR STRIP PAVEMENT EXISTS, THE LOCATION OF BOX SHALL BE AS DIRECTED BY PWC REPRESENTATIVE.
8. DISTANCE FROM TOP OF LOCK VALVE OPERATING STEM TO TOP OF BOX SHALL BE 8" MINIMUM TO 10" MAXIMUM.
9. RESIDENTIAL METER BOX SHALL BE SET 18" FROM R/W TO CENTERLINE OF METER BOX PERPENDICULAR TO THE R/W.
10. COMMERCIAL METER BOX LOCATION SHALL BE AS APPROVED (PREFER NO METER BE INSTALLED LESS THAN 5' FROM BUILDING TO EDGE OF BOX).
11. LATERAL SHALL BE CENTERED ON LOT UNLESS OTHERWISE NOTED.
12. LATERAL SHALL NOT BE BACKFILLED UNTIL INSPECTED AND APPROVED BY PWC PROJECT COORDINATOR.
13. WATER MAIN AND LATERAL SHALL PASS HYDROSTATIC AND STERILIZATION TESTS.
14. BARB-TYPE FITTINGS ARE NOT ACCEPTABLE.
15. SHOULD IT BE NECESSARY TO CRIMP THE WATER SERVICE LATERAL, A FULL CIRCLE REPAIR CLAMP SHALL BE PLACED ON THE CRIMPED AREA.

1" WATER SERVICE LATERAL N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.2	DWG. BY: FAYPWC	1	07/06	RESIZED METER COUPLING
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	2	07/13	REVISED NOTE RE: TRACER WIRE
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	3	07/17	REVISED NOTES

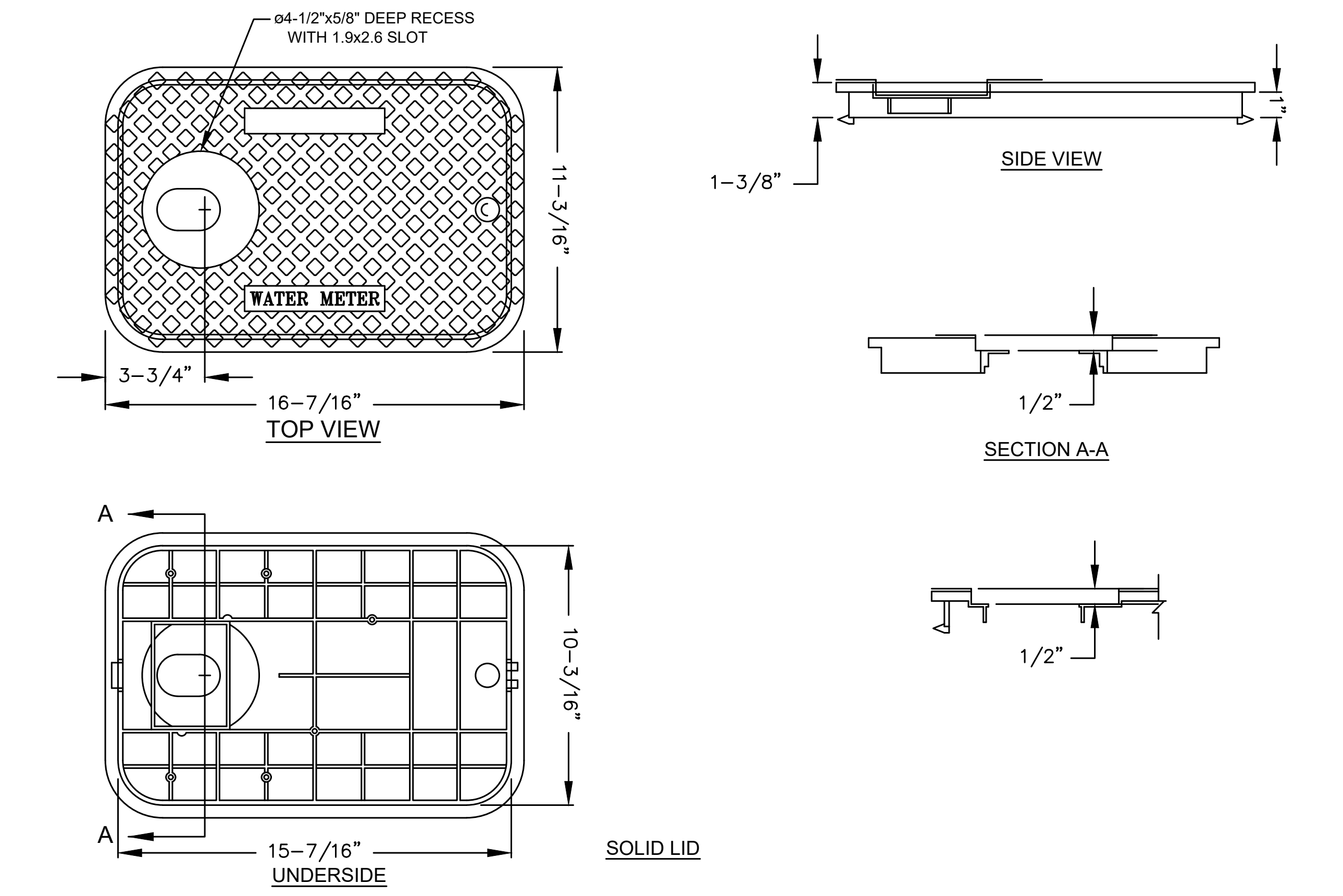
W2-WLAT.dwg

NOTES:
1. ALL MATERIALS SHALL BE APPROVED BY FAYPWC. SEE DRAWING W.4 SHEET 2 OF 2 FOR METER BOX LID DETAIL.
2. METER BOX SHALL NOT BE LOCATED WHERE H-20 LOADINGS CAN IMPACT BOX OR COVER.
3. FOR 1" WATER LATERAL INSTALLATION SEE FAYPWC DETAIL W.2
4. DIMENSION'S ± 1/16 U.N.O.


TOP VIEW
BOTTOM VIEW
B
A
PLAN
17-9/16"
12"
21-13/16"
ELEVATION B
12-5/16"
16-9/16"
ELEVATION A
ELEVATION VIEW

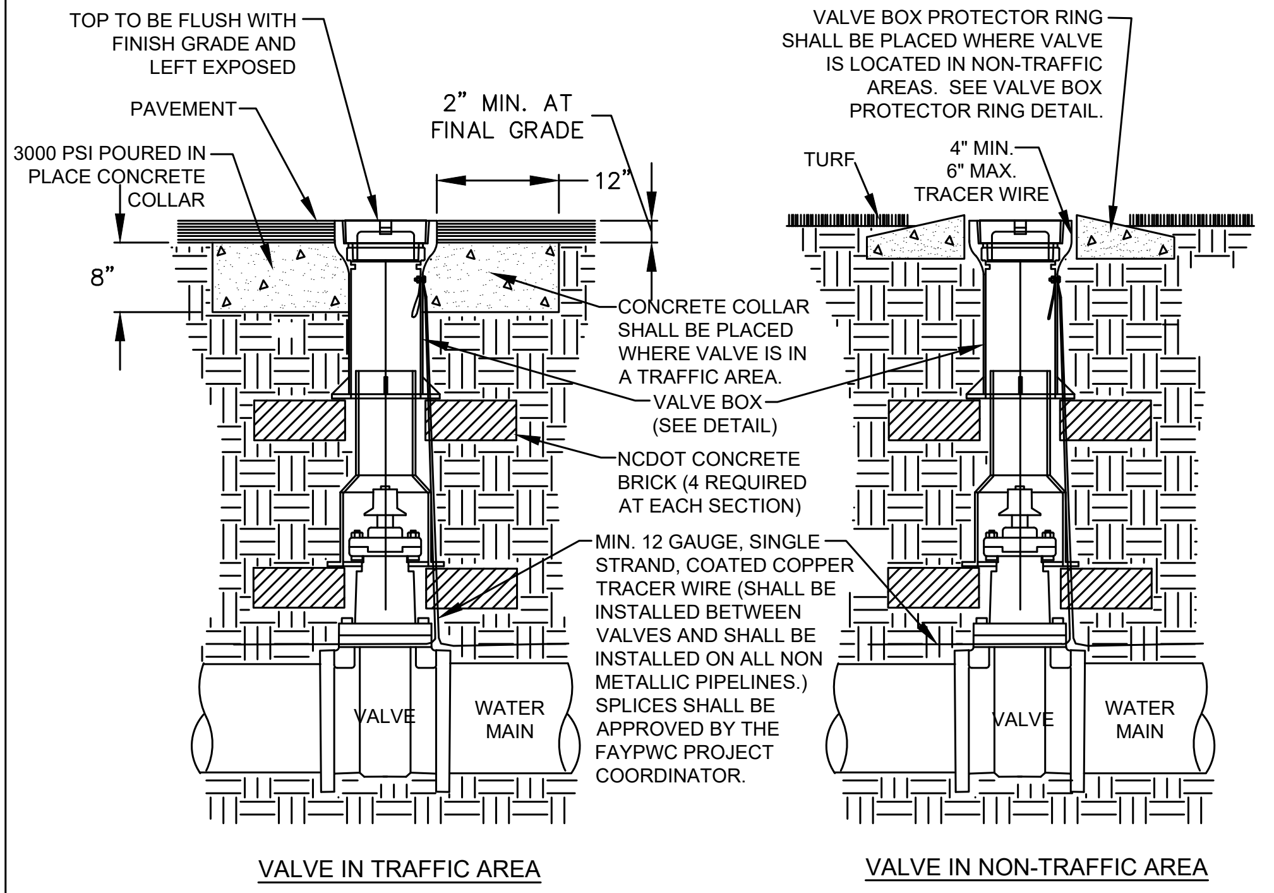
1-INCH METER BOX DETAILS N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 2	DWG. NO. W.4	DWG. BY: FAYPWC	1	03/10	CHANGED BOX DIMENSIONS
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.			
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC			

W4-1IN-METERBOX.dwg


ø4-1/2"x5/8" DEEP RECESS WITH 1.9x2.6 SLOT
WATER METER
11-3/16"
3-3/4"
16-7/16"
TOP VIEW
SIDE VIEW
1-3/8"
1/2"
SECTION A-A
1/2"
A
A
10-3/16"
15-7/16"
UNDERSIDE
SOLID LID

1-INCH METER BOX LID N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 2 OF 2	DWG. NO. W.4	DWG. BY: FAYPWC	1	07/07	REVISED LID
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	1	03/10	CHANGED BOX AND LID DIMENSIONS
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC	2	01/15	REVISED LID

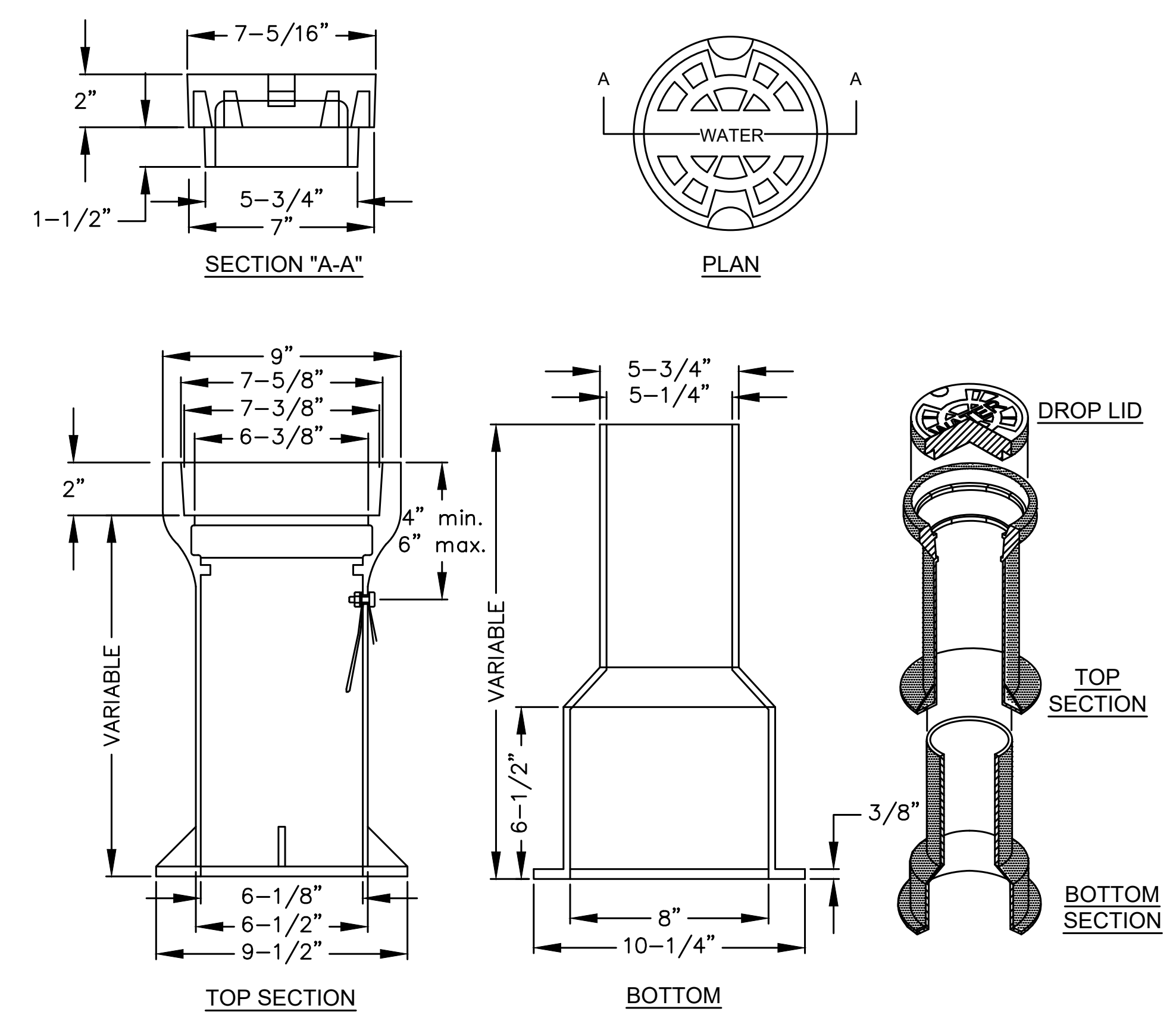
W4-1IN-METERBOX.dwg


TOP TO BE FLUSH WITH FINISH GRADE AND LEFT EXPOSED
PAVEMENT
3000 PSI POURED IN PLACE CONCRETE COLLAR
2" MIN. AT FINAL GRADE
12"
8"
CONCRETE COLLAR SHALL BE PLACED WHERE VALVE IS IN A TRAFFIC AREA.
VALVE BOX (SEE DETAIL)
NCDOT CONCRETE BRICK (4 REQUIRED AT EACH SECTION)
MIN. 12 GAUGE, SINGLE STRAND, COATED COPPER TRACER WIRE (SHALL BE INSTALLED BETWEEN VALVES AND SHALL BE INSTALLED ON ALL NON METALLIC PIPELINES.) SPLICES SHALL BE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
VALVE BOX PROTECTOR RING SHALL BE PLACED WHERE VALVE IS LOCATED IN NON-TRAFFIC AREAS. SEE VALVE BOX PROTECTOR RING DETAIL.
TURF
4" MIN. 6" MAX. TRACER WIRE
VALVE
WATER MAIN
VALVE
WATER MAIN
VALVE IN TRAFFIC AREA
VALVE IN NON-TRAFFIC AREA

NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
2. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING OR CLOW CORP.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. VALVE BODY, BONNET, AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
5. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
6. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250PSI.
7. SEE VALVE BOX DETAIL FOR ADDITIONAL INFORMATION.
8. SEE VALVE BOX PROTECTOR RING DETAIL FOR ADDITIONAL INFORMATION.
9. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.

GATE VALVE N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.6	DWG. BY: FAYPWC	1	6/06	ADDED NOTE NO. 9
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	2	7/09	CLARIFIED NOTES
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC			

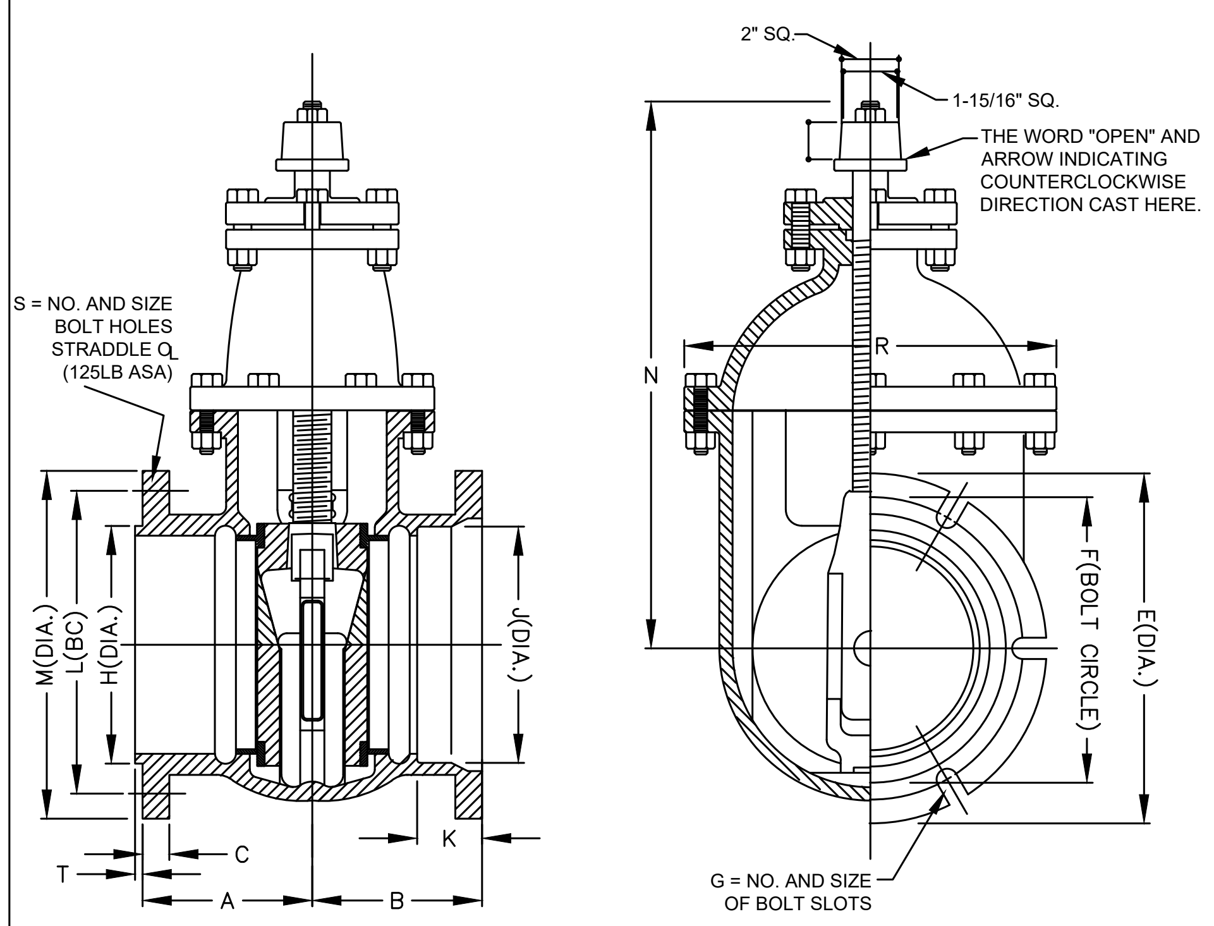
W6-GATEVALVE.dwg


7-5/16"
2"
5-3/4"
7"
1-1/2"
SECTION "A-A"
A
A
WATER
PLAN
9"
7-5/8"
7-3/8"
6-3/8"
2"
VARIABLE
6-1/8"
6-1/2"
9-1/2"
TOP SECTION
5-3/4"
5-1/4"
VARIABLE
6-1/2"
8"
10-1/4"
BOTTOM
DROP LID
4" min.
6" max.
TOP SECTION
3/8"
BOTTOM SECTION

NOTES:
1. VALVE BOX SHALL BE 3 PART SLIP-TYPE MANUFACTURED BY SIGMA CORPORATION (VB-462), TYLER UNION (6855 SERIES), STAR PIPE PRODUCTS (VB-0004), OR APPROVED EQUAL.
2. VALVE BOX SHALL BE 3-PIECE CLOSE GRAINED CAST IRON SLIP-TYPE VALVE BOX WITH A MINIMUM THICKNESS OF 3/16".
3. VALVE BOX SHALL HAVE RAISED LETTERS "WATER" CAST INTO COVER.
4. VALVE BOX SHALL HAVE 3/8" HOLE DRILLED IN TOP SECTION THRU WHICH A 1/4"x1-1/2" GALVANIZED BOLT SHALL BE USED TO SECURE A MINIMUM 12 GAUGE, SINGLE STRAND, COATED COPPER OR COPPER CLAD STEEL TRACER WIRE FOR NON-FERROUS PIPE. A 1/2" WASHER SHALL BE USED BETWEEN NUT AND INSIDE OF BOX. TIGHTEN HAND TIGHT.
5. SCREW TYPE VALVE BOXES ARE NOT ACCEPTABLE.
6. DIMENSIONS SHOWN VARY BASED UPON THE MANUFACTURER. ACTUAL DIMENSIONS SHALL BE APPROVED BY FAYPWC.
7. VALVE BOX SECTIONS ARE REQUIRED. THE USE OF PIPE IN LIEU OF VALVE BOX SECTIONS SHALL NOT BE PERMITTED.
8. TRACING WIRE SHALL BE INSTALLED OUTSIDE OF BOX.
9. REFER TO FAYPWC DETAIL W.6 FOR INSTALLATION REQUIREMENTS.

VALVE BOX N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.7	DWG. BY: FAYPWC	1	07/09	ADDED NOTES 7, 8, AND CLARIFIED NOTES
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	2	01/14	REVISED NOTES 1, 4, 6
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC			

W7-VALVEBOX.dwg

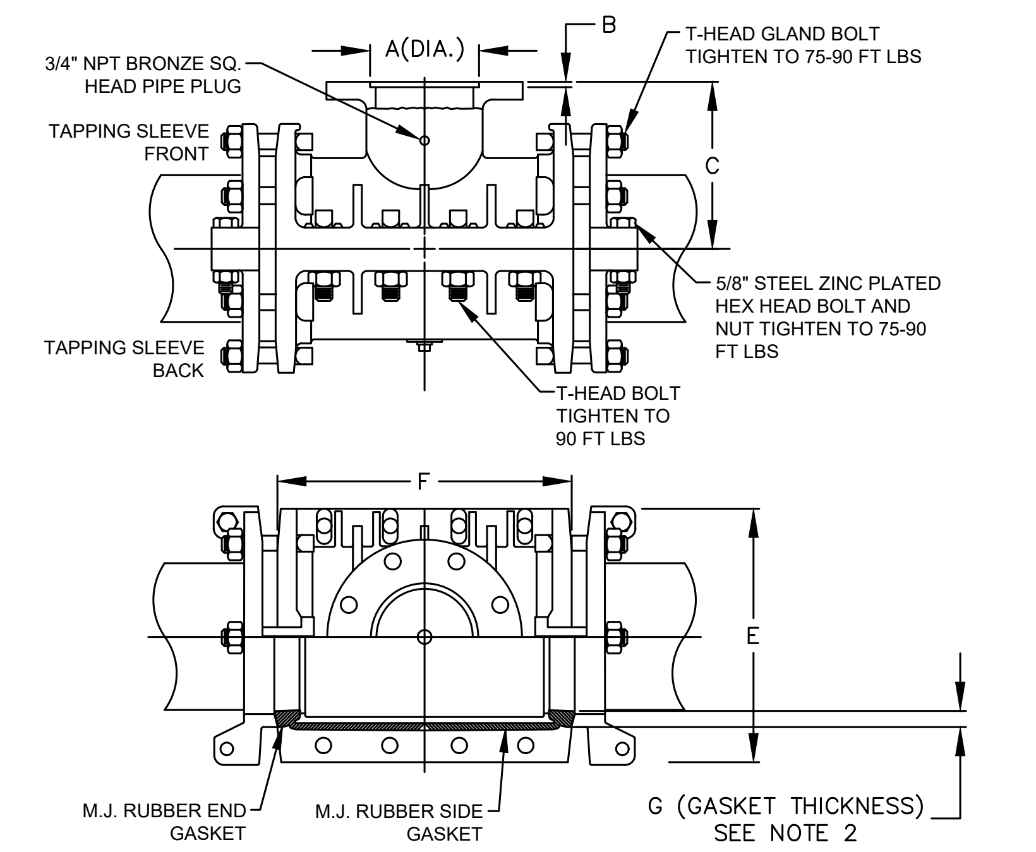

2" SQ.
1-15/16" SQ.
THE WORD "OPEN" AND ARROW INDICATING COUNTERCLOCKWISE DIRECTION CAST HERE.
S = NO. AND SIZE BOLT HOLES STRADDLE ℄ (12SLB ASA)
N
R
M(DIA.)
L(BC)
H(DIA.)
J(DIA.)
F(BOLT CIRCLE)
E(DIA.)
C
K
T
A
B
G = NO. AND SIZE OF BOLT SLOTS

NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
2. RAISED MALE FACE SHALL BE REQUIRED TO PROVIDE FOR PROPER ALIGNMENT OF THE TAPPING SLEEVE.
3. ALL VALVES SHALL HAVE 2" SQUARE OPERATING NUT AND SHALL OPEN COUNTERCLOCKWISE.
4. RESILIENT WEDGE GATE VALVE SHALL BE AS MANUFACTURED BY MUELLER CORP., AMERICAN DARLING, CLOW CORP., OR APPROVED EQUAL.
5. VALVE BODY, BONNET, AND GATE SHALL BE IN ACCORDANCE WITH AWWA C-509/C-515 AND NSF61.
6. VALVE BODY AND BONNET SHALL BE COATED ON ALL INTERIOR AND EXTERIOR SURFACES WITH A FUSION BONDED EPOXY IN ACCORDANCE WITH AWWA C-550-90.
7. ALL VALVES 24" AND SMALLER SHALL HAVE A SAFE WORKING PRESSURE OF 250PSI.
8. SEE TAPPING SLEEVE (DETAIL W.10 OR W.11) FOR ADDITIONAL INFORMATION.
9. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. VALVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
10. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.

VALVE SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	R	S	T	TURNS TO OPEN	WEIGHT W/ACC
4	4-3/8	5-7/8	15/16	1-1/2	9	7-1/2	4-7/8	4-63/64	4-29/32	2-1/2	7-1/2	9	14-1/8	9	8-3/4	1/4	14	118
6	6-7/8	6-1/4	1	1-5/8	11	9-1/2	6-7/8	6-63/64	7	2-1/2	9-1/2	11	17-5/8	11-3/4	8-7/8	1/4	21	175
8	6-1/2	7-1/4	1-1/8	1-3/4	13-1/4	11-3/4	6-7/8	8-63/64	9-5/32	2-1/2	11-3/4	13-1/2	21	14-1/4	8-7/8	1/4	28	274
12	7	8-1/4	1-1/4	1-3/4	17-7/8	16-1/4	8-7/8	12-63/64	13-5/16	2-1/2	17	19	28-1/4	19-1/8	12-1	1/4	39	570
16	8-1/2	9-1/8	1-7/16	2-1/16	23	21	12-7/8	16-15/16	17-35/64	3-1/2	21-1/4	23-1/2	38-5/8	26-1/8	16-1 1/8	1/4	55	1140
24	10-1/2	14-1/4	1-7/8	2-1/2	31-3/4	30	16-7/8	24-15/16	25-15/16	3-1/2	29-1/2	32	54-5/8	37-5/8	20-1 3/8	5/16	79	3225

TAPPING VALVE N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.9	DWG. BY: FAYPWC	1	07/09	ADDED NOTE 10, REVISED 4 AND 5
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	2	07/13	REVISED NOTES 4, 8, 10
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC			

W9-M.J.-TAPPING-VALVE.dwg


3/4" NPT BRONZE SQ. HEAD PIPE PLUG
A(DIA.)
B
T-HEAD GLAND BOLT TIGHTEN TO 75-90 FT LBS
TAPPING SLEEVE FRONT
C
5/8" STEEL ZINC PLATED HEX HEAD BOLT AND NUT TIGHTEN TO 75-90 FT LBS
TAPPING SLEEVE BACK
T-HEAD BOLT TIGHTEN TO 90 FT LBS
F
E
M.J. RUBBER END GASKET
M.J. RUBBER SIDE GASKET
G (GASKET THICKNESS) SEE NOTE 2

NOTES:
1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS. SLEEVE BODY SHALL BE DUCTILE IRON ASTM A536.
2. MECHANICAL JOINT TAPPING SLEEVES SHALL BE AS MANUFACTURED BY CLOW, M & H, MUELLER, OR AMERICAN AND SHALL BE FURNISHED WITH SPLIT GLANDS, SPLIT END GASKET, BOLTS, ETC. THE OUTLET FLANGE SHALL BE CL 125 PER ANSI B16.1 COMPATIBLE WITH APPROVED TAPPING VALVES.
3. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
4. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT FOR A GOOD SEAL PRIOR TO INSTALLATION.
5. EXTERIOR OF TAPPING SLEEVE SHALL BE COATED WITH 2 COATS ASPHALTIC VARNISH MIL-C450.
6. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
7. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

SLEEVE FOR USE WITH CI OR DI PIPE

SLEEVE SIZE PIPE X BRANCH	6X6	8X6	8X8	12X6	12X8	12X12	16X6	16X8	16X12	24X6	24X8	24X12	24X16	24X24	30X6	30X8	30X12	30X16	30X24
A DIA +.031-.000	7.016	7.016	9.016	7.016	9.016	13.016	7.016	9.016	13.016	11.00	13.5	19.0	23.5	32.0	11.00	13.5	19.0	23.5	32.0
B	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31
C	7-7/8	9-1/16	9	11-5/8	11-7/8	12-7/8	14-1/8	14-1/2	14-7/8	19.5	19.5	19.5	20.5	20.5	23.25	23.25	23.25	23.75	23.75
E	11-3/4	13-7/8	13-7/8	18-1/2	18-1/2	18-1/2	23-1/2	23-1/2	23-1/2	35.5	35.5	35.5	35.5	35.5	43.37	43.37	43.37	43.37	43.37
F	13-1/2	15	15	19-1/2	19-1/2	19-1/2	22-1/2	22-1/2	22-1/2	18.0	18.0	24.0	30.0	36.0	24.0	24.0	24.0	36.0	36.0

DUCTILE IRON TAPPING SLEEVE N.T.S.	FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.		NO.	DATE	REVISION
SHEET NO. 1 OF 1	DWG. NO. W.10	DWG. BY: FAYPWC	1	07/09	REVISED NOTE 6/REMOVED NOTE 8
	DATE: JAN. 01, 2024	APPROVED BY: M.M.M.	2	07/13	REVISED NOTES 6, 7
	WATER RESOURCES ENGINEERING DEPARTMENT	PWC			

W10-M.J.-TAPPING-SLEEVE.dwg

PWC WATER DETAILS

PLAN TYPE: 100% PLANS
SHEET NUMBER 28 OF 45

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE N C
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
SEAL 045249
2AFE0F1BD88840D...
7/15/2025

REV. #	REVISIONS DESCRIPTION	REV.BY DATE

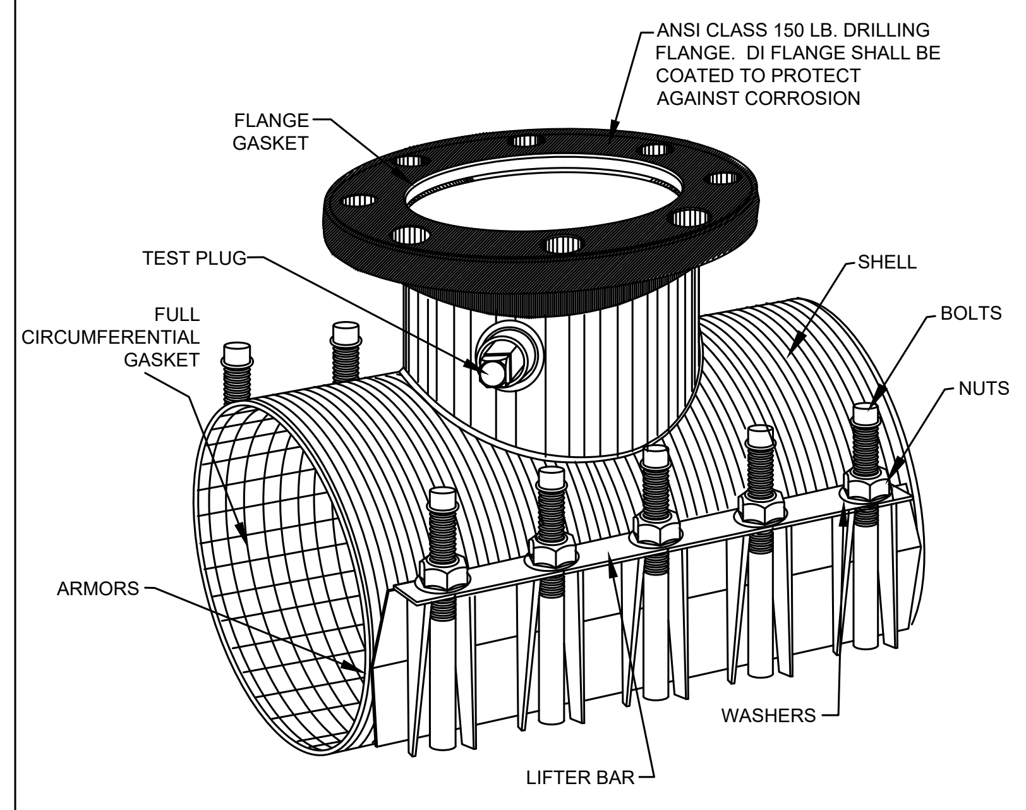
ISSUED FOR CONSTRUCTION

DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH
PROJECT NAME : TRYON DRAINAGE
SCALE : NOT TO SCALE
DATE : APRIL 2024

PROJECT NO. KH 011017025
SUB-LEDGER NO.

Plotted By: Anderson, Nolen Sheet Set: Tryon Drainage UC Layout: 28 PWC WATER DETAILS July 14, 2025 09:42:47am K:\RAL_Roadway\011017025_Tryon_Drainage\Utilities\UC\Plan Sheets\UTILITY PLANS.dwg

NOMINAL PIPE SIZE (INCH)	BRANCH SIZE	APPROX. WT. LBS.
4"	3",4"	28,30
6"	3",4",6"	36,38,45
8"	3",4",6",8"	42,44,48,66
10"	3",4",6",8",10"	45,48,55,70,80,
12"	3",4",6",8",10",12"	50,52,60,81,96,143
16"	3",4",6",8",10",12"	78,80,85,100,115,172
24"	3",4",6",8",10",12"	85,87,90,100,145,230


ANSI CLASS 150 LB. DRILLING FLANGE. DI FLANGE SHALL BE COATED TO PROTECT AGAINST CORROSION
FLANGE GASKET
TEST PLUG
SHELL
BOLTS
NUTS
FULL CIRCUMFERENTIAL GASKET
ARMORS
WASHERS
LIFTER BAR

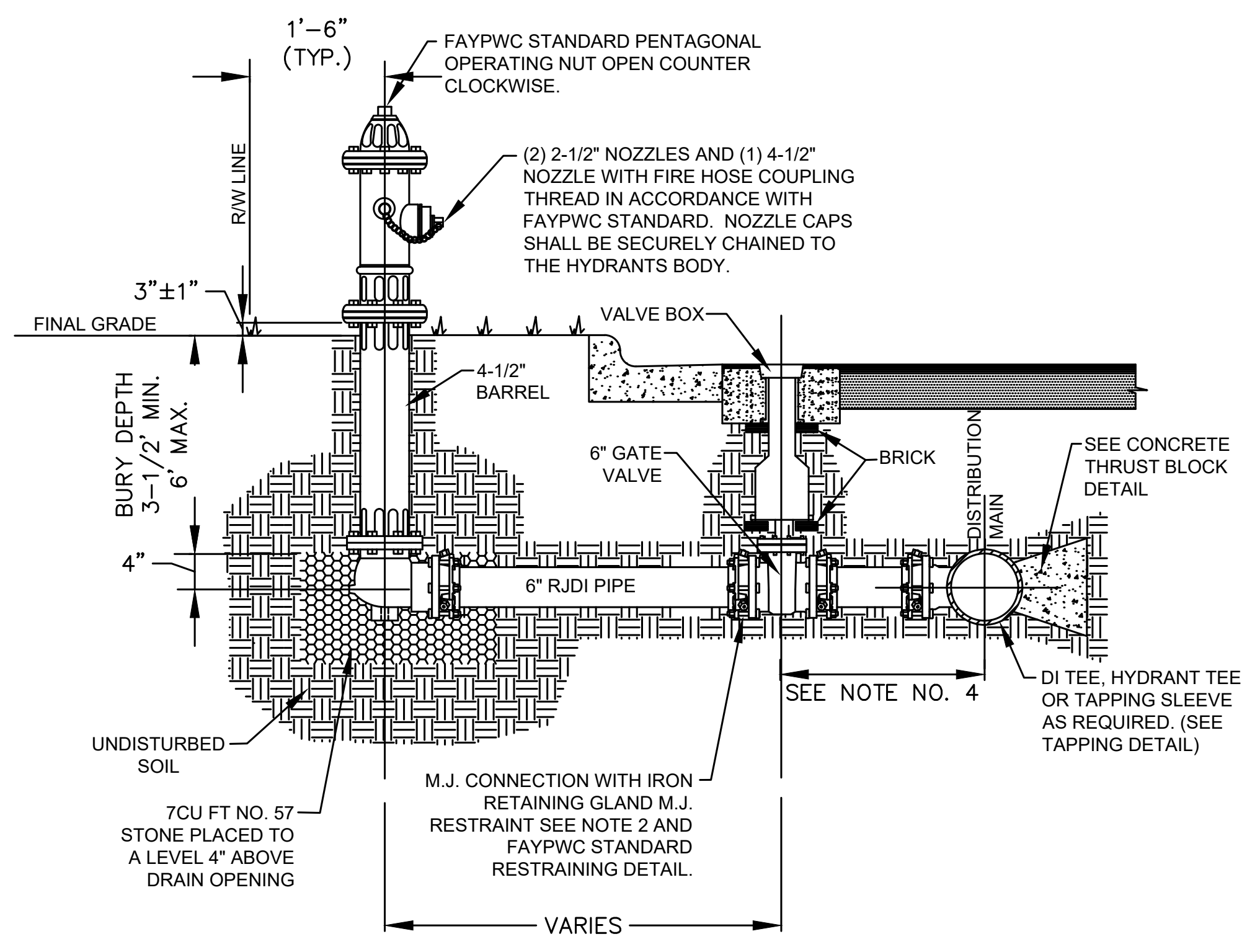
NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH FAYPWC STANDARDS.
2. TAPPING SLEEVES SHALL BE AS MANUFACTURED BY ROMAC, SMITH-BLAIR, OR APPROVED EQUAL.
3. STAINLESS STEEL TAPPING SLEEVE MAY BE UTILIZED FOR ALL TAPPING OF MAINS UP TO AND INCLUDING 24" DIAMETER WITH 12" OR LESS BRANCH. BRANCH GREATER THAN 12" SHALL REQUIRE FULL BODY D.I. M.J. TAPPING SLEEVE (SEE DETAIL W.10).
4. SHELL AND LUGS SHALL BE STAINLESS STEEL PER ASTM A 240, TYPE 304 AND 304L.
5. BOLTS SHALL BE 5/8" UNC ROLLED THREAD, STAINLESS STEEL PER ASTM A 193 TYPE 304 4" NOM. PIPE SIZE SHALL HAVE MINIMUM 1/2" BOLTS.
6. NUTS SHALL BE HEAVY HEX STAINLESS STEEL PER ASTM A-194, TYPE 304.
7. WASHERS SHALL BE STEEL AND PLASTIC LUBRICATING WASHER.
8. GASKETS SHALL BE VIRGIN SBR PER ASTM D 2000 MAA 610, COMPOUNDED FOR WATER AND SEWER SERVICE.
9. FLANGE SHALL BE DUCTILE IRON PER ASTM 536, GRADE 65-45-12, OR STAINLESS STEEL PER ASTM A-240, TYPE 304.
10. DIMENSIONS SHOWN ARE FOR REFERENCE AND MAY VARY BASED UPON MANUFACTURER. SLEEVES SHALL BE SIMILAR IN NATURE TO THAT SHOWN AND SHALL NOT DEVIATE IN ESSENTIAL DETAILS.
11. PIPE SURFACES SHALL BE CLEANED THOROUGHLY TO PERMIT A GOOD SEAL PRIOR TO INSTALLATION.
12. ALL TAPPING SLEEVES SHALL BE HYDROSTATICALLY PRESSURE TESTED IN ACCORDANCE WITH FAYPWC SPECIFICATIONS. TEST SHALL BE WITNESSED AND APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO BEGINNING TAPPING PROCESS.
13. THE NUMBER OF BOLTS, NUTS AND WASHERS SHOWN ARE FOR ILLUSTRATION ONLY, ACTUAL QUANTITY SHALL BE AS RECOMMENDED BY THE SLEEVE MANUFACTURER FOR THE REQUIRED SERVICE.
14. SEE DETAILS W.9 AND W.17 FOR ADDITIONAL REQUIREMENTS.

STAINLESS STEEL TAPPING SLEEVE
N.T.S.
SHEET NO. 1 OF 1
DWG. NO. W.11
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	07/09	ADDED NOTES 2, 12, AND CLARIFIED NOTES
2	07/13	REVISED NOTES 3, 12, 14

W11-SS-TAPPING-SLEEVE.dwg


1'–6"
(TYP.)
FAYPWC STANDARD PENTAGONAL OPERATING NUT OPEN COUNTER CLOCKWISE.
R/W LINE
(2) 2-1/2" NOZZLES AND (1) 4-1/2" NOZZLE WITH FIRE HOSE COUPLING THREAD IN ACCORDANCE WITH FAYPWC STANDARD. NOZZLE CAPS SHALL BE SECURELY CHAINED TO THE HYDRANTS BODY.
3"±1"
FINAL GRADE
VALVE BOX
4-1/2" BARREL
BURY DEPTH 3–1/2' MIN. 6' MAX.
6" GATE VALVE
BRICK
DISTRIBUTION MAIN
SEE CONCRETE THRUST BLOCK DETAIL
4"
6" RJDI PIPE
SEE NOTE NO. 4
DI TEE, HYDRANT TEE OR TAPPING SLEEVE AS REQUIRED. (SEE TAPPING DETAIL)
UNDISTURBED SOIL
7CU FT NO. 57 STONE PLACED TO A LEVEL 4" ABOVE DRAIN OPENING
M.J. CONNECTION WITH IRON RETAINING GLAND M.J. RESTRAINT SEE NOTE 2 AND FAYPWC STANDARD RESTRAINING DETAIL.
VARIES

FIRE HYDRANT AND VALVE INSTALLATION
N.T.S.
SHEET NO. 1 OF 2
DWG. NO. W.13
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	08/25/23	REVISED NOTES 16 AND 17
2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
3	07/01/16	REVISED NOTES

W13-FHCC.dwg

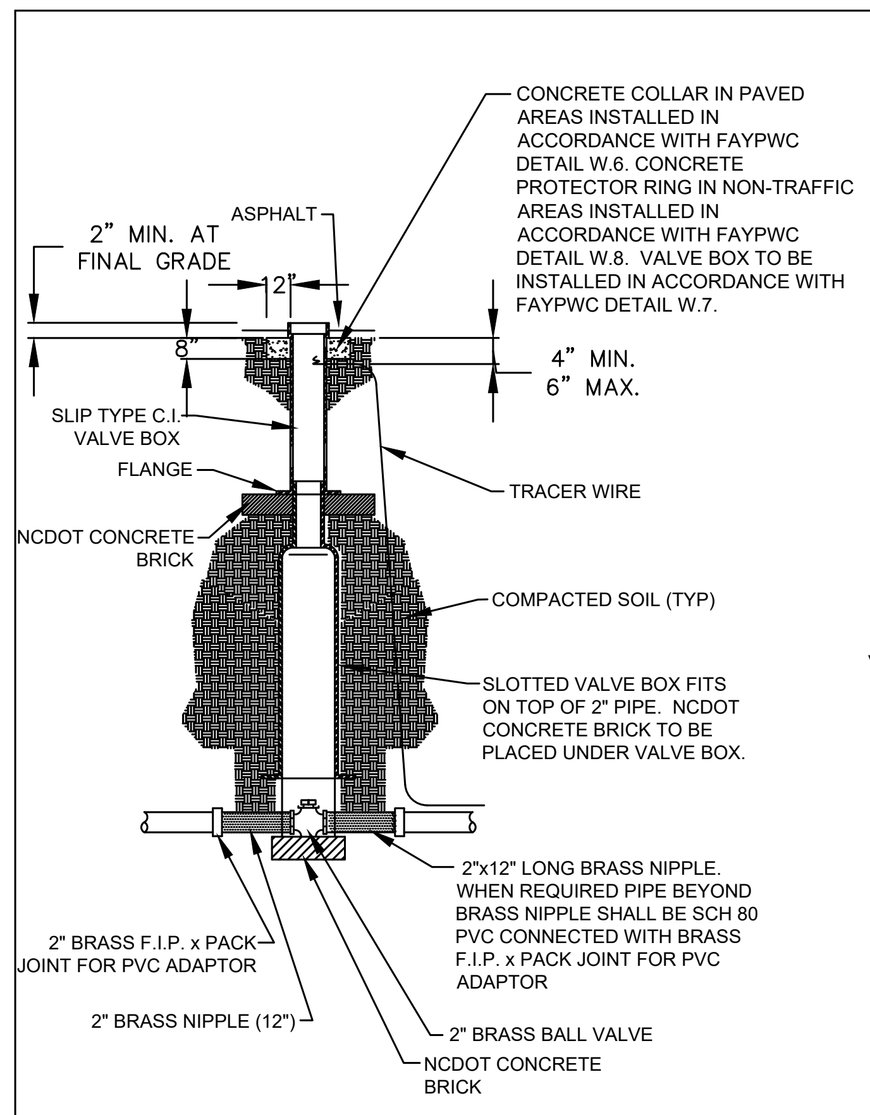
NOTES:

1. FIRE HYDRANT SHALL BE MODELS MANUFACTURED BY MUELLER CO. (CENTURIAN), AMERICAN VALVE AND HYDRANT CO. (MODEL MARK 73), CLOW MEDALLION OR APPROVED EQUAL.
2. ALL VALVES AND HYDRANTS SHALL HAVE M.J. CONNECTIONS WITH IRON RETAINING GLAND M.J. RESTRAINT.
3. HYDRANT VALVE SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE MAIN, BUT DO NOT PLACE VALVE IN PROPOSED OR EXISTING CURB AND GUTTER. IF THE STREET IS SOIL AND NO PAVING IS TO BE DONE AT THIS TIME, THE LOCATION OF THE VALVE IS TO BE DETERMINED BY THE PWC PROJECT COORDINATOR.
4. HYDRANT BRANCH SHALL NOT BE BACK FILLED UNTIL INSPECTED AND APPROVED BY FAYPWC PROJECT COORDINATOR.
5. GATE VALVE AND BOX SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL.
6. HYDRANT EXTENSIONS AND/OR OFFSETS SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR.
7. FIRE HYDRANT CONNECTIONS TO EXISTING WATER MAINS SHALL BE MADE USING A TAPPING SLEEVE AND VALVE BY WET TAP CONNECTION. THE TAPPING SLEEVE AND VALVE SHALL BE HYDROSTATICALLY TESTED PRIOR TO STARTING THE TAP IN THE PRESENCE OF THE FAYPWC PROJECT COORDINATOR.
8. THE PROPOSED LOCATION MAY BE RELOCATED BY THE FAYPWC PROJECT COORDINATOR IF CONFLICTS EXIST (IE: GAS SERVICES, UGE, TELEPHONE, ETC.).
9. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING WATER MAIN MATERIAL, SIZE, AND DEPTH FOR EACH FIRE HYDRANT LOCATION PRIOR TO ORDERING MATERIALS. THE CONTRACTOR WILL BE REQUIRED TO SUPPLY VARIOUS LENGTHS OF BARRELS AND HYDRANT EXTENSIONS (NO MORE THAN ONE HYDRANT EXTENSION MAY BE USED PER HYDRANT). ADDITIONAL FITTINGS AND/OR HYDRANT EXTENSIONS OR OFFSET CONNECTORS MAY BE REQUIRED TO MAINTAIN PROPER COVER AS APPROVED BY THE FAYPWC PROJECT COORDINATOR.
10. CONTRACTOR SHALL NOTIFY THE APPROPRIATE FIRE DEPARTMENT OF OUT OF SERVICE FIRE HYDRANTS PRIOR TO CONSTRUCTION.
11. FIRE HYDRANT SHALL BE FIELD PAINTED IN ACCORDANCE WITH FAYPWC STANDARDS, BEFORE PROJECT IS ACCEPTED. HYDRANTS SHALL BE PAINTED WITH A GREEN BONNET AND YELLOW BODY. PAINT SHALL BE IN ACCORDANCE WITH FAYPWC REQUIREMENTS. THE CONTRACTOR SHALL PAINT ALL EXPOSED EXTERIOR FIRE HYDRANT SURFACES PRIOR TO FINAL ACCEPTANCE BY FAYPWC. ALL PAINTING SHALL BE DONE IN STRICT ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND SHALL BE SATISFACTORY TO THE FAYPWC.
12. PROTECTIVE COVERING SHALL BE UTILIZED, AS NECESSARY FOR PROTECTION OF ADJACENT AREAS, EQUIPMENT, SHRUBBERY, OR OTHER ITEMS. AFTER PAINTING IS COMPLETE, THE ENTIRE AREA SHALL BE THOROUGHLY CLEANED UP.
13. ALL PAINT MATERIALS SHALL BE IN THE ORIGINAL SEALED CONTAINERS BEARING THE MANUFACTURER'S NAME.
14. WHERE NECESSARY, THINNING SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND AS APPROVED BY FAYPWC.
15. ALL SURFACES TO BE PAINTED SHALL BE CLEAN AND DRY.
16. THE BONNET OF THE FIRE HYDRANT SHALL BE PAINTED A DARK GREEN, UTILIZING AN OIL BASE GLOSS, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE FOREST GREEN, AS MANUFACTURED BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER A11T204 BASE AND SW7458 FOREST GREEN. PAINT SHOULD BE MIXED AT THE STORE. SAMPLES SHALL BE SUBMITTED IN ORDER FOR FAYPWC TO CONSIDER ALTERNATIVE PAINT MANUFACTURERS.
17. THE REMAINDER OF THE FIRE HYDRANT SHALL BE PAINTED SAFETY YELLOW, UTILIZING AN OIL BASE GLOSS, WITH A FINAL DRY MIL THICKNESS OF 4 TO 6 MILS. MULTIPLE COATS MAY BE NECESSARY TO ACHIEVE THE FINAL REQUIRED DRY MIL THICKNESS. THE PAINT SHALL BE SAFETY YELLOW, AS MANUFACTURED BY THE SHERWIN-WILLIAMS COMPANY, PART NUMBER B54Y37 BASE AND 617-4072 SAFETY YELLOW. PAINT SHOULD BE MIXED AT THE STORE. SAMPLES SHALL BE SUBMITTED IN ORDER FOR FAYPWC TO CONSIDER ALTERNATE PAINT MANUFACTURERS.

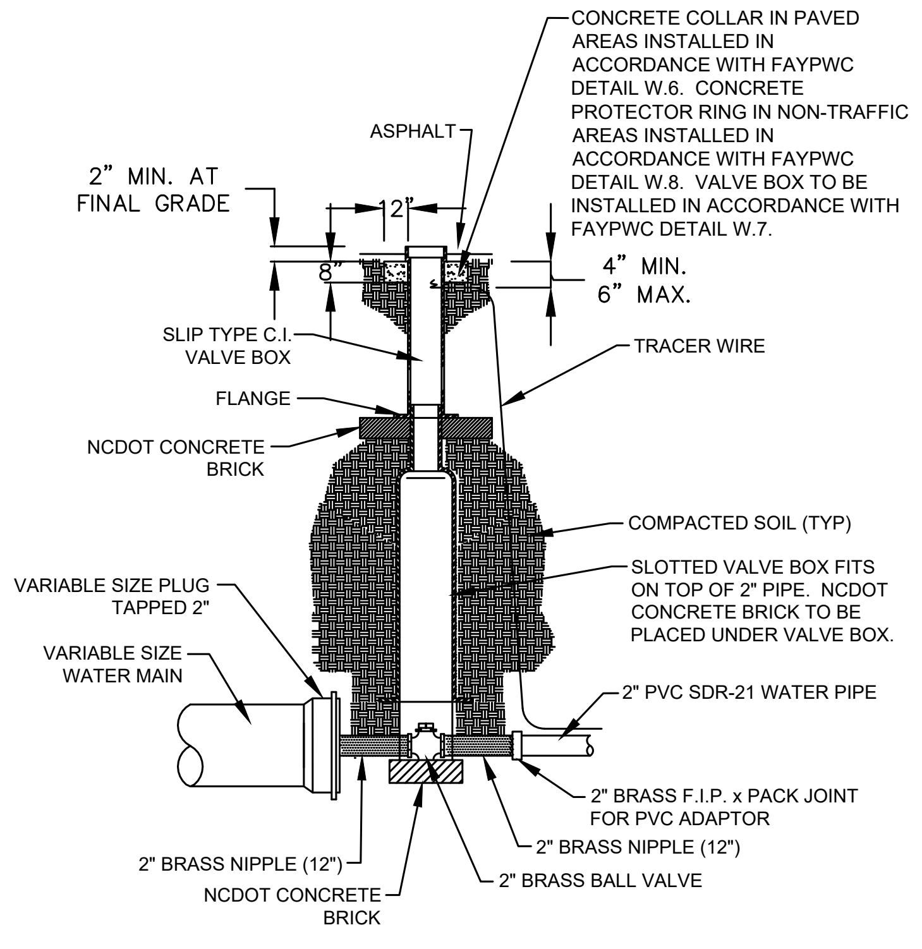
FIRE HYDRANT AND VALVE INSTALLATION
N.T.S.
SHEET NO. 2 OF 2
DWG. NO. W.13
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	08/25/23	REVISED NOTES 16 AND 17
2	07/01/09	REVISED NOTE NO. 2, REMOVED NOTE NO. 3 AND ALTERED RESTRAINT DETAIL
3	07/01/16	REVISED NOTES

W13-FHCC.dwg


CONCRETE COLLAR IN PAVED AREAS INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.6. CONCRETE PROTECTOR RING IN NON-TRAFFIC AREAS INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.8. VALVE BOX TO BE INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.7.
ASPHALT
2" MIN. AT FINAL GRADE
12"
8"
4" MIN. 6" MAX.
SLIP TYPE C.I. VALVE BOX
FLANGE
TRACER WIRE
NCDOT CONCRETE BRICK
COMPACTED SOIL (TYP)
SLOTTED VALVE BOX FITS ON TOP OF 2" PIPE. NCDOT CONCRETE BRICK TO BE PLACED UNDER VALVE BOX.
2"x12" LONG BRASS NIPPLE. WHEN REQUIRED PIPE BEYOND BRASS NIPPLE SHALL BE SCH 80 PVC CONNECTED WITH BRASS F.I.P. x PACK JOINT FOR PVC ADAPTOR
2" BRASS F.I.P. x PACK JOINT FOR PVC ADAPTOR
2" BRASS NIPPLE (12")
2" BRASS BALL VALVE
NCDOT CONCRETE BRICK

2" MAIN LINE VALVE

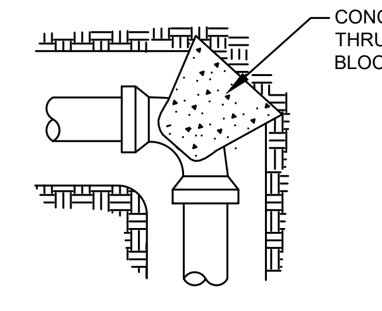

CONCRETE COLLAR IN PAVED AREAS INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.6. CONCRETE PROTECTOR RING IN NON-TRAFFIC AREAS INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.8. VALVE BOX TO BE INSTALLED IN ACCORDANCE WITH FAYPWC DETAIL W.7.
ASPHALT
2" MIN. AT FINAL GRADE
12"
8"
4" MIN. 6" MAX.
SLIP TYPE C.I. VALVE BOX
TRACER WIRE
FLANGE
NCDOT CONCRETE BRICK
COMPACTED SOIL (TYP)
SLOTTED VALVE BOX FITS ON TOP OF 2" PIPE. NCDOT CONCRETE BRICK TO BE PLACED UNDER VALVE BOX.
VARIABLE SIZE PLUG TAPPED 2"
VARIABLE SIZE WATER MAIN
2" PVC SDR-21 WATER PIPE
2" BRASS F.I.P. x PACK JOINT FOR PVC ADAPTOR
2" BRASS NIPPLE (12")
2" BRASS NIPPLE (12")
2" BRASS BALL VALVE
NCDOT CONCRETE BRICK

VARIABLE SIZE MAIN LINE TAPPED 2"

2" VALVE INSTALLATION
N.T.S.
SHEET NO. 1 OF 1
DWG. NO. W.15A
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

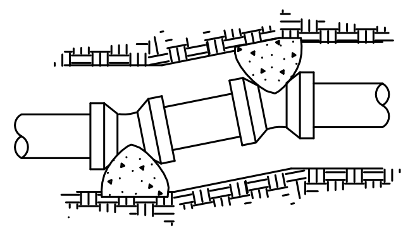
NO.	DATE	REVISION
1	06/06	ADDED NOTE ON CONCRETE COLLAR
2	07/17	UPDATED NOTES

W15A-2-VALVE-INSTALLATION.dwg

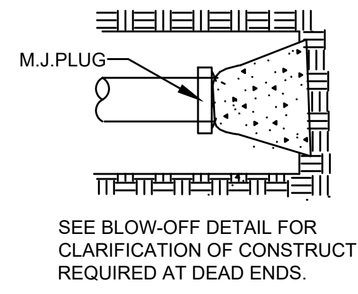

CONCRETE THRUST BLOCK (TYP.)

ELBOW

MINIMUM BEARING AREA EACH DIRECTION OF THRUST IN SQUARE FEET (based on soil supporting value of 2,000psf @ 200 psig test pressure)				
PIPE SIZE	TEES & DEADENDS	90° ELBOWS	45° ELBOW & CROSSES	22-1/2° ELBOWS
6"	4	6	3	2
8"	7	10	5	3
12"	15	21	11	6

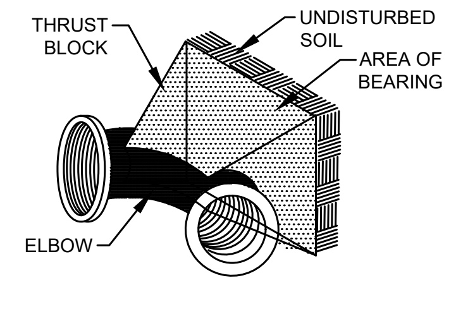


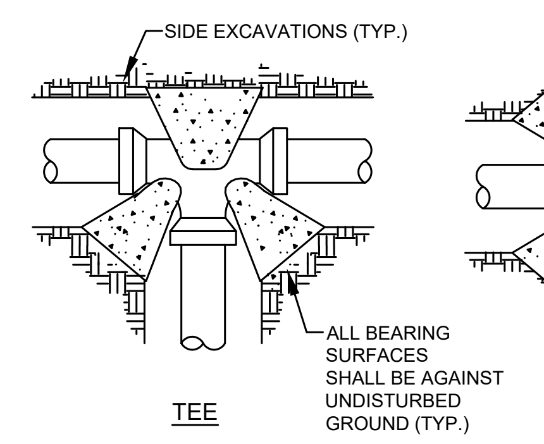
HORIZONTAL BEND



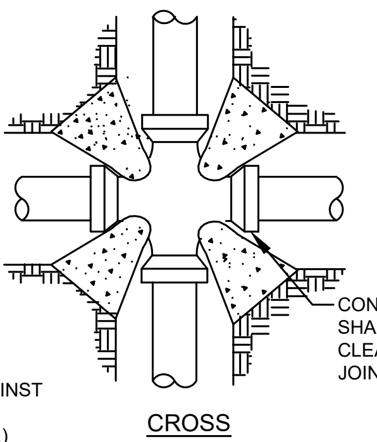
SEE BLOW-OFF DETAIL FOR CLARIFICATION OF CONSTRUCTION REQUIRED AT DEAD ENDS.

DEAD END

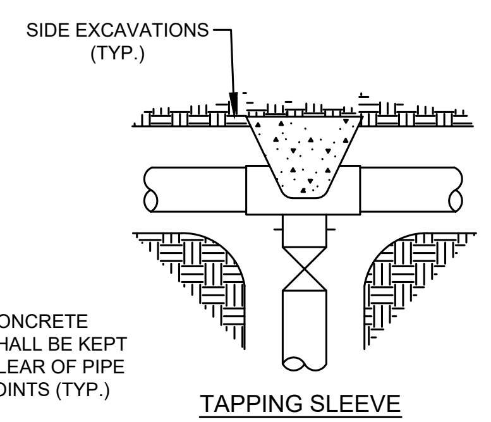

THRUST BLOCK
UNDISTURBED SOIL
AREA OF BEARING
ELBOW


SIDE EXCAVATIONS (TYP.)
ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED GROUND (TYP.)

TEE


CONCRETE SHALL BE KEPT CLEAR OF PIPE JOINTS (TYP.)

CROSS


SIDE EXCAVATIONS (TYP.)

TAPPING SLEEVE AND VALVE

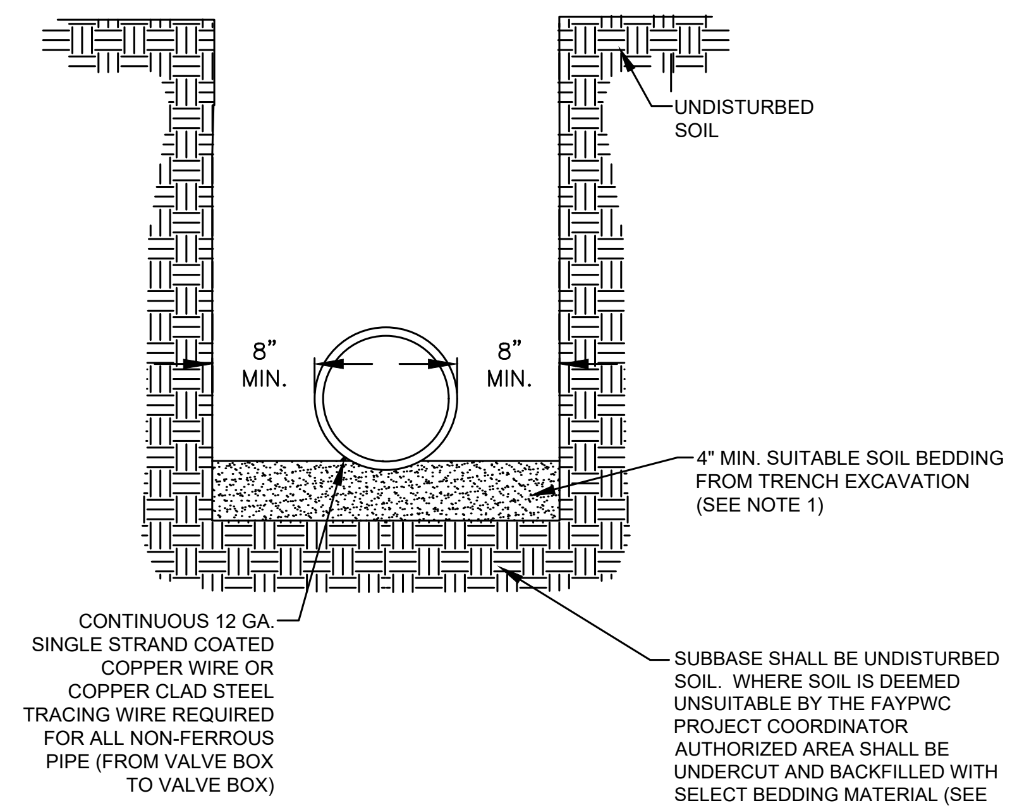
NOTES:

1. THRUST BLOCKS SHALL BE INSTALLED ON PVC WATER DISTRIBUTION LINES 6" THRU 12" DIAMETER IN THE MANNER SHOWN. SEE FAYPWC STANDARD ALTERNATE RESTRAINING DETAIL W.18 FOR ACCEPTABLE ALTERNATE RESTRAINING SYSTEMS.
2. PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINT JOINT PIPE FOR THE PROPER LENGTH.
3. COMPACT FITTINGS ARE NOT ACCEPTABLE. STANDARD FITTINGS SHALL BE USED WITH CONCRETE THRUST BLOCKING.
4. THRUST BLOCKS SHALL BE INSTALLED ON SEWER FORCE MAIN IN THE MANNER SHOWN.
5. IF SAC-CRETE IS USED, MIXING MUST BE ON SITE UTILIZING A MECHANICAL MIXER.
6. NO CONCRETE SHALL BE PLACED ON BOLTS. WRAP JOINT FITTINGS WITH PLASTIC.
7. CONCRETE SHALL BE A MINIMUM 3,000PSI.
8. ALL BEARING SURFACES SHALL BE AGAINST UNDISTURBED SOIL AND SHALL BE APPROVED BY FAYPWC PROJECT COORDINATOR PRIOR TO PLACEMENT OF CONCRETE.
9. USE OF RESTRAINED JOINT DUCTILE IRON WILL BE REQUIRED IF SOIL CONDITIONS DO NOT ALLOW THE USE OF THRUST BLOCKS.
10. ALL VERTICAL BENDS SHALL BE RESTRAINED USING RESTRAINED JOINT DUCTILE IRON PIPE.

CONCRETE THRUST BLOCK DETAIL
N.T.S.
SHEET NO. 1 OF 1
DWG. NO. W.17
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	09/05	REVISED TABLE
2	02/07	ADDED NOTES 9 AND 10
3	07/13	ADDED TAPPING SLEEVE AND VALVE DETAIL

W17-THRUSTBLOCK.dwg


UNDISTURBED SOIL
8" MIN.
8" MIN.
4" MIN. SUITABLE SOIL BEDDING FROM TRENCH EXCAVATION (SEE NOTE 1)
CONTINUOUS 12 GA. SINGLE STRAND COATED COPPER WIRE OR COPPER CLAD STEEL TRACING WIRE REQUIRED FOR ALL NON-FERROUS PIPE (FROM VALVE BOX TO VALVE BOX)
SUBBASE SHALL BE UNDISTURBED SOIL. WHERE SOIL IS DEEMED UNSUITABLE BY THE FAYPWC PROJECT COORDINATOR AUTHORIZED AREA SHALL BE UNDERCUT AND BACKFILLED WITH SELECT BEDDING MATERIAL (SEE NOTE 3).

NOTES:

1. SUITABLE SOIL BEDDING IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
2. SUITABLE BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
3. IF GROUND CONDITIONS WARRANT, IT MAY BE NECESSARY TO BED DUCTILE IRON WATER MAINS IN SELECT BEDDING MATERIAL (NO. 5 OR NO. 57 STONE) TO THE SPRINGLINE OF THE PIPE. SUCH INSTALLATION SHALL BE AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.

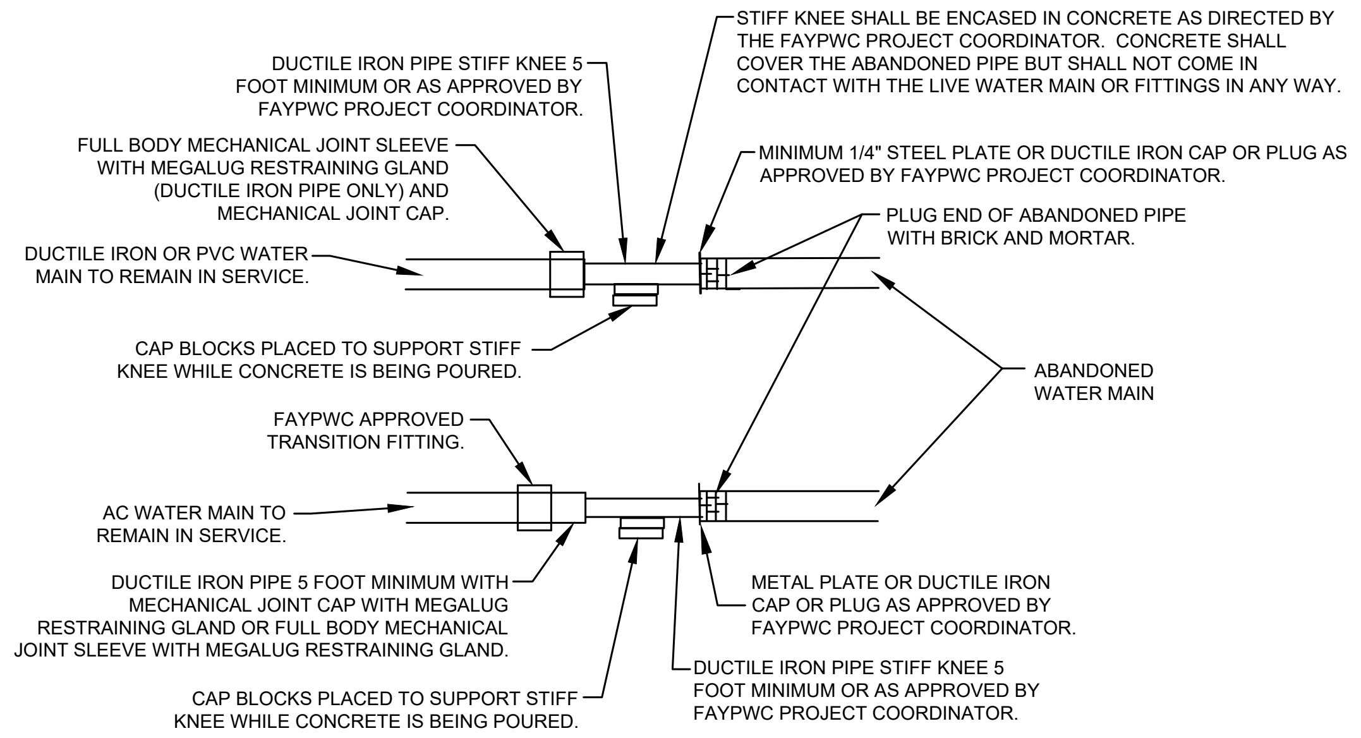
WATER MAIN BEDDING DETAIL
N.T.S.
SHEET NO. 1 OF 1
DWG. NO. W.19
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	01/01/17	REVISED NOTES
2	07/01/13	REVISED NOTE RE: TRACER WIRE

W19-WATER-BEDDING.dwg

NOTES:

1. KILL OUT SHALL BE DONE A MINIMUM OF 5 FEET FROM ANY FITTING ON THE EXISTING WATER MAIN THAT IS TO REMAIN IN SERVICE.
2. IRON PIPE SHALL BE 4" DIAMETER FOR MAINS 12" OR LESS. UTILIZE 8" PIPE OR LARGER AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR FOR ALL MAINS LARGER THAN 12".
3. ALLOW CONCRETE TO SET-UP PRIOR TO PLACING BACKFILL.
4. VOLUME OF CONCRETE FOR THRUST BLOCK SHALL BE IN ACCORDANCE WITH FAYPWC STANDARD DETAIL W.17.
5. ALL OUTAGES SHALL BE COORDINATED WITH THE FAYPWC PROJECT COORDINATOR.
6. PIPE SHALL BE GROUT FILLED OR REMOVED IN ACCORDANCE WITH NCDOT SPECIFICATIONS WHEN LOCATED IN THE STATE RIGHT-OF-WAY. ALL OTHER INSTANCES SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.


STIFF KNEE SHALL BE ENCASED IN CONCRETE AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR. CONCRETE SHALL COVER THE ABANDONED PIPE BUT SHALL NOT COME IN CONTACT WITH THE LIVE WATER MAIN OR FITTINGS IN ANY WAY.
DUCTILE IRON PIPE STIFF KNEE 5 FOOT MINIMUM OR AS APPROVED BY FAYPWC PROJECT COORDINATOR.
FULL BODY MECHANICAL JOINT SLEEVE WITH MEGALUG RESTRAINING GLAND (DUCTILE IRON PIPE ONLY) AND MECHANICAL JOINT CAP.
MINIMUM 1/4" STEEL PLATE OR DUCTILE IRON CAP OR PLUG AS APPROVED BY FAYPWC PROJECT COORDINATOR.
PLUG END OF ABANDONED PIPE WITH BRICK AND MORTAR.
DUCTILE IRON OR PVC WATER MAIN TO REMAIN IN SERVICE.
CAP BLOCKS PLACED TO SUPPORT STIFF KNEE WHILE CONCRETE IS BEING POURED.
ABANDONED WATER MAIN
FAYPWC APPROVED TRANSITION FITTING.
AC WATER MAIN TO REMAIN IN SERVICE.
DUCTILE IRON PIPE 5 FOOT MINIMUM WITH MECHANICAL JOINT CAP WITH MEGALUG RESTRAINING GLAND OR FULL BODY MECHANICAL JOINT SLEEVE WITH MEGALUG RESTRAINING GLAND.
METAL PLATE OR DUCTILE IRON CAP OR PLUG AS APPROVED BY FAYPWC PROJECT COORDINATOR.
DUCTILE IRON PIPE STIFF KNEE 5 FOOT MINIMUM OR AS APPROVED BY FAYPWC PROJECT COORDINATOR.
CAP BLOCKS PLACED TO SUPPORT STIFF KNEE WHILE CONCRETE IS BEING POURED.

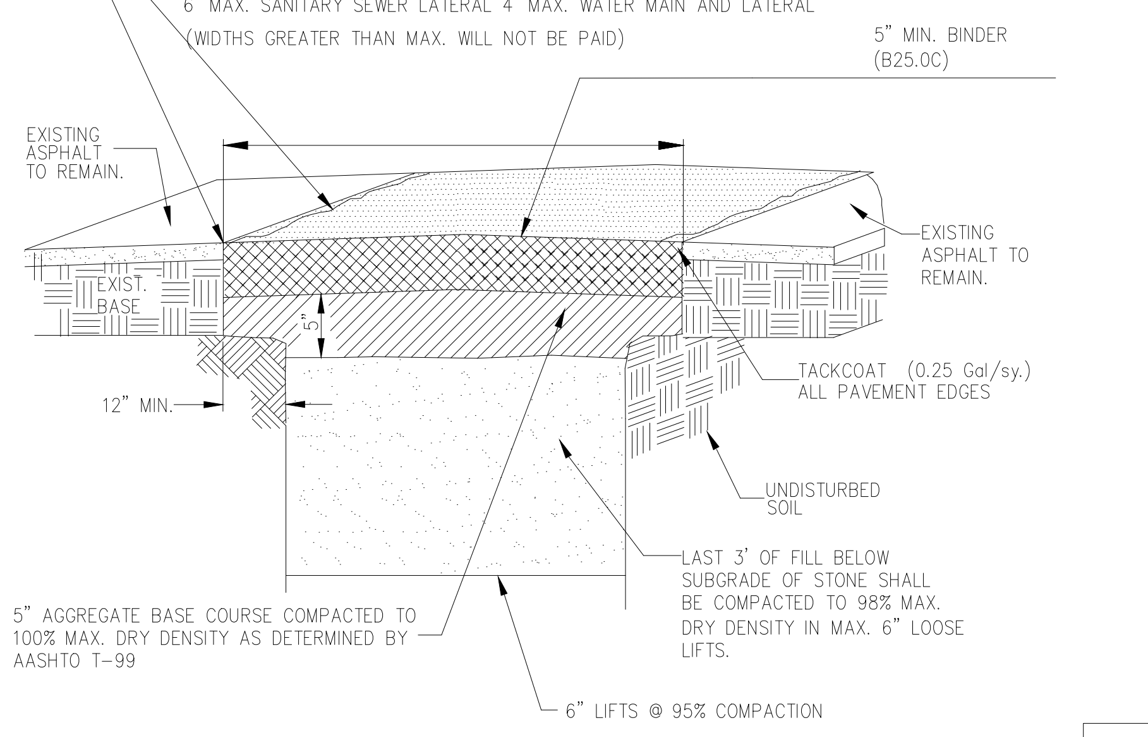
WATER MAIN KILL-OUT
N.T.S.
SHEET NO. 1 OF 1
DWG. NO. W.22
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION

W22-WATERMAIN-KILLOUT.dwg

SAWCUT ASPH. EDGES STRAIGHT AND TRUE APPROX. 2" DEEP IMMEDIATELY PRIOR TO PATCHING. JAGGED SAWCUTS SHALL NOT BE ACCEPTABLE. STRAIGHT UNIFORM WIDTHS PARALLEL TO THE EDGE OF PAV'T OR CURB ARE REQUIRED. THE FINAL PRODUCT SHALL BE SUBJECT TO THE CITY ENGINEERS APPROVAL.

MAXIMUM "PAYMENT" WIDTH (INFORMATION IS FOR USE ON ANNEXATION PROJECTS ONLY):
10' MAX. SANITARY SEWER MAIN (10' OR LESS)
12' MAX. SANITARY SEWER MAIN (OVER 10' IN DEPTH)
6' MAX. SANITARY SEWER LATERAL 4' MAX. WATER MAIN AND LATERAL
(WIDTHS GREATER THAN MAX. WILL NOT BE PAID)


5" MIN. BINDER (B25.0C)
EXISTING ASPHALT TO REMAIN.
EXIST. BASE
5"
12" MIN.
EXISTING ASPHALT TO REMAIN.
TACKCOAT (0.25 Gal/sy.) ALL PAVEMENT EDGES
UNDISTURBED SOIL
LAST 3' OF FILL BELOW SUBGRADE OF STONE SHALL BE COMPACTED TO 98% MAX. DRY DENSITY IN MAX. 6" LOOSE LIFTS.
5" AGGREGATE BASE COURSE COMPACTED TO 100% MAX. DRY DENSITY AS DETERMINED BY AASHTO T-99
6" LIFTS @ 95% COMPACTION

ISOMETRIC

FAYETTEVILLE NC
ENGINEERING DIVISION
433 HAY ST. 28301
(910) 433-1656
http://www.fayettevillenc.gov

TYPICAL TEMPORARY SAWCUT AND PAVEMENT PATCH
PAGE 1 OF 3
REVISED FOR THIS PROJECT ONLY
SD-11

PWC WATER DETAILS

PLAN TYPE: 100% PLANS
SHEET NUMBER 29 OF 45

Kimley»Horn
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421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

SEAL 045249
NATHANIEL L. HARVEY
DocuSigned by:
2AFE0F1BD88840D...
7/15/2025
DATE:
NAME:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE

ISSUED FOR CONSTRUCTION

DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH
PROJECT NAME : TRYON DRAINAGE
SCALE : NOT TO SCALE
DATE : APRIL 2024

PROJECT NO. KH 011017025
SUB-LEDGER NO.

1. ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS.
2. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
3. CONSTRUCTION STAKING IS REQUIRED FOR ALL FAYPWC WATER AND SEWER UTILITY INSTALLATIONS. CUT SHEETS, SIGNED AND SEALED BY A NC PLS, SHALL BE PROVIDED TO THE FAYPWC WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR FAYPWC WATER AND SEWER UTILITIES.
4. CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONSTRUCTION ON FAYPWC WATER AND SEWER UTILITIES CANNOT BEGIN UNTIL THE CONTRACTOR POSSESSES, ON SITE, A SIGNED AND SEALED CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.
5. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/OR DISINFECTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS PRIOR TO PLACING INTO SERVICE.
6. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE FAYPWC PROJECT COORDINATOR.
7. ALL DUCTILE IRON PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 401 OR APPROVED EQUAL.
8. ALL NEW MANHOLES ARE TO BE VACUUM-TESTED IN ACCORDANCE WITH FAYETTEVILLE FAYPWC STANDARDS.
9. CONTRACTOR SHALL REPAIR ALL SEWER LATERALS AND MAINS DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY REPORT ALL SEWER MAIN AND LATERAL BREAKS TO THE FAYPWC PROJECT COORDINATOR. THE CONTRACTOR SHALL INITIATE IMMEDIATE REPAIRS IN ACCORDANCE WITH FAYPWC STANDARDS.
10. TRANSFER OF SEWER SERVICES SHALL BE ACCOMPLISHED AS FOLLOWS:
    - A. INSTALL AND TEST NEW MAINS, MANHOLES, AND LATERALS. CLEANOUTS SHALL BE INSTALLED 18" INSIDE R/W UNLESS OTHERWISE DIRECTED BY PWC.
    - B. CONNECT EXISTING PLUMBING TO NEW LATERAL UTILIZING THE NECESSARY FITTINGS AS DIRECTED BY FAYPWC.
    - C. AFTER ALL SERVICES HAVE BEEN TRANSFERRED TO THE NEW MAIN, THE EXISTING SEWER SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
11. CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG AT BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE TAP OR TEE AT THE MAIN. FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED ("KILLED-OUT"), THE LATERAL SHALL BE REMOVED FROM THE MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.
12. SEWER PLUGS SHALL BE INSTALLED TO ELIMINATE ANY DEBRIS OR OTHER MATERIAL FROM ENTERING THE ACTIVE SEWER SYSTEM. UPON ACCEPTANCE OF THE NEW SEWER SYSTEM, THE CONTRACTOR SHALL CLEAN THE NEW MAINS, REMOVE ALL DEBRIS, AND THEN REMOVE THE PLUG.
13. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE, IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
14. ALL WORK ON FAYPWC SEWER UTILITIES (MAINS, LATERALS, ETC) SHALL BE PERFORMED BY A LICENSED UTILITY CONTRACTOR. THE FAYETTEVILLE PUBLIC WORKS COMMISSION SHALL OBSERVE AND APPROVE ALL WORK ON FAYPWC SEWER UTILITIES. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH FAYPWC REQUIREMENTS.
15. SEPARATION REQUIREMENTS:
    - A. **LATERAL SEPARATION OF SEWER AND WATER MAINS:** WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWER MAIN/LATERAL, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENTG A 10-FOOT LATERAL SEPARATION - IN WHICH CASE:
        - i. THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL; OR
        - ii. THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER MAIN/LATERAL WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
    - B. **CROSSING A WATER MAIN OVER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN/LATERAL, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER MAIN/LATERAL.
    - C. **CROSSING WATER MAIN UNDER A SEWER:** WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN/LATERAL, A MINIMUM OF 18-INCHES OF SEPARATION SHALL BE PROVIDED. BOTH THE WATER MAIN AND THE SEWER MAIN/LATERAL SHALL BE CONSTRUCTED OF DUCTILE IRON MATERIAL AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10-FEET ON EACH SIDE OF THE POINT OF CROSSING, A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
    - D. **CROSSING STORM DRAINAGE LINES:** A MINIMUM OF 24-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN A SEWER MAIN/LATERAL CROSSING UNDER A STORM DRAINAGE LINE UNLESS DUCTILE IRON PIPE IS USED. IF DUCTILE IRON PIPE IS USED, A MINIMUM OF SIX(6) INCHES OF SEPARATION SHALL BE MAINTAINED, UNLESS OTHERWISE APPROVED BY FAYPWC.

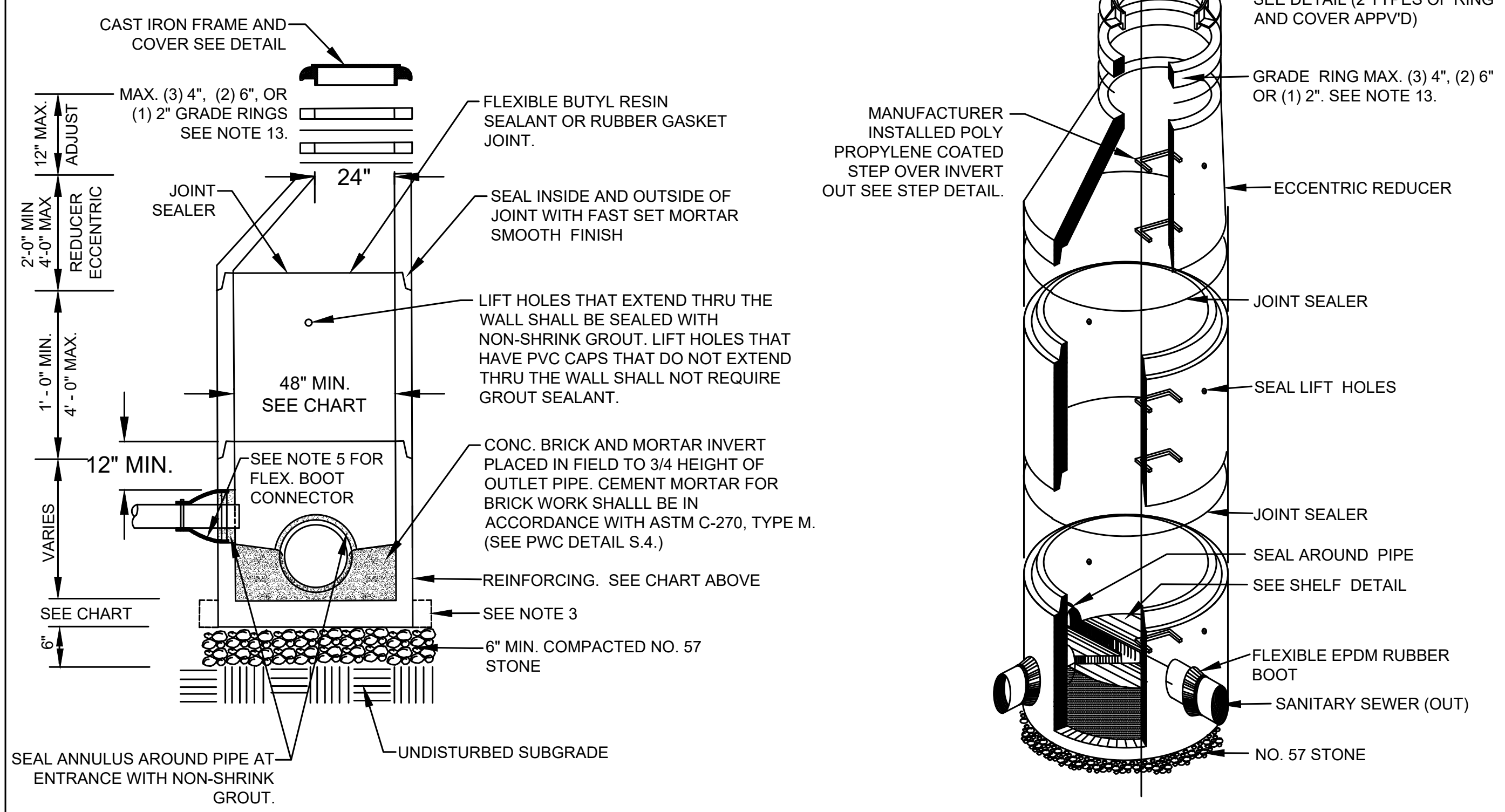
GENERAL NOTES
SANITARY SEWER UTILITY
SHEET NO. 1 OF 1 | DWG. NO. S.1 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	01/18	ADDED NOTES 5, 8
2	06/21	ADDED NOTES 1-8 AND RENUMBERED
3	11/23	REVISED NOTE 15

S1-SEWER-NOTES.dwg

PIPE SIZES	MANHOLE SIZE	MIN. WALL THICKNESS	MIN. REINF. STEEL	MIN. BASE THICKNESS
21" AND LESS	48" DIAMETER	5"	ASTM A-1064 0.12 SQ./IN.	6"
24" - 36"	60" DIAMETER	6"	ASTM A-1064 0.15 SQ./IN.	8"
42"	72" DIAMETER	7"	ASTM A-1064 0.15 SQ./IN.	8"

MANHOLE DIAMETER SIZES MAY BE ADJUSTED ON THE PLANS TO REFLECT SPECIAL CIRCUMSTANCES. REDUCING SLABS ARE NOT ACCEPTABLE ON MANHOLES LESS THAN 6' DIAMETER.


CAST IRON FRAME AND COVER SEE DETAIL
MAX. (3) 4", (2) 6", OR (1) 2" GRADE RINGS SEE NOTE 13.
12" MAX. ADJUST
2'-0" MIN 4'-0" MAX REDUCER ECCENTRIC
1' - 0" MIN. 4' - 0" MAX.
VARIES
SEE CHART
6"
JOINT SEALER
24"
FLEXIBLE BUTYL RESIN SEALANT OR RUBBER GASKET JOINT.
SEAL INSIDE AND OUTSIDE OF JOINT WITH FAST SET MORTAR SMOOTH FINISH
LIFT HOLES THAT EXTEND THRU THE WALL SHALL BE SEALED WITH NON-SHRINK GROUT. LIFT HOLES THAT HAVE PVC CAPS THAT DO NOT EXTEND THRU THE WALL SHALL NOT REQUIRE GROUT SEALANT.
48" MIN. SEE CHART
12" MIN.
SEE NOTE 5 FOR FLEX. BOOT CONNECTOR
CONC. BRICK AND MORTAR INVERT PLACED IN FIELD TO 3/4 HEIGHT OF OUTLET PIPE. CEMENT MORTAR FOR BRICK WORK SHALLL BE IN ACCORDANCE WITH ASTM C-270, TYPE M. (SEE PWC DETAIL S.4.)
REINFORCING. SEE CHART ABOVE
SEE NOTE 3
6" MIN. COMPACTED NO. 57 STONE
SEAL ANNULUS AROUND PIPE AT ENTRANCE WITH NON-SHRINK GROUT.
UNDISTURBED SUBGRADE
MANUFACTURER INSTALLED POLY PROPYLENE COATED STEP OVER INVERT OUT SEE STEP DETAIL.
FAYPWC RING AND COVER. SEE DETAIL (2 TYPES OF RING AND COVER APPV'D)
GRADE RING MAX. (3) 4", (2) 6" OR (1) 2". SEE NOTE 13.
ECCENTRIC REDUCER
JOINT SEALER
SEAL LIFT HOLES
JOINT SEALER
SEAL AROUND PIPE
SEE SHELF DETAIL
FLEXIBLE EPDM RUBBER BOOT
SANITARY SEWER (OUT)
NO. 57 STONE

STANDARD MANHOLE
N.T.S.
SHEET NO. 1 OF 2 | DWG. NO. S.2 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	02/07	CREATED S.2A ADDED NOTES 13-17
2	07/13	ADDED SHEET 2 OF 2
3	01/01/24	CLARIFIED NOTES REGARDING MORTAR FOR BENCH AND INVERT.

S2-STANDARD-MANHOLE.dwg

NOTES:
1. PRECAST REINFORCED CONCRETE MANHOLES SHALL BE IN ACCORDANCE WITH ASTM C-478.
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000PSI.
3. MANHOLES GREATER THAN 12' DEPTH SHALL HAVE MINIMUM 6" EXTENDED BASE.
4. FLEXIBLE BUTYL RESIN JOINT SEALANT SHALL BE IN ACCORDANCE WITH ASTM C990. RUBBER GASKET JOINTS SHALL BE IN ACCORDANCE WITH ASTM C-443.
5. FLEXIBLE EPDM RUBBER BOOT CONNECTORS SHALL BE IN ACCORDANCE WITH ASTM C923, INSTALLED BY MANUFACTURER WITH STAINLESS STEEL COMPRESSION RING AND TAKE-UP CLAMP. THE FLEXIBLE BOOT CONNECTOR SHALL BE TIGHTENED ON THE MAIN BY MEANS OF A SINGLE STAINLESS STEEL PIPE CLAMP.
6. CONNECTIONS TO EXISTING MANHOLES SHALL BE BY CORING MANHOLE AND FIELD INSTALLING A FLEXIBLE EPDM RUBBER BOOT CONNECTOR. DO NOT ALLOW DEBRIS TO ENTER SYSTEM.
7. MORTAR USED FOR SEALING JOINTS AND LIFT HOLES SHALL BE QUICK SETTING, NON-SHRINK GROUT MIXED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. MORTAR USED TO CONSTRUCT INVERTS AND SHELF SHALL BE IN ACCORDANCE WITH ASTM C-270, TYPE M, IN ACCORDANCE WITH PWC SPECIFICATION SECTION 03301.
8. MANHOLE STEPS SHALL BE IN ACCORDANCE WITH ASTM C478 AND OSHA REGULATIONS. ALIGN STEPS WITH INVERT OUT.
9. PRECAST INVERTS ARE NOT ALLOWED.
10. VERTICAL DROPS BETWEEN THE INFLOW PIPES AND OUTFLOW PIPES SHALL REQUIRE THE FOLLOWING:
    - A. GREATER THAN 2.5' SEE DROP STRUCTURE DETAIL (MIN. 5' DIAMETER MH REQUIRED).
    - B. LESS THAN 2.5' SEE PIPE SLIDE DETAIL.
11. AN ECCENTRIC CONE SHALL BE UTILIZED ON ALL MANHOLES, UNLESS OTHERWISE APPROVED BY FAYPWC.
12. INVERT ON PLANS IS TO MANHOLE CENTERLINE.
13. GRADE RINGS SHALL NOT BE USED FOR ABOVE GRADE ADJUSTMENTS (IE: OUTFALL AREAS). USE OF GRADE RINGS ARE ALLOWABLE IN YARD AREAS AND PAVEMENT, WHERE THE RING AND COVER ARE AT GROUND LEVEL. GRADE RINGS CAN BE EITHER CONCRETE OR HDPE. HDPE GRADE RINGS SHALL MEET THE REQUIREMENTS OF ASTM 4796 FOR MATERIAL, QUALITY, AND PERFORMANCE. HDPE GRADE RINGS SHALL BE MANUFACTURED BY LADTECH, INC. OR APPROVED EQUAL.
14. THE MINIMUM SLOPE ACROSS THE INVERT OF THE MANHOLE SHALL BE 1%, UNLESS OTHERWISE APPROVED BY FAYPWC. STANDING WATER IN INVERT OF MANHOLE IS NOT ACCEPTABLE.
15. THE EXTERIOR MANHOLE RISER JOINTS, INCLUDING THE JOINT AT THE CONE, SHALL BE SEALED ON THE OUTSIDE BY AN APPROVED JOINT WRAP. THE WRAP SHALL BE IN ACCORDANCE WITH FAYPWC SPECIFICATIONS.
16. MANHOLE BOOT FOR 4-INCH LATERALS, SHOULD IT BE NECESSARY TO INSTALL A 4-INCH LATERAL INTO A MANHOLE, THE RUBBER BOOT THAT THE LATERAL IS INSERTED INTO SHALL BE SECURELY FASTENED TO THE CORE HOLE BY UTILIZING A STAINLESS STEEL BAND THAT IS TIGHTENED USING A JACK OR A TORQUE WRENCH (DIRECT DRIVE). BOTH STANDARD SIZE AND STEP DOWN BOOTS ARE ALLOWED. THE TORQUE WRENCH SHALL BE SUPPLIED BY THE MANUFACTURER. NO OTHER TYPE BANDS OR METHOD OF SECURING THE BOOT TO THE MANHOLE SHALL BE ACCEPTED.

    FOR FOUR (4) INCH SDR 26 LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL BE 3.5-INCHES TO 4.25-INCHES.

    FOR FOUR (4) INCH DUCTILE IRON LATERALS, THE PIPE OUTSIDE DIAMETER RANGE OF THE BOOT SHALL EITHER BE AS FOR VC OR 4.25-INCHES TO 4.81-INCHES.

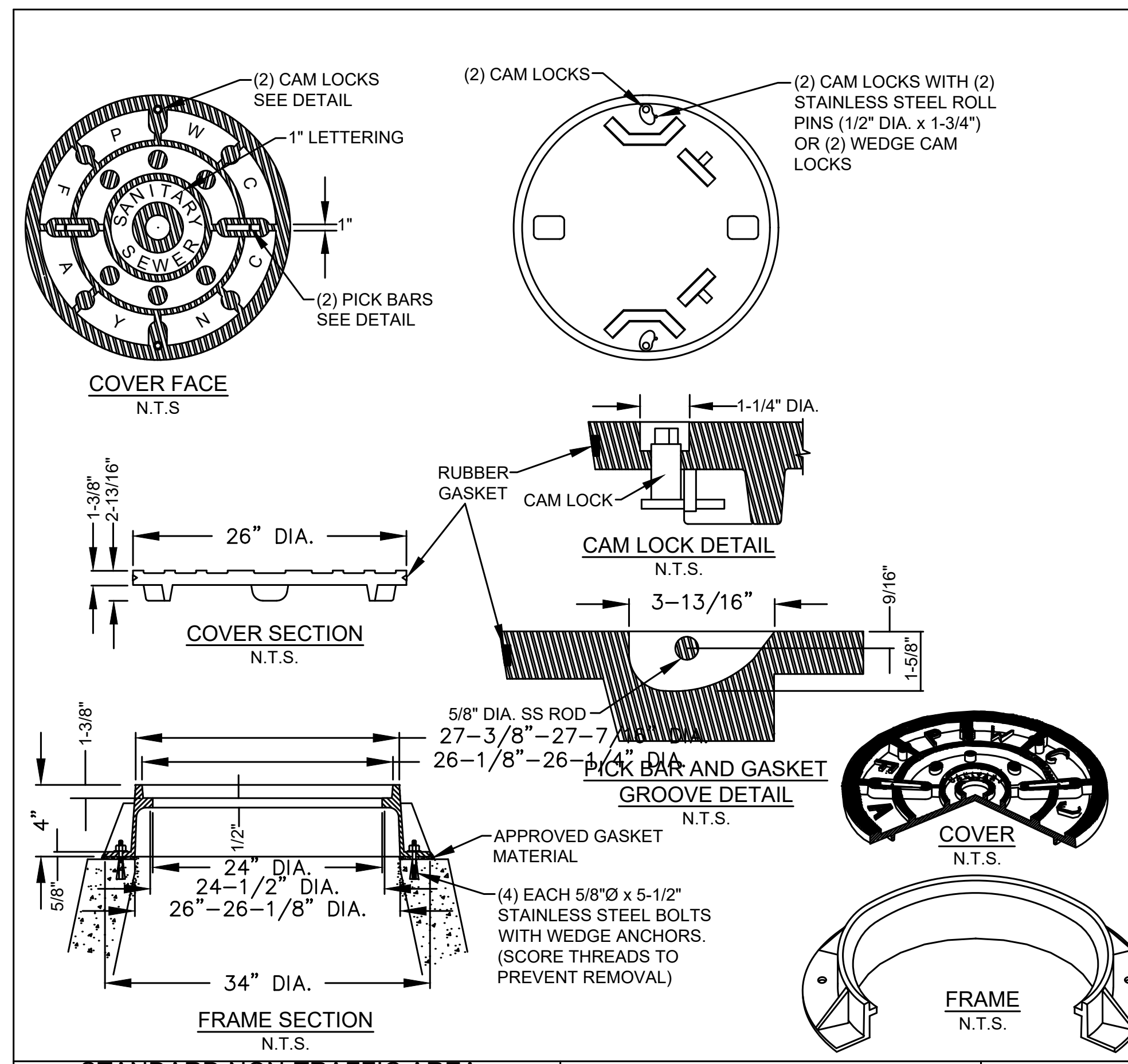
    IN ALL CASES, THE BOOT SHALL BE TIGHTENED ON THE LATERAL BY MEANS OF A SINGLE STAINLESS STEEL PIPE CLAMP.

    THE LATERAL INVERT SHALL BE AT THE TOP O F THE SHELF.
17. NO MORE THAN 4, FOUR-INCH LATERALS OR 3, SIX-INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
18. NO MORE THAN 5 LATERALS SHALL ENTER A 5' DIAMETER MANHOLE.
19. USE OF TEE-WYES ON LATERALS IS NOT ALLOWED.
20. ALL MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH FAYPWC STANDARDS.

STANDARD MANHOLE
SHEET NO. 2 OF 2 | DWG. NO. S.2 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	07/13	REVISED NOTES 9, 10, 11, 15. CONVERTED TO S.2 SHEET 2 OF 2
2	01/01/19	REVISED NOTES 10, 18
3	01/01/24	REVISED NOTES 5, 7, 16.

S2-STANDARD-MANHOLE.dwg

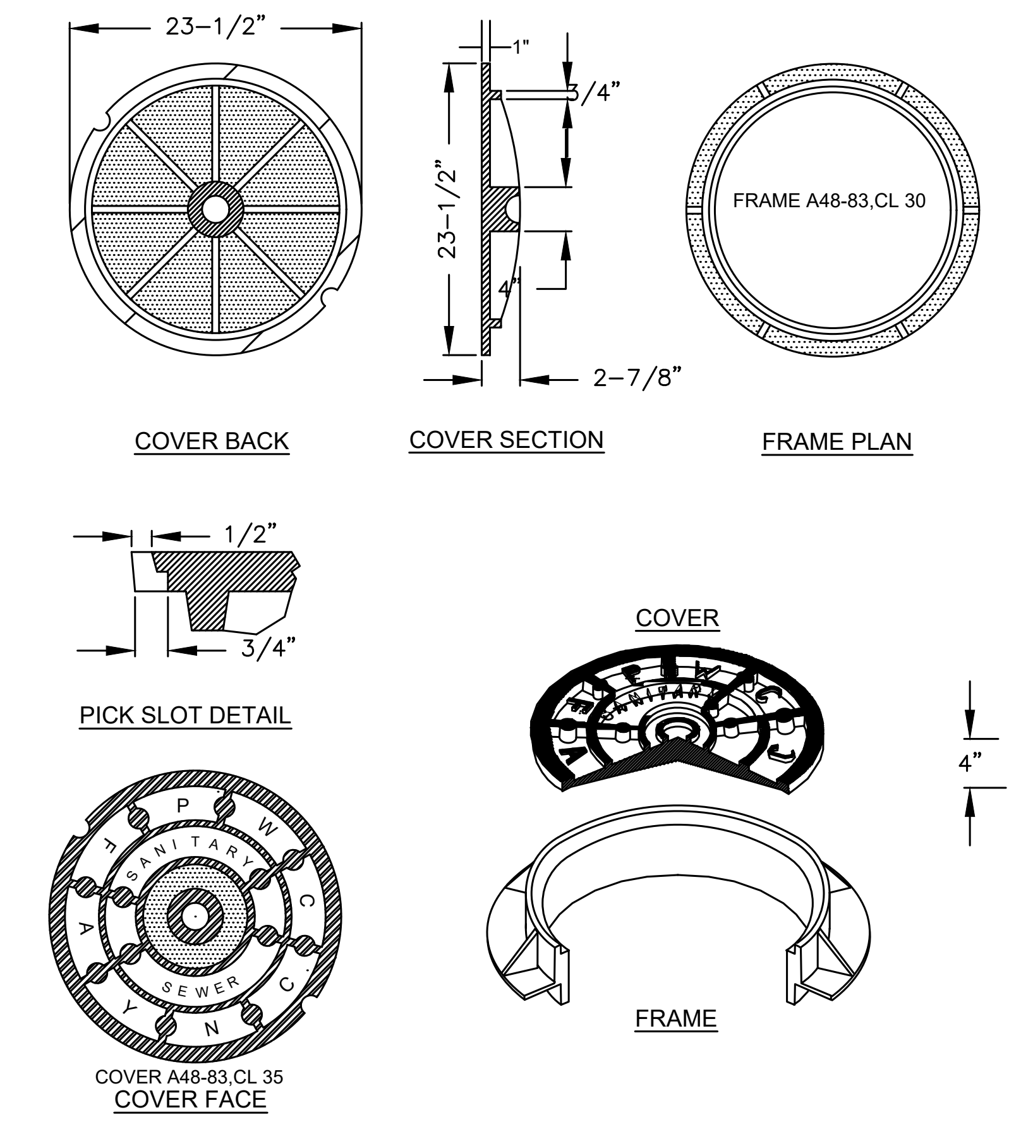

(2) CAM LOCKS SEE DETAIL
1" LETTERING
1"
(2) PICK BARS SEE DETAIL
P W C F A Y N C
SANITARY SEWER
COVER FACE
N.T.S
(2) CAM LOCKS
(2) CAM LOCKS WITH (2) STAINLESS STEEL ROLL PINS (1/2" DIA. x 1-3/4") OR (2) WEDGE CAM LOCKS
1-1/4" DIA.
RUBBER GASKET
CAM LOCK
CAM LOCK DETAIL
N.T.S.
1-3/8"
2-13/16"
26" DIA.
COVER SECTION
N.T.S.
3-13/16"
9/16"
1-5/8"
5/8" DIA. SS ROD
27-3/8"-27-7/16" DIA.
26-1/8"-26-1/4" DIA.
PICK BAR AND GASKET GROOVE DETAIL
N.T.S.
1-3/8"
4"
1/2"
5/8"
24" DIA.
24-1/2" DIA.
26"-26-1/8" DIA.
APPROVED GASKET MATERIAL
(4) EACH 5/8"Ø x 5-1/2" STAINLESS STEEL BOLTS WITH WEDGE ANCHORS. (SCORE THREADS TO PREVENT REMOVAL)
34" DIA.
FRAME SECTION
N.T.S.
COVER
N.T.S.
FRAME
N.T.S.

NOTES:
1. MANHOLE FRAME AND COVER TO BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83, CLASS 35, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. ALL CASTINGS SHALL BE CLEAN AND FREE FROM DEFECTS.
2. CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "PWC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
3. MANHOLE RING AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC.
4. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 155LBS., COVER 160LBS., UNIT 315LBS.
5. PERFORATED COVERS WILL NOT BE ALLOWED.
6. SUPPLY SOCKET FOR TURNING CAM LOCK MECHANISM. ONE SOCKET PER PROJECT.
7. USE OF GRADE RINGS ARE NOT ALLOWED, UNLESS APPROVED BY THE FAYPWC PROJECT COORDINATOR. FOR MANHOLES OUTSIDE OF YARD OR LANDSCAPE AREAS, THE USE OF GRADE RINGS ARE NOT ALLOWED.
8. FOR MANHOLES IN YARD OR LANDSCAPED AREAS, THE RING AND COVER SHALL BE SET TO FINISHED GRADE. THE USE OF GRADE RINGS ARE ALLOWED TO SET THE MANHOLE TO FINISHED GRADE. FOR GRADE RINGS 4" OR LESS, THE RING AND COVER SHALL BE ANCHORED TO THE CONE USING 5/8" DIAMETER STAINLESS STEEL BOLTS WITH WEDGE ANCHORS. FOR GRADE RINGS OVER 4", THE RING AND COVER SHALL BE ANCHORED TO THE GRADE RING, USING 5/8" DIAMETER x 5-1/2" STAINLESS STEEL BOLTS WITH WEDGE ANCHORS.
9. FOR OUTFALL AREAS, THE RING AND COVER SHALL BE SET A MINIMUM OF 18" ABOVE FINISHED GRADE, UNLESS OTHERWISE APPROVED.
10. THIS DETAIL IS TO BE USED ON ALL MANHOLES LOCATED OUTSIDE OF PAVED AREAS, UNLESS OTHERWISE APPROVED.
11. REFER TO FAYPWC STANDARD DETAIL S.17 FOR INSTALLATION OF VENT STACK.

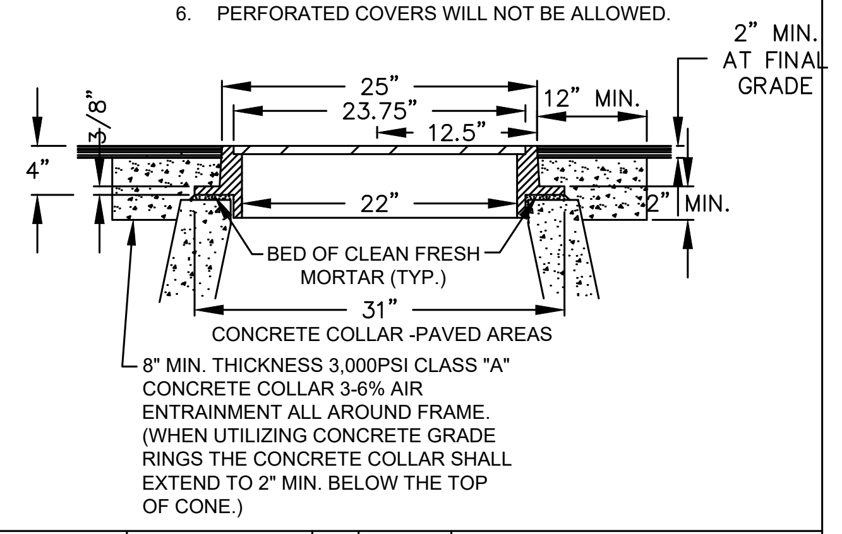
STANDARD NON-TRAFFIC AREA MANHOLE RING AND COVER WITH WIPER GASKET AND CAM LOCK
N.T.S.
SHEET NO. 1 OF 1 | DWG. NO. S.6 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	07/09	REVISED NOTES ON FRAME SECTION/REVISED NOTE 3
2	07/17	ADDED NOTE ON WEDGE CAM LOCKS
3	01/18	UPDATED NOTES 7 AND 8

S6-RING-COVER.dwg


23-1/2"
COVER BACK
1"
3/4"
23-1/2"
4"
2-7/8"
COVER SECTION
FRAME A48-83,CL 30
FRAME PLAN
1/2"
3/4"
PICK SLOT DETAIL
COVER
P W C F A Y N C
SANITARY SEWER
COVER A48-83,CL 35
COVER FACE
FRAME

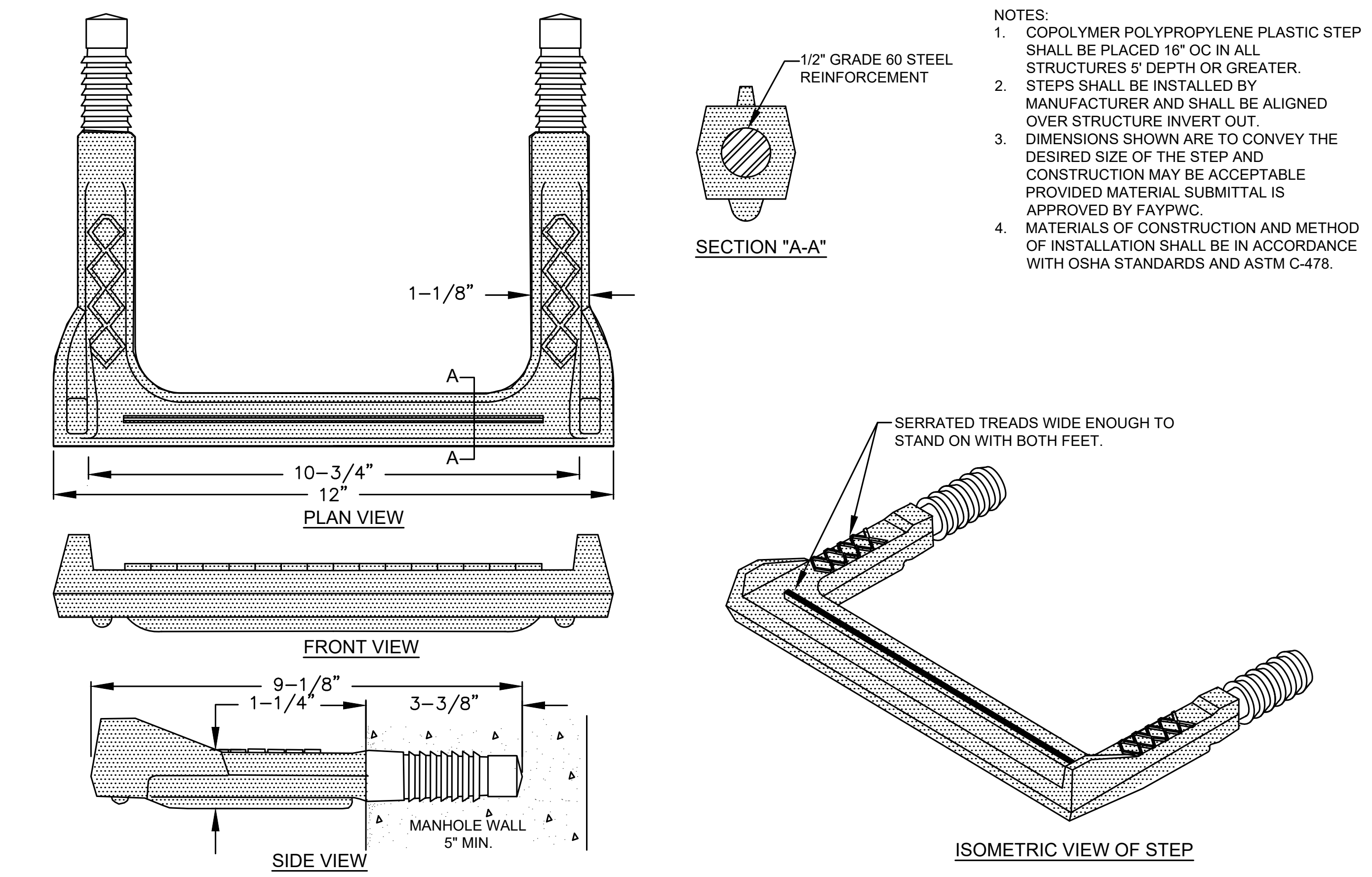
NOTES:
1. DETAIL TO BE USED IN PAVED AREAS ONLY. ALL OTHER MANHOLES SHALL BE IN ACCORDANCE WITH DETAIL S.6, UNLESS OTHERWISE APPROVED.
2. MANHOLE FRAME AND COVER SHALL BE MADE OF GRAY CAST IRON CONFORMING TO ASTM SPEC. A48-83 CL 30/35 RESPECTIVELY, MANUFACTURED BY SAME MANUFACTURER. ALL CASTINGS SHALL CONFORM TO THE SHAPE AND DIMENSIONS SHOWN. THEY SHALL BE CLEAN AND PERFECT, WITHOUT BLOW OR SAND HOLES OR DEFECTS OF ANY KIND, TENDING TO IMPAIR THEIR STRENGTH. NO PLUGGING OR STOPPING OF DEFECTIVE HOLES WILL BE PERMITTED.
3. CASTINGS SHALL BE UNPAINTED AND SHALL HAVE THE LETTERS "PWC-FAY-NC" AND "SANITARY SEWER" CAST INTO COVER. LETTERS SHALL BE RAISED AND CLEARLY VISIBLE.
4. MANHOLE RING AND COVER SHALL WITHSTAND H-20 VEHICULAR TRAFFIC. ROCKING COVERS SHALL NOT BE ACCEPTABLE.
5. MINIMUM AVERAGE WEIGHT: PLUS OR MINUS 5% RING 175LBS., COVER 135LBS, UNIT 310LBS.
6. PERFORATED COVERS WILL NOT BE ALLOWED.


2" MIN. AT FINAL GRADE
25"
23.75"
12.5"
12" MIN.
3/8"
4"
22"
2" MIN.
BED OF CLEAN FRESH MORTAR (TYP.)
31"
CONCRETE COLLAR -PAVED AREAS
8" MIN. THICKNESS 3,000PSI CLASS "A" CONCRETE COLLAR 3-6% AIR ENTRAINMENT ALL AROUND FRAME. (WHEN UTILIZING CONCRETE GRADE RINGS THE CONCRETE COLLAR SHALL EXTEND TO 2" MIN. BELOW THE TOP OF CONE.)

STANDARD TRAFFIC AREA MANHOLE RING AND COVER
N.T.S.
SHEET NO. 1 OF 1 | DWG. NO. S.7 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	01/05	CHANGED NON TRAFFIC DETAIL
2	07/06	ADDED NOTE ON CONCRETE COLLAR
3	02/07	REMOVED NON TRAFFIC AREA AND REVISED NOTES
4	07/08	REVISED ASPHALT THICKNESS

S7-RING-COVER.dwg

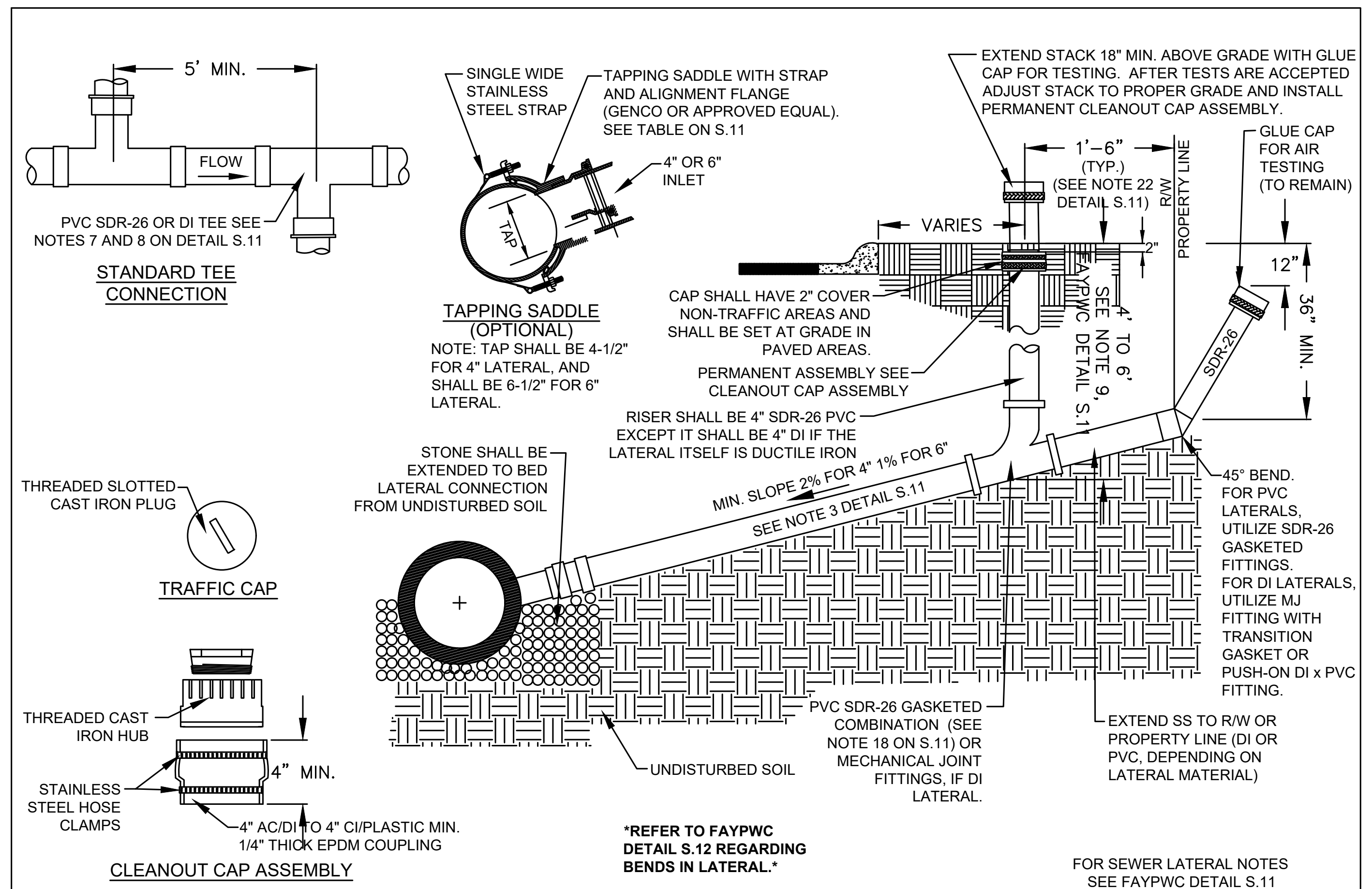

1/2" GRADE 60 STEEL REINFORCEMENT
SECTION "A-A"
1-1/8"
A
A
10-3/4"
12"
PLAN VIEW
FRONT VIEW
9-1/8"
1-1/4"
3-3/8"
MANHOLE WALL 5" MIN.
SIDE VIEW
SERRATED TREADS WIDE ENOUGH TO STAND ON WITH BOTH FEET.
ISOMETRIC VIEW OF STEP

NOTES:
1. COPOLYMER POLYPROPYLENE PLASTIC STEP SHALL BE PLACED 16" OC IN ALL STRUCTURES 5' DEPTH OR GREATER.
2. STEPS SHALL BE INSTALLED BY MANUFACTURER AND SHALL BE ALIGNED OVER STRUCTURE INVERT OUT.
3. DIMENSIONS SHOWN ARE TO CONVEY THE DESIRED SIZE OF THE STEP AND CONSTRUCTION MAY BE ACCEPTABLE PROVIDED MATERIAL SUBMITTAL IS APPROVED BY FAYPWC.
4. MATERIALS OF CONSTRUCTION AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.

STRUCTURE STEP
N.T.S.
SHEET NO. 1 OF 1 | DWG. NO. S.8 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION

S8-STEP.dwg


5' MIN.
FLOW
PVC SDR-26 OR DI TEE SEE NOTES 7 AND 8 ON DETAIL S.11
STANDARD TEE CONNECTION
SINGLE WIDE STAINLESS STEEL STRAP
TAPPING SADDLE WITH STRAP AND ALIGNMENT FLANGE (GENCO OR APPROVED EQUAL). SEE TABLE ON S.11
4" OR 6" INLET
TAP
TAPPING SADDLE (OPTIONAL)
NOTE: TAP SHALL BE 4-1/2" FOR 4" LATERAL, AND SHALL BE 6-1/2" FOR 6" LATERAL.
EXTEND STACK 18" MIN. ABOVE GRADE WITH GLUE CAP FOR TESTING. AFTER TESTS ARE ACCEPTED ADJUST STACK TO PROPER GRADE AND INSTALL PERMANENT CLEANOUT CAP ASSEMBLY.
1'-6" (TYP.) (SEE NOTE 22 DETAIL S.11)
R/W
PROPERTY LINE
GLUE CAP FOR AIR TESTING (TO REMAIN)
VARIES
2"
12"
36" MIN.
4' TO 6' SEE NOTE 9, FAYPWC DETAIL S.11
SDR-26
CAP SHALL HAVE 2" COVER NON-TRAFFIC AREAS AND SHALL BE SET AT GRADE IN PAVED AREAS.
PERMANENT ASSEMBLY SEE CLEANOUT CAP ASSEMBLY
RISER SHALL BE 4" SDR-26 PVC EXCEPT IT SHALL BE 4" DI IF THE LATERAL ITSELF IS DUCTILE IRON
STONE SHALL BE EXTENDED TO BED LATERAL CONNECTION FROM UNDISTURBED SOIL
MIN. SLOPE 2% FOR 4" 1% FOR 6"
SEE NOTE 3 DETAIL S.11
45° BEND. FOR PVC LATERALS, UTILIZE SDR-26 GASKETED FITTINGS. FOR DI LATERALS, UTILIZE MJ FITTING WITH TRANSITION GASKET OR PUSH-ON DI x PVC FITTING.
THREADED SLOTTED CAST IRON PLUG
TRAFFIC CAP
THREADED CAST IRON HUB
4" MIN.
STAINLESS STEEL HOSE CLAMPS
4" AC/DI TO 4" CI/PLASTIC MIN. 1/4" THICK EPDM COUPLING
CLEANOUT CAP ASSEMBLY
UNDISTURBED SOIL
PVC SDR-26 GASKETED COMBINATION (SEE NOTE 18 ON S.11) OR MECHANICAL JOINT FITTINGS, IF DI LATERAL.
EXTEND SS TO R/W OR PROPERTY LINE (DI OR PVC, DEPENDING ON LATERAL MATERIAL)

REFER TO FAYPWC DETAIL S.12 REGARDING BENDS IN LATERAL.

FOR SEWER LATERAL NOTES SEE FAYPWC DETAIL S.11

SEWER LATERAL (4-INCH AND 6-INCH)
N.T.S.
SHEET NO. 1 OF 1 | DWG. NO. S.10 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
2	01/14	ADDED TAILPIECE, NOTES
3	01/15	REVISED NOTES RE: TAILPIECE
4	07/18	REVISED NOTE RE: LATERAL DEPTH

S10-RESSLAT.dwg

SEWER LATERAL NOTES

1. HOLE IN SANITARY SEWER MAIN MUST BE CUT WITH SHELL CUTTER NO HAMMER TAPS ALLOWED.
2. LATERAL SHALL CONFORM TO ASTM SPECS. D-3034 SDR-26 UNLESS OTHERWISE INDICATED AS DI.
3. ALL PIPE AND FITTINGS SHALL BE 4" OR 6" UNLESS OTHERWISE SPECIFIED.
4. ALL DI PIPE SHALL HAVE AN INTERIOR LINING OF CERAMIC EPOXY (PROTECTO 401). THE ENTIRE DI LATERAL SHALL BE COMPRISED OF DI PIPE AND MECHANICAL JOINT FITTINGS.
5. ALL CONNECTIONS SHALL HAVE RUBBER GASKET SEALS INSTALLED.
6. SANITARY SEWER LATERAL CLEANOUT STACK SHALL BE LOCATED 18" FROM WATER LATERAL LOCK VALVE WHEN IN THE SAME DITCH.
7. INSTALLATION OTHER THAN AS SHOWN MUST BE APPROVED BY THE FAYPWC.
8. CONNECTIONS TO THE TOP OF MAIN SHALL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE FAYPWC PROJECT COORDINATOR.
9. THE DESIGN ENGINEER SHALL DETERMINE THE SLOPE AND DEPTH OF THE LATERAL BASED ON THE TOPOGRAPHY OF THE LOT.
10. LATERAL SHALL CONFORM TO 2% MINIMUM SLOPE FOR 4" OR 1% MINIMUM SLOPE FOR 6". THE MAXIMUM LENGTH OF A SEWER LATERAL SHALL BE 60 FEET, UNLESS OTHERWISE APPROVED BY FAYPWC.
11. SEE INTERIOR DROP STRUCTURE OR SLIDE, MORTAR SLIDE AND SHELF DETAIL FOR VERTICAL DROPS OF MAINS AND LATERALS.
12. LATERALS LESS THAN 3' IN DEPTH OR GREATER THAN 20' DEPTH SHALL UTILIZE DUCTILE IRON PIPE AND FITTINGS WITH CERAMIC EPOXY (PROTECTO 401), OR WHEN SEPARATION REQUIREMENTS CANNOT BE MET.
13. ENTIRE SEWER LATERAL ASSEMBLY SHALL BE AIR TESTED CONCURRENTLY WITH SEWER MAIN.
14. INDIVIDUAL LATERALS SHALL BE CLEANED AND FLUSHED PRIOR TO FLUSHING SANITARY SEWER MAINS.
15. LATERAL SHALL NOT BE BACK-FILLED UNTIL INSPECTED BY THE FAYPWC PROJECT COORDINATOR.
16. WYE CONNECTIONS SHALL NOT BE USED TO TIE LATERALS INTO A MANHOLE.
17. IF BENDS ARE APPROVED BY THE PROJECT COORDINATOR, STONE BEDDING IS REQUIRED TO BE INSTALLED FROM UNDISTURBED (SEE DETAIL S.12) SOIL TO BOTTOM OF BEND.
18. PVC COMBINATION SHALL BE A MOLDED WYE AND BEND, GASKETED, SDR-26, AS MANUFACTURED BY HARCO, GPK, OR APPROVED EQUAL.
19. NO MORE THAN 4, FOUR-INCH LATERALS OR 3, SIX-INCH LATERALS SHALL ENTER A 4' DIAMETER TERMINAL MANHOLE. NO MORE THAN 2 LATERALS (REGARDLESS OF SIZE) SHALL ENTER ALL OTHER 4' DIAMETER MANHOLES. ALL LATERALS SHALL HAVE AN INDIVIDUAL TROUGH. 5' DIAMETER MANHOLES SHALL BE USED IF THE ABOVE CONDITIONS ARE NOT MET.
20. ALL LATERALS (4" AND 6") SHALL UTILIZE A 4" RISER (STACK).
21. REFER TO DETAIL S.12 FOR SEPARATION REQUIREMENTS.
22. FOR SINGLE FAMILY RESIDENTIAL LOTS, CLEANOUT SHALL BE LOCATED 18" FROM RIGHT-OF-WAY OR EASEMENT. FOR ALL NON-SINGLE FAMILY LOTS, CLEANOUT SHALL BE NO CLOSER THAN 10' TO FRONT OF BUILDING, UNLESS OTHERWISE APPROVED BY FAYPWC.

THE FOLLOWING TABLE SUMMARIZES THE MATERIALS TO BE UTILIZED FOR SEWER MAIN TO LATERAL CONNECTIONS:

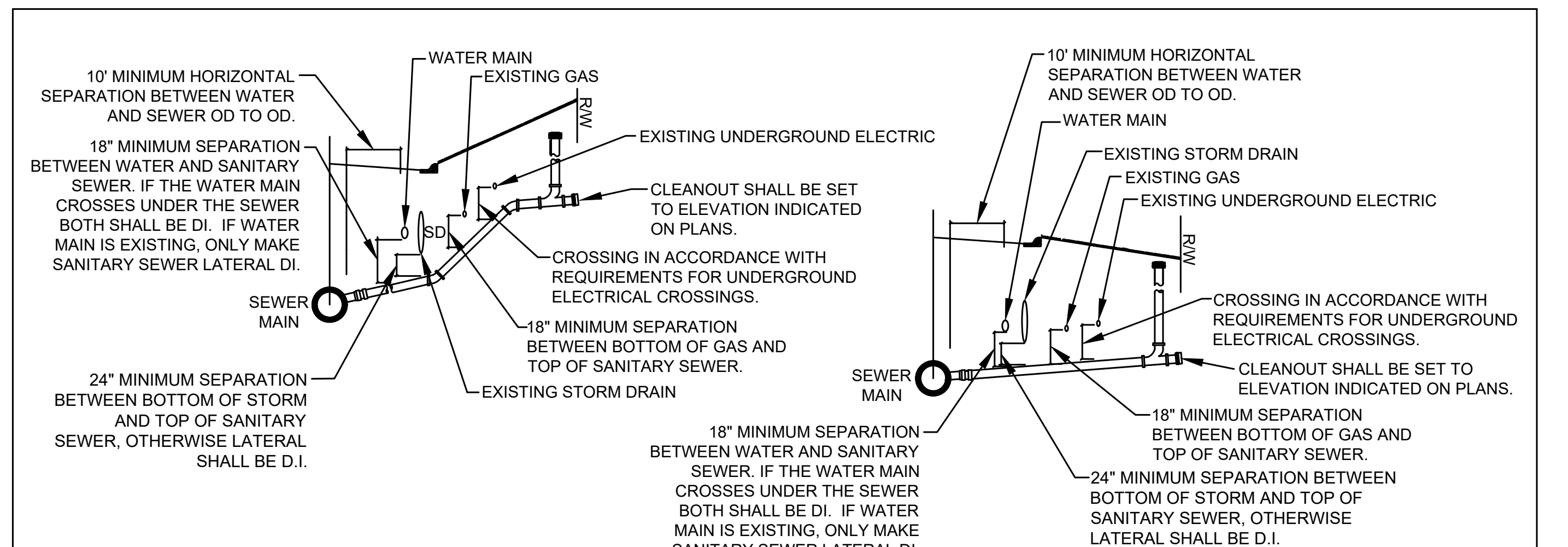
	PVC Main	**DI Main**
DI Lateral	**DI fitting or approved saddle**	**MJ fitting or approved saddle**
PVC Lateral	**PVC fitting or approved saddle**	**MJ fitting with transition gasket or approved saddle**

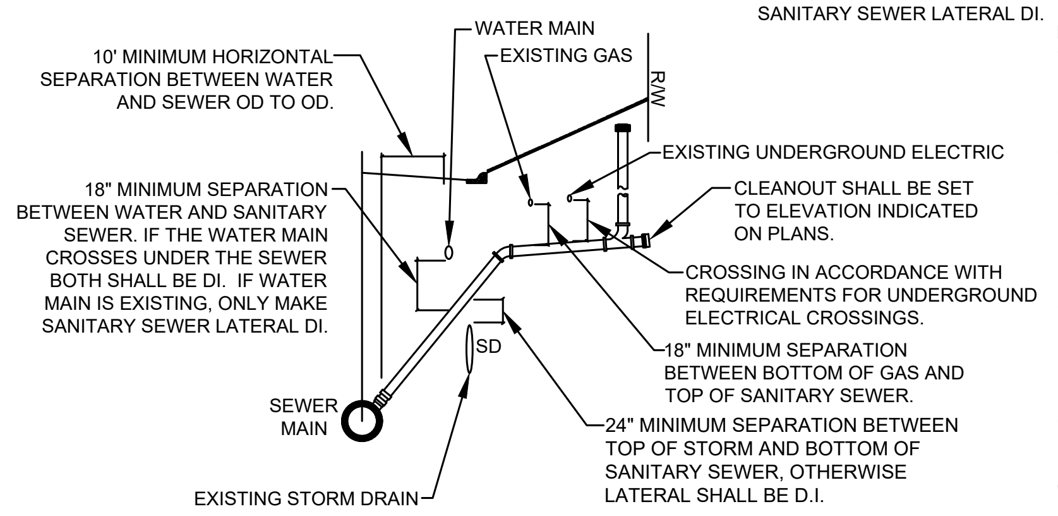
NOTE: REFER TO FAYPWC TECHNICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.

SEWER LATERAL NOTES (4-INCH AND 6-INCH)
SHEET NO. 1 OF 1 | DWG. NO. S.11 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
3	01/13	REVISED NOTES AND ADDED TABLE
4	01/15	REVISED NOTE 22, TABLE
5	07/18	REVISED NOTES 6, 9

S11-RESSLAT-NOTES.dwg


10' MINIMUM HORIZONTAL SEPARATION BETWEEN WATER AND SEWER OD TO OD.
WATER MAIN
EXISTING GAS
R/W
EXISTING UNDERGROUND ELECTRIC
18" MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER. IF THE WATER MAIN CROSSES UNDER THE SEWER BOTH SHALL BE DI. IF WATER MAIN IS EXISTING, ONLY MAKE SANITARY SEWER LATERAL DI.
CLEANOUT SHALL BE SET TO ELEVATION INDICATED ON PLANS.
SD
CROSSING IN ACCORDANCE WITH REQUIREMENTS FOR UNDERGROUND ELECTRICAL CROSSINGS.
SEWER MAIN
18" MINIMUM SEPARATION BETWEEN BOTTOM OF GAS AND TOP OF SANITARY SEWER.
24" MINIMUM SEPARATION BETWEEN BOTTOM OF STORM AND TOP OF SANITARY SEWER, OTHERWISE LATERAL SHALL BE D.I.
EXISTING STORM DRAIN
10' MINIMUM HORIZONTAL SEPARATION BETWEEN WATER AND SEWER OD TO OD.
WATER MAIN
EXISTING STORM DRAIN
EXISTING GAS
EXISTING UNDERGROUND ELECTRIC
R/W
CROSSING IN ACCORDANCE WITH REQUIREMENTS FOR UNDERGROUND ELECTRICAL CROSSINGS.
SEWER MAIN
CLEANOUT SHALL BE SET TO ELEVATION INDICATED ON PLANS.
18" MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER. IF THE WATER MAIN CROSSES UNDER THE SEWER BOTH SHALL BE DI. IF WATER MAIN IS EXISTING, ONLY MAKE SANITARY SEWER LATERAL DI.
18" MINIMUM SEPARATION BETWEEN BOTTOM OF GAS AND TOP OF SANITARY SEWER.
24" MINIMUM SEPARATION BETWEEN BOTTOM OF STORM AND TOP OF SANITARY SEWER, OTHERWISE LATERAL SHALL BE D.I.


WATER MAIN
EXISTING GAS
R/W
10' MINIMUM HORIZONTAL SEPARATION BETWEEN WATER AND SEWER OD TO OD.
EXISTING UNDERGROUND ELECTRIC
CLEANOUT SHALL BE SET TO ELEVATION INDICATED ON PLANS.
18" MINIMUM SEPARATION BETWEEN WATER AND SANITARY SEWER. IF THE WATER MAIN CROSSES UNDER THE SEWER BOTH SHALL BE DI. IF WATER MAIN IS EXISTING, ONLY MAKE SANITARY SEWER LATERAL DI.
CROSSING IN ACCORDANCE WITH REQUIREMENTS FOR UNDERGROUND ELECTRICAL CROSSINGS.
SD
18" MINIMUM SEPARATION BETWEEN BOTTOM OF GAS AND TOP OF SANITARY SEWER.
SEWER MAIN
24" MINIMUM SEPARATION BETWEEN TOP OF STORM AND BOTTOM OF SANITARY SEWER, OTHERWISE LATERAL SHALL BE D.I.
EXISTING STORM DRAIN

NOTES:
1. ALL VERTICAL AND HORIZONTAL SEPARATION SHALL BE IN ACCORDANCE WITH STATE REGULATIONS AND FAYPWC REQUIREMENTS.
2. THE SKETCHES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY.
3. THE CONTRACTOR SHALL BE REQUIRED TO VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY AT EACH CROSSING PRIOR TO CONSTRUCTION OF LATERAL TO ENSURE PROPER CLEARANCES ARE MAINTAINED.
4. ALL PIPE BEND LOCATIONS AND MAXIMUM NUMBER OF BENDS INSTALLED ON LATERALS SHALL BE APPROVED BY THE PROJECT COORDINATOR PRIOR TO INSTALLATION OF BEND OR EXTENDING THE LATERAL FROM THE MAIN.
5. ALL REQUIREMENTS INDICATED IN THE SEWER LATERAL NOTES AND DETAILS SHALL BE APPLICABLE.
6. REFER TO UNDERGROUND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION WHEN CROSSING UNDERGROUND ELECTRICAL FACILITIES.

SEWER LATERAL UTILITY CONFLICT SEPARATION REQUIREMENTS
N.T.S.
SHEET NO. 1 OF 1 | DWG. NO. S.12 | DWG. BY: FAYPWC
DATE: JAN. 01, 2024 | APPROVED BY: M.M.M.
FAYETTEVILLE PUBLIC WORKS COMMISSION FAYETTEVILLE, N.C.
WATER RESOURCES ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	11/06	ADDED NOTE ON DI LATERALS
2	03/10	ADDED LATERAL AND WM SEPARATION
3	11/23	REVISED/CLARIFIED NOTES

S12-UTIL-CONFLICT.dwg

PWC SANITARY SEWER DETAILS

PLAN TYPE: 100% PLANS
SHEET NUMBER 30 OF 45

Kimley»Horn
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421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

SEAL 045249
DocuSigned by:
2AFE0F1BD88840D...
7/15/2025

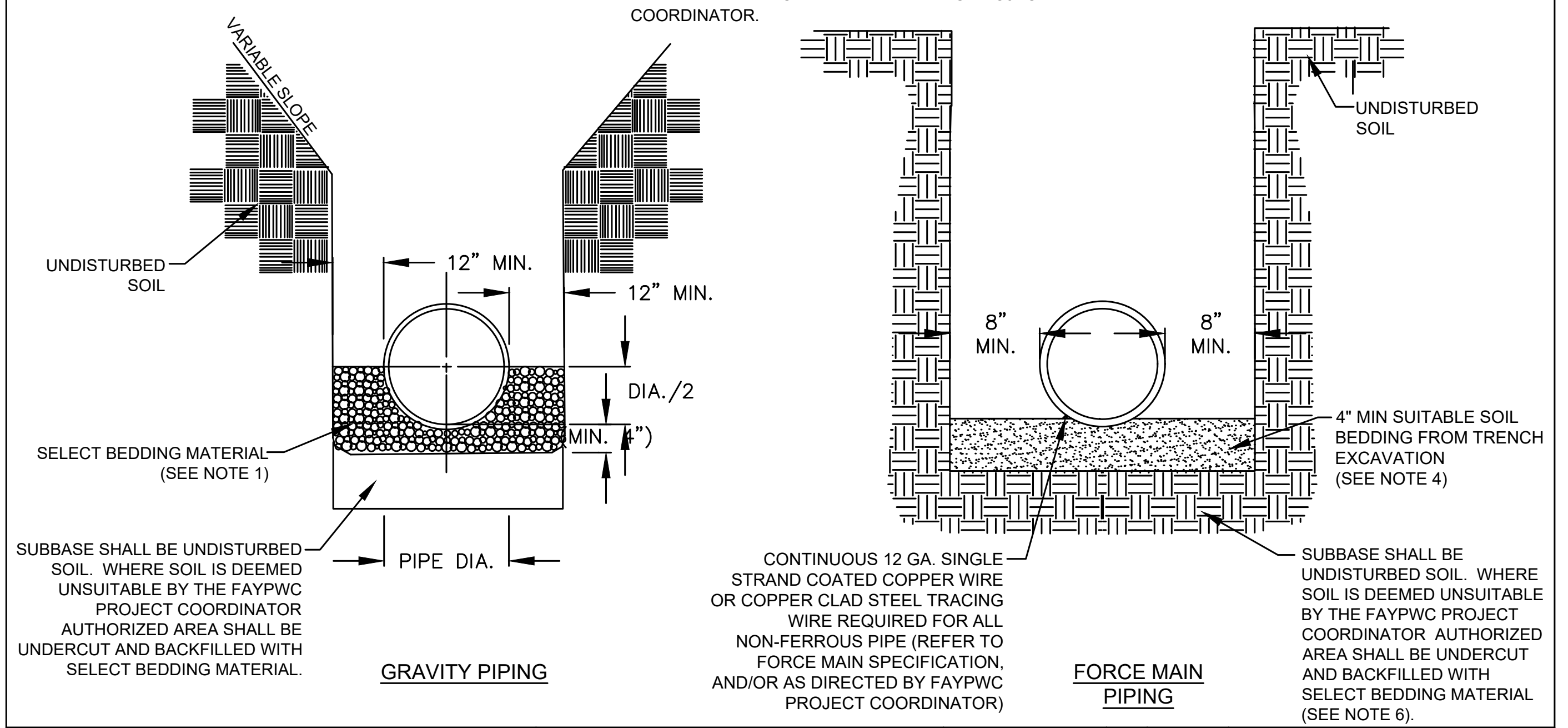
REV. #	REVISIONS DESCRIPTION	REV.BY DATE

ISSUED FOR CONSTRUCTION

DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH
PROJECT NAME : TRYON DRAINAGE
SCALE : NOT TO SCALE
DATE : APRIL 2024

PROJECT NO. KH 011017025
SUB-LEDGER NO.

NOTES:
1. THE SELECT BEDDING MATERIAL SHALL BE WELL GRADED CRUSHED ROCK (NO. 5 OR NO. 57 STONE) FOR THE FULL WIDTH OF THE TRENCH.
2. SELECT BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
3. SELECT BEDDING MATERIAL SHALL BE PROPERLY PLACED TO THE SPRING LINE OF THE PIPE FOR ITS ENTIRE LENGTH.
4. SUITABLE SOIL BEDDING IS DEFINED AS "NATIVE" SOIL EXCAVATED FROM THE TRENCH, FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH.
5. SUITABLE BEDDING MATERIAL SHALL EXTEND TO UNDISTURBED TRENCH WALLS.
6. IF GROUND CONDITIONS WARRANT, IT MAY BE NECESSARY TO BED DUCTILE IRON FORCE MAINS IN SELECT BEDDING MATERIAL (NO. 5 OR NO. 57 STONE) TO THE SPRINGLINE OF THE PIPE. SUCH INSTALLATION SHALL BE AS DIRECTED BY THE FAYPWC PROJECT COORDINATOR.


VARIABLE SLOPE
UNDISTURBED SOIL
12" MIN.
12" MIN.
DIA./2
MIN. 4")
SELECT BEDDING MATERIAL (SEE NOTE 1)
SUBBASE SHALL BE UNDISTURBED SOIL. WHERE SOIL IS DEEMED UNSUITABLE BY THE FAYPWC PROJECT COORDINATOR AUTHORIZED AREA SHALL BE UNDERCUT AND BACKFILLED WITH SELECT BEDDING MATERIAL.
PIPE DIA.
GRAVITY PIPING
UNDISTURBED SOIL
8" MIN.
8" MIN.
4" MIN SUITABLE SOIL BEDDING FROM TRENCH EXCAVATION (SEE NOTE 4)
CONTINUOUS 12 GA. SINGLE STRAND COATED COPPER WIRE OR COPPER CLAD STEEL TRACING WIRE REQUIRED FOR ALL NON-FERROUS PIPE (REFER TO FORCE MAIN SPECIFICATION, AND/OR AS DIRECTED BY FAYPWC PROJECT COORDINATOR)
SUBBASE SHALL BE UNDISTURBED SOIL. WHERE SOIL IS DEEMED UNSUITABLE BY THE FAYPWC PROJECT COORDINATOR AUTHORIZED AREA SHALL BE UNDERCUT AND BACKFILLED WITH SELECT BEDDING MATERIAL (SEE NOTE 6).
FORCE MAIN PIPING

SEWER BEDDING
N.T.S.
SHEET NO. 1 OF 1
DWG. NO. S.13
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	01/01/05	REVISED NOTES
2	01/01/16	REVISED NOTES

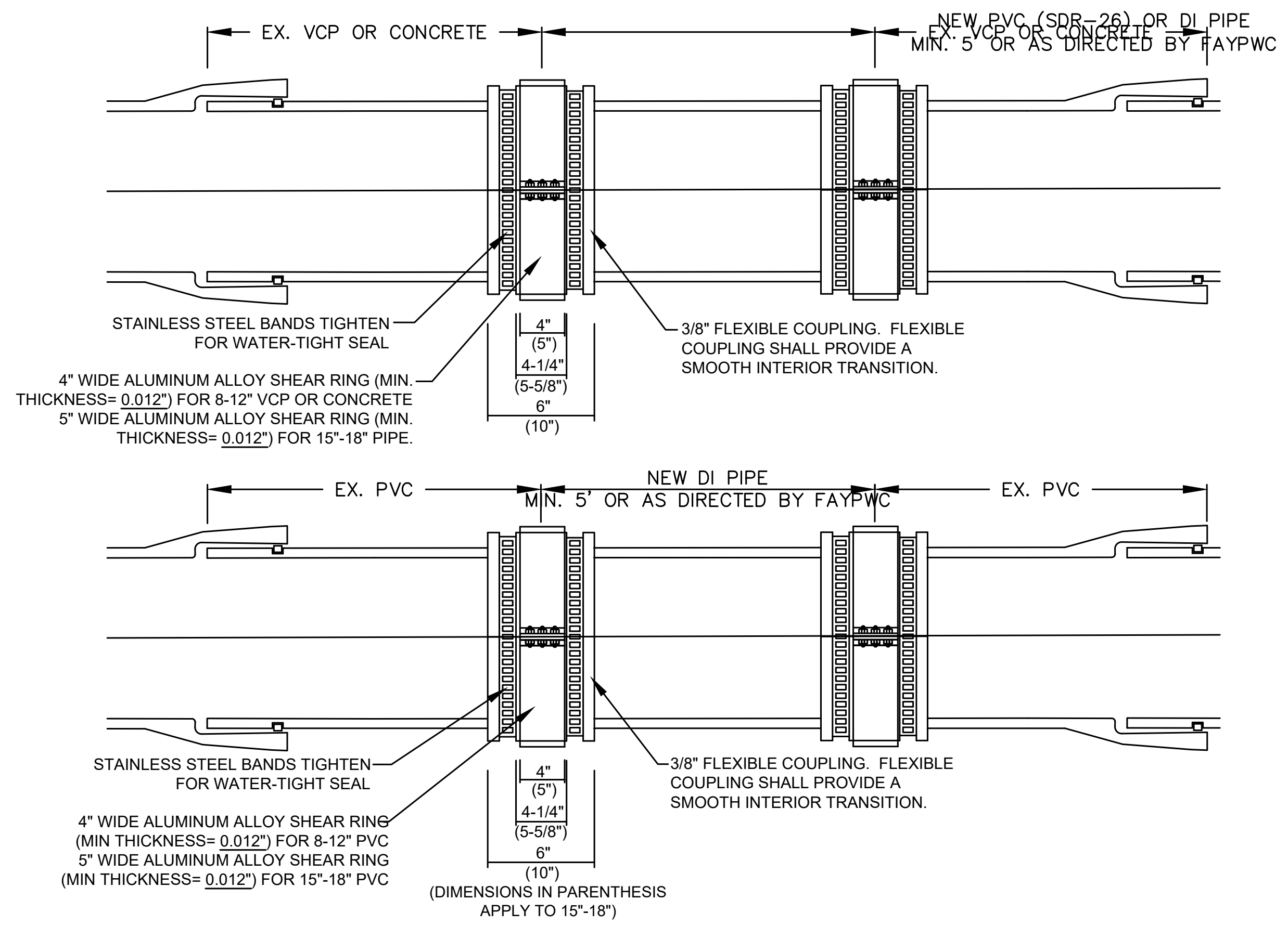
S13-SEWER-BEDDING.dwg

NOTES:
1. SANITARY SEWER REPAIR SHALL BE APPROVED BY FAYPWC PRIOR TO MAKING THE REPAIR. IF THE REPAIR IS WITHIN 20' OF AN EXISTING MANHOLE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND RELAY PIPE TO NEAREST MANHOLE, UNLESS OTHERWISE DIRECTED BY FAYPWC.
2. ALL MATERIALS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE FAYETTEVILLE PUBLIC WORKS COMMISSION.
3. CONTRACTOR SHALL PROVIDE ALL NECESSARY PUMPS, HEADER PIPE, PUMPING EQUIPMENT, ETC. PRIOR TO BEGINNING CONSTRUCTION. DUPLICATE SEWAGE HANDLING PUMPS, PIPING, ETC. SHALL BE ON-SITE AND AVAILABLE FOR IMMEDIATE USE SHOULD PRIMARY PUMP OR FORCE MAIN FAIL. INSURE PUMPS, HEADER PIPING, ETC. ARE PROPERLY SIZED AND OPERATIONAL BEFORE BEGINNING WORK.
4. PIPE REPAIR SHALL EXHIBIT STRAIGHT HORIZONTAL ALIGNMENT AND INVERT SHALL BE THE SAME AS THE EXISTING PIPE SLOPE. DEFLECTIONS OF HORIZONTAL AND VERTICAL ALIGNMENT ARE NOT ACCEPTABLE.
5. PIPE SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH FAYPWC STANDARD SPECIFICATION.
6. REPLACEMENT PIPE SHALL BE PROPERLY BEDDED IN ACCORDANCE WITH FAYPWC STANDARD DETAIL S.13.
7. THERE SHALL BE NO MORE THAN 1/4" SPACE BETWEEN THE EXISTING SEWER MAIN AND THE REPLACEMENT PIPE AT EACH END.
8. DAMAGED SECTION SHALL BE CUT OUT WITHOUT DAMAGING THE PIPE TO REMAIN.
9. DI SEWER PIPE AND FITTINGS SHALL HAVE AN INTERIOR COATING OF PROTECTO 401 OR APPROVED EQUAL.
10. DI PIPE SHALL BE UTILIZED WHEN STATE MINIMUM SEPARATION REQUIREMENTS CANNOT BE MET OR AS DIRECTED BY FAYPWC.
11. PIPE REPAIRS ON MATERIALS OTHER THAN SHOWN, SHALL BE AS DIRECTED BY FAYPWC.
12. THE MINIMUM LENGTH OF REPAIR SHALL BE 5 FEET, UNLESS OTHERWISE DIRECTED BY FAYPWC.

GRAVITY SANITARY SEWER PIPE REPAIR
SHEET NO. 1 OF 3
DWG. NO. S.15
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	01/05	REVISED REPLACEMENT PIPE
2	07/11	REVISED NOTES

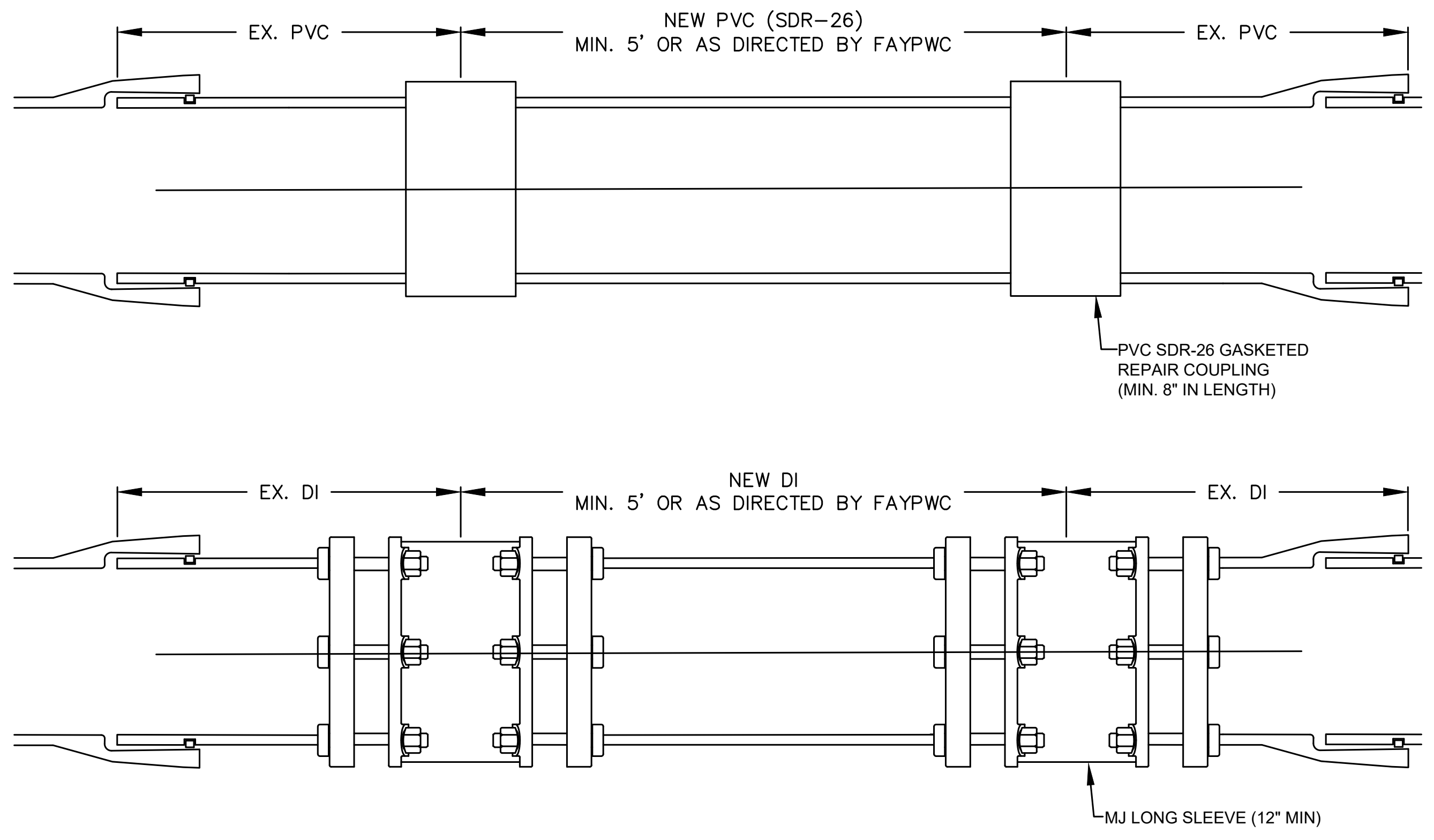
S15-VCP-REPAIR.dwg


EX. VCP OR CONCRETE
NEW PVC (SDR-26) OR DI PIPE
MIN. 5' OR AS DIRECTED BY FAYPWC
EX. VCP OR CONCRETE
STAINLESS STEEL BANDS TIGHTEN FOR WATER-TIGHT SEAL
4" WIDE ALUMINUM ALLOY SHEAR RING (MIN. THICKNESS= 0.012") FOR 8-12" VCP OR CONCRETE 5" WIDE ALUMINUM ALLOY SHEAR RING (MIN. THICKNESS= 0.012") FOR 15"-18" PIPE.
4"
(5")
4-1/4"
(5-5/8")
6"
(10")
3/8" FLEXIBLE COUPLING. FLEXIBLE COUPLING SHALL PROVIDE A SMOOTH INTERIOR TRANSITION.
EX. PVC
NEW DI PIPE
MIN. 5' OR AS DIRECTED BY FAYPWC
EX. PVC
STAINLESS STEEL BANDS TIGHTEN FOR WATER-TIGHT SEAL
4" WIDE ALUMINUM ALLOY SHEAR RING (MIN THICKNESS= 0.012") FOR 8-12" PVC 5" WIDE ALUMINUM ALLOY SHEAR RING (MIN THICKNESS= 0.012") FOR 15"-18" PVC
4"
(5")
4-1/4"
(5-5/8")
6"
(10")
(DIMENSIONS IN PARENTHESIS APPLY TO 15"-18")
3/8" FLEXIBLE COUPLING. FLEXIBLE COUPLING SHALL PROVIDE A SMOOTH INTERIOR TRANSITION.

GRAVITY SANITARY SEWER PIPE REPAIR
N.T.S.
SHEET NO. 2 OF 3
DWG. NO. S.15
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	01/05	REVISED REPLACEMENT PIPE
2	07/11	REVISED NOTES

S15-VCP-REPAIR.dwg


EX. PVC
NEW PVC (SDR-26)
MIN. 5' OR AS DIRECTED BY FAYPWC
EX. PVC
PVC SDR-26 GASKETED REPAIR COUPLING (MIN. 8" IN LENGTH)
EX. DI
NEW DI
MIN. 5' OR AS DIRECTED BY FAYPWC
EX. DI
MJ LONG SLEEVE (12" MIN)

GRAVITY SANITARY SEWER PIPE REPAIR
N.T.S.
SHEET NO. 3 OF 3
DWG. NO. S.15
DWG. BY: FAYPWC
DATE: JAN. 01, 2024
APPROVED BY: M.M.M.
FAYETTEVILLE
PUBLIC WORKS COMMISSION
FAYETTEVILLE, N.C.
WATER RESOURCES
ENGINEERING DEPARTMENT
PWC

NO.	DATE	REVISION
1	01/05	REVISED REPLACEMENT PIPE
2	07/11	REVISED NOTES, REPAIRS

S15-VCP-REPAIR.dwg

PWC SANITARY SEWER DETAILS

PLAN TYPE:
100% PLANS

SHEET NUMBER
31 OF 45

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
2AFE0F1BD88840D...
SEAL
045249
NATHANIEL L. HARVEY
7/15/2025
NAME:
DATE:

REV. #	DESCRIPTION	REV.BY	DATE

REVISIONS

ISSUED
FOR CONSTRUCTION

DRAWN : JNB
DESIGN : NLH
CHECK : NDR
APPROVED : NLH
PROJECT NAME : TRYON DRAINAGE
SCALE : NOT TO SCALE
DATE : APRIL 2024

PROJECT NO. KH 011017025
SUB-LEDGER NO.

1.00 DOCUMENTS AND LIMITATIONS

1.01 THESE STRUCTURAL DOCUMENTS, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, ARE INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY–HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY–HORN AND ASSOCIATES, INC.

1.02 1.03 ALL NON–STRUCTURAL ELEMENTS INDICATED ON THE STRUCTURAL DRAWINGS HAVE BEEN SHOWN IN GENERAL TO THE RELATIONSHIP TO THE STRUCTURAL ELEMENTS ONLY. ACCORDINGLY, THEY SHALL NOT BE ASSUMED TO BE ACCURATE AND REFERENCE MUST BE MADE TO THE APPROPRIATE CONSULTANT(S) PLANS AND SPECIFICATIONS.

1.04 IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE LOCATION OF EMBEDDED ITEMS, SLEEVES, ANCHORS, AND PENETRATIONS AS REQUIRED AND/OR FURNISHED BY THE OTHER TRADES.

2.00 STATEMENT OF SPECIAL INSPECTION

2.01 SPECIAL INSPECTIONS SHALL BE PROVIDED IN COMPLIANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS.

2.02 OWNER WILL ENGAGE A SPECIAL INSPECTOR AND QUALIFIED TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS.

2.03 SPECIAL INSPECTIONS ARE REQUIRED FOR SOILS AND CONCRETE RETAINING WALLS. CONTRACTOR SHALL NOTIFY SPECIAL INSPECTOR AND TESTING AGENCY 48 HOURS IN ADVANCE OF ITEMS REQUIRED FOR SPECIAL INSPECTION.

2.04 ALL SPECIAL INSPECTION MONTHLY REPORTS SHALL BE SIGNED AND SEALED BY AN ENGINEER LICENSED IN NORTH CAROLINA, WHO HAS RESPONSIBLE CHARGE OF THE SPECIAL INSPECTIONS PROGRAM.

2.05 A SPECIAL INSPECTIONS MEETING SHALL BE HELD ON SITE WITH DESIGNER, CONSTRUCTION MANAGER, INDEPENDENT TESTING AGENCY, AND SPECIAL INSPECTOR TO CLARIFY ALL SPECIAL INSPECTION REQUIREMENTS PRIOR TO BEGINNING WORK.

3.00 CONSTRUCTION SAFETY

3.01 THE CONTRACTOR IS SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK ON THE PROJECT. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THE PERSONS INVOLVED AND PROTECT THEM AGAINST INJURY. LIKEWISE, THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY AGAINST DAMAGE OR LOSS.

3.02 THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY.

3.03 THE CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR THE SAFETY AND PROTECTION OF THE WORK SHALL CONTINUE UNTIL SUCH TIME AS THE WORK IS SATISFACTORILY COMPLETED, AND THE ENGINEER HAS ISSUED A NOTICE TO THAT EFFECT TO THE OWNER AND THE CONTRACTOR.

3.04 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY CONDITIONS CREATED DURING THE SCOPE OF WORK AND SHALL TAKE NECESSARY PRECAUTIONS TO STABILIZE THE STRUCTURE AND OPEN EXCAVATIONS WHEN NOT IN THE COMPLETED STATE.

3.05 TEMPORARY CONSTRUCTION PEDESTRIAN AND VEHICULAR BARRICADES ARE TO BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR MUST PROVIDE FENCING AND BARRIERS AS REQUIRED TO COMPLETE THE WORK AND SAFEGUARD THE PUBLIC.

4.00 FOUNDATIONS, WINGWALLS, AND GEOTECHNICAL NOTES

4.01 FOUNDATION AND RETAINING WALL DESIGN ARE BASED ON GEOTECHNICAL ENGINEERING INFORMATION PROVIDED BY FROEHLING & ROBERTSON, INC. IN THE REPORT DATED JULY 15. 2022 AND FEBRUARY 13, 2025. CONTRACTOR SHALL REFER TO ALL RECOMMENDATIONS INCLUDED.

4.02 EXCESSIVE COMPACTION NEAR THE WALL(S) MAY CAUSE DAMAGE TO THE WALLS; IT IS RECOMMENDED THAT LOW GROUND PRESSURE EQUIPMENT (SUCH AS SMALL, WALK–BEHIND ROLLERS) BE UTILIZED TO COMPACT MATERIAL TO A DISTANCE OF AT LEAST 8 TO 10 FEET BEHIND THE WALLS.

4.03 IT IS RECOMMENDED THAT THE HEADWALL AND WINGWALL FOUNDATIONS BEARING GRADES BE OBSERVED BY A QUALIFIED GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE. IN ADDITION, HAND AUGERS AND DYNAMIC CONE PENETROMETER (DCP) TESTING SHOULD BE PERFORMED TO VERIFY THE CONSISTENCY OF THE BEARING GRADE AND UNDERLYING SOILS. THE PURPOSE OF THE ENGINEERING OBSERVATION WOULD BE TO DETERMINE THAT THE FOUNDATIONS BEAR ON SUITABLE AND STABLE SOILS AND THE UNSUITABLE, LOOSE MATERIALS ARE UNDERCUT AND BACKFILLED APPROPRIATELY.

4.04 GROUNDWATER WAS ENCOUNTERED IN THE BORINGS AT DEPTHS RANGING FROM APPROXIMATELY 5.9 TO 7.5 FEET BELOW THE EXISTING GROUND SURFACE. ALSO, WET AND/OR SATURATED SOIL CONDITIONS WERE ENCOUNTERED IN THE BORINGS TYPICALLY AT DEPTHS RANGING FROM 2 TO 6.5 FEET BELOW THE EXISTING GROUND SURFACE. BASED ON PROPOSED CULVERT INVERT ELEVATIONS, GROUNDWATER WILL LIKELY BE ENCOUNTERED AT AND/OR 1–4 FEET ABOVE THE INVERTS. AS SUCH, IT SHOULD BE EXPECTED THAT GROUNDWATER WILL LIKELY BE ENCOUNTERED DURING CONSTRUCTION AND DEWATERING WILL LIKELY BE REQUIRED. AS SUCH, EXCAVATION DEWATERING WILL BE REQUIRED IN ORDER TO MAINTAIN A DRAINED, STABLE EXCAVATION AND TO PREVENT SOFTENING/LOOSENING OF THE EXCAVATION SUBGRADE. THE GROUNDWATER SHOULD BE LOWERED TO A DEPTH OF AT LEAST 3 TO 4 FEET BELOW THE BOTTOM OF THE EXCAVATION AND SHOULD BE LOWERED PRIOR TO REMOVAL OF THE FINAL 3 TO 4 FEET OF OVERBURDEN. DEPENDING UPON THE PREVAILING WEATHER CONDITIONS DURING CONSTRUCTION AND FLOW IN THE CHANNEL, PUMPING FROM SUMP PITS MAY BE SUFFICIENT TO MAINTAIN A DRAINED EXCAVATION. HOWEVER DURING PERIODS OF INCLEMENT WEATHER, SUMP PITS AND PUMPING MAY NOT BE SUFFICIENT TO CONTROL BOTH GROUNDWATER AND SURFACE WATER, AND MORE EXTENSIVE DRAINAGE/DEWATERING MEASURES MAY BE REQUIRED. THE METHOD OF SURFACE WATER AND GROUNDWATER CONTROL SHOULD BE DETERMINED AND DESIGNED BY THE CONTRACTOR, BUT MAY REQUIRE WELL POINTS, CREEK DIVERSION, COFFER DAMS, SHEET PILING, OR OTHER MEANS.

4.05 IT SHOULD BE NOTED THAT IF GROUNDWATER LEVELS ARE NOT EFFECTIVELY MAINTAINED BELOW THE BASE OF THE EXCAVATION DURING CONSTRUCTION, UNSTABLE AND LOOSENED/SOFTENED SUBGRADE CONDITIONS COULD DEVELOP, WHICH MAY CAUSE EXCESSIVE SETTLEMENTS TO DEVELOP BENEATH THE COMPLETED STRUCTURE OR REQUIRE ADDITIONAL SUBGRADE REPAIR (E.G., DENSIFICATION, UNDERCUTTING & REPLACEMENT WITH WASHED STONE, ETC.). THEREFORE, EFFORTS SHOULD BE INCORPORATED IN THE CONSTRUCTION SEQUENCE TO PROPERLY CONTROL GROUNDWATER LEVELS DURING CONSTRUCTION. ADDITIONALLY, IT IS RECOMMENDED THAT ONLY EXCAVATION CONTRACTORS EXPERIENCED IN SIMILAR EXCAVATIONS AND GROUNDWATER CONTROL SHOULD BE ALLOWED TO PERFORM THIS WORK.

4.06 DUE TO THE LIMITED CONSTRUCTION AREA AVAILABLE WITHIN THE EASEMENT FOR THE EXISTING CULVERT, WE ANTICIPATE THE EXCAVATIONS MAY NOT BE ABLE TO BE SUFFICIENTLY SLOPED AND WILL REQUIRE TEMPORARY SHORING. TRENCH BOXES OR INTERNALLY–BRACED EXCAVATIONS ARE ANTICIPATED; HOWEVER, THE TYPE OF EXCAVATION STABILIZATION OR SHORING SYSTEM USED SHALL BE SELECTED AND DESIGNED BY THE CONTRACTOR.

4.07 MASS EXCAVATIONS AND OTHER EXCAVATIONS REQUIRED FOR CONSTRUCTION OF THIS PROJECT SHOULD BE PERFORMED IN ACCORDANCE WITH THE UNITED STATES DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) GUIDELINES (29 CFR 1926, SUBPART P, EXCAVATIONS), OR OTHER APPLICABLE JURISDICTIONAL CODES FOR PERMISSIBLE TEMPORARY SIDE–SLOPE RATIOS AND/OR SHORING REQUIREMENTS. THE OSHA GUIDELINES REQUIRE DAILY INSPECTIONS OF EXCAVATIONS, ADJACENT AREAS AND PROTECTIVE SYSTEMS BY A "COMPETENT PERSON"FOR EVIDENCE OF SITUATIONS THAT COULD RESULT IN CAVE–INS, INDICATIONS OF FAILURE OF A PROTECTIVE SYSTEM, OR OTHER HAZARDOUS CONDITIONS. ALL EXCAVATED SOILS, EQUIPMENT, BUILDING SUPPLIES, ETC., SHOULD BE PLACED AWAY FROM THE EDGES OF EXCAVATIONS AT A DISTANCE EQUALING OR EXCEEDING THE DEPTH OF THE EXCAVATION. F&R CAUTIONS THAT THE ACTUAL EXCAVATION SLOPES WILL NEED TO BE EVALUATED FREQUENTLY EACH DAY BY THE "COMPETENT PERSON"AND FLATTER SLOPES OR THE USE OF SHORING MAY BE REQUIRED TO MAINTAIN A SAFE EXCAVATION DEPENDING UPON EXCAVATION–SPECIFIC CIRCUMSTANCES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE "COMPETENT PERSON"AND ALL ASPECTS OF SITE EXCAVATION SAFETY. F&R CAN EVALUATE SPECIFIC EXCAVATION SLOPE SITUATIONS IF WE ARE INFORMED AND REQUESTED BY THE OWNER, DESIGNER, OR CONTRACTOR'S "COMPETENT PERSON".

4.08 THE IN–SITU SOILS UNDER THE WINGWALLS SHALL BE UNDERCUT TO DEPTHS OF 2–4 FEET BELOW THE BEARING GRADE AND REPLACED WITH NO. 57 WASHED STONE UP TO THE PLANNED BEARING GRADE AND ENCASED WITH A GEOTEXTILE FILTER FABRIC. THE WASHED STONE THICKNESS SHOULD EXCEED TWO FEET BEFORE THE SURFACE OF THE WASHED STONE IS REQUIRED TO BE DENSIFIED WITH A HEAVY VIBRATORY PLATE COMPACTOR TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.

4.09 RETAINING WALL DESIGN PARAMETERS:

DESIGN PARAMETER	TYPE OF BACKFILL	DESIGN VALUE	LATERAL EARTH PRESSURE COEFFICIENT
SOLID UNIT WEIGHT		120 PCF	
EQUIVALENT FLUID PRESSURE (ACTIVE CONDITION, CANTILEVERED WALL)	SOIL	40 PSF/FT	0.33
EQUIVALENT FLUID PRESSURE (PASSIVE CONDITION, CANTILEVERED WALL)	SOIL	150 PSF/FT	1.25
NET ALLOWABLE BEARING PRESSURE		2,000 PSF	
ULTIMATE COEFFICIENT OF SLIDING FRICTION		0.25	

5.00 DESIGN LOADS

5.01 AASHTO LRFD BRIDGE DESIGN MANUAL, 9TH EDITION

5.02 LOADING:
- A. DEAD: SELF–WEIGHT
- B. LIVE: 250 PSF CONSTRUCTION SURCHARGE LOADING
- C. WIND: PER AASHTO

6.00 REINFORCED CONCRETE (CAST–IN–PLACE)

6.01 READY–MIX CONCRETE WORK SHALL CONFORM TO ASTM C94.

6.02 STRUCTURAL CONCRETE MATERIALS SHALL CONFORM TO THE FOLLOWING:
- A. MAXIMUM WATER–TO–CEMENT RATIO: 0.45
- B. TYPE II PORTLAND CEMENT – ASTM C150
- C. AGGREGATES (3/4" MAX.) ASTM C33
- D. AIR ENTRAINING (4.5% MIN. – 7% MAX.) – ASTM C260
- E. WATER REDUCING – ASTM C494
- F. FLY ASH (MAX. 25% BY WEIGHT), TYPE F – ASTM C618
- G. WATER – CLEAN AND POTABLE – ASTM C1602
- H. REINFORCED STEEL – ASTM A615 GRADE 60
- I. WELDED WIRE FABRIC – ASTM A1064
- J. GROUT SHALL BE NON–SHRINK, NON–METALLIC
- K. USE OF CALCIUM CHLORIDE IS NOT PERMITTED

6.03 STRUCTURAL CONCRETE MIX SHALL CONFORM TO THE FOLLOWING:
- A. CONCRETE MIXES AND EXPOSURE CLASS ACCORDING TO ACI 318:
  - WALLS: 4,000 PSI, ACI 318 CLASS F1 S0 W0 C2
  - FOUNDATIONS: 4,000 PSI, ACI 318 CLASS F1 S0 W0 C2

6.04 REQUIRED SLUMP: 2" TO 4" (BEFORE ADDITION OF SUPERPLASTICIZER)

6.05 ALL CONCRETE MATERIALS, PLACING AND HANDLING SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF ACI 318 AND ACI 301. CONCRETE WORK SHALL CONFORM TO THE CURRENT VERSION OF ACI 318.

6.06 SUBMITTALS;
- A. DETAILED SHOP DRAWINGS OF REINFORCING BARS SHOWING NUMBER, SIZE, AND LOCATION. INCLUDING BAR LISTS AND BEND DIAGRAMS.
- B. MIX DESIGNS FOR EACH TYPE OF CONCRETE SPECIFIED SHALL BE SUBMITTED FOR APPROVAL.
- C. PRODUCT DATA AND MATERIAL CERTIFICATES.

6.07 CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCH TIME.

6.08 ALL CONCRETE SHALL BE CONSOLIDATED IN PLACE USING INTERNAL VIBRATORS.

6.09 CAST–IN–PLACE CONCRETE SHALL BE CONTINUOUSLY CURED FOR 7 DAYS FOLLOWING INITIAL SET.

6.10 CONCRETE SHALL BE CURED IMMEDIATELY AFTER FINISHING OPERATIONS IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS:
- A. APPLY A LIQUID MEMBRANE FORMING CURING COMPOUND IN ACCORDANCE WITH ASTM C309.
- B. WET CURE IN ACCORDANCE WITH ACI 301.

6.11 REMOVE LIQUID MEMBRANE FORMING CHEMICAL CURING COMPOUND AFTER CURING PERIOD HAS ELAPSED, REMOVE CURING COMPOUND WITHOUT DAMAGING CONCRETE SURFACES BY METHOD RECOMMENDED BY CURING COMPOUND MANUFACTURER UNLESS MANUFACTURER CERTIFIES CURING COMPOUND DOES NOT INTERFERE WITH BONDING OF SEALERS, COATINGS, ETC. WHICH MAY BE USED ON PROJECT.

6.12 DETAILING OF REBAR SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE ACI DETAILING MANUAL AND CONCRETE REINFORCING INSTITUTE'S LATEST EDITION OF "MANUAL OF STANDARD PRACTICE". ALL SHOP DRAWINGS PERTAINING TO REBAR DETAILS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

6.13 ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCING BARS ARE TO CENTERLINE OF BARS EXCEPT WHERE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE.

6.14 REINFORCEMENT DETAIL DIMENSIONS SHALL BE OUT–TO–OUT OF BARS.

6.15 PROVIDE 3" CONCRETE COVER OVER REINFORCING BARS EXCEPT AS OTHERWISE NOTED.

6.16 BARS SHALL BE FIELD TIED. WELDING IS NOT PERMITTED.

6.17 SUPPORT REINFORCING IN ITS PROPER POSITION FROM THE FORMWORK DURING CONCRETE OPERATION.

6.18 BAR SUPPORTS, DESIGN, DETAILING, FABRICATION, AND PLACING OF REINFORCING BARS SHALL BE IN ACCORDANCE WITH ACI 318 (BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE).

6.19 PROVIDE 3/4" CHAMFERS AT ALL EXPOSED EDGES OF CONCRETE SURFACES.

6.20 FORM TIES AND REINFORCING BAR SUPPORTS SHALL BE OF NON–CORROSIVE MATERIAL INCLUDING, BUT NOT LIMITED TO, FIBERGLASS, PLASTIC AND/OR CONCRETE BLOCK.

6.21 CONTRACTOR IS RESPONSIBLE FOR THE PROPER DESIGN AND CONSTRUCTION OF ALL FORMWORK AND SHORING. DESIGN SHALL BE PERFORMED BY A PROFESSIONAL ENGINEER LICENSED IN STATE IN WHICH THE WORK IS PERFORMED.

6.22 THE GENERAL CONTRACTOR SHALL ASSIST AND COOPERATE WITH AN INDEPENDENT TESTING LABORATORY (TO BE RETAINED BY THE OWNER) WHICH SHALL CONDUCT THE SPECIFIED TESTS REQUIRED FOR THE CONCRETE WORK AND REPORT THE RESULTS OF THIS TESTING DIRECTLY AND PROMPTLY TO THE ENGINEER FOR REVIEW.

6.23 A QUALIFIED TESTING LABORATORY SHALL BE RETAINED AND ADMINISTERED BY THE OWNER TO PERFORM THE FOLLOWING:
- A. FOR EACH 100 CUBIC YARDS OR FRACTION THEREOF PLACED, 5,000 SQUARE FEET OF SURFACE AREA, OR EACH PLACEMENT OF MIX DESIGN OF CONCRETE PLACED IN ANY ONE DAY, THE FOLLOWING SHALL BE PERFORMED:
  - a. SLUMP: TEST IN ACCORDANCE WITH ASTM C143.
  - b. AIR CONTENT: TEST IN ACCORDANCE WITH ASTM C231 OR C173.
  - c. COMPR. STRENGTH: FABRICATE ONE SET OF (5) 6x12 CYLINDERS, TEST IN ACCORDANCE WITH ASTM C39. FABRICATE ONE SET OF (5) CONCRETE TEST SPECIMENS (CYLINDERS) FOR EACH 50 CUBIC YARDS. TEST ONE CYLINDER AT 7 DAYS AND 3 AT 28 DAYS. AND HOLD ONE IN RESERVE.
  - d. REINF. INSPECTIONS: CONFORM SIZE, QUANTITY, AND LOCATION FOR WALLS GREATER THAN 5' IN HEIGHT.

6.24 ONE COPY OFF ALL TEST REPORTS SHALL BE SENT DIRECTLY TO THE CITY MANAGER, THE GEOTECHNICAL ENGINEER, KIMLEY–HORN, AND THE CONTRACTOR.

6.25 COLD–WEATHER PLACEMENT: COMPLY WITH ACI 306.1 AND AS FOLLOWS. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST, FREEZING ACTIONS, OR LOW TEMPERATURES.
- A. WHEN AVERAGE DAILY TEMPERATURE IS EXPECTED TO FALL BELOW 40 DEGREES FAHRENHEIT FOR THREE SUCCESSIVE DAYS, MAINTAIN CONCRETE MIXTURE TEMPERATURE WITHIN TEMPERATURE RANGE REQUIRED BY ACI 301.
- B. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS.
- C. DO NOT USE CALCIUM CHLORIDE, SALT, OR OTHER MATERIAL CONTAINING ANT–FREEZE AGENTS OR CHEMICAL ACCELERATORS UNLESS OTHERWISE SPECIFIED AND APPROVED IN MIXTURE DESIGNS.

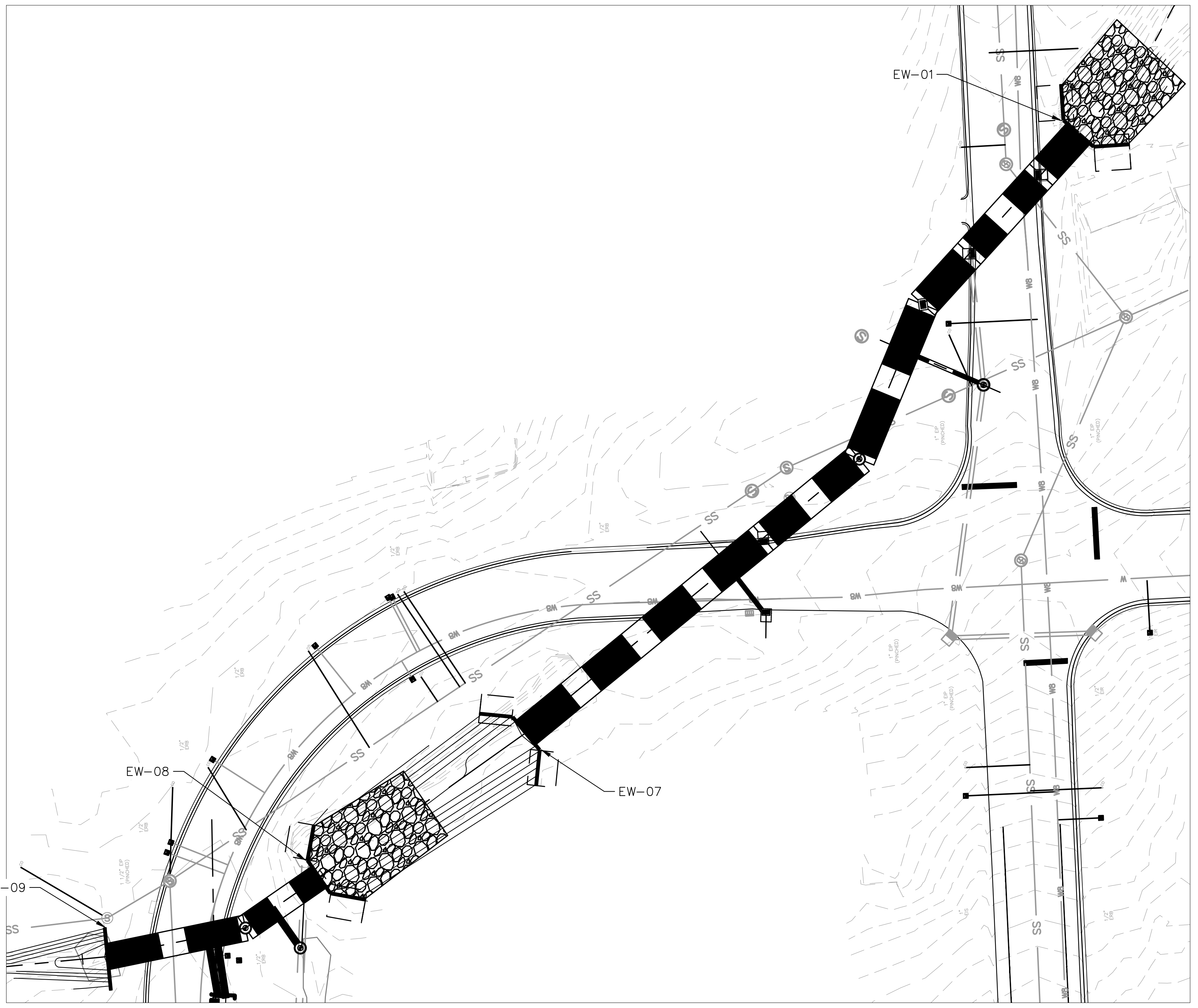
6.26 HOT–WEATHER PLACEMENT: COMPLY WITH ACI 305 AND AS FOLLOWS:
- A. MAINTAIN CONCRETE TEMPERATURE BELOW 90 DEGREES FAHRENHEIT AT TIME OF PLACEMENT.
- B. FOG–SPRAY FORMS, STEEL REINFORCEMENT, AND SUBGRADE JUST BEFORE PLACING CONCRETE. KEEP SUBGRADE UNIFORMLY MOIST WITHOUT STANDING WATER, SOFT SPOTS, OR DRY AREAS.

7.00 DRAIN PIPE MATERIALS & INSTALLATION

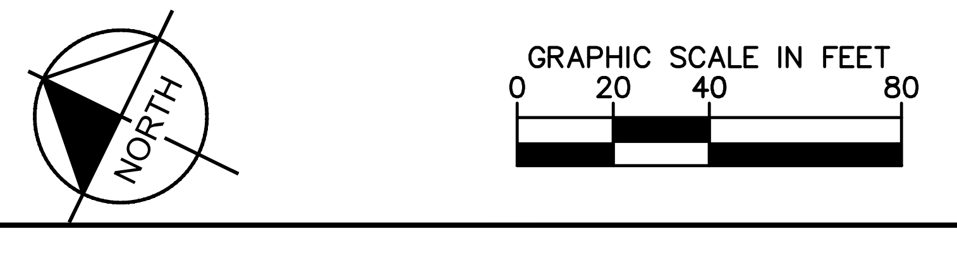
7.01 PERFORATED DRAIN PIPES AND WEEP PIPES SHALL BE SCHEDULE 40 PVC. ALL PVC PIPE DIMENSIONS AND PHYSICAL PROPERTIES SHALL CONFORM TO ASTM D2729. INSTALLATION SHALL COMPLY WITH MANUFACTURER'S INSTALLATION STANDARD. BURIED DRAIN PIPES AND WEEP PIPES SHALL BE INSTALLED PER ASTM D2321 AND ASTM D2855. SOLVENT CEMENT JOINTS SHALL BE MADE IN A TWO–STEP PROCESS WITH PRIMER CONFORMING TO ASTM F656 AND SOLVENT CEMENT CONFORMING TO ASTM D2564. THE SYSTEM SHALL BE PROTECTED FROM CHEMICAL AGENTS, FIRE–STOPPING MATERIALS, THREAD SEALANT, PLASTICIZED–VINYL PRODUCTS OF OTHER AGGRESSIVE CHEMICAL AGENTS NOT COMPATIBLE WITH PVC COMPOUNDS. PERFORATED PIPES SHALL BE WRAPPED IN GEOTECHNICAL FABRIC TO PREVENT BLOCKAGE.

SUMMARY OF QUANTITIES

WALL	4 KSI CONCRETE	REINFORCING STEEL
EW-01	59.7 YD^3	7,519 LBS
EW-07	47.6 YD^3	5,549 LBS
EW-08	53.8 YD^3	7,483 LBS
EW-09	21.1 YD^3	2,005 LBS
TOTAL	182.2 YD^3	22,556 LBS



LOCATION SKETCH



WINGWALL AND HEADWALL NOTES

SHEET NUMBER S–100

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F–0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Cooksey
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SEAL 045140
PATRICK D. COOKSEY
7/14/2025

NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN :	R. GIESEN	PROJECT NAME :	TRYON DRAINAGE
DESIGN :	T. ORR		
CHECK :	P. COOKSEY	SCALE :	
APPROVED :	P. COOKSEY	DATE :	MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

Plotted By:Anderson, Nolen Sheet Set:011017025 – Tryon Layout:RETAINING WALL NOTES July 14, 2025 09:45:34am K:\RDT_Structures_RetainWall_NC\011017032 – Tryon Drive Walls\CAD\S–100 RETAINING WALL NOTES.dwg

Statement of Special Inspections

Project: *Tryon Drive Walls*
Location: *Fayetteville, NC*
Owner: *City of Fayetteville*
Design Professional in Responsible Charge: *Patrick D. Cooksey, PE*

This Statement of Special Inspections is submitted in accordance with Section 1704.3 of the 2015 International Building Code. It includes a *Schedule of Special Inspection Services* applicable to the above-referenced Project as well as the identity of the individuals, agencies, or firms intended to be retained for conducting these inspections. If applicable, it includes *Requirements for Seismic Resistance* and/or *Requirements for Wind Resistance*. This *Statement of Special Inspections* encompass the following disciplines:

☒ Structural ☐ Mechanical/Electrical/Plumbing
☐ Architectural ☐ Other:

Are *Requirements for Seismic Resistance* included in the *Statement of Special Inspections*? ☐ Yes ☒ No

Are *Requirements for Wind Resistance* included in the *Statement of Special Inspections*? ☐ Yes ☒ No

The Special Inspector(s) shall keep records of all inspections and shall furnish interim inspection reports to the Building Official and to the Registered Design Professional in Responsible Charge at a frequency agreed upon by the Design Professional and the Building Official prior to the start of work. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge prior to completion of that phase of work. A *Final Report of Special Inspections* documenting required special inspections and corrections of any discrepancies noted in the inspections shall be submitted to the Building Official and the Registered Design Professional in Responsible Charge at the conclusion of the project.

Frequency of interim report submittals to the Registered Design Professional in Responsible Charge:

__Weekly __Bi-Weekly _X_Monthly Other; specify:_

The Special Inspection program does not relieve the Contractor of the responsibility to comply with the Contract Documents. Jobsite safety and means and methods of construction are solely the responsibility of the Contractor.

Statement of Special Inspections Prepared by:

Patrick D. Cooksey, PE
Type or print name

04/30/2025
Signature Date

Building Official's Acceptance:

Type or print name

Signature Date

Permit Number: ____________________

Frequency of interim report submittals to the Building Official:

__Monthly __Bi- Monthly __Upon Completion Other; specify:________

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

MATERIAL/ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT			
		Y/N	EXTENT	AGENT*	DATE COMPLETED
1704.2.5 Fabricated Items					
Verify fabrication / quality control procedures (unless Exceptions apply to fabricator)	In-plant Review (3)	Y	Periodic		
1705.1.1 Special Cases					
Work unusual in nature including but not limited to alternative materials and systems, unusual design applications, materials and systems with special manufacturer's requirements.	Submittal Review, Shop (3) and/or Field Operations	N			
1705.2.1 Structural Steel					
Fabricator and erector documents (Verify reports and certificates as listed in *AISC 360, chapter N, paragraph 3.2* for compliance with construction documents.)	Submittal Review	N	Each Submittal		
Material verification of structural steel	Shop (3) and Field Inspection	N	Periodic		
Embedments (Verify diameter, grade, type, length, embedment. *See 1705.3* for anchors)	Field Inspection	N	Periodic		
Verify member locations, braces, stiffeners and application of joint details at each connection comply with construction documents.	Field Inspection	N	Periodic		
Structural steel welding:					
Inspection tasks prior to welding (Observe, or perform for each welded joint or member, the QA tasks listed in *AISC 360, Table N5.4-1*)	Shop (3) and Field Inspection	N	Observe or Perform as Noted (4)		
Inspection tasks during welding (Observe or perform for each welded point or member, the QA tasks listed in *AISC 360, Table N5.4-2*)	Shop (3) and Field Inspection	N	Observe (4)		
Inspection tasks after welding (Observe or perform for each welded point or member, the QA tasks listed in *AISC 360, Table N5.4-3*)	Shop (3) and Field Inspection	N	Observe or Perform as Noted (4)		
Nondestructive testing (NDT) of welded joints: see Commentary					
Complete penetration groove welds 5/16" or greater in *risk category* III or IV	Shop (3) or Field Ultrasonic Testing – 100%	N	Periodic		
Complete penetration groove welds 5/16" or greater in *risk category* II	Shop (3) or Field Ultrasonic Testing – 10% of Welds Minimum	N	Periodic		
Thermally cut surfaces of access holes when material t>2"	Shop (3) or Field Magnetic Partial or Penetrant Testing	N	Periodic		
Welded joints subject to fatigue when required by *AISC 360, Appendix 3, Table A-3.1*	Shop (3) or Field Radiographic or Ultrasonic Testing	N	Periodic		
Fabricator NDT reports when fabricator performs NDT	Verify Reports	N	Each Submittal (5)		
Structural Steel Bolting:		N			
Inspection tasks Prior to Bolting (Observe, or perform tasks for each bolted connection in accordance with QA tasks listed in *AISC 360, Table N5.6-1*)	Shop (3) and Field Inspection	N	Observe or Perform as Noted (4)		
Inspection tasks during bolting (Observe the QA tasks listed in *AISC 360, Table N5.6-2*)	Shop (3) and Field Inspection	N	Observe (4)		
Pre-tensioned and slip-critical joints					

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

MATERIAL/ACTIVITY	SERVICE	APPLICABLE TO THIS PROJECT			
		Y/N	EXTENT	AGENT*	DATE COMPLETED
Turn-of-nut with matching markings		N	Periodic		
Direct tension indicator		N	Periodic		
Twist-off type tension control bolt		N	Periodic		
Turn-of-nut without matching markings		N	Continuous		
Calibrated wrench		N	Continuous		
Snug-tight joints		N	Periodic		
Inspection tasks after bolting (Perform tasks for each bolted connection in accordance with QA tasks listed in *AISC 360, Table N5.6-3*)			Perform (4)		
Inspection of steel elements of composite construction prior to concrete placement in accordance to *AISC 360, Table N6.1*	Shop (3) and Field Inspection and Testing	N	Observe or Perform as Noted (4)		
1705.2.2 Cold-formed Steel Deck					
Verify compliance of materials for deck and all deck accessories in accordance with *SDI QA/QC Table 1.1*	*See SDI QA/QC Table 1.1*	N	*See SDI QA/QC Table 1.1*		
Inspect installation and mill certifications of deck and all deck accessories in accordance with *SDI QA/QC Table 1.2*	*See SDI QA/QC Table 1.2*	N	*See SDI QA/QC Table 1.2*		
Verify welding procedure specifications, manufacturer certifications, material identification, and welding equipment in accordance with *SDI QA/QC Table 1.3*	*See SDI QA/QC Table 1.3*	N	*See SDI QA/QC Table 1.3*		
Inspect welder qualifications, environmental conditions, and welding procedure in accordance with *SDI QA/QC Table 1.4*	*See SDI QA/QC Table 1.4*	N	*See SDI QA/QC Table 1.4*		
Inspect welds for size and location, including support, sidelap, and perimeter welds following *SDI QA/QC Table 1.5*	*See SDI QA/QC Table 1.5*	N	*See SDI QA/QC Table 1.5*		
Verify manufacturer installation instructions, proper tools, and proper storage are available for mechanical fasteners following *SDI QA/QC Table 1.6*	*See SDI QA/QC Table 1.6*	N	*See SDI QA/QC Table 1.6*		
Inspect mechanical fastener positioning and installation, including spacing and type for all fasteners following *SDI QA/QC Table 1.7 & 1.8*	*See SDI QA/QC Table 1.7 & 1.8*	N	*See SDI QA/QC Table 1.7 & 1.8*		
1705.2.3 Open-web Steel Joists and Joist Girders					
Installation of open-web steel joists and joist girders					
End connections – welding or bolted	Field Inspection	N	Periodic		
Bridging – horizontal or diagonal	Field Inspection	N	Periodic		
Standard Bridging	Field Inspection	N	Periodic		
Bridging that differs from the SJI specifications listed in *Section 2207.1*	Field Inspection	N	Periodic		
1705.2.4 Cold-formed steel trusses spanning 60 feet or greater					
Verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package	Field Inspection	N	Periodic		

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

Material / Activity	Service	Applicable to this Project			
		Y/N	Extent	Agent	Date Completed
1705.3 Concrete Construction					
Inspect reinforcement, including prestressing tendons, and verify placement	Shop (3) and Field Inspection	Y	Periodic		
Reinforcing bar welding: Inspect welding and qualifications in accordance with *AWS D1.4*					
Verify weldability of reinforcing bars other than ASTM A706	Shop (3) and Field Inspection	Y	Periodic		
Inspect single-pass fillet welds, maximum 5/16"	Shop (3) and Field Inspection	Y	Periodic		
Inspect all other welds	Field Inspection	Y	Periodic		
Inspect anchors cast in concrete	Field Inspection	Y	Periodic		
Inspect anchors post-installed in hardened concrete members: Per research reports including verification of anchor type, anchor dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque.					
Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads	Field Inspection	Y	Continuous		
Mechanical anchors and adhesive anchors not defined above	Field Inspection	Y	Periodic or as required by research report issued by an approved source		
Verify use of approved design mix	Shop (3) and Field Inspection	Y	Periodic		
Prior to concrete placement, fabricate specimens, perform slump and air content tests, and determine temperature of concrete	Shop (3) and Field Inspection	Y	Continuous		
Inspect concrete and shotcrete placement for proper application techniques	Shop (3) and Field Inspection	Y	Continuous		
Verify maintenance of specified curling temperature and techniques	Shop (3) and Field Inspection	Y	Periodic		
Inspect prestressed concrete					
Application of prestressing force	Shop (3) and Field Inspection	N	Continuous		
Grouting of bonded prestressing tendons	Shop (3) and Field Inspection	N	Continuous		
Inspect erection of precast concrete members		N	Periodic		
Inspect in accordance with construction documents	Field Inspection	N	In accordance with construction documents		
Perform inspection of welding and bolting in accordance with *Section 1705.2*	Field Inspection	N	In accordance with *Sec. 1705.2*		
Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs	Review Field Testing and Laboratory Systems	N	Periodic		
Inspect formwork for shape, lines, location and dimensions	Field Inspection	Y	Periodic		
Concrete strength testing and verification of compliance with construction documents	Field Testing and Review of Laboratory Reports	Y	Periodic		

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

Material / Activity	Service	Applicable to this Project			
		Y/N	Extent	Agent	Date Completed
1705.4 Masonry Construction					
Level A Quality Assurance					
Prior to construction, verify certificates of compliance used in masonry construction	Submittal Review	N	Each Submittal		
Level B Quality Assurance					
Verification of f_m and f_{aac} prior to construction	Testing by unit strength method or prism test method	N	Periodic		
Level C Quality Assurance					
Verification of f_m and f_{aac} prior to construction and for every 5,000 SF during construction	Testing by unit strength method or prism test method	N	Periodic		
Verification of proportions of materials in premixed or preblended mortar, prestressing grout, and grout other than self-consolidating grout, as delivered to the project site	Field Inspection	N	Continuous		
Verify placement of masonry units	Field Inspection	N	Periodic		
Levels B and C Quality Assurance					
Verification of Slump Flow and Visual Stability Index (VSI) of self-consolidating grout as delivered to the project site	Field Testing	N	Continuous		
Verify compliance with approved submittals	Field Inspection	N	Periodic		
Verify proportions of site-mixed mortar, grout and prestressing grout for bonded tendons	Field Inspection	N	Periodic		
Verify grade, type and size of reinforcement and anchor bolts, and prestressing tendons and anchorages	Field Inspection	N	Periodic		
Verify construction of mortar joints	Field Inspection	N	Periodic		
Verify placement of reinforcements, connectors and prestressing tendons and anchorages	Field Inspection	N	Level B – Periodic		
		N	Level C - Continuous		
Verify grout space prior to grouting	Field Inspection	N	Level B – Periodic		
		N	Level C - Continuous		
Verify placement of grout and prestressing grout for bonded tendons	Field Inspection	N	Continuous		
Verify size and location of structural masonry elements	Field Inspection	N	Periodic		
Verify type, size and location of anchors including details of anchorage of masonry to structural members, frames, or other construction	Field Inspection	N	Level B – Periodic		
		N	Level C – Continuous		
Verify welding of reinforcement (*see 1705.3*)	Field Inspection	N	Continuous		
Verify preparation, construction, and protection of masonry during cold weather (temp. below 40F) or hot weather (temp above 90F)	Field Inspection	N	Periodic		
Verify application and measurement of prestressing force	Field Inspection	N	Continuous		

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

Material / Activity	Service	Applicable to this Project			
		Y/N	Extent	Agent	Date Completed
Verify placement of AAC masonry units and construction of thin-bed mortar joints (first 5000 SF of AAC masonry)	Field Inspection	N	Continuous		
Verify placement of AAC masonry units and construction of thin-bed mortar joints (after the first 5000SF of AAC masonry)	Field Inspection	N	Level B – Periodic		
			Level C – Continuous		
Verify properties of thin-bed mortar for AAC masonry (first 5000 SF of AAC masonry)	Field Inspection	N	Continuous		
Verify properties of thin-bed mortar for AAC masonry (after the first 5000SF of AAC masonry)	Field Inspection	N	Level B – Periodic		
		N	Level C - Continuous		
Observe preparation of grout and mortar specimens	Field Testing	N	Level B – Periodic		
		N	Level C - Continuous		
Observe preparation of prisms	Field Inspection	N	Level B – Periodic		
		N	Level C – Continuous		
1705.5 Wood Construction					
Inspection of the fabrication process of wood structural elements and assemblies in accordance with section *1704.2.5*	In-plant Review (3)	N	Periodic		
For high-load diaphragms, verify grade and thickness of structural panel sheathing agree with approved building plans	Field Inspection	N	Periodic		
For high-load diaphragms, verify nominal size of framing members at adjoining panel edges, nail or staple diameter and length, number of fastener lines and that spacing between fasteners in each line and at edge margin agree with approved building plans	Field Inspection	N	Periodic		
Metal-plate connected wood trusses spanning 60 feet or greater: verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package	Field Inspection	N	Periodic		
1705.6 Soils					
Verify materials below shallow foundations are adequate to achieve the design bearing capacity	Field Inspection	Y	Periodic		
Verify excavations are extended to proper depth and have reached proper material	Field Inspection	Y	Periodic		
Perform classification and testing of controlled fill materials	Field Inspection	Y	Periodic		
Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill	Field Inspection	Y	Continuous		
Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly	Field Inspection	Y	Periodic		
1705.7 Driven Deep Foundations					
Verify element materials, sizes and lengths comply with requirements	Field Inspection	N	Continuous		
Determine capacities of test elements and conduct additional load tests, as required	Field Inspection	N	Continuous		

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

Observe driving operations and maintain complete and accurate records for each element	Field Inspection	N	Continuous		
Material / Activity	Service	Applicable to this Project			
		Y/N	Extent	Agent	Date Completed
Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element	Field Inspection	N	Continuous		
For steel elements, perform additional inspections per *Section 1705.2*	*See Section 1705.2*	N	*See Section 1705.2*		
For concrete elements and concrete-filled elements, perform additional inspections per *Section 1705.3*	*See Section 1705.3*	N	*See Section 1705.3*		
For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge	Field Inspection	N	In accordance with construction documents		
Perform additional inspections and tests in accordance with the construction documents	Field Inspection and Testing	N	In accordance with construction documents		
1705.8 Cast-in-Place Deep Foundations					
Observe drilling operations and maintain complete and accurate records for each element	Field Inspection	N	Continuous		
Verify placement locations and plumbness, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes	Field Inspection	N	Continuous		
For concrete elements, perform additional inspections in accordance with *Section 1705.3*	See *Section 1705.3*	N	See *Section 1705.3*		
Perform additional inspections and tests in accordance with the construction documents.	Field Inspection and Testing	N	In accordance with construction documents		
1705.9 Helical Pile Foundations					
Verify installation, equipment, pile dimensions, tip elevations, final depth, final installation torque and other data as required	Field Inspection	N	Continuous		
Perform additional inspections and tests in accordance with construction documents	Field Inspection and Testing	N	In accordance with construction documents		
1705.11.1 Structural Wood Special Inspections for Wind Resistance					
Inspection of field gluing operations of elements of the main windforce-resisting system	Field Inspection	N	Continuous		
Inspection of nailing, bolting, anchoring and other fastening of components within the main windforce-resisting system	Shop (3) and Field Inspection	N	Periodic		

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

Material / Activity	Service	Applicable to this Project			
		Y/N	Extent	Agent	Date Completed
1705.11.2 Cold-formed Steel Special Inspections for Wind Resistance					
Inspection during welding operations of elements of the main windforce-resisting system	Shop (3) and Field Inspection	N	Periodic		
Inspections for screw attachment, bolting, anchoring and other fastening of components within the main windforce-resisting system	Shop (3) and Field Inspection	N	Periodic		
1705.11.3 Wind-Resisting Components					
Roof covering, roof deck and roof framing connections.	Shop (3) and Field Inspection	N	Periodic		
Exterior wall covering and wall connections to roof and floor diaphragms and framing.	Shop (3) and Field Inspection	N	Periodic		
1705.12.1 Structural Steel Special Inspections for Seismic Resistance					
Inspection of structural steel in accordance with *AISC 341*	Shop (3) and Field Inspection	N	In Accordance with *AISC 341*		
1705.12.2 Structural Wood Special Inspections for Seismic Resistance					
Inspection for field gluing operations of elements of the seismic-force-resisting system	Field Inspection	N	Continuous		
Inspection of nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system	Shop (3) and Field Inspection	N	Periodic		
1705.12.3 Cold-forming Steel Light-Frame Construction Special Inspections for Seismic Resistance					
Inspection during welding operations of elements of the seismic-force-resisting systems	Shop (3) and Field Inspection	N	Periodic		
Inspections for screw attachment, bolting, anchoring and other fastening of components within the seismic-force-resisting system	Shop (3) and Field Inspection	N	Periodic		
1705.12.4 Designated Seismic Systems Verification					
Inspect and verify that the component label, anchorage or mounting conforms to the certificate of compliance in accordance with *Section 1705.13.3*	Field Inspection	N	Periodic		
1705.12.5 Architectural Components Special Inspections for Seismic Resistance					
Inspection during the erection and fastening of exterior cladding and interior and exterior veneer	Field Inspection	N	Periodic		
Inspection during the erection and fastening of interior and exterior nonbearing walls	Field Inspection	N	Periodic		
Inspection during anchorage of access floors	Field Inspection	N	Periodic		
1705.12.6 Plumbing, Mechanical and Electrical Components Special Inspections for Seismic Resistance					

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

Inspection during the anchorage of electrical equipment for emergency or standby power systems	Field Inspection	N	Periodic		
Material / Activity	Service	Applicable to this Project			
		Y/N	Extent	Agent	Date Completed
Inspection during anchorage of other electrical equipment	Field Inspection	N	Periodic		
Inspection during installation and anchorage of piping systems designed to carry hazardous materials and their associated mechanical units	Field Inspection	N	Periodic		
Inspection during the installation and anchorage of HVAC ductwork that will contain hazardous materials	Field Inspection	N	Periodic		
Inspection during the installation and anchorage of vibration isolation systems	Field Inspection	N	Periodic		
1705.12.7 Storage Racks Special Inspections for Seismic Resistance					
Inspection during the anchorage of storage racks 8 feet or greater in height	Field Inspection	N	Periodic		
1705.12.8 Seismic Isolation Systems					
Inspection during the fabrication and installation of isolator units and energy dissipation devices used as part of the seismic isolation system	Shop and Field Inspection	N	Periodic		
1705.12.9 Cold-formed Steel Special Bolted Moment Frames					
Inspection during the installation of cold-formed steel special bolted moment frames within the seismic-force-resisting system	Field Inspection	N	Periodic		
1705.13.1 Structural Steel Testing for Seismic Resistance					
Test in accordance with the quality assurance requirements of AISC 341	Shop (3) and Field Testing	N	*Per AISC 341*		
1705.13.2 Nonstructural Components Testing for Seismic Resistance					
Review certificate of compliance for designated seismic system components	Certificate of Compliance Review	N	Each submittal		
1705.13.3 Designated Seismic Systems Testing for Seismic Resistance					
Review certificate of compliance for designated seismic system components	Certificate of Compliance Review	N	Each submittal		
1705.13.4 Seismic Isolation Systems Testing for Seismic Resistance					
Test seismic isolation system in accordance with *ASCE 7, Sec. 17.8*	Prototype Testing	N	*Per ASCE 7*		
1705.14 Sprayed Fire-Resistant Materials					
Verify surface condition preparation of structural members	Field Inspection	N	Periodic		
Verify application of sprayed fire-resistant materials	Field Inspection	N	Periodic		
Verify average thickness of sprayed fire-resistant materials applied to structural members	Field Inspection	N	Periodic		
Verify density of the sprayed fire-resistant material complies with approved fire-resistant design	Field Inspection and Testing	N	*Per IBC Section 1705.14.5*		

SCHEDULE OF SPECIAL INSPECTION SERVICES
PROJECT: Tryon Drive Walls (City of Fayetteville, NC)

Verify the cohesive/adhesive bond strength of the cured sprayed fire-resistant material	Field Inspection and Testing	N	*Per IBC Section 1705.14.6*		

SCHEDULE OF SPECIAL INSPECTIONS

SHEET NUMBER
S–101

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

SEAL
045140
PATRICK D. COOKSEY
7/14/2025
DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

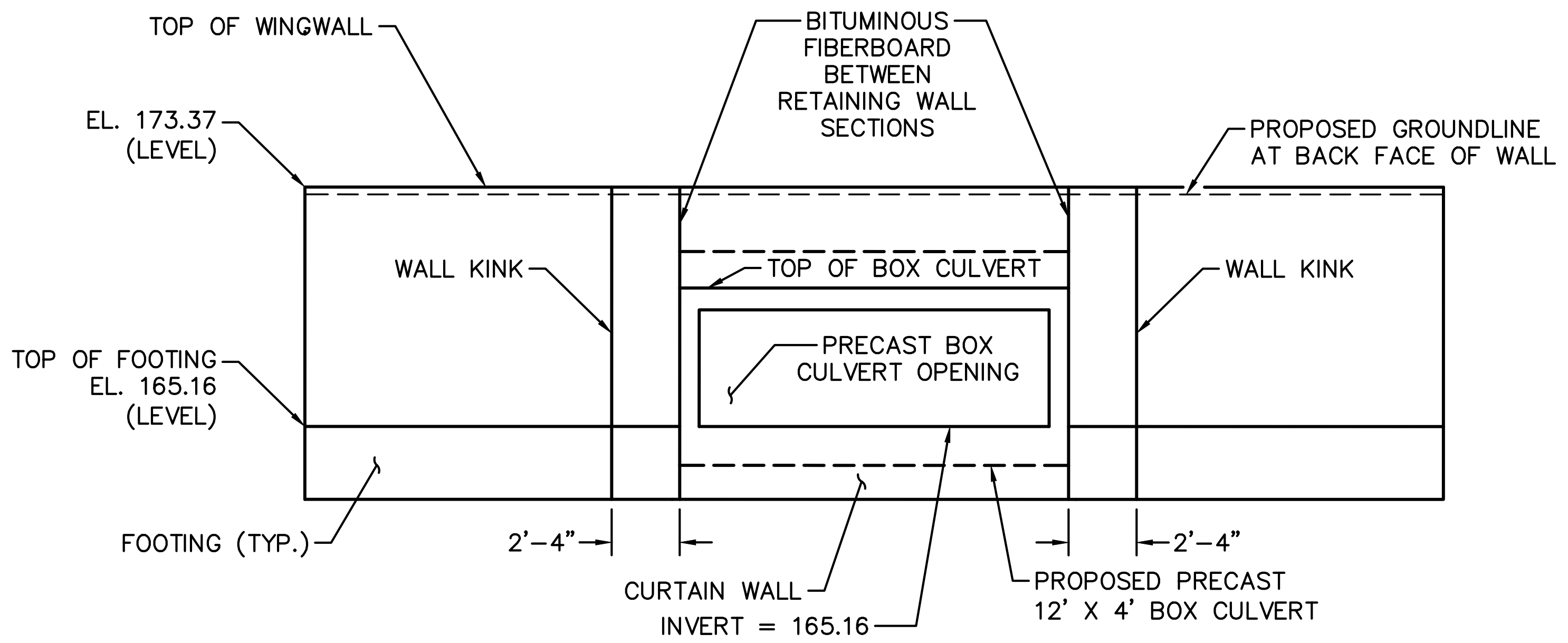
ISSUED FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY

PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

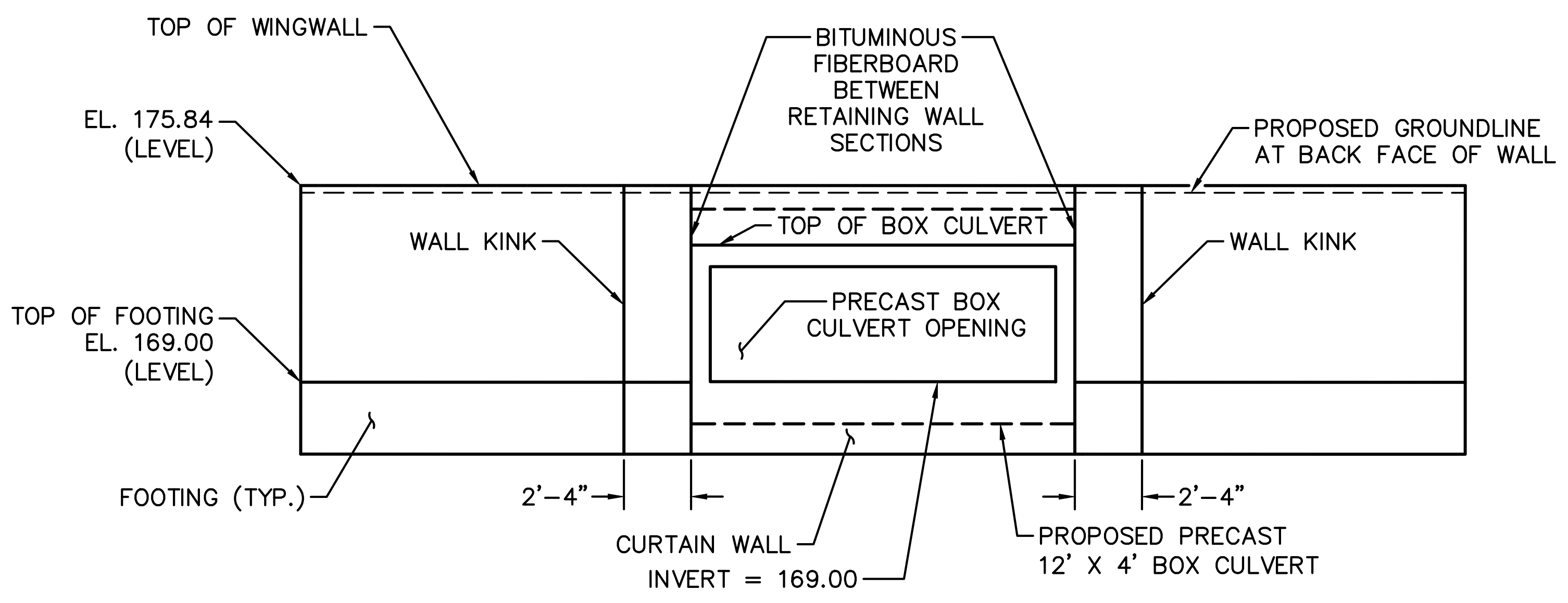
PROJECT NO. KH 011017025
SUB-LEDGER NO.

Plotted By: Anderson, Nolen Sheet Set: 011017025 – Tryon Layout: SCHEDULE OF SPECIAL INSPECTIONS July 14, 2025 09:45:36am K:\RDT_Structures_RetainWall_NC\011017032 – Tryon Drive Walls\CAD\S-101 RETAINING WALL LAYOUT.dwg


TOP OF WINGWALL
EL. 173.37
(LEVEL)
BITUMINOUS FIBERBOARD BETWEEN RETAINING WALL SECTIONS
PROPOSED GROUNDLINE AT BACK FACE OF WALL
WALL KINK
TOP OF BOX CULVERT
WALL KINK
PRECAST BOX CULVERT OPENING
TOP OF FOOTING
EL. 165.16
(LEVEL)
FOOTING (TYP.)
2'-4"
2'-4"
CURTAIN WALL
INVERT = 165.16
PROPOSED PRECAST 12' X 4' BOX CULVERT

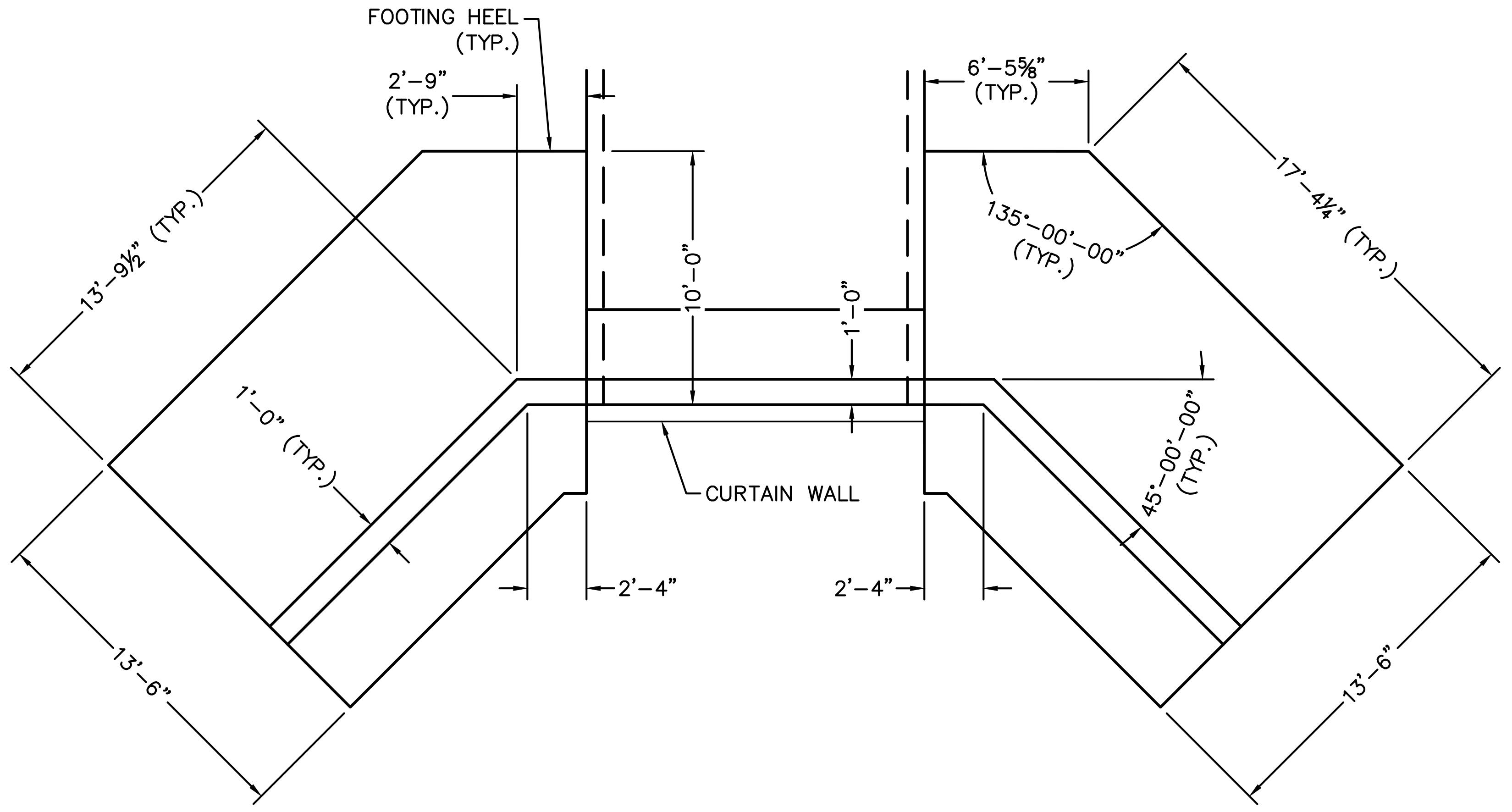
EW-01 ELEVATION

NOTE: DIMENSIONING ALONG FRONT FACE OF WALL

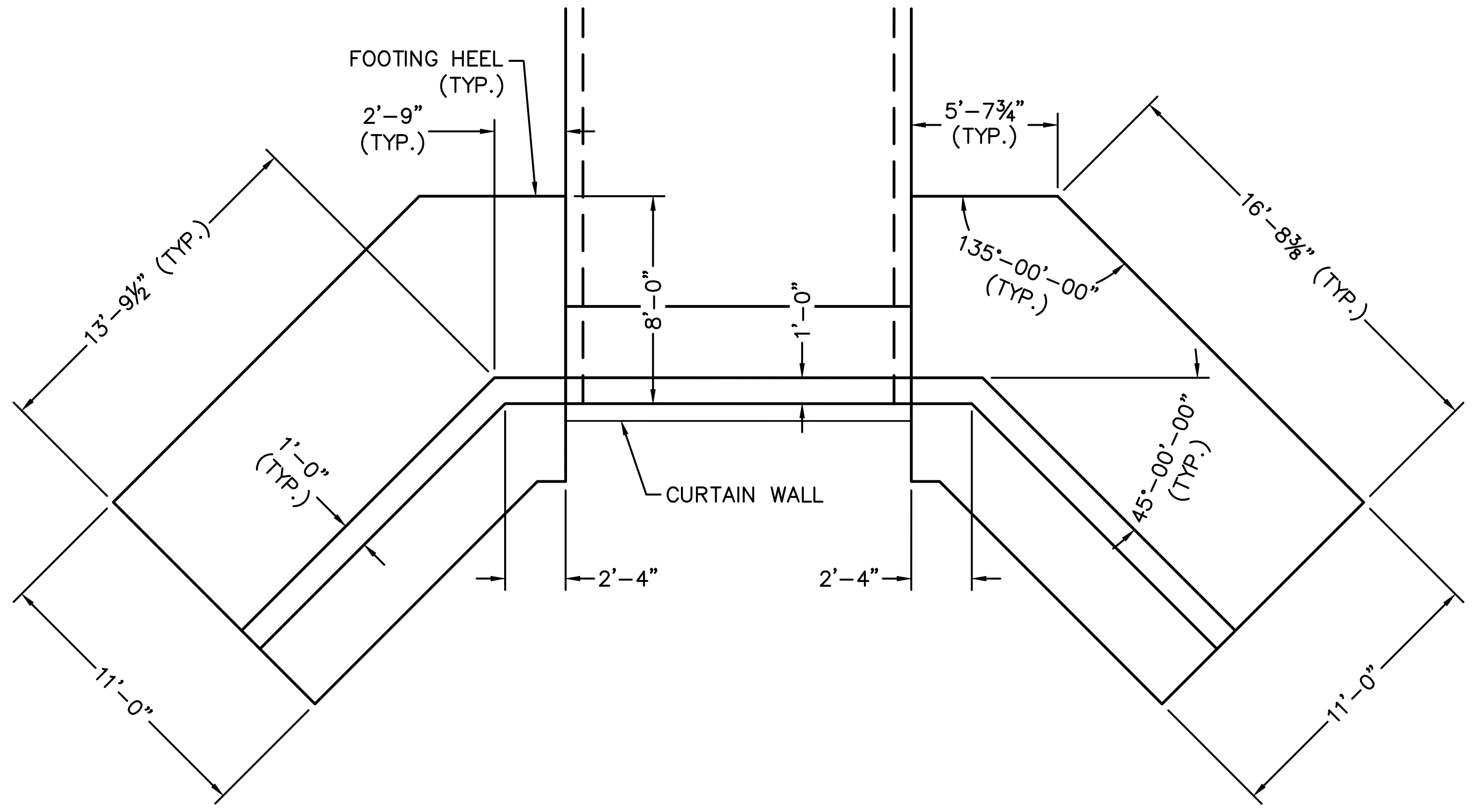

TOP OF WINGWALL
EL. 175.84
(LEVEL)
BITUMINOUS FIBERBOARD BETWEEN RETAINING WALL SECTIONS
PROPOSED GROUNDLINE AT BACK FACE OF WALL
WALL KINK
TOP OF BOX CULVERT
WALL KINK
PRECAST BOX CULVERT OPENING
TOP OF FOOTING
EL. 169.00
(LEVEL)
FOOTING (TYP.)
2'-4"
2'-4"
CURTAIN WALL
INVERT = 169.00
PROPOSED PRECAST 12' X 4' BOX CULVERT

EW-07 ELEVATION

NOTE: DIMENSIONING ALONG FRONT FACE OF WALL


FOOTING HEEL (TYP.)
2'-9" (TYP.)
6'-5⅝" (TYP.)
17'-4¼" (TYP.)
13'-9½" (TYP.)
135°-00'-00" (TYP.)
10'-0"
1'-0"
1'-0" (TYP.)
45°-00'-00" (TYP.)
CURTAIN WALL
2'-4"
2'-4"
13'-6"
13'-6"

EW-01 CULVERT PLAN


FOOTING HEEL (TYP.)
2'-9" (TYP.)
5'-7¾" (TYP.)
16'-8⅜" (TYP.)
13'-9½" (TYP.)
135°-00'-00" (TYP.)
8'-0"
1'-0"
1'-0" (TYP.)
45°-00'-00" (TYP.)
CURTAIN WALL
2'-4"
2'-4"
11'-0"
11'-0"

EW-07 CULVERT PLAN

GENERAL NOTES:

1. SEE SHEETS S-104 FOR WALL SECTIONS AND DETAILS.

Plotted By: Anderson, Nolen Sheet Set: 011017025 – Tryon Layout: RETAINING WALL LAYOUT (1 OF 2) July 14, 2025 09:45:44am K:\RDT_Structures_RetainWall_NC\011017032 – Tryon Drive Walls\CAD\S-101 RETAINING WALL LAYOUT.dwg

WINGWALL LAYOUT (1 OF 2)

SHEET NUMBER
S-102

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
SEAL
045140
PATRICK D. COOKSEY
7/14/2025

DATE:
NAME:

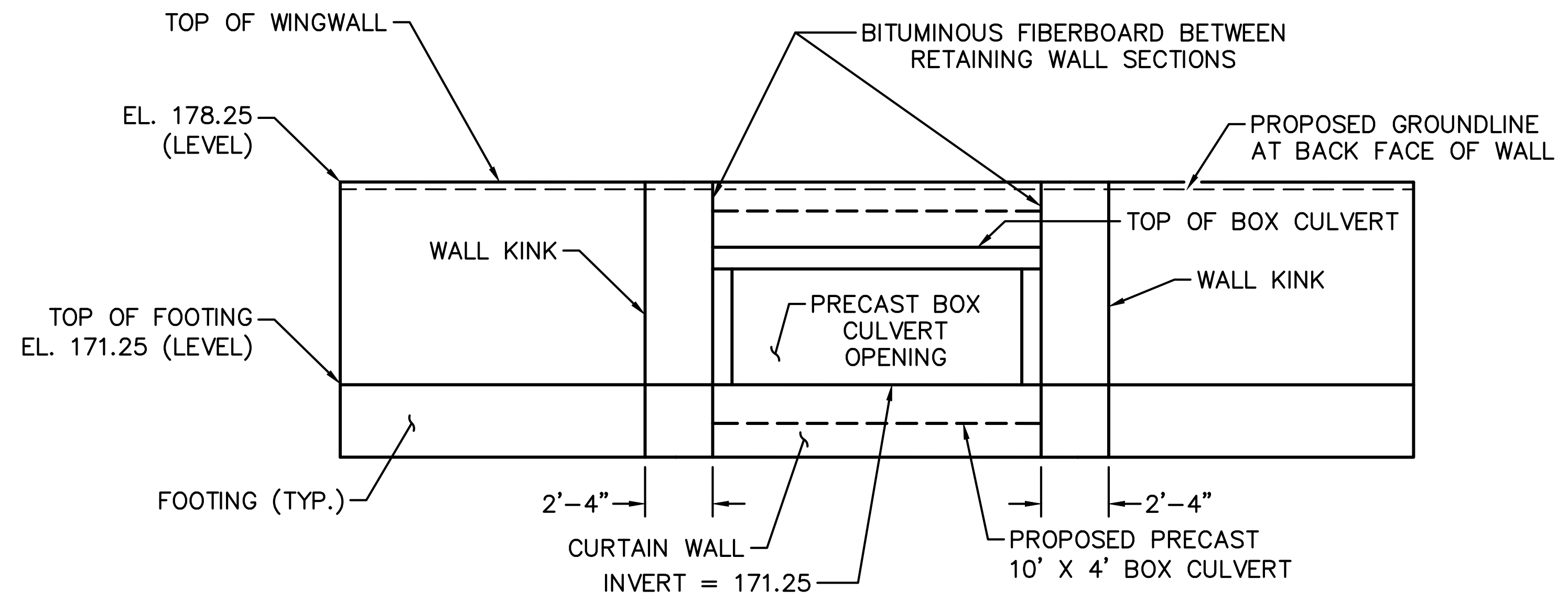
REVISIONS		
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN :	R. GIESEN	PROJECT NAME :	TRYON DRAINAGE
DESIGN :	T. ORR	SCALE :	
CHECK :	P. COOKSEY	DATE :	MAY 2025
APPROVED :	P. COOKSEY		

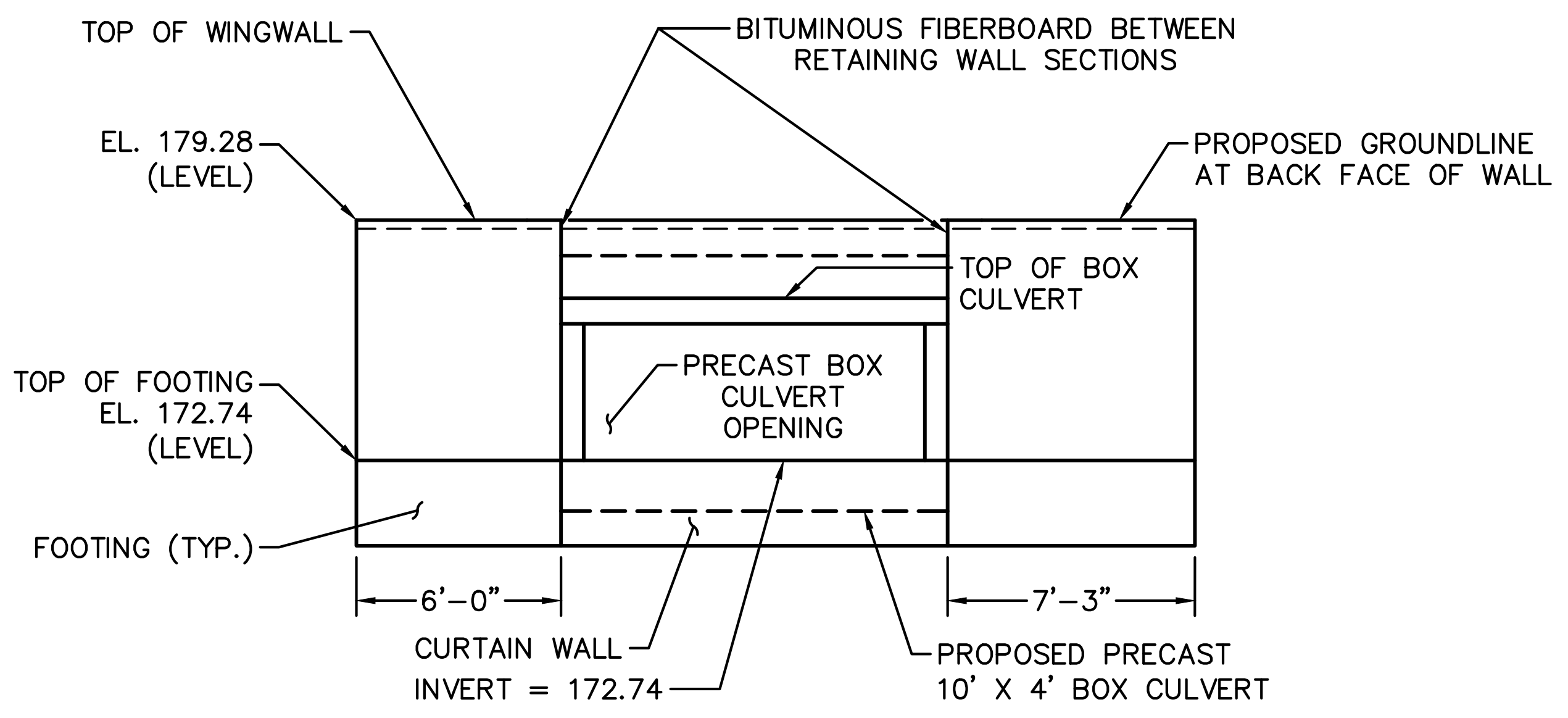
PROJECT NO. KH 011017025

SUB-LEDGER NO. __________


TOP OF WINGWALL
EL. 178.25
(LEVEL)
BITUMINOUS FIBERBOARD BETWEEN RETAINING WALL SECTIONS
PROPOSED GROUNDLINE AT BACK FACE OF WALL
TOP OF BOX CULVERT
WALL KINK
WALL KINK
PRECAST BOX CULVERT OPENING
TOP OF FOOTING
EL. 171.25 (LEVEL)
FOOTING (TYP.)
2'–4"
2'–4"
CURTAIN WALL
INVERT = 171.25
PROPOSED PRECAST 10' X 4' BOX CULVERT

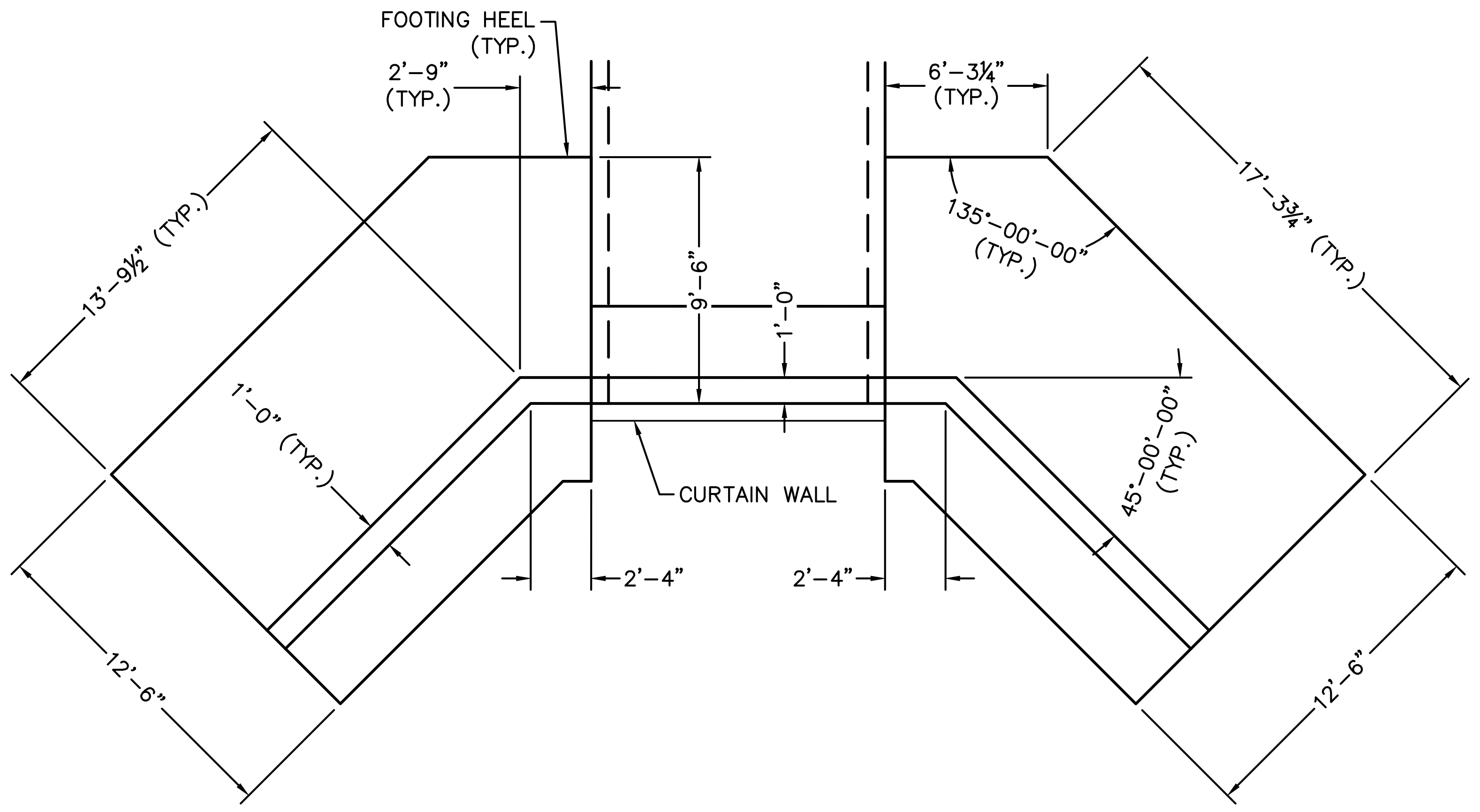
EW-08 ELEVATION

NOTE: DIMENSIONING ALONG FRONT FACE OF WALL

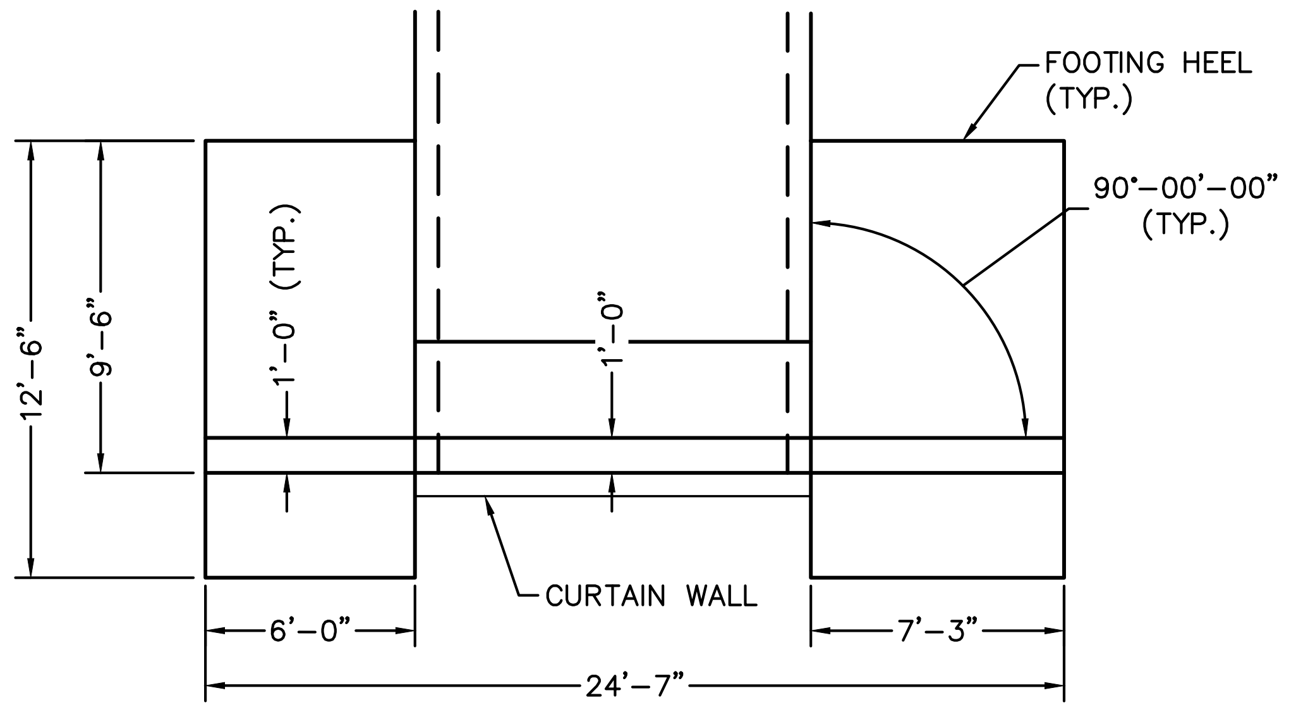

TOP OF WINGWALL
EL. 179.28
(LEVEL)
BITUMINOUS FIBERBOARD BETWEEN RETAINING WALL SECTIONS
PROPOSED GROUNDLINE AT BACK FACE OF WALL
TOP OF BOX CULVERT
PRECAST BOX CULVERT OPENING
TOP OF FOOTING
EL. 172.74
(LEVEL)
FOOTING (TYP.)
6'–0"
7'–3"
CURTAIN WALL
INVERT = 172.74
PROPOSED PRECAST 10' X 4' BOX CULVERT

EW-09 ELEVATION

NOTE: DIMENSIONING ALONG FRONT FACE OF WALL


FOOTING HEEL (TYP.)
2'–9" (TYP.)
6'–3¼" (TYP.)
13'–9½" (TYP.)
17'–3¾" (TYP.)
135°–00'–00" (TYP.)
9'–6"
1'–0"
1'–0" (TYP.)
45°–00'–00" (TYP.)
CURTAIN WALL
2'–4"
2'–4"
12'–6"
12'–6"

EW-08 CULVERT PLAN


FOOTING HEEL (TYP.)
90°–00'–00" (TYP.)
12'–6"
9'–6"
1'–0" (TYP.)
1'–0"
CURTAIN WALL
6'–0"
7'–3"
24'–7"

EW-09 CULVERT PLAN

GENERAL NOTES:

1. SEE SHEETS S–104 FOR WALL SECTIONS AND DETAILS.

WINGWALL LAYOUT (2 OF 2)

SHEET NUMBER
S–103

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C8CA16457E4F7...
045140
PATRICK D. COOKSEY
7/14/2025

REVISIONS

REV. #	DESCRIPTION	DATE	REV.BY
1	BID SET	MAY 2025	

ISSUED
FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY
PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

Plotted By:Anderson, Noren Sheet Set:011017025 – Tryon Layout:RETAINING WALL LAYOUT (2 OF 2) July 14, 2025 09:45:46pm K:\RDT_Structures_RetainWall_NC\011017032 – Tryon Drive Walls\CAD\S–101 RETAINING WALL LAYOUT.dwg

WINGWALL SCHEDULE

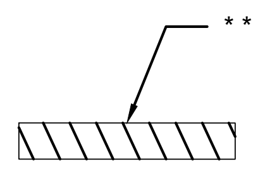
MARK	MAX. FILL HEIGHT	STEM	DEPTH	TOE	LENGTH
EW-01	8'-0"	1'-0"	2'-6"	3'-6"	13'-6"
EW-07	6'-8"			3'-0"	11'-0"
EW-08	6'-9"				12'-6"
EW-09	6'-4"				

HEADWALL SCHEDULE

MARK	FILL HEIGHT	STEM	DEPTH	LENGTH
EW-01	2'-3"	1'-0"	1'-0"	3'-9"
EW-07	10"			
EW-08	1'-0"			
EW-09	7"			

NOTES:

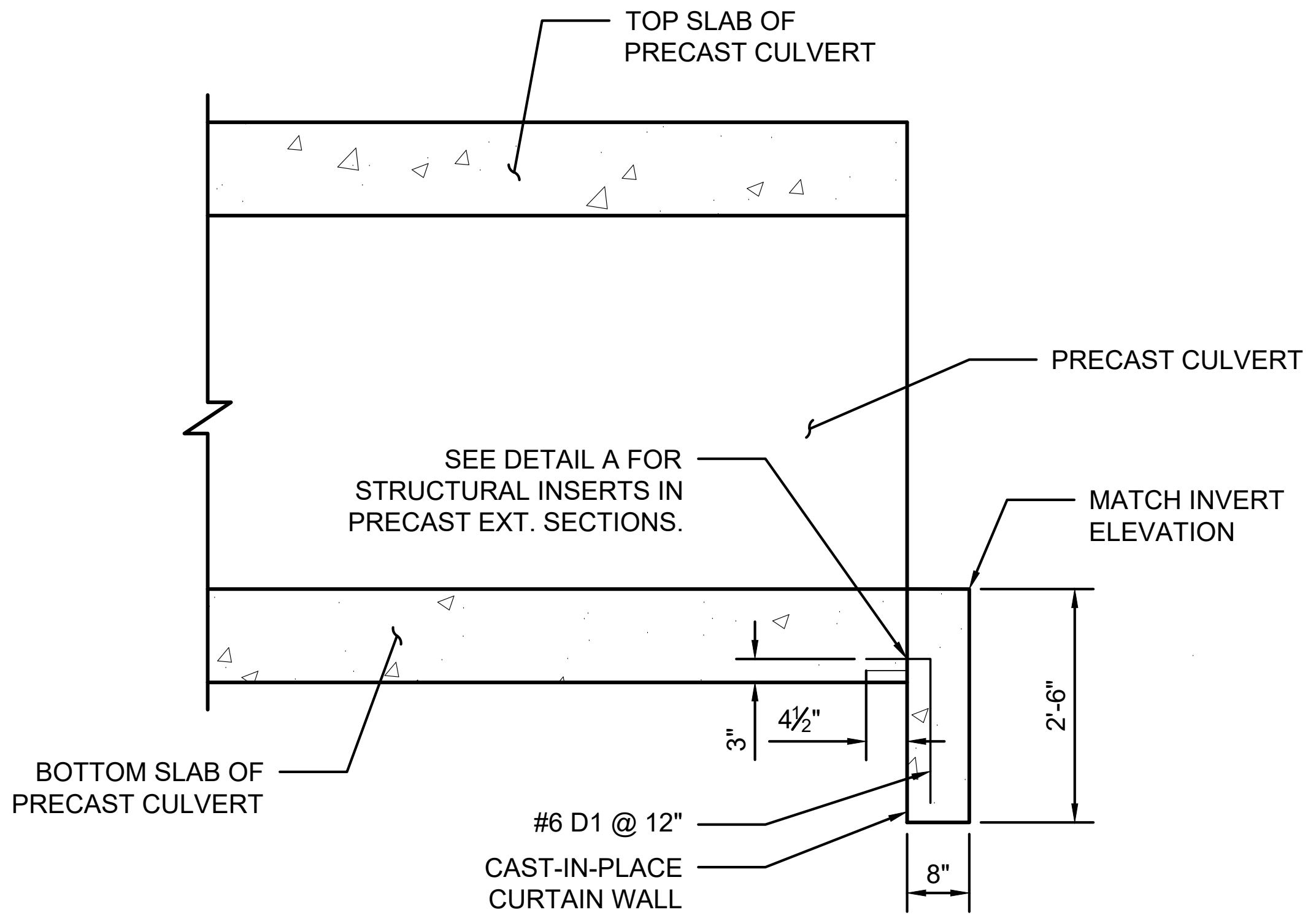
1. CONTRACTOR TO SET TOP OF FOOTING (TOF) ELEV AND CONSTRUCT WALL IN ACCORDANCE WITH THE SCHEDULE ABOVE ACCORDING TO THE MAXIMUM FILL ABOVE FOOTING (H). INTERPOLATION IS NOT ALLOWED. CONTACT THE ENGINEER IF ACTUAL FILL DIMENSION (H) IS GREATER THAN THAT PROVIDED IN SCHEDULE.
2. 4" DIAMETER PVC PERFORATED DRAIN PIPES SHALL BE SLOPED TO DRAIN BEHIND THE RETAINING WALL. 4" DIAMETER WEEPHOLES SHOULD BE PLACED AT 10'-0" ON CENTER (MAX.). AT LEAST TWO (2) WEEPHOLES SHOULD BE PROVIDED IN EACH WINGWALL, WITH THE LAST WEEPHOLE BEING PLACED NO MORE THAN 2'-0" FROM END OF WALL. WEEP PIPES SHOULD SLOPE TO DRAIN AND DAYLIGHT AS SHOWN ON THIS SHEET. DRAINAGE PIPES BEHIND HEADWALL ABOVE CULVERT SHALL BE TIED INTO THE DRAINAGE PIPES AT WINGWALLS ADJACENT TO CULVERT USING 4" DIAMETER PVC DRAIN PIPES.



④ S-104 DETAIL A

SCALE: NTS

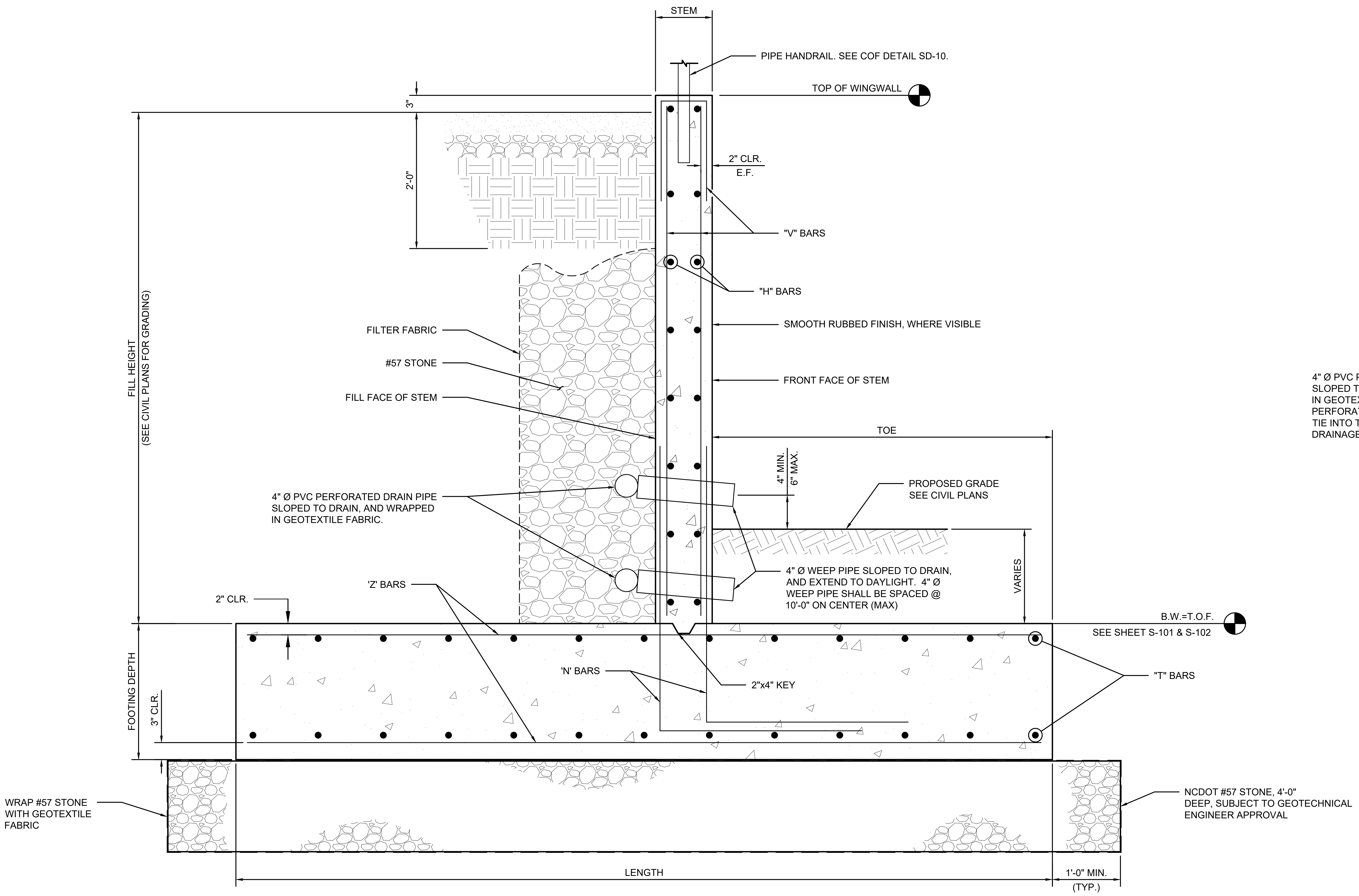
* * STRUCTURAL CONNECTION INSERTS
2 STRUT OR EQUAL:
LENGTH = 4½", INSERT WIDTH = 2",
DIA. = ¾". NO. REQUIRED = 52


TOP SLAB OF
PRECAST CULVERT
PRECAST CULVERT
SEE DETAIL A FOR
STRUCTURAL INSERTS IN
PRECAST EXT. SECTIONS.
MATCH INVERT
ELEVATION
BOTTOM SLAB OF
PRECAST CULVERT
4½"
3"
2'-6"
#6 D1 @ 12"
CAST-IN-PLACE
CURTAIN WALL
8"

③ S-104 SECTION VIEW – CURTAIN WALL

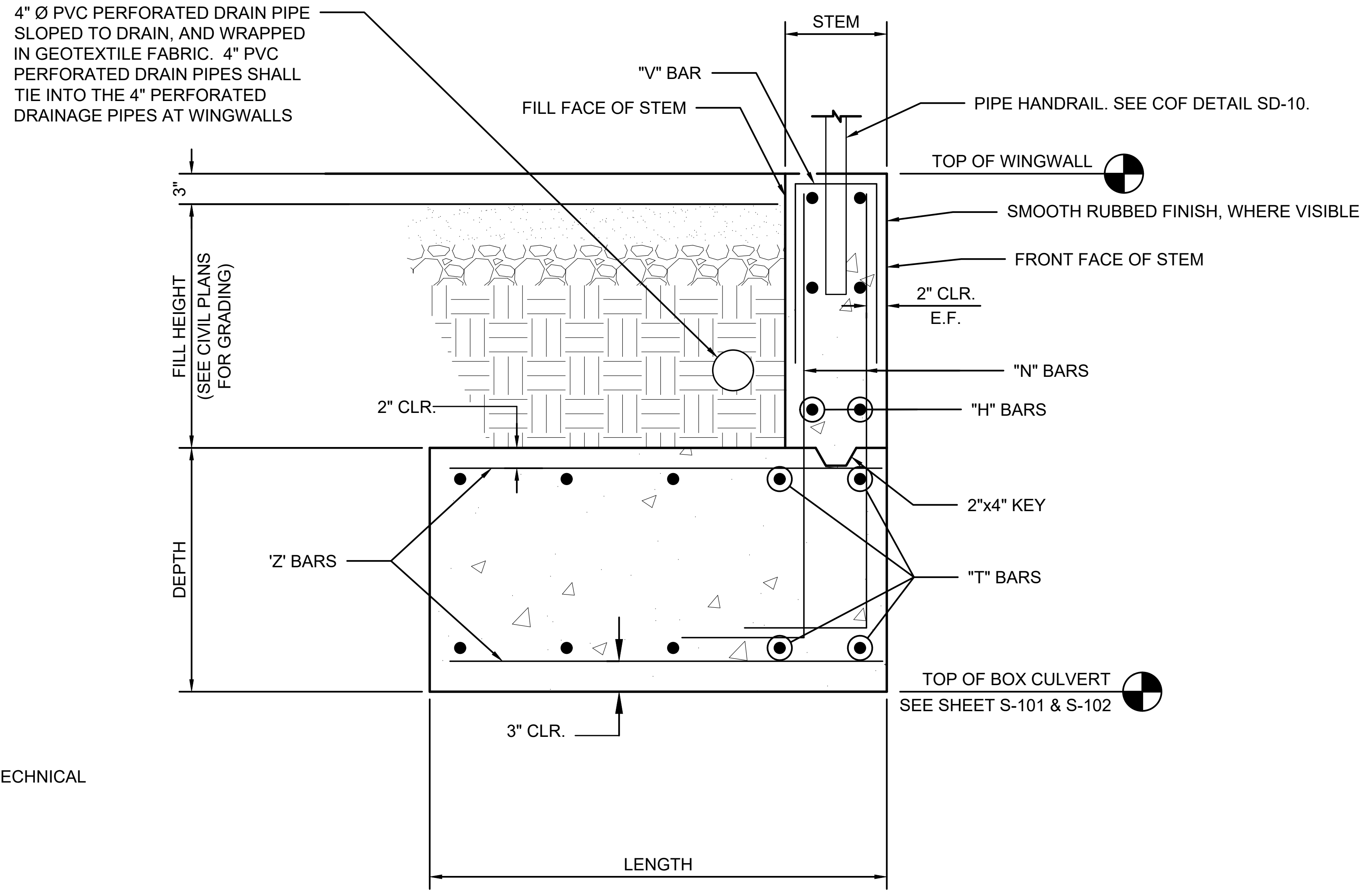
SCALE: NTS

OUTLET SHOWN, INLET SIMILAR


STEM
PIPE HANDRAIL. SEE COF DETAIL SD-10.
TOP OF WINGWALL
3"
2'-0"
2" CLR.
E.F.
"V" BARS
"H" BARS
SMOOTH RUBBED FINISH, WHERE VISIBLE
FILTER FABRIC
#57 STONE
FILL FACE OF STEM
FRONT FACE OF STEM
FILL HEIGHT
(SEE CIVIL PLANS FOR GRADING)
TOE
4" MIN.
6" MAX.
PROPOSED GRADE
SEE CIVIL PLANS
4" Ø PVC PERFORATED DRAIN PIPE
SLOPED TO DRAIN, AND WRAPPED
IN GEOTEXTILE FABRIC.
VARIES
4" Ø WEEP PIPE SLOPED TO DRAIN,
AND EXTEND TO DAYLIGHT. 4" Ø
WEEP PIPE SHALL BE SPACED @
10'-0" ON CENTER (MAX)
2" CLR.
'Z' BARS
B.W.=T.O.F.
SEE SHEET S-101 & S-102
FOOTING DEPTH
3" CLR.
'N' BARS
2"x4" KEY
"T" BARS
WRAP #57 STONE
WITH GEOTEXTILE
FABRIC
NCDOT #57 STONE, 4'-0"
DEEP, SUBJECT TO GEOTECHNICAL
ENGINEER APPROVAL
LENGTH
1'-0" MIN.
(TYP.)

① S-104 TYPICAL RETAINING WALL DETAIL – CULVERT WINGWALLS

SCALE: NTS


4" Ø PVC PERFORATED DRAIN PIPE
SLOPED TO DRAIN, AND WRAPPED
IN GEOTEXTILE FABRIC. 4" PVC
PERFORATED DRAIN PIPES SHALL
TIE INTO THE 4" PERFORATED
DRAINAGE PIPES AT WINGWALLS
STEM
"V" BAR
FILL FACE OF STEM
PIPE HANDRAIL. SEE COF DETAIL SD-10.
TOP OF WINGWALL
3"
SMOOTH RUBBED FINISH, WHERE VISIBLE
FRONT FACE OF STEM
FILL HEIGHT
(SEE CIVIL PLANS
FOR GRADING)
2" CLR.
E.F.
"N" BARS
2" CLR.
"H" BARS
2"x4" KEY
DEPTH
'Z' BARS
"T" BARS
TOP OF BOX CULVERT
SEE SHEET S-101 & S-102
3" CLR.
LENGTH

② S-104 TYPICAL HEADWALL DETAIL

SCALE: NTS

WINGWALL AND
HEADWALL DETAILS

SHEET NUMBER
S-104

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...

SEAL
045140
PATRICK D. COOKSEY
7/14/2025

DATE:

NAME:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED
FOR CONSTRUCTION

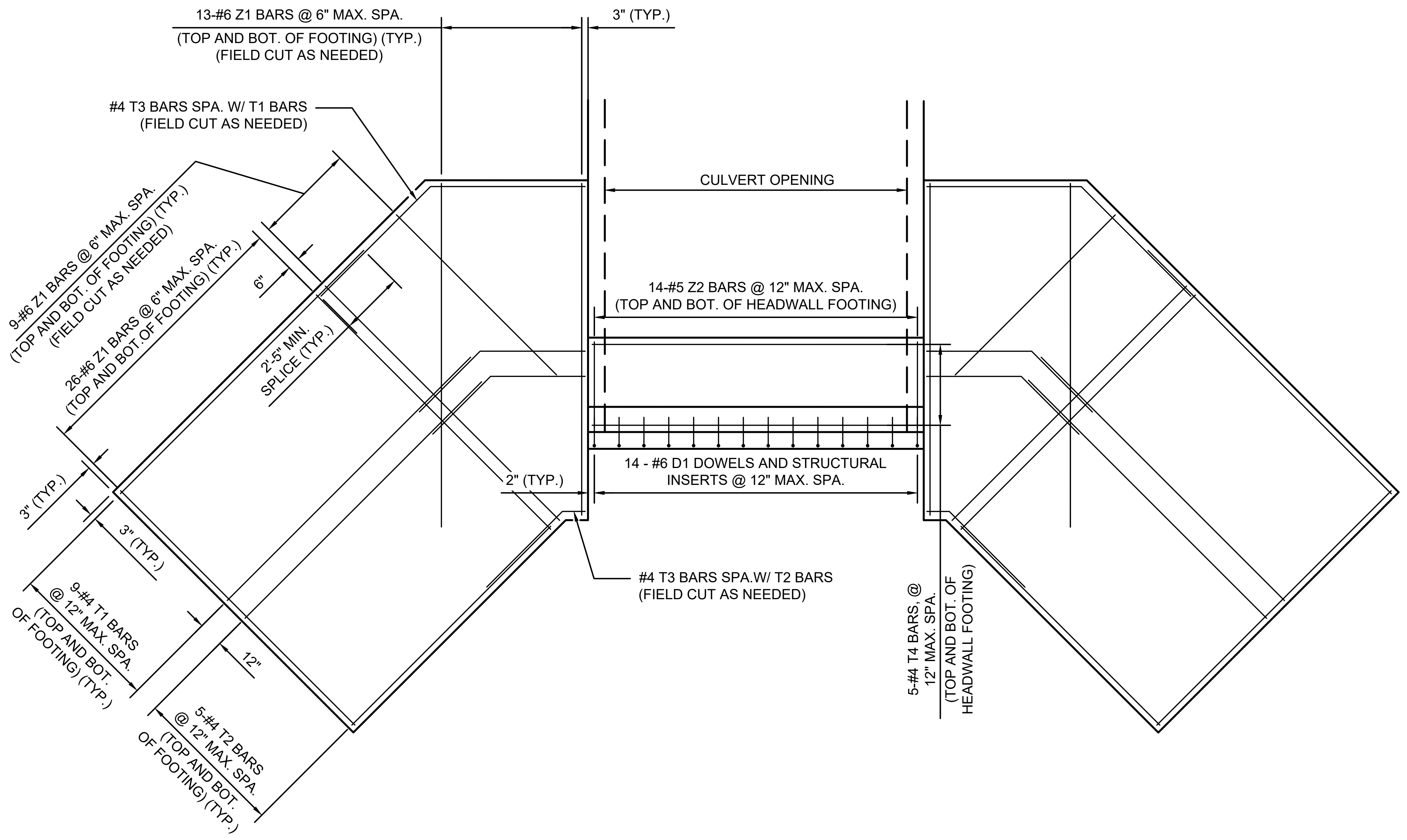
DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY

PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

PROJECT NO. KH 011017025

SUB-LEDGER NO.

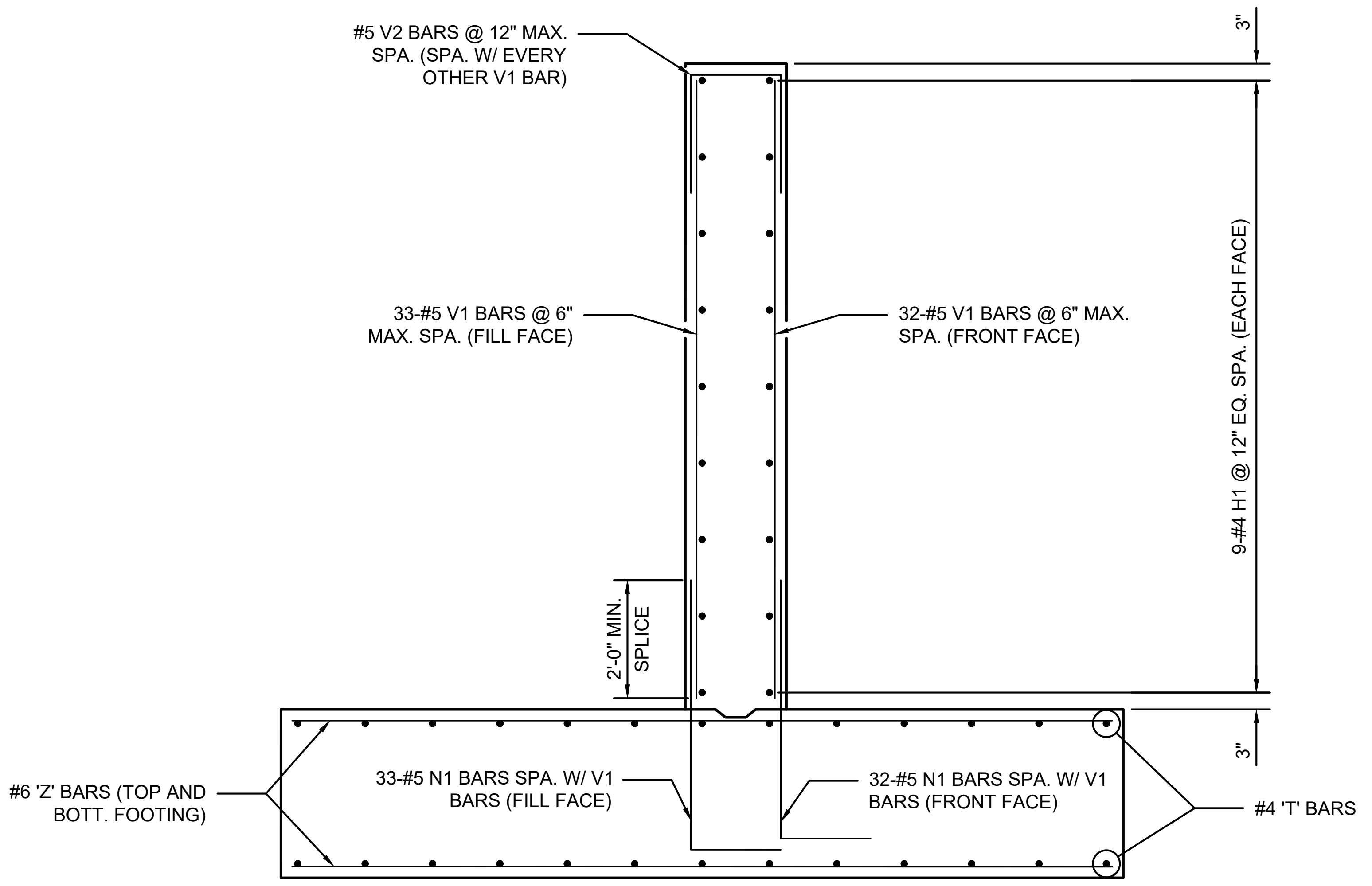
NOTES:
1. WHERE BARS ARE FIELD CUT, THEY SHALL ONLY BE CUT AS NEEDED TO MAINTAIN A MINIMUM OF 2" OF CLEARANCE TO THE NEAREST CONCRETE SURFACE.
2. PRECAST CULVERT MANUFACTURER SHALL ACCOUNT FOR THE DEAD LOAD FROM HEADWALL AND RETAINED SOIL ON PRECAST CULVERT SECTIONS, WHERE APPLICABLE.


13-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
(FIELD CUT AS NEEDED)
3" (TYP.)
#4 T3 BARS SPA. W/ T1 BARS
(FIELD CUT AS NEEDED)
CULVERT OPENING
9-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
(FIELD CUT AS NEEDED)
26-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
6"
2'-5" MIN. SPLICE (TYP.)
14-#5 Z2 BARS @ 12" MAX. SPA.
(TOP AND BOT. OF HEADWALL FOOTING)
14 - #6 D1 DOWELS AND STRUCTURAL INSERTS @ 12" MAX. SPA.
2" (TYP.)
3" (TYP.)
3" (TYP.)
9-#4 T1 BARS @ 12" MAX. SPA. (TOP AND BOT. OF FOOTING) (TYP.)
12"
5-#4 T2 BARS @ 12" MAX. SPA. (TOP AND BOT. OF FOOTING) (TYP.)
#4 T3 BARS SPA.W/ T2 BARS
(FIELD CUT AS NEEDED)
5-#4 T4 BARS @ 12" MAX. SPA. (TOP AND BOT. OF HEADWALL FOOTING)

1 S-105 FOOTING AND CURTAIN WALL REINFORCEMENT DETAIL

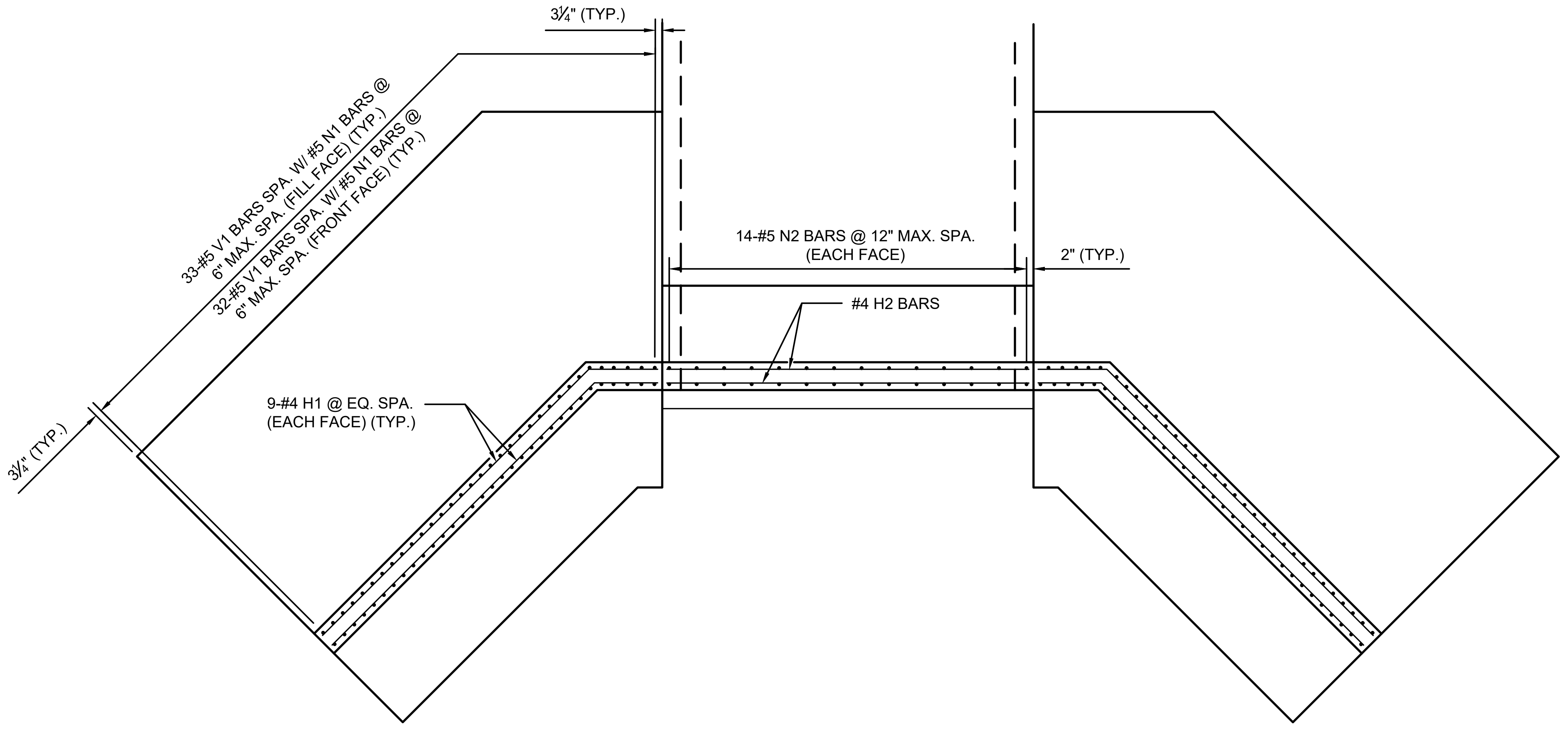
SCALE: NTS

N BARS NOT SHOWN FOR CLARITY, BUT SHALL BE PLACED PRIOR TO POURING FOOTING CONCRETE


#5 V2 BARS @ 12" MAX. SPA. (SPA. W/ EVERY OTHER V1 BAR)
3"
33-#5 V1 BARS @ 6" MAX. SPA. (FILL FACE)
32-#5 V1 BARS @ 6" MAX. SPA. (FRONT FACE)
9-#4 H1 @ 12" EQ. SPA. (EACH FACE)
2'-0" MIN. SPLICE
3"
#6 'Z' BARS (TOP AND BOTT. FOOTING)
33-#5 N1 BARS SPA. W/ V1 BARS (FILL FACE)
32-#5 N1 BARS SPA. W/ V1 BARS (FRONT FACE)
#4 'T' BARS

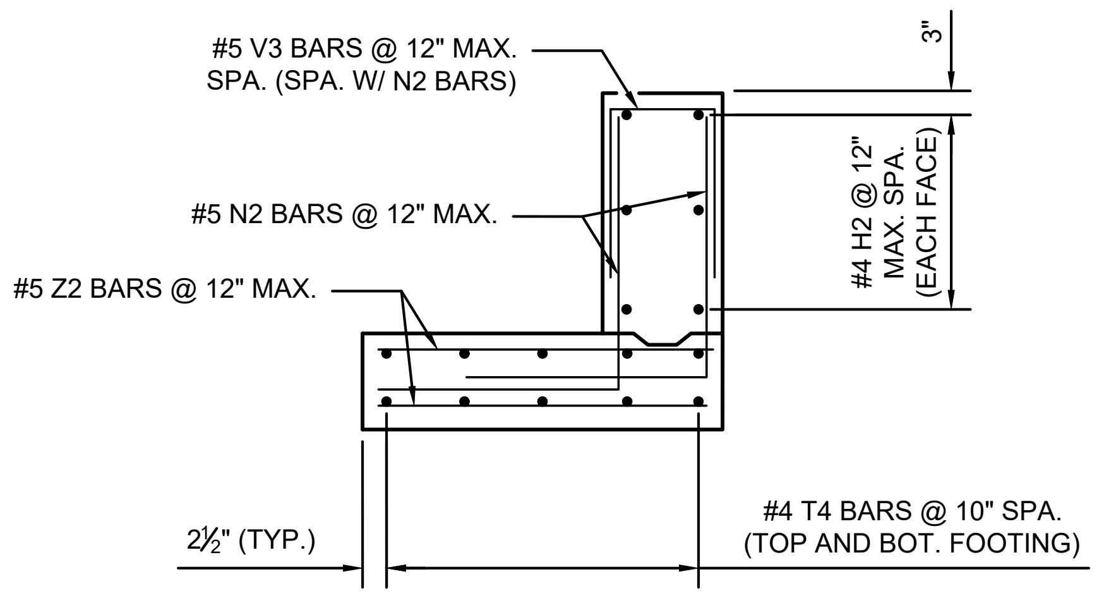
2 S-105 WINGWALL SECTION REINFORCEMENT DETAIL

SCALE: NTS


3¼" (TYP.)
33-#5 V1 BARS SPA. W/ #5 N1 BARS @ 6" MAX. SPA. (FILL FACE) (TYP.)
32-#5 V1 BARS SPA. W/ #5 N1 BARS @ 6" MAX. SPA. (FRONT FACE) (TYP.)
14-#5 N2 BARS @ 12" MAX. SPA. (EACH FACE)
2" (TYP.)
#4 H2 BARS
9-#4 H1 @ EQ. SPA. (EACH FACE) (TYP.)
3¼" (TYP.)

3 S-105 STEM REINFORCEMENT DETAIL

SCALE: NTS


#5 V3 BARS @ 12" MAX. SPA. (SPA. W/ N2 BARS)
3"
#5 N2 BARS @ 12" MAX.
#4 H2 @ 12" MAX. SPA. (EACH FACE)
#5 Z2 BARS @ 12" MAX.
2½" (TYP.)
#4 T4 BARS @ 10" SPA. (TOP AND BOT. FOOTING)

4 S-105 HEADWALL SECTION REINFORCEMENT DETAIL

SCALE: NTS

Plotted By:Anderson, Nolen Sheet Set:011017025 - Tryon Layout:EW-01 REINFORCEMENT DETAIL July 14, 2025 09:46:23am K:\RDT_Structures_RetainWall_NC\011017032 - Tryon Drive Walls\CAD\S-103 RETAINING WALL DETAILS.dwg

EW-01 REINFORCEMENT DETAILS

PLAN TYPE:

SHEET NUMBER
S-105

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
045140
PATRICK D. COOKSEY
7/14/2025
NAME:
DATE:

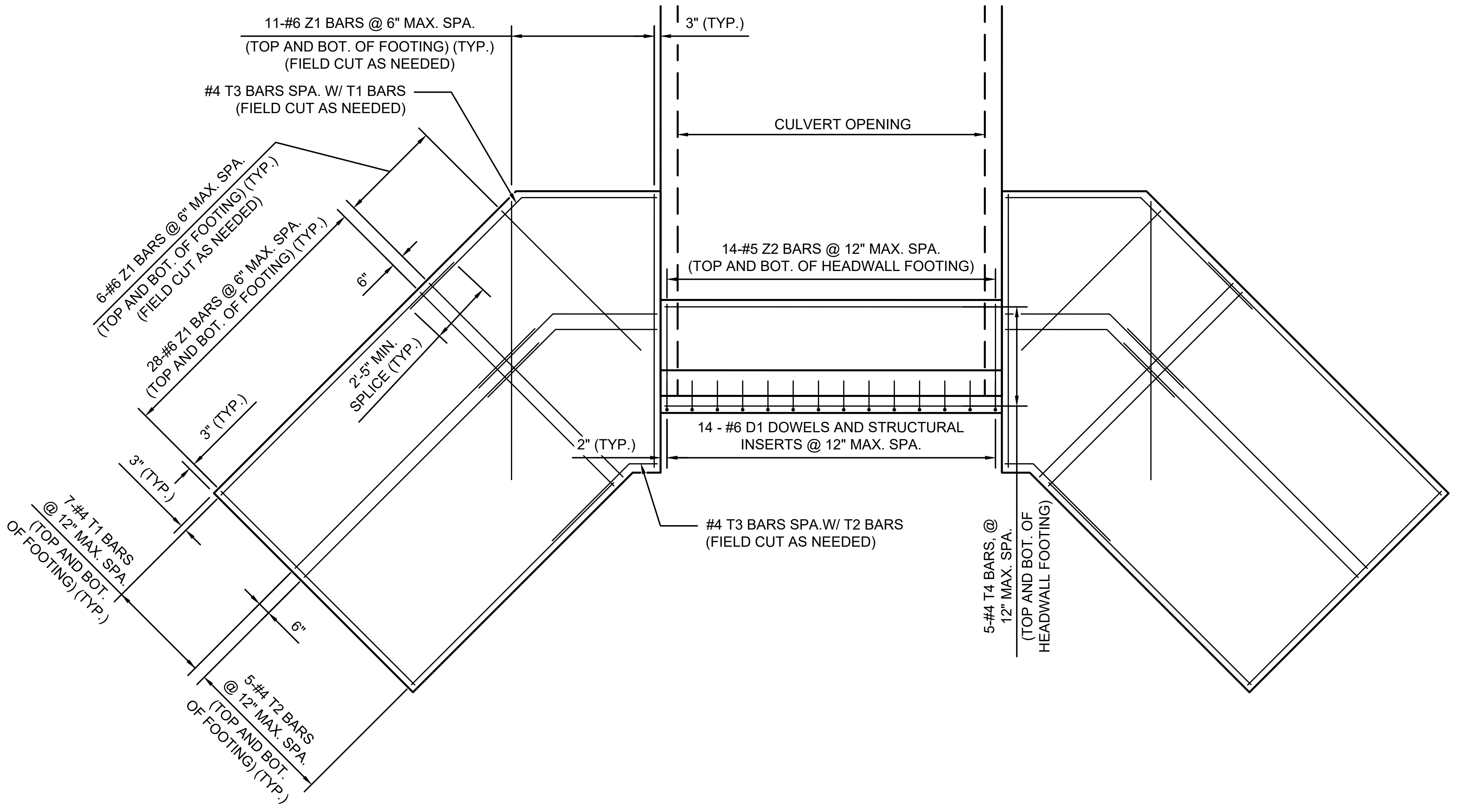
REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY
PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO. ____

NOTES:
1. WHERE BARS ARE FIELD CUT, THEY SHALL ONLY BE CUT AS NEEDED TO MAINTAIN A MINIMUM OF 2" OF CLEARANCE TO THE NEAREST CONCRETE SURFACE.
2. PRECAST CULVERT MANUFACTURER SHALL ACCOUNT FOR THE DEAD LOAD FROM HEADWALL AND RETAINED SOIL ON PRECAST CULVERT SECTIONS, WHERE APPLICABLE.

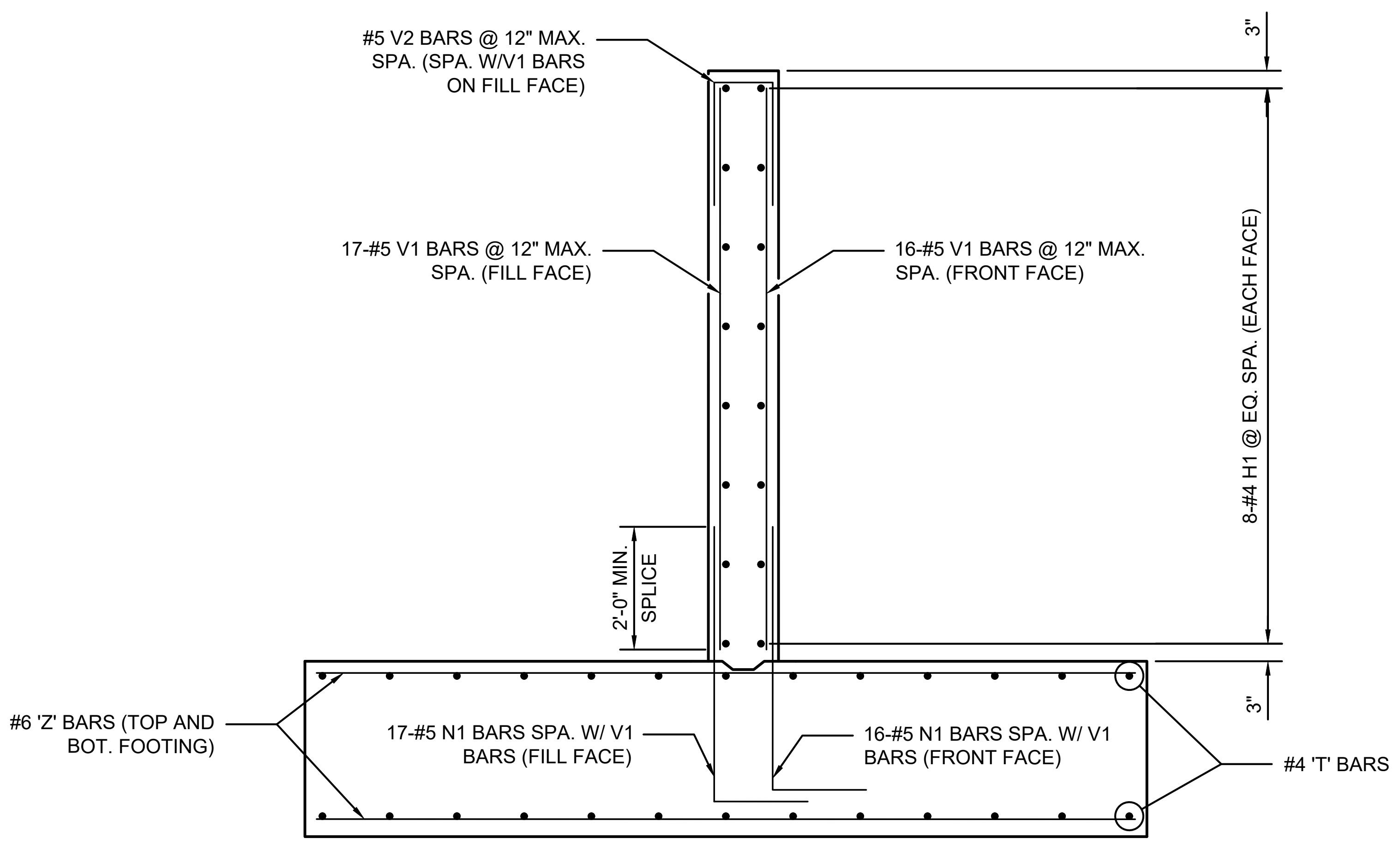

11-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
(FIELD CUT AS NEEDED)
3" (TYP.)
#4 T3 BARS SPA. W/ T1 BARS
(FIELD CUT AS NEEDED)
CULVERT OPENING
6-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
(FIELD CUT AS NEEDED)
28-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
6"
14-#5 Z2 BARS @ 12" MAX. SPA.
(TOP AND BOT. OF HEADWALL FOOTING)
2'-5" MIN.
SPLICE (TYP.)
3" (TYP.)
3" (TYP.)
14 - #6 D1 DOWELS AND STRUCTURAL
INSERTS @ 12" MAX. SPA.
2" (TYP.)
7-#4 T1 BARS
@ 12" MAX. SPA.
(TOP AND BOT.
OF FOOTING) (TYP.)
#4 T3 BARS SPA.W/ T2 BARS
(FIELD CUT AS NEEDED)
6"
5-#4 T4 BARS, @
12" MAX. SPA.
(TOP AND BOT. OF
HEADWALL FOOTING)
5-#4 T2 BARS
@ 12" MAX. SPA.
(TOP AND BOT.
OF FOOTING) (TYP.)

FOOTING AND CURTAIN WALL REINFORCEMENT DETAIL

1
S–106

SCALE: NTS

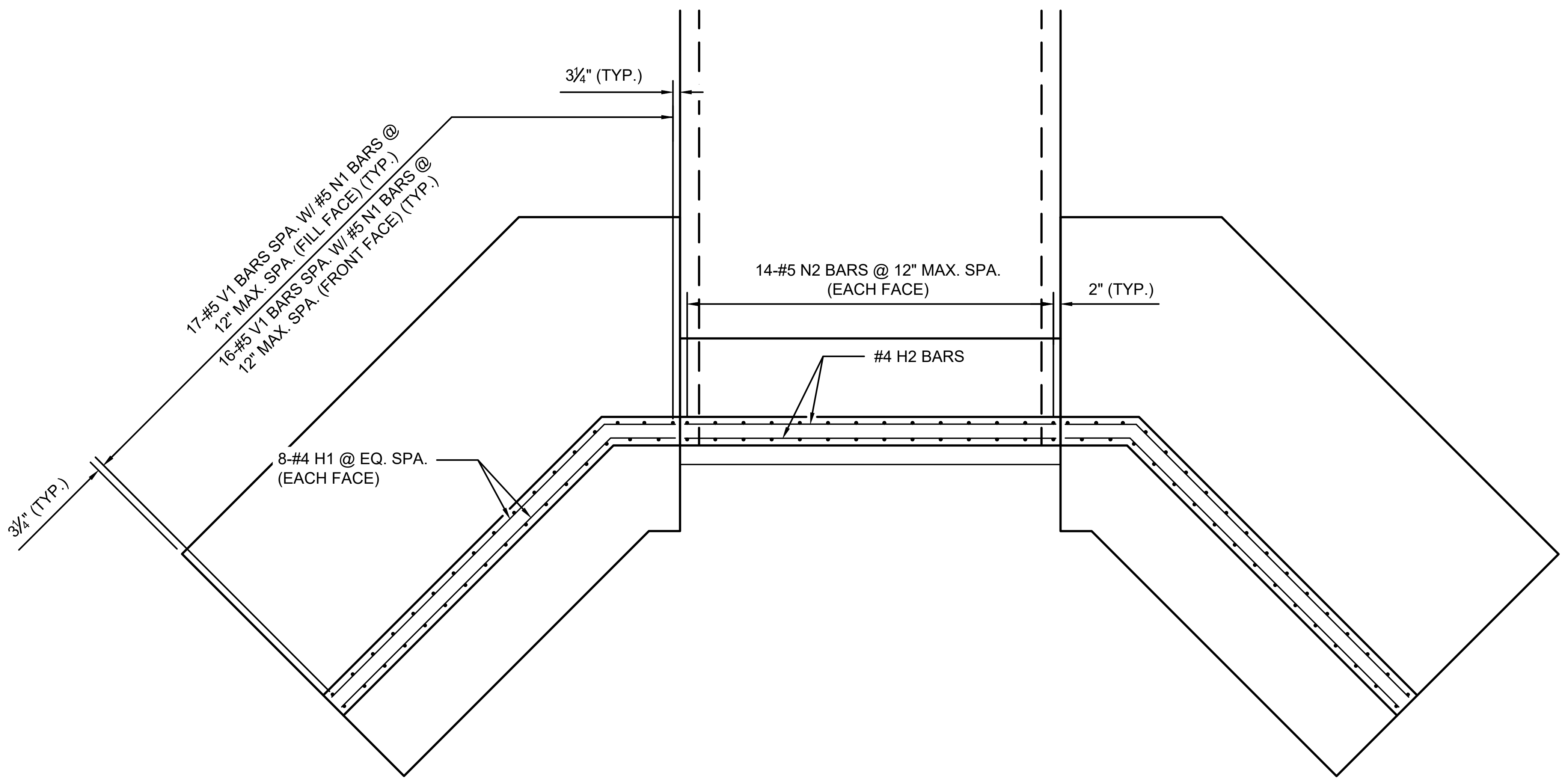
N BARS NOT SHOWN FOR CLARITY, BUT SHALL BE PLACED PRIOR TO POURING FOOTING CONCRETE


#5 V2 BARS @ 12" MAX.
SPA. (SPA. W/V1 BARS
ON FILL FACE)
3"
17-#5 V1 BARS @ 12" MAX.
SPA. (FILL FACE)
16-#5 V1 BARS @ 12" MAX.
SPA. (FRONT FACE)
8-#4 H1 @ EQ. SPA. (EACH FACE)
2'-0" MIN.
SPLICE
#6 'Z' BARS (TOP AND
BOT. FOOTING)
17-#5 N1 BARS SPA. W/ V1
BARS (FILL FACE)
16-#5 N1 BARS SPA. W/ V1
BARS (FRONT FACE)
3"
#4 'T' BARS

WINGWALL SECTION REINFORCEMENT DETAIL

2
S–106

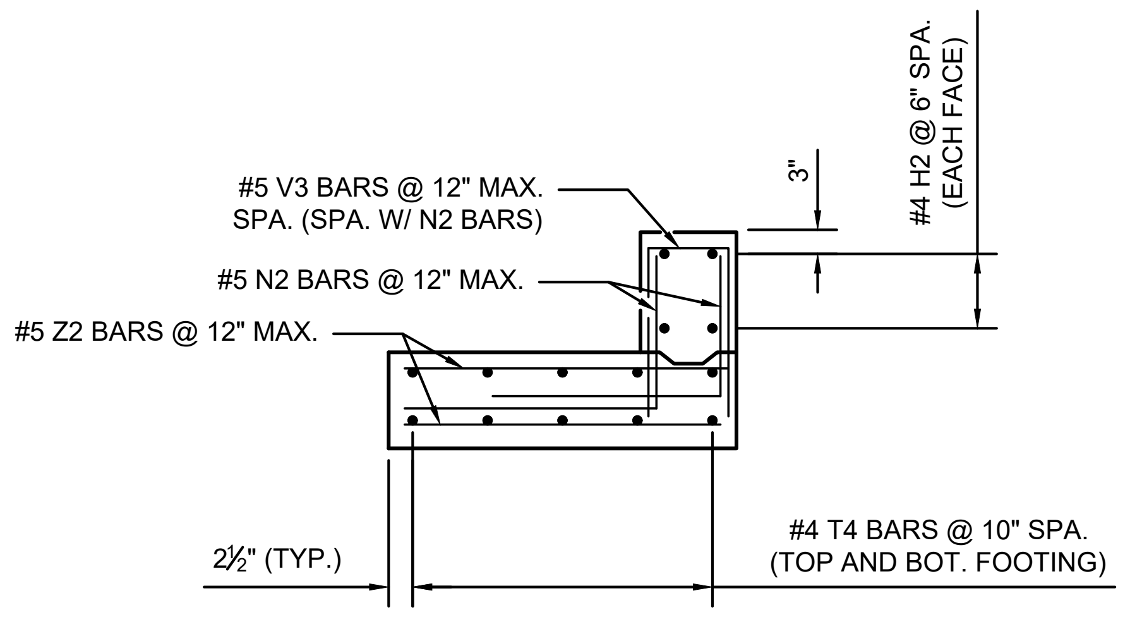
SCALE: NTS


3¼" (TYP.)
17-#5 V1 BARS SPA. W/ #5 N1 BARS @
12" MAX. SPA. (FILL FACE) (TYP.)
16-#5 V1 BARS SPA. W/ #5 N1 BARS @
12" MAX. SPA. (FRONT FACE) (TYP.)
14-#5 N2 BARS @ 12" MAX. SPA.
(EACH FACE)
2" (TYP.)
#4 H2 BARS
8-#4 H1 @ EQ. SPA.
(EACH FACE)
3¼" (TYP.)

STEM REINFORCEMENT DETAIL

3
S–106

SCALE: NTS


#5 V3 BARS @ 12" MAX.
SPA. (SPA. W/ N2 BARS)
3"
#4 H2 @ 6" SPA.
(EACH FACE)
#5 N2 BARS @ 12" MAX.
#5 Z2 BARS @ 12" MAX.
2½" (TYP.)
#4 T4 BARS @ 10" SPA.
(TOP AND BOT. FOOTING)

HEADWALL SECTION REINFORCEMENT DETAIL

4
S–106

SCALE: NTS

Plotted By: Anderson, Nolen Sheet Set: 011017025 – Tryon Layout: EW–07 REINFORCEMENT DETAIL July 14, 2025 09:46:25am K:\RDT_Structures_RetainWall_NC\011017032 – Tryon Drive Walls\CAD\S–103 RETAINING WALL DETAILS.dwg

EW-07 REINFORCEMENT DETAILS

PLAN TYPE:

SHEET NUMBER
S–106

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
045140
PATRICK D. COOKSEY
7/14/2025

NAME:
DATE:

REVISIONS

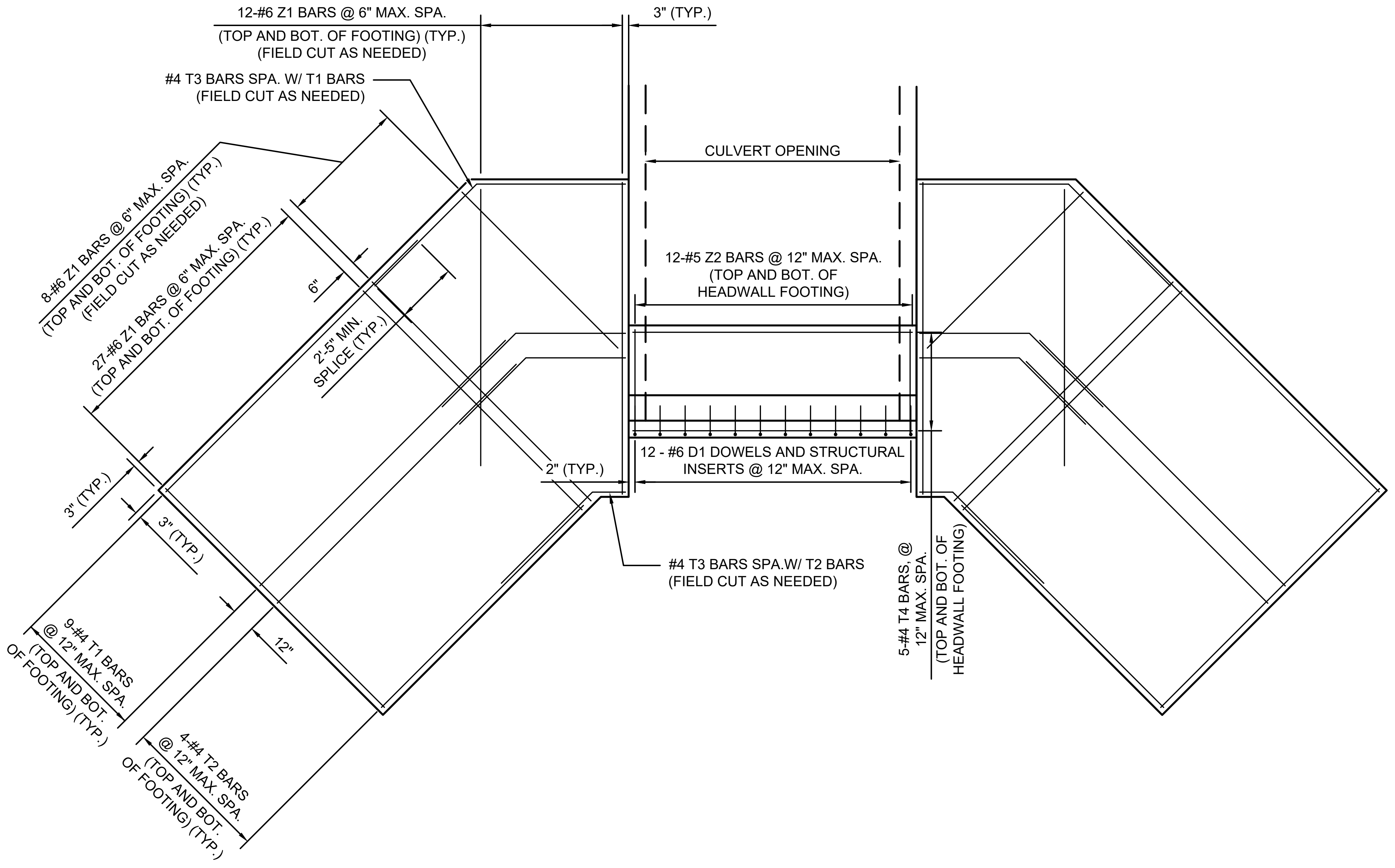
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY
PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

NOTES:
1. WHERE BARS ARE FIELD CUT, THEY SHALL ONLY BE CUT AS NEEDED TO MAINTAIN A MINIMUM OF 2" OF CLEARANCE TO THE NEAREST CONCRETE SURFACE.
2. PRECAST CULVERT MANUFACTURER SHALL ACCOUNT FOR THE DEAD LOAD FROM HEADWALL AND RETAINED SOIL ON PRECAST CULVERT SECTIONS, WHERE APPLICABLE.

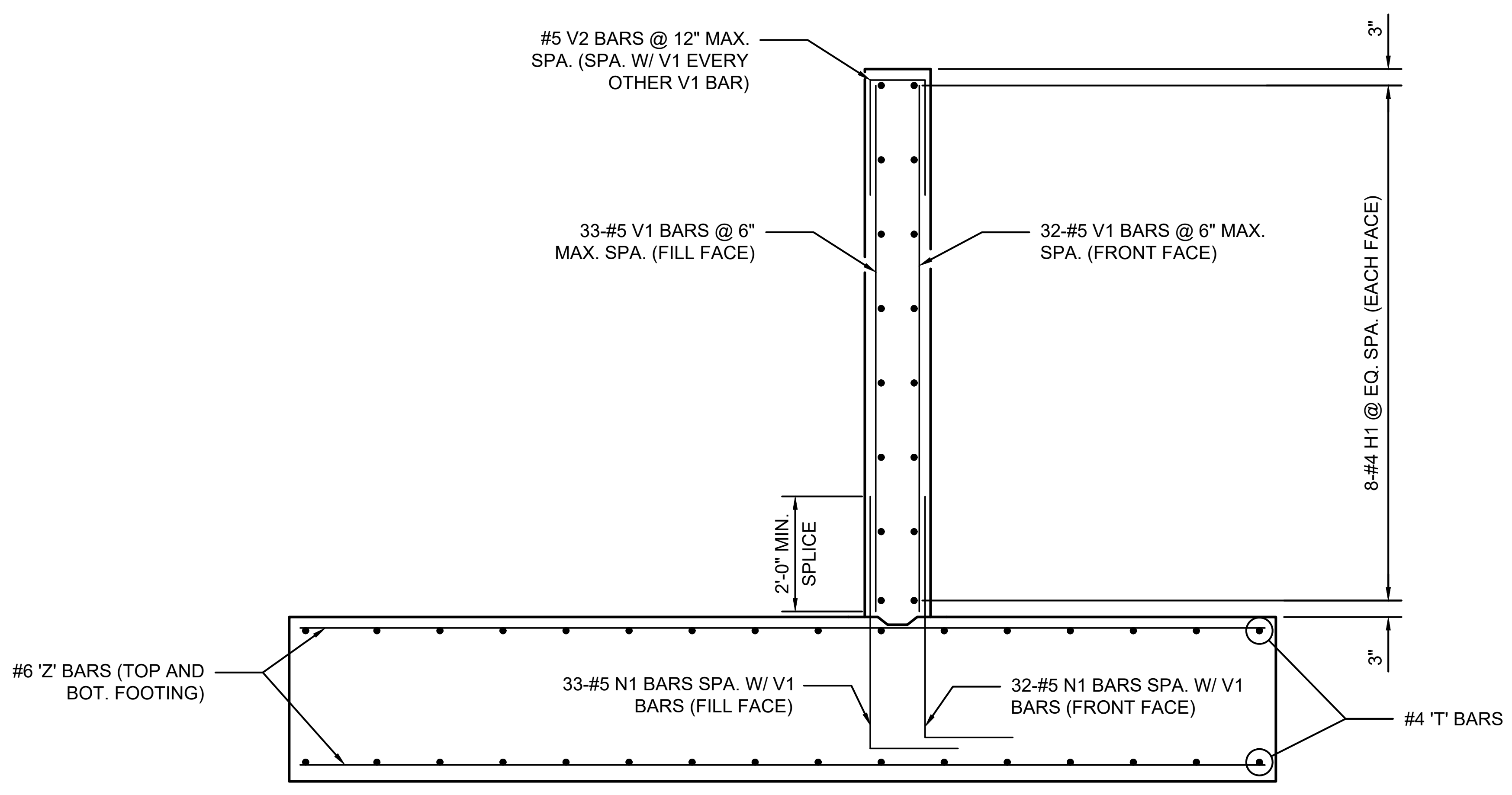

12-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
(FIELD CUT AS NEEDED)
3" (TYP.)
#4 T3 BARS SPA. W/ T1 BARS
(FIELD CUT AS NEEDED)
CULVERT OPENING
8-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
(FIELD CUT AS NEEDED)
27-#6 Z1 BARS @ 6" MAX. SPA.
(TOP AND BOT. OF FOOTING) (TYP.)
6"
2'-5" MIN. SPLICE (TYP.)
12-#5 Z2 BARS @ 12" MAX. SPA.
(TOP AND BOT. OF
HEADWALL FOOTING)
12 - #6 D1 DOWELS AND STRUCTURAL
INSERTS @ 12" MAX. SPA.
2" (TYP.)
3" (TYP.)
3" (TYP.)
#4 T3 BARS SPA.W/ T2 BARS
(FIELD CUT AS NEEDED)
5-#4 T4 BARS, @
12" MAX. SPA.
(TOP AND BOT. OF
HEADWALL FOOTING)
12"
9-#4 T1 BARS
@ 12" MAX. SPA.
(TOP AND BOT.
OF FOOTING) (TYP.)
4-#4 T2 BARS
@ 12" MAX. SPA.
(TOP AND BOT.
OF FOOTING) (TYP.)

FOOTING AND CURTAIN WALL REINFORCEMENT DETAIL

1
S-107

SCALE: NTS

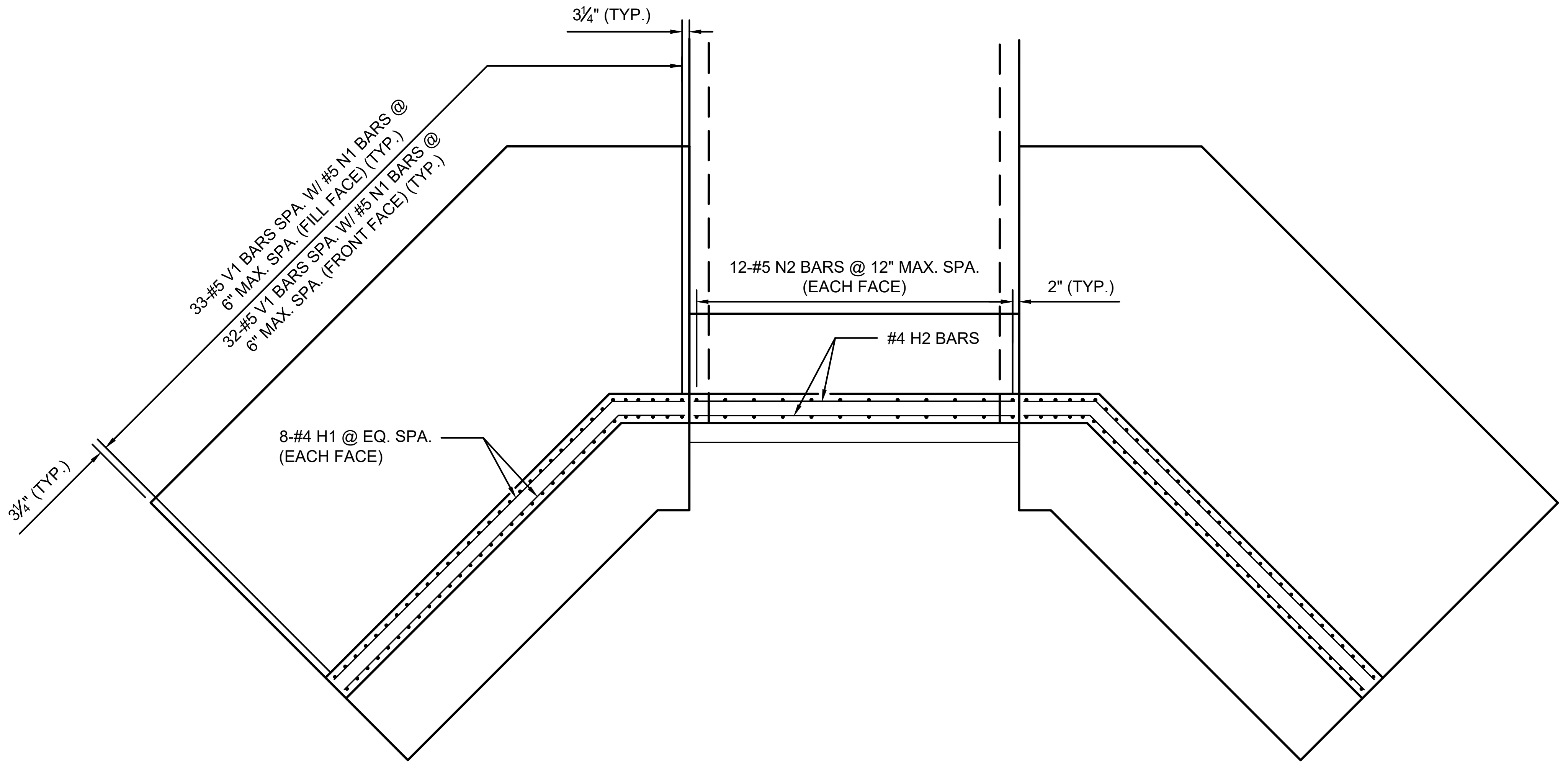
N BARS NOT SHOWN FOR CLARITY, BUT SHALL BE PLACED PRIOR TO POURING FOOTING CONCRETE


#5 V2 BARS @ 12" MAX.
SPA. (SPA. W/ V1 EVERY
OTHER V1 BAR)
3"
33-#5 V1 BARS @ 6"
MAX. SPA. (FILL FACE)
32-#5 V1 BARS @ 6" MAX.
SPA. (FRONT FACE)
8-#4 H1 @ EQ. SPA. (EACH FACE)
2'-0" MIN.
SPLICE
#6 'Z' BARS (TOP AND
BOT. FOOTING)
33-#5 N1 BARS SPA. W/ V1
BARS (FILL FACE)
32-#5 N1 BARS SPA. W/ V1
BARS (FRONT FACE)
3"
#4 'T' BARS

WINGWALL SECTION REINFORCEMENT DETAIL

2
S-107

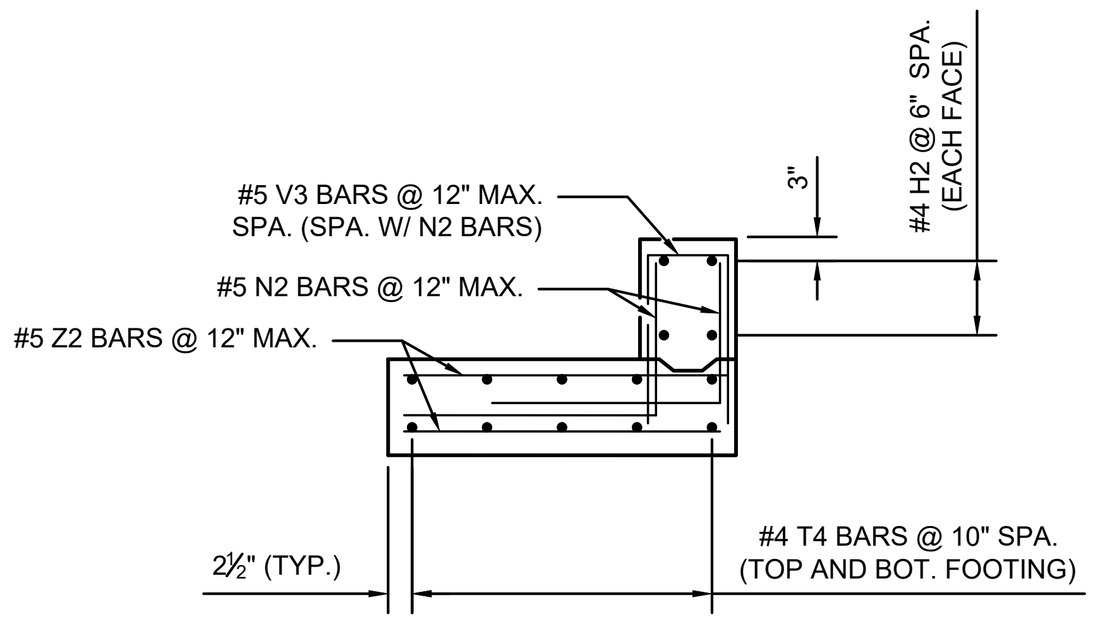
SCALE: NTS


3¼" (TYP.)
33-#5 V1 BARS SPA. W/ #5 N1 BARS @
6" MAX. SPA. (FILL FACE) (TYP.)
32-#5 V1 BARS SPA. W/ #5 N1 BARS @
6" MAX. SPA. (FRONT FACE) (TYP.)
12-#5 N2 BARS @ 12" MAX. SPA.
(EACH FACE)
2" (TYP.)
#4 H2 BARS
8-#4 H1 @ EQ. SPA.
(EACH FACE)
3¼" (TYP.)

STEM REINFORCEMENT DETAIL

3
S-107

SCALE: NTS


#5 V3 BARS @ 12" MAX.
SPA. (SPA. W/ N2 BARS)
#5 N2 BARS @ 12" MAX.
#5 Z2 BARS @ 12" MAX.
3"
#4 H2 @ 6" SPA.
(EACH FACE)
2½" (TYP.)
#4 T4 BARS @ 10" SPA.
(TOP AND BOT. FOOTING)

HEADWALL SECTION REINFORCEMENT DETAIL

4
S-107

SCALE: NTS

EW-08 REINFORCEMENT DETAILS

PLAN TYPE:

SHEET NUMBER
S-107

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
045140
PATRICK D. COOKSEY
7/14/2025

REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

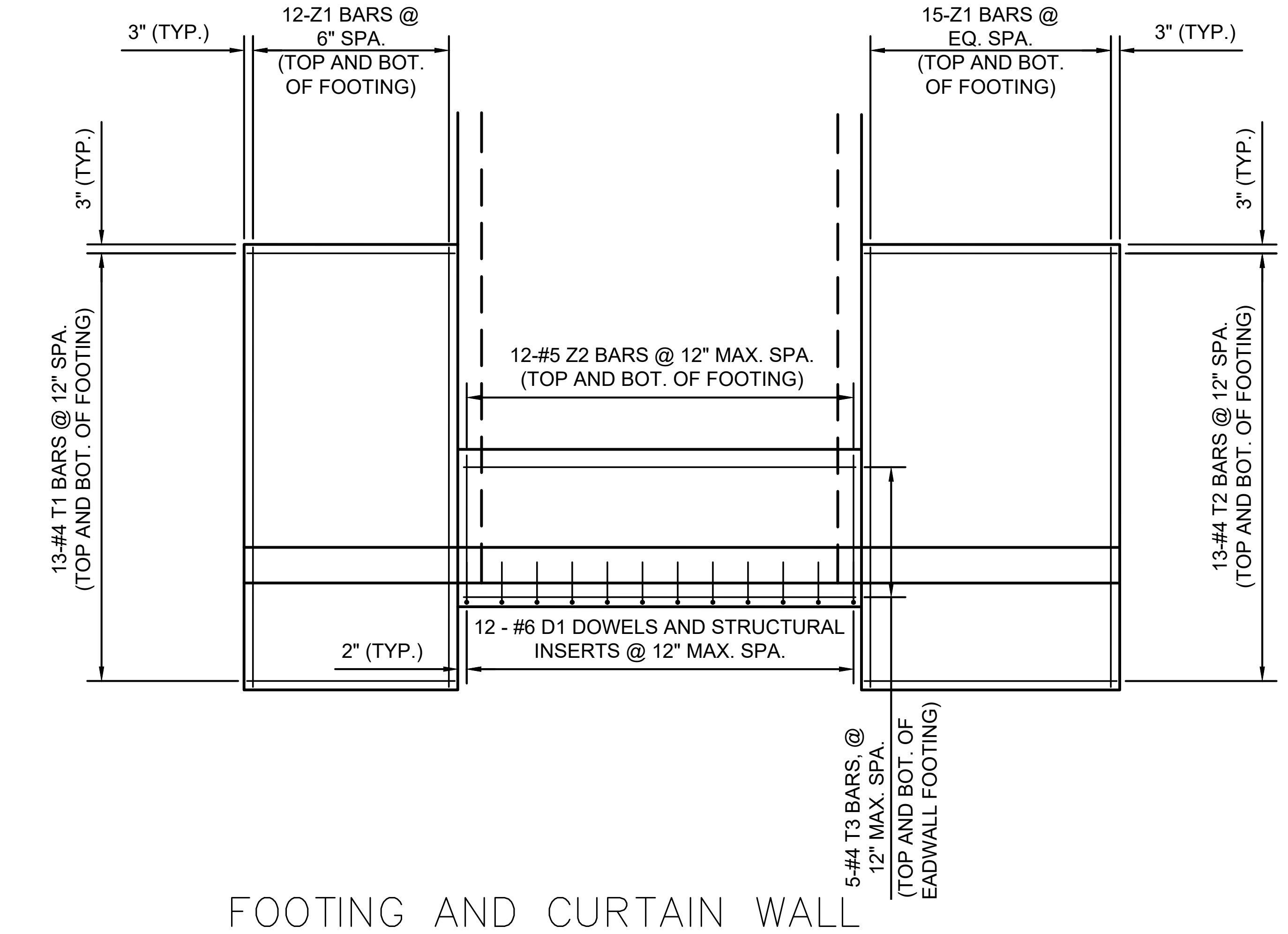
REVISIONS

ISSUED FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY
PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

NOTES:
1. WHERE BARS ARE FIELD CUT, THEY SHALL ONLY BE CUT AS NEEDED TO MAINTAIN A MINIMUM OF 2" OF CLEARANCE TO THE NEAREST CONCRETE SURFACE.
2. PRECAST CULVERT MANUFACTURER SHALL ACCOUNT FOR THE DEAD LOAD FROM HEADWALL AND RETAINED SOIL ON PRECAST CULVERT SECTIONS, WHERE APPLICABLE.

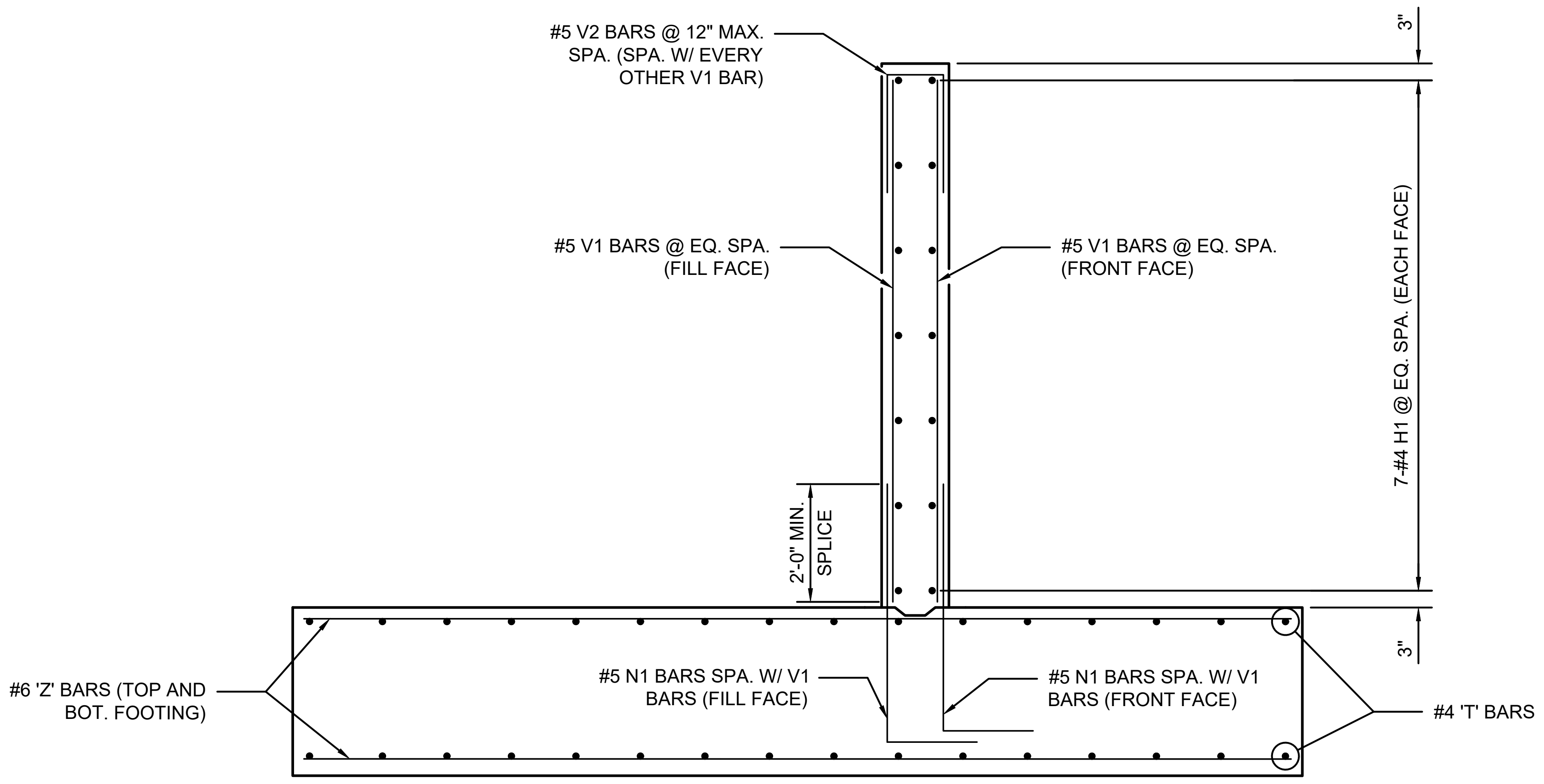

3" (TYP.)
12-Z1 BARS @ 6" SPA. (TOP AND BOT. OF FOOTING)
15-Z1 BARS @ EQ. SPA. (TOP AND BOT. OF FOOTING)
3" (TYP.)
3" (TYP.)
3" (TYP.)
12-#5 Z2 BARS @ 12" MAX. SPA. (TOP AND BOT. OF FOOTING)
13-#4 T1 BARS @ 12" SPA. (TOP AND BOT. OF FOOTING)
13-#4 T2 BARS @ 12" SPA. (TOP AND BOT. OF FOOTING)
2" (TYP.)
12 - #6 D1 DOWELS AND STRUCTURAL INSERTS @ 12" MAX. SPA.
5-#4 T3 BARS @ 12" MAX. SPA. (TOP AND BOT. OF EADWALL FOOTING)

1
S-108

FOOTING AND CURTAIN WALL REINFORCEMENT DETAIL

SCALE: NTS

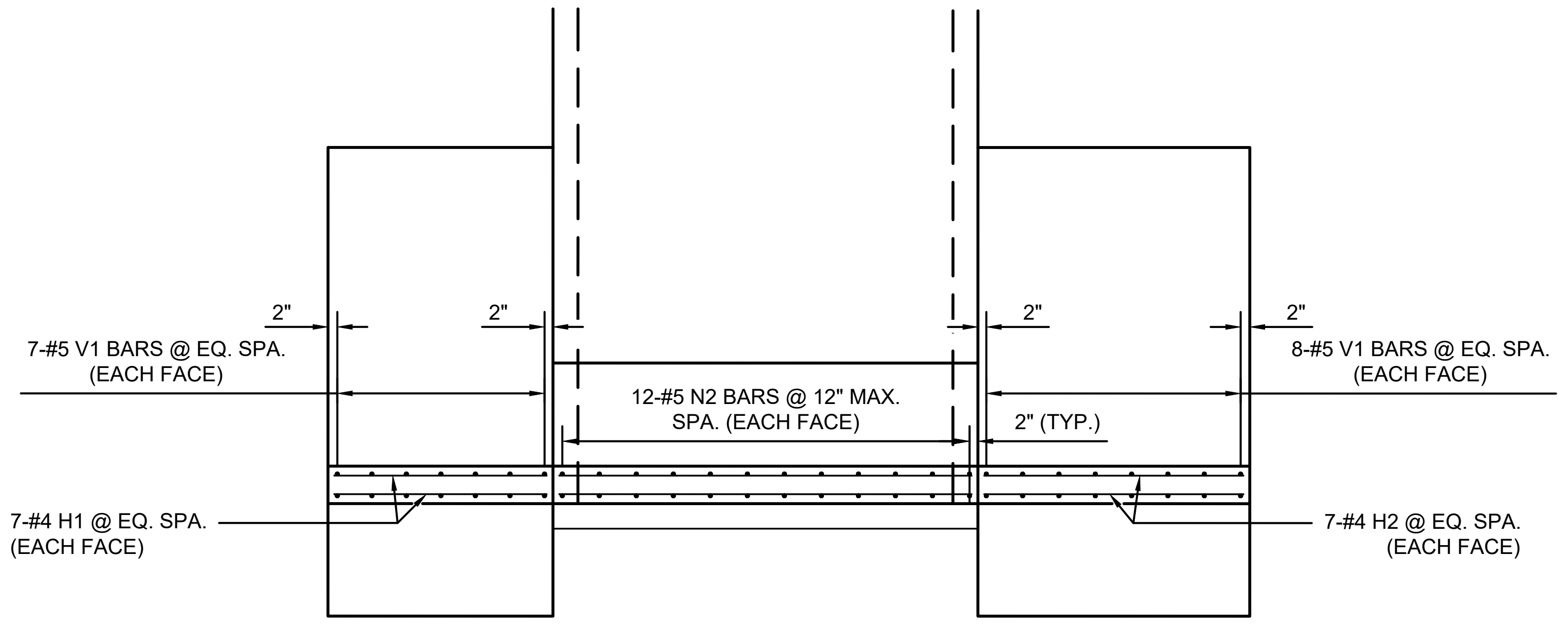
N BARS NOT SHOWN FOR CLARITY, BUT SHALL BE PLACED PRIOR TO POURING FOOTING CONCRETE


#5 V2 BARS @ 12" MAX. SPA. (SPA. W/ EVERY OTHER V1 BAR)
3"
#5 V1 BARS @ EQ. SPA. (FILL FACE)
#5 V1 BARS @ EQ. SPA. (FRONT FACE)
7-#4 H1 @ EQ. SPA. (EACH FACE)
2'-0" MIN. SPLICE
3"
#6 'Z' BARS (TOP AND BOT. FOOTING)
#5 N1 BARS SPA. W/ V1 BARS (FILL FACE)
#5 N1 BARS SPA. W/ V1 BARS (FRONT FACE)
#4 'T' BARS

2
S-108

WINGWALL SECTION REINFORCEMENT DETAIL

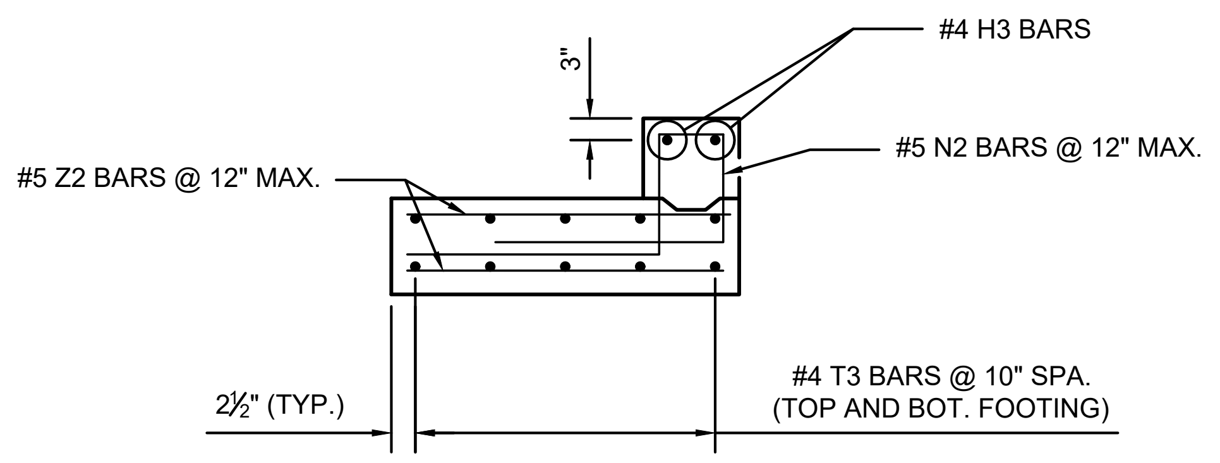
SCALE: NTS


2"
2"
2"
2"
7-#5 V1 BARS @ EQ. SPA. (EACH FACE)
8-#5 V1 BARS @ EQ. SPA. (EACH FACE)
12-#5 N2 BARS @ 12" MAX. SPA. (EACH FACE)
2" (TYP.)
7-#4 H1 @ EQ. SPA. (EACH FACE)
7-#4 H2 @ EQ. SPA. (EACH FACE)

3
S-108

STEM REINFORCEMENT DETAIL

SCALE: NTS


#4 H3 BARS
3"
#5 N2 BARS @ 12" MAX.
#5 Z2 BARS @ 12" MAX.
2½" (TYP.)
#4 T3 BARS @ 10" SPA. (TOP AND BOT. FOOTING)

4
S-108

HEADWALL SECTION REINFORCEMENT DETAIL

SCALE: NTS

EW-09 REINFORCEMENT DETAILS

SHEET NUMBER
S-108

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
SEAL 045140
PATRICK D. COOKSEY
7/14/2025
NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY

PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

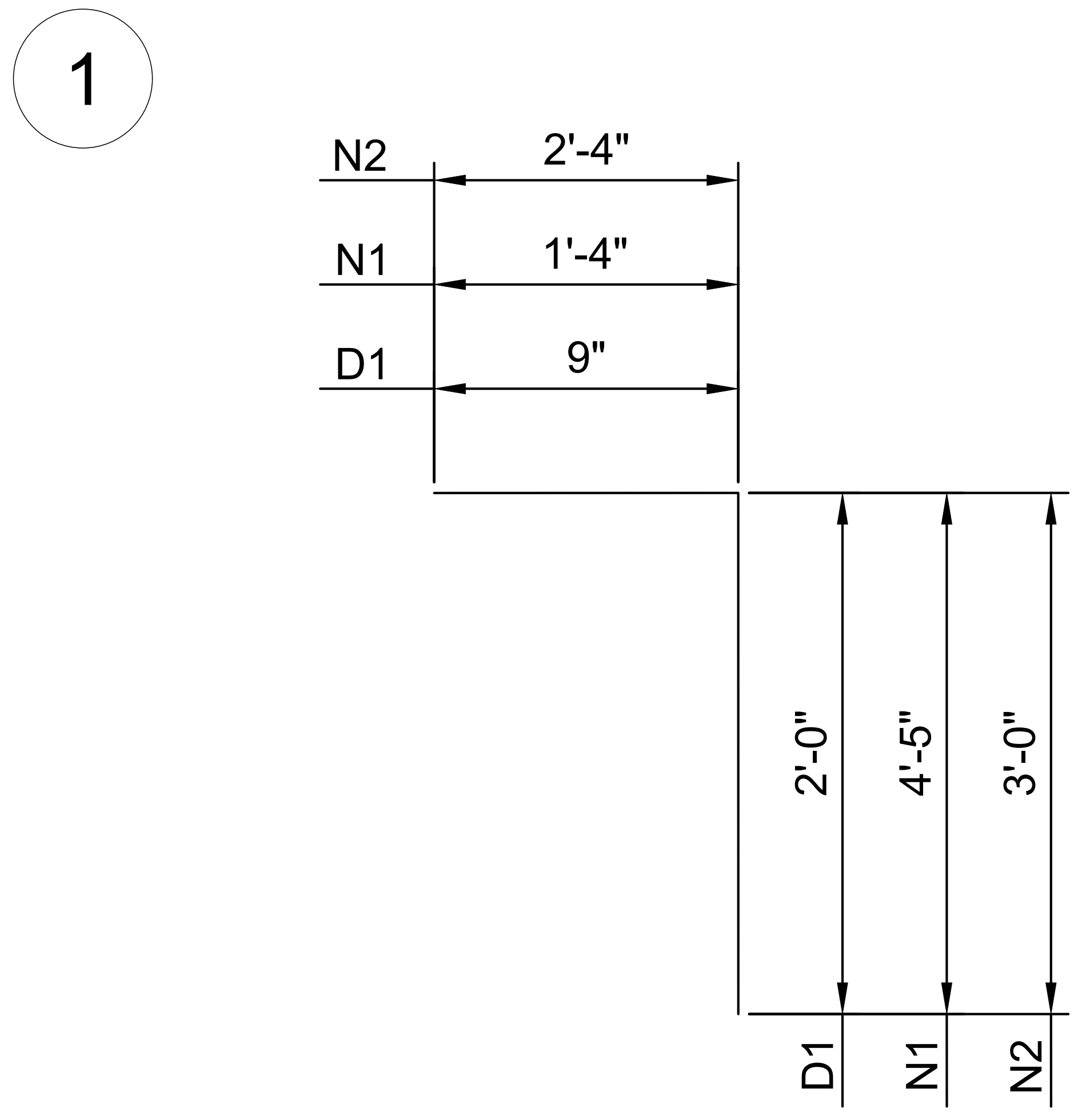
PROJECT NO. KH 011017025
SUB-LEDGER NO.

Docusign Envelope ID: DA960C4E-7E29-4D1D-B64E-80E212A2C3BA

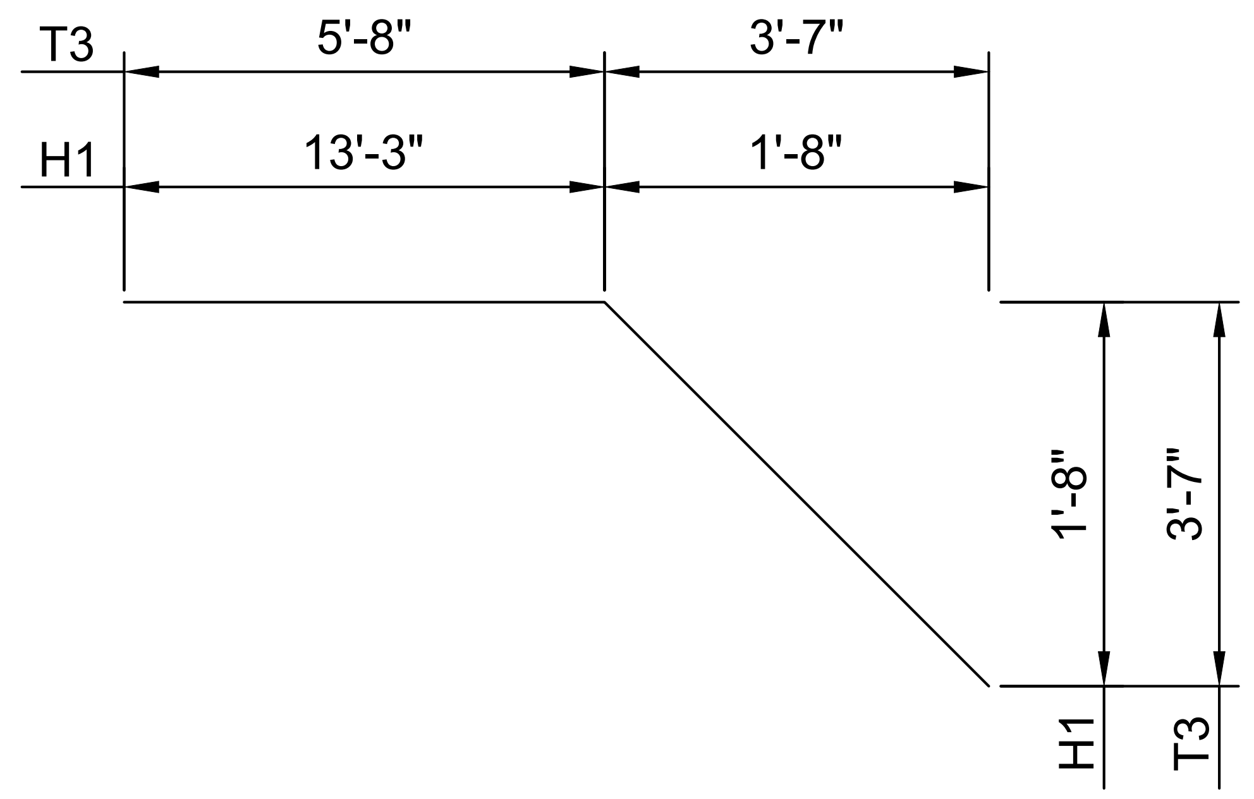
EW-01

BAR TYPES

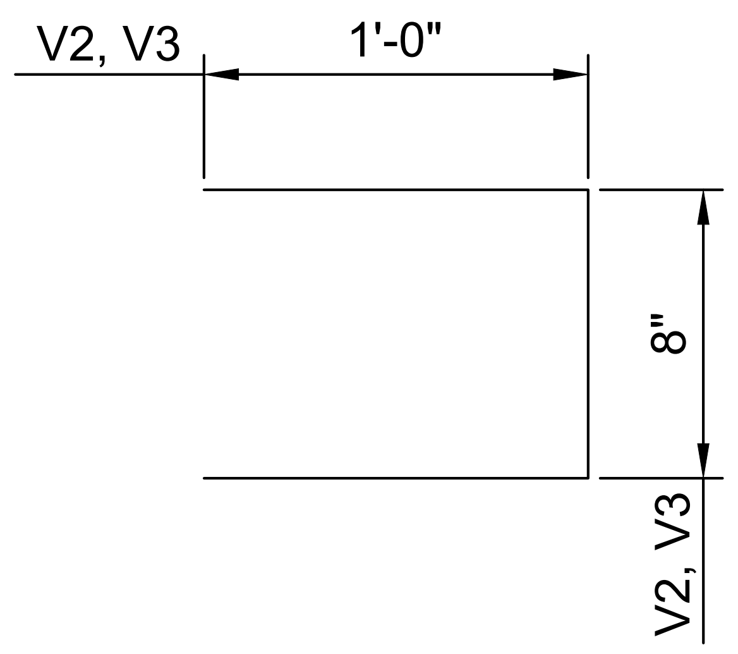
①



②



③



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

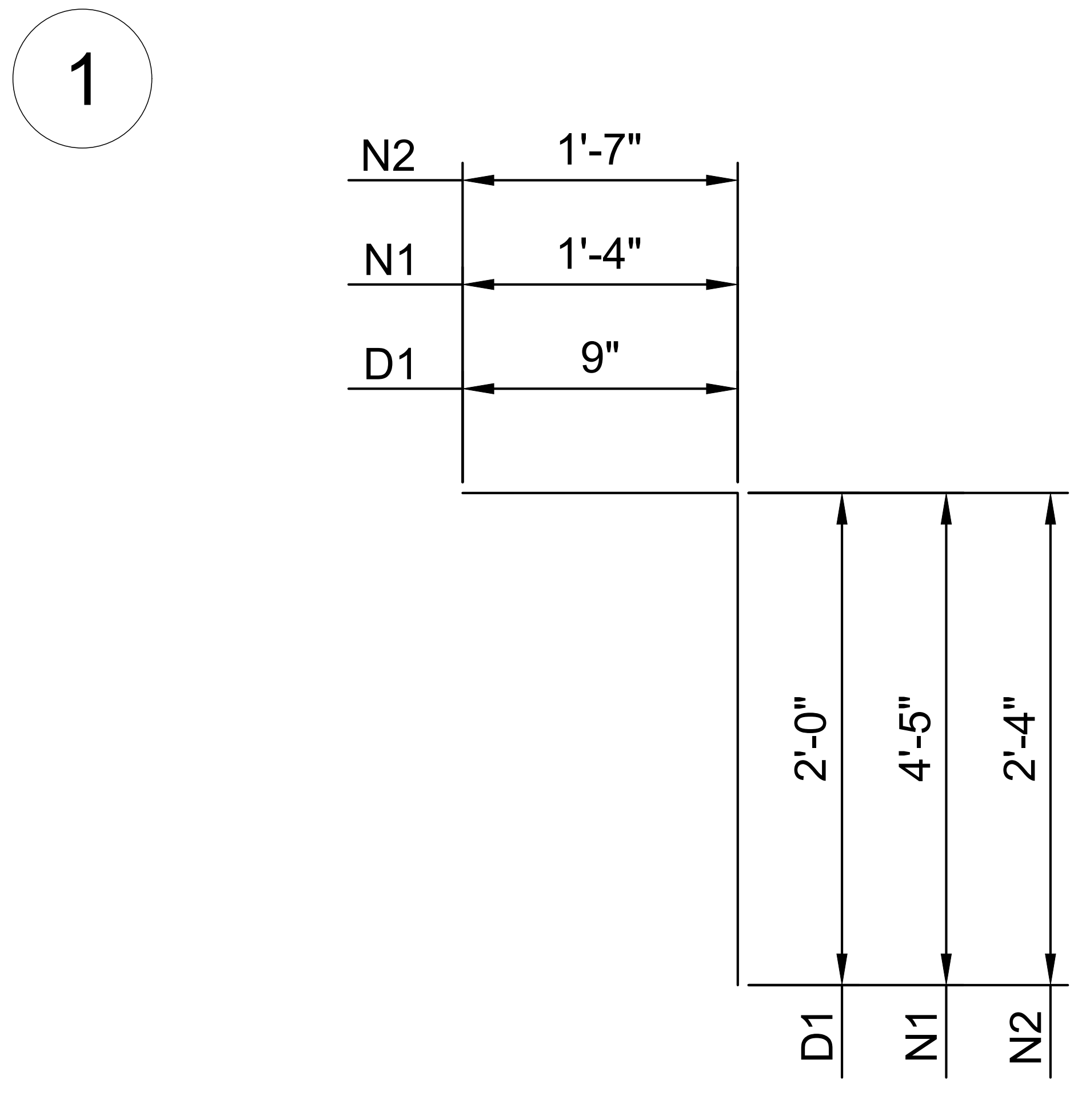
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	14	#6	1	2'-9"	58
H1	36	#4	2	15'-6"	373
H2	6	#4	STR	13'-0"	52
N1	130	#5	1	5'-9"	780
N2	28	#5	1	5'-4"	156
T1	36	#4	STR	13'-10"	333
T2	20	#4	STR	11'-2"	149
T3	56	#4	2	11'-5"	427
T4	10	#4	STR	13'-0"	87
V1	130	#5	STR	7'-11"	1,073
V2	34	#5	3	2'-8"	95
V3	14	#5	3	2'-8"	39
Z1	192	#6	STR	13'-2"	3,797
Z2	28	#5	STR	3'-5"	100

REINFORCING STEEL FOR 2 WINGS	7,519 LBS.
4 KSI A CONCRETE	
2 WINGS	55.8 C.Y.
1 HEADWALL	3.1 C.Y.
END CURTAIN WALL	0.8 C.Y.
TOTAL	59.7 C.Y.

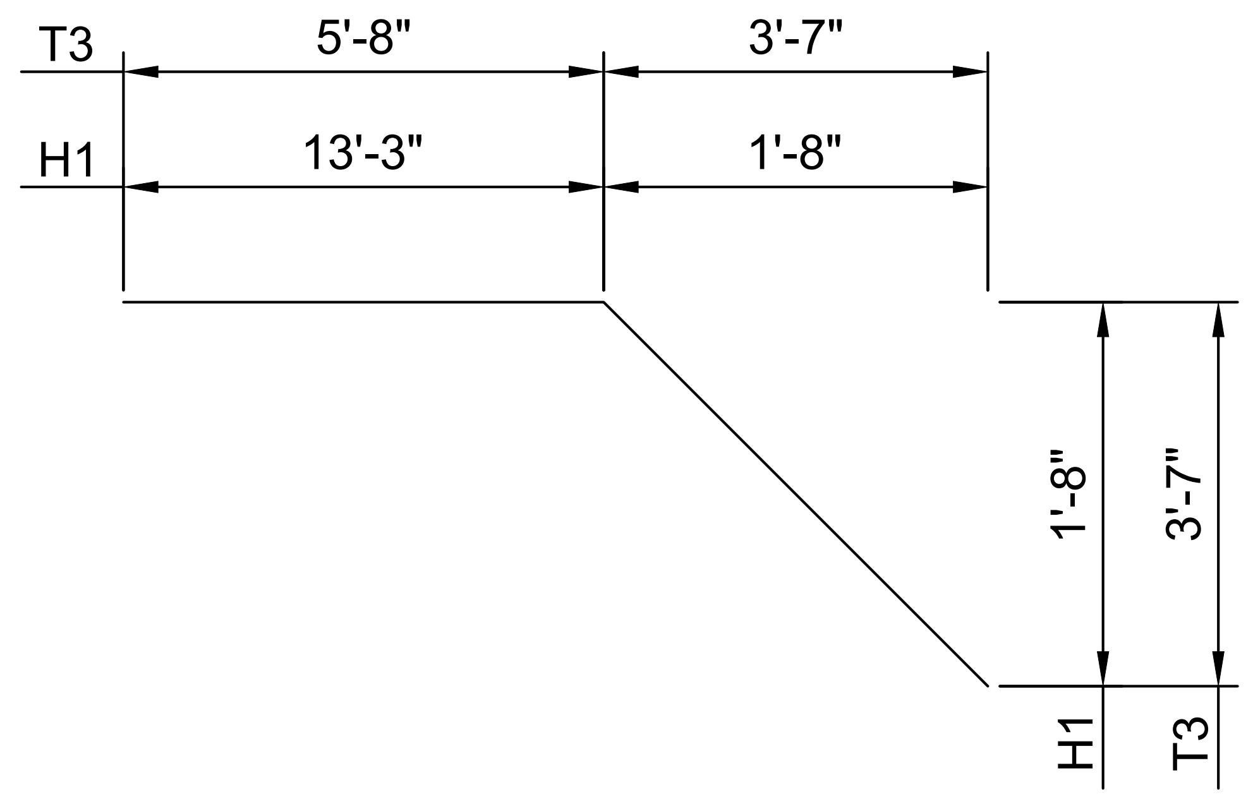
EW-07

BAR TYPES

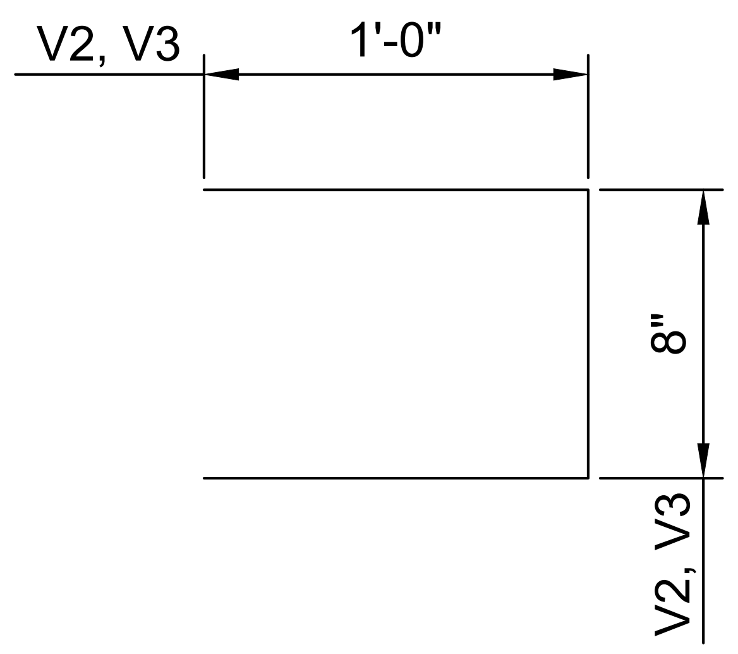
①



②



③



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	14	#6	1	2'-9"	58
H1	32	#4	2	15'-6"	331
H2	4	#4	STR	13'-0"	35
N1	66	#5	1	5'-9"	396
N2	28	#5	1	3'-11"	114
T1	28	#4	STR	13'-10"	259
T2	20	#4	STR	11'-2"	149
T3	48	#4	2	11'-4"	363
T4	10	#4	STR	13'-0"	87
V1	66	#5	STR	6'-6"	447
V2	34	#5	3	2'-8"	95
V3	14	#5	3	2'-8"	39
Z1	192	#6	STR	10'-8"	3,076
Z2	28	#5	STR	3'-5"	100

REINFORCING STEEL FOR 2 WINGS	5,549 LBS.
4 KSI A CONCRETE	
2 WINGS	44.4 C.Y.
1 HEADWALL	2.4 C.Y.
END CURTAIN WALL	0.8 C.Y.
TOTAL	47.6 C.Y.

EW BILL OF MATERIAL
(1 OF 2)

PLAN TYPE:

SHEET NUMBER
S-109

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
045140
PATRICK D. COOKSEY
7/14/2025

NAME:
DATE:

REVISIONS

REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED
FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY

PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

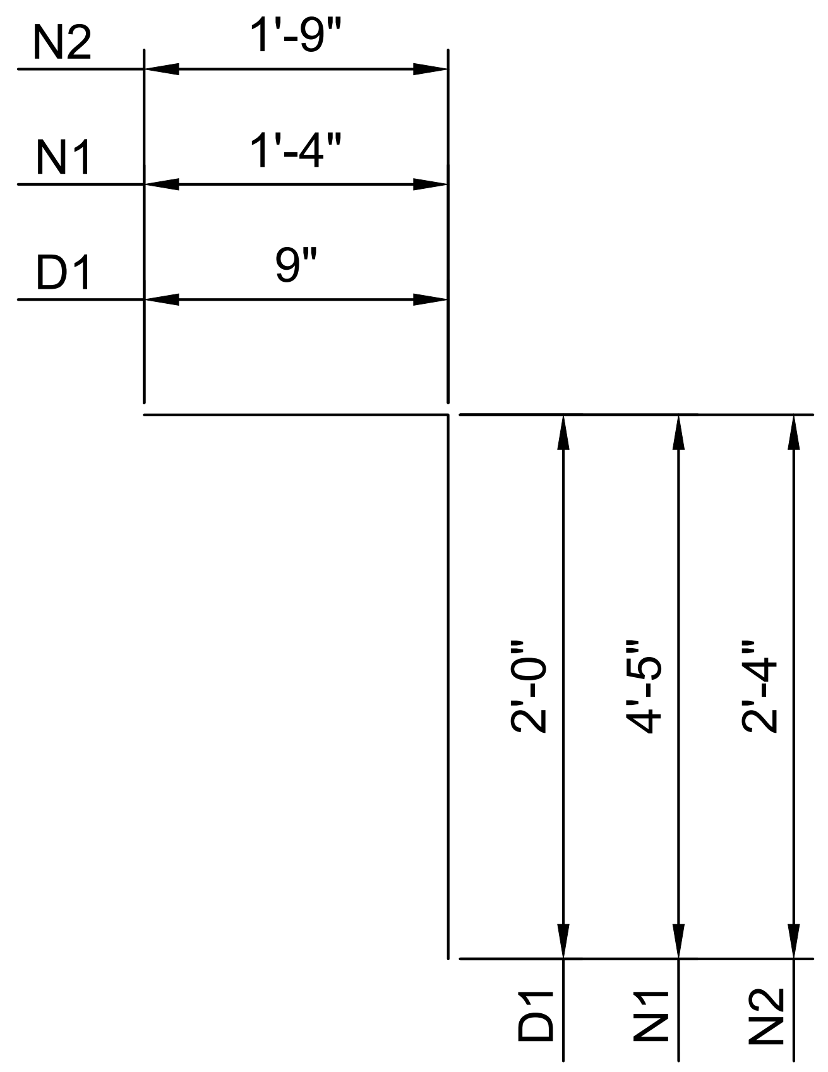
PROJECT NO. KH 011017025
SUB-LEDGER NO.

Plotted By:Anderson, Nolen Sheet Set:011017025 – Tryon Layout:EW BILL OF MATERIAL (1 OF 2) July 14, 2025 09:46:26am K:\RDT_Structures_RetainWall_NC\011017032 – Tryon Drive Walls\CAD\S-103 RETAINING WALL DETAILS.dwg

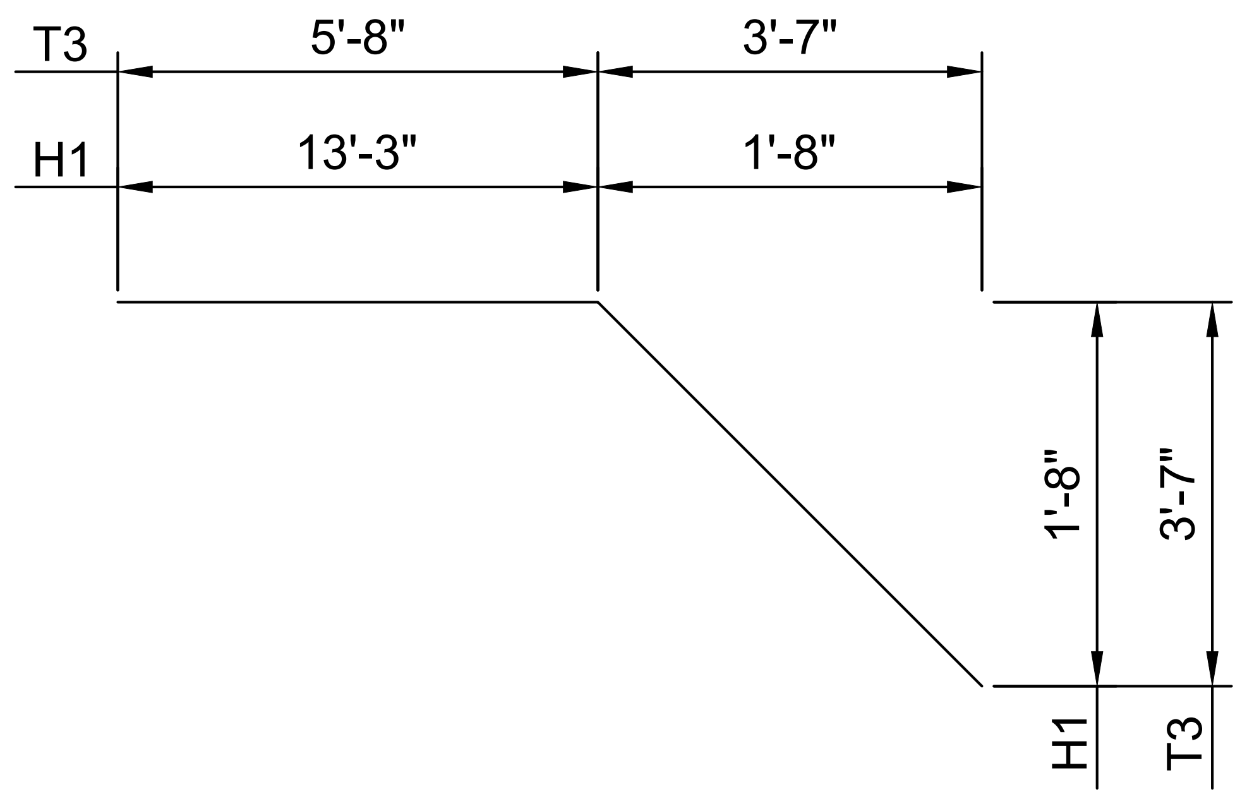
EW-08

BAR TYPES

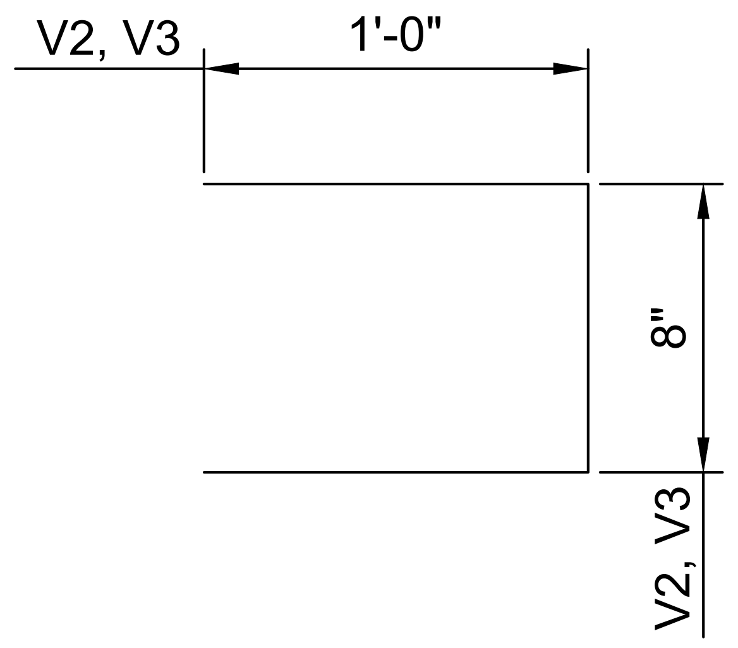
1



2



3



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

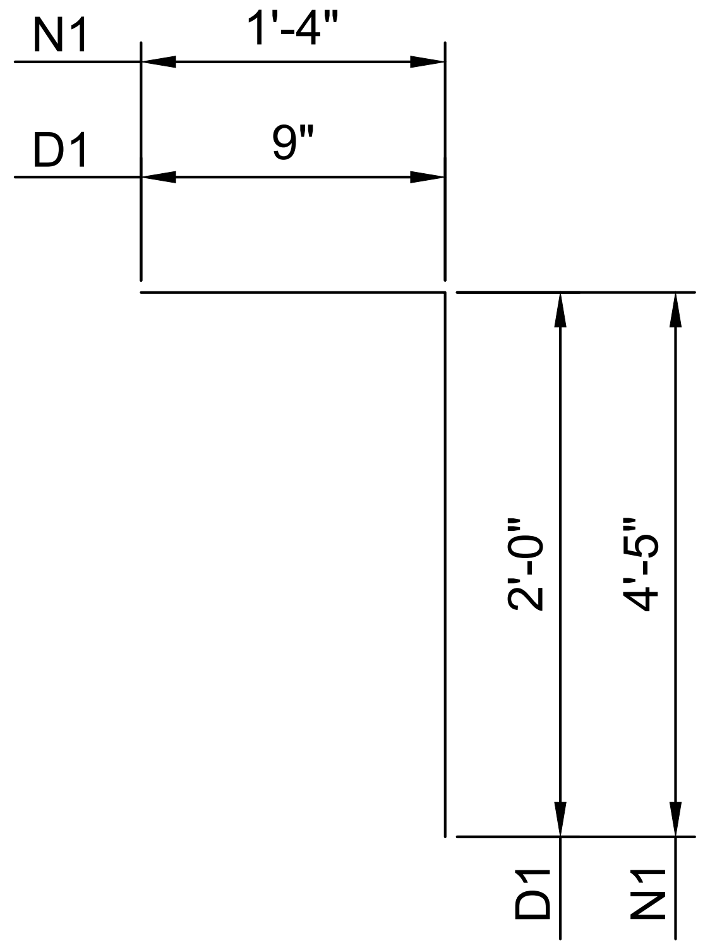
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	12	#6	1	2'-9"	50
H1	32	#4	2	15'-6"	331
H2	4	#4	STR	11'-0"	29
N1	132	#5	1	5'-9"	792
N2	24	#5	1	4'-1"	102
T1	36	#4	STR	13'-10"	333
T2	16	#4	STR	11'-2"	119
T3	52	#4	2	11'-4"	394
T4	10	#4	STR	11'-0"	73
V1	130	#5	STR	6'-8"	904
V2	34	#5	3	2'-8"	95
V3	12	#5	3	2'-8"	33
Z1	188	#6	STR	14'-8"	4,142
Z2	24	#5	STR	3'-5"	86

REINFORCING STEEL FOR 2 WINGS	7,483 LBS.
4 KSI A CONCRETE	
2 WINGS	51.0 C.Y.
1 HEADWALL	2.1 C.Y.
END CURTAIN WALL	0.7 C.Y.
TOTAL	53.8 C.Y.

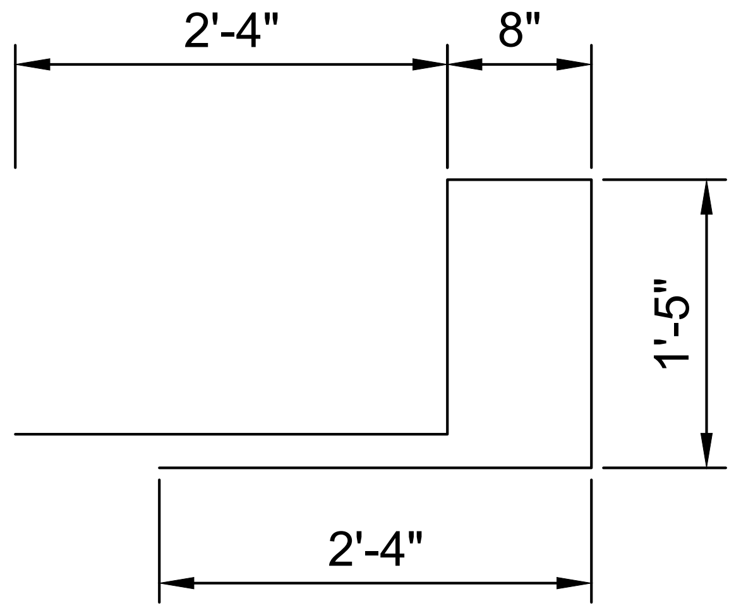
EW-09

BAR TYPES

1



2



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	12	#6	1	2'-9"	50
H1	14	#4	STR	5'-8"	53
H2	14	#4	STR	6'-11"	65
H3	2	#4	STR	11'-0"	15
N1	30	#5	1	5'-9"	180
N2	12	#5	2	8'-2"	102
T1	26	#4	STR	5'-8"	98
T2	26	#4	STR	6'-9"	117
T3	10	#4	STR	11'-0"	73
V1	30	#5	STR	6'-2"	193
Z1	54	#6	STR	12'-0"	973
Z2	24	#5	STR	3'-5"	86

REINFORCING STEEL FOR 2 WINGS	2,005 LBS.
4 KSI A CONCRETE	
2 WINGS	18.5 C.Y.
1 HEADWALL	1.9 C.Y.
END CURTAIN WALL	0.7 C.Y.
TOTAL	21.1 C.Y.

EW BILL OF MATERIAL
(2 OF 2)

PLAN TYPE:

SHEET NUMBER
S-110

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Cooksey
B3C6CA16457E4F7...
SEAL
045140
PATRICK D. COOKSEY
7/14/2025
NAME:
DATE:

REVISIONS

REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

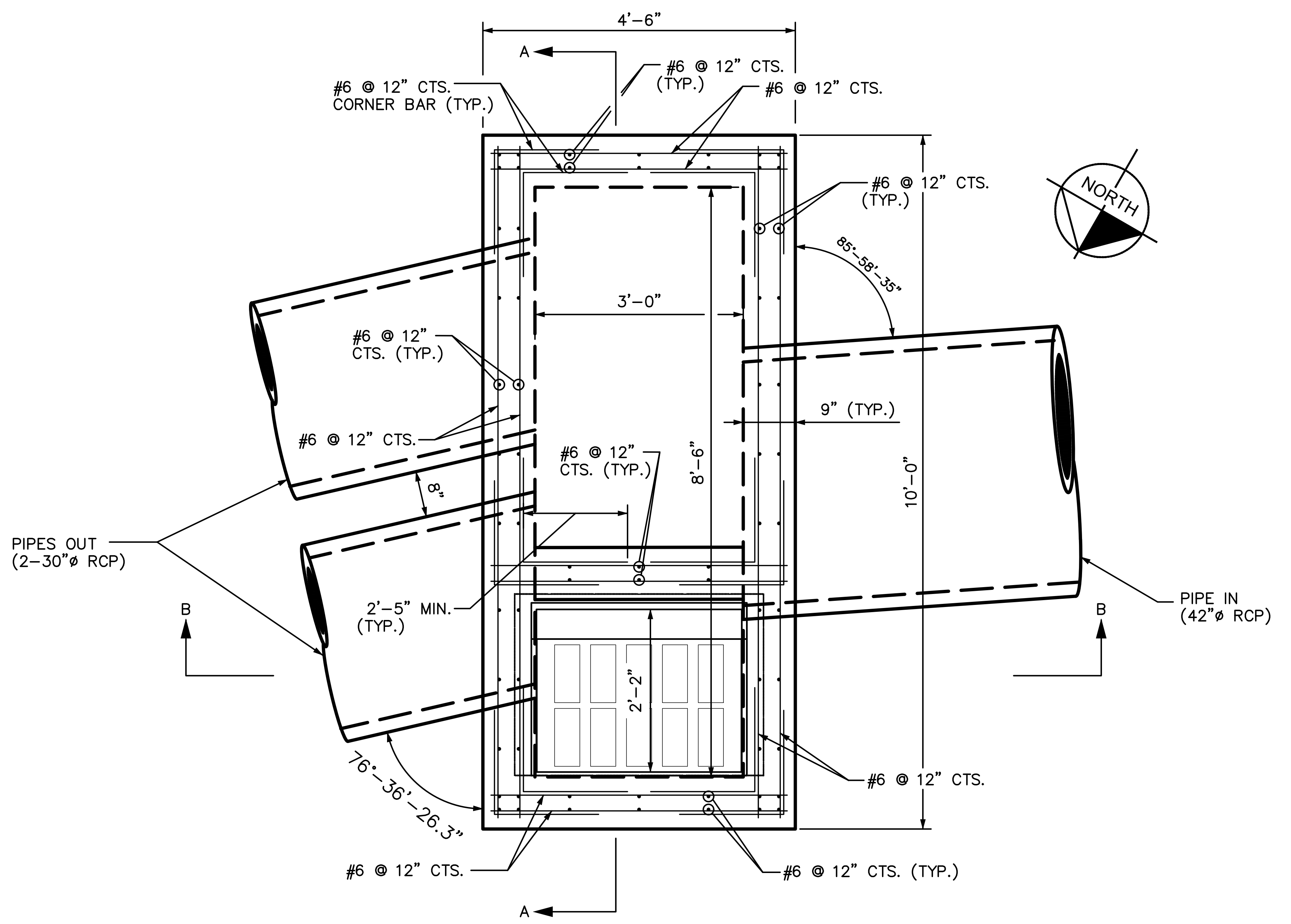
**ISSUED
FOR CONSTRUCTION**

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY
PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

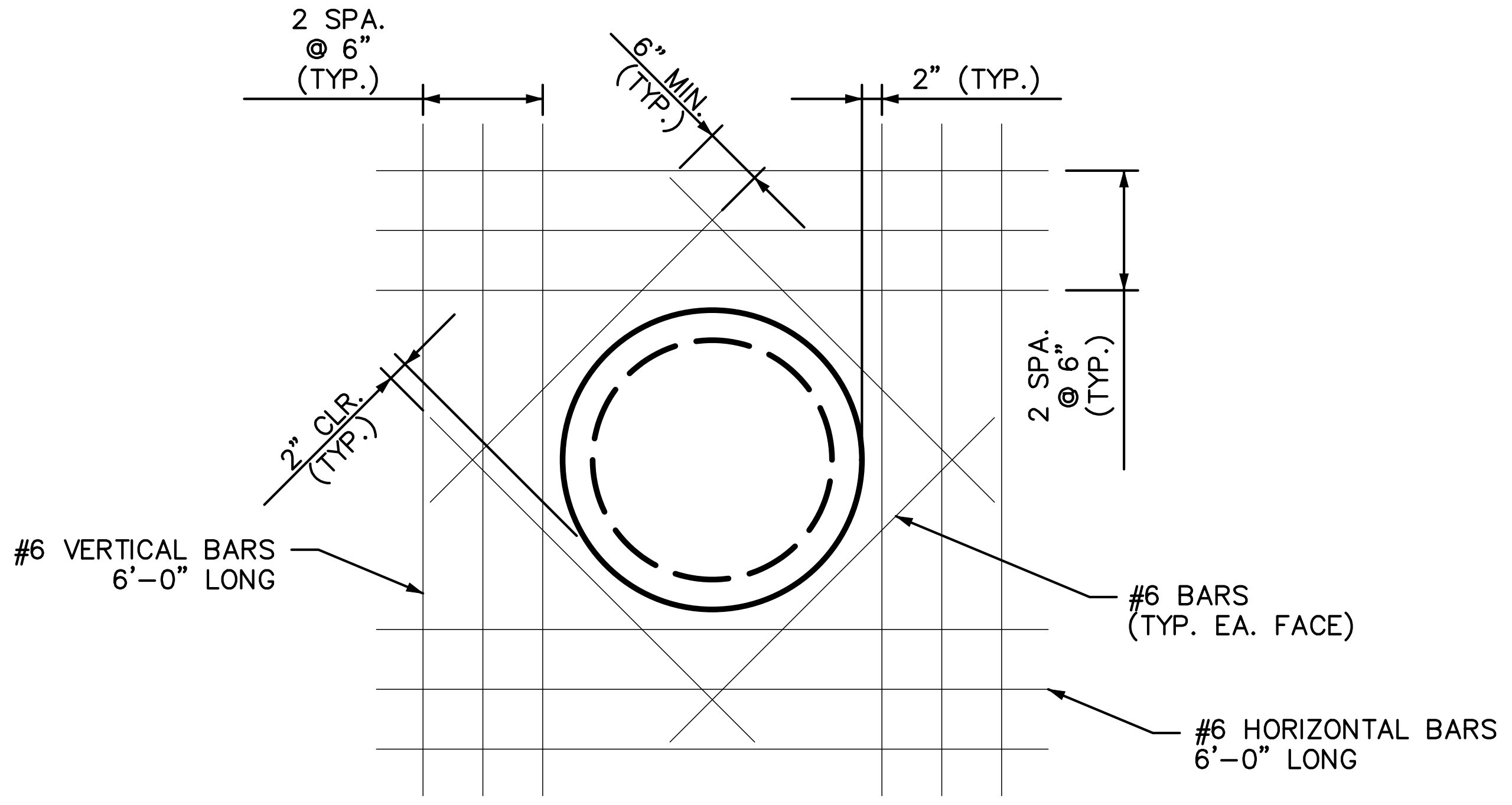
NOTES:

1. USE 4,000 KSI CONCRETE THROUGHOUT.
2. CONSTRUCT CONCRETE BOX IN ACCORDANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS.
3. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
4. ADJUST LENGTH OF STEEL BARS AS NEEDED TO COMPENSATE FOR PIPES AND FRAME AND GRATE OPENINGS.
5. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60.
6. CUT OR BEND STEEL BARS AS NEEDED TO PROVIDE 2" CLEARANCE.
7. LOCATE FRAME AND GRATE AS FIELD CONDITIONS DICTATE AND AS DIRECTED BY THE ENGINEER.
8. DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
9. FOR INVERT ELEVATIONS OF PIPES, REFER TO DRAINAGE PLAN DETAILS.

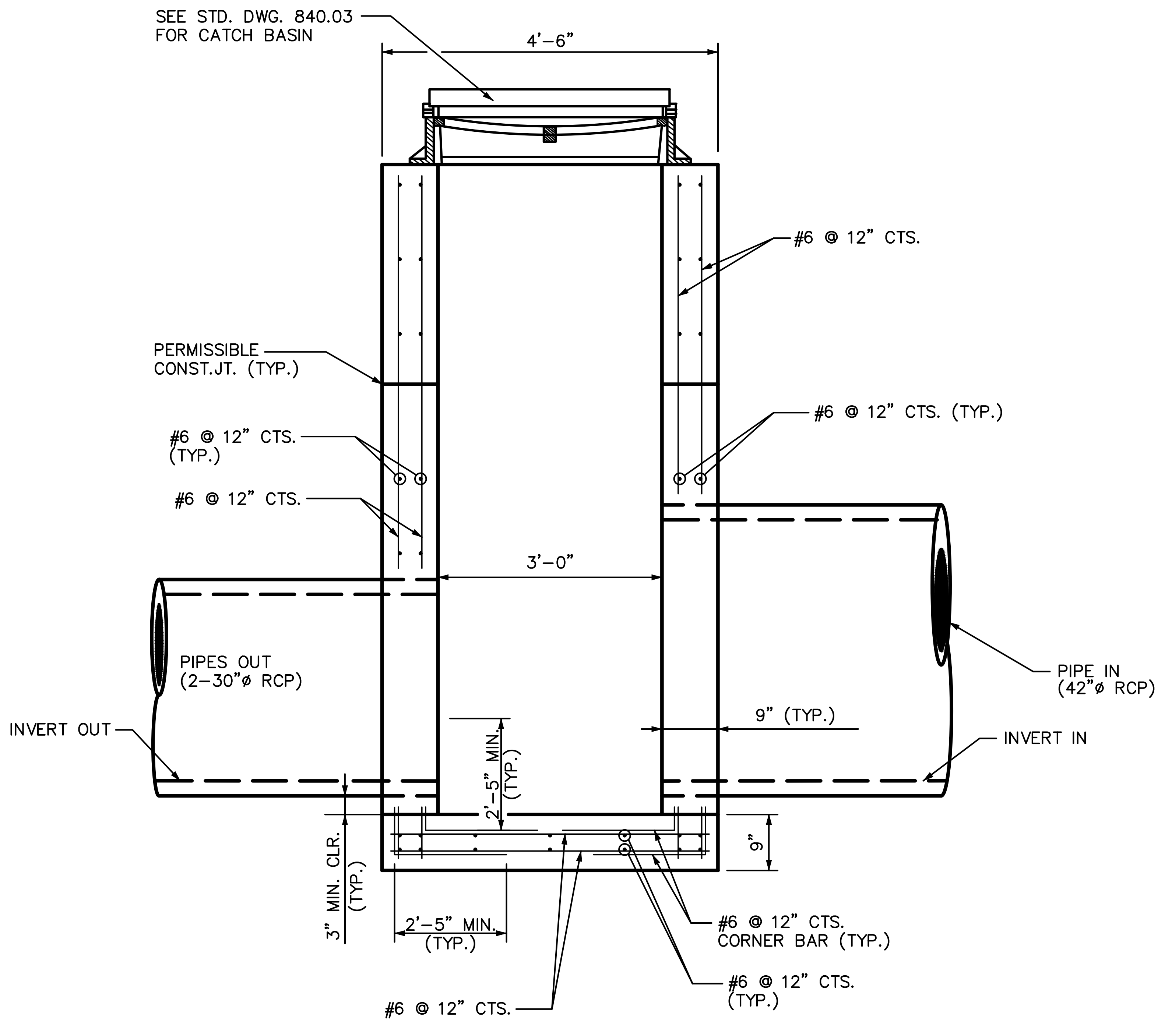

4'-6"
A
A
#6 @ 12" CTS.
CORNER BAR (TYP.)
#6 @ 12" CTS.
(TYP.)
#6 @ 12" CTS.
#6 @ 12" CTS.
(TYP.)
NORTH
85°-58'-35"
3'-0"
#6 @ 12"
CTS. (TYP.)
#6 @ 12" CTS.
9" (TYP.)
#6 @ 12"
CTS. (TYP.)
8'-6"
10'-0"
8"
PIPES OUT
(2-30"ø RCP)
PIPE IN
(42"ø RCP)
B
B
2'-5" MIN.
(TYP.)
2'-2"
#6 @ 12" CTS.
76°-36'-26.3"
#6 @ 12" CTS.
#6 @ 12" CTS. (TYP.)

PLAN

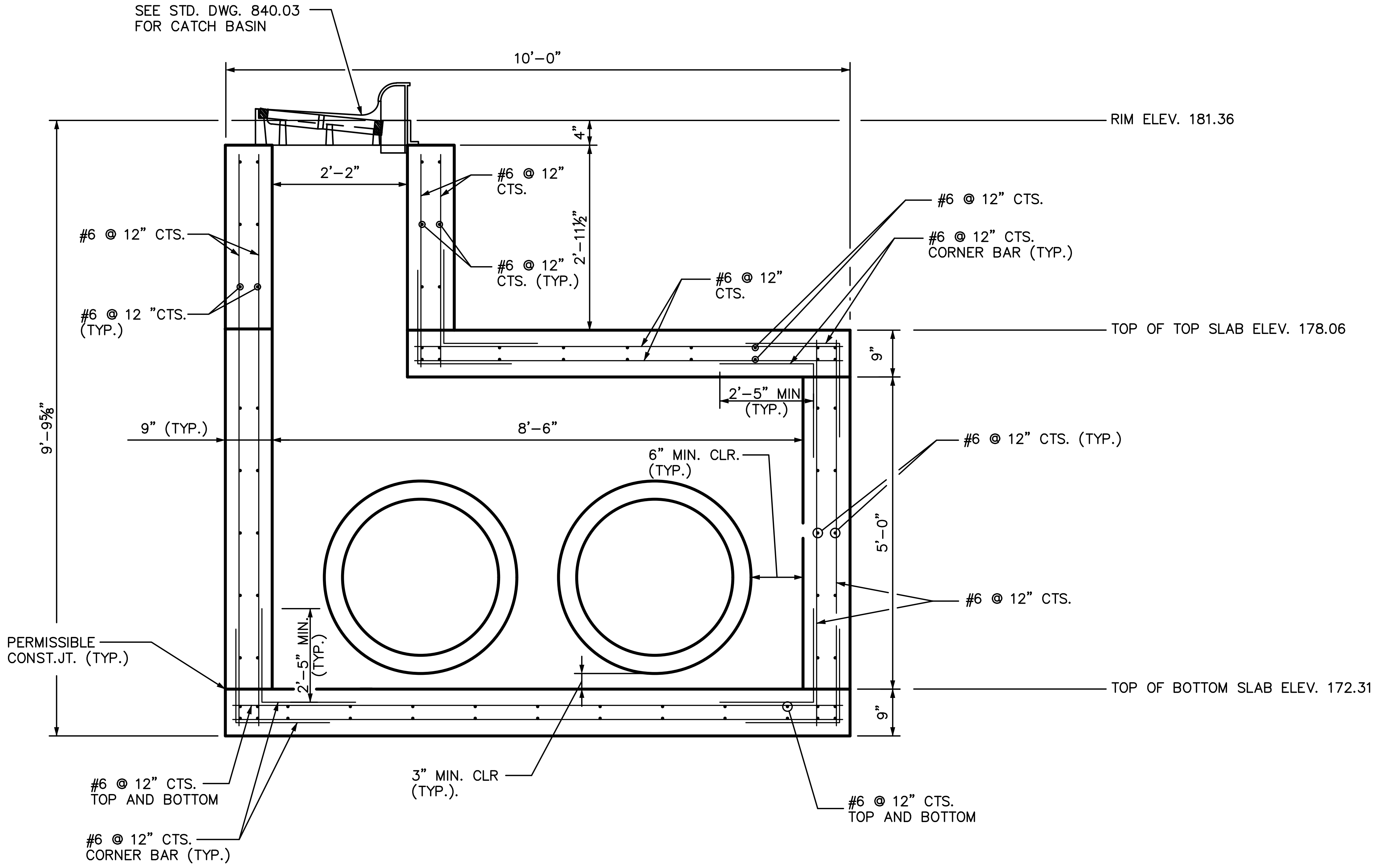
TOP AND BOTTOM SLAB REINFORCING NOT SHOWN FOR CLARITY


2 SPA.
@ 6"
(TYP.)
6" MIN.
(TYP.)
2" (TYP.)
2 SPA.
@ 6"
(TYP.)
2" CLR.
(TYP.)
#6 VERTICAL BARS
6'-0" LONG
#6 BARS
(TYP. EA. FACE)
#6 HORIZONTAL BARS
6'-0" LONG

DETAIL OF REINFORCING AROUND PIPE


SEE STD. DWG. 840.03
FOR CATCH BASIN
4'-6"
#6 @ 12" CTS.
PERMISSIBLE
CONST.JT. (TYP.)
#6 @ 12" CTS.
(TYP.)
#6 @ 12" CTS. (TYP.)
#6 @ 12" CTS.
3'-0"
PIPES OUT
(2-30"ø RCP)
PIPE IN
(42"ø RCP)
9" (TYP.)
INVERT OUT
INVERT IN
2'-5" MIN.
(TYP.)
9"
3" MIN. CLR.
(TYP.)
2'-5" MIN.
(TYP.)
#6 @ 12" CTS.
CORNER BAR (TYP.)
#6 @ 12" CTS.
(TYP.)
#6 @ 12" CTS.

SECTION B-B


SEE STD. DWG. 840.03
FOR CATCH BASIN
10'-0"
RIM ELEV. 181.36
4"
2'-2"
#6 @ 12"
CTS.
#6 @ 12" CTS.
2'-11½"
#6 @ 12"
CTS. (TYP.)
#6 @ 12 "CTS.
(TYP.)
#6 @ 12"
CTS.
#6 @ 12" CTS.
#6 @ 12" CTS.
CORNER BAR (TYP.)
TOP OF TOP SLAB ELEV. 178.06
9"
2'-5" MIN.
(TYP.)
9'-9⅝"
9" (TYP.)
8'-6"
6" MIN. CLR.
(TYP.)
#6 @ 12" CTS. (TYP.)
5'-0"
#6 @ 12" CTS.
PERMISSIBLE
CONST.JT. (TYP.)
2'-5" MIN.
(TYP.)
TOP OF BOTTOM SLAB ELEV. 172.31
9"
#6 @ 12" CTS.
TOP AND BOTTOM
3" MIN. CLR
(TYP.).
#6 @ 12" CTS.
TOP AND BOTTOM
#6 @ 12" CTS.
CORNER BAR (TYP.)

SECTION A-A

CATCH BASIN 11

SHEET NUMBER
S-201

PLAN TYPE:

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045140 PATRICK D. COOKSEY
DocuSigned by:
Patrick D. Cooksey
B3C6CA16457E4F7...
7/14/2025
NAME:
DATE:

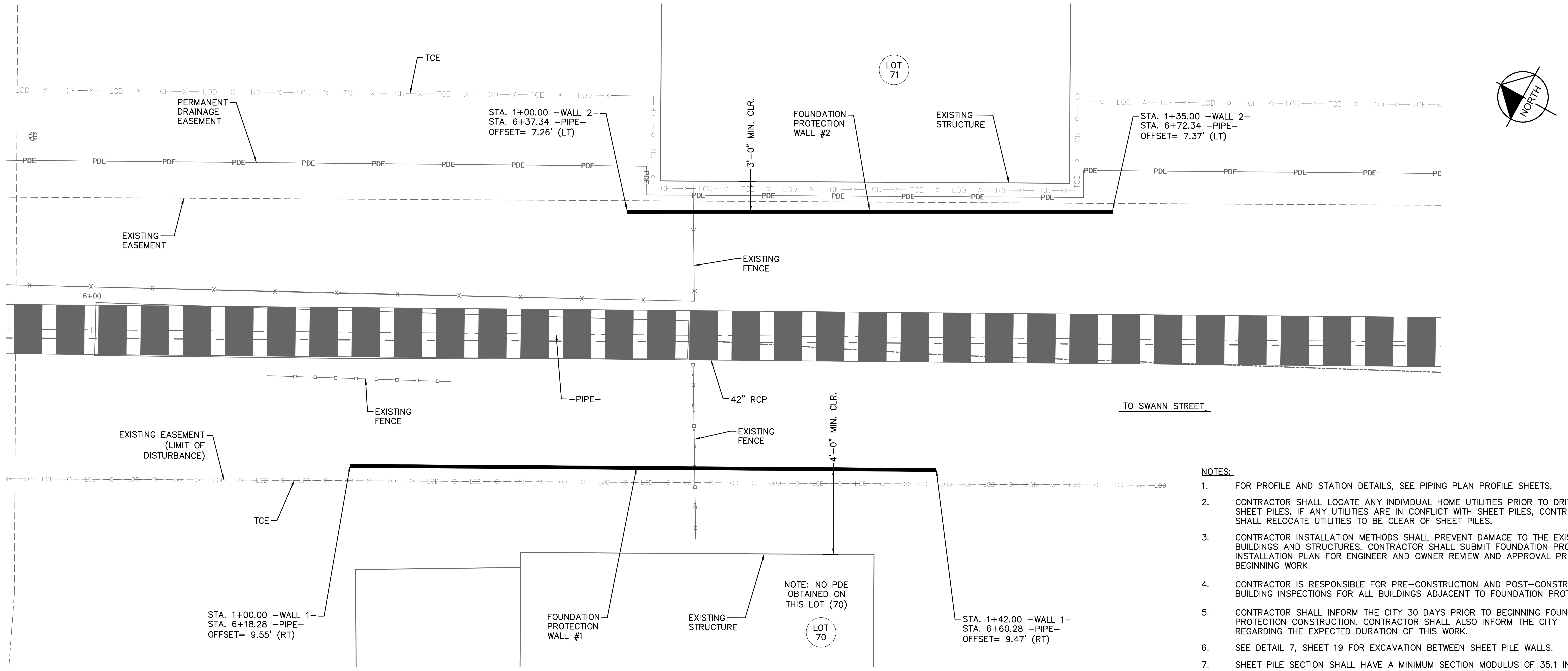
REVISIONS		
REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED
FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY
PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

PROJECT NO. KH 011017025
SUB-LEDGER NO.

Plotted By:Anderson, Nolen Sheet Set:011017025 - Tryon Layout:S-201 CATCH BASIN 11 July 14, 2025 09:47:11am K:\RDT_Structures_RetainWall_NC\011017032 - Tryon Drive Walls\CAD\S-201 CATCH BASIN 11.dwg


TCE
LOD
LOT 71
PERMANENT DRAINAGE EASEMENT
STA. 1+00.00 –WALL 2–
STA. 6+37.34 –PIPE–
OFFSET= 7.26' (LT)
3'–0" MIN. CLR.
FOUNDATION PROTECTION WALL #2
EXISTING STRUCTURE
STA. 1+35.00 –WALL 2–
STA. 6+72.34 –PIPE–
OFFSET= 7.37' (LT)
NORTH
PDE
EXISTING EASEMENT
EXISTING FENCE
6+00
EXISTING FENCE
–PIPE–
42" RCP
EXISTING FENCE
4'–0" MIN. CLR.
TO SWANN STREET
EXISTING EASEMENT (LIMIT OF DISTURBANCE)
TCE
STA. 1+00.00 –WALL 1–
STA. 6+18.28 –PIPE–
OFFSET= 9.55' (RT)
FOUNDATION PROTECTION WALL #1
EXISTING STRUCTURE
NOTE: NO PDE OBTAINED ON THIS LOT (70)
LOT 70
STA. 1+42.00 –WALL 1–
STA. 6+60.28 –PIPE–
OFFSET= 9.47' (RT)

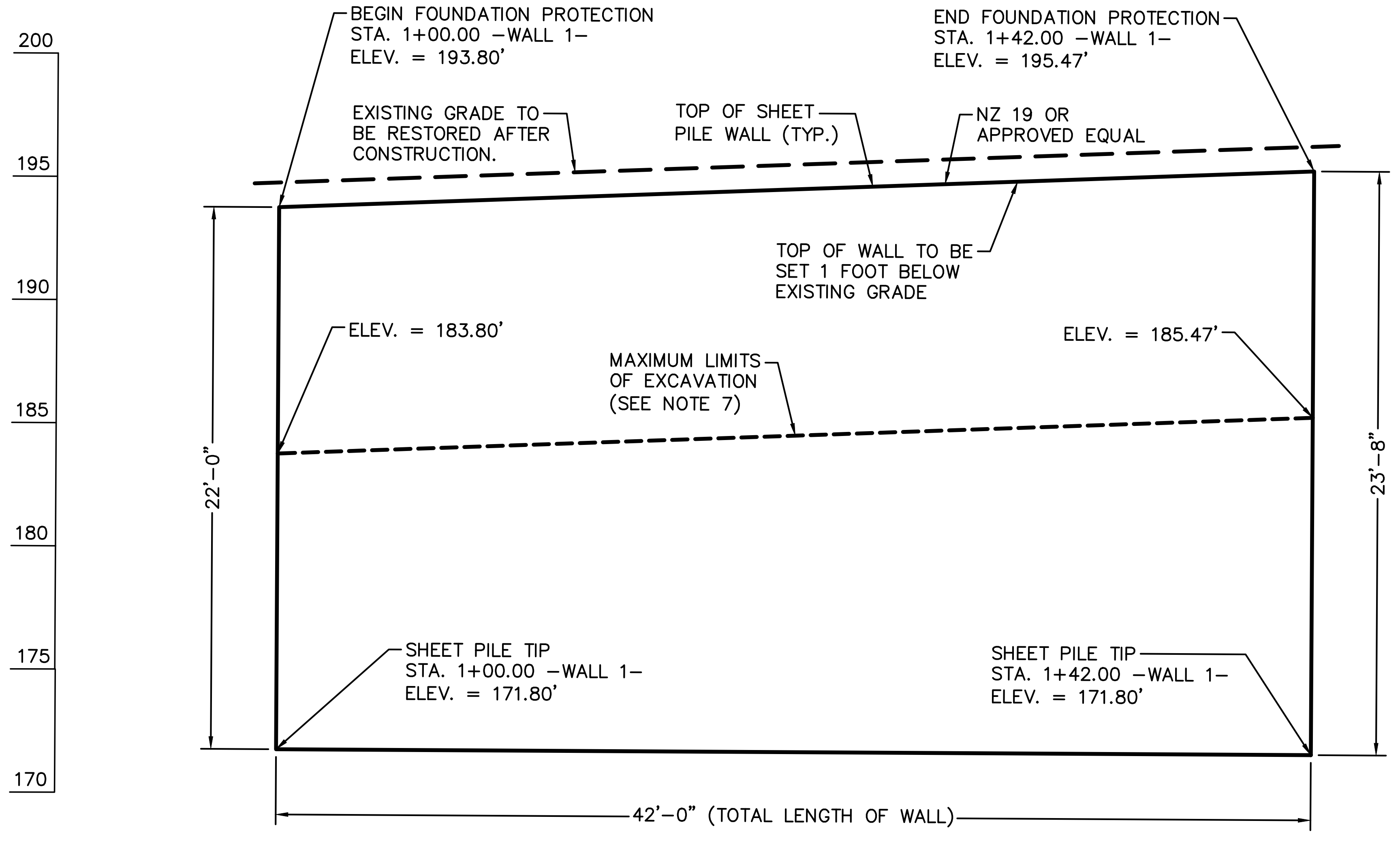
PLAN

NOTES:

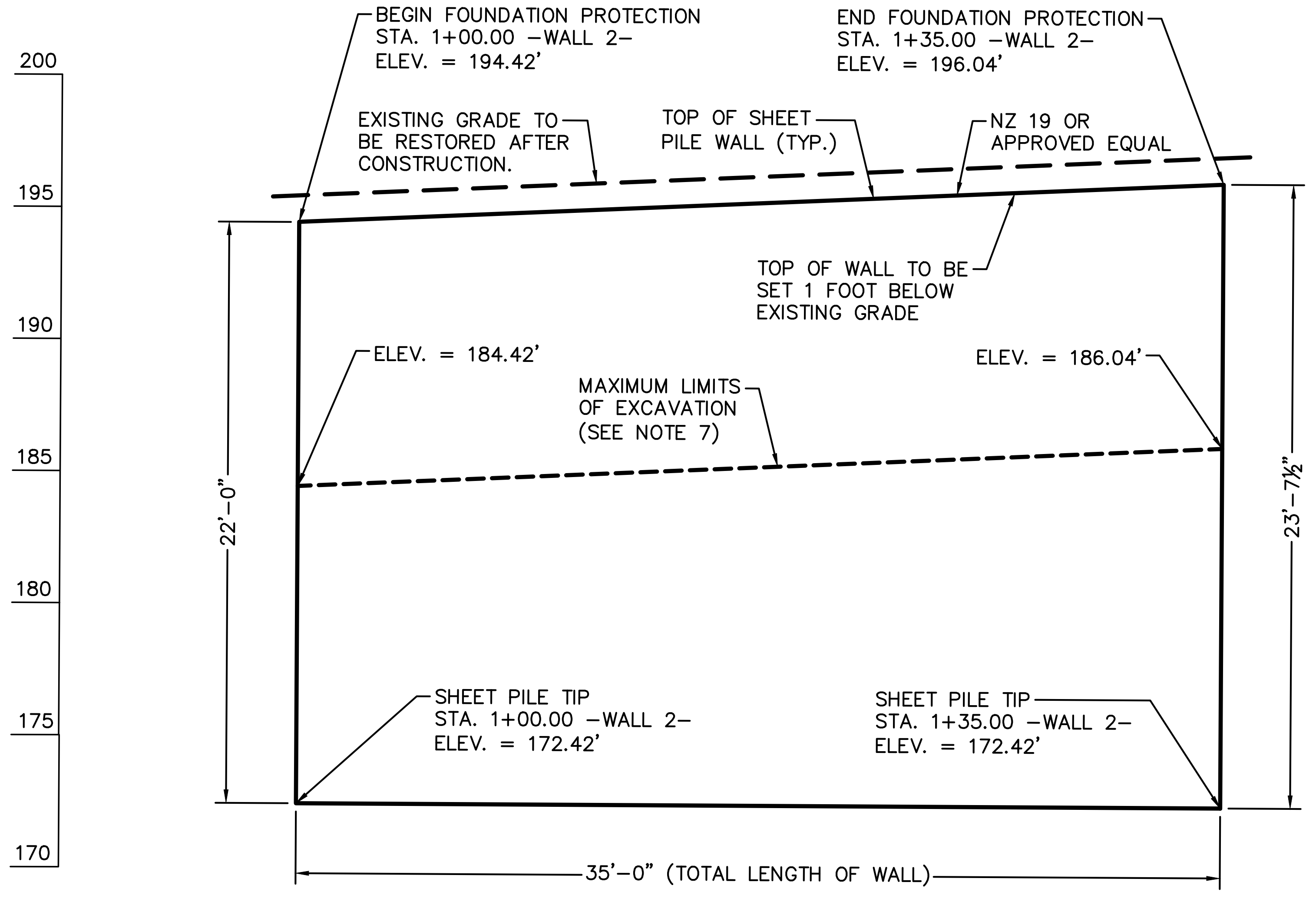
1. FOR PROFILE AND STATION DETAILS, SEE PIPING PLAN PROFILE SHEETS.
2. CONTRACTOR SHALL LOCATE ANY INDIVIDUAL HOME UTILITIES PRIOR TO DRIVING SHEET PILES. IF ANY UTILITIES ARE IN CONFLICT WITH SHEET PILES, CONTRACTOR SHALL RELOCATE UTILITIES TO BE CLEAR OF SHEET PILES.
3. CONTRACTOR INSTALLATION METHODS SHALL PREVENT DAMAGE TO THE EXISTING BUILDINGS AND STRUCTURES. CONTRACTOR SHALL SUBMIT FOUNDATION PROTECTION INSTALLATION PLAN FOR ENGINEER AND OWNER REVIEW AND APPROVAL PRIOR TO BEGINNING WORK.
4. CONTRACTOR IS RESPONSIBLE FOR PRE–CONSTRUCTION AND POST–CONSTRUCTION BUILDING INSPECTIONS FOR ALL BUILDINGS ADJACENT TO FOUNDATION PROTECTION.
5. CONTRACTOR SHALL INFORM THE CITY 30 DAYS PRIOR TO BEGINNING FOUNDATION PROTECTION CONSTRUCTION. CONTRACTOR SHALL ALSO INFORM THE CITY REGARDING THE EXPECTED DURATION OF THIS WORK.
6. SEE DETAIL 7, SHEET 19 FOR EXCAVATION BETWEEN SHEET PILE WALLS.
7. SHEET PILE SECTION SHALL HAVE A MINIMUM SECTION MODULUS OF 35.1 IN /FT, A MINIMUM MOMENT OF INERTIA OF 283.1 IN /FT, AND MINIMUM CROSS–SECTIONAL AREA OF 7.07 IN^2/FT.

3

4


200
195
190
185
180
175
170
BEGIN FOUNDATION PROTECTION
STA. 1+00.00 –WALL 1–
ELEV. = 193.80'
EXISTING GRADE TO BE RESTORED AFTER CONSTRUCTION.
TOP OF SHEET PILE WALL (TYP.)
NZ 19 OR APPROVED EQUAL
END FOUNDATION PROTECTION
STA. 1+42.00 –WALL 1–
ELEV. = 195.47'
TOP OF WALL TO BE SET 1 FOOT BELOW EXISTING GRADE
ELEV. = 183.80'
MAXIMUM LIMITS OF EXCAVATION (SEE NOTE 7)
ELEV. = 185.47'
22'–0"
23'–8"
SHEET PILE TIP
STA. 1+00.00 –WALL 1–
ELEV. = 171.80'
SHEET PILE TIP
STA. 1+42.00 –WALL 1–
ELEV. = 171.80'
42'–0" (TOTAL LENGTH OF WALL)

WALL #1


200
195
190
185
180
175
170
BEGIN FOUNDATION PROTECTION
STA. 1+00.00 –WALL 2–
ELEV. = 194.42'
EXISTING GRADE TO BE RESTORED AFTER CONSTRUCTION.
TOP OF SHEET PILE WALL (TYP.)
NZ 19 OR APPROVED EQUAL
END FOUNDATION PROTECTION
STA. 1+35.00 –WALL 2–
ELEV. = 196.04'
TOP OF WALL TO BE SET 1 FOOT BELOW EXISTING GRADE
ELEV. = 184.42'
MAXIMUM LIMITS OF EXCAVATION (SEE NOTE 7)
ELEV. = 186.04'
22'–0"
23'–7½"
SHEET PILE TIP
STA. 1+00.00 –WALL 2–
ELEV. = 172.42'
SHEET PILE TIP
STA. 1+35.00 –WALL 2–
ELEV. = 172.42'
35'–0" (TOTAL LENGTH OF WALL)

WALL #2

Plotted By:Anderson, Nolen Sheet Set:011017025 – Tryon Layout:S-301 July 14, 2025 09:47:43am K:\RDT_Structures_RetainWall_NC\011017032 – Tryon Drive Walls\CAD\S-301 SHEET PILE WALL LAYOUT.dwg

SHEET PILE WALL LAYOUT
(WALL #1& #2)

PLAN TYPE:

SHEET NUMBER
S–301

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
PATRICK D. COOKSEY
045140
7/14/2025
NAME:
DATE:

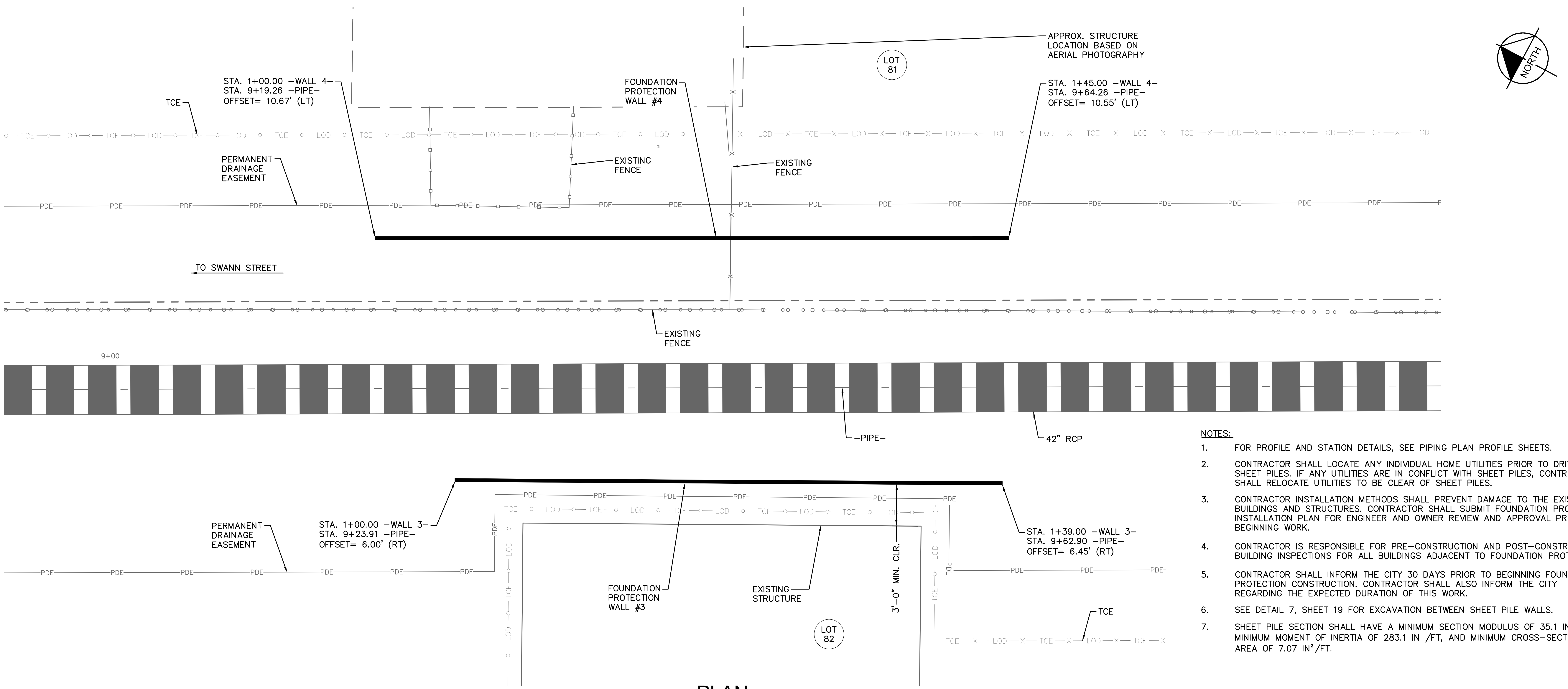
REVISIONS

REV. #	DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED
FOR CONSTRUCTION

DRAWN :	R. GIESEN	PROJECT NAME :	TRYON DRAINAGE
DESIGN :	T. ORR	SCALE :	
CHECK :	P. COOKSEY	DATE :	MAY 2025
APPROVED :	P. COOKSEY		

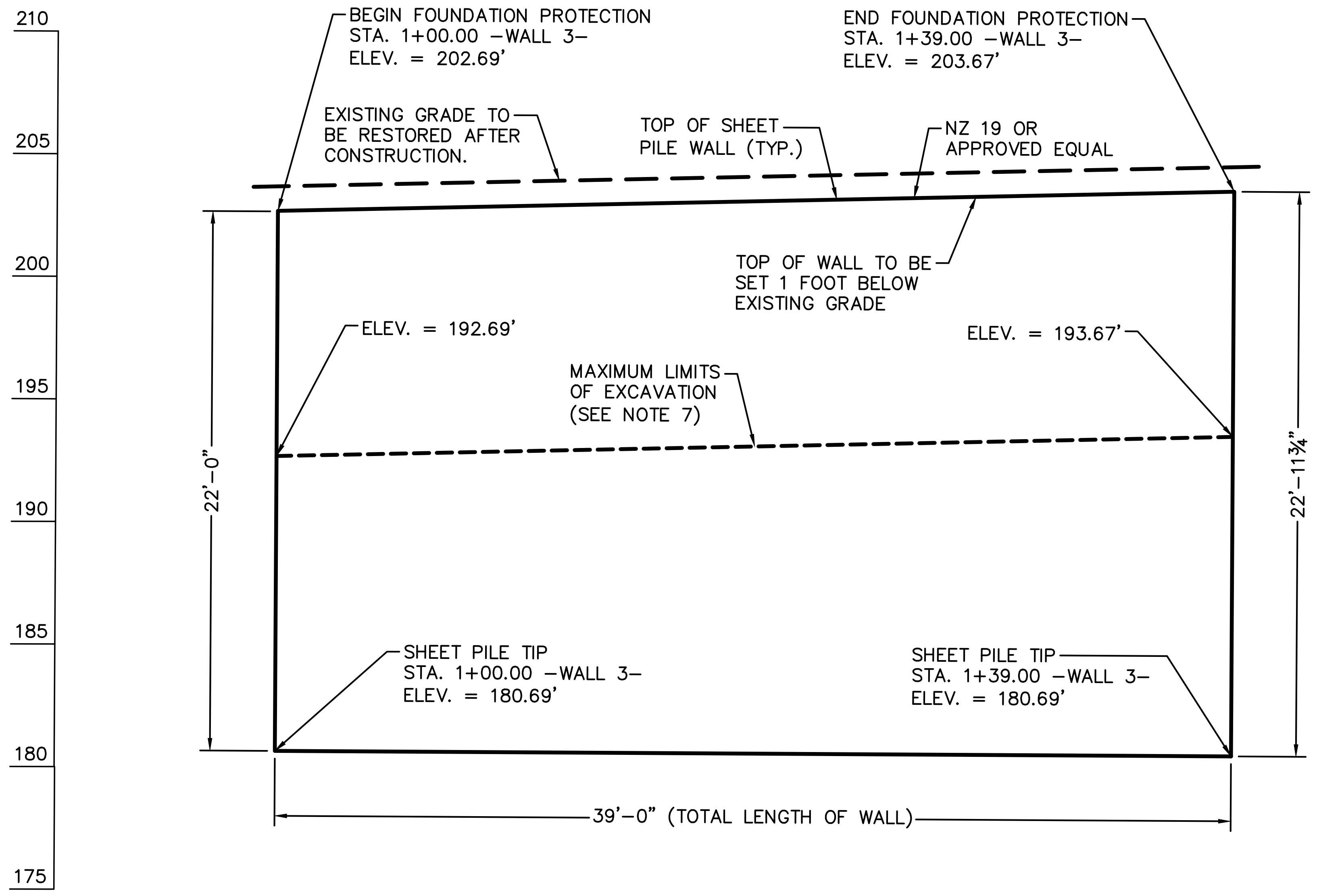
PROJECT NO. KH 011017025
SUB-LEDGER NO.


APPROX. STRUCTURE LOCATION BASED ON AERIAL PHOTOGRAPHY
LOT 81
NORTH
STA. 1+00.00 –WALL 4–
STA. 9+19.26 –PIPE–
OFFSET= 10.67' (LT)
TCE
FOUNDATION PROTECTION WALL #4
STA. 1+45.00 –WALL 4–
STA. 9+64.26 –PIPE–
OFFSET= 10.55' (LT)
PERMANENT DRAINAGE EASEMENT
EXISTING FENCE
EXISTING FENCE
TCE
LOD
PDE
TO SWANN STREET
EXISTING FENCE
9+00
–PIPE–
42" RCP
PERMANENT DRAINAGE EASEMENT
STA. 1+00.00 –WALL 3–
STA. 9+23.91 –PIPE–
OFFSET= 6.00' (RT)
FOUNDATION PROTECTION WALL #3
EXISTING STRUCTURE
3'-0" MIN. CLR.
STA. 1+39.00 –WALL 3–
STA. 9+62.90 –PIPE–
OFFSET= 6.45' (RT)
TCE
LOT 82

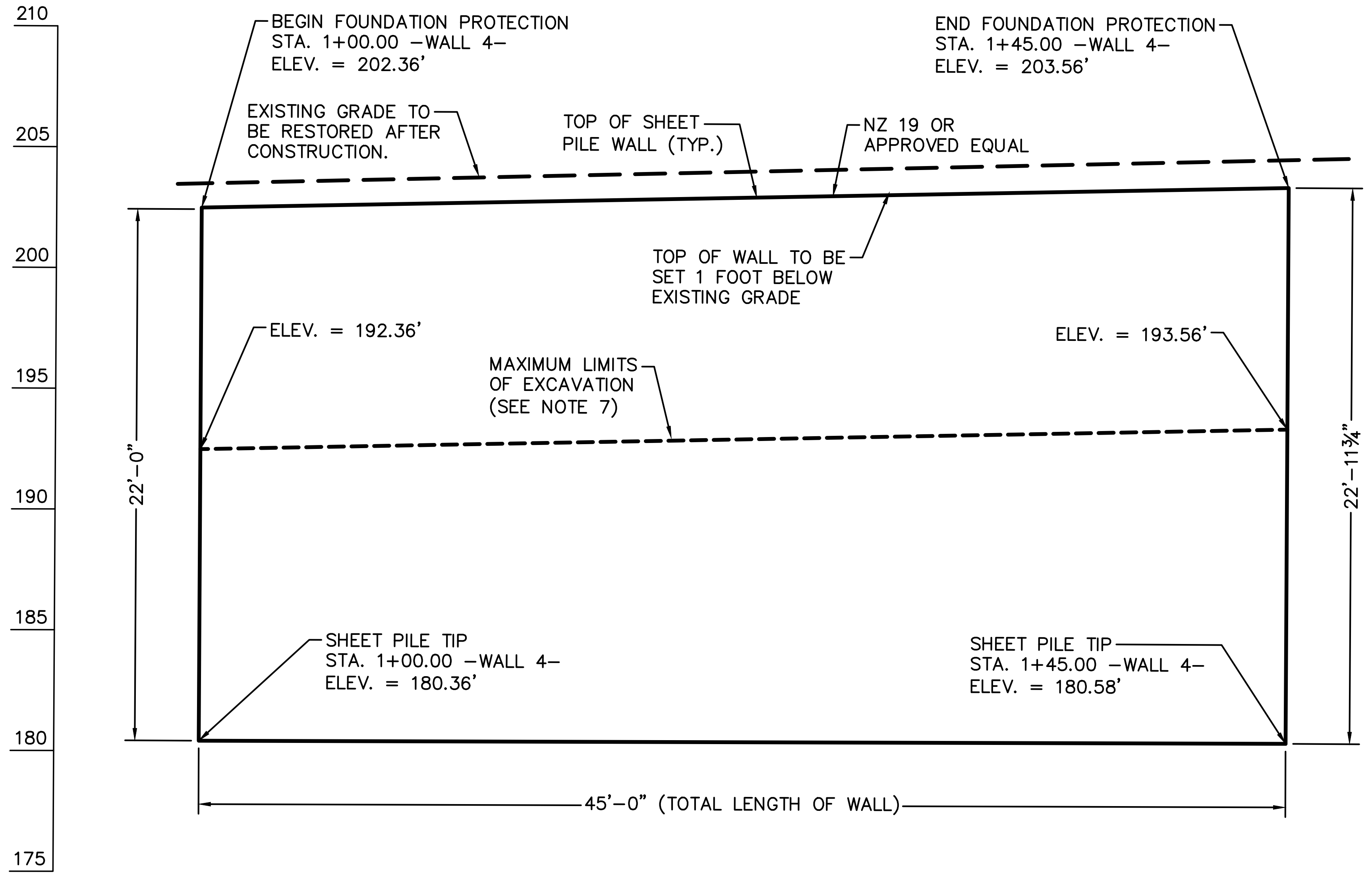
PLAN

NOTES:

1. FOR PROFILE AND STATION DETAILS, SEE PIPING PLAN PROFILE SHEETS.
2. CONTRACTOR SHALL LOCATE ANY INDIVIDUAL HOME UTILITIES PRIOR TO DRIVING SHEET PILES. IF ANY UTILITIES ARE IN CONFLICT WITH SHEET PILES, CONTRACTOR SHALL RELOCATE UTILITIES TO BE CLEAR OF SHEET PILES.
3. CONTRACTOR INSTALLATION METHODS SHALL PREVENT DAMAGE TO THE EXISTING BUILDINGS AND STRUCTURES. CONTRACTOR SHALL SUBMIT FOUNDATION PROTECTION INSTALLATION PLAN FOR ENGINEER AND OWNER REVIEW AND APPROVAL PRIOR TO BEGINNING WORK.
4. CONTRACTOR IS RESPONSIBLE FOR PRE–CONSTRUCTION AND POST–CONSTRUCTION BUILDING INSPECTIONS FOR ALL BUILDINGS ADJACENT TO FOUNDATION PROTECTION.
5. CONTRACTOR SHALL INFORM THE CITY 30 DAYS PRIOR TO BEGINNING FOUNDATION PROTECTION CONSTRUCTION. CONTRACTOR SHALL ALSO INFORM THE CITY REGARDING THE EXPECTED DURATION OF THIS WORK.
6. SEE DETAIL 7, SHEET 19 FOR EXCAVATION BETWEEN SHEET PILE WALLS.
7. SHEET PILE SECTION SHALL HAVE A MINIMUM SECTION MODULUS OF 35.1 IN /FT, A MINIMUM MOMENT OF INERTIA OF 283.1 IN /FT, AND MINIMUM CROSS–SECTIONAL AREA OF 7.07 IN²/FT.


210
205
200
195
190
185
180
175
BEGIN FOUNDATION PROTECTION
STA. 1+00.00 –WALL 3–
ELEV. = 202.69'
END FOUNDATION PROTECTION
STA. 1+39.00 –WALL 3–
ELEV. = 203.67'
EXISTING GRADE TO BE RESTORED AFTER CONSTRUCTION.
TOP OF SHEET PILE WALL (TYP.)
NZ 19 OR APPROVED EQUAL
TOP OF WALL TO BE SET 1 FOOT BELOW EXISTING GRADE
ELEV. = 192.69'
ELEV. = 193.67'
MAXIMUM LIMITS OF EXCAVATION (SEE NOTE 7)
22'-0"
22'-11¾"
SHEET PILE TIP
STA. 1+00.00 –WALL 3–
ELEV. = 180.69'
SHEET PILE TIP
STA. 1+39.00 –WALL 3–
ELEV. = 180.69'
39'-0" (TOTAL LENGTH OF WALL)

WALL #3


210
205
200
195
190
185
180
175
BEGIN FOUNDATION PROTECTION
STA. 1+00.00 –WALL 4–
ELEV. = 202.36'
END FOUNDATION PROTECTION
STA. 1+45.00 –WALL 4–
ELEV. = 203.56'
EXISTING GRADE TO BE RESTORED AFTER CONSTRUCTION.
TOP OF SHEET PILE WALL (TYP.)
NZ 19 OR APPROVED EQUAL
TOP OF WALL TO BE SET 1 FOOT BELOW EXISTING GRADE
ELEV. = 192.36'
ELEV. = 193.56'
MAXIMUM LIMITS OF EXCAVATION (SEE NOTE 7)
22'-0"
22'-11¾"
SHEET PILE TIP
STA. 1+00.00 –WALL 4–
ELEV. = 180.36'
SHEET PILE TIP
STA. 1+45.00 –WALL 4–
ELEV. = 180.58'
45'-0" (TOTAL LENGTH OF WALL)

WALL #4

Plotted By:Anderson, Nolen Sheet Set:011017025 - Tryon Layout:S-302 July 14, 2025 09:47:51am K:\RDT_Structures_RetainWall_NC\011017032 - Tryon Drive Walls\CAD\S-301 SHEET PILE WALL LAYOUT.dwg

SHEET PILE WALL LAYOUT (WALL #3 & #4)

PLAN TYPE:

SHEET NUMBER
S–302

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F-0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

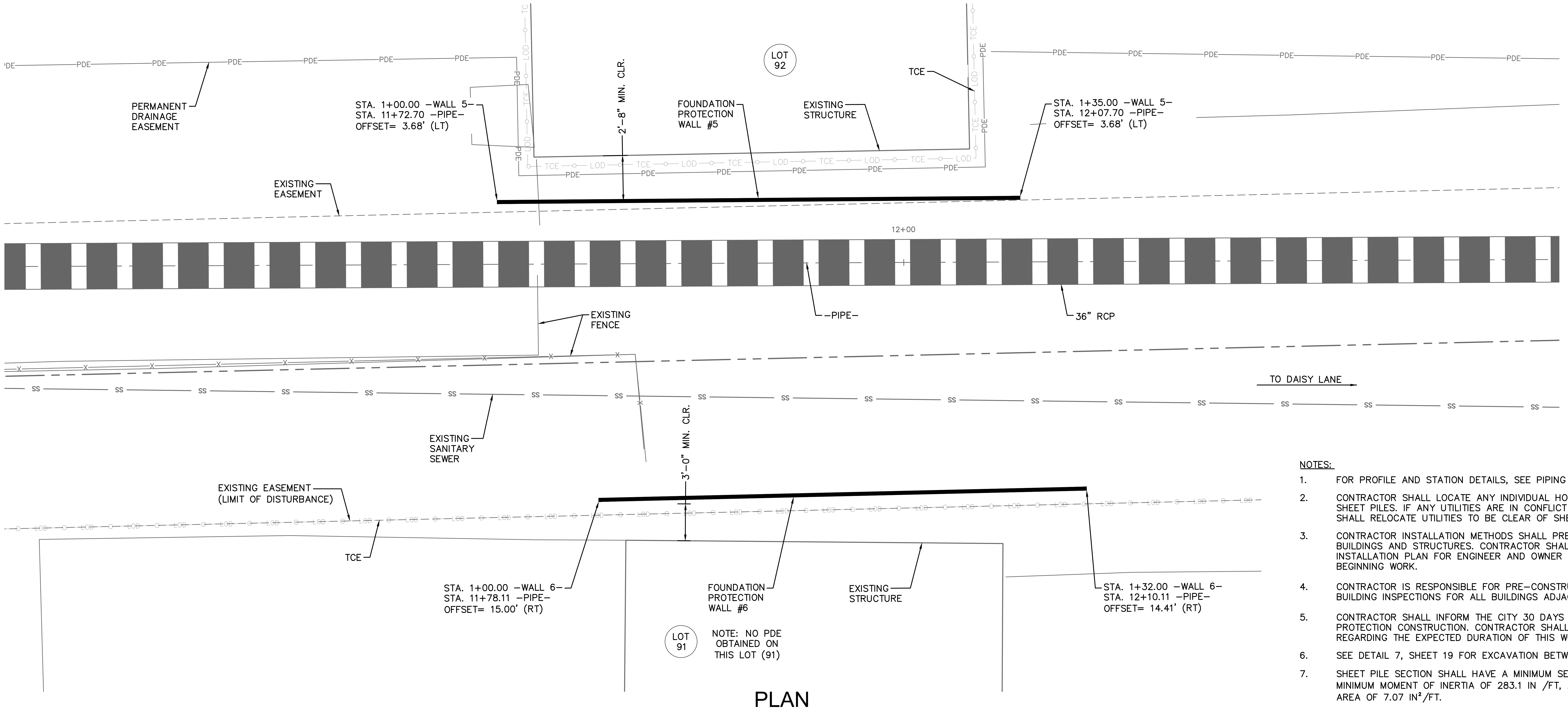
DocuSigned by:
Patrick D. Coo
B3C6CA16457E4F7...
NORTH CAROLINA PROFESSIONAL SEAL 045140 ENGINEER PATRICK D. COOKSEY
7/14/2025
NAME:
DATE:

REV. #	REVISIONS DESCRIPTION	REV.BY DATE
1	BID SET	MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN : R. GIESEN
DESIGN : T. ORR
CHECK : P. COOKSEY
APPROVED : P. COOKSEY
PROJECT NAME : TRYON DRAINAGE
SCALE :
DATE : MAY 2025

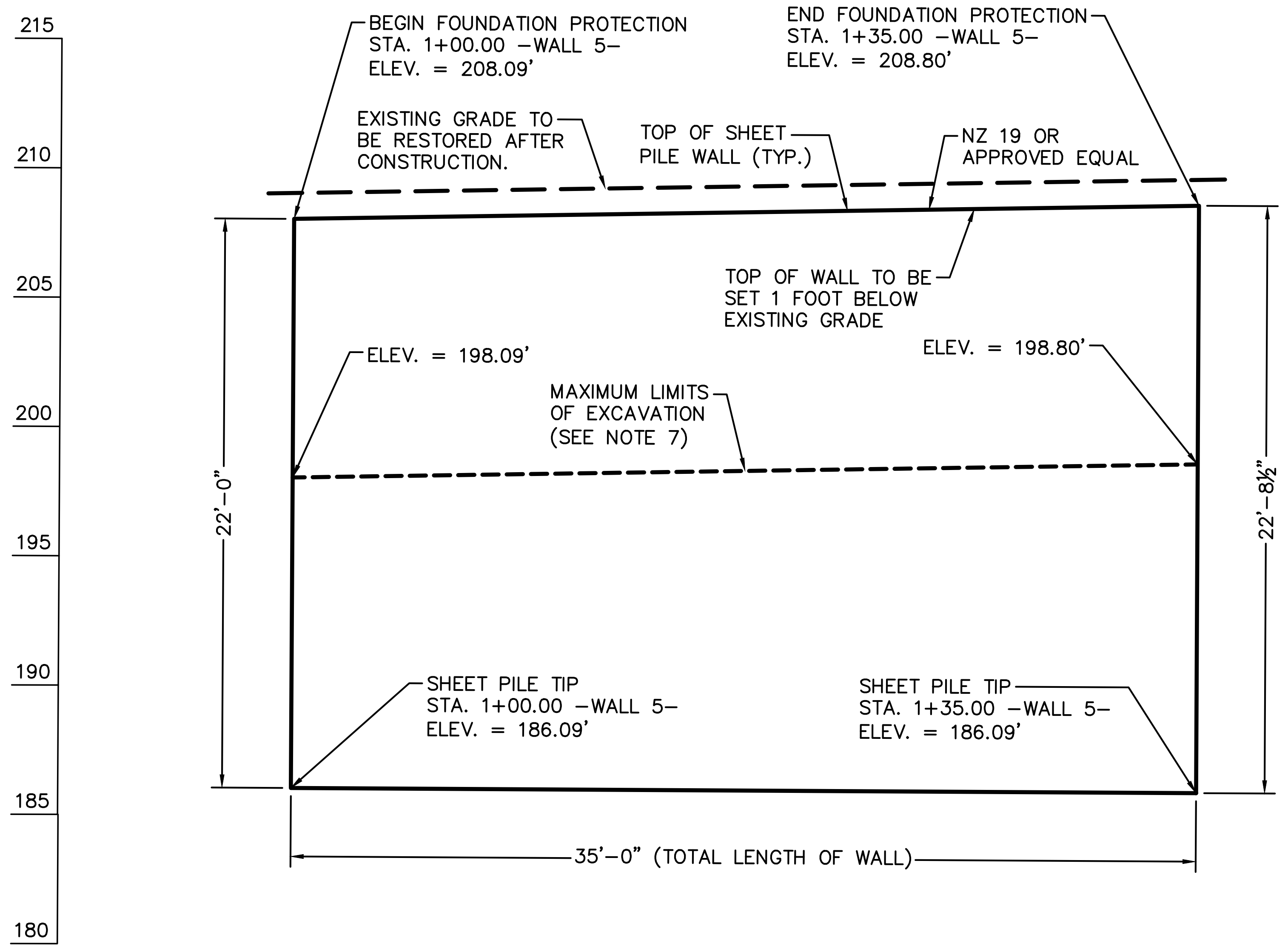
PROJECT NO. KH 011017025
SUB-LEDGER NO.


NORTH
LOT 92
PERMANENT DRAINAGE EASEMENT
STA. 1+00.00 –WALL 5–
STA. 11+72.70 –PIPE–
OFFSET= 3.68' (LT)
2'-8" MIN. CLR.
FOUNDATION PROTECTION WALL #5
EXISTING STRUCTURE
TCE
STA. 1+35.00 –WALL 5–
STA. 12+07.70 –PIPE–
OFFSET= 3.68' (LT)
EXISTING EASEMENT
PDE
LOD
12+00
EXISTING FENCE
–PIPE–
36" RCP
TO DAISY LANE
SS
EXISTING SANITARY SEWER
3'-0" MIN. CLR.
EXISTING EASEMENT (LIMIT OF DISTURBANCE)
TCE
STA. 1+00.00 –WALL 6–
STA. 11+78.11 –PIPE–
OFFSET= 15.00' (RT)
FOUNDATION PROTECTION WALL #6
EXISTING STRUCTURE
STA. 1+32.00 –WALL 6–
STA. 12+10.11 –PIPE–
OFFSET= 14.41' (RT)
LOT 91
NOTE: NO PDE OBTAINED ON THIS LOT (91)

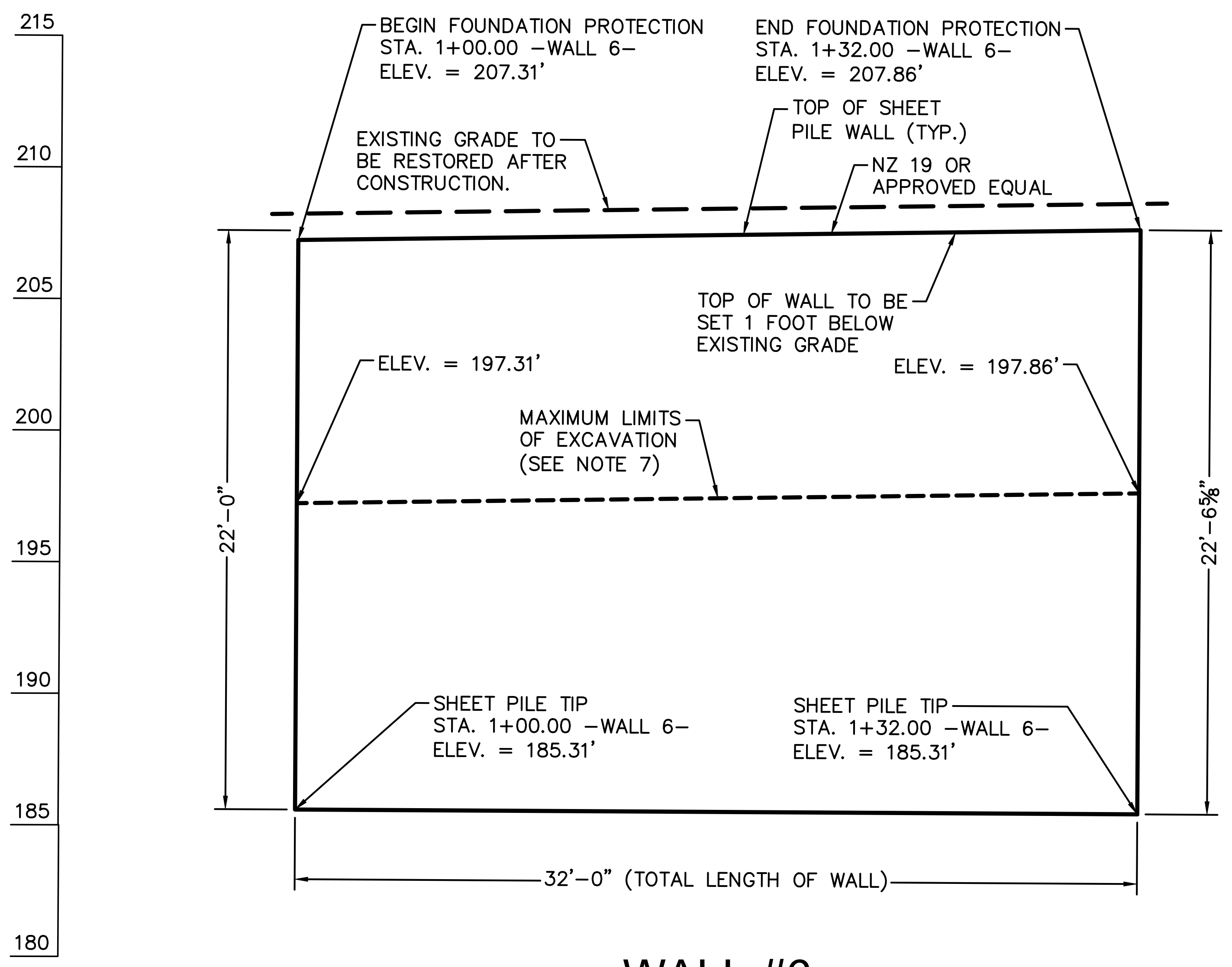
PLAN

NOTES:

1. FOR PROFILE AND STATION DETAILS, SEE PIPING PLAN PROFILE SHEETS.
2. CONTRACTOR SHALL LOCATE ANY INDIVIDUAL HOME UTILITIES PRIOR TO DRIVING SHEET PILES. IF ANY UTILITIES ARE IN CONFLICT WITH SHEET PILES, CONTRACTOR SHALL RELOCATE UTILITIES TO BE CLEAR OF SHEET PILES.
3. CONTRACTOR INSTALLATION METHODS SHALL PREVENT DAMAGE TO THE EXISTING BUILDINGS AND STRUCTURES. CONTRACTOR SHALL SUBMIT FOUNDATION PROTECTION INSTALLATION PLAN FOR ENGINEER AND OWNER REVIEW AND APPROVAL PRIOR TO BEGINNING WORK.
4. CONTRACTOR IS RESPONSIBLE FOR PRE–CONSTRUCTION AND POST–CONSTRUCTION BUILDING INSPECTIONS FOR ALL BUILDINGS ADJACENT TO FOUNDATION PROTECTION.
5. CONTRACTOR SHALL INFORM THE CITY 30 DAYS PRIOR TO BEGINNING FOUNDATION PROTECTION CONSTRUCTION. CONTRACTOR SHALL ALSO INFORM THE CITY REGARDING THE EXPECTED DURATION OF THIS WORK.
6. SEE DETAIL 7, SHEET 19 FOR EXCAVATION BETWEEN SHEET PILE WALLS.
7. SHEET PILE SECTION SHALL HAVE A MINIMUM SECTION MODULUS OF 35.1 IN /FT, A MINIMUM MOMENT OF INERTIA OF 283.1 IN /FT, AND MINIMUM CROSS–SECTIONAL AREA OF 7.07 IN²/FT.


215
210
205
200
195
190
185
180
BEGIN FOUNDATION PROTECTION
STA. 1+00.00 –WALL 5–
ELEV. = 208.09'
END FOUNDATION PROTECTION
STA. 1+35.00 –WALL 5–
ELEV. = 208.80'
EXISTING GRADE TO BE RESTORED AFTER CONSTRUCTION.
TOP OF SHEET PILE WALL (TYP.)
NZ 19 OR APPROVED EQUAL
TOP OF WALL TO BE SET 1 FOOT BELOW EXISTING GRADE
ELEV. = 198.09'
ELEV. = 198.80'
MAXIMUM LIMITS OF EXCAVATION (SEE NOTE 7)
22'-0"
22'-8½"
SHEET PILE TIP
STA. 1+00.00 –WALL 5–
ELEV. = 186.09'
SHEET PILE TIP
STA. 1+35.00 –WALL 5–
ELEV. = 186.09'
35'-0" (TOTAL LENGTH OF WALL)

WALL #5


215
210
205
200
195
190
185
180
BEGIN FOUNDATION PROTECTION
STA. 1+00.00 –WALL 6–
ELEV. = 207.31'
END FOUNDATION PROTECTION
STA. 1+32.00 –WALL 6–
ELEV. = 207.86'
EXISTING GRADE TO BE RESTORED AFTER CONSTRUCTION.
TOP OF SHEET PILE WALL (TYP.)
NZ 19 OR APPROVED EQUAL
TOP OF WALL TO BE SET 1 FOOT BELOW EXISTING GRADE
ELEV. = 197.31'
ELEV. = 197.86'
MAXIMUM LIMITS OF EXCAVATION (SEE NOTE 7)
22'-0"
22'-6⅝"
SHEET PILE TIP
STA. 1+00.00 –WALL 6–
ELEV. = 185.31'
SHEET PILE TIP
STA. 1+32.00 –WALL 6–
ELEV. = 185.31'
32'-0" (TOTAL LENGTH OF WALL)

WALL #6

SHEET PILE WALL LAYOUT
(WALL #5 & #6)

PLAN TYPE:

SHEET NUMBER
S–303

Kimley»Horn
421 FAYETTEVILLE STREET
SUITE 600
RALEIGH, NC 27601
NC LICENSE F–0102

FAYETTEVILLE NC
PUBLIC SERVICES
ENGINEERING DIVISION
ENGINEERING & INFRASTRUCTURE DEPARTMENT
433 HAY STREET FAYETTEVILLE, NC 28301

DocuSigned by:
Patrick D. Cooksey
B3C6CA16457E4F7...
SEAL 045140
PATRICK D. COOKSEY
7/14/2025
NAME:
DATE:

REVISIONS			
REV. #	DESCRIPTION	REV.BY	DATE
1	BID SET		MAY 2025

ISSUED FOR CONSTRUCTION

DRAWN :	R. GIESEN	PROJECT NAME :	TRYON DRAINAGE
DESIGN :	T. ORR	SCALE :	
CHECK :	P. COOKSEY	DATE :	MAY 2025
APPROVED :	P. COOKSEY		

PROJECT NO. KH 011017025
SUB-LEDGER NO. __________