Preliminary Subdivision Application

Site Review

Planning and Development Customer Service Center • One Exchange Plaza, Suite 400 | Raleigh, NC 27601 | 919-996-2500

Raleigh

INSTRUCTIONS: This form is used when submitting a Preliminary Subdivision (UDO Section 10.2.5). Please check the appropriate review type and include the plan checklist document. Please email all documents and your preliminary subdivision plans to SiteReview@raleighnc.gov.

DEVELOPMENT OPTIONS (UDO Chapter 2)		
[X] Conventional Subdivision	[ ] Compact Development	[ ] Conservation Development
[ ] Cottage Court	[ ] Flag lot	[ ] Frequent Transit Development Option
NOTE: Subdivisions may require City Council approval if located in a Historic Overlay District.		

GENERAL INFORMATION				
Scoping/sketch plan case number(s): N/A				
Development name (subject to approval): Modera Capital City				
Property Address(es): 7022 Capital Blvd				
Recorded Deed PIN(s): 1727838941				
Building type(s):	[ ] Detached House	[ ] Attached House	[ ] Townhouse	[X] Apartment
[ ] General Building	[ ] Mixed Use Building	[ ] Civic Building	[ ] Open Lot	[ ] Tiny House

CURRENT PROPERTY OWNER/APPLICANT/DEVELOPER INFORMATION	
Current Property Owner(s) Names: Ethel Limited Partnership; Thompson, Northwood	
Company: Ethel Limited Partnership	Title: N/A
Address: 1517 Caswell Street Raleigh, NC 27608; 442 E Main St Clayton NC 27520	
Phone #:	Email:
Applicant Name (If different from owner. See "who can apply" in instructions):	
Relationship to owner: [ ] Lessee or contract purchaser [X] Owner's authorized agent [ ] Easement holder	
Company: McAdams	Address: 621 Hillsborough Street, Suite 500 Raleigh, NC 27603
Phone #: 919.395.2272	Email: pike@mcadamsco.com
NOTE: please attach purchase agreement or contract, lease or easement when submitting this form.	
Developer Contact Names: Lewis Hobbs	
Company: MCRT SFR Investments LLC	Title: VP of Development
Address: 702 Oberlin Road, Suite 420	
Phone #: 919.589.1993	Email: lhobbs@MCRTrust.com

DEVELOPMENT TYPE + SITE DATE TABLE – ZONING INFORMATION		
Gross site acreage: 33.51 AC.		
Zoning districts (if more than one, provide acreage of each): CX-5-CU		
Overlay district(s): SHOD-2	Inside City Limits? [X] Yes [X] No	Historic District/Landmark: N/A [X]
Conditional Use District (CUD) Case # Z- N/A	Board of Adjustment Case # BOA- N/A	Design Alternate Case # DA- N/A

STORMWATER INFORMATION	
Imperious Area on Parcel(s): Existing (sf) 0 Proposed total (sf) 288,126	Impervious Area for Compliance (includes right-of-way): Existing (sf) 0 Proposed total (sf) 332,645

NUMBER OF LOTS AND DENSITY			
# of Detached House Lots: N/A	# of Attached House Lots: N/A	# of Townhouse Lots: N/A	
# of Tiny House Lots: N/A	# of Open Lots: 2	# of Other Lots (Apartment, General, Mixed Use, Civic):	
Total # of Lots: 2	Total # Dwelling Units:		
Proposed density for each zoning district (UDO 1.5.2.F): CX-5 (4.5 units/acre)			

SIGNATURE BLOCK

Pursuant to state law (N.C. Gen. Stat. § 160D-403(a)), applications for development approvals may be made by the landowner, a lessee or person holding an option or contract to purchase or lease land, or an authorized agent of the landowner. An easement holder may also apply for development approval for such development as is authorized by the easement.

By submitting this application, the undersigned applicant acknowledges that they are either the property owner or one of the persons authorized by state law (N.C.G.S. 160D-403(a)) to make this application, as specified in the application. The undersigned also acknowledges that the information and statements made in the application are correct and the undersigned understands that development approvals are subject to revocation for false statements or misrepresentations made in securing the development approval, pursuant to N.C. Gen. Stat. § 160D-403(f).

The undersigned indicates that the property owner(s) is aware of this application and that the proposed project described in this application will be maintained in all respects in accordance with the plans and specifications submitted herewith, and in accordance with the provisions and regulations of the City of Raleigh Unified Development Ordinance.

The undersigned hereby acknowledges that, pursuant to state law (N.C.G.S. 143-755(b1), if this permit application is placed on hold at the request of the applicant for a period of six consecutive months or more, or if the applicant fails to respond to comments or provide additional information requested by the City for a period of six consecutive months or more, then the application review is discontinued and a new application is required to proceed and the development regulations in effect at the time permit processing is resumed shall apply to the new application.

Signature: DocuSigned by: Lewis Hobbs 61AE513BA543462...	Date: 9/8/2023 | 3:40 PM EDT
Printed Name: Lewis Hobbs	
Signature:	Date:
Printed Name:	

DocuSign Envelope ID: 0D700E99-E6CE-4917-8355-258653F37138

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Total # of Lots: 2	Total # Dwelling Units:	

Proposed density for each zoning district (UDO 1.5.2.F): CX-5 (4.5 units/acre)

SIGNATURE BLOCK

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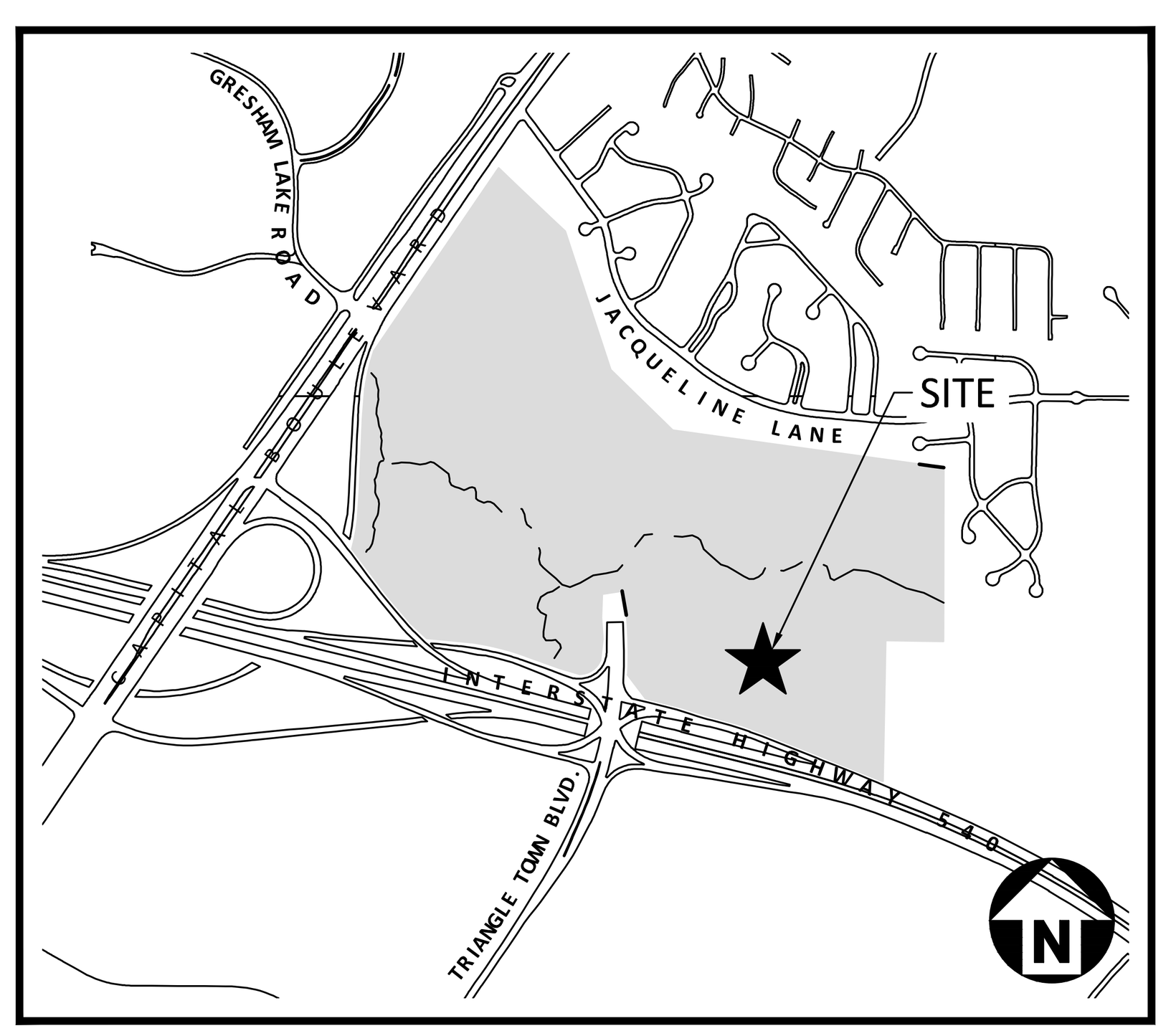
Signature:	Date:
Printed Name:	



VICINITY MAP

N.T.S.

MODERA CAPITAL CITY

7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

PRELIMINARY SUBDIVISION PLAN

CASE #: SUB-XXXX-2023

PROJECT NUMBER: MCR-23004

DATE: SEPTEMBER 8, 2023

SITE DATA

SITE ADDRESS/PIN NUMBER	7022 CAPITAL BOULEVARD, RALEIGH, NORTH CAROLINA 27616 / PIN# 1727838941
EXISTING ZONING:	CX-5-CU (COMMERCIAL MIXED USE)
EXISTING USE:	VACANT
PROPOSED USE:	2 OPEN LOTS
OVERLAY DISTRICT:	SHOD-2 OVERLAY DISTRICT
BLOCK PERIMETER:	MAX ALLOWABLE: N/A *SEE BLOCK PERIMETER NOTES* PROPOSED/EXISTING: N/A
WATER SUPPLY WATERSHED:	LOWER NEUSE RIVER
FLOODPLAIN/FIRM PANEL:	N/A
SITE AREA:	GROSS SITE AREA: 33.51 ACRES OR 1,459,699 SF. RIGHT-OF-WAY DEDICATION: 1.02 ACRES OR 44,519 SF. PROPOSED LOT 1 AREA: 19.95 ACRES OR 870,180 SF. PROPOSED LOT 2 AREA: 12.26 ACRES OR 533,853 SF. NET SITE AREA: 32.49 ACRES OR 1,415,180 SF.
TREE CONSERVATION	REQUIRED: 3.25 AC. OR 141,570 SF (10.00% NET SITE AREA) PROPOSED: 6.11 AC. OR 266,152 SF (18.23% NET SITE AREA)
IMPERVIOUS AREA	EXISTING : 0.00 AC. (0.00 SF) PROPOSED: 2.92 AC. (126,989 SF) FUTURE: 4.72 AC. (205,656 SF) DELTA: +7.64 AC. (332,645 SF)
BUILDING / PARKING SETBACKS	BUILDING SETBACK / PARKING SETBACK PRIMARY STREET: 10' / 10' SIDE STREET: 10' / 10' SIDE LOT LINE: 5' / 0' REAR LOT LINE: 20' / 3'
LOT DIMENSIONS	LOT 1 / LOT 2 WIDTH: ±500' / ±400' BUILDING COVERAGE: 0% / 0%

SITE DATA

SITE ADDRESS:	7022 CAPITAL BOULEVARD, RALEIGH, NORTH CAROLINA
PARCEL PIN NUMBER:	1727838941
EXISTING ZONING:	CX-5-CU
OVERLAY DISTRICT:	SHOD-2
WATERSHED:	NEUSE RIVER BASIN
FLOODPLAIN/FIRM PANEL:	MAP NUMBER 3720172700K/ PANEL 1727
SITE AREA:	GROSS SITE AREA: 33.51 AC. (1,459,699 SF.); NET SITE AREA: 32.49 AC. (1,415,180 SF.)
PROPOSED DWELLING UNITS:	370 UNITS
IMPERVIOUS AREA:	EXISTING IMPERVIOUS: 0.0 AC PROPOSED IMPERVIOUS: 7.66 AC (333,623 SF)

BLOCK PERIMETER:

BLOCKS (UDO SEC. 8.3.2.A.1 vi).

vi. THE CREATION (ON THE PROPERTY TO BE DEVELOPED) OR CONTINUATION (ON AN ADJACENT PROPERTY) OF ANY NEW STREET OR STREET STUB WOULD BE OBSTRUCTED BY ANY OF THE FOLLOWING:
a) EXISTING IMPROVEMENTS WHERE THE VALUE OF SUCH IMPROVEMENTS IS MORE THAN THE LAND VALUE OF THE PARCEL ON WHICH THE IMPROVEMENTS ARE LOCATED;
b) RAILROAD, OR CONTROLLED ACCESS HIGHWAY;
c) WATERCOURSE THAT HAS ONE (1) SQUARE MILE OF DRAINAGE AREA OR MORE; OR
d) PREVIOUSLY ESTABLISHED TREE CONSERVATION AREA, OPEN SPACE OR PUBLIC PARK.

IMPERVIOUS AREA TRACKING TABLE

	LOT 1	LOT 2	ROW
ACREAGE	19.98 AC.	12.26 AC.	1.02 AC.
IMPERVIOUS AREA	0.95 AC.	1.97 AC.	1.02 AC.
FUTURE IMPERVIOUS AREA	1.27 AC.	3.45 AC.	0.00 AC.

RIGHT-OF-WAY OBSTRUCTION NOTES

1. STREET, LANE, AND SIDEWALK CLOSURES OR DETOURS: PRIOR TO ANY WORK THAT IMPACTS THE RIGHT-OF-WAY OR CLOSING OF ANY STREET, LANE, OR SIDEWALK, THE CONTRACTOR MUST APPLY FOR A PERMIT WITH RIGHT-OF-WAY SERVICES.
2. A PERMIT REQUEST WITH A TRAFFIC CONTROL AND/OR PEDESTRIAN PLAN SHALL BE SUBMITTED TO rightofwayservices@raleighnc.gov AT www.raleighnc.gov KEYWORD "RIGHT-OF-WAY SERVICES.
3. PRIOR TO THE START OF WORK, THE CLIENT SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE ENGINEERING INSPECTIONS COORDINATOR TO REVIEW THE SPECIFIC COMPONENTS OF THE APPROVED PLAN, AND ENSURE ALL PERMITS ARE ISSUED.
4. THE CITY OF RALEIGH REQUIRES AN APPROVED RIGHT-OF-WAY OBSTRUCTION PERMIT FOR WORK ON ANY PUBLIC STREET OR SIDEWALK AND NCDOT ROAD WITHIN RALEIGH'S JURISDICTION.
5. ALL TRAFFIC CONTROL SIGNAGE AND PRACTICES SHALL ADHERE TO THE MANUAL ON UNIFORM TRAFFIC CONTROL, AND THE LATEST EDITION OF THE NCDOT "STANDARD SPECIFICATION FOR ROADWAY STRUCTURES", NCDOT "ROADWAY STANDARD DRAWING MANUAL", AND THE NCDOT SUPPLEMENT TO THE MUTCD.
6. ALL PUBLIC SIDEWALKS MUST BE ACCESSIBLE TO PEDESTRIANS WHO ARE VISUALLY IMPAIRED AND/OR PEOPLE WITH MOBILITY CONCERNS. EXISTING AND ALTERNATIVE PEDESTRIAN ROUTES DURING CONSTRUCTION SHALL BE REQUIRED TO BE COMPLIANT WITH THE PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG), THE ADA STANDARDS FOR ACCESSIBLE DESIGN AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. ALL PERMITS MUST BE AVAILABLE AND VISIBLE ON SITE DURING THE OPERATION.

ZONING CONDITIONS

ZONING CASE NUMBER ________

Z-7-22: 6700, 7022 CAPITAL BOULEVARD, ON THE NORTHEAST CORNER OF THE INTERSECTION OF CAPITAL BOULEVARD (US-1) AND I-540, CONSISTING OF WAKE COUNTY PINS 1727742742, AND 1727838941. APPROXIMATELY 121.47 ACRES REZONED TO COMMERCIAL MIXED USE-5 STORIES- CONDITIONAL USE W/SPECIAL HIGHWAY OVERLAY DISTRICT-2 (CX-5-CU W/SHOD-2).

CONDITIONS DATED: AUGUST 9, 2022

1. THE PORTION OF THE SUBJECT PROPERTY THAT IS NORTH OF PERRY CREEK, AND ONLY THAT PORTION, SHALL BE SUBJECT TO FOLLOWING STANDARDS:
   A. PERMITTED RESIDENTIAL USES SHALL BE LIMITED TO SINGLE-UNIT LIVING, TWO-UNIT LIVING, MULTI-UNIT LIVING AND ACCESSORY USES.
   B. THE APARTMENT BUILDING TYPE SHALL BE PROHIBITED.
   C. THE MAXIMUM RESIDENTIAL BUILDING HEIGHT SHALL BE THREE (3) STORIES OR 50 FEET (50').
   D. NON-RESIDENTIAL USES SHALL ONLY BE PERMITTED WITHIN 500 FEET OF THE CAPITAL BOULEVARD (U.S. 1) RIGHT-OF-WAY. THE FOLLOWING ADDITIONAL STANDARDS SHALL APPLY WITHIN THIS 500 FT ZONE:
      I. THE MAXIMUM BUILDING HEIGHT SHALL BE 4 STORIES OR 68 FEET.
      II. THE MAXIMUM GROUND STORY FLOOR PLATE AREA FOR ANY NON-RESIDENTIAL BUILDING TYPE SHALL BE 24,000 SQUARE FEET, EXCLUDING AREA USED FOR STRUCTURED PARKING.

RESPONSE: THE SUBDIVISION IS TO THE SOUTH OF PERRY CREEK AND THUS DOES NOT APPLY TO THIS DEVELOPMENT.

2. NON-RESIDENTIAL USES FOR THE ENTIRE PROPERTY SHALL BE LIMITED TO A MAXIMUM OF 250,000 SQUARE FEET.

RESPONSE: NO NON-RESIDENTIAL USES ARE PROPOSED WITH THIS SUBDIVISION.

3. THE 100-YEAR FLOODPLAIN SHALL REMAIN UNDISTURBED FROM ADDED FILL EXCEPT FOR THE INSTALLATION OF STREETS, SIDEWALKS, UTILITIES, STORMWATER CONVEYANCES, GREENWAY TRAILS, FENCING, OR OTHER PUBLIC IMPROVEMENTS.

RESPONSE: NO FILL IS PROPOSED WITHIN THE FLOODPLAIN EXCEPT FOR THE ABOVE ALLOWED IMPROVEMENTS.

4. DEVELOPMENT OF 7022 CAPITAL BLVD (PARCEL NO. 1727838941; DEED BOOK 014631 / PAGE 01926) SHALL A INCLUDE A PUBLIC STREET CONNECTING TRIANGLE TOWN BOULEVARD TO THE NORTHERN PROPERTY LINE TO ALIGN WITH DRAPER ROAD AND A PUBLIC STREET CONNECTING TRIANGLE TOWN BOULEVARD TO THE EASTERN PROPERTY LINE TO ALIGN WITH CREEKWATER DRIVE. THE APPROXIMATE LOCATIONS OF THE DRAPER ROAD AND CREEKWATER DRIVE CONNECTIONS ARE SHOWN IN THE ATTACHED EXHIBIT A. THESE STREET CONNECTIONS SHALL BE COMPLETED IN THE DEVELOPMENT PHASE IN WHICH THEY ARE LOCATED. THE FINAL LOCATIONS AND ALIGNMENT OF THE STREET CONNECTIONS SHALL BE DETERMINED AT THE SITE PLAN STAGE.

RESPONSE: A PUBLIC STREET CONNECTING TRIANGLE TOWN BLVD WILL BE PROPOSED PENDING THE DEVELOPMENT OF THE REMAINING PARCELS WITHIN THE PROPERTY

5. A MINIMUM TEN FT (10') WIDE PEDESTRIAN AND BICYCLE MULTI-USE CROSSING OF PERRY CREEK SHALL BE PROVIDED ON 7022 CAPITAL BLVD (PARCEL NO. 1727838941; DEED BOOK 014631 /PAGE 01926). THIS PEDESTRIAN AND BICYCLE MULTI-USE CROSSING SHALL BE COMPLETED IN THE DEVELOPMENT PHASE IN WHICH IT IS LOCATED. THE FINAL LOCATION AND ALIGNMENT OF THE CROSSING SHALL BE DETERMINED AT THE SITE PLAN STAGE.

RESPONSE: A 10' WIDE MULTI-USE PATH WILL BE PROPOSED PENDING THE DEVELOPMENT OF THE PARCEL TO THE NORTH OF PERRY CREEK.

6. A LANDSCAPE BUFFER WITH A MINIMUM WIDTH OF FIFTY FT (50') MEASURED FROM THE PROPERTY LINE ABUTTING US-1 AND I-540 SHALL BE PROVIDED. THE LANDSCAPE BUFFER SHALL BE PLANTED ACCORDING TO THE PLANTING REQUIREMENTS FOR THE SHOD-1 PROTECTIVE YARD (UDO SECTION 5.3.1.F) UNLESS ESTABLISHED AS TREE CONSERVATION AREA IN ACCORDANCE WITH UDO ARTICLE 9.1. EXISTING VEGETATION AND THE PLANTINGS ALREADY REQUIRED BY THE SHOD-2 PROTECTIVE YARD, WHERE APPLICABLE, MAY BE CREDITED TOWARDS THE PLANTING REQUIREMENTS. THE LANDSCAPE BUFFER MAY INCLUDE GREENWAYS, OTHER PEDESTRIAN TRAILS, VEHICLE ACCESS, WALLS, BERMS, EASEMENTS INCLUDING SLOPE OR DRAINAGE EASEMENTS, UTILITIES, AND OTHER ENCROACHMENTS AS PERMITTED BY THE UDO. NEW PLANTINGS SHALL ONLY BE REQUIRED WITHIN NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SLOPE OR DRAINAGE EASEMENTS IF PERMITTED BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION.

RESPONSE: A 50' WIDE LANDSCAPE BUFFER IS PROPOSED WHERE TREE CONSERVATION IS NOT PROPOSED.

TOTAL LIMITS OF DISTURBANCE = 16.50 AC.

SOLID WASTE INSPECTION STATEMENT:

1. THE DEVELOPER ACKNOWLEDGES THAT THEY HAVE REVIEWED AND ARE IN COMPLIANCE WITH THE REQUIREMENTS SET FORTH IN THE SOLID WASTE DESIGN MANUAL.
2. THE SOLID WASTE REMOVAL FOR THIS PROJECT WILL BE HANDLED BY PRIVATE SERVICES. THE CITY OF RALEIGH SOLID WASTE SERVICES (SWS) WILL NOT SERVICE THIS DESIGN.

LOT DATA TABLE

OPEN LOTS	LOTS 1-2	2 LOTS
TOTAL LOTS:		2 LOTS

CROSS-ACCESS:

CROSS-ACCESS STANDARDS (UDO 8.3.4.D).

- TC-6-19, 8.3.4.D.5.b.iii "THE CREATION (ON THE PROPERTY TO BE DEVELOPED) OR CONTINUATION (ON AN ADJACENT PROPERTY) OF ANY CROSS ACCESS DRIVEWAY OR DRIVEWAY STUB WOULD BE OBSTRUCTED BY ANY OF THE FOLLOWING: ...
  iii. STEEP SLOPES IN EXCESS OF 25% WITHING 10 FEET OF THE PROPERTY LINE.

1. PER TC-6-19, 8.3.4.D.5.b.iii- THE PROJECT SITE IS EXEMPT FROM CROSS-ACCESS REQUIREMENTS. THERE IS A ±10'-14' RETAINING WALL WRAPPED AROUND THE ENTIRE LOT (PIN: 1746324494) WHICH EXCEEDS 25% SLOPE WITHIN 10' OF THE PROPERTY LINE.

Know what's below. Call before you dig.

CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT CITY OF RALEIGH AND NCDOT (WHERE APPLICABLE) ENGINEERING DESIGN AND CONSTRUCTION STANDARDS

NO TEMPORARY OR PERMANENT ENCROACHMENTS (INCLUDING BUT NOT LIMITED TO CLEARING, GRADING, FENCING, AND THE INSTALLATION OF RETAINING WALLS OR OTHER STRUCTURES) ARE PERMITTED WITHIN THE GREENWAY EASEMENT AREA WITHOUT PRIOR APPROVAL BY THE CITY OF RALEIGH.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

SHEET INDEX

MCADAMS

The John R. McAdams Company, Inc.
621 Hillsborough Street
Suite 500
Raleigh, NC 27603

phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187

www.mcadamsco.com

CONTACT

ADAM PIKE, PE
pike@mcadamsco.com
PHONE: 919. 823. 4300

CLIENT

MILL CREEK RESIDENTIAL
702 OBERLIN RD, SUITE 420
RALEIGH, NC 27605
PHONE: 704. 833. 8415

MILL CREEK RESIDENTIAL

PROJECT DIRECTORY

[redacted]

REVISIONS

NO. DATE

PRELIMINARY SUBDIVISION PLAN FOR:

MODERA CAPITAL CITY
RALEIGH, NORTH CAROLINA
PROJECT NUMBER:
MCR-23004

SITE PLAN NOTES

1. NON-ALLEY LOADED DRIVEWAYS MAY INTERSECT A STREET NO CLOSER THAN 20 FEET FROM THE INTERSECTION OF TWO STREET RIGHT-OF-WAYS. THE MINIMUM CORNER CLEARANCE FROM CURB LINE OR EDGE OF PAVEMENT OF INTERSECTING STREETS SHALL BE AT LEAST 20 FEET FROM THE POINT OF TANGENCY OF THE RADIUS OF CURVATURE, OR 20 FEET FROM THE INTERSECTION OF RIGHT-OF-WAY LINES, WHICH EVER IS GREATER. THE RADIUS OF THE DRIVEWAY SHALL NOT ENCROACH ON THE MINIMUM CORNER CLEARANCE. REFER TO SECTION 6.5 OF THE LATEST VERSION OF THE RALEIGH STREET DESIGN MANUAL FOR ADDITIONAL DETAILS.
2. RIGHT-OF-WAY SHALL BE CLEARED AND GRUBBED WITHIN 50' OF ALL MINOR RESIDENTIAL, RESIDENTIAL, AND RESIDENTIAL COLLECTOR INTERSECTIONS. THE FULL LENGTH OF THE RIGHT-OF-WAY SHALL BE CLEARED AND GRADED ALONG ALL MAJOR, MINOR, & SENSITIVE AREA THOROUGHFARES.
3. WITHIN THE AREA DEFINED SIGHT TRIANGLES SHOWN ON THESE PLANS, THERE SHALL BE NO SIGHT OBSTRUCTING OR PARTLY OBSTRUCTING WALL, FENCE, SIGN, FOLIAGE BERMS, OR PARKED VEHICLES BETWEEN THE HEIGHTS OF 24 INCHES AND 8 FEET ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVEL WAY IF NO CURB LINE EXISTS. REFER TO SECTION 6.12 OF THE LATEST VERSION OF THE RALEIGH STREET DESIGN MANUAL FOR ADDITIONAL DETAILS.
4. MULTIWAY STOP CONTROL WILL NOT BE USED AT ANY PUBLIC STREET INTERSECTION WITHOUT AN ENGINEERING STUDY TO PROVIDE DATA TO CITY OF RALEIGH TRANSPORTATION DIVISION THAT THE MULTIWAY STOP INSTALLATION WARRANTS CAN BE MET AND ORDINANCED BY CITY COUNCIL APPROVAL.
5. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS AS APPLICABLE.
6. ALL DIMENSIONS SHOWN ON SITE PLAN ARE MEASURED TO FACE OF CURB UNLESS OTHERWISE NOTED.
7. CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT. DRAWINGS SHALL BE GIVEN TO THE ENGINEER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE OWNER.
8. EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/RESTORED TO THEIR ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER, BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
9. THE CONTRACTOR SHALL NOTE THAT THE DRAWINGS MAY NOT SHOW EVERY OFFSET, TRANSITION, FITTING, ETC. THAT MAY BE REQUIRED. THE CONTRACTOR SHALL INSTALL SUCH STANDARD APPURTENANCES AS REQUIRED TO CLOSELY FOLLOW THE GRADES AND ALIGNMENTS DEPICTED ON THE PLANS.
10. CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
11. CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE UTILITY COMPANIES FOR ANY REQUIRED RELOCATIONS (I.E. POWER POLES, TELEPHONE PEDESTALS, WATER METERS, ETC.).
12. PRIOR TO BEGINNING CONSTRUCTION BEYOND EROSION CONTROL MEASURES, THE GENERAL CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF RALEIGH PUBLIC WORKS DEPARTMENT (919) 996-2409, AND A REPRESENTATIVE OF THE ENGINEER AND OWNER. THE PURPOSE OF THIS MEETING IS TO REVIEW THE SPECIFIC COMPONENTS OF THE PLAN AND OPERATION OF THE FACILITIES DURING CONSTRUCTION.
13. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION, FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
14. ACCESSIBLE RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF RALEIGH UNIFIED DEVELOPMENT ORDINANCE (UDO) DETAILS.
15. ALL SIDEWALKS THAT CONNECT TO THE PUBLIC RIGHT-OF-WAY MUST BE ACCESSIBLE TO PERSONS WHO ARE BLIND, HAVE LOW VISION AND PEOPLE WITH MOBILITY DISABILITIES. PEDESTRIAN EXISTING ROUTES AND ALTERNATE PEDESTRIAN ROUTES DURING CONSTRUCTION WILL BE REQUIRED TO BE COMPLIANT WITH THE PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG), 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
16. TYPICAL PAVEMENT SECTION DETAILS ARE SHOWN WITHIN THIS SET AND INTENDED TO BE A MINIMUM PAVEMENT SECTION REQUIREMENT. THE CURRENT GEOTECHNICAL REPORT SHALL OVER-RIDE ALL TYPICAL PAVEMENT SECTIONS SHOWN, IF THE GEOTECHNICAL ENGINEER DEEMS A HEAVIER SECTION IS REQUIRED.
17. EQUIPMENT AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED PROVIDED APPROVAL HAS BEEN OBTAINED FROM THE OWNER IN WRITING PRIOR TO ORDERING OR INSTALLATION. THE CONTRACTOR SHALL WAIVE ANY CLAIM FOR ADDITIONAL COST RELATED TO SUBSTITUTION OF ALTERNATE EQUIPMENT.
18. IF UNFORESEEN CONDITIONS DEVELOP DURING CONSTRUCTION, REFER TO THE LATEST VERSION OF THE RALEIGH STREET DESIGN MANUAL AND CONTACT PUBLIC WORKS STAFF FOR FURTHER GUIDANCE.
19. ALL SIGNAGE ASSOCIATED WITH THE PUBLIC STREET SYSTEM SHALL ADHERE TO MUTCD STANDARDS AND SPECIFICATIONS.
20. ANY TRANSIT STOP LOCATIONS SHOWN ARE PRELIMINARY ONLY. FINAL LOCATION SHALL BE DETERMINED ONCE THE CITY OF RALEIGH TRANSIT ROUTE HAS BEEN FINALIZED. ALL TRANSIT STOPS SHALL HAVE A 10'x20'x6" (3000 PSI) CONCRETE PAD.

CITY OF RALEIGH PUBLIC UTILITIES STANDARD UTILITY NOTES (AS APPLICABLE)

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION).
2. UTILITY SEPARATION REQUIREMENTS:
   a) A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
   b) WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
   c) WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
   d) 5-0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
   e) MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49).
   f) ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24 HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
5. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
6. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
7. INSTALL 3/4" COPPER* WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
8. INSTALL 4" PVC* SEWER SERVICES @ 1.0% MINIMUM GRADE WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED EVERY 75 LINEAR FEET MAXIMUM.
24. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI. WHERE SANITARY SERVICES ARE SERVING A BUILDING INSTALLED ON A FLOOR WITH A FINISHED FLOOR ELEVATION BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER, SUCH FIXTURES SHALL BE PROTECTED BY A BACKWATER VALVE INSTALLED IN THE SERVICE LINE. SANITARY SERVICES SERVING A BUILDING WITH A FINISHED FLOOR ELEVATION ABOVE THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER SHALL NOT DISCHARGE THROUGH A BACKWATER VALVE.
25. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
26. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
27. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE CORPUD FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A BUILDING PERMIT. CONTACT STEPHEN CALVERLEY AT (919) 296-2334 OR STEPHEN.CALVERLEY@RALEIGHNC.GOV FOR MORE INFORMATION.
28. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON DEGREE OF HEALTH HAZARD INVOLVED AS LISTED IN APPENDIX-B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA. THESE GUIDELINES ARE THE MINIMUM REQUIREMENTS. THE DEVICES SHALL MEET AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS OR BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS-CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT JOANIE HARTLEY AT (919) 996-5923 OR JOANIE.HARTLEY@RALEIGHNC.GOV FOR MORE INFORMATION.

ADDITIONAL UTILITY NOTES

1. ALL WATER MAINS, SERVICES AND FIRE SERVICES GREATER THAN 2" DIAMETER ARE TO BE DUCTILE IRON PIPE. 2" & SMALLER DOMESTIC SERVICES MUST BE TYPE K SOFT COPPER (WITHOUT FITTINGS) TO THE WATER METER.
2. ALL SEWER MAINS SHALL BE EITHER PVC OR DUCTILE IRON PIPE AS SHOWN ON THE PLANS. ALL PIPE MATERIAL SHALL MEET CITY OF RALEIGH STANDARDS AND SPECIFICATIONS AS DEFINED IN THE LATEST ISSUE OF THE PUBLIC UTILITIES HANDBOOK AND/OR UNIFIED DEVELOPMENT ORDINANCE (UDO).
3. ALL FIRE HYDRANTS ALONG PUBLIC R/W LINES SHALL HAVE A 5'Wx5'L CITY OF RALEIGH WATERLINE EASEMENT ONTO ADJACENT PROPERTY.
4. ALL SANITARY SEWER INTERCEPTOR LINES (12" AND LARGER), AS WELL AS MANHOLES AND FITTINGS ASSOCIATED WITH THE INTERCEPTOR LINE, SHALL BE INTERNALLY LINED WITH PROTECTO 401 OR APPROVED EQUAL TO PREVENT HYDROGEN SULFIDE CORROSION. SEE THE CURRENT CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT HANDBOOK FOR APPROVED COATINGS AND APPLICATION METHODS.
5. IN ACCORDANCE WITH GENERAL STATUTE 87-121(G), ALL UNDERGROUND UTILITIES INSTALLED AFTER OCTOBER 1, 2014 SHALL BE ELECTRONICALLY LOCATABLE. CONTRACTOR SHALL COORDINATE DIRECTLY WITH THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT FOR DETAILS AND SPECIFICATIONS FOR MEETING THESE REQUIREMENTS.
6. EXISTING UTILITIES SHOWN ARE BASED ON FIELD SURVEYS AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO BEGINNING CONSTRUCTION. ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
7. ALL WATER AND SEWER MAINS WITHIN PUBLIC EASEMENTS OR RIGHTS-OF-WAY TO BE OWNED, OPERATED, AND MAINTAINED BY THE CITY OF RALEIGH.
8. ALL WATER AND SEWER MAINS NOT WITHIN PUBLIC EASEMENTS OR RIGHTS-OF-WAY TO BE PRIVATELY OWNED, OPERATED, AND MAINTAINED BY THE PROPERTY OWNER.
9. CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
10. ALL UTILITY SLEEVES SHALL BE SCHEDULE 40 PVC AND INSTALLED WITH 2' MINIMUM COVER. BOTH ENDS SHALL BE CAPPED AND MARKED.

GRADING NOTES

1. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION, FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
2. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS FOR EXCAVATIONS; FINAL RULE 29CFR PART 1926, SUBPART "P" APPLIES TO ALL EXCAVATIONS EXCEEDING FIVE (5) FEET IN DEPTH. EXCAVATION EXCEEDING TWENTY (20) FEET IN DEPTH REQUIRES THE DESIGN OF A TRENCH SAFETY SYSTEM BY A REGISTERED PROFESSIONAL ENGINEER, PROVIDED BY CONTRACTOR RESPONSIBLE FOR EXCAVATION.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF RALEIGH AND/OR NCDOT STANDARDS AND SPECIFICATIONS AS APPLICABLE.
4. CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
5. PRIOR TO BEGINNING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF RALEIGH STORMWATER AND EROSION CONTROL DEPARTMENT, THE ENGINEER AND A REPRESENTATIVE OF THE OWNER.
6. CONSTRUCTION, MAINTENANCE AND REMOVAL OF ALL EROSION CONTROL DEVICES ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. TIMING OF REMOVAL SHALL BE COORDINATED WITH THE EROSION CONTROL INSPECTOR.
7. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON A FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
8. SOIL UNDER BUILDINGS, PAVED AREAS AND WITHIN SLOPES GREATER THAN 3:1 (H:V) SHALL BE APPROVED, PLACED AND COMPACTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
9. ALL WORK TO BE CONSTRUCTED IN STRICT COMPLIANCE W THE GEOTECHNICAL REPORT.

RETAINING WALL NOTES

1. THE RETAINING WALL ALIGNMENT SHOWN ON THESE PLANS DEPICTS THE LOCATION OF THE FRONT FACE OF THE RETAINING WALL AT THE BOTTOM OF THE WALL. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING RETAINING WALLS ARE NOT LOCATED IN ANY STREAM BUFFERS, AND THEIR CONSTRUCTION DOES NOT ENCROACH INTO ANY ADJACENT PROPERTIES DUE TO ANY BATTER INCORPORATED IN THE DESIGN OF THE WALLS.
2. RETAINING WALLS ARE TO BE DESIGN-BUILD PROJECTS BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FINAL CONSTRUCTION DRAWINGS FROM A REGISTERED ENGINEER AND GAIN ALL REQUIRED PERMITS NECESSARY FOR THE CONSTRUCTION OF THE RETAINING WALLS.
3. RETAINING WALLS SHALL BE ASSUMED TO BE BACKFILLED WITH OFF-SITE BORROW MATERIAL OR PROCESSED FILL, UNLESS THE CONTRACTOR CAN PROVIDE TO THE OWNER WITH CONFIRMATION FROM THE GEOTECHNICAL ENGINEER AND THE RETAINING WALL DESIGNER, THAT READILY AVAILABLE ON-SITE SOILS CAN BE USED.
4. THE TOP AND BOTTOM OF WALL ELEVATIONS SHOWN ON THESE PLANS IDENTIFY FINISHED GRADE ELEVATIONS ONLY. THE EXTENT THAT THE RETAINING WALL WILL BE EXTENDED BELOW GRADE TO THE FOOTING OR ABOVE GRADE TO THE TOP OF THE CAP BLOCK COURSE SHALL BE IDENTIFIED ON THE RETAINING WALL CONSTRUCTION DRAWINGS.
5. ALL RETAINING WALLS OVER 30" HIGH SHALL HAVE A SAFETY FENCE (DESIGN BY OTHERS).
6. ANY PART OF ANY RETAINING WALL THAT EXTENDS INTO THE RIGHT-OF-WAY WILL REQUIRE AN ENCROACHMENT AGREEMENT. ENCROACHMENT AGREEMENTS FOR RETAINING WALLS SHALL BE APPROVED PRIOR TO CONSTRUCTION DRAWING APPROVAL.
7. ANY TIEBACK SYSTEMS FOR THE RETAINING WALLS SHALL NOT BE ALLOWED WITHIN PUBLIC RIGHT-OF-WAY.
8. STORMWATER RUN-OFF SHALL BE DIRECTED AWAY FROM RETAINING WALLS. ANY RUN-OFF FLOWING TO AND OVER A RETAINING WALL SHALL BE KEPT TO AN ABSOLUTE MINIMUM AND BROUGHT TO THE ATTENTION OF THE WALL DESIGNER PRIOR TO THEIR DESIGN.
9. ALL WORK TO BE CONSTRUCTED IN STRICT COMPLIANCE W THE GEOTECHNICAL REPORT.

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MILL CREEK RESIDENTIAL

MODERA CAPITAL CITY
PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

[redacted]

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-N1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

PROJECT NOTES
C0.00

LEGEND

- EXISTING IRON PIPE
- IRON PIPE SET
- CALCULATED POINT
- CONCRETE MONUMENT
- RIGHT OF WAY DISC
- CURB INLET
- DROP INLET
- FIRE HYDRANT
- GUY WIRE
- LIGHT POLE
- POWER POLE
- SANITARY SEWER MANHOLE
- STORM DRAINAGE MANHOLE
- WATER VALVE
- RIPARIAN BUFFER
- FLOOD HAZARD LINE
- TREELINE
- SE — SLOPE EASEMENT
- SD — STORM DRAIN PIPE
- OU — OVERHEAD UTILITY LINES
- SS — SANITARY SEWER LINE
- X — X — FENCE LINE
- DRAINAGE EASEMENT HATCH
- SLOPE EASEMENT HATCH

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 82°02'41" E	66.79'
L2	S 82°02'41" E	69.78'
L3	S 01°03'30" W	80.53'
L4	S 73°35'04" E	40.21'
L5	S 72°33'11" E	24.99'
L6	S 85°01'43" E	93.16'
L7	S 39°16'35" E	48.94'

CURVE TABLE				
CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD LENGTH
C2	122.11'	148.59'	N 56°02'23" E	139.59'
C3	1485.09'	316.91'	N 75°55'36" W	316.31'
C4	1137.88'	156.72'	N 10°58'23" E	156.60'
C5	1006.28'	209.00'	S 13°21'54" W	208.62'

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[redacted]

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-XC1
CHECKED BY	ACP
DRAWN BY	CAW
SCALE	1" = 50'
DATE	09. 08. 2023

SHEET

OVERALL EXISTING CONDITIONS PLAN
C1.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

M:\Projects\MCR\23004\04 Production\Engineering\Production Drawings\Current Drawings\Preliminary Subdivision Plans\MCR23004-XC1.dwg, 8/8/2023 4:03:18 PM, Megan Maiorano

M:\Projects\MCR\MCR23004\04-Production\Engineering\Production Drawings\Current Drawings\Preliminary Subdivision Plan\MCR23004-DM1.dwg, 9/8/2023 4:02:37 PM, Megan Maiorano

DEMOLITION LEGEND

TREE	TREE OR OTHER VEGETATION TO BE REMOVED
UTIL UTIL	UNDERGROUND UTILITY TO BE REMOVED
▨	AREA TO BE REMOVED (SIDEWALK, CURB AND GUTTER, STRUCTURES, ASPHALT, CONCRETE PAVING, ETC.)

NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES, SEQUENCING AND SPECIFICATIONS.

N

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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[redacted]

REVISIONS

NO. DATE

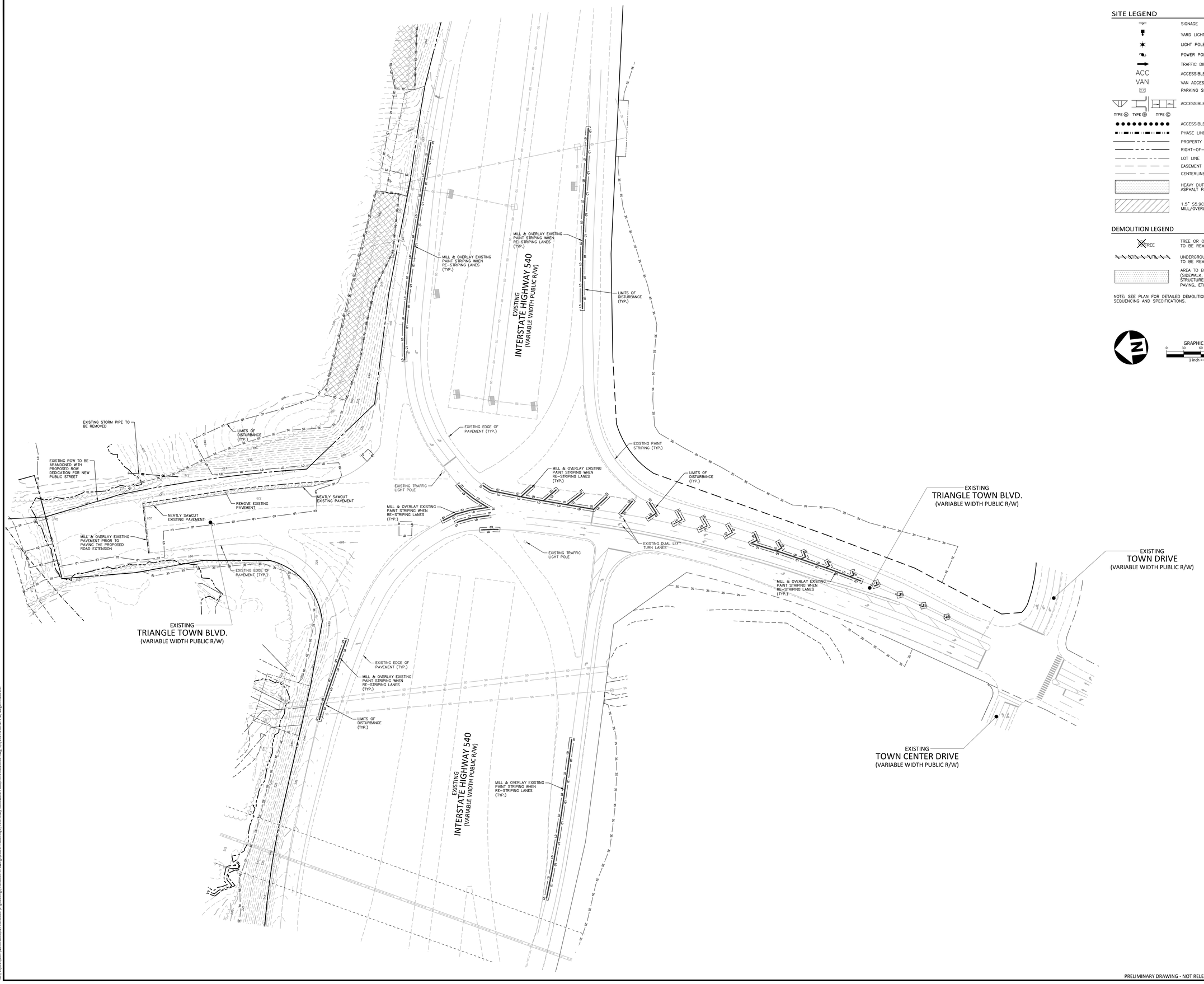
PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-DM1
CHECKED BY	ACP
DRAWN BY	HWM
SCALE	1" = 50'
DATE	09. 08. 2023

SHEET

OVERALL DEMOLITION PLAN

C1.01



SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC — ACCESSIBLE PARKING STALL
- VAN — VAN ACCESSIBLE PARKING STALL
- (XX) — PARKING SPACE COUNT
- ACCESSIBLE RAMPS (TYPE A, TYPE B, TYPE C)
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- HEAVY DUTY ASPHALT PAVEMENT
- 1.5" S5.9C MILL/OVERLAY

DEMOLITION LEGEND

- TREE — TREE OR OTHER VEGETATION TO BE REMOVED
- UNDERGROUND UTILITY TO BE REMOVED
- AREA TO BE REMOVED (SIDEWALK, CURB AND GUTTER, STRUCTURES, ASPHALT, CONCRETE PAVING, ETC.)

NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES, SEQUENCING AND SPECIFICATIONS.

GRAPHIC SCALE
0 30 60 120
1 inch = 60 ft.

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[redacted]

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-DM2
CHECKED BY	ACP
DRAWN BY	CAW
SCALE	1" = 60'
DATE	09. 08. 2023

SHEET

OFFSITE ROADWAY DEMOLITION PLAN
C1.02

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC / VAN — ACCESSIBLE PARKING STALL / VAN ACCESSIBLE PARKING STALL
- (XX) — PARKING SPACE COUNT
- ACCESSIBLE RAMPS (TYPE A, TYPE B, TYPE C)
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- HEAVY DUTY ASPHALT PAVEMENT

KEY LEGEND

- (A) CURB RAMP (TYPE R-1)
- (B) CURB RAMP (TYPE R-2)
- (C) CURB RAMP (TYPE N-4A)
- (D) R1-1 STOP SIGN
- (E) R1-2 YIELD SIGN
- (F) ACCESSIBLE PARKING SIGNAGE
- (G) 24" STOP BAR
- (H) 6" STANDARD CROSSWALK
- (I) 6" HIGH VISIBILITY CROSSWALK
- (J) 10' HIGH VISIBILITY CROSSWALK

D. Multifamily Street

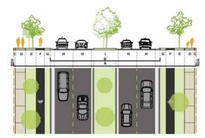
Width		
A	Right-of-way width	22'
B	Back-of curb to back-of-curb	varies
Streetscape		
C	Utility placement, easement (min)	5'
D	Maintenance strip, easement (min)	3'
E	Sidewalk, easement (min)	6'
F	Planting area (min)	6'
Travelway		
G	Parking lane	
	Parallel (either side)	8'
	Head-in (either side)	18'
	60° angle (either side)	19.8'
H	Travel lane	11'
General		
	Walkway type	Sidewalk
	Planting type	Tree lawn
	Tree spacing	40' o.c. avg
	Parking type	Parallel, head-in, angle

Building setbacks are measured from the "maintenance strip, easement" noted in "D". This street can only be used in conjunction with townhouse and apartment building types.

B. Avenue 2-Lane, Divided

Width		
A	Right-of-way width	81'
B	Back-of-curb to back-of-curb	38'
Streetscape		
C	Maintenance strip (min)	1'
D	Sidewalk (min)	6'
E	Planting area (min)	6'
F	Bike Lane (min)	5'
G	Buffer (min; planted, paved, or paver)	3.5'
Travelway		
H	Travel lane	11'
I	Center lane median or turn lane	11'
General		
	Walkway type	Sidewalk
	Planting type	Tree lawn
	Tree spacing	40' o.c. avg
	Minimum Driveway Spacing	200'

B. Avenue 4-Lane, Divided



Width		
A	Right-of way width	109'
B	Back-of curb to back-of-curb	66'
Streetscape		
C	Maintenance strip (min)	1'
D	Sidewalk (min)	6'
E	Planting area (min)	6'
F	Bike Lane (min)	5'
G	Buffer (min; planted, paved, or paver)	3.5'
Travelway		
H	Travel lane	11'
I	Median	17'
General		
	Walkway type	Sidewalk
	Planting type	Tree grate / lawn
	Tree spacing	40' o.c. avg
	Minimum Driveway Spacing	300'

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PHONE: 704. 833. 8415

MILL CREEK RESIDENTIAL

MODERA CAPITAL CITY
PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-OAS1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	1" = 50'
DATE	09. 08. 2023

SHEET

OVERALL SITE PLAN

C2.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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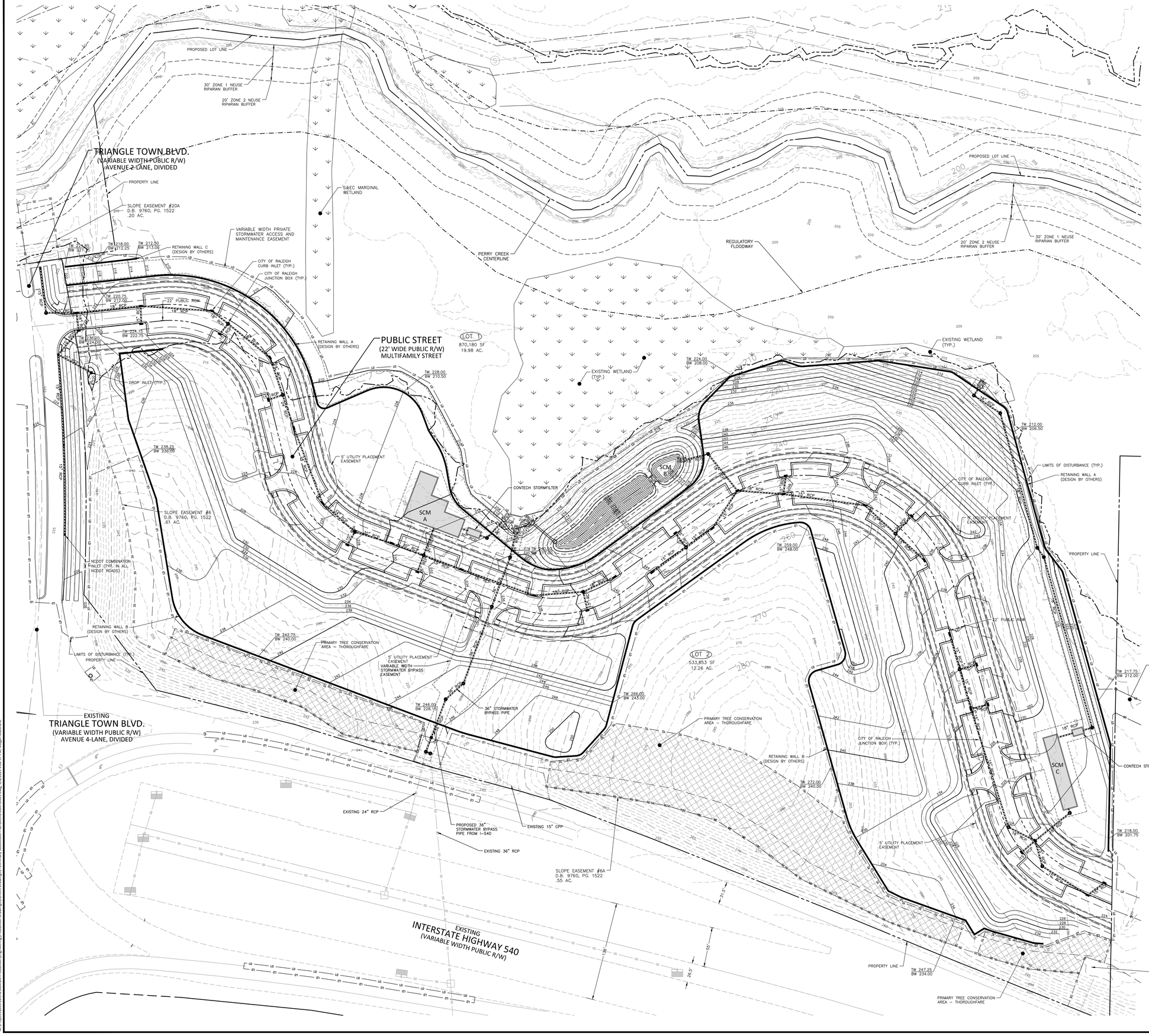

GRADING LEGEND

- FLARED END SECTION
- ENDWALL SECTION
- CATCH BASIN
- DROP INLET
- STORM SERVICE INLET
- STORM SERVICE ROOF–DRAIN
- JUNCTION BOX
- DRAINAGE FLOW ARROW
- LINE BREAK SYMBOL
- 250.50 / 250.00 — TOP & BOTTOM CURB ELEVATIONS
- TW=223.00 / BW=213.00 — TOP OF WALL ELEVATION / BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
- + 250.60 — SPOT ELEVATION
- STORM DRAINAGE
- STORM SERVICE LINE
- RD RD RD — ROOF DRAIN, 8" ADS NON–PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3" MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
- TP TP TP — TREE PROTECTION FENCE
- LD LD — LIMITS OF DISTURBANCE
- WOODED AREA
- 250 — MAJOR CONTOUR
- 252 — MINOR CONTOUR
- 250 — EXISTING MAJOR CONTOUR
- 252 — EXISTING MINOR CONTOUR
- EASEMENT LINE
- ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

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7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-OAG1
CHECKED BY	ACP
DRAWN BY	HWM
SCALE	1" = 50'
DATE	09. 08. 2023

SHEET

OVERALL GRADING PLAN

C3.00

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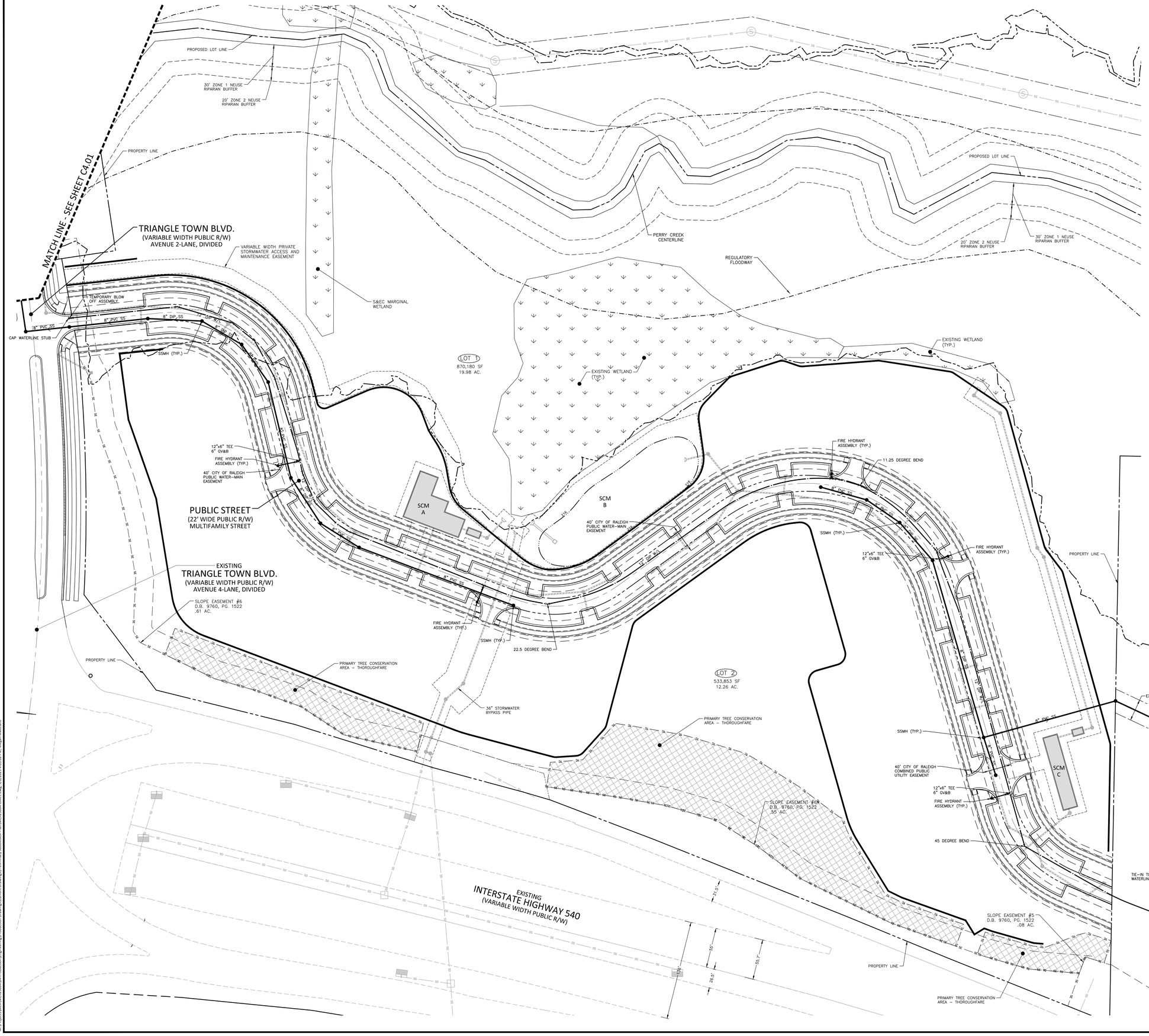

UTILITY LEGEND

- FIRE HYDRANT ASSEMBLY
- FIRE DEPARTMENT CONNECTION (FDC)
- WATER METER
- WATER VALVE
- POST INDICATOR VALVE (PIV)
- VALVE IN MANHOLE
- METER & VAULT
- BACKFLOW PREVENTER
- REDUCER
- PLUG
- BLOW-OFF ASSEMBLY
- SANITARY SEWER MANHOLE
- SEWER CLEAN-OUT
- GREASE TRAP
- SEWER FLOW DIRECTION ARROW
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- LINE BREAK SYMBOL
- WATERLINE
- WATER SERVICE LINE
- UTILITY SLEEVE
- SANITARY SEWER
- SEWER SERVICE LINE
- FM — FM — SEWER FORCE MAIN
- G — G — G — G — GAS LINE
- OU — OU — OVERHEAD UTILITY
- UE — UE — UNDERGROUND ELECTRIC
- T — T — T — T — TELEPHONE
- EASEMENT LINE

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

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PRELIMINARY SUBDIVISION PLAN
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RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-OAU1
CHECKED BY	ACP
DRAWN BY	HWM
SCALE	1" = 50'
DATE	##/##/##23

SHEET

OVERALL UTILITY PLAN

C4.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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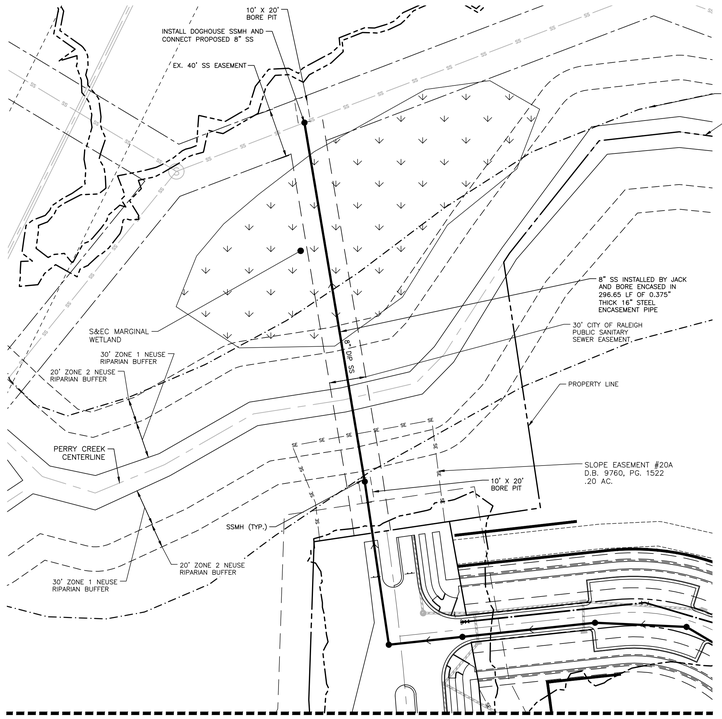

MATCH LINE - SEE SHEET C4.00

UTILITY LEGEND

- FIRE HYDRANT ASSEMBLY
- FIRE DEPARTMENT CONNECTION (FDC)
- WATER METER
- WATER VALVE
- POST INDICATOR VALVE (PIV)
- VALVE IN MANHOLE
- METER & VAULT
- BACKFLOW PREVENTER
- REDUCER
- PLUG
- BLOW–OFF ASSEMBLY
- SANITARY SEWER MANHOLE
- SEWER CLEAN–OUT
- GREASE TRAP
- SEWER FLOW DIRECTION ARROW
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- LINE BREAK SYMBOL
- WATERLINE
- WATER SERVICE LINE
- UTILITY SLEEVE
- SANITARY SEWER
- SEWER SERVICE LINE
- FM FM — SEWER FORCE MAIN
- G G G G — GAS LINE
- OU OU — OVERHEAD UTILITY
- UE UE — UNDERGROUND ELECTRIC
- T T T T — TELEPHONE
- EASEMENT LINE

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

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REVISIONS

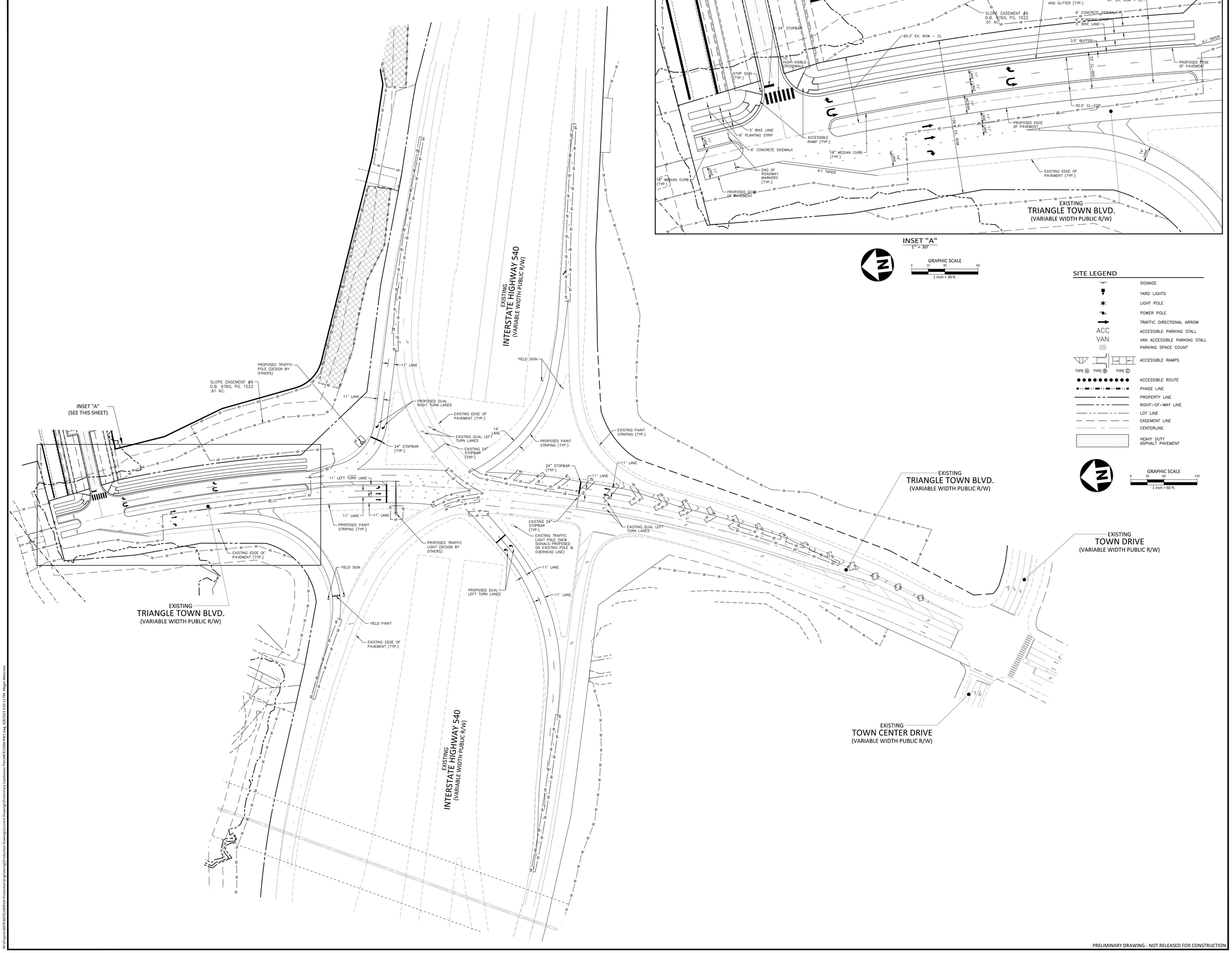
NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-OAU1
CHECKED BY	ACP
DRAWN BY	HWM
SCALE	########
DATE	**0#/0#/##**23

SHEET

SEWER OUTFALL CONNECTION
C4.01



INSET "A"
1" = 30'

GRAPHIC SCALE
0 15 30 60
1 inch = 30 ft.

SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC — ACCESSIBLE PARKING STALL
- VAN — VAN ACCESSIBLE PARKING STALL
- (XX) — PARKING SPACE COUNT
- ACCESSIBLE RAMPS (TYPE A, TYPE B, TYPE C)
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- HEAVY DUTY ASPHALT PAVEMENT

GRAPHIC SCALE
0 30 60 120
1 inch = 60 ft.

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MODERA CAPITAL CITY

PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

[redacted]

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-RW1
CHECKED BY	ACP
DRAWN BY	CAW
SCALE	1" = 60'
DATE	09. 08. 2023

SHEET

OFFSITE ROADWAY IMPROVEMENTS
C7.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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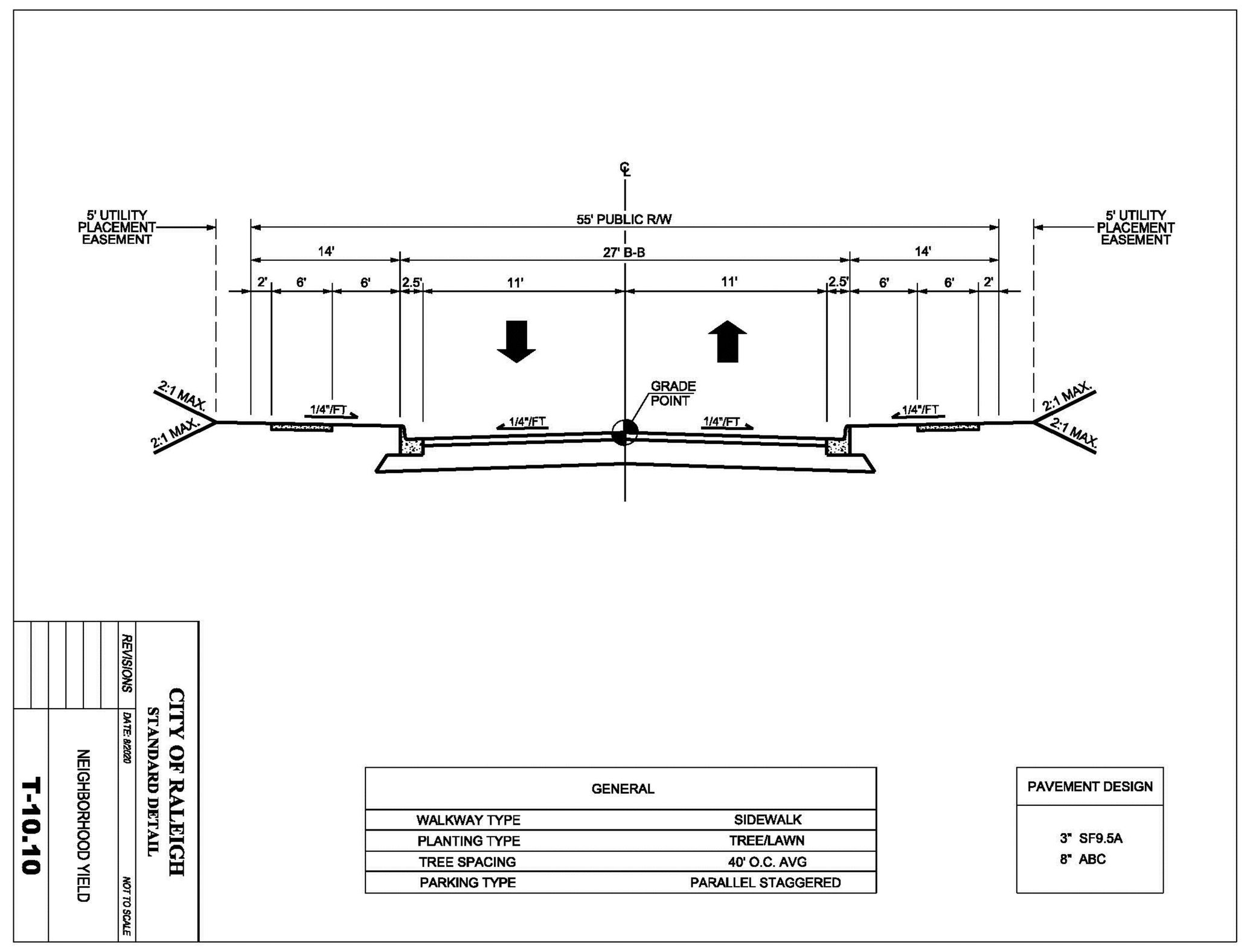
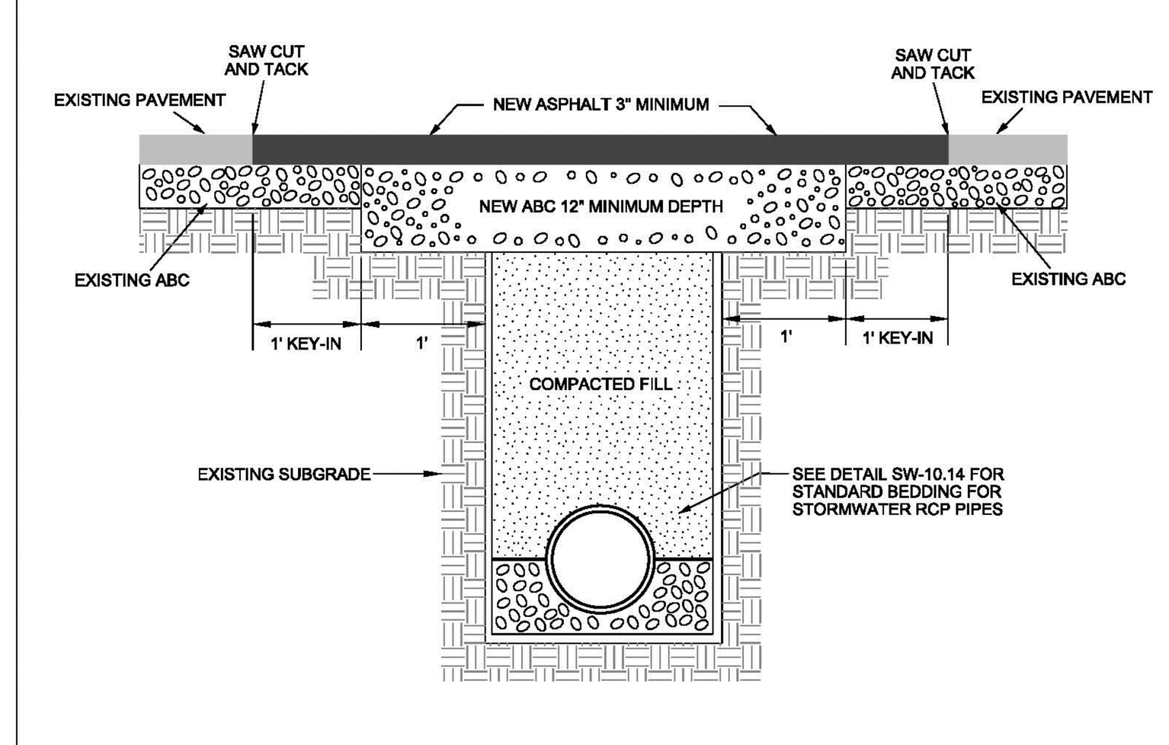
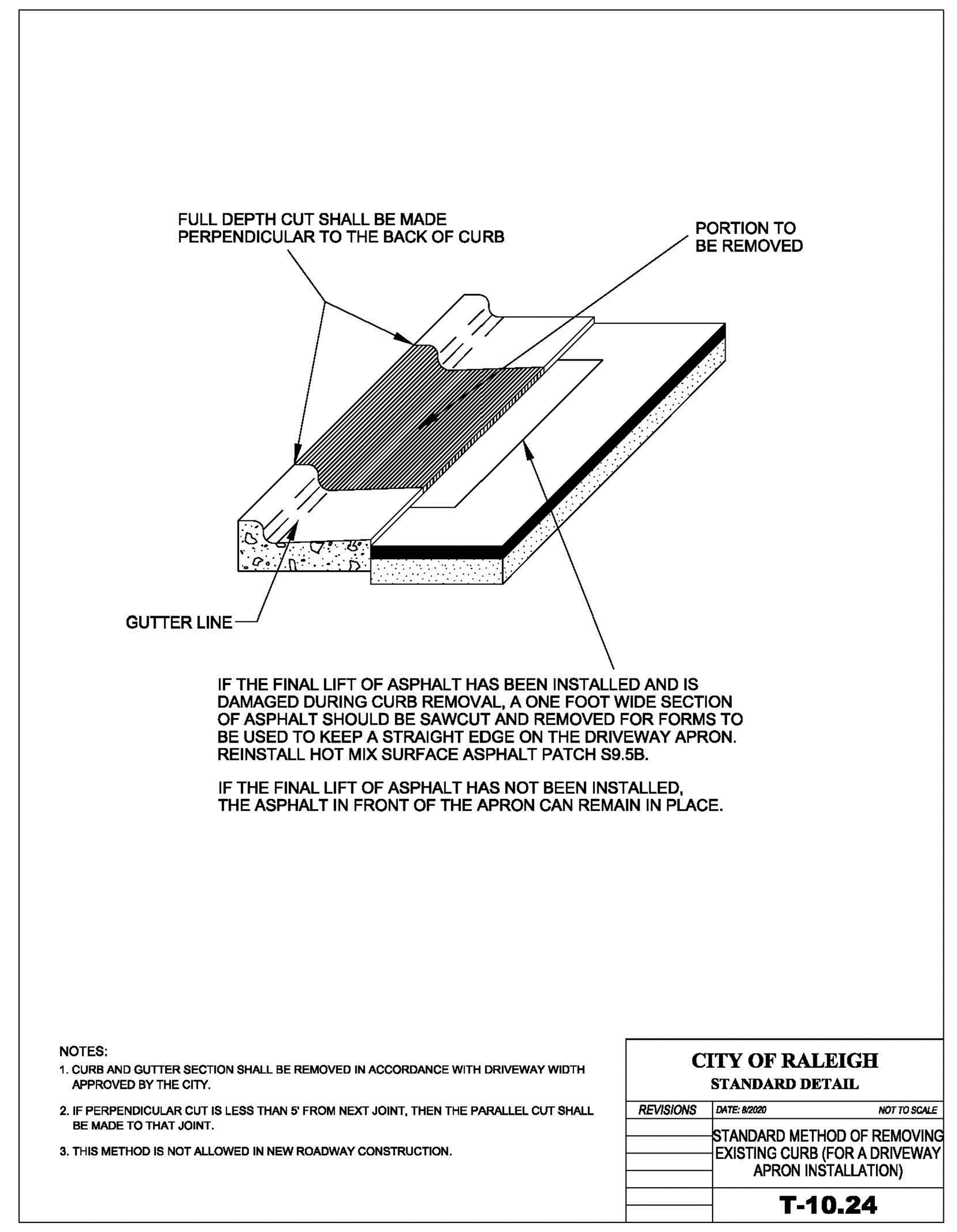


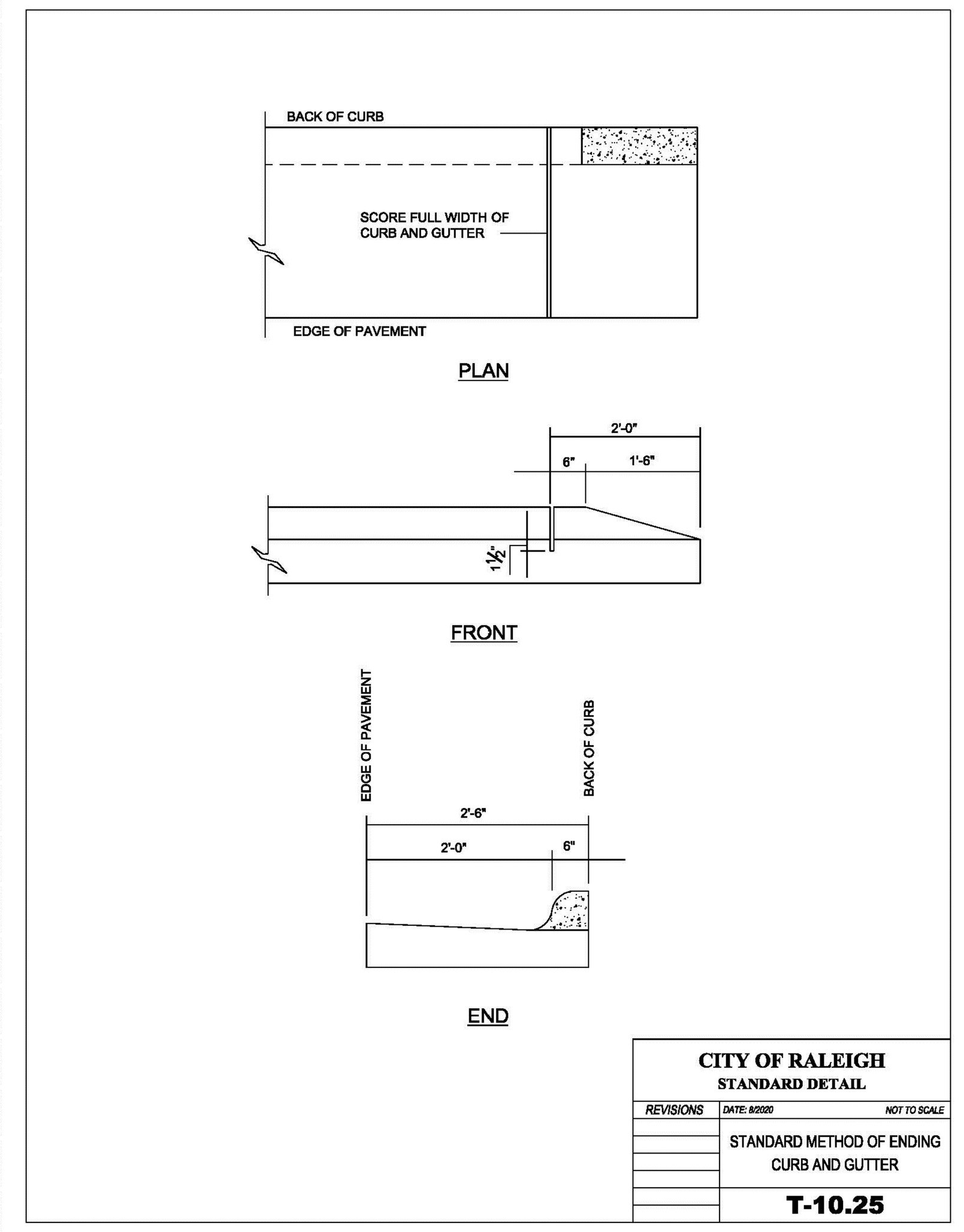


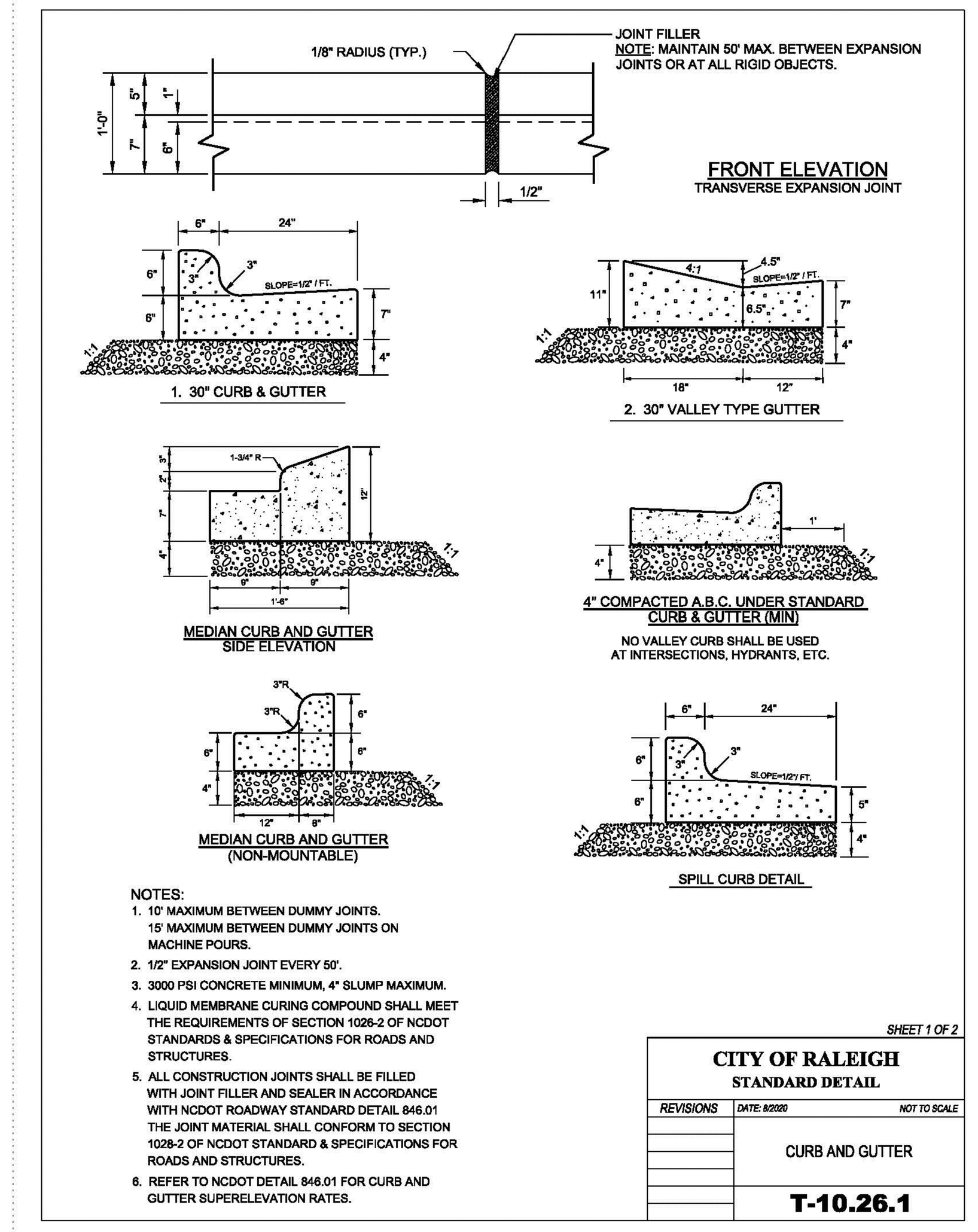
NOTES:

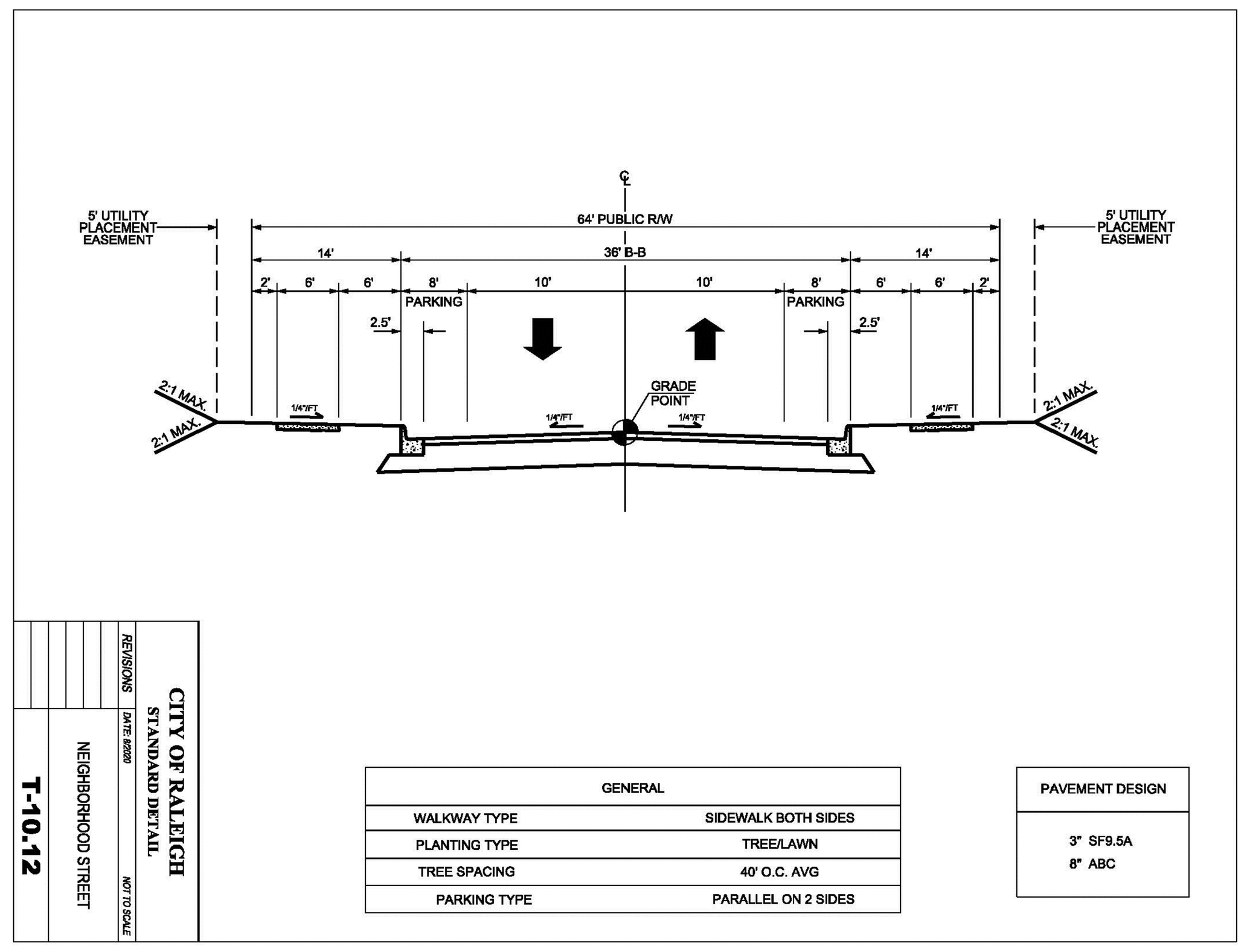
1. THE PAVEMENT EDGE SHALL BE DEFINED BY A STRAIGHT EDGE FORMED BY A MACHINED SAW CUT.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT. BITUMINOUS BASE OR BINDER MAY BE SUBSTITUTED IF APPROVED BY TRANSPORTATION DIRECTOR OR DESIGNEE.
4. THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY AND ROLLED WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH, LEVEL PATCH.

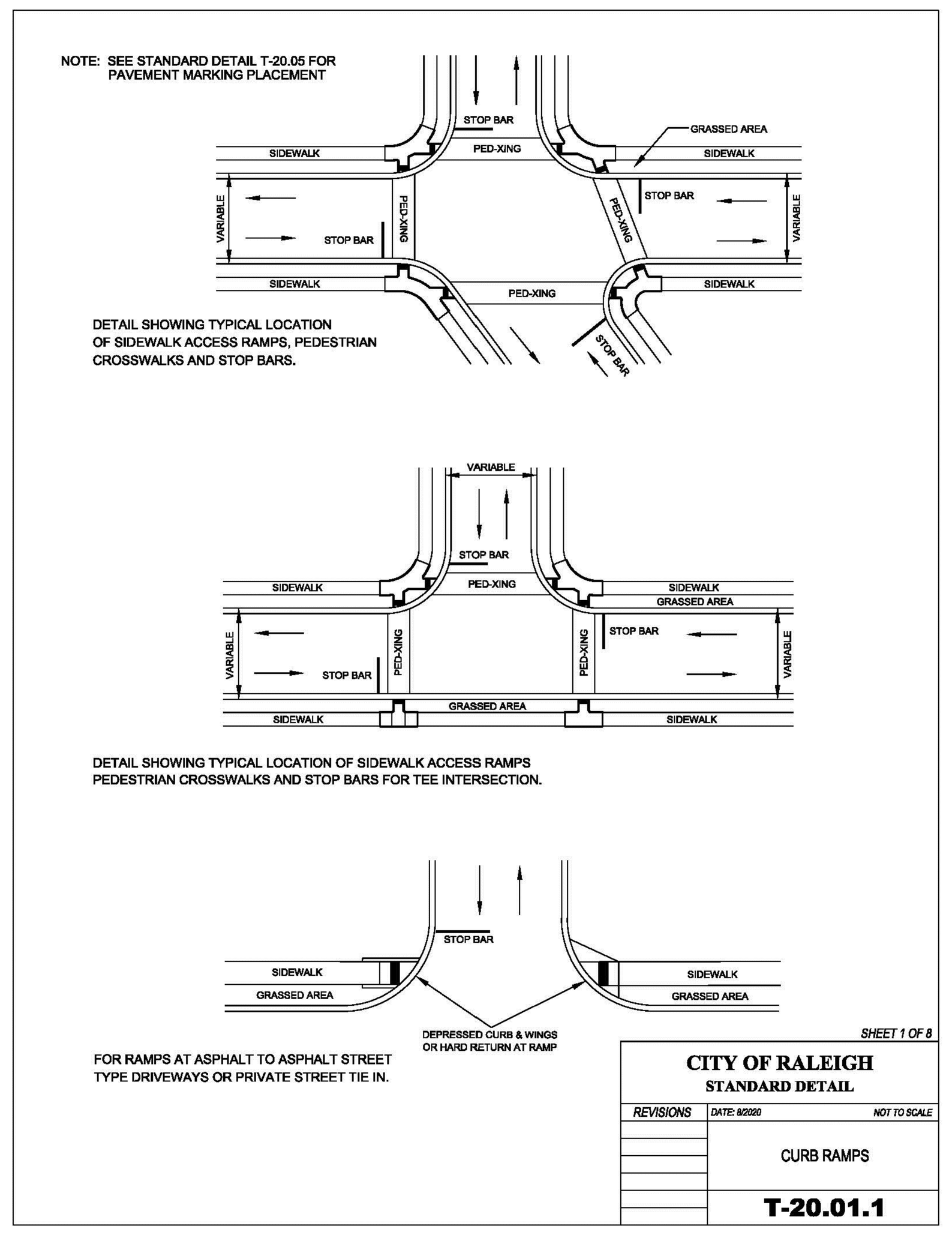
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 8/2020 | NOT TO SCALE
ASPHALT PAVEMENT PATCH AND RCP PIPE BACKFILL
T-10.05

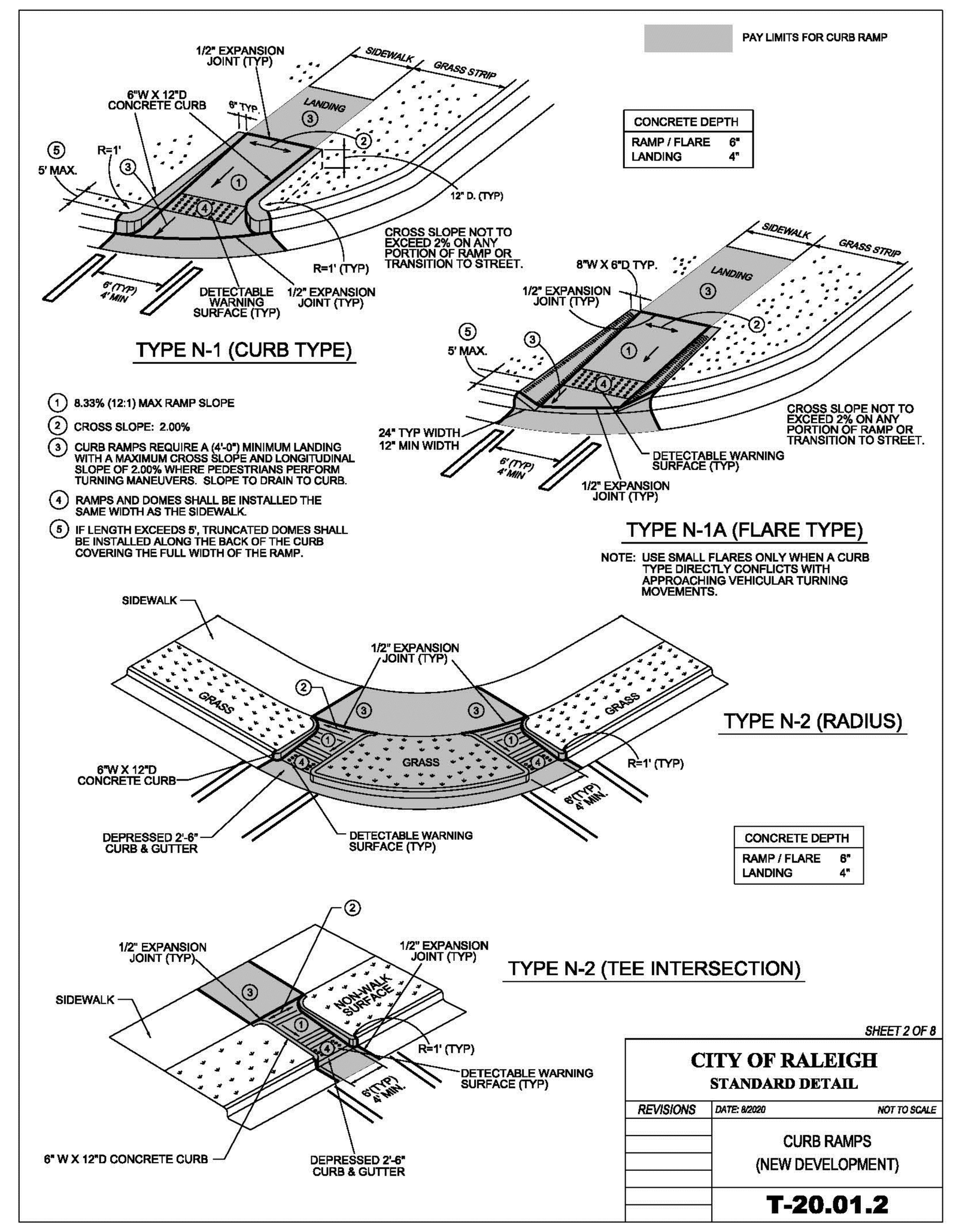


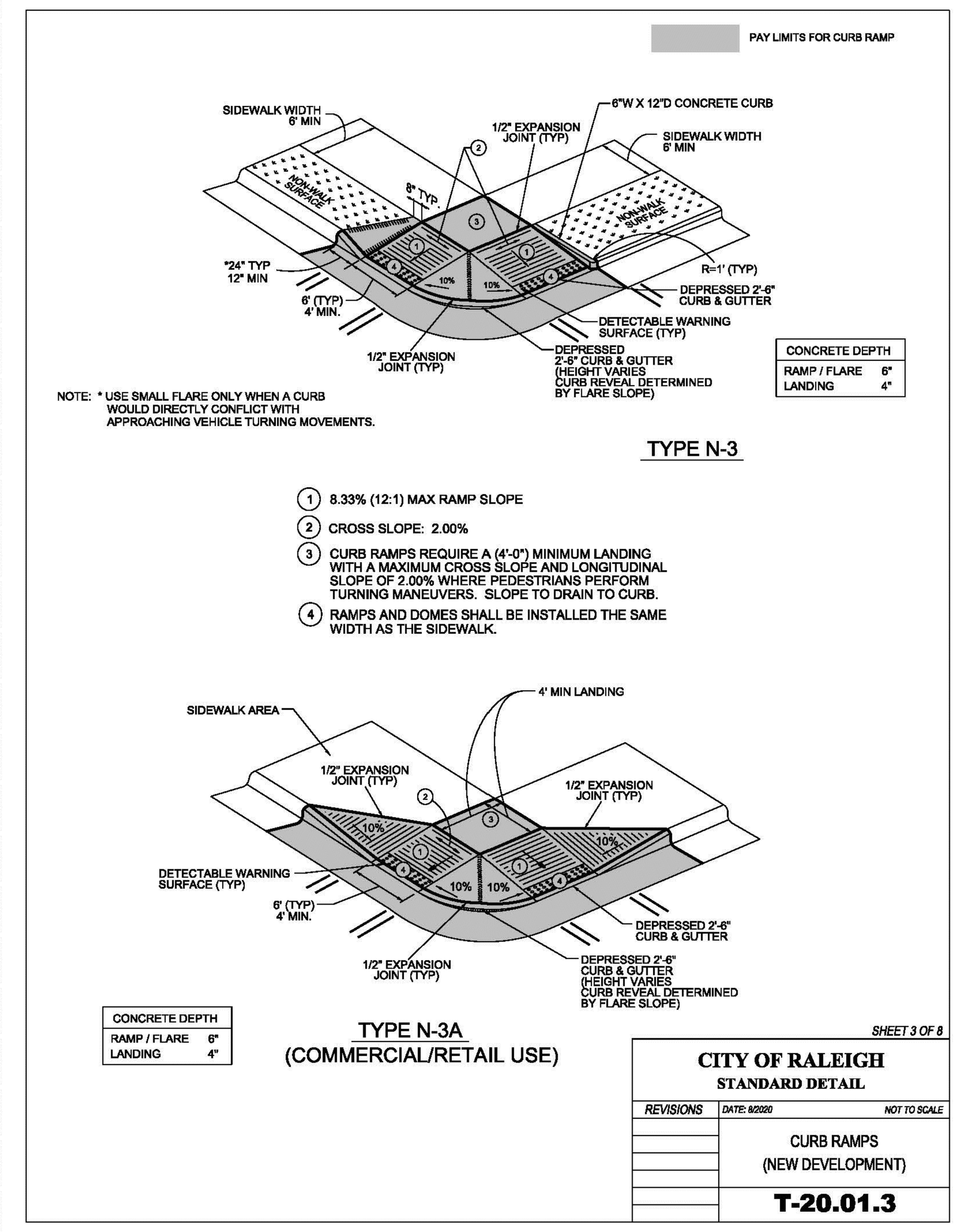


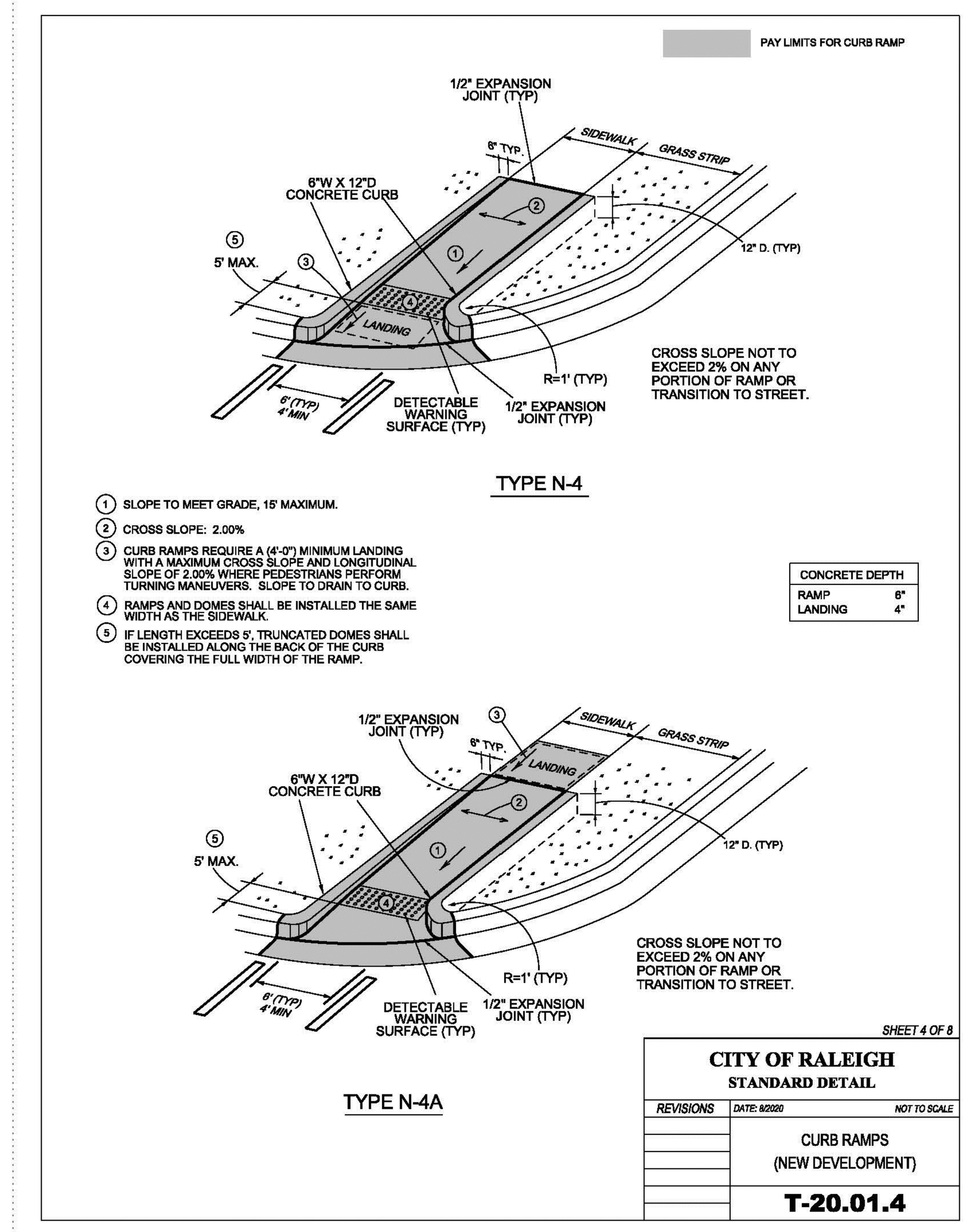


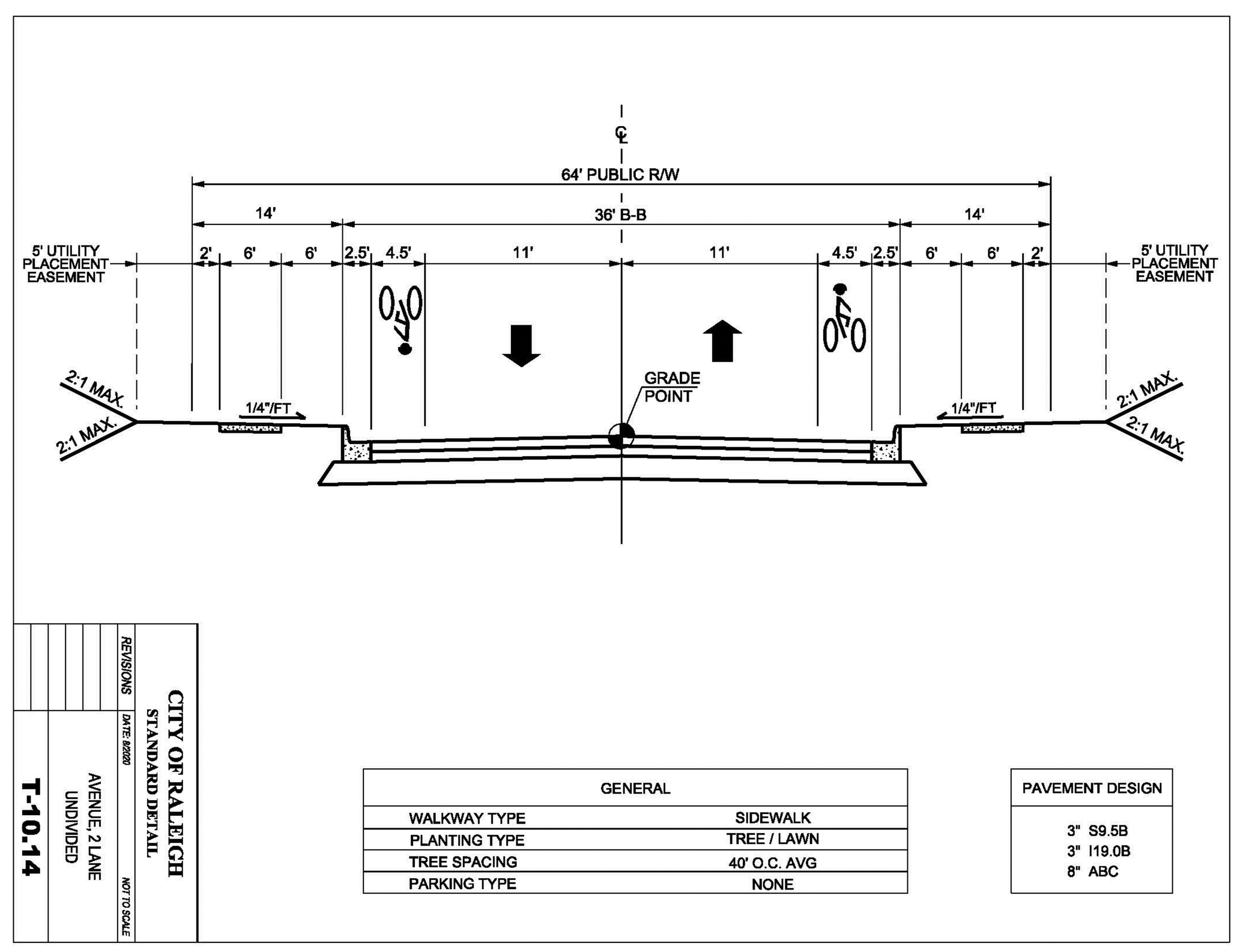


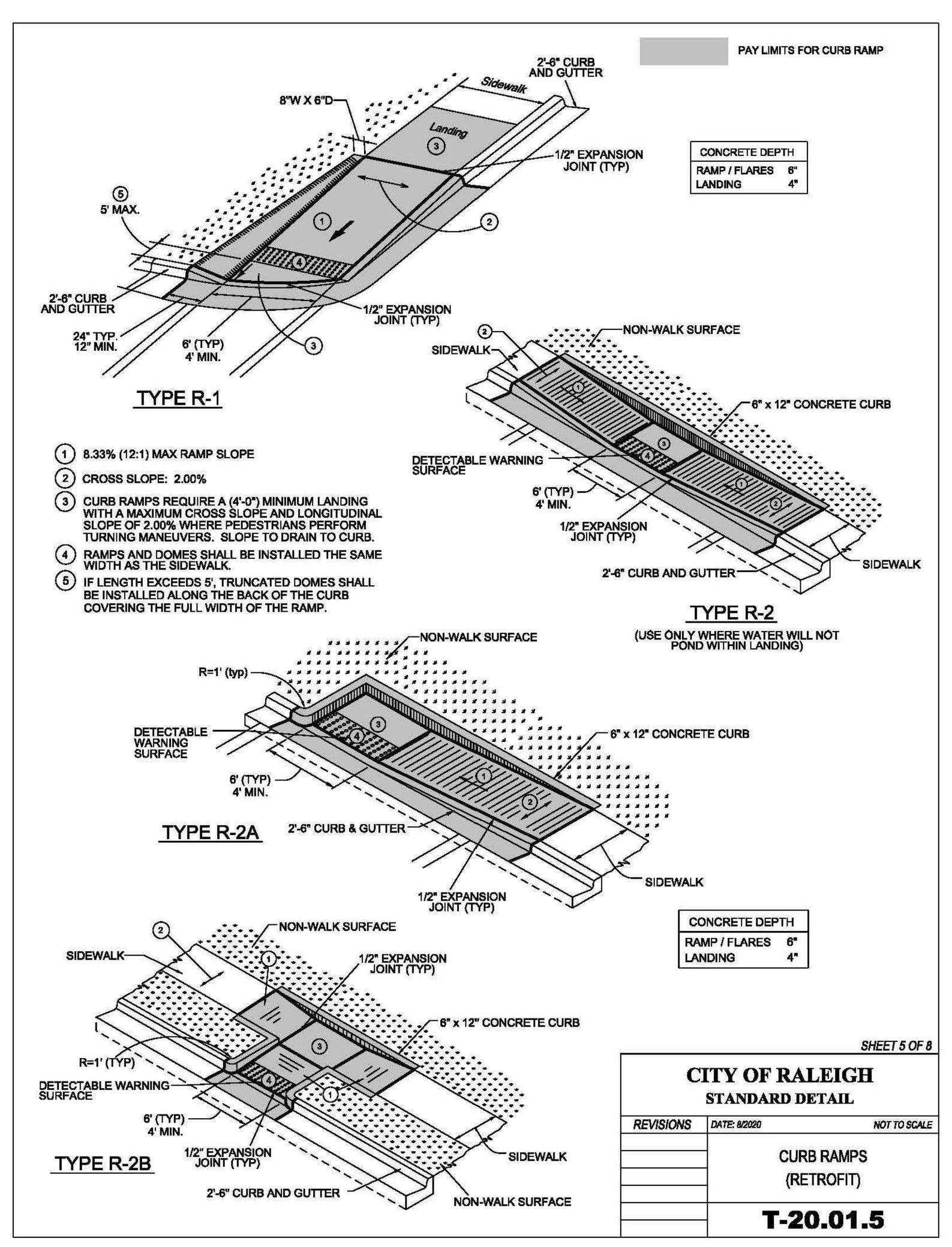








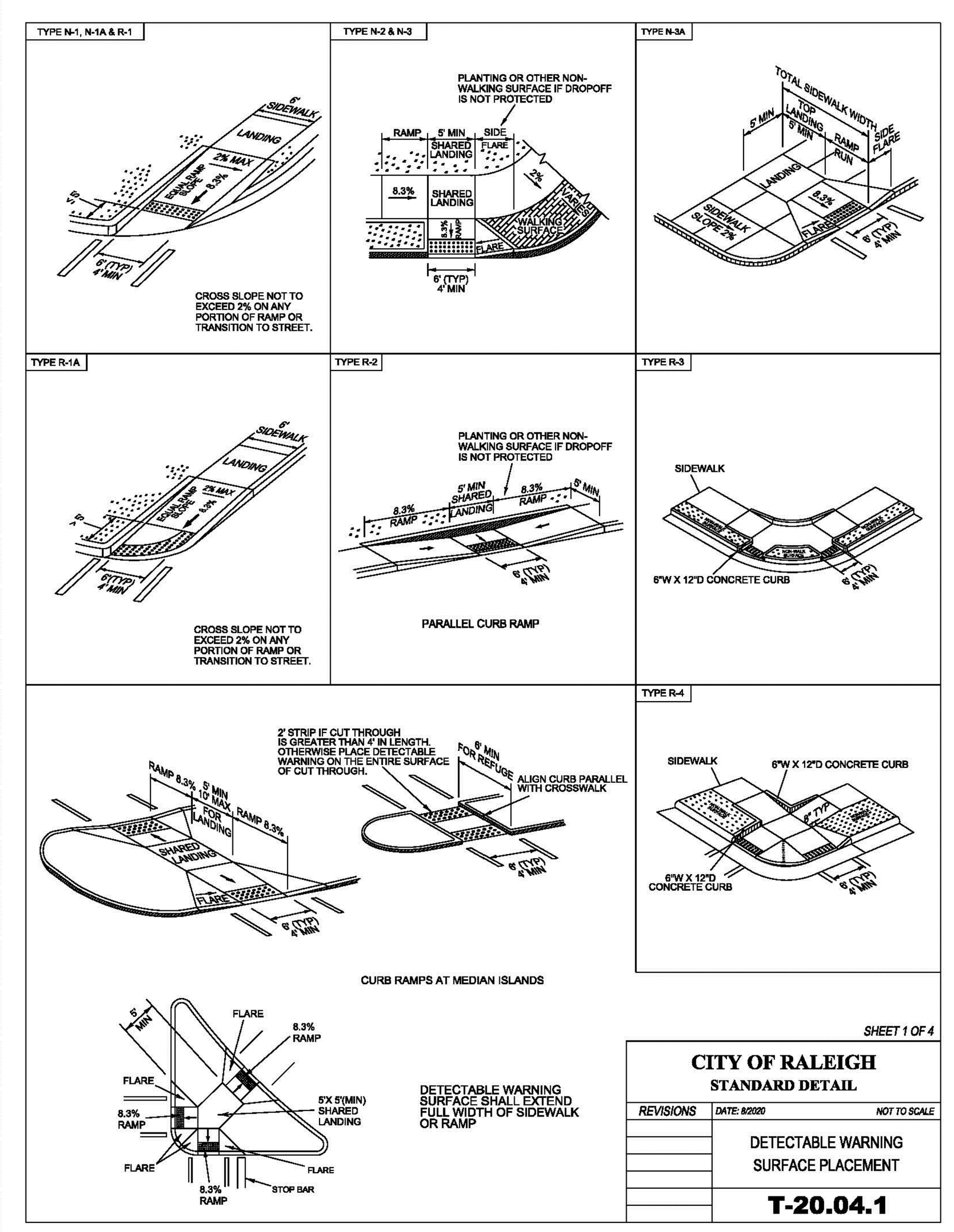


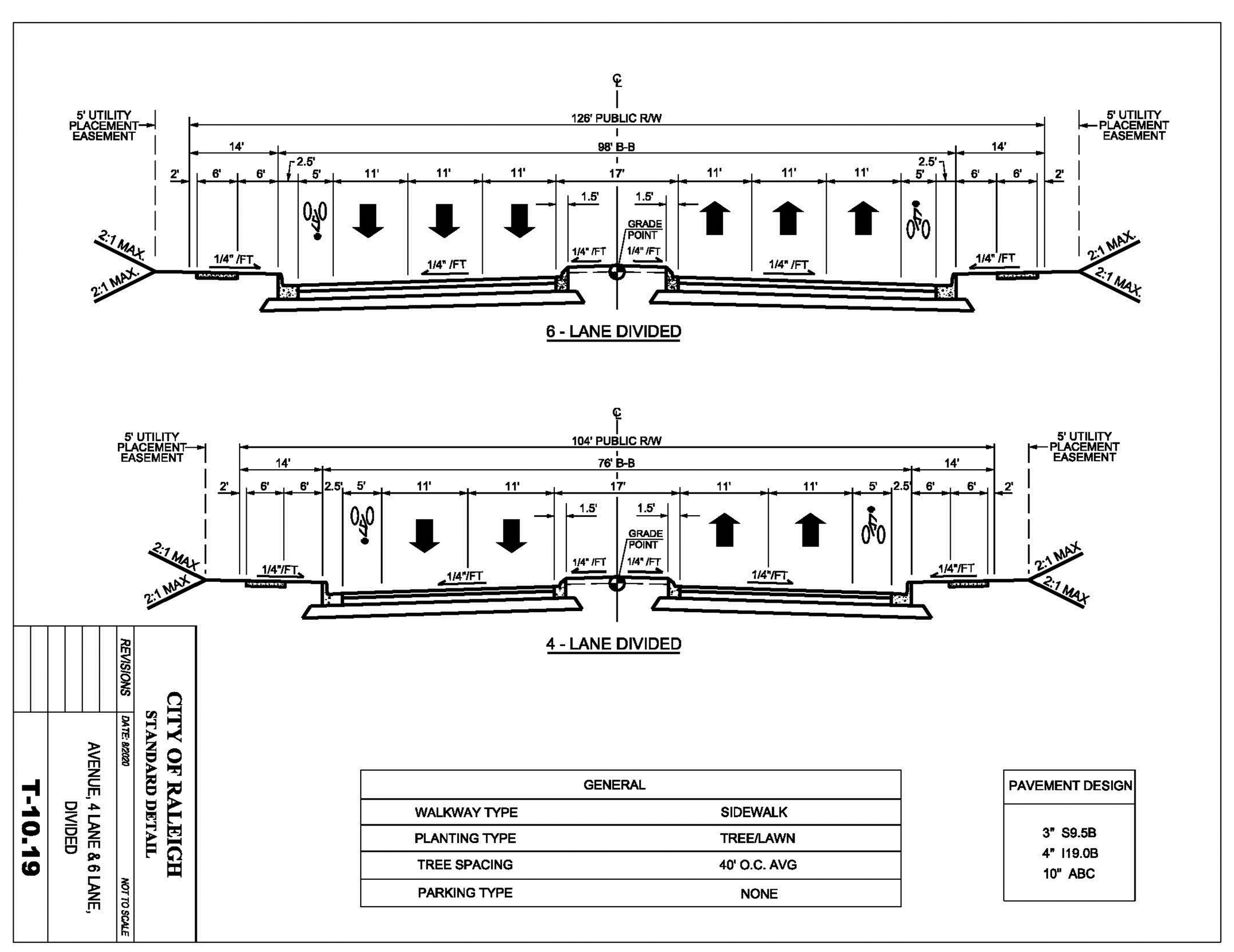


CITY OF RALEIGH
CURB RAMPS
GENERAL NOTES

1. CITY OF RALEIGH STANDARD CURB RAMPS HAVE BEEN DEVELOPED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHT OF WAY ACCESS GUIDELINES (PROWAG).
2. CURB RAMPS SHALL BE PROVIDED AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SIDEWALK ACCESS RAMPS SHALL BE LOCATED AS INDICATED IN THE DETAIL, HOWEVER, THE LOCATION MAY BE ADJUSTED IN COORDINATION WITH THE CITY OF RALEIGH WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT.
3. DOUBLE WHEELCHAIR RAMPS ARE TO BE INSTALLED AT ALL PUBLIC STREET INTERSECTIONS WHERE SIDEWALK IS REQUIRED.
4. THE WALKING SURFACE SHALL BE SLIP RESISTANT. THE COLOR FOR THE DETECTABLE WARNING AREA SHALL BE YELLOW FOR CONTRAST.
5. NO SLOPE ON THE SIDEWALK ACCESS RAMP SHALL EXCEED 1"/FT (12:1) IN RELATIONSHIP TO THE GRADE OF THE STREET.
6. IN NO CASE SHALL THE WIDTH OF THE SIDEWALK ACCESS RAMP BE LESS THAN 48" ALL RAMPS SHALL BE INSTALLED THE SAME WIDTH AS THE SIDEWALK.
7. USE CLASS A (3000 PSI) CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NONSKID SURFACE.
8. A 1/2" EXPANSION JOINT INSTALLED FULL DEPTH WILL BE REQUIRED WHERE THE CONCRETE SIDEWALK ACCESS RAMP JOINS THE CURB AND ALSO WHERE NEW CONCRETE ABUTS EXISTING CONCRETE.
9. CURB RAMPS SHOULD BE PLACED PARALLEL TO THE DIRECTION OF TRAVEL.

SHEET 8 OF 8
CITY OF RALEIGH
STANDARD DETAIL
REVISIONS | DATE: 8/2020 | NOT TO SCALE
CURB RAMP NOTES
T-20.01.8





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RALEIGH, NORTH CAROLINA 27616

[redacted]

REVISIONS

NO. DATE

PLAN INFORMATION

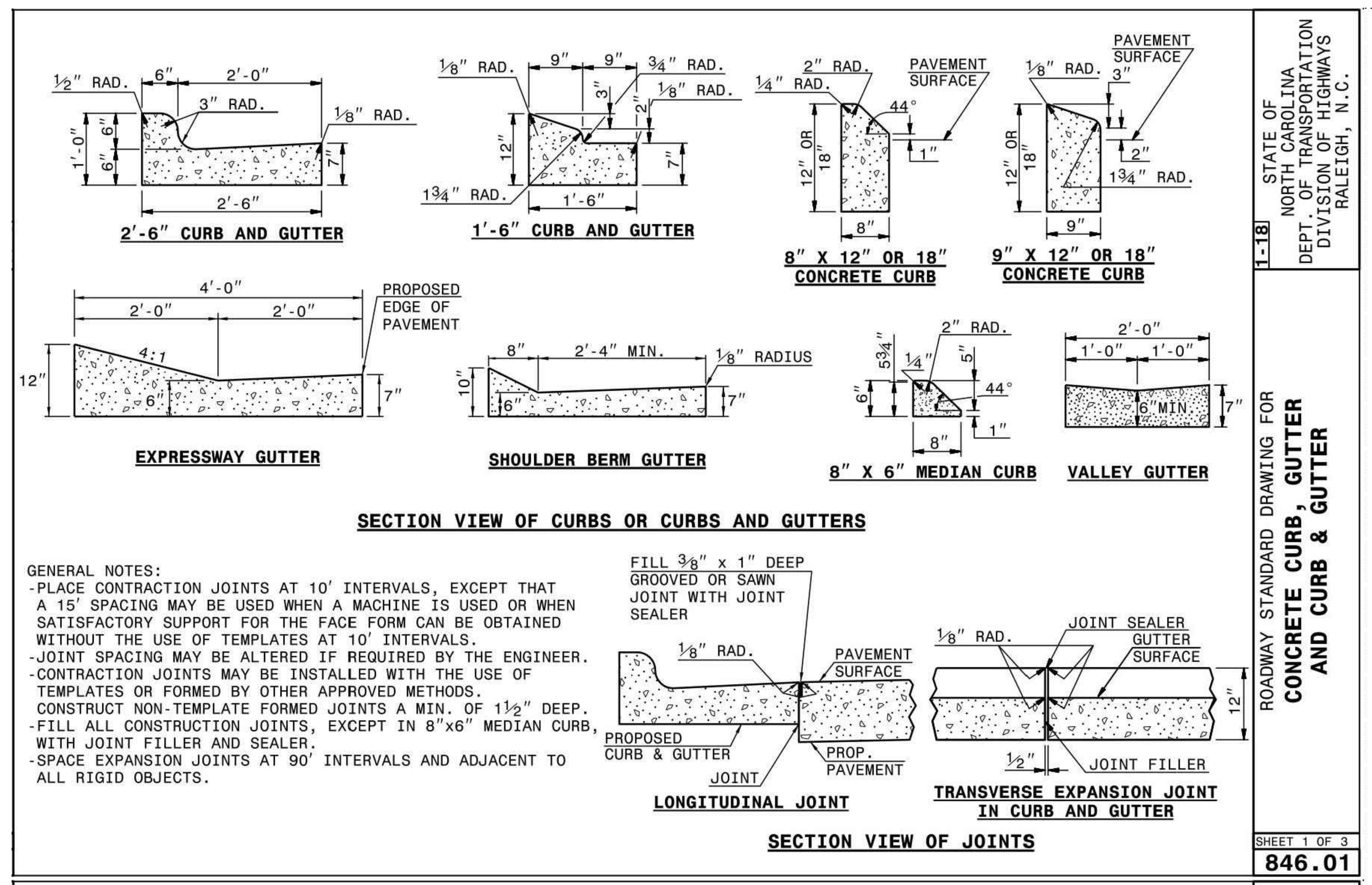
PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

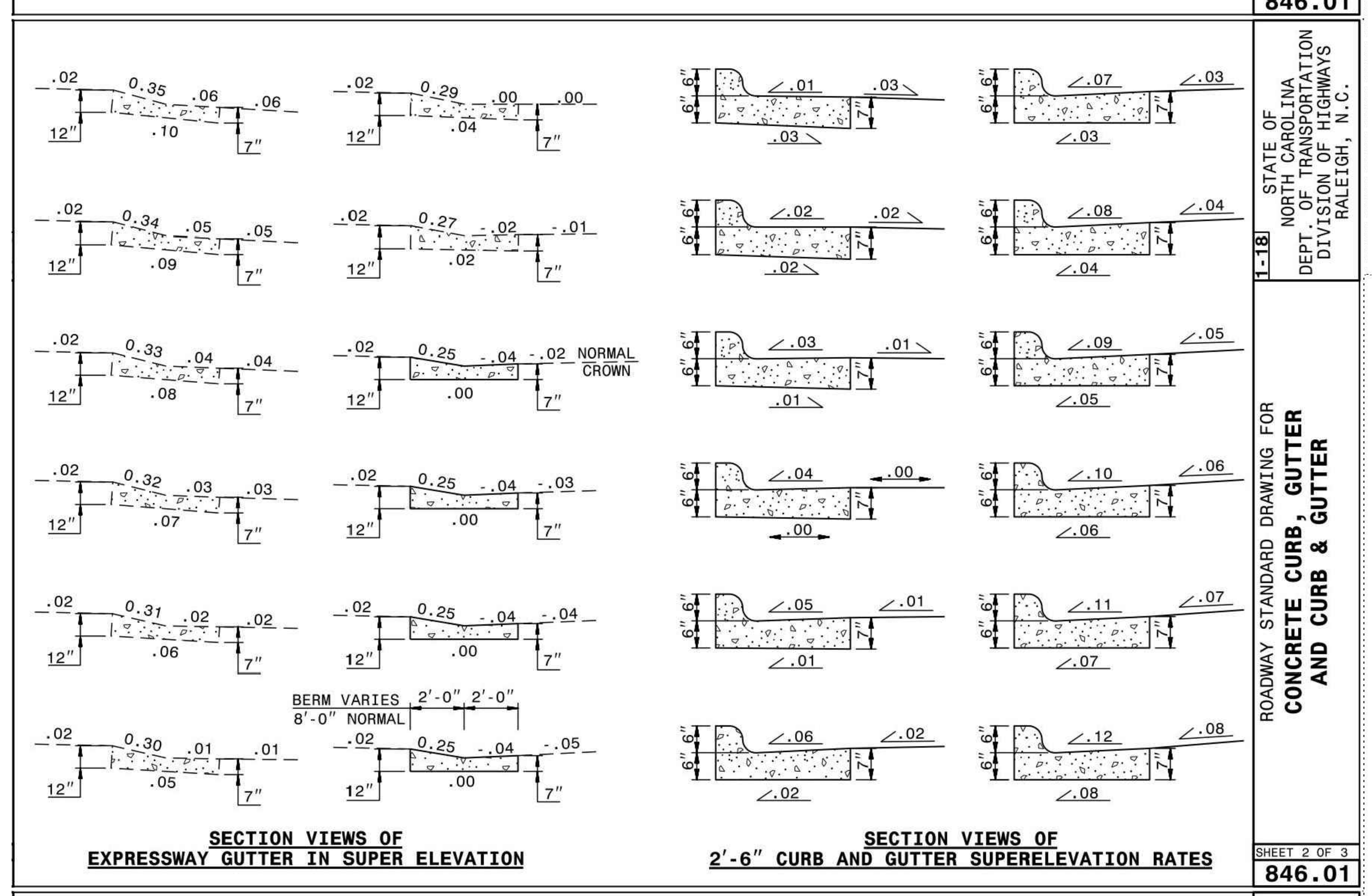
SITE DETAILS

C8.00

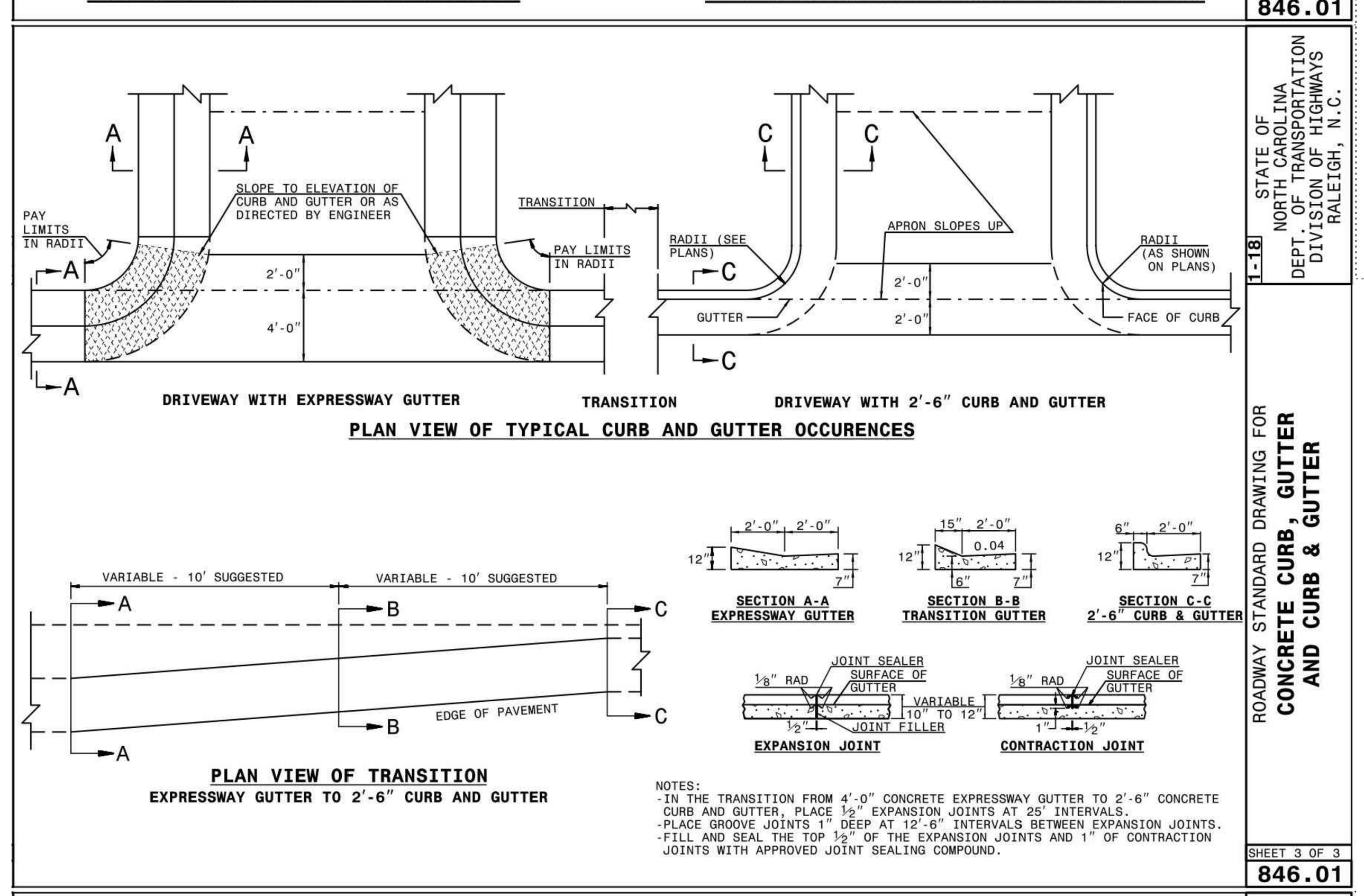
PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



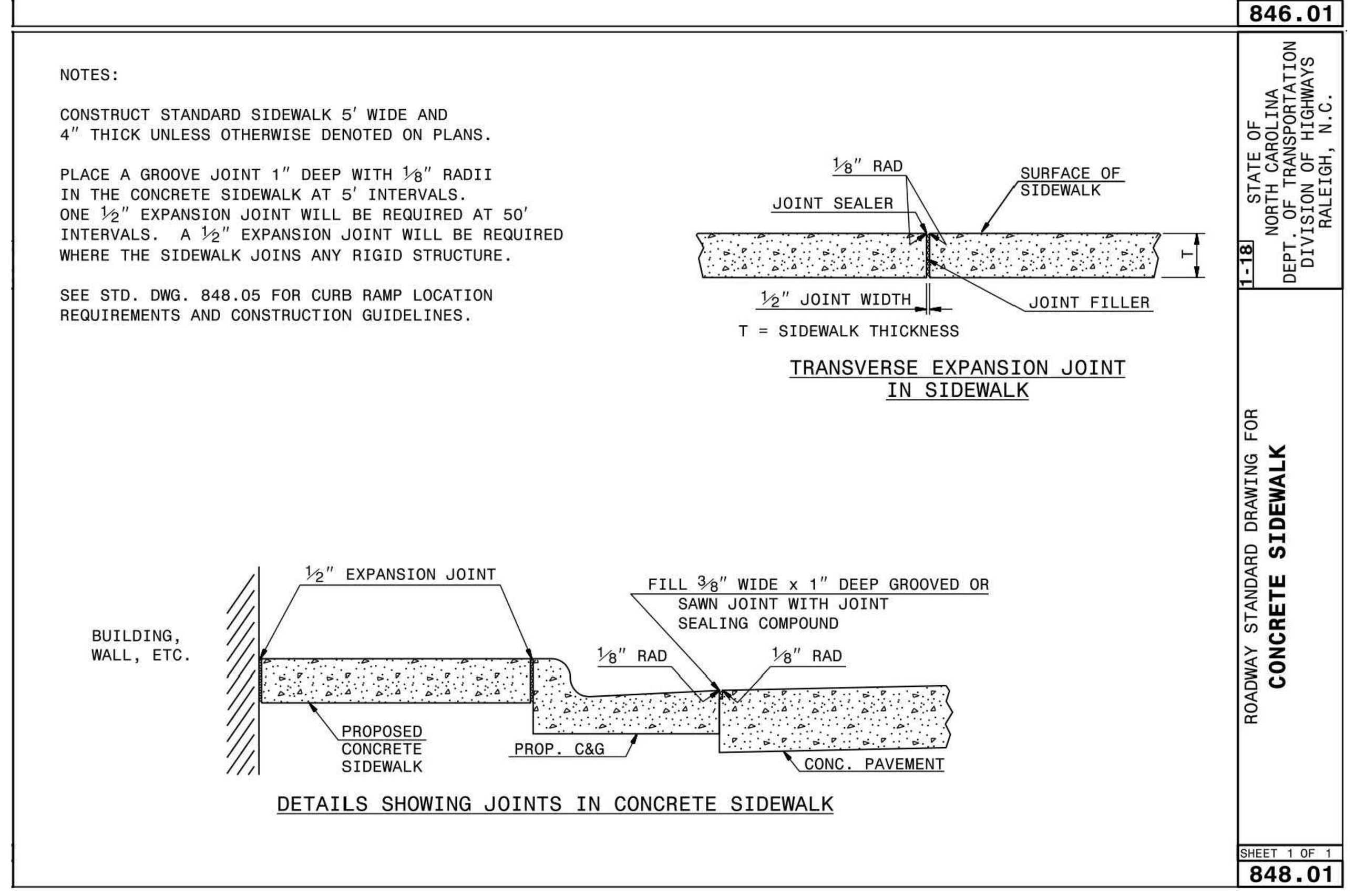
2'-6" CURB AND GUTTER
1'-6" CURB AND GUTTER
8" X 12" OR 18" CONCRETE CURB
9" X 12" OR 18" CONCRETE CURB
EXPRESSWAY GUTTER
SHOULDER BERM GUTTER
8" X 6" MEDIAN CURB
VALLEY GUTTER
SECTION VIEW OF CURBS OR CURBS AND GUTTERS
LONGITUDINAL JOINT
TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER
SECTION VIEW OF JOINTS
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER
SHEET 1 OF 3
846.01



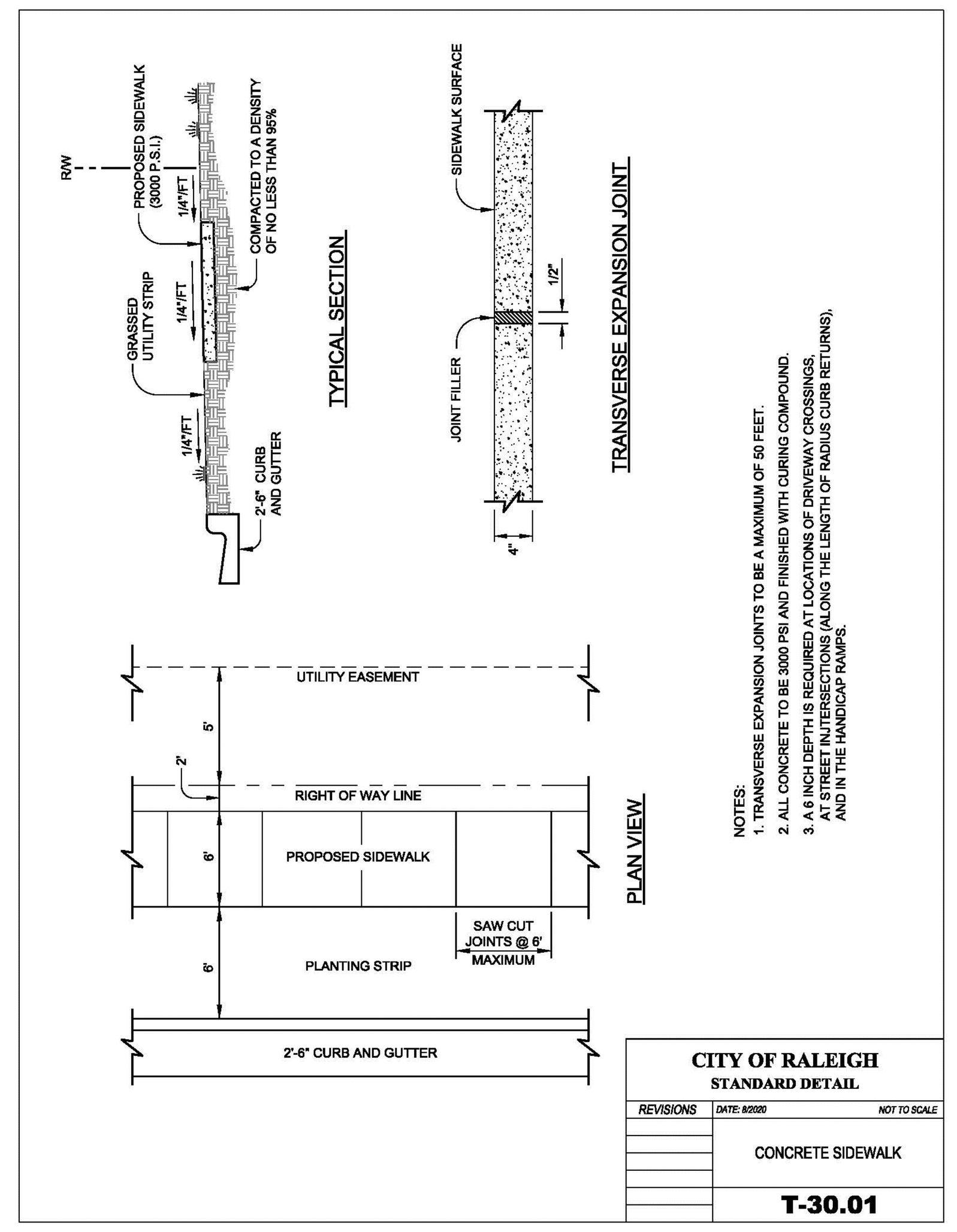
SECTION VIEWS OF EXPRESSWAY GUTTER IN SUPER ELEVATION
SECTION VIEWS OF 2'-6" CURB AND GUTTER SUPERELEVATION RATES
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER
SHEET 2 OF 3
846.01

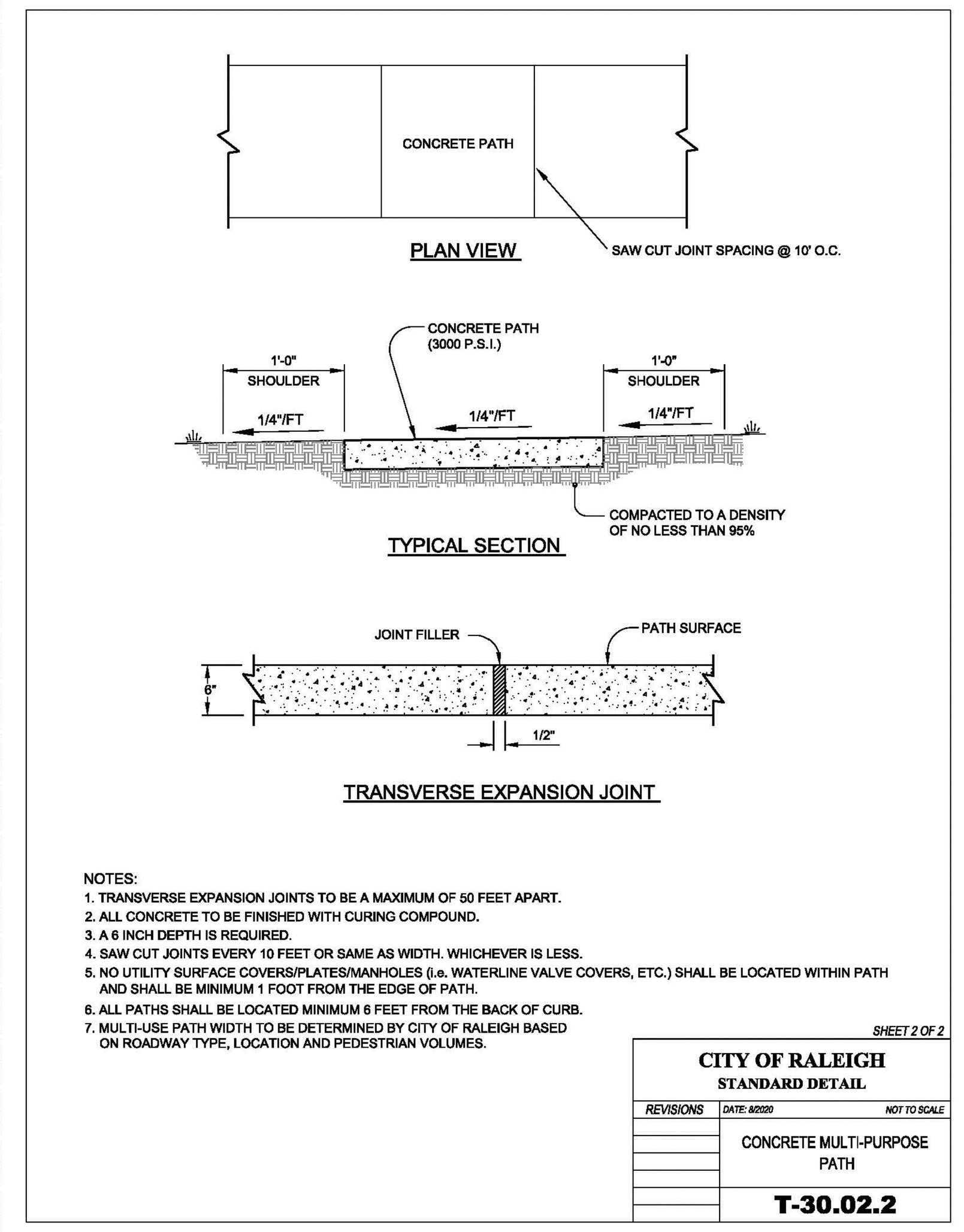


DRIVEWAY WITH EXPRESSWAY GUTTER
TRANSITION
DRIVEWAY WITH 2'-6" CURB AND GUTTER
PLAN VIEW OF TYPICAL CURB AND GUTTER OCCURENCES
PLAN VIEW OF TRANSITION
EXPRESSWAY GUTTER TO 2'-6" CURB AND GUTTER
SECTION A-A EXPRESSWAY GUTTER
SECTION B-B TRANSITION GUTTER
SECTION C-C 2'-6" CURB & GUTTER
EXPANSION JOINT
CONTRACTION JOINT
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER
SHEET 3 OF 3
846.01

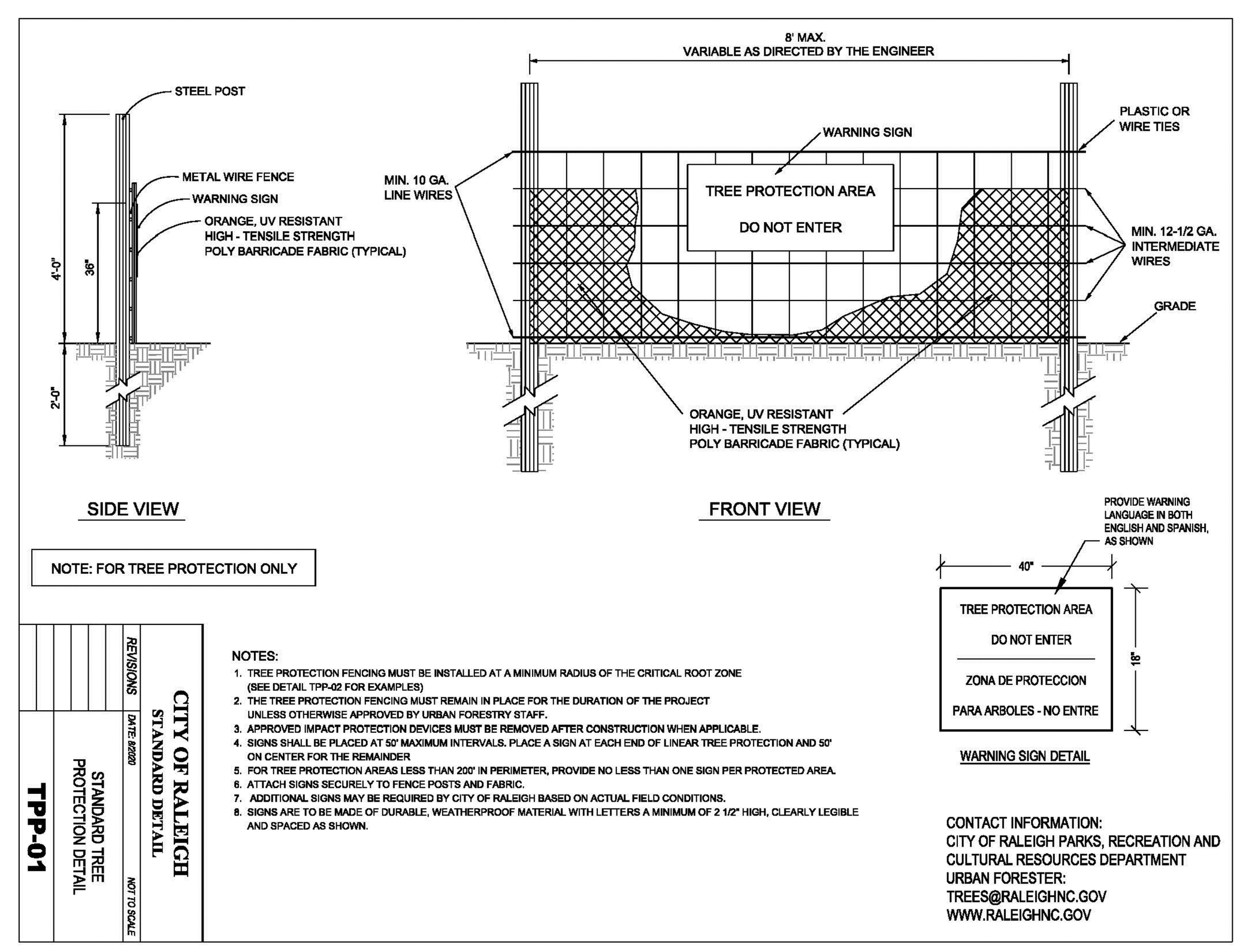


NOTES:
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.
PLACE A GROOVE JOINT 1" DEEP WITH 1/8" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
SEE STD. DWG. 848.05 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.
TRANSVERSE EXPANSION JOINT IN SIDEWALK
T = SIDEWALK THICKNESS
DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ROADWAY STANDARD DRAWING FOR CONCRETE SIDEWALK
SHEET 1 OF 1
848.01





CONCRETE PATH
PLAN VIEW
SAW CUT JOINT SPACING @ 10' O.C.
TYPICAL SECTION
TRANSVERSE EXPANSION JOINT
NOTES:
1. TRANSVERSE EXPANSION JOINTS TO BE A MAXIMUM OF 50 FEET APART.
2. ALL CONCRETE TO BE FINISHED WITH CURING COMPOUND.
3. A 6 INCH DEPTH IS REQUIRED.
4. SAW CUT JOINTS EVERY 10 FEET OR SAME AS WIDTH. WHICHEVER IS LESS.
5. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN PATH AND SHALL BE MINIMUM 1 FOOT FROM THE EDGE OF PATH.
6. ALL PATHS SHALL BE LOCATED MINIMUM 6 FEET FROM THE BACK OF CURB.
7. MULTI-USE PATH WIDTH TO BE DETERMINED BY CITY OF RALEIGH BASED ON ROADWAY TYPE, LOCATION AND PEDESTRIAN VOLUMES.
CITY OF RALEIGH
STANDARD DETAIL
CONCRETE MULTI-PURPOSE PATH
T-30.02.2



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MILL CREEK RESIDENTIAL

MODERA CAPITAL CITY
PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO. DATE

PLAN INFORMATION

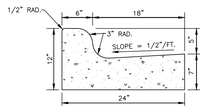
PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

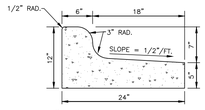
SITE DETAILS

C8.01

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



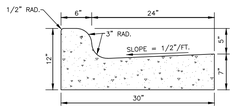
STANDARD 24" CURB AND GUTTER



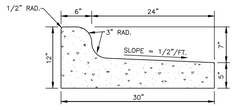
24" SPILL CURB AND GUTTER

NOTES:
1. 10' MAXIMUM BETWEEN DUMMY JOINTS. 15' MAXIMUM BETWEEN DUMMY JOINTS ON MACHINE POURS.
2. 1/2" EXPANSION JOINT EVERY 50'.
3. 3000 PSI CONCRETE MINIMUM, 4" SLUMP MAXIMUM.
4. LIQUID MEMBRANE CURING COMPOUND SHALL MEET THE REQUIREMENTS OF SECTION 1026-2 OF NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES.
5. ALL CONSTRUCTION JOINTS SHALL BE FILLED WITH FILLER AND SEALER IN ACCORDANCE WITH NCDOT ROADWAY STANDARD DETAIL 846.01. THE JOINT MATERIAL SHALL CONFORM TO SECTION 1028-2 OF THE NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES.
6. REFER TO NCDOT DETAIL 846.01 FOR CURB AND GUTTER SUPERELEVATION RATES.

24" CURB AND GUTTER
N.T.S.



STANDARD 30" CURB AND GUTTER

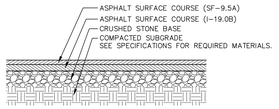


30" SPILL CURB AND GUTTER

NOTES:
1. 10' MAXIMUM BETWEEN DUMMY JOINTS. 15' MAXIMUM BETWEEN DUMMY JOINTS ON MACHINE POURS.
2. 1/2" EXPANSION JOINT EVERY 50'.
3. 3000 PSI CONCRETE MINIMUM, 4" SLUMP MAXIMUM.
4. LIQUID MEMBRANE CURING COMPOUND SHALL MEET THE REQUIREMENTS OF SECTION 1026-2 OF NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES.
5. ALL CONSTRUCTION JOINTS SHALL BE FILLED WITH FILLER AND SEALER IN ACCORDANCE WITH NCDOT ROADWAY STANDARD DETAIL 846.01. THE JOINT MATERIAL SHALL CONFORM TO SECTION 1028-2 OF THE NCDOT STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES.
6. REFER TO NCDOT DETAIL 846.01 FOR CURB AND GUTTER SUPERELEVATION RATES.

30" CURB AND GUTTER
N.T.S.

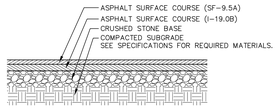
NOTE:
THE PAVEMENT SECTIONS SHOWN ARE PRELIMINARY. THE CONTRACTOR SHALL VERIFY PAVEMENT DESIGN WITH THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.



SUBGRADE COMPACTED TO A MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698) REFER TO SOILS REPORT IF AVAILABLE.

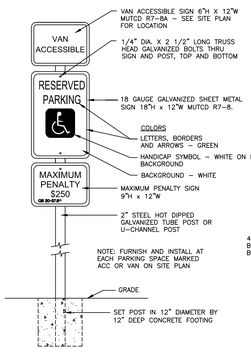
ON-SITE ASPHALT HEAVY DUTY TRAFFIC PAVEMENT DETAIL
N.T.S.

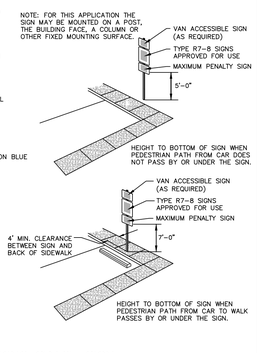
NOTE:
THE PAVEMENT SECTIONS SHOWN ARE PRELIMINARY. THE CONTRACTOR SHALL VERIFY PAVEMENT DESIGN WITH THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.



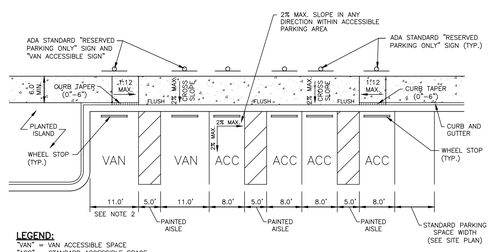
SUBGRADE COMPACTED TO A MINIMUM 98% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D 698) REFER TO SOILS REPORT IF AVAILABLE.

ON-SITE ASPHALT PARKING PAVEMENT DETAIL
N.T.S.





ACCESSIBLE PARKING SPACE SIGN
N.T.S.

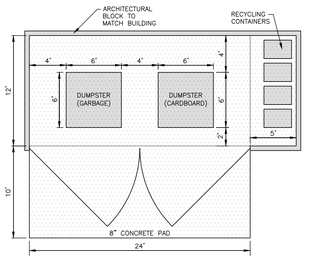


LEGEND:
"VAN" = VAN ACCESSIBLE SPACE
"ACC" = STANDARD ACCESSIBLE SPACE

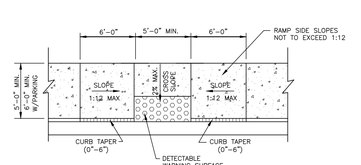
NOTES:
1. CURB AND GUTTER, WALK AND RAMP TO BE PLACED SEPARATELY.
2. ACCESSIBLE PARKING SPACE WIDTH TO BE MEASURED FROM THE EDGE OF PAVEMENT WHERE CURB AND GUTTER IS ADJACENT TO THE ACCESSIBLE SPACE.
3. ALL ACCESSIBLE SPACES SHALL BE IDENTIFIED BY ABOVE-GROUND SIGNS ONLY.
4. STRIPING IS WHITE ON DARK PAVEMENT AND BLACK ON LIGHT PAVEMENT.
5. VAN ACCESSIBLE SPACES TO BE 11.0' MINIMUM WIDTH.

TYPICAL ACCESSIBLE PARKING SPACE LAYOUT, RAMP AND SIGN LOCATIONS
N.T.S.

NOTES:
1. DUMPSTER PAD AND APPROACH PAD SHOULD BE 8" THICK CONCRETE REINFORCED WITH REBAR PER GEOTECHNICAL ENGINEER'S RECOMMENDATION
2. CURBS OR BUMPERS AT THE REAR OF EACH DUMPSTER ARE REQUIRED.
3. SEE ARCHITECTURAL DRAWINGS FOR ENCLOSURE AND GATE MATERIALS AND CONSTRUCTION INSTRUCTIONS.
4. IF THE 2 GATES ARE INCLUDED FOR EACH DUMPSTER WITH A POST IN THE CENTER, THE PAD MUST BE AN ADDITIONAL 4' WIDE.
5. ENCLOSURE WALLS SHALL BE A MINIMUM 6" HIGHER THAN THE DUMPSTERS, BUT NO LESS THAN 6' HIGH.



STANDARD DUMPSTER ENCLOSURE
N.T.S.



NOTE: RAMP LANDING AREA SHALL RECEIVE A 24" DETECTABLE WARNING SURFACE OF COLOR TO CONTRAST WITH ADJOINING SURFACES PER ICC A117.1-2009 SECT. 705 REQUIREMENTS.

ACCESSIBLE SIDEWALK RAMP
N.T.S.

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7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

[redacted]

REVISIONS

NO. DATE

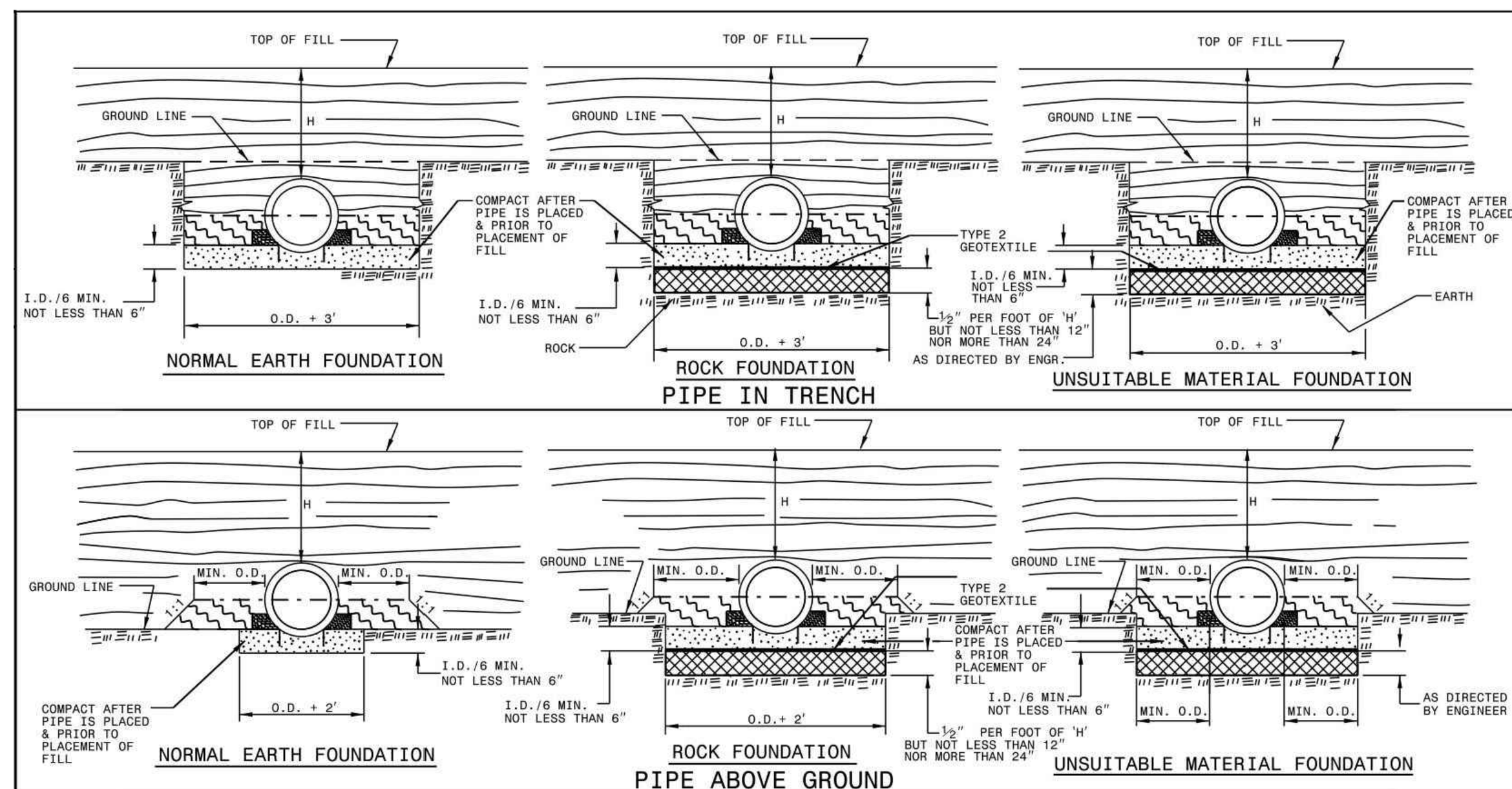
PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

SITE DETAILS

C8.02



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE 2 GEOTEXTILE AS DIRECTED BY THE ENGINEER.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **METHOD OF PIPE INSTALLATION** RIGID PIPE

SHEET 2 OF 3 — 300.01

FLEXIBLE PIPE

Round Corrugated Steel Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	(Ga) 16	14	12	10	8
12	12	204	256			
15	12	162	204			
18	12	135	169	239		
21	12	115	145	204		
24	12	100	126	178		
30	12	79	100	142		
36	12	65	83	117	152	
42	12	55	70	100	130	160
48	12	48	61	87	113	139
54	12		54	77	100	123
60	12			69	90	111
66	12				81	100
72	12				74	91
78	12					81
84	12					69

Maximum Height of Cover (feet)

Round Corrugated Aluminum Pipe
2 2/3 x ½ corrugation **

Diameter (inches)	Minimum cover (inches)	(Ga) 16	14	12	10	8
12	12	123	155	218	281	344
15	12	98	123	174	224	275
18	12	81	102	144	187	228
21	12	69	87	123	160	195
24	12	60	76	108	139	171
27	12		67	95	123	151
30	12		60	85	111	136
36	12		50	71	92	113
42	12			60	78	96
48	12			52	68	84
54	12			46	50	74
60	12				50	62
66	12					51
72	12					41

Maximum Height of Cover (feet)

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

CSP - AASHTO M36
CAAP - AASHTO M196
HDPE - AASHTO M294
PVC - ASTM F949 or AASHTO M304

HDPE - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 60″
* (Maximum fill) 20′ for pipe diameters ≤ 24″
17′ for pipe diameters ≥ 30″ and ≤ 60″

PVC - * (Minimum fill) 2′ for pipe diameters ≥ 12″ and ≤ 36″
* (Maximum fill) 30′ for pipe diameters ≥ 12″ and ≤ 36″

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

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

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

RCP - * (Minimum fill) 1′ for Class IV & CLASS V
2′ for Class III & Class II

* (Maximum fill) 10′ - Class II pipe
20′ - Class III pipe
30′ - Class IV pipe
40′ - Class V pipe

(For fills > 40′ & < 80′ use LRFD Direct Design Method)

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

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

RCP - AASHTO M170

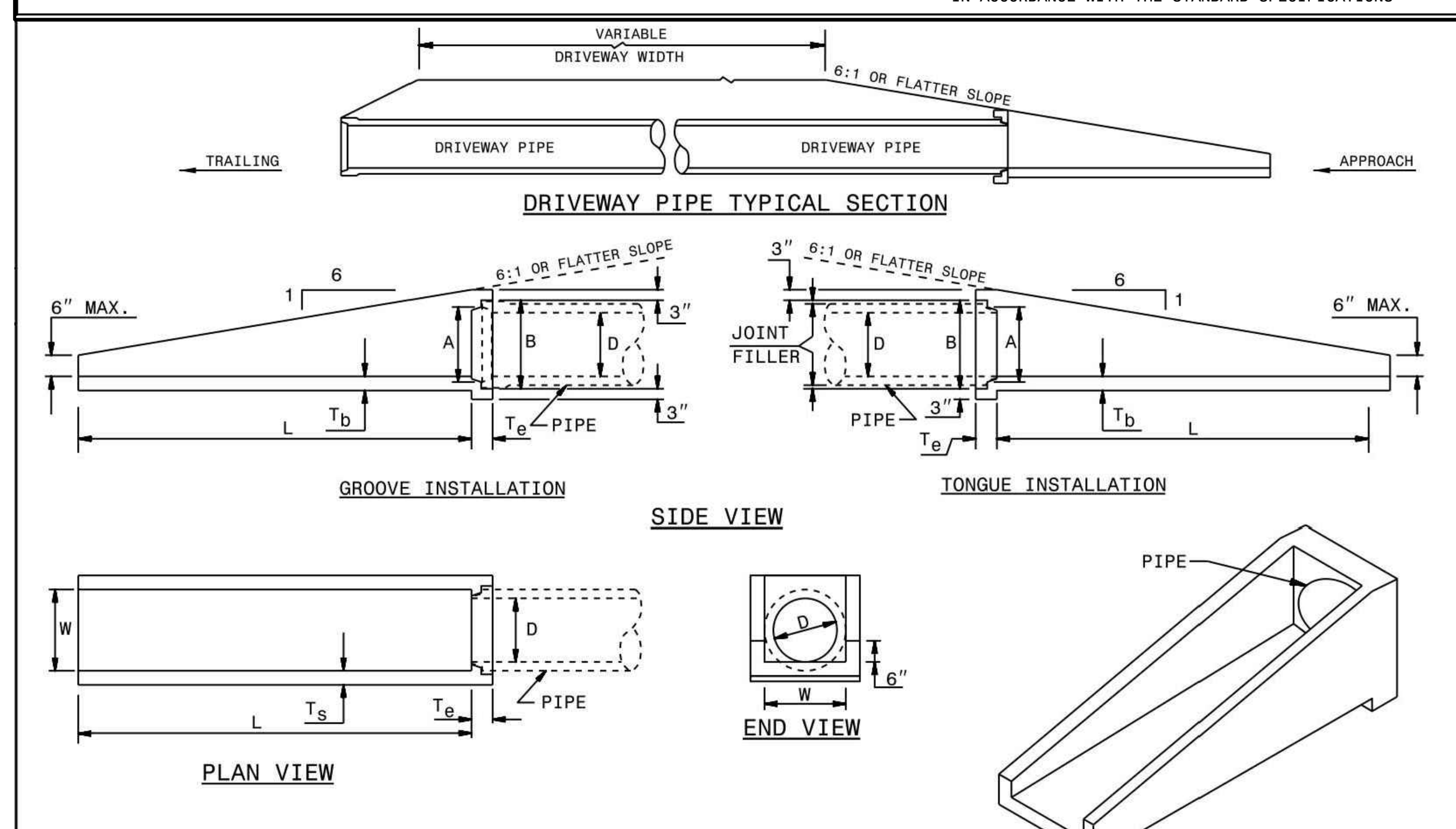
NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

1′ MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **METHOD OF PIPE INSTALLATION** FILL HEIGHT TABLES

SHEET 3 OF 3 — 300.01



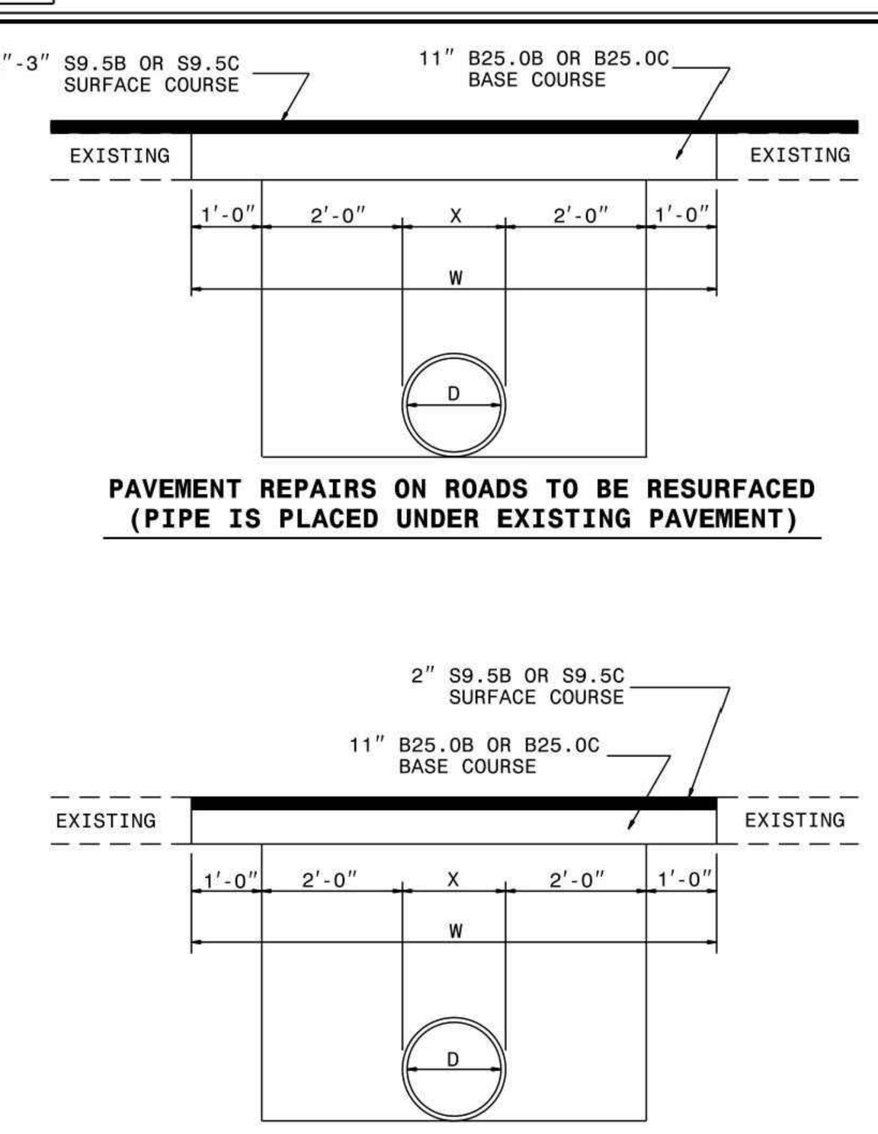
END TREATMENT DIMENSIONS							
D	L	W	T_s	T_b	T_e	A	B
15″	7′-6″	19″	4″	4″	6″	17¾″	20⅞″
18″	9′-0″	23″	4″	4″	6″	21¼″	25″
24″	12′-6″	30″	4″	4″	6″	27⅞″	32″

NOTES:
1. CONSTRUCT PIPE END SECTION USING #4 REBAR SPACED 9″ EACH WAY AND MEET ALL REQUIREMENTS OF STD. SPEC. 310.
2. CHAMFER ALL EXPOSED CORNERS ¾″.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **PARALLEL PIPE END SECTION** PRECAST CONCRETE SECTION FOR 15″ TO 24″ PIPE

SHEET 1 OF 1 — 310.02

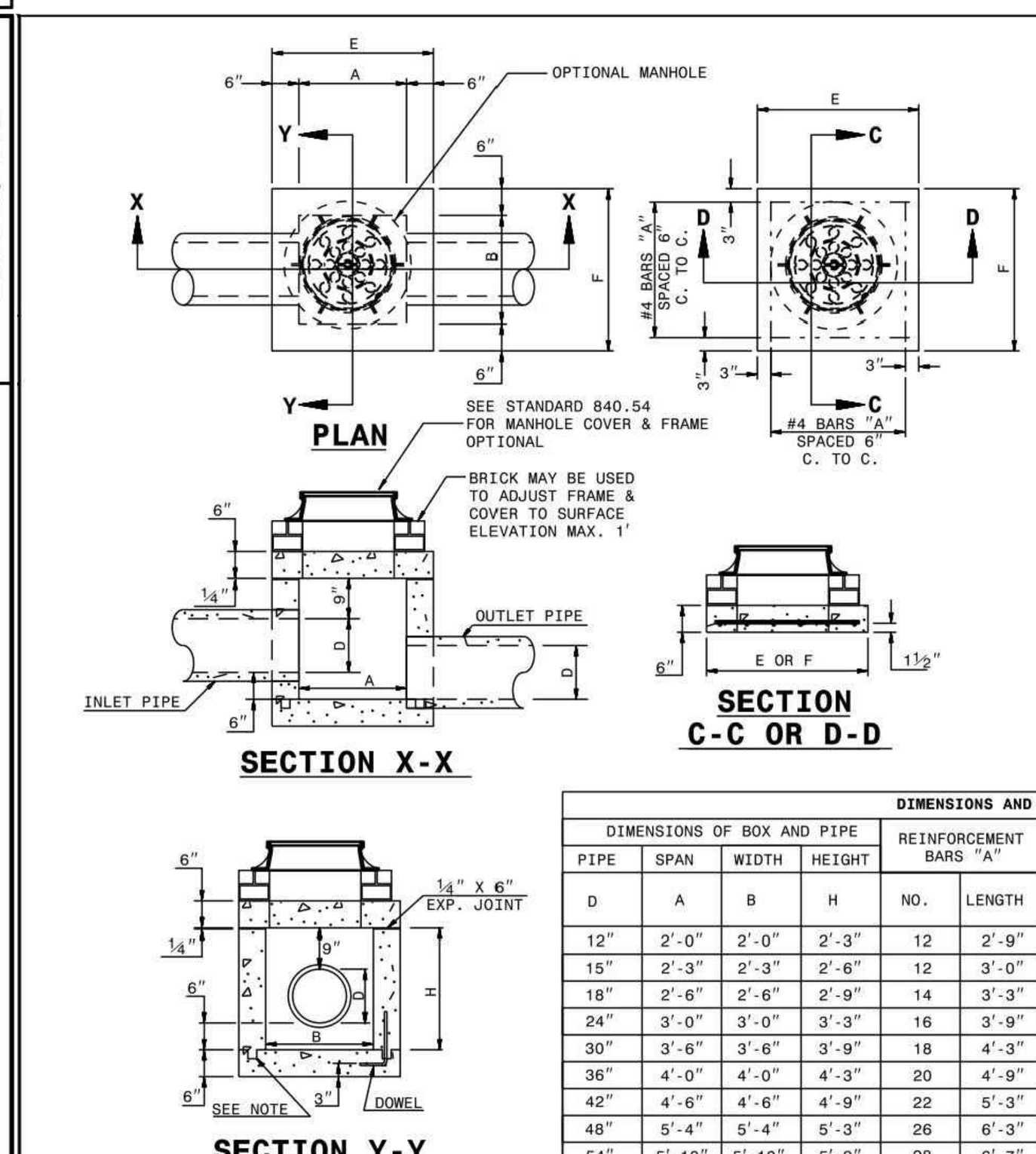


D	X	W
12″	1′-4″	7′-4″
15″	1′-7″	7′-7″
18″	1′-10″	7′-10″
24″	2′-6″	8′-6″
30″	3′-1″	9′-1″
36″	3′-8″	9′-8″
42″	4′-5″	10′-5″
48″	5′-0″	11′-0″

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **PAVEMENT REPAIRS** FOR SUPERPAVE MIX TYPES

SHEET 1 OF 1 — 654.01



GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1″.

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2″ KEYWAY, OR #4 BAR DOWELS AT 12″ CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

PROVIDE ALL JUNCTION BOXES OVER 3′-6″ IN DEPTH WITH STEPS 12″ ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

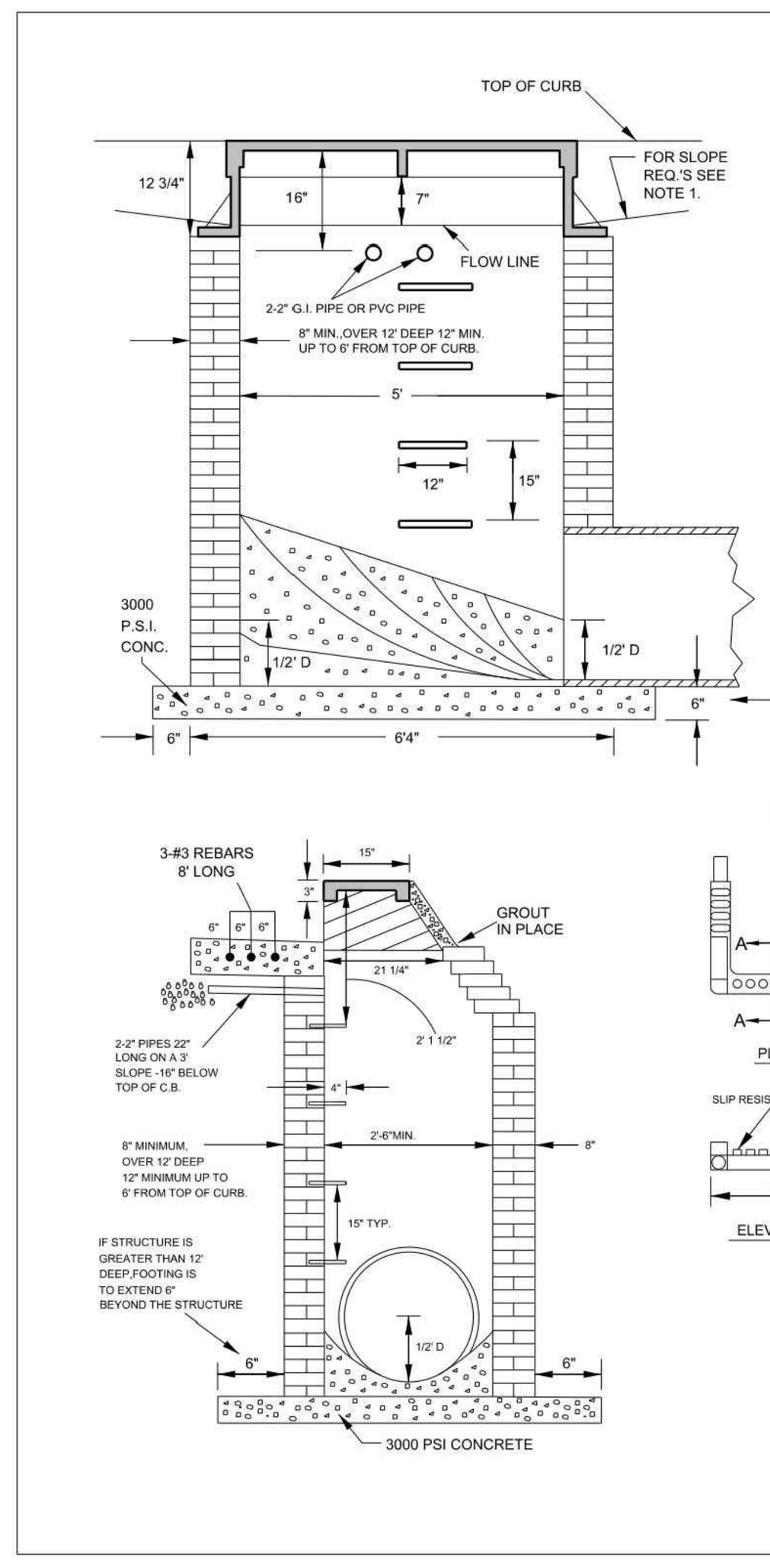
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES														
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
PIPE	SPAN	WIDTH	HEIGHT											
D	A	B	H	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
12″	2′-0″	2′-0″	2′-3″	12	2′-9″	3′-0″	3′-0″	0.167	0.167	0.185	22	0.750	0.015	0.024
15″	2′-3″	2′-3″	2′-6″	12	3′-0″	3′-3″	3′-3″	0.196	0.196	0.204	24	0.902	0.023	0.036
18″	2′-6″	2′-6″	2′-9″	14	3′-3″	3′-6″	3′-6″	0.227	0.227	0.222	30	1.065	0.033	0.049
24″	3′-0″	3′-0″	3′-3″	16	3′-9″	4′-0″	4′-0″	0.296	0.296	0.259	40	1.434	0.059	0.085
30″	3′-6″	3′-6″	3′-9″	18	4′-3″	4′-6″	4′-6″	0.375	0.375	0.296	51	1.860	0.092	0.127
36″	4′-0″	4′-0″	4′-3″	20	4′-9″	5′-0″	5′-0″	0.463	0.463	0.333	64	2.341	0.132	0.178
42″	4′-6″	4′-6″	4′-9″	22	5′-3″	5′-6″	5′-6″	0.560	0.560	0.370	77	2.878	0.180	0.243
48″	5′-4″	5′-4″	5′-3″	26	6′-3″	6′-4″	6′-4″	0.743	0.743	0.407	111	3.623	0.235	0.317
54″	5′-10″	5′-10″	5′-9″	28	6′-7″	6′-10″	6′-10″	0.865	0.865	0.444	126	4.283	0.297	0.401
60″	6′-6″	6′-6″	6′-3″	30	7′-3″	7′-6″	7′-6″	1.042	1.042	0.481	145	5.090	0.367	0.495
66″	7′-1″	7′-1″	6′-9″	32	7′-10″	8′-1″	8′-1″	1.210	1.210	0.518	169	5.917	0.444	0.589

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

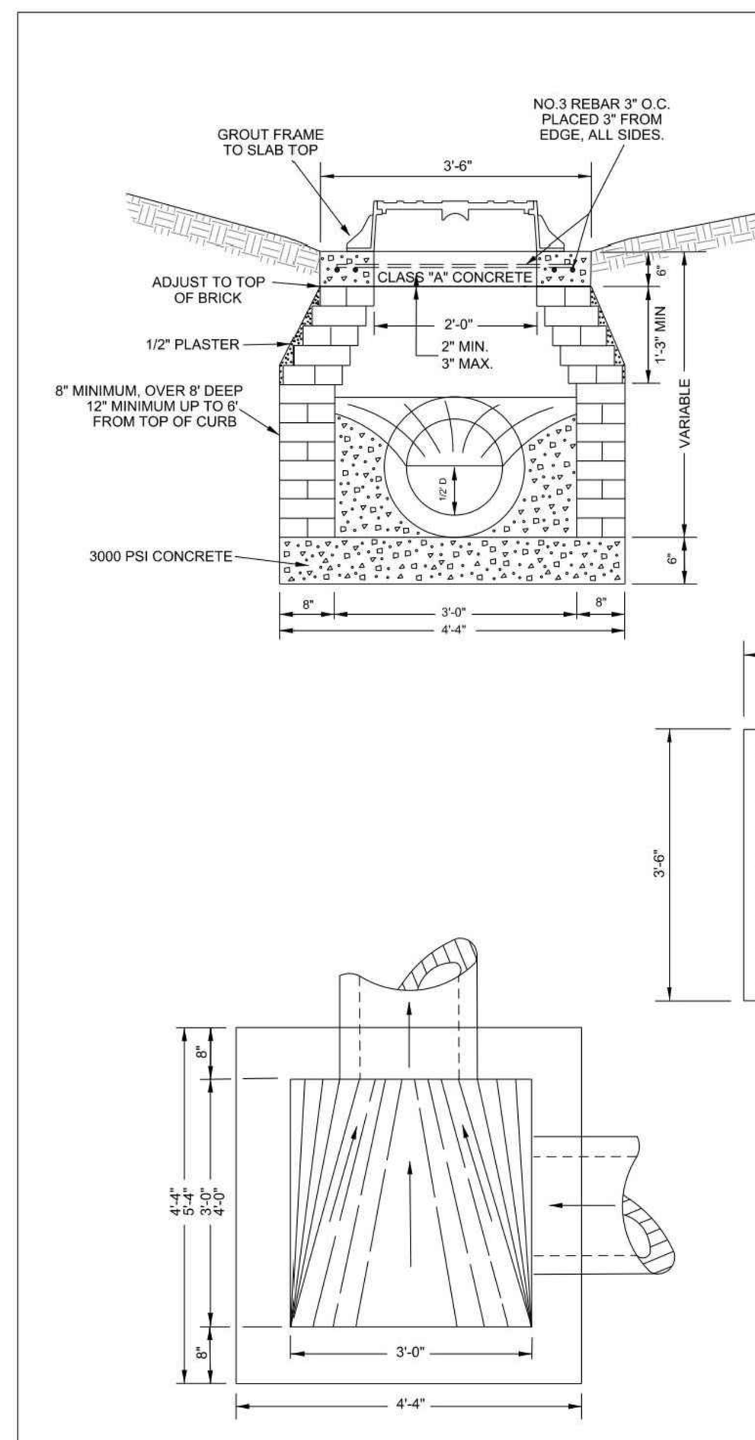
ROADWAY STANDARD DRAWING FOR **CONCRETE JUNCTION BOX** (WITH OPTIONAL MANHOLE) 12″ THRU 66″ PIPE

SHEET 1 OF 1 — 840.31



NOTES:
1. THE SLOPE OF THE GUTTER TO THE CATCH BASIN ON THE UPHILL SIDE SHALL BEGIN 10′ FROM THE CATCH BASIN. THE SLOPE OF THE GUTTER TO THE CATCH BASIN ON THE DOWNHILL SIDE, SHALL BEGIN 10′ FROM THE CATCH BASIN.
2. STEPS SHALL BE INSTALLED IN ALL CATCH BASINS OVER 3′ IN DEPTH. DEPTH SHALL BE MEASURED FROM THE TOP OF CURB TO THE INVERT OF THE CATCH BASIN.
3. SOLID CONCRETE BRICKS MAY BE USED IN 4X4X8 OR 4X8X16 SIZES.
4. NCDOT APPROVED PRECAST CONCRETE BOXES ACCEPTABLE USING STANDARD 5′ CASTINGS.
5. DOMESTIC CASTING REQUIRED WITHIN STREET RIGHT OF WAY.
6. 1″ MAXIMUM EXTENSION OF PIPE INTO THE STORM BOX.

CITY OF RALEIGH STANDARD DETAIL — 5′ CM CATCH BASIN — SW-10.01

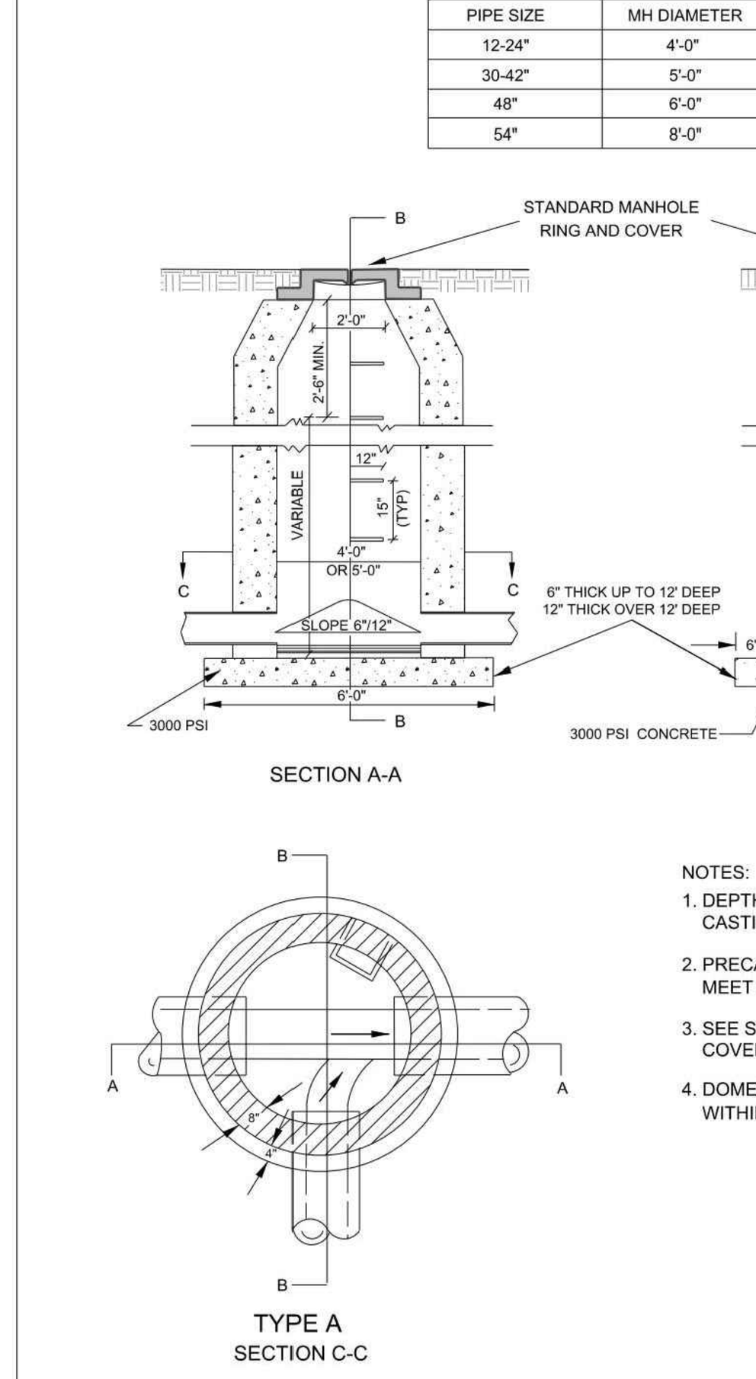


NOTES:
1. FOR 24″ PIPE & LARGER USE PIPE DIAMETER PLUS 12″ FOR MINIMUM INSIDE DIMENSION.
2. USE 4″ X 4″ X 8″ OR 4″ X 8″ X 16″ SOLID CONCRETE BLOCK. CAST IN PLACE OR PRECAST CONCRETE TO MEET NCDOT STANDARDS ACCEPTABLE.
3. FOR STEP REQUIREMENTS, SEE NOTE 4 ON STANDARD DETAIL SW-10.01.

CITY OF RALEIGH STANDARD DETAIL — STANDARD JUNCTION BOX — SW-10.04

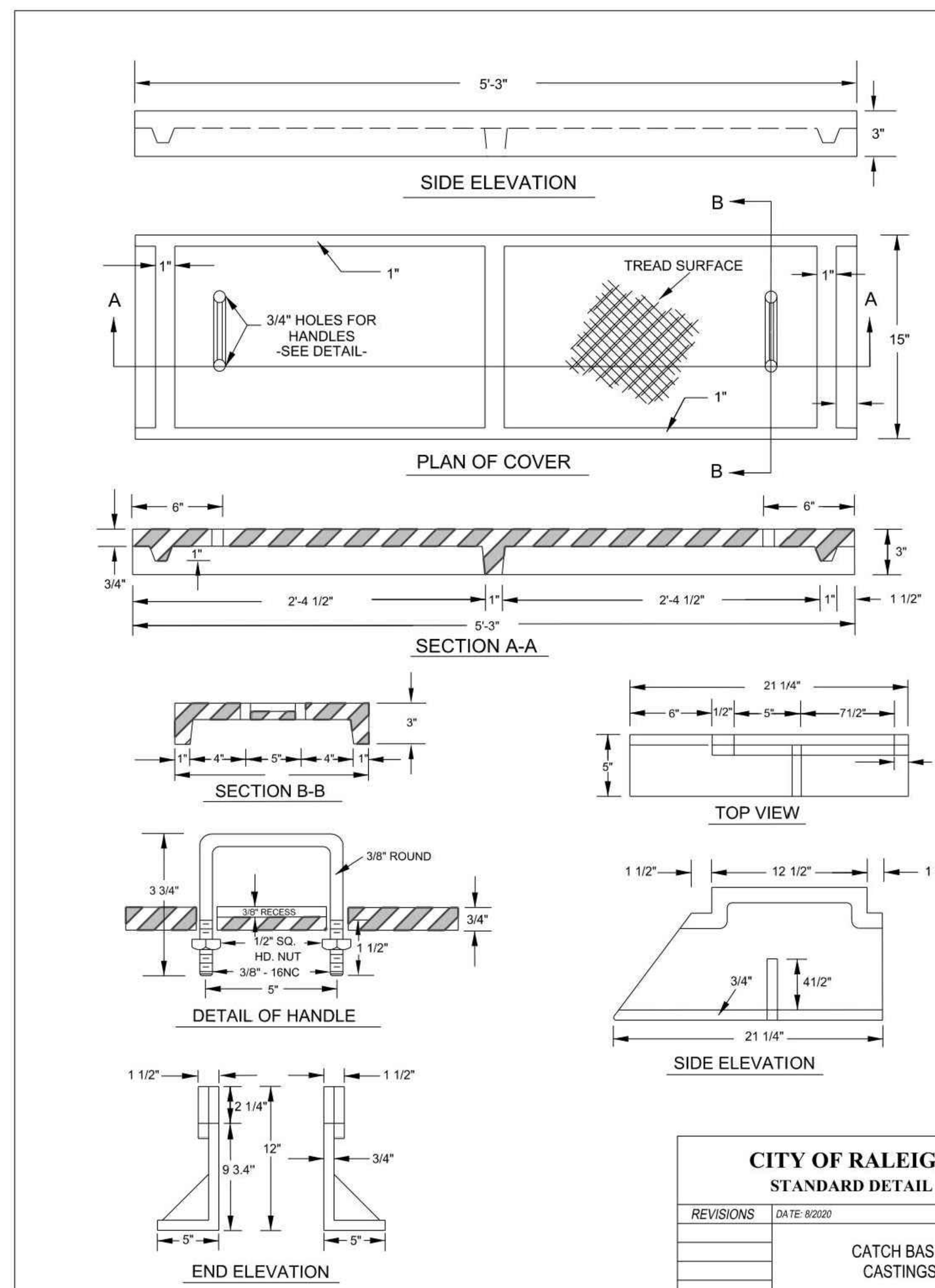
TYPICAL MH FOR STORM SEWER

PIPE SIZE	MH DIAMETER
12-24″	4′-0″
30-42″	5′-0″
48″	6′-0″
54″	8′-0″

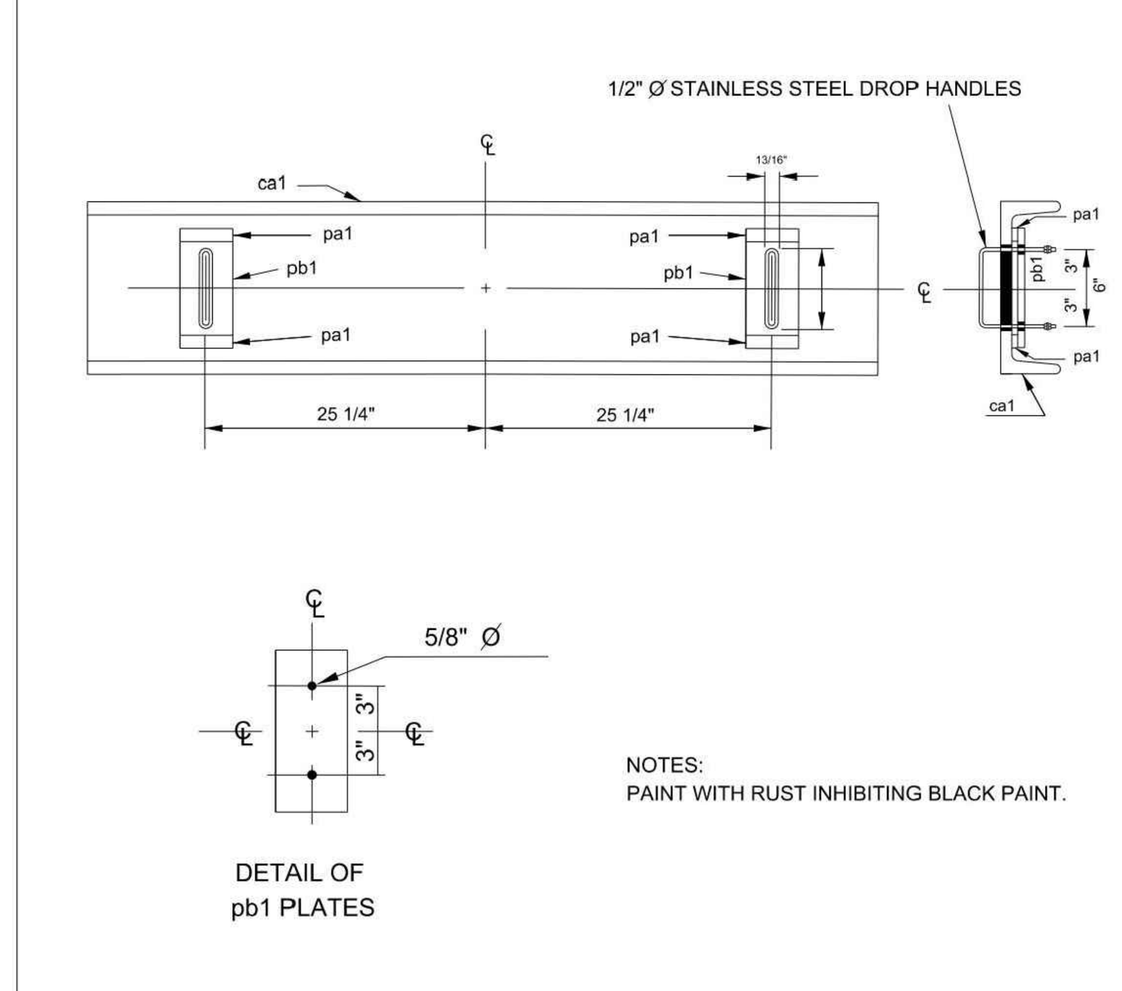


NOTES:
1. DEPTH MEASURED FROM TOP OF CASTING TO INVERT OF MANHOLE.
2. PRECAST MANHOLE COMPONENTS SHALL MEET ASTM-C-478 REQUIREMENTS.
3. SEE STANDARD, SW-10.10 FOR MANHOLE COVER DETAIL.
4. DOMESTIC CASTINGS REQUIRED WITHIN STREET RIGHT-OF-WAY.

CITY OF RALEIGH STANDARD DETAIL — STANDARD CLASS "A" MANHOLE — SW-10.05



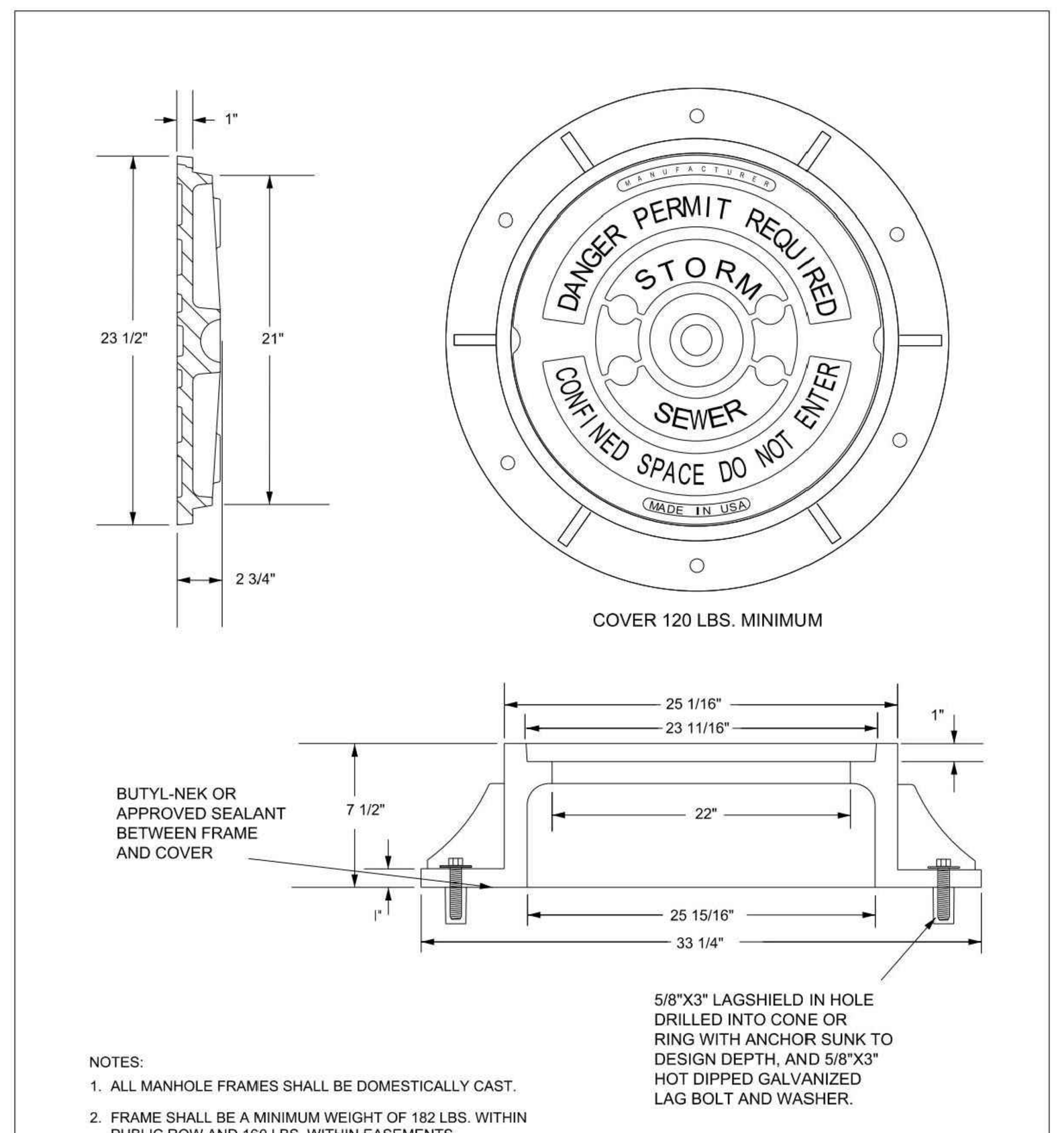
CITY OF RALEIGH STANDARD DETAIL — CATCH BASIN CASTINGS — SW-10.06.1



NOTES:
PAINT WITH RUST INHIBITING BLACK PAINT.

BILL OF MATERIAL		
MATERIAL LIST FOR ONE UNIT - MAKE (UNITS)		
1	C15 X 33.9# CHANNEL 42 1/2″	MK-ca1
2	1/8″ X 1″ H.R. FLAT BAR 8″	MK-pa1
3	3/8″ X 3″ H.R. FLAT BAR 10″	MK-pb1
4	1/2″ STAINLESS STEEL ROUND ROD 18″	
5	1/2″ STAINLESS STEEL HEX NUTS	
6	1/2″ STAINLESS STEEL FLAT WASHERS	

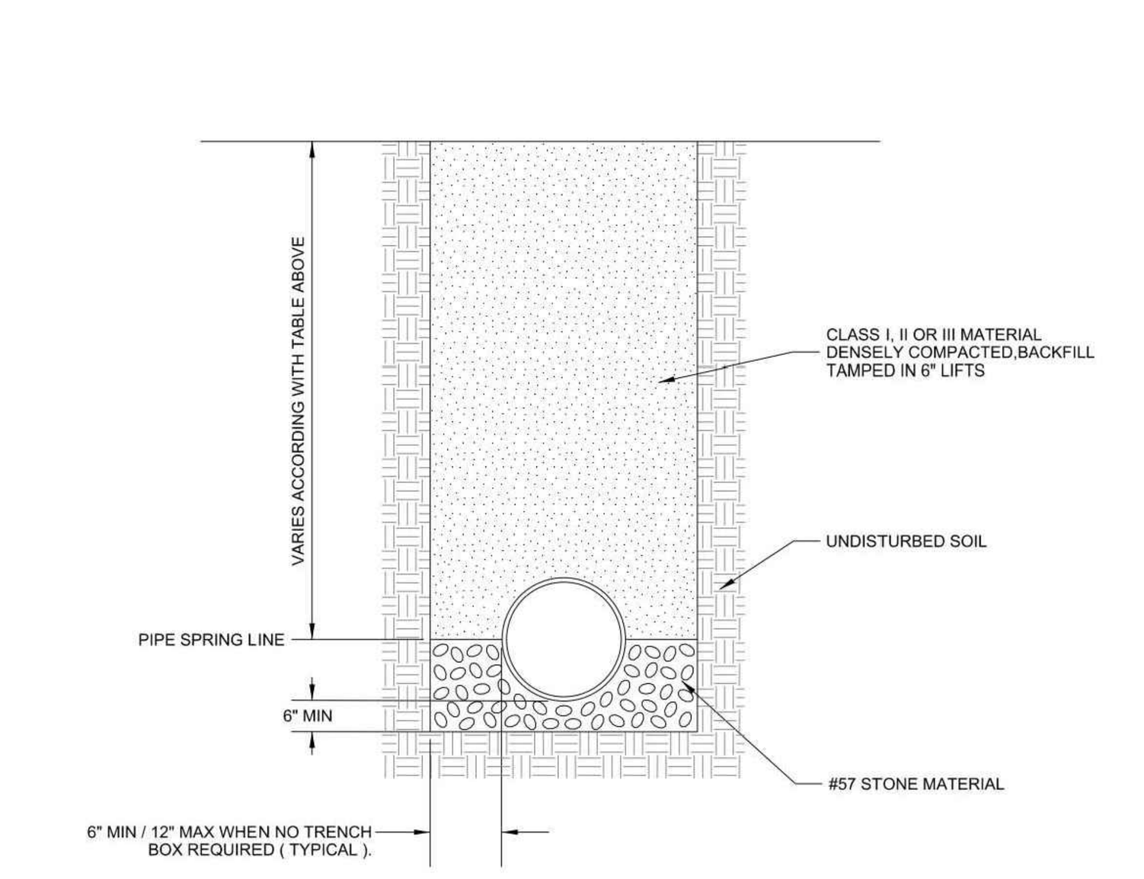
CITY OF RALEIGH STANDARD DETAIL — CATCH BASIN STEEL TOP — SW-10.07



NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS. WITHIN PUBLIC ROW AND 160 LBS. WITHIN EASEMENTS.
3. COVER SHALL WEIGH A MINIMUM OF 120 LBS.
4. ALL MANHOLE FRAMES OUTSIDE OF PAVED SURFACE SHALL BE BOLTED TO THE CONE SECTION OR RING WITH A MINIMUM OF 4 BOLTS PER FRAME.

CITY OF RALEIGH STANDARD DETAIL — STANDARD STORM MANHOLE COVER — SW-10.10

COVER FOR PIPES WITHIN THE R.O.W. MINIMUM PIPE CLEARANCE FROM INVERT TO SUBGRADE	
PIPE SIZE (in)	CLEARANCE DISTANCE (ft)
15	2.4
18	2.7
24	3.3
30	3.6
36	4.4
42	4.9
48	5.4
54	6.0
60	6.5
66	7.0
72	7.6



CITY OF RALEIGH STANDARD DETAIL — BEDDING FOR STORMWATER RCP PIPES — SW-10.14

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MODERA CAPITAL CITY

PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO. DATE

PLAN INFORMATION

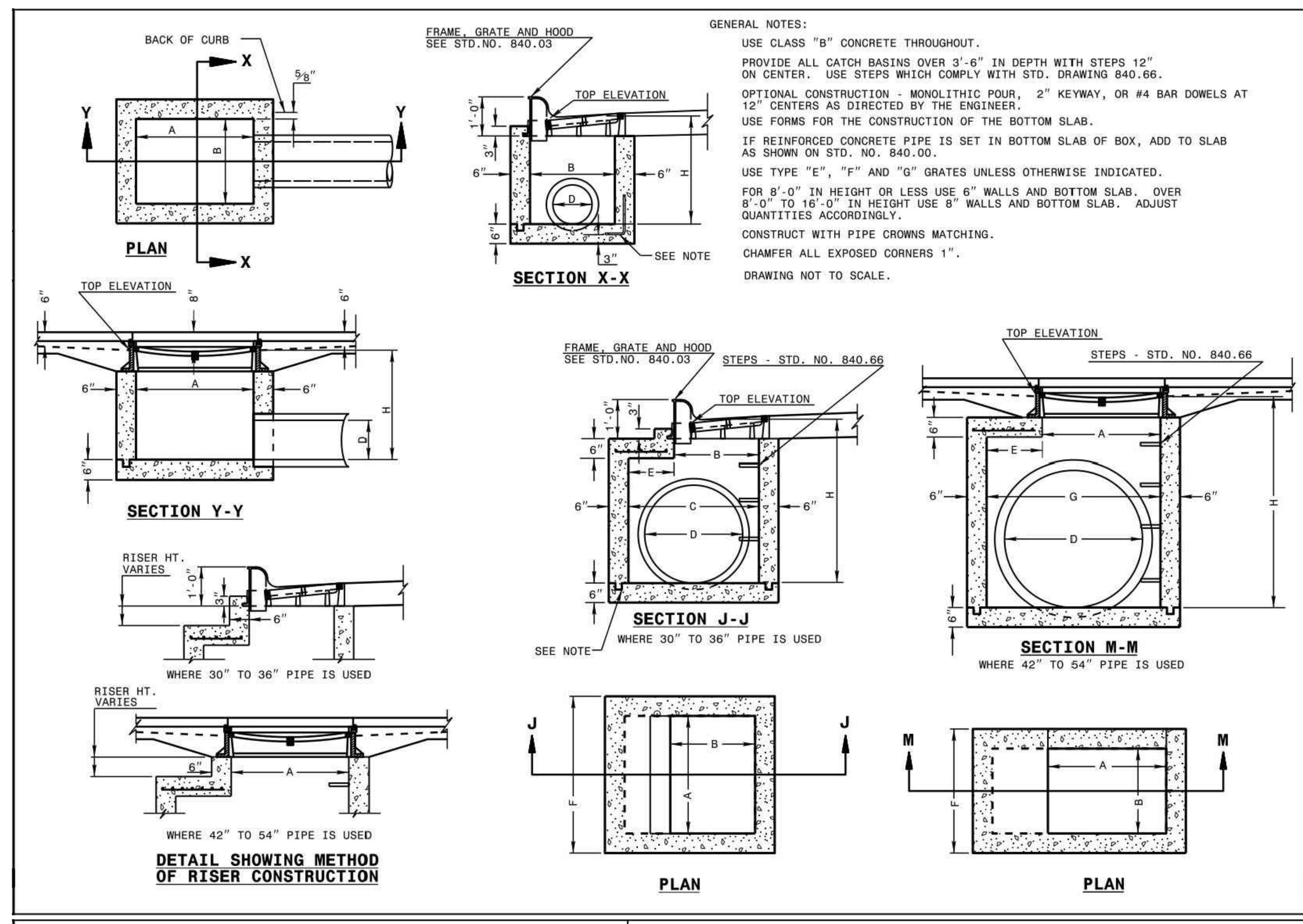
PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

STORM DETAILS

C8.03

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

CONSTRUCT WITH PIPE CROWNS MATCHING.

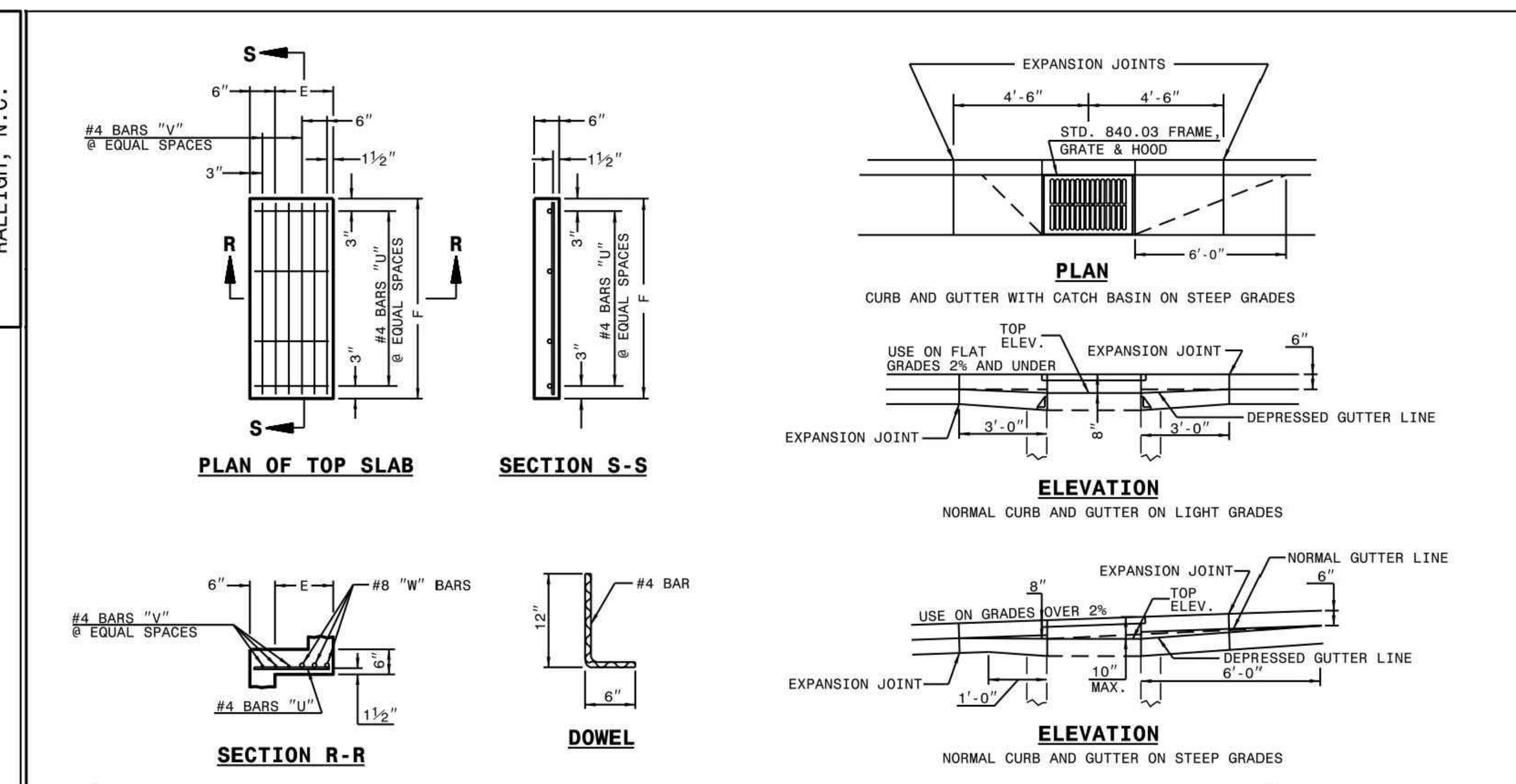
CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **CONCRETE CATCH BASIN** 12" THRU 54" PIPE

SHEET 1 OF 2 **840.02**



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

DIMENSIONS OF BOX AND PIPE						COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL LBS.	CU.YDS. CONC. IN BOX			DEDUCTIONS ONE PIPE	
PIPE D	SPAN A	WIDTH B	WIDTH C	SPAN G	MIN. HEIGHT H	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH		TOP SLAB	BOTTOM SLAB	TOT. CONC. FOR MINIMUM HEIGHT, H	C.M.	R.C.
12"	3'-0"	2'-2"	--	--	2'-9"	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"			3'-0"											0.235	0.829	0.023	0.036
18"	3'-0"	2'-2"			3'-3"											0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"			3'-9"											0.235	1.001	0.059	0.085
30"	3'-0"	2'-2"	3'-4"		4'-3"	1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.123	0.321	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"		4'-9"	1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178
42"	3'-0"	2'-2"		4'-5"	5'-3"	1'-5"	3'-2"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.738	0.180	0.243
48"	3'-0"	2'-2"		5'-0"	5'-9"	2'-0"	3'-2"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317
54"	3'-0"	2'-2"		5'-7"	6'-3"	2'-7"	3'-2"	4	2'-10"	5	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401

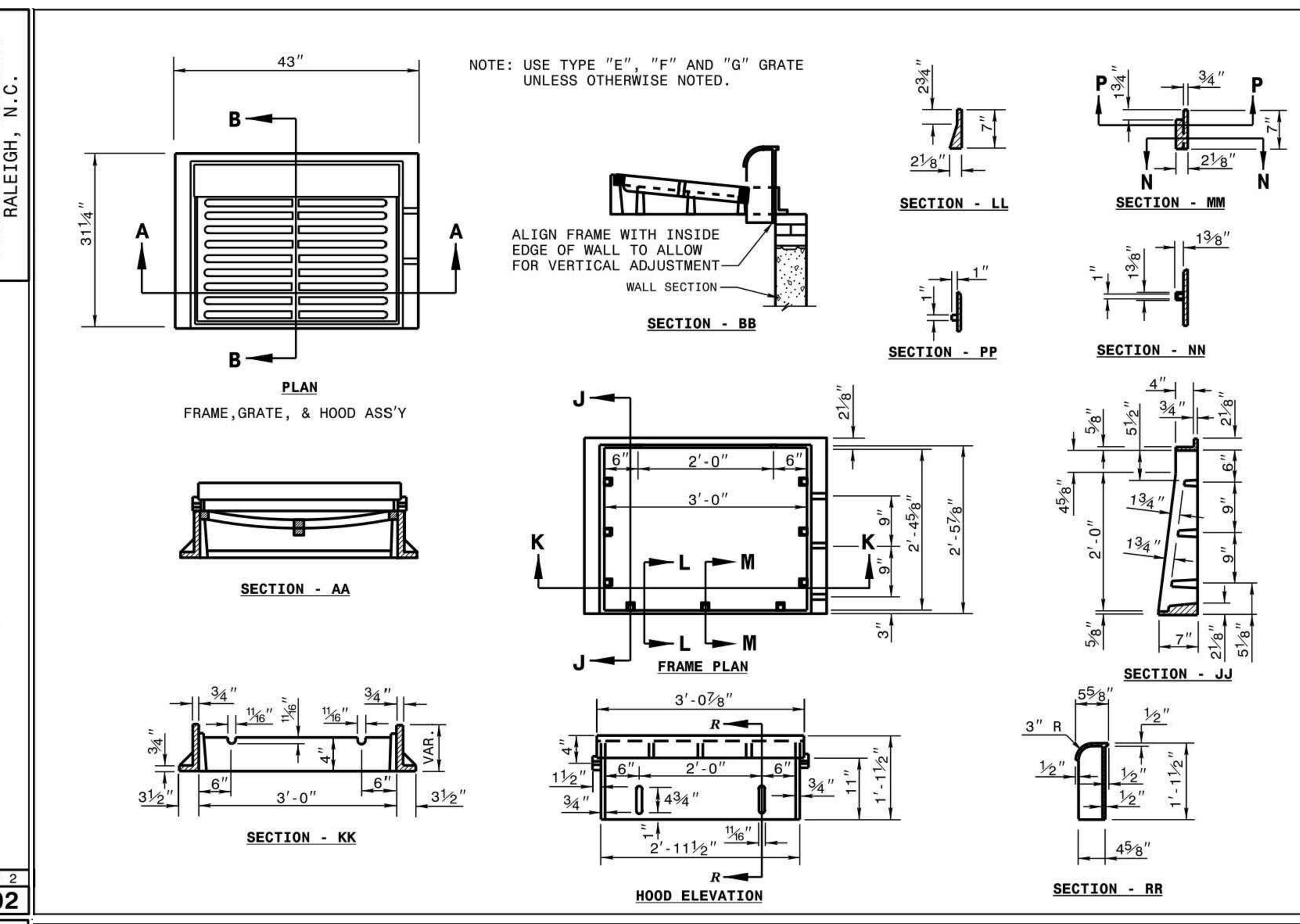
* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **CONCRETE CATCH BASIN** 12" THRU 54" PIPE

SHEET 2 OF 2 **840.02**

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

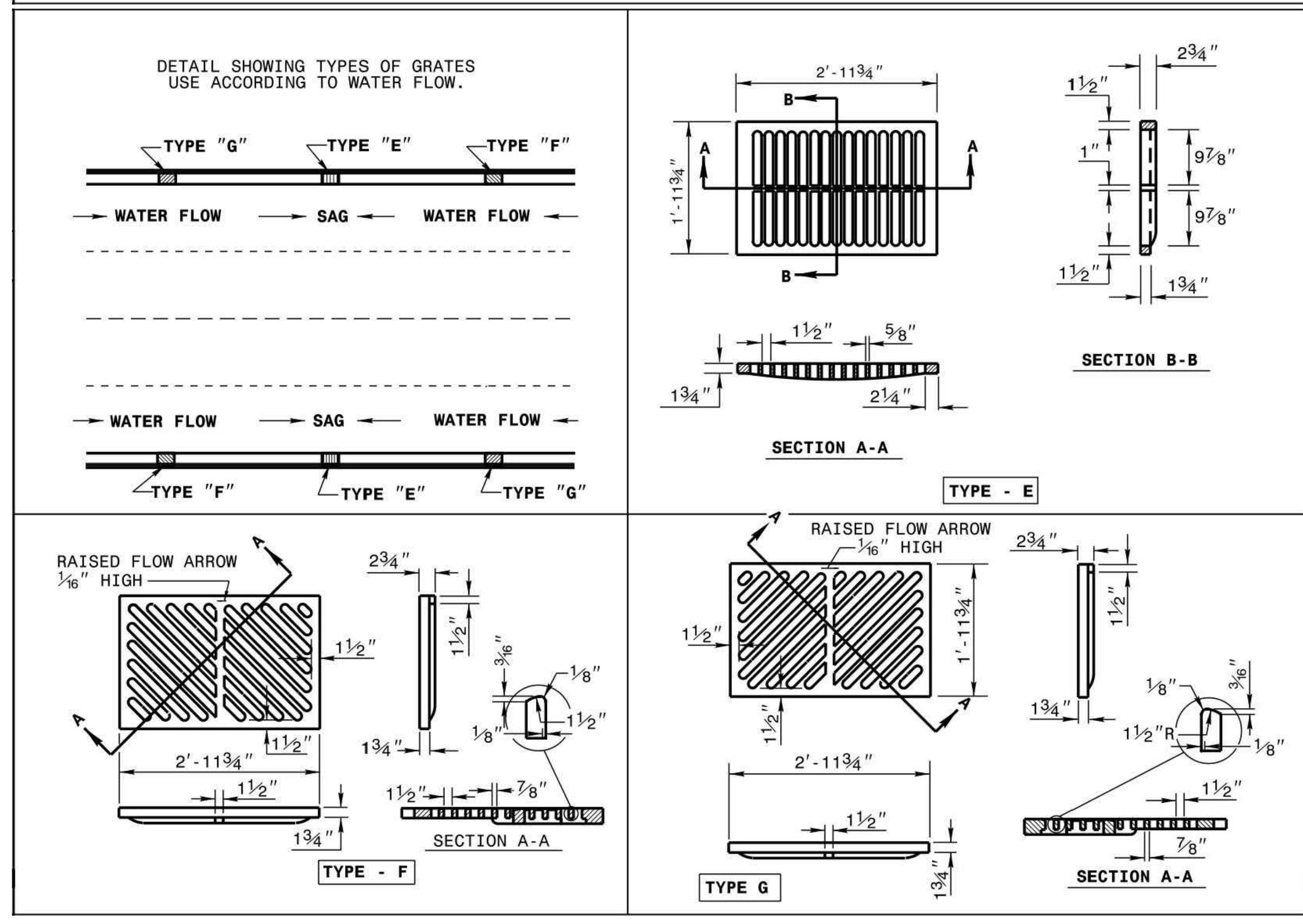


1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **FRAME, GRATES, AND HOOD** FOR USE ON STANDARD CATCH BASIN

SHEET 1 OF 1 **840.03**

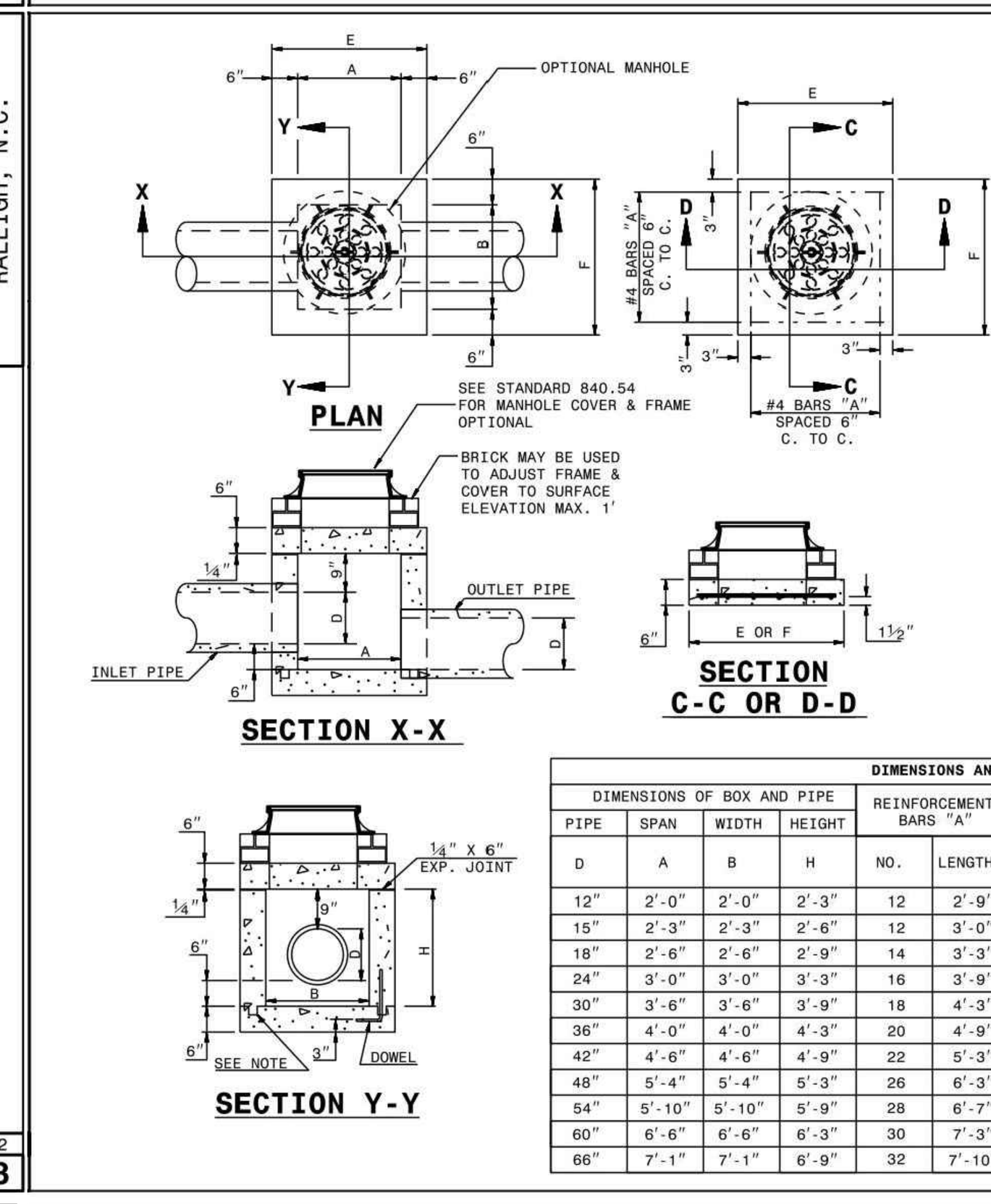
DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **FRAME, GRATES, AND HOOD** FOR USE ON STANDARD CATCH BASIN

SHEET 1 OF 1 **840.03**



GENERAL NOTES:

CHAMFER ALL EXPOSED CORNERS 1".

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS TO CONSTRUCT THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.

PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.

ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SHORTENED AROUND OPENING IN TOP SLAB, ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.)

MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

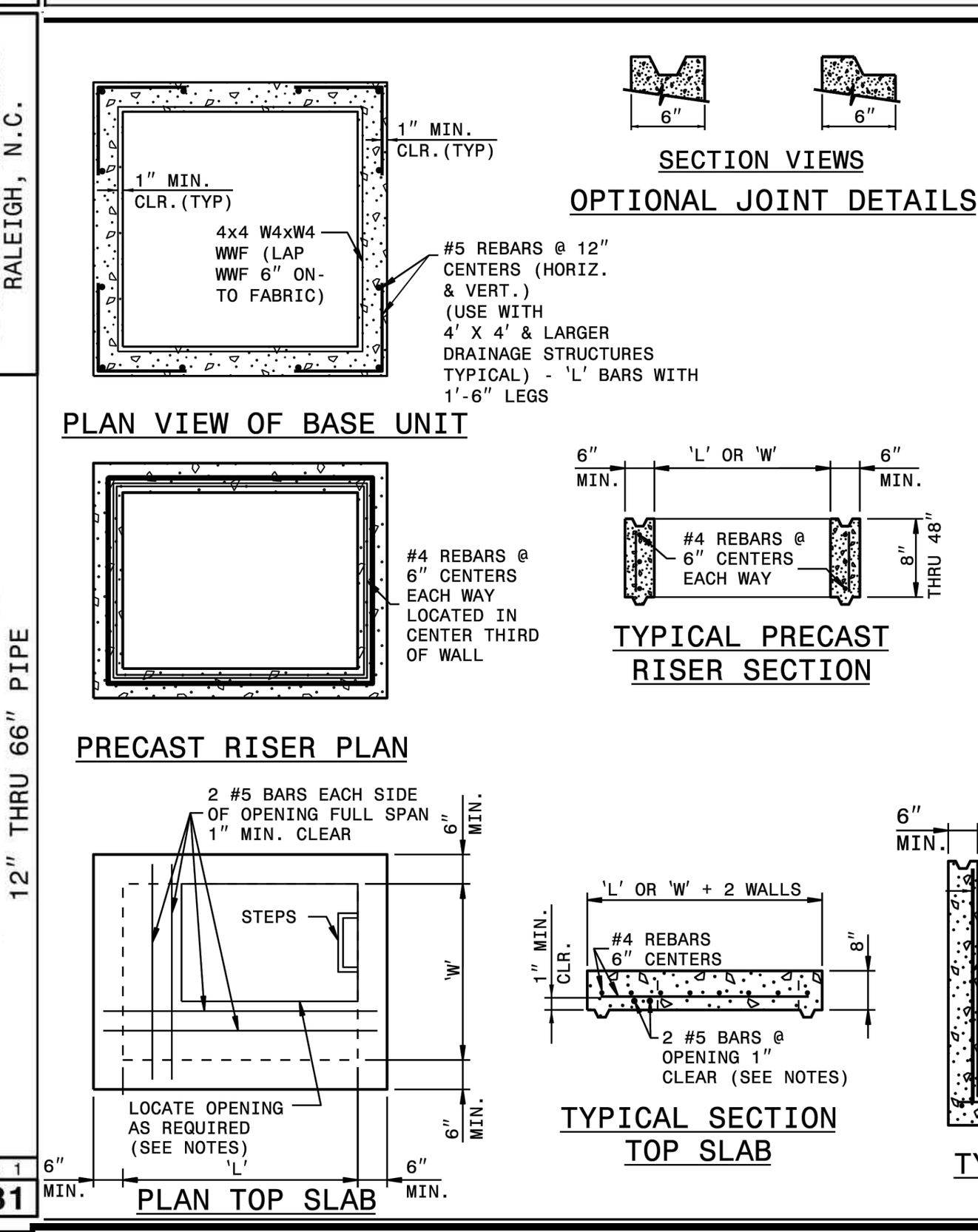
DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
PIPE D	SPAN A	WIDTH B	HEIGHT H	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.495
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.589

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **CONCRETE JUNCTION BOX** (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE

SHEET 1 OF 1 **840.31**



GENERAL NOTES:

- THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.04, 840.05, 840.14, 840.15, 840.31, 840.32, 840.34, 840.35, 840.36 AND 840.41.
- INSTALL AND PAY FOR PRECAST DRAINAGE STRUCTURES IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATION SECTION 840.
- USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.
- USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1064 WELDED WIRE FABRIC (WWF).
- LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB TO 15'-0".
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- ORIENT STRUCTURES SO THAT CORNERS WILL NOT BE CUT OR MODIFIED UNLESS ALLOWED BY DETAIL IN PLANS.
- PRECAST ALL ELEMENTS TO MEET ASTM C913.
- FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR IF THE SAME MIN. AREA OF STEEL IS PROVIDED.
- SEAL JOINTS WITH AN APPROVED SEALANT (SEE SECTION 840 OF NCDOT STANDARD SPECIFICATIONS.
- LIMIT MAXIMUM STRUCTURE SIZE INSIDE CLEAR DIMENSIONS TO 6'-0" X 6'-0".
- THE OUTSIDE PIPE DIAMETER PLUS 2" IS THE MINIMUM STRUCTURE SIZE OR THE OPENING REQUIRED FOR GRATE AND FRAME WHICHEVER IS GREATER.
- ROUND MANHOLE MAY BE USED IN LIEU OF SQUARE PROVIDED 2 EXTRA #5'S ARE PLACED ON EVERY SIDE NOT ADJACENT TO A WALL. SEE STD. DWG. 840.34 FOR MANHOLE INSTALLATION.

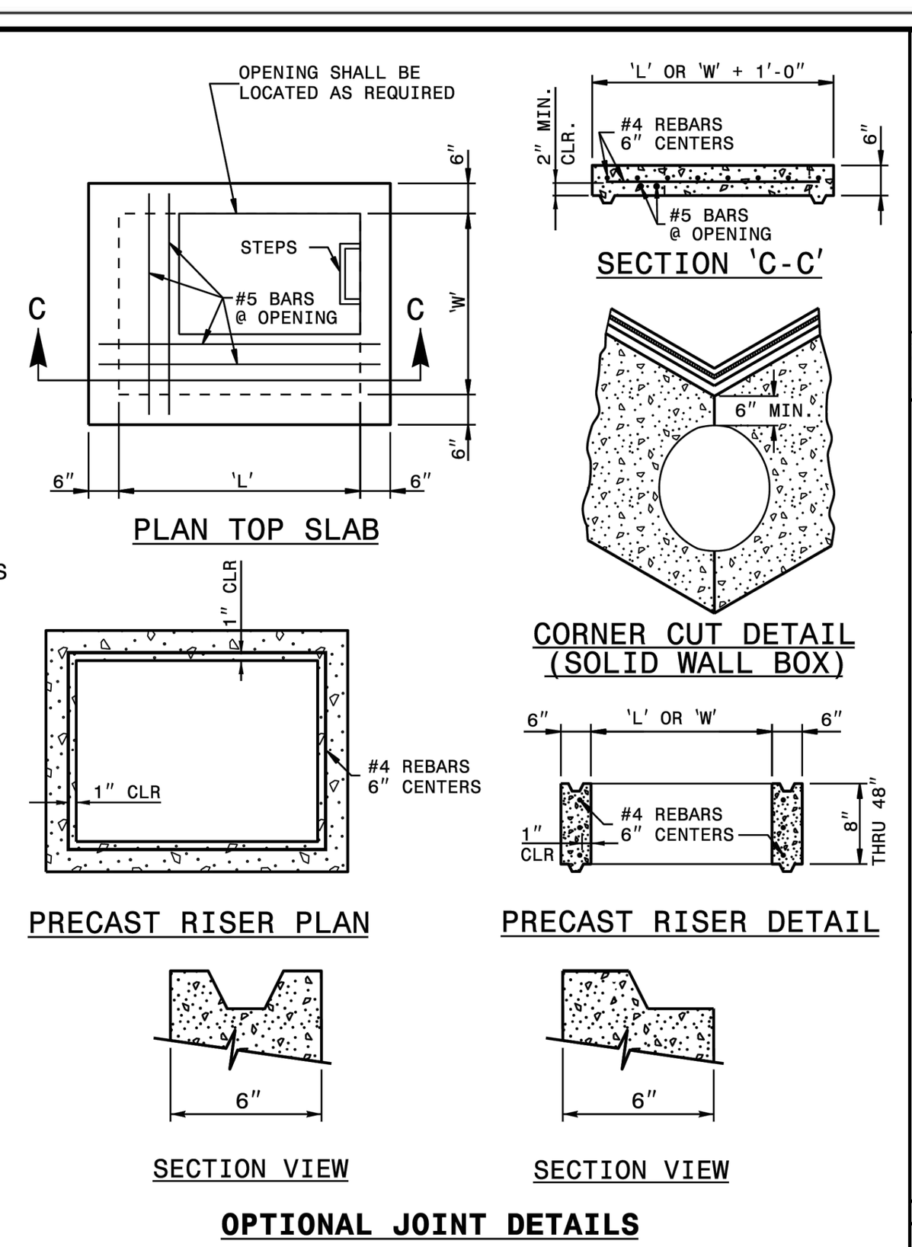
1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE**

SHEET 1 OF 1 **840.46**

GENERAL NOTES:

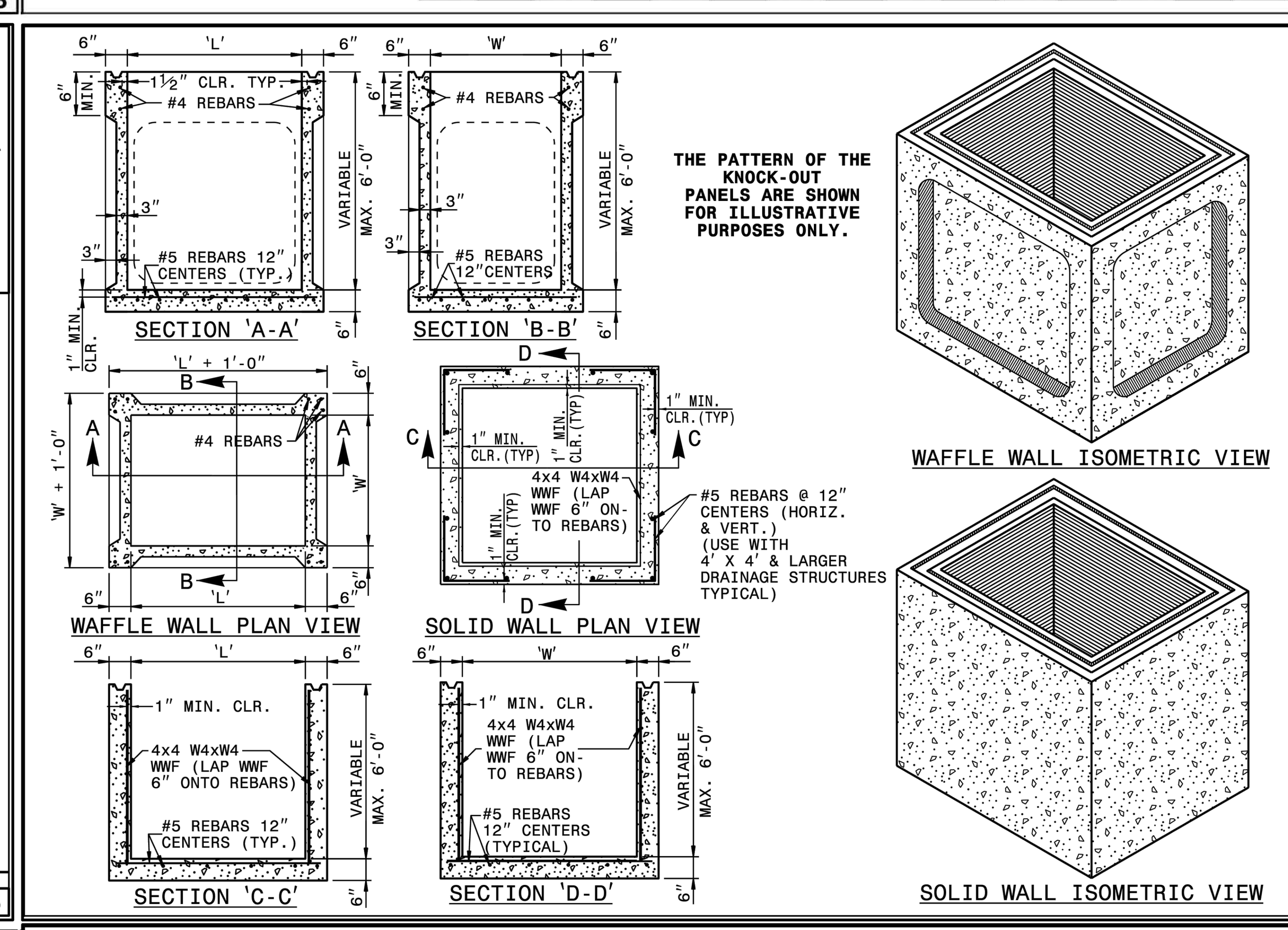
- THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.02, 840.04, 840.05, 840.13, 840.14, 840.15, 840.17, 840.18, 840.19, 840.26, 840.27, 840.28, 840.31, 840.32 AND 840.41.
- INSTALL PRECAST DRAINAGE STRUCTURES AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 840.
- DO NOT PLACE PRECAST DRAINAGE STRUCTURES UNDER TRAFFIC OR WHERE TRAFFIC WILL BE DETOURED.
- USE 4000 PSI CONCRETE.
- PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
- LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
- PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
- CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCKOUT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
- ALL ELEMENTS PRECAST TO MEET ASTM C913.
- FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
- PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
- WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-198, TYPE B - BUTYL RUBBER.
- LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 5'-0" X 5'-0".
- THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
- USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **PRECAST DRAINAGE STRUCTURE** (GENERAL NOTES AND DETAILS)

SHEET 2 OF 2 **840.45**



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **PRECAST DRAINAGE STRUCTURE** (SOLID AND WAFFLE WALL)

SHEET 1 OF 2 **840.45**

GENERAL NOTES

USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.

USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1064 WELDED WIRE FABRIC (WWF).

FABRICATE, ASSEMBLE AND DESIGN PRECAST MANHOLE COMPONENTS ACCORDANCE WITH AASHTO M199.

ASSEMBLE RISER AND GRADE RINGS WITH THE STEPS SPACED 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.

WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND AND A MINIMUM OF 9" ABOVE THE GROUND AT OTHER LOCATIONS.

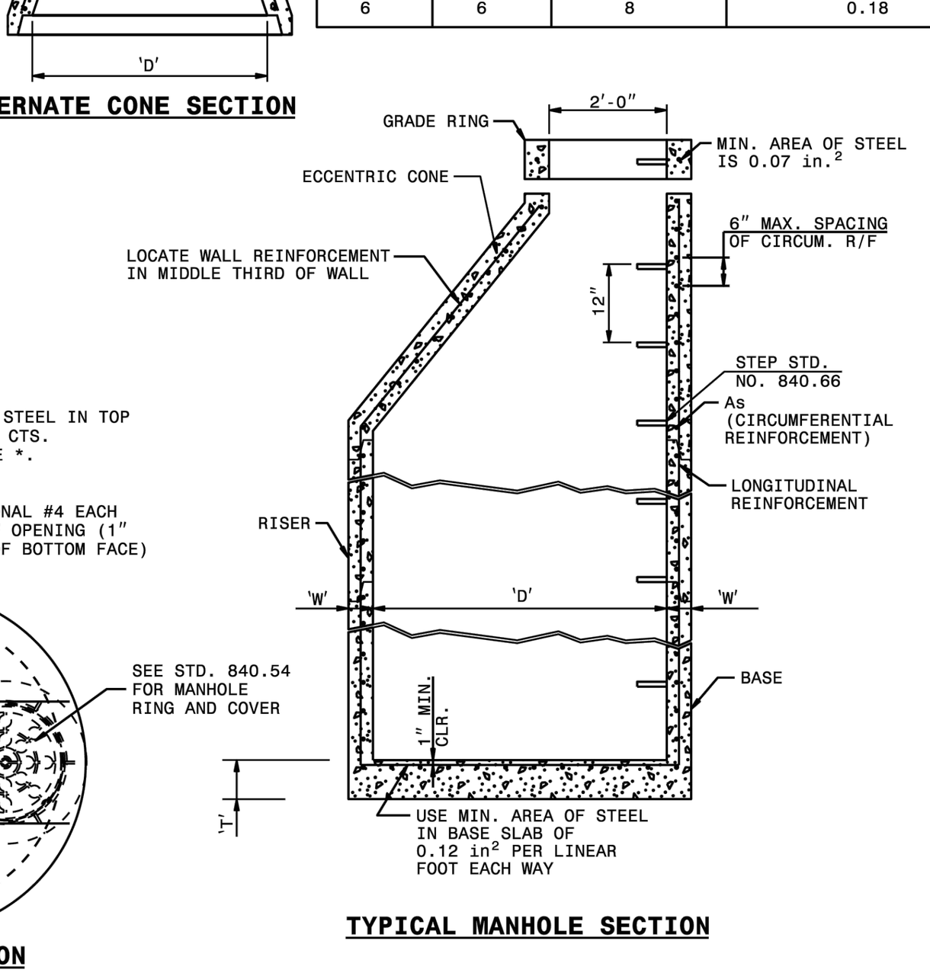
LIMIT DEPTH OF FILL TO 30'-0" FROM FINISH GRADE TO TOP OF BOTTOM SLAB.

THE MIN. SLAB THICKNESS 'T' IS THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.

* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
4	4	6	0.12
5	5	8	0.15
6	6	8	0.18

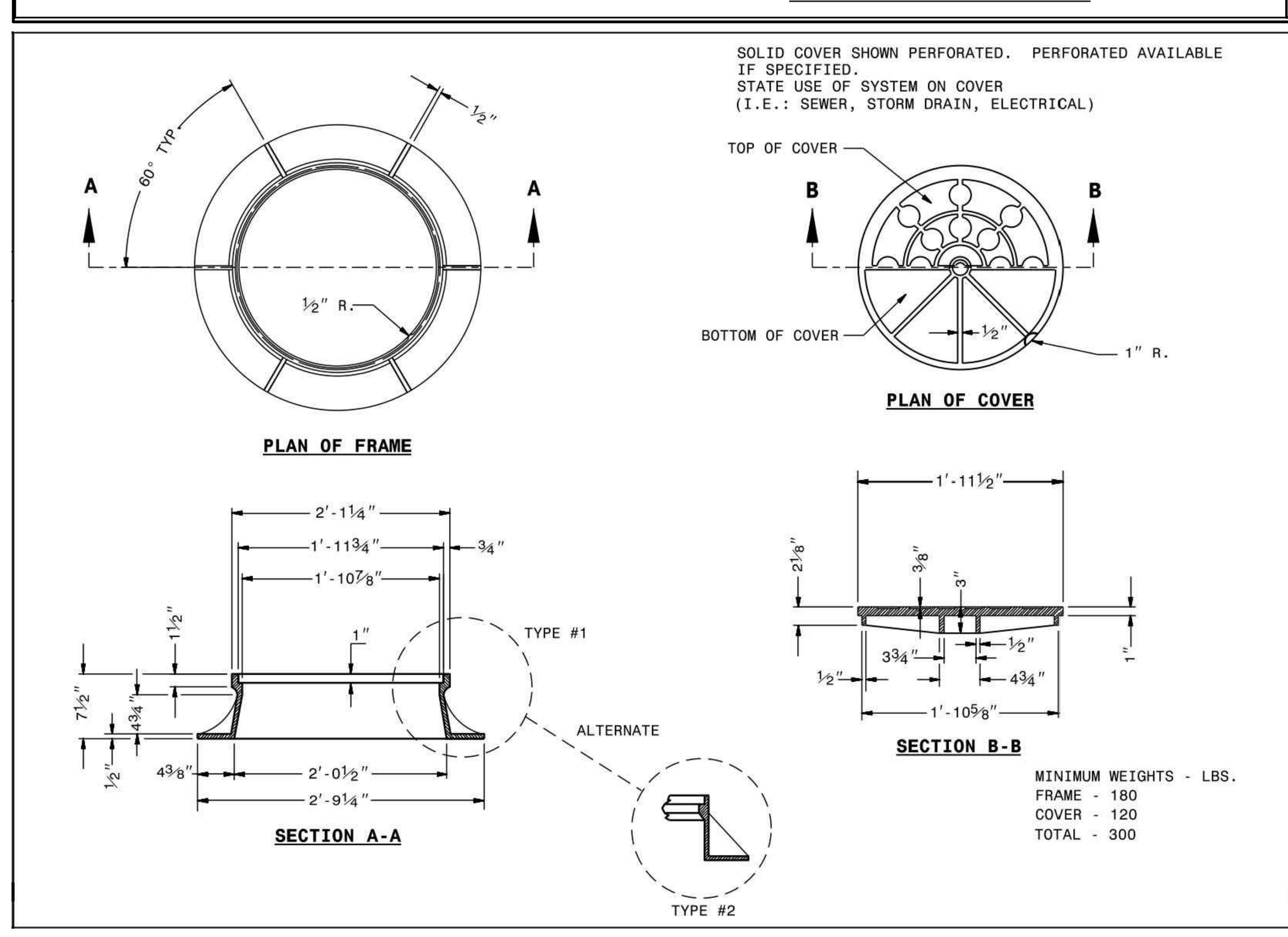
FRAME AND GRATES	STD. NO.
TRAFFIC BEARING	840.37
NONTRAFFIC BEARING:	840.22
	840.24
	840.20
	840.29
	840.33



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **PRECAST MANHOLE 4', 5' AND 6' DIAMETER** 12" THRU 48" PIPE

SHEET 1 OF 1 **840.52**

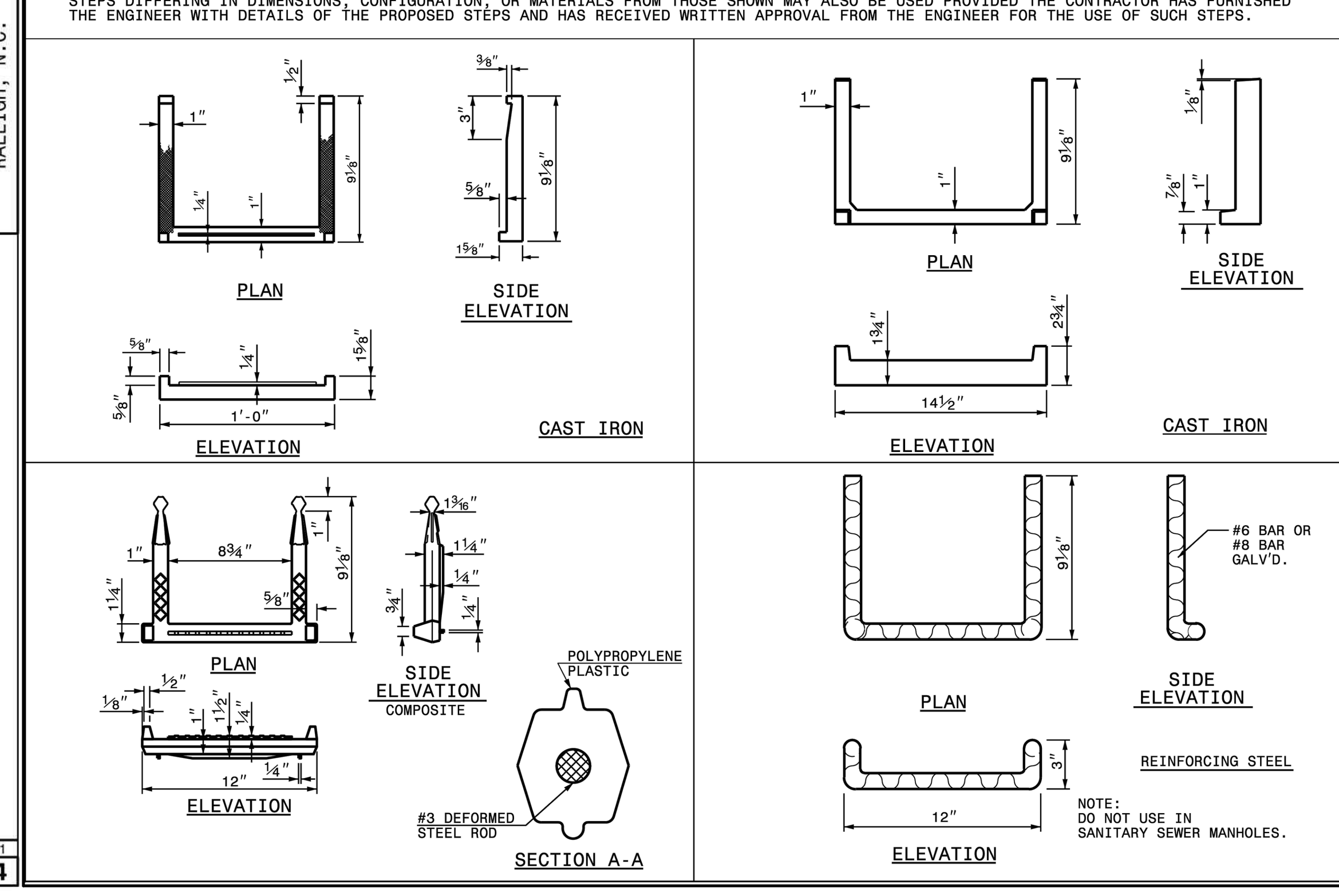


1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **MANHOLE FRAME AND COVER**

SHEET 1 OF 1 **840.54**

NOTES:
INSTALL ALL STEPS PROTRUDING 4" FROM INSIDE FACE OF STRUCTURE WALL.
STEPS DIFFERING IN DIMENSIONS, CONFIGURATION, OR MATERIALS FROM THOSE SHOWN MAY ALSO BE USED PROVIDED THE CONTRACTOR HAS FURNISHED THE ENGINEER WITH DETAILS OF THE PROPOSED STEPS AND HAS RECEIVED WRITTEN APPROVAL FROM THE ENGINEER FOR THE USE OF SUCH STEPS.



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **DRAINAGE STRUCTURE STEPS**

SHEET 1 OF 1 **840.66**

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MILL CREEK RESIDENTIAL

MODERA CAPITAL CITY

PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO. DATE

PLAN INFORMATION

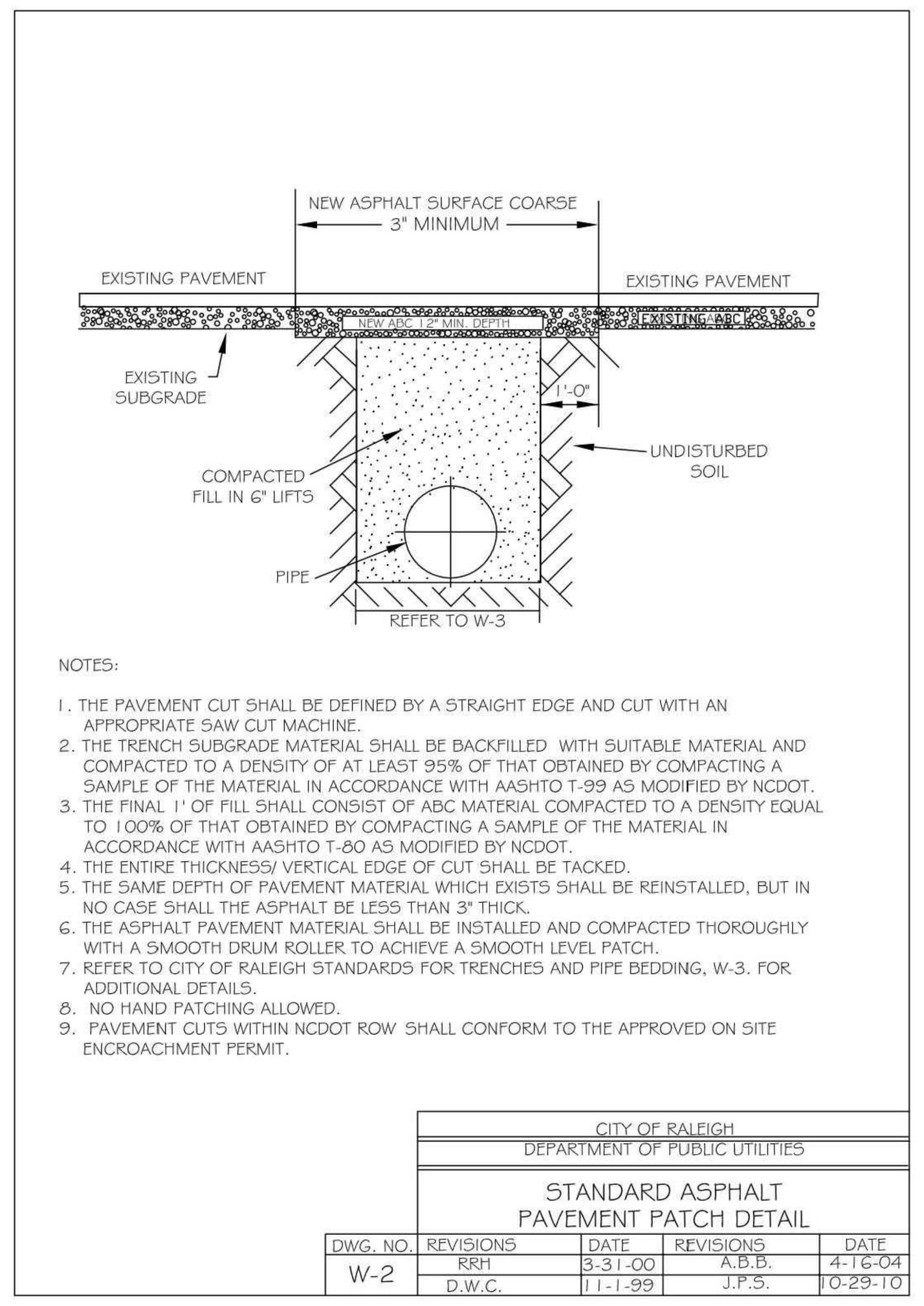
PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

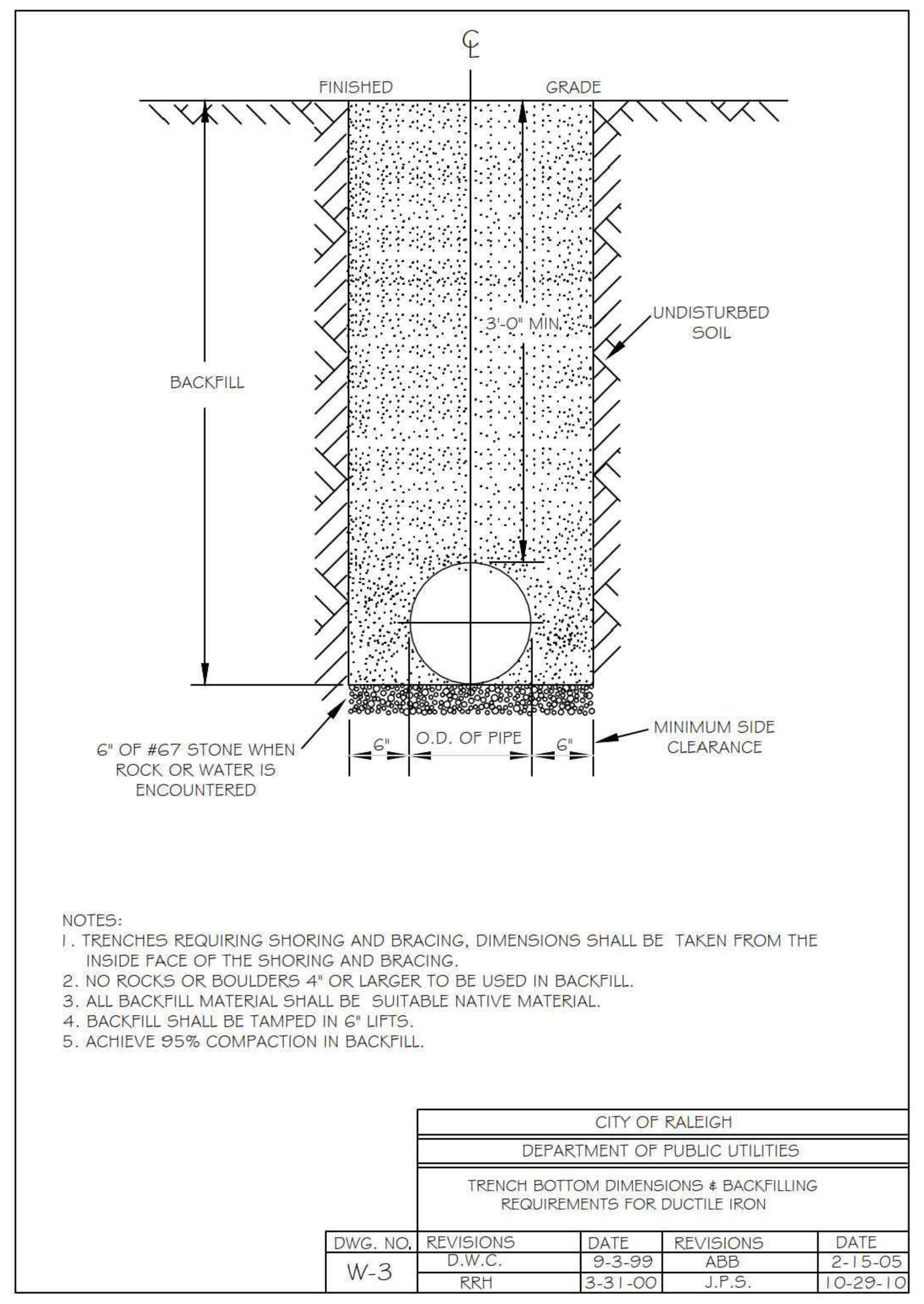
SHEET

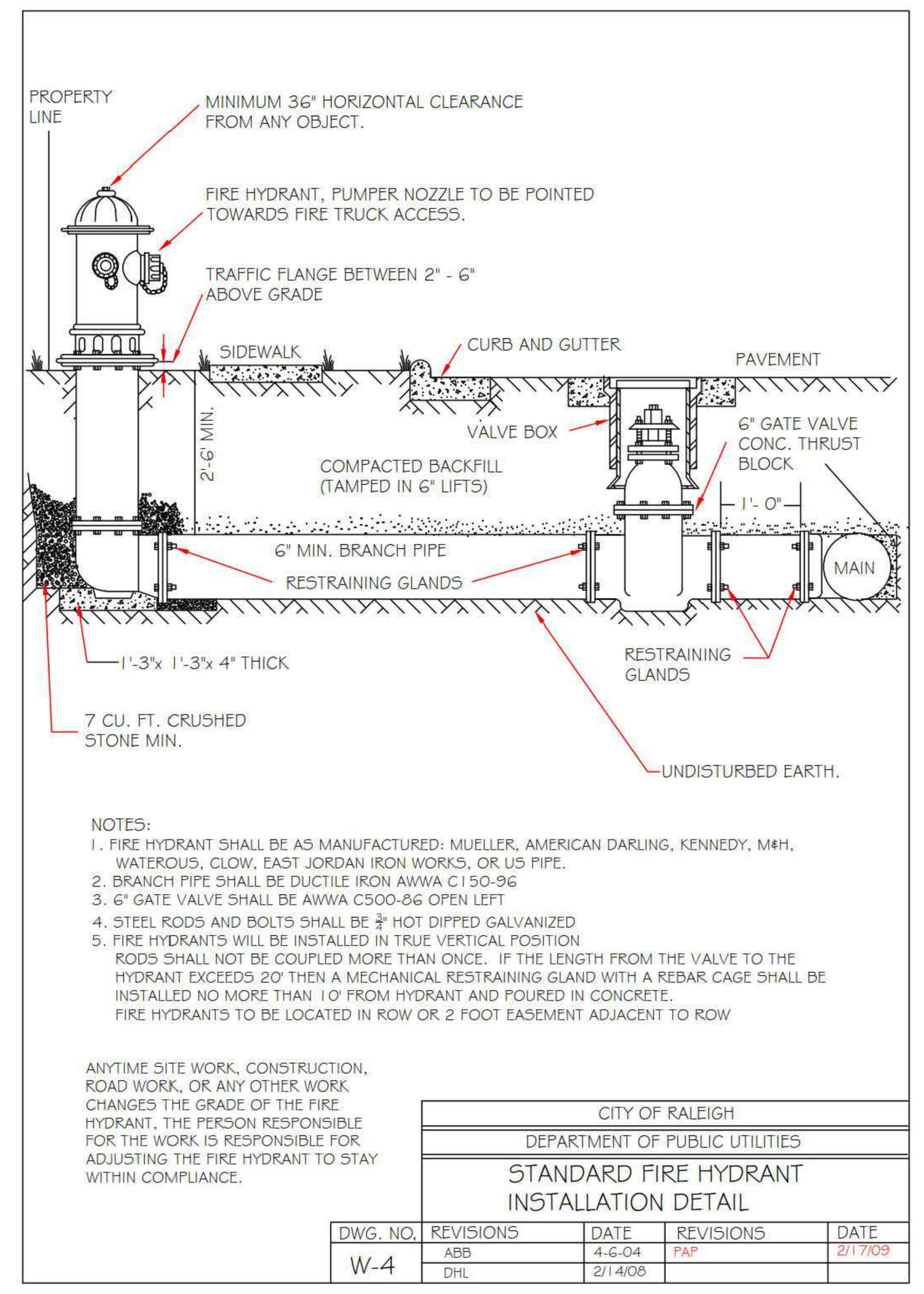
STORM DETAILS

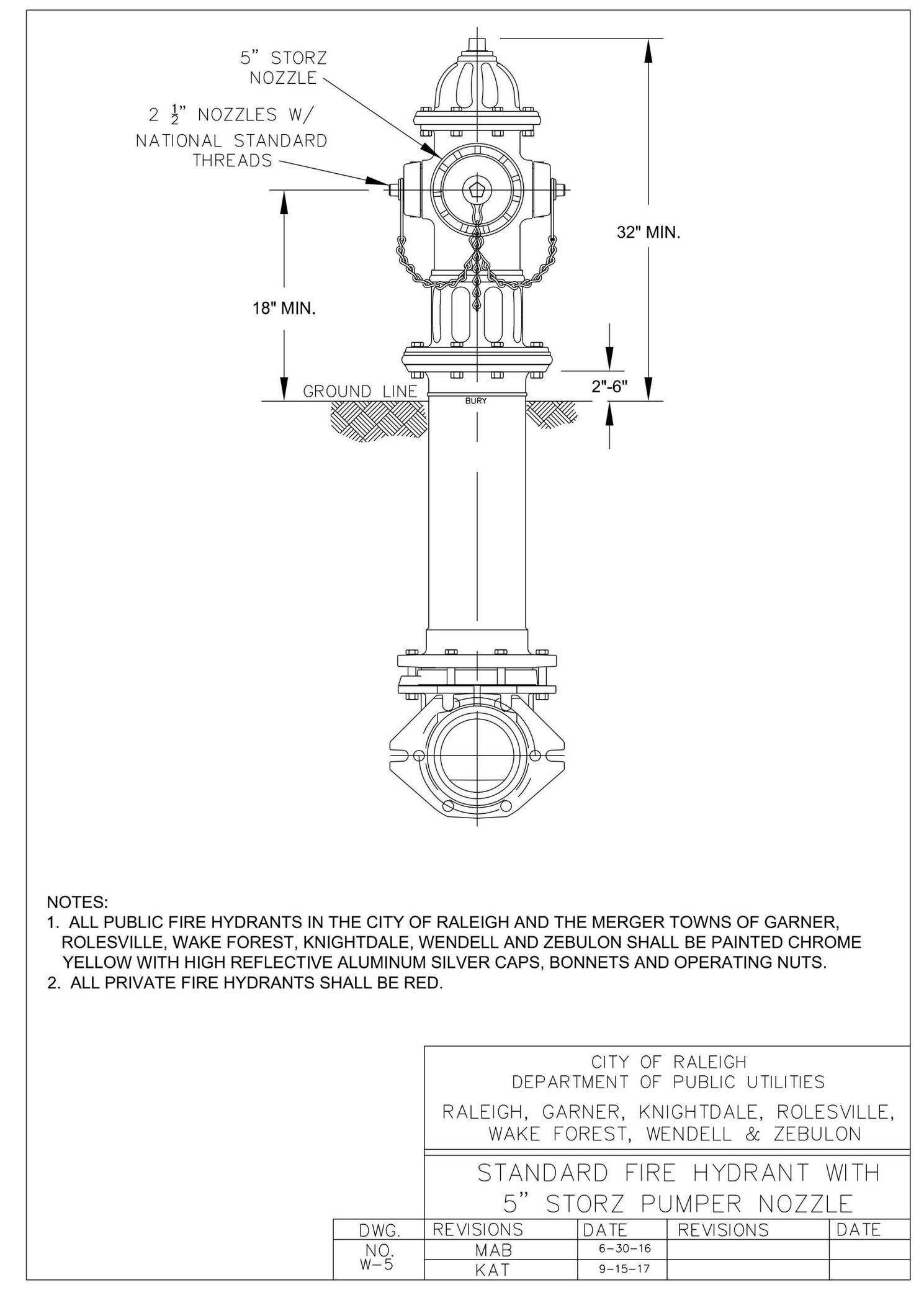
C8.04

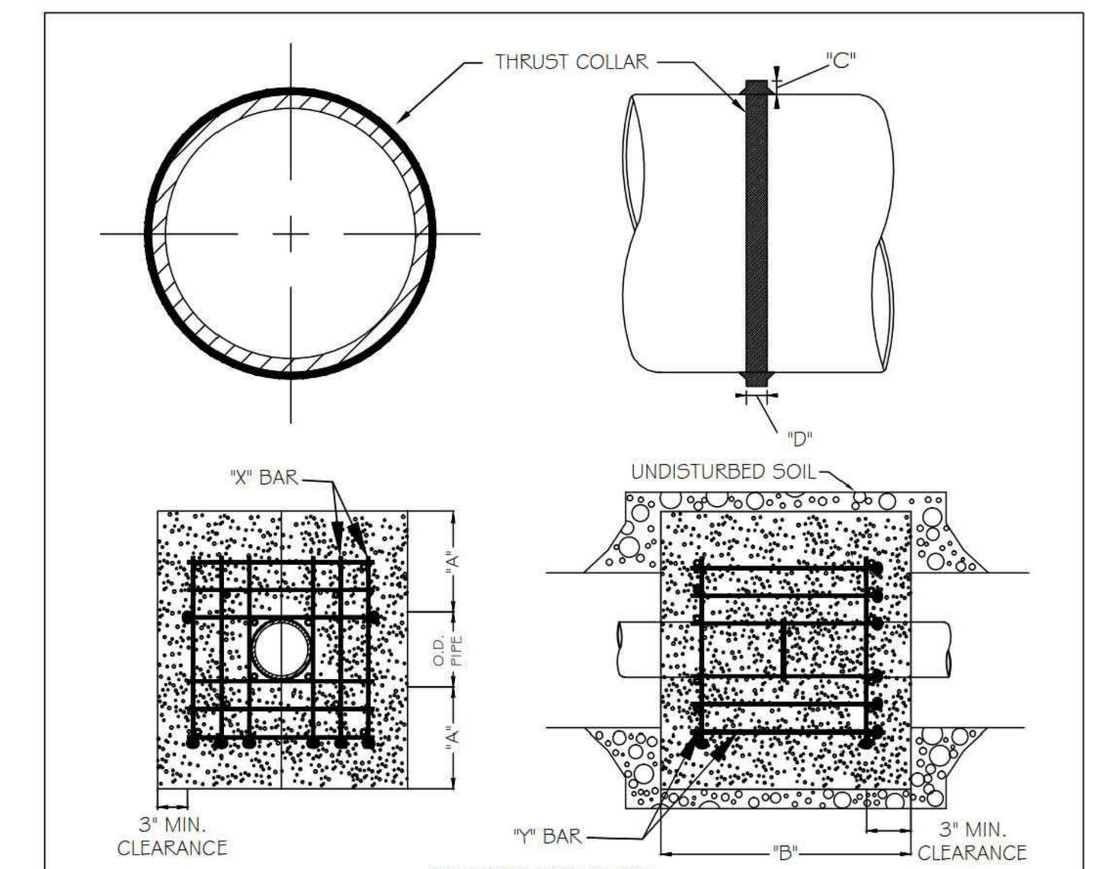
PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION


NEW ASPHALT SURFACE COARSE 3" MINIMUM
EXISTING PAVEMENT
EXISTING SUBGRADE
COMPACTED FILL IN 6" LIFTS
UNDISTURBED SOIL
PIPE
REFER TO W-3
NOTES:
1. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAW CUT MACHINE.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-180 AS MODIFIED BY NCDOT.
4. THE ENTIRE THICKNESS/ VERTICAL EDGE OF CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
7. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING, W-3, FOR ADDITIONAL DETAILS.
8. NO HAND PATCHING ALLOWED.
9. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD ASPHALT PAVEMENT PATCH DETAIL
DWG. NO. W-2


FINISHED GRADE
BACKFILL
UNDISTURBED SOIL
6" OF #67 STONE WHEN ROCK OR WATER IS ENCOUNTERED
O.D. OF PIPE
MINIMUM SIDE CLEARANCE
NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON
DWG. NO. W-3 | REVISIONS D.W.C. 9-3-99, RRH 3-31-00 | ABB 2-15-05, J.P.S. 10-29-10


PROPERTY LINE
MINIMUM 36" HORIZONTAL CLEARANCE FROM ANY OBJECT.
FIRE HYDRANT, PUMPER NOZZLE TO BE POINTED TOWARDS FIRE TRUCK ACCESS.
TRAFFIC FLANGE BETWEEN 2" - 6" ABOVE GRADE
SIDEWALK
CURB AND GUTTER
PAVEMENT
VALVE BOX
6" GATE VALVE
CONC. THRUST BLOCK
COMPACTED BACKFILL (TAMPED IN 6" LIFTS)
6" MIN. BRANCH PIPE
RESTRAINING GLANDS
MAIN
7 CU. FT. CRUSHED STONE MIN.
UNDISTURBED EARTH.
NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M&H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
3. 6" GATE VALVE SHALL BE AWWA C500-94 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE 3" HOT DIPPED GALVANIZED
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION
ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL
DWG. NO. W-4 | ABB 4-6-04, DHL 2/14/08


5" STORZ NOZZLE
2 1/2" NOZZLES W/ NATIONAL STANDARD THREADS
32" MIN.
18" MIN.
GROUND LINE
2"-6"
NOTES:
1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
RALEIGH, GARNER, KNIGHTDALE, ROLESVILLE, WAKE FOREST, WENDELL & ZEBULON
STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE
DWG. NO. W-5 | MAB 6-30-16, KAT 9-15-17



REINFORCING REQUIREMENTS

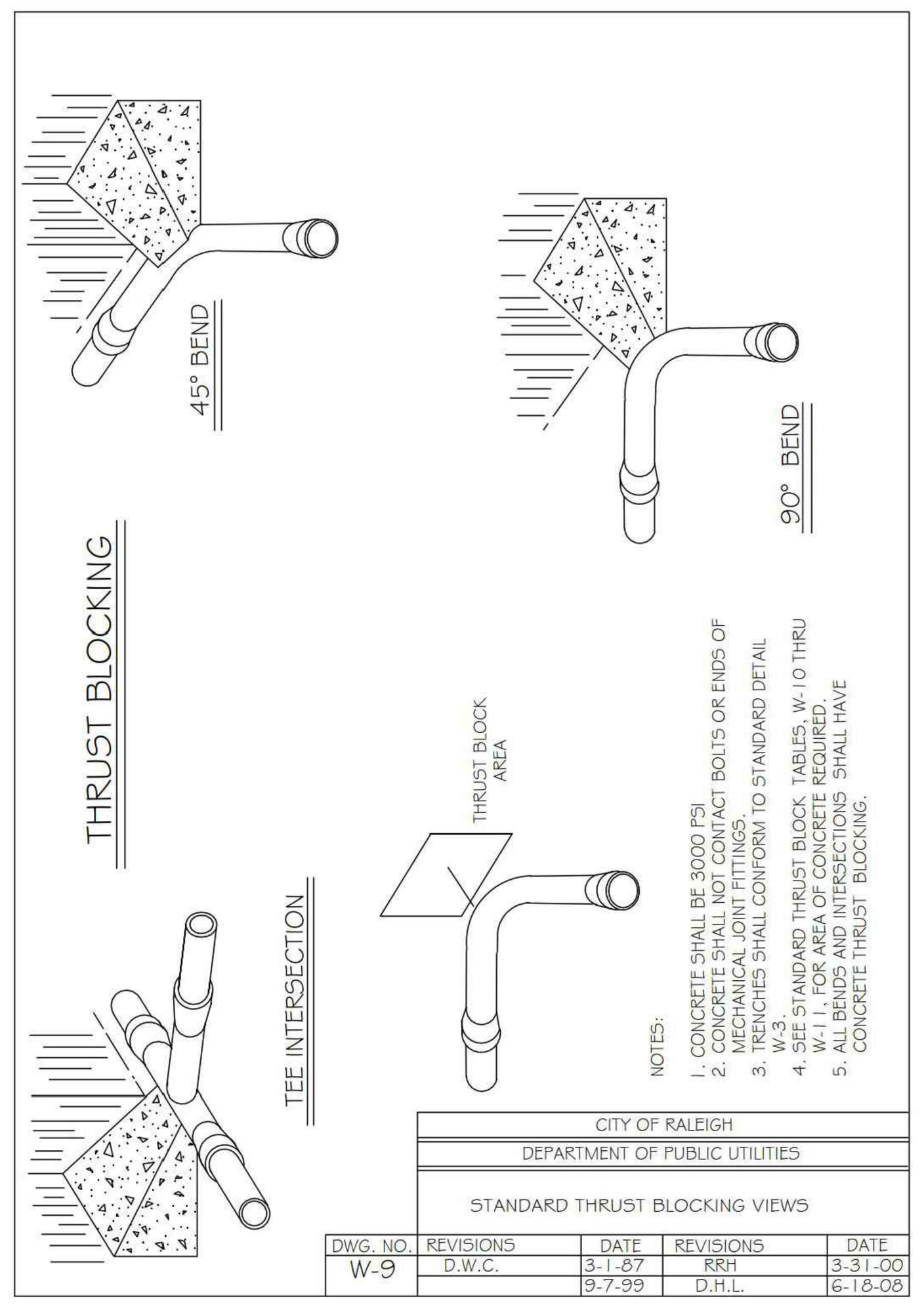
I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6" - 36"	#5	2'-2"+ O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X-24, Y-12
48" & greater	#6	3'-0"+ O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X-24, Y-12

THRUST COLLAR, AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN DATA FOR WATER MAINS
DWG. NO. W-7



REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.

ALL AREAS GIVEN IN SQUARE FEET.

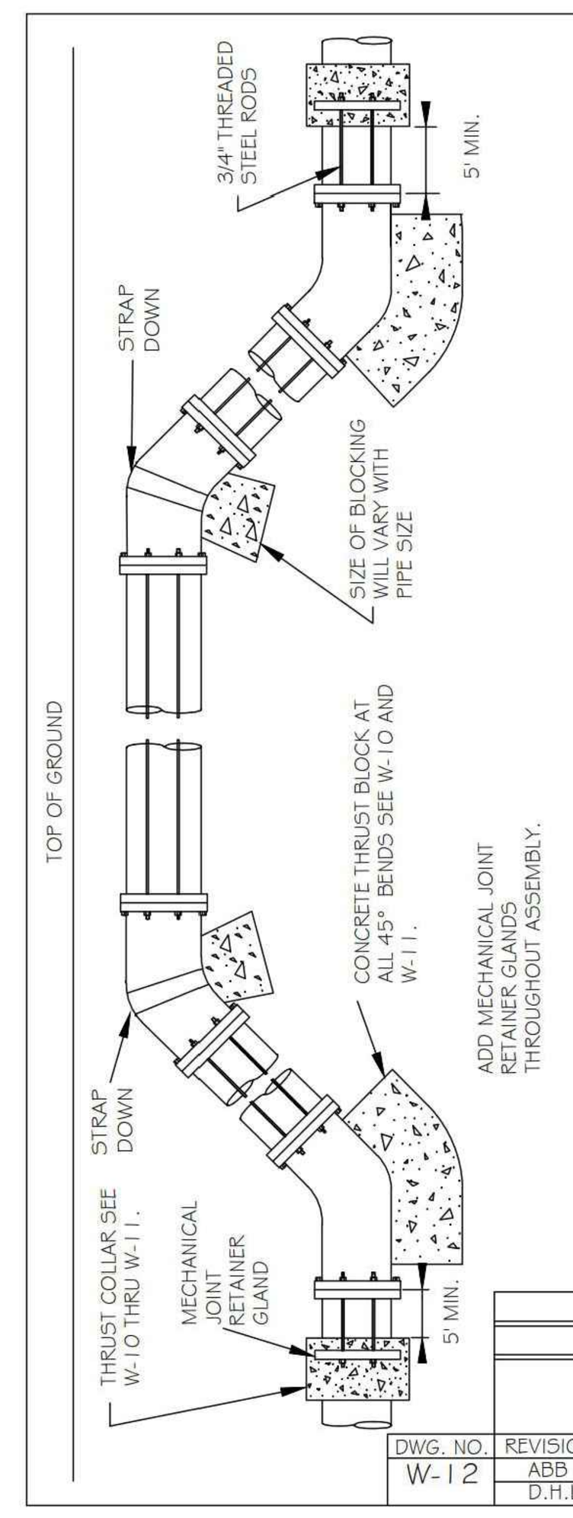
SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LBS/FT²	SOFT CLAY 2000 LBS/FT²	1600 LBS/FT² GRAVEL/ COARSE SAND	8000 LBS/FT² DRY CLAY - ALWAYS DRY	SAND, COMPACT FIRM 8000 LBS/FT²	SAND - CLEAN DRY 4000 LBS/FT²	SOIL 1000 LBS/FT² QUICKSAND - VERY POOR	ROCK - POOR 10,000 LBS/FT²
6"									
11 1/4°	1,108	1	1	1	1	1	1	2	1
22 1/2°	2,207	1	2	2	1	1	1	3	1
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6" - 90 BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN QUANTITY TABLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		

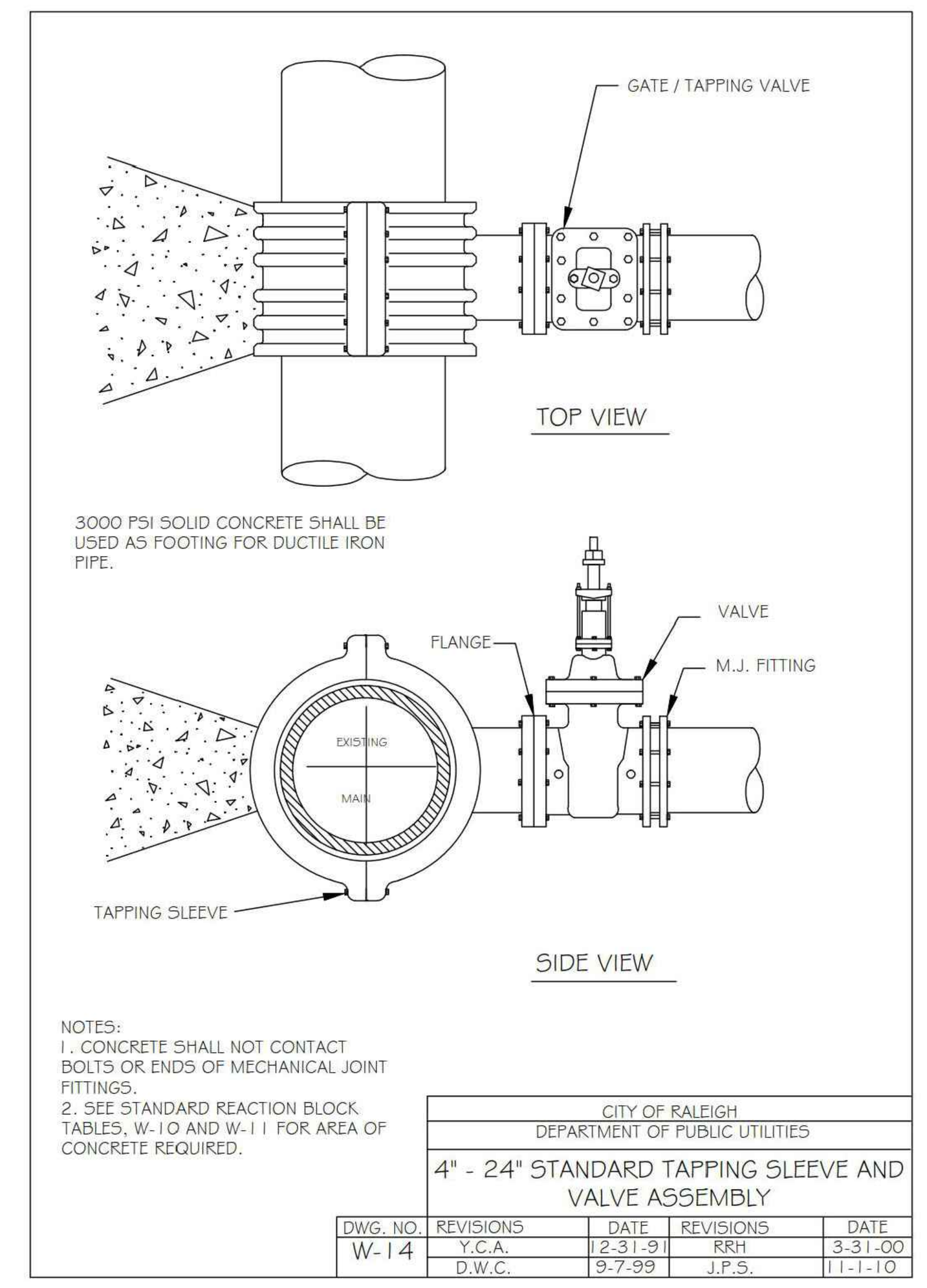


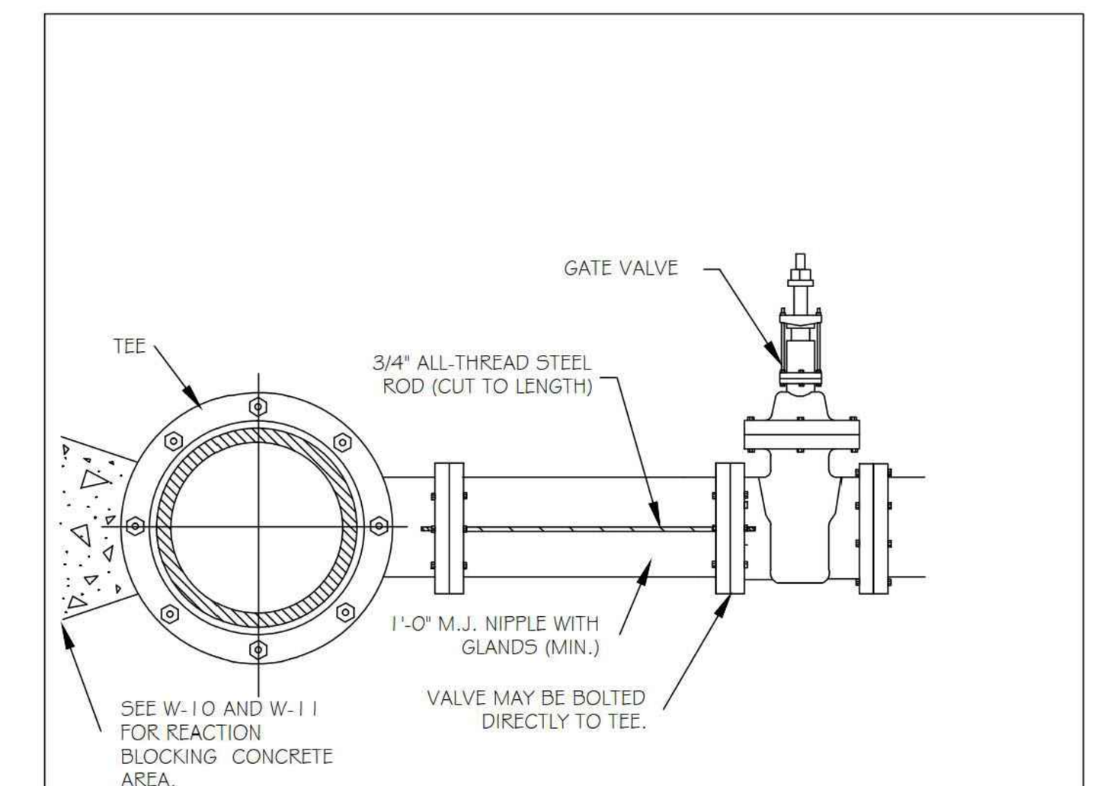
ROD REQUIREMENTS

SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

GENERAL NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD VERTICAL BEND
DWG. NO. W-12


GATE/TAPPING VALVE
TOP VIEW
3000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
FLANGE
VALVE
M.J. FITTING
TAPPING SLEEVE
SIDE VIEW
NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE STANDARD REACTION BLOCK TABLES, W-10 AND W-11 FOR AREA OF CONCRETE REQUIRED.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
4" - 24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY
DWG. NO. W-14

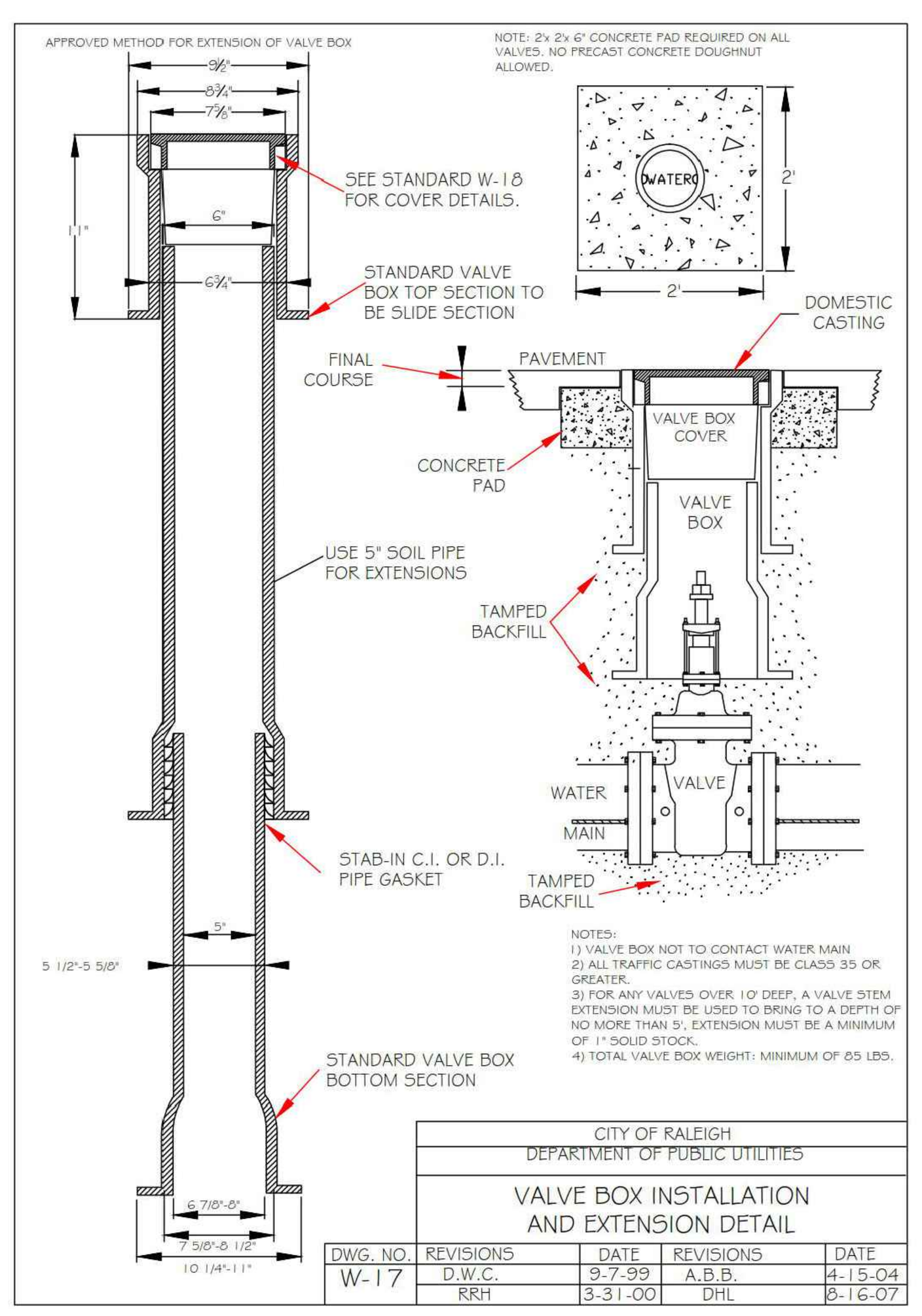


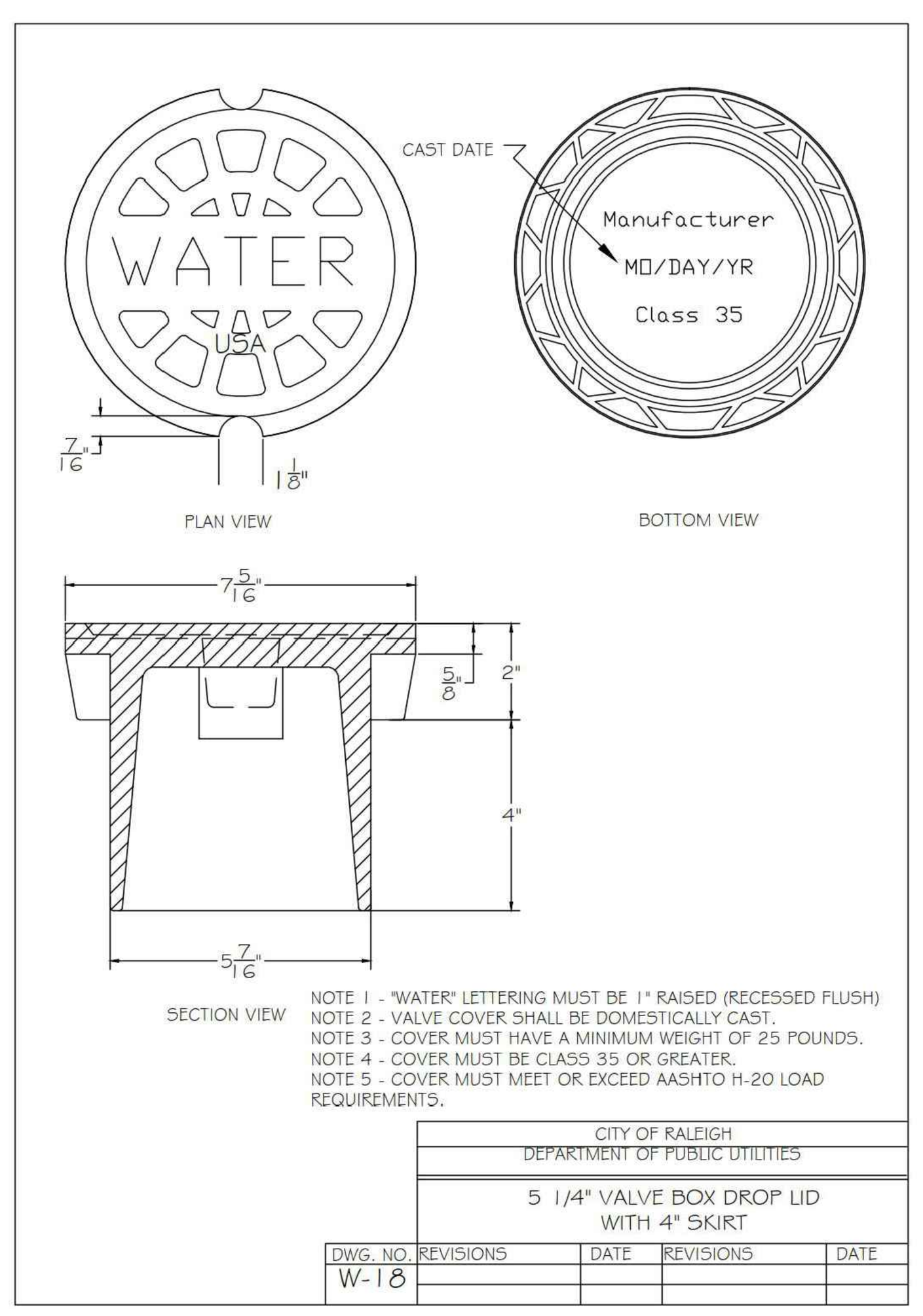
ROD REQUIREMENTS

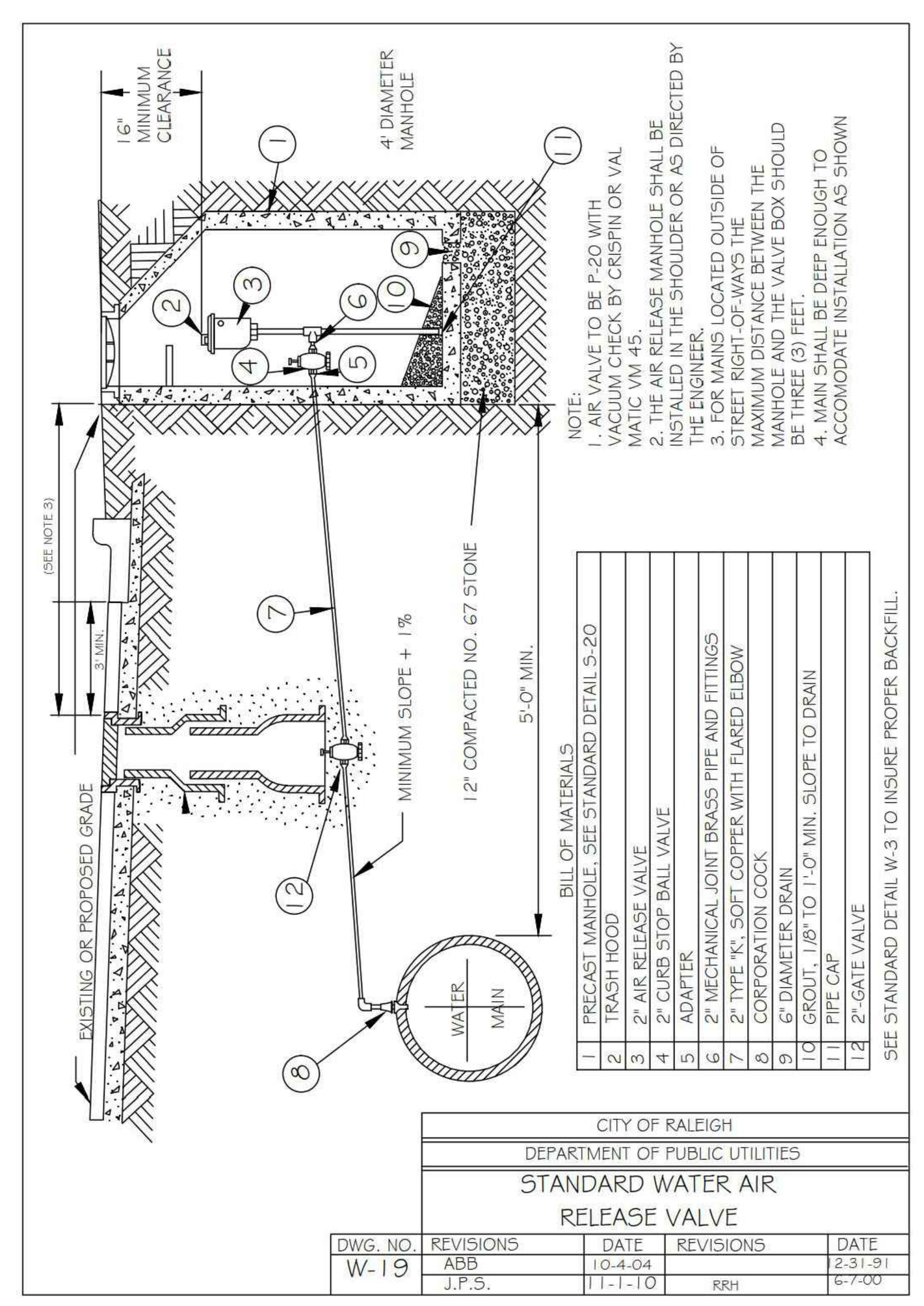
NO. OF RODS	BRANCH SIZE
4"	2
6"	2
8"	4
12"	4
16"	6
24"	6
30"	8
36"	8

NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. SEE STANDARD THRUST BLOCK. TABLES W-10 AND W-11 FOR CONCRETE.
3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4"-24")
DWG. NO. W-15


APPROVED METHOD FOR EXTENSION OF VALVE BOX
SEE STANDARD W-18 FOR COVER DETAILS.
STANDARD VALVE BOX TOP SECTION TO BE SLIDE SECTION
FINAL COURSE
PAVEMENT
CONCRETE PAD
DOMESTIC CASTING
VALVE BOX COVER
VALVE BOX
USE 5" SOIL PIPE FOR EXTENSIONS
TAMPED BACKFILL
WATER MAIN
VALVE
STAB-IN C.I. OR D.I. PIPE GASKET
TAMPED BACKFILL
STANDARD VALVE BOX BOTTOM SECTION
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
VALVE BOX INSTALLATION AND EXTENSION DETAIL
DWG. NO. W-17 | D.W.C. 9-7-99, RRH 3-31-00 | A.B.B. 4-15-04, DHL 6-16-07


CAST DATE
WATER
Manufacturer
MO/DAY/YR
Class 35
PLAN VIEW
BOTTOM VIEW
SECTION VIEW
NOTE 1 - "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST.
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT
DWG. NO. W-18


4' DIAMETER MANHOLE
MINIMUM SLOPE + 1%
12" COMPACTED NO. 67 STONE
5'-0" MIN.
WATER MAIN
NOTE:
1. AIR VALVE TO BE F-20 WITH VACUUM CHECK BY CRISPIN OR VAL-MATIC VM 45.
2. THE AIR RELEASE MANHOLE SHALL BE INSTALLED IN THE SHOULDER OR AS DIRECTED BY THE ENGINEER.
3. FOR MAINS LOCATED OUTSIDE OF STREET RIGHT-OF-WAYS THE MAXIMUM DISTANCE BETWEEN THE MANHOLE AND THE VALVE BOX SHOULD BE THREE (3) FEET.
4. MAIN SHALL BE DEEP ENOUGH TO ACCOMODATE INSTALLATION AS SHOWN.

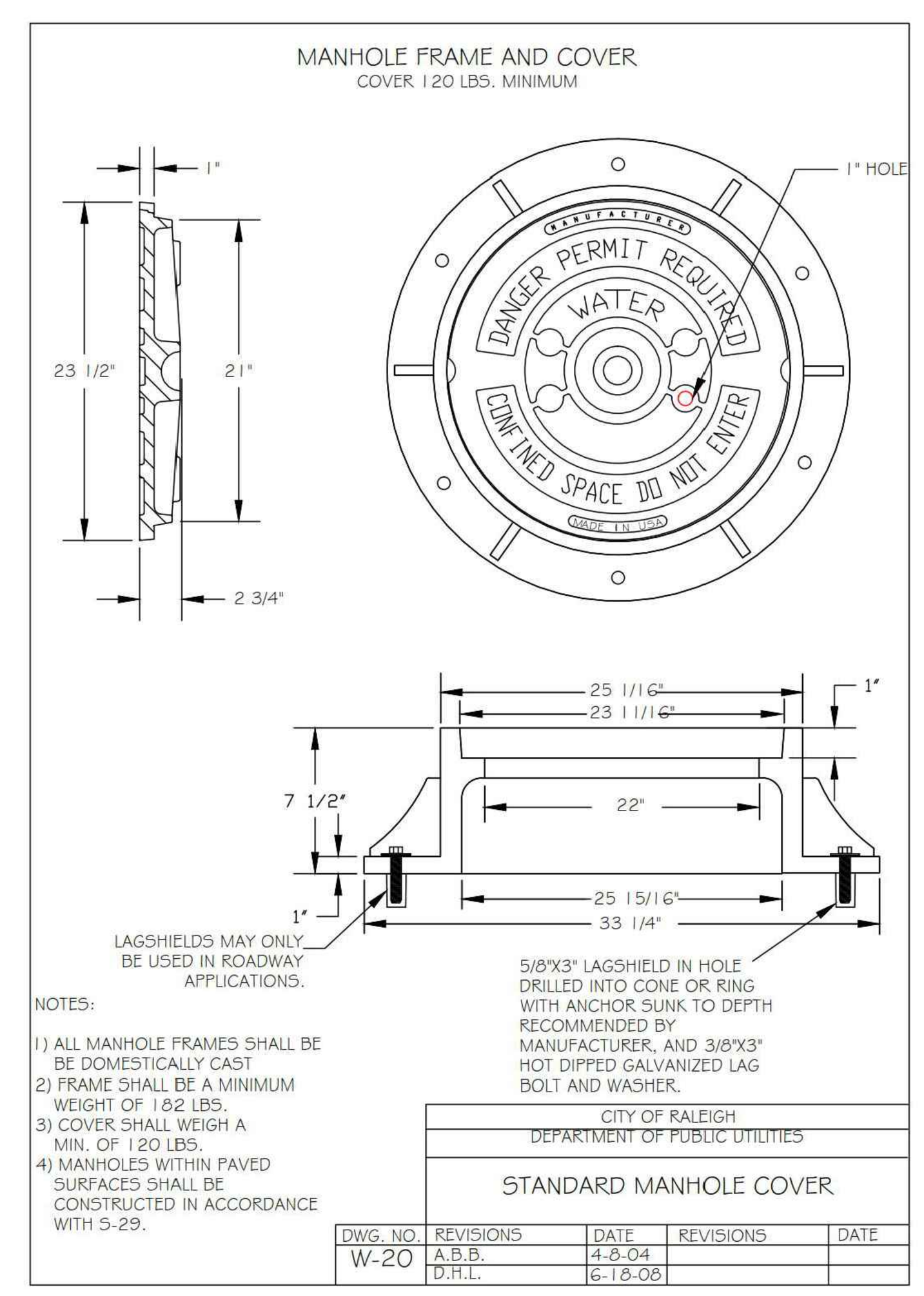
BILL OF MATERIALS

1	PRECAST MANHOLE, SEE STANDARD DETAIL S-20
2	TRASH HOOD
3	2" AIR RELEASE VALVE
4	2" CURB STOP BALL VALVE
5	ADAPTER
6	2" MECHANICAL JOINT BRASS PIPE AND FITTINGS
7	2" TYPE "K", SOFT COPPER WITH FLARED ELBOW
8	CORPORATION COCK
9	6" DIAMETER DRAIN
10	GROUT, 1/8" TO 1'-0" MIN. SLOPE TO DRAIN
11	PIPE CAP
12	2"-GATE VALVE

SEE STANDARD DETAIL W-3 TO INSURE PROPER BACKFILL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD WATER AIR RELEASE VALVE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-19	ABB	10-4-04		12-31-91
	J.P.S.	11-1-10	RRH	6-7-00


MANHOLE FRAME AND COVER
COVER 120 LBS. MINIMUM
1" HOLE
DANGER PERMIT REQUIRED
WATER
CONFINED SPACE DO NOT ENTER
23 1/2"
21"
2 3/4"
25 1/16"
23 11/16"
22"
7 1/2"
25 15/16"
33 1/4"
LAGSHIELDS MAY ONLY BE USED IN ROADWAY APPLICATIONS.
5/8"X3" LAGSHIELD IN HOLE DRILLED INTO CONE OR RING WITH ANCHOR SUNK TO DEPTH RECOMMENDED BY MANUFACTURER, AND 5/8"X3" HOT DIPPED GALVANIZED LAG BOLT AND WASHER.
NOTES:
1) ALL MANHOLE FRAMES SHALL BE BE DOMESTICALLY CAST
2) FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3) COVER SHALL WEIGH A MIN. OF 120 LBS.
4) MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH S-29.
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER
DWG. NO. W-20 | A.B.B. 4-8-04, D.R.L. 4-18-08

McADAMS
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Suite 500
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phone 919. 361. 5000
fax 919. 361. 2269
license number: C-0293, C-187
www.mcadamsco.com

CLIENT

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702 OBERLIN RD, SUITE 420
RALEIGH, NC 27605
PHONE: 704. 833. 8415

MILL CREEK RESIDENTIAL

MODERA CAPITAL CITY
PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO. DATE

PLAN INFORMATION

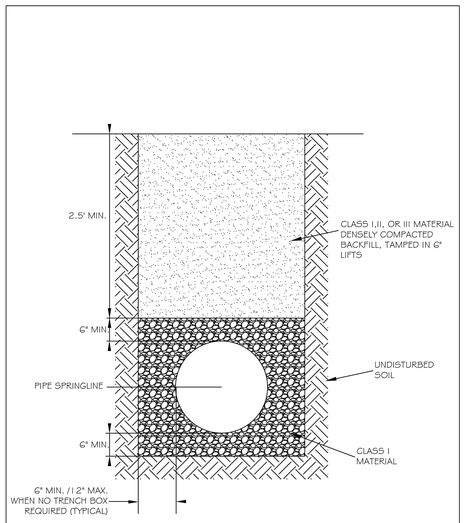
PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

WATER DETAILS

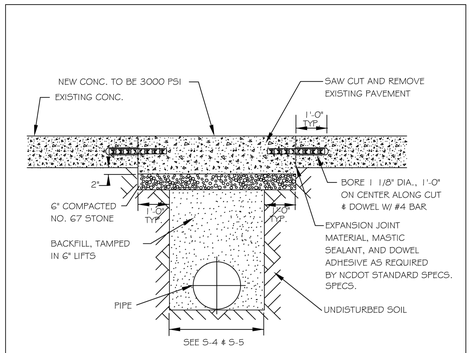
C8.05

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD BEDDING DETAILS FOR CCFRPM PIPES

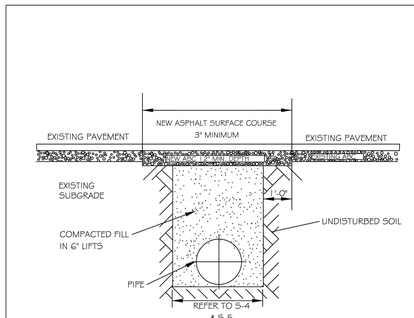
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-1	J.P.S	10-8-10		



NOTES:
1. See City of Raleigh standards for trenches and pipe bedding (S-4 & S-5) for additional details.
2. Pavement cuts over 5'-0" in width shall be reinforced to N.C.D.O.T. standards.
3. Pavement cuts shall be made with an appropriate saw cut machine.
4. Pavement cuts wthin NCDOT ROW shall conform to the approved on site encroachment permit.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD CONCRETE PAVEMENT PATCH DETAIL

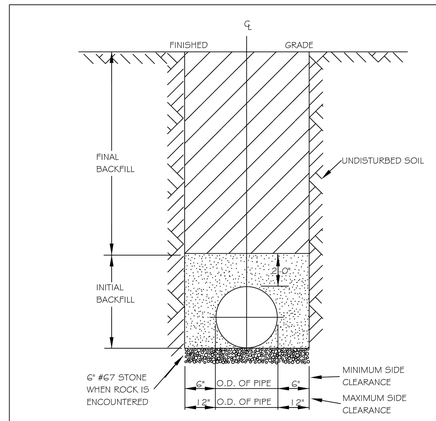
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-2	D.W.C.	6-23-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S.	10-8-10



NOTES:
1. IN NCDOT MAINTAINED ROADWAYS ENCROACHMENT PAVEMENT PATCH REQUIREMENTS SHALL TAKE PRECEDENCE.
2. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROPRIATE SAWCUT MACHINE.
3. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
4. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT.
5. THE ENTIRE THICKNESS AND VERTICAL EDGE OF CUT SHALL BE TACKED.
6. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
7. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH LEVEL PATCH.
8. REFER TO CITY OF RALEIGH STANDARDS FOR TRENCHES AND PIPE BEDDING (S-4 & S-5) FOR ADDITIONAL DETAILS.
9. NO HAND PATCHING ALLOWED.
10. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD ASPHALT PAVEMENT PATCH DETAIL

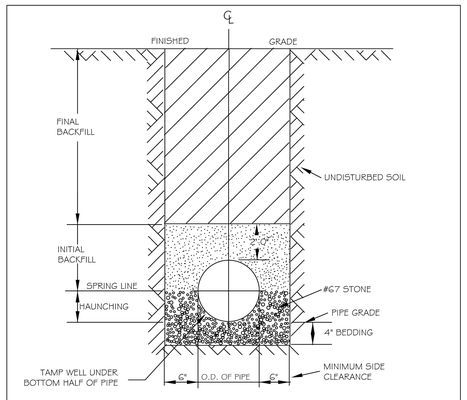
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-3	D.W.C.	11-1-99	A.B.B.	4-19-04
	RRH	3-30-00	J.P.S.	10-8-10



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
5. ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
6. IF IN EASEMENT 4" TOPSOIL AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
7. NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	3-30-00		

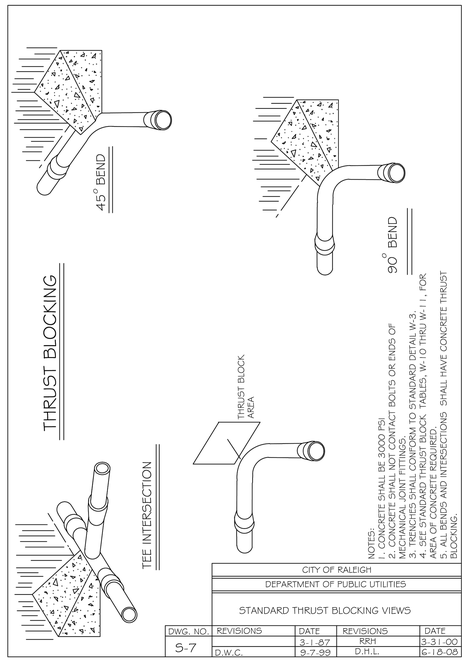


TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN

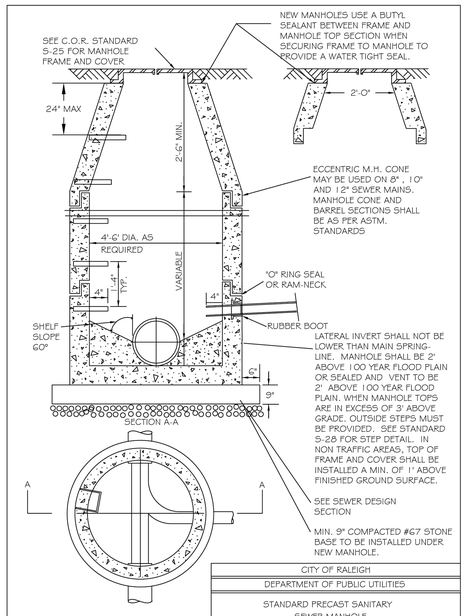
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99
		7-2-82	RRH	3-30-00



NOTES:
1. CONCRETE SHALL BE 3000 PSI.
2. CONCRETE SHALL CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR ADDITIONAL DETAILS.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

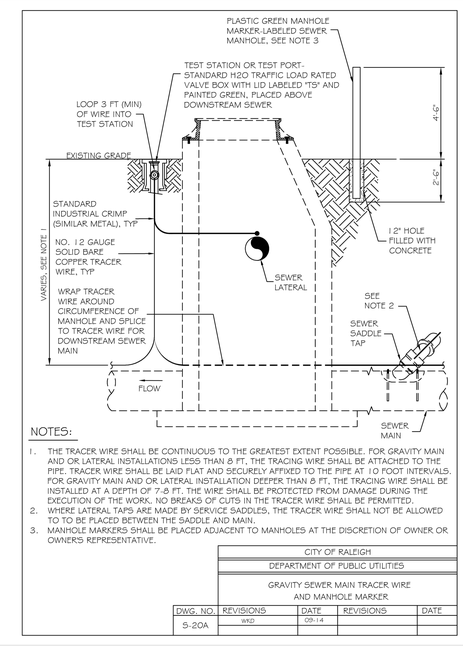
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD THRUST BLOCKING VIEWS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-7		3-1-87	RRH	3-31-00
	D.W.C.	9-7-99	D.H.L.	6-18-08



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD PRECAST SANITARY SEWER MANHOLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20	Y.C.A.	12-31-92	ABB	2-21-05
	RRH	3-30-00	D.H.L.	6-16-08



NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 8 FT, THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10 FOOT INTERVALS. FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 8 FT, THE TRACING WIRE SHALL BE INSTALLED AT A DEPTH OF 7-8 FT. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OF CUTS IN THE TRACER WIRE SHALL BE PERMITTED.
2. WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE ALLOWED TO TO BE PLACED BETWEEN THE SADDLE AND MAIN.
3. MANHOLE MARKERS SHALL BE PLACED ADJACENT TO MANHOLES AT THE DISCRETION OF OWNER OR OWNERS REPRESENTATIVE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
GRAVITY SEWER MAIN TRACER WIRE AND MANHOLE MARKER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-20A	WN2	09-14		

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PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET
SANITARY SEWER DETAILS
C8.06

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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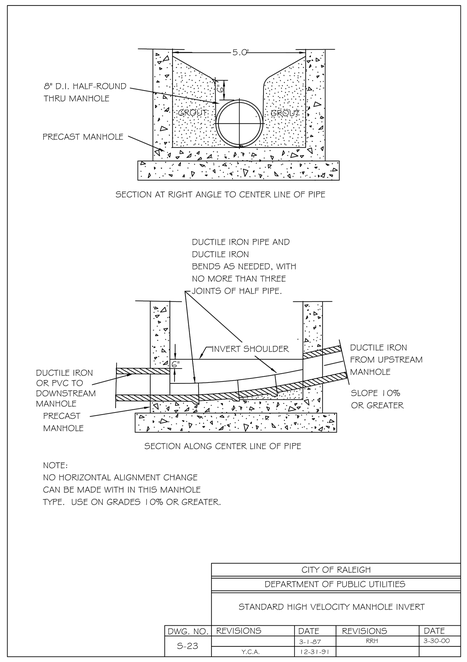
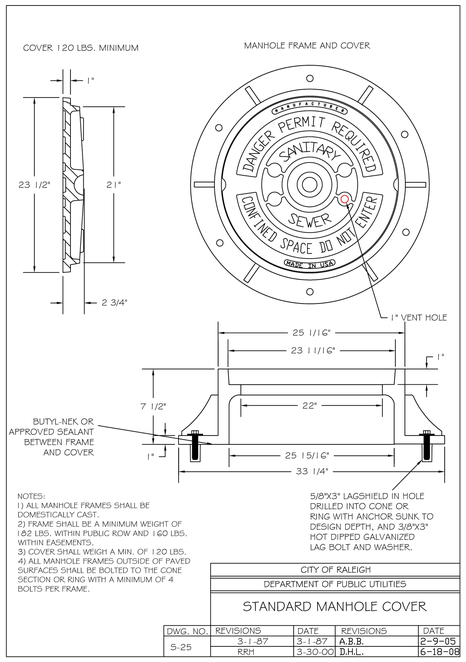


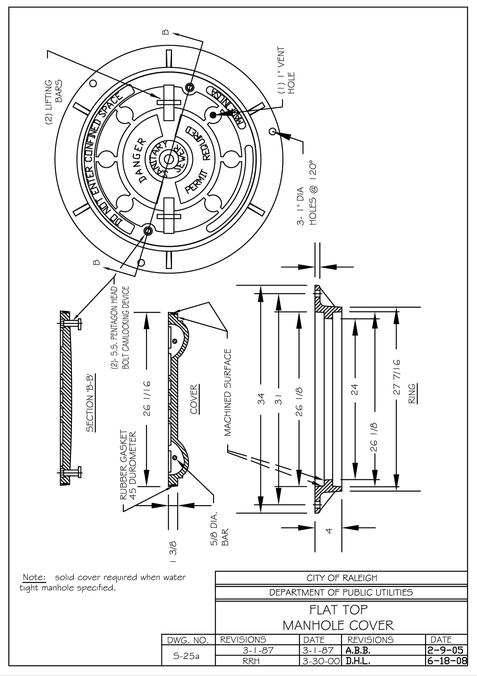
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD HIGH VELOCITY MANHOLE INVERT

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-23		3-1-87	RRH	3-30-00
	Y.C.A.	12-31-91		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE COVER

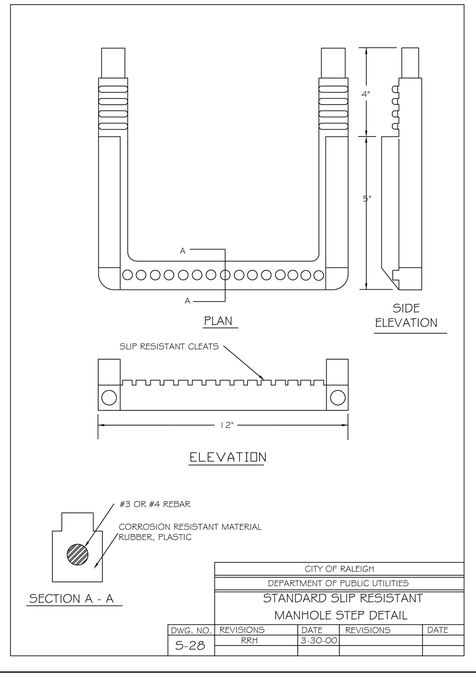
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25	3-1-87	3-1-87	A.B.B.	2-9-05
	RRH	3-30-00	D.H.L.	6-18-08



Note: solid cover required when water tight manhole specified.

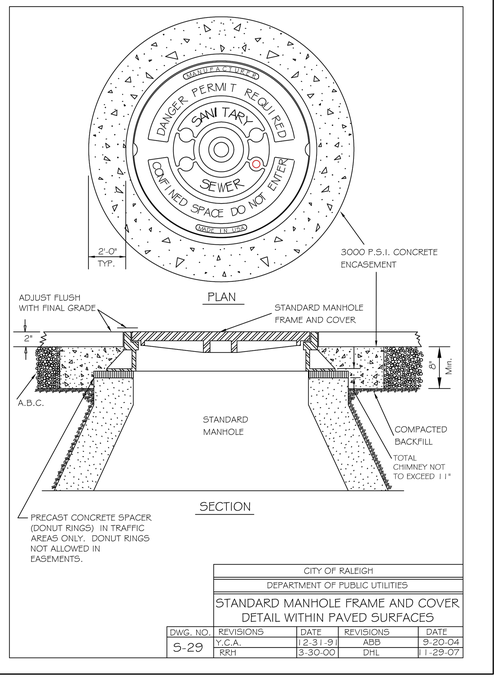
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
FLAT TOP MANHOLE COVER

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-25a	3-1-87	3-1-87	A.B.B.	2-9-05
	RRH	3-30-00	D.H.L.	6-18-08



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD SLIP RESISTANT MANHOLE STEP DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-28	RRH	3-30-00		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD MANHOLE FRAME AND COVER DETAIL WITHIN PAVED SURFACES

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-29	Y.C.A.	12-31-9	ABB	9-20-04
	RRH	3-30-00	DHL	1-29-07

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REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-D1
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

SANITARY SEWER DETAILS
C8.07

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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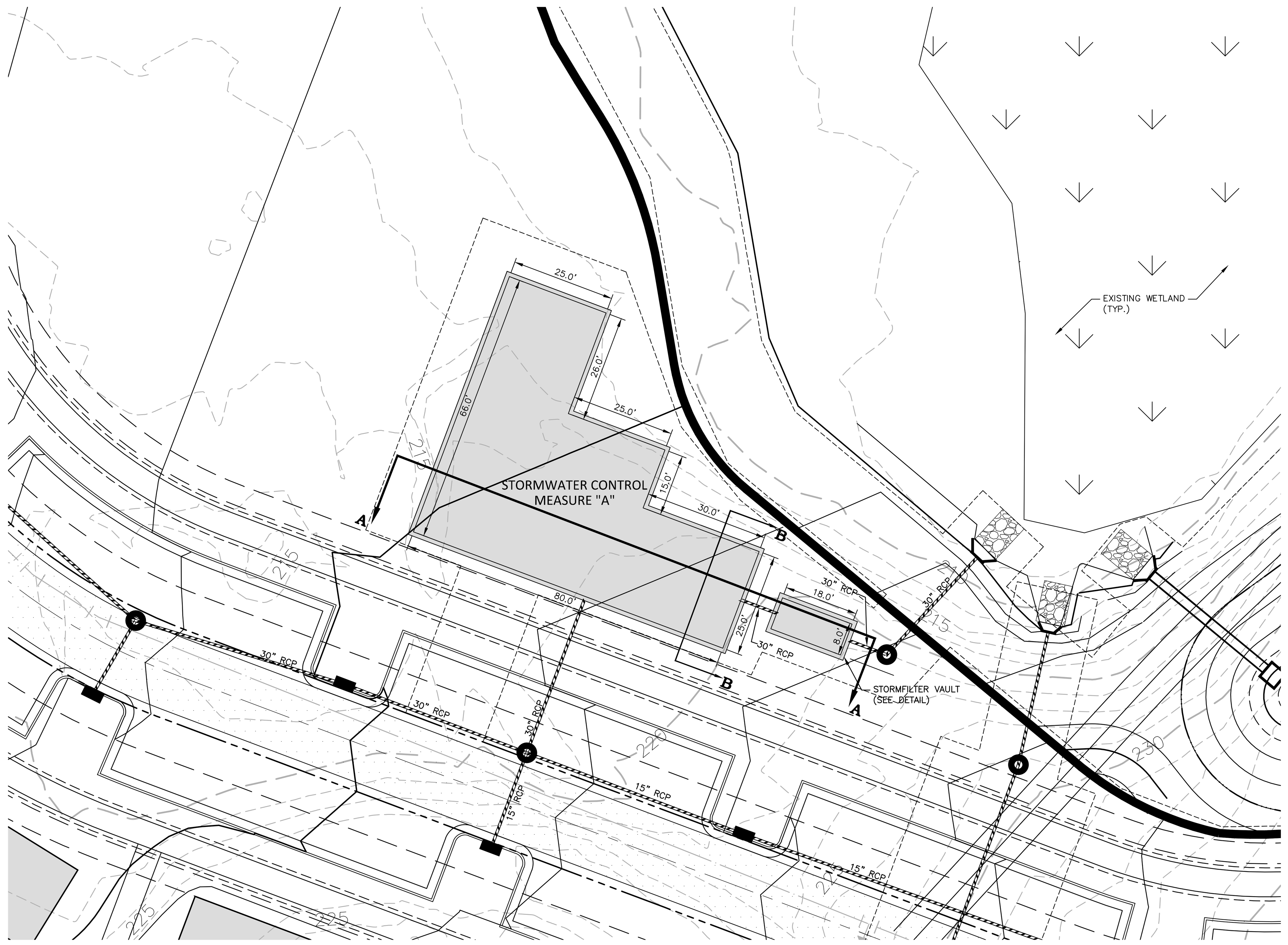
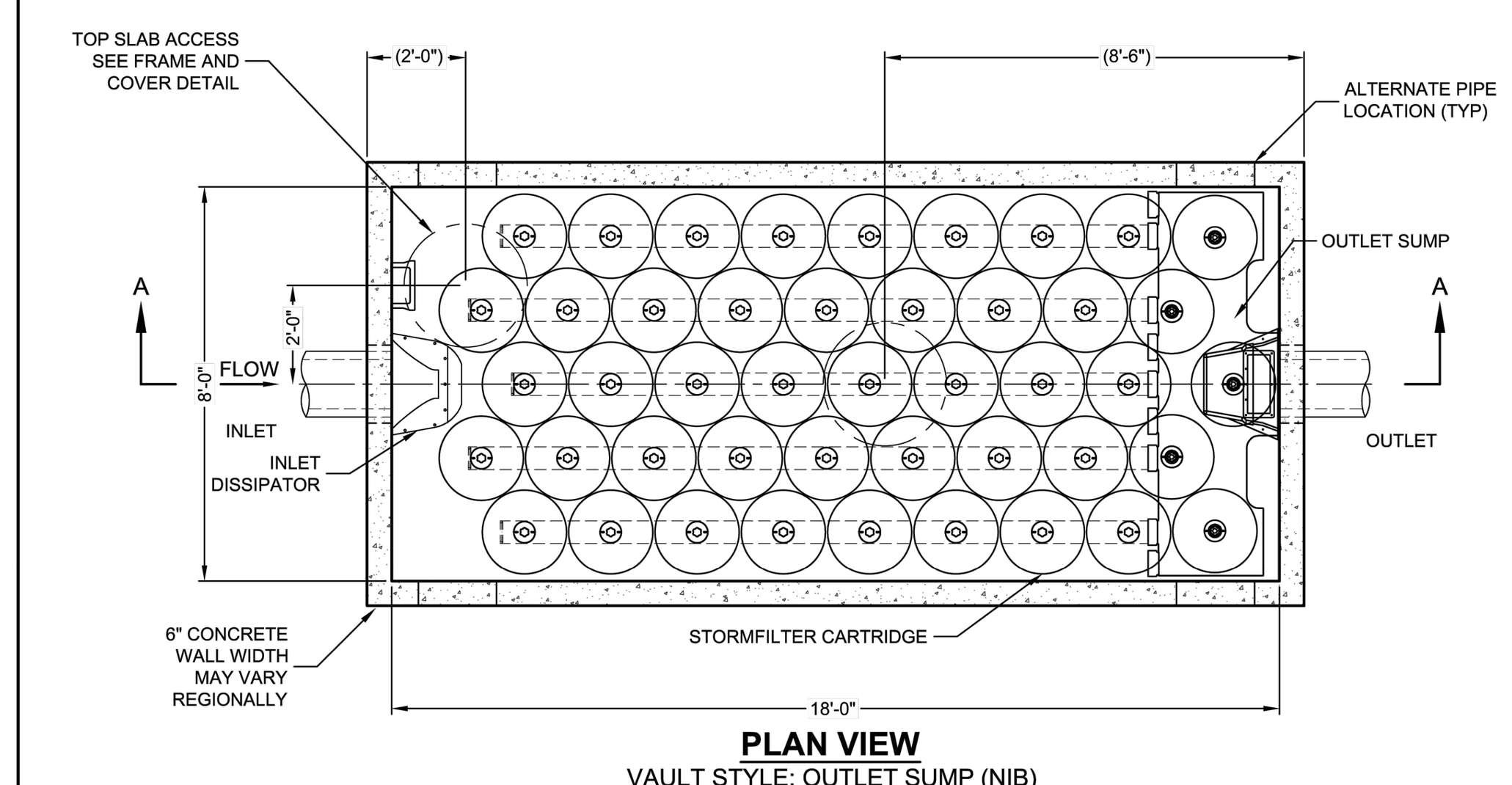


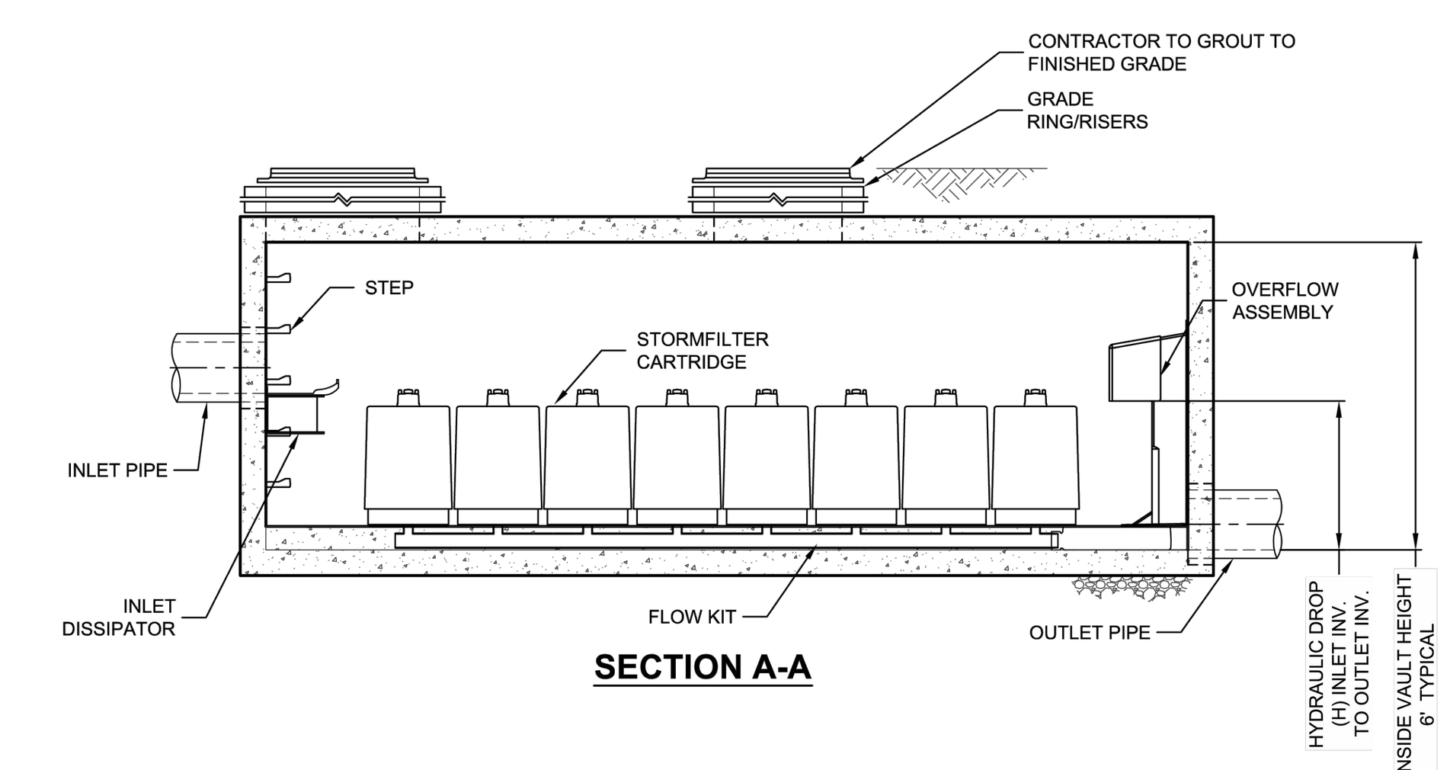
STORMWATER CONTROL MEASURE 'A' PLAN VIEW

1"=20'

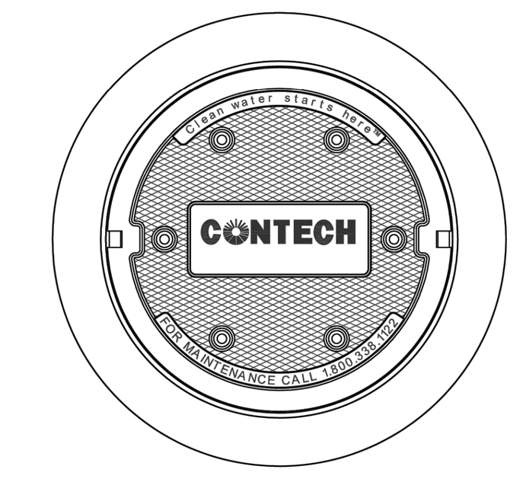
GRAPHIC SCALE
0 10 20 40
1 inch = 20 ft.



PLAN VIEW
VAULT STYLE: OUTLET SUMP (NIB)



SECTION A-A



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD VAULT STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (44). VAULT STYLE OPTIONS INCLUDE INLET BAY (37), INLET BAY/OUTLET BAY (34), OUTLET BAY (41), INLET BAY/FULL HEIGHT BAFFLE WALL (30), FULL HEIGHT BAFFLE WALL (37). STORMFILTER 8X18 PEAK HYDRAULIC CAPACITY IS 1.8 CFS. IF THE SITE CONDITIONS EXCEED 1.8 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB ® (PSORB) MEDIA ONLY

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs)			*
PEAK FLOW RATE (cfs)			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
CARTRIDGE HEIGHT (27", 18", LOW DROP(LD))			*
NUMBER OF CARTRIDGES REQUIRED			*
CARTRIDGE FLOW RATE			*
MEDIA TYPE (PERLITE, ZPG,PSORB)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*
UPSTREAM RIM ELEVATION			*
DOWNSTREAM RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONFORMING TO ASTM C-857 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER VAULT (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT SECTIONS AND ASSEMBLE VAULT.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
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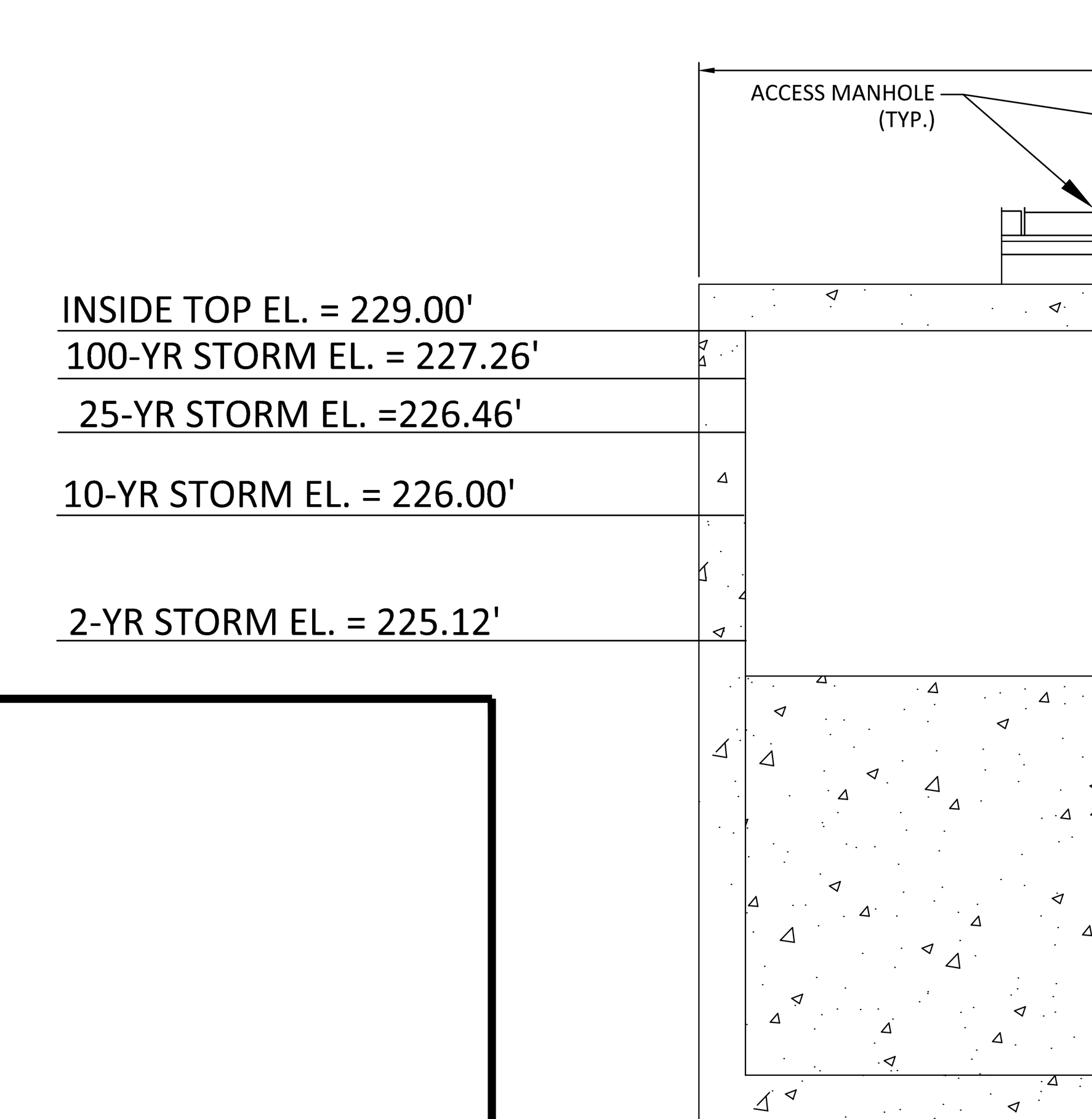
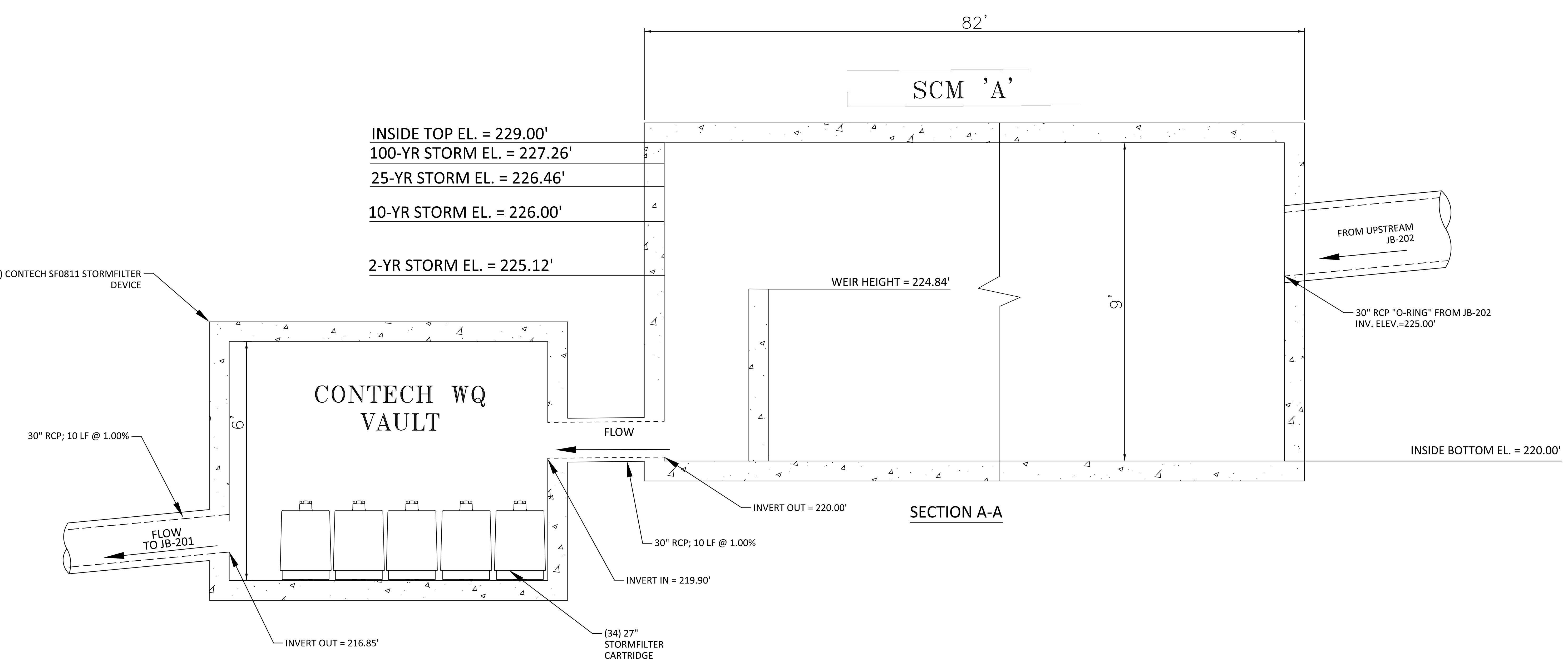
SF0818
STORMFILTER
STANDARD DETAIL



SECTION B-B
N.T.S.



SECTION A-A

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REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-SWA
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	1" = 20'
DATE	09. 08. 2023

SHEET

STORMWATER CONTROL MEASURE A DETAILS

C9.00

STORMWATER CONTROL MEASURE 'A' CONSTRUCTION SPECIFICATIONS

GENERAL NOTES

1. PRIOR TO CONSTRUCTION, ANY DISCREPANCIES IN THE PLANS AND NOTES SHALL BE BROUGHT TO THE DESIGN ENGINEER'S ATTENTION IMMEDIATELY.

2. THE PROJECT WILL MEET ALL OF THE REQUIREMENTS RELATIVE TO BEST MANAGEMENT PRACTICES AND ENGINEERED STORMWATER CONTROL STRUCTURES AS OUTLINED IN THE CITY OF RALEIGH LAND DISTURBANCE ORDINANCE.

3. THE FINAL CERTIFICATION FOR THIS FACILITY WILL INCLUDE A CERTIFICATION BY THE ON-SITE GEOTECHNICAL ENGINEER THAT THE PROJECT WAS CONSTRUCTED PER THE APPROVED PLANS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE ON-SITE GEOTECHNICAL ENGINEER FOR OBSERVATION AND TESTING SUCH THAT THE ON-SITE GEOTECHNICAL ENGINEER CAN CERTIFY THE CONSTRUCTION OF THE DAM EMBANKMENT AND SPILLWAY. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY.

4. ALL CONSTRUCTION ACTIVITY RELATED TO THE PROPOSED STORMWATER CONTROL MEASURE SHALL BE PER THE DETAILS AND SPECIFICATIONS SHOWN IN THESE DRAWINGS. SOILS, COMPACTION, AND OTHER MISCELLANEOUS DETAILS AND SPECIFICATIONS MAY BE MODIFIED PER THE RECOMMENDATIONS OF THE ON-SITE GEOTECHNICAL ENGINEER, HOWEVER, PRIOR TO IMPLEMENTATION, THE DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DEVIATION FROM THESE DESIGN DRAWINGS, INCLUDING SHOP DRAWINGS FOR ANY PROPOSED MODIFICATION.

5. DURING THE INITIAL STAGES OF CONSTRUCTION, THE STORMWATER CONTROL MEASURE MAY BE USED AS A SEDIMENT BASIN FOR EROSION CONTROL PURPOSES. IF SO, THE CONTRACTOR SHALL FOLLOW THE GENERAL CONSTRUCTION SEQUENCE BELOW:
   A. THE CONTRACTOR SHALL CONSTRUCT THE ENTIRE FACILITY (PERMANENT OUTLET STRUCTURE, DAM, ETC.) WITH THE EXCEPTION OF THE INTERIOR FINE GRADING FOR THE FACILITY. THE INTERIOR FINE GRADING WILL BE CONSTRUCTED ONCE THE EROSION CONTROL PHASE IS COMPLETE.
   B. THE TEMPORARY DRAW DOWN RISER (OR SKIMMER) SHALL BE CONNECTED TO THE PERMANENT 6"Ø DIP DRAIN PIPE.
   C. ONCE THE UPSTREAM DRAINAGE AREA IS STABILIZED AND THE EROSION CONTROL INSPECTOR APPROVES THE REMOVAL OF THE SEDIMENT BASIN, THE CONTRACTOR SHALL REMOVE THE TEMPORARY DRAW DOWN RISER (OR SKIMMER) AND CLEAN OUT THE BASIN. ALL SEDIMENT, TRASH, ETC. SHALL BE DISPOSED OF PROPERLY (I.E. - PLACED IN A LANDFILL) AND NOT STOCKPILED IN AN AREA WHERE WATER QUALITY COULD BE ADVERSELY AFFECTED.
   D. ONCE THE BASIN IS CLEANED OUT, AND ALL EROSION CONTROL DEVICES REMOVED, THE CONTRACTOR SHALL CONSTRUCT THE INTERIOR GRADING SHOWN ON THIS SHEET.
   E. ONCE THE GRADING IS COMPLETE, THE CONTRACTOR SHALL REQUEST AN ON-SITE INSPECTION AND AN AS-BUILT SURVEY PRIOR TO INSTALLATION OF THE STORMWATER CONTROL MEASURE PLANTS. IF THE CONTRACTOR PLANTS THE PROPOSED VEGETATION PRIOR TO AN AS-BUILT SURVEY (AND SUBSEQUENT APPROVAL), ANY CHANGES TO THE GRADING / RE-PLANTING OF PLANTS WILL BE AT THE CONTRACTOR'S EXPENSE.
   F. ONCE THE ENGINEER HAS APPROVED THE AS-BUILT GRADING, THE CONTRACTOR SHALL PLANT THE PROPOSED STORMWATER CONTROL MEASURE PLANTS SHOWN ON THE LANDSCAPE PLAN FOR THE FACILITY. AFTER COMPLETION OF THE PLANTING, THE LANDSCAPE CONTRACTOR SHALL PROVIDE A LETTER TO THE ENGINEER CERTIFYING THAT THE PLANTS HAVE BEEN INSTALLED PER THE APPROVED STORMWATER CONTROL MEASURE PLANTING PLAN.

6. ALL OSHA REQUIREMENTS FOR EXCAVATIONS (SHORING, DEPTH, ETC.) ARE THE RESPONSIBILITY OF THE CONTRACTOR. IF REQUIRED, THE CONTRACTOR SHALL PROVIDE AN EXCAVATION PLAN TO BE SEALED BY A NC P.E. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE IF AN EXCAVATION PLAN IS REQUIRED. THE JOHN R. MCADAMS COMPANY ASSUMES NO RESPONSIBILITY FOR ANY EXCAVATION DESIGN RELATED TO SAFETY OR OSHA REQUIREMENTS.

7. ON-SITE GEOTECHNICAL ENGINEER TO DETERMINE IF IN-SITU SOILS ENCOUNTERED WOULD MAINTAIN A STORMWATER CONTROL MEASURE PERMANENT POOL AT DESIGN ELEVATION. IF HIGHLY PERMEABLE SOILS ARE ENCOUNTERED THAT WOULD NOT MAINTAIN THE PERMANENT POOL ELEVATION AS DESIGNED, A CLAY LINER MAY BE REQUIRED TO MAINTAIN A PERMANENT POOL OF WATER IN THE STORMWATER CONTROL MEASURE. FINAL DETERMINATION IF A CLAY LINER IS NEEDED SHALL BE THE RESPONSIBILITY OF THE ON-SITE GEOTECHNICAL ENGINEER. UPON DETERMINATION OF HIGHLY PERMEABLE SOIL CONDITIONS, ON-SITE GEOTECHNICAL ENGINEER WILL INFORM THE DESIGN ENGINEER AND RECOMMEND LINER SPECIFICATIONS.

8. IT IS ANTICIPATED THAT DEWATERING WILL BE NECESSARY IN THE EXCAVATION AREAS (E.G. - EMBANKMENT SUB GRADE, INTERIOR PORTIONS OF THE STORMWATER CONTROL MEASURE, KEY TRENCH, ETC.). THEREFORE, THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ANY PUMPING EQUIPMENT, ETC. NEEDED FOR REMOVAL OF WATER FROM VARIOUS PARTS OF THE STORMWATER CONTROL MEASURE SITE. DURING PLACEMENT OF FILL WITHIN THESE AREAS, THE CONTRACTOR SHALL KEEP THE WATER LEVEL BELOW THE BOTTOM OF THE EXCAVATION / CONSTRUCTION AREAS. THE MANNER IN WHICH THE WATER IS REMOVED SHALL BE SUCH THAT THE EXCAVATION BOTTOM AND SIDE SLOPES ARE STABLE, WITH NO SEDIMENT DISCHARGED FROM THE SITE (I.E. PUMPED WATER MAY NEED TO BE DIRECTED TO AN APPROVED EROSION CONTROL DEVICE SUCH AS A DIRT BAG (ACF ENVIRONMENTAL), OR ENGINEER APPROVED EQUIVALENT, PRIOR TO DISCHARGE).

9. THE RETAINING WALL ALIGNMENT SHOWN ON THESE PLANS DEPICTS THE LOCATION OF THE FRONT FACE OF THE RETAINING WALL AT THE BOTTOM.

10. THE RETAINING WALL IS TO BE A DESIGN-BUILD PROJECT(S) BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FINAL CONSTRUCTION DRAWINGS FROM A REGISTERED PROFESSIONAL ENGINEER AND GAIN ALL REQUIRED PERMITS NECESSARY FOR THE CONSTRUCTION OF THE RETAINING WALL.

11. THE RETAINING WALL SHALL BE ASSUMED TO BE BACKFILLED WITH OFF-SITE BORROW MATERIAL OR PROCESSED FILL UNLESS CONTRACTOR CAN PROVIDE OWNER WITH CONFIRMATION FROM THE GEOTECHNICAL ENGINEER AND THE RETAINING WALL DESIGNER THAT READILY AVAILABLE ON-SITE SOILS CAN BE USED.

12. THE TOP AND BOTTOM OF WALL ELEVATIONS SHOWN ON THESE PLANS IDENTIFY FINISHED GRADE ELEVATIONS ONLY. THE EXTENT THAT THE RETAINING WALL WILL BE EXTENDED BELOW GRADE TO THE FOOTING SHALL BE IDENTIFIED ON THE RETAINING WALL CONSTRUCTION DRAWINGS.

13. THE ON-SITE GEOTECHNICAL ENGINEER SHOULD BE GIVEN AN OPPORTUNITY TO REVIEW ALL RETAINING WALL PLANS AND DESIGNS RELEVANT TO GEOTECHNICAL CONSIDERATIONS PRIOR TO FINAL DESIGN OF THE WALLS.

14. THE GRADES SHOWN ON THIS PLAN ARE FINISHED GRADES. IF THE EXISTING SOIL LAYER AFTER CONSTRUCTION / COMPACTION IS NOT DETERMINED SUITABLE BY A LANDSCAPE PROFESSIONAL FOR THE WET POND PLANTINGS, THEN THE CONTRACTOR SHALL AMEND THE PLANTING AREA OF THE WET POND AS DIRECTED BY A LANDSCAPE PROFESSIONAL.

15. PRIOR TO TOPSOIL INSTALLATION, THE CONTRACTOR SHALL SCARIFY THE TOP 2"-3" OF THE BERM SECTION TO PROMOTE BONDING OF THE TOPSOIL WITH THE COMPACTED FILL. THE TOPSOIL DEPTH SHALL RANGE FROM 3"-4" ON THE DAM EMBANKMENT AND WET POND. PLEASE NOTE THE TOPSOIL SHALL BE AMENDED, AS DIRECTED BY A LANDSCAPE PROFESSIONAL, PRIOR TO INSTALLATION ON THE EMBANKMENT AND WET POND.

16. THE CONTRACTOR SHALL REFER TO THE LANDSCAPE PLAN FOR THE PERMANENT PLANTING PLAN/SCHEDULE FOR THIS FACILITY. CONTRACTOR SHALL COORDINATE WITH A LANDSCAPE PROFESSIONAL REGARDING SCHEDULING FOR PLANT INSTALLATION. PLEASE NOTE THAT NO TREES/SHRUBS OF ANY TYPE MAY BE PLANTED ON THE PROPOSED DAM EMBANKMENT (FILL AREAS).

OUTLET STRUCTURE MATERIAL SPECIFICATIONS

1. THE 24"Ø RCP OUTLET BARREL SHALL BE CLASS III RCP, MODIFIED BELL AND SPIGOT, MEETING THE REQUIREMENTS OF ASTM C76-LATEST. THE PIPES SHALL HAVE CONFINED O-RING RUBBER GASKET JOINTS MEETING ASTM C-443-LATEST. THE PIPE JOINTS SHALL BE TYPE R-4.

2. THE STRUCTURAL DESIGN FOR THE 4' X 4' (INTERNAL DIMENSIONS) RISER BOX WITH EXTENDED BASE SHALL BE BY OTHERS. PRIOR TO ORDERING THE STRUCTURES, THE CONTRACTOR SHALL PROVIDE, TO THE DESIGN ENGINEER FOR REVIEW, SHOP DRAWINGS AND SUPPORTING STRUCTURAL CALCULATIONS SEALED BY A P.E. REGISTERED IN NORTH CAROLINA DEMONSTRATING THE PERTINENT VERTICAL LOADS ARE SUPPORTED BY THE CONCRETE RISER STRUCTURE.

3. THE RISER BOX OUTLET STRUCTURE SHALL BE PROVIDED WITH STEPS 16" ON CENTER. STEPS SHALL BE PROVIDED ON THE INNER WALL OF THE RISER BOX. STEPS SHALL BE IN ACCORDANCE WITH NCDOT STD. 840.66. PLEASE REFER TO SHEET C9.05 FOR LOCATION OF THE RISER STEPS. NOTE THE STEPS SHALL LINE UP WITH THE ACCESS HATCH OF THE TRASH RACK.

4. THE CONCRETE ANTI-FLOTATION BLOCK SHALL BE CAST-IN-PLACE. STEEL REINFORCEMENT AND CONNECTION TO THE RISER SHALL BE PROVIDED IN ACCORDANCE WITH THE DETAIL ON SHEET C9.05. THE CONTRACTOR SHALL ENSURE THE WEIGHT OF THE ENTIRE RISER STRUCTURE IS GREATER THAN OR EQUAL TO XX,XXX LBS. IN LIEU OF CAST-IN-PLACE, THE CONTRACTOR MAY OPT FOR A PRECAST ANTI-FLOTATION BLOCK. SHOP DRAWINGS FOR THE PRECAST BLOCK SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. THE PRECAST ANTI-FLOTATION BLOCK SHALL HAVE A SHIPPING WEIGHT OF XX,XXX LBS.

5. THE RISER BOX JOINTS SHALL BE SEALED USING BUTYL RUBBER SEALANT CONFORMING TO ASTM-C990-LATEST. IF NECESSARY, THE CONTRACTOR SHALL INCORPORATE A WATERSTOP INTO THE RISER BOX JOINT TO ENSURE A WATERTIGHT CONNECTION. THE CONTRACTOR SHALL PARGE JOINTS ON BOTH THE INSIDE AND OUTSIDE WITH NON-SHRINK GROUT AND INSTALL GALVANIZED STEEL STRAPS PER DETAIL ON SHEET C9.05.

6. PRIOR TO ORDERING, THE CONTRACTOR SHALL SUBMIT TRASH RACK SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. CONTRACTOR SHALL ENSURE THAT AN ACCESS HATCH IS PROVIDED WITHIN THE TRASH RACK (SEE DETAIL FOR LOCATION) THAT WILL ALLOW FOR FUTURE MAINTENANCE ACCESS. CONTRACTOR SHALL ALSO PROVIDE A CHAIN AND LOCK FOR SECURING THE ACCESS HATCH. NOTE THE ACCESS HATCH SHALL LINE UP WITH THE ACCESS STEPS AFTER INSTALLATION.

7. ALL POURED CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS UNLESS OTHERWISE NOTED:

   -MINIMUM 3000 PSI (28 DAY)
   -SLUMP = 3" - 5"
   -ENTRAINED AIR = 5% - 7%

   PLEASE NOTE NO CONCRETE SHALL BE POURED WHEN THE AMBIENT AIR TEMPERATURES ARE EXPECTED TO BE ABOVE 85°F OR BELOW 40°F. CAST-IN-PLACE CONCRETE SHALL BE "WET CURED" AFTER FINISHING FOR A MINIMUM OF 48 HOURS.

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

8. GEOTEXTILE FABRIC FOR THE 24"Ø RCP OUTLET BARREL JOINTS SHALL BE MIRAFI 180N OR ENGINEER APPROVED EQUAL (NON-WOVEN FABRIC).

9. STORMWATER CONTROL MEASURE EMERGENCY DRAW DOWN IS VIA AN 6"Ø PLUG VALVE. THE VALVE SHALL BE A M&H STYLE 1820 ECCENTRIC VALVE OR APPROVED EQUAL. THIS VALVE IS IN ACCORDANCE WITH AWWA C-517, AND SHALL BE OPERABLE FROM TOP OF OUTLET STRUCTURE VIA A HAND WHEEL (SEE DETAIL SHEET C9.05). THE CONTRACTOR SHALL PROVIDE A REMOVABLE VALVE WRENCH WITH A HAND WHEEL ON TOP FOR OPERATION OF THE 6"Ø PLUG VALVE.

CONSTRUCTION SEQUENCE

1. PRIOR TO CONSTRUCTION, THE OWNER SHALL OBTAIN A LAND DISTURBING (GRADING) PERMIT AND AN "APPROVAL TO CONSTRUCT" FROM THE CITY OF RALEIGH AND ALL OTHER NECESSARY PERMITS FROM APPLICABLE AGENCIES (E.G. 404 / 401 PERMITS)

2. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. THE CONTRACTOR SHALL MAINTAIN ALL APPROVED SEDIMENT AND EROSION CONTROL MEASURES THROUGHOUT THE ENTIRE PROJECT, AS REQUIRED. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE EROSION CONTROL INSPECTOR, AS REQUIRED BY GOVERNING AGENCIES, PRIOR TO ANY CLEARING.

3. CLEAR AND GRUB AREA WITHIN THE LIMITS OF THE PROPOSED DAM CONSTRUCTION. ALL TREES AND THEIR ENTIRE ROOT SYSTEMS MUST BE REMOVED FROM THE DAM FOOTPRINT AREA AND BACKFILLED WITH SUITABLE SOIL MATERIAL. THE BACKFILLED AREAS SHALL BE COMPACTED TO THE SAME STANDARDS AS THE DAM EMBANKMENT. THE REMAINING AREA OF THE EMBANKMENT SHALL BE STRIPPED TO A SUITABLE DEPTH AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER. ANY RESIDUAL SOILS TO BE LEFT IN PLACE MUST BE WELL SCARIFIED TO PROMOTE BONDING OF THE NEW EMBANKMENT FILL. NO EMBANKMENT MATERIAL SHALL BE PLACED FOR THE DAM OR KEY TRENCH UNTIL APPROVAL OF THE DAM SUBGRADE IS OBTAINED FROM THE ON-SITE GEOTECHNICAL ENGINEER.

4. EXCAVATE FOR THE NEW KEY TRENCH ALONG THE CENTERLINE OF THE PROPOSED DAM EMBANKMENT. THE TRENCH SHALL EXTEND A MINIMUM OF 5 FT BELOW EXISTING GRADE OR 2 FT BELOW THE RCP OUTLET BARRELS AND SHALL HAVE A MINIMUM BOTTOM WIDTH OF 5 FEET. THE KEY TRENCH SIDESLOPES SHALL BE A MINIMUM OF 1:1 (H:V). WHEN EXCAVATING THE KEY TRENCH, IF ANY DEBRIS IS ENCOUNTERED TO AN EXTENT THAT SUCH DEBRIS MAY EXIST IN OTHER INSITU PORTIONS OF THE DAM EMBANKMENT, IT SHOULD ALSO BE REMOVED. THE KEY TRENCH SHALL BE COMPACTED TO THE SAME SPECIFICATION LISTED IN ITEM 4 OF THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS." DEPENDING UPON ON-SITE SOIL CONDITIONS ENCOUNTERED DURING EXCAVATION, THE ON-SITE GEOTECHNICAL ENGINEER MAY VARY THE DEPTH AND DIMENSIONS OF THE KEY TRENCH AS DEEMED NECESSARY. THE ON-SITE GEOTECHNICAL ENGINEER SHALL RETAIN DOCUMENTATION OF ANY VARIATION FOR FUTURE AS-BUILT SUBMITTALS TO THE CITY OF RALEIGH.

5. BEGIN PLACEMENT OF BACKFILL WITHIN THE KEY TRENCH. THE KEY TRENCH SHALL BE COMPACTED TO THE SPECIFICATIONS LISTED ITEM 4 OF THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS." THE KEY TRENCH SHALL BE TESTED PER THE SPECIFICATIONS LISTED IN THAT SECTION.

6. PRIOR TO INSTALLATION, SUBGRADE CONDITIONS ALONG THE SPILLWAY PIPES SHOULD BE EVALUATED BY THE ON-SITE GEOTECHNICAL ENGINEER TO ASSESS WHETHER SUITABLE BEARING CONDITIONS EXIST AT THE SUBGRADE LEVEL. SHOULD SOFT OR OTHERWISE UNSUITABLE CONDITIONS BE ENCOUNTERED ALONG THE PIPE ALIGNMENTS, THESE MATERIALS SHOULD BE UNDERCUT AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE UNDERCUT MATERIALS SHALL BE REPLACED WITH ADEQUATELY COMPACTED STRUCTURAL FILL, LEAN CONCRETE OR FLOWABLE FILL AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER.

7. IN ORDER TO HELP PROTECT THE SOIL SUBGRADE FROM DETERIORATION (DUE TO EXPOSURE, RAINFALL, SEEPAGE, AND RUNOFF) BEFORE THE CRADLE CAN BE POURED, IT IS STRONGLY RECOMMENDED THAT A 3" TO 4" THICK CONCRETE MUD MAT BE POURED OVER THE SUBGRADE ONCE IT IS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE MUD MAT WILL ALSO PROVIDE BEARING FOR THE BLOCKS THAT TEMPORARILY SUPPORT THE SPILLWAY PIPE UNTIL THE CRADLE CAN BE POURED. THE METHOD OF BLOCK SUPPORT FOR THE PIPE PROPOSED BY THE CONTRACTOR SHOULD BE SUBMITTED TO THE JOHN R. MCADAMS COMPANY FOR REVIEW.

8. BEGIN CONSTRUCTION OF THE NEW EMBANKMENT. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8" THICK LIFTS PRIOR TO COMPACTION, UNLESS DIRECTED OTHERWISE BY THE ON-SITE GEOTECHNICAL ENGINEER. FILL LIFTS SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH OF FILL. IF IT IS NECESSARY, THE EMBANKMENT FILL MATERIAL WILL BE OVERBUILT IN HORIZONTAL LIFTS AND CUT BACK TO FINAL GRADE IN ORDER TO ACHIEVE PROPER COMPACTION.

9. AS CONSTRUCTION OF THE EMBANKMENT MOVES FORWARD, IT WILL BE NECESSARY TO INSTALL THE CONCRETE CRADLE. SEE NOTE ON CRADLE DETAIL (SHEET C9.06). THIS MAY BE CONSTRUCTED USING ONE OF THE FOLLOWING METHODS:

   A. IF THE PROPOSED STRUCTURAL FILL MATERIAL IS UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADLE, THEN THE STRUCTURAL FILL SHOULD BE INSTALLED AND COMPACTED UP TO THE TOP OF CONCRETE CRADLE ELEVATION. ONCE THE STRUCTURAL FILL REACHES THE NEXT DOWNSTREAM JUNCTION BOX OR HEADWALL AND IS COMPACTED TO THE ELEVATION OF THE TOP OF THE CONCRETE CRADLE, EXCAVATE THE CONCRETE CRADLE TRENCH PER THE PROVIDED DETAILS AND CONSTRUCT THE CONCRETE CRADLE AS PER THE PROVIDED CONCRETE CRADLE DETAIL.

   B. IF THE PROPOSED STRUCTURAL FILL IS NOT UTILIZED AS THE FORMWORK FOR THE CONCRETE CRADLE, THEN PRIOR TO CONSTRUCTING THE STRUCTURAL FILL EMBANKMENT, THE FORMWORK FOR THE CONCRETE CRADLE SHOULD BE INSTALLED ON EXISTING GROUND AND/OR THE MUD MAT. THE CONCRETE CRADLE SHALL BE CONSTRUCTED PER THE PROVIDED DETAILS

10. AS AN ALTERNATE TO A CONCRETE CRADLE UNDER THE BARREL PIPE (SEE SHEET C9.06), THE CONTRACTOR MAY CHOOSE TO ELIMINATE THE CONCRETE CRADLE AND USE COMPACTED BACKFILL IF THE ON-SITE GEOTECHNICAL ENGINEER WILL PROVIDE A NC PE SEALED LETTER CERTIFYING THAT THE COMPACTION UNDER, AROUND, AND ABOVE THE BARREL MEETS THE SPECIFICATIONS OF THE EMBANKMENT COMPACTION REQUIREMENTS AND MOISTURE CONTENT. THIS CERTIFICATION LETTER MUST BE SUBMITTED TO THE DESIGN ENGINEER PRIOR TO BACKFILL. THIS SEPARATE CERTIFICATION MUST BE SPECIFIC TO THE BARREL PIPE FOR THE FACILITY, AND MUST CLEARLY STATE THAT ALL SOIL MATERIAL UNDER, AROUND, AND ABOVE THE BARREL PIPE MEETS THE BERM AND SOIL COMPACTION SPECIFICATIONS ON THIS SHEET. THIS CERTIFICATION IS TO INCLUDE REFERENCE TO BOTH MATERIAL AND COMPACTION, AND MUST STATE THAT ALL MATERIALS UNDER, AROUND, AND ABOVE THE BARREL HAVE BEEN COMPACTED PER THE BERM MATERIAL SPECIFICATIONS (AT LEAST 95% OF MAXIMUM DRY DENSITY USING ASTM D698 STANDARD PROCTOR) WITH NO VOID SPACES PRESENT. THE CONTRACTORS INTENT TO UTILIZE THIS ALTERNATIVE MUST BE STATED PRIOR TO CONSTRUCTION TAKING PLACE. THIS CONTRACTORS CERTIFICATION MUST BE PRESENTED TO THE DESIGN ENGINEER BEFORE AN AS-BUILT CERTIFICATION CAN BE ISSUED FOR THIS FACILITY.

11. INSTALL RISER / BARREL ASSEMBLY, ALONG WITH THE EMERGENCY DRAIN SYSTEM. INSTALL RCP OUTLET BARREL SPILLWAY FILTER FROM THE DETAILS SHOWN ON SHEET C9.06.

12. CONSTRUCT EMBANKMENT PER SPECIFICATIONS LISTED IN THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS" AND REQUIREMENTS OF THE ON-SITE GEOTECHNICAL ENGINEER. ALL CHARACTERISTICS OF THE EMBANKMENT FILL MATERIAL SHALL MEET THE STANDARDS SET FORTH IN "BERM AND SOIL COMPACTION SPECIFICATIONS", INCLUDING COMPACTION AND MOISTURE REQUIREMENTS. IF NECESSARY TO ACHIEVE PROPER COMPACTION, THE EMBANKMENT FILL MATERIAL WILL BE OVERBUILT IN HORIZONTAL LIFTS AND CUT BACK TO PROPER FINAL GRADE. ANY HAND COMPACTION ACTIVITIES AROUND SPILLWAY OR DRAIN STRUCTURES SHALL BE CONDUCTED IN 4-INCH LOOSE LIFTS AND BE TO THE SAME COMPACTION AND MOISTURE REQUIREMENTS AS THE ENTIRE EMBANKMENT. ALL COMPACTION AND MOISTURE TESTING SHALL BE CARRIED OUT AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER AND AS LISTED IN THE SECTION TITLED "BERM AND SOIL COMPACTION SPECIFICATIONS".

13. UPON COMPLETION OF DAM EMBANKMENT, PROMPTLY STABILIZE AND SEED DAM EMBANKMENT PER SEEDING SCHEDULE. PERMANENT GROUND COVER SHALL BE ESTABLISHED PER THE PERMANENT SEEDING SCHEDULE FOUND ON SHEET C9.07.

14. SCHEDULE A FINAL AS-BUILT INSPECTION AND AS-BUILT SURVEY WITH THE ENGINEER AND SURVEYOR. AN AS-BUILT INSPECTION AND SURVEY SHALL BE SCHEDULED BEFORE IMPOUNDING WATER IN THE FACILITY AND A MINIMUM OF 60 DAYS PRIOR TO THE ANTICIPATED DATE OF CERTIFICATION APPROVAL. ANY COMMENTS OR DEFICIENCIES IN THE SCM CONSTRUCTION MUST BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND OWNER BEFORE CERTIFICATION SHALL BE GRANTED.

BERM AND SOIL COMPACTION SPECIFICATIONS

1. PRIOR TO CONSTRUCTION, THE ON-SITE GEOTECHNICAL ENGINEER SHALL IDENTIFY BORROW / FILL AREAS AND VERIFY THEIR SUITABILITY FOR USE WITHIN THE DAM EMBANKMENT. ALSO, THE ON-SITE GEOTECHNICAL ENGINEER SHALL PERFORM STANDARD PROCTORS ON THE PROPOSED BORROW MATERIAL TO ENSURE THAT OPTIMUM MOISTURE CONTENT AND COMPACTION CAN BE ACHIEVED / CONTROLLED DURING CONSTRUCTION.

2. ALL FILL MATERIALS TO BE USED FOR THE DAM EMBANKMENT SHALL BE TAKEN FROM BORROW AREAS APPROVED BY THE ON-SITE GEOTECHNICAL ENGINEER. THE FILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, WOOD, STONES GREATER THAN 6", AND FROZEN OR OTHER OBJECTIONABLE MATERIAL. THE FOLLOWING SOIL TYPES ARE SUITABLE FOR USE AS FILL WITHIN THE DAM EMBANKMENT AND KEY TRENCH: ML AND CL. ALL FILL MATERIALS SHALL BE APPROVED BY THE ONSITE GEOTECHNICAL ENGINEER FOR THE INTENDED USE.

3. FILL PLACEMENT FOR THE EMBANKMENT SHALL NOT EXCEED A MAXIMUM 8" LIFT (UNCOMPACTED). EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF EMBANKMENT. BEFORE PLACEMENT OF FILL FOR THE BERM SECTION, ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND THE SURFACE PROPERLY PREPARED FOR FILL PLACEMENT. FILL MATERIAL ADJACENT TO ALL SPILLWAY AND DRAINAGE STRUCTURES SHALL BE PLACED IN 4-INCH (UNCOMPACTED) LIFTS AND HAND-COMPACTED TO THE SAME COMPACTION AND MOISTURE REQUIREMENTS AS THE ENTIRE EMBANKMENT.

4. ALL FILL SOILS USED IN THE EMBANKMENT CONSTRUCTION SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698). THE FILL SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN -1 TO +3 PERCENT OF ITS OPTIMUM MOISTURE CONTENT. COMPACTION TESTS SHALL BE PERFORMED BY THE ON-SITE GEOTECHNICAL ENGINEER DURING CONSTRUCTION TO VERIFY THAT THE PROPER COMPACTION LEVEL HAS BEEN REACHED. THE FILL SHOULD BE COMPACTED USING A SHEEPSFOOT TYPE COMPACTOR. IN ORDER TO PREVENT DAMAGE TO THE PIPE, NO COMPACTION EQUIPMENT SHALL CROSS ANY PIPE UNTIL MINIMUM COVER IS ESTABLISHED ALONG THE PIPE.

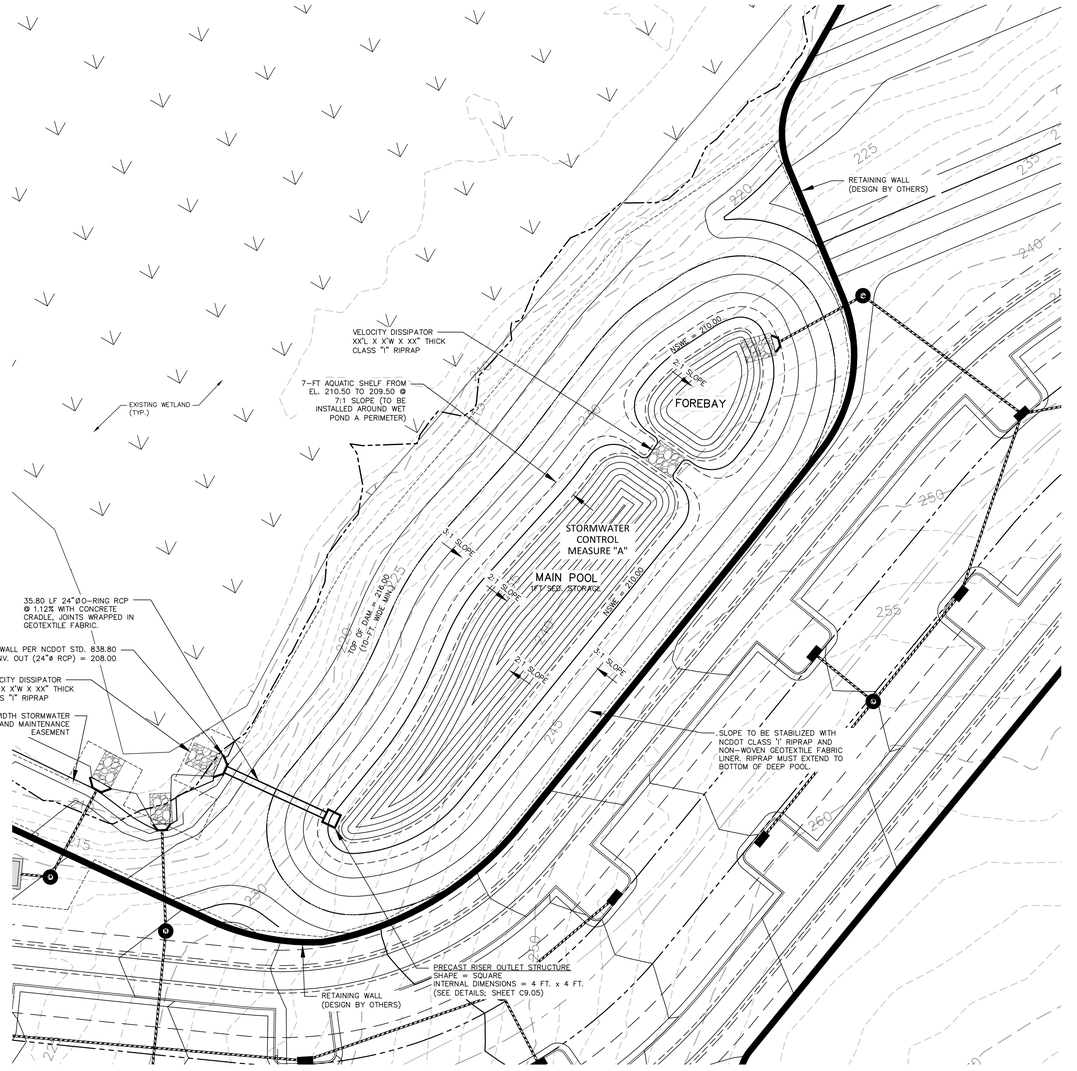
5. THE DESIGN ENGINEER SHALL BE PROVIDED WITH REPORTS AND CERTIFICATION, BY THE ON-SITE GEOTECHNICAL ENGINEER, THAT THE GEOTECHNICAL ASPECTS OF THE FACILITY HAVE BEEN CONSTRUCTED PER PLAN. THIS CERTIFICATION MUST ADDRESS THE TESTING FOR MATERIALS AND COMPACTION OF THE DAM EMBANKMENT AND SPILLWAY. THESE REPORTS AND CERTIFICATION WILL BE NEEDED DURING THE AS-BUILT CERTIFICATION PROCESS FOR THIS STORMWATER CONTROL MEASURE. THEREFORE, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE TESTING AND OBSERVATION WITH THE ON-SITE GEOTECHNICAL ENGINEER.

6. TESTING OF THE NEW FILL MATERIALS SHALL BE PERFORMED TO VERIFY THAT THE RECOMMENDED LEVEL OF COMPACTION IS ACHIEVED DURING CONSTRUCTION. THEREFORE, ONE DENSITY TEST SHALL BE PERFORMED FOR EVERY 2,500 SQUARE FEET OF AREA FOR EVERY LIFT OF FILL OR AS RECOMMENDED BY THE ON-SITE GEOTECHNICAL ENGINEER.

7. TESTING WILL BE REQUIRED ALONG THE RCP OUTLET BARRELS AT A FREQUENCY OF ONE TEST PER 25 LF OF PIPE PER VERTICAL FOOT OF FILL OR AS DIRECTED BY THE ON-SITE GEOTECHNICAL ENGINEER.

STATEMENT OF RESPONSIBILITY

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



STORMWATER CONTROL MEASURE 'A' PLAN VIEW

GRAPHIC SCALE
0 10 20 40
1 inch = 20 ft.

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REVISIONS

NO. DATE

PLAN INFORMATION

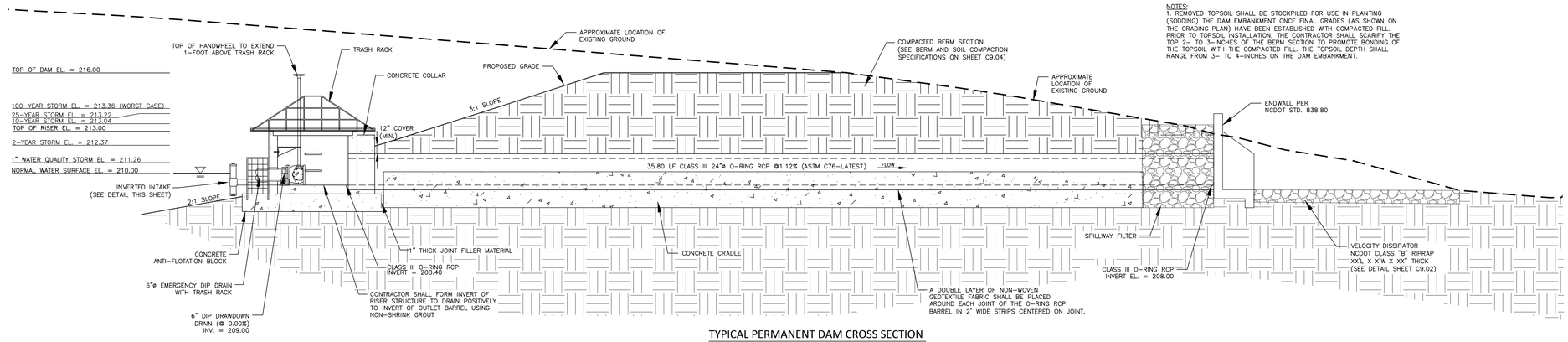
PROJECT NO.	MCR-23004
FILENAME	MCR23004-SWB
CHECKED BY	ACP
DRAWN BY	CAW
SCALE	1" = 20'
DATE	09. 08. 2023

SHEET

STORMWATER CONTROL MEASURE B PLAN VIEW

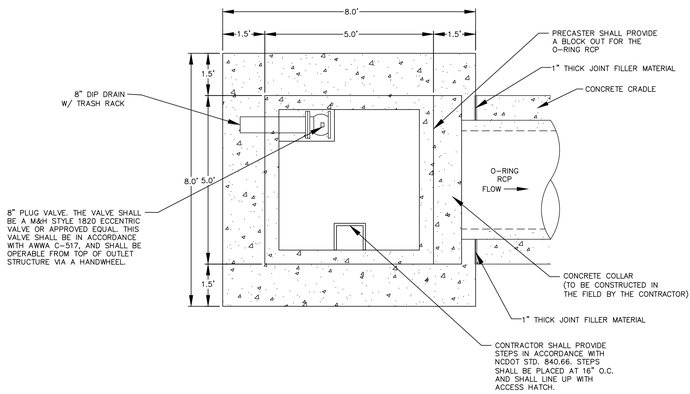
C9.02

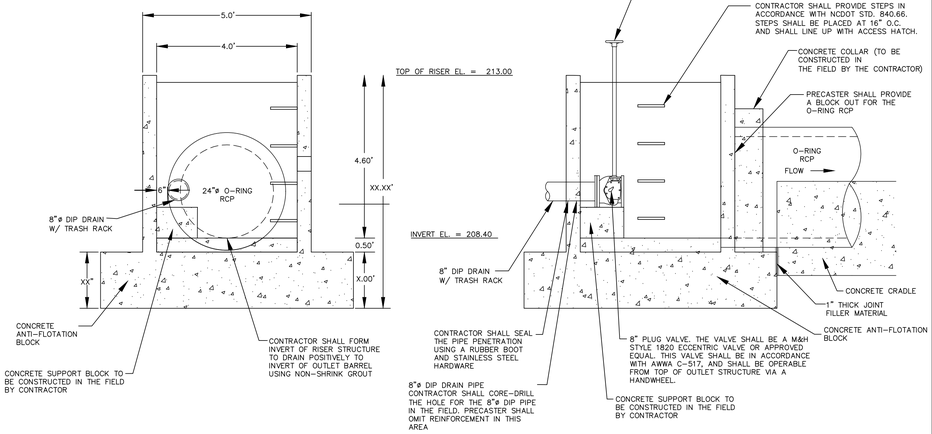
PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



NOTES:
1. REMOVED TOPSOIL SHALL BE STOCKPILED FOR USE IN PLANTING (SODDING) THE DAM EMBANKMENT ONCE FINAL GRADES (AS SHOWN ON THE GRADING PLAN) HAVE BEEN ESTABLISHED WITH COMPACTED FILL. PRIOR TO TOPSOIL INSTALLATION, THE CONTRACTOR SHALL SCARIFY THE TOP 2- TO 3-INCHES OF THE BERM SECTION TO PROMOTE BONDING OF THE TOPSOIL WITH THE COMPACTED FILL. THE TOPSOIL DEPTH SHALL RANGE FROM 3- TO 4-INCHES ON THE DAM EMBANKMENT.

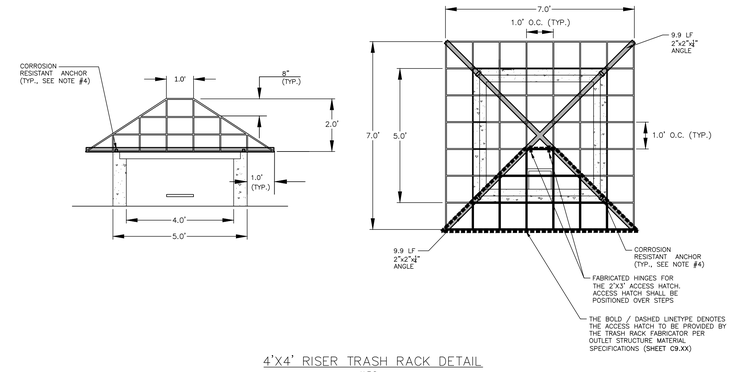
TYPICAL PERMANENT DAM CROSS SECTION
N.T.S.



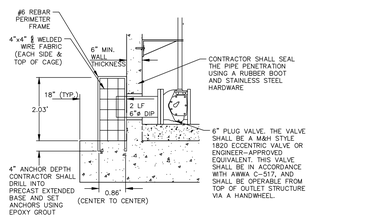


PERMANENT OUTLET RISER STRUCTURE 'B' DETAILS
N.T.S.

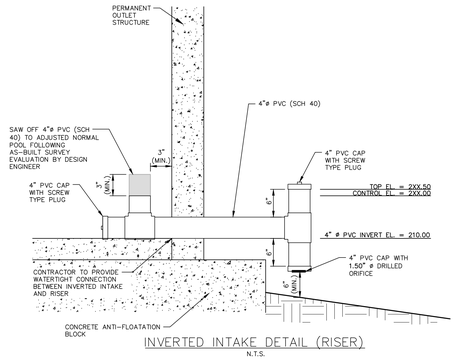
NOTES:
1. ALL REBAR TO BE #4 REBAR.
2. ALL REBAR AND ANGLES TO BE HOT-DIPPED GALVANIZED AND BE PROVIDED WITH AN EPOXY COATING.
3. THE HOT-DIPPED, GALVANIZED 2"x2"x1/4" ANGLES SHALL BE WELDED TO THE REBAR TRASH RACK. ONCE WELDED, THE ENTIRE ASSEMBLY SHALL BE PLACED ONTO THE RISER WITH ANGLES SITTING DIRECTLY ON TOP OF RISER.
4. TRASH RACK IS TO BE SECURELY FASTENED TO THE SPILLWAY RISER WITH A MINIMUM OF FOUR CORROSION-RESISTANT ANCHORS.
5. ACCESS HATCH SHALL ALIGN WITH STEPS IN RISER.



4'X4' RISER TRASH RACK DETAIL
N.T.S.



6"ø EMERGENCY DIP DRAIN TRASH RACK DETAILS
N.T.S.



INVERTED INTAKE DETAIL (RISER)
N.T.S.

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[redacted]

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-SWB
CHECKED BY	ACP
DRAWN BY	CAW
SCALE	N.T.S.
DATE	09. 08. 2023

SHEET

STORMWATER CONTROL MEASURE B DETAILS

C9.03

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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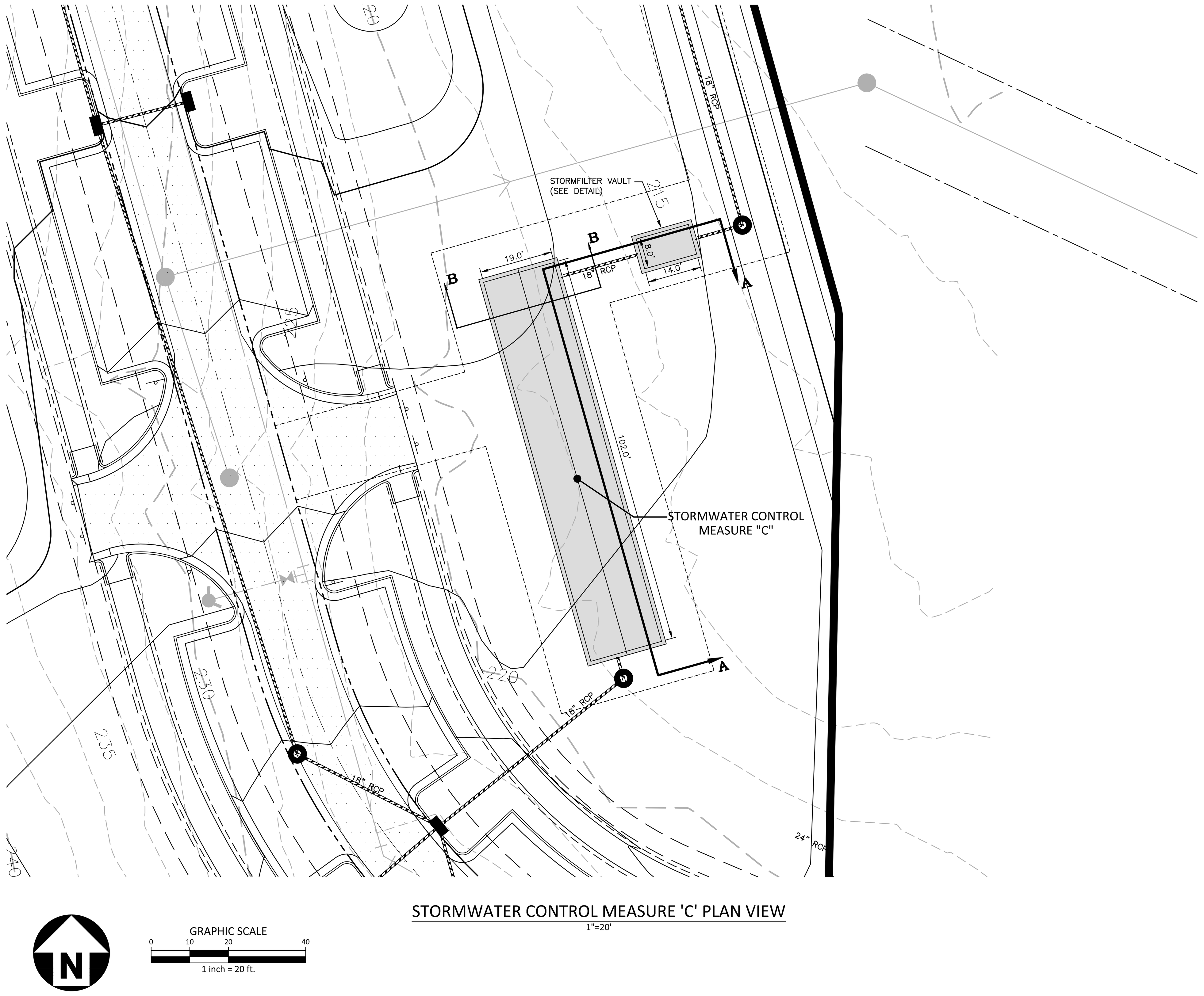
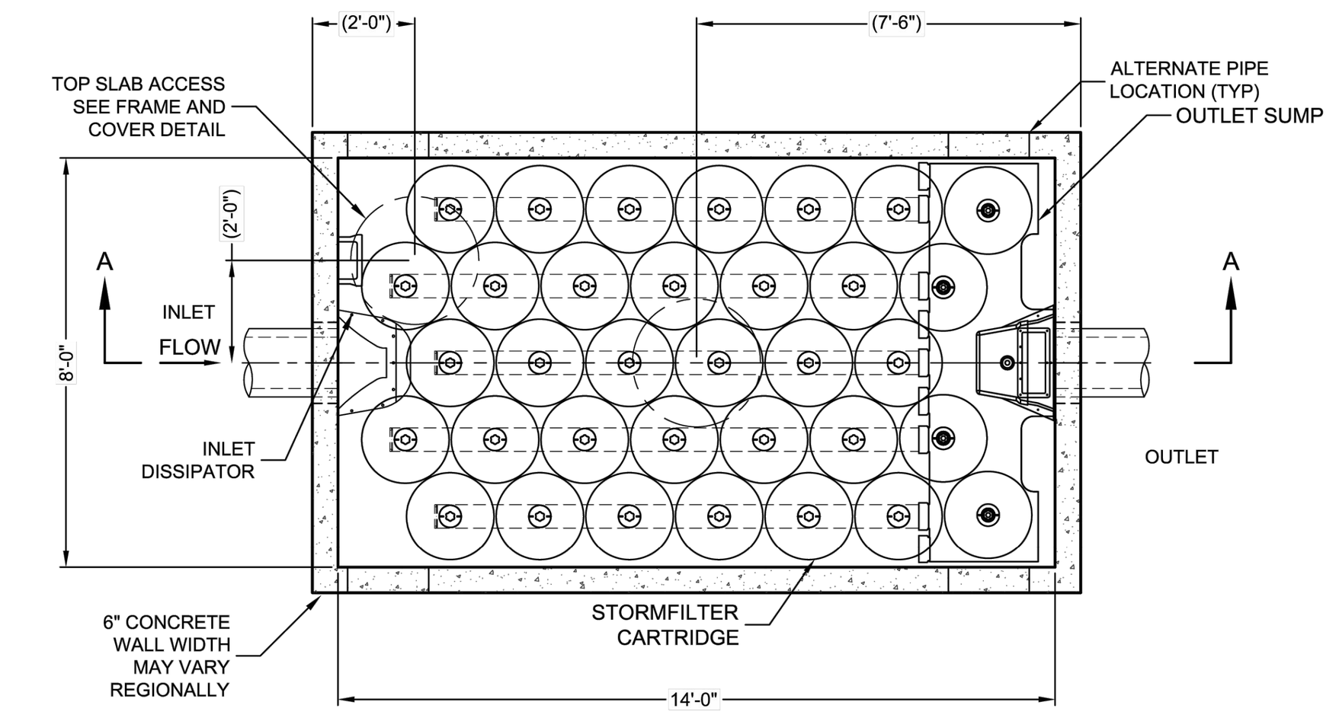


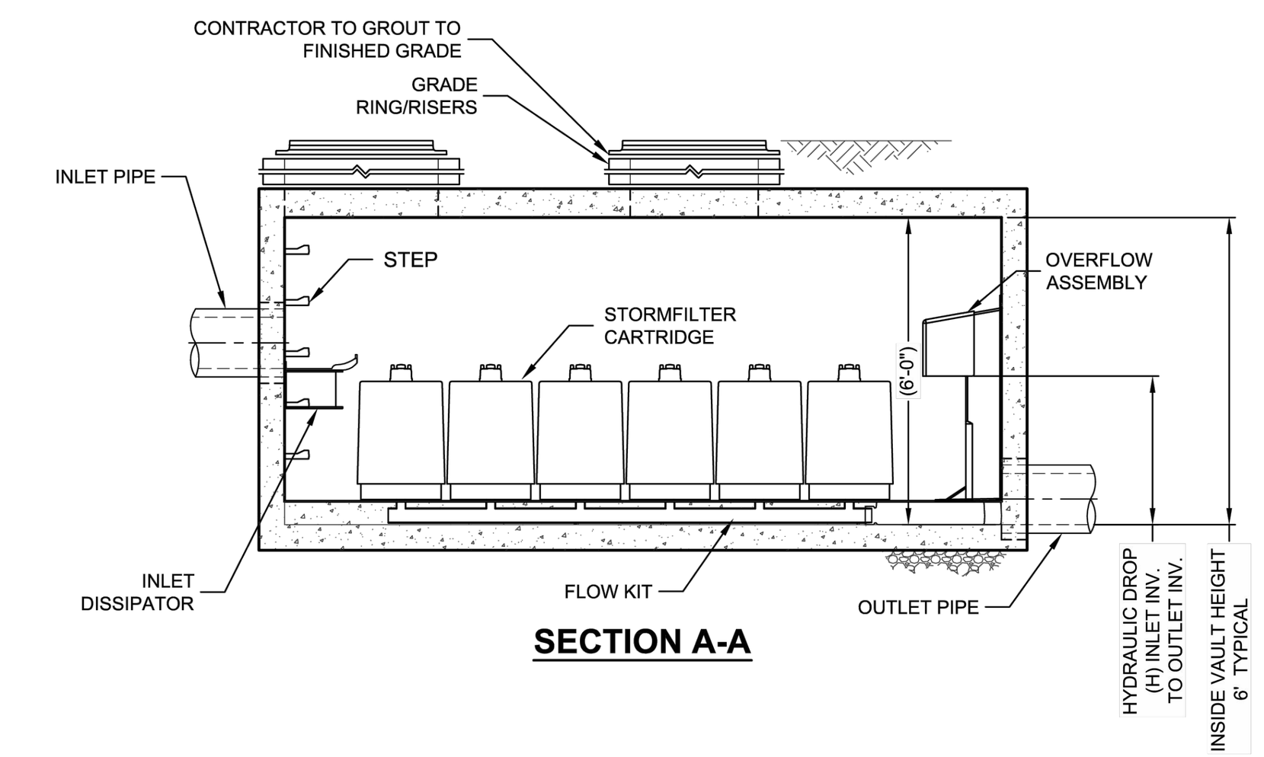
STORMWATER CONTROL MEASURE 'C' PLAN VIEW

1"=20'



PLAN VIEW

VAULT STYLE: OUTLET SUMP (NIB)



SECTION A-A

The Stormwater Management StormFilter®

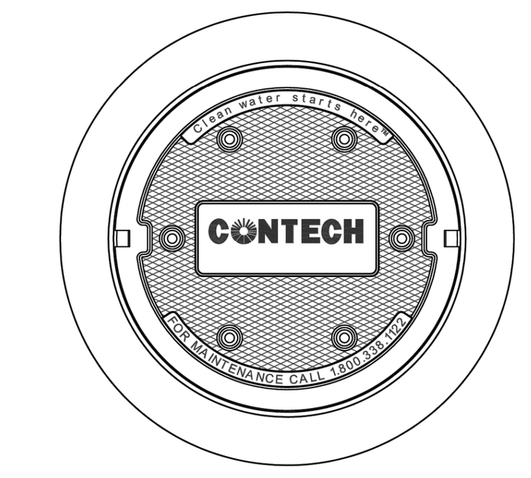
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD VAULT STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (34). VAULT STYLE OPTIONS INCLUDE INLET BAY (27), INLET BAY/OUTLET BAY (22), OUTLET BAY (29), INLET BAY/FULL HEIGHT BAFFLE (28), FULL HEIGHT BAFFLE WALL (25).
STORMFILTER 8X14 PEAK HYDRAULIC CAPACITY IS 1.8 CFS. IF THE SITE CONDITIONS EXCEED 1.8 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB ® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (27", 18", LOW DROP(LD))	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (PERLITE, ZPG, PSORB)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

UPSTREAM RIM ELEVATION	*
DOWNSTREAM RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

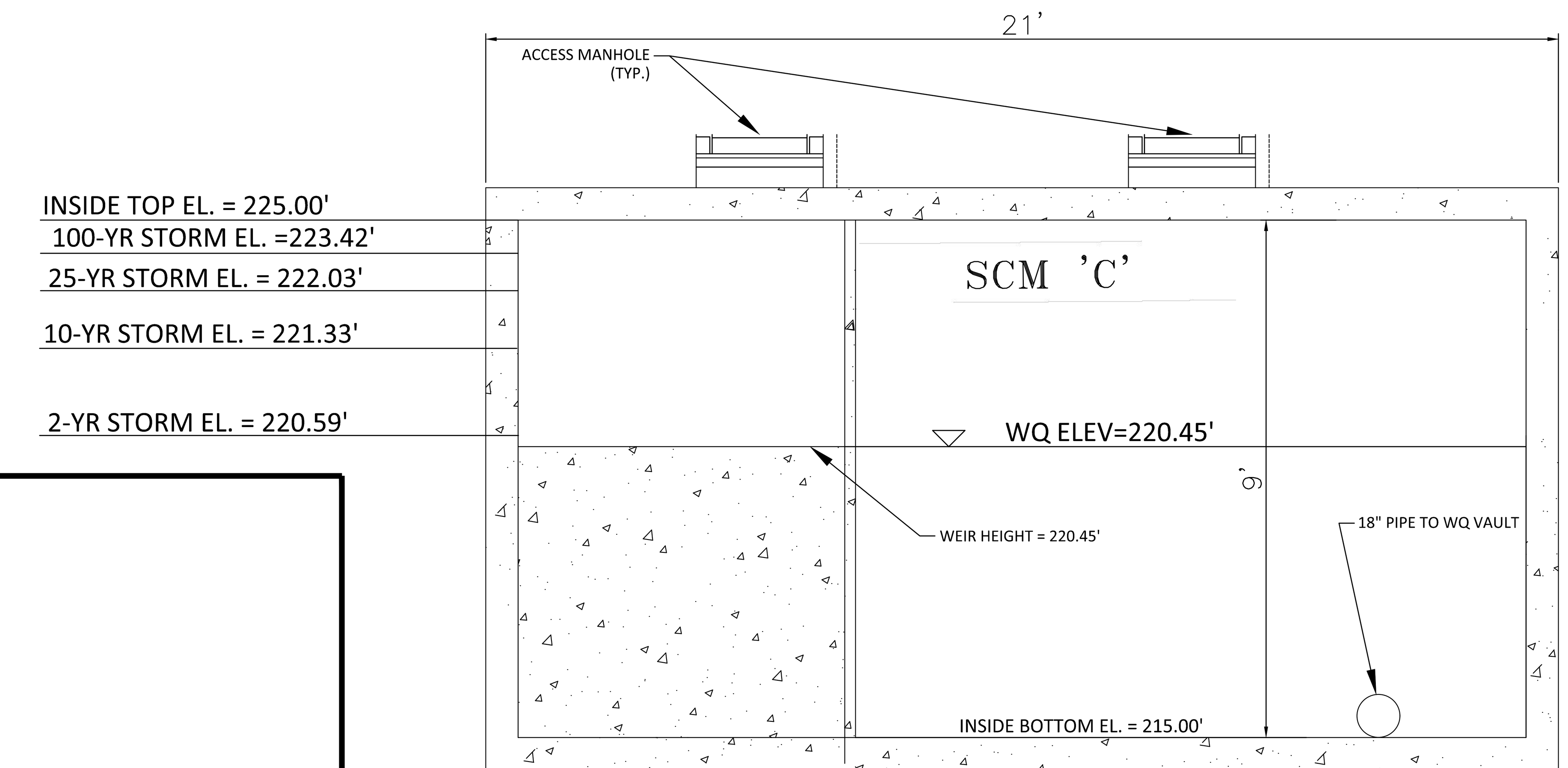
* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
6. FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
7. SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).
8. STORMFILTER STRUCTURE SHALL BE PRECAST CONFORMING TO ASTM C-857 AND AASHTO LOAD FACTOR DESIGN METHOD.

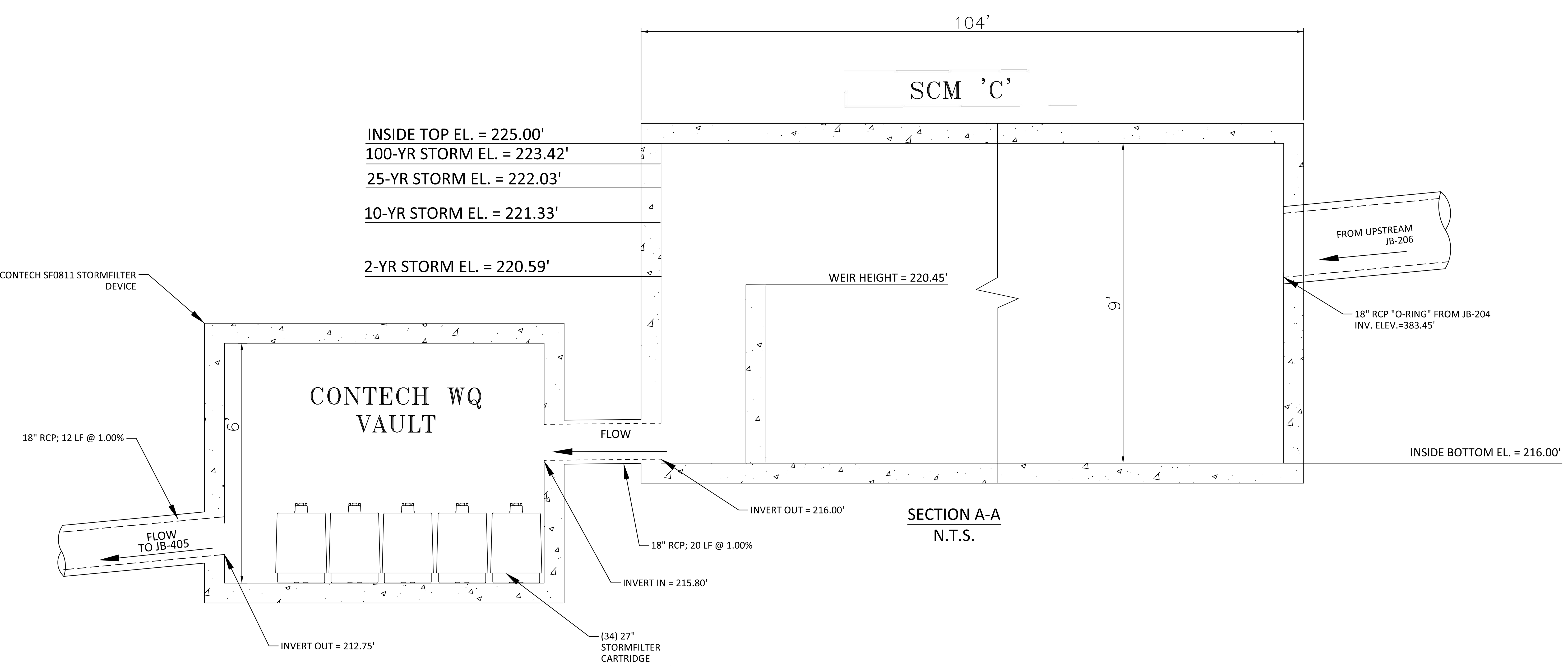
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER VAULT (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT SECTIONS AND ASSEMBLE VAULT.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SF0814
STORMFILTER
STANDARD DETAIL



SECTION B-B
N.T.S.



SECTION A-A
N.T.S.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

McADAMS
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MILL CREEK RESIDENTIAL

MODERA CAPITAL CITY
PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

[redacted]

REVISIONS

NO. DATE

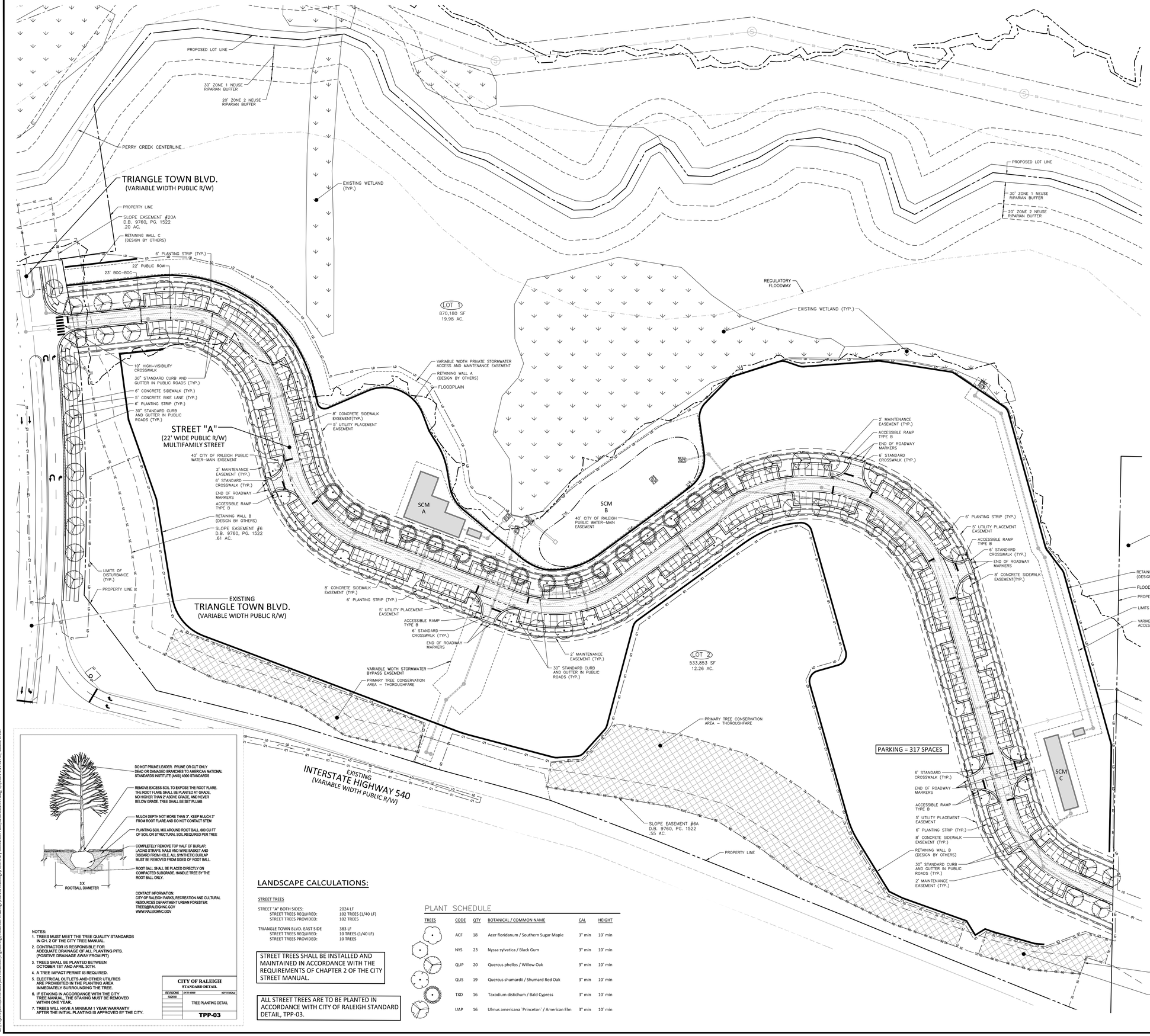
PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-SWC
CHECKED BY	ACP
DRAWN BY	MEM
SCALE	1" = 20'
DATE	09. 08. 2023

SHEET

STORMWATER CONTROL MEASURE C DETAILS

C9.04



SITE LEGEND

- SIGNAGE
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- TRAFFIC DIRECTIONAL ARROW
- ACC / VAN — ACCESSIBLE PARKING STALL
- VAN ACCESSIBLE PARKING STALL
- (XX) PARKING SPACE COUNT
- ACCESSIBLE RAMPS (TYPE A, TYPE B, TYPE C)
- ACCESSIBLE ROUTE
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE
- CENTERLINE
- HEAVY DUTY ASPHALT PAVEMENT

GRAPHIC SCALE
0 25 50 100
1 inch = 50 ft.

NOTES:
1. TREES MUST MEET THE TREE QUALITY STANDARDS IN CH. 2 OF THE CITY TREE MANUAL.
2. CONTRACTOR IS RESPONSIBLE FOR ADEQUATE DRAINAGE OF ALL PLANTING PITS. (POSITIVE DRAINAGE AWAY FROM PIT)
3. TREES SHALL BE PLANTED BETWEEN OCTOBER 1ST AND APRIL 30TH.
4. A TREE IMPACT PERMIT IS REQUIRED.
5. ELECTRICAL OUTLETS AND OTHER UTILITIES ARE PROHIBITED IN THE PLANTING AREA IMMEDIATELY SURROUNDING THE TREE.
6. IF STAKING IN ACCORDANCE WITH THE CITY TREE MANUAL, THE STAKING MUST BE REMOVED WITHIN ONE YEAR.
7. TREES WILL HAVE A MINIMUM 1 YEAR WARRANTY AFTER THE INITIAL PLANTING IS APPROVED BY THE CITY.

CITY OF RALEIGH STANDARD DETAIL		
REVISIONS	DATE ADDED	NOT TO SCALE
10/2019		TREE PLANTING DETAIL
		TPP-03

LANDSCAPE CALCULATIONS:

STREET TREES

STREET "A" BOTH SIDES:	2024 LF
STREET TREES REQUIRED:	102 TREES (1/40 LF)
STREET TREES PROVIDED:	102 TREES
TRIANGLE TOWN BLVD. EAST SIDE	383 LF
STREET TREES REQUIRED:	10 TREES (1/40 LF)
STREET TREES PROVIDED:	10 TREES

STREET TREES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 2 OF THE CITY STREET MANUAL.

ALL STREET TREES ARE TO BE PLANTED IN ACCORDANCE WITH CITY OF RALEIGH STANDARD DETAIL, TPP-03.

PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL / COMMON NAME	CAL	HEIGHT
	ACF	18	Acer floridanum / Southern Sugar Maple	3" min	10' min
	NYS	23	Nyssa sylvatica / Black Gum	3" min	10' min
	QUP	20	Quercus phellos / Willow Oak	3" min	10' min
	QUS	19	Quercus shumardii / Shumard Red Oak	3" min	10' min
	TXD	16	Taxodium distichum / Bald Cypress	3" min	10' min
	UAP	16	Ulmus americana 'Princeton' / American Elm	3" min	10' min

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MILL CREEK RESIDENTIAL

MODERA CAPITAL CITY

PRELIMINARY SUBDIVISION PLAN
7022 CAPITAL BOULEVARD
RALEIGH, NORTH CAROLINA 27616

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	MCR-23004
FILENAME	MCR23004-LS1
CHECKED BY	JGY
DRAWN BY	MCG
SCALE	1" = 50'
DATE	09. 08. 2023

SHEET

LANDSCAPE PLAN

L5.00

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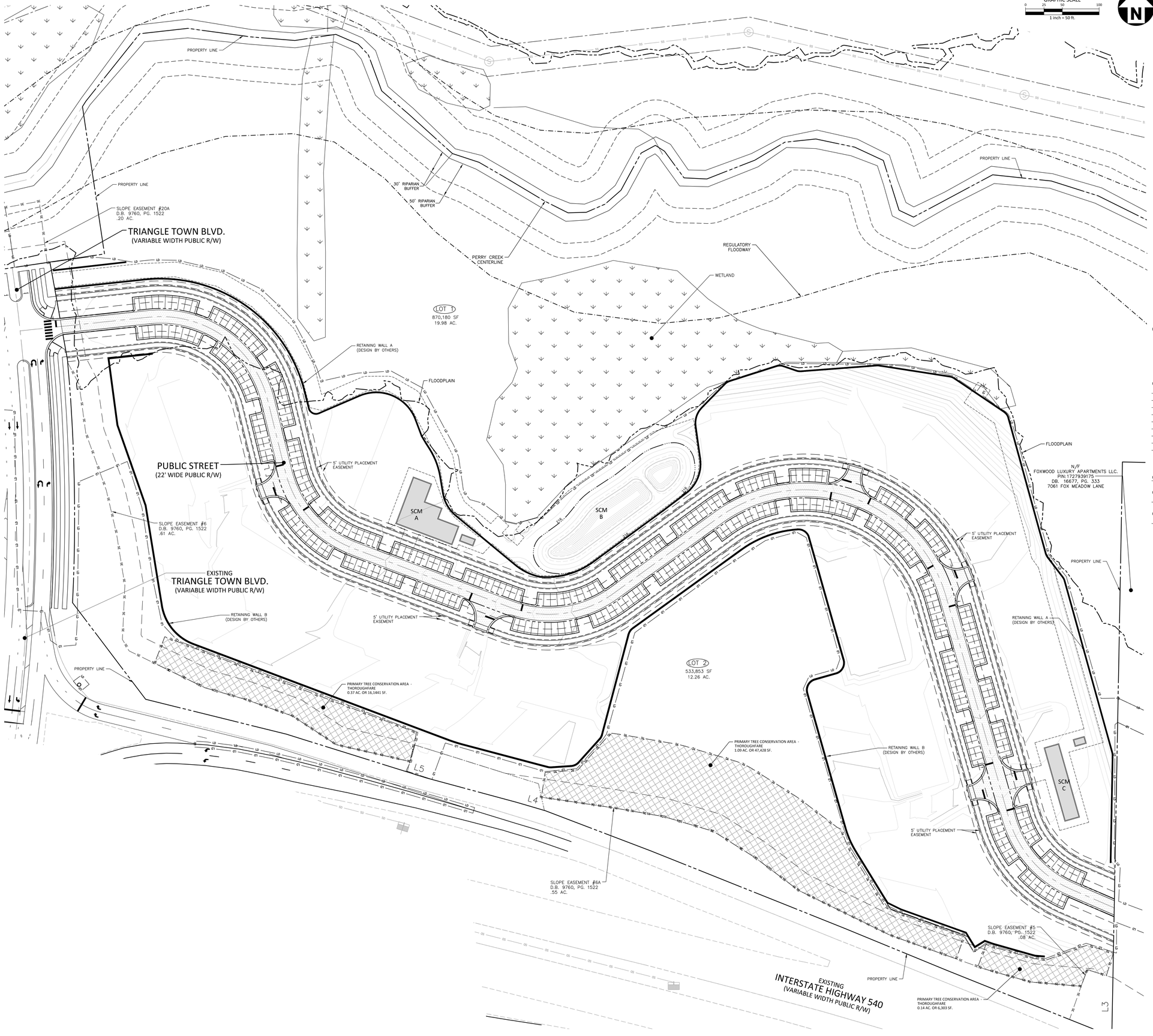

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- ACCESSIBLE RAMPS (TYPE A, TYPE B, TYPE C)
- PHASE LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LOT LINE
- EASEMENT LINE

Tree Conservation Plan Data Sheet
UDO Article 9.1 Tree Conservation
(Include applicable information on the plan sheet)

Project Name: Moderna Capital City Apartments

Gross Site Acres:	33.51	ac
Right-of-way to be dedicated with this project:	1.02	ac
Net Site Acres:	32.49	ac

	Number of Acres		Percent of Tract
UDO 9.1.4.A. Primary Tree Conservation Areas			
1. Primary Tree Conservation Area - SHOD 1		ac	%
1. Primary Tree Conservation Area - SHOD 2		ac	%
2. Primary Tree Conservation Area - Parkway Frontage		ac	%
3. Primary Tree Conservation Area - CM		ac	%
4. Primary Tree Conservation Area - MPOD		ac	%
5. Primary Tree Conservation Area - Champion Tree XX" dbh species		ac	%
6. Primary Tree Conservation Area - Neuse Buffer Zone 2		ac	%
7. Primary Tree Conservation Area - 45% Slopes		ac	%
8. Primary Tree Conservation Area -Thoroughfare	1.60	ac	4.92 %
Subtotal of Primary Tree Conservation Areas:	1.60	ac	4.92 %
UDO 9.1.4.D.2 Tree Conservation Area - Greenway	2.37	ac	7.29 %
UDO 9.1.4.B.1.a. & b. Secondary Tree Conservation Areas (Include perimeter buffers and their alternate compliance areas)		ac	%
UDO 9.1.4.B.1.c. & d. Individual Tree Secondary Tree Conservation Areas (Include individual trees and their alternate compliance areas)		ac	%
Subtotal of Secondary Tree Conservation Areas:		ac	%
TOTAL ALL TREE CONSERVATION AREA PROVIDED:	3.97	ac	12.21 %

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REVISIONS

NO. DATE

PLAN INFORMATION

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CHECKED BY	ACP
DRAWN BY	MEM
SCALE	1" = 50'
DATE	09. 08. 2023

SHEET

TREE CONSERVATION PLAN
L8.00

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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