

EXISTING CONDITIONS LEGEND

- NGS CM = NATIONAL GEODETIC SURVEY CONCRETE MONUMENT
- PROPOSED BORE LOCATION
- US POSTAL SERVICE MAILBOX
- MAILBOX
- UTILITY POLE
- IRRIGATION CONTROL VALVE
- POST INDICATOR VALVE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- COMMUNICATION MANHOLE
- TELEPHONE PEDESTAL
- SIGNAL BOX
- EXISTING SANITARY SEWER MANHOLE
- SDMH = STORM DRAIN MANHOLE
- CALCULATED POINT
- PK NAIL SET
- CHISEL MK CHISEL MARK SET
- 5/8" REBAR SET WITH CAP
- REBAR FOUND
- OPEN TOP IRON PIN FOUND
- LIGHT POLE
- GUY WIRE ANCHOR
- RAILROAD CROSSING SIGNAL
- SEWER CLEAN-OUT
- ELECTRIC SERVICE STUB-OUT
- CATCH BASIN
- GAS VALVE
- FINISHED FLOOR ELEVATION

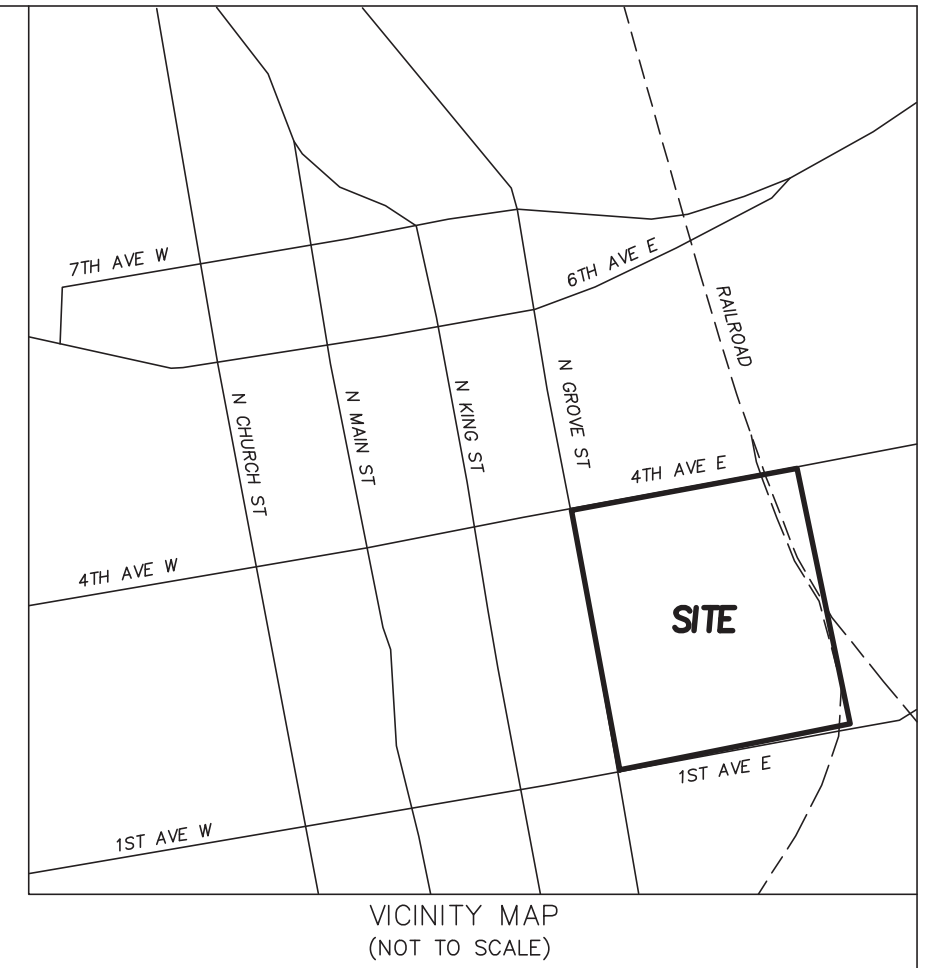
- INDICATES LINE NOT SURVEYED AT THIS TIME
- INDICATES UTILITY LINE
- INDICATES DITCH LINE
- INDICATES GRAVEL/DIRT DRIVE
- INDICATES FENCE LINE
- INDICATES STREAM OR RIVER LINE
- INDICATES CULVERT
- INDICATES TREE LINE
- INDICATES BUILDING
- TOP OF SLOPE
- TOE OF SLOPE
- DITCH LINES
- PROPERTY BOUNDARY LINE
- EASEMENT LINE
- TIE LINE
- APPROXIMATE LOCATION OF UNDERGROUND TELEPHONE LINES
- RIGHT-OF-WAY
- RAILROAD RIGHT-OF-WAY
- RAILROAD TRACKS

- PS PLAT SLIDE
- DB DEED BOOK
- CMP CORRUGATED METAL PIPE
- RCP REINFORCED CONCRETE PIPE
- CPP CORRUGATED PLASTIC PIPE
- PVC POLYVINYL CHLORIDE PIPE
- FDC FIRE DEPARTMENT CONNECTION

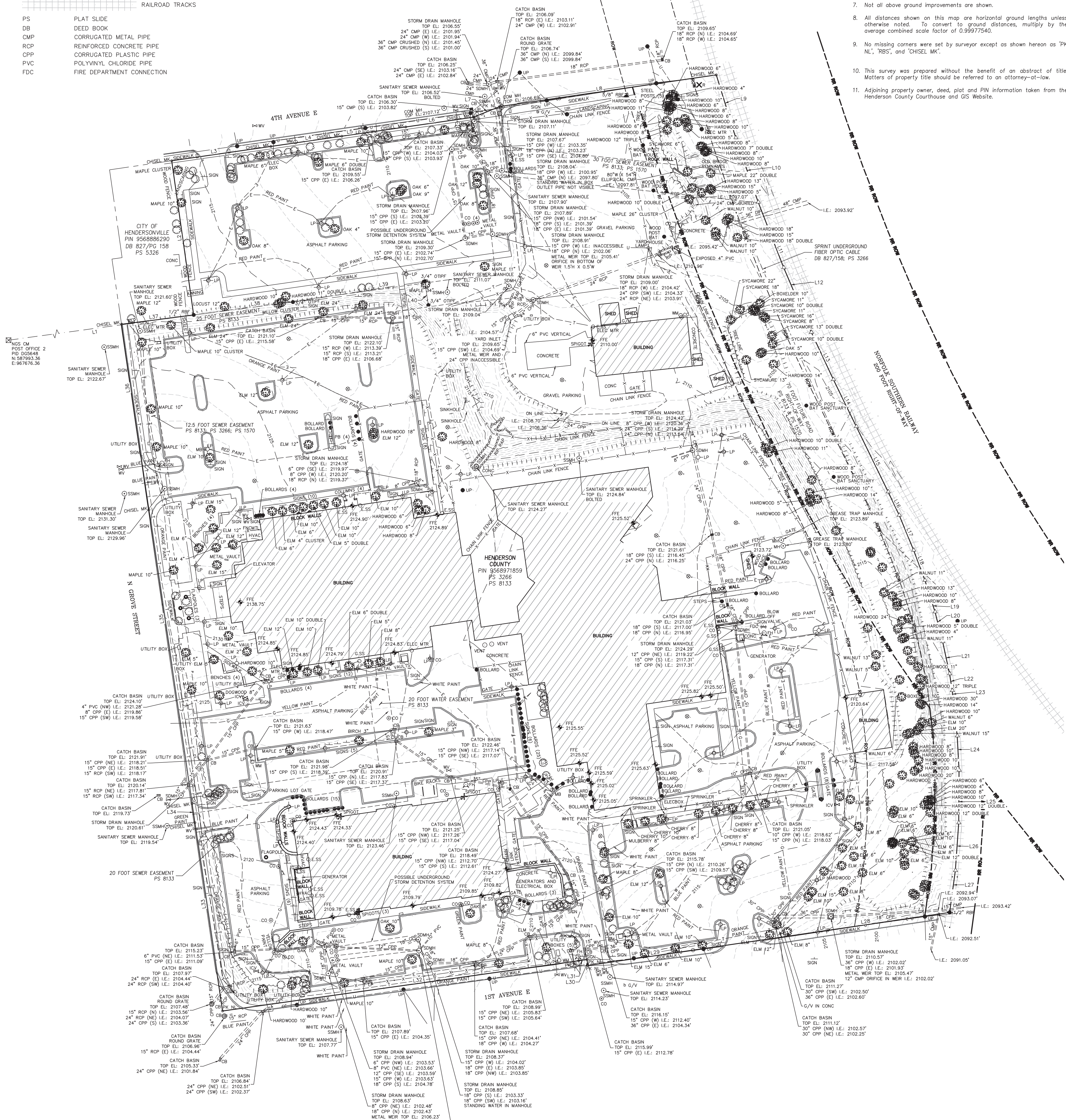
**BOUNDARY AND TOPOGRAPHIC SURVEY FOR:
HENDERSON COUNTY**

PROPERTY OF:
HENDERSON COUNTY
PIN 9568971859
PS 3266
PS 8133
HENDERSONVILLE TOWNSHIP
HENDERSON COUNTY, NORTH CAROLINA

LINE	BEARING	DISTANCE (H)	LINE	BEARING	DISTANCE (H)
L1	S82°13'56"W	1165.48'	L21	S12°09'16"E	34.02'
L2	N8°06'20"W	161.51'	L22	S8°53'20"E	17.68'
L3	N81°47'53"E	103.78'	L23	S6°18'56"E	47.24'
L4	N81°47'07"E	74.31'	L24	S3°04'53"E	35.64'
L5	N81°47'53"E	67.00'	L25	S0°19'52"W	54.51'
L6	N81°47'53"E	71.13'	L26	S4°05'00"W	49.70'
L7	N67°49'14"E	29.48'	L27	S7°42'31"W	43.85'
L8	N81°41'57"E	226.60'	L28	S81°39'26"W	268.92'
L9	S17°12'32"E	68.21'	L29	S81°38'53"W	110.11'
L10	S19°14'54"E	70.68'	L30	N8°21'07"W	6.28'
L11	S21°12'57"E	72.85'	L31	S81°58'01"W	8.79'
L12	S23°07'42"E	72.97'	L32	S81°58'01"W	372.72'
L13	S25°04'37"E	53.99'	L33	N8°21'07"W	197.29'
L14	S25°59'11"E	54.25'	L34	N8°22'09"W	20.00'
L15	S25°58'54"E	75.26'	L35	N8°22'09"W	307.87'
L16	S25°19'29"E	26.84'	L36	N8°22'09"W	194.49'
L17	S22°37'07"E	39.25'	L37	N82°37'34"E	75.35'
L18	S20°30'42"E	33.29'	L38	N82°37'02"E	103.75'
L19	S17°47'20"E	34.43'	L39	N81°02'03"E	138.37'
L20	S14°18'03"E	31.88'	L40	S8°25'50"E	24.96'



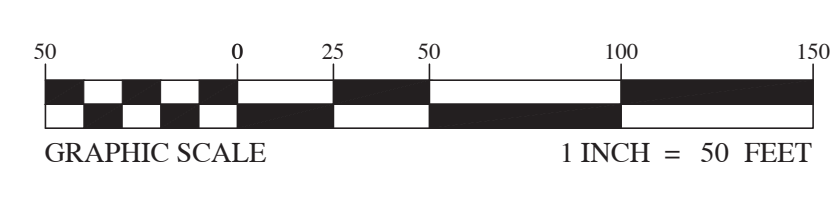
- NOTES:**
- Field work completed: September 27, 2022
Office work completed: October 25, 2022
 - All coordinates shown are Horizontal Datum: NAD83(2011)
Vertical Datum: NAVD88 (Geoid12A)
 - Areas computed by coordinate method.
 - Property shown hereon is subject to all right-of-ways, easements, reservations and restrictions which exist as a matter of record or exist de facto.
 - Property shown hereon is subject to the rules, regulations, ordinances and/or jurisdictions of local, state, and/or federal agencies if any. The requirements of said rules, regulations, ordinances, and/or the limits of said jurisdictions are not shown hereon unless stated otherwise.
 - Underground installations or improvements including building foundations have not been located except as shown hereon. Call NC811 at *811 before digging.
 - Not all above ground improvements are shown.
 - All distances shown on this map are horizontal ground lengths unless otherwise noted. To convert to ground distances, multiply by the average combined scale factor of 0.99977540.
 - No missing corners were set by surveyor except as shown hereon as "PK NL", "RBS", and "CHISEL MK".
 - This survey was prepared without the benefit of an abstract of title. Matjers of property title should be referred to an attorney-at-law.
 - Adjoining property owner, deed, plat and PIN information taken from the Henderson County Courthouse and GIS Website.



SURVEYOR'S CERTIFICATION

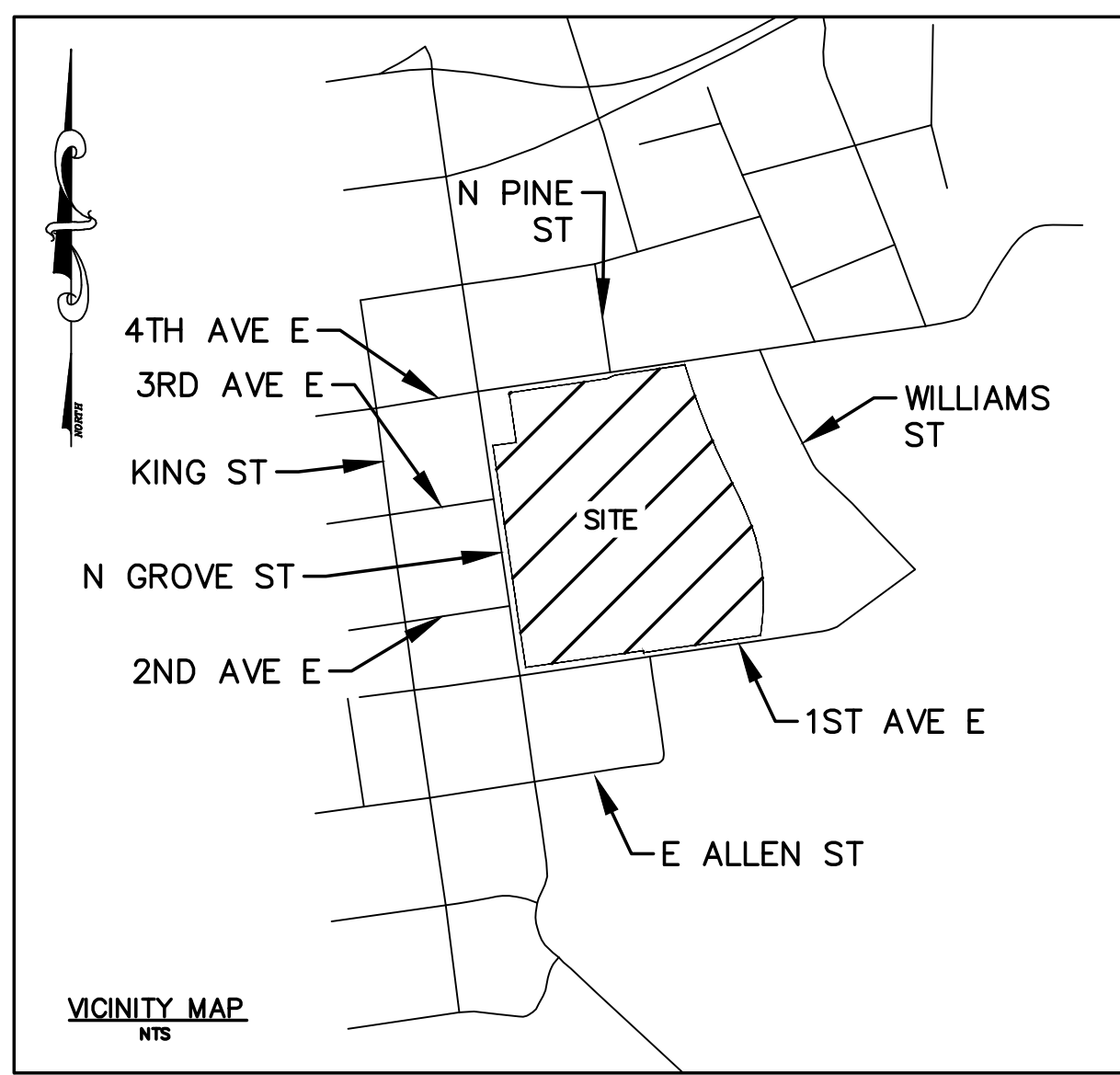
I, Christopher F. Jordan, certify that this plan was drawn under my supervision from an actual survey made under my supervision from description recorded as Plat Slide 8133, Slide 3266, and Slide 1570; that the positional accuracy meets or exceeds the requirements for a Class A survey; and that this plan was prepared in accordance with G.S. 42-33 section F-11-c1 and that the survey is of an existing parcel or parcels of land and does not create a new street or change an existing street. Witness my hand and seal on this day.

Christopher F. Jordan
CHRISTOPHER F. JORDAN, PLS L-4956
October 25, 2022
DATE



ED HOLMES & ASSOCIATES
LAND SURVEYORS, P.A.

200 Ridgefield Ct. Ste. 208 Asheville, NC 28806
Company License # C-2806
828.225.6562



PROJECT SUMMARY

PROJECT NAME: HENDERSON COUNTY DETENTION CENTER
200 N GROVE STREET
HENDERSON COUNTY, NC

PIN # 9568-97-1859

PLAT: SLIDE 8133
DEED: SLIDE 3266

EXISTING ZONING PLANNED INSTITUTIONAL DEVELOPMENT (PID)

PROPOSED ZONING PLANNED INSTITUTIONAL DEVELOPMENT / CONDITIONAL ZONING DISTRICT (PID/CZD)

OWNER HENDERSON COUNTY
1 HISTORIC COURTHOUSE SQUARE
HENDERSONVILLE, NC 28792

DEVELOPER HENDERSON COUNTY
CHRISTOPHER TODD
HENDERSON COUNTY ENGINEER
828-694-5850

ENGINEER JARED L. DERIDDER, P.E.
WGLA ENGINEERING, PLLC
724 5TH AVENUE WEST
HENDERSONVILLE, NC 28792

ARCHITECT FENTRESS ARCHITECTS
421 BROADWAY
DENVER, COLORADO 80203
CHARLES CANNON, RA

SURVEYOR ED HOLMES & ASSOCIATES
LAND SURVEYORS, P.A.
200 RIDGE FIELD COURT, SUITE 215
ASHEVILLE, NC 28806

ACRES 14.78 AC ±

PRE DEVELOPMENT GROUND COVER SUMMARY
GRASS/OPEN SPACE: 5.38 AC ± (36.4%)
IMPERVIOUS: 9.40 AC ± (63.6%)

POST DEVELOPMENT GROUND COVER SUMMARY
GRASS/OPEN SPACE: 4.81 AC ± (32.54%)
IMPERVIOUS: 9.97 AC ± (67.46%)

WATER SYSTEM ON SITE (PUBLIC) CITY OF HENDERSONVILLE

SEWER SYSTEM ON SITE (PUBLIC) CITY OF HENDERSONVILLE

BUILDING SETBACKS 40' FROM ANY ROAD RIGHT-OF-WAY
10' FROM RIGHT-OF-WAY WHEN PARKING IS SITUATED TO THE REAR OR SIDE OF THE LOT AND SCREENED FROM VIEW 25' FROM ANY EXTERIOR PROPERTY BOUNDARY

BUILDING HEIGHT SUMMARY:
MAX ALLOWABLE BUILDING HEIGHT: 50'
PER PID ZONING DISTRICT:
PER DOWNTOWN EDGE CHARACTER DISTRICT: 64'

PROPOSED BUILDING HEIGHT: (SEE NOTE #7)

COURTHOUSE
AVERAGE GRADE PLAN ELEV: 2125.75'
TOP OF ROOF COPING ELEV: 2218.50'
TOP OF ROOF COPING HEIGHT: 92.75'

DETENTION CENTER
AVERAGE GRADE PLAN ELEV: 2125.50'
MEAN RIDGE / GABLE ELEV: 2151.00'
MEAN RIDGE / GABLE HEIGHT: 25.5'

EXISTING PARKING SUMMARY: 462 SPACES TOTAL

EXISTING JAIL:
REQUIREMENT: 1 SPACE PER 2 EMPLOYEES *
REQUIRED: 56 EMPLOYEES** = 28 SPACES
PROVIDED: 28 SPACES

EXISTING SHERIFF:
REQUIREMENT: 1 SPACE PER 500 SF **
REQUIRED: 63,000 SF = 126 SPACES
PROVIDED: 126 SPACES

EXISTING COURTHOUSE:
REQUIREMENT: 1 SPACE PER 500 SF **
REQUIRED: 99,116 SF = 199 SPACES
PROVIDED: 308 SPACES

PROPOSED PARKING SUMMARY: 579 SPACES TOTAL

PROPOSED JAIL:
REQUIREMENT: 1 SPACE PER 2 EMPLOYEES *
REQUIRED: 85 EMPLOYEES** = 43 SPACES
PROVIDED: 43 SPACES

PROPOSED SHERIFF:
REQUIREMENT: 1 SPACE PER 500 SF **
REQUIRED: 63,000 SF = 126 SPACES
PROVIDED: 126 SPACES

PROPOSED COURTHOUSE:
REQUIREMENT: 1 SPACE PER 500 SF *
REQUIRED: 189,975 SF = 380 SPACES
PROVIDED: 410 SPACES

* REQUIREMENT DERIVED FROM CITY OF HENDERSONVILLE PARKING TABLE 6-5-2 FOR A PER EMPLOYEE / SHIFT DRIVEN USE.
** REQUIREMENT PER HENDERSON COUNTY COMMERCIAL, OFFICE, INSTITUTIONAL, CIVIC USE CLASSIFICATION
*** PER FENTRESS POR 2040 PROJECTION

BLDG SQUARE FOOTAGE SUMMARY:

EXISTING SHERIFFS OFFICE: 63,000 SF ±
EXISTING DETENTION CENTER: 60,361 SF ±
EXISTING '95 BUILDING: 99,116 SF ±

PROPOSED DETENTION CENTER ADDITION: 53,443 SF ±
PROPOSED COURTHOUSE ADDITION: 90,859 SF ±

TOTAL SHERIFFS OFFICE: 63,000 SF ±
TOTAL DETENTION CENTER: 113,804 SF ±
TOTAL COURTHOUSE: 189,975 SF ±

LEGEND

- PROPERTY LINE
- SS EXISTING SEWER LINE
- SS PROPOSED SEWER LINE
- W EXISTING WATER LINE
- W PROPOSED WATER LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING STORMWATER PIPE
- PROPOSED STORMWATER PIPE
- EXISTING RAILROAD R/W
- PROPOSED SITE LIGHTING
- RL PROPOSED ROOF LEADER
- PROPOSED RETAINING WALL

- NOTES:**
- NO PORTION OF THIS PROJECT IS WITHIN THE 100 YEAR FLOOD PLAIN OR FLOOD WAY.
 - THIS PARCEL AND ALL ADJOINING PARCELS ARE WITHIN THE CITY OF HENDERSONVILLE CITY LIMITS.
 - LIGHTING FOR THE SITE SHALL COMPLY WITH SECTION 6-19 OF THE CITY OF HENDERSONVILLE ZONING ORDINANCE.
 - ALL PLANNED IMPROVEMENTS ARE CURRENTLY PROPOSED TO BE COMPLETED IN ONE PHASE.
 - ALL AREAS SHALL BE PAVED TO NCDOT STANDARDS.
 - ALL PROPOSED PARKING SPACES WILL BE A MINIMUM OF 9'X18' AND 90' PARKING WILL HAVE A MINIMUM DRIVE ISLE WIDTH OF 24'.
 - BUILDING HEIGHTS ARE CALCULATED PER COH ZONING ORDINANCE ARTICLE 12.
 - HENDERSON COUNTY SHALL COORDINATE WITH THE RAILROAD AS REQUIRED FOR DISTURBANCE WITHIN THE RAILROAD RIGHT OF WAY PRIOR TO ANY LAND DISTURBANCE.

SITE AREA SUMMARY:

PROPERTY AREA: 643,789 SF - 14.78 AC - 100%

SITE COVERAGE - BUILDINGS: 163,796 SF - 3.76 AC - 25.44%

SITE COVERAGE - OPEN SPACE: 209,496 SF - 4.81 AC - 32.54%

SITE COVERAGE - STREETS AND PARKING: 229,102 SF - 5.26 AC - 35.59%

SITE COVERAGE - COMMON OPEN SPACE: 64,379 SF - 1.48 AC - 10%

PROJECT AREA SUMMARY:

PROJECT AREA: 389,914 SF - 8.95 AC - 100%

PROJECT COVERAGE - BUILDINGS: 60,133 SF - 1.38 AC - 15.42%

PROJECT COVERAGE - OPEN SPACE: 150,288 SF - 3.45 AC - 38.54%

PROJECT COVERAGE - STREETS AND PARKING: 158,252 SF - 3.63 AC - 40.59%

PROJECT COVERAGE - COMMON OPEN SPACE: 38,991 SF - 0.90 AC - 10%

DEVELOPER PROPOSED CONDITIONS

1-DEVELOPER PROPOSES TO EXCEED THE MAXIMUM ALLOWABLE BUILDING HEIGHT OF THE SUBJECT ZONING DISTRICT (SEE PROPOSED BUILDING HEIGHT SUMMARY ON THIS SHEET)

2-DEVELOPER PROPOSES TO PROVIDE PARKING SPACES AS OUTLINED IN THE PARKING SUMMARY ON THIS SHEET.

3-NEW LANDSCAPE REQUIREMENTS AND CALCULATIONS ARE BASED ON THE NEW PROJECT AREA.

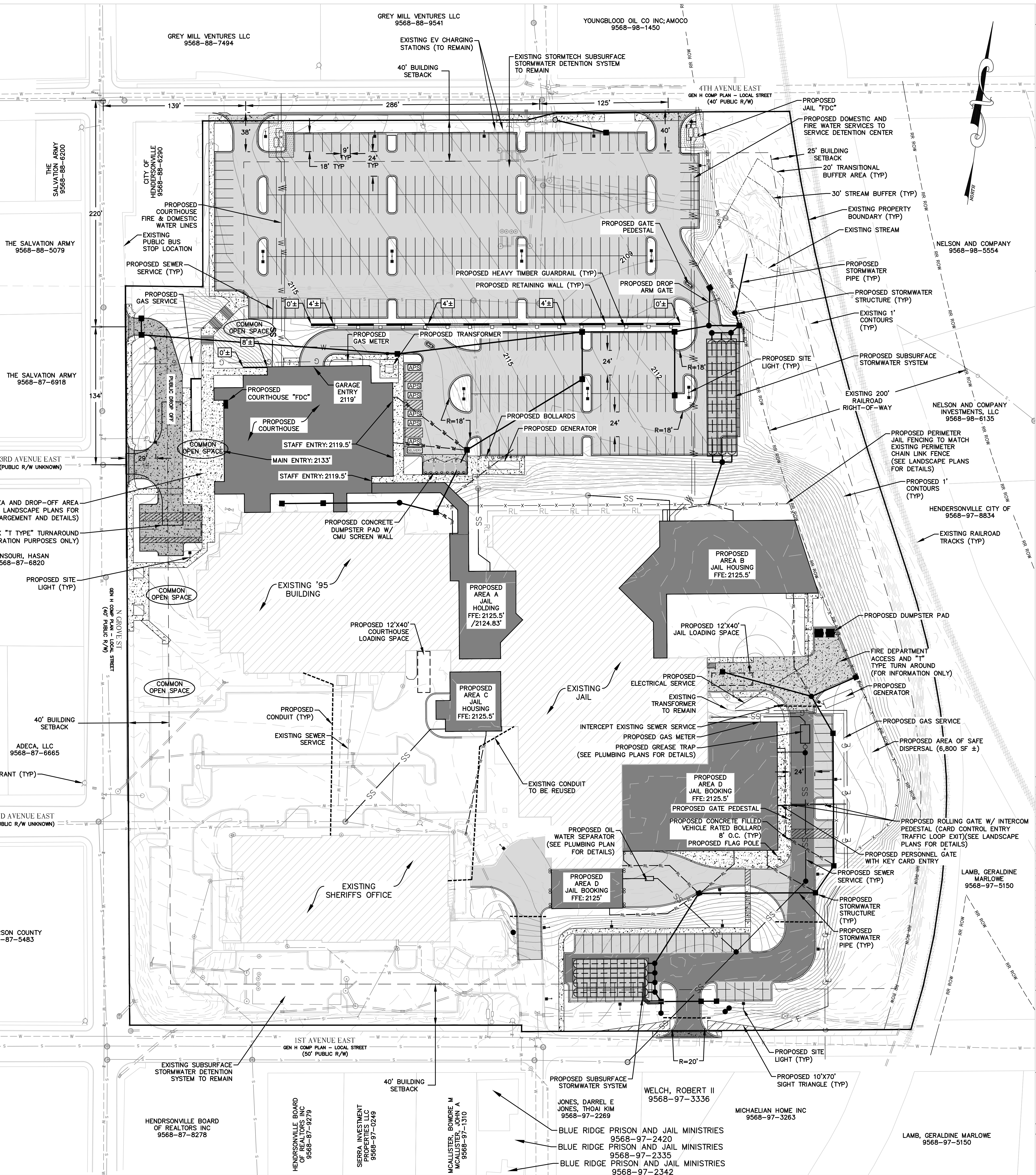
DEVELOPER PROPOSED COUNTER-CONDITIONS

1- THE DEVELOPER INTENDS TO PAY FEE-IN-LIEU (AS OUTLINED IN SECTION 6-12-3 OF THE CITY ORDINANCE) OF INSTALLATION OF THE SIDEWALK SPECIFIED BY CITY PROPOSED CONDITION. THIS EQUATES TO APPROXIMATELY 100 LF ± OF (800 SF ±).

CITY PROPOSED CONDITIONS

GRAPHIC SCALE

(IN FEET)



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WGLA
Engineering

HENDERSON COUNTY
JUDICIAL CENTER
200 N GROVE STREET, HENDERSONVILLE, NC 28792

NO.	ISSUED FOR	DATE
1	PRELIMINARY SITE PLAN	01-10-28
2	REV PRELIM SITE PLAN	01-07-28
3	SITE PLAN	08-29-28
4	SITE PLAN	03-08-28

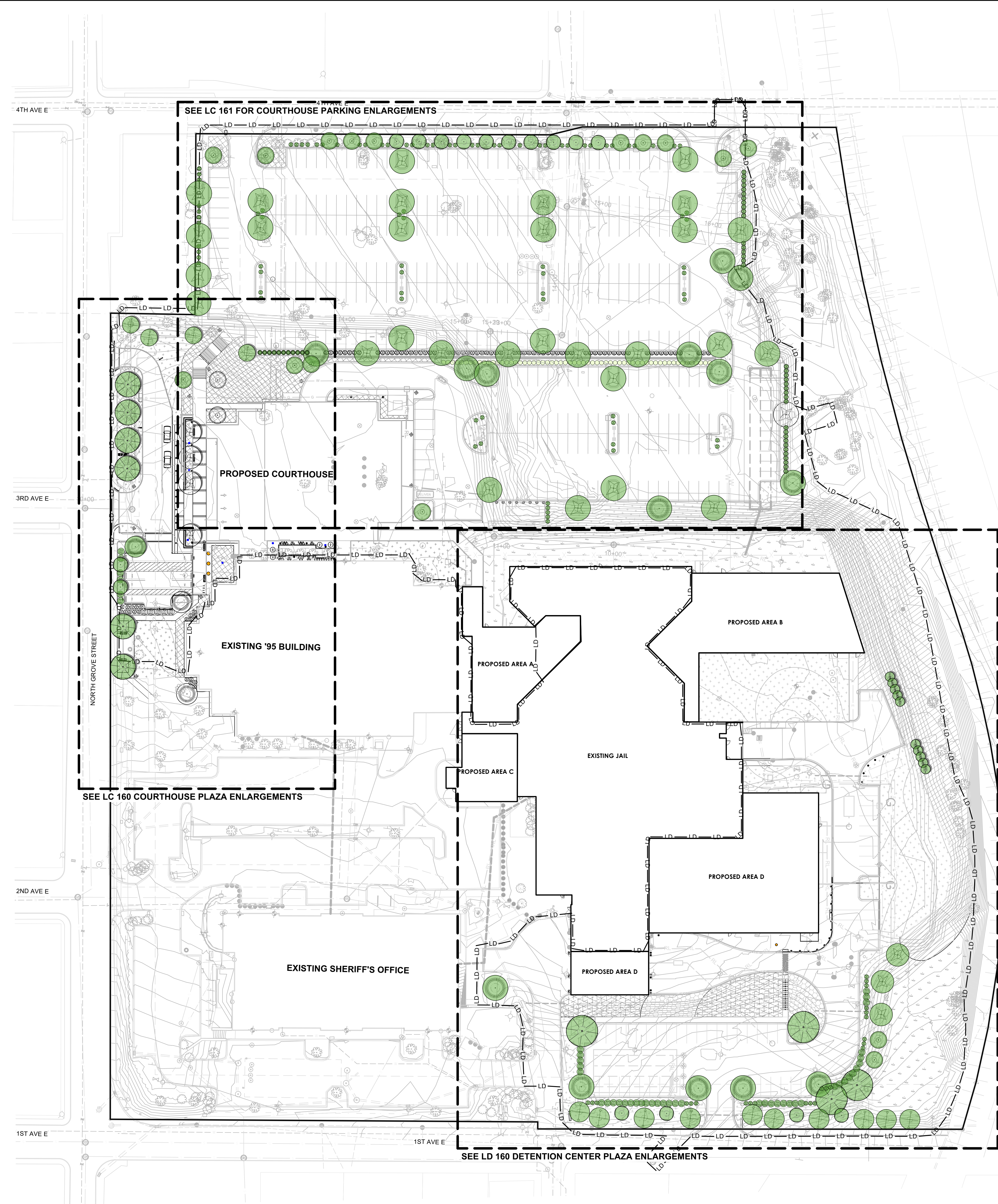
STAMP: NORTH CAROLINA
Preliminary
Not For
Construction
JARED L. DERIDDER, P.E.

DRAWING TITLE: SITE PLAN

PROJECT #: 20220006.003
SHEET NUMBER: CC-200

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Warning: It is a violation of the law for any person, unless acting under the direction of a licensed architect, to alter an item in any way. If an item in this document is altered, the altering architect, if other than the architect of record, shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and the specific description of the alteration.



SHEET INDEX

L 200	OVERALL PLAN
L 201	TREE CANOPY COVERAGE PLAN
LC 160	PLANTING PLAN
LC 161	PLANTING PLAN
LD 160	PLANTING PLAN
LC 506	DETAILS

- GENERAL NOTES**
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ZONE TRAFFIC CONTROL IN OR ADJACENT TO NCDOT OR CITY RIGHT-OF-WAY. ALL METHODS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARDS.
 2. UNLESS NOTED ON THE DRAWINGS ALL BUFFERS, WETLANDS, STREAM CHANNELS, SETBACKS AND TREE PROTECTION AREAS SHALL BE PROTECTED WITH NO CONSTRUCTION ACCESS, STORAGE OR USE OF ANY KIND. THE CONTRACTOR SHALL KEEP CONSTRUCTION ACTIVITIES WITHIN THE "PROJECT LIMITS" SHOWN ON THE DRAWINGS.
 3. ALL DIMENSIONS INDICATING "VERIFY" SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO STARTING CONSTRUCTION REPORT ANY DISCREPANCIES IMMEDIATELY TO THE LANDSCAPE ARCHITECT.
 4. ALL DIMENSIONS LABELED "EQ" ARE TO INDICATE EQUAL MEASUREMENTS BETWEEN THE DIMENSIONS END POINTS ON THE DRAWING.
 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL EXISTING JOB CONDITIONS. ANY ADVERSE EXISTING CONDITIONS AFFECTING THE WORK SHOWN ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR POSSIBLE CLARIFICATION OR RECONCILIATION.
 6. ITEMS LABELED AS "BY OTHERS" OR "NIC" ARE FOR COORDINATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE INSTALLATION OF ANY SUCH ITEMS WITH THE OWNER'S REPRESENTATIVE.
 7. ALL CONSTRUCTION AND PLANTING WILL MEET HENDERSONVILLE, NC CODE REQUIREMENTS.
 8. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS PRIOR TO STARTING WORK.

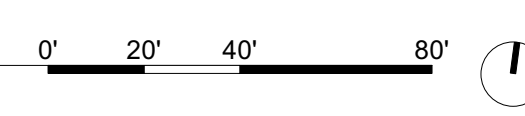
NO.	ISSUED FOR	DATE
1	SD-R-COURT DESIGN	09/06/2024
2	90% DD	12/09/2024
3	100% DD	02/21/2025
4	SITE PLAN	03/06/2025

STAMP

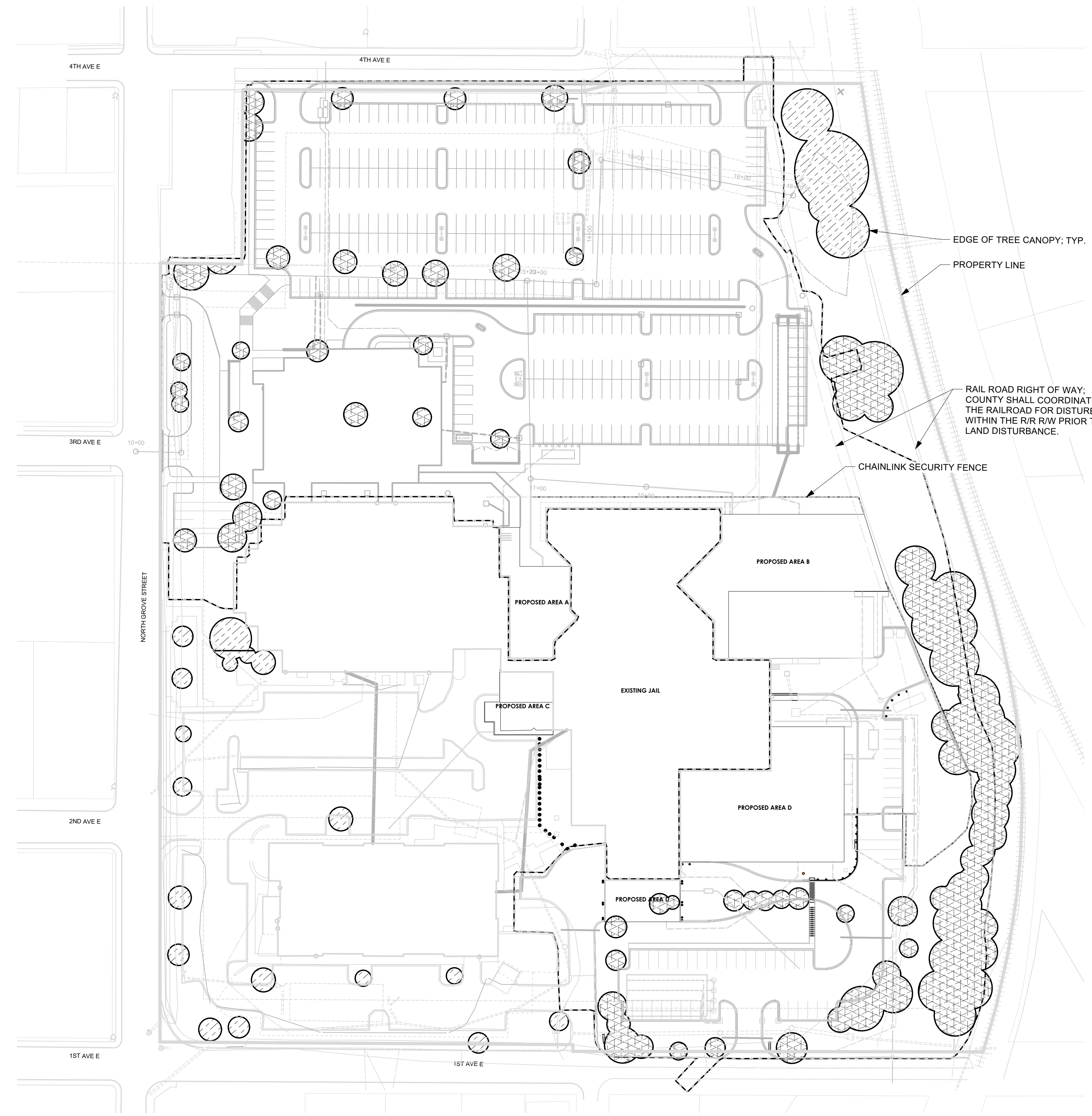
NOT FOR CONSTRUCTION

DRAWING TITLE	OVERALL PLAN
PROJECT #	20220006.001
SHEET NUMBER	L200

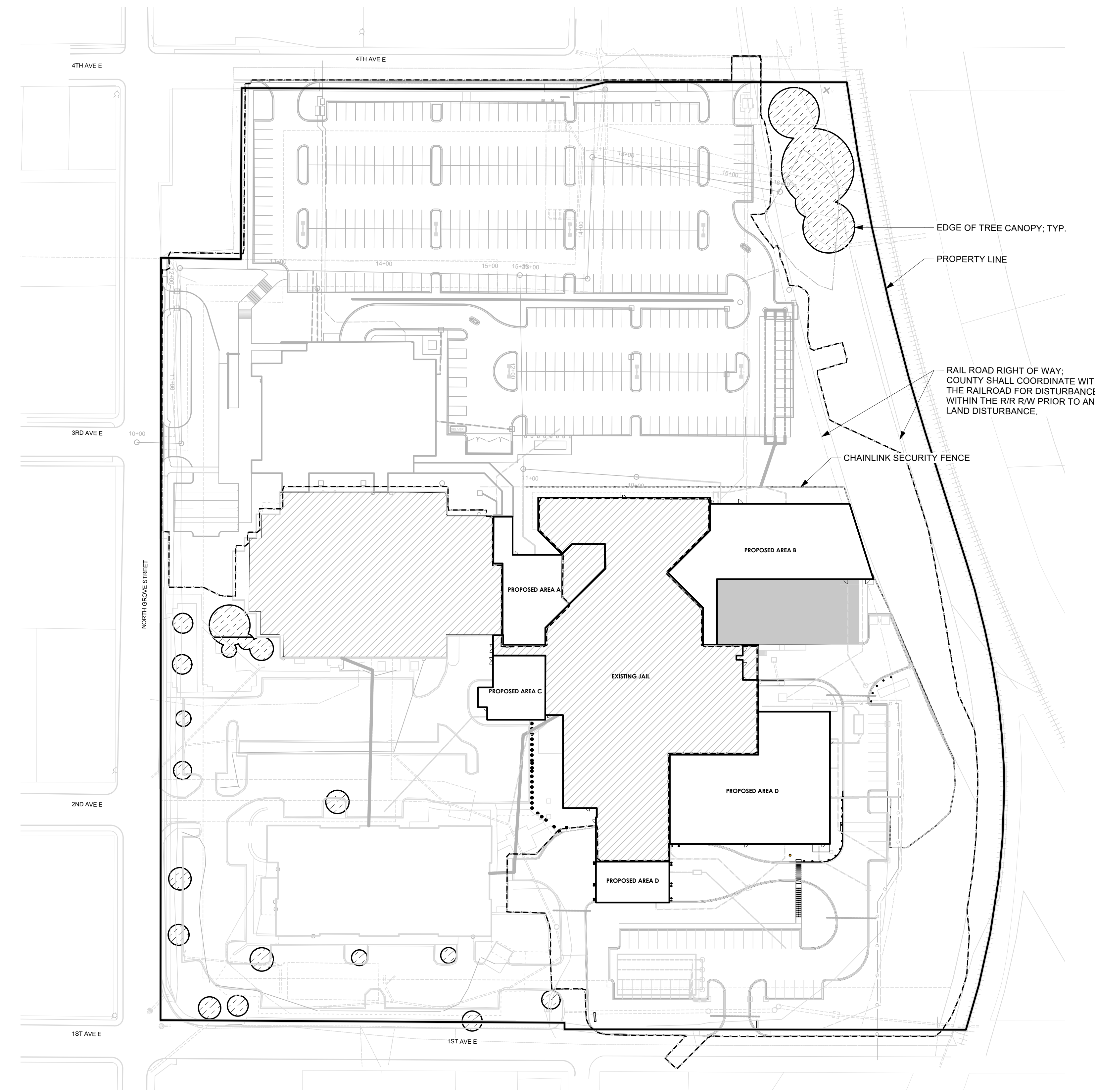
1 OVERALL PLAN
Scale: 1" = 40'-0"



8/19/2024 11:31:08 AM
Autodesk Docs://Henderson County Judicial Center/HCC_Courts_A24.rvt



1 EXISTING TREE CANOPY AND PROPOSED REMOVAL
Scale: 1"=60'-0"



2 PROPOSED TREE CANOPY PLAN
Scale: 1"=60'-0"

FROM ORDINANCE #0-24-08

(4) Preservation Requirements

- a. **Tier One Requirement:** 20 percent of the existing tree canopy on the site shall be preserved. The specific tree canopy preserved shall be at the discretion of the developer. Tier One Canopy is not eligible for fee-in-lieu without a variance issued by the Board of Adjustment.
- b. **Tier Two Requirement:** In addition to the Tier One Requirement, existing tree canopy on the site shall be preserved, and new tree canopy shall be installed, in accordance with one of the options in the table below:

TREE PROTECTION ORDINANCE:

PIN: 9568971859
PROPERTY OWNER: HENDERSON COUNTY
PARCEL SIZE: 607,905.50 SF (13.96 ACRES)
58,515.58 SF OF CANOPY COVERAGE, 9.63% CANOPY COVERAGE
(CANOPY COVERAGE DATA REFERENCED FROM CITY OF HENDERSONVILLE GIS HUB, DATED: APRIL 10, 2024)

PRESERVATION REQUIREMENTS

	TIER ONE TREE CANOPY PRESERVATION REQUIREMENT	TIER TWO TREE CANOPY PRESERVED	TIER TWO NEW TREE CANOPY INSTALLATION REQUIRED	TOTAL TREE CANOPY REQUIREMENT
OPTION 1	11,703 SF (20%)	5,852 SF (10%)	0 sq.ft (0%)	17,555 SF (30%)
OPTION 2	11,703 SF (20%)	2,926 SF (5%)	4,096 SF (7%)	18,725 SF (32%)
OPTION 3	11,703 SF (20%)	0 SF (0%)	8,777 SF (15%)	20,480 SF (35%)

TREE CANOPY CALCULATIONS

TOTAL: 58,515.58 SF
EXISTING TREE CANOPY TO REMOVE :45,211 SF (WITHIN LOD LINE)
EXISTING TREE CANOPY TO REMAIN : 13,304 SF (OUTSIDE THE LOD LINE)
REQUIRED: 20,480 SF
PROVIDED: 47,564 SF (13,304 + 34,260)

Select One:	Percentage of Tier Two Tree Canopy Preserved (in addition to Tier One Canopy) ¹	Percentage of New Tree Canopy Installation Required ²	Percentage of Total Tier Two Canopy Required
Option 1	10%	0%	10%
Option 2	5%	7%	12%
Option 3	0%	15%	15%

¹ Percentages of Tier Two Tree Canopy Preserved refer to the total existing Tree Canopy on a site before calculation of the Tier One Requirement and are in addition to the Tier One Requirement.
² Percentages of New Tree Canopy Installation refer to the total existing Tree Canopy on a site and shall be installed in accordance with the Credit for New Tree Canopy Installation table below.

Credit for New Tree Canopy Installation		
Size of Tree*	Tree Canopy Credit	QTY.
Large Maturing	872 sq. ft.	15
Medium Maturing	350 sq. ft.	42
Small Maturing	144 sq. ft.	45

*As designated in the Recommended Species List

TREE PROTECTION LEGEND

SYMBOL	TYPE	QTY.
	EXISTING TREE CANOPY TO BE REMOVED	45,211 SF
	EXISTING TREE CANOPY TO REMAIN	13,304 SF

NO.	ISSUED FOR	DATE
1	SD-R-COURT DESIGN	09/06/2024
2	90% DD	12/09/2024
3	100% DD	02/21/2025
4	SITE PLAN	03/06/2025

STAMP

NOT FOR CONSTRUCTION

DRAWING TITLE

TREE CANOPY COVERAGE PLAN

PROJECT #: 20220006.001

SHEET NUMBER

L201

PLANTING NOTES

- EXISTING UTILITIES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR SHALL CONTACT NO ONE CALL CENTER AT 1-800-632-4949 FOR LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING UTILITIES TO REMAIN.
- PLANT LIST IS PROVIDED FOR CONVENIENCE ONLY. IN THE CASE OF DISCREPANCIES BETWEEN THE PLAN AND PLANT LIST QUANTITIES, THE PLAN SHALL TAKE PRECEDENCE.
- AFTER THE SITE IS STABILIZED AND FREE OF SEDIMENTATION, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES, SILT, RIP RAP AND TEMPORARY STAGING AREAS FOR REPLACEMENT WITH PLANTING SOIL. PROVIDE PLANTING ACCORDING TO THE LANDSCAPE PLAN.
- TEMPORARY EROSION CONTROL SEED MUST BE FULLY REMOVED PRIOR TO PREPARATION OF PERMANENT SEED, SOD OR LANDSCAPE BEDS.
- UNLESS OTHERWISE NOTED IN THE PLANT LIST, THE CONTRACTOR SHALL OBTAIN AND INSTALL ONLY PLANT MATERIAL THAT IS GROWN ON ITS OWN ROOT - GRAFTED OR BUDDED PLANT MATERIAL WILL BE REJECTED.
- ALL TREES SHALL BE OBTAINED FROM THE NURSERY WITH EXPOSED ROOT CROWNS. B&B MATERIAL DELIVERED TO SITE WITH BURIED OR RECENTLY BURIED ROOT CROWNS WILL BE REJECTED.
- CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF PLANT SUBSTITUTIONS IN ANY MEASUREMENT OR SPECIES INDICATED. SEE SPECIFICATIONS FOR FULL NOTIFICATION REQUIREMENTS.
- DO NOT PLANT IN STORM WATER CONVEYANCE SWALES OR PROVIDE FINE GRADING THAT DISRUPTS FLOW OR CHANGES LONGITUDINAL SLOPES.
- PLANT THE OUTER EDGES OF EACH PLANTING GROUP FOLLOWING THE BED OUTLINE ACCORDING TO THE PLAN, ONCE A SATISFACTORY MATCHED OUTER SHAPE IS OBTAINED. FILL THE CENTER OF EACH AREA WITH PLANTS ACCORDING TO THE PLAN AND SPACING NOTES.
- THE PLANTING LAYOUT WITHIN PLANTING BEDS SHOULD BE SHIFTED TO MINIMIZE CONFLICTS WITH EXISTING TREE ROOTS.
- DISTURBED EARTH AREAS BEYOND PROJECT LIMITS THAT ARE DIRECTLY CAUSED BY CONTRACTOR MEANS AND METHODS SHALL BE RESTORED WITH TURF SOD, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL PROVIDE SURVEY AS-BUILT LOCATION OF FINAL UTILITY ACCESS POINTS UPON INSTALLATION OF UTILITIES TO LANDSCAPE ARCHITECT AND NOTIFY LANDSCAPE ARCHITECT OF CONFLICTS BETWEEN FIELD LOCATIONS OF UTILITIES AND PROPOSED SITE WORK FEATURES INCLUDING CONFLICTS WITH PROPOSED PLANTINGS.
- DO NOT PLANT WITHIN 12 INCHES OF ROOF DRAIN CLEAN OUT COVERS.
- ALL PLANTING WILL COMPLY WITH HENDERSONVILLE, NC CODE REQUIREMENTS.

LANDSCAPE CALCULATIONS FOR L160 AND L161

VUA REQUIREMENT:

1 TREE/ 2 SHRUBS PER 3,000 SF OF VEHICULAR AREA
 TOTAL VEHICULAR AREA: 158,252 SF
 VEHICULAR AREA PER LC160 & LC161: 123,192 SF
REQUIRED: 42 TREES AND 84 SHRUBS
PROPOSED: 42 TREES AND 84 SHRUBS

*AT LEAST 75 PERCENT OF THE REQUIRED PARKING LOT TREES MUST BE BROADLEAF CANOPY TREES. TREES AND SHRUBS MUST BE PLANTED WITHIN 20 FEET OF THE VEHICULAR USE AREA TO COUNT AS PARKING LOT LANDSCAPING; PROVIDED, HOWEVER, ALL STREET TREES REQUIRED BY OTHER PROVISIONS OF THIS ZONING ORDINANCE SHALL COUNT AS PARKING LOT LANDSCAPING.

WHEN A PARKING LOT CONTAINS 20 OR MORE PARKING SPACES, 50 PERCENT OF THE TREES AND SHRUBS REQUIRED BY PARAGRAPH A), ABOVE, MUST BE PLANTED IN ISLANDS OR MEDIANS LOCATED WITHIN THE PARKING LOT.

*WHEN A VEHICULAR USE AREA LOT IS LOCATED WITHIN 100 FEET OF AN ABUTTING PROPERTY AND NO BUFFERYARD IS REQUIRED.

*AT LEAST 75% OF THE TREES REQUIRED TO BE PLANTED UNDER THE PROVISIONS OF THIS ARTICLE SHALL BE NATIVE SPECIES AS LISTED ON THE RECOMMENDED SPECIES LIST.

PLANTING STRIP:

1 LARGE EVERGREEN OR DECIDUOUS TREE AND FIVE EVERGREEN OR DECIDUOUS SHRUBS PER 40 LF OF PROPERTY LINE THAT PARALLELS VUA; 50% MAY BE COUNTED AS PARKING LOT TREES AND SHRUBS IF WITHIN 20' OF VUA

PROPOSED: 4 TREES AND 11 SHRUBS

BUFFERING FROM STREET:

3' HEIGHT AT MATURITY; CAN INCLUDE PLANT MATERIAL OR A COMBINATION OF GRADE CHANGE AND PLANT MATERIAL. AT LEAST ONE EVERGREEN OR DECIDUOUS SHRUB PLANTED FOR EVERY 5' LF OF BUFFER REQUIRED

SCREENING:

PROPOSED: 5 SHRUBS

STREET TREES:

WHERE OVERHEAD UTILITY LINES ARE PRESENT, STREET TREES SHALL BE PLANTED AT THE RATE 1 SMALL-MATURING TREE (<25 FEET IN HEIGHT) FOR EVERY 25' LINEAR FEET OF PROPERTY ABUTTING A STREET.

*TREES DO NOT NEED TO BE SPACED EVENLY. THEY MAY BE CLUSTERED WITH A MINIMUM SPACING OF 15 TREES AND MAXIMUM SPACING OF 75 FEET.

*NO STREET TREES CAN BE PLANTED FARTHER THAN 35 FEET FROM THE EDGE OF THE RIGHT-OF-WAY TO COUNT AS STREET TREE.

NORTH GROVE STREET

REQUIRED: 10 (333.88 LF/33=10)

PROVIDED: 10

4TH AVENUE EAST

REQUIRED: 20 (484.32 LF/25=44)

PROVIDED: 20

COMMON OPEN SPACE LANDSCAPING:

A MINIMUM OF ONE TREE AND FIVE SHRUBS FOR EVERY 1,200 SQUARE FEET OF COMMON OPEN SPACE
 A MINIMUM OF 50 PERCENT OF THE TREES SHALL BE CANOPY TREES

TOTAL COMMON OPEN SPACE: 38,991 SF

TOTAL REQUIRED: 32 TREES + 160 SHRUBS

PROVIDED PER LC160& LC161: 30 TREES + 100 SHRUBS

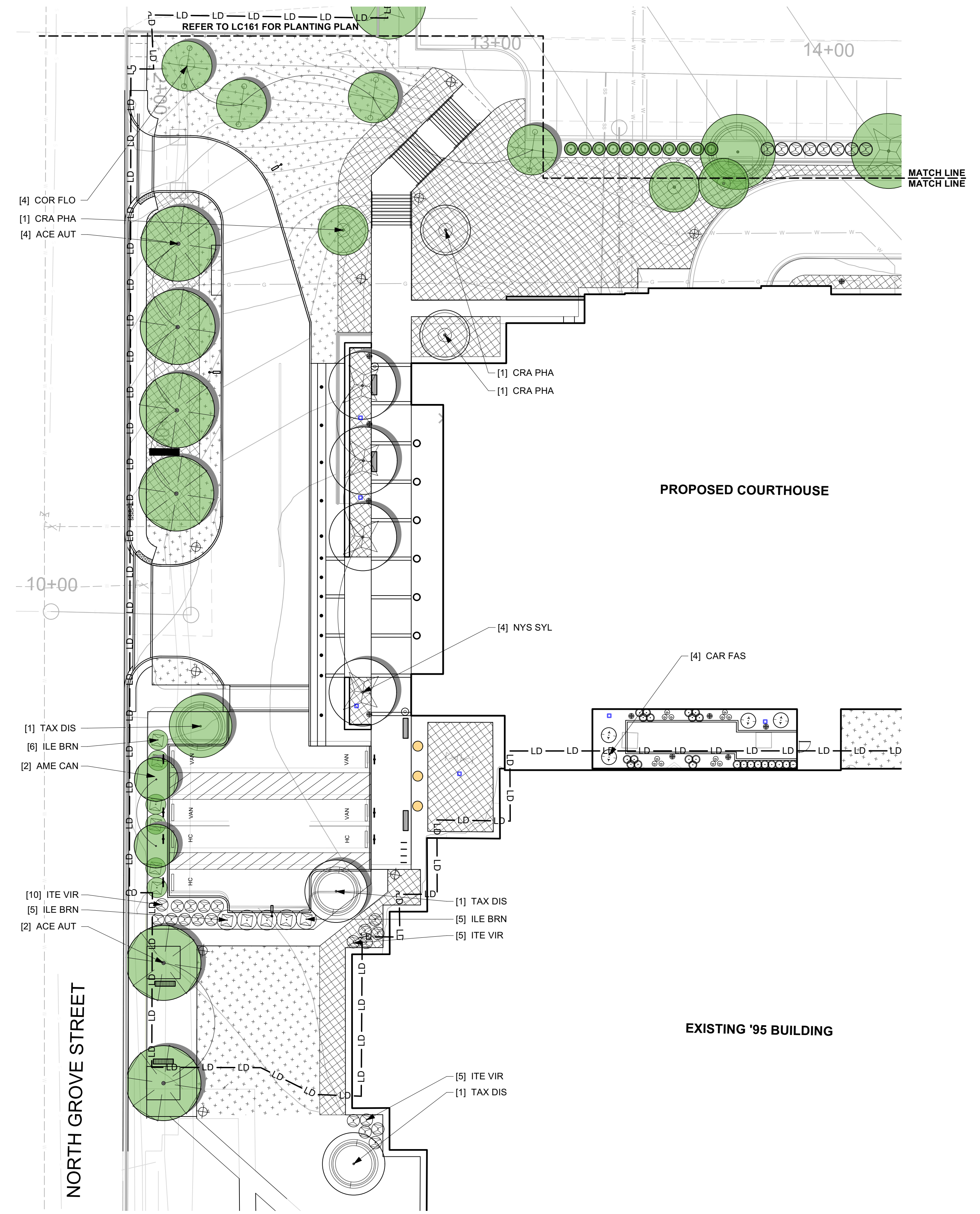
TOTAL PROVIDED: 44 TREES + 162 SHRUBS

PARKING AND STREET TREE PLANTING LEGEND

SYMBOL	TYPE	SIZE	QTY.
[Pattern]	SOD		19,625 SF
[Pattern]	SLOPE SEED MIX		927 SF

Proposed Land Use	Existing Land Use /Zoning District				
	Residential	Mobile Home Park	Institutional & Cultural	Commercial	Industrial
Residential	X	X	X	X	X
Mobile Home Park	10-foot B	X	8-foot A	10-foot B	X
Institutional & Cultural	10-foot B	8-foot A	X	X	X
Commercial	10-foot B	10-foot B	8-foot A	X	X
Industrial	25-foot C	25-foot C	15-foot B	15-foot B	X

Type of Buffer	Planting Requirements per 100 Linear Feet	Size Requirements
A	3 broadleaf canopy trees 20 evergreen shrubs (4-foot centers) 25 flowering shrubs	5-6 feet 18-24 inches 12-18 inches
B	4 broadleaf canopy tree 25 evergreen shrubs (4-foot centers) 33 flowering shrubs	1 1/2-1 1/2 inch caliper 18-24 inches 18-24 inches
C	4 broadleaf canopy tree 10 understory trees 33 flowering shrubs berm fence or wall on top of berm	1 1/2-2 inch caliper 5-6 feet 18-24 inches 6 feet 8 feet
X	No buffer required	Not applicable



1 PLANTING PLAN
 Scale: 1" = 20'-0"

CODE REQUIRED PLANT SCHEDULE - CONTRACTOR SHALL SATISFY ALL MEASUREMENTS NOTED - EXCEED SIZES UPON APPROVAL

KEY	QTY	LATIN NAME	COMMON NAME	CONTAINER	SIZE	HT	W	SPACING	COMMENTS
DECIDUOUS TREES									
ACE AUT	4	ACER X FREEMANN JEFFERSON	AUTUMN BLAZE MAPLE	B&B	3" CAL	12 HT.	8 W.	AS SHOWN	FULL DENSE MATCHING
NYS SYL	29	NYSSA SYLVATICA	BLACK GLUM	"	"	"	"	"	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
WAX SH	21	QUERCUS OBSCURUM	WAXY CYPRESS	B&B	3" CAL	12 HT.	8 W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
UNDERSTORY DECIDUOUS TREES									
ACE CAN	12	AMELANCHIER CANADENSIS	SHADLOW SERVICE BERRY	B&B	1" CAL PER STEM	8 FT.	3 W.	AS SHOWN	MULTI STEM MIN. 3 STEM, EVENLY BRANCHED, FULL
COR FLO	4	CORNUS FLORIDA	FLOWERING DOGWOOD	B&B	2" CAL	8 FT.	3 W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
WAX SH	14	QUERCUS PRINCEPINUM	WAXWOOD HAWTHORN	B&B	3" CAL	8 FT.	3 W.	AS SHOWN	FULL
EVERGREEN TREES									
ITE VIR	123	IBEX VIRGINICA	VIRGINIA SWEETPIPER	CONT.	3 GAL	24 HT.	18 W.	AS SHOWN	FULL DENSE MATCHING
EVERGREEN SHRUBS									
ITE BRN	4	ILEX CORNUTA BURFORDI NANA	DWARF BURFORD HOLLY	CONT.	3 GAL	24 HT.	18 W.	AS SHOWN	FULL DENSE MATCHING

NON REQUIRED PLANT SCHEDULE - CONTRACTOR SHALL SATISFY ALL MEASUREMENTS NOTED - EXCEED SIZES UPON APPROVAL

KEY	QTY	LATIN NAME	COMMON NAME	CONTAINER	SIZE	HT	W	SPACING	COMMENTS
TREES									
NYS SYL	5	NYSSA SYLVATICA	BLACK GLUM	B&B	3" CAL	12 HT.	8 W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
WAX SH	2	QUERCUS OBSCURUM	WAXY CYPRESS	B&B	3" CAL	12 HT.	8 W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
CAR FAS	4	CARYOPHTERIS FASCICULATA	PASTORIS EUROPEAN HORNBEAM	B&B	3" CAL	12 HT.	8 W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
SHRUBS									
ACE PAN	12	ASpidERUS PANICOLA	SCITLEROSH BUCKEYE	CONT.	3 GAL	12 HT.	12 W.	24 O.C.	FULL DENSE MATCHING
CAL DIS	24	CALLICARPA DICHOTOMA EARLY AMERITIF	EARLY AMERITIF PURPLE BRADYBERRY	CONT.	3 GAL	20" TO 22" AS SHOWN			FULL DENSE MATCHING
ITE BRN	5	ILEX CORNUTA BURFORDI NANA	DWARF BURFORD HOLLY	CONT.	3 GAL	24 HT.	18 W.	AS SHOWN	FULL DENSE MATCHING
ITE VIR	87	IBEX VIRGINICA	VIRGINIA SWEETPIPER	CONT.	3 GAL	24 HT.	18 W.	AS SHOWN	FULL DENSE MATCHING
PERENNIALS, ORNAMENTAL GRASSES, AND GROUNDCOVERS									
	402		GROUNDCOVER/ ORNAMENTAL GRASSES						18" O.C.
	60		MULHY GRASS						3 GAL

NO.	ISSUED FOR	DATE
1	SD-R-COURT DESIGN	09/06/2024
2	90% DD	12/09/2024
3	100% DD	02/21/2025
4	SITE PLAN	03/06/2025

STAMP

NOT FOR CONSTRUCTION
 DRAWING TITLE
 PLANTING PLAN

PROJECT #: 20220006.001
 SHEET NUMBER
LC160

NO.	ISSUED FOR	DATE
1	SD-R-COURT DESIGN	09/06/2024
2	90% DD	12/09/2024
3	100% DD	02/21/2025
4	SITE PLAN	03/06/2025

STAMP

NOT FOR CONSTRUCTION
DRAWING TITLE



PLANTING PLAN

PROJECT #: 20220006.001

SHEET NUMBER

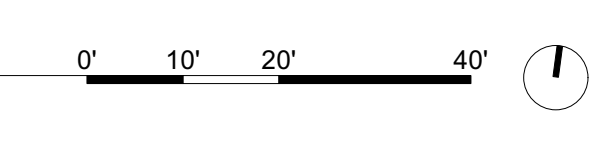
LC 161

PARKING AND STREET TREE PLANTING LEGEND

SYMBOL	TYPE	SIZE	QTY.
	SOD		19,625 SF
	SLOPE SEED MIX		927 SF



1 PLANTING PLAN
Scale: 1" = 20'-0"



PLANTING NOTES

- EXISTING UTILITIES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR SHALL CONTACT NC ONE CALL CENTER AT 1-800-632-4849 FOR LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING UTILITIES TO REMAIN.
- PLANT LIST IS PROVIDED FOR CONVENIENCE ONLY. IN THE CASE OF DISCREPANCIES BETWEEN THE PLAN AND PLANT LIST QUANTITIES, THE PLAN SHALL TAKE PRECEDENCE.
- AFTER THE SITE IS STABILIZED AND FREE OF SEDIMENTATION, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES, SILT, RIP RAP AND TEMPORARY STONE STAGING AREAS FOR REPLACEMENT WITH PLANTING SOIL. PROVIDE PLANTING ACCORDING TO THE LANDSCAPE PLAN.
- TEMPORARY EROSION CONTROL SEED MUST BE FULLY REMOVED PRIOR TO PREPARATION OF PERMANENT SEED, SOD OR LANDSCAPE BEDS.
- UNLESS OTHERWISE NOTED IN THE PLANT LIST, THE CONTRACTOR SHALL OBTAIN AND INSTALL ONLY PLANT MATERIAL THAT IS GROWN ON ITS OWN ROOT - GRAFTED OR BUDDED PLANT MATERIAL WILL BE REJECTED.
- ALL TREES SHALL BE OBTAINED FROM THE NURSERY WITH EXPOSED ROOT CROWNS. B&B MATERIAL DELIVERED TO SITE WITH BURIED OR RECENTLY BURIED ROOT CROWNS WILL BE REJECTED.
- FURNISHED PLANT MATERIAL SHALL MEET THE MINIMUM HEIGHT OR MINIMUM SPREAD DIMENSIONS SHOWN IN THE PLANT LIST HEADINGS. THE CONTRACTOR SHALL UTILIZE THE MOST STRINGENT DIMENSION SHOWN ON THE PLANT LIST.
- DO NOT PLANT IN STORM WATER CONVEYANCE SWALES OR PROVIDE FINE GRADING THAT DISRUPTS FLOW OR CHANGES LONGITUDINAL SLOPES.
- PLANT THE OUTER EDGES OF EACH PLANTING GROUP FOLLOWING THE BED OUTLINE ACCORDING TO THE PLAN. ONCE A SATISFACTORY MATCHED OUTER SHAPE IS OBTAINED, FILL THE CENTER OF EACH AREA WITH PLANTS ACCORDING TO THE PLAN AND SPACING NOTES.
- THE PLANTING LAYOUT WITHIN PLANTING BEDS SHOULD BE SHIFTED TO MINIMIZE CONFLICTS WITH EXISTING TREE ROOTS.
- THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS INCLUDING CONSTRUCTION ACCESS OUTSIDE PROJECT LIMITS.
- TREE PLANTING AND SITE LIGHTING SHALL BE SEPARATED BY A MINIMUM OF 10 FEET TO REDUCE CONFLICTS BETWEEN MATURE TREES AND SITE LIGHTING.
- ALL LAWN AREAS SHALL BE PERMANENTLY ESTABLISHED WITH SOD PER SPECIFICATIONS.

SEEDING/SOD LEGEND

SYMBOL	TYPE	QTY.
	SEEDED TURF	24,703 SF
	SOD	30,635 SF
	SLOPE SEED MIX	24,122 SF

CODE REQUIRED PLANT SCHEDULE - CONTRACTOR SHALL SATISFY ALL MEASUREMENTS NOTED - EXCEED SIZES UPON APPROVAL

KEY	QTY	LATIN NAME	COMMON NAME	CONTAINER	SIZE	Ht.	Sp.	SPACING	COMMENTS
DECIDUOUS TREES									
ACE AUT	4	ACEB X FREEMANI 'JEFFERSON'	AUTUMN BLAZE MAPLE	B&B	3" CAL.	16' HT.	8' W.	AS SHOWN	FULL DENSE MATCHING
NYS SYL	3	NYSA SYLVATICA	BLACK GUM	B&B	3" CAL.	12' HT.	6' W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
TAX DIS	5	TAXODIUM DISCHAM	BALD CYPRESS	B&B	3" CAL.	12' HT.	8' W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
UNDERSTORY DECIDUOUS TREES									
AME CAN	4	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY	B&B	1" CAL. PER STEM	8' HT.	3' W.	AS SHOWN	MULTI-STEM, MIN. 3 STEMS, EVENLY BRANCHED, FULL
COR FLO	10	CORNUS FLORIDA	FLORINDO DOGWOOD	B&B	2" CAL.	8' HT.	3' W.	AS SHOWN	STRONG CENTRAL LEADER, EVENLY BRANCHED, FULL
CRA PHA	2	SPARGANGLER FRAXINOPHYLLA	WASHINGTON HAWTHORN	B&B	2" CAL.	8' HT.	3' W.	AS SHOWN	FULL
EVERGREEN TREES									
THU PLI	10	THUJA PLICATA 'GREEN GIANT'	GREEN GIANT WESTERN ARBORVITAE	B&B	-	8' HT.	3' W.	AS SHOWN	DENSE, EVENLY BRANCHED, FULL TO GROUND
DECIDUOUS SHRUBS									
IRE VIR	24	IRA VIRGINICA	VIRGINIA SWEETWIRE	CONT.	3 GAL.	24" HT.	18" W.	AS SHOWN	FULL DENSE MATCHING
EVERGREEN SHRUBS									
ILE BRN	40	ILEX CORNUTA 'BURFORDI NANA'	OPPAW BURFORD HOLLY	CONT.	3 GAL.	24" HT.	18" W.	AS SHOWN	FULL DENSE MATCHING

NON CODE REQUIRED PLANT SCHEDULE - CONTRACTOR SHALL SATISFY ALL MEASUREMENTS NOTED - EXCEED SIZES UPON APPROVAL

KEY	QTY	LATIN NAME	COMMON NAME	CONTAINER	SIZE	Ht.	Sp.	SPACING	COMMENTS
SHRUBS									
JUN SAR	171	JUNIPERUS CHENOBIODI 'SARGENT'	SARGENT JUNIPER	CONT.	3 GAL.	12" HT.	24" W.	AS SHOWN	FULL DENSE MATCHING
PERENNIAL ORNAMENTAL GRASSES AND GROUNDCOVERS									
MUW WHI	105	MUhlenbergia caroliniana 'WHITE CLOUD'	WHITE MUWY GRASS	CONT.	1 GAL.	12" HT.	4" W.	30" OC.	

LANDSCAPE CALCULATIONS FOR LD 160 - DETENTION CENTER

VVA REQUIREMENT:
 1 TREE/ 2 SHRUBS PER 3,000 SF OF VEHICULAR AREA
 TOTAL VEHICULAR AREA: 158,252 SF
 VEHICULAR AREA PER LD160: 35,000 SF
REQUIRED: 12 TREES AND 24 SHRUBS
PROPOSED: 14 TREES AND 48 SHRUBS

*AT LEAST 75 PERCENT OF THE REQUIRED PARKING LOT TREES MUST BE BROADLEAF CANOPY TREES. TREES AND SHRUBS MUST BE PLANTED WITHIN 20 FEET OF THE VEHICULAR USE AREA TO COUNT AS PARKING LOT LANDSCAPING; PROVIDED, HOWEVER, ALL STREET TREES REQUIRED BY OTHER PROVISIONS OF THIS ZONING ORDINANCE SHALL COUNT AS PARKING LOT LANDSCAPING.

*WHEN A VEHICULAR USE AREA LOT IS LOCATED WITHIN 100 FEET OF AN ABUTTING PROPERTY AND NO BUFFERYARD IS REQUIRED.

*AT LEAST 75% OF THE TREES REQUIRED TO BE PLANTED UNDER THE PROVISIONS OF THIS ARTICLE SHALL BE NATIVE SPECIES AS LISTED ON THE RECOMMENDED SPECIES LIST.

STREET TREES:
 WHERE OVERHEAD UTILITY LINES ARE PRESENT, STREET TREES SHALL BE PLANTED AT THE RATE 1 SMALL-MATURING TREE (<25 FEET IN HEIGHT) FOR EVERY 25' LINEAR FEET OF PROPERTY ABUTTING A STREET.

*TREES DO NOT NEED TO BE SPACED EVENLY. THEY MAY BE CLUSTERED WITH A MINIMUM SPACING OF 15 TREES AND MAXIMUM SPACING OF 75 FEET.

*NO STREET TREES CAN BE PLANTED FARTHER THAN 35 FEET FROM THE EDGE OF THE RIGHT-OF-WAY TO COUNT AS STREET TREE.

1ST AVENUE EAST - TOTAL 337 LINEAR FEET

REQUIRED: 14 (337LF/25=14)
PROVIDED: 14

BUFFERING FROM STREET:

3' HEIGHT AT MATURITY; CAN INCLUDE PLANT MATERIAL OR A COMBINATION OF GRADE CHANGE AND PLANT MATERIAL.
 AT LEAST ONE EVERGREEN OR DECIDUOUS SHRUB PLANTED FOR EVERY 5' LF OF BUFFER REQUIRED

SCREENING

PROVIDED: 10 EVERGREEN TREES
COMMON OPEN SPACE LANDSCAPING:

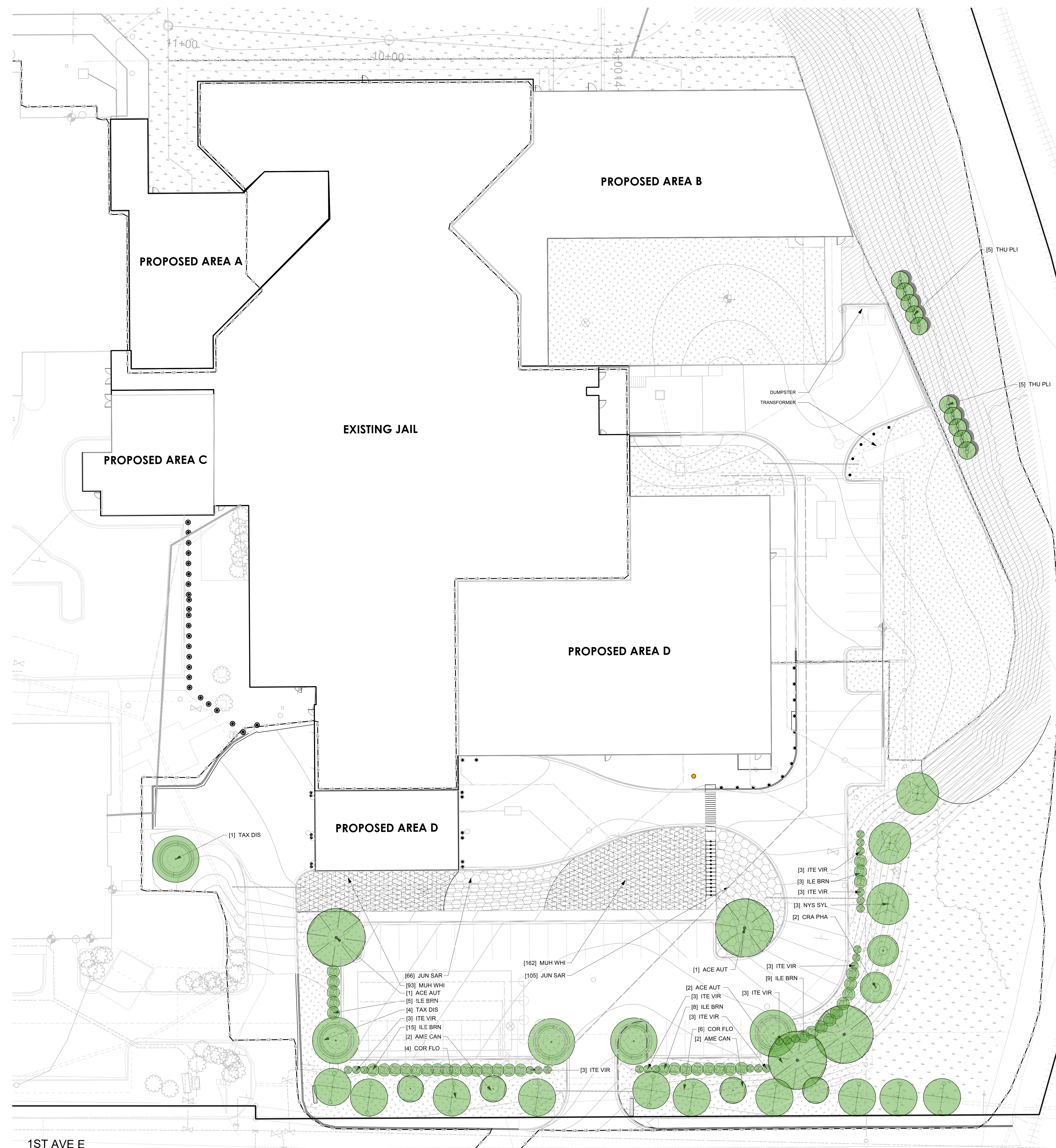
A MINIMUM OF ONE TREE AND FIVE SHRUBS FOR EVERY 1,200 SQUARE FEET OF COMMON OPEN SPACE
 A MINIMUM OF 50 PERCENT OF THE TREES SHALL BE CANOPY TREES

TOTAL COMMON OPEN SPACE: 38,991 SF

TOTAL REQUIRED: 32 TREES + 160 SHRUBS

PROVIDED PER LD160: 14 TREES + 62 SHRUBS

TOTAL PROVIDED: 44 TREES + 162 SHRUBS



1 PLANTING PLAN
 Scale: 1" = 20'-0"

NO.	ISSUED FOR	DATE
1	75% CD	12/20/2024
2	90% CD	02/07/2025
3	SITE PLAN	03/06/2025

STAMP

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PLANTING PLAN

PROJECT #: 2022006.001

LD 160

9/14/2025 11:33:47 AM
 Autodesk Docs://Henderson County Courthouse/Henderson County Judicial Center_A03_ARCH.rvt

Warning: It is a violation of the law for any person, unless acting under the direction of a licensed architect, to alter an item in any way. If an item in this document is altered, the altering architect, if other than the architect of record, shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and the specific description of the alteration.

NO.	ISSUED FOR	DATE
1	SD-R-COURT DESIGN	09/06/2024
2	90% DD	12/09/2024
3	100% DD	02/21/2025
4	SITE PLAN	03/06/2025

STAMP

NOT FOR CONSTRUCTION

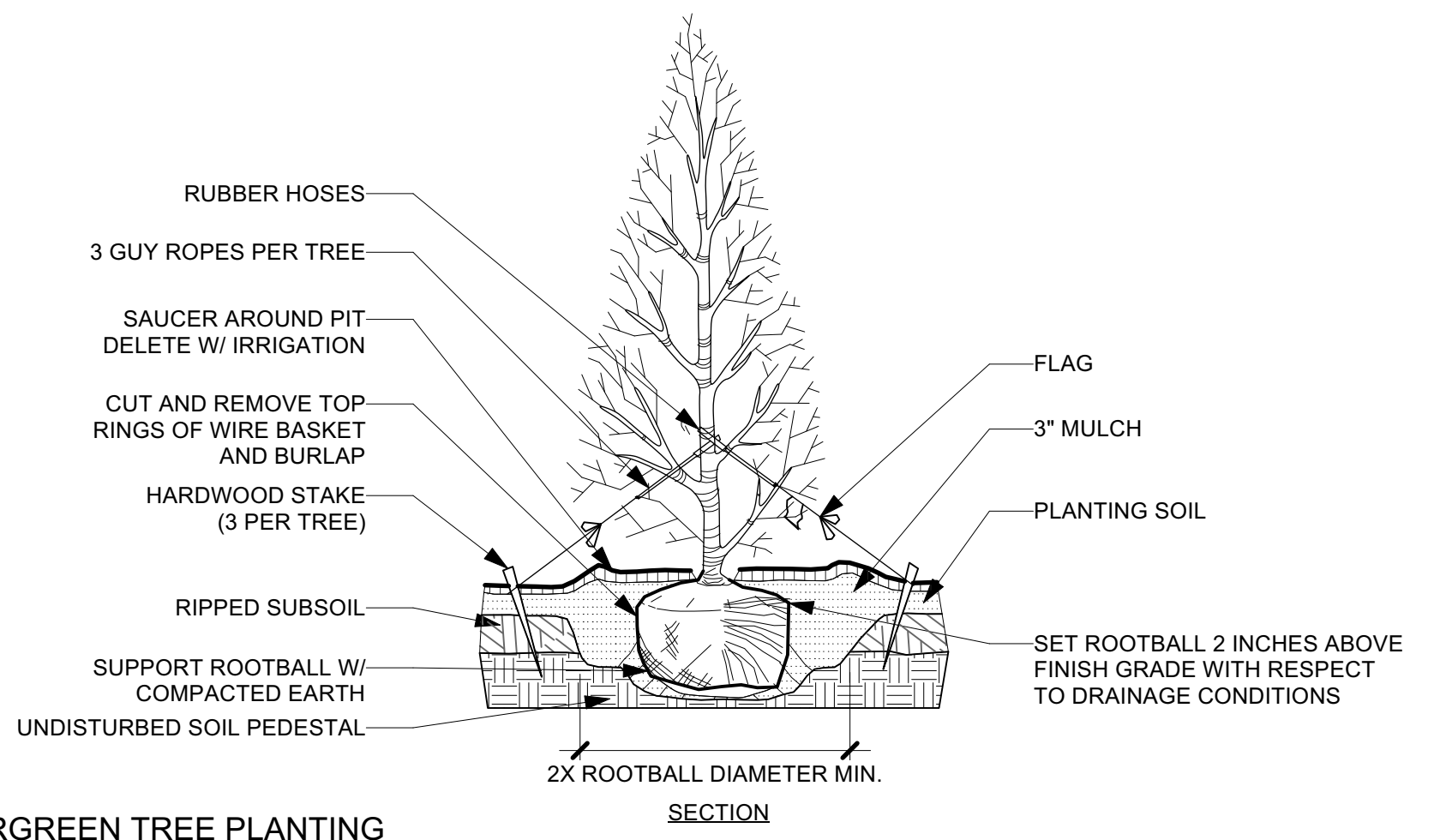
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DETAILS

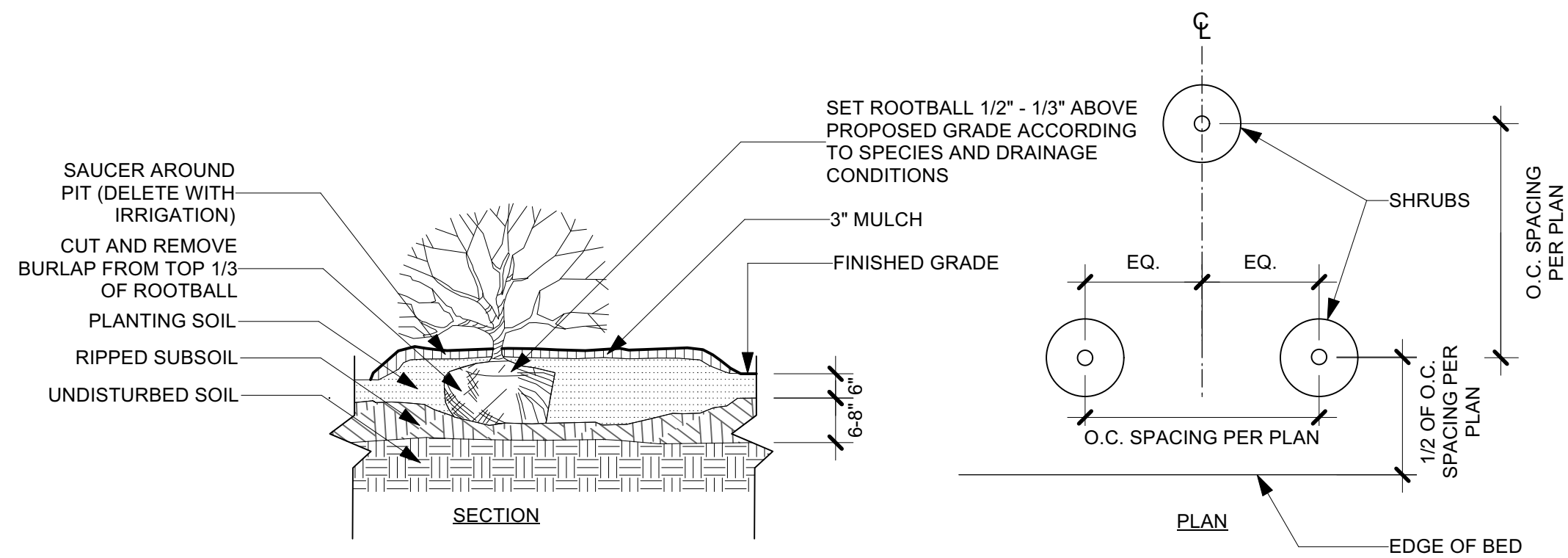
PROJECT #: 20220006.001

SHEET NUMBER

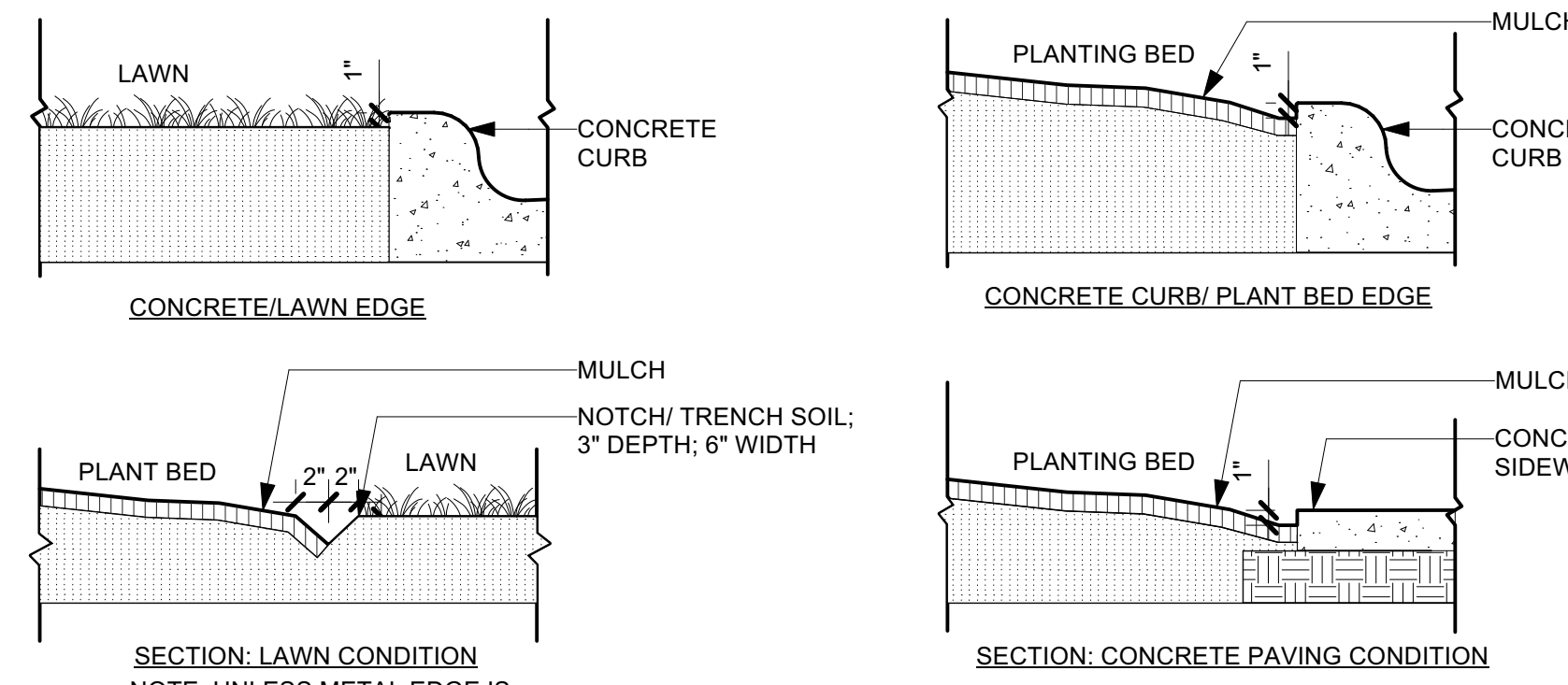
LC506



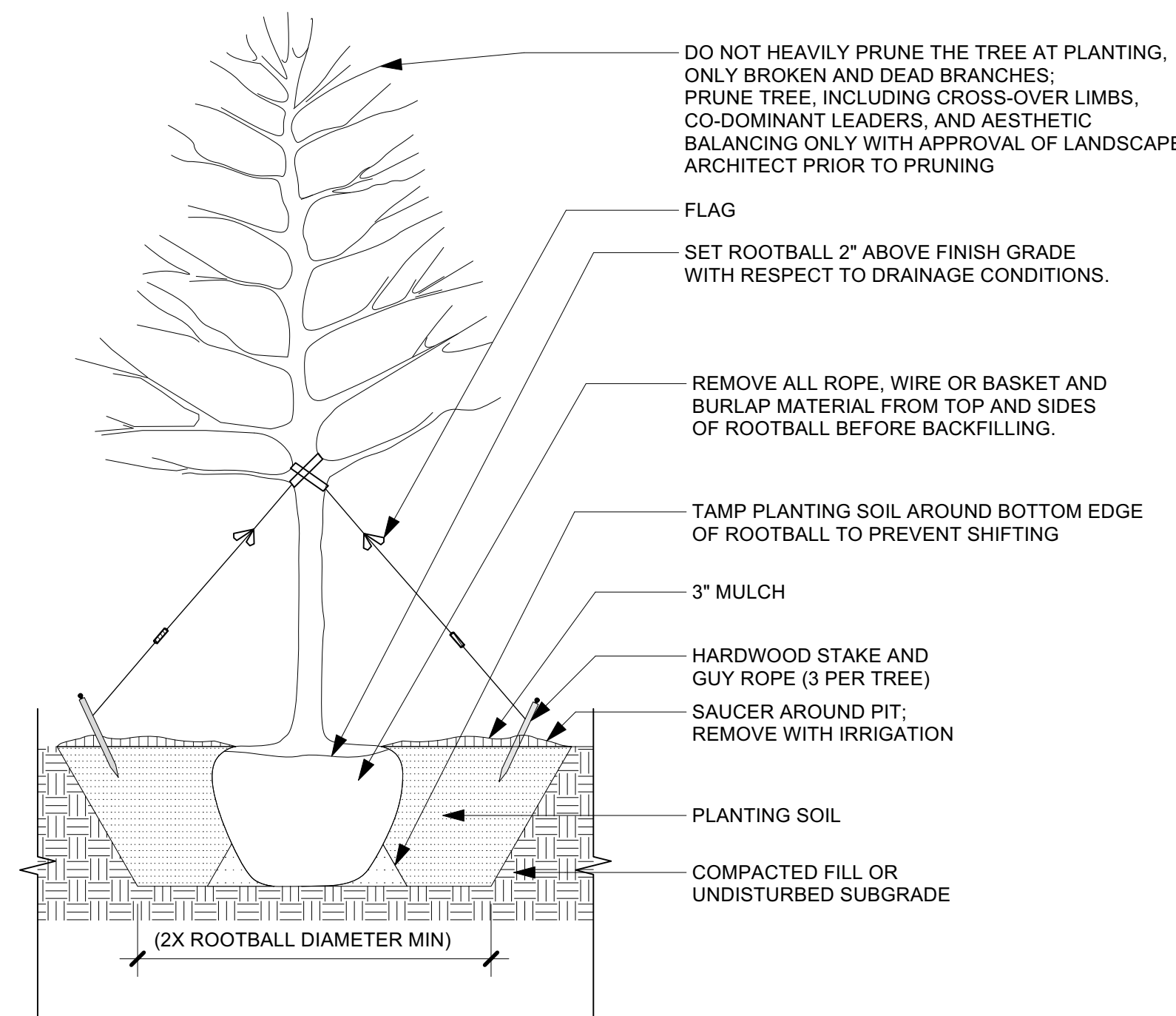
E3 EVERGREEN TREE PLANTING
N.T.S.



E2 RAISED SHRUB PLANTING
N.T.S.

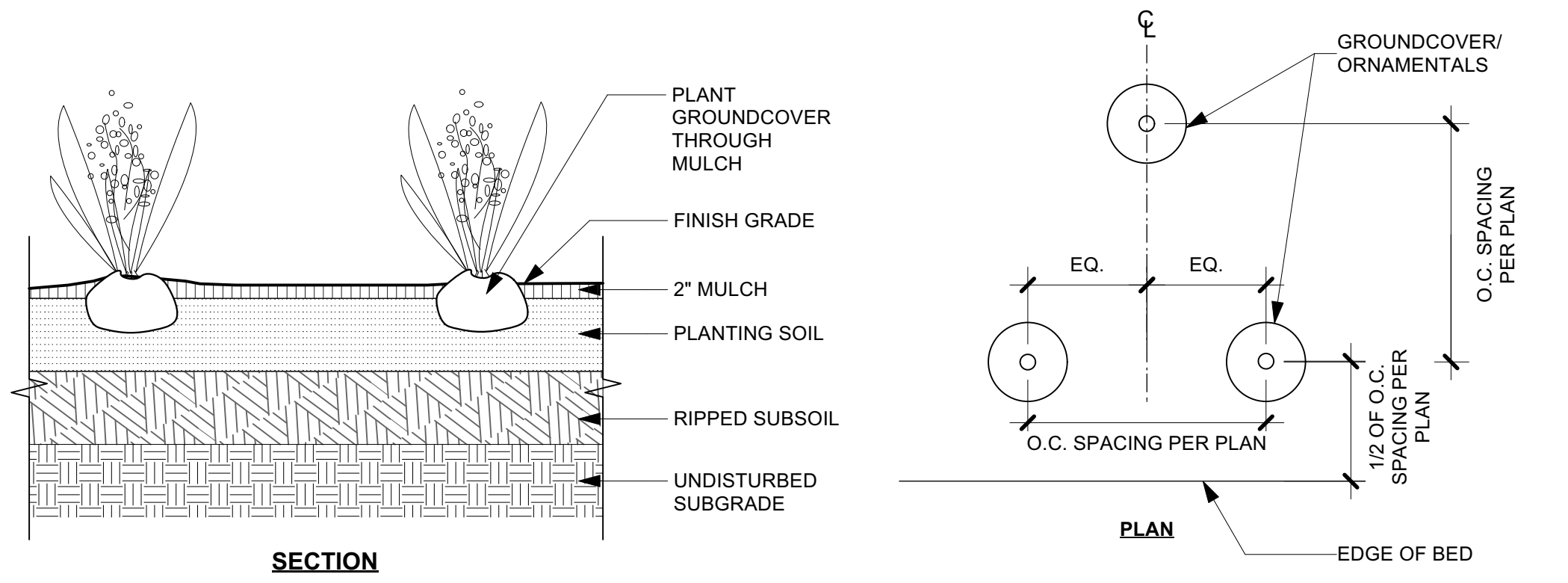


E1 PLANTING BED EDGE
1" = 1'-0"



- NOTES**
- CONTRACTOR SHALL PROVIDE SAMPLE TREE PLANTING FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
 - TEST PITS FOR DRAINAGE PRIOR TO PLANTING. IF DRAINAGE PROBLEMS EXIST INFORM LANDSCAPE ARCHITECT.
 - SPECIFICATIONS, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT IN WRITING OF ENVIRONMENTAL OR DETRIMENTAL SITE CONDITIONS AFFECTING THE SURVIVAL OF PROPOSED PLANTING MATERIAL PRIOR TO THE INSTALLATION OF PLANT MATERIAL. PROCEEDING WITH PLANTING INSTALLATIONS AT THE DETRIMENT OF PLANTING SURVIVABILITY WITHOUT NOTIFYING ARCH OF HARMFUL SITE CONDITIONS MAY RESULT IN REJECTION OF PLANT MATERIAL AT THE DISCRETION OF LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE ANY REJECTIONS AT NO COST TO OWNER.

D2 TREE PLANTING
N.T.S.



D1 GROUNDCOVER PLANTING
1" = 1'-0"

GENERAL STORMWATER NOTES:

- 1.) ALL STORMWATER PIPES SHALL BE HDPE WITH SMOOTH INTERIOR WALL, WITH BELL AND SPIGOT ENDS AND SOIL TIGHT JOINTS, UNLESS OTHERWISE NOTED ON PLANS.
- 2.) ALL PENETRATIONS INTO STORMWATER STRUCTURES SHALL BE REPAIRED PROPERLY INSIDE AND OUTSIDE WITH BRICK AND OR NON-SHRINK GROUT.
- 3.) GIVEN PIPE LENGTHS ARE BASED ON HORIZONTAL DISTANCES BETWEEN STORMWATER STRUCTURES. CONTRACTOR SHALL FACTOR IN SLOPES WHEN ORDERING PIPE AND ORDER ADDITIONAL LENGTH AS NECESSARY.
- 4.) ALL STORMWATER PIPES IN EXCESS OF 20% SLOPE SHALL BE KEYS.
- 5.) ALL ROOF LEADERS SHALL BE HDPE SMOOTH INTERIOR WALL (MAY BE PVC/SCH-40) WITH 1.0% MIN SLOPE UNLESS OTHERWISE NOTED ON PLANS.
- 6.) CONTRACTOR TO ENSURE THAT ALL EXISTING AND PROPOSED STORM DRAINAGE STRUCTURES, PIPES AND GRADES WILL PROVIDE POSITIVE DRAINAGE PRIOR TO INSTALLATION.
- 7.) ALL DRAINAGE STRUCTURES GREATER THAN 4' IN DEPTH SHALL HAVE ACCESS TO STEPS INSTALLED 16" ON CENTER.
- 8.) ALL PRECAST "WAFFLE BOX" STORM DRAINAGE STRUCTURES TO HAVE A MAXIMUM DEPTH OF 6'.
- 9.) SEE SHEET C-505 FOR STORMWATER PROFILES.

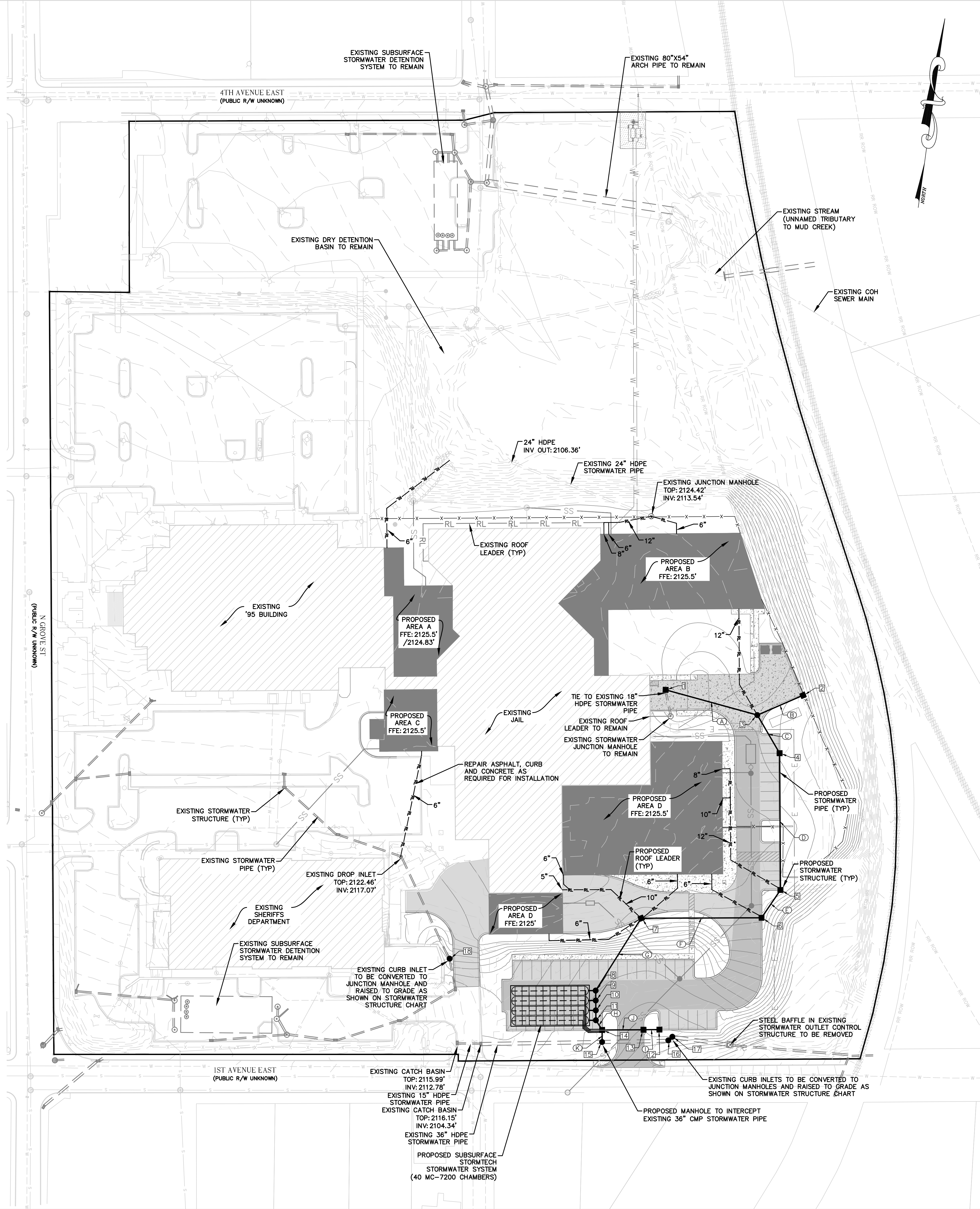
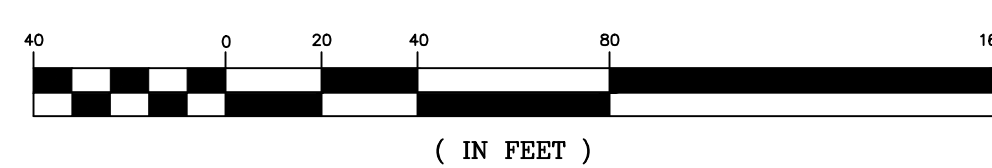
STORMWATER STRUCTURE TABLE					
STR. #	TOP ELEV (FT)	PIPE INVERT ELEV(S) (ft)	STRUCTURE INV. (ft)	DEPTH (ft)	TYPE
1	2121.00'	2116.00' (A)	2116.00'	5.00	DROP INLET
2	2123.35'	2117.49' (B)	2117.49'	5.86	CURB INLET
3	2123.86'	2115.10' (A) 2115.10' (B) 2115.10' (C)	2115.10'	8.76	JUNCTION MANHOLE
4	2123.34'	2114.69' (C) 2114.69' (D)	2114.69'	8.65	CURB INLET
5	2124.28'	2113.27' (D) 2113.27' (E)	2113.27'	11.00	CURB INLET
6	2123.22'	2113.08' (E) 2113.08' (F)	2113.08'	10.14	CURB INLET
7	2123.47'	2112.40' (F) 2112.40' (G)	2112.40'	11.07	CURB INLET
8	2115.09'	2110.71' (G)	2106.00'	9.09	JUNCTION MANHOLE
9	2114.87'		2106.00'	8.87	JUNCTION MANHOLE
10	2114.64'		2106.00'	8.64	JUNCTION MANHOLE
11	2114.42'	2106.00' (H)	2106.00'	8.42	JUNCTION MANHOLE
12	2113.34'	2108.20' (I)	2108.20'	5.14	CURB INLET
13	2112.90'	2108.11' (I) 2106.23' (J)	2106.23'	6.66	CURB INLET
14	2114.04'	2106.00' (H) 2106.00' (J) 2104.00' (K)	2104.00'	10.04	ICS/OCS
15	2114.38'	2103.19' (K)	2103.19'	11.19	JUNCTION MANHOLE
16	2112.34'		2102.25'	10.09	JUNCTION MANHOLE
17	2112.98'		2102.50'	10.48	JUNCTION MANHOLE
18	2120.62'		2112.61'	8.01	JUNCTION MANHOLE

STORMWATER PIPE TABLE				
PIPE	SIZE (IN)	MATERIAL	LENGTH (FT)	SLOPE
A	18	HDPE	89.76	1.00%
B	15	HDPE	46.92	5.09%
C	18	HDPE	41.61	1.00%
D	18	HDPE	129.00	1.10%
E	24	HDPE	31.72	0.60%
F	24	HDPE	113.57	0.60%
G	24	HDPE	80.55	2.10%
H	24	HDPE	10.90	0.00%
I	18	HDPE	15.03	0.60%
J	24	HDPE	39.00	0.60%
K	24	HDPE	11.35	7.14%

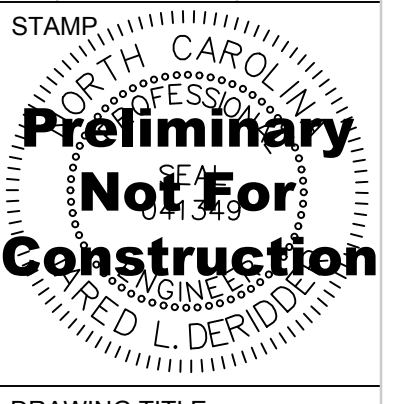
LEGEND

- EXISTING STORMWATER PIPE
- EXISTING STORMWATER STRUCTURE
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER STRUCTURE
- PROPOSED ROOF LEADER

GRAPHIC SCALE



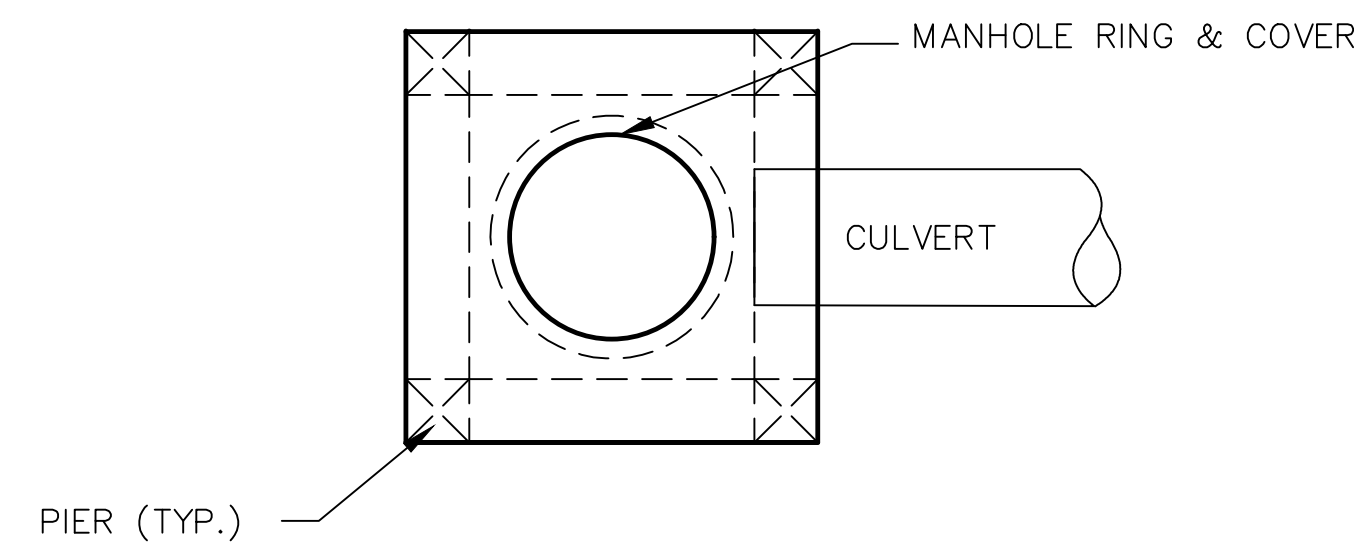
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2	100% D.D.	5-17-24
3	50% C.D.	11-23-24
4	75% C.D.	12-20-24
5	90% CD GMP	02-07-25



DRAWING TITLE	STORMWATER PLAN
PROJECT #	2022006.003
SHEET NUMBER	C-400

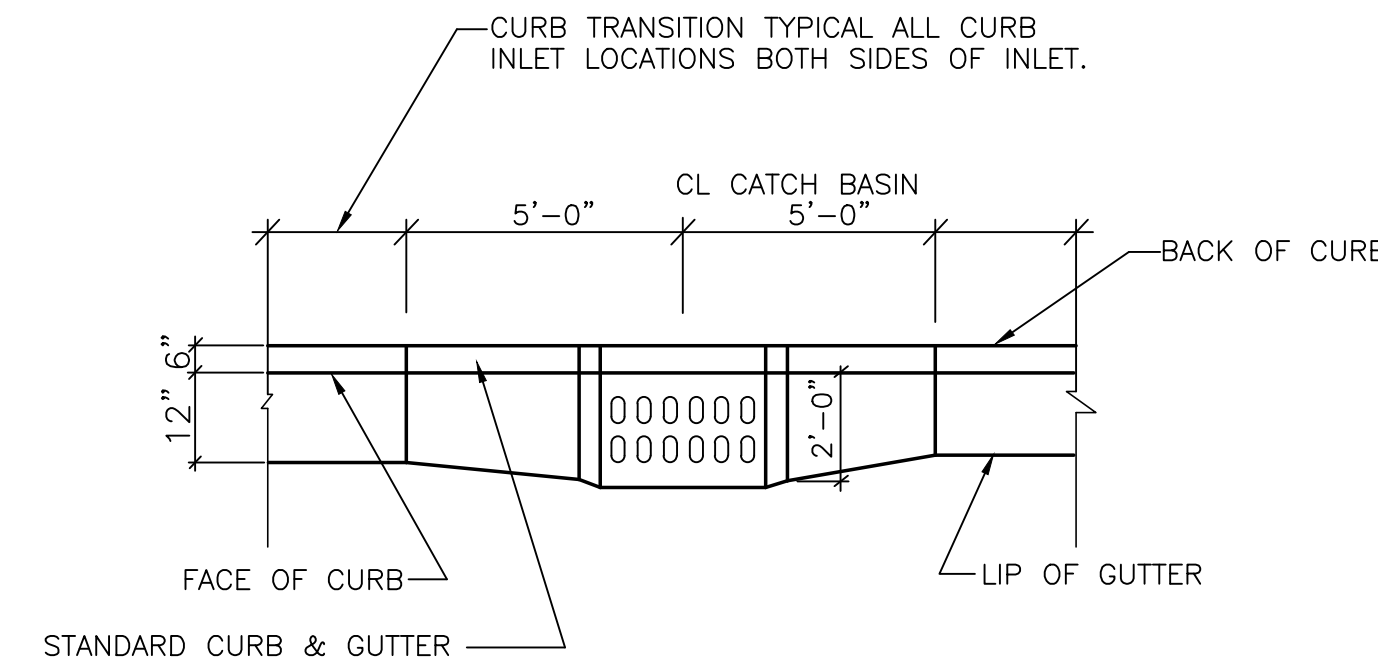
NOTE:
ALL CATCH BASINS OVER 3' DEEP SHALL
HAVE STANDARD STEPS @ 16" O.C.

WRAP BOX IN FILTER FABRIC

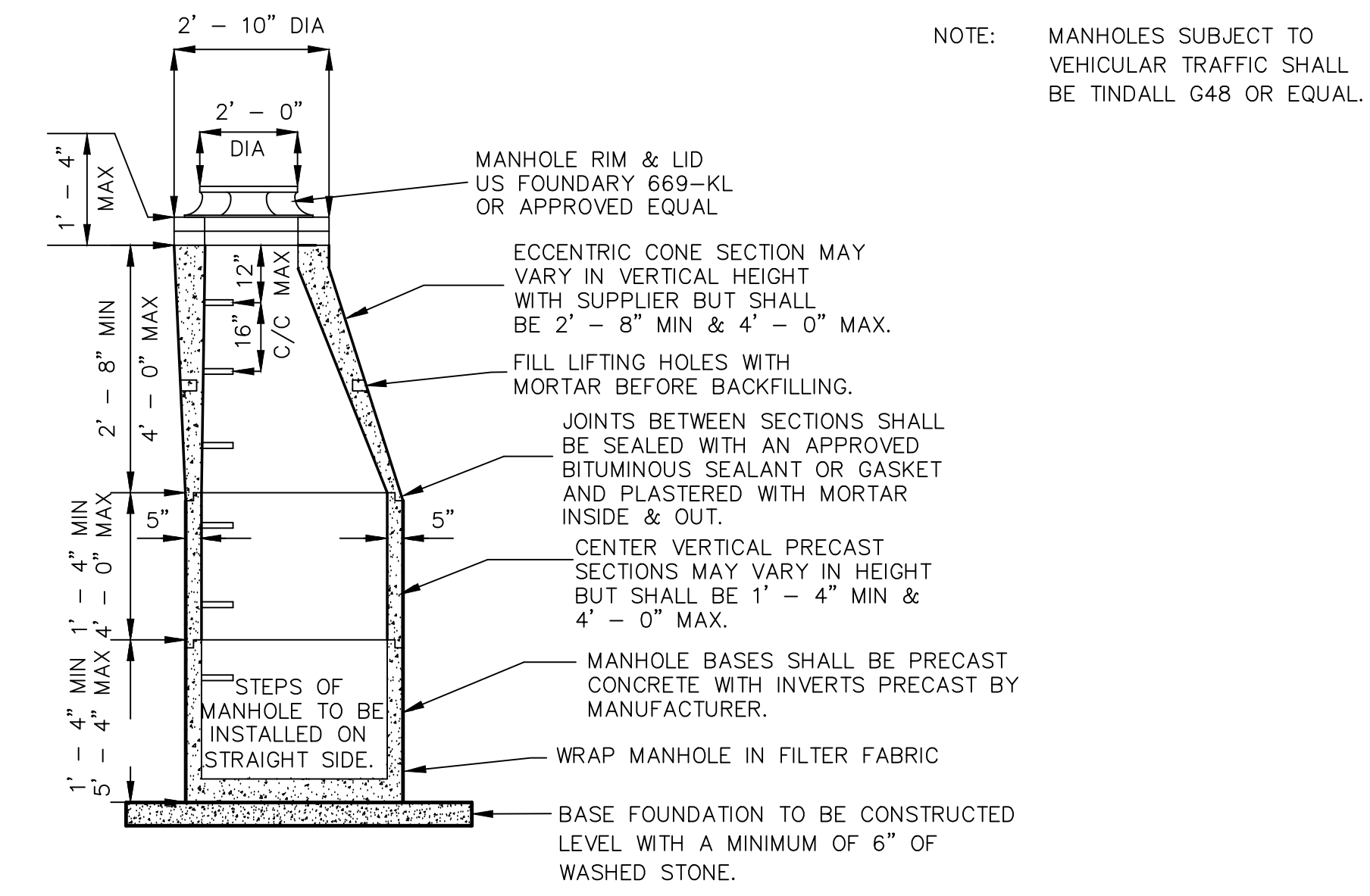


NOTE:
ALL CATCH BASINS OVER 3' DEEP SHALL
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WRAP BOX IN FILTER FABRIC

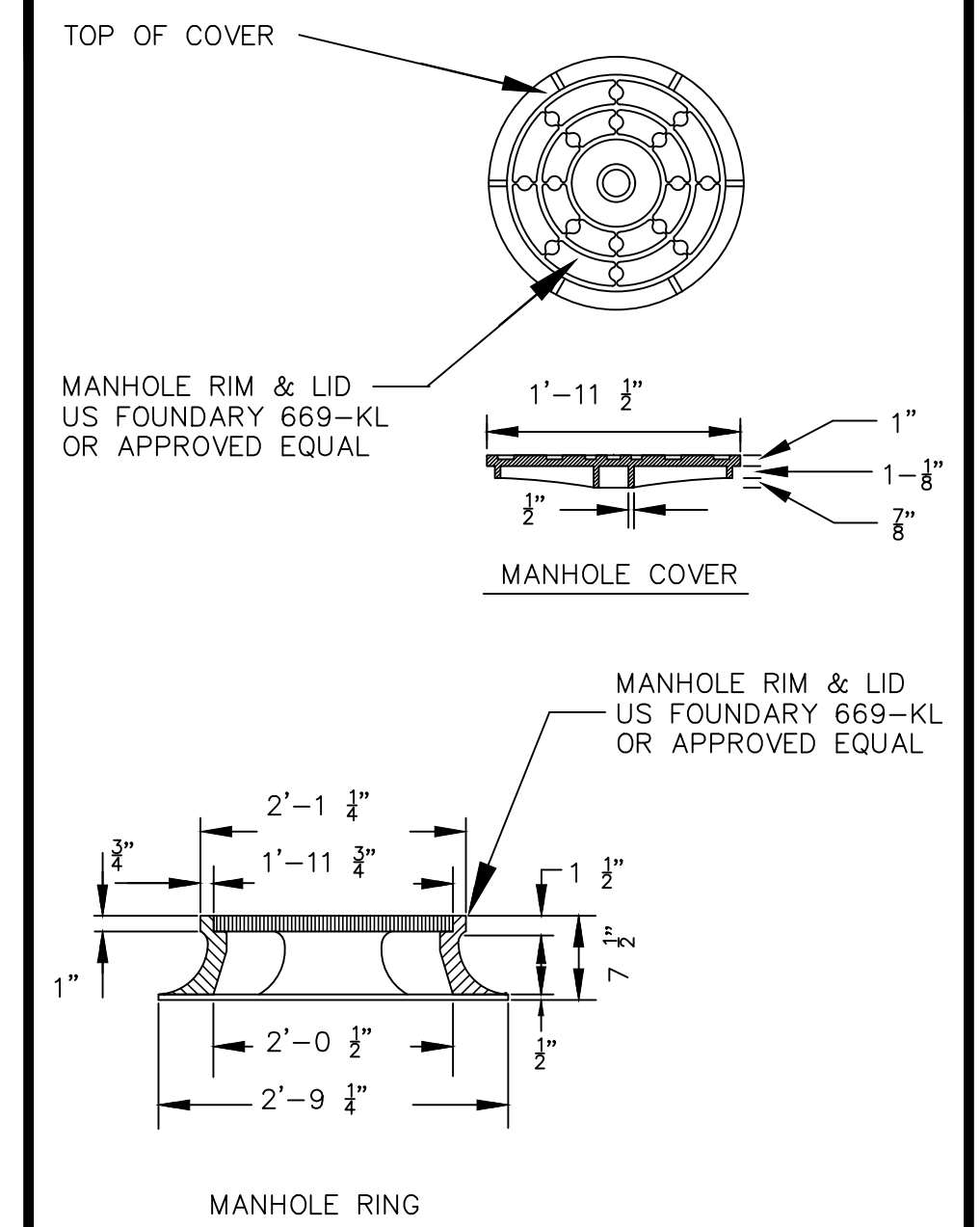


CURB TRANSITION AT CATCH BASIN

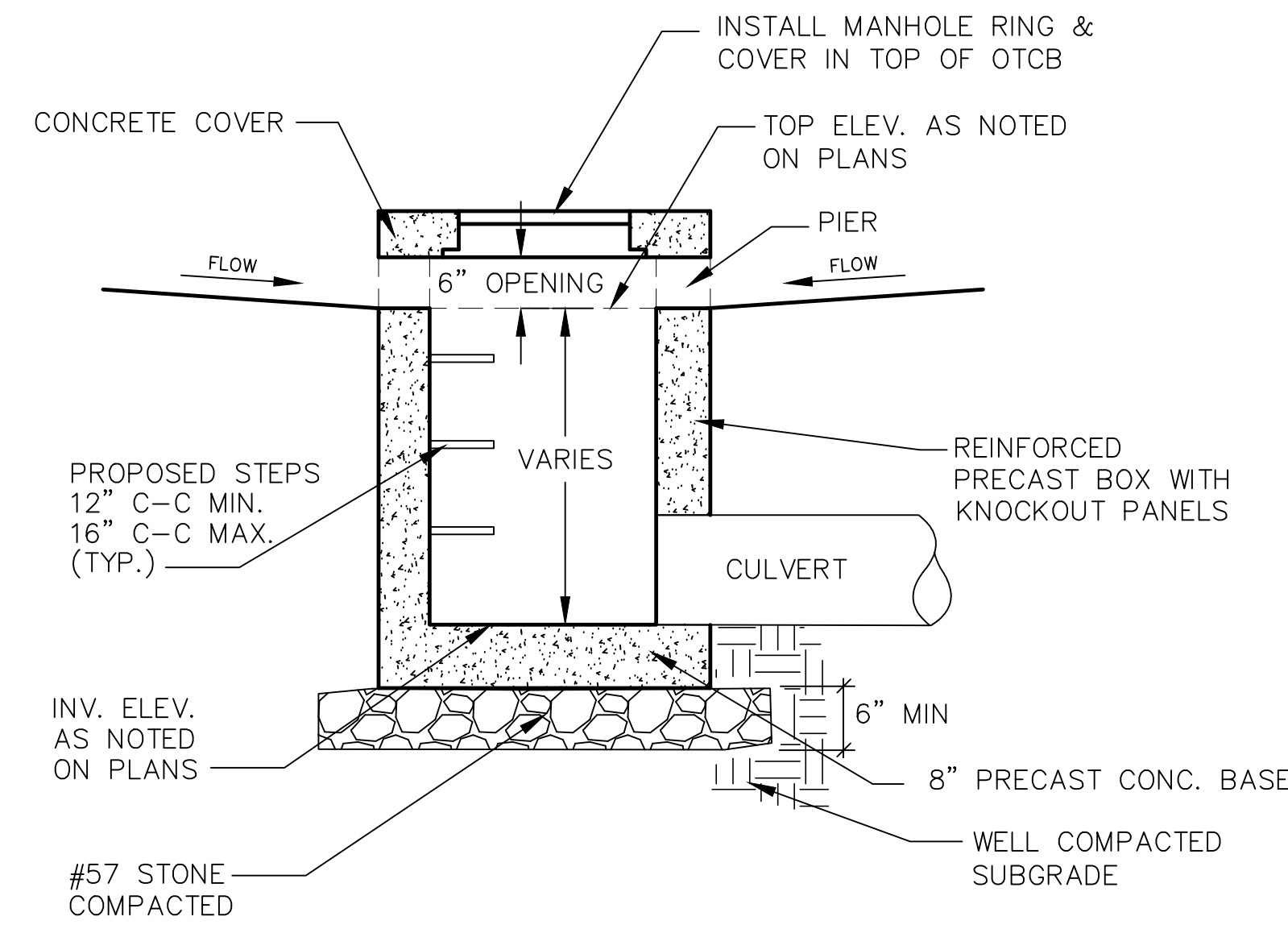


NOTE: MANHOLES SUBJECT TO
VEHICULAR TRAFFIC SHALL
BE TINDALL G48 OR EQUAL.

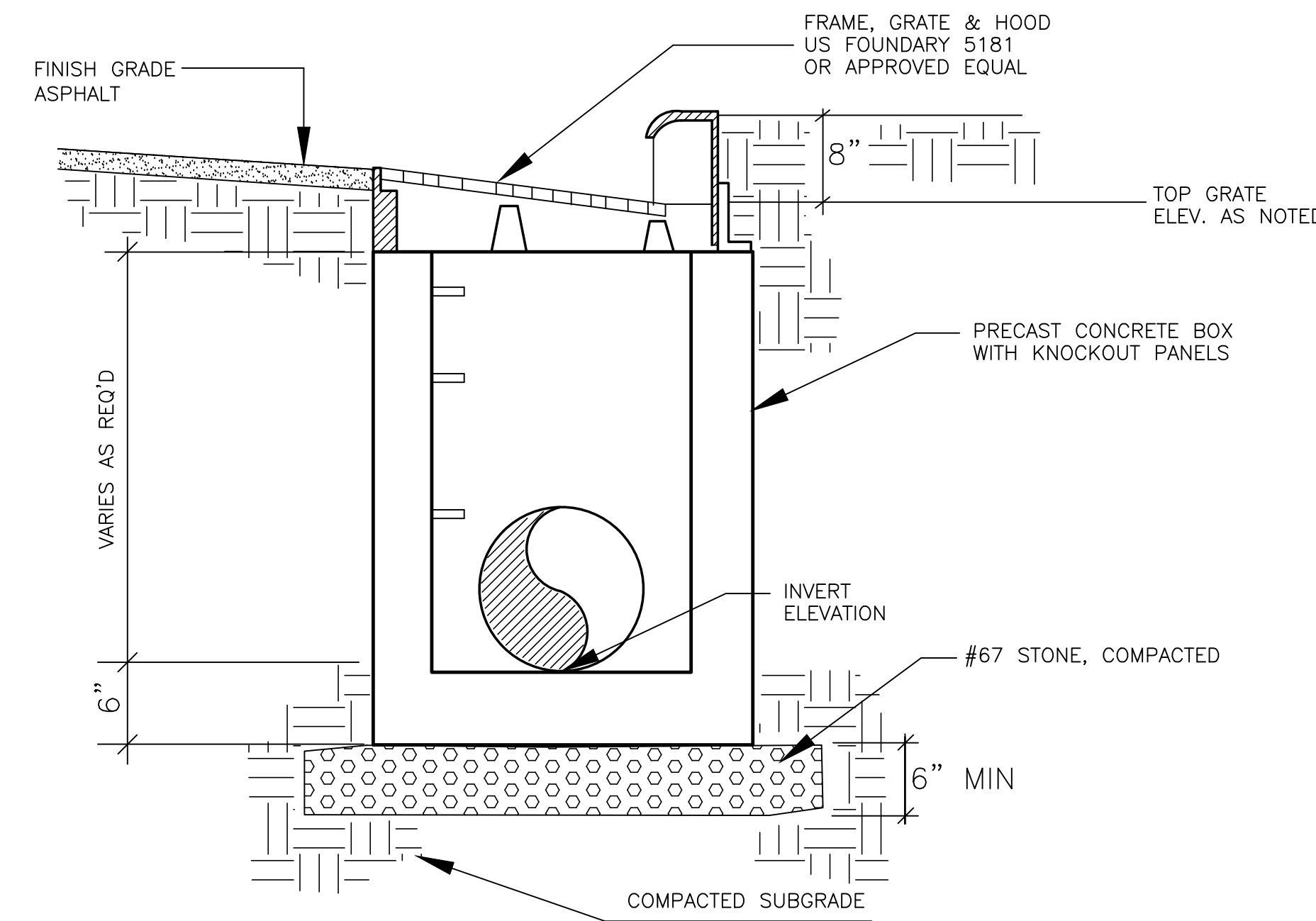
JUNCTION MANHOLE



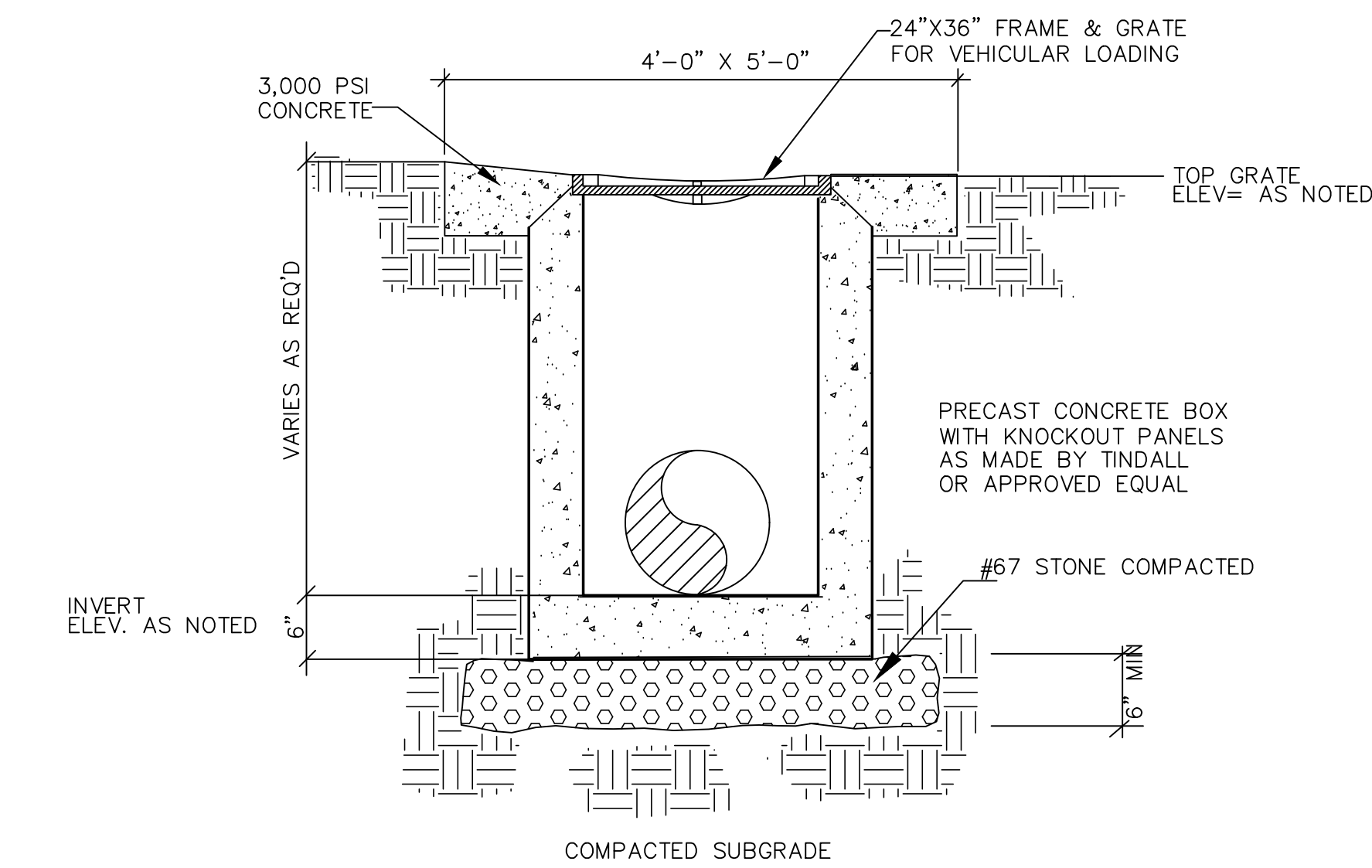
MANHOLE RING AND LID



OPEN THROAT CATCH BASIN



CATCH BASIN



DROP INLET

1-3-23

NOT TO SCALE

4.18

12-21-2022

NOT TO SCALE

4.17

12-21-2022

NOT TO SCALE

4.08

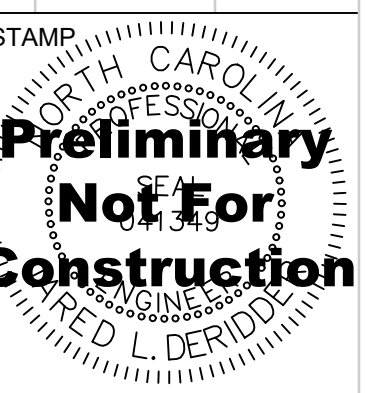
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WGLA
Engineering

HENDERSON COUNTY
DETENTION CENTER
200 N GROVE STREET, HENDERSONVILLE, NC 28792

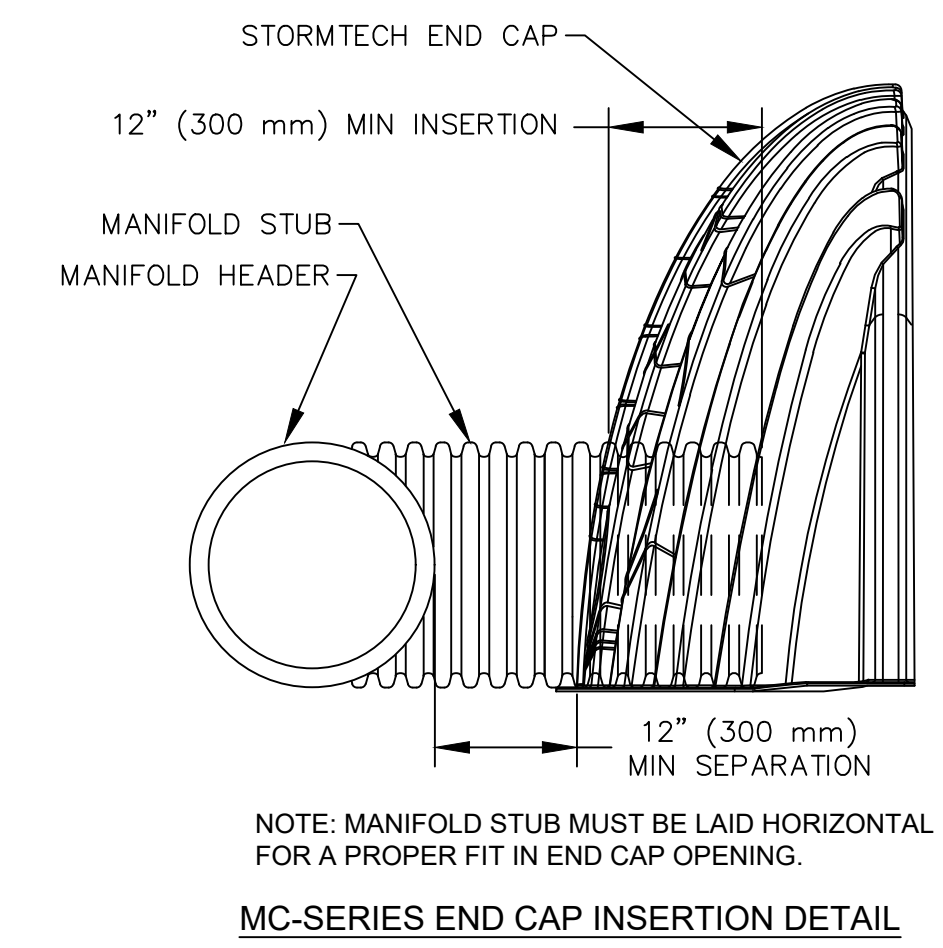
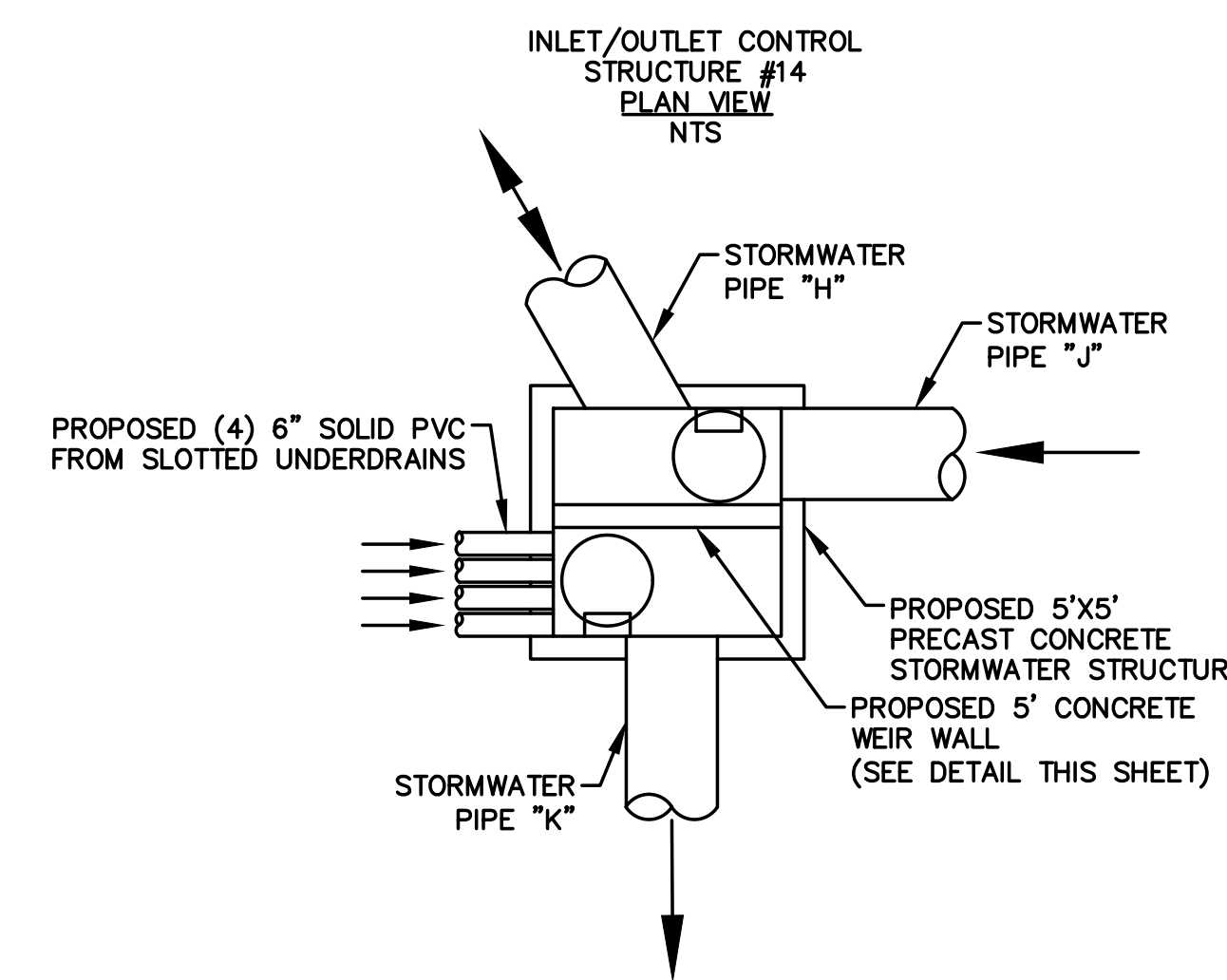
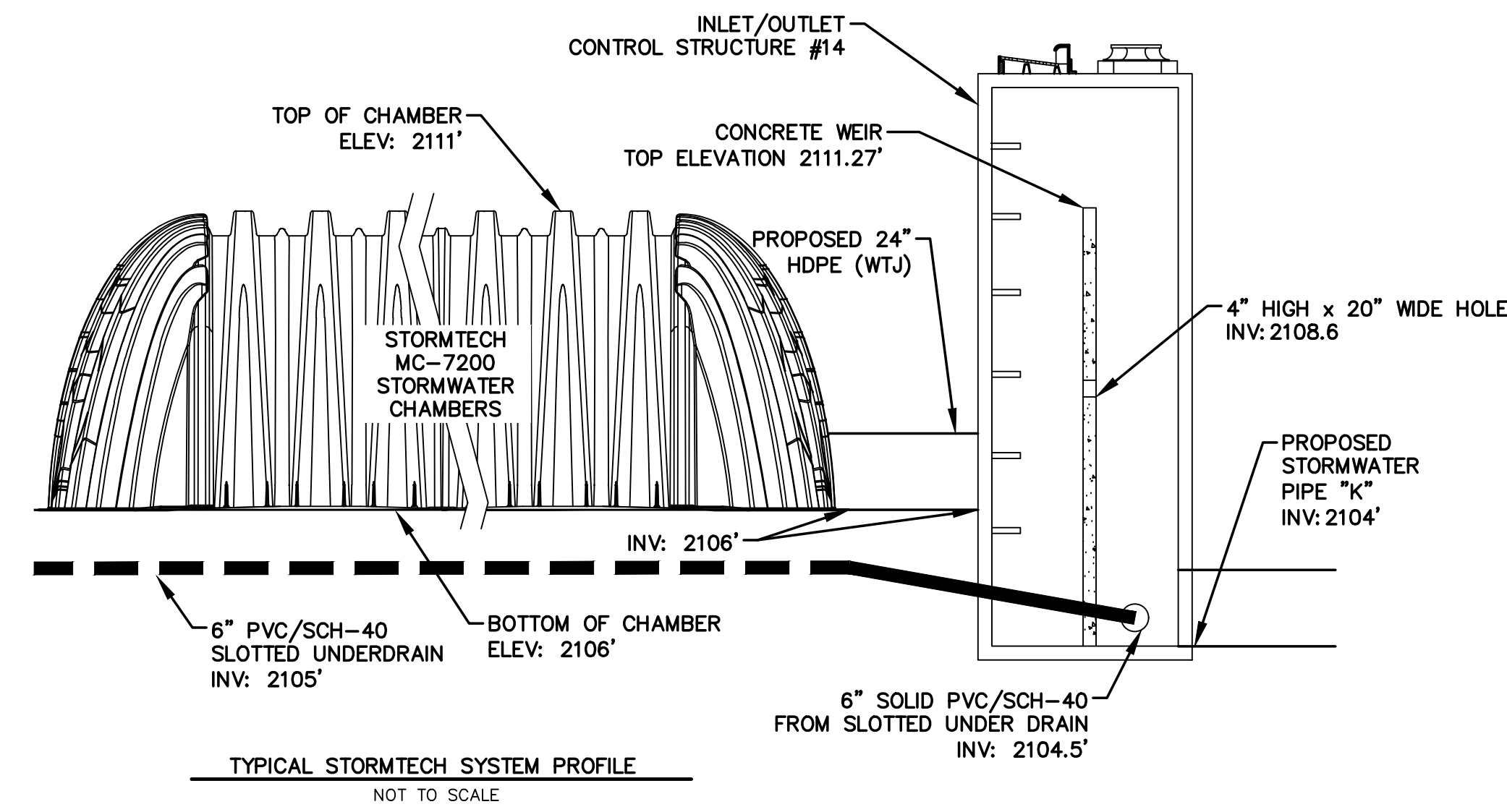
NO.	ISSUED FOR	DATE
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3	50% C.D.	11-26-24
4	75% C.D.	12-20-24
5	90% CD GMP	02-07-25



DRAWING TITLE
STORMWATER DETAILS

PROJECT # 20220006.003
SHEET NUMBER

C-401



MC-7200 STORMTECH CHAMBER SPECIFICATIONS

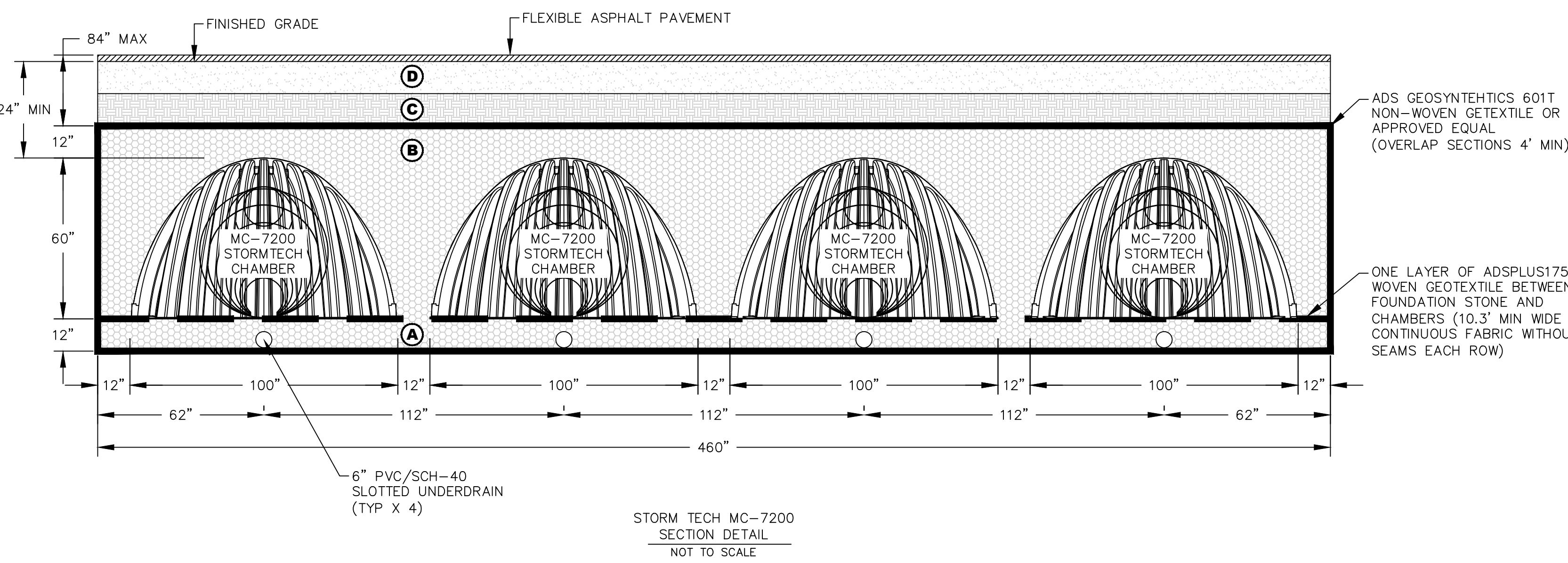
- CHAMBERS SHALL BE STORMTECH MC-7200.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/IN. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418 AND b) CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM

- STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S AND PROJECT ENGINEER'S REPRESENTATIVES HAVE COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE STORM TECH SYSTEM TO BE INSTALLED TO THE PROJECT ENGINEER PRIOR TO CONSTRUCTION.
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONE SHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 12" SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.
- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE STORM TECH SYSTEM TO BE INSTALLED TO THE PROJECT ENGINEER PRIOR TO CONSTRUCTION.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE" AND ENGINEERS PLANS.
 - THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
 - FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING. USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.
- CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

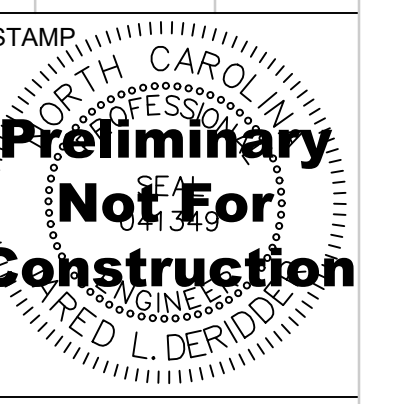


ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145' A-1, A-2.4, A-3 OR AASHTO M43' 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43' 3, 4	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43' 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

PLEASE NOTE:
 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

NO.	ISSUED FOR	DATE
1	50% D.D.	2-16-24
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3	50% C.D.	11-22-24
4	75% C.D.	12-20-24
5	90% CD GMP	02-07-25

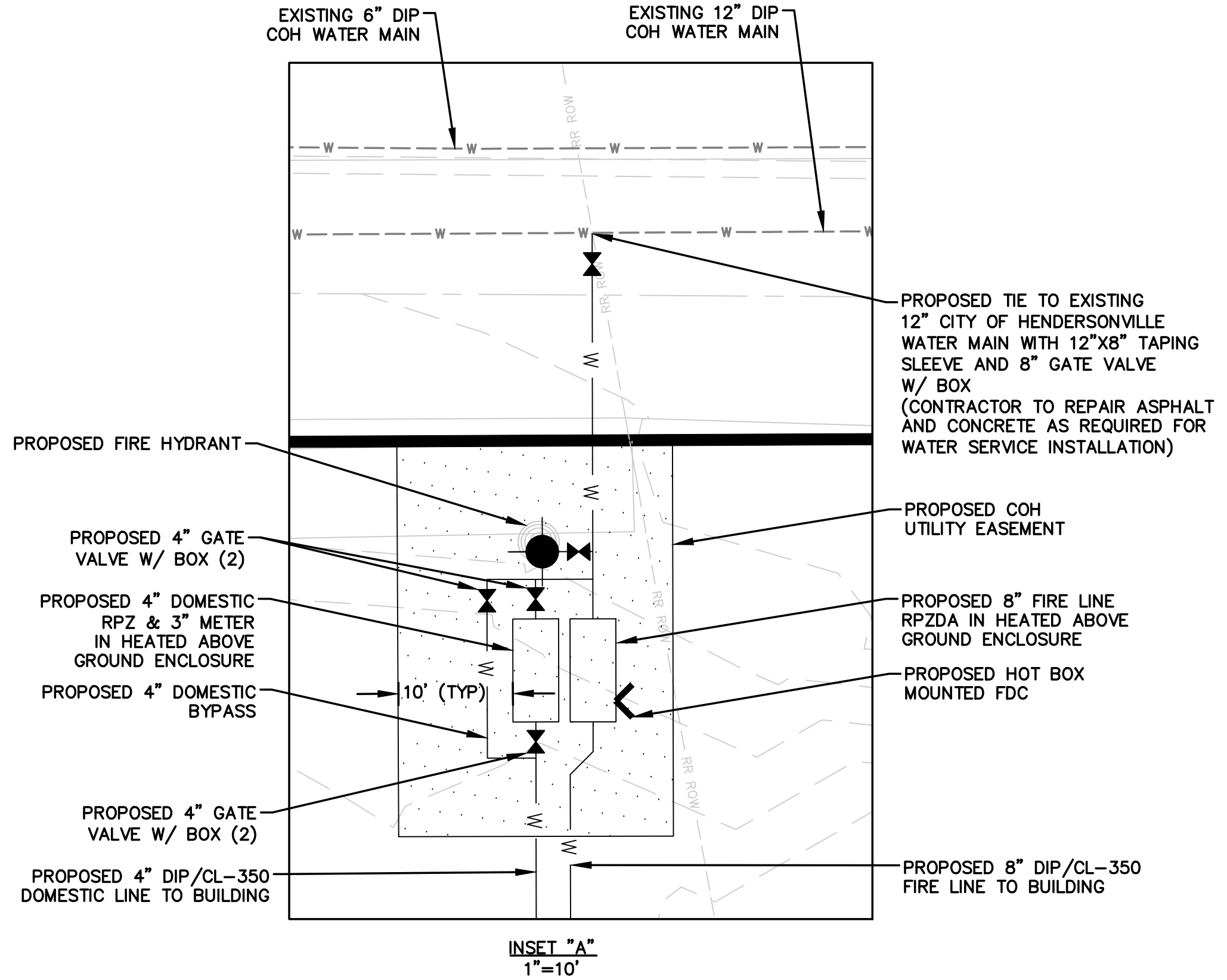
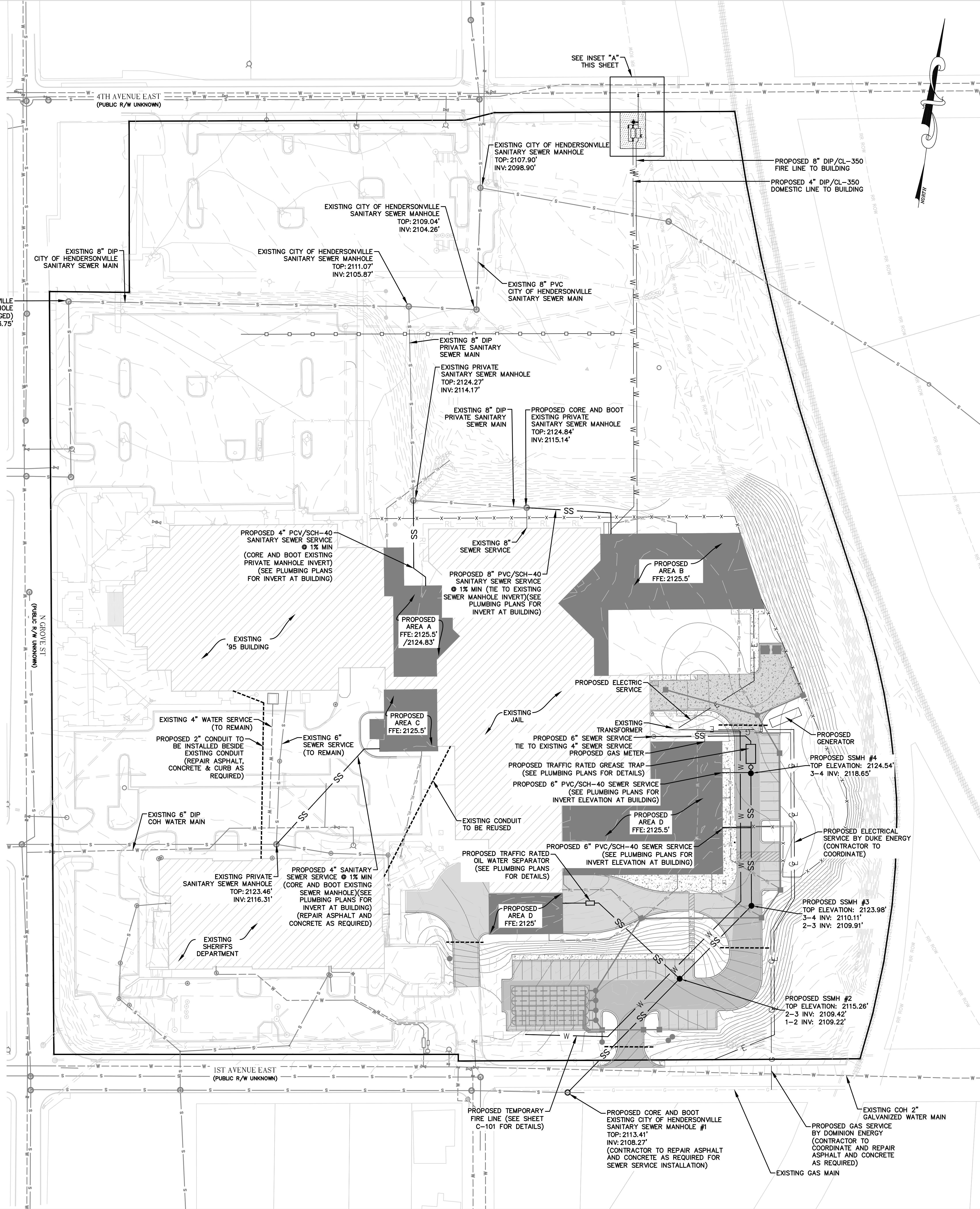


DRAWING TITLE
STORMWATER DETAILS

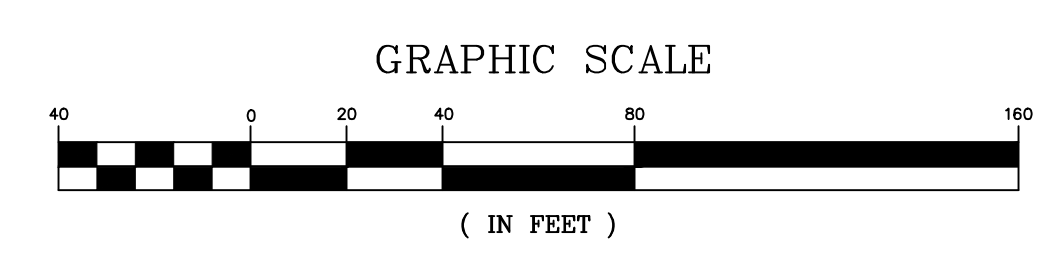
PROJECT # : 2022006.003
SHEET NUMBER

C-402

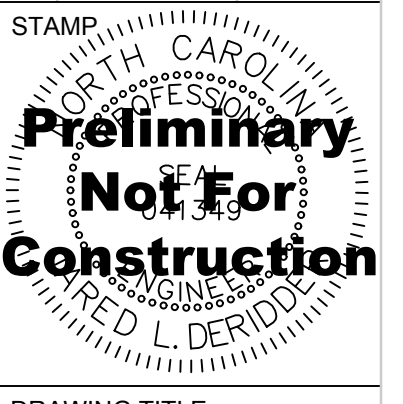
- NOTES:
- 1.) ALL SANITARY SEWER WORK IS TO BE PERFORMED BY A LICENSED NORTH CAROLINA UTILITY CONTRACTOR.
 - 2.) CONTRACTOR SHALL USE DIP/CL-350 PIPING ON ALL SEWER LINES WHERE 3 FEET OVER COVER IS NOT PROVIDED.
 - 3.) FILL SHALL BE COMPACTED TO 95% STANDARD PROCTOR.
 - 4.) HORIZONTAL CONTROL IS NAD83, VERTICAL CONTROL IS NAD83.
 - 5.) CONTRACTOR SHALL VERIFY EXISTING UNDERGROUND UTILITY CROSSING ELEVATIONS PRIOR TO INSTALLATION OF WATER AND SEWER SERVICES.
 - 6.) CONTRACTOR SHALL COORDINATE THIS DRAWING WITH THE PLUMBING PLANS. AND DISCREPANCIES SHALL BE MADE KNOWN TO THE ENGINEER PRIOR TO INSTALLATION.
 - 7.) A MINIMUM OF 10 FT. HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN WATER AND SANITARY SEWER, AND HAZARDOUS WASTE LINES MUST BE MAINTAINED, WHERE THE SEWER LINE INSTALLATION DOES NOT CONFORM TO THIS REQUIREMENT OR HAVE A MINIMUM COVER OF 36" FROM THE GROUND SURFACE OR 24" VERTICAL SEPARATION FROM STORM DRAINAGE LINES - SEWER PIPE MUST BE OF A FERROUS MATERIAL. WATER IS TO BE INSTALLED OVER SEWER.
 - 8.) FOR 4" AND LARGER SANITARY SEWER SERVICES CLEANOUTS SHALL BE PLACED AT EVERY CHANGE OF DIRECTION WITH 100' MAXIMUM BETWEEN CLEANOUTS.
 - 9.) ALL UNDERGROUND LINES OUTSIDE THE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6" AND 24" BELOW FINISHED GRADE DIRECTLY OVER PIPING.
 - 9a.) METALLIC LINES SHALL BE IDENTIFIED WITH DURABLE PRINTED PLASTIC WARNING TAPES, MINIMUM 3" WIDE WITH LETTERING TO IDENTIFY BURIED LINE BELOW.
 - 9b.) NON-METALLIC PIPES, OTHER THAN GAS LINES, SHALL BE IDENTIFIED BY DETECTABLE WARNING TAPE, MINIMUM 2" WIDE, WITH LETTERING TO IDENTIFY BURIED LINE BELOW.
 - 9c.) FOR ALL PLASTIC SEWER PIPING, AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO AND OVER THE FULL LENGTH OF THE PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE AT THE CLEAN OUT CLOSEST TO THE BUILDING. THE TRACER WIRE SIZE SHALL NOT BE LESS THAN 14 AWG AND THE INSULATION TYPE SHALL BE LISTED FOR DIRECT BURIAL.
 - 9d.) AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT THE END OF THE NONMETALLIC PIPING. THE TRACER WIRE SIZE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SUITABLE FOR DIRECT BURIAL.



- LEGEND
- SS — EXISTING SEWER LINE
 - SS — PROPOSED SEWER LINE
 - W — EXISTING WATER LINE
 - W — PROPOSED WATER LINE
 - G — PROPOSED GAS LINE



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1	50% D.D.	2-16-24
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5	90% CD GMP	02-07-25



DRAWING TITLE
UTILITY SERVICE PLAN

PROJECT # 20220006.003
SHEET NUMBER

C-500

GENERAL NOTES:

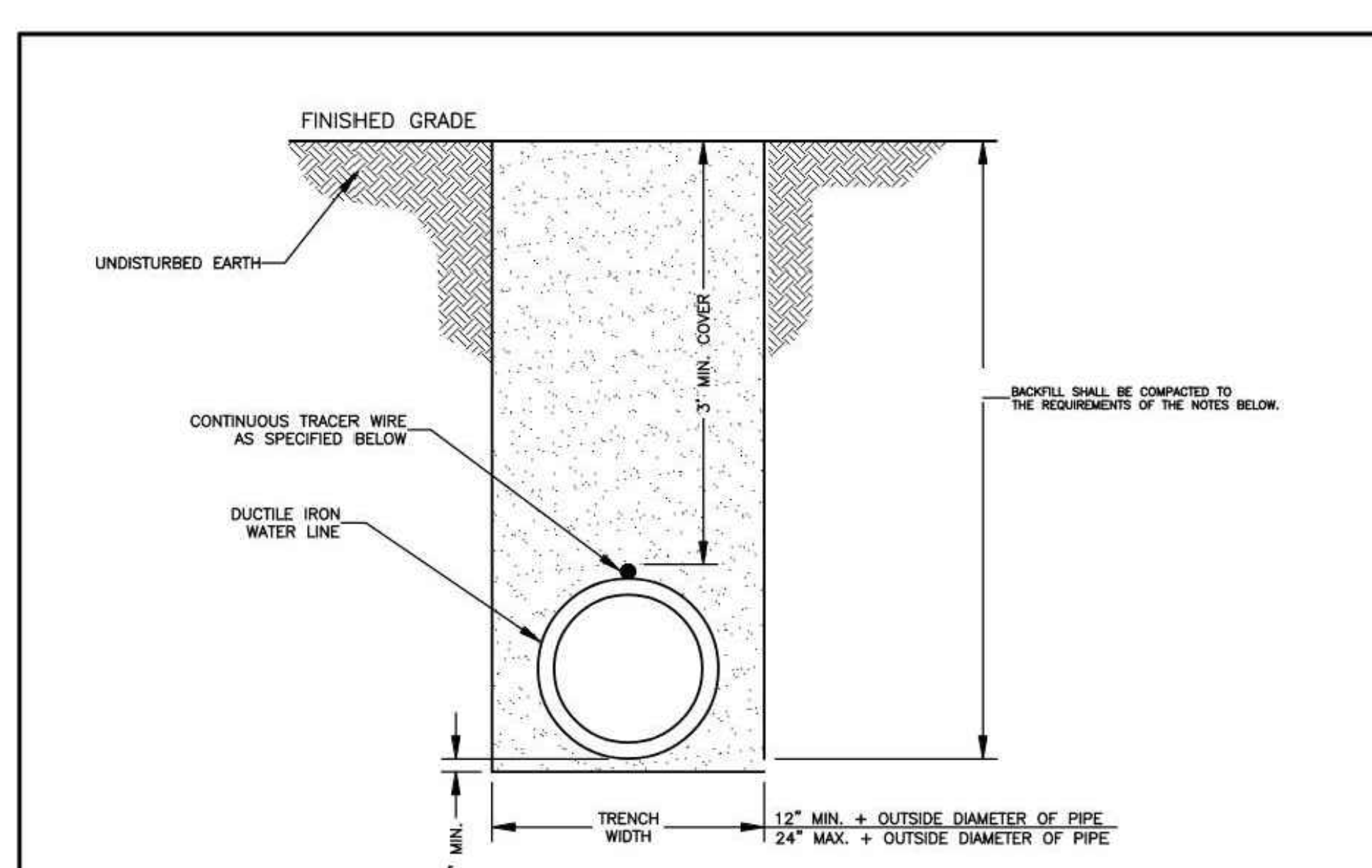
- WATER CONSTRUCTION ON THIS SITE IS AUTHORIZED BY PERMITS ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) SUPERVISED BY THE CITY OF HENDERSONVILLE. THE WORK IS SUBJECT TO INSPECTIONS AT ALL TIMES BY REPRESENTATIVES OF THE CITY OF HENDERSONVILLE. THE CITY ENGINEER'S APPROVAL OF THE PERMITS IS NOT A GUARANTEE OF THE ACCURACY OF THE PERMITS. THE CONTRACTOR SHALL OBTAIN THE PERMITS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN THE PERMITS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN THE PERMITS PRIOR TO THE START OF CONSTRUCTION.
- MATERIALS AND INSTALLATION FOR WATER CONSTRUCTION SHALL CONFORM TO THE LATEST EDITIONS OF CITY SPECIFICATIONS AND DETAILS AND ANMA STANDARDS AND REQUIREMENTS.
- CONTRACTOR SHALL NOTIFY NCEM11 & APPROPRIATE UTILITIES AGENCIES PRIOR TO PERFORMING ANY WORK.
- REGULAR WORKING HOURS SHALL BE FROM 7:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY, EXCEPT IN CASES OF EMERGENCY OR OTHERWISE APPROVED IN WRITING BY THE CITY OF AUTHORIZED REPRESENTATIVES. THE CONTRACTOR SHALL ADVISE THE CONSTRUCTION SITE IS OPEN FOR ANY PERSONS WHO MAY BE ON SITE DURING NON-WORKING HOURS.
- ALL PERSONS SHALL BE COURTEOUS AND RESPECTFUL TO THE PUBLIC. CURSING OR RUDENESS IS NOT PERMITTED AND WILL NOT BE TOLERATED.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL ON ALL ROADWAYS DURING THE PROJECT. THE CONTRACTOR SHALL NOTIFY LOCAL EMERGENCY, SCHOOL AND OTHER NECESSARY AGENCIES PRIOR TO STREET CLOSING OR TRAFFIC CHANGE.
- THE CONTRACTOR AT HIS OWN EXPENSE SHALL KEEP THE CONSTRUCTION SITE AND ADJACENT PUBLIC AND PRIVATE ROADWAYS CLEAR DURING THE PROJECT. THE CONTRACTOR IS ALSO RESPONSIBLE FOR CONTROLLING DUST WITHIN THE PROJECT AREA.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION IN ACCORDANCE WITH THE LINES, GRADES AND ELEVATIONS SHOWN ON THE PLANS OR AS GIVEN BY THE ENGINEER IN THE FIELD.
- CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND ELEVATION FOR ALL UTILITIES, BRANCHES AND OTHER UNDERGROUND FACILITIES BOTH EXISTING AND PROPOSED, AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION. REPAIRS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
- DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN THE OPERATION OF EXISTING UTILITIES WITH THE LEAST AMOUNT OF SERVICE INTERRUPTION POSSIBLE IN COORDINATION WITH THE CITY OF HENDERSONVILLE. CONSTRUCTION SHALL BE SCHEDULED TO AVOID PEAK TRAFFIC CONGESTION TIMES EXCEPT ALL OTHERS AND CONTRACTOR'S SCHEDULE, PLANS AND WORK SHALL BE SUBJECT TO ALTERATION AND REVISION IF NECESSARY FOR THESE CONSIDERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY OR PERMANENT RELOCATION OF STRUCTURES AND UTILITIES, INCLUDING BUT NOT LIMITED TO POLES, SIGNS, FENCES, HYDRANTS, VALVES, PIPING, CONDUITS AND DRAINS THAT INTERFERE WITH THE POSITIONING OF THE WORK AS SHOWN ON THE DRAWINGS.
- CONTRACTOR SHALL BE REQUIRED TO CONFORM AND COMPLY WITH ALL RESTRICTIONS AND EASEMENT CONDITIONS AND IS RESPONSIBLE FOR ALL RELATED INCIDENTAL COSTS INVOLVED.
- EXISTING WATER SERVICES SHALL BE REPLACED TO THE EXISTING WATER UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY. SLOPING OF THE WATER SERVICE ON THE DOWNSTREAM SIDE OF THE METER IS NOT PERMITTED.
- ALL DISTURBED AREAS, INCLUDING BUT NOT LIMITED TO ASPHALT, CONCRETE DRIVEWAYS, ROADS, LANDSCAPING, SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION THAN THE ORIGINAL STATE AND LANDSCAPING SHALL BE REPLACED WITH THE SAME SPECIES AND PLANTING AS SOON AS WATERLINE CONSTRUCTION ALLOWS. ADEQUATE SEEDING AND SOIL STABILIZATION SHALL BE APPLIED TO THE DISTURBED TRENCH AREA. ADDITIONAL FILL AND SITE RESTORATION MAY BE REQUIRED WITHIN THE WARRANTY PERIOD AT THE CITY'S DISCRETION.
- CONTRACTOR SHALL PROVIDE EROSION CONTROL DEVICES TO CONTROL RUNOFF AS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR ANY FINES THAT MAY BE LEVED DUE TO RUNOFF FROM CONSTRUCTION.
- IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW ALL APPLICABLE FEDERAL, STATE AND LOCAL HEALTH AND SAFETY REGULATIONS PERTAINING TO CONSTRUCTION OPERATIONS.
- ALL WATER MAINS SHALL HAVE 3 FEET MINIMUM COVER.
- INSTALL FERROUS PIPING FOR BOTH WATER AND SEWER WITHIN 10 FT. OF A CROSSING.
- SEWER LINE CROSSES OVER WATER. SEE 19.2.
- VERTICAL CLEARANCE BETWEEN WATER AND SEWER IS LESS THAN 18 INCHES.
- MINIMUM 10 FEET HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS UNLESS LAD IN SEPARATE TRENCHES WITH THE BOTTOM OF THE WATER LINE AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER LINE OR USE FERROUS MATERIAL FOR BOTH WATER AND SEWER.

DISCLAIMER:
THE STANDARD WATER DETAILS ARE FOR THE SOLE USE OF PROJECTS DIRECTLY FOR, OR THOSE PROJECTS IN WHICH OWNERSHIP WILL BE TRANSFERRED TO THE CITY OF HENDERSONVILLE. THESE TYPICALS ARE INTENDED TO SHOW THE CITY OF HENDERSONVILLE'S EXPECTATIONS FOR THE GENERAL LAYOUT, ARRANGEMENT AND MATERIALS FOR WATER DISTRIBUTION SYSTEM ITEMS AND THEIR RELATED APPURTENANCES. IT REMAINS THE SOLE RESPONSIBILITY OF THE ENGINEER IN RESPONSIBLE CHARGE (ERIC) OF EACH APPLICATION TO DETERMINE, DESIGN TO, AND VERIFY TO THE DESIGN PARAMETERS FOR EACH INSTALLATION. ERIC MUST ALSO ENSURE THE DESIGN WITH THE MINIMUM DESIGN CRITERIA OF NO DIVISION OF ENVIRONMENTAL QUALITY AND ALL LOCAL AND STATE LAWS AND REGULATIONS.

DATE: 02/10/2021 WD DWG. NO. 1
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)
www.cityofhendersonville.org

**WATER DETAILS
GENERAL NOTES**

NOTES:

- TRENCHES EXCAVATED OUTSIDE EXISTING ROAD AND RAILWAY RIGHTS-OF-WAY SHALL BE BACKFILLED WITH COMMON BACKFILL MATERIAL CONSISTING OF EXCAVATED MATERIALS EXCEPT HIGHLY ORGANIC SILTS AND CLAYS AND TAMPED THOROUGHLY. FILL SHALL BE DEPOSITED IN SUCCESSIVE, UNIFORM, APPROXIMATELY HORIZONTAL LAYERS. MATERIAL SHALL BE FREE OF ROOTS, STONES, AND DEBRIS. ALL MATERIAL SHALL HAVE AN IN-PLACE DENSITY OF AT LEAST 85% MAXIMUM DRY DENSITY (STANDARD PROCTOR) OR AS APPROVED BY THE ENGINEER. COMMON BACKFILL SHALL NOT CONTAIN STONE BLOCKS, BROKEN CONCRETE, MASONRY RUBBLE, OR OTHER SIMILAR MATERIALS. IT SHALL HAVE PHYSICAL PROPERTIES SUCH THAT IT CAN BE READILY SPREAD AND COMPACTED DURING FILLING. SNOW, ICE, AND FROZEN SOIL WILL NOT BE PERMITTED.
- WHERE EXCAVATED MATERIAL, AFTER REMOVAL OF ROCKS, STUMPS, PLANT MATERIAL, AND OTHER EXTRANEOUS MATERIAL AND PROPER DEWATERING, DRYING, PROTECTION, AND STORAGE OF THE EXCAVATION BY THE CONTRACTOR, CANNOT BE PREPARED TO MEET THE REQUIREMENTS FOR COMMON BACKFILL, DUE TO THE NATURE OF THE MATERIAL (E.G., EXCESSIVE ROCK, MUCK, ORGANICS, CLAY, SILT, OR OTHER MATERIAL), AND AS DETERMINED BY THE ENGINEER, THE UNACCEPTABLE EXCAVATION SHALL BE REMOVED FROM THE SITE AND REPLACED BY IMPORTED BACKFILL MEETING THE REQUIREMENTS OF STRUCTURAL BACKFILL. IMPORTED STRUCTURAL BACKFILL SHALL BE FREE OF ORGANICS, ROOTS OR OTHER DELETERIOUS MATERIALS AND SHALL NOT CONTAIN MORE THAN FIVE PERCENT (BY WEIGHT) ORGANIC MATERIAL. HAVE A PLASTICITY INDEX (PI) GREATER THAN 25, OR HAVE A MAXIMUM DRY DENSITY LESS THAN 90 POUNDS PER CUBIC FOOT. IMPORTED STRUCTURAL FILL SHOULD CONSIST OF MATERIAL CLASSIFIED AS M, CL, SC, OR SM, OR BETTER PER ASTM D-2487 AND BE CAPABLE OF BEING COMPACTED TO 85% STANDARD PROCTOR.
- THE WATER LINE SHALL HAVE A MINIMUM OF 3" OF COVER AT FINISHED GRADE.

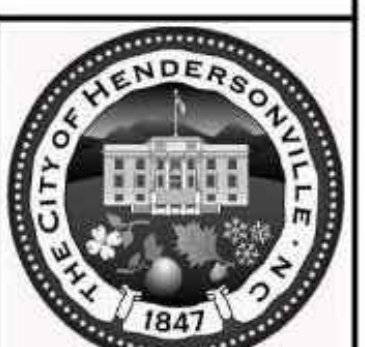
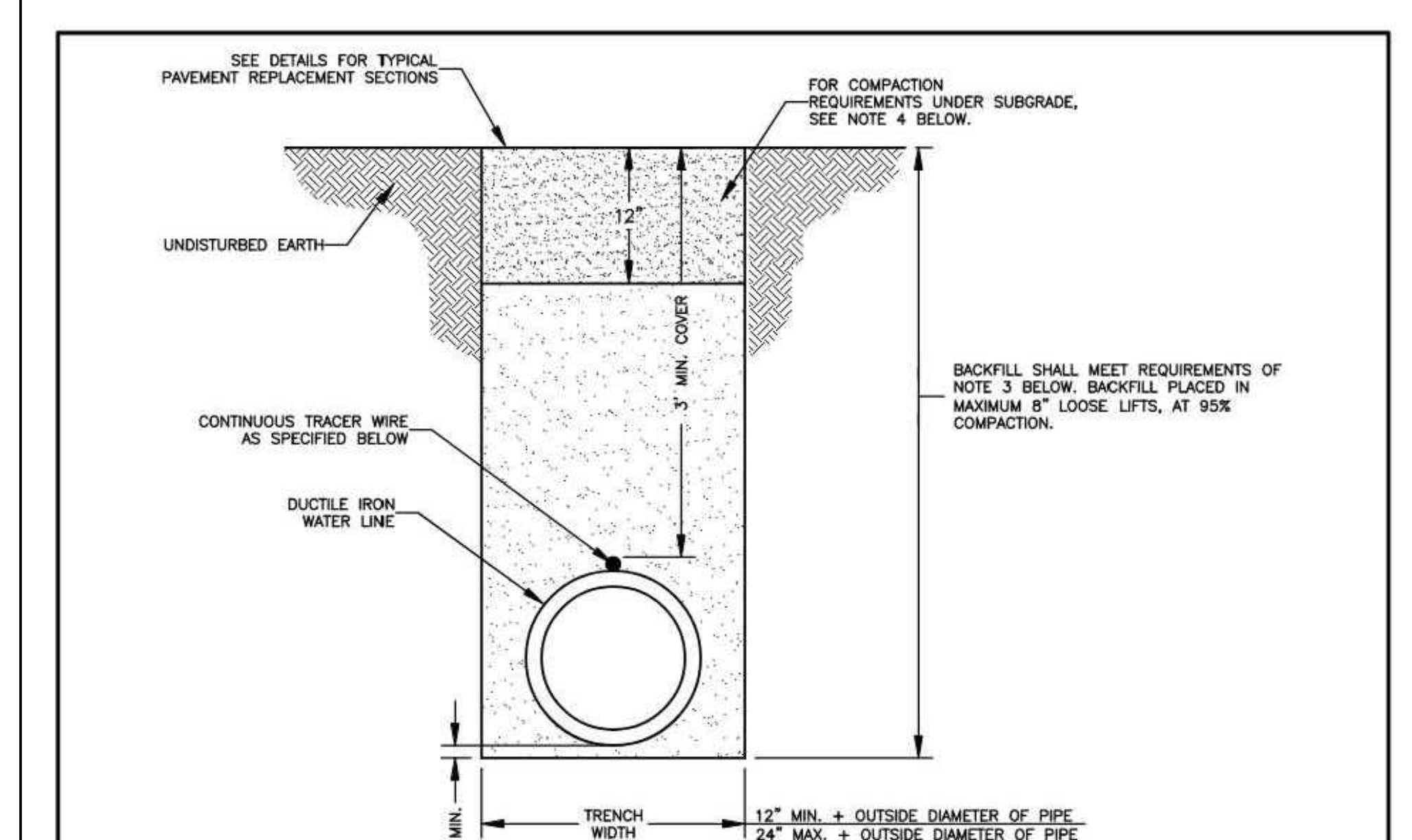
TRACER WIRE WILL BE A 19 GAUGE, TIN COATED, COPPER CONDUCTOR WITH POLYETHYLENE INSULATION. CORE MATERIAL COMPRISED OF HIGH-TENSILITY, WOVEN POLYESTER WITH WATER BLOCKING YARNS ENCAPSULATED IN 30 MIL BLUE HOPE JACKET PROVIDING CORROSION RESISTANCE, FLEXIBILITY, IMPACT STRENGTH AND 1800 LBS. TENSILE STRENGTH. TRACER WIRE WILL NOT CONDUCT AN ELECTRICAL CURRENT WHEN STRUCK BY LIGHTNING AND IS DESIGNED FOR DIRECT BURY AND DIRECTIONAL BORING APPLICATIONS. WHEN SPLICES AND LATERAL CONNECTIONS ARE MADE, ONLY GEL FILLED CONNECTORS DESIGNED FOR WIRE WITH WOVEN POLYESTER FIBER CORE ARE TO BE USED. TRACER WIRE AND CONNECTORS SHALL BE TRACE-SAFE® WATER BLOCKING TRACER WIRE AND RELATED CONNECTORS, MANUFACTURED BY NEPTCO, INC., OR EQUIVALENT APPROVED BY ENGINEER, AND PRODUCED IN THE UNITED STATES OF AMERICA.

TRACER WIRE SHALL BE EXTENDED ALONG ALL WATER LINES, FITTINGS, VALVES, SERVICES, AND HYDRANTS. LOCATING CLIPS SHALL BE PROVIDED AT ALL VALVES, HYDRANT VALVES AND METER BOXES. THE CONTRACTOR SHALL DUCT TAPE TRACER WIRE ON CROWN OF WATER LINE EVERY FIVE FEET.

DATE: 01/12/2019 WD DWG. NO. 2
SCALE: NOT TO SCALE

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**WATER TRENCH CONSTRUCTION
OUTSIDE PAVEMENT**

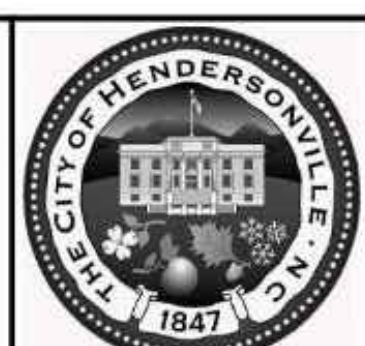
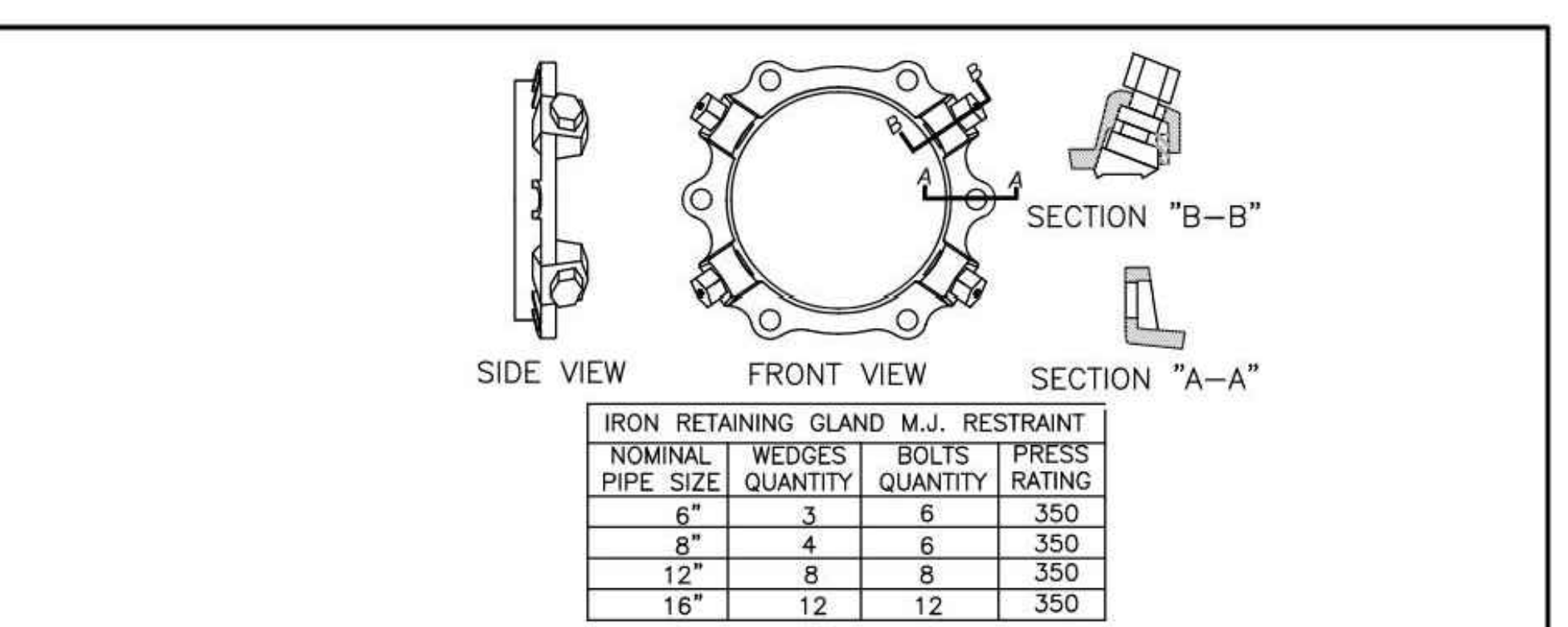
NOTES:

- THIS TRENCH BACKFILL DETAIL APPLIES TO AREAS UNDER PAVEMENT, CURB, GUTTER, SIDEWALK OR AREAS WHERE THE TRENCH IS WITHIN FIVE (5) FEET OF THE EDGE OF PAVEMENT.
- COMPACTOR OF THE BACKFILL SHALL BE ACHIEVED THROUGH THE USE OF AN APPROVED VIBRATORY PLATE TAMPER OR ROLLER. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTOR REQUIREMENTS.
- COMPACTOR TESTING OF THE BACKFILL SHALL BE PROVIDED, DIRECTED AND COORDINATED BY THE OWNER. INTERVALS OF TESTING SHALL BE AT THE TOTAL DISCRETION OF THE OWNER AND MAY BE CHANGED AT ANY TIME.
- IF A TEST DOES NOT PASS, THE CONTRACTOR SHALL REMOVE THE DEFECTIVE BACKFILL, REDO THE WORK AND THE AREA WILL BE RETESTED. THE CONTRACTOR SHALL BE AWARE OF THE LEVEL OF COMPACTATION REQUIRED.
- IF THE WORK IS SUSPECT TO BE DEFECTIVE BY THE OWNER, THE WORK SHALL BE RETESTED.
- THE WATER CONTENT OF THE BACKFILL MATERIAL SHALL ALSO BE TESTED AND RECORDED FOR EACH TEST COMPLETED. THE CONTRACTOR WILL BE ALLOWED TO ADD WATER TO THE BACKFILL MATERIAL IN ORDER TO OBTAIN THE OPTIMUM WATER CONTENT. HOWEVER, THE CONTRACTOR WILL NOT BE ALLOWED TO UTILIZE THE ADDITION OF WATER AS A MEANS OF COMPACTOR. FURTHERMORE, SHOULD THE BACKFILL MATERIAL BE FOUND TO HAVE WATER CONTENT RATIOS WHICH IN THE OPINION OF THE ENGINEER OR THE OWNER PREVENTS THE APPROPRIATE COMPACTOR OF THE TRENCH, THE CONTRACTOR SHALL REMOVE ALL DEFECTIVE MATERIAL AND UNDERTAKE THE NECESSARY CORRECTIVE WORK.
- THE TOP TWELVE INCHES OF THE FINAL BACKFILL SHALL BE COMPACTED TO 98% STANDARD PROCTOR.
- THE WATER LINE SHALL HAVE A MINIMUM OF 3" OF COVER AT FINISHED GRADE.
- TRACER WIRE WILL BE A 19 GAUGE, TIN COATED, COPPER CONDUCTOR WITH POLYETHYLENE INSULATION. CORE MATERIAL COMPRISED OF HIGH-TENSILITY, WOVEN POLYESTER WITH WATER BLOCKING YARNS ENCAPSULATED IN 30 MIL BLUE HOPE JACKET PROVIDING CORROSION RESISTANCE, FLEXIBILITY, IMPACT STRENGTH AND 1800 LBS. TENSILE STRENGTH. TRACER WIRE WILL NOT CONDUCT AN ELECTRICAL CURRENT WHEN STRUCK BY LIGHTNING AND IS DESIGNED FOR DIRECT BURY AND DIRECTIONAL BORING APPLICATIONS. WHEN SPLICES AND LATERAL CONNECTIONS ARE MADE, ONLY GEL FILLED CONNECTORS DESIGNED FOR WIRE WITH WOVEN POLYESTER FIBER CORE ARE TO BE USED. TRACER WIRE AND CONNECTORS SHALL BE TRACE-SAFE® WATER BLOCKING TRACER WIRE AND RELATED CONNECTORS, MANUFACTURED BY NEPTCO, INC., OR EQUIVALENT APPROVED BY ENGINEER, AND PRODUCED IN THE UNITED STATES OF AMERICA.
- TRACER WIRE SHALL BE EXTENDED ALONG ALL WATER LINES, FITTINGS, VALVES, SERVICES, AND HYDRANTS. LOCATING CLIPS SHALL BE PROVIDED AT ALL VALVES, HYDRANT VALVES AND METER BOXES. THE CONTRACTOR SHALL DUCT TAPE TRACER WIRE ON CROWN OF WATER LINE EVERY FIVE FEET.

DATE: 06/10/2019 WD DWG. NO. 3
SCALE: NOT TO SCALE

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**WATER TRENCH CONSTRUCTION
UNDER PAVEMENT**

NOMINAL PIPE SIZE	WEDGES QUANTITY	BOLTS QUANTITY	PRESS RATING
6"	3	6	350
8"	4	6	350
12"	8	8	350
16"	12	12	350

8" SIZE SHOWN 6" & 12" SIMILAR IRON RETAINING GLAND M.J. RESTRAINT

LR (MIN. LENGTH OF RESTRAINT EACH DIRECTION OF THRUST IN LINEAR FEET)
Based on 200 psig pressure, Safety Factor of 2.0:1, BARE DI PIPE AND ML SOIL, 3.5" cover
Chart does not apply to pipes wrapped in polyethylene wrap

PIPE SIZE	VALVES DEAD ENDS TEES	90° ELBOWS	45° ELBOW & CROSSES	22-1/2' ELBOWS	REDUCER
6"	55'	31'	13'	7'	8"X2" 67'
8"	72'	40'	17'	8'	8"X6" 30'
12"	102'	57'	24'	12'	12"X8" 54'
16"	130'	72'	30'	15'	16"X8" 95'

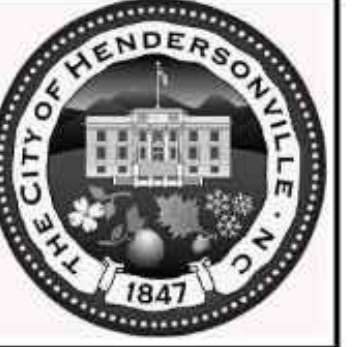
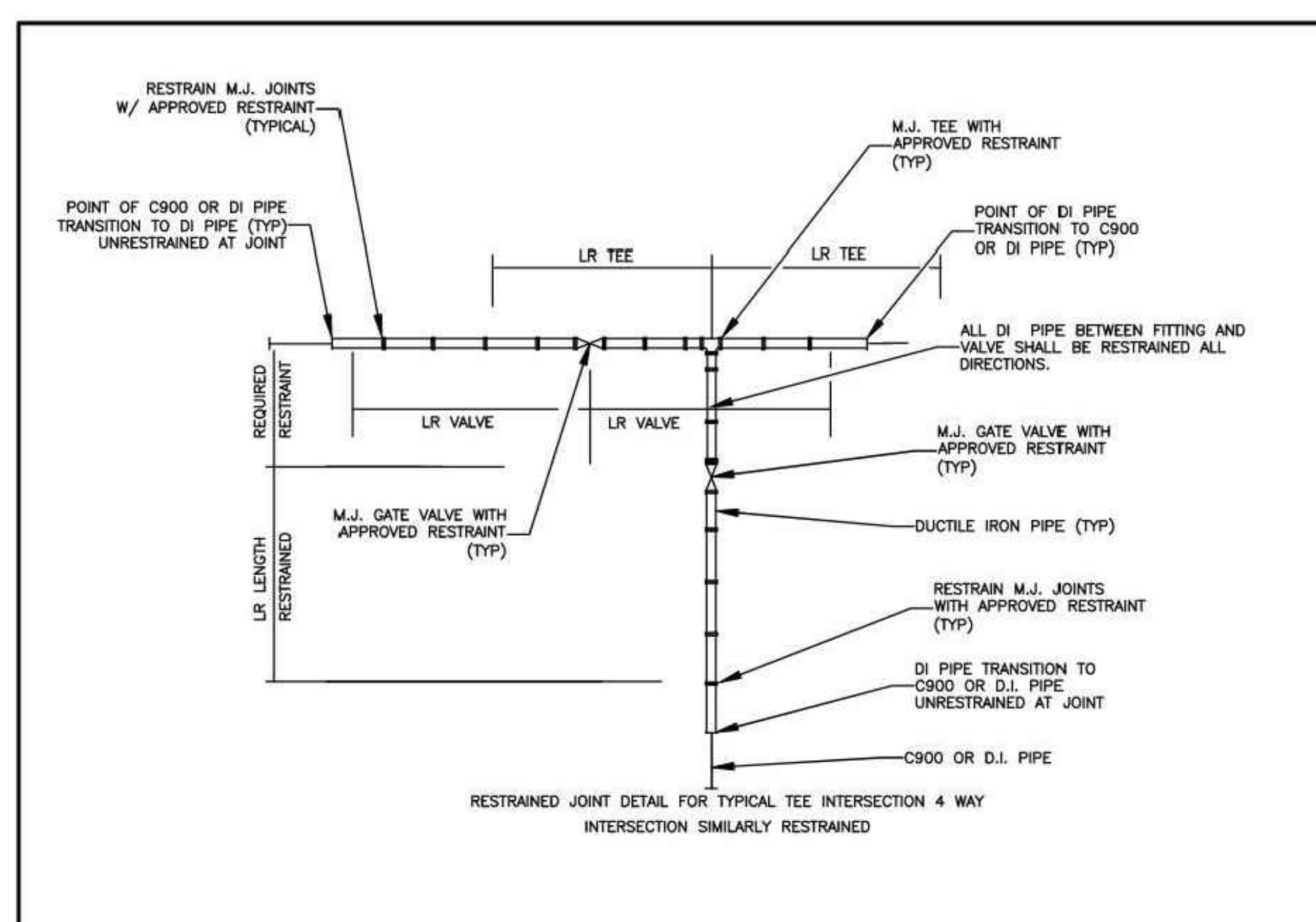
LR=LENGTH TO BE RESTRAINED SEE CHART
LR=LENGTH TO BE RESTRAINED SEE CHART

DATE: 07/07/2019 WD DWG. NO. 4-1
SCALE: NOT TO SCALE

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**DUCTILE IRON PIPE
RESTRAINT DETAIL**

SHEET 1 OF 2

NOTES:


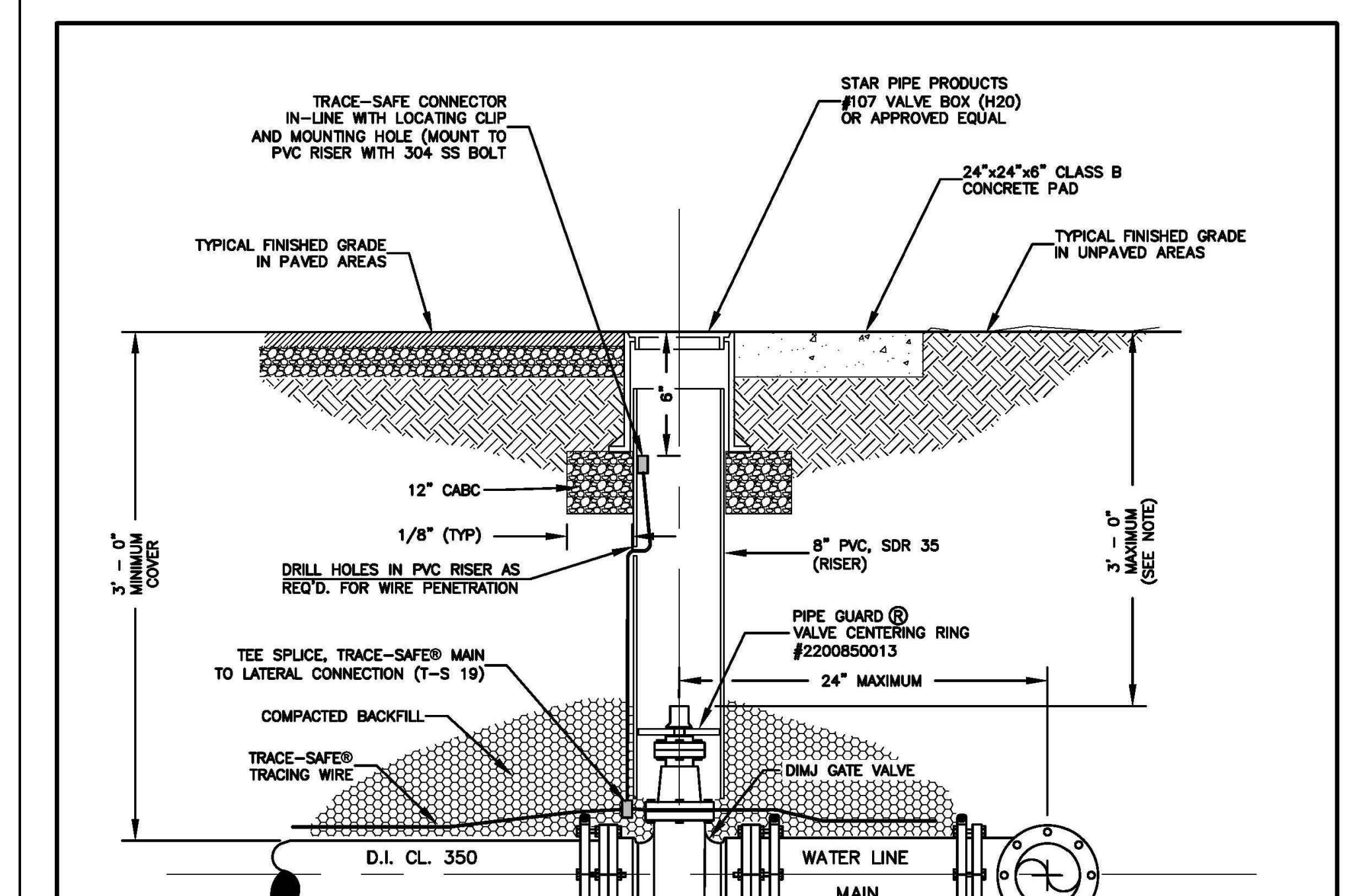
- THRUST RESTRAINT SHALL BE INSTALLED ON DUCTILE IRON WATER DISTRIBUTION LINES, 6" THRU 12" DIAMETER, IN THE MANNER SHOWN.
- IRON RETAINING GLAND M.J. RESTRAINT OR OTHER FORMS OF IRON RESTRAINT SHALL NOT BE USED ON PVC PIPE.
- PIPE GREATER THAN 12 INCH DIAMETER SHALL REQUIRE RESTRAINED JOINT PIPE FOR THE PROPER LENGTH.
- COMPACT FITTINGS ARE ACCEPTABLE FOR USE WITH IRON RETAINING GLAND M.J. RESTRAINT AND OTHER FORMS OF DI RESTRAINT.
- THE MINIMUM LENGTH OF RESTRAINT INDICATED SHALL REQUIRE ALL JOINTS WITHIN THE LR DISTANCE TO BE RESTRAINED.
- RESTRAINT SYSTEM SHALL BE INSPECTED AND APPROVED PRIOR TO BACKFILLING.
- RESTRAINT SYSTEMS MAY VARY BASED UPON THE ENGINEERS' DESIGN AS SHOWN ON THE PLAN AND PROFILE SHEETS.
- GRIPPER RING AND FIELD LOK GASKETS ARE AN ACCEPTABLE METHOD OF RESTRAINT ON DUCTILE IRON PIPE ONLY.
- TRACER WIRE NOT SHOWN FOR CLARITY. WIRE SHALL BE INSTALLED PER OTHER DETAILS.
- M.J. SHALL BE PRODUCED IN USA.

DATE: 01/12/2019 WD DWG. NO. 4-2
SCALE: NOT TO SCALE

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**DUCTILE IRON PIPE
RESTRAINT DETAIL**

SHEET 2 OF 2

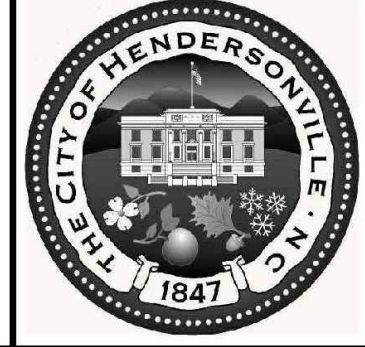
NOTES:

- TOP OF COVER SHALL BE STAMPED "WATER"
- VALVE PAD REQUIREMENTS SHALL NOT BE APPLICABLE FOR PAVED SURFACES.
- PAVEMENT REPAIR SHALL MATCH EXISTING ROAD PAVING SECTION. SEE NCDOT ASPHALT REPAIR DETAIL # 654.01.
- WHEN OPERATING NUT DEPTH EXCEEDS 3"-0" BELOW FINISHED GRADE, PROVIDE EXTENSION STEM WITH STANDARD 2" SQUARE OPERATING NUT. TOP OF NUT SHALL BE WITHIN 5" TO 9" OF FINISHED GRADE.
- TRACER WIRE WILL BE A 19 GAUGE, TIN COATED, COPPER CONDUCTOR WITH POLYETHYLENE INSULATION. CORE MATERIAL COMPRISED OF HIGH-TENSILITY, WOVEN POLYESTER WITH WATER BLOCKING YARNS ENCAPSULATED IN 30 MIL BLUE HOPE JACKET PROVIDING CORROSION RESISTANCE, FLEXIBILITY, IMPACT STRENGTH AND 1800 LBS. TENSILE STRENGTH. TRACER WIRE WILL NOT CONDUCT AN ELECTRICAL CURRENT WHEN STRUCK BY LIGHTNING AND IS DESIGNED FOR DIRECT BURY AND DIRECTIONAL BORING APPLICATIONS. WHEN SPLICES AND LATERAL CONNECTIONS ARE MADE, ONLY GEL FILLED CONNECTORS DESIGNED FOR WIRE WITH WOVEN POLYESTER FIBER CORE ARE TO BE USED. TRACER WIRE AND CONNECTORS SHALL BE TRACE-SAFE® WATER BLOCKING TRACER WIRE AND RELATED CONNECTORS, MANUFACTURED BY NEPTCO, INC., OR EQUIVALENT APPROVED BY ENGINEER, AND PRODUCED IN THE UNITED STATES OF AMERICA.

DATE: 10/11/2021 WD DWG. NO. 5
SCALE: NOT TO SCALE

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VALVE INSTALLATION DETAIL



ISSUED FOR DATE
1 50% D.D. 2-16-24
2 100% D.D. 5-17-24
3 50% C.D. 11-22-24
4 75% C.D. 12-20-24
5 90% CD GMP 02-07-25

STAMP
Preliminary
Not For
Construction
W.D. L. DERIDON

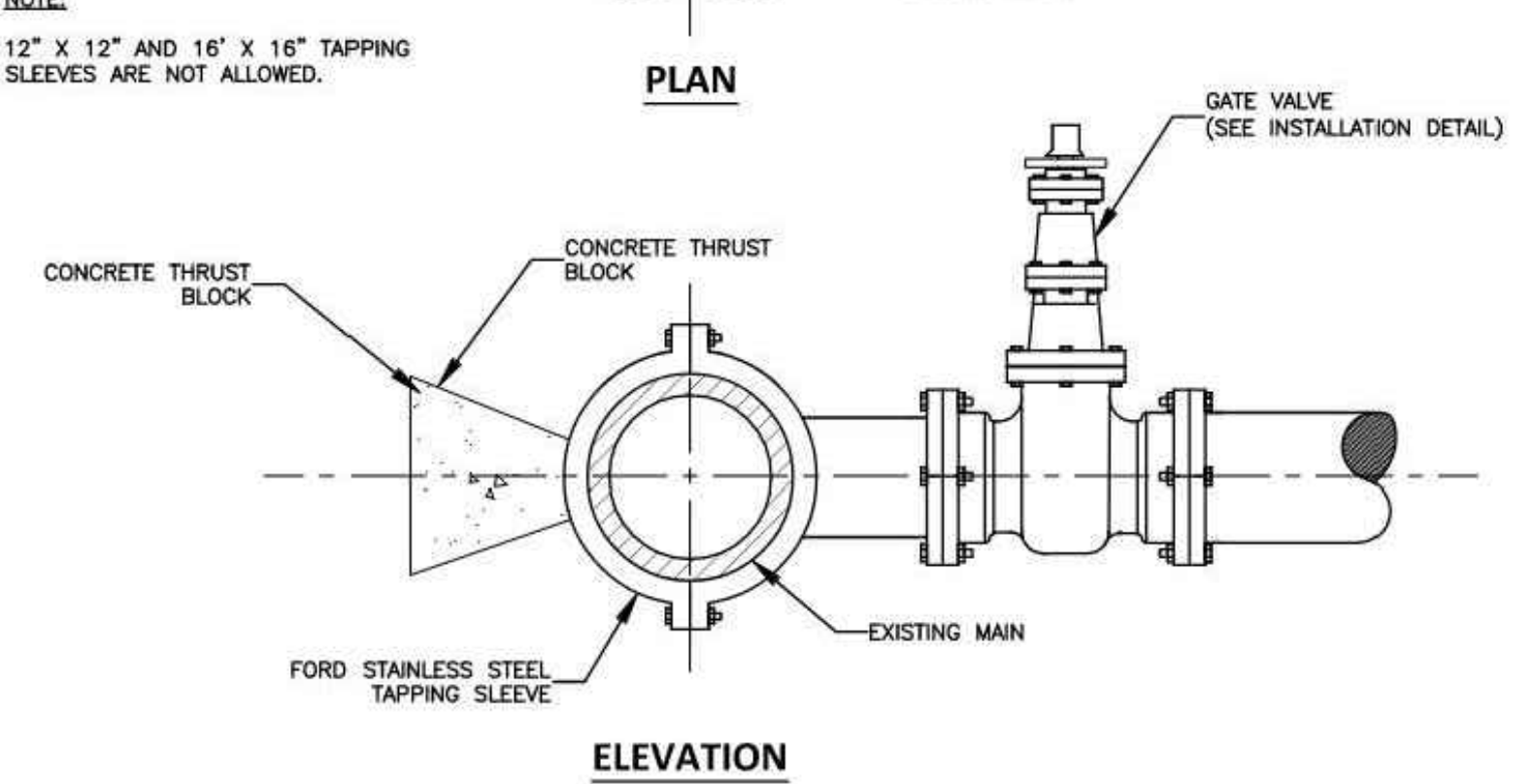
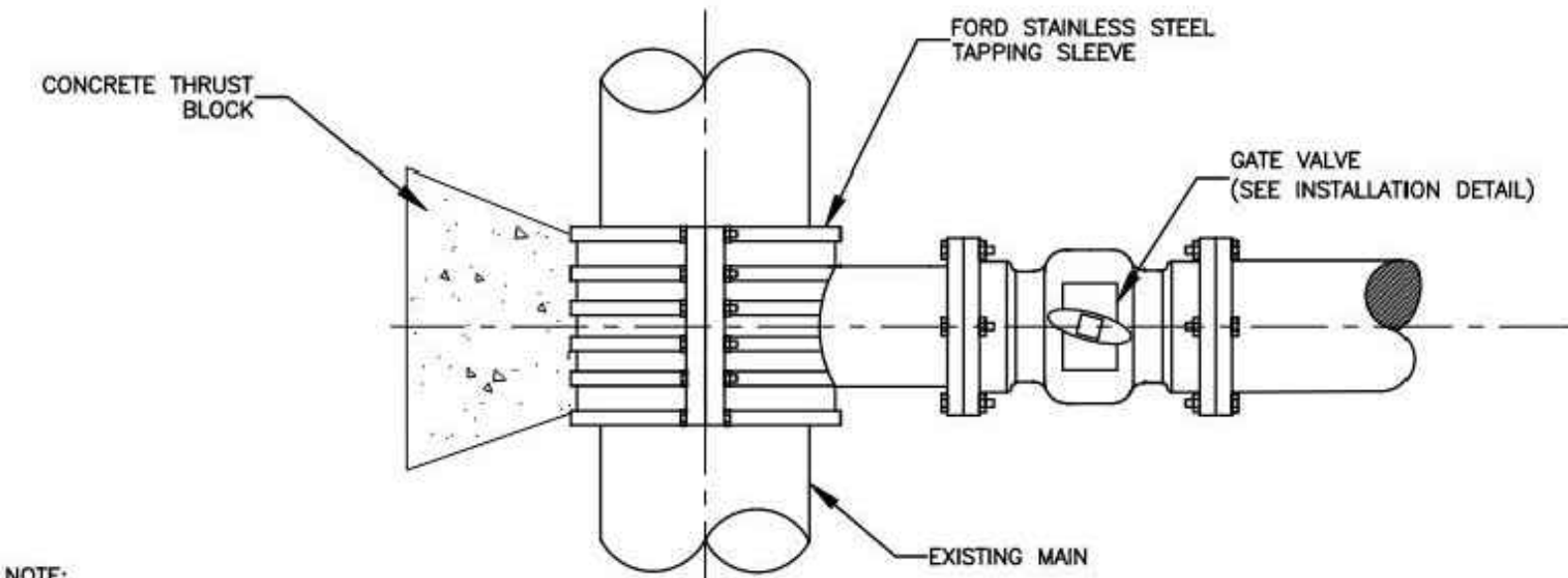
DRAWING TITLE
UTILITY SERVICE DETAILS

PROJECT #: 2022006.003
SHEET NUMBER
C-501

HENDERSON COUNTY
DETENTION CENTER
200 N GROVE STREET, HENDERSONVILLE, NC 28792

WGLA
Engineering

FENTRESS ARCHITECTS



NOTE:
1. CONCRETE SHALL BE 3000 PSI.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS BY THE INSTALLATION OF POLYETHYLENE FILM PLACED BETWEEN THE FITTINGS AND POURED CONCRETE.
3. SEE TABLE A-1 FOR AREA OF CONCRETE REQUIRED FOR MAIN SIZED 6-INCH THROUGH 18-INCH.

TABLE A-1
TBD

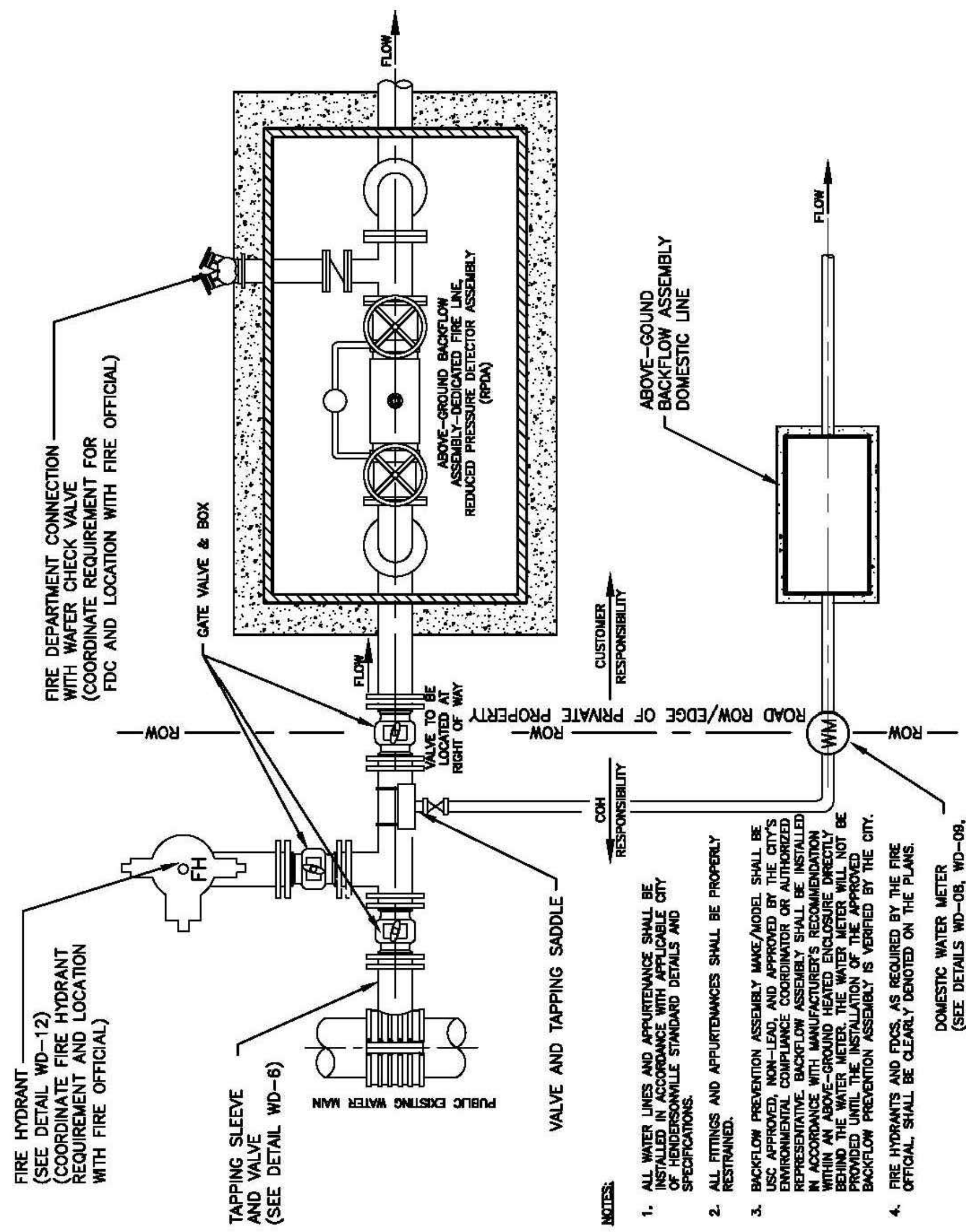
DATE: 01/12/2019 WD DWG. NO. 6

SCALE: NOT TO SCALE

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STANDARD TAPPING SLEEVE
AND VALVE ASSEMBLY

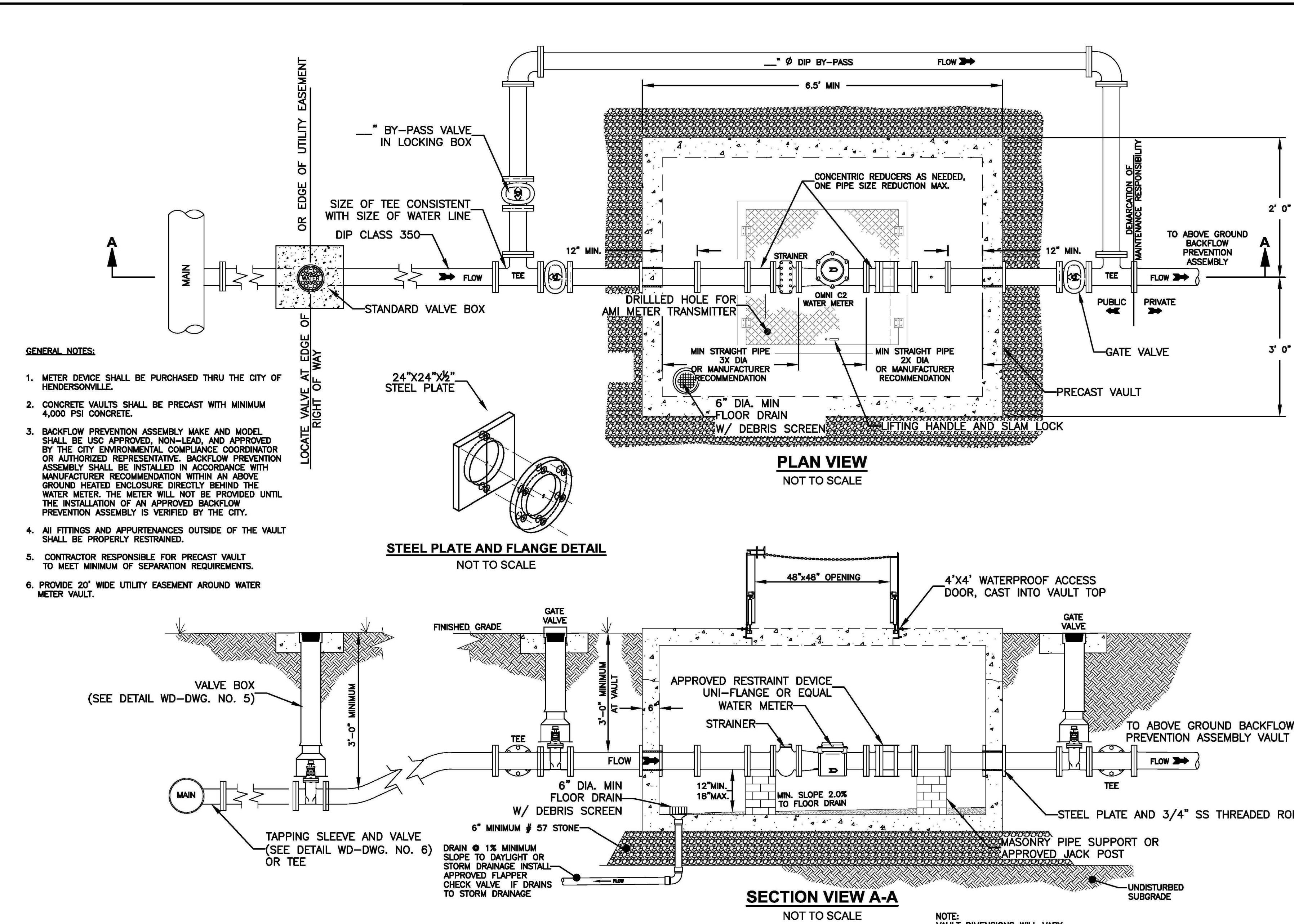


DATE: 01/05/2023 WD DWG. NO. 15

SCALE: NOT TO SCALE

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DEDICATED FIRE LINE
WITH DOMESTIC SERVICE



- GENERAL NOTES:
- METER DEVICE SHALL BE PURCHASED THRU THE CITY OF HENDERSONVILLE.
 - CONCRETE VAULTS SHALL BE PRECAST WITH MINIMUM 4,000 PSI CONCRETE.
 - BACKFLOW PREVENTION ASSEMBLY MAKE AND MODEL SHALL BE USE APPROVED, NON-LEAD, AND APPROVED BY THE CITY ENVIRONMENTAL COMPLIANCE COORDINATOR OR AUTHORIZED REPRESENTATIVE. BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION WITHIN AN ABOVE GROUND HEATED ENCLOSURE DIRECTLY BEHIND THE WATER METER. THE METER WILL NOT BE PROVIDED UNTIL THE INSTALLATION OF AN APPROVED BACKFLOW PREVENTION ASSEMBLY IS VERIFIED BY THE CITY.
 - ALL FITTINGS AND APPURTENANCES OUTSIDE OF THE VAULT SHALL BE PROPERLY RESTRAINED.
 - CONTRACTOR RESPONSIBLE FOR PRECAST VAULT TO MEET MINIMUM OF SEPARATION REQUIREMENTS.
 - PROVIDE 2'-0" WIDE UTILITY EASEMENT AROUND WATER METER VAULT.

STEEL PLATE AND FLANGE DETAIL
NOT TO SCALE

PLAN VIEW
NOT TO SCALE

SECTION VIEW A-A
NOT TO SCALE

NOTE: DIMENSIONS WILL VARY DEPENDING ON MANUFACTURER



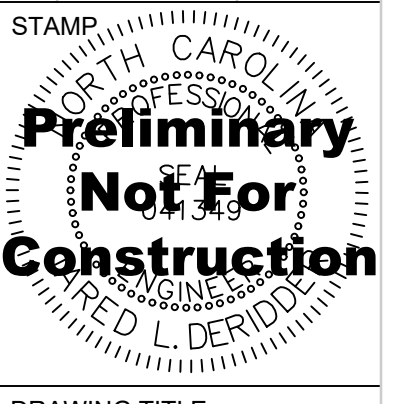
3" THRU 8" METER & VAULT
DETAIL

DATE: 06/25/2022 WD DWG. NO. 18

SCALE: NOT TO SCALE

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NO.	ISSUED FOR	DATE
1	50% D.D.	2-16-24
2	100% D.D.	5-17-24
3	50% C.D.	11-22-24
4	75% C.D.	12-20-24
5	90% CD GMP	02-07-25



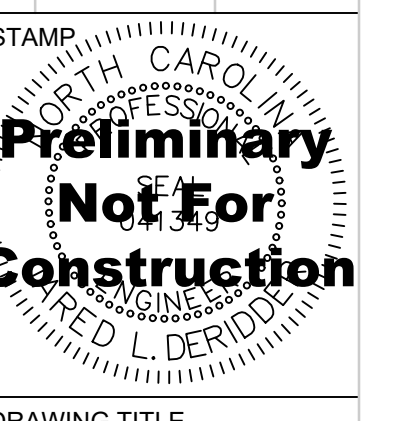
DRAWING TITLE
UTILITY SERVICE DETAILS

PROJECT #: 2022006.003

SHEET NUMBER

C-502

NO.	ISSUED FOR	DATE
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3	50% C.D.	11-22-24
4	75% C.D.	12-20-24
5	90% CD GMP	02-07-25

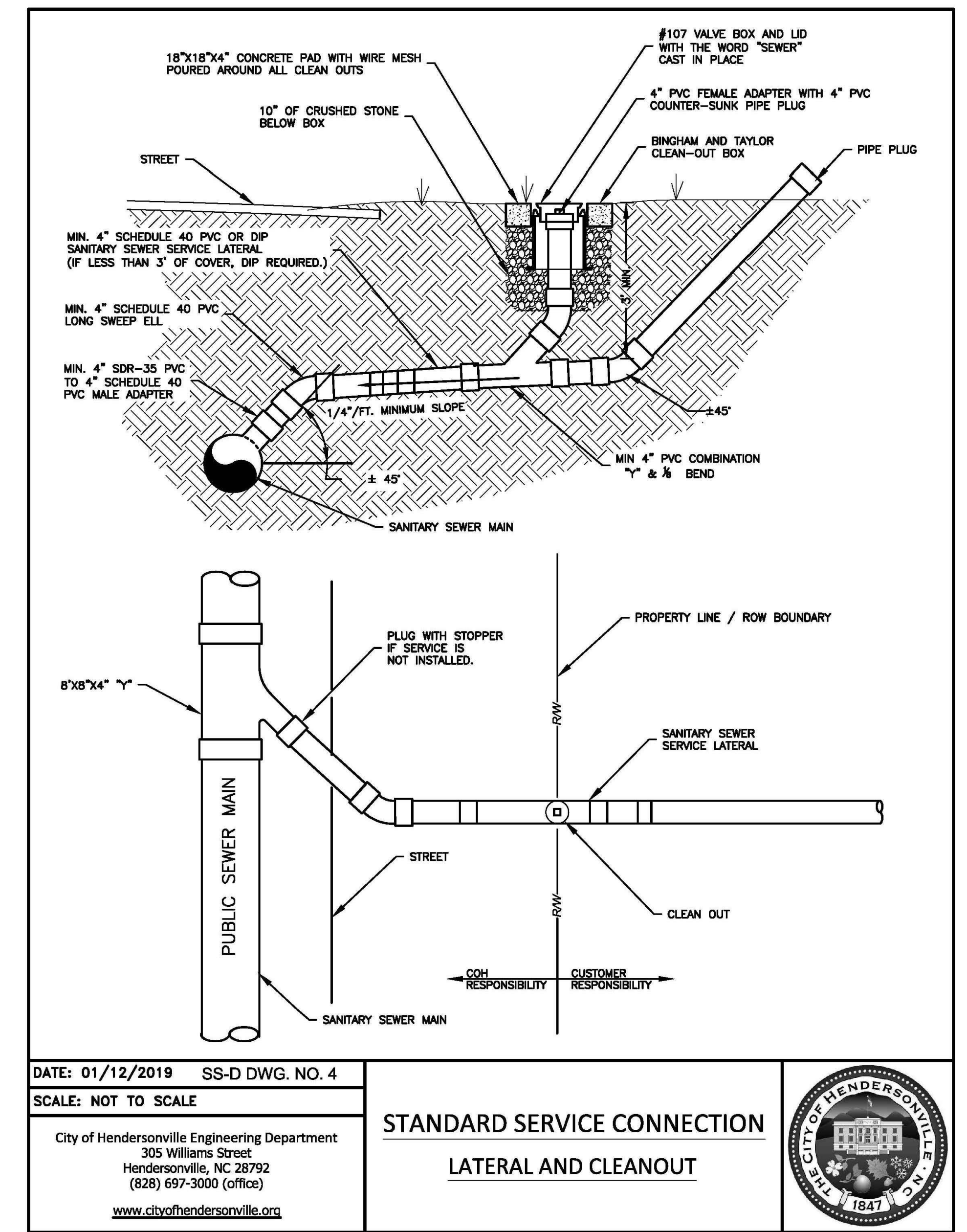


DRAWING TITLE
UTILITY SERVICE DETAILS

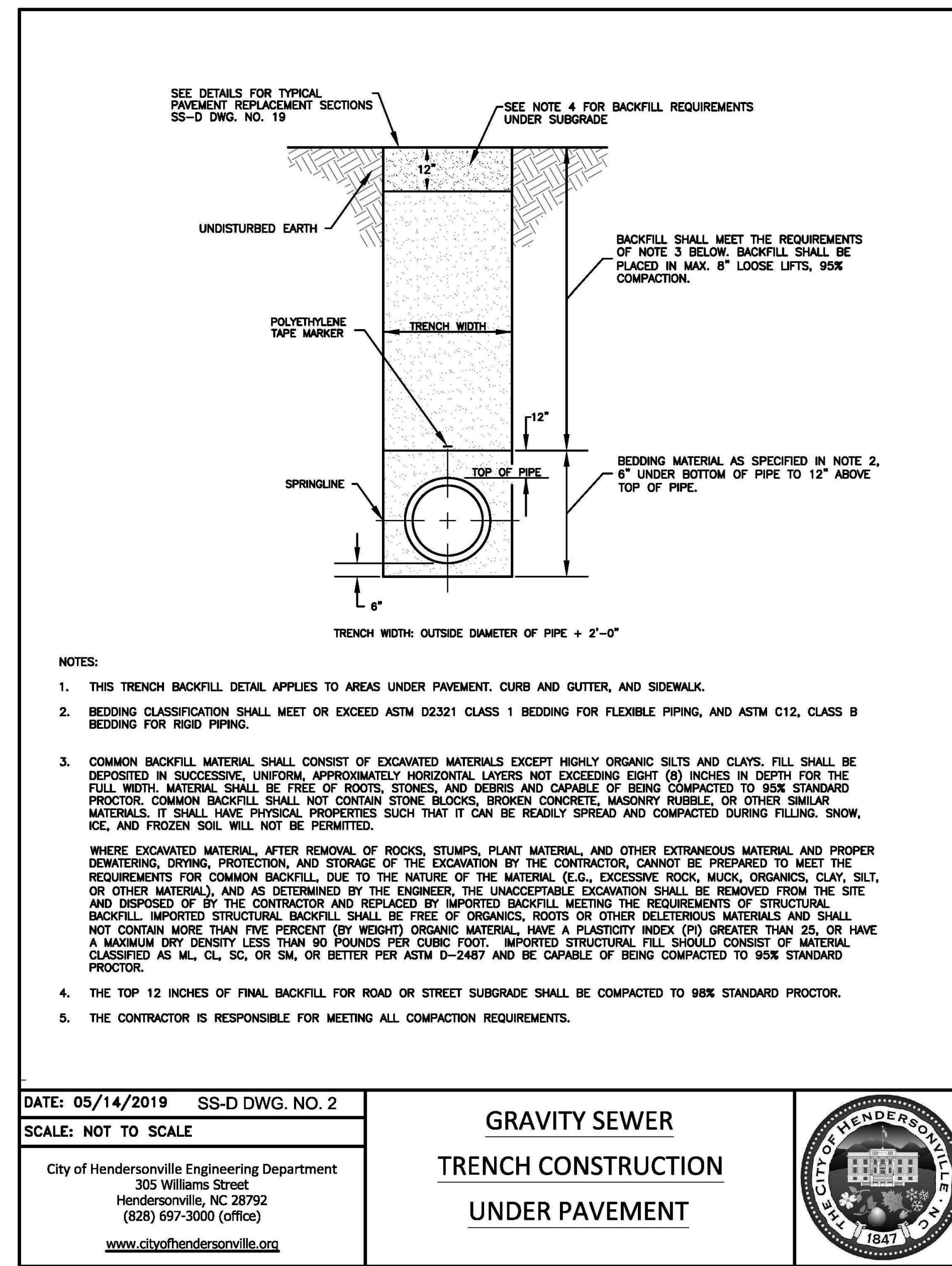
PROJECT # 2022006.003

SHEET NUMBER

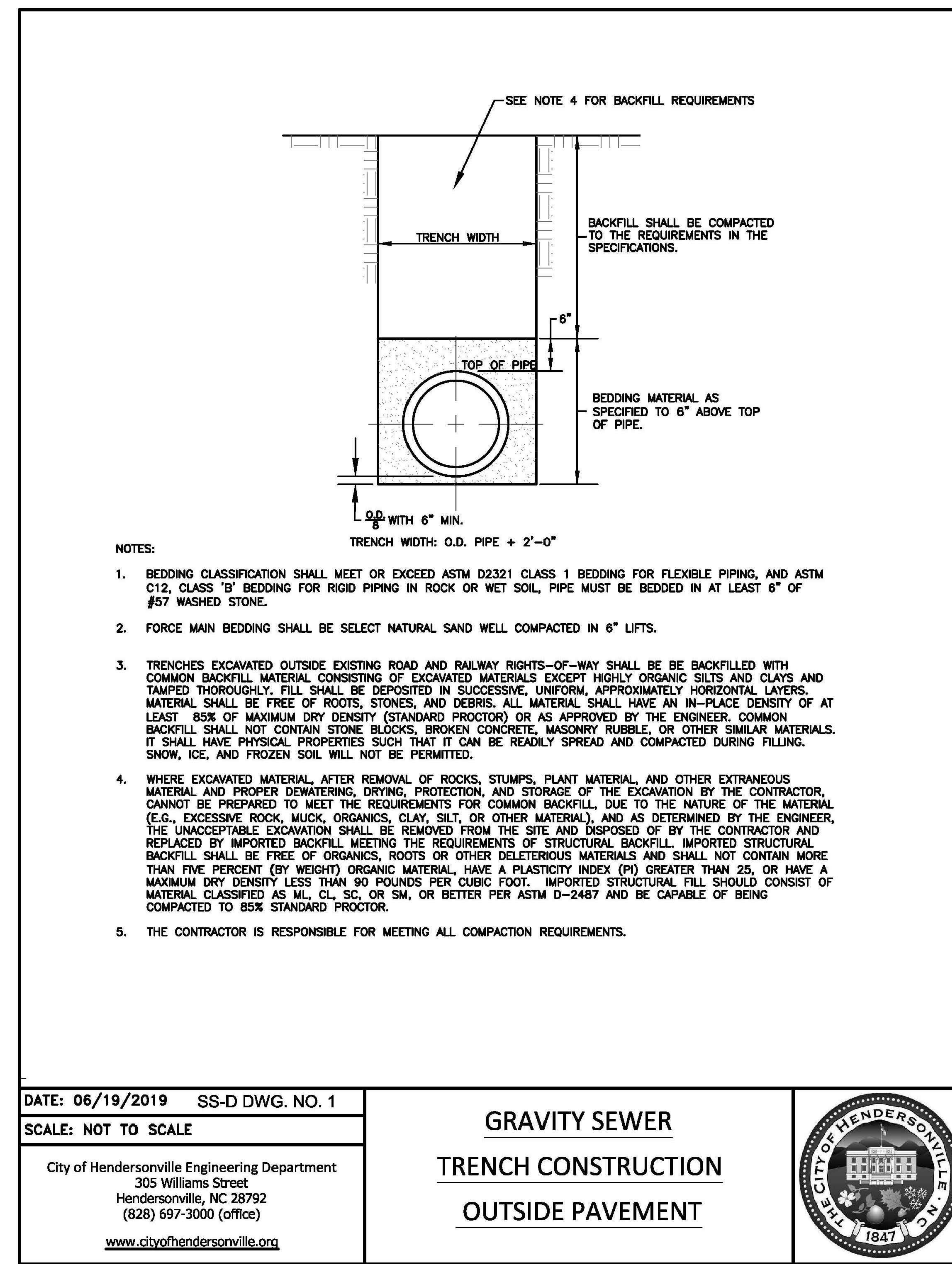
C-503



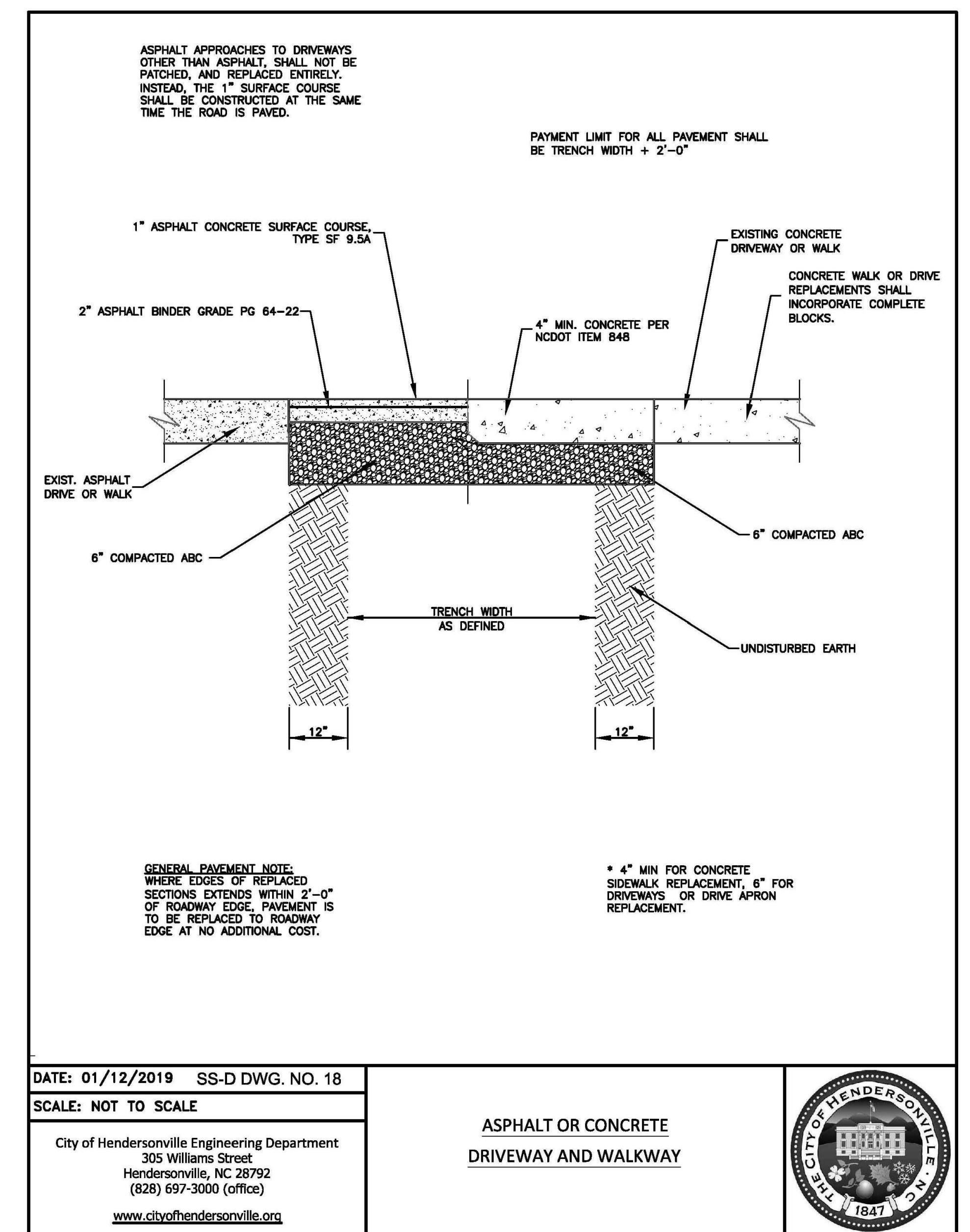
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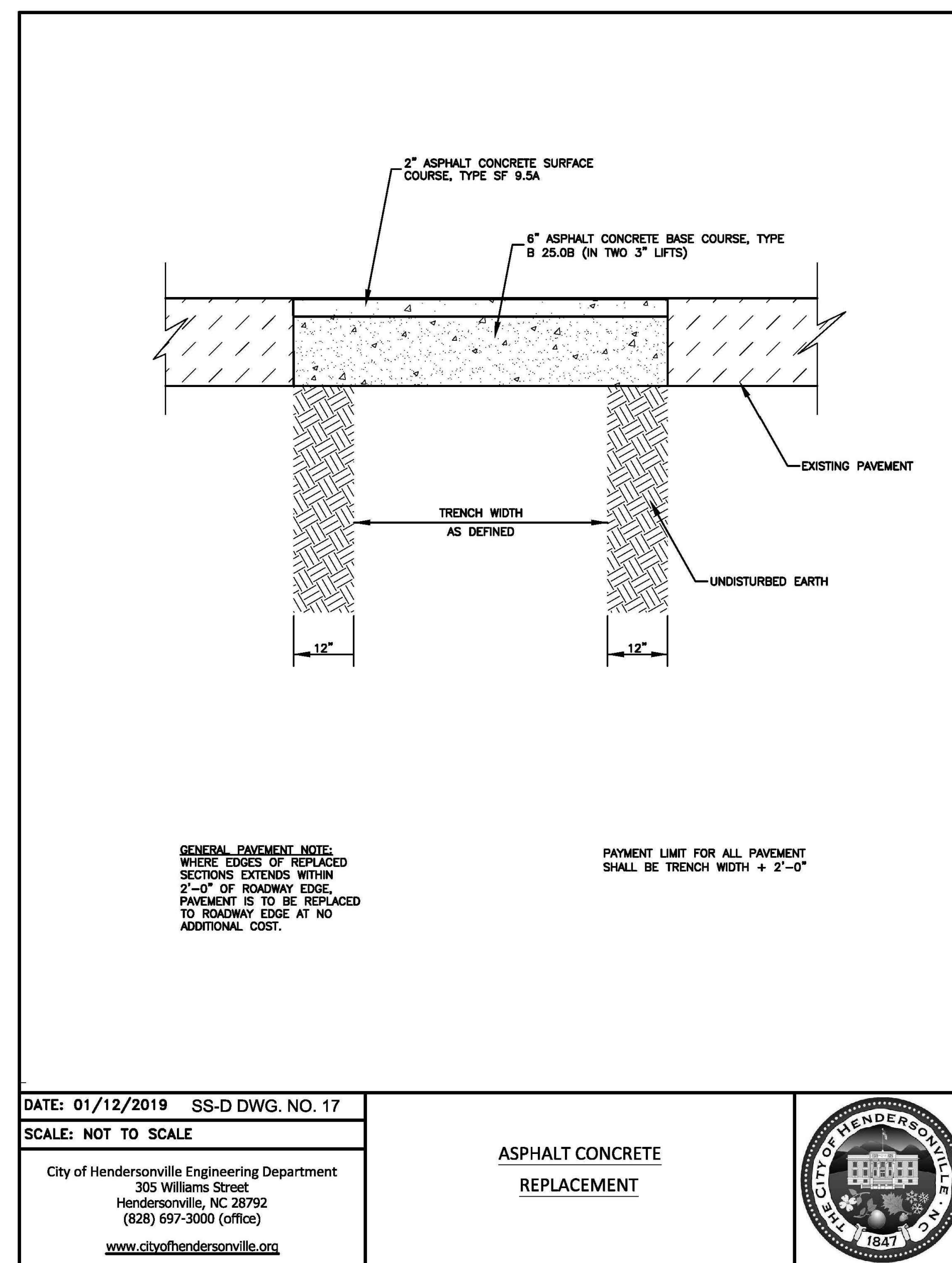
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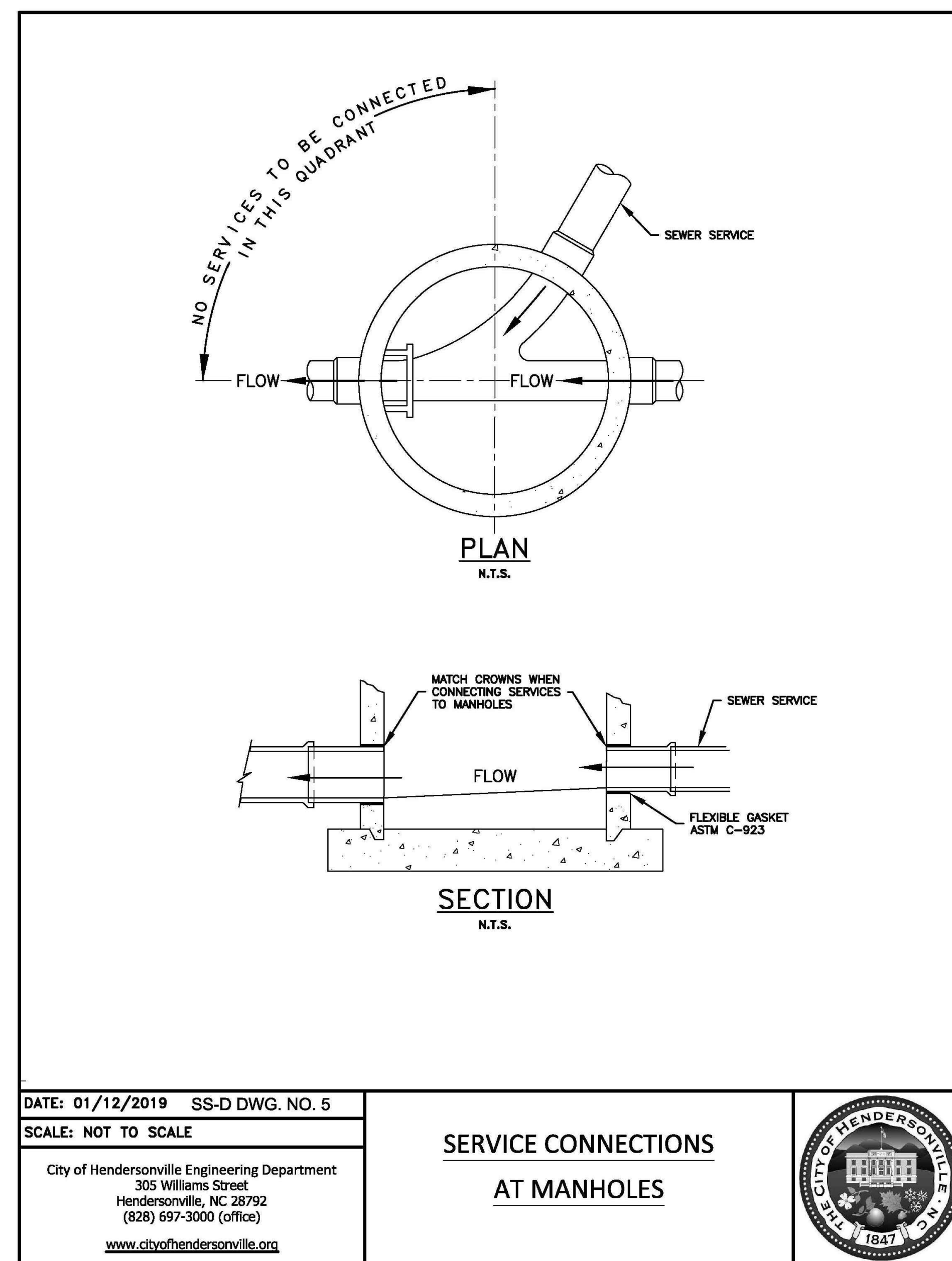
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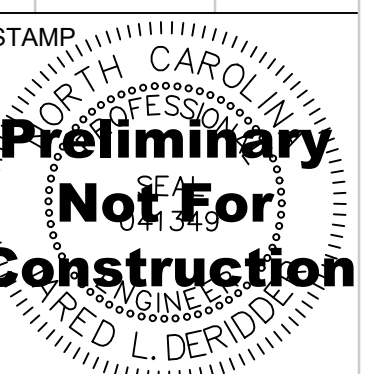


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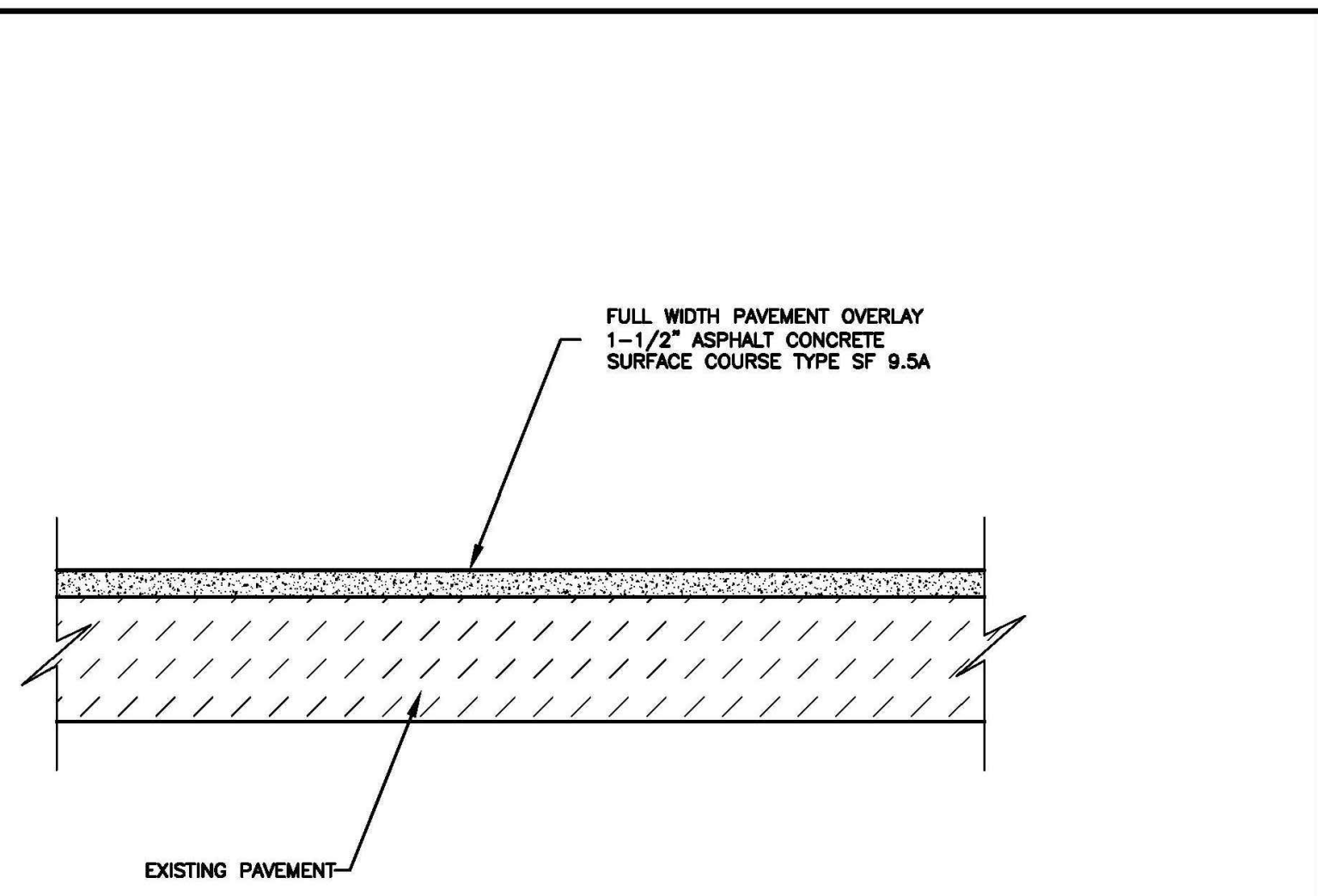
NO.	ISSUED FOR	DATE
1	50% D.D.	2-16-24
2	100% D.D.	5-17-24
3	50% C.D.	11-22-24
4	75% C.D.	12-20-24
5	90% CD GMP	02-07-25



DRAWING TITLE
UTILITY SERVICE DETAILS

PROJECT # : 20220006.003
SHEET NUMBER

C-504



- NOTES:
1. THE ENTIRE STREET PAVEMENT SHALL BE MILLED DOWN 1-1/2" PER NCDOT 607 FOR THE 1-1/2" ASPHALT CONCRETE SURFACE COURSE OVERLAY TO MAINTAIN EXISTING ROADWAY ELEVATIONS. THE 1-1/2" LAYER OF ASPHALT CONCRETE SURFACE COURSE SHALL BE APPLIED AS ONE UNIFORM SEAMLESS LAYER ACROSS THE PAVEMENT WIDTH.
 2. SEAL BETWEEN ASPHALT CONCRETE SURFACE COURSE OVERLAY AND EXISTING SURFACES PER NCDOT ITEM 605.

DATE: 01/12/2019 SS-D DWG. NO. 20

SCALE: NOT TO SCALE

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ASPHALT CONCRETE
FULL WIDTH OVERLAY



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GENERAL PAVEMENT NOTE:

MILL DOWN EXISTING PAVEMENT, 2" IN DEPTH; CLEAN ALL SURFACES, APPLY TACK COAT, AND IN STALL A FULL WIDTH 2" ASPHALT SURFACE COURSE, TYPE S9.5C PAVEMENT OVERLAY.

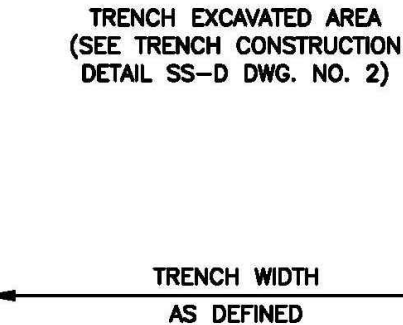
4" ASPHALT BINDER COURSE TYPE I-19.0 (INSTALL INITIAL 6" ASPHALT BINDER COURSE, MILLED DOWN TO 4" DEPTH AT COMPLETION.)

EXISTING PAVEMENT (THICKNESS VARIES)

UNDISTURBED EARTH

12" TRENCH WIDTH AS DEFINED

8" COMPACTED ABC



WHERE EDGES OF REPLACED SECTIONS EXTEND WITHIN 2'-0" OF ROADWAY ASPHALT EDGE, REMOVE AND REPLACE EXISTING ASPHALT AND SUBGRADE TO THE ROADWAY EDGE PER THE DETAIL AND NOTES AS SHOWN BELOW, AT NO ADDITIONAL COST.

NOTES:

1. SAW-CUT EXISTING PAVEMENT EDGES TO A CLEAN STRAIGHT EDGE. APPLY TACK AT A RATE OF 25 GAL/YD² TO ALL EXISTING PAVEMENT VERTICAL EDGES PRIOR TO ASPHALT PAVING.
2. INSTALL 8" ABC STONE BASE COMPACTED TO 100% MAX. DRY DENSITY AS DETERMINED BY AASHTO T-99 IN ASPHALT PATCH AREAS EXTENDING 1' WIDE ON EACH SIDE OF TRENCH EXCAVATED AREA. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL COMPACTION REQUIREMENTS. ENGINEER SHALL PROVIDE SUB-GRADE TESTING DATA FROM AN INDEPENDENT GEOTECHNICAL FIRM. THERE SHALL BE 1 TEST REQUIRED PER ROAD CROSSING OR 1 TEST FOR EVERY 100 FEET OF TRENCHED AREAS IN ROADWAY. CORRECTED DEFICIENCIES AND ANY SUBSEQUENT TESTING IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. PROVIDE A MINIMUM OF 6" ASPHALT BINDER COURSE (I-19.0) COMPACTED IN 2" LIFTS MATCHING THE TOP OF THE EXISTING PAVEMENT EXTENDING 1' WIDE ON EACH SIDE OF THE TRENCH EXCAVATED AREA.
4. EXISTING PAVEMENT TO THE EXTENTS SHOWN ON THE DRAWINGS, SHALL BE MILLED DOWN 2" IN DEPTH PER NCDOT SECTION 607. PAVEMENT CLEANED OF ALL MILLINGS, TACK COAT APPLIED AT A RATE OF 0.08 GAL/YD² PER NCDOT SECTION 605, AND A 2" ASPHALT SURFACE COURSE, TYPE S9.5C, OVERLAY INSTALLED MAINTAINING EXISTING ROADWAY ELEVATIONS. THE 2" ASPHALT SURFACE COURSE SHALL BE APPLIED AS ONE UNIFORM SEAMLESS LAYER ACROSS THE PAVEMENT WIDTH.
5. IF ASPHALT BINDER PATCHING CANNOT BE ACHIEVED THE SAME DAY OF TRENCH EXCAVATION, TEMPORARILY INSTALL 4" COMPACTED ABC STONE BASE TOPPED WITH A COATING OF 2" ROCK DUST (FINES). FLUSH WITH THE EXISTING PAVEMENT. ON TOP OF THE INSTALLED 8" COMPACTED ABC STONE BASE, THE ABC STONE BASE AND ROCK DUST (FINES) MUST BE MAINTAINED UNTIL FINAL PAVING IS COMPLETE.
6. INSTALL TEMPORARY ASPHALT PAVEMENT STRIPING AND MARKINGS AS REQUIRED DURING CONSTRUCTION. UPON COMPLETION OF FINAL PAVING, ALL THERMOPLASTIC STRIPING, PAVEMENT MARKINGS, AND PAVEMENT MARKERS MUST BE REPLACED PER NCDOT SPECIFICATIONS.

DATE: 08/16/2019 SS-D DWG. NO. 19

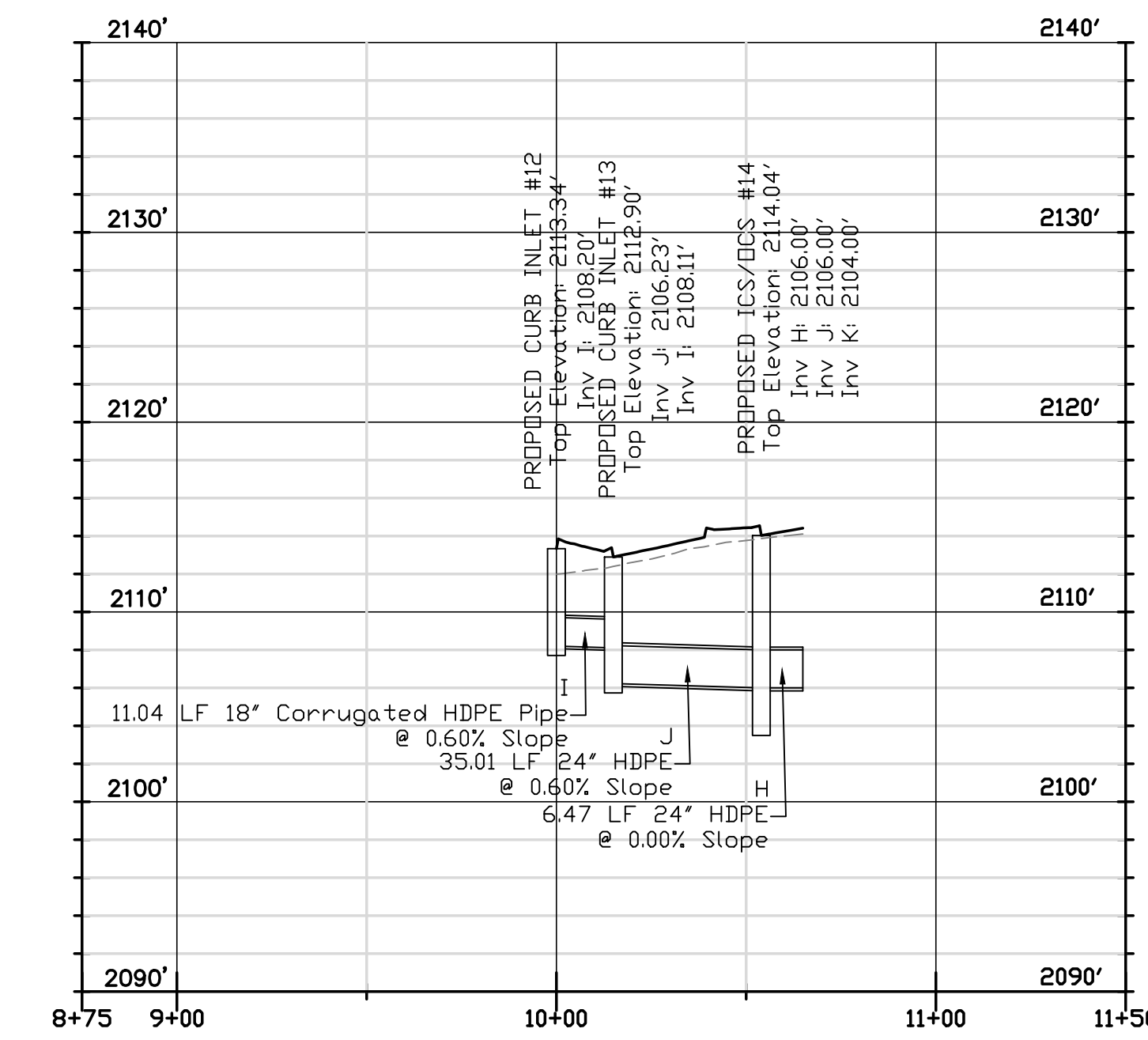
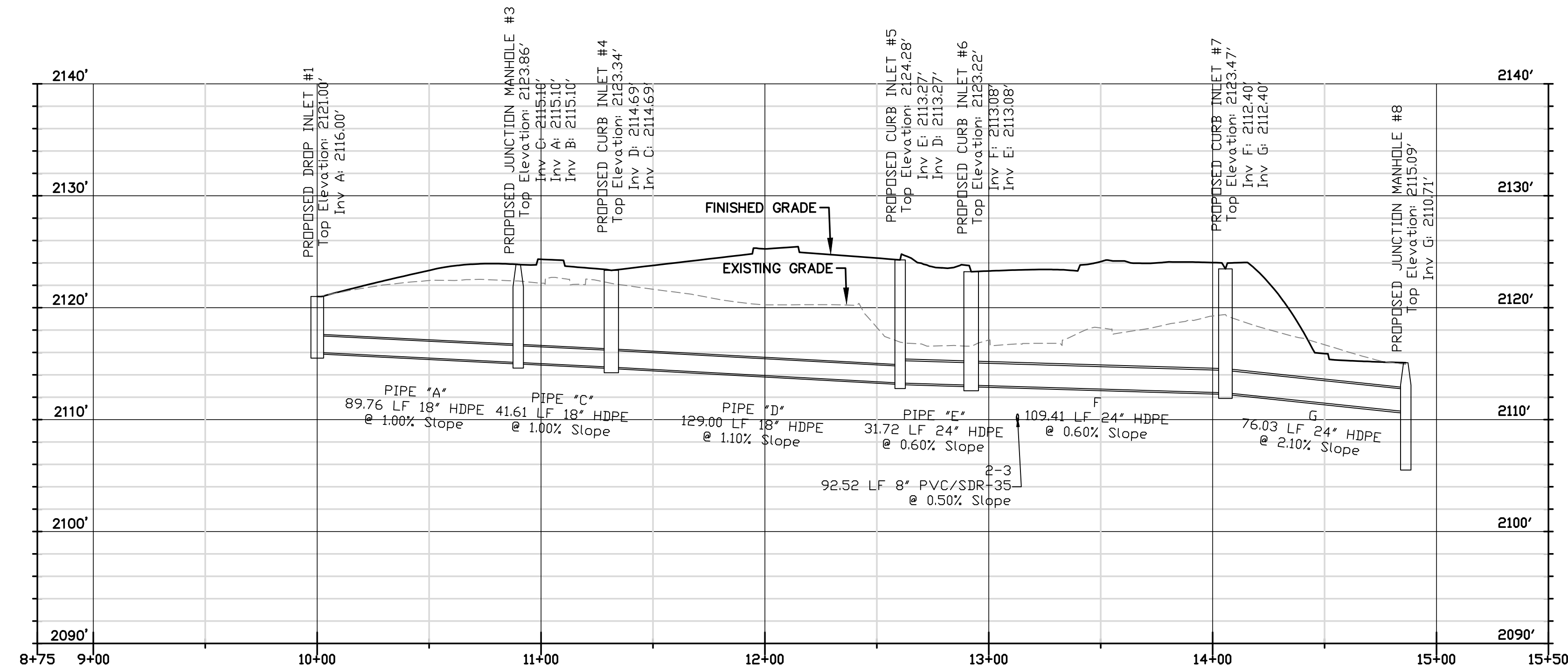
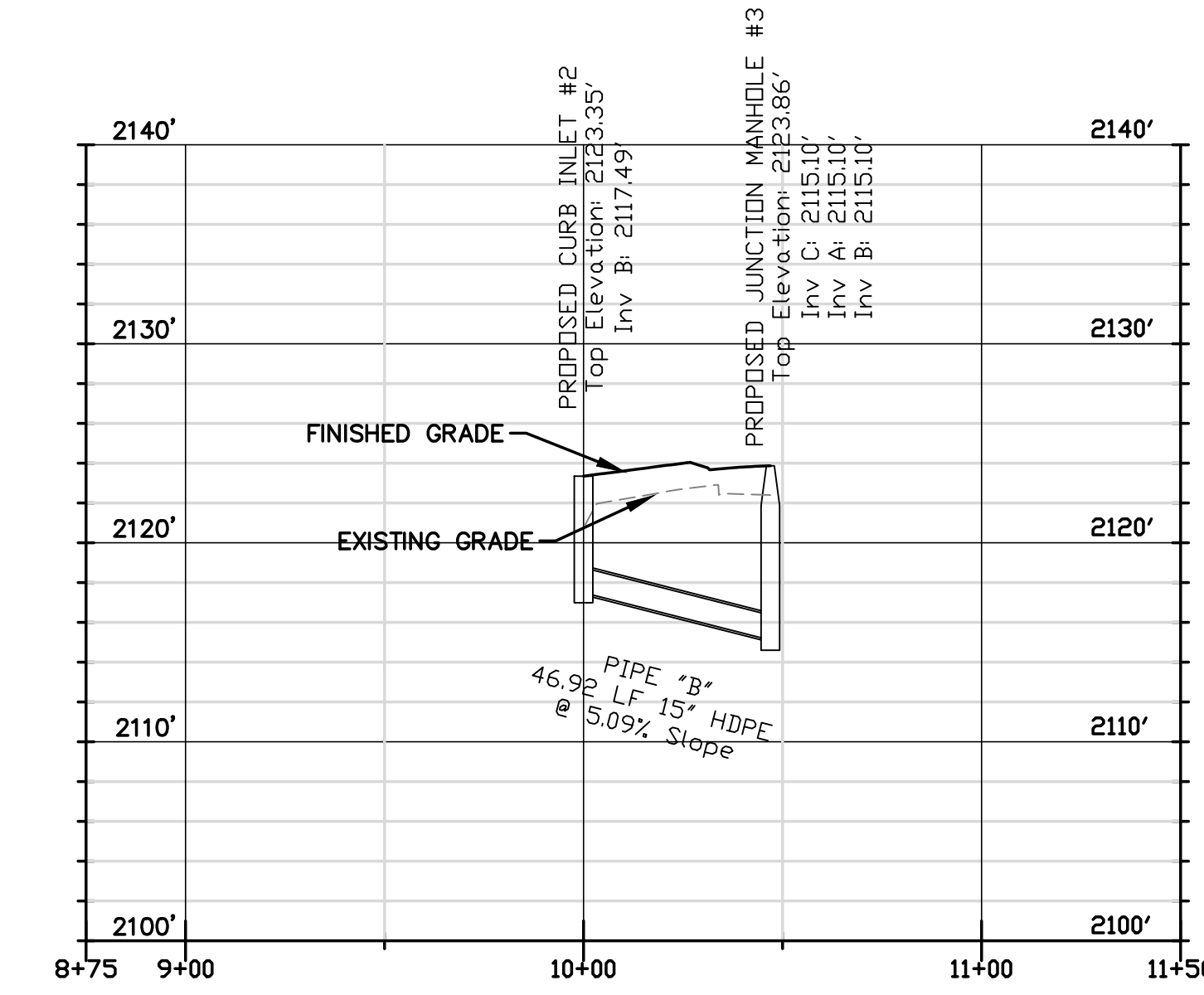
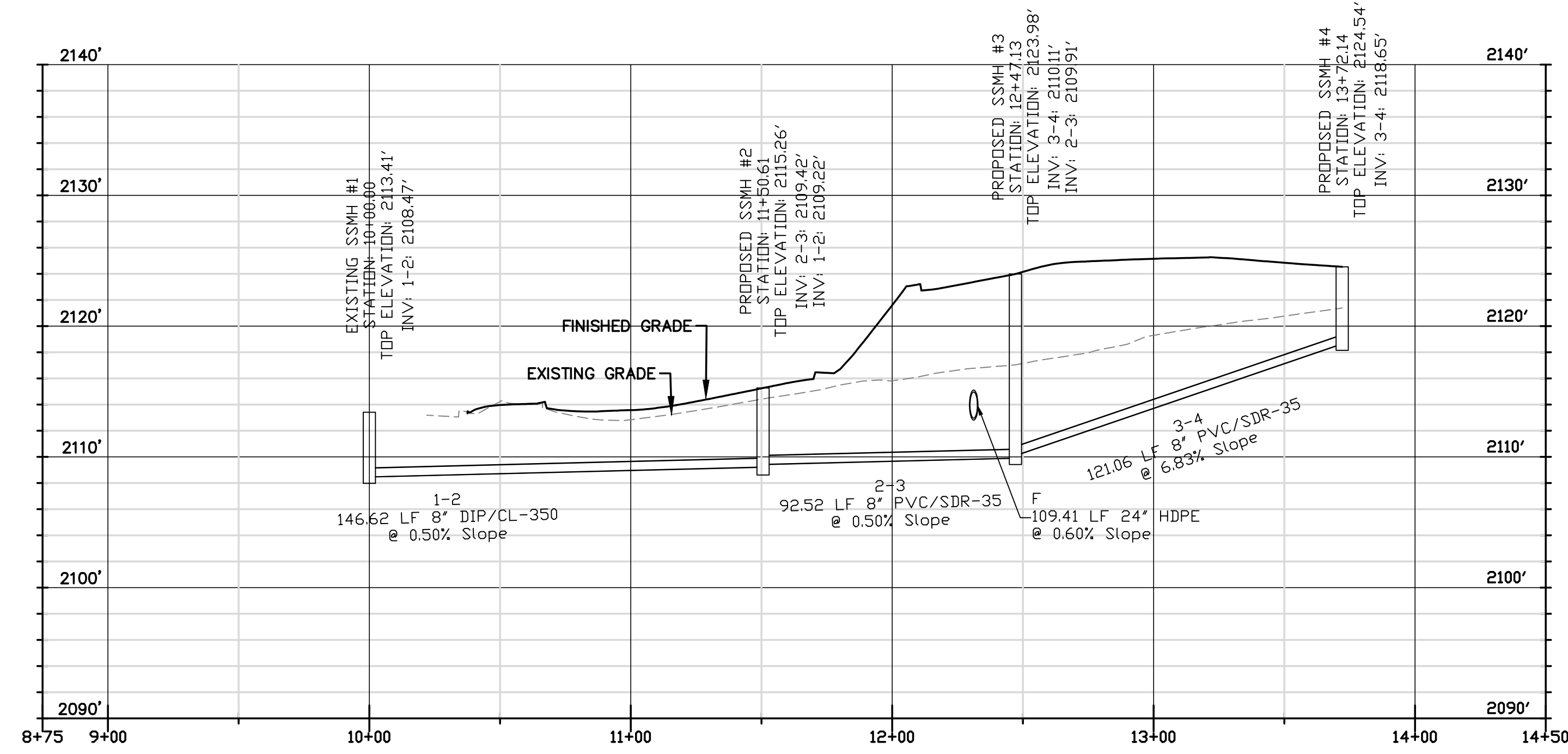
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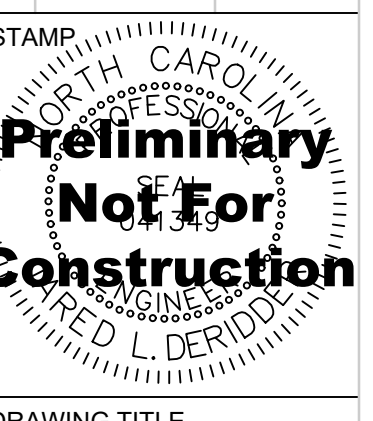
ASPHALT PAVEMENT REPLACEMENT
WITH OVERLAY



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NO.	ISSUED FOR	DATE
1	50% D.D.	2-16-24
2	100% D.D.	5-17-24
3	50% C.D.	11-22-24
4	75% C.D.	12-20-24
5	90% CD GMP	02-07-25



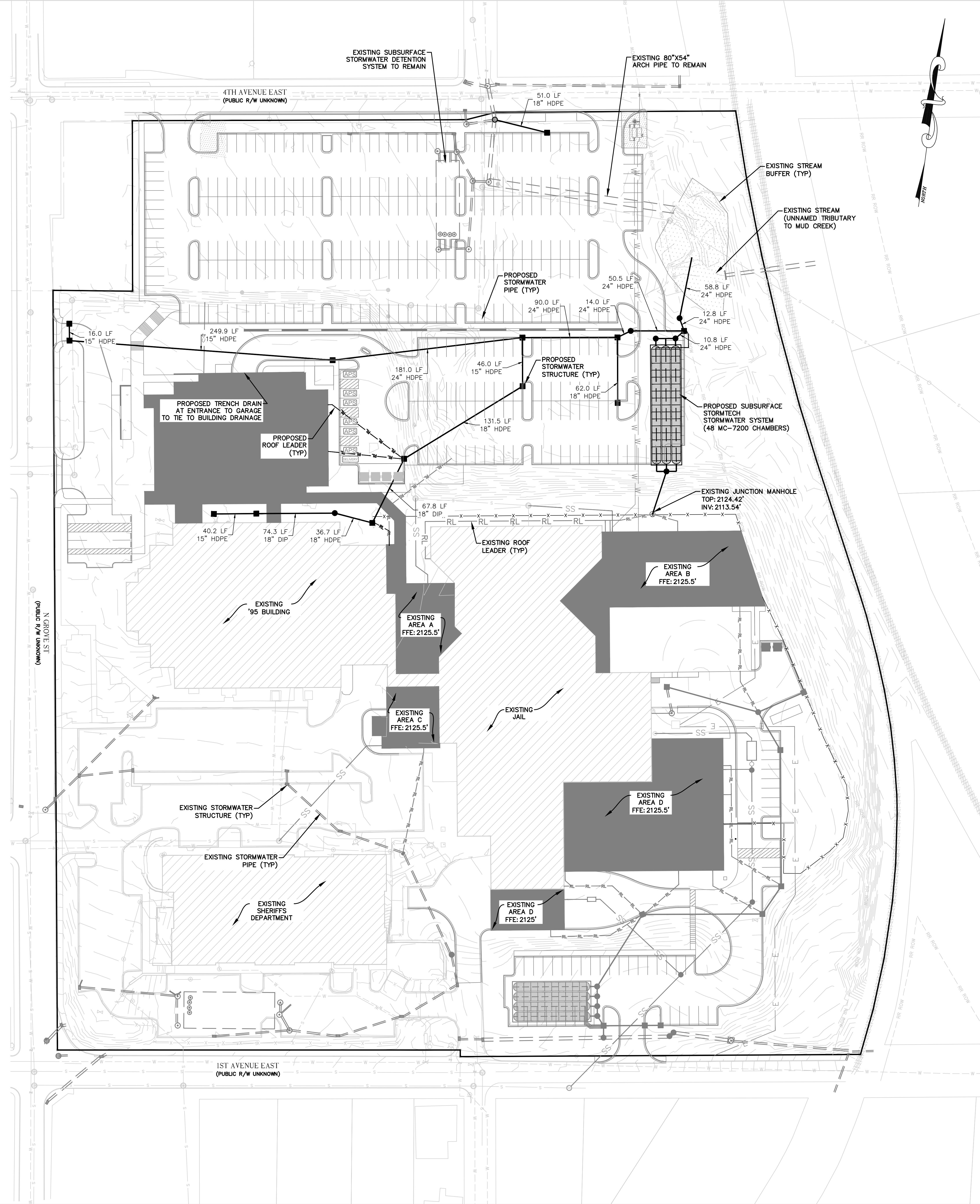
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UTILITY PROFILES

PROJECT #: 2022006.003
SHEET NUMBER

C-505

GENERAL STORMWATER NOTES:

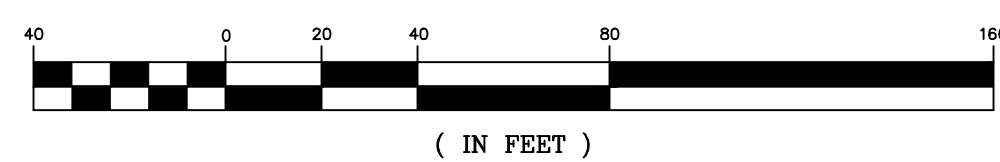
- 1.) ALL STORMWATER PIPES SHALL BE HDPE WITH SMOOTH INTERIOR WALL, WITH BELL AND SPIGOT ENDS AND SOIL TIGHT JOINTS, UNLESS OTHERWISE NOTED ON PLANS.
- 2.) ALL PENETRATIONS INTO STORMWATER STRUCTURES SHALL BE REPAIRED PROPERLY INSIDE AND OUTSIDE WITH BRICK AND OR NON-SHRINK GROUT.
- 3.) GIVEN PIPE LENGTHS ARE BASED ON HORIZONTAL DISTANCES BETWEEN STORMWATER STRUCTURES. CONTRACTOR SHALL FACTOR IN SLOPES WHEN ORDERING PIPE AND ORDER ADDITIONAL LENGTH AS NECESSARY.
- 4.) ALL STORMWATER PIPES IN EXCESS OF 20% SLOPE SHALL BE KEYPED.
- 5.) ALL ROOF LEADERS SHALL BE HDPE SMOOTH INTERIOR WALL (MAY BE PVC/SCH-40) WITH 1.0% MIN SLOPE UNLESS OTHERWISE NOTED ON PLANS.
- 6.) CONTRACTOR TO ENSURE THAT ALL EXISTING AND PROPOSED STORM DRAINAGE STRUCTURES, PIPES AND GRADES WILL PROVIDE POSITIVE DRAINAGE PRIOR TO INSTALLATION.
- 7.) ALL DRAINAGE STRUCTURES GREATER THAN 4' IN DEPTH SHALL HAVE ACCESS TO STEPS INSTALLED 16" ON CENTER.
- 8.) ALL PRECAST "WAFFLE BOX" STORM DRAINAGE STRUCTURES TO HAVE A MAXIMUM DEPTH OF 6'.



LEGEND

- EXISTING STORMWATER PIPE
- EXISTING STORMWATER STRUCTURE
- PROPOSED STORMWATER PIPE
- PROPOSED STORMWATER STRUCTURE
- PROPOSED ROOF LEADER

GRAPHIC SCALE



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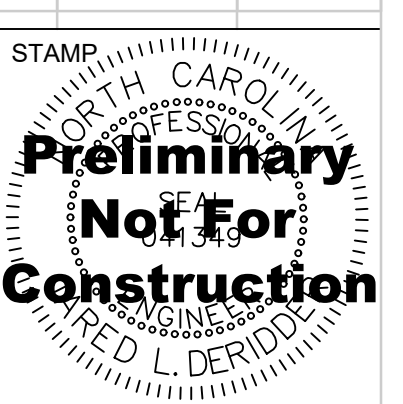
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NO.	ISSUED FOR	DATE
1	SCHEMATIC DESIGN	4/28/2023
2	SD-R COURTS	5/28/2024
3	SD COURTS	1/21/2025

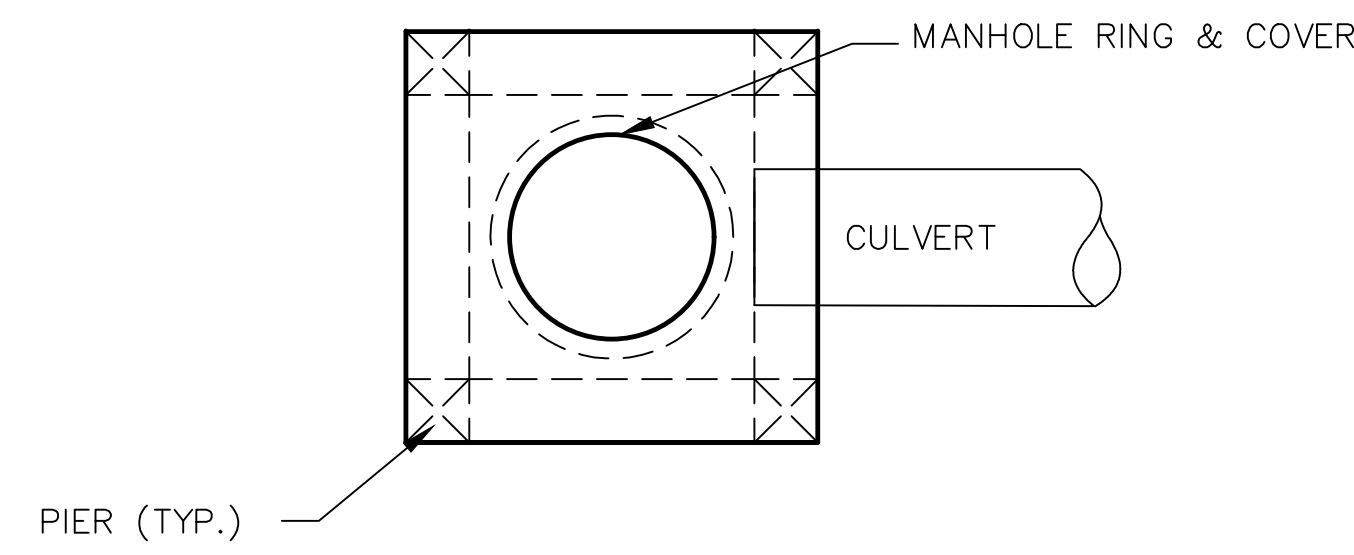


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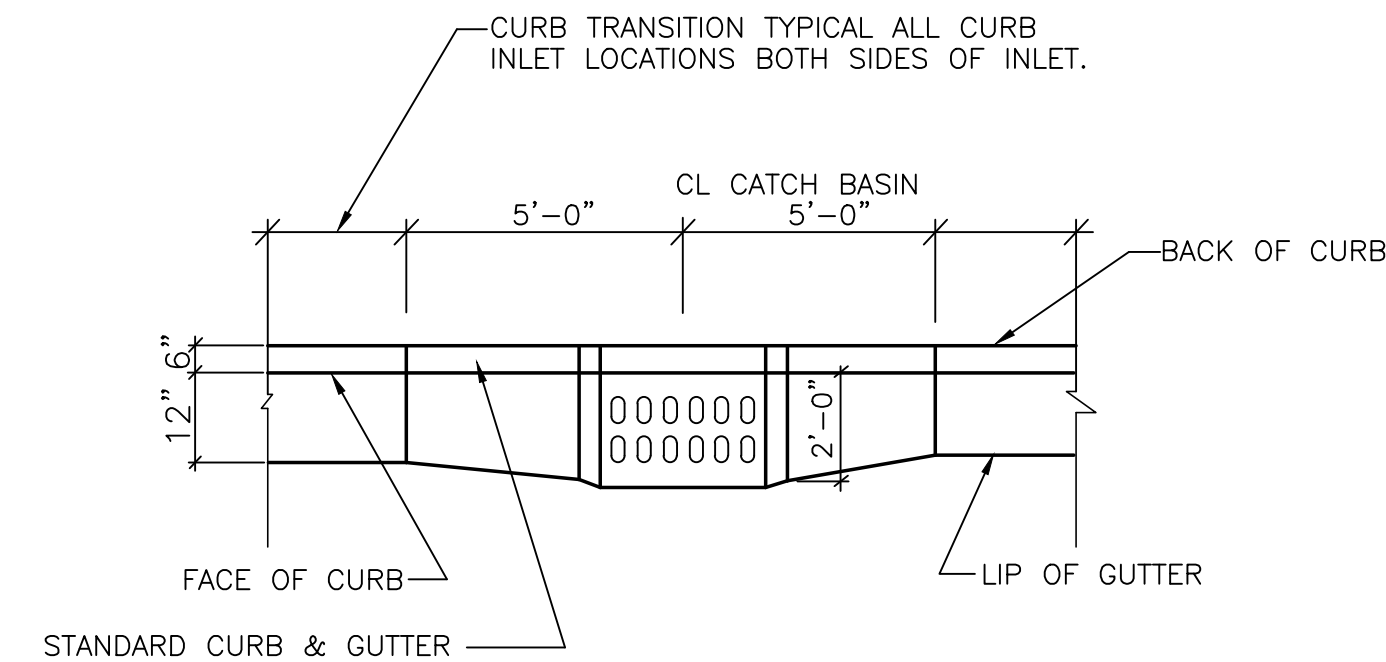
PROJECT #: 2022006.003
SHEET NUMBER

CC-400

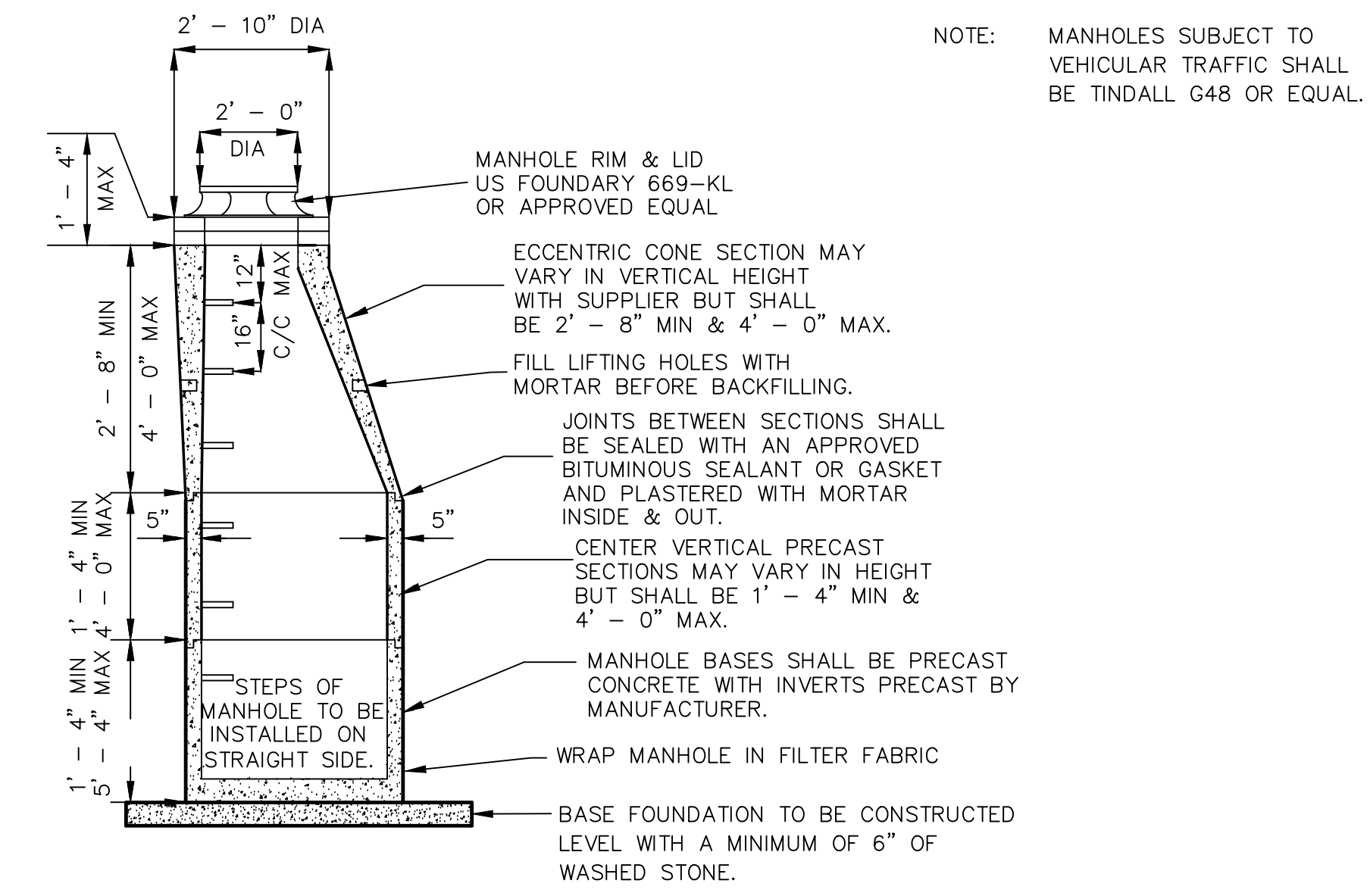
NOTE:
ALL CATCH BASINS OVER 3' DEEP SHALL
HAVE STANDARD STEPS @ 16" O.C.
WRAP BOX IN FILTER FABRIC



NOTE:
ALL CATCH BASINS OVER 3' DEEP SHALL
HAVE STANDARD STEPS @ 16" O.C.
WRAP BOX IN FILTER FABRIC

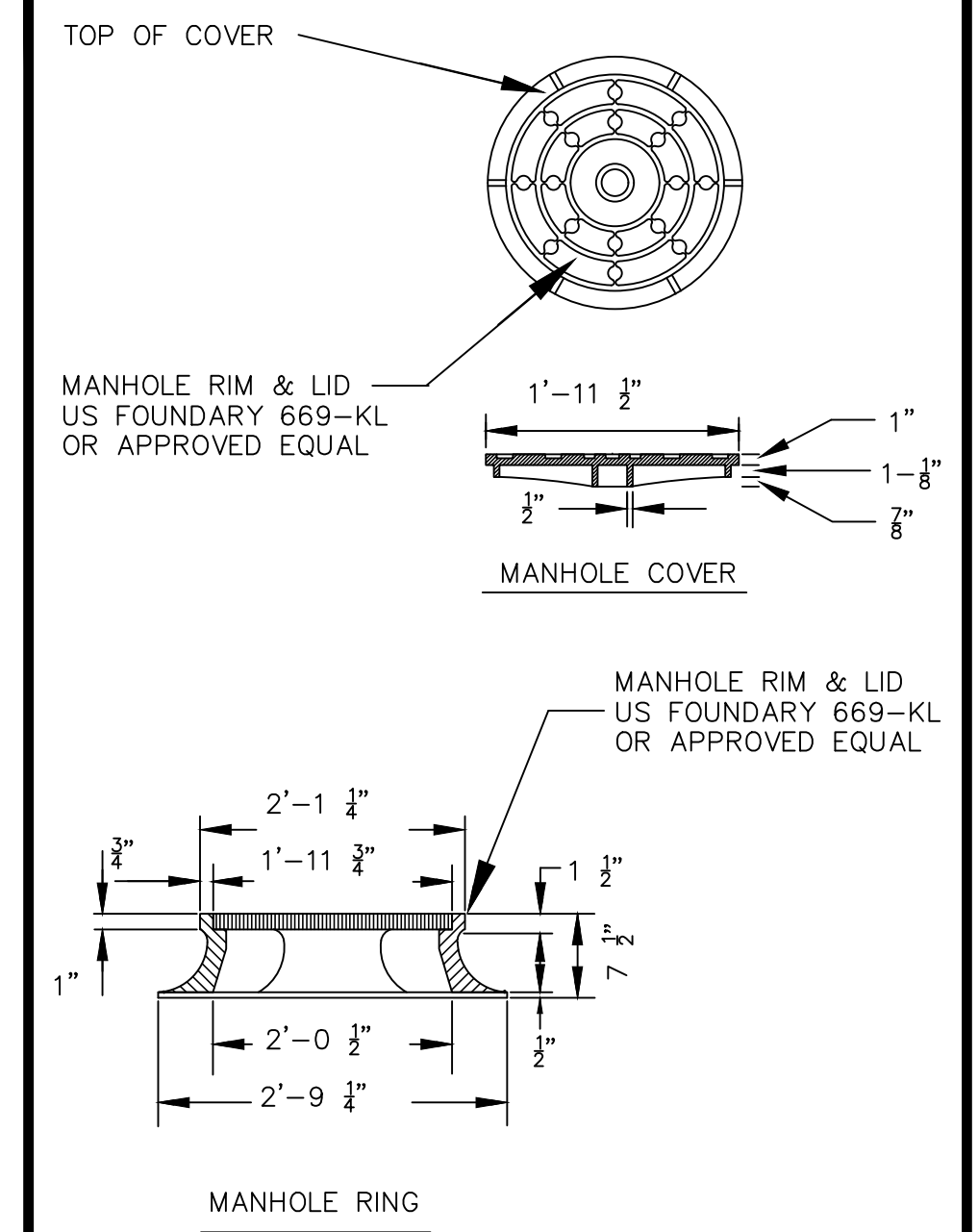


CURB TRANSITION AT CATCH BASIN



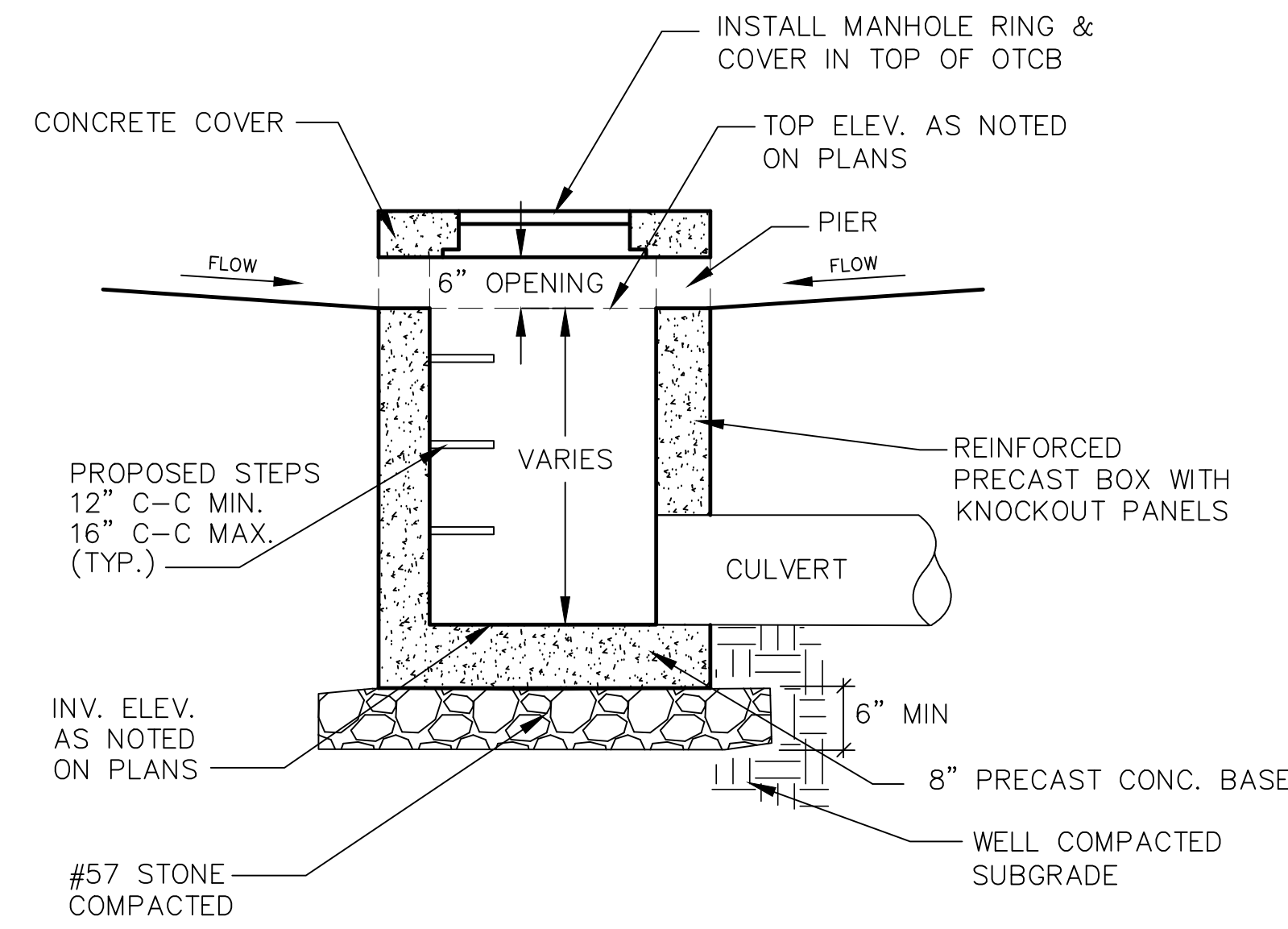
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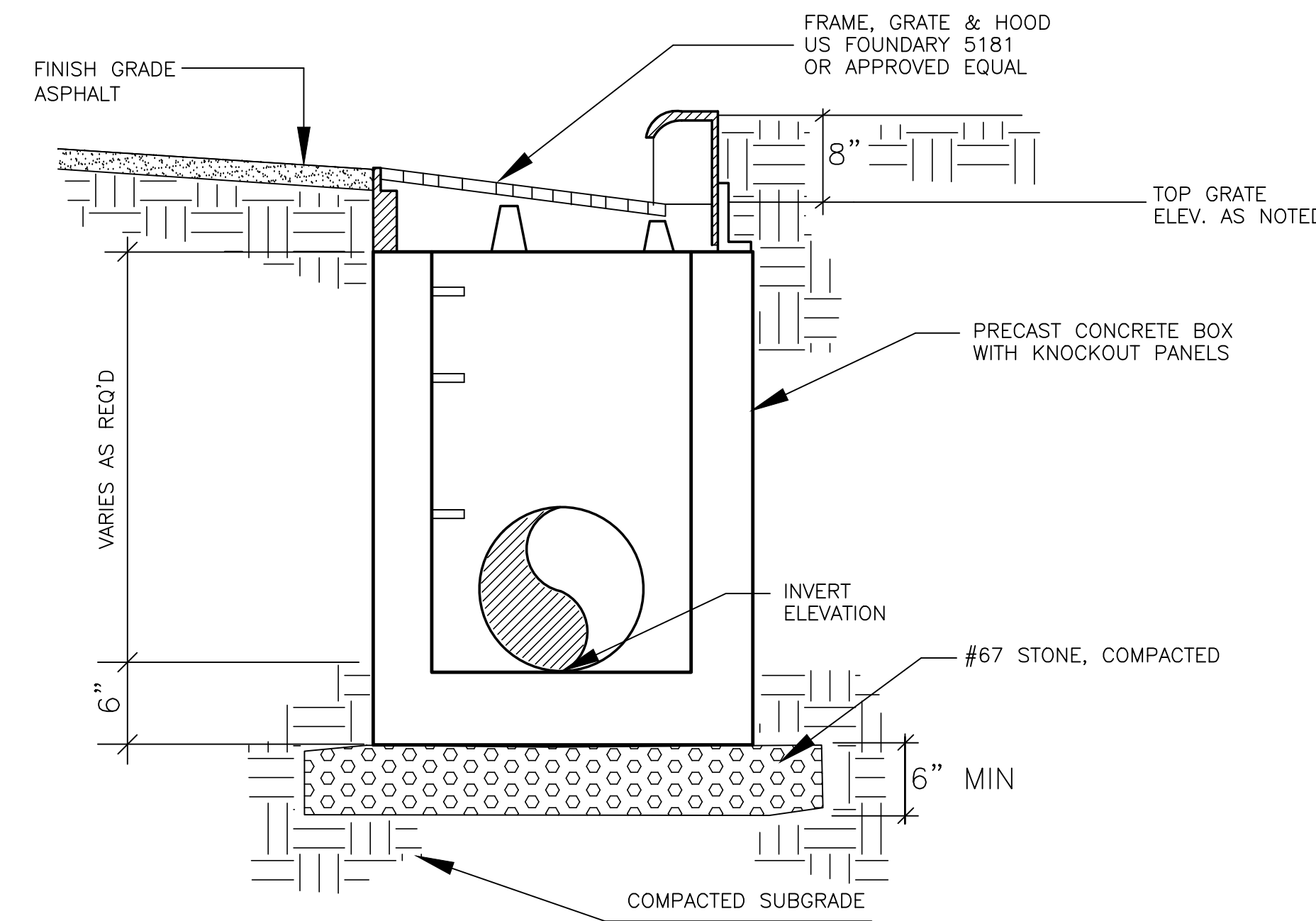
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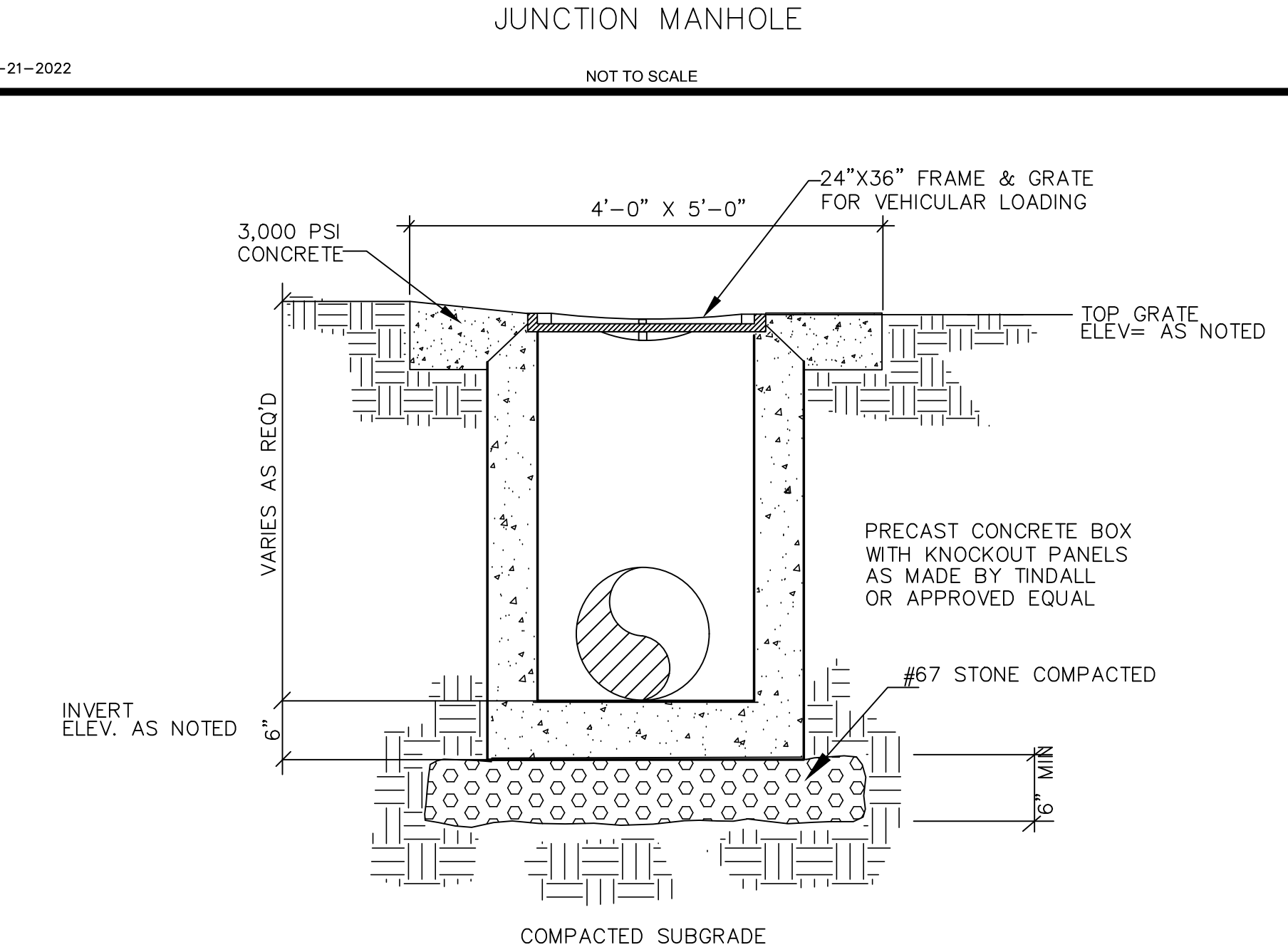
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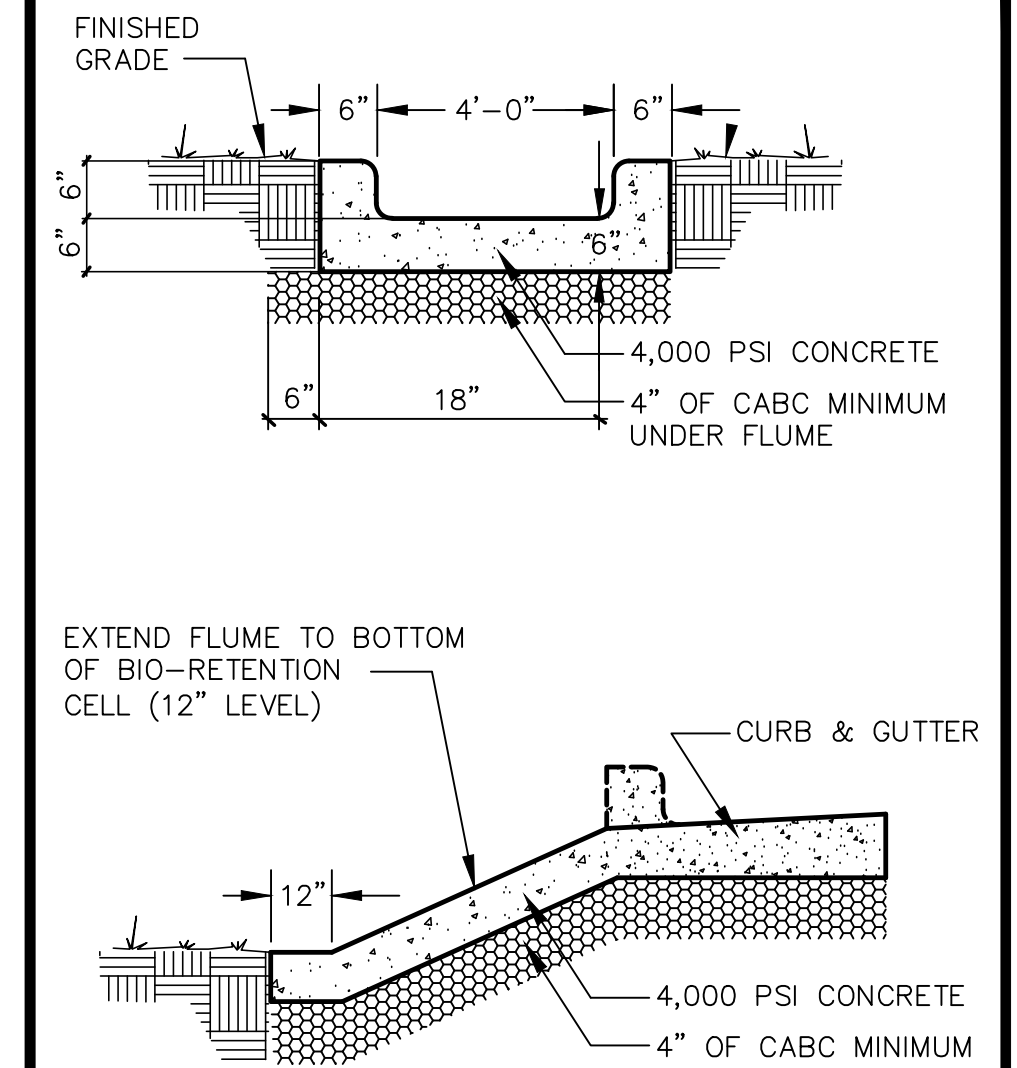
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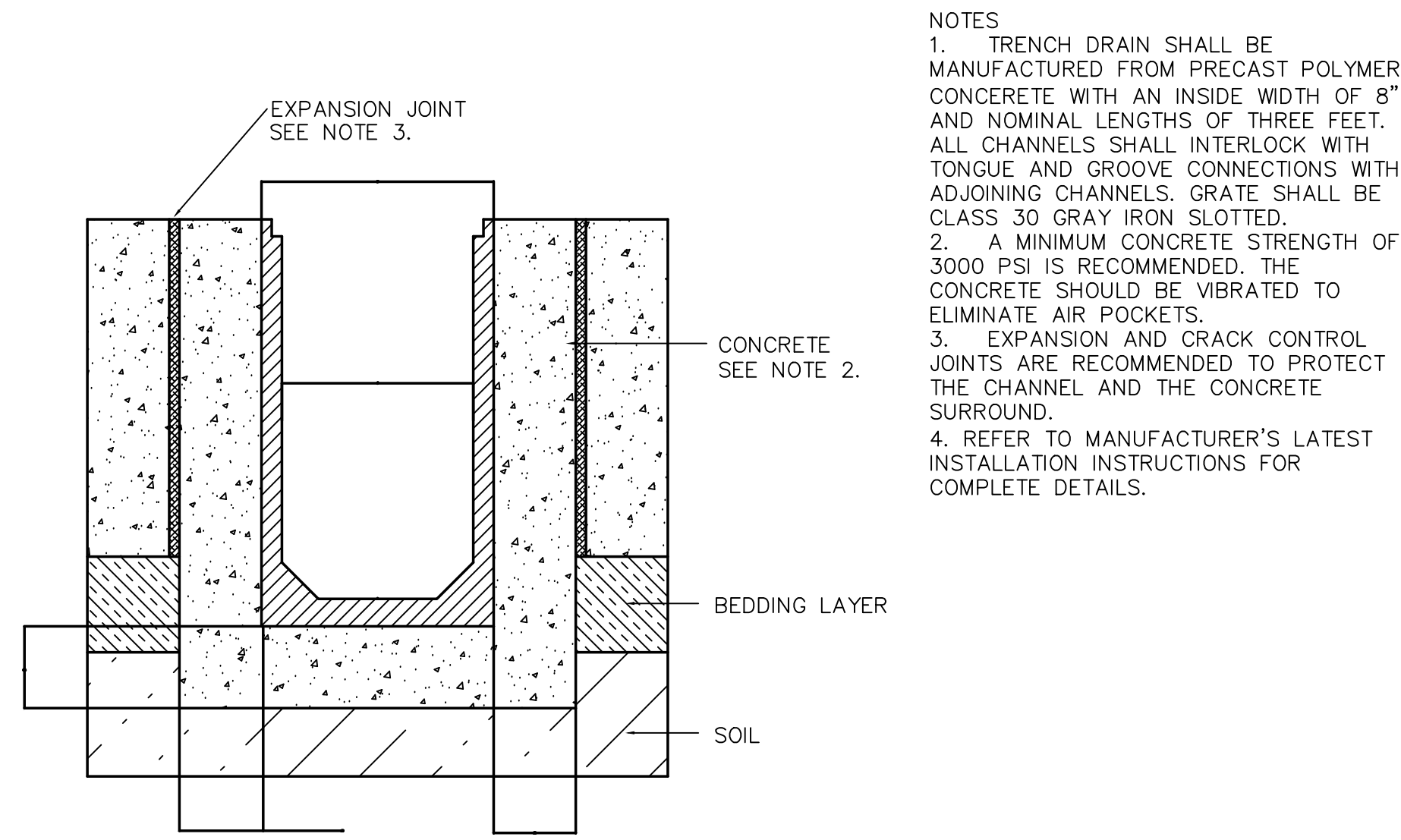
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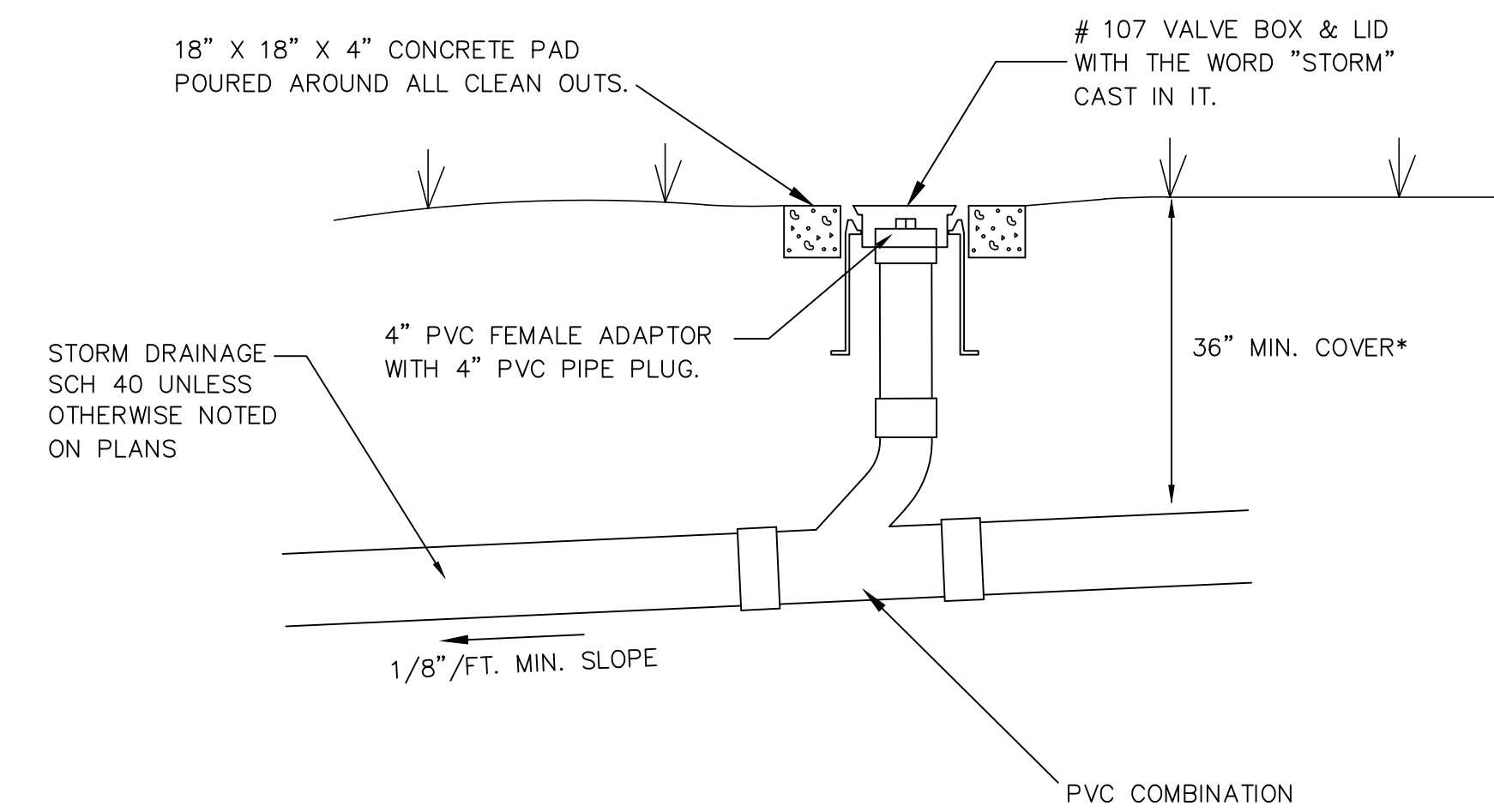
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TRENCH DRAIN

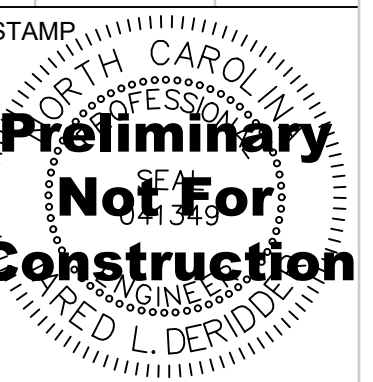
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STORMWATER CLEANOUT

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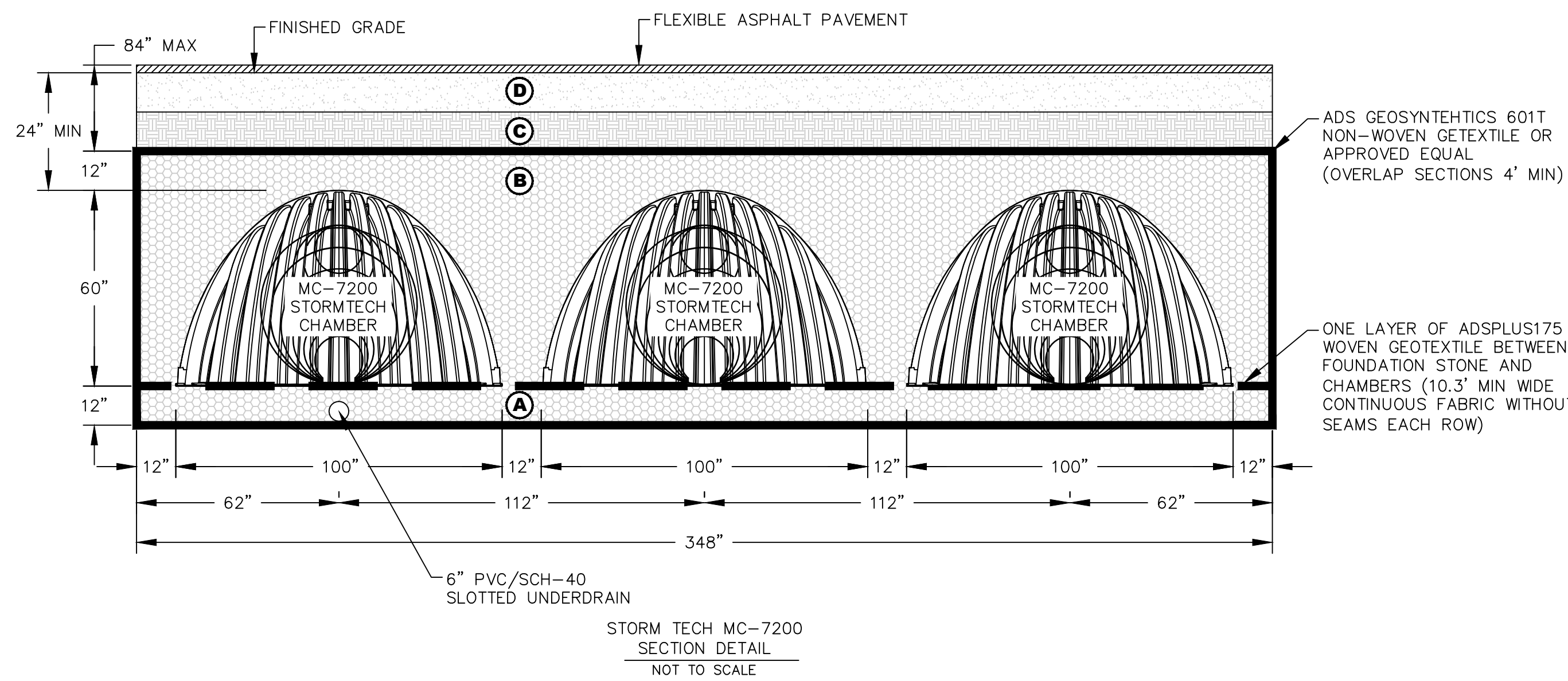
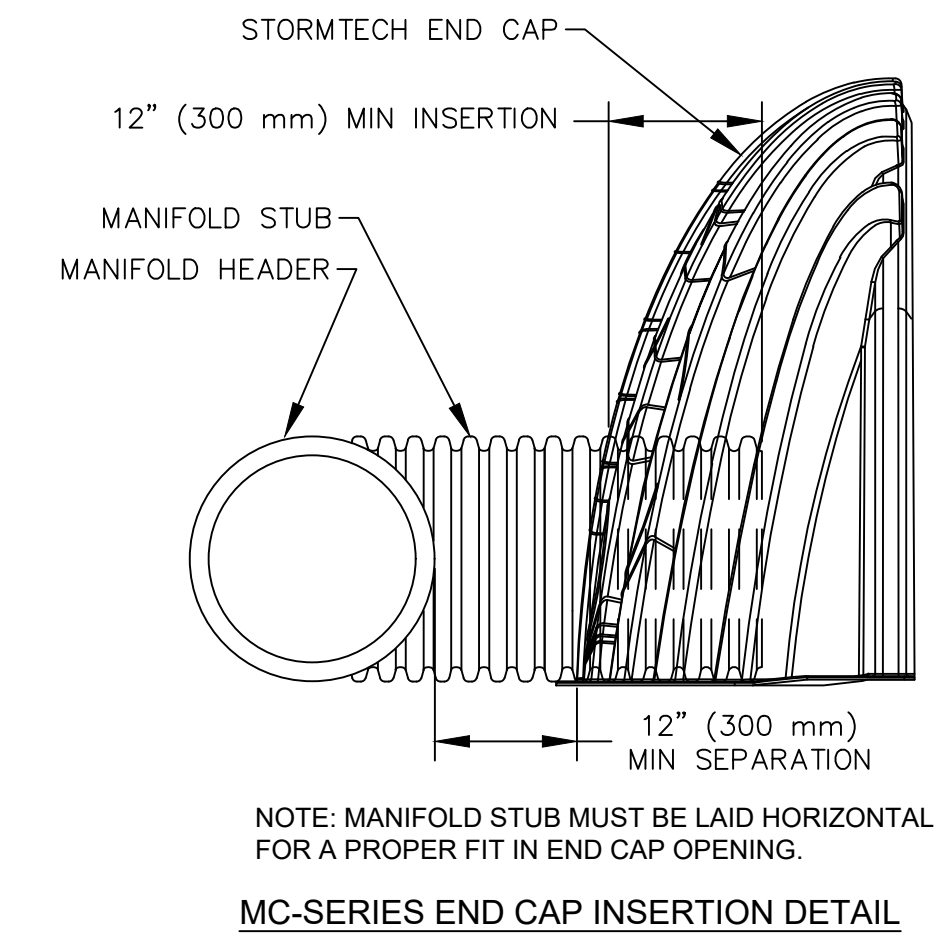
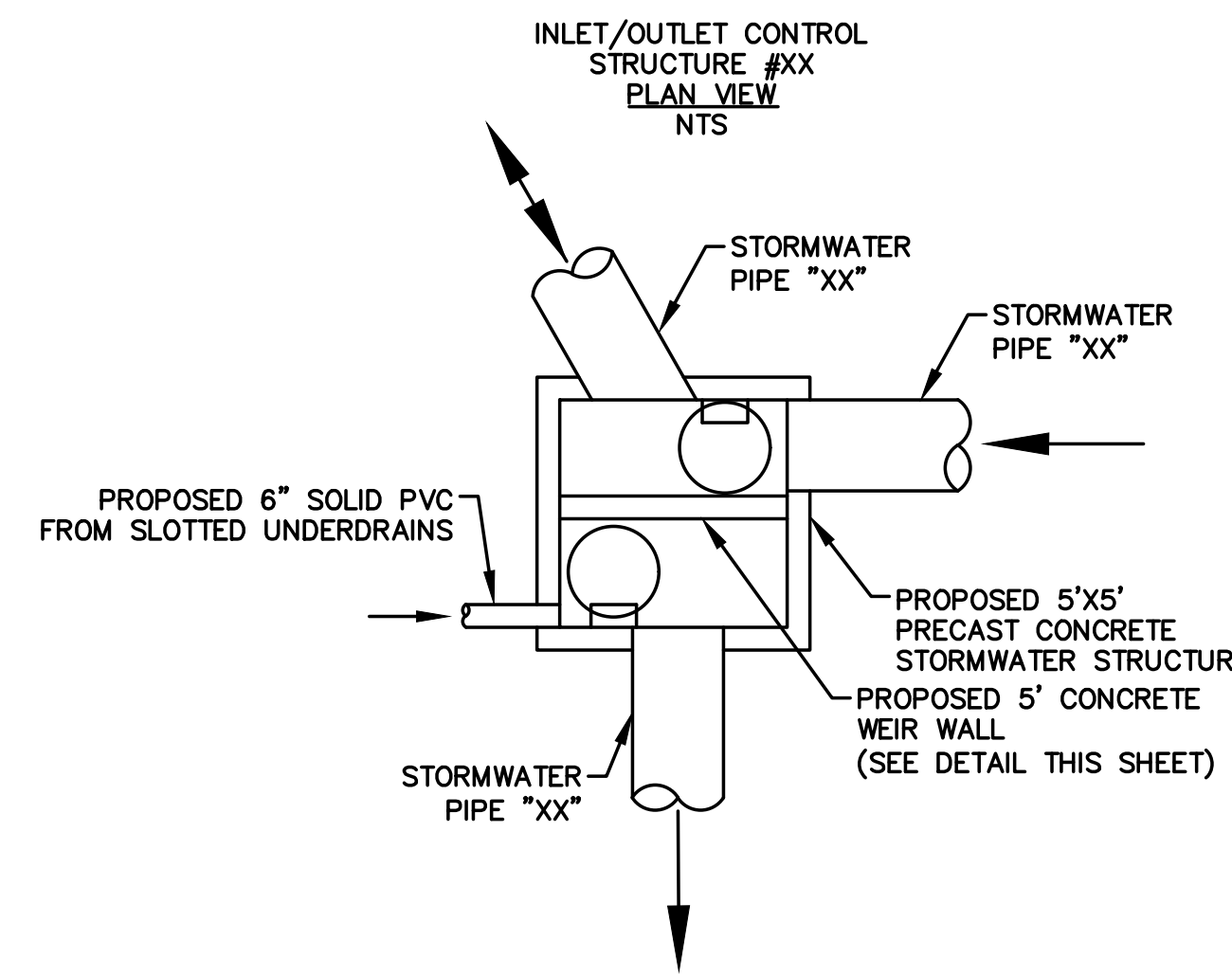
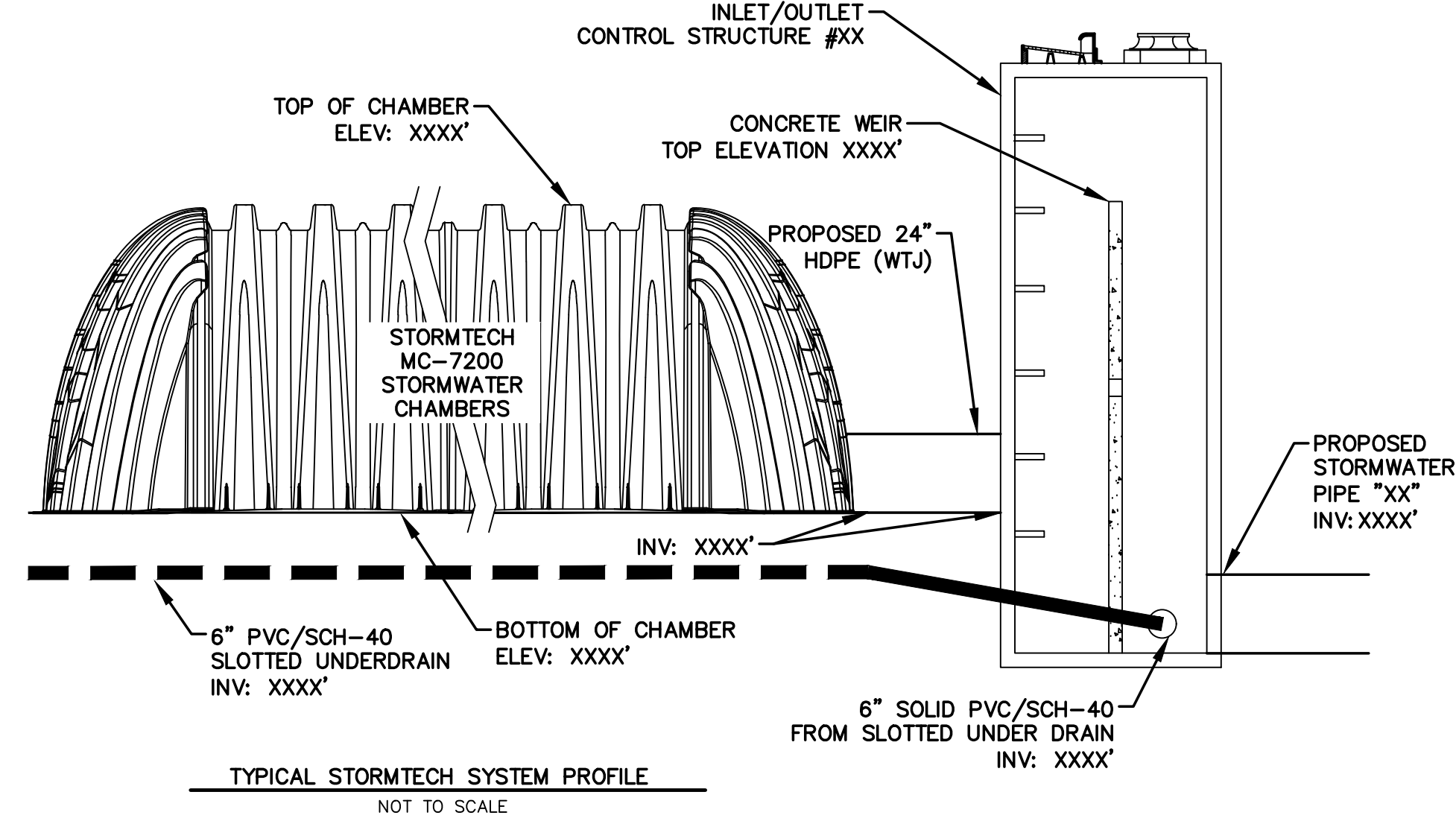
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1	SCHEMATIC DESIGN	4/28/2023
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3	30 COURTS	1/21/2025



DRAWING TITLE
STORMWATER DETAILS

PROJECT # : 20220006.003
SHEET NUMBER

CC-401



MC-7200 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-7200.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/IN/IN. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418 AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM

- STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S AND PROJECT ENGINEER'S REPRESENTATIVES HAVE COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE STORM TECH SYSTEM TO BE INSTALLED TO THE PROJECT ENGINEER PRIOR TO CONSTRUCTION.
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONE SHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM 12" SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.
- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE STORM TECH SYSTEM TO BE INSTALLED TO THE PROJECT ENGINEER PRIOR TO CONSTRUCTION.

NOTES FOR CONSTRUCTION EQUIPMENT

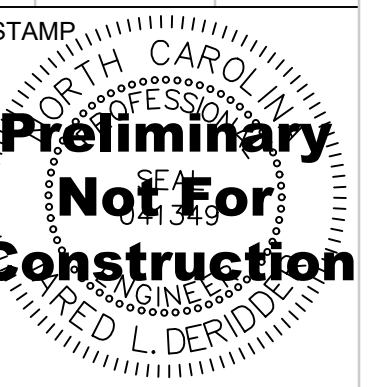
- STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE" AND ENGINEERS PLANS.
 - THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
 - FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING. USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.
- CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 4	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

PLEASE NOTE:
 1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

NO.	ISSUED FOR	DATE
1	SCHEMATIC DESIGN	4/28/2023
2	SD-R COURTS	5/26/2024
3	SD COURTS	1/27/2025



DRAWING TITLE
STORMWATER DETAILS

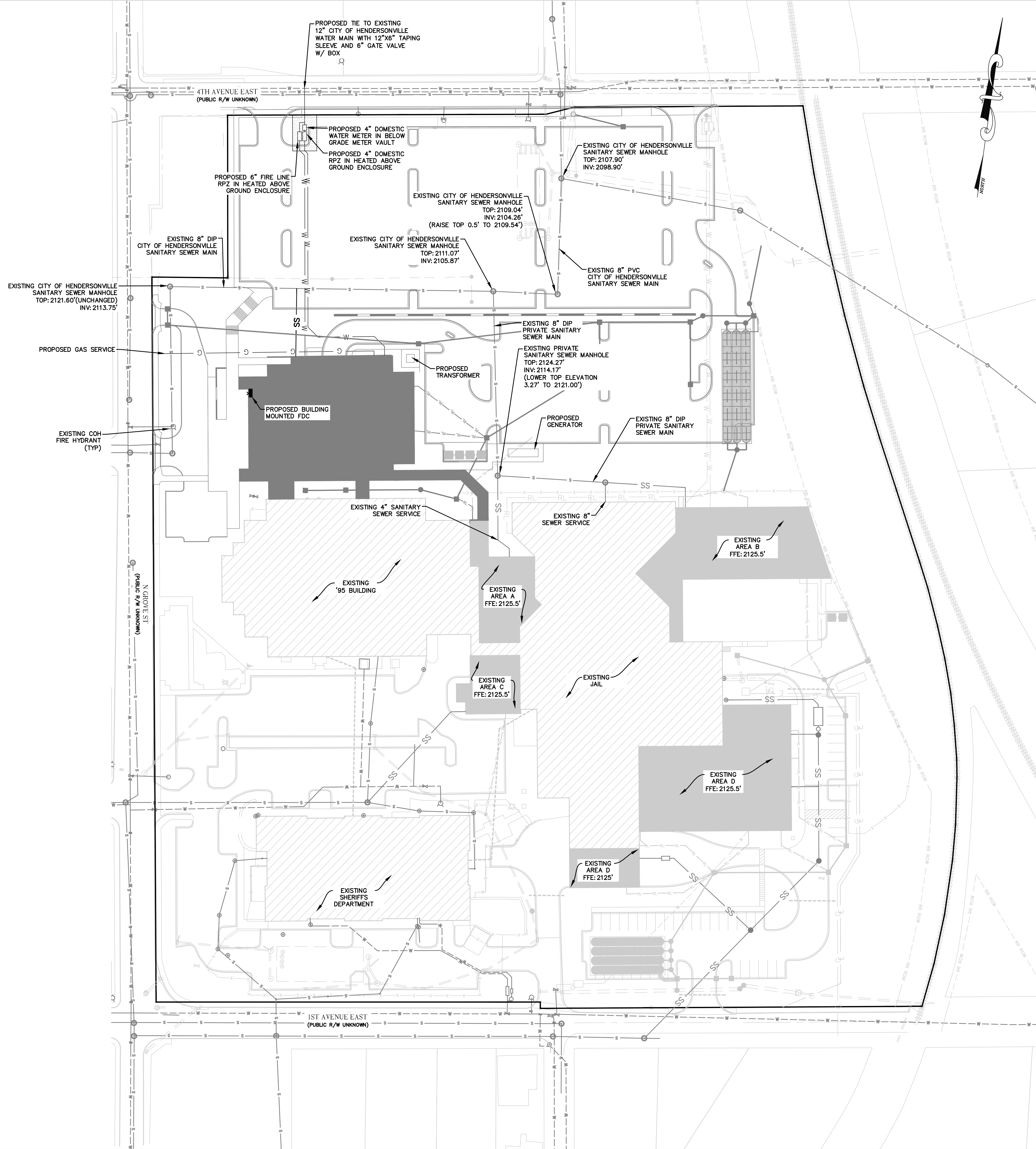
PROJECT # : 20220006.003

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CC-402

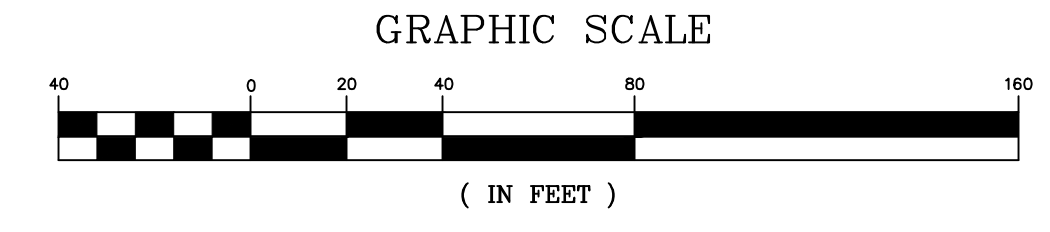
NOTES:

- 1.) ALL SANITARY SEWER WORK IS TO BE PERFORMED BY A LICENSED NORTH CAROLINA UTILITY CONTRACTOR.
- 2.) CONTRACTOR SHALL USE DIP/CL-350 PIPING ON ALL SEWER LINES WHERE 3 FEET OVER COVER IS NOT PROVIDED.
- 3.) FILL SHALL BE COMPACTED TO 95% STANDARD PROCTOR.
- 4.) HORIZONTAL CONTROL IS NAD83, VERTICAL CONTROL IS NAD83.
- 5.) CONTRACTOR SHALL VERIFY EXISTING UNDERGROUND UTILITY CROSSING ELEVATIONS PRIOR TO INSTALLATION OF WATER AND SEWER SERVICES.
- 6.) CONTRACTOR SHALL COORDINATE THIS DRAWING WITH THE PLUMBING PLANS. AND DISCREPANCIES SHALL BE MADE KNOWN TO THE ENGINEER PRIOR TO INSTALLATION.
- 7.) A MINIMUM OF 10 FT. HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN WATER AND SANITARY SEWER, AND HAZARDOUS WASTE LINES MUST BE MAINTAINED. WHERE THE SEWER LINE INSTALLATION DOES NOT CONFORM TO THIS REQUIREMENT OR HAVE A MINIMUM COVER OF 36" FROM THE GROUND SURFACE OR 24" VERTICAL SEPARATION FROM STORM DRAINAGE LINES - SEWER PIPE MUST BE OF A FERROUS MATERIAL. WATER IS TO BE INSTALLED OVER SEWER.
- 8.) FOR 4" AND LARGER SANITARY SEWER SERVICES CLEANOUTS SHALL BE PLACED AT EVERY CHANGE OF DIRECTION WITH 100' MAXIMUM BETWEEN CLEANOUTS.
- 9.) ALL UNDERGROUND LINES OUTSIDE THE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6" AND 24" BELOW FINISHED GRADE DIRECTLY OVER PIPING.
- 9a.) METALLIC LINES SHALL BE IDENTIFIED WITH DURABLE PRINTED PLASTIC WARNING TAPES, MINIMUM 3" WIDE WITH LETTERING TO IDENTIFY BURIED LINE BELOW.
- 9b.) NON-METALLIC PIPES, OTHER THAN GAS LINES, SHALL BE IDENTIFIED BY DETECTABLE WARNING TAPE, MINIMUM 2" WIDE, WITH LETTERING TO IDENTIFY BURIED LINE BELOW.
- 9c.) FOR ALL PLASTIC SEWER PIPING, AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO AND OVER THE FULL LENGTH OF THE PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE AT THE CLEAN OUT CLOSEST TO THE BUILDING. THE TRACER WIRE SIZE SHALL NOT BE LESS THAN 14 AWG AND THE INSULATION TYPE SHALL BE LISTED FOR DIRECT BURIAL.
- 9d.) AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT THE END OF THE NONMETALLIC PIPING. THE TRACER WIRE SIZE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SUITABLE FOR DIRECT BURIAL.



LEGEND

SS	EXISTING SEWER LINE
SS	PROPOSED SEWER LINE
W	EXISTING WATER LINE
W	PROPOSED WATER LINE



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WGLA
Engineering

HENDERSON COUNTY
JUDICIAL CENTER

200 N GROVE STREET, HENDERSONVILLE, NC 28792

NO.	ISSUED FOR	DATE
1	SCHEMATIC DESIGN	4/28/2023
2	SD-R COURTS	5/29/2024
3	SD COURTS	1/21/2025

STAMP

Preliminary
Not For
Construction

D. L. DERIDDI

DRAWING TITLE
UTILITY SERVICE PLAN

PROJECT # : 20220006.003

SHEET NUMBER
CC-500

Warning: It is a violation of the law for any person, unless acting under the direction of a licensed architect, to alter an item in any way. If an item in this document is altered, the altering architect, if other than the architect of record, shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and the specific description of the alteration.

GENERAL NOTES:

- WATER CONSTRUCTION ON THIS SITE IS AUTHORIZED BY PERMITS ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY (NCEM) SUPERVISED BY THE CITY OF HENDERSONVILLE. THE WORK IS SUBJECT TO INSPECTIONS AT ALL TIMES BY REPRESENTATIVES OF THE CITY OF HENDERSONVILLE. THE CONTRACTOR SHALL OBTAIN THE ENGINEER'S CERTIFICATION OF COMPLETION OF THE WATER SYSTEMS CONSTRUCTION PRIOR TO THE COMMENCEMENT OF ANY OTHER WORK.
- MATERIALS AND INSTALLATION FOR WATER CONSTRUCTION SHALL CONFORM TO THE LATEST EDITIONS OF CITY SPECIFICATIONS AND DETAILS AND ANMA STANDARDS AND REQUIREMENTS.
- CONTRACTOR SHALL NOTIFY NCEM & APPROPRIATE UTILITIES AGENCIES PRIOR TO PERFORMING ANY WORK.
- REGULAR WORKING HOURS SHALL BE FROM 7:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY, EXCEPT IN CASES OF EMERGENCY OR OTHERWISE APPROVED IN WRITING BY THE CITY OF AUTHORIZED REPRESENTATIVES. THE CONTRACTOR SHALL ADVISE THE CONSTRUCTION SITE IS SAFE FOR ANY PERSONS WHO MAY BE ON SITE DURING NON-WORKING HOURS.
- ALL PERSONS SHALL BE COURTEOUS AND RESPECTFUL TO THE PUBLIC. CURSING OR RUDENESS IS NOT PERMITTED AND WILL NOT BE TOLERATED.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL ON ALL ROADWAYS DURING THE PROJECT. THE CONTRACTOR SHALL NOTIFY LOCAL EMERGENCY, SCHOOL AND OTHER NECESSARY AGENCIES PRIOR TO STREET CLOSING OR TRAFFIC CHANGE.
- THE CONTRACTOR AT HIS OWN EXPENSE SHALL KEEP THE CONSTRUCTION SITE AND ADJACENT PUBLIC AND PRIVATE ROADWAYS CLEAR DURING THE PROJECT. THE CONTRACTOR IS ALSO RESPONSIBLE FOR CONTROLLING DUST WITHIN THE PROJECT AREA.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION IN ACCORDANCE WITH THE LINES, GRADES AND ELEVATIONS SHOWN ON THE PLANS OR AS GIVEN BY THE ENGINEER IN THE FIELD.
- CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND THE ELEVATION FOR ALL UTILITIES, BRANCHES AND OTHER UNDERGROUND FACILITIES BOTH EXISTING AND PROPOSED, AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION. REPAIRS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE STANDARDS OF APPROPRIATE AGENCIES AT THE CONTRACTOR'S EXPENSE.
- DURING CONSTRUCTION THE CONTRACTOR SHALL MAINTAIN THE OPERATION OF EXISTING UTILITIES WITH THE LEAST AMOUNT OF SERVICE INTERRUPTION POSSIBLE IN COORDINATION WITH THE CITY OF HENDERSONVILLE. CONTINUOUS SERVICE, PUBLIC HEALTH AND SAFETY CONSIDERATIONS SHALL EXCEED ALL OTHERS AND CONTRACTOR'S SCHEDULE, PLANS AND WORK SHALL BE SUBJECT TO ALTERATION AND REVISION IF NECESSARY FOR THESE CONSIDERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY OR PERMANENT RELOCATION OF STRUCTURES AND UTILITIES, INCLUDING BUT NOT LIMITED TO POLES, SIGNS, FENCES, HYDRANT VALVES, PIPING, CONDUITS AND DRAINS THAT INTERFERE WITH THE POSITIONING OF THE WORK AS SHOWN ON THE DRAWINGS.
- CONTRACTOR SHALL BE REQUIRED TO CONFORM AND COMPLY WITH ALL RESTRICTIONS AND AGREEMENT CONDITIONS AND IS RESPONSIBLE FOR ALL RELATED INCIDENTAL COSTS INVOLVED.
- EXISTING WATER SERVICES SHALL BE REPLACED TO THE EXISTING WATER UNLESS OTHERWISE APPROVED IN WRITING BY THE CITY. SLOPING OF THE WATER SERVICE ON THE DOWNSTREAM SIDE OF THE METER IS NOT PERMITTED.
- ALL DISTURBED AREAS, INCLUDING BUT NOT LIMITED TO ASPHALT, CONCRETE DRIVEWAYS, ROADS, LANDSCAPING, SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION THAN THE ORIGINAL SITE GRASS AND LANDSCAPING AREAS. FILL MATERIAL SHALL BE REPLACED IN TRENCH TO GRADE AS SOON AS WATERLINE CONSTRUCTION ALLOWS. ADEQUATE SEEDING AND SOIL STABILIZATION SHALL BE APPLIED TO THE DISTURBED TRENCH AREA. ADDITIONAL FILL AND SITE RESTORATION MAY BE REQUIRED WITHIN THE WARRANTY PERIOD AT THE CITY'S DISCRETION.
- CONTRACTOR SHALL PROVIDE EROSION CONTROL DEVICES TO CONTROL RUNOFF AS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR ANY FINES THAT MAY BE LEVIED DUE TO RUNOFF FROM CONSTRUCTION.
- IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW ALL APPLICABLE FEDERAL, STATE AND LOCAL HEALTH AND SAFETY REGULATIONS PERTAINING TO CONSTRUCTION OPERATIONS.
- ALL WATER MAINS SHALL HAVE 3 FEET MINIMUM COVER.
- INSTALL FERROUS PIPING FOR BOTH WATER AND SEWER WITHIN 10 FT. OF A CROSSING F.
- SEWER LINE CROSSES OVER WATER. SEE 19.2.
- VERTICAL CLEARANCE BETWEEN WATER AND SEWER IS LESS THAN 18 INCHES.
- MINIMUM 10 FEET HORIZONTAL SEPARATION BETWEEN SEWER AND WATER MAINS UNLESS LAD IN SEPARATE TRENCHES WITH THE BOTTOM OF THE WATER LINE AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER LINE OR USE FERROUS MATERIAL FOR BOTH WATER AND SEWER.

DISCLAIMER:
THE STANDARD WATER DETAILS ARE FOR THE SOLE USE OF PROJECTS DIRECTLY FOR, OR THOSE PROJECTS IN WHICH OWNERSHIP WILL BE TRANSFERRED TO THE CITY OF HENDERSONVILLE. THESE TYPICALS ARE INTENDED TO SHOW THE CITY OF HENDERSONVILLE'S EXPECTATIONS FOR THE GENERAL LAYOUT, ARRANGEMENT AND MATERIALS FOR WATER DISTRIBUTION SYSTEM ITEMS AND THEIR RELATED APPURTENANCES. IT REMAINS THE SOLE RESPONSIBILITY OF THE ENGINEER IN RESPONSIBLE CHARGE (ERIC) OF EACH APPLICATION TO DETERMINE, DESIGN TO, AND VERIFY TO THE DESIGN PARAMETERS FOR EACH INSTALLATION. ERIC MUST ALSO ENSURE THE DESIGN WITHIN THE MINIMUM DESIGN CRITERIA OF HIS DIVISION OF ENVIRONMENTAL QUALITY AND ALL LOCAL AND STATE LAWS AND REGULATIONS.

DATE: 02/10/2021 **WD DWG. NO. 1**
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)
www.cityofhendersonville.org


**WATER DETAILS
GENERAL NOTES**



DATE: 02/10/2021 **WD DWG. NO. 1**
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)
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**WATER DETAILS
GENERAL NOTES**

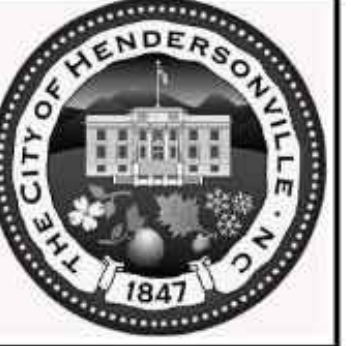


DATE: 07/07/2019 **WD DWG. NO. 4-1**
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
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**DUCTILE IRON PIPE
RESTRAINT DETAIL**

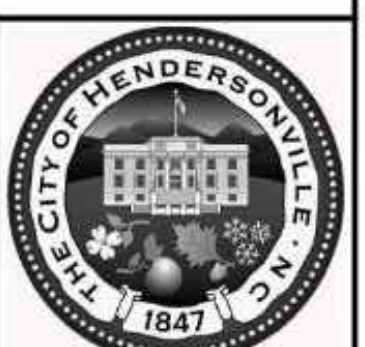
SHEET 1 OF 2



DATE: 01/12/2019 **WD DWG. NO. 2**
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)
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**WATER TRENCH CONSTRUCTION
OUTSIDE PAVEMENT**




DATE: 01/12/2019 **WD DWG. NO. 4-2**
SCALE: NOT TO SCALE

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305 Williams Street
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(828) 697-3000 (office)
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**DUCTILE IRON PIPE
RESTRAINT DETAIL**

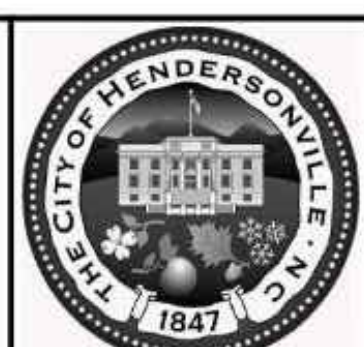
SHEET 2 OF 2



DATE: 06/10/2019 **WD DWG. NO. 3**
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)
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**WATER TRENCH CONSTRUCTION
UNDER PAVEMENT**



DATE: 10/11/2021 **WD DWG. NO. 5**
SCALE: NOT TO SCALE

City of Hendersonville Engineering Department
305 Williams Street
Hendersonville, NC 28792
(828) 697-3000 (office)
www.cityofhendersonville.org

VALVE INSTALLATION DETAIL



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7/7/2020 5:00:26 PM, V:\Projects\2017\17004-Kanuga\Water\DWG

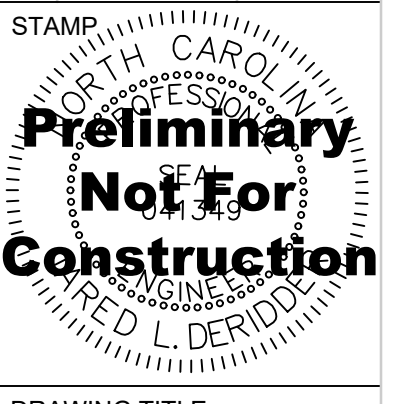
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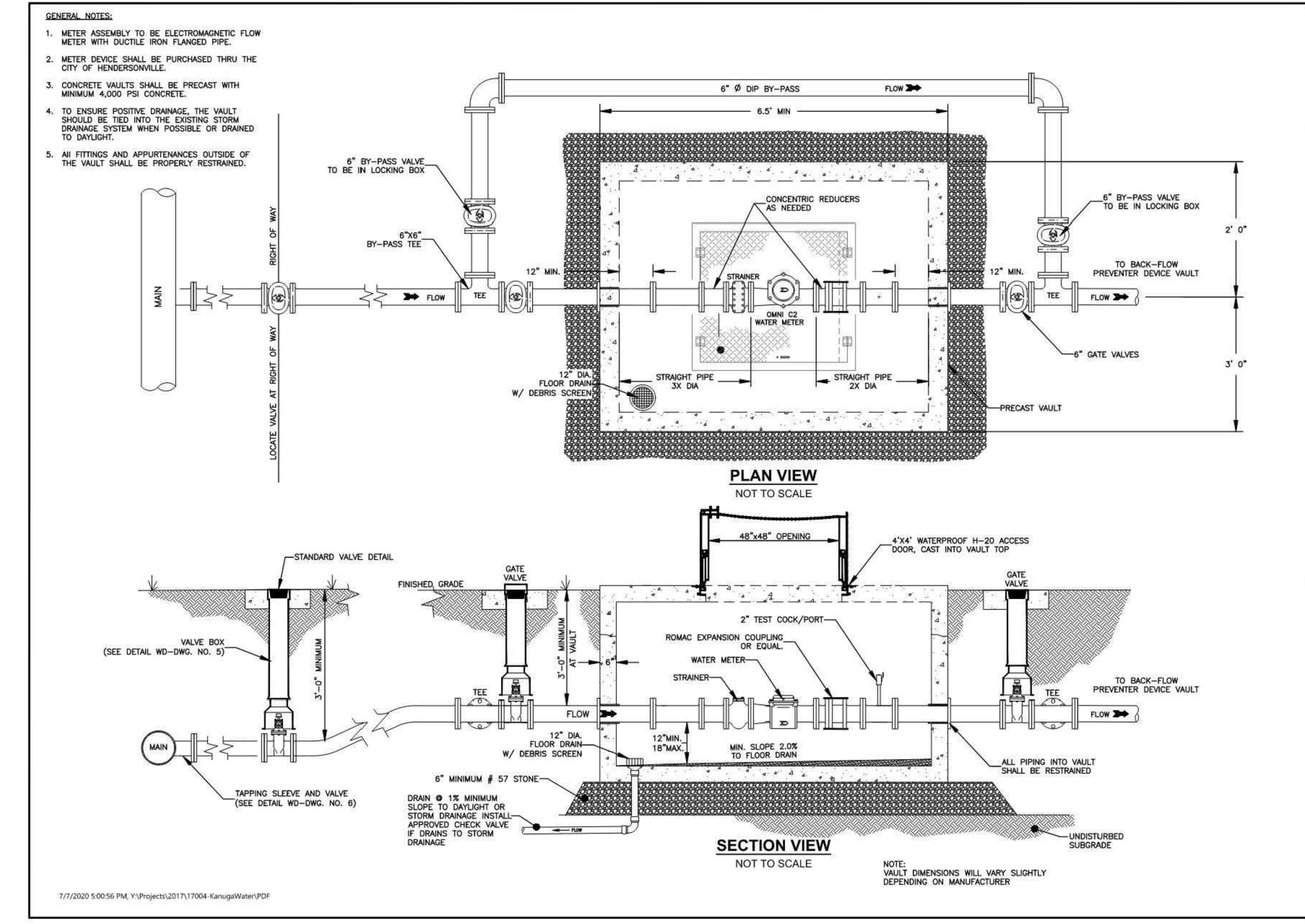
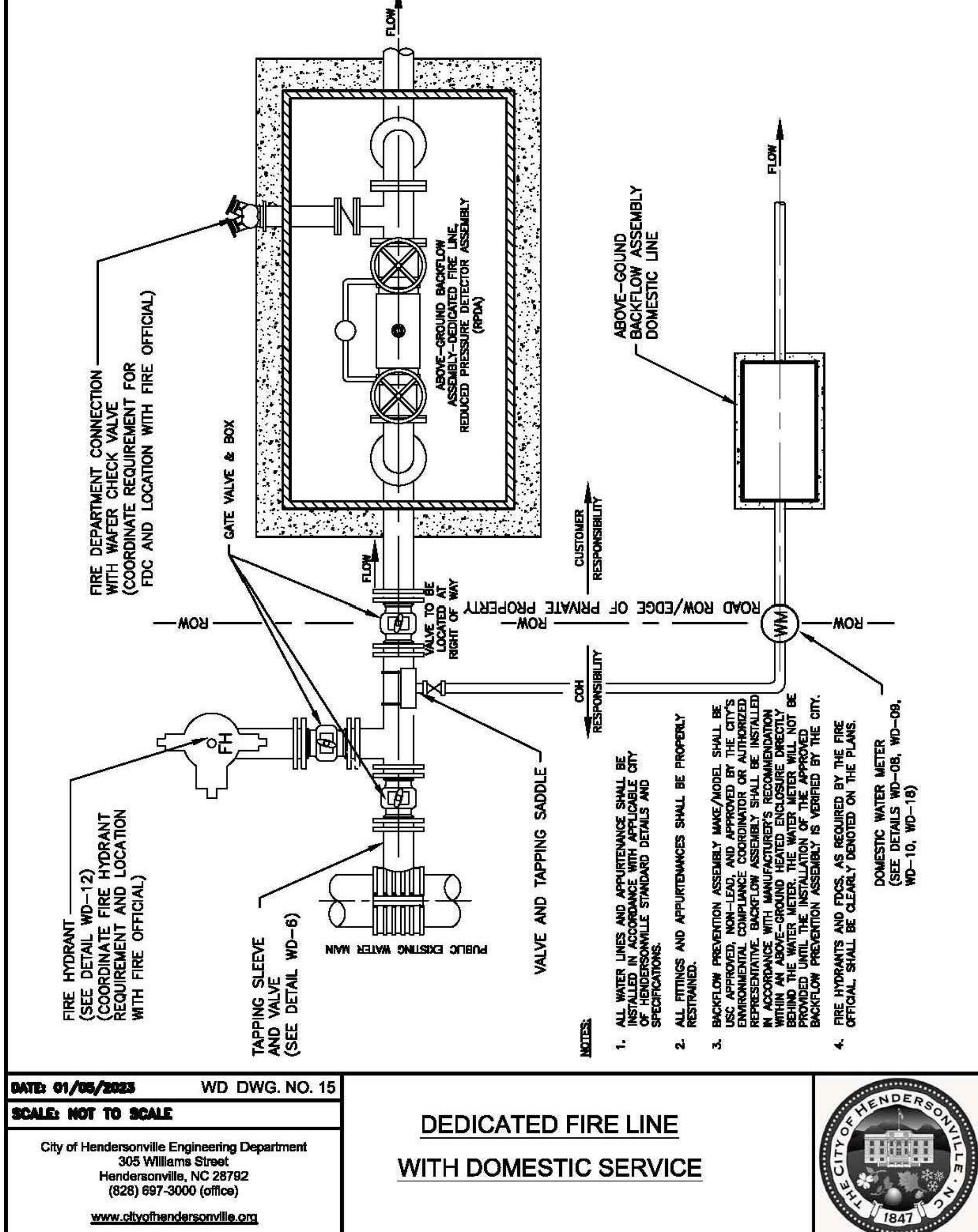
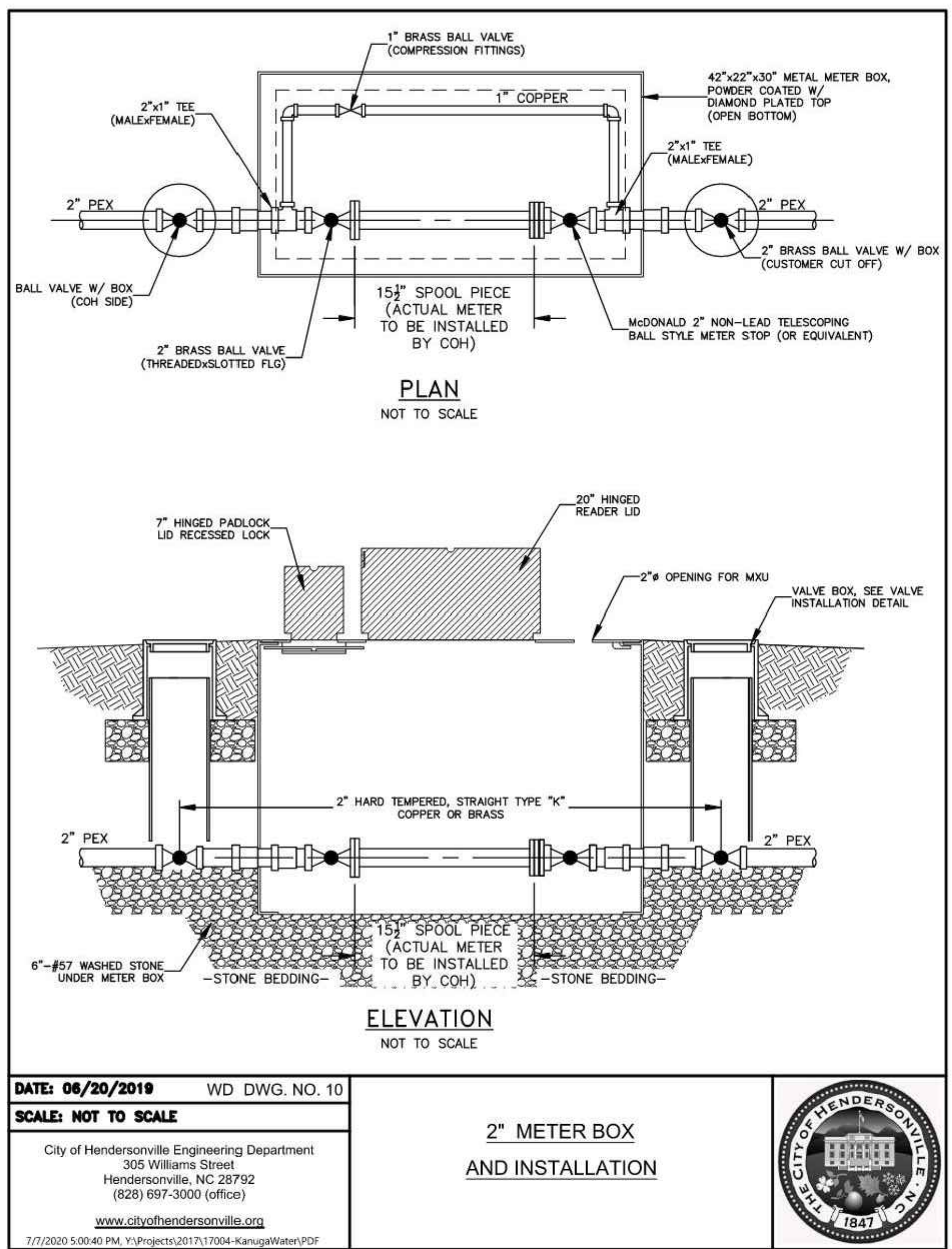
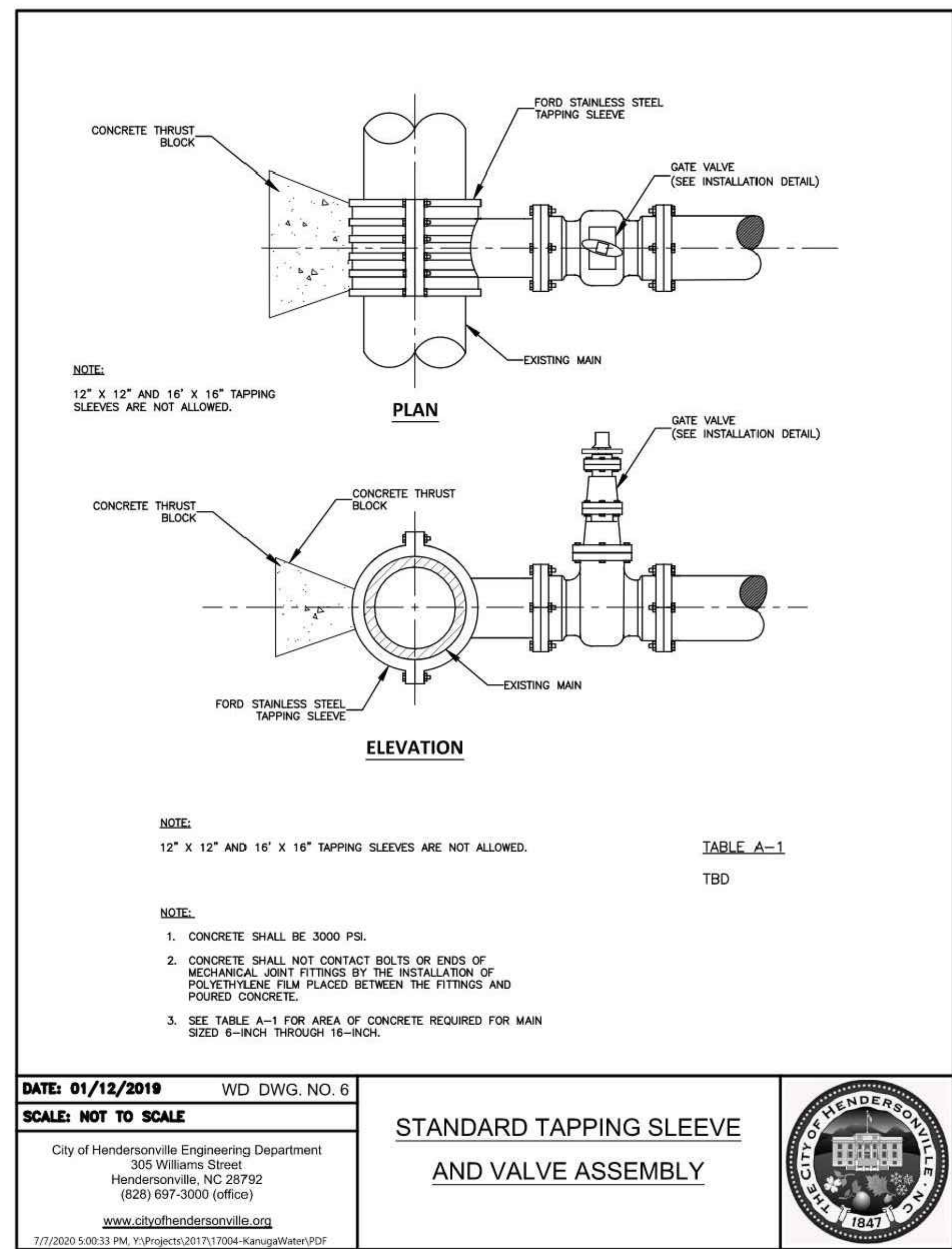
NO.	ISSUED FOR	DATE
1	SCHEMATIC DESIGN	4/28/2023
2	50-6 COURTS	5/09/2024
3	50 COURTS	1/21/2025



DRAWING TITLE
UTILITY SERVICE DETAILS

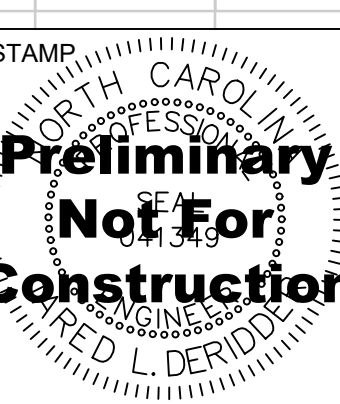
PROJECT #: 2022006.003
SHEET NUMBER

CC-501



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NO.	ISSUED FOR	DATE
1	SCHEMATIC DESIGN	4/28/2023
2	3D-COURTS	5/28/2024
3	3D-COURTS	1/27/2025



DRAWING TITLE
 UTILITY SERVICE DETAILS

PROJECT # : 2022006.003

SHEET NUMBER

CC-502